ANEJO Nº 6. ESTRUCTURAS

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1. Cuadro resumen

OBRA DE FABRICA	DENOMINACIÓN	P.K	DESCRIPCIÓN FUNCIONAL	TIPOLOGÍA ESTRUCTURAL
Paso inferior	E-1	313+106	Reposición 12	Pórtico de 9,00 m x 7,13 m.
Paso superior	E-2	315+880	Reposición 14	Losa continua de 0,90 m de canto. Luz 13,00 m+ 17,00 m+ 13,00 m.
Paso inferior	E-3	311+230	Reposición 10	Pérgola con losa superior pretensada aligerada de 1,50 m de canto.
Paso inferior	E-4	311+771	Reposición 11	Marco de 9,00 m x 9,00 m.
Paso superior	E-5	316+465	Reposición 15	Losa continua de 0,90 m de canto. Luz 13,00 m+ 17,00 m+ 13,00 m.
Paso inferior	E-6	317+151	Reposición 16	Pórtico de 16,00 m x 7,80 m.
Paso superior	E-7	317+505	Reposición 17	Losa continua pretensada aligerada de 1,50 m de canto. Luz 25,00 m+ 36,00 m+ 25,00 m.
Paso superior	E-10	315+120	Reposición 13	Losa continua de 0,90 m de canto. Luz 13,00 m+ 17,00 m+ 13,00 m.
Paso superior	E-13	312+500	Camino de Vimbodi	Losa continua de 0,90 m de canto. Luz 13,00 m+ 17,00 m+ 13,00 m.
Paso superior	E-14	313+500	Camino de les Codines	Losa continua de 0,90 m de canto. Luz 13,00 m+ 17,00 m+ 13,00 m.

Tabla 6.1. Cuadro resumen de estructuras

2. Descripción: tipología, aparatos de apoyo, juntas, impermeabilización, etc

2. Descripción: tipología, aparatos de apoyo, juntas, impermeabilización etc...

La descripción de las estructuras ejecutadas en este Subtramo, con la definición de su tipología, aparatos de apoyo, juntas e impermeabilización, se encuentra recogido en el Documento nº 2. Planos de este proyecto.

3. Definición geométrica

3. Definición geométrica

La definición geométrica de las distintas estructuras están recogidas en el Documento nº 2. Planos.

4. Cálculos

Estructura E-1. (PK 313+106)

ESTRUCTURA E-1 (PK 313+106)

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   - 1.7. Procedimientos de cálculo y descripción de los programas utilizados

1. Introducción

1.1. Descripción

La Reposición12 permite el cruce de un camino por debajo de la vía del ferrocarril. Este cruce se ha resuelto con una estructura tipo pórtico y se encuentra ubicados en el P.K. 313+106 de la Línea de Alta Velocidad Madrid-Barcelona-Frontera Francesa, Tramo Lleida-Martorell, Subtramo III.

La sección tipo del camino que cruza bajo la Autovía está formada por una calzada de 5.00 metros y dos bermas de 2.00 m, una a cada lado, siendo por tanto el gálibo horizontal de 9.00 metros. El gálibo vertical se ha fijado en un mínimo de 5.00 metros.

Por encima del dintel sólo cruza la vía, el balasto y el sub-balasto, y la capa de hormigón de forma, sin ninguna cubierta de tierras.

El pórtico proyectado en hormigón armado, tiene un dintel de 1.10 metros de canto, con hastiales de 1.00 metro de espesor y está cimentado en zapatas de 1.00 metros de canto.

Se han proyectado las aletas necesarias para impedir que las tierras invadan el camino, y se han dispuesto a 30° con respecto al eje del hastial.El paso inferior se dispone ortogonal al eje de la vía.

1.2. Instrucciones y normas empleadas

Para el cálculo de las acciones que actúan sobre los diversos elementos de la estructura, se ha utilizado la "Instrucción sobre las acciones a considerar en el Proyecto de Puentes de Ferrocarriles (I.P.F-75)" y el Eurocódigo EC1.3.

También se ha tenido en cuenta la "Norma Sismorresistente PDS-1 parte "A", aprobada por Real Decreto 3209/1974 de 30 de Agosto y la "Norma de Construcción Sismorresistente (Parte General y Edificación) NCS-94", aprobada por Real Decreto 2543/1994 de 29 de Diciembre.

Para el dimensionamiento y comprobación de los elementos de hormigón armado se ha seguido la "Instrucción de Hormigón Estructural" EHE.

1.3. Acciones sísmicas

La zona en la que se encuentran ubicadas las estructuras corresponde a una aceleración básica $a_b = 0.04$ g.

Teniendo en cuenta que la estructura a proyectar es un puente de importancia normal (γi = 1.00), resulta una aceleración de cálculo $a_c = 0.04$ g x 1.00 = 0.04 g < 0.06 g, y por tanto no es preceptiva la consideración de las acciones sísmicas.

1.4. Características de los materiales

Hormigones	
Capas de regulación y rellenos	HM-15
Pórtico y aletas	HA-30
Cimentaciones	HA-25
Acero para Armar	B-500 S

1.5. Control de materiales y ejecución

Hormigones

Control estadístico mediante probetas en obra : $\gamma_c = 1,5$

Acero para Armar

Control normal : $\gamma_s = 1,15$

EJECUCIÓN (VALORES DE LOS COEFICIENTES γ_F)

ESTADOS LÍMITES ÚLTIMOS (E.L.U.)

TIPO DE ACCIÓN		SITUACIONES PERSISTENTES Y TRANSITORIAS		SITUACIONES ACCIDENTALES	
		EFECTO FAVORABLE	EFECTO DESFAVOR.	EFECTO FAVORABLE	EFECTO DESFAVOR.
PERMANENTE		$\gamma_G = 1.00$	$\gamma_G = 1.35$	$\gamma_G = 1.00$	$\gamma_G = 1.00$
OTRA PERMANENTE DE VALOR NO CONSTANTE	PRESOLICITACION	$\gamma_{G^*} = 0.95$	$\gamma_{G^*} = 1.05$	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	REÓLOGICA	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.35$	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	ACCION DEL TERRENO	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.50$	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
VARIABLE		$\gamma_Q = 0.00$	$\gamma_Q = 1.50$	$\gamma_Q = 0.00$	$\gamma_Q = 1.00$
ACCIDENTAL				$\gamma_A = 1.00$	$\gamma_A = 1.00$

ESTADO LÍMITE DE SERVICIO (E.L.S.)

TIPO DE ACCIÓN		SITUACIONES PERSISTENTES Y TRANSITORIAS	
		EFECTO FAVORABLE	EFECTO DESFAVOR.
PERMANENTE		$\gamma_G = 1.00$	$\gamma_G = 1.00$
PERMANENTE DE VALOR NO CONSTANTE	OTRA PRESOLICITACION	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	REÓLOGICA	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	ACCION DEL TERRENO	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
VARIABLE		$\gamma_Q = 0.00$	$\gamma_Q = 100$

1.6. Características de la cimentación

Se han considerado las siguientes tensiones admisibles del terreno de cimentación, de acuerdo con el Informe geotécnico:

Estructura	Cota de cimentación	Tensión admisible del terreno
E-1	489.0 m	5.00 kp.cm^2

El coeficiente de balasto se adoptará igual a 10.000 tm^{-3} y el coeficiente de rozamiento zapata - terreno se considera u = 0.60.

1.7. Procedimiento de cálculo

Se han tenido en cuenta para el cálculo del pórtico los siguientes tipos de carga:

- **Acciones gravitatorias**

  - **Peso propio**

  Se calculan con los siguientes pesos específicos:

  Hormigón armado: 2,50 t.m^{-3}

  Relleno: 2,00 t.m^{-3}

  - **Carga muerta por vía**

  Imposta+acera+barandilla: 0.676 t/m

  Conducto cableado: 0.300 t/m

  Traviesa por vía: 0.520 t/m

  Carril por vía: 0.120 t/m

Hormigón de forma:	1.225 t/m	
Balasto:	5.390 t/m	
	Balasto valor máximo:	1.30x5.390 t/m=7.000 t/m
	Balasto valor mínimo:	0.70x5.390 t/m=3.773 t/m
Guardabalasto:	0.250 t/m	

*** Sobrecargas**

En base al análisis comparativo realizado se ha considerado las sobrecargas del tren tipo SW/2 del UIC –776-1, por ser las más desfavorables.

- **Acciones horizontales**

Se considerarán los efectos de las acciones de origen reológico actuando sobre la estructura.

Se tendrán en cuenta las fuerzas de frenado dada la ausencia de una cubierta de tierras entre vías y dintel.

No se considerará la acción de la fuerza centrífuga por estar en una zona de trazado recto.

El empuje de las tierras en los laterales del pórtico se considerará en dos hipótesis distintas, una de ellas con un coeficiente de empuje al reposo igual a 0,50, y la otra con el coeficiente correspondiente al empuje activo de valor 0,33. Se tendrán en cuenta dos hipótesis más de empuje desbalanceado en ambos hastiales.

- **Choques de vehículos sobre el hastial del pórtico**

Se consideran de carácter extraordinario, con los coeficientes de mayoración y minoración iguales a la unidad.

- **Acciones sísmicas**

No se considerarán conforme con lo especificado en la I.P.F.75.

- **Procedimiento de cálculo**

La sobrecarga puntual del tren de cargas se asimila a una sobrecarga repartida en función del efecto distribuidor del balasto, del sub-balasto y del propio dintel.

El paso se calcula como un pórtico de un vano y de sección uniforme, con 1.0 m de espesor, apoyado sobre una fundación elástica de acuerdo con la teoría del coeficiente de balasto, adoptándose para éste último un valor de K = 10000 Mp/m^3.

Se consideran también las hipótesis de empuje desigual de tierras a ambos lados, debido a las cargas excéntricas.

Para el desarrollo de los cálculos resueltos por ordenador se han utilizado los siguientes programas:

- STATIK-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10, 1997).

- FAGUS-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10 Marzo 1998).

- ESTRIMUR: desarrollado para el cálculo de estribos y muros.

La descripción de estos programas se ha adjuntado en el ANEJO A del presente documento.

2. Acciones

2.1. Cargas permanentes

2.1.1. Peso propio

El peso propio de la estructura de hormigón lo calcula el Programa STATIK-3 con un peso específico $\gamma = 2.50\ t.m^{-3}$.

2.1.2. Cargas muertas por vía

Imposta+acera+barandilla:	0.676 t/m	
Conducto cableado:	0.300 t/m	
Traviesa por vía:	0.520 t/m	
Carril por vía:	0.120 t/m	
Hormigón de forma:	1.225 t/m	
Balasto:	5.390 t/m	
	Balasto valor máximo:	1.30x5.390 t/m=7.000 t/m
	Balasto valor mínimo:	0.70x5.390 t/m=3.773 t/m
Guardabalasto:	0.250 t/m	

Total carga muerta máxima por vía Cmax = 10.09 t/m

Total carga muerta mínima por vía Cmin = 6.86 t/m

2.2. Sobrecargas

2.2.1. Análisis comparativo de sobrecargas

2.2.1.1. Tren de la Instrucción IPF-75

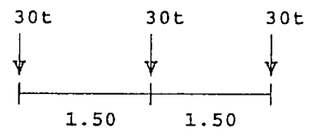
2.2.1.1.A. Sobrecargas

CALCULO DE CARGAS DE FERROCARRIL

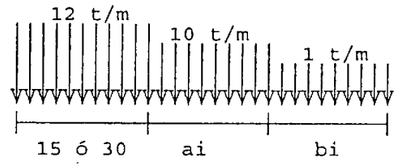
NORMA ESPAÑOLA IPFC-75

- Sobrecarga de 0.50 t/m² actuando en los paseos según la posición mas desfavorable para el elemento en estudio.

- Tren tipo A:



- Tren tipo B:



ai y bi son tales que producen los efectos mas desfavorables.

COEFICIENTE DE IMPACTO:

$$I = 65\ \frac{u}{1 - u + u2}$$

$$u = \frac{v \cdot T}{2\ L}$$

Para las estructuras enterradas se puede tomar el coeficiente reducido:

$$\Phi r = \Phi - \frac{h - 1,0}{10,0}$$

2.2.1.1.B. Cálculo del coeficiente de impacto

$$I = 65\frac{u}{1 - u - u^2}.$$

$$u = \frac{v \times T}{2L}$$

v = 200 Km/h = 55.56 m/s

L= 9.00 m

T = período fundamental de la estructura

Con el programa Statik 3 se ha realizado el cálculo dinámico del dintel suponiendolo empotrado en los hastiales, y con una carga másica de:

Peso propio del dintel : peso específico $\gamma = 2.50$ t.m^{-3}.

Carga másica permanente= 2x 10.09 t/m = 20.18 t/m

Carga tren = 2x 12.00 t/m = 24.00 t/m

Total Carga másica = 44.18 t/m

```
S T A T I K - 3   V.2.45                                        Page      1
    AEPO    28029 MADRID                                          19.04.01
                                                                  10:33
    ------------------------------------------------------------------------


    **********************************************************************
    * STL Module                                                         *
    * Dynamic analysis of eigenvalues/mode shapes                        *
    **********************************************************************


    Forming and solving the system of equations
    -------------------------------------------
    Numb.degrees of freedom per joint.....    6
    Tot.numb.of degree freedom ...........   66
    Total numb. coeff. under the "Skyline"...  591
    Number blocks ........................    1


    Masses for eigenvalue analysis (Loadcase of masses 2):
    ======================================================

    Type of mass              Dim    Value      List of bars/joints
    ------------------------------------------------------------------------
    Spec.masses of bars       t/m3   2.5        1..10
    Distrib.masses of bars    t/m    44.18      1..10

    ------------------------------------------------------------------------
    Total mass                t      744.12
    ========================================================================
```

```
X-Massensumme f r Partfakt.: 744.12
Y-Massensumme f r Partfakt.: 744.12
Z-Massensumme f r Partfakt.: 744.12

Forming of global mass matrix [M]

Evaluation of  6 start vectors


RESULTS OF EIGENVALUE CALCULATION
No. LdCase C.Freq.**2  Circular freq.      Period       Frequency
------------------------------------------------------------------------
 1   101     4728.871         68.767       0.091369       10.945
 2   102      75512.3         274.795      0.022865       43.735
 3   103     309557.1         556.379      0.011293       88.550


MODAL  PARTICIPATION FACTORS  (for method of responce spectra)
Nr.     X-Earthquake  Y-Earthquake  Z-Earthq.
------------------------------------------------------------------------
 1        2.2E-0015           0          22.665
 2          24.558           0        3.8E-0016
 3        7.9E-0007           0         1.5E-0006


"Sturmsequence check" for control of eigenvalue analysis
--------------------------------------------------------
- Shift for the "Sturmsequence check" 312652.7
- Forming and solving the system of equations


Results of "Sturmsequence check"
--------------------------------
- In range  :  0.00   to 312652.7      have 5  eigenv. been found
```

El período obtenido es T=0.091369 seg

El coeficiente u = 0.282

El coeficiente de impacto es : I =1.23

Del análisis realizado se deduce que las solicitaciones más desfavorables de obtienen con **el tren Tipo A**, y son las siguientes (para una sección de ancho 1.0 m):

Mapoyo = - 31.03 mt

Mvano = 52.43 mt

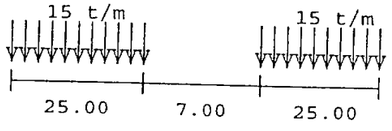
Vapoyo = 22.61 t

2.2.1.2. Tren de la UIC-776-1

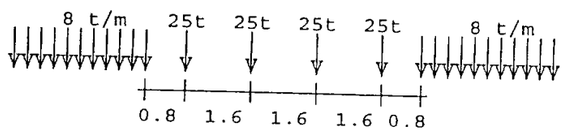
2.2.1.2.A. Sobrecargas

U.I.C-776-1

- Tren tipo SW/2



- Tren tipo UIC-71



COEFICIENTES DINAMICOS

U.I.C-776-1

Líneas de alta calidad : Φ2 Flector
: Φ1 Cortante

$$\Phi 1 = \frac{0.96}{\sqrt{L} - 0.2} + 0.88$$

$$\Phi 2 = \frac{1.44}{\sqrt{L} - 0.2} + 0.82$$

2.2.1.2.B. Cálculo del coeficiente de impacto

Para estructuras aporticadas de vano único se considera una viga continua de tres vanos con las longitudes horizontales y verticales de los elementos del pórtico:

$L\phi = k\,Lm$

$Lm = \frac{1}{N}(L1+L2+L3) = \frac{1}{3}(8.18\text{ m} + 9.0\text{ m} + 8.18\text{ m}) = 8.45\text{ m}$

Para N=3 k=1.3

$L\phi = 11.0\text{ m}$

El coeficiente dinámico para esfuerzos cortantes:

$$\Phi 1 = \frac{0.96}{11.0^{1/2} - 0.2} + 0.88 = 1.19$$

El coeficiente dinámico para momentos flectores:

$$\Phi 2 = \frac{1.44}{11.0^{1/2} - 0.2} + 0.82 = 1.28$$

Del análisis realizado se deduce que las solicitaciones más desfavorables de obtienen con **el tren Tipo SW/2** , y son las siguientes (para una sección de ancho 1.0 m):

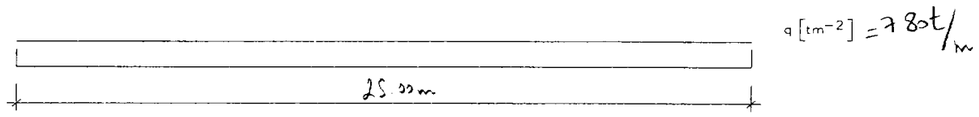
Mapoyo = - 38.90 mt

Mvano = 56.55 mt

Vapoyo = 38.56 t

2.2.1.3. Sobrecarga adoptada

El estudio de esfuerzos se realiza para el tren tipo SW/2



2.2.1.4., Frenado y arranque

Se considerará la actuación de esta fuerza sobre la estructura.

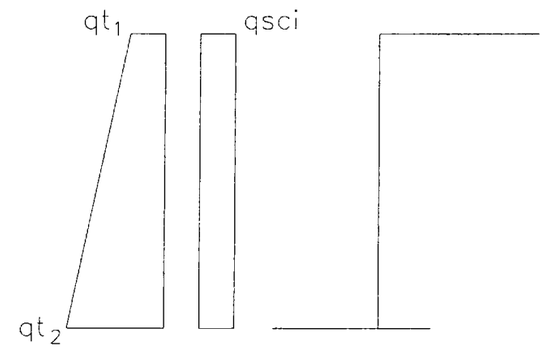
2.2.2. Sobrecargas del terreno

El relleno de tierras se realiza con material del terraplén:

- Peso específico: $\gamma_T = 2.0\ t.m^{-3}$
- Angulo de fricción interna: $\phi = 30°$
- Coeficiente de empuje al reposo: $\lambda_o = 0.50$
- Coeficiente de empuje activo: $\lambda_a = 0.33$

El valor del empuje al reposo del terreno será: $Eho = \gamma_T\ \lambda_o\ H$

El valor del empuje activo del terreno será: $Eho = \gamma_T\ \lambda_a\ H$



2.2.3. Sobrecargas accidentales: Choques

Se asimilará el choque del vehículo a la actuación de una carga estática cuya resultante se encuentra situada a 1.20 m sobre la superficie del pavimento e igual en valor a 100 t en la dirección del tráfico y a 50 t en sentido perpendicular a la indicada dirección, sobre una franja de 2.0 m de ancho. Se adoptarán coeficientes de mayoración y minoración iguales a la unidad.

Se considera una zona de actuación de estas fuerzas de 2.00 metros de ancho, por lo que se aplican 25.0 t.

2.3. Acciones indirectas

2.3.1. Reológicas: Retracción del hormigón

$$E_r = -25 \times 10^{-5}$$

2.4. Acciones sísmicas

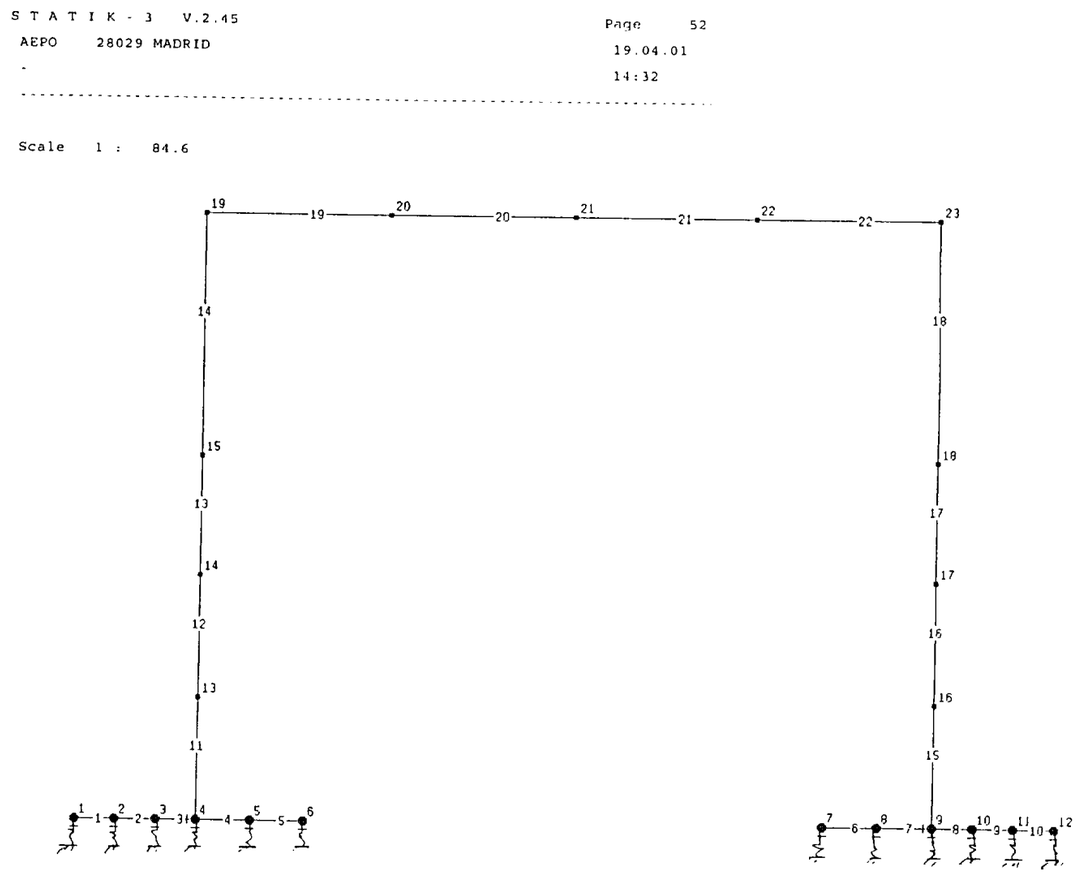
De acuerdo con la I.P.F no es necesario considerar los efectos de las acciones sísmicas sobre la estructura.

3.1. Descripción del modelo

Se utilizará para el cálculo de los esfuerzos en la estructura un modelo de pórtico plano, que representará la sección de estudio del paso sometida a las solicitaciones más desfavorables, de 1.0 m de ancho.

El cálculo se realizará mediante el Programa STATIK-3, cuya descripción ya se ha adjuntado en el ANEJO A.

En el siguiente esquema se representa la numeración de nudos y barras del modelo de cálculo.



Módulo de elasticidad

$$E = 190.000 \sqrt{300} = 3.300.000 \text{ t.m}^{-2}$$

Módulo de elasticidad transversal

$$G = \frac{E}{2\,(1+\nu)} = \frac{3.300.000 \text{ t.m}^{-2}}{2\,(1+0.20)}$$

$$G = 1.370.000 \text{ t.m}^{-2}$$

Constantes de los Muelles: Coeficiente de Balasto 10000 t.m^{-3}

$K_1 = K_{12}$	=	0.575 m x 1.0 m x 10000 t.m^{-3} =	5750 t.m^{-1}
$K_2 = K_{11}$	=	0.550 m x 1.0 m x 10000 t.m^{-3} =	5500 t.m^{-1}
$K_3 = K_{10}$	=	0.550 m x 1.0 m x 10000 t.m^{-3} =	5500 t.m^{-1}
$K_4 = K_9$	=	0.637 m x 1.0 m x 10000 t.m^{-3} =	6375 t.m^{-1}
$K_5 = K_8$	=	0.725 m x 1.0 m x 10000 t.m^{-3} =	7250 t.m^{-1}
$K_6 = K_7$	=	0.362 m x 1.0 m x 10000 t.m^{-3} =	3625 t.m^{-1}

INDICE

3.2. Hipótesis de cálculo

3.2.1. Hipótesis básicas

3.2.2. Combinaciones de hipótesis básicas

3.2.2.1. Estados límites últimos

3.2.2.2. Estados límites de utilización

3.2.3. Análisis del proceso constructivo

3.2.4. Sobrecargas accidentales: choques de vehículos y acciones sísmicas

3.2.1. Hipótesis básicas

Hipótesis de cálculo

Hipótesis básicas

H1 Peso propio

H2 Cargas permanentes

H3 Tren tipo SW/2 sobre todo el dintel

H4 Tren tipo SW/2 sobre un cuarto del dintel

H5 Tren tipo SW/2 sobre un cuarto del dintel

H6 Tren tipo SW/2 sobre un cuarto del dintel

H7 Tren tipo SW/2 sobre un cuarto del dintel

H8 Sobrecarga en el camino

H9 Empuje activo de tierras

H10 Empuje al reposo de tierras

H11 Empuje activo de un lado y al reposo del otro

H12 Empuje al reposo de un lado y activo del otro

H13 Empuje activo debido al tren tipo SW/2 de un lado

H14 Empuje la reposo debido al tren tipo SW/2 de un lado

H15 Empuje activo debido al tren tipo SW/2 del otro lado

H16 Empuje la reposo debido al tren tipo SW/2 del otro lado

H17 Acciones Reológicas

H18 Frenado

H19 Acciones accidentales: choques

3.2.2. Combinaciones de hipótesis básicas

3.2.2.1. Estados límites últimos (E.L.U.)

Se han combinado las 19 hipótesis básicas, de forma de obtener la envolvente de solicitaciones más desfavorables, para el dimensionamiento de armaduras y las comprobaciones en E.L.U.:

ENVELOPE SPECIFIC.: CN ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	0.750000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme total
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
Q	PLUS	18	1.500		Frenado

ALTERNATIVE ENVELOPE :

R	PERM.	1	1.000		Peso Propio
S	OR	1	1.350		Peso Propio
T	PL.PERM	2	0.750000		Cargas permanentes
U	OR	2	1.350		Cargas permanentes
V	PL.PERM	17	1.000		Reologicas
W	OR	17	1.350		Reologicas
X	PL.PERM	10	1.000		Empuje al reposo de tierras
Y	OR	10	1.500		Empuje al reposo de tierras
Z	OR	11	1.000		Empuje act/rep de tierras
AA	OR	11	1.500		Empuje act/rep de tierras
AB	OR	12	1.000		Empuje al rep/act de tierras
AC	OR	12	1.500		Empuje al rep/act de tierras
AD	PLUS	3	1.500		Sobrecarga uniforme total
AE	PLUS	8	1.500		Sobrecarga solera
AF	PLUS	14	1.500		Empuje al reposo sob unif
AG	PLUS	16	1.500		Empuje al reposo sob. parcial
AH	PLUS	18	1.500		Frenado

ALTERNATIVE ENVELOPE :

AI	PERM.	1	1.000		Peso Propio
AJ	PL.PERM	2	1.000		Cargas permanentes
AK	PL.PERM	17	1.000		Reologicas
AL	PL.PERM	9	1.000		Empuje activo de tierras
AM	OR	11	1.000		Empuje act/rep de tierras
AN	OR	12	1.000		Empuje al rep/act de tierras
AO	PLUS	4	1.000		Sob unif parcial dintel dcha
AP	PLUS	5	1.000		Sob unif parcial dintel izqda
AQ	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AR	PLUS	7	1.000		Sobrecarga posicion lateral
AS	PLUS	8	1.000		Sobrecarga solera
AT	PLUS	13	1.000		Empuje activo debido a la sob
AU	PLUS	15	1.000		Empuje activo debido a la sob
AV	PLUS	18	1.000		Frenado
AW	PLUS	19	1.000		ACCIDENTAL : Choque

ALTERNATIVE ENVELOPE :

AX	PERM.	1	1.000		Peso Propio
AY	PL.PERM	2	1.000		Cargas permanentes
AZ	PL.PERM	17	1.000		Reologicas
BA	PL.PERM	10	1.000		Empuje al reposo de tierras
BB	OR	11	1.000		Empuje act/rep de tierras
BC	OR	12	1.000		Empuje al rep/act de tierras
BD	PLUS	4	1.000		Sob unif parcial dintel dcha
BE	PLUS	5	1.000		Sob unif parcial dintel izqda
BF	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BG	PLUS	7	1.000		Sobrecarga posicion lateral
BH	PLUS	8	1.000		Sobrecarga solera
BI	PLUS	14	1.000		Empuje al reposo sob unif
BJ	PLUS	16	1.000		Empuje al reposo sob. parcial
BK	PLUS	18	1.000		Frenado
BL	PLUS	19	1.000		ACCIDENTAL : Choque

3.2.2.2. Estados límites de servicio (E.L.S.)

Envolvente de máximas reacciones sobre el terreno.(Combinación característica)

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 ENVELOPE SPECIFIC.:  CR  ''
 ===========================================================================
 Group Spec. Loadcase          Factor Stage  Title

   A   PERM.     1               1.000       Peso Propio
   B   PL.PERM   2               1.000       Cargas permanentes
   C   PL.PERM  17               1.000       Reologicas
   D   PL.PERM   9               1.000       Empuje activo de tierras
   E   OR       11               1.000       Empuje act/rep de tierras
   F   OR       12               1.000       Empuje al rep/act de tierras
   G   PLUS      3            0.600000       Sobrecarga uniforme total
   H   PLUS      8            0.600000       Sobrecarga solera
   I   PLUS     13            0.600000       Empuje activo debido a la sob
   J   PLUS     15            0.600000       Empuje activo debido a la sob
   K   PLUS     18            0.600000       Frenado

 ALTERNATIVE ENVELOPE :
   L   PERM.     1               1.000       Peso Propio
   M   PL.PERM   2               1.000       Cargas permanentes
   N   PL.PERM  17               1.000       Reologicas
   O   PL.PERM  10               1.000       Empuje al reposo de tierras
   P   OR       11               1.000       Empuje act/rep de tierras
   Q   OR       12               1.000       Empuje al rep/act de tierras
   R   PLUS      3            0.600000       Sobrecarga uniforme total
   S   PLUS      8            0.600000       Sobrecarga solera
   T   PLUS     14            0.600000       Empuje al reposo sob unif
   U   PLUS     16            0.600000       Empuje al reposo sob. parcial
   V   PLUS     18            0.600000       Frenado
 ===========================================================================
```

Envolvente para verificar el deslizamiento.(Combinación característica)

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 ENVELOPE SPECIFIC.:  CV  ''
 ===========================================================================
 Group Spec. Loadcase          Factor Stage  Title

   A   PERM.     1               7.000       Peso Propio
   B   PL.PERM  24               1.000       carga permanente deslizamiento
   C   PL.PERM  17               7.000       Reologicas
   D   PL.PERM   9               7.000       Empuje activo de tierras
   E   PLUS     13               2.460       Empuje activo debido a la sob
   F   PLUS     15               2.460       Empuje activo debido a la sob
   G   PLUS     18               3.770       Frenado
 ===========================================================================
```

Envolvente de esfuerzos para comprobación de fisuración.(Combinación frecuente)

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 ENVELOPE SPECIFIC.:  CR  ''
 ===========================================================================
 Group Spec. Loadcase          Factor Stage  Title

   A   PERM.     1               1.000       Peso Propio
   B   PL.PERM   2               1.000       Cargas permanentes
   C   PL.PERM  17               1.000       Reologicas
   D   PL.PERM   9               1.000       Empuje activo de tierras
   E   OR       11               1.000       Empuje act/rep de tierras
   F   OR       12               1.000       Empuje al rep/act de tierras
   G   PLUS      3            0.600000       Sobrecarga uniforme total
   H   PLUS      8            0.600000       Sobrecarga solera
   I   PLUS     13            0.600000       Empuje activo debido a la sob
   J   PLUS     15            0.600000       Empuje activo debido a la sob
   K   PLUS     18            0.600000       Frenado

 ALTERNATIVE ENVELOPE :
   L   PERM.     1               1.000       Peso Propio
   M   PL.PERM   2               1.000       Cargas permanentes
   N   PL.PERM  17               1.000       Reologicas
   O   PL.PERM  10               1.000       Empuje al reposo de tierras
   P   OR       11               1.000       Empuje act/rep de tierras
   Q   OR       12               1.000       Empuje al rep/act de tierras
   R   PLUS      3            0.600000       Sobrecarga uniforme total
   S   PLUS      8            0.600000       Sobrecarga solera
   T   PLUS     14            0.600000       Empuje al reposo sob unif
   U   PLUS     16            0.600000       Empuje al reposo sob. parcial
   V   PLUS     18            0.600000       Frenado
 ===========================================================================
```

3.2.3. Análisis del proceso constructivo

Se supone que durante la construcción no existirá una excesiva diferencia de nivel en la altura del terraplén a ambos lados del pórtico,siendo como máximo esta diferencia de 2.00m.

La compactación del trasdos se podrá ejecutar en uno de los dos lados del pórtico, y se considerará una sobrecarga lateral de 2.0 t/m2. Esta hipótesis queda absorbida por la de desequilibrios de empujes a ambos lados del pórtico.

Sobrecargas accidentales: choques de vehículos

Se considerará una carga estática, situada a 1.20 m sobre el pavimento, e igual en valor a 25 t. en sentido perpendicular al mismo.

Acciones sísmicas

De acuerdo con la I.P.F. no es necesario considerar estas acciones.

INDICE

3.3. Cálculos y resultados (listados de ordenador)

- GEOMETRÍA
- CARGAS
- E.L.U. (Envolvente de esfuerzos)
- E.L.S. (Combinación característica) (Reacciones)
- E.L.S. (Combinación característica) (Delizamiento)
- E.L.S. (Combinación frecuente) (Fisuración)

Plane (2-D) frame -analysis

****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (23 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	0.30000	0.00000	0.00000	F	S F	
2	0.85000	0.00000	0.00000	F	S F	
3	1.40000	0.00000	0.00000	F	S F	
4	1.95000	0.00000	0.00000	B	S F	
5	2.67500	0.00000	0.00000	F	S F	
6	3.40000	0.00000	0.00000	F	S F	
7	10.40000	0.00000	0.00000	F	S F	
8	11.12500	0.00000	0.00000	F	S F	
9	11.85000	0.00000	0.00000	B	S F	
10	12.40000	0.00000	0.00000	F	S F	
11	12.95000	0.00000	0.00000	F	S F	
12	13.50000	0.00000	0.00000	F	S F	
13	1.95000	0.00000	1.66250			
14	1.95000	0.00000	3.32500			
15	1.95000	0.00000	4.98750			
16	11.85000	0.00000	1.66250			
17	11.85000	0.00000	3.32500			
18	11.85000	0.00000	4.98750			
19	1.95000	0.00000	8.30000			
20	4.42500	0.00000	8.30000			
21	6.90000	0.00000	8.30000			
22	9.37500	0.00000	8.30000			
23	11.85000	0.00000	8.30000			

ELASTICALLY SUPPORTED JOINTS: ("B"=Fixed "F"=Free)

Joint	V-X [KN/M]	V-Y [KN/M]	V-Z [KN/M]	R-X [KNM/ARC]	R-Y [KNM/ARC]	R-Z [KNM/ARC]
1	F		5.750E+04		F	
2	F		5.500E+04		F	
3	F		5.500E+04		F	
4	B		6.375E+04		F	
5	F		7.250E+04		F	
6	F		4.125E+04		F	
7	F		4.125E+04		F	
8	F		7.250E+04		F	
9	B		6.375E+04		F	
10	F		5.500E+04		F	
11	F		5.500E+04		F	

Joint	V-X [KN/M]	V-Y [KN/M]	V-Z [KN/M]	R-X [KNM/ARC]	R-Y [KNM/ARC]	R-Z [KNM/ARC]
12	F		5.750E+04		F	

B A R D A T A : (22 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	2	0.55000	ZAPATA			oS
2	2	3	0.55000	ZAPATA			oS
3	3	4	0.55000	ZAPATA			oS
4	4	5	0.72500	ZAPATA			oS
5	5	6	0.72500	ZAPATA			oS
6	7	8	0.72500	ZAPATA			oS
7	8	9	0.72500	ZAPATA			oS
8	9	10	0.55000	ZAPATA			oS
9	10	11	0.55000	ZAPATA			oS
10	11	12	0.55000	ZAPATA			oS
11*	4	13	1.66250	HASTIAL			oS
12*	13	14	1.66250	HASTIAL			oS
13*	14	15	1.66250	HASTIAL			oS
14*	15	19	3.31250	HASTIAL			oS
15*	9	16	1.66250	HASTIAL			oS
16*	16	17	1.66250	HASTIAL			oS
17*	17	18	1.66250	HASTIAL			oS
18*	18	23	3.31250	HASTIAL			oS
19	19	20	2.47500	DINTEL			oS
20	20	21	2.47500	DINTEL			oS
21	21	22	2.47500	DINTEL			oS
22	22	23	2.47500	DINTEL			oS

Bars marked with "*" are vertical (except any excentricities).
The corresponding special definition for the default orientation
of the local coordinate system applies.

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] zl [M1]	Iy [M4] zu [M1]	Fz [M2]
DINTEL	1.1002E+00	1.1097E-01	1.1002E+00
	-0.5500	0.5500	
HASTIAL	1.0034E+00	8.4047E-02	1.0034E+00
	-0.4985	0.5015	
ZAPATA	1.0000E+00	8.3333E-02	8.3333E-01
	-0.5000	0.5000	

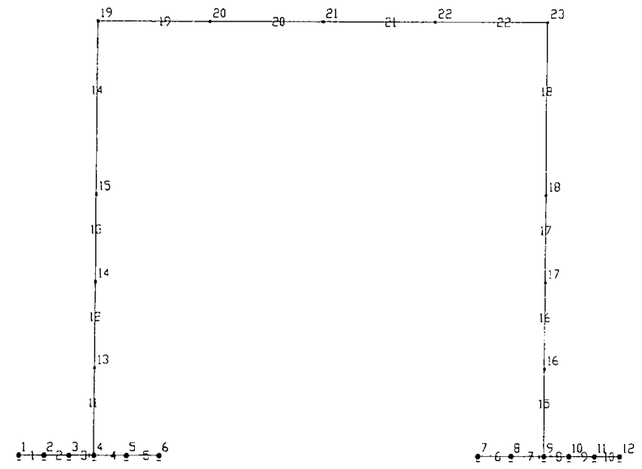
CS-Name	Ax [M2] zl [M1]	Iy [M4] zu [M1]	Fz [M2]

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [KN/ M2]	Shear-M [KN/ M2]
1 .. 22	3.0000E+07	1.2500E+07

STS-Run ok

Scale 1 : 81.0
Structure - geometria



Load case 1: Peso Propio

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Mas.forcZ		gl const.	-25.000		Stab 1 .. 22

Load case 2: Cargas permanentes

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-28.400		Stab 4 .. 7
Force	Z	gl const.	-20.800		Stab 1 .. 3 8 .. 10 19 .. 22

Load case 3: Sobrecarga uniforme total

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-78.000		Stab 19 .. 22

Load case 4: Sob unif parcial dintel dcha

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-78.000		Stab 19

Load case 5: Sob unif parcial dintel izqda

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-78.000		Stab 20

Load case 6: Sobrecarga uniforme dintel cen

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-78.000		Stab 21

Load case 7: Sobrecarga posicion lateral

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-78.000		Stab 22

Load case 8: Sobrecarga solera

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-4.000		Stab 4 .. 7

Load case 9: Empuje activo de tierras

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	gl trapez.	65.000	54.017	
		from...to	0	1.663	Stab 11
Force	X	gl trapez.	54.017	43.035	
		from...to	0	1.663	Stab 12
Force	X	gl trapez.	43.035	32.052	
		from...to	0	1.662	Stab 13
Force	X	gl trapez.	32.052	10.170	
		from...to	0	3.313	Stab 14
Force	X	gl trapez.	-65.000	-54.017	
		from...to	0	1.663	Stab 15
Force	X	gl trapez.	-54.017	-43.035	
		from...to	0	1.663	Stab 16
Force	X	gl trapez.	-43.035	-32.052	
		from...to	0	1.662	Stab 17
Force	X	gl trapez.	-32.052	-10.170	
		from...to	0	3.313	Stab 18
Force	Z	gl const.	-176.000		Stab 1 .. 3 8 .. 10

Load case 10: Empuje al reposo de tierras

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	gl trapez.	98.400	81.775	
		from...to	0	1.663	Stab 11
Force	X	gl trapez.	81.775	65.150	
		from...to	0	1.663	Stab 12
Force	X	gl trapez.	65.150	48.525	
		from...to	0	1.662	Stab 13
Force	X	gl trapez.	48.525	15.400	
		from...to	0	3.313	Stab 14
Force	X	gl trapez.	-98.400	-81.775	
		from...to	0	1.663	Stab 15
Force	X	gl trapez.	-81.775	-65.150	
		from...to	0	1.663	Stab 16
Force	X	gl trapez.	-65.150	-48.525	
		from...to	0	1.662	Stab 17
Force	X	gl trapez.	-48.525	-15.400	
		from...to	0	3.313	Stab 18
Force	Z	gl const.	-176.000		Stab 1 .. 3 8 .. 10

Load case 11: Empuje act/rep de tierras

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-176.000		Stab 1 .. 3 8 .. 10
Force	X	gl trapez.	65.000	54.017	
		from...to	0	1.663	Stab 11
Force	X	gl trapez.	54.017	43.035	
		from...to	0	1.663	Stab 12
Force	X	gl trapez.	43.035	32.052	
		from...to	0	1.662	Stab 13
Force	X	gl trapez.	32.052	10.170	
		from...to	0	3.313	Stab 14
Force	X	gl trapez.	-98.420	-81.795	
		from...to	0	1.663	Stab 15
Force	X	gl trapez.	-81.795	-65.170	
		from...to	0	1.663	Stab 16
Force	X	gl trapez.	-65.170	-48.545	
		from...to	0	1.662	Stab 17
Force	X	gl trapez.	-48.545	-15.420	
		from...to	0	3.313	Stab 18

Load case 12: Empuje al rep/act de tierras

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-176.000		Stab 1 .. 3 8 .. 10
Force	X	gl trapez.	98.420	81.791	
		from...to	0	1.663	Stab 11
Force	X	gl trapez.	81.791	65.162	
		from...to	0	1.663	Stab 12
Force	X	gl trapez.	65.162	48.533	
		from...to	0	1.662	Stab 13
Force	X	gl trapez.	48.533	15.400	
		from...to	0	3.313	Stab 14
Force	X	gl trapez.	-65.000	-54.017	
		from...to	0	1.663	Stab 15
Force	X	gl trapez.	-54.017	-43.035	
		from...to	0	1.663	Stab 16
Force	X	gl trapez.	-43.035	-32.052	
		from...to	0	1.662	Stab 17
Force	X	gl trapez.	-32.052	-10.170	
		from...to	0	3.313	Stab 18

Load case 13: Empuje activo debido a la sob

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force X gl const.	20.100		Stab 11 .. 14

Load case 14: Empuje al reposo sob unif

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force X gl const.	30.500		Stab 11 .. 14

Load case 15: Empuje activo debido a la sob

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force X gl const.	-20.100		Stab 15 .. 18

Load case 16: Empuje al reposo sob. parcial

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force X gl const.	-30.500		Stab 15 .. 18

Load case 17: Reologicas

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	-0.000250		Stab 19 .. 22

Load case 18: Frenado

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force X lo const.	6.410		Stab 19 .. 22

Load case 19: ACCIDENTAL : Choque

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force X gl conc.	250.000	0.637500	Stab 16

Load case 21: tren tipo SW/2

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-77.900		Stab 19 .. 22

Load case 22: tren tipo A

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-60.750	-60.750	
from...to	2.225	2.475	Stab 19
Force Z gl const.	-121.500	-121.500	
from...to	1.000	2.000	Stab 20
Force Z gl const.	-60.750	-60.750	
from...to	0	1.000	Stab 20
Force Z gl const.	-60.750	-60.750	
from...to	2.000	2.475	Stab 20
Force Z gl const.	-121.500	-121.500	
from...to	0.500000	1.500	Stab 21
Force Z gl const.	-60.750	-60.750	
from...to	1.500	2.475	Stab 21
Force Z gl const.	-60.750	-60.750	
from...to	0	0.500000	Stab 21
Force Z gl const.	-60.750	-60.750	
from...to	0	0.250000	Stab 22

Load case 23: tren tipo UIC-71

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-53.100	-53.100	
from...to	1.300	2.475	Stab 19
Force Z gl const.	-53.100	-53.100	
from...to	0	0.425000	Stab 20
Force Z gl const.	-106.240	-106.240	
from...to	0.425000	1.325	Stab 20
Force Z gl const.	-53.100	-53.100	
from...to	1.325	2.025	Stab 20
Force Z gl const.	-106.200	-106.200	
from...to	2.025	2.475	Stab 20
Force Z gl const.	-106.200	-106.200	
from...to	0	0.450000	Stab 21
Force Z gl const.	-53.100	-53.100	
from...to	0.450000	1.150	Stab 21
Force Z gl const.	-106.200	-106.200	
from...to	1.150	2.050	Stab 21
Force Z gl const.	-53.100	-53.100	
from...to	2.050	2.475	Stab 21
Force Z gl const.	-53.100	-53.100	
from...to	0	1.175	Stab 22

ENVELOPE SPECIFIC.: CQ ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	0.750000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme total
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
Q	PLUS	18	1.500		Frenado
	ALTERNATIVE ENVELOPE :				
R	PERM.	1	1.000		Peso Propio
S	OR	1	1.350		Peso Propio
T	PL.PERM	2	0.750000		Cargas permanentes
U	OR	2	1.350		Cargas permanentes
V	PL.PERM	17	1.000		Reologicas
W	OR	17	1.350		Reologicas
X	PL.PERM	10	1.000		Empuje al reposo de tierras
Y	OR	10	1.500		Empuje al reposo de tierras
Z	OR	11	1.000		Empuje act/rep de tierras
AA	OR	11	1.500		Empuje act/rep de tierras
AB	OR	12	1.000		Empuje al rep/act de tierras
AC	OR	12	1.500		Empuje al rep/act de tierras
AD	PLUS	3	1.500		Sobrecarga uniforme total
AE	PLUS	8	1.500		Sobrecarga solera
AF	PLUS	14	1.500		Empuje al reposo sob unif
AG	PLUS	16	1.500		Empuje al reposo sob. parcial
AH	PLUS	18	1.500		Frenado
	ALTERNATIVE ENVELOPE :				
AI	PERM.	1	1.000		Peso Propio
AJ	PL.PERM	2	1.000		Cargas permanentes
AK	PL.PERM	17	1.000		Reologicas
AL	PL.PERM	9	1.000		Empuje activo de tierras
AM	OR	11	1.000		Empuje act/rep de tierras
AN	OR	12	1.000		Empuje al rep/act de tierras
AO	PLUS	4	1.000		Sob unif parcial dintel dcha
AP	PLUS	5	1.000		Sob unif parcial dintel izqda
AQ	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AR	PLUS	7	1.000		Sobrecarga posicion lateral
AS	PLUS	8	1.000		Sobrecarga solera
AT	PLUS	13	1.000		Empuje activo debido a la scb
AU	PLUS	15	1.000		Empuje activo debido a la sob
AV	PLUS	18	1.000		Frenado
AW	PLUS	19	1.000		ACCIDENTAL : Choque

	ALTERNATIVE ENVELOPE :				
AX	PERM.	1	1.000		Peso Propio
AY	PL.PERM	2	1.000		Cargas permanentes
AZ	PL.PERM	17	1.000		Reologicas
BA	PL.PERM	10	1.000		Empuje al reposo de tierras
BB	OR	11	1.000		Empuje act/rep de tierras
BC	OR	12	1.000		Empuje al rep/act de tierras
BD	PLUS	4	1.000		Sob unif parcial dintel dcha
BE	PLUS	5	1.000		Sob unif parcial dintel izqda
BF	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BG	PLUS	7	1.000		Sobrecarga posicion lateral
BH	PLUS	8	1.000		Sobrecarga solera
BI	PLUS	14	1.000		Empuje al reposo sob unif
BJ	PLUS	16	1.000		Empuje al reposo sob. parcial
BK	PLUS	18	1.000		Frenado
BL	PLUS	19	1.000		ACCIDENTAL : Choque

ENVELOPE for < My > (and accomp. values) ''
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-0	-51.670	-2.84E-07	R T W AB AF AH
		+0	402.367	2.21E-06	S U V AA AD AE AG
1	0.138	-0	-89.790	-9.467	R T W AC AF AH
		+0	357.565	52.245	S U V AA AD AE AG
1	0.275	-0	-131.673	-24.692	R T W AC AF AH
		+0	312.763	98.330	S U V AA AD AE AG
1	0.413	-0	-173.555	-45.677	R T W AC AF AH
		+0	267.962	138.255	S U V AA AD AE AG
1	0.550	-0	-215.438	-72.420	R T W AC AF AH
		+0	223.160	172.020	S U V AA AD AE AG
2	0	+0	-195.536	-72.420	R T W AC AF AH
		-0	584.053	172.020	S U V AA AD AE AG
2	0.137	+0	-237.418	-102.186	R T W AC AF AH
		-0	539.252	249.247	S U V AA AD AE AG
2	0.275	+0	-279.301	-137.710	R T W AC AF AH
		-0	494.450	320.314	S U V AA AD AE AG
2	0.412	+0	-321.183	-178.993	R T W AC AF AH
		-0	449.648	385.221	S U V AA AD AE AG
2	0.550	+0	-363.066	-226.036	R T W AC AF AH
		-0	439.369	444.801	S U V Z AD AE AG
3	0	+0	-276.916	-226.036	R T W AC AF AH
		-0	748.034	444.801	S U V Z AD AE AG
3	0.138	+0	-318.799	-266.991	R T W AC AF AH
		-0	715.333	545.407	S U V Z AD AE AG
3	0.275	+0	-360.681	-313.705	R T W AC AF AH
		-0	682.631	641.517	S U V Z AD AE AG
3	0.413	+0	-402.564	-366.178	R T W AC AF AH

ENVELOPE for < My > (and accomp. values) ''
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-0	649.930	733.131	S U V Z AD AE AG
3	0.550	+0	-444.446	-424.410	R T W AC AF AH
		-0	617.228	820.248	S U V Z AD AE AG
4	0	+0	-140.350	147.206	R T V Z AE AG
		-0	-718.351	764.331	S U W AC AD AF AH
4	0.181	+0	-149.829	120.909	R T V Z AE AG
		-0	-731.417	632.946	S U W AC AD AF AH
4	0.362	+0	-159.308	92.893	R T V Z AE AG
		-0	-744.484	499.192	S U W AC AD AF AH
4	0.544	+0	-168.788	63.159	R T V Z AE AG
		-0	-757.550	363.070	S U W AC AD AF AH
4	0.725	+0	-178.267	31.708	R T V Z AE AG
		-0	-770.616	224.580	S U W AC AD AF AH
5	0	-0	-24.776	31.708	R T V Z AE AG
		+0	-283.633	224.580	S U W AC AD AF AH
5	0.181	-0	-34.255	26.358	R T V Z AE AG
		+0	-296.700	171.988	S U W AC AD AF AH
5	0.363	-0	-44.441	19.152	R T V Z AG
		+0	-309.059	117.165	S U W AC AD AE AF AH
5	0.544	-0	-52.833	10.337	R T V Z AG
		+0	-323.213	59.865	S U W AC AD AE AF AH
5	0.725	-0	-61.225	4.44E-07	R T V Z AG
		+0	-337.367	2.45E-06	S U W AC AD AE AF AH
6	0	-0	35.809	2.60E-07	AX AY AZ BC BI BK BL
		-0	319.575	2.32E-06	S U W AA AD AE AG
6	0.181	-0	26.130	5.613	AX AY AZ BC BI BK BL
		-0	305.422	56.640	S U W AA AD AE AG
6	0.362	-0	16.452	9.472	AX AY AZ BC BI BK BL
		-0	291.268	110.715	S U W AA AD AE AG
6	0.544	-0	5.577	11.518	AX AY AZ BC BH BI BK...
		-0	278.908	162.314	S U W AA AD AG
6	0.725	-0	-4.827	11.586	AX AY AZ BC BH BI BK...
		-0	265.842	211.682	S U W AA AD AG
7	0	+0	129.895	11.586	AX AY AZ BC BH BI BK...
		-0	740.113	211.682	S U W AA AD AG
7	0.181	+0	119.492	34.187	AX AY AZ BC BH BI BK...
		-0	727.046	344.643	S U W AA AD AG
7	0.362	+0	109.088	54.902	AX AY AZ BC BH BI BK...
		-0	713.980	475.236	S U W AA AD AG
7	0.544	+0	98.684	73.731	AX AY AZ BC BH BI BK...
		-0	700.914	603.461	S U W AA AD AG
7	0.725	+0	88.280	90.675	AX AY AZ BC BH BI BK...
		-0	687.847	729.317	S U W AA AD AG
8	0	+0	366.405	-326.456	R T W AA AG
		-0	-695.303	918.246	S U V AB AD AE AF AH
8	0.138	+0	324.523	-278.955	R T W AA AG

ENVELOPE for < My > (and accomp. values) ''
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-0	-728.005	820.394	S U V AB AD AE AF AH
8	0.275	+0	282.640	-237.213	R T W AA AG
		-0	-760.706	718.045	S U V AB AD AE AF AH
8	0.413	+0	240.758	-201.229	R T W AA AG
		-0	-793.408	611.199	S U V AB AD AE AF AH
8	0.550	+0	198.875	-171.004	R T W AA AG
		-0	-826.110	499.857	S U V AB AD AE AF AH
9	0	+0	300.275	-171.004	R T W AA AG
		+0	-502.188	499.857	S U V AB AD AE AF AH
9	0.137	+0	258.393	-132.596	R T W AA AG
		+0	-512.449	431.626	S U V AC AD AE AF AH
9	0.275	+0	216.510	-99.946	R T W AA AG
		+0	-557.250	358.084	S U V AC AD AE AF AH
9	0.412	+0	174.628	-73.055	R T W AA AG
		+0	-602.052	278.382	S U V AC AD AE AF AH
9	0.550	+0	132.745	-51.924	R T W AA AG
		+0	-646.853	192.520	S U V AC AD AE AF AH
10	0	+0	178.171	-51.924	R T W AA AG
		+0	-260.433	192.520	S U V AC AD AE AF AH
10	0.138	+0	136.289	-30.304	R T W AA AG
		+0	-305.234	153.630	S U V AC AD AE AF AH
10	0.275	+0	94.406	-14.444	R T W AA AG
		+0	-350.036	108.580	S U V AC AD AE AF AH
10	0.413	+0	52.524	-4.343	R T W AA AG
		+0	-394.837	57.370	S U V AC AD AE AF AH
10	0.550	+0	14.390	-7.91E-08	R T W Z AG
		+0	-439.639	2.42E-06	S U V AC AD AE AF AH
11	0	-232.552	813.340	-964.481	R T W AC AF AH
		-1304.876	-58.932	448.782	S U V Z AD AE AG
11	0.416	-222.126	734.262	-642.960	R T W AC AF AH
		-1290.802	-85.378	418.753	S U V Z AD AE AG
11	0.831	-211.701	657.776	-351.766	R T W AC AF AH
		-1291.020	-48.029	382.241	S U V AA AD AE AG
11	1.247	-261.221	408.010	-101.417	AX AY AZ BC BI BK BL
		-1234.065	50.557	362.819	S U V Y AD AE AG
11	1.662	-560.383	95.790	-9.509	AI AJ AK AL AP AQ AR...
		-1126.721	203.421	407.075	S U V Y AD AE AF AG
12	0	-560.383	95.790	-9.509	AI AJ AK AL AP AQ AR...
		-1126.721	203.421	407.075	S U V Y AD AE AF AG
12	0.416	-549.957	73.909	25.717	AI AJ AK AL AP AQ AR...
		-533.497	224.800	500.754	S U V Y AE AF AG
12	0.831	-947.031	-7.879	42.078	A D F G M Q
		-457.646	169.417	581.987	S T V Y AE AF AG
12	1.247	-1206.353	-214.441	23.752	S U W Z AD AG
		-159.572	308.581	650.574	R T V AC AE AF AH
12	1.662	-1192.278	-232.898	-69.250	S U W Z AD AG
		-149.146	247.646	766.075	R T V AC AE AF AH

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
13	0	-1192.278	-232.898	-69.250	S U W Z AD AG
		-149.146	247.646	766.075	R T V AC AE AF AH
13	0.416	-1178.203	-254.987	-171.489	S U V Z AD AG
		-138.720	194.076	858.591	R T W AC AE AF AH
13	0.831	-1164.129	-271.162	-280.869	S U V Z AD AG
		-128.294	138.325	927.579	R T W AC AE AF AH
13	1.247	-1150.054	-286.196	-396.734	S U V Z AD AG
		-117.869	85.165	973.933	R T W AC AE AF AH
13	1.662	-1135.979	-300.088	-518.611	S U V Z AD AG
		-107.443	34.597	998.731	R T W AC AE AF AH
14	0	-1135.979	-300.088	-518.611	S U V Z AD AG
		-107.443	34.597	998.731	R T W AC AE AF AH
14	0.828	-1107.935	-324.366	-777.487	S U V Z AD AG
		-86.670	-58.432	988.151	R T W AC AE AF AH
14	1.656	-1094.185	-398.613	-1080.677	S U V AA AD AG
		-65.897	-141.172	904.793	R T W AC AE AF AH
14	2.484	-1066.141	-422.308	-1421.237	S U V AA AD AE AG
		-45.124	-212.753	757.714	R T W AC AF AH
14	3.312	-1038.097	-438.339	-1778.068	S U V AA AD AE AG
		-24.350	-274.914	555.079	R T W AC AF AH
15	0	-1357.761	106.498	-581.817	S U V AB AD AE AF AH
		-285.422	-765.827	831.513	R T W AA AG
15	0.416	-1343.686	132.943	-532.018	S U V AB AD AE AF AH
		-274.996	-686.749	529.740	R T W AA AG
15	0.831	-1343.890	95.580	-475.708	S U V AC AD AE AF AH
		-264.571	-610.262	260.294	R T W AA AG
15	1.247	-1286.977	-2.962	-436.592	S U V Y AD AE AF AH
		-354.068	-126.333	74.106	AX AY AZ BB BJ BL
15	1.662	-1179.634	-155.827	-461.067	S U V Y AD AE AF AG AH
		-653.258	185.940	99.259	AI AJ AK AL AO AP AQ...
16	0	-1179.634	-155.827	-461.067	S U V Y AD AE AF AG AH
		-653.258	185.940	99.259	AI AJ AK AL AO AP AQ...
16	0.416	-586.409	-177.206	-534.964	S U V Y AE AF AG AH
		-642.832	207.820	181.127	AI AJ AK AL AO AP AQ...
16	0.831	-510.558	-121.822	-596.415	S T V Y AE AF AG AH
		-632.406	-21.441	223.414	AI AJ AK AL AO AP AQ...
16	1.247	-212.442	-261.053	-645.294	R T V AA AE AG
		-747.993	127.048	225.862	AX AY AZ BC BD BE BF...
16	1.662	-202.016	-200.113	-741.040	R T V AA AE AG
		-904.818	155.686	285.618	AX AY AZ BC BD BE BF...
17	0	-202.016	-200.113	-741.040	R T V AA AE AG
		-904.818	155.686	285.618	AX AY AZ BC BD BE BF...
17	0.416	-191.590	-146.533	-813.800	R T W AA AE AG
		-894.392	173.002	353.963	AX AY AZ BC BD BE BF...
17	0.831	-181.165	-90.781	-863.028	R T W AA AE AG
		-883.967	189.176	429.267	AX AY AZ BC BD BE BF...

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
17	1.247	-170.739	-37.614	-889.620	R T W AA AE AG
		-873.541	204.210	511.057	AX AY AZ BC BD BE BF...
17	1.662	-160.313	12.961	-894.654	R T W AA AE AG
		-1188.863	347.653	622.809	S U V AB AD AF AH
18	0	-160.313	12.961	-894.654	R T W AA AE AG
		-1188.863	347.653	622.809	S U V AB AD AF AH
18	0.828	-139.540	106.006	-844.684	R T W AA AE AG
		-1160.819	371.932	921.075	S U V AB AD AF AH
18	1.656	-118.767	188.765	-721.920	R T W AA AE AG
		-1147.055	446.164	1263.602	S U V AC AD AF AH
18	2.484	-97.994	260.367	-535.421	R T W AA AG
		-1119.011	469.859	1643.540	S U V AC AD AE AF AH
18	3.312	-77.220	322.552	-293.346	R T W AA AG
		-1090.968	485.890	2039.749	S U V AC AD AE AF AH
19	0	-438.339	1038.097	-1778.068	S U V AA AD AE AG
		-274.914	24.350	555.079	R T W AC AF AH
19	0.619	-438.339	925.354	-1170.625	S U V AA AD AE AG
		-280.864	-2.321	561.894	R T W AC AF AH
19	1.237	-328.195	296.177	-679.835	R T V AA AE AG
		-202.480	215.765	642.800	AX AY AZ BC BD BE BI...
19	1.856	-328.195	269.505	-504.827	R T V AA AE AG
		-315.470	388.978	879.211	S U W AB AD AF AH
19	2.475	-328.195	242.834	-346.322	R T V AA AE AG
		-341.419	276.234	1085.011	S U W AB AD AF AH
20	0	-328.195	242.834	-346.322	R T V AA AE AG
		-341.419	276.234	1085.011	S U W AB AD AF AH
20	0.619	-328.195	216.163	-204.320	R T V AA AE AG
		-347.368	163.491	1221.051	S U W AB AD AF AH
20	1.238	-328.195	189.492	-78.820	R T V AA AE AG
		-353.318	50.747	1287.330	S U W AB AD AF AH
20	1.856	-473.850	26.671	-2.934	R T V Y AE AF AG
		-229.265	59.831	1311.300	B D F G M Q
20	2.475	-473.850	1.07E-06	5.318	R T V Y AE AF AG
		-235.214	-52.912	1313.441	B D F G M Q
21	0	-473.850	-52.912	5.318	R T V Y AE AF AG AH
		-235.214	-4.51E-06	1313.441	B D F G M
21	0.619	-479.799	-79.583	-35.673	R T V Y AE AF AG AH
		-235.214	-112.744	1278.561	B D F G M
21	1.237	-340.050	-242.362	-144.221	R T V AC AE AF AH
		-365.245	-103.831	1221.869	S U W Z AD AG
21	1.856	-346.000	-269.033	-302.434	R T V AC AE AF AH
		-365.245	-216.375	1122.867	S U W Z AD AG
21	2.475	-351.949	-295.704	-477.149	R T V AC AE AF AH
		-365.245	-329.118	954.105	S U W Z AD AG
22	0	-351.949	-295.704	-477.149	R T V AC AE AF AH
		-365.245	-329.118	954.105	S U W Z AD AG

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
22	0.619	-357.898	-322.375	-668.368	R T V AC AE AF AH
		-365.245	-441.862	715.583	S U W Z AD AG
22	1.237	-363.847	-349.047	-876.089	R T V AC AE AF AH
		-365.245	-554.605	407.301	S U W Z AD AG
22	1.856	-479.941	-978.224	-1399.593	S U V AC AD AE AF AH
		-322.552	-50.549	332.875	R T W AA AG
22	2.475	-485.890	-1090.968	-2039.749	S U V AC AD AE AF AH
		-322.552	-77.220	293.346	R T W AA AG

ENVELOPE SPECIFIC.: CQ ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	0.750000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme total
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
Q	PLUS	18	1.500		Frenado
ALTERNATIVE ENVELOPE :					
R	PERM.	1	1.000		Peso Propio
S	OR	1	1.350		Peso Propio
T	PL.PERM	2	0.750000		Cargas permanentes
U	OR	2	1.350		Cargas permanentes
V	PL.PERM	17	1.000		Reologicas
W	OR	17	1.350		Reologicas
X	PL.PERM	10	1.000		Empuje al reposo de tierras
Y	OR	10	1.500		Empuje al reposo de tierras
Z	OR	11	1.000		Empuje act/rep de tierras
AA	OR	11	1.500		Empuje act/rep de tierras
AB	OR	12	1.000		Empuje al rep/act de tierras
AC	OR	12	1.500		Empuje al rep/act de tierras
AD	PLUS	3	1.500		Sobrecarga uniforme total
AE	PLUS	8	1.500		Sobrecarga solera
AF	PLUS	14	1.500		Empuje al reposo sob unif
AG	PLUS	16	1.500		Empuje al reposo sob. parcial
AH	PLUS	18	1.500		Frenado
ALTERNATIVE ENVELOPE :					
AI	PERM.	1	1.000		Peso Propio
AJ	PL.PERM	2	1.000		Cargas permanentes
AK	PL.PERM	17	1.000		Reologicas
AL	PL.PERM	9	1.000		Empuje activo de tierras
AM	OR	11	1.000		Empuje act/rep de tierras
AN	OR	12	1.000		Empuje al rep/act de tierras
AO	PLUS	4	1.000		Sob unif parcial dintel dcha
AP	PLUS	5	1.000		Sob unif parcial dintel izqda
AQ	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AR	PLUS	7	1.000		Sobrecarga posicion lateral
AS	PLUS	8	1.000		Sobrecarga solera
AT	PLUS	13	1.000		Empuje activo debido a la sob
AU	PLUS	15	1.000		Empuje activo debido a la sob
AV	PLUS	18	1.000		Frenado
AW	PLUS	19	1.000		ACCIDENTAL : Choque

ALTERNATIVE ENVELOPE :					
AX	PERM.	1	1.000		Peso Propio
AY	PL.PERM	2	1.000		Cargas permanentes
AZ	PL.PERM	17	1.000		Reologicas
BA	PL.PERM	10	1.000		Empuje al reposo de tierras
BB	OR	11	1.000		Empuje act/rep de tierras
BC	OR	12	1.000		Empuje al rep/act de tierras
BD	PLUS	4	1.000		Sob unif parcial dintel dcha
BE	PLUS	5	1.000		Sob unif parcial dintel izqda
BF	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BG	PLUS	7	1.000		Sobrecarga posicion lateral
BH	PLUS	8	1.000		Sobrecarga solera
BI	PLUS	14	1.000		Empuje al reposo sob unif
BJ	PLUS	16	1.000		Empuje al reposo sob. parcial
BK	PLUS	18	1.000		Frenado
BL	PLUS	19	1.000		ACCIDENTAL : Choque

ENVELOPE for < Vz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-0	-51.670	-2.84E-07	R T W AB AF AH
		+0	402.367	2.21E-06	S U V AA AD AE AG
1	0.138	-0	-89.790	-9.467	R T W AC AF AH
		+0	357.565	52.345	S U V AA AD AE AG
1	0.275	-0	-131.673	-24.692	R T W AC AF AH
		+0	312.763	98.330	S U V AA AD AE AG
1	0.413	-0	-173.555	-45.677	R T W AC AF AH
		+0	271.256	132.127	S U V Z AD AE AG
1	0.550	-0	-215.438	-72.420	R T W AC AF AH
		+0	238.554	167.176	S U V Z AD AE AG
2	0	+0	-195.536	-72.420	R T W AC AF AH
		-0	584.053	172.020	S U V AA AD AE AG
2	0.137	+0	-237.418	-102.186	R T W AC AF AH
		-0	539.252	249.247	S U V AA AD AE AG
2	0.275	+0	-279.301	-137.710	R T W AC AF AH
		-0	504.772	314.982	S U V Z AD AE AG
2	0.412	+0	-321.183	-178.993	R T W AC AF AH
		-0	472.070	382.140	S U V Z AD AE AG
2	0.550	+0	-363.066	-226.036	R T W AC AF AH
		-0	439.369	444.801	S U V Z AD AE AG
3	0	+0	-276.916	-226.036	R T W AC AF AH
		-0	748.034	444.801	S U V Z AD AE AG
3	0.138	+0	-318.799	-266.991	R T W AC AF AH
		-0	715.333	545.407	S U V Z AD AE AG
3	0.275	+0	-360.681	-313.705	R T W AC AF AH
		-0	682.631	641.517	S U V Z AD AE AG
3	0.413	+0	-402.564	-366.178	R T W AC AF AH

ENVELOPE for < Vz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-0	649.930	733.131	S U V Z AD AE AG
3	0.550	+0	-444.446	-424.410	R T W AC AF AH
		-0	617.228	820.248	S U V Z AD AE AG
4	0	-0	-718.351	764.331	S U W AC AD AF AH
		+0	-140.350	147.206	R T V Z AE AG
4	0.181	-0	-731.417	632.946	S U W AC AD AF AH
		+0	-143.829	120.909	R T V Z AE AG
4	0.362	-0	-744.484	499.192	S U W AC AD AF AH
		+0	-159.308	92.893	R T V Z AE AG
4	0.544	-0	-757.550	363.070	S U W AC AD AF AH
		+0	-168.788	63.159	R T V Z AE AG
4	0.725	-0	-770.616	224.580	S U W AC AD AF AH
		+0	-178.267	31.708	R T V Z AE AG
5	0	+0	-283.672	220.130	S T W AC AD AF AH
		-0	-24.737	36.158	R U V Z AE AG
5	0.181	+0	-296.700	171.988	S U W AC AD AF AH
		-0	-34.255	26.358	R T V Z AE AG
5	0.363	+0	-309.766	117.027	S U W AC AD AF AH
		-0	-43.735	19.290	R T V Z AE AG
5	0.544	+0	-323.213	59.865	S U W AC AD AE AF AH
		-0	-52.833	10.337	R T V Z AG
5	0.725	+0	-337.367	2.45E-06	S U W AC AD AE AF AH
		-0	-61.225	4.44E-07	R T V Z AG
6	0	-0	35.809	2.60E-07	AX AY AZ BC BI BK BL
		-0	319.575	2.32E-06	S U W AA AD AE AG
6	0.181	-0	26.130	5.613	AX AY AZ BC BI BK BL
		-0	305.422	56.640	S U W AA AD AE AG
6	0.362	-0	15.981	9.564	AX AY AZ BC BH BI BK...
		-0	291.975	110.577	S U W AA AD AG
6	0.544	-0	5.577	11.518	AX AY AZ BC BH BI BK...
		-0	278.908	162.314	S U W AA AD AG
6	0.725	-0	-4.827	11.586	AX AY AZ BC BH BI BK...
		-0	265.880	207.231	S T W AA AD AG
7	0	+0	129.895	11.586	AX AY AZ BC BH BI BK...
		-0	740.113	211.682	S U W AA AD AG
7	0.181	+0	119.492	34.187	AX AY AZ BC BH BI BK...
		-0	727.046	344.643	S U W AA AD AG
7	0.362	+0	109.088	54.902	AX AY AZ BC BH BI BK...
		-0	713.980	475.236	S U W AA AD AG
7	0.544	+0	98.684	73.731	AX AY AZ BC BH BI BK...
		-0	700.914	603.461	S U W AA AD AG
7	0.725	+0	88.280	90.675	AX AY AZ BC BH BI BK...
		-0	687.847	729.317	S U W AA AD AG
8	0	-0	-695.303	918.246	S U V AB AD AE AF AH
		+0	366.405	-326.456	R T W AA AG
8	0.138	-0	-728.005	820.394	S U V AB AD AE AF AH

ENVELOPE for < Vz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		+0	324.523	-278.955	R T W AA AG
8	0.275	-0	-760.706	718.045	S U V AB AD AE AF AH
		+0	282.640	-237.213	R T W AA AG
8	0.413	-0	-793.408	611.199	S U V AB AD AE AF AH
		+0	240.758	-201.229	R T W AA AG
8	0.550	-0	-826.110	499.857	S U V AB AD AE AF AH
		+0	198.875	-171.004	R T W AA AG
9	0	+0	-502.188	499.857	S U V AB AD AE AF AH
		+0	300.275	-171.004	R T W AA AG
9	0.137	+0	-534.889	428.558	S U V AB AD AE AF AH
		+0	258.393	-132.596	R T W AA AG
9	0.275	+0	-567.591	352.763	S U V AB AD AE AF AH
		+0	216.510	-99.946	R T W AA AG
9	0.412	+0	-602.052	278.382	S U V AC AD AE AF AH
		+0	174.628	-73.055	R T W AA AG
9	0.550	+0	-646.853	192.520	S U V AC AD AE AF AH
		+0	132.745	-51.924	R T W AA AG
10	0	-0	-275.838	187.682	S U V AB AD AE AF AH
		+0	178.171	-51.924	R T W AA AG
10	0.138	-0	-308.539	147.507	S U V AB AD AE AF AH
		+0	136.289	-30.304	R T W AA AG
10	0.275	+0	-350.036	108.580	S U V AC AD AE AF AH
		+0	94.406	-14.444	R T W AA AG
10	0.413	+0	-394.837	57.370	S U V AC AD AE AF AH
		+0	52.524	-4.343	R T W AA AG
10	0.550	+0	-439.639	2.42E-06	S U V AC AD AE AF AH
		+0	14.390	-7.91E-08	R T W Z AG
11	0	-1304.876	-58.932	448.782	S U V Z AD AE AG
		-232.552	813.340	-964.481	R T W AC AF AH
11	0.416	-1290.802	-85.378	418.753	S U V Z AD AE AG
		-222.126	734.262	-642.960	R T W AC AF AH
11	0.831	-1276.727	-110.681	377.970	S U V Z AD AE AG
		-211.701	657.776	-353.766	R T W AC AF AH
11	1.247	-1262.652	-134.844	326.907	S U V Z AD AE AG
		-201.275	583.882	-95.824	R T W AC AF AH
11	1.662	-1248.577	-157.866	266.039	S U V Z AD AE AG
		-190.849	512.580	131.945	R T W AC AF AH
12	0	-1248.577	-157.866	266.039	S U V Z AD AE AG
		-190.849	512.580	131.945	R T W AC AF AH
12	0.416	-1234.502	-179.746	195.839	S U V Z AD AE AG
		-180.423	443.870	330.617	R T W AC AF AH
12	0.831	-1220.428	-200.485	116.783	S U V Z AD AE AG
		-169.998	377.751	501.270	R T W AC AF AH
12	1.247	-1206.353	-220.084	29.344	S U V Z AD AE AG
		-159.572	314.224	644.982	R T W AC AF AH
12	1.662	-1206.572	-239.818	10.526	S U V AA AD AE AG
		-149.146	253.289	762.828	R T W AC AF AH

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
13	0	-1206.572	-239.818	10.526	S U V AA AD AE AG
		-149.146	253.289	762.828	R T W AC AF AH
13	0.416	-1192.497	-265.792	-94.606	S U V AA AD AE AG
		-138.720	194.945	855.887	R T W AC AF AH
13	0.831	-1178.422	-290.054	-210.176	S U V AA AD AE AG
		-128.294	139.194	925.236	R T W AC AF AH
13	1.247	-1164.347	-312.604	-335.476	S U V AA AD AE AG
		-132.148	90.008	804.122	R T W AB AF AH
13	1.662	-1150.272	-333.443	-469.791	S U V AA AD AE AG
		-121.722	49.958	833.149	R T W AB AF AH
14	0	-1150.272	-333.443	-469.791	S U V AA AD AE AG
		-121.722	49.958	833.149	R T W AB AF AH
14	0.828	-1079.348	-381.790	-513.049	S U V Y AD AE AG
		-196.377	-15.058	429.000	AI AJ AK AL AT AV AW
14	1.656	-958.036	-449.387	-360.033	S U V Y AD AE AF AG
		-216.581	-41.455	186.545	AI AJ AK AL AV AW
14	2.484	-929.992	-521.834	-762.890	S U V Y AD AE AF AG
		-195.808	-56.673	145.601	AI AJ AK AL AV AW
14	3.312	-901.948	-583.994	-1221.482	S U V Y AD AE AF AG
		-175.035	-67.360	93.931	AI AJ AK AL AV AW
15	0	-285.422	-765.827	831.513	R T W AA AG
		-988.224	226.657	-532.645	AX AY AZ BC BD BE BF...
15	0.416	-274.996	-686.749	529.740	R T W AA AG
		-977.799	253.102	-432.906	AX AY AZ BC BD BE BF...
15	0.831	-264.571	-610.262	260.294	R T W AA AG
		-967.373	278.406	-322.412	AX AY AZ BC BD BE BF...
15	1.247	-254.145	-536.367	22.100	R T W AA AG
		-956.947	302.569	-201.639	AX AY AZ BC BD BE BF...
15	1.662	-243.719	-465.062	-185.920	R T W AA AG
		-946.521	325.590	-71.060	AX AY AZ BC BD BE BF...
16	0	-243.719	-465.062	-185.920	R T W AA AG
		-946.521	325.590	-71.060	AX AY AZ BC BD BE BF...
16	0.416	-233.293	-396.349	-364.842	R T W AA AG
		-936.096	347.471	68.850	AX AY AZ BC BD BE BF...
16	0.831	-222.868	-330.227	-515.744	R T W AA AG
		-1273.312	248.051	-131.201	S U V AB AD AE AF AH
16	1.247	-212.442	-266.696	-639.702	R T W AA AG
		-1259.237	267.649	-23.993	S U V AB AD AE AF AH
16	1.662	-202.016	-205.756	-737.794	R T W AA AG
		-1259.442	287.369	14.588	S U V AC AD AE AF AH
17	0	-202.016	-205.756	-737.794	R T W AA AG
		-1259.442	287.369	14.588	S U V AC AD AE AF AH
17	0.416	-191.590	-147.407	-811.096	R T W AA AG
		-1245.367	313.343	139.483	S U V AC AD AE AF AH
17	0.831	-181.165	-91.650	-860.685	R T W AA AG
		-1231.292	337.605	274.917	S U V AC AD AE AF AH

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
17	1.247	-270.662	-44.411	-331.467	AX AY AZ BB BJ BL
		-1217.217	360.155	419.880	S U V AC AD AE AF AH
17	1.662	-260.236	-10.694	-342.858	AX AY AZ BB BJ BL
		-1203.143	380.994	573.959	S U V AC AD AE AF AH
18	0	-260.236	-10.694	-342.858	AX AY AZ BB BJ BL
		-1203.143	380.994	573.959	S U V AC AD AE AF AH
18	0.828	-289.252	46.787	-48.098	AI AJ AK AL AU AW
		-1132.261	429.384	656.722	S U V Y AD AE AF AH
18	1.656	-309.456	73.185	220.633	AI AJ AK AL AW
		-1010.948	496.982	543.121	S U V Y AD AE AF AG AH
18	2.484	-288.683	88.402	287.853	AI AJ AK AL AW
		-982.904	569.428	985.391	S U V Y AD AE AF AG AH
18	3.312	-267.910	99.090	365.799	AI AJ AK AL AW
		-954.860	631.588	1483.397	S U V Y AD AE AF AG AH
19	0	-280.557	24.350	530.252	R T V AC AE AF AH
		-432.696	1038.097	-1753.241	S U W AA AD AG
19	0.619	-286.507	-2.321	537.068	R T V AC AE AF AH
		-432.696	925.354	-1145.799	S U W AA AD AG
19	1.237	-292.456	-28.992	527.380	R T V AC AE AF AH
		-432.696	812.610	-608.116	S U W AA AD AG
19	1.856	-298.405	-55.663	501.190	R T V AC AE AF AH
		-432.696	699.867	-140.193	S U W AA AD AG
19	2.475	-304.355	-82.335	458.497	R T V AC AE AF AH
		-432.696	587.123	257.969	S U W AA AD AG
20	0	-304.355	-82.335	458.497	R T V AC AE AF AH
		-432.696	587.123	257.969	S U W AA AD AG
20	0.619	-310.304	-109.006	399.301	R T V AC AE AF AH
		-432.696	474.380	586.372	S U W AA AD AG
20	1.238	-316.253	-135.677	323.602	R T V AC AE AF AH
		-432.696	361.636	845.014	S U W AA AD AG
20	1.856	-222.890	-174.991	705.034	AX AY AZ BC BD BE BH...
		-432.696	248.893	1033.897	S U W AA AD AG
20	2.475	-226.856	-253.142	572.581	AX AY AZ BC BD BE BH...
		-261.529	189.095	526.273	AX AY AZ BB BF BG BJ
21	0	-226.856	-253.142	572.581	AX AY AZ BC BD BE BH...
		-261.529	189.095	526.273	AX AY AZ BB BF BG BJ
21	0.619	-444.245	-301.763	976.383	S U V AC AD AE AF AH
		-261.529	110.944	619.097	AX AY AZ BB BF BG BJ
21	1.237	-450.194	-414.506	754.787	S U V AC AD AE AF AH
		-322.552	82.807	282.976	R T W AA AG
21	1.856	-456.144	-527.250	463.431	S U V AC AD AE AF AH
		-322.552	56.136	325.961	R T W AA AG
21	2.475	-462.093	-639.993	102.315	S U V AC AD AE AF AH
		-322.552	29.464	352.444	R T W AA AG
22	0	-462.093	-639.993	102.315	S U V AC AD AE AF AH
		-322.552	29.464	352.444	R T W AA AG

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
22	0.619	-468.042	-752.737	-328.561	S U V AC AD AE AF AH
		-322.552	2.793	362.424	R T W AA AG
22	1.237	-473.992	-865.481	-829.197	S U V AC AD AE AF AH
		-322.552	-23.878	355.900	R T W AA AG
22	1.856	-479.941	-978.224	-1399.593	S U V AC AD AE AF AH
		-322.552	-50.549	332.875	R T W AA AG
22	2.475	-485.890	-1090.968	-2039.749	S U V AC AD AE AF AH
		-322.552	-77.220	293.346	R T W AA AG

E.L.S. (Combinación característica)
(Reacciones)

ENVELOPE SPECIFIC.: CX ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	PLUS	4	0.780000		Sob unif parcial dintel dcha
F	PLUS	5	0.780000		Sob unif parcial dintel izqda
G	PLUS	6	0.780000		Sobrecarga uniforme dintel cen
H	PLUS	7	0.780000		Sobrecarga posicion lateral
I	PLUS	8	1.000		Sobrecarga solera
J	PLUS	13	1.000		Empuje activo debido a la sob
K	PLUS	15	1.000		Empuje activo debido a la sob
L	PLUS	18	1.000		Frenado
ALTERNATIVE ENVELOPE :					
M	PERM.	1	1.000		Peso Propio
N	PL.PERM	2	1.000		Cargas permanentes
O	PL.PERM	17	1.000		Reologicas
P	PL.PERM	10	1.000		Empuje al reposo de tierras
Q	PLUS	4	0.780000		Sob unif parcial dintel dcha
R	PLUS	5	0.780000		Sob unif parcial dintel izqda
S	PLUS	6	0.780000		Sobrecarga uniforme dintel cen
T	PLUS	7	0.780000		Sobrecarga posicion lateral
U	PLUS	8	1.000		Sobrecarga solera
V	PLUS	14	1.000		Empuje al reposo sob unif
W	PLUS	16	1.000		Empuje al reposo sob. parcial
X	PLUS	18	1.000		Frenado

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
1		29.131		
		225.223		
	Min:	M N O P V X		Max: M N O P Q R S T U W
2		65.628		
		211.575		
	Min:	M N O P V X		Max: M N O P Q R S T U W
3		103.506		
		207.026		
	Min:	M N O P V X		Max: M N O P Q R S T U W
4	-332.916	163.825		
	-161.926	232.813		
	Min:	A B C D J L		Max: M N O P Q R S T U W
5		188.900		
		312.471		
	Min:	A B C D K		Max: M N O P Q R S T U V X
6		101.099		
		210.847		

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
	Min:	M N O P W		Max: M N O P Q R S T U V X
7		89.223		
		198.971		
	Min:	M N O P V X		Max: M N O P Q R S T U W
8		180.413		
		303.984		
	Min:	A B C D J L		Max: M N O P Q R S T U W
9	301.186	167.382		
	130.196	236.370		
	Min:	A B C D K		Max: M N O P Q R S T U V X
10		113.682		
		217.203		
	Min:	M N O P W		Max: M N O P Q R S T U V X
11		82.662		
		228.609		
	Min:	M N O P W		Max: M N O P Q R S T U V X
12		54.002		
		250.094		
	Min:	M N O P W		Max: M N O P Q R S T U V X

E.L.S. (Combinación característica)
(Comprobación al deslizamiento)

E.L.S. (Combinación frecuente)
(Fisuración)

ENVELOPE SPECIFIC.: CV ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	7.000		Peso Propio
B	PL.PERM	24	1.000		carga permanente deslizamiento
C	PL.PERM	17	7.000		Reologicas
D	PL.PERM	9	7.000		Empuje activo de tierras
E	PLUS	13	2.460		Empuje activo debido a la sob
F	PLUS	15	2.460		Empuje activo debido a la sob
G	PLUS	18	3.770		Frenado

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-0	856.848	4.71E-06	A B C D F
		+0	574.387	3.16E-06	A B C D E G
1	0.550	-0	45.246	248.076	A B C D F
		+0	-237.215	92.722	A B C D E G
2	0	+0	894.213	248.076	A B C D F
		+0	422.378	92.722	A B C D E G
2	0.550	+0	82.611	516.702	A B C D F
		+0	-389.224	101.839	A B C D E G
3	0	+0	959.029	516.702	A B C D F
		+0	379.776	101.839	A B C D E G
3	0.550	+0	147.427	820.978	A B C D F
		+0	-431.826	87.526	A B C D E G
4	0	-0	-1737.027	1799.690	A B C D F G
		-0	-1854.382	1929.779	A B C D E
4	0.725	-0	-1863.902	494.354	A B C D F G
		-0	-1981.257	539.359	A B C D E
5	0	+0	-573.657	461.894	A B C D F
		+0	-725.279	571.819	A B C D E G
5	0.725	+0	-700.532	5.08E-06	A B C D F
		+0	-852.154	6.18E-06	A B C D E G
6	0	+0	807.381	5.85E-06	A B C D F
		+0	655.759	4.75E-06	A B C D E G
6	0.725	+0	680.506	539.359	A B C D F
		+0	528.884	429.433	A B C D E G
7	0	-0	1981.257	539.359	A B C D F
		-0	1710.362	429.433	A B C D E G
7	0.725	-0	1854.382	1929.779	A B C D F
		-0	1583.487	1623.454	A B C D E G
8	0	+0	-343.773	1067.426	A B C D E G
		+0	235.480	333.974	A B C D F
8	0.550	+0	-1155.375	655.161	A B C D E G
		+0	-576.122	240.298	A B C D F
9	0	+0	-240.591	655.161	A B C D E G
		+0	231.244	240.298	A B C D F
9	0.550	+0	-1052.193	299.645	A B C D E G
		+0	-580.358	144.292	A B C D F
10	0	-0	-45.246	248.076	A B C D E
		+0	49.690	195.861	A B C D F G
10	0.550	-0	-856.848	4.71E-06	A B C D E
		+0	-761.912	4.19E-06	A B C D F G
11	0	-2851.032	1216.733	-890.594	A B C D F

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-2516.439	1746.755	-1930.371	A B C D E G
11	1.662	-2559.111	524.200	538.850	A B C D F
		-2224.517	972.018	311.903	A B C D E G
12	0	-2559.111	524.200	538.850	A B C D F
		-2224.517	972.018	311.903	A B C D E G
12	1.662	-2267.190	-40.524	923.199	A B C D F
		-1932.596	325.090	1372.417	A B C D E G
13	0	-2267.190	-40.524	923.199	A B C D F
		-1932.596	325.090	1372.417	A B C D E G
13	1.662	-1975.268	-477.439	474.935	A B C D F
		-1640.674	-194.029	1463.655	A B C D E G
14	0	-1975.268	-477.439	474.935	A B C D F
		-1640.674	-194.029	1463.655	A B C D E G
14	3.312	-1393.620	-966.955	-2057.406	A B C D F
		-1059.026	-847.335	-401.167	A B C D E G
15	0	-2984.019	-1097.113	556.028	A B C D E G
		-2649.425	-1627.135	1595.804	A B C D F
15	1.662	-2692.097	-404.580	-674.548	A B C D E G
		-2357.503	-852.398	-447.601	A B C D F
16	0	-2692.097	-404.580	-674.548	A B C D E G
		-2357.503	-852.398	-447.601	A B C D F
16	1.662	-2400.176	160.144	-860.028	A B C D E G
		-2065.582	-205.470	-1309.247	A B C D F
17	0	-2400.176	160.144	-860.028	A B C D E G
		-2065.582	-205.470	-1309.247	A B C D F
17	1.662	-2108.254	597.059	-212.896	A B C D E G
		-1773.660	313.649	-1201.616	A B C D F
18	0	-2108.254	597.059	-212.896	A B C D E G
		-1773.660	313.649	-1201.616	A B C D F
18	3.312	-1526.606	1086.576	2715.687	A B C D E G
		-1192.012	966.955	1059.448	A B C D F
19	0	-1073.439	1292.816	-1638.024	A B C D E F
		-740.852	1159.830	-820.549	A B C D G
19	2.475	-1073.439	646.408	761.766	A B C D E F
		-800.662	513.422	1250.101	A B C D G
20	0	-1073.439	646.408	761.766	A B C D E F
		-800.662	513.422	1250.101	A B C D G
20	2.475	-1073.439	6.46E-06	1561.696	A B C D E F
		-860.472	-132.986	1720.891	A B C D G
21	0	-1073.439	-132.986	1561.696	A B C D E F G
		-860.472	-6.46E-06	1720.891	A B C D
21	2.475	-1133.249	-779.394	432.626	A B C D E F G
		-860.472	-646.408	920.961	A B C D
22	0	-1133.249	-779.394	432.626	A B C D E F G
		-860.472	-646.408	920.961	A B C D
22	2.475	-1193.059	-1425.802	-2296.305	A B C D E F G
		-860.472	-1292.816	-1478.830	A B C D

ENVELOPE SPECIFIC.: CR ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	OR	11	1.000		Empuje act/rep de tierras
F	OR	12	1.000		Empuje al rep/act de tierras
G	PLUS	3	0.600000		Sobrecarga uniforme total
H	PLUS	8	0.600000		Sobrecarga solera
I	PLUS	13	0.600000		Empuje activo debido a la sob
J	PLUS	15	0.600000		Empuje activo debido a la sob
K	PLUS	18	0.600000		Frenado
ALTERNATIVE ENVELOPE :					
L	PERM	1	1.000		Peso Propio
M	PL.PERM	2	1.000		Cargas permanentes
N	PL.PERM	17	1.000		Reologicas
O	PL.PERM	10	1.000		Empuje al reposo de tierras
P	OR	11	1.000		Empuje act/rep de tierras
Q	OR	12	1.000		Empuje al rep/act de tierras
R	PLUS	3	0.600000		Sobrecarga uniforme total
S	PLUS	8	0.600000		Sobrecarga solera
T	PLUS	14	0.600000		Empuje al reposo sob unif
U	PLUS	16	0.600000		Empuje al reposo sob. parcial
V	PLUS	18	0.600000		Frenado

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-0	40.530	2.23E-07	L M N Q T V
		+0	225.847	1.24E-06	L M N P R S U
1	0.138	-0	10.032	3.476	L M N Q T V
		+0	195.350	28.957	L M N P R S U
1	0.275	-0	-20.465	2.759	L M N Q T V
		+0	164.852	53.721	L M N P R S U
1	0.413	-0	-50.963	-2.152	L M N Q T V
		+0	134.355	74.292	L M N P R S U
1	0.550	-0	-81.460	-11.256	L M N Q T V
		+0	103.857	90.669	L M N P R S U
2	0	+0	-8.380	-11.256	L M N Q T V
		+0	311.597	90.669	L M N P R S U
2	0.137	+0	-38.878	-14.505	L M N Q T V
		+0	281.100	131.417	L M N P R S U
2	0.275	+0	-69.375	-21.947	L M N Q T V
		+0	250.602	167.971	L M N P R S U
2	0.412	+0	-99.873	-33.583	L M N Q T V

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		+0	220.105	200.332	L M N P R S U
2	0.550	+0	-130.370	-49.412	L M N Q T V
		+0	189.607	228.500	L M N P R S U
3	0	+0	-22.910	-49.412	L M N Q T V
		+0	388.366	228.500	L M N P R S U
3	0.138	+0	-53.408	-54.659	L M N Q T V
		+0	357.869	279.804	L M N P R S U
3	0.275	+0	-83.905	-64.099	L M N Q T V
		+0	327.371	326.914	L M N P R S U
3	0.413	+0	-114.403	-77.733	L M N Q T V
		+0	296.874	369.831	L M N P R S U
3	0.550	+0	-144.900	-95.560	L M N Q T V
		+0	266.376	408.554	L M N P R S U
4	0	-0	-190.994	204.755	L M N P S U
		-0	-409.812	439.082	L M N Q R T V
4	0.181	-0	-201.108	169.221	L M N P S U
		-0	-419.491	363.927	L M N Q R T V
4	0.362	-0	-211.221	131.853	L M N P S U
		-0	-429.170	287.017	L M N Q R T V
4	0.544	-0	-221.335	92.653	L M N P S U
		-0	-438.848	208.353	L M N Q R T V
4	0.725	-0	-231.449	51.619	L M N P S U
		-0	-448.527	127.934	L M N Q R T V
5	0	+0	-50.972	51.619	L M N P S U
		+0	-157.103	127.934	L M N Q R T V
5	0.181	+0	-61.085	41.464	L M N P S U
		+0	-166.782	98.582	L M N Q R T V
5	0.363	+0	-71.482	29.421	L M N P U
		+0	-176.178	67.531	L M N Q R S T V
5	0.544	+0	-81.161	15.588	L M N P U
		+0	-186.292	34.682	L M N Q R S T V
5	0.725	+0	-90.839	6.59E-07	L M N P U
		+0	-196.406	1.42E-06	L M N Q R S T V
6	0	+0	83.725	6.07E-07	L M N Q T V
		-0	189.295	1.37E-06	L M N P R S U
6	0.181	+0	74.047	14.298	L M N Q T V
		-0	179.181	33.393	L M N P R S U
6	0.362	+0	64.368	26.842	L M N Q T V
		-0	169.068	64.953	L M N P R S U
6	0.544	+0	53.972	37.596	L M N Q S T V
		-0	159.672	94.716	L M N P R U
6	0.725	+0	43.858	46.462	L M N Q S T V
		-0	149.993	122.779	L M N P R U
7	0	+0	219.252	46.462	L M N Q S T V
		-0	436.337	122.779	L M N P R U
7	0.181	+0	209.138	85.285	L M N Q S T V

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-0	426.658	200.988	L M N P R U
7	0.362	+0	199.024	122.274	L M N Q S T V
		-0	416.979	277.443	L M N P R U
7	0.544	+0	188.910	157.431	L M N Q S T V
		-0	407.300	352.143	L M N P R U
7	0.725	+0	178.797	190.754	L M N Q S T V
		-0	397.622	425.089	L M N P R U
8	0	+0	113.705	-56.406	L M N P U
		-0	-297.579	447.718	L M N Q R S T V
8	0.138	+0	83.208	-42.868	L M N P U
		-0	-328.076	404.704	L M N Q R S T V
8	0.275	+0	52.710	-33.524	L M N P U
		-0	-358.574	357.497	L M N Q R S T V
8	0.413	+0	22.213	-28.373	L M N P U
		-0	-389.071	306.097	L M N Q R S T V
8	0.550	+0	-8.285	-27.415	L M N P U
		-0	-419.569	250.503	L M N Q R S T V
9	0	+0	105.272	-27.415	L M N P U
		+0	-214.712	250.503	L M N Q R S T V
9	0.137	+0	74.774	-15.037	L M N P U
		+0	-245.210	218.883	L M N Q R S T V
9	0.275	+0	44.277	-6.852	L M N P U
		+0	-275.707	183.070	L M N Q R S T V
9	0.412	+0	13.779	-2.861	L M N P U
		+0	-306.205	143.064	L M N Q R S T V
9	0.550	+0	-16.718	-3.063	L M N P U
		+0	-336.702	98.864	L M N Q R S T V
10	0	+0	66.564	-3.063	L M N P U
		+0	-118.757	98.864	L M N Q R S T V
10	0.138	+0	36.067	3.993	L M N P U
		+0	-149.255	80.438	L M N Q R S T V
10	0.275	+0	5.569	6.855	L M N P U
		+0	-179.752	57.819	L M N Q R S T V
10	0.413	+0	-24.928	5.524	L M N P U
		+0	-210.250	31.006	L M N Q R S T V
10	0.550	+0	-55.426	3.05E-07	L M N P U
		+0	-240.747	1.32E-06	L M N Q R S T V
11	0	-360.280	438.080	-467.057	L M N Q T V
		-744.866	70.346	136.214	L M N P R S U
11	0.416	-349.854	390.432	-294.942	L M N Q T V
		-734.440	43.901	159.917	L M N P R S U
11	0.831	-339.429	344.512	-142.271	L M N Q T V
		-724.014	18.598	172.866	L M N P R S U
11	1.247	-329.003	300.320	-8.327	L M N Q T V
		-685.002	84.321	180.955	L M N O R S U
11	1.662	-384.444	97.747	53.551	A B C D K
		-637.268	131.527	222.378	L M N O R S T U

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
12	0	-384.444	97.747	53.551	A B C D K
		-637.268	131.527	222.378	L M N O R S T U
12	0.416	-605.678	39.834	80.191	A B C D G K
		-395.183	126.829	277.919	L M N O S T U
12	0.831	-595.252	19.095	92.398	A B C D G K
		-384.757	87.826	322.467	L M N O S T U
12	1.247	-671.886	-90.457	91.527	L M N P R U
		-287.300	140.483	355.920	L M N Q S T V
12	1.662	-661.460	-108.914	50.055	L M N P R U
		-276.874	104.930	406.860	L M N Q S T V
13	0	-661.460	-108.914	50.055	L M N P R U
		-276.874	104.930	406.860	L M N Q S T V
13	0.416	-651.034	-126.230	1.150	L M N P R U
		-266.448	71.105	443.382	L M N Q S T V
13	0.831	-640.608	-142.405	-54.715	L M N P R U
		-256.023	39.008	466.205	L M N Q S T V
13	1.247	-630.183	-157.438	-117.066	L M N P R U
		-245.597	8.638	476.047	L M N Q S T V
13	1.662	-619.757	-171.330	-185.428	L M N P R U
		-235.171	-20.003	473.625	L M N Q S T V
14	0	-619.757	-171.330	-185.428	L M N P R U
		-235.171	-20.003	473.625	L M N Q S T V
14	0.828	-598.984	-195.609	-337.676	L M N P R U
		-214.398	-71.919	435.090	L M N Q S T V
14	1.656	-578.211	-215.357	-508.154	L M N P R U
		-193.625	-116.976	356.402	L M N Q S T V
14	2.484	-557.437	-230.922	-693.325	L M N P R S U
		-172.852	-154.825	243.458	L M N Q T V
14	3.312	-536.664	-241.609	-889.295	L M N P R S U
		-152.078	-186.163	101.794	L M N Q T V
15	0	-766.003	-51.337	-189.379	L M N Q R S T V
		-381.417	-419.097	413.910	L M N P U
15	0.416	-755.577	-24.892	-205.181	L M N Q R S T V
		-370.991	-371.448	249.685	L M N P U
15	0.831	-745.151	0.411465	-210.229	L M N Q R S T V
		-360.566	-325.528	104.904	L M N P U
15	1.247	-706.167	-65.284	-210.464	L M N O R S T V
		-350.140	-281.335	-21.150	L M N P U
15	1.662	-658.433	-112.489	-243.974	L M N O R S T U V
		-405.608	-78.709	-75.148	A B C D
16	0	-658.433	-112.489	-243.974	L M N O R S T U V
		-405.608	-78.709	-75.148	A B C D
16	0.416	-416.348	-107.791	-291.603	L M N O S T U V
		-626.843	-20.797	-93.875	A B C D G
16	0.831	-405.922	-68.788	-328.238	L M N O S T U V
		-616.417	-0.057395	-98.169	A B C D G

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
16	1.247	-308.437	-121.489	-353.827	L M N P S U
		-693.022	109.466	-89.387	L M N Q R T V
16	1.662	-298.011	-85.933	-396.872	L M N P S U
		-682.597	127.923	-40.015	L M N Q R T V
17	0	-298.011	-85.933	-396.872	L M N P S U
		-682.597	127.923	-40.015	L M N Q R T V
17	0.416	-287.585	-52.105	-425.498	L M N P S U
		-672.171	145.239	16.791	L M N Q R T V
17	0.831	-277.159	-20.003	-440.424	L M N P S U
		-661.745	161.414	80.557	L M N Q R T V
17	1.247	-266.734	10.370	-442.366	L M N P S U
		-651.319	176.447	150.808	L M N Q R T V
17	1.662	-256.308	39.016	-432.043	L M N P S U
		-640.894	190.339	227.070	L M N Q R T V
18	0	-256.308	39.016	-432.043	L M N P S U
		-640.894	190.339	227.070	L M N Q R T V
18	0.828	-235.535	90.943	-377.758	L M N P S U
		-620.120	214.618	395.060	L M N Q R T V
18	1.656	-214.762	136.013	-283.311	L M N P S U
		-599.347	234.366	581.280	L M N Q R T V
18	2.484	-193.988	173.876	-154.596	L M N P U
		-578.574	249.931	782.193	L M N Q R S T V
18	3.312	-173.215	205.229	2.851	L M N P U
		-557.801	260.618	993.905	L M N Q R S T V
19	0	-241.609	536.664	-889.295	L M N P R S U
		-186.163	152.078	101.794	L M N Q T V
19	0.619	-241.609	477.818	-575.440	L M N P R S U
		-188.543	122.190	186.645	L M N Q T V
19	1.237	-205.577	245.227	-315.254	L M N P S U
		-226.954	266.046	270.262	L M N Q R T V
19	1.856	-205.577	215.338	-172.767	L M N P S U
		-229.334	207.200	416.673	L M N Q R T V
19	2.475	-205.577	185.449	-48.773	L M N P S U
		-231.714	148.354	526.672	L M N Q R T V
20	0	-205.577	185.449	-48.773	L M N P S U
		-231.714	148.354	526.672	L M N Q R T V
20	0.619	-205.577	155.561	56.727	L M N P S U
		-234.094	89.507	600.260	L M N Q R T V
20	1.238	-205.577	125.672	143.733	L M N P S U
		-236.473	30.661	637.437	L M N Q R T V
20	1.856	-276.407	29.889	194.422	L M N O S T U
		-167.965	37.681	656.091	A B C D G K
20	2.475	-276.407	1.20E-06	203.669	L M N O S T U
		-170.345	-21.165	661.201	A B C D G K
21	0	-276.407	-21.165	203.669	L M N O S T U V
		-170.345	-2.35E-06	661.201	A B C D G

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
21	0.619	-278.787	-51.054	181.327	L M N O S T U V
		-170.345	-58.846	642.995	A B C D G
21	1.237	-210.308	-146.809	117.594	L M N Q S T V
		-241.261	-51.798	611.263	L M N P R U
21	1.856	-212.688	-176.697	17.509	L M N Q S T V
		-241.261	-110.644	561.008	L M N P R U
21	2.475	-215.067	-206.586	-101.069	L M N Q S T V
		-241.261	-169.490	474.341	L M N P R U
22	0	-215.067	-206.586	-101.069	L M N Q S T V
		-241.261	-169.490	474.341	L M N P R U
22	0.619	-217.447	-236.475	-238.141	L M N Q S T V
		-241.261	-228.337	351.263	L M N P R U
22	1.237	-219.827	-266.364	-393.707	L M N Q S T V
		-241.261	-287.183	191.774	L M N P R U
22	1.856	-258.238	-498.955	-666.971	L M N Q R S T V
		-205.229	-143.327	95.079	L M N P U
22	2.475	-260.618	-557.801	-993.905	L M N Q R S T V
		-205.229	-173.215	-2.851	L M N P U

ENVELOPE SPECIFIC.: CX ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	PLUS	4	0.780000		Sob unif parcial dintel dcha
F	PLUS	5	0.780000		Sob unif parcial dintel izqda
G	PLUS	6	0.780000		Sobrecarga uniforme dintel cen
H	PLUS	7	0.780000		Sobrecarga posicion lateral
I	PLUS	8	1.000		Sobrecarga solera
J	PLUS	13	1.000		Empuje activo debido a la sob
K	PLUS	15	1.000		Empuje activo debido a la sob
L	PLUS	18	1.000		Frenado
ALTERNATIVE ENVELOPE :					
M	PERM.	1	1.000		Peso Propio
N	PL.PERM	2	1.000		Cargas permanentes
O	PL.PERM	17	1.000		Reologicas
P	PL.PERM	10	1.000		Empuje al reposo de tierras
Q	PLUS	4	0.780000		Sob unif parcial dintel dcha
R	PLUS	5	0.780000		Sob unif parcial dintel izqda
S	PLUS	6	0.780000		Sobrecarga uniforme dintel cen
T	PLUS	7	0.780000		Sobrecarga posicion lateral
U	PLUS	8	1.000		Sobrecarga solera
V	PLUS	14	1.000		Empuje al reposo sob unif
W	PLUS	16	1.000		Empuje al reposo sob. parcial
X	PLUS	18	1.000		Frenado

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
1		29.131		
		225.223		$/0.575\,m^2 = 391.6\,kN/m^2$
	Min: M N O P V X		Max: M N O P O R S T U W	
2		65.628		
		211.575		$/0.55\,m = 384.7\,kN/m^2$
	Min: M N O P V X		Max: M N O P O R S T U W	
3		103.506		
		207.026		$/0.55m = 376.3\,kN/m^2$
	Min: M N O P V X		Max: M N O P O R S T U W	
4	-332.916	163.825		
	-161.926	232.813		$/0.6375m = 365.1\,kN/m^2$
	Min: A B C D J L		Max: M N O P O R S T U W	
5		188.900		
		412.471		$/0.725m = 1130\,kN/m^2$
	Min: A B C D K		Max: M N O P O R S T U V X	
6		101.099		
		210.847		$/0.3625m = 581.6\,kN/m^2 < 1.25 \times 500\,kN/m^2 = 625\,kN/m^2$

VERIFICAN LAS TENSIONES

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
7	Min: M N O P W		Max: M N O P O R S T U V X	
		89.223		
		198.971		$/0.3625\,m^2 = 548.68\,kN/m^2$
8	Min: M N O P V X		Max: M N O P O R S T U W	
		180.413		
		303.984		$/0.725\,m^2 = 419.30\,kN/m^2$
9	Min: A B C D J L		Max: M N O P O R S T U W	
	301.186	167.382		
	130.196	236.370		$/0.6375\,m^2 = 370.77\,kN/m^2$
10	Min: A B C D K		Max: M N O P O R S T U V X	
		113.682		
		217.203		$/0.55\,m^2 = 394.9\,kN/m^2$
11	Min: M N O P W		Max: M N O P O R S T U V X	
		82.662		
		228.609		$/0.55\,m^2 = 415.63\,kN/m^2$
12	Min: M N O P W		Max: M N O P O R S T U V X	
		54.002		
		250.094		$/0.575\,m^2 = 434.95\,kN/m^2$
	Min: M N O P W		Max: M N O P O R S T U V X	

ENVELOPE SPECIFIC.: CV ''

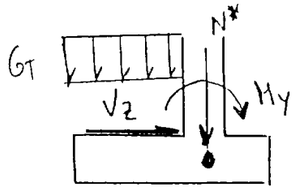
Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	7.000		Peso Propio
B	PL.PERM	24	1.000		carga permanente deslizamiento
C	PL.PERM	17	7.000		Reologicas
D	PL.PERM	9	7.000		Empuje activo de tierras
E	PLUS	13	2.460		Empuje activo debido a la sob
F	PLUS	15	2.460		Empuje activo debido a la sob
G	PLUS	18	1.770		Frenado

ENVELOPE for < N > (and accomp. values) ''
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-0	856.848	4.71E-06	A B C D F
		+0	574.387	3.16E-06	A B C D E G
1	0.550	-0	45.246	248.076	A B C D F
		+0	-237.215	92.722	A B C D E G
2	0	+0	894.213	248.076	A B C D F
		+0	422.378	92.722	A B C D E G
2	0.550	+0	82.611	516.702	A B C D F
		+0	-389.224	101.839	A B C D E G
3	0	+0	959.029	516.702	A B C D F
		+0	379.776	101.839	A B C D E G
3	0.550	+0	147.427	820.978	A B C D F
		+0	-431.826	87.526	A B C D E G
4	0	-0	-1737.027	1799.690	A B C D F G
		-0	-1854.382	1929.779	A B C D E
4	0.725	-0	-1863.902	494.354	A B C D F G
		-0	-1981.257	539.359	A B C D E
5	0	+0	-573.657	461.894	A B C D F
		+0	-725.279	571.819	A B C D E G
5	0.725	+0	-700.532	5.08E-06	A B C D F
		+0	-852.154	6.18E-06	A B C D E G
6	0	+0	807.381	5.85E-06	A B C D F
		+0	655.759	4.75E-06	A B C D E G
6	0.725	+0	680.506	539.359	A B C D F
		+0	528.884	429.433	A B C D E G
7	0	-0	1981.257	539.359	A B C D F
		-0	1710.362	429.433	A B C D E G
7	0.725	-0	1854.382	1929.779	A B C D F
		-0	1583.487	1623.454	A B C D E G
8	0	+0	-343.773	1067.426	A B C D E G
		+0	235.480	333.974	A B C D F
8	0.550	+0	-1155.375	655.161	A B C D E G
		+0	-576.122	240.298	A B C D F
9	0	+0	-240.591	655.161	A B C D E G
		+0	231.244	240.298	A B C D F
9	0.550	+0	-1052.193	299.645	A B C D E G
		+0	-580.358	144.292	A B C D F
10	0	-0	-45.246	248.076	A B C D E
		+0	49.690	195.861	A B C D F G
10	0.550	-0	-856.848	4.71E-06	A B C D E
		+0	-761.912	4.19E-06	A B C D F G
11	0	-0	-2851.032	1216.733	-890.594	A B C D F

ENVELOPE for < N > (and accomp. values) ''
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-2516.439	1746.755	-1930.371	A B C D E G
11	1.662	-2559.111	524.200	538.850	A B C D F
		-2224.517	972.018	311.903	A B C D E G
12	0	-2559.111	524.200	538.850	A B C D F
		-2224.517	972.018	311.903	A B C D E G
12	1.662	-2267.190	-40.524	923.199	A B C D F
		-1932.596	325.090	1372.417	A B C D E G
13	0	-2267.190	-40.524	923.199	A B C D F
		-1932.596	325.090	1372.417	A B C D E G
13	1.662	-1975.268	-477.439	474.935	A B C D F
		-1640.674	-194.029	1463.655	A B C D E G
14	0	-1975.268	-477.439	474.935	A B C D F
		-1640.674	-194.029	1463.655	A B C D E G
14	3.312	-1393.620	-966.955	-2057.406	A B C D F
		-1059.026	-847.335	-401.167	A B C D E G
15	0	-2984.019	-1097.113	556.028	A B C D E G
		-2649.425	-1627.135	1595.804	A B C D F
15	1.662	-2692.097	-404.580	-674.548	A B C D E G
		-2357.503	-852.398	-447.601	A B C D F
16	0	-2692.097	-404.580	-674.548	A B C D E G
		-2357.503	-852.398	-447.601	A B C D F
16	1.662	-2400.176	160.144	-860.028	A B C D E G
		-2065.582	-205.470	-1309.247	A B C D F
17	0	-2400.176	160.144	-860.028	A B C D E G
		-2065.582	-205.470	-1309.247	A B C D F
17	1.662	-2108.254	597.059	-212.896	A B C D E G
		-1773.660	313.649	-1201.616	A B C D F
18	0	-2108.254	597.059	-212.896	A B C D E G
		-1773.660	313.649	-1201.616	A B C D F
18	3.312	-1526.606	1086.576	2715.687	A B C D E G
		-1192.012	966.955	1059.448	A B C D F
19	0	-1073.439	1292.816	-1638.024	A B C D E F
		-740.852	1159.830	-820.549	A B C D G
19	2.475	-1073.439	646.408	761.766	A B C D E F
		-800.662	513.422	1250.101	A B C D G
20	0	-1073.439	646.408	761.766	A B C D E F
		-800.662	513.422	1250.101	A B C D G
20	2.475	-1073.439	6.46E-06	1561.696	A B C D E F
		-860.472	-132.986	1720.891	A B C D G
21	0	-1073.439	-132.986	1561.696	A B C D E F G
		-860.472	-6.46E-06	1720.891	A B C D
21	2.475	-1133.249	-779.394	432.626	A B C D E F G
		-860.472	-646.408	920.961	A B C D
22	0	-1133.249	-779.394	432.626	A B C D E F G
		-860.472	-646.408	920.961	A B C D
22	2.475	-1193.059	-1425.802	-2296.305	A B C D E F G
		-860.472	-1292.816	-1478.830	A B C D



$$\begin{cases} V_z = 1746.75\ KN \\ N^* = 2516.43\ KN \\ M_y = -1930.37 \end{cases}$$

$$N = N^* + G_{ZAPATA} + G_{TIERRAS}$$

$$N = 2516.43\,KN + 3.50m \times 1.00m \times 7.00m \times 25\,\frac{KN}{m^3} +$$

$$+ 8.23m \times 1.50m \times 7.00m \times 20\,KN/m^3$$

$$N = 4960.16\ KN$$

$$Cd = \frac{\mu \times N}{V_z} = \frac{0.60 \times 4960.16\,KN}{1746.75\,KN} = 1.70 > 1.50$$

VERIFICA DESLIZAMIENTO

INDICE

3.5. Dimensionamiento

3.5.1. Envolvente de esfuerzos para dimensionamiento

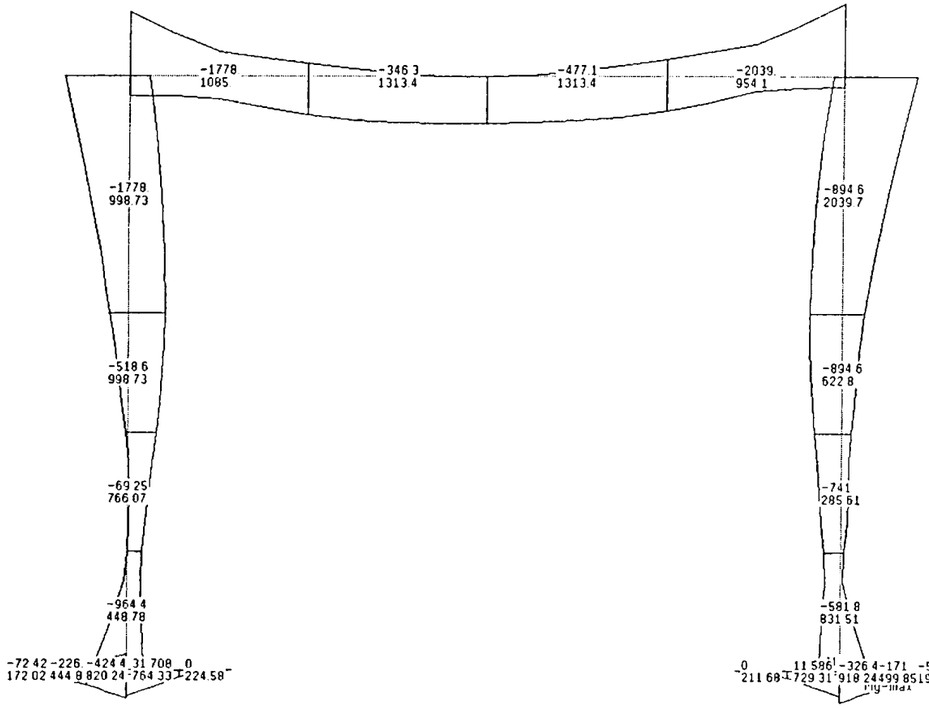
3.5.2. Cálculo de armaduras

3.5.3. Comprobación a cortante

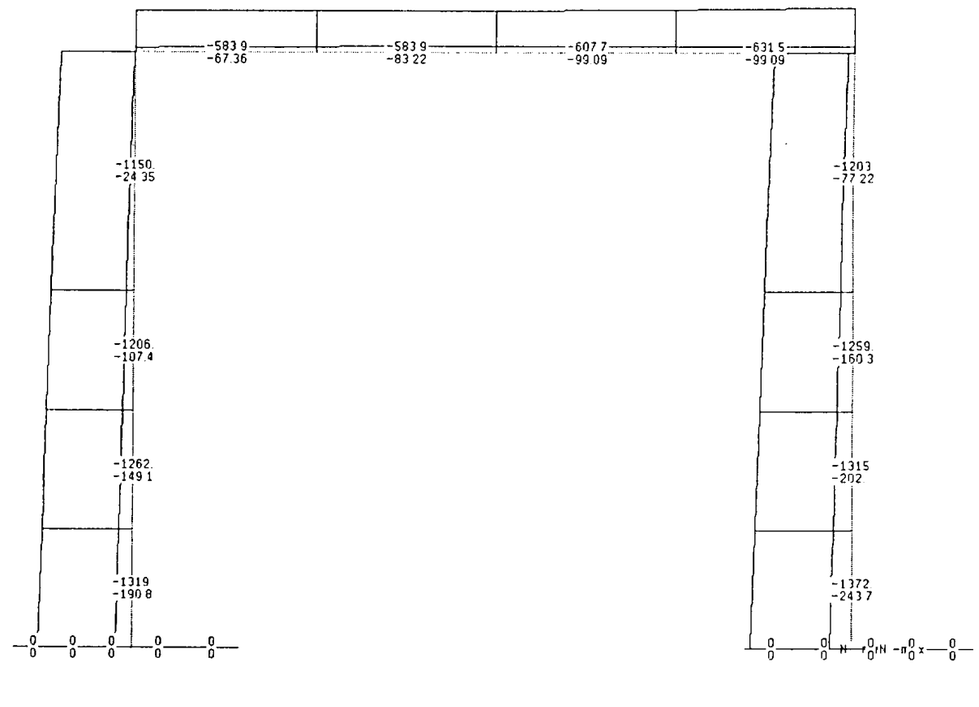
3.5.1. Envolvente de esfuerzos

(Dimensionamiento)

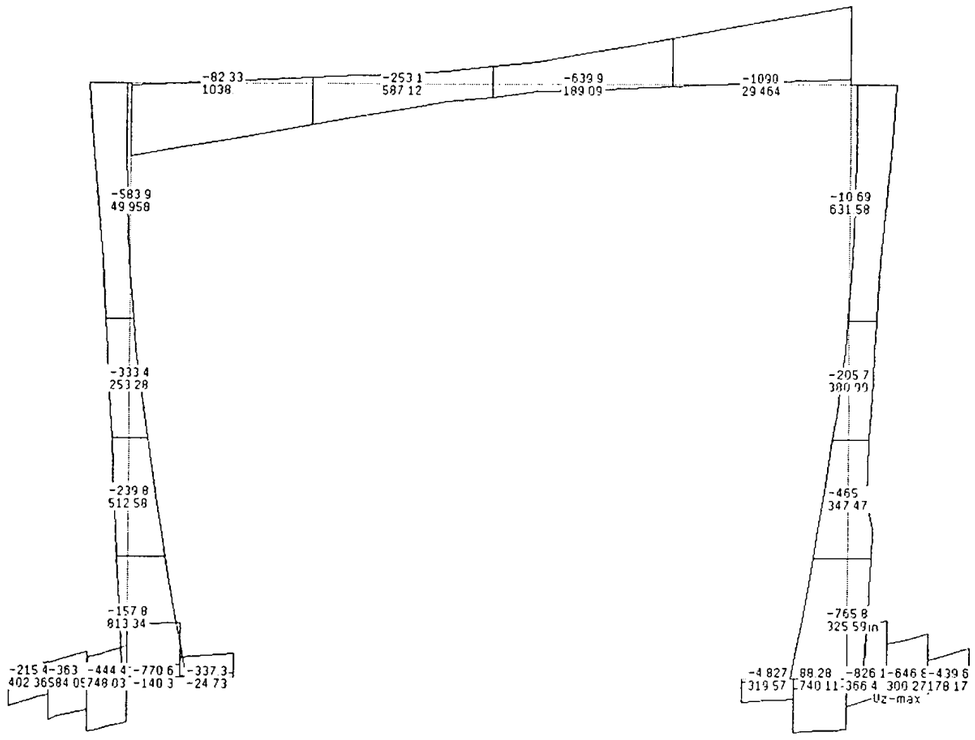
Scale 1 : 86.1
Int. Forces envelope My, GWSP CQ, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 5.00E-04
  min: -2.04E+03 max: 1.47E+02 [kNm]
- Envelope Moment My-max, Scale 5.00E-04
  min: 2.21E-06 max: 2.04E+03 [kNm]
- Text envelopes [kNm]



Scale 1 : 86.1
Int. Forces envelope N , GWSP CQ, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Normal force N-min, Scale 1.00E-03
  min: -1.37E+03 max: -0.00E+00 [kN]
- Envelope Normal force N-max, Scale 1.00E-03
  min: -2.85E+02 max: 0.00E+00 [kN]
- Text envelopes [kN]



Scale 1 : 86.1
Int. Forces envelope Vz, GWSP CQ, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 1.00E-03
  min: -1.09E+03 max: 1.30E+02 [kN]
- Envelope Shear force Vz-max, Scale 1.00E-03
  min: -1.78E+02 max: 1.04E+03 [kN]
- Text envelopes [kN]



3.5.2. Cálculo de armaduras

A partir de los resultados obtenidos del programa STATIK-3 se determinan las armaduras correspondientes, mediante el postprocesador FAGUS-3.

Se han decalado las armaduras necesarias de tracción.

Se ha considerado una armadura mínima de flexión, en la dirección principal, del 0.18 % como cuantía geométrica y una armadura mínima en la otra dirección, ortogonal a la principal, (secundaria o de reparto) del 20 % de la armadura de la dirección principal.

ENVELOPE SPECIFIC.: CQ ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	0.750000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme total
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
Q	PLUS	18	1.500		Frenado
ALTERNATIVE ENVELOPE :					
R	PERM.	1	1.000		Peso Propio
S	OR	1	1.350		Peso Propio
T	PL.PERM	2	0.750000		Cargas permanentes
U	OR	2	1.350		Cargas permanentes
V	PL.PERM	17	1.000		Reologicas
W	OR	17	1.350		Reologicas
X	PL.PERM	10	1.000		Empuje al reposo de tierras
Y	OR	10	1.500		Empuje al reposo de tierras
Z	OR	11	1.000		Empuje act/rep de tierras
AA	OR	11	1.500		Empuje act/rep de tierras
AB	OR	12	1.000		Empuje al rep/act de tierras
AC	OR	12	1.500		Empuje al rep/act de tierras
AD	PLUS	3	1.500		Sobrecarga uniforme total
AE	PLUS	8	1.500		Sobrecarga solera
AF	PLUS	14	1.500		Empuje al reposo sob unif
AG	PLUS	16	1.500		Empuje al reposo sob. parcial
AH	PLUS	18	1.500		Frenado
ALTERNATIVE ENVELOPE :					
AI	PERM.	1	1.000		Peso Propio
AJ	PL.PERM	2	1.000		Cargas permanentes
AK	PL.PERM	17	1.000		Reologicas
AL	PL.PERM	9	1.000		Empuje activo de tierras
AM	OR	11	1.000		Empuje act/rep de tierras
AN	OR	12	1.000		Empuje al rep/act de tierras
AO	PLUS	4	1.000		Sob unif parcial dintel dcha
AP	PLUS	5	1.000		Sob unif parcial dintel izqda
AQ	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AR	PLUS	7	1.000		Sobrecarga posicion lateral
AS	PLUS	8	1.000		Sobrecarga solera
AT	PLUS	13	1.000		Empuje activo debido a la sob
AU	PLUS	15	1.000		Empuje activo debido a la sob
AV	PLUS	18	1.000		Frenado
AW	PLUS	19	1.000		ACCIDENTAL : Choque
ALTERNATIVE ENVELOPE :					
AX	PERM.	1	1.000		Peso Propio
AY	PL.PERM	2	1.000		Cargas permanentes
AZ	PL.PERM	17	1.000		Reologicas
BA	PL.PERM	10	1.000		Empuje al reposo de tierras
BB	OR	11	1.000		Empuje act/rep de tierras
BC	OR	12	1.000		Empuje al rep/act de tierras
BD	PLUS	4	1.000		Sob unif parcial dintel dcha
BE	PLUS	5	1.000		Sob unif parcial dintel izqda
BF	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BG	PLUS	7	1.000		Sobrecarga posicion lateral
BH	PLUS	8	1.000		Sobrecarga solera
BI	PLUS	14	1.000		Empuje al reposo sob unif
BJ	PLUS	16	1.000		Empuje al reposo sob. parcial
BK	PLUS	18	1.000		Frenado
BL	PLUS	19	1.000		ACCIDENTAL : Choque

FAGUS-3 - post-processor module::
Section forces restored from STATIK-3

Section forces restored from STATIK-3:

Analysis	C.Set	N	Vy	Vz	T	My	Mz
Design	2	ELU1	.	ELU1	.	ELU1	.

Calculation parameters Construction code: EH 91

Calculation set 2: Design(Standard)

Concrete stress strain diagram ..... type 2
Concrete in tension ..... type 0

Max. strains:
Max. concrete strain at ult. limit state (compr.). -2.00 [o/oo]
Max. concrete strain at ult. limit state (bending) -3.50 [o/oo]
Max. strain in reinforcement bars (ult.limit state 10.00 [o/oo]

Resistance coefficients:
Concrete..... 1.5
Steel..... 1.15
Prestressing steel..... 1.15
Structural steel..... 1.15

Inclination of diagonal in compression..... 45
Creep coefficient..... 0

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
1	0.00	0.00	0.00	0.00	0.00	402.37	0.00	2 B
		-0.00	-0.00	0.00	0.00	-51.67	0.00	2 B
		0.00	0.00	0.00	0.00	96.85	0.00	2 B
		-0.00	0.00	0.00	0.00	230.16	0.00	2 B
		0.00	0.00	0.00	0.00	402.37	0.00	2 B
		-0.00	-0.00	0.00	0.00	-51.67	0.00	2 B
1	0.14	0.00	52.25	0.00	0.00	357.56	0.00	2 B
		-0.00	-9.47	0.00	0.00	-89.79	0.00	2 B
		0.00	10.35	0.00	0.00	53.76	0.00	2 B
		-0.00	28.65	0.00	0.00	186.56	0.00	2 B
		0.00	52.25	0.00	0.00	357.56	0.00	2 B
		-0.00	-9.47	0.00	0.00	-89.79	0.00	2 B
1	0.28	0.00	98.33	0.00	0.00	312.76	0.00	2 B
		-0.00	-24.69	0.00	0.00	-131.67	0.00	2 B
		0.00	14.78	0.00	0.00	10.67	0.00	2 B
		-0.00	51.30	0.00	0.00	142.96	0.00	2 B
		0.00	98.33	0.00	0.00	312.76	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
1	0.41	0.00	138.26	0.00	0.00	267.96	0.00	2 B
		-0.00	-45.68	0.00	0.00	-173.56	0.00	2 B
		0.00	13.29	0.00	0.00	-32.41	0.00	2 B
		-0.00	67.96	0.00	0.00	99.36	0.00	2 B
		0.00	132.13	0.00	0.00	271.26	0.00	2 B
		-0.00	-45.68	0.00	0.00	-173.56	0.00	2 B
1	0.55	0.00	172.02	0.00	0.00	223.16	0.00	2 B
		-0.00	-72.42	0.00	0.00	-215.44	0.00	2 B
		0.00	5.87	0.00	0.00	-75.50	0.00	2 B
		-0.00	78.63	0.00	0.00	55.76	0.00	2 B
		0.00	167.18	0.00	0.00	238.55	0.00	2 B
		-0.00	-72.42	0.00	0.00	-215.44	0.00	2 B
2	0.00	-0.00	172.02	0.00	0.00	584.05	0.00	2 B
		0.00	-72.42	0.00	0.00	-195.54	0.00	2 B
		-0.00	139.21	0.00	0.00	485.23	0.00	2 B
		0.00	-72.42	0.00	0.00	-195.54	0.00	2 B
		-0.00	172.02	0.00	0.00	584.05	0.00	2 B
		0.00	-72.42	0.00	0.00	-195.54	0.00	2 B
2	0.14	-0.00	249.25	0.00	0.00	539.25	0.00	2 B
		0.00	-102.19	0.00	0.00	-237.42	0.00	2 B
		-0.00	203.68	0.00	0.00	452.53	0.00	2 B
		0.00	-102.19	0.00	0.00	-237.42	0.00	2 B
		-0.00	249.25	0.00	0.00	539.25	0.00	2 B
		0.00	-102.19	0.00	0.00	-237.42	0.00	2 B
2	0.28	-0.00	320.31	0.00	0.00	494.45	0.00	2 B
		0.00	-137.71	0.00	0.00	-279.30	0.00	2 B
		-0.00	263.65	0.00	0.00	419.82	0.00	2 B
		0.00	-137.71	0.00	0.00	-279.30	0.00	2 B
		-0.00	314.98	0.00	0.00	504.77	0.00	2 B
		0.00	-137.71	0.00	0.00	-279.30	0.00	2 B
2	0.41	-0.00	385.22	0.00	0.00	449.65	0.00	2 B
		0.00	-178.99	0.00	0.00	-321.18	0.00	2 B
		-0.00	319.13	0.00	0.00	387.12	0.00	2 B
		0.00	-178.99	0.00	0.00	-321.18	0.00	2 B
		-0.00	382.14	0.00	0.00	472.07	0.00	2 B
		0.00	-178.99	0.00	0.00	-321.18	0.00	2 B
2	0.55	-0.00	444.80	0.00	0.00	439.37	0.00	2 B
		0.00	-226.04	0.00	0.00	-363.07	0.00	2 B
		-0.00	370.11	0.00	0.00	354.42	0.00	2 B
		0.00	-226.04	0.00	0.00	-363.07	0.00	2 B
		-0.00	444.80	0.00	0.00	439.37	0.00	2 B
		0.00	-226.04	0.00	0.00	-363.07	0.00	2 B
3	0.00	-0.00	444.80	0.00	0.00	748.03	0.00	2 B
		0.00	-226.04	0.00	0.00	-276.92	0.00	2 B
		-0.00	444.80	0.00	0.00	748.03	0.00	2 B
		0.00	-226.04	0.00	0.00	-276.92	0.00	2 B
		-0.00	444.80	0.00	0.00	748.03	0.00	2 B
		0.00	-226.04	0.00	0.00	-276.92	0.00	2 B
3	0.14	-0.00	545.41	0.00	0.00	715.33	0.00	2 B
		0.00	-266.99	0.00	0.00	-318.80	0.00	2 B
		-0.00	545.41	0.00	0.00	715.33	0.00	2 B
		0.00	-266.99	0.00	0.00	-318.80	0.00	2 B
		-0.00	545.41	0.00	0.00	715.33	0.00	2 B
		0.00	-266.99	0.00	0.00	-318.80	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
3	0.28	-0.00	641.52	0.00	0.00	682.63	0.00	2 B
		0.00	-313.71	0.00	0.00	-360.68	0.00	2 B
		-0.00	641.52	0.00	0.00	682.63	0.00	2 B
		0.00	-313.71	0.00	0.00	-360.68	0.00	2 B
		-0.00	641.52	0.00	0.00	682.63	0.00	2 B
		0.00	-313.71	0.00	0.00	-360.68	0.00	2 B
3	0.41	-0.00	733.13	0.00	0.00	649.93	0.00	2 B
		0.00	-366.18	0.00	0.00	-402.56	0.00	2 B
		-0.00	733.13	0.00	0.00	649.93	0.00	2 B
		0.00	-366.18	0.00	0.00	-402.56	0.00	2 B
		-0.00	733.13	0.00	0.00	649.93	0.00	2 B
		0.00	-366.18	0.00	0.00	-402.56	0.00	2 B
3	0.55	-0.00	820.25	0.00	0.00	617.23	0.00	2 B
		0.00	-424.41	0.00	0.00	-444.45	0.00	2 B
		-0.00	820.25	0.00	0.00	617.23	0.00	2 B
		0.00	-424.41	0.00	0.00	-444.45	0.00	2 B
		-0.00	820.25	0.00	0.00	617.23	0.00	2 B
		0.00	-424.41	0.00	0.00	-444.45	0.00	2 B
4	0.00	-0.00	764.33	0.00	0.00	-718.35	0.00	2 B
		0.00	147.21	0.00	0.00	-140.35	0.00	2 B
		0.00	328.48	0.00	0.00	-317.76	0.00	2 B
		-0.00	515.17	0.00	0.00	-493.02	0.00	2 B
		0.00	147.21	0.00	0.00	-140.35	0.00	2 B
		-0.00	764.33	0.00	0.00	-718.35	0.00	2 B
4	0.18	-0.00	632.95	0.00	0.00	-731.42	0.00	2 B
		0.00	120.91	0.00	0.00	-149.83	0.00	2 B
		0.00	270.01	0.00	0.00	-327.43	0.00	2 B
		-0.00	424.53	0.00	0.00	-507.17	0.00	2 B
		0.00	120.91	0.00	0.00	-149.83	0.00	2 B
		-0.00	632.95	0.00	0.00	-731.42	0.00	2 B
4	0.36	-0.00	499.19	0.00	0.00	-744.48	0.00	2 B
		0.00	92.89	0.00	0.00	-159.31	0.00	2 B
		0.00	209.79	0.00	0.00	-337.11	0.00	2 B
		-0.00	331.32	0.00	0.00	-521.32	0.00	2 B
		0.00	92.89	0.00	0.00	-159.31	0.00	2 B
		-0.00	499.19	0.00	0.00	-744.48	0.00	2 B
4	0.54	-0.00	363.07	0.00	0.00	-757.55	0.00	2 B
		0.00	63.16	0.00	0.00	-168.79	0.00	2 B
		0.00	147.81	0.00	0.00	-346.79	0.00	2 B
		-0.00	235.54	0.00	0.00	-535.48	0.00	2 B
		0.00	63.16	0.00	0.00	-168.79	0.00	2 B
		-0.00	363.07	0.00	0.00	-757.55	0.00	2 B
4	0.72	-0.00	224.58	0.00	0.00	-770.62	0.00	2 B
		0.00	31.71	0.00	0.00	-178.27	0.00	2 B
		0.00	84.08	0.00	0.00	-356.47	0.00	2 B
		-0.00	137.21	0.00	0.00	-549.63	0.00	2 B
		0.00	31.71	0.00	0.00	-178.27	0.00	2 B
		-0.00	224.58	0.00	0.00	-770.62	0.00	2 B
5	0.00	0.00	224.58	0.00	0.00	-283.63	0.00	2 B
		-0.00	31.71	0.00	0.00	-24.78	0.00	2 B
		0.00	143.53	0.00	0.00	-169.67	0.00	2 B
		-0.00	110.50	0.00	0.00	-135.63	0.00	2 B
		-0.00	36.16	0.00	0.00	-24.74	0.00	2 B
		0.00	220.13	0.00	0.00	-283.67	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
5	0.18	0.00	171.99	0.00	0.00	-296.70	0.00	2 B
		-0.00	26.36	0.00	0.00	-34.26	0.00	2 B
		0.00	111.50	0.00	0.00	-183.82	0.00	2 B
		-0.00	85.16	0.00	0.00	-144.02	0.00	2 B
		-0.00	26.36	0.00	0.00	-34.26	0.00	2 B
		0.00	171.99	0.00	0.00	-296.70	0.00	2 B
5	0.36	0.00	117.16	0.00	0.00	-309.06	0.00	2 B
		-0.00	19.15	0.00	0.00	-44.44	0.00	2 B
		0.00	76.90	0.00	0.00	-197.98	0.00	2 B
		-0.00	58.29	0.00	0.00	-152.42	0.00	2 B
		-0.00	19.29	0.00	0.00	-43.73	0.00	2 B
		0.00	117.03	0.00	0.00	-309.77	0.00	2 B
5	0.54	0.00	59.87	0.00	0.00	-323.21	0.00	2 B
		-0.00	10.34	0.00	0.00	-52.83	0.00	2 B
		0.00	39.73	0.00	0.00	-212.13	0.00	2 B
		-0.00	29.91	0.00	0.00	-160.81	0.00	2 B
		-0.00	10.34	0.00	0.00	-52.83	0.00	2 B
		0.00	59.87	0.00	0.00	-323.21	0.00	2 B
5	0.72	0.00	0.00	0.00	0.00	-337.37	0.00	2 B
		-0.00	0.00	0.00	0.00	-61.23	0.00	2 B
		0.00	0.00	0.00	0.00	-226.28	0.00	2 B
		-0.00	0.00	0.00	0.00	-169.20	0.00	2 B
		-0.00	0.00	0.00	0.00	-61.23	0.00	2 B
		0.00	0.00	0.00	0.00	-337.37	0.00	2 B
6	0.00	-0.00	0.00	0.00	0.00	319.58	0.00	2 B
		-0.00	0.00	0.00	0.00	35.81	0.00	2 B
		0.00	0.00	0.00	0.00	120.88	0.00	2 B
		-0.00	0.00	0.00	0.00	269.78	0.00	2 B
		-0.00	0.00	0.00	0.00	319.58	0.00	2 B
		-0.00	0.00	0.00	0.00	35.81	0.00	2 B
6	0.18	-0.00	56.64	0.00	0.00	305.42	0.00	2 B
		-0.00	5.61	0.00	0.00	26.13	0.00	2 B
		0.00	20.72	0.00	0.00	107.81	0.00	2 B
		-0.00	48.04	0.00	0.00	260.30	0.00	2 B
		-0.00	56.64	0.00	0.00	305.42	0.00	2 B
		-0.00	5.61	0.00	0.00	26.13	0.00	2 B
6	0.36	-0.00	110.72	0.00	0.00	291.27	0.00	2 B
		-0.00	9.47	0.00	0.00	16.45	0.00	2 B
		0.00	39.08	0.00	0.00	94.74	0.00	2 B
		-0.00	94.36	0.00	0.00	250.82	0.00	2 B
		-0.00	110.58	0.00	0.00	291.97	0.00	2 B
		-0.00	9.56	0.00	0.00	15.98	0.00	2 B
6	0.54	-0.00	162.31	0.00	0.00	278.91	0.00	2 B
		-0.00	11.52	0.00	0.00	5.58	0.00	2 B
		0.00	55.07	0.00	0.00	81.68	0.00	2 B
		-0.00	138.96	0.00	0.00	241.34	0.00	2 B
		-0.00	162.31	0.00	0.00	278.91	0.00	2 B
		-0.00	11.52	0.00	0.00	5.58	0.00	2 B
6	0.72	-0.00	211.68	0.00	0.00	265.84	0.00	2 B
		-0.00	11.59	0.00	0.00	-4.83	0.00	2 B
		0.00	68.69	0.00	0.00	68.61	0.00	2 B
		-0.00	181.84	0.00	0.00	231.86	0.00	2 B
		-0.00	207.23	0.00	0.00	265.88	0.00	2 B
		-0.00	11.59	0.00	0.00	-4.83	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
7	0.00	-0.00	211.68	0.00	0.00	740.11	0.00	2 B
		0.00	11.59	0.00	0.00	129.90	0.00	2 B
		0.00	51.75	0.00	0.00	250.27	0.00	2 B
		-0.00	171.53	0.00	0.00	637.46	0.00	2 B
		-0.00	211.68	0.00	0.00	740.11	0.00	2 B
		0.00	11.59	0.00	0.00	129.90	0.00	2 B
7	0.18	-0.00	344.64	0.00	0.00	727.05	0.00	2 B
		0.00	34.19	0.00	0.00	119.49	0.00	2 B
		0.00	96.24	0.00	0.00	240.59	0.00	2 B
		-0.00	285.78	0.00	0.00	623.30	0.00	2 B
		-0.00	344.64	0.00	0.00	727.05	0.00	2 B
		0.00	34.19	0.00	0.00	119.49	0.00	2 B
7	0.36	-0.00	475.24	0.00	0.00	713.98	0.00	2 B
		0.00	54.90	0.00	0.00	109.09	0.00	2 B
		0.00	138.97	0.00	0.00	230.91	0.00	2 B
		-0.00	397.47	0.00	0.00	609.15	0.00	2 B
		-0.00	475.24	0.00	0.00	713.98	0.00	2 B
		0.00	54.90	0.00	0.00	109.09	0.00	2 B
7	0.54	-0.00	603.46	0.00	0.00	700.91	0.00	2 B
		0.00	73.73	0.00	0.00	98.68	0.00	2 B
		0.00	179.94	0.00	0.00	221.23	0.00	2 B
		-0.00	506.60	0.00	0.00	594.99	0.00	2 B
		-0.00	603.46	0.00	0.00	700.91	0.00	2 B
		0.00	73.73	0.00	0.00	98.68	0.00	2 B
7	0.72	-0.00	729.32	0.00	0.00	687.85	0.00	2 B
		0.00	90.67	0.00	0.00	88.28	0.00	2 B
		0.00	219.17	0.00	0.00	211.56	0.00	2 B
		-0.00	613.16	0.00	0.00	580.84	0.00	2 B
		-0.00	729.32	0.00	0.00	687.85	0.00	2 B
		0.00	90.67	0.00	0.00	88.28	0.00	2 B
8	0.00	-0.00	918.25	0.00	0.00	-695.30	0.00	2 B
		0.00	-326.46	0.00	0.00	366.41	0.00	2 B
		-0.00	581.08	0.00	0.00	-404.12	0.00	2 B
		0.00	-326.46	0.00	0.00	366.41	0.00	2 B
		-0.00	918.25	0.00	0.00	-695.30	0.00	2 B
		0.00	-326.46	0.00	0.00	366.41	0.00	2 B
8	0.14	-0.00	820.39	0.00	0.00	-728.00	0.00	2 B
		0.00	-278.96	0.00	0.00	324.52	0.00	2 B
		-0.00	523.42	0.00	0.00	-434.62	0.00	2 B
		0.00	-278.96	0.00	0.00	324.52	0.00	2 B
		-0.00	820.39	0.00	0.00	-728.00	0.00	2 B
		0.00	-278.96	0.00	0.00	324.52	0.00	2 B
8	0.28	-0.00	718.04	0.00	0.00	-760.71	0.00	2 B
		0.00	-237.21	0.00	0.00	282.64	0.00	2 B
		-0.00	461.56	0.00	0.00	-465.11	0.00	2 B
		0.00	-237.21	0.00	0.00	282.64	0.00	2 B
		-0.00	718.04	0.00	0.00	-760.71	0.00	2 B
		0.00	-237.21	0.00	0.00	282.64	0.00	2 B
8	0.41	-0.00	611.20	0.00	0.00	-793.41	0.00	2 B
		0.00	-201.23	0.00	0.00	240.76	0.00	2 B
		-0.00	395.51	0.00	0.00	-495.61	0.00	2 B
		0.00	-201.23	0.00	0.00	240.76	0.00	2 B
		-0.00	611.20	0.00	0.00	-793.41	0.00	2 B
		0.00	-201.23	0.00	0.00	240.76	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
8	0.55	-0.00	499.86	0.00	0.00	-826.11	0.00	2 B
		0.00	-171.00	0.00	0.00	198.88	0.00	2 B
		-0.00	325.27	0.00	0.00	-526.11	0.00	2 B
		0.00	-171.00	0.00	0.00	198.88	0.00	2 B
		-0.00	499.86	0.00	0.00	-826.11	0.00	2 B
		0.00	-171.00	0.00	0.00	198.88	0.00	2 B
9	0.00	0.00	499.86	0.00	0.00	-502.19	0.00	2 B
		0.00	-171.00	0.00	0.00	300.28	0.00	2 B
		0.00	203.95	0.00	0.00	-135.79	0.00	2 B
		-0.00	195.51	0.00	0.00	-148.13	0.00	2 B
		0.00	499.86	0.00	0.00	-502.19	0.00	2 B
		0.00	-171.00	0.00	0.00	300.28	0.00	2 B
9	0.14	0.00	431.63	0.00	0.00	-512.45	0.00	2 B
		0.00	-132.60	0.00	0.00	258.39	0.00	2 B
		0.00	182.31	0.00	0.00	-178.87	0.00	2 B
		-0.00	173.05	0.00	0.00	-178.62	0.00	2 B
		0.00	428.56	0.00	0.00	-534.89	0.00	2 B
		0.00	-132.60	0.00	0.00	258.39	0.00	2 B
9	0.28	0.00	358.08	0.00	0.00	-557.25	0.00	2 B
		0.00	-99.95	0.00	0.00	216.51	0.00	2 B
		0.00	154.76	0.00	0.00	-221.96	0.00	2 B
		-0.00	146.39	0.00	0.00	-209.12	0.00	2 B
		0.00	352.76	0.00	0.00	-567.59	0.00	2 B
		0.00	-99.95	0.00	0.00	216.51	0.00	2 B
9	0.41	0.00	278.38	0.00	0.00	-602.05	0.00	2 B
		0.00	-73.06	0.00	0.00	174.63	0.00	2 B
		0.00	121.28	0.00	0.00	-265.04	0.00	2 B
		-0.00	115.54	0.00	0.00	-239.62	0.00	2 B
		0.00	278.38	0.00	0.00	-602.05	0.00	2 B
		0.00	-73.06	0.00	0.00	174.63	0.00	2 B
9	0.55	0.00	192.52	0.00	0.00	-646.85	0.00	2 B
		0.00	-51.92	0.00	0.00	132.75	0.00	2 B
		0.00	81.87	0.00	0.00	-308.13	0.00	2 B
		-0.00	80.49	0.00	0.00	-270.12	0.00	2 B
		0.00	192.52	0.00	0.00	-646.85	0.00	2 B
		0.00	-51.92	0.00	0.00	132.75	0.00	2 B
10	0.00	0.00	192.52	0.00	0.00	-260.43	0.00	2 B
		0.00	-51.92	0.00	0.00	178.17	0.00	2 B
		0.00	8.61	0.00	0.00	73.94	0.00	2 B
		-0.00	117.57	0.00	0.00	-130.00	0.00	2 B
		-0.00	187.68	0.00	0.00	-275.84	0.00	2 B
		0.00	-51.92	0.00	0.00	178.17	0.00	2 B
10	0.14	0.00	153.63	0.00	0.00	-305.23	0.00	2 B
		0.00	-30.30	0.00	0.00	136.29	0.00	2 B
		0.00	15.70	0.00	0.00	29.14	0.00	2 B
		-0.00	96.82	0.00	0.00	-171.88	0.00	2 B
		-0.00	147.51	0.00	0.00	-308.54	0.00	2 B
		0.00	-30.30	0.00	0.00	136.29	0.00	2 B
10	0.28	0.00	108.58	0.00	0.00	-350.04	0.00	2 B
		0.00	-14.44	0.00	0.00	94.41	0.00	2 B
		0.00	16.63	0.00	0.00	-15.66	0.00	2 B
		-0.00	70.30	0.00	0.00	-213.76	0.00	2 B
		0.00	108.58	0.00	0.00	-350.04	0.00	2 B
		0.00	-14.44	0.00	0.00	94.41	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
10	0.41	0.00	57.37	0.00	0.00	-394.84	0.00	2 B
		0.00	-4.34	0.00	0.00	52.52	0.00	2 B
		0.00	11.39	0.00	0.00	-60.46	0.00	2 B
		-0.00	38.03	0.00	0.00	-255.65	0.00	2 B
		0.00	57.37	0.00	0.00	-394.84	0.00	2 B
		0.00	-4.34	0.00	0.00	52.52	0.00	2 B
10	0.55	0.00	0.00	0.00	0.00	-439.64	0.00	2 B
		0.00	-0.00	0.00	0.00	14.39	0.00	2 B
		0.00	0.00	0.00	0.00	-105.26	0.00	2 B
		-0.00	0.00	0.00	0.00	-297.53	0.00	2 B
		0.00	0.00	0.00	0.00	-439.64	0.00	2 B
		0.00	-0.00	0.00	0.00	14.39	0.00	2 B
11	0.00	-1304.88	448.78	0.00	0.00	-58.93	0.00	2 B
		-232.55	-964.48	0.00	0.00	813.34	0.00	2 B
		-1319.17	374.32	0.00	0.00	34.37	0.00	2 B
		-232.55	-948.43	0.00	0.00	808.57	0.00	2 B
		-1304.88	448.78	0.00	0.00	-58.93	0.00	2 B
		-232.55	-964.48	0.00	0.00	813.34	0.00	2 B
11	0.42	-1290.80	418.75	0.00	0.00	-85.38	0.00	2 B
		-222.13	-642.96	0.00	0.00	734.26	0.00	2 B
		-1305.10	380.30	0.00	0.00	-5.30	0.00	2 B
		-222.13	-628.89	0.00	0.00	729.49	0.00	2 B
		-1290.80	418.75	0.00	0.00	-85.38	0.00	2 B
		-222.13	-642.96	0.00	0.00	734.26	0.00	2 B
11	0.83	-1291.02	382.24	0.00	0.00	-48.03	0.00	2 B
		-211.70	-353.77	0.00	0.00	657.78	0.00	2 B
		-1291.02	370.15	0.00	0.00	-43.26	0.00	2 B
		-211.70	-341.68	0.00	0.00	653.00	0.00	2 B
		-1276.73	377.97	0.00	0.00	-110.68	0.00	2 B
		-211.70	-353.77	0.00	0.00	657.78	0.00	2 B
11	1.25	-1234.07	362.82	0.00	0.00	50.56	0.00	2 B
		-261.22	-101.42	0.00	0.00	408.01	0.00	2 B
		-1276.94	344.59	0.00	0.00	-79.50	0.00	2 B
		-201.27	-85.72	0.00	0.00	579.11	0.00	2 B
		-1262.65	326.91	0.00	0.00	-134.84	0.00	2 B
		-201.27	-95.82	0.00	0.00	583.88	0.00	2 B
11	1.66	-1126.72	407.08	0.00	0.00	203.42	0.00	2 B
		-560.38	-9.51	0.00	0.00	95.79	0.00	2 B
		-190.85	140.06	0.00	0.00	507.81	0.00	2 B
		-1262.87	304.31	0.00	0.00	-114.03	0.00	2 B
		-190.85	131.94	0.00	0.00	512.58	0.00	2 B
		-1248.58	266.04	0.00	0.00	-157.87	0.00	2 B
12	0.00	-1126.72	407.08	0.00	0.00	203.42	0.00	2 B
		-560.38	-9.51	0.00	0.00	95.79	0.00	2 B
		-190.85	140.06	0.00	0.00	507.81	0.00	2 B
		-1262.87	304.31	0.00	0.00	-114.03	0.00	2 B
		-190.85	131.94	0.00	0.00	512.58	0.00	2 B
		-1248.58	266.04	0.00	0.00	-157.87	0.00	2 B
12	0.42	-533.50	500.75	0.00	0.00	224.80	0.00	2 B
		-549.96	25.72	0.00	0.00	73.91	0.00	2 B
		-180.42	336.75	0.00	0.00	439.10	0.00	2 B
		-1248.80	250.03	0.00	0.00	-146.85	0.00	2 B
		-180.42	330.62	0.00	0.00	443.87	0.00	2 B
		-1234.50	195.84	0.00	0.00	-179.75	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
12	0.83	-457.65	581.99	0.00	0.00	169.42	0.00	2 B
		-947.03	42.08	0.00	0.00	-7.88	0.00	2 B
		-170.00	505.42	0.00	0.00	372.98	0.00	2 B
		-1234.72	182.47	0.00	0.00	-177.96	0.00	2 B
		-170.00	501.27	0.00	0.00	377.75	0.00	2 B
		-1220.43	116.78	0.00	0.00	-200.49	0.00	2 B
12	1.25	-159.57	650.57	0.00	0.00	308.58	0.00	2 B
		-1206.35	23.75	0.00	0.00	-214.44	0.00	2 B
		-159.57	647.15	0.00	0.00	309.45	0.00	2 B
		-1220.65	102.34	0.00	0.00	-207.36	0.00	2 B
		-159.57	644.98	0.00	0.00	314.22	0.00	2 B
		-1206.35	29.34	0.00	0.00	-220.08	0.00	2 B
12	1.66	-149.15	766.08	0.00	0.00	247.65	0.00	2 B
		-1192.28	-69.25	0.00	0.00	-232.90	0.00	2 B
		-149.15	763.01	0.00	0.00	248.51	0.00	2 B
		-1206.57	10.34	0.00	0.00	-235.04	0.00	2 B
		-149.15	762.83	0.00	0.00	253.29	0.00	2 B
		-1206.57	10.53	0.00	0.00	-239.82	0.00	2 B
13	0.00	-149.15	766.08	0.00	0.00	247.65	0.00	2 B
		-1192.28	-69.25	0.00	0.00	-232.90	0.00	2 B
		-149.15	766.08	0.00	0.00	247.65	0.00	2 B
		-1206.57	7.28	0.00	0.00	-234.18	0.00	2 B
		-149.15	762.83	0.00	0.00	253.29	0.00	2 B
		-1206.57	10.53	0.00	0.00	-239.82	0.00	2 B
13	0.42	-138.72	858.59	0.00	0.00	194.08	0.00	2 B
		-1178.20	-171.49	0.00	0.00	-254.99	0.00	2 B
		-138.72	856.79	0.00	0.00	189.30	0.00	2 B
		-1192.50	-95.51	0.00	0.00	-260.15	0.00	2 B
		-138.72	855.89	0.00	0.00	194.95	0.00	2 B
		-1192.50	-94.61	0.00	0.00	-265.79	0.00	2 B
13	0.83	-128.29	927.58	0.00	0.00	138.32	0.00	2 B
		-1164.13	-280.87	0.00	0.00	-271.16	0.00	2 B
		-128.29	923.79	0.00	0.00	133.55	0.00	2 B
		-1178.42	-208.73	0.00	0.00	-284.41	0.00	2 B
		-128.29	925.24	0.00	0.00	139.19	0.00	2 B
		-1178.42	-210.18	0.00	0.00	-290.05	0.00	2 B
13	1.25	-117.87	973.93	0.00	0.00	85.16	0.00	2 B
		-1150.05	-396.73	0.00	0.00	-286.20	0.00	2 B
		-117.87	968.16	0.00	0.00	80.39	0.00	2 B
		-1164.35	-331.69	0.00	0.00	-306.96	0.00	2 B
		-132.15	804.12	0.00	0.00	90.01	0.00	2 B
		-1164.35	-335.48	0.00	0.00	-312.60	0.00	2 B
13	1.66	-107.44	998.73	0.00	0.00	34.60	0.00	2 B
		-1135.98	-518.61	0.00	0.00	-300.09	0.00	2 B
		-107.44	990.98	0.00	0.00	29.82	0.00	2 B
		-1150.27	-463.66	0.00	0.00	-327.80	0.00	2 B
		-121.72	833.15	0.00	0.00	49.96	0.00	2 B
		-1150.27	-469.79	0.00	0.00	-333.44	0.00	2 B
14	0.00	-107.44	998.73	0.00	0.00	34.60	0.00	2 B
		-1135.98	-518.61	0.00	0.00	-300.09	0.00	2 B
		-107.44	989.36	0.00	0.00	30.69	0.00	2 B
		-1150.27	-462.04	0.00	0.00	-328.67	0.00	2 B
		-121.72	833.15	0.00	0.00	49.96	0.00	2 B
		-1150.27	-469.79	0.00	0.00	-333.44	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
14	0.83	-86.67	988.15	0.00	0.00	-58.43	0.00	2 B
		-1107.93	-777.49	0.00	0.00	-324.37	0.00	2 B
		-86.67	975.54	0.00	0.00	-62.34	0.00	2 B
		-1122.23	-749.76	0.00	0.00	-365.09	0.00	2 B
		-196.38	429.00	0.00	0.00	-15.06	0.00	2 B
		-1079.35	-513.05	0.00	0.00	-381.79	0.00	2 B
14	1.66	-65.90	904.79	0.00	0.00	-141.17	0.00	2 B
		-1094.18	-1080.68	0.00	0.00	-398.61	0.00	2 B
		-65.90	888.95	0.00	0.00	-145.08	0.00	2 B
		-1094.18	-1064.83	0.00	0.00	-394.71	0.00	2 B
		-216.58	186.54	0.00	0.00	-41.46	0.00	2 B
		-958.04	-360.03	0.00	0.00	-449.39	0.00	2 B
14	2.48	-45.12	757.71	0.00	0.00	-212.75	0.00	2 B
		-1066.14	-1421.24	0.00	0.00	-422.31	0.00	2 B
		-45.12	738.10	0.00	0.00	-217.53	0.00	2 B
		-1066.14	-1401.62	0.00	0.00	-417.53	0.00	2 B
		-195.81	145.60	0.00	0.00	-56.67	0.00	2 B
		-929.99	-762.89	0.00	0.00	-521.83	0.00	2 B
14	3.31	-24.35	555.08	0.00	0.00	-274.91	0.00	2 B
		-1038.10	-1778.07	0.00	0.00	-438.34	0.00	2 B
		-24.35	531.51	0.00	0.00	-279.69	0.00	2 B
		-1038.10	-1754.50	0.00	0.00	-433.57	0.00	2 B
		-175.03	93.93	0.00	0.00	-67.36	0.00	2 B
		-901.95	-1221.48	0.00	0.00	-583.99	0.00	2 B
15	0.00	-285.42	831.51	0.00	0.00	-765.83	0.00	2 B
		-1357.76	-581.82	0.00	0.00	106.50	0.00	2 B
		-285.42	815.46	0.00	0.00	-761.05	0.00	2 B
		-1372.04	-507.32	0.00	0.00	13.18	0.00	2 B
		-285.42	831.51	0.00	0.00	-765.83	0.00	2 B
		-988.22	-532.65	0.00	0.00	226.66	0.00	2 B
15	0.42	-275.00	529.74	0.00	0.00	-686.75	0.00	2 B
		-1343.69	-532.02	0.00	0.00	132.94	0.00	2 B
		-275.00	515.67	0.00	0.00	-681.98	0.00	2 B
		-1357.96	-493.53	0.00	0.00	52.85	0.00	2 B
		-275.00	529.74	0.00	0.00	-686.75	0.00	2 B
		-977.80	-432.91	0.00	0.00	253.10	0.00	2 B
15	0.83	-264.57	260.29	0.00	0.00	-610.26	0.00	2 B
		-1343.89	-475.71	0.00	0.00	95.58	0.00	2 B
		-264.57	248.21	0.00	0.00	-605.49	0.00	2 B
		-1343.89	-463.62	0.00	0.00	90.81	0.00	2 B
		-264.57	260.29	0.00	0.00	-610.26	0.00	2 B
		-967.37	-322.41	0.00	0.00	278.41	0.00	2 B
15	1.25	-354.07	74.11	0.00	0.00	-126.33	0.00	2 B
		-1286.98	-436.59	0.00	0.00	-2.96	0.00	2 B
		-254.14	12.00	0.00	0.00	-531.59	0.00	2 B
		-1329.82	-418.29	0.00	0.00	127.05	0.00	2 B
		-254.14	22.10	0.00	0.00	-536.37	0.00	2 B
		-956.95	-201.64	0.00	0.00	302.57	0.00	2 B
15	1.66	-653.26	99.26	0.00	0.00	185.94	0.00	2 B
		-1179.63	-461.07	0.00	0.00	-155.83	0.00	2 B
		-1315.74	-358.25	0.00	0.00	161.58	0.00	2 B
		-243.72	-194.04	0.00	0.00	-460.29	0.00	2 B
		-243.72	-185.92	0.00	0.00	-465.06	0.00	2 B
		-946.52	-71.06	0.00	0.00	325.59	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
16	0.00	-653.26	99.26	0.00	0.00	185.94	0.00	2 B
		-1179.63	-461.07	0.00	0.00	-155.83	0.00	2 B
		-1315.74	-358.25	0.00	0.00	161.58	0.00	2 B
		-243.72	-194.04	0.00	0.00	-460.29	0.00	2 B
		-243.72	-185.92	0.00	0.00	-465.06	0.00	2 B
		-946.52	-71.06	0.00	0.00	325.59	0.00	2 B
16	0.42	-642.83	181.13	0.00	0.00	207.82	0.00	2 B
		-586.41	-534.96	0.00	0.00	-177.21	0.00	2 B
		-1301.67	-284.21	0.00	0.00	194.40	0.00	2 B
		-233.29	-370.98	0.00	0.00	-391.57	0.00	2 B
		-936.10	68.85	0.00	0.00	347.47	0.00	2 B
		-233.29	-364.84	0.00	0.00	-396.35	0.00	2 B
16	0.83	-632.41	223.41	0.00	0.00	-21.44	0.00	2 B
		-510.56	-596.42	0.00	0.00	-121.82	0.00	2 B
		-1287.59	-196.89	0.00	0.00	225.51	0.00	2 B
		-222.87	-519.89	0.00	0.00	-325.45	0.00	2 B
		-222.87	-515.74	0.00	0.00	-330.23	0.00	2 B
		-1273.31	-131.20	0.00	0.00	248.05	0.00	2 B
16	1.25	-747.99	225.86	0.00	0.00	127.05	0.00	2 B
		-212.44	-645.29	0.00	0.00	-261.05	0.00	2 B
		-1273.52	-96.99	0.00	0.00	254.91	0.00	2 B
		-212.44	-641.87	0.00	0.00	-261.92	0.00	2 B
		-212.44	-639.70	0.00	0.00	-266.70	0.00	2 B
		-1259.24	-23.99	0.00	0.00	267.65	0.00	2 B
16	1.66	-904.82	285.62	0.00	0.00	155.69	0.00	2 B
		-202.02	-741.04	0.00	0.00	-200.11	0.00	2 B
		-1259.44	14.77	0.00	0.00	282.60	0.00	2 B
		-202.02	-737.98	0.00	0.00	-200.98	0.00	2 B
		-1259.44	14.59	0.00	0.00	287.37	0.00	2 B
		-202.02	-737.79	0.00	0.00	-205.76	0.00	2 B
17	0.00	-904.82	285.62	0.00	0.00	155.69	0.00	2 B
		-202.02	-741.04	0.00	0.00	-200.11	0.00	2 B
		-1259.44	14.77	0.00	0.00	282.60	0.00	2 B
		-202.02	-737.98	0.00	0.00	-200.98	0.00	2 B
		-1259.44	14.59	0.00	0.00	287.37	0.00	2 B
		-202.02	-737.79	0.00	0.00	-205.76	0.00	2 B
17	0.42	-894.39	353.96	0.00	0.00	173.00	0.00	2 B
		-191.59	-813.80	0.00	0.00	-146.54	0.00	2 B
		-1245.37	137.68	0.00	0.00	308.57	0.00	2 B
		-191.59	-809.29	0.00	0.00	-142.63	0.00	2 B
		-1245.37	139.48	0.00	0.00	313.34	0.00	2 B
		-191.59	-811.10	0.00	0.00	-147.41	0.00	2 B
17	0.83	-883.97	429.27	0.00	0.00	189.18	0.00	2 B
		-181.16	-863.03	0.00	0.00	-90.78	0.00	2 B
		-1231.29	271.03	0.00	0.00	332.83	0.00	2 B
		-181.16	-856.90	0.00	0.00	-86.88	0.00	2 B
		-1231.29	274.82	0.00	0.00	337.60	0.00	2 B
		-181.16	-860.68	0.00	0.00	-91.65	0.00	2 B
17	1.25	-873.54	511.06	0.00	0.00	204.21	0.00	2 B
		-170.74	-889.62	0.00	0.00	-37.61	0.00	2 B
		-1217.22	414.11	0.00	0.00	355.38	0.00	2 B
		-170.74	-881.87	0.00	0.00	-33.71	0.00	2 B
		-1217.22	419.88	0.00	0.00	360.16	0.00	2 B
		-270.66	-331.47	0.00	0.00	-44.41	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
17	1.66	-1188.86	622.81	0.00	0.00	347.65	0.00	2 B
		-160.31	-894.65	0.00	0.00	12.96	0.00	2 B
		-1203.14	566.20	0.00	0.00	376.22	0.00	2 B
		-160.31	-885.28	0.00	0.00	16.87	0.00	2 B
		-1203.14	573.96	0.00	0.00	380.99	0.00	2 B
		-260.24	-342.86	0.00	0.00	-10.69	0.00	2 B
18	0.00	-1188.86	622.81	0.00	0.00	347.65	0.00	2 B
		-160.31	-894.65	0.00	0.00	12.96	0.00	2 B
		-1203.14	566.20	0.00	0.00	376.22	0.00	2 B
		-160.31	-885.28	0.00	0.00	16.87	0.00	2 B
		-1203.14	573.96	0.00	0.00	380.99	0.00	2 B
		-260.24	-342.86	0.00	0.00	-10.69	0.00	2 B
18	0.83	-1160.82	921.08	0.00	0.00	371.93	0.00	2 B
		-139.54	-844.68	0.00	0.00	106.01	0.00	2 B
		-1175.10	893.31	0.00	0.00	412.64	0.00	2 B
		-139.54	-832.07	0.00	0.00	109.91	0.00	2 B
		-1132.26	656.72	0.00	0.00	429.38	0.00	2 B
		-289.25	-48.10	0.00	0.00	46.79	0.00	2 B
18	1.66	-1147.06	1263.60	0.00	0.00	446.16	0.00	2 B
		-118.77	-721.92	0.00	0.00	188.76	0.00	2 B
		-1147.06	1247.76	0.00	0.00	442.26	0.00	2 B
		-118.77	-706.08	0.00	0.00	192.67	0.00	2 B
		-1010.95	543.12	0.00	0.00	496.98	0.00	2 B
		-309.46	220.63	0.00	0.00	73.18	0.00	2 B
18	2.48	-1119.01	1643.54	0.00	0.00	469.86	0.00	2 B
		-97.99	-535.42	0.00	0.00	260.37	0.00	2 B
		-1119.01	1623.92	0.00	0.00	465.09	0.00	2 B
		-97.99	-515.81	0.00	0.00	265.14	0.00	2 B
		-982.90	985.39	0.00	0.00	569.43	0.00	2 B
		-288.68	287.85	0.00	0.00	88.40	0.00	2 B
18	3.31	-1090.97	2039.75	0.00	0.00	485.89	0.00	2 B
		-77.22	-293.35	0.00	0.00	322.55	0.00	2 B
		-1090.97	2016.18	0.00	0.00	481.12	0.00	2 B
		-77.22	-269.78	0.00	0.00	327.33	0.00	2 B
		-954.86	1483.40	0.00	0.00	631.59	0.00	2 B
		-267.91	365.80	0.00	0.00	99.09	0.00	2 B
19	0.00	-274.91	555.08	0.00	0.00	24.35	0.00	2 B
		-438.34	-1778.07	0.00	0.00	1038.10	0.00	2 B
		-67.36	93.93	0.00	0.00	175.03	0.00	2 B
		-583.99	-1221.48	0.00	0.00	901.95	0.00	2 B
		-280.56	530.25	0.00	0.00	24.35	0.00	2 B
		-432.70	-1753.24	0.00	0.00	1038.10	0.00	2 B
19	0.62	-280.86	561.89	0.00	0.00	-2.32	0.00	2 B
		-438.34	-1170.62	0.00	0.00	925.35	0.00	2 B
		-71.33	192.99	0.00	0.00	145.15	0.00	2 B
		-583.99	-698.28	0.00	0.00	789.20	0.00	2 B
		-286.51	537.07	0.00	0.00	-2.32	0.00	2 B
		-432.70	-1145.80	0.00	0.00	925.35	0.00	2 B
19	1.24	-202.48	642.80	0.00	0.00	215.77	0.00	2 B
		-328.19	-679.83	0.00	0.00	296.18	0.00	2 B
		-75.29	273.55	0.00	0.00	115.26	0.00	2 B
		-583.99	-244.84	0.00	0.00	676.46	0.00	2 B
		-292.46	527.38	0.00	0.00	-28.99	0.00	2 B
		-432.70	-608.12	0.00	0.00	812.61	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
19	1.86	-335.47	879.21	0.00	0.00	388.98	0.00	2 B
		-328.19	-504.83	0.00	0.00	269.51	0.00	2 B
		-79.26	335.62	0.00	0.00	85.37	0.00	2 B
		-583.99	138.84	0.00	0.00	563.72	0.00	2 B
		-298.41	501.19	0.00	0.00	-55.66	0.00	2 B
		-432.70	-140.19	0.00	0.00	699.87	0.00	2 B
19	2.48	-341.42	1085.01	0.00	0.00	276.23	0.00	2 B
		-328.19	-346.32	0.00	0.00	242.83	0.00	2 B
		-83.22	379.19	0.00	0.00	55.48	0.00	2 B
		-583.99	452.76	0.00	0.00	450.97	0.00	2 B
		-432.70	257.97	0.00	0.00	587.12	0.00	2 B
		-304.35	458.50	0.00	0.00	-82.33	0.00	2 B
20	0.00	-341.42	1085.01	0.00	0.00	276.23	0.00	2 B
		-328.19	-346.32	0.00	0.00	242.83	0.00	2 B
		-83.22	379.19	0.00	0.00	55.48	0.00	2 B
		-583.99	452.76	0.00	0.00	450.97	0.00	2 B
		-432.70	257.97	0.00	0.00	587.12	0.00	2 B
		-304.35	458.50	0.00	0.00	-82.33	0.00	2 B
20	0.62	-347.37	1221.05	0.00	0.00	163.49	0.00	2 B
		-328.19	-204.32	0.00	0.00	216.16	0.00	2 B
		-87.19	404.27	0.00	0.00	25.59	0.00	2 B
		-583.99	696.92	0.00	0.00	338.23	0.00	2 B
		-432.70	586.37	0.00	0.00	474.38	0.00	2 B
		-310.30	399.30	0.00	0.00	-109.01	0.00	2 B
20	1.24	-353.32	1287.33	0.00	0.00	50.75	0.00	2 B
		-328.19	-78.82	0.00	0.00	189.49	0.00	2 B
		-91.16	410.86	0.00	0.00	-4.30	0.00	2 B
		-583.99	871.32	0.00	0.00	225.49	0.00	2 B
		-432.70	845.01	0.00	0.00	361.64	0.00	2 B
		-316.25	323.60	0.00	0.00	-135.68	0.00	2 B
20	1.86	-229.26	1311.30	0.00	0.00	59.83	0.00	2 B
		-473.85	-2.93	0.00	0.00	26.67	0.00	2 B
		-95.12	398.96	0.00	0.00	-34.19	0.00	2 B
		-583.99	975.96	0.00	0.00	112.74	0.00	2 B
		-432.70	1033.90	0.00	0.00	248.89	0.00	2 B
		-222.89	705.03	0.00	0.00	-174.99	0.00	2 B
20	2.48	-235.21	1313.44	0.00	0.00	-52.91	0.00	2 B
		-473.85	5.32	0.00	0.00	0.00	0.00	2 B
		-99.09	368.56	0.00	0.00	-64.07	0.00	2 B
		-583.99	1010.84	0.00	0.00	0.00	0.00	2 B
		-261.53	526.27	0.00	0.00	189.10	0.00	2 B
		-226.86	572.58	0.00	0.00	-253.14	0.00	2 B
21	0.00	-235.21	1313.44	0.00	0.00	-0.00	0.00	2 B
		-473.85	5.32	0.00	0.00	-52.91	0.00	2 B
		-99.09	368.56	0.00	0.00	-28.80	0.00	2 B
		-583.99	1010.84	0.00	0.00	-52.91	0.00	2 B
		-261.53	526.27	0.00	0.00	189.10	0.00	2 B
		-226.86	572.58	0.00	0.00	-253.14	0.00	2 B
21	0.62	-235.21	1278.56	0.00	0.00	-112.74	0.00	2 B
		-479.80	-35.67	0.00	0.00	-79.58	0.00	2 B
		-99.09	341.49	0.00	0.00	-58.69	0.00	2 B
		-589.94	943.22	0.00	0.00	-165.66	0.00	2 B
		-261.53	619.10	0.00	0.00	110.94	0.00	2 B
		-444.25	976.38	0.00	0.00	-301.76	0.00	2 B

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
21	1.24	-365.25	1221.87	0.00	0.00	-103.63	0.00	2 B
		-340.05	-144.22	0.00	0.00	-242.36	0.00	2 B
		-99.09	295.93	0.00	0.00	-88.58	0.00	2 B
		-595.89	805.84	0.00	0.00	-278.40	0.00	2 B
		-322.55	282.98	0.00	0.00	82.81	0.00	2 B
		-450.19	754.79	0.00	0.00	-414.51	0.00	2 B
21	1.86	-365.25	1122.87	0.00	0.00	-216.37	0.00	2 B
		-346.00	-302.43	0.00	0.00	-269.03	0.00	2 B
		-99.09	231.88	0.00	0.00	-118.47	0.00	2 B
		-601.84	598.70	0.00	0.00	-391.14	0.00	2 B
		-322.55	325.96	0.00	0.00	56.14	0.00	2 B
		-456.14	463.43	0.00	0.00	-527.25	0.00	2 B
21	2.48	-365.25	954.11	0.00	0.00	-329.12	0.00	2 B
		-351.95	-477.15	0.00	0.00	-295.70	0.00	2 B
		-99.09	149.33	0.00	0.00	-148.35	0.00	2 B
		-607.79	321.80	0.00	0.00	-503.89	0.00	2 B
		-322.55	352.44	0.00	0.00	29.46	0.00	2 B
		-462.09	102.32	0.00	0.00	-639.99	0.00	2 B
22	0.00	-365.25	954.11	0.00	0.00	-329.12	0.00	2 B
		-351.95	-477.15	0.00	0.00	-295.70	0.00	2 B
		-99.09	149.33	0.00	0.00	-148.35	0.00	2 B
		-607.79	321.80	0.00	0.00	-503.89	0.00	2 B
		-322.55	352.44	0.00	0.00	29.46	0.00	2 B
		-462.09	102.32	0.00	0.00	-639.99	0.00	2 B
22	0.62	-365.25	715.58	0.00	0.00	-441.86	0.00	2 B
		-357.90	-668.37	0.00	0.00	-322.38	0.00	2 B
		-99.09	48.29	0.00	0.00	-178.24	0.00	2 B
		-613.74	-24.86	0.00	0.00	-616.63	0.00	2 B
		-322.55	362.42	0.00	0.00	2.79	0.00	2 B
		-468.04	-328.56	0.00	0.00	-752.74	0.00	2 B
22	1.24	-365.25	407.30	0.00	0.00	-554.61	0.00	2 B
		-363.85	-876.09	0.00	0.00	-349.05	0.00	2 B
		-619.69	-441.28	0.00	0.00	-729.37	0.00	2 B
		-99.09	-71.25	0.00	0.00	-208.13	0.00	2 B
		-322.55	355.90	0.00	0.00	-23.88	0.00	2 B
		-473.99	-829.20	0.00	0.00	-865.48	0.00	2 B
22	1.86	-322.55	332.87	0.00	0.00	-50.55	0.00	2 B
		-479.94	-1399.59	0.00	0.00	-978.22	0.00	2 B
		-625.64	-927.46	0.00	0.00	-842.12	0.00	2 B
		-99.09	-209.28	0.00	0.00	-238.02	0.00	2 B
		-322.55	332.87	0.00	0.00	-50.55	0.00	2 B
		-479.94	-1399.59	0.00	0.00	-978.22	0.00	2 B
22	2.48	-322.55	293.35	0.00	0.00	-77.22	0.00	2 B
		-485.89	-2039.75	0.00	0.00	-1090.97	0.00	2 B
		-631.59	-1483.40	0.00	0.00	-954.86	0.00	2 B
		-99.09	-365.80	0.00	0.00	-267.91	0.00	2 B
		-322.55	293.35	0.00	0.00	-77.22	0.00	2 B
		-485.89	-2039.75	0.00	0.00	-1090.97	0.00	2 B

sum of reinforced steel area run: 'STD'

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW [cm2/m]	
1	0.00	1.00	1.59	1.00	5.63	8.33	--------
1	0.14	1.00	2.03	1.26	5.37	8.33	--------
1	0.28	1.00	2.51	2.39	5.98	8.33	--------
1	0.41	1.10	3.10	3.37	6.49	8.33	--------
1	0.55	1.75	4.23	4.20	6.94	8.33	--------
2	0.00	1.75	4.00	4.20	10.91	8.33	--------
2	0.14	2.48	5.21	6.11	12.31	8.33	--------
2	0.28	3.35	6.57	7.87	13.68	8.33	--------
2	0.41	4.37	8.06	9.50	14.92	8.33	--------
2	0.55	5.53	9.71	10.99	16.04	8.33	--------
3	0.00	5.53	8.72	10.99	19.59	8.33	--------
3	0.14	6.55	10.21	13.53	21.75	8.33	--------
3	0.28	7.71	11.86	15.97	23.82	8.33	--------
3	0.41	9.02	13.65	18.31	25.78	8.33	--------
3	0.55	10.48	15.59	20.54	27.64	8.33	--------
4	0.00	1.00	1.00	19.11	27.37	8.33	--------
4	0.18	1.00	1.00	15.75	24.16	8.33	--------
4	0.36	1.00	1.00	12.36	20.92	8.33	--------
4	0.54	1.00	1.00	8.94	17.65	8.33	--------
4	0.72	1.00	1.00	5.50	14.36	8.33	--------
5	0.00	1.00	1.00	5.50	8.76	8.33	--------
5	0.18	1.00	1.00	4.20	7.61	8.33	--------
5	0.36	1.00	1.00	2.85	6.41	8.33	--------
5	0.54	1.00	1.00	1.45	5.16	8.33	--------
5	0.72	1.00	1.00	1.00	4.88	8.33	--------
6	0.00	1.00	1.00	1.00	4.68	8.33	--------
6	0.18	1.00	1.00	1.37	4.88	8.33	--------
6	0.36	1.00	1.00	2.69	6.05	8.33	--------
6	0.54	1.00	1.00	3.96	7.17	8.33	--------
6	0.72	1.00	1.00	5.18	8.24	8.33	--------
7	0.00	1.00	1.00	5.18	13.69	8.33	--------
7	0.18	1.00	1.00	8.48	16.84	8.33	--------
7	0.36	1.00	1.00	11.76	19.97	8.33	--------
7	0.54	1.00	1.00	15.00	23.06	8.33	--------
7	0.72	1.00	1.00	18.21	26.12	8.33	--------
8	0.00	8.03	12.24	23.07	31.07	8.33	--------
8	0.14	6.85	10.58	20.55	28.92	8.33	--------
8	0.28	5.81	9.06	17.92	26.67	8.33	--------
8	0.41	4.92	7.69	15.20	24.32	8.33	--------
8	0.55	4.17	6.46	12.38	21.88	8.33	--------
9	0.00	4.17	7.63	12.38	18.15	8.33	--------
9	0.14	3.23	6.20	10.66	16.81	8.33	--------
9	0.28	2.43	4.92	8.82	15.34	8.33	--------

sum of reinforced steel area — run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
9	0.41	1.77	3.78	6.83	13.75	8.33	-------
9	0.55	1.25	2.78	4.70	12.14	8.33	-------
10	0.00	1.25	3.30	4.70	7.88	8.33	-------
10	0.14	1.00	2.57	3.75	7.29	8.33	-------
10	0.28	1.00	2.09	2.64	6.66	8.33	-------
10	0.41	1.00	1.60	1.39	5.93	8.33	-------
10	0.55	1.00	1.17	1.00	6.06	8.33	-------
11	0.00	21.56	30.92	1.00	1.68	0.00	-------
11	0.42	13.43	21.88	1.00	1.98	0.00	-------
11	0.83	6.26	13.82	1.00	2.27	0.00	-------
11	1.25	1.00	7.71	1.00	2.55	0.00	-------
11	1.66	1.00	2.10	1.17	7.06	0.00	-------
12	0.00	1.00	2.10	1.17	7.06	0.00	-------
12	0.42	1.00	1.00	6.27	11.37	0.00	-------
12	0.83	1.00	1.00	10.53	14.87	0.00	-------
12	1.25	1.00	1.00	14.32	17.93	0.00	-------
12	1.66	1.00	3.68	17.38	20.29	0.00	-------
13	0.00	1.00	3.68	17.38	20.29	0.00	-------
13	0.42	1.00	4.06	19.87	22.11	0.00	-------
13	0.83	1.00	4.34	21.76	23.36	0.00	-------
13	1.25	1.00	4.59	23.07	24.10	0.00	-------
13	1.66	1.00	4.83	23.83	24.40	0.00	-------
14	0.00	1.00	4.83	23.83	24.40	0.00	-------
14	0.83	7.08	11.47	23.78	24.50	0.00	-------
14	1.66	15.25	20.41	21.87	23.54	0.00	-------
14	2.48	24.75	30.76	18.34	20.84	0.00	-------
14	3.31	34.96	41.68	13.45	16.66	0.00	-------
15	0.00	2.04	4.64	17.53	26.33	0.00	-------
15	0.42	1.00	3.91	9.94	17.84	0.00	-------
15	0.83	1.00	4.20	3.30	10.31	0.00	-------
15	1.25	1.00	4.48	1.00	7.17	0.00	-------
15	1.66	1.91	7.26	1.00	3.14	0.00	-------
16	0.00	1.91	7.26	1.00	3.14	0.00	-------
16	0.42	6.58	11.14	1.00	5.00	0.00	-------
16	0.83	10.31	14.10	1.00	1.25	0.00	-------
16	1.25	13.60	16.68	1.00	2.46	0.00	-------
16	1.66	16.16	18.52	1.00	4.30	0.00	-------
17	0.00	16.16	18.52	1.00	4.30	0.00	-------
17	0.42	18.14	19.83	1.00	4.60	0.00	-------
17	0.83	19.52	20.57	1.00	4.88	0.00	-------
17	1.25	20.32	20.83	2.69	6.84	0.00	-------
17	1.66	20.56	20.76	2.06	6.44	0.00	-------

sum of reinforced steel area — run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
18	0.00	20.56	20.76	2.06	6.44	0.00	-------
18	0.83	19.51	20.77	10.20	15.13	0.00	-------
18	1.66	16.61	18.82	19.52	25.24	0.00	-------
18	2.48	12.12	15.16	30.28	36.83	0.00	-------
18	3.31	6.29	10.06	41.85	49.11	0.00	-------
19	0.00	36.20	48.14	9.25	11.27	0.00	-------
19	0.62	21.69	32.33	9.34	11.01	0.00	-------
19	1.24	11.51	20.85	12.08	14.56	0.00	-------
19	1.86	7.50	15.55	16.02	22.51	0.00	-------
19	2.48	3.90	6.70	20.75	27.50	0.00	-------
20	0.00	3.90	6.70	20.75	27.50	0.00	-------
20	0.62	1.00	3.49	23.87	29.33	0.00	-------
20	1.24	1.00	3.18	25.37	29.53	0.00	-------
20	1.86	1.00	1.31	27.30	30.16	0.00	-------
20	2.48	1.00	1.00	27.28	30.19	0.00	-------
21	0.00	1.00	1.00	27.28	30.19	0.00	-------
21	0.62	1.00	1.92	26.46	29.93	0.00	-------
21	1.24	1.00	3.79	23.70	28.46	0.00	-------
21	1.86	2.71	5.80	21.37	27.43	0.00	-------
21	2.48	6.60	10.00	17.43	24.79	0.00	-------
22	0.00	6.60	10.00	17.43	24.79	0.00	-------
22	0.62	10.91	19.56	11.91	16.99	0.00	-------
22	1.24	15.63	25.59	4.86	11.24	0.00	-------
22	1.86	26.65	37.90	3.66	4.24	0.00	-------
22	2.48	42.12	54.67	2.77	3.66	0.00	-------

Envolvente de cálculo de solicitaciones: E.L.U. De flexión

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.00		Peso Propio
B	OR	1	1.35		Peso Propio
C	PL.PERM	2	0.75		Cargas permanentes
D	OR	2	1.35		Cargas permanentes
E	PL.PERM	17	1.00		Reologicas
F	OR	17	1.35		Reologicas
G	PL.PERM	9	1.00		Empuje activo de tierras
H	OR	9	1.50		Empuje activo de tierras
I	OR	11	1.00		Empuje act/rep de tierras
J	OR	11	1.50		Empuje act/rep de tierras
K	OR	12	1.00		Empuje al rep/act de tier
L	OR	12	1.50		Empuje al rep/act de tier
M	PLUS	3	1.50		Sobrecarga uniforme total
N	PLUS	8	1.50		Sobrecarga solera
O	PLUS	13	1.50		Empuje activo debido a la
P	PLUS	15	1.50		Empuje activo debido a la
Q	PLUS	18	1.50		Frenado
ALTERNATIVA					
R	PERM.	1	1.00		Peso Propio
S	OR	1	1.35		Peso Propio
T	PL.PERM	2	0.75		Cargas permanentes
U	OR	2	1.35		Cargas permanentes
V	PL.PERM	17	1.00		Reologicas
W	OR	17	1.35		Reologicas
X	PL.PERM	10	1.00		Empuje al reposo de tierr
Y	OR	10	1.50		Empuje al reposo de tierr
Z	OR	11	1.00		Empuje act/rep de tierras
AA	OR	11	1.50		Empuje act/rep de tierras
AB	OR	12	1.00		Empuje al rep/act de tier
AC	OR	12	1.50		Empuje al rep/act de tier
AD	PLUS	3	1.50		Sobrecarga uniforme total
AE	PLUS	8	1.50		Sobrecarga solera
AF	PLUS	14	1.50		Empuje al reposo sob unif
AG	PLUS	16	1.50		Empuje al reposo sob. par
AH	PLUS	18	1.50		Frenado
ALTERNATIVA					
AI	PERM.	1	1.00		Peso Propio
AJ	PL.PERM	2	1.00		Cargas permanentes
AK	PL.PERM	17	1.00		Reologicas
AL	PL.PERM	9	1.00		Empuje activo de tierras
AM	OR	11	1.00		Empuje act/rep de tierras
AN	OR	12	1.00		Empuje al rep/act de tier
AO	PLUS	4	1.00		Sob unif parcial dintel d
AP	PLUS	5	1.00		Sob unif parcial dintel i
AQ	PLUS	6	1.00		Sobrecarga uniforme dinte
AR	PLUS	7	1.00		Sobrecarga posicion late
AS	PLUS	8	1.00		Sobrecarga solera
AT	PLUS	13	1.00		Empuje activo debido a la
AU	PLUS	15	1.00		Empuje activo debido a la
AV	PLUS	18	1.00		Frenado
AW	PLUS	19	1.00		ACCIDENTAL : Choque
ALTERNATIVA					
AX	PERM.	1	1.00		Peso Propio
AY	PL.PERM	2	1.00		Cargas permanentes
AZ	PL.PERM	17	1.00		Reologicas
BA	PL.PERM	10	1.00		Empuje al reposo de tierr
BB	OR	11	1.00		Empuje act/rep de tierras
BC	OR	12	1.00		Empuje al rep/act de tier
BD	PLUS	4	1.00		Sob unif parcial dintel d
BE	PLUS	5	1.00		Sob unif parcial dintel i
BF	PLUS	6	1.00		Sobrecarga uniforme dinte
BG	PLUS	7	1.00		Sobrecarga posicion late
BH	PLUS	8	1.00		Sobrecarga solera
BI	PLUS	14	1.00		Empuje al reposo sob unif
BJ	PLUS	16	1.00		Empuje al reposo sob. par
BK	PLUS	18	1.00		Frenado
BL	PLUS	19	1.00		ACCIDENTAL : Choque

Cálculo de las secciones de un pórtico o marco

Cálculo de cuantías de armaduras mínimas : Hormigón Armado

Materiales :

Hormigón : fck (N/mm^2)= **30** | γ c = **1.50** | fcd (N/mm^2)= 20.0 | h (m) = **1.00** | b (m) = **1.00** | Ac (m^2) = 1.00 | rec (m) = **0.03** | d (m) = 0.96 | d' (m) = 0.045 | d' < h/7 Verifica

Acero pasivo : **B 500 S**
fs (N/mm^2)= **550**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8

FLEXIÓN SIMPLE O COMPUESTA : sección rectangular
Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 0,056 *0.85* fcd *b*d /fyd =

Cuantía mecánica mínima armadura de compresión :

A's(cm^2/m) = 0,05*Nd / fycd

DINTEL : h (m) = **1.10** LOSA

Cuantía geométrica mínimaAs ^{MIN} (cm^2/m) = 19.8 repartidas en las dos caras

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 23.10

HASTIAL : h (m) = **1.00** MURO

Cuantía geométrica mínima :
As ^{MIN} (cm^2/m) = 9.00 Armadura vertical cara de tracción
As ^{MIN} (cm^2/m) = 2.70 Armadura vertical otra cara

As min horizontal (cm2/m) = 21.33 Armadura horizontal en cara vista
As min horizontal (cm2/m) = 10.67 Armadura horizontal en cara oculta

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 20.91

Cuantía mecánica mínima armadura de compresión : Nd max (t/m)x= -135.78

A's(cm^2/m) = 1.56

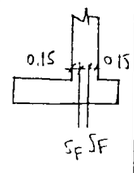
SOLERA : h (m) = **1.00** LOSA DE CIMENTACION
b(m) = **3.50**
Cuantía geométrica mínima :
As ^{MIN} (cm^2/m) = 6.2 repartidas en las dos caras y laterales

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 20.91

Calculo de armaduras a flexión
Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE				FLEXION COMPUESTA e=Md/Nd+h/2-d'				
								As superior (cm^2/m)	As inferior (cm^2/m)	Con armadura de compresión Md>0.375 Uod	As (cm^2/m) REAL	Nd >0.05 Uo	e (m)	As traccion (cm^2/m)	As compre (cm^2/m)	Con armadura de compresión Md>0.375 Uo d
1	0.000	1.00	0.00	-51.67	0.00	R T W AB AF AH	16235.00	0.00	0.00	NO						
		1.00	0.00	402.37	0.00	S U V AA AD AE AG	16235.00	0.00	0.00	NO						
1	0.138	1.00	0.00	-89.79	-9.47	R T W AC AF AH	16235.00	0.23	0.00	NO						
		1.00	0.00	357.57	52.25	S U V AA AD AE AG	16235.00	0.00	1.26	NO						
1	0.275	1.00	0.00	-131.67	-24.69	R T W AC AF AH	16235.00	0.60	0.00	NO						
		1.00	0.00	312.76	98.33	S U V AA AD AE AG	16235.00	0.00	2.38	NO						
1	0.413	1.00	0.00	-173.56	-45.68	R T W AC AF AH	16235.00	1.10	0.00	NO						
		1.00	0.00	267.96	138.26	S U V AA AD AE AG	16235.00	0.00	3.34	NO						
1	0.550	1.00	0.00	-215.44	-72.42	R T W AC AF AH	16235.00	1.75	0.00	NO						
		1.00	0.00	223.16	172.02	S U V AA AD AE AG	16235.00	0.00	4.17	NO						
2	0.000	1.00	0.00	-195.54	-72.42	R T W AC AF AH	16235.00	1.75	0.00	NO						
		1.00	0.00	584.05	172.02	S U V AA AD AE AG	16235.00	0.00	4.17	NO						
2	0.137	1.00	0.00	-237.42	-102.19	R T W AC AF AH	16235.00	2.47	0.00	NO						
		1.00	0.00	539.25	249.25	S U V AA AD AE AG	16235.00	0.00	6.05	NO						
2	0.275	1.00	0.00	-279.30	-137.71	R T W AC AF AH	16235.00	3.33	0.00	NO						
		1.00	0.00	494.45	320.31	S U V AA AD AE AG	16235.00	0.00	7.80	NO						
2	0.412	1.00	0.00	-321.18	-178.99	R T W AC AF AH	16235.00	4.34	0.00	NO						
		1.00	0.00	449.65	385.22	S U V AA AD AE AG	16235.00	0.00	9.40	NO						
2	0.550	1.00	0.00	-363.07	-226.04	R T W AC AF AH	16235.00	5.48	0.00	NO						
		1.00	0.00	439.37	444.80	S U V Z AD AE AG	16235.00	0.00	10.87	NO						
3	0.000	1.00	0.00	-276.92	-226.04	R T W AC AF AH	16235.00	5.48	0.00	NO						
		1.00	0.00	748.03	444.80	S U V Z AD AE AG	16235.00	0.00	10.87	NO						
3	0.138	1.00	0.00	-318.80	-266.99	R T W AC AF AH	16235.00	6.49	0.00	NO						
		1.00	0.00	715.33	545.41	S U V Z AD AE AG	16235.00	0.00	13.37	NO						
3	0.275	1.00	0.00	-360.68	-313.71	R T W AC AF AH	16235.00	7.63	0.00	NO	SF					
		1.00	0.00	682.63	641.52	S U V Z AD AE AG	16235.00	0.00	15.78	NO						
3	0.413	1.00	0.00	-402.56	-366.18	R T W AC AF AH	16235.00	8.93	0.00	NO						
		1.00	0.00	649.93	733.13	S U V Z AD AE AG	16235.00	0.00	18.09	NO						
3	0.550	1.00	0.00	-444.45	-424.41	R T W AC AF AH	16235.00	10.37	0.00	NO						
		1.00	0.00	617.23	820.25	S U V Z AD AE AG	16235.00	0.00	20.31	NO						
4	0.000	1.00	0.00	-140.35	147.21	R T V Z AE AG	16235.00	0.00	3.56	NO						
		1.00	0.00	-718.35	764.33	S U W AC AD AF AH	16235.00	0.00	18.89	NO						
4	0.181	1.00	0.00	-149.83	120.91	R T V Z AE AG	16235.00	0.00	2.92	NO						
		1.00	0.00	-731.42	632.95	S U W AC AD AF AH	16235.00	0.00	15.57	NO						
4	0.362	1.00	0.00	-159.31	92.89	R T V Z AE AG	16235.00	0.00	2.24	NO						
		1.00	0.00	-744.48	499.19	S U W AC AD AF AH	16235.00	0.00	12.22	NO	SF					
4	0.544	1.00	0.00	-168.79	63.16	R T V Z AE AG	16235.00	0.00	1.52	NO						
		1.00	0.00	-757.55	363.07	S U W AC AD AF AH	16235.00	0.00	8.85	NO						
4	0.725	1.00	0.00	-178.27	31.71	R T V Z AE AG	16235.00	0.00	0.76	NO						
		1.00	0.00	-770.62	224.58	S U W AC AD AF AH	16235.00	0.00	5.45	NO						

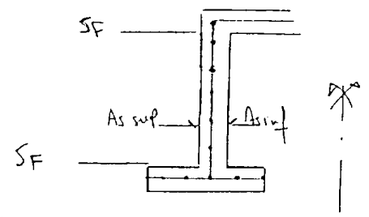


Calculo de armaduras a flexión
Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE				FLEXION COMPUESTA e=Md/Nd+h/2-d'				
								As superior (cm^2/m)	As inferior (cm^2/m)	Con armadura de compresión Md>0.375 Uod	As (cm^2/m) REAL	Nd >0.05 Uo	e (m)	As traccion (cm^2/m)	As compre (cm^2/m)	Con armadura de compresión Md>0.375 Uo d
.																
5	0.000	1.00	0.00	-24.78	31.71	R T V Z AE AG	16235.00	0.00	0.76	NO						
		1.00	0.00	-283.63	224.58	S U W AC AD AF AH	16235.00	0.00	5.45	NO						
5	0.181	1.00	0.00	-34.26	26.36	R T V Z AE AG	16235.00	0.00	0.64	NO						
		1.00	0.00	-296.70	171.99	S U W AC AD AF AH	16235.00	0.00	4.17	NO						
5	0.363	1.00	0.00	-44.44	19.15	R T V Z AG	16235.00	0.00	0.46	NO						
		1.00	0.00	-309.06	117.17	S U W AC AD AE AF AH	16235.00	0.00	2.83	NO						
5	0.544	1.00	0.00	-52.83	10.34	R T V Z AG	16235.00	0.00	0.25	NO						
		1.00	0.00	-323.21	59.87	S U W AC AD AE AF AH	16235.00	0.00	1.44	NO						
5	0.725	1.00	0.00	-61.23	0.00	R T V Z AG	16235.00	0.00	0.00	NO						
		1.00	0.00	-337.37	0.00	S U W AC AD AE AF AH	16235.00	0.00	0.00	NO						
.																
6	0.000	1.00	0.00	35.81	0.00	AX AY AZ BC BI BK BL	16235.00	0.00	0.00	NO						
		1.00	0.00	319.58	0.00	S U W AA AD AE AG	16235.00	0.00	0.00	NO						
6	0.181	1.00	0.00	26.13	5.61	AX AY AZ BC BI BK BL	16235.00	0.00	0.14	NO						
		1.00	0.00	305.42	56.64	S U W AA AD AE AG	16235.00	0.00	1.37	NO						
6	0.362	1.00	0.00	16.45	9.47	AX AY AZ BC BI BK BL	16235.00	0.00	0.23	NO						
		1.00	0.00	291.27	110.72	S U W AA AD AE AG	16235.00	0.00	2.68	NO						
6	0.544	1.00	0.00	5.58	11.52	AX AY AZ BC BH BI BK...	16235.00	0.00	0.28	NO						
		1.00	0.00	278.91	162.31	S U W AA AD AG	16235.00	0.00	3.93	NO						
6	0.725	1.00	0.00	-4.83	11.59	AX AY AZ BC BH BI BK...	16235.00	0.00	0.28	NO						
		1.00	0.00	265.84	211.68	S U W AA AD AG	16235.00	0.00	5.13	NO						
.																
7	0.000	1.00	0.00	129.90	11.59	AX AY AZ BC BH BI BK...	16235.00	0.00	0.28	NO						
		1.00	0.00	740.11	211.68	S U W AA AD AG	16235.00	0.00	5.13	NO						
7	0.181	1.00	0.00	119.49	34.19	AX AY AZ BC BH BI BK...	16235.00	0.00	0.82	NO						
		1.00	0.00	727.05	344.64	S U W AA AD AG	16235.00	0.00	8.39	NO						
7	0.362	1.00	0.00	109.09	54.90	AX AY AZ BC BH BI BK...	16235.00	0.00	1.32	NO						
		1.00	0.00	713.98	475.24	S U W AA AD AG	16235.00	0.00	11.63	NO						
7	0.544	1.00	0.00	98.68	73.73	AX AY AZ BC BH BI BK...	16235.00	0.00	1.78	NO						
		1.00	0.00	700.91	603.46	S U W AA AD AG	16235.00	0.00	14.83	NO						
7	0.725	1.00	0.00	88.28	90.68	AX AY AZ BC BH BI BK...	16235.00	0.00	2.19	NO						
		1.00	0.00	687.85	729.32	S U W AA AD AG	16235.00	0.00	18.00	NO						
.																
8	0.000	1.00	0.00	366.41	-326.46	R T W AA AG	16235.00	7.95	0.00	NO						
		1.00	0.00	-695.30	918.25	S U V AB AD AE AF AH	16235.00	0.00	22.81	NO						
8	0.138	1.00	0.00	324.52	-278.96	R T W AA AG	16235.00	6.78	0.00	NO						
		1.00	0.00	-728.01	820.39	S U V AB AD AE AF AH	16235.00	0.00	20.31	NO	SF					
8	0.275	1.00	0.00	282.64	-237.21	R T W AA AG	16235.00	5.76	0.00	NO						
		1.00	0.00	-760.71	718.05	S U V AB AD AE AF AH	16235.00	0.00	17.71	NO						
8	0.413	1.00	0.00	240.76	-201.23	R T W AA AG	16235.00	4.88	0.00	NO						
		1.00	0.00	-793.41	611.20	S U V AB AD AE AF AH	16235.00	0.00	15.02	NO						
8	0.550	1.00	0.00	198.88	-171.00	R T W AA AG	16235.00	4.14	0.00	NO						
		1.00	0.00	-826.11	499.86	S U V AB AD AE AF AH	16235.00	0.00	12.24	NO						

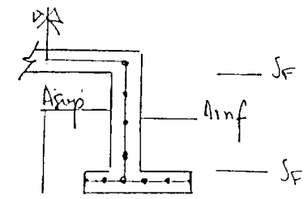
Calculo de armaduras a flexión
Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE				FLEXION COMPUESTA e=Md/Nd+h/2-d'				
								As superior (cm^2/m)	As inferior (cm^2/m)	Con armadura de compresión Md>0.375 Uod	As (cm^2/m) REAL	Nd >0.05 Uo	e (m)	As traccion (cm^2/m)	As compre (cm^2/m)	Con armadura de compresión Md>0.375 Uo d
9	0.000	1.00	0.00	300.28	-171.00	R T W AA AG	16235.00	4.14	0.00	NO						
		1.00	0.00	-502.19	499.86	S U V AB AD AE AF AH	16235.00	0.00	12.24	NO						
9	0.137	1.00	0.00	258.39	-132.60	R T W AA AG	16235.00	3.21	0.00	NO						
		1.00	0.00	-512.45	431.63	S U V AC AD AE AF AH	16235.00	0.00	10.54	NO						
9	0.275	1.00	0.00	216.51	-99.95	R T W AA AG	16235.00	2.41	0.00	NO						
		1.00	0.00	-557.25	358.08	S U V AC AD AE AF AH	16235.00	0.00	8.73	NO						
9	0.412	1.00	0.00	174.63	-73.06	R T W AA AG	16235.00	1.76	0.00	NO						
		1.00	0.00	-602.05	278.38	S U V AC AD AE AF AH	16235.00	0.00	6.77	NO						
9	0.550	1.00	0.00	132.75	-51.92	R T W AA AG	16235.00	1.25	0.00	NO						
		1.00	0.00	-646.85	192.52	S U V AC AD AE AF AH	16235.00	0.00	4.67	NO						
10	0.000	1.00	0.00	178.17	-51.92	R T W AA AG	16235.00	1.25	0.00	NO						
		1.00	0.00	-260.43	192.52	S U V AC AD AE AF AH	16235.00	0.00	4.67	NO						
10	0.138	1.00	0.00	136.29	-30.30	R T W AA AG	16235.00	0.73	0.00	NO						
		1.00	0.00	-305.23	153.63	S U V AC AD AE AF AH	16235.00	0.00	3.72	NO						
10	0.275	1.00	0.00	94.41	-14.44	R T W AA AG	16235.00	0.35	0.00	NO						
		1.00	0.00	-350.04	108.58	S U V AC AD AE AF AH	16235.00	0.00	2.62	NO						
10	0.413	1.00	0.00	52.52	-4.34	R T W AA AG	16235.00	0.10	0.00	NO						
		1.00	0.00	-394.84	57.37	S U V AC AD AE AF AH	16235.00	0.00	1.38	NO						
10	0.550	1.00	0.00	14.39	0.00	R T W Z AG	16235.00	0.00	0.00	NO						
		1.00	0.00	-439.64	0.00	S U V AC AD AE AF AH	16235.00	0.00	0.00	NO						



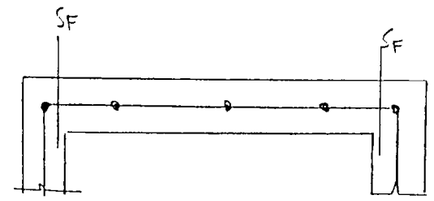
Calculo de armaduras a flexión
Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE				FLEXION COMPUESTA e=Md/Nd+h/2-d'				
								As superior (cm^2/m)	As inferior (cm^2/m)	Con armadura de compresión Md>0.375 Uod	As (cm^2/m) REAL	Nd >0.05 Uo	e (m)	As traccion (cm^2/m)	As compre (cm^2/m)	Con armadura de compresión Md>0.375 Uo d
11	0.000	1.00	-232.55	813.34	-964.48	R T W AC AF AH	16235.00	24.00	0.00	NO						
		1.00	-1304.88	-58.93	448.78	S U V Z AD AE AG	16235.00	0.00	10.97	NO		Nd>0.05Uo	0.80			NO
11	0.416	1.00	-222.13	734.26	-642.96	R T W AC AF AH	16235.00	15.82	0.00	NO						
		1.00	-1290.80	-85.38	418.75	S U V Z AD AE AG	16235.00	0.00	10.23	NO		Nd>0.05Uo	0.78			NO
11	0.831	1.00	-211.70	657.78	-353.77	R T W AC AF AH	16235.00	8.62	0.00	NO						
		1.00	-1291.02	-48.03	382.24	S U V AA AD AE AG	16235.00	0.00	9.32	NO		Nd>0.05Uo	0.75			NO
11	1.247	1.00	-261.22	408.01	-101.42	AX AY AZ BC BI BK BL	16235.00	2.45	0.00	NO						
		1.00	-1234.07	50.56	362.82	S U V Y AD AE AG	16235.00	0.00	8.84	NO		Nd>0.05Uo	0.75			NO
11	1.662	1.00	-560.38	95.79	-9.51	AI AJ AK AL AP AQ AR...	16235.00	0.23	0.00	NO						
		1.00	-1126.72	203.42	407.08	S U V Y AD AE AF AG	16235.00	0.00	9.94	NO		Nd>0.05Uo	0.82			NO
12	0.000	1.00	-560.38	95.79	-9.51	AI AJ AK AL AP AQ AR...	16235.00	0.23	0.00	NO						
		1.00	-1126.72	203.42	407.08	S U V Y AD AE AF AG	16235.00	0.00	9.94	NO		Nd>0.05Uo	0.82			NO
12	0.416	1.00	-549.96	73.91	25.72	AI AJ AK AL AP AQ AR...	16235.00	0.00	0.62	NO						
		1.00	-533.50	224.80	500.75	S U V Y AE AF AG	16235.00	0.00	12.26	NO						
12	0.831	1.00	-947.03	-7.88	42.08	A D F G M Q	16235.00	0.00	1.01	NO		Nd>0.05Uo	0.50			NO
		1.00	-457.65	169.42	581.99	S T V Y AE AF AG	16235.00	0.00	14.29	NO						
12	1.247	1.00	-1206.35	-214.44	23.75	S U W Z AD AG	16235.00	0.00	0.57	NO		Nd>0.05Uo	0.47			NO
		1.00	-159.57	308.58	650.57	R T V AC AE AF AH	16235.00	0.00	16.01	NO						
12	1.662	1.00	-1192.28	-232.90	-69.25	S U W Z AD AG	16235.00	1.67	0.00	NO		Nd>0.05Uo	0.51			NO
		1.00	-149.15	247.65	766.08	R T V AC AE AF AH	16235.00	0.00	18.93	NO						
13	0.000	1.00	-1192.28	-232.90	-69.25	S U W Z AD AG	16235.00	1.67	0.00	NO		Nd>0.05Uo	0.51			NO
		1.00	-149.15	247.65	766.08	R T V AC AE AF AH	16235.00	0.00	18.93	NO						
13	0.416	1.00	-1178.20	-254.99	-171.49	S U V Z AD AG	16235.00	4.15	0.00	NO		Nd>0.05Uo	0.60			NO
		1.00	-138.72	194.08	858.59	R T W AC AE AF AH	16235.00	0.00	21.28	NO						
13	0.831	1.00	-1164.13	-271.16	-280.87	S U V Z AD AG	16235.00	6.83	0.00	NO		Nd>0.05Uo	0.70			NO
		1.00	-128.29	138.33	927.58	R T W AC AE AF AH	16235.00	0.00	23.05	NO						
13	1.247	1.00	-1150.05	-286.20	-396.73	S U V Z AD AG	16235.00	9.68	0.00	NO		Nd>0.05Uo	0.80			NO
		1.00	-117.87	85.17	973.93	R T W AC AE AF AH	16235.00	0.00	24.24	NO						
13	1.662	1.00	-1135.98	-300.09	-518.61	S U V Z AD AG	16235.00	12.71	0.00	NO		Nd>0.05Uo	0.91			NO
		1.00	-107.44	34.60	998.73	R T W AC AE AF AH	16235.00	0.00	24.88	NO						
14	0.000	1.00	-1135.98	-300.09	-518.61	S U V Z AD AG	16235.00	12.71	0.00	NO		Nd>0.05Uo	0.91			NO
		1.00	-107.44	34.60	998.73	R T W AC AE AF AH	16235.00	0.00	24.88	NO						
14	0.828	1.00	-1107.94	-324.37	-777.49	S U V Z AD AG	16235.00	19.22	0.00	NO		Nd>0.05Uo	1.16	6.78		NO
		1.00	-86.67	-58.43	988.15	R T W AC AE AF AH	16235.00	0.00	24.61	NO						
14	1.656	1.00	-1094.19	-398.61	-1080.68	S U V AA AD AG	16235.00	27.00	0.00	NO		Nd>0.05Uo	1.44	15.01		NO
		1.00	-65.90	-141.17	904.79	R T W AC AE AF AH	16235.00	0.00	22.47	NO						
14	2.484	1.00	-1066.14	-422.31	-1421.24	S U V AA AD AE AG	16235.00	35.96	0.00	NO		Nd>0.05Uo	1.79	24.62		NO
		1.00	-45.12	-212.75	757.71	R T W AC AF AH	16235.00	0.00	18.72	NO						
14	3.312	1.00	-1038.10	-438.34	-1778.07	S U V AA AD AE AG	16235.00	45.61	0.00	NO		Nd>0.05Uo	2.17	34.96		NO
		1.00	-24.35	-274.91	555.08	R T W AC AF AH	16235.00	0.00	13.62	NO						



Calculo de armaduras a flexión
Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE				FLEXION COMPUESTA e=Md/Nd+h/2-d'				
								As superior (cm^2/m)	As inferior (cm^2/m)	Con armadura de compresión Md>0.375 Uod	As (cm^2/m) REAL	Nd >0.05 Uo	e (m)	As traccion (cm^2/m)	As compre (cm^2/m)	Con armadura de compresión Md>0.375 Uo d
15	0.000	1.00	-1357.76	106.50	-581.82	S U V AB AD AE AF AH	16235.00	14.29	0.00	NO		Nd>0.05Uo	0.88			NO
		1.00	-285.42	-765.83	831.51	R T W AA AG	16235.00	0.00	20.59	NO						
15	0.416	1.00	-1343.69	132.94	-532.02	S U V AB AD AE AF AH	16235.00	13.04	0.00	NO		Nd>0.05Uo	0.85			NO
		1.00	-275.00	-686.75	529.74	R T W AA AG	16235.00	0.00	12.98	NO	Sf					
15	0.831	1.00	-1343.89	95.58	-475.71	S U V AC AD AE AF AH	16235.00	11.64	0.00	NO		Nd>0.05Uo	0.81			NO
		1.00	-264.57	-610.26	260.29	R T W AA AG	16235.00	0.00	6.32	NO						
15	1.247	1.00	-1286.98	-2.96	-436.59	S U V Y AD AE AF AH	16235.00	10.67	0.00	NO		Nd>0.05Uo	0.79			NO
		1.00	-354.07	-126.33	74.11	AX AY AZ BB BJ BL	16235.00	0.00	1.79	NO						
15	1.662	1.00	-1179.63	-155.83	-461.07	S U V Y AD AE AF AG AH	16235.00	11.27	0.00	NO		Nd>0.05Uo	0.85			NO
		1.00	-653.26	185.94	99.26	AI AJ AK AL AO AP AQ...	16235.00	0.00	2.40	NO						
16	0.000	1.00	-1179.63	-155.83	-461.07	S U V Y AD AE AF AG AH	16235.00	11.27	0.00	NO		Nd>0.05Uo	0.85			NO
		1.00	-653.26	185.94	99.26	AI AJ AK AL AO AP AQ...	16235.00	0.00	2.40	NO						
16	0.416	1.00	-586.41	-177.21	-534.96	S U V Y AE AF AG AH	16235.00	13.11	0.00	NO						
		1.00	-642.83	207.82	181.13	AI AJ AK AL AO AP AQ...	16235.00	0.00	4.39	NO						
16	0.831	1.00	-510.56	-121.82	-596.42	S T V Y AE AF AG AH	16235.00	14.65	0.00	NO						
		1.00	-632.41	-21.44	223.41	AI AJ AK AL AO AP AQ...	16235.00	0.00	5.42	NO						
16	1.247	1.00	-212.44	-261.05	-645.29	R T V AA AE AG	16235.00	15.88	0.00	NO						
		1.00	-747.99	127.05	225.86	AX AY AZ BC BD BE BF...	16235.00	0.00	5.48	NO						
16	1.662	1.00	-202.02	-200.11	-741.04	R T V AA AE AG	16235.00	18.30	0.00	NO						
		1.00	-904.82	155.69	285.62	AX AY AZ BC BD BE BF...	16235.00	0.00	6.94	NO		Nd>0.05Uo	0.77			NO
17	0.000	1.00	-202.02	-200.11	-741.04	R T V AA AE AG	16235.00	18.30	0.00	NO						
		1.00	-904.82	155.69	285.62	AX AY AZ BC BD BE BF...	16235.00	0.00	6.94	NO		Nd>0.05Uo	0.77			NO
17	0.416	1.00	-191.59	-146.54	-813.80	R T W AA AE AG	16235.00	20.14	0.00	NO						
		1.00	-894.39	173.00	353.96	AX AY AZ BC BD BE BF...	16235.00	0.00	8.62	NO		Nd>0.05Uo	0.85			NO
17	0.831	1.00	-181.17	-90.78	-863.03	R T W AA AE AG	16235.00	21.40	0.00	NO						
		1.00	-883.97	189.18	429.27	AX AY AZ BC BD BE BF...	16235.00	0.00	10.49	NO		Nd>0.05Uo	0.94	0.26		NO
17	1.247	1.00	-170.74	-37.61	-889.62	R T W AA AE AG	16235.00	22.08	0.00	NO						
		1.00	-873.54	204.21	511.06	AX AY AZ BC BD BE BF...	16235.00	0.00	12.52	NO		Nd>0.05Uo	1.04	2.47		NO
17	1.662	1.00	-160.31	12.96	-894.65	R T W AA AE AG	16235.00	22.21	0.00	NO						
		1.00	-1188.86	347.65	622.81	S U V AB AD AF AH	16235.00	0.00	15.31	NO		Nd>0.05Uo	0.98	1.82		NO
18	0.000	1.00	-160.31	12.96	-894.65	R T W AA AE AG	16235.00	22.21	0.00	NO						
		1.00	-1188.86	347.65	622.81	S U V AB AD AF AH	16235.00	0.00	15.31	NO		Nd>0.05Uo	0.98	1.82		NO
18	0.828	1.00	-139.54	106.01	-844.68	R T W AA AE AG	16235.00	20.93	0.00	NO						
		1.00	-1160.82	371.93	921.08	S U V AB AD AF AH	16235.00	0.00	22.88	NO		Nd>0.05Uo	1.25	10.01		NO
18	1.656	1.00	-118.77	188.77	-721.92	R T W AA AE AG	16235.00	17.81	0.00	NO						
		1.00	-1147.06	446.16	1263.60	S U V AC AD AF AH	16235.00	0.00	31.79	NO		Nd>0.05Uo	1.56	19.43		NO
18	2.484	1.00	-97.99	260.37	-535.42	R T W AA AG	16235.00	13.13	0.00	NO						
		1.00	-1119.01	469.86	1643.54	S U V AC AD AE AF AH	16235.00	0.00	41.94	NO		Nd>0.05Uo	1.92	30.31		NO
18	3.312	1.00	-77.22	322.55	-293.35	R T W AA AG	16235.00	7.13	0.00	NO						
		1.00	-1090.97	485.89	2039.75	S U V AC AD AE AF AH	16235.00	0.00	52.87	NO		Nd>0.05Uo	2.32	42.02		NO



Calculo de armaduras a flexión
Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE				FLEXION COMPUESTA e=Md/Nd+h/2-d'				
								As superior (cm^2/m)	As inferior (cm^2/m)	Con armadura de compresión Md>0.375 Uod	As (cm^2/m) REAL	Nd >0.05 Uo	e (m)	As traccion (cm^2/m)	As compre (cm^2/m)	Con armadura de compresión Md>0.375 Uo d
19	0.000	1.10	-438.34	1038.10	-1778.07	S U V AA AD AE AG	17935.00	40.78	0.00	NO						
		1.10	-274.91	24.35	555.08	R T W AC AF AH	17935.00	0.00	12.28	NO						
19	0.619	1.10	-438.34	925.35	-1170.63	S U V AA AD AE AG	17935.00	26.36	0.00	NO						
		1.10	-280.86	-2.32	561.89	R T W AC AF AH	17935.00	0.00	12.44	NO						
19	1.237	1.10	-328.20	296.18	-679.84	R T V AA AE AG	17935.00	15.10	0.00	NO						
		1.10	-202.48	215.77	642.80	AX AY AZ BC BD BE BI...	17935.00	0.00	14.26	NO						
19	1.856	1.10	-328.20	269.51	-504.83	R T V AA AE AG	17935.00	11.16	0.00	NO						
		1.10	-335.47	388.98	879.21	S U W AB AD AF AH	17935.00	0.00	19.63	NO						
19	2.475	1.10	-328.20	242.83	-346.32	R T V AA AE AG	17935.00	7.62	0.00	NO						
		1.10	-341.42	276.23	1085.01	S U W AB AD AF AH	17935.00	0.00	24.37	NO						
20	0.000	1.10	-328.20	242.83	-346.32	R T V AA AE AG	17935.00	7.62	0.00	NO						
		1.10	-341.42	276.23	1085.01	S U W AB AD AF AH	17935.00	0.00	24.37	NO						
20	0.619	1.10	-328.20	216.16	-204.32	R T V AA AE AG	17935.00	4.48	0.00	NO						
		1.10	-347.37	163.49	1221.05	S U W AB AD AF AH	17935.00	0.00	27.54	NO						
20	1.238	1.10	-328.20	189.49	-78.82	R T V AA AE AG	17935.00	1.72	0.00	NO						
		1.10	-353.32	50.75	1287.33	S U W AB AD AF AH	17935.00	0.00	29.09	NO						
20	1.856	1.10	-473.85	26.67	-2.93	R T V Y AE AF AG	17935.00	0.06	0.00	NO						
		1.10	-229.27	59.83	1311.30	B D F G M Q	17935.00	0.00	29.65	NO						
20	2.475	1.10	-473.85	0.00	5.32	R T V Y AE AF AG	17935.00	0.00	0.12	NO						
		1.10	-235.21	-52.91	1313.44	B D F G M Q	17935.00	0.00	29.70	NO						
21	0.000	1.10	-473.85	-52.91	5.32	R T V Y AE AF AG AH	17935.00	0.00	0.12	NO						
		1.10	-235.21	0.00	1313.44	B D F G M	17935.00	0.00	29.70	NO						
21	0.619	1.10	-479.80	-79.58	-35.67	R T V Y AE AF AG AH	17935.00	0.78	0.00	NO						
		1.10	-235.21	-112.74	1278.56	B D F G M	17935.00	0.00	28.89	NO						
21	1.237	1.10	-340.05	-242.36	-144.22	R T V AC AE AF AH	17935.00	3.16	0.00	NO						
		1.10	-365.25	-103.63	1221.87	S U W Z AD AG	17935.00	0.00	27.56	NO						
21	1.856	1.10	-346.00	-269.03	-302.43	R T V AC AE AF AH	17935.00	6.65	0.00	NO						
		1.10	-365.25	-216.38	1122.87	S U W Z AD AG	17935.00	0.00	25.25	NO						
21	2.475	1.10	-351.95	-295.70	-477.15	R T V AC AE AF AH	17935.00	10.54	0.00	NO						
		1.10	-365.25	-329.12	954.11	S U W Z AD AG	17935.00	0.00	21.35	NO						
22	0.000	1.10	-351.95	-295.70	-477.15	R T V AC AE AF AH	17935.00	10.54	0.00	NO						
		1.10	-365.25	-329.12	954.11	S U W Z AD AG	17935.00	0.00	21.35	NO						
22	0.619	1.10	-357.90	-322.38	-668.37	R T V AC AE AF AH	17935.00	14.84	0.00	NO	-X-					
		1.10	-365.25	-441.86	715.58	S U W Z AD AG	17935.00	0.00	15.91	NO						
22	1.237	1.10	-363.85	-349.05	-876.09	R T V AC AE AF AH	17935.00	19.56	0.00	NO						
		1.10	-365.25	-554.61	407.30	S U W Z AD AG	17935.00	0.00	8.98	NO						
22	1.856	1.10	-479.94	-978.22	-1399.59	S U V AC AD AE AF AH	17935.00	31.73	0.00	NO						
		1.10	-322.55	-50.55	332.88	R T W AA AG	17935.00	0.00	7.32	NO						
22	2.475	1.10	-485.89	-1090.97	-2039.75	S U V AC AD AE AF AH	17935.00	47.16	0.00	NO						
		1.10	-322.55	-77.22	293.35	R T W AA AG	17935.00	0.00	6.45	NO						

3.5.3. Comprobación a cortante

Envolvente de cálculo de solicitaciones: E.L.U. De Cortante

Group	Spec.	Loadcase	Factor Stage	Title
A	PERM.	1	1	Peso Propio
B	OR	1	1.35	Peso Propio
C	PL.PERM	2	0.75	Cargas permanentes
D	OR	2	1.35	Cargas permanentes
E	PL.PERM	17	1	Reologicas
F	OR	17	1.35	Reologicas
G	PL.PERM	9	1	Empuje activo de tierras
H	OR	9	1.5	Empuje activo de tierras
I	OR	11	1	Empuje act/rep de tierras
J	OR	11	1.5	Empuje act/rep de tierras
K	OR	12	1	Empuje al rep/act de tier
L	OR	12	1.5	Empuje al rep/act de tier
M	PLUS	3	1.5	Sobrecarga uniforme total
N	PLUS	8	1.5	Sobrecarga solera
O	PLUS	13	1.5	Empuje activo debido a la
P	PLUS	15	1.5	Empuje activo debido a la
Q	PLUS	18	1.5	Frenado
ALTERNATIV	0	0	0	0
R	PERM.	1	1	Peso Propio
S	OR	1	1.35	Peso Propio
T	PL.PERM	2	0.75	Cargas permanentes
U	OR	2	1.35	Cargas permanentes
V	PL.PERM	17	1	Reologicas
W	OR	17	1.35	Reologicas
X	PL.PERM	10	1	Empuje al reposo de tierr
Y	OR	10	1.5	Empuje al reposo de tierr
Z	OR	11	1	Empuje act/rep de tierras
AA	OR	11	1.5	Empuje act/rep de tierras
AB	OR	12	1	Empuje al rep/act de tier
AC	OR	12	1.5	Empuje al rep/act de tier
AD	PLUS	3	1.5	Sobrecarga uniforme total
AE	PLUS	8	1.5	Sobrecarga solera
AF	PLUS	14	1.5	Empuje al reposo sob unif
AG	PLUS	16	1.5	Empuje al reposo sob. par
AH	PLUS	18	1.5	Frenado
ALTERNATIV	0	0	0	0
AI	PERM.	1	1	Peso Propio
AJ	PL.PERM	2	1	Cargas permanentes
AK	PL.PERM	17	1	Reologicas
AL	PL.PERM	9	1	Empuje activo de tierras
AM	OR	11	1	Empuje act/rep de tierras
AN	OR	12	1	Empuje al rep/act de tier
AO	PLUS	4	1	Sob unif parcial dintel d
AP	PLUS	5	1	Sob unif parcial dintel i
AQ	PLUS	6	1	Sobrecarga uniforme dinte
AR	PLUS	7	1	Sobrecarga posicion late
AS	PLUS	8	1	Sobrecarga solera
AT	PLUS	13	1	Empuje activo debido a la
AU	PLUS	15	1	Empuje activo debido a la
AV	PLUS	18	1	Frenado
AW	PLUS	19	1	ACCIDENTAL : Choque
ALTERNATIV	0	0	0	0
AX	PERM.	1	1	Peso Propio
AY	PL.PERM	2	1	Cargas permanentes
AZ	PL.PERM	17	1	Reologicas
BA	PL.PERM	10	1	Empuje al reposo de tierr
BB	OR	11	1	Empuje act/rep de tierras
BC	OR	12	1	Empuje al rep/act de tier
BD	PLUS	4	1	Sob unif parcial dintel d
BE	PLUS	5	1	Sob unif parcial dintel i
BF	PLUS	6	1	Sobrecarga uniforme dinte
BG	PLUS	7	1	Sobrecarga posicion late
BH	PLUS	8	1	Sobrecarga solera
BI	PLUS	14	1	Empuje al reposo sob unif
BJ	PLUS	16	1	Empuje al reposo sob. par
BK	PLUS	18	1	Frenado

Cálculo de las secciones de un pórtico o marco

Cálculo de cuantías de armaduras mínimas : Hormigón Armado

Materiales :

Hormigón : fck (N/mm^2)= **30** h (m) = **1.00** rec (m) = **0.03**
γ c = **1.50** b (m) = **1.00** d (m) = 0.96
fcd (N/mm^2)= 20.0 Ac (m^2) = 1.00 d' (m) = 0.045
d' < h/7 Verifica

Acero pasivo : **B 500 S**
fs (N/mm^2)= **550**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
ftd (N/mm^2)= 400.0

CORTANTE : Armadura mínima

Ast (cm^2) = (0.02 x fcd x b0 x d) / ftd d x n x (π x Φ^2 / 4) / sep

DINTEL : h (m) = **1.10** d (m) = 1.06 **LOSA**

Ast (cm^2) = (0.02 x fcd x b0 x d) / ftd 10.55

Ast (cm^2) = d x n x (π x Φ^2 / 4) / sep = 2 c Φ 8 c/ 0.20 m

HASTIAL : h (m) = **1.00** d (m) = 0.96 **MURO**

Ast (cm^2) = (0.02 x fcd x b0 x d) / ftd 9.55

Ast (cm^2) = d x n x (π x Φ^2 / 4) / sep = 2 c Φ 8 c/ 0.20 m

SOLERA : h (m) = **1.00** d (m) = 0.96 **LOSA DE CIMENTACION**

Ast (cm^2) = (0.02 x fcd x b0 x d) / ftd 9.55

Ast (cm^2) = d x n x (π x Φ^2 / 4) / sep = 2 c Φ 8 c/ 0.20 m

Verificación a cortante

Valores de diseño de las solicitaciones

									FLEXION SIMPLE				CORTANTE			
Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	As superior (cm^2/m)	As inferior (cm^2/m)	ρ	Vcu [KN/m]	Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu* [KN/m]
1	0.000	1.00	0.96	0.00	-51.67	0.00	R T W AB AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	402.37	0.00	S U V AA AD AE AG	16235.00	13.40	20.93	0.0027	337.10	121.45	3.53	10.00	280.92
1	0.138	1.00	0.96	0.00	-89.79	-9.47	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	357.57	52.25	S U V AA AD AE AG	16235.00	13.40	20.93	0.0027	337.10	76.64	2.23	10.00	280.92
1	0.275	1.00	0.96	0.00	-131.67	-24.69	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	312.76	98.33	S U V AA AD AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
1	0.413	1.00	0.96	0.00	-173.56	-45.68	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	271.26	132.13	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
1	0.550	1.00	0.96	0.00	-215.44	-72.42	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	238.55	167.18	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
2	0.000	1.00	0.96	0.00	-195.54	-72.42	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	584.05	172.02	S U V AA AD AE AG	16235.00	13.40	20.93	0.0027	337.10	303.13	8.82	10.00	280.92
2	0.137	1.00	0.96	0.00	-237.42	-102.19	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	539.25	249.25	S U V AA AD AE AG	16235.00	13.40	20.93	0.0027	337.10	258.33	7.51	10.00	280.92
2	0.275	1.00	0.96	0.00	-279.30	-137.71	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	504.77	314.98	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10	223.85	6.51	10.00	280.92
2	0.412	1.00	0.96	0.00	-321.18	-178.99	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	472.07	382.14	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10	191.15	5.56	10.00	280.92
2	0.550	1.00	0.96	0.00	-363.07	-226.04	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10	82.15	2.39	10.00	280.92
		1.00	0.96	0.00	439.37	444.80	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10	158.45	4.61	10.00	280.92
3	0.000	1.00	0.96	0.00	-276.92	-226.04	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	748.03	444.80	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10	467.11	13.59	10.00	280.92
3	0.138	1.00	0.96	0.00	-318.80	-266.99	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	715.33	545.41	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10	434.41	12.64	10.00	280.92
3	0.275	1.00	0.96	0.00	-360.68	-313.71	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10	79.76	2.32	10.00	280.92
		1.00	0.96	0.00	682.63	641.52	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10	401.71	11.68	10.00	280.92
3	0.413	1.00	0.96	0.00	-402.56	-366.18	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10	121.64	3.54	10.00	280.92
		1.00	0.96	0.00	649.93	733.13	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10	369.01	10.73	10.00	280.92
3	0.550	1.00	0.96	0.00	-444.45	-424.41	R T W AC AF AH	16235.00	13.40	20.93	0.0027	337.10	163.53	4.76	10.00	280.92
		1.00	0.96	0.00	617.23	820.25	S U V Z AD AE AG	16235.00	13.40	20.93	0.0027	337.10	336.31	9.78	10.00	280.92
4	0.000	1.00	0.96	0.00	-718.35	764.33	S U W AC AD AF AH	16235.00	13.40	20.93	0.0027	337.10	437.43	12.72	10.00	280.92
		1.00	0.96	0.00	-140.35	147.21	R T V Z AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
4	0.181	1.00	0.96	0.00	-731.42	632.95	S U W AC AD AF AH	16235.00	13.40	20.93	0.0027	337.10	450.50	13.10	10.00	280.92
		1.00	0.96	0.00	-149.83	120.91	R T V Z AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
4	0.362	1.00	0.96	0.00	-744.48	499.19	S U W AC AD AF AH	16235.00	13.40	20.93	0.0027	337.10	463.56	13.48	10.00	280.92
		1.00	0.96	0.00	-159.31	92.89	R T V Z AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
4	0.544	1.00	0.96	0.00	-757.55	363.07	S U W AC AD AF AH	16235.00	13.40	20.93	0.0027	337.10	476.63	13.86	10.00	280.92
		1.00	0.96	0.00	-168.79	63.16	R T V Z AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
4	0.725	1.00	0.96	0.00	-770.62	224.58	S U W AC AD AF AH	16235.00	13.40	20.93	0.0027	337.10	489.70	14.24	10.00	280.92
		1.00	0.96	0.00	-178.27	31.71	R T V Z AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92

Verificación a cortante

Valores de diseño de las solicitaciones

								FLEXION SIMPLE				CORTANTE			
Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	As superior (cm^2/m)	As inferior (cm^2/m)	ρ	Vcu [KN/m]	Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu* [KN/m]
.																
5	0.000	1.00	0.96	0.00	-283.67	220.13	S T W AC AD AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	-24.74	36.16	R U V Z AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
5	0.181	1.00	0.96	0.00	-296.70	171.99	S U W AC AD AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	-34.26	26.36	R T V Z AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
5	0.363	1.00	0.96	0.00	-309.77	117.03	S U W AC AD AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	-43.74	19.29	R T V Z AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
5	0.544	1.00	0.96	0.00	-323.21	59.87	S U W AC AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	-52.83	10.34	R T V Z AG	16235.00	13.40	20.93	0.0027	337.10				280.92
5	0.725	1.00	0.96	0.00	-337.37	0.00	S U W AC AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	56.45	1.64	10.00	280.92
		1.00	0.96	0.00	-61.23	0.00	R T V Z AG	16235.00	13.40	20.93	0.0027	337.10				280.92
.																
6	0.000	1.00	0.96	0.00	35.81	0.00	AX AY AZ BC BI BK BL	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	319.58	0.00	S U W AA AD AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
6	0.181	1.00	0.96	0.00	26.13	5.61	AX AY AZ BC BI BK BL	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	305.42	56.64	S U W AA AD AE AG	16235.00	13.40	20.93	0.0027	337.10				280.92
6	0.362	1.00	0.96	0.00	15.98	9.56	AX AY AZ BC BH BI BK...	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	291.98	110.58	S U W AA AD AG	16235.00	13.40	20.93	0.0027	337.10				280.92
6	0.544	1.00	0.96	0.00	5.58	11.52	AX AY AZ BC BH BI BK...	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	278.91	162.31	S U W AA AD AG	16235.00	13.40	20.93	0.0027	337.10				280.92
6	0.725	1.00	0.96	0.00	-4.83	11.59	AX AY AZ BC BH BI BK...	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	265.88	207.23	S T W AA AD AG	16235.00	13.40	20.93	0.0027	337.10				280.92
.																
7	0.000	1.00	0.96	0.00	129.90	11.59	AX AY AZ BC BH BI BK...	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	740.11	211.68	S U W AA AD AG	16235.00	13.40	20.93	0.0027	337.10	459.19	13.36	10.00	280.92
7	0.181	1.00	0.96	0.00	119.49	34.19	AX AY AZ BC BH BI BK...	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	727.05	344.64	S U W AA AD AG	16235.00	13.40	20.93	0.0027	337.10	446.13	12.98	10.00	280.92
7	0.362	1.00	0.96	0.00	109.09	54.90	AX AY AZ BC BH BI BK...	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	713.98	475.24	S U W AA AD AG	16235.00	13.40	20.93	0.0027	337.10	433.06	12.60	10.00	280.92
7	0.544	1.00	0.96	0.00	98.68	73.73	AX AY AZ BC BH BI BK...	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	700.91	603.46	S U W AA AD AG	16235.00	13.40	20.93	0.0027	337.10	419.99	12.22	10.00	280.92
7	0.725	1.00	0.96	0.00	88.28	90.68	AX AY AZ BC BH BI BK...	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	687.85	729.32	S U W AA AD AG	16235.00	13.40	20.93	0.0027	337.10	406.93	11.84	10.00	280.92
.																
8	0.000	1.00	0.96	0.00	-695.30	918.25	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	414.38	12.05	10.00	280.92
		1.00	0.96	0.00	366.41	-326.46	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10	85.48	2.49	10.00	280.92
8	0.138	1.00	0.96	0.00	-728.01	820.39	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	447.08	13.00	10.00	280.92
		1.00	0.96	0.00	324.52	-278.96	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
8	0.275	1.00	0.96	0.00	-760.71	718.05	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	479.79	13.96	10.00	280.92
		1.00	0.96	0.00	282.64	-237.21	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
8	0.413	1.00	0.96	0.00	-793.41	611.20	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	512.49	14.91	10.00	280.92
		1.00	0.96	0.00	240.76	-201.23	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
8	0.550	1.00	0.96	0.00	-826.11	499.86	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	545.19	15.86	10.00	280.92
		1.00	0.96	0.00	198.88	-171.00	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92

Verificación a cortante

Valores de diseño de las solicitaciones

									FLEXION SIMPLE				CORTANTE			
Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	As superior (cm^2/m)	As inferior (cm^2/m)	ρ	Vcu [KN/m]	Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu* [KN/m]
9	0.000	1.00	0.96	0.00	-502.19	499.86	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	221.27	6.44	10.00	280.92
		1.00	0.96	0.00	300.28	-171.00	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
9	0.137	1.00	0.96	0.00	-534.89	428.56	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	253.97	7.39	10.00	280.92
		1.00	0.96	0.00	258.39	-132.60	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
9	0.275	1.00	0.96	0.00	-567.59	352.76	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	286.67	8.34	10.00	280.92
		1.00	0.96	0.00	216.51	-99.95	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
9	0.412	1.00	0.96	0.00	-602.05	278.38	S U V AC AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	321.13	9.34	10.00	280.92
		1.00	0.96	0.00	174.63	-73.06	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
9	0.550	1.00	0.96	0.00	-646.85	192.52	S U V AC AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	365.93	10.64	10.00	280.92
		1.00	0.96	0.00	132.75	-51.92	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
10	0.000	1.00	0.96	0.00	-275.84	187.68	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	178.17	-51.92	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
10	0.138	1.00	0.96	0.00	-308.54	147.51	S U V AB AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10				280.92
		1.00	0.96	0.00	136.29	-30.30	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
10	0.275	1.00	0.96	0.00	-350.04	108.58	S U V AC AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	69.12	2.01	10.00	280.92
		1.00	0.96	0.00	94.41	-14.44	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
10	0.413	1.00	0.96	0.00	-394.84	57.37	S U V AC AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	113.92	3.31	10.00	280.92
		1.00	0.96	0.00	52.52	-4.34	R T W AA AG	16235.00	13.40	20.93	0.0027	337.10				280.92
10	0.550	1.00	0.96	0.00	-439.64	0.00	S U V AC AD AE AF AH	16235.00	13.40	20.93	0.0027	337.10	158.72	4.62	10.00	280.92
		1.00	0.96	0.00	14.39	0.00	R T W Z AG	16235.00	13.40	20.93	0.0027	337.10				280.92

Verificación a cortante

Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE				CORTANTE			
									As superior (cm^2/m)	As inferior (cm^2/m)	ρ	Vcu [KN/m]	Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu* [KN/m]
.																
11	0.000	1.00	0.96	-1304.88	-58.93	448.78	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	578.21				512.99
		1.00	0.96	-232.55	813.34	-964.48	R T W AC AF AH	16235.00	26.80	32.73	0.0043	424.59	453.96	13.20	10.00	359.38
11	0.416	1.00	0.96	-1290.80	-85.38	418.75	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	576.19				510.98
		1.00	0.96	-222.13	734.26	-642.96	R T W AC AF AH	16235.00	26.80	32.73	0.0043	423.10	376.37	10.95	10.00	357.89
11	0.831	1.00	0.96	-1276.73	-110.68	377.97	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	574.17				508.96
		1.00	0.96	-211.70	657.78	-353.77	R T W AC AF AH	16235.00	26.80	32.73	0.0043	421.61	301.38	8.77	10.00	356.39
11	1.247	1.00	0.96	-1262.65	-134.84	326.91	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	572.16				506.94
		1.00	0.96	-201.28	583.88	-95.82	R T W AC AF AH	16235.00	26.80	32.73	0.0043	420.11	228.98	6.66	10.00	354.90
11	1.662	1.00	0.96	-1248.58	-157.87	266.04	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	570.14				504.93
		1.00	0.96	-190.85	512.58	131.95	R T W AC AF AH	16235.00	26.80	32.73	0.0043	418.62	159.17	4.63	10.00	353.41
.																
12	0.000	1.00	0.96	-1248.58	-157.87	266.04	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	570.14				504.93
		1.00	0.96	-190.85	512.58	131.95	R T W AC AF AH	16235.00	26.80	32.73	0.0043	418.62	159.17	4.63	10.00	353.41
12	0.416	1.00	0.96	-1234.50	-179.75	195.84	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	568.12				502.91
		1.00	0.96	-180.42	443.87	330.62	R T W AC AF AH	16235.00	26.80	32.73	0.0043	417.13	91.96	2.67	10.00	351.91
12	0.831	1.00	0.96	-1220.43	-200.49	116.78	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	566.11				500.89
		1.00	0.96	-170.00	377.75	501.27	R T W AC AF AH	16235.00	26.80	32.73	0.0043	415.63				350.42
12	1.247	1.00	0.96	-1206.35	-220.08	29.34	S U V Z AD AE AG	16235.00	26.80	32.73	0.0043	564.09				498.88
		1.00	0.96	-159.57	314.22	644.98	R T W AC AF AH	16235.00	26.80	32.73	0.0043	414.14				348.93
12	1.662	1.00	0.96	-1206.57	-239.82	10.53	S U V AA AD AE AG	16235.00	26.80	32.73	0.0043	564.12				498.91
		1.00	0.96	-149.15	253.29	762.83	R T W AC AF AH	16235.00	26.80	32.73	0.0043	412.65				347.43
.																
13	0.000	1.00	0.96	-1206.57	-239.82	10.53	S U V AA AD AE AG	16235.00	26.80	32.73	0.0043	564.12				498.91
		1.00	0.96	-149.15	253.29	762.83	R T W AC AF AH	16235.00	26.80	32.73	0.0043	412.65				347.43
13	0.416	1.00	0.96	-1192.50	-265.79	-94.61	S U V AA AD AE AG	16235.00	26.80	32.73	0.0043	562.11				496.89
		1.00	0.96	-138.72	194.95	855.89	R T W AC AF AH	16235.00	26.80	32.73	0.0043	411.15				345.94
13	0.831	1.00	0.96	-1178.42	-290.05	-210.18	S U V AA AD AE AG	16235.00	26.80	32.73	0.0043	560.09				494.88
		1.00	0.96	-128.29	139.19	925.24	R T W AC AF AH	16235.00	26.80	32.73	0.0043	409.66				344.45
13	1.247	1.00	0.96	-1164.35	-312.60	-335.48	S U V AA AD AE AG	16235.00	26.80	32.73	0.0043	558.07				492.86
		1.00	0.96	-132.15	90.01	804.12	R T W AB AF AH	16235.00	26.80	32.73	0.0043	410.21				345.00
13	1.662	1.00	0.96	-1150.27	-333.44	-469.79	S U V AA AD AE AG	16235.00	26.80	32.73	0.0043	556.06				490.84
		1.00	0.96	-121.72	49.96	833.15	R T W AB AF AH	16235.00	26.80	32.73	0.0043	408.72				343.50
.																
14	0.000	1.00	0.96	-1150.27	-333.44	-469.79	S U V AA AD AE AG	16235.00	32.73	32.73	0.0043	556.06				490.84
		1.00	0.96	-121.72	49.96	833.15	R T W AB AF AH	16235.00	32.73	32.73	0.0043	408.72				343.50
14	0.828	1.00	0.96	-1079.35	-381.79	-513.05	S U V Y AD AE AG	16235.00	32.73	32.73	0.0043	545.90				480.68
		1.00	0.96	-196.38	-15.06	429.00	AI AJ AK AL AT AV AW	16235.00	32.73	32.73	0.0043	419.41				354.20
14	1.656	1.00	0.96	-958.04	-449.39	-360.03	S U V Y AD AE AF AG	16235.00	32.73	32.73	0.0043	528.52				463.31
		1.00	0.96	-216.58	-41.46	186.55	AI AJ AK AL AV AW	16235.00	32.73	32.73	0.0043	422.31				357.09
14	2.484	1.00	0.96	-929.99	-521.83	-762.89	S U V Y AD AE AF AG	16235.00	32.73	32.73	0.0043	524.50				459.29
		1.00	0.96	-195.81	-56.67	145.60	AI AJ AK AL AV AW	16235.00	32.73	32.73	0.0043	419.33				354.12
14	3.312	1.00	0.96	-901.95	-583.99	-1221.48	S U V Y AD AE AF AG	16235.00	32.73	32.73	0.0043	520.49	128.72	3.74	10.00	455.27
		1.00	0.96	-175.04	-67.36	93.93	AI AJ AK AL AV AW	16235.00	32.73	32.73	0.0043	416.36				351.14

Verificación a cortante

Valores de diseño de las solicitaciones

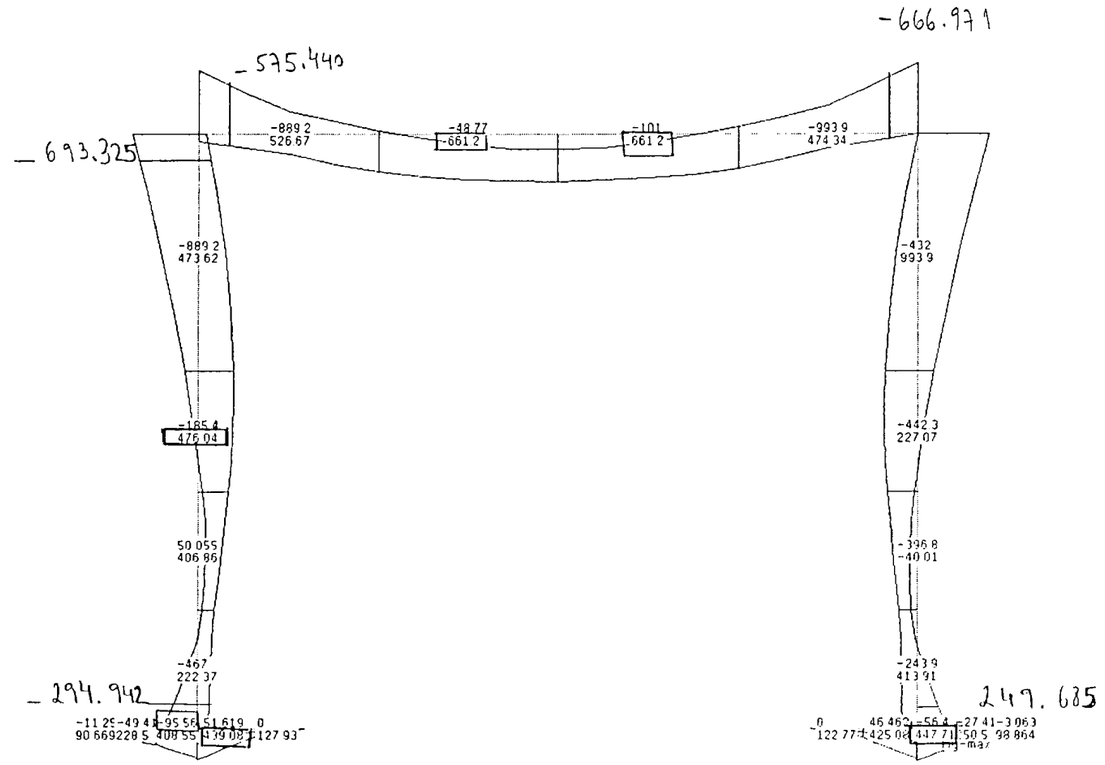
									FLEXION SIMPLE				CORTANTE			
Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	As superior (cm^2/m)	As inferior (cm^2/m)	ρ	Vcu [KN/m]	Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu* [KN/m]
15	0.000	1.00	0.96	-285.42	-765.83	831.51	R T W AA AG	16235.00	32.73	26.80	0.0035	406.95	419.89	12.21	10.00	345.94
		1.00	0.96	-988.22	226.66	-532.65	AX AY AZ BC BD BE BF...	16235.00	32.73	26.80	0.0035	507.62				446.61
15	0.416	1.00	0.96	-275.00	-686.75	529.74	R T W AA AG	16235.00	32.73	26.80	0.0035	405.45	342.31	9.96	10.00	344.44
		1.00	0.96	-977.80	253.10	-432.91	AX AY AZ BC BD BE BF...	16235.00	32.73	26.80	0.0035	506.13				445.12
15	0.831	1.00	0.96	-264.57	-610.26	260.29	R T W AA AG	16235.00	32.73	26.80	0.0035	403.96	267.31	7.78	10.00	342.95
		1.00	0.96	-967.37	278.41	-322.41	AX AY AZ BC BD BE BF...	16235.00	32.73	26.80	0.0035	504.64				443.63
15	1.247	1.00	0.96	-254.15	-536.37	22.10	R T W AA AG	16235.00	32.73	26.80	0.0035	402.47	194.91	5.67	10.00	341.46
		1.00	0.96	-956.95	302.57	-201.64	AX AY AZ BC BD BE BF...	16235.00	32.73	26.80	0.0035	503.14				442.13
15	1.662	1.00	0.96	-243.72	-465.06	-185.92	R T W AA AG	16235.00	32.73	26.80	0.0035	400.97	125.10	3.64	10.00	339.96
		1.00	0.96	-946.52	325.59	-71.06	AX AY AZ BC BD BE BF...	16235.00	32.73	26.80	0.0035	501.65				440.64
16	0.000	1.00	0.96	-243.72	-465.06	-185.92	R T W AA AG	16235.00	32.73	26.80	0.0035	400.97	125.10	3.64	10.00	339.96
		1.00	0.96	-946.52	325.59	-71.06	AX AY AZ BC BD BE BF...	16235.00	32.73	26.80	0.0035	501.65				440.64
16	0.416	1.00	0.96	-233.29	-396.35	-364.84	R T W AA AG	16235.00	32.73	26.80	0.0035	399.48				338.47
		1.00	0.96	-936.10	347.47	68.85	AX AY AZ BC BD BE BF...	16235.00	32.73	26.80	0.0035	500.16				439.15
16	0.831	1.00	0.96	-222.87	-330.23	-515.74	R T W AA AG	16235.00	32.73	26.80	0.0035	397.99				336.98
		1.00	0.96	-1273.31	248.05	-131.20	S U V AB AD AE AF AH	16235.00	32.73	26.80	0.0035	548.46				487.45
16	1.247	1.00	0.96	-212.44	-266.70	-639.70	R T W AA AG	16235.00	32.73	26.80	0.0035	396.49				335.48
		1.00	0.96	-1259.24	267.65	-23.99	S U V AB AD AE AF AH	16235.00	32.73	26.80	0.0035	546.45				485.44
16	1.662	1.00	0.96	-202.02	-205.76	-737.79	R T W AA AG	16235.00	32.73	26.80	0.0035	395.00				333.99
		1.00	0.96	-1259.44	287.37	14.59	S U V AC AD AE AF AH	16235.00	32.73	26.80	0.0035	546.48				485.47
17	0.000	1.00	0.96	-202.02	-205.76	-737.79	R T W AA AG	16235.00	32.73	26.80	0.0035	395.00				333.99
		1.00	0.96	-1259.44	287.37	14.59	S U V AC AD AE AF AH	16235.00	32.73	26.80	0.0035	546.48				485.47
17	0.416	1.00	0.96	-191.59	-147.41	-811.10	R T W AA AG	16235.00	32.73	26.80	0.0035	393.51				332.50
		1.00	0.96	-1245.37	313.34	139.48	S U V AC AD AE AF AH	16235.00	32.73	26.80	0.0035	544.46				483.45
17	0.831	1.00	0.96	-181.17	-91.65	-860.69	R T W AA AG	16235.00	32.73	26.80	0.0035	392.01				331.00
		1.00	0.96	-1231.29	337.61	274.82	S U V AC AD AE AF AH	16235.00	32.73	26.80	0.0035	542.44				481.43
17	1.247	1.00	0.96	-270.66	-44.41	-331.47	AX AY AZ BB BJ BL	16235.00	32.73	26.80	0.0035	404.83				343.82
		1.00	0.96	-1217.22	360.16	419.88	S U V AC AD AE AF AH	16235.00	32.73	26.80	0.0035	540.43				479.42
17	1.662	1.00	0.96	-260.24	-10.69	-342.86	AX AY AZ BB BJ BL	16235.00	32.73	26.80	0.0035	403.34				342.33
		1.00	0.96	-1203.14	380.99	573.96	S U V AC AD AE AF AH	16235.00	32.73	26.80	0.0035	538.41				477.40
18	0.000	1.00	0.96	-260.24	-10.69	-342.86	AX AY AZ BB BJ BL	16235.00	32.73	32.73	0.0043	428.56				363.35
		1.00	0.96	-1203.14	380.99	573.96	S U V AC AD AE AF AH	16235.00	32.73	32.73	0.0043	563.63				498.42
18	0.828	1.00	0.96	-289.25	46.79	-48.10	AI AJ AK AL AU AW	16235.00	32.73	32.73	0.0043	432.72				367.50
		1.00	0.96	-1132.26	429.38	656.72	S U V Y AD AE AF AH	16235.00	32.73	32.73	0.0043	553.48				488.26
18	1.656	1.00	0.96	-309.46	73.19	220.63	AI AJ AK AL AW	16235.00	32.73	32.73	0.0043	435.61				370.40
		1.00	0.96	-1010.95	496.98	543.12	S U V Y AD AE AF AG AH	16235.00	32.73	32.73	0.0043	536.10				470.89
18	2.484	1.00	0.96	-288.68	88.40	287.85	AI AJ AK AL AW	16235.00	32.73	32.73	0.0043	432.64				367.42
		1.00	0.96	-982.90	569.43	985.39	S U V Y AD AE AF AG AH	16235.00	32.73	32.73	0.0043	532.08	102.56	2.98	10.00	466.87
18	3.312	1.00	0.96	-267.91	99.09	365.80	AI AJ AK AL AW	16235.00	32.73	32.73	0.0043	429.66				364.45
		1.00	0.96	-954.86	631.59	1483.40	S U V Y AD AE AF AG AH	16235.00	32.73	32.73	0.0043	528.07	168.74	4.91	10.00	462.85

Verificación a cortante

Valores de diseño de las solicitaciones

									FLEXION SIMPLE				CORTANTE			
Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	As superior (cm^2/m)	As inferior (cm^2/m)	ρ	Vcu [KN/m]	Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu* [KN/m]
19	0.000	1.10	1.06	-280.56	24.35	530.25	R T V AC AE AF AH	17935.00	34.33	20.93	0.0025	395.11				335.99
		1.10	1.06	-432.70	1038.10	-1753.24	S U W AA AD AG	17935.00	34.33	20.93	0.0025	417.00	680.22	17.91	10.00	357.87
19	0.619	1.10	1.06	-286.51	-2.32	537.07	R T V AC AE AF AH	17935.00	34.33	20.93	0.0025	395.97				336.84
		1.10	1.06	-432.70	925.35	-1145.80	S U W AA AD AG	17935.00	34.33	20.93	0.0025	417.00	567.48	14.94	10.00	357.87
19	1.237	1.10	1.06	-292.46	-28.99	527.38	R T V AC AE AF AH	17935.00	34.33	20.93	0.0025	396.82				337.70
		1.10	1.06	-432.70	812.61	-608.12	S U W AA AD AG	17935.00	34.33	20.93	0.0025	417.00	454.74	11.97	10.00	357.87
19	1.856	1.10	1.06	-298.41	-55.66	501.19	R T V AC AE AF AH	17935.00	34.33	20.93	0.0025	397.68				338.55
		1.10	1.06	-432.70	699.87	-140.19	S U W AA AD AG	17935.00	34.33	20.93	0.0025	417.00	341.99	9.00	10.00	357.87
19	2.475	1.10	1.06	-304.36	-82.34	458.50	R T V AC AE AF AH	17935.00	34.33	20.93	0.0025	398.54				339.41
		1.10	1.06	-432.70	587.12	257.97	S U W AA AD AG	17935.00	34.33	20.93	0.0025	417.00	229.25	6.04	10.00	357.87
20	0.000	1.10	1.06	-304.36	-82.34	458.50	R T V AC AE AF AH	17935.00	13.40	34.33	0.0041	462.15				392.42
		1.10	1.06	-432.70	587.12	257.97	S U W AA AD AG	17935.00	13.40	34.33	0.0041	480.62	176.23	4.64	10.00	410.89
20	0.619	1.10	1.06	-310.30	-109.01	399.30	R T V AC AE AF AH	17935.00	13.40	34.33	0.0041	463.01				393.28
		1.10	1.06	-432.70	474.38	586.37	S U W AA AD AG	17935.00	13.40	34.33	0.0041	480.62				410.89
20	1.238	1.10	1.06	-316.25	-135.68	323.60	R T V AC AE AF AH	17935.00	13.40	34.33	0.0041	463.86				394.14
		1.10	1.06	-432.70	361.64	845.01	S U W AA AD AG	17935.00	13.40	34.33	0.0041	480.62				410.89
20	1.856	1.10	1.06	-222.89	-174.99	705.03	AX AY AZ BC BD BE BH...	17935.00	13.40	34.33	0.0041	450.43				380.71
		1.10	1.06	-432.70	248.89	1033.90	S U W AA AD AG	17935.00	13.40	34.33	0.0041	480.62				410.89
20	2.475	1.10	1.06	-226.86	-253.14	572.58	AX AY AZ BC BD BE BH...	17935.00	13.40	34.33	0.0041	451.00				381.28
		1.10	1.06	-261.53	189.10	526.27	AX AY AZ BB BF BG BJ	17935.00	13.40	34.33	0.0041	455.99				386.26
21	0.000	1.10	1.06	-226.86	-253.14	572.58	AX AY AZ BC BD BE BH...	17935.00	13.40	34.33	0.0041	451.00				381.28
		1.10	1.06	-261.53	189.10	526.27	AX AY AZ BB BF BG BJ	17935.00	13.40	34.33	0.0041	455.99				386.26
21	0.619	1.10	1.06	-444.25	-301.76	976.38	S U V AC AD AE AF AH	17935.00	13.40	34.33	0.0041	482.28				412.55
		1.10	1.06	-261.53	110.94	619.10	AX AY AZ BB BF BG BJ	17935.00	13.40	34.33	0.0041	455.99				386.26
21	1.237	1.10	1.06	-450.19	-414.51	754.79	S U V AC AD AE AF AH	17935.00	13.40	34.33	0.0041	483.13				413.41
		1.10	1.06	-322.55	82.81	282.98	R T W AA AG	17935.00	13.40	34.33	0.0041	464.77				395.04
21	1.856	1.10	1.06	-456.14	-527.25	463.43	S U V AC AD AE AF AH	17935.00	13.40	34.33	0.0041	483.99	112.99	2.97	10.00	414.26
		1.10	1.06	-322.55	56.14	325.96	R T W AA AG	17935.00	13.40	34.33	0.0041	464.77				395.04
21	2.475	1.10	1.06	-462.09	-639.99	102.32	S U V AC AD AE AF AH	17935.00	13.40	34.33	0.0041	484.85	224.88	5.92	10.00	415.12
		1.10	1.06	-322.55	29.46	352.44	R T W AA AG	17935.00	13.40	34.33	0.0041	464.77				395.04
22	0.000	1.10	1.06	-462.09	-639.99	102.32	S U V AC AD AE AF AH	17935.00	34.33	20.93	0.0025	421.23	277.89	7.32	10.00	362.10
		1.10	1.06	-322.55	29.46	352.44	R T W AA AG	17935.00	34.33	20.93	0.0025	401.15				342.03
22	0.619	1.10	1.06	-468.04	-752.74	-328.56	S U V AC AD AE AF AH	17935.00	34.33	20.93	0.0025	422.08	389.78	10.26	10.00	362.96
		1.10	1.06	-322.55	2.79	362.42	R T W AA AG	17935.00	34.33	20.93	0.0025	401.15				342.03
22	1.237	1.10	1.06	-473.99	-865.48	-829.20	S U V AC AD AE AF AH	17935.00	34.33	20.93	0.0025	422.94	501.67	13.21	10.00	363.82
		1.10	1.06	-322.55	-23.88	355.90	R T W AA AG	17935.00	34.33	20.93	0.0025	401.15				342.03
22	1.856	1.10	1.06	-479.94	-978.22	-1399.59	S U V AC AD AE AF AH	17935.00	34.33	20.93	0.0025	423.80	613.55	16.15	10.00	364.67
		1.10	1.06	-322.55	-50.55	332.88	R T W AA AG	17935.00	34.33	20.93	0.0025	401.15				342.03
22	2.475	1.10	1.06	-485.89	-1090.97	-2039.75	S U V AC AD AE AF AH	17935.00	34.33	20.93	0.0025	424.65	725.44	19.10	10.00	365.53
		1.10	1.06	-322.55	-77.22	293.35	R T W AA AG	17935.00	34.33	20.93	0.0025	401.15				342.03

Scale 1 : 86.1
Int. Forces envelope My, GWSP CR, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 1.00E-03
  min: -9.94E+02 max: 2.05E+02 [kNm]
- Envelope Moment My-max, Scale 1.00E-03
  min: -9.82E+01 max: 9.94E+02 [kNm]
- Text envelopes [kNm]



****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: E-1 Calculo a fisuración seccion central de vano
Fecha: 23/4/01 12.15.00

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 110 cm Canto útil = 105.22 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 33.97 cm2
Diámetro equivalente = 25.60 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 66.12 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0032286
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 15.15 cm
Area de hormigón eficaz, Ac,eficaz = 2398.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 57.24 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1710.5 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 1975.7 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 19.07 cm
Alargamiento medio de las fisuras, Esm = 0.000617633
Apertura de fisura, Wk = 0.200 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.200 mm
Apertura de fisura máxima, Wmax = 0.300 mm

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****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: E-1 Calculo a fisuración seccion apoyo dintel
Fecha: 23/4/01 12.49.15

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 110 cm Canto útil = 105.22 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 33.97 cm2
Diámetro equivalente = 25.60 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 66.69 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0032286
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 15.15 cm
Area de hormigón eficaz, Ac,eficaz = 2398.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 57.24 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1710.5 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 1992.7 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 19.07 cm
Alargamiento medio de las fisuras, Esm = 0.000629313
Apertura de fisura, Wk = 0.204 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.204 mm
Apertura de fisura máxima, Wmax = 0.300 mm

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****** ELS FISURACIÓN HORMIGÓN ARMADO *******
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Departamento de Estructuras. AEPO, S.A.
Título: E-1 Calculo a fisuración seccion apoyo hastial
Fecha: 23/4/01 12.51.04

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 100 cm Canto útil = 95.22 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 33.97 cm2
Diámetro equivalente = 25.60 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 69.33 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0035677
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 15.15 cm
Area de hormigón eficaz, Ac,eficaz = 2398.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 47.31 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1566.9 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2296.3 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 19.07 cm
Alargamiento medio de las fisuras, Esm = 0.000880835
Apertura de fisura, Wk = 0.285 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.285 mm
Apertura de fisura máxima, Wmax = 0.300 mm

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****** ELS FISURACIÓN HORMIGÓN ARMADO *******
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Departamento de Estructuras. AEPO, S.A.
Título: E-1 Calculo a fisuración seccion centro hastial
Fecha: 23/4/01 12.51.59

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 100 cm Canto útil = 95.25 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 32.72 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 47.6 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0034353
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 15.00 cm
Area de hormigón eficaz, Ac,eficaz = 2350.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 47.31 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1624.3 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 1634.3 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 18.98 cm
Alargamiento medio de las fisuras, Esm = 0.000413560
Apertura de fisura, Wk = 0.133 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.133 mm
Apertura de fisura máxima, Wmax = 0.300 mm

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****** ELS FISURACIÓN HORMIGÓN ARMADO *******
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Departamento de Estructuras. AEPO, S.A.
Título: E-1 Calculo a fisuración seccion centro zapata
Fecha: 23/4/01 12.52.47

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 25 fck = 25 N/mm2 Ec = 27264.0 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 100 cm Canto útil = 95.50 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 20.94 cm2
Diámetro equivalente = 20.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 44.77 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0021929
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 15.00 cm
Area de hormigón eficaz, Ac,eficaz = 1950.00 cm2
Resistencia a tracción del hormigón, fct,m = 25.1 Kp/cm2
Momento de fisuración, Mfis = 41.89 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 2215.9 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2368.0 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 19.31 cm
Alargamiento medio de las fisuras, Esm = 0.000665609
Apertura de fisura, Wk = 0.219 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.219 mm
Apertura de fisura máxima, Wmax = 0.300 mm

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
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Departamento de Estructuras. AEPO, S.A.
Título: E-1 Calculo a fisuración seccion centro zapata
Fecha: 23/4/01 12.53.25

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 25 fck = 25 N/mm2 Ec = 27264.0 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 100 cm Canto útil = 95.70 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 13.40 cm2
Diámetro equivalente = 16.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 29.49 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0014005
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 15.00 cm
Area de hormigón eficaz, Ac,eficaz = 1630.00 cm2
Resistencia a tracción del hormigón, fct,m = 25.1 Kp/cm2
Momento de fisuración, Mfis = 41.89 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 3418.3 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2406.2 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 19.73 cm
Alargamiento medio de las fisuras, Esm = 0.000481235
Apertura de fisura, Wk = 0.000 mm
La sección no se ha llegado a fisurar por no rebasarse fct,m en el hormigón

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.000 mm
Apertura de fisura máxima, Wmax = 0.300 mm

El cálculo de los muros se ha realizado mediante el programa ESTRIMUR, cuyas salidas con datos de partida y resultados se adjuntan a continuación

La descripción del programa está incluida en el ANEJO A.

Cálculo de las secciones del muro

Cálculo de cuantías de armaduras mínimas Hormigón Armado

Materiales :

Hormigón : fck (N/mm^2)= **30** | h (m) = **1.00** | rec (m) = **0.03**
γ c = **1.50** | b (m) = **1.00** | d (m) = 0.96
fcd (N/mm^2)= 20.0 | Ac (m^2) = 1.00 | d' (m) = 0.045
d' < h/7 Verifica

Acero pasivo **B 500 S**
fs (N/mm^2)= **550**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8

FLEXIÓN SIMPLE O COMPUESTA : sección rectangular
Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 0,056 *0.85* fcd *b*d /fyd =

Cuantía mecánica mínima armadura de compresión :

A's(cm^2/m) = 0,05*Nd / fycd

ALZADO : h (m) = **1.00** **MURO**

Cuantía geométrica mínima :
As ^{MIN} (cm^2/m) = 9.00 Armadura vertical cara de tracción
As ^{MIN} (cm^2/m) = 2.70 Armadura vertical otra cara ϕ 8/15

Separación entre juntas (m) **5.65**
As min horizontal (cm2/m) = 10.67 Armadura horizontal en cara vista ϕ16/20
As min horizontal (cm2/m) = 5.33 Armadura horizontal en cara oculta ϕ 12/20

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 20.91

ZAPATA : h (m) = **1.00** **LOSA DE CIMENTACION**
b (m) = **5.10**

Cuantía geométrica mínima :
As ^{MIN} (cm^2/m) = 6.69 repartidas en las dos caras y los laterales ϕ12/15

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 20.91

Cálculo de las secciones del muro

Cálculo de cuantías de armaduras mínimas : Hormigón Armado

Materiales :

Hormigón : fck (N/mm^2)= **30** | h (m) = **0.63** | rec (m) = **0.03**
γ c = **1.50** | b (m) = **1.00** | d (m) = 0.58
fcd (N/mm^2)= 20.0 | Ac (m^2) = 0.63 | d' (m) = 0.045
d' < h/7 Verifica

Acero pasivo : **B 500 S**
fs (N/mm^2)= **550**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8

FLEXIÓN SIMPLE O COMPUESTA : sección rectangular
Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 0,056 *0.85* fcd *b*d /fyd =

Cuantía mecánica mínima armadura de compresión :

A's(cm^2/m) = 0,05*Nd / fycd

ALZADO : h (m) = **0.50** **MURO**

Cuantía geométrica mínima :
As ^{MIN} (cm^2/m) = 4.50 Armadura vertical cara de tracción
As ^{MIN} (cm^2/m) = 1.35 Armadura vertical otra cara

Separación entre juntas (m)= **5.65**
As min horizontal (cm2/m) = 5.33 Armadura horizontal en cara vista
As min horizontal (cm2/m) = 2.67 Armadura horizontal en cara oculta

Cuantía mecánica mínima armadura traccionada :

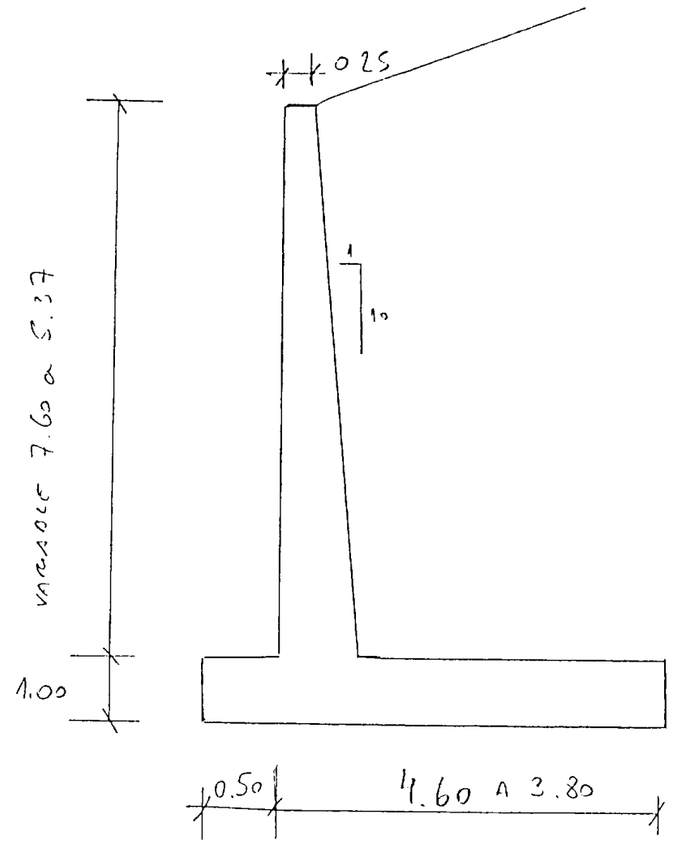
As(cm^2/m) = 9.96

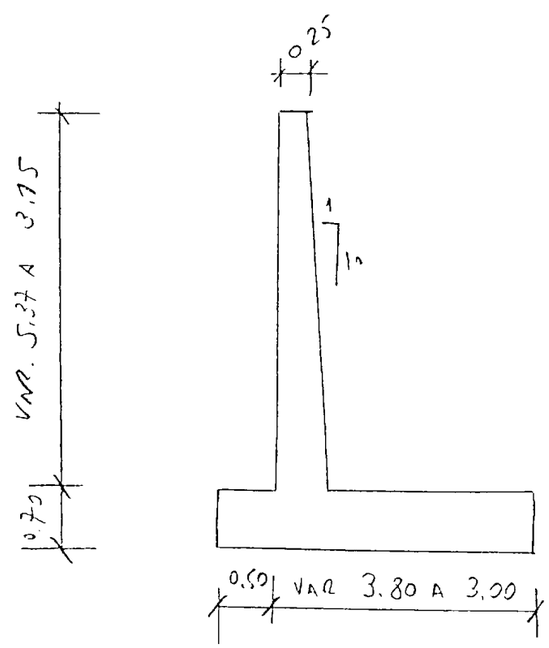
ZAPATA : h (m) = **0.70** **LOSA DE CIMENTACION**
b (m) = **5.10**

Cuantía geométrica mínima :
As ^{MIN} (cm^2/m) = 4.92 repartidas en las dos caras y los laterales

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 14.34


0.25
1
1
VARIAVEL 7.60 A 5.37
1.00
0.50
1.60 A 3.80


0.25
1
1
VAR. 5.37 A 3.75
0.70
0.50
VAR 3.80 A 3.00

Aleta seccion tipo 1

DATOS DE ENTRADA

Muro ..... : Aleta 1 H=7.6

GEOMETRIA:

Longitud muro	:	5.65 m
Altura mínima total.....	:	6.37 m
Altura máxima total.....	:	8.60 m
Canto de Zapata.....	:	1.00 m
Ancho coronacion	:	0.25 m
Talud trasdós.....	:	10.00 %
Talud exterior.....	:	0.00 %
Angulo muro-calzada	:	60.00 °
Distancia muro-calzada.....	:	0.50 m
Talud de terraplén (H/V)...	:	3 / 2
Angulo de talud trasdós....	:	18.43 °

TERRENO:

Densidad de tierras.....	:	2.00 t/m3
Angulo de rozam. interno...	:	32.00 °
Roz. Muro-tierras	:	10.00 °
Coeficiente de roz.....	:	0.60
Tensión admisible	:	5.00 Kg/cm²
Sobrecarga terraplén.....	:	3.00 t/m²
Kh inclinado	:	0.425
Kh horizontal.....	:	0.326
Kv inclinado	:	0.075
Kv horizontal.....	:	0.057

MATERIALES

Fck (Kg/cm²).....	:	300
Gc	:	1.50
Fyk (Kg/cm²).....	:	5100
Gs	:	1.15
Recubrimiento en Alzados...	:	3 cms
Recubrimiento en Cimientos..	:	5 cms

SEGURIDAD

Coeficiente desliz.....	:	1.50
Coeficiente vuelco.....	:	1.80
Coeficiente de acciones....	:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	5.57	27.72	4.89	72.11	20.77	27.72	73.12	99.82	182.52
1.00	2.00	1.50	5.96	29.70	5.24	83.59	23.04	29.70	79.77	113.29	204.82
2.00	3.00	2.50	6.36	30.56	5.39	91.62	24.25	30.56	85.23	122.18	222.93
3.00	4.00	3.50	6.75	30.39	5.36	93.75	24.11	30.39	88.54	124.15	230.86
4.00	5.00	4.50	7.15	29.58	5.22	91.12	23.47	29.58	91.55	120.70	237.48
5.00	5.65	5.33	7.47	28.64	5.05	86.73	22.73	28.64	92.75	115.37	238.21

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	5.57	0.50	4.25	1.59	1.83	4.33	0.00	3.25	3.38
1.00	2.00	1.50	5.96	0.50	4.40	1.61	1.81	4.63	0.00	3.48	3.44
2.00	3.00	2.50	6.36	0.50	4.50	1.67	1.82	4.81	0.00	3.61	3.55
3.00	4.00	3.50	6.75	0.50	4.50	1.75	1.86	4.90	0.00	3.67	3.62
4.00	5.00	4.50	7.15	0.50	4.50	1.86	1.97	4.78	0.00	3.59	3.83
5.00	5.65	5.33	7.47	0.50	4.50	1.94	2.06	4.67	0.00	3.50	3.97

Coeficiente global de seg. al deslizamiento ...		1.74
Coeficiente global de seg. al vuelco		1.89
Tensión máxima en solera (Kg/cm²).....		4.90

Ancho de murete de guarda	(m)	0.250
Ancho de cabezal de apoyos	(m)	0.000
Sobreancho interior del alzado	(m)	0.760
Sobreancho exterior del alzado	(m)	0.000
Ancho de talon	(m)	3.590
Ancho de tac¢n	(m)	0.000
Ancho de puntera	(m)	0.500
Altura de murete de guarda	(m)	0.000
Altura de alzado	(m)	7.600
Canto de cimentaci¢n¢n	(m)	1.000
Sobrecanto de tac¢n	(m)	0.000
Ancho del talud de tierras sobre cor.	(m)	0.500
Altura de tierras sobre coronac¢n	(m)	0.170
Altura de tierras sobre puntera	(m)	0.500
Altura de nivel fre tico interior	(m)	0.000
Altura de nivel fre tico exterior	(m)	0.000
Angulo de rozam. del terreno interior	(øS)	32.000
Cohesi¢n del terreno interior	(Tn/m2)	0.000
Angulo de rozam. del terreno exterior	(øS)	32.000
Cohesi¢n del terreno exterior	(Tn/m2)	0.000
Coefic. de empuje relativo en puntera		0.000
(0:Nulo 1:Activo 2:Reposo 3:Pasivo)		
Angulo de rozamiento en plano virtual	(øS)	10.000
Angulo de rozamiento en alzado	(øS)	10.000
Angulo de rozamiento en cimentaci¢n	(øS)	31.000
Cohesi¢n en cimentaci¢n	(Tn/m2)	0.000
Resistencia caract. del hormig¢n	(Tn/m2)	3000
Resistencia caract. del acero	(Tn/m2)	51000
Coeficiente de minoraci¢n del hormig¢n		1.500
Coeficiente de minoraci¢n del acero		1.150
Recubrimiento de armaduras en alzado	(m)	.050
Recubrimiento de armaduras en zapata	(m)	.050
Di metro m ximo de armaduras en alzado	(m)	.020
Di metro m ximo de armaduras en zapata	(m)	.020
Tipo de ambiente (fisuraci¢n) (1/2/3)		2
Peso del material del muro	(Tn/m3)	2.500
Peso seco del terreno interior	(Tn/m3)	2.000
Peso sumergido del terreno interior	(Tn/m3)	0.000
Peso seco del terreno exterior	(Tn/m3)	2.000
Peso sumergido del terreno exterior	(Tn/m3)	0.000

Cargas en cabezal	Distancia a borde exterior (m)	Vertical (Tn/m)	Horizontal (Tn/m)	Momento (m*Tn/m)
CAB-1	0.000	0.000	0.000	0.000
CAB-2	0.000	0.000	0.000	0.000
CAB-3	0.000	0.000	0.000	0.000
CAB-4	0.000	0.000	0.000	0.000

Cargas en calzada	Distancia a borde interior (m)	Vertical (Tn/m)
CAL-1	0.000	0.000
CAL-2	0.000	0.000

Sobrecarga sobre calzada	(Tn/m2)	3.000
Sobrecarga sobre talud	(Tn/m2)	0.000
Sobrecarga sobre puntera	(Tn/m2)	0.000

Hip¢tesis de comprobaci¢n de seguridad

1	PP+PTT+PTP+1.5*ETT
2	H1+1.5*EST
3	H1+RVCP
4	H2+RVCP
5	H3+1.35*RHCP
6	H5+1.50*RHSOB
7	H6+1.50*RVSOB
8	H3+1.50*RVSOB+1.50*RHSOB
9	H6+1.50*EST
10	H9+1.50*RVSOB
11	H4+RHCP+1.50*RVSOB
12	H4+1.35*RHCP+1.50*RHSOB

Hip¢tesis de c lculo de esfuerzos

1	SITUACION TRANSITORIA
2	SITUACION TRANSITORIA
3	SITUACION PERMANENTE
4	SITUACION PERMANENTE
5	SITUACION PERMANENTE
6	SITUACION PERMANENTE

Hip¢tesis de c lculo de presiones en cimentaci¢n

1	PP+PTT+PTP+ETT
2	H1+PSP+EST
3	H1+RVCP
4	H2+RVCP
5	H3+RHCP
6	H5+RHSOB
7	H6+RVSOB
8	H3+RVSOB+RHSOB
9	H7+PSP+EST
10	H8+PSP+EST
11	H4+RHCP+RVSOB
12	H4+RHCP+RHSOB+EST+PSP

Coeficientes de ponderaci¢n de hip¢tesis de comprobaci¢n de seguridad

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6	Hip7	Hip8	Hip9	Hip10	Hip11	Hip12
Peso propio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peso Ti. sobre tal¢n	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre tal¢n	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.00	1.00	1.00
Carga en cabezal (2)	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50	0.00	1.50	1.50	0.00
Carga en cabezal (3)	0.00	0.00	0.00	0.00	1.35	1.35	1.35	1.00	1.35	1.35	1.00	1.35
Carga en cabezal (4)	0.00	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50	1.50	0.00	1.50
Carga en calzada (1)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Carga en calzada (2)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Peso sobrec. de tal¢n	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. de tal¢n	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50
Peso sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderaci¢n de hip¢tesis de c lculo de esfuerzos

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6
Peso propio	1.35	1.00	1.35	1.00	1.35	1.00
Peso Ti. sobre tal¢n	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre tal¢n	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.35	1.00	1.35	1.00
Carga en cabezal (2)	0.00	0.00	1.50	0.00	1.50	0.00
Carga en cabezal (3)	0.00	0.00	1.35	1.35	1.35	1.35
Carga en cabezal (4)	0.00	0.00	1.50	1.50	1.50	1.50
Carga en calzada (1)	1.50	1.50	1.50	1.50	1.50	1.50
Carga en calzada (2)	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. de tal¢n	1.50	1.00	1.50	1.00	0.00	0.00
Emp. sobrec. de tal¢n	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. puntera	1.50	0.00	1.50	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderaci¢n de c lculo de presiones en cimentaci¢n

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
Peso propio	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre tal¢n	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre tal¢n	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre puntera	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre puntera	0	0	0	0	0	0	0	0	0	0	0	0
Nivel Freatico Interior	1	1	1	1	1	1	1	1	1	1	1	1
Nivel Freatico Exterior	1	1	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (1)	0	0	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (2)	0	0	0	0	0	0	1	1	1	1	1	0
Carga en cabezal (3)	0	0	0	0	1	1	1	0	1	0	1	1
Carga en cabezal (4)	0	0	0	0	0	1	1	1	1	1	0	1
Carga en calzada (1)	0	0	0	1	0	0	0	0	0	0	0	1
Carga en calzada (2)	0	0	0	1	0	0	0	0	0	0	0	1
Peso sobrec. de tal¢n	0	0	0	1	0	0	0	0	0	0	0	0
Emp. sobrec. de tal¢n	0	1	0	1	0	0	0	0	1	1	1	1
Peso sobrec. puntera	0	1	0	1	0	0	0	0	1	1	1	1
Emp. sobrec. puntera	0	0	0	0	0	0	0	0	0	0	0	0

Coeficientes de empuje

	Talud		Calzada	
	Horizontal	Vertical	Horizontal	Vertical
Plano virtual	0.364	0.064	0.281	0.050
Trasd¢s	0.412	0.116	0.314	0.088

Coeficientes de seguridad y Presiones en cimentaci¢n

	Hip.1	Hip.2	Hip.3	Hip.4	Hip.5	Hip.6	Hip.7	Hip.8	Hip.9	Hip10	Hip11	Hip12
Cf.Seg. Deslizamiento	1.72	1.31	1.72	1.31	1.72	1.72	1.72	1.72	1.31	1.31	1.31	1.31
Cf.Seg. Vuelco	3.58	2.25	3.58	2.25	3.58	3.58	3.58	3.58	2.25	2.25	2.25	2.25
Presi¢n en puntera	27.14	34.10	27.14	34.70	27.14	27.14	27.14	27.14	34.10	34.10	34.10	34.10
Presi¢n en tal¢n	8.46	2.00	8.46	5.93	8.46	8.46	8.46	8.46	2.00	2.00	2.00	2.00
Dist. a puntera p=0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Presi¢n centrada	21.57	25.66	21.57	26.59	21.57	21.57	21.57	21.57	25.66	25.66	25.66	25.66

Resultados m s desfavorables :

Coeficiente de seguridad al deslizam.	(normal)	1.307	(accidental)	99.990
Coeficiente de seguridad al vuelco		//	2.252	//	99.990
Presi¢n punta	(Tn/m2)	//	34.701	//	0.000
Presi¢n centrada	(Tn/m2)	//	26.593	//	0.000
Presi¢n centrada admisible	(Tn/m2)	//	(50.000)	//	(62.500)

2 Esfuerzos Hip¢tesis 1 Hip¢tesis

Secci¢n	Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 6.840	1.04	1.08	0.25	0.85	1.08	0.24
Alzado 6.080	2.55	3.13	1.77	2.12	3.13	1.76
Alzado 5.320	4.41	5.72	5.07	3.68	5.72	5.03
Alzado 4.560	6.62	8.85	10.55	5.55	8.85	10.48
Alzado 3.800	9.17	12.53	18.64	7.71	12.53	18.52
Alzado 3.040	12.07	16.76	29.74	10.16	16.76	29.56
Alzado 2.280	15.32	21.53	44.27	12.92	21.53	44.01
Alzado 1.520	18.92	26.84	62.65	15.97	26.84	62.29
Alzado 0.760	22.86	32.69	85.29	19.32	32.69	84.80
Alzado 0.000	27.16	39.09	112.61	22.97	39.09	111.97
Arranque puntera	11.24	31.55	10.54	15.78	32.28	10.90
Arranque de tal¢n	-23.01	40.20	-115.52	-15.10	42.02	-112.86
Centro de tal¢n	-5.64	38.22	-39.72	-0.14	37.23	-33.68

4 Esfuerzos Hip¢tesis 3 Hip¢tesis

Secci¢n	Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 6.840	1.04	1.08	0.25	0.85	1.08	0.24
Alzado 6.080	2.55	3.13	1.77	2.12	3.13	1.76
Alzado 5.320	4.41	5.72	5.07	3.68	5.72	5.03
Alzado 4.560	6.62	8.85	10.55	5.55	8.85	10.48
Alzado 3.800	9.17	12.53	18.64	7.71	12.53	18.52
Alzado 3.040	12.07	16.76	29.74	10.16	16.76	29.56
Alzado 2.280	15.32	21.53	44.27	12.92	21.53	44.01
Alzado 1.520	18.92	26.84	62.65	15.97	26.84	62.29
Alzado 0.760	22.86	32.69	85.29	19.32	32.69	84.80
Alzado 0.000	27.16	39.09	112.61	22.97	39.09	111.97
Arranque puntera	11.24	31.55	10.54	15.78	32.28	10.90
Arranque de tal¢n	-23.01	40.20	-115.52	-15.10	42.02	-112.86
Centro de tal¢n	-5.64	38.22	-39.72	-0.14	37.23	-33.68

E-1 ALETA 1 H=7.60m

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 5 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 6 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 6.840	1.04	1.08	0.25	0.85	1.08	0.24
Alzado 6.080	2.55	3.13	1.77	2.12	3.13	1.76
Alzado 5.320	4.41	5.72	5.07	3.68	5.72	5.03
Alzado 4.560	6.62	8.85	10.55	5.55	8.85	10.48
Alzado 3.800	9.17	12.53	18.64	7.71	12.53	18.52
Alzado 3.040	12.07	16.76	29.74	10.16	16.76	29.56
Alzado 2.280	15.32	21.53	44.27	12.92	21.53	44.01
Alzado 1.520	18.92	26.84	62.65	15.97	26.84	62.29
Alzado 0.760	22.86	32.69	85.29	19.32	32.69	84.80
Alzado 0.000	27.16	39.09	112.61	22.97	39.09	111.97
Arranque puntera	12.59	31.55	10.57	19.34	35.80	12.21
Arranque de talón	-20.54	39.17	-115.85	-9.74	45.58	-108.14
Centro de talón	-3.22	39.02	39.51	0.00	32.38	-29.06

E-1 ALETA 1 H=7.60m

Armaduras y Comprobación a cortante

Sección		T.y Ret. (cm2/m)	Esfuerzos (cm2/m)	C lculo (cm2/m)	Cortante (Tn/m)	Resist. (Tn/m)
Alzado 7.600	int	1.13	0.00	1.13	0.00	
	ext	1.13	0.00	1.13		
Alzado 6.840	int	1.47	0.13	1.47	1.08	
	ext	1.47	0.00	1.47		
Alzado 6.080	int	1.81	1.27	1.81	3.13	
	ext	1.81	0.00	1.81		
Alzado 5.320	int	2.15	3.10	3.10	5.72	
	ext	2.15	0.00	2.15		
Alzado 4.560	int	2.49	5.36	5.36	8.85	
	ext	2.49	0.00	2.49		
Alzado 3.800	int	2.84	7.89	7.89	12.53	
	ext	2.84	0.00	2.84		
Alzado 3.040	int	3.18	10.55	10.55	16.76	
	ext	3.18	0.00	3.18		
Alzado 2.280	int	3.52	13.23	13.23	21.53	
	ext	3.52	0.00	3.52		
Alzado 1.520	int	3.86	16.21	16.21	26.84	
	ext	3.86	0.00	3.86		
Alzado 0.760	int	4.20	20.32	20.32	32.69	
	ext	4.20	0.00	4.20		
Alzado 0.000	int	4.55	24.88	24.88	39.09	
	ext	4.55	0.00	4.55		
Arranque puntera	sup	7.50	0.00	7.50	35.80	
	inf	7.50	1.75	7.50		
Arranque de talón	sup	7.50	31.28	31.28	45.58	
	inf	7.50	0.00	7.50		
Centro de talón	sup	7.50	12.51	12.51	39.02	
	inf	7.50	0.00	7.50		

CALCULO DEL CORTANTE
fck (N/mm²) = 30

ALETA 1 H=7.60 m

SECCION	CANTO (m)	CANTO UTIL (m)	ARMADURA REAL (cm²)	AXIL (t)	r	p	σ N/mm2	Vcu (t)	Vu (t)	Vsu (t)	Asr (cm²/m²)
7.600	0.250	0.205	13.40	0.00	1.988	0.00536	0.000	12.34	0.00		
6.840	0.326	0.281	13.40	0.85	1.844	0.004110	0.030	14.49	1.08		
6.080	0.402	0.357	13.40	2.12	1.748	0.003303	0.059	16.46	3.13		
5.320	0.478	0.433	13.40	3.68	1.680	0.002803	0.085	18.30	5.72		
4.560	0.554	0.509	13.40	5.55	1.627	0.002419	0.109	20.07	8.85		
3.800	0.630	0.585	34.33	7.71	1.585	0.005449	0.132	29.39	12.53		
3.040	0.706	0.661	34.33	10.16	1.550	0.004863	0.154	31.57	16.76		
2.280	0.782	0.737	34.33	12.92	1.521	0.004390	0.175	33.70	21.53		
1.520	0.858	0.813	34.33	15.97	1.496	0.004001	0.196	35.81	26.84		
0.760	0.934	0.889	34.33	19.32	1.474	0.003676	0.217	37.90	32.69		
0.000	1.010	0.965	34.33	22.97	1.455	0.003389	0.238	39.99	-	-	
Centro puntera	1.000	0.955	7.53	0.00	1.458	0.000753	0.000	21.92	-	-	
Arranque punt 1/2	1.000	0.955	7.53	0.00	1.458	0.000753	0.000	21.92	-	-	
Arranque punt	1.000	0.955	7.53	0.00	1.458	0.000753	0.000	21.92	-	-	
Arranque talon	1.000	0.955	32.73	0.00	1.458	0.003273	0.000	35.27	-	-	
Centro talon	1.000	0.955	32.73	0.00	1.458	0.003273	0.000	35.27	39.02	3.75	0.04

ALETA 1 H=6.35 m

SECCION	CANTO (m)	CANTO UTIL (m)	ARMADURA REAL (cm²)	AXIL (t)	r	p	σ N/mm2	Vcu (t)	Vu (t)	Vsu (t)	Asr (cm²/m²)
5.350	0.250	0.205	25.12	0.00	1.988	0.010048	0.000	15.22	0.00		
4.815	0.304	0.259	25.12	0.42	1.880	0.008227	0.016	17.07	0.78		
4.280	0.357	0.312	25.12	1.01	1.801	0.007036	0.032	18.78	1.76		
3.745	0.411	0.366	25.12	1.76	1.740	0.006139	0.048	20.38	3.08		
3.210	0.464	0.419	25.12	2.69	1.691	0.005414	0.064	21.93	4.81		
2.675	0.518	0.471	25.12	3.79	1.651	0.004804	0.080	23.42	6.91		
2.140	0.571	0.526	25.12	5.05	1.617	0.004289	0.096	24.87	9.31		
1.605	0.625	0.580	25.12	6.49	1.587	0.003852	0.112	26.29	11.99		
1.070	0.678	0.633	25.12	8.09	1.562	0.003705	0.128	27.69	14.92		
0.535	0.732	0.687	25.12	9.86	1.540	0.003434	0.144	29.08	18.09		
0.000	0.785	0.740	25.12	11.79	1.520	0.003200	0.161	30.47	-	-	
Centro puntera	1.000	0.955	7.53	0.00	1.458	0.000753	0.000	21.92	-	-	
Arranque punt 1/2	1.000	0.955	7.53	0.00	1.458	0.000753	0.000	21.92	-	-	
Arranque punt	1.000	0.955	7.53	0.00	1.458	0.000753	0.000	21.92	-	-	
Arranque talon	1.000	0.955	25.12	0.00	1.458	0.002512	0.000	32.75	-	-	
Centro talon	1.000	0.955	25.12	0.00	1.458	0.002512	0.000	32.75	15.16		

Aleta seccion tipo 2

DATOS DE ENTRADA

Muro ..... : Aleta 1 H=5.4

GEOMETRIA:

Longitud muro ..... :	5.65 m
Altura mínima total.....:	3.85 m
Altura máxima total.....:	6.07 m
Canto de Zapata..... :	0.70 m
Ancho coronacion ..... :	0.25 m
Talud trasdós..... :	10.00 %
Talud exterior..... :	0.00 %
Angulo muro-calzada .....:	60.00 °
Distancia muro calzada.....:	10.00 m
Talud de terraplén (H/V)...:	3 / 2
Angulo de talud trasdós....:	18.43 °

TERRENO:

Densidad de tierras.....:	2.00 t/m3
Angulo de rozam. interno...:	32.00 °
Roz. Muro-tierras .....:	10.00 °
Coeficiente de roz.....:	0.60
Tensión admisible .....:	5.00 Kg/cm²
Sobrecarga terraplén..... :	3.00 t/m²
Kh inclinado .....:	0.425
Kh horizontal.....:	0.326
Kv inclinado .....:	0.075
Kv horizontal.....:	0.057

MATERIALES

Fck (Kg/cm²).....:	300
Gc .....:	1.50
Fyk (Kg/cm²).....:	5100
Gs .....:	1.15
Recubrimiento en Alzados...:	3 cms
Recubrimiento en Cimientos.:	5 cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev - Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	3.35	11.96	2.11	19.42	5.80	11.96	30.01	27.79	50.67
1.00	2.00	1.50	3.74	14.29	2.52	25.67	7.56	14.29	35.72	35.67	65.20
2.00	3.00	2.50	4.13	16.90	2.98	33.34	9.83	16.90	42.66	45.17	84.83
3.00	4.00	3.50	4.53	19.62	3.46	42.03	12.28	19.62	49.37	55.77	104.92
4.00	5.00	4.50	4.92	22.53	3.97	52.06	15.10	22.53	56.55	67.83	127.90
5.00	5.65	5.33	5.24	25.07	4.42	61.36	17.68	25.07	62.73	78.91	148.72

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	3.35	0.50	2.75	1.51	1.82	2.63	0.00	1.97	2.29
1.00	2.00	1.50	3.74	0.50	3.00	1.50	1.83	2.88	0.00	2.16	2.48
2.00	3.00	2.50	4.13	0.50	3.30	1.51	1.88	3.06	0.00	2.29	2.79
3.00	4.00	3.50	4.53	0.50	3.55	1.51	1.88	3.31	0.00	2.48	2.99
4.00	5.00	4.50	4.92	0.50	3.80	1.51	1.89	3.55	0.00	2.66	3.19
5.00	5.65	5.33	5.24	0.50	4.00	1.50	1.88	3.76	0.00	2.82	3.34

Coeficiente global de seg. al deslizamiento ...	1.51
Coeficiente global de seg. al vuelco	1.87
Tensión máxima en solera (Kg/cm²).....	3.76

E-1 ALETA 1 H=5.35m

Ancho de murete de guarda	(m)	0.250
Ancho de cabezal de apoyos	(m)	0.000¢
Sobreancho interior del alzado	(m)	0.530
Sobreancho exterior del alzado	(m)	0.000
Ancho de talcn	(m)	3.020
Ancho de tacón	(m)	0.000¢
Ancho de puntera	(m)	0.500¢
Altura de murete de guarda	(m)	0.000
Altura de alzado	(m)	5.350
Canto de cimentacicn	(m)	1.000
Sobrecanto de tacón	(m)	0.000
Ancho del talud de tierras sobre cor.	(m)	10.000
Altura de tierras sobre coronacicn	(m)	3.330
Altura de tierras sobre puntera	(m)	0.500
Altura de nivel fre tico interior	(m)	0.000
Altura de nivel fre tico exterior	(m)	0.000
Angulo de rozam. del terreno interior	(øS)	32.000
Cohesicn del terreno interior	(Tn/m2)	0.000
Angulo de rozam. del terreno exterior	(øS)	32.000
Cohesicn del terreno exterior	(Tn/m2)	0.000
Coefic. de empuje relativo en puntera		0.000
(0:Nulo 1:Activo 2:Reposo 3:Pasivo)		
Angulo de rozamiento en plano virtual	(øS)	10.000
Angulo de rozamiento en alzado	(øS)	10.000
Angulo de rozamiento en cimentacin	(øS)	31.000
Cohesicn en cimentacicn	(Tn/m2)	0.000
Resistencia caract. del hormigcn	(Tn/m2)	3000
Resistencia caract. del acero	(Tn/m2)	51000
Coeficiente de minoracicn del hormigcn		1.500
Coeficiente de minoracicn del acero		1.150
Recubrimiento de armaduras en alzado	(m)	.050
Recubrimiento de armaduras en zapata	(m)	.050
Di metro m ximo de armaduras en alzado	(m)	.020
Di metro m ximo de armaduras en zapata	(m)	.020
Tipo de ambiente (fisuracicn) (1/2/3)		2
Peso del material del muro	(Tn/m3)	2.500
Peso seco del terreno interior	(Tn/m3)	2.000
Peso sumergido del terreno interior	(Tn/m3)	0.000
Peso seco del terreno exterior	(Tn/m3)	2.000
Peso sumergido del terreno exterior	(Tn/m3)	0.000

E-1 ALETA 1 H=5.35m

Cargas en cabezal	Distancia a borde exterior (m)	Vertical (Tn/m)	Horizontal (Tn/m)	Momento (m*Tn/m)
CAB-1	0.000	0.000	0.000	0.000
CAB-2	0.000	0.000	0.000	0.000
CAB-3	0.000	0.000	0.000	0.000
CAB-4	0.000	0.000	0.000	0.000

Cargas en calzada	Distancia a borde interior (m)	Vertical (Tn/m)
CAL-1	0.000	0.000
CAL-2	0.000	0.000

Sobrecarga sobre calzada	(Tn/m2)	3.000
Sobrecarga sobre talud	(Tn/m2)	0.000
Sobrecarga sobre puntera	(Tn/m2)	0.000

Hipctesis de comprobacicn de seguridad

1	PP+PTT+PTP+1.5*ETT
2	H1+1.5*EST
3	H1+RVCP
4	H2+RVCP
5	H3+1.35*RHCP
6	H5+1.50*RHSOB
7	H6+1.50*RVSOB
8	H3+1.50*RVSOB+1.50*RHSOB
9	H6+1.50*EST
10	H9+1.50*RVSOB
11	H4+RHCP+1.50*RVSOB
12	H4+1.35*RHCP+1.50*RHSOB

Hipctesis de c lculo de esfuerzos

1	SITUACION TRANSITORIA
2	SITUACION TRANSITORIA
3	SITUACION PERMANENTE
4	SITUACION PERMANENTE
5	SITUACION PERMANENTE
6	SITUACION PERMANENTE

Hipctesis de c lculo de presiones en cimentacicn

1	PP+PTT+PTP+ETT
2	H1+PSP+EST
3	H1+RVCP
4	H2+RVCP
5	H3+RHCP
6	H5+RHSOB
7	H6+RVSOB
8	H3+RVSOB+RHSOB
9	H7+PSP+EST
10	H8+PSP+EST
11	H4+RHCP+RVSOB
12	H4+RHCP+RHSOB+EST+PSP

Coeficientes de ponderaci¢n de hip¢tesis de comprobaci¢n de seguridad

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6	Hip7	Hip8	Hip9	Hip10	Hip11	Hip12
Peso propio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peso Ti. sobre tal¢n	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre tal¢n	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.00	1.00	1.00
Carga en cabezal (2)	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50	0.00	1.50	1.50	0.00
Carga en cabezal (3)	0.00	0.00	0.00	0.00	1.35	1.35	1.35	1.00	1.35	1.35	1.00	1.35
Carga en cabezal (4)	0.00	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50	1.50	0.00	1.50
Carga en calzada (1)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Carga en calzada (2)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Peso sobrec. de tal¢n	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. de tal¢n	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Peso sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderaci¢n de hip¢tesis de c lculo de esfuerzos

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6
Peso propio	1.35	1.00	1.35	1.00	1.35	1.00
Peso Ti. sobre tal¢n	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre tal¢n	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.35	1.00	1.35	1.00
Carga en cabezal (2)	0.00	0.00	1.50	0.00	1.50	0.00
Carga en cabezal (3)	0.00	0.00	1.35	1.35	1.35	1.35
Carga en cabezal (4)	0.00	0.00	1.50	1.50	1.50	1.50
Carga en calzada (1)	1.50	1.50	1.50	1.50	1.50	1.50
Carga en calzada (2)	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. de tal¢n	1.50	1.00	1.50	1.00	0.00	0.00
Emp. sobrec. de tal¢n	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. puntera	1.50	0.00	1.50	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderaci¢n de c lculo de presiones en cimentaci¢n

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
Peso propio	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre tal¢n	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre tal¢n	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre puntera	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre puntera	0	0	0	0	0	0	0	0	0	0	0	0
Nivel Freatico Interior	1	1	1	1	1	1	1	1	1	1	1	1
Nivel Freatico Exterior	1	1	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (1)	0	0	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (2)	0	0	0	0	0	0	1	1	1	1	1	0
Carga en cabezal (3)	0	0	0	0	1	1	1	0	1	0	1	1
Carga en cabezal (4)	0	0	0	0	0	1	1	1	1	1	0	1
Carga en calzada (1)	0	0	0	1	0	0	0	0	0	0	0	1
Carga en calzada (2)	0	0	0	1	0	0	0	0	0	0	0	1
Peso sobrec. de tal¢n	0	0	0	1	0	0	0	0	0	0	0	0
Emp. sobrec. de tal¢n	0	1	0	1	0	0	0	0	1	1	1	1
Peso sobrec. puntera	0	1	0	1	0	0	0	0	1	1	1	1
Emp. sobrec. puntera	0	0	0	0	0	0	0	0	0	0	0	0

Coeficientes de empuje

	Talud		Calzada	
	Horizontal	Vertical	Horizontal	Vertical
Plano virtual	0.362	0.064	0.281	0.050
Trasd¢s	0.408	0.114	0.314	0.088

Coeficientes de seguridad y Presiones en cimentaci¢n

	Hip.1	Hip.2	Hip.3	Hip.4	Hip.5	Hip.6	Hip.7	Hip.8	Hip.9	Hip10	Hip11	Hip12
Cf.Seg. Deslizamiento	1.23	1.06	1.23	1.06	1.23	1.23	1.23	1.23	1.06	1.06	1.06	1.06
Cf.Seg. Vuelco	2.50	2.20	2.50	2.20	2.50	2.50	2.50	2.50	2.20	2.20	2.20	2.20
Presi¢n en puntera	24.71	26.91	24.71	26.91	24.71	24.71	24.71	24.71	26.91	26.91	26.91	26.91
Presi¢n en tal¢n	3.71	1.81	3.71	1.81	3.71	3.71	3.71	3.71	1.81	1.81	1.81	1.81
Dist. a puntera p=0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Presi¢n centrada	18.85	20.26	18.85	20.26	18.85	18.85	18.85	18.85	20.26	20.26	20.26	20.26

Resultados m s desfavorables :

Coeficiente de seguridad al deslizam. (normal)	1.061	(accidental)	99.990
Coeficiente de seguridad al vuelco	//	2.200	//	99.990
Presi¢n punta	(Tn/m2)	//	26.905	//	0.000
Presi¢n centrada	(Tn/m2)	//	20.259	//	0.000
Presi¢n centrada admisible	(Tn/m2)	//	(50.000)	//	(62.500)

E-1 ALETA 1 H=5.35m

P g. 6

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 1 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 2 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 4.815	0.55	0.18	0.03	0.42	0.18	0.03
Alzado 4.280	1.29	0.70	0.25	1.01	0.70	0.24
Alzado 3.745	2.23	1.58	0.84	1.76	1.58	0.83
Alzado 3.210	3.36	2.81	2.00	2.69	2.81	1.97
Alzado 2.675	4.68	4.38	3.90	3.79	4.38	3.85
Alzado 2.140	6.20	6.31	6.75	5.05	6.31	6.67
Alzado 1.605	7.91	8.59	10.72	6.49	8.59	10.60
Alzado 1.070	9.82	11.22	16.00	8.09	11.22	15.84
Alzado 0.535	11.92	14.20	22.78	9.86	14.20	22.57
Alzado 0.000	14.33	17.94	31.26	11.92	17.94	31.00
Arranque puntera	4.98	15.42	4.86	6.21	14.05	4.46
Arranque de talón	-13.71	16.59	-37.13	-11.63	15.24	-38.01
Centro de talón	-5.23	14.30	-12.30	-2.96	15.07	-13.25

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 3 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 4 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 4.815	0.55	0.18	0.03	0.42	0.18	0.03
Alzado 4.280	1.29	0.70	0.25	1.01	0.70	0.24
Alzado 3.745	2.23	1.58	0.84	1.76	1.58	0.83
Alzado 3.210	3.36	2.81	2.00	2.69	2.81	1.97
Alzado 2.675	4.68	4.38	3.90	3.79	4.38	3.85
Alzado 2.140	6.20	6.31	6.75	5.05	6.31	6.67
Alzado 1.605	7.91	8.59	10.72	6.49	8.59	10.60
Alzado 1.070	9.82	11.22	16.00	8.09	11.22	15.84
Alzado 0.535	11.92	14.20	22.78	9.86	14.20	22.57
Alzado 0.000	14.33	17.94	31.26	11.92	17.94	31.00
Arranque puntera	4.98	15.42	4.86	6.21	14.05	4.46
Arranque de talón	-13.71	16.59	-37.13	-11.63	15.24	-38.01
Centro de talón	-5.23	14.30	-12.30	-2.96	15.07	-13.25

E-1 ALETA 1 H=5.35m

P g. 7

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 5 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 6 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 4.815	0.55	0.18	0.03	0.42	0.18	0.03
Alzado 4.280	1.29	0.70	0.25	1.01	0.70	0.24
Alzado 3.745	2.23	1.58	0.84	1.76	1.58	0.83
Alzado 3.210	3.36	2.81	2.00	2.69	2.81	1.97
Alzado 2.675	4.68	4.38	3.90	3.79	4.38	3.85
Alzado 2.140	6.20	6.31	6.75	5.05	6.31	6.67
Alzado 1.605	7.91	8.59	10.72	6.49	8.59	10.60
Alzado 1.070	9.82	11.22	16.00	8.09	11.22	15.84
Alzado 0.535	11.92	14.20	22.78	9.86	14.20	22.57
Alzado 0.000	14.33	17.94	31.26	11.92	17.94	31.00
Arranque puntera	5.11	15.33	4.84	6.36	14.00	4.45
Arranque de talón	-13.50	16.31	-37.27	-11.37	15.06	-38.10
Centro de talón	-5.00	14.43	12.48	-2.68	15.16	13.35

E-1 ALETA 1 H=5.35m

P g. 8

Armaduras y Comprobación a cortante

Sección		T.y Ret. (cm2/m)	Esfuerzos (cm2/m)	C lculo (cm2/m)	Cortante (Tn/m)	Resist. (Tn/m)
Alzado 5.350	int	1.13	0.00	1.13	0.00	13.44
	ext	1.13	0.00	1.13		
Alzado 4.815	int	1.36	0.00	1.36	0.18	17.09
	ext	1.36	0.00	1.36		
Alzado 4.280	int	1.60	0.07	1.60	0.70	20.71
	ext	1.60	0.00	1.60		
Alzado 3.745	int	1.84	0.45	1.84	1.58	24.29
	ext	1.84	0.00	1.84		
Alzado 3.210	int	2.08	1.10	2.08	2.81	27.84
	ext	2.08	0.00	2.08		
Alzado 2.675	int	2.32	2.05	2.32	4.38	31.34
	ext	2.32	0.00	2.32		
Alzado 2.140	int	2.56	3.25	3.25	6.31	34.80
	ext	2.56	0.00	2.56		
Alzado 1.605	int	2.79	4.70	4.70	8.59	38.22
	ext	2.79	0.00	2.79		
Alzado 1.070	int	3.03	6.36	6.36	11.22	41.61
	ext	3.03	0.00	3.03		
Alzado 0.535	int	3.27	8.19	8.19	14.20	44.95
	ext	3.27	0.00	3.27		
Alzado 0.000	int	3.51	10.13	10.13	17.94	48.24
	ext	3.51	0.00	3.51		
Arranque puntera	sup	7.50	0.00	7.50	15.42	65.52
	inf	7.50	0.85	7.50		
Arranque de talón	sup	7.50	12.81	12.81	16.59	70.56
	inf	7.50	0.00	7.50		
Centro de talón	sup	7.50	5.04	7.50	15.16	68.91
	inf	7.50	0.00	7.50		

CALCULO DEL CORTANTE

fck (N/mm²) = 30

ALETA 1 H=7.60 m

SECCION	CANTO (m)	CANTO UTIL (m)	ARMADURA REAL (cm²)	AXIL (t)	ε	ρ	σ N/mm2	Vcu (t)	Vd (t)	Vsu (t)	Asl (cm²/m²)
7 600	0 250	0 205	13 40	0 00	1 988	0 00536	0 000	12 34	0 00		
6 840	0 326	0 281	13 40	0 85	1 844	0 004110	0 030	14 49	1 08		
6 080	0 402	0 357	13 40	2 12	1 748	0 003333	0 059	16 46	3 13		
5 320	0 478	0 433	13 40	3 68	1 680	0 002803	0 085	18 30	5 72		
4 560	0 554	0 509	13 40	5 55	1 627	0 002419	0 109	20 07	8 85		
3 800	0 630	0 585	34 33	7 71	1 585	0 005449	0 132	29 39	12 53		
3 040	0 706	0 661	34 33	10 16	1 550	0 004863	0 154	31 57	16 76		
2 280	0 782	0 737	34 33	12 92	1 521	0 004390	0 175	33 70	21 53		
1 520	0 858	0 813	34 33	15 97	1 496	0 004001	0 196	35 81	26 84		
0 760	0 934	0 889	34 33	19 32	1 474	0 003676	0 217	37 90	32 69		
0 000	1 010	0 965	34 33	22 97	1 455	0 003399	0 238	39 99	*	*	
Centro puntera	1 000	0 955	7 53	0 00	1 458	0 000753	0 000	21 92	*	*	
Arranque punt 1/2	1 000	0 955	7 53	0 00	1 458	0 000753	0 000	21 92	*	*	
Arranque punt	1 000	0 955	7 53	0 00	1 458	0 000753	0 000	21 92	*	*	
Arranque talon	1 000	0 955	32 73	0 00	1 458	0 003273	0 000	35 77	*	*	
Centro talon	1 000	0 955	32 73	0 00	1 458	0 003273	0 000	35 77	39 02	9 21	9 55

ALETA 1 H=5.35 m

SECCION	CANTO (m)	CANTO UTIL (m)	ARMADURA REAL (cm²)	AXIL (t)	ε	ρ	σ N/mm2	Vcu (t)	Vd (t)	Vsu (t)	Asl (cm²/m²)
5 350	0 250	0 205	25 12	0 00	1 988	0 010048	0 000	15 22	0 00		
4 815	0 304	0 259	25 12	0 42	1 880	0 008277	0 016	17 07	0 18		
4 280	0 357	0 312	25 12	1 01	1 801	0 007036	0 032	18 78	0 70		
3 745	0 411	0 366	25 12	1 76	1 740	0 006119	0 048	20 39	1 58		
3 210	0 464	0 419	25 12	2 69	1 691	0 005414	0 064	21 93	2 81		
2 675	0 518	0 473	25 12	3 79	1 651	0 004854	0 080	23 42	4 38		
2 140	0 571	0 526	25 12	5 05	1 617	0 004399	0 096	24 87	6 31		
1 605	0 625	0 580	25 12	6 49	1 587	0 004022	0 112	26 29	8 59		
1 070	0 678	0 633	25 12	8 09	1 562	0 003705	0 128	27 69	11 22		
0 535	0 732	0 687	25 12	9 86	1 540	0 003434	0 144	29 08	14 20		
0 000	0 785	0 740	25 12	11 92	1 520	0 003200	0 161	30 47	*	*	
Centro puntera	1 000	0 955	7 53	0 00	1 458	0 000753	0 000	21 92	*	*	
Arranque punt 1/2	1 000	0 955	7 53	0 00	1 458	0 000753	0 000	21 92	*	*	
Arranque punt	1 000	0 955	7 53	0 00	1 458	0 000753	0 000	21 92	*	*	
Arranque talon	1 000	0 955	25 12	0 00	1 458	0 002512	0 000	32 75	*	*	
Centro talon	1 000	0 955	25 12	0 00	1 458	0 002512	0 000	32 75	15 16		

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: Aleta 1 tipo 1 Alzado
Fecha: 25/4/01 17.24.29

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.64
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 101 cm Canto útil = 96.22 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 34.33 cm2
Diámetro equivalente = 25.60 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 75.07 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0035680
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 14.99 cm
Area de hormigón eficaz, Ac,eficaz = 2398.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 48.26 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1565.2 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2434.7 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 18.94 cm
Alargamiento medio de las fisuras, Esm = 0.000965816
Apertura de fisura, Wk = 0.300 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.300 mm
Apertura de fisura máxima, Wmax = 0.300 mm

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: Aleta 1 tipo 2 Alzado
Fecha: 25/4/01 17.25.25

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.64
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 78 cm Canto útil = 73.50 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 25.13 cm2
Diámetro equivalente = 20.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 20.84 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0034194
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 12.50 cm
Area de hormigón eficaz, Ac,eficaz = 1950.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 28.78 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1667.1 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 1207.1 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 17.26 cm
Alargamiento medio de las fisuras, Esm = 0.000241416
Apertura de fisura, Wk = 0.000 mm
La sección no se ha llegado a fisurar por no rebasarse fct,m en el hormigón

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.000 mm
Apertura de fisura máxima, Wmax = 0.300 mm

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: Aleta 1 tipo 1 Arranque talon
Fecha: 25/4/01 17.30.02

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.64
Hormigón HA 25 fck = 25 N/mm2 Ec = 27264.0 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 100 cm Canto útil = 96.10 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 32.79 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 75.07 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0034121
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 14.97 cm
Area de hormigón eficaz, Ac,eficaz = 2265.00 cm2
Resistencia a tracción del hormigón, fct,m = 25.1 Kp/cm2
Momento de fisuración, Mfis = 41.89 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1424.5 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2552.6 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 16.93 cm
Alargamiento medio de las fisuras, Esm = 0.001077537
Apertura de fisura, Wk = 0.299 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.299 mm
Apertura de fisura máxima, Wmax = 0.300 mm

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: Aleta 1 tipo 2 Arranque talon
Fecha: 25/4/01 17.31.50

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.64
Hormigón HA 25 fck = 25 N/mm2 Ec = 27264.0 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 70 cm Canto útil = 66.00 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 20.95 cm2
Diámetro equivalente = 20.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 25.33 mT
Coeficiente K2 = 0.5

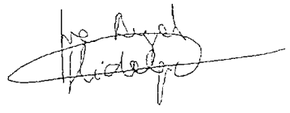
RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0031749
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 14.99 cm
Area de hormigón eficaz, Ac,eficaz = 1750.00 cm2
Resistencia a tracción del hormigón, fct,m = 25.1 Kp/cm2
Momento de fisuración, Mfis = 20.53 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1586.8 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 1958.0 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 17.35 cm
Alargamiento medio de las fisuras, Esm = 0.000657501
Apertura de fisura, Wk = 0.187 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.187 mm
Apertura de fisura máxima, Wmax = 0.300 mm

CÁLCULOS ESTRUCTURALES



FDO. JOSÉ ANGEL HIDALGO GONZÁLEZ
COL. Nº 9.859

Anexo A. Programas utilizados en los cálculos

ANEXO A

- STATIK-3
- FAGUS 3
- ESTRIMUR

STATIK-3

Descripción del programa

Con STATIK-3 se pueden calcular estructuras planas o tridimensionales que estén constituidas por barras rectas de características mecánicas constantes o variables linealmente. Las barras están rígidamente unidas entre sí en los nudos (excepto cuando hay una articulación en el extremo de la barra). Las condiciones de apoyo se definen en los nudos.

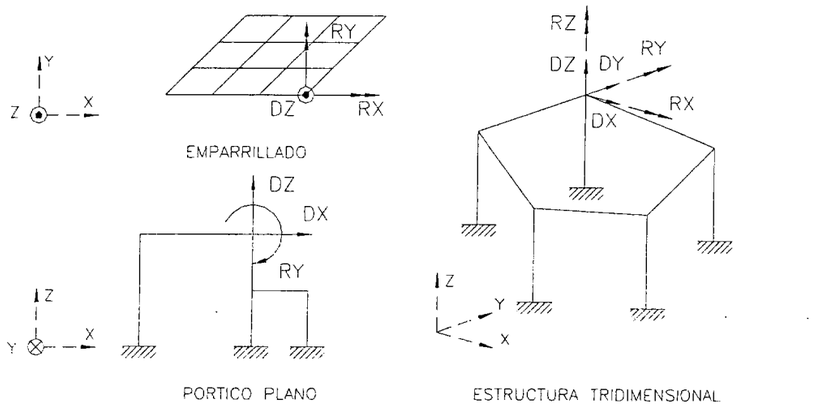


Figura 2.1. Sistema de coordenadas global. Parámetros de los nudos y de los desplazamientos

El programa trabaja según el método generalizado de deformación. Los pasos principales de este método son los siguientes:

1. Se definen en cada nudo seis parámetros de desplazamiento desconocidos. Estos seis parámetros son los tres desplazamientos (DX, DY, DZ) y las tres rotaciones (RX, RY, RZ) que definen el movimiento de un cuerpo rígido en el espacio. Estos parámetros se definen en las direcciones del sistema global de coordenadas, en el cual se han definido también las posiciones de los nudos (Fig. 2.1.)

2. Se determina la matriz de rigidez de cada barra. Esta matriz relaciona las fuerzas en el extremo de la barra con los desplazamientos en el extremo de dicha barra.

3. Sobre un nudo pueden actuar las siguientes acciones:

   a. Los esfuerzos que provienen de las barras que concurren en dicho nudo. Estos esfuerzos dependen de las cargas y de los desplazamientos de los extremos de dichas barras.

   b. Acciones exteriores (cargas en los nudos).

   c. Reacciones en los apoyos.

   La formulación del equilibrio de estas acciones de todos los nudos se reduce a un sistema de ecuaciones con 6xN incógnitas (desplazamientos de los nudos), donde N es el número de nudos.

4. Una vez resuelto el sistema de ecuaciones se conocen los desplazamientos de los nudos. Con ayuda de las matrices de rigidez se pueden determinar los esfuerzos en los extremos de las barras.

El programa STATIK-3 está configurado por módulos. El programa sirve para realizar el análisis lineal elástico de estructuras de barras, según las teorías de primer y segundo orden.

El rendimiento del programa se aumenta usando unos módulos adicionales. Estos módulos adicionales son: módulo para el tratamiento de estructuras pretensadas, módulo para la determinación de cargas de pandeo y modos propios con análisis según el método de espectro de respuesta.

STATIK-3 tiene las siguientes características:

- Múltiples posibilidades en la configuración estática de modelos: barras de canto variable, articulaciones en extremos de barra, barras conectadas excéntricamente, elección de materiales, cargas debidas a fuerzas, momentos, esfuerzos térmicos y curvaturas, cargas volumétricas (peso propio) concentradas y distribuidas.

- Biblioteca con todos los perfiles laminados de catálogo.
- Algoritmo para la solución del sistema de ecuaciones con optimización automática de la numeración de los nudos.

- Teoría de 2º orden: determinación automática de los esfuerzos axiles para la generación de la matriz geométrica de rigidez.

- Presentación selectiva de resultados: desplazamientos, reacciones, esfuerzos y tensiones en las fibras extremas para cualquier combinación de carga, generación de envolventes de esfuerzos, reacciones en apoyos y tensiones en las fibras extremas.

- Conexión con el programa FAGUS-3 para la lectura automática de las características geométricas y mecánicas de secciones, así como para el dimensionamiento de cercos y armaduras longitudinales, y comprobaciones de filas enteras de barras.

- Posibilidad de conexión con postprocesadores (FAGUS-3).

- Etapas de proceso constructivo: los resultados de distintas hipótesis, que hayan sido calculados en distintos sistemas estáticos, se pueden superponer, o se pueden usar en la generación de envolventes (construcción por etapas, etc.).

- Entrada de datos: la entrada de datos en cada uno de los módulos del programa se efectúa con la ayuda de un editor de textos, siguiendo los esquemas de entrada. Los esquemas de entrada describen todas las posibilidades del programa.

  Este concepto de entrada de datos también es eficaz para archivar y/o modificar cálculos, dado que la entrada de datos se reduce normalmente a un texto de una o dos pantallas que puede ser supervisado rápidamente con el editor de textos.

- Las estructuras planas se pueden entrar cómodamente desde un editor de gráficos con el ratón. Todas las posibilidades de STATIK-3 se pueden tratar gráficamente de modo interactivo. Este editor también sirve para la entrada gráfica de cargas.

- Pretensado: para tratar cómodamente sistemas pretensados existe el módulo STV. Hay que definir la geometría de los cables. A continuación se pueden describir los procesos de tensión en los gatos. De todo lo demás se ocupa el programa automáticamente (pérdidas por rozamiento, alargamiento de tesado, etc.).

- Cálculo de autovalores en problemas de estabilidad y en análisis dinámicos. En el cálculo de autovalores es posible tener en cuenta la variación de la rigidez debida al axil (influencia de 2º orden). Método de espectro de respuesta para el cálculo sísmico.

- Es posible definir conexiones genéricas entre nudos ("Linear Constraints"). Des este modo se pueden definir elementos estructurales especiales (por ejemplo partes rígidas de una estructura).

La empresa CUBUS desarrolla constantemente el programa STATIK-3, actualizando el programa con las sugerencias de los usuarios.

FAGUS-3

Introducción

FAGUS-3 es un programa que sirve para realizar los cálculos usuales de la resistencia de secciones de barras sometidas a flexión según uno o dos ejes y a esfuerzo axil, especialmente en el ámbito del hormigón armado y del hormigón pretensado. Las secciones pueden tener una forma poligonal cualquiera y pueden estar dotadas de armaduras tanto pasivas como activas. Todos los cálculos se basan en la hipótesis de que la sección deformada permanece plana.

El usuario identifica a cada sección generada con FAGUS-3 con un nombre. La sección (sus características geométricas y mecánicas) es almacenada en una biblioteca bajo este nombre. El programa FAGUS-3 puede trabajar como postprocesador del programa de estructuras de barras STATIK-3. El usuario puede trabajar en STATIK-3 con secciones generadas por FAGUS-3.

FAGUS-3 contiene, como complemento a la biblioteca de secciones de hormigón armado y hormigón pretensado:

- Diagramas de interacción M/N.
- Determinación de la capacidad resistente última de la sección.
- Comprobación de tensiones en secciones fisuradas.
- Determinación de las fuerzas internas por un plano de deformación dado.
- Dimensionamiento de la armadura pasiva.

Con respecto a la versión anterior, FAGUS-3 presenta las siguientes mejoras:

Instalación del programa

FAGUS-3 puede instalarse ahora en cualquier disco y en cualquier directorio.

Organización del proyecto

Al igual que en otros programas de CUBUS se ayuda al trabajo simultáneo de varios proyectos mediante una jerarquía de dos niveles (grupo de proyectos, proyectos). El usuario dispone de comandos especiales para archivar los datos entrados.

Comodidad del programa

Se ha reprogramado totalmente el manejo del programa y ha sido equipado para su uso con el ratón. En el uso interactivo de FAGUS-3 no son necesarios conocimientos del sistema operativo del computador. Para el usuario experimentado existe como alternativa la posibilidad del trabajo por lotes. En este caso se pueden elaborar todos los datos con un editor de textos. En los textos de salida se prestó atención a una presentación de cómoda lectura, con formatos de campo similares y etiquetamiento de las unidades utilizadas. Todas las presentaciones gráficas pueden ser reproducidas a escala en diferentes tipos de impresora.

Acceso a todos los datos. Interfaces con otros programas

Todos los datos generados de modo interactivo se archivan como textos en código ASCII y pueden ser modificados en cualquier momento con un editor de textos. En el trabajo por lotes el usuario puede elegir ver los resultados en forma de tabla, de manera que los pueda seguir usando para memorias de cálculo, postprocesadores, etc.

Capacidad del programa

El número máximo de secciones ya no está restringido.

Biblioteca de perfiles ampliada

La biblioteca de perfiles se complementó y se completó con los datos geométricos de las secciones.

Nueva rutina de dimensionamiento. Utilización de los esfuerzos del programa STATIK-3

El programa de dimensionamiento fue revisado por completo. El programa da, junto con la armadura longitudinal aumentada por efecto del esfuerzo cortante, el área de cercos necesario. Los esfuerzos se pueden tomar directamente del programa STATIK-3, pudiéndose representar gráficamente los resultados en el sistema estático.

Para la elaboración del programa se usaron los siguientes documentos:

1. Werner H. "Schiefe Biergung poligonal umrandeter Stahlbetonquerschnitte". Beton-und Stahlbetonbau, Heft 5, 1974.

2. SIA-Norm 162 "betonbauten". Schweizerischer Ingenieur-und Architekten- Verein, 8039 Zürich, 1989.
   (Norma SIA número 162 "Construcciones de hormigón", Asociación de ingenieros y arquitectos suizos).

3. DIN-Norm 1045, Beton- und Sthalbeton, Bemessung und Ausfuehrung.
   (Norma de la industria alemana 1045, Hormigón y hormigón armado, dimensionamiento y ejecución).

4. ÖNORM B 4200 Österr. Betonverein, 1030 Wien
   (Norma austríaca B 4200, Asociación austríaca del hormigón, 1030 Viena)

5. EH.91, Instrucción para el proyecto y la ejecución de obras de hormigón en masa o armado, 1991, Ministerio de Obras Públicas y Transportes.

6. EP-80, Instrucción para el proyecto y la ejecución de obras de hormigón pretensado, 1980, Ministerio de Obras Públicas y Transportes.

ESTRIMUR

Descripción

Esta aplicación realiza las comprobaciones de coeficientes de seguridad, los cálculos de esfuerzos, la comprobación a cortante y el dimensionamiento de armaduras en muros de contención y estribos continuos de puentes acordes con la geometría que se detalla a continuación.

Unidades de medida

Los cálculos se realizan por metro lineal de estructura. Las unidades de medida, si no se indica lo contrario explícitamente, son:

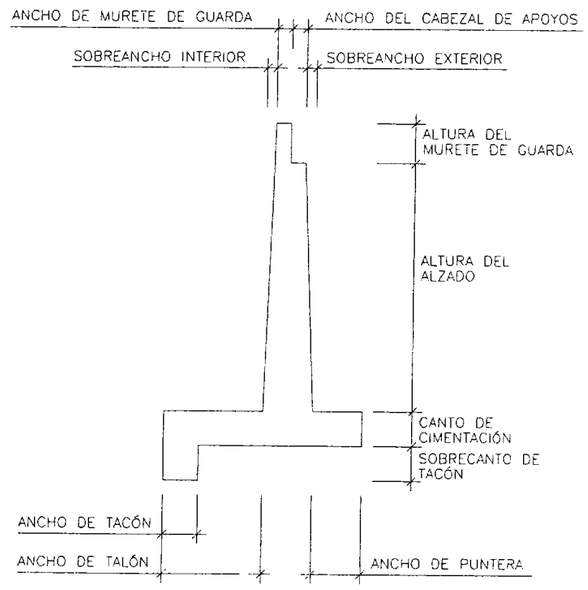
- Metro lineal, cuadrado o cúbico.
- Tonelada.

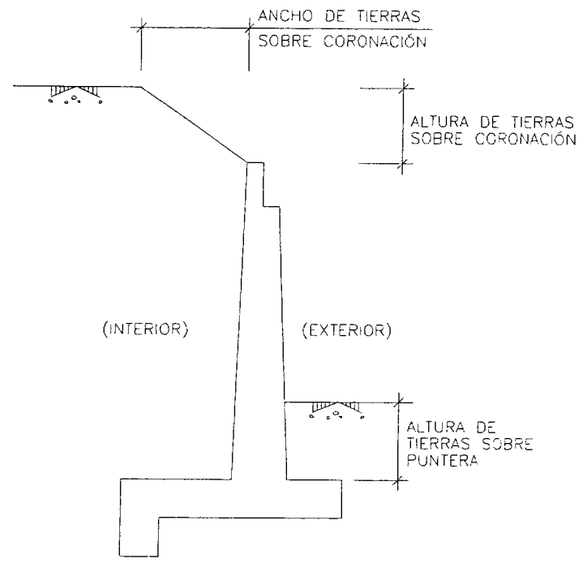
Es de remarcar que, por tanto, las resistencias características de los materiales, los esfuerzos, etc, no son los valores que tradicionalmente se usan medidos en Kp/cm^2.

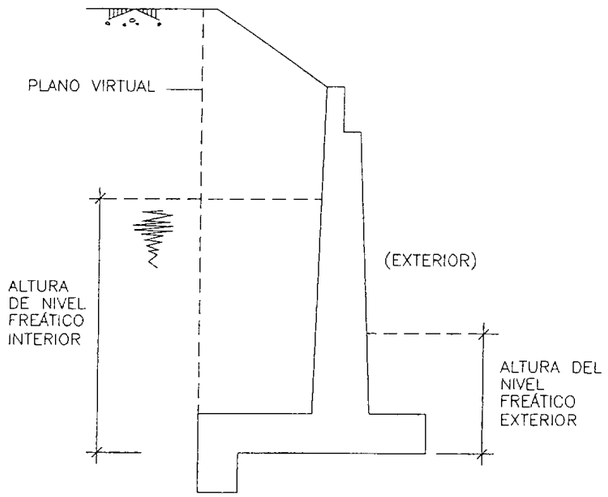
Convenio de signos

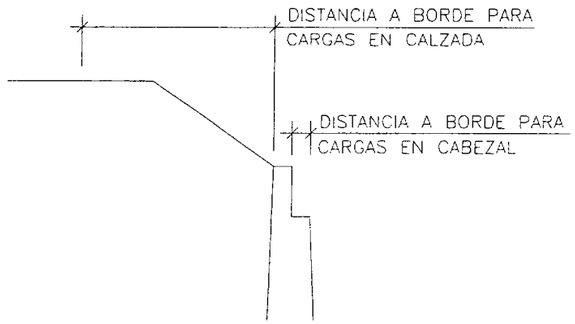
- Cargas horizontales:	Positivas si de talón a puntera.
- Cargas verticales:	Positivas si hacia abajo.
- Cargas momentos:	Positivas si volcadoras.
- Esfuerzos axiles:	Positivos si de compresión.
- Esfuerzos flectores en cimentación:	Positivos si de tracción cara inferior
- Esfuerzos flectores en alzado:	Positivos si de tracción en cara interior
- Esfuerzos cortantes:	Acordes con flectores.

Geometría









Cargas elementales

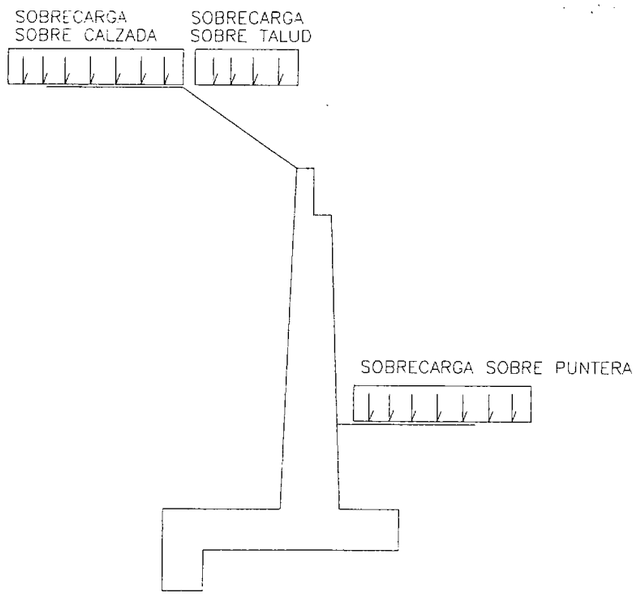
Se considera carga elemental a la combinación de acciones exteriores que provienen del mismo efecto y, por tanto, son afectadas por un mismo valor de coeficiente de ponderación.

Se consideran en esta aplicación las siguientes:

1. Peso propio del muro o estribo.
2. Peso y empuje de tierras interiores, incluso nivel freático.
3. Peso y empuje de tierras exteriores, incluso nivel freático.
4. Carga 1 en cabezal (horizontal, vertical y flector).
5. Carga 2 en cabezal (horizontal, vertical y flector).
6. Carga 3 en cabezal (horizontal, vertical y flector).
7. Carga 4 en cabezal (horizontal, vertical y flector).
8. Carga 1 en calzada (sólo vertical).
9. Carga 2 en cabezal (sólo vertical).
10. Empuje por sobrecarga sobre tierras interiores.
11. Empuje por sobrecarga sobre tierras exteriores.
12. Peso de sobrecargas sobre talón.
13. Peso de sobrecargas sobre puntera.

Las cargas elementales 12 y 13 se consideran diferenciadas de las 10 y 11, respectivamente, solamente en las comprobaciones de deslizamiento, vuelco y presiones de cimentación, y no en el cálculo de esfuerzos, en los cuales no se hace separación.

Cargas



La definición de las cargas elementales se realiza a través de los datos de geometría o mediante datos de entrada propios para cargas.

Cuando la altura de tierras sobre puntera iguala o supera el doble de la anchura de la puntera, los empujes de tierras y sobrecarga se extienden al alzado. En caso contrario sólo afectan a la cimentación en los cálculos de comprobación. En el cálculo de esfuerzos siempre afectan al alzado.

Hipótesis de carga

A partir de las cargas elementales, se definen las hipótesis de carga mediante coeficientes de ponderación. Se admiten hasta 8 hipótesis para las comprobaciones de deslizamiento, vuelco y presiones, y otras 8 para cálculo de esfuerzos y armaduras.

Las primeras hipótesis se consideran de servicio por lo que sólo admiten los valores posibles 0 y 1. Las hipótesis de esfuerzos admiten cualquier valor.

Aunque la definición de hipótesis es libre para el usuario, es de resaltar que para una hipótesis sea correcta ha de incluir como mínimo el peso propio y el peso y empuje de tierras.

Para indicar que una hipótesis es de carácter accidental, su título correspondiente ha de empezar con el carácter *. Ello es necesario para diferenciarlas en los coeficientes de seguridad.

Anotaciones técnicas

Los empujes de tierras interiores se consideran sobre plano virtual en las comprobaciones de deslizamiento, vuelco y presiones, y sobre cara interior de alzado y cara superior de talón en cálculo de esfuerzos.

Como ángulo de rozamiento en plano virtual se recomienda dar valor 0 cuando la calzada está a la misma cota que el murete de guarda, valor igual al del talud del terreno cuando éste es indefinido, e interpolar valores intermedios según el ancho del talud.

Como ángulo de rozamiento tierras-alzado se recomienda dar siempre valor 0.

Si se considera tender en cuenta la cohesión, hay que cerciorarse de que ésta no se pierde por relajamiento.

Estructura E-2. (PK 315+880)

ESTRUCTURA E-2 (PK 315+880)

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- PROYECTO DE PRUEBA DE CARGA

1. Introducción

1.1. Descripción de la solución adoptada

La Reposición 14, (Estructura E-2) ubicada en el P.K. 315+880, de la obra "Línea de Alta Velocidad Madrid-Barcelona-Frontera Francesa. Tramo: Lleida-Martorell. Subtramo III-B " consta de tres vanos, con luces de 13.00 m, 17.00 m y 13.00 m, con una longitud total de 43.80 m. Está apoyada en los extremos en estribos del tipo cerrado y en los puntos intermedios en pilas con un único fuste de sección circular con diámetro de 1.00 m, la cimentación es del tipo superficial.

El tablero es una sección maciza de hormigón de 7.70 m de ancho con un canto de 0.90m y con voladizos laterales de 1.50 m de longitud con 0.30 m de canto en el arranque y 0.20m en el extremo. La sección tiene bombeo del 2%. El ancho inferior del núcleo es de 3.70 m.

Ambos estribos son cerrados y están cimentados mediante zapatas directamente en el terreno.

Las pilas tienen un único fuste circular de 1.00 m de diámetro, y están empotradas en el tablero.La cimentación es superficial mediante zapatas.

La ejecución del tablero se realizará en una sola fase, con hormigonado completo de la losa sobre cimbra.

1.2. Instrucciones y normas empleadas

Para el cálculo de las acciones que actúan sobre los diversos elementos de la estructura, se ha utilizado la "Instrucción sobre las acciones a considerar en el proyecto de puentes de carreteras (IAP)", aprobada el 12 de febrero de 1998.

Se ha tenido en cuenta la "Norma de Construcción Sismorresistente (Parte General y Edificación) NCS-94", aprobada por Real Decreto 2543/1994 de 29 de Diciembre.

Para el dimensionamiento y comprobación de los elementos de hormigón armado y de hormigón pretensado se ha seguido la "Instrucción de Hormigón Estructural" EHE, aprobada por Real Decreto 2661/1998 de 11 de Diciembre.

- Acciones sísmicas

De acuerdo a la Norma NCS-94 esta estructura se clasifica como de especial importancia.
La aceleración sísmica básica de la zona es a_b =0.04 g y el coeficiente de contribución K=1.0.

La aceleración sísmica de cálculo será entonces:

$\alpha_\chi = \rho\ \alpha_\beta$

$\rho = (\tau/50)^{0.37}$

t = 100 años, $\rho = 1.30$

$a_c = 1.30 \times 0.04$ g

$a_c = 0.052$ g < 0.06 g

Conforme con lo prescrito en la NCS-94, como la aceleración de cálculo es $a_c = 0.052$ g < 0.06 g no se deberán tener en cuenta las acciones sísmicas.

1.3. Características de los materiales

Hormigones - Resistencia Característica

Hormigón en capas de regularización	$\phi_{\chi\kappa} \geq 150$ kp/cm²
Hormigón en zapatas	$\phi_{\chi\kappa} \geq 250$ kp/cm²
Hormigón en alzados estribos	$\phi_{\chi\kappa} \geq 300$ kp/cm²
Hormigón en pilas	$\phi_{\chi\kappa} \geq 300$ kp/cm²
Hormigón en tablero	$\phi_{\chi\kappa} \geq 300$ kp/cm²

Aceros

Armaduras pasivas B-500-S (límite elástico f yk ≥5100 kp/cm²

1.4. Niveles de control y coeficientes de seguridad

Hormigones	:	Nivel de control normal	$\gamma_\chi = 1.50$
Aceros :		Nivel de control normal	$\gamma_\psi = 1.15$
Acciones	:		
		Nivel de control intenso	$\gamma_F = 1.50$ (acciones variables)
		Conforme a la IAP	$\gamma_{G^*} = 1.50$ (acción del terreno)
			$\gamma_G = 1.35$ (acciones permanentes y reológicas

1.5. Características de la cimentación

Se han considerado las siguientes tensiones admisibles en la cimentación:

Estructura	Profundidad de cimentación	Tensión admisible del terreno	Observaciones
Estribo 1	2.50 m	3.00 kp/cm²	
Pila 1	1.50 m	5.00 kp/cm²	
Pila 2	1.50 m	5.00 kp/cm²	
Estribo 2	2.50 m	3.00 kp/cm²	

1.6. Procedimiento de cálculo y descripción de los programas utilizados

El cálculo del tablero se realiza mediante programas de ordenador en modelos estructurales de emparrillado plano y reticulado plano, basados en la matriz de rigidez y equilibrio de los nudos, donde se suponen las hipótesis básicas de la Resistencia de Materiales es decir, de linealidad geométrica y del material, despreciando la deformación por esfuerzo cortante.

Se ejecuta el cálculo con un modelo de emparrillado espacial mediante el programa STATIK·3, del que se obtienen los esfuerzos transversales y los esfuerzos longitudinales incluyendo el efecto del reparto transversal de las cargas y del empotramiento de la pila en el tablero.

Considerando los esfuerzos obtenidos se realizan las comprobaciones de fisuración y el cálculo a rotura del tablero mediante el postprocesador FAGUS·3.

Se completa el cálculo con el dimensionamiento de la armadura de la losa en sentido transversal mediante la aplicación de la regla de WOOD-ARMER y los cálculos de esfuerzos locales, como por ejemplo los de apoyo.

Los estribos y las pilas, tanto en alzado como en fundaciones, se calcularon y dimensionaron en hormigón armado.

Para el desarrollo de los cálculos resueltos por ordenador se han utilizado los siguientes programas:

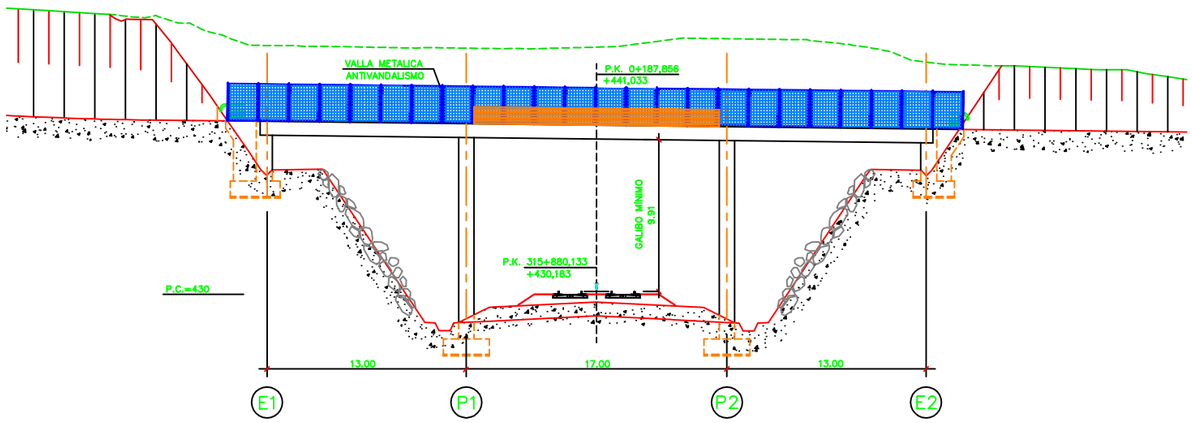
- STATIK-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10, 1997) .

- FAGUS-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10 1997) .

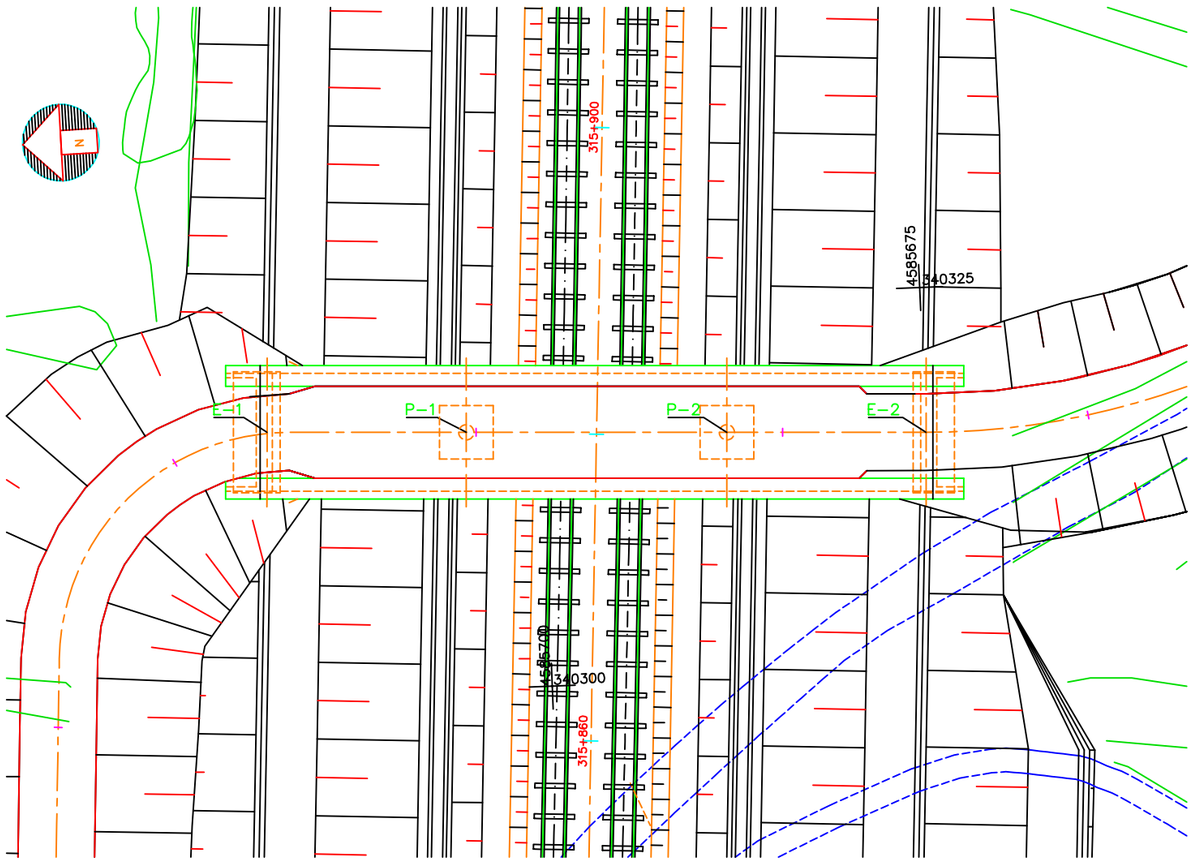
TABLERO

2.1. Geometría (Ver planos)

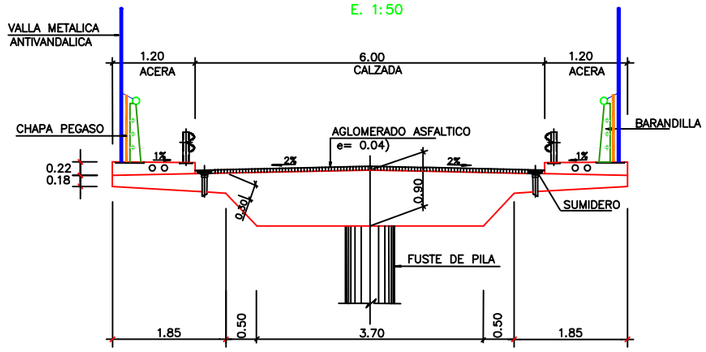
ALZADO
ESCALA 1:200



PLANTA
ESCALA 1:200



SECCION TRANSVERSAL
E. 1:50



CUADRO DE REPLANTEO					
ESTRIBOS Y PILAS	P.K. EJE DE REPLANTEO	X	Y	Az	COTA RASANTE
E-1	0+166,354	340.317,221	4.585.717,926	202,5757	+441,282
P-1	0+179,356	340.316,766	4.585.704,934	202,5757	+441,131
P-2	0+196,356	340.316,079	4.585.687,948	202,5757	+440,935
E-2	0+209,356	340.315,553	4.585.674,959	202,5757	+440,785

GIF Gestor de Infraestructuras Ferroviarias

TITULO:
LIQUIDACION DE LA MODIFICACION Nº1 DEL PROYECTO CONSTRUCTIVO
L.A.V. MADRID-ZARAGOZA-BARCELONA-FRONTERA FRANCESA
TRAMO: LLEIDA-MARTORELL, SUBTRAMO III-B
PLATAFORMA

EL INGENIERO DE C.C. Y P.
AUTOR DE LA LIQUIDACION:

FDO:
D.JAIME GARCIA-GERMAN LOPEZ-BELMONTE

CONFORME:
Sacyr
EL CONTRATISTA

ESCALA:
1:50
1:200
(en A-1)
Numérica
0 1 2m.
0 4 8m.
Gráfica

FECHA:
ABRIL 2.003

TITULO DEL PLANO:
PASO SUPERIOR
E-2 P.K. 315+780 REPOSICION 14
PLANO GENERAL

Nº DEL PLANO:
2.9-2.1
Hoja 1 de 1

2.9-2.1.DWG/REF:MOD.DWG

2.2. Cálculo de las acciones

2.2. Cálculo de las acciones

2.2.1. Acciones permanentes

2.2.1.1. Peso propio

El peso propio de la estructura de hormigón se calcula con un peso específico

$$\gamma = 2.50 Mp/m^3.$$

2.2.1.2. Carga muerta

Cm = 1.00 t/m cada acera

pav = 0.04 m x 2.30 t/m 3 = 0.092 t/m2

2.2.2. Acciones permanentes de valor no constante

2.2.2.1. Reológicas: Retracción

Se han calculado considerando una humedad relativa del 60%, y un espesor medio de 337 mm. La edad del hormigón al entrar en carga es de 28 días, y el mismo es de endurecimiento normal. Los valores utilizados son:

ε retracción =-0.00029167

Cálculo de la retracción del hormigón

$\varepsilon_{cs}(t, t_s) = \varepsilon_{cso}\,\beta s\,(t - t_s)$

Edad del hormigón al comienzo de la retracción (días)	ts = **28.0**
Edad del hormigón en el instante de evaluación (días)	t = **10000.0**
Coeficiente básico de retracción	$\varepsilon_{cso} = \varepsilon_s\ \beta_{HR}$
Resistencia característica del hormigón	f ck (N / mm2) = **30**
	ε_s = 0.00042
Humedad relativa en tanto por ciento	HR = **70**
	β_{HR} = -1.0184
	ε_{cso} = -0.0004277
Area de la seccion transversal (m^2)	Ac = **4.653**
Perímetro en contacto con la atmósfera (m)	u = **16.255**
Espesor medio (mm)	e = 572
Coeficiente de evolución temporal de la retracción	$\beta s(t - ts)$ = 0.6819

$\varepsilon_{cs}(t, t_s) = \varepsilon_{cso}\,\beta s\,(t - t_s)$ =	-0.00029167

2.2.2.2. Sobrecargas del terreno

El relleno de tierras en el trasdós de los estribos se realiza con material del terraplén, que tiene las siguientes características:

Peso específico	:	$\gamma_T = 2.0\ Mp/m^3$
Ángulo de fricción interna	:	$\phi = 30°$
Coeficiente de empuje activo	:	$\lambda_\alpha = 0.33$

2.2.3. Acciones variables

2.2.3.1. Sobrecargas de uso

2.2.3.1.1. Tren de cargas

a) Componentes verticales

Como el ancho de plataforma es inferior a 12.0 m, conforme a la IAP se ha utilizado el siguiente tren de cargas:

- Sobrecarga uniforme: 0.40 Mp/m²
- Vehículo de 60 Mp

b) Componentes horizontales

b.1) Frenado y arranque

Se considerará la actuación de esta fuerza sobre la estructura.

$$F_F = \frac{6.00 \text{ x } 43.80 \text{ m x } 0.4 \text{ Mp m}^{-2} + 60 \text{ Mp}}{20}$$

$F_F = 8.28$ Mp

Valor mínimo: $F_F = 12.00$ Mp

b.2) Fuerza centrífuga

La estructura está ubicada en un tramo de radio infinito, por lo tanto esta fuerza no actúa.

2.2.3.2. Acciones climáticas

a.) Viento

CALCULO DE LAS ACCIONES DEBIDAS AL VIENTO CONFORME A LA I.A.P

Proyecto : GIF SUBTRAMO IIIB
Estructura : PS 315+880

Velocidad de referencia : V_{REF} (m/seg) = **28.00**

Velocidad de cálculo : V_C (m/seg) = $C_T \times C_R \times C_Z \times C_G \times V_{REF}$

Factor de topografía : C_T = **1.10**

Período de retorno (años) T = **100**

Factor de riesgo : $C_R = (0.562x\{1-0.2x \ln [- \ln (1- 1/T)]\}) 1/2$
$C_R = 1.04$

Factor de altura : $C_Z = K_Z \times LN (Z/ Zo)$ si $Z > Z_{MIN}$
$C_Z = K_Z \times LN (Z_{MIN}/ Zo)$ si $Z < Z_{MIN}$

Los valores de K_Z , Zo y Z_{MIN} se obtendrán de la tabla adjunta .

Tipo de Entorno	K_Z	Zo (m)	Z_{MIN} (m)
I	0.17	0.01	2.00
II	0.19	0.05	4.00
III	0.22	0.30	8.00
IV	0.24	1.00	16.00

K_Z = **0.22**

Zo = **0.3**

Z_{MIN} = **8.00**

OBTENCIÓN DE LA VELOCIDAD DE CÁLCULO PARA EL TABLERO :

En función de la altura Z considerada se obtendrán los valores de C_Z y C_G y en consecuencia de V_C

V_C (m/seg) = $C_T \times C_R \times C_Z \times C_G \times V_{REF}$

V_{REF} (m/seg) = 28.00

Para el tablero la altura considerada será : Z (m) = **13.00**

$C_Z = 0.829$

Factor de ráfaga : $C_G = (1 + 7 \times K_Z / C_Z / C_T)^{1/2}$

$C_G = 1.640$

$$\Delta T = K\, z^a\, h^b\, s^c = 23.89 \times 4^{.292} \times 0.90^{-0.139}$$

Sobre la base de estos datos se obtiene que el rango anual de la temperatura media es de 36.34 °C, y por lo tanto consideraremos un incremento uniforme de temperatura de

$$\Delta T = \pm 36.34\ °C$$

$$\varepsilon_\tau = \pm 36.34 \times 10^{-5}$$

El incremento de temperatura entre caras superior e inferior del tablero, gradiente térmico vertical, será:

- Gradiente térmico vertical positivo °C/m

Losa maciza de hormigón:

$\Delta T_{SI} = K\ \Delta T_{SI}$, ref.

$K = K_1 \cdot K_2$. $K_1 = 0.85$

$K_2 = 1.56$

ΔT_{SI}, ref = 11.50°C

$\Delta T_{SI} = 1.33 \times 11.50$°C/m

$\Delta T_{SI} = 15.30$ °C/m

- Gradiente térmico vertical inverso

Tableros de hormigón: con pavimento bituminoso 0.0 °C

2.2.4. Acciones accidentales

2.2.4.1. Acciones sísmicas

De acuerdo a la Norma NCS-94 esta estructura se clasifica como de especial importancia.

La aceleración sísmica básica de la zona es ab≤ 0.04 g.

$a_c = \rho\, a_b$

$\rho = (t/50)^{0.37}$

t = 100 años, $\rho = 1.30$

$a_c = 1.30 \times 0.04\ g = 0.052\ g \leq 0.06\ g$ No se consideran las acciones sísmicas.

2.3. Cálculo como emparrillado

2.3. Cálculo como emparrillado

Se ha generado el modelo de emparrillado mediante el programa STATIK3, y se han introducido todas las cargas, lo que nos permitirá obtener los esfuerzos transversales con la influencia de la posición de las cargas, el ancho del tablero, y el apoyo puntual en las pilas, consideradas empotradas y con su correspondiente altura.

Se han introducido las acciones individuales, correspondientes a cada hipótesis básica de cálculo.

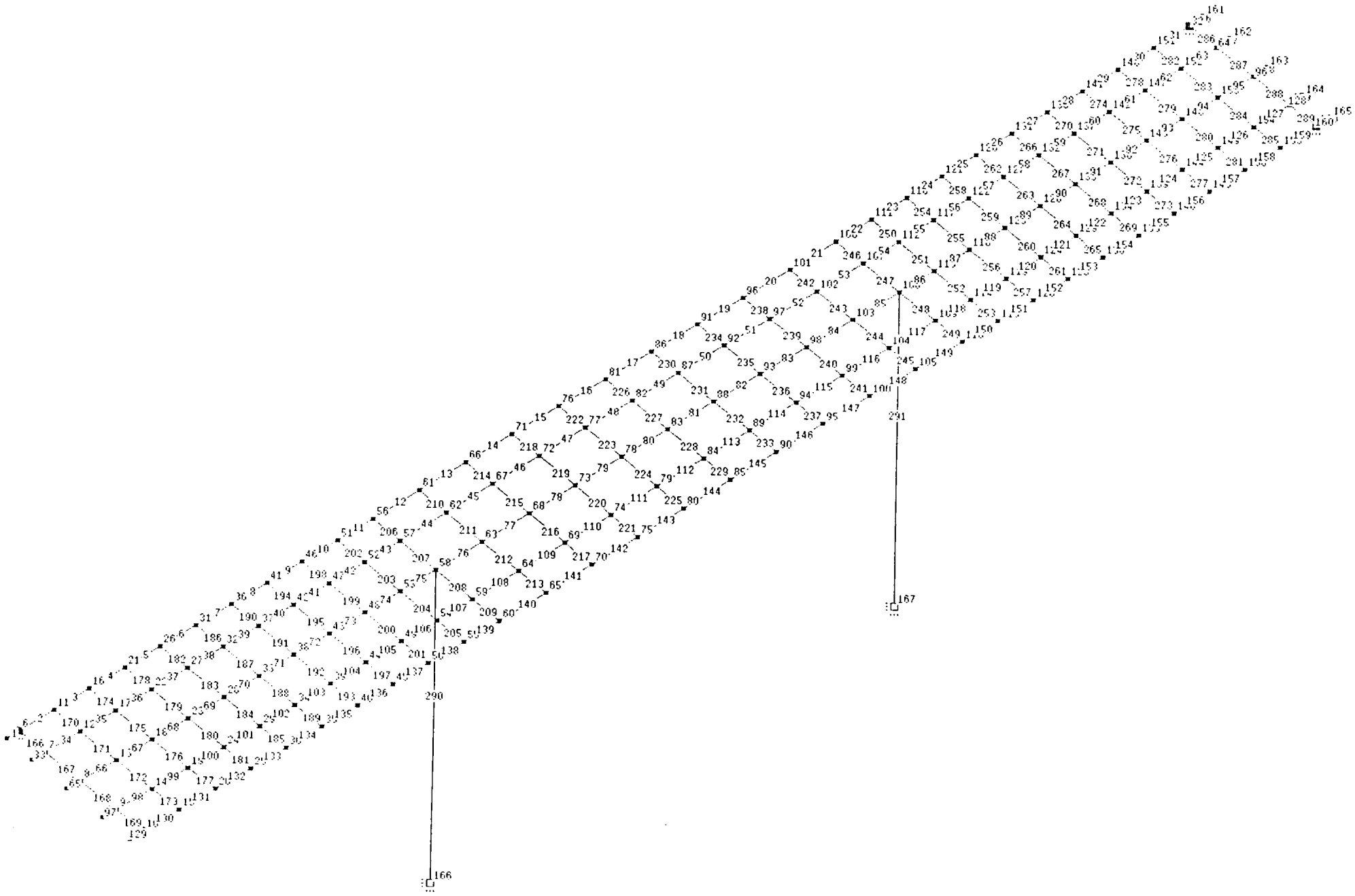
Posteriormente se ha calculado la envolvente pésima de esfuerzos para cada acción, con los diferentes coeficientes de ponderación de la Instrucción.

Por aplicación de la regla de WOOD-ARMER a dichos esfuerzos de cálculo se obtienen las armaduras transversales necesarias.

Finalmente se calculan los coeficientes de reparto transversal.

2.3.1. Modelo de cálculo

Scale 1 : 142.9
Structure - GEOMETRIA



****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (167 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	R XYZ	Specialities
1	0.00000	0.00000	0.00000			
2	1.12000	0.00000	0.00000			
3	2.62000	0.00000	0.00000			
4	4.12000	0.00000	0.00000			
5	5.24000	0.00000	0.00000			
6	0.00000	0.50000	0.00000	SSE	FFF	
7	1.12000	0.50000	0.00000			
8	2.62000	0.50000	0.00000			
9	4.12000	0.50000	0.00000			
10	5.24000	0.50000	0.00000	SSE	FFF	
11	0.00000	1.80000	0.00000			
12	1.12000	1.80000	0.00000			
13	2.62000	1.80000	0.00000			
14	4.12000	1.80000	0.00000			
15	5.24000	1.80000	0.00000			
16	0.00000	3.10000	0.00000			
17	1.12000	3.10000	0.00000			
18	2.62000	3.10000	0.00000			
19	4.12000	3.10000	0.00000			
20	5.24000	3.10000	0.00000			
21	0.00000	4.40000	0.00000			
22	1.12000	4.40000	0.00000			
23	2.62000	4.40000	0.00000			
24	4.12000	4.40000	0.00000			
25	5.24000	4.40000	0.00000			
26	0.00000	5.70000	0.00000			
27	1.12000	5.70000	0.00000			
28	2.62000	5.70000	0.00000			
29	4.12000	5.70000	0.00000			
30	5.24000	5.70000	0.00000			
31	0.00000	7.00000	0.00000			
32	1.12000	7.00000	0.00000			
33	2.62000	7.00000	0.00000			
34	4.12000	7.00000	0.00000			
35	5.24000	7.00000	0.00000			
36	0.00000	8.30000	0.00000			
37	1.12000	8.30000	0.00000			
38	2.62000	8.30000	0.00000			
39	4.12000	8.30000	0.00000			
40	5.24000	8.30000	0.00000			
41	0.00000	9.60000	0.00000			
42	1.12000	9.60000	0.00000			

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
43	2.62000	9.60000	0.00000		
44	4.12000	9.60000	0.00000		
45	5.24000	9.60000	0.00000		
46	0.00000	10.90000	0.00000		
47	1.12000	10.90000	0.00000		
48	2.62000	10.90000	0.00000		
49	4.12000	10.90000	0.00000		
50	5.24000	10.90000	0.00000		
51	0.00000	12.20000	0.00000		
52	1.12000	12.20000	0.00000		
53	2.62000	12.20000	0.00000		
54	4.12000	12.20000	0.00000		
55	5.24000	12.20000	0.00000		
56	0.00000	13.50000	0.00000		
57	1.12000	13.50000	0.00000		
58	2.62000	13.50000	0.00000		
59	4.12000	13.50000	0.00000		
60	5.24000	13.50000	0.00000		
61	0.00000	15.20000	0.00000		
62	1.12000	15.20000	0.00000		
63	2.62000	15.20000	0.00000		
64	4.12000	15.20000	0.00000		
65	5.24000	15.20000	0.00000		
66	0.00000	16.90000	0.00000		
67	1.12000	16.90000	0.00000		
68	2.62000	16.90000	0.00000		
69	4.12000	16.90000	0.00000		
70	5.24000	16.90000	0.00000		
71	0.00000	18.60000	0.00000		
72	1.12000	18.60000	0.00000		
73	2.62000	18.60000	0.00000		
74	4.12000	18.60000	0.00000		
75	5.24000	18.60000	0.00000		
76	0.00000	20.30000	0.00000		
77	1.12000	20.30000	0.00000		
78	2.62000	20.30000	0.00000		
79	4.12000	20.30000	0.00000		
80	5.24000	20.30000	0.00000		
81	0.00000	22.00000	0.00000		
82	1.12000	22.00000	0.00000		
83	2.62000	22.00000	0.00000		
84	4.12000	22.00000	0.00000		
85	5.24000	22.00000	0.00000		
86	0.00000	23.70000	0.00000		
87	1.12000	23.70000	0.00000		
88	2.62000	23.70000	0.00000		
89	4.12000	23.70000	0.00000		
90	5.24000	23.70000	0.00000		
91	0.00000	25.40000	0.00000		
92	1.12000	25.40000	0.00000		
93	2.62000	25.40000	0.00000		
94	4.12000	25.40000	0.00000		
95	5.24000	25.40000	0.00000		

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
96	0.00000	27.10000	0.00000		
97	1.12000	27.10000	0.00000		
98	2.62000	27.10000	0.00000		
99	4.12000	27.10000	0.00000		
100	5.24000	27.10000	0.00000		
101	0.00000	28.80000	0.00000		
102	1.12000	28.80000	0.00000		
103	2.62000	28.80000	0.00000		
104	4.12000	28.80000	0.00000		
105	5.24000	28.80000	0.00000		
106	0.00000	30.50000	0.00000		
107	1.12000	30.50000	0.00000		
108	2.62000	30.50000	0.00000		
109	4.12000	30.50000	0.00000		
110	5.24000	30.50000	0.00000		
111	0.00000	31.80000	0.00000		
112	1.12000	31.80000	0.00000		
113	2.62000	31.80000	0.00000		
114	4.12000	31.80000	0.00000		
115	5.24000	31.80000	0.00000		
116	0.00000	33.10000	0.00000		
117	1.12000	33.10000	0.00000		
118	2.62000	33.10000	0.00000		
119	4.12000	33.10000	0.00000		
120	5.24000	33.10000	0.00000		
121	0.00000	34.40000	0.00000		
122	1.12000	34.40000	0.00000		
123	2.62000	34.40000	0.00000		
124	4.12000	34.40000	0.00000		
125	5.24000	34.40000	0.00000		
126	0.00000	35.70000	0.00000		
127	1.12000	35.70000	0.00000		
128	2.62000	35.70000	0.00000		
129	4.12000	35.70000	0.00000		
130	5.24000	35.70000	0.00000		
131	0.00000	37.00000	0.00000		
132	1.12000	37.00000	0.00000		
133	2.62000	37.00000	0.00000		
134	4.12000	37.00000	0.00000		
135	5.24000	37.00000	0.00000		
136	0.00000	38.30000	0.00000		
137	1.12000	38.30000	0.00000		
138	2.62000	38.30000	0.00000		
139	4.12000	38.30000	0.00000		
140	5.24000	38.30000	0.00000		
141	0.00000	39.60000	0.00000		
142	1.12000	39.60000	0.00000		
143	2.62000	39.60000	0.00000		
144	4.12000	39.60000	0.00000		
145	5.24000	39.60000	0.00000		
146	0.00000	40.90000	0.00000		
147	1.12000	40.90000	0.00000		
148	2.62000	40.90000	0.00000		

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
149	4.12000	40.90000	0.00000		
150	5.24000	40.90000	0.00000		
151	0.00000	42.20000	0.00000		
152	1.12000	42.20000	0.00000		
153	2.62000	42.20000	0.00000		
154	4.12000	42.20000	0.00000		
155	5.24000	42.20000	0.00000		
156	0.00000	43.50000	0.00000		
157	1.12000	43.50000	0.00000	SSE	FFF
158	2.62000	43.50000	0.00000		
159	4.12000	43.50000	0.00000		
160	5.24000	43.50000	0.00000	SSE	FFF
161	0.00000	44.00000	0.00000		
162	1.12000	44.00000	0.00000		
163	2.62000	44.00000	0.00000		
164	4.12000	44.00000	0.00000		
165	5.24000	44.00000	0.00000		
166	2.62000	13.50000	-13.20000	EEE	EEE
167	2.62000	30.50000	-13.20000	EEE	EEE

ELASTICALLY SUPPORTED JOINTS: ('E'=Fixed 'F'=Free)

Joint	V-X [T/M]	V-Y [T/M]	V-Z [T/M]	R-X [TM/ARC]	R-Y [TM/ARC]	R-Z [TM/ARC]
6	2.300E+02	2.300E+02	E	F	F	F
10	2.300E+02	2.300E+02	E	F	F	F
156	2.300E+02	2.300E+02	E	F	F	F
160	2.300E+02	2.300E+02	E	F	F	F

B A R D A T A : (286 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
1	1	6	0.50000	%Q0001			O oS
2	6	11	1.30000	%Q0001			O oS
3	11	16	1.30000	%Q0001			O oS
4	16	21	1.30000	%Q0001			O oS
5	21	26	1.30000	%Q0001			O oS
6	26	31	1.30000	%Q0001			O oS
7	31	36	1.30000	%Q0001			O oS
8	36	41	1.30000	%Q0001			O oS
9	41	46	1.30000	%Q0001			O oS
10	46	51	1.30000	%Q0001			O oS
11	51	56	1.30000	%Q0001			O oS
12	56	61	1.70000	%Q0001			O oS
13	61	66	1.70000	%Q0001			O oS
14	66	71	1.70000	%Q0001			O oS
15	71	76	1.70000	%Q0001			O oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
16	76	81	1.70000	%Q0001			O oS
17	81	86	1.70000	%Q0001			O oS
18	86	91	1.70000	%Q0001			O oS
19	91	96	1.70000	%Q0001			O oS
20	96	101	1.70000	%Q0001			O oS
21	101	106	1.70000	%Q0001			O oS
22	106	111	1.30000	%Q0001			O oS
23	111	116	1.30000	%Q0001			O oS
24	116	121	1.30000	%Q0001			O oS
25	121	126	1.30000	%Q0001			O oS
26	126	131	1.30000	%Q0001			O oS
27	131	136	1.30000	%Q0001			O oS
28	136	141	1.30000	%Q0001			O oS
29	141	146	1.30000	%Q0001			O oS
30	146	151	1.30000	%Q0001			O oS
31	151	156	1.30000	%Q0001			O oS
32	156	161	0.50000	%Q0001			O oS
33	2	7	0.50000	%Q0002			oS
34	7	12	1.30000	%Q0002			oS
35	12	17	1.30000	%Q0002			oS
36	17	22	1.30000	%Q0002			oS
37	22	27	1.30000	%Q0002			oS
38	27	32	1.30000	%Q0002			oS
39	32	37	1.30000	%Q0002			oS
40	37	42	1.30000	%Q0002			oS
41	42	47	1.30000	%Q0002			oS
42	47	52	1.30000	%Q0002			oS
43	52	57	1.30000	%Q0002			oS
44	57	62	1.70000	%Q0002			oS
45	62	67	1.70000	%Q0002			oS
46	67	72	1.70000	%Q0002			oS
47	72	77	1.70000	%Q0002			oS
48	77	82	1.70000	%Q0002			oS
49	82	87	1.70000	%Q0002			oS
50	87	92	1.70000	%Q0002			oS
51	92	97	1.70000	%Q0002			oS
52	97	102	1.70000	%Q0002			oS
53	102	107	1.70000	%Q0002			oS
54	107	112	1.30000	%Q0002			oS
55	112	117	1.30000	%Q0002			oS
56	117	122	1.30000	%Q0002			oS
57	122	127	1.30000	%Q0002			oS
58	127	132	1.30000	%Q0002			oS
59	132	137	1.30000	%Q0002			oS
60	137	142	1.30000	%Q0002			oS
61	142	147	1.30000	%Q0002			oS
62	147	152	1.30000	%Q0002			oS
63	152	157	1.30000	%Q0002			oS
64	157	162	0.50000	%Q0002			oS
65	3	8	0.50000	%Q0003			oS
66	8	13	1.30000	%Q0003			oS
67	13	18	1.30000	%Q0003			oS
68	18	23	1.30000	%Q0003			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
69	23	28	1.30000	%Q0003			oS
70	28	33	1.30000	%Q0003			oS
71	33	38	1.30000	%Q0003			oS
72	38	43	1.30000	%Q0003			oS
73	43	48	1.30000	%Q0003			oS
74	48	53	1.30000	%Q0003			oS
75	53	58	1.30000	%Q0003			oS
76	58	63	1.70000	%Q0003			oS
77	63	68	1.70000	%Q0003			oS
78	68	73	1.70000	%Q0003			oS
79	73	78	1.70000	%Q0003			oS
80	78	83	1.70000	%Q0003			oS
81	83	88	1.70000	%Q0003			oS
82	88	93	1.70000	%Q0003			oS
83	93	98	1.70000	%Q0003			oS
84	98	103	1.70000	%Q0003			oS
85	103	108	1.70000	%Q0003			oS
86	108	113	1.30000	%Q0003			oS
87	113	118	1.30000	%Q0003			oS
88	118	123	1.30000	%Q0003			oS
89	123	128	1.30000	%Q0003			oS
90	128	133	1.30000	%Q0003			oS
91	133	138	1.30000	%Q0003			oS
92	138	143	1.30000	%Q0003			oS
93	143	148	1.30000	%Q0003			oS
94	148	153	1.30000	%Q0003			oS
95	153	158	1.30000	%Q0003			oS
96	158	163	0.50000	%Q0003			oS
97	4	9	0.50000	%Q0004			oS
98	9	14	1.30000	%Q0004			oS
99	14	19	1.30000	%Q0004			oS
100	19	24	1.30000	%Q0004			oS
101	24	29	1.30000	%Q0004			oS
102	29	34	1.30000	%Q0004			oS
103	34	39	1.30000	%Q0004			oS
104	39	44	1.30000	%Q0004			oS
105	44	49	1.30000	%Q0004			oS
106	49	54	1.30000	%Q0004			oS
107	54	59	1.30000	%Q0004			oS
108	59	64	1.70000	%Q0004			oS
109	64	69	1.70000	%Q0004			oS
110	69	74	1.70000	%Q0004			oS
111	74	79	1.70000	%Q0004			oS
112	79	84	1.70000	%Q0004			oS
113	84	89	1.70000	%Q0004			oS
114	89	94	1.70000	%Q0004			oS
115	94	99	1.70000	%Q0004			oS
116	99	104	1.70000	%Q0004			oS
117	104	109	1.70000	%Q0004			oS
118	109	114	1.30000	%Q0004			oS
119	114	119	1.30000	%Q0004			oS
120	119	124	1.30000	%Q0004			oS
121	124	129	1.30000	%Q0004			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
122	129	134	1.30000	%Q0004			oS
123	134	139	1.30000	%Q0004			oS
124	139	144	1.30000	%Q0004			oS
125	144	149	1.30000	%Q0004			oS
126	149	154	1.30000	%Q0004			oS
127	154	159	1.30000	%Q0004			oS
128	159	164	0.50000	%Q0004			oS
129	5	10	0.50000	%Q0005			O oS
130	10	15	1.30000	%Q0005			O oS
131	15	20	1.30000	%Q0005			O oS
132	20	25	1.30000	%Q0005			O oS
133	25	30	1.30000	%Q0005			O oS
134	30	35	1.30000	%Q0005			O oS
135	35	40	1.30000	%Q0005			O oS
136	40	45	1.30000	%Q0005			O oS
137	45	50	1.30000	%Q0005			O oS
138	50	55	1.30000	%Q0005			O oS
139	55	60	1.30000	%Q0005			O oS
140	60	65	1.70000	%Q0005			O oS
141	65	70	1.70000	%Q0005			O oS
142	70	75	1.70000	%Q0005			O oS
143	75	80	1.70000	%Q0005			O oS
144	80	85	1.70000	%Q0005			O oS
145	85	90	1.70000	%Q0005			O oS
146	90	95	1.70000	%Q0005			O oS
147	95	100	1.70000	%Q0005			O oS
148	100	105	1.70000	%Q0005			O oS
149	105	110	1.70000	%Q0005			O oS
150	110	115	1.30000	%Q0005			O oS
151	115	120	1.30000	%Q0005			O oS
152	120	125	1.30000	%Q0005			O oS
153	125	130	1.30000	%Q0005			O oS
154	130	135	1.30000	%Q0005			O oS
155	135	140	1.30000	%Q0005			O oS
156	140	145	1.30000	%Q0005			O oS
157	145	150	1.30000	%Q0005			O oS
158	150	155	1.30000	%Q0005			O oS
159	155	160	1.30000	%Q0005			O oS
160	160	165	0.50000	%Q0005			O oS
166	6	7	1.12000	%Q0006			oS
167	7	8	1.50000	%Q0006			oS
168	8	9	1.50000	%Q0006			oS
169	9	10	1.12000	%Q0006			oS
170	11	12	1.12000	%Q0007			oS
171	12	13	1.50000	%Q0007			oS
172	13	14	1.50000	%Q0007			oS
173	14	15	1.12000	%Q0007			oS
174	16	17	1.12000	%Q0007			oS
175	17	18	1.50000	%Q0007			oS
176	18	19	1.50000	%Q0007			oS
177	19	20	1.12000	%Q0007			oS
178	21	22	1.12000	%Q0007			oS
179	22	23	1.50000	%Q0007			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
180	23	24	1.50000	%Q0007			oS
181	24	25	1.12000	%Q0007			oS
182	26	27	1.12000	%Q0007			oS
183	27	28	1.50000	%Q0007			oS
184	28	29	1.50000	%Q0007			oS
185	29	30	1.12000	%Q0007			oS
186	31	32	1.12000	%Q0007			oS
187	32	33	1.50000	%Q0007			oS
188	33	34	1.50000	%Q0007			oS
189	34	35	1.12000	%Q0007			oS
190	36	37	1.12000	%Q0007			oS
191	37	38	1.50000	%Q0007			oS
192	38	39	1.50000	%Q0007			oS
193	39	40	1.12000	%Q0007			oS
194	41	42	1.12000	%Q0007			oS
195	42	43	1.50000	%Q0007			oS
196	43	44	1.50000	%Q0007			oS
197	44	45	1.12000	%Q0007			oS
198	46	47	1.12000	%Q0007			oS
199	47	48	1.50000	%Q0007			oS
200	48	49	1.50000	%Q0007			oS
201	49	50	1.12000	%Q0007			oS
202	51	52	1.12000	%Q0007			oS
203	52	53	1.50000	%Q0007			oS
204	53	54	1.50000	%Q0007			oS
205	54	55	1.12000	%Q0007			oS
206	56	57	1.12000	%Q0008			oS
207	57	58	1.50000	%Q0008			oS
208	58	59	1.50000	%Q0008			oS
209	59	60	1.12000	%Q0008			oS
210	61	62	1.12000	%Q0009			oS
211	62	63	1.50000	%Q0009			oS
212	63	64	1.50000	%Q0009			oS
213	64	65	1.12000	%Q0009			oS
214	66	67	1.12000	%Q0009			oS
215	67	68	1.50000	%Q0009			oS
216	68	69	1.50000	%Q0009			oS
217	69	70	1.12000	%Q0009			oS
218	71	72	1.12000	%Q0009			oS
219	72	73	1.50000	%Q0009			oS
220	73	74	1.50000	%Q0009			oS
221	74	75	1.12000	%Q0009			oS
222	76	77	1.12000	%Q0009			oS
223	77	78	1.50000	%Q0009			oS
224	78	79	1.50000	%Q0009			oS
225	79	80	1.12000	%Q0009			oS
226	81	82	1.12000	%Q0009			oS
227	82	83	1.50000	%Q0009			oS
228	83	84	1.50000	%Q0009			oS
229	84	85	1.12000	%Q0009			oS
230	86	87	1.12000	%Q0009			oS
231	87	88	1.50000	%Q0009			oS
232	88	89	1.50000	%Q0009			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
233	89	90	1.12000	%Q0009			oS
234	91	92	1.12000	%Q0009			oS
235	92	93	1.50000	%Q0009			oS
236	93	94	1.50000	%Q0009			oS
237	94	95	1.12000	%Q0009			oS
238	96	97	1.12000	%Q0009			oS
239	97	98	1.50000	%Q0009			oS
240	98	99	1.50000	%Q0009			oS
241	99	100	1.12000	%Q0009			oS
242	101	102	1.12000	%Q0009			oS
243	102	103	1.50000	%Q0009			oS
244	103	104	1.50000	%Q0009			oS
245	104	105	1.12000	%Q0009			oS
246	106	107	1.12000	%Q0010			oS
247	107	108	1.50000	%Q0010			oS
248	108	109	1.50000	%Q0010			oS
249	109	110	1.12000	%Q0010			oS
250	111	112	1.12000	%Q0011			oS
251	112	113	1.50000	%Q0011			oS
252	113	114	1.50000	%Q0011			oS
253	114	115	1.12000	%Q0011			oS
254	116	117	1.12000	%Q0011			oS
255	117	118	1.50000	%Q0011			oS
256	118	119	1.50000	%Q0011			oS
257	119	120	1.12000	%Q0011			oS
258	121	122	1.12000	%Q0011			oS
259	122	123	1.50000	%Q0011			oS
260	123	124	1.50000	%Q0011			oS
261	124	125	1.12000	%Q0011			oS
262	126	127	1.12000	%Q0011			oS
263	127	128	1.50000	%Q0011			oS
264	128	129	1.50000	%Q0011			oS
265	129	130	1.12000	%Q0011			oS
266	131	132	1.12000	%Q0011			oS
267	132	133	1.50000	%Q0011			oS
268	133	134	1.50000	%Q0011			oS
269	134	135	1.12000	%Q0011			oS
270	136	137	1.12000	%Q0011			oS
271	137	138	1.50000	%Q0011			oS
272	138	139	1.50000	%Q0011			oS
273	139	140	1.12000	%Q0011			oS
274	141	142	1.12000	%Q0011			oS
275	142	143	1.50000	%Q0011			oS
276	143	144	1.50000	%Q0011			oS
277	144	145	1.12000	%Q0011			oS
278	146	147	1.12000	%Q0011			oS
279	147	148	1.50000	%Q0011			oS
280	148	149	1.50000	%Q0011			oS
281	149	150	1.12000	%Q0011			oS
282	151	152	1.12000	%Q0011			oS
283	152	153	1.50000	%Q0011			oS
284	153	154	1.50000	%Q0011			oS
285	154	155	1.12000	%Q0011			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
286	156	157	1.12000	%Q0012			oS
287	157	158	1.50000	%Q0012			oS
288	158	159	1.50000	%Q0012			oS
289	159	160	1.12000	%Q0012			oS
290*	166	58	13.20000	PILAS			oS
291*	167	108	13.20000	PILAS			oS

Bars marked with "*" are vertical (except any excentricities).
The corresponding special definition for the default orientation
of the local coordinate system applies.

Cross sections marked with "*" (i.e "HEB200") are rotated 90 degr.
about the local x-axis.

O = Rotated bars (bar orientations)
oS = Bars without shear deformation

HAUNCHED AND NON DEFAULT ORIENTED MEMBERS:

Bar	haunched bars CS-Start	CS-End	Bar orientation x/kl/angle Beta	y/k2	z
1			-8.0000		
2			-8.0000		
3			-8.0000		
4			-8.0000		
5			-8.0000		
6			-8.0000		
7			-8.0000		
8			-8.0000		
9			-8.0000		
10			-8.0000		
11			-8.0000		
12			-8.0000		
13			-8.0000		
14			-8.0000		
15			-8.0000		
16			-8.0000		
17			-8.0000		
18			-8.0000		
19			-8.0000		
20			-8.0000		
21			-8.0000		
22			-8.0000		
23			-8.0000		
24			-8.0000		
25			-8.0000		
26			-8.0000		
27			-8.0000		
28			-8.0000		
29			-8.0000		

Bar	haunched bars CS-Start	CS-End	Bar orientation x/kl/angle Beta	y/k2	z
30			-8.0000		
31			-8.0000		
32			-8.0000		
129			8.0000		
130			8.0000		
131			8.0000		
132			8.0000		
133			8.0000		
134			8.0000		
135			8.0000		
136			8.0000		
137			8.0000		
138			8.0000		
139			8.0000		
140			8.0000		
141			8.0000		
142			8.0000		
143			8.0000		
144			8.0000		
145			8.0000		
146			8.0000		
147			8.0000		
148			8.0000		
149			8.0000		
150			8.0000		
151			8.0000		
152			8.0000		
153			8.0000		
154			8.0000		
155			8.0000		
156			8.0000		
157			8.0000		
158			8.0000		
159			8.0000		
160			8.0000		

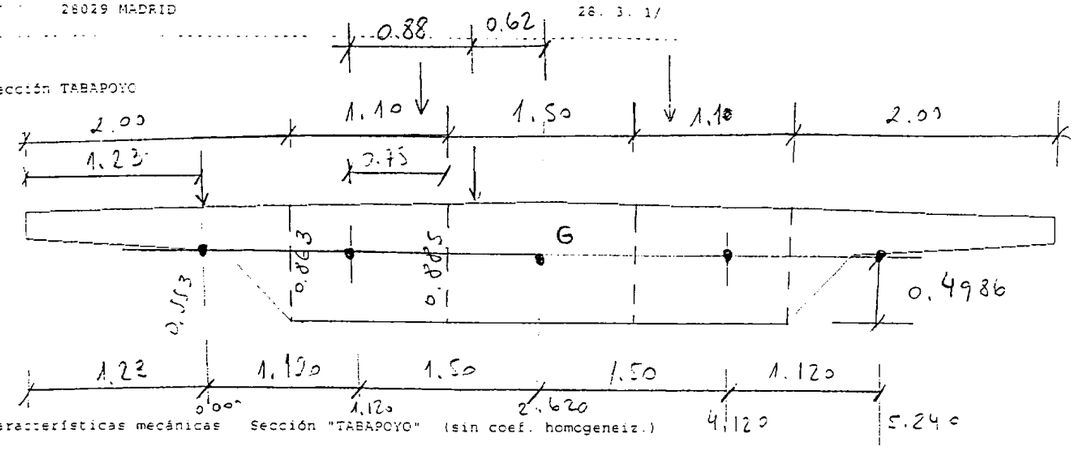
CROSS SECTION VALUES:

CS-Name	Ax [M2] Ix [M4] zl [M1]	Iy [M4] Fy [M2] zu [M1]	Iz [M4] Fz [M2] yl [M1]	Phi [Degr] yr [M1]
%Q0001 (L1)	6.9575E-01 8.0250E-03 -0.4986	2.7466E-02 6.9575E-01 0.3644	2.4561E-01 6.9575E-01 -0.7703	8.01 1.2297
%Q0002 (L2E)	9.4930E-01 6.1400E-02 -0.4986	6.3194E-02 9.4930E-01 0.3644	1.3370E-01 9.4930E-01 -0.7500	0.00 0.3500

CROSS SECTION VALUES:

CS-Name	Ax [M2] Ix [M4] zl [M1]	Iy [M4] Fy [M2] zu [M1]	Iz [M4] Fz [M2] yl [M1]	Phi [Degr] yr [M1]
%Q0003 (L2)	1.3500E-00 1.1410E-01 -0.4986	9.4309E-02 1.3500E-00 0.4014	2.5312E-01 1.3500E-00 -0.7500	0.00 0.7500
%Q0004 (L2A)	9.4930E-01 6.1400E-02 -0.4986	6.3194E-02 9.4930E-01 0.3644	1.3370E-01 9.4930E-01 -0.3500	0.00 0.7500
%Q0005 (L3)	6.9575E-01 8.0250E-03 -0.4986	2.7466E-02 6.9575E-01 0.3644	2.4561E-01 6.9575E-01 -1.2297	-8.01 0.7703
%Q0006 (TRANS0)	1.0350E+00 7.2950E-02 -0.4986	7.2304E-02 1.0350E+00 0.4014	1.1990E-01 1.0350E+00 -0.5000	0.00 0.6500
%Q0007 (TRANS1)	1.1700E-00 9.0350E-02 -0.4986	8.1733E-02 1.1700E-00 0.4014	1.6478E-01 1.1700E-00 -0.6500	0.00 0.6500
%Q0008 (TRANS5)	1.3500E-00 1.1410E-01 -0.4986	9.4309E-02 1.3500E-00 0.4014	2.6660E-01 1.3500E-00 -0.6500	0.00 0.8500
%Q0009 (TRANS2)	1.5300E+00 1.3810E-01 -0.4986	1.0691E-01 1.5300E+00 0.4014	3.6847E-01 1.5300E-00 -0.8500	0.00 0.8500
%Q0010 (TRANS6)	1.3500E-00 1.1410E-01 -0.4986	9.4309E-02 1.3500E-00 0.4014	2.6660E-01 1.3500E-00 -0.8500	0.00 0.6500
%Q0011 (TRANS3)	1.1700E-00 9.0350E-02 -0.4986	8.1733E-02 1.1700E-00 0.4014	1.6478E-01 1.1700E-00 -0.6500	0.00 0.6500
%Q0012 (TRANS4)	1.0350E+00 7.2950E-02 -0.4986	7.2304E-02 1.0350E+00 0.4014	1.1990E-01 1.0350E-00 -0.6500	0.00 0.5000
PILAS	7.8576E-01 9.8175E-02 -0.5000	4.9180E-02 7.8576E-01 0.5000	4.9086E-02 7.8576E-01 -0.5000	0.00 0.5000

Sección TABAPOYO



Características mecánicas Sección "TABAPOYO" (sin coef. homogeneiz.)

Area Ax = 46.53E3 cm2 = 4.653 m²
Momento de inercia Iy = 28.62E6 cm4 Iz = 1.372E9 cm4 Ip = 1.400E9 cm4
Const. de torsión Ix = 50.83E6 cm4
Momento estático Zy =998.79E3 cm3 Zz = 6.642E6 cm3
Baricentro ys = 0.0000 m zs = 0.4986 m Angulo= 0.0 Grad
Dist. al borde yl = -3.8500 m yr = 3.8500 m
zo = 0.4014 m zu = -0.4986 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TABAPOYO" (sin coef. homogeneiz.)

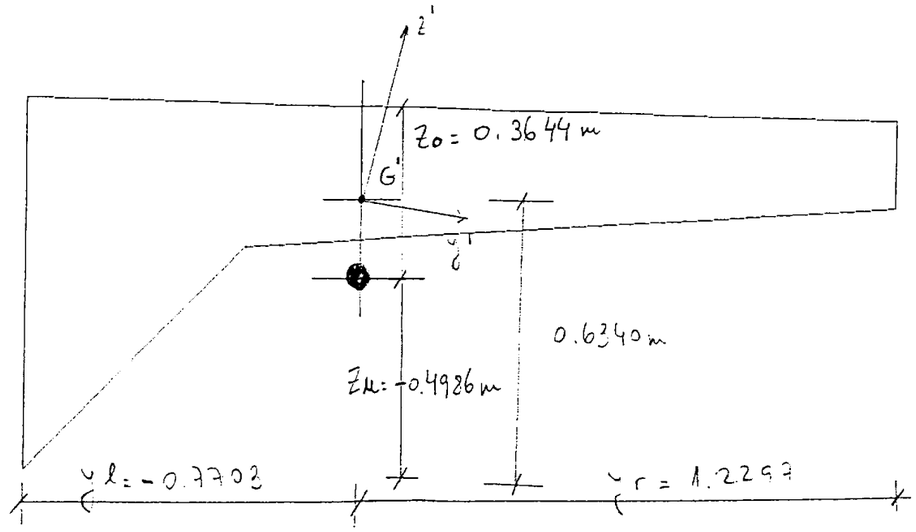
Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	46530.5	1625.531	5.08E+07	3

Puntos de contorno [m]:

1	-1.8500	0.0000	2	1.8500	0.0000	3	2.3500	0.5230
4	3.8500	0.6230	5	3.8500	0.8230	6	0.0000	0.9000
7	-3.8500	0.8230	8	-3.8500	0.6230	9	-2.3500	0.5230
	-1.8500	0.0000						

No se ha entrado ninguna armadura!

Sección L1



Características mecánicas Sección "L1" (sin coef. homogeneiz.)

Area Ax = 6.958E3 cm2
Momento de inercia Iy = 1.471E6 cm4 Iz = 24.56E6 cm4 Ip = 26.03E6 cm4
rel. a ejes dados Iye= 1.919E6 cm4 Ize= 24.11E6 cm4 Iyz= -3.2E00 cm4
Const. de torsión Ix = 1.605E6 cm4 $I_{Y0.5} = 0.008025\ m^4$
Momento estático Zy = 87.62E3 cm3 Zz = 356.13E3 cm3
Baricentro ys = 0.7703 m zs = 0.6340 m Angulo= 0.0 Grad
Dist. al borde yl = -0.7703 m yr = 1.2297 m
zo = 0.2290 m zu = -0.6340 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L1" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	6957.500	529.028	1.60E+06	3

Puntos de contorno [m]:

1	0.0000	0.0000	2	0.5000	0.5230	3	2.0000	0.5230
4	2.0000	0.8230	5	0.0000	0.8630	6	0.0000	0.0000

No se ha entrado ninguna armadura!

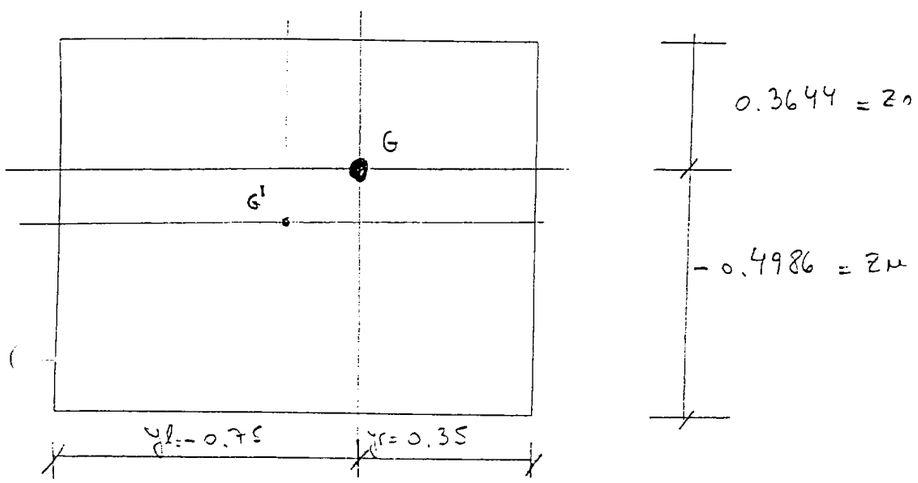
$$I_{y_G} = 1{,}471\ 10^{6}\ cm^4 + 6.958\ 10^{3}\ cm^2 \left(6340\ cm - 49.86 cm\right)^2$$

$$I_{y_G} = 0.027466\ m^4$$

$$I_x = 0.008025\ m^4$$

$$z_u = -0.4986\ m \qquad z_o = 0.3644\ m$$

Sección L2B



Características mecánicas Sección "L2B" (sin coef. homogeneiz.)

Area Ax = 9.493E3 cm2
Momento de inercia Iy = 5.892E6 cm4 Iz = 9.572E6 cm4 Ip = 15.46E6 cm4
Const. de torsión Ix = 12.28E6 cm4
Momento estático Zy =204.81E3 cm3 Zz = 261.06E3 cm3
Baricentro ys = 0.5500 m zs = 0.4315 m Angulo= 0.0 Grad
Dist. al borde yl = -0.5500 m yr = 0.5500 m
zo = 0.4315 m zu = -0.4315 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L2B" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	9493.000	392.600	1.23E+07	1)

Puntos de contorno [m]:

1	0.0000	0.0000	2	1.1000	0.0000	3	1.1000	0.8630
4	0.0000	0.8630	5	0.0000	0.0000			

No se ha entrado ninguna armadura!

$I_x = 12.28\ 10^{6}\ cm^4 \times 0.50 = 0.0614\ m^4$

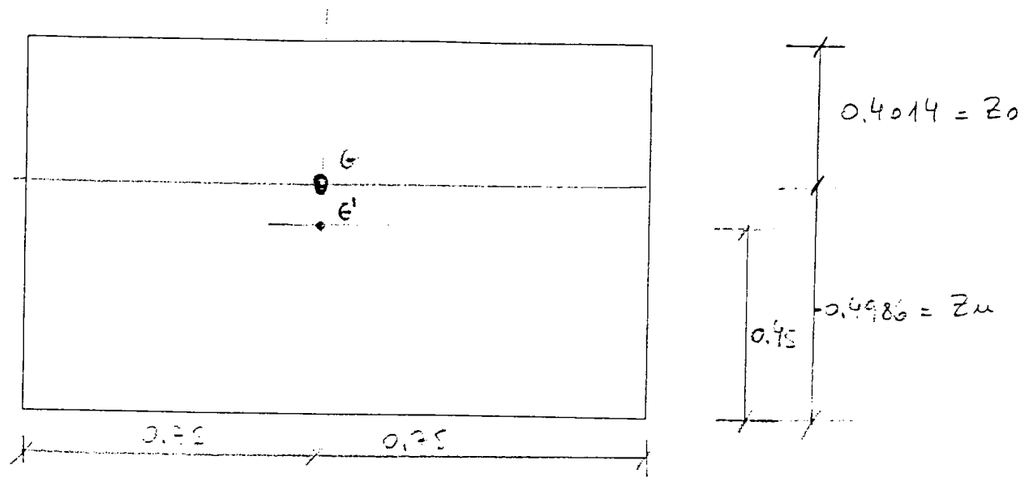
$I_y = 5.892\ 10^{6} + 9.493\ 10^{3} \times (49.86\ cm - 43.15\ cm)^2$

$I_y = 0.0631940\ m^4$

$I_z = 9.572\ 10^{6} + 9.493\ 10^{3} \times (75 - 55)^2$

$I_z = 0.133692\ m^4$

Sección L2



Características mecánicas Sección "L2" (sin coef. homogeneiz.)

Area Ax = 13.50E3 cm2
Momento de inercia Iy = 9.112E6 cm4 Iz = 25.31E6 cm4 Ip = 34.42E6 cm4
Const. de torsión Ix = 22.82E6 cm4
Momento estático Zy =303.75E3 cm3 Zz = 506.25E3 cm3
Baricentro ys = 0.7500 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.7500 m yr = 0.7500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L2" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	13500.0	480.000	2.28E+07	1)

Puntos de contorno [m]:

1	0.0000	0.0000	2	1.5000	0.0000	3	1.5000	0.9000
4	0.0000	0.9000	5	0.0000	0.0000			

No se ha entrado ninguna armadura!

$I_x = 22.82\ 10^{6}\ cm^4 \times 0.50 = 0.1141\ m^4$

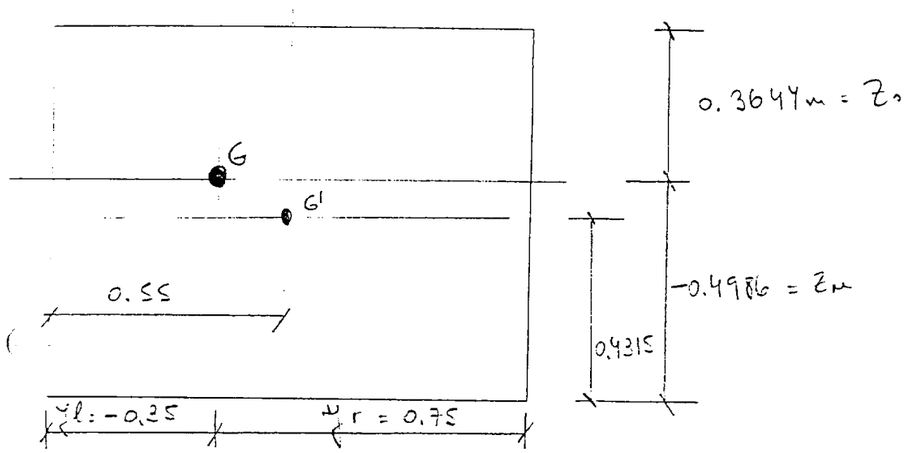
$I_y = 9.112\ 10^{6}\ cm^4 + 13.50\ 10^{3}\ cm^2 \times (49.86\ cm - 45.0\ cm)^2$

$I_y = 0.0943086\ m^4$

$Z_u = -0.4986\ m$

$Z_o = 0.4014\ m$

Sección L2A



Características mecánicas Sección "L2A" (sin coef. homogeneiz.)

Area Ax = 9.493E3 cm2
Momento de inercia Iy = 5.892E6 cm4 Iz = 9.572E6 cm4 Ip = 15.46E6 cm4
Const. de torsión Ix = 12.28E6 cm4
Momento estático Zy =204.81E3 cm3 Zz = 261.06E3 cm3
Baricentro ys = 0.5500 m zs = 0.4315 m Angulo= 0.0 Grad
Dist. al borde yl = -0.5500 m yr = 0.5500 m
zo = 0.4315 m zu = -0.4315 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L2A" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	9493.000	392.600	1.23E+07	1)

Puntos de contorno (m):

1	0.0000	0.0000	2	1.1000	0.0000	3	1.1000	0.8630
4	0.0000	0.8630	5	0.0000	0.0000		

No se ha entrado ninguna armadura:

$I_x = 12.28\,10^6\,cm^4 \times 0.50 = 0.0614\,m^4$

$I_{y_G} = 5.892\,10^6\,cm^4 + 9.493\times10^3\,cm^2 \times (49.86\,cm - 43.15\,cm)^2$

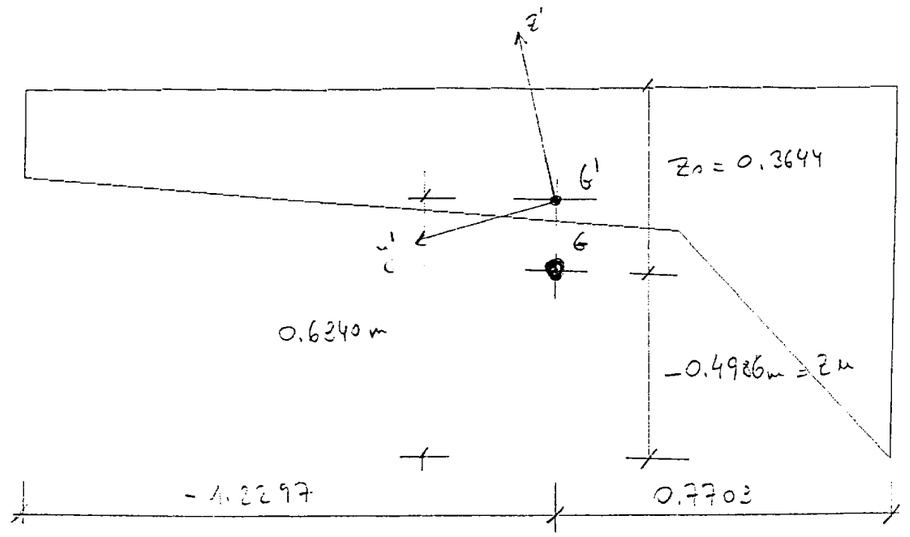
$I_{y_G} = 0.063194\,m^4$

$I_{z_G} = 9.572\,10^6\,cm^4 + 9.493\times10^3\,cm^2 \times (55.0\,cm - 35.0\,cm)^2$

$I_{z_G} = 0.1337\,m^4$

$Z_u = -0.4986\,m$ $Z_o = 0.3644$

Sección L3



Características mecánicas Sección "L3" (sin coef. homogeneiz.)

Area Ax = 6.957E3 cm2
Momento de inercia Iy = 1.471E6 cm4 Iz = 24.56E6 cm4 Ip = 26.03E6 cm4
rel. a ejes dados Iye= 1.919E6 cm4 Ize= 24.11E6 cm4 Iyz= 3.186E6 cm4
Const. de torsión Ix = 1.605E6 cm4
Momento estático Zy = 87.62E3 cm3 Zz = 356.13E3 cm3
Baricentro ys = 1.2297 m zs = 0.6340 m Angulo= -8.0 Grad
Dist. al borde yl = -1.2297 m yr = 0.7703 m
zo = 0.2290 m zu = -0.6340 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L3" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	6957.500	529.026	1.60E+06	1)

Puntos de contorno (m):

1	0.0000	0.8230	2	0.0000	0.6230	3	1.5000	0.5230
4	2.0000	0.0000	5	2.0000	0.8630	6	0.0000	0.8230

No se ha entrado ninguna armadura!

$I_x = 1.605\,10^6\,cm^4 \times 0.50 = 0.008025\,m^4$

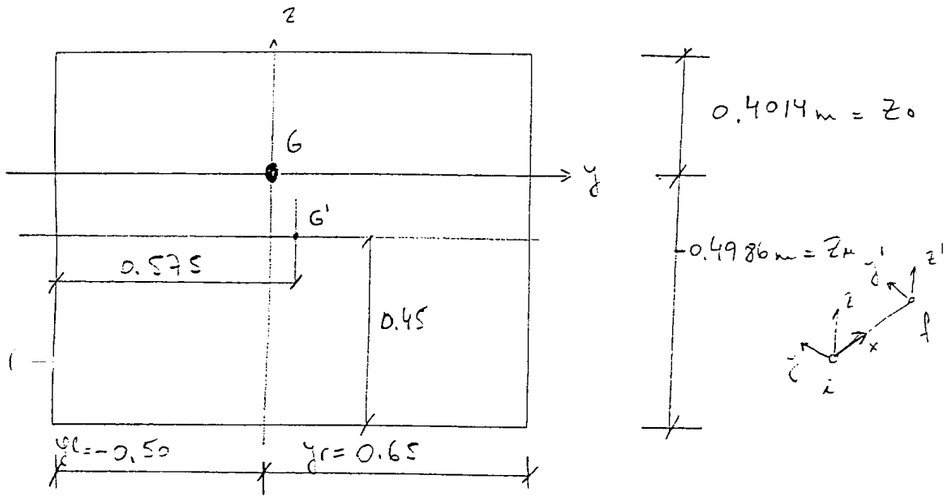
$I_{y_G} = 1.471\,10^6\,cm^4 + 6.957\,10^3\,cm^2\,(63.40\,cm - 49.86\,cm)^2$

$I_{y_G} = 0.027464\,m^4$

$Z_o = 0.3644\,m$ $Z_u = -0.4986$

$BETA = 8.00^\circ$

Sección TRANS0



Características mecánicas Sección "TRANS0" (sin coef. homogeneiz.)

Area Ax = 10.35E3 cm2
Momento de inercia Iy = 6.986E6 cm4 Iz = 11.41E6 cm4 Ip = 18.39E6 cm4
Const. de torsión Ix = 14.59E6 cm4
Momento estático Zy =232.88E3 cm3 Zz = 297.56E3 cm3
Baricentro ys = -0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.5750 m yr = 0.5750 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS0" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	10350.0	410.000	1.46E+07	1)

Puntos de contorno [m]:

1	-0.5750	0.0000	2	0.5750	0.0000	3	0.5750	0.9000
4	-0.5750	0.9000	5	-0.5750	0.0000			

No se ha entrado ninguna armadura:

$I_x = 14.59\,10^6\,cm^4 \times 0.50 = 0.07295\,m^4$

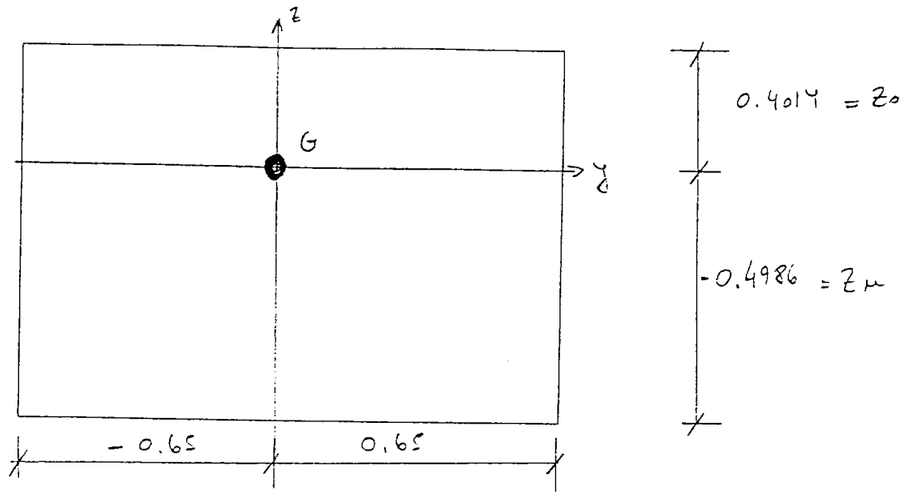
$I_y = 6.986\,10^6\,cm^4 + 10.35 \times 10^3\,cm^2 \times (49.86\,cm - 45.0\,cm)^2$

$I_y = 0.0723046\,m^4$

$I_z = 11.41\,10^6\,cm^4 + 10.35\,10^3\,cm^2 \times (57.5\,cm - 50\,cm)^2$

$I_z = 0.119921\,m^4$

Sección TRANS1



Características mecánicas Sección "TRANS1" (sin coef. homogeneiz.)

Area Ax = 11.70E3 cm2
Momento de inercia Iy = 7.897E6 cm4 Iz = 16.48E6 cm4 Ip = 24.37E6 cm4
Const. de torsión Ix = 18.07E6 cm4
Momento estático Zy =263.25E3 cm3 Zz = 380.25E3 cm3
Baricentro ys = -0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.6500 m yr = 0.6500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS1" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	11700.0	440.000	1.61E+07	1)

Puntos de contorno [m]:

1	-0.6500	0.0000	2	0.6500	0.0000	3	0.6500	0.9000
4	-0.6500	0.9000	5	0.6500	0.0000			

No se ha entrado ninguna armadura:

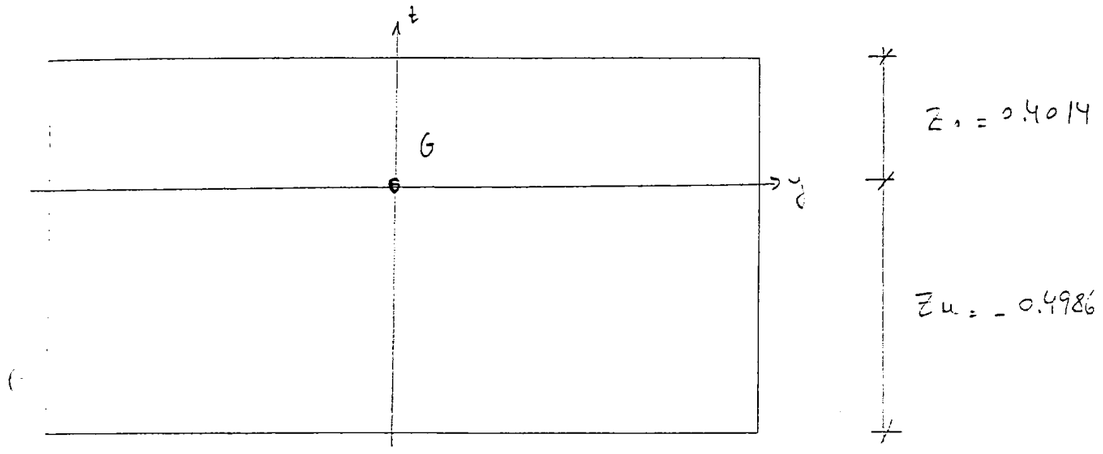
$I_x = 18.07\,10^6\,cm^4 \times 0.50 = 0.09035\,m^4$

$I_y = 7.897\,10^6\,cm^4 + 11.70\,10^3\,cm^2 \times (49.86\,cm - 45.0)^2$

$I_y = 0.0817334\,m^4$

$Z_\mu = -0.4986\,m \qquad Z_o = 0.4014\,m$

Sección TRANS2



Características mecánicas Sección "TRANS2" (sin coef. homogeneiz.)

Area Ax = 15.30E3 cm2
Momento de inercia Iy = 10.33E6 cm4 Iz = 36.85E6 cm4 Ip = 47.17E6 cm4
Const. de torsión Ix = 27.62E6 cm4
Momento estático Zy =344.25E3 cm3 Zz = 650.25E3 cm3
Baricentro ys = 0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.8500 m yr = 0.8500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS2" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	15300.0	520.000	2.76E+07	1)

Puntos de contorno [m]:
1 0.8500 0.0000 2 0.8500 0.0000 3 0.8500 0.9000
4 0.8500 0.9000 5 -0.8500 0.0000

No se ha entrado ninguna armadura!

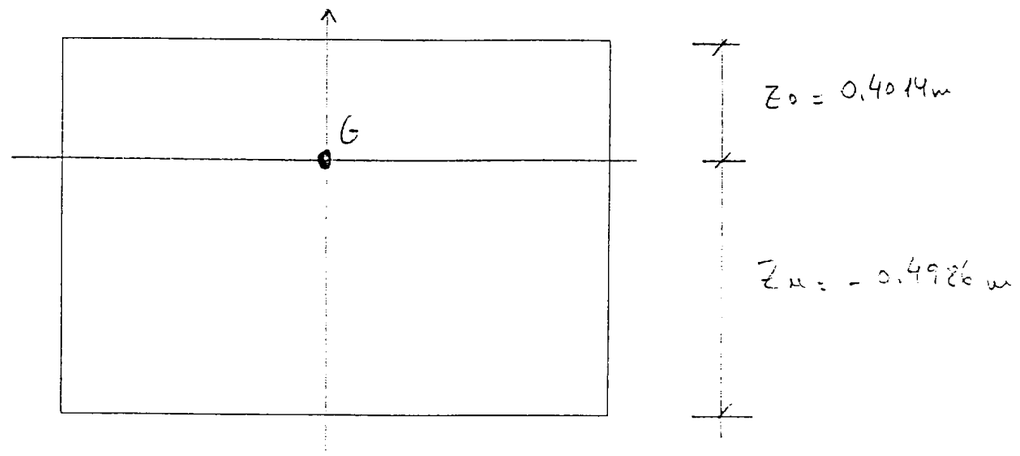
$I_x = 27.62\ 10^6\ cm^4 \times 0.50 = 0.1381\ m^4$

$I_y = 10.33\ 10^6\ cm^4 + 15.30\ 10^3\ cm^2 \times (49.86\ cm - 45.00)^2$

$I_G = 0.106913\ m^4$

$Z_M = -0.4986\ m \qquad Z_0 = 0.4014\ m$

Sección TRANS3



Características mecánicas Sección "TRANS3" (sin coef. homogeneiz.)

Area Ax = 11.70E3 cm2
Momento de inercia Iy = 7.897E6 cm4 Iz = 16.48E6 cm4 Ip = 24.37E6 cm4
Const. de torsión Ix = 18.07E6 cm4
Momento estático Zy =263.25E3 cm3 Zz = 380.25E3 cm3
Baricentro ys = -0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.6500 m yr = 0.6500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS3" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	11700.0	440.000	1.81E+07	1)

Puntos de contorno [m]:
1 -0.6500 0.0000 2 0.6500 0.0000 3 0.6500 0.9000
4 0.6500 0.9000 5 -0.6500 0.0000

No se ha entrado ninguna armadura!

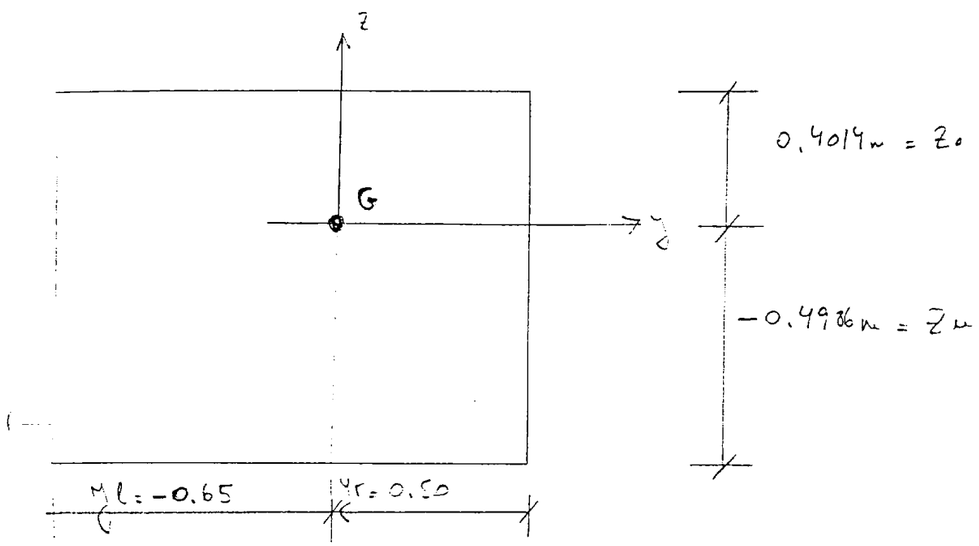
$I_x = 18.07\ 10^6\ cm^4 \times 0.50 = 0.09035\ m^4$

$I_y = 7.897\ 10^6\ cm^4 + 11.70 \times 10^3\ cm^2 \times (49.86\ cm - 45.00)^2$

$I_G = 0.0817335\ m^4$

$Z_M = -0.4986\ m \qquad Z_0 = 0.4014\ m$

Sección TRANS4



Características mecánicas Sección "TRANS4" (sin coef. homogeneiz.)

Area Ax = 10.35E3 cm2
Momento de inercia Iy = 6.986E6 cm4 Iz = 11.41E6 cm4 Ip = 18.39E6 cm4
Const. de torsión Ix = 14.59E6 cm4
Momento estático Zy =232.88E3 cm3 Zz = 297.56E3 cm3
Baricentro ys = -0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.5750 m yr = 0.5750 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS4" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	10350.0	410.000	1.46E+07	1)

Puntos de contorno [m]:
1 -0.5750 0.0000 2 0.5750 0.0000 3 0.5750 0.9000
4 -0.5750 0.9000 5 -0.5750 0.0000

No se ha entrado ninguna armadura!

$I_x = 14.59\ 10^6\ cm^4 \times 0.50 = 0.07295\ m^4$

$I_{y_G} = 6.986\ 10^6\ cm^4 + 10.35\ 10^3\ cm^2 \times (49.86\ cm - 45.0\ cm)^2$

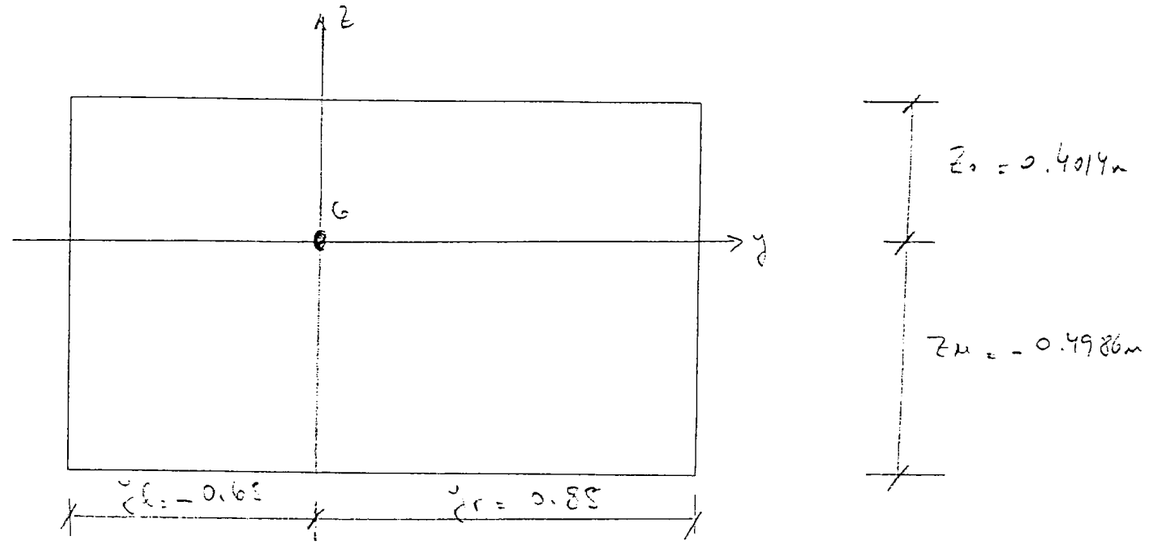
$I_{y_G} = 0.0723046\ m^4$

$I_z = 11.41\ 10^6\ cm^4 + 10.35\ 10^3\ cm^2 \times (65.0 - 57.50)^2$

$I_z = 0.11992\ m^4$

$Z_M = -0.4986\ m \qquad Z_o = 0.4014\ m$

Sección TRANS5



Características mecánicas Sección "TRANS5" (sin coef. homogeneiz.)

Area Ax = 13.50E3 cm2
Momento de inercia Iy = 9.112E6 cm4 Iz = 25.31E6 cm4 Ip = 34.42E6 cm4
Const. de torsión Ix = 22.82E6 cm4
Momento estático Zy =303.75E3 cm3 Zz = 506.25E3 cm3
Baricentro ys = 0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.7500 m yr = 0.7500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS5" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	13500.0	460.000	2.28E+07	1)

Puntos de contorno [m]:
1 -0.7500 0.0000 2 0.7500 0.0000 3 0.7500 0.9000
4 -0.7500 0.9000 5 0.7500 0.0000

No se ha entrado ninguna armadura!

$I_x = 22.82\ 10^6\ cm^4 \times 0.50 = 0.1141\ m^4$

$I_{y_G} = 9.112\ 10^6\ cm^4 + 13.50\ 10^3\ cm^2\ (49.86-45)^2$

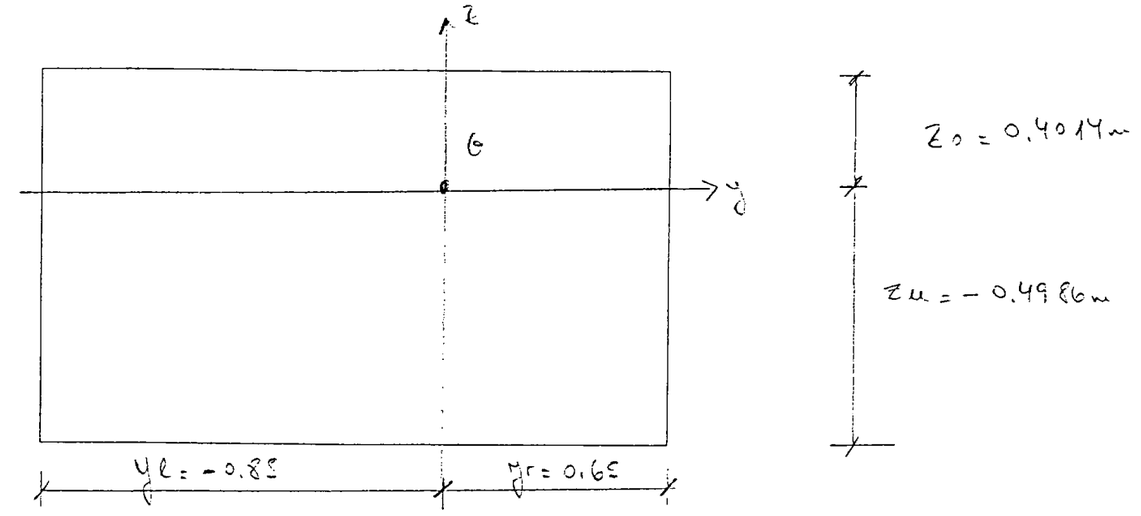
$I_{y_G} = 0.094309\ m^4$

$I_z = 25.31\ 10^6\ cm^4 + 13.50\ 10^3\ cm^2\ (75-65)^2$

$I_z = 0.2666\ m^4$

$Z_M = -0.4986\ m \qquad Z_o = 0.4014\ m$

Sección TRANS6



Características mecánicas Sección "TRANS6" (sin coef. homogeneiz.)

Area	Ax = 13.50E3 cm2			
Momento de inercia	Iy = 9.112E6 cm4	Iz = 25.31E6 cm4	Ip = 34.42E6 cm4	
Const. de torsión			Ix = 22.82E6 cm4	
Momento estático	Zy =303.75E3 cm3	Zz = 506.25E3 cm3		
Baricentro	ys = 0.0000 m	zs = 0.4500 m	Angulo= 0.0 Grad	
Dist. al borde	yl = -0.7500 m	yr = 0.7500 m		
	zo = 0.4500 m	zu = -0.4500 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS6" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	13500.0	480.000	2.28E+07	1)

Puntos de contorno [m]:

1	-0.7500	0.0000	2	0.7500	0.0000	3	0.7500	0.9000
4	0.7500	0.9000	5	0.7500	0.0000		

No se ha entrado ninguna armadura:

$I_x = 22.82\,10^6\,cm^4 \times 0.50 = 0.1141\ m^4$

$I_y = 9.112\,10^6\,cm^4 + 13.50\,10^3\,cm^2\,(49.86-45)^2$

$I_y = 0.09430\ m^4$

$I_z = 25.31\,10^6\,cm^4 + 13.50\,10^3\,cm^2\,(75-65)^2$

$I_z = 0.2666\ m^4$

$z_u = 0.4986\ m$ $z_o = 0.4014$

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
1 .. 291	3.2900E+06	1.3700E+06

STS-Run ok

Load case 1: PESO PROPIO

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Mas.forz Gl const.	-2.500		Stab 1 .. 160

Load case 2: PESO PAVIMENTO

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.106000		Stab 1 .. 32
Force Z pj const.	-0.101000		Stab 33 .. 64
Force Z pj const.	-0.138000		Stab 65 .. 96
Force Z pj const.	-0.101000		Stab 97 .. 128
Force Z pj const.	-0.106000		Stab 129 .. 160

Load case 3: PESO BARRERAS

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-1.000		Stab 1
Moment X lo const.	-1.023		Stab 1
Force Z pj const.	-1.000		Stab 2
Moment X lo const.	-1.023		Stab 2
Force Z pj const.	-1.000		Stab 3
Moment X lo const.	-1.023		Stab 3
Force Z pj const.	-1.000		Stab 4
Moment X lo const.	-1.023		Stab 4
Force Z pj const.	-1.000		Stab 5
Moment X lo const.	-1.023		Stab 5
Force Z pj const.	-1.000		Stab 6
Moment X lo const.	-1.023		Stab 6
Force Z pj const.	-1.000		Stab 7
Moment X lo const.	-1.023		Stab 7
Force Z pj const.	-1.000		Stab 8
Moment X lo const.	-1.023		Stab 8
Force Z pj const.	-1.000		Stab 9
Moment X lo const.	-1.023		Stab 9
Force Z pj const.	-1.000		Stab 10
Moment X lo const.	-1.023		Stab 10
Force Z pj const.	-1.000		Stab 11
Moment X lo const.	-1.023		Stab 11
Force Z pj const.	-1.000		Stab 12
Moment X lo const.	-1.023		Stab 12
Force Z pj const.	-1.000		Stab 13
Moment X lo const.	-1.023		Stab 13
Force Z pj const.	-1.000		Stab 14
Moment X lo const.	-1.023		Stab 14
Force Z pj const.	-1.000		Stab 15
Moment X lo const.	-1.023		Stab 15
Force Z pj const.	-1.000		Stab 16
Moment X lo const.	-1.023		Stab 16
Force Z pj const.	-1.000		Stab 17
Moment X lo const.	-1.023		Stab 17
Force Z pj const.	-1.000		Stab 18
Moment X lo const.	-1.023		Stab 18
Force Z pj const.	-1.000		Stab 19
Moment X lo const.	-1.023		Stab 19
Force Z pj const.	-1.000		Stab 20
Moment X lo const.	-1.023		Stab 20
Force Z pj const.	-1.000		Stab 21
Moment X lo const.	-1.023		Stab 21
Force Z pj const.	-1.000		Stab 22
Moment X lo const.	-1.023		Stab 22
Force Z pj const.	-1.000		Stab 23
Moment X lo const.	-1.023		Stab 23
Force Z pj const.	-1.000		Stab 24
Moment X lo const.	-1.023		Stab 24
Force Z pj const.	-1.000		Stab 25

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Moment X lo const.	-1.023		Stab 25
Force Z pj const.	-1.000		Stab 26
Moment X lo const.	-1.023		Stab 26
Force Z pj const.	-1.000		Stab 27
Moment X lo const.	-1.023		Stab 27
Force Z pj const.	-1.000		Stab 28
Moment X lo const.	-1.023		Stab 28
Force Z pj const.	-1.000		Stab 29
Moment X lo const.	-1.023		Stab 29
Force Z pj const.	-1.000		Stab 30
Moment X lo const.	-1.023		Stab 30
Force Z pj const.	-1.000		Stab 31
Moment X lo const.	-1.023		Stab 31
Force Z pj const.	-1.000		Stab 32
Moment X lo const.	-1.023		Stab 32
Force Z pj const.	-1.000		Stab 129
Moment X lo const.	1.023		Stab 129
Force Z pj const.	-1.000		Stab 130
Moment X lo const.	1.023		Stab 130
Force Z pj const.	-1.000		Stab 131
Moment X lo const.	1.023		Stab 131
Force Z pj const.	-1.000		Stab 132
Moment X lo const.	1.023		Stab 132
Force Z pj const.	-1.000		Stab 133
Moment X lo const.	1.023		Stab 133
Force Z pj const.	-1.000		Stab 134
Moment X lo const.	1.023		Stab 134
Force Z pj const.	-1.000		Stab 135
Moment X lo const.	1.023		Stab 135
Force Z pj const.	-1.000		Stab 136
Moment X lo const.	1.023		Stab 136
Force Z pj const.	-1.000		Stab 137
Moment X lo const.	1.023		Stab 137
Force Z pj const.	-1.000		Stab 138
Moment X lo const.	1.023		Stab 138
Force Z pj const.	-1.000		Stab 139
Moment X lo const.	1.023		Stab 139
Force Z pj const.	-1.000		Stab 140
Moment X lo const.	1.023		Stab 140
Force Z pj const.	-1.000		Stab 141
Moment X lo const.	1.023		Stab 141
Force Z pj const.	-1.000		Stab 142
Moment X lo const.	1.023		Stab 142
Force Z pj const.	-1.000		Stab 143
Moment X lo const.	1.023		Stab 143
Force Z pj const.	-1.000		Stab 144
Moment X lo const.	1.023		Stab 144
Force Z pj const.	-1.000		Stab 145
Moment X lo const.	1.023		Stab 145
Force Z pj const.	-1.000		Stab 146
Moment X lo const.	1.023		Stab 146
Force Z pj const.	-1.000		Stab 147
Moment X lo const.	1.023		Stab 147

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-1.000		Stab 148
Moment X lo const.	1.023		Stab 148
Force Z pj const.	-1.000		Stab 149
Moment X lo const.	1.023		Stab 149
Force Z pj const.	-1.000		Stab 150
Moment X lo const.	1.023		Stab 150
Force Z pj const.	-1.000		Stab 151
Moment X lo const.	1.023		Stab 151
Force Z pj const.	-1.000		Stab 152
Moment X lo const.	1.023		Stab 152
Force Z pj const.	-1.000		Stab 153
Moment X lo const.	1.023		Stab 153
Force Z pj const.	-1.000		Stab 154
Moment X lo const.	1.023		Stab 154
Force Z pj const.	-1.000		Stab 155
Moment X lo const.	1.023		Stab 155
Force Z pj const.	-1.000		Stab 156
Moment X lo const.	1.023		Stab 156
Force Z pj const.	-1.000		Stab 157
Moment X lo const.	1.023		Stab 157
Force Z pj const.	-1.000		Stab 158
Moment X lo const.	1.023		Stab 158
Force Z pj const.	-1.000		Stab 159
Moment X lo const.	1.023		Stab 159
Force Z pj const.	-1.000		Stab 160
Moment X lo const.	1.023		Stab 160

Load case 5: RETRACCION

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	-0.000292		Stab 1 .. 160

Load case 6: SOE UNIF 1

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.800000		Stab 1 .. 32

Load case 7: SOE UNIF 2

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.440000		Stab 33 .. 64

Load case 8: SOE UNIF 3

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.600000		Stab 65 .. 96

Load case 9: SOE UNIF 4

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.440000		Stab 97 .. 128

Load case 10: SOE UNIF 5

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.800000		Stab 129 .. 160

Load case 11: VEHICULO HIPOTESIS 11

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-10.000	0.850000	Stab 2
Force Z gl conc.	-10.000	1.050	Stab 3
Force Z gl conc.	-10.000	1.250	Stab 4
Force Z gl conc.	-4.130	0.850000	Stab 34
Force Z gl conc.	-4.130	1.050	Stab 35
Force Z gl conc.	-4.130	1.250	Stab 36
Force Z gl conc	-5.870	0.850000	Stab 66
Force Z gl conc.	-5.870	1.050	Stab 67
Force Z gl conc.	-5.870	1.250	Stab 68

Load case 12: VEHICULO HIPOTESIS 12

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	1.100	Stab	5
Force	Z	gl conc.	-10.000	1.300	Stab	6
Force	Z	gl conc.	-10.000	0.200000	Stab	8
Force	Z	gl conc.	-4.130	1.100	Stab	37
Force	Z	gl conc.	-4.130	1.300	Stab	38
Force	Z	gl conc.	-4.130	0.200000	Stab	40
Force	Z	gl conc.	-5.870	1.100	Stab	69
Force	Z	gl conc.	-5.870	1.300	Stab	70
Force	Z	gl conc.	-5.870	0.200000	Stab	72

Load case 13: VEHICULO HIPOTESIS 13

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.050000	Stab	9
Force	Z	gl conc.	-10.000	0.250000	Stab	10
Force	Z	gl conc.	-10.000	0.450000	Stab	11
Force	Z	gl conc.	-4.130	0.050000	Stab	41
Force	Z	gl conc.	-4.130	0.250000	Stab	42
Force	Z	gl conc.	-4.130	0.450000	Stab	43
Force	Z	gl conc.	-5.870	0.050000	Stab	73
Force	Z	gl conc.	-5.870	0.250000	Stab	74
Force	Z	gl conc.	-5.870	0.450000	Stab	75

Load case 14: VEHICULO HIPOTESIS 14

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.850000	Stab	12
Force	Z	gl conc.	-10.000	0.650000	Stab	13
Force	Z	gl conc.	-10.000	0.450000	Stab	14
Force	Z	gl conc.	-4.130	0.850000	Stab	44
Force	Z	gl conc.	-4.130	0.650000	Stab	45
Force	Z	gl conc.	-4.130	0.450000	Stab	46
Force	Z	gl conc.	-5.870	0.850000	Stab	76
Force	Z	gl conc.	-5.870	0.650000	Stab	77
Force	Z	gl conc.	-5.870	0.450000	Stab	78

Load case 15: VEHICULO HIPOTESIS 15

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.200000	Stab	16
Force	Z	gl conc.	-10.000	0	Stab	17
Force	Z	gl conc.	-10.000	1.500	Stab	17
Force	Z	gl conc.	-4.130	0.200000	Stab	48
Force	Z	gl conc.	-4.130	0	Stab	49
Force	Z	gl conc.	-4.130	1.500	Stab	49
Force	Z	gl conc.	-5.870	0.200000	Stab	80
Force	Z	gl conc.	-5.870	0	Stab	81
Force	Z	gl conc.	-5.870	1.500	Stab	81

Load case 16: VEHICULO HIPOTESIS 16

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	1.250	Stab	19
Force	Z	gl conc.	-10.000	1.050	Stab	20
Force	Z	gl conc.	-10.000	0.850000	Stab	21
Force	Z	gl conc.	-4.130	1.250	Stab	51
Force	Z	gl conc.	-4.130	1.050	Stab	52
Force	Z	gl conc.	-4.130	0.850000	Stab	53
Force	Z	gl conc.	-5.870	1.250	Stab	83
Force	Z	gl conc.	-5.870	1.050	Stab	84
Force	Z	gl conc.	-5.870	0.850000	Stab	85

Load case 17: VEHICULO HIPOTESIS 17

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.850000	Stab	22
Force	Z	gl conc.	-10.000	1.050	Stab	23
Force	Z	gl conc.	-10.000	1.250	Stab	24
Force	Z	gl conc.	-4.130	0.850000	Stab	54
Force	Z	gl conc.	-4.130	1.050	Stab	55
Force	Z	gl conc.	-4.130	1.250	Stab	56
Force	Z	gl conc.	-5.870	0.850000	Stab	86
Force	Z	gl conc.	-5.870	1.050	Stab	87
Force	Z	gl conc.	-5.870	1.250	Stab	88

Load case 18: VEHICULO HIPOTESIS 18

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	1.100	Stab	25
Force	Z	gl conc.	-10.000	1.300	Stab	26
Force	Z	gl conc.	-10.000	0.200000	Stab	28
Force	Z	gl conc.	-4.130	1.100	Stab	57
Force	Z	gl conc.	-4.130	1.300	Stab	58
Force	Z	gl conc.	-4.130	0.200000	Stab	60
Force	Z	gl conc.	-5.870	1.100	Stab	89
Force	Z	gl conc.	-5.870	1.300	Stab	90
Force	Z	gl conc.	-5.870	0.200000	Stab	92

Load case 19: VEHICULO HIPOTESIS 19

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.050000	Stab	29
Force	Z	gl conc.	-10.000	0.250000	Stab	30
Force	Z	gl conc.	-10.000	0.450000	Stab	31
Force	Z	gl conc.	-4.130	0.050000	Stab	61
Force	Z	gl conc.	-4.130	0.250000	Stab	62
Force	Z	gl conc.	-4.130	0.450000	Stab	63
Force	Z	gl conc.	-5.870	0.050000	Stab	93
Force	Z	gl conc.	-5.870	0.250000	Stab	94
Force	Z	gl conc.	-5.870	0.450000	Stab	95

Load case 20: VEHICULO HIPOTESIS 20

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.850000	Stab	34
Force	Z	gl conc.	-6.670	1.050	Stab	35
Force	Z	gl conc.	-6.670	1.250	Stab	36
Force	Z	gl conc.	-6.670	0.850000	Stab	66
Force	Z	gl conc.	-6.670	1.050	Stab	67
Force	Z	gl conc.	-6.670	1.250	Stab	68
Force	Z	gl conc.	-6.670	0.850000	Stab	98
Force	Z	gl conc.	-6.670	1.050	Stab	99
Force	Z	gl conc.	-6.670	1.250	Stab	100

Load case 21: VEHICULO HIPOTESIS 21

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	1.100	Stab	37
Force	Z	gl conc.	-6.670	1.300	Stab	38
Force	Z	gl conc.	-6.670	0.200000	Stab	40
Force	Z	gl conc.	-6.670	1.100	Stab	69
Force	Z	gl conc.	-6.670	1.300	Stab	70
Force	Z	gl conc.	-6.670	0.200000	Stab	72
Force	Z	gl conc.	-6.670	1.100	Stab	101
Force	Z	gl conc.	-6.670	1.300	Stab	102
Force	Z	gl conc.	-6.670	0.200000	Stab	104

Load case 22: VEHICULO HIPOTESIS 22

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.050000	Stab	41
Force	Z	gl conc.	-6.670	0.250000	Stab	42
Force	Z	gl conc.	-6.670	0.450000	Stab	43
Force	Z	gl conc.	-6.670	0.050000	Stab	73
Force	Z	gl conc.	-6.670	0.250000	Stab	74
Force	Z	gl conc.	-6.670	0.450000	Stab	75
Force	Z	gl conc.	-6.670	0.050000	Stab	105
Force	Z	gl conc.	-6.670	0.250000	Stab	106
Force	Z	gl conc.	-6.670	0.450000	Stab	107

Load case 23: VEHICULO HIPOTESIS 23

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.850000	Stab	44
Force	Z	gl conc.	-6.670	0.650000	Stab	45
Force	Z	gl conc.	-6.670	0.450000	Stab	46
Force	Z	gl conc.	-6.670	0.850000	Stab	76
Force	Z	gl conc.	-6.670	0.650000	Stab	77
Force	Z	gl conc.	-6.670	0.450000	Stab	78
Force	Z	gl conc.	-6.670	0.850000	Stab	108
Force	Z	gl conc.	-6.670	0.650000	Stab	109
Force	Z	gl conc.	-6.670	0.450000	Stab	110

Load case 24: VEHICULO HIPOTESIS 24

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.200000	Stab	48
Force	Z	gl conc.	-6.670	0	Stab	49
Force	Z	gl conc.	-6.670	1.500	Stab	49
Force	Z	gl conc.	-6.670	0.200000	Stab	80
Force	Z	gl conc.	-6.670	0	Stab	81
Force	Z	gl conc.	-6.670	1.500	Stab	81
Force	Z	gl conc.	-6.670	0.200000	Stab	112
Force	Z	gl conc.	-6.670	0	Stab	113
Force	Z	gl conc.	-6.670	1.500	Stab	113

Load case 25: VEHICULO POSICION 25

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	1.250	Stab	51
Force	Z	gl conc.	-6.670	1.050	Stab	52
Force	Z	gl conc.	-6.670	0.850000	Stab	53
Force	Z	gl conc.	-6.670	1.250	Stab	83
Force	Z	gl conc.	-6.670	1.050	Stab	84
Force	Z	gl conc.	-6.670	0.850000	Stab	85
Force	Z	gl conc.	-6.670	1.250	Stab	115
Force	Z	gl conc.	-6.670	1.050	Stab	116
Force	Z	gl conc.	-6.670	0.850000	Stab	117

Load case 26: VEHICULO POSICION 26

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.850000	Stab	54
Force	Z	gl conc.	-6.670	1.050	Stab	55
Force	Z	gl conc.	-6.670	1.250	Stab	56
Force	Z	gl conc.	-6.670	0.850000	Stab	86
Force	Z	gl conc.	-6.670	1.050	Stab	87
Force	Z	gl conc.	-6.670	1.250	Stab	88
Force	Z	gl conc.	-6.670	0.850000	Stab	118
Force	Z	gl conc.	-6.670	1.050	Stab	119
Force	Z	gl conc.	-6.670	1.250	Stab	120

Load case 27: VEHICULO POSICION 27

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	1.100	Stab	57
Force	Z	gl conc.	-6.670	1.300	Stab	58
Force	Z	gl conc.	-6.670	0.200000	Stab	60
Force	Z	gl conc.	-6.670	1.100	Stab	89
Force	Z	gl conc.	-6.670	1.300	Stab	90
Force	Z	gl conc.	-6.670	0.200000	Stab	92
Force	Z	gl conc.	-6.670	1.100	Stab	121
Force	Z	gl conc.	-6.670	1.300	Stab	122
Force	Z	gl conc.	-6.670	0.200000	Stab	124

Load case 28: VEHICULO POSICION 28

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.050000	Stab	61
Force	Z	gl conc.	-6.670	0.250000	Stab	62
Force	Z	gl conc.	-6.670	0.450000	Stab	63
Force	Z	gl conc.	-6.670	0.050000	Stab	93
Force	Z	gl conc.	-6.670	0.250000	Stab	94
Force	Z	gl conc.	-6.670	0.450000	Stab	95
Force	Z	gl conc.	-6.670	0.050000	Stab	125
Force	Z	gl conc.	-6.670	0.250000	Stab	126
Force	Z	gl conc.	-6.670	0.450000	Stab	127

Load case 29: VEHICULO POSICION 29

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.850000	Stab	66
Force	Z	gl conc.	-5.870	1.050	Stab	67
Force	Z	gl conc.	-5.870	1.250	Stab	68
Force	Z	gl conc.	-4.130	0.850000	Stab	98
Force	Z	gl conc.	-4.130	1.050	Stab	99
Force	Z	gl conc.	-4.130	1.250	Stab	100
Force	Z	gl conc.	-10.000	0.850000	Stab	130
Force	Z	gl conc.	-10.000	1.050	Stab	131
Force	Z	gl conc.	-10.000	1.250	Stab	132

Load case 30: VEHICULO POSICION 30

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	1.100	Stab	69
Force	Z	gl conc.	-5.870	1.300	Stab	70
Force	Z	gl conc.	-5.870	0.200000	Stab	72
Force	Z	gl conc.	-4.130	1.100	Stab	101
Force	Z	gl conc.	-4.130	1.300	Stab	102
Force	Z	gl conc.	-4.130	0.200000	Stab	104
Force	Z	gl conc.	-10.000	1.100	Stab	133
Force	Z	gl conc.	-10.000	1.300	Stab	134
Force	Z	gl conc.	-10.000	0.200000	Stab	136

Load case 31: VEHICULO POSICION 31

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.050000	Stab	73
Force	Z	gl conc.	-5.870	0.250000	Stab	74
Force	Z	gl conc.	-5.870	0.450000	Stab	75
Force	Z	gl conc.	-4.130	0.050000	Stab	105
Force	Z	gl conc.	-4.130	0.250000	Stab	106
Force	Z	gl conc.	-4.130	0.450000	Stab	107
Force	Z	gl conc.	-10.000	0.050000	Stab	137
Force	Z	gl conc.	-10.000	0.250000	Stab	138
Force	Z	gl conc.	-10.000	0.450000	Stab	139

Load case 32: VEHICULO POSICION 32

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.850000	Stab	76
Force	Z	gl conc.	-5.870	0.650000	Stab	77
Force	Z	gl conc.	-5.870	0.450000	Stab	78
Force	Z	gl conc.	-4.130	0.850000	Stab	108
Force	Z	gl conc.	-4.130	0.650000	Stab	109
Force	Z	gl conc.	-4.130	0.450000	Stab	110
Force	Z	gl conc.	-10.000	0.850000	Stab	140
Force	Z	gl conc.	-10.000	0.650000	Stab	141
Force	Z	gl conc.	-10.000	0.450000	Stab	142

Load case 33: VEHICULO POSICION 33

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.200000	Stab	80
Force	Z	gl conc.	-5.870	0	Stab	81
Force	Z	gl conc.	-5.870	1.500	Stab	81
Force	Z	gl conc.	-4.130	0.200000	Stab	112
Force	Z	gl conc.	-4.130	0	Stab	113
Force	Z	gl conc.	-4.130	1.500	Stab	113
Force	Z	gl conc.	-10.000	0.200000	Stab	144
Force	Z	gl conc.	-10.000	0	Stab	145
Force	Z	gl conc.	-10.000	1.500	Stab	145

Load case 34: VEHICULO POSICION 34

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	1.250	Stab	83
Force	Z	gl conc.	-5.870	1.050	Stab	84
Force	Z	gl conc.	-5.870	0.850000	Stab	85
Force	Z	gl conc.	-4.130	1.250	Stab	115
Force	Z	gl conc.	-4.130	1.050	Stab	116
Force	Z	gl conc.	-4.130	0.850000	Stab	117
Force	Z	gl conc.	-10.000	1.250	Stab	147
Force	Z	gl conc.	-10.000	1.050	Stab	148
Force	Z	gl conc.	-10.000	0.850000	Stab	149

Load case 35: VEHICULO POSICION 35

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.850000	Stab	86
Force	Z	gl conc.	-5.870	1.050	Stab	87
Force	Z	gl conc.	-5.870	1.250	Stab	88
Force	Z	gl conc.	-4.130	0.850000	Stab	118
Force	Z	gl conc.	-4.130	1.050	Stab	119
Force	Z	gl conc.	-4.130	1.250	Stab	120
Force	Z	gl conc.	-10.000	0.850000	Stab	150
Force	Z	gl conc.	-10.000	1.050	Stab	151
Force	Z	gl conc.	-10.000	1.250	Stab	152

****
Load case 36: VEHICULO POSICION 36
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	1.100	Stab	89
Force	Z	gl conc.	-5.870	1.300	Stab	90
Force	Z	gl conc.	-5.870	0.200000	Stab	92
Force	Z	gl conc.	-4.130	1.100	Stab	121
Force	Z	gl conc.	-4.130	1.300	Stab	122
Force	Z	gl conc.	-4.130	0.200000	Stab	124
Force	Z	gl conc.	-10.000	1.100	Stab	153
Force	Z	gl conc.	-10.000	1.300	Stab	154
Force	Z	gl conc.	-10.000	0.200000	Stab	156

****
Load case 37: VEHICULO HIPOTESIS 37
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.050000	Stab	93
Force	Z	gl conc.	-5.870	0.250000	Stab	94
Force	Z	gl conc.	-5.870	0.450000	Stab	95
Force	Z	gl conc.	-4.130	0.050000	Stab	125
Force	Z	gl conc.	-4.130	0.250000	Stab	126
Force	Z	gl conc.	-4.130	0.450000	Stab	127
Force	Z	gl conc.	-10.000	0.050000	Stab	157
Force	Z	gl conc.	-10.000	0.250000	Stab	158
Force	Z	gl conc.	-10.000	0.450000	Stab	159

****
Load case 46: SOB UNIF VANO 1
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	pj const.	-0.800000		Stab .. 139	1 .. 11 129
Force	Z	pj const.	-0.440000		Stab .. 107	33 .. 43 97
Force	Z	pj const.	-0.600000		Stab	65 .. 75

****
Load case 47: SOB UNIF VANO 2
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	pj const.	-0.440000		Stab .. 117	44 .. 53 108
Force	Z	pj const.	-0.600000		Stab	76 .. 85
Force	Z	pj const.	-0.800000		Stab .. 149	12 .. 21 140

****
Load case 48: SOB UNIF VANO 3
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	pj const.	-0.440000		Stab .. 128	54 .. 64 118
Force	Z	pj const.	-0.600000		Stab	86 .. 96
Force	Z	pj const.	-0.800000		Stab .. 160	22 .. 32 150

****
Load case 60: FRENADO
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	lo const.	0.054500		Stab	1 .. 160

****
Load case 62: VIENTO TRANSV SIN SOB.
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Y	lo const.	0.260000		Stab	129 .. 160
Force	X	pj const.	-0.200000		Stab	290 .. 291

****
Load case 63: VIENTO TRANSV CON SOB
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Y	lo const.	0.760000		Stab	129 .. 160
Force	X	pj const.	-0.200000		Stab	290 .. 291

****
Load case 64: TEMPERATURA (-)
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Strain	X	lc const.	-0.000363		Stab	1 .. 160

****
Load case 65: TEMPERATURA (+)
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Strain	X	lc const.	0.000363		Stab	1 .. 160

****
Load case 66: GRADIENTE
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Curvat.	Y	lc const.	0.000170		Stab	1 .. 160

2.3.2. Cálculo de los coeficientes de reparto

Coeficientes de excentricidad a Flexión

Hipotesis	Barras	My (tm)	Iy (m^4)	Coef Flexion
H12	6	20.25	0.0275	1.51
	38	36.31	0.0632	
	70	43.67	0.0943	
	102	23.4	0.0632	
	134	10.87	0.0275	
H15	16	19.053	0.0275	1.38
	48	37.9	0.0632	
	80	46.53	0.0943	
	112	25.43	0.0632	
	144	9.63	0.0275	
H18	26	16.87	0.0275	1.29
	58	36.31	0.0632	
	90	43.722	0.0943	
	122	23.43	0.0632	
	154	10.873	0.0275	

Coeficiente Flexion =	1.39

Coeficiente Cortante =	2.81

Coeficientes de excentricidad cortante

Hipotesis	Barras	Vz (t)	Iy (m^4)	Coef Cortante
H11	2	22.89	0.0275	4.96
	34	10.48	0.0632	
	66	8.12	0.0943	
	98	4.06	0.0632	
	130	0.74	0.0275	
H13	11	8.08	0.0275	1.50
	43	13.22	0.0632	
	75	26.44	0.0943	
	107	4.72	0.0632	
	139	1.75	0.0275	
H14	12	11.55	0.0275	2.00
	44	14.05	0.0632	
	76	25.35	0.0943	
	108	4.55	0.0632	
	140	2.41	0.0275	
H16	21	11.55	0.0275	1.99
	53	14.05	0.0632	
	85	25.35	0.0943	
	117	4.94	0.0632	
	149	2.40	0.0275	
H17	22	8.08	0.0275	1.45
	54	13.22	0.0632	
	86	26.45	0.0943	
	118	6.29	0.0632	
	150	1.75	0.0275	
H19	31	22.90	0.0275	4.96
	63	10.48	0.0632	
	95	8.12	0.0943	
	127	4.06	0.0632	
	159	0.74	0.0275	

Loadcase Factor Stage Init.def Title
11 1.0000 VEHICULO HIPOTESIS 11

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.126491	0.057984	40.227			
10	0.126487	0.065156	6.303			
156	0.059326	0.056961	0.883022			
160	0.059331	0.065923	-0.448044			
166	-0.366341	-0.621683	15.628	2.239	-0.737014	0.065050
167	-0.005295	0.375660	-2.597	-2.148	0.634102	0.073680
Sums :	-3.53E-11	1.67E-11	60.000			
min:	-0.366341	-0.621683	-2.597	-2.148	-0.737014	0.065050
max:	0.126491	0.375660	40.227	2.239	0.634102	0.073680

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	7.18E-14	-1.05E-12	8.95E-14	7.74E-17	-1.07E-12	3.34E-13
1	0.500	7.18E-14	-1.05E-12	8.95E-14	7.74E-17	-1.03E-12	-1.90E-13
2	0	-0.014961	-3.261	22.896	-1.351	-9.755	1.406
2	0.850	-0.014961	-3.261	22.896	-1.351	9.704	-1.366
2	0.850	-0.014961	-1.869	12.993	-1.351	9.708	-1.366
2	1.300	-0.014961	-1.869	12.993	-1.351	15.554	-2.207
3	0	0.038421	-1.560	10.915	-0.881404	4.820	-0.657412
3	1.050	0.038421	-1.560	10.915	-0.881404	16.279	-2.295
3	1.050	0.038421	-0.168092	1.012	-0.881404	16.281	-2.295
3	1.300	0.038421	-0.168092	1.012	-0.881404	16.534	-2.337
4	0	0.083569	-0.533194	3.597	-0.399557	10.726	-1.488
4	1.250	0.083569	-0.533194	3.597	-0.399557	15.222	-2.155
4	1.250	0.083569	0.858537	-6.305	-0.399557	15.222	-2.155
4	1.300	0.083569	0.858537	-6.305	-0.399557	14.907	-2.112
5	0	0.125143	0.441007	-3.350	-0.049571	12.960	-1.809
5	1.300	0.125143	0.441007	-3.350	-0.049571	8.605	-1.235
6	0	0.165467	0.315521	-2.454	0.052411	8.781	-1.231
6	1.300	0.165467	0.315521	-2.454	0.052411	5.591	-0.820693
7	0	0.206219	0.288850	-2.263	0.080788	6.283	-0.888226
7	1.300	0.206219	0.288850	-2.263	0.080788	3.341	-0.512721

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
8	0	0.248424	0.276262	-2.185	0.086999	4.205	-0.603277
8	1.300	0.248424	0.276262	-2.185	0.086999	1.364	-0.244137
9	0	0.294783	0.255121	-2.074	0.076454	2.213	-0.329985
9	1.300	0.294783	0.255121	-2.074	0.076454	-0.432633	0.001670
10	0	0.349055	0.204178	-1.762	0.058909	0.207413	-0.057599
10	1.300	0.349055	0.204178	-1.762	0.058909	-2.083	0.207832
11	0	0.407944	0.141896	-1.257	0.067321	-1.515	0.166952
11	1.300	0.407944	0.141896	-1.257	0.067321	-3.150	0.351417
12	0	0.440530	0.116675	-0.868013	0.110335	-2.042	0.233020
12	1.700	0.440530	0.116675	-0.868013	0.110335	-3.518	0.431367
33	0	3.00E-14	-5.60E-12	-3.17E-12	-6.44E-16	-5.05E-15	2.54E-12
33	0.500	3.00E-14	-5.60E-12	-3.17E-12	-6.44E-16	-1.59E-12	-2.59E-13
34	0	-0.002518	-0.061418	10.482	-8.276	1.657	0.042887
34	0.850	-0.002518	-0.061418	10.482	-8.276	10.565	-0.009311
34	0.850	-0.002518	-0.061418	6.352	-8.276	10.567	-0.009327
34	1.300	-0.002518	-0.061418	6.352	-8.276	13.425	-0.036957
35	0	0.020486	-0.064843	7.246	-6.036	15.319	0.038953
35	1.050	0.020486	-0.064843	7.246	-6.036	22.926	-0.029124
35	1.050	0.020486	-0.064843	3.116	-6.036	22.928	-0.029141
35	1.300	0.020486	-0.064843	3.116	-6.036	23.706	-0.045344
36	0	0.054023	-0.059442	1.217	-2.968	23.903	0.031101
36	1.250	0.054023	-0.059442	1.217	-2.968	25.424	-0.043193
36	1.250	0.054023	-0.059442	-2.913	-2.968	25.423	-0.043209
36	1.300	0.054023	-0.059442	-2.913	-2.968	25.278	-0.046173
37	0	0.087182	-0.056054	-4.627	-0.626269	24.957	0.025834
37	1.300	0.087182	-0.056054	-4.627	-0.626269	18.942	-0.047036
38	0	0.119339	-0.055570	-4.120	0.313490	13.626	0.022660
38	1.300	0.119339	-0.055570	-4.120	0.313490	13.271	-0.049581
39	0	0.150994	-0.056243	-3.587	0.606696	13.269	0.020153
39	1.300	0.150994	-0.056243	-3.587	0.606696	8.606	-0.052963
40	0	0.182360	-0.058250	-3.399	0.675479	8.710	0.018308
40	1.300	0.182360	-0.058250	-3.399	0.675479	4.291	-0.057417
41	0	0.212062	-0.062978	-3.407	0.617467	4.473	0.017648
41	1.300	0.212062	-0.062978	-3.407	0.617467	0.043393	-0.064224
42	0	0.239784	-0.073328	-3.510	0.472629	0.300299	0.018724
42	1.300	0.239784	-0.073328	-3.510	0.472629	-4.262	-0.076602
43	0	0.278019	-0.084771	-2.711	0.481551	-4.089	0.015444

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
43	1.300	0.278019	-0.084771	-2.711	0.481551	-7.613	-0.094758
65	0	8.44E-15	-6.15E-12	-1.01E-12	2.26E-14	3.33E-13	-8.52E-13
65	0.500	8.44E-15	-6.15E-12	-1.01E-12	2.26E-14	-1.70E-13	-3.93E-12
66	0	-0.006242	-0.074536	8.121	-8.398	3.856	0.051352
66	0.850	-0.006242	-0.074536	8.121	-8.398	10.758	-0.011993
66	0.850	-0.006242	-0.074536	2.251	-8.398	10.759	-0.012013
66	1.300	-0.006242	-0.074536	2.251	-8.398	11.771	-0.045544
67	0	-0.020072	-0.094451	7.159	-7.273	15.752	0.056160
67	1.050	-0.020072	-0.094451	7.159	-7.273	23.268	-0.043001
67	1.050	-0.020072	-0.094451	1.285	-7.273	23.269	-0.043026
67	1.300	-0.020072	-0.094451	1.285	-7.273	23.591	-0.066626
68	0	-0.029126	-0.091885	2.540	-4.380	25.420	0.045753
68	1.250	-0.029126	-0.091885	2.540	-4.380	28.595	-0.069091
68	1.250	-0.029126	-0.091885	-3.330	-4.380	28.595	-0.069115
68	1.300	-0.029126	-0.091885	-3.330	-4.380	28.429	-0.073697
69	0	-0.033361	-0.088746	-3.341	-1.548	28.709	0.037421
69	1.300	-0.033361	-0.088746	-3.341	-1.548	24.366	-0.077949
70	0	-0.035127	-0.088221	-4.161	0.186281	24.094	0.031586
70	1.300	-0.035127	-0.088221	-4.161	0.186281	18.685	-0.083101
71	0	-0.036861	-0.088468	-4.537	0.974517	18.463	0.026181
71	1.300	-0.036861	-0.088468	-4.537	0.974517	12.564	-0.088828
72	0	-0.041141	-0.087893	-4.600	1.297	12.509	0.020137
72	1.300	-0.041141	-0.087893	-4.600	1.297	6.529	-0.094124
73	0	-0.052404	-0.084608	-4.643	1.417	6.639	0.013219
73	1.300	-0.052404	-0.084608	-4.643	1.417	0.602162	-0.096771
74	0	-0.079791	-0.080599	-5.102	1.451	0.560007	0.008685
74	1.300	-0.079791	-0.080599	-5.102	1.451	-5.673	-0.096094
75	0	-0.143874	-0.113126	-7.982	1.583	-4.982	0.012294
75	1.300	-0.143874	-0.113126	-7.982	1.583	-15.359	-0.134770
97	0	-9.97E-14	-2.53E-12	-6.99E-13	7.69E-15	2.82E-14	-4.00E-13
97	0.500	-9.97E-14	-2.53E-12	-6.99E-13	7.69E-15	-3.21E-13	-1.67E-12
98	0	-0.034843	-0.038694	4.056	-2.354	2.383	0.021519
98	1.300	-0.034843	-0.038694	4.056	-2.354	7.659	-0.029783
99	0	-0.068254	-0.050111	2.475	-2.380	9.790	0.026825
99	1.300	-0.068254	-0.050111	2.475	-2.380	13.007	-0.038319
100	0	-0.104570	-0.052587	0.666001	-1.764	14.151	0.025974
100	1.300	-0.104570	-0.052587	0.666001	-1.764	15.017	-0.042389

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
101	0	-0.137994	-0.053975	-1.060	-0.785441	15.373	0.024330
101	1.300	-0.137994	-0.053975	-1.060	-0.785441	13.995	-0.045838
102	0	-0.169481	-0.054662	-1.994	-0.022768	13.917	0.021938
102	1.300	-0.169481	-0.054662	-1.994	-0.022768	11.324	-0.049123
103	0	-0.200389	-0.054357	-2.514	0.445641	11.162	0.018790
103	1.300	-0.200389	-0.054357	-2.514	0.445641	7.895	-0.051874
104	0	-0.230761	-0.052335	-2.796	0.712264	7.756	0.014604
104	1.300	-0.230761	-0.052335	-2.796	0.712264	4.122	-0.053431
105	0	-0.259164	-0.047407	-2.971	0.885716	4.044	0.008747
105	1.300	-0.259164	-0.047407	-2.971	0.885716	0.180852	-0.052882
106	0	-0.282596	-0.037119	-3.016	0.990281	0.138719	-0.000368
106	1.300	-0.282596	-0.037119	-3.016	0.990281	-3.782	-0.048622
107	0	-0.297004	-0.008031	-1.700	0.755571	-4.017	-0.018612
107	1.300	-0.297004	-0.008031	-1.700	0.755571	-6.227	-0.029052
129	0	4.23E-13	-4.80E-11	6.62E-12	-1.07E-15	-9.45E-13	9.75E-12
129	0.500	4.23E-13	-4.80E-11	6.62E-12	-1.07E-15	2.37E-12	-1.43E-11
130	0	-0.064576	0.067689	0.739838	-0.218566	1.939	0.282258
130	1.300	-0.064576	0.067689	0.739838	-0.218566	2.901	0.370254
131	0	-0.093721	-0.209195	-1.360	-0.268788	5.707	0.791907
131	1.300	-0.093721	-0.209195	-1.360	-0.268788	3.940	0.519954
132	0	-0.127035	-0.234467	-1.512	-0.216189	6.611	0.920648
132	1.300	-0.127035	-0.234467	-1.512	-0.216189	4.845	0.615841
133	0	-0.164110	-0.172385	-1.049	-0.105575	6.281	0.872487
133	1.300	-0.164110	-0.172385	-1.049	-0.105575	4.917	0.648387
134	0	-0.203337	-0.125521	-0.710379	-0.007606	5.359	0.744504
134	1.300	-0.203337	-0.125521	-0.710379	-0.007606	4.476	0.581328
135	0	-0.241102	-0.101582	-0.542715	0.055568	4.166	0.566515
135	1.300	-0.241102	-0.101582	-0.542715	0.055568	3.460	0.434459
136	0	-0.282022	-0.089460	-0.464671	0.093340	2.625	0.353662
136	1.300	-0.282022	-0.089460	-0.464671	0.093340	2.081	0.237365
137	0	-0.318417	-0.071726	-0.352297	0.118634	1.021	0.114854
137	1.300	-0.318417	-0.071726	-0.352297	0.118634	0.562924	0.021610
138	0	-0.349592	-0.028507	-0.066596	0.127315	-0.632079	-0.132211
138	1.300	-0.349592	-0.028507	-0.066596	0.127315	-0.778654	-0.169270

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
139	0	-0.368224	0.013698	0.187710	0.093445	-1.965	-0.322821
139	1.300	-0.368224	0.013698	0.187710	0.093445	-1.721	-0.305014
min:		-0.368224	-3.261	-7.982	-8.398	-15.359	-2.337
max:		0.440530	0.858537	22.896	1.583	28.709	1.406

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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.356267	0.119217	26.359			
10	0.356258	0.139359	-1.790			
156	0.167580	0.116429	2.334			
160	0.167591	0.141617	-1.442			
166	-1.031	-1.294	39.877	4.653	-2.071	0.182707
167	-0.016694	0.777781	-5.337	-4.462	1.781	0.207035
Sums :	-1.00E-10	3.49E-11	60.000			
min:	-1.031	-1.294	-5.337	-4.462	-2.071	0.182707
max:	0.356267	0.777781	39.877	4.653	1.781	0.207035

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	1.37E-13	2.94E-11	3.45E-12	7.81E-18	-2.18E-12	-3.73E-13
1	0.500	1.37E-13	2.94E-11	3.45E-12	7.81E-18	-4.58E-13	1.10E-11
2	0	-0.016069	-2.132	14.244	-1.216	-8.539	1.267
2	1.300	-0.016069	-2.132	14.244	-1.216	9.976	-1.485
3	0	0.122943	-1.604	10.871	-1.108	-1.467	0.232305
3	1.300	0.122943	-1.604	10.871	-1.108	12.665	-1.853
4	0	0.246818	-1.537	10.420	-0.978476	2.571	-0.343901
4	1.300	0.246818	-1.537	10.420	-0.978476	16.117	-2.342
5	0	0.365282	-1.696	11.557	-0.624340	7.100	-0.989046

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
5	1.100	0.365282	-1.696	11.557	-0.624340	19.811	-2.655
5	1.100	0.365282	-0.304692	1.654	-0.624340	19.813	-2.655
5	1.300	0.365282	-0.304692	1.654	-0.624340	20.144	-2.916
6	0	0.480783	-0.781442	5.032	-0.508455	13.706	-1.928
6	1.300	0.480783	-0.781442	5.032	-0.508455	20.247	-2.944
6	1.300	0.480783	-0.781442	5.032	-0.508455	20.248	-2.944
7	0	0.595501	0.065382	-1.020	-0.180607	16.670	-2.386
7	1.300	0.595501	0.065382	-1.020	-0.180607	15.544	-2.301
8	0	0.712738	-0.426990	2.420	0.106270	15.112	-2.155
8	0.200	0.712738	-0.426990	2.420	0.106270	15.598	-2.240
8	0.200	0.712738	0.964741	-7.473	0.106270	15.597	-2.240
8	1.300	0.712738	0.964741	-7.473	0.106270	7.378	-1.175
9	0	0.838741	0.739216	-5.963	0.179405	9.074	-1.327
9	1.300	0.838741	0.739216	-5.963	0.179405	1.322	-0.365602
10	0	0.982528	0.581839	-4.955	0.153659	3.033	-0.505554
10	1.300	0.982928	0.581839	-4.955	0.153659	-3.409	0.250837
11	0	1.134	0.409490	-3.559	0.178239	-1.899	0.136817
11	1.300	1.134	0.409490	-3.559	0.178239	-6.526	0.671154
12	0	1.212	0.347214	-2.510	0.293701	-3.617	0.347955
12	1.700	1.212	0.347214	-2.510	0.293701	-7.884	0.938215
33	0	-1.37E-13	-1.99E-11	-5.01E-12	-1.19E-15	-2.03E-13	7.82E-12
33	0.500	-1.37E-13	-1.99E-11	-5.01E-12	-1.19E-15	-2.71E-12	-2.15E-12
34	0	0.006287	-0.159494	4.670	-8.199	-0.053201	0.109912
34	1.300	0.006287	-0.159494	4.670	-8.199	5.978	-0.097430
35	0	0.074586	-0.175620	6.980	-8.036	6.502	0.105015
35	1.300	0.074586	-0.175620	6.980	-8.036	15.576	-0.123291
36	0	0.169190	-0.166604	7.656	-7.251	15.165	0.087503
36	1.300	0.169190	-0.166604	7.656	-7.251	25.119	-0.129083
37	0	0.262361	-0.161108	7.895	-6.009	24.773	0.074975
37	1.100	0.262361	-0.161108	7.895	-6.009	33.456	-0.102224
37	1.100	0.262361	-0.161108	3.765	-6.009	33.458	-0.102266
37	1.300	0.262361	-0.161108	3.765	-6.009	34.210	-0.134466
38	0	0.353211	-0.158138	2.044	-3.821	33.659	0.064575
38	1.300	0.353211	-0.158138	2.044	-3.821	36.317	-0.140983
38	1.300	0.353211	-0.158138	2.044	-3.821	36.317	-0.141004
39	0	0.443040	-0.158002	-3.952	-1.432	35.940	0.056155
39	1.300	0.443040	-0.158002	-3.952	-1.432	30.803	-0.148243

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
40	0	0.531310	-0.161114	-5.755	0.574990	30.656	0.049574
40	0.200	0.531310	-0.161114	-5.755	0.574990	29.507	0.017372
40	0.200	0.531310	-0.161114	-9.885	0.574990	29.505	0.017330
40	1.300	0.531310	-0.161114	-9.885	0.574990	18.634	-0.159875
41	0	0.614730	-0.171123	-9.876	1.323	18.515	0.046085
41	1.300	0.614730	-0.171123	-9.876	1.323	5.675	-0.176375
42	0	0.690970	-0.193078	-9.647	1.220	6.178	0.045663
42	1.300	0.690970	-0.193078	-9.647	1.220	-6.364	-0.205335
43	0	0.789748	-0.210549	-7.687	1.268	-5.899	0.031003
43	1.300	0.789748	-0.210549	-7.687	1.268	-15.892	-0.242710
64	0	-1.54E-12	1.40E-12	-4.09E-13	-3.67E-16	-2.89E-15	-6.26E-12
65	0.500	-1.54E-12	1.40E-12	-4.09E-13	-3.67E-16	-2.07E-13	-5.56E-12
66	0	-0.011795	-0.206237	4.765	-11.382	1.984	0.142276
66	1.300	-0.011795	-0.206237	4.765	-11.382	8.179	-0.125832
67	0	-0.039707	-0.263938	7.544	-12.477	10.322	0.157365
67	1.300	-0.039707	-0.263938	7.544	-12.477	20.128	-0.185754
68	0	-0.059366	-0.260113	8.073	-12.005	21.473	0.130407
68	1.300	-0.059366	-0.260113	8.073	-12.005	31.968	-0.207740
69	0	-0.069728	-0.253397	7.490	-10.057	32.817	0.107974
69	1.100	-0.069728	-0.253397	7.490	-10.057	41.055	-0.170730
69	1.100	-0.069728	-0.253397	1.620	-10.057	41.056	-0.170796
69	1.300	-0.069728	-0.253397	1.620	-10.057	41.380	-0.221442
70	0	-0.074454	-0.250968	1.377	-6.719	41.879	0.090450
70	1.300	-0.074454	-0.250968	1.377	-6.719	43.669	-0.235736
70	1.300	-0.074454	-0.250968	1.377	-6.719	43.669	-0.235769
71	0	-0.078136	-0.249879	-4.914	-2.850	43.722	0.073915
71	1.300	-0.078136	-0.249879	-4.914	-2.850	37.334	-0.250928
72	0	-0.086647	-0.247061	-5.106	0.509968	37.066	0.056181
72	0.200	-0.086647	-0.247061	-5.106	0.509968	36.046	0.006801
72	0.200	-0.086647	-0.247061	-10.976	0.509968	36.044	0.006737
72	1.300	-0.086647	-0.247061	-10.976	0.509968	23.972	-0.264998
73	0	-0.109680	-0.237656	-11.745	2.571	23.848	0.036716
73	1.300	-0.109680	-0.237656	-11.745	2.571	8.579	-0.272237
74	0	-0.166577	-0.226656	-13.243	3.488	9.166	0.024209
74	1.300	-0.166577	-0.226656	-13.243	3.488	-8.050	-0.270444
75	0	-0.300038	-0.318466	-20.229	4.207	-6.449	0.034514
75	1.300	-0.300038	-0.318466	-20.229	4.207	-32.746	-0.379454

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
97	0	4.84E-13	-8.34E-12	-1.10E-13	1.88E-14	-1.65E-13	-1.66E-12
97	0.500	4.84E-13	-8.34E-12	-1.10E-13	1.88E-14	-2.21E-13	-5.83E-12
98	0	-0.083706	-0.115716	3.876	-5.144	1.957	0.067294
98	1.300	-0.083706	-0.115716	3.876	-5.144	6.995	-0.083137
99	0	-0.173205	-0.145038	3.398	-5.849	8.703	0.079036
99	1.300	-0.173205	-0.145038	3.398	-5.849	13.121	-0.109513
100	0	-0.274573	-0.150725	3.019	-5.871	14.665	0.075246
100	1.300	-0.274573	-0.150725	3.019	-5.871	18.589	-0.120696
101	0	-0.369385	-0.154357	1.936	-5.060	19.962	0.070223
101	1.300	-0.369385	-0.154357	1.936	-5.060	22.479	-0.130441
102	0	-0.459224	-0.155746	-0.314943	-3.471	21.403	0.063020
102	1.300	-0.459224	-0.155746	-0.314943	-3.471	22.994	-0.139450
103	0	-0.547159	-0.154492	-2.869	-1.574	23.430	0.053831
103	1.300	-0.547159	-0.154492	-2.869	-1.574	19.700	-0.147008
104	0	-0.633166	-0.149624	-5.254	0.206062	19.707	0.042462
104	1.300	-0.633166	-0.149624	-5.254	0.206062	12.877	-0.152048
105	0	-0.713462	-0.139034	-6.734	1.506	12.633	0.027722
105	1.300	-0.713462	-0.139034	-6.734	1.506	3.878	-0.153022
106	0	-0.780879	-0.117645	-7.381	2.267	3.674	0.005820
106	1.300	-0.780879	-0.117645	-7.381	2.267	-5.922	-0.147119
107	0	-0.830107	-0.050671	-4.460	1.942	-6.584	-0.040001
107	1.300	-0.830107	-0.050671	-4.460	1.942	-12.381	-0.105873
129	0	1.33E-12	-9.62E-11	1.36E-11	1.11E-15	-1.33E-12	9.67E-12
129	0.500	1.33E-12	-9.62E-11	1.36E-11	1.11E-15	5.47E-12	-3.84E-11
130	0	-0.153293	-0.538540	-3.100	-0.643662	4.736	0.702451
130	1.300	-0.153293	-0.538540	-3.100	-0.643662	0.706078	0.002349
131	0	-0.243192	-0.656167	-4.292	-0.744803	7.823	1.084
131	1.300	-0.243192	-0.656167	-4.292	-0.744803	2.244	0.230891
132	0	-0.340646	-0.718644	-4.657	-0.750734	9.887	1.376
132	1.300	-0.340646	-0.718644	-4.657	-0.750734	3.833	0.444222
133	0	-0.447105	-0.688298	-4.379	-0.647593	10.992	1.527
133	1.300	-0.447105	-0.688298	-4.379	-0.647593	5.299	0.632380
134	0	-0.558892	-0.578505	-3.583	-0.449138	10.871	1.496
134	1.300	-0.558892	-0.578505	-3.583	-0.449138	6.215	0.744054
135	0	-0.671822	-0.444691	-2.640	-0.207333	9.481	1.284

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
135	1.300	-0.671822	-0.444691	-2.640	-0.207333	6.048	0.706363
136	0	-0.782810	-0.317506	-1.755	0.021533	6.882	0.903791
136	1.300	-0.782810	-0.317506	-1.755	0.021533	4.600	0.491033
137	0	-0.888886	-0.214773	-1.048	0.197358	3.388	0.397658
137	1.300	-0.888886	-0.214773	-1.048	0.197358	2.026	0.118453
138	0	-0.985018	-0.085070	-0.161729	0.287465	-0.556182	-0.175491
138	1.300	-0.985018	-0.085070	-0.161729	0.287465	-0.766430	-0.286083
139	0	-1.052	0.030547	0.526329	0.237943	-3.658	-0.645839
139	1.300	-1.052	0.030547	0.526329	0.237943	-2.974	-0.606127
	min:	-1.052	-2.132	-20.229	-12.477	-32.746	-2.944
	max:	1.212	0.964741	14.244	4.207	43.722	1.527

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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.570715	0.074503	14.915			
10	0.570708	0.105836	-7.570			
156	0.275936	0.070252	3.378			
160	0.275944	0.109739	-2.878			
166	-1.635	-0.860789	55.444	3.060	-3.243	0.284786
167	-0.054322	0.500460	-3.289	-2.928	2.775	0.324107
Sums :	-1.65E-10	2.39E-11	60.000			
min:	-1.635	-0.860789	-7.570	-2.928	-3.243	0.284786
max:	0.570715	0.500460	55.444	3.060	2.775	0.324107

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	-8.05E-14	2.51E-11	2.02E-12	-3.16E-17	-4.81E-12	-1.87E-12
1	0.500	-8.05E-14	2.51E-11	2.02E-12	-3.16E-17	-3.79E-12	1.07E-11
2	0	0.050768	-1.403	8.571	-0.849102	-5.990	0.958860
2	1.300	0.050768	-1.403	8.571	-0.849102	5.151	-0.864901
3	0	0.250819	-1.098	7.003	-0.829354	-3.149	0.464081
3	1.300	0.250819	-1.098	7.003	-0.829354	5.955	-0.963913
4	0	0.437055	-1.065	6.758	-0.793100	-1.969	0.286982
4	1.300	0.437055	-1.065	6.758	-0.793100	6.817	-1.097
5	0	0.620303	-1.065	6.734	-0.777255	-0.916715	0.121705
5	1.300	0.620303	-1.065	6.734	-0.777255	7.837	-1.263
6	0	0.803102	-1.071	6.775	-0.764282	0.224092	-0.061053
6	1.300	0.803102	-1.071	6.775	-0.764282	9.031	-1.454
7	0	0.986173	-1.087	6.962	-0.746362	1.581	-0.274079
7	1.300	0.986173	-1.097	6.962	-0.746362	10.631	-1.701
8	0	1.172	-1.241	7.952	-0.688208	3.451	-0.562373
8	1.300	1.172	-1.241	7.952	-0.688208	13.829	-2.176
9	0	1.367	-1.748	11.446	-0.456609	8.157	-1.239
9	0.0499	1.367	-1.748	11.446	-0.456609	8.728	-1.326
9	0.0501	1.367	-0.356429	1.543	-0.456609	8.730	-1.326
9	1.300	1.367	-0.356429	1.543	-0.456609	10.658	-1.772
10	0	1.575	-1.042	6.289	-0.215304	7.273	-1.150
10	0.250	1.575	-1.042	6.289	-0.215304	8.845	-1.410
10	0.250	1.575	0.349613	-3.614	-0.215304	8.845	-1.410
10	1.300	1.575	0.349613	-3.614	-0.215304	5.051	-1.043
11	0	1.777	-0.381440	1.825	0.089659	4.101	-0.775083
11	0.450	1.777	-0.381440	1.825	0.089659	4.922	-0.946682
11	0.450	1.777	1.010	-8.078	0.089659	4.921	-0.946600
11	1.300	1.777	1.010	-8.078	0.089659	-1.944	-0.087984
12	0	1.863	0.677065	-4.715	0.399680	1.305	-0.459542
12	1.700	1.863	0.677065	-4.715	0.399680	-6.710	0.691469
33	0	-8.76E-13	-3.09E-11	-2.10E-12	1.88E-16	-2.81E-13	1.53E-11
33	0.500	-8.76E-13	-3.09E-11	-2.10E-12	1.88E-16	-1.33E-12	-1.34E-13
34	0	0.044586	-0.235035	1.385	-5.938	-0.579117	0.156383
34	1.300	0.044586	-0.235035	1.385	-5.938	1.221	-0.149162
35	0	0.163529	-0.266696	2.576	-6.147	1.046	0.155965
35	1.300	0.163529	-0.266696	2.576	-6.147	4.395	-0.190740
36	0	0.317521	-0.258547	2.593	-6.029	3.629	0.133939

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
36	1.300	0.317521	-0.258547	2.593	-6.029	7.059	-0.202172
37	0	0.467416	-0.253574	2.619	-5.936	6.185	0.117190
37	1.300	0.467416	-0.253574	2.619	-5.936	9.593	-0.212457
38	0	0.612289	-0.251950	2.814	-5.827	8.719	0.102883
38	1.300	0.612289	-0.251950	2.814	-5.827	12.378	-0.224652
39	0	0.755653	-0.252622	3.320	-5.599	11.618	0.089944
39	1.300	0.755653	-0.252622	3.320	-5.599	15.934	-0.238464
40	0	0.896483	-0.255395	3.722	-4.931	15.604	0.077897
40	1.300	0.896483	-0.255395	3.722	-4.931	20.443	-0.254116
41	0	1.029	-0.260636	1.746	-3.305	20.478	0.066064
41	0.0499	1.029	-0.260636	1.746	-3.305	20.565	0.053066
41	0.0501	1.029	-0.260636	-2.384	-3.305	20.565	0.052998
41	1.300	1.029	-0.260636	-2.384	-3.305	17.585	-0.272763
42	0	1.148	-0.274217	-4.755	-1.560	17.954	0.054476
42	0.250	1.148	-0.274217	-4.755	-1.560	16.806	-0.014042
42	0.250	1.148	-0.274217	-6.885	-1.560	16.804	-0.014113
42	1.300	1.148	-0.274217	-6.885	-1.560	7.476	-0.302005
43	0	1.283	-0.261753	-9.091	0.309151	7.877	0.016054
43	0.450	1.283	-0.261753	-9.091	0.309151	3.787	-0.101701
43	0.450	1.283	-0.261753	-13.221	0.309151	3.784	-0.101769
43	1.300	1.283	-0.261753	-13.221	0.309151	-7.452	-0.324224
65	0	-1.65E-13	-5.80E-12	-6.88E-16	3.78E-15	-4.30E-14	-1.16E-11
65	0.500	-1.65E-13	-5.80E-12	-6.88E-16	3.78E-15	-4.34E-14	-1.45E-11
66	0	-0.008166	-0.330042	1.409	-9.405	0.577546	0.227714
66	1.300	-0.008166	-0.330042	1.409	-9.405	2.409	-0.201340
67	0	-0.027603	-0.421501	2.268	-10.554	3.011	0.251526
67	1.300	-0.027603	-0.421501	2.268	-10.554	5.960	-0.296946
68	0	-0.041344	-0.415244	2.556	-10.888	6.275	0.208136
68	1.300	-0.041344	-0.415244	2.556	-10.888	9.601	-0.331681
69	0	-0.048428	-0.404478	2.601	-10.874	9.744	0.172383
69	1.300	-0.048428	-0.404478	2.601	-10.874	13.125	-0.353439
70	0	-0.051539	-0.401786	2.567	-10.570	13.269	0.145312
70	1.300	-0.051539	-0.401786	2.567	-10.570	16.606	-0.377010
71	0	-0.054067	-0.401716	2.285	-9.760	16.926	0.119785
71	1.300	-0.054067	-0.401716	2.285	-9.760	19.896	-0.402445
72	0	-0.060136	-0.398369	1.607	-7.945	20.509	0.091861
72	1.300	-0.060136	-0.398369	1.607	-7.945	22.598	-0.426018

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
73	0	-0.075849	-0.382716	1.358	-4.841	23.439	0.060015
73	0.0499	-0.075849	-0.382716	1.358	-4.841	23.506	0.040929
73	0.0501	-0.075849	-0.382716	-4.512	-4.841	23.506	0.040830
73	1.300	-0.075849	-0.382716	-4.512	-4.841	17.867	-0.437516
74	0	-0.113629	-0.364004	-6.199	-1.067	19.052	0.039011
74	0.250	-0.113629	-0.364004	-6.199	-1.067	17.504	-0.051943
74	0.250	-0.113629	-0.364004	-12.069	-1.067	17.501	-0.052037
74	1.300	-0.113629	-0.364004	-12.069	-1.067	4.830	-0.434195
75	0	-0.202043	-0.509851	-20.578	2.984	6.793	0.054486
75	0.450	-0.202043	-0.509851	-20.578	2.984	-2.465	-0.174889
75	0.450	-0.202043	-0.509851	-26.448	2.984	-2.471	-0.175013
75	1.300	-0.202043	-0.509851	-26.448	2.984	-24.948	-0.606320
97	0	-5.49E-13	-1.43E-11	-8.42E-14	2.92E-15	-7.38E-14	-1.35E-12
97	0.500	-5.49E-13	-1.43E-11	-8.42E-14	2.92E-15	-1.16E-13	-8.52E-12
98	0	-0.098550	-0.204806	1.189	-5.056	1.126	0.126835
98	1.300	-0.098550	-0.204806	1.189	-5.056	2.672	-0.139413
99	0	-0.232232	-0.245297	0.560083	-5.567	3.483	0.137777
99	1.300	-0.232232	-0.245297	0.560083	-5.567	4.212	-0.181110
100	0	-0.391149	-0.247514	0.634553	-5.759	5.184	0.125418
100	1.300	-0.391149	-0.247514	0.634553	-5.759	6.009	-0.196350
101	0	-0.541980	-0.249286	0.650567	-5.765	7.009	0.114120
101	1.300	-0.541980	-0.249286	0.650567	-5.765	7.855	-0.209951
102	0	-0.686097	-0.250469	0.416947	-5.550	8.858	0.101808
102	1.300	-0.686097	-0.250469	0.416947	-5.550	9.400	-0.223802
103	0	-0.828072	-0.250019	-0.159567	-4.993	10.432	0.088103
103	1.300	-0.828072	-0.250019	-0.159567	-4.993	10.224	-0.236921
104	0	-0.967622	-0.246724	-1.341	-3.887	11.292	0.072526
104	1.300	-0.967622	-0.246724	-1.341	-3.887	9.549	-0.248215
105	0	-1.098	-0.239105	-3.738	-2.065	10.498	0.053883
105	1.300	-1.098	-0.239105	-3.738	-2.065	5.638	-0.256954
106	0	-1.211	-0.224428	-6.282	0.012458	6.223	0.028350
106	1.300	-1.211	-0.224428	-6.282	0.012458	-1.943	-0.263406
107	0	-1.314	-0.156047	-4.721	1.037	-2.452	-0.030771
107	1.300	-1.314	-0.156047	-4.721	1.037	-8.589	-0.233632
129	0	3.24E-13	-1.64E-10	2.05E-11	2.39E-17	-1.66E-12	2.37E-11
129	0.500	3.24E-13	-1.64E-10	2.05E-11	2.39E-17	8.57E-12	-5.82E-11

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
130	0	-0.168976	-0.913872	-5.244	-0.682229	4.882	0.768486
130	1.300	-0.168976	-0.913872	-5.244	-0.682229	-1.936	-0.419548
131	0	-0.334850	-0.809962	-5.085	-0.732555	5.141	0.718032
131	1.300	-0.334850	-0.809962	-5.085	-0.732555	-1.469	-0.334919
132	0	-0.502422	-0.840058	-5.215	-0.750158	5.881	0.823364
132	1.300	-0.502422	-0.840058	-5.215	-0.750158	-0.899400	-0.268711
133	0	-0.677649	-0.858896	-5.274	-0.750603	6.565	0.906895
133	1.300	-0.677649	-0.858896	-5.274	-0.750603	-0.292107	-0.209665
134	0	-0.858094	-0.857467	-5.243	-0.721139	7.052	0.952411
134	1.300	-0.858094	-0.857467	-5.243	-0.721139	0.235686	-0.162296
135	0	-1.040	-0.834404	-5.081	-0.644189	7.100	0.933662
135	1.300	-1.040	-0.834404	-5.081	-0.644189	0.494848	-0.151063
136	0	-1.221	-0.770309	-4.629	-0.492431	6.298	0.795627
136	1.300	-1.221	-0.770309	-4.629	-0.492431	0.280471	-0.205775
137	0	-1.402	-0.620455	-3.547	-0.255388	4.146	0.467605
137	1.300	-1.402	-0.620455	-3.547	-0.255388	-0.464921	-0.338982
138	0	-1.579	-0.370223	-1.757	-0.005971	0.764744	-0.040931
138	1.300	-1.579	-0.370223	-1.757	-0.005971	-1.520	-0.522221
139	0	-1.725	-0.106651	-0.112078	0.106710	-2.402	-0.546416
139	1.300	-1.725	-0.106651	-0.112078	0.106710	-2.547	-0.685062
	min:	-1.725	-1.748	-26.448	-10.886	-24.948	-2.176
	max:	1.983	1.010	11.446	2.984	23.506	0.958860

Loadcase	Factor	Stage	Init.def	Title
14	1.0000			VEHICULO HIPOTESIS 14

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.647634	-0.073082	7.153			
10	0.647639	-0.047158	-10.476			
156	0.390235	-0.077848	3.801			
160	0.390230	-0.041929	-5.426			
166	-1.730	1.024	56.506	-4.021	-2.915	0.241741
167	-0.345981	-0.784014	8.439	3.932	2.340	0.289956
Sums :	-2.00E-10	-1.68E-11	60.000			
min:	-1.730	-0.784014	-10.476	-4.021	-2.915	0.241741
max:	0.647639	1.024	56.506	3.932	2.340	0.289956

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
12	0	1.981	-1.570	11.552	-0.405653	-5.099	0.365924
12	0.850	1.981	-1.570	11.552	-0.405653	4.718	-0.968178
12	0.850	1.981	-0.178115	1.649	-0.405653	4.720	-0.968475
12	1.700	1.981	-0.178115	1.649	-0.405653	6.122	-1.120
13	0	1.866	-1.163	8.877	-0.030892	3.364	-0.819953
13	0.650	1.866	-1.163	8.877	-0.030892	9.133	-1.576
13	0.650	1.866	0.228415	-1.026	-0.030892	9.134	-1.576
13	1.700	1.866	0.228415	-1.026	-0.030892	8.052	-1.336
14	0	1.751	-0.537146	4.276	0.263660	9.390	-1.622
14	0.450	1.751	-0.537146	4.276	0.263660	11.314	-1.863
14	0.450	1.751	0.854585	-5.626	0.263660	11.314	-1.863
14	1.700	1.751	0.854585	-5.626	0.263660	4.232	-0.795275
15	0	1.654	0.623125	-4.038	0.361146	8.899	-1.534
15	1.700	1.654	0.623125	-4.038	0.361146	2.035	-0.474533
16	0	1.562	0.596762	-3.855	0.375666	7.071	-1.266
16	1.700	1.562	0.596762	-3.855	0.375666	0.517135	-0.251964
17	0	1.472	0.592469	-3.822	0.383119	5.730	-1.068
17	1.700	1.472	0.592469	-3.822	0.383119	-0.767757	-0.060516
18	0	1.381	0.591353	-3.817	0.384672	4.511	-0.884986
18	1.700	1.381	0.591353	-3.817	0.384672	-1.978	0.120314

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
19	0	1.294	0.585144	-3.797	0.378401	3.284	-0.699281
19	1.700	1.294	0.585144	-3.797	0.378401	-3.171	0.295462
20	0	1.217	0.553102	-3.646	0.360113	1.926	-0.494719
20	1.700	1.217	0.553102	-3.646	0.360113	-4.261	0.445554
21	0	1.162	0.472947	-3.128	0.359144	0.586372	-0.296056
21	1.700	1.162	0.472947	-3.128	0.359144	-4.731	0.507953
44	0	1.427	0.083943	14.052	-2.795	-9.706	-0.233892
44	0.850	1.427	0.083943	14.052	-2.795	2.236	-0.162555
44	0.850	1.427	0.083943	9.922	-2.795	2.240	-0.162526
44	1.700	1.427	0.083943	9.922	-2.795	10.672	-0.091188
45	0	1.335	0.103071	8.200	-0.394724	9.354	-0.238700
45	0.650	1.335	0.103071	8.200	-0.394724	14.683	-0.171721
45	0.650	1.335	0.103071	4.070	-0.394724	14.685	-0.171686
45	1.700	1.335	0.103071	4.070	-0.394724	19.958	-0.063478
46	0	1.281	0.090739	0.982586	1.717	18.431	-0.216010
46	0.450	1.281	0.090739	0.982586	1.717	18.673	-0.175192
46	0.450	1.281	0.090739	-3.147	1.717	18.673	-0.175162
46	1.700	1.281	0.090739	-3.147	1.717	14.939	-0.061753
47	0	1.214	0.086715	-3.017	2.651	18.037	-0.204526
47	1.700	1.214	0.086715	-3.017	2.651	9.908	-0.057510
48	0	1.143	0.085532	-2.490	2.862	10.675	-0.197169
48	1.700	1.143	0.085532	-2.490	2.862	6.643	-0.051764
49	0	1.071	0.085307	-2.342	2.930	7.777	-0.190342
49	1.700	1.071	0.085307	-2.342	2.930	3.795	-0.045319
50	0	1.001	0.084562	-2.302	2.946	4.979	-0.183106
50	1.700	1.001	0.084562	-2.302	2.946	1.063	-0.039350
51	0	0.930042	0.081480	-2.315	2.909	2.176	-0.174283
51	1.700	0.930042	0.081480	-2.315	2.909	-1.660	0.035767
52	0	0.856681	0.072190	-2.439	2.785	-0.377674	-0.161776
52	1.700	0.856681	0.072190	-2.439	2.785	-4.523	-0.039055
53	0	0.787361	0.043080	-2.218	2.718	-3.250	-0.140451
53	1.700	0.787361	0.043080	-2.218	2.718	-7.022	-0.067215
76	0	-0.428075	0.307467	25.351	-7.563	-27.563	-0.598204
76	0.850	-0.428075	0.307467	25.351	-7.563	-6.019	-0.336909
76	0.850	-0.428075	0.307467	19.481	-7.563	-6.011	-0.336804
76	1.700	-0.428075	0.307467	19.481	-7.563	10.544	-0.075509
77	0	-0.307777	0.130097	11.237	-2.412	7.593	-0.370463
77	0.650	-0.307777	0.130097	11.237	-2.412	14.895	-0.285922

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
77	0.650	-0.307777	0.130097	5.367	-2.412	14.895	-0.285878
77	1.700	-0.307777	0.130097	5.367	-2.412	20.533	-0.149298
78	0	-0.273298	0.146402	4.552	1.926	19.045	-0.384714
78	0.450	-0.273298	0.146402	4.552	1.926	21.093	-0.318858
78	0.450	-0.273298	0.146402	-1.318	1.926	21.094	-0.318808
78	1.700	-0.273298	0.146402	-1.318	1.926	15.444	-0.135830
79	0	-0.263858	0.152773	-2.096	4.317	18.526	-0.378716
79	1.700	-0.263858	0.152773	-2.096	4.317	14.964	-0.119003
80	0	-0.262181	0.152929	-2.366	5.155	14.581	-0.365950
80	1.700	-0.262181	0.152929	-2.366	5.155	10.559	-0.105970
81	0	-0.262265	0.152632	-2.352	5.415	10.470	-0.353015
81	1.700	-0.262265	0.152632	-2.352	5.415	6.472	-0.093543
82	0	-0.263634	0.152482	-2.325	5.494	6.468	-0.340338
82	1.700	-0.263634	0.152482	-2.325	5.494	2.510	-0.081119
83	0	-0.270618	0.152963	-2.325	5.510	2.563	-0.328325
83	1.700	-0.270618	0.152963	-2.325	5.510	-1.385	-0.068288
84	0	-0.296994	0.158339	-2.449	5.519	-1.180	-0.319210
84	1.700	-0.296994	0.158339	-2.449	5.519	-5.343	-0.050054
85	0	-0.389443	0.172823	-4.367	5.730	-4.711	-0.306163
85	1.700	-0.389443	0.172823	-4.367	5.730	-12.136	-0.012364
108	0	-1.747	-0.014709	4.551	-3.723	-9.503	-0.129879
108	1.700	-1.747	-0.014709	4.551	-3.723	-3.766	-0.154886
109	0	-1.700	0.067739	4.937	-1.899	-0.176822	-0.202757
109	1.700	-1.700	0.067739	4.937	-1.899	8.217	-0.087601
110	0	-1.649	0.079741	1.677	0.603659	7.750	-0.205561
110	1.700	-1.649	0.079741	1.677	0.603659	10.601	-0.070001
111	0	-1.582	0.084429	0.056140	2.079	9.400	-0.203105
111	1.700	-1.582	0.084429	0.056140	2.079	5.496	-0.059579
112	0	-1.512	0.085440	-0.545864	2.685	8.266	-0.197330
112	1.700	-1.512	0.085440	-0.545864	2.685	7.338	-0.052081
113	0	-1.441	0.085522	-0.763634	2.895	6.132	-0.190724
113	1.700	-1.441	0.085522	-0.763634	2.895	4.834	-0.045337
114	0	-1.370	0.086215	-0.831333	2.965	3.645	-0.184601
114	1.700	-1.370	0.086215	-0.831333	2.965	2.233	-0.038016
115	0	-1.298	0.089498	-0.868392	3.010	1.067	-0.180305
115	1.700	-1.298	0.089498	-0.868392	3.010	-0.409271	-0.028157

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
116	0	-1.222	0.099276	-0.925528	3.053	-1.545	-0.180346
116	1.700	-1.222	0.099276	-0.925528	3.053	-3.118	-0.011577
117	0	-1.120	0.118870	0.217933	2.845	-4.536	-0.189433
117	1.700	-1.120	0.118870	0.217933	2.845	-4.165	0.012647
140	0	-2.136	-0.333144	-2.404	-0.463896	-0.772527	-0.404796
140	1.700	-2.136	-0.333144	-2.404	-0.463896	-4.859	-0.971142
141	0	-2.097	0.029898	-0.147304	-0.251642	0.544233	-0.243504
141	1.700	-2.097	0.029898	-0.147304	-0.251642	0.293817	-0.192677
142	0	-2.014	0.285429	1.640	0.063354	1.415	-0.108624
142	1.700	-2.014	0.285429	1.640	0.063354	4.203	0.376404
143	0	-1.925	0.378782	2.296	0.263517	1.586	-0.072561
143	1.700	-1.925	0.378782	2.296	0.263517	5.492	0.571365
144	0	-1.835	0.401916	2.456	0.348183	1.096	-0.129464
144	1.700	-1.835	0.401916	2.456	0.348183	5.271	0.553794
145	0	-1.744	0.405193	2.479	0.377699	0.215903	-0.239823
145	1.700	-1.744	0.405193	2.479	0.377699	4.429	0.469006
146	0	-1.653	0.405690	2.478	0.387796	-0.840311	-0.375302
146	1.700	-1.653	0.405690	2.478	0.387796	3.372	0.314371
147	0	-1.559	0.411857	2.503	0.394728	-1.989	-0.524812
147	1.700	-1.559	0.411857	2.503	0.394728	2.265	0.175345
148	0	-1.458	0.437455	2.650	0.397111	-3.191	-0.682981
148	1.700	-1.458	0.437455	2.650	0.397111	1.315	0.060693
149	0	-1.344	0.444054	2.681	0.370244	-4.005	-0.791596
149	1.700	-1.344	0.444054	2.681	0.370244	0.547870	-0.036705
	min:	-2.136	-1.570	-5.626	-7.563	-27.563	-1.863
	max:	1.981	0.854585	25.351	5.730	21.094	0.571365

Loadcase	Factor	Stage	Init.def	Title
15	1.0000			VEHICULO HIPOTESIS 15

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.528423	0.002300	3.960			
10	0.528423	-0.002789	-9.374			
156	0.528423	-0.002300	3.960			
160	0.528423	0.002789	-9.374			
166	-1.057	1.910	35.414	-8.404	-0.292662	-0.024550
167	-1.057	-1.910	35.414	8.404	-0.292662	0.024550
Sums :	-1.87E-10	9.27E-13	60.000			
min:	-1.057	-1.910	-9.374	-8.404	-0.292662	-0.024550
max:	0.528423	1.910	35.414	8.404	-0.292662	0.024550

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
12	0	1.507	-0.771054	5.709	-0.513219	-10.488	1.184
12	1.700	1.507	-0.771054	5.709	-0.513219	-0.782581	-0.126378
13	0	1.439	-0.987060	7.301	-0.503702	-7.515	0.777587
13	1.700	1.439	-0.987060	7.301	-0.503702	4.897	-0.900416
14	0	1.405	-1.099	7.934	-0.545886	-2.450	0.106228
14	1.700	1.405	-1.099	7.934	-0.545886	11.038	-1.763
15	0	1.397	-1.209	8.649	-0.511940	3.562	-0.720506
15	1.700	1.397	-1.209	8.649	-0.511940	18.265	-2.776
16	0	1.397	-1.745	12.430	-0.202002	12.777	-2.005
16	0.200	1.397	-1.745	12.430	-0.202002	15.260	-2.354
16	0.200	1.397	-0.353230	2.527	-0.202002	15.263	-2.354
16	1.700	1.397	-0.353230	2.527	-0.202002	19.053	-2.884
17	0	1.397	0.353230	-2.527	0.202002	19.053	-2.884
17	1.7E-4	1.397	0.353230	-2.527	0.202002	19.053	-2.884
17	1.500	1.397	0.353230	-2.527	0.202002	15.263	-2.354
17	1.500	1.397	1.745	-12.430	0.202002	15.260	-2.354
17	1.700	1.397	1.745	-12.430	0.202002	12.777	-2.005
18	0	1.397	1.209	-8.649	0.511940	18.265	-2.776
18	1.700	1.397	1.209	-8.649	0.511940	3.562	-0.720506
19	0	1.405	1.099	-7.934	0.545886	11.038	-1.763

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
19	1.700	1.405	1.099	-7.934	0.545886	-2.450	0.106238
20	0	1.439	0.987060	-7.301	0.503702	4.897	-0.900416
20	1.700	1.439	0.987060	-7.301	0.503702	-7.515	0.777587
21	0	1.507	0.771054	-5.709	0.513219	-0.782081	-0.126378
21	1.700	1.507	0.771054	-5.709	0.513219	-10.458	1.184
44	0	0.948071	0.068811	7.346	-3.833	-20.421	-0.203802
44	1.700	0.948071	0.068811	7.346	-3.833	-7.932	-0.086823
45	0	0.915570	0.032415	8.681	-3.931	-9.890	-0.158320
45	1.700	0.915570	0.032415	8.681	-3.931	4.868	-0.103215
46	0	0.924465	0.008662	8.615	-4.181	2.822	-0.131977
46	1.700	0.924465	0.008662	8.615	-4.181	17.468	-0.117252
47	0	0.926294	0.000665	9.316	-3.667	16.055	-0.124002
47	1.700	0.926294	0.000665	9.316	-3.667	31.893	-0.122872
48	0	0.925801	-0.000307	7.400	-1.465	31.504	-0.123151
48	0.200	0.925801	-0.000307	7.400	-1.465	32.983	-0.123213
48	0.200	0.925801	-0.000307	3.270	-1.465	32.985	-0.123213
48	1.700	0.925801	-0.000307	3.270	-1.465	37.889	-0.123673
48	0	0.925801	0.000307	-3.270	1.465	37.889	-0.123673
49	1.7E-4	0.925801	0.000307	-3.270	1.465	37.888	-0.123673
49	1.500	0.925801	0.000307	-3.270	1.465	32.565	-0.123213
49	1.500	0.925801	0.000307	-7.400	1.465	32.983	-0.123213
49	1.700	0.925801	0.000307	-7.400	1.465	31.504	-0.123151
50	0	0.926294	-0.000665	-9.316	3.667	31.893	-0.122872
50	1.700	0.926294	-0.000665	-9.316	3.667	16.055	-0.124002
51	0	0.924465	-0.008662	-8.615	4.181	17.468	-0.117252
51	1.700	0.924465	-0.008662	-8.615	4.181	2.822	-0.131977
52	0	0.915570	-0.032415	-8.681	3.931	4.868	-0.103215
52	1.700	0.915570	-0.032415	-8.681	3.931	-9.890	-0.158320
53	0	0.948071	-0.068811	-7.346	3.833	-7.932	-0.086823
53	1.700	0.948071	-0.068811	-7.346	3.833	-20.421	-0.203802
76	0	-0.863785	0.068842	17.191	-8.896	-38.710	-0.310988
76	1.700	-0.863785	0.068842	17.191	-8.896	-9.456	-0.193956
77	0	-0.638549	-0.014736	10.671	-8.344	-11.790	-0.213656
77	1.700	-0.638549	-0.014736	10.671	-8.344	6.351	-0.238707
78	0	-0.574242	-0.004510	10.134	-7.808	5.803	-0.229596
78	1.700	-0.574242	-0.004510	10.134	-7.808	23.031	-0.237263

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
79	0	-0.557422	-0.001347	9.376	-6.137	23.424	-0.232973
79	1.700	-0.557422	-0.001347	9.376	-6.137	39.363	-0.235262
80	0	-0.554613	-0.000458	9.077	-2.392	39.911	-0.233680
80	0.200	-0.554613	-0.000458	9.077	-2.392	41.725	-0.233772
80	0.200	-0.554613	-0.000458	3.207	-2.392	41.727	-0.233772
80	1.700	-0.554613	-0.000458	3.207	-2.392	46.537	-0.234458
81	0	-0.554613	0.000458	-3.207	2.392	46.537	-0.234458
81	1.7E-4	-0.554613	0.000458	-3.207	2.392	46.537	-0.234458
81	1.500	-0.554613	0.000458	-3.207	2.392	41.727	-0.233772
81	1.500	-0.554613	0.000458	-9.077	2.392	41.725	-0.233772
81	1.700	-0.554613	0.000458	-9.077	2.392	39.911	-0.233680
82	0	-0.557422	0.001347	-9.376	6.137	39.363	-0.235262
82	1.700	-0.557422	0.001347	-9.376	6.137	23.424	-0.232973
83	0	-0.574242	0.004510	-10.134	7.808	23.031	-0.237263
83	1.700	-0.574242	0.004510	-10.134	7.808	5.803	-0.229596
84	0	-0.638549	0.014736	-10.671	8.344	6.351	-0.238707
84	1.700	-0.638549	0.014736	-10.671	8.344	-11.790	-0.213656
85	0	-0.863785	-0.068842	-17.191	8.896	-9.486	-0.193956
85	1.700	-0.863785	-0.068842	-17.191	8.896	-38.710	-0.310988
108	0	-1.638	-0.115891	2.988	-4.529	-15.244	-0.009203
108	1.700	-1.638	-0.115891	2.988	-4.529	-10.166	-0.206217
109	0	-1.687	-0.033618	5.897	-4.847	-7.848	-0.091358
109	1.700	-1.687	-0.033618	5.897	-4.847	2.177	-0.148509
110	0	-1.702	-0.010901	5.230	-4.228	3.817	-0.113453
110	1.700	-1.702	-0.010901	5.230	-4.228	12.708	-0.131985
111	0	-1.705	-0.002860	4.122	-3.131	14.444	-0.121213
111	1.700	-1.705	-0.002860	4.122	-3.131	21.451	-0.126075
112	0	-1.706	-0.000512	1.572	-1.183	22.755	-0.123330
112	1.700	-1.706	-0.000512	1.572	-1.183	25.427	-0.124200
113	0	-1.706	0.000512	-1.572	1.183	25.427	-0.124200
113	1.700	-1.706	0.000512	-1.572	1.183	22.755	-0.123330
114	0	-1.705	0.002860	-4.122	3.131	21.451	-0.126075
114	1.700	-1.705	0.002860	-4.122	3.131	14.444	-0.121213
115	0	-1.702	0.010901	-5.230	4.228	12.708	-0.131985
115	1.700	-1.702	0.010901	-5.230	4.228	3.817	-0.113453
116	0	-1.687	0.033618	-5.897	4.847	2.177	-0.148509
116	1.700	-1.687	0.033618	-5.897	4.847	-7.848	-0.091358

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
117	0	-1.638	0.115891	-2.988	4.529	-10.166	-0.206217
117	1.700	-1.638	0.115891	-2.988	4.529	-15.244	-0.009203
140	0	-1.864	-0.509523	-3.246	-0.582016	-2.228	-0.494184
140	1.700	-1.864	-0.509523	-3.246	-0.582016	-7.746	-1.360
141	0	-1.939	-0.386727	-2.588	-0.631405	0.896835	-0.081695
141	1.700	-1.939	-0.386727	-2.588	-0.631405	-3.503	-0.739130
142	0	-1.964	-0.285594	-1.969	-0.553202	4.783	0.446028
142	1.700	-1.964	-0.285594	-1.969	-0.553202	1.435	-0.039483
143	0	-1.971	-0.218098	-1.531	-0.401412	8.201	0.916682
143	1.700	-1.971	-0.218098	-1.531	-0.401412	5.598	0.545914
144	0	-1.972	-0.084172	-0.594388	-0.150588	9.636	1.114
144	1.700	-1.972	-0.084172	-0.594388	-0.150588	8.626	0.971106
145	0	-1.972	0.084172	0.594388	0.150588	8.626	0.971106
145	1.700	-1.972	0.084172	0.594388	0.150588	9.636	1.114
146	0	-1.971	0.218098	1.531	0.401412	5.598	0.545914
146	1.700	-1.971	0.218098	1.531	0.401412	8.201	0.916682
147	0	-1.964	0.285594	1.969	0.553202	1.435	-0.039483
147	1.700	-1.964	0.285594	1.969	0.553202	4.783	0.446028
148	0	-1.939	0.386727	2.588	0.631405	-3.503	-0.739130
148	1.700	-1.939	0.386727	2.588	0.631405	0.896835	-0.081695
149	0	-1.864	0.509523	3.246	0.582016	-7.746	-1.360
149	1.700	-1.864	0.509523	3.246	0.582016	-2.228	-0.494184
	min:	-1.972	-1.745	-17.191	-8.896	-38.710	-2.884
	max:	1.507	1.745	17.191	8.896	46.537	1.184

Loadcase Factor Stage Init.def Title
16 1.0000 VEHICULO HIPOTESIS 16

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.390235	0.077848	3.601			
10	0.390230	0.041929	-5.426			
156	0.647634	0.073082	7.153			
160	0.647639	0.047156	-10.476			
166	-0.345981	0.784014	8.439	-3.932	2.340	-0.289956
167	-1.730	-1.024	56.508	4.021	-2.915	-0.241741
Sums :	-1.62E-10	1.87E-11	60.000			
min:	-1.730	-1.024	-10.476	-3.932	-2.915	-0.289956
max:	0.647639	0.784014	56.508	4.021	2.340	-0.241741

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
12	0	1.162	-0.472947	3.128	-0.359144	-4.731	0.507953
12	1.700	1.162	-0.472947	3.128	-0.359144	0.586372	-0.256058
13	0	1.217	-0.553102	3.646	-0.360113	-4.261	0.445556
13	1.700	1.217	-0.553102	3.646	-0.360113	1.936	-0.494719
14	0	1.294	-0.585144	3.797	-0.378401	-3.171	0.295462
14	1.700	1.294	-0.585144	3.797	-0.378401	3.284	-0.699281
15	0	1.381	-0.591353	3.817	-0.384672	-1.979	0.120314
15	1.700	1.381	-0.591353	3.817	-0.384672	4.511	-0.884986
16	0	1.472	-0.592469	3.822	-0.383119	-0.767757	-0.060518
16	1.700	1.472	-0.592469	3.822	-0.383119	5.730	-1.068
17	0	1.562	-0.596762	3.855	-0.375666	0.517135	-0.251964
17	1.700	1.562	-0.596762	3.855	-0.375666	7.071	-1.266
18	0	1.654	-0.623125	4.038	-0.361146	2.035	-0.474533
18	1.700	1.654	-0.623125	4.038	-0.361146	8.899	-1.534
19	0	1.751	-0.854585	5.626	-0.263660	4.282	-0.795275
19	1.250	1.751	-0.854585	5.626	-0.263660	11.314	-1.863
19	1.250	1.751	0.537146	-4.276	-0.263660	11.314	-1.863
19	1.700	1.751	0.537146	-4.276	-0.263660	9.390	-1.622
20	0	1.866	-0.228415	1.026	0.030892	8.056	-1.336

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
20	1.050	1.866	-0.228415	1.026	0.030892	5.134	-1.576
20	1.050	1.866	1.163	-8.877	0.030892	5.133	-1.576
20	1.700	1.866	1.163	-8.877	0.030892	3.364	-0.819953
21	0	1.981	0.178115	-1.649	0.405653	6.122	-1.120
21	0.850	1.981	0.178115	-1.649	0.405653	4.720	-0.966475
21	0.850	1.981	1.570	-11.552	0.405653	4.718	-0.968178
21	1.700	1.981	1.570	-11.552	0.405653	-5.099	0.365924
44	0	0.787361	-0.043080	2.218	-2.718	-7.022	-0.067215
44	1.700	0.787361	-0.043080	2.218	-2.718	-3.250	-0.140451
45	0	0.856681	-0.072190	2.439	-2.785	-4.523	-0.039055
45	1.700	0.856681	-0.072190	2.439	-2.785	-0.377674	-0.161778
46	0	0.930042	-0.081480	2.315	-2.909	-1.660	-0.035767
46	1.700	0.930042	-0.081480	2.315	-2.909	2.276	-0.174283
47	0	1.001	-0.084562	2.302	-2.946	1.063	-0.039360
47	1.700	1.001	-0.084562	2.302	-2.946	4.578	-0.183106
48	0	1.071	-0.085307	2.342	-2.930	3.795	-0.045319
48	1.700	1.071	-0.085307	2.342	-2.930	7.777	-0.190342
49	0	1.143	-0.085532	2.490	-2.862	6.643	-0.051764
49	1.700	1.143	-0.085532	2.490	-2.862	10.675	-0.197169
50	0	1.214	-0.086715	3.017	-2.651	9.908	-0.057510
50	1.700	1.214	-0.086715	3.017	-2.651	15.037	-0.204926
51	0	1.261	-0.090739	3.147	-1.717	14.939	-0.061753
51	1.250	1.261	-0.090739	3.147	-1.717	18.873	-0.175162
51	1.250	1.261	-0.090739	-0.962586	-1.717	18.873	-0.175192
51	1.700	1.261	-0.090739	-0.962586	-1.717	18.431	-0.216010
52	0	1.335	-0.103071	-4.070	0.394724	18.956	-0.063478
52	1.050	1.335	-0.103071	-4.070	0.394724	14.683	-0.171686
52	1.050	1.335	-0.103071	-6.200	0.394724	14.683	-0.171721
52	1.700	1.335	-0.103071	-6.200	0.394724	9.354	-0.238700
53	0	1.427	-0.083943	-9.922	2.795	10.672	-0.091188
53	0.850	1.427	-0.083943	-9.922	2.795	2.240	-0.162526
53	0.850	1.427	-0.083943	-14.052	2.795	2.238	-0.162555
53	1.700	1.427	-0.083943	-14.052	2.795	-5.706	-0.233892
76	0	-0.389443	-0.172823	4.367	-5.730	-12.136	-0.012366
76	1.700	-0.389443	-0.172822	4.367	-5.730	-4.711	-0.306163
77	0	-0.296994	-0.158339	2.449	-5.519	-5.343	-0.050054
77	1.700	-0.296994	-0.158339	2.449	-5.519	-1.180	-0.319230
78	0	-0.270618	-0.152963	2.325	-5.510	-1.389	-0.068286

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
78	1.700	-0.270618	-0.152963	2.325	-5.510	2.563	-0.328325
79	0	-0.263634	-0.152482	2.329	-5.494	2.510	-0.081116
79	1.700	-0.263634	-0.152482	2.329	-5.494	6.468	-0.340336
80	0	-0.262265	-0.152632	2.352	-5.415	6.472	-0.093540
80	1.700	-0.262265	-0.152634	2.352	-5.415	10.470	-0.353015
81	0	-0.262181	-0.152929	2.366	-5.155	10.559	-0.105970
81	1.700	-0.262181	-0.152929	2.366	-5.155	14.581	-0.365950
82	0	-0.263858	-0.152773	2.056	-4.317	14.964	-0.119003
82	1.700	-0.263858	-0.152773	2.096	-4.317	18.526	-0.378716
83	0	-0.273298	-0.146402	1.316	-1.926	19.446	-0.135830
83	1.250	-0.273298	-0.146402	1.316	-1.926	21.094	-0.318808
83	1.250	-0.273298	-0.146402	-4.554	-1.926	21.093	-0.318858
83	1.700	-0.273298	-0.146402	-4.554	-1.926	19.045	-0.384714
84	0	-0.307777	-0.130097	-5.367	2.412	20.533	-0.149296
84	1.050	-0.307777	-0.130097	-5.367	2.412	14.898	-0.285878
84	1.050	-0.307777	-0.130097	-11.237	2.412	14.895	-0.285922
84	1.700	-0.307777	-0.130097	-11.237	2.412	7.593	-0.370463
85	0	-0.428075	-0.307467	-19.481	7.563	10.544	-0.075509
85	0.850	-0.428075	-0.307467	-19.481	7.563	-6.011	-0.336504
85	0.850	-0.428075	-0.307467	-25.351	7.563	-6.019	-0.336509
85	1.700	-0.428075	-0.307467	-25.351	7.563	-27.563	-0.596204
108	0	-1.120	-0.118870	-0.217933	-2.845	-4.165	0.012647
108	1.700	-1.120	-0.118870	-0.217933	-2.845	-4.536	-0.169433
109	0	-1.222	-0.099276	0.925528	-3.053	-3.116	-0.011577
109	1.700	-1.222	-0.099276	0.925528	-3.053	-1.545	-0.180346
110	0	-1.298	-0.089498	0.868392	-3.010	-0.409271	-0.028157
110	1.700	-1.298	-0.089498	0.868392	-3.010	1.067	-0.180305
111	0	-1.370	-0.086215	0.831333	-2.965	2.233	-0.038036
111	1.700	-1.370	-0.086215	0.831333	-2.965	3.646	-0.184601
112	0	-1.441	-0.085522	0.763634	-2.895	4.834	-0.045337
112	1.700	-1.441	-0.085522	0.763634	-2.895	6.132	-0.190724
113	0	-1.512	-0.085440	0.545864	-2.685	7.338	-0.052081
113	1.700	-1.512	-0.085440	0.545864	-2.685	8.266	-0.197330
114	0	-1.582	-0.084429	-0.056140	-2.079	9.496	-0.059579
114	1.700	-1.582	-0.084429	-0.056140	-2.079	9.400	-0.203109
115	0	-1.649	-0.079741	-1.677	-0.603659	10.601	-0.070001
115	1.700	-1.649	-0.079741	-1.677	-0.603659	7.750	-0.205561

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
116	0	-1.700	-0.067739	-4.937	1.899	8.217	-0.087601
116	1.700	-1.700	-0.067739	-4.937	1.899	-0.176822	-0.202757
117	0	-1.747	0.014709	-4.551	3.723	-1.766	-0.154886
117	1.700	-1.747	0.014709	-4.551	3.723	-9.503	-0.129879
140	0	-1.344	-0.444054	-2.681	-0.370244	0.547670	-0.036705
140	1.700	-1.344	-0.444054	-2.681	-0.370244	-4.009	-0.791596
141	0	-1.458	-0.437455	-2.650	-0.397111	1.315	0.060693
141	1.700	-1.458	-0.437455	-2.650	-0.397111	-3.191	-0.682981
142	0	-1.559	-0.411857	-2.503	-0.394728	2.265	0.175345
142	1.700	-1.559	-0.411857	-2.503	-0.394728	-1.989	-0.524812
143	0	-1.653	-0.405690	-2.478	-0.387796	3.372	0.314271
143	1.700	-1.653	-0.405690	-2.478	-0.387796	-0.840811	-0.375302
144	0	-1.744	-0.405193	-2.479	-0.377699	4.429	0.449006
144	1.700	-1.744	-0.405193	-2.479	-0.377699	0.215903	-0.239823
145	0	-1.835	-0.401916	-2.456	-0.348183	5.271	0.553794
145	1.700	-1.835	-0.401916	-2.456	-0.348183	1.096	-0.129464
146	0	-1.925	-0.378782	-2.296	-0.263517	5.492	0.571369
146	1.700	-1.925	-0.378782	-2.296	-0.263517	1.528	-0.072561
147	0	-2.014	-0.285429	-1.640	-0.063354	4.203	0.376404
147	1.700	-2.014	-0.285429	-1.640	-0.063354	1.415	-0.108224
148	0	-2.097	-0.029898	0.147304	0.251642	0.293817	-0.192677
148	1.700	-2.097	-0.029898	0.147304	0.251642	0.544233	-0.243504
149	0	-2.136	0.333144	2.404	0.463896	-4.859	-0.971142
149	1.700	-2.136	0.333144	2.404	0.463896	-0.772527	-0.404758
	min:	-2.136	-0.854585	-25.151	-5.730	-27.563	-1.863
	max:	1.981	1.570	5.626	7.563	21.094	0.571369

Loadcase	Factor	Stage	Init.def	Title
17	1.0000			VEHICULO HIPOTESIS 17

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.275936	-0.070252	3.378			
10	0.275944	-0.109739	-2.878			
156	0.570715	-0.074503	14.918			
160	0.570708	-0.109836	-7.570			
166	-0.054222	-0.500460	-3.289	2.928	2.775	-0.324107
167	-1.639	0.860789	55.444	-3.060	-3.243	-0.284786
Sums :	-1.22E-10	-2.24E-11	60.000			
min:	-1.639	-0.500460	-7.570	-3.060	-3.243	-0.324107
max:	0.570715	0.860789	55.444	2.928	2.775	-0.284786

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
22	0	1.777	-1.010	8.078	-0.089659	-1.944	-0.087984
22	0.850	1.777	-1.010	8.078	-0.089659	4.921	-0.946600
22	0.850	1.777	0.381440	-1.825	-0.089659	4.922	-0.946682
22	1.300	1.777	0.381440	-1.825	-0.089659	4.101	-0.775083
23	0	1.575	-0.349613	3.614	0.215304	5.051	-1.043
23	1.050	1.575	-0.349613	3.614	0.215304	8.845	-1.410
23	1.050	1.575	1.042	-6.289	0.215304	8.845	-1.410
23	1.300	1.575	1.042	-6.289	0.215304	7.273	-1.150
24	0	1.367	0.356429	-1.543	0.456609	10.658	-1.772
24	1.250	1.367	0.356429	-1.543	0.456609	8.730	-1.326
24	1.250	1.367	1.748	-11.446	0.456609	8.726	-1.326
24	1.300	1.367	1.748	-11.446	0.456609	8.157	-1.235
25	0	1.172	1.241	-7.952	0.688208	13.829	-2.176
25	1.300	1.172	1.241	-7.952	0.688208	3.491	-0.562373
26	0	0.986173	1.097	-6.962	0.746362	10.631	-1.701
26	1.300	0.986173	1.097	-6.962	0.746362	1.581	-0.274079
27	0	0.803102	1.071	-6.775	0.764288	9.031	-1.454
27	1.300	0.803102	1.071	-6.775	0.764288	0.224092	-0.061093
28	0	0.620303	1.065	-6.734	0.777255	7.837	-1.263
28	1.300	0.620303	1.065	-6.734	0.777255	-0.916715	0.121705

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
25	0	0.437055	1.065	-6.758	0.793100	6.817	-1.097
29	1.300	0.437055	1.065	-6.758	0.793100	-1.969	0.286992
30	0	0.250819	1.098	-7.003	0.829354	5.955	-0.963913
30	1.300	0.250819	1.098	-7.003	0.829354	-3.149	0.464081
31	0	0.050768	1.403	-8.571	0.849102	5.151	-0.864901
31	1.300	0.050768	1.403	-8.571	0.849102	-5.990	0.958860
32	0	-2.83E-13	6.20E-11	1.02E-11	1.28E-16	-4.55E-12	-2.95E-11
32	0.500	-2.83E-13	6.20E-11	1.02E-11	1.28E-16	5.71E-13	1.54E-12
54	0	1.283	0.261753	13.221	-0.309191	-7.452	-0.324224
54	0.850	1.283	0.261753	-13.221	-0.309191	3.784	-0.101769
54	0.850	1.283	0.261753	9.091	-0.309191	3.787	-0.101701
54	1.300	1.283	0.261752	9.091	-0.309191	7.877	0.016054
55	0	1.148	0.274217	8.885	1.560	7.476	-0.302005
55	1.050	1.148	0.274217	8.885	1.560	16.804	-0.014113
55	1.050	1.148	0.274217	4.755	1.560	16.806	-0.014042
55	1.300	1.148	0.274217	4.755	1.560	17.994	0.054476
56	0	1.028	0.260636	2.384	3.305	17.585	-0.272763
56	1.250	1.028	0.260636	2.384	3.305	20.565	0.052998
56	1.250	1.028	0.260636	-1.746	3.305	20.565	0.053066
56	1.300	1.029	0.260636	-1.746	3.305	20.478	0.066064
57	0	0.896483	0.255395	-3.722	4.931	20.443	-0.254116
57	1.300	0.896483	0.255395	-3.722	4.931	15.624	0.077897
58	0	0.755653	0.252622	-3.320	5.599	15.534	-0.238464
58	1.300	0.755653	0.252622	-3.320	5.599	11.618	0.089944
59	0	0.612289	0.251950	-2.814	5.827	12.376	-0.224652
59	1.300	0.612289	0.251950	-2.814	5.827	8.719	0.102883
60	0	0.467416	0.253574	-2.619	5.936	9.593	-0.212457
60	1.300	0.467416	0.253574	-2.619	5.936	6.189	0.117190
61	0	0.317521	0.258547	-2.593	6.029	7.059	-0.202172
61	1.300	0.317521	0.258547	-2.593	6.029	3.689	0.133939
62	0	0.163529	0.266696	-2.576	6.147	4.395	-0.190740
62	1.300	0.163529	0.266696	-2.576	6.147	1.046	0.155965
63	0	0.044586	0.235035	-1.385	5.938	1.221	-0.149162
63	1.300	0.044586	0.235035	-1.385	5.938	-0.579117	0.156383
64	0	-6.38E-13	4.57E-11	-8.79E-13	-1.08E-16	4.94E-13	-2.09E-11
64	0.500	-6.38E-13	4.57E-11	-8.79E-13	-1.08E-16	5.41E-14	1.97E-12
86	0	-0.202043	0.509851	26.448	-2.984	-24.948	-0.608320

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
86	0.850	-0.202043	0.509851	26.448	-2.984	-2.471	-0.175013
86	0.850	-0.202043	0.509851	20.578	-2.984	-2.465	-0.174880
86	1.300	-0.202043	0.509851	20.578	-2.984	6.793	0.054486
87	0	-0.113629	0.364004	12.069	1.067	4.830	-0.434196
87	1.050	-0.113629	0.364004	12.069	1.067	17.501	-0.052037
87	1.050	-0.113629	0.364004	6.199	1.067	17.504	-0.051942
87	1.300	-0.113629	0.364004	6.199	1.067	19.052	0.039011
88	0	-0.075849	0.382716	4.512	4.841	17.867	-0.437516
88	1.250	-0.075849	0.382716	4.512	4.841	23.506	0.040830
88	1.250	-0.075849	0.382716	-1.356	4.841	23.506	0.040929
88	1.300	-0.075849	0.382716	-1.356	4.841	23.439	0.060015
89	0	-0.060136	0.398369	-1.607	7.945	22.598	-0.426018
89	1.300	-0.060136	0.398369	-1.607	7.945	20.509	0.091661
90	0	-0.054067	0.401716	-2.285	9.760	19.896	-0.402445
90	1.300	-0.054067	0.401716	-2.285	9.760	16.926	0.119785
91	0	-0.051539	0.401786	-2.567	10.570	16.606	-0.377010
91	1.300	-0.051539	0.401786	-2.567	10.570	13.269	0.145312
92	0	-0.049428	0.404476	-2.601	10.874	13.125	-0.353439
92	1.300	-0.049428	0.404476	-2.601	10.874	9.744	0.172383
93	0	-0.041344	0.415244	-2.556	10.888	9.601	-0.331681
93	1.300	-0.041344	0.415244	-2.556	10.888	6.275	0.208136
94	0	-0.027603	0.421901	-2.268	10.554	5.960	-0.296946
94	1.300	-0.027603	0.421901	-2.268	10.554	3.011	0.251526
95	0	-0.008166	0.330042	-1.409	9.405	2.409	-0.201340
95	1.300	-0.008166	0.330042	-1.409	9.405	0.577546	0.227714
96	0	-2.10E-12	1.99E-11	-1.62E-13	-1.46E-15	1.27E-13	1.05E-12
96	0.500	-2.10E-12	1.99E-11	-1.62E-13	-1.46E-15	4.61E-14	1.10E-11
118	0	-1.314	0.156047	4.721	-1.037	-8.589	-0.233632
118	1.300	-1.314	0.156047	4.721	-1.037	-2.452	-0.030771
119	0	-1.211	0.224428	6.282	-0.012458	-1.943	-0.263406
119	1.300	-1.211	0.224428	6.282	-0.012458	6.223	0.028350
120	0	-1.098	0.239105	3.738	2.065	5.638	-0.256954
120	1.300	-1.098	0.239105	3.738	2.065	10.498	0.053283
121	0	-0.967622	0.246724	1.341	3.887	9.549	-0.248215
121	1.300	-0.967622	0.246724	1.341	3.887	11.292	0.072526
122	0	-0.828072	0.250019	0.159567	4.993	10.224	-0.236921
122	1.300	-0.828072	0.250019	0.159567	4.993	10.432	0.088103

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
123	0	-0.686097	0.250469	-0.416947	5.550	9.400	-0.223802
123	1.300	-0.686097	0.250469	-0.416947	5.550	8.858	0.101808
124	0	-0.541980	0.249286	-0.650567	5.765	7.855	-0.209951
124	1.300	-0.541980	0.249286	-0.650567	5.765	7.009	0.114120
125	0	-0.391149	0.247514	-0.634553	5.755	6.009	-0.196350
125	1.300	-0.391149	0.247514	-0.634553	5.755	5.184	0.125418
126	0	-0.232232	0.245297	-0.560083	5.567	4.212	-0.181110
126	1.300	-0.232232	0.245297	-0.560083	5.567	3.483	0.137777
127	0	-0.098550	0.204806	-1.189	5.056	2.672	-0.139413
127	1.300	-0.098550	0.204806	-1.189	5.056	1.126	0.126835
128	0	7.18E-13	2.34E-11	-1.41E-13	5.31E-16	8.30E-14	-1.54E-12
128	0.500	7.18E-13	2.34E-11	-1.41E-13	5.31E-16	1.22E-14	1.02E-11
150	0	-1.725	0.106651	0.112078	-0.106710	-2.547	-0.685062
150	1.300	-1.725	0.106651	0.112078	-0.106710	-2.402	-0.546416
151	0	-1.579	0.370223	1.757	0.005971	-1.520	-0.522221
151	1.300	-1.579	0.370223	1.757	0.005971	0.764744	-0.040531
152	0	-1.402	0.620455	3.547	0.255388	-0.464921	-0.338962
152	1.300	-1.402	0.620455	3.547	0.255388	4.146	0.467609
153	0	-1.221	0.770305	4.629	0.492431	0.280471	-0.205775
153	1.300	-1.221	0.770305	4.629	0.492431	6.298	0.795627
154	0	-1.040	0.834404	5.081	0.644189	0.494848	-0.151063
154	1.300	-1.040	0.834404	5.081	0.644189	7.100	0.933662
155	0	-0.858094	0.857467	5.243	0.721139	0.235686	-0.162296
155	1.300	-0.858094	0.857467	5.243	0.721139	7.052	0.952411
156	0	-0.677649	0.858896	5.274	0.750603	-0.292107	-0.209669
156	1.300	-0.677649	0.858896	5.274	0.750603	6.565	0.906895
157	0	-0.502422	0.840055	5.215	0.750155	-0.899400	-0.268711
157	1.300	-0.502422	0.840055	5.215	0.750155	5.881	0.823364
158	0	-0.334850	0.809962	5.085	0.732555	-1.469	-0.334919
158	1.300	-0.334850	0.809962	5.085	0.732555	5.141	0.718032
159	0	-0.168976	0.913872	5.244	0.682229	-1.936	-0.419545
159	1.300	-0.168976	0.913872	5.244	0.682229	4.882	0.768496
160	0	-3.66E-14	-3.21E-11	9.65E-12	1.89E-17	-4.26E-12	1.13E-11
160	0.500	-3.66E-14	-3.21E-11	9.65E-12	1.89E-17	5.64E-13	-4.78E-12

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
min:		-1.725	-1.010	-11.446	-2.984	-24.948	-2.176
max:		1.777	1.748	26.448	10.888	23.506	0.958860

Loadcase	Factor	Stage	Init.def	Title
18	1.0000			VEHICULO HIPOTESIS 18

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.167580	-0.116429	2.334			
10	0.167591	-0.141617	-1.442			
156	0.356267	-0.119217	26.155			
160	0.356252	-0.139369	-1.790			
166	-0.016694	-0.777781	-5.337	4.462	1.781	-0.207035
167	-1.031	1.294	39.877	-4.653	-2.071	-0.182707
Sums :	-7.17E-11	-3.40E-11	60.000			
min:	-1.031	-0.777781	-5.337	-4.653	-2.071	-0.207035
max:	0.356267	1.294	39.877	4.462	1.781	-0.182707

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
22	0	1.134	-0.409490	3.559	-0.178239	-6.526	0.671154
22	1.300	1.134	-0.409490	3.559	-0.178239	-1.899	0.138817
23	0	0.982928	-0.581839	4.955	-0.153659	-3.409	0.250837
23	1.300	0.982928	-0.581839	4.955	-0.153659	3.033	-0.505554
24	0	0.838741	-0.739216	5.963	-0.179405	1.322	-0.365602
24	1.300	0.838741	-0.739216	5.963	-0.179405	9.074	-1.327
25	0	0.712738	-0.964741	7.473	-0.106270	7.378	-1.179
25	1.100	0.712738	-0.964741	7.473	-0.106270	15.597	-2.240
25	1.100	0.712738	0.426990	-2.430	-0.106270	15.598	-2.240
25	1.300	0.712738	0.426990	-2.430	-0.106270	15.112	-2.155
26	0	0.595501	-0.065382	1.020	0.180607	15.544	-2.301
26	1.300	0.595501	-0.065382	1.020	0.180607	16.870	-2.386

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
26	1.300	0.595501	-0.065382	1.020	0.180607	16.870	-2.398
27	0	0.480783	0.781442	-5.032	0.508455	20.248	-2.944
27	1.300	0.480783	0.781442	-5.032	0.508455	13.706	-1.928
28	0	0.365282	0.304692	-1.654	0.824340	20.144	-2.516
28	0.200	0.365282	0.304692	-1.654	0.824340	19.813	-2.855
28	0.200	0.365282	1.696	-11.557	0.824340	19.811	-2.855
28	1.300	0.365282	1.696	-11.557	0.824340	7.100	-0.989046
29	0	0.246818	1.537	-10.420	0.978476	16.117	-2.342
29	1.300	0.246818	1.537	-10.420	0.978476	2.571	-0.343902
30	0	0.122943	1.604	-10.871	1.108	12.665	-1.853
30	1.300	0.122943	1.604	-10.871	1.108	-1.467	0.232305
31	0	-0.016069	2.132	-14.244	1.216	9.978	-1.485
31	1.300	-0.016069	2.132	-14.244	1.216	-8.539	1.287
32	0	-3.83E-13	1.05E-11	2.13E-12	-4.06E-16	-2.48E-12	-1.21E-11
32	0.500	-3.83E-13	1.05E-11	2.13E-12	-4.06E-16	-1.41E-12	-6.66E-12
54	0	0.789748	0.210549	7.687	-1.268	-15.892	-0.242710
54	1.300	0.789748	0.210549	7.687	-1.268	-5.895	0.031003
55	0	0.690970	0.193078	9.647	-1.220	-6.364	-0.205339
55	1.300	0.690970	0.193078	9.647	-1.220	6.178	0.045863
56	0	0.614730	0.171123	9.876	-1.323	5.675	-0.176375
56	1.300	0.614730	0.171123	9.876	-1.323	18.515	0.046085
57	0	0.531310	0.161114	9.885	-0.574990	18.634	-0.159875
57	1.100	0.531310	0.161114	9.885	-0.574990	29.505	0.017330
57	1.100	0.531310	0.161114	5.755	-0.574990	29.507	0.017372
57	1.300	0.531310	0.161114	5.755	-0.574990	30.658	0.049574
58	0	0.443040	0.158002	3.952	1.432	30.803	-0.149243
58	1.300	0.443040	0.158002	3.952	1.432	35.939	0.056139
58	1.300	0.443040	0.158002	3.952	1.432	35.940	0.056159
59	0	0.353211	0.158138	-2.044	3.821	36.317	-0.141004
59	1.300	0.353211	0.158138	-2.044	3.821	33.659	0.064575
60	0	0.262361	0.161108	-3.765	6.009	34.210	-0.134466
60	0.200	0.262361	0.161108	-3.765	6.009	33.458	-0.102266
60	0.200	0.262361	0.161108	-7.895	6.009	33.456	-0.102224
60	1.300	0.262361	0.161108	-7.895	6.009	24.773	0.074975
61	0	0.169190	0.166604	-7.656	7.251	25.119	-0.129083
61	1.300	0.169190	0.166604	-7.656	7.251	15.165	0.087503
62	0	0.074586	0.175620	-6.980	8.036	15.576	-0.123291

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
62	1.300	0.074586	0.175620	-6.980	8.036	6.502	0.105015
63	0	0.006287	0.159494	-4.670	8.199	5.978	-0.057430
63	1.300	0.006287	0.159494	-4.670	8.199	-0.093201	0.109912
64	0	-6.94E-13	8.58E-12	-2.71E-12	2.70E-15	1.11E-12	-6.08E-12
64	0.500	-6.94E-13	8.58E-12	-2.71E-12	2.70E-15	-2.44E-13	-1.80E-12
86	0	-0.300038	0.318468	20.229	-4.207	-32.746	-0.379484
86	1.300	-0.300038	0.318468	20.229	-4.207	-6.449	0.034514
87	0	-0.166577	0.226656	13.243	-3.488	-8.050	-0.270444
87	1.300	-0.166577	0.226656	13.243	-3.488	9.166	0.024209
88	0	-0.109680	0.237656	11.745	-2.571	8.579	-0.272237
88	1.300	-0.109680	0.237656	11.745	-2.571	23.845	0.036716
89	0	-0.086647	0.247061	10.576	-0.509968	23.972	-0.264998
89	1.100	-0.086647	0.247061	10.576	-0.509968	36.044	0.006737
89	1.100	-0.086647	0.247061	5.106	-0.509968	36.046	0.006801
89	1.300	-0.086647	0.247061	5.106	-0.509968	37.066	0.056181
90	0	-0.078136	0.249879	4.914	2.850	37.334	-0.250928
90	1.300	-0.078136	0.249879	4.914	2.850	43.722	0.073882
90	1.300	-0.078136	0.249879	4.914	2.850	43.722	0.073915
91	0	-0.074454	0.250968	-1.377	6.719	43.669	-0.235769
91	1.300	-0.074454	0.250968	-1.377	6.719	41.679	0.090490
92	0	-0.069728	0.253397	-1.620	10.057	41.380	-0.221442
92	0.200	-0.069728	0.253397	-1.620	10.057	41.056	-0.170756
92	0.200	-0.069728	0.253397	-7.490	10.057	41.055	-0.170730
92	1.300	-0.069728	0.253397	-7.490	10.057	32.617	0.107974
93	0	-0.059366	0.260113	-8.073	12.005	31.968	-0.207740
93	1.300	-0.059366	0.260113	-8.073	12.005	21.473	0.130407
94	0	-0.039707	0.263938	-7.544	12.477	20.128	-0.185754
94	1.300	-0.039707	0.263938	-7.544	12.477	10.322	0.157365
95	0	-0.011795	0.206237	-4.765	11.382	8.179	-0.125831
95	1.300	-0.011795	0.206237	-4.765	11.382	1.984	0.142276
96	0	-2.24E-12	7.71E-12	-1.33E-13	-5.81E-15	2.83E-13	2.05E-12
96	0.500	-2.24E-12	7.71E-12	-1.33E-13	-5.81E-15	2.16E-13	5.91E-12
118	0	-0.830107	0.050671	4.460	-1.942	-12.381	-0.105873
118	1.300	-0.830107	0.050671	4.460	-1.942	-6.584	-0.040001
119	0	-0.780879	0.117645	7.381	-2.267	-5.922	-0.147119
119	1.300	-0.780879	0.117645	7.381	-2.267	3.674	0.005820

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
120	0	-0.713482	0.139034	6.734	-1.506	3.878	-0.153022
120	1.300	-0.713482	0.139034	6.734	-1.506	12.633	0.027722
121	0	-0.633166	0.149624	5.254	-0.206062	12.877	-0.152048
121	1.300	-0.633166	0.149624	5.254	-0.206062	19.707	0.042462
122	0	-0.547159	0.154492	2.865	1.574	19.700	-0.147008
122	1.300	-0.547159	0.154492	2.865	1.574	23.430	0.053831
123	0	-0.459224	0.155746	0.314943	3.471	22.994	-0.139450
123	1.300	-0.459224	0.155746	0.314943	3.471	23.403	0.063020
124	0	-0.369385	0.154357	-1.936	5.060	22.479	-0.130441
124	1.300	-0.369385	0.154357	-1.936	5.060	19.962	0.070223
125	0	-0.274573	0.150725	-3.019	5.871	18.589	-0.120696
125	1.300	-0.274573	0.150725	-3.019	5.871	14.665	0.075246
126	0	-0.173205	0.145038	-3.398	5.849	13.121	-0.109513
126	1.300	-0.173205	0.145038	-3.398	5.849	8.703	0.079036
127	0	-0.083706	0.115716	-3.876	5.144	6.995	-0.083137
127	1.300	-0.083706	0.115716	-3.876	5.144	1.957	0.067294
128	0	1.64E-13	5.97E-12	-4.49E-13	1.94E-16	2.40E-13	-1.38E-12
128	0.500	1.64E-13	5.97E-12	-4.49E-13	1.94E-16	1.53E-14	1.60E-12
150	0	-1.052	-0.030547	-0.526329	-0.237943	-2.974	-0.606127
150	1.300	-1.052	-0.030547	-0.526329	-0.237943	-3.656	-0.645839
151	0	-0.985018	0.085070	0.161729	-0.287465	-0.766430	-0.286083
151	1.300	-0.985018	0.085070	0.161729	-0.287465	-0.556182	-0.175491
152	0	-0.888886	0.214773	1.048	-0.197356	2.026	0.118453
152	1.300	-0.888886	0.214773	1.048	-0.197356	3.388	0.397658
153	0	-0.782810	0.317506	1.755	-0.021533	4.630	0.491033
153	1.300	-0.782810	0.317506	1.755	-0.021533	6.882	0.903791
154	0	-0.671822	0.444691	2.640	0.207333	6.048	0.706363
154	1.300	-0.671822	0.444691	2.640	0.207333	9.481	1.284
155	0	-0.558892	0.578505	3.583	0.449138	6.215	0.744054
155	1.300	-0.558892	0.578505	3.583	0.449138	10.873	1.496
156	0	-0.447105	0.688298	4.379	0.647593	5.299	0.632380
156	1.300	-0.447105	0.688298	4.379	0.647593	10.992	1.527
157	0	-0.340646	0.718644	4.657	0.750734	3.833	0.444222
157	1.300	-0.340646	0.718644	4.657	0.750734	9.827	1.378
158	0	-0.243192	0.656167	4.292	0.744803	2.244	0.230891

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
158	1.300	-0.243192	0.656167	4.292	0.744803	7.823	1.084
159	0	-0.153293	0.538540	3.100	0.643662	0.706078	0.002349
159	1.300	-0.153293	0.538540	3.100	0.643662	4.736	0.702451
160	0	-1.68E-12	-2.63E-13	3.41E-12	-7.26E-17	-2.32E-12	-5.16E-13
160	0.500	-1.68E-12	-2.63E-13	3.41E-12	-7.26E-17	-6.16E-13	-6.47E-13
	min:	-1.052	-0.964741	-14.244	-4.207	-32.746	-2.944
	max:	1.134	2.132	20.229	12.477	43.722	1.527

Loadcase Factor Stage Init.def Title
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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.059326	-0.056961	0.688022			
10	0.059331	-0.065923	-0.448044			
156	0.126491	-0.057934	40.227			
160	0.126487	-0.065156	6.303			
166	-0.005295	-0.375660	-2.597	2.148	0.634102	-0.073680
167	-0.366341	0.621683	15.626	-2.239	-0.737014	-0.065050
Sums :	-2.44E-11	-1.63E-11	60.000			
min:	-0.366341	-0.375660	-2.597	-2.239	-0.737014	-0.073680
max:	0.126491	0.621683	40.227	2.148	0.634102	-0.065050

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
22	0	0.407944	-0.141896	1.257	-0.067321	-3.150	0.351417
22	1.300	0.407944	-0.141896	1.257	-0.067321	-1.515	0.166952
23	0	0.349055	-0.204178	1.762	-0.058909	-2.083	0.207812
23	1.300	0.349055	-0.204178	1.762	-0.058909	0.207413	-0.057599
24	0	0.294783	-0.255121	2.074	-0.076454	-0.482633	0.001670
24	1.300	0.294783	-0.255121	2.074	-0.076454	2.213	-0.329988
25	0	0.248424	-0.276262	2.185	-0.086999	1.364	-0.244137
25	1.300	0.248424	-0.276262	2.185	-0.086999	4.205	-0.603277
26	0	0.206219	-0.288850	2.263	-0.080788	3.341	-0.512721
26	1.300	0.206219	-0.288850	2.263	-0.080788	6.233	-0.886226
27	0	0.165467	-0.315521	2.454	-0.052411	5.591	-0.820693
27	1.300	0.165467	-0.315521	2.454	-0.052411	8.781	-1.231
28	0	0.125143	-0.441007	3.350	0.049571	8.605	-1.235
28	1.300	0.125143	-0.441007	3.350	0.049571	12.960	-1.809
29	0	0.083569	-0.658537	6.305	0.399557	14.907	-2.111
29	0.0499	0.083569	-0.658537	6.305	0.399557	15.222	-2.155
29	0.0501	0.083569	0.533194	-3.597	0.399557	15.222	-2.155
29	1.300	0.083569	0.533194	-3.597	0.399557	10.726	-1.498
30	0	0.038421	0.168092	-1.012	0.881404	16.536	-2.337
30	0.250	0.038421	0.168092	-1.012	0.881404	16.281	-2.296
30	0.250	0.038421	1.560	-10.915	0.881404	16.278	-2.295
30	1.300	0.038421	1.560	-10.915	0.881404	4.820	-0.657412
31	0	-0.014961	1.869	-12.993	1.351	15.556	-2.207
31	0.450	-0.014961	1.869	-12.993	1.351	9.706	-1.366
31	0.450	-0.014961	3.261	-22.896	1.351	9.704	-1.366
31	1.300	-0.014961	3.261	-22.896	1.351	-9.755	1.406
32	0	2.49E-13	2.46E-11	3.75E-12	-2.92E-16	-1.06E-12	-8.39E-12
32	0.500	2.49E-13	2.46E-11	3.75E-12	-2.92E-16	5.14E-13	3.92E-12
54	0	0.278019	0.084771	2.711	-0.481551	-7.613	-0.094758
54	1.300	0.278019	0.084771	2.711	-0.481551	-4.039	0.015444
55	0	0.235784	0.073328	3.510	-0.472629	-4.262	-0.076602
55	1.300	0.235784	0.073328	3.510	-0.472629	0.300299	0.018724
56	0	0.212062	0.062978	3.407	-0.617467	0.043393	-0.064224
56	1.300	0.212062	0.062978	3.407	-0.617467	4.473	0.017648
57	0	0.182360	0.058250	3.399	-0.675479	4.291	-0.057417
57	1.300	0.182360	0.058250	3.399	-0.675479	8.710	0.018308
58	0	0.150994	0.056243	3.587	-0.606695	8.606	-0.052963

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
58	1.300	0.150994	0.056243	3.587	-0.606695	13.269	0.020153
59	0	0.119339	0.055570	4.120	-0.313490	13.271	-0.045581
59	1.300	0.119339	0.055570	4.120	-0.313490	18.626	0.022660
60	0	0.087182	0.056054	4.627	0.626269	18.942	-0.047036
60	1.300	0.087182	0.056054	4.627	0.626269	24.957	0.025834
61	0	0.054023	0.059442	2.913	2.966	25.278	-0.046173
61	0.0499	0.054023	0.059442	2.913	2.966	25.422	-0.043209
61	0.0501	0.054023	0.059442	-1.217	2.966	25.424	-0.043193
61	1.300	0.054023	0.059442	-1.217	2.966	23.903	0.031101
62	0	0.020486	0.064843	-3.116	6.036	23.706	-0.045344
62	0.250	0.020486	0.064843	-3.116	6.036	22.928	-0.029141
62	0.250	0.020486	0.064843	-7.246	6.036	22.926	-0.029124
62	1.300	0.020486	0.064843	-7.246	6.036	19.319	0.036953
63	0	-0.002518	0.061418	-6.352	8.276	13.426	-0.036957
63	0.450	-0.002518	0.061418	-6.352	8.276	10.567	-0.006337
63	0.450	-0.002518	0.061418	-10.482	8.276	10.565	-0.006311
63	1.300	-0.002518	0.061418	-10.482	8.276	1.657	0.042887
64	0	-7.82E-13	9.33E-13	-9.61E-13	8.34E-16	4.85E-13	-2.20E-12
64	0.500	-7.82E-13	9.33E-13	-9.61E-13	8.34E-16	3.91E-15	-1.83E-12
86	0	-0.143574	0.113126	7.982	-1.583	-15.359	-0.134770
86	1.300	-0.143574	0.113126	7.982	-1.583	-4.982	0.012294
87	0	-0.079791	0.080599	5.102	-1.451	-5.673	-0.096094
87	1.300	-0.079791	0.080599	5.102	-1.451	0.960007	0.008625
88	0	-0.052404	0.084608	4.643	-1.417	0.602162	-0.096771
88	1.300	-0.052404	0.084608	4.643	-1.417	6.639	0.013215
89	0	-0.041141	0.087893	4.600	-1.297	6.529	-0.094124
89	1.300	-0.041141	0.087893	4.600	-1.297	12.509	0.020137
90	0	-0.036861	0.088468	4.537	-0.974517	12.564	-0.088828
90	1.300	-0.036861	0.088468	4.537	-0.974517	18.463	0.026181
91	0	-0.035127	0.088221	4.161	-0.186281	18.685	-0.083101
91	1.300	-0.035127	0.088221	4.161	-0.186281	24.094	0.031586
92	0	-0.033361	0.088746	3.341	1.548	24.366	-0.077949
92	1.300	-0.033361	0.088746	3.341	1.548	28.709	0.037421
93	0	-0.029126	0.091885	3.330	4.380	28.429	-0.073697
93	0.0499	-0.029126	0.091885	3.330	4.380	28.595	-0.065115
93	0.0501	-0.029126	0.091885	-2.540	4.380	28.595	-0.063051
93	1.300	-0.029126	0.091885	-2.540	4.380	25.420	0.045753

SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
94	0	-0.020072	0.094451	-1.289	7.273	23.591	-0.066626
94	0.250	-0.020072	0.094451	-1.289	7.273	23.269	-0.043026
94	0.250	-0.020072	0.094451	-7.159	7.273	23.268	-0.043001
94	1.300	-0.020072	0.094451	-7.159	7.273	15.752	0.056160
95	0	-0.006242	0.074536	-2.251	6.398	11.771	-0.045544
95	0.450	-0.006242	0.074536	-2.251	6.398	10.755	-0.012013
95	0.450	-0.006242	0.074536	-8.121	6.398	10.756	-0.011993
95	1.300	-0.006242	0.074536	-8.121	6.398	3.856	0.051352
96	0	1.55E-14	1.35E-11	1.94E-13	-1.31E-14	8.62E-14	-1.67E-12
96	0.500	1.55E-14	1.35E-11	1.94E-13	-1.31E-14	1.83E-13	5.05E-12
118	0	-0.297004	0.008031	1.700	-0.755571	-6.227	-0.029052
118	1.300	-0.297004	0.008031	1.700	-0.755571	-4.017	-0.018612
119	0	-0.282596	0.027119	3.016	-0.990281	-3.782	-0.048622
119	1.300	-0.282596	0.027119	3.016	-0.990281	0.138719	-0.000368
120	0	-0.259164	0.047407	2.971	-0.885716	0.180652	-0.052882
120	1.300	-0.259164	0.047407	2.971	-0.885716	4.044	0.008747
121	0	-0.230761	0.052335	2.796	-0.712264	4.122	-0.053431
121	1.300	-0.230761	0.052335	2.796	-0.712264	7.756	0.014604
122	0	-0.200389	0.054357	2.514	-0.445641	7.895	-0.051874
122	1.300	-0.200389	0.054357	2.514	-0.445641	11.163	0.018790
123	0	-0.169481	0.054662	1.994	0.022768	11.324	-0.049123
123	1.300	-0.169481	0.054662	1.994	0.022768	13.917	0.021938
124	0	-0.137994	0.053975	1.060	0.785441	13.995	-0.045838
124	1.300	-0.137994	0.053975	1.060	0.785441	15.373	0.024330
125	0	-0.104570	0.052587	-0.666001	1.764	15.017	-0.042389
125	1.300	-0.104570	0.052587	-0.666001	1.764	14.151	0.025974
126	0	-0.068254	0.050111	-2.475	2.380	11.007	-0.038319
126	1.300	-0.068254	0.050111	-2.475	2.380	9.790	0.026825
127	0	-0.034843	0.038694	-4.056	2.354	7.659	-0.028782
127	1.300	-0.034843	0.038694	-4.056	2.354	2.383	0.021519
128	0	-8.05E-14	-5.35E-13	-2.36E-13	-6.82E-15	5.19E-14	6.56E-13
128	0.500	-8.05E-14	-5.35E-13	-2.36E-13	-6.82E-15	-6.61E-14	3.88E-13
150	0	-0.368224	-0.013698	-0.167710	-0.093445	-1.721	-0.305014
150	1.300	-0.368224	-0.013698	-0.167710	-0.093445	-1.965	-0.322621
151	0	-0.349592	0.028507	0.066596	-0.127315	-0.778654	-0.169270
151	1.300	-0.349592	0.028507	0.066596	-0.127315	-0.692079	-0.112211

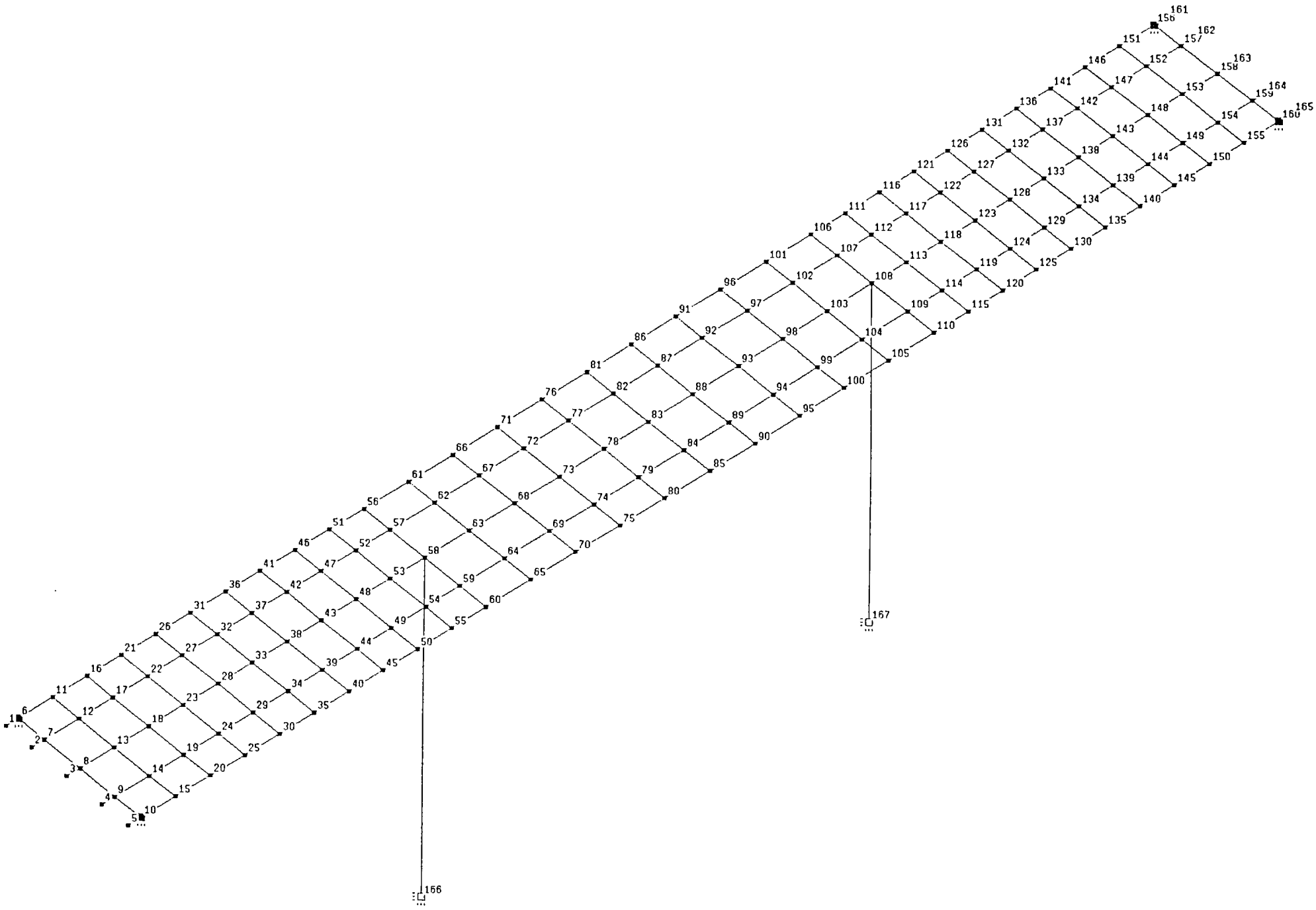
SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
152	0	-0.318417	0.071726	0.352297	-0.118634	0.562924	0.021610
152	1.300	-0.318417	0.071726	0.352297	-0.118634	1.021	0.114854
153	0	-0.282022	0.089460	0.464671	-0.093340	2.081	0.237365
153	1.300	-0.282022	0.089460	0.464671	-0.093340	2.665	0.353662
154	0	-0.243102	0.101582	0.542715	-0.055566	3.460	0.434459
154	1.300	-0.243102	0.101582	0.542715	-0.055566	4.166	0.566515
155	0	-0.203337	0.125521	0.710379	0.007606	4.476	0.561328
155	1.300	-0.203337	0.125521	0.710379	0.007606	5.399	0.744504
156	0	-0.164110	0.172385	1.049	0.105575	4.917	0.648387
156	1.300	-0.164110	0.172385	1.049	0.105575	6.281	0.872487
157	0	-0.127035	0.234467	1.512	0.216185	4.645	0.615841
157	1.300	-0.127035	0.234467	1.512	0.216185	6.611	0.920648
158	0	-0.093721	0.209195	1.360	0.266788	3.940	0.519954
158	1.300	-0.093721	0.209195	1.360	0.266788	5.707	0.791907
159	0	-0.064576	-0.067689	-0.739888	0.216566	2.901	0.370254
159	1.300	-0.064576	-0.067689	-0.739888	0.216566	1.939	0.282252
160	0	6.69E-14	-5.29E-12	2.62E-12	-1.08E-16	-1.03E-12	9.50E-13
160	0.500	6.69E-14	-5.29E-12	2.62E-12	-1.08E-16	2.79E-13	-1.69E-12
	min:	-0.368224	-0.858537	-22.896	-1.581	-15.359	-2.337
	max:	0.407944	1.261	7.982	8.398	26.709	1.406

2.3.3. Cálculo de las armaduras pasivas transversales. Método de Wood.

Scale 1 : 142.9
Structure - NUDOS

ARMADURAS



LOAD COMBINATION DY: 'COMB1'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
11	1.5000			VEHICULO HIPOTESIS 11
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION D2: 'COME2'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
12	1.5000			VEHICULO HIPOTESIS 12
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EA: 'COME3'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
13	1.5000			VEHICULO HIPOTESIS 13
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EB: 'COME4'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
14	1.5000			VEHICULO HIPOTESIS 14
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EC: 'COME5'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOE UNIF 3
15	1.5000			VEHICULO HIPOTESIS 15
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION ED: 'COMB6'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
9	1.5000			SOE UNIF 4
10	1.5000			SOE UNIF 5
20	1.5000			VEHICULO HIPOTESIS 20
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EE: 'COME7'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
9	1.5000			SOE UNIF 4
10	1.5000			SOE UNIF 5
21	1.5000			VEHICULO HIPOTESIS 21
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EF: 'COMB8'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
9	1.5000			SOE UNIF 4
10	1.5000			SOE UNIF 5
22	1.5000			VEHICULO HIPOTESIS 22
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EG: 'COME9'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
9	1.5000			SOE UNIF 4
10	1.5000			SOE UNIF 5
23	1.5000			VEHICULO HIPOTESIS 23
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EH: 'COME10'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
9	1.5000			SOE UNIF 4
10	1.5000			SOE UNIF 5
24	1.5000			VEHICULO HIPOTESIS 24
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EI: 'COME11'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
11	1.5000			VEHICULO HIPOTESIS 11
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EJ: 'COME12'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOE UNIF 1
7	1.5000			SOE UNIF 2
8	1.5000			SOE UNIF 3
11	1.5000			VEHICULO HIPOTESIS 11
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EK: 'COME13'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
12	1.5000			VEHICULO HIPOTESIS 12
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOB
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EL: 'COME14'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
13	1.5000			VEHICULO HIPOTESIS 13
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOB
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EM: 'COME15'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
14	1.5000			VEHICULO HIPOTESIS 14
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOB
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EN: 'COME16'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
15	1.5000			VEHICULO HIPOTESIS 15
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOB
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

RESUMEN DE ARMADURAS DE WOOD-ARMER

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0 a 1.15	15.98	26.26	14.26	15.32
13	1.15 a 2.45	22.56	18.33	1.75	7.14
18	2.45 a 3.75	29.13	13.59	0.00	7.22
23	3.75 a 5.05	34.73	12.47	1.08	6.17
28	5.05 a 6.35	42.76	10.29	1.14	8.28
33	6.35 a 7.65	40.00	9.34	1.33	8.34
38	7.65 a 8.95	32.21	8.07	1.87	9.61
43	8.95 a 10.25	25.57	7.03	3.48	11.92
48	10.25 a 11.55	16.72	6.70	12.99	14.36
53	11.55 a 12.85	3.97	6.49	25.79	22.28

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	12.85 a 14.55	2.90	3.97	49.40	33.91
63	14.55 a 16.25	9.00	5.74	15.98	17.16
68	16.25 a 17.95	22.18	4.64	1.40	5.18
73	17.95 a 19.65	35.80	3.61	0.00	3.20
78	19.65 a 21.35	44.43	2.03	0.00	2.56
83	21.35 a 23.05	47.04	2.02	0.00	2.47
88	23.05 a 24.75	43.86	2.62	0.00	2.57
93	24.75 a 26.45	34.69	3.55	0.00	3.30
98	26.45 a 28.15	20.59	4.66	1.96	7.14
103	28.15 a 29.85	4.93	6.41	18.54	18.49

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	29.85 a 31.15	1.85	4.32	48.90	31.15
113	31.15 a 32.45	3.28	5.90	24.11	18.90
118	32.45 a 33.75	11.37	5.78	11.31	12.44
123	33.75 a 35.05	18.10	6.05	2.88	10.53
128	35.05 a 36.35	23.93	7.00	1.37	8.00
133	36.35 a 37.65	27.47	7.54	0.88	6.90
138	37.65 a 38.95	28.48	8.01	0.67	6.84
143	38.95 a 40.25	26.69	8.69	1.02	7.35
148	40.25 a 41.55	22.89	10.24	2.10	8.64
153	41.55 a 42.85	18.19	14.11	5.49	8.70
158	42.85 a 44	11.00	17.46	9.87	4.70

Armadura inferior longitudinal: $47.04 \frac{cm^2}{m} \times 3.70m = 174.05 cm^2$

Cuatro vanos $\phi 25/0.10 \Rightarrow 18\phi 25 + 18\phi 25$ ($176.76 cm^2$)

Armadura inferior longitudinal base: $22.56 \frac{cm^2}{m} \times 3.60m = 82.50 cm^2$

$\phi 25/0.20 \Rightarrow 18\ \phi 25$

Armadura sup. longitudinal apoyo: $49.40 cm^2/m$

En el medio central: $\phi 20/0.20 + \phi 25/0.20 + 14\ \phi 20$
(4.70m)

Valdespa

Armadura sup longitudinal base: $15.70 cm^2/m$

269.14

2.3.4. Riostras sobre pilas y estribos

Plane (2-D) frame -analysis

****
* STRUCTURAL - DATA * RIOSTRA ESTRIBOS
****

Project title :

J O I N T D A T A : (9 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	0.000000	0.000000	0.000000			
2	0.850000	0.000000	0.000000	B	E	F
3	1.850000	0.000000	0.000000			
4	2.850000	0.000000	0.000000			
5	3.850000	0.000000	0.000000			
6	4.850000	0.000000	0.000000			
7	5.850000	0.000000	0.000000			
8	6.850000	0.000000	0.000000	F	E	F
9	7.700000	0.000000	0.000000			

B A R D A T A : (8 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	2	0.850000	RIOSTRAE			oS
2	2	3	1.000000	RIOSTRAE			oS
3	3	4	1.000000	RIOSTRAE			oS
4	4	5	1.000000	RIOSTRAE			oS
5	5	6	1.000000	RIOSTRAE			oS
6	6	7	1.000000	RIOSTRAE			oS
7	7	8	1.000000	RIOSTRAE			oS
8	8	9	0.850000	RIOSTRAE			oS

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2]	Iy [M4]	Fz [M2]
	zl [M1]	zu [M1]	
RIOSTRAE	6.7500E-01	4.5562E-02	5.6250E-01
	-0.4500	0.4500	

CS-Name	Ax [M2]	Iy [M4]	Fz [M2]
	zl [M1]	zu [M1]	

MATERIAL PROPERT. :

Bar	(to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
1 ..	8	3.5500E+06	1.3000E+06

STS-Run ok

==========
Load case 1: carga permanente
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-9.950		Stab 1 8 2 .. 7

==========
Load case 2: Sobrecarga maxima
==========

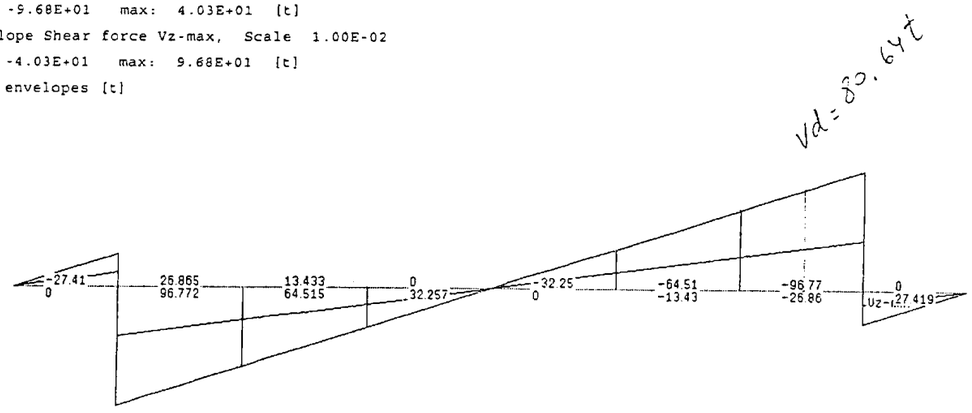
Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-12.550		Stab 1 8 2 .. 7

ENVELOPE SPECIFIC.: AB ''

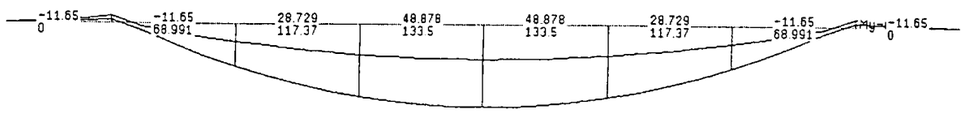
Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		carga permanente
B	PLUS	2	1.500		Sobrecarga maxima

Scale 1 : 50.2
Int. Forces envelope Vz, GWSP AE, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 1.00E-02
  min: -9.68E+01 max: 4.03E+01 [t]
- Envelope Shear force Vz-max, Scale 1.00E-02
  min: -4.03E+01 max: 9.68E+01 [t]
- Text envelopes [t]

Vd=80.64t



Scale 1 : 50.2
Int. Forces envelope My, GWSP AB, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 5.00E-03
  min: -1.17E+01 max: 5.56E+01 [tm]
- Envelope Moment My-max, Scale 5.00E-03
  min: -4.85E+00 max: 1.34E+02 [tm]
- Text envelopes [tm]



Características mecánicas Sección "RIOSTRAE" (sin coef. homogeneiz.)

Area	Ax = 6.750E3 cm2		
Momento de inercia	Iy = 4.556E6 cm4	Iz = 3.164E6 cm4	Ip = 7.720E6 cm4
Const. de torsión			Ix = 6.276E6 cm4
Momento estático	Zy =151.88E3 cm3	Zz = 126.56E3 cm3	
Baricentro	ys = 0.00 cm	zs = 45.00 cm	Angulo= 0.0 Grad
Dist. al borde	yl = -37.50 cm	yr = 37.50 cm	
	zo = 45.00 cm	zu = -45.00 cm	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRAE" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	6750.000	330.000	6.28E+06	1)

Puntos de contorno [cm]:
1 37.50 0.00 2 37.50 90.00 3 -37.50 90.00
4 -37.50 0.00

Armadura "B1" As-tot =2.00 cm2 (0.03 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-33.50	86.00
					33.50	86.00
BOTTOM / RQS	AEH500	10.0	2	1.00	-33.50	4.00
					33.50	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	75.00	82.00	0.00	86.00	0.00	4.00
SWY	Vy	90.00	67.00	-33.50	45.00	33.50	45.00
SWT	Torsion	75.00	90.00	0.00	0.00	0.00	90.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "RIOSTRAE"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	1335.00	0.00	

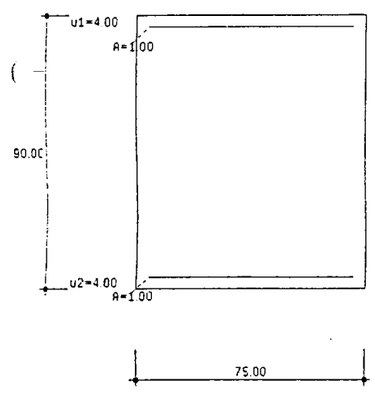
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad. lcng. :	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
AEH500	-33.50	86.00	33.50	86.00	1.00	----	1.00
1 AEH500	-33.50	4.00	33.50	4.00	1.00	38.77	38.77

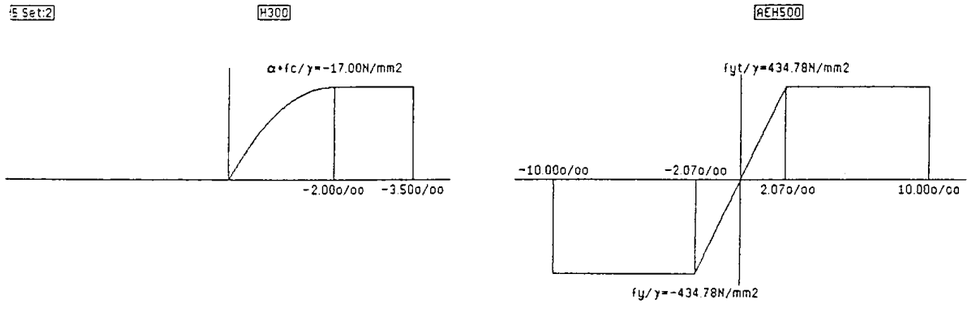
Max.x/h = 0.20 As-top/bot = 1.00/38.77 As = 0.59 % = 39.77

←7ϕ32

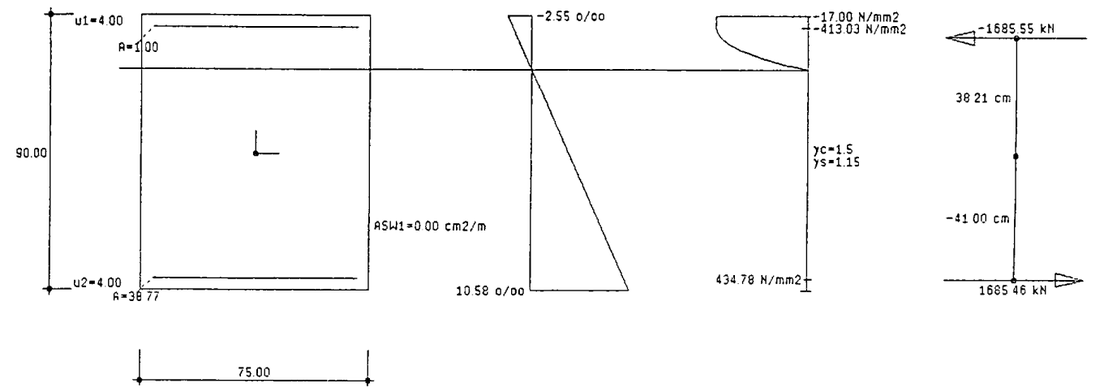
Sección RIOSTRAE



Material acorde a la sección: "RIOSTRAE"



Dimensionamiento,Sección "RIOSTRAE"



Características mecánicas Sección "RIOSTRAE" (sin coef. homogeneiz.)

Area	Ax = 6.750E3 cm2			
Momento de inercia	Iy = 4.556E6 cm4	Iz = 3.164E6 cm4	Ip = 7.720E6 cm4	
Const. de torsión			Ix = 6.276E6 cm4	
Momento estático	Zy =151.88E3 cm3	Zz = 126.56E3 cm3		
Baricentro	ys = 0.00 cm	zs = 45.00 cm	Angulo= 0.0 Grad	
Dist. al borde	yl = -37.50 cm	yr = 37.50 cm		
	zo = 45.00 cm	zu = -45.00 cm		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRAE" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	6750.000	330.000	6.28E+06	1)

Puntos de contorno [cm]:
1 37.50 0.00 2 37.50 90.00 3 -37.50 90.00
4 -37.50 0.00

Armadura "B1" As-tot =39.77 cm2 (0.59 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-33.50	86.00
					33.50	86.00
BOTTOM / RQS	AEH500	10.0	2	38.77	-33.50	4.00
					33.50	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	75.00	82.00	0.00	86.00	0.00	4.00
SWY	Vy	90.00	67.00	-33.50	45.00	33.50	45.00
SWT	Torsion	75.00	90.00	0.00	0.00	0.00	90.00

FC	PLUS	63	0.300000	VIENTO TRANSV CON SOE
FD	PLUS	64	0.600000	TEMPERATURA (-)
FE	OR	65	0.600000	TEMPERATURA (+)
FF	PLUS	66	0.600000	GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-1.091	-3.683	20.036			
	1.761	1.141	100.469			
	Min: AP AR AS AT AX AY EU...		Max: A E D E F G J AL AN AO			
10	2.283	-3.686	16.626			
	-0.568555	1.138	97.227			
	Min: AP AR AS AT AU AV BC...		Max: A E D G H I AE AN AO			
156	-1.091	2.568	20.407			
	1.761	-2.257	100.840			
	Min: AP AR AS AT AX AY BW...		Max: A E D E F G R AK AL AN.			
160	2.283	2.571	16.997			
	-0.568596	-2.254	97.595			
	Min: AP AR AS AT AU AV EE...		Max: A E D G H I AJ AK AN...			
166	3.374	-1.935	218.118	15.604	23.708	-0.028301
	2.90E-10	-0.710816	352.379	11.174	2.13E-09	-3.88E-09
	Min: CF CH CI CL DC DN DQ...		Max: DS DT DV DW DX DY EM...			
167	3.374	-1.829	219.077	9.951	23.708	0.028301
	2.78E-10	-3.053	353.338	14.381	2.08E-09	3.63E-09
	Min: CF CH CI CJ CW DO DQ...		Max: DS DT DV DW DY DZ EG...			

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-1.091	-3.683	26.641			
	2.283	1.005	60.789			
	Min: AP AQ AS AT AW AX AY...		Max: A C D E F M AL AN			
10	-1.090	1.006	57.547			
	2.284	-3.686	23.231			
	Min: A C D H I AE AN		Max: AP AQ AS AT AU AV AW...			
156	-1.091	2.567	27.013			
	2.283	-2.125	61.160			
	Min: AP AQ AS AT AW AX AY...		Max: A C D E F C AK AL AN			
160	-1.091	-2.122	57.919			
	2.284	2.570	23.603			
	Min: A C D H I AG AK AN		Max: AP AQ AS AT AU AV AW...			
166	-2.615	3.395	313.122	-17.884	-3.159	0.221212
	5.989	-4.252	319.171	36.214	26.867	-0.249513
	Min: A C D E F M AN		Max: AP AQ AS AT AW AX AY...			
167	-2.615	-7.158	314.081	43.438	-3.159	-0.221212

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
5.989	0.488287	320.130	-10.660	26.867	0.249513	
Min: A C D E F O AK AN			Max: AP AQ AS AT AW AX AY...			

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.167731	-3.836	34.495			
	0.835704	1.280	53.022			
	Min: DS DT DV DW DY DZ EZ...		Max: CF CH CI CJ DF DO DQ...			
10	1.360	-3.839	31.068			
	0.356995	1.277	49.761			
	Min: DS DT DV DW DY DZ EH...		Max: CF CH CI CJ CN DQ DR			
156	0.835745	-2.396	53.394			
	-0.167690	2.720	34.870			
	Min: CF CH CI CL DL DN DQ...		Max: DS DT DV DW DX DY ET...			
160	0.356954	-2.393	50.152			
	1.360	2.723	31.460			
	Min: CF CH CI CL CT DN DQ...		Max: DS DT DV DW DX DY EE...			
166	3.374	-8.324	297.858	52.598	23.708	-0.028301
	5.36E-09	6.034	296.749	-29.975	2.74E-08	-1.18E-08
	Min: DS DU DV DW DX DZ EK...		Max: CF CG CI CK CZ DQ DR			
167	5.35E-09	-9.797	297.708	55.530	2.73E-08	1.16E-08
	3.374	4.560	298.816	-27.044	23.708	0.028301
	Min: CF CG CI CK CZ DN DQ...		Max: DS DU DV DW DX DZ EQ...			

DEFORMATIONS: **
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-9.927	-4.388	-1.45E-08	-0.001116	0.000178	-1.26E-05
		4.745	16.012	-2.36E-09	-0.000181	0.000186	2.63E-05
		Min: A C D E F M AL AN			Max: AP AQ AS AT AW AX AY...		
2	1.300	-9.912	15.434	-1.030	-0.000782	-7.75E-05	-1.13E-05
		4.718	-4.186	-0.728517	-0.000510	0.000188	1.76E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN		
31	0	-9.912	-10.583	-1.061	0.000805	-7.66E-05	1.14E-05
		4.718	9.037	-0.759594	0.000534	0.000185	-1.75E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AK AN		
31	1.300	-9.927	9.239	-1.74E-08	0.001141	0.000180	1.29E-05
		4.745	-11.161	-3.23E-09	0.000205	0.000188	-2.61E-05
		Min: A C D E F O AK AL AN			Max: AP AQ AS AT AW AX AY...		

DEFORMATIONS: **
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
75	0	-9.759	-1.872	-1.330	-2.92E-05	-0.001310	-1.79E-05
		4.522	10.104	-1.311	5.37E-06	0.001078	2.09E-05
		Min: A E D E F G M AL AN AO			Max: AP AR AS AT AX AY EU...		
75	1.300	-9.735	-1.589	-1.627	-0.000500	-0.001410	-1.89E-05
		4.495	9.441	-1.601	-0.000536	0.001150	2.17E-05
		Min: A E D E F G M AL AN AO			Max: AP AR AS AT AX AY EU...		
76	0	-9.735	-1.589	-1.627	-0.000500	-0.001410	-1.89E-05
		4.495	9.441	-1.601	-0.000536	0.001150	2.17E-05
		Min: A E D E F G M AL AN AO			Max: AP AR AS AT AX AY EU...		
76	1.700	-9.702	8.576	-3.304	-0.001163	-0.001535	-2.04E-05
		4.457	-1.219	-2.834	-0.000935	0.001276	2.28E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN		
85	0	-9.702	-3.725	-3.248	0.001143	-0.001535	2.04E-05
		4.457	6.071	-2.775	0.000916	0.001276	-2.28E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AK AN		
85	1.700	-9.735	1.589	-1.627	0.000500	-0.001410	1.89E-05
		4.495	0.261506	-1.611	0.000419	0.001150	-2.17E-05
		Min: A E D E F G O AL AN AO			Max: AP AR AS AT AX AY BW...		
86	0	-9.735	1.589	-1.627	0.000500	-0.001410	1.89E-05
		4.495	0.261506	-1.611	0.000419	0.001150	-2.17E-05
		Min: A E D E F G O AL AN AO			Max: AP AR AS AT AX AY BW...		
86	1.300	-9.759	6.724	-1.391	-2.60E-06	-0.001310	1.79E-05
		4.522	-5.252	-1.371	-3.72E-05	0.001078	-2.09E-05
		Min: A E D E F G O AK AL AN.			Max: AP AR AS AT AX AY BW...		
130	0	-9.931	16.026	-1.74E-05	-0.000134	-0.000184	-2.10E-05
		4.741	-4.375	-1.19E-08	-0.001072	-0.000176	1.79E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN		
130	1.300	-9.911	-4.173	-0.659427	-0.000459	-0.000213	-1.24E-05
		4.719	15.467	-0.965400	-0.000733	5.27E-05	1.65E-05
		Min: A C D E F M AL AN			Max: AP AQ AS AT AW AX AY...		
159	0	-9.911	9.024	-0.690504	0.000482	-0.000214	1.23E-05
		4.719	-10.556	-0.996477	0.000756	5.17E-05	-1.66E-05
		Min: A C D E F O AK AL AN			Max: AP AQ AS AT AW AX AY...		
159	1.300	-9.931	-11.174	-2.41E-09	0.000158	-0.000186	2.07E-05
		4.741	9.226	-1.66E-08	0.001096	-0.000178	-1.82E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AK AN		

ENVELOPE SPECIFIC.: CY 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OF	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	1.000		SOB UNIF 1
F	PLUS	7	1.000		SOB UNIF 2
G	PLUS	8	1.000		SOB UNIF 3
H	PLUS	9	1.000		SOB UNIF 4
I	PLUS	10	1.000		SOB UNIF 5
J	PLUS	11	1.000		VEHICULO HIPOTESIS 11
K	OF	12	1.000		VEHICULO HIPOTESIS 12
L	OF	13	1.000		VEHICULO HIPOTESIS 13
M	OF	14	1.000		VEHICULO HIPOTESIS 14
N	OF	15	1.000		VEHICULO HIPOTESIS 15
O	OF	16	1.000		VEHICULO HIPOTESIS 16
P	OF	17	1.000		VEHICULO HIPOTESIS 17
Q	OF	18	1.000		VEHICULO HIPOTESIS 18
R	OF	19	1.000		VEHICULO HIPOTESIS 19
S	OF	20	1.000		VEHICULO HIPOTESIS 20
T	OF	21	1.000		VEHICULO HIPOTESIS 21
U	OF	22	1.000		VEHICULO HIPOTESIS 22
V	OF	23	1.000		VEHICULO HIPOTESIS 23
W	OF	24	1.000		VEHICULO HIPOTESIS 24
X	OF	25	1.000		VEHICULO POSICION 25
Y	OF	26	1.000		VEHICULO POSICION 26
Z	OF	27	1.000		VEHICULO POSICION 27
AA	OF	28	1.000		VEHICULO POSICION 28
AB	OF	29	1.000		VEHICULO POSICION 29
AC	OF	30	1.000		VEHICULO POSICION 30
AD	OF	31	1.000		VEHICULO POSICION 31
AE	OF	32	1.000		VEHICULO POSICION 32
AF	OF	33	1.000		VEHICULO POSICION 33
AG	OF	34	1.000		VEHICULO POSICION 34
AH	OF	35	1.000		VEHICULO POSICION 35
AI	OF	36	1.000		VEHICULO POSICION 36
AJ	OF	37	1.000		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.000		FRENADO
AL	PLUS	63	0.300000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.600000		TEMPERATURA (-)
AN	OF	65	0.600000		TEMPERATURA (+)
AO	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000	PESO PROPIC
AQ	PL.PERM	2	1.500	PESO PAVIMENTO
AR	OF	2	1.000	PESO PAVIMENTO
AS	PL.PERM	3	1.000	PESO BARRERAS
AT	PL.PERM	5	1.000	RETRACCION
AU	PLUS	6	1.000	SOB UNIF 1
AV	PLUS	7	1.000	SOB UNIF 2
AW	PLUS	8	1.000	SOB UNIF 3
AX	PLUS	9	1.000	SOB UNIF 4

AY	PLUS	10	1.000	SOB UNIF 5
AZ	PLUS	11	1.000	VEHICULO HIPOTESIS 11
BA	OF	12	1.000	VEHICULO HIPOTESIS 12
BB	OF	13	1.000	VEHICULO HIPOTESIS 13
BC	OF	14	1.000	VEHICULO HIPOTESIS 14
BD	OF	15	1.000	VEHICULO HIPOTESIS 15
BE	OF	16	1.000	VEHICULO HIPOTESIS 16
BF	OF	17	1.000	VEHICULO HIPOTESIS 17
BG	OF	18	1.000	VEHICULO HIPOTESIS 18
BH	OF	19	1.000	VEHICULO HIPOTESIS 19
BI	OF	20	1.000	VEHICULO HIPOTESIS 20
BJ	OF	21	1.000	VEHICULO HIPOTESIS 21
BK	OF	22	1.000	VEHICULO HIPOTESIS 22
BL	OF	23	1.000	VEHICULO HIPOTESIS 23
BM	OF	24	1.000	VEHICULO HIPOTESIS 24
BN	OF	25	1.000	VEHICULO POSICION 25
BO	OF	26	1.000	VEHICULO POSICION 26
BP	OF	27	1.000	VEHICULO POSICION 27
BQ	OF	28	1.000	VEHICULO POSICION 28
BR	OF	29	1.000	VEHICULO POSICION 29
BS	OF	30	1.000	VEHICULO POSICION 30
BT	OF	31	1.000	VEHICULO POSICION 31
BU	OF	32	1.000	VEHICULO POSICION 32
BV	OF	33	1.000	VEHICULO POSICION 33
BW	OF	34	1.000	VEHICULO POSICION 34
BX	OF	35	1.000	VEHICULO POSICION 35
BY	OF	36	1.000	VEHICULO POSICION 36
BZ	OF	37	1.000	VEHICULO HIPOTESIS 37
CA	PLUS	60	1.000	FRENADO
CB	PLUS	63	0.300000	VIENTO TRANSV CON SOB
CC	PLUS	64	0.600000	TEMPERATURA (-)
CD	OF	65	0.600000	TEMPERATURA (+)
CE	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

CF	PERM.	1	1.000	PESO PROPIO
CG	PL.PERM	2	1.500	PESO PAVIMENTO
CH	OF	2	1.000	PESO PAVIMENTO
CI	PL.PERM	3	1.000	PESO BARRERAS
CJ	PLUS	46	1.000	SOB UNIF VANO 1
CK	PLUS	47	1.000	SOB UNIF VANO 2
CL	PLUS	48	1.000	SOB UNIF VANO 3
CM	PLUS	11	1.000	VEHICULO HIPOTESIS 11
CN	OF	12	1.000	VEHICULO HIPOTESIS 12
CO	OF	13	1.000	VEHICULO HIPOTESIS 13
CP	OF	14	1.000	VEHICULO HIPOTESIS 14
CQ	OF	15	1.000	VEHICULO HIPOTESIS 15
CR	OF	16	1.000	VEHICULO HIPOTESIS 16
CS	OF	17	1.000	VEHICULO HIPOTESIS 17
CT	OF	18	1.000	VEHICULO HIPOTESIS 18
CU	OF	19	1.000	VEHICULO HIPOTESIS 19
CV	OF	20	1.000	VEHICULO HIPOTESIS 20
CW	OF	21	1.000	VEHICULO HIPOTESIS 21
CX	OF	22	1.000	VEHICULO HIPOTESIS 22
CY	OF	23	1.000	VEHICULO HIPOTESIS 23
CZ	OF	24	1.000	VEHICULO HIPOTESIS 24

DA	OF	25	1.000	VEHICULO POSICION 25
DB	OF	26	1.000	VEHICULO POSICION 26
DC	OF	27	1.000	VEHICULO POSICION 27
DD	OF	28	1.000	VEHICULO POSICION 28
DE	OF	29	1.000	VEHICULO POSICION 29
DF	OF	30	1.000	VEHICULO POSICION 30
DG	OF	31	1.000	VEHICULO POSICION 31
DH	OF	32	1.000	VEHICULO POSICION 32
DI	OF	33	1.000	VEHICULO POSICION 33
DJ	OF	34	1.000	VEHICULO POSICION 34
DK	OF	35	1.000	VEHICULO POSICION 35
DL	OF	36	1.000	VEHICULO POSICION 36
DM	OF	37	1.000	VEHICULO HIPOTESIS 37
DN	PLUS	60	1.000	FRENADO
DO	PLUS	63	0.300000	VIENTO TRANSV CON SOB
DP	PLUS	64	0.600000	TEMPERATURA (-)
DQ	OF	65	0.600000	TEMPERATURA (+)
DR	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

DS	PERM.	1	1.000	PESO PROPIO
DT	PL.PERM	2	1.500	PESO PAVIMENTO
DU	OF	2	1.000	PESO PAVIMENTO
DV	PL.PERM	3	1.000	PESO BARRERAS
DW	PL.PERM	5	1.000	RETRACCION
DX	PLUS	46	1.000	SOB UNIF VANO 1
DY	PLUS	47	1.000	SOB UNIF VANO 2
DZ	PLUS	48	1.000	SOB UNIF VANO 3
EA	PLUS	11	1.000	VEHICULO HIPOTESIS 11
EB	OF	12	1.000	VEHICULO HIPOTESIS 12
EC	OF	13	1.000	VEHICULO HIPOTESIS 13
ED	OF	14	1.000	VEHICULO HIPOTESIS 14
EE	OF	15	1.000	VEHICULO HIPOTESIS 15
EF	OF	16	1.000	VEHICULO HIPOTESIS 16
EG	OF	17	1.000	VEHICULO HIPOTESIS 17
EH	OF	18	1.000	VEHICULO HIPOTESIS 18
EI	OF	19	1.000	VEHICULO HIPOTESIS 19
EJ	OF	20	1.000	VEHICULO HIPOTESIS 20
EK	OF	21	1.000	VEHICULO HIPOTESIS 21
EL	OF	22	1.000	VEHICULO HIPOTESIS 22
EM	OF	23	1.000	VEHICULO HIPOTESIS 23
EN	OF	24	1.000	VEHICULO HIPOTESIS 24
EO	OF	25	1.000	VEHICULO POSICION 25
EP	OF	26	1.000	VEHICULO POSICION 26
EQ	OF	27	1.000	VEHICULO POSICION 27
ER	OF	28	1.000	VEHICULO POSICION 28
ES	OF	29	1.000	VEHICULO POSICION 29
ET	OF	30	1.000	VEHICULO POSICION 30
EU	OF	31	1.000	VEHICULO POSICION 31
EV	OF	32	1.000	VEHICULO POSICION 32
EW	OF	33	1.000	VEHICULO POSICION 33
EX	OF	34	1.000	VEHICULO POSICION 34
EY	OF	35	1.000	VEHICULO POSICION 35
EZ	OF	36	1.000	VEHICULO POSICION 36
FA	OF	37	1.000	VEHICULO HIPOTESIS 37
FB	PLUS	60	1.000	FRENADO

COMPROBACION DE TENSIONES DE LOS APARATOS DE APOYO

ESTRIBO 1 : APOYOS DE DIMENSIONES (mm) = 200 x 400 x 52 (37)

REACCION MAXIMA (t) : 100.9 σ_{max} (tm^{-2}) = 1261 < 1500 tm^{-2}

REACCION MINIMA (t): 16.00 σ_{min} (tm^{-2}) = 200 > 200 tm^{-2}

ESTRIBO 2 : APOYOS DE DIMENSIONES (mm) = 200 x 400 x 52 (37)

REACCION MAXIMA (t) : 101.12 σ_{max} (tm^{-2}) = 1264 < 1500 tm^{-2}

REACCION MINIMA (t): 16.00 σ_{min} (tm^{-2}) = 200 > 200 tm^{-2}

RESUMEN DE LAS FUERZAS HORIZONTALES

APOYOS	FUERZAS HORIZONTALES (t)					
	Reológicas	Térmicas	Frenado	Viento (s/S.C.)	Viento (c/S.C.)	Resultante
	F_R	F_T	F_F	$F_{V\ S/SC}$	$F_{V\ C/SC}$	F_{FT}
E-1	1.45	1.80	1.53	1.90	4.90	4.3
E-2	1.45	1.80	1.53	1.90	4.90	4.3

CALCULO DE LAS RIGIDECES PARA STATIK3

APOYOS	RIGIDECES HORIZONTALES (t/m)						
	ALTURA PILAR	I PILAR	E PILAR	F APOYO	T APOYO	K LONG	K TRANSV
E-1	4.00	0.7428	3000000.00	0.08	0.037	193.51	194.59
E-2	4.00	0.7428	3000000.00	0.08	0.037	193.51	194.59

RESUMEN DE LOS DESPLAZAMIENTOS TOTALES (APOYOS+PILARES)

APOYOS	DESPLAZAMIENTOS (mm)						
	Reológicos+Acort. Elas	Térmicos	Frenado	F. Centrif.	Viento (c/S.C.)	δ_{H1}	δ_{H2}
	δ_R	δ_T	δ_F	δ_{FC}	$\delta_{V\ C/SC}$	mm	mm
E-1	6.42	8.00	6.65	0.00	21.00	18.95	25.93
E-2	6.42	8.00	6.65	0.00	21.00	18.95	25.93

$\delta_{H1} = ((\delta_R + 0.6 \times \delta_T + \delta_F)^2 + (0{,}5 \times 0.6 \times \delta_{V\ C/SC})^2)^{0,5}$

$\delta_{H2} = ((\delta_R + 0.6 \times \delta_T + 0.6\ \delta_F)^2 + (\delta_{V\ C/SC})^2)^{0,5}$

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			

Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)

Dimensionamiento a flexión: Viga Sección "RIOSTRAE"/"B1"

Nc	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	-116.50	0.00	

Parámetros de cálculo empleados:

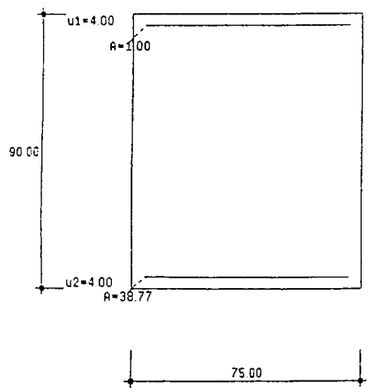
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

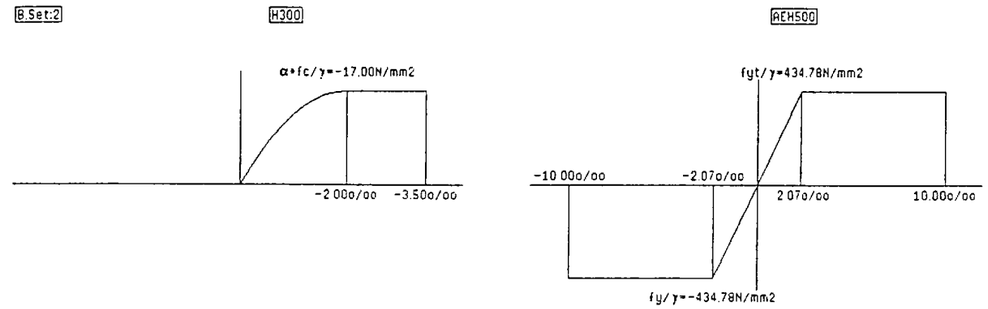
No Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
1 AEH500	-33.50	86.00	33.50	86.00	1.00	3.17	3.17
AEH500	-33.50	4.00	33.50	4.00	1.00	----	1.00

Max.x/h = 0.05 As-top/bot = 3.17/1.00 As = 0.06 % = 4.17

Sección RIOSTRAE

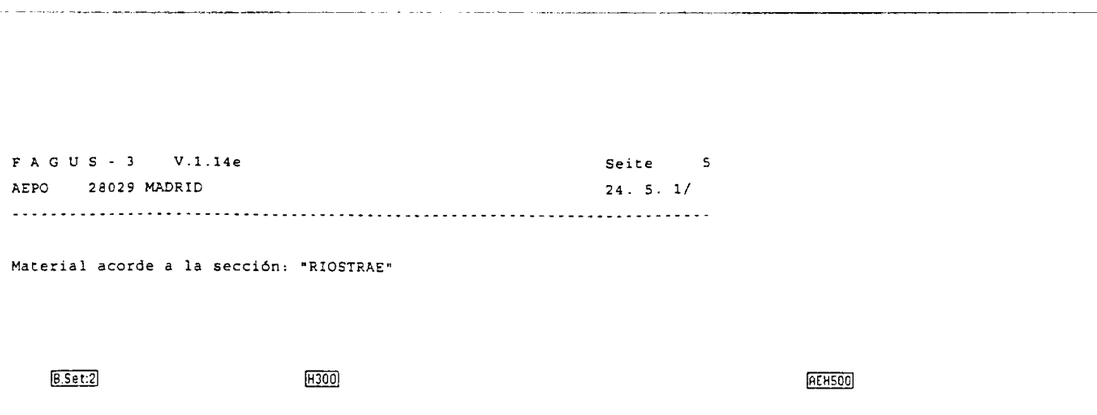


Material acorde a la sección: "RIOSTRAE"



Dimensionamiento, Sección "RIOSTRAE"

4b25



CALCULO A CORTANTE SEGÚN EHE
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Departamento de Estructuras. AEPO, S.A.
Título: Riotra de estribos
Fecha: 24/5/01 13.46.18

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 75 cm, alto 90 cm y canto 86 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 96 T
Cortante reducido a un canto útil del borde del apoyo = 80 T
Axil de cálculo (Tracciones positivas) = -50 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 56 cm2 lo que implica una cuantía geométrica igual a 0.00868
Inclinación de bielas de compresión 45°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 96 T < Vu1 = 387.00 T
Es necesario disponer armadura a cortante al ser Vrd = 80.00 T > Vu2 = 42.01 T
Valores de las tensiones: Eje X = -7.41 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 41.80°
Vcu = 29.30 T. Vsu= 50.70 T.
As cálculo = 16.38 cm2/m. As mínima = 7.50 cm2/m
Mínimo de armadura a disponer = 16.38 cm2/m

$$A_{st} = \frac{0.865\,m}{0.15\,m} \times 2 \times 2 \times 0.78\,cm^2 = 18\,cm^2$$

2 cercos ϕ 10 a 0.15 m

Plane (2-D) frame -analysis

****
* STRUCTURAL - DATA *
****

RIOSTRA PILAS

Project title :

J O I N T D A T A : (7 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	0.000000	0.000000	0.000000	B B	B	
2	0.391667	0.000000	0.000000			
3	0.783333	0.000000	0.000000			
4	1.175000	0.000000	0.000000			
5	1.566667	0.000000	0.000000			
6	1.958333	0.000000	0.000000			
7	2.350000	0.000000	0.000000			

B A R D A T A : (6 bars)

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	2	0.391667	RIOSPIL			oS
2	2	3	0.391667	RIOSPIL			oS
3	3	4	0.391667	RIOSPIL			oS
4	4	5	0.391667	RIOSPIL			oS
5	5	6	0.391667	RIOSPIL			oS
6	6	7	0.391667	RIOSPIL			oS

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / zl [M1]	Iy [M4] / zu [M1]	Fz [M2]
RIOSPIL	1.8000E+00	1.2150E-01	1.5000E+00
	-0.4500	0.4500	

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
1 .. 6	3.5500E+06	1.3000E+06

STS-Run ok

==========
Load case 1: cargas permanentes
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-50.280		Stab 1 .. 6

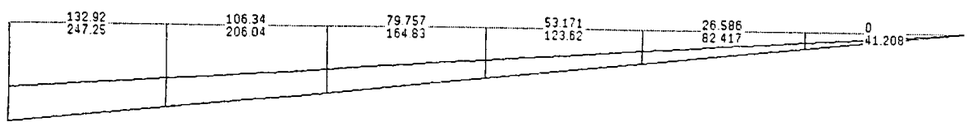
==========
Load case 2: sobrecargas maximas
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-24.890		Stab 1 .. 6

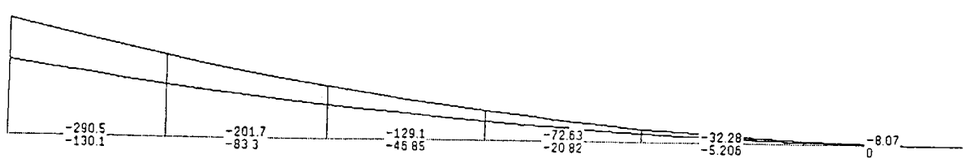
ENVELOPE SPECIFIC.: AA ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		cargas permanentes
B	PLUS	2	1.500		sobrecargas maximas

Scale 1 : 15.3
Int. Forces envelope Vz, GWSP AA, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 1.00E-03
  min: 2.66E-07 max: 1.60E+02 [t]
- Envelope Shear force Vz-max, Scale 1.00E-03
  min: 4.12E-07 max: 2.47E+02 [t]
- Text envelopes [t]



Scale 1 : 15.3
Int. Forces envelope My, GWSP AA, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 1.00E-03
  min: -2.91E+02 max: 2.65E-13 [tm]
- Envelope Moment My-max, Scale 1.00E-03
  min: -1.87E+02 max: 1.12E-12 [tm]
- Text envelopes [tm]



Características mecánicas Sección "RIOSPIL" (sin coef. homogeneiz.)

Area	Ax = 18.00E3 cm2		
Momento de inercia	Iy = 12.15E6 cm4	Iz = 60.00E6 cm4	Ip = 72.15E6 cm4
Const. de torsión			Ix = 34.87E6 cm4
Momento estático	Zy =405.00E3 cm3	Zz = 900.00E3 cm3	
Baricentro	ys = -0.00 cm	zs = 45.00 cm	Angulo= 0.0 Grad
Dist. al borde	yl = -100.00 cm	yr = 100.00 cm	
	zo = 45.00 cm	zu = -45.00 cm	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSPIL" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	18000.0	580.000	3.49E+07	1)

Puntos de contorno [cm]:
1 100.00 0.00 2 100.00 90.00 3 -100.00 90.00
4 -100.00 0.00

Armadura "B1" As-tot =2.00 cm2 (0.01 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-96.00	86.00
					96.00	86.00
BOTTOM / RQS	AEH500	10.0	2	1.00	-96.00	4.00
					96.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	200.00	82.00	0.00	86.00	0.00	4.00
SWY	Vy	90.00	192.00	-96.00	45.00	96.00	45.00
SWT	Torsion	200.00	90.00	0.00	0.00	0.00	90.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "RIOSPIL"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	-2905.00	0.00	

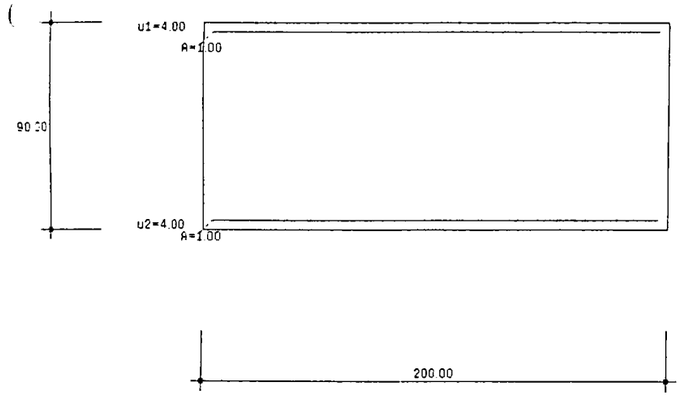
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
1 AEH500	-96.00	86.00	96.00	86.00	1.00	83.30	83.30
AEH500	-96.00	4.00	96.00	4.00	1.00	----	1.00

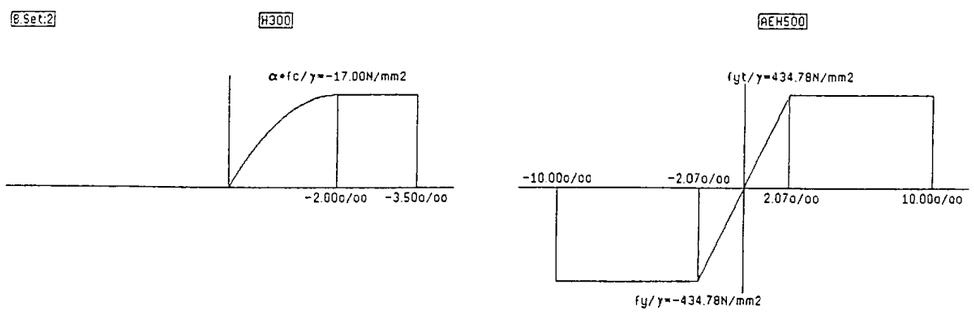
Max.x/h = 0.18 As-top/bot = 83.30/1.00 As = 0.47 % = 84.30

$(10\phi 25 + 10\phi 25) = 98.20\,cm^2$

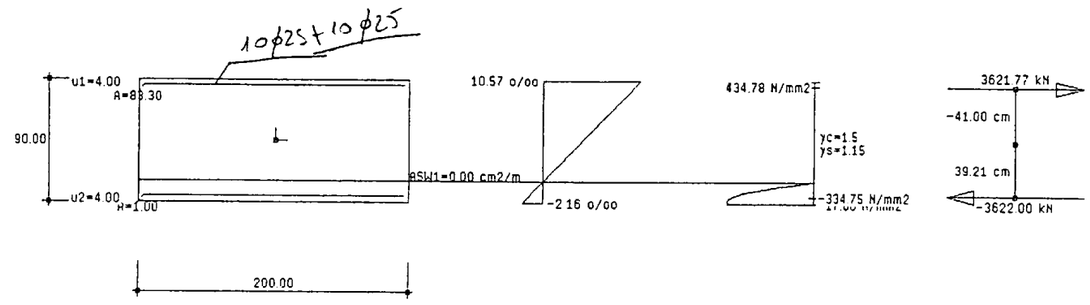
Sección RIOSPIL



Material acorde a la sección: "RIOSPIL"



Dimensionamiento, Sección "RIOSPIL"



CALCULO A CORTANTE SEGÚN EHE
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Departamento de Estructuras. AEPO, S.A.
Título: Riotra de pilas
Fecha: 24/5/01 13.48.28

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 200 cm, alto 90 cm y canto 86 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 247 T
Cortante reducido a un canto útil del borde del apoyo = 247 T
Axil de cálculo (Tracciones positivas) = 0 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 98 cm2 lo que implica una cuantía geométrica igual a 0.00570
Inclinación de bielas de compresión 45°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 247 T < Vu1 = 1032.00 T
Es necesario disponer armadura a cortante al ser Vrd = 247.00 T > Vu2 = 80.42 T
Valores de las tensiones: Eje X = 0.00 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 45.00°
Vcu = 67.01 T. Vsu= 179.99 T.
As cálculo = 58.14 cm2/m. As mínima = 20.00 cm2/m
Mínimo de armadura a disponer = 58.14 cm2/m

$$A_{st} = \frac{0.865\,m}{0.10\,m} \cdot 4 \times 2 \times 1.13\,cm^2 = 78.19\,cm^2$$

4 c ϕ 12 /0.10

2.3.5. Reacciones y cálculo de neoprenos en planta

PS 315+880

CARACTERÍSTICAS DE LOS NEOPRENOS

APOYOS	DIMENSIONES	δadm.	OBSERVACION
	mm	mm	
E-1	200 x 400 x 52 (37)	25.9	
E-2	200 x 400 x 52 (37)	25.9	

RESUMEN DE LOS DESPLAZAMIENTOS DE LOS APARATOS DE APOYO

APOYOS	DESPLAZAMIENTOS (mm)							
	Reológicos	Térmicos	Frenado	F. Centrif.	Viento (c/S.C.)	δ_{H1}	δ_{H2}	δadm.
	δ_R	δ_T	δ_F	δ_{FC}	$\delta_{V\ C/SC}$	mm	mm	mm
E-1	6.42	8.00	6.65	0.00	21.00	18.95	25.93	25.90
E-2	6.42	8.00	6.65	0.00	21.00	18.95	25.93	25.90

$\delta_{H1} = ((\delta_R + 0.6 \times \delta_T + \delta_F)^2 + (0{,}5 \times 0.6 \times \delta_{V\ C/SC})^2)^{0,5}$

$\delta_{H2} = ((\delta_R + 0.6 \times \delta_T + 0.6\ \delta_F)^2 + (\delta_{V\ C/SC})^2)^{0,5}$

RESUMEN DE LOS DESPLAZAMIENTOS DE LAS JUNTAS DE DILATACION

	DESPLAZAMIENTOS (mm)				
APOYOS	Reológicos	Térmicos	Frenado	δ_{MAX}	δ_{MIN}
	δ_R	δ_T	δ_F	mm	mm
E-1	6.42	8.00	6.65	21	15
E-2	6.42	8.00	6.65	21	15

J.D. ESTRIBOS DE 30 mm DE RECORRIDO, CON 15 mm DE APERTURA INICIAL

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

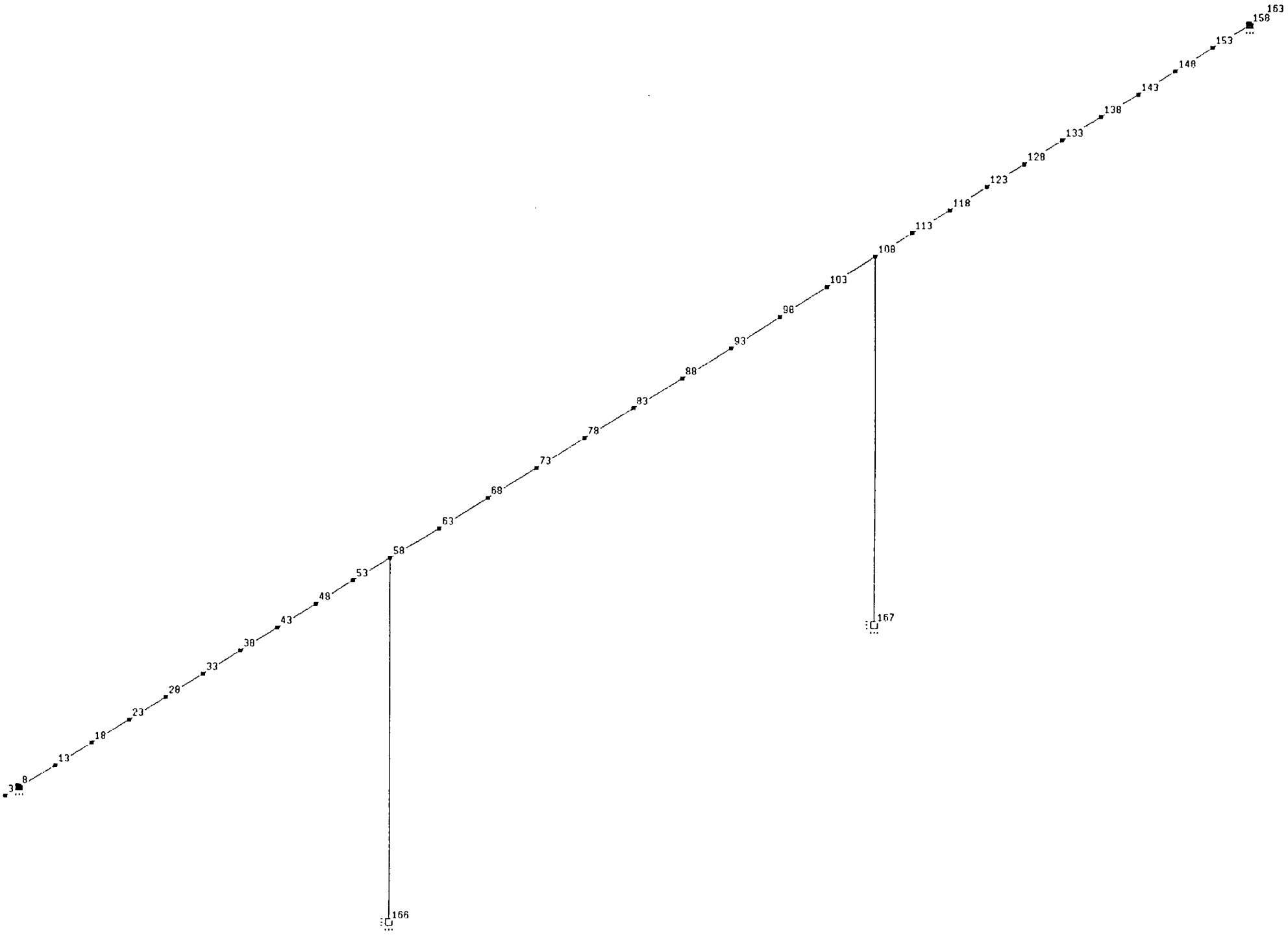
Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-3.633	-5.566	-1.43E-08	-0.001098	0.000282	2.93E-05
	0.729265	16.677	-9.22E-09	-0.000709	0.000154	-2.00E-05	
	Min: CF CH CI CJ DF DG DQ...		Max: DS DT DV DW DY DZ EZ...				
2	1.300	-3.666	-5.261	-1.474	-0.001105	0.000194	2.26E-05
	0.755751	16.016	-0.908772	-0.000646	7.11E-05	-2.06E-05	
	Min: CF CH CI CJ DF DG DQ...		Max: DS DT DV DW DY DZ EZ...				
31	0	0.755785	-11.165	-0.939849	0.000665	7.20E-05	2.07E-05
		-3.666	10.132	-1.505	0.001128	0.000195	-2.25E-05
	Min: DS DT DV DW DX DY ET...		Max: CF CH CI CL DL DN DQ...				
31	1.300	0.729085	-11.826	-1.07E-08	0.000733	0.000156	2.02E-05
		-3.634	10.417	-1.63E-08	0.001122	0.000285	-2.91E-05
	Min: DS DT DV DW DX DY ET...		Max: CF CH CI CL DL DN DQ...				
75	0	-5.237	-2.959	-2.341	0.000825	-0.000232	2.96E-06
	-1.01E-09	10.666	-0.931812	-8.42E-05	7.32E-13	7.37E-13	
	Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...				
75	1.300	-5.241	-2.675	-1.530	0.000333	-0.000260	2.78E-06
	-2.09E-09	10.004	-1.297	-0.000548	6.59E-13	9.23E-13	
	Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...				
76	0	-5.241	-2.675	-1.530	0.000333	-0.000260	2.78E-06
	-2.09E-09	10.004	-1.297	-0.000548	6.59E-13	9.23E-13	
	Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...				
76	1.700	-5.245	-2.305	-1.599	-0.000298	-0.000260	2.44E-06
	-4.04E-09	9.138	-2.679	-0.000971	6.64E-13	1.02E-12	
	Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...				
85	0	-3.98E-09	-4.286	-2.623	0.000951	6.61E-13	-1.01E-12
		-5.245	7.157	-1.544	0.000279	-0.000260	-2.44E-06
	Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...				
85	1.700	-2.09E-09	-5.152	-1.302	0.000490	6.56E-13	-8.99E-13
		-5.241	7.527	-1.535	-0.000392	-0.000260	-2.78E-06
	Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...				
86	0	-2.09E-09	-5.152	-1.302	0.000490	6.56E-13	-8.99E-13
		-5.241	7.527	-1.535	-0.000392	-0.000260	-2.78E-06
	Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...				
86	1.300	-1.08E-09	-5.814	-0.992653	5.24E-05	7.30E-13	-7.10E-13
		-5.237	7.810	-2.402	-0.000856	-0.000232	-2.96E-06
	Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...				
130	0	-1.552	-5.553	-1.37E-08	-0.001054	-0.000282	-2.40E-05
		-5.915	16.691	-8.59E-09	-0.000661	-0.000152	2.53E-05
	Min: CF CH CI CJ CN DQ DR		Max: DS DT DV DW DY DZ EH...				
130	1.300	-1.526	-5.268	-1.409	-0.001057	-0.000219	-1.74E-05
		-5.949	16.029	-0.839682	-0.000594	-9.58E-05	2.59E-05
	Min: CF CH CI CJ CN DQ DR		Max: DS DT DV DW DY DZ EH...				

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

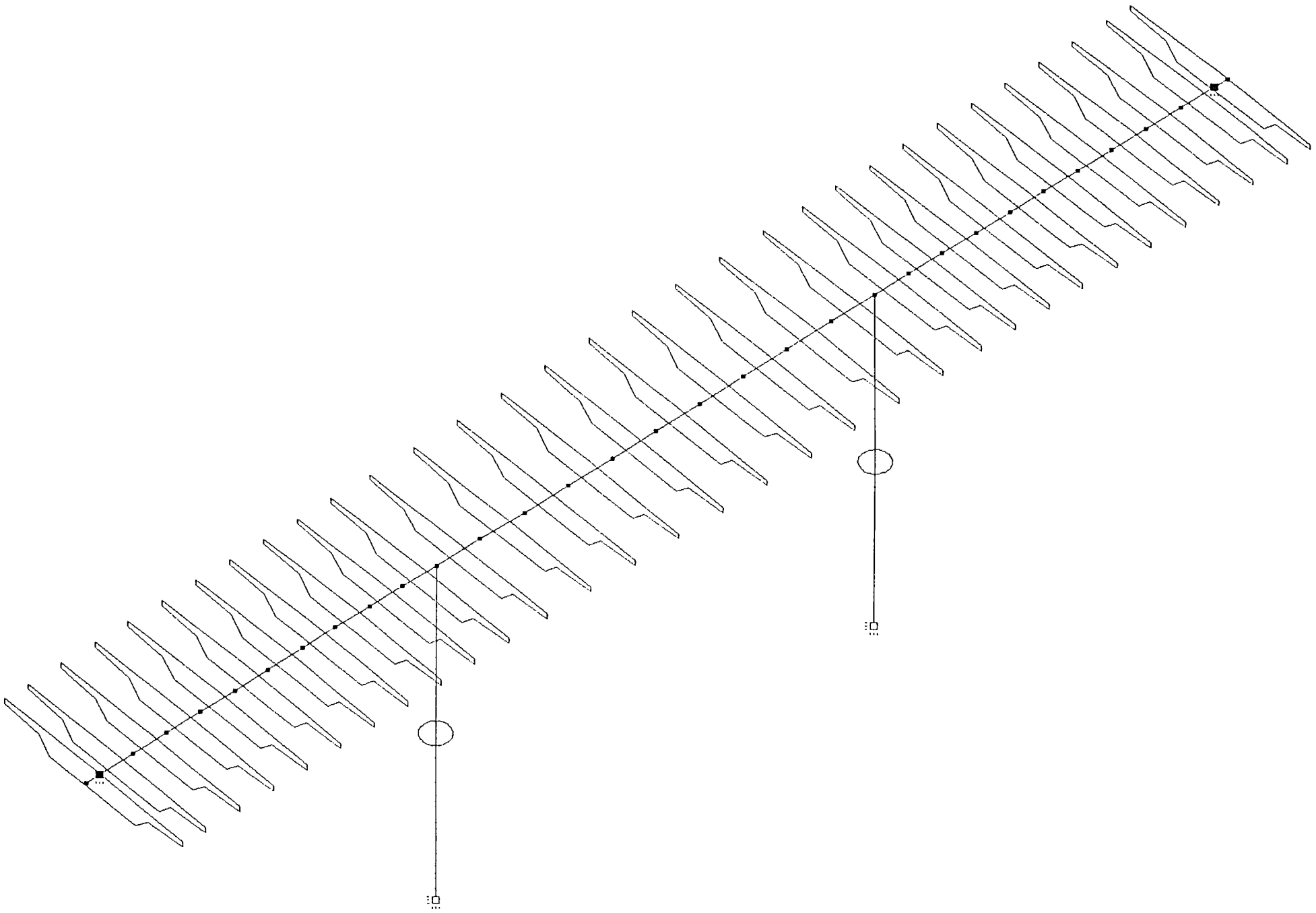
Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
159	0	-5.949	-11.178	-0.870759	0.000617	-9.68E-05	-2.60E-05
		-1.526	10.119	-1.440	0.001080	-0.000220	1.73E-05
	Min: DS DT DV DW DX DY EE...		Max: CF CH CI CL CT DN DQ...				
159	1.300	-5.915	-11.839	-9.85E-09	0.000685	-0.000154	-2.56E-05
		-1.552	10.404	-1.55E-08	0.001078	-0.000284	2.37E-05
	Min: DS DT DV DW DX DY EE...		Max: CF CH CI CL CT DN DQ...				

2.4. Comprobación Longitudinal del tablero

Scale 1 : 129.0
Structure - GEOMETRIA



Scale 1 : 147.9
Structure - SECCIONES



****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (35 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
3	2.62000	0.00000	0.00000			
8	2.62000	0.50000	0.00000	SSE	FFF	
13	2.62000	1.80000	0.00000			
18	2.62000	3.10000	0.00000			
23	2.62000	4.40000	0.00000			
28	2.62000	5.70000	0.00000			
33	2.62000	7.00000	0.00000			
38	2.62000	8.30000	0.00000			
43	2.62000	9.60000	0.00000			
48	2.62000	10.90000	0.00000			
53	2.62000	12.20000	0.00000			
58	2.62000	13.50000	0.00000			
63	2.62000	15.20000	0.00000			
68	2.62000	16.90000	0.00000			
73	2.62000	18.60000	0.00000			
78	2.62000	20.30000	0.00000			
83	2.62000	22.00000	0.00000			
88	2.62000	23.70000	0.00000			
93	2.62000	25.40000	0.00000			
98	2.62000	27.10000	0.00000			
103	2.62000	28.80000	0.00000			
108	2.62000	30.50000	0.00000			
113	2.62000	31.80000	0.00000			
118	2.62000	33.10000	0.00000			
123	2.62000	34.40000	0.00000			
128	2.62000	35.70000	0.00000			
133	2.62000	37.00000	0.00000			
138	2.62000	38.30000	0.00000			
143	2.62000	39.60000	0.00000			
148	2.62000	40.90000	0.00000			
153	2.62000	42.20000	0.00000			
158	2.62000	43.50000	0.00000	SSE	FFF	
163	2.62000	44.00000	0.00000			
166	2.62000	13.50000	-13.20000	EEE	EEE	
167	2.62000	30.50000	-13.20000	EEE	EEE	

ELASTICALLY SUPPORTED JOINTS: (*E*=Fixed *F*=Free)

Joint	V-X [T/M]	V-Y [T/M]	V-Z [T/M]	R-X [TM/ARC]	R-Y [TM/ARC]	R-Z [TM/ARC]
8	3.892E+02	3.892E+02	E	F	F	F
158	3.892E+02	3.892E+02	E	F	F	F

B A R D A T A : (34 bars)

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
65	3	8	0.50000	TABAPOYO			oS
66	8	13	1.30000	TABAPOYO			oS
67	13	18	1.30000	TABAPOYO			oS
68	18	23	1.30000	TABAPOYO			oS
69	23	28	1.30000	TABAPOYO			oS
70	28	33	1.30000	TABAPOYO			oS
71	33	38	1.30000	TABAPOYO			oS
72	38	43	1.30000	TABAPOYO			oS
73	43	48	1.30000	TABAPOYO			oS
74	48	53	1.30000	TABAPOYO			oS
75	53	58	1.30000	TABAPOYO			oS
76	58	63	1.70000	TABAPOYO			oS
77	63	68	1.70000	TABAPOYO			oS
78	68	73	1.70000	TABAPOYO			oS
79	73	78	1.70000	TABAPOYO			oS
80	78	83	1.70000	TABAPOYO			oS
81	83	88	1.70000	TABAPOYO			oS
82	88	93	1.70000	TABAPOYO			oS
83	93	98	1.70000	TABAPOYO			oS
84	98	103	1.70000	TABAPOYO			oS
85	103	108	1.70000	TABAPOYO			oS
86	108	113	1.30000	TABAPOYO			oS
87	113	118	1.30000	TABAPOYO			oS
88	118	123	1.30000	TABAPOYO			oS
89	123	128	1.30000	TABAPOYO			oS
90	128	133	1.30000	TABAPOYO			oS
91	133	138	1.30000	TABAPOYO			oS
92	138	143	1.30000	TABAPOYO			oS
93	143	148	1.30000	TABAPOYO			oS
94	148	153	1.30000	TABAPOYO			oS
95	153	158	1.30000	TABAPOYO			oS
96	158	163	0.50000	TABAPOYO			oS
290*	166	58	13.20000	PILAS			oS
291*	167	108	13.20000	PILAS			oS

Bars marked with *** are vertical (except any excentricities).
The corresponding special definition for the default orientation
of the local coordinate system applies.

oS = Bars without shear deformation

CROSS SECTION VALUES: CS-Name	Ax [M2] / Ix [M4] / zl [M]	Iy [M4] / Fy [M2] / zu [M]	Iz [M4] / Fz [M2] / yl [M]	Phi [Degr] / yr [M]
PILAS	7.8576E-01	4.9180E-02	4.9086E-02	0.00
	9.8175E-02	7.8576E-01	7.8576E-01	
	-0.5000	0.5000	-0.5000	0.5000
TABAPOYO	4.6531E+00	2.8617E-01	1.3718E+01	0.00
	5.0835E-01	4.6531E+00	4.6531E+00	
	-0.4986	0.4014	-3.8500	3.9500

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/M2]	Shear-M [T/M2]
65 .. 291	3.2900E+06	1.3700E+06

STS-Run ok

****
Load case 1: PESO PROPIO
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Mas.forcZ gl const.	-2.500		Stab 65 .. 96

****
Load case 2: PESO PAVIMENTO
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-0.552000		Stab 65 .. 96

****
Load case 3: PESO BARRERAS
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-2.046		Stab 65 .. 96

****
Load case 5: RETRACCION
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lc const.	-0.000292		Stab 65 .. 96

****
Load case 6: SOE UNIF 1
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-3.200		Stab 65 .. 75

****
Load case 7: SOERECARGA UNIF 2
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-3.200		Stab 76 .. 85

****
Load case 8: SOE UNIF 3
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-3.200		Stab 86 .. 96

****
Load case 9: SOE UNIF EXC
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-1.600		Stab 65
Moment X lc const.	-3.080		Stab 65
Force Z gl const.	-1.600		Stab 66
Moment X lc const.	-3.080		Stab 66
Force Z gl const.	-1.600		Stab 67
Moment X lc const.	-3.080		Stab 67
Force Z gl const.	-1.600		Stab 68
Moment X lc const.	-3.080		Stab 68
Force Z gl const.	-1.600		Stab 69
Moment X lc const.	-3.080		Stab 69
Force Z gl const.	-1.600		Stab 70
Moment X lc const.	-3.080		Stab 70
Force Z gl const.	-1.600		Stab 71
Moment X lc const.	-3.080		Stab 71
Force Z gl const.	-1.600		Stab 72
Moment X lc const.	-3.080		Stab 72
Force Z gl const.	-1.600		Stab 73
Moment X lc const.	-3.080		Stab 73
Force Z gl const.	-1.600		Stab 74
Moment X lc const.	-3.080		Stab 74
Force Z gl const.	-1.600		Stab 75
Moment X lc const.	-3.080		Stab 75
Force Z gl const.	-1.600		Stab 76
Moment X lc const.	-3.080		Stab 76
Force Z gl const.	-1.600		Stab 77
Moment X lc const.	-3.080		Stab 77
Force Z gl const.	-1.600		Stab 78
Moment X lc const.	-3.080		Stab 78
Force Z gl const.	-1.600		Stab 79
Moment X lc const.	-3.080		Stab 79
Force Z gl const.	-1.600		Stab 80
Moment X lc const.	-3.080		Stab 80
Force Z gl const.	-1.600		Stab 81
Moment X lc const.	-3.080		Stab 81
Force Z gl const.	-1.600		Stab 82
Moment X lc const.	-3.080		Stab 82
Force Z gl const.	-1.600		Stab 83
Moment X lc const.	-3.080		Stab 83
Force Z gl const.	-1.600		Stab 84
Moment X lc const.	-3.080		Stab 84
Force Z gl const.	-1.600		Stab 85
Moment X lc const.	-3.080		Stab 85
Force Z gl const.	-1.600		Stab 86
Moment X lc const.	-3.080		Stab 86
Force Z gl const.	-1.600		Stab 87
Moment X lc const.	-3.080		Stab 87
Force Z gl const.	-1.600		Stab 88
Moment X lc const.	-3.080		Stab 88
Force Z gl const.	-1.600		Stab 89

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Moment	X	lo const.	-3.080		Stab 89
Force	Z	gl const.	-1.600		Stab 90
Moment	X	lo const.	-3.080		Stab 90
Force	Z	gl const.	-1.600		Stab 91
Moment	X	lo const.	-3.080		Stab 91
Force	Z	gl const.	-1.600		Stab 92
Moment	X	lo const.	-3.080		Stab 92
Force	Z	gl const.	-1.600		Stab 93
Moment	X	lo const.	-3.080		Stab 93
Force	Z	gl const.	-1.600		Stab 94
Moment	X	lo const.	-3.080		Stab 94
Force	Z	gl const.	-1.600		Stab 95
Moment	X	lo const.	-3.080		Stab 95
Force	Z	gl const.	-1.600		Stab 96
Moment	X	lo const.	-3.080		Stab 96

Load case 10: SOS UNIF EXC

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Moment	X	lo const.	3.080		Stab 65
Force	Z	lo const.	-1.600		Stab 65
Moment	X	lo const.	3.080		Stab 66
Force	Z	lo const.	-1.600		Stab 66
Moment	X	lo const.	3.080		Stab 67
Force	Z	lo const.	-1.600		Stab 67
Moment	X	lo const.	3.080		Stab 68
Force	Z	lo const.	-1.600		Stab 68
Moment	X	lo const.	3.080		Stab 69
Force	Z	lo const.	-1.600		Stab 69
Moment	X	lo const.	3.080		Stab 70
Force	Z	lo const.	-1.600		Stab 70
Moment	X	lo const.	3.080		Stab 71
Force	Z	lo const.	-1.600		Stab 71
Moment	X	lo const.	3.080		Stab 72
Force	Z	lo const.	-1.600		Stab 72
Moment	X	lo const.	3.080		Stab 73
Force	Z	lo const.	-1.600		Stab 73
Moment	X	lo const.	3.080		Stab 74
Force	Z	lo const.	-1.600		Stab 74
Moment	X	lo const.	3.080		Stab 75
Force	Z	lo const.	-1.600		Stab 75
Moment	X	lo const.	3.080		Stab 76
Force	Z	lo const.	-1.600		Stab 76
Moment	X	lo const.	3.080		Stab 77

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	lo const.	-1.600		Stab 77
Moment	X	lo const.	3.080		Stab 78
Force	Z	lo const.	-1.600		Stab 78
Moment	X	lo const.	3.080		Stab 79
Force	Z	lo const.	-1.600		Stab 79
Moment	X	lo const.	3.080		Stab 80
Force	Z	lo const.	-1.600		Stab 80
Moment	X	lo const.	3.080		Stab 81
Force	Z	lo const.	-1.600		Stab 81
Moment	X	lo const.	3.080		Stab 82
Force	Z	lo const.	-1.600		Stab 82
Moment	X	lo const.	3.080		Stab 83
Force	Z	lo const.	-1.600		Stab 83
Moment	X	lo const.	3.080		Stab 84
Force	Z	lo const.	-1.600		Stab 84
Moment	X	lo const.	3.080		Stab 85
Force	Z	lo const.	-1.600		Stab 85
Moment	X	lo const.	3.080		Stab 86
Force	Z	lo const.	-1.600		Stab 86
Moment	X	lo const.	3.080		Stab 87
Force	Z	lo const.	-1.600		Stab 87
Moment	X	lo const.	3.080		Stab 88
Force	Z	lo const.	-1.600		Stab 88
Moment	X	lo const.	3.080		Stab 89
Force	Z	lo const.	-1.600		Stab 89
Moment	X	lo const.	3.080		Stab 90
Force	Z	lo const.	-1.600		Stab 90
Moment	X	lo const.	3.080		Stab 91
Force	Z	lo const.	-1.600		Stab 91
Moment	X	lo const.	3.080		Stab 92
Force	Z	lo const.	-1.600		Stab 92
Moment	X	lo const.	3.080		Stab 93
Force	Z	lo const.	-1.600		Stab 93
Moment	X	lo const.	3.080		Stab 94
Force	Z	lo const.	-1.600		Stab 94
Moment	X	lo const.	3.080		Stab 95
Force	Z	lo const.	-1.600		Stab 95
Moment	X	lo const.	3.080		Stab 96
Force	Z	lo const.	-1.600		Stab 96

Load case 11: VEHICULO HIPOTESIS 11

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.850000	Stab 66
Moment	X	lo conc.	-30.000	0.850000	Stab 66
Force	Z	gl conc.	-20.000	1.050	Stab 67
Moment	X	lo conc.	-30.000	1.050	Stab 67
Force	Z	gl conc.	-20.000	1.250	Stab 68
Moment	X	lo conc.	-30.000	1.250	Stab 68

Load case 12: VEHICULO HIPOTESIS 12

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.100	Stab 69
Force	Z	gl conc.	-20.000	1.300	Stab 70
Force	Z	gl conc.	-20.000	0.200000	Stab 72
Moment	X	lo conc.	-30.000	1.100	Stab 69
Moment	X	lo conc.	-30.000	1.300	Stab 70
Moment	X	lo conc.	-30.000	0.200000	Stab 72

Load case 13: VEHICULO HIPOTESIS 13

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.050000	Stab 73
Force	Z	gl conc.	-20.000	0.250000	Stab 74
Force	Z	gl conc.	-20.000	0.450000	Stab 75
Moment	X	lo conc.	-30.000	0.050000	Stab 73
Moment	X	lo conc.	-30.000	0.250000	Stab 74
Moment	X	lo conc.	-30.000	0.450000	Stab 75

Load case 14: VEHICULO HIPOTESIS 14

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.850000	Stab 76
Force	Z	gl conc.	-20.000	0.650000	Stab 77
Force	Z	gl conc.	-20.000	0.450000	Stab 78
Moment	X	lo conc.	-30.000	0.850000	Stab 76
Moment	X	lo conc.	-30.000	0.650000	Stab 77
Moment	X	lo conc.	-30.000	0.450000	Stab 78

Load case 15: VEHICULO HIPOTESIS 15

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.200000	Stab 80
Force	Z	gl conc.	-20.000	0	Stab 81
Force	Z	gl conc.	-20.000	1.500	Stab 81
Moment	X	lo conc.	-30.000	0.200000	Stab 80
Moment	X	lo conc.	-30.000	0	Stab 81
Moment	X	lo conc.	-30.000	1.500	Stab 81

Load case 16: VEHICULO HIPOTESIS 16

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.250	Stab 83
Force	Z	gl conc.	-20.000	1.050	Stab 84
Force	Z	gl conc.	-20.000	0.850000	Stab 85
Moment	X	lo conc.	-30.000	1.250	Stab 83
Moment	X	lo conc.	-30.000	1.050	Stab 84
Moment	X	lo conc.	-30.000	0.850000	Stab 85

Load case 17: VEHICULO HIPOTESIS 17

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.850000	Stab 86
Force	Z	gl conc.	-20.000	1.050	Stab 87
Force	Z	gl conc.	-20.000	1.250	Stab 88
Moment	X	lo conc.	-30.000	0.850000	Stab 86
Moment	X	lo conc.	-30.000	1.050	Stab 87
Moment	X	lo conc.	-30.000	1.250	Stab 88

Load case 18: VEHICULO HIPOTESIS 18

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.100	Stab 89
Force	Z	gl conc.	-20.000	1.300	Stab 90
Force	Z	gl conc.	-20.000	0.200000	Stab 92
Moment	X	lo conc.	-30.000	1.100	Stab 89
Moment	X	lo conc.	-30.000	1.300	Stab 90
Moment	X	lo conc.	-30.000	0.200000	Stab 92

Load case 19: VEHICULO HIPOTESIS 19

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.050000	Stab 93
Force	Z	gl conc.	-20.000	0.250000	Stab 94
Force	Z	gl conc.	-20.000	0.450000	Stab 95
Moment	X	lo conc.	-30.000	0.050000	Stab 93
Moment	X	lo conc.	-30.000	0.250000	Stab 94
Moment	X	lo conc.	-30.000	0.450000	Stab 95

Load case 20: VEHICULO HIPOTESIS 20

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.850000	Stab 66
Force	Z	gl conc.	-20.000	1.050	Stab 67
Force	Z	gl conc.	-20.000	1.250	Stab 68

Load case 21: VEHICULO HIPOTESIS 21

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.100	Stab 69
Force	Z	gl conc.	-20.000	1.300	Stab 70
Force	Z	gl conc.	-20.000	0.200000	Stab 72

Load case 22: VEHICULO HIPOTESIS 22

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.050000	Stab 73
Force	Z	gl conc.	-20.000	0.250000	Stab 74
Force	Z	gl conc.	-20.000	0.450000	Stab 75

Load case 23: VEHICULO HIPOTESIS 23

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	76
Force	Z	gl conc.	-20.000	0.650000	Stab	77
Force	Z	gl conc.	-20.000	0.450000	Stab	78

Load case 24: VEHICULO HIPOTESIS 24

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.200000	Stab	80
Force	Z	gl conc.	-20.000	0	Stab	81
Force	Z	gl conc.	-20.000	1.500	Stab	81

Load case 25: VEHICULO POSICION 25

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.250	Stab	83
Force	Z	gl conc.	-20.000	1.050	Stab	84
Force	Z	gl conc.	-20.000	0.850000	Stab	85

Load case 26: VEHICULO POSICION 26

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	86
Force	Z	gl conc.	-20.000	1.050	Stab	87
Force	Z	gl conc.	-20.000	1.250	Stab	88

Load case 27: VEHICULO POSICION 27

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.100	Stab	89
Force	Z	gl conc.	-20.000	1.300	Stab	90
Force	Z	gl conc.	-20.000	0.200000	Stab	91

Load case 28: VEHICULO POSICION 28

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.050000	Stab	93
Force	Z	gl conc.	-20.000	0.250000	Stab	94
Force	Z	gl conc.	-20.000	0.450000	Stab	95

Load case 29: VEHICULO POSICION 29

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	66
Force	Z	gl conc.	-20.000	1.050	Stab	67
Force	Z	gl conc.	-20.000	1.250	Stab	68
Moment	X	lo conc.	30.000	0.850000	Stab	66
Moment	X	lo conc.	30.000	1.050	Stab	67
Moment	X	lo conc.	30.000	1.250	Stab	68

Load case 30: VEHICULO POSICION 30

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.100	Stab	69
Force	Z	gl conc.	-20.000	1.300	Stab	70
Force	Z	gl conc.	-20.000	0.200000	Stab	72
Moment	X	lo conc.	30.000	1.100	Stab	69
Moment	X	lo conc.	30.000	1.300	Stab	70
Moment	X	lo conc.	30.000	0.200000	Stab	72

Load case 31: VEHICULO POSICION 31

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.050000	Stab	73
Force	Z	gl conc.	-20.000	0.250000	Stab	74
Force	Z	gl conc.	-20.000	0.450000	Stab	75
Moment	X	lo conc.	30.000	0.050000	Stab	73
Moment	X	lo conc.	30.000	0.250000	Stab	74
Moment	X	lo conc.	30.000	0.450000	Stab	75

Load case 32: VEHICULO POSICION 32

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	76
Force	Z	gl conc.	-20.000	0.650000	Stab	77
Force	Z	gl conc.	-20.000	0.450000	Stab	78
Moment	X	lo conc.	30.000	0.850000	Stab	76
Moment	X	lo conc.	30.000	0.650000	Stab	77
Moment	X	lo conc.	30.000	0.450000	Stab	78

Load case 33: VEHICULO POSICION 33

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.200000	Stab	80
Force	Z	gl conc.	-20.000	0	Stab	81
Force	Z	gl conc.	-20.000	1.500	Stab	81
Moment	X	lo conc.	30.000	0.200000	Stab	80
Moment	X	lo conc.	30.000	0	Stab	81
Moment	X	lo conc.	30.000	1.500	Stab	81

Load case 34: VEHICULO POSICION 34

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.250	Stab	83
Force	Z	gl conc.	-20.000	1.050	Stab	84
Force	Z	gl conc.	-20.000	0.850000	Stab	85
Moment	X	lo conc.	30.000	1.250	Stab	83
Moment	X	lo conc.	30.000	1.050	Stab	84
Moment	X	lo conc.	30.000	0.850000	Stab	85

Load case 35: VEHICULO POSICION 35

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	86
Force	Z	gl conc.	-20.000	1.050	Stab	87
Force	Z	gl conc.	-20.000	1.250	Stab	88
Moment	X	lo conc.	30.000	0.850000	Stab	86
Moment	X	lo conc.	30.000	1.050	Stab	87
Moment	X	lo conc.	30.000	1.250	Stab	88

Load case 36: VEHICULO POSICION 36

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.100	Stab	89
Force	Z	gl conc.	-20.000	1.300	Stab	90
Force	Z	gl conc.	-20.000	0.200000	Stab	92
Moment	X	lo conc.	30.000	1.100	Stab	89
Moment	X	lo conc.	30.000	1.300	Stab	90
Moment	X	lo conc.	30.000	0.200000	Stab	92

Load case 37: VEHICULO HIPOTESIS 37

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.050000	Stab	93
Force	Z	gl conc.	-20.000	0.250000	Stab	94
Force	Z	gl conc.	-20.000	0.450000	Stab	95
Moment	X	lo conc.	30.000	0.050000	Stab	93
Moment	X	lo conc.	30.000	0.250000	Stab	94
Moment	X	lo conc.	30.000	0.450000	Stab	95

Load case 60: FRENADO

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	lo const.	0.272700		Stab	65 .. 96

Load case 62: VIENTO TRANSV SIN SOB

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl const.	-0.260000		Stab	65 .. 96
Force	X	pj const.	-0.200000		Stab	290 .. 291

Load case 63: VIENTO TRANSV CON SOB

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl const.	-0.760000		Stab	65 .. 96
Force	X	pj const.	-0.200000		Stab	290 .. 291

****
Load case 64: TEMPERATURA (-)
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lc const.	-0.000363		Stat 65 .. 96

****
Load case 65: TEMPERATURA (+)
****

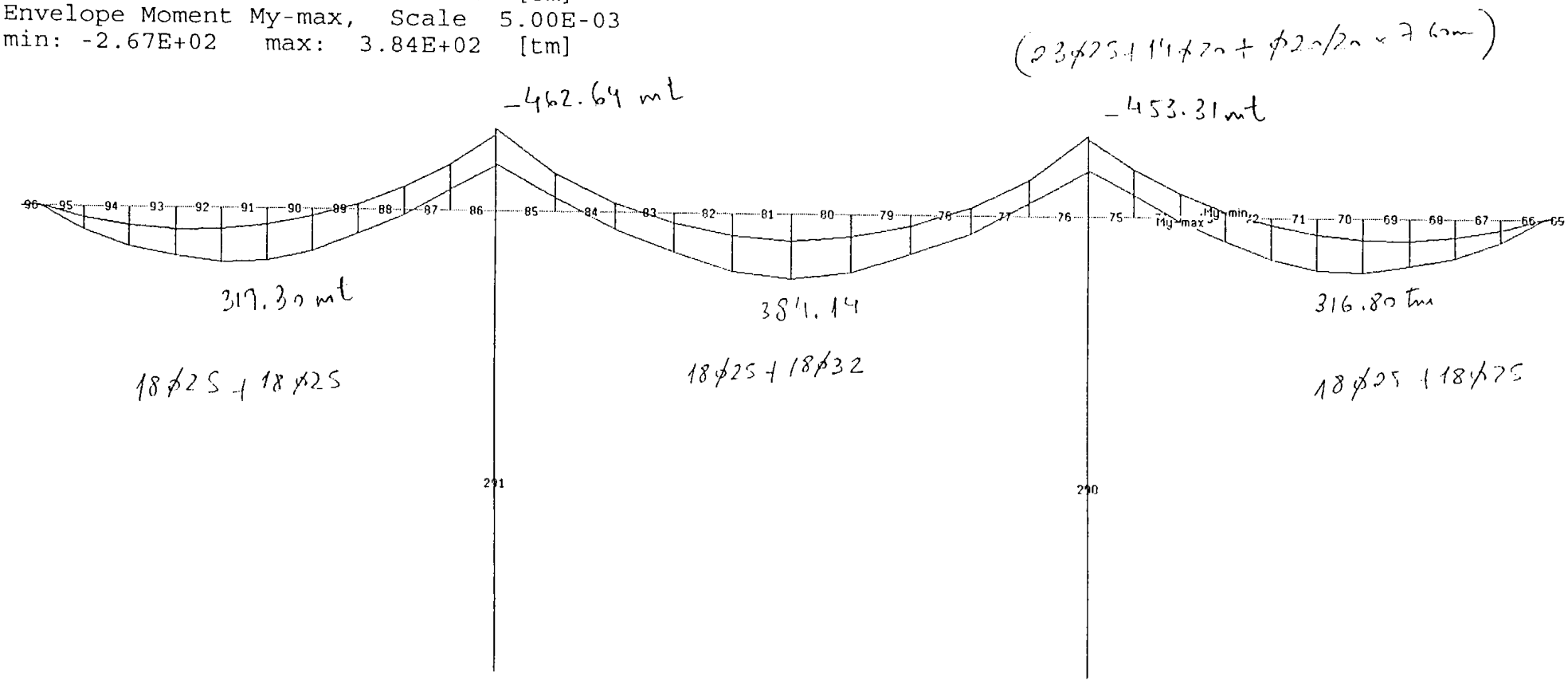
Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lc const.	0.000362		Stat 65 .. 96

****
Load case 66: GRADIENTE
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Curvat. Y lc const.	0.000170		Stat 65 .. 96

2.4.1.1. Comprobación de estados límites servicio (ELS)

Scale 1 : 173.7
Int. Forces envelope My, GWSP EO (COMBINACION FRECUENTE), Subsys. "LIST"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 5.00E-03
  min: -4.63E+02 max: 1.60E+02 [tm]
- Envelope Moment My-max, Scale 5.00E-03
  min: -2.67E+02 max: 3.84E+02 [tm]



ENVELOPE SPECIFIC.: EG 'COMBINACION FRECUENTE'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	0.600000		SOB UNIF 1
F	PLUS	7	0.600000		SOBRECARGA UNIF 2
G	PLUS	8	0.600000		SOB UNIF 3
H	PLUS	11	0.840000		VEHICULO HIPOTESIS 11
I	OR	11	0.840000		VEHICULO HIPOTESIS 12
J	OR	13	0.840000		VEHICULO HIPOTESIS 13
K	OR	14	0.840000		VEHICULO HIPOTESIS 14
L	OR	15	0.840000		VEHICULO HIPOTESIS 15
M	OR	16	0.840000		VEHICULO HIPOTESIS 16
N	OR	17	0.840000		VEHICULO HIPOTESIS 17
O	OR	18	0.840000		VEHICULO HIPOTESIS 18
P	OR	19	0.840000		VEHICULO HIPOTESIS 19
Q	OR	20	0.840000		VEHICULO HIPOTESIS 20
R	OR	21	0.840000		VEHICULO HIPOTESIS 21
S	OR	22	0.840000		VEHICULO HIPOTESIS 22
T	OR	23	0.840000		VEHICULO HIPOTESIS 23
U	OR	24	0.840000		VEHICULO HIPOTESIS 24
V	OR	25	0.840000		VEHICULO POSICION 25
W	OR	26	0.840000		VEHICULO POSICION 26
X	OR	27	0.840000		VEHICULO POSICION 27
Y	OR	28	0.840000		VEHICULO POSICION 28
Z	OR	29	0.840000		VEHICULO POSICION 29
AA	OR	30	0.840000		VEHICULO POSICION 30
AB	OR	31	0.840000		VEHICULO POSICION 31
AC	OR	32	0.840000		VEHICULO POSICION 32
AD	OR	33	0.840000		VEHICULO POSICION 33
AE	OR	34	0.840000		VEHICULO POSICION 34
AF	OR	35	0.840000		VEHICULO POSICION 35
AG	OR	36	0.840000		VEHICULO POSICION 36
AH	OR	37	0.840000		VEHICULO HIPOTESIS 37
AI	PLUS	60	0.600000		FRENADO
AJ	PLUS	63	0.100000		VIENTO TRANSV CON SOB
AK	PLUS	64	0.200000		TEMPERATURA (-)
AL	OR	65	0.200000		TEMPERATURA (+)
AM	PLUS	66	0.200000		GRADIENTE
ALTERNATIVE ENVELOPE :					
AN	PERM.	1	1.000		PESO PROPIO
AO	PL.PERM	2	1.500		PESO PAVIMENTO
AP	OR	2	1.000		PESO PAVIMENTO
AQ	PL.PERM	3	1.000		PESO BARRERAS
AR	PLUS	9	0.600000		SOB UNIF EXC
AS	PLUS	10	0.600000		SOB UNIF EXC
AT	PLUS	11	0.840000		VEHICULO HIPOTESIS 11
AU	OR	12	0.840000		VEHICULO HIPOTESIS 12
AV	OR	13	0.840000		VEHICULO HIPOTESIS 13
AW	OR	14	0.840000		VEHICULO HIPOTESIS 14
AX	OR	15	0.840000		VEHICULO HIPOTESIS 15
AY	OR	16	0.840000		VEHICULO HIPOTESIS 16
AZ	OR	17	0.840000		VEHICULO HIPOTESIS 17
BA	OR	18	0.840000		VEHICULO HIPOTESIS 18
BB	OR	19	0.840000		VEHICULO HIPOTESIS 19
BC	OR	20	0.840000		VEHICULO HIPOTESIS 20
BD	OR	21	0.840000		VEHICULO HIPOTESIS 21
BE	OR	22	0.840000		VEHICULO HIPOTESIS 22
BF	OR	23	0.840000		VEHICULO HIPOTESIS 23
BG	OR	24	0.840000		VEHICULO HIPOTESIS 24
BH	OR	25	0.840000		VEHICULO POSICION 25
BI	OR	26	0.840000		VEHICULO POSICION 26
BJ	OR	27	0.840000		VEHICULO POSICION 27
BK	OR	28	0.840000		VEHICULO POSICION 28
BL	OR	29	0.840000		VEHICULO POSICION 29
BM	OR	30	0.840000		VEHICULO POSICION 30
BN	OR	31	0.840000		VEHICULO POSICION 31
BO	OR	32	0.840000		VEHICULO POSICION 32
BP	OR	33	0.840000		VEHICULO POSICION 33
BQ	OR	34	0.840000		VEHICULO POSICION 34
BR	OR	35	0.840000		VEHICULO POSICION 35
BS	OR	36	0.840000		VEHICULO POSICION 36
BT	OR	37	0.840000		VEHICULO HIPOTESIS 37
BU	PLUS	60	0.600000		FRENADO
BV	PLUS	63	0.100000		VIENTO TRANSV CON SOB
BW	PLUS	64	0.200000		TEMPERATURA (-)
BX	OR	65	0.200000		TEMPERATURA (+)
BY	PLUS	66	0.200000		GRADIENTE

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	-8.17E-10	-9.94E-11	-7.25E-08	9.92E-14	-8.29E-13	5.30E-10
		9.01E-13	3.47E-09	-8.68E-08	-1.90E-13	-2.20E-13	-5.00E-10
	Min:	A E D F L AI AK AM		Max:	A C D E G I AL		
65	0.500	-0.081810	3.43E-05	-8.213	1.77E-13	-2.053	1.22E-09
		1.08E-12	3.47E-05	-7.115	-1.90E-13	-1.779	1.23E-09
	Min:	AN AO AQ AR AS AT BU...		Max:	A C D G I AK		
66	0	1.649	-2.767	73.437	3.48E-14	-2.053	-3.80E-08
		-0.630755	-3.255	110.846	-2.68E-14	-1.779	-4.43E-08
	Min:	A B D E F L AI AK		Max:	A C D G H AL AM		
66	1.300	1.501	-2.767	42.637	3.48E-14	65.674	-3.597
		-0.695688	-3.255	84.993	25.200	136.597	-4.231
	Min:	A C D F L AI AK		Max:	A B D E G H AL AM		
67	0	1.501	-2.767	42.637	3.48E-14	65.674	-3.597
		-0.695688	-3.255	84.993	25.200	136.597	-4.231
	Min:	A C D F L AI AK		Max:	A B D E G H AL AM		
67	1.300	1.289	-2.767	24.137	3.48E-14	109.077	-7.194
		-0.695688	-3.255	46.838	50.400	229.007	-8.463
	Min:	A C D F L AI AK		Max:	A B D E G H AL AM		
68	0	1.289	-2.767	24.137	3.48E-14	109.077	-7.194
		-0.695688	-3.255	46.838	50.400	229.007	-8.463
	Min:	A C D E F L AI AK		Max:	A B D E G H AL AM		
68	1.300	1.076	-2.767	5.637	3.48E-14	128.430	-10.791
		-0.795944	-3.255	40.609	4.05E-14	281.248	-12.694
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
69	0	1.076	-2.767	5.637	2.35E-13	128.430	-10.791
		-0.795944	-3.255	40.609	3.18E-13	281.248	-12.694
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
69	1.300	0.663157	-2.767	-12.863	2.35E-13	123.733	-14.388
		-0.795944	-3.255	2.455	25.200	316.800	-16.925
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
70	0	0.663157	-2.767	-12.863	2.40E-13	123.733	-14.388
		-0.795944	-3.255	2.455	25.200	316.800	-16.925
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
70	1.300	0.650451	-2.767	-31.363	2.40E-13	94.986	-17.985
		-0.795944	-3.255	-16.900	25.200	306.110	-21.156
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
71	0	0.650451	-2.767	-31.363	3.23E-14	94.986	-17.985
		-0.795944	-3.255	-35.700	50.400	306.110	-21.156
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
71	1.300	0.437745	-2.767	-49.862	3.23E-14	42.190	-21.583
		-0.795944	-3.255	-57.054	50.400	245.820	-25.388
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
72	0	0.437745	-2.767	-49.862	-2.20E-13	42.190	-21.583
		-0.795944	-3.255	-57.054	50.400	245.820	-25.388
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
72	1.300	0.225039	-2.767	-68.362	-2.20E-13	-34.656	-25.180
		-0.795944	-3.255	-95.209	75.600	139.289	-29.619
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
73	0	0.225039	-2.767	-68.362	-3.62E-13	-34.656	-25.180
		-0.795944	-3.255	-95.209	75.600	139.289	-29.619
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
73	1.300	0.012337	-2.767	-88.407	-3.62E-13	-136.729	-28.777
		-0.740640	-3.255	-95.929	25.200	27.468	-33.850
	Min:	A B D F L AI AK		Max:	A C D E G J AL AM		
74	0	0.012337	-2.767	-88.407	-6.23E-13	-136.729	-28.777
		-0.740640	-3.255	-95.929	25.200	27.468	-33.850
	Min:	A B D F L AI AK		Max:	A C D E G J AL AM		
74	1.300	-0.265306	-2.767	-118.754	-6.23E-13	-267.156	-32.374
		-0.675703	-3.255	-122.236	50.400	-125.284	-38.081

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
	Min:	A E D E F L AI AK		Max:	A C D G J AL AM		
75	0	-0.265306	-2.767	-118.754	-7.73E-13	-267.156	-32.374
		-0.675703	-3.255	-122.236	50.400	-125.284	-38.081
	Min:	A E D E F L AI AK		Max:	A C D G J AL AM		
75	1.300	-0.478012	-2.767	-140.109	-7.73E-13	-415.415	-35.971
		-0.354707	-2.279	-112.540	-6.13E-13	-262.317	-29.629
	Min:	A E D E F L AI AK		Max:	A C D G O AL AM		
76	0	-4.027	1.15E-09	166.074	-37.800	-453.307	-35.902
		2.447	-0.816198	114.873	-25.394	-257.552	-28.964
	Min:	A E D E F L AL		Max:	A C D G O AI AK AM		
76	1.700	-1.588	0.816198	116.690	25.394	-206.732	-41.452
		0.560163	0.590543	122.326	-21.576	-74.093	-39.918
	Min:	A E D E F I AL		Max:	A C D G K AI AK AM		
77	0	-1.588	0.816198	116.690	25.394	-206.732	-41.452
		0.560163	0.590543	122.326	-21.576	-74.093	-39.918
	Min:	A E D E F I AL		Max:	A C D G K AI AK AM		
77	1.700	-0.865035	0.816198	77.565	25.394	-44.387	-40.065
		-0.440823	0.590543	92.533	3.624	107.950	-38.914
	Min:	A C D E I AL		Max:	A B D F G K AI AK AM		
78	0	-0.865035	0.816198	77.565	25.394	-44.387	-40.065
		-0.440823	0.590543	92.533	3.624	107.950	-38.914
	Min:	A C D E I AL		Max:	A B D F G K AI AK AM		
78	1.700	-0.575585	0.816198	52.125	25.394	65.382	-38.677
		-1.838	9.21E-10	79.952	-37.800	232.445	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
79	0	-0.575585	0.816198	52.125	25.394	65.382	-38.677
		-1.838	8.15E-10	79.952	-37.800	232.445	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
79	1.700	-0.575585	0.816198	27.933	25.394	133.432	-37.290
		-2.116	8.15E-10	52.027	-37.800	344.631	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
80	0	-0.575585	0.816198	27.933	25.394	133.432	-37.290
		-2.116	7.85E-10	52.027	-37.800	344.631	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
80	1.700	-0.575585	0.816198	3.741	25.394	160.355	-35.902
		-2.394	7.85E-10	7.302	-12.600	384.141	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
81	0	-0.575585	-0.816198	-4.840	-25.394	160.355	-35.902
		-2.394	7.21E-10	-8.400	12.600	384.141	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		
81	1.700	-0.865035	-0.816198	-29.032	-25.394	131.565	-37.290
		-2.394	7.21E-10	-53.125	37.800	342.764	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
82	0	-0.853739	-0.816198	-29.032	-25.394	131.565	-37.290
		-2.394	6.96E-10	-53.125	37.800	342.764	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		
82	1.700	-1.132	-0.816198	-53.224	-25.394	61.648	-38.677
		-2.394	6.96E-10	-81.051	37.800	228.715	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		
83	0	-1.132	-0.816198	-53.224	-25.394	61.648	-38.677
		-2.394	7.08E-10	-81.051	37.800	228.715	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		
83	1.700	-1.699	-0.816198	-78.663	-25.394	-49.988	-40.065
		-1.275	-0.590543	-93.632	-3.624	102.348	-38.914
	Min:	A C D G O AI AL		Max:	A E D E F M AK AM		
84	0	-1.699	-0.816198	-76.663	-25.394	-49.988	-40.065
		-1.275	-0.590543	-93.632	-3.624	102.348	-38.914
	Min:	A C D G O AI AL		Max:	A E D E F M AK AM		
84	1.700	-2.700	-0.816198	-117.788	-25.394	-214.200	-41.452
		-0.552453	-0.590543	-123.424	21.576	-81.561	-39.918
	Min:	A E D F G O AI AL		Max:	A C D E N AK AM		
85	0	-2.700	-0.816198	-117.788	-25.394	-214.200	-41.452
		-0.552453	-0.590543	-123.424	21.576	-81.561	-39.918
	Min:	A E D F G O AI AL		Max:	A C D E M AK AM		
85	1.700	-5.417	6.16E-10	-167.172	37.800	-462.643	-35.902
		1.057	0.816198	-115.972	25.394	-266.885	-28.964
	Min:	A E D F G L AI AL		Max:	A C D E I AK AM		
86	0	0.543500	2.767	139.629	-2.75E-13	-429.186	-35.971
		0.666805	2.279	112.061	-2.02E-13	-256.080	-29.629
	Min:	A E D F G L AK		Max:	A C D E I AI AL AM		
86	1.300	0.543500	2.767	118.274	-2.75E-13	-261.544	-32.374
		0.133104	3.255	121.756	-50.400	-119.671	-38.081
	Min:	A E D F G L AK		Max:	A C D E N AI AL AM		
87	0	0.543500	2.767	118.274	-8.58E-14	-261.544	-32.374
		0.133104	3.255	121.756	-50.400	-119.671	-38.081
	Min:	A E D F G L AK		Max:	A C D E N AI AL AM		
87	1.300	0.608438	2.767	87.927	-8.58E-14	-131.739	-28.777
		-0.144540	3.255	95.449	-25.200	32.458	-33.850
	Min:	A E D F L AK		Max:	A C D E G N AI AL AM		
88	0	0.608438	2.767	87.927	8.24E-14	-131.739	-28.777
		-0.144540	3.255	95.449	-25.200	32.458	-33.850
	Min:	A E D F L AK		Max:	A C D E G N AI AL AM		
88	1.300	0.608434	2.767	67.882	8.24E-14	-30.290	-25.180
		-0.412549	3.255	94.729	-75.600	143.655	-29.619
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
89	0	0.608434	2.767	67.882	3.29E-13	-30.290	-25.180
		-0.412549	3.255	94.729	-75.600	143.655	-29.619
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		
89	1.300	0.608434	2.767	49.383	3.29E-13	45.933	-21.583
		-0.625255	3.255	56.575	-50.400	249.562	-25.388
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		
90	0	0.608434	2.767	49.383	1.88E-13	45.933	-21.583
		-0.625255	3.255	56.575	-50.400	249.562	-25.388
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		
90	1.300	0.608434	2.767	30.883	1.88E-13	98.105	-17.985
		-0.837961	3.255	35.220	-50.400	309.229	-21.156
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		
91	0	0.608434	2.767	30.883	-2.66E-15	98.105	-17.985
		-0.837961	3.255	18.420	-25.200	309.229	-21.156
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		
91	1.300	0.608434	2.767	12.383	-2.66E-15	126.228	-14.388
		-1.051	3.255	-2.935	-25.200	319.294	-16.925
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
92	0	0.608434	2.767	12.383	1.45E-13	126.228	-14.388
		-1.051	3.255	-2.935	-25.200	319.294	-16.925
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		
92	1.300	0.608434	2.767	-6.117	1.45E-13	130.301	-10.791
		-1.263	3.255	-41.089	1.07E-14	283.119	-12.694
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
93	0	0.608434	2.767	-6.117	9.70E-14	130.301	-10.791
		-1.263	3.255	-41.089	1.37E-13	283.119	-12.694
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		
93	1.300	0.608434	2.767	-24.617	9.70E-14	110.324	-7.194
		-1.376	3.255	-47.316	-50.400	230.255	-8.463
	Min:	A C D F L AK		Max:	A E D E G P AI AL AM		
94	0	0.608434	2.767	-24.617	1.51E-13	110.324	-7.194
		-1.376	3.255	-47.316	-50.400	230.255	-8.463
	Min:	A C D F L AK		Max:	A E D E G P AI AL AM		
94	1.300	0.608434	2.767	-43.116	1.51E-13	66.297	-3.597
		-1.539	3.255	-85.472	-25.200	137.221	-4.231
	Min:	A C D F L AK		Max:	A B D E G P AI AL AM		
95	0	0.608434	2.767	-43.116	2.98E-13	66.297	-3.597
		-1.539	3.255	-85.472	-25.200	137.221	-4.231
	Min:	A C D F L AK		Max:	A B D E G P AI AL AM		
95	1.300	0.543500	2.767	-73.517	2.98E-13	-2.053	-3.76E-08
		-1.736	3.255	-111.326	5.76E-13	-1.779	-4.41E-08
	Min:	A B D F G L AK		Max:	A C D E F AI AL AM		
96	0	0.081810	3.91E-09	8.213	6.19E-13	-2.053	1.06E-11

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
96	0	0.608434	2.767	67.882	3.29E-13	-30.290	-25.180
		-0.412549	3.255	94.729	-75.600	143.655	-29.619
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		
96	1.300	0.608434	2.767	49.383	3.29E-13	45.933	-21.583
		-0.625255	3.255	56.575	-50.400	249.562	-25.388
	Min:	A C D F L AK		Max:	A E D E G O AI AL AM		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		5.92E-14	3.98E-09	7.115	-1.35E-13	-1.779	-3.08E-10
		Min: A E D E G O AI AL			Max: A C D F L AK AM		
96	0.500	8.11E-10	4.00E-09	8.21E-08	4.67E-13	-1.52E-12	1.99E-09
		5.99E-14	3.96E-09	7.12E-08	-1.35E-13	3.88E-14	1.67E-09
		Min: A E D E G P AI AL AM			Max: A C D F L AK		
290		0	-255.453	0.576378	-4.439	-0.739005	-7.455	-1.902
		-255.453	0.576378		3.646	0.757716	16.175	-1.902
		Min: AN AO AQ AS BF			Max: AN AO AQ AR AZ BV		
290	13.200	-271.302	0.522081		-7.047	0.453014	-90.862	4.176
		-271.302	0.522081		6.518	-0.434303	90.862	4.176
		Min: AN AO AQ AS BL			Max: AN AO AQ AR AT BV		
291		0	-255.453	-0.576378	-4.439	0.739005	-7.455	1.902
		-255.453	-0.576378		3.646	0.757716	16.175	1.902
		Min: AN AO AQ AS BN			Max: AN AO AQ AR AV BV		
291	13.200	-304.883	-0.310567		-7.047	-0.453014	-90.862	-2.100
		-304.883	-0.310567		6.518	0.434303	90.862	-2.100
		Min: AN AO AQ AS BF			Max: AN AO AQ AR AZ BV		

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
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Departamento de Estructuras. AEPO, S.A.
Título: VERIFICACION DE LA ARMADURA DEL CENTRO DE VANO
Fecha: 23/5/01 18.28.28

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 420 cm Alto = 90 cm Canto útil = 84.90 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 233.23 cm2
Diámetro equivalente = 32.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 384.14 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0065408
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 14.48 cm
Area de hormigón eficaz, Ac,eficaz = 9450.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 160.95 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 890.0 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2124.2 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 16.38 cm
Alargamiento medio de las fisuras, Esm = 0.000968898
Apertura de fisura, Wk = 0.270 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.270 mm
Apertura de fisura máxima, Wmax = 0.300 mm

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****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: VERIFICACION DE LA ARMADURA DEL CENTRO DE VANO
Fecha: 23/5/01 18.31.17

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 420 cm Alto = 90 cm Canto útil = 85.25 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 176.71 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 319.3 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0049355
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 11.67 cm
Area de hormigón eficaz, Ac,eficaz = 9450.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 160.95 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1157.3 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2295.9 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 16.02 cm
Alargamiento medio de las fisuras, Esm = 0.001002137
Apertura de fisura, Wk = 0.273 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.273 mm
Apertura de fisura máxima, Wmax = 0.300 mm

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****** ELS FISURACIÓN HORMIGÓN ARMADO *******
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Departamento de Estructuras. AEPO, S.A.
Título: VERIFICACION DE LA ARMADURA DEL APOYO
Fecha: 23/5/01 18.36.07

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 460 cm Alto = 90 cm Canto útil = 85.25 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 276.12 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 462.64 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0070411
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 8.18 cm
Area de hormigón eficaz, Ac,eficaz = 10350.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 176.27 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 822.5 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2158.6 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 13.32 cm
Alargamiento medio de las fisuras, Esm = 0.001000968
Apertura de fisura, Wk = 0.227 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.227 mm
Apertura de fisura máxima, Wmax = 0.300 mm

2.4.1.2. Comprobación de estados límites últimos por flexión longitudinal

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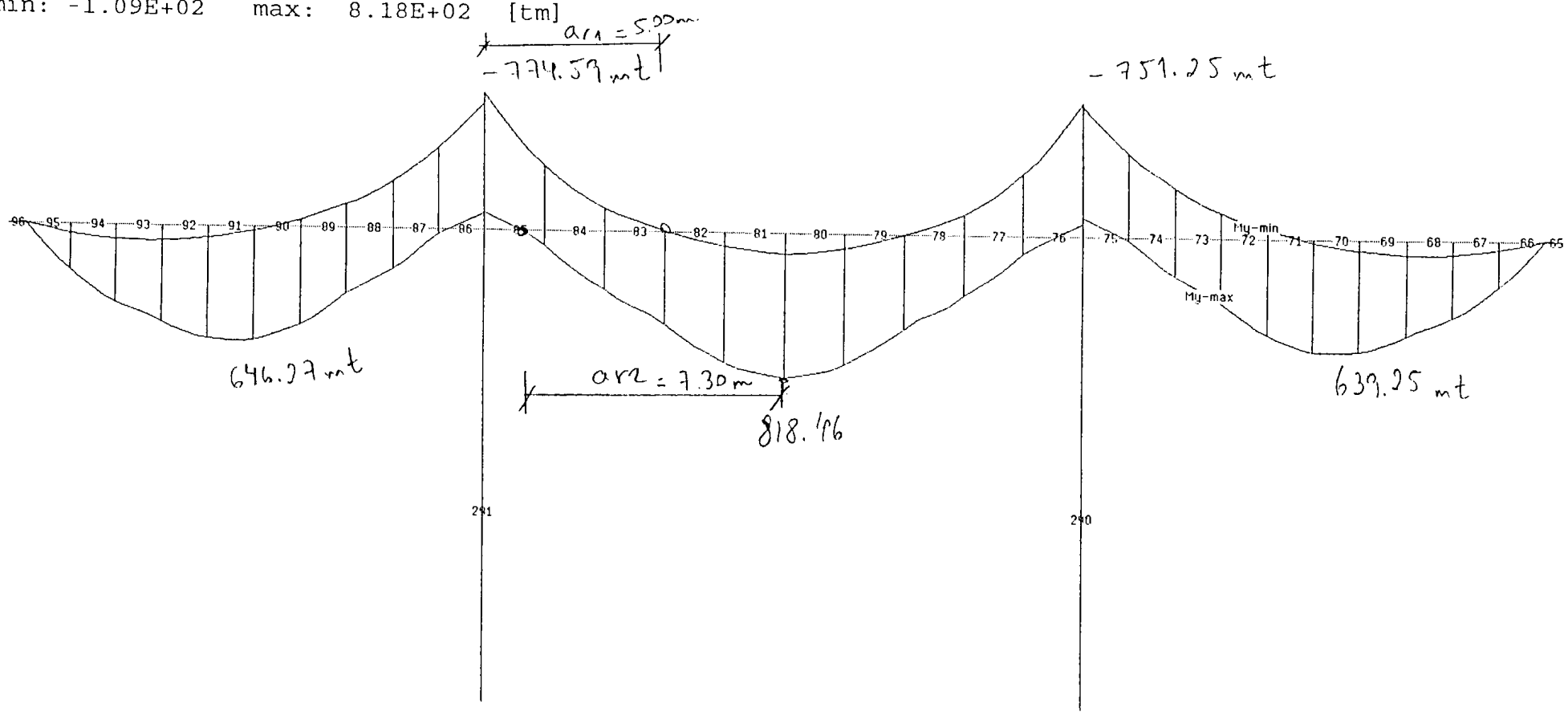
cale 1 : 173.7
nt. Forces envelope My, GWSP ER (COMBINACION FZAS EXTERIORES), Subsys. "LIST"
Structure: Elmnts.
Envelope Moment My-min, Scale 5.00E-03
min: -7.75E+02 max: 1.18E+02 [tm]
Envelope Moment My-max, Scale 5.00E-03
min: -1.09E+02 max: 8.18E+02 [tm]



ENVELOPE SPECIFIC.: ER 'COMBINACION FZAS EXTERIORES'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OF	1	1.000		PESO PROPIO
C	PL.PERM	1	2.025		PESO PAVIMENTO
D	OF	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OF	3	1.000		PESO BARRERAS
G	PL.PERM	4	1.350		RETRACCION
H	OF	4	1.000		RETRACCION
I	PLUS	6	1.500		SOE UNIF 1
J	PLUS	7	1.500		SOBRECARGA UNIF 2
K	PLUS	8	1.500		SOE UNIF 3
L	PLUS	11	2.100		VEHICULO HIPOTESIS 11
M	OF	12	2.100		VEHICULO HIPOTESIS 12
N	OF	13	2.100		VEHICULO HIPOTESIS 13
O	OF	14	2.100		VEHICULO HIPOTESIS 14
P	OF	15	2.100		VEHICULO HIPOTESIS 15
Q	OF	16	2.100		VEHICULO HIPOTESIS 16
R	OF	17	2.100		VEHICULO HIPOTESIS 17
S	OF	18	2.100		VEHICULO HIPOTESIS 18
T	OF	19	2.100		VEHICULO HIPOTESIS 19
U	OF	20	2.100		VEHICULO HIPOTESIS 20
V	OF	21	2.100		VEHICULO HIPOTESIS 21
W	OF	22	2.100		VEHICULO HIPOTESIS 22
X	OF	23	2.100		VEHICULO HIPOTESIS 23
Y	OF	24	2.100		VEHICULO HIPOTESIS 24
Z	OF	25	2.100		VEHICULO POSICION 25
AA	OF	26	2.100		VEHICULO POSICION 26
AB	OF	27	2.100		VEHICULO POSICION 27
AC	OF	28	2.100		VEHICULO POSICION 28
AD	OF	29	2.100		VEHICULO POSICION 29
AE	OF	30	2.100		VEHICULO POSICION 30
AF	OF	31	2.100		VEHICULO POSICION 31
AG	OF	32	2.100		VEHICULO POSICION 32
AH	OF	33	2.100		VEHICULO POSICION 33
AI	OF	34	2.100		VEHICULO POSICION 34
AJ	OF	35	2.100		VEHICULO POSICION 35
AK	OF	36	2.100		VEHICULO POSICION 36
AL	OF	37	2.100		VEHICULO HIPOTESIS 37
AM	PLUS	60	1.500		FRENADO
AN	PLUS	63	0.450000		VIENTO TRANSV CON SOE
AO	PLUS	64	0.900000		TEMPERATURA (-)
AP	OF.	65	0.900000		TEMPERATURA (+)
AQ	PLUS	66	0.900000		GRADIENTE

ALTERNATIVE ENVELOPE :

AR	PERM.	1	1.350	PESO PROPIO
AS	OF.	1	1.000	PESO PROPIO
AT	PL.PERM	2	2.025	PESO PAVIMENTO
AU	OF.	2	1.000	PESO PAVIMENTO
AV	PL.PERM	3	1.350	PESO BARRERAS
AW	OF	3	1.000	PESO BARRERAS
AX	PL.PERM	5	1.350	RETRACCION

AY	OF	5	1.000	RETRACCION
AZ	PLUS	9	1.500	SOE UNIF EXC
BA	PLUS	10	1.500	SOE UNIF EXC
BB	PLUS	11	2.100	VEHICULO HIPOTESIS 11
BC	OF	12	2.100	VEHICULO HIPOTESIS 12
BD	OF	13	2.100	VEHICULO HIPOTESIS 13
BE	OF	14	2.100	VEHICULO HIPOTESIS 14
BF	OF	15	2.100	VEHICULO HIPOTESIS 15
BG	OF	16	2.100	VEHICULO HIPOTESIS 16
BH	OF	17	2.100	VEHICULO HIPOTESIS 17
BI	OF	18	2.100	VEHICULO HIPOTESIS 18
BJ	OF	19	2.100	VEHICULO HIPOTESIS 19
BK	OF	20	2.100	VEHICULO HIPOTESIS 20
BL	OF	21	2.100	VEHICULO HIPOTESIS 21
BN	OF	22	2.100	VEHICULO HIPOTESIS 22
BN	OF	23	2.100	VEHICULO HIPOTESIS 23
BO	OF	24	2.100	VEHICULO HIPOTESIS 24
BP	OF	25	2.100	VEHICULO POSICION 25
BQ	OF	26	2.100	VEHICULO POSICION 26
BR	OF	27	2.100	VEHICULO POSICION 27
BS	OF	28	2.100	VEHICULO POSICION 28
BT	OF	29	2.100	VEHICULO POSICION 29
BU	OF	30	2.100	VEHICULO POSICION 30
BV	OF	31	2.100	VEHICULO POSICION 31
BW	OF	32	2.100	VEHICULO POSICION 32
BX	OF	33	2.100	VEHICULO POSICION 33
BY	OF	34	2.100	VEHICULO POSICION 34
BZ	OF	35	2.100	VEHICULO POSICION 35
CA	OF	36	2.100	VEHICULO POSICION 36
CB	OF	37	2.100	VEHICULO HIPOTESIS 37
CC	PLUS	60	1.500	FRENADO
CD	PLUS	63	0.450000	VIENTO TRANSV CON SOE
CE	PLUS	64	0.900000	TEMPERATURA (-)
CF	OF	65	0.900000	TEMPERATURA (+)
CG	PLUS	66	0.900000	GRADIENTE

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-8.88E-12	8.66E-09	-5.33E	-4.75E-13	-1.001	2.00E-09
		Min: AR AT AV AY AZ BA BE...			Max: B D F G K M AC		
65	0.500	-0.204525	8.57E-09	-12.192	4.43E-13	-3.048	3.05E-09
		-8.88E-12	8.66E-09	-7.115	-4.75E-13	-1.779	3.08E-09
		Min: AR AT AV AY AZ BA BE...			Max: B D F G K M AC		
66	0	8.630	-6.917	102.359	8.71E-14	-3.048	-9.49E-08
		-0.353668	-8.137	120.260	-6.69E-14	-1.779	-1.11E-07
		Min: A C E G I J P AM AO			Max: B D F H K L AP AQ		
66	0.325	8.660	-6.917	44.539	8.71E-14	13.464	-2.248
		-0.515936	-8.137	225.480	-6.69E-14	71.521	-2.645
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
66	0.650	8.527	-6.917	39.964	8.71E-14	27.204	-4.496
		-0.515936	-8.137	217.556	-6.69E-14	143.514	-5.289
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
66	0.975	8.394	-6.917	35.339	8.71E-14	39.441	-6.745
		-0.515936	-8.137	167.631	63.000	207.682	-7.934
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
66	1.300	8.261	-6.917	30.714	8.71E-14	50.175	-8.993
		-0.515936	-8.137	159.706	63.000	260.874	-10.576
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
67	0	8.261	-6.917	30.714	8.71E-14	50.175	-8.993
		-0.515936	-8.137	159.706	63.000	260.874	-10.576
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
67	0.325	8.128	-6.917	26.089	8.71E-14	55.405	-11.241
		-0.515936	-8.137	151.781	63.000	311.491	-13.223
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
67	0.650	7.995	-6.917	21.464	8.71E-14	67.133	-13.489
		-0.515936	-8.137	143.856	63.000	359.632	-15.867
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
67	0.975	7.862	-6.917	16.839	8.71E-14	73.357	-15.737
		-0.515936	-8.137	135.932	63.000	404.996	-18.512
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
67	1.300	7.729	-6.917	12.214	8.71E-14	78.078	-17.985
		-0.515936	-8.137	88.067	126.000	437.388	-21.156
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
68	0	7.729	-6.917	12.214	8.71E-14	78.078	-17.985
		-0.515936	-8.137	88.067	126.000	437.388	-21.156
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
68	0.325	7.596	-6.917	7.590	8.71E-14	81.296	-20.234
		-0.515936	-8.137	78.082	126.000	464.052	-23.801
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
68	0.650	7.463	-6.917	2.965	8.71E-14	83.011	-22.482
		-0.515936	-8.137	70.157	126.000	488.141	-26.445
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ		
68	0.975	7.330	-6.917	-1.660	8.71E-14	83.223	-24.730
		-0.766575	-8.137	100.048	1.01E-13	510.444	-29.090
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
69	1.300	7.197	-6.917	-6.285	8.71E-14	81.932	-26.978
		-0.766575	-8.137	92.122	1.01E-13	541.671	-31.734
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
69	0	7.197	-6.917	-6.285	5.88E-13	81.932	-26.978
		-0.766575	-8.137	92.122	7.95E-13	541.671	-31.734
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
69	0.325	7.064	-6.917	-10.910	5.88E-13	75.136	-29.226
		-0.766575	-8.137	84.198	7.95E-13	570.324	-34.379
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
69	0.650	6.931	-6.917	-15.535	5.88E-13	74.840	-31.475
		-0.766575	-8.137	76.273	7.95E-13	596.400	-37.024
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
69	0.975	6.799	-6.917	-20.160	5.88E-13	65.040	-33.723
		-0.766575	-8.137	68.349	7.95E-13	619.901	-39.668
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
69	1.300	6.666	-6.917	-24.785	5.88E-13	61.736	-35.971
		-0.766575	-8.137	18.424	63.000	632.427	-42.313
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
70	0	6.666	-6.917	-24.785	5.99E-13	61.736	-35.971
		-0.766575	-8.137	18.424	63.000	632.427	-42.313
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
70	0.325	6.533	-6.917	-29.410	5.99E-13	52.930	-38.219
		-0.766575	-8.137	10.499	63.000	637.127	-44.957
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
70	0.650	6.400	-6.917	-34.035	5.99E-13	42.620	-40.467
		-0.766575	-8.137	2.574	63.000	639.252	-47.602
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
70	0.975	6.267	-6.917	-38.660	5.99E-13	30.607	-42.715
		-0.766575	-8.137	-5.351	63.000	638.800	-50.246
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
70	1.300	6.134	-6.917	-43.285	5.99E-13	17.491	-44.964
		-0.766575	-8.137	-13.275	63.000	635.773	-52.891
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
71	0	6.134	-6.917	-43.285	8.07E-14	17.491	-44.964
		-0.766575	-8.137	-55.275	126.000	635.773	-52.891
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
71	0.325	6.001	-6.917	-47.910	8.07E-14	2.672	-47.212
		-0.766575	-8.137	-63.200	126.000	616.521	-55.535
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
71	0.650	5.868	-6.917	-52.535	8.07E-14	-13.651	-49.460
		-0.766575	-8.137	-71.125	126.000	594.693	-58.180
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
71	0.975	5.735	-6.917	-57.160	8.07E-14	-31.476	-51.708
		-0.766575	-8.137	-79.050	126.000	570.290	-60.824
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
71	1.300	5.601	-6.917	-61.795	8.07E-14	-50.805	-53.956
		-0.766575	-8.137	-88.974	126.000	543.311	-63.469

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
72	0	5.602	-6.917	-61.795	-5.51E-13	-50.805	-53.956
		-0.766575	-8.137	-86.974	126.000	543.311	-63.469
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	0.325	5.469	-6.917	-66.410	-5.51E-13	-71.636	-56.205
		-0.766575	-8.137	-136.899	189.000	508.507	-66.113
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	0.650	5.336	-6.917	-71.025	-5.51E-13	-93.971	-58.453
		-0.766575	-8.137	-144.824	189.000	462.727	-68.758
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	0.975	5.203	-6.917	-75.660	-5.51E-13	-117.809	-60.701
		-0.766575	-8.137	-152.749	189.000	414.371	-71.402
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	1.300	5.070	-6.917	-80.285	-5.51E-13	-143.150	-62.949
		-0.766575	-8.137	-160.674	189.000	363.440	-74.047
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
73	0	5.070	-6.917	-80.285	-9.06E-13	-143.150	-62.949
		-0.766575	-8.137	-160.674	189.000	363.440	-74.047
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
73	0.325	4.937	-6.917	-84.910	-9.06E-13	-169.594	-65.197
		-0.628307	-8.137	-120.874	63.000	325.038	-76.692
		Min: B D F G J P AM AO			Max: A C E H I K N AP AQ		
73	0.650	4.804	-6.917	-116.023	-9.06E-13	-202.824	-67.445
		-0.628383	-8.137	-102.310	63.000	285.950	-79.336
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
73	0.975	4.672	-6.917	-122.383	-9.06E-13	-241.566	-69.694
		-0.628383	-8.137	-108.495	63.000	254.694	-81.981
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
73	1.300	4.539	-6.917	-128.753	-9.06E-13	-282.376	-71.942
		-0.628383	-8.137	-114.680	63.000	218.428	-84.625
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	0	4.539	-6.917	-128.753	-1.56E-12	-282.376	-71.942
		-0.628383	-8.137	-114.680	63.000	218.428	-84.625
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	0.325	4.406	-6.917	-135.117	-1.56E-12	-325.255	-74.190
		-0.628383	-8.137	-162.668	126.000	177.002	-87.270
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	0.650	4.273	-6.917	-141.482	-1.56E-12	-370.203	-76.438
		-0.628383	-8.137	-165.056	126.000	123.066	-89.914
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	0.975	4.140	-6.917	-147.847	-1.56E-12	-417.219	-78.686
		-0.628383	-8.137	-175.235	126.000	67.120	-92.559
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	1.300	3.844	-6.917	-182.933	-1.56E-12	-474.409	-80.935
		-0.466035	-8.137	-152.698	126.000	17.269	-95.203
		Min: A C E G I J P AM AO			Max: B D F H K N AP AQ		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	0	5.602	-6.917	-61.785	-5.51E-13	-50.805	-53.956
		-0.766575	-8.137	-86.974	126.000	543.311	-63.469
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	0.325	5.469	-6.917	-66.410	-5.51E-13	-71.636	-56.205
		-0.766575	-8.137	-136.899	189.000	508.507	-66.113
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	0.650	5.336	-6.917	-71.035	-5.51E-13	-93.971	-58.453
		-0.766575	-8.137	-144.824	189.000	462.727	-68.758
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	0.975	5.203	-6.917	-75.660	-5.51E-13	-117.809	-60.701
		-0.766575	-8.137	-152.749	189.000	414.371	-71.402
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72	1.300	5.070	-6.917	-80.285	-5.51E-13	-143.150	-62.949
		-0.766575	-8.137	-160.674	189.000	363.440	-74.047
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
73	0	5.070	-6.917	-80.285	-9.06E-13	-143.150	-62.949
		-0.766575	-8.137	-160.674	189.000	363.440	-74.047
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
73	0.325	4.937	-6.917	-84.910	-9.06E-13	-169.594	-65.197
		-0.628307	-8.137	-120.874	63.000	325.038	-76.692
		Min: B D F G J P AM AO			Max: A C E H I K N AP AQ		
73	0.650	4.804	-6.917	-116.023	-9.06E-13	-202.824	-67.445
		-0.628383	-8.137	-102.310	63.000	285.950	-79.336
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
73	0.975	4.672	-6.917	-122.383	-9.06E-13	-241.566	-69.694
		-0.628383	-8.137	-108.495	63.000	254.694	-81.981
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
73	1.300	4.539	-6.917	-128.753	-9.06E-13	-282.376	-71.942
		-0.628383	-8.137	-114.680	63.000	218.428	-84.625
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	0	4.539	-6.917	-128.753	-1.56E-12	-282.376	-71.942
		-0.628383	-8.137	-114.680	63.000	218.428	-84.625
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	0.325	4.406	-6.917	-135.117	-1.56E-12	-325.255	-74.190
		-0.628383	-8.137	-162.668	126.000	177.002	-87.270
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	0.650	4.273	-6.917	-141.482	-1.56E-12	-370.203	-76.438
		-0.628383	-8.137	-165.056	126.000	123.066	-89.914
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	0.975	4.140	-6.917	-147.847	-1.56E-12	-417.219	-78.686
		-0.628383	-8.137	-175.235	126.000	67.120	-92.559
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ		
74	1.300	3.844	-6.917	-182.933	-1.56E-12	-474.409	-80.935
		-0.466035	-8.137	-152.698	126.000	17.269	-95.203
		Min: A C E G I J P AM AO			Max: B D F H K N AP AQ		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
75	0	3.844	-6.917	-182.933	-1.93E-12	-474.409	-80.935
		-0.466035	-8.137	-152.698	126.000	17.269	-95.203
		Min: A C E G I J P AM AO			Max: B D F H K N AP AQ		
75	0.325	3.712	-6.917	-190.858	-1.93E-12	-535.150	-83.183
		0.336450	-5.696	-86.835	-1.53E-12	-17.089	-68.518
		Min: A C E G I J P AM AO			Max: B D F H K S AP AQ		
75	0.650	3.579	-6.917	-198.783	-1.93E-12	-598.467	-85.431
		0.336450	-5.696	-91.460	-1.53E-12	-46.062	-70.369
		Min: A C E G I J P AM AO			Max: B D F H K S AP AQ		
75	0.975	3.446	-6.917	-206.708	-1.93E-12	-664.359	-87.679
		0.336450	-5.696	-96.085	-1.53E-12	-76.536	-72.221
		Min: A C E G I J P AM AO			Max: B D F H K S AP AQ		
75	1.300	3.313	-6.917	-214.632	-1.93E-12	-732.827	-89.927
		0.336450	-5.696	-100.710	-1.53E-12	-108.617	-74.073
		Min: A C E G I J P AM AO			Max: B D F H K S AP AQ		
76	0	-6.805	2.89E-09	273.362	-94.500	-751.251	-89.755
		15.042	-2.040	105.743	-63.486	-76.899	-72.411
		Min: A C E H I J P AF			Max: B D F G K S AM AO AQ		
76	0.425	-6.805	2.89E-09	263.019	-94.500	-637.266	-89.755
		14.888	-2.040	99.695	-63.486	-33.244	-73.278
		Min: A C E H I J P AF			Max: B D F G K S AM AO AQ		
76	0.850	-6.805	2.89E-09	252.656	-94.500	-527.685	-89.755
		14.694	-2.040	93.647	-63.486	7.841	-74.145
		Min: A C E H I J P AF			Max: B D F G K S AM AO AQ		
76	1.275	-0.708267	2.040	188.648	63.486	-429.741	-104.498
		14.520	-2.040	87.599	-63.486	46.356	-75.012
		Min: A C E H I J M AF			Max: B D F G K S AM AO AQ		
76	1.700	-0.708267	2.040	178.283	63.486	-351.769	-103.630
		10.323	1.476	160.662	-53.940	104.148	-99.794
		Min: A C E H I J M AP			Max: B D F G K O AM AO AQ		
77	0	-0.708267	2.040	178.283	63.486	-351.769	-103.630
		10.323	1.476	160.662	-53.940	104.149	-99.794
		Min: A C E H I J M AP			Max: B D F G K O AM AO AQ		
77	0.425	-0.708267	2.040	167.919	63.486	-275.201	-102.763
		10.150	1.476	154.614	-53.940	171.145	-99.157
		Min: A C E H I J M AP			Max: B D F G K O AM AO AQ		
77	0.850	1.054	2.040	128.956	63.486	-216.938	-101.896
		8.214	1.476	135.126	9.060	235.121	-98.539
		Min: A C E H I M AP			Max: B D F G J K O AM AO AQ		
77	1.275	1.054	2.040	120.673	63.486	-163.934	-101.029
		8.040	1.476	127.032	9.060	290.831	-97.912
		Min: A C E H I M AP			Max: B D F G J K O AM AO AQ		
77	1.700	1.404	2.040	85.048	63.486	-116.253	-100.162
		7.515	1.476	146.252	9.060	344.940	-97.284
		Min: B D F H I M AP			Max: A C E G J K O AM AO AQ		
78	0	1.404	2.040	85.048	63.486	-116.253	-100.162
		7.515	1.476	146.252	9.060	344.940	-97.284

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
	Min:	B D F H I M AP		Max:	A C E G J K O AM AO AQ		
78	0.425	1.404	2.040	79.000	63.486	-81.392	-99.294
		7.342	1.476	135.889	9.060	404.894	-96.657
	Min:	B D F H I M AP		Max:	A C E G J K O AM AO AQ		
78	0.850	2.128	2.040	69.833	63.486	-50.272	-98.427
		6.441	1.476	86.644	72.060	444.815	-96.030
	Min:	B D F H I K M AP		Max:	A C E G J O AM AO AQ		
78	1.275	2.128	2.040	63.785	63.486	-21.878	-97.560
		6.270	1.476	76.281	72.060	479.436	-95.402
	Min:	B D F H I K M AP		Max:	A C E G J O AM AO AQ		
78	1.700	2.128	2.040	57.737	63.486	3.945	-96.693
		4.022	2.30E-09	143.160	-94.500	535.656	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
79	0	2.128	2.040	57.737	63.486	3.945	-96.693
		4.022	2.05E-09	143.160	-94.500	535.656	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
79	0.425	2.128	2.040	51.689	63.486	27.193	-95.825
		3.848	2.05E-09	132.797	-94.500	594.297	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
79	0.850	2.128	2.040	45.641	63.486	47.883	-94.956
		3.674	2.05E-09	122.433	-94.500	648.521	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
79	1.275	2.128	2.040	39.593	63.486	65.994	-94.091
		3.501	2.05E-09	112.070	-94.500	698.365	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
79	1.700	2.128	2.040	33.545	63.486	81.536	-93.224
		3.327	2.05E-09	101.707	-94.500	743.793	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
80	0	2.128	2.040	33.545	63.486	81.536	-93.224
		3.327	1.96E-09	101.707	-94.500	743.793	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
80	0.425	2.128	2.040	27.497	63.486	94.507	-92.357
		3.153	1.96E-09	49.344	-31.500	775.366	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
80	0.850	2.128	2.040	21.449	63.486	104.908	-91.489
		2.979	1.96E-09	38.981	-31.500	794.135	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
80	1.275	2.128	2.040	15.401	63.486	112.739	-90.622
		2.805	1.96E-09	28.617	-31.500	808.500	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
80	1.700	2.128	2.040	9.353	63.486	117.995	-89.755
		2.631	1.96E-09	16.254	-31.500	818.460	-89.755
	Min:	B D F H I K M AP		Max:	A C E G J P AM AO AQ		
81	0	2.128	-2.040	-12.099	-63.486	117.999	-89.755
		2.631	1.80E-09	-21.000	31.500	816.460	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
81	0.425	1.954	-2.040	-18.147	-63.486	111.572	-90.622

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		2.631	1.80E-09	-31.363	31.500	807.333	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
81	0.850	1.780	-2.040	-24.195	-63.486	102.574	-91.489
		2.631	1.80E-09	-41.726	31.500	791.801	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
81	1.275	1.607	-2.040	-30.243	-63.486	91.006	-92.357
		2.631	1.80E-09	-52.090	31.500	771.866	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
81	1.700	1.433	-2.040	-36.291	-63.486	76.868	-93.224
		2.631	1.80E-09	-104.453	94.500	739.125	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
82	0	1.433	-2.040	-36.291	-63.486	76.868	-93.224
		2.631	1.74E-09	-104.453	94.500	739.125	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
82	0.425	1.259	-2.040	-42.339	-63.486	60.159	-94.091
		2.631	1.74E-09	-114.816	94.500	692.531	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
82	0.850	1.085	-2.040	-48.387	-63.486	40.820	-94.958
		2.631	1.74E-09	-125.179	94.500	641.512	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
82	1.275	0.911155	-2.040	-54.435	-63.486	19.030	-95.825
		2.631	1.74E-09	-135.542	94.500	586.129	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
82	1.700	0.737312	-2.040	-60.483	-63.486	-5.390	-96.693
		2.631	1.74E-09	-145.905	94.500	526.321	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
83	0	0.737312	-2.040	-60.483	-63.486	-5.390	-96.693
		2.631	1.77E-09	-145.905	94.500	526.321	-89.755
	Min:	B D F H I K S AM AP		Max:	A C E G J P AO AQ		
83	0.425	0.563466	-2.040	-66.531	-63.486	-32.181	-97.560
		4.706	-1.476	-79.026	-72.060	468.934	-95.402
	Min:	B D F H I K S AM AP		Max:	A C E G J Q AO AQ		
83	0.850	0.389619	-2.040	-72.579	-63.486	-61.942	-98.427
		4.706	-1.476	-69.390	-72.060	433.145	-96.030
	Min:	B D F H I K S AM AP		Max:	A C E G J Q AO AQ		
83	1.275	-0.507851	-2.040	-81.746	-63.486	-94.229	-99.294
		5.429	-1.476	-138.634	-9.060	392.058	-96.657
	Min:	B D F H K S AM AP		Max:	A C E G I J Q AO AQ		
83	1.700	-0.681697	-2.040	-87.794	-63.486	-130.256	-100.162
		5.429	-1.476	-148.998	-9.060	330.936	-97.284
	Min:	B D F H K S AM AP		Max:	A C E G I J Q AO AQ		
84	0	-0.681697	-2.040	-87.794	-63.486	-130.256	-100.162
		5.429	-1.476	-148.998	-9.060	330.936	-97.284
	Min:	B D F H K S AM AP		Max:	A C E G I J Q AO AQ		
84	0.425	-1.206	-2.040	-123.419	-63.486	-179.104	-101.029
		5.780	-1.476	-129.784	-9.060	275.661	-97.912
	Min:	A C E H K S AM AP		Max:	B D F G I J Q AO AQ		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
84	0.850	-1.380	-2.040	-131.742	-63.486	-233.325	-101.896
		5.780	-1.476	-137.872	-9.060	218.784	-98.539
	Min:	A C E H K S AM AP		Max:	B D F G I J Q AO AQ		
84	1.275	-3.316	-2.040	-170.665	-63.486	-295.705	-102.763
		7.542	-1.476	-157.360	53.940	153.641	-99.167
	Min:	A C E H J K S AM AP		Max:	B D F G I Q AO AQ		
84	1.700	-3.490	-2.040	-181.028	-63.486	-370.440	-103.630
		7.542	-1.476	-163.405	53.940	85.478	-99.794
	Min:	A C E H J K S AM AP		Max:	B D F G I Q AO AQ		
85	0	-3.490	-2.040	-181.028	-63.486	-370.440	-103.630
		7.542	-1.476	-163.405	53.940	85.478	-99.794
	Min:	A C E H J K S AM AP		Max:	B D F G I Q AO AQ		
85	0.425	-3.664	-2.040	-191.391	-63.486	-449.579	-104.496
		11.565	2.040	-90.345	63.486	26.518	-75.012
	Min:	A C E H J K S AM AP		Max:	B D F G I M AO AQ		
85	0.850	-9.934	1.54E-09	-255.401	94.500	-548.690	-89.755
		11.565	2.040	-96.393	63.486	-13.163	-74.145
	Min:	A C E H J K P AM AP		Max:	B D F G I M AO AQ		
85	1.275	-10.108	1.54E-09	-265.764	94.500	-659.435	-89.755
		11.565	2.040	-102.441	63.486	-55.415	-73.278
	Min:	A C E H J K P AM AP		Max:	B D F G I M AO AQ		
85	1.700	-10.282	1.54E-09	-276.128	94.500	-774.590	-89.755
		11.565	2.040	-108.489	63.486	-100.236	-72.411
	Min:	A C E H J K P AM AP		Max:	B D F G I M AO AQ		
86	0	5.867	6.917	213.433	-6.87E-13	-717.233	-89.927
		2.890	5.698	99.510	-5.05E-13	-92.923	-74.073
	Min:	A C E G J K P AO		Max:	B D F H I M AM AP AQ		
86	0.325	5.867	6.917	205.508	-6.87E-13	-645.155	-87.675
		2.757	5.698	94.885	-5.05E-13	-61.334	-72.221
	Min:	A C E G J K P AO		Max:	B D F H I M AM AP AQ		
86	0.650	5.867	6.917	197.583	-6.87E-13	-583.653	-85.431
		2.624	5.698	90.260	-5.05E-13	-31.248	-70.369
	Min:	A C E G J K P AO		Max:	B D F H I M AM AP AQ		
86	0.975	5.867	6.917	189.659	-6.87E-13	-520.726	-83.183
		2.491	5.698	85.635	-5.05E-13	-2.665	-68.518
	Min:	A C E G J K P AO		Max:	B D F H I M AM AP AQ		
86	1.300	5.867	6.917	181.734	-6.87E-13	-460.375	-80.936
		1.556	8.137	151.499	-126.000	31.303	-95.203
	Min:	A C E G J K P AO		Max:	B D F H I R AM AP AQ		
87	0	5.867	6.917	181.734	-2.14E-13	-460.375	-80.936
		1.556	8.137	151.499	-126.000	31.303	-95.203
	Min:	A C E G J K P AO		Max:	B D F H I R AM AP AQ		
87	0.325	6.029	6.917	146.648	-2.14E-13	-403.574	-78.686
		1.261	8.137	174.035	-126.000	80.764	-92.559
	Min:	A C E G J P AO		Max:	B D F H I K R AM AP AQ		
87	0.650	6.029	6.917	140.283	-2.14E-13	-356.946	-76.436
		1.128	8.137	167.850	-126.000	136.321	-89.914

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
	Min:	A C E G J P AO		Max:	B D F H I K R AM AP AQ		
87	0.975	6.029	6.917	133.918	-2.14E-13	-312.391	-74.190
		0.994810	8.137	161.665	-126.000	189.867	-87.270
	Min:	A C E G J P AO		Max:	B D F H I K R AM AP AQ		
87	1.300	6.029	6.917	127.553	-2.14E-13	-269.902	-71.942
		0.861865	8.137	113.480	-63.000	230.903	-84.625
	Min:	A C E G J P AO		Max:	B D F H I K R AM AP AQ		
88	0	6.029	6.917	127.553	2.06E-13	-269.902	-71.942
		0.861865	8.137	113.480	-63.000	230.903	-84.625
	Min:	A C E G J P AO		Max:	B D F H I K R AM AP AQ		
88	0.325	6.029	6.917	121.188	2.06E-13	-229.481	-69.694
		0.728928	8.137	107.295	-63.000	266.779	-81.981
	Min:	A C E G J P AO		Max:	B D F H I K R AM AP AQ		
88	0.650	6.029	6.917	114.824	2.06E-13	-191.125	-67.445
		0.595986	8.137	101.110	-63.000	300.645	-79.336
	Min:	A C E G J P AO		Max:	B D F H I K R AM AP AQ		
88	0.975	6.029	6.917	83.710	2.06E-13	-158.688	-65.197
		0.463121	8.137	119.674	-63.000	336.343	-76.692
	Min:	A C E G J P AO		Max:	A C E H I K R AM AP AQ		
88	1.300	6.029	6.917	79.085	2.06E-13	-132.234	-62.949
		0.191911	8.137	159.474	-189.000	374.355	-74.047
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
89	0	6.029	6.917	79.085	8.23E-13	-132.234	-62.949
		0.191911	8.137	159.474	-189.000	374.355	-74.047
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
89	0.325	6.029	6.917	74.460	8.23E-13	-107.283	-60.701
		0.058970	8.137	151.549	-189.000	424.897	-71.402
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
89	0.650	6.029	6.917	69.835	8.23E-13	-83.335	-58.453
		-0.073971	8.137	143.624	-189.000	472.862	-68.758
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
89	0.975	6.029	6.917	65.210	8.23E-13	-61.890	-56.205
		-0.206912	8.137	135.700	-189.000	518.253	-66.113
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
89	1.300	6.029	6.917	60.585	8.23E-13	-41.448	-53.956
		-0.339854	8.137	85.775	-126.000	552.667	-63.469
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
90	0	6.029	6.917	60.585	4.71E-13	-41.448	-53.956
		-0.339854	8.137	85.775	-126.000	552.667	-63.469
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
90	0.325	6.029	6.917	55.960	4.71E-13	-22.510	-51.706
		-0.472795	8.137	77.850	-126.000	579.256	-60.824
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
90	0.650	6.029	6.917	51.335	4.71E-13	-5.074	-49.460
		-0.605736	8.137	69.925	-126.000	603.270	-58.180
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
90	0.975	6.029	6.917	46.710	4.71E-13	10.858	-47.212

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-0.738677	8.137	62.001	-126.000	624.708	-55.539
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
90	1.300	6.029	6.917	42.085	4.71E-13	25.286	-44.964
		-0.871619	8.137	54.076	-126.000	643.570	-52.891
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
91	0	6.029	6.917	42.085	-6.64E-15	25.286	-44.964
		-0.871619	8.137	54.076	-63.000	643.570	-52.891
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
91	0.325	6.029	6.917	37.461	-6.64E-15	38.214	-42.715
		-1.005	8.137	4.151	-63.000	646.207	-50.246
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
91	0.650	6.029	6.917	32.836	-6.64E-15	49.637	-40.467
		-1.138	8.137	-3.774	-63.000	646.268	-47.602
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
91	0.975	6.029	6.917	28.211	-6.64E-15	59.557	-38.219
		-1.270	8.137	-11.699	-63.000	643.754	-44.957
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
91	1.300	6.029	6.917	23.586	-6.64E-15	67.974	-35.971
		-1.403	8.137	-19.623	-63.000	638.664	-42.313
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
92	0	6.029	6.917	23.586	3.61E-13	67.974	-35.971
		-1.403	8.137	-19.623	-63.000	638.664	-42.313
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
92	0.325	6.029	6.917	18.961	3.61E-13	74.885	-33.723
		-1.536	8.137	-69.548	2.13E-14	625.745	-39.668
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
92	0.650	6.029	6.917	14.336	3.61E-13	80.256	-31.475
		-1.669	8.137	-77.473	2.13E-14	601.858	-37.024
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
92	0.975	6.029	6.917	9.711	3.61E-13	84.206	-29.226
		-1.802	8.137	-85.398	2.13E-14	576.392	-34.379
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
92	1.300	6.029	6.917	5.086	3.61E-13	86.610	-26.978
		-1.935	8.137	-93.322	2.13E-14	546.350	-31.734
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
93	0	6.029	6.917	5.086	2.43E-13	86.610	-26.978
		-1.935	8.137	-93.322	3.44E-12	546.350	-31.734
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
93	0.325	6.029	6.917	0.460855	2.43E-13	87.512	-24.730
		-2.068	8.137	-101.247	3.44E-12	514.732	-29.090
	Min:	B D F G J P AO		Max:	A C E H I K S AM AP AQ		
93	0.650	6.029	6.917	-4.164	2.43E-13	86.910	-22.482
		-1.950	8.137	-71.357	-126.000	492.039	-26.445
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
93	0.975	6.029	6.917	-6.769	2.43E-13	84.506	-20.234
		-2.083	8.137	-79.282	-126.000	467.561	-23.801
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
93	1.300	6.029	6.917	-13.414	2.43E-13	81.157	-17.985
		-2.216	8.137	-87.206	-126.000	440.506	-21.156
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
94	0	6.029	6.917	-13.414	3.77E-13	81.197	-17.985
		-2.216	8.137	-87.206	-126.000	440.506	-21.156
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
94	0.325	6.029	6.917	-18.039	3.77E-13	76.086	-15.737
		-2.349	8.137	-137.131	-63.000	407.726	-18.512
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
94	0.650	6.029	6.917	-22.664	3.77E-13	65.477	-13.489
		-2.482	8.137	-145.056	-63.000	361.871	-15.867
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
94	0.975	6.029	6.917	-27.289	3.77E-13	61.354	-11.241
		-2.615	8.137	-152.981	-63.000	313.440	-13.223
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
94	1.300	6.029	6.917	-31.914	3.77E-13	51.734	-8.993
		-2.748	8.137	-160.906	-63.000	262.434	-10.578
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
95	0	6.029	6.917	-31.914	7.46E-13	51.734	-8.993
		-2.748	8.137	-160.906	-63.000	262.434	-10.578
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
95	0.325	6.029	6.917	-36.529	7.46E-13	40.610	-6.745
		-2.881	8.137	-168.830	-63.000	208.852	-7.934
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
95	0.650	6.029	6.917	-41.164	7.46E-13	27.984	-4.496
		-3.014	8.137	-218.755	1.44E-12	144.294	-5.289
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
95	0.975	6.029	6.917	-45.789	7.46E-13	13.654	-2.246
		-3.147	8.137	-226.680	1.44E-12	71.858	-2.645
	Min:	B D F G J P AO		Max:	A C E H I K T AM AP AQ		
95	1.300	5.867	6.917	-103.558	7.46E-13	-3.048	-9.41E-08
		-3.118	8.137	-181.460	1.44E-12	-1.779	-1.10E-07
	Min:	A C E G J K P AC		Max:	B D F H I T AM AP AC		
96	0	0.204525	9.77E-09	12.192	1.55E-12	-3.048	2.66E-11
		-1.43E-11	9.89E-09	7.115	-3.37E-13	-1.779	-7.69E-10
	Min:	A C E H I K S AM AP		Max:	B D F G J P AO AC		
96	0.125	0.153394	9.77E-09	9.144	1.55E-12	-1.714	1.25E-09
		-1.43E-11	9.89E-09	5.336	-3.37E-13	-1.001	4.68E-10
	Min:	A C E H I K S AM AP		Max:	B D F G J P AO AC		
96	0.250	0.102262	9.99E-09	6.096	1.17E-12	-0.761598	2.48E-09
		-1.43E-11	9.89E-09	3.558	-3.37E-13	-0.444707	1.70E-09
	Min:	A C E H I K T AM AP		Max:	B D F G J P AO AC		
96	0.375	0.051131	9.99E-09	3.048	1.17E-12	-0.190500	3.73E-09
		-1.43E-11	9.89E-09	1.779	-3.37E-13	-0.111177	2.94E-09
	Min:	A C E H I K T AM AP		Max:	B D F G J P AO AC		
96	0.500	2.02E-09	9.99E-09	1.22E-07	1.17E-12	-3.54E-12	4.97E-09
		-1.43E-11	9.89E-09	7.12E-08	-3.37E-13	4.28E-13	4.18E-09

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A C E H I K T AM AF AQ			Max: B D F G J P AC		
290	0	-360.888	-2.195	-11.098	-1.848	-18.638	17.435
		-360.888	-2.195	7.531	1.932	57.877	17.435
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		
290	3.300	-360.888	-2.195	-11.098	-1.848	-55.260	10.195
		-360.888	-2.195	7.828	1.932	83.219	10.195
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		
290	6.600	-484.462	-2.855	-17.618	1.133	-110.876	-1.675
		-484.462	-2.855	14.645	-1.048	128.537	-1.675
		Min: AR AT AV AX BA BV			Max: AR AT AV AX AZ BD CD		
290	9.900	-400.509	-2.330	-17.618	1.133	-169.016	-7.667
		-400.509	-2.330	14.942	-1.048	177.355	-7.667
		Min: AR AT AV AX BA BT			Max: AR AT AV AX AZ BB CD		
290	13.200	-400.509	-2.330	-17.618	1.133	-227.154	-15.358
		-400.509	-2.330	15.239	-1.048	227.154	-15.358
		Min: AR AT AV AX BA BT			Max: AR AT AV AX AZ BB CD		
291	0	-360.888	2.195	-11.098	1.848	-18.638	-17.435
		-360.888	2.195	7.531	-1.932	57.877	-17.435
		Min: AR AT AV AX BA BV			Max: AR AT AV AX AZ BD CD		
291	3.300	-360.888	2.195	-11.098	1.848	-55.260	-10.195
		-360.888	2.195	7.828	-1.932	83.219	-10.195
		Min: AR AT AV AX BA BV			Max: AR AT AV AX AZ BD CD		
291	6.600	-484.462	2.855	-17.618	-1.133	-110.876	1.675
		-484.462	2.855	14.645	1.048	128.537	1.675
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		
291	9.900	-484.462	2.855	-17.618	-1.133	-169.016	11.111
		-484.462	2.855	14.942	1.048	177.355	11.111
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		
291	13.200	-484.462	2.855	-17.618	-1.133	-227.154	20.546
		-484.462	2.855	15.239	1.048	227.154	20.546
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		

Características mecánicas Sección "TABVANOL" (sin coef. homogeneiz.)

Area	Ax = 46.53E3 cm2		
Momento de inercia	Iy = 28.62E6 cm4	Iz = 1.372E9 cm4	Ip = 1.400E9 cm4
Const. de torsión			Ix = 50.83E6 cm4
Momento estático	Zy =998.79E3 cm3	Zz = 6.642E6 cm3	
Baricentro	ys = 0.0000 m	zs = 0.4986 m	Angulo= 0.0 Grad
Dist. al borde	yl = -3.8500 m	yr = 3.8500 m	
	zo = 0.4014 m	zu = -0.4986 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 0.0000 m z = 0.4986 m

Contorno de sección parcial, Sección "TABVANOL" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	46530.5	1625.531	5.08E+07	3)

Puntos de contorno [m]:

1	-1.8500	0.0000	2	1.8500	0.0000	3	2.3500	0.5230
4	3.8500	0.6230	5	3.8500	0.8230	6	0.0000	0.9000
7	-3.8500	0.8230	8	-3.8500	0.6230	9	-2.3500	0.5230
10	-1.8500	0.0000						

Armadura "B1" As-tot =2.0000 cm2 (0.00 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 2 / CS 1	AEH500	1.0	2	1.0000	-3.7500	0.7800
					3.7500	0.7800
LR 1 / CS 1	AEH500	1.0	2	1.0000	-1.8000	0.0600
					1.8000	0.0600

Dimensionamiento a flexión: Viga Sección "TABVANOL"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-0.0000	646.2700	0.0000	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

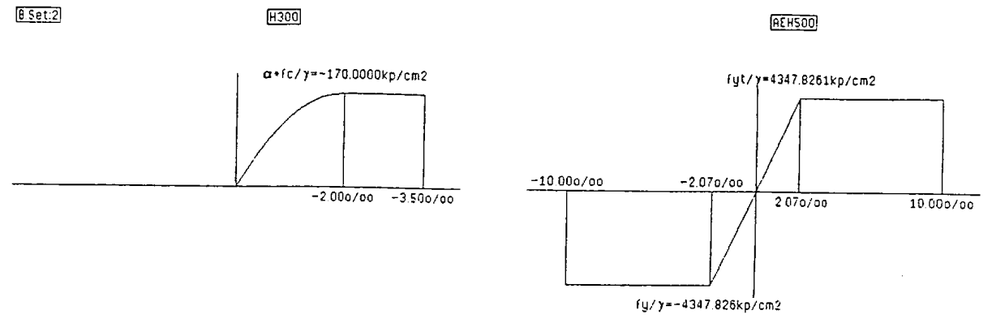
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

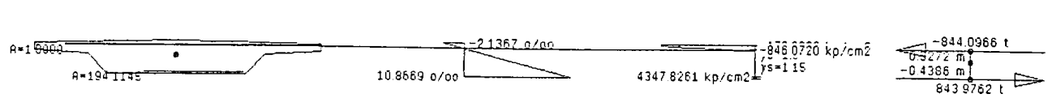
No	Armad. long.	y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
	AEH500	-3.7500	0.7800	3.7500	0.7800	1.0000	----	1.0000
1	AEH500	-1.8000	0.0600	1.8000	0.0600	1.0000	194.1145	194.1145

Max.x/h = 0.18 As-top/bot = 1.0000/194.1145 As = 0.42 % = 195.1145

18 ϕ 25 + 18 ϕ 32 (233.10 cm²)

Material acorde a la sección: "TABVANOL"





Dimensionamiento, Sección "TABVANOL"

Características mecánicas Sección "TABVANOL" (sin coef. homogeneiz.)

Area	Ax = 46.53E3 cm2		
Momento de inercia	Iy = 28.62E6 cm4	Iz = 1.372E9 cm4	Ip = 1.400E9 cm4
Const. de torsión			Ix = 50.83E6 cm4
Momento estático	Zy =998.79E3 cm3	Zz = 6.642E6 cm3	
Baricentro	ys = 0.0000 m	zs = 0.4986 m	Angulo= 0.0 Grad
Dist. al borde	yl = -3.8500 m	yr = 3.8500 m	
	zo = 0.4014 m	zu = -0.4986 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 0.0000 m z = 0.4986 m

Contorno de sección parcial, Sección "TABVANOL" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	46530.5	1625.531	5.08E+07	3)

Puntos de contorno [m]:

1	-1.8500	0.0000	2	1.8500	0.0000	3	2.3500	0.5230
4	3.8500	0.6230	5	3.8500	0.8230	6	0.0000	0.9000
7	-3.8500	0.8230	8	-3.8500	0.6230	9	-2.3500	0.5230
10	-1.8500	0.0000						

Armadura "B1" As-tot =195.1145 cm2 (0.42 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 2 / CS 1	AEH500	1.0	2	1.0000	-3.7500	0.7800
					3.7500	0.7800
LR 1 / CS 1	AEH500	1.0	2	194.1145	-1.8000	0.0600
					1.8000	0.0600

Dimensionamiento a flexión: Viga Sección "TABVANOL"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-0.0000	-774.5900	0.0000	

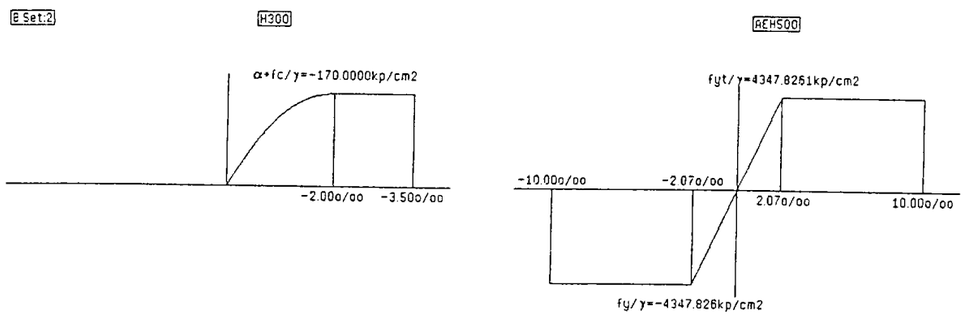
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad.		y1	z1	y2	z2	dados	dimens.	As
	long. :	[m]	[m]	[m]	[m]	[cm2]	[cm2]	[cm2]
1	AEH500	-3.7500	0.7800	3.7500	0.7800	1.0000	257.6408	257.6408
	AEH500	-1.8000	0.0600	1.8000	0.0600	1.0000	----	1.0000

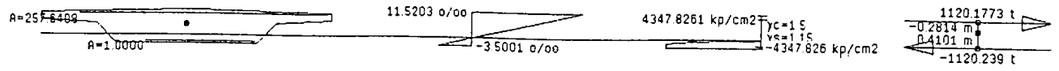
Max.x/h = 0.27 As-top/bot = 257.6408/1.0000 As = 0.56 % = 258.6408

$\phi 20/0.20 \times 7.60m +$
$23\phi 25 + 14\phi 20 \quad (276.21cm^2)$

Material acorde a la sección: "TABVANOL"



Dimensionamiento, Sección "TABVANOL"



Características mecánicas Sección "TABVANOL" (sin coef. homogeneiz.)

Area	Ax = 46.53E3 cm2		
Momento de inercia	Iy = 28.62E6 cm4	Iz = 1.372E9 cm4	Ip = 1.400E9 cm4
Const. de torsión			Ix = 50.83E6 cm4
Momento estático	Zy =998.79E3 cm3	Zz = 6.642E6 cm3	
Baricentro	ys = 0.0000 m	zs = 0.4986 m	Angulo= 0.0 Grad
Dist. al borde	yl = -3.8500 m	yr = 3.8500 m	
	zo = 0.4014 m	zu = -0.4986 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 0.0000 m z = 0.4986 m

Contorno de sección parcial, Sección "TABVANOL" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	46530.5	1625.531	5.08E+07	3)

Puntos de contorno [m]:

1	-1.8500	0.0000	2	1.8500	0.0000	3	2.3500	0.5230
4	3.8500	0.6230	5	3.8500	0.8230	6	0.0000	0.9000
7	-3.8500	0.8230	8	-3.8500	0.6230	9	-2.3500	0.5230
10	-1.8500	0.0000						

Armadura "B1" As-tot =258.6408 cm2 (0.56 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 2 / CS 1	AEH500	1.0	2	257.6408	-3.7500	0.7800
					3.7500	0.7800
LR 1 / CS 1	AEH500	1.0	2	1.0000	-1.8000	0.0600
					1.8000	0.0600

Dimensionamiento a flexión: Viga Sección "TABVANOL"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-0.0000	818.4600	0.0000	

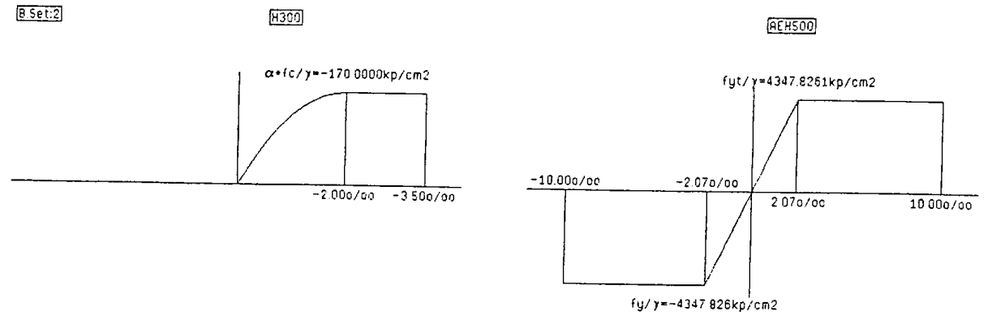
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad. long. :	y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
AEH500	-3.7500	0.7800	3.7500	0.7800	1.0000	----	1.0000
1 AEH500	-1.8000	0.0600	1.8000	0.0600	1.0000	248.5995	248.5995

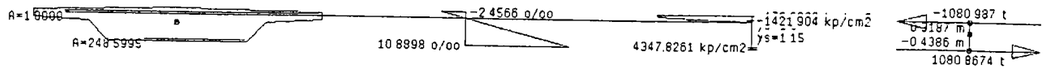
Max.x/h = 0.20 As-top/bot = 1.0000/248.5995 As = 0.54 % = 249.5995

18 ϕ25 + 18 ϕ22 + 4 ϕ25.
(252,74 cm²

Material acorde a la sección: "TAEVANOL"

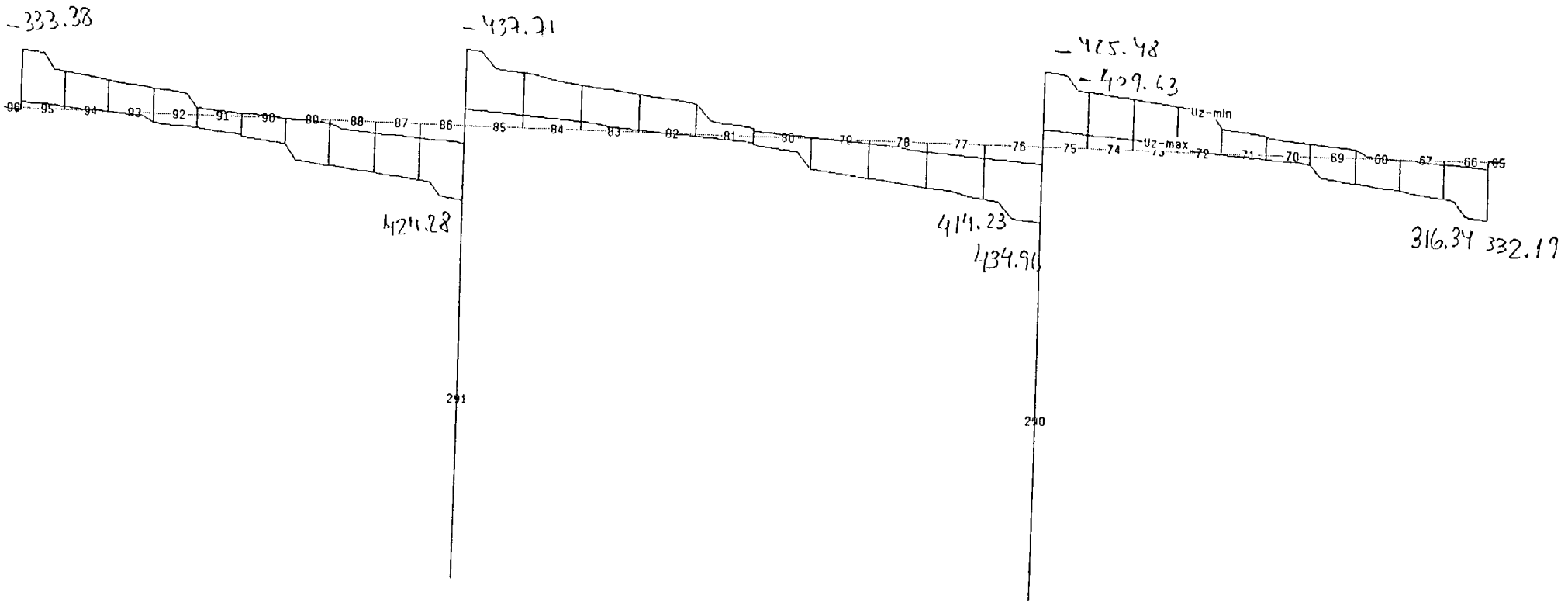


Dimensionamiento,Sección "TABVANOL"



2.4.1.3. Verificación de las secciones a esfuerzos de cortante (E.L.U.)

Scale 1 : 173.7
Int. Forces envelope Vz, GWSP ES (COMBINACION FZAS EXTERIORES), Subsys. "LIST"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 5.00E-03
  min: -4.38E+02 max: 9.76E+01 [t]
- Envelope Shear force Vz-max, Scale 5.00E-03
  min: -9.90E+01 max: 4.35E+02 [t]



ENVELOPE SPECIFIC.: ES 'COMBINACION FZAS EXTERIORES'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PL.PERM	4	1.350		RETRACCION
H	OR	4	1.000		RETRACCION
I	PLUS	6	1.500		SOE UNIF 1
J	PLUS	7	1.500		SOBRECARGA UNIF 2
K	PLUS	8	1.500		SOE UNIF 3
L	PLUS	11	4.220		VEHICULO HIPOTESIS 11
M	OR	11	4.220		VEHICULO HIPOTESIS 11
N	OR	12	4.220		VEHICULO HIPOTESIS 12
O	OR	13	4.220		VEHICULO HIPOTESIS 13
P	OR	14	4.220		VEHICULO HIPOTESIS 14
Q	OR	15	4.220		VEHICULO HIPOTESIS 15
R	OR	16	4.220		VEHICULO HIPOTESIS 16
S	OR	17	4.220		VEHICULO HIPOTESIS 17
T	OR	18	4.220		VEHICULO HIPOTESIS 18
U	OR	19	4.220		VEHICULO HIPOTESIS 19
V	OR	20	4.220		VEHICULO HIPOTESIS 20
W	OR	21	4.220		VEHICULO HIPOTESIS 21
X	OR	22	4.220		VEHICULO HIPOTESIS 22
Y	OR	23	4.220		VEHICULO HIPOTESIS 23
Z	OR	24	4.220		VEHICULO HIPOTESIS 24
AA	OR	25	4.220		VEHICULO POSICION 25
AB	OR	26	4.220		VEHICULO POSICION 26
AC	OR	27	4.220		VEHICULO POSICION 27
AD	OR	28	4.220		VEHICULO POSICION 28
AE	OR	29	4.220		VEHICULO POSICION 29
AF	OR	30	4.220		VEHICULO POSICION 30
AG	OR	31	4.220		VEHICULO POSICION 31
AH	OR	32	4.220		VEHICULO POSICION 32
AI	OR	33	4.220		VEHICULO POSICION 33
AJ	OR	34	4.220		VEHICULO POSICION 34
AK	OR	35	4.220		VEHICULO POSICION 35
AL	OR	36	4.220		VEHICULO POSICION 36
AM	OR	37	4.220		VEHICULO HIPOTESIS 37
AN	PLUS	60	1.500		FRENADO
AO	PLUS	63	0.450000		VIENTO TRANSV CON SOE
AP	PLUS	64	0.900000		TEMPERATURA (-)
AQ	OF	65	0.900000		TEMPERATURA (+)
AR	PLUS	66	0.900000		GRADIENTE

ALTERNATIVE ENVELOPE :

AR	PERM.	1	1.350	PESO PROPIO
AS	OR	1	1.000	PESO PROPIO
AT	PL.PERM	2	2.025	PESO PAVIMENTO
AU	OR	2	1.000	PESO PAVIMENTO
AV	PL.PERM	3	1.350	PESO BARRERAS
AW	OR	3	1.000	PESO BARRERAS
AX	PL.PERM	5	1.350	RETRACCION
AY	OR	5	1.000	RETRACCION
AZ	PLUS	5	1.500	SOE UNIF EXC
BA	PLUS	10	1.500	SOE UNIF EXC
BB	PLUS	11	4.220	VEHICULO HIPOTESIS 11
BC	OR	12	4.220	VEHICULO HIPOTESIS 12
BD	OR	13	4.220	VEHICULO HIPOTESIS 13
BE	OR	14	4.220	VEHICULO HIPOTESIS 14
BF	OR	15	4.220	VEHICULO HIPOTESIS 15
BG	OR	16	4.220	VEHICULO HIPOTESIS 16
BH	OR	17	4.220	VEHICULO HIPOTESIS 17
BI	OR	18	4.220	VEHICULO HIPOTESIS 18
BJ	OR	19	4.220	VEHICULO HIPOTESIS 19
BK	OR	20	4.220	VEHICULO HIPOTESIS 20
BL	OR	21	4.220	VEHICULO HIPOTESIS 21
BM	OR	22	4.220	VEHICULO HIPOTESIS 22
BN	OR	23	4.220	VEHICULO HIPOTESIS 23
BO	OR	24	4.220	VEHICULO HIPOTESIS 24
BP	OR	25	4.220	VEHICULO POSICION 25
BQ	OR	26	4.220	VEHICULO POSICION 26
BR	OR	27	4.220	VEHICULO POSICION 27
BS	OR	28	4.220	VEHICULO POSICION 28
BT	OR	29	4.220	VEHICULO POSICION 29
BU	OR	30	4.220	VEHICULO POSICION 30
BV	OR	31	4.220	VEHICULO POSICION 31
BW	OR	32	4.220	VEHICULO POSICION 32
BX	OR	33	4.220	VEHICULO POSICION 33
BY	OR	34	4.220	VEHICULO POSICION 34
BZ	OR	35	4.220	VEHICULO POSICION 35
CA	OR	36	4.220	VEHICULO POSICION 36
CB	OR	37	4.220	VEHICULO HIPOTESIS 37
CC	PLUS	60	1.500	FRENADO
CD	PLUS	63	0.450000	VIENTO TRANSV CON SOE
CE	PLUS	64	0.900000	TEMPERATURA (-)
CF	OR	65	0.900000	TEMPERATURA (+)
CG	PLUS	66	0.900000	GRADIENTE

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65		-0.153394	-4.99E-10	-5.336	4.98E-13	-1.001	2.47E-09
		Min: AR AT AV AX AZ BA BC...		Max: B D F H P AM AO AQ			
	0.500	-8.21E-12	1.74E-08	-12.192	-9.54E-13	-3.048	6.19E-09
		-0.204525	-4.99E-10	-7.115	4.98E-13	-1.779	2.41E-09
		Min: AR AT AV AX AZ BA BC...		Max: B D F H P AM AO AQ			
66		0	8.794	-13.901	37.688	1.75E-13	-1.779	-1.91E-07
		-0.738234	-16.352	332.190	-1.34E-13	-3.048	-2.23E-07
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
66	0.325	8.661	-13.901	33.063	1.75E-13	9.718	-4.518
		-0.738234	-16.352	324.265	-1.34E-13	103.626	-5.314
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
66	0.650	8.528	-13.901	28.438	1.75E-13	19.717	-9.036
		-0.738234	-16.352	316.340	-1.34E-13	207.724	-10.629
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
66	0.975	8.395	-13.901	23.813	1.75E-13	28.203	-13.553
		-0.738234	-16.352	224.015	126.600	298.697	-15.943
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
66	1.300	8.262	-13.901	19.188	1.75E-13	35.190	-18.071
		-0.738234	-16.352	216.091	126.600	370.214	-21.257
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
67		0	8.262	-13.901	19.188	1.75E-13	35.190	-18.071
		-0.738234	-16.352	216.091	126.600	370.214	-21.257
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
67	0.325	8.129	-13.901	14.563	1.75E-13	40.679	-22.585
		-0.738234	-16.352	208.166	126.600	439.196	-26.571
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
67	0.650	7.996	-13.901	9.938	1.75E-13	44.656	-27.107
		-0.738234	-16.352	200.241	126.600	505.522	-31.886
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
67	0.975	7.863	-13.901	5.313	1.75E-13	47.134	-31.624
		-0.738234	-16.352	192.316	126.600	569.312	-37.200
		Min: B D F G J P AM AO		Max: A C E H I K L AP AQ			
67	1.300	7.730	-13.901	0.687888	1.75E-13	48.109	-36.142
		-1.242	-16.352	175.982	2.03E-13	536.923	-42.514
		Min: B D F G J P AM AO		Max: A C E H I K M AP AQ			
68		0	7.730	-13.901	0.687888	1.75E-13	48.109	-36.142
		-1.242	-16.352	175.982	2.03E-13	536.923	-42.514
		Min: B D F G J P AM AO		Max: A C E H I K M AP AQ			
68	0.325	7.597	-13.901	-3.937	1.75E-13	47.661	-40.660
		-1.242	-16.352	168.057	2.03E-13	592.830	-47.828
		Min: B D F G J P AM AO		Max: A C E H I K M AP AQ			
68	0.650	7.464	-13.901	-8.562	1.75E-13	46.592	-45.178
		-1.242	-16.352	160.133	2.03E-13	646.161	-53.143
		Min: B D F G J P AM AO		Max: A C E H I K M AP AQ			
68	0.975	7.331	-13.901	-13.187	1.75E-13	42.016	-49.696
		-1.242	-16.352	152.208	2.03E-13	696.915	-56.457
		Min: B D F G J P AM AO		Max: A C E H I K M AP AQ			

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65		0	-8.21E-12	1.74E-08	-1.22E-07	-9.54E-13	6.01E-13	-2.51E-09
		-2.05E-09	-4.99E-10	-7.12E-08	4.98E-13	-1.24E-12	2.66E-09
		Min: AR AT AV AX AZ BA BC...		Max: B D F H P AM AO AQ			
65	0.125	-8.21E-12	1.74E-08	-3.048	-9.54E-13	-0.190500	-3.35E-10
		-0.051131	-4.99E-10	-1.779	4.98E-13	-0.111177	2.60E-09
		Min: AR AT AV AX AZ BA BC...		Max: B D F H P AM AO AQ			
65	0.250	-8.21E-12	1.74E-08	-6.096	-9.54E-13	-0.761998	1.84E-09
		-0.102263	-4.99E-10	-3.558	4.98E-13	-0.444707	2.54E-09
		Min: AR AT AV AX AZ BA BC...		Max: B D F H P AM AO AQ			
65	0.375	-8.21E-12	1.74E-08	-9.144	-9.54E-13	-1.714	4.02E-09

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	1.300	6.754	-16.352	-51.430	379.800	500.868	-63.771
		-1.242	-16.352	144.283	2.03E-13	745.096	-63.771
		Min: B D F G J L AM AO		Max: A C E H I K M AP AQ			
69		0	6.754	-16.352	-51.430	379.800	500.868	-63.771
		-1.242	-16.352	144.283	1.60E-12	745.096	-63.771
		Min: B D F G J L AM AO		Max: A C E H I K M AP AQ			
69	0.325	6.621	-16.352	-56.055	379.800	483.422	-69.085
		-1.242	-16.352	136.358	1.60E-12	790.700	-69.085
		Min: B D F G J L AM AO		Max: A C E H I K M AP AQ			
69	0.650	6.488	-16.352	-60.680	379.800	464.452	-74.400
		-1.242	-16.352	128.433	1.60E-12	833.729	-74.400
		Min: B D F G J L AM AO		Max: A C E H I K M AP AQ			
69	0.975	6.355	-16.352	-65.656	379.800	505.016	-79.714
		-1.242	-16.352	120.900	1.60E-12	813.145	-79.714
		Min: A C E G J L AM AO		Max: B D F H I K M AP AQ			
69	1.300	6.222	-16.352	-72.061	379.800	462.636	-85.028
		-0.964122	-16.352	41.819	6.01E-13	472.373	-85.028
		Min: A C E G J L AM AO		Max: B D F H I K N AP AQ			
70		0	6.222	-16.352	-72.061	379.800	462.636	-85.028
		-0.964122	-16.352	41.819	6.22E-13	472.373	-85.028
		Min: A C E G J L AM AO		Max: B D F H I K N AP AQ			
70	0.325	6.089	-16.352	-78.426	379.800	455.176	-90.342
		-0.964122	-16.352	35.634	6.22E-13	484.959	-90.342
		Min: A C E G J L AM AO		Max: B D F H I K N AP AQ			
70	0.650	5.794	-16.352	-85.432	379.800	505.435	-95.657
		-0.801778	-16.352	30.090	6.22E-13	417.753	-95.657
		Min: A C E G I J L AM AO		Max: B D F H K N AP AQ			
70	0.975	5.661	-16.352	-93.357	379.800	480.352	-100.971
		-0.801778	-16.352	25.465	6.22E-13	426.731	-100.971
		Min: A C E G I J L AM AO		Max: B D F H K N AP AQ			
70	1.300	5.528	-16.352	-101.282	379.800	448.753	-106.285
		-0.801778	-16.352	20.840	6.22E-13	434.306	-106.285
		Min: A C E G I J L AM AO		Max: B D F H K N AP AQ			
71		0	5.025	-16.352	-109.691	253.200	769.672	-106.285
		-0.801778	-16.352	20.840	-3.88E-13	434.306	-106.285
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
71	0.325	4.892	-16.352	-117.616	253.200	732.734	-111.599
		-0.801778	-16.352	16.215	-3.88E-13	440.327	-111.599
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
71	0.650	4.759	-16.352	-125.541	253.200	693.221	-116.914
		-0.801778	-16.352	11.591	-3.88E-13	444.846	-116.914
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
71	0.975	4.626	-16.352	-133.465	253.200	651.133	-122.228
		-0.801778	-16.352	6.966	-3.88E-13	447.861	-122.228
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
71	1.300	4.493	-16.352	-141.390	253.200	606.469	-127.542
		-0.801778	-16.352	2.341	-3.88E-13	449.374	-127.542

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	1.300	6.754	-16.352	-51.430	379.800	500.868	-63.771
		-1.242	-16.352	144.283	2.03E-13	745.096	-63.771
		Min: B D F G J L AM AO		Max: A C E H I K M AP AQ			
69		0	6.754	-16.352	-51.430	379.800	500.868	-63.771
		-1.242	-16.352	144.283	1.60E-12	745.096	-63.771
		Min: B D F G J L AM AO		Max: A C E H I K M AP AQ			
69	0.325	6.621	-16.352	-56.055	379.800	483.422	-69.085
		-1.242	-16.352	136.358	1.60E-12	790.700	-69.085
		Min: B D F G J L AM AO		Max: A C E H I K M AP AQ			
69	0.650	6.488	-16.352	-60.680	379.800	464.452	-74.400
		-1.242	-16.352	128.433	1.60E-12	833.729	-74.400
		Min: B D F G J L AM AO		Max: A C E H I K M AP AQ			
69	0.975	6.355	-16.352	-65.656	379.800	505.016	-79.714
		-1.242	-16.352	120.900	1.60E-12	813.145	-79.714
		Min: A C E G J L AM AO		Max: B D F H I K M AP AQ			
69	1.300	6.222	-16.352	-72.061	379.800	462.636	-85.028
		-0.964122	-16.352	41.819	6.01E-13	472.373	-85.028
		Min: A C E G J L AM AO		Max: B D F H I K N AP AQ			
70		0	6.222	-16.352	-72.061	379.800	462.636	-85.028
		-0.964122	-16.352	41.819	6.22E-13	472.373	-85.028
		Min: A C E G J L AM AO		Max: B D F H I K N AP AQ			
70	0.325	6.089	-16.352	-78.426	379.800	455.176	-90.342
		-0.964122	-16.352	35.634	6.22E-13	484.959	-90.342
		Min: A C E G J L AM AO		Max: B D F H I K N AP AQ			
70	0.650	5.794	-16.352	-85.432	379.800	505.435	-95.657
		-0.801778	-16.352	30.090	6.22E-13	417.753	-95.657
		Min: A C E G I J L AM AO		Max: B D F H K N AP AQ			
70	0.975	5.661	-16.352	-93.357	379.800	480.352	-100.971
		-0.801778	-16.352	25.465	6.22E-13	426.731	-100.971
		Min: A C E G I J L AM AO		Max: B D F H K N AP AQ			
70	1.300	5.528	-16.352	-101.282	379.800	448.753	-106.285
		-0.801778	-16.352	20.840	6.22E-13	434.306	-106.285
		Min: A C E G I J L AM AO		Max: B D F H K N AP AQ			
71		0	5.025	-16.352	-109.691	253.200	769.672	-106.285
		-0.801778	-16.352	20.840	-3.88E-13	434.306	-106.285
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
71	0.325	4.892	-16.352	-117.616	253.200	732.734	-111.599
		-0.801778	-16.352	16.215	-3.88E-13	440.327	-111.599
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
71	0.650	4.759	-16.352	-125.541	253.200	693.221	-116.914
		-0.801778	-16.352	11.591	-3.88E-13	444.846	-116.914
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
71	0.975	4.626	-16.352	-133.465	253.200	651.133	-122.228
		-0.801778	-16.352	6.966	-3.88E-13	447.861	-122.228
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
71	1.300	4.493	-16.352	-141.390	253.200	606.469	-127.542
		-0.801778	-16.352	2.341	-3.88E-13	449.374	-127.542

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
72		0	4.493	-16.352	-141.390	253.200	606.469	-127.542
		-0.801778	-16.352	2.341	-6.12E-13	449.374	-127.542
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
72	0.325	4.360	-16.352	-233.715	379.800	548.679	-132.856
		-0.801778	-16.352	-2.284	-6.12E-13	449.363	-132.856
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
72	0.650	4.227	-16.352	-241.640	379.800	471.434	-138.171
		-0.801778	-16.352	-6.909	-6.12E-13	447.889	-138.171
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
72	0.975	4.094	-16.352	-249.564	379.800	391.614	-143.485
		-0.801778	-16.352	-11.534	-6.12E-13	444.852	-143.485
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
72	1.300	3.961	-16.352	-257.489	379.800	305.218	-148.799
		-0.801778	-16.352	-16.159	-6.12E-13	440.392	-148.799
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
73		0	3.961	-16.352	-257.489	379.800	305.217	-148.799
		-0.801778	-16.352	-16.159	-2.89E-12	440.392	-148.799
		Min: A C E G I J M AM AO		Max: B D F H K N AP AQ			
73	0.325	3.828	-16.352	-265.414	379.800	224.246	-154.113
		0.810842	-11.450	-47.936	-1.53E-12	178.476	-107.917
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
73	0.650	3.695	-16.352	-273.339	379.800	136.696	-159.428
		0.810842	-11.450	-52.561	-1.53E-12	162.147	-111.639
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
73	0.975	3.562	-16.352	-281.264	379.800	46.576	-164.742
		0.810842	-11.450	-57.186	-1.53E-12	144.313	-115.360
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
73	1.300	3.429	-16.352	-289.188	379.800	-46.123	-170.056
		0.810842	-11.450	-61.811	-1.53E-12	124.976	-119.081
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
74		0	3.429	-16.352	-289.188	379.800	-46.123	-170.056
		0.810842	-11.450	-61.811	-2.52E-12	124.976	-119.081
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
74	0.325	3.296	-16.352	-297.113	379.800	-141.357	-175.371
		0.810842	-11.450	-66.436	-2.52E-12	104.135	-122.803
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
74	0.650	3.163	-16.352	-305.038	379.800	-239.246	-180.685
		0.810842	-11.450	-71.061	-2.52E-12	81.792	-126.524
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
74	0.975	3.030	-16.352	-312.963	379.800	-339.671	-185.999
		0.810842	-11.450	-75.686	-2.52E-12	57.945	-130.245
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
74	1.300	2.897	-16.352	-320.887	379.800	-442.672	-191.313
		0.810842	-11.450	-80.311	-2.52E-12	32.596	-133.966
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
75		0	2.897	-16.352	-320.887	379.800	-442.672	-191.313
		0.810842	-11.450	-80.311	-3.08E-12	32.596	-133.966
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
75	0.325	2.765	-16.352	-328.812	379.800	-548.248	-196.628
		0.810842	-11.450	-84.936	-3.08E-12	5.743	-137.688
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
75	0.650	2.909	-16.352	-409.633	379.800	-505.886	-201.942
		0.810842	-11.450	-89.561	-3.08E-12	-22.613	-141.409
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
75	0.975	2.776	-16.352	-417.558	379.800	-640.307	-207.256
		0.810842	-11.450	-94.186	-3.08E-12	-52.471	-145.130
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
75	1.300	2.644	-16.352	-425.483	379.800	-777.301	-212.570
		0.810842	-11.450	-98.811	-3.08E-12	-83.833	-148.852
		Min: A C E G I J M AM AO		Max: B D F H K S AP AQ			
76		0	7.040	-4.100	96.301	-127.576	-215.069	-145.511
		3.526	2.967	434.962	-234.993	-616.520	-205.582
		Min: B D F H K S AM AP		Max: A C E G I J O AQ AQ			
76	0.425	6.866	-4.100	90.253	-127.576	-175.427	-147.254
		3.526	2.967	424.595	-234.993	-433.863	-204.322
		Min: B D F H K S AM AP		Max: A C E G I J O AQ AQ			
76	0.850	6.692	-4.100	84.205	-127.576	-138.355	-148.997
		3.526	2.967	414.236	-234.993	-255.611	-203.061
		Min: B D F H K S AM AP		Max: A C E G I J O AQ AQ			
76	1.275	6.518	-4.100	78.156	-127.576	-103.853	-150.739
		3.526	2.967	319.473	-108.393	-117.613	-201.800
		Min: B D F H K S AM AP		Max: A C E G I J O AQ AQ			
76	1.700	6.344	-4.100	72.108	-127.576	-71.922	-152.482
		3.526	2.967	309.109	-108.393	15.941	-200.539
		Min: B D F H K S AM AP		Max: A C E G I J O AQ AQ			
77		0	6.344	-4.100	72.108	-127.576	-71.922	-152.482
		3.526	2.967	309.109	-108.393	15.941	-200.539
		Min: B D F H K S AM AP		Max: A C E G I J O AQ AQ			
77	0.425	6.170	-4.100	66.060	-127.576	-42.561	-154.225
		3.526	2.967	298.745	-108.393	145.110	-199.278
		Min: B D F H K S AM AP		Max: A C E G I J O AQ AQ			
77	0.850	5.997	-4.100	60.012	-127.576	-15.770	-155.967
		-0.641686	5.23E-09	274.803	-189.900	19.158	-180.365
		Min: B D F H K S AM AP		Max: A C E G I J P AQ AQ			
77	1.275	5.823	-4.100	53.964	-127.576	8.450	-157.710
		-0.641686	5.23E-09	264.440	-189.900	133.747	-180.365
		Min: B D F H K S AM AP		Max: A C E G I J P AQ AQ			
77	1.700	5.649	-4.100	47.916	-127.576	30.100	-159.453
		-0.641686	5.23E-09	254.077	-189.900	243.932	-180.365
		Min: B D F H K S AM AP		Max: A C E G I J P AQ AQ			
78		0	5.649	-4.100	47.916	-127.576	30.100	-159.453
		-0.641686	4.63E-09	254.077	-189.900	243.932	-180.365

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: B D F H K S AM AP		Max: A C E G I J P AO AQ			
78	0.425	5.475	-4.100	41.868	-127.576	49.179	-161.195
		-0.641686	4.63E-09	243.713	-189.900	349.712	-180.365
		Min: B D F H K S AM AP		Max: A C E G I J P AO AQ			
78	0.850	-2.783	2.967	25.996	144.807	320.860	-192.974
		-0.641686	4.63E-09	233.350	-189.900	451.088	-180.365
		Min: B D F H K O AM AP		Max: A C E G I J P AO AQ			
78	1.275	-2.956	2.967	19.948	144.807	330.623	-191.713
		-0.641686	4.63E-09	222.987	-189.900	548.060	-180.365
		Min: B D F H K O AM AP		Max: A C E G I J P AO AQ			
78	1.700	-3.130	2.967	13.900	144.807	337.816	-190.452
		-0.641686	4.63E-09	212.624	-189.900	640.627	-180.365
		Min: B D F H K O AM AP		Max: A C E G I J P AO AQ			
79	0	-4.175	2.967	13.900	144.807	502.695	-190.452
		0.403304	4.11E-09	212.624	-189.900	475.748	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
79	0.425	-4.349	2.967	7.852	144.807	507.318	-189.191
		0.403304	4.11E-09	202.261	-189.900	563.911	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
79	0.850	-4.523	2.967	1.804	144.807	509.370	-187.930
		0.403304	4.11E-09	191.897	-189.900	647.676	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
79	1.275	-4.697	2.967	-4.244	144.807	508.851	-186.669
		0.403304	4.11E-09	181.534	-189.900	727.024	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
79	1.700	-4.871	2.967	-10.292	144.807	505.762	-185.408
		0.403304	4.11E-09	171.171	-189.900	801.974	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
80	0	-4.871	2.967	-10.292	144.807	505.762	-185.408
		0.403304	3.94E-09	171.171	-189.900	801.974	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
80	0.425	-5.044	2.967	-16.340	144.807	500.103	-184.147
		0.403304	3.94E-09	76.408	-63.300	853.529	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
80	0.850	-5.218	2.967	-22.388	144.807	491.873	-182.887
		0.403304	3.94E-09	66.045	-63.300	883.800	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
80	1.275	-5.392	2.967	-28.436	144.807	481.073	-181.626
		0.403304	3.94E-09	55.682	-63.300	909.667	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
80	1.700	-5.566	2.967	-34.484	144.807	467.703	-180.365
		0.403304	3.94E-09	45.318	-63.300	931.130	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AC			
81	0	-11.847	3.62E-09	-48.064	63.300	1085.477	-180.365
		6.684	-2.967	31.738	-144.807	313.356	-180.365
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AC			
81	0.425	-12.021	3.62E-09	-58.427	63.300	1062.647	-180.365

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		6.684	-2.967	25.690	-144.807	325.559	-181.626
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AC			
81	0.850	-12.195	3.62E-09	-68.790	63.300	1035.814	-180.365
		6.684	-2.967	19.642	-144.807	335.193	-182.887
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AC			
81	1.275	-12.368	3.62E-09	-79.154	63.300	1004.375	-180.365
		6.684	-2.967	13.594	-144.807	342.255	-184.147
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AC			
81	1.700	-12.542	3.62E-09	-173.917	189.900	951.653	-180.365
		6.684	-2.967	7.546	-144.807	346.748	-185.408
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AC			
82	0	-11.497	3.50E-09	-173.917	189.900	786.774	-180.365
		5.635	-2.967	7.546	-144.807	511.627	-185.408
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AC			
82	0.425	-11.671	3.50E-09	-184.280	189.900	710.657	-180.365
		5.635	-2.967	1.498	-144.807	513.549	-186.669
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
82	0.850	-11.845	3.50E-09	-194.643	189.900	630.136	-180.365
		5.635	-2.967	-4.550	-144.807	512.900	-187.930
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AC			
82	1.275	-12.019	3.50E-09	-205.006	189.900	545.210	-180.365
		5.635	-2.967	-10.598	-144.807	509.682	-189.191
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
82	1.700	-12.193	3.50E-09	-215.370	189.900	455.880	-180.365
		5.635	-2.967	-16.646	-144.807	503.892	-190.452
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
83	0	-12.193	3.56E-09	-215.370	189.900	455.880	-180.365
		5.635	-2.967	-16.646	-144.807	503.892	-190.452
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AC			
83	0.425	-12.366	3.56E-09	-225.733	189.900	362.146	-180.365
		5.635	-2.967	-22.694	-144.807	495.533	-191.713
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
83	0.850	-12.540	3.56E-09	-236.096	189.900	264.007	-180.365
		5.635	-2.967	-28.742	-144.807	484.603	-192.974
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AC			
83	1.275	-12.714	3.56E-09	-246.459	189.900	161.464	-180.365
		13.723	4.100	-44.614	127.576	211.754	-161.195
		Min: A C E H J K P AM AP		Max: B D F G I M AO AC			
83	1.700	-12.888	3.56E-09	-256.822	189.900	54.517	-180.365
		13.723	4.100	-50.662	127.576	191.508	-159.453
		Min: A C E H J K P AM AP		Max: B D F G I M AO AQ			
84	0	-12.888	3.51E-09	-256.822	189.900	54.517	-180.365
		13.723	4.100	-50.662	127.576	191.508	-159.453
		Min: A C E H J K P AM AP		Max: B D F G I M AO AC			
84	0.425	-13.062	3.51E-09	-267.185	189.900	-56.834	-180.365
		13.723	4.100	-56.710	127.576	168.692	-157.710
		Min: A C E H J K P AM AP		Max: B D F G I M AO AC			

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
84	0.850	-13.236	3.51E-09	-277.549	189.900	-172.590	-180.365
		13.723	4.100	-62.758	127.576	143.305	-155.967
		Min: A C E H J K P AM AP		Max: B D F G I M AO AC			
84	1.275	-9.241	-2.967	-301.492	108.393	-47.805	-199.278
		13.723	4.100	-68.806	127.576	115.347	-154.225
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
84	1.700	-9.415	-2.967	-311.855	108.393	-178.142	-200.539
		13.723	4.100	-74.854	127.576	84.819	-152.482
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AC			
85	0	-9.415	-2.967	-311.855	108.393	-178.142	-200.539
		13.723	4.100	-74.854	127.576	84.819	-152.482
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
85	0.425	-9.589	-2.967	-322.218	108.393	-312.882	-201.800
		13.723	4.100	-80.902	127.576	51.721	-150.739
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
85	0.850	-9.763	-2.967	-332.581	108.393	-452.027	-203.061
		13.723	4.100	-86.950	127.576	16.052	-148.997
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
85	1.275	-9.937	-2.967	-427.345	234.993	-631.446	-204.321
		13.723	4.100	-92.998	127.576	-22.187	-147.254
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
86	1.700	-10.111	-2.967	-437.708	234.993	-815.270	-205.582
		13.723	4.100	-99.046	127.576	-62.996	-145.511
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AC			
86	0	3.365	11.450	97.611	-1.01E-12	-68.240	-148.852
		5.197	16.352	424.283	-379.800	-761.707	-212.570
		Min: B D F H I M AM AP AQ		Max: A C E G J K R AC			
86	0.325	3.232	11.450	92.986	-1.01E-12	-37.268	-145.130
		5.197	16.352	416.358	-379.800	-625.103	-207.256
		Min: B D F H I M AM AP AQ		Max: A C E G J K R AC			
86	0.650	3.099	11.450	88.362	-1.01E-12	-7.799	-141.409
		5.197	16.352	408.434	-379.800	-491.074	-201.942
		Min: B D F H I M AM AP AQ		Max: A C E G J K R AC			
86	0.975	2.966	11.450	83.737	-1.01E-12	20.167	-137.688
		4.919	16.352	327.613	-379.800	-533.824	-196.628
		Min: B D F H I M AM AP AC		Max: A C E G J K S AO			
86	1.300	2.833	11.450	79.112	-1.01E-12	46.630	-133.966
		4.919	16.352	319.688	-379.800	-428.638	-191.313
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AC			
87	0	2.833	11.450	79.112	-5.45E-13	46.630	-133.966
		4.919	16.352	319.688	-379.800	-428.638	-191.313
		Min: B D F H I M AM AP AC		Max: A C E G J K S AO			
87	0.325	2.700	11.450	74.487	-5.45E-13	71.590	-130.245
		4.919	16.352	311.763	-379.800	-326.027	-185.999
		Min: B D F H I M AM AP AC		Max: A C E G J K S AO			
87	0.650	2.567	11.450	69.862	-5.45E-13	95.046	-126.524
		4.919	16.352	303.838	-379.800	-225.952	-180.685

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: B D F H I M AM AP AC		Max: A C E G J K S AC			
87	0.975	2.434	11.450	65.237	-5.45E-13	117.000	-122.803
		4.919	16.352	295.914	-379.800	-128.532	-175.371
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AC			
87	1.300	2.301	11.450	60.612	-5.45E-13	137.450	-119.081
		4.919	16.352	287.989	-379.800	-33.648	-170.056
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AC			
88	0	2.301	11.450	60.612	7.48E-13	137.450	-119.081
		4.919	16.352	287.989	-379.800	-33.648	-170.056
		Min: B D F H I M AM AP AC		Max: A C E G J K S AO			
88	0.325	2.168	11.450	55.987	7.48E-13	156.398	-115.360
		4.919	16.352	280.064	-379.800	58.661	-164.742
		Min: B D F H I M AM AP AC		Max: A C E G J K S AO			
88	0.650	2.035	11.450	51.362	7.48E-13	173.842	-111.639
		4.919	16.352	272.139	-379.800	148.394	-159.428
		Min: B D F H I M AM AP AC		Max: A C E G J K S AO			
88	0.975	1.901	11.450	46.737	7.48E-13	189.783	-107.917
		4.919	16.352	264.214	-379.800	235.551	-154.113
		Min: B D F H I M AM AP AC		Max: A C E G J K S AO			
88	1.300	0.156708	16.352	14.960	2.70E-13	451.307	-148.799
		4.919	16.352	256.290	-379.800	320.133	-148.799
		Min: B D F H I R AM AP AC		Max: A C E G J K S AO			
89	0	0.156708	16.352	14.960	2.43E-12	451.307	-148.799
		4.919	16.352	256.290	-379.800	320.133	-148.799
		Min: B D F H I R AM AP AC		Max: A C E G J K S AO			
89	0.325	0.023767	16.352	10.335	2.43E-12	455.417	-143.485
		4.919	16.352	248.365	-379.800	402.139	-143.485
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
89	0.650	-0.109174	16.352	5.710	2.43E-12	458.025	-138.171
		4.919	16.352	240.440	-379.800	481.570	-138.171
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
89	0.975	-0.242116	16.352	1.085	2.43E-12	459.129	-132.856
		4.919	16.352	232.515	-379.800	558.425	-132.856
		Min: B D F H I R AM AP AC		Max: A C E G J K S AC			
89	1.300	-0.375057	16.352	-3.540	2.43E-12	458.730	-127.542
		4.919	16.352	140.191	-253.200	615.825	-127.542
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AC			
90	0	-0.375057	16.352	-3.540	1.29E-12	458.730	-127.542
		4.919	16.352	140.191	-253.200	615.825	-127.542
		Min: B D F H I R AM AP AC		Max: A C E G J K S AO			
90	0.325	-0.507958	16.352	-8.165	1.29E-12	456.828	-122.225
		4.919	16.352	132.266	-253.200	660.099	-122.225
		Min: B D F H I R AM AP AC		Max: A C E G J K S AC			
90	0.650	-0.640939	16.352	-12.790	1.29E-12	453.422	-116.914
		4.919	16.352	124.341	-253.200	701.798	-116.914
		Min: B D F H I R AM AP AC		Max: A C E G J K S AO			
90	0.975	-0.773881	16.352	-17.415	1.29E-12	448.514	-111.599

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		4.919	16.352	116.416	-253.200	740.921	-111.599
		Min: B D F H I R AM AP AC		Max: A C E G J K S AO			
90	1.300	-0.906822	16.352	-22.040	1.29E-12	442.103	-106.285
		4.919	16.352	108.491	-253.200	777.463	-106.285
		Min: B D F H I R AM AP AC		Max: A C E G J K S AO			
91	0	-0.906822	16.352	-22.040	2.29E-12	442.103	-106.285
		5.423	16.352	100.082	-379.800	456.550	-106.285
		Min: B D F H I R AM AP AQ		Max: A C E G J K T AO			
91	0.325	-1.040	16.352	-26.665	2.29E-12	434.186	-100.971
		5.423	16.352	92.157	-379.800	487.789	-100.971
		Min: B D F H I R AM AP AQ		Max: A C E G J K T AO			
91	0.650	-1.173	16.352	-31.290	2.29E-12	424.770	-95.657
		5.423	16.352	84.232	-379.800	516.452	-95.657
		Min: B D F H I R AM AP AQ		Max: A C E G J K T AO			
91	0.975	-1.466	16.352	-36.833	2.29E-12	491.586	-90.342
		5.585	16.352	77.226	-379.800	464.803	-90.342
		Min: B D F H I K R AM AP AQ		Max: A C E G J T AO			
91	1.300	-1.601	16.352	-43.018	2.29E-12	472.610	-85.028
		5.585	16.352	70.861	-379.800	488.668	-85.028
		Min: B D F H I K R AM AP AQ		Max: A C E G J T AO			
92	0	-1.601	16.352	-43.018	5.94E-13	472.610	-85.028
		5.585	16.352	70.861	-379.800	488.668	-85.028
		Min: B D F H I K R AM AP AQ		Max: A C E G J T AC			
92	0.325	-2.012	16.352	-122.099	4.26E-14	818.993	-79.714
		5.585	16.352	64.497	-379.800	510.863	-79.714
		Min: B D F H I K S AM AP AQ		Max: A C E G J T AO			
92	0.650	-2.145	16.352	-129.633	4.26E-14	835.186	-74.400
		5.585	16.352	58.480	-379.800	465.910	-74.400
		Min: A C E H I K S AM AP AQ		Max: B D F G J T AC			
92	0.975	-2.276	16.352	-137.558	4.26E-14	795.768	-69.085
		5.585	16.352	54.855	-379.800	488.489	-69.085
		Min: A C E H I K S AM AP AC		Max: B D F G J T AC			
92	1.300	-2.410	16.352	-145.483	4.26E-14	749.774	-63.771
		5.585	16.352	50.231	-379.800	505.566	-63.771
		Min: A C E H I K S AM AP AQ		Max: B D F G J T AC			
93	0	-2.410	16.352	-145.483	6.91E-13	749.774	-63.771
		5.585	16.352	50.231	-379.800	505.566	-63.771
		Min: A C E H I K S AM AP AC		Max: B D F G J T AC			
93	0.325	-2.543	16.352	-153.407	6.91E-13	701.204	-58.457
		6.030	13.901	11.987	4.87E-13	46.304	-49.656
		Min: A C E H I K S AM AP AC		Max: B D F G J P AC			
93	0.650	-2.676	16.352	-161.332	6.91E-13	650.059	-53.143
		6.030	13.901	7.361	4.87E-13	49.448	-49.176
		Min: A C E H I K S AM AP AQ		Max: B D F G J P AC			
93	0.975	-2.809	16.352	-169.257	6.91E-13	596.338	-47.828
		6.030	13.901	2.736	4.87E-13	51.090	-40.660
		Min: A C E H I K S AM AP AQ		Max: B D F G J P AC			

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
93	1.300	-2.942	16.352	-177.182	6.91E-13	540.042	-42.514
		6.030	13.901	-1.887	4.87E-13	51.228	-36.142
		Min: A C E H I K S AM AP AQ		Max: B D F G J P AC			
94	0	-2.942	16.352	-177.182	1.05E-12	540.042	-42.514
		6.030	13.901	-1.887	7.58E-13	51.228	-36.142
		Min: A C E H I K S AM AP AC		Max: B D F G J P AO			
94	0.325	-2.572	16.352	-193.516	-126.600	572.042	-37.200
		6.030	13.901	-6.512	7.58E-13	49.883	-31.624
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AC			
94	0.650	-2.704	16.352	-201.441	-126.600	507.861	-31.886
		6.030	13.901	-11.137	7.58E-13	46.995	-27.107
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AC			
94	0.975	-2.837	16.352	-209.365	-126.600	441.105	-26.571
		6.030	13.901	-15.762	7.58E-13	42.624	-22.589
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AC			
94	1.300	-2.970	16.352	-217.290	-126.600	371.774	-21.257
		6.030	13.901	-20.387	7.58E-13	36.749	-18.071
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AC			
95	0	-2.970	16.352	-217.290	-126.600	371.774	-21.257
		6.030	13.901	-20.387	1.50E-12	36.749	-18.071
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AC			
95	0.325	-3.103	16.352	-225.215	-126.600	299.867	-15.943
		6.030	13.901	-25.012	1.50E-12	29.372	-13.553
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AC			
95	0.650	-3.236	16.352	-317.540	2.90E-12	208.504	-10.629
		6.030	13.901	-29.637	1.50E-12	20.492	-9.036
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AC			
95	0.975	-3.369	16.352	-325.465	2.90E-12	104.016	-5.314
		6.030	13.901	-34.262	1.50E-12	10.108	-4.518
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
95	1.300	-3.502	16.352	-333.389	2.90E-12	-3.048	-2.22E-07
		6.030	13.901	-38.887	1.50E-12	-1.779	-1.89E-07
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
96	0	0.204525	2.01E-08	7.115	2.35E-12	-1.779	-4.15E-11
		-6.55E-12	1.96E-08	12.192	3.11E-12	-3.048	5.34E-12
		Min: B D F G T AM AO AQ		Max: AR AT AV AY AZ BA BI...			
96	0.125	0.153394	2.01E-08	5.336	2.35E-12	-1.001	2.47E-09
		-6.55E-12	1.96E-08	9.144	3.11E-12	-1.714	2.51E-09
		Min: B D F G T AM AO AQ		Max: AR AT AV AY AZ BA BI...			
96	0.250	0.102262	2.01E-08	3.558	2.35E-12	-0.444707	4.98E-09
		-6.55E-12	1.96E-08	6.096	3.11E-12	-0.761998	4.96E-09
		Min: B D F G T AM AO AQ		Max: AR AT AV AY AZ BA BI...			
96	0.375	0.051131	2.01E-08	1.779	2.35E-12	-0.111177	7.49E-09
		-6.55E-12	1.96E-08	3.048	3.11E-12	-0.190500	7.42E-09
		Min: B D F G T AM AO AQ		Max: AR AT AV AY AZ BA BI...			
96	0.500	2.01E-09	2.01E-08	7.11E-08	2.35E-12	-4.80E-12	1.00E-08
		-6.55E-12	1.96E-08	1.22E-07	3.11E-12	-1.43E-12	9.87E-09

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance (m)	N (t)	Vy (t)	Vz (t)	T (tm)	My (tm)	Mz (tm)
		Min: E D F G T AM AO AQ			Max: AR AT AV AY AZ BA BI...		
290	0	-433.416	-3.572	-31.459	2.547	53.551	19.808
		-433.416	-3.572	27.892	-2.463	-14.312	19.808
		Min: AR AT AV AX BA ET CD			Max: AR AT AV AX AZ BE		
290	3.300	-433.416	-3.572	-31.161	2.547	-49.773	8.020
		-433.416	-3.572	27.892	-2.463	77.732	8.020
		Min: AR AT AV AX BA ET CD			Max: AR AT AV AX AZ BE		
290	6.600	-433.416	-3.572	-30.866	2.547	-152.116	-3.767
		-433.416	-3.572	27.892	-2.463	169.776	-3.767
		Min: AR AT AV AX BA ET CD			Max: AR AT AV AX AZ BE		
290	9.900	-433.416	-3.572	-30.566	2.547	-253.480	-15.554
		-433.416	-3.572	27.892	-2.463	261.820	-15.554
		Min: AR AT AV AX BA ET CD			Max: AR AT AV AX AZ BE		
290	13.200	-433.416	-3.572	-30.271	2.547	-353.864	-27.341
		-433.416	-3.572	27.892	-2.463	353.864	-27.341
		Min: AR AT AV AX BA ET CD			Max: AR AT AV AX AZ BE		
291	0	-602.123	4.634	-31.459	-2.547	53.551	-23.407
		-602.123	4.634	27.892	2.463	-14.312	-23.407
		Min: AR AT AV AX BA EZ CC			Max: AR AT AV AX AZ EH		
291	3.300	-602.123	4.634	-31.161	-2.547	-49.773	-8.113
		-602.123	4.634	27.892	2.463	77.732	-8.113
		Min: AR AT AV AX BA EZ CD			Max: AR AT AV AX AZ EH		
291	6.600	-602.123	4.634	-30.866	-2.547	-152.116	7.180
		-602.123	4.634	27.892	2.463	169.776	7.180
		Min: AR AT AV AX BA EZ CD			Max: AR AT AV AX AZ EH		
291	9.900	-602.123	4.634	-30.566	-2.547	-253.480	22.474
		-602.123	4.634	27.892	2.463	261.820	22.474
		Min: AR AT AV AX BA EZ CD			Max: AR AT AV AX AZ EH		
291	13.200	-602.123	4.634	-30.271	-2.547	-353.864	37.768
		-602.123	4.634	27.892	2.463	353.864	37.768
		Min: AR AT AV AX BA EZ CD			Max: AR AT AV AX AZ EH		

CALCULO A CORTANTE SEGÚN EHE

****

Departamento de Estructuras. AEPO, S.A.

Título:

Fecha: 24/5/01 13.42.42

DATOS DE LA SECCIÓN Y Y MATERIALES

Sección rectangular de ancho 370 cm, alto 90 cm y canto 87 cm.

Situación de proyecto Persistente

Resistencia característica del hormigón = 300 Kp/cm2

Acero B 500 S

Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2

Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO

Cortante reducido en el borde del apoyo = 437 T

Cortante reducido a un canto útil del borde del apoyo = 417 T

Axil de cálculo (Tracciones positivas) = 0 T

RESULTADOS DEL CÁLCULO

Se ha considerado una armadura a tracción de 229 cm2 lo que implica una cuantía geométrica igual a 0.00711

Inclinación de bielas de compresión 45º

Inclinación de las armaduras con el eje de la pieza 90º

Coeficiente de reducción por efecto del esfuerzo axil, K = 1

La sección no rompe por compresión oblicua del alma al ser Vrd = 437 T < Vu1 = 1931.40 T

Es necesario disponer armadura a cortante al ser Vrd = 417.00 T > Vu2 = 161.76 T

Valores de las tensiones: Eje X = 0.00 Kp/cm2. Eje Y = 0.00 Kp/cm2

Ángulo de referencia de inclinación de las fisuras = 45.00º

Vcu = 134.80 T. Vsu= 282.20 T.

As cálculo = 90.10 cm2/m. As mínima = 37.00 cm2/m

Mínimo de armadura a disponer = 90.10 cm2/m

$$A_{st} = \frac{0.805m}{0.20} \times 2 \times 11 \times 1.13\,cm^2$$

$$A_{st} = 102.14\ cm^2/m$$

11 c φ 12 a 0.20

2.4.2. Comprobación del punzonamiento del tablero

FC	PLUS	63	0.300000	VIENTO TRANSV CON SOE
FD	PLUS	64	0.600000	TEMPERATURA (-)
FE	OR	65	0.600000	TEMPERATURA (+)
FF	PLUS	66	0.600000	GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

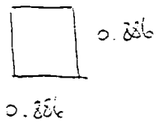
Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.091	-3.683	20.036				
	1.761	1.141	100.469				
	Min: AP AR AS AT AX AY BU...						Max: A E D E F G J AL AN AO
10	2.283	-3.626	16.626				
	-0.568555	1.138	97.227				
	Min: AP AR AS AT AU AV BC...						Max: A E D G H I AE AN AG
156	-1.091	2.568	20.407				
	1.761	-2.257	100.840				
	Min: AP AR AS AT AX AY BW...						Max: A E D E F G R AK AL AN.
160	2.283	2.571	16.997				
	-0.568596	-2.254	97.599				
	Min: AP AR AS AT AU AV BE...						Max: A E D G H I AJ AK AN...
166	3.374	-1.935	218.118	15.604	23.708	-0.028301	
	2.50E-10	-0.710816	352.379	11.174	2.13E-09	-3.88E-09	
	Min: CF CH CI CL DC DN DQ...						Max: DS DT DV DW DX DY EM...
167	3.374	-1.829	219.077	9.951	23.708	0.028301	
	2.78E-10	-3.053	353.338	14.361	2.08E-09	3.63E-09	
	Min: CF CH CI CJ CW DO DQ...						Max: DS DT DV DW DY DZ EO...

Articulo 46 EHE

Dimensiones del soporte

Ancho (m)	0.89
Canto (m)	1.20
Canto útil (m)	1.15

u1 (m)	18.64



Losa sin armadura de punzonamiento

Nd (t)	568.50
β	1.15
Fsd,ef	653.78
τsd (t/m2)	***30.49***

ξ	1.417
ϕ (pm)	25
nº (pm)	5.71428
As (cm2)	28.05
ρ	2.439E-03
fck (Mpa)	25
τrd (MPa)	0.311
τrd (t/m2)	***31.07***

τsd (t/m2)	***< τrd (t/m2)***

2.4.3. Refuerzo de armaduras bajo apoyos

2.4.4. Refuerzo de armadura bajo apoyos

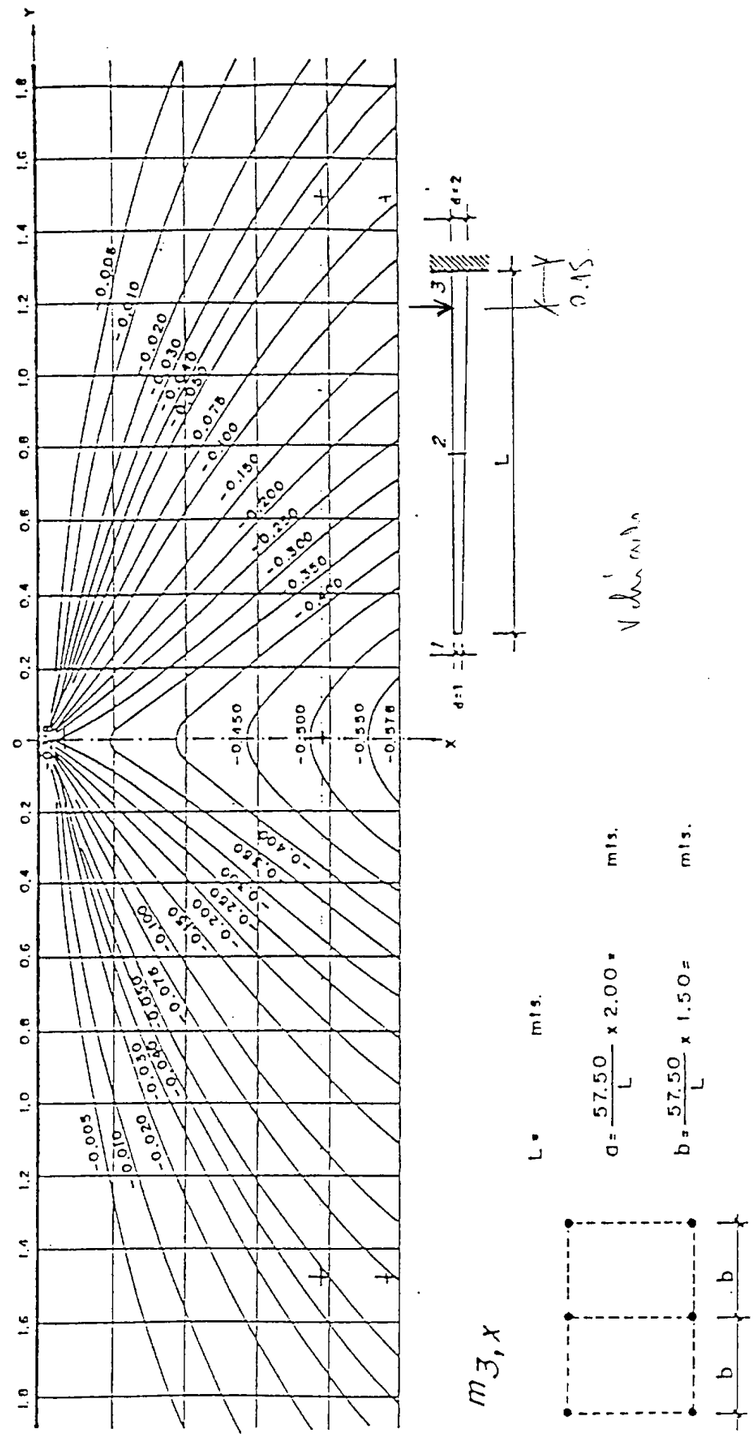
Estribos : Nmaxd = 151.68 Mp (en cada apoyo)

$$As = \frac{0.25 \times Nmaxd}{4.20\ Mp/cm^2}$$

$As = 9.10\ cm^2$

Adoptamos 6 x Φ 16 en cada dirección.

2.4.4. Verificación de las armaduras del voladizo



Cálculo de la armadura del voladizo

Datos :

Longitud del voladizo (m) = **1.50**

Canto mínimo (m) = **0.20**
Canto máximo (m) = **0.30**
Canto util (m) = **0.27**

Carga acera (t/m)= **1.00**

Ancho Acera (m) = **0.85**

Distancia G acera (m) = **1.33**

Peso Propio:

Mpp (mt/m) = -2.615625 V (t/m) = 0.87

Carga muerta :

Mcm (mt/m) = -1.325 V (t/m) = 1.00

Sobrecarga uniforme :

Msu (mt/m) = -0.45 V (t/m) = 0.60

Vehículo 60 t : Coeficientes bajo carga = 0.15
Coeficientes a 1.50 m = 0

Mveh (mt/m) = -1.5 V (t/m) = 10

Momento total diseño : Md (mt/m) = -8.24

As (cm^2/m) = 8.98 ϕ 16 / 20

Cortante total de diseño : Vd (t/m) = 3.43 a un canto útil

Vcu (t/m) = 13.35 verifica

3.1. Acciones

Loadcase Factor Stage Init.def Title
1 1.0000 PESO PROPIC

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-8.77E-07	-9.44E-05	30.731			
10	8.77E-07	-9.44E-05	30.731			
156	-8.77E-07	9.44E-05	30.731			
160	8.77E-07	9.44E-05	30.731			
166	1.29E-10	0.739549	193.743	-3.253	1.02E-09	-1.01E-09
167	1.31E-10	-0.739549	193.743	3.253	1.04E-09	1.01E-09
Sums :	4.25E-12	-3.55E-15	510.411			
min:	-8.77E-07	-0.739549	30.731	-3.253	1.02E-09	-1.01E-09
max:	8.77E-07	0.739549	193.743	3.253	1.04E-09	1.01E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	4.63E-06	0.000410	0.337475	-0.000675	0.000150	1.63E-09
2	2.58E-06	0.000412	0.156680	-0.000622	0.000111	1.25E-09
3	1.54E-10	0.000412	0.048380	-0.000586	1.18E-16	4.69E-13
4	-2.58E-06	0.000412	0.156680	-0.000622	-0.000111	-1.25E-09
5	-4.63E-06	0.000410	0.337475	-0.000675	-0.000150	-1.63E-09
6	3.81E-06	0.000410	-3.07E-96	-0.000675	0.000150	1.68E-09
7	1.95E-06	0.000412	-0.154471	-0.000622	0.000111	1.25E-09
8	-8.06E-11	0.000412	-0.244623	-0.000586	1.18E-16	4.69E-13
9	-1.95E-06	0.000412	-0.154471	-0.000622	-0.000111	-1.25E-09
10	-3.81E-06	0.000410	-3.07E-96	-0.000675	-0.000150	-1.68E-09
11	-3.13E-07	0.000411	-0.869963	-0.000623	6.78E-05	1.35E-09
12	1.76E-06	0.000412	-0.940651	-0.000577	5.45E-05	9.42E-10
13	-8.18E-10	0.000412	-0.954826	-0.000546	4.76E-16	4.78E-13
14	-1.92E-06	0.000412	-0.940651	-0.000577	-5.45E-05	-5.41E-10
15	3.11E-07	0.000411	-0.869963	-0.000623	-6.78E-05	-1.34E-09
16	-1.57E-06	0.000411	-1.596	-0.000477	2.02E-05	-3.76E-11
17	-8.41E-07	0.000412	-1.618	-0.000456	1.73E-05	3.54E-10
18	-1.48E-09	0.000412	-1.621	-0.000440	5.39E-16	3.85E-13
19	8.38E-07	0.000412	-1.618	-0.000456	-1.73E-05	-3.54E-10
20	1.57E-06	0.000411	-1.596	-0.000477	-2.02E-05	3.85E-11
21	-1.54E-06	0.000412	-2.103	-0.000295	7.15E-07	-2.33E-10
22	-9.27E-07	0.000412	-2.103	-0.000287	1.06E-06	-1.58E-11
23	-1.92E-09	0.000412	-2.104	-0.000281	5.45E-17	2.21E-13
24	9.23E-07	0.000412	-2.103	-0.000287	-1.06E-06	1.62E-11
25	1.54E-06	0.000412	-2.103	-0.000295	-7.15E-07	2.33E-10
26	-1.31E-06	0.000412	-2.361	-0.000101	-6.04E-06	-2.91E-10
27	-7.58E-07	0.000412	-2.354	-9.89E-05	-4.60E-06	-2.06E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-2.09E-05	0.000411	-2.351	-9.71E-05	-1.04E-15	4.71E-14
29	7.54E-07	0.000412	-2.354	-9.89E-05	4.60E-06	2.06E-10
30	1.30E-06	0.000412	-2.361	-0.000101	6.04E-06	2.91E-10
31	-7.38E-07	0.000412	-2.373	7.86E-05	-8.57E-06	-7.52E-10
32	-2.95E-07	0.000411	-2.364	8.02E-05	-6.74E-06	-5.00E-10
33	-2.00E-05	0.000411	-2.359	8.12E-05	-2.73E-15	-1.11E-13
34	2.91E-07	0.000411	-2.364	8.02E-05	6.74E-06	5.00E-10
35	7.34E-07	0.000412	-2.373	7.86E-05	8.57E-06	7.51E-10
36	9.23E-07	0.000412	-2.374	0.000218	-1.20E-05	-1.88E-09
37	9.68E-07	0.000412	-2.162	0.000222	-9.63E-06	-9.44E-10
38	-1.65E-09	0.000412	-2.154	0.000225	-4.94E-15	-2.37E-13
39	-9.72E-07	0.000411	-2.162	0.000222	9.63E-06	9.44E-10
40	-9.27E-07	0.000412	-2.174	0.000218	1.20E-05	1.88E-09
41	4.59E-06	0.000412	-1.838	0.000287	-2.25E-05	-3.34E-09
42	3.66E-06	0.000410	-1.814	0.000299	-1.82E-05	-1.01E-09
43	-1.21E-09	0.000413	-1.800	0.000308	-7.49E-15	-2.99E-13
44	-3.66E-06	0.000410	-1.814	0.000299	1.82E-05	1.01E-09
45	-4.60E-06	0.000412	-1.838	0.000287	2.25E-05	3.34E-09
46	9.78E-06	0.000407	-1.476	0.000254	-5.00E-05	-2.83E-09
47	7.69E-06	0.000410	-1.424	0.000282	-4.07E-05	9.61E-10
48	-6.93E-10	0.000419	-1.391	0.000304	-1.01E-14	-2.60E-13
49	-7.69E-06	0.000410	-1.424	0.000282	4.07E-05	-9.61E-10
50	-9.78E-06	0.000407	-1.476	0.000254	5.00E-05	2.83E-09
51	1.13E-05	0.000395	-1.239	0.000101	-9.86E-05	4.16E-09
52	1.04E-05	0.000408	-1.133	0.000139	-8.54E-05	8.99E-09
53	-3.11E-10	0.000434	-1.056	0.000185	-1.23E-14	-1.16E-13
54	-1.04E-05	0.000408	-1.133	0.000139	8.54E-05	-8.99E-09
55	-1.13E-05	0.000395	-1.239	0.000101	9.86E-05	-4.16E-09
56	1.53E-06	0.000368	-1.266	-0.000143	-0.000131	1.42E-08
57	-5.75E-07	0.000400	-1.120	-0.000141	0.000128	3.73E-08
58	-2.45E-10	0.000471	-0.989274	-0.000133	-1.40E-14	9.96E-14
59	5.75E-07	0.000400	-1.120	-0.000141	0.000128	-3.73E-08
60	-1.53E-06	0.000368	-1.266	-0.000143	0.000131	-1.42E-08
61	-7.30E-06	0.000316	-1.771	-0.000448	-8.44E-05	6.55E-09
62	-7.14E-06	0.000328	-1.681	-0.000481	-7.24E-05	9.59E-09
63	-7.16E-10	0.000345	-1.617	-0.000521	-1.31E-14	2.85E-13
64	7.14E-06	0.000328	-1.681	-0.000481	7.24E-05	-9.59E-09
65	7.30E-06	0.000316	-1.771	-0.000448	8.44E-05	-6.54E-09
66	-6.66E-06	0.000245	-2.656	-0.000568	-3.23E-05	-6.78E-11
67	-4.92E-06	0.000246	-2.622	-0.000585	-2.61E-05	1.51E-09
68	-1.66E-09	0.000250	-2.601	-0.000598	-1.08E-14	4.03E-13
69	4.91E-06	0.000246	-2.622	-0.000585	2.61E-05	-1.51E-09
70	6.65E-06	0.000245	-2.656	-0.000568	3.23E-05	6.91E-11
71	-1.62E-06	0.000165	-3.577	-0.000491	-1.32E-05	-1.03E-09
72	-2.44E-06	0.000164	-3.563	-0.000495	-1.06E-05	-2.20E-10
73	-2.64E-09	0.000165	-3.555	-0.000498	-8.52E-15	3.65E-13
74	2.44E-06	0.000164	-3.563	-0.000495	1.06E-05	2.20E-10
75	3.61E-06	0.000165	-3.577	-0.000491	1.32E-05	1.03E-09
76	-1.86E-06	8.26E-05	-4.244	-0.000278	-8.80E-06	-5.19E-10
77	-1.17E-06	8.22E-05	-4.235	-0.000279	-6.94E-06	-2.58E-10
78	-3.32E-09	8.22E-05	-4.229	-0.000280	-6.96E-15	2.09E-13
79	1.16E-06	8.22E-05	-4.235	-0.000279	6.94E-06	2.59E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	1.86E-06	8.26E-05	-4.244	-0.000278	8.80E-06	5.20E-10
81	-1.39E-06	-1.18E-15	-4.455	5.44E-17	-6.14E-06	1.40E-16
82	-8.29E-07	3.80E-14	-4.477	4.93E-17	-6.38E-06	1.39E-16
83	-3.56E-09	2.47E-13	-4.471	4.10E-17	-6.42E-15	1.39E-16
84	8.22E-07	4.56E-13	-4.477	3.56E-17	6.38E-06	1.39E-16
85	1.38E-06	6.12E-13	-4.485	3.61E-17	8.14E-06	1.39E-16
86	-1.86E-06	-8.26E-05	-4.244	0.000278	-8.80E-06	5.19E-10
87	-1.17E-06	-8.22E-05	-4.235	0.000279	-6.94E-06	2.58E-10
88	-3.32E-09	-8.22E-05	-4.229	0.000280	-6.94E-15	-2.08E-13
89	1.16E-06	-8.22E-05	-4.235	0.000279	6.94E-06	-2.59E-10
90	1.86E-06	-8.26E-05	-4.244	0.000278	8.80E-06	-5.20E-10
91	-3.62E-06	-0.000165	-3.577	0.000491	-1.32E-05	1.03E-09
92	-2.44E-06	-0.000164	-3.563	0.000495	-1.06E-05	2.20E-10
93	-2.64E-09	-0.000165	-3.555	0.000498	-6.45E-15	-3.65E-13
94	2.44E-06	-0.000164	-3.563	0.000495	1.06E-05	-2.20E-10
95	3.61E-06	-0.000165	-3.577	0.000491	1.32E-05	-1.03E-09
96	-6.66E-06	-0.000245	-2.656	0.000568	-3.23E-05	6.78E-11
97	-4.92E-06	-0.000246	-2.622	0.000585	-2.61E-05	-1.51E-09
98	-1.66E-09	-0.000250	-2.601	0.000598	-1.08E-14	-4.03E-13
99	4.91E-06	-0.000246	-2.622	0.000585	2.61E-05	1.51E-09
100	6.65E-06	-0.000245	-2.656	0.000568	3.23E-05	6.91E-11
101	-7.30E-06	-0.000316	-1.771	0.000448	-8.44E-05	-6.55E-09
102	-7.14E-06	-0.000328	-1.681	0.000481	-7.24E-05	-9.59E-09
103	-7.18E-10	-0.000345	-1.617	0.000521	-1.30E-14	-2.85E-13
104	7.14E-06	-0.000328	-1.681	0.000481	7.24E-05	9.59E-09
105	7.30E-06	-0.000316	-1.771	0.000448	8.44E-05	6.54E-09
106	1.53E-06	-0.000368	-1.266	0.000143	-0.000131	-1.42E-08
107	-5.75E-07	-0.000400	-1.120	0.000141	-0.000128	-3.73E-08
108	-2.48E-10	-0.000472	-0.989274	0.000133	-1.40E-14	-9.93E-14
109	5.75E-07	-0.000400	-1.120	0.000141	0.000128	3.73E-08
110	-1.53E-06	-0.000368	-1.266	0.000143	0.000131	1.42E-08
111	1.13E-05	-0.000395	-1.239	-0.000101	-9.86E-05	-4.16E-09
112	1.04E-05	-0.000408	-1.133	-0.000139	-8.54E-05	-8.99E-09
113	-3.14E-10	-0.000434	-1.056	-0.000185	-1.23E-14	1.16E-12
114	-1.04E-05	-0.000408	-1.133	-0.000139	8.54E-05	8.99E-09
115	-1.13E-05	-0.000395	-1.239	-0.000101	9.86E-05	4.16E-09
116	9.78E-06	-0.000407	-1.476	-0.000254	-5.00E-05	2.83E-09
117	7.69E-06	-0.000410	-1.424	-0.000282	-4.07E-05	-9.61E-10
118	-6.96E-10	-0.000419	-1.391	-0.000304	-1.00E-14	2.60E-13
119	-7.69E-06	-0.000410	-1.424	-0.000282	4.07E-05	9.61E-10
120	-9.78E-06	-0.000407	-1.476	-0.000254	5.00E-05	-2.83E-09
121	4.59E-06	-0.000412	-1.838	-0.000287	-2.25E-05	3.34E-09
122	3.66E-06	-0.000410	-1.814	-0.000295	-1.82E-05	1.01E-09
123	-1.22E-09	-0.000413	-1.800	-0.000308	-7.41E-15	2.99E-13
124	-3.66E-06	-0.000410	-1.814	-0.000295	1.82E-05	-1.01E-09
125	-4.60E-06	-0.000412	-1.838	-0.000287	2.25E-05	-3.34E-09
126	9.23E-07	-0.000412	-2.174	-0.000218	-1.20E-05	1.88E-09
127	9.68E-07	-0.000411	-2.162	-0.000222	-9.63E-06	9.44E-10
128	-1.70E-09	-0.000412	-2.154	-0.000225	-4.86E-15	2.38E-13
129	-9.72E-07	-0.000411	-2.162	-0.000222	9.63E-06	-9.44E-10
130	-9.27E-07	-0.000412	-2.174	-0.000218	1.20E-05	-1.88E-09
131	-7.38E-07	-0.000412	-2.373	-7.86E-05	-8.57E-06	7.52E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-2.95E-07	-0.000411	-2.364	-8.02E-05	-6.74E-06	5.00E-10
133	-2.01E-09	-0.000411	-2.359	-8.12E-05	-2.66E-15	1.12E-13
134	2.91E-07	-0.000411	-2.364	-8.02E-05	6.74E-06	-5.00E-10
135	7.34E-07	-0.000412	-2.373	-7.86E-05	8.57E-06	-7.51E-10
136	-1.31E-06	-0.000412	-2.361	0.000101	-6.04E-06	2.91E-10
137	-7.58E-07	-0.000412	-2.354	9.89E-05	-4.60E-06	2.06E-10
138	-2.09E-09	-0.000411	-2.351	9.71E-05	-5.82E-16	-4.68E-14
139	7.54E-07	-0.000412	-2.354	9.89E-05	4.60E-06	-2.06E-10
140	1.30E-06	-0.000412	-2.361	0.000101	6.04E-06	-2.91E-10
141	-1.54E-06	-0.000412	-2.103	0.000295	7.15E-07	2.33E-10
142	-9.27E-07	-0.000412	-2.103	0.000287	1.06E-06	1.58E-11
143	-1.92E-09	-0.000412	-2.104	0.000281	1.02E-16	-2.20E-13
144	9.23E-07	-0.000412	-2.103	0.000287	-1.06E-06	-1.62E-11
145	1.54E-06	-0.000412	-2.103	0.000295	-7.15E-07	-2.33E-10
146	-1.57E-06	-0.000411	-1.596	0.000477	2.02E-05	3.78E-11
147	-8.41E-07	-0.000412	-1.618	0.000456	1.73E-05	-3.54E-10
148	-1.49E-09	-0.000412	-1.631	0.000440	5.70E-16	-3.84E-13
149	8.38E-07	-0.000412	-1.618	0.000456	-1.73E-05	3.54E-10
150	1.57E-06	-0.000411	-1.596	0.000477	-2.02E-05	-3.85E-11
151	-3.13E-07	-0.000411	-0.869963	0.000623	6.78E-05	-1.35E-09
152	1.76E-06	-0.000412	-0.940651	0.000577	5.45E-05	-9.42E-10
153	-8.24E-10	-0.000412	-0.954826	0.000546	4.92E-16	-4.77E-13
154	-1.92E-06	-0.000412	-0.940651	0.000577	-5.45E-05	9.41E-10
155	3.11E-07	-0.000411	-0.869963	0.000623	-6.78E-05	1.34E-09
156	3.81E-06	-0.000410	-3.07E-96	0.000675	0.000150	-1.68E-09
157	1.95E-06	-0.000412	-0.154471	0.000622	0.000111	1.25E-09
158	-8.65E-11	-0.000412	-0.244623	0.000586	1.22E-16	-4.69E-13
159	-1.95E-06	-0.000412	-0.154471	0.000622	-0.000111	-1.25E-09
160	-3.81E-06	-0.000410	-3.07E-96	0.000675	-0.000150	1.68E-09
161	4.63E-06	-0.000410	0.337475	0.000675	0.000150	-1.63E-09
162	2.58E-06	-0.000412	0.156680	0.000622	0.000111	-1.25E-09
163	1.48E-10	-0.000412	0.048380	0.000586	1.22E-16	-4.69E-13
164	-2.58E-06	-0.000412	0.156680	0.000622	-0.000111	1.25E-09
165	-4.63E-06	-0.000410	0.337475	0.000675	-0.000150	1.63E-09
166	-0	-7.40E-96	-1.94E-95	+0	-0	+0
167	-0	7.40E-96	-1.94E-95	-0	-0	-0
min:	-1.13E-05	-0.000472	-4.485	-0.000675	-0.000150	-3.73E-08
max:	1.13E-05	0.000472	0.337475	0.000675	0.000150	3.73E-08

Loadcase Factor Stage Init.def Title
2 1.0000 PESO PAVIMENTO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-4.17E-08	-4.50E-06	1.462			
10	4.17E-08	-4.50E-06	1.462			
156	-4.17E-08	4.50E-06	1.462			
160	4.17E-08	4.50E-06	1.462			
166	6.23E-12	0.035307	9.219	-0.155311	4.94E-11	-4.84E-11
167	6.34E-12	-0.035307	9.219	0.155311	5.01E-11	4.83E-11
Sums :	2.03E-13	-5.34E-16	24.288			
min:	-4.17E-08	-0.035307	1.462	-0.155311	4.94E-11	-4.84E-11
max:	4.17E-08	0.035307	9.219	0.155311	5.01E-11	4.83E-11

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	2.20E-07	1.96E-05	0.016083	-3.22E-05	6.83E-06	7.68E-11
2	1.23E-07	1.97E-05	0.007812	-2.97E-05	5.05E-06	5.96E-11
3	7.54E-12	1.97E-05	0.002860	-2.79E-05	5.51E-18	2.24E-14
4	-1.23E-07	1.97E-05	0.007812	-2.97E-05	-5.05E-06	-5.96E-11
5	-2.20E-07	1.97E-05	0.016083	-3.22E-05	-6.83E-06	-7.68E-11
6	1.81E-07	1.96E-05	-1.46E-97	-3.22E-05	6.83E-06	8.01E-11
7	9.29E-08	1.97E-05	-0.007019	-2.97E-05	5.05E-06	5.96E-11
8	-3.64E-12	1.97E-05	-0.011107	-2.79E-05	5.51E-18	2.24E-14
9	-9.29E-08	1.97E-05	-0.007019	-2.97E-05	-5.05E-06	-5.96E-11
10	-1.81E-07	1.96E-05	-1.46E-97	-3.22E-05	-6.83E-06	-8.00E-11
11	-1.49E-08	1.96E-05	-0.041463	-2.97E-05	2.90E-06	6.40E-11
12	8.30E-10	1.97E-05	-0.044494	-2.75E-05	2.34E-06	4.48E-11
13	-3.88E-11	1.97E-05	-0.046353	-2.60E-05	2.19E-17	2.28E-14
14	-9.10E-10	1.97E-05	-0.044494	-2.75E-05	-2.34E-06	-4.48E-11
15	1.48E-08	1.96E-05	-0.041463	-2.97E-05	-2.90E-06	-6.40E-11
16	-7.48E-08	1.96E-05	-0.076084	-2.28E-05	6.40E-07	-1.80E-12
17	-4.00E-08	1.96E-05	-0.076767	-2.17E-05	5.72E-07	1.69E-11
18	-7.03E-11	1.97E-05	-0.077219	-2.10E-05	2.41E-17	1.83E-14
19	3.95E-08	1.96E-05	-0.076767	-2.17E-05	-5.72E-07	-1.68E-11
20	7.47E-08	1.96E-05	-0.076084	-2.28E-05	-6.40E-07	1.84E-12
21	-7.34E-08	1.97E-05	-0.100242	-1.41E-05	-2.87E-07	-1.11E-11
22	-4.41E-08	1.96E-05	-0.099950	-1.37E-05	-2.00E-07	-7.60E-13
23	-9.11E-11	1.97E-05	-0.099770	-1.34E-05	2.65E-19	1.05E-14
24	4.39E-08	1.96E-05	-0.099950	-1.37E-05	2.00E-07	7.80E-13
25	7.32E-08	1.97E-05	-0.100242	-1.41E-05	2.87E-07	1.11E-11
26	-6.22E-08	1.97E-05	-0.112589	-4.67E-06	-6.08E-07	-1.39E-11
27	-3.61E-08	1.96E-05	-0.111958	-4.75E-06	-4.69E-07	-9.82E-12

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-9.93E-11	1.96E-05	-0.111569	-4.67E-06	-5.28E-17	2.27E-15
29	3.59E-08	1.96E-05	-0.111958	-4.75E-06	4.69E-07	9.82E-12
30	6.20E-08	1.97E-05	-0.112589	-4.87E-06	6.08E-07	1.39E-11
31	-3.50E-08	1.97E-05	-0.113230	-3.70E-06	-7.28E-07	3.55E-11
32	-1.40E-08	1.96E-05	-0.112473	-3.77E-06	-5.71E-07	-2.39E-11
33	-9.54E-11	1.96E-05	-0.112011	-3.82E-06	-1.34E-16	-5.28E-15
34	1.38E-08	1.96E-05	-0.112473	-3.77E-06	5.71E-07	2.39E-11
35	3.48E-08	1.97E-05	-0.113230	-3.70E-06	7.28E-07	3.55E-11
36	4.43E-08	1.97E-05	-0.103835	-1.03E-05	-8.93E-07	-8.97E-11
37	4.63E-08	1.96E-05	-0.102906	-1.05E-05	-7.08E-07	-4.50E-11
38	-8.06E-11	1.97E-05	-0.103342	-1.03E-05	-2.40E-16	-1.13E-14
39	-4.65E-08	1.96E-05	-0.102906	-1.05E-05	7.08E-07	4.50E-11
40	-4.45E-08	1.97E-05	-0.103835	-1.03E-05	8.93E-07	8.97E-11
41	2.19E-07	1.97E-05	-0.087853	-1.36E-05	-1.39E-06	-1.59E-10
42	1.75E-07	1.96E-05	-0.086403	-1.42E-05	-1.11E-06	-4.79E-11
43	-5.79E-11	1.97E-05	-0.085524	-1.46E-05	-3.62E-16	-1.42E-14
44	-1.75E-07	1.96E-05	-0.086403	-1.42E-05	1.11E-06	4.79E-11
45	-2.20E-07	1.97E-05	-0.087853	-1.36E-05	1.39E-06	1.59E-10
46	4.67E-07	1.95E-05	-0.070693	-1.21E-05	-2.70E-06	-1.35E-10
47	3.67E-07	1.96E-05	-0.067867	-1.34E-05	-2.19E-06	4.60E-11
48	-3.31E-11	2.00E-05	-0.066106	-1.44E-05	-4.86E-16	-1.23E-14
49	-3.67E-07	1.96E-05	-0.067867	-1.34E-05	2.19E-06	-4.60E-11
50	-4.67E-07	1.95E-05	-0.070693	-1.21E-05	2.70E-06	1.35E-10
51	5.41E-07	1.89E-05	-0.059433	-1.34E-05	4.76E-06	1.99E-10
52	4.98E-07	1.95E-05	-0.054079	6.60E-06	-4.31E-06	4.29E-10
53	-1.49E-11	2.07E-05	-0.050235	8.77E-06	-5.94E-16	-5.50E-15
54	-4.98E-07	1.95E-05	-0.054079	6.60E-06	4.31E-06	-4.29E-10
55	-5.41E-07	1.89E-05	-0.059433	4.76E-06	5.01E-06	-1.99E-10
56	7.25E-08	1.76E-05	-0.060797	-6.82E-06	-6.58E-06	6.81E-10
57	-2.77E-08	1.91E-05	-0.053507	-6.74E-06	-6.32E-06	1.78E-09
58	-1.18E-11	2.26E-05	-0.047073	-6.35E-06	-6.75E-16	4.75E-15
59	2.77E-08	1.91E-05	-0.053507	-6.74E-06	6.32E-06	-1.78E-09
60	-7.25E-08	1.76E-05	-0.060797	-6.82E-06	6.58E-06	-6.81E-10
61	-3.49E-07	1.51E-05	-0.084864	-2.13E-05	-4.34E-06	3.12E-10
62	-3.41E-07	1.57E-05	-0.080242	-2.29E-05	-3.70E-06	4.58E-10
63	-3.42E-11	1.65E-05	-0.076998	-2.48E-05	-6.29E-16	1.36E-14
64	3.41E-07	1.57E-05	-0.080242	-2.29E-05	3.70E-06	-4.58E-10
65	3.49E-07	1.51E-05	-0.084864	-2.13E-05	4.34E-06	-3.12E-10
66	-3.18E-07	1.17E-05	-0.126965	-2.71E-05	1.86E-06	-3.44E-12
67	-2.35E-07	1.18E-05	-0.125025	-2.79E-05	1.49E-06	7.20E-11
68	-7.90E-11	1.20E-05	-0.123845	-2.85E-05	-5.24E-16	1.92E-14
69	2.35E-07	1.18E-05	-0.125025	-2.79E-05	1.49E-06	-7.19E-11
70	3.19E-07	1.17E-05	-0.126965	-2.71E-05	1.86E-06	3.50E-12
71	-1.72E-07	7.87E-06	-0.170824	-2.34E-05	-9.48E-07	-4.94E-11
72	-1.16E-07	7.85E-06	-0.169837	-2.36E-05	-7.54E-07	-1.05E-11
73	-1.26E-10	7.88E-06	-0.169238	-2.37E-05	-4.13E-16	1.74E-14
74	1.16E-07	7.85E-06	-0.169837	-2.36E-05	7.54E-07	1.05E-11
75	1.72E-07	7.87E-06	-0.170824	-2.34E-05	9.48E-07	4.94E-11
76	-8.88E-08	3.94E-06	-0.202580	-1.32E-05	-7.39E-07	-2.48E-11
77	-5.57E-08	3.91E-06	-0.201812	-1.33E-05	-5.80E-07	-1.23E-11
78	-1.58E-10	3.92E-06	-0.201345	-1.33E-05	-3.39E-16	9.94E-15
79	5.54E-08	3.93E-06	-0.201812	-1.33E-05	5.80E-07	1.24E-11

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DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	8.84E-08	3.94E-06	-0.202580	-1.32E-05	7.39E-07	2.48E-11
81	-6.60E-08	-5.64E-15	-0.214053	2.62E-18	-7.08E-07	6.66E-18
82	-3.94E-08	1.81E-15	-0.213318	2.35E-18	-5.54E-07	6.65E-18
83	-1.70E-10	1.18E-14	-0.212870	1.92E-18	-3.13E-16	6.65E-18
84	3.91E-08	2.18E-14	-0.213318	1.66E-18	5.54E-07	6.65E-18
85	6.56E-08	2.92E-14	-0.214053	1.72E-18	7.08E-07	6.64E-18
86	-8.82E-08	-3.94E-06	-0.202580	1.32E-05	-7.39E-07	2.48E-11
87	-5.57E-08	-3.93E-06	-0.201812	1.33E-05	-5.80E-07	1.23E-11
88	-1.58E-10	-3.92E-06	-0.201345	1.33E-05	-3.38E-16	-9.92E-15
89	5.54E-08	-3.93E-06	-0.201812	1.33E-05	5.80E-07	-1.24E-11
90	8.84E-08	-3.94E-06	-0.202580	1.32E-05	7.39E-07	-2.48E-11
91	-1.72E-07	-7.87E-06	-0.170824	2.34E-05	-9.48E-07	4.94E-11
92	-1.16E-07	-7.85E-06	-0.169837	2.36E-05	-7.54E-07	1.05E-11
93	-1.26E-10	-7.88E-06	-0.169238	2.37E-05	-4.11E-16	-1.74E-14
94	1.16E-07	-7.85E-06	-0.169837	2.36E-05	7.54E-07	-1.06E-11
95	1.72E-07	-7.87E-06	-0.170824	2.34E-05	9.48E-07	-4.94E-11
96	-3.18E-07	-1.17E-05	-0.126965	2.71E-05	-1.86E-06	3.44E-12
97	-2.35E-07	-1.18E-05	-0.125025	2.79E-05	-1.49E-06	-7.20E-11
98	-7.91E-11	-1.20E-05	-0.123845	2.85E-05	-5.21E-16	-1.92E-14
99	2.35E-07	-1.18E-05	-0.125025	2.79E-05	1.49E-06	7.19E-11
100	3.18E-07	-1.17E-05	-0.126965	2.71E-05	1.86E-06	-3.50E-12
101	-3.49E-07	-1.51E-05	-0.084864	2.13E-05	-4.34E-06	-3.12E-10
102	-3.41E-07	-1.57E-05	-0.080242	2.29E-05	-3.70E-06	-4.58E-10
103	-3.43E-11	-1.65E-05	-0.076998	2.48E-05	-6.26E-16	-1.36E-14
104	3.41E-07	-1.57E-05	-0.080242	2.29E-05	3.70E-06	4.58E-10
105	3.49E-07	-1.51E-05	-0.084864	2.13E-05	4.34E-06	3.12E-10
106	7.25E-08	-1.76E-05	-0.060797	6.82E-06	-6.58E-06	-6.81E-10
107	-2.77E-08	-1.91E-05	-0.053507	6.74E-06	-6.32E-06	-1.78E-09
108	-1.19E-11	-2.26E-05	-0.047073	6.35E-06	-6.72E-16	-4.74E-15
109	2.77E-08	-1.91E-05	-0.053507	6.74E-06	6.32E-06	1.78E-09
110	-7.25E-08	-1.76E-05	-0.060797	6.82E-06	6.58E-06	6.81E-10
111	5.41E-07	-1.89E-05	-0.059433	-4.76E-06	-5.01E-06	-1.99E-10
112	4.98E-07	-1.95E-05	-0.054079	-6.60E-06	-4.31E-06	-4.29E-10
113	-1.51E-11	-2.07E-05	-0.050235	-8.77E-06	-5.91E-16	5.52E-15
114	-4.98E-07	-1.95E-05	-0.054079	-6.60E-06	4.31E-06	4.29E-10
115	-5.41E-07	-1.89E-05	-0.059433	-4.76E-06	5.01E-06	1.99E-10
116	4.67E-07	-1.95E-05	-0.070693	-1.21E-05	-2.70E-06	1.35E-10
117	3.67E-07	-1.96E-05	-0.067867	-1.34E-05	-2.19E-06	-4.60E-11
118	-3.32E-11	-2.00E-05	-0.066108	-1.44E-05	-4.82E-16	1.24E-14
119	-3.67E-07	-1.96E-05	-0.067867	-1.34E-05	2.19E-06	4.60E-11
120	-4.67E-07	-1.95E-05	-0.070693	-1.21E-05	2.70E-06	-1.35E-10
121	2.19E-07	-1.97E-05	-0.087853	-1.36E-05	-1.39E-06	1.59E-10
122	1.75E-07	-1.96E-05	-0.086403	-1.42E-05	-1.11E-06	4.79E-11
123	-5.80E-11	-1.97E-05	-0.085524	-1.46E-05	-3.58E-16	1.42E-14
124	-1.75E-07	-1.96E-05	-0.086403	-1.42E-05	1.11E-06	-4.79E-11
125	-2.20E-07	-1.97E-05	-0.087853	-1.36E-05	1.39E-06	-1.59E-10
126	4.43E-08	-1.97E-05	-0.103835	-1.03E-05	-8.93E-07	8.97E-11
127	4.63E-08	-1.96E-05	-0.102906	-1.05E-05	-7.08E-07	4.50E-11
128	-8.08E-11	-1.97E-05	-0.102342	-1.07E-05	-2.36E-16	1.13E-14
129	-4.65E-08	-1.96E-05	-0.102906	-1.05E-05	7.08E-07	-4.50E-11
130	-4.45E-08	-1.97E-05	-0.103835	-1.03E-05	6.93E-07	-8.97E-11
131	-3.50E-08	-1.97E-05	-0.113230	-3.70E-06	-7.28E-07	3.59E-11

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DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-1.40E-08	-1.96E-05	-0.112473	-3.77E-06	-5.71E-07	2.39E-11
133	-9.56E-11	-1.96E-05	-0.112011	-3.82E-06	-1.30E-16	5.29E-15
134	1.38E-08	-1.96E-05	-0.112473	-3.77E-06	5.71E-07	-2.39E-11
135	3.49E-08	-1.97E-05	-0.113230	-3.70E-06	7.28E-07	-3.59E-11
136	-6.22E-08	-1.97E-05	-0.112589	4.87E-06	-6.08E-07	1.39E-11
137	-3.61E-08	-1.96E-05	-0.111958	4.75E-06	-4.69E-07	9.82E-12
138	-9.96E-11	-1.96E-05	-0.111569	4.67E-06	-4.92E-17	-2.26E-15
139	3.59E-08	-1.96E-05	-0.111958	4.75E-06	4.69E-07	-9.82E-12
140	6.20E-08	-1.97E-05	-0.112589	4.87E-06	6.08E-07	-1.39E-11
141	-7.34E-08	-1.97E-05	-0.100242	1.41E-05	-2.87E-07	1.11E-11
142	-4.41E-08	-1.96E-05	-0.099950	1.37E-05	-2.00E-07	7.60E-13
143	-9.14E-11	-1.97E-05	-0.099770	1.34E-05	2.60E-18	-1.05E-14
144	4.39E-08	-1.96E-05	-0.099950	1.37E-05	2.00E-07	-7.80E-13
145	7.32E-08	-1.97E-05	-0.100242	1.41E-05	2.87E-07	-1.11E-11
146	-7.48E-08	-1.96E-05	-0.076084	2.28E-05	6.40E-07	1.80E-12
147	-4.00E-08	-1.96E-05	-0.076767	2.17E-05	5.72E-07	-1.69E-11
148	-7.06E-11	-1.97E-05	-0.077219	2.10E-05	2.56E-17	-1.83E-14
149	3.99E-08	-1.96E-05	-0.076767	2.17E-05	-5.72E-07	1.62E-11
150	7.47E-08	-1.96E-05	-0.076084	2.28E-05	-6.40E-07	-1.84E-12
151	-1.49E-08	-1.96E-05	-0.041463	2.97E-05	2.90E-06	-6.40E-11
152	8.30E-10	-1.97E-05	-0.044494	2.75E-05	2.34E-06	-4.48E-11
153	-3.91E-11	-1.97E-05	-0.046393	2.60E-05	2.26E-17	-2.28E-14
154	-9.10E-10	-1.97E-05	-0.044494	2.75E-05	-2.34E-06	4.48E-11
155	1.43E-08	-1.96E-05	-0.041463	2.97E-05	-2.90E-06	6.40E-11
156	1.81E-07	-1.96E-05	-1.46E-97	3.22E-05	6.83E-06	-8.01E-11
157	9.29E-08	-1.97E-05	-0.007019	2.97E-05	5.05E-06	-5.96E-11
158	-3.93E-12	-1.97E-05	-0.011107	2.79E-05	5.72E-12	-2.23E-14
159	-9.29E-08	-1.97E-05	-0.007019	2.97E-05	-5.05E-06	5.96E-11
160	-1.81E-07	-1.96E-05	-1.46E-97	3.22E-05	-6.83E-06	8.00E-11
161	2.20E-07	-1.96E-05	0.016083	3.22E-05	6.83E-06	-7.68E-11
162	1.23E-07	-1.97E-05	0.007812	2.97E-05	5.05E-06	-5.96E-11
163	7.25E-12	-1.97E-05	0.002860	2.79E-05	5.71E-18	-2.23E-14
164	-1.23E-07	-1.97E-05	0.007812	2.97E-05	-5.05E-06	5.96E-11
165	-2.20E-07	-1.96E-05	0.016083	3.22E-05	-6.83E-06	7.68E-11
166	-0	-3.53E-99	-9.22E-97	+0	-0	+0
167	-0	3.53E-99	-9.22E-97	-0	-0	-0
min:	-5.41E-07	-2.26E-05	-0.214053	-3.22E-05	-6.83E-06	-1.78E-09
max:	5.41E-07	2.26E-05	0.016083	3.22E-05	6.83E-06	1.78E-09

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Loadcase	Factor	Stage	Init.def	Title
3	1.0000			PESO BARRERAS

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-1.52E-07	-1.72E-05	5.307			
10	1.52E-07	-1.72E-05	5.307			
156	-1.52E-07	1.72E-05	5.307			
160	1.52E-07	1.72E-05	5.307			
166	2.78E-11	0.134950	33.386	-0.593620	2.19E-10	-1.83E-10
167	2.82E-11	-0.134950	33.386	0.593620	2.21E-10	1.83E-10
Sums :	7.93E-13	-6.38E-16	88.000			
min:	-1.52E-07	-0.134950	5.307	-0.593620	2.19E-10	-1.83E-10
max:	1.52E-07	0.134950	33.386	0.593620	2.21E-10	1.83E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	7.94E-07	7.49E-05	0.059667	-0.000119	-7.99E-06	2.63E-10
2	4.46E-07	7.51E-05	0.049601	-0.000110	4.58E-06	2.17E-10
3	3.94E-11	7.53E-05	0.042284	-0.000104	1.41E-17	8.28E-14
4	-4.46E-07	7.51E-05	0.049601	-0.000110	-4.58E-06	-2.17E-10
5	-7.94E-07	7.49E-05	0.059667	-0.000119	7.99E-06	-2.63E-10
6	6.59E-07	7.49E-05	-5.31E-97	-0.000120	3.64E-06	2.94E-10
7	3.38E-07	7.51E-05	-0.005565	-0.000110	4.58E-06	2.17E-10
8	-2.04E-12	7.53E-05	-0.009738	-0.000104	1.42E-17	8.28E-14
9	-3.38E-07	7.51E-05	-0.005565	-0.000110	-4.58E-06	-2.17E-10
10	-6.59E-07	7.49E-05	-5.31E-97	-0.000120	-3.64E-06	-2.93E-10
11	-5.45E-08	7.49E-05	-0.153959	-0.000111	-1.07E-05	2.32E-10
12	2.86E-09	7.51E-05	-0.145023	-0.000102	-5.29E-06	1.63E-10
13	-1.32E-10	7.52E-05	-0.141238	-9.71E-05	3.55E-17	8.44E-14
14	-3.13E-09	7.51E-05	-0.145023	-0.000102	5.29E-06	-1.63E-10
15	5.42E-08	7.49E-05	-0.153959	-0.000111	1.07E-05	-2.32E-10
16	-2.72E-07	7.50E-05	-0.283052	-8.52E-05	-1.89E-05	-6.52E-12
17	-1.45E-07	7.51E-05	-0.265596	-8.15E-05	-1.17E-05	6.11E-11
18	-2.49E-10	7.52E-05	-0.256559	-7.88E-05	2.67E-19	6.83E-14
19	1.45E-07	7.51E-05	-0.265596	-8.15E-05	1.17E-05	-6.10E-11
20	2.71E-07	7.50E-05	-0.283052	-8.52E-05	1.89E-05	6.64E-12
21	-2.66E-07	7.51E-05	-0.374148	-5.37E-05	-2.22E-05	-4.05E-11
22	-1.60E-07	7.51E-05	-0.353156	-5.23E-05	-1.45E-05	-3.23E-12
23	-3.26E-10	7.51E-05	-0.341828	-5.13E-05	-1.31E-16	3.99E-14
24	1.60E-07	7.51E-05	-0.353156	-5.23E-05	1.45E-05	3.31E-12
25	2.66E-07	7.51E-05	-0.374148	-5.37E-05	2.22E-05	4.06E-11
26	-2.25E-07	7.51E-05	-0.422331	-2.03E-05	-2.34E-05	-5.24E-11
27	-1.30E-07	7.51E-05	-0.400115	-1.98E-05	-1.55E-05	-3.73E-11

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DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-3.58E-10	7.51E-05	-0.388029	-1.95E-05	-3.69E-16	9.96E-15
29	1.29E-07	7.51E-05	-0.400115	-1.98E-05	1.55E-05	3.73E-11
30	2.24E-07	7.51E-05	-0.422331	-2.03E-05	2.34E-05	5.24E-11
31	-1.21E-07	7.52E-05	-0.427948	1.09E-05	-2.38E-05	-1.37E-10
32	-4.57E-08	7.51E-05	-0.405277	1.12E-05	-1.58E-05	-9.05E-11
33	-3.46E-10	7.51E-05	-0.392927	1.14E-05	-7.08E-16	-1.75E-14
34	4.50E-08	7.51E-05	-0.405277	1.12E-05	1.58E-05	9.05E-11
35	1.20E-07	7.52E-05	-0.427948	1.09E-05	2.38E-05	1.37E-10
36	1.81E-07	7.52E-05	-0.397006	3.52E-05	-2.44E-05	-3.40E-10
37	1.84E-07	7.50E-05	-0.373715	3.59E-05	-1.63E-05	-1.70E-10
38	-2.95E-10	7.51E-05	-0.361000	3.63E-05	-1.14E-15	-3.93E-14
39	-1.84E-07	7.50E-05	-0.373715	3.59E-05	1.63E-05	1.70E-10
40	-1.82E-07	7.52E-05	-0.397006	3.52E-05	2.44E-05	3.40E-10
41	8.44E-07	7.51E-05	-0.341958	4.73E-05	-2.62E-05	-6.00E-10
42	6.71E-07	7.49E-05	-0.316793	4.94E-05	-1.78E-05	-1.79E-10
43	-2.14E-10	7.54E-05	-0.302947	5.08E-05	-1.62E-15	-5.00E-14
44	-6.71E-07	7.49E-05	-0.316793	4.94E-05	1.78E-05	1.79E-10
45	-8.45E-07	7.51E-05	-0.341958	4.73E-05	2.62E-05	6.00E-10
46	1.78E-06	7.43E-05	-0.282356	4.18E-05	-3.09E-05	-4.98E-10
47	1.40E-06	7.47E-05	-0.252236	4.67E-05	-2.17E-05	1.81E-10
48	-1.26E-10	7.65E-05	-0.235219	5.04E-05	-2.11E-15	-4.35E-14
49	-1.40E-06	7.47E-05	-0.252236	4.67E-05	2.17E-05	-1.81E-10
50	-1.78E-06	7.43E-05	-0.282356	4.18E-05	3.09E-05	4.98E-10
51	2.05E-06	7.21E-05	-0.243820	1.56E-05	-3.93E-05	7.74E-10
52	1.89E-06	7.44E-05	-0.204574	2.23E-05	-2.93E-05	1.65E-09
53	-6.20E-11	7.93E-05	-0.180024	3.02E-05	-2.55E-15	-1.89E-14
54	-1.89E-06	7.44E-05	-0.204574	2.23E-05	2.93E-05	-1.65E-09
55	-2.05E-06	7.21E-05	-0.243820	1.56E-05	3.93E-05	-7.74E-10
56	2.49E-07	6.72E-05	-0.250783	-2.62E-05	-4.50E-05	2.61E-09
57	-1.22E-07	7.30E-05	-0.204451	-2.58E-05	-3.67E-05	6.80E-09
58	-5.20E-11	8.62E-05	-0.170475	-2.43E-05	-2.89E-15	1.80E-14
59	1.22E-07	7.30E-05	-0.204451	-2.58E-05	3.67E-05	-6.80E-09
60	-2.49E-07	6.72E-05	-0.250783	-2.62E-05	4.50E-05	-2.61E-09
61	-1.35E-06	5.77E-05	-0.340131	-7.84E-05	-3.70E-05	1.17E-09
62	-1.31E-06	5.98E-05	-0.303392	-8.40E-05	-2.72E-05	1.75E-09
63	-1.34E-10	6.29E-05	-0.280925	-9.11E-05	-2.72E-15	4.99E-14
64	1.31E-06	5.98E-05	-0.303392	-8.40E-05	2.72E-05	-1.75E-09
65	1.35E-06	5.77E-05	-0.340131	-7.84E-05	3.70E-05	-1.17E-09
66	-1.21E-06	4.46E-05	-0.494245	-9.88E-05	-2.79E-05	-2.60E-11
67	-8.97E-07	4.50E-05	-0.467265	-0.000102	-1.92E-05	2.70E-10
68	-2.98E-10	4.57E-05	-0.452296	-0.000104	-2.34E-15	7.00E-14
69	8.96E-07	4.50E-05	-0.467265	-0.000102	1.92E-05	-2.70E-10
70	1.21E-06	4.46E-05	-0.494245	-9.88E-05	2.79E-05	2.62E-11
71	-6.47E-07	3.01E-05	-0.654286	-8.52E-05	-2.46E-05	-1.93E-10
72	-4.39E-07	3.00E-05	-0.630777	-8.60E-05	-1.65E-05	-4.27E-11
73	-4.67E-10	3.01E-05	-0.617931	-8.65E-05	-1.94E-15	6.33E-14
74	4.38E-07	3.00E-05	-0.630777	-8.60E-05	1.65E-05	4.29E-11
75	6.46E-07	3.01E-05	-0.654286	-8.52E-05	2.46E-05	1.93E-10
76	-3.26E-07	1.51E-05	-0.770030	-4.83E-05	-2.39E-05	-9.51E-11
77	-2.05E-07	1.50E-05	-0.747321	-4.84E-05	-1.59E-05	-4.78E-11
78	-5.86E-10	1.50E-05	-0.734954	-4.85E-05	-1.67E-15	3.62E-14
79	2.04E-07	1.50E-05	-0.747321	-4.84E-05	1.59E-05	4.79E-11

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DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	3.25E-07	1.51E-05	-0.770030	-4.83E-05	2.39E-05	9.52E-11
81	-2.39E-07	-2.19E-14	-0.811829	9.93E-18	-2.37E-05	2.51E-17
82	-1.43E-07	6.18E-15	-0.789241	8.99E-18	-1.58E-05	2.50E-17
83	-6.28E-10	4.37E-14	-0.776945	7.09E-18	-1.58E-15	2.50E-17
84	1.42E-07	8.13E-14	-0.789241	6.29E-18	1.58E-05	2.50E-17
85	2.38E-07	1.09E-13	-0.811829	6.44E-18	2.37E-05	2.50E-17
86	-3.26E-07	-1.51E-05	-0.770030	4.83E-05	-2.39E-05	9.51E-11
87	-2.05E-07	-1.50E-05	-0.747321	4.84E-05	-1.59E-05	4.78E-11
88	-5.86E-10	-1.50E-05	-0.734954	4.85E-05	-1.67E-15	-3.61E-14
89	2.04E-07	-1.50E-05	-0.747321	4.84E-05	1.59E-05	-4.79E-11
90	3.25E-07	-1.51E-05	-0.770030	4.83E-05	2.39E-05	-9.52E-11
91	-6.47E-07	-3.01E-05	-0.654286	8.52E-05	-2.46E-05	1.93E-10
92	-4.39E-07	-3.00E-05	-0.630777	8.60E-05	-1.65E-05	4.27E-11
93	-4.67E-10	-3.01E-05	-0.617931	8.65E-05	-1.93E-15	-6.33E-14
94	4.38E-07	-3.00E-05	-0.630777	8.60E-05	1.65E-05	-4.29E-11
95	6.46E-07	-3.01E-05	-0.654286	8.52E-05	2.46E-05	-1.93E-10
96	-1.21E-06	-4.46E-05	-0.494245	9.88E-05	-2.79E-05	2.60E-11
97	-8.97E-07	-4.50E-05	-0.467265	0.000102	-1.92E-05	-2.70E-10
98	-2.98E-10	-4.57E-05	-0.452296	0.000104	-2.33E-15	-7.00E-14
99	8.96E-07	-4.50E-05	-0.467265	0.000102	1.92E-05	2.70E-10
100	1.21E-06	-4.46E-05	-0.494245	9.88E-05	2.79E-05	-2.62E-11
101	-1.35E-06	-5.77E-05	-0.340131	7.84E-05	-3.70E-05	-1.17E-09
102	-1.31E-06	-5.98E-05	-0.303392	8.40E-05	-2.72E-05	-1.75E-09
103	-1.35E-10	-6.29E-05	-0.280925	9.11E-05	-2.71E-15	-4.99E-14
104	1.31E-06	-5.98E-05	-0.303392	8.40E-05	2.72E-05	1.75E-09
105	1.35E-06	-5.77E-05	-0.340131	7.84E-05	3.70E-05	1.17E-09
106	2.49E-07	-6.72E-05	-0.250783	2.62E-05	-4.50E-05	-2.61E-09
107	-1.22E-07	-7.30E-05	-0.204451	2.58E-05	-3.67E-05	-6.80E-09
108	-5.24E-11	-8.62E-05	-0.170475	2.43E-05	-2.88E-15	-1.79E-14
109	1.22E-07	-7.30E-05	-0.204451	2.58E-05	3.67E-05	6.80E-09
110	-2.49E-07	-6.72E-05	-0.250783	2.62E-05	4.50E-05	2.61E-09
111	2.05E-06	-7.21E-05	-0.243820	-1.56E-05	-3.93E-05	-7.74E-10
112	1.89E-06	-7.44E-05	-0.204574	-2.23E-05	-2.93E-05	-1.65E-09
113	-6.25E-11	-7.93E-05	-0.180024	-3.02E-05	-2.54E-15	1.89E-14
114	-1.89E-06	-7.44E-05	-0.204574	-2.23E-05	2.93E-05	1.65E-09
115	-2.05E-06	-7.21E-05	-0.243820	-1.56E-05	3.93E-05	7.74E-10
116	1.78E-06	-7.43E-05	-0.282356	-4.18E-05	-3.09E-05	4.98E-10
117	1.40E-06	-7.47E-05	-0.252236	-4.67E-05	-2.17E-05	-1.81E-10
118	-1.27E-10	-7.65E-05	-0.235219	-5.04E-05	-2.10E-15	4.36E-14
119	-1.40E-06	-7.47E-05	-0.252236	-4.67E-05	2.17E-05	1.81E-10
120	-1.78E-06	-7.43E-05	-0.282356	-4.18E-05	3.09E-05	-4.98E-10
121	8.44E-07	-7.51E-05	-0.341958	-4.73E-05	-2.62E-05	6.00E-10
122	6.71E-07	-7.49E-05	-0.316793	-4.94E-05	-1.78E-05	1.79E-10
123	-2.15E-10	-7.54E-05	-0.302947	-5.08E-05	-1.61E-15	5.01E-14
124	-6.71E-07	-7.49E-05	-0.316793	-4.94E-05	1.78E-05	-1.79E-10
125	-8.45E-07	-7.51E-05	-0.341958	-4.73E-05	2.62E-05	-6.00E-10
126	1.81E-07	-7.52E-05	-0.397006	-3.52E-05	-2.44E-05	3.40E-10
127	1.84E-07	-7.50E-05	-0.373715	-3.59E-05	-1.63E-05	1.70E-10
128	-2.96E-10	-7.51E-05	-0.361000	-3.63E-05	-1.12E-15	3.93E-14
129	-1.84E-07	-7.50E-05	-0.373715	-3.59E-05	1.63E-05	-1.70E-10
130	-1.82E-07	-7.52E-05	-0.397006	-3.52E-05	2.44E-05	-3.40E-10
131	-1.21E-07	-7.52E-05	-0.427948	-1.09E-05	-2.38E-05	1.37E-10

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DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-4.57E-08	-7.51E-05	-0.405277	-1.12E-05	-1.58E-05	9.05E-11
133	-3.47E-10	-7.51E-05	-0.392927	-1.14E-05	-6.95E-16	1.75E-14
134	4.50E-08	-7.51E-05	-0.405277	-1.12E-05	1.58E-05	-9.05E-11
135	1.20E-07	-7.52E-05	-0.427948	-1.09E-05	2.38E-05	-1.37E-10
136	-2.25E-07	-7.51E-05	-0.422331	2.03E-05	-2.34E-05	5.24E-11
137	-1.30E-07	-7.51E-05	-0.400115	1.98E-05	-1.55E-05	3.73E-11
138	-3.59E-10	-7.51E-05	-0.388029	1.95E-05	-3.58E-16	-9.91E-15
139	1.29E-07	-7.51E-05	-0.400115	1.98E-05	1.55E-05	-3.73E-11
140	2.24E-07	-7.51E-05	-0.422331	2.03E-05	2.34E-05	-5.24E-11
141	-2.66E-07	-7.51E-05	-0.374148	5.37E-05	-2.22E-05	4.05E-11
142	-1.60E-07	-7.51E-05	-0.353156	5.23E-05	-1.45E-05	3.23E-12
143	-3.27E-10	-7.51E-05	-0.341828	5.13E-05	-1.22E-16	-3.99E-14
144	1.60E-07	-7.51E-05	-0.353156	5.23E-05	1.45E-05	-3.31E-12
145	2.66E-07	-7.51E-05	-0.374148	5.37E-05	2.22E-05	-4.06E-11
146	-2.72E-07	-7.50E-05	-0.283052	8.52E-05	-1.89E-05	6.52E-12
147	-1.45E-07	-7.51E-05	-0.265596	8.15E-05	-1.17E-05	-6.11E-11
148	-2.50E-10	-7.52E-05	-0.256559	7.88E-05	5.72E-18	-6.82E-14
149	1.45E-07	-7.51E-05	-0.265596	8.15E-05	1.17E-05	6.10E-11
150	2.71E-07	-7.50E-05	-0.283052	8.52E-05	1.89E-05	-6.64E-12
151	-5.45E-08	-7.49E-05	-0.153959	0.000111	-1.07E-05	-2.32E-10
152	2.86E-09	-7.51E-05	-0.145023	0.000102	-5.29E-06	-1.63E-10
153	-1.33E-10	-7.52E-05	-0.141238	9.71E-05	3.81E-17	-8.43E-14
154	-3.13E-09	-7.51E-05	-0.145023	0.000102	5.29E-06	1.63E-10
155	5.42E-08	-7.49E-05	-0.153959	0.000111	1.07E-05	2.32E-10
156	6.59E-07	-7.49E-05	-5.31E-97	0.000120	3.64E-06	-2.94E-10
157	3.38E-07	-7.51E-05	-0.005565	0.000110	4.58E-06	-2.17E-10
158	-3.12E-12	-7.53E-05	-0.009738	0.000104	1.52E-17	-8.28E-14
159	-3.38E-07	-7.51E-05	-0.005565	0.000110	-4.58E-06	2.17E-10
160	-6.59E-07	-7.49E-05	-5.31E-97	0.000120	-3.64E-06	2.93E-10
161	7.94E-07	-7.49E-05	0.059667	0.000119	-7.99E-06	-2.63E-10
162	4.46E-07	-7.51E-05	0.049601	0.000110	4.58E-06	-2.17E-10
163	3.83E-11	-7.53E-05	0.042284	0.000104	1.52E-17	-8.28E-14
164	-4.46E-07	-7.51E-05	0.049601	0.000110	-4.58E-06	2.17E-10
165	-7.94E-07	-7.49E-05	0.059667	0.000119	7.99E-06	2.63E-10
166	-0	-1.35E-98	-3.34E-96	+0	-0	+0
167	-0	1.35E-98	-3.34E-96	-0	-0	-0
min:	-2.05E-06	-8.62E-05	-0.811829	-0.000120	-4.50E-05	-6.80E-09
max:	2.05E-06	8.62E-05	0.059667	0.000120	4.50E-05	6.80E-09

Loadcase Factor Stage Init.def Title
5 1.0000 RETRACCION

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-5.69E-05	-1.441	-0.295944			
10	5.69E-05	-1.441	-0.295944			
156	-5.69E-05	1.441	-0.295944			
160	5.69E-05	1.441	-0.295944			
166	3.22E-12	-1.846	0.591867	12.714	-2.36E-11	-2.24E-10
167	4.16E-12	1.846	0.591867	-12.714	-1.70E-11	2.22E-10
Sums :	-1.12E-12	1.41E-11	-1.20E-12			
min:	-5.69E-05	-1.846	-0.295944	-12.714	-2.36E-11	-2.24E-10
max:	5.69E-05	1.846	0.591867	12.714	-1.70E-11	2.22E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	0.000436	6.411	-0.009271	1.85E-05	-1.53E-06	3.76E-07
2	0.000369	6.412	-0.007449	1.80E-05	-1.13E-06	3.64E-07
3	9.15E-12	6.412	-0.006357	1.77E-05	6.53E-17	-1.27E-14
4	-0.000369	6.412	-0.007449	1.80E-05	1.13E-06	-3.64E-07
5	-0.000436	6.411	-0.009271	1.85E-05	1.53E-06	-3.76E-07
6	0.000247	6.265	2.96E-98	1.85E-05	-1.53E-06	3.76E-07
7	0.000187	6.266	0.001568	1.80E-05	-1.13E-06	3.64E-07
8	1.55E-11	6.266	0.002486	1.77E-05	6.53E-17	-1.27E-14
9	-0.000187	6.266	0.001568	1.80E-05	1.13E-06	-3.64E-07
10	-0.000247	6.265	2.96E-98	1.85E-05	1.53E-06	-3.76E-07
11	-4.00E-05	5.887	0.023979	1.79E-05	-7.30E-07	1.30E-07
12	-3.41E-05	5.887	0.024740	1.75E-05	-5.85E-07	1.29E-07
13	3.37E-11	5.887	0.025214	1.72E-05	-1.63E-15	-1.30E-14
14	3.41E-05	5.887	0.024740	1.75E-05	5.85E-07	-1.29E-07
15	4.00E-05	5.887	0.023979	1.79E-05	7.30E-07	-1.30E-07
16	-8.92E-05	5.508	0.046209	1.60E-05	-2.70E-07	3.20E-09
17	-6.46E-05	5.508	0.046493	1.58E-05	-2.26E-07	2.74E-08
18	5.18E-11	5.508	0.046674	1.57E-05	-1.58E-16	-1.21E-14
19	6.46E-05	5.508	0.046493	1.58E-05	2.26E-07	-2.74E-08
20	8.92E-05	5.508	0.046209	1.60E-05	2.70E-07	-3.20E-09
21	-5.77E-05	5.129	0.065289	1.31E-05	-8.34E-08	-2.38E-08
22	-4.20E-05	5.129	0.065377	1.31E-05	-7.01E-08	-4.01E-09
23	6.79E-11	5.129	0.065430	1.30E-05	2.53E-15	-1.02E-14
24	4.20E-05	5.129	0.065377	1.31E-05	7.01E-08	4.01E-09
25	5.77E-05	5.129	0.065289	1.31E-05	8.34E-08	2.38E-08
26	-2.53E-05	4.750	0.079923	9.20E-06	-3.10E-08	-1.71E-08
27	-1.90E-05	4.750	0.079955	9.19E-06	-2.65E-08	-7.69E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	8.11E-11	4.750	0.079973	9.19E-06	4.30E-15	-7.61E-15
29	1.90E-05	4.750	0.079955	9.19E-06	2.65E-08	7.69E-09
30	2.53E-05	4.750	0.079923	9.20E-06	3.10E-08	1.71E-08
31	-8.82E-06	4.371	0.088724	4.16E-06	-6.89E-08	-6.42E-09
32	-7.15E-06	4.371	0.088796	4.22E-06	-5.83E-08	-3.95E-09
33	9.05E-11	4.371	0.088838	4.27E-06	4.95E-15	-4.27E-15
34	7.15E-06	4.371	0.088796	4.22E-06	5.83E-08	3.95E-09
35	9.08E-06	4.371	0.088724	4.16E-06	6.89E-08	6.42E-09
36	-6.35E-06	3.992	0.090196	-2.07E-06	-2.58E-07	1.31E-09
37	-5.03E-06	3.992	0.090466	-1.85E-06	-2.13E-07	-2.58E-10
38	9.50E-11	3.992	0.090624	-1.70E-06	4.92E-15	2.66E-16
39	5.03E-06	3.992	0.090466	-1.85E-06	2.13E-07	2.58E-10
40	6.35E-06	3.992	0.090196	-2.07E-06	2.58E-07	-1.31E-09
41	-1.24E-05	3.613	0.082702	-9.59E-06	-7.92E-07	5.57E-09
42	-9.51E-06	3.613	0.083528	-9.03E-06	-6.39E-07	8.06E-10
43	9.23E-11	3.613	0.084029	-8.64E-06	4.54E-15	6.49E-15
44	9.51E-06	3.613	0.083528	-9.03E-06	6.39E-07	-8.06E-10
45	1.24E-05	3.613	0.082702	-9.59E-06	7.92E-07	-5.57E-09
46	-2.19E-05	3.234	0.066570	-1.81E-05	-1.81E-06	2.93E-09
47	-1.76E-05	3.234	0.066492	-1.74E-05	-1.53E-06	-3.91E-09
48	7.92E-11	3.234	0.067823	-1.65E-05	4.01E-15	1.40E-14
49	1.76E-05	3.234	0.066492	-1.74E-05	1.53E-06	3.91E-09
50	2.19E-05	3.234	0.066570	-1.81E-05	1.81E-06	-2.93E-09
51	-2.15E-05	2.856	0.035029	-2.67E-05	-2.29E-06	-1.42E-08
52	-2.25E-05	2.855	0.037677	-2.71E-05	-2.47E-06	-2.33E-08
53	5.39E-11	2.855	0.040520	-2.60E-05	3.71E-15	2.05E-14
54	2.25E-05	2.855	0.037677	-2.71E-05	2.47E-06	2.33E-08
55	2.19E-05	2.856	0.035029	-2.67E-05	2.29E-06	1.42E-08
56	3.43E-06	2.477	-0.003629	-3.24E-05	-4.21E-07	-3.53E-08
57	5.56E-06	2.477	-0.003204	-3.47E-05	-2.97E-07	-9.29E-09
58	2.04E-11	2.476	-0.003022	-4.32E-05	3.66E-15	2.20E-14
59	-5.56E-06	2.477	-0.003204	-3.47E-05	2.97E-07	9.29E-09
60	-3.43E-06	2.477	-0.003629	-3.24E-05	4.21E-07	3.53E-08
61	2.34E-05	1.981	-0.057496	-3.01E-05	2.00E-06	-1.12E-08
62	2.07E-05	1.981	-0.059751	-3.02E-05	2.01E-06	-2.26E-08
63	-3.04E-11	1.981	-0.061933	-2.89E-05	3.66E-15	2.15E-14
64	-2.07E-05	1.981	-0.059751	-3.02E-05	-2.01E-06	2.26E-08
65	-2.34E-05	1.981	-0.057496	-3.01E-05	-2.00E-06	1.12E-08
66	1.63E-05	1.486	-0.103145	-2.29E-05	1.03E-06	3.66E-09
67	1.22E-05	1.486	-0.104227	-2.23E-05	8.35E-07	2.35E-09
68	-6.95E-11	1.486	-0.104901	-2.18E-05	3.17E-15	1.69E-14
69	-1.22E-05	1.486	-0.104227	-2.23E-05	-8.35E-07	2.35E-09
70	-1.63E-05	1.486	-0.103145	-2.29E-05	-1.03E-06	-3.66E-09
71	5.94E-06	0.990624	-0.135527	-1.51E-05	2.69E-07	3.65E-09
72	4.36E-06	0.990626	-0.135808	-1.49E-05	2.20E-07	1.23E-09
73	-9.34E-11	0.990625	-0.135977	-1.47E-05	2.75E-15	1.06E-14
74	-4.36E-06	0.990626	-0.135808	-1.49E-05	-2.20E-07	-1.23E-09
75	-5.94E-06	0.990624	-0.135527	-1.51E-05	-2.69E-07	-3.65E-09
76	1.11E-06	0.495312	-0.154698	-7.48E-06	4.94E-08	8.18E-10
77	8.57E-07	0.495313	-0.154750	-7.43E-06	4.20E-08	8.18E-10
78	-1.06E-10	0.495313	-0.154781	-7.40E-06	2.60E-15	5.02E-15
79	-8.58E-07	0.495313	-0.154750	-7.43E-06	-4.20E-08	-8.18E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-1.11E-06	0.495312	-0.154698	-7.48E-06	-4.94E-08	-1.42E-09
81	-3.47E-08	-5.90E-12	-0.161052	-2.98E-17	1.10E-08	7.75E-17
82	1.91E-08	-5.81E-12	-0.161064	-2.81E-17	9.65E-09	7.79E-17
83	-1.10E-10	-5.69E-12	-0.161070	-2.54E-17	2.57E-15	7.78E-17
84	-1.94E-08	-5.52E-12	-0.161064	-2.24E-17	-9.65E-09	7.77E-17
85	3.45E-08	-5.49E-12	-0.161052	-2.04E-17	-1.10E-08	7.74E-17
86	1.11E-06	-0.495312	-0.154698	7.48E-06	4.94E-08	-1.42E-09
87	8.57E-07	-0.495313	-0.154750	7.43E-06	4.20E-08	-8.18E-10
88	-1.06E-10	-0.495313	-0.154781	7.40E-06	2.59E-15	-4.86E-15
89	-8.58E-07	-0.495313	-0.154750	7.43E-06	-4.20E-08	8.18E-10
90	-1.11E-06	-0.495312	-0.154698	7.48E-06	-4.94E-08	1.42E-09
91	5.94E-06	-0.990624	-0.135527	1.51E-05	2.69E-07	-3.65E-09
92	4.36E-06	-0.990626	-0.135808	1.49E-05	2.20E-07	-1.23E-09
93	-9.39E-11	-0.990625	-0.135977	1.47E-05	2.74E-15	-1.04E-14
94	-4.36E-06	-0.990626	-0.135808	1.49E-05	-2.20E-07	1.23E-09
95	-5.94E-06	-0.990624	-0.135527	1.51E-05	-2.69E-07	3.65E-09
96	1.63E-05	-1.486	-0.103145	2.29E-05	1.03E-06	-3.66E-09
97	1.22E-05	-1.486	-0.104227	2.23E-05	8.35E-07	2.35E-09
98	-7.03E-11	-1.486	-0.104901	2.18E-05	3.18E-15	1.67E-14
99	-1.22E-05	-1.486	-0.104227	2.23E-05	-8.35E-07	-2.35E-09
100	-1.63E-05	-1.486	-0.103145	2.29E-05	-1.03E-06	3.66E-09
101	2.34E-05	-1.981	-0.057496	3.01E-05	2.00E-06	1.12E-08
102	2.07E-05	-1.981	-0.059751	3.01E-05	2.01E-06	2.26E-08
103	-3.15E-11	-1.981	-0.061933	2.89E-05	3.63E-15	-2.13E-14
104	-2.07E-05	-1.981	-0.059751	3.02E-05	-2.01E-06	-2.26E-08
105	-2.34E-05	-1.981	-0.057496	3.01E-05	-2.00E-06	-1.12E-08
106	3.43E-06	-2.477	-0.003629	3.24E-05	4.21E-07	3.53E-08
107	5.56E-06	-2.477	-0.003204	3.47E-05	2.97E-07	9.29E-09
108	1.90E-11	-2.476	-0.003022	4.32E-05	3.63E-15	-2.18E-14
109	-5.56E-06	-2.477	-0.003204	3.47E-05	2.97E-07	-9.29E-09
110	-3.43E-06	-2.477	-0.003629	3.24E-05	4.21E-07	-3.53E-08
111	-2.19E-05	-2.856	0.035029	2.67E-05	-2.29E-06	1.42E-08
112	-2.25E-05	-2.855	0.037677	2.71E-05	-2.47E-06	2.33E-08
113	5.21E-11	-2.855	0.040520	2.60E-05	3.68E-15	-2.04E-14
114	2.25E-05	-2.855	0.037677	2.71E-05	2.47E-06	-2.33E-08
115	2.19E-05	-2.856	0.035029	2.67E-05	2.29E-06	-1.42E-08
116	-2.19E-05	-3.234	0.064570	1.81E-05	-1.81E-06	-2.93E-09
117	-1.76E-05	-3.234	0.066452	1.74E-05	-1.53E-06	3.91E-09
118	7.74E-11	-3.234	0.067823	1.65E-05	4.00E-15	-1.38E-14
119	1.76E-05	-3.234	0.066452	1.74E-05	1.53E-06	-3.91E-09
120	2.19E-05	-3.234	0.064570	1.81E-05	1.81E-06	2.93E-09
121	-1.24E-05	-3.613	0.082702	9.59E-06	-7.92E-07	-5.57E-09
122	-9.51E-06	-3.613	0.083528	9.03E-06	-6.39E-07	-8.06E-10
123	9.03E-11	-3.613	0.084029	8.64E-06	4.52E-15	-6.33E-15
124	9.51E-06	-3.613	0.083528	9.03E-06	6.39E-07	8.06E-10
125	1.24E-05	-3.613	0.082702	9.59E-06	7.92E-07	5.57E-09
126	-6.35E-06	-3.992	0.090196	2.07E-06	-2.58E-07	-1.31E-09
127	-5.03E-06	-3.992	0.090466	1.85E-06	-2.13E-07	2.58E-10
128	9.28E-11	-3.992	0.090624	1.70E-06	4.90E-15	-9.90E-17
129	5.03E-06	-3.992	0.090466	1.85E-06	2.13E-07	-2.58E-10
130	6.35E-06	-3.992	0.090196	2.07E-06	2.58E-07	1.31E-09
131	-9.08E-06	-4.371	0.088724	-4.16E-06	-6.89E-08	6.42E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-7.15E-06	-4.371	0.088796	-4.22E-06	-5.83E-08	3.95E-09
133	8.81E-11	-4.371	0.088838	-4.27E-06	4.93E-15	4.43E-15
134	7.15E-06	-4.371	0.088796	-4.22E-06	5.83E-08	-3.95E-09
135	9.08E-06	-4.371	0.088724	-4.16E-06	6.89E-08	-6.42E-09
136	-2.53E-05	-4.750	0.079923	-9.20E-06	-3.10E-08	1.71E-08
137	-1.90E-05	-4.750	0.079955	-9.19E-06	-2.65E-08	7.69E-09
138	7.84E-11	-4.750	0.079973	-9.19E-06	4.29E-15	7.76E-15
139	1.90E-05	-4.750	0.079955	-9.19E-06	2.65E-08	-7.69E-09
140	2.53E-05	-4.750	0.079923	-9.20E-06	3.10E-08	-1.71E-08
141	-5.77E-05	-5.129	0.065289	-1.31E-05	-8.34E-08	2.38E-08
142	-4.20E-05	-5.129	0.065377	-1.31E-05	-7.01E-08	4.01E-09
143	6.51E-11	-5.129	0.065430	-1.30E-05	2.52E-15	1.04E-14
144	4.20E-05	-5.129	0.065377	-1.31E-05	7.01E-08	-4.01E-09
145	5.77E-05	-5.129	0.065289	-1.31E-05	8.34E-08	-2.38E-08
146	-8.92E-05	-5.508	0.046209	-1.60E-05	-2.70E-07	-3.20E-09
147	-6.46E-05	-5.508	0.046493	-1.58E-05	-2.26E-07	-2.74E-08
148	4.87E-11	-5.508	0.046674	-1.57E-05	-1.66E-16	1.23E-14
149	6.46E-05	-5.508	0.046493	-1.58E-05	2.26E-07	2.74E-08
150	8.92E-05	-5.508	0.046209	-1.60E-05	2.70E-07	3.20E-09
151	-4.00E-05	-5.887	0.023979	-1.79E-05	-7.30E-07	-1.30E-07
152	-3.41E-05	-5.887	0.024740	-1.75E-05	-5.85E-07	-1.29E-07
153	3.04E-11	-5.887	0.025214	-1.72E-05	-1.63E-15	1.31E-14
154	3.41E-05	-5.887	0.024740	-1.75E-05	5.85E-07	1.29E-07
155	4.00E-05	-5.887	0.023979	-1.79E-05	7.30E-07	1.30E-07
156	0.000247	-6.265	2.96E-98	-1.85E-05	-1.53E-06	-3.76E-07
157	0.000187	-6.266	0.001568	-1.80E-05	-1.13E-06	-3.64E-07
158	1.20E-11	-6.266	0.002486	-1.77E-05	6.47E-17	1.28E-14
159	-0.000187	-6.266	0.001568	-1.80E-05	1.13E-06	3.64E-07
160	-0.000247	-6.265	2.96E-98	-1.85E-05	1.53E-06	3.76E-07
161	0.000436	-6.411	-0.009271	-1.85E-05	-1.53E-06	-3.76E-07
162	0.000369	-6.412	-0.007449	-1.80E-05	-1.13E-06	-3.64E-07
163	5.59E-12	-6.412	-0.006357	-1.77E-05	6.47E-17	1.28E-14
164	-0.000369	-6.412	-0.007449	-1.80E-05	1.13E-06	3.64E-07
165	-0.000436	-6.411	-0.009271	-1.85E-05	1.53E-06	3.76E-07
166	-0	1.85E-97	-5.92E-98	1.27E-99	+0	+0
167	-0	-1.85E-97	-5.92E-98	1.27E-99	+0	-0
min:	-0.000436	-6.412	-0.161070	-4.32E-05	-2.47E-06	-3.76E-07
max:	0.000436	6.412	0.090628	4.32E-05	2.47E-06	3.76E-07

Loadcase Factor Stage Init.def Title
60 1.0000 FRENADO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-4.14E-05	-1.116	-0.371460			
10	4.14E-05	-1.116	-0.371460			
156	4.14E-05	-1.116	0.371460			
160	-4.14E-05	-1.116	0.371460			
166	1.47E-11	-3.763	-0.958693	25.552	7.27E-11	-2.38E-10
167	-1.57E-11	-3.763	0.958693	25.552	-8.03E-11	-2.38E-10
Sums :	-1.63E-12	-11.990	6.52E-13			
min:	-4.14E-05	-3.763	-0.958693	25.552	-8.03E-11	-2.38E-10
max:	4.14E-05	-1.116	0.958693	25.552	7.27E-11	-2.38E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	0.000321	4.852	-0.012012	2.40E-05	-1.91E-06	2.82E-07
2	0.000270	4.852	-0.009726	2.34E-05	-1.42E-06	2.70E-07
3	-1.99E-11	4.852	-0.008355	2.29E-05	4.72E-17	-1.70E-14
4	-0.000270	4.852	-0.009726	2.34E-05	1.42E-06	-2.70E-07
5	-0.000321	4.852	-0.012012	2.40E-05	1.91E-06	-2.82E-07
6	0.000136	4.852	3.71E-98	2.40E-05	-1.91E-06	2.82E-07
7	0.000135	4.852	0.001968	2.34E-05	-1.42E-06	2.70E-07
8	1.14E-11	4.852	0.003119	2.29E-05	4.72E-17	-1.70E-14
9	-0.000135	4.852	0.001968	2.34E-05	1.42E-06	-2.70E-07
10	-0.000136	4.852	3.71E-98	2.40E-05	1.91E-06	-2.82E-07
11	-3.40E-05	4.852	0.031075	2.31E-05	-9.15E-07	9.45E-08
12	-2.86E-05	4.852	0.032029	2.27E-05	-7.33E-07	9.21E-08
13	1.29E-11	4.852	0.032624	2.23E-05	-1.17E-15	-1.74E-14
14	2.86E-05	4.852	0.032029	2.27E-05	7.33E-07	-9.21E-08
15	3.40E-05	4.852	0.031075	2.31E-05	9.15E-07	-9.45E-08
16	-6.57E-05	4.852	0.059953	2.05E-05	-3.38E-07	-4.56E-10
17	-4.97E-05	4.852	0.060309	2.06E-05	-2.83E-07	1.54E-08
18	1.70E-11	4.852	0.060536	2.04E-05	-2.91E-16	-1.61E-14
19	4.97E-05	4.852	0.060309	2.06E-05	2.83E-07	-1.54E-08
20	6.87E-05	4.852	0.059953	2.05E-05	3.38E-07	4.55E-10
21	-4.37E-05	4.853	0.084678	1.72E-05	-1.05E-07	-1.95E-08
22	-3.18E-05	4.853	0.084988	1.71E-05	-6.84E-08	-7.87E-09
23	5.66E-11	4.853	0.085054	1.71E-05	2.07E-15	-1.39E-14
24	3.18E-05	4.853	0.084988	1.71E-05	8.84E-08	7.87E-09
25	4.37E-05	4.853	0.084678	1.72E-05	1.05E-07	1.95E-08
26	-1.93E-05	4.853	0.104212	1.23E-05	-4.81E-08	-1.35E-08
27	-1.45E-05	4.853	0.104263	1.23E-05	-4.11E-08	-1.00E-08

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	7.66E-11	4.853	0.104290	1.23E-05	3.45E-15	-1.07E-14
29	1.45E-05	4.853	0.104263	1.23E-05	4.11E-08	1.00E-08
30	1.93E-05	4.853	0.104212	1.23E-05	4.81E-08	1.38E-08
31	-8.82E-06	4.853	0.116197	5.92E-06	-1.32E-07	-4.10E-09
32	-6.97E-06	4.853	0.116336	6.05E-06	-1.12E-07	-6.24E-09
33	9.01E-11	4.853	0.116417	6.14E-06	3.94E-15	-6.43E-15
34	6.97E-06	4.853	0.116336	6.05E-06	1.12E-07	6.24E-09
35	8.82E-06	4.853	0.116197	5.92E-06	1.32E-07	4.10E-09
36	-1.18E-05	4.853	0.118895	-1.99E-06	-4.90E-07	4.58E-09
37	-9.14E-06	4.853	0.119407	-1.57E-06	-4.03E-07	-2.45E-09
38	9.70E-11	4.853	0.119714	-1.29E-06	3.81E-15	-3.40E-16
39	9.14E-06	4.853	0.119407	-1.57E-06	4.03E-07	2.45E-09
40	1.18E-05	4.853	0.118895	-1.99E-06	4.90E-07	-4.58E-09
41	-2.63E-05	4.853	0.110135	-1.16E-05	-1.47E-06	1.04E-08
42	-1.99E-05	4.853	0.111672	-1.06E-05	-1.19E-06	-2.20E-09
43	9.38E-11	4.853	0.112604	-9.88E-06	3.23E-15	8.41E-15
44	1.99E-05	4.853	0.111672	-1.06E-05	1.19E-06	2.20E-09
45	2.63E-05	4.853	0.110135	-1.16E-05	1.47E-06	-1.04E-08
46	-4.55E-05	4.853	0.087747	-2.26E-05	-3.26E-06	4.31E-09
47	-3.64E-05	4.853	0.091219	-2.12E-05	-2.77E-06	-1.25E-08
48	7.52E-11	4.853	0.093654	-1.96E-05	2.42E-15	1.88E-14
49	3.64E-05	4.853	0.091219	-2.12E-05	2.77E-06	1.25E-08
50	4.55E-05	4.853	0.087747	-2.26E-05	3.26E-06	-4.31E-09
51	-4.52E-05	4.853	0.051406	-3.24E-05	-3.71E-06	-3.07E-08
52	-4.62E-05	4.853	0.055775	-3.35E-05	-4.21E-06	-5.22E-08
53	3.94E-11	4.853	0.060838	-3.18E-05	1.96E-15	2.61E-14
54	4.62E-05	4.853	0.055775	-3.35E-05	4.21E-06	5.22E-08
55	4.52E-05	4.853	0.051406	-3.24E-05	3.71E-06	3.07E-08
56	7.24E-06	4.853	0.006608	-3.61E-05	5.20E-07	-7.44E-08
57	1.18E-05	4.852	0.005935	-4.07E-05	7.52E-07	-1.95E-07
58	-4.26E-12	4.852	0.004895	-5.65E-05	2.00E-15	2.31E-14
59	-1.18E-05	4.852	0.005935	-4.07E-05	-7.52E-07	1.95E-07
60	-7.24E-06	4.853	0.006608	-3.61E-05	-5.20E-07	7.44E-08
61	4.75E-05	4.853	0.044517	-2.27E-05	4.98E-06	-2.59E-08
62	4.21E-05	4.853	-0.050088	-2.25E-05	4.89E-06	-5.26E-09
63	-6.12E-11	4.853	-0.055250	-1.94E-05	2.07E-15	1.65E-14
64	-4.21E-05	4.853	-0.050088	-2.25E-05	-4.89E-06	5.26E-09
65	-4.75E-05	4.853	-0.044517	-2.27E-05	-4.95E-06	2.59E-08
66	3.32E-05	4.853	-0.067773	-3.97E-06	2.40E-06	4.42E-09
67	2.49E-05	4.853	-0.070291	-2.60E-06	1.95E-06	-1.12E-08
68	-8.27E-11	4.853	-0.071855	-1.45E-06	1.12E-15	4.11E-15
69	-2.49E-05	4.853	-0.070291	-2.60E-06	-1.95E-06	1.12E-08
70	-3.32E-05	4.853	-0.067773	-3.97E-06	-2.40E-06	-4.42E-09
71	1.24E-05	4.853	-0.061603	1.06E-05	6.13E-07	4.38E-09
72	9.08E-06	4.853	-0.062244	1.11E-05	5.04E-07	-3.92E-09
73	-6.95E-11	4.853	-0.062629	1.14E-05	2.87E-16	-8.37E-15
74	-9.08E-06	4.853	-0.062244	1.11E-05	-5.04E-07	3.92E-09
75	-1.24E-05	4.853	-0.061603	1.06E-05	-6.13E-07	-4.38E-09
76	2.83E-06	4.853	-0.035615	1.91E-05	1.13E-07	-2.00E-11
77	2.13E-06	4.853	-0.035733	1.92E-05	9.54E-08	-4.52E-09
78	-3.77E-11	4.853	-0.035803	1.93E-05	2.29E-17	-1.52E-14
79	-2.13E-06	4.853	-0.035733	1.92E-05	-9.54E-08	4.52E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-2.83E-06	4.853	-0.035615	1.91E-05	-1.13E-07	2.00E-11
81	8.84E-13	4.853	1.17E-13	2.19E-05	4.32E-17	-1.65E-09
82	8.84E-13	4.853	6.91E-14	2.19E-05	4.32E-17	-5.15E-09
83	8.85E-13	4.853	4.31E-15	2.19E-05	4.32E-17	-1.72E-14
84	8.85E-13	4.853	-6.05E-14	2.19E-05	4.33E-17	5.15E-09
85	8.85E-13	4.853	-1.09E-13	2.19E-05	4.33E-17	1.65E-09
86	-2.83E-06	4.853	0.035615	1.91E-05	-1.13E-07	-2.00E-11
87	-2.13E-06	4.853	0.035733	1.92E-05	-9.54E-08	-4.52E-09
88	3.95E-11	4.853	0.035803	1.93E-05	6.34E-17	-1.52E-14
89	2.13E-06	4.853	0.035733	1.92E-05	9.54E-08	4.52E-09
90	2.83E-06	4.853	0.035615	1.91E-05	1.13E-07	2.00E-11
91	-1.24E-05	4.853	0.061603	1.06E-05	-6.13E-07	4.38E-09
92	-5.06E-06	4.853	0.062244	1.11E-05	-5.04E-07	-3.92E-09
93	7.12E-11	4.853	0.062625	1.14E-05	-2.00E-16	-8.36E-15
94	5.08E-06	4.853	0.062244	1.11E-05	5.04E-07	3.92E-09
95	1.24E-05	4.853	0.061603	1.06E-05	6.13E-07	-4.38E-09
96	-3.32E-05	4.853	0.067773	-3.97E-06	-2.40E-06	4.42E-09
97	-2.45E-05	4.853	0.070291	-2.60E-06	-1.95E-06	-1.12E-08
98	8.45E-11	4.853	0.071855	-1.45E-06	-1.03E-15	4.11E-15
99	2.49E-05	4.853	0.070291	-2.60E-06	1.95E-06	1.12E-08
100	3.32E-05	4.853	0.067773	-3.97E-06	2.40E-06	-4.42E-09
101	-4.75E-05	4.853	0.044517	-2.27E-05	-4.98E-06	-2.55E-08
102	-4.21E-05	4.853	0.050088	-2.25E-05	-4.89E-06	-5.26E-08
103	6.29E-11	4.853	0.055250	-1.94E-05	-1.98E-15	1.69E-14
104	4.21E-05	4.853	0.050088	-2.25E-05	4.89E-06	5.26E-08
105	4.75E-05	4.853	0.044517	-2.27E-05	4.98E-06	2.55E-08
106	-7.24E-06	4.853	-0.006608	-3.61E-05	-5.20E-07	-7.44E-08
107	-1.18E-05	4.852	-0.005935	-4.07E-05	-7.52E-07	-1.95E-07
108	6.01E-12	4.852	-0.004855	-1.91E-15	2.31E-14	1.70E-14
109	1.18E-05	4.852	-0.005935	-4.07E-05	7.52E-07	1.95E-07
110	7.24E-06	4.853	-0.006608	-3.61E-05	5.20E-07	7.44E-08
111	4.52E-05	4.853	-0.051406	-3.24E-05	3.71E-06	-3.07E-08
112	4.62E-05	4.853	-0.055775	-3.35E-05	4.21E-06	-5.22E-08
113	-3.76E-11	4.852	-0.060838	-3.18E-05	-1.88E-15	2.62E-14
114	-4.62E-05	4.853	-0.055775	-3.35E-05	-4.21E-06	5.22E-08
115	-4.52E-05	4.853	-0.051406	-3.24E-05	-3.71E-06	3.07E-08
116	4.55E-05	4.853	-0.087747	-2.26E-05	3.26E-06	4.31E-05
117	3.64E-05	4.853	-0.091219	-2.12E-05	2.77E-06	-1.25E-05
118	-7.35E-11	4.853	-0.093654	-1.96E-05	-2.35E-15	1.88E-14
119	-3.64E-05	4.853	-0.091219	-2.12E-05	-2.77E-06	1.25E-05
120	-4.55E-05	4.853	-0.087747	-2.26E-05	-3.26E-06	-4.31E-05
121	2.63E-05	4.853	-0.110135	-1.16E-05	1.47E-06	1.04E-05
122	1.99E-05	4.853	-0.111672	-1.06E-05	1.19E-06	-2.20E-05
123	-9.20E-11	4.853	-0.112604	-9.88E-06	-3.17E-15	8.40E-15
124	-1.99E-05	4.853	-0.111672	-1.06E-05	-1.19E-06	2.20E-05
125	-2.63E-05	4.853	-0.110135	-1.16E-05	-1.47E-06	-1.04E-05
126	1.18E-05	4.853	-0.118895	-1.99E-06	4.90E-07	4.58E-06
127	9.14E-06	4.853	-0.119407	-1.57E-06	4.03E-07	-2.45E-05
128	-9.52E-11	4.853	-0.119714	-1.29E-06	-3.76E-15	-3.47E-16
129	-9.14E-06	4.853	-0.119407	-1.57E-06	-4.03E-07	2.45E-05
130	-1.10E-05	4.853	-0.118895	-1.99E-06	-4.90E-07	-4.58E-06
131	8.82E-06	4.853	-0.116197	5.92E-06	1.32E-07	-4.10E-05

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	6.97E-06	4.853	-0.116336	6.05E-06	1.12E-07	-6.24E-09
133	-8.53E-11	4.853	-0.116417	6.14E-06	-3.89E-15	-6.44E-15
134	-6.97E-06	4.853	-0.116336	6.05E-06	-1.12E-07	6.24E-09
135	-8.82E-06	4.853	-0.116197	5.92E-06	-1.32E-07	4.10E-05
136	1.93E-05	4.853	-0.104212	1.23E-05	4.81E-08	-1.38E-08
137	1.45E-05	4.853	-0.104263	1.23E-05	4.11E-08	-1.00E-08
138	-7.49E-11	4.853	-0.104290	1.23E-05	-3.41E-15	-1.07E-14
139	-1.45E-05	4.853	-0.104263	1.23E-05	-4.11E-08	1.00E-08
140	-1.93E-05	4.853	-0.104212	1.23E-05	-4.81E-08	1.38E-08
141	4.37E-05	4.853	-0.084876	1.72E-05	1.05E-07	-1.99E-08
142	3.18E-05	4.853	-0.084988	1.71E-05	8.84E-08	-7.87E-09
143	-5.68E-11	4.853	-0.085054	1.71E-05	-2.05E-15	-1.39E-14
144	-3.18E-05	4.853	-0.084988	1.71E-05	-8.84E-08	7.87E-09
145	-4.27E-05	4.853	-0.084878	1.72E-05	-1.05E-07	1.99E-08
146	6.67E-06	4.852	-0.059953	2.09E-05	3.38E-07	-4.56E-10
147	4.97E-05	4.852	-0.060309	2.06E-05	2.83E-07	1.54E-08
148	-3.52E-11	4.852	-0.060535	2.04E-05	2.05E-17	-1.63E-14
149	-4.97E-05	4.852	-0.060309	2.06E-05	-2.83E-07	-1.54E-08
150	-6.67E-06	4.852	-0.059953	2.09E-05	-3.38E-07	4.55E-10
151	3.40E-05	4.852	-0.031075	2.33E-05	9.15E-07	9.45E-08
152	2.86E-05	4.852	-0.032029	2.27E-05	7.33E-07	9.21E-08
153	-1.10E-11	4.852	-0.032624	2.23E-05	1.18E-15	-1.74E-14
154	-2.86E-05	4.852	-0.032029	2.27E-05	-7.33E-07	-9.21E-08
155	-3.40E-05	4.852	-0.031075	2.33E-05	-9.15E-07	-9.45E-08
156	-0.000180	4.852	-3.71E-98	2.40E-05	1.91E-06	2.82E-07
157	0.000135	4.852	-0.001968	2.34E-05	1.42E-06	-2.70E-07
158	1.33E-11	4.852	0.001219	2.28E-05	-4.59E-17	-1.70E-14
159	0.000135	4.852	-0.001968	2.34E-05	-1.42E-06	-2.70E-07
160	0.000180	4.852	-3.71E-98	2.40E-05	-1.91E-06	2.82E-07
161	-0.000321	4.852	0.012012	2.40E-05	1.91E-06	2.82E-07
162	-0.000270	4.852	0.009726	2.34E-05	1.42E-06	2.70E-07
163	2.18E-11	4.852	0.009355	2.29E-05	-4.59E-17	-1.70E-14
164	0.000270	4.852	0.009726	2.34E-05	-1.42E-06	-2.70E-07
165	0.000321	4.852	0.012012	2.40E-05	-1.91E-06	-2.82E-07
166	-0	3.76E-97	9.59E-98	-2.56E-99	-0	+0
167	+0	3.76E-97	-9.59E-98	-2.56E-99	+0	+0
min:	-0.000321	3.76E-97	-0.119714	-5.85E-05	-4.98E-06	-2.82E-07
max:	0.000321	4.853	0.119714	2.40E-05	4.98E-06	2.82E-07

Loadcase Factor Stage Init.def Title
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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	1.531	0.004263	3.948			
10	1.531	-0.004262	-4.140			
156	1.531	-0.004263	3.948			
160	1.531	0.004262	-4.140			
166	5.242	-0.002368	-0.604205	0.010415	32.670	-0.040211
167	5.242	0.002368	-0.604205	-0.010415	32.670	0.040211
Sums :	16.609	2.71E-12	-1.552			
min:	1.531	-0.004263	-4.140	-0.010415	32.670	-0.040211
max:	5.242	0.004263	3.948	0.010415	32.670	0.040211

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	-6.653	-0.018533	0.026975	-5.39E-05	1.91E-06	7.49E-06
2	-6.653	-0.010398	0.014646	-3.21E-05	-7.19E-07	7.16E-06
3	-6.654	-1.59E-06	-0.000444	1.85E-06	-4.09E-06	7.06E-06
4	-6.653	0.010395	-0.016000	3.60E-05	-2.85E-07	7.16E-06
5	-6.653	0.018532	-0.029105	5.82E-05	1.51E-06	7.49E-06
6	-6.657	-0.018533	-3.95E-97	-5.39E-05	1.91E-06	7.49E-06
7	-6.657	-0.010398	-0.001395	-3.21E-05	-7.19E-07	7.16E-06
8	-6.657	-1.59E-06	0.000482	1.85E-06	-4.09E-06	7.06E-06
9	-6.657	0.010395	0.002008	3.60E-05	-2.85E-07	7.16E-06
10	-6.657	0.018532	4.14E-97	5.82E-05	2.51E-06	7.50E-06
11	-6.666	-0.018357	-0.078384	-5.90E-05	-3.02E-05	7.40E-06
12	-6.666	-0.010341	-0.044333	-3.40E-05	-3.05E-05	7.15E-06
13	-6.666	-1.49E-06	0.002825	1.73E-06	-3.20E-05	7.11E-06
14	-6.667	0.010338	0.049918	3.76E-05	-3.08E-05	7.15E-06
15	-6.667	0.018394	0.083881	6.29E-05	-3.01E-05	7.40E-06
16	-6.676	-0.018020	-0.160357	-6.04E-05	-6.30E-05	7.14E-06
17	-6.676	-0.010174	-0.089811	-3.56E-05	-6.30E-05	7.01E-06
18	-6.676	-1.38E-06	0.004875	1.40E-06	-6.33E-05	7.02E-06
19	-6.676	0.010171	0.095686	3.65E-05	-6.32E-05	7.01E-06
20	-6.676	0.018017	0.170451	6.35E-05	-6.32E-05	7.14E-06
21	-6.685	-0.017445	-0.243800	-6.13E-05	-9.55E-05	6.86E-06
22	-6.685	-0.009877	-0.136877	-3.64E-05	-9.55E-05	6.77E-06
23	-6.685	-1.32E-06	0.006382	9.02E-07	-9.56E-05	6.79E-06
24	-6.685	0.009874	0.149849	3.93E-05	-9.57E-05	6.77E-06
25	-6.685	0.017442	0.257115	6.32E-05	-9.58E-05	6.86E-06
26	-6.694	-0.016699	-0.328103	-6.18E-05	-0.000128	6.54E-06
27	-6.694	-0.009471	-0.184819	-3.69E-05	-0.000128	6.46E-06

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-6.694	-1.30E-06	0.007183	3.27E-07	-0.000128	6.48E-06
29	-6.694	0.009466	0.199421	3.76E-05	-0.000128	6.46E-06
30	-6.694	0.016696	0.343096	6.24E-05	-0.000128	6.54E-06
31	-6.702	-0.015809	-0.412739	-6.18E-05	-0.000160	6.17E-06
32	-6.702	-0.008981	-0.233267	-3.72E-05	-0.000160	6.10E-06
33	-6.702	-1.29E-06	0.007238	-2.31E-07	-0.000160	6.12E-06
34	-6.702	0.008978	0.247989	3.67E-05	-0.000161	6.10E-06
35	-6.702	0.015806	0.427869	6.14E-05	-0.000161	6.17E-06
36	-6.710	-0.014805	-0.497063	-6.13E-05	-0.000192	5.75E-06
37	-6.710	-0.008425	-0.281822	-3.71E-05	-0.000192	5.70E-06
38	-6.710	-1.27E-06	0.006630	-6.81E-07	-0.000192	5.71E-06
39	-6.710	0.008422	0.295340	3.57E-05	-0.000193	5.70E-06
40	-6.710	0.014803	0.511011	6.00E-05	-0.000193	5.75E-06
41	-6.717	-0.013719	-0.579960	-5.96E-05	-0.000223	5.30E-06
42	-6.717	-0.007819	-0.329813	-3.63E-05	-0.000223	5.27E-06
43	-6.717	-1.26E-06	0.005550	-9.40E-07	-0.000224	5.28E-06
44	-6.717	0.007817	0.341213	3.44E-05	-0.000224	5.27E-06
45	-6.717	0.013716	0.591859	5.79E-05	-0.000224	5.30E-06
46	-6.724	-0.012582	-0.659056	-5.54E-05	-0.000253	4.84E-06
47	-6.724	-0.007176	-0.376060	-3.43E-05	-0.000253	4.82E-06
48	-6.724	-1.35E-06	0.004299	-9.30E-07	-0.000254	4.81E-06
49	-6.724	0.007174	0.385093	3.26E-05	-0.000253	4.82E-06
50	-6.724	0.012580	0.668746	5.39E-05	-0.000253	4.84E-06
51	-6.730	-0.011431	-0.729023	-4.58E-05	-0.000277	4.41E-06
52	-6.730	-0.006504	-0.418531	-2.99E-05	-0.000278	4.39E-06
53	-6.730	-1.64E-06	0.003277	-5.62E-07	-0.000283	4.29E-06
54	-6.730	0.006502	0.425773	2.91E-05	-0.000279	4.39E-06
55	-6.730	0.011429	0.737272	4.52E-05	-0.000278	4.41E-06
56	-6.735	-0.010273	-0.780684	-2.93E-05	-0.000293	4.02E-06
57	-6.735	-0.005832	-0.451527	-1.80E-05	-0.000295	3.96E-06
58	-6.735	-2.01E-06	0.003085	4.26E-07	-0.000316	3.95E-06
59	-6.735	0.005828	0.458725	1.89E-05	-0.000296	3.96E-06
60	-6.735	0.010273	0.785146	3.02E-05	-0.000294	4.03E-06
61	-6.742	-0.008525	-0.817406	-1.08E-05	-0.000312	3.42E-06
62	-6.742	-0.004886	-0.476707	-4.42E-06	-0.000313	3.32E-06
63	-6.742	-1.23E-06	0.005063	1.64E-06	-0.000316	3.39E-06
64	-6.742	0.004884	0.478344	7.44E-06	-0.000314	3.32E-06
65	-6.742	0.008623	0.829060	1.36E-05	-0.000313	3.42E-06
66	-6.747	-0.006714	-0.829054	-2.74E-06	-0.000319	2.68E-06
67	-6.747	-0.003788	-0.471430	-7.32E-07	-0.000319	2.59E-06
68	-6.747	-7.29E-07	0.008147	1.87E-06	-0.000320	2.60E-06
69	-6.747	0.003787	0.488065	4.40E-06	-0.000320	2.59E-06
70	-6.747	0.006712	0.846252	8.30E-06	-0.000320	2.68E-06
71	-6.751	-0.004590	-0.831749	-3.45E-07	-0.000322	1.83E-06
72	-6.751	-0.002588	-0.471515	4.06E-07	-0.000322	1.77E-06
73	-6.751	-4.71E-07	0.011133	1.56E-06	-0.000322	1.78E-06
74	-6.751	0.002587	0.494044	2.69E-06	-0.000322	1.77E-06
75	-6.751	0.004589	0.854715	3.42E-06	-0.000322	1.83E-06
76	-6.753	-0.002328	-0.831989	1.35E-07	-0.000323	9.30E-07
77	-6.753	-0.001313	-0.470729	4.22E-07	-0.000323	9.00E-07
78	-6.753	-2.43E-07	0.013243	8.75E-07	-0.000323	9.02E-07
79	-6.753	0.001312	0.497461	1.32E-06	-0.000323	8.99E-07

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-6.753	0.002328	0.859129	1.61E-06	-0.000323	9.30E-07
81	-6.754	-2.46E-11	-0.831895	-5.18E-16	-0.000323	9.00E-19
82	-6.754	-1.45E-11	-0.470347	-3.19E-16	-0.000323	9.00E-19
83	-6.754	-9.92E-13	0.014000	7.67E-18	-0.000323	9.00E-19
84	-6.754	1.25E-11	0.498591	3.34E-16	-0.000323	9.00E-19
85	-6.754	2.26E-11	0.860544	5.31E-16	-0.000323	9.00E-19
86	-6.753	0.002329	-0.831985	-1.35E-07	-0.000323	-9.30E-07
87	-6.753	0.001313	-0.470726	-4.22E-07	-0.000323	-9.00E-07
88	-6.753	2.43E-07	0.013243	-8.75E-07	-0.000323	-9.02E-07
89	-6.753	-0.001312	0.497461	-1.32E-06	-0.000323	-8.99E-07
90	-6.753	-0.002328	0.859129	-1.61E-06	-0.000323	-9.30E-07
91	-6.751	0.004590	-0.831749	3.45E-07	-0.000322	-1.83E-06
92	-6.751	0.002588	-0.471515	-4.06E-07	-0.000322	-1.77E-06
93	-6.751	4.71E-07	0.011133	-1.56E-06	-0.000322	-1.78E-06
94	-6.751	-0.002587	0.494044	-2.69E-06	-0.000322	-1.77E-06
95	-6.751	-0.004589	0.854715	-3.42E-06	-0.000322	-1.83E-06
96	-6.747	0.006714	-0.829054	2.74E-06	-0.000319	-2.68E-06
97	-6.747	0.003788	-0.471430	7.32E-07	-0.000319	-2.59E-06
98	-6.747	7.29E-07	0.008147	-1.87E-06	-0.000320	-2.60E-06
99	-6.747	-0.003787	0.488065	-4.40E-06	-0.000320	-2.59E-06
100	-6.747	-0.006712	0.846252	-6.30E-06	-0.000320	-2.68E-06
101	-6.742	0.002625	-0.817406	1.08E-05	-0.000312	-3.42E-06
102	-6.742	0.004884	-0.476707	4.42E-06	-0.000313	-3.32E-06
103	-6.742	1.23E-06	0.005063	-1.64E-06	-0.000316	-3.39E-06
104	-6.742	-0.004884	0.478344	-7.44E-06	-0.000314	-3.32E-06
105	-6.742	-0.008623	0.829060	-1.36E-05	-0.000313	-3.42E-06
106	-6.735	0.010273	-0.780684	2.93E-05	-0.000293	-4.02E-06
107	-6.735	0.005832	-0.451527	1.80E-05	-0.000295	-3.96E-06
108	-6.735	2.01E-06	0.003085	-4.26E-07	-0.000316	-3.95E-06
109	-6.735	-0.005828	0.458725	-1.89E-05	-0.000296	-3.96E-06
110	-6.735	-0.010273	0.785146	-3.02E-05	-0.000294	-4.03E-06
111	-6.730	0.011431	-0.729023	4.58E-05	-0.000277	-4.41E-06
112	-6.730	0.006504	-0.418531	2.99E-05	-0.000278	-4.39E-06
113	-6.730	1.64E-06	0.003277	5.62E-07	-0.000283	-4.29E-06
114	-6.730	-0.006502	0.425773	-2.91E-05	-0.000279	-4.39E-06
115	-6.730	-0.011429	0.737272	-4.52E-05	-0.000278	-4.41E-06
116	-6.724	0.012582	-0.659056	5.54E-05	-0.000253	-4.84E-06
117	-6.724	0.007176	-0.376060	3.43E-05	-0.000253	-4.82E-06
118	-6.724	1.35E-06	0.004299	9.30E-07	-0.000254	-4.81E-06
119	-6.724	-0.007174	0.385093	-3.26E-05	-0.000253	-4.82E-06
120	-6.724	-0.012580	0.668746	-5.39E-05	-0.000253	-4.84E-06
121	-6.717	0.013719	-0.579960	5.96E-05	-0.000223	-5.30E-06
122	-6.717	0.007819	-0.329813	3.63E-05	-0.000223	-5.27E-06
123	-6.717	1.26E-06	0.005550	9.40E-07	-0.000224	-5.28E-06
124	-6.717	-0.007817	0.341213	-3.44E-05	-0.000224	-5.27E-06
125	-6.717	-0.013716	0.591859	-5.79E-05	-0.000224	-5.30E-06
126	-6.710	0.014805	-0.497063	6.13E-05	-0.000192	-5.75E-06
127	-6.710	0.008425	-0.281822	3.71E-05	-0.000192	-5.70E-06
128	-6.710	1.27E-06	0.006630	6.81E-07	-0.000192	-5.71E-06
129	-6.710	-0.008422	0.295340	-3.57E-05	-0.000193	-5.70E-06
130	-6.710	-0.014803	0.511011	-6.00E-05	-0.000193	-5.75E-06
131	-6.702	0.015809	-0.412739	6.18E-05	-0.000160	-6.17E-06

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-6.702	0.008981	-0.233267	3.72E-05	-0.000160	-6.10E-06
133	-6.702	1.29E-06	0.007238	2.31E-07	-0.000160	-6.12E-06
134	-6.702	-0.008978	0.247989	-3.67E-05	-0.000161	-6.10E-06
135	-6.702	-0.015806	0.427869	-6.14E-05	-0.000161	-6.17E-06
136	-6.694	0.016699	-0.328103	6.18E-05	-0.000128	-6.54E-06
137	-6.694	0.009471	-0.184819	3.69E-05	-0.000128	-6.46E-06
138	-6.694	1.30E-06	0.007183	-3.27E-07	-0.000128	-6.48E-06
139	-6.694	-0.009466	0.199421	-3.76E-05	-0.000128	-6.46E-06
140	-6.694	-0.016696	0.343096	-6.24E-05	-0.000128	-6.54E-06
141	-6.685	0.017445	-0.243800	6.13E-05	-9.55E-05	-6.86E-06
142	-6.685	0.009877	-0.136877	3.64E-05	-9.55E-05	-6.77E-06
143	-6.685	1.32E-06	0.006382	-9.02E-07	-9.56E-05	-6.79E-06
144	-6.685	-0.009874	0.149849	-3.93E-05	-9.57E-05	-6.77E-06
145	-6.685	-0.017442	0.257115	-6.32E-05	-9.58E-05	-6.86E-06
146	-6.676	0.018020	-0.160357	6.04E-05	-6.30E-05	-7.14E-06
147	-6.676	0.010174	-0.089811	3.56E-05	-6.30E-05	-7.01E-06
148	-6.676	1.38E-06	0.004875	-1.40E-06	-6.33E-05	-7.02E-06
149	-6.676	-0.010171	0.095686	-3.65E-05	-6.32E-05	-7.01E-06
150	-6.676	-0.018017	0.170451	-6.35E-05	-6.32E-05	-7.14E-06
151	-6.666	0.018357	-0.078384	5.90E-05	-3.02E-05	-7.40E-06
152	-6.666	0.010341	-0.044333	3.40E-05	-3.05E-05	-7.15E-06
153	-6.666	1.49E-06	0.002825	-1.73E-06	-3.20E-05	-7.11E-06
154	-6.667	-0.010338	0.049918	-3.76E-05	-3.08E-05	-7.15E-06
155	-6.667	-0.018394	0.083881	-6.29E-05	-3.01E-05	-7.40E-06
156	-6.657	0.018533	-3.95E-97	5.39E-05	1.91E-06	-7.49E-06
157	-6.657	0.010398	-0.001395	3.21E-05	-7.19E-07	-7.16E-06
158	-6.657	1.55E-06	0.000483	-1.85E-06	-4.09E-06	-7.06E-06
159	-6.657	-0.010395	0.002008	-3.60E-05	-2.85E-07	-7.16E-06
160	-6.657	-0.018532	4.14E-97	-5.82E-05	2.51E-06	-7.50E-06
161	-6.653	0.018533	0.026975	5.39E-05	1.91E-06	-7.49E-06
162	-6.653	0.010398	0.014646	3.21E-05	-7.19E-07	-7.16E-06
163	-6.654	1.59E-06	-0.000444	-1.85E-06	-4.09E-06	-7.06E-06
164	-6.653	-0.010395	-0.016000	-3.60E-05	-2.85E-07	-7.16E-06
165	-6.653	-0.018532	-0.029105	-5.82E-05	2.51E-06	-7.49E-06
166	-5.24E-97	-0	6.04E-98	+0	-3.27E-99	+0
167	-5.24E-97	+0	6.04E-98	+0	-3.27E-99	-0
min:	-6.754	-0.018533	-0.831989	-6.35E-05	-0.000323	-7.50E-06
max:	-5.24E-97	0.018533	0.860544	6.35E-05	2.51E-06	7.50E-06

Loadcase Factor Stage Init.def Title
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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	3.976	0.010057	10.805			
10	3.976	-0.010056	-11.366			
156	3.976	-0.010057	10.805			
160	3.976	0.010056	-11.366			
166	11.245	-0.006521	-1.766	0.030443	79.020	-0.094356
167	11.245	0.006521	-1.766	-0.030443	79.020	0.094356
Sums :	38.395	7.08E-12	-4.654			
min:	3.976	-0.010057	-11.366	-0.030443	79.020	-0.094356
max:	11.245	0.010057	10.805	0.030443	79.020	0.094356

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	-17.278	-0.043724	0.073702	-0.000147	5.17E-06	1.78E-05
2	-17.280	-0.024489	0.039996	-8.75E-05	-2.01E-06	1.69E-05
3	-17.280	-4.64E-06	-0.001295	5.42E-06	-1.12E-05	1.67E-05
4	-17.280	0.024480	-0.043955	9.90E-05	-7.41E-07	1.69E-05
5	-17.279	0.043720	-0.079530	0.000160	6.93E-06	1.78E-05
6	-17.267	-0.043724	-1.08E-96	-0.000147	5.17E-06	1.76E-05
7	-17.288	-0.024485	-0.003766	-8.75E-05	-2.01E-06	1.65E-05
8	-17.288	-4.64E-06	0.001411	5.42E-06	-1.12E-05	1.67E-05
9	-17.288	0.024480	0.005559	9.90E-05	-7.41E-07	1.65E-05
10	-17.288	0.043720	1.14E-96	0.000160	6.93E-06	1.78E-05
11	-17.310	-0.043373	-0.214224	-0.000161	-8.27E-05	1.75E-05
12	-17.311	-0.024344	-0.120932	-9.27E-05	-8.46E-05	1.69E-05
13	-17.311	-4.36E-06	0.008257	5.05E-06	-8.76E-05	1.68E-05
14	-17.311	0.024336	0.137259	0.000103	-8.43E-05	1.65E-05
15	-17.311	0.043367	0.230291	0.000172	-8.24E-05	1.75E-05
16	-17.333	-0.042412	-0.438312	-0.000165	-0.000172	1.68E-05
17	-17.333	-0.023925	-0.245094	-9.71E-05	-0.000173	1.65E-05
18	-17.333	-4.02E-06	0.014249	4.09E-06	-0.000173	1.65E-05
19	-17.333	0.023918	0.273960	0.000106	-0.000173	1.65E-05
20	-17.333	0.042404	0.467818	0.000174	-0.000173	1.68E-05
21	-17.354	-0.040957	-0.666482	-0.000166	-0.000261	1.61E-05
22	-17.354	-0.021182	-0.373674	-9.95E-05	-0.000261	1.59E-05
23	-17.354	-3.86E-06	0.018654	2.64E-06	-0.000262	1.59E-05
24	-17.355	0.023175	0.411593	0.000105	-0.000262	1.59E-05
25	-17.355	0.040950	0.705414	0.000173	-0.000262	1.61E-05
26	-17.375	-0.039093	-0.897062	-0.000169	-0.000350	1.53E-05
27	-17.375	-0.022177	-0.504742	-0.000101	-0.000350	1.51E-05

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-17.375	-3.80E-06	0.020996	9.56E-07	-0.000351	1.52E-05
29	-17.375	0.022170	0.547425	0.000103	-0.000351	1.51E-05
30	-17.376	0.039086	0.940894	0.000171	-0.000351	1.53E-05
31	-17.394	-0.036900	-1.129	-0.000169	-0.000439	1.44E-05
32	-17.394	-0.020977	-0.637285	-0.000102	-0.000439	1.42E-05
33	-17.394	-3.76E-06	0.021159	-6.74E-07	-0.000439	1.43E-05
34	-17.395	0.020969	0.680320	0.000100	-0.000440	1.42E-05
35	-17.395	0.036892	1.173	0.000168	-0.000440	1.44E-05
36	-17.412	-0.034463	-1.359	-0.000168	-0.000526	1.33E-05
37	-17.412	-0.019637	-0.770197	-0.000102	-0.000526	1.32E-05
38	-17.412	-3.70E-06	0.019379	-1.99E-06	-0.000527	1.33E-05
39	-17.413	0.019629	0.809712	9.76E-05	-0.000527	1.32E-05
40	-17.413	0.034455	1.400	0.000164	-0.000527	1.33E-05
41	-17.429	-0.031875	-1.586	-0.000163	-0.000611	1.22E-05
42	-17.429	-0.018202	-0.901608	-9.93E-05	-0.000611	1.22E-05
43	-17.429	-3.68E-06	0.016225	-2.75E-06	-0.000612	1.22E-05
44	-17.429	0.018195	0.934933	9.40E-05	-0.000612	1.22E-05
45	-17.430	0.031867	1.621	0.000158	-0.000613	1.22E-05
46	-17.444	-0.029234	-1.803	-0.000152	-0.000691	1.12E-05
47	-17.444	-0.016707	-1.028	-9.39E-05	-0.000692	1.12E-05
48	-17.444	-3.94E-06	0.012566	-2.72E-06	-0.000695	1.11E-05
49	-17.445	0.016699	1.055	8.89E-05	-0.000693	1.12E-05
50	-17.445	0.029226	1.831	0.000147	-0.000693	1.12E-05
51	-17.458	-0.026642	-1.994	-0.000125	-0.000757	1.02E-05
52	-17.458	-0.015173	-1.144	-8.19E-05	-0.000762	1.02E-05
53	-17.458	-4.78E-06	0.009580	-1.64E-06	-0.000775	9.87E-06
54	-17.458	0.015165	1.166	7.94E-05	-0.000764	1.02E-05
55	-17.459	0.026634	2.016	0.000124	-0.000760	1.02E-05
56	-17.471	-0.024118	-2.135	-8.01E-05	-0.000802	9.45E-06
57	-17.471	-0.013684	-1.235	-4.91E-05	-0.000807	9.29E-06
58	-17.470	-5.87E-06	0.009018	1.25E-06	-0.000866	9.26E-06
59	-17.471	0.013674	1.256	5.18E-05	-0.000810	9.29E-06
60	-17.472	0.024118	2.160	8.28E-05	-0.000806	9.47E-06
61	-17.488	-0.020482	-2.236	-2.95E-05	-0.000853	8.17E-06
62	-17.488	-0.011586	-1.279	-1.20E-05	-0.000857	7.89E-06
63	-17.466	-3.82E-06	0.014799	-4.76E-06	-0.000866	8.12E-06
64	-17.487	0.011580	1.310	2.08E-05	-0.000859	7.89E-06
65	-17.487	0.020476	2.270	3.77E-05	-0.000856	8.17E-06
66	-17.499	-0.016081	-2.267	-7.37E-06	-0.000874	6.48E-06
67	-17.499	-0.009044	-1.289	-1.79E-06	-0.000874	6.23E-06
68	-17.499	-2.13E-06	0.023815	5.47E-06	-0.000875	6.26E-06
69	-17.499	0.009041	1.337	1.25E-05	-0.000875	6.23E-06
70	-17.500	0.016075	2.342	1.78E-05	-0.000875	6.48E-06
71	-17.508	-0.011055	-2.275	-8.06E-07	-0.000880	4.46E-06
72	-17.508	-0.006213	-1.289	1.31E-06	-0.000880	4.28E-06
73	-17.509	-1.38E-06	0.032541	4.56E-06	-0.000881	4.29E-06
74	-17.508	0.006210	1.354	7.75E-06	-0.000881	4.28E-06
75	-17.509	0.011052	2.342	9.79E-06	-0.000882	4.46E-06
76	-17.514	-0.005627	-2.275	4.56E-07	-0.000883	2.27E-06
77	-17.514	-0.003163	-1.286	1.27E-06	-0.000883	2.12E-06
78	-17.514	-7.10E-07	0.038710	2.56E-06	-0.000883	2.18E-06
79	-17.515	0.003162	1.364	3.83E-06	-0.000884	2.18E-06

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-17.515	0.005625	2.354	4.63E-06	-0.000884	2.27E-06
81	-17.516	-6.38E-11	-2.275	-1.34E-15	-0.000884	2.34E-14
82	-17.516	-3.77E-11	-1.285	-8.28E-16	-0.000884	2.34E-14
83	-17.516	-2.59E-12	0.040924	2.00E-17	-0.000884	2.34E-14
84	-17.517	3.25E-11	1.368	8.66E-16	-0.000885	2.34E-14
85	-17.517	5.87E-11	2.358	1.38E-15	-0.000885	2.34E-14
86	-17.514	0.005627	-2.275	-4.56E-07	-0.000883	-2.27E-06
87	-17.514	0.003163	-1.286	-1.27E-06	-0.000883	-2.18E-06
88	-17.514	7.10E-07	0.038710	-2.56E-06	-0.000883	-2.18E-06
89	-17.515	-0.003162	1.364	-3.83E-06	-0.000884	-2.18E-06
90	-17.515	-0.005625	2.354	-4.63E-06	-0.000884	-2.27E-06
91	-17.508	0.011055	-2.275	8.06E-07	-0.000880	-4.46E-06
92	-17.508	0.006213	-1.289	-1.31E-06	-0.000880	-4.28E-06
93	-17.509	1.38E-06	0.032541	-4.56E-06	-0.000881	-4.29E-06
94	-17.509	-0.006210	1.354	-7.75E-06	-0.000881	-4.28E-06
95	-17.509	-0.011052	2.342	-9.79E-06	-0.000882	-4.46E-06
96	-17.499	0.016081	-2.267	7.37E-06	-0.000874	-6.48E-06
97	-17.499	0.009044	-1.289	1.79E-06	-0.000874	-6.23E-06
98	-17.499	2.13E-06	0.023815	-5.47E-06	-0.000875	-6.26E-06
99	-17.499	-0.009041	1.337	-1.25E-05	-0.000875	-6.23E-06
100	-17.500	-0.016075	2.342	-1.78E-05	-0.000875	-6.48E-06
101	-17.486	0.020482	-2.236	2.95E-05	-0.000853	-8.17E-06
102	-17.486	0.011586	-1.279	1.20E-05	-0.000857	-7.89E-06
103	-17.486	3.82E-06	0.014799	-4.76E-06	-0.000866	-8.12E-06
104	-17.487	-0.011580	1.310	-2.08E-05	-0.000859	-7.89E-06
105	-17.487	-0.020476	2.270	-3.77E-05	-0.000856	-8.17E-06
106	-17.471	0.024118	-2.135	8.01E-05	-0.000802	-9.45E-06
107	-17.471	0.013684	-1.235	4.91E-05	-0.000807	-9.29E-06
108	-17.470	5.87E-06	0.009018	-1.25E-06	-0.000866	-9.26E-06
109	-17.471	-0.013674	1.256	-5.18E-05	-0.000810	-9.29E-06
110	-17.472	-0.024118	2.160	-8.28E-05	-0.000806	-9.47E-06
111	-17.458	0.026642	-1.994	0.000125	-0.000757	-1.02E-05
112	-17.458	0.015173	-1.144	8.19E-05	-0.000762	-1.02E-05
113	-17.458	4.78E-06	0.009580	1.64E-06	-0.000775	-9.87E-06
114	-17.458	-0.015165	1.166	-7.94E-05	-0.000764	-1.02E-05
115	-17.459	-0.026634	2.016	-0.000124	-0.000760	-1.02E-05
116	-17.444	0.029234	-1.803	0.000152	-0.000691	-1.12E-05
117	-17.444	0.016707	-1.028	9.39E-05	-0.000692	-1.12E-05
118	-17.444	3.94E-06	0.012566	2.72E-06	-0.000695	-1.11E-05
119	-17.445	-0.016699	1.055	-8.89E-05	-0.000693	-1.12E-05
120	-17.445	-0.029226	1.831	-0.000147	-0.000693	-1.12E-05
121	-17.429	0.031875	-1.586	0.000163	-0.000611	-1.22E-05
122	-17.429	0.018202	-0.901608	9.93E-05	-0.000611	-1.22E-05
123	-17.429	3.68E-06	0.016225	2.75E-06	-0.000612	-1.22E-05
124	-17.429	-0.018195	0.934933	-9.40E-05	-0.000612	-1.22E-05
125	-17.430	-0.031867	1.621	-0.000158	-0.000613	-1.22E-05
126	-17.412	0.034463	-1.359	0.000168	-0.000526	-1.33E-05
127	-17.412	0.019637	-0.770197	0.000102	-0.000526	-1.32E-05
128	-17.412	3.70E-06	0.019379	1.99E-06	-0.000527	-1.33E-05
129	-17.413	-0.019629	0.809712	-9.76E-05	-0.000527	-1.32E-05
130	-17.413	-0.034455	1.400	-0.000164	-0.000527	-1.33E-05
131	-17.394	0.036900	-1.129	0.000169	-0.000439	-1.44E-05

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-17.394	0.020977	-0.637285	0.000102	-0.000439	-1.42E-05
133	-17.394	3.76E-06	0.021158	6.74E-07	-0.000439	-1.43E-05
134	-17.395	-0.020969	0.680320	-0.000100	-0.000440	-1.42E-05
135	-17.395	-0.036892	1.173	-0.000168	-0.000440	-1.44E-05
136	-17.375	0.039093	-0.897068	0.000169	-0.000350	-1.53E-05
137	-17.375	0.022177	-0.504742	0.000101	-0.000350	-1.51E-05
138	-17.375	3.80E-06	0.020996	-9.56E-07	-0.000351	-1.52E-05
139	-17.375	-0.022170	0.547425	-0.000103	-0.000351	-1.51E-05
140	-17.376	-0.039086	0.940894	-0.000171	-0.000351	-1.53E-05
141	-17.354	0.040957	-0.666482	0.000166	-0.000261	-1.61E-05
142	-17.354	0.021182	-0.373674	9.95E-05	-0.000261	-1.59E-05
143	-17.354	3.86E-06	0.018654	-2.64E-06	-0.000262	-1.59E-05
144	-17.355	-0.023175	0.411593	-0.000105	-0.000262	-1.59E-05
145	-17.355	-0.040950	0.705414	-0.000173	-0.000262	-1.61E-05
146	-17.333	0.042412	-0.438312	0.000165	-0.000172	-1.68E-05
147	-17.333	0.023925	-0.245094	9.71E-05	-0.000173	-1.65E-05
148	-17.333	4.02E-06	0.014249	-4.09E-06	-0.000173	-1.65E-05
149	-17.333	-0.023918	0.273960	-0.000106	-0.000173	-1.65E-05
150	-17.333	-0.042404	0.467818	-0.000174	-0.000173	-1.68E-05
151	-17.310	0.043373	-0.214224	0.000161	-8.27E-05	-1.75E-05
152	-17.311	0.024344	-0.120932	9.27E-05	-8.46E-05	-1.69E-05
153	-17.311	4.36E-06	0.008257	-5.05E-06	-8.76E-05	-1.68E-05
154	-17.311	-0.024336	0.137259	-0.000103	-8.43E-05	-1.69E-05
155	-17.311	-0.043367	0.230291	-0.000173	-8.24E-05	-1.75E-05
156	-17.287	0.043724	-1.08E-96	0.000147	5.17E-06	-1.78E-05
157	-17.288	0.024485	-0.003766	8.75E-05	-2.01E-06	-1.69E-05
158	-17.288	4.64E-06	0.001411	-5.42E-06	-1.12E-05	-1.67E-05
159	-17.288	-0.024480	0.005559	-9.90E-05	-7.41E-07	-1.69E-05
160	-17.288	-0.043720	1.14E-96	-0.000160	6.93E-06	-1.78E-05
161	-17.279	0.043720	0.073702	0.000147	5.17E-06	-1.78E-05
162	-17.280	0.024489	0.039996	8.75E-05	-2.01E-06	-1.69E-05
163	-17.280	4.64E-06	-0.001295	-5.42E-06	-1.12E-05	-1.67E-05
164	-17.280	-0.024480	-0.043955	-9.90E-05	-7.41E-07	-1.69E-05
165	-17.279	-0.043720	-0.079930	-0.000160	6.93E-06	-1.78E-05
166	-1.12E-96	0	1.77E-97	0	-7.90E-99	0
167	-1.12E-96	0	1.77E-97	0	-7.90E-99	0
min:	-17.517	-0.043724	-2.275	-0.000174	-0.000885	-1.78E-05
max:	-1.12E-96	0.043724	2.358	0.000174	6.93E-06	1.78E-05

Loadcase Factor Stage Init.def Title
64 1.0000 TEMPERATURA (-)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-7.09E-05	-1.795	-0.368725			
10	7.09E-05	-1.795	-0.368725			
156	-7.09E-05	1.795	-0.368725			
160	7.09E-05	1.795	-0.368725			
166	3.69E-12	-2.300	0.737445	15.841	-3.18E-11	-2.79E-10
167	5.11E-12	2.300	0.737445	-15.841	-2.18E-11	2.76E-10
Sums :	-2.06E-12	1.30E-11	-1.43E-12			
min:	-7.09E-05	-2.300	-0.368725	-15.841	-3.18E-11	-2.79E-10
max:	7.09E-05	2.300	0.737449	15.841	-2.18E-11	2.76E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	0.000542	7.988	-0.011551	2.31E-05	-1.90E-06	4.69E-07
2	0.000455	7.989	-0.005281	2.25E-05	1.41E-06	4.53E-07
3	1.22E-11	7.989	-0.007920	2.20E-05	8.16E-17	-1.57E-14
4	-0.000459	7.989	-0.005281	2.25E-05	1.41E-06	-4.53E-07
5	-0.000543	7.988	-0.011551	2.31E-05	1.90E-06	-4.69E-07
6	0.000308	7.806	3.69E-98	2.31E-05	-1.90E-06	4.69E-07
7	0.000233	7.807	0.001954	2.25E-05	-1.41E-06	4.53E-07
8	2.01E-11	7.807	0.003097	2.20E-05	8.16E-17	-1.57E-14
9	-0.000233	7.807	0.001954	2.25E-05	1.41E-06	-4.53E-07
10	-0.000308	7.806	3.69E-98	2.31E-05	1.90E-06	-4.69E-07
11	-4.98E-05	7.334	0.029677	2.21E-05	-9.09E-07	1.62E-07
12	-4.25E-05	7.335	0.030824	2.15E-05	-7.28E-07	1.61E-07
13	4.28E-11	7.335	0.031415	2.14E-05	-2.02E-15	-1.61E-14
14	4.25E-05	7.335	0.030824	2.15E-05	7.28E-07	-1.61E-07
15	4.98E-05	7.334	0.029677	2.21E-05	9.09E-07	-1.62E-07
16	-0.000111	6.862	0.057573	2.00E-05	-3.37E-07	3.58E-08
17	-8.04E-05	6.863	0.057927	1.97E-05	-2.81E-07	3.42E-08
18	6.53E-11	6.863	0.058152	1.95E-05	-1.93E-16	-1.51E-14
19	8.04E-05	6.863	0.057927	1.97E-05	2.81E-07	-3.42E-08
20	0.000111	6.862	0.057573	2.00E-05	3.37E-07	-3.98E-09
21	-7.19E-05	6.390	0.081346	1.64E-05	-1.04E-07	-2.97E-08
22	-5.23E-05	6.390	0.081455	1.63E-05	8.74E-08	4.99E-09
23	8.53E-11	6.390	0.081521	1.62E-05	3.16E-15	-1.27E-14
24	5.23E-05	6.390	0.081455	1.63E-05	8.74E-08	4.99E-09
25	7.19E-05	6.390	0.081346	1.64E-05	1.04E-07	2.97E-08
26	-3.15E-05	5.918	0.099578	1.15E-05	-3.87E-08	-2.13E-08
27	-2.36E-05	5.918	0.099619	1.15E-05	-3.30E-08	-9.58E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	1.02E-10	5.918	0.099641	1.14E-05	5.37E-15	-9.46E-10
29	2.36E-05	5.918	0.099619	1.15E-05	3.30E-08	9.58E-09
30	3.15E-05	5.918	0.099578	1.15E-05	3.87E-08	2.13E-08
31	-1.13E-05	5.446	0.110544	5.18E-06	-8.58E-08	-8.00E-09
32	-8.90E-06	5.446	0.110634	5.26E-06	-7.26E-08	-4.92E-09
33	1.13E-10	5.446	0.110686	5.32E-06	6.13E-15	-5.30E-15
34	8.90E-06	5.446	0.110634	5.26E-06	7.26E-08	4.92E-09
35	1.13E-05	5.446	0.110544	5.18E-06	8.58E-08	8.00E-09
36	-7.91E-06	4.974	0.112378	-2.58E-06	-3.21E-07	1.63E-05
37	-6.27E-06	4.974	0.112714	-2.30E-06	-2.65E-07	-3.22E-10
38	1.19E-10	4.974	0.112916	-2.11E-06	6.15E-15	3.49E-16
39	6.27E-06	4.974	0.112714	-2.30E-06	2.65E-07	3.22E-10
40	7.91E-06	4.974	0.112378	-2.58E-06	3.21E-07	-1.63E-05
41	-1.55E-05	4.502	0.103041	-1.20E-05	-9.86E-07	6.95E-09
42	-1.18E-05	4.502	0.104070	-1.13E-05	-7.96E-07	1.00E-09
43	1.16E-10	4.502	0.104694	-1.08E-05	5.67E-15	8.11E-15
44	1.18E-05	4.502	0.104070	-1.13E-05	7.96E-07	-1.00E-09
45	1.55E-05	4.502	0.103041	-1.20E-05	9.86E-07	-6.95E-09
46	-2.73E-05	4.030	0.080449	-2.27E-05	-2.25E-06	3.65E-09
47	-2.19E-05	4.030	0.082845	-2.17E-05	-1.90E-06	-4.88E-09
48	9.92E-11	4.030	0.084503	-2.06E-05	5.04E-15	1.75E-14
49	2.19E-05	4.030	0.082845	-2.17E-05	1.90E-06	4.88E-09
50	2.73E-05	4.030	0.080449	-2.27E-05	2.25E-06	-3.65E-09
51	-2.73E-05	3.558	0.043644	-3.33E-05	-2.85E-06	-1.77E-08
52	-2.80E-05	3.558	0.046942	-3.38E-05	-3.08E-06	-2.91E-08
53	6.77E-11	3.558	0.050485	-3.24E-05	4.65E-15	2.56E-14
54	2.80E-05	3.558	0.046942	-3.38E-05	3.08E-06	2.91E-08
55	2.73E-05	3.558	0.043644	-3.33E-05	2.85E-06	1.77E-08
56	4.27E-06	3.086	-0.004522	-4.04E-05	-5.24E-07	-4.40E-08
57	6.92E-06	3.086	-0.003992	-4.32E-05	-3.70E-07	-1.16E-07
58	2.59E-11	3.085	-0.001765	-5.32E-05	4.53E-15	2.74E-14
59	-6.92E-06	3.086	-0.003992	-4.32E-05	3.70E-07	1.16E-07
60	-4.27E-06	3.086	-0.004522	-4.04E-05	5.24E-07	4.40E-08
61	2.91E-05	2.469	-0.071635	-3.75E-05	2.49E-06	-1.40E-08
62	2.58E-05	2.469	-0.074445	-3.76E-05	2.51E-06	-2.82E-08
63	-3.74E-11	2.468	-0.077164	-3.60E-05	4.57E-15	2.68E-14
64	-2.58E-05	2.469	-0.074445	-3.76E-05	-2.51E-06	2.82E-08
65	-2.91E-05	2.469	-0.071635	-3.75E-05	-2.49E-06	1.40E-08
66	2.03E-05	1.851	-0.126511	-2.85E-05	1.29E-06	4.56E-09
67	1.52E-05	1.851	-0.125860	-2.78E-05	1.04E-06	-2.92E-09
68	-8.62E-11	1.851	-0.130700	-2.72E-05	3.97E-15	2.11E-14
69	-1.52E-05	1.851	-0.125860	-2.78E-05	-1.04E-06	2.92E-09
70	-2.03E-05	1.851	-0.126511	-2.85E-05	-1.29E-06	-4.56E-09
71	7.40E-06	1.234	-0.168257	-1.88E-05	3.35E-07	4.55E-09
72	5.43E-06	1.234	-0.169207	-1.85E-05	2.74E-07	1.53E-09
73	-1.16E-10	1.234	-0.169417	-1.83E-05	3.44E-15	1.32E-14
74	-5.43E-06	1.234	-0.169207	-1.85E-05	-2.74E-07	-1.53E-09
75	-7.40E-06	1.234	-0.168857	-1.88E-05	-3.35E-07	-4.55E-09
76	1.38E-06	0.617123	-0.192743	-9.31E-06	6.16E-08	1.77E-09
77	1.07E-06	0.617124	-0.192807	-9.26E-06	5.23E-08	1.02E-09
78	-1.32E-10	0.617125	-0.192845	-9.22E-06	3.25E-15	6.28E-15
79	-1.07E-06	0.617124	-0.192807	-9.26E-06	-5.23E-08	-1.02E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-1.38E-06	0.617123	-0.192743	-9.31E-06	-6.16E-08	-1.77E-09
81	-4.32E-08	-5.58E-12	-0.200660	-3.02E-17	1.37E-08	1.18E-16
82	2.38E-08	-5.45E-12	-0.200674	-2.76E-17	1.20E-08	1.18E-16
83	-1.37E-10	-5.27E-12	-0.200681	-2.33E-17	3.22E-15	1.18E-16
84	-2.41E-08	-5.09E-12	-0.200674	-1.88E-17	-1.20E-08	1.18E-16
85	4.30E-08	-4.96E-12	-0.200660	-1.59E-17	-1.37E-08	1.18E-16
86	1.38E-06	-0.617123	-0.192743	9.31E-06	6.16E-08	-1.77E-09
87	1.07E-06	-0.617124	-0.192807	9.26E-06	5.23E-08	-1.02E-09
88	-1.32E-10	-0.617125	-0.192845	9.22E-06	3.24E-15	-6.04E-15
89	-1.07E-06	-0.617124	-0.192807	9.26E-06	-5.23E-08	1.02E-09
90	-1.38E-06	-0.617123	-0.192743	9.31E-06	-6.16E-08	1.77E-09
91	7.40E-06	-1.234	-0.168857	1.88E-05	3.35E-07	-4.55E-09
92	5.43E-06	-1.234	-0.169207	1.85E-05	2.74E-07	-1.53E-09
93	-1.17E-10	-1.234	-0.165417	1.83E-05	3.42E-15	-1.29E-14
94	-5.43E-06	-1.234	-0.169207	1.85E-05	-2.74E-07	1.53E-09
95	-7.40E-06	-1.234	-0.168857	1.88E-05	-3.35E-07	4.55E-09
96	2.03E-05	-1.851	-0.126511	2.85E-05	1.29E-06	-4.56E-09
97	1.52E-05	-1.851	-0.129860	2.78E-05	1.04E-06	2.92E-09
98	-8.74E-11	-1.851	-0.130700	2.72E-05	3.94E-15	-2.08E-14
99	-1.52E-05	-1.851	-0.129860	2.78E-05	-1.04E-06	-2.92E-09
100	-2.03E-05	-1.851	-0.126511	2.85E-05	-1.29E-06	4.56E-09
101	2.91E-05	-2.469	-0.071635	3.75E-05	2.49E-06	1.40E-08
102	2.58E-05	-2.469	-0.074445	3.76E-05	2.51E-06	2.82E-08
103	-3.90E-11	-2.468	-0.077164	3.60E-05	4.53E-15	-2.66E-14
104	-2.58E-05	-2.469	-0.074445	3.76E-05	-2.51E-06	-2.82E-08
105	-2.91E-05	-2.469	-0.071635	3.75E-05	-2.49E-06	-1.40E-08
106	4.27E-06	-3.086	-0.004522	4.04E-05	-5.24E-07	4.40E-08
107	6.92E-06	-3.086	-0.003952	4.32E-05	-3.70E-07	1.16E-07
108	2.19E-11	-3.086	-0.003765	4.53E-15	-2.72E-14	-1.16E-07
109	-6.92E-06	-3.086	-0.003992	4.32E-05	3.70E-07	-1.16E-07
110	-4.27E-06	-3.086	-0.004522	4.04E-05	5.24E-07	-4.40E-08
111	-2.73E-05	-3.558	0.043644	3.33E-05	-2.85E-06	1.77E-08
112	-2.80E-05	-3.558	0.046942	3.38E-05	-3.08E-06	2.91E-08
113	6.53E-11	-3.558	0.050485	3.24E-05	4.60E-15	-2.53E-14
114	2.80E-06	-3.558	0.046942	3.38E-05	3.08E-06	2.91E-08
115	2.73E-05	-3.558	0.043644	3.33E-05	2.85E-06	1.77E-08
116	-2.73E-05	-4.030	0.080449	2.27E-05	-2.25E-06	-3.65E-09
117	-2.19E-05	-4.030	0.082845	2.17E-05	-1.90E-06	4.88E-09
118	9.66E-11	-4.030	0.084503	2.06E-05	5.00E-15	-1.72E-14
119	2.19E-05	-4.030	0.082845	2.17E-05	1.90E-06	-4.88E-09
120	2.73E-05	-4.030	0.080449	2.27E-05	2.25E-06	3.65E-09
121	-1.55E-05	-4.502	0.103041	1.20E-05	-5.86E-07	-6.95E-08
122	-1.18E-05	-4.502	0.104070	1.13E-05	-7.96E-07	-1.00E-09
123	1.13E-10	-4.502	0.104694	1.08E-05	5.64E-15	-7.86E-15
124	1.18E-05	-4.502	0.104070	1.13E-05	7.96E-07	1.00E-09
125	1.55E-05	-4.502	0.103041	1.20E-05	9.86E-07	6.95E-08
126	-7.91E-06	-4.974	0.112378	2.58E-06	-3.21E-07	-1.63E-09
127	-6.27E-06	-4.974	0.112714	2.30E-06	-2.65E-07	3.22E-10
128	1.16E-10	-4.974	0.112916	2.11E-06	6.11E-15	-9.80E-17
129	6.27E-06	-4.974	0.112714	2.30E-06	2.65E-07	-3.22E-10
130	7.91E-06	-4.974	0.112378	2.58E-06	3.21E-07	1.63E-09
131	-1.13E-05	-5.446	0.110544	-5.18E-06	-8.58E-08	8.00E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-8.90E-06	-5.446	0.110634	-5.26E-06	-7.26E-08	4.92E-09
133	1.10E-10	-5.446	0.110686	-5.32E-06	6.15E-15	5.55E-15
134	8.90E-06	-5.446	0.110634	-5.26E-06	7.26E-08	-4.92E-09
135	1.13E-05	-5.446	0.110544	-5.18E-06	8.58E-08	-8.00E-09
136	-3.15E-05	-5.918	0.099578	-1.15E-05	-3.87E-08	2.13E-08
137	-2.36E-05	-5.918	0.099619	-1.15E-05	-3.30E-08	9.58E-09
138	9.77E-11	-5.918	0.099641	-1.14E-05	5.35E-15	9.71E-15
139	2.36E-05	-5.918	0.099619	-1.15E-05	3.30E-08	-9.58E-09
140	3.15E-05	-5.918	0.099578	-1.15E-05	3.87E-08	-2.13E-08
141	-7.19E-05	-6.390	0.081346	-1.64E-05	-1.04E-07	2.97E-08
142	-5.23E-05	-6.390	0.081455	-1.63E-05	-8.74E-08	4.99E-09
143	8.10E-11	-6.390	0.081521	-1.62E-05	3.14E-15	1.29E-14
144	5.23E-05	-6.390	0.081455	-1.63E-05	8.74E-08	-4.99E-09
145	7.19E-05	-6.390	0.081346	-1.64E-05	1.04E-07	-2.97E-08
146	-0.000111	-6.862	0.057573	-2.00E-05	-3.37E-07	-3.98E-09
147	-8.04E-05	-6.863	0.057927	-1.97E-05	-2.81E-07	-3.42E-08
148	6.06E-11	-6.863	0.058152	-1.95E-05	-2.04E-16	1.54E-14
149	8.04E-05	-6.863	0.057927	-1.97E-05	2.81E-07	3.42E-08
150	0.000111	-6.862	0.057573	-2.00E-05	3.37E-07	3.98E-09
151	-4.98E-05	-7.334	0.029877	-2.23E-05	-9.09E-07	-1.62E-07
152	-4.25E-05	-7.335	0.030824	-2.18E-05	-7.28E-07	-1.61E-07
153	3.78E-11	-7.335	0.031415	-2.14E-05	-2.03E-15	1.64E-14
154	4.25E-05	-7.335	0.030824	-2.18E-05	7.28E-07	1.61E-07
155	4.98E-05	-7.334	0.029877	-2.23E-05	9.09E-07	1.62E-07
156	0.000308	-7.806	3.69E-98	-2.31E-05	-1.90E-06	-4.69E-07
157	0.000233	-7.807	0.001954	-2.25E-05	-1.41E-06	-4.53E-07
158	1.48E-11	-7.807	0.003097	-2.20E-05	8.08E-17	1.60E-14
159	-0.000233	-7.807	0.001954	-2.25E-05	1.41E-06	4.53E-07
160	-0.000308	-7.806	3.69E-98	-2.31E-05	1.90E-06	4.69E-07
161	0.000543	-7.988	-0.011551	-2.31E-05	-1.90E-06	-4.69E-07
162	0.000455	-7.985	-0.009281	-2.25E-05	-1.41E-06	-4.53E-07
163	6.80E-12	-7.989	-0.007920	-2.20E-05	8.08E-17	1.60E-14
164	-0.000455	-7.989	-0.009281	-2.25E-05	1.41E-06	4.53E-07
165	-0.000543	-7.988	-0.011551	-2.31E-05	1.90E-06	4.69E-07
166	-0	2.30E-97	-7.37E-98	-1.58E-99	+0	+0
167	-0	-2.30E-97	-7.37E-98	1.58E-99	+0	-0
min:	-0.000543	-7.989	-0.200681	-5.38E-05	-3.08E-06	-4.69E-07
max:	0.000543	7.989	0.112916	5.38E-05	3.08E-06	4.69E-07

Loadcase Factor Stage Init.def Title
61: 1.0000 TEMPERATURA (+)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	7.09E-05	1.795	0.368725			
10	-7.09E-05	1.795	0.368725			
156	7.09E-05	-1.795	0.368725			
160	-7.09E-05	-1.795	0.368725			
166	-3.69E-12	2.300	-0.737449	-15.841	3.18E-11	2.79E-10
167	-5.11E-12	-2.300	-0.737449	15.841	2.18E-11	-2.76E-10
Sums :	2.06E-12	-1.30E-11	1.41E-12			
min:	-7.09E-05	-2.300	-0.737449	-15.841	2.18E-11	-2.76E-10
max:	7.09E-05	2.300	0.368725	15.841	3.18E-11	2.79E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	-0.000543	-7.988	0.011551	-2.31E-05	1.90E-06	-4.69E-07
2	-0.000455	-7.985	0.009281	-2.25E-05	1.41E-06	-4.53E-07
3	-6.80E-12	-7.989	0.007920	-2.20E-05	-8.16E-17	1.57E-14
4	0.000455	-7.985	0.009281	-2.25E-05	-1.41E-06	4.53E-07
5	0.000543	-7.988	0.011551	-2.31E-05	-1.90E-06	4.69E-07
6	-0.000308	-7.806	-3.69E-98	-2.31E-05	1.90E-06	-4.69E-07
7	-0.000233	-7.807	-0.001954	-2.25E-05	1.41E-06	-4.53E-07
8	-2.01E-11	-7.807	-0.003097	-2.20E-05	-8.16E-17	1.57E-14
9	0.000233	-7.807	-0.001954	-2.25E-05	-1.41E-06	4.53E-07
10	0.000308	-7.806	-3.69E-98	-2.31E-05	-1.90E-06	4.69E-07
11	4.98E-05	-7.334	-0.029877	-2.23E-05	9.09E-07	-1.62E-07
12	4.25E-05	-7.335	-0.030824	-2.18E-05	7.28E-07	-1.61E-07
13	-4.28E-11	-7.335	-0.031415	-2.14E-05	2.02E-15	1.61E-14
14	-4.25E-05	-7.335	-0.030824	-2.18E-05	-7.28E-07	1.61E-07
15	-4.98E-05	-7.334	-0.029877	-2.23E-05	-9.09E-07	1.62E-07
16	0.000111	-6.862	-0.057573	-2.00E-05	3.37E-07	-3.98E-09
17	8.04E-05	-6.863	-0.057927	-1.97E-05	2.81E-07	3.42E-08
18	-6.52E-11	-6.863	-0.058152	-1.95E-05	1.93E-16	1.51E-14
19	-8.04E-05	-6.863	-0.057927	-1.97E-05	-2.81E-07	3.42E-08
20	-0.000111	-6.862	-0.057573	-2.00E-05	-3.37E-07	3.98E-09
21	7.19E-05	-6.390	-0.081346	-1.64E-05	1.04E-07	2.97E-08
22	5.23E-05	-6.390	-0.081455	-1.63E-05	8.74E-08	4.99E-09
23	-8.53E-11	-6.390	-0.081521	-1.62E-05	-3.16E-15	1.27E-14
24	-5.23E-05	-6.390	-0.081455	-1.63E-05	-8.74E-08	-4.99E-09
25	-7.19E-05	-6.390	-0.081346	-1.64E-05	-1.04E-07	-2.97E-08
26	2.15E-05	-5.918	-0.099578	-1.15E-05	3.87E-08	2.13E-08
27	2.36E-05	-5.918	-0.099619	-1.15E-05	3.30E-08	9.58E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-1.02E-10	-5.918	-0.099641	-1.14E-05	-5.37E-15	9.46E-15
29	-2.36E-05	-5.918	-0.099619	-1.15E-05	-3.30E-08	-9.58E-09
30	-3.15E-05	-5.918	-0.099578	-1.15E-05	-3.87E-08	-2.13E-08
31	1.13E-05	-5.446	-0.110544	-5.18E-06	8.58E-08	8.00E-09
32	8.90E-06	-5.446	-0.110634	-5.26E-06	7.26E-08	4.92E-09
33	-1.13E-10	-5.446	-0.110686	-5.32E-06	-6.18E-15	5.30E-15
34	-8.90E-06	-5.446	-0.110634	-5.26E-06	-7.26E-08	-4.92E-09
35	-1.13E-05	-5.446	-0.110544	-5.18E-06	-8.58E-08	-8.00E-09
36	7.91E-06	-4.974	-0.112378	2.58E-06	3.21E-07	-1.63E-09
37	6.27E-06	-4.974	-0.112714	2.30E-06	2.65E-07	3.22E-10
38	-1.16E-10	-4.974	-0.112916	2.11E-06	6.11E-15	-9.80E-17
39	-6.27E-06	-4.974	-0.112714	2.30E-06	-2.65E-07	-3.22E-10
40	-7.91E-06	-4.974	-0.112378	2.58E-06	-3.21E-07	1.63E-09
41	1.55E-05	-4.502	-0.103041	1.20E-05	9.86E-07	-6.95E-08
42	1.18E-05	-4.502	-0.104070	1.13E-05	7.96E-07	-1.00E-09
43	-1.16E-10	-4.502	-0.104694	1.08E-05	-5.67E-15	-8.11E-15
44	-1.18E-05	-4.502	-0.104070	1.13E-05	-7.96E-07	1.00E-09
45	-1.55E-05	-4.502	-0.103041	1.20E-05	-9.86E-07	6.95E-08
46	2.73E-05	-4.030	-0.080449	2.27E-05	2.25E-06	-3.65E-09
47	2.19E-05	-4.030	-0.082845	2.17E-05	1.90E-06	4.88E-09
48	-9.92E-11	-4.030	-0.084503	2.06E-05	-5.04E-15	-1.75E-14
49	-2.19E-05	-4.030	-0.082845	2.17E-05	-1.90E-06	-4.88E-09
50	-2.73E-05	-4.030	-0.080449	2.27E-05	-2.25E-06	3.65E-09
51	2.73E-05	-3.558	-0.043644	3.33E-05	2.85E-06	1.77E-08
52	2.80E-05	-3.558	-0.046942	3.38E-05	3.08E-06	2.91E-08
53	-6.77E-11	-3.558	-0.050485	3.24E-05	-4.65E-15	-2.56E-14
54	-2.80E-05	-3.558	-0.046942	3.38E-05	-3.08E-06	-2.91E-08
55	-2.73E-05	-3.558	-0.043644	3.33E-05	-2.85E-06	-1.77E-08
56	-4.27E-06	-3.086	0.004522	4.04E-05	5.24E-07	4.40E-08
57	-6.92E-06	-3.086	0.003992	4.32E-05	3.70E-07	1.16E-07
58	-2.59E-11	-3.085	0.003765	5.38E-05	-4.58E-15	-2.74E-14
59	6.92E-06	-3.086	0.003992	4.32E-05	-3.70E-07	-1.16E-07
60	4.27E-06	-3.086	0.004522	4.04E-05	-5.24E-07	-4.40E-08
61	-2.91E-05	-2.469	0.071635	3.75E-05	-2.49E-06	1.40E-08
62	-2.58E-05	-2.469	0.074445	3.76E-05	-2.51E-06	2.82E-08
63	3.74E-11	-2.468	0.077164	3.60E-05	-4.57E-15	-2.68E-14
64	2.58E-05	-2.469	0.074445	3.76E-05	2.51E-06	-2.82E-08
65	2.91E-05	-2.469	0.071635	3.75E-05	2.49E-06	-1.40E-08
66	-2.03E-05	-1.851	0.126511	2.85E-05	-1.29E-06	-4.56E-09
67	-1.52E-05	-1.851	0.129860	2.78E-05	-1.04E-06	2.92E-09
68	8.62E-11	-1.851	0.130700	2.72E-05	-3.97E-15	-2.11E-14
69	1.52E-05	-1.851	0.129860	2.78E-05	1.04E-06	-2.92E-09
70	2.03E-05	-1.851	0.126511	2.85E-05	1.29E-06	4.56E-09
71	-7.40E-06	-1.234	0.168857	1.88E-05	-3.35E-07	-4.55E-09
72	-5.43E-06	-1.234	0.169207	1.85E-05	-2.74E-07	-1.53E-09
73	1.16E-10	-1.234	0.169417	1.83E-05	-3.44E-15	-1.32E-14
74	5.43E-06	-1.234	0.169207	1.85E-05	2.74E-07	1.53E-09
75	7.40E-06	-1.234	0.168857	1.88E-05	3.35E-07	4.55E-09
76	-1.38E-06	-0.617123	0.192743	9.31E-06	-6.16E-08	-1.77E-09
77	-1.07E-06	-0.617124	0.192807	9.26E-06	-5.23E-08	-1.02E-09
78	1.32E-10	-0.617125	0.192845	9.22E-06	-3.25E-15	-6.28E-15
79	1.07E-06	-0.617124	0.192807	9.26E-06	5.23E-08	1.02E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	1.38E-06	-0.617123	0.192743	9.31E-06	6.16E-08	1.77E-09
81	4.32E-08	5.58E-12	0.200660	3.02E-17	-1.37E-08	-1.18E-16
82	-2.38E-08	5.45E-12	0.200674	2.76E-17	-1.20E-08	-1.18E-16
83	1.37E-10	5.27E-12	0.200681	2.33E-17	-3.22E-15	-1.18E-16
84	2.41E-08	5.09E-12	0.200674	1.88E-17	1.20E-08	-1.18E-16
85	-4.30E-08	4.96E-12	0.200660	1.59E-17	1.37E-08	-1.18E-16
86	-1.38E-06	0.617123	0.192743	-9.31E-06	-6.16E-08	1.77E-09
87	-1.07E-06	0.617124	0.192807	-9.26E-06	-5.23E-08	1.02E-09
88	1.32E-10	0.617125	0.192845	-9.22E-06	-3.24E-15	6.04E-15
89	1.07E-06	0.617124	0.192807	-9.26E-06	5.23E-08	-1.02E-09
90	1.38E-06	0.617123	0.192743	-9.31E-06	6.16E-08	-1.77E-09
91	-7.40E-06	1.234	0.168857	-1.88E-05	-3.35E-07	4.55E-09
92	-5.43E-06	1.234	0.169207	-1.85E-05	-2.74E-07	1.53E-09
93	1.17E-10	1.234	0.165417	-1.83E-05	-3.42E-15	1.29E-14
94	5.43E-06	1.234	0.169207	-1.85E-05	2.74E-07	-1.53E-09
95	7.40E-06	1.234	0.168857	-1.88E-05	3.35E-07	-4.55E-09
96	-2.03E-05	1.851	0.126511	-2.85E-05	-1.29E-06	4.56E-09
97	-1.52E-05	1.851	0.129860	-2.78E-05	-1.04E-06	-2.92E-09
98	8.74E-11	1.851	0.130700	-2.72E-05	-3.94E-15	2.08E-14
99	1.52E-05	1.851	0.129860	-2.78E-05	1.04E-06	2.92E-09
100	2.03E-05	1.851	0.126511	-2.85E-05	1.29E-06	-4.56E-09
101	-2.91E-05	2.469	0.071635	-3.75E-05	-2.49E-06	-1.40E-08
102	-2.58E-05	2.469	0.074445	-3.76E-05	-2.51E-06	-2.82E-08
103	3.90E-11	2.468	0.077164	-3.60E-05	4.53E-15	2.66E-14
104	2.58E-05	2.469	0.074445	-3.76E-05	2.51E-06	2.82E-08
105	2.91E-05	2.469	0.071635	-3.75E-05	2.49E-06	1.40E-08
106	-4.27E-06	3.086	0.004522	-4.04E-05	5.24E-07	-4.40E-08
107	-6.92E-06	3.086	0.003952	-4.32E-05	3.70E-07	-1.16E-07
108	2.19E-11	3.086	0.003765	-4.53E-15	2.72E-14	1.16E-07
109	6.92E-06	3.086	0.003952	-4.32E-05	-3.70E-07	1.16E-07
110	4.27E-06	3.086	0.004522	-4.04E-05	-5.24E-07	4.40E-08
111	2.73E-05	3.558	-0.043644	-3.33E-05	2.85E-06	-1.77E-08
112	2.80E-05	3.558	-0.046942	-3.38E-05	3.08E-06	-2.91E-08
113	-6.53E-11	3.558	-0.050485	-3.24E-05	-4.60E-15	2.53E-14
114	-2.80E-05	3.558	-0.046942	-3.38E-05	-3.08E-06	2.91E-08
115	-2.73E-05	3.558	-0.043644	-3.33E-05	-2.85E-06	1.77E-08
116	2.73E-05	4.030	-0.080449	-2.27E-05	2.25E-06	3.65E-09
117	2.19E-05	4.030	-0.082845	-2.17E-05	1.90E-06	-4.88E-09
118	-9.66E-11	4.030	-0.084503	-2.06E-05	-5.00E-15	1.72E-14
119	-2.19E-05	4.030	-0.082845	-2.17E-05	-1.90E-06	4.88E-09
120	-2.73E-05	4.030	-0.080449	-2.27E-05	-2.25E-06	-3.65E-09
121	1.55E-05	4.502	-0.103041	-1.20E-05	5.86E-07	6.95E-08
122	1.18E-05	4.502	-0.104070	-1.13E-05	7.96E-07	1.00E-09
123	-1.13E-10	4.502	-0.104694	-1.08E-05	5.64E-15	7.86E-15
124	-1.18E-05	4.502	-0.104070	-1.13E-05	-7.96E-07	-1.00E-09
125	-1.55E-05	4.502	-0.103041	-1.20E-05	-9.86E-07	-6.95E-08
126	7.91E-06	4.974	-0.112378	-2.58E-06	3.21E-07	1.63E-09
127	6.27E-06	4.974	-0.112714	-2.30E-06	2.65E-07	-3.22E-10
128	-1.16E-10	4.974	-0.112916	-2.11E-06	-6.11E-15	9.80E-17
129	-6.27E-06	4.974	-0.112714	-2.30E-06	-2.65E-07	3.22E-10
130	-7.91E-06	4.974	-0.112378	-2.58E-06	-3.21E-07	-1.63E-09
131	1.13E-05	5.446	-0.110544	5.18E-06	8.58E-08	8.00E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	8.90E-06	5.446	-0.110634	5.26E-06	7.26E-08	-4.92E-09
133	-1.10E-10	5.446	-0.110686	5.32E-06	-6.15E-15	-5.55E-15
134	-8.90E-06	5.446	-0.110634	5.26E-06	-7.26E-08	4.92E-09
135	-1.13E-05	5.446	-0.110544	5.18E-06	-8.58E-08	8.00E-09
136	3.15E-05	5.918	-0.099578	1.15E-05	3.87E-08	-2.13E-08
137	2.36E-05	5.918	-0.099619	1.15E-05	3.30E-08	-9.58E-09
138	-9.77E-11	5.918	-0.099641	1.14E-05	-5.35E-15	-5.71E-15
139	-2.36E-05	5.918	-0.099619	1.15E-05	-3.30E-08	9.58E-09
140	-3.15E-05	5.918	-0.099578	1.15E-05	-3.87E-08	2.13E-08
141	7.19E-05	6.390	-0.081346	1.64E-05	1.04E-07	-2.97E-08
142	5.23E-05	6.390	-0.081455	1.63E-05	8.74E-08	4.99E-09
143	-8.10E-11	6.390	-0.081521	1.62E-05	-3.14E-15	-1.29E-14
144	-5.23E-05	6.390	-0.081455	1.63E-05	-8.74E-08	4.99E-09
145	-7.19E-05	6.390	-0.081346	1.64E-05	-1.04E-07	2.97E-08
146	0.000111	6.862	-0.057573	2.00E-05	3.37E-07	3.98E-09
147	8.04E-05	6.863	-0.057927	1.97E-05	2.81E-07	3.42E-08
148	-6.06E-11	6.863	-0.058152	1.95E-05	2.04E-16	-1.54E-14
149	-8.04E-05	6.863	-0.057927	1.97E-05	-2.81E-07	-3.42E-08
150	-0.000111	6.862	-0.057573	2.00E-05	-3.37E-07	-3.98E-09
151	4.98E-05	7.334	-0.029877	2.22E-05	9.09E-07	1.62E-07
152	4.25E-05	7.335	-0.030824	2.18E-05	7.28E-07	1.61E-07
153	-3.78E-11	7.335	-0.031415	2.14E-05	2.03E-15	-1.64E-14
154	-4.25E-05	7.335	-0.030824	2.18E-05	-7.28E-07	-1.61E-07
155	-4.98E-05	7.334	-0.029877	2.23E-05	-9.09E-07	-1.62E-07
156	-0.000308	7.806	3.69E-98	2.31E-05	1.90E-06	4.69E-07
157	-0.000233	7.807	-0.001954	2.25E-05	1.41E-06	4.53E-07
158	-1.48E-11	7.807	-0.003097	2.20E-05	8.08E-17	-1.60E-14
159	0.000233	7.807	-0.001954	2.25E-05	-1.41E-06	-4.53E-07
160	0.000308	7.806	-3.69E-98	2.31E-05	-1.90E-06	-4.69E-07
161	-0.000543	7.988	0.011551	2.31E-05	1.90E-06	4.69E-07
162	-0.000455	7.985	0.009281	2.25E-05	1.41E-06	4.53E-07
163	6.80E-12	7.989	0.007920	2.20E-05	-8.08E-17	-1.60E-14
164	0.000455	7.989	0.009281	2.25E-05	-1.41E-06	-4.53E-07
165	0.000543	7.988	0.011551	2.31E-05	-1.90E-06	-4.69E-07
166	+0	-2.30E-97	7.37E-98	1.58E-99	-0	-0
167	+0	2.30E-97	7.37E-98	-1.58E-99	-0	+0
min:	-0.000543	-7.989	-0.112916	-5.38E-05	-3.08E-06	-4.69E-07
max:	0.000543	7.989	0.200681	5.38E-05	3.08E-06	4.69E-07

Loadcase Factor Stage Init.def Title
66 1.0000 GRADIENTE

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.001262	0.001005	7.143			
10	0.001262	0.001005	7.143			
156	-0.001262	-0.001005	7.143			
160	0.001262	-0.001005	7.143			
166	8.72E-09	1.119	-14.286	-4.921	4.38E-08	-1.08E-08
167	8.72E-09	-1.119	-14.286	4.921	4.38E-08	1.08E-08
Sums :	-2.91E-12	1.24E-14	-8.01E-12			
min:	-0.001262	-1.119	-14.286	-4.921	4.38E-08	-1.08E-08
max:	0.001262	1.119	7.143	4.921	4.38E-08	1.08E-08

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	0.014881	-0.004368	-0.348553	0.000739	3.71E-05	2.47E-05
2	0.003935	0.002525	-0.393333	0.000753	2.76E-05	2.25E-06
3	1.98E-08	0.003102	-0.419366	0.000762	1.63E-13	1.92E-12
4	-0.003935	0.002525	-0.393333	0.000753	-2.76E-05	-2.25E-06
5	-0.014881	-0.004368	-0.348553	0.000739	-3.71E-05	-2.47E-05
6	0.005487	-0.004368	-7.14E-97	0.000655	3.71E-05	1.29E-05
7	0.002811	0.002525	-0.038120	0.000668	2.76E-05	2.25E-06
8	1.88E-08	0.003102	-0.060421	0.000677	1.63E-13	1.92E-12
9	-0.002811	0.002525	-0.038120	0.000668	-2.76E-05	-2.25E-06
10	-0.005487	-0.004368	-7.14E-97	0.000655	-3.71E-05	-1.29E-05
11	-0.001962	-0.001357	0.711610	0.000450	1.75E-05	1.42E-06
12	-0.000546	0.000966	0.693319	0.000461	1.41E-05	1.79E-06
13	1.63E-08	0.002190	0.681895	0.000468	9.18E-13	1.93E-12
14	0.000546	0.000966	0.693319	0.000461	-1.41E-05	-1.79E-06
15	0.001962	-0.001357	0.711610	0.000450	-1.75E-05	-1.42E-06
16	-0.001782	0.000280	1.179	0.000275	6.49E-06	-5.63E-07
17	-0.001114	0.000505	1.172	0.000280	5.42E-06	1.80E-07
18	1.38E-08	0.001145	1.168	0.000284	1.44E-12	1.91E-12
19	0.001114	0.000509	1.172	0.000280	-5.42E-06	-1.80E-07
20	0.001782	0.000280	1.179	0.000275	-6.49E-06	5.63E-07
21	-0.000845	0.000754	1.436	0.000124	1.99E-06	-5.39E-07
22	-0.000613	0.000502	1.434	0.000126	1.67E-06	-2.16E-07
23	1.13E-08	0.000666	1.432	0.000128	1.65E-12	1.86E-12
24	0.000613	0.000502	1.434	0.000126	-1.67E-06	2.16E-07
25	0.000845	0.000754	1.436	0.000124	-1.99E-06	5.39E-07
26	-0.000276	0.000777	1.513	-1.54E-06	4.76E-07	-2.75E-07
27	-0.000212	0.000565	1.512	-1.02E-06	4.03E-07	-1.65E-07

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	8.87E-09	0.000563	1.512	-6.65E-07	1.68E-12	1.80E-12
29	0.000212	0.000565	1.512	-1.02E-06	4.03E-07	1.65E-07
30	0.000276	0.000777	1.513	-1.54E-06	4.76E-07	2.75E-07
31	-4.29E-05	0.000709	1.443	-0.000102	1.61E-07	-9.84E-08
32	-3.75E-05	0.000606	1.443	-0.000102	1.39E-07	-7.46E-08
33	6.54E-09	0.000566	1.443	-0.000102	1.63E-12	1.73E-12
34	3.75E-05	0.000606	1.443	-0.000102	-1.39E-07	7.46E-08
35	4.29E-05	0.000709	1.443	-0.000102	-1.61E-07	9.84E-08
36	2.15E-05	0.000657	1.260	-0.000175	4.79E-07	-2.19E-08
37	1.33E-05	0.000622	1.259	-0.000176	4.00E-07	-2.38E-08
38	4.31E-09	0.000595	1.259	-0.000176	1.54E-12	1.63E-12
39	-1.33E-05	0.000622	1.259	-0.000176	-4.00E-07	2.38E-08
40	-2.15E-05	0.000657	1.260	-0.000175	-4.79E-07	2.19E-08
41	2.84E-05	0.000631	0.998538	-0.000222	1.70E-06	3.12E-11
42	2.03E-05	0.000625	0.996761	-0.000223	1.39E-06	-3.68E-09
43	2.22E-09	0.000618	0.995693	-0.000224	1.44E-12	1.52E-12
44	-2.03E-05	0.000625	0.996761	-0.000223	-1.39E-06	3.68E-09
45	-2.84E-05	0.000631	0.998538	-0.000222	-1.70E-06	-2.81E-11
46	2.46E-05	0.000616	0.694735	-0.000241	4.56E-06	4.42E-09
47	1.89E-05	0.000623	0.689920	-0.000244	3.78E-06	4.38E-09
48	2.99E-10	0.000634	0.686792	-0.000246	1.34E-12	1.39E-12
49	-1.89E-05	0.000623	0.689920	-0.000244	-3.78E-06	-4.38E-09
50	-2.46E-05	0.000616	0.694735	-0.000241	-4.56E-06	-4.42E-09
51	1.73E-05	0.000596	0.383001	-0.000235	8.45E-06	1.24E-08
52	1.67E-05	0.000619	0.373760	-0.000238	7.80E-06	1.61E-08
53	-1.43E-09	0.000660	0.366175	-0.000242	1.24E-12	1.23E-12
54	-1.67E-05	0.000619	0.373760	-0.000238	-7.80E-06	-1.61E-08
55	-1.73E-05	0.000596	0.383001	-0.000235	-8.45E-06	-1.24E-08
56	-1.39E-06	0.000557	0.092200	-0.000210	9.13E-06	2.28E-08
57	-2.74E-06	0.000607	0.082040	-0.000208	8.88E-06	5.72E-08
58	-2.95E-09	0.000717	0.072945	-0.000201	1.12E-12	1.06E-12
59	2.74E-06	0.000607	0.082040	-0.000208	-8.88E-06	-5.72E-08
60	1.38E-06	0.000557	0.092200	-0.000210	-9.13E-06	-2.28E-08
61	-1.45E-05	0.000481	-0.230820	-0.000168	3.65E-06	6.91E-09
62	-1.27E-05	0.000496	-0.234622	-0.000165	2.91E-06	1.39E-08
63	-4.59E-09	0.000522	-0.236859	-0.000163	1.12E-12	8.51E-13
64	1.27E-05	0.000496	-0.234622	-0.000165	-2.91E-06	-1.39E-08
65	1.45E-05	0.000481	-0.230820	-0.000168	-3.65E-06	-6.91E-09
66	-1.01E-05	0.000372	-0.479242	-0.000124	8.04E-07	-2.33E-09
67	-7.54E-06	0.000373	-0.480081	-0.000124	6.63E-07	1.42E-09
68	-5.85E-09	0.000379	-0.480575	-0.000123	1.12E-12	6.34E-13
69	7.53E-06	0.000373	-0.480081	-0.000124	-6.63E-07	-1.42E-09
70	1.01E-05	0.000372	-0.479242	-0.000124	-8.04E-07	2.33E-09
71	-3.66E-06	0.000250	-0.655278	-8.26E-05	1.22E-07	-2.27E-09
72	-2.69E-06	0.000249	-0.655407	-8.25E-05	1.05E-07	-7.75E-10
73	-6.75E-05	0.000250	-0.655481	-8.24E-05	1.11E-12	4.21E-13
74	2.68E-06	0.000249	-0.655407	-8.25E-05	-1.05E-07	7.76E-10
75	3.65E-06	0.000250	-0.655278	-8.26E-05	-1.22E-07	2.28E-09
76	-6.79E-07	0.000125	-0.760597	-4.13E-05	4.15E-09	-8.77E-10
77	-5.28E-07	0.000125	-0.760601	-4.13E-05	4.35E-09	-5.08E-10
78	-7.28E-09	0.000124	-0.760602	-4.12E-05	1.11E-12	2.10E-13
79	5.13E-07	0.000125	-0.760601	-4.13E-05	-4.34E-09	5.09E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	6.65E-07	0.000125	-0.760597	-4.13E-05	-4.15E-09	8.78E-10
81	2.49E-08	4.31E-14	-0.795675	-3.62E-18	-8.51E-09	-6.74E-17
82	-1.19E-05	-3.24E-14	-0.795666	-4.69E-18	-6.71E-09	-6.74E-17
83	-7.45E-09	-1.33E-13	-0.795659	-6.19E-18	1.11E-12	-6.74E-17
84	-3.05E-09	-2.35E-13	-0.795666	-7.21E-18	6.71E-09	-6.74E-17
85	-3.98E-06	-3.10E-13	-0.795675	-6.76E-18	8.51E-09	-6.74E-17
86	-6.79E-07	-0.000125	-0.760597	4.13E-05	4.15E-09	8.77E-10
87	-5.28E-07	-0.000125	-0.760601	4.13E-05	4.35E-09	5.08E-10
88	-7.28E-09	-0.000124	-0.760602	4.12E-05	1.11E-12	-2.11E-13
89	5.13E-07	-0.000125	-0.760601	4.13E-05	-4.34E-09	-5.09E-10
90	6.65E-07	-0.000125	-0.760597	4.13E-05	-4.15E-09	-8.78E-10
91	-3.66E-06	-0.000250	-0.655278	8.26E-05	1.22E-07	2.27E-09
92	-2.69E-06	-0.000249	-0.655407	8.25E-05	1.05E-07	7.75E-10
93	-6.75E-05	-0.000250	-0.655481	8.24E-05	1.11E-12	-4.21E-13
94	2.68E-06	-0.000249	-0.655407	8.25E-05	-1.05E-07	-7.76E-10
95	3.65E-06	-0.000250	-0.655278	8.26E-05	-1.22E-07	-2.28E-09
96	-1.01E-05	-0.000372	-0.479242	0.000124	8.04E-07	2.33E-09
97	-7.54E-06	-0.000373	-0.480081	0.000124	6.63E-07	-1.42E-09
98	-5.85E-09	-0.000379	-0.480575	0.000123	1.12E-12	-6.34E-13
99	7.53E-06	-0.000373	-0.480081	0.000124	-6.63E-07	1.42E-09
100	1.01E-05	-0.000372	-0.479242	0.000124	-8.04E-07	-2.33E-09
101	-1.45E-05	-0.000481	-0.230820	0.000168	3.65E-06	-6.91E-09
102	-1.27E-05	-0.000496	-0.234622	0.000165	2.91E-06	1.39E-08
103	-4.59E-09	-0.000522	-0.236859	0.000163	1.12E-12	-8.51E-13
104	1.27E-05	-0.000496	-0.234622	0.000165	-2.91E-06	1.39E-08
105	1.45E-05	-0.000481	-0.230820	0.000168	-3.65E-06	6.91E-09
106	-1.39E-06	-0.000557	0.092200	0.000210	9.13E-06	-2.28E-08
107	-2.74E-06	-0.000607	0.082040	0.000208	8.88E-06	-5.72E-08
108	-2.95E-09	-0.000717	0.072945	0.000201	1.12E-12	-1.06E-12
109	2.74E-06	-0.000607	0.082040	0.000208	-8.88E-06	5.72E-08
110	1.38E-06	-0.000557	0.092200	0.000210	-9.13E-06	2.28E-08
111	1.73E-05	-0.000596	0.383001	0.000235	8.45E-06	-1.24E-08
112	1.67E-05	-0.000619	0.373760	0.000238	7.80E-06	-1.61E-08
113	-1.43E-09	-0.000660	0.366175	0.000242	1.24E-12	-1.23E-12
114	-1.67E-05	-0.000619	0.373760	0.000238	-7.80E-06	1.61E-08
115	-1.73E-05	-0.000596	0.383001	0.000235	-8.45E-06	1.24E-08
116	2.46E-05	-0.000616	0.694735	0.000241	4.56E-06	-4.42E-09
117	1.89E-05	-0.000623	0.689920	0.000244	3.78E-06	-4.38E-09
118	3.01E-10	-0.000634	0.686792	0.000246	1.34E-12	-1.39E-12
119	-1.89E-05	-0.000623	0.689920	0.000244	-3.78E-06	4.38E-09
120	-2.46E-05	-0.000616	0.694735	0.000241	-4.56E-06	4.42E-09
121	2.84E-05	-0.000631	0.998538	0.000222	1.70E-06	-3.12E-11
122	2.03E-05	-0.000625	0.996761	0.000223	1.39E-06	3.68E-09
123	2.23E-09	-0.000618	0.995693	0.000224	1.44E-12	-1.52E-12
124	-2.03E-05	-0.000625	0.996761	0.000223	-1.39E-06	-3.68E-09
125	-2.84E-05	-0.000631	0.998538	0.000222	-1.70E-06	2.81E-11
126	2.15E-05	-0.000657	1.260	0.000175	4.79E-07	2.19E-08
127	1.33E-05	-0.000622	1.259	0.000176	4.00E-07	2.38E-08
128	4.32E-09	-0.000596	1.259	0.000176	1.54E-12	-1.63E-12
129	-1.33E-05	-0.000622	1.259	0.000176	-4.00E-07	-2.38E-08
130	-2.15E-05	-0.000657	1.260	0.000175	-4.79E-07	-2.19E-08
131	-4.29E-05	-0.000709	1.443	0.000102	1.61E-07	9.84E-08

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-3.75E-05	-0.000606	1.443	0.000102	1.39E-07	7.46E-08
133	6.54E-09	-0.000566	1.443	0.000102	1.63E-12	-1.73E-12
134	3.75E-05	-0.000606	1.443	0.000102	-1.39E-07	-7.46E-08
135	4.29E-05	-0.000709	1.443	0.000102	-1.61E-07	-9.84E-08
136	-0.000276	-0.000777	1.513	1.54E-06	4.76E-07	2.75E-07
137	-0.000212	-0.000565	1.512	1.02E-06	4.03E-07	1.65E-07
138	8.87E-09	-0.000553	1.512	6.65E-07	1.68E-12	-1.80E-12
139	0.000212	-0.000565	1.512	1.02E-06	-4.03E-07	-1.65E-07
140	0.000276	-0.000777	1.513	1.54E-06	-4.76E-07	-2.75E-07
141	-0.000845	-0.000754	1.436	-0.000124	1.99E-06	5.39E-07
142	-0.000613	-0.000502	1.434	-0.000126	1.67E-06	2.16E-07
143	1.13E-08	-0.000666	1.432	-0.000128	1.65E-12	-1.86E-12
144	0.000613	-0.000502	1.434	-0.000126	-1.67E-06	-2.16E-07
145	0.000845	-0.000754	1.436	-0.000124	-1.99E-06	-5.39E-07
146	-0.001782	-0.000280	1.179	-0.000275	6.49E-06	5.63E-07
147	-0.001114	-0.000505	1.172	-0.000280	5.42E-06	-1.80E-07
148	1.38E-08	-0.001145	1.168	-0.000284	1.44E-12	-1.91E-12
149	0.001114	-0.000505	1.172	-0.000280	-5.42E-06	1.80E-07
150	0.001782	-0.000280	1.179	-0.000275	-6.49E-06	-5.63E-07
151	-0.001962	0.001357	0.711610	-0.000450	1.75E-05	-1.42E-06
152	-0.000546	-0.000966	0.693319	-0.000461	1.41E-05	-1.79E-06
153	1.63E-08	-0.002190	0.681895	-0.000468	9.18E-13	-1.93E-12
154	0.000546	-0.000966	0.693319	-0.000461	-1.41E-05	1.79E-06
155	0.001962	0.001357	0.711610	-0.000450	-1.75E-05	1.42E-06
156	0.005427	0.004368	-7.14E-97	-0.000655	3.71E-05	-1.29E-05
157	0.002811	-0.002525	-0.038120	-0.000668	2.76E-05	-2.25E-06
158	1.89E-08	-0.003102	-0.060421	-0.000677	1.63E-13	-1.92E-12
159	-0.002811	-0.002525	-0.038120	-0.000668	-2.76E-05	2.25E-06
160	-0.005487	0.004368	-7.14E-97	-0.000655	-3.71E-05	1.29E-05
161	0.014881	0.004368	-0.348553	-0.000739	3.71E-05	-2.47E-05
162	0.003935	-0.002525	-0.393333	-0.000753	2.76E-05	-2.25E-06
163	1.98E-08	-0.003102	-0.419366	-0.000762	1.63E-13	-1.92E-12
164	-0.003935	-0.002525	-0.393333	-0.000753	-2.76E-05	2.25E-06
165	-0.014881	0.004368	-0.348553	-0.000739	-3.71E-05	2.47E-05
166	-0	-1.12E-97	1.43E-96	+0	-0	+0
167	-0	1.12E-97	1.43E-96	-0	-0	-0
min:	-0.014881	-0.004368	-0.795675	-0.000762	-3.71E-05	-2.47E-05
max:	0.014881	0.004368	1.513	0.000762	3.71E-05	2.47E-05

3.2. Combinación de acciones

ENVELOPE SPECIFIC.: CY 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	1.000		SOB UNIF 1
F	PLUS	7	1.000		SOB UNIF 2
G	PLUS	8	1.000		SOB UNIF 3
H	PLUS	9	1.000		SOB UNIF 4
I	PLUS	10	1.000		SOB UNIF 5
J	PLUS	11	1.000		VEHICULO HIPOTESIS 11
K	OR	12	1.000		VEHICULO HIPOTESIS 12
L	OR	13	1.000		VEHICULO HIPOTESIS 13
M	OR	14	1.000		VEHICULO HIPOTESIS 14
N	OR	15	1.000		VEHICULO HIPOTESIS 15
O	OR	16	1.000		VEHICULO HIPOTESIS 16
P	OR	17	1.000		VEHICULO HIPOTESIS 17
Q	OR	18	1.000		VEHICULO HIPOTESIS 18
R	OR	19	1.000		VEHICULO HIPOTESIS 19
S	OR	20	1.000		VEHICULO HIPOTESIS 20
T	OR	21	1.000		VEHICULO HIPOTESIS 21
U	OR	22	1.000		VEHICULO HIPOTESIS 22
V	OR	23	1.000		VEHICULO HIPOTESIS 23
W	OR	24	1.000		VEHICULO HIPOTESIS 24
X	OR	25	1.000		VEHICULO POSICION 25
Y	OR	26	1.000		VEHICULO POSICION 26
Z	OR	27	1.000		VEHICULO POSICION 27
AA	OR	28	1.000		VEHICULO POSICION 28
AB	OR	29	1.000		VEHICULO POSICION 29
AC	OR	30	1.000		VEHICULO POSICION 30
AD	OR	31	1.000		VEHICULO POSICION 31
AE	OR	32	1.000		VEHICULO POSICION 32
AF	OR	33	1.000		VEHICULO POSICION 33
AG	OR	34	1.000		VEHICULO POSICION 34
AH	OR	35	1.000		VEHICULO POSICION 35
AI	OR	36	1.000		VEHICULO POSICION 36
AJ	OR	37	1.000		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.000		FRENADO
AL	PLUS	63	0.300000		VIENTO TRANSV CON SOE
AM	PLUS	64	0.600000		TEMPERATURA (-)
AN	OR	65	0.600000		TEMPERATURA (+)
AO	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000	PESO PROPIO
AQ	PL.PERM	2	1.500	PESO PAVIMENTO
AR	OR	2	1.000	PESO PAVIMENTO
AS	PL.PERM	3	1.000	PESO BARRERAS
AT	PL.PERM	5	1.000	RETRACCION
AU	PLUS	6	1.000	SOB UNIF 1
AV	PLUS	7	1.000	SOB UNIF 2
AW	PLUS	8	1.000	SOB UNIF 3
AX	PLUS	9	1.000	SOB UNIF 4

AY	PLUS	10	1.000	SOB UNIF 5
AZ	PLUS	11	1.000	VEHICULO HIPOTESIS 11
BA	OR	12	1.000	VEHICULO HIPOTESIS 12
BB	OR	13	1.000	VEHICULO HIPOTESIS 13
BC	OR	14	1.000	VEHICULO HIPOTESIS 14
BD	OR	15	1.000	VEHICULO HIPOTESIS 15
BE	OR	16	1.000	VEHICULO HIPOTESIS 16
BF	OR	17	1.000	VEHICULO HIPOTESIS 17
BG	OR	18	1.000	VEHICULO HIPOTESIS 18
BH	OR	19	1.000	VEHICULO HIPOTESIS 19
BI	OR	20	1.000	VEHICULO HIPOTESIS 20
BJ	OR	21	1.000	VEHICULO HIPOTESIS 21
BK	OR	22	1.000	VEHICULO HIPOTESIS 22
BL	OR	23	1.000	VEHICULO HIPOTESIS 23
BM	OR	24	1.000	VEHICULO HIPOTESIS 24
BN	OR	25	1.000	VEHICULO POSICION 25
BO	OR	26	1.000	VEHICULO POSICION 26
BP	OR	27	1.000	VEHICULO POSICION 27
BQ	OR	28	1.000	VEHICULO POSICION 28
BR	OR	29	1.000	VEHICULO POSICION 29
BS	OR	30	1.000	VEHICULO POSICION 30
BT	OR	31	1.000	VEHICULO POSICION 31
BU	OR	32	1.000	VEHICULO POSICION 32
BV	OR	33	1.000	VEHICULO POSICION 33
BW	OR	34	1.000	VEHICULO POSICION 34
BX	OR	35	1.000	VEHICULO POSICION 35
BY	OR	36	1.000	VEHICULO POSICION 36
BZ	OR	37	1.000	VEHICULO HIPOTESIS 37
CA	PLUS	60	1.000	FRENADO
CB	PLUS	63	0.300000	VIENTO TRANSV CON SOE
CC	PLUS	64	0.600000	TEMPERATURA (-)
CD	OR	65	0.600000	TEMPERATURA (+)
CE	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

CF	PERM.	1	1.000	PESO PROPIO
CG	PL.PERM	2	1.500	PESO PAVIMENTO
CH	OR	2	1.000	PESO PAVIMENTO
CI	PL.PERM	3	1.000	PESO BARRERAS
CJ	PLUS	46	1.000	SOB UNIF VANO 1
CK	PLUS	47	1.000	SOB UNIF VANO 2
CL	PLUS	48	1.000	SOB UNIF VANO 3
CM	PLUS	11	1.000	VEHICULO HIPOTESIS 11
CN	OR	12	1.000	VEHICULO HIPOTESIS 12
CO	OR	13	1.000	VEHICULO HIPOTESIS 13
CP	OR	14	1.000	VEHICULO HIPOTESIS 14
CQ	OR	15	1.000	VEHICULO HIPOTESIS 15
CR	OR	16	1.000	VEHICULO HIPOTESIS 16
CS	OR	17	1.000	VEHICULO HIPOTESIS 17
CT	OR	18	1.000	VEHICULO HIPOTESIS 18
CU	OR	19	1.000	VEHICULO HIPOTESIS 19
CV	OR	20	1.000	VEHICULO HIPOTESIS 20
CW	OR	21	1.000	VEHICULO HIPOTESIS 21
CX	OR	22	1.000	VEHICULO HIPOTESIS 22
CY	OR	23	1.000	VEHICULO HIPOTESIS 23
CZ	OR	24	1.000	VEHICULO HIPOTESIS 24

DA	OR	25	1.000	VEHICULO POSICION 25
DB	OR	26	1.000	VEHICULO POSICION 26
DC	OR	27	1.000	VEHICULO POSICION 27
DD	OR	28	1.000	VEHICULO POSICION 28
DE	OR	29	1.000	VEHICULO POSICION 29
DF	OR	30	1.000	VEHICULO POSICION 30
DG	OR	31	1.000	VEHICULO POSICION 31
DH	OR	32	1.000	VEHICULO POSICION 32
DI	OR	33	1.000	VEHICULO POSICION 33
DJ	OR	34	1.000	VEHICULO POSICION 34
DK	OR	35	1.000	VEHICULO POSICION 35
DL	OR	36	1.000	VEHICULO POSICION 36
DM	OR	37	1.000	VEHICULO HIPOTESIS 37
DN	PLUS	60	1.000	FRENADO
DO	PLUS	63	0.300000	VIENTO TRANSV CON SOE
DP	PLUS	64	0.600000	TEMPERATURA (-)
DQ	OR	65	0.600000	TEMPERATURA (+)
DR	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

DS	PERM.	1	1.000	PESO PROPIO
DT	PL.PERM	2	1.500	PESO PAVIMENTO
DU	OR	2	1.000	PESO PAVIMENTO
DV	PL.PERM	3	1.000	PESO BARRERAS
DW	PL.PERM	5	1.000	RETRACCION
DX	PLUS	46	1.000	SOB UNIF VANO 1
DY	PLUS	47	1.000	SOB UNIF VANO 2
DZ	PLUS	48	1.000	SOB UNIF VANO 3
EA	PLUS	11	1.000	VEHICULO HIPOTESIS 11
EB	OR	12	1.000	VEHICULO HIPOTESIS 12
EC	OR	13	1.000	VEHICULO HIPOTESIS 13
ED	OR	14	1.000	VEHICULO HIPOTESIS 14
EE	OR	15	1.000	VEHICULO HIPOTESIS 15
EF	OR	16	1.000	VEHICULO HIPOTESIS 16
EG	OR	17	1.000	VEHICULO HIPOTESIS 17
EH	OR	18	1.000	VEHICULO HIPOTESIS 18
EI	OR	19	1.000	VEHICULO HIPOTESIS 19
EJ	OR	20	1.000	VEHICULO HIPOTESIS 20
EK	OR	21	1.000	VEHICULO HIPOTESIS 21
EL	OR	22	1.000	VEHICULO HIPOTESIS 22
EM	OR	23	1.000	VEHICULO HIPOTESIS 23
EN	OR	24	1.000	VEHICULO HIPOTESIS 24
EO	OR	25	1.000	VEHICULO POSICION 25
EP	OR	26	1.000	VEHICULO POSICION 26
EQ	OR	27	1.000	VEHICULO POSICION 27
ER	OR	28	1.000	VEHICULO POSICION 28
ES	OR	29	1.000	VEHICULO POSICION 29
ET	OR	30	1.000	VEHICULO POSICION 30
EU	OR	31	1.000	VEHICULO POSICION 31
EV	OR	32	1.000	VEHICULO POSICION 32
EW	OR	33	1.000	VEHICULO POSICION 33
EX	OR	34	1.000	VEHICULO POSICION 34
EY	OR	35	1.000	VEHICULO POSICION 35
EZ	OR	36	1.000	VEHICULO POSICION 36
FA	OR	37	1.000	VEHICULO HIPOTESIS 37
FB	PLUS	60	1.000	FRENADO

FC	PLUS	63	0.300000	VIENTO TRANSV CON SOE
FD	PLUS	64	0.600000	TEMPERATURA (-)
FE	OR	65	0.600000	TEMPERATURA (+)
FF	PLUS	66	0.600000	GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-1.091	-3.683	20.036			
	1.761	1.141	100.469			
	Min: AP AR AS AT AX AY BU...			Max: A E D E F G J AL AN AO		
10	2.283	-3.686	16.626			
	-0.568556	1.138	97.227			
	Min: AP AR AS AT AU AV BC...			Max: A E D G H I AE AN AO		
156	-1.051	2.568	20.407			
	1.761	-2.257	100.840			
	Min: AP AR AS AT AX AY BW...			Max: A E D E F G R AK AL AN.		
160	2.283	2.571	16.997			
	-0.568556	-2.254	97.595			
	Min: AP AR AS AT AU AV BE...			Max: A E D G H I AJ AK AN...		
166	3.374	-1.935	218.118	15.604	23.708	-0.028301
	2.90E-10	-0.710816	352.379	11.174	2.13E-09	-3.88E-09
	Min: CF CH CI CL DC DN DQ...			Max: DS DT DV DW DX DY EM...		
167	3.374	-1.825	219.077	5.951	23.708	0.028301
	2.78E-10	-3.053	353.338	14.381	2.08E-09	3.63E-09
	Min: CF CH CI CJ CN DO DQ...			Max: DS DT DV DW DY DZ EC...		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-1.091	-3.683	26.641			
	2.283	1.009	60.789			
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F M AL AN		
10	-1.090	1.006	57.547			
	2.284	-3.686	23.231			
	Min: A C D H I AE AN			Max: AP AQ AS AT AU AV AW...		
156	-1.091	2.567	27.013			
	2.283	-2.125	61.160			
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F O AK AL AN		
160	-1.091	-2.122	57.919			
	2.284	2.570	23.603			
	Min: A C D H I AG AK AN			Max: AP AQ AS AT AU AV AW...		
166	-2.615	3.395	313.122	-17.884	-3.159	0.221212
	5.989	-4.252	319.171	36.214	26.867	-0.249513
	Min: A C D E F M AN			Max: AP AQ AS AT AW AX AY...		
167	-2.615	-7.158	314.081	43.438	-3.159	-0.221212

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
	5.989	0.488287	320.130	-10.660	26.867	0.249513
	Min: A C D E F O AK AN			Max: AP AQ AS AT AW AX AY...		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.167731	-3.836	34.498			
	0.835704	1.280	53.022			
	Min: DS DT DV DW DY DZ EZ...			Max: CF CH CI CJ DF DO DQ...		
10	1.360	-3.839	31.088			
	0.356995	1.277	49.781			
	Min: DS DT DV DW DY DZ EH...			Max: CF CH CI CJ CN DQ DF		
156	0.835745	-2.356	53.394			
	-0.167695	2.720	34.870			
	Min: CF CH CI CL DL DN DQ...			Max: DS DT DV DW DX DY ET...		
160	0.356954	-2.393	50.152			
	1.360	2.723	31.460			
	Min: CF CH CI CL CT DN DQ...			Max: DS DT DV DW DX DY EE...		
166	3.374	-8.324	297.858	52.598	23.708	-0.028301
	5.36E-05	6.034	296.749	-29.975	2.74E-08	-1.18E-08
	Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DQ DF		
167	5.35E-09	-9.797	297.708	55.530	2.73E-08	1.16E-08
	3.374	4.560	296.816	-27.044	23.708	0.028301
	Min: CF CG CI CK CZ DN DQ...			Max: DS DU DV DW DX DZ EQ...		

DEFORMATIONS: ""
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-9.927	-4.388	-1.45E-08	-0.001116	0.000178	-1.26E-05
		4.745	16.012	-2.36E-05	-0.000181	0.000186	2.61E-05
	Min: A C D E F M AL AN				Max: AP AQ AS AT AW AX AY...		
2	1.300	-9.912	15.434	-1.030	-0.000752	-7.75E-05	-1.13E-05
		4.718	-4.186	-0.728517	-0.000510	0.000188	1.76E-05
	Min: AP AQ AS AT AU AV AW...				Max: A C D H I AE AN		
31	0	-9.912	-10.583	-1.061	0.000805	-7.66E-05	1.14E-05
		4.718	9.037	-0.759594	0.000534	0.000189	-1.75E-05
	Min: AP AQ AS AT AU AV AW...				Max: A C D H I AG AK AN		
31	1.300	-9.927	5.239	-1.74E-08	0.001141	0.000180	1.29E-05
		4.745	-11.161	-3.23E-05	0.000205	0.000188	-2.61E-05
	Min: A C D E F G AK AL AN				Max: AP AQ AS AT AW AX AY...		

DEFORMATIONS: ""
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
75	0	-9.759	-1.872	-1.330	-2.92E-05	-0.001310	-1.79E-05
		4.522	10.104	-1.31E-05	0.001078	-2.09E-05	
	Min: A E D E F G M AL AN AO				Max: AP AR AS AT AX AY BU...		
75	1.300	-9.735	-1.589	-1.627	-0.000500	-0.001410	-1.89E-05
		4.495	9.441	-1.601	-0.000536	0.001150	2.17E-05
	Min: A E D E F G M AL AN AO				Max: AP AR AS AT AX AY BU...		
76	0	-9.735	-1.589	-1.627	-0.000500	-0.001410	-1.89E-05
		4.495	9.441	-1.601	-0.000536	0.001150	2.17E-05
	Min: A E D E F G M AL AN AO				Max: AP AR AS AT AX AY BU...		
76	1.700	-9.702	9.576	-3.304	-0.001163	-0.001535	-2.04E-05
		4.457	-1.219	-2.834	-0.000935	0.001276	2.28E-05
	Min: AP AQ AS AT AU AV AW...				Max: A C D H I AE AN		
85	0	-9.702	-3.725	-3.248	0.001143	-0.001535	2.04E-05
		4.457	6.071	-2.779	0.000916	0.001276	-2.28E-05
	Min: AP AQ AS AT AU AV AW...				Max: A C D H I AG AK AN		
85	1.700	-9.735	1.589	-1.627	0.000500	-0.001410	1.89E-05
		4.495	0.261506	-1.611	0.000419	0.001150	-2.17E-05
	Min: A E D E F G O AL AN AO				Max: AP AR AS AT AX AY BW...		
86	0	-9.735	1.589	-1.627	0.000500	-0.001410	1.89E-05
		4.495	0.261506	-1.611	0.000419	0.001150	-2.17E-05
	Min: A E D E F G O AL AN AO				Max: AP AR AS AT AX AY BW...		
86	1.300	-9.759	6.724	-1.391	-2.60E-06	-0.001310	1.79E-05
		4.522	-5.252	-1.371	-3.72E-05	0.001078	-2.09E-05
	Min: A E D E F G O AK AL AN.				Max: AP AR AS AT AX AY BW...		
130	0	-9.931	16.026	-1.74E-05	-0.000134	-0.000184	-2.10E-05
		4.741	-4.375	-1.39E-08	-0.001072	-0.000176	1.79E-05
	Min: AP AQ AS AT AU AV AW...				Max: A C D H I AE AN		
130	1.300	-9.911	-4.173	-0.659427	-0.000459	-0.000213	-1.24E-05
		4.719	15.447	-0.965400	-0.000733	5.27E-05	1.65E-05
	Min: A C D E F M AL AN				Max: AP AQ AS AT AW AX AY...		
159	0	-9.911	9.024	-0.690504	0.000482	-0.000214	1.23E-05
		4.719	-10.596	-0.996477	0.000756	5.17E-05	-1.66E-05
	Min: A C D E F C AK AL AN				Max: AP AQ AS AT AW AX AY...		
159	1.300	-9.931	-11.174	-2.41E-05	0.000158	-0.000186	2.07E-05
		4.741	9.226	-1.66E-06	0.001096	-0.000178	-1.82E-05
	Min: AP AQ AS AT AU AV AW...				Max: A C D H I AG AK AN		

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-3.633	-5.566	-1.43E-08	-0.001098	0.000282	2.93E-05
		0.729265	16.677	-9.22E-09	-0.000709	0.000154	-2.00E-05
		Min: CF CH CI CJ DF DO DQ...		Max: DS DT DV DW DY DZ EZ...			
2	1.300	-3.666	-5.281	-1.474	-0.001105	0.000194	2.26E-05
		0.755751	16.016	-0.908772	-0.000646	7.11E-05	-2.06E-05
		Min: CF CH CI CJ DF DO DQ...		Max: DS DT DV DW DY DZ EZ...			
31	0	0.755785	-11.165	-0.939849	0.000669	7.20E-05	2.07E-05
		-3.666	10.131	-1.505	0.001128	0.000195	-2.25E-05
		Min: DS DT DV DW DX DY ET...		Max: CF CH CI CL DL DN DQ...			
31	1.300	0.729085	-11.826	-1.07E-08	0.000733	0.000156	2.02E-05
		-3.634	10.417	-1.63E-08	0.001122	0.000285	-2.91E-05
		Min: DS DT DV DW DX DY ET...		Max: CF CH CI CL DL DN DQ...			
75	0	-5.237	-2.956	-2.341	0.000825	-0.000232	2.96E-06
		-1.03E-09	10.666	-0.931812	-5.42E-05	7.12E-13	7.37E-13
		Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...			
75	1.300	-5.241	-2.675	-1.530	0.000333	-0.000260	2.78E-06
		-2.09E-09	10.004	-1.297	-0.000548	6.59E-13	9.23E-13
		Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...			
76	0	-5.241	-2.675	-1.530	0.000333	-0.000260	2.78E-06
		-2.09E-09	10.004	-1.297	-0.000548	6.55E-13	9.23E-13
		Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...			
76	1.700	-5.245	-2.305	-1.599	-0.000298	-0.000260	2.44E-06
		-4.04E-09	9.135	-2.679	-0.000971	6.64E-13	1.02E-12
		Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...			
85	0	-3.98E-09	-4.286	-2.623	0.000951	6.61E-13	-1.01E-12
		-5.245	7.157	-1.544	0.000279	-0.000260	-2.44E-06
		Min: DS DT DV DW DY DY EK...		Max: CF CH CI CL DC DN DQ...			
85	1.700	-2.09E-09	-5.152	-1.302	0.000490	6.56E-13	-8.99E-13
		-5.241	7.527	-1.535	-0.000392	-0.000260	-2.78E-06
		Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...			
86	0	-2.09E-09	-5.152	-1.302	0.000490	6.56E-13	-8.99E-13
		-5.241	7.527	-1.535	-0.000392	-0.000260	-2.78E-06
		Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...			
86	1.300	-1.08E-09	-5.814	-0.992653	5.24E-05	7.10E-13	-7.10E-13
		-5.237	7.810	-2.402	-0.000856	-0.000232	-2.96E-06
		Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...			
130	0	-1.552	-5.553	-1.37E-08	-0.001054	-0.000282	-2.40E-05
		-5.815	16.691	-8.59E-09	-0.000661	-0.000152	2.53E-05
		Min: CF CH CI CJ CN DQ DR		Max: DS DT DV DW DY DZ EH...			
130	1.300	-1.526	-5.268	-1.408	-0.001057	-0.000219	-1.74E-05
		-5.949	16.029	-0.639682	-0.000594	-9.58E-05	2.59E-05
		Min: CF CH CI CJ CN DQ DR		Max: DS DT DV DW DY DZ EH...			

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
159	0	-5.949	-11.178	-0.870759	0.000617	-9.68E-05	-2.60E-05
		-1.526	10.119	-1.440	0.001060	-0.000220	1.73E-05
		Min: DS DT DV DW DX DY EE...		Max: CF CH CI CL CT DN DQ...			
159	1.300	-5.915	-11.839	-9.95E-09	0.000665	-0.000154	-2.56E-05
		-1.552	10.404	-1.55E-08	0.001078	-0.000284	2.37E-05
		Min: DS DT DV DW DX DY EE...		Max: CF CH CI CL CT DN DQ...			

ENVELOPE for < N > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-352.379	-0.710816	-2.90E-10	3.88E-09	2.13E-09	11.174
		-218.118	-1.935	-3.374	0.028301	23.708	15.604
		Min: DS DT DV DW DX DY EM...		Max: CF CH CI CL DC DN DQ...			
290	13.200	-352.379	-0.710816	-2.90E-10	3.88E-09	-1.70E-09	1.791
		-218.118	-1.935	-2.582	0.028301	-15.598	-9.935
		Min: DS DT DV DW DX DY EM...		Max: CF CH CI CL DC DN DQ...			
291	0	-353.338	-3.053	-2.78E-10	-3.63E-09	2.08E-09	14.381
		-219.077	-1.825	-3.374	-0.028301	23.708	9.951
		Min: DS DT DV DW DY DZ EQ...		Max: CF CH CI CJ CW DO DQ...			
291	13.200	-353.338	-3.053	-2.78E-10	-3.63E-09	-1.59E-09	-25.914
		-219.077	-1.825	-2.582	-0.028301	-15.598	-14.186
		Min: DS DT DV DW DY DZ EQ...		Max: CF CH CI CJ CW DO DQ...			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-313.535	-3.098	2.525	-0.264263	-3.487	20.929
		-316.630	-1.529	-5.898	0.292564	27.196	11.566
		Min: AP AR AS AT AU AV EE...		Max: A E D G H I AC AK AL...			
290	13.200	-319.171	-4.252	-5.197	0.249513	-46.963	-19.909
		-313.122	3.395	2.615	-0.221212	31.365	26.929
		Min: AP AQ AS AT AW AX AY...		Max: A C D E F M AN			
291	0	-314.494	-0.665613	2.525	0.264263	-3.487	4.626
		-317.589	-2.234	-5.898	-0.292564	27.196	13.988
		Min: AP AR AS AT AU AV EF...		Max: A E D G H I AH AL AN...			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
291	13.200	-320.130	0.468287	-5.197	-0.249513	-46.963	-4.214
		-314.081	-7.156	2.615	0.221212	31.365	-51.052
		Min: AP AQ AS AT AW AX AY...		Max: A C D E F C AK AN			

ENVELOPE for < Mz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-296.745	6.034	-5.36E-09	1.18E-08	2.76E-08	-29.975
		-297.858	-8.324	-3.374	0.028301	23.708	52.555
		Min: CF CG CI CK CZ DQ DR		Max: DS DU DV DW DX DZ EK...			
290	13.200	-297.858	-8.324	-2.582	0.028301	-15.598	-57.273
		-296.745	6.034	-5.36E-09	1.18E-08	-4.34E-08	49.670
		Min: DS DU DV DW DX DZ EK...		Max: CF CG CI CK CZ DQ DR			
291	0	-298.816	4.560	-3.374	-0.028301	23.708	-27.044
		-297.708	-9.797	-5.35E-09	-1.16E-08	2.72E-08	55.530
		Min: DS DU DV DW DX DZ EQ...		Max: CF CG CI CK CZ DN DQ...			
291	13.200	-297.708	-9.797	-5.35E-09	-1.16E-08	-4.33E-08	-73.793
		-298.816	4.560	-2.582	-0.028301	-15.598	33.150
		Min: CF CG CI CK CZ DN DQ...		Max: DS DU DV DW DX DZ EQ...			

4. Pilas

Introducción

Del cálculo del tablero como emparrillado espacial se han obtenido para las distintas hipótesis los valores de las reacciones del tablero, tanto verticales como horizontales.

Con dichos valores se han obtenido las reacciones para las distintas hipótesis de carga, que responden a lo dispuesto por la "Instrucción sobre a las acciones a considerar en el proyecto de puentes de carretera" (IAP).

La pila se ha calculado en segundo orden, considerando la longitud de pandeo real de las mismas, que se obtiene del cálculo de los autovalores estáticos del modelo con sus rigideces resultantes mediante el programa STATIK·3. Con estos valores se ha utilizado la fórmula de la EHE para esbelteces medias.

ENVELOPE SPECIFIC.: CO 'COMBINACION ELU'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	PL.PERM	2	2.025		PESO PAVIMENTO
C	OP	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.350		PESO BARRERAS
E	PLUS	6	1.500		SOB UNIF 1
F	PLUS	7	1.500		SOB UNIF 2
G	PLUS	8	1.500		SOB UNIF 3
H	PLUS	9	1.500		SOB UNIF 4
I	PLUS	10	1.500		SOB UNIF 5
J	PLUS	11	1.500		VEHICULO HIPOTESIS 11
K	OP	12	1.500		VEHICULO HIPOTESIS 12
L	OP	13	1.500		VEHICULO HIPOTESIS 13
M	OP	14	1.500		VEHICULO HIPOTESIS 14
N	OP	15	1.500		VEHICULO HIPOTESIS 15
O	OP	16	1.500		VEHICULO HIPOTESIS 16
P	OP	17	1.500		VEHICULO HIPOTESIS 17
Q	OP	18	1.500		VEHICULO HIPOTESIS 18
R	OP	19	1.500		VEHICULO HIPOTESIS 19
S	OP	20	1.500		VEHICULO HIPOTESIS 20
T	OP	21	1.500		VEHICULO HIPOTESIS 21
U	OP	22	1.500		VEHICULO HIPOTESIS 22
V	OP	23	1.500		VEHICULO HIPOTESIS 23
W	OP	24	1.500		VEHICULO HIPOTESIS 24
X	OP	25	1.500		VEHICULO POSICION 25
Y	OP	26	1.500		VEHICULO POSICION 26
Z	OP	27	1.500		VEHICULO POSICION 27
AA	OP	28	1.500		VEHICULO POSICION 28
AB	OP	29	1.500		VEHICULO POSICION 29
AC	OP	30	1.500		VEHICULO POSICION 30
AD	OP	31	1.500		VEHICULO POSICION 31
AE	OP	32	1.500		VEHICULO POSICION 32
AF	OP	33	1.500		VEHICULO POSICION 33
AG	OP	34	1.500		VEHICULO POSICION 34
AH	OP	35	1.500		VEHICULO POSICION 35
AI	OP	36	1.500		VEHICULO POSICION 36
AJ	OP	37	1.500		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.500		FRENADC
AL	PLUS	63	0.750000		VIENTO TRANSV CON SOE
AM	PLUS	64	0.900000		TEMPERATURA (-)
AN	OP	65	0.900000		TEMPERATURA (+)
AO	PLUS	66	0.900000		GRADIENTE
ALTERNATIVE ENVELOPE :					
AP	PERM.	1	1.000		PESO PROPIO
AQ	PL.PERM	2	1.500		PESO PAVIMENTO
AR	OP	2	1.000		PESO PAVIMENTO
AS	PL.PERM	3	1.000		PESO BARRERAS
AT	PL.PERM	5	1.000		RETRACCION
AU	PLUS	6	1.500		SOB UNIF 1
AV	PLUS	7	1.500		SOB UNIF 2
AW	PLUS	8	1.500		SOB UNIF 3
AX	PLUS	9	1.500		SOB UNIF 4

AY	PLUS	10	1.500		SOB UNIF 5
AZ	PLUS	11	1.500		VEHICULO HIPOTESIS 11
BA	OP	12	1.500		VEHICULO HIPOTESIS 12
BB	OP	13	1.500		VEHICULO HIPOTESIS 13
BC	OP	14	1.500		VEHICULO HIPOTESIS 14
BD	OP	15	1.500		VEHICULO HIPOTESIS 15
BE	OP	16	1.500		VEHICULO HIPOTESIS 16
BF	OP	17	1.500		VEHICULO HIPOTESIS 17
BG	OP	18	1.500		VEHICULO HIPOTESIS 18
BH	OP	19	1.500		VEHICULO HIPOTESIS 19
BI	OP	20	1.500		VEHICULO HIPOTESIS 20
BJ	OP	21	1.500		VEHICULO HIPOTESIS 21
BK	OP	22	1.500		VEHICULO HIPOTESIS 22
BL	OP	23	1.500		VEHICULO HIPOTESIS 23
BM	OP	24	1.500		VEHICULO HIPOTESIS 24
BN	OP	25	1.500		VEHICULO POSICION 25
BO	OP	26	1.500		VEHICULO POSICION 26
BP	OP	27	1.500		VEHICULO POSICION 27
BQ	OP	28	1.500		VEHICULO POSICION 28
BR	OP	29	1.500		VEHICULO POSICION 29
BS	OP	30	1.500		VEHICULO POSICION 30
BT	OP	31	1.500		VEHICULO POSICION 31
BU	OP	32	1.500		VEHICULO POSICION 32
BV	OP	33	1.500		VEHICULO POSICION 33
BW	OP	34	1.500		VEHICULO POSICION 34
BX	OP	35	1.500		VEHICULO POSICION 35
BY	OP	36	1.500		VEHICULO POSICION 36
BZ	OP	37	1.500		VEHICULO HIPOTESIS 37
CA	PLUS	60	1.500		FRENADC
CB	PLUS	63	0.750000		VIENTO TRANSV CON SOE
CC	PLUS	64	0.900000		TEMPERATURA (-)
CD	OP	65	0.900000		TEMPERATURA (+)
CE	PLUS	66	0.900000		GRADIENTE
ALTERNATIVE ENVELOPE :					
CF	PERM.	1	1.350		PESO PROPIO
CG	PL.PERM	2	2.025		PESO PAVIMENTO
CH	OP	2	1.000		PESO PAVIMENTO
CI	PL.PERM	3	1.350		PESO BARRERAS
CJ	PLUS	46	1.500		SOB UNIF VANO 1
CK	PLUS	47	1.500		SOB UNIF VANO 2
CL	PLUS	48	1.500		SOB UNIF VANO 3
CM	PLUS	11	1.500		VEHICULO HIPOTESIS 11
CN	OP	12	1.500		VEHICULO HIPOTESIS 12
CO	OP	13	1.500		VEHICULO HIPOTESIS 13
CP	OP	14	1.500		VEHICULO HIPOTESIS 14
CQ	OP	15	1.500		VEHICULO HIPOTESIS 15
CR	OP	16	1.500		VEHICULO HIPOTESIS 16
CS	OP	17	1.500		VEHICULO HIPOTESIS 17
CT	OP	18	1.500		VEHICULO HIPOTESIS 18
CU	OP	19	1.500		VEHICULO HIPOTESIS 19
CV	OP	20	1.500		VEHICULO HIPOTESIS 20
CW	OP	21	1.500		VEHICULO HIPOTESIS 21
CX	OP	22	1.500		VEHICULO HIPOTESIS 22
CY	OP	23	1.500		VEHICULO HIPOTESIS 23
CZ	OP	24	1.500		VEHICULO HIPOTESIS 24

DA	OP	25	1.500		VEHICULO POSICION 25
DB	OP	26	1.500		VEHICULO POSICION 26
DC	OP	27	1.500		VEHICULO POSICION 27
DD	OP	28	1.500		VEHICULO POSICION 28
DE	OP	29	1.500		VEHICULO POSICION 29
DF	OP	30	1.500		VEHICULO POSICION 30
DG	OP	31	1.500		VEHICULO POSICION 31
DH	OP	32	1.500		VEHICULO POSICION 32
DI	OP	33	1.500		VEHICULO POSICION 33
DJ	OP	34	1.500		VEHICULO POSICION 34
DK	OP	35	1.500		VEHICULO POSICION 35
DL	OP	36	1.500		VEHICULO POSICION 36
DM	OP	37	1.500		VEHICULO HIPOTESIS 37
DN	PLUS	60	1.500		FRENADO
DO	PLUS	63	0.750000		VIENTO TRANSV CON SOE
DP	PLUS	64	0.900000		TEMPERATURA (-)
DQ	OP	65	0.900000		TEMPERATURA (+)
DR	PLUS	66	0.900000		GRADIENTE
ALTERNATIVE ENVELOPE :					
DS	PERM.	1	1.000		PESO PROPIO
DT	PL.PERM	2	1.500		PESO PAVIMENTO
DU	OP	2	1.000		PESO PAVIMENTO
DV	PL.PERM	3	1.000		PESO BARRERAS
DW	PL.PERM	5	1.000		RETRACCION
DX	PLUS	46	1.500		SOB UNIF VANO 1
DY	PLUS	47	1.500		SOB UNIF VANO 2
DZ	PLUS	48	1.500		SOB UNIF VANO 3
EA	PLUS	11	1.500		VEHICULO HIPOTESIS 11
EB	OP	12	1.500		VEHICULO HIPOTESIS 12
EC	OP	13	1.500		VEHICULO HIPOTESIS 13
ED	OP	14	1.500		VEHICULO HIPOTESIS 14
EE	OP	15	1.500		VEHICULO HIPOTESIS 15
EF	OP	16	1.500		VEHICULO HIPOTESIS 16
EG	OP	17	1.500		VEHICULO HIPOTESIS 17
EH	OP	18	1.500		VEHICULO HIPOTESIS 18
EI	OP	19	1.500		VEHICULO HIPOTESIS 19
EJ	OP	20	1.500		VEHICULO HIPOTESIS 20
EK	OP	21	1.500		VEHICULO HIPOTESIS 21
EL	OP	22	1.500		VEHICULO HIPOTESIS 22
EM	OP	23	1.500		VEHICULO HIPOTESIS 23
EN	OP	24	1.500		VEHICULO HIPOTESIS 24
EO	OP	25	1.500		VEHICULO POSICION 25
EP	OP	26	1.500		VEHICULO POSICION 26
EQ	OP	27	1.500		VEHICULO POSICION 27
ER	OP	28	1.500		VEHICULO POSICION 28
ES	OP	29	1.500		VEHICULO POSICION 29
ET	OP	30	1.500		VEHICULO POSICION 30
EU	OP	31	1.500		VEHICULO POSICION 31
EV	OP	32	1.500		VEHICULO POSICION 32
EW	OP	33	1.500		VEHICULO POSICION 33
EX	OP	34	1.500		VEHICULO POSICION 34
EY	OP	35	1.500		VEHICULO POSICION 35
EZ	OP	36	1.500		VEHICULO POSICION 36
FA	OP	37	1.500		VEHICULO HIPOTESIS 37
FB	PLUS	60	1.500		FRENADC

FC	PLUS	63	0.750000		VIENTO TRANSV CON SOE
FD	PLUS	64	0.900000		TEMPERATURA (-)
FE	OP	65	0.900000		TEMPERATURA (+)
FF	PLUS	66	0.900000		GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.636	-4.805	11.451				
	3.835	1.714	148.210				
	Min: AP AR AS AT AX AY BU...			Max: A E D E F G J AL AN AC			
10	4.618	-4.812	2.927				
	-0.852832	1.707	140.106				
	Min: AP AR AS AT AU AV EC...			Max: A E D G H I AE AN AO			
156	-1.636	3.131	12.009				
	3.835	-3.386	148.767				
	Min: AP AR AS AT AX AY BW...			Max: A E D E F G R AN AL AN.			
160	4.618	3.135	3.484				
	-0.852894	-3.380	140.663				
	Min: AP AR AS AT AU AV BE...			Max: A E D G H I AJ AK AN...			
166	8.434	-5.206	209.065	38.133	59.271	-0.070754	
	4.06E-10	1.565	491.536	-1.703	3.04E-09	-5.30E-09	
	Min: DS DU DV DW DZ EQ FE...			Max: CF CG CI CJ CK CY DP			
167	8.434	-0.439088	210.504	0.198773	59.271	0.070754	
	3.87E-10	-7.210	492.975	40.035	2.96E-09	4.93E-09	
	Min: DS DU DV DW DX EK FC...			Max: CF CG CI CK CL DA DN...			

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.637	-4.804	20.994				
	4.617	1.517	88.288				
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F M AL AN			
10	-1.636	1.505	80.184				
	4.619	-4.811	12.470				
	Min: A C D H I AE AN			Max: AP AQ AS AT AU AV AW...			
156	-1.637	3.130	21.551				
	4.618	-3.190	88.845				
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F O AK AL AN			
160	-1.636	-3.183	80.741				
	4.619	3.138	13.027				
	Min: A C D H I AG AK AN			Max: AP AQ AS AT AU AV AW...			
166	-3.923	2.791	352.100	-12.107	-4.738	0.331818	
	12.358	-3.749	441.195	35.867	64.009	-0.402572	
	Min: AP AR AS AT AU AV EC...			Max: A E D G H I AE AK AL...			
167	-3.923	-8.436	353.539	50.439	-4.738	-0.331818	

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
	12.358	-1.896	442.634	2.465	64.009	0.402572	
	Min: AP AR AS AT AU AV EE...			Max: A E D G H I AG AL AM...			

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-0.251567	-5.033	32.780				
	2.446	1.923	76.638				
	Min: DS DT DV DW DY DZ EZ...			Max: CF CH CI CJ DF DO DQ...			
10	3.233	-5.041	24.265				
	0.535492	1.916	68.534				
	Min: DS DT DV DW DY DZ EH...			Max: CF CH CI CJ CN DQ DR			
156	2.446	-3.597	77.196				
	-0.251505	3.360	33.327				
	Min: CF CH CI CL DL DN DC...			Max: DS DT DV DW DX DY ET...			
160	0.535431	-3.585	69.092				
	3.233	3.367	24.812				
	Min: CF CH CI CL CT DN DQ...			Max: DS DT DV DW DX DY EE...			
166	8.434	-12.019	327.786	74.549	59.271	-0.070754	
	8.02E-09	8.911	408.980	-44.351	4.09E-08	-1.76E-08	
	Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DQ DR			
167	8.00E-09	-14.557	410.418	82.683	4.08E-08	1.72E-08	
	8.434	6.374	329.224	-36.218	59.271	0.070754	
	Min: CF CG CI CK CZ DN DQ...			Max: DS DU DV DW DX DZ EQ...			

ENVELOPE for < N > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]	
290	0	-491.536	1.565	-4.06E-10	5.30E-09	3.04E-09	-1.703	
		-209.065	-5.206	-8.434	0.070754	59.271	38.133	
	Min: CF CG CI CJ CK CY DP				Max: DS DU DV DW DZ EQ FE...			
290	13.200	-491.536	1.565	-4.06E-10	5.30E-09	-2.32E-09	18.950	
		-209.065	-5.206	-6.454	0.070754	-38.994	-30.588	
	Min: CF CG CI CJ CK CY DP				Max: DS DU DV DW DZ EQ FE...			
291	0	-492.975	-7.210	-3.87E-10	-4.93E-09	2.96E-09	40.035	
		-210.504	-0.439088	-8.434	-0.070754	59.271	0.198773	
	Min: CF CG CI CK CL DA DN...				Max: DS DU DV DW DX EK FC...			
291	13.200	-492.975	-7.210	-3.87E-10	-4.93E-09	-2.15E-09	-55.135	
		-210.504	-0.439088	-6.454	-0.070754	-38.994	-5.597	
	Min: CF CG CI CK CL DA DN...				Max: DS DU DV DW DX EK FC...			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]	
290	0	-351.832	-4.178	3.787	-0.396394	-5.231	27.036	
		-438.271	-2.435	-12.221	0.467148	64.502	17.971	
	Min: AP AR AS AT AU AV BE...				Max: A E D G H I AD AK AL...			
290	13.200	-441.195	-3.749	-10.378	0.402572	-86.042	-13.618	
		-352.100	2.791	3.923	-0.331818	47.048	24.730	
	Min: A E D G H I AE AK AL...				Max: AP AR AS AT AU AV EC...			
291	0	-353.270	-1.467	3.787	0.396394	-5.231	11.296	
		-439.709	-3.210	-12.221	-0.467148	64.502	20.361	
	Min: AP AR AS AT AU AV EF...				Max: A E D G H I AH AL AM...			
291	13.200	-442.634	-1.896	-10.378	-0.402572	-86.042	-22.567	
		-353.539	-8.436	3.923	0.331818	47.048	-60.919	
	Min: A E D G H I AG AL AM...				Max: AP AR AS AT AU AV BE...			

ENVELOPE for < Mz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]	
290	0	-408.980	8.911	-8.02E-09	1.76E-08	4.09E-08	-44.351	
		-327.786	-12.019	-8.434	0.070754	59.271	74.549	
	Min: CF CG CI CK CZ DQ DR				Max: DS DU DV DW DX DZ EK...			
290	13.200	-327.786	-12.019	-6.454	0.070754	-38.994	-84.103	
		-408.980	8.911	-8.02E-09	1.76E-08	-6.49E-08	73.280	
	Min: DS DU DV DW DX DZ EK...				Max: CF CG CI CK CZ DQ DR			
291	0	-329.224	6.374	-8.434	-0.070754	59.271	-36.218	
		-410.418	-14.557	-8.00E-09	-1.72E-08	4.08E-08	82.683	
	Min: DS DU DV DW DX DZ EQ...				Max: CF CG CI CK CZ DN DQ...			
291	13.200	-410.418	-14.557	-8.00E-09	-1.72E-08	-6.48E-08	-109.466	
		-329.224	6.374	-6.454	-0.070754	-38.994	47.918	
	Min: CF CG CI CK CZ DN DQ...				Max: DS DU DV DW DX DZ EQ...			

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-441.195	-3.749	-12.358	0.402572	64.009	35.867
		-352.100	2.791	3.923	-0.331818	-4.738	-12.167
		Min: A E D G H I AE AK AL...		Max: AP AR AS AT AU AV BC...			
290	13.200	-441.195	-3.749	-10.378	0.402572	-86.042	-13.618
		-352.100	2.791	3.923	-0.331818	47.048	24.730
		Min: A E D G H I AE AK AL...		Max: AP AR AS AT AU AV BC...			
291	0	-442.634	-1.896	-12.356	-0.402572	64.009	2.465
		-353.539	-8.436	3.923	0.331818	-4.738	50.439
		Min: A E D G H I AG AL AM...		Max: AP AR AS AT AU AV BE...			
291	13.200	-442.634	-1.896	-10.378	-0.402572	-86.042	-22.567
		-353.539	-8.436	3.923	0.331818	47.048	-60.915
		Min: A E D G H I AG AL AM...		Max: AP AR AS AT AU AV BE...			

ENVELOPE SPECIFIC.: CQ 'COMBINACION FRECUENTE'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
E	PL.PERM	2	1.500		PESO PAVIMENTO
C	OP	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	0.500000		SOB UNIF 1
F	PLUS	7	0.500000		SOB UNIF 2
G	PLUS	8	0.500000		SOB UNIF 3
H	PLUS	9	0.500000		SOB UNIF 4
I	PLUS	10	0.500000		SOB UNIF 5
J	PLUS	11	0.500000		VEHICULO HIPOTESIS 11
K	OP	12	0.500000		VEHICULO HIPOTESIS 12
L	OP	13	0.500000		VEHICULO HIPOTESIS 13
M	OP	14	0.500000		VEHICULO HIPOTESIS 14
N	OP	15	0.500000		VEHICULO HIPOTESIS 15
O	OP	16	0.500000		VEHICULO HIPOTESIS 16
P	OP	17	0.500000		VEHICULO HIPOTESIS 17
Q	OP	18	0.500000		VEHICULO HIPOTESIS 18
R	OP	19	0.500000		VEHICULO HIPOTESIS 19
S	OP	20	0.500000		VEHICULO HIPOTESIS 20
T	OP	21	0.500000		VEHICULO HIPOTESIS 21
U	OP	22	0.500000		VEHICULO HIPOTESIS 22
V	OP	23	0.500000		VEHICULO HIPOTESIS 23
W	OP	24	0.500000		VEHICULO HIPOTESIS 24
X	OP	25	0.500000		VEHICULO POSICION 25
Y	OP	26	0.500000		VEHICULO POSICION 26
Z	OP	27	0.500000		VEHICULO POSICION 27
AA	OP	28	0.500000		VEHICULO POSICION 28
AB	OP	29	0.500000		VEHICULO POSICION 29
AC	OP	30	0.500000		VEHICULO POSICION 30
AD	OP	31	0.500000		VEHICULO POSICION 31
AE	OP	32	0.500000		VEHICULO POSICION 32
AF	OP	33	0.500000		VEHICULO POSICION 33
AG	OP	34	0.500000		VEHICULO POSICION 34
AH	OP	35	0.500000		VEHICULO POSICION 35
AI	OP	36	0.500000		VEHICULO POSICION 36
AJ	OP	37	0.500000		VEHICULO HIPOTESIS 37
AK	PLUS	60	0.500000		FRENADO
AL	PLUS	63	0.100000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.200000		TEMPERATURA (-)
AN	OP	65	0.200000		TEMPERATURA (+)
AO	PLUS	66	0.200000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000		PESO PROPIO
AQ	PL.PERM	2	1.500		PESO PAVIMENTO
AR	OP	2	1.000		PESO PAVIMENTO
AS	PL.PERM	3	1.000		PESO BARRERAS
AT	PLUS	46	0.500000		SOB UNIF VANO 1
AU	PLUS	47	0.500000		SOB UNIF VANO 2
AV	PLUS	48	0.500000		SOB UNIF VANO 3
AW	PLUS	11	0.500000		VEHICULO HIPOTESIS 11
AX	OP	12	0.500000		VEHICULO HIPOTESIS 12
AY	OP	13	0.500000		VEHICULO HIPOTESIS 13
AZ	OP	14	0.500000		VEHICULO HIPOTESIS 14
BA	OP	15	0.500000		VEHICULO HIPOTESIS 15
BB	OP	16	0.500000		VEHICULO HIPOTESIS 16
BC	OP	17	0.500000		VEHICULO HIPOTESIS 17
BD	OP	18	0.500000		VEHICULO HIPOTESIS 18
BE	OP	19	0.500000		VEHICULO HIPOTESIS 19
BF	OP	20	0.500000		VEHICULO HIPOTESIS 20
BG	OP	21	0.500000		VEHICULO HIPOTESIS 21
BH	OP	22	0.500000		VEHICULO HIPOTESIS 22
BI	OP	23	0.500000		VEHICULO HIPOTESIS 23
BJ	OP	24	0.500000		VEHICULO HIPOTESIS 24
BK	OP	25	0.500000		VEHICULO POSICION 25
BL	OP	26	0.500000		VEHICULO POSICION 26
BM	OP	27	0.500000		VEHICULO POSICION 27
BN	OP	28	0.500000		VEHICULO POSICION 28
BO	OP	29	0.500000		VEHICULO POSICION 29
BP	OP	30	0.500000		VEHICULO POSICION 30
BQ	OP	31	0.500000		VEHICULO POSICION 31
BR	OP	32	0.500000		VEHICULO POSICION 32
BS	OP	33	0.500000		VEHICULO POSICION 33
BT	OP	34	0.500000		VEHICULO POSICION 34
BU	OP	35	0.500000		VEHICULO POSICION 35
BV	OP	36	0.500000		VEHICULO POSICION 36
BW	OP	37	0.500000		VEHICULO HIPOTESIS 37
BX	PLUS	60	0.500000		FRENADO
BY	PLUS	63	0.100000		VIENTO TRANSV CON SOB
BZ	PLUS	64	0.200000		TEMPERATURA (-)
CA	OP	65	0.200000		TEMPERATURA (+)
CB	PLUS	66	0.200000		GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.545261	-0.941729	28.953			
	0.681962	0.390223	68.059			
	Min: A C D H I AE AK AM			Max: A E D E F G J AL AN AC		
10	0.942842	-0.942734	27.816			
	-0.284396	0.389218	66.978			
	Min: A C D E F M AK AL AM			Max: A E D G H I AB AN AO		
156	-0.545240	0.383851	29.139			
	0.681983	-0.948101	68.245			
	Min: A C D H I AG AM			Max: A E D E F G R AK AL AN.		
160	0.942822	0.384856	28.002			
	-0.284417	-0.947096	67.164			
	Min: A C D E F O AL AM			Max: A E D G H I AJ AK AN...		
166	1.125	-0.854160	228.824	7.676	7.903	-0.009434
	2.26E-10	1.262	296.255	-4.396	1.74E-05	-2.44E-05
	Min: AP AR AS AV BM BX BY...			Max: AP AQ AS AT AU BI BZ		
167	1.125	-1.028	229.304	4.902	7.903	0.009434
	2.21E-10	-3.144	296.778	17.174	1.72E-05	2.31E-05
	Min: AP AR AS AT BG BY CA...			Max: AP AQ AS AU AV BK EX...		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.545513	-0.941532	31.907			
	0.942802	0.324489	48.967			
	Min: A E D G H I AE AK AM...			Max: A C D E F M AL AN		
10	-0.545235	0.323463	47.487			
	0.943095	-0.942538	30.770			
	Min: A C D H I AE AN			Max: A E D E F G M AK AL AM.		
156	-0.545492	0.383655	32.093			
	0.942822	-0.882366	48.752			
	Min: A E D G H I AG AM AO			Max: A C D E F O AK AL AN		
160	-0.545256	-0.881261	47.672			
	0.943074	0.384660	30.956			
	Min: A C D H I AG AK AN			Max: A E D E F G O AL AM AO		
166	-1.308	1.922	274.809	-6.359	-1.579	0.110606
	2.432	-0.620248	281.212	6.615	9.482	-0.120040
	Min: A C D E F M AN			Max: A E D G H I AE AK AL...		
167	-1.308	-3.804	275.285	22.138	-1.579	-0.110606
	2.432	-1.261	281.691	4.162	9.482	0.120040
	Min: A C D E F O AK AN			Max: A E D G H I AG AL AM...		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.083830	-1.016	36.550			
	0.219187	0.459866	43.970			
	Min: AP AQ AS AU AV EV BX...			Max: AP AR AS AT EP EY CA...		
10	0.481412	-1.015	35.413			
	0.178375	0.459861	42.829			
	Min: AP AQ AS AU AV ED EX...			Max: AP AR AS AT AX CA CE		
156	0.219206	-1.016	44.156			
	-0.083810	0.460035	36.736			
	Min: AP AR AS AV EV EX EY...			Max: AP AQ AS AT AU BP BZ		
160	0.176356	-1.017	43.075			
	0.481391	0.461041	35.599			
	Min: AP AR AS AV ED EX CA...			Max: AP AQ AS AT AU AX BY...		
166	1.125	-2.553	266.822	16.353	7.903	-0.009434
	1.89E-05	3.139	270.356	-14.951	9.96E-09	-5.49E-09
	Min: AP AR AS AT AV EG EX...			Max: AP AQ AS AU BJ CA CE		
167	1.89E-05	-5.020	270.835	27.728	9.94E-09	5.37E-09
	1.125	0.671342	267.301	-3.576	7.903	0.009434
	Min: AP AQ AS AU BJ EX CA...			Max: AP AR AS AT AV EM EY...		

ENVELOPE for < N > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-296.299	1.262	-2.26E-10	2.44E-09	1.74E-05	-4.396
		-228.824	-0.854160	-1.125	0.009434	7.903	7.876
		Min: AP AQ AS AT AU BI BZ		Max: AP AR AS AV EM BX BY...			
290	13.200	-296.299	1.262	-2.26E-10	2.44E-09	-1.25E-09	12.259
		-228.824	-0.854160	-0.860580	0.009434	-5.199	-3.399
		Min: AP AQ AS AT AU BI BZ		Max: AP AR AS AV EM BX BY...			
291	0	-296.778	-3.144	-2.21E-10	-2.31E-09	1.72E-09	17.174
		-229.304	-1.028	-1.125	-0.009434	7.903	4.902
		Min: AP AQ AS AU AV BK BX...		Max: AP AR AS AT EG BY CA...			
291	13.200	-296.778	-3.144	-2.21E-10	-2.31E-09	-1.20E-09	-24.321
		-229.304	-1.028	-0.860580	-0.009434	-5.199	-8.663
		Min: AP AQ AS AU AV BK BX...		Max: AP AR AS AT EG BY CA...			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-274.572	0.059427	1.262	-0.132131	-1.744	0.520105
		-280.385	-0.642507	-2.387	0.141565	9.646	5.818
		Min: A C D E F L AM		Max: A E D G H I AD AK AL...			
290	13.200	-281.212	-0.620245	-2.168	0.120040	-20.882	0.427581
		-274.809	1.922	1.308	-0.110606	15.683	16.016
		Min: A E D G H I AE AK AL...		Max: A C D E F M AN			
291	0	-275.051	-1.941	1.262	0.132131	-1.744	12.257
		-280.864	-1.239	-2.387	-0.141565	9.646	6.959
		Min: A C D E F P AK AM		Max: A E D G H I AH AL AN...			
291	13.200	-281.691	-1.261	-2.168	-0.120040	-20.882	-12.489
		-275.285	-3.804	1.308	0.110606	15.683	-28.078
		Min: A E D G H I AG AL AM...		Max: A C D E F O AK AN			

ENVELOPE for < Mz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-270.356	3.139	-1.89E-09	5.49E-09	5.96E-05	-14.951
		-266.822	-2.553	-1.125	0.009434	7.903	16.353
		Min: AP AQ AS AU BJ CA CE		Max: AP AR AS AT AV BG EX...			
290	13.200	-266.822	-2.553	-0.860580	0.009434	-5.199	-17.347
		-270.356	3.139	-1.89E-09	5.49E-09	-1.50E-08	26.479
		Min: AP AR AS AT AV BG EX...		Max: AP AQ AS AU BJ CA CE			
291	0	-267.301	0.671342	-1.125	-0.009434	7.903	-3.576
		-270.835	-5.020	-1.89E-09	-5.37E-09	9.94E-09	27.728
		Min: AP AR AS AT AV EM EY...		Max: AP AQ AS AU BJ BX CA...			
291	13.200	-270.835	-5.020	-1.89E-09	-5.37E-09	-1.50E-08	-38.541
		-267.301	0.671342	-0.860580	-0.009434	-5.199	5.286
		Min: AP AQ AS AU BJ BX CA...		Max: AP AR AS AT AV EM EY...			

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 1 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **55.1** Md (KNm) = 540.3
Nd (T) = **-493.0** Nd (KN) = -4831.4

Pie de pórtico

Md (Tm) = **40.0** Md (KNm) = 392.3
Nd (T) = **-493.0** Nd (KN) = -4831.4

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **13.10**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1071

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7{,}5+4*(\Psi A + \Psi B)+1{,}6*\Psi A * \Psi B) / (7{,}5+(\Psi A+\Psi B)))^{0{,}5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.10

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **52.40**

$35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$e_{tot} = e_e + e_a > e_2$

$e_a = (1 + 0{,}12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$

$e_e = 0.112$ Máxima excentricidad de cálculo de 1er orden

Lo = 13.10

$\varepsilon y =$ fyd / Es = 0.002070

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$

$\beta = 1.50$

$e_a = 0.163$

e_{tot} (m) = 0.274

Solicitaciones de cálculo :

Cabeza y pie de pórtico

Md (tm) = 135.31
Nd (t) = -493.00

Md (KNm) = 1326.0
Nd (KN) = -4831.4

Pie de pórtico

Md (tm) = 135.31
Nd (t) = -493.00

Md (KNm) = 1326.0
Nd (KN) = -4831.4

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 2 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **49.6** Md (KNm) = 486.1
Nd (T) = **-209.1** Nd (KN) = -2048.8

Pie de pórtico

Md (Tm) = **70.5** Md (KNm) = 690.9
Nd (T) = **-209.1** Nd (KN) = -2048.8

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **13.10**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1071

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A * \Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.10

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : $\lambda =$ **52.40**

$35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_a)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

$e_e = 0.337$ Máxima excentricidad de cálculo de 1er orden

Lo = 13.10

$\varepsilon y =$ fyd / Es = 0.002070

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$$is^2 = \frac{1}{6}(d - d')^2$$

$\beta = 1.50$

$e_a = 0.189$

e_{tot} (m) = 0.526

Solicitaciones de cálculo :

Cabeza y pie de pórtico

Md (tm) = 109.92
Nd (t) = -209.07

Md (KNm) = 1077.2
Nd (KN) = -2048.8

Pie de pórtico

Md (tm) = 109.92
Nd (t) = -209.07

Md (KNm) = 1077.2
Nd (KN) = -2048.8

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 3 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **89.0** Md (KNm) = 871.7

Nd (T) = **-442.6** Nd (KN) = -4337.5

Pie de pórtico

Md (Tm) = **67.6** Md (KNm) = 662.9

Nd (T) = **-442.6** Nd (KN) = -4337.5

Hormigón : **HA - 30**

fck (N/mm^2)= **30**

γ c = **1.50**

fcd (N/mm^2)= 20.0

Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**

fyk (N/mm^2)= **500**

γ s = **1.15**

fyd (N/mm^2)= 434.8

Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**

Ancho B(m): **0.00**

Long. L(m) : **0.00**

Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**

Nº de fustes : **1**

Altura Hp (m): **13.10**

Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1071

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7{,}5+4*(\Psi A + \Psi B)+1{,}6*\Psi A * \Psi B) / (7{,}5+(\Psi A+\Psi B)))^{0.5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.10

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **52.40**

$35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$e_{tot} = e_e + e_a > e_2$

$e_a = (1 + 0{,}12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$

$e_e = 0.201$ Máxima excentricidad de cálculo de 1er orden

Lo = 13.10

$\varepsilon y =$ fyd / Es = 0.002070

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$

$\beta = 1.50$

$e_a = 0.178$

e_{tot} (m) = 0.378

Solicitaciones de cálculo :

Cabeza y pie de pórtico

Md (tm) = 167.52
Nd (t) = -442.60

Md (KNm) = 1641.7
Nd (KN) = -4337.5

Pie de pórtico

Md (tm) = 167.52
Nd (t) = -442.60

Md (KNm) = 1641.7
Nd (KN) = -4337.5

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 4 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **92.7** Md (KNm) = 908.5
Nd (T) = **-327.8** Nd (KN) = -3212.4

Pie de pórtico

Md (Tm) = **95.2** Md (KNm) = 933.3
Nd (T) = **-327.8** Nd (KN) = -3212.4

Hormigón : **HA - 30**
fck (N/mm²)= **30**
γ c = **1.50**
fcd (N/mm²)= 20.0
Ec (KN/mm²) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm²)= **500**
γ s = **1.15**
fyd (N/mm²)= 434.8
Es (KN/mm²) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m⁴) : 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **13.10**
Mto. Inercia I (m⁴) : 0.0491

$\Sigma E * I / L$ dintel = 0.0000

$\Sigma E * I / L$ soportes = 0.1071

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A * \Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.10

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : $\lambda =$ **52.40**

$35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

$e_e = 0.291$ Máxima excentricidad de cálculo de 1er orden

Lo = 13.10

$\varepsilon y =$ fyd / Es = 0.002070

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$$is^2 = \frac{1}{6}(d - d')^2$$

$\beta = 1.50$

$e_a = 0.186$

e_{tot} (m) = 0.476

Solicitaciones de cálculo :

Cabeza y pie de pórtico

Md (tm) = 156.08
Nd (t) = -327.80

Md (KNm) = 1529.6
Nd (KN) = -3212.4

Pie de pórtico

Md (tm) = 156.08
Nd (t) = -327.80

Md (KNm) = 1529.6
Nd (KN) = -3212.4

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 5 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **109.5** Md (KNm) = 1072.7
Nd (T) = **-410.4** Nd (KN) = -4022.1

Pie de pórtico

Md (Tm) = **82.7** Md (KNm) = 810.3
Nd (T) = **-410.4** Nd (KN) = -4022.1

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **13.10**
Mto. Inercia I (m^4) : 0.0491

$\Sigma E * I / L$ dintel = 0.0000 $\Sigma E * I / L$ soportes = 0.1071

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A * \Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.10

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **52.40**

$35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\ \beta)(\varepsilon y + \varepsilon)\ \frac{(h+20e_e)}{(h+10ee)}\ \frac{Lo^2}{50\ ic}$$

e_e = 0.267 Máxima excentricidad de cálculo de 1er orden

Lo = 13.10

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\ is^2}$ Factor de armado

De tablas se obtiene :

$$is^2 = \frac{1}{6}(d - d')^2$$

β = 1.50

e_a = 0.184

e_{tot} (m) = 0.451

Solicitaciones de cálculo :

Cabeza y pie de pórtico

Md (tm) = 184.92
Nd (t) = -410.42

Md (KNm) = 1812.2
Nd (KN) = -4022.1

Pie de pórtico

Md (tm) = 184.92
Nd (t) = -410.42

Md (KNm) = 1812.2
Nd (KN) = -4022.1

Características mecánicas Sección "PILAS" (sin coef. homogeneiz.)

Area	Ax = 7.858E3 cm2		
Momento de inercia	Iy = 4.918E6 cm4	Iz = 4.909E6 cm4	Ip = 9.827E6 cm4
Const. de torsión			Ix = 9.817E6 cm4
Momento estático	Zy =166.73E3 cm3	Zz = 166.73E3 cm3	
Baricentro	ys = -0.0000 m	zs = 0.0000 m	Angulo= 0.0 Grad
Dist. al borde	yl = -0.5000 m	yr = 0.5000 m	
	zo = 0.5000 m	zu = -0.5000 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = -0.0000 m z = 0.0000 m

ción parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
C1	H300	1.0	0.0000	0.0000	0.5000	9.82E+06

Armadura "B1" As-tot =74.3302 cm2 (0.95 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
CR 5 / C1	AEH500	1.0	1	5.3093	-0.1001	0.4387
CR 5 / C1	AEH500	1.0	1	5.3093	0.1001	0.4387
CR 7 / C1	AEH500	1.0	1	5.3093	-0.2806	0.3518
CR 4 / C1	AEH500	1.0	1	5.3093	0.2806	0.3518
CR 8 / C1	AEH500	1.0	1	5.3093	-0.4054	0.1952
CR 3 / C1	AEH500	1.0	1	5.3093	0.4054	0.1952
CR 9 / C1	AEH500	1.0	1	5.3093	-0.4500	0.0000
CR 2 / C1	AEH500	1.0	1	5.3093	0.4500	0.0000
CR 15 / C1	AEH500	1.0	1	5.3093	0.4054	-0.1952
CR 10 / C1	AEH500	1.0	1	5.3093	-0.4054	-0.1952
CR 14 / C1	AEH500	1.0	1	5.3093	0.2806	-0.3518
CR 11 / C1	AEH500	1.0	1	5.3093	-0.2806	-0.3518
CR 13 / C1	AEH500	1.0	1	5.3093	0.1001	-0.4387
CR 12 / C1	AEH500	1.0	1	5.3093	-0.1001	-0.4387

Dimensionamiento a flexión: Viga Sección "PILAS"/"B1"

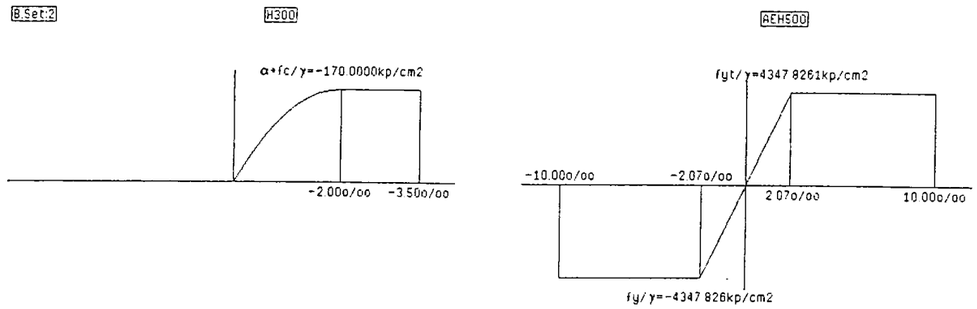
Nº	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-493.0000	135.3100	0.0000	
2	2	-209.0700	109.9200	0.0000	
3	2	-442.6000	167.5200	0.0000	
4	2	-327.8000	156.0800	0.0000	
5	2	-410.4000	184.9200	0.0000	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

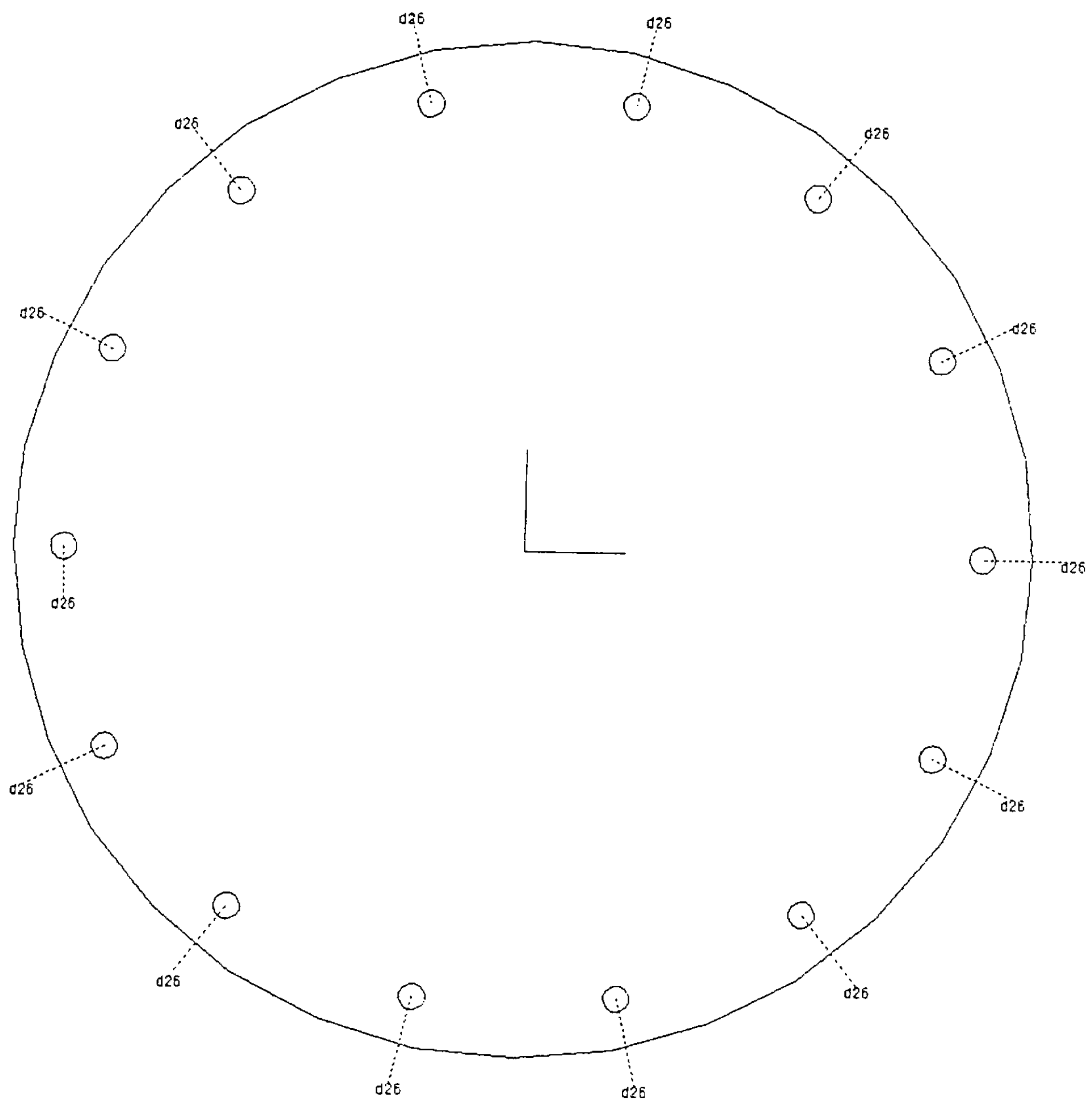
No Armad. long.	yl [m]	zl [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
5 AEH500	-0.1001	0.4387			0.5000	3.8946	3.8946
5 AEH500	0.1001	0.4387			0.5000	3.8946	3.8946
5 AEH500	-0.2806	0.3518			0.5000	3.8946	3.8946
5 AEH500	0.2806	0.3518			0.5000	3.8946	3.8946
5 AEH500	-0.4054	0.1952			0.5000	3.8946	3.8946
5 AEH500	0.4054	0.1952			0.5000	3.8946	3.8946
5 AEH500	-0.4500	0.0000			0.5000	3.8946	3.8946
5 AEH500	0.4500	0.0000			0.5000	3.8946	3.8946
5 AEH500	0.4054	-0.1952			0.5000	3.8946	3.8946
5 AEH500	-0.4054	-0.1952			0.5000	3.8946	3.8946
5 AEH500	0.2806	-0.3518			0.5000	3.8946	3.8946
5 AEH500	-0.2806	-0.3518			0.5000	3.8946	3.8946
5 AEH500	0.1001	-0.4387			0.5000	3.8946	3.8946
5 AEH500	-0.1001	-0.4387			0.5000	3.8946	3.8946

Max.x/h = 0.59 As-top/bot = 23.3675/31.1566 As = 0.69 % = 54.5241 → 14 ϕ 25

Material acorde a la sección: "PILAS"



Dimensionamiento, Sección "PILAS"



****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: fisuracion en pila
Fecha: 27/4/01 10.02.35

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 88.6 cm Alto = 88.6 cm Canto útil = 83.85 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 24.54 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 38.54 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0033037
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 17.72 cm
Area de hormigón eficaz, Ac,eficaz = 1962.49 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 32.90 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1708.9 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2001.6 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 20.54 cm
Alargamiento medio de las fisuras, Esm = 0.000636053
Apertura de fisura, Wk = 0.222 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.222 mm
Apertura de fisura máxima, Wmax = 0.300 mm

ENVELOPE SPECIFIC.: CY 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	1.000		SOE UNIF 1
F	PLUS	7	1.000		SOE UNIF 2
G	PLUS	8	1.000		SOE UNIF 3
H	PLUS	9	1.000		SOE UNIF 4
I	PLUS	10	1.000		SOE UNIF 5
J	PLUS	11	1.000		VEHICULO HIPOTESIS 11
K	OR	12	1.000		VEHICULO HIPOTESIS 12
L	OR	13	1.000		VEHICULO HIPOTESIS 13
M	OR	14	1.000		VEHICULO HIPOTESIS 14
N	OR	15	1.000		VEHICULO HIPOTESIS 15
O	OR	16	1.000		VEHICULO HIPOTESIS 16
P	OR	17	1.000		VEHICULO HIPOTESIS 17
Q	OR	18	1.000		VEHICULO HIPOTESIS 18
R	OR	19	1.000		VEHICULO HIPOTESIS 19
S	OR	20	1.000		VEHICULO HIPOTESIS 20
T	OR	21	1.000		VEHICULO HIPOTESIS 21
U	OR	22	1.000		VEHICULO HIPOTESIS 22
V	OR	23	1.000		VEHICULO HIPOTESIS 23
W	OR	24	1.000		VEHICULO HIPOTESIS 24
X	OR	25	1.000		VEHICULO POSICION 25
Y	OR	26	1.000		VEHICULO POSICION 26
Z	OR	27	1.000		VEHICULO POSICION 27
AA	OR	28	1.000		VEHICULO POSICION 28
AB	OR	29	1.000		VEHICULO POSICION 29
AC	OR	30	1.000		VEHICULO POSICION 30
AD	OR	31	1.000		VEHICULO POSICION 31
AE	OR	32	1.000		VEHICULO POSICION 32
AF	OR	33	1.000		VEHICULO POSICION 33
AG	OR	34	1.000		VEHICULO POSICION 34
AH	OR	35	1.000		VEHICULO POSICION 35
AI	OR	36	1.000		VEHICULO POSICION 36
AJ	OR	37	1.000		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.000		FRENADO
AL	PLUS	63	0.300000		VIENTO TRANSV CON SOE
AM	PLUS	64	0.600000		TEMPERATURA (-)
AN	OR	65	0.600000		TEMPERATURA (+)
AO	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000		PESO PROPIO
AQ	PL.PERM	2	1.500		PESO PAVIMENTO
AR	OR	2	1.000		PESO PAVIMENTO
AS	PL.PERM	3	1.000		PESO BARRERAS
AT	PL.PERM	5	1.000		RETRACCION
AU	PLUS	6	1.000		SOE UNIF 1
AV	PLUS	7	1.000		SOE UNIF 2
AW	PLUS	8	1.000		SOE UNIF 3
AX	PLUS	9	1.000		SOE UNIF 4

AY	PLUS	10	1.000		SOE UNIF 5
AZ	PLUS	11	1.000		VEHICULO HIPOTESIS 11
BA	OR	12	1.000		VEHICULO HIPOTESIS 12
BB	OR	13	1.000		VEHICULO HIPOTESIS 13
BC	OR	14	1.000		VEHICULO HIPOTESIS 14
BD	OR	15	1.000		VEHICULO HIPOTESIS 15
BE	OR	16	1.000		VEHICULO HIPOTESIS 16
BF	OR	17	1.000		VEHICULO HIPOTESIS 17
BG	OR	18	1.000		VEHICULO HIPOTESIS 18
BH	OR	19	1.000		VEHICULO HIPOTESIS 19
BI	OR	20	1.000		VEHICULO HIPOTESIS 20
BJ	OR	21	1.000		VEHICULO HIPOTESIS 21
BK	OR	22	1.000		VEHICULO HIPOTESIS 22
BL	OR	23	1.000		VEHICULO HIPOTESIS 23
BM	OR	24	1.000		VEHICULO HIPOTESIS 24
BN	OR	25	1.000		VEHICULO POSICION 25
BO	OR	26	1.000		VEHICULO POSICION 26
BP	OR	27	1.000		VEHICULO POSICION 27
BQ	OR	28	1.000		VEHICULO POSICION 28
BR	OR	29	1.000		VEHICULO POSICION 29
BS	OR	30	1.000		VEHICULO POSICION 30
BT	OR	31	1.000		VEHICULO POSICION 31
BU	OR	32	1.000		VEHICULO POSICION 32
BV	OR	33	1.000		VEHICULO POSICION 33
BW	OR	34	1.000		VEHICULO POSICION 34
BX	OR	35	1.000		VEHICULO POSICION 35
BY	OR	36	1.000		VEHICULO POSICION 36
BZ	OR	37	1.000		VEHICULO HIPOTESIS 37
CA	PLUS	60	1.000		FRENADO
CB	PLUS	63	0.300000		VIENTO TRANSV CON SOE
CC	PLUS	64	0.600000		TEMPERATURA (-)
CD	OR	65	0.600000		TEMPERATURA (+)
CE	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

CF	PERM.	1	1.000		PESO PROPIO
CG	PL.PERM	2	1.500		PESO PAVIMENTO
CH	OR	2	1.000		PESO PAVIMENTO
CI	PL.PERM	3	1.000		PESO BARRERAS
CJ	PLUS	46	1.000		SOE UNIF VANO 1
CK	PLUS	47	1.000		SOE UNIF VANO 2
CL	PLUS	48	1.000		SOE UNIF VANO 3
CM	PLUS	11	1.000		VEHICULO HIPOTESIS 11
CN	OR	12	1.000		VEHICULO HIPOTESIS 12
CO	OR	13	1.000		VEHICULO HIPOTESIS 13
CP	OR	14	1.000		VEHICULO HIPOTESIS 14
CQ	OR	15	1.000		VEHICULO HIPOTESIS 15
CR	OR	16	1.000		VEHICULO HIPOTESIS 16
CS	OR	17	1.000		VEHICULO HIPOTESIS 17
CT	OR	18	1.000		VEHICULO HIPOTESIS 18
CU	OR	19	1.000		VEHICULO HIPOTESIS 19
CV	OR	20	1.000		VEHICULO HIPOTESIS 20
CW	OR	21	1.000		VEHICULO HIPOTESIS 21
CX	OR	22	1.000		VEHICULO HIPOTESIS 22
CY	OR	23	1.000		VEHICULO HIPOTESIS 23
CZ	OR	24	1.000		VEHICULO HIPOTESIS 24

DA	OR	25	1.000		VEHICULO POSICION 25
DB	OR	26	1.000		VEHICULO POSICION 26
DC	OR	27	1.000		VEHICULO POSICION 27
DD	OR	28	1.000		VEHICULO POSICION 28
DE	OR	29	1.000		VEHICULO POSICION 29
DF	OR	30	1.000		VEHICULO POSICION 30
DG	OR	31	1.000		VEHICULO POSICION 31
DH	OR	32	1.000		VEHICULO POSICION 32
DI	OR	33	1.000		VEHICULO POSICION 33
DJ	OR	34	1.000		VEHICULO POSICION 34
DK	OR	35	1.000		VEHICULO POSICION 35
DL	OR	36	1.000		VEHICULO POSICION 36
DM	OR	37	1.000		VEHICULO HIPOTESIS 37
DN	PLUS	60	1.000		FRENADO
DO	PLUS	63	0.300000		VIENTO TRANSV CON SOE
DP	PLUS	64	0.600000		TEMPERATURA (-)
DQ	OR	65	0.600000		TEMPERATURA (+)
DR	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

DS	PERM.	1	1.000		PESO PROPIO
DT	PL.PERM	2	1.500		PESO PAVIMENTO
DU	OR	2	1.000		PESO PAVIMENTO
DV	PL.PERM	3	1.000		PESO BARRERAS
DW	PL.PERM	5	1.000		RETRACCION
DX	PLUS	46	1.000		SOE UNIF VANO 1
DY	PLUS	47	1.000		SOE UNIF VANO 2
DZ	PLUS	48	1.000		SOE UNIF VANO 3
EA	PLUS	11	1.000		VEHICULO HIPOTESIS 11
EB	OR	12	1.000		VEHICULO HIPOTESIS 12
EC	OR	13	1.000		VEHICULO HIPOTESIS 13
ED	OR	14	1.000		VEHICULO HIPOTESIS 14
EE	OR	15	1.000		VEHICULO HIPOTESIS 15
EF	OR	16	1.000		VEHICULO HIPOTESIS 16
EG	OR	17	1.000		VEHICULO HIPOTESIS 17
EH	OR	18	1.000		VEHICULO HIPOTESIS 18
EI	OR	19	1.000		VEHICULO HIPOTESIS 19
EJ	OR	20	1.000		VEHICULO HIPOTESIS 20
EK	OR	21	1.000		VEHICULO HIPOTESIS 21
EL	OR	22	1.000		VEHICULO HIPOTESIS 22
EM	OR	23	1.000		VEHICULO HIPOTESIS 23
EN	OR	24	1.000		VEHICULO HIPOTESIS 24
EO	OR	25	1.000		VEHICULO POSICION 25
EP	OR	26	1.000		VEHICULO POSICION 26
EQ	OR	27	1.000		VEHICULO POSICION 27
ER	OR	28	1.000		VEHICULO POSICION 28
ES	OR	29	1.000		VEHICULO POSICION 29
ET	OR	30	1.000		VEHICULO POSICION 30
EU	OR	31	1.000		VEHICULO POSICION 31
EV	OR	32	1.000		VEHICULO POSICION 32
EW	OR	33	1.000		VEHICULO POSICION 33
EX	OR	34	1.000		VEHICULO POSICION 34
EY	OR	35	1.000		VEHICULO POSICION 35
EZ	OR	36	1.000		VEHICULO POSICION 36
FA	OR	37	1.000		VEHICULO HIPOTESIS 37
FE	PLUS	60	1.000		FRENADO

FC	PLUS	63	0.300000		VIENTO TRANSV CON SOE
FD	PLUS	64	0.600000		TEMPERATURA (-)
FE	OR	65	0.600000		TEMPERATURA (+)
FF	PLUS	66	0.600000		GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.091	-3.683	20.036				
	1.761	1.141	100.469				
	Min: AP AR AS AT AX AY BU...			Max: A E D E F G J AL AN AO			
10	2.283	-3.686	16.626				
	-0.568555	1.138	97.227				
	Min: AP AR AS AT AU AV BC...			Max: A E D G H I AE AN AO			
156	-1.091	2.566	20.407				
	1.761	-2.257	100.849				
	Min: AP AR AS AT AX AY BW...			Max: A E D E F G R AK AL AN.			
160	2.283	2.571	16.997				
	-0.568596	-2.254	97.599				
	Min: AP AR AS AT AU AV EE...			Max: A E D G H I AJ AK AN...			
166	3.374	-1.935	218.118	15.604	23.708	-0.028301	
	2.90E-10	-0.710816	352.379	11.174	2.13E-09	-3.88E-09	
	Min: CF CH CI CL DC DN DQ...			Max: DS DT DV DW DX DY EM...			
167	3.374	-1.629	219.077	9.951	23.708	0.028301	
	2.78E-10	-3.053	353.338	14.381	2.08E-09	3.63E-09	
	Min: CF CH CI CJ CW DO DQ...			Max: DS DT DV DW DY DZ EO...			

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.091	-3.683	26.641				
	2.283	1.009	60.789				
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F M AL AN			
10	-1.090	1.006	57.547				
	2.284	-3.686	23.231				
	Min: A C D H I AE AN			Max: AP AQ AS AT AU AV AW...			
156	-1.091	2.567	27.013				
	2.283	-2.125	61.160				
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F G AK AL AN			
160	-1.091	-2.122	57.919				
	2.284	2.570	23.603				
	Min: A C D H I AG AK AN			Max: AP AQ AS AT AU AV AW...			
166	-2.615	3.395	313.122	-17.884	-3.159	0.221212	
	5.989	-4.252	319.171	36.214	26.867	-0.249513	
	Min: A C D E F M AN			Max: AP AQ AS AT AW AX AY...			
167	-2.615	-7.158	314.081	43.438	-3.159	-0.221212	

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
	5.989	0.488287	320.130	-10.660	26.867	0.249513	
	Min: A C D E F O AK AN			Max: AP AQ AS AT AW AX AY...			

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-0.167731	-3.836	34.498				
	0.835704	1.280	53.022				
	Min: DS DT DV DW DY DZ EZ...			Max: CF CH CI CJ DF DO DQ...			
10	1.360	-3.839	31.088				
	0.356935	1.277	49.781				
	Min: DS DT DV DW DY DZ EH...			Max: CF CH CI CJ CN DQ DF			
156	0.835745	-2.396	53.394				
	-0.167696	2.720	34.870				
	Min: CF CH CI CL DL DN DQ...			Max: DS DT DV DW DX DY ET...			
160	0.356554	-2.393	50.152				
	1.360	2.723	31.460				
	Min: CF CH CI CL CT DN DQ...			Max: DS DT DV DW DX DY EE...			
166	3.374	-8.324	297.858	52.596	23.708	-0.028301	
	5.36E-09	6.034	296.745	-25.975	2.74E-08	-1.18E-08	
	Min: DS DU DV DW DX DZ EA...			Max: CF CG CI CK CZ DQ DF			
167	5.35E-09	-9.757	297.708	55.530	2.73E-08	1.16E-08	
	3.374	4.566	298.816	-27.044	23.708	0.028301	
	Min: CF CG CI CK CZ DN DQ...			Max: DS DU DV DW DX DZ EQ...			

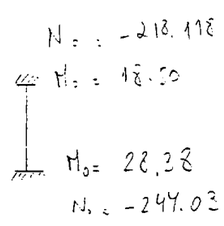
ENVELOPE for < N > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

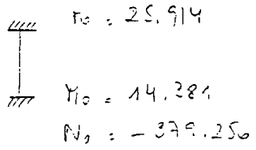
Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]	
290	0	-352.379	-0.710816	-2.90E-10	3.88E-09	2.13E-09	11.174	
		-218.118	-1.935	-3.374	0.028301	23.708	15.604	
		Min: DS DT DV DW DX DY EM...			Max: CF CH CI CL DC DN DQ...			
290	13.200	-252.375	-0.710816	-2.90E-10	3.88E-09	-1.70E-09	1.791	
		-218.118	-1.935	-2.582	0.028301	-15.596	-9.938	
		Min: DS DT DV DW DX DY EM...			Max: CF CH CI CL DC DN DQ...			
291	0	-353.338	-3.053	-2.78E-10	-1.63E-09	2.08E-09	14.381	
		-219.077	-1.629	-3.374	-0.028301	23.708	9.951	
		Min: DS DT DV DW DY DZ EO...			Max: CF CH CI CJ CW DO DQ...			
291	13.200	-353.338	-3.053	-2.78E-10	-1.63E-09	-1.59E-09	-25.514	
		-219.077	-1.629	-2.582	-0.028301	-15.596	-14.186	
		Min: DS DT DV DW DY DZ EO...			Max: CF CH CI CJ CW DO DQ...			

FC	PLUS	63	0.300000	VIENTO TRANSV CON SOB
FD	PLUS	64	0.600000	TEMPERATURA (-)
FE	OR	65	0.600000	TEMPERATURA (+)
FF	PLUS	66	0.600000	GRADIENTE

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

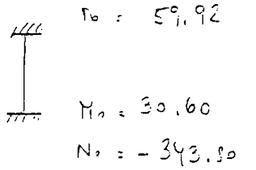
Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-352.379	-0.710816	-2.90E-10	3.88E-09	2.13E-09	11.174
		-216.118	-1.935	-3.374	0.028301	23.708	15.604
		Min: DS DT DV DW DX DY EM...		Max: CF CH CI CL DC DN DO...			
290	13.200	-352.379	-0.710816	-2.90E-10	3.88E-09	-1.70E-09	1.791
		-216.118	-1.935	-2.582	0.028301	-15.598	-9.936
		Min: DS DT DV DW DX DY EM...		Max: CF CH CI CL DC DN DO...			
291	0	-353.338	-3.053	-2.78E-10	-3.63E-09	2.08E-09	14.381
		-219.077	-1.829	-3.374	-0.028301	23.708	9.951
		Min: DS DT DV DW DY DZ EO...		Max: CF CH CI CJ CW DO DQ...			
291	13.200	-353.338	-3.053	-2.78E-10	-3.63E-09	-1.59E-09	-25.914
		-219.077	-1.829	-2.582	-0.028301	-15.598	-14.186
		Min: DS DT DV DW DY DZ EO...		Max: CF CH CI CJ CW DO DQ...			





ENVELOPE for < My > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-313.535	-3.098	2.525	-0.264263	-3.487	20.929
		-316.630	-1.529	-5.898	0.292564	27.196	11.566
		Min: AP AR AS AT AU AV BB...		Max: A B D G H I AD AK AL...			
290	13.200	-319.171	-4.252	-5.197	0.249513	-46.963	-19.909
		-313.122	3.395	2.615	-0.221212	31.365	26.929
		Min: AP AQ AS AT AW AX AY...		Max: A C D E F M AN			
291	0	-314.494	-0.665613	2.525	0.264263	-3.487	4.626
		-317.589	-2.234	-5.898	-0.292564	27.196	13.988
		Min: AP AR AS AT AU AV BF...		Max: A B D G H I AH AL AN...			
291	13.200	-320.130	0.488287	-5.197	-0.249513	-46.963	-4.214
		-314.081	-7.158	2.615	0.221212	31.365	-51.052
		Min: AP AQ AS AT AW AX AY...		Max: A C D E F O AK AN			



ENVELOPE for < Mz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-296.749	6.034	-5.36E-09	1.18E-08	2.74E-08	-29.975
		-297.856	-8.324	-3.374	0.028301	23.708	52.598
		Min: CF CG CI CK CZ DQ DR		Max: DS DU DV DW DX DZ EK...			
290	13.200	-297.856	-8.324	-2.582	0.028301	-15.598	-57.273
		-296.749	6.034	-5.36E-09	1.18E-08	-4.34E-08	49.670
		Min: DS DU DV DW DX DZ EK...		Max: CF CG CI CK CZ DQ DR			
291	0	-298.816	4.560	-3.374	-0.028301	23.708	-27.044
		-297.708	-9.797	-5.35E-09	-1.16E-08	2.73E-08	55.530
		Min: DS DU DV DW DX DZ EQ...		Max: CF CG CI CK CZ DN DQ...			
291	13.200	-297.708	-9.797	-5.35E-09	-1.16E-08	-4.33E-08	-73.793
		-296.816	4.560	-2.582	-0.028301	-15.598	33.150
		Min: CF CG CI CK CZ DN DQ...		Max: DS DU DV DW DX DZ EQ...			

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 1 :
Dirección transversal
Solicitaciones : Cabeza de pórtico

Mk (tm) = **16.0** Mk (KNm) = 156.8
Nk (t) = **-218.1** Nk (KN) = -2137.6

Pie de pórtico

Mk (tm) = **23.7** Mk (KNm) = 232.3
Nk (t) = **-244.0** Nk (KN) = -2391.5

Dirección longitudinal
Solicitaciones : Cabeza de pórtico

Mk (tm) = **9.9** Mk (KNm) = 97.4
Nk (t) = **-218.1** Nk (KN) = -2137.6

Pie de pórtico

Mk (tm) = **15.6** Mk (KNm) = 153.0
Nk (t) = **-244.0** Nk (KN) = -2391.5

Hormigón : **HA - 30** Acero pasivo : **B 500 S**

fck (N/mm^2)= **30** fyk (N/mm^2)= **500**
γ c = **1.50** γ s = **1.15**
fcd (N/mm^2)= 20.0 fyd (N/mm^2)= 434.8
Ec (KN/mm^2) = 28.6 Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **13.20**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1063

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A * \Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.20

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **52.80** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$e_{tot} = e_e + e_a > e_2$

$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$

$e_e = 0.097$ Máxima excentricidad de cálculo de 1er orden transversal
$e_e = 0.064$ Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 13.20

$\varepsilon y =$ fyd / Es = 0.002070

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ $\beta = 1.50$

Solicitaciones de cálculo transversales :

$e_a = 0.161$

e_{tot} (m) = 0.258

Pie de pórtico

Mk (tm) = 63.08
Nk (t) = -244.03

Mk (KNm) = 618.2
Nk (KN) = -2391.5

Solicitaciones de cálculo longitudinales :

$e_a = 0.150$

e_{tot} (m) = 0.214

Pie de pórtico

Mk (tm) = 52.27
Nk (t) = -244.03

Mk (KNm) = 512.3
Nk (KN) = -2391.5

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 2 :
Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-353.3** Nk (KN) = -3462.6

Pie de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-379.3** Nk (KN) = -3716.7

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **25.9** Mk (KNm) = 253.8
Nk (t) = **-353.3** Nk (KN) = -3462.3

Pie de pórtico

Mk (tm) = **14.4** Mk (KNm) = 141.1
Nk (t) = **-379.3** Nk (KN) = -3717.1

Hormigón : **HA - 30** Acero pasivo : **B 500 S**

fck (N/mm^2)= **30** fyk (N/mm^2)= **500**
γ c = **1.50** γ s = **1.15**
fcd (N/mm^2)= 20.0 fyd (N/mm^2)= 434.8
Ec (KN/mm^2) = 28.6 Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **13.20**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1063

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7{,}5+4*(\Psi A + \Psi B)+1{,}6*\Psi A*\Psi B) / (7{,}5+(\Psi A+\Psi B)))^{0{,}5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.20

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **52.80** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.000 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.073 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 13.20

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.108

e_{tot} (m) = 0.108

Pie de pórtico

Mk (tm) = 40.99
Nk (t) = -379.26

Mk (KNm) = 401.7
Nk (KN) = -3716.7

Solicitaciones de cálculo longitudinales :

e_a = 0.154

e_{tot} (m) = 0.227

Pie de pórtico

Mk (tm) = 86.14
Nk (t) = -379.30

Mk (KNm) = 844.1
Nk (KN) = -3717.1

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 3 :
Dirección transversal
Solicitaciones : Cabeza de pórtico

Mk (tm) = **31.4** Mk (KNm) = 307.3
Nk (t) = **-314.1** Nk (KN) = -3078.0

Pie de pórtico

Mk (tm) = **27.2** Mk (KNm) = 266.6
Nk (t) = **-343.5** Nk (KN) = -3366.3

Dirección longitudinal
Solicitaciones : Cabeza de pórtico

Mk (tm) = **51.1** Mk (KNm) = 500.3
Nk (t) = **-314.1** Nk (KN) = -3078.2

Pie de pórtico

Mk (tm) = **14.0** Mk (KNm) = 137.2
Nk (t) = **-343.5** Nk (KN) = -3366.3

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **13.20**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1063

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7{,}5+4*(\Psi A + \Psi B)+1{,}6*\Psi A *\Psi B) / (7{,}5+(\Psi A+\Psi B)))^{0.5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.20

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **52.80** $35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y+\varepsilon)\frac{(h+20e_e)}{(h+10ee)}\frac{Lo^2}{50\,ic}$$

e_e = 0.100 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.163 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 13.20

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :
e_a = 0.162

e_{tot} (m) = 0.262

Pie de pórtico

Mk (tm) = 89.97
Nk (t) = -343.50

Mk (KNm) = 881.7
Nk (KN) = -3366.3

Solicitaciones de cálculo longitudinales :
e_a = 0.175

e_{tot} (m) = 0.338

Pie de pórtico

Mk (tm) = 115.93
Nk (t) = -343.50

Mk (KNm) = 1136.1
Nk (KN) = -3366.3

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 4 :
Dirección transversal
Solicitaciones :

Cabeza de pórtico
Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-298.8** Nk (KN) = -2928.4

Pie de pórtico
Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-324.7** Nk (KN) = -3182.5

Dirección longitudinal
Solicitaciones :

Cabeza de pórtico
Mk (tm) = **73.8** Mk (KNm) = 723.2
Nk (t) = **-298.8** Nk (KN) = -2928.4

Pie de pórtico
Mk (tm) = **55.5** Mk (KNm) = 544.2
Nk (t) = **-324.7** Nk (KN) = -3182.5

Hormigón : **HA - 30** Acero pasivo : **B 500 S**
fck (N/mm²)= **30** fyk (N/mm²)= **500**
γ c = **1.50** γ s = **1.15**
fcd (N/mm²)= 20.0 fyd (N/mm²)= 434.8
Ec (KN/mm²) = 28.6 Es (KN/mm²) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m⁴) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **13.20**
Mto. Inercia I (m⁴) : 0.0491

Σ E * I / L soportes = 0.1063

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A *\Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 13.20

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **52.80** $35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$e_{tot} = e_e + e_a > e_2$

$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$

$e_e = 0.000$ Máxima excentricidad de cálculo de 1er orden transversal
$e_e = 0.247$ Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 13.20

$\varepsilon y =$ fyd / Es = 0.002070

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ $\beta = 1.50$

Solicitaciones de cálculo transversales :
$e_a = 0.108$

e_{tot} (m) = 0.108

Pie de pórtico

Mk (tm) = 35.10
Nk (t) = -324.74

Mk (KNm) = 343.9
Nk (KN) = -3182.5

Solicitaciones de cálculo longitudinales :
$e_a = 0.185$

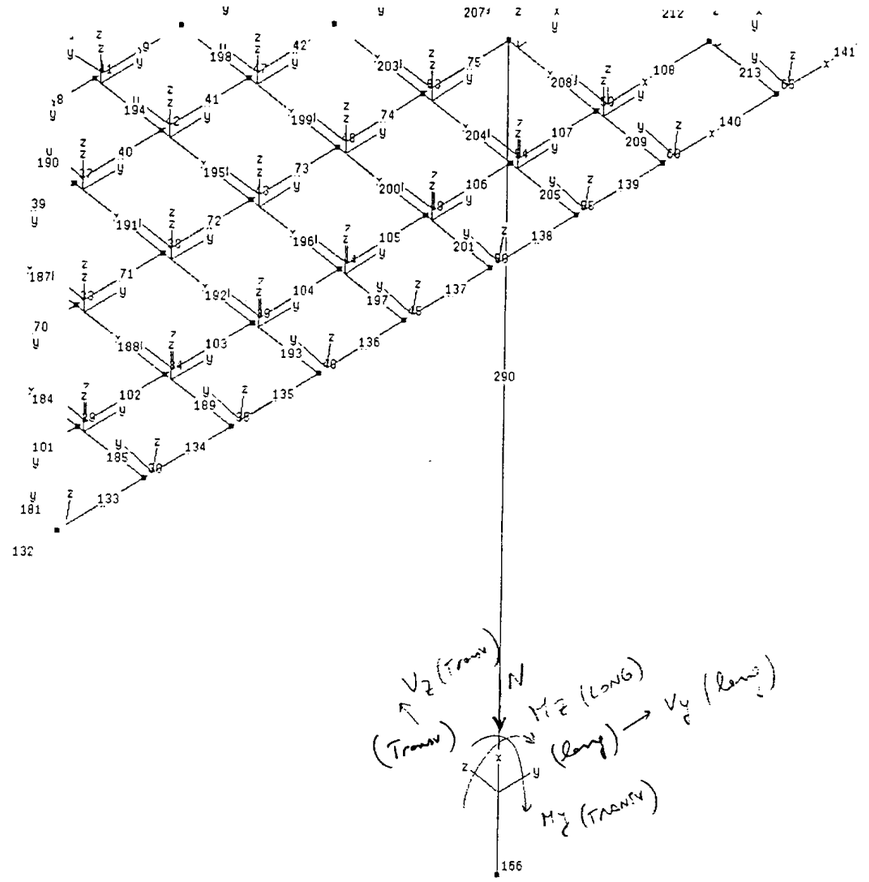
e_{tot} (m) = 0.432

Pie de pórtico

Mk (tm) = 140.28
Nk (t) = -324.74

Mk (KNm) = 1374.7
Nk (KN) = -3182.5

Scale 1 : 70.6 (x: 6.88 .. 17.90 z: -4.88 .. 4.90)

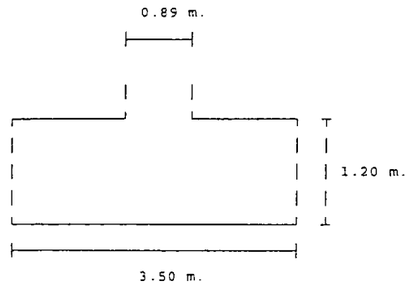


Estructura ....:E-2

Pila Nº : 1

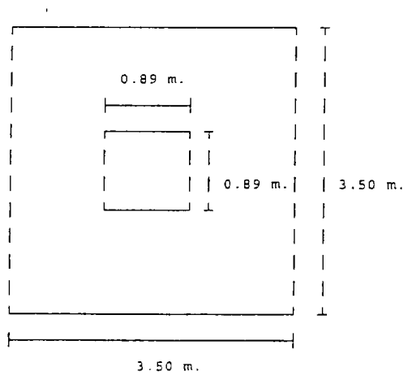
©DIBUJO

* dibujo sin escala



ALZADO

Dirección del eje del tablero



PLANTA

CARACTERISTICAS DE LOS MATERIALES Y CIMENTACION

Fck (Kg/cm²) ..... 250 rcd ... 1.50

Fyk (Kg/cm²) ..... 5100 ryd ... 1.15

Recubrimiento de armaduras ..... 4.0 cms

Tensión admisible del terreno ..... 5.00 Kg/cm²

Coeficiente de rozamiento en cimentación ... 0.55

Coeficiente de seguridad al deslizamiento... 1.50

Coeficiente de seguridad al vuelco 1.50

©ESFUERZOS CONSIDERADOS

* Longitudinal y transversal según la dirección del eje del tablero
* Esfuerzos en t y m.t

Hipótesis	Axil	F.Long	F.Trans	M.Long	M.Trans	rf
1	244.03	1.93	3.37	52.27	63.08	1.50
2	379.26	3.05	0.00	86.14	40.99	1.50
3	343.50	2.23	5.90	115.93	89.97	1.50
4	324.74	9.80	0.00	140.28	35.10	1.50

RESULTADOS DE CALCULO

©Tensiones sobre el Terreno en Kg/cm² y coeficientes de seguridad

Hipótesis	σ1	σ2	σ3	σ4	σcob	Cd	Cv
1	4.00	2.12	2.47	0.59	2.99	45.82	7.32
2	5.23	4.08	2.71	1.57	4.10	75.02	8.11
3	6.12	3.41	2.80	0.09	4.42	35.45	5.61
4	5.57	4.59	1.31	0.33	4.11	20.29	4.16

Tensión cobaricéntrica Máxima 4.42 Kg/cm² para la Hipótesis 3

©Esfuerzos de cálculo

* Esfuerzos en m.t/m y t/m Armaduras en cm²/m

Recubrimiento de armaduras= 4.0 cms

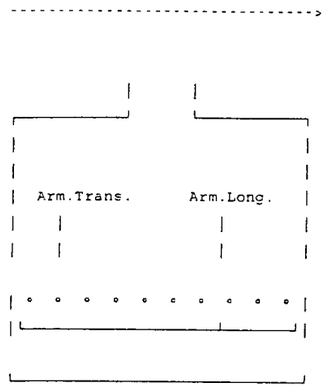
Uc= 1933 t/m

Vcu long..= 149.76 t/m
Vcu trans.= 149.76 t/m

Hipótesis	M.long	M.trans	Ar.long	Ar.trans	Vd long.	Vd Trans.
1	54.20	53.46	10.67	10.52	1.94	1.95
2	71.24	74.16	14.08	14.66	2.73	2.71
3	83.45	84.74	16.54	16.80	3.27	3.26
4	72.87	79.85	14.40	15.81	2.94	2.90

146.32 146.32

©DIBUJO DE LA ARMADURA



ALZADO

Armadura longitudinal Máxima 16.80 cm²/m para la Hipótesis 3 ϕ 25/20

Armadura transversal Máxima 16.80 cm²/m para la Hipótesis 3 ϕ 25/20

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A..
Título: ESTRUCTURA E-2
Fecha: 3/5/01 16.29.33

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 25 fck = 25 N/mm2 Ec = 27264.0 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 120 cm Canto útil = 115.75 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 24.54 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 56.5 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0021204
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 20.00 cm
Area de hormigón eficaz, Ac,eficaz = 2300.00 cm2
Resistencia a tracción del hormigón, fct,m = 25.1 Kp/cm2
Momento de fisuración, Mfis = 60.33 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 2244.4 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2101.9 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 21.71 cm
Alargamiento medio de las fisuras, Esm = 0.000451869
Apertura de fisura, Wk = 0.000 mm
La sección no se ha llegado a fisurar por no rebasarse fct,m en el hormigón

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.000 mm
Apertura de fisura máxima, Wmax = 0.300 mm

5. Estribos

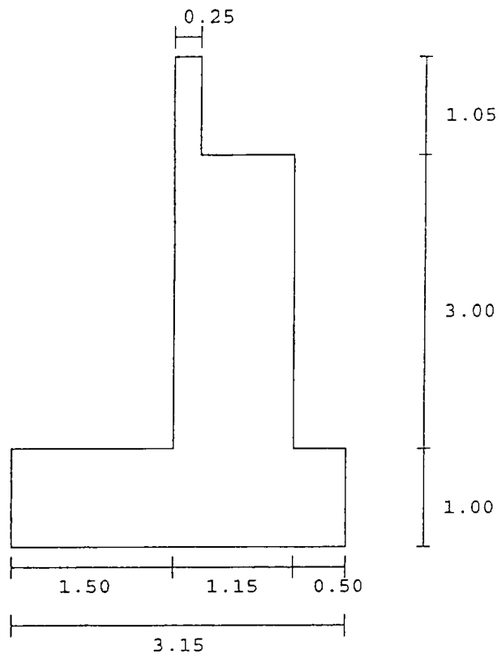
5.1 Geometría (ver plano)

Estructura ....:Reposicion 14 E-2

Estribo .....:E-1

DATOS GEOMETRICOS (sin escala)

* Cotas en mtrs.



Area de la sección 6.86 m²

MATERIALES

Hormigón en zapata y alzado ..... 250 Kg/cm²

Coeficiente de seguridad del hormigón 1.50

Acero en armaduras, zapata y alzado ..... 5100 Kg/cm²

Coeficiente de seguridad del acero 1.15

CARACTERISTICAS DEL TERRENO

Densidad de las tierras (t/m3) 2.00

Coeficiente de empuje activo horizontal 0.33

Tensión admisible del terreno en cimentación (Kg/cm²) 3.0

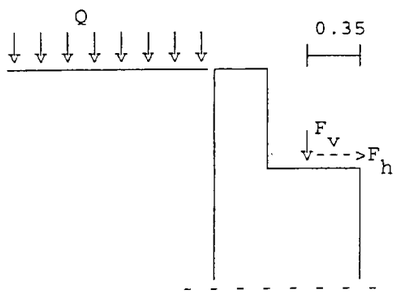
Coeficiente de rozamiento en cota de cimentación 0.55

Coeficiente de seguridad al deslizamiento (Cd) 1.50

Coeficiente de seguridad al vuelco (Cv) 1.80

Altura considerada de empuje de tierras (mtrs.) 5.05

CARGAS ACTUANTES



Reacciones Verticales (Fv t/m)

Cargas Permanentes : 9.95

Sobrecargas Máximas: 12.55
Sobrecargas Mínimas: 0.00
Sobrecarga q (t/m²): 1.00

Reacciones Horizontales (Fh t/m)

Reológicas : 0.38
Temperatura : 0.47
Frenado : 0.40

COMBINACIONES

A) 1.35*(Peso Propio)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

B) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)

C) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Máximas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

D) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Mínimas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

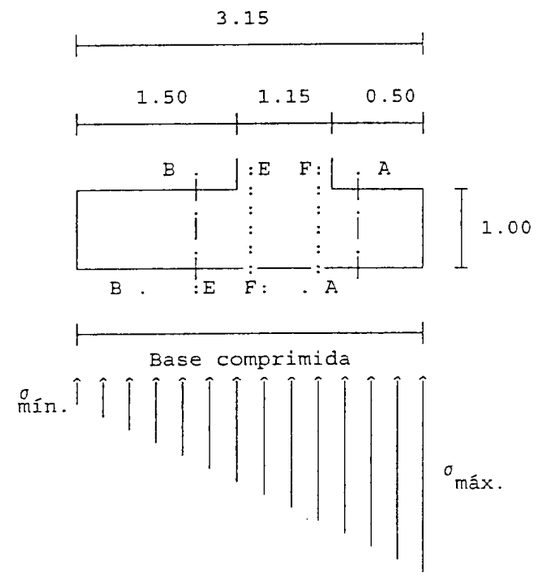
ESFUERZOS DE COMBINACIONES

Combinación	Fv(t/m)	Fh(t/m)	Q(t/m²)
A	0.00 0.00	0.00 0.00	1.00 1.25
B	9.95 13.43	0.85 1.22	1.00 1.50
C	22.50 32.26	1.25 1.31	1.00 1.50
D	9.95 13.43	1.25 1.82	1.00 1.50

COMPROBACION DE ESTABILIDAD:

Hipótesis	ΣFv(t/m)	ΣFh(t/m)	Cd	ΣMe(mt/m)	ΣMv(mt/m)	Cv
A	30.81	10.08	1.68	55.44	18.37	3.02
B	40.76	10.93	2.05	63.89	21.77	2.93
C	53.31	11.33	2.59	74.56	23.37	3.19
D	40.76	11.33	1.98	63.89	23.37	2.73

TENSIONES EN CIMIENTOS



COMPROBACION DE TENSIONES:

Hipótesis	σmáx. (t/m²)	σmín. (t/m²)	σcob. (t/m²)	Base comprimida
A	16.71	2.85	12.80	3.15
B	26.29	0.00	19.72	3.10
C	37.01	0.00	27.76	2.88
D	27.33	0.00	20.50	2.98

ARMADURAS:

ZAPATA

CORTANTE: fcv= 64.55 t/m² (EH-91)

Sección A-A | d = 0.04 m.
Vcu= 4.84 t/m (EH-91)

Sección B-B | d = 0.95 m.
Vcu= 122.64 t/m (EH-91)

FLEXION: | d = 0.95 m.
Uc = 1346 t/m

ZAPATA DELANTERA:

Hipót.	Vd(A-A) (t/m)	Vcu t/m (EHE)	Md(F-F) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	0.53	24.30	4.41	4.65	12.14	3.62
B	0.86	24.30	7.17	7.56	12.14	3.62
C	1.23	24.30	10.23	10.81	12.14	3.62
D	0.91	24.30	7.51	7.92	12.14	3.62

ϕ20/20

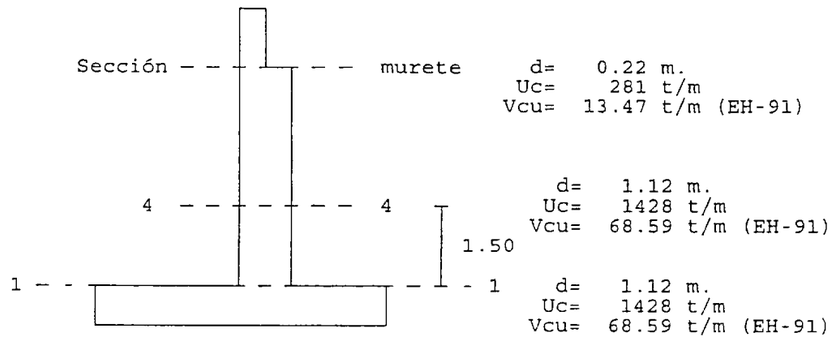
ZAPATA TRASERA:

Hipót.	Vd(B-B) (t/m)	Vcu t/m (EHE)	Md(E-E) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	-11.56	24.30	-15.12	16.01	12.14	3.62
B	-13.45	24.30	-17.23	18.27	12.14	3.62
C	-13.12	24.30	-16.29	17.26	12.14	3.62
D	-14.40	24.30	-18.36	19.47	12.14	3.62

ϕ20/20

ALZADO

fcv= 61.24 t/m²



SECCION 1-1:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	9.79	28.91	12.53	13.95	12.51	12.88	18.40
B	11.34	30.87	25.96	21.30	19.14	12.88	18.40
C	11.43	33.62	44.79	25.79	23.22	12.88	18.40
D	11.94	30.87	25.96	23.10	20.77	12.88	18.40

SECCION 4-4:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	4.27	28.06	6.71	3.68	3.29	12.88	18.40
B	5.70	30.02	20.14	8.80	7.88	12.88	18.40
C	5.79	32.77	38.97	13.16	11.80	12.88	18.40
D	6.30	30.02	20.14	9.70	8.68	12.88	18.40

$A_{s\,min} = 0.04 A_c \, f_{cd}/f_{yd} = 20.74$

$A_{s\,nec} = 5.24 \text{ cm}^2/\text{m}$

$\alpha = 1.50 - 12.5 \dfrac{A_s f_{yd}}{A_c f_{cd}}$

$A_s = A_{s\,min} \rightarrow \alpha = 1.00$

$= 23 \text{ cm}^2/\text{m} \rightarrow \alpha = 1.373 \rightarrow A_s = \dfrac{20.74}{1.373} = 15.10 \text{ cm}^2/\text{m}$

SECCION MURETE:

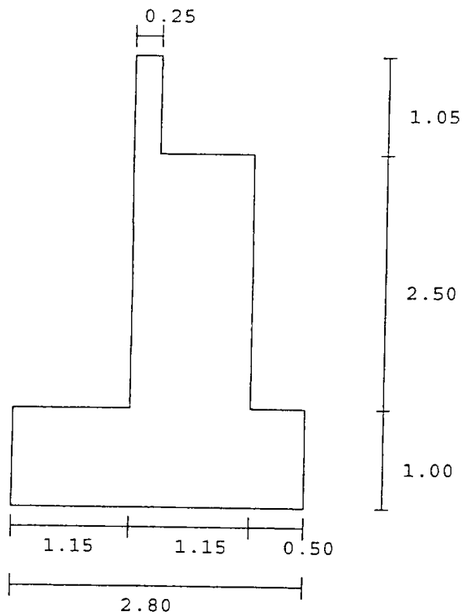
Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm^2/m)	Reparto (cm^2/m)
A	0.98	7.23	0.89	0.42	1.91	2.53	4.00
B	1.07	7.23	0.89	0.46	2.12	2.53	4.00
C	1.07	7.23	0.89	0.46	2.12	2.53	4.00
D	1.07	7.23	0.89	0.46	2.12	2.53	4.00

Estructura ....:Reposicion 14 E-2

Estribo .....:E-2

DATOS GEOMETRICOS (sin escala)

* Cotas en mtrs.



Area de la sección 5.94 m²

MATERIALES

Hormigón en zapata y alzado ..... 250 Kg/cm²

Coeficiente de seguridad del hormigón 1.50

Acero en armaduras, zapata y alzado ..... 5100 Kg/cm²

Coeficiente de seguridad del acero 1.15

CARACTERISTICAS DEL TERRENO

Densidad de las tierras (t/m3) 2.00

Coeficiente de empuje activo horizontal 0.33

Tensión admisible del terreno en cimentación (Kg/cm²) 3.0

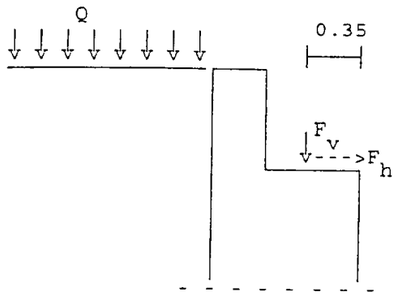
Coeficiente de rozamiento en cota de cimentación 0.55

Coeficiente de seguridad al deslizamiento (Cd) 1.50

Coeficiente de seguridad al vuelco (Cv) 1.80

Altura considerada de empuje de tierras (mtrs.) 4.55

CARGAS ACTUANTES



Reacciones Verticales (Fv t/m)

Cargas Permanentes : 9.95

Sobrecargas Máximas: 12.55
Sobrecargas Mínimas: 0.00
Sobrecarga q (t/m²): 1.00

Reacciones Horizontales (Fh t/m)

Reológicas : 0.38
Temperatura : 0.47
Frenado : 0.40

COMBINACIONES

A) 1.35*(Peso Propio)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

B) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)

C) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Máximas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

D) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Mínimas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

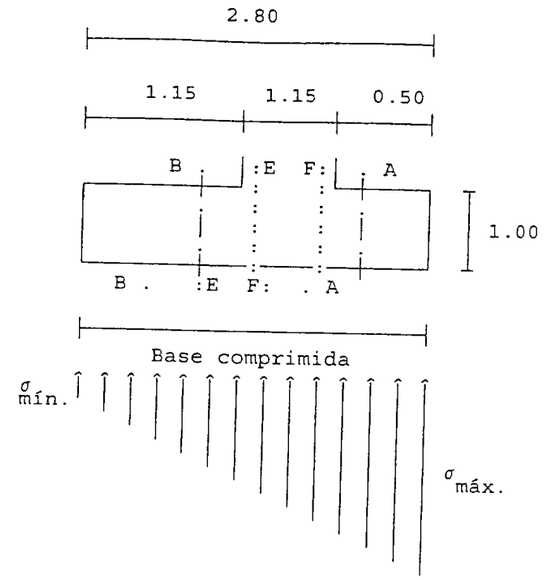
ESFUERZOS DE COMBINACIONES

Combinación	Fv(t/m)	Fh(t/m)	Q(t/m²)
A	0.00 0.00	0.00 0.00	1.00 1.25
B	9.95 13.43	0.85 1.22	1.00 1.50
C	22.50 32.26	1.25 1.31	1.00 1.50
D	9.95 13.43	1.25 1.82	1.00 1.50

COMPROBACION DE ESTABILIDAD:

Hipótesis	ΣFv(t/m)	ΣFh(t/m)	Cd	ΣMe(mt/m)	ΣMv(mt/m)	Cv
A	24.16	8.33	1.59	39.25	13.78	2.85
B	34.11	9.18	2.04	47.71	16.75	2.85
C	46.66	9.58	2.68	58.38	18.15	3.22
D	34.11	9.58	1.96	47.71	18.15	2.63

TENSIONES EN CIMIENTOS



COMPROBACION DE TENSIONES:

Hipótesis	σmáx. (t/m²)	σmín. (t/m²)	σcob. (t/m²)	Base comprimida
A	15.02	2.24	11.45	2.80
B	25.05	0.00	18.79	2.72
C	36.08	0.00	27.06	2.59
D	26.24	0.00	19.68	2.60

ARMADURAS:

ZAPATA

CORTANTE: fcv= 64.55 t/m² (EH-91)

Sección A-A | d = 0.04 m.
Vcu= 4.84 t/m (EH-91)

Sección B-B | d = 0.95 m.
Vcu= 122.64 t/m (EH-91)

FLEXION: | d = 0.95 m.
Uc = 1346 t/m

ZAPATA DELANTERA:

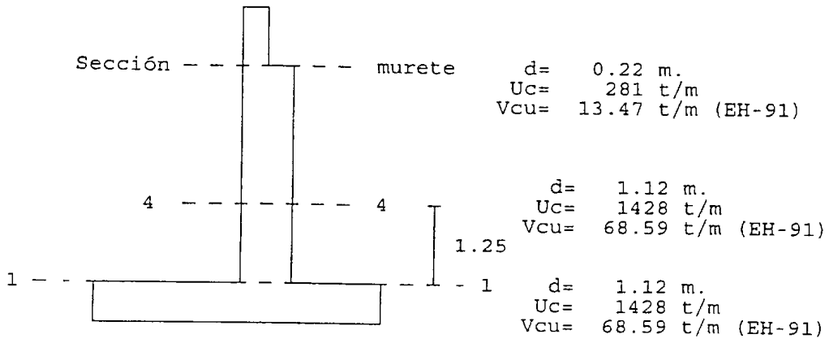
Hipót.	Vd(A-A) (t/m)	Vcu t/m (EHE)	Md(F-F) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	0.47	24.30	3.86	4.07	12.14	3.62
B	0.82	24.30	6.72	7.10	12.14	3.62
C	1.19	24.30	9.82	10.38	12.14	3.62
D	0.87	24.30	7.10	7.50	12.14	3.62

ZAPATA TRASERA:

Hipót.	Vd(B-B) (t/m)	Vcu t/m (EHE)	Md(E-E) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	-7.87	24.30	-9.34	9.87	12.14	3.62
B	-9.22	24.30	-10.50	11.10	12.14	3.62
C	-8.79	24.30	-9.42	9.96	12.14	3.62
D	-9.84	24.30	-11.25	11.89	12.14	3.62

ALZADO

fcv= 61.24 t/m²



SECCION 1-1:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	7.70	28.63	10.59	9.58	8.58	12.88	18.40
B	9.21	30.59	24.02	16.17	14.51	12.88	18.40
C	9.30	33.34	42.85	20.62	18.53	12.88	18.40
D	9.81	30.59	24.02	17.67	15.86	12.88	18.40

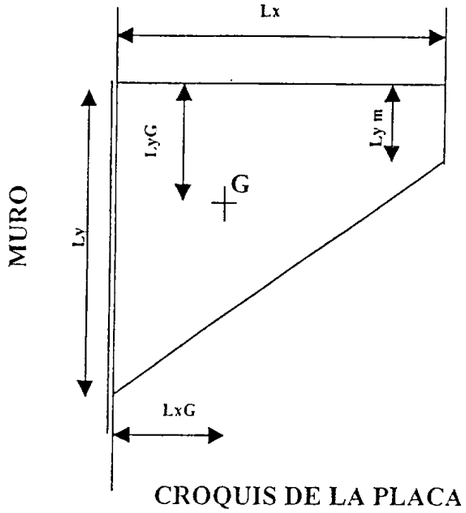
SECCION 4-4:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	3.57	27.92	5.74	2.70	2.41	12.88	18.40
B	4.98	29.88	19.17	7.46	6.68	12.88	18.40
C	5.06	32.63	38.00	11.81	10.58	12.88	18.40
D	5.58	29.88	19.17	8.21	7.35	12.88	18.40

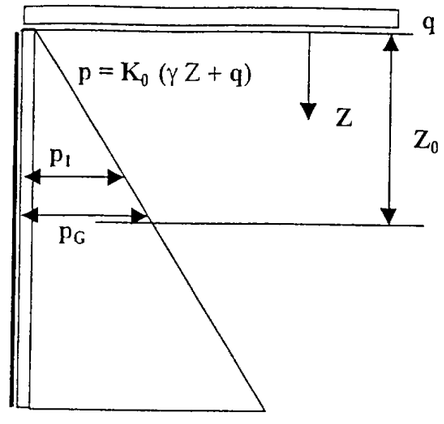
SECCION MURETE:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm^2/m)	Reparto (cm^2/m)
A	0.98	7.23	0.89	0.42	1.91	2.53	4.00
B	1.07	7.23	0.89	0.46	2.12	2.53	4.00
C	1.07	7.23	0.89	0.46	2.12	2.53	4.00
D	1.07	7.23	0.89	0.46	2.12	2.53	4.00

ALETAS MURO DE ESTRIBOS



CROQUIS DE LA PLACA



PRESIONES SOBRE LA PLACA

1, DATOS

GEOMETRIA

Ly_m =	0.500 m
L_Y =	2.600 m
L_X =	2.100 m
L_{YG} =	0.894 m
L_{XG} =	0.813 m
h =	0.300 m
r =	0.035 m
d_x =	0.265 m
d_y =	0.245 m
b = b_w =	1.000 m

EMPUJES

q =	1.80 tm^{-2}
γ =	2.00 tm^{-3}
Φ =	33 º
K_0 =	0.5
$p_1 = K_0 ((L_{y\,m}) \gamma + q)$ =	1.4 tm^{-2}
$p_G = K_0 ((L_{yG})^* \gamma + q)$ =	1.8 tm^{-2}
γ_f =	1.5

MATERIALES

H-30

f_{ck} =	3000 tm^{-2}
γ_c =	1.5
f_{cd} =	2000 tm^{-2}
f_{cv} =	70.7 tm^{-2}

BS500

f_{yk} =	51000 tm^{-2}
γ_y =	1.15
f_{yd} =	44348 tm^{-2}
f_{yad} =	42000 tm^{-2}

2. DETERMINACIÓN DE LAS SOLICITACIO

$M_{xGd} = \gamma_f \times A \times p_G \times L_{xG} / L_y$ = 2.7

$M_{x1d} = \gamma_f \times p_1 \times L_x^{\,2} / 2$ = 4.6

$V_{xd} = \gamma_f \times A \times p_G / L_y$ = 3.4

3. DIMENSIONAMIENTO

3,1, FLEXIÓN

ARMADURAS MÍNIMAS :

DIRECCIÓN X : $A_{s\,total} = 1,6 / 1000 \times h \times b$ =
$A_{s\,min\ c/cara} = 0,53 / 1000 \times h$ ›

DIRECCIÓN Y : $A_{s\,total} = 0,9 / 1000 \times h \times b$ =
$A_{s\,min\ c/cara} = 0,3 / 1000 \times h \times$

DIRECCIÓN X $U_{cx} = 0.85 \times f_{cd} \times d_x \times b$ =
CARA INTERIOR (TIERRAS)

M_d = 4.6
$U_{s1} = U_c \times (1 - (1 - 2 \times M_d /$
$A_{s1} = U_{s1} / f_{yd}$ =

3.2. CORTANTE

DIRECCIÓN X :

$V_{u1x} = 0,30 \times b_w \times d_x f_{cd}$ = 159 t

$Vcu = (0.12\ \xi\ (100\ \rho l\ fck)^{1/3})\ bo\ d$ = 12.4

Vd_x = 3.4 t

$Vd_x < V_{u1x}$
$Vd_x < V_{cux}$ No requiere armaduras de cortante

Prueba de carga de la Estructura E-2

OBJETO DE LA PRUEBA

El objeto de esta prueba consiste en comprobar que la estructura en estudio presenta un comportamiento satisfactorio frente a las sobrecargas de cálculo. Dichas sobrecargas son las definidas en la "Instrucción sobre las acciones a considerar en el Proyecto de Puentes de Carreteras: I.A.P.", dada por Orden Ministerial del 12 de Febrero de 1998.

El tren tipo, definido en dicha Instrucción, ha sido sustituido por camiones, cuyas características se indican mas adelante, que, de acuerdo con las "Recomendaciones para el Proyecto y Ejecución de Pruebas de Carga en Puentes de Carretera" del M.O.P.U., originen esfuerzos **"no mas desfavorables que los del tren de cargas de la Instrucción, estimándose como suficientes si tales esfuerzos oscilan en torno al 60 % de los valores teóricos producidos por el tren de carga de la IAP" (Artículo 6.1 de las Recomendaciones).**

DESCRIPCIÓN DEL ENSAYO Y PLAN DE CARGAS

La estructura a ensayar consiste en un tablero continuo tipo losa maciza, con tres vanos de 13.00m – 17.00 m – 13.00 m , con un ancho total de 7.70 m, y un ancho de plataforma de 6.00 m.

El tablero está formado por una losa maciza de hormigón armado de canto constante 0.90 m y un ancho total de 7.70 m, medidos perpendiculares al eje de replanteo de la estructura. El apoyo de la losa sobre los estribos, se realiza mediante dos aparatos de neopreno, y sobre las pilas se empotra el tablero.

El estudio de los momentos máximos flectores positivos se va a realizar en las situaciones siguientes:

El estudio de los momentos flectores positivos vano 1 en el estado de carga 1.

El estudio de los momentos flectores positivos vano 2 en el estado de carga 2.

Los camiones adoptados corresponden a un vehículo con una carga total de 25.0 toneladas, correspondiendo 7.0 t. al eje delantero y 9 t. a cada uno de los dos ejes traseros, siendo las dimensiones del vehículo:

Ancho total . . . . . 2,50 m.

Ancho de la vía anterior. . . . . .2.00 m.

Ancho de las vías posteriores . . . . 2.00 m.

Longitud total. . . . . 8.40 m.

Voladizo posterior. . . . . 1.85 m.

Distancia eje 1° al 2°. . . . . 3,80 m.

Distancia eje 2° al 3°. . . . . 1,35 m.

La disposición de los vehículos durante la realización de la prueba de carga será la siguiente:

Para obtener el máximo momento flector positivo en el vano 1 se colocarán 2 filas de dos camiones en paralelo (cuatro camiones en total situados en el centro del vano 1.

Para obtener el máximo momento flector positivo en el vano 2 se colocarán 2 filas de dos camiones en paralelo (cuatro camiones en total), situados en el centro del vano 2.

El Plan de Carga constará de dos estados de carga, compuestos de los siguientes escalones de carga:

Estado de carga nº 1:

Escalón - 0 : Puente descargado

Escalón - 1 : Carga de la primera fila de camiones en vano 1

Escalón - 2 : Carga de la segunda fila de camiones (máxima flexión positiva en centro de vano)

Estado de carga nº 2:

Escalón - 3 : Paso del primer escalón a la posición sobre el vano 2.

Escalón - 4 : Paso del segundo escalón a la posición sobre el vano 2.(máxima flexión positiva)

Estado de carga nº 3:

Escalón - 7 : Descarga del primer escalón

Escalón - 8 : Descarga del segundo escalón

Escalón - 9 : Puente descargado

Cumpliendo este plan de carga, no se pasará al escalón siguiente hasta que los aparatos de medida no acusen la estabilización de las lecturas, lo que se supondrá ha ocurrido cuando la diferencia entre dos lecturas efectuadas en un intervalo no inferior a 10 minutos, sea inferior al 5% de la flecha correspondiente a la última lectura.

MEDIDAS A REALIZAR

Se determinarán, mediante el uso de flexímetros si el tráfico inferior lo permite, o bien nivelación de alta precisión en caso contrario, los descensos producidos en los apoyos de la losa sobre estribos, pilas y en la sección central de cada vano. El número de unidades de medida será catorce (14), cuatro (4) para los apoyos de los estribos, cuatro (4) para los apoyos en las pilas y seis (6) en el centro de vano

La media de los valores medidos en los apoyos se restará al valor obtenido en las secciones centrales, para determinar la flecha de la losa. Se registrarán en cada escalón todos los valores obtenidos.

Durante la ejecución de las pruebas se medirá la temperatura ambiente en la zona del puente. Deberán elegirse las horas adecuadas para que las condiciones climatológicas perturben lo menos posible el comportamiento de la estructura.

CONCLUSIONES

Estado de carga nº 1:

Máxima flexión positiva en el centro del vano 1 :

Los máximos momentos flectores positivos de sobrecargas, en mT, previstos en el cálculo del tablero, para las secciones más cargadas del centro de vano 1 son:

Barras	S.Unif.+ Carro	Prueba de carga	Porcentaje
70	183.46	109.67	60 %

Las flechas que se esperan para este estado de carga son las siguientes:

Punto de la sección central vano 1 2.03 mm.

Punto de la sección central vano 2 -0.63 mm.

Punto de la sección central vano 3 0.10 mm.

CÁLCULOS ESTRUCTURALES

FDO. JOSÉ ANGEL HIDALGO GONZÁLEZ
COL. Nº 9.859

Estado de carga nº 2

Máxima flexión positiva en el centro del vano 2 :

Los máximos momentos flectores positivos de sobrecargas, en mT, previstos en el cálculo del tablero, para las secciones más cargadas del vano 2 son:

Barras	S.Unif.+ Carro	Prueba de carga	Porcentaje
80	199.67	117.406	59 %

Las flechas que se esperan para este estado de carga son las siguientes:

Punto de la sección central vano 1 -0.81 mm.

Punto de la sección central vano 2 3.60 mm.

Punto de la sección central vano 3 -0.81 mm.

En todas ellas, se considera positivo el movimiento descendente y negativo el ascendente. Estas flechas corresponden a la deformación de la estructura sin incluir la correspondiente al descenso de apoyos, por lo que, en el ensayo, se obtendrán deduciendo del valor medido en la sección central el correspondiente a la media de registros efectuados en las proximidades de los apoyos, y que representa el descenso de los mismos.

El módulo de elasticidad supuesto para el cálculo de las flechas ha sido: $E = 3{,}55 \cdot 10^6\ T/m^2$. por lo que las flechas indicadas deberán modificarse con la relación entre este módulo supuesto y el correspondiente al hormigón realmente colocado en obra, el cual, podrá evaluarse a partir de las indicaciones dadas en el art 39.6 dela EH

Estructura E-3. (PK 311+230)

ESTRUCTURA E-3 (PK 311+230)

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Estructura E-3

Esta estructura permite el paso de la nueva línea de Alta Velocidad sobre la carretera CN-240 existente. Los cálculos que aquí se incluyen han sido motivados por la modificación del gálibo horizontal, que en el proyecto original era de 12 metros y se ha incrementado hasta 17 metros por indicación de la Dirección de la Obra. También ha considerado conveniente establecer la continuidad del sub-balasto y capa de forma de la vía sobre el tablero.

Al mantenerse el trazado en planta se mantiene el gran esviaje, 20^g aproximadamente, la luz oblicua aumenta hasta 39.3 metros, por lo que unido al mayor incremento de las cargas se ha considerado oportuno modificar el tablero de hormigón armado de 1.30 metros de espesor que existía en proyecto a otro del mismo canto pero de hormigón pretensado.

Al igual que anteriormente la configuración de este nuevo tablero es del tipo pérgola, por lo que la dirección de los esfuerzos principales se realiza perpendicularmente a la CN-240, lo cual permite reducir la luz de cálculo y el canto, a consta de incrementar la superficie del tablero a construir.

Los muros de acompañamiento se disponen paralelos a la linea de alta velocidad para dar mas amplitud a la embocadura y reducir al mínimo la sensación de tunel que puede producir esta estructura.

El tablero descansa mediante apoyos de neopreno sobre estribos de hormigón armado que se cimentan directamente en el terreno teniendo en cuenta las cargas admisibles y las recomendaciones incluidas en el informe geotécnico del proyecto.

Las bases de cálculo generales son las mismas que las indicadas en el proyecto original de esta estructura a excepción del efecto del pretensado cuya acción se ha evaluado en el momento inicial y a tiempo infinito obteniendose los esfuerzos mediante la introducción de las fuerzas de desviación equivalentes en un programa de cálculo por elementos finitos SAP90.

En el estado límite de servicio se ha comprobado que en todo momento las secciones se encuentran comprimidas.

Los coeficientes de seguridad y las armaduras se han obtenido con las combinaciones en el estado límite último en el caso mas desfavorable para cada elemento.

Sacyr | E-3 | FECHA / HOJA

Datos para el replanteo

- Planta

CN. PK 9.304
x = 5630.235
Y = 6266.826
Az = 146.4134
R = 0
A = -550

AVE PK 310986.439
x = 5466.968
Y = 6264.034
Az = 116.7764
R = -13500
A = 0

Intersección
x = 5702.792
y = 6202.687
Az_{CN} = 145.4265
PK_{CN} = 106.147
R_{CN} = -3123.6
Az_{AVE} = 115.6273
PK_{AVE} = 311230.115

α = 145.4265 - 115.6273 = 29.7992g

- alzado

CN-240 PK 0+000
Z = 502.500
i = -0.106 %

AVE PK 311+115.860
Z = 513.039
i = -0.319 %

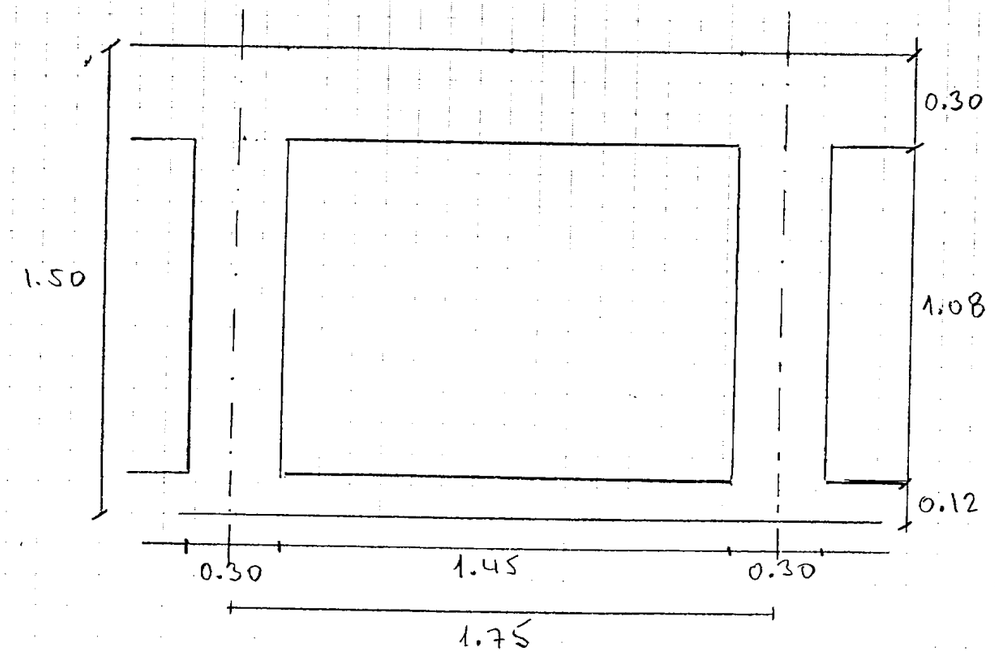
Sacyr

E-3

FECHA

HOJA

Sección transversal



Características mecánicas por 1.75 m de ancho

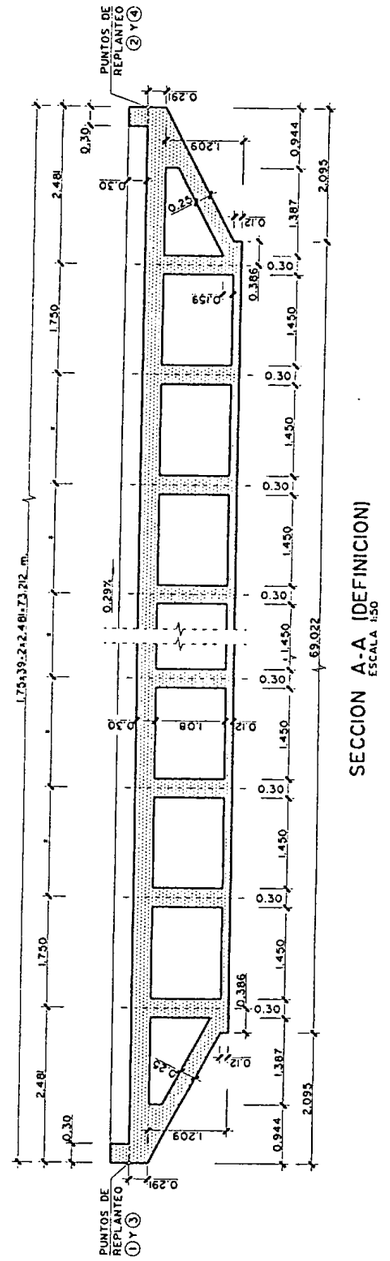
$A = 1.059\ m^2$; $I = 0.30853\ m^4$; $J = 0.4751\ m^4$

$\gamma_i = 0.88309\ m$; $W_i = 0.349\ m^3$

$\gamma_s = 0.61691\ m$; $W_s = 0.500\ m^4$

E-3

SECCION - TRANSVERSAL



SECCION A-A (DEFINICION)
ESCALA 1:50

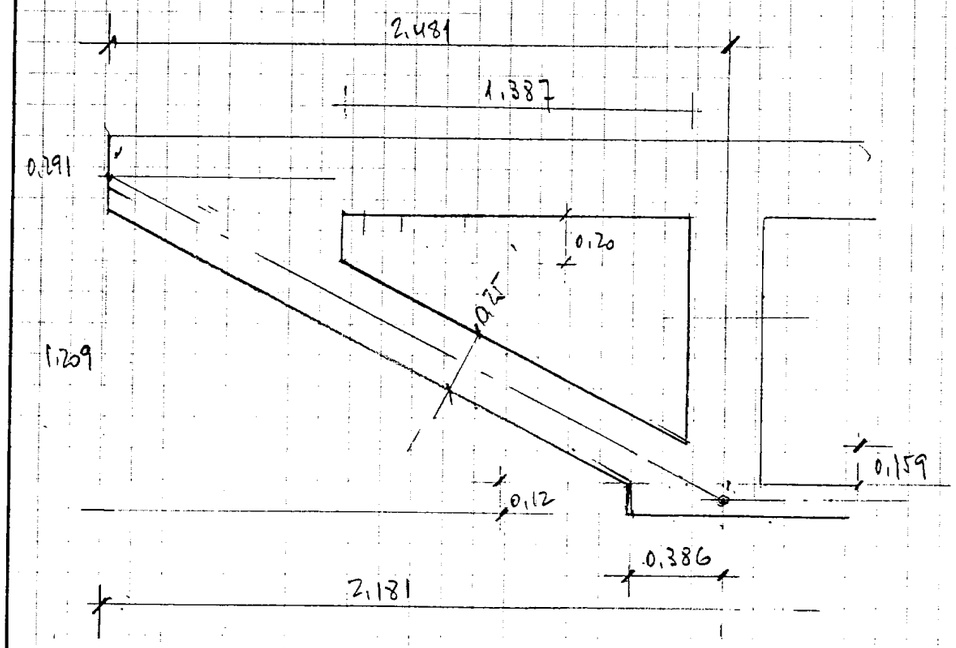
Sacyr

E-3

FECHA

HOJA

Detalle y dimensión bordes



$\alpha = \frac{1,29}{2,481} = 30,5247^{\circ}$ - $330,5247^{\circ}$

Coeficiente de impacto (cont)

b) Borrador IAPF 2000

$$\varphi = \frac{1.44}{\sqrt{L\phi} - 0.2} + 0.82 ; \qquad L\phi = 17.8\ m.$$

luego.

$$\varphi = \frac{1.44}{\sqrt{17.8} - 0.2} + 0.82 = \underline{1.18}$$

límite superior de frecuencia

$$to = 94.76\, L_\phi^{-0.748} = \underline{11}\ c/seg$$

límite inferior de frecuencia

$$to = 80/L\phi = 80/17.8 = \underline{4.49}\ c/seg$$

} $to = \underline{5.45}\ c/seg$ $\underline{0.K}$ ✓

Reducción por abertura.

$h_{abertura} = 1.78\ m$

$$\varphi = 1.18 - \frac{1.78 - 1.00}{10} = \underline{1.10}$$

Tomamos como valor del coeficiente de impacto

$$\varphi = \underline{\underline{1.10}}$$

Coeficiente de impacto

a) Se tomará como el factor de amplificación debido al paso de una carga puntual con velocidad $v = 300\ km/h$ ($83.3\ m/seg$) en comparación con la frecuencia del modo fundamental de vibración de la estructura.

De los cálculos que se muestran a continuación $to = \underline{5.45}\ c/seg$.

La distancia recorrida por la carga será la línea oblicua $l = 39.3\ m.$, luego su frecuencia será:

$$f = \frac{v}{2l} = \frac{83.3}{2 \times 39.3} = \underline{1.06}\ c/seg$$

Por lo tanto el factor de amplificación será:

$$\varphi = \frac{1}{1 - \left(\frac{f}{to}\right)^2} = \frac{1}{1 - \left(\frac{1.06}{5.45}\right)^2} = \underline{\underline{1.04}}$$

Pretensado

Se utilizan tendones 19 ϕ 0.6" ϕ 15.2 mm

$S = 19 \times 140 = 2660\ mm^2$; $t_{max,k} = 260 \times 19 = 4940\ kN$

límite elástico al 0,2% $t_{Pk} = 229 \times 19 = 4351\ kN$

Fuerza de pretensado

$P_o = 0.75\, t_{max\,k} = 0.75 \times 4940 = \underline{3705}\ kN < 0.90\, t_{Pk}\ (3916\ kN)$

Trazado $y = k x^2$

$k_1 = \frac{0.080524}{2 \times 4 \times 1.78} = 0.0056548$; $k_2 = \frac{0.136704}{2 \times 4 \times 1.78} = 0.0096000$

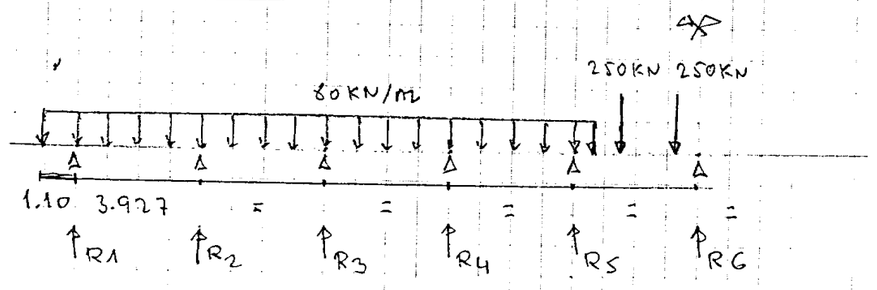
$tg\alpha_1 = 0.080524$; $sin\alpha_1 = 0.08026$; $tg\alpha_2 = 0.136704$; $sin\alpha_2 = 0.13544$

Perdidas por rozamiento : $\mu = 0{,}21$; $K/\mu = 0.006$

	x	Y_1	Y_2	α_1	α_2	P_{c1}	P_{c2}
0.0 l	0.35	0.600	1.100	0.00000	0.00000	0.999	0.999
0.1 l	2.13	0.457	0.857	0.00000	0.00000	0.997	0.997
0.2 l	3.91	0.331	0.644	0.02009	0.03297	0.991	0.988
0.3 l	5.69	0.242	0.492	0.04018	0.06793	0.985	0.979
0.4 l	7.47	0.188	0.400	0.06026	0.10190	0.978	0.970
0.5 l	9.25	0.170	0.370	0.08035	0.13586	0.972	0.961
0.6 l	11.03	0.188	0.400	0.10044	0.16983	0.966	0.952
0.7 l	12.81	0.242	0.492	0.12053	0.20379	0.959	0.943
0.8 l	14.59	0.331	0.644	0.14061	0.23776	0.953	0.934
0.9 l	16.37	0.457	0.857	0.16070	0.27172	0.947	0.925
1.0 l	18.15	0.600	1.100	0.16070	0.27172	0.945	0.923
anclaje	18.50	0.628	1.148	0.16070	0.27172	0.944	0.923

SOBRECARGAS

TREN UIC 71



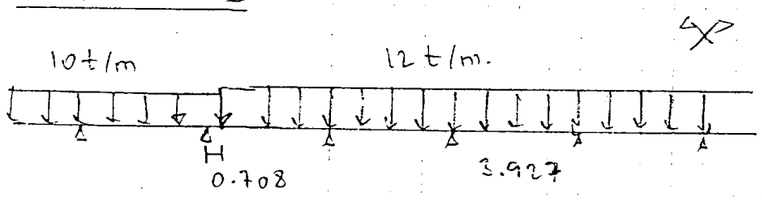
$R_1 = 245.1\ kN$

R_2 a $R_4 = 314.2\ kN$

$R_5 = 440.6\ kN$

$R_6 = 603.4\ kN$

TREN TIPO B



$R_1 = 30.64\ t$

$R_2 = 43.20\ t$

R_3 a $R_6 = 47.12\ t$

Pérdidas en los cables por acortamiento elástico

$$\Delta P_3 \simeq 0.50 \times \sigma_{cp} \times \frac{A_p E_p}{E_{cj}}$$

En centro de vano

$$P_o = 2660 \times \frac{1303+1306}{2} \times 2 = 6940\ KN \quad (2\ cables)$$

$$\text{excentricidad} = \frac{0.513+0.713}{2} = 0.613\ m. \quad (\text{media 2 cables})$$

$$M_{po} = 2 \times 3470 \times 0.613 = 4254\ KN/m \quad (2\ cables)$$

Momento de peso propio $\rightarrow M_{pp} = 1028\ KN/m$

$$\sigma_{os} = \frac{6940}{1.059} + \frac{1028-4254}{0.500} = 101.4\ KN/m^2$$

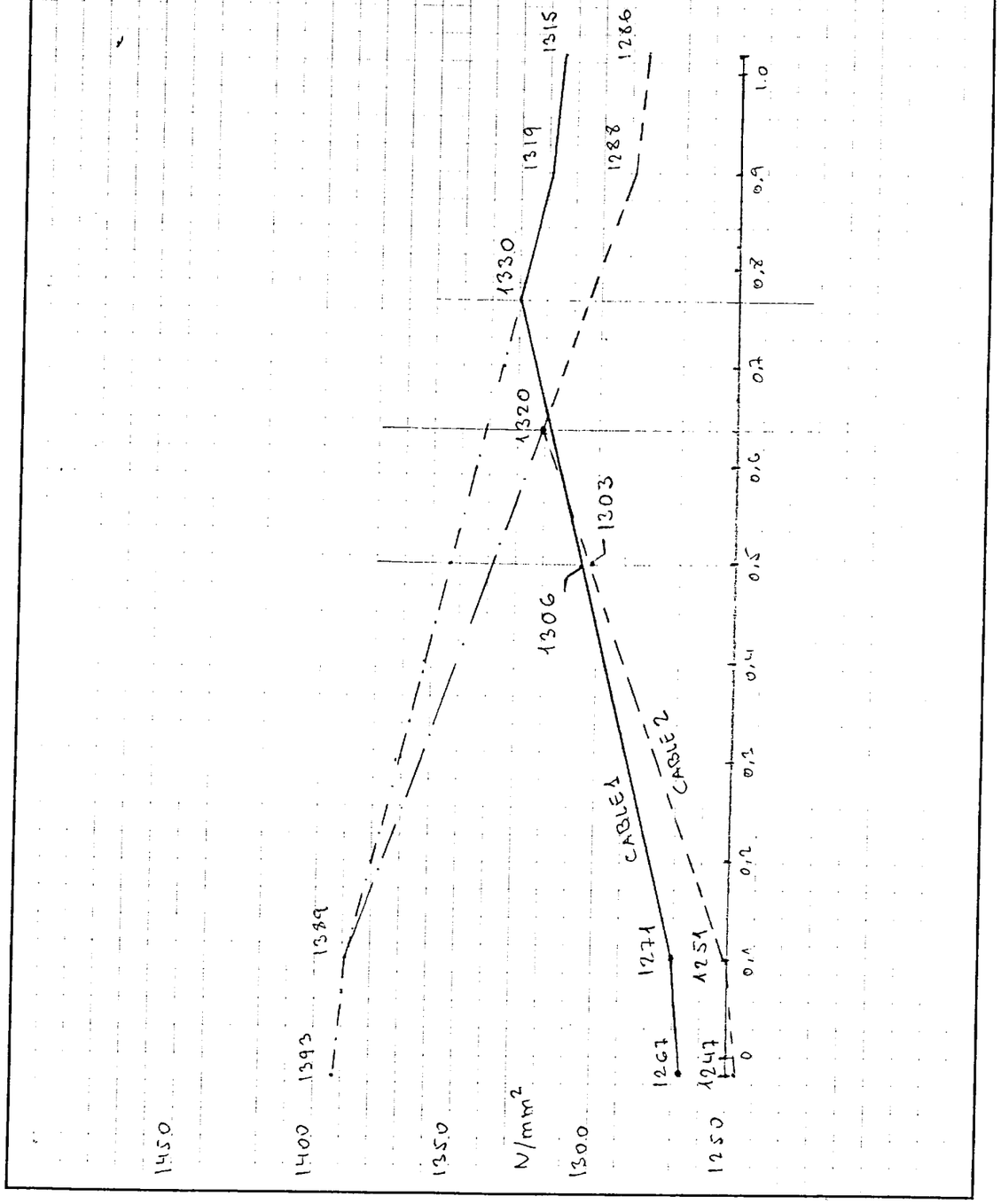
$$\sigma_{oi} = \frac{6940}{1.059} - \frac{1028-4254}{0.349} = 15797\ KN/m^2$$

$$\sigma_{cdg} = 15797 - (15797-101.4) \times \frac{0.27}{1.50} = 12972\ KN/m^2$$

$$\Delta P_3 = 0.50 \times 12972 \times \frac{2660 \times 10^{-6} \times 190 \times 10^3}{28577} = 114.7\ KN/\text{cable}.$$

Tensiones en los cables (N/mm^2)

Rozamiento y penetración de cuña 5 mm.



Pretensado inicial. Estado límite de servicio

- Combinación 1 - 1,00 Peso Propio + 0,90 Pret. inicial

$\sigma_s = 0.90 \times 6337 + \frac{1028 - 0.90 \times 4114}{0.500} = 354 \text{ KN/m}^2 \quad (36 \text{ t/m}^2)$

$\sigma_i = 0.90 \times 6337 - \frac{1028 - 0.90 \times 4114}{0.349} = 13367 \text{ KN/m}^2 \quad (1363 \text{ t/m}^2)$

- Combinación 2 - 1,00 Peso Propio + 1,10 Pret. inicial

$\sigma_s = 1.10 \times 6337 + \frac{1028 - 1.10 \times 4114}{0.500} = -24 \text{ KN/m}^2 \quad (-2.4 \text{ t/m}^2)$

$\sigma_i = 1.10 \times 6337 - \frac{1028 - 1.10 \times 4114}{0.349} = 16992 \text{ KN/m}^2 \quad (1733 \text{ t/m}^2)$

Hormigón HA-30

$\sigma_{max,adm} = 0.60 f_{ck} = 0.60 \times 30 = 18 \text{ N/mm}^2 > 16.99$

Pretensado inicial y tensiones

Primero se tesarán los cables 1 y después los cables 2.
Ambos se tesarán alternativamente desde cada extremo para lograr una simetría por pares.

El pretensado inicial será:

$P_i = 6940 - 2 \times 114.7 = 6711 \text{ KN}$

$MP_i = 6711 \times 0.613 = 4114 \text{ KN/m}$

Tensiones con pretensado inicial y peso propio

$M_{PP} = 1028 \text{ KN/m}$.

$\sigma_{si} = \frac{6711}{1.059} + \frac{1028 - 4114}{0.500} = 165.1 \text{ KN/m}^2 \quad (17 \text{ t/m}^2)$

$\sigma_{ii} = \frac{6711}{1.059} - \frac{1028 - 4114}{0.349} = 15180 \text{ KN/m}^2 \quad (1548 \text{ t/m}^2)$

La tensión en el hormigón a la altura del c.d.g. de los cables será:

$\sigma_{cdg} = 15180 - \frac{0.27}{1.50} \times (15180 - 165) = 12477 \text{ KN/m}^2$

Resto de carga permanente

Cuando sobre el tablero se construye la capa de forma, el sub-balasto y el balasto, se modifican las tensiones en el hormigón de la forma siguiente:

$M_{RCP} = 200.7$ mt

$\sigma_s = \frac{200.7}{0.500} = 401\ t/m^2$

$\sigma_i = \frac{200.7}{0.349} = -575\ t/m^2$

a la altura del c.d.g. de los cables.

$\Delta\sigma_{cdg} = -575 + (575+401) \times \frac{0.27}{1.50} = \underline{-399}\ t/m^2$

Pérdidas diferidas

- Se tesa cuando el hormigón tenga los $30\ N/mm^2$. (*)
- Se coloca el resto de c.p. (capa forma + balasto) a 90 días.
- Humedad HR = 70%

(*) Se supone edad de 15 días

- $e = \frac{2 \times 1.059}{2 \times 1.75} = \underline{0.605}$ m

Pérdidas a t∞

- Retracción

$\varepsilon_{cs} = -259 \times 10^{-6}$

- Fluencia

Serán las producidas por las compresiones al tesar menos las producidas por las tracciones que como incremento se aplican a los 90 días.

$\beta(t_{cm}) = \frac{16.8}{\sqrt{38}} = 2.725$

$\varphi_{HR} = 1 + \frac{100 - 70}{9.9 \times 605^{1/3}} = 1.358$

$\beta(t_{15}) = \frac{1}{0.1 + 15^{0.2}} = 0.550$

$\beta(t_{90}) = \frac{1}{0.1 + 90^{0.2}} = 0.391$

$\varphi(15) = 1.358 \times 2.725 \times 0.550 = 2.035$

$\varphi(30) = 1.358 \times 2.725 \times 0.391 = 1.447$

Tensiones a $t\infty$

$P_{rt\infty} = 6711 - 1307 = 5404$ kN

$M_{gt\infty} = 5404 \times 0.613 = 3313$ kN/m

- En vacío sin sobrecarga.

$$\sigma_s = \frac{5404}{1.059} + \frac{3057 - 3313}{0.500} = 4591 \text{ kN/m}^2 \quad (468 \text{ t/m}^2)$$

$$\sigma_i = \frac{5404}{1.059} - \frac{3057 - 3313}{0.349} = 5836 \text{ kN/m}^2 \quad (595 \text{ t/m}^2)$$

- con sobrecarga máxima

$$\sigma_s = \frac{5404}{1.059} + \frac{4620 - 3313}{0.500} = 7717 \text{ kN/m}^2 \quad (787 \text{ t/m}^2)$$

$$\sigma_i = \frac{5404}{1.059} - \frac{4620 - 3313}{0.349} = 1358 \text{ kN/m}^2 \quad (139 \text{ t/m}^2)$$

Bajo la acción de las cargas características todas las tensiones son de compresión.

Pérdidas diferidas (cont)

$$\varepsilon_c = -12.477 \times \frac{2.035}{28577} + 3.99 \times \frac{1.447}{28577} = -686 \times 10^{-6}$$

- Relajación del acero

Pretensado inicial = 6711 kN
$t_{max,k} = 2 \times 4940 = 9880$ kN
} Pot i / t_{max} = 68 %

$\rho_\infty = 2.9 + (5.8 - 2.9) \times 0.8 = 5.2\%$

$\Delta_{pr} = \frac{5.2}{100} \times 6711 = 352$ kN

Suma total de pérdidas diferidas

$\Sigma p = (259 + 686) \times 10^{-6} \times 2 \times 2660 \times 190 + 352 = 1307$ kN

Estado límite último (tₒₒ)

Como pretensado se disponen, en cada nervio (s=1.75m), dos cables de 19Φ0.6" de acero Y1860S7 y 2660 mm² de sección.

Límite elástico al 0.2% ; $t_{pk} = 229 \times 19 = 4351$ KN

$t_{pd} = \frac{t_{pk}}{1.15} = 3783$ KN (385 t/cable 19Φ0.6")

La deformación necesaria mínima para alcanzar el límite t_{pd} será:

$$\sigma_{pd} = \frac{3783000}{2660} = 1422 \text{ N/mm}^2$$

$$\varepsilon_{pd} = \frac{1422}{190 \times 10^3} = \underline{7.48 \times 10^{-3}}$$

Estado límite de Servicio (tₒₒ)

COMB = 1.0 CP + 0.9 Pₜtₒₒ + 1.0 Sc.

$$\sigma_s = \frac{0.9 \times 5404}{1.059} + \frac{4620 - 0.9 \times 3313}{0.500} = \underline{7869 \text{ KN/m}^2} \ (803 \text{ t/m}^2)$$

$$\sigma_i = \frac{0.9 \times 5404}{1.059} - \frac{4620 - 0.9 \times 3313}{0.349} = \underline{-102 \text{ KN/m}^2} \ (-1.0 \text{ Kg/cm}^2)$$

No existe posibilidad de fisuración, prácticamente todas las tensiones son de compresión.

Esfuerzo cortante

Sección a un canto útil del apoyo ($x = 1.44m$)

x	V_{PP}	V_{RCP}	V_{SC}	V_{Pi}	V_{Pt}	
0.0	23.6	41.1	45.9	-58.5	-47.2	(BARRA 151)
1.78	18.9	35.9	37.0	-58.5	-47.2	
		interpolando				
1.44	19.8	36.9	38.7	-58.5	-47.2	

al tesar

$V_{Rdo} = -58.5 + 19.8 = \underline{-38.7}\ t$ $\quad (P_o = 684\ t)$

a t_∞

$V_{Rd_\infty} = 1.35 \times (19.8 + 36.9) + 1.50 \times 38.7 - 47.2 = \underline{87.4}\ t$ $\quad (P_\infty = 552\ t)$

$t_{ct,m} = 290\ t/m^2$

$\tau_{xd,o} = \frac{684}{1.059} = 646 \rightarrow \cot g\,\theta_{e,o} = \sqrt{1 + \frac{646}{290}} = 1.79$

$\tau_{xd,\infty} = \frac{552}{1.059} = 521 \rightarrow \cot g\,\theta_{e,\infty} = \sqrt{1 + \frac{521}{290}} = 1.67$

- calculo de V_{CU}

$\theta = \theta_e$; $\beta = 1$; $\xi = 1 + \sqrt{\frac{200}{1440}} = 1.37$; $\rho_1 \simeq 0.0$

$b_{o,o} = 0.20m$; $b_{o,\infty} = 0.25m$.

$V_{CU,o} = 0.15 \times 6.46 \times 200 \times 1440 = 279\ KN\ (27.9\ t)$

$V_{CU,\infty} = 0.15 \times 5.21 \times 250 \times 1440 = 281\ KN\ (28.1\ t)$

Estado límite último (cont)

- Tensiones debidas al pretensado aislado (t_∞)

$\sigma_s = \frac{552}{1.059} - \frac{338}{0.500} = 521 - 676 = -155\ t/m^2$

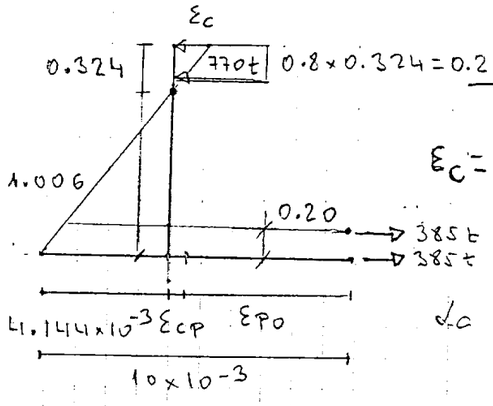
$\sigma_i = \frac{552}{1.059} + \frac{338}{0.349} = 521 + 968 = 1489\ t/m^2$

compresión en el hormigón a la altura de los cables.

$\sigma_{c1} = 1489 - (1489 + 155) \times \frac{0.17}{1.50} = 1303\ t/m^2$

$\varepsilon_{cp} = \frac{\sigma_c}{E_c} = \frac{1303}{2.86 \times 10^6} = 0.456 \times 10^{-3}$

luego $\Delta\varepsilon_p = \varepsilon_{p_0} + \varepsilon_{cp} = 5.4 \times 10^{-3} + 0.456 \times 10^{-3} = \underline{5.856 \times 10^{-3}}$



$0.8 \times 0.324 = \underline{0.259} < \underline{0.30}$ (eje en losa superior)

$\varepsilon_c = \frac{0.324}{1.006} \times 4.144 \times 10^{-3} = 1.33 \times 10^{-3} < 3.5 \times 10^{-3}$

La sección rompe por la armadura.

$MRd = 385 \times (1.006 + 0.162) \times (1 + 0.80) = \underline{809}\ mt$

$MSd = 1.35\,CP + 1.50\,SC = 1.35 \times 305.7 + 1.50 \times 156.2 = \underline{647}\ mt$

luego $\underline{MRd > MSd}$

Esfuerzo cortante (cont)

- Rasante unión alma losa superior (junta)

$\Delta\sigma_s = \frac{87.4}{0.308} \times 0.467 = 132.5\ t/m^2$

$\tau_{md} = \frac{132.5 \times 0.30 \times 1.75}{0.30} = 232\ t/m^2 < 0.25 f_{cd}$.

$232 = 0.4 \times 135 + 0.90 \times \frac{A_{st}}{sp} f_{yd}$;

$A_{st} = \frac{198 \times 0.3}{4.0} = \underline{14.8}\ cm^2/m$

cuantía mínima,

$\frac{A_{st}}{sp} = \frac{0.38}{400}$, $A_{st} = \frac{0.38 \times 1000 \times 300}{400} = 285\ mm^2$ $(2.85 cm^2/m)$

disponemos estribos $\phi 12/0.15$ $(15.1 cm^2/m) > 14.8$

" " $\phi 12/0.30$ $(7.5 cm^2/m)$ en la mitad central.

Esfuerzo cortante (cont)

$V_{su,o} = 38.7 - 27.9 = 10.8 = 1.28 \times 1.79 \times A_\alpha f_{y\alpha d}$;

$A_\alpha f_{y\alpha d} = \frac{10.8}{2.29} = \underline{4.7}\ t/m$

$V_{su,\infty} = 87.4 - 28.1 = 59.3 = 1.28 \times 1.67 \times A_\alpha f_{y\alpha d}$

$A_\alpha f_{y\alpha d} = \frac{59.3}{2.14} = \underline{27.7}\ t/m > \underline{4.7}$

$A_\alpha = \frac{27.7}{4.2} = \underline{6.6}\ cm^2/m$

- Rasante unión alma losa inferior (junta)

Variación de la compresión en el canto de losa inferior

$\Delta\sigma_i = \frac{V_{Rd}}{I} \times 0.823 = \frac{87.4}{0.308} \times 0.823 = 234\ t/m^2$

Rasante por metro $\rightarrow$ $234 \times 0.12 \times 1.75 = 49.1\ t/m$.

$\tau_{md} = \frac{49.1}{0.30} = 163.8\ t/m^2 < 0.25 f_{cd}$ $(500 t/m^2)$

$163.8 = \rho f_{ct,d} + \frac{A_{st}}{sp} f_{ya,d} \times \mu = 0.4 \times 135 + 0.90 \times \frac{A_{st}}{sp} f_{ya,d}$.

$f_{ct,d} = \frac{f_{ct,k}}{1.5} = 135\ t/m^2$

$A_{st} f_{yd} = 122.0 \times 0.3 = 36.6\ t/m$; $A_{st} = \underline{9.2}\ cm^2/m$

Armadura de cosido disp. c/ $\phi 12/0.15$ $\underline{15.1}\ cm^2/m$

Torsor y esfuerzo cortante

$V_d = 85.9\ t$
$T_d = 45.9\ mt$

$A_e = 1.29 \times 1.75 = 2.25\ m^2$

$45.9 = \frac{2 \times 2.25 \times A_t}{1.0} \times 4.0$; $A_t = 2.6\ cm^2/m$

- armadura en cerco e=0.30m.

por cortante 6.6 cm^2/m
por torsor 2.6 "
total 9.2 cm^2/m

se disponen con $\phi 12/0.15$ (15.1 cm^2) > 9.2

- armadura en losa inferior e=0.30m

momento local.

$q = 0.30 \times 2.5 + 3.4 + 3.3 \times 1.1 = 7.78\ t/m^2$
PP RCP SC+IMP.

$q_d = 1.50 \times 7.78 = 11.7\ t/m^2$

$M_d \simeq 0.1 \times 11.7 \times 1.75^2 = 3.6\ mt/m$

$A_{s+td} = 607 \times 0.023 \times 1.21 = 16.9\ t/m$; $A_s = 3.8\ cm^2$ (en cada cara)

Armadura $2 \times 3.80 + 2.6 = 10.2\ cm^2$
flector torsor

$2\phi 12/0.15 \Rightarrow 15.1\ cm^2 > 10.2$

Esfuerzo cortante (cont)

- Unión ala inferior - alma.

$S_d = 132.5 \times 0.725 \times 0.30 = 28.8\ t/m$

$A_\alpha = \frac{28.8}{4.0} = 7.2\ cm^2/m$ < 15.1

- Unión ala inferior - alma.

$S_d = 234 \times 0.725 \times 0.12 = 20.4\ t/m$

$A_\alpha = \frac{20.4}{4.0} = 5.1\ cm^2/m$ < 15.1

Apoyo de neopreno

Se disponen apoyo de neopreno cada 1.75 m coincidiendo con los ejes de los nervios.

Reacción máxima en apoyo, debida al peso propio + cargas permanents + sobrecarga con impacto.

R_{max}: 105.7 t (en nudos 17 y 435)

Se disponen apoyos de 250×400×52(37).

Compresión máxima $\sigma_n = \frac{105700}{25 \times 40} = 105.7$ kg/cm² admisible

Movimientos lentos

Retracción + fluencia $\varepsilon = 2.59 + 6.86 = 9.45 \times 10^{-4}$

$\Delta l_{rf} = 9.45 \times 0.5 \times 18.6 \times 10^3 \times 10^{-4} = 8.8$ mm

Temperature

$\Delta_t = 24.91 \times 5^{0.292} \times 1.50^{-0.172} = 37.2°C$

$\Delta l_t = 37.2 \times 0.5 \times 18.6 \times 10^3 \times 10^{-5} = 3.5$ mm

$tg\,\varphi = \frac{3.5+8.8}{37} = 0.33 < 0.5$

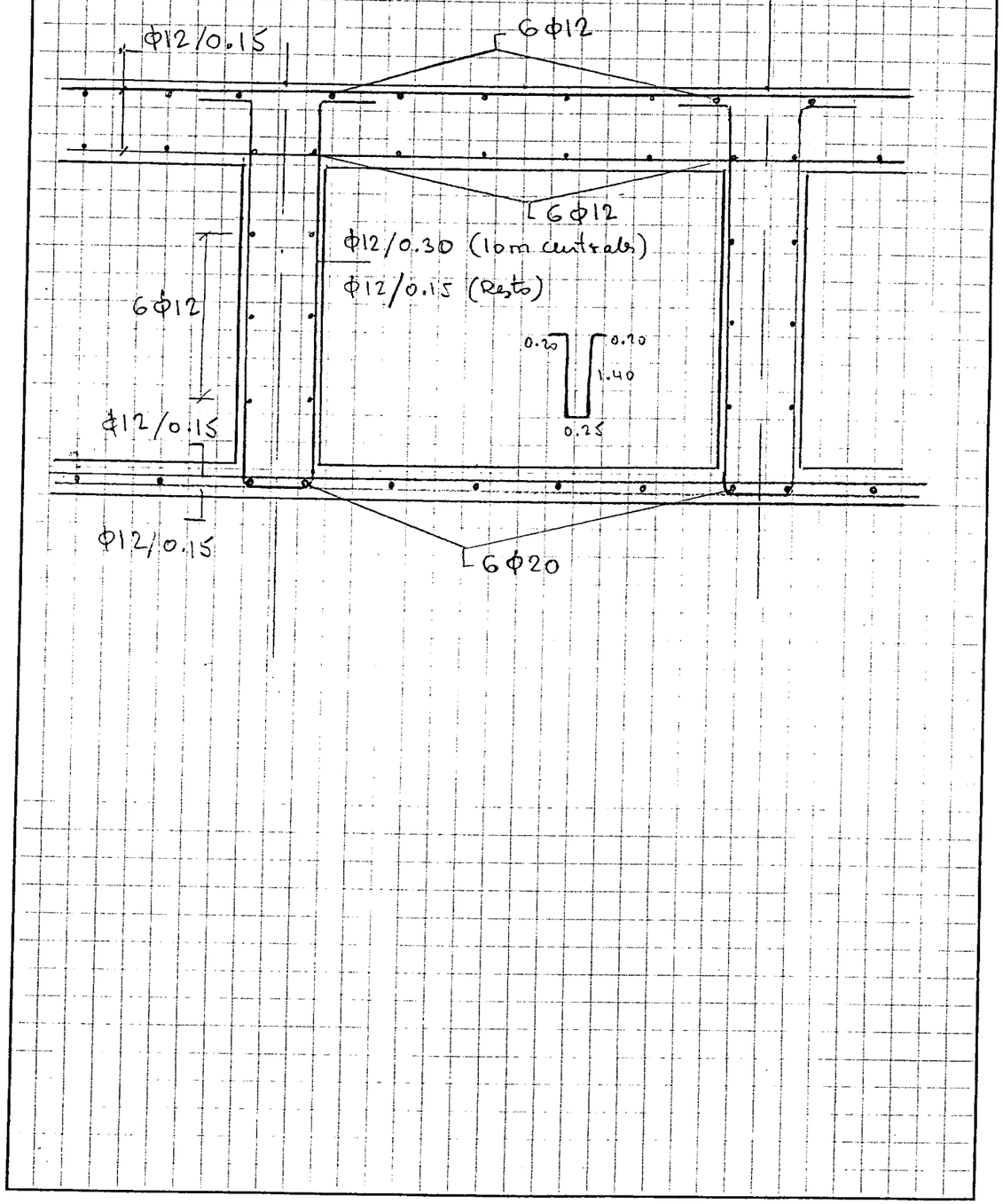
Frenado + arranque = 79 + 100 = 179 t

Fuerza por apoyo $F_a = 179/80 = 2.24$ t/apoyo

$\delta_a = \frac{2240}{25 \times 40 \times 10} \times 37 = 8.3$ mm

$\delta_t = 3.5 + 8.8 + 8.3 = 20.6$ mm ; $tg\,\varphi_t = \frac{20.6}{37} = 0.56$ ✓ < 0.7

Detalle de armado



AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			1.58
		.00	1.49	2.18				
		1.78	1.49	4.84				
		1.78			.00			1.58
	3	.00			.00			.18
		.00	.16	.21				
		1.78	.16	.50				
		1.78			.00			.18
	4	.00			.00			.22
		.00	.18	.25				
		1.78	.18	.58				
		1.78			.00			.22
	5	.00			.00			-.21
		.00	-22.09	-77.23				
		1.78	-22.09	-116.55				
		1.78			.00			-.21
11								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			4.27
		.00	2.08	2.76				
		1.78	2.08	6.45				
		1.78			.00			4.27
	3	.00			.00			.45
		.00	.20	.24				
		1.78	.20	.61				
		1.78			.00			.45
	4	.00			.00			.53
		.00	.23	.28				
		1.78	.23	.69				
		1.78			.00			.53
	5	.00			.00			-.50
		.00	-22.13	-77.25				
		1.78	-22.13	-116.65				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-.50
21								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			7.08
		.00	6.74	1.54				
		1.78	6.74	13.54				
		1.78			.00			7.08
	3	.00			.00			.84
		.00	.27	.36				
		1.78	.27	.85				
		1.78			.00			.84
	4	.00			.00			.99
		.00	.31	.41				
		1.78	.31	.95				
		1.78			.00			.99
	5	.00			.00			-.92
		.00	-22.20	-77.34				
		1.78	-22.20	-116.85				
		1.78			.00			-.92
31								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			9.96
		.00	9.34	2.17				
		1.78	9.34	18.80				
		1.78			.00			9.96
	3	.00			.00			1.51
		.00	.37	.62				
		1.78	.37	1.27				
		1.78			.00			1.51
	4	.00			.00			1.73
		.00	.42	.66				
		1.78	.42	1.41				
		1.78			.00			1.73
	5	.00			.00			-1.52
		.00	-22.31	-77.49				

AVE MARTORELL E-3 (1.0PP+1.0CP+1.0SC)

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD COMBINATION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(Z)	M(X)	M(Y)
101	-10.5900	.0000	.0000
102	-10.5900	.0000	.0000
103	-7.9100	.0000	.0000
104	-10.5800	.0000	.0000
105	-7.9100	.0000	.0000
106	-7.9100	.0000	.0000
107	-6.2300	.0000	.0000
108	-.1733E-10	-.8522E-11	.0000E+00
109	.3376E-11	.2169E-11	.0000E+00
110	.0000E+00	-.5444E-11	.0000E+00
111	-.2778E-11	-.2804E-11	.0000E+00
112	.9088E-11	.3478E-11	.0000E+00
113	.4579E-11	.1676E-11	.0000E+00
114	.0000E+00	-.1964E-11	.0000E+00
115	.2669E-11	.0000E+00	.0000E+00
116	.3387E-11	.0000E+00	.0000E+00
117	.0000E+00	-.2584E-11	.0000E+00
118	.1122E-11	-.2836E-11	.0000E+00
119	.1381E-11	.0000E+00	.0000E+00
120	.2274E-11	.0000E+00	.0000E+00
121	.3296E-11	.0000E+00	.0000E+00
122	.0000	.0000	.0000
123	-.2270E-11	-.2133E-11	.0000E+00
124	.0000E+00	-.2572E-11	.0000E+00
125	-.1751E-11	.0000E+00	.0000E+00
126	-.1717E-11	.1986E-11	.0000E+00
127	-.1271E-11	.1170E-11	.0000E+00
128	.2226E-11	.0000E+00	.0000E+00
129	-.3332E-11	.0000E+00	.0000E+00
130	-6.2300	.0000	.0000
131	-7.9100	.0000	.0000
132	-7.9100	.0000	.0000
133	-10.5800	.0000	.0000
134	-7.9100	.0000	.0000
135	-10.5900	.0000	.0000
136	-10.5900	.0000	.0000
137	-36.5060	.0000	.0000
138	-10.5900	.0000	.0000
139	-36.5060	.0000	.0000
140	-10.5900	.0000	.0000
141	-36.5060	.0000	.0000
142	-10.5900	.0000	.0000
143	-36.5060	.0000	.0000
144	-10.5900	.0000	.0000
145	-10.5900	.0000	.0000
146	-7.9100	.0000	.0000
147	-10.5800	.0000	.0000
148	-7.9100	.0000	.0000
149	-7.9100	.0000	.0000
150	-6.2300	.0000	.0000

AVE MARTORELL E-3 (1.0PP+1.0CP+1.0SC)

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD COMBINATION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(Z)	M(X)	M(Y)
151	.0000E+00	-.4112E-11	.0000E+00
152	.0000E+00	-.3185E-11	.0000E+00
153	-.1020E-10	.0000E+00	.0000E+00
154	-.8004E-11	.0000E+00	.0000E+00
155	-.4202E-11	-.1669E-11	.0000E+00
156	.3263E-11	.1414E-11	.0000E+00
157	.2921E-11	.2130E-11	.0000E+00
158	-.3244E-11	-.2677E-11	.0000E+00
159	-.2653E-11	-.3877E-11	.0000E+00
160	.1980E-11	.0000E+00	.0000E+00
161	-.2050E-11	-.1114E-11	.0000E+00
162	-.1858E-11	.0000E+00	.0000E+00
163	-.1751E-11	.0000E+00	.0000E+00
164	.1779E-11	-.2511E-11	.0000E+00
165	.0000E+00	-.1423E-11	.0000E+00
166	-.3859E-11	.0000E+00	.0000E+00
167	-.1033E-11	.4020E-11	.0000E+00
168	.1813E-11	.0000E+00	.0000E+00
169	-.7842E-11	-.2963E-11	.0000E+00
170	-.4283E-11	-.2301E-11	.0000E+00
171	.1535E-11	.1897E-11	.0000E+00
172	-.9940E-11	.6279E-11	.0000E+00
173	-6.2300	.0000	.0000
174	-7.9100	.0000	.0000
175	-7.9100	.0000	.0000
176	-10.5800	.0000	.0000
177	-7.9100	.0000	.0000
178	-10.5900	.0000	.0000
179	-10.5900	.0000	.0000
180	-36.5060	.0000	.0000
181	-10.5900	.0000	.0000
182	-36.5060	.0000	.0000
183	-10.5900	.0000	.0000
184	-36.5060	.0000	.0000
185	-10.5900	.0000	.0000
186	-36.5060	.0000	.0000
187	-10.5900	.0000	.0000
188	-10.5900	.0000	.0000
189	-7.9100	.0000	.0000
190	-10.5800	.0000	.0000
191	-7.9100	.0000	.0000
192	-7.9100	.0000	.0000
193	-6.2300	.0000	.0000
194	-.4970E-11	-.4735E-11	.0000E+00
195	.0000E+00	-.2679E-11	.0000E+00
196	-.1598E-11	.0000E+00	.0000E+00
197	-.6559E-11	.0000E+00	.0000E+00
198	-.4467E-11	.0000E+00	.0000E+00
199	-.6055E-11	-.7077E-11	.0000E+00
200	.1439E-11	-.1735E-11	.0000E+00

AVE MARTORELL E-3 (1.0PP+1.0CP+1.0SC)

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD COMBINATION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(Z)	M(X)	M(Y)
201	.0000	.0000	.0000
202	-.3618E-11	.0000E+00	.0000E+00
203	.1482E-11	.2201E-11	.0000E+00
204	-.3293E-11	.0000E+00	.0000E+00
205	.0000E+00	-.2262E-11	.0000E+00
206	.1436E-11	-.1009E-11	.0000E+00
207	-.1873E-11	-.2464E-11	.0000E+00
208	-.5538E-11	.3058E-11	.0000E+00
209	.1339E-11	.4529E-11	.0000E+00
210	.5059E-11	-.5069E-11	.0000E+00
211	-.1266E-11	-.3092E-11	.0000E+00
212	-.2447E-11	.1364E-11	.0000E+00
213	-.3702E-11	-.2308E-11	.0000E+00
214	-.3830E-11	-.7935E-11	.0000E+00
215	.0000E+00	.4019E-11	.0000E+00
216	-6.2300	.0000	.0000
217	-7.9100	.0000	.0000
218	-7.9100	.0000	.0000
219	-10.5800	.0000	.0000
220	-7.9100	.0000	.0000
221	-10.5900	.0000	.0000
222	-10.5900	.0000	.0000
223	-36.5060	.0000	.0000
224	-10.5900	.0000	.0000
225	-36.5060	.0000	.0000
226	-10.5900	.0000	.0000
227	-36.5060	.0000	.0000
228	-10.5900	.0000	.0000
229	-36.5060	.0000	.0000
230	-10.5900	.0000	.0000
231	-10.5900	.0000	.0000
232	-7.9100	.0000	.0000
233	-10.5800	.0000	.0000
234	-7.9100	.0000	.0000
235	-7.9100	.0000	.0000
236	-6.2300	.0000	.0000
237	.0000	.0000	.0000
238	.3812E-11	.0000E+00	.0000E+00
239	.4906E-11	.1541E-11	.0000E+00
240	.4545E-11	-.7372E-11	.0000E+00
241	-.3850E-11	-.4709E-11	.0000E+00
242	-.5594E-11	-.2540E-11	.0000E+00
243	.2493E-11	.0000E+00	.0000E+00
244	-.4182E-11	.2082E-11	.0000E+00
245	.3894E-11	.2634E-11	.0000E+00
246	.3264E-11	.0000E+00	.0000E+00
247	.1401E-11	.1176E-11	.0000E+00
248	.2916E-11	-.2681E-11	.0000E+00
249	-.3946E-11	.0000E+00	.0000E+00
250	-.1454E-11	.4432E-11	.0000E+00

AVE MARTORELL E-3 (1.0PP+1.0CP+1.0SC)

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD COMBINATION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(Z)	M(X)	M(Y)
251	.0000	.0000	.0000
252	.6277E-11	.0000E+00	.0000E+00
253	-.4267E-11	-.3233E-11	.0000E+00
254	.0000E+00	-.1929E-11	.0000E+00
255	-.1010E-11	-.7384E-11	.0000E+00
256	-.3448E-11	.5363E-11	.0000E+00
257	-.6488E-11	.0000E+00	.0000E+00
258	-.1070E-10	.0000E+00	.0000E+00
259	-6.2300	.0000	.0000
260	-7.9100	.0000	.0000
261	-7.9100	.0000	.0000
262	-10.5800	.0000	.0000
263	-7.9100	.0000	.0000
264	-10.5900	.0000	.0000
265	-10.5900	.0000	.0000
266	-36.5060	.0000	.0000
267	-10.5900	.0000	.0000
268	-36.5060	.0000	.0000
269	-10.5900	.0000	.0000
270	-36.5060	.0000	.0000
271	-10.5900	.0000	.0000
272	-36.5060	.0000	.0000
273	-10.5900	.0000	.0000
274	-10.5900	.0000	.0000
275	-7.9100	.0000	.0000
276	-10.5800	.0000	.0000
277	-7.9100	.0000	.0000
278	-7.9100	.0000	.0000
279	-6.2300	.0000	.0000
280	-.5604E-11	.1426E-11	.0000E+00
281	.6371E-11	-.5008E-11	.0000E+00
282	.0000E+00	-.4088E-11	.0000E+00
283	.4764E-11	-.2022E-11	.0000E+00
284	.0000E+00	.1863E-11	.0000E+00
285	.0000E+00	-.1361E-11	.0000E+00
286	.0000E+00	.1257E-11	.0000E+00
287	.1252E-11	.0000E+00	.0000E+00
288	-.2009E-11	.0000E+00	.0000E+00
289	.0000	.0000	.0000
290	.0000	.0000	.0000
291	-.2458E-11	.0000E+00	.0000E+00
292	.0000	.0000	.0000
293	-.5640E-11	-.1890E-11	.0000E+00
294	.3668E-11	-.1469E-11	.0000E+00
295	-.4516E-11	-.1088E-11	.0000E+00
296	.0000E+00	-.3373E-11	.0000E+00
297	.0000E+00	.4924E-11	.0000E+00
298	.1942E-11	.2529E-11	.0000E+00
299	.3582E-11	.0000E+00	.0000E+00
300	.0000E+00	-.1844E-11	.0000E+00

AVE MARTORELL E-3 (1.0PP+1.0CP+1.0SC)

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD COMBINATION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(Z)	M(X)	M(Y)
301	.5060E-11	-.5257E-11	.0000E+00
302	-6.2300	.0000	.0000
303	-7.9100	.0000	.0000
304	-7.9100	.0000	.0000
305	-10.5800	.0000	.0000
306	-7.9100	.0000	.0000
307	-10.5900	.0000	.0000
308	-10.5900	.0000	.0000
309	-36.5060	.0000	.0000
310	-10.5900	.0000	.0000
311	-36.5060	.0000	.0000
312	-10.5900	.0000	.0000
313	-36.5060	.0000	.0000
314	-10.5900	.0000	.0000
315	-36.5060	.0000	.0000
316	-10.5900	.0000	.0000
317	-10.5900	.0000	.0000
318	-7.9100	.0000	.0000
319	-10.5800	.0000	.0000
320	-7.9100	.0000	.0000
321	-7.9100	.0000	.0000
322	-6.2300	.0000	.0000
323	.4081E-11	.0000E+00	.0000E+00
324	-.3166E-11	.1292E-11	.0000E+00
325	-.1362E-11	.0000E+00	.0000E+00
326	.0000	.0000	.0000
327	.1411E-11	.0000E+00	.0000E+00
328	.0000	.0000	.0000
329	.0000	.0000	.0000
330	-.1841E-11	.0000E+00	.0000E+00
331	-.5381E-11	.0000E+00	.0000E+00
332	.0000E+00	.1074E-11	.0000E+00
333	-.3410E-11	.2232E-11	.0000E+00
334	.0000	.0000	.0000
335	.0000E+00	-.1228E-11	.0000E+00
336	-.1846E-11	.0000E+00	.0000E+00
337	.1004E-11	.0000E+00	.0000E+00
338	-.6141E-11	.3733E-11	.0000E+00
339	.1369E-11	.2591E-11	.0000E+00
340	-.1680E-11	-.1878E-11	.0000E+00
341	.0000	.0000	.0000
342	-.4934E-11	-.1899E-11	.0000E+00
343	-.1114E-10	.3511E-11	.0000E+00
344	.3714E-11	.2986E-11	.0000E+00
345	-6.2300	.0000	.0000
346	-7.9100	.0000	.0000
347	-7.9100	.0000	.0000
348	-10.5800	.0000	.0000
349	-7.9100	.0000	.0000
350	-10.5900	.0000	.0000

AVE MARTORELL E-3 (1.0PP+1.0CP+1.0SC)

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD COMBINATION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(Z)	M(X)	M(Y)
351	-10.5900	.0000	.0000
352	-36.5060	.0000	.0000
353	-10.5900	.0000	.0000
354	-36.5060	.0000	.0000
355	-10.5900	.0000	.0000
356	-36.5060	.0000	.0000
357	-10.5900	.0000	.0000
358	-36.5060	.0000	.0000
359	-10.5900	.0000	.0000
360	-10.5900	.0000	.0000
361	-7.9100	.0000	.0000
362	-10.5800	.0000	.0000
363	-7.9100	.0000	.0000
364	-7.9100	.0000	.0000
365	-6.2300	.0000	.0000
366	.0000	.0000	.0000
367	-.1328E-11	.0000E+00	.0000E+00
368	-.2691E-11	.1221E-11	.0000E+00
369	-.1625E-11	.0000E+00	.0000E+00
370	-.1737E-11	.0000E+00	.0000E+00
371	.1894E-11	-.1117E-11	.0000E+00
372	.1541E-11	-.1067E-11	.0000E+00
373	.0000E+00	.1613E-11	.0000E+00
374	.0000	.0000	.0000
375	.0000	.0000	.0000
376	.0000	.0000	.0000
377	.0000E+00	-.1572E-11	.0000E+00
378	-.1491E-11	.2144E-11	.0000E+00
379	.0000E+00	-.2074E-11	.0000E+00
380	-.4171E-11	.3189E-11	.0000E+00
381	.1853E-11	.0000E+00	.0000E+00
382	-.1892E-11	.1162E-11	.0000E+00
383	.3451E-11	.0000E+00	.0000E+00
384	.3354E-11	.0000E+00	.0000E+00
385	-.2156E-11	.2540E-11	.0000E+00
386	-.6849E-11	.1133E-11	.0000E+00
387	.0000E+00	.2374E-11	.0000E+00
388	-6.2300	.0000	.0000
389	-7.9100	.0000	.0000
390	-7.9100	.0000	.0000
391	-10.5800	.0000	.0000
392	-7.9100	.0000	.0000
393	-10.5900	.0000	.0000
394	-10.5900	.0000	.0000
395	-34.3500	.0000	.0000
396	-10.5900	.0000	.0000
397	-34.3500	.0000	.0000
398	-10.5900	.0000	.0000
399	-34.3500	.0000	.0000
400	-10.5900	.0000	.0000

AVE MARTORELL E-3 (1.0PP+1.0CP+1.0SC)

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD COMBINATION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(Z)	M(X)	M(Y)
401	-34.3500	.0000	.0000
402	-10.5900	.0000	.0000
403	-10.5900	.0000	.0000
404	-7.9100	.0000	.0000
405	-10.5800	.0000	.0000
406	-7.9100	.0000	.0000
407	-7.9100	.0000	.0000
408	-6.2300	.0000	.0000
409	-.1156E-11	.1147E-11	.0000E+00
410	.0000	.0000	.0000
411	23.0166	.0000	.0000
412	23.7248	.0000	.0000
413	24.1962	.0000	.0000
414	24.6806	.0000	.0000
415	25.3511	.0000	.0000
416	26.3047	.0000	.0000
417	27.6144	.0000	.0000
418	29.3585	.0000	.0000
419	31.6182	.0000	.0000
420	34.4503	.0000	.0000
421	37.8972	.0000	.0000
422	41.9654	.0000	.0000
423	46.6508	.0000	.0000
424	51.8979	.0000	.0000
425	57.6811	.0000	.0000
426	63.8643	.0000	.0000
427	70.4902	.0000	.0000
428	77.3542	.0000	.0000
429	84.6232	.0000	.0000
430	91.7892	.0000	.0000
431	92.5287	.0000	.0000
432	96.4956	.0000	.0000
433	100.7053	.0000	.0000
434	101.1759	.0000	.0000
435	105.6774	.0000	.0000
436	104.3048	.0000	.0000
437	103.2498	.0000	.0000
438	84.3338	.0000	.0000
439	95.0589	.0000	.0000
440	71.9046	.0000	.0000
441	80.0572	.0000	.0000
442	55.3822	.0000	.0000
443	62.8886	.0000	.0000
444	37.7526	.0000	.0000
445	46.1496	.0000	.0000
446	39.1934	.0000	.0000
447	36.5433	.0000	.0000
448	29.7444	.0000	.0000
449	28.5516	.0000	.0000
450	24.8008	.0000	.0000

AVE MARTORELL E-3 (1.0PP+1.0CP+1.0SC)

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD COMBINATION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(Z)	M(X)	M(Y)
451	22.8868	.0000	.0000

ESTRUCTURA E-3

CALCULOS DE ORDENADOR

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AVE MARTORELL E-3
SYSTEM
L=5
JOINTS
1 X=0 Y=0 Z=0
41 X=70
451 Y=17.8
411 X=0 Q=1,41,411,451,1,41

RESTRAINTS
1,451 R=1,1,0,0,0,1

SPRINGS
1,41 K=0,0,135000 :APOYOS DE NEOPRENO 250*400*52(37)
411,451 K=0,0,135000

FRAME
NM=3 Z=-1 NL=2
1 A=1.059 I=0.3085 J=0.4751 E=2.9E6 W=2.65 :VIGAS X-X
2 A=0.748 I=0.0043 J=0.0085 :VIGAS Y-Y
3 A=1.35 I=0.253 J=0.225 :RIOSTRA DE APOYO
1 WG=0,0,3.08 :PRETENSADO CABLE 1
2 WG=0,0,8.39 :PRETENSADO CABLES 1 Y 2
1,1,42 G=40,10,1,1,0,0 M=1 LP=3,0
2,42,83 G=7,1,41,41,0,0 NSL=0,0,0,0,1
12,43,84 G=7,1,41,41,0,0 NSL=0,0,0,0,1
22,44,85 G=7,1,41,41,0,0 NSL=0,0,0,0,1
32,45,86 G=7,1,41,41,0,0 NSL=0,0,0,0,1
42,46,87 G=7,1,41,41,0,0 NSL=0,0,0,0,1
52,47,88 G=7,1,41,41,0,0 NSL=0,0,0,0,1
62,48,89 G=7,1,41,41,0,0 NSL=0,0,0,0,1
72,49,90 G=7,1,41,41,0,0 NSL=0,0,0,0,1
82,50,91 G=7,1,41,41,0,0 NSL=0,0,0,0,1
92,51,92 G=7,1,41,41,0,0 NSL=0,0,0,0,1
102,52,93 G=7,1,41,41,0,0 NSL=0,0,0,0,1
112,53,94 G=7,1,41,41,0,0 NSL=0,0,0,0,2
122,54,95 G=7,1,41,41,0,0 NSL=0,0,0,0,2
132,55,96 G=7,1,41,41,0,0 NSL=0,0,0,0,2
142,56,97 G=7,1,41,41,0,0 NSL=0,0,0,0,2
152,57,98 G=7,1,41,41,0,0 NSL=0,0,0,0,2
162,58,99 G=7,1,41,41,0,0 NSL=0,0,0,0,2
172,59,100 G=7,1,41,41,0,0 NSL=0,0,0,0,2
182,60,101 G=7,1,41,41,0,0 NSL=0,0,0,0,2
192,61,102 G=7,1,41,41,0,0 NSL=0,0,0,0,2
202,62,103 G=7,1,41,41,0,0 NSL=0,0,0,0,2
212,63,104 G=7,1,41,41,0,0 NSL=0,0,0,0,2
222,64,105 G=7,1,41,41,0,0 NSL=0,0,0,0,2
232,65,106 G=7,1,41,41,0,0 NSL=0,0,0,0,2
242,66,107 G=7,1,41,41,0,0 NSL=0,0,0,0,2
252,67,108 G=7,1,41,41,0,0 NSL=0,0,0,0,2
262,68,109 G=7,1,41,41,0,0 NSL=0,0,0,0,2
272,69,110 G=7,1,41,41,0,0 NSL=0,0,0,0,2
282,70,111 G=7,1,41,41,0,0 NSL=0,0,0,0,2
292,71,112 G=7,1,41,41,0,0 NSL=0,0,0,0,2
302,72,113 G=7,1,41,41,0,0 NSL=0,0,0,0,1
312,73,114 G=7,1,41,41,0,0 NSL=0,0,0,0,1
322,74,115 G=7,1,41,41,0,0 NSL=0,0,0,0,1
332,75,116 G=7,1,41,41,0,0 NSL=0,0,0,0,1
342,76,117 G=7,1,41,41,0,0 NSL=0,0,0,0,1
352,77,118 G=7,1,41,41,0,0 NSL=0,0,0,0,1
362,78,119 G=7,1,41,41,0,0 NSL=0,0,0,0,1
372,79,120 G=7,1,41,41,0,0 NSL=0,0,0,0,1
382,80,121 G=7,1,41,41,0,0 NSL=0,0,0,0,1
392,81,122 G=7,1,41,41,0,0 NSL=0,0,0,0,1
402,82,123 G=7,1,41,41,0,0 NSL=0,0,0,0,1
10,370,411 G=40,10,1,1,0,0
411,42,43 G=39,1,1,1,0,0 M=2 LP=-2,0
451,83,84 G=39,1,1,1,0,0
491,124,125 G=39,1,1,1,0,0
531,165,166 G=39,1,1,1,0,0
571,206,207 G=39,1,1,1,0,0
611,247,248 G=39,1,1,1,0,0
651,288,289 G=39,1,1,1,0,0
691,329,330 G=39,1,1,1,0,0
731,370,371 G=39,1,1,1,0,0
771,1,2 G=39,1,1,1,0,0 M=3
811,411,412 G=39,1,1,1,0,0

LOADS
1,21 F=0,0,-6.23 L=2 :CAPA DE FORMA
44,64 F=0,0,-6.23
87,107 F=0,0,-6.23
130,150 F=0,0,-6.23
173,193 F=0,0,-6.23
216,236 F=0,0,-6.23
259,279 F=0,0,-6.23
302,322 F=0,0,-6.23
345,365 F=0,0,-6.23
388,408 F=0,0,-6.23
431,451 F=0,0,-6.23
2,20 F=0,0,-1.68 :SUB-BALASTO
45,63 F=0,0,-1.68
88,106 F=0,0,-1.68
131,149 F=0,0,-1.68
174,192 F=0,0,-1.68
217,235 F=0,0,-1.68
260,278 F=0,0,-1.68
303,321 F=0,0,-1.68
346,364 F=0,0,-1.68
389,407 F=0,0,-1.68
432,450 F=0,0,-1.68
6,16 F=0,0,-2.68 :BALASTO
49,59 F=0,0,-2.68
92,102 F=0,0,-2.68
135,145 F=0,0,-2.68
178,188 F=0,0,-2.68
221,231 F=0,0,-2.68
264,274 F=0,0,-2.68
307,317 F=0,0,-2.68
350,360 F=0,0,-2.68
393,403 F=0,0,-2.68
436,446 F=0,0,-2.68
8,14,2 F=0,0,-12.26*1.1 L=3 :TREN UIC 71
51,57,2 F=0,0,-15.71*1.1
94,100,2 F=0,0,-15.71*1.1
137,143,2 F=0,0,-15.71*1.1
180,186,2 F=0,0,-22.03*1.1
223,229,2 F=0,0,-30.17*1.1
266,272,2 F=0,0,-22.03*1.1
309,315,2 F=0,0,-15.71*1.1
352,358,2 F=0,0,-15.71*1.1
395,401,2 F=0,0,-15.71*1.1
```

```
438,444,2 F=0,0,-12.26*1.1
4,434,43 F=0,0,-3.34
18,448,43 F=0,0,-3.34
8,14,2 F=0,0,-15.32*1.1 L=4 :TREN TIPO B
51,57,2 F=0,0,-21.60*1.1
94,100,2 F=0,0,-23.56*1.1
137,143,2 F=0,0,-23.56*1.1
180,186,2 F=0,0,-23.56*1.1
223,229,2 F=0,0,-23.56*1.1
266,272,2 F=0,0,-23.56*1.1
309,315,2 F=0,0,-23.56*1.1
352,358,2 F=0,0,-23.56*1.1
395,401,2 F=0,0,-21.60*1.1
438,444,2 F=0,0,-15.32*1.1
4,434,43 F=0,0,-2.67
18,448,43 F=0,0,-2.67
1,11 F=0,0,-21.9,77.0 L=5 :PRETENSADO
12,30 F=0,0,-59.7,17.0
31,41 F=0,0,-21.9,77.0
411,421 F=0,0,-21.9,-77.0
422,440 F=0,0,-59.7,-17.0
441,451 F=0,0,-21.9,-77.0
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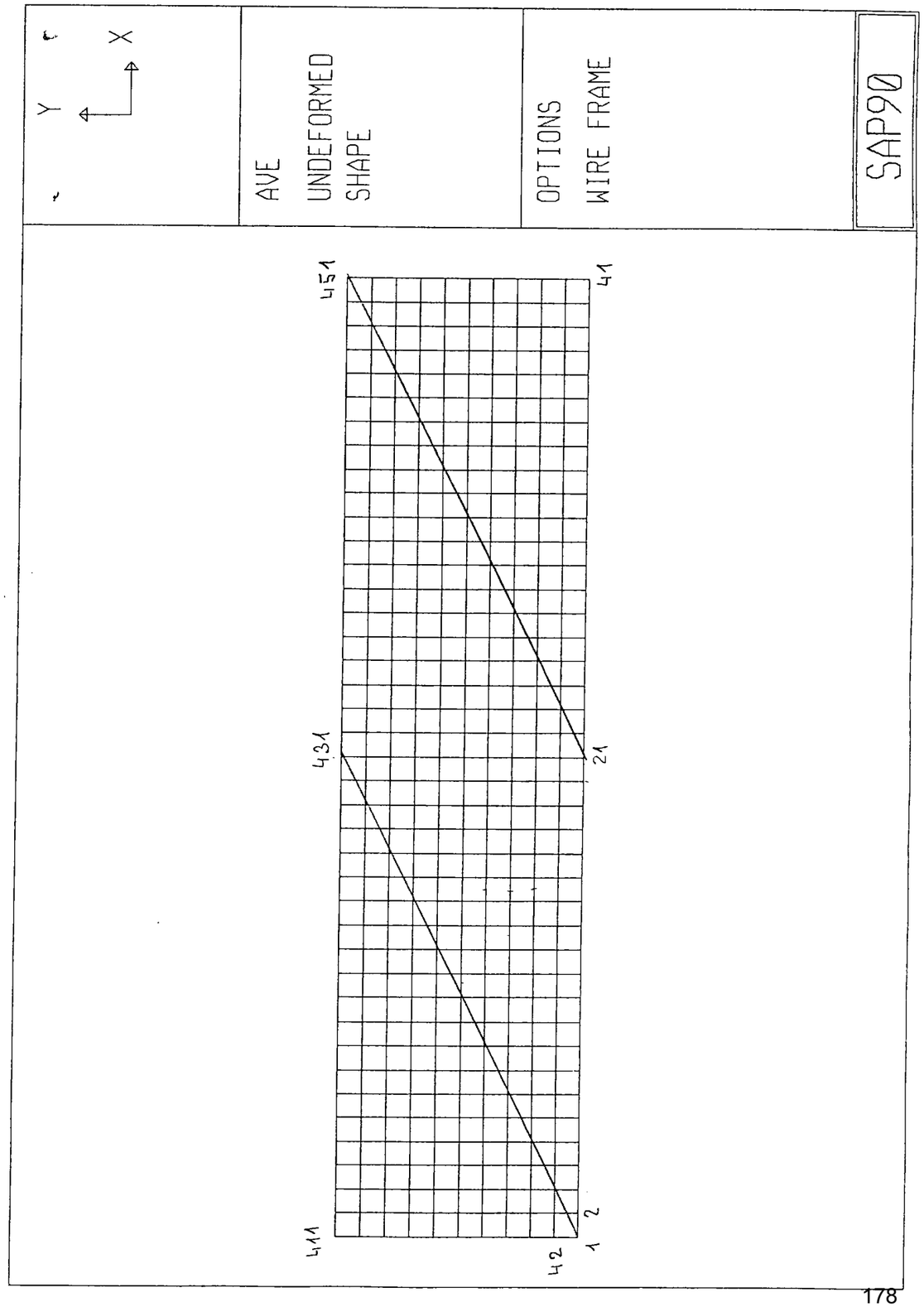


Estructura E-3

Hipótesis de carga 1 ---- Peso Propio
Hipótesis de carga 2 ---- Resto de carga permanente
Hipótesis de carga 3 ---- Tren UIC 71
Hipótesis de carga 4 ---- Tren Tipo B
Hipótesis de carga 5 ---- Pretensado (t=0)
Combinación de carga – 1.35 (PP+CP)+1.50C+Pret

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			1.58
		.00	1.49	2.18				
		1.78	1.49	4.84				
		1.78			.00			1.58
	3	.00			.00			.18
		.00	.16	.21				
		1.78	.16	.50				
		1.78			.00			.18
	4	.00			.00			.22
		.00	.18	.25				
		1.78	.18	.58				
		1.78			.00			.22
	5	.00			.00			-.21
		.00	-22.09	-77.23				
		1.78	-22.09	-116.55				
		1.78			.00			-.21
11								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			4.27
		.00	2.08	2.76				
		1.78	2.08	6.45				
		1.78			.00			4.27
	3	.00			.00			.45
		.00	.20	.24				
		1.78	.20	.61				
		1.78			.00			.45
	4	.00			.00			.53
		.00	.23	.28				
		1.78	.23	.69				
		1.78			.00			.53
	5	.00			.00			-.50
		.00	-22.13	-77.25				
		1.78	-22.13	-116.65				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-.50
21								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			7.08
		.00	6.74	1.54				
		1.78	6.74	13.54				
		1.78			.00			7.08
	3	.00			.00			.84
		.00	.27	.36				
		1.78	.27	.85				
		1.78			.00			.84
	4	.00			.00			.99
		.00	.31	.41				
		1.78	.31	.95				
		1.78			.00			.99
	5	.00			.00			-.92
		.00	-22.20	-77.34				
		1.78	-22.20	-116.85				
		1.78			.00			-.92
31								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			9.96
		.00	9.34	2.17				
		1.78	9.34	18.80				
		1.78			.00			9.96
	3	.00			.00			1.51
		.00	.37	.62				
		1.78	.37	1.27				
		1.78			.00			1.51
	4	.00			.00			1.73
		.00	.42	.66				
		1.78	.42	1.41				
		1.78			.00			1.73
	5	.00			.00			-1.52
		.00	-22.31	-77.49				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-22.31	-117.21				
		1.78			.00			-1.52
41								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			12.51
		.00	12.79	1.20				
		1.78	12.79	23.96				
		1.78			.00			12.51
	3	.00			.00			2.44
		.00	.72	.87				
		1.78	.72	2.15				
		1.78			.00			2.44
	4	.00			.00			2.76
		.00	.77	.94				
		1.78	.77	2.32				
		1.78			.00			2.76
	5	.00			.00			-2.39
		.00	-22.50	-77.73				
		1.78	-22.50	-117.78				
		1.78			.00			-2.39
51								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			14.92
		.00	15.53	1.64				
		1.78	15.53	29.29				
		1.78			.00			14.92
	3	.00			.00			3.06
		.00	3.05	-.05				
		1.78	3.05	5.38				
		1.78			.00			3.06
	4	.00			.00			3.64
		.00	2.75	.33				
		1.78	2.75	5.24				
		1.78			.00			3.64
	5	.00			.00			-3.70

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-22.78	-78.10				
		1.78	-22.78	-118.66				
		1.78			.00			-3.70
61								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			17.27
		.00	18.37	1.33				
		1.78	18.37	34.02				
		1.78			.00			17.27
	3	.00			.00			4.22
		.00	1.65	1.69				
		1.78	1.65	4.63				
		1.78			.00			4.22
	4	.00			.00			5.17
		.00	1.81	1.98				
		1.78	1.81	5.21				
		1.78			.00			5.17
	5	.00			.00			-5.67
		.00	-23.23	-78.66				
		1.78	-23.23	-120.01				
		1.78			.00			-5.67
71								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			19.02
		.00	22.79	.65				
		1.78	22.79	41.21				
		1.78			.00			19.02
	3	.00			.00			6.12
		.00	2.92	1.51				
		1.78	2.92	6.71				
		1.78			.00			6.12
	4	.00			.00			7.82
		.00	3.06	2.41				
		1.78	3.06	7.86				
		1.78			.00			7.82

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	5	.00			.00			-8.68
		.00	-23.91	-79.47				
		1.78	-23.91	-122.03				
		1.78			.00			-8.68
81								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			20.50
		.00	25.45	.73				
		1.78	25.45	46.03				
		1.78			.00			20.50
	3	.00			.00			9.24
		.00	3.76	3.71				
		1.78	3.76	10.40				
		1.78			.00			9.24
	4	.00			.00			12.08
		.00	4.54	4.88				
		1.78	4.54	12.96				
		1.78			.00			12.08
	5	.00			.00			-13.26
		.00	-24.97	-80.44				
		1.78	-24.97	-124.89				
		1.78			.00			-13.26
91								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			21.29
		.00	28.83	-.06				
		1.78	28.83	51.27				
		1.78			.00			21.29
	3	.00			.00			10.86
		.00	15.25	-1.85				
		1.78	15.25	25.30				
		1.78			.00			10.86
	4	.00			.00			14.29
		.00	20.29	-2.37				
		1.78	20.29	33.75				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			14.29
	5	.00			.00			-20.12
		.00	-26.73	-80.51				
		1.78	-26.73	-128.09				
		1.78			.00			-20.12
101								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			21.66
		.00	31.33	-.02				
		1.78	31.33	55.75				
		1.78			.00			21.66
	3	.00			.00			14.63
		.00	7.76	6.47				
		1.78	7.76	20.28				
		1.78			.00			14.63
	4	.00			.00			19.46
		.00	10.12	8.69				
		1.78	10.12	26.71				
		1.78			.00			19.46
	5	.00			.00			-28.98
		.00	-30.67	-73.33				
		1.78	-30.67	-127.93				
		1.78			.00			-28.98
111								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			21.43
		.00	33.89	-.61				
		1.78	33.89	59.71				
		1.78			.00			21.43
	3	.00			.00			15.57
		.00	23.57	-4.97				
		1.78	23.57	36.98				
		1.78			.00			15.57
	4	.00			.00			19.89
		.00	32.50	-7.82				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	32.50	50.03				
		1.78			.00			19.89
	5	.00			.00			-28.98
		.00	-50.99	-20.66				
		1.78	-50.99	-111.42				
		1.78			.00			-28.98
121								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			20.71
		.00	36.07	-.71				
		1.78	36.07	63.50				
		1.78			.00			20.71
	3	.00			.00			19.20
		.00	13.04	8.27				
		1.78	13.04	31.49				
		1.78			.00			19.20
	4	.00			.00			23.83
		.00	17.46	10.66				
		1.78	17.46	41.74				
		1.78			.00			23.83
	5	.00			.00			-20.11
		.00	-54.93	-13.48				
		1.78	-54.93	-111.26				
		1.78			.00			-20.11
131								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			19.50
		.00	37.99	-1.09				
		1.78	37.99	66.53				
		1.78			.00			19.50
	3	.00			.00			19.99
		.00	29.56	-6.71				
		1.78	29.56	45.91				
		1.78			.00			19.99
	4	.00			.00			22.53

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	40.52	-11.50				
		1.78	40.52	60.62				
		1.78			.00			22.53
	5	.00			.00			-13.24
		.00	-56.69	-13.55				
		1.78	-56.69	-114.46				
		1.78			.00			-13.24
141								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			17.83
		.00	39.72	-1.29				
		1.78	39.72	69.41				
		1.78			.00			17.83
	3	.00			.00			23.23
		.00	18.92	8.12				
		1.78	18.92	41.81				
		1.78			.00			23.23
	4	.00			.00			24.03
		.00	24.49	10.19				
		1.78	24.49	53.78				
		1.78			.00			24.03
	5	.00			.00			-8.64
		.00	-57.75	-14.52				
		1.78	-57.75	-117.31				
		1.78			.00			-8.64
151								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			15.74
		.00	41.09	-1.59				
		1.78	41.09	71.55				
		1.78			.00			15.74
	3	.00			.00			21.36
		.00	34.72	-10.03				
		1.78	34.72	51.78				
		1.78			.00			21.36

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	4	.00			.00			19.89
		.00	45.91	-15.09				
		1.78	45.91	66.63				
		1.78			.00			19.89
	5	.00			.00			-5.62
		.00	-58.43	-15.32				
		1.78	-58.43	-119.32				
		1.78			.00			-5.62
161	----------							
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			13.11
		.00	42.30	-1.97				
		1.78	42.30	73.32				
		1.78			.00			13.11
	3	.00			.00			20.35
		.00	23.79	4.47				
		1.78	23.79	46.81				
		1.78			.00			20.35
	4	.00			.00			16.63
		.00	28.76	6.62				
		1.78	28.76	57.81				
		1.78			.00			16.63
	5	.00			.00			-3.61
		.00	-58.86	-15.87				
		1.78	-58.86	-120.64				
		1.78			.00			-3.61
171	----------							
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			9.93
		.00	43.02	-2.40				
		1.78	43.02	74.18				
		1.78			.00			9.93
	3	.00			.00			15.60
		.00	26.93	-8.29				
		1.78	26.93	39.65				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			15.60
	4	.00			.00			12.24
		.00	33.39	-10.65				
		1.78	33.39	48.78				
		1.78			.00			12.24
	5	.00			.00			-2.25
		.00	-59.14	-16.23				
		1.78	-59.14	-121.49				
		1.78			.00			-2.25
181	----------							
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			6.66
		.00	41.86	-1.92				
		1.78	41.86	72.60				
		1.78			.00			6.66
	3	.00			.00			9.95
		.00	25.46	.10				
		1.78	25.46	45.43				
		1.78			.00			9.95
	4	.00			.00			6.44
		.00	28.74	1.93				
		1.78	28.74	53.09				
		1.78			.00			6.44
	5	.00			.00			-1.31
		.00	-59.31	-16.44				
		1.78	-59.31	-122.01				
		1.78			.00			-1.31
191	----------							
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			3.23
		.00	41.81	-2.43				
		1.78	41.81	71.98				
		1.78			.00			3.23
	3	.00			.00			4.60
		.00	24.53	-6.41				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	24.53	37.25				
		1.78			.00			4.60
	4	.00			.00			2.70
		.00	26.85	-6.34				
		1.78	26.85	41.46				
		1.78			.00			2.70
	5	.00			.00			-.60
		.00	-59.40	-16.56				
		1.78	-59.40	-122.29				
		1.78			.00			-.60
201								
	1	.00			.00			.00
		.00	23.59	.00				
		1.78	18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-.18
		.00	40.83	-2.15				
		1.78	40.83	70.53				
		1.78			.00			-.18
	3	.00			.00			-2.42
		.00	23.89	-2.10				
		1.78	23.89	40.42				
		1.78			.00			-2.42
	4	.00			.00			-3.72
		.00	25.43	-.98				
		1.78	25.43	44.28				
		1.78			.00			-3.72
	5	.00			.00			.00
		.00	-59.42	-16.60				
		1.78	-59.42	-122.37				
		1.78			.00			.00
2								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			1.34
		.00	1.30	4.91				
		1.78	1.30	7.23				
		1.78			.00			1.34
	3	.00			.00			.16

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	.15	.51				
		1.78	.15	.77				
		1.78			.00			.16
	4	.00			.00			.19
		.00	.17	.58				
		1.78	.17	.88				
		1.78			.00			.19
	5	.00			.00			-.19
		.00	-22.08	-116.56				
		1.78	-16.60	-150.98				
		1.78			.00			-.19
3								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			.91
		.00	.94	7.28				
		1.78	.94	8.95				
		1.78			.00			.91
	3	.00			.00			.11
		.00	.12	.77				
		1.78	.12	.98				
		1.78			.00			.11
	4	.00			.00			.15
		.00	.13	.89				
		1.78	.13	1.12				
		1.78			.00			.15
	5	.00			.00			-.15
		.00	-16.56	-150.99				
		1.78	-11.08	-175.60				
		1.78			.00			-.15
4								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			.37
		.00	.50	8.98				
		1.78	.50	9.87				
		1.78			.00			.37

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	3	.00			.00			.06
		.00	.07	.98				
		1.78	.07	1.11				
		1.78			.00			.06
	4	.00			.00			.08
		.00	.08	1.13				
		1.78	.08	1.27				
		1.78			.00			.08
	5	.00			.00			-.10
		.00	-11.04	-175.60				
		1.78	-5.56	-190.37				
		1.78			.00			-.10
5								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			-.20
		.00	.04	9.87				
		1.78	.04	9.95				
		1.78			.00			-.20
	3	.00			.00			-.01
		.00	.02	1.11				
		1.78	.02	1.16				
		1.78			.00			-.01
	4	.00			.00			.01
		.00	.03	1.28				
		1.78	.03	1.33				
		1.78			.00			.01
	5	.00			.00			-.03
		.00	-5.51	-190.38				
		1.78	-.03	-195.30				
		1.78			.00			-.03
6								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-.74
		.00	-.38	9.93				
		1.78	-.38	9.26				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-.74
	3	.00			.00			-.07
		.00	-.03	1.16				
		1.78	-.03	1.11				
		1.78			.00			-.07
	4	.00			.00			-.06
		.00	-.03	1.32				
		1.78	-.03	1.27				
		1.78			.00			-.06
	5	.00			.00			.03
		.00	.03	-195.30				
		1.78	5.51	-190.38				
		1.78			.00			.03
7								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-1.20
		.00	-.74	9.22				
		1.78	-.74	7.91				
		1.78			.00			-1.20
	3	.00			.00			-.13
		.00	-.07	1.11				
		1.78	-.07	.97				
		1.78			.00			-.13
	4	.00			.00			-.13
		.00	-.08	1.27				
		1.78	-.08	1.12				
		1.78			.00			-.13
	5	.00			.00			.10
		.00	5.56	-190.37				
		1.78	11.04	-175.60				
		1.78			.00			.10
8								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-1.56
		.00	-1.01	7.87				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-1.01	6.08				
		1.78			.00			-1.56
	3	.00			.00			-.18
		.00	-.11	.97				
		1.78	-.11	.77				
		1.78			.00			-.18
	4	.00			.00			-.19
		.00	-.13	1.11				
		1.78	-.13	.88				
		1.78			.00			-.19
	5	.00			.00			.15
		.00	11.08	-175.60				
		1.78	16.56	-150.99				
		1.78			.00			.15
9	----------							
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-1.80
		.00	-1.18	6.02				
		1.78	-1.18	3.92				
		1.78			.00			-1.80
	3	.00			.00			-.22
		.00	-.14	.76				
		1.78	-.14	.51				
		1.78			.00			-.22
	4	.00			.00			-.23
		.00	-.16	.87				
		1.78	-.16	.59				
		1.78			.00			-.23
	5	.00			.00			.19
		.00	16.60	-150.98				
		1.78	22.08	-116.56				
		1.78			.00			.19
12	----------							
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			3.52

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	1.62	6.54				
		1.78	1.62	9.42				
		1.78			.00			3.52
	3	.00			.00			.40
		.00	.18	.61				
		1.78	.18	.94				
		1.78			.00			.40
	4	.00			.00			.47
		.00	.20	.70				
		1.78	.20	1.06				
		1.78			.00			.47
	5	.00			.00			-.45
		.00	-22.11	-116.65				
		1.78	-16.63	-151.14				
		1.78			.00			-.45
13	----------							
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			2.34
		.00	.99	9.46				
		1.78	.99	11.23				
		1.78			.00			2.34
	3	.00			.00			.30
		.00	.14	.94				
		1.78	.14	1.19				
		1.78			.00			.30
	4	.00			.00			.36
		.00	.16	1.07				
		1.78	.16	1.35				
		1.78			.00			.36
	5	.00			.00			-.36
		.00	-16.59	-151.14				
		1.78	-11.11	-175.79				
		1.78			.00			-.36
14	----------							
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2	.00			.00			1.02
		.00	.39	11.24				
		1.78	.39	11.94				
		1.78			.00			1.02
	3	.00			.00			.17
		.00	.08	1.19				
		1.78	.08	1.34				
		1.78			.00			.17
	4	.00			.00			.22
		.00	.10	1.36				
		1.78	.10	1.53				
		1.78			.00			.22
	5	.00			.00			-.23
		.00	-11.06	-175.80				
		1.78	-5.57	-190.60				
		1.78			.00			-.23
15								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			-.27
		.00	-.13	11.94				
		1.78	-.13	11.70				
		1.78			.00			-.27
	3	.00			.00			.02
		.00	.02	1.34				
		1.78	.02	1.39				
		1.78			.00			.02
	4	.00			.00			.05
		.00	.03	1.54				
		1.78	.03	1.59				
		1.78			.00			.05
	5	.00			.00			-.08
		.00	-5.51	-190.60				
		1.78	-.03	-195.54				
		1.78			.00			-.08
16								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			.00
	2	.00			.00			-1.43
		.00	-.58	11.69				
		1.78	-.58	10.66				
		1.78			.00			-1.43
	3	.00			.00			-.13
		.00	-.04	1.39				
		1.78	-.04	1.32				
		1.78			.00			-.13
	4	.00			.00			-.13
		.00	-.04	1.59				
		1.78	-.04	1.52				
		1.78			.00			-.13
	5	.00			.00			.08
		.00	.03	-195.54				
		1.78	5.51	-190.60				
		1.78			.00			.08
17								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-2.40
		.00	-.94	10.63				
		1.78	-.94	8.95				
		1.78			.00			-2.40
	3	.00			.00			-.27
		.00	-.09	1.32				
		1.78	-.09	1.16				
		1.78			.00			-.27
	4	.00			.00			-.29
		.00	-.10	1.52				
		1.78	-.10	1.33				
		1.78			.00			-.29
	5	.00			.00			.23
		.00	5.57	-190.60				
		1.78	11.06	-175.80				
		1.78			.00			.23
18								
	1	.00			.00			.00
		.00	-9.43	88.16				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-3.15
		.00	-1.23	8.91				
		1.78	-1.23	6.73				
		1.78			.00			-3.15
	3	.00			.00			-.39
		.00	-.14	1.15				
		1.78	-.14	.90				
		1.78			.00			-.39
	4	.00			.00			-.43
		.00	-.16	1.32				
		1.78	-.16	1.04				
		1.78			.00			-.43
	5	.00			.00			.36
		.00	11.11	-175.79				
		1.78	16.59	-151.14				
		1.78			.00			.36
19								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-3.65
		.00	-1.42	6.68				
		1.78	-1.42	4.15				
		1.78			.00			-3.65
	3	.00			.00			-.48
		.00	-.17	.90				
		1.78	-.17	.58				
		1.78			.00			-.48
	4	.00			.00			-.53
		.00	-.20	1.03				
		1.78	-.20	.68				
		1.78			.00			-.53
	5	.00			.00			.45
		.00	16.63	-151.14				
		1.78	22.11	-116.65				
		1.78			.00			.45
22								
	1	.00			.00			.00

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			5.94
		.00	.51	13.59				
		1.78	.51	14.51				
		1.78			.00			5.94
	3	.00			.00			.74
		.00	.24	.86				
		1.78	.24	1.28				
		1.78			.00			.74
	4	.00			.00			.88
		.00	.27	.96				
		1.78	.27	1.44				
		1.78			.00			.88
	5	.00			.00			-.83
		.00	-22.17	-116.87				
		1.78	-16.69	-151.45				
		1.78			.00			-.83
23								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			4.07
		.00	.36	14.57				
		1.78	.36	15.21				
		1.78			.00			4.07
	3	.00			.00			.56
		.00	.18	1.29				
		1.78	.18	1.61				
		1.78			.00			.56
	4	.00			.00			.68
		.00	.21	1.46				
		1.78	.21	1.82				
		1.78			.00			.68
	5	.00			.00			-.66
		.00	-16.64	-151.46				
		1.78	-11.16	-176.20				
		1.78			.00			-.66

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
24								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			1.94
		.00	.03	15.25				
		1.78	.03	15.30				
		1.78			.00			1.94
	3	.00			.00			.32
		.00	.11	1.61				
		1.78	.11	1.80				
		1.78			.00			.32
	4	.00			.00			.41
		.00	.13	1.83				
		1.78	.13	2.05				
		1.78			.00			.41
	5	.00			.00			-.42
		.00	-11.09	-176.21				
		1.78	-5.60	-191.06				
		1.78			.00			-.42
25								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			-.17
		.00	-.41	15.31				
		1.78	-.41	14.58				
		1.78			.00			-.17
	3	.00			.00			.05
		.00	.02	1.80				
		1.78	.02	1.85				
		1.78			.00			.05
	4	.00			.00			.10
		.00	.03	2.06				
		1.78	.03	2.12				
		1.78			.00			.10
	5	.00			.00			-.14
		.00	-5.52	-191.06				
		1.78	-.04	-196.02				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-.14
26								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-2.10
		.00	-.86	14.57				
		1.78	-.86	13.05				
		1.78			.00			-2.10
	3	.00			.00			-.22
		.00	-.06	1.85				
		1.78	-.06	1.75				
		1.78			.00			-.22
	4	.00			.00			-.22
		.00	-.06	2.12				
		1.78	-.06	2.01				
		1.78			.00			-.22
	5	.00			.00			.14
		.00	.04	-196.02				
		1.78	5.52	-191.06				
		1.78			.00			.14
27								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-3.72
		.00	-1.25	13.02				
		1.78	-1.25	10.79				
		1.78			.00			-3.72
	3	.00			.00			-.48
		.00	-.13	1.74				
		1.78	-.13	1.52				
		1.78			.00			-.48
	4	.00			.00			-.52
		.00	-.14	2.01				
		1.78	-.14	1.75				
		1.78			.00			-.52
	5	.00			.00			.42
		.00	5.60	-191.06				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	11.09	-176.21				
		1.78			.00			.42
28								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-4.97
		.00	-1.56	10.75				
		1.78	-1.56	7.98				
		1.78			.00			-4.97
	3	.00			.00			-.69
		.00	-.19	1.51				
		1.78	-.19	1.17				
		1.78			.00			-.69
	4	.00			.00			-.77
		.00	-.21	1.75				
		1.78	-.21	1.37				
		1.78			.00			-.77
	5	.00			.00			.66
		.00	11.16	-176.20				
		1.78	16.64	-151.46				
		1.78			.00			.66
29								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-5.80
		.00	-1.76	7.93				
		1.78	-1.76	4.80				
		1.78			.00			-5.80
	3	.00			.00			-.84
		.00	-.23	1.17				
		1.78	-.23	.76				
		1.78			.00			-.84
	4	.00			.00			-.95
		.00	-.26	1.35				
		1.78	-.26	.88				
		1.78			.00			-.95
	5	.00			.00			.83

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	16.69	-151.45				
		1.78	22.17	-116.87				
		1.78			.00			.83
32								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			8.54
		.00	1.09	18.89				
		1.78	1.09	20.84				
		1.78			.00			8.54
	3	.00			.00			1.33
		.00	.34	1.29				
		1.78	.34	1.88				
		1.78			.00			1.33
	4	.00			.00			1.53
		.00	.38	1.43				
		1.78	.38	2.12				
		1.78			.00			1.53
	5	.00			.00			-1.37
		.00	-22.27	-117.23				
		1.78	-16.79	-152.00				
		1.78			.00			-1.37
33								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			5.96
		.00	.41	20.90				
		1.78	.41	21.63				
		1.78			.00			5.96
	3	.00			.00			1.00
		.00	.25	1.90				
		1.78	.25	2.35				
		1.78			.00			1.00
	4	.00			.00			1.17
		.00	.29	2.13				
		1.78	.29	2.65				
		1.78			.00			1.17

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	5	.00			.00			-1.08
		.00	-16.72	-152.01				
		1.78	-11.24	-176.89				
		1.78			.00			-1.08
34								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			2.93
		.00	-.32	21.65				
		1.78	-.32	21.09				
		1.78			.00			2.93
	3	.00			.00			.58
		.00	.14	2.35				
		1.78	.14	2.60				
		1.78			.00			.58
	4	.00			.00			.70
		.00	.17	2.66				
		1.78	.17	2.96				
		1.78			.00			.70
	5	.00			.00			-.69
		.00	-11.14	-176.90				
		1.78	-5.66	-191.85				
		1.78			.00			-.69
35								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			-.08
		.00	-.93	21.08				
		1.78	-.93	19.42				
		1.78			.00			-.08
	3	.00			.00			.12
		.00	.02	2.60				
		1.78	.02	2.63				
		1.78			.00			.12
	4	.00			.00			.18
		.00	.03	2.97				
		1.78	.03	3.02				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			.18
	5	.00			.00			-.24
		.00	-5.54	-191.86				
		1.78	-.06	-196.84				
		1.78			.00			-.24
36								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-2.81
		.00	-1.42	19.41				
		1.78	-1.42	16.87				
		1.78			.00			-2.81
	3	.00			.00			-.33
		.00	-.10	2.63				
		1.78	-.10	2.46				
		1.78			.00			-.33
	4	.00			.00			-.35
		.00	-.10	3.02				
		1.78	-.10	2.85				
		1.78			.00			-.35
	5	.00			.00			.24
		.00	.06	-196.84				
		1.78	5.54	-191.86				
		1.78			.00			.24
37								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-5.09
		.00	-1.81	16.84				
		1.78	-1.81	13.62				
		1.78			.00			-5.09
	3	.00			.00			-.74
		.00	-.19	2.45				
		1.78	-.19	2.11				
		1.78			.00			-.74
	4	.00			.00			-.83
		.00	-.21	2.84				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-.21	2.46				
		1.78			.00			-.83
	5	.00			.00			.69
		.00	5.66	-191.85				
		1.78	11.14	-176.90				
		1.78			.00			.69
38								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-6.85
		.00	-2.10	13.59				
		1.78	-2.10	9.85				
		1.78			.00			-6.85
	3	.00			.00			-1.08
		.00	-.27	2.10				
		1.78	-.27	1.62				
		1.78			.00			-1.08
	4	.00			.00			-1.23
		.00	-.31	2.45				
		1.78	-.31	1.90				
		1.78			.00			-1.23
	5	.00			.00			1.08
		.00	11.24	-176.89				
		1.78	16.72	-152.01				
		1.78			.00			1.08
39								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-8.01
		.00	-2.29	9.81				
		1.78	-2.29	5.73				
		1.78			.00			-8.01
	3	.00			.00			-1.32
		.00	-.32	1.60				
		1.78	-.32	1.03				
		1.78			.00			-1.32
	4	.00			.00			-1.52

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-.37	1.89				
		1.78	-.37	1.22				
		1.78			.00			-1.52
	5	.00			.00			1.37
		.00	16.79	-152.00				
		1.78	22.27	-117.23				
		1.78			.00			1.37
42								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			10.84
		.00	4.93	24.00				
		1.78	4.93	32.77				
		1.78			.00			10.84
	3	.00			.00			2.08
		.00	.54	2.18				
		1.78	.54	3.13				
		1.78			.00			2.08
	4	.00			.00			2.38
		.00	.61	2.35				
		1.78	.61	3.42				
		1.78			.00			2.38
	5	.00			.00			-2.15
		.00	-22.44	-117.80				
		1.78	-16.96	-152.87				
		1.78			.00			-2.15
43								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			7.73
		.00	-1.24	32.82				
		1.78	-1.24	30.61				
		1.78			.00			7.73
	3	.00			.00			1.49
		.00	.31	3.14				
		1.78	.31	3.69				
		1.78			.00			1.49

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	4	.00			.00			1.75
		.00	.39	3.44				
		1.78	.39	4.12				
		1.78			.00			1.75
	5	.00			.00			-1.70
		.00	-16.85	-152.89				
		1.78	-11.37	-178.00				
		1.78			.00			-1.70
44								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			3.96
		.00	-1.35	30.66				
		1.78	-1.35	28.26				
		1.78			.00			3.96
	3	.00			.00			.81
		.00	.12	3.70				
		1.78	.12	3.90				
		1.78			.00			.81
	4	.00			.00			.99
		.00	.18	4.13				
		1.78	.18	4.45				
		1.78			.00			.99
	5	.00			.00			-1.09
		.00	-11.22	-178.02				
		1.78	-5.74	-193.12				
		1.78			.00			-1.09
45								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			.14
		.00	-1.65	28.29				
		1.78	-1.65	25.36				
		1.78			.00			.14
	3	.00			.00			.11
		.00	-.04	3.90				
		1.78	-.04	3.82				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			.11
	4	.00			.00			.18
		.00	-.01	4.45				
		1.78	-.01	4.43				
		1.78			.00			.18
	5	.00			.00			-.37
		.00	-5.57	-193.13				
		1.78	-.09	-198.16				
		1.78			.00			-.37
46								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-3.37
		.00	-2.05	25.36				
		1.78	-2.05	21.71				
		1.78			.00			-3.37
	3	.00			.00			-.56
		.00	-.18	3.82				
		1.78	-.18	3.50				
		1.78			.00			-.56
	4	.00			.00			-.61
		.00	-.18	4.42				
		1.78	-.18	4.11				
		1.78			.00			-.61
	5	.00			.00			.37
		.00	.09	-198.16				
		1.78	5.57	-193.13				
		1.78			.00			.37
47								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-6.35
		.00	-2.44	21.69				
		1.78	-2.44	17.34				
		1.78			.00			-6.35
	3	.00			.00			-1.16
		.00	-.30	3.49				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-.30	2.96				
		1.78			.00			-1.16
	4	.00			.00			-1.33
		.00	-.33	4.09				
		1.78	-.33	3.51				
		1.78			.00			-1.33
	5	.00			.00			1.09
		.00	5.74	-193.12				
		1.78	11.22	-178.02				
		1.78			.00			1.09
48								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-8.64
		.00	-2.77	17.30				
		1.78	-2.77	12.38				
		1.78			.00			-8.64
	3	.00			.00			-1.65
		.00	-.39	2.95				
		1.78	-.39	2.25				
		1.78			.00			-1.65
	4	.00			.00			-1.92
		.00	-.45	3.50				
		1.78	-.45	2.70				
		1.78			.00			-1.92
	5	.00			.00			1.70
		.00	11.37	-178.00				
		1.78	16.85	-152.89				
		1.78			.00			1.70
49								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-10.17
		.00	-2.99	12.33				
		1.78	-2.99	7.01				
		1.78			.00			-10.17
	3	.00			.00			-1.99

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-.46	2.24				
		1.78	-.46	1.42				
		1.78			.00			-1.99
	4	.00			.00			-2.35
		.00	-.53	2.68				
		1.78	-.53	1.72				
		1.78			.00			-2.35
	5	.00			.00			2.15
		.00	16.96	-152.87				
		1.78	22.44	-117.80				
		1.78			.00			2.15
52								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			13.14
		.00	7.44	29.35				
		1.78	7.44	42.60				
		1.78			.00			13.14
	3	.00			.00			2.69
		.00	-.09	5.39				
		1.78	-.09	5.23				
		1.78			.00			2.69
	4	.00			.00			3.22
		.00	.20	5.25				
		1.78	.20	5.61				
		1.78			.00			3.22
	5	.00			.00			-3.33
		.00	-22.70	-118.70				
		1.78	-17.22	-154.22				
		1.78			.00			-3.33
53								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			9.66
		.00	-.94	42.67				
		1.78	-.94	41.00				
		1.78			.00			9.66

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL
ID	COND	ENDI	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	TORQ
	3	.00			.00			2.01
		.00	.06	5.26				
		1.78	.06	5.37				
		1.78			.00			2.01
	4	.00			.00			2.41
		.00	.26	5.64				
		1.78	.26	6.10				
		1.78			.00			2.41
	5	.00			.00			-2.63
		.00	-17.06	-154.26				
		1.78	-11.57	-179.74				
		1.78			.00			-2.63
54								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			5.16
		.00	-1.68	41.05				
		1.78	-1.68	38.05				
		1.78			.00			5.16
	3	.00			.00			1.13
		.00	.06	5.39				
		1.78	.06	5.50				
		1.78			.00			1.13
	4	.00			.00			1.37
		.00	.17	6.12				
		1.78	.17	6.42				
		1.78			.00			1.37
	5	.00			.00			-1.68
		.00	-11.35	-179.76				
		1.78	-5.87	-195.09				
		1.78			.00			-1.68
55								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			.45
		.00	-2.41	38.05				
		1.78	-2.41	33.76				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL
ID	COND	ENDI	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	TORQ
		1.78			.00			.45
	3	.00			.00			.16
		.00	-.07	5.51				
		1.78	-.07	5.39				
		1.78			.00			.16
	4	.00			.00			.20
		.00	-.03	6.43				
		1.78	-.03	6.38				
		1.78			.00			.20
	5	.00			.00			-.58
		.00	-5.62	-195.10				
		1.78	-.13	-200.22				
		1.78			.00			-.58
56								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-3.90
		.00	-2.99	33.74				
		1.78	-2.99	28.41				
		1.78			.00			-3.90
	3	.00			.00			-.81
		.00	-.24	5.39				
		1.78	-.24	4.95				
		1.78			.00			-.81
	4	.00			.00			-.96
		.00	-.26	6.38				
		1.78	-.26	5.92				
		1.78			.00			-.96
	5	.00			.00			.58
		.00	.13	-200.22				
		1.78	5.62	-195.10				
		1.78			.00			.58
57								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-7.58
		.00	-3.42	28.38				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-3.42	22.29				
		1.78			.00			-7.58
	3	.00			.00			-1.68
		.00	-.42	4.94				
		1.78	-.42	4.20				
		1.78			.00			-1.68
	4	.00			.00			-2.02
		.00	-.48	5.90				
		1.78	-.48	5.05				
		1.78			.00			-2.02
	5	.00			.00			1.68
		.00	5.87	-195.09				
		1.78	11.35	-179.76				
		1.78			.00			1.68
58	----------							
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-10.41
		.00	-3.73	22.25				
		1.78	-3.73	15.61				
		1.78			.00			-10.41
	3	.00			.00			-2.39
		.00	-.56	4.18				
		1.78	-.56	3.18				
		1.78			.00			-2.39
	4	.00			.00			-2.89
		.00	-.66	5.03				
		1.78	-.66	3.86				
		1.78			.00			-2.89
	5	.00			.00			2.63
		.00	11.57	-179.74				
		1.78	17.06	-154.26				
		1.78			.00			2.63
59	----------							
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-12.29

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-3.93	15.57				
		1.78	-3.93	8.58				
		1.78			.00			-12.29
	3	.00			.00			-2.88
		.00	-.66	3.15				
		1.78	-.66	1.98				
		1.78			.00			-2.88
	4	.00			.00			-3.50
		.00	-.78	3.83				
		1.78	-.78	2.44				
		1.78			.00			-3.50
	5	.00			.00			3.33
		.00	17.22	-154.22				
		1.78	22.70	-118.70				
		1.78			.00			3.33
62	----------							
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			15.26
		.00	10.37	34.06				
		1.78	10.37	52.52				
		1.78			.00			15.26
	3	.00			.00			3.73
		.00	1.25	4.69				
		1.78	1.25	6.92				
		1.78			.00			3.73
	4	.00			.00			4.55
		.00	1.42	5.28				
		1.78	1.42	7.80				
		1.78			.00			4.55
	5	.00			.00			-5.12
		.00	-23.10	-120.06				
		1.78	-17.62	-156.31				
		1.78			.00			-5.12
63	----------							
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2	.00			.00			11.36
		.00	2.43	52.54				
		1.78	2.43	56.87				
		1.78			.00			11.36
	3	.00			.00			2.72
		.00	.68	6.94				
		1.78	.68	8.15				
		1.78			.00			2.72
	4	.00			.00			3.34
		.00	.84	7.83				
		1.78	.84	9.33				
		1.78			.00			3.34
	5	.00			.00			-4.05
		.00	-17.38	-156.36				
		1.78	-11.89	-182.41				
		1.78			.00			-4.05
64								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			6.24
		.00	-3.78	56.90				
		1.78	-3.78	50.18				
		1.78			.00			6.24
	3	.00			.00			1.43
		.00	.17	8.15				
		1.78	.17	8.45				
		1.78			.00			1.43
	4	.00			.00			1.77
		.00	.30	9.34				
		1.78	.30	9.87				
		1.78			.00			1.77
	5	.00			.00			-2.59
		.00	-11.56	-182.44				
		1.78	-6.08	-198.14				
		1.78			.00			-2.59
65								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			.00
	2	.00			.00			.81
		.00	-3.88	50.21				
		1.78	-3.88	43.30				
		1.78			.00			.81
	3	.00			.00			.04
		.00	-.21	8.44				
		1.78	-.21	8.08				
		1.78			.00			.04
	4	.00			.00			.07
		.00	-.15	9.86				
		1.78	-.15	9.60				
		1.78			.00			.07
	5	.00			.00			-.89
		.00	-5.69	-198.16				
		1.78	-.20	-203.40				
		1.78			.00			-.89
66								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-4.28
		.00	-4.14	43.32				
		1.78	-4.14	35.95				
		1.78			.00			-4.28
	3	.00			.00			-1.30
		.00	-.48	8.06				
		1.78	-.48	7.20				
		1.78			.00			-1.30
	4	.00			.00			-1.59
		.00	-.51	9.58				
		1.78	-.51	8.68				
		1.78			.00			-1.59
	5	.00			.00			.89
		.00	.20	-203.40				
		1.78	5.69	-198.16				
		1.78			.00			.89
67								
	1	.00			.00			.00
		.00	-4.72	100.76				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-8.63
		.00	-4.47	35.94				
		1.78	-4.47	27.98				
		1.78			.00			-8.63
	3	.00			.00			-2.49
		.00	-.69	7.19				
		1.78	-.69	5.95				
		1.78			.00			-2.49
	4	.00			.00			-3.08
		.00	-.79	8.66				
		1.78	-.79	7.25				
		1.78			.00			-3.08
	5	.00			.00			2.59
		.00	6.08	-198.14				
		1.78	11.56	-182.44				
		1.78			.00			2.59
68								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-12.00
		.00	-4.78	27.95				
		1.78	-4.78	19.44				
		1.78			.00			-12.00
	3	.00			.00			-3.45
		.00	-.85	5.93				
		1.78	-.85	4.42				
		1.78			.00			-3.45
	4	.00			.00			-4.29
		.00	-1.00	7.22				
		1.78	-1.00	5.44				
		1.78			.00			-4.29
	5	.00			.00			4.05
		.00	11.89	-182.41				
		1.78	17.38	-156.36				
		1.78			.00			4.05
69								
	1	.00			.00			.00

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-14.25
		.00	-5.00	19.40				
		1.78	-5.00	10.49				
		1.78			.00			-14.25
	3	.00			.00			-4.12
		.00	-.95	4.39				
		1.78	-.95	2.70				
		1.78			.00			-4.12
	4	.00			.00			-5.13
		.00	-1.14	5.40				
		1.78	-1.14	3.37				
		1.78			.00			-5.13
	5	.00			.00			5.12
		.00	17.62	-156.31				
		1.78	23.10	-120.06				
		1.78			.00			5.12
72								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			16.98
		.00	12.25	41.25				
		1.78	12.25	63.05				
		1.78			.00			16.98
	3	.00			.00			5.34
		.00	3.06	6.75				
		1.78	3.06	12.19				
		1.78			.00			5.34
	4	.00			.00			6.80
		.00	3.08	7.93				
		1.78	3.08	13.41				
		1.78			.00			6.80
	5	.00			.00			-7.85
		.00	-23.73	-122.12				
		1.78	-18.25	-159.47				
		1.78			.00			-7.85

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
73								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			12.96
		.00	4.25	63.10				
		1.78	4.25	70.67				
		1.78			.00			12.96
	3	.00			.00			3.91
		.00	-.12	12.23				
		1.78	-.12	12.01				
		1.78			.00			3.91
	4	.00			.00			4.95
		.00	.33	13.46				
		1.78	.33	14.06				
		1.78			.00			4.95
	5	.00			.00			-6.22
		.00	-17.88	-159.55				
		1.78	-12.40	-186.50				
		1.78			.00			-6.22
74								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			7.51
		.00	-4.04	70.73				
		1.78	-4.04	63.54				
		1.78			.00			7.51
	3	.00			.00			2.09
		.00	-.15	12.05				
		1.78	-.15	11.79				
		1.78			.00			2.09
	4	.00			.00			2.61
		.00	.07	14.10				
		1.78	.07	14.23				
		1.78			.00			2.61
	5	.00			.00			-3.98
		.00	-11.89	-186.55				
		1.78	-6.41	-202.83				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-3.98
75								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			1.42
		.00	-4.70	63.57				
		1.78	-4.70	55.20				
		1.78			.00			1.42
	3	.00			.00			.14
		.00	-.37	11.81				
		1.78	-.37	11.16				
		1.78			.00			.14
	4	.00			.00			.12
		.00	-.33	14.25				
		1.78	-.33	13.65				
		1.78			.00			.12
	5	.00			.00			-1.37
		.00	-5.80	-202.86				
		1.78	-.32	-208.31				
		1.78			.00			-1.37
76								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-4.45
		.00	-5.35	55.19				
		1.78	-5.35	45.66				
		1.78			.00			-4.45
	3	.00			.00			-1.74
		.00	-.67	11.16				
		1.78	-.67	9.96				
		1.78			.00			-1.74
	4	.00			.00			-2.27
		.00	-.78	13.64				
		1.78	-.78	12.26				
		1.78			.00			-2.27
	5	.00			.00			1.37
		.00	.32	-208.31				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	5.80	-202.86				
		1.78			.00			1.37
77								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-9.51
		.00	-5.85	45.64				
		1.78	-5.85	35.23				
		1.78			.00			-9.51
	3	.00			.00			-3.40
		.00	-.97	9.94				
		1.78	-.97	8.22				
		1.78			.00			-3.40
	4	.00			.00			-4.37
		.00	-1.16	12.23				
		1.78	-1.16	10.15				
		1.78			.00			-4.37
	5	.00			.00			3.98
		.00	6.41	-202.83				
		1.78	11.89	-186.55				
		1.78			.00			3.98
78								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-13.44
		.00	-6.18	35.20				
		1.78	-6.18	24.19				
		1.78			.00			-13.44
	3	.00			.00			-4.71
		.00	-1.20	8.19				
		1.78	-1.20	6.06				
		1.78			.00			-4.71
	4	.00			.00			-6.03
		.00	-1.46	10.11				
		1.78	-1.46	7.52				
		1.78			.00			-6.03
	5	.00			.00			6.22

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	12.40	-186.50				
		1.78	17.88	-159.55				
		1.78			.00			6.22
79								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-16.05
		.00	-6.39	24.15				
		1.78	-6.39	12.77				
		1.78			.00			-16.05
	3	.00			.00			-5.61
		.00	-1.35	6.02				
		1.78	-1.35	3.63				
		1.78			.00			-5.61
	4	.00			.00			-7.16
		.00	-1.64	7.47				
		1.78	-1.64	4.54				
		1.78			.00			-7.16
	5	.00			.00			7.85
		.00	18.25	-159.47				
		1.78	23.73	-122.12				
		1.78			.00			7.85
82								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			18.44
		.00	14.77	46.06				
		1.78	14.77	72.36				
		1.78			.00			18.44
	3	.00			.00			7.72
		.00	2.66	10.52				
		1.78	2.66	15.25				
		1.78			.00			7.72
	4	.00			.00			10.00
		.00	3.16	13.11				
		1.78	3.16	18.73				
		1.78			.00			10.00

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	5	.00			.00			-12.06
		.00	-24.74	-125.02				
		1.78	-19.26	-164.17				
		1.78			.00			-12.06
83								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			14.25
		.00	6.74	72.37				
		1.78	6.74	84.38				
		1.78			.00			14.25
	3	.00			.00			5.33
		.00	1.25	15.28				
		1.78	1.25	17.51				
		1.78			.00			5.33
	4	.00			.00			6.79
		.00	1.46	18.76				
		1.78	1.46	21.35				
		1.78			.00			6.79
	5	.00			.00			-9.62
		.00	-18.73	-164.30				
		1.78	-13.25	-192.76				
		1.78			.00			-9.62
84								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			8.49
		.00	-1.17	84.38				
		1.78	-1.17	82.29				
		1.78			.00			8.49
	3	.00			.00			2.59
		.00	.06	17.49				
		1.78	.06	17.59				
		1.78			.00			2.59
	4	.00			.00			3.20
		.00	.07	21.34				
		1.78	.07	21.46				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			3.20
	5	.00			.00			-6.20
		.00	-12.46	-192.85				
		1.78	-6.98	-210.15				
		1.78			.00			-6.20
85								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			1.91
		.00	-7.31	82.31				
		1.78	-7.31	69.30				
		1.78			.00			1.91
	3	.00			.00			-.13
		.00	-.75	17.56				
		1.78	-.75	16.23				
		1.78			.00			-.13
	4	.00			.00			-.32
		.00	-.87	21.42				
		1.78	-.87	19.88				
		1.78			.00			-.32
	5	.00			.00			-2.14
		.00	-6.00	-210.20				
		1.78	-.52	-216.00				
		1.78			.00			-2.14
86								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-4.53
		.00	-7.31	69.33				
		1.78	-7.31	56.31				
		1.78			.00			-4.53
	3	.00			.00			-2.62
		.00	-1.24	16.20				
		1.78	-1.24	14.00				
		1.78			.00			-2.62
	4	.00			.00			-3.50
		.00	-1.46	19.84				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-1.46	17.24				
		1.78			.00			-3.50
	5	.00			.00			2.14
		.00	.52	-216.00				
		1.78	6.00	-210.20				
		1.78			.00			2.14
87	----------							
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-10.15
		.00	-7.47	56.32				
		1.78	-7.47	43.03				
		1.78			.00			-10.15
	3	.00			.00			-4.73
		.00	-1.54	13.97				
		1.78	-1.54	11.22				
		1.78			.00			-4.73
	4	.00			.00			-6.20
		.00	-1.86	17.20				
		1.78	-1.86	13.89				
		1.78			.00			-6.20
	5	.00			.00			6.20
		.00	6.98	-210.15				
		1.78	12.46	-192.85				
		1.78			.00			6.20
88	----------							
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-14.57
		.00	-7.68	43.02				
		1.78	-7.68	29.34				
		1.78			.00			-14.57
	3	.00			.00			-6.38
		.00	-1.75	11.19				
		1.78	-1.75	8.08				
		1.78			.00			-6.38
	4	.00			.00			-8.30

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-2.14	13.84				
		1.78	-2.14	10.04				
		1.78			.00			-8.30
	5	.00			.00			9.62
		.00	13.25	-192.76				
		1.78	18.73	-164.30				
		1.78			.00			9.62
89	----------							
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-17.53
		.00	-7.87	29.32				
		1.78	-7.87	15.30				
		1.78			.00			-17.53
	3	.00			.00			-7.50
		.00	-1.88	8.04				
		1.78	-1.88	4.69				
		1.78			.00			-7.50
	4	.00			.00			-9.71
		.00	-2.31	9.99				
		1.78	-2.31	5.87				
		1.78			.00			-9.71
	5	.00			.00			12.06
		.00	19.26	-164.17				
		1.78	24.74	-125.02				
		1.78			.00			12.06
92	----------							
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			19.27
		.00	18.38	51.26				
		1.78	18.38	83.98				
		1.78			.00			19.27
	3	.00			.00			9.50
		.00	-.60	25.26				
		1.78	-.60	24.19				
		1.78			.00			9.50

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	4	.00			.00			12.44
		.00	-1.61	33.71				
		1.78	-1.61	30.84				
		1.78			.00			12.44
	5	.00			.00			-18.60
		.00	-26.58	-128.28				
		1.78	-21.10	-170.71				
		1.78			.00			-18.60
93	----------							
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			15.14
		.00	7.99	84.00				
		1.78	7.99	98.22				
		1.78			.00			15.14
	3	.00			.00			7.00
		.00	.89	24.28				
		1.78	.89	25.85				
		1.78			.00			7.00
	4	.00			.00			9.06
		.00	.19	30.97				
		1.78	.19	31.30				
		1.78			.00			9.06
	5	.00			.00			-15.11
		.00	-20.41	-170.92				
		1.78	-14.93	-202.36				
		1.78			.00			-15.11
94	----------							
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			9.40
		.00	.13	98.27				
		1.78	.13	98.49				
		1.78			.00			9.40
	3	.00			.00			3.82
		.00	-1.54	25.96				
		1.78	-1.54	23.21				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			3.82
	4	.00			.00			4.82
		.00	-1.56	31.44				
		1.78	-1.56	28.65				
		1.78			.00			4.82
	5	.00			.00			-9.87
		.00	-13.64	-202.53				
		1.78	-8.16	-221.93				
		1.78			.00			-9.87
95	----------							
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			2.66
		.00	-8.04	98.54				
		1.78	-8.04	84.22				
		1.78			.00			2.66
	3	.00			.00			.43
		.00	-1.33	23.28				
		1.78	-1.33	20.92				
		1.78			.00			.43
	4	.00			.00			.35
		.00	-1.50	28.74				
		1.78	-1.50	26.07				
		1.78			.00			.35
	5	.00			.00			-3.43
		.00	-6.43	-222.02				
		1.78	-.95	-228.59				
		1.78			.00			-3.43
96	----------							
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-4.26
		.00	-8.59	84.25				
		1.78	-8.59	68.95				
		1.78			.00			-4.26
	3	.00			.00			-2.80
		.00	-1.56	20.95				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-1.56	18.18				
		1.78			.00			-2.80
	4	.00			.00			-3.85
		.00	-1.91	26.09				
		1.78	-1.91	22.69				
		1.78			.00			-3.85
	5	.00			.00			3.43
		.00	.95	-228.59				
		1.78	6.43	-222.02				
		1.78			.00			3.43
97								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-10.48
		.00	-9.13	68.94				
		1.78	-9.13	52.69				
		1.78			.00			-10.48
	3	.00			.00			-5.59
		.00	-1.94	18.16				
		1.78	-1.94	14.71				
		1.78			.00			-5.59
	4	.00			.00			-7.44
		.00	-2.43	22.67				
		1.78	-2.43	18.34				
		1.78			.00			-7.44
	5	.00			.00			9.87
		.00	8.16	-221.93				
		1.78	13.64	-202.53				
		1.78			.00			9.87
98								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-15.41
		.00	-9.51	52.67				
		1.78	-9.51	35.74				
		1.78			.00			-15.41
	3	.00			.00			-7.78

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-2.29	14.68				
		1.78	-2.29	10.61				
		1.78			.00			-7.78
	4	.00			.00			-10.21
		.00	-2.87	18.29				
		1.78	-2.87	13.19				
		1.78			.00			-10.21
	5	.00			.00			15.11
		.00	14.93	-202.36				
		1.78	20.41	-170.92				
		1.78			.00			15.11
99								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-18.73
		.00	-9.74	35.71				
		1.78	-9.74	18.38				
		1.78			.00			-18.73
	3	.00			.00			-9.25
		.00	-2.52	10.56				
		1.78	-2.52	6.07				
		1.78			.00			-9.25
	4	.00			.00			-12.06
		.00	-3.14	13.13				
		1.78	-3.14	7.53				
		1.78			.00			-12.06
	5	.00			.00			18.60
		.00	21.10	-170.71				
		1.78	26.58	-128.28				
		1.78			.00			18.60
102								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			19.76
		.00	20.73	55.76				
		1.78	20.73	92.65				
		1.78			.00			19.76

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	3	.00			.00			12.64
		.00	5.42	20.51				
		1.78	5.42	30.16				
		1.78			.00			12.64
	4	.00			.00			16.67
		.00	6.91	27.02				
		1.78	6.91	39.31				
		1.78			.00			16.67
	5	.00			.00			-27.89
		.00	-31.04	-128.12				
		1.78	-25.56	-178.50				
		1.78			.00			-27.89
103								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			15.76
		.00	10.08	92.66				
		1.78	10.08	110.61				
		1.78			.00			15.76
	3	.00			.00			8.91
		.00	2.26	30.19				
		1.78	2.26	34.21				
		1.78			.00			8.91
	4	.00			.00			11.47
		.00	2.61	39.33				
		1.78	2.61	43.98				
		1.78			.00			11.47
	5	.00			.00			-23.34
		.00	-24.45	-178.76				
		1.78	-18.97	-217.41				
		1.78			.00			-23.34
104								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			10.04
		.00	2.13	110.61				
		1.78	2.13	114.40				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			10.04
	3	.00			.00			4.55
		.00	-.29	34.14				
		1.78	-.29	33.62				
		1.78			.00			4.55
	4	.00			.00			5.52
		.00	-.70	43.85				
		1.78	-.70	42.60				
		1.78			.00			5.52
	5	.00			.00			-15.49
		.00	-16.38	-217.60				
		1.78	-10.90	-241.88				
		1.78			.00			-15.49
105								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			3.19
		.00	-5.68	114.39				
		1.78	-5.68	104.29				
		1.78			.00			3.19
	3	.00			.00			.17
		.00	-1.89	33.54				
		1.78	-1.89	30.18				
		1.78			.00			.17
	4	.00			.00			-.24
		.00	-2.63	42.48				
		1.78	-2.63	37.80				
		1.78			.00			-.24
	5	.00			.00			-5.42
		.00	-7.39	-241.98				
		1.78	-1.90	-250.25				
		1.78			.00			-5.42
106								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-4.01
		.00	-11.69	104.29				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-11.69	83.49				
		1.78			.00			-4.01
	3	.00			.00			-3.81
		.00	-2.72	30.11				
		1.78	-2.72	25.28				
		1.78			.00			-3.81
	4	.00			.00			-5.34
		.00	-3.55	37.72				
		1.78	-3.55	31.39				
		1.78			.00			-5.34
	5	.00			.00			5.42
		.00	1.90	-250.25				
		1.78	7.39	-241.98				
		1.78			.00			5.42
107								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-10.59
		.00	-11.57	83.51				
		1.78	-11.57	62.93				
		1.78			.00			-10.59
	3	.00			.00			-7.16
		.00	-3.11	25.23				
		1.78	-3.11	19.69				
		1.78			.00			-7.16
	4	.00			.00			-9.56
		.00	-3.96	31.34				
		1.78	-3.96	24.30				
		1.78			.00			-9.56
	5	.00			.00			15.49
		.00	10.90	-241.88				
		1.78	16.38	-217.60				
		1.78			.00			15.49
108								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-15.87

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-11.59	62.94				
		1.78	-11.59	42.31				
		1.78			.00			-15.87
	3	.00			.00			-9.75
		.00	-3.32	19.66				
		1.78	-3.32	13.75				
		1.78			.00			-9.75
	4	.00			.00			-12.76
		.00	-4.16	24.26				
		1.78	-4.16	16.86				
		1.78			.00			-12.76
	5	.00			.00			23.34
		.00	18.97	-217.41				
		1.78	24.45	-178.76				
		1.78			.00			23.34
109								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-19.47
		.00	-11.68	42.30				
		1.78	-11.68	21.52				
		1.78			.00			-19.47
	3	.00			.00			-11.49
		.00	-3.44	13.71				
		1.78	-3.44	7.58				
		1.78			.00			-11.49
	4	.00			.00			-14.87
		.00	-4.28	16.82				
		1.78	-4.28	9.21				
		1.78			.00			-14.87
	5	.00			.00			27.89
		.00	25.56	-178.50				
		1.78	31.04	-128.12				
		1.78			.00			27.89
112								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD ID	COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2		.00			.00			19.63
			.00	23.44	59.69				
			1.78	23.44	101.41				
			1.78			.00			19.63
	3		.00			.00			13.80
			.00	9.07	36.78				
			1.78	9.07	52.93				
			1.78			.00			13.80
	4		.00			.00			17.55
			.00	12.75	49.71				
			1.78	12.75	72.41				
			1.78			.00			17.55
	5		.00			.00			-27.88
			.00	-50.62	-111.23				
			1.78	-35.69	-188.04				
			1.78			.00			-27.88
113									
	1		.00			.00			.00
			.00	14.15	67.17				
			1.78	9.43	88.16				
			1.78			.00			.00
	2		.00			.00			15.83
			.00	13.14	101.39				
			1.78	13.14	124.77				
			1.78			.00			15.83
	3		.00			.00			10.42
			.00	-4.35	52.99				
			1.78	-4.35	45.25				
			1.78			.00			10.42
	4		.00			.00			13.11
			.00	-7.56	72.48				
			1.78	-7.56	59.02				
			1.78			.00			13.11
	5		.00			.00			-23.33
			.00	-36.80	-187.78				
			1.78	-21.86	-239.98				
			1.78			.00			-23.33
114									
	1		.00			.00			.00
			.00	9.43	88.16				
			1.78	4.72	100.76				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD ID	COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			1.78			.00			.00
	2		.00			.00			10.35
			.00	2.89	124.78				
			1.78	2.89	129.92				
			1.78			.00			10.35
	3		.00			.00			6.00
			.00	-1.53	45.45				
			1.78	-1.53	42.73				
			1.78			.00			6.00
	4		.00			.00			7.35
			.00	-3.55	59.30				
			1.78	-3.55	52.98				
			1.78			.00			7.35
	5		.00			.00			-15.48
			.00	-24.45	-239.79				
			1.78	-9.52	-270.02				
			1.78			.00			-15.48
115									
	1		.00			.00			.00
			.00	4.72	100.76				
			1.78	.00	104.95				
			1.78			.00			.00
	2		.00			.00			3.74
			.00	-4.84	129.95				
			1.78	-4.84	121.33				
			1.78			.00			3.74
	3		.00			.00			1.15
			.00	-3.50	42.89				
			1.78	-3.50	36.66				
			1.78			.00			1.15
	4		.00			.00			1.12
			.00	-4.40	53.21				
			1.78	-4.40	45.38				
			1.78			.00			1.12
	5		.00			.00			-5.42
			.00	-13.03	-269.92				
			1.55	.00	-280.04				
			1.78	1.91	-279.82				
			1.78			.00			-5.42
116									
	1		.00			.00			.00

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-3.40
		.00	-12.88	121.38				
		1.78	-12.88	98.44				
		1.78			.00			-3.40
	3	.00			.00			-3.55
		.00	-3.26	36.75				
		1.78	-3.26	30.95				
		1.78			.00			-3.55
	4	.00			.00			-4.84
		.00	-4.11	45.50				
		1.78	-4.11	38.18				
		1.78			.00			-4.84
	5	.00			.00			5.42
		.00	-1.91	-279.82				
		.23	.00	-280.04				
		1.78	13.03	-269.92				
		1.78			.00			5.42
117	---	---	---	---	---	---	---	---
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-10.24
		.00	-13.30	98.47				
		1.78	-13.30	74.79				
		1.78			.00			-10.24
	3	.00			.00			-7.69
		.00	-3.58	30.97				
		1.78	-3.58	24.60				
		1.78			.00			-7.69
	4	.00			.00			-9.97
		.00	-4.52	38.21				
		1.78	-4.52	30.16				
		1.78			.00			-9.97
	5	.00			.00			15.48
		.00	9.52	-270.02				
		1.78	24.45	-239.79				
		1.78			.00			15.48

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
118	---	---	---	---	---	---	---	---
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-15.90
		.00	-13.71	74.78				
		1.78	-13.71	50.37				
		1.78			.00			-15.90
	3	.00			.00			-10.95
		.00	-4.02	24.57				
		1.78	-4.02	17.41				
		1.78			.00			-10.95
	4	.00			.00			-13.94
		.00	-5.04	30.13				
		1.78	-5.04	21.15				
		1.78			.00			-13.94
	5	.00			.00			23.33
		.00	21.86	-239.98				
		1.78	36.80	-187.78				
		1.78			.00			23.33
119	---	---	---	---	---	---	---	---
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-19.80
		.00	-13.98	50.35				
		1.78	-13.98	25.48				
		1.78			.00			-19.80
	3	.00			.00			-13.15
		.00	-4.35	17.36				
		1.78	-4.35	9.61				
		1.78			.00			-13.15
	4	.00			.00			-16.56
		.00	-5.42	21.09				
		1.78	-5.42	11.45				
		1.78			.00			-16.56
	5	.00			.00			27.88
		.00	35.69	-188.04				
		1.78	50.62	-111.23				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			27.88
122								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			19.09
		.00	25.54	63.48				
		1.78	25.54	108.93				
		1.78			.00			19.09
	3	.00			.00			17.13
		.00	9.73	31.85				
		1.78	9.73	49.16				
		1.78			.00			17.13
	4	.00			.00			21.19
		.00	12.80	42.21				
		1.78	12.80	64.99				
		1.78			.00			21.19
	5	.00			.00			-18.59
		.00	-55.08	-111.07				
		1.78	-40.15	-195.82				
		1.78			.00			-18.59
123								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			15.61
		.00	15.02	108.92				
		1.78	15.02	135.66				
		1.78			.00			15.61
	3	.00			.00			12.89
		.00	4.57	49.27				
		1.78	4.57	57.40				
		1.78			.00			12.89
	4	.00			.00			15.72
		.00	5.52	65.10				
		1.78	5.52	74.93				
		1.78			.00			15.72
	5	.00			.00			-15.10
		.00	-40.84	-195.62				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-25.90	-255.02				
		1.78			.00			-15.10
124								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			10.50
		.00	4.49	135.66				
		1.78	4.49	143.65				
		1.78			.00			10.50
	3	.00			.00			7.17
		.00	-.12	57.28				
		1.78	-.12	57.07				
		1.78			.00			7.17
	4	.00			.00			8.35
		.00	-.93	74.72				
		1.78	-.93	73.07				
		1.78			.00			8.35
	5	.00			.00			-9.87
		.00	-27.19	-254.86				
		1.78	-12.25	-289.96				
		1.78			.00			-9.87
125								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			4.13
		.00	-3.33	143.65				
		1.78	-3.33	137.72				
		1.78			.00			4.13
	3	.00			.00			1.14
		.00	-3.19	56.90				
		1.78	-3.19	51.22				
		1.78			.00			1.14
	4	.00			.00			.78
		.00	-4.86	72.81				
		1.78	-4.86	64.16				
		1.78			.00			.78
	5	.00			.00			-3.43

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-13.99	-289.87				
		1.67	.00	-301.53				
		1.78	.95	-301.48				
		1.78			.00			-3.43
126								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-2.88
		.00	-10.99	137.71				
		1.78	-10.99	118.15				
		1.78			.00			-2.88
	3	.00			.00			-4.51
		.00	-4.81	51.10				
		1.78	-4.81	42.53				
		1.78			.00			-4.51
	4	.00			.00			-6.07
		.00	-6.63	63.99				
		1.78	-6.63	52.19				
		1.78			.00			-6.07
	5	.00			.00			3.43
		.00	-.95	-301.48				
		.11	.00	-301.53				
		1.78	13.99	-289.87				
		1.78			.00			3.43
127								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-9.76
		.00	-16.86	118.16				
		1.78	-16.86	88.14				
		1.78			.00			-9.76
	3	.00			.00			-9.33
		.00	-5.51	42.45				
		1.78	-5.51	32.64				
		1.78			.00			-9.33
	4	.00			.00			-11.73
		.00	-7.17	52.10				
		1.78	-7.17	39.33				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-11.73
	5	.00			.00			9.87
		.00	12.25	-289.96				
		1.78	27.19	-254.86				
		1.78			.00			9.87
128								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-15.55
		.00	-16.61	88.17				
		1.78	-16.61	58.60				
		1.78			.00			-15.55
	3	.00			.00			-13.08
		.00	-5.77	32.59				
		1.78	-5.77	22.32				
		1.78			.00			-13.08
	4	.00			.00			-16.00
		.00	-7.24	39.29				
		1.78	-7.24	26.40				
		1.78			.00			-16.00
	5	.00			.00			15.10
		.00	25.90	-255.02				
		1.78	40.84	-195.62				
		1.78			.00			15.10
129								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-19.59
		.00	-16.51	58.63				
		1.78	-16.51	29.24				
		1.78			.00			-19.59
	3	.00			.00			-15.58
		.00	-5.87	22.28				
		1.78	-5.87	11.83				
		1.78			.00			-15.58
	4	.00			.00			-18.80
		.00	-7.21	26.39				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-7.21	13.55				
		1.78			.00			-18.80
	5	.00			.00			18.59
		.00	40.15	-195.82				
		1.78	55.08	-111.07				
		1.78			.00			18.59
132								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			18.04
		.00	27.53	66.49				
		1.78	27.53	115.49				
		1.78			.00			18.04
	3	.00			.00			18.01
		.00	15.87	45.59				
		1.78	15.87	73.84				
		1.78			.00			18.01
	4	.00			.00			20.25
		.00	22.10	60.09				
		1.78	22.10	99.43				
		1.78			.00			20.25
	5	.00			.00			-12.04
		.00	-56.92	-114.33				
		1.78	-41.99	-202.36				
		1.78			.00			-12.04
133								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			14.87
		.00	17.22	115.45				
		1.78	17.22	146.11				
		1.78			.00			14.87
	3	.00			.00			14.03
		.00	4.35	73.77				
		1.78	4.35	81.52				
		1.78			.00			14.03
	4	.00			.00			15.67

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	4.95	99.27				
		1.78	4.95	108.08				
		1.78			.00			15.67
	5	.00			.00			-9.60
		.00	-42.51	-202.24				
		1.78	-27.58	-264.62				
		1.78			.00			-9.60
134								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			10.19
		.00	7.07	146.08				
		1.78	7.07	158.67				
		1.78			.00			10.19
	3	.00			.00			8.58
		.00	-7.53	81.72				
		1.78	-7.53	68.32				
		1.78			.00			8.58
	4	.00			.00			9.45
		.00	-12.60	108.35				
		1.78	-12.60	85.91				
		1.78			.00			9.45
	5	.00			.00			-6.19
		.00	-28.37	-264.53				
		1.78	-13.44	-301.74				
		1.78			.00			-6.19
135								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			4.32
		.00	-3.04	158.67				
		1.78	-3.04	153.27				
		1.78			.00			4.32
	3	.00			.00			2.37
		.00	-4.27	68.59				
		1.78	-4.27	61.00				
		1.78			.00			2.37

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	4	.00			.00			2.42
		.00	-7.46	86.31				
		1.78	-7.46	73.04				
		1.78			.00			2.42
	5	.00			.00			-2.14
		.00	-14.41	-301.69				
		1.72	.00	-314.07				
		1.78	.52	-314.05				
		1.78			.00			-2.14
136	----------							
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-2.22
		.00	-10.62	153.30				
		1.78	-10.62	134.39				
		1.78			.00			-2.22
	3	.00			.00			-3.87
		.00	-6.31	61.18				
		1.78	-6.31	49.95				
		1.78			.00			-3.87
	4	.00			.00			-4.56
		.00	-8.00	73.32				
		1.78	-8.00	59.08				
		1.78			.00			-4.56
	5	.00			.00			2.14
		.00	-.52	-314.05				
		.06	.00	-314.07				
		1.78	14.41	-301.69				
		1.78			.00			2.14
137	----------							
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-8.80
		.00	-18.53	134.44				
		1.78	-18.53	101.47				
		1.78			.00			-8.80
	3	.00			.00			-9.47

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-6.23	50.03				
		1.78	-6.23	38.94				
		1.78			.00			-9.47
	4	.00			.00			-10.75
		.00	-7.67	59.21				
		1.78	-7.67	45.57				
		1.78			.00			-10.75
	5	.00			.00			6.19
		.00	13.44	-301.74				
		1.78	28.37	-264.53				
		1.78			.00			6.19
138	----------							
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-14.62
		.00	-18.81	101.50				
		1.78	-18.81	68.02				
		1.78			.00			-14.62
	3	.00			.00			-13.96
		.00	-6.64	38.93				
		1.78	-6.64	27.11				
		1.78			.00			-13.96
	4	.00			.00			-15.63
		.00	-8.03	45.60				
		1.78	-8.03	31.30				
		1.78			.00			-15.63
	5	.00			.00			9.60
		.00	27.58	-264.62				
		1.78	42.51	-202.24				
		1.78			.00			9.60
139	----------							
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-18.82
		.00	-19.09	68.03				
		1.78	-19.09	34.04				
		1.78			.00			-18.82

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	3	.00			.00			-17.00
		.00	-7.05	27.07				
		1.78	-7.05	14.52				
		1.78			.00			-17.00
	4	.00			.00			-18.90
		.00	-8.44	31.28				
		1.78	-8.44	16.25				
		1.78			.00			-18.90
	5	.00			.00			12.04
		.00	41.99	-202.36				
		1.78	56.92	-114.33				
		1.78			.00			12.04
142								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			16.57
		.00	29.24	69.36				
		1.78	29.24	121.40				
		1.78			.00			16.57
	3	.00			.00			21.29
		.00	15.20	42.22				
		1.78	15.20	69.28				
		1.78			.00			21.29
	4	.00			.00			22.02
		.00	19.27	54.31				
		1.78	19.27	88.61				
		1.78			.00			22.02
	5	.00			.00			-7.82
		.00	-57.93	-117.22				
		1.78	-43.00	-207.04				
		1.78			.00			-7.82
143								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			13.83
		.00	18.84	121.37				
		1.78	18.84	154.90				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			13.83
	3	.00			.00			16.99
		.00	8.69	69.48				
		1.78	8.69	84.95				
		1.78			.00			16.99
	4	.00			.00			17.56
		.00	10.22	88.84				
		1.78	10.22	107.03				
		1.78			.00			17.56
	5	.00			.00			-6.19
		.00	-43.36	-206.97				
		1.78	-28.43	-270.86				
		1.78			.00			-6.19
144								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			9.73
		.00	8.48	154.88				
		1.78	8.48	169.97				
		1.78			.00			9.73
	3	.00			.00			10.55
		.00	1.61	84.91				
		1.78	1.61	87.78				
		1.78			.00			10.55
	4	.00			.00			10.86
		.00	.73	106.89				
		1.78	.73	108.18				
		1.78			.00			10.86
	5	.00			.00			-3.97
		.00	-28.94	-270.81				
		1.78	-14.01	-309.03				
		1.78			.00			-3.97
145								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			4.48
		.00	-1.89	169.97				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD ID	COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			1.78	-1.89	166.59				
			1.78			.00			4.48
		3	.00			.00			2.80
			.00	-4.01	87.57				
			1.78	-4.01	80.43				
			1.78			.00			2.80
		4	.00			.00			2.82
			.00	-6.23	107.83				
			1.78	-6.23	96.74				
			1.78			.00			2.82
		5	.00			.00			-1.37
			.00	-14.61	-309.00				
			1.74	.00	-321.73				
			1.78	.32	-321.72				
			1.78			.00			-1.37
146	----------								
		1	.00			.00			.00
			.00	.00	104.95				
			1.78	-4.72	100.76				
			1.78			.00			.00
		2	.00			.00			-1.55
			.00	-9.56	166.59				
			1.78	-9.56	149.58				
			1.78			.00			-1.55
		3	.00			.00			-4.72
			.00	-7.34	80.20				
			1.78	-7.34	67.13				
			1.78			.00			-4.72
		4	.00			.00			-4.93
			.00	-9.85	96.43				
			1.78	-9.85	78.89				
			1.78			.00			-4.93
		5	.00			.00			1.37
			.00	-.32	-321.72				
			.04	.00	-321.73				
			1.78	14.61	-309.00				
			1.78			.00			1.37
147	----------								
		1	.00			.00			.00
			.00	-4.72	100.76				
			1.78	-9.43	88.16				
			1.78			.00			.00

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD ID	COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2	.00			.00			-7.76
			.00	-17.08	149.57				
			1.78	-17.08	119.17				
			1.78			.00			-7.76
		3	.00			.00			-11.19
			.00	-8.87	66.98				
			1.78	-8.87	51.18				
			1.78			.00			-11.19
		4	.00			.00			-11.52
			.00	-11.13	78.72				
			1.78	-11.13	58.91				
			1.78			.00			-11.52
		5	.00			.00			3.97
			.00	14.01	-309.03				
			1.78	28.94	-270.81				
			1.78			.00			3.97
148	----------								
		1	.00			.00			.00
			.00	-9.43	88.16				
			1.78	-14.15	67.17				
			1.78			.00			.00
		2	.00			.00			-13.39
			.00	-22.82	119.20				
			1.78	-22.82	78.58				
			1.78			.00			-13.39
		3	.00			.00			-16.18
			.00	-9.37	51.10				
			1.78	-9.37	34.42				
			1.78			.00			-16.18
		4	.00			.00			-16.55
			.00	-11.27	58.86				
			1.78	-11.27	38.80				
			1.78			.00			-16.55
		5	.00			.00			6.19
			.00	28.43	-270.86				
			1.78	43.36	-206.97				
			1.78			.00			6.19
149	----------								
		1	.00			.00			.00
			.00	-14.15	67.17				
			1.78	-18.87	37.78				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD ID	COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			1.78			.00			.00
		2	.00			.00			-17.53
			.00	-22.47	78.63				
			1.78	-22.47	38.62				
			1.78			.00			-17.53
		3	.00			.00			-19.46
			.00	-9.46	34.38				
			1.78	-9.46	17.54				
			1.78			.00			-19.46
		4	.00			.00			-19.83
			.00	-11.09	38.81				
			1.78	-11.09	19.06				
			1.78			.00			-19.83
		5	.00			.00			7.82
			.00	43.00	-207.04				
			1.78	57.93	-117.22				
			1.78			.00			7.82
152									
		1	.00			.00			.00
			.00	18.87	37.78				
			1.78	14.15	67.17				
			1.78			.00			.00
		2	.00			.00			14.69
			.00	30.64	71.49				
			1.78	30.64	126.03				
			1.78			.00			14.69
		3	.00			.00			19.70
			.00	21.60	51.30				
			1.78	21.60	89.75				
			1.78			.00			19.70
		4	.00			.00			18.38
			.00	28.08	65.92				
			1.78	28.08	115.91				
			1.78			.00			18.38
		5	.00			.00			-5.07
			.00	-58.55	-119.26				
			1.78	-43.62	-210.19				
			1.78			.00			-5.07
153									
		1	.00			.00			.00
			.00	14.15	67.17				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD ID	COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			1.78	9.43	88.16				
			1.78			.00			.00
		2	.00			.00			12.37
			.00	20.35	125.98				
			1.78	20.35	162.20				
			1.78			.00			12.37
		3	.00			.00			16.01
			.00	11.83	89.49				
			1.78	11.83	110.55				
			1.78			.00			16.01
		4	.00			.00			15.02
			.00	12.81	115.54				
			1.78	12.81	138.34				
			1.78			.00			15.02
		5	.00			.00			-4.01
			.00	-43.86	-210.14				
			1.78	-28.93	-274.93				
			1.78			.00			-4.01
154									
		1	.00			.00			.00
			.00	9.43	88.16				
			1.78	4.72	100.76				
			1.78			.00			.00
		2	.00			.00			8.86
			.00	10.21	162.16				
			1.78	10.21	180.33				
			1.78			.00			8.86
		3	.00			.00			10.56
			.00	3.23	110.56				
			1.78	3.23	116.31				
			1.78			.00			10.56
		4	.00			.00			10.01
			.00	-1.18	138.39				
			1.78	-1.18	136.29				
			1.78			.00			10.01
		5	.00			.00			-2.56
			.00	-29.27	-274.89				
			1.78	-14.33	-313.69				
			1.78			.00			-2.56
155									
		1	.00			.00			.00

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			4.31
		.00	.22	180.31				
		1.78	.22	180.70				
		1.78			.00			4.31
	3	.00			.00			3.89
		.00	-13.56	116.60				
		1.78	-13.56	92.47				
		1.78			.00			3.89
	4	.00			.00			3.85
		.00	-17.35	136.70				
		1.78	-17.35	105.82				
		1.78			.00			3.85
	5	.00			.00			-.88
		.00	-14.73	-313.68				
		1.78	.21	-326.60				
		1.78			.00			-.88
156								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-.96
		.00	-9.73	180.71				
		1.78	-9.73	163.39				
		1.78			.00			-.96
	3	.00			.00			-3.20
		.00	-9.16	92.83				
		1.78	-9.16	76.52				
		1.78			.00			-3.20
	4	.00			.00			-2.74
		.00	-11.77	106.29				
		1.78	-11.77	85.34				
		1.78			.00			-2.74
	5	.00			.00			.88
		.00	-.21	-326.60				
		1.78	14.73	-313.68				
		1.78			.00			.88

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
157								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-6.44
		.00	-17.17	163.44				
		1.78	-17.17	132.88				
		1.78			.00			-6.44
	3	.00			.00			-9.87
		.00	-10.71	76.76				
		1.78	-10.71	57.69				
		1.78			.00			-9.87
	4	.00			.00			-8.96
		.00	-12.20	85.65				
		1.78	-12.20	63.93				
		1.78			.00			-8.96
	5	.00			.00			2.56
		.00	14.33	-313.69				
		1.78	29.27	-274.89				
		1.78			.00			2.56
158								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-11.54
		.00	-24.93	132.95				
		1.78	-24.93	88.56				
		1.78			.00			-11.54
	3	.00			.00			-15.36
		.00	-10.44	57.80				
		1.78	-10.44	39.21				
		1.78			.00			-15.36
	4	.00			.00			-14.10
		.00	-11.81	64.09				
		1.78	-11.81	43.07				
		1.78			.00			-14.10
	5	.00			.00			4.01
		.00	28.93	-274.93				
		1.78	43.86	-210.14				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			4.01
159								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-15.51
		.00	-25.08	88.62				
		1.78	-25.08	43.98				
		1.78			.00			-15.51
	3	.00			.00			-19.14
		.00	-10.70	39.23				
		1.78	-10.70	20.18				
		1.78			.00			-19.14
	4	.00			.00			-17.67
		.00	-12.04	43.12				
		1.78	-12.04	21.68				
		1.78			.00			-17.67
	5	.00			.00			5.07
		.00	43.62	-210.19				
		1.78	58.55	-119.26				
		1.78			.00			5.07
162								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			12.32
		.00	31.86	73.25				
		1.78	31.86	129.96				
		1.78			.00			12.32
	3	.00			.00			19.76
		.00	20.73	47.14				
		1.78	20.73	84.04				
		1.78			.00			19.76
	4	.00			.00			16.52
		.00	24.41	58.27				
		1.78	24.41	101.71				
		1.78			.00			16.52
	5	.00			.00			-3.25
		.00	-58.95	-120.61				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-44.01	-212.24				
		1.78			.00			-3.25
163								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			10.52
		.00	21.57	129.90				
		1.78	21.57	168.29				
		1.78			.00			10.52
	3	.00			.00			17.35
		.00	14.37	84.32				
		1.78	14.37	109.90				
		1.78			.00			17.35
	4	.00			.00			14.95
		.00	15.66	102.04				
		1.78	15.66	129.92				
		1.78			.00			14.95
	5	.00			.00			-2.57
		.00	-44.18	-212.21				
		1.78	-29.24	-277.55				
		1.78			.00			-2.57
164								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			7.75
		.00	11.37	168.26				
		1.78	11.37	188.50				
		1.78			.00			7.75
	3	.00			.00			12.59
		.00	5.95	110.01				
		1.78	5.95	120.61				
		1.78			.00			12.59
	4	.00			.00			11.24
		.00	4.90	129.95				
		1.78	4.90	138.67				
		1.78			.00			11.24
	5	.00			.00			-1.64

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-29.47	-277.53				
		1.78	-14.53	-316.69				
		1.78			.00			-1.64
165								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			4.10
		.00	1.20	188.48				
		1.78	1.20	190.62				
		1.78			.00			4.10
	3	.00			.00			5.55
		.00	-2.65	120.50				
		1.78	-2.65	115.79				
		1.78			.00			5.55
	4	.00			.00			5.44
		.00	-4.92	138.42				
		1.78	-4.92	129.66				
		1.78			.00			5.44
	5	.00			.00			-.56
		.00	-14.80	-316.68				
		1.78	.14	-329.73				
		1.78			.00			-.56
166								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			-.25
		.00	-8.99	190.63				
		1.78	-8.99	174.62				
		1.78			.00			-.25
	3	.00			.00			-2.76
		.00	-9.26	115.50				
		1.78	-9.26	99.02				
		1.78			.00			-2.76
	4	.00			.00			-1.59
		.00	-11.57	129.28				
		1.78	-11.57	108.68				
		1.78			.00			-1.59

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	5	.00			.00			.56
		.00	-.14	-329.73				
		1.78	14.80	-316.68				
		1.78			.00			.56
167								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-4.97
		.00	-16.51	174.63				
		1.78	-16.51	145.25				
		1.78			.00			-4.97
	3	.00			.00			-10.37
		.00	-12.88	98.74				
		1.78	-12.88	75.81				
		1.78			.00			-10.37
	4	.00			.00			-8.18
		.00	-14.77	108.38				
		1.78	-14.77	82.10				
		1.78			.00			-8.18
	5	.00			.00			1.64
		.00	14.53	-316.69				
		1.78	29.47	-277.53				
		1.78			.00			1.64
168								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-9.49
		.00	-23.92	145.27				
		1.78	-23.92	102.68				
		1.78			.00			-9.49
	3	.00			.00			-16.29
		.00	-14.25	75.66				
		1.78	-14.25	50.30				
		1.78			.00			-16.29
	4	.00			.00			-13.44
		.00	-15.71	81.97				
		1.78	-15.71	54.00				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	7.25	150.92				
		1.78	7.25	163.83				
		1.78			.00			8.32
	5	.00			.00			-1.02
		.00	-29.60	-279.21				
		1.78	-14.66	-318.59				
		1.78			.00			-1.02
175								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			3.64
		.00	2.55	194.50				
		1.78	2.55	199.04				
		1.78			.00			3.64
	3	.00			.00			4.50
		.00	.15	148.59				
		1.78	.15	148.86				
		1.78			.00			4.50
	4	.00			.00			4.63
		.00	-6.03	163.97				
		1.78	-6.03	153.23				
		1.78			.00			4.63
	5	.00			.00			-.35
		.00	-14.84	-318.59				
		1.78	.09	-331.71				
		1.78			.00			-.35
176								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			.27
		.00	-7.29	199.04				
		1.78	-7.29	186.06				
		1.78			.00			.27
	3	.00			.00			-1.12
		.00	-22.56	149.20				
		1.78	-22.56	109.04				
		1.78			.00			-1.12

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	4	.00			.00			-.01
		.00	-22.02	153.68				
		1.78	-22.02	114.48				
		1.78			.00			-.01
	5	.00			.00			.35
		.00	-.09	-331.71				
		1.78	14.84	-318.59				
		1.78			.00			.35
177								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-3.45
		.00	-17.11	186.09				
		1.78	-17.11	155.63				
		1.78			.00			-3.45
	3	.00			.00			-6.85
		.00	-16.02	109.53				
		1.78	-16.02	81.02				
		1.78			.00			-6.85
	4	.00			.00			-4.96
		.00	-16.40	114.98				
		1.78	-16.40	85.78				
		1.78			.00			-4.96
	5	.00			.00			1.02
		.00	14.66	-318.59				
		1.78	29.60	-279.21				
		1.78			.00			1.02
178								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-7.06
		.00	-24.44	155.70				
		1.78	-24.44	112.20				
		1.78			.00			-7.06
	3	.00			.00			-11.87
		.00	-16.33	81.38				
		1.78	-16.33	52.32				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-11.87
	4	.00			.00			-9.45
		.00	-16.77	86.11				
		1.78	-16.77	56.26				
		1.78			.00			-9.45
	5	.00			.00			1.60
		.00	29.44	-279.22				
		1.78	44.38	-213.52				
		1.78			.00			1.60
179	----------							
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-10.00
		.00	-32.06	112.29				
		1.78	-32.06	55.22				
		1.78			.00			-10.00
	3	.00			.00			-15.49
		.00	-15.39	52.54				
		1.78	-15.39	25.15				
		1.78			.00			-15.49
	4	.00			.00			-12.78
		.00	-16.23	56.43				
		1.78	-16.23	27.54				
		1.78			.00			-12.78
	5	.00			.00			2.03
		.00	44.26	-213.55				
		1.78	59.20	-121.47				
		1.78			.00			2.03
182	----------							
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			6.51
		.00	34.01	72.52				
		1.78	34.01	133.06				
		1.78			.00			6.51
	3	.00			.00			10.17
		.00	23.73	45.59				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	23.73	87.84				
		1.78			.00			10.17
	4	.00			.00			7.41
		.00	26.27	53.36				
		1.78	26.27	100.11				
		1.78			.00			7.41
	5	.00			.00			-1.18
		.00	-59.35	-121.99				
		1.78	-44.41	-214.34				
		1.78			.00			-1.18
183	----------							
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			5.94
		.00	23.65	132.98				
		1.78	23.65	175.07				
		1.78			.00			5.94
	3	.00			.00			10.13
		.00	19.13	88.11				
		1.78	19.13	122.16				
		1.78			.00			10.13
	4	.00			.00			8.68
		.00	20.06	100.47				
		1.78	20.06	136.18				
		1.78			.00			8.68
	5	.00			.00			-.93
		.00	-44.50	-214.32				
		1.78	-29.56	-280.23				
		1.78			.00			-.93
184	----------							
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			4.82
		.00	13.46	175.02				
		1.78	13.46	198.99				
		1.78			.00			4.82
	3	.00			.00			8.86

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	11.28	122.43				
		1.78	11.28	142.51				
		1.78			.00			8.86
	4	.00			.00			8.72
		.00	10.47	136.41				
		1.78	10.47	155.06				
		1.78			.00			8.72
	5	.00			.00			-.59
		.00	-29.67	-280.22				
		1.78	-14.74	-319.75				
		1.78			.00			-.59
185								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			3.12
		.00	3.40	198.96				
		1.78	3.40	205.01				
		1.78			.00			3.12
	3	.00			.00			5.83
		.00	1.23	142.61				
		1.78	1.23	144.80				
		1.78			.00			5.83
	4	.00			.00			6.70
		.00	-.42	155.04				
		1.78	-.42	154.28				
		1.78			.00			6.70
	5	.00			.00			-.20
		.00	-14.87	-319.74				
		1.78	.07	-332.91				
		1.78			.00			-.20
186								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00
	2	.00			.00			.89
		.00	-6.65	205.01				
		1.78	-6.65	193.17				
		1.78			.00			.89

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	3	.00			.00			1.14
		.00	-8.60	144.61				
		1.78	-8.60	129.31				
		1.78			.00			1.14
	4	.00			.00			2.64
		.00	-10.07	154.03				
		1.78	-10.07	136.10				
		1.78			.00			2.64
	5	.00			.00			.20
		.00	-.07	-332.91				
		1.78	14.87	-319.74				
		1.78			.00			.20
187								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-1.73
		.00	-16.75	193.20				
		1.78	-16.75	163.39				
		1.78			.00			-1.73
	3	.00			.00			-4.39
		.00	-15.42	128.94				
		1.78	-15.42	101.49				
		1.78			.00			-4.39
	4	.00			.00			-2.61
		.00	-16.51	135.74				
		1.78	-16.51	106.35				
		1.78			.00			-2.61
	5	.00			.00			.59
		.00	14.74	-319.75				
		1.78	29.67	-280.22				
		1.78			.00			.59
188								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				
		1.78			.00			.00
	2	.00			.00			-4.43
		.00	-24.23	163.43				
		1.78	-24.23	120.31				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-4.43
	3	.00			.00			-9.25
		.00	-18.72	101.23				
		1.78	-18.72	67.91				
		1.78			.00			-9.25
	4	.00			.00			-7.36
		.00	-19.57	106.09				
		1.78	-19.57	71.25				
		1.78			.00			-7.36
	5	.00			.00			.93
		.00	29.56	-280.23				
		1.78	44.50	-214.32				
		1.78			.00			.93
189								
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-6.74
		.00	-31.71	120.36				
		1.78	-31.71	63.92				
		1.78			.00			-6.74
	3	.00			.00			-12.66
		.00	-19.75	67.82				
		1.78	-19.75	32.67				
		1.78			.00			-12.66
	4	.00			.00			-10.75
		.00	-20.51	71.17				
		1.78	-20.51	34.66				
		1.78			.00			-10.75
	5	.00			.00			1.18
		.00	44.41	-214.34				
		1.78	59.35	-121.99				
		1.78			.00			1.18
192								
	1	.00			.00			.00
		.00	18.87	37.78				
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			3.37
		.00	34.17	71.89				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	34.17	132.72				
		1.78			.00			3.37
	3	.00			.00			4.86
		.00	22.87	36.89				
		1.78	22.87	77.60				
		1.78			.00			4.86
	4	.00			.00			3.41
		.00	26.18	41.07				
		1.78	26.18	87.66				
		1.78			.00			3.41
	5	.00			.00			-.54
		.00	-59.43	-122.27				
		1.78	-44.50	-214.76				
		1.78			.00			-.54
193								
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			3.44
		.00	24.11	132.65				
		1.78	24.11	175.57				
		1.78			.00			3.44
	3	.00			.00			4.98
		.00	27.56	77.10				
		1.78	27.56	126.15				
		1.78			.00			4.98
	4	.00			.00			4.29
		.00	31.69	87.12				
		1.78	31.69	143.53				
		1.78			.00			4.29
	5	.00			.00			-.43
		.00	-44.56	-214.75				
		1.78	-29.63	-280.78				
		1.78			.00			-.43
194								
	1	.00			.00			.00
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			3.22

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	14.15	175.53				
		1.78	14.15	200.72				
		1.78			.00			3.22
	3	.00			.00			4.59
		.00	19.13	125.63				
		1.78	19.13	159.67				
		1.78			.00			4.59
	4	.00			.00			4.74
		.00	15.67	143.04				
		1.78	15.67	170.93				
		1.78			.00			4.74
	5	.00			.00			-.27
		.00	-29.71	-280.77				
		1.78	-14.78	-320.37				
		1.78			.00			-.27
195								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			2.55
		.00	4.24	200.70				
		1.78	4.24	208.24				
		1.78			.00			2.55
	3	.00			.00			3.40
		.00	7.20	159.37				
		1.78	7.20	172.19				
		1.78			.00			3.40
	4	.00			.00			4.23
		.00	2.42	170.75				
		1.78	2.42	175.06				
		1.78			.00			4.23
	5	.00			.00			-.09
		.00	-14.88	-320.36				
		1.78	.05	-333.56				
		1.78			.00			-.09
196								
	1	.00			.00			.00
		.00	.00	104.95				
		1.78	-4.72	100.76				
		1.78			.00			.00

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2	.00			.00			1.41
		.00	-5.62	208.23				
		1.78	-5.62	198.22				
		1.78			.00			1.41
	3	.00			.00			1.36
		.00	-12.80	172.29				
		1.78	-12.80	149.51				
		1.78			.00			1.36
	4	.00			.00			2.56
		.00	-10.83	175.22				
		1.78	-10.83	155.95				
		1.78			.00			2.56
	5	.00			.00			.09
		.00	-.05	-333.56				
		1.78	14.88	-320.36				
		1.78			.00			.09
197								
	1	.00			.00			.00
		.00	-4.72	100.76				
		1.78	-9.43	88.16				
		1.78			.00			.00
	2	.00			.00			-.10
		.00	-15.42	198.23				
		1.78	-15.42	170.79				
		1.78			.00			-.10
	3	.00			.00			-1.26
		.00	-26.43	149.98				
		1.78	-26.43	102.93				
		1.78			.00			-1.26
	4	.00			.00			-.01
		.00	-26.82	156.41				
		1.78	-26.82	108.68				
		1.78			.00			-.01
	5	.00			.00			.27
		.00	14.78	-320.37				
		1.78	29.71	-280.77				
		1.78			.00			.27
198								
	1	.00			.00			.00
		.00	-9.43	88.16				
		1.78	-14.15	67.17				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL
ID	COND	ENDI	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	TORQ
		1.78			.00			.00
	2	.00			.00			-1.75
		.00	-25.21	170.83				
		1.78	-25.21	125.96				
		1.78			.00			-1.75
	3	.00			.00			-3.96
		.00	-20.22	103.46				
		1.78	-20.22	67.47				
		1.78			.00			-3.96
	4	.00			.00			-2.88
		.00	-21.16	109.19				
		1.78	-21.16	71.53				
		1.78			.00			-2.88
	5	.00			.00			.43
		.00	29.63	-280.78				
		1.78	44.56	-214.75				
		1.78			.00			.43
199	----------							
	1	.00			.00			.00
		.00	-14.15	67.17				
		1.78	-18.87	37.78				
		1.78			.00			.00
	2	.00			.00			-3.16
		.00	-32.49	126.05				
		1.78	-32.49	68.21				
		1.78			.00			-3.16
	3	.00			.00			-6.15
		.00	-20.78	67.86				
		1.78	-20.78	30.86				
		1.78			.00			-6.15
	4	.00			.00			-5.33
		.00	-21.45	71.87				
		1.78	-21.45	33.70				
		1.78			.00			-5.33
	5	.00			.00			.54
		.00	44.50	-214.76				
		1.78	59.43	-122.27				
		1.78			.00			.54
202	----------							
	1	.00			.00			.00
		.00	18.87	37.78				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT	LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL
ID	COND	ENDI	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	TORQ
		1.78	14.15	67.17				
		1.78			.00			.00
	2	.00			.00			.26
		.00	33.02	70.46				
		1.78	33.02	129.23				
		1.78			.00			.26
	3	.00			.00			-1.44
		.00	23.17	40.44				
		1.78	23.17	81.68				
		1.78			.00			-1.44
	4	.00			.00			-2.27
		.00	24.50	44.36				
		1.78	24.50	87.96				
		1.78			.00			-2.27
	5	.00			.00			.00
		.00	-59.46	-122.36				
		1.78	-44.52	-214.90				
		1.78			.00			.00
203	----------							
	1	.00			.00			.00
		.00	14.15	67.17				
		1.78	9.43	88.16				
		1.78			.00			.00
	2	.00			.00			.95
		.00	25.29	129.16				
		1.78	25.29	174.19				
		1.78			.00			.95
	3	.00			.00			.36
		.00	20.60	81.87				
		1.78	20.60	118.54				
		1.78			.00			.36
	4	.00			.00			.48
		.00	21.43	88.20				
		1.78	21.43	126.36				
		1.78			.00			.48
	5	.00			.00			.00
		.00	-44.58	-214.89				
		1.78	-29.65	-280.95				
		1.78			.00			.00
204	----------							
	1	.00			.00			.00

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	9.43	88.16				
		1.78	4.72	100.76				
		1.78			.00			.00
	2	.00			.00			1.59
		.00	15.07	174.13				
		1.78	15.07	200.95				
		1.78			.00			1.59
	3	.00			.00			2.47
		.00	14.80	118.87				
		1.78	14.80	145.21				
		1.78			.00			2.47
	4	.00			.00			3.68
		.00	15.01	126.69				
		1.78	15.01	153.41				
		1.78			.00			3.68
	5	.00			.00			.00
		.00	-29.73	-280.94				
		1.78	-14.79	-320.56				
		1.78			.00			.00
205								
	1	.00			.00			.00
		.00	4.72	100.76				
		1.78	.00	104.95				
		1.78			.00			.00
	2	.00			.00			1.95
		.00	5.00	200.92				
		1.78	5.00	209.83				
		1.78			.00			1.95
	3	.00			.00			3.81
		.00	5.46	145.49				
		1.78	5.46	155.21				
		1.78			.00			3.81
	4	.00			.00			5.71
		.00	5.42	153.64				
		1.78	5.42	163.28				
		1.78			.00			5.71
	5	.00			.00			.00
		.00	-14.89	-320.56				
		1.78	.05	-333.76				
		1.78			.00			.00

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
10								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-1.90
		.00	-1.25	3.86				
		1.78	-1.25	1.64				
		1.78			.00			-1.90
	3	.00			.00			-.24
		.00	-.15	.50				
		1.78	-.15	.23				
		1.78			.00			-.24
	4	.00			.00			-.26
		.00	-.18	.58				
		1.78	-.18	.26				
		1.78			.00			-.26
	5	.00			.00			.21
		.00	22.09	-116.55				
		1.78	22.09	-77.23				
		1.78			.00			.21
20								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-3.86
		.00	-1.52	4.10				
		1.78	-1.52	1.40				
		1.78			.00			-3.86
	3	.00			.00			-.52
		.00	-.19	.58				
		1.78	-.19	.23				
		1.78			.00			-.52
	4	.00			.00			-.58
		.00	-.22	.67				
		1.78	-.22	.27				
		1.78			.00			-.58
	5	.00			.00			.50
		.00	22.13	-116.65				
		1.78	22.13	-77.25				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			.50
30								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-6.17
		.00	-1.85	4.74				
		1.78	-1.85	1.44				
		1.78			.00			-6.17
	3	.00			.00			-.92
		.00	-.25	.75				
		1.78	-.25	.30				
		1.78			.00			-.92
	4	.00			.00			-1.04
		.00	-.29	.87				
		1.78	-.29	.36				
		1.78			.00			-1.04
	5	.00			.00			.92
		.00	22.20	-116.85				
		1.78	22.20	-77.34				
		1.78			.00			.92
40								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-8.54
		.00	-2.38	5.68				
		1.78	-2.38	1.44				
		1.78			.00			-8.54
	3	.00			.00			-1.44
		.00	-.35	1.01				
		1.78	-.35	.39				
		1.78			.00			-1.44
	4	.00			.00			-1.66
		.00	-.40	1.21				
		1.78	-.40	.49				
		1.78			.00			-1.66
	5	.00			.00			1.52
		.00	22.31	-117.21				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	22.31	-77.49				
		1.78			.00			1.52
50								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-10.86
		.00	-3.09	6.95				
		1.78	-3.09	1.45				
		1.78			.00			-10.86
	3	.00			.00			-2.16
		.00	-.49	1.40				
		1.78	-.49	.53				
		1.78			.00			-2.16
	4	.00			.00			-2.56
		.00	-.58	1.70				
		1.78	-.58	.67				
		1.78			.00			-2.56
	5	.00			.00			2.39
		.00	22.50	-117.78				
		1.78	22.50	-77.73				
		1.78			.00			2.39
60								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-13.15
		.00	-4.01	8.53				
		1.78	-4.01	1.39				
		1.78			.00			-13.15
	3	.00			.00			-3.12
		.00	-.70	1.96				
		1.78	-.70	.71				
		1.78			.00			-3.12
	4	.00			.00			-3.80
		.00	-.84	2.41				
		1.78	-.84	.92				
		1.78			.00			-3.80
	5	.00			.00			3.70

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	22.78	-118.66				
		1.78	22.78	-78.10				
		1.78			.00			3.70
70								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-15.28
		.00	-5.11	10.44				
		1.78	-5.11	1.34				
		1.78			.00			-15.28
	3	.00			.00			-4.44
		.00	-1.00	2.66				
		1.78	-1.00	.88				
		1.78			.00			-4.44
	4	.00			.00			-5.54
		.00	-1.21	3.32				
		1.78	-1.21	1.17				
		1.78			.00			-5.54
	5	.00			.00			5.67
		.00	23.23	-120.01				
		1.78	23.23	-78.66				
		1.78			.00			5.67
80								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-17.25
		.00	-6.48	12.73				
		1.78	-6.48	1.19				
		1.78			.00			-17.25
	3	.00			.00			-6.03
		.00	-1.41	3.59				
		1.78	-1.41	1.08				
		1.78			.00			-6.03
	4	.00			.00			-7.69
		.00	-1.72	4.49				
		1.78	-1.72	1.43				
		1.78			.00			-7.69

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	5	.00			.00			8.68
		.00	23.91	-122.03				
		1.78	23.91	-79.47				
		1.78			.00			8.68
90								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-18.90
		.00	-7.98	15.26				
		1.78	-7.98	1.07				
		1.78			.00			-18.90
	3	.00			.00			-8.02
		.00	-1.95	4.64				
		1.78	-1.95	1.18				
		1.78			.00			-8.02
	4	.00			.00			-10.36
		.00	-2.39	5.81				
		1.78	-2.39	1.55				
		1.78			.00			-10.36
	5	.00			.00			13.26
		.00	24.97	-124.89				
		1.78	24.97	-80.44				
		1.78			.00			13.26
100								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-20.27
		.00	-9.83	18.35				
		1.78	-9.83	.85				
		1.78			.00			-20.27
	3	.00			.00			-9.93
		.00	-2.62	6.02				
		1.78	-2.62	1.35				
		1.78			.00			-9.93
	4	.00			.00			-12.89
		.00	-3.26	7.47				
		1.78	-3.26	1.67				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-12.89
	5	.00			.00			20.12
		.00	26.73	-128.09				
		1.78	26.73	-80.51				
		1.78			.00			20.12
110								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-21.16
		.00	-11.75	21.50				
		1.78	-11.75	.59				
		1.78			.00			-21.16
	3	.00			.00			-12.28
		.00	-3.51	7.53				
		1.78	-3.51	1.30				
		1.78			.00			-12.28
	4	.00			.00			-15.82
		.00	-4.34	9.16				
		1.78	-4.34	1.44				
		1.78			.00			-15.82
	5	.00			.00			28.98
		.00	30.67	-127.93				
		1.78	30.67	-73.33				
		1.78			.00			28.98
120								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-21.64
		.00	-14.09	25.46				
		1.78	-14.09	.38				
		1.78			.00			-21.64
	3	.00			.00			-14.17
		.00	-4.51	9.55				
		1.78	-4.51	1.53				
		1.78			.00			-14.17
	4	.00			.00			-17.75
		.00	-5.58	11.39				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-5.58	1.45				
		1.78			.00			-17.75
	5	.00			.00			28.98
		.00	50.99	-111.42				
		1.78	50.99	-20.66				
		1.78			.00			28.98
130								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-21.53
		.00	-16.50	29.25				
		1.78	-16.50	-.13				
		1.78			.00			-21.53
	3	.00			.00			-16.73
		.00	-5.91	11.79				
		1.78	-5.91	1.26				
		1.78			.00			-16.73
	4	.00			.00			-20.05
		.00	-7.19	13.53				
		1.78	-7.19	.73				
		1.78			.00			-20.05
	5	.00			.00			20.11
		.00	54.93	-111.26				
		1.78	54.93	-13.48				
		1.78			.00			20.11
140								
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-20.86
		.00	-19.23	34.04				
		1.78	-19.23	-.18				
		1.78			.00			-20.86
	3	.00			.00			-18.41
		.00	-7.25	14.46				
		1.78	-7.25	1.55				
		1.78			.00			-18.41
	4	.00			.00			-20.39

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	4	.00			.00			-19.35
		.00	-12.27	21.69				
		1.78	-12.27	-.15				
		1.78			.00			-19.35
	5	.00			.00			5.62
		.00	58.43	-119.32				
		1.78	58.43	-15.32				
		1.78			.00			5.62
170	----------							
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-15.02
		.00	-29.35	50.08				
		1.78	-29.35	-2.16				
		1.78			.00			-15.02
	3	.00			.00			-21.87
		.00	-14.42	24.52				
		1.78	-14.42	-1.14				
		1.78			.00			-21.87
	4	.00			.00			-18.59
		.00	-15.56	26.09				
		1.78	-15.56	-1.60				
		1.78			.00			-18.59
	5	.00			.00			3.61
		.00	58.86	-120.64				
		1.78	58.86	-15.87				
		1.78			.00			3.61
180	----------							
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-11.66
		.00	-32.06	55.29				
		1.78	-32.06	-1.77				
		1.78			.00			-11.66
	3	.00			.00			-17.26
		.00	-15.28	25.26				
		1.78	-15.28	-1.93				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78			.00			-17.26
	4	.00			.00			-14.45
		.00	-16.26	27.61				
		1.78	-16.26	-1.33				
		1.78			.00			-14.45
	5	.00			.00			2.25
		.00	59.14	-121.49				
		1.78	59.14	-16.23				
		1.78			.00			2.25
190	----------							
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-8.10
		.00	-37.62	64.01				
		1.78	-37.62	-2.94				
		1.78			.00			-8.10
	3	.00			.00			-14.28
		.00	-19.86	32.71				
		1.78	-19.86	-2.64				
		1.78			.00			-14.28
	4	.00			.00			-12.39
		.00	-20.62	34.69				
		1.78	-20.62	-2.00				
		1.78			.00			-12.39
	5	.00			.00			1.31
		.00	59.31	-122.01				
		1.78	59.31	-16.44				
		1.78			.00			1.31
200	----------							
	1	.00			.00			.00
		.00	-18.87	37.78				
		1.78	-23.59	.00				
		1.78			.00			.00
	2	.00			.00			-3.96
		.00	-40.07	68.32				
		1.78	-40.07	-3.01				
		1.78			.00			-3.96
	3	.00			.00			-7.33
		.00	-19.97	31.11				

AVE MARTORELL E-3

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.78	-19.97	-4.44				
		1.78			.00			-7.33
	4	.00			.00			-6.69
		.00	-20.82	33.90				
		1.78	-20.82	-3.17				
		1.78			.00			-6.69
	5	.00			.00			.60
		.00	59.40	-122.29				
		1.78	59.40	-16.56				
		1.78			.00			.60

```
AVE MARTORELL E-3 (AVE2) 1.35PP+1.35CP+1.5(SC+IMP.)+PRET.F.
SYSTEM
L=1
JOINTS
1( =0 Y=0 Z=0
41 X=70
451 Y=17.8
411 X=0 Q=1,41,411,451,1,41

RESTRAINTS
1,451 R=1,1,0,0,0,1

SPRINGS
1,41 K=0,0,135000 :APOYOS DE NEOPRENO 250*400*52(37)
411,451 K=0,0,135000

FRAME
NM=3 NL=14 Z=-1.35
1 A=1.059 I=0.3085 J=0.4751 E=2.9E6 W=2.65 :VIGAS X-X
2 A=0.748 I=0.0043 J=0.0085 :VIGAS Y-Y
3 A=1.35 I=0.253 J=0.225 :RIOSTRA DE APOYO
1 TRAP=0,0,0,-1,-2.14*1.35
2( AP=0,-2.14*1.35,0,-1,-3.28*1.35
3 RAP=0,-3.28*1.35,0,-1,-3.42*1.35
4 TRAP=0,-3.42*1.35,0,-1,-3.58*1.35
5 TRAP=0,-3.58*1.35,0,-1,-6.05*1.35
6 WG=0,0,-6.05*1.35
7 TRAP=0,-6.05*1.35,0,-1,-3.58*1.35
8 TRAP=0,-3.58*1.35,0,-1,-3.42*1.35
9 TRAP=0,-3.42*1.35,0,-1,-3.28*1.35
10 TRAP=0,-3.28*1.35,0,-1,-2.14*1.35
11 TRAP=0,-2.14*1.35,0,-1,0
12 WG=0,0,3.08*0.807
13 WG=0,0,8.39*0.807
14 WG=0,0,-17.92
1,1,42 G=40,10,1,1,0,0 M=1 LP=3,0
2,42,83 G=7,1,41,41,0,0 NSL=12
12,43,84 G=7,1,41,41,0,0 NSL=12
22,44,85 G=7,1,41,41,0,0 NSL=12
32,45,86 G=7,1,41,41,0,0 NSL=12
42,46,87 G=7,1,41,41,0,0 NSL=12
52 7,88 G=7,1,41,41,0,0 NSL=12
62,48,89 G=7,1,41,41,0,0 NSL=12
72,49,90 G=7,1,41,41,0,0 NSL=12
82,50,91 G=7,1,41,41,0,0 NSL=12
92,51,92 G=7,1,41,41,0,0 NSL=12
102,52,93 G=7,1,41,41,0,0 NSL=12
112,53,94 G=7,1,41,41,0,0 NSL=13
122,54,95 G=7,1,41,41,0,0 NSL=13
132,55,96 G=7,1,41,41,0,0 NSL=13
142,56,97 G=7,1,41,41,0,0 NSL=13
152,57,98 G=7,1,41,41,0,0 NSL=13
162,58,99 G=7,1,41,41,0,0 NSL=13
172,59,100 G=7,1,41,41,0,0 NSL=13
182,60,101 G=7,1,41,41,0,0 NSL=13
192,61,102 G=7,1,41,41,0,0 NSL=13
202,62,103 G=7,1,41,41,0,0 NSL=13
212,63,104 G=7,1,41,41,0,0 NSL=13
222,64,105 G=7,1,41,41,0,0 NSL=13
232,65,106 G=7,1,41,41,0,0 NSL=13
24( 6,107 G=7,1,41,41,0,0 NSL=13
252,67,108 G=7,1,41,41,0,0 NSL=13
262,68,109 G=7,1,41,41,0,0 NSL=13
272,69,110 G=7,1,41,41,0,0 NSL=13
282,70,111 G=7,1,41,41,0,0 NSL=13
292,71,112 G=7,1,41,41,0,0 NSL=13
302,72,113 G=7,1,41,41,0,0 NSL=12
312,73,114 G=7,1,41,41,0,0 NSL=12
322,74,115 G=7,1,41,41,0,0 NSL=12
332,75,116 G=7,1,41,41,0,0 NSL=12
342,76,117 G=7,1,41,41,0,0 NSL=12
352,77,118 G=7,1,41,41,0,0 NSL=12
362,78,119 G=7,1,41,41,0,0 NSL=12
372,79,120 G=7,1,41,41,0,0 NSL=12
382,80,121 G=7,1,41,41,0,0 NSL=12
392,81,122 G=7,1,41,41,0,0 NSL=12
402,82,123 G=7,1,41,41,0,0 NSL=12
10,370,411 G=40,10,1,1,0,0
411,42,43 G=1,1,1,1,0,0 M=2 LP=-2,0
413,44,45 G=8,42,43,43,0,0 NSL=1
414,45,46 G=8,42,43,43,0,0 NSL=2
415,46,47 G=8,42,43,43,0,0 NSL=3
416,47,48 G=8,42,43,43,0,0 NSL=4
417,48,49 G=8,42,43,43,0,0 NSL=5
418,49,50 G=8,42,43,43,0,0 NSL=6
419,50,51 G=8,42,43,43,0,0 NSL=14
420,51,52 G=8,42,43,43,0,0 NSL=14
421,52,53 G=8,42,43,43,0,0 NSL=14
422,53,54 G=8,42,43,43,0,0 NSL=14
423,54,55 G=8,42,43,43,0,0 NSL=14
424,55,56 G=8,42,43,43,0,0 NSL=14
425,56,57 G=8,42,43,43,0,0 NSL=14
426,57,58 G=8,42,43,43,0,0 NSL=14
427,58,59 G=8,42,43,43,0,0 NSL=6
428,59,60 G=8,42,43,43,0,0 NSL=7
429,60,61 G=8,42,43,43,0,0 NSL=8
430,61,62 G=8,42,43,43,0,0 NSL=9
431,62,63 G=8,42,43,43,0,0 NSL=10
432,63,64 G=8,42,43,43,0,0 NSL=11
433,64,65 G=17,1,1,1,0,0
451,83,84 G=3,1,1,1,0,0
475,107,108 G=15,1,1,1,0,0
491,124,125 G=5,1,1,1,0,0
517,150,151 G=13,1,1,1,0,0
531,165,166 G=7,1,1,1,0,0
559,193,194 G=11,1,1,1,0,0
571,206,207 G=9,1,1,1,0,0
601,236,237 G=9,1,1,1,0,0
611,247,248 G=11,1,1,1,0,0
643,279,280 G=7,1,1,1,0,0
651,288,289 G=13,1,1,1,0,0
685,322,323 G=5,1,1,1,0,0
691,329,330 G=15,1,1,1,0,0
727,365,366 G=3,1,1,1,0,0
731,370,371 G=17,1,1,1,0,0
769,408,409 G=1,1,1,1,0,0
771,1,2 NSL=1 M=3
772,2,3 NSL=2
773,3,4 NSL=3
774,4,5 NSL=4
775,5,6 NSL=5
776,6,7 NSL=6
777,7,8 G=7,1,1,1,0,0 NSL=14
785,15,16 NSL=6
786,16,17 NSL=7
787,17,18 NSL=8
788,18,19 NSL=9
789,19,20 NSL=10
```

```
790,20,21 NSL=11
791,21,22 G=19,1,1,1,0,0
311,411,412 G=19,1,1,1,0,0
931,431,432 NSL=1
832,432,433 NSL=2
833,433,434 NSL=3
334,434,435 NSL=4
835,435,436 NSL=5
836,436,437 NSL=6
337,437,438 G=7,1,1,1,0,0 NSL=14
945,445,446 NSL=6
846,446,447 NSL=7
847,447,448 NSL=8
348,448,449 NSL=9
849,449,450 NSL=10
850,450,451 NSL=11

SELECT
NT=5 ID=411,590
NT=5 ID=771,810
```

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
411								
	1	.00			.00			-.04
		.00	.12	-.14				
		1.75	.12	.06				
		1.75			.00			-.04
412								
	1	.00			.00			-.10
		.00	.28	-.32				
		1.75	.28	.17				
		1.75			.00			-.10
413								
	1	.00			.00			-.17
		.00	1.32	-.89				
		1.26	.00	.22				
		1.75	-1.21	-.06				
		1.75			.00			-.17
455								
	1	.00			.00			-.23
		.00	2.59	-2.14				
		1.75	.07	.93				
		1.75			.00			-.23
497								
	1	.00			.00			-.17
		.00	4.26	-3.55				
		1.75	1.73	2.43				
		1.75			.00			-.17
539								
	1	.00			.00			.03
		.00	4.87	-3.59				
		1.75	2.34	3.45				
		1.75			.00			.03
581								
	1	.00			.00			.18
		.00	1.02	-.85				
		1.11	.00	-.10				
		1.75	-1.51	-.55				
		1.75			.00			.18
414								
	1	.00			.00			-.24
		.00	3.66	-1.68				
		1.09	.00	.41				
		1.75	-2.74	-.48				
		1.75			.00			-.24

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
456								
	1	.00			.00			-.29
		.00	5.18	-3.09				
		1.47	.00	.93				
		1.75	-1.22	.76				
		1.75			.00			-.29
498								
	1	.00			.00			-.18
		.00	6.96	-4.46				
		1.75	.55	2.50				
		1.75			.00			-.18
540								
	1	.00			.00			.07
		.00	6.15	-3.23				
		1.69	.00	2.34				
		1.75	-.25	2.34				
		1.75			.00			.07
582								
	1	.00			.00			.16
		.00	7.30	-5.98				
		1.75	.90	1.59				
		1.75			.00			.16
415								
	1	.00			.00			-.33
		.00	4.93	-2.20				
		1.10	.00	.51				
		1.75	-2.99	-.46				
		1.75			.00			-.33
457								
	1	.00			.00			-.35
		.00	6.79	-3.80				
		1.51	.00	1.34				
		1.75	-1.12	1.20				
		1.75			.00			-.35
499								
	1	.00			.00			-.17
		.00	8.14	-4.56				
		1.75	.22	2.81				
		1.75			.00			-.17
541								
	1	.00			.00			.07
		.00	4.94	-2.32				
		1.10	.00	.41				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.75	-2.98	-.56				
		1.75			.00			.07
583								
	1	.00			.00			.11
		.00	10.97	-8.12				
		1.75	3.06	4.21				
		1.75			.00			.11
416								
	1	.00			.00			-.40
		.00	5.33	-2.46				
		1.14	.00	.59				
		1.75	-2.93	-.30				
		1.75			.00			-.40
458								
	1	.00			.00			-.38
		.00	7.49	-4.21				
		1.59	.00	1.78				
		1.75	-.78	1.71				
		1.75			.00			-.38
500								
	1	.00			.00			-.11
		.00	7.62	-3.86				
		1.62	.00	2.33				
		1.75	-.65	2.29				
		1.75			.00			-.11
542								
	1	.00			.00			-.05
		.00	8.95	-6.65				
		1.75	.69	1.84				
		1.75			.00			-.05
584								
	1	.00			.00			.05
		.00	12.49	-8.98				
		1.75	4.22	5.70				
		1.75			.00			.05
417								
	1	.00			.00			-.49
		.00	6.70	-3.05				
		1.13	.00	.98				
		1.75	-4.68	-.43				
		1.75			.00			-.49
459								
	1	.00			.00			-.38

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	8.68	-4.45				
		1.41	.00	2.09				
		1.75	-2.70	1.64				
		1.75			.00			-.38
501								
	1	.00			.00			-.08
		.00	6.60	-3.09				
		1.12	.00	.83				
		1.75	-4.77	-.64				
		1.75			.00			-.08
543								
	1	.00			.00			-.20
		.00	12.33	-8.60				
		1.75	.95	3.87				
		1.75			.00			-.20
585								
	1	.00			.00			-.02
		.00	14.01	-9.26				
		1.75	2.64	6.15				
		1.75			.00			-.02
418								
	1	.00			.00			-.57
		.00	9.05	-3.77				
		1.11	.00	1.24				
		1.75	-5.25	-.44				
		1.75			.00			-.57
460								
	1	.00			.00			-.32
		.00	10.19	-4.43				
		1.25	.00	1.93				
		1.75	-4.10	.90				
		1.75			.00			-.32
502								
	1	.00			.00			-.30
		.00	11.75	-7.14				
		1.44	.00	1.31				
		1.75	-2.55	.91				
		1.75			.00			-.30
544								
	1	.00			.00			-.34
		.00	15.28	-9.58				
		1.75	.98	4.64				
		1.75			.00			-.34

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
586								
	1	.00			.00			-.14
		.00	15.49	-9.10				
		1.75	1.20	5.51				
		1.75			.00			-.14
419								
	1	.00			.00			-.58
		.00	17.69	-6.11				
		.99	.00	2.62				
		1.75	-13.67	-2.59				
		1.75			.00			-.58
461								
	1	.00			.00			-.25
		.00	17.16	-5.96				
		.96	.00	2.25				
		1.75	-14.20	-3.38				
		1.75			.00			-.25
503								
	1	.00			.00			-.53
		.00	22.06	-10.70				
		1.23	.00	2.88				
		1.75	-9.30	.47				
		1.75			.00			-.53
545								
	1	.00			.00			-.43
		.00	23.99	-11.66				
		1.34	.00	4.39				
		1.75	-7.37	2.88				
		1.75			.00			-.43
587								
	1	.00			.00			-.22
		.00	23.07	-10.36				
		1.29	.00	4.49				
		1.75	-8.29	2.58				
		1.75			.00			-.22
420								
	1	.00			.00			-.49
		.00	17.40	-5.84				
		.97	.00	2.61				
		1.75	-13.96	-2.83				
		1.75			.00			-.49
462								
	1	.00			.00			-.53

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	19.19	-8.39				
		1.07	.00	1.89				
		1.75	-12.17	-2.24				
		1.75			.00			-.53
504								
	1	.00			.00			-.69
		.00	22.47	-10.78				
		1.25	.00	3.31				
		1.75	-8.89	1.10				
		1.75			.00			-.69
546								
	1	.00			.00			-.51
		.00	22.93	-10.56				
		1.28	.00	4.11				
		1.75	-8.43	2.12				
		1.75			.00			-.51
588								
	1	.00			.00			-.31
		.00	21.19	-8.64				
		1.18	.00	3.89				
		1.75	-10.17	1.00				
		1.75			.00			-.31
421								
	1	.00			.00			-.39
		.00	16.61	-5.42				
		.93	.00	2.28				
		1.75	-14.75	-3.79				
		1.75			.00			-.39
463								
	1	.00			.00			-.79
		.00	20.27	-8.97				
		1.13	.00	2.50				
		1.75	-11.09	-.93				
		1.75			.00			-.79
505								
	1	.00			.00			-.76
		.00	22.35	-10.22				
		1.25	.00	3.72				
		1.75	-9.01	1.45				
		1.75			.00			-.76
547								
	1	.00			.00			-.53
		.00	21.68	-9.15				
		1.21	.00	3.96				

AVE MARTORELL E-3 (AVE2) 1.35PP+1.35CP+1.5(SC+IMP.)+PRET.F.

FRAME ELEMENT FORCES

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.75	-9.68	1.34				
		1.75			.00			-.53
589								
	1	.00			.00			-.36
		.00	19.35	-6.84				
		1.08	.00	3.61				
		1.75	-12.01	-.41				
		1.75			.00			-.36
422								
	1	.00			.00			-.66
		.00	17.46	-6.54				
		.97	.00	1.96				
		1.75	-13.90	-3.43				
		1.75			.00			-.66
64								
	1	.00			.00			-.92
		.00	20.32	-8.78				
		1.13	.00	2.74				
		1.75	-11.04	-.66				
		1.75			.00			-.92
506								
	1	.00			.00			-.76
		.00	21.01	-8.86				
		1.17	.00	3.45				
		1.75	-10.35	.46				
		1.75			.00			-.76
548								
	1	.00			.00			-.51
		.00	19.48	-7.12				
		1.09	.00	3.47				
		1.75	-11.88	-.47				
		1.75			.00			-.51
590								
	1	.00			.00			-.39
		.00	16.75	-4.54				
		.93	.00	3.29				
		1.75	-14.61	-2.66				
		1.75			.00			-.39
423								
	1	.00			.00			-.92
		.00	17.89	-6.70				
		1.00	.00	2.23				
		1.75	-13.47	-2.84				
		1.75			.00			-.92

AVE MARTORELL E-3 (AVE2) 1.35PP+1.35CP+1.5(SC+IMP.)+PRET.F.

FRAME ELEMENT FORCES

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
465								
	1	.00			.00			-.96
		.00	20.07	-8.24				
		1.12	.00	3.00				
		1.75	-11.29	-.56				
		1.75			.00			-.96
507								
	1	.00			.00			-.70
		.00	19.70	-7.50				
		1.10	.00	3.33				
		1.75	-11.66	-.47				
		1.75			.00			-.70
549								
	1	.00			.00			-.46
		.00	17.57	-5.33				
		.98	.00	3.28				
		1.75	-13.79	-2.02				
		1.75			.00			-.46
424								
	1	.00			.00			-1.04
		.00	17.82	-6.48				
		.99	.00	2.38				
		1.75	-13.54	-2.73				
		1.75			.00			-1.04
466								
	1	.00			.00			-.89
		.00	18.82	-6.99				
		1.05	.00	2.89				
		1.75	-12.54	-1.49				
		1.75			.00			-.89
508								
	1	.00			.00			-.59
		.00	17.59	-5.52				
		.98	.00	3.11				
		1.75	-13.77	-2.18				
		1.75			.00			-.59
550								
	1	.00			.00			-.38
		.00	15.02	-3.03				
		.84	.00	3.26				
		1.75	-16.34	-4.19				
		1.75			.00			-.38

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
425								
	1	.00			.00			-1.05
		.00	17.61	-6.13				
		.98	.00	2.52				
		1.75	-13.75	-2.75				
		1.75			.00			-1.05
467								
	1	.00			.00			-.76
		.00	17.74	-5.93				
		.99	.00	2.85				
		1.75	-13.62	-2.33				
		1.75			.00			-.76
509								
	1	.00			.00			-.44
		.00	15.91	-4.02				
		.89	.00	3.04				
		1.75	-15.45	-3.62				
		1.75			.00			-.44
551								
	1	.00			.00			-.28
		.00	13.02	-1.36				
		.73	.00	3.37				
		1.75	-18.34	-6.01				
		1.75			.00			-.28
426								
	1	.00			.00			-.90
		.00	16.87	-5.38				
		.94	.00	2.57				
		1.75	-14.49	-3.29				
		1.75			.00			-.90
468								
	1	.00			.00			-.54
		.00	16.13	-4.38				
		.90	.00	2.88				
		1.75	-15.23	-3.59				
		1.75			.00			-.54
510								
	1	.00			.00			-.24
		.00	13.81	-2.08				
		.77	.00	3.24				
		1.75	-17.55	-5.35				
		1.75			.00			-.24

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
552								
	1	.00			.00			-.13
		.00	10.79	.62				
		.60	.00	3.86				
		1.75	-20.57	-7.95				
		1.75			.00			-.13
427								
	1	.00			.00			-.71
		.00	7.75	-2.38				
		.95	.00	1.30				
		1.75	-6.54	-1.32				
		1.75			.00			-.71
469								
	1	.00			.00			-.32
		.00	6.42	-.92				
		.79	.00	1.60				
		1.75	-7.87	-2.19				
		1.75			.00			-.32
511								
	1	.00			.00			-.05
		.00	3.69	1.65				
		.45	.00	2.49				
		1.75	-10.61	-4.40				
		1.75			.00			-.05
553								
	1	.00			.00			.01
		.00	.76	4.15				
		.09	.00	4.19				
		1.75	-13.54	-7.03				
		1.75			.00			.01
428								
	1	.00			.00			-.43
		.00	6.06	-1.22				
		.82	.00	1.18				
		1.75	-5.32	-1.42				
		1.75			.00			-.43
470								
	1	.00			.00			-.04
		.00	4.17	.72				
		.55	.00	1.83				
		1.75	-7.20	-2.79				
		1.75			.00			-.04

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
512								
	1	.00			.00			.18
		.00	1.20	3.43				
		.15	.00	3.52				
		1.75	-10.17	-5.27				
		1.75			.00			.18
554								
	1	.00			.00			.16
		.00	-1.46	5.60				
		1.75	-12.83	-7.75				
		1.75			.00			.16
429								
	1	.00			.00			-.17
		.00	3.42	-.25				
		.71	.00	.96				
		1.75	-4.85	-1.56				
		1.75			.00			-.17
471								
	1	.00			.00			.20
		.00	1.03	2.05				
		.21	.00	2.16				
		1.75	-7.24	-3.44				
		1.75			.00			.20
513								
	1	.00			.00			.35
		.00	-1.93	4.65				
		1.75	-10.20	-6.02				
		1.75			.00			.35
555								
	1	.00			.00			.27
		.00	-4.11	6.28				
		1.75	-12.38	-8.21				
		1.75			.00			.27
30								
	1	.00			.00			.11
		.00	2.67	.34				
		.58	.00	1.12				
		1.75	-5.24	-1.96				
		1.75			.00			.11
472								
	1	.00			.00			.44
		.00	-.07	2.92				
		1.75	-7.99	-4.18				

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.75			.00			.44
514								
	1	.00			.00			.51
		.00	-2.87	5.30				
		1.75	-10.78	-6.70				
		1.75			.00			.51
556								
	1	.00			.00			.36
		.00	-4.37	6.19				
		1.75	-12.28	-8.43				
		1.75			.00			.36
431								
	1	.00			.00			.38
		.00	1.68	.87				
		.39	.00	1.20				
		1.75	-4.73	-2.19				
		1.75			.00			.38
473								
	1	.00			.00			.64
		.00	-1.18	3.46				
		1.75	-7.58	-4.59				
		1.75			.00			.64
515								
	1	.00			.00			.62
		.00	-3.59	5.38				
		1.75	-10.00	-6.90				
		1.75			.00			.62
557								
	1	.00			.00			.39
		.00	-4.13	5.24				
		1.75	-10.53	-7.99				
		1.75			.00			.39
432								
	1	.00			.00			.62
		.00	-.41	1.73				
		1.75	-2.94	-1.93				
		1.75			.00			.62
474								
	1	.00			.00			.79
		.00	-3.26	4.26				
		1.75	-5.79	-4.39				
		1.75			.00			.79

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
516								
	1	.00			.00			.68
		.00	-5.13	5.57				
		1.75	-7.65	-6.35				
		1.75			.00			.68
558								
	1	.00			.00			.38
		.00	-4.37	4.11				
		1.75	-6.90	-6.48				
		1.75			.00			.38
433								
	1	.00			.00			.82
		.00	-2.37	2.26				
		1.75	-2.37	-1.89				
		1.75			.00			.82
434								
	1	.00			.00			.97
		.00	-2.49	2.33				
		1.75	-2.49	-2.03				
		1.75			.00			.97
435								
	1	.00			.00			1.04
		.00	-2.39	2.14				
		1.75	-2.39	-2.05				
		1.75			.00			1.04
436								
	1	.00			.00			1.05
		.00	-2.22	1.90				
		1.75	-2.22	-1.98				
		1.75			.00			1.05
437								
	1	.00			.00			.95
		.00	-1.85	1.40				
		1.75	-1.85	-1.83				
		1.75			.00			.95
438								
	1	.00			.00			.76
		.00	-1.34	.80				
		1.75	-1.34	-1.54				
		1.75			.00			.76
439								
	1	.00			.00			.46

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-.60	.02				
		1.75	-.60	-1.03				
		1.75			.00			.46
440								
	1	.00			.00			.14
		.00	.62	-.68				
		1.75	.62	.41				
		1.75			.00			.14
441								
	1	.00			.00			.24
		.00	-.12	.33				
		1.75	-.12	.13				
		1.75			.00			.24
442								
	1	.00			.00			.35
		.00	-.38	.49				
		1.75	-.38	-.18				
		1.75			.00			.35
443								
	1	.00			.00			.39
		.00	-.50	.46				
		1.75	-.50	-.41				
		1.75			.00			.39
444								
	1	.00			.00			.37
		.00	-.51	.39				
		1.75	-.51	-.49				
		1.75			.00			.37
445								
	1	.00			.00			.32
		.00	-.46	.32				
		1.75	-.46	-.49				
		1.75			.00			.32
446								
	1	.00			.00			.26
		.00	-.39	.25				
		1.75	-.39	-.43				
		1.75			.00			.26
447								
	1	.00			.00			.20
		.00	-.31	.19				
		1.75	-.31	-.35				
		1.75			.00			.20

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
448								
	1	.00			.00			.14
		.00	-.22	.13				
		1.75	-.22	-.26				
		1.75			.00			.14
449								
	1	.00			.00			.09
		.00	-.14	.08				
		1.75	-.14	-.17				
		1.75			.00			.09
450								
	1	.00			.00			.05
		.00	-.06	.02				
		1.75	-.06	-.08				
		1.75			.00			.05
451								
	1	.00			.00			-.03
		.00	.22	-.27				
		1.75	.22	.11				
		1.75			.00			-.03
452								
	1	.00			.00			-.07
		.00	.52	-.58				
		1.75	.52	.33				
		1.75			.00			-.07
453								
	1	.00			.00			-.11
		.00	.96	-1.00				
		1.75	.96	.68				
		1.75			.00			-.11
454								
	1	.00			.00			-.17
		.00	1.31	-1.36				
		1.75	1.31	.94				
		1.75			.00			-.17
475								
	1	.00			.00			.89
		.00	-4.99	4.47				
		1.75	-4.99	-4.26				
		1.75			.00			.89
476								
	1	.00			.00			.92

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-4.75	4.11				
		1.75	-4.75	-4.20				
		1.75			.00			.92
477								
	1	.00			.00			.86
		.00	-4.05	3.21				
		1.75	-4.05	-3.88				
		1.75			.00			.86
478								
	1	.00			.00			.70
		.00	-3.04	2.08				
		1.75	-3.04	-3.24				
		1.75			.00			.70
479								
	1	.00			.00			.44
		.00	-1.46	.46				
		1.75	-1.46	-2.10				
		1.75			.00			.44
480								
	1	.00			.00			.17
		.00	1.10	-1.19				
		1.75	1.10	.74				
		1.75			.00			.17
481								
	1	.00			.00			.25
		.00	-.43	.72				
		1.75	-.43	-.03				
		1.75			.00			.25
482								
	1	.00			.00			.35
		.00	-1.01	1.11				
		1.75	-1.01	-.67				
		1.75			.00			.35
483								
	1	.00			.00			.37
		.00	-1.21	1.08				
		1.75	-1.21	-1.04				
		1.75			.00			.37
484								
	1	.00			.00			.35
		.00	-1.19	.95				
		1.75	-1.19	-1.13				
		1.75			.00			.35

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
485								
	1	.00			.00			.29
		.00	-1.06	.77				
		1.75	-1.06	-1.07				
		1.75			.00			.29
486								
	1	.00			.00			.24
		.00	-.87	.60				
		1.75	-.87	-.91				
		1.75			.00			.24
487								
	1	.00			.00			.18
		.00	-.67	.45				
		1.75	-.67	-.73				
		1.75			.00			.18
488								
	1	.00			.00			.13
		.00	-.48	.30				
		1.75	-.48	-.54				
		1.75			.00			.13
489								
	1	.00			.00			.08
		.00	-.31	.17				
		1.75	-.31	-.36				
		1.75			.00			.08
490								
	1	.00			.00			.04
		.00	-.14	.06				
		1.75	-.14	-.19				
		1.75			.00			.04
491								
	1	.00			.00			-.02
		.00	.28	-.35				
		1.75	.28	.14				
		1.75			.00			-.02
492								
	1	.00			.00			-.04
		.00	.64	-.72				
		1.75	.64	.40				
		1.75			.00			-.04
493								
	1	.00			.00			-.06

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	1.12	-1.18				
		1.75	1.12	.78				
		1.75			.00			-.06
494								
	1	.00			.00			-.09
		.00	1.58	-1.64				
		1.75	1.58	1.14				
		1.75			.00			-.09
495								
	1	.00			.00			-.11
		.00	2.21	-2.22				
		1.75	2.21	1.66				
		1.75			.00			-.11
496								
	1	.00			.00			-.15
		.00	2.75	-2.68				
		1.75	2.75	2.12				
		1.75			.00			-.15
517								
	1	.00			.00			.67
		.00	-6.05	4.88				
		1.75	-6.05	-5.71				
		1.75			.00			.67
518								
	1	.00			.00			.58
		.00	-4.71	3.39				
		1.75	-4.71	-4.86				
		1.75			.00			.58
519								
	1	.00			.00			.39
		.00	-2.43	1.06				
		1.75	-2.43	-3.19				
		1.75			.00			.39
520								
	1	.00			.00			.22
		.00	1.08	-1.24				
		1.75	1.08	.65				
		1.75			.00			.22
521								
	1	.00			.00			.26
		.00	-.93	1.26				
		1.75	-.93	-.37				
		1.75			.00			.26

AVE MARTORELL E-3 (AVE2) 1.35PP+1.35CP+1.5(SC+IMP.)+PRET.F.

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
522								
	1	.00			.00			.32
		.00	-1.77	1.81				
		1.75	-1.77	-1.28				
		1.75			.00			.32
523								
	1	.00			.00			.33
		.00	-1.98	1.74				
		1.75	-1.98	-1.72				
		1.75			.00			.33
524								
	1	.00			.00			.30
		.00	-1.88	1.51				
		1.75	-1.88	-1.78				
		1.75			.00			.30
525								
	1	.00			.00			.25
		.00	-1.63	1.22				
		1.75	-1.63	-1.63				
		1.75			.00			.25
526								
	1	.00			.00			.20
		.00	-1.31	.93				
		1.75	-1.31	-1.36				
		1.75			.00			.20
527								
	1	.00			.00			.15
		.00	-1.00	.68				
		1.75	-1.00	-1.07				
		1.75			.00			.15
528								
	1	.00			.00			.10
		.00	-.71	.46				
		1.75	-.71	-.79				
		1.75			.00			.10
529								
	1	.00			.00			.07
		.00	-.45	.26				
		1.75	-.45	-.53				
		1.75			.00			.07
530								
	1	.00			.00			.04

AVE MARTORELL E-3 (AVE2) 1.35PP+1.35CP+1.5(SC+IMP.)+PRET.F.

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-.21	.09				
		1.75	-.21	-.28				
		1.75			.00			.04
531								
	1	.00			.00			-.00
		.00	.30	-.38				
		1.75	.30	.14				
		1.75			.00			-.00
532								
	1	.00			.00			-.01
		.00	.67	-.77				
		1.75	.67	.41				
		1.75			.00			-.01
533								
	1	.00			.00			-.01
		.00	1.13	-1.21				
		1.75	1.13	.77				
		1.75			.00			-.01
534								
	1	.00			.00			-.02
		.00	1.62	-1.69				
		1.75	1.62	1.15				
		1.75			.00			-.02
535								
	1	.00			.00			-.01
		.00	2.23	-2.24				
		1.75	2.23	1.65				
		1.75			.00			-.01
536								
	1	.00			.00			-.01
		.00	2.81	-2.75				
		1.75	2.81	2.16				
		1.75			.00			-.01
537								
	1	.00			.00			-.00
		.00	3.53	-3.29				
		1.75	3.53	2.88				
		1.75			.00			-.00
538								
	1	.00			.00			.01
		.00	3.97	-3.52				
		1.75	3.97	3.43				
		1.75			.00			.01

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
559								
	1	.00			.00			.31
		.00	-3.46	1.81				
		1.75	-3.46	-4.25				
		1.75			.00			.31
560								
	1	.00			.00			.23
		.00	.55	-.81				
		1.75	.55	.14				
		1.75			.00			.23
561								
	1	.00			.00			.25
		.00	-1.65	1.94				
		1.75	-1.65	-.95				
		1.75			.00			.25
562								
	1	.00			.00			.27
		.00	-2.62	2.59				
		1.75	-2.62	-2.00				
		1.75			.00			.27
563								
	1	.00			.00			.26
		.00	-2.76	2.41				
		1.75	-2.76	-2.42				
		1.75			.00			.26
564								
	1	.00			.00			.23
		.00	-2.55	2.06				
		1.75	-2.55	-2.40				
		1.75			.00			.23
565								
	1	.00			.00			.18
		.00	-2.15	1.62				
		1.75	-2.15	-2.13				
		1.75			.00			.18
566								
	1	.00			.00			.14
		.00	-1.71	1.24				
		1.75	-1.71	-1.76				
		1.75			.00			.14
567								
	1	.00			.00			.10

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-1.29	.89				
		1.75	-1.29	-1.37				
		1.75			.00			.10
568								
	1	.00			.00			.07
		.00	-.90	.59				
		1.75	-.90	-.99				
		1.75			.00			.07
569								
	1	.00			.00			.05
		.00	-.56	.33				
		1.75	-.56	-.66				
		1.75			.00			.05
570								
	1	.00			.00			.03
		.00	-.26	.12				
		1.75	-.26	-.34				
		1.75			.00			.03
571								
	1	.00			.00			.01
		.00	.30	-.38				
		1.75	.30	.14				
		1.75			.00			.01
572								
	1	.00			.00			.02
		.00	.64	-.74				
		1.75	.64	.39				
		1.75			.00			.02
573								
	1	.00			.00			.03
		.00	1.05	-1.14				
		1.75	1.05	.70				
		1.75			.00			.03
574								
	1	.00			.00			.05
		.00	1.51	-1.58				
		1.75	1.51	1.06				
		1.75			.00			.05
575								
	1	.00			.00			.07
		.00	2.03	-2.07				
		1.75	2.03	1.49				
		1.75			.00			.07

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
576								
	1	.00			.00			.10
		.00	2.57	-2.53				
		1.75	2.57	1.96				
		1.75			.00			.10
577								
	1	.00			.00			.13
		.00	3.14	-2.94				
		1.75	3.14	2.55				
		1.75			.00			.13
578								
	1	.00			.00			.16
		.00	3.48	-3.07				
		1.75	3.48	3.01				
		1.75			.00			.16
579								
	1	.00			.00			.18
		.00	3.48	-2.74				
		1.75	3.48	3.35				
		1.75			.00			.18
580								
	1	.00			.00			.19
		.00	2.49	-1.67				
		1.75	2.49	2.69				
		1.75			.00			.19
771								
	1	.00			.00			-1.32
		.00	-.48	.88				
		1.75	-3.01	-1.44				
		1.75			.00			-1.32
772								
	1	.00			.00			-3.06
		.00	-.15	1.23				
		1.75	-6.56	-4.25				
		1.75			.00			-3.06
773								
	1	.00			.00			-5.38
		.00	-1.20	1.18				
		1.75	-9.11	-7.79				
		1.75			.00			-5.38
774								
	1	.00			.00			-7.39

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	-3.06	.53				
		1.75	-11.33	-12.00				
		1.75			.00			-7.39
775								
	1	.00			.00			-9.57
		.00	-2.88	-.85				
		1.75	-14.26	-14.99				
		1.75			.00			-9.57
776								
	1	.00			.00			-11.80
		.00	-.53	-.95				
		1.75	-14.82	-14.38				
		1.75			.00			-11.80
777								
	1	.00			.00			-14.51
		.00	6.92	2.92				
		.39	.00	4.26				
		1.75	-24.44	-12.40				
		1.75			.00			-14.51
778								
	1	.00			.00			-17.07
		.00	4.77	8.18				
		.27	.00	8.81				
		1.75	-26.59	-10.91				
		1.75			.00			-17.07
779								
	1	.00			.00			-17.24
		.00	4.84	12.86				
		.27	.00	13.52				
		1.75	-26.52	-6.10				
		1.75			.00			-17.24
780								
	1	.00			.00			-14.70
		.00	3.85	14.03				
		.21	.00	14.44				
		1.75	-27.51	-6.67				
		1.75			.00			-14.70
781								
	1	.00			.00			-12.85
		.00	2.12	9.39				
		.12	.00	9.52				
		1.75	-29.24	-14.34				
		1.75			.00			-12.85

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
782								
	1	.00			.00			-18.63
		.00	.69	4.55				
		.04	.00	4.56				
		1.75	-30.67	-21.69				
		1.75			.00			-18.63
783								
	1	.00			.00			-24.95
		.00	-2.60	11.53				
		1.75	-33.96	-20.46				
		1.75			.00			-24.95
784								
	1	.00			.00			-28.01
		.00	-8.52	20.93				
		1.75	-39.88	-21.42				
		1.75			.00			-28.01
785								
	1	.00			.00			-27.72
		.00	-18.54	24.45				
		1.75	-32.83	-20.49				
		1.75			.00			-27.72
786								
	1	.00			.00			-23.07
		.00	-17.31	22.81				
		1.75	-28.69	-18.30				
		1.75			.00			-23.07
787								
	1	.00			.00			-17.30
		.00	-14.38	17.75				
		1.75	-22.65	-14.72				
		1.75			.00			-17.30
788								
	1	.00			.00			-10.22
		.00	-8.62	13.49				
		1.75	-16.54	-8.57				
		1.75			.00			-10.22
789								
	1	.00			.00			-3.15
		.00	-3.44	8.15				
		1.75	-9.84	-3.86				
		1.75			.00			-3.15

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
790								
	1	.00			.00			4.19
		.00	1.16	2.54				
		.46	.00	2.80				
		1.75	-1.37	1.62				
		1.75			.00			4.19
791								
	1	.00			.00			11.52
		.00	6.54	-4.64				
		1.75	6.54	6.81				
		1.75			.00			11.52
792								
	1	.00			.00			18.04
		.00	12.82	-10.32				
		1.75	12.82	12.11				
		1.75			.00			18.04
793								
	1	.00			.00			23.14
		.00	18.34	-15.72				
		1.75	18.34	16.38				
		1.75			.00			23.14
794								
	1	.00			.00			26.86
		.00	22.26	-19.11				
		1.75	22.26	19.84				
		1.75			.00			26.86
795								
	1	.00			.00			28.62
		.00	24.45	-21.86				
		1.75	24.45	20.92				
		1.75			.00			28.62
796								
	1	.00			.00			28.37
		.00	24.34	-23.03				
		1.75	24.34	19.56				
		1.75			.00			28.37
797								
	1	.00			.00			25.61
		.00	21.82	-23.83				
		1.75	21.82	14.35				
		1.75			.00			25.61

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
798								
	1	.00			.00			20.19
		.00	17.51	-23.43				
		1.75	17.51	7.20				
		1.75			.00			20.19
799								
	1	.00			.00			12.31
		.00	13.20	-20.79				
		1.75	13.20	2.31				
		1.75			.00			12.31
800								
	1	.00			.00			4.99
		.00	10.80	-11.24				
		1.75	10.80	7.66				
		1.75			.00			4.99
801								
	1	.00			.00			6.50
		.00	8.20	-1.60				
		1.75	8.20	12.75				
		1.75			.00			6.50
802								
	1	.00			.00			9.04
		.00	7.99	-2.02				
		1.75	7.99	11.96				
		1.75			.00			9.04
803								
	1	.00			.00			10.11
		.00	8.69	-5.76				
		1.75	8.69	9.46				
		1.75			.00			10.11
804								
	1	.00			.00			9.77
		.00	8.87	-8.13				
		1.75	8.87	7.40				
		1.75			.00			9.77
805								
	1	.00			.00			8.60
		.00	8.14	-8.38				
		1.75	8.14	5.87				
		1.75			.00			8.60
806								
	1	.00			.00			7.03

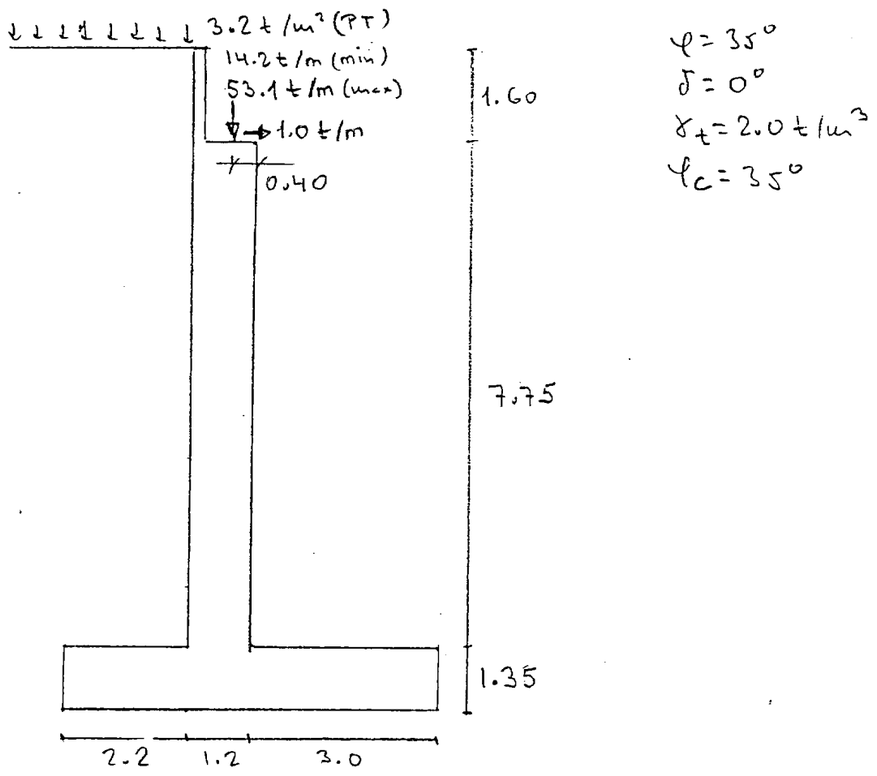
F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.00	6.80	-7.20				
		1.75	6.80	4.69				
		1.75			.00			7.03
807								
	1	.00			.00			5.40
		.00	5.25	-5.51				
		1.75	5.25	3.68				
		1.75			.00			5.40
808								
	1	.00			.00			3.87
		.00	3.80	-3.81				
		1.75	3.80	2.85				
		1.75			.00			3.87
809								
	1	.00			.00			2.51
		.00	2.55	-2.26				
		1.75	2.55	2.20				
		1.75			.00			2.51
810								
	1	.00			.00			1.32
		.00	1.36	-.85				
		1.75	1.36	1.53				
		1.75			.00			1.32

ESTRUCTURA E-3

CALCULO DE ESTRIBOS Y MUROS

ESTRIBOS



$\varphi = 35°$
$\delta = 0°$
$\gamma_t = 2.0\ t/m^3$
$\varphi_c = 35°$

ELS1 PP + PT + ET + PSC + ESC. + Rmax

ELU 1 1.0 (PP + CP) + 1.5 PT + 1.5 ET + Rmín

ELU 2 1.35 PP + 1.5 CP + 1.5 PT + 1.5 ET + 1.5 Rmax

Estribo (cont.)

- Fase construcción (puntilla). Trasplen hasta base espaldón y sobrecarga de $2\ t/m^2$.

$\gamma_v = 3.68$; $\gamma_d = 2.56$; $S1 = 13.3\ t/m^2$; $S2 = 12.1\ t/m^2$

- En servicio

	ELS 1	ELU 1	ELU 2
σ_1	34.84	52.78	61.81
σ_2	13.32	0.00	8.27
L	8.17	5.40	7.16
γ_v	3.00	1.67	2.39
γ_d	2.67	1.38	2.17
V	33.00	59.83	59.83
M	155.0	287.62	287.62

$\sigma_{max,ad} = 3.5\ kg/cm^2$

Estribo (cont)

- Muro (e = 1.20 m)

$M_d = 306.1$ mt/m
$V_d = 62.5$ t/m
} $A_c f_{cd} = \frac{2500}{1.5} \times 1.15 = 1917$ t.

$A_s f_{yd} = 1917 \times 0.150117 = 287.8$ t/m

$A_s = \frac{287.8}{5.1} \times 1.15 = 64.9$ cm²/m $N_d = 57.3$ t

2 Φ20 / 0.10 (62.8 cm²) ; $\rho = \frac{62.8}{115 \times 100} = 0.00546$

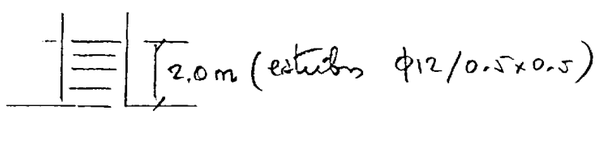
$V_{cu} = 38.9 + 0.15 \times 57.3 = 47.5$ t/m.

$V_{su} = 62.5 - 47.5 = 15$ t/m.

$A_{st\,90d} = \frac{15}{0.9 \times 1.15} = 14.5$ t/m ; $A_s = \frac{14.5}{4.0} = 3.6$ cm²/m

1 Φ12 / 0.5 × 0.5 m (4.52 cm²) > 3.6

Esta armadura solo se necesita en 1.5 + 0.6 ≅ 2.0 m del muro.



- espaldón (e = 0,35 m)

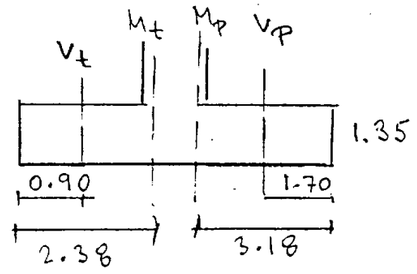
$V_d = 5.6$ t/m
$M_d = 5.4$ mt/m
} $A_c f_{cd} = \frac{2500}{1.5} \times 0.30 = 500$

$A_s f_{yd} = 500 \times 0.03767 \times 1.042 = 19.1$ t/m

$A_s = \frac{19.1}{5.1} \times 1.15 = 4.3$ cm²/m. 5 Φ12 pm (5.6 cm²/m) > 4.3

Estribo (cont)

Zapata (e = 1.35 m)



- Puntera

$V_{pd} = 84.9$ t/m
$M_{pd} = 243.2$ mt/m
} $A_c f_{cd} = \frac{2500}{1.5} \times 1.25 = 2083$

$A_s f_{yd} = 2083 \times 0.10982 = 204.6$ t/m ; $A_s = 46.1$ cm²/m

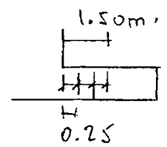
Φ25 / 0.10 (49.1 cm²) > 46.1 ; $\rho = \frac{49.1}{125 \times 100} = 0.00393$.

$V_{cu} = 37.5$ t/m ; $V_{su} = 84.9 - 37.5 = 47.4$ t/m.

$A_{s\,90\,t_{90d}} = \frac{47.4}{0.9 \times 1.25} = 42.1$ t/m ; $A_{s0} = \frac{42.1}{4} = 10.5$ cm²/m

1 Φ12 / 0.25 × 0.40 (11.3 cm²) > 10.5

se dispone en $0.9 + \frac{1.25}{2} = 1.50$ m



Estrib (cont)

- Talon

$V_{td} = 41.2$ t/m.
$M_{td} = 112.0$ mt/m

$A_s f_{yd} = 1917 \times 0.05216 = 100$ t/m ; $A_s = 22.5$ cm²/m.

$\phi 25/0.15$ $(32.7\ cm^2) > 22.5$. ; $\rho = \frac{32.7}{115 \times 100} = 0,00284$

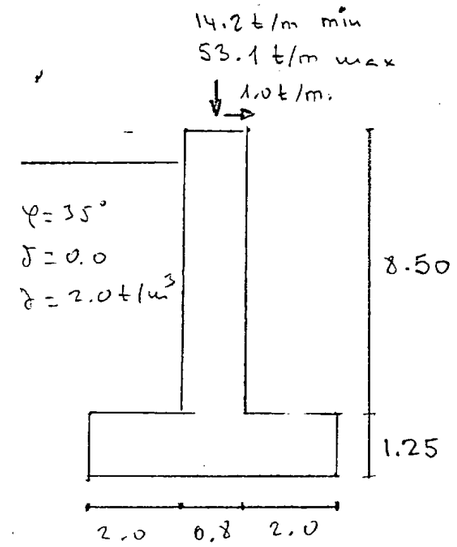
$V_{u2} = 39.0$ t/m ≥ 41.2 no' se dispone armadura a cortante.

- Muro estribo

Armadura

-3	$A_{smin} = 10.8$ cm²/m.	
-4	10.6	
-5	15.2	- 5.0 $\phi 20/0.20$
-6	20.9	
-7	29.9	- 7.10 $\phi 20/0.10$
-8	41.2	
-9	55.1 cm²	

Muro apoyo losa (e=0.80m)



Muro (e=0.80)

$M_d = 96$ mt/m
$V_d = 25.9$ t/m
} $A_c f_{cd} = \frac{250}{1.5} \times 0.75 = 1250$ t

$A_s f_{yd} = 1250 \times 0.10826 = 135.3$ t/m ; $A_s = 30.5$ cm²/m

$10\ \phi 20$ (31.4) $\rho = \frac{31.4}{75 \times 100} = 0.00419$

$V_{u2} = 29.9$ t > 25.9 no se necesitan estribos.

Para altura de muro de 6.50m. $A_s = 5\phi 20$
" " " 5.50m $A_s = 5\phi 16$

Muro apoyo losa (cont)

ELS 1 $PP + CP + SC + PT + ET + R_{mcx}$

ELU 1 $1.0(PP+CP) + 1.5PT + 1.5ET + R_{min}$

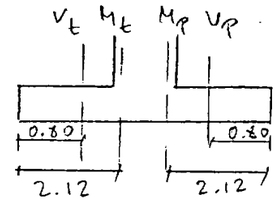
ELU 2 $1.35PP + 1.5CP + 1.5PT + 1.5ET + 1.5R_{mcx}$.

	ELS 1	ELU 1	ELU 2
σ_1	35.78	36.69	52.66
σ_2	13.85	3.81	19.77
L	6.14	5.25	6.11
γ_v	3.72	2.26	3.63
γ_d	4.05	2.20	3.94

$\sigma_{adm} = 3.5\ Kg/cm^2$

Muro apoyo losa (cont)

Zapata



Puntera $M_d = 99.8\ mt/m$, $V_d = 37.7\ t/m$ } $A_{cfcd} = \frac{2500}{1.5} \times 1.5 = 1917\ t.$

$A_{sfyd} = 1917 \times 0.0462 = 88.8\ t/m$

$A_s = 20.0\ cm^2/m$ $5\phi 25$ $(24.55) > 20$. $\rho = \frac{24.55}{115 \times 100} = 0.002135$

$V_{u2} = 34.2\ t/m \simeq 37.7$ no se dispone armadura a cortante

Talón $M_d = -38.3\ mt/m$, $V_d = -18.1\ t/m$ }

$A_{sfyd} = 43.0\ t/m$; $A_s = 9.7\ cm^2/m$

$5\phi 20$ $(15.7) > 9.7$

MUROS DE ACOMPAÑAMIENTO.-

H = 510.927 - 500,000 = 10.927 m.

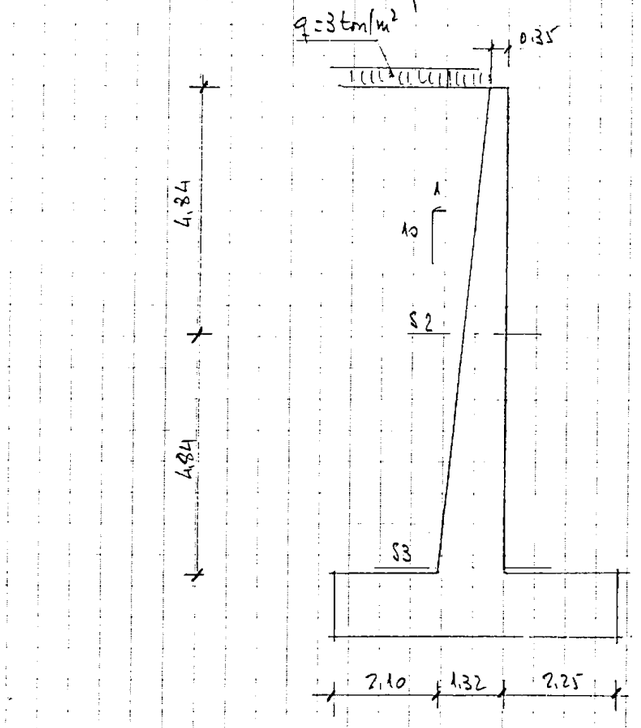
10.927 - 1.25 ≈ 9.68 m. } ESTRIBO 1

H = 510.438 - 500.000 = 10.438 m

10.438 - 1.25 ≈ 9.44 m } ESTRIBO 2

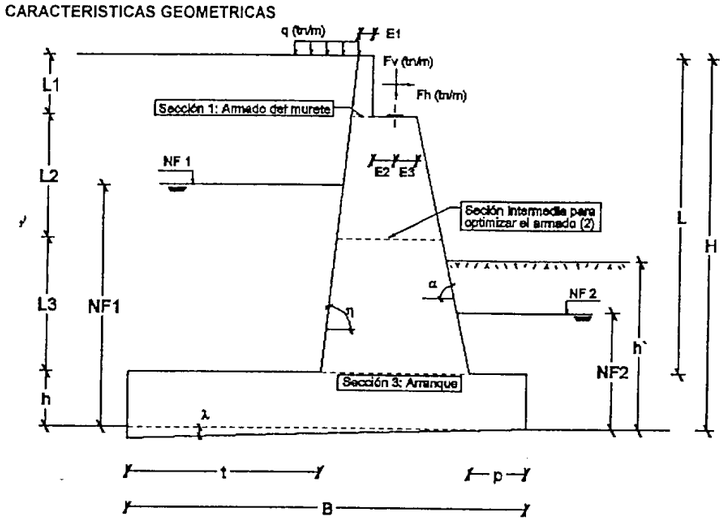
Luego ante la poca diferencia de altura entre ambos estribos se calcula el de mayor altura, es decir el estribo 1.

A continuación se procesa una hoja de calculo pre-parada para muros y estribos.



CALCULO DE MUROS

CARACTERISTICAS GEOMETRICAS



E1	0,00	t	2,10	NF1	0,00	α	90,00	L	9,68
E2	0,00	L1	0,00	NF2	0,00	λ	0,00	H	10,93
E3	0,35	L2	4,84	β	0,00	h	1,25	B	5,67
p	2,25	L3	4,84	η	84,29	h'	0,00	Bi	5,67

CARACTERISTICAS DE LOS MATERIALES

fck (kg/cm²)	250	Densidad del hormigón	2,50		
fyk (kg/cm²)	5.100				
Coeficientes de minoración		Hormigón	1,50	Acero	1,15
Coeficientes de mayoración		FUERZAS	1,50	C.Permanentes	1,35
¿Considerar el axil en el armado de secciones?			SI		
Recubrimiento en alzado (m)			0,05		
Recubrimiento en zapatas (m)			0,05		

CARACTERISTICAS DEL TERRENO

densidad	2,00	τ max	35,00	ϕ	35,00
cohesión	0,00	τ max *	70,00	ϕo	35,00

Coef. rozamiento suelo terreno	μ	0,60	delta	0,00

¿Considerar coeficiente de empuje activo o al reposo?	ACTIVO
¿Considerar empuje pasivo sobre el alzado?	NO
¿Considerar empuje pasivo sobre la zapata?	NO
¿Considerar empuje activo sobre zapata?	NO

CARGAS

Sobrecarga	q	3,00	
Sismo	ac/g	0,00	Muro de contención (r=1.00 para este tipo de estructuras)
Grado de restricción del movimiento del muro		Ninguno	

CALCULO LEYES DE EMPUJE

Coefs empuje	Ka	0,311
	Kas	0,311
	Kp	3,690
	Kh	0,000
	Kv	0,000

	Prof	E tierras	E tierras seco	E agua int
Ley de empujes del terreno	0,00	0,932	0,932	0
	0,00	0,932	0,932	0
	4,84	3,939	3,939	0
	9,68	6,947	6,947	0
	10,93	7,724	7,724	0
	10,93	7,724	7,724	0

Incremento de empuje debido al sismo	0,000

	Prof	Sin agua	Prof	Con agua
Empuje pasivo	0,00	0,00	0,00	0,00
	1,25	9,23	1,25	9,23
	0,00	0,00	0,00	0,00

COEFICIENTE SEGURIDAD AL DESLIZAMIENTO

Sin tablero		1,53
	AGUA	1,53
	SISMO	1,53
	AGUA + SISMO	1,53

COEFICIENTE SEGURIDAD AL VUELCO

Sin tablero		1,97
	AGUA	1,97
	SISMO	1,97
	AGUA + SISMO	1,97

COMPROBACION DE TENSIONES

		τ_{MAX}	τ_{min}	τ^{*}_{MAX}	τ^{*}_{min}	τ_{COB}
Sin tablero		34,87	0,00	71,69	0,00	26,15
	AGUA	34,87	0,00	71,69	0,00	26,15
	SISMO	34,87	0,00	71,69	0,00	26,15
	AGUA + SISMO	34,87	0,00	71,69	0,00	26,15

Valores en tn/m²

CALCULO DE LA ARMADURA

SECCION DE CALCULO 2

Nd	7,16
Vd	17,68
Md	37,72

B (cm)	100
h (cm)	83
d (cm)	78

Uo	1.110,59 tn

Comprobación de la armadura de compresión — Mlim (tn·m): 326,49 tn·m — No hace falta

Area de armadura tracción — A: 9,48 cm2

Cuantía mínima de la armadura a tracción: 3,75 cm2

α 1,000: 9,48 cm2

Armadura a colocar

ϕ	Area cm2	Nº redondos	Dist (cm)
12	1,13	9	10
16	2,01	5	20
20	3,14	4	25
25	4,91	2	50

Armadura de compresión estricta: 0,00 cm2

Cuantía mínima en cara comprimida: 2,84 cm2

Armaduras mínimas horizontales: 13,34 cm2 — A repartir entre ambas caras

COMPROBACION A CORTANTE

Cortante que resiste la sección sin armadura de cortante — Vcu: 50,60 tn

No hay que armar a cortante

SECCION DE CALCULO 3

Nd	29,55
Vd	57,20
Md	226,62

B (cm)	100
h (cm)	132
d (cm)	127

Uo	1.796,19 tn

Comprobación de la armadura de compresión — Mlim: 854,02 tn·m — No hace falta

Area de armadura tracción — A: 35,87 cm2

Cuantía mínima de la armadura a tracción: 5,93 cm2

α 1,000: 35,87 cm2

Armadura a colocar

ϕ	Area cm2	Nº redondos	Dist (cm)
12	1,13	32	0
16	2,01	18	5
20	3,14	12	5
25	4,91	8	10

Armadura de compresión estricta: 0,00 cm2

Cuantía mínima en cara comprimida: 10,76 cm2

Armaduras mínimas horizontales: 21,09 cm2 — A repartir entre ambas caras

COMPROBACION A CORTANTE

Cortante que resiste la sección sin armadura de cortante — Vcu: 81,84 tn

No hay que armar a cortante

DIMENSIONAMIENTO DE LA ZAPATA

Se comprueban las cuatro secciones de rigor , 2 para talón y 2 para puntera.

Sección	Distancia x[1]	d
1	1,65	1,20
2	2,30	1,20
3	2,55	1,20
4	3,20	1,20

[1] distancia desde el borde de la puntera

ARMADO PUNTERA (SECCION 2)

TENSIONES DE CALCULO

τ_{MAX}	71,69 tn/m2
τ_{min}	0,00 tn/m2

Md	136,21 tn·m
Uo	1.700,00 tn

B (cm)	100,00
h (cm)	125,00
d (cm)	120,00

Comprobación necesidad armadura compresión — Mlim 765,00 tn·m — No hace falta

Area de armadura tracción — A 26,51 cm2

Cuantía mínima de la armadura a tracción — 11,25 cm2

α 0,795 — 26,51 cm2

Armadura a colocar

ϕ	Area cm2	N° redondos	Dist (cm)
12	1,13	24	0
16	2,01	14	5
20	3,14	9	10
25	4,91	6	15

Armadura de compresión estricta: 0,00 cm2

Cuantía mínima en cara comprimida: 7,95 cm2

Armaduras mínimas horizontales: 22,50 cm2 A repartir entre ambas caras

ARMADO TALON (SECCION 3)

TENSIONES DE CALCULO

τ_{MAX}	53,14 tn/m2
τ_{min}	0,00 tn/m2

Md	122,54 tn·m
Uo	1.700,00 tn

B (cm)	100,00
h (cm)	125,00
d (cm)	120,00

Comprobación necesidad armadura compresión — Mlim 765,00 tn·m — No hace falta

Area de armadura tracción — A 23,76 cm2

Cuantía mínima de la armadura a tracción — 11,25 cm2

α 0,868 — 23,76 cm2

Armadura a colocar

ϕ	Area cm2	N° redondos	Dist (cm)
12	1,13	22	0
16	2,01	12	5
20	3,14	8	10
25	4,91	5	20

Armadura de compresión estricta: 0,00 cm2

Cuantía mínima en cara comprimida: 7,13 cm2

Armaduras mínimas horizontales: 22,50 cm2 A repartir entre ambas caras

COMPROBACION A CORTANTE EN SECCION 1

TENSIONES DE CALCULO

τ_{MAX}	71,69 tn/m2	τ_{min}	0,00 tn/m2

d (cm) 120,00 — Vd 82,27 tn

Cortante que resiste la sección sin armadura de cortante — Vcu 154,92 tn

No hay que armar a cortante

COMPROBACION A CORTANTE EN SECCION 4

TENSIONES DE CALCULO

τ_{MAX}	53,14 tn/m2	τ_{min}	0,00 tn/m2

d (cm) 120,00 — Vd 74,50 tn

Cortante que resiste la sección sin armadura de cortante — Vcu 154,92 tn

No hay que armar a cortante

Resumen de fuerzas y momentos para el estudio de la estabilidad del estribo.-

Resumen de pesos y acciones del terreno

Peso total del estribo:	37,89 tn
Peso estabilizador de las tierras sobre el talón:	59,23 tn
Empuje pasivo con el terreno seco:	0,00 tn
Empuje pasivo considerando el nivel freático en el intradós:	0,00 tn
Empuje tierras sobre el trasdós seco:	38,13 tn
Empuje tierras considerando el nivel freático en el trasdós:	38,13 tn
Empuje tierras mayorado sobre el trasdós seco:	57,20 tn
Empuje tierras mayorado con nivel freático en el trasdós:	57,20 tn
Incremento de empuje debido al sismo:	0,00 tn
Empuje horizontal del agua:	0,00 tn
Subpresión bajo la zapata:	0,00 tn

Momentos volcadores

Momento del empuje tierras sobre el trasdós seco:	185,27 tn
Momento del empuje tierras con nivel freático en el trasdós:	185,27 tn
Momento debido al sismo:	0,00 tn
Momento del empuje horizontal del agua:	0,00 tn
Momento producido por la subpresión bajo la zapata:	0,00 tn

Momentos estabilizadores

Momento debido al peso del estribo:	104,96 tn
Momento debido al volumen de las tierras sobre el talón:	260,65 tn
Momento del empuje pasivo con el terreno seco:	0,00 tn

Momentos respecto al centro de la base de la zapata

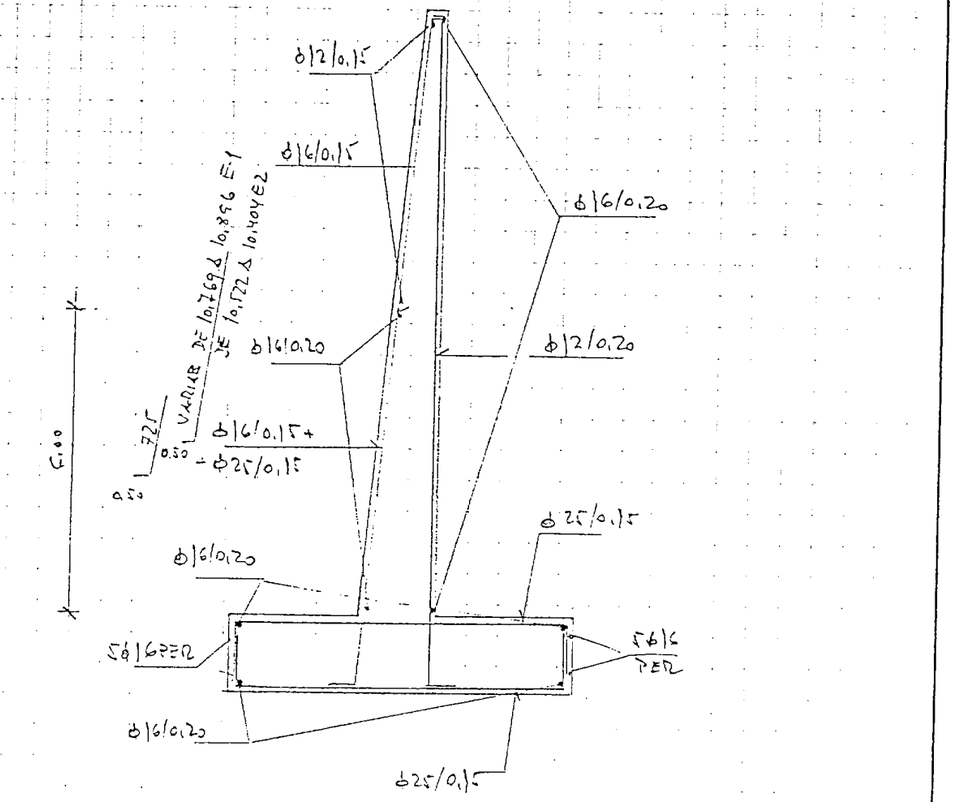
Momento debido al peso del estribo:	2,43 tn
Momento debido al volumen de las tierras sobre el talón:	-92,80 tn
Momento del empuje pasivo con el terreno seco:	0,00 tn
Momento producido por las reacciones del tablero:	0,00 tn
Momento del empuje tierras sobre el trasdós seco:	185,27 tn
Momento del empuje tierras con nivel freático en el trasdós:	185,27 tn
Momento del empuje tierras mayorado sobre el trasdós seco:	277,90 tn
Momento del empuje tierras mayorado con nivel freático en trasdós:	277,90 tn
Momento debido al sismo:	0,00 tn
Momento del empuje horizontal del agua:	0,00 tn

Sacyr

E-3

FECHA

HOJA



Jesús Martínez Cólliga. Colegiado nº 2274

Estructura E-4. (PK 311+771)

ESTRUCTURA E-4 (PK 311+771)

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1. Introducción

1. Introducción

1.1. Descripción

La obra de fábrica se ha resuelto como una estructura tipo marco con 9.00m x 9.00 m de luz interior libre, con una longitud de 28.50m.

El marco proyectado tiene un dintel de 1.10 metros de canto, con hastiales de 1.00 metros de espesor, y está cimentado en una solera de 1.20 metros de canto.

La cubierta de tierras por encima del dintel es de 3.50 m.

1.2. Instrucciones y normas empleadas

Para el cálculo de las acciones que actúan sobre los diversos elementos de la estructura, se ha utilizado la "Instrucción sobre las acciones a considerar en el Proyecto de Puentes de Ferrocarriles (I.A.PF.)" del Ministerio de Fomento.

También se ha tenido en cuenta la "Norma Sismorresistente PDS-1 parte "A", aprobada por Real Decreto 3209/1974 de 30 de Agosto y la "Norma de Construcción Sismorresistente (Parte General y Edificación) NCS-94", aprobada por Real Decreto 2543/1994 de 29 de Diciembre.

Para el dimensionamiento y comprobación de los elementos de hormigón armado se ha seguido la "Instrucción de hormigón estructural" EHE, aprobada por Real Decreto 2661/1998 de 11 de Diciembre.

1.3. Acciones sísmicas

La zona en la que se encuentran ubicadas las estructuras corresponde a una aceleración básica $a_b = 0.04$ g.

Teniendo en cuenta que la estructura a proyectar es e de importancia normal ($\gamma i = 1.00$), resulta una aceleración de cálculo $a_c = 0.04$ g x 1.00 = 0.04 g < 0.06 g, y por tanto no es preceptiva la consideración de las acciones sísmicas, conforme a lo especificado en la I.A.P., en su artículo 3.2.4.2., por lo cual no se tendrán en cuenta en los cálculos dichas acciones.

1.4. Características de los materiales

Hormigones

Capas de regulación y rellenos	HM-15
Marco, muros y aletas	HA-25

Acero para Armar B 500 S

1.5. Control de materiales y ejecución

Hormigones

Control estadístico : $\gamma_c = 1,5$

Acero para Armar

Control normal : $\gamma_s = 1,15$

EJECUCIÓN (VALORES DE LOS COEFICIENTES γ_F)

ESTADOS LÍMITES ÚLTIMOS (E.L.U.)

TIPO DE ACCIÓN		SITUACIONES PERSISTENTES Y TRANSITORIAS		SITUACIONES ACCIDENTALES	
		EFECTO FAVORABLE	EFECTO DESFAVOR.	EFECTO FAVORABLE	EFECTO DESFAVOR.
PERMANENTE		$\gamma_G = 1.00$	$\gamma_G = 1.35$	$\gamma_G = 1.00$	$\gamma_G = 1.00$
OTRA PERMANENTE DE VALOR NO CONSTANTE	PRESOLICITACION	$\gamma_{G^*} = 0.95$	$\gamma_{G^*} = 1.05$	$\gamma_{G^*} = 1.0$ 0	$\gamma_{G^*} = 1.00$
	RÉOLOGICA	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.35$	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	ACCION DEL TERRENO	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.50$	$\gamma_{G^*} = 1.0$ 0	$\gamma_{G^*} = 1.00$
VARIABLE		$\gamma_Q = 0.00$	$\gamma_Q = 1.50$	$\gamma_Q = 0.00$	$\gamma_Q = 1.00$
ACCIDENTAL				$\gamma_A = 1.00$	$\gamma_A = 1.00$

ESTADO LÍMITE DE SERVICIO (E.L.S.)

TIPO DE ACCIÓN		SITUACIONES PERSISTENTES Y TRANSITORIAS	
		EFECTO FAVORABLE	EFECTO DESFAVOR.
PERMANENTE		$\gamma_G = 1.00$	$\gamma_G = 1.00$
OTRA PERMANENTE DE VALOR NO CONSTANTE	PRESOLICITACION	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	RÉOLOGICA	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	ACCION DEL TERRENO	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
VARIABLE		$\gamma_Q = 0.00$	$\gamma_Q = 100$

1.6. Características de la cimentación

La tensión admisible es de 3.00 kp/cm2. Se deberá verificar que este valor se alcanza.

D.O	Tensión admisible del terreno
E-4	3.00 kp./cm^2

El coeficiente de balasto se adoptará igual a 1.250 tm^{-3}

1.7. Procedimiento de cálculo

Se han tenido en cuenta para el cálculo del marco los siguientes tipos de carga:

- **Acciones gravitatorias**

  * **Acciones permanentes**

Se calculan con los siguientes valores:

Carril	0.12 t.m^{-1}
Traviesa	0.52 t.m^{-1}
Conducto cableado	0.30 t.m^{-1}
Hormigón forma	1.225 t.m^{-1}
Balasto	1.60 t.m^{-3}
Relleno:	2,00 t.m^{-3}
Hormigón armado:	2,50 t.m^{-3}

  * **Sobrecargas**

Se han considerado las sobrecargas de la Instrucción IAPF-75 y las del Eurocódigo EC1.3:

- **Acciones horizontales**

Se consideran los efectos de las acciones de origen reológico actuando sobre la estructura.

No se tendrán en cuenta las fuerzas de frenado dada la presencia de una cubierta de tierras de 3.50 m entre rasante y dintel, ni la acción de la fuerza centrífuga en la dirección normal al tráfico por ser un tramo recto.

El empuje de las tierras en los laterales del terraplén se considerará en dos hipótesis distintas, una de ellas con un coeficiente de empuje al reposo igual a 0,50, y la otra con el coeficiente correspondiente al empuje activo de valor 0,33.

Choques de vehículos de carretera

Se considera en la dirección perpendicular al tráfico.

- **Acciones sísmicas**

No se consideran de acuerdo con lo especificado en la I.A.P.

- **Procedimiento de cálculo**

La sobrecarga puntual del tren de cargas se asimila a una sobrecarga repartida en función del efecto distribuidor del firme, del relleno y del propio dintel.

El paso se calcula como un marco de sección uniforme, apoyado sobre una fundación elástica de acuerdo con la teoría de Winckler (del coeficiente de balasto), adoptándose para éste último un valor de $K = 1250\ Mp/m^3$.

Se consideran también las hipótesis de empuje desigual de tierras a ambos lados, debido a las sobrecargas excéntricas, y al proceso constructivo.

Para el desarrollo de los cálculos resueltos por ordenador se han utilizado los siguientes programas:

- STATIK-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10, 1997).

- FAGUS-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10 Marzo 1998).

2. Acciones

2. Acciones

2.1. Cargas permanentes

2.1.1. Peso propio

El peso propio de la estructura de hormigón lo calcula el Programa STATIK-3 con un peso específico $\gamma = 2.50\ t.m^{-3} = 25\ KN\ m^{-3}$

2.1.2. Cargas muertas

Para una franja de 1.00 m de ancho:

Carril	$0.12\ t.m^{-1}$
Traviesa	$0.52\ t.m^{-1}$
Conducto cableado	$0.30\ t.m^{-1}$
Hormigón forma	$1.225\ t.m^{-1}$
Balasto	$1.60\ t.m^{-3}$
Área del balasto	$2.438\ m^2$
Valor característico	$qs = 1.3x2.438x1.60\ t.m^{-1}$
	$qs = 5.071\ t.m^{-1}$
Total carga permanente	**$gp = 7.24\ t.m^{-1}$**

2.2. Sobrecargas

2.2.1. Sobrecargas de uso

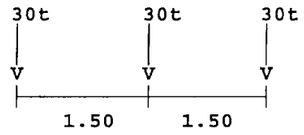
2.2.1.1. Tren de carga

CALCULO DE CARGAS DE FERROCARRIL

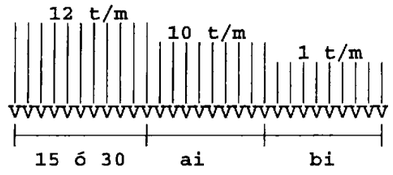
NORMA ESPAÑOLA IPFC-75

- Sobrecarga de 0.50 t/m² actuando en los paseos según la posición mas desfavorable para el elemento en estudio.

- Tren tipo A:



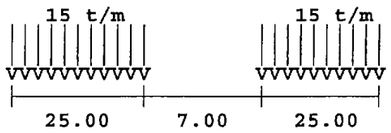
- Tren tipo B:



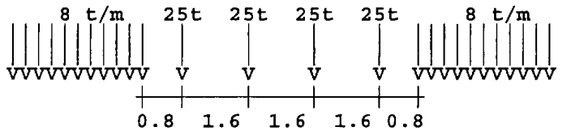
ai y bi son tales que producen los efectos mas desfavorables.

U.I.C-776-1

- Tren tipo SW/2



- Tren tipo UIC-71



COEFICIENTES DINAMICOS

U.I.C-776-1

Líneas de alta calidad : Φ2 Flector
: Φ1 Cortante

$$\Phi 1 = \frac{0.96}{\sqrt{L} - 0.2} + 0.88$$

$$\Phi 2 = \frac{1.44}{\sqrt{L} - 0.2} + 0.82$$

NORMA ESPAÑOLA IPFC-75

$$I = 65 \frac{u}{1 - u + u^2}$$

Para las estructuras enterradas se puede tomar el coeficiente reducido:

$$\Phi r = \Phi - \frac{h - 1,0}{10,0}$$

Se comparan los trenes de las Normas IPFC-75 (trenes tipo A y B) y los trenes de la norma UIC-776-1 (trenes tipo SW/2 y UIC-71).

Para éste caso se tienen los siguientes parámetros:

Luz de cálculo IAPF.....: 9.00 m
Luz de cálculo UIC .....: 11.70 m
Lϕ = k x Lm
Para n=3 k=1.3
Lm= 0.333 x (9.0+9.0+9.0) = 9.0 m
Lϕ =11.70 m
Espesor de losa (m).....: 1.10

Recubrimiento (m).....: 3.50
Peso específico del Relleno(t/m3) ...: 2.00

Espesor de Balasto (m) .....: 0.80
Peso específico del Balasto(t/m3) ...: 1.60

Peso de Traviesa (Kg) .....: 520

Peso de 2 Carriles (Kg/m) .....: 120

Se obtienen los siguientes resultados:
Coeficiente de impacto IPFC-75.....: 1.08
Coeficiente de impacto UIC (flexión).: 1.18
Coeficiente de impacto UIC (cortante): 1.28

SOBRECARGAS EN CENTRO DE LOSA:

Tren tipo A de IPFC-75 (Coef impacto = 1.08)
Mapoyo = 101.25mt
M vano = 68.85 mt
Vapoyo = 86.40 t

Tren tipo UIC-71 (Coef impacto a flexión = 1.28)
Mapoyo = 186.75 mt
M vano = 99.63 mt
Vapoyo = 93.51 t (Coef impacto cortante = 1.18)

Se considera para el cálculo el Tren tipo UIC-71

CARGAS PERMANENTES (Excepto Peso propio):

Carga de Balasto (t/m²) .....: 5.07
Carga de Traviesa (t/m²) .....: 0.52
Carga de Carril (t/m²) .....: 0.12
Carga de Cables (t/m²) .....: 0.30
Carga de H forma(t/m²) .....: 1.23

Total Cp (t/m²) ...: 7.24

El tren de cargas más desfavorable es el tipo UIC 71

P= 4 x 25.0 t / (11.081x6.40) = 1.41 t/m

LP = 6.40 m

q= 8.0 t/m / (11.081) = 0.72 t/m

Lq = 1.80 m

Con el coeficiente de impacto que corresponda según se calcule Flexión o Cortante

2.2.1.2. Frenado

No se considerará la actuación de esta fuerza sobre la estructura, por la presencia del firme y el relleno de tierras sobre el dintel.

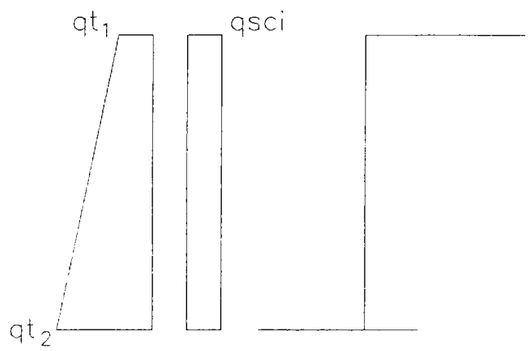
2.2.1.3. Fuerza centrífuga

No se considerará la actuación de esta fuerza sobre la estructura por la presencia del firme y el relleno de tierras sobre el dintel.

2.2.2. Sobrecargas del terreno

El relleno de tierras se realiza con material del terraplén:

- Peso específico: $\gamma_T = 2.0\ t.m^{-3}$
- Angulo de fricción interna: $\phi = 30°$
- Coeficiente de empuje al reposo: $\lambda_o = 0.50$
- Coeficiente de empuje activo: $\lambda_a = 0.33$



Empujes de tierras al reposo:

-

- **Permanentes (de las tierras):**

$q_{t1} = 7.00\ t.m^{-2} \times 0.50 = 3.5\ t.m^{-2}$

$q_{t2} = (7.00\ t.m^{-2} + 10.15\ m \times 2.00\ t.m^{-3}) \times 0.50 = 13.65\ t.m^{-2}$

- **Sobrecargas:**

Tren (presión media: $1.41 \times 1.28\ tm^{-2}$)

$q_{s.c.v.} = 1.80\ t.m^{-2} \times 0.50 = 0.90\ t.m^{-2}$

Empujes activo de las tierras:

- **Permanentes (de las tierras):**

$q_{t1} = 7.00\ t.m^{-2} \times 0.33 = 2.31\ t.m^{-2}$

$q_{t2} = (7.0\ t.m^{-2} + 10.15\ m \times 2.00\ t.m^{-3}) \times 0.33 = 9.009\ t.m^{-2}$

- **Sobrecargas:**

Tren (presión media: $1.41 \times 1.28\ tm^{-2}$)

$q_{s.c.v.} = 1.80\ t.m^{-2} \times 0.33 = 0.60\ t.m^{-2}$

2.2.3. Sobrecargas accidentales: Choques

Carga horizontal de 50t/2 m= 25 t/m

2.3. Acciones indirectas

2.3.1. Reológicas: Retracción del hormigón

Se tendrá en cuenta y será de –0.0025 m/m.

2.3.2. Térmicas

Debido a la existencia del firme y el relleno de tierras sobre la estructura, que la aisla, no se tiene en cuentas la acción de la temperatura sobre la misma.

2.4. Acciones sísmicas

De acuerdo con la I.A.P. no es necesario considerar los efectos de las acciones sísmicas sobre la estructura.

3. Cálculo del Marco

3.1. Modelo de cálculo

3.1. Descripción del modelo

Se utilizará para el cálculo de los esfuerzos en la estructura un modelo de pórtico plano, que representará la sección de estudio de la obra sometida a las solicitaciones más desfavorables, de 1.0 m de ancho.

El cálculo se realizará mediante el Programa STATIK-3.

En el siguiente esquema se representa la numeración de nudos y barras del modelo de cálculo.

Módulo de elasticidad

$$E = 3.000.000\ t.m^{-2}$$

Módulo de elasticidad transversal

$$G = \frac{E}{2\,(1+\nu)} = \frac{3.000.000\ t.m^{-2}}{2\,(1+0.20)}$$

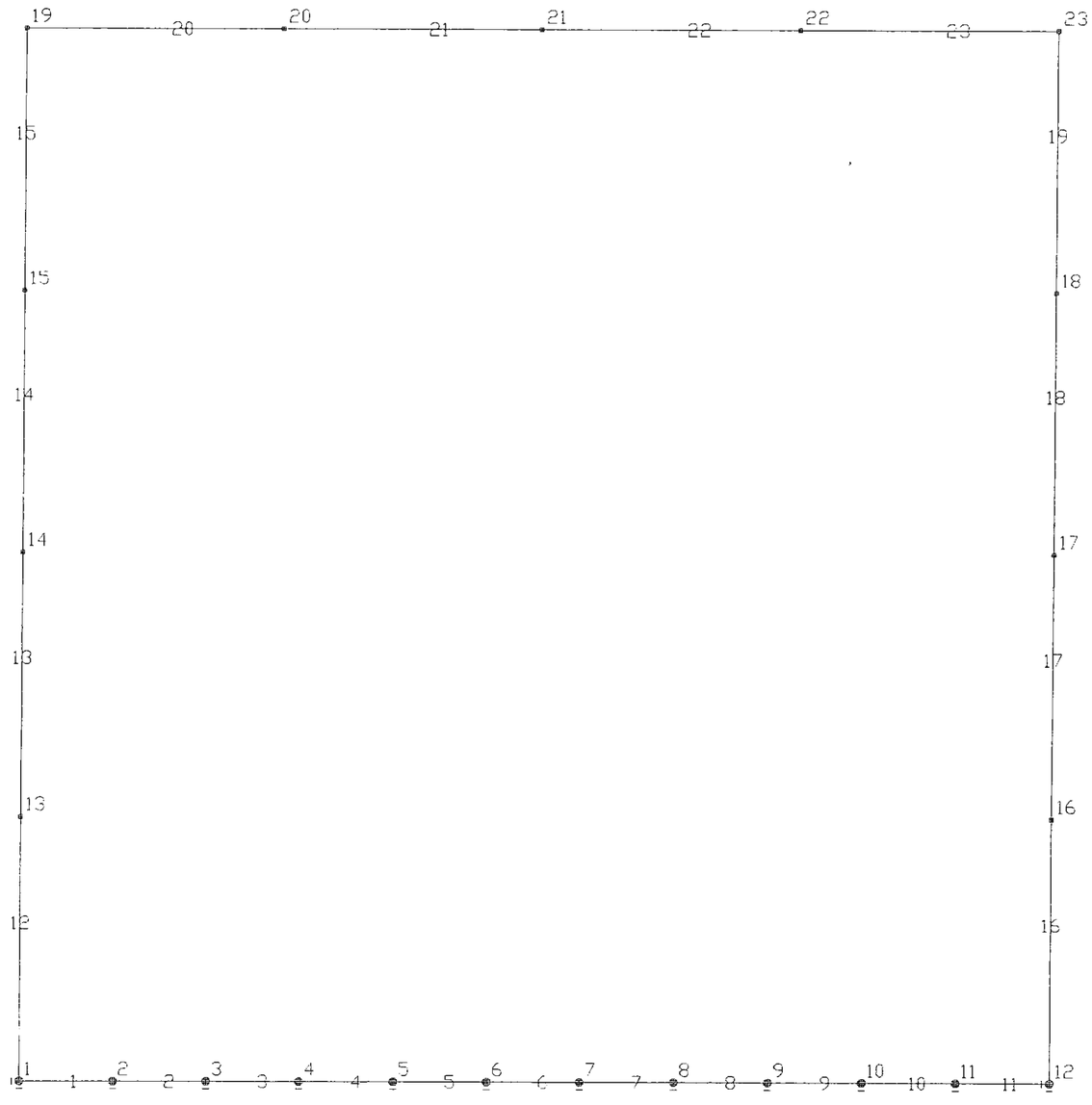
$$G = 1.250.000\ t.m^{-2}$$

Constantes de los Muelles: Coeficiente de Balasto 1250 $t.m^{-3}$

$K_1 = K_{12}$ $\quad 0.90 \times 1.0\ m \times 1250\ t.m^{-3} = 1125\ t.m^{-1}$

K_2 A K_{11}= $\quad 1.00\ m \times 1.0\ m \times 1250\ t.m^{-3} = 1250\ t.m^{-1}$

Scale 1 : 61.4
Structure - GEOMETRIA



3.2. Hipótesis de cálculo

INDICE

3.2. Hipótesis de cálculo

3.2.1. Hipótesis básicas

3.2.2. Combinaciones de hipótesis básicas

3.2.2.1. Estados límites últimos

3.2.2.2. Estados límites servicio

3.2.1. Hipótesis básicas

Hipótesis de cálculo

Hipótesis básicas

H1 Peso propio
H2 Cargas permanentes
H3 Sobrecarga uniforme total flexion
H4 Sobrecarga uniforme 1ª mitad del vano
H5 Sobrecarga uniforme 2ªmitad del vano
H6 Sobrecarga uniforme 2da mitad del vano 2
H7 Sobrecarga uniforme centro del vano
H8 Sobrecarga uniforme solera
H9 Acciones debidas al terreno con empuje activo de tierras
H10 Acciones debidas al terreno con empuje al reposo de tierras
H11 Acciones debidas al terreno con empuje activo/rep de tierras
H12 Acciones debidas al terreno con empuje al reposo/act de tierras
H13 Empuje activo debido a la sobrecarga izquierda
H14 Empuje al reposo debido a la sobrecarga izquierda
H15 Empuje activo debido a la sobrecarga derecha
H16 Empuje al reposo debido a la sobrecarga derecha
H17 Reológicas
H18 Impacto de vehículo

3.2.2. Combinaciones de hipótesis básicas

3.2.2.1. Estados límites últimos (E.L.U.)

Se han combinado las 18 hipótesis básicas, de forma de obtener la envolvente de solicitaciones más desfavorables, para el dimensionamiento de armaduras y las comprobaciones en E.L.U.:

ENVELOPE SPECIFIC.: BX ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	1.000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme FLEXION
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
ALTERNATIVE ENVELOPE :					
Q	PERM.	1	1.000		Peso Propio
R	OR	1	1.350		Peso Propio
S	PL.PERM	2	0.750000		Cargas permanentes
T	OR	2	1.350		Cargas permanentes
U	PL.PERM	17	1.000		Reologicas
V	OR	17	1.350		Reologicas
W	PL.PERM	10	1.000		Empuje al reposo de tierras
X	OR	10	1.500		Empuje al reposo de tierras
Y	OR	11	1.000		Empuje act/rep de tierras
Z	OR	11	1.500		Empuje act/rep de tierras
AA	OR	12	1.000		Empuje al rep/act de tierras
AB	OR	12	1.500		Empuje al rep/act de tierras
AC	PLUS	3	1.500		Sobrecarga uniforme FLEXION
AD	PLUS	8	1.500		Sobrecarga solera
AE	PLUS	14	1.500		Empuje al reposo sob unif
AF	PLUS	16	1.500		Empuje al reposo sob. parcial
ALTERNATIVE ENVELOPE :					
AG	PERM.	1	1.000		Peso Propio
AH	PL.PERM	2	1.000		Cargas permanentes
AI	PL.PERM	17	1.000		Reologicas
AJ	PL.PERM	9	1.000		Empuje activo de tierras
AK	OR	11	1.000		Empuje act/rep de tierras
AL	OR	12	1.000		Empuje al rep/act de tierras
AM	PLUS	4	1.000		Sob unif parcial dintel dcha
AN	PLUS	5	1.000		Sob unif parcial dintel izqda
AO	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AP	PLUS	7	1.000		Sobrecarga posicion lateral
AQ	PLUS	8	1.000		Sobrecarga solera
AR	PLUS	13	1.000		Empuje activo debido a la sob
AS	PLUS	15	1.000		Empuje activo debido a la sob
AT	PLUS	18	1.000		ACCIDENTAL : Choque
ALTERNATIVE ENVELOPE :					
AU	PERM.	1	1.000		Peso Propio

AV	PL.PERM	2	1.000		Cargas permanentes
AW	PL.PERM	17	1.000		Reologicas
AX	PL.PERM	10	1.000		Empuje al reposo de tierras
AY	OR	11	1.000		Empuje act/rep de tierras
AZ	OR	12	1.000		Empuje al rep/act de tierras
BA	PLUS	4	1.000		Sob unif parcial dintel dcha
BB	PLUS	5	1.000		Sob unif parcial dintel izqda
BC	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BD	PLUS	7	1.000		Sobrecarga posicion lateral
BE	PLUS	8	1.000		Sobrecarga solera
BF	PLUS	14	1.000		Empuje al reposo sob unif
BG	PLUS	16	1.000		Empuje al reposo sob. parcial
BH	PLUS	18	1.000		ACCIDENTAL : Choque

3.2.2.2. Estados límites de servicio (E.L.S.)

Se han combinado las 16 hipótesis básicas, de forma de obtener la envolvente de solicitaciones más desfavorables, para la verificación de tensiones en el terreno:

ENVELOPE SPECIFIC.: BW ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	OR	11	1.000		Empuje act/rep de tierras
F	OR	12	1.000		Empuje al rep/act de tierras
G	PLUS	4	1.000		Sob unif parcial dintel dcha
H	PLUS	5	1.000		Sob unif parcial dintel izqda
I	PLUS	6	1.000		Sobrecarga uniforme dintel cen
J	PLUS	7	1.000		Sobrecarga posicion lateral
K	PLUS	8	1.000		Sobrecarga solera
L	PLUS	13	1.000		Empuje activo debido a la sob
M	PLUS	15	1.000		Empuje activo debido a la sob
ALTERNATIVE ENVELOPE :					
N	PERM.	1	1.000		Peso Propio
O	PL.PERM	2	1.000		Cargas permanentes
P	PL.PERM	17	1.000		Reologicas
Q	PL.PERM	10	1.000		Empuje al reposo de tierras
R	OR	11	1.000		Empuje act/rep de tierras
S	OR	12	1.000		Empuje al rep/act de tierras
T	PLUS	4	1.000		Sob unif parcial dintel dcha
U	PLUS	5	1.000		Sob unif parcial dintel izqda
V	PLUS	6	1.000		Sobrecarga uniforme dintel cen
W	PLUS	7	1.000		Sobrecarga posicion lateral
X	PLUS	8	1.000		Sobrecarga solera
Y	PLUS	14	1.000		Empuje al reposo sob unif
Z	PLUS	16	1.000		Empuje al reposo sob. parcial

3.3. Cálculos y resultados (listados de ordenador)

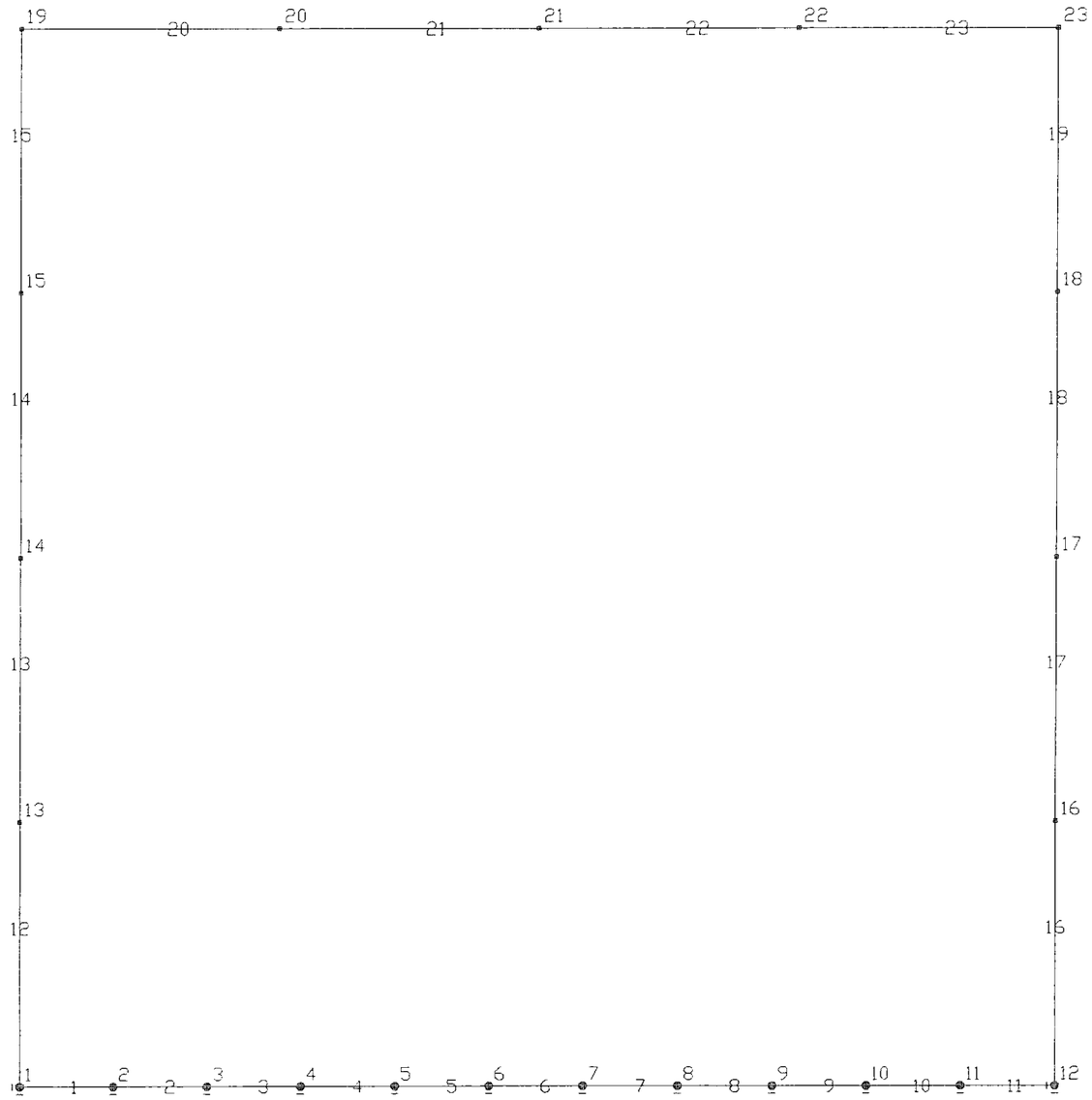
INDICE

3.3. Cálculos y resultados (listados de ordenador)

- **Cálculo del marco**
  - GEOMETRÍA y CARGAS
  - E.L.S. (Envolvente de reacciones)
  - E.L.U. (Envolvente de esfuerzos)

Geometría y Cargas

Scale 1 : 61.4
Structure - GEOMETRIA



Plane (2-D) frame -analysis

****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (23 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	0.00000	0.00000	0.00000	S	S F	
2	0.90909	0.00000	0.00000	F	S F	
3	1.81818	0.00000	0.00000	F	S F	
4	2.72727	0.00000	0.00000	F	S F	
5	3.63636	0.00000	0.00000	F	S F	
6	4.54545	0.00000	0.00000	F	S F	
7	5.45455	0.00000	0.00000	F	S F	
8	6.36364	0.00000	0.00000	F	S F	
9	7.27273	0.00000	0.00000	F	S F	
10	8.18182	0.00000	0.00000	F	S F	
11	9.09091	0.00000	0.00000	F	S F	
12	10.00000	0.00000	0.00000	S	S F	
13	0.00000	0.00000	2.53750			
14	0.00000	0.00000	5.07500			
15	0.00000	0.00000	7.61250			
16	10.00000	0.00000	2.53750			
17	10.00000	0.00000	5.07500			
18	10.00000	0.00000	7.61250			
19	0.00000	0.00000	10.15000			
20	2.50000	0.00000	10.15000			
21	5.00000	0.00000	10.15000			
22	7.50000	0.00000	10.15000			
23	10.00000	0.00000	10.15000			

ELASTICALLY SUPPORTED JOINTS: (*B*=Fixed *F*=Free)

Joint	V-X [KN/M]	V-Y [KN/M]	V-Z [KN/M]	R-X [KNM/ARC]	R-Y [KNM/ARC]	R-Z [KNM/ARC]
1	1.125E+04		1.125E+04		F	
2	F		1.250E+04		F	
3	F		1.250E+04		F	
4	F		1.250E+04		F	
5	F		1.250E+04		F	
6	F		1.250E+04		F	
7	F		1.250E+04		F	
8	F		1.250E+04		F	
9	F		1.250E+04		F	
10	F		1.250E+04		F	
11	F		1.250E+04		F	

Joint	V-X [KN/M]	V-Y [KN/M]	V-Z [KN/M]	R-X [KNM/ARC]	R-Y [KNM/ARC]	R-Z [KNM/ARC]
12	1.125E+04		1.125E+04		F	

B A R D A T A : (23 bars)

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	2	0.90909	ZAPATA			oS
2	2	3	0.90909	ZAPATA			oS
3	3	4	0.90909	ZAPATA			oS
4	4	5	0.90909	ZAPATA			oS
5	5	6	0.90909	ZAPATA			oS
6	6	7	0.90909	ZAPATA			oS
7	7	8	0.90909	ZAPATA			oS
8	8	9	0.90909	ZAPATA			oS
9	9	10	0.90909	ZAPATA			oS
10	10	11	0.90909	ZAPATA			oS
11	11	12	0.90909	ZAPATA			oS
12*	1	13	2.53750	HASTIAL			oS
13*	13	14	2.53750	HASTIAL			oS
14*	14	15	2.53750	HASTIAL			oS
15*	15	19	2.53750	HASTIAL			oS
16*	12	16	2.53750	HASTIAL			oS
17*	16	17	2.53750	HASTIAL			oS
18*	17	18	2.53750	HASTIAL			oS
19*	18	23	2.53750	HASTIAL			oS
20	19	20	2.50000	DINTEL			oS
21	20	21	2.50000	DINTEL			oS
22	21	22	2.50000	DINTEL			oS
23	22	23	2.50000	DINTEL			oS

Bars marked with "*" are vertical (except any excentricities).
The corresponding special definition for the default orientation
of the local coordinate system applies.

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] zl [M1]	Iy [M4] zu [M1]	Fz [M2]
DINTEL	1.1000E+00	1.1092E-01	9.1666E-01
	-0.5500	0.5500	
HASTIAL	1.0000E+00	8.3333E-02	8.3333E-01
	-0.5000	0.5000	
ZAPATA	1.2000E+00	1.4400E-01	1.0000E+00
	-0.6000	0.6000	

CS-Name	Ax [M2] zl [M1]	Iy [M4] zu [M1]	Fz [M2]

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [KN/ M2]	Shear-M [KN/ M2]
1 .. 23	3.0000E+07	1.2500E+07

STS-Run ok

Load case 1: Peso Propio

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Mas.forcZ gl const.	-25.000		Stab	1 .. 23

Load case 2: Cargas permanentes

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl const.	-23.000		Stab	1 .. 11
Force Z gl const.	-72.400		Stab	20 .. 23

Load case 3: Sobrecarga uniforme FLEXION

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl const.	-8.530	-8.530		
from...to	0	1.800	Stab	20
Force Z gl const.	-16.700	-16.700		
from...to	1.800	2.500	Stab	20
Force Z gl const.	-16.700		Stab	21 .. 22
Force Z gl const.	-8.530	-8.530		
from...to	0.700000	2.500	Stab	23
Force Z gl const.	-16.700	-16.700		
from...to	0	0.700000	Stab	23

Load case 4: Sob unif parcial dintel dcha

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl const.	-18.000		Stab	20 .. 21

Load case 5: Sob unif parcial dintel izqda

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl const.	-18.000		Stab	22 .. 23

Load case 6: Sobrecarga uniforme dintel cen

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl const.	-18.000		Stab	21 .. 22

Load case 7: Sobrecarga posicion lateral

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl const.	-18.000		Stab	23

Load case 8: Sobrecarga solera

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl const.	-4.000		Stab	1 .. 11

Load case 9: Empuje activo de tierras

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force X gl trapez.	90.100	73.350		
from...to	0	2.538	Stab	12
Force X gl trapez.	73.350	56.600		
from...to	0	2.538	Stab	13
Force X gl trapez.	56.600	39.850		
from...to	0	2.537	Stab	14
Force X gl trapez.	39.850	23.100		
from...to	0	2.538	Stab	15
Force X gl trapez.	-90.100	-73.350		
from...to	0	2.538	Stab	16
Force X gl trapez.	-73.350	-56.600		
from...to	0	2.538	Stab	17
Force X gl trapez.	-56.600	-39.850		
from...to	0	2.537	Stab	18
Force X gl trapez.	-39.850	-23.100		
from...to	0	2.538	Stab	19
Force Z gl const.	-70.000		Stab	20 .. 23

Load case 10: Empuje al reposo de tierras

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force X gl trapez.	136.500	111.125		
from...to	0	2.538	Stab	12
Force X gl trapez.	111.125	85.750		
from...to	0	2.538	Stab	13
Force X gl trapez.	85.750	60.375		
from...to	0	2.537	Stab	14
Force X gl trapez.	60.375	35.000		
from...to	0	2.538	Stab	15
Force X gl trapez.	-136.500	-111.125		
from...to	0	2.538	Stab	16
Force X gl trapez.	-111.125	-85.750		
from...to	0	2.538	Stab	17
Force X gl trapez.	-85.750	-60.375		
from...to	0	2.537	Stab	18
Force X gl trapez.	-60.375	-35.000		
from...to	0	2.538	Stab	19
Force Z gl const.	-70.000		Stab	20 .. 23

Load case 11: Empuje act/rep de tierras

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl trapez.	90.100	73.350		
		from...to	0	2.538	Stab	12
Force	X	gl trapez.	73.350	56.600		
		from...to	0	2.538	Stab	13
Force	X	gl trapez.	56.600	39.850		
		from...to	0	2.537	Stab	14
Force	X	gl trapez.	39.850	23.100		
		from...to	0	2.538	Stab	15
Force	X	gl trapez.	-136.500	-111.125		
		from...to	0	2.538	Stab	16
Force	X	gl trapez.	-111.125	-85.750		
		from...to	0	2.538	Stab	17
Force	X	gl trapez.	-85.750	-60.375		
		from...to	0	2.537	Stab	18
Force	X	gl trapez.	-60.375	-35.000		
		from...to	0	2.538	Stab	19
Force	Z	gl const.	-70.000		Stab	20 .. 23

Load case 12: Empuje al rep/act de tierras

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl trapez.	136.500	111.125		
		from...to	0	2.538	Stab	12
Force	X	gl trapez.	111.125	85.750		
		from...to	0	2.538	Stab	13
Force	X	gl trapez.	85.750	60.375		
		from...to	0	2.537	Stab	14
Force	X	gl trapez.	60.375	35.000		
		from...to	0	2.538	Stab	15
Force	X	gl trapez.	-90.100	-73.350		
		from...to	0	2.538	Stab	16
Force	X	gl trapez.	-73.350	-56.600		
		from...to	0	2.538	Stab	17
Force	X	gl trapez.	-56.600	-39.850		
		from...to	0	2.537	Stab	18
Force	X	gl trapez.	-39.850	-23.100		
		from...to	0	2.538	Stab	19
Force	Z	gl const.	-70.000		Stab	20 .. 23

Load case 13: Empuje activo debido a la sob

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl const.	6.000		Stab	12 .. 15

Load case 14: Empuje al reposo sob unif

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl const.	9.000		Stab	12 .. 15

Load case 15: Empuje activo debido a la sob

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl const.	-6.000		Stab	16 .. 19

Load case 16: Empuje al reposo sob. parcial

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl const.	-9.000		Stab	16 .. 19

Load case 17: Reologicas

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Strain	X	lo const.	-0.000250		Stab	20 .. 23

Load case 18: ACCIDENTAL : Choque

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl conc.	250.000	0.475000	Stab	17

ENVELOPE SPECIFIC.: BW ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	OR	11	1.000		Empuje act/rep de tierras
F	OR	12	1.000		Empuje al rep/act de tierras
G	PLUS	4	1.000		Sob unif parcial dintel dcha
H	PLUS	5	1.000		Sob unif parcial dintel izqda
I	PLUS	6	1.000		Sobrecarga uniforme dintel cen
J	PLUS	7	1.000		Sobrecarga posicion lateral
K	PLUS	8	1.000		Sobrecarga solera
L	PLUS	13	1.000		Empuje activo debido a la sob
M	PLUS	15	1.000		Empuje activo debido a la sob
ALTERNATIVE ENVELOPE :					
N	PERM.	1	1.000		Peso Propio
O	PL.PERM	2	1.000		Cargas permanentes
P	PL.PERM	17	1.000		Reologicas
Q	PL.PERM	10	1.000		Empuje al reposo de tierras
R	OR	11	1.000		Empuje act/rep de tierras
S	OR	12	1.000		Empuje al rep/act de tierras
T	PLUS	4	1.000		Sob unif parcial dintel dcha
U	PLUS	5	1.000		Sob unif parcial dintel izqda
V	PLUS	6	1.000		Sobrecarga uniforme dintel cen
W	PLUS	7	1.000		Sobrecarga posicion lateral
X	PLUS	8	1.000		Sobrecarga solera
Y	PLUS	14	1.000		Empuje al reposo sob unif
Z	PLUS	16	1.000		Empuje al reposo sob. parcial

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
1	-194.352	152.896		
	192.877	322.517		
	Min: N O P S U W Y			Max: N O P R T V X Z
2		180.610		
		331.458		
	Min: N O P S W Y			Max: N O P R T U V X Z
3		188.210		
		306.298		
	Min: N O P S W Y			Max: N O P R T U V X Z
4		195.200		
		283.645		
	Min: N O P S Y			Max: N O P R T U V W X Z
5		202.422		
		265.084		
	Min: N O P S Y			Max: N O P R T U V W X Z
6		211.780		
		250.316		
	Min: N O P S Y			Max: N O P R T U V W X Z
7		211.780		
		251.638		
	Min: N O P R Z			Max: N O P S T U V W X Y
8		202.422		
		269.063		
	Min: N O P R Z			Max: N O P S T U V W X Y
9		195.200		
		290.316		
	Min: N O P R Z			Max: N O P S T U V W X Y
10		189.047		
		314.876		
	Min: N O P R Z			Max: N O P S T U V W X Y
11		182.578		
		341.700		
	Min: N O P R Z			Max: N O P S T U V W X Y
12	194.351	155.691		
	-192.876	333.253		
	Min: N O P R T Z			Max: N O P S U V W X Y

La reacción máxima es de
341.70 KN /0.91 m = 37.5 t/m2< 1.25x30 t/m2=37.5 t/m2
Verifica

ESTADOS LIMITES ULTIMOS

ENVELOPE SPECIFIC.: BX ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	1.000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme FLEXION
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
ALTERNATIVE ENVELOPE :					
Q	PERM.	1	1.000		Peso Propio
R	OR	1	1.350		Peso Propio
S	PL.PERM	2	0.750000		Cargas permanentes
T	OR	2	1.350		Cargas permanentes
U	PL.PERM	17	1.000		Reologicas
V	OR	17	1.350		Reologicas
W	PL.PERM	10	1.000		Empuje al reposo de tierras
X	OR	10	1.500		Empuje al reposo de tierras
Y	OR	11	1.000		Empuje act/rep de tierras
Z	OR	11	1.500		Empuje act/rep de tierras
AA	OR	12	1.000		Empuje al rep/act de tierras
AB	OR	12	1.500		Empuje al rep/act de tierras
AC	PLUS	3	1.500		Sobrecarga uniforme FLEXION
AD	PLUS	8	1.500		Sobrecarga solera
AE	PLUS	14	1.500		Empuje al reposo sob unif
AF	PLUS	16	1.500		Empuje al reposo sob. parcial
ALTERNATIVE ENVELOPE :					
AG	PERM.	1	1.000		Peso Propio
AH	PL.PERM	2	1.000		Cargas permanentes
AI	PL.PERM	17	1.000		Reologicas
AJ	PL.PERM	9	1.000		Empuje activo de tierras
AK	OR	11	1.000		Empuje act/rep de tierras
AL	OR	12	1.000		Empuje al rep/act de tierras
AM	PLUS	4	1.000		Sob unif parcial dintel dcha
AN	PLUS	5	1.000		Sob unif parcial dintel izqda
AO	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AP	PLUS	7	1.000		Sobrecarga posicion lateral
AQ	PLUS	8	1.000		Sobrecarga solera
AR	PLUS	13	1.000		Empuje activo debido a la sob
AS	PLUS	15	1.000		Empuje activo debido a la sob
AT	PLUS	18	1.000		ACCIDENTAL : Choque
ALTERNATIVE ENVELOPE :					
AU	PERM.	1	1.000		Peso Propio

AV	PL.PERM	2	1.000	Cargas permanentes
AW	PL.PERM	17	1.000	Reologicas
AX	PL.PERM	10	1.000	Empuje al reposo de tierras
AY	OR	11	1.000	Empuje act/rep de tierras
AZ	OR	12	1.000	Empuje al rep/act de tierras
BA	PLUS	4	1.000	Sob unif parcial dintel dcha
BB	PLUS	5	1.000	Sob unif parcial dintel izqda
BC	PLUS	6	1.000	Sobrecarga uniforme dintel cen
BD	PLUS	7	1.000	Sobrecarga posicion lateral
BE	PLUS	8	1.000	Sobrecarga solera
BF	PLUS	14	1.000	Empuje al reposo sob unif
BG	PLUS	16	1.000	Empuje al reposo sob. parcial
BH	PLUS	18	1.000	ACCIDENTAL : Choque

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-888.187	-1064.551	1650.655	R S V X AE AF
		-261.638	-996.712	1224.355	AG AH AI AJ AM AN AO...
1	0.227	-888.187	-1077.676	1407.220	R S V X AE AF
		-261.638	-1009.666	996.357	AG AH AI AJ AM AN AO...
1	0.455	-888.187	-1090.801	1160.803	R S V X AE AF
		-261.638	-1022.621	765.415	AG AH AI AJ AM AN AO...
1	0.682	-888.187	-1103.926	911.402	R S V X AE AF
		-261.638	-1035.576	531.529	AG AH AI AJ AM AN AO...
1	0.909	-888.187	-1117.051	659.018	R S V X AE AF
		-261.638	-1048.530	294.699	AG AH AI AJ AM AN AO...
2	0	-888.187	-833.589	659.018	R S V X AE AF
		-261.638	-802.384	294.699	AG AH AI AJ AM AN AO...
2	0.227	-888.187	-846.714	468.075	R S V X AE AF
		-261.638	-815.338	110.867	AG AH AI AJ AM AN AO...
2	0.455	-888.187	-859.839	274.148	R S V X AE AF
		-261.638	-828.293	-75.909	AG AH AI AJ AM AN AO...
2	0.682	-888.187	-872.964	77.239	R S V X AE AF
		-261.638	-841.247	-265.629	AG AH AI AJ AM AN AO...
2	0.909	-888.187	-886.089	-122.654	R S V X AE AF
		-261.638	-854.202	-458.294	AG AH AI AJ AM AN AO...
3	0	-888.187	-609.877	-122.654	R S V X AE AF
		-261.638	-613.425	-458.294	AG AH AI AJ AM AN AO...
3	0.227	-888.187	-623.002	-262.754	R S V X AE AF
		-261.638	-626.380	-599.181	AG AH AI AJ AM AN AO...
3	0.455	-888.187	-636.127	-405.836	R S V X AE AF
		-261.638	-639.334	-743.012	AG AH AI AJ AM AN AO...
3	0.682	-888.187	-649.252	-551.902	R S V X AE AF
		-261.638	-652.289	-889.787	AG AH AI AJ AM AN AO...
3	0.909	-888.187	-662.377	-700.951	R S V X AE AF
		-261.638	-665.243	-1039.506	AG AH AI AJ AM AN AO...

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
4	0	-888.187	-393.211	-700.951	R S V X AE AF
		-261.638	-428.818	-1039.506	AG AH AI AJ AM AN AO...
4	0.227	-888.187	-406.336	-791.808	R S V X AE AF
		-261.638	-441.773	-1138.437	AG AH AI AJ AM AN AO...
4	0.455	-888.187	-419.461	-885.649	R S V X AE AF
		-261.638	-454.727	-1240.312	AG AH AI AJ AM AN AO...
4	0.682	-888.187	-432.586	-982.473	R S V X AE AF
		-261.638	-467.682	-1345.132	AG AH AI AJ AM AN AO...
4	0.909	-888.187	-445.711	-1082.279	R S V X AE AF
		-261.638	-480.636	-1452.895	AG AH AI AJ AM AN AO...
5	0	-888.187	-182.003	-1082.279	R S V X AE AF
		-261.638	-246.153	-1452.895	AG AH AI AJ AM AN AO...
5	0.227	-888.187	-195.128	-1125.135	R S V X AE AF
		-261.638	-259.108	-1510.311	AG AH AI AJ AM AN AO...
5	0.455	-888.187	-208.253	-1170.973	R S V X AE AF
		-261.638	-272.063	-1570.671	AG AH AI AJ AM AN AO...
5	0.682	-888.187	-221.378	-1219.795	R S V X AE AF
		-261.638	-285.017	-1633.976	AG AH AI AJ AM AN AO...
5	0.909	-888.187	-234.503	-1271.600	R S V X AE AF
		-261.638	-297.972	-1700.225	AG AH AI AJ AM AN AO...
6	0	-888.187	26.250	-1271.600	R S V X AE AF
		-261.638	-62.032	-1700.225	AG AH AI AJ AM AN AO...
6	0.227	-888.187	13.125	-1267.125	R S V X AE AF
		-261.638	-74.987	-1715.795	AG AH AI AJ AM AN AO...
6	0.455	-888.187	-4.11E-05	-1265.634	R S V X AE AF
		-261.638	-87.941	-1734.309	AG AH AI AJ AM AN AO...
6	0.682	-888.187	-13.125	-1267.125	R S V X AE AF
		-261.638	-100.896	-1755.768	AG AH AI AJ AM AN AO...
6	0.909	-888.187	-26.250	-1271.600	R S V X AE AF
		-261.638	-113.850	-1780.171	AG AH AI AJ AM AN AO...
7	0	-888.187	234.502	-1271.600	R S V X AE AF
		-261.638	127.536	-1780.171	AG AH AI AJ AM AN AO...
7	0.227	-888.187	221.377	-1219.795	R S V X AE AF
		-261.638	114.581	-1752.658	AG AH AI AJ AM AN AO...
7	0.455	-888.187	208.252	-1170.973	R S V X AE AF
		-261.638	101.626	-1728.089	AG AH AI AJ AM AN AO...
7	0.682	-888.187	195.127	-1125.135	R S V X AE AF
		-261.638	88.672	-1706.464	AG AH AI AJ AM AN AO...
7	0.909	-888.187	182.002	-1082.279	R S V X AE AF
		-261.638	75.717	-1687.783	AG AH AI AJ AM AN AO...
8	0	-888.187	445.711	-1082.279	R S V X AE AF
		-261.638	326.728	-1687.783	AG AH AI AJ AM AN AO...
8	0.227	-888.187	432.586	-982.473	R S V X AE AF
		-261.638	313.774	-1614.999	AG AH AI AJ AM AN AO...
8	0.455	-888.187	419.461	-885.649	R S V X AE AF
		-261.638	300.819	-1545.159	AG AH AI AJ AM AN AO...
8	0.682	-888.187	406.336	-791.809	R S V X AE AF

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-261.638	287.865	-1478.263	AG AH AI AJ AM AN AO...
8	0.909	-888.187	393.211	-700.951	R S V X AE AF
		-261.638	274.910	-1414.311	AG AH AI AJ AM AN AO...
9	0	-888.187	662.377	-700.951	R S V X AE AF
		-261.638	539.501	-1414.311	AG AH AI AJ AM AN AO...
9	0.227	-888.187	649.252	-551.902	R S V X AE AF
		-261.638	526.547	-1293.169	AG AH AI AJ AM AN AO...
9	0.455	-888.187	636.127	-405.837	R S V X AE AF
		-261.638	513.592	-1174.972	AG AH AI AJ AM AN AO...
9	0.682	-888.187	623.002	-262.754	R S V X AE AF
		-261.638	500.638	-1059.719	AG AH AI AJ AM AN AO...
9	0.909	-888.187	609.877	-122.654	R S V X AE AF
		-261.638	487.683	-947.409	AG AH AI AJ AM AN AO...
10	0	-888.187	886.089	-122.654	R S V X AE AF
		-261.638	769.149	-947.409	AG AH AI AJ AM AN AO...
10	0.227	-888.187	872.964	77.239	R S V X AE AF
		-261.638	756.195	-774.075	AG AH AI AJ AM AN AO...
10	0.455	-888.187	859.839	274.148	R S V X AE AF
		-261.638	743.240	-603.685	AG AH AI AJ AM AN AO...
10	0.682	-888.187	846.714	468.075	R S V X AE AF
		-261.638	730.286	-436.238	AG AH AI AJ AM AN AO...
10	0.909	-888.187	833.589	659.018	R S V X AE AF
		-261.638	717.331	-271.737	AG AH AI AJ AM AN AO...
11	0	-888.187	1117.051	659.018	R S V X AE AF
		-261.638	1017.846	-271.737	AG AH AI AJ AM AN AO...
11	0.227	-888.187	1103.926	911.402	R S V X AE AF
		-261.638	1004.891	-41.880	AG AH AI AJ AM AN AO...
11	0.455	-888.187	1090.801	1160.803	R S V X AE AF
		-261.638	991.937	185.032	AG AH AI AJ AM AN AO...
11	0.682	-888.187	1077.676	1407.220	R S V X AE AF
		-261.638	978.982	409.000	AG AH AI AJ AM AN AO...
11	0.909	-888.187	1064.551	1650.655	R S V X AE AF
		-261.638	966.027	630.024	AG AH AI AJ AM AN AO...
12	0	-1729.712	411.808	-766.236	R T U Z AC AF
		-947.930	710.887	-1715.898	Q S V AA AD AE
12	0.634	-1708.302	328.065	-531.768	R T U Z AC AF
		-932.070	617.743	-1294.686	Q S V AA AD AE
12	1.269	-1686.892	248.306	-349.161	R T U Z AC AF
		-916.211	528.623	-931.286	Q S V AA AD AE
12	1.903	-1665.481	172.532	-215.888	R T U Z AC AF
		-900.352	443.528	-623.144	Q S V AA AD AE
12	2.537	-1644.071	100.742	-129.419	R T U Z AC AF
		-884.492	362.456	-367.709	Q S V AA AD AE
13	0	-1644.071	100.742	-129.419	R T U Z AC AF
		-884.492	362.456	-367.709	Q S V AA AD AE
13	0.634	-1622.661	32.938	-87.228	R T U Z AC AF

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-868.633	285.410	-162.427	Q S V AA AD AE
13	1.269	-1601.251	-30.883	-86.787	R T U Z AC AF
		-852.774	212.387	-4.745	Q S V AA AD AE
13	1.903	-1579.841	-90.718	-125.568	R T U Z AC AF
		-836.914	143.389	107.890	Q S V AA AD AE
13	2.537	-1558.431	-146.569	-201.043	R T U Z AC AF
		-821.055	78.415	178.031	Q S V AA AD AE
14	0	-1558.431	-146.569	-201.043	R T U Z AC AF
		-821.055	78.415	178.031	Q S V AA AD AE
14	0.634	-1537.020	-198.435	-310.684	R T U Z AC AF
		-805.195	17.465	208.230	Q S V AA AD AE
14	1.269	-1515.610	-246.316	-451.965	R T U Z AC AF
		-789.336	-39.460	201.041	Q S V AA AD AE
14	1.903	-1494.200	-290.213	-622.356	R T U Z AC AF
		-773.477	-92.361	159.016	Q S V AA AD AE
14	2.537	-1472.790	-330.125	-819.330	R T U Z AC AF
		-757.617	-141.237	84.709	Q S V AA AD AE
15	0	-1472.790	-330.125	-819.330	R T U Z AC AF
		-757.617	-141.237	84.709	Q S V AA AD AE
15	0.634	-1451.380	-366.053	-1040.359	R T U Z AC AF
		-741.758	-186.090	-19.328	Q S V AA AD AE
15	1.269	-1429.970	-397.995	-1282.917	R T U Z AC AF
		-725.899	-226.918	-150.641	Q S V AA AD AE
15	1.903	-1408.560	-425.953	-1544.473	R T U Z AC AF
		-710.039	-263.721	-306.378	Q S V AA AD AE
15	2.537	-1387.149	-449.927	-1822.502	R T U Z AC AF
		-694.180	-296.501	-484.287	Q S V AA AD AE
16	0	-1729.712	-415.912	787.742	R T V AB AC AD AE
		-947.930	-706.783	1694.391	Q S U Y AF
16	0.634	-1708.302	-332.168	550.671	R T V AB AC AD AE
		-932.070	-613.639	1275.783	Q S U Y AF
16	1.269	-1686.892	-252.410	365.461	R T V AB AC AD AE
		-916.211	-524.519	914.986	Q S U Y AF
16	1.903	-1665.481	-176.636	229.584	R T V AB AC AD AE
		-900.352	-439.424	609.448	Q S U Y AF
16	2.537	-1644.071	-104.846	140.512	R T V AB AC AD AE
		-884.492	-358.353	356.616	Q S U Y AF
17	0	-1644.071	-104.846	140.512	R T V AB AC AD AE
		-884.492	-358.353	356.616	Q S U Y AF
17	0.634	-1622.661	-37.041	95.718	R T V AB AC AD AE
		-868.633	-281.306	153.937	Q S U Y AF
17	1.269	-1601.251	26.779	92.673	R T V AB AC AD AE
		-852.774	-208.283	-1.142	Q S U Y AF
17	1.903	-1579.841	86.614	128.851	R T V AB AC AD AE
		-836.914	-139.285	-111.173	Q S U Y AF
17	2.537	-1558.431	142.465	201.723	R T V AB AC AD AE
		-821.055	-74.311	-178.710	Q S U Y AF

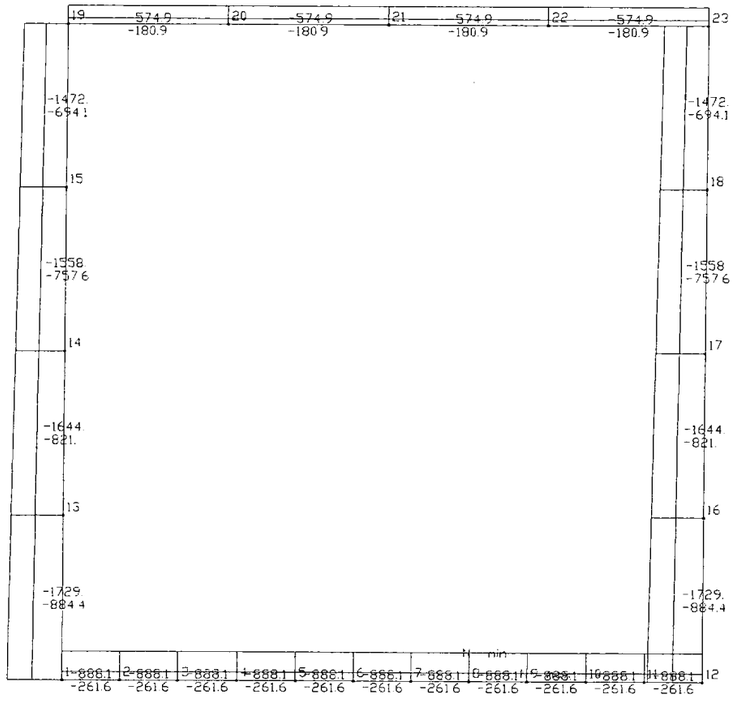
ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
18	0	-1558.431	142.465	201.723	R T V AB AC AD AE
		-821.055	-74.311	-178.710	Q S U Y AF
18	0.634	-1537.020	194.331	308.761	R T V AB AC AD AE
		-805.195	-13.362	-206.306	Q S U Y AF
18	1.269	-1515.610	242.213	447.438	R T V AB AC AD AE
		-789.336	43.564	-196.514	Q S U Y AF
18	1.903	-1494.200	286.109	615.225	R T V AB AC AD AE
		-773.477	96.465	-151.886	Q S U Y AF
18	2.537	-1472.790	326.021	809.596	R T V AB AC AD AE
		-757.617	145.341	-74.976	Q S U Y AF
19	0	-1472.790	326.021	809.596	R T V AB AC AD AE
		-757.617	145.341	-74.976	Q S U Y AF
19	0.634	-1451.380	361.949	1028.023	R T V AB AC AD AE
		-741.758	190.193	31.665	Q S U Y AF
19	1.269	-1429.970	393.892	1267.976	R T V AB AC AD AE
		-725.899	231.021	165.481	Q S U Y AF
19	1.903	-1408.560	421.850	1526.930	R T V AB AC AD AE
		-710.039	267.825	323.922	Q S U Y AF
19	2.537	-1387.149	445.823	1802.356	R T V AB AC AD AE
		-694.180	300.604	504.433	Q S U Y AF
20	0	-574.917	1254.391	-1505.474	Q T U X AC AD AE AF
		-180.977	838.770	-673.982	AG AH AI AJ AP AT
20	0.625	-574.917	1102.494	-768.948	Q T U X AC AD AE AF
		-180.977	732.582	-182.935	AG AH AI AJ AP AT
20	1.250	-574.917	950.597	-127.356	Q T U X AC AD AE AF
		-180.977	626.395	241.746	AG AH AI AJ AP AT
20	1.875	-574.917	797.781	419.265	Q T U X AC AD AE AF
		-180.977	520.207	600.059	AG AH AI AJ AP AT
20	2.500	-574.917	638.225	868.016	Q T U X AC AD AE AF
		-180.977	414.020	892.005	AG AH AI AJ AP AT
21	0	-574.917	638.225	868.017	Q T U X AC AD AE AF
		-180.977	414.020	892.005	AG AH AI AJ AP AT
21	0.625	-574.917	478.669	1217.046	Q T U X AC AD AE AF
		-180.977	307.832	1117.584	AG AH AI AJ AP AT
21	1.250	-574.917	319.113	1466.352	Q T U X AC AD AE AF
		-180.977	201.645	1276.795	AG AH AI AJ AP AT
21	1.875	-574.917	159.556	1615.936	Q T U X AC AD AE AF
		-180.977	95.457	1369.640	AG AH AI AJ AP AT
21	2.500	-574.917	6.39E-06	1665.798	Q T U X AC AD AE AF
		-180.977	-10.730	1396.117	AG AH AI AJ AP AT
22	0	-574.917	-6.38E-06	1665.798	Q T U X AC AD AE AF
		-180.977	-10.730	1396.117	AG AH AI AJ AP AT
22	0.625	-574.917	-159.556	1615.936	Q T U X AC AD AE AF
		-180.977	-116.918	1356.227	AG AH AI AJ AP AT
22	1.250	-574.917	-319.112	1466.352	Q T U X AC AD AE AF
		-180.977	-223.105	1249.970	AG AH AI AJ AP AT

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
22	1.875	-574.917	-478.669	1217.046	Q T U X AC AD AE AF
		-180.977	-329.293	1077.346	AG AH AI AJ AP AT
22	2.500	-574.917	-638.225	868.017	Q T U X AC AD AE AF
		-180.977	-435.480	838.355	AG AH AI AJ AP AT
23	0	-574.917	-638.225	868.016	Q T U X AC AD AE AF
		-180.977	-435.480	838.355	AG AH AI AJ AP AT
23	0.625	-574.917	-797.781	419.265	Q T U X AC AD AE AF
		-180.977	-552.918	529.480	AG AH AI AJ AP AT
23	1.250	-574.917	-950.597	-127.356	Q T U X AC AD AE AF
		-180.977	-670.355	147.208	AG AH AI AJ AP AT
23	1.875	-574.917	-1102.494	-768.948	Q T U X AC AD AE AF
		-180.977	-787.793	-308.464	AG AH AI AJ AP AT
23	2.500	-574.917	-1254.391	-1505.474	Q T U X AC AD AE AF
		-180.977	-905.230	-837.533	AG AH AI AJ AP AT

Scale 1 : 66.7
Int. Forces envelope N , GWSP BX, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Normal force N-min, Scale 5.00E-04
  min: -1.73E+03 max: -5.75E+02 [kN]
- Envelope Normal force N-max, Scale 5.00E-04
  min: -9.48E+02 max: -1.81E+02 [kN]
- Text envelopes [kN]



ENVELOPE SPECIFIC.: BX ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	1.000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme FLEXION
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
ALTERNATIVE ENVELOPE :					
Q	PERM.	1	1.000		Peso Propio
R	OR	1	1.350		Peso Propio
S	PL.PERM	2	0.750000		Cargas permanentes
T	OR	2	1.350		Cargas permanentes
U	PL.PERM	17	1.000		Reologicas
V	OR	17	1.350		Reologicas
W	PL.PERM	10	1.000		Empuje al reposo de tierras
X	OR	10	1.500		Empuje al reposo de tierras
Y	OR	11	1.000		Empuje act/rep de tierras
Z	OR	11	1.500		Empuje act/rep de tierras
AA	OR	12	1.000		Empuje al rep/act de tierras
AB	OR	12	1.500		Empuje al rep/act de tierras
AC	PLUS	3	1.500		Sobrecarga uniforme FLEXION
AD	PLUS	8	1.500		Sobrecarga solera
AE	PLUS	14	1.500		Empuje al reposo sob unif
AF	PLUS	16	1.500		Empuje al reposo sob. parcial
ALTERNATIVE ENVELOPE :					
AG	PERM.	1	1.000		Peso Propio
AH	PL.PERM	2	1.000		Cargas permanentes
AI	PL.PERM	17	1.000		Reologicas
AJ	PL.PERM	9	1.000		Empuje activo de tierras
AK	OR	11	1.000		Empuje act/rep de tierras
AL	OR	12	1.000		Empuje al rep/act de tierras
AM	PLUS	4	1.000		Sob unif parcial dintel dcha
AN	PLUS	5	1.000		Sob unif parcial dintel izqda
AO	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AP	PLUS	7	1.000		Sobrecarga posicion lateral
AQ	PLUS	8	1.000		Sobrecarga solera
AR	PLUS	13	1.000		Empuje activo debido a la sob
AS	PLUS	15	1.000		Empuje activo debido a la sob
AT	PLUS	18	1.000		ACCIDENTAL : Choque
ALTERNATIVE ENVELOPE :					
AU	PERM.	1	1.000		Peso Propio

AV	PL.PERM	2	1.000		Cargas permanentes
AW	PL.PERM	17	1.000		Reologicas
AX	PL.PERM	10	1.000		Empuje al reposo de tierras
AY	OR	11	1.000		Empuje act/rep de tierras
AZ	OR	12	1.000		Empuje al rep/act de tierras
BA	PLUS	4	1.000		Sob unif parcial dintel dcha
BB	PLUS	5	1.000		Sob unif parcial dintel izqda
BC	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BD	PLUS	7	1.000		Sobrecarga posicion lateral
BE	PLUS	8	1.000		Sobrecarga solera
BF	PLUS	14	1.000		Empuje al reposo sob unif
BG	PLUS	16	1.000		Empuje al reposo sob. parcial
BH	PLUS	18	1.000		ACCIDENTAL : Choque

ENVELOPE for < Vz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-705.442	-1332.734	2446.629	R T V AB AC AE
		-489.354	-789.851	440.053	Q S U Y AD AF
1	0.227	-705.442	-1348.995	2141.887	R T V AB AC AE
		-489.354	-801.953	259.167	Q S U Y AD AF
1	0.455	-705.442	-1365.256	1833.450	R T V AB AC AE
		-489.354	-814.055	75.529	Q S U Y AD AF
1	0.682	-705.442	-1381.518	1521.316	R T V AB AC AE
		-489.354	-826.157	-110.858	Q S U Y AD AF
1	0.909	-705.227	-1398.707	1205.349	R T V AB AC AD AE
		-489.569	-837.332	-299.858	Q S U Y AF
2	0	-705.442	-1132.204	1205.487	R T V AB AC AE
		-489.354	-543.423	-299.997	Q S U Y AD AF
2	0.227	-705.442	-1148.466	946.320	R T V AB AC AE
		-489.354	-555.525	-424.877	Q S U Y AD AF
2	0.455	-705.442	-1164.727	683.457	R T V AB AC AE
		-489.354	-567.627	-552.508	Q S U Y AD AF
2	0.682	-705.442	-1180.989	416.899	R T V AB AC AE
		-489.354	-579.729	-682.890	Q S U Y AD AF
2	0.909	-705.227	-1198.578	147.778	R T V AB AC AD AE
		-489.569	-590.504	-817.155	Q S U Y AF
3	0	-705.442	-922.081	146.644	R T V AB AC AE
		-489.354	-321.227	-816.022	Q S U Y AD AF
3	0.227	-705.442	-938.342	-64.767	R T V AB AC AE
		-489.354	-333.329	-890.403	Q S U Y AD AF

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
3	0.455	-705.442	-954.604	-279.874	R T V AB AC AE
		-489.354	-345.431	-967.534	Q S U Y AD AF
3	0.682	-705.227	-971.204	-496.381	R T V AB AC AD AE
		-489.569	-357.194	-1049.714	Q S U Y AF
3	0.909	-705.227	-988.829	-719.112	R T V AB AC AD AE
		-489.569	-367.933	-1132.114	Q S U Y AF
4	0	-705.442	-702.802	-721.176	R T V AB AC AE
		-489.354	-121.400	-1130.050	Q S U Y AD AF
4	0.227	-705.442	-719.063	-882.752	R T V AB AC AE
		-489.354	-133.503	-1159.016	Q S U Y AD AF
4	0.455	-705.442	-735.324	-1048.023	R T V AB AC AE
		-489.354	-145.605	-1190.733	Q S U Y AD AF
4	0.682	-705.227	-752.279	-1214.004	R T V AB AC AD AE
		-489.569	-157.013	-1228.186	Q S U Y AF
4	0.909	-705.227	-769.904	-1386.980	R T V AB AC AD AE
		-489.569	-167.752	-1265.092	Q S U Y AF
5	0	-705.442	-472.733	-1389.654	R T V AB AC AE
		-706.276	90.955	-1419.486	Q S U Z AD AF
5	0.227	-705.442	-488.995	-1498.941	R T V AB AC AE
		-706.276	78.852	-1400.189	Q S U Z AD AF
5	0.455	-705.442	-505.256	-1611.924	R T V AB AC AE
		-706.276	66.750	-1383.644	Q S U Z AD AF
5	0.682	-705.227	-522.550	-1725.238	R T V AB AC AD AE
		-706.491	55.681	-1373.213	Q S U Z AF
5	0.909	-705.227	-540.175	-1846.002	R T V AB AC AD AE
		-706.491	44.942	-1361.779	Q S U Z AF
6	0	-377.696	-252.323	-1471.807	AU AV AW AZ BB BC BD...
		-705.336	296.420	-1926.692	R T U Z AD AF
6	0.227	-377.696	-264.368	-1530.522	AU AV AW AZ BB BC BD...
		-705.336	278.795	-1861.326	R T U Z AD AF
6	0.455	-377.553	-276.413	-1589.578	AU AV AW AZ BB BC BD...
		-706.491	261.170	-1238.184	Q S U Z AF
6	0.682	-377.553	-289.368	-1653.872	AU AV AW AZ BB BC BD...
		-706.491	250.431	-1180.047	Q S U Z AF
6	0.909	-377.553	-302.323	-1721.109	AU AV AW AZ BB BC BD...
		-706.491	239.693	-1124.351	Q S U Z AF
7	0	-381.015	-63.457	-1642.865	AU AV AW AZ BB BD BF...
		-705.227	540.175	-1846.002	R T V Z AC AD AF
7	0.227	-381.015	-75.502	-1658.656	AU AV AW AZ BB BD BF...
		-705.227	522.550	-1725.238	R T V Z AC AD AF
7	0.455	-380.871	-87.768	-1674.888	AU AV AW AZ BB BD BE...
		-705.442	505.256	-1611.924	R T V Z AC AF
7	0.682	-380.871	-100.723	-1696.307	AU AV AW AZ BB BD BE...
		-705.442	488.994	-1498.941	R T V Z AC AF
7	0.909	-380.871	-113.677	-1720.671	AU AV AW AZ BB BD BE...
		-705.442	472.733	-1389.654	R T V Z AC AF

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
8	0	-382.025	137.658	-1600.980	AU AV AW AZ BF BH
		-705.227	769.904	-1386.980	R T V Z AC AD AF
8	0.227	-382.025	125.613	-1571.063	AU AV AW AZ BF BH
		-705.227	752.279	-1214.004	R T V Z AC AD AF
8	0.455	-381.882	113.120	-1541.890	AU AV AW AZ BE BF BH
		-705.442	735.324	-1048.024	R T V Z AC AF
8	0.682	-381.882	100.166	-1517.653	AU AV AW AZ BE BF BH
		-705.442	719.063	-882.753	R T V Z AC AF
8	0.909	-381.882	87.211	-1496.360	AU AV AW AZ BE BF BH
		-705.442	702.802	-721.177	R T V Z AC AF
9	0	-382.025	361.081	-1497.737	AU AV AW AZ BF BH
		-705.227	988.829	-719.112	R T V Z AC AD AF
9	0.227	-382.025	349.036	-1417.042	AU AV AW AZ BF BH
		-705.227	971.204	-496.381	R T V Z AC AD AF
9	0.455	-381.882	336.308	-1337.605	AU AV AW AZ BE BF BH
		-705.442	954.604	-279.875	R T V Z AC AF
9	0.682	-381.882	323.353	-1262.643	AU AV AW AZ BE BF BH
		-705.442	938.342	-64.767	R T V Z AC AF
9	0.909	-381.882	310.398	-1190.626	AU AV AW AZ BE BF BH
		-705.442	922.081	146.644	R T V Z AC AF
10	0	-489.569	590.504	-817.155	Q S U AA AE
		-705.227	1198.578	147.778	R T V Z AC AD AF
10	0.227	-489.354	579.729	-682.890	Q S U AA AD AE
		-705.442	1180.989	416.899	R T V Z AC AF
10	0.455	-489.354	567.627	-552.508	Q S U AA AD AE
		-705.442	1164.727	683.457	R T V Z AC AF
10	0.682	-489.354	555.525	-424.877	Q S U AA AD AE
		-705.442	1148.466	946.320	R T V Z AC AF
10	0.909	-489.354	543.423	-299.997	Q S U AA AD AE
		-705.442	1132.204	1205.487	R T V Z AC AF
11	0	-489.569	837.332	-299.858	Q S U AA AE
		-705.227	1398.707	1205.349	R T V Z AC AD AF
11	0.227	-489.354	826.157	-110.859	Q S U AA AD AE
		-705.442	1381.518	1521.316	R T V Z AC AF
11	0.455	-489.354	814.055	75.529	Q S U AA AD AE
		-705.442	1365.256	1833.450	R T V Z AC AF
11	0.682	-489.354	801.953	259.167	Q S U AA AD AE
		-705.442	1348.995	2141.887	R T V Z AC AF
11	0.909	-489.354	789.851	440.053	Q S U AA AD AE
		-705.442	1332.733	2446.629	R T V Z AC AF
12	0	-1397.961	262.291	-581.931	Q T U Y AC AD AF
		-1240.054	1008.340	-2304.751	R S V AB AE
12	0.634	-1382.102	206.462	-433.389	Q T U Y AC AD AF
		-1218.644	872.906	-1708.363	R S V AB AE
12	1.269	-1366.242	153.289	-319.421	Q T U Y AC AD AF
		-1197.234	743.509	-1195.975	R S V AB AE
12	1.903	-1350.383	102.773	-238.342	Q T U Y AC AD AF

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-1175.824	620.147	-763.760	R S V AB AE
12	2.537	-1334.524	54.914	-188.466	Q T U Y AC AD AF
		-1154.413	502.823	-407.887	R S V AB AE
13	0	-1334.524	54.914	-188.466	Q T U Y AC AD AF
		-1154.413	502.823	-407.887	R S V AB AE
13	0.634	-1318.664	9.710	-168.108	Q T U Y AC AD AF
		-1133.003	391.535	-124.527	R S V AB AE
13	1.269	-1497.618	-37.107	-25.234	Q T U Z AC AD AF
		-1111.593	286.283	90.149	R S V AB AE
13	1.903	-1481.759	-96.943	-67.964	Q T U Z AC AD AF
		-1090.183	187.068	239.971	R S V AB AE
13	2.537	-1465.899	-152.793	-147.388	Q T U Z AC AD AF
		-1068.773	93.889	328.768	R S V AB AE
14	0	-1465.899	-152.793	-147.388	Q T U Z AC AD AF
		-1068.773	93.889	328.768	R S V AB AE
14	0.634	-1450.040	-204.659	-260.978	Q T U Z AC AD AF
		-893.363	33.829	98.143	AU AV AW AZ BD BF BH
14	1.269	-1434.181	-252.541	-406.207	Q T U Z AC AD AF
		-877.504	-20.241	102.240	AU AV AW AZ BD BF BH
14	1.903	-1358.882	-299.416	-226.214	Q T U X AC AD AF
		-861.645	-70.288	73.312	AU AV AW AZ BD BF BH
14	2.537	-1343.022	-359.884	-435.654	Q T U X AC AD AF
		-891.010	-100.783	-246.786	AG AH AI AJ AP AR AT
15	0	-1343.022	-359.884	-435.654	Q T U X AC AD AF
		-891.010	-100.783	-246.786	AG AH AI AJ AP AR AT
15	0.634	-1301.969	-422.146	-548.090	Q T U X AC AD AE AF
		-886.348	-125.061	-378.976	AG AH AI AJ AP AT
15	1.269	-1286.110	-479.106	-834.275	Q T U X AC AD AE AF
		-870.489	-146.356	-465.207	AG AH AI AJ AP AT
15	1.903	-1270.250	-530.030	-1154.680	Q T U X AC AD AE AF
		-854.629	-164.995	-564.104	AG AH AI AJ AP AT
15	2.537	-1254.391	-574.917	-1505.474	Q T U X AC AD AE AF
		-838.770	-180.977	-673.982	AG AH AI AJ AP AT
16	0	-1240.054	-1008.340	2304.751	R S V Z AF
		-1310.552	-57.870	193.960	AU AV AW AZ BA BB BC...
16	0.634	-1218.644	-872.906	1708.363	R S V Z AF
		-1294.692	-2.041	175.098	AU AV AW AZ BA BB BC...
16	1.269	-1197.234	-743.509	1195.975	R S V Z AF
		-1278.833	51.132	190.809	AU AV AW AZ BA BB BC...
16	1.903	-1175.824	-620.147	763.760	R S V Z AF
		-1262.974	101.648	239.410	AU AV AW AZ BA BB BC...
16	2.537	-1154.413	-502.823	407.887	R S V Z AF
		-1247.114	149.508	319.213	AU AV AW AZ BA BB BC...
17	0	-1154.413	-502.823	407.887	R S V Z AF
		-1247.114	149.508	319.213	AU AV AW AZ BA BB BC...
17	0.634	-1133.003	-391.535	124.527	R S V Z AF

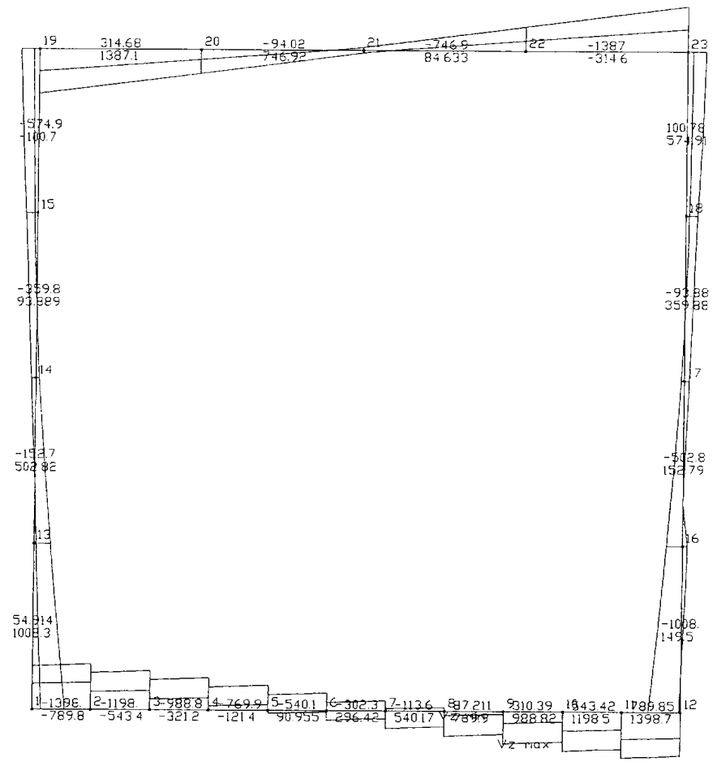
ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-1318.664	-9.710	168.108	Q T U AA AC AD AE
17	1.269	-1111.593	-286.283	-90.149	R S V Z AF
		-1497.618	37.107	25.234	Q T U AB AC AD AE
17	1.903	-1090.183	-187.068	-239.971	R S V Z AF
		-1481.759	96.943	67.964	Q T U AB AC AD AE
17	2.537	-1068.773	-93.889	-328.768	R S V Z AF
		-1465.899	152.793	147.388	Q T U AB AC AD AE
18	0	-1068.773	-93.889	-328.768	R S V Z AF
		-1465.899	152.793	147.388	Q T U AB AC AD AE
18	0.634	-959.823	-33.829	65.408	AU AV AW AY BD BG BH
		-1450.040	204.659	260.978	Q T U AB AC AD AE
18	1.269	-943.964	20.241	61.311	AU AV AW AY BD BG BH
		-1434.181	252.541	406.207	Q T U AB AC AD AE
18	1.903	-928.105	70.288	90.238	AU AV AW AY BD BG BH
		-1358.862	299.416	226.214	Q T U X AC AD AE
18	2.537	-957.470	100.783	410.336	AG AH AI AJ AP AS AT
		-1343.022	359.884	435.654	Q T U X AC AD AE
19	0	-957.470	100.783	410.336	AG AH AI AJ AP AS AT
		-1343.022	359.884	435.654	Q T U X AC AD AE
19	0.634	-952.808	125.061	542.527	AG AH AI AJ AP AT
		-1301.969	422.146	548.090	Q T U X AC AD AE AF
19	1.269	-936.949	146.356	628.757	AG AH AI AJ AP AT
		-1286.110	479.106	834.275	Q T U X AC AD AE AF
19	1.903	-921.089	164.995	727.655	AG AH AI AJ AP AT
		-1270.250	530.030	1154.680	Q T U X AC AD AE AF
19	2.537	-905.230	180.977	837.533	AG AH AI AJ AP AT
		-1254.391	574.917	1505.474	Q T U X AC AD AE AF
20	0	-296.501	694.180	-484.287	Q S V AA AD AE
		-449.927	1387.149	-1822.502	R T U Z AC AF
20	0.625	-296.501	599.305	-80.073	Q S V AA AD AE
		-449.927	1229.237	-1004.882	R T U Z AC AF
20	1.250	-296.501	504.430	264.844	Q S V AA AD AE
		-449.927	1071.324	-285.956	R T U Z AC AF
20	1.875	-296.501	409.555	550.465	Q S V AA AD AE
		-449.927	912.493	334.239	R T U Z AC AF
20	2.500	-296.501	314.680	776.788	Q S V AA AD AE
		-449.927	746.921	852.806	R T U Z AC AF
21	0	-296.501	314.680	776.788	Q S V AA AD AE
		-449.927	746.921	852.806	R T U Z AC AF
21	0.625	-296.501	219.805	943.815	Q S V AA AD AE
		-449.927	581.349	1267.890	R T U Z AC AF
21	1.250	-296.501	124.930	1051.544	Q S V AA AD AE
		-449.927	415.777	1579.492	R T U Z AC AF
21	1.875	-261.960	23.412	1391.661	AU AV AW AZ BA BE BF...
		-449.927	250.205	1787.612	R T U Z AC AF
21	2.500	-261.960	-94.025	1369.594	AU AV AW AZ BA BE BF...
		-449.927	84.633	1892.249	R T U Z AC AF

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
22	0	-265.283	-94.025	1488.044	AU AV AW AZ BA BC BE...
		-444.557	84.633	1215.520	Q S U Z AF
22	0.625	-445.823	-250.205	1807.759	R T V AB AC AD AE
		-300.604	-30.055	1079.830	Q S U Y AF
22	1.250	-445.823	-415.777	1599.639	R T V AB AC AD AE
		-300.604	-124.930	1031.397	Q S U Y AF
22	1.875	-445.823	-581.349	1288.037	R T V AB AC AD AE
		-300.604	-219.805	923.668	Q S U Y AF
22	2.500	-445.823	-746.921	872.953	R T V AB AC AD AE
		-300.604	-314.680	756.641	Q S U Y AF
23	0	-445.823	-746.921	872.953	R T V AB AC AD AE
		-300.604	-314.680	756.641	Q S U Y AF
23	0.625	-445.823	-912.493	354.386	R T V AB AC AD AE
		-300.604	-409.555	530.318	Q S U Y AF
23	1.250	-445.823	-1071.324	-265.809	R T V AB AC AD AE
		-300.604	-504.430	244.698	Q S U Y AF
23	1.875	-445.823	-1229.237	-984.735	R T V AB AC AD AE
		-300.604	-599.305	-100.220	Q S U Y AF
23	2.500	-445.823	-1387.149	-1802.356	R T V AB AC AD AE
		-300.604	-694.180	-504.433	Q S U Y AF

Scale 1 : 649
Int. Forces envelope Vz, GWSP BX, Subsys. "LIST"
- Structure: Elmnts
- Envelope Shear force Vz-min, Scale 5.00E-04
  min: -1.40E+03 max: 8.37E+02 [kN]
- Envelope Shear force Vz-max, Scale 5.00E-04
  min: -8.37E+02 max: 1.40E+03 [kN]
- Text envelopes [kN]



CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título: E-4 SECCION: EMPOTRAMIENTO DINTEL- HASTIAL
Fecha: 15/5/02 13.00.54

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 100 cm, alto 110 cm y canto 107 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 138.8 T
Cortante reducido a un canto útil del borde del apoyo = 100.13 T
Axil de cálculo (Tracciones positivas) = -44.95 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 46.133 cm2 lo que implica una cuantía geométrica igual a 0.00431
Inclinación de bielas de compresión 43°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 138.8 T < Vu1 = 640.44 T
Es necesario disponer armadura a cortante al ser Vrd = 100.13 T > Vu2 = 50.74 T
Valores de las tensiones: Eje X = -4.09 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 43.15°
Vcu = 43.15 T. Vsu= 56.98 T.
As cálculo = 13.79 cm2/m. As mínima = 10.00 cm2/m
Mínimo de armadura a disponer = 13.79 cm2/m

CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título: E-4 SECCION: EMPOTRAMIENTO SOLERA-HASTIAL
Fecha: 15/5/02 12.46.08

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 100 cm, alto 120 cm y canto 117 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 139.87 T
Cortante reducido a un canto útil del borde del apoyo = 116.5 T
Axil de cálculo (Tracciones positivas) = -99.7 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 41.86 cm2 lo que implica una cuantía geométrica igual a 0.00358
Inclinación de bielas de compresión 43°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 139.87 T < Vu1 = 700.29 T
Es necesario disponer armadura a cortante al ser Vrd = 116.50 T > Vu2 = 59.55 T
Valores de las tensiones: Eje X = -8.31 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 41.46°
Vcu = 47.20 T. Vsu= 69.30 T.
As cálculo = 15.34 cm2/m. As mínima = 10.00 cm2/m
Mínimo de armadura a disponer = 15.34 cm2/m

CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título: E-4 SECCION: EMPOTRAMIENTO INF HASTIAL
Fecha: 15/5/02 12.52.50

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 100 cm, alto 100 cm y canto 97 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 100.9 T
Cortante reducido a un canto útil del borde del apoyo = 74.4 T
Axil de cálculo (Tracciones positivas) = -119.72 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 34.33 cm2 lo que implica una cuantía geométrica igual a 0.00354
Inclinación de bielas de compresión 43°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 100.9 T < Vu1 = 580.58 T
Es necesario disponer armadura a cortante al ser Vrd = 74.40 T > Vu2 = 55.73 T
Valores de las tensiones: Eje X = -11.97 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 40.15°
Vcu = 41.26 T. Vsu= 33.14 T.
As cálculo = 8.85 cm2/m. As mínima = 10.00 cm2/m
Mínimo de armadura a disponer = 10.00 cm2/m

CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título: E-4 SECCION: EMPOTRAMIENTO SUP HASTIAL
Fecha: 15/5/02 12.56.16

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 100 cm, alto 100 cm y canto 97 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 57.43 T
Cortante reducido a un canto útil del borde del apoyo = 47.85 T
Axil de cálculo (Tracciones positivas) = -125.6 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 46.133 cm2 lo que implica una cuantía geométrica igual a 0.00476
Inclinación de bielas de compresión 45°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 57.43 T < Vu1 = 582.00 T
No es necesaria disponer armadura a cortante al ser Vrd = 47.85 T < Vu2 = 60.54 T

ENVELOPE SPECIFIC.: BX ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	1.000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme FLEXION
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
ALTERNATIVE ENVELOPE :					
Q	PERM.	1	1.000		Peso Propio
R	OR	1	1.350		Peso Propio
S	PL.PERM	2	0.750000		Cargas permanentes
T	OR	2	1.350		Cargas permanentes
U	PL.PERM	17	1.000		Reologicas
V	OR	17	1.350		Reologicas
W	PL.PERM	10	1.000		Empuje al reposo de tierras
X	OR	10	1.500		Empuje al reposo de tierras
Y	OR	11	1.000		Empuje act/rep de tierras
Z	OR	11	1.500		Empuje act/rep de tierras
AA	OR	12	1.000		Empuje al rep/act de tierras
AB	OR	12	1.500		Empuje al rep/act de tierras
AC	PLUS	3	1.500		Sobrecarga uniforme FLEXION
AD	PLUS	8	1.500		Sobrecarga solera
AE	PLUS	14	1.500		Empuje al reposo sob unif
AF	PLUS	16	1.500		Empuje al reposo sob. parcial
ALTERNATIVE ENVELOPE :					
AG	PERM.	1	1.000		Peso Propio
AH	PL.PERM	2	1.000		Cargas permanentes
AI	PL.PERM	17	1.000		Reologicas
AJ	PL.PERM	9	1.000		Empuje activo de tierras
AK	OR	11	1.000		Empuje act/rep de tierras
AL	OR	12	1.000		Empuje al rep/act de tierras
AM	PLUS	4	1.000		Sob unif parcial dintel dcha
AN	PLUS	5	1.000		Sob unif parcial dintel izqda
AO	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AP	PLUS	7	1.000		Sobrecarga posicion lateral
AQ	PLUS	8	1.000		Sobrecarga solera
AR	PLUS	13	1.000		Empuje activo debido a la sob
AS	PLUS	15	1.000		Empuje activo debido a la sob
AT	PLUS	18	1.000		ACCIDENTAL : Choque
ALTERNATIVE ENVELOPE :					
AU	PERM.	1	1.000		Peso Propio

AV	PL.PERM	2	1.000		Cargas permanentes
AW	PL.PERM	17	1.000		Reologicas
AX	PL.PERM	10	1.000		Empuje al reposo de tierras
AY	OR	11	1.000		Empuje act/rep de tierras
AZ	OR	12	1.000		Empuje al rep/act de tierras
BA	PLUS	4	1.000		Sob unif parcial dintel dcha
BB	PLUS	5	1.000		Sob unif parcial dintel izqda
BC	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BD	PLUS	7	1.000		Sobrecarga posicion lateral
BE	PLUS	8	1.000		Sobrecarga solera
BF	PLUS	14	1.000		Empuje al reposo sob unif
BG	PLUS	16	1.000		Empuje al reposo sob. parcial
BH	PLUS	18	1.000		ACCIDENTAL : Choque

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-489.354	-789.851	440.053	Q S U Y AD AF
		-705.442	-1332.734	2446.629	R T V AB AC AE
1	0.227	-489.354	-801.953	259.167	Q S U Y AD AF
		-705.442	-1348.995	2141.887	R T V AB AC AE
1	0.455	-489.354	-814.055	75.529	Q S U Y AD AF
		-705.442	-1365.256	1833.450	R T V AB AC AE
1	0.682	-477.993	-1088.377	-144.559	Q T U Y AC AD AF
		-716.803	-1119.298	1555.017	R S V AB AE
1	0.909	-700.914	-1361.038	-440.800	R T U Z AC AD AF
		-710.804	-1017.846	1315.491	Q S V AB AE
2	0	-700.914	-909.400	-440.800	R T U Z AC AD AF
		-710.804	-857.057	1315.491	Q S V AB AE
2	0.227	-701.129	-929.788	-650.129	R T U Z AC AF
		-710.589	-865.033	1120.130	Q S V AB AD AE
2	0.455	-701.129	-946.050	-863.292	R T U Z AC AF
		-710.589	-877.135	922.156	Q S V AB AD AE
2	0.682	-701.129	-962.311	-1080.152	R T U Z AC AF
		-710.589	-889.238	721.432	Q S V AB AD AE

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
2	0.909	-701.129	-978.573	-1300.707	R T U Z AC AF
		-710.589	-901.340	517.957	Q S V AB AD AE
3	0	-701.129	-567.446	-1300.707	R T U Z AC AF
		-710.589	-720.354	517.957	Q S V AB AD AE
3	0.227	-701.129	-583.707	-1431.519	R T U Z AC AF
		-710.589	-732.456	352.865	Q S V AB AD AE
3	0.455	-701.129	-599.969	-1566.028	R T U Z AC AF
		-710.589	-744.558	185.023	Q S V AB AD AE
3	0.682	-701.129	-616.230	-1704.232	R T U Z AC AF
		-710.589	-756.660	14.430	Q S V AB AD AE
3	0.909	-701.129	-632.491	-1846.132	R T U Z AC AF
		-710.589	-768.763	-158.913	Q S V AB AD AE
4	0	-701.129	-253.847	-1846.132	R T U Z AC AF
		-710.589	-573.928	-158.913	Q S V AB AD AE
4	0.227	-701.129	-270.108	-1905.673	R T U Z AC AF
		-710.589	-586.031	-290.727	Q S V AB AD AE
4	0.455	-701.129	-286.370	-1968.909	R T U Z AC AF
		-710.589	-598.133	-425.291	Q S V AB AD AE
4	0.682	-701.129	-302.631	-2035.841	R T U Z AC AF
		-710.589	-610.235	-562.606	Q S V AB AD AE
4	0.909	-701.129	-318.893	-2106.469	R T U Z AC AF
		-710.589	-622.337	-702.671	Q S V AB AD AE
5	0	-701.129	31.558	-2106.469	R T U Z AC AF
		-710.589	-413.337	-702.671	Q S V AB AD AE
5	0.227	-701.129	15.297	-2101.144	R T U Z AC AF
		-493.667	-335.280	-789.391	Q S V AA AD AE
5	0.455	-701.129	-0.964349	-2099.515	R T U Z AC AF
		-493.667	-347.382	-866.966	Q S V AA AD AE
5	0.682	-701.129	-17.226	-2101.582	R T U Z AC AF
		-493.667	-359.485	-947.292	Q S V AA AD AE
5	0.909	-529.746	-283.317	-2145.558	B D E H M
		-619.568	-182.415	-1003.846	Q S V W AD AE AF
6	0	-529.746	32.523	-2145.558	B D E H M
		-619.568	24.205	-1003.846	Q S V W AD AE AF
6	0.227	-529.746	16.261	-2140.014	B D E H M
		-619.568	12.102	-999.720	Q S V W AD AE AF
6	0.455	-529.746	-4.99E-05	-2138.166	B D E H M
		-619.568	-3.22E-05	-998.345	Q S V W AD AE AF
6	0.682	-529.746	-16.261	-2140.014	B D E H M
		-619.568	-12.102	-999.720	Q S V W AD AE AF
6	0.909	-529.746	-32.523	-2145.558	B D E H M
		-619.568	-24.205	-1003.846	Q S V W AD AE AF
7	0	-529.746	283.316	-2145.558	B D E H M
		-619.568	182.415	-1003.846	Q S V W AD AE AF
7	0.227	-701.129	17.226	-2101.582	R T U AB AC AE
		-493.667	359.485	-947.292	Q S V Y AD AF

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
7	0.455	-701.129	0.964254	-2099.515	R T U AB AC AE
		-493.667	347.382	-866.966	Q S V Y AD AF
7	0.682	-701.129	-15.297	-2101.144	R T U AB AC AE
		-493.667	335.280	-789.391	Q S V Y AD AF
7	0.909	-701.129	-31.558	-2106.469	R T U AB AC AE
		-710.589	413.337	-702.671	Q S V Z AD AF
8	0	-701.129	318.893	-2106.469	R T U AB AC AE
		-710.589	622.337	-702.671	Q S V Z AD AF
8	0.227	-701.129	302.631	-2035.841	R T U AB AC AE
		-710.589	610.235	-562.606	Q S V Z AD AF
8	0.455	-701.129	286.370	-1968.909	R T U AB AC AE
		-710.589	598.133	-425.291	Q S V Z AD AF
8	0.682	-701.129	270.108	-1905.673	R T U AB AC AE
		-710.589	586.031	-290.727	Q S V Z AD AF
8	0.909	-701.129	253.847	-1846.133	R T U AB AC AE
		-710.589	573.928	-158.914	Q S V Z AD AF
9	0	-701.129	632.491	-1846.133	R T U AB AC AE
		-710.589	768.763	-158.914	Q S V Z AD AF
9	0.227	-701.129	616.230	-1704.232	R T U AB AC AE
		-710.589	756.660	14.430	Q S V Z AD AF
9	0.455	-701.129	599.969	-1566.028	R T U AB AC AE
		-710.589	744.558	185.023	Q S V Z AD AF
9	0.682	-701.129	583.707	-1431.519	R T U AB AC AE
		-710.589	732.456	352.865	Q S V Z AD AF
9	0.909	-376.362	385.826	-1340.424	AU AV AW AZ BA BB BC...
		-710.589	720.354	517.957	Q S V Z AD AF
10	0	-376.362	717.728	-1340.424	AU AV AW AZ BA BB BC...
		-710.589	901.340	517.957	Q S V Z AD AF
10	0.227	-376.362	705.683	-1178.673	AU AV AW AZ BA BB BC...
		-710.589	889.238	721.432	Q S V Z AD AF
10	0.455	-376.362	693.637	-1019.659	AU AV AW AZ BA BB BC...
		-710.589	877.135	922.156	Q S V Z AD AF
10	0.682	-376.362	681.592	-863.383	AU AV AW AZ BA BB BC...
		-710.589	865.033	1120.130	Q S V Z AD AF
10	0.909	-376.218	666.795	-709.937	AU AV AW AZ BA BB BC...
		-710.804	857.057	1315.491	Q S V Z AF
11	0	-376.218	1036.712	-709.937	AU AV AW AZ BA BB BC...
		-710.804	1017.846	1315.491	Q S V Z AF
11	0.227	-377.553	1001.038	-477.340	AU AV AW AZ BB BC BD...
		-716.803	1119.298	1555.017	R S V Z AF
11	0.455	-378.563	907.732	-254.597	AU AV AW AZ BC BE BF...
		-705.442	1365.256	1833.450	R T V Z AC AF
11	0.682	-381.882	857.880	-57.946	AU AV AW AZ BE BF BH
		-705.442	1348.995	2141.887	R T V Z AC AF
11	0.909	-381.882	844.926	135.554	AU AV AW AZ BE BF BH
		-705.442	1332.733	2446.629	R T V Z AC AF

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
12	0	-1560.445	996.962	-2446.629	R T V AB AC AE
		-1077.570	273.670	-440.053	Q S U Y AD AF
12	0.634	-1539.035	861.527	-1857.459	R T V AB AC AE
		-1061.711	217.841	-284.293	Q S U Y AD AF
12	1.269	-1517.625	732.130	-1352.290	R T V AB AC AE
		-1240.665	253.460	-115.499	Q S U Z AD AF
12	1.903	-1496.215	608.769	-927.293	R T V AB AC AE
		-1224.805	177.686	21.044	Q S U Z AD AF
12	2.537	-1319.618	357.302	-607.911	R T V AA AC AE
		-1208.946	105.896	110.782	Q S U Z AD AF
13	0	-1319.618	357.302	-607.911	R T V AA AC AE
		-1208.946	105.896	110.782	Q S U Z AD AF
13	0.634	-1346.232	151.061	-453.918	B D F G M O
		-1133.647	201.542	228.606	Q S U X AD AF
13	1.269	-1341.618	68.059	-396.945	B D F G M
		-1092.594	156.973	360.586	Q S U X AD AE AF
13	1.903	-1320.207	28.169	-366.564	B D F G M
		-1076.734	57.758	428.377	Q S U X AD AE AF
13	2.537	-1298.797	-9.065	-360.645	B D F G M
		-1060.875	-35.421	435.143	Q S U X AD AE AF
14	0	-1298.797	-9.065	-360.645	B D F G M
		-1060.875	-35.421	435.143	Q S U X AD AE AF
14	0.634	-1342.207	-138.313	-397.865	R T U Y AC AF
		-960.382	0.521890	410.075	Q S V AB AD AE
14	1.269	-1320.797	-170.234	-495.872	R T U Y AC AF
		-944.523	-80.584	384.361	Q S V AB AD AE
14	1.903	-1494.200	-290.213	-622.356	R T U Z AC AF
		-928.663	-155.653	309.111	Q S V AB AD AE
14	2.537	-1472.790	-330.125	-819.330	R T U Z AC AF
		-912.804	-224.686	188.153	Q S V AB AD AE
15	0	-1472.790	-330.125	-819.330	R T U Z AC AF
		-912.804	-224.686	188.153	Q S V AB AD AE
15	0.634	-1451.380	-366.269	-1040.367	R T U Z AC AD AF
		-896.945	-287.467	25.324	Q S V AB AE
15	1.269	-1429.970	-398.211	-1283.061	R T U Z AC AD AF
		-725.899	-226.702	-150.397	Q S V AA AE
15	1.903	-1408.560	-426.169	-1544.755	R T U Z AC AD AF
		-710.039	-263.505	-306.097	Q S V AA AE
15	2.537	-1387.149	-450.143	-1822.921	R T U Z AC AD AF
		-777.198	-260.479	-470.378	AU AV AW AZ BF BH
16	0	-1175.552	-63.867	135.554	AU AV AW AZ BE BF BH
		-1560.445	-996.962	2446.629	R T V Z AC AF
16	0.634	-1159.692	-8.038	112.887	AU AV AW AZ BE BF BH
		-1539.035	-861.527	1857.459	R T V Z AC AF
16	1.269	-1240.665	-253.460	115.499	Q S U AB AD AE
		-1517.625	-732.130	1352.290	R T V Z AC AF
16	1.903	-1224.805	-177.686	-21.044	Q S U AB AD AE

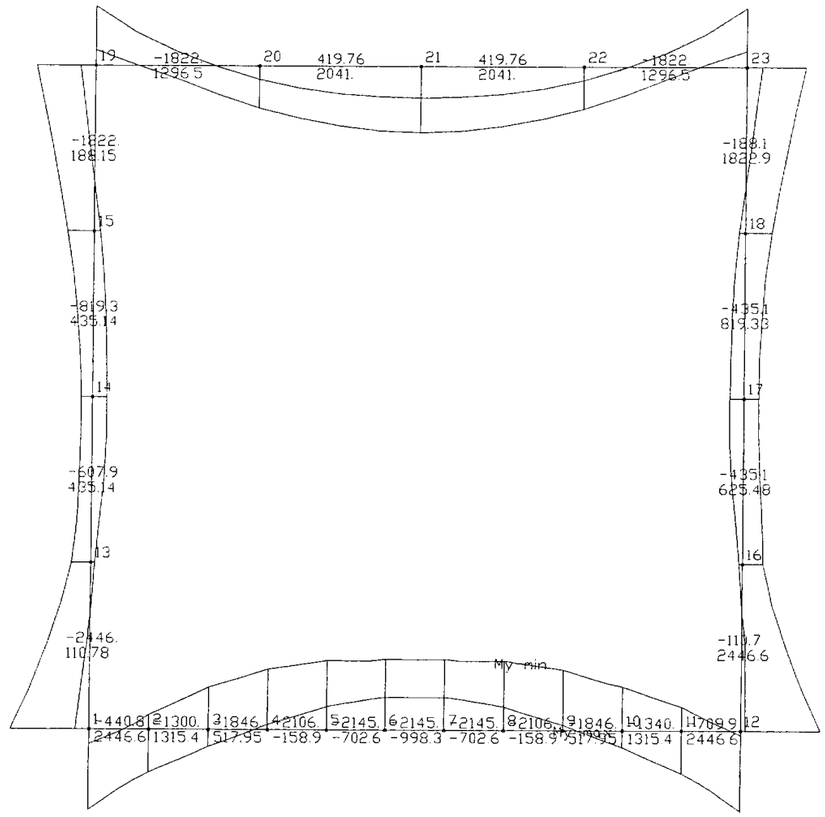
ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-1496.215	-608.769	927.293	R T V Z AC AF
16	2.537	-1208.946	-105.896	-110.782	Q S U AB AD AE
		-1174.120	-108.549	625.488	AU AV AW AY BA BB BC...
17	0	-1208.946	-105.896	-110.782	Q S U AB AD AE
		-1174.120	-108.549	625.488	AU AV AW AY BA BB BC...
17	0.634	-1133.647	-201.542	-228.606	Q S U X AD AE
		-1203.486	-161.905	588.624	AG AH AI AJ AM AN AO...
17	1.269	-1092.594	-156.973	-360.586	Q S U X AD AE AF
		-1198.824	-92.388	516.364	AG AH AI AJ AM AN AO...
17	1.903	-1076.734	-57.758	-428.377	Q S U X AD AE AF
		-1182.964	-52.498	470.549	AG AH AI AJ AM AN AO...
17	2.537	-1060.875	35.421	-435.143	Q S U X AD AE AF
		-1167.105	-15.264	449.196	AG AH AI AJ AM AN AO...
18	0	-1060.875	35.421	-435.143	Q S U X AD AE AF
		-1167.105	-15.264	449.196	AG AH AI AJ AM AN AO...
18	0.634	-960.382	-0.521889	-410.075	Q S V Z AD AF
		-1207.668	98.490	466.607	AU AV AW AZ BA BB BC...
18	1.269	-944.523	80.584	-384.361	Q S V Z AD AF
		-1191.809	130.411	539.352	AU AV AW AZ BA BB BC...
18	1.903	-928.663	155.653	-309.111	Q S V Z AD AF
		-1175.949	159.676	631.505	AU AV AW AZ BA BB BC...
18	2.537	-912.804	224.686	-188.153	Q S V Z AD AF
		-1472.790	330.125	819.330	R T U AB AC AE
19	0	-912.804	224.686	-188.153	Q S V Z AD AF
		-1472.790	330.125	819.330	R T U AB AC AE
19	0.634	-896.945	287.467	-25.324	Q S V Z AF
		-1451.380	366.269	1040.367	R T U AB AC AD AE
19	1.269	-725.899	226.702	150.397	Q S V Y AF
		-1429.970	398.211	1283.061	R T U AB AC AD AE
19	1.903	-710.039	263.505	306.097	Q S V Y AF
		-1408.560	426.169	1544.755	R T U AB AC AD AE
19	2.537	-694.180	296.285	483.868	Q S V Y AF
		-1387.149	450.143	1822.921	R T U AB AC AD AE
20	0	-450.143	1387.149	-1822.921	R T U Z AC AD AF
		-260.479	777.198	-470.378	AU AV AW AZ BF BH
20	0.625	-456.151	1187.128	-1011.014	Q T U Z AC AD AF
		-261.816	728.037	-17.028	AU AV AW AZ BA BF BH
20	1.250	-444.773	785.133	-415.711	Q S U Z AD AF
		-265.139	655.600	407.247	AU AV AW AZ BA BC BF...
20	1.875	-444.773	668.383	38.513	Q S U Z AD AF
		-445.607	743.226	883.763	R T V AB AC AE
20	2.500	-444.773	551.633	419.769	Q S U Z AD AF
		-445.607	577.654	1296.538	R T V AB AC AE
21	0	-444.773	551.633	419.769	Q S U Z AD AF
		-445.607	577.654	1296.538	R T V AB AC AE
21	0.625	-300.820	349.445	680.174	Q S U Y AD AF

ENVELOPE for < My > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-445.607	412.082	1605.831	R T V AB AC AE
21	1.250	-391.171	189.750	853.862	Q S U W AD AE AF
		-326.842	331.144	1834.054	B D F H M
21	1.875	-391.171	94.875	942.808	Q S U W AD AE AF
		-326.842	165.572	1989.277	B D F H M
21	2.500	-391.171	3.80E-06	972.456	Q S U W AD AE AF
		-326.842	6.63E-06	2041.018	B D F H M
22	0	-391.171	-3.79E-06	972.456	Q S U W AD AE AF
		-326.842	-6.61E-06	2041.018	B D F H M
22	0.625	-391.171	-94.875	942.808	Q S U W AD AE AF
		-326.842	-165.572	1989.277	B D F H M
22	1.250	-391.171	-189.750	853.862	Q S U W AD AE AF
		-326.842	-331.144	1834.054	B D F H M
22	1.875	-300.820	-349.445	680.174	Q S U AA AD AE
		-445.607	-412.082	1605.831	R T V Z AC AF
22	2.500	-444.773	-551.633	419.769	Q S U AB AD AE
		-445.607	-577.654	1296.538	R T V Z AC AF
23	0	-444.773	-551.633	419.769	Q S U AB AD AE
		-445.607	-577.654	1296.538	R T V Z AC AF
23	0.625	-444.773	-668.383	38.513	Q S U AB AD AE
		-445.607	-743.226	883.763	R T V Z AC AF
23	1.250	-444.773	-785.133	-415.711	Q S U AB AD AE
		-301.655	-790.621	394.599	R T V Y AC AF
23	1.875	-456.151	-1187.128	-1011.014	Q T U AB AC AD AE
		-290.276	-641.414	-73.940	R S V Y AF
23	2.500	-450.143	-1387.149	-1822.921	R T U AB AC AD AE
		-296.285	-694.180	-483.868	Q S V Y AF

Scale 1 : 76.4
Int. Forces envelope My, GWSP BX, Subsys "LIST"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 5.00E-04
  min: -2.45E+03 max: 9.72E+02 [kNm]
- Envelope Moment My-max, Scale 5.00E-04
  min: -1.00E+03 max: 2.45E+03 [kNm]
- Text envelopes [kNm]



FAGUS-3 - post-processor module::
Section forces restored from STATIK-3

Section forces restored from STATIK-3:

Analysis	C.Set	N	Vy	Vz	T	My	Mz
Design	2	ELU1	.	ELU1	.	ELU1	.

Calculation parameters Construction code: EHE

Calculation set 2: Design(Standard)

Concrete stress strain diagram ..... type 2
Concrete in tension ..... type 0

Max. strains:
Max. concrete strain at ult. limit state (compr.). -2.00 [o/oo]
Max. concrete strain at ult. limit state (bending) -3.50 [o/oo]
Max. strain in reinforcement bars (ult.limit state 10.00 [o/oo]

Resistance coefficients:
Concrete..... 1.5
Steel..... 1.15
Prestressing steel..... 1.15
Structural steel..... 1.15

Inclination of diagonal in compression..... 45
Creep coefficient..... 0

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
1	0.00	1.00	1.00	44.42	44.42	8.33	-------
1	0.23	1.00	1.00	37.55	37.55	8.33	------- SECCIÓN DE EMPOTRAMIENTO SOLERA
1	0.45	1.00	1.00	30.70	30.70	8.33	-------
1	0.68	1.00	1.00	24.48	24.48	8.33	-------
1	0.91	1.00	1.00	19.36	19.36	8.33	-------
2	0.00	1.00	1.00	19.36	19.36	8.33	-------
2	0.23	5.32	5.32	15.17	15.17	8.33	-------
2	0.45	9.61	9.61	10.95	10.95	8.33	-------
2	0.68	14.42	14.42	6.71	6.71	8.33	-------
2	0.91	19.15	19.15	2.44	2.44	8.33	-------
3	0.00	19.15	19.15	2.44	2.44	8.33	-------

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
3	0.23	21.97	21.97	1.00	1.00	8.33	-------
3	0.45	24.89	24.89	1.00	1.00	8.33	-------
3	0.68	27.91	27.91	1.00	1.00	8.33	-------
3	0.91	31.02	31.02	1.00	1.00	8.33	-------
4	0.00	31.02	31.02	1.00	1.00	8.33	-------
4	0.23	32.34	32.34	1.00	1.00	8.33	-------
4	0.45	33.74	33.74	1.00	1.00	8.33	-------
4	0.68	35.22	35.22	1.00	1.00	8.33	-------
4	0.91	36.80	36.80	1.00	1.00	8.33	-------
5	0.00	36.80	36.80	1.00	1.00	8.33	-------
5	0.23	36.68	36.68	1.00	1.00	8.33	-------
5	0.45	36.64	36.64	1.00	1.00	8.33	-------
5	0.68	36.69	36.69	1.00	1.00	8.33	-------
5	0.91	39.47	39.47	1.00	1.00	8.33	-------
6	0.00	39.47	39.47	1.00	1.00	8.33	-------
6	0.23	39.35	39.35	1.00	1.00	8.33	-------
6	0.45	39.31	39.31	1.00	1.00	8.33	-------
6	0.68	39.35	39.35	1.00	1.00	8.33	-------
6	0.91	39.47	39.47	1.00	1.00	8.33	-------
7	0.00	39.47	39.47	1.00	1.00	8.33	-------SECCIÓN CENTRO VANO SOLERA
7	0.23	36.69	36.69	1.00	1.00	8.33	-------
7	0.45	36.64	36.64	1.00	1.00	8.33	-------
7	0.68	36.68	36.68	1.00	1.00	8.33	-------
7	0.91	36.80	36.80	1.00	1.00	8.33	-------
8	0.00	36.80	36.80	1.00	1.00	8.33	-------
8	0.23	35.22	35.22	1.00	1.00	8.33	-------
8	0.45	33.74	33.74	1.00	1.00	8.33	-------
8	0.68	32.34	32.34	1.00	1.00	8.33	-------
8	0.91	31.02	31.02	1.00	1.00	8.33	-------
9	0.00	31.02	31.02	1.00	1.00	8.33	-------
9	0.23	27.91	27.91	1.00	1.00	8.33	-------
9	0.45	24.89	24.89	1.00	1.00	8.33	-------
9	0.68	21.97	21.97	1.00	1.00	8.33	-------
9	0.91	23.57	23.57	2.44	2.44	8.33	-------
10	0.00	23.57	23.57	2.44	2.44	9.61	-------
10	0.23	20.12	20.12	6.71	6.71	9.19	-------
10	0.45	16.74	16.74	10.95	10.95	8.81	-------
10	0.68	13.45	13.45	15.17	15.17	8.42	-------
10	0.91	10.23	10.23	19.36	19.36	8.33	-------
11	0.00	10.23	10.23	19.36	19.36	14.33	-------
11	0.23	5.37	5.37	24.48	24.48	13.93	-------
11	0.45	1.00	1.00	30.70	30.70	13.54	-------
11	0.68	1.00	1.00	37.55	37.55	13.16	-------SECCIÓN EMPOTRAMIENTO SOLERA

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
11	0.91	1.00	1.00	44.42	44.42	12.78	-------
12	0.00	49.79	49.79	1.00	1.00	10.29	-------
12	0.63	32.29	32.29	1.00	1.00	8.33	-------SECCIÓN EMPOTRAMIENTO HASTIAL
12	1.27	18.16	18.16	1.00	1.00	8.33	-------
12	1.90	6.80	6.80	1.00	1.00	8.33	-------
12	2.54	1.00	1.00	1.00	1.00	8.33	-------
13	0.00	1.00	1.00	1.00	1.00	8.33	-------
13	0.63	1.00	1.00	1.00	1.00	8.33	-------
13	1.27	1.00	1.00	1.00	1.00	8.33	-------
13	1.90	1.00	1.00	1.00	1.00	8.33	-------
13	2.54	1.00	1.00	1.00	1.00	8.33	-------
14	0.00	1.00	1.00	1.00	1.00	8.33	-------
14	0.63	1.00	1.00	1.00	1.00	8.33	-------
14	1.27	1.00	1.00	1.00	1.00	8.33	-------
14	1.90	1.00	1.00	1.00	1.00	8.33	-------
14	2.54	4.18	4.18	1.00	1.00	8.33	-------
15	0.00	4.18	4.18	1.00	1.00	8.33	-------
15	0.63	10.32	10.32	1.00	1.00	8.33	-------
15	1.27	17.15	17.15	1.00	1.00	8.33	-------
15	1.90	24.63	24.63	1.00	1.00	8.33	-------SECCIÓN EMPOTRAMIENTO HASTIAL
15	2.54	32.76	32.76	1.00	1.00	8.33	-------
16	0.00	1.00	1.00	49.79	49.79	8.33	-------
16	0.63	1.00	1.00	32.29	32.29	8.33	------- SECCIÓN EMPOTRAMIENTO HASTIAL
16	1.27	1.00	1.00	18.16	18.16	8.33	-------
16	1.90	1.00	1.00	6.80	6.80	8.33	-------
16	2.54	1.00	1.00	2.34	2.34	8.33	-------
17	0.00	1.00	1.00	2.34	2.34	8.33	-------
17	0.63	1.00	1.00	1.06	1.06	8.33	-------
17	1.27	1.00	1.00	1.00	1.00	8.33	-------
17	1.90	1.00	1.00	1.00	1.00	8.33	-------
17	2.54	1.00	1.00	1.00	1.00	8.33	-------
18	0.00	1.00	1.00	1.00	1.00	8.33	-------
18	0.63	1.00	1.00	1.00	1.00	8.33	-------
18	1.27	1.00	1.00	1.00	1.00	8.33	-------
18	1.90	1.00	1.00	2.48	2.48	8.33	-------
18	2.54	1.00	1.00	4.18	4.18	8.33	-------
19	0.00	1.00	1.00	4.18	4.18	8.33	-------
19	0.63	1.00	1.00	10.32	10.32	8.33	-------
19	1.27	1.00	1.00	17.15	17.15	8.33	-------
19	1.90	1.00	1.00	24.63	24.63	8.33	------- SECCIÓN EMPOTRAMIENTO HASTIAL
19	2.54	1.00	1.00	32.76	32.76	8.33	-------
20	0.00	37.17	37.17	1.00	1.00	17.27	------- SECCIÓN EMPOTRAMIENTO DINTEL

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
20	0.63	17.75	17.75	1.00	1.00	13.18	-------
20	1.25	4.15	4.15	6.00	6.00	9.08	-------
20	1.88	1.00	1.00	14.90	14.90	8.33	-------
20	2.50	1.00	1.00	24.58	24.58	8.33	-------
21	0.00	1.00	1.00	24.58	24.58	8.33	-------
21	0.63	1.00	1.00	31.96	31.96	8.33	-------
21	1.25	1.00	1.00	38.75	38.75	8.33	-------
21	1.88	1.00	1.00	42.54	42.54	8.33	-------
21	2.50	1.00	1.00	43.81	43.81	8.33	-------
22	0.00	1.00	1.00	43.81	43.81	8.33	------- SECCIÓN VANO DINTEL
22	0.63	1.00	1.00	42.54	42.54	8.33	-------
22	1.25	1.00	1.00	38.75	38.75	8.33	-------
22	1.88	1.00	1.00	31.96	31.96	8.33	-------
22	2.50	1.00	1.00	24.58	24.58	8.33	-------
23	0.00	1.00	1.00	24.58	24.58	8.33	-------
23	0.63	1.00	1.00	14.90	14.90	8.33	-------
23	1.25	4.15	4.15	5.30	5.30	8.33	-------
23	1.88	17.75	17.75	1.00	1.00	8.33	-------
23	2.50	37.17	37.17	1.00	1.00	8.33	------- SECCIÓN EMPOTRAMIENTO DINTEL

DATOS DE ENTRADA

Muro ..... : Aleta 1 Tipo D

GEOMETRIA:

Longitud muro ..... :	5.70 m
Altura mínima total.....:	7.80 m
Altura máxima total.....:	10.55 m
Canto de Zapata..... :	1.00 m
Ancho coronacion ..... :	0.25 m
Talud trasdós..... :	12.50 %
Talud exterior..... :	0.00 %
Angulo muro-calzada .....:	60.00 °
Distancia muro-calzada.....:	10.00 m
Talud de terraplén (H/V)...:	3 / 2
Angulo de talud trasdós....:	18.43 °

TERRENO:

Densidad de tierras.....:	2.00 t/m3
Angulo de rozam. interno...:	33.00 °
Roz. Muro-tierras .....:	0.00 °
Coeficiente de roz.....:	0.55
Tensión admisible .....:	3.00 Kg/cm²
Sobrecarga terraplén..... :	0.00 t/m²
Kh inclinado .....:	0.438
Kh horizontal.....:	0.345
Kv inclinado .....:	0.000
Kv horizontal.....:	0.000

MATERIALES

Fck (Kg/cm²).....:	300
Gc .....:	1.50
Fyk (Kg/cm²).....:	5100
Gs .....:	1.15
Recubrimiento en Alzados...:	4 cms
Recubrimiento en Cimientos.:	4 cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	7.04	31.34	0.00	88.37	0.00	31.34	85.57	119.72	271.73
1.00	2.00	1.50	7.52	36.07	0.00	109.11	0.00	36.07	98.40	145.19	333.06
2.00	3.00	2.50	8.01	41.28	0.00	133.56	0.00	41.28	113.21	174.83	409.84
3.00	4.00	3.50	8.49	46.53	0.00	159.84	0.00	46.53	126.98	206.37	494.52
4.00	5.00	4.50	8.97	52.26	0.00	190.24	0.00	52.26	142.87	242.50	606.00
5.00	5.70	5.35	9.38	57.42	0.00	219.12	0.00	57.42	157.38	276.54	718.24

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	7.04	1.00	5.50	1.50	2.27	3.21	0.00	2.41	5.33
1.00	2.00	1.50	7.52	1.00	5.90	1.50	2.29	3.44	0.00	2.58	5.73
2.00	3.00	2.50	8.01	1.00	6.35	1.51	2.34	3.64	0.00	2.73	6.23
3.00	4.00	3.50	8.49	1.10	6.80	1.50	2.40	3.73	0.00	2.80	6.80
4.00	5.00	4.50	8.97	1.25	7.35	1.50	2.50	3.74	0.15	2.81	7.35
5.00	5.70	5.35	9.38	1.40	7.85	1.51	2.60	3.72	0.29	2.80	7.85

Coeficiente global de seg. al deslizamiento ...	1.50
Coeficiente global de seg. al vuelco	2.43
Tensión máxima en solera (Kg/cm²).....	3.74

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 0.96 m
ϵ = 1.456 m

		Z A R P A D E L A N T E R A					Z A R P A T R A S E R A				
Zona		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	39.85	18.40	21.48	21.96	6.72	45.35	29.44	113.79	122.08	27.53
1.00	2.00	44.84	19.43	25.79	26.42	7.91	50.87	31.53	138.12	150.02	33.83
2.00	3.00	50.12	20.42	30.63	31.46	9.19	56.71	33.65	165.63	182.40	41.13
3.00	4.00	55.70	21.37	36.04	37.13	10.54	62.86	35.81	196.52	219.73	49.55
4.00	5.00	61.57	22.28	42.06	43.47	11.93	69.32	38.00	230.97	262.61	59.22
5.00	5.70	66.81	23.00	47.67	49.41	13.13	75.06	39.90	263.19	303.91	68.53

ϕ16/15

A L Z A D O S

		Sección						
Zona		H	d	Vd	Vcu	Md	Us	As
0.00	1.00	5.63	0.43	6.12	23.85	5.41	13.65	3.95
		4.22	0.60	14.59	26.64	21.38	37.79	9.23
		2.82	0.78	26.35	28.69	53.38	73.05	16.47
		1.41	0.95	41.42	30.96	106.63	119.64	26.98
		-0.00	1.13	46.74	29.15	128.18	119.60	26.97
1.00	2.00	6.02	0.44	6.96	24.61	6.54	16.04	4.53
		4.51	0.63	16.62	27.11	25.97	44.20	10.29
		3.01	0.81	30.05	29.57	64.95	85.17	19.21
		1.50	1.00	47.25	31.89	129.85	139.24	31.40
		0.00	1.19	53.49	30.08	156.90	139.46	31.45
2.00	3.00	6.40	0.45	7.86	25.30	7.81	18.66	5.13
		4.80	0.65	18.79	27.65	31.17	51.17	11.54
		3.20	0.85	33.99	30.43	78.08	98.33	22.17
		1.60	1.05	53.46	32.79	156.21	160.49	36.19
		0.00	1.25	60.71	30.99	189.62	160.99	36.30
3.00	4.00	6.79	0.46	8.80	25.92	9.24	21.52	5.75
		5.09	0.67	21.09	28.45	37.03	58.71	13.24
		3.40	0.89	38.18	31.25	92.87	112.54	25.38
		1.70	1.10	60.06	33.67	185.92	183.44	41.36
		0.00	1.31	68.38	31.88	226.59	184.23	41.54
4.00	5.00	7.18	0.47	9.80	26.49	10.84	24.60	6.38
		5.38	0.70	23.52	29.22	43.57	66.85	15.07
		3.59	0.92	42.60	32.04	109.41	127.83	28.83
		1.79	1.15	67.04	34.52	219.17	208.10	46.92
		0.00	1.37	76.51	32.74	268.09	209.20	47.17
5.00	5.70	7.50	0.48	10.69	26.91	12.33	27.42	6.92
		5.63	0.72	25.70	29.84	49.70	74.23	16.74
		3.75	0.95	46.56	32.69	124.93	141.69	31.95
		1.88	1.19	73.27	35.23	250.37	230.44	51.96
		0.00	1.42	83.77	33.47	307.11	231.79	52.27

Cortante: $A_{smin} = 0.02 \times \frac{f_{cd}}{f_{td}} \times b_o$

$A_{smin} = 0.02 \times \frac{30\ N/mm^2}{1.50 \times 400\ N/mm^2} \times 100cm \times 100\frac{cm}{m}$

$A_{smin} = 10\ cm^2/m = \frac{1}{St} \times n \frac{\pi \phi^2}{4}$

2 c ϕ12/30 pm

DATOS DE ENTRADA

Muro ..... : Aleta 1 Tipo B

GEOMETRIA:

Longitud muro ..... :	5.70 m
Altura mínima total.....:	4.70 m
Altura máxima total.....:	7.80 m
Canto de Zapata..... :	0.70 m
Ancho coronacion ..... :	0.25 m
Talud trasdós..... :	12.50 %
Talud exterior..... :	0.00 %

Angulo muro-calzada .....:	60.00 °
Distancia muro-calzada.....:	29.87 m
Talud de terraplén (H/V)...:	3 / 2
Angulo de talud trasdós....:	18.43 °

TERRENO:

Densidad de tierras.....:	2.00 t/m3
Angulo de rozam. interno...:	33.00 °
Roz. Muro-tierras .....:	0.00 °
Coeficiente de roz.....:	0.55
Tensión admisible .....:	3.00 Kg/cm²
Sobrecarga terraplén..... :	0.00 t/m²

Kh inclinado .....:	0.438
Kh horizontal.....:	0.345
Kv inclinado .....:	0.000
Kv horizontal.....:	0.000

MATERIALES

Fck (Kg/cm²).....:	300
Gc .....:	1.50
Fyk (Kg/cm²).....:	5100
Gs .....:	1.15
Recubrimiento en Alzados...:	4 cms
Recubrimiento en Cimientos.:	4 cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	4.27	11.20	0.00	18.87	0.00	11.20	30.58	26.71	53.52
1.00	2.00	1.50	4.82	14.48	0.00	27.76	0.00	14.48	39.53	37.89	78.42
2.00	3.00	2.50	5.36	18.19	0.00	39.07	0.00	18.19	49.61	51.80	109.98
3.00	4.00	3.50	5.90	22.42	0.00	53.47	0.00	22.42	61.62	69.16	152.57
4.00	5.00	4.50	6.45	26.98	0.00	70.58	0.00	26.98	74.03	89.47	200.51
5.00	5.70	5.35	6.91	31.11	0.00	87.39	0.00	31.11	84.86	109.16	245.14

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	4.27	0.50	3.10	1.50	2.00	2.33	0.00	1.74	2.63
1.00	2.00	1.50	4.82	0.50	3.55	1.50	2.07	2.57	0.00	1.93	3.08
2.00	3.00	2.50	5.36	0.50	4.00	1.50	2.12	2.82	0.00	2.11	3.52
3.00	4.00	3.50	5.90	0.50	4.50	1.51	2.21	3.03	0.00	2.28	4.06
4.00	5.00	4.50	6.45	0.50	4.95	1.51	2.24	3.29	0.00	2.47	4.50
5.00	5.70	5.35	6.91	0.50	5.30	1.50	2.25	3.53	0.00	2.65	4.81

Coeficiente global de seg. al deslizamiento ...	1.50
Coeficiente global de seg. al vuelco	2.19
Tensión máxima en solera (Kg/cm²).....	3.53

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 0.66 m
ϵ = 1.550 m

Zona		Z A R P A D E L A N T E R A					Z A R P A T R A S E R A				
		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	13.64	14.05	3.60	5.31	1.74	17.82	25.09	25.57	38.68	9.89
1.00	2.00	15.84	14.72	4.16	6.15	2.00	22.01	27.52	37.74	57.87	13.05
2.00	3.00	18.06	15.34	4.73	6.99	2.26	26.53	31.02	53.16	82.90	18.69
3.00	4.00	20.30	15.91	5.30	7.84	2.52	31.36	34.59	72.21	114.92	25.91
4.00	5.00	22.54	16.44	5.88	8.70	2.78	36.51	38.24	95.24	155.27	35.01
5.00	5.70	24.46	16.86	6.37	9.43	3.00	41.15	41.42	118.22	197.33	44.50

A L Z A D O S

Zona		Sección .... H	d	Vd	Vcu	Md	Us	As
0.00	1.00	3.42	0.36	2.40	18.17	1.35	4.10	1.31
		2.56	0.46	5.56	21.96	5.08	11.66	3.50
		1.71	0.57	9.94	24.22	12.43	23.02	6.39
		0.85	0.68	15.53	25.68	24.58	38.23	9.72
		0.00	0.78	16.93	24.32	28.02	37.20	9.98
1.00	2.00	3.85	0.37	3.01	19.53	1.89	5.50	1.73
		2.89	0.49	7.02	23.22	7.18	15.54	4.51
		1.93	0.61	12.57	25.29	17.65	30.51	8.04
		0.96	0.73	19.67	26.52	34.98	50.47	11.92
		0.00	0.85	21.65	25.30	40.49	49.53	12.52
2.00	3.00	4.29	0.38	3.68	20.77	2.54	7.14	2.21
		3.22	0.52	8.64	24.30	9.78	20.06	5.61
		2.14	0.65	15.51	26.14	24.16	39.18	9.75
		1.07	0.79	24.30	27.45	47.97	64.59	14.57
		0.00	0.92	26.96	26.07	56.19	63.80	15.10
3.00	4.00	4.72	0.40	4.43	21.90	3.33	9.03	2.74
		3.54	0.55	10.43	25.23	12.95	25.23	6.78
		2.36	0.69	18.76	26.80	32.09	49.07	11.44
		1.18	0.84	29.41	28.68	63.82	80.65	18.19
		0.00	0.99	32.84	26.89	75.50	80.05	18.05
4.00	5.00	5.16	0.41	5.24	22.94	4.28	11.19	3.32
		3.87	0.57	12.40	26.01	16.74	31.09	7.98
		2.58	0.73	22.32	27.63	41.58	60.20	13.57
		1.29	0.89	35.01	29.84	82.83	98.69	22.25
		0.00	1.06	39.30	28.03	98.79	98.31	22.17
5.00	5.70	5.53	0.42	5.98	23.74	5.20	13.24	3.84
		4.15	0.60	14.20	26.57	20.48	36.60	9.01
		2.76	0.77	25.59	28.53	50.99	70.66	15.93
		1.38	0.94	40.15	30.78	101.68	115.62	26.07
		0.00	1.11	45.25	28.96	122.00	115.45	26.03

Ancho de murete de guarda	(m)	0.250
Ancho de cabezal de apoyos	(m)	0.000
Sobreancho interior del alzado	(m)	1.320
Sobreancho exterior del alzado	(m)	0.000
Ancho de talón	(m)	5.930
Ancho de tacón	(m)	0.000
Ancho de puntera	(m)	1.500
Altura de murete de guarda	(m)	0.000
Altura de alzado	(m)	10.550
Canto de cimentación	(m)	1.000
Sobrecanto de tacón	(m)	0.000
Ancho del talud de tierras sobre cor.	(m)	10.000
Altura de tierras sobre coronación	(m)	3.330
Altura de tierras sobre puntera	(m)	0.500
Altura de nivel freático interior	(m)	0.000
Altura de nivel freático exterior	(m)	0.000
Angulo de rozam. del terreno interior	(°S)	35.000
Cohesión del terreno interior	(Tn/m2)	0.000
Angulo de rozam. del terreno exterior	(°S)	35.000
Cohesión del terreno exterior	(Tn/m2)	0.000
Coefic. de empuje relativo en puntera		0.000
(0:Nulo 1:Activo 2:Reposo 3:Pasivo)		
Angulo de rozamiento en plano virtual	(°S)	0.000
Angulo de rozamiento en alzado	(°S)	0.000
Angulo de rozamiento en cimentación	(°S)	30.000
Cohesión en cimentación	(Tn/m2)	0.000
Resistencia caract. del hormigón	(Tn/m2)	2500
Resistencia caract. del acero	(Tn/m2)	51000
Coeficiente de minoración del hormigón		1.500
Coeficiente de minoración del acero		1.150
Recubrimiento de armaduras en alzado	(m)	.050
Recubrimiento de armaduras en zapata	(m)	.050
Diámetro máximo de armaduras en alzado	(m)	.020
Diámetro máximo de armaduras en zapata	(m)	.020
Tipo de ambiente (fisuración) (1/2/3)		2
Peso del material del muro	(Tn/m3)	2.500
Peso seco del terreno interior	(Tn/m3)	2.000
Peso sumergido del terreno interior	(Tn/m3)	0.000
Peso seco del terreno exterior	(Tn/m3)	2.000
Peso sumergido del terreno exterior	(Tn/m3)	0.000

Cálculo según la Instrucción EH-91

Cargas en cabezal	Distancia a borde exterior (m)	Vertical (Tn/m)	Horizontal (Tn/m)	Momento (m*Tn/m)
CAB-1	0.000	0.000	0.000	0.000
CAB-2	0.000	0.000	0.000	0.000
CAB-3	0.000	0.000	0.000	0.000
CAB-4	0.000	0.000	0.000	0.000

Cargas en calzada	Distancia a borde interior (m)	Vertical (Tn/m)
CAL-1	0.000	0.000
CAL-2	0.000	0.000

Sobrecarga sobre calzada	(Tn/m2)	0.000
Sobrecarga sobre talud	(Tn/m2)	0.000
Sobrecarga sobre puntera	(Tn/m2)	0.000

Hipótesis de comprobación de seguridad

1	PP+PTT+PTP+1.5*ETT
2	H1+1.5*EST
3	H1+RVCP
4	H2+RVCP
5	H3+1.35*RHCP
6	H5+1.50*RHSOB
7	H6+1.50*RVSOB
8	H3+1.50*RVSOB+1.50*RHSOB
9	H6+1.50*EST
10	H9+1.50*RVSOB
11	H4+RHCP+1.50*RVSOB
12	H4+1.35*RHCP+1.50*RHSOB

Hipótesis de cálculo de esfuerzos

1	SITUACION TRANSITORIA
2	SITUACION TRANSITORIA
3	SITUACION PERMANENTE
4	SITUACION PERMANENTE
5	SITUACION PERMANENTE
6	SITUACION PERMANENTE

Hipótesis de cálculo de presiones en cimentación

1	PP+PTT+PTP+ETT
2	H1+PSP+EST
3	H1+RVCP
4	H2+RVCP
5	H3+RHCP
6	H5+RHSOB
7	H6+RVSOB
8	H3+RVSOB+RHSOB
9	H7+PSP+EST
10	H8+PSP+EST
11	H4+RHCP+RVSOB
12	H4+RHCP+RHSOB+EST+PSP

Coeficientes de ponderación de hipótesis de comprobación de seguridad

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6	Hip7	Hip8	Hip9	Hip10	Hip11	Hip12
Peso propio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peso Ti. sobre talón	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre talón	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.00	1.00	1.00
Carga en cabezal (2)	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50	0.00	1.50	1.50	0.00
Carga en cabezal (3)	0.00	0.00	0.00	0.00	1.35	1.35	1.35	1.00	1.35	1.35	1.00	1.35
Carga en cabezal (4)	0.00	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50	1.50	0.00	1.50
Carga en calzada (1)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Carga en calzada (2)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Peso sobrec. de talón	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. de talón	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50
Peso sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderación de hipótesis de cálculo de esfuerzos

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6
Peso propio	1.35	1.00	1.35	1.00	1.35	1.00
Peso Ti. sobre talón	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre talón	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.35	1.00	1.35	1.00
Carga en cabezal (2)	0.00	0.00	1.50	0.00	1.50	0.00
Carga en cabezal (3)	0.00	0.00	1.35	1.35	1.35	1.35
Carga en cabezal (4)	0.00	0.00	1.50	1.50	1.50	1.50
Carga en calzada (1)	1.50	1.50	1.50	1.50	1.50	1.50
Carga en calzada (2)	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. de talón	1.50	1.00	1.50	1.00	0.00	0.00
Emp. sobrec. de talón	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. puntera	1.50	0.00	1.50	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderación de cálculo de presiones en cimentación

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
Peso propio	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre talón	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre talón	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre puntera	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre puntera	0	0	0	0	0	0	0	0	0	0	0	0
Nivel Freatico Interior	1	1	1	1	1	1	1	1	1	1	1	1
Nivel Freatico Exterior	1	1	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (1)	0	0	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (2)	0	0	0	0	0	0	1	1	1	1	1	0
Carga en cabezal (3)	0	0	0	0	1	1	1	0	1	0	1	1
Carga en cabezal (4)	0	0	0	0	0	1	1	1	1	1	0	1
Carga en calzada (1)	0	0	0	1	0	0	0	0	0	0	0	1
Carga en calzada (2)	0	0	0	1	0	0	0	0	0	0	0	1
Peso sobrec. de talón	0	0	0	1	0	0	0	0	0	0	0	0
Emp. sobrec. de talón	0	1	0	1	0	0	0	0	1	1	1	1
Peso sobrec. puntera	0	1	0	1	0	0	0	0	1	1	1	1
Emp. sobrec. puntera	0	0	0	0	0	0	0	0	0	0	0	0

Coeficientes de empuje

	Talud		Calzada	
	Horizontal	Vertical	Horizontal	Vertical
Plano virtual	0.335	0.000	0.271	0.000
Trasdós	0.399	0.050	0.319	0.040

Coeficientes de seguridad y Presiones en cimentación

	Hip.1	Hip.2	Hip.3	Hip.4	Hip.5	Hip.6	Hip.7	Hip.8	Hip.9	Hip10	Hip11	Hip12
Cf.Seg. Deslizamiento	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
Cf.Seg. Vuelco	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Presión en puntera	33.43	33.43	33.43	33.43	33.43	33.43	33.43	33.43	33.43	33.43	33.43	33.43
Presión en talón	12.03	12.03	12.03	12.03	12.03	12.03	12.03	12.03	12.03	12.03	12.03	12.03
Dist. a puntera p=0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Presión centrada	26.96	26.96	26.96	26.96	26.96	26.96	26.96	26.96	26.96	26.96	26.96	26.96

Resultados más desfavorables :

Coeficiente de seguridad al deslizam.	(normal)	1.339	(accidental)	99.990
Coeficiente de seguridad al vuelco	//	2.500	//	99.990
Presión punta	(Tn/m2)	//	33.430	//	0.000
Presión centrada	(Tn/m2)	//	26.959	//	0.000
Presión centrada admisible	(Tn/m2)	//	(30.000)	//	(37.500)

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 1 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 2 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 9.495	1.21	0.67	0.26	0.92	0.67	0.25
Alzado 8.440	3.05	2.67	1.98	2.35	2.67	1.94
Alzado 7.385	5.54	6.00	6.59	4.30	6.00	6.48
Alzado 6.330	8.65	10.66	15.52	6.76	10.66	15.31
Alzado 5.275	12.41	16.66	30.18	9.73	16.66	29.83
Alzado 4.220	16.80	23.99	52.02	13.22	23.99	51.46
Alzado 3.165	21.83	32.65	82.46	17.23	32.65	81.62
Alzado 2.110	27.50	42.65	122.91	21.75	42.65	121.74
Alzado 1.055	33.80	53.98	174.81	26.79	53.98	173.22
Alzado 0.000	40.74	66.64	239.58	32.34	66.64	237.48
Centro de puntera	7.57	24.45	9.22	9.78	22.49	8.53
Arranque punt 1/2C	10.05	32.42	16.33	12.90	29.65	15.05
Arranque puntera	17.21	55.40	48.67	21.70	49.68	44.32
Arranque de talón	-47.51	56.81	-192.22	-41.04	51.42	-200.70
Centro de talón	-22.14	34.42	-54.00	-15.77	37.91	-62.23

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 3 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 4 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 9.495	1.21	0.67	0.26	0.92	0.67	0.25
Alzado 8.440	3.05	2.67	1.98	2.35	2.67	1.94
Alzado 7.385	5.54	6.00	6.59	4.30	6.00	6.48
Alzado 6.330	8.65	10.66	15.52	6.76	10.66	15.31
Alzado 5.275	12.41	16.66	30.18	9.73	16.66	29.83
Alzado 4.220	16.80	23.99	52.02	13.22	23.99	51.46
Alzado 3.165	21.83	32.65	82.46	17.23	32.65	81.62
Alzado 2.110	27.50	42.65	122.91	21.75	42.65	121.74
Alzado 1.055	33.80	53.98	174.81	26.79	53.98	173.22
Alzado 0.000	40.74	66.64	239.58	32.34	66.64	237.48
Centro de puntera	7.57	24.45	9.22	9.78	22.49	8.53
Arranque punt 1/2C	10.05	32.42	16.33	12.90	29.65	15.05
Arranque puntera	17.21	55.40	48.67	21.70	49.68	44.32
Arranque de talón	-47.51	56.81	-192.22	-41.04	51.42	-200.70
Centro de talón	-22.14	34.42	-54.00	-15.77	37.91	-62.23

Sección	Esfuerzos Hipótesis 5 Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)	Hipótesis 6 Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 9.495	1.21	0.67	0.26	0.92	0.67	0.25
Alzado 8.440	3.05	2.67	1.98	2.35	2.67	1.94
Alzado 7.385	5.54	6.00	6.59	4.30	6.00	6.48
Alzado 6.330	8.65	10.66	15.52	6.76	10.66	15.31
Alzado 5.275	12.41	16.66	30.18	9.73	16.66	29.83
Alzado 4.220	16.80	23.99	52.02	13.22	23.99	51.46
Alzado 3.165	21.83	32.65	82.46	17.23	32.65	81.62
Alzado 2.110	27.50	42.65	122.91	21.75	42.65	121.74
Alzado 1.055	33.80	53.98	174.81	26.79	53.98	173.22
Alzado 0.000	40.74	66.64	239.58	32.34	66.64	237.48
Centro de puntera	7.57	24.45	9.22	9.78	22.49	8.53
Arranque punt 1/2C	10.05	32.42	16.33	12.90	29.65	15.05
Arranque puntera	17.21	55.40	48.67	21.70	49.68	44.32
Arranque de talón	-47.51	56.81	-192.22	-41.04	51.42	-200.70
Centro de talón	-22.14	34.42	-54.00	-15.77	37.91	-62.23

Armaduras y Comprobación a cortante

Sección		T.y Ret. (cm2/m)	Esfuerzos (cm2/m)	Cálculo (cm2/m)	Cortante (Tn/m)	Resist. (Tn/m)	
Alzado 10.550	int	1.13	0.00	1.13	0.00	12.26	
	ext	1.13	0.00	1.13			
Alzado 9.495	int	1.72	0.08	1.72	0.67	20.60	
	ext	1.72	0.00	1.72			
Alzado 8.440	int	2.31	0.97	2.31	2.67	28.81	
	ext	2.31	0.00	2.31			
Alzado 7.385	int	2.91	2.77	2.91	6.00	36.90	
	ext	2.91	0.00	2.91			
Alzado 6.330	int	3.50	5.36	5.36	10.66	44.87	
	ext	3.50	0.00	3.50			
Alzado 5.275	int	4.10	8.58	8.58	16.66	52.73	
	ext	4.10	0.00	4.10			
Alzado 4.220	int	4.69	12.21	12.21	23.99	60.47	
	ext	4.69	0.00	4.69			
Alzado 3.165	int	5.28	16.06	16.06	32.65	68.18	
	ext	5.28	0.00	5.28			
Alzado 2.110	int	5.88	20.13	20.13	42.65	76.51	
	ext	5.88	0.00	5.88			
Alzado 1.055	int	6.47	26.20	26.20	53.98	84.83	
	ext	6.47	0.00	6.47			
Alzado 0.000	int	7.07	33.11	33.11	66.64	93.13	(49.10 cm²)
	ext	7.07	0.00	7.07			
Centro de puntera	sup	7.50	0.00	7.50	24.45	59.36	
	inf	7.50	1.92	7.50			
Arranque punt 1/2C	sup	7.50	0.00	7.50	32.42	58.93	
	inf	7.50	3.87	7.50			
Arranque puntera	sup	7.50	0.00	7.50	55.40	57.69	
	inf	7.50	11.57	11.57			(13.40 cm²)
Arranque de talón	sup	7.50	56.18	56.18	56.81	63.43	(65.46 cm²)
	inf	7.50	0.00	7.50			
Centro de talón	sup	7.50	17.08	17.08	37.91	63.24	
	inf	7.50	0.00	7.50			

Ancho de murete de guarda	(m)	0.250
Ancho de cabezal de apoyos	(m)	0.000
Sobreancho interior del alzado	(m)	1.040
Sobreancho exterior del alzado	(m)	0.000
Ancho de talón	(m)	4.210
Ancho de tacón	(m)	0.000
Ancho de puntera	(m)	1.000
Altura de murete de guarda	(m)	0.000
Altura de alzado	(m)	8.380
Canto de cimentación	(m)	1.000
Sobrecanto de tacón	(m)	0.000
Ancho del talud de tierras sobre cor.	(m)	16.000
Altura de tierras sobre coronación	(m)	5.330
Altura de tierras sobre puntera	(m)	0.500
Altura de nivel freático interior	(m)	0.000
Altura de nivel freático exterior	(m)	0.000
Angulo de rozam. del terreno interior	(°S)	35.000
Cohesión del terreno interior	(Tn/m2)	0.000
Angulo de rozam. del terreno exterior	(°S)	35.000
Cohesión del terreno exterior	(Tn/m2)	0.000
Coefic. de empuje relativo en puntera		0.000
(0:Nulo 1:Activo 2:Reposo 3:Pasivo)		
Angulo de rozamiento en plano virtual	(°S)	0.000
Angulo de rozamiento en alzado	(°S)	0.000
Angulo de rozamiento en cimentación	(°S)	30.000
Cohesión en cimentación	(Tn/m2)	0.000
Resistencia caract. del hormigón	(Tn/m2)	2500
Resistencia caract. del acero	(Tn/m2)	51000
Coeficiente de minoración del hormigón		1.500
Coeficiente de minoración del acero		1.150
Recubrimiento de armaduras en alzado	(m)	.050
Recubrimiento de armaduras en zapata	(m)	.050
Diámetro máximo de armaduras en alzado	(m)	.020
Diámetro máximo de armaduras en zapata	(m)	.020
Tipo de ambiente (fisuración) (1/2/3)		2
Peso del material del muro	(Tn/m3)	2.500
Peso seco del terreno interior	(Tn/m3)	2.000
Peso sumergido del terreno interior	(Tn/m3)	0.000
Peso seco del terreno exterior	(Tn/m3)	2.000
Peso sumergido del terreno exterior	(Tn/m3)	0.000

Cálculo según la Instrucción EH-91

Cargas en cabezal	Distancia a borde exterior (m)	Vertical (Tn/m)	Horizontal (Tn/m)	Momento (m*Tn/m)
CAB-1	0.000	0.000	0.000	0.000
CAB-2	0.000	0.000	0.000	0.000
CAB-3	0.000	0.000	0.000	0.000
CAB-4	0.000	0.000	0.000	0.000

Cargas en calzada	Distancia a borde interior (m)	Vertical (Tn/m)
CAL-1	0.000	0.000
CAL-2	0.000	0.000

Sobrecarga sobre calzada	(Tn/m2)	0.000
Sobrecarga sobre talud	(Tn/m2)	0.000
Sobrecarga sobre puntera	(Tn/m2)	0.000

Hipótesis de comprobación de seguridad

1	PP+PTT+PTP+1.5*ETT
2	H1+1.5*EST
3	H1+RVCP
4	H2+RVCP
5	H3+1.35*RHCP
6	H5+1.50*RHSOB
7	H6+1.50*RVSOB
8	H3+1.50*RVSOB+1.50*RHSOB
9	H6+1.50*EST
10	H9+1.50*RVSOB
11	H4+RHCP+1.50*RVSOB
12	H4+1.35*RHCP+1.50*RHSOB

Hipótesis de cálculo de esfuerzos

1	SITUACION TRANSITORIA
2	SITUACION TRANSITORIA
3	SITUACION PERMANENTE
4	SITUACION PERMANENTE
5	SITUACION PERMANENTE
6	SITUACION PERMANENTE

Hipótesis de cálculo de presiones en cimentación

1	PP+PTT+PTP+ETT
2	H1+PSP+EST
3	H1+RVCP
4	H2+RVCP
5	H3+RHCP
6	H5+RHSOB
7	H5+RVSOB
8	H3+RVSOB+RHSOB
9	H7+PSP+EST
10	H8+PSP+EST
11	H4+RHCP+RVSOB
12	H4+RHCP+RHSOB+EST+PSP

Coeficientes de ponderación de hipótesis de comprobación de seguridad

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6	Hip7	Hip8	Hip9	Hip10	Hip11	Hip12
Peso propio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peso Ti. sobre talón	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre talón	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.00	1.00	1.00
Carga en cabezal (2)	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50	0.00	1.50	1.50	0.00
Carga en cabezal (3)	0.00	0.00	0.00	0.00	1.35	1.35	1.35	1.00	1.35	1.35	1.00	1.35
Carga en cabezal (4)	0.00	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50	1.50	0.00	1.50
Carga en calzada (1)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Carga en calzada (2)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Peso sobrec. de talón	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. de talón	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50
Peso sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderación de hipótesis de cálculo de esfuerzos

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6
Peso propio	1.35	1.00	1.35	1.00	1.35	1.00
Peso Ti. sobre talón	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre talón	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.35	1.00	1.35	1.00
Carga en cabezal (2)	0.00	0.00	1.50	0.00	1.50	0.00
Carga en cabezal (3)	0.00	0.00	1.35	1.35	1.35	1.35
Carga en cabezal (4)	0.00	0.00	1.50	1.50	1.50	1.50
Carga en calzada (1)	1.50	1.50	1.50	1.50	1.50	1.50
Carga en calzada (2)	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. de talón	1.50	1.00	1.50	1.00	0.00	0.00
Emp. sobrec. de talón	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. puntera	1.50	0.00	1.50	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderación de cálculo de presiones en cimentación

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
Peso propio	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre talón	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre talón	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre puntera	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre puntera	0	0	0	0	0	0	0	0	0	0	0	0
Nivel Freatico Interior	1	1	1	1	1	1	1	1	1	1	1	1
Nivel Freatico Exterior	1	1	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (1)	0	0	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (2)	0	0	0	0	0	0	1	1	1	1	1	0
Carga en cabezal (3)	0	0	0	0	1	1	1	0	1	0	1	1
Carga en cabezal (4)	0	0	0	0	0	1	1	1	1	1	0	1
Carga en calzada (1)	0	0	0	1	0	0	0	0	0	0	0	1
Carga en calzada (2)	0	0	0	1	0	0	0	0	0	0	0	1
Peso sobrec. de talón	0	0	0	1	0	0	0	0	0	0	0	0
Emp. sobrec. de talón	0	1	0	1	0	0	0	0	1	1	1	1
Peso sobrec. puntera	0	1	0	1	0	0	0	0	1	1	1	1
Emp. sobrec. puntera	0	0	0	0	0	0	0	0	0	0	0	0

Coeficientes de empuje

	Talud		Calzada	
	Horizontal	Vertical	Horizontal	Vertical
Plano virtual	0.335	0.000	0.271	0.000
Trasdós	0.399	0.049	0.318	0.040

Coeficientes de seguridad y Presiones en cimentación

	Hip.1	Hip.2	Hip.3	Hip.4	Hip.5	Hip.6	Hip.7	Hip.8	Hip.9	Hip10	Hip11	Hip12
Cf.Seg. Deslizamiento	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Cf.Seg. Vuelco	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94
Presión en puntera	33.32	33.32	33.32	33.32	33.32	33.32	33.32	33.32	33.32	33.32	33.32	33.32
Presión en talón	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
Dist. a puntera p=0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Presión centrada	25.30	25.30	25.30	25.30	25.30	25.30	25.30	25.30	25.30	25.30	25.30	25.30

Resultados más desfavorables :

Coeficiente de seguridad al deslizam.	(normal)	1.130	(accidental)	99.990	71 >>
Coeficiente de seguridad al vuelco	//	1.937	//	99.990	71 >>
Presión punta	(Tn/m2)	//	33.318	//	0.000	
Presión centrada	(Tn/m2)	//	25.302	//	0.000	
Presión centrada admisible	(Tn/m2)	//	(30.000)	//	(37.500)	

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 1 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 2 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 7.542	0.91	0.42	0.13	0.68	0.42	0.13
Alzado 6.704	2.21	1.68	1.00	1.69	1.68	0.97
Alzado 5.866	3.91	3.78	3.32	3.02	3.78	3.26
Alzado 5.028	6.02	6.72	7.80	4.67	6.72	7.68
Alzado 4.190	8.51	10.50	15.17	6.65	10.50	14.96
Alzado 3.352	11.41	15.12	26.12	8.94	15.12	25.81
Alzado 2.514	14.71	20.58	41.38	11.56	20.58	40.92
Alzado 1.676	18.40	26.88	61.66	14.50	26.88	61.02
Alzado 0.838	22.50	34.02	87.68	17.76	34.02	86.81
Alzado 0.000	26.99	41.99	120.14	21.34	41.99	119.00
Arranque punt 1/2C	5.39	15.68	3.96	7.01	14.62	3.71
Arranque puntera	12.46	36.02	21.98	15.86	32.89	20.32
Arranque de talón	-27.83	39.82	-104.87	-22.66	36.95	-108.03
Centro de talón	-11.68	27.41	-31.48	-6.72	29.25	-34.57

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 3 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 4 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 7.542	0.91	0.42	0.13	0.68	0.42	0.13
Alzado 6.704	2.21	1.68	1.00	1.69	1.68	0.97
Alzado 5.866	3.91	3.78	3.32	3.02	3.78	3.26
Alzado 5.028	6.02	6.72	7.80	4.67	6.72	7.68
Alzado 4.190	8.51	10.50	15.17	6.65	10.50	14.96
Alzado 3.352	11.41	15.12	26.12	8.94	15.12	25.81
Alzado 2.514	14.71	20.58	41.38	11.56	20.58	40.92
Alzado 1.676	18.40	26.88	61.66	14.50	26.88	61.02
Alzado 0.838	22.50	34.02	87.68	17.76	34.02	86.81
Alzado 0.000	26.99	41.99	120.14	21.34	41.99	119.00
Arranque punt 1/2C	5.39	15.68	3.96	7.01	14.62	3.71
Arranque puntera	12.46	36.02	21.98	15.86	32.89	20.32
Arranque de talón	-27.83	39.82	-104.87	-22.66	36.95	-108.03
Centro de talón	-11.68	27.41	-31.48	-6.72	29.25	-34.57

Sección	Esfuerzos Hipótesis 5			Hipótesis 6		
	Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 7.542	0.91	0.42	0.13	0.68	0.42	0.13
Alzado 6.704	2.21	1.68	1.00	1.69	1.68	0.97
Alzado 5.866	3.91	3.78	3.32	3.02	3.78	3.26
Alzado 5.028	6.02	6.72	7.80	4.67	6.72	7.68
Alzado 4.190	8.51	10.50	15.17	6.65	10.50	14.96
Alzado 3.352	11.41	15.12	26.12	8.94	15.12	25.81
Alzado 2.514	14.71	20.58	41.38	11.56	20.58	40.92
Alzado 1.676	18.40	26.88	61.66	14.50	26.88	61.02
Alzado 0.838	22.50	34.02	87.68	17.76	34.02	86.81
Alzado 0.000	26.99	41.99	120.14	21.34	41.99	119.00
Arranque punt 1/2C	5.39	15.68	3.96	7.01	14.62	3.71
Arranque puntera	12.46	36.02	21.98	15.86	32.89	20.32
Arranque de talón	-27.83	39.82	-104.87	-22.66	36.95	-108.03
Centro de talón	-11.68	27.41	-31.48	-6.72	29.25	-34.57

Armaduras y Comprobación a cortante

Sección		T.y Ret. (cm2/m)	Esfuerzos (cm2/m)	Cálculo (cm2/m)	Cortante (Tn/m)	Resist. (Tn/m)
Alzado 8.380	int	1.13	0.00	1.13	0.00	12.26
	ext	1.13	0.00	1.13		
Alzado 7.542	int	1.59	0.00	1.59	0.42	18.84
	ext	1.59	0.00	1.59		
Alzado 6.704	int	2.06	0.49	2.06	1.68	25.34
	ext	2.06	0.00	2.06		
Alzado 5.866	int	2.53	1.57	2.53	3.78	31.76
	ext	2.53	0.00	2.53		
Alzado 5.028	int	3.00	3.19	3.19	6.72	38.11
	ext	3.00	0.00	3.00		
Alzado 4.190	int	3.46	5.30	5.30	10.50	44.38
	ext	3.46	0.00	3.46		
Alzado 3.352	int	3.93	7.81	7.81	15.12	50.58
	ext	3.93	0.00	3.93		
Alzado 2.514	int	4.40	10.61	10.61	20.58	56.71
	ext	4.40	0.00	4.40		
Alzado 1.676	int	4.87	13.60	13.60	26.88	62.76
	ext	4.87	0.00	4.87		
Alzado 0.838	int	5.34	16.66	16.66	34.02	69.00
	ext	5.34	0.00	5.34		
Alzado 0.000	int	5.80	19.96	19.96	41.99	75.56
	ext	5.80	0.00	5.80		
Arranque punt 1/2C	sup	7.50	0.00	7.50	15.68	59.74
	inf	7.50	0.45	7.50		
Arranque puntera	sup	7.50	0.00	7.50	36.02	58.52
	inf	7.50	5.27	7.50		
Arranque de talón	sup	7.50	29.47	29.47	39.82	63.36
	inf	7.50	0.00	7.50		
Centro de talón	sup	7.50	10.97	10.97	29.25	62.91
	inf	7.50	0.00	7.50		

(31.40 cm²)

13.40
41.866

Ancho de murete de guarda	(m)	0.250
Ancho de cabezal de apoyos	(m)	0.000
Sobreancho interior del alzado	(m)	0.775
Sobreancho exterior del alzado	(m)	0.000
Ancho de talón	(m)	2.475
Ancho de tacón	(m)	0.000
Ancho de puntera	(m)	0.500
Altura de murete de guarda	(m)	0.000
Altura de alzado	(m)	6.200
Canto de cimentación	(m)	0.800
Sobrecanto de tacón	(m)	0.000
Ancho del talud de tierras sobre cor.	(m)	26.000
Altura de tierras sobre coronación	(m)	8.660
Altura de tierras sobre puntera	(m)	0.500
Altura de nivel freático interior	(m)	0.000
Altura de nivel freático exterior	(m)	0.000
Angulo de rozam. del terreno interior	(°S)	35.000
Cohesión del terreno interior	(Tn/m2)	0.000
Angulo de rozam. del terreno exterior	(°S)	35.000
Cohesión del terreno exterior	(Tn/m2)	0.000
Coefic. de empuje relativo en puntera		0.000
(0:Nulo 1:Activo 2:Reposo 3:Pasivo)		
Angulo de rozamiento en plano virtual	(°S)	0.000
Angulo de rozamiento en alzado	(°S)	0.000
Angulo de rozamiento en cimentación	(°S)	30.000
Cohesión en cimentación	(Tn/m2)	0.000
Resistencia caract. del hormigón	(Tn/m2)	2500
Resistencia caract. del acero	(Tn/m2)	51000
Coeficiente de minoración del hormigón		1.500
Coeficiente de minoración del acero		1.150
Recubrimiento de armaduras en alzado	(m)	.050
Recubrimiento de armaduras en zapata	(m)	.050
Diámetro máximo de armaduras en alzado	(m)	.020
Diámetro máximo de armaduras en zapata	(m)	.020
Tipo de ambiente (fisuración) (1/2/3)		2
Peso del material del muro	(Tn/m3)	2.500
Peso seco del terreno interior	(Tn/m3)	2.000
Peso sumergido del terreno interior	(Tn/m3)	0.000
Peso seco del terreno exterior	(Tn/m3)	2.000
Peso sumergido del terreno exterior	(Tn/m3)	0.000

Cálculo según la Instrucción EH-91

Cargas en cabezal	Distancia a borde exterior (m)	Vertical (Tn/m)	Horizontal (Tn/m)	Momento (m*Tn/m)
CAB-1	0.000	0.000	0.000	0.000
CAB-2	0.000	0.000	0.000	0.000
CAB-3	0.000	0.000	0.000	0.000
CAB-4	0.000	0.000	0.000	0.000

Cargas en calzada	Distancia a borde interior (m)	Vertical (Tn/m)
CAL-1	0.000	0.000
CAL-2	0.000	0.000

Sobrecarga sobre calzada	(Tn/m2)	0.000
Sobrecarga sobre talud	(Tn/m2)	0.000
Sobrecarga sobre puntera	(Tn/m2)	0.000

Hipótesis de comprobación de seguridad

1	PP+PTT+PTP+1.5*ETT
2	H1+1.5*EST
3	H1+RVCP
4	H2+RVCP
5	H3+1.35*RHCP
6	H5+1.50*RHSOB
7	H6+1.50*RVSOB
8	H3+1.50*RVSOB+1.50*RHSOB
9	H6+1.50*EST
10	H9+1.50*RVSOB
11	H4+RHCP+1.50*RVSOB
12	H4+1.35*RHCP+1.50*RHSOB

Hipótesis de cálculo de esfuerzos

1	SITUACION TRANSITORIA
2	SITUACION TRANSITORIA
3	SITUACION PERMANENTE
4	SITUACION PERMANENTE
5	SITUACION PERMANENTE
6	SITUACION PERMANENTE

Hipótesis de cálculo de presiones en cimentación

1	PP+PTT+PTP+ETT
2	H1+PSP+EST
3	H1+RVCP
4	H2+RVCP
5	H3+RHCP
6	H5+RHSOB
7	H6+RVSOB
8	H3+RVSOB+RHSOB
9	H7+PSP+EST
10	H8+PSP+EST
11	H4+RHCP+RVSOB
12	H4+RHCP+RHSOB+EST+PSP

Coeficientes de ponderación de hipótesis de comprobación de seguridad

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6	Hip7	Hip8	Hip9	Hip10	Hip11	Hip12
Peso propio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Peso Ti. sobre talón	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre talón	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.35	1.00	1.00	1.00	1.00
Carga en cabezal (2)	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50	0.00	1.50	1.50	0.00
Carga en cabezal (3)	0.00	0.00	0.00	0.00	1.35	1.35	1.35	1.00	1.35	1.35	1.00	1.35
Carga en cabezal (4)	0.00	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50	1.50	0.00	1.50
Carga en calzada (1)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Carga en calzada (2)	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.50
Peso sobrec. de talón	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. de talón	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	1.50	1.50	1.50	1.50
Peso sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderación de hipótesis de cálculo de esfuerzos

	Hip1	Hip2	Hip3	Hip4	Hip5	Hip6
Peso propio	1.35	1.00	1.35	1.00	1.35	1.00
Peso Ti. sobre talón	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre talón	1.50	1.50	1.50	1.50	1.50	1.50
Peso Ti. sobre puntera	1.50	1.00	1.50	1.00	1.50	1.00
Emp. Ti. sobre puntera	0.00	0.00	0.00	0.00	0.00	0.00
Nivel Freatico Interior	1.50	1.50	1.50	1.50	1.50	1.50
Nivel Freatico Exterior	1.50	1.50	1.50	1.50	1.50	1.50
Carga en cabezal (1)	0.00	0.00	1.35	1.00	1.35	1.00
Carga en cabezal (2)	0.00	0.00	1.50	0.00	1.50	0.00
Carga en cabezal (3)	0.00	0.00	1.35	1.35	1.35	1.35
Carga en cabezal (4)	0.00	0.00	1.50	1.50	1.50	1.50
Carga en calzada (1)	1.50	1.50	1.50	1.50	1.50	1.50
Carga en calzada (2)	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. de talón	1.50	1.00	1.50	1.00	0.00	0.00
Emp. sobrec. de talón	1.50	1.50	1.50	1.50	1.50	1.50
Peso sobrec. puntera	1.50	0.00	1.50	0.00	0.00	0.00
Emp. sobrec. puntera	0.00	0.00	0.00	0.00	0.00	0.00

Coeficientes de ponderación de cálculo de presiones en cimentación

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
Peso propio	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre talón	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre talón	1	1	1	1	1	1	1	1	1	1	1	1
Peso Ti. sobre puntera	1	1	1	1	1	1	1	1	1	1	1	1
Emp. Ti. sobre puntera	0	0	0	0	0	0	0	0	0	0	0	0
Nivel Freatico Interior	1	1	1	1	1	1	1	1	1	1	1	1
Nivel Freatico Exterior	1	1	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (1)	0	0	1	1	1	1	1	1	1	1	1	1
Carga en cabezal (2)	0	0	0	0	0	0	1	1	1	1	1	0
Carga en cabezal (3)	0	0	0	0	1	1	1	0	1	0	1	1
Carga en cabezal (4)	0	0	0	0	0	1	1	1	1	1	0	1
Carga en calzada (1)	0	0	0	1	0	0	0	0	0	0	0	1
Carga en calzada (2)	0	0	0	1	0	0	0	0	0	0	0	1
Peso sobrec. de talón	0	0	0	1	0	0	0	0	0	0	0	0
Emp. sobrec. de talón	0	1	0	1	0	0	0	0	1	1	1	1
Peso sobrec. puntera	0	1	0	1	0	0	0	0	1	1	1	1
Emp. sobrec. puntera	0	0	0	0	0	0	0	0	0	0	0	0

Coeficientes de empuje

	Talud		Calzada	
	Horizontal	Vertical	Horizontal	Vertical
Plano virtual	0.335	0.000	0.271	0.000
Trasdós	0.399	0.050	0.319	0.040

Coeficientes de seguridad y Presiones en cimentación

	Hip.1	Hip.2	Hip.3	Hip.4	Hip.5	Hip.6	Hip.7	Hip.8	Hip.9	Hip10	Hip11	Hip12
Cf.Seg. Deslizamiento	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Cf.Seg. Vuelco	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Presión en puntera	32.89	32.89	32.89	32.89	32.89	32.89	32.89	32.89	32.89	32.89	32.89	32.89
Presión en talón	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dist. a puntera p=0	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49
Presión centrada	24.67	24.67	24.67	24.67	24.67	24.67	24.67	24.67	24.67	24.67	24.67	24.67

Resultados más desfavorables :

Coeficiente de seguridad al deslizam.		(normal)	1.010	(accidental)	99.990
Coeficiente de seguridad al vuelco		//	1.422	//	99.990
Presión punta	(Tn/m2)	//	32.887	//	0.000
Presión centrada	(Tn/m2)	//	24.666	//	0.000
Presión centrada admisible	(Tn/m2)	//	(30.000)	//	(37.500)

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 1 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 2 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 5.580	0.63	0.23	0.05	0.48	0.23	0.05
Alzado 4.960	1.49	0.92	0.41	1.13	0.92	0.40
Alzado 4.340	2.56	2.07	1.36	1.96	2.07	1.33
Alzado 3.720	3.85	3.68	3.19	2.97	3.68	3.13
Alzado 3.100	5.36	5.75	6.19	4.16	5.75	6.09
Alzado 2.480	7.09	8.28	10.65	5.52	8.28	10.50
Alzado 1.860	9.04	11.28	16.87	7.07	11.28	16.64
Alzado 1.240	11.22	14.73	25.12	8.79	14.73	24.81
Alzado 0.620	13.61	18.64	35.69	10.68	18.64	35.28
Alzado 0.000	16.22	23.01	48.89	12.76	23.01	48.36
Arranque punt 1/2C	1.32	3.30	0.17	1.87	3.39	0.17
Arranque puntera	8.07	19.92	6.72	11.08	19.87	6.79
Arranque de talón	-11.34	25.85	-43.30	-6.51	26.13	-42.15
Centro de talón	-3.23	19.78	-13.65	-0.10	19.27	-12.04

Sección	Esfuerzos Axil (Tn/m)	Hipótesis 3 Cortante (Tn/m)	Flector (m*Tn/m)	Axil (Tn/m)	Hipótesis 4 Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 5.580	0.63	0.23	0.05	0.48	0.23	0.05
Alzado 4.960	1.49	0.92	0.41	1.13	0.92	0.40
Alzado 4.340	2.56	2.07	1.36	1.96	2.07	1.33
Alzado 3.720	3.85	3.68	3.19	2.97	3.68	3.13
Alzado 3.100	5.36	5.75	6.19	4.16	5.75	6.09
Alzado 2.480	7.09	8.28	10.65	5.52	8.28	10.50
Alzado 1.860	9.04	11.28	16.87	7.07	11.28	16.64
Alzado 1.240	11.22	14.73	25.12	8.79	14.73	24.81
Alzado 0.620	13.61	18.64	35.69	10.68	18.64	35.28
Alzado 0.000	16.22	23.01	48.89	12.76	23.01	48.36
Arranque punt 1/2C	1.32	3.30	0.17	1.87	3.39	0.17
Arranque puntera	8.07	19.92	6.72	11.08	19.87	6.79
Arranque de talón	-11.34	25.85	-43.30	-6.51	26.13	-42.15
Centro de talón	-3.23	19.78	-13.65	-0.10	19.27	-12.04

Sección	Esfuerzos Hipótesis 5 Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)	Hipótesis 6 Axil (Tn/m)	Cortante (Tn/m)	Flector (m*Tn/m)
Alzado 5.580	0.63	0.23	0.05	0.48	0.23	0.05
Alzado 4.960	1.49	0.92	0.41	1.13	0.92	0.40
Alzado 4.340	2.56	2.07	1.36	1.96	2.07	1.33
Alzado 3.720	3.85	3.68	3.19	2.97	3.68	3.13
Alzado 3.100	5.36	5.75	6.19	4.16	5.75	6.09
Alzado 2.480	7.09	8.28	10.65	5.52	8.28	10.50
Alzado 1.860	9.04	11.28	16.87	7.07	11.28	16.64
Alzado 1.240	11.22	14.73	25.12	8.79	14.73	24.81
Alzado 0.620	13.61	18.64	35.69	10.68	18.64	35.28
Alzado 0.000	16.22	23.01	48.89	12.76	23.01	48.36
Arranque punt 1/2C	1.32	3.30	0.17	1.87	3.39	0.17
Arranque puntera	8.07	19.92	6.72	11.08	19.87	6.79
Arranque de talón	-11.34	25.85	-43.30	-6.51	26.13	-42.15
Centro de talón	-3.23	19.78	-13.65	-0.10	19.27	-12.04

Armaduras y Comprobación a cortante

Sección		T.y Ret. (cm2/m)	Esfuerzos (cm2/m)	Cálculo (cm2/m)	Cortante (Tn/m)	Resist. (Tn/m)
Alzado 6.200	int	1.13	0.00	1.13	0.00	12.26
	ext	1.13	0.00	1.13		
Alzado 5.580	int	1.47	0.00	1.47	0.23	17.17
	ext	1.47	0.00	1.47		
Alzado 4.960	int	1.82	0.17	1.82	0.92	22.04
	ext	1.82	0.00	1.82		
Alzado 4.340	int	2.17	0.68	2.17	2.07	26.86
	ext	2.17	0.00	2.17		
Alzado 3.720	int	2.52	1.50	2.52	3.68	31.64
	ext	2.52	0.00	2.52		
Alzado 3.100	int	2.87	2.64	2.87	5.75	36.38
	ext	2.87	0.00	2.87		
Alzado 2.480	int	3.22	4.05	4.05	8.28	41.08
	ext	3.22	0.00	3.22		
Alzado 1.860	int	3.57	5.70	5.70	11.28	45.74
	ext	3.57	0.00	3.57		
Alzado 1.240	int	3.91	7.57	7.57	14.73	50.36
	ext	3.91	0.00	3.91		
Alzado 0.620	int	4.26	9.60	9.60	18.64	54.94
	ext	4.26	0.00	4.26		
Alzado 0.000	int	4.61	11.76	11.76	23.01	59.47
	ext	4.61	0.00	4.61		
Arranque punt 1/2C	sup	6.00	0.00	6.00	3.39	47.45
	inf	6.00	0.00	6.00		
Arranque puntera	sup	6.00	0.00	6.00	19.87	45.88
	inf	6.00	1.57	6.00		
Arranque de talón	sup	6.00	14.85	14.85	26.13	49.16
	inf	6.00	0.00	6.00		
Centro de talón	sup	6.00	6.00	6.00	19.78	49.69
	inf	6.00	0.00	6.00		

DATOS DE ENTRADA

Muro ..... : Aleta 3 Módulo A

GEOMETRIA:

Longitud muro ..... :	10.30 m
Altura mínima total.....:	6.00 m
Altura máxima total.....:	10.55 m
Canto de Zapata..... :	1.00 m
Ancho coronacion ..... :	0.25 m
Talud trasdós..... :	12.50 %
Talud exterior..... :	0.00 %

Angulo muro-calzada .....:	60.00 °
Distancia muro-calzada.....:	10.00 m
Talud de terraplén (H/V)...:	3 / 2
Angulo de talud trasdós....:	18.43 °

TERRENO:

Densidad de tierras.....:	2.00 t/m3
Angulo de rozam. interno...:	33.00 °
Roz. Muro-tierras .....:	0.00 °
Coeficiente de roz.....:	0.55
Tensión admisible .....:	3.00 Kg/cm²
Sobrecarga terraplén..... :	0.00 t/m²

Kh inclinado .....:	0.438
Kh horizontal.....:	0.345
Kv inclinado .....:	0.000
Kv horizontal.....:	0.000

MATERIALES

Fck (Kg/cm²).....:	300
Gc .....:	1.50
Fyk (Kg/cm²).....:	5100
Gs .....:	1.15
Recubrimiento en Alzados...:	4 cms
Recubrimiento en Cimientos.:	4 cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	5.22	17.64	0.00	37.33	0.00	17.64	54.40	54.97	141.65
1.00	2.00	1.50	5.66	20.19	0.00	45.68	0.00	20.19	57.81	65.86	150.53
2.00	3.00	2.50	6.10	23.22	0.00	56.34	0.00	23.22	63.78	79.56	171.11
3.00	4.00	3.50	6.55	26.92	0.00	70.33	0.00	26.92	73.67	97.24	211.14
4.00	5.00	4.50	6.99	30.89	0.00	86.45	0.00	30.89	84.27	117.34	256.93
5.00	6.00	5.50	7.43	35.26	0.00	105.46	0.00	35.26	96.60	140.72	314.69
6.00	7.00	6.50	7.87	39.79	0.00	126.40	0.00	39.79	108.80	166.19	379.26
7.00	8.00	7.50	8.31	44.74	0.00	150.70	0.00	44.74	122.98	195.43	465.65
8.00	9.00	8.50	8.75	49.66	0.00	176.25	0.00	49.66	135.72	225.92	553.88
9.00	10.00	9.50	9.20	55.01	0.00	205.47	0.00	55.01	150.31	260.48	661.75
10.00	10.30	10.15	9.48	58.71	0.00	226.53	0.00	58.71	160.76	285.24	743.69

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	5.22	0.88	4.50	1.70	2.58	2.27	0.15	1.71	4.50
1.00	2.00	1.50	5.66	0.88	4.50	1.58	2.29	2.63	0.00	1.97	4.39
2.00	3.00	2.50	6.10	0.88	4.65	1.51	2.15	2.96	0.00	2.22	4.31
3.00	4.00	3.50	6.55	0.88	5.00	1.51	2.17	3.18	0.00	2.38	4.64
4.00	5.00	4.50	6.99	0.88	5.35	1.50	2.19	3.39	0.00	2.54	4.97
5.00	6.00	5.50	7.43	0.88	5.75	1.51	2.24	3.58	0.00	2.68	5.40
6.00	7.00	6.50	7.87	0.93	6.15	1.50	2.28	3.70	0.00	2.78	5.87
7.00	8.00	7.50	8.31	1.03	6.65	1.51	2.38	3.73	0.00	2.80	6.59
8.00	9.00	8.50	8.75	1.18	7.10	1.50	2.45	3.74	0.08	2.81	7.10
9.00	10.00	9.50	9.20	1.33	7.60	1.50	2.54	3.74	0.21	2.82	7.60
10.00	10.30	10.15	9.48	1.43	7.95	1.51	2.61	3.74	0.31	2.82	7.95

Coeficiente global de seg. al deslizamiento ...	1.52
Coeficiente global de seg. al vuelco	2.40
Tensión máxima en solera (Kg/cm²).....	3.74

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 0.96 m
ϵ = 1.456 m

		Z A R P A D E L A N T E R A					Z A R P A T R A S E R A				
Zona		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	23.87	15.02	11.17	11.36	3.65	25.66	23.39	51.03	52.98	13.80
1.00	2.00	27.35	15.98	13.61	13.85	4.40	29.69	24.60	63.96	66.87	16.05
2.00	3.00	31.07	16.93	16.36	16.68	5.23	33.98	25.90	78.89	83.12	18.74
3.00	4.00	35.34	17.85	19.45	19.86	6.14	38.54	27.73	95.95	101.99	23.00
4.00	5.00	39.52	18.76	22.91	23.44	7.12	43.41	29.57	115.27	123.76	27.91
5.00	6.00	43.93	19.64	26.75	27.42	8.17	48.53	31.44	137.01	148.72	33.54
6.00	7.00	48.96	20.49	30.98	31.83	9.28	53.92	33.33	161.29	177.23	39.96
7.00	8.00	53.83	21.31	35.64	36.70	10.44	59.62	35.25	188.26	209.65	47.27
8.00	9.00	58.93	22.09	40.73	42.07	11.63	65.56	37.20	218.06	246.40	55.56
9.00	10.00	64.72	22.83	46.29	47.94	12.84	71.78	39.19	250.83	287.93	64.93
10.00	10.30	68.20	23.29	50.15	52.05	13.63	76.01	40.49	273.78	317.73	71.64

A L Z A D O S

Sección ....

Zona		H	d	Vd	Vcu	Md	Us	As
0.00	1.00	4.18	0.38	3.71	20.90	2.53	7.18	2.22
		3.13	0.51	8.58	24.40	9.57	19.92	5.56
		2.09	0.64	15.25	26.20	23.39	38.60	9.59
		1.04	0.77	23.74	27.47	46.12	63.27	14.27
		0.00	0.90	26.26	26.08	53.79	62.29	14.77
1.00	2.00	4.53	0.39	4.29	21.78	3.14	8.65	2.63
		3.40	0.53	9.97	25.12	12.00	23.93	6.47
		2.27	0.67	17.79	26.72	29.46	46.28	10.93
		1.13	0.82	27.73	28.45	58.23	75.75	17.08
		0.00	0.96	30.85	26.62	68.52	74.91	16.89
2.00	3.00	4.88	0.40	4.91	22.60	3.84	10.28	3.07
		3.66	0.56	11.47	25.76	14.81	28.36	7.41
		2.44	0.71	20.51	27.21	36.49	54.73	12.34
		1.22	0.86	32.03	29.37	72.29	89.46	20.17
		0.00	1.01	35.81	27.54	85.70	88.81	20.02
3.00	4.00	5.24	0.41	5.57	23.36	4.64	12.07	3.54
		3.93	0.58	13.08	26.31	18.02	33.22	8.37
		2.62	0.74	23.44	28.06	44.56	63.96	14.42
		1.31	0.90	36.65	30.26	88.46	104.44	23.55
		0.00	1.07	41.14	28.42	105.55	103.98	23.45
4.00	5.00	5.59	0.42	6.27	24.07	5.54	14.03	4.03
		4.19	0.60	14.79	26.78	21.67	38.50	9.32
		2.80	0.77	26.55	28.87	53.74	74.00	16.69
		1.40	0.95	41.57	31.11	106.87	120.70	27.22
		0.00	1.12	46.84	29.27	128.24	120.47	27.16
5.00	6.00	5.94	0.44	7.01	24.72	6.54	16.16	4.55
		4.46	0.62	16.60	27.17	25.77	44.23	10.26
		2.97	0.81	29.86	29.65	64.10	84.85	19.13
		1.49	0.99	46.80	31.93	127.67	138.27	31.18
		0.00	1.18	52.91	30.09	153.97	138.28	31.18
6.00	7.00	6.30	0.45	7.80	25.31	7.67	18.47	5.08
		4.72	0.64	18.52	27.65	30.37	50.39	11.36
		3.15	0.84	33.37	30.39	75.72	96.52	21.76
		1.57	1.04	52.34	32.73	151.01	157.16	35.44
		-0.00	1.23	59.35	30.90	182.94	157.43	35.50
7.00	8.00	6.65	0.46	8.63	25.86	8.92	20.96	5.63
		4.99	0.67	20.55	28.35	35.48	57.01	12.86
		3.33	0.87	37.07	31.12	88.66	109.03	24.58
		1.66	1.08	58.19	33.50	177.03	177.39	40.00
		0.00	1.29	66.16	31.69	215.33	177.94	40.12
8.00	9.00	7.00	0.47	9.49	26.36	10.29	23.63	6.18
		5.25	0.69	22.68	29.02	41.14	64.09	14.45
		3.50	0.91	40.97	31.81	102.99	122.39	27.60
		1.75	1.13	64.35	34.26	205.89	198.99	44.87
		-0.00	1.34	73.33	32.46	251.33	199.83	45.06
9.00	10.00	7.36	0.48	10.40	26.81	11.80	26.49	6.74
		5.52	0.71	24.91	29.67	47.37	71.63	16.15
		3.68	0.94	45.05	32.49	118.80	136.61	30.80
		1.84	1.17	70.82	35.00	237.72	221.98	50.05
		0.00	1.40	80.88	33.22	291.13	223.12	50.31
10.00	10.30	7.59	0.49	11.02	27.07	12.85	28.45	7.10
		5.69	0.72	26.42	30.08	51.74	76.79	17.31
		3.79	0.96	47.82	32.92	129.89	146.31	32.99
		1.90	1.20	75.20	35.47	260.07	237.68	53.59
		-0.00	1.44	85.99	33.71	319.13	239.02	53.90

DATOS DE ENTRADA

Muro ..... : Aleta 3 Módulo A

GEOMETRIA:

Longitud muro ..... :	10.30 m
Altura mínima total.....:	1.50 m
Altura máxima total.....:	6.00 m
Canto de Zapata..... :	0.50 m
Ancho coronacion ..... :	0.25 m
Talud trasdós..... :	12.50 %
Talud exterior..... :	0.00 %
Angulo muro-calzada .....:	60.00 °
Distancia muro-calzada.....:	15.00 m
Talud de terraplén (H/V)...:	3 / 2
Angulo de talud trasdós....:	18.43 °

TERRENO:

Densidad de tierras.....:	2.00 t/m3
Angulo de rozam. interno...:	33.00 °
Roz. Muro-tierras .....:	0.00 °
Coeficiente de roz.....:	0.55
Tensión admisible .....:	3.00 Kg/cm²
Sobrecarga terraplén..... :	0.00 t/m²
Kh inclinado .....:	0.438
Kh horizontal.....:	0.345
Kv inclinado .....:	0.000
Kv horizontal.....:	0.000

MATERIALES

Fck (Kg/cm²).....:	300
Gc .....:	1.50
Fyk (Kg/cm²).....:	5100
Gs .....:	1.15
Recubrimiento en Alzados...:	4 cms
Recubrimiento en Cimientos.:	4 cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	1.22	0.84	0.00	0.39	0.00	0.84	3.36	0.81	1.92
1.00	2.00	1.50	1.66	1.54	0.00	0.96	0.00	1.54	4.85	1.73	3.17
2.00	3.00	2.50	2.09	2.54	0.00	2.04	0.00	2.54	7.53	3.31	6.10
3.00	4.00	3.50	2.53	3.80	0.00	3.74	0.00	3.80	10.81	5.64	10.44
4.00	5.00	4.50	2.97	5.31	0.00	6.17	0.00	5.31	14.69	8.83	16.44
5.00	6.00	5.50	3.40	7.14	0.00	9.61	0.00	7.14	19.62	13.18	25.51
6.00	7.00	6.50	3.84	9.23	0.00	14.12	0.00	9.23	25.26	18.74	37.38
7.00	8.00	7.50	4.28	11.59	0.00	19.88	0.00	11.59	31.61	25.67	52.46
8.00	9.00	8.50	4.71	14.30	0.00	27.25	0.00	14.30	39.30	34.40	73.31
9.00	10.00	9.50	5.15	17.21	0.00	35.96	0.00	17.21	47.11	44.56	96.34
10.00	10.30	10.15	5.43	19.29	0.00	42.65	0.00	19.29	52.89	52.30	114.97

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	1.22	0.25	1.00	2.20	2.37	0.68	0.00	0.51	0.99
1.00	2.00	1.50	1.66	0.25	1.15	1.74	1.84	1.09	0.00	0.82	0.89
2.00	3.00	2.50	2.09	0.25	1.45	1.63	1.84	1.36	0.00	1.02	1.11
3.00	4.00	3.50	2.53	0.25	1.75	1.56	1.85	1.62	0.00	1.22	1.33
4.00	5.00	4.50	2.97	0.25	2.05	1.52	1.86	1.89	0.00	1.42	1.56
5.00	6.00	5.50	3.40	0.25	2.40	1.51	1.94	2.08	0.00	1.56	1.89
6.00	7.00	6.50	3.84	0.25	2.75	1.51	1.99	2.28	0.00	1.71	2.21
7.00	8.00	7.50	4.28	0.25	3.10	1.50	2.04	2.49	0.00	1.87	2.54
8.00	9.00	8.50	4.71	0.25	3.50	1.51	2.13	2.65	0.00	1.98	2.97
9.00	10.00	9.50	5.15	0.25	3.85	1.51	2.16	2.86	0.00	2.14	3.30
10.00	10.30	10.15	5.43	0.25	4.10	1.51	2.20	2.98	0.00	2.23	3.55

Coeficiente global de seg. al deslizamiento ...	1.52
Coeficiente global de seg. al vuelco	2.09
Tensión máxima en solera (Kg/cm²).....	2.98

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 0.46 m
ε = 1.659 m

		Z A R P A D E L A N T E R A					Z A R P A T R A S E R A				
Zona		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	1.62	7.56	0.22	0.47	0.16	1.53	9.70	0.47	0.99	0.33
1.00	2.00	2.46	8.66	0.33	0.70	0.24	2.88	13.91	1.41	2.99	0.98
2.00	3.00	3.34	9.55	0.45	0.95	0.32	4.48	17.89	3.09	6.57	2.09
3.00	4.00	4.23	10.31	0.57	1.19	0.40	6.33	21.58	5.70	12.18	3.66
4.00	5.00	5.14	10.98	0.69	1.45	0.48	8.41	24.86	9.41	20.29	5.60
5.00	6.00	6.07	11.58	0.81	1.70	0.57	10.75	27.53	14.43	31.46	7.61
6.00	7.00	7.00	12.13	0.93	1.96	0.65	13.27	30.59	20.93	46.31	10.44
7.00	8.00	7.94	12.64	1.05	2.22	0.74	16.00	34.35	29.09	65.57	14.79
8.00	9.00	8.88	13.10	1.17	2.48	0.82	19.03	38.19	39.12	90.12	20.32
9.00	10.00	9.83	13.54	1.30	2.74	0.90	22.19	42.13	51.19	121.00	27.29
10.00	10.30	10.45	13.80	1.38	2.91	0.96	24.38	44.76	60.22	145.06	32.71

A L Z A D O S

		Sección						
Zona		H	d	Vd	Vcu	Md	Us	As
0.00	1.00	0.97	0.28	0.31	8.44	0.07	0.26	0.09
		0.73	0.31	0.61	10.88	0.19	0.67	0.23
		0.49	0.34	1.02	12.89	0.41	1.31	0.44
		0.24	0.37	1.34	13.69	0.63	1.80	0.60
		-0.00	0.40	1.34	12.80	0.63	1.65	0.55
1.00	2.00	1.32	0.29	0.50	10.24	0.13	0.50	0.17
		0.99	0.33	1.03	13.18	0.41	1.35	0.45
		0.66	0.37	1.75	15.45	0.92	2.66	0.87
		0.33	0.42	2.52	16.87	1.61	4.13	1.33
		-0.00	0.46	2.52	15.60	1.61	3.72	1.21
2.00	3.00	1.67	0.30	0.73	11.89	0.23	0.84	0.26
		1.26	0.35	1.56	15.18	0.76	2.31	0.76
		0.84	0.41	2.68	17.61	1.74	4.58	1.47
		0.42	0.46	4.07	19.45	3.30	7.62	2.38
		-0.00	0.51	4.07	17.85	3.30	6.77	2.15
3.00	4.00	2.02	0.31	1.00	13.42	0.37	1.29	0.43
		1.52	0.38	2.19	16.96	1.26	3.59	1.16
		1.01	0.44	3.80	19.44	2.94	7.12	2.23
		0.51	0.50	5.84	21.30	5.67	11.90	3.60
		-0.00	0.57	5.99	19.69	5.89	10.87	3.36
4.00	5.00	2.37	0.32	1.32	14.84	0.55	1.86	0.61
		1.78	0.40	2.93	18.53	1.94	5.21	1.66
		1.19	0.47	5.12	21.01	4.59	10.31	3.14
		0.59	0.55	7.90	22.80	8.91	17.17	5.00
		-0.00	0.62	8.28	21.23	9.57	16.06	4.81
5.00	6.00	2.72	0.34	1.68	16.16	0.79	2.56	0.84
		2.04	0.42	3.77	19.93	2.83	7.19	2.24
		1.36	0.51	6.64	22.35	6.77	14.17	4.19
		0.68	0.59	10.28	24.03	13.19	23.54	6.56
		0.00	0.68	10.94	22.51	14.52	22.39	6.47
6.00	7.00	3.07	0.35	2.08	17.38	1.08	3.40	1.10
		2.30	0.44	4.73	21.17	3.95	9.54	2.91
		1.54	0.54	8.35	23.50	9.54	18.74	5.35
		0.77	0.63	12.96	25.05	18.67	31.03	8.23
		-0.00	0.73	13.98	23.60	20.95	29.87	8.29
7.00	8.00	3.42	0.36	2.53	18.53	1.44	4.37	1.40
		2.57	0.46	5.79	22.28	5.35	12.27	3.65
		1.71	0.57	10.26	24.48	12.97	24.02	6.61
		0.86	0.68	15.96	25.88	25.49	39.66	9.97
		0.00	0.78	17.38	24.51	29.04	38.55	10.24
8.00	9.00	3.77	0.37	3.02	19.60	1.87	5.50	1.73
		2.83	0.49	6.95	23.27	7.03	15.39	4.47
		1.89	0.60	12.37	25.31	17.15	30.04	7.92
		0.94	0.72	19.27	26.53	33.80	49.48	11.71
		0.00	0.84	21.16	25.28	38.98	48.43	12.27
9.00	10.00	4.12	0.38	3.55	20.59	2.38	6.79	2.11
		3.09	0.51	8.23	24.14	9.04	18.92	5.33
		2.06	0.64	14.68	26.01	22.14	36.81	9.27
		1.03	0.77	22.89	27.18	43.73	60.49	13.64
		0.00	0.89	25.30	25.92	50.96	59.55	14.32
10.00	10.30	4.35	0.39	3.92	21.20	2.76	7.71	2.37
		3.26	0.52	9.11	24.65	10.52	21.44	5.92
		2.17	0.66	16.28	26.39	25.85	41.62	10.16
		1.09	0.79	25.41	27.84	51.14	68.31	15.40
		-0.00	0.93	28.19	26.27	59.94	67.44	15.64

DATOS DE ENTRADA

Muro ..... : Aleta 4 MODULO D

GEOMETRIA:

Longitud muro ..... :	7.15 m
Altura mínima total.....:	7.25 m
Altura máxima total.....:	10.55 m
Canto de Zapata..... :	1.00 m
Ancho coronacion ..... :	0.25 m
Talud trasdós..... :	12.50 %
Talud exterior..... :	0.00 %

Angulo muro-calzada .....:	60.00 °
Distancia muro-calzada.....:	10.00 m
Talud de terraplén (H/V)...:	3 / 2
Angulo de talud trasdós....:	18.43 °

TERRENO:

Densidad de tierras.....:	2.00 t/m3
Angulo de rozam. interno...:	33.00 °
Roz. Muro-tierras .....:	0.00 °
Coeficiente de roz.....:	0.55
Tensión admisible .....:	3.00 Kg/cm²
Sobrecarga terraplén..... :	0.00 t/m²

Kh inclinado .....:	0.438
Kh horizontal.....:	0.345
Kv inclinado .....:	0.000
Kv horizontal.....:	0.000

MATERIALES

Fck (Kg/cm²).....:	300
Gc .....:	1.50
Fyk (Kg/cm²).....:	5100
Gs .....:	1.15
Recubrimiento en Alzados...:	4 cms
Recubrimiento en Cimientos.:	4 cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	6.48	26.36	0.00	68.14	0.00	26.36	72.19	94.50	205.02
1.00	2.00	1.50	6.94	30.55	0.00	85.05	0.00	30.55	83.83	115.61	255.62
2.00	3.00	2.50	7.40	34.93	0.00	103.97	0.00	34.93	95.31	138.90	308.00
3.00	4.00	3.50	7.87	39.74	0.00	126.17	0.00	39.74	108.73	165.91	379.03
4.00	5.00	4.50	8.33	44.86	0.00	151.31	0.00	44.86	123.14	196.17	466.27
5.00	6.00	5.50	8.79	50.13	0.00	178.76	0.00	50.13	137.33	228.90	564.08
6.00	7.00	6.50	9.25	55.86	0.00	210.28	0.00	55.86	153.52	266.14	683.98
7.00	7.15	7.08	9.52	59.20	0.00	229.38	0.00	59.20	162.48	288.57	755.93

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	6.48	0.88	4.95	1.51	2.17	3.14	0.00	2.36	4.59
1.00	2.00	1.50	6.94	0.88	5.35	1.51	2.21	3.35	0.00	2.51	5.01
2.00	3.00	2.50	7.40	0.88	5.70	1.50	2.22	3.58	0.00	2.69	5.32
3.00	4.00	3.50	7.87	0.93	6.15	1.50	2.28	3.70	0.00	2.77	5.88
4.00	5.00	4.50	8.33	1.03	6.65	1.51	2.38	3.74	0.00	2.81	6.58
5.00	6.00	5.50	8.79	1.18	7.15	1.51	2.46	3.75	0.09	2.81	7.15
6.00	7.00	6.50	9.25	1.33	7.70	1.51	2.57	3.75	0.24	2.82	7.70
7.00	7.15	7.08	9.52	1.43	8.00	1.51	2.62	3.74	0.32	2.82	8.00

Coeficiente global de seg. al deslizamiento ...	1.51
Coeficiente global de seg. al vuelco	2.42
Tensión máxima en solera (Kg/cm²).....	3.75

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 0.96 m
ε = 1.456 m

		Z A R P A D E L A N T E R A					Z A R P A T R A S E R A				
Zona		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	33.99	16.86	16.16	16.47	5.17	39.63	27.10	89.90	95.26	21.48
1.00	2.00	38.57	17.95	19.80	20.22	6.24	44.38	29.11	110.20	118.00	26.61
2.00	3.00	43.05	19.01	23.95	24.51	7.41	49.45	31.13	133.23	144.35	32.55
3.00	4.00	48.20	20.03	28.64	29.38	8.67	54.80	33.18	159.20	174.75	39.40
4.00	5.00	53.64	21.01	33.90	34.88	10.01	60.44	35.25	188.27	209.66	47.28
5.00	6.00	58.93	21.95	39.77	41.05	11.41	66.36	37.36	220.62	249.60	56.28
6.00	7.00	64.94	22.83	46.27	47.93	12.84	72.52	39.51	256.43	295.14	66.55
7.00	7.15	68.24	23.31	50.31	52.23	13.66	76.25	40.76	278.64	324.11	73.08

A L Z A D O S

		Sección						
Zona		H	d	Vd	Vcu	Md	Us	As
0.00	1.00	5.18	0.41	5.20	22.85	4.25	11.09	3.29
		3.89	0.57	12.36	25.95	16.71	30.93	7.96
		2.59	0.74	22.31	27.57	41.65	60.07	13.54
		1.30	0.90	35.06	29.80	83.14	98.65	22.25
		-0.00	1.06	39.39	28.00	99.25	98.35	22.18
1.00	2.00	5.55	0.42	5.96	23.69	5.19	13.18	3.83
		4.17	0.60	14.19	26.53	20.51	36.54	9.01
		2.78	0.77	25.62	28.50	51.19	70.68	15.94
		1.39	0.94	40.27	30.76	102.23	115.81	26.11
		0.00	1.12	45.40	28.95	122.75	115.72	26.09
2.00	3.00	5.92	0.44	6.77	24.45	6.26	15.48	4.39
		4.44	0.62	16.14	27.01	24.84	42.67	10.05
		2.96	0.81	29.16	29.33	62.08	82.26	18.55
		1.48	0.99	45.83	31.68	124.03	134.49	30.33
		0.00	1.18	51.84	29.87	149.68	134.63	30.36
3.00	4.00	6.29	0.45	7.63	25.15	7.47	18.00	4.98
		4.72	0.64	18.22	27.46	29.75	49.35	11.13
		3.15	0.84	32.93	30.23	74.41	94.82	21.38
		1.57	1.04	51.75	32.58	148.73	154.73	34.89
		0.00	1.23	58.71	30.76	180.28	155.11	34.98
4.00	5.00	6.66	0.46	8.55	25.79	8.83	20.74	5.58
		5.00	0.67	20.43	28.26	35.26	56.57	12.76
		3.33	0.87	36.93	31.04	88.27	108.38	24.44
		1.67	1.08	58.04	33.44	176.51	176.56	39.81
		0.00	1.29	66.01	31.63	214.80	177.20	39.96
5.00	6.00	7.03	0.47	9.51	26.36	10.34	23.70	6.20
		5.27	0.69	22.76	29.02	41.41	64.34	14.51
		3.52	0.91	41.15	31.83	103.76	122.95	27.72
		1.76	1.13	64.68	34.28	207.54	200.01	45.10
		0.00	1.35	73.73	32.48	253.45	200.91	45.30
6.00	7.00	7.40	0.48	10.53	26.87	12.01	26.90	6.81
		5.55	0.71	25.22	29.76	48.23	72.69	16.39
		3.70	0.94	45.60	32.59	120.95	138.56	31.24
		1.85	1.18	71.68	35.10	242.02	225.10	50.76
		-0.00	1.41	81.88	33.32	296.49	226.27	51.02
7.00	7.15	7.61	0.49	11.14	27.14	13.05	28.84	7.17
		5.71	0.73	26.69	30.17	52.48	77.74	17.53
		3.81	0.96	48.27	33.01	131.65	148.01	33.37
		1.90	1.20	75.87	35.56	263.46	240.28	54.18
		-0.00	1.44	86.76	33.80	323.31	241.60	54.48

DATOS DE ENTRADA

Muro ..... : Aleta 3 Modulo C

GEOMETRIA:

Longitud muro ..... :	10.30 m
Altura mínima total.....:	1.50 m
Altura máxima total.....:	6.00 m
Canto de Zapata..... :	0.50 m
Ancho coronacion ..... :	0.25 m
Talud trasdós..... :	12.50 %
Talud exterior..... :	0.00 %

Angulo muro-calzada .....:	60.00 °
Distancia muro-calzada.....:	15.00 m
Talud de terraplén (H/V)...:	3 / 2
Angulo de talud trasdós....:	18.43 °

TERRENO:

Densidad de tierras.....:	2.00 t/m3
Angulo de rozam. interno...:	33.00 °
Roz. Muro-tierras .....:	0.00 °
Coeficiente de roz.....:	0.55
Tensión admisible .....:	3.00 Kg/cm²
Sobrecarga terraplén..... :	0.00 t/m²

Kh inclinado .....:	0.438
Kh horizontal.....:	0.345
Kv inclinado .....:	0.000
Kv horizontal.....:	0.000

MATERIALES

Fck (Kg/cm²).....:	300
Gc .....:	1.50
Fyk (Kg/cm²).....:	5100
Gs .....:	1.15
Recubrimiento en Alzados...:	4 cms
Recubrimiento en Cimientos.:	4 cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	1.22	0.84	0.00	0.39	0.00	0.84	3.36	0.81	1.92
1.00	2.00	1.50	1.66	1.54	0.00	0.96	0.00	1.54	4.85	1.73	3.17
2.00	3.00	2.50	2.09	2.54	0.00	2.04	0.00	2.54	7.53	3.31	6.10
3.00	4.00	3.50	2.53	3.80	0.00	3.74	0.00	3.80	10.81	5.64	10.44
4.00	5.00	4.50	2.97	5.31	0.00	6.17	0.00	5.31	14.69	8.83	16.44
5.00	6.00	5.50	3.40	7.14	0.00	9.61	0.00	7.14	19.62	13.18	25.51
6.00	7.00	6.50	3.84	9.23	0.00	14.12	0.00	9.23	25.26	18.74	37.38
7.00	8.00	7.50	4.28	11.59	0.00	19.88	0.00	11.59	31.61	25.67	52.46
8.00	9.00	8.50	4.71	14.30	0.00	27.25	0.00	14.30	39.30	34.40	73.31
9.00	10.00	9.50	5.15	17.21	0.00	35.96	0.00	17.21	47.11	44.56	96.34
10.00	10.30	10.15	5.43	19.29	0.00	42.65	0.00	19.29	52.89	52.30	114.97

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	1.22	0.25	1.00	2.20	2.37	0.68	0.00	0.51	0.99
1.00	2.00	1.50	1.66	0.25	1.15	1.74	1.84	1.09	0.00	0.82	0.89
2.00	3.00	2.50	2.09	0.25	1.45	1.63	1.84	1.36	0.00	1.02	1.11
3.00	4.00	3.50	2.53	0.25	1.75	1.56	1.85	1.62	0.00	1.22	1.33
4.00	5.00	4.50	2.97	0.25	2.05	1.52	1.86	1.89	0.00	1.42	1.56
5.00	6.00	5.50	3.40	0.25	2.40	1.51	1.94	2.08	0.00	1.56	1.89
6.00	7.00	6.50	3.84	0.25	2.75	1.51	1.99	2.28	0.00	1.71	2.21
7.00	8.00	7.50	4.28	0.25	3.10	1.50	2.04	2.49	0.00	1.87	2.54
8.00	9.00	8.50	4.71	0.25	3.50	1.51	2.13	2.65	0.00	1.98	2.97
9.00	10.00	9.50	5.15	0.25	3.85	1.51	2.16	2.86	0.00	2.14	3.30
10.00	10.30	10.15	5.43	0.25	4.10	1.51	2.20	2.98	0.00	2.23	3.55

Coeficiente global de seg. al deslizamiento ...	1.52
Coeficiente global de seg. al vuelco	2.09
Tensión máxima en solera (Kg/cm²).....	2.98

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 0.46 m
e = 1.659 m

Zona		Z A R P A D E L A N T E R A Vd	Vcu	Md	Us	As	Z A R P A T R A S E R A Vd	Vcu	Md	Us	As
0.00	1.00	1.62	7.56	0.22	0.47	0.16	1.53	9.70	0.47	0.99	0.33
1.00	2.00	2.46	8.66	0.33	0.70	0.24	2.88	13.91	1.41	2.99	0.98
2.00	3.00	3.34	9.55	0.45	0.95	0.32	4.48	17.89	3.09	6.57	2.09
3.00	4.00	4.23	10.31	0.57	1.19	0.40	6.33	21.58	5.70	12.18	3.66
4.00	5.00	5.14	10.98	0.69	1.45	0.48	8.41	24.86	9.41	20.29	5.60
5.00	6.00	6.07	11.58	0.81	1.70	0.57	10.75	27.53	14.43	31.46	7.61
6.00	7.00	7.00	12.13	0.93	1.96	0.65	13.27	30.59	20.93	46.31	10.44
7.00	8.00	7.94	12.64	1.05	2.22	0.74	16.00	34.35	29.09	65.57	14.79
8.00	9.00	8.88	13.10	1.17	2.48	0.82	19.03	38.19	39.12	90.12	20.32
9.00	10.00	9.83	13.54	1.30	2.74	0.90	22.19	42.13	51.19	121.00	27.29
10.00	10.30	10.45	13.80	1.38	2.91	0.96	24.38	44.76	60.22	145.06	32.71

A L Z A D O S

Zona		Sección .... H	d	Vd	Vcu	Md	Us	As
0.00	1.00	0.97	0.28	0.31	8.44	0.07	0.26	0.09
		0.73	0.31	0.61	10.88	0.19	0.67	0.23
		0.49	0.34	1.02	12.89	0.41	1.31	0.44
		0.24	0.37	1.34	13.69	0.63	1.80	0.60
		-0.00	0.40	1.34	12.80	0.63	1.65	0.55
1.00	2.00	1.32	0.29	0.50	10.24	0.13	0.50	0.17
		0.99	0.33	1.03	13.18	0.41	1.35	0.45
		0.66	0.37	1.75	15.45	0.92	2.66	0.87
		0.33	0.42	2.52	16.87	1.61	4.13	1.33
		0.00	0.46	2.52	15.60	1.61	3.72	1.21
2.00	3.00	1.67	0.30	0.73	11.89	0.23	0.84	0.28
		1.26	0.35	1.56	15.18	0.76	2.31	0.76
		0.84	0.41	2.68	17.61	1.74	4.58	1.47
		0.42	0.46	4.07	19.45	3.30	7.62	2.38
		-0.00	0.51	4.07	17.85	3.30	6.77	2.15
3.00	4.00	2.02	0.31	1.00	13.42	0.37	1.29	0.43
		1.52	0.38	2.19	16.96	1.26	3.59	1.15
		1.01	0.44	3.80	19.44	2.94	7.12	2.23
		0.51	0.50	5.84	21.30	5.67	11.90	3.60
		0.00	0.57	5.99	19.69	5.89	10.87	3.36
4.00	5.00	2.37	0.32	1.32	14.84	0.55	1.86	0.61
		1.78	0.40	2.93	18.53	1.94	5.21	1.66
		1.19	0.47	5.12	21.01	4.59	10.31	3.14
		0.59	0.55	7.90	22.80	8.91	17.17	5.00
		-0.00	0.62	8.28	21.23	9.57	16.06	4.81
5.00	6.00	2.72	0.34	1.68	16.16	0.79	2.56	0.84
		2.04	0.42	3.77	19.93	2.83	7.19	2.24
		1.36	0.51	6.64	22.35	6.77	14.17	4.19
		0.68	0.59	10.28	24.03	13.19	23.54	6.56
		0.00	0.68	10.94	22.51	14.52	22.39	6.47
6.00	7.00	3.07	0.35	2.08	17.38	1.08	3.40	1.10
		2.30	0.44	4.73	21.17	3.95	9.54	2.91
		1.54	0.54	8.35	23.50	9.54	18.74	5.35
		0.77	0.63	12.96	25.05	18.67	31.03	8.23
		-0.00	0.73	13.98	23.60	20.95	29.87	8.29
7.00	8.00	3.42	0.36	2.53	18.53	1.44	4.37	1.40
		2.57	0.46	5.79	22.28	5.35	12.27	3.65
		1.71	0.57	10.26	24.48	12.97	24.02	6.61
		0.86	0.68	15.96	25.88	25.49	39.66	9.97
		0.00	0.78	17.38	24.51	29.04	38.55	10.24
8.00	9.00	3.77	0.37	3.02	19.60	1.87	5.50	1.73
		2.83	0.49	6.95	23.27	7.03	15.39	4.47
		1.89	0.60	12.37	25.31	17.15	30.04	7.92
		0.94	0.72	19.27	26.53	33.80	49.48	11.71
		0.00	0.84	21.16	25.28	38.98	48.43	12.27
9.00	10.00	4.12	0.38	3.55	20.59	2.38	6.79	2.11
		3.09	0.51	8.23	24.14	9.04	18.92	5.33
		2.06	0.64	14.68	26.01	22.14	36.81	9.27
		1.03	0.77	22.89	27.18	43.73	60.49	13.64
		0.00	0.89	25.30	25.92	50.96	59.55	14.32
10.00	10.30	4.35	0.39	3.92	21.20	2.76	7.71	2.37
		3.26	0.52	9.11	24.65	10.52	21.44	5.92
		2.17	0.66	16.28	26.39	25.85	41.62	10.16
		1.09	0.79	25.41	27.84	51.14	68.31	15.40
		-0.00	0.93	28.19	26.27	59.94	67.44	15.64

CÁLCULOS ESTRUCTURALES

FDO. JOSÉ ANGEL HIDALGO GONZÁLEZ
COL. Nº 9.859

Estructura E-5. (PK 316+460)

ESTRUCTURA E-5 (PK 316+460)

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1. Introducción

1.1. Descripción de la solución adoptada

La Reposición 15, (Estructura E-5) ubicada en el P.K. 316+460, de la obra "Línea de Alta Velocidad Madrid-Barcelona-Frontera Francesa. Tramo: Lleida-Martorell. Subtramo III-B " consta de tres vanos, con luces de 13.00 m, 17.00 m y 13.00 m, con una longitud total de 43.80 m. Está apoyada en los extremos en estribos del tipo cerrado y en los puntos intermedios en pilas con un único fuste de sección circular con diámetro de 1.00 m, la cimentación es del tipo superficial.

El tablero es una sección maciza de hormigón de 7.70 m de ancho con un canto de 0.90m y con voladizos laterales de 1.50 m de longitud con 0.30 m de canto en el arranque y 0.20m en el extremo. La sección tiene bombeo del 2%. El ancho inferior del núcleo es de 3.70 m.

Ambos estribos son cerrados y están cimentados mediante zapatas directamente en el terreno.

Las pilas tienen un único fuste circular de 1.00 m de diámetro, y están empotradas en el tablero.La cimentación es superficial mediante zapatas.

La ejecución del tablero se realizará en una sola fase, con hormigonado completo de la losa sobre cimbra.

1.2. Instrucciones y normas empleadas

Para el cálculo de las acciones que actúan sobre los diversos elementos de la estructura, se ha utilizado la "Instrucción sobre las acciones a considerar en el proyecto de puentes de carreteras (IAP)", aprobada el 12 de febrero de 1998.

Se ha tenido en cuenta la "Norma de Construcción Sismorresistente (Parte General y Edificación) NCS-94", aprobada por Real Decreto 2543/1994 de 29 de Diciembre.

Para el dimensionamiento y comprobación de los elementos de hormigón armado y de hormigón pretensado se ha seguido la "Instrucción de Hormigón Estructural" EHE, aprobada por Real Decreto 2661/1998 de 11 de Diciembre.

- Acciones sísmicas

De acuerdo a la Norma NCS-94 esta estructura se clasifica como de especial importancia.
La aceleración sísmica básica de la zona es a_b =0.04 g y el coeficiente de contribución K=1.0.

La aceleración sísmica de cálculo será entonces:

$\alpha_\chi = \rho\ \alpha_\beta$

$\rho = (\tau/50)^{0.37}$

t = 100 años, $\rho = 1.30$

$a_c = 1.30 \times 0.04$ g

$a_c = 0.052$ g < 0.06 g

Conforme con lo prescrito en la NCS-94, como la aceleración de cálculo es $a_c = 0.052$ g < 0.06 g no se deberán tener en cuenta las acciones sísmicas.

1.3. Características de los materiales

Hormigones - Resistencia Característica

Hormigón en capas de regularización	$\phi_{\chi K} \geq 150$ kp/cm²
Hormigón en zapatas	$\phi_{\chi K} \geq 250$ kp/cm²
Hormigón en alzados estribos	$\phi_{\chi K} \geq 300$ kp/cm²
Hormigón en pilas	$\phi_{\chi K} \geq 300$ kp/cm²
Hormigón en tablero	$\phi_{\chi K} \geq 300$ kp/cm²

Aceros

Armaduras pasivas B-500-S (límite elástico f yk ≥5100 kp/cm²

1.4. Niveles de control y coeficientes de seguridad

Hormigones	:	Nivel de control normal	$\gamma_\chi = 1.50$
Aceros :		Nivel de control normal	$\gamma_\psi = 1.15$
Acciones	:		
		Nivel de control intenso	$\gamma_F = 1.50$ (acciones variables)
		Conforme a la IAP	$\gamma_{G^*} = 1.50$ (acción del terreno)
			$\gamma_G = 1.35$ (acciones permanentes y reológicas

1.5. Características de la cimentación

Se han considerado las siguientes tensiones admisibles en la cimentación:

Estructura	Profundidad de cimentación	Tensión admisible del terreno	Observaciones
Estribo 1	2.50 m	3.00 kp/cm²	
Pila 1	1.50 m	5.00 kp/cm²	
Pila 2	1.50 m	5.00 kp/cm²	
Estribo 2	2.50 m	3.00 kp/cm²	

1.6. Procedimiento de cálculo y descripción de los programas utilizados

El cálculo del tablero se realiza mediante programas de ordenador en modelos estructurales de emparrillado plano y reticulado plano, basados en la matriz de rigidez y equilibrio de los nudos, donde se suponen las hipótesis básicas de la Resistencia de Materiales es decir, de linealidad geométrica y del material, despreciando la deformación por esfuerzo cortante.

Se ejecuta el cálculo con un modelo de emparrillado espacial mediante el programa STATIK·3, del que se obtienen los esfuerzos transversales y los esfuerzos longitudinales incluyendo el efecto del reparto transversal de las cargas y del empotramiento de la pila en el tablero.

Considerando los esfuerzos obtenidos se realizan las comprobaciones de fisuración y el cálculo a rotura del tablero mediante el postprocesador FAGUS·3.

Se completa el cálculo con el dimensionamiento de la armadura de la losa en sentido transversal mediante la aplicación de la regla de WOOD-ARMER y los cálculos de esfuerzos locales, como por ejemplo los de apoyo.

Los estribos y las pilas, tanto en alzado como en fundaciones, se calcularon y dimensionaron en hormigón armado.

Para el desarrollo de los cálculos resueltos por ordenador se han utilizado los siguientes programas:

- STATIK-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10, 1997) .

- FAGUS-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10 1997) .

TABLERO

2.1. Geometría (Ver planos)

2.2. Cálculo de las acciones

2.2. Cálculo de las acciones

2.2.1. Acciones permanentes

2.2.1.1. Peso propio

El peso propio de la estructura de hormigón se calcula con un peso específico

$$\gamma = 2.50 Mp/m^3.$$

2.2.1.2. Carga muerta

Cm = 1.00 t/m cada acera

pav = 0.04 m x 2.30 t/m 3 = 0.092 t/m2

2.2.2. Acciones permanentes de valor no constante

2.2.2.1. Reológicas: Retracción

Se han calculado considerando una humedad relativa del 60%, y un espesor medio de 337 mm. La edad del hormigón al entrar en carga es de 28 días, y el mismo es de endurecimiento normal. Los valores utilizados son:

ε retracción =-0.00029167

Cálculo de la retracción del hormigón

$\varepsilon_{cs}(t, t_s) = \varepsilon_{cso}\, \beta s\, (t - t_s)$

Edad del hormigón al comienzo de la retracción (días)	ts = **28.0**
Edad del hormigón en el instante de evaluación (días)	t = **10000.0**
Coeficiente básico de retracción	$\varepsilon_{cso} = \varepsilon_s\, \beta_{HR}$
Resistencia característica del hormigón	f ck (N / mm2) = **30**
	ε_s = 0.00042
Humedad relativa en tanto por ciento	HR = **70**
	β_{HR} = -1.0184
	ε_{cso} = -0.0004277
Area de la seccion transversal (m^2)	Ac = **4.653**
Perímetro en contacto con la atmósfera (m)	u = **16.255**
Espesor medio (mm)	e = 572
Coeficiente de evolución temporal de la retracción	$\beta s (t - ts)$ = 0.6819

$\varepsilon_{cs}(t, t_s) = \varepsilon_{cso}\, \beta s\, (t - t_s)$ = -0.00029167

2.2.2.2., Sobrecargas del terreno

El relleno de tierras en el trasdós de los estribos se realiza con material del terraplén, que tiene las siguientes características:

Peso específico	:	$\gamma_T = 2.0\ Mp/m^3$
Ángulo de fricción interna	:	$\phi = 30°$
Coeficiente de empuje activo	:	$\lambda_\alpha = 0.33$

2.2.3. Acciones variables

2.2.3.1. Sobrecargas de uso

2.2.3.1.1. Tren de cargas

a) Componentes verticales

Como el ancho de plataforma es inferior a 12.0 m, conforme a la IAP se ha utilizado el siguiente tren de cargas:

- Sobrecarga uniforme: 0.40 Mp/m²
- Vehículo de 60 Mp

b) Componentes horizontales

b.1) Frenado y arranque

Se considerará la actuación de esta fuerza sobre la estructura.

$$F_F = \frac{6.00 \text{ x } 43.80 \text{ m x } 0.4 \text{ Mp m}^{-2} + 60 \text{ Mp}}{20}$$

$F_F = 8.28$ Mp

Valor mínimo: $F_F = 12.00$ Mp

b.2) Fuerza centrífuga

La estructura está ubicada en un tramo de radio infinito, por lo tanto esta fuerza no actúa.

2.2.3.2. Acciones climáticas

a.) Viento

CALCULO DE LAS ACCIONES DEBIDAS AL VIENTO CONFORME A LA I.A.P

Proyecto : GIF SUBTRAMO IIIB
Estructura : PS 315+880

Velocidad de referencia : V_{REF} (m/seg) = **28.00**

Velocidad de cálculo : V_C (m/seg) = $C_T \times C_R \times C_Z \times C_G \times V_{REF}$

Factor de topografía : C_T = **1.10**

Período de retorno (años) T = **100**

Factor de riesgo : $C_R = (0.562x\{1-0.2x \ln [- \ln (1- 1/T)]\})^{1/2}$
$C_R = 1.04$

Factor de altura : $C_Z = K_Z \times LN (Z/ Zo)$ si $Z > Z_{MIN}$
$C_Z = K_Z \times LN (Z_{MIN}/ Zo)$ si $Z < Z_{MIN}$

Los valores de K_Z , Zo y Z_{MIN} se obtendrán de la tabla adjunta .

Tipo de Entorno	K_Z	Zo (m)	Z_{MIN} (m)
I	0.17	0.01	2.00
II	0.19	0.05	4.00
III	0.22	0.30	8.00
IV	0.24	1.00	16.00

K_Z = **0.22**

Zo = **0.3**

Z_{MIN} = **8.00**

OBTENCIÓN DE LA VELOCIDAD DE CÁLCULO PARA EL TABLERO :

En función de la altura Z considerada se obtendrán los valores de C_Z y C_G y en consecuencia de V_C

V_C (m/seg) = $C_T \times C_R \times C_Z \times C_G \times V_{REF}$

V_{REF} (m/seg) = 28.00

Para el tablero la altura considerada será : Z (m) = **13.00**

$C_Z = 0.829$

Factor de ráfaga : $C_G = (1 + 7 \times K_Z / C_Z / C_T)^{1/2}$

$C_G = 1.640$

TABLERO : V_C (m/seg) = 43.50

ACCIÓN DEL VIENTO SOBRE EL TABLERO

El empuje producido sobre cualquier elemento del puente se calculará con la siguiente fórmula :

$$F\ (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$$

Donde :

C_D : Coeficiente de arrastre

A : Área expuesta

$1/2\ \rho\ V_C^2$: Presión básica de cálculo (N/m^2)

ρ : masa específica del aire 1.25 kg/m^3

V_C : Velocidad de cálculo (m/seg)

EMPUJE TRANSVERSAL DE VIENTO

Empuje del Viento : $F\ (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$

TABLERO DE ALMA LLENA

Altura Z del tablero : Z (m) = **13.00**
Ancho del tablero : B (m) = **7.70**
Longitud del tramo : L (m) = **44.00**
Altura de barrera : $h_{BARRERA}$ (m) = **0.20** De tabla se obtiene : η = **2.00**
Altura equivalente : $h_{TABLERO}$ (m) = **1.10**

$h_{BAR.\ OPAC}(m) = h_{BARRERA} + \Sigma\ \eta\ h_{BARRERA}$

$h_{BAR.\ OPAC}(m) = 0.60$

$h_{SOBREC.}$ (m) = **2.00**

Sin sobrecarga : h_{eq} (m) = $h_{TABLERO} + h_{BARRERA\ OPACA}$

h_{eq} (m) = 1.70

Con sobrecarga : h_{eq} (m) = $h_{TABLERO} + h_{SOBRECARGA} + h_{BARRERA}$

h_{eq} (m) = 3.50

Área expuesta : $A\ (m^2) = L \times h_{eq}$

Sin sobrecarga : $A\ (m^2)$ = 74.8
Con sobrecarga : $A\ (m^2)$ = 154.0
Coeficiente de arrastre : $C_D = 2.50 - 0.3 \times (B / h_{eq})$
$1.30 < C_D < 2.40$
Sin sobrecarga : C_D = 1.30
Con sobrecarga : C_D = 1.84

Cálculo del empuje transversal del viento sobre el tablero :

$$F\ (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$$

Donde : V_C (m/seg) = 43.50
ρ (kg/m^3) = 1.25

Empuje sin la sobrecarga en el tablero : **F (Mp) = 11.50**

Longitud tramo L_T (m) = 44.00 **F (Mp/m) = 0.26**

Distancia de aplicación del empuje transversal horizontal respecto de la base del tablero : **d (m) = 0.78**

Empuje con la sobrecarga en el tablero : **F (Mp) = 33.51**

Longitud tramo L_T (m) = 44.00 **F (Mp/m) = 0.76**

Distancia de aplicación del empuje transversal horizontal respecto de la base del tablero : **d (m) = 1.86**

2.2.3.2.b) Nieve

La estructura está en Zona II.

$$q = 0.80 \times S_K$$

$$q = 0.80 \times 40\ Kp/m^2 = 0.032\ Mp/m^2$$

Es despreciable.

2.2.3.2.c) Térmicas

De acuerdo con la I.A.P. se ha considerado un incremento uniforme de temperatura que es función de los siguientes parámetros:

- La estructura está ubicada en la región climática denominada zona IV (Z = 4) .
- La sección del tablero está formada por una losa maciza de hormigón (S = 1), con un canto total de 0.90 m (h = 0.90).

$$\Delta T = K\, z^a\, h^b\, s^c = 23.89 \times 4^{-.292} \times 0.90^{-0.139}$$

Sobre la base de estos datos se obtiene que el rango anual de la temperatura media es de 36.34 °C, y por lo tanto consideraremos un incremento uniforme de temperatura de

$$\Delta T = \pm 36.34\ °C$$

$$\varepsilon_\tau = \pm 36.34 \times 10^{-5}$$

El incremento de temperatura entre caras superior e inferior del tablero, gradiente térmico vertical, será:

- Gradiente térmico vertical positivo °C/m

Losa maciza de hormigón:

$\Delta T_{SI} = K\ \Delta T_{SI}$, ref.

$K = K_1 \cdot K_2$ $\qquad K_1 = 0.85$

$\qquad K_2 = 1.56$

ΔT_{SI}, ref = 11.50°C

$\Delta T_{SI} = 1.33 \times 11.50$°C/m

$\Delta T_{SI} = 15.30$ °C/m

- Gradiente térmico vertical inverso

Tableros de hormigón: con pavimento bituminoso 0.0 °C

2.2.4. Acciones accidentales

2.2.4.1. Acciones sísmicas

De acuerdo a la Norma NCS-94 esta estructura se clasifica como de especial importancia.

La aceleración sísmica básica de la zona es ab≤ 0.04 g.

$a_c = \rho\, a_b$

$\rho = (t/50)^{0.37}$

t = 100 años, $\rho = 1.30$

$a_c = 1.30 \times 0.04\ g = 0.052\ g \leq 0.06\ g$ No se consideran las acciones sísmicas.

2.3. Cálculo como emparrillado

2.3. Cálculo como emparrillado

Se ha generado el modelo de emparrillado mediante el programa STATIK3, y se han introducido todas las cargas, lo que nos permitirá obtener los esfuerzos transversales con la influencia de la posición de las cargas, el ancho del tablero, y el apoyo puntual en las pilas, consideradas empotradas y con su correspondiente altura.

Se han introducido las acciones individuales, correspondientes a cada hipótesis básica de cálculo.

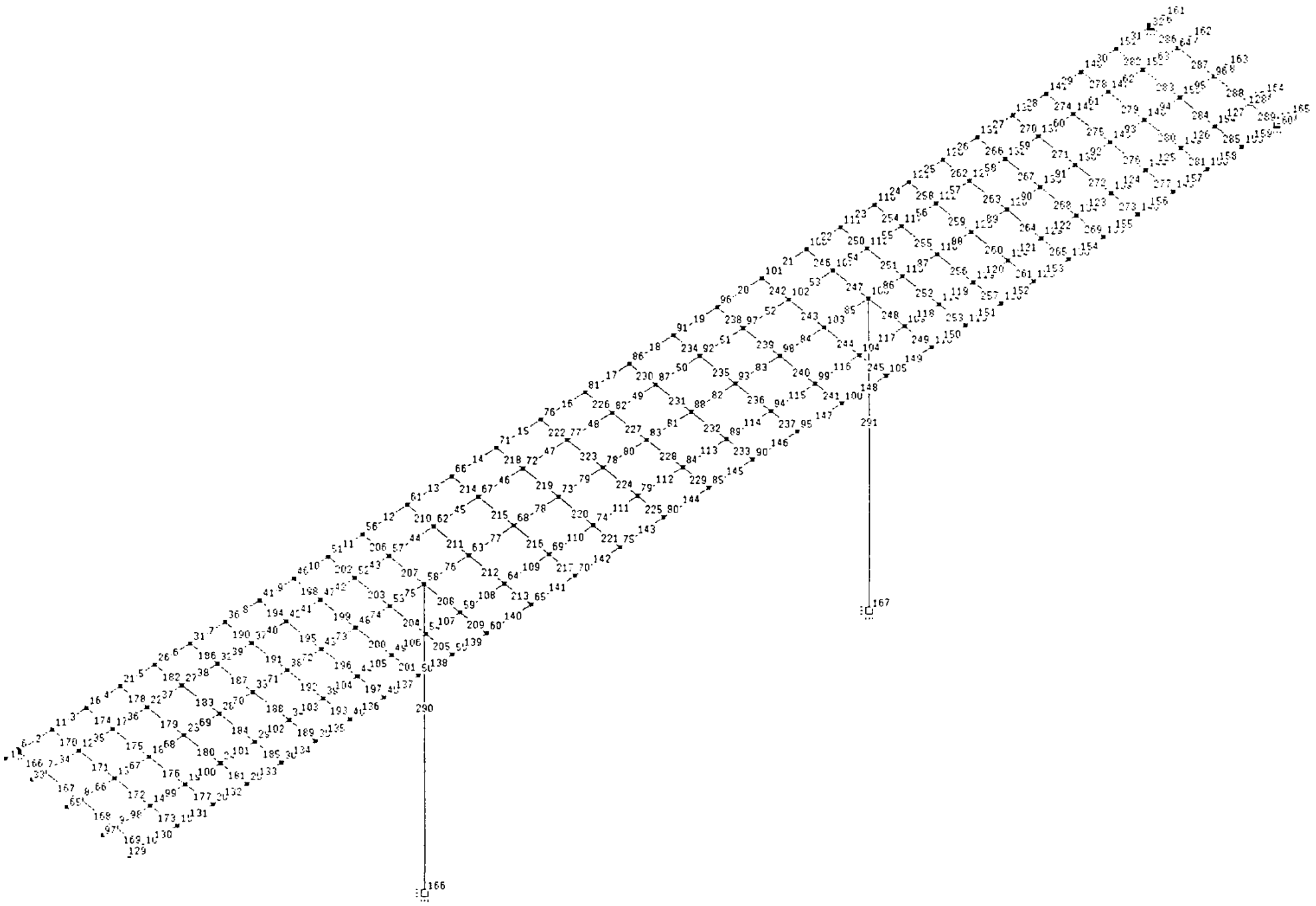
Posteriormente se ha calculado la envolvente pésima de esfuerzos para cada acción, con los diferentes coeficientes de ponderación de la Instrucción.

Por aplicación de la regla de WOOD-ARMER a dichos esfuerzos de cálculo se obtienen las armaduras transversales necesarias.

Finalmente se calculan los coeficientes de reparto transversal.

2.3.1. Modelo de cálculo

Scale 1 : 142.9
Structure - GEOMETRIA



****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (167 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	R XYZ	Specialities
1	0.00000	0.00000	0.00000			
2	1.12000	0.00000	0.00000			
3	2.62000	0.00000	0.00000			
4	4.12000	0.00000	0.00000			
5	5.24000	0.00000	0.00000			
6	0.00000	0.50000	0.00000	SSE	FFF	
7	1.12000	0.50000	0.00000			
8	2.62000	0.50000	0.00000			
9	4.12000	0.50000	0.00000			
10	5.24000	0.50000	0.00000	SSE	FFF	
11	0.00000	1.80000	0.00000			
12	1.12000	1.80000	0.00000			
13	2.62000	1.80000	0.00000			
14	4.12000	1.80000	0.00000			
15	5.24000	1.80000	0.00000			
16	0.00000	3.10000	0.00000			
17	1.12000	3.10000	0.00000			
18	2.62000	3.10000	0.00000			
19	4.12000	3.10000	0.00000			
20	5.24000	3.10000	0.00000			
21	0.00000	4.40000	0.00000			
22	1.12000	4.40000	0.00000			
23	2.62000	4.40000	0.00000			
24	4.12000	4.40000	0.00000			
25	5.24000	4.40000	0.00000			
26	0.00000	5.70000	0.00000			
27	1.12000	5.70000	0.00000			
28	2.62000	5.70000	0.00000			
29	4.12000	5.70000	0.00000			
30	5.24000	5.70000	0.00000			
31	0.00000	7.00000	0.00000			
32	1.12000	7.00000	0.00000			
33	2.62000	7.00000	0.00000			
34	4.12000	7.00000	0.00000			
35	5.24000	7.00000	0.00000			
36	0.00000	8.30000	0.00000			
37	1.12000	8.30000	0.00000			
38	2.62000	8.30000	0.00000			
39	4.12000	8.30000	0.00000			
40	5.24000	8.30000	0.00000			
41	0.00000	9.60000	0.00000			
42	1.12000	9.60000	0.00000			

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
43	2.62000	9.60000	0.00000		
44	4.12000	9.60000	0.00000		
45	5.24000	9.60000	0.00000		
46	0.00000	10.90000	0.00000		
47	1.12000	10.90000	0.00000		
48	2.62000	10.90000	0.00000		
49	4.12000	10.90000	0.00000		
50	5.24000	10.90000	0.00000		
51	0.00000	12.20000	0.00000		
52	1.12000	12.20000	0.00000		
53	2.62000	12.20000	0.00000		
54	4.12000	12.20000	0.00000		
55	5.24000	12.20000	0.00000		
56	0.00000	13.50000	0.00000		
57	1.12000	13.50000	0.00000		
58	2.62000	13.50000	0.00000		
59	4.12000	13.50000	0.00000		
60	5.24000	13.50000	0.00000		
61	0.00000	15.20000	0.00000		
62	1.12000	15.20000	0.00000		
63	2.62000	15.20000	0.00000		
64	4.12000	15.20000	0.00000		
65	5.24000	15.20000	0.00000		
66	0.00000	16.90000	0.00000		
67	1.12000	16.90000	0.00000		
68	2.62000	16.90000	0.00000		
69	4.12000	16.90000	0.00000		
70	5.24000	16.90000	0.00000		
71	0.00000	18.60000	0.00000		
72	1.12000	18.60000	0.00000		
73	2.62000	18.60000	0.00000		
74	4.12000	18.60000	0.00000		
75	5.24000	18.60000	0.00000		
76	0.00000	20.30000	0.00000		
77	1.12000	20.30000	0.00000		
78	2.62000	20.30000	0.00000		
79	4.12000	20.30000	0.00000		
80	5.24000	20.30000	0.00000		
81	0.00000	22.00000	0.00000		
82	1.12000	22.00000	0.00000		
83	2.62000	22.00000	0.00000		
84	4.12000	22.00000	0.00000		
85	5.24000	22.00000	0.00000		
86	0.00000	23.70000	0.00000		
87	1.12000	23.70000	0.00000		
88	2.62000	23.70000	0.00000		
89	4.12000	23.70000	0.00000		
90	5.24000	23.70000	0.00000		
91	0.00000	25.40000	0.00000		
92	1.12000	25.40000	0.00000		
93	2.62000	25.40000	0.00000		
94	4.12000	25.40000	0.00000		
95	5.24000	25.40000	0.00000		

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
96	0.00000	27.10000	0.00000		
97	1.12000	27.10000	0.00000		
98	2.62000	27.10000	0.00000		
99	4.12000	27.10000	0.00000		
100	5.24000	27.10000	0.00000		
101	0.00000	28.80000	0.00000		
102	1.12000	28.80000	0.00000		
103	2.62000	28.80000	0.00000		
104	4.12000	28.80000	0.00000		
105	5.24000	28.80000	0.00000		
106	0.00000	30.50000	0.00000		
107	1.12000	30.50000	0.00000		
108	2.62000	30.50000	0.00000		
109	4.12000	30.50000	0.00000		
110	5.24000	30.50000	0.00000		
111	0.00000	31.80000	0.00000		
112	1.12000	31.80000	0.00000		
113	2.62000	31.80000	0.00000		
114	4.12000	31.80000	0.00000		
115	5.24000	31.80000	0.00000		
116	0.00000	33.10000	0.00000		
117	1.12000	33.10000	0.00000		
118	2.62000	33.10000	0.00000		
119	4.12000	33.10000	0.00000		
120	5.24000	33.10000	0.00000		
121	0.00000	34.40000	0.00000		
122	1.12000	34.40000	0.00000		
123	2.62000	34.40000	0.00000		
124	4.12000	34.40000	0.00000		
125	5.24000	34.40000	0.00000		
126	0.00000	35.70000	0.00000		
127	1.12000	35.70000	0.00000		
128	2.62000	35.70000	0.00000		
129	4.12000	35.70000	0.00000		
130	5.24000	35.70000	0.00000		
131	0.00000	37.00000	0.00000		
132	1.12000	37.00000	0.00000		
133	2.62000	37.00000	0.00000		
134	4.12000	37.00000	0.00000		
135	5.24000	37.00000	0.00000		
136	0.00000	38.30000	0.00000		
137	1.12000	38.30000	0.00000		
138	2.62000	38.30000	0.00000		
139	4.12000	38.30000	0.00000		
140	5.24000	38.30000	0.00000		
141	0.00000	39.60000	0.00000		
142	1.12000	39.60000	0.00000		
143	2.62000	39.60000	0.00000		
144	4.12000	39.60000	0.00000		
145	5.24000	39.60000	0.00000		
146	0.00000	40.90000	0.00000		
147	1.12000	40.90000	0.00000		
148	2.62000	40.90000	0.00000		

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
149	4.12000	40.90000	0.00000		
150	5.24000	40.90000	0.00000		
151	0.00000	42.20000	0.00000		
152	1.12000	42.20000	0.00000		
153	2.62000	42.20000	0.00000		
154	4.12000	42.20000	0.00000		
155	5.24000	42.20000	0.00000		
156	0.00000	43.50000	0.00000	SSE	FFF
157	1.12000	43.50000	0.00000		
158	2.62000	43.50000	0.00000		
159	4.12000	43.50000	0.00000		
160	5.24000	43.50000	0.00000	SSE	FFF
161	0.00000	44.00000	0.00000		
162	1.12000	44.00000	0.00000		
163	2.62000	44.00000	0.00000		
164	4.12000	44.00000	0.00000		
165	5.24000	44.00000	0.00000		
166	2.62000	13.50000	-13.20000	BBB	BBE
167	2.62000	30.50000	-13.20000	BBE	BBE

ELASTICALLY SUPPORTED JOINTS: ("B"=Fixed "F"=Free)

Joint	V-X [T/M]	V-Y [T/M]	V-Z [T/M]	R-X [TM/ARC]	R-Y [TM/ARC]	R-Z [TM/ARC]
6	2.300E+02	2.300E+02	B	F	F	F
10	2.300E+02	2.300E+02	B	F	F	F
156	2.300E+02	2.300E+02	B	F	F	F
160	2.300E-02	2.300E+02	B	F	F	F

B A R D A T A : (286 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
1	1	6	0.50000	%Q0001			O oS
2	6	11	1.30000	%Q0001			O oS
3	11	16	1.30000	%Q0001			O oS
4	16	21	1.30000	%Q0001			O oS
5	21	26	1.30000	%Q0001			O oS
6	26	31	1.30000	%Q0001			O oS
7	31	36	1.30000	%Q0001			O oS
8	36	41	1.30000	%Q0001			O oS
9	41	46	1.30000	%Q0001			O oS
10	46	51	1.30000	%Q0001			O oS
11	51	56	1.30000	%Q0001			O oS
12	56	61	1.70000	%Q0001			O oS
13	61	66	1.70000	%Q0001			O oS
14	66	71	1.70000	%Q0001			O oS
15	71	76	1.70000	%Q0001			O oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
16	76	81	1.70000	%Q0001			O oS
17	81	86	1.70000	%Q0001			O oS
18	86	91	1.70000	%Q0001			O oS
19	91	96	1.70000	%Q0001			O oS
20	96	101	1.70000	%Q0001			O oS
21	101	106	1.70000	%Q0001			O oS
22	106	111	1.30000	%Q0001			O oS
23	111	116	1.30000	%Q0001			O oS
24	116	121	1.30000	%Q0001			O oS
25	121	126	1.30000	%Q0001			O oS
26	126	131	1.30000	%Q0001			O oS
27	131	136	1.30000	%Q0001			O oS
28	136	141	1.30000	%Q0001			O oS
29	141	146	1.30000	%Q0001			O oS
30	146	151	1.30000	%Q0001			O oS
31	151	156	1.30000	%Q0001			O oS
32	156	161	0.50000	%Q0001			O oS
33	2	7	0.50000	%Q0002			oS
34	7	12	1.30000	%Q0002			oS
35	12	17	1.30000	%Q0002			oS
36	17	22	1.30000	%Q0002			oS
37	22	27	1.30000	%Q0002			oS
38	27	32	1.30000	%Q0002			oS
39	32	37	1.30000	%Q0002			oS
40	37	42	1.30000	%Q0002			oS
41	42	47	1.30000	%Q0002			oS
42	47	52	1.30000	%Q0002			oS
43	52	57	1.30000	%Q0002			oS
44	57	62	1.70000	%Q0002			oS
45	62	67	1.70000	%Q0002			oS
46	67	72	1.70000	%Q0002			oS
47	72	77	1.70000	%Q0002			oS
48	77	82	1.70000	%Q0002			oS
49	82	87	1.70000	%Q0002			oS
50	87	92	1.70000	%Q0002			oS
51	92	97	1.70000	%Q0002			oS
52	97	102	1.70000	%Q0002			oS
53	102	107	1.70000	%Q0002			oS
54	107	112	1.30000	%Q0002			oS
55	112	117	1.30000	%Q0002			oS
56	117	122	1.30000	%Q0002			oS
57	122	127	1.30000	%Q0002			oS
58	127	132	1.30000	%Q0002			oS
59	132	137	1.30000	%Q0002			oS
60	137	142	1.30000	%Q0002			oS
61	142	147	1.30000	%Q0002			oS
62	147	152	1.30000	%Q0002			oS
63	152	157	1.30000	%Q0002			oS
64	157	162	0.50000	%Q0002			oS
65	3	8	0.50000	%Q0003			oS
66	8	13	1.30000	%Q0003			oS
67	13	18	1.30000	%Q0003			oS
68	18	23	1.30000	%Q0003			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
69	23	28	1.30000	%Q0003			oS
70	28	33	1.30000	%Q0003			oS
71	33	38	1.30000	%Q0003			oS
72	38	43	1.30000	%Q0003			oS
73	43	48	1.30000	%Q0003			oS
74	48	53	1.30000	%Q0003			oS
75	53	58	1.30000	%Q0003			oS
76	58	63	1.70000	%Q0003			oS
77	63	68	1.70000	%Q0003			oS
78	68	73	1.70000	%Q0003			oS
79	73	78	1.70000	%Q0003			oS
80	78	83	1.70000	%Q0003			oS
81	83	88	1.70000	%Q0003			oS
82	88	93	1.70000	%Q0003			oS
83	93	98	1.70000	%Q0003			oS
84	98	103	1.70000	%Q0003			oS
85	103	108	1.70000	%Q0003			oS
86	108	113	1.30000	%Q0003			oS
87	113	118	1.30000	%Q0003			oS
88	118	123	1.30000	%Q0003			oS
89	123	128	1.30000	%Q0003			oS
90	128	133	1.30000	%Q0003			oS
91	133	138	1.30000	%Q0003			oS
92	138	143	1.30000	%Q0003			oS
93	143	148	1.30000	%Q0003			oS
94	148	153	1.30000	%Q0003			oS
95	153	158	1.30000	%Q0003			oS
96	158	163	0.50000	%Q0003			oS
97	4	9	0.50000	%Q0004			oS
98	9	14	1.30000	%Q0004			oS
99	14	19	1.30000	%Q0004			oS
100	19	24	1.30000	%Q0004			oS
101	24	29	1.30000	%Q0004			oS
102	29	34	1.30000	%Q0004			oS
103	34	39	1.30000	%Q0004			oS
104	39	44	1.30000	%Q0004			oS
105	44	49	1.30000	%Q0004			oS
106	49	54	1.30000	%Q0004			oS
107	54	59	1.30000	%Q0004			oS
108	59	64	1.70000	%Q0004			oS
109	64	69	1.70000	%Q0004			oS
110	69	74	1.70000	%Q0004			oS
111	74	79	1.70000	%Q0004			oS
112	79	84	1.70000	%Q0004			oS
113	84	89	1.70000	%Q0004			oS
114	89	94	1.70000	%Q0004			oS
115	94	99	1.70000	%Q0004			oS
116	99	104	1.70000	%Q0004			oS
117	104	109	1.70000	%Q0004			oS
118	109	114	1.30000	%Q0004			oS
119	114	119	1.30000	%Q0004			oS
120	119	124	1.30000	%Q0004			oS
121	124	129	1.30000	%Q0004			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
122	129	134	1.30000	%Q0004			oS
123	134	139	1.30000	%Q0004			oS
124	139	144	1.30000	%Q0004			oS
125	144	149	1.30000	%Q0004			oS
126	149	154	1.30000	%Q0004			oS
127	154	159	1.30000	%Q0004			oS
128	159	164	0.50000	%Q0004			oS
129	5	10	0.50000	%Q0005			O oS
130	10	15	1.30000	%Q0005			O oS
131	15	20	1.30000	%Q0005			O oS
132	20	25	1.30000	%Q0005			O oS
133	25	30	1.30000	%Q0005			O oS
134	30	35	1.30000	%Q0005			O oS
135	35	40	1.30000	%Q0005			O oS
136	40	45	1.30000	%Q0005			O oS
137	45	50	1.30000	%Q0005			O oS
138	50	55	1.30000	%Q0005			O oS
139	55	60	1.30000	%Q0005			O oS
140	60	65	1.70000	%Q0005			O oS
141	65	70	1.70000	%Q0005			O oS
142	70	75	1.70000	%Q0005			O oS
143	75	80	1.70000	%Q0005			O oS
144	80	85	1.70000	%Q0005			O oS
145	85	90	1.70000	%Q0005			O oS
146	90	95	1.70000	%Q0005			O oS
147	95	100	1.70000	%Q0005			O oS
148	100	105	1.70000	%Q0005			O oS
149	105	110	1.70000	%Q0005			O oS
150	110	115	1.30000	%Q0005			O oS
151	115	120	1.30000	%Q0005			O oS
152	120	125	1.30000	%Q0005			O oS
153	125	130	1.30000	%Q0005			O oS
154	130	135	1.30000	%Q0005			O oS
155	135	140	1.30000	%Q0005			O oS
156	140	145	1.30000	%Q0005			O oS
157	145	150	1.30000	%Q0005			O oS
158	150	155	1.30000	%Q0005			O oS
159	155	160	1.30000	%Q0005			O oS
160	160	165	0.50000	%Q0005			O oS
166	6	7	1.12000	%Q0006			oS
167	7	8	1.50000	%Q0006			oS
168	8	9	1.50000	%Q0006			oS
169	9	10	1.12000	%Q0006			oS
170	11	12	1.12000	%Q0007			oS
171	12	13	1.50000	%Q0007			oS
172	13	14	1.50000	%Q0007			oS
173	14	15	1.12000	%Q0007			oS
174	16	17	1.12000	%Q0007			oS
175	17	18	1.50000	%Q0007			oS
176	18	19	1.50000	%Q0007			oS
177	19	20	1.12000	%Q0007			oS
178	21	22	1.12000	%Q0007			oS
179	22	23	1.50000	%Q0007			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
180	23	24	1.50000	%Q0007			oS
181	24	25	1.12000	%Q0007			oS
182	26	27	1.12000	%Q0007			oS
183	27	28	1.50000	%Q0007			oS
184	28	29	1.50000	%Q0007			oS
185	29	30	1.12000	%Q0007			oS
186	31	32	1.12000	%Q0007			oS
187	32	33	1.50000	%Q0007			oS
188	33	34	1.50000	%Q0007			oS
189	34	35	1.12000	%Q0007			oS
190	36	37	1.12000	%Q0007			oS
191	37	38	1.50000	%Q0007			oS
192	38	39	1.50000	%Q0007			oS
193	39	40	1.12000	%Q0007			oS
194	41	42	1.12000	%Q0007			oS
195	42	43	1.50000	%Q0007			oS
196	43	44	1.50000	%Q0007			oS
197	44	45	1.12000	%Q0007			oS
198	46	47	1.12000	%Q0007			oS
199	47	48	1.50000	%Q0007			oS
200	48	49	1.50000	%Q0007			oS
201	49	50	1.12000	%Q0007			oS
202	51	52	1.12000	%Q0007			oS
203	52	53	1.50000	%Q0007			oS
204	53	54	1.50000	%Q0007			oS
205	54	55	1.12000	%Q0007			oS
206	56	57	1.12000	%Q0008			oS
207	57	58	1.50000	%Q0008			oS
208	58	59	1.50000	%Q0008			oS
209	59	60	1.12000	%Q0008			oS
210	61	62	1.12000	%Q0009			oS
211	62	63	1.50000	%Q0009			oS
212	63	64	1.50000	%Q0009			oS
213	64	65	1.12000	%Q0009			oS
214	66	67	1.12000	%Q0009			oS
215	67	68	1.50000	%Q0009			oS
216	68	69	1.50000	%Q0009			oS
217	69	70	1.12000	%Q0009			oS
218	71	72	1.12000	%Q0009			oS
219	72	73	1.50000	%Q0009			oS
220	73	74	1.50000	%Q0009			oS
221	74	75	1.12000	%Q0009			oS
222	76	77	1.12000	%Q0009			oS
223	77	78	1.50000	%Q0009			oS
224	78	79	1.50000	%Q0009			oS
225	79	80	1.12000	%Q0009			oS
226	81	82	1.12000	%Q0009			oS
227	82	83	1.50000	%Q0009			oS
228	83	84	1.50000	%Q0009			oS
229	84	85	1.12000	%Q0009			oS
230	86	87	1.12000	%Q0009			oS
231	87	88	1.50000	%Q0009			oS
232	88	89	1.50000	%Q0009			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
233	89	90	1.12000	%Q0009			oS
234	91	92	1.12000	%Q0009			oS
235	92	93	1.50000	%Q0009			oS
236	93	94	1.50000	%Q0009			oS
237	94	95	1.12000	%Q0009			oS
238	96	97	1.12000	%Q0009			oS
239	97	98	1.50000	%Q0009			oS
240	98	99	1.50000	%Q0009			oS
241	99	100	1.12000	%Q0009			oS
242	101	102	1.12000	%Q0009			oS
243	102	103	1.50000	%Q0009			oS
244	103	104	1.50000	%Q0009			oS
245	104	105	1.12000	%Q0009			oS
246	106	107	1.12000	%Q0010			oS
247	107	108	1.50000	%Q0010			oS
248	108	109	1.50000	%Q0010			oS
249	109	110	1.12000	%Q0010			oS
250	111	112	1.12000	%Q0011			oS
251	112	113	1.50000	%Q0011			oS
252	113	114	1.50000	%Q0011			oS
253	114	115	1.12000	%Q0011			oS
254	116	117	1.12000	%Q0011			oS
255	117	118	1.50000	%Q0011			oS
256	118	119	1.50000	%Q0011			oS
257	119	120	1.12000	%Q0011			oS
258	121	122	1.12000	%Q0011			oS
259	122	123	1.50000	%Q0011			oS
260	123	124	1.50000	%Q0011			oS
261	124	125	1.12000	%Q0011			oS
262	126	127	1.12000	%Q0011			oS
263	127	128	1.50000	%Q0011			oS
264	128	129	1.50000	%Q0011			oS
265	129	130	1.12000	%Q0011			oS
266	131	132	1.12000	%Q0011			oS
267	132	133	1.50000	%Q0011			oS
268	133	134	1.50000	%Q0011			oS
269	134	135	1.12000	%Q0011			oS
270	136	137	1.12000	%Q0011			oS
271	137	138	1.50000	%Q0011			oS
272	138	139	1.50000	%Q0011			oS
273	139	140	1.12000	%Q0011			oS
274	141	142	1.12000	%Q0011			oS
275	142	143	1.50000	%Q0011			oS
276	143	144	1.50000	%Q0011			oS
277	144	145	1.12000	%Q0011			oS
278	146	147	1.12000	%Q0011			oS
279	147	148	1.50000	%Q0011			oS
280	148	149	1.50000	%Q0011			oS
281	149	150	1.12000	%Q0011			oS
282	151	152	1.12000	%Q0011			oS
283	152	153	1.50000	%Q0011			oS
284	153	154	1.50000	%Q0011			oS
285	154	155	1.12000	%Q0011			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
286	156	157	1.12000	%Q0012			oS
287	157	158	1.50000	%Q0012			oS
288	158	159	1.50000	%Q0012			oS
289	159	160	1.12000	%Q0012			oS
290*	166	58	13.20000	PILAS			oS
291*	167	108	13.20000	PILAS			oS

Bars marked with *** are vertical (except any excentricities).
The corresponding special definition for the default orientation
of the local coordinate system applies.

Cross sections marked with *** (i.e *HEB200) are rotated 90 degr.
about the local x-axis.

O = Rotated bars (bar orientations)
oS = Bars without shear deformation

HAUNCHED AND NON DEFAULT ORIENTED MEMBERS:

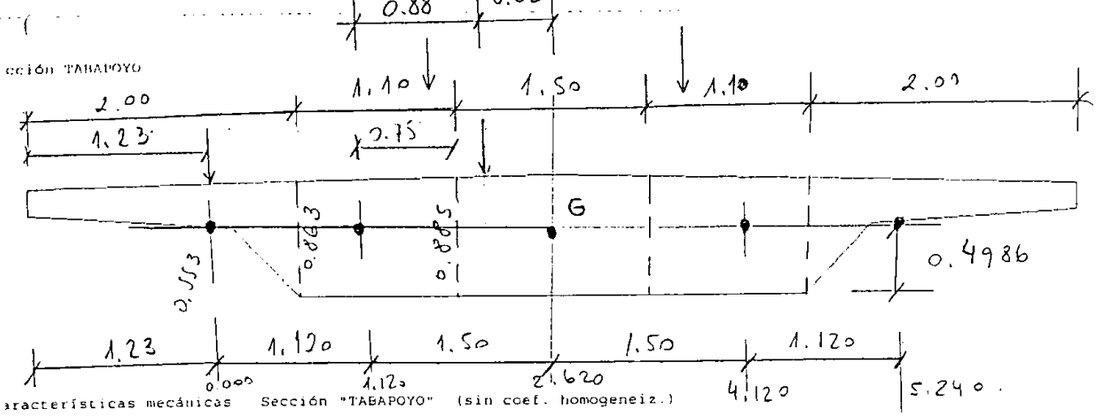
Bar	haunched bars CS-Start	CS-End	Bar orientation x/kl/angle Beta	y/k2	z
1			-8.0000		
2			-8.0000		
3			-8.0000		
4			-8.0000		
5			-8.0000		
6			-8.0000		
7			-8.0000		
8			-8.0000		
9			-8.0000		
10			-8.0000		
11			-8.0000		
12			-8.0000		
13			-8.0000		
14			-8.0000		
15			-8.0000		
16			-8.0000		
17			-8.0000		
18			-8.0000		
19			-8.0000		
20			-8.0000		
21			-8.0000		
22			-8.0000		
23			-8.0000		
24			-8.0000		
25			-8.0000		
26			-8.0000		
27			-8.0000		
28			-8.0000		
29			-8.0000		

Bar	haunched bars CS-Start	CS-End	Bar orientation x/kl/angle Beta	y/k2	z
30			-8.0000		
31			-8.0000		
32			-8.0000		
129			8.0000		
130			8.0000		
131			8.0000		
132			8.0000		
133			8.0000		
134			8.0000		
135			8.0000		
136			8.0000		
137			8.0000		
138			8.0000		
139			8.0000		
140			8.0000		
141			8.0000		
142			8.0000		
143			8.0000		
144			8.0000		
145			8.0000		
146			8.0000		
147			8.0000		
148			8.0000		
149			8.0000		
150			8.0000		
151			8.0000		
152			8.0000		
153			8.0000		
154			8.0000		
155			8.0000		
156			8.0000		
157			8.0000		
158			8.0000		
159			8.0000		
160			8.0000		

CROSS SECTION VALUES: CS-Name	Ax [M2] Ix [M4] z1 [M1]	Iy [M4] Fy [M2] zu [M1]	Iz [M4] Fz [M2] yl [M1]	Phi [Degr] yr [M1]
%Q0001	6.9575E-01	2.7466E-02	2.4561E-01	8.01
(L1)	6.0250E-03	6.9575E-01	6.9575E-01	
	-0.4986	0.3644	-0.7703	1.2297
%Q0002	9.4930E-01	6.3194E-02	1.3370E-01	0.00
(L2E)	6.1400E-02	9.4930E-01	9.4930E-01	
	-0.4986	0.3644	-0.7500	0.3500

CROSS SECTION VALUES: CS-Name	Ax [M2] Ix [M4] z1 [M1]	Iy [M4] Fy [M2] zu [M1]	Iz [M4] Fz [M2] yl [M1]	Phi [Degr] yr [M1]
%Q0003	1.3500E+00	9.4309E-02	2.5312E-01	0.00
(L2)	1.1410E-01	1.3500E+00	1.3500E+00	
	-0.4986	0.4014	-0.7500	0.7500
%Q0004	9.4930E-01	6.3194E-02	1.3370E-01	0.00
(L2A)	6.1400E-02	9.4930E-01	9.4930E-01	
	-0.4986	0.3644	-0.3500	0.7500
%Q0005	6.9575E-01	2.7466E-02	2.4561E-01	-8.01
(L3)	8.0250E-03	6.9575E-01	6.9575E-01	
	-0.4986	0.3644	-1.2297	0.7703
%Q0006	1.0350E+00	7.2304E-02	1.1990E-01	0.00
(TRANS0)	7.2950E-02	1.0350E+00	1.0350E+00	
	-0.4986	0.4014	-0.5000	0.6500
%Q0007	1.1700E+00	8.1733E-02	1.6478E-01	0.00
(TRANS1)	9.0350E-02	1.1700E+00	1.1700E+00	
	-0.4986	0.4014	-0.6500	0.6500
%Q0008	1.3500E+00	9.4309E-02	2.6660E-01	0.00
(TRANS5)	1.1410E-01	1.3500E+00	1.3500E+00	
	-0.4986	0.4014	-0.6500	0.8500
%Q0009	1.5300E+00	1.0691E-01	3.6847E-01	0.00
(TRANS2)	1.3810E-01	1.5300E+00	1.5300E+00	
	-0.4986	0.4014	-0.8500	0.8500
%Q0010	1.3500E+00	9.4309E-02	2.6660E-01	0.00
(TRANS6)	1.1410E-01	1.3500E+00	1.3500E+00	
	-0.4986	0.4014	-0.8500	0.6500
%Q0011	1.1700E+00	8.1733E-02	1.6478E-01	0.00
(TRANS3)	9.0350E-02	1.1700E+00	1.1700E+00	
	-0.4986	0.4014	-0.6500	0.6500
%Q0012	1.0350E+00	7.2304E-02	1.1990E-01	0.00
(TRANS4)	7.2950E-02	1.0350E+00	1.0350E+00	
	-0.4986	0.4014	-0.6500	0.5000
PILAS	7.8576E-01	4.9180E-02	4.9086E-02	0.00
	9.8175E-02	7.8576E-01	7.8576E-01	
	-0.5000	0.5000	-0.5000	0.5000

Sección TABAPOYO



Características mecánicas Sección "TABAPOYO" (sin coef. homogeneiz.)

Area	Ax = 46.53E3 cm2 = 4.653 m²		
Momento de inercia	Iy = 28.62E6 cm4	Iz = 1.372E9 cm4	Ip = 1.400E9 cm4
Const. de torsión			Ix = 50.83E6 cm4
Momento estático	Zy = 998.79E3 cm3	Zz = 6.642E6 cm3	
Baricentro	ys = 0.0000 m	zs = 0.4986 m	Angulo= 0.0 Grad
Dist. al borde	yl = -3.8500 m	yr = 3.8500 m	
	zo = 0.4014 m	zu = -0.4986 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TABAPOYO" (sin coef. homogeneiz.)

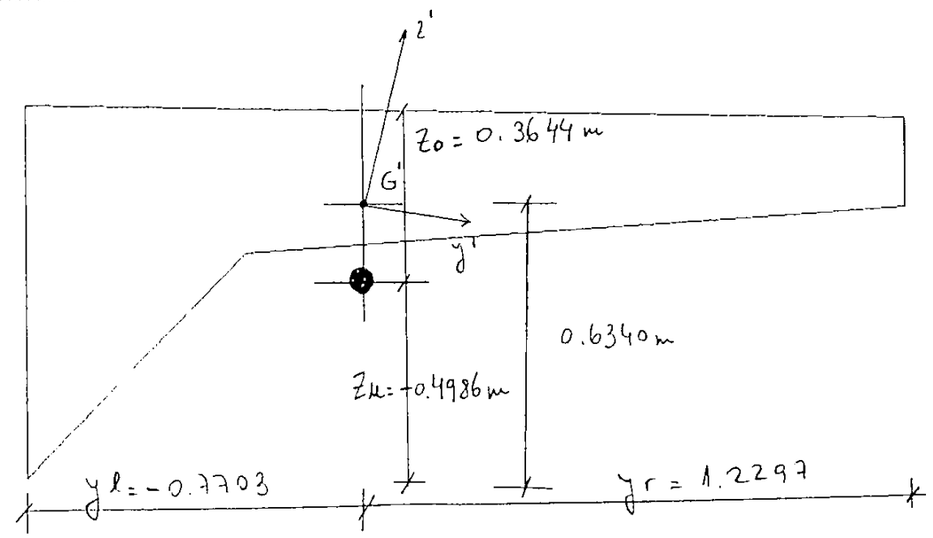
Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	46530.5	1625.531	5.08E+07	3)

Puntos de contorno [m]:

1	-1.8500	0.0000	2	1.8500	0.0000	3	2.3500	0.5230
4	3.8500	0.6230	5	3.8500	0.8230	6	0.0000	0.9000
7	-3.8500	0.8230	8	-3.8500	0.6230	9	-2.3500	0.5230
10	-1.8500	0.0000						

No se ha entrado ninguna armadura!

Sección L1



Características mecánicas Sección "L1" (sin coef. homogeneiz.)

Area	Ax = 6.958E3 cm2		
Momento de inercia	Iy = 1.471E6 cm4	Iz = 24.56E6 cm4	Ip = 26.03E6 cm4
rel. a ejes dados	Iye= 1.919E6 cm4	Ize= 24.11E6 cm4	Iyz= -3.2E00 cm4
Const. de torsión			Ix = 1.605E6 cm4 $\checkmark 0.50 = 0.008025\ m^4$
Momento estático	Zy = 87.62E3 cm3	Zz = 356.13E3 cm3	
Baricentro	ys = 0.7703 m	zs = 0.6340 m	Angulo= 8.0 Grad
Dist. al borde	yl = -0.7703 m	yr = 1.2297 m	
	zo = 0.2290 m	zu = -0.6340 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L1" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	6957.500	529.028	1.60E+06	3)

Puntos de contorno [m]:

1	0.0000	0.0000	2	0.5000	0.5230	3	2.0000	0.6230
4	2.0000	0.8230	5	0.0000	0.8630	6	0.0000	0.0000

No se ha entrado ninguna armadura!

$$I_y = 1{,}471\ 10^{6}\ cm^4 + 6.958\ 10^{3}\ cm^2 \left(6340\ cm - 49.86 cm \right)^2$$

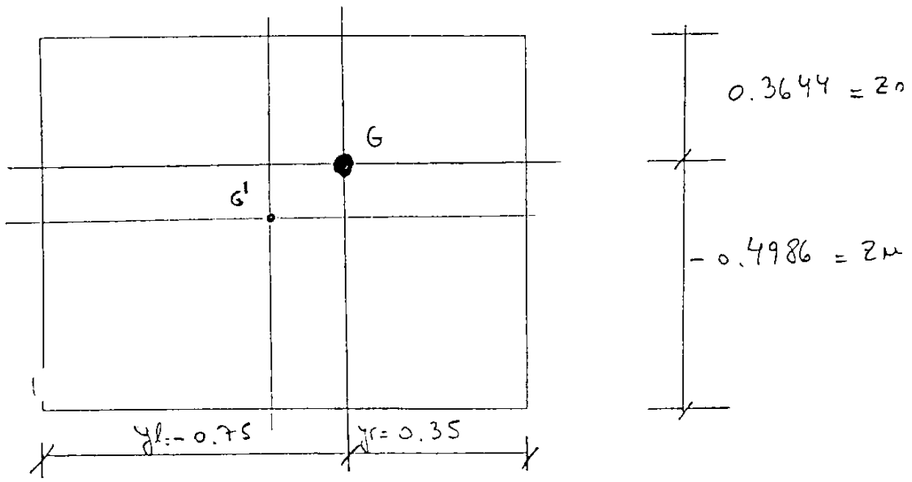
$$I_y = 0.027466\ m^4$$

$$I_x = 0.008025\ m^4$$

$$Z_u = -0.4986\ m \qquad Z_o = 0.3644\ m$$

$$BETA = -8.00^{\circ}$$

ección L2B



Características mecánicas Sección "L2B" (sin coef. homogeneiz.)

Area Ax = 9.493E3 cm2
Momento de inercia Iy = 5.892E6 cm4 Iz = 9.572E6 cm4 Ip = 15.46E6 cm4
Const. de torsión Ix = 12.28E6 cm4
Momento estático Zy =204.81E3 cm3 Zz = 261.06E3 cm3
Baricentro ys = 0.5500 m zs = 0.4315 m Angulo= 0.0 Grad
Dist. al borde yl = -0.5500 m yr = 0.5500 m
zo = 0.4315 m zu = -0.4315 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Co(no de sección parcial, Sección "L2B" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	9493.000	392.600	1.23E+07	1)

Puntos de contorno [m]:

1	0.0000	0.0000	2	1.1000	0.0000	3	1.1000	0.8630
4	0.0000	0.8630	5	0.0000	0.0000		

No se ha entrado ninguna armadura!

$I_x = 12.28\ 10^6\ cm^4 \times 0.50 = 0.0614\ m^4$

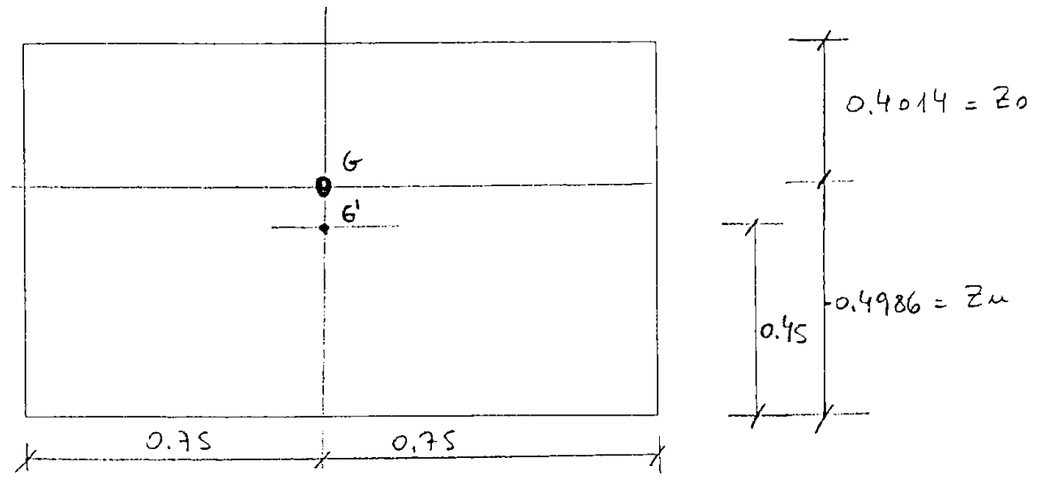
$I_y = 5.892\ 10^6 + 9.493\ 10^3 \times (49.86\ cm - 43.15\ cm)^2$

$I_y = 0.063194.0\ m^4$

$I_z = 9.572\ 10^6 + 9.493\ 10^3 \times (75 - 55)^2$

$I_z = 0.133692\ m^4$

Sección L2



Características mecánicas Sección "L2" (sin coef. homogeneiz.)

Area Ax = 13.50E3 cm2
Momento de inercia Iy = 9.112E6 cm4 Iz = 25.31E6 cm4 Ip = 34.42E6 cm4
Const. de torsión Ix = 22.82E6 cm4
Momento estático Zy =303.75E3 cm3 Zz = 506.25E3 cm3
Baricentro ys = 0.7500 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.7500 m yr = 0.7500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L2" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	13500.0	480.000	2.28E+07	1)

Puntos de contorno [m]:

1	0.0000	0.0000	2	1.5000	0.0000	3	1.5000	0.9000
4	0.0000	0.9000	5	0.0000	0.0000		

No se ha entrado ninguna armadura!

$I_x = 22.82\ 10^6\ cm^4 \times 0.50 = 0.1141\ m^4$

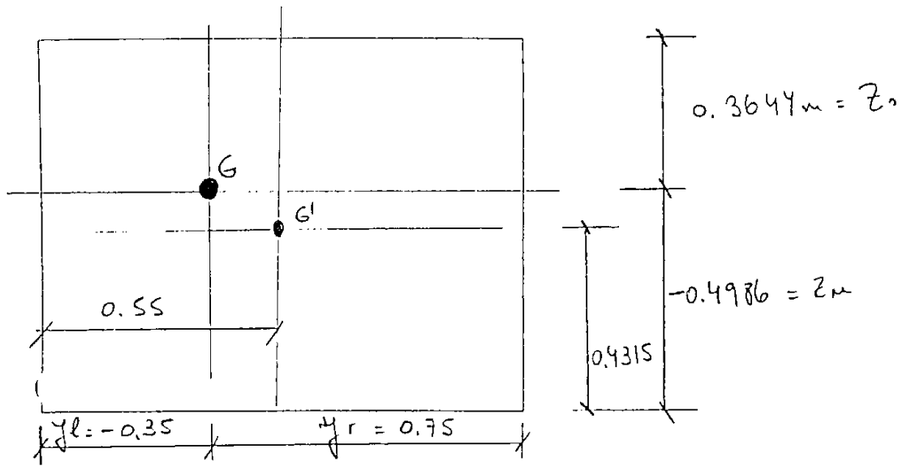
$I_y = 9.112\ 10^6 cm^4 + 13.50\ 10^3\ cm^2 \times (49.86\ cm - 45.0 cm)^2$

$I_y = 0.0943086\ m^4$

$Z_u = -0.4986\ m$

$Z_o = 0.4014\ m$

cción L2A



aracterísticas mecánicas Sección "L2A" (sin coef. homogeneiz.)

Area Ax = 9.493E3 cm2
Momento de inercia Iy = 5.892E6 cm4 Iz = 9.572E6 cm4 Ip = 15.46E6 cm4
Const. de torsión Ix = 12.28E6 cm4
Momento estático Zy =204.81E3 cm3 Zz = 261.06E3 cm3
Baricentro ys = 0.5500 m zs = 0.4315 m Angulo= 0.0 Grad
Dist. al borde yl = -0.5500 m yr = 0.5500 m
zo = 0.4315 m zu = -0.4315 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T Punto de aplic. de fuerzas en el baricentro de la sección

Co(no de sección parcial, Sección "L2A" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	9493.000	392.600	1.23E+07	1)

Puntos de contorno [m]:

1	0.0000	0.0000	2	1.1000	0.0000	3	1.1000	0.8630
4	0.0000	0.8630	5	0.0000	0.0000		

No se ha entrado ninguna armadura!

$I_x = 12.28\,10^6\,cm^4 \times 0.50 = 0.0614\,m^4$

$I_y = 5.892\,10^6\,cm^4 + 9.493 \times 10^3\,cm^2 \times (49.86\,cm - 43.15\,cm)^2$

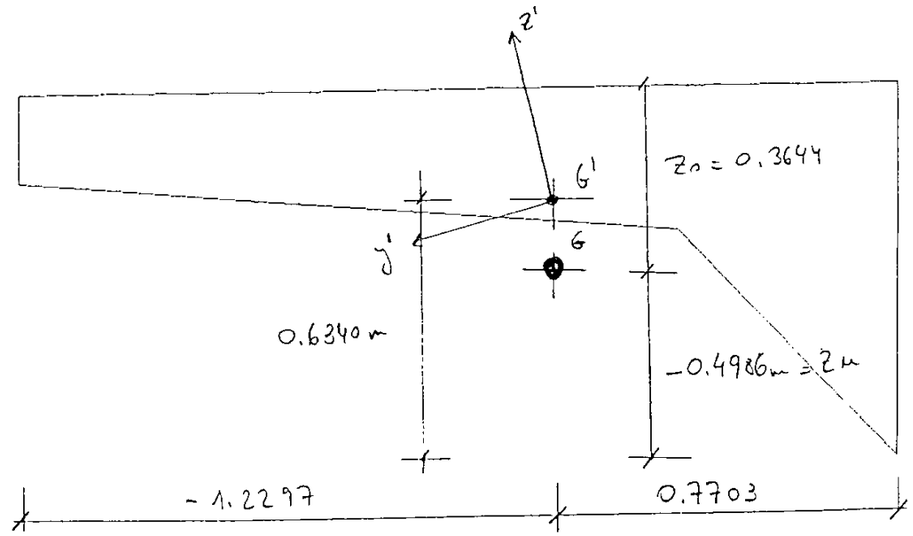
$I_y = 0.063194\,m^4$

$I_z = 9.572\,10^6\,cm^4 + 9.493 \times 10^3\,cm^2 \times (55.0\,cm - 35.0\,cm)^2$

$I_z = 0.1337\,m^4$

$Z_u = -0.4986\,m$ $Z_o = 0.3644$

Sección L3



Características mecánicas Sección "L3" (sin coef. homogeneiz.)

Area Ax = 6.957E3 cm2
Momento de inercia Iy = 1.471E6 cm4 Iz = 24.56E6 cm4 Ip = 26.03E6 cm4
rel. a ejes dados Iye= 1.919E6 cm4 Ize= 24.11E6 cm4 Iyz= 3.186E6 cm4
Const. de torsión Ix = 1.605E6 cm4
Momento estático Zy = 87.62E3 cm3 Zz = 356.13E3 cm3
Baricentro ys = 1.2297 m zs = 0.6340 m Angulo= -8.0 Grad
Dist. al borde yl = -1.2297 m yr = 0.7703 m
zo = 0.2290 m zu = -0.6340 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L3" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	6957.500	529.028	1.60E+06	3)

Puntos de contorno [m]:

1	0.0000	0.8230	2	0.0000	0.6230	3	1.5000	0.5230
4	2.0000	0.0000	5	2.0000	0.8630	6	0.0000	0.8230

No se ha entrado ninguna armadura!

$I_x = 1.605\,10^6\,cm^4 \times 0.50 = 0.008025\,m^4$

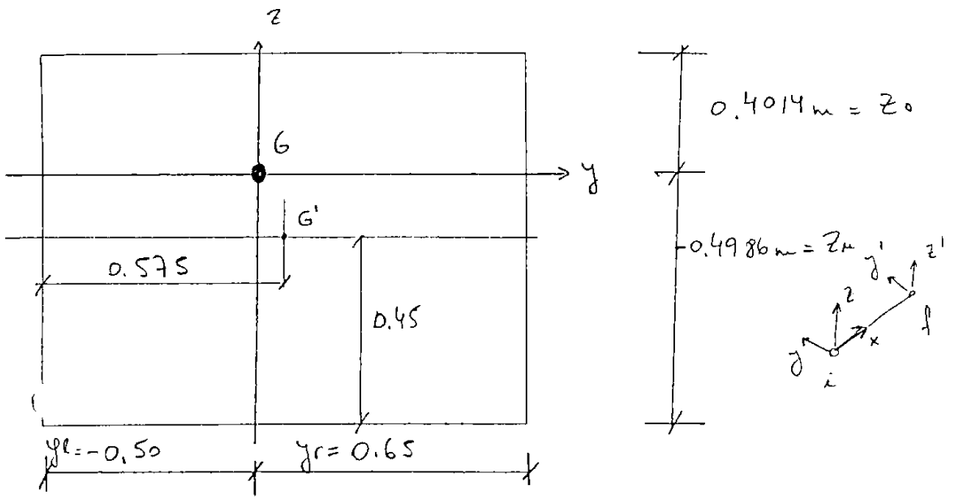
$I_y = 1.471\,10^6\,cm^4 + 6.957\,10^3\,cm^2\,(63.40\,cm - 49.86\,cm)^2$

$I_y = 0.027464\,m^4$

$Z_o = 0.3644\,m$ $Z_u = -0.4986$

BETA = 8.00°

cción TRANS0



Características mecánicas Sección "TRANS0" (sin coef. homogeneiz.)

Area Ax = 10.35E3 cm2
Momento de inercia Iy = 6.986E6 cm4 Iz = 11.41E6 cm4 Ip = 18.39E6 cm4
Const. de torsión Ix = 14.59E6 cm4
Momento estático Zy =232.88E3 cm3 Zz = 297.56E3 cm3
Baricentro ys = -0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.5750 m yr = 0.5750 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS0" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	10350.0	410.000	1.46E+07	1)

Puntos de contorno [m]:
1 0.5750 0.0000 2 0.5750 0.0000 3 0.5750 0.9000
4 0.5750 0.9000 5 0.5750 0.0000

No se ha entrado ninguna armadura!

$I_x = 14.59\,10^6\,cm^4 \times 0.50 = 0.07295\,m^4$

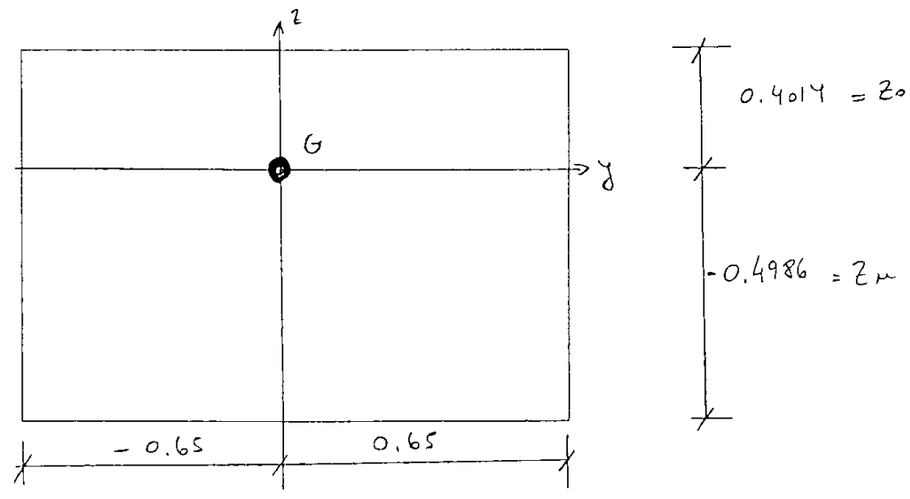
$I_y = 6.986\,10^6\,cm^4 + 10.35 \times 10^3\,cm^2 \times (49.86\,cm - 45.0\,cm)^2$

$I_y = 0.0723046\,m^4$

$I_z = 11.41\,10^6\,cm^4 + 10.35\,10^3\,cm^2 \times (57.5\,cm - 50\,cm)^2$

$I_z = 0.119921\,m^4$

Sección TRANS1



Características mecánicas Sección "TRANS1" (sin coef. homogeneiz.)

Area Ax = 11.70E3 cm2
Momento de inercia Iy = 7.897E6 cm4 Iz = 16.48E6 cm4 Ip = 24.37E6 cm4
Const. de torsión Ix = 18.07E6 cm4
Momento estático Zy =263.25E3 cm3 Zz = 380.25E3 cm3
Baricentro ys = -0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.6500 m yr = 0.6500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS1" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	11700.0	440.000	1.81E+07	1)

Puntos de contorno [m]:
1 0.6500 0.0000 2 0.6500 0.0000 3 0.6500 0.9000
4 -0.6500 0.9000 5 0.6500 0.0000

No se ha entrado ninguna armadura!

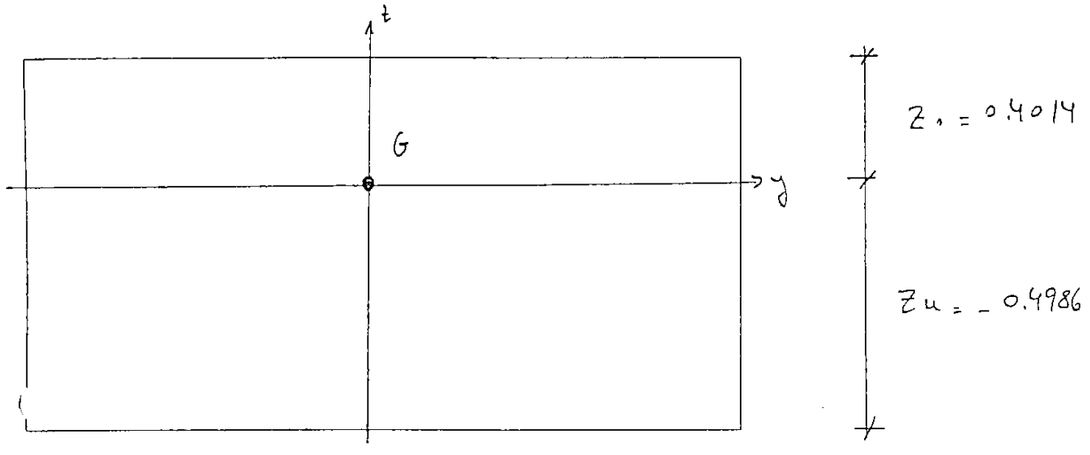
$I_x = 18.07\,10^6\,cm^4 \times 0.50 = 0.09035\,m^4$

$I_y = 7.897\,10^6\,cm^4 + 11.70\,10^3\,cm^2 \times (49.86\,cm - 45.0)^2$

$I_y = 0.0817334\,m^4$

$z_u = -0.4986\,m \qquad z_o = 0.4014\,m$

Sección TRANS2



Características mecánicas Sección "TRANS2" (sin coef. homogeneiz.)

Área Ax = 15.30E3 cm2
Momento de inercia Iy = 10.33E6 cm4 Iz = 36.85E6 cm4 Ip = 47.17E6 cm4
Const. de torsión Ix = 27.62E6 cm4
Momento estático Zy =344.25E3 cm3 Zz = 650.25E3 cm3
Baricentro ys = 0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.8500 m yr = 0.8500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS2" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	15300.0	520.000	2.76E+07	1)

Puntos de contorno [m]:

1	0.8500	0.0000	2	0.8500	0.0000	3	0.8500	0.9000
4	0.8500	0.9000	5	-0.8500	0.0000			

No se ha entrado ninguna armadura!

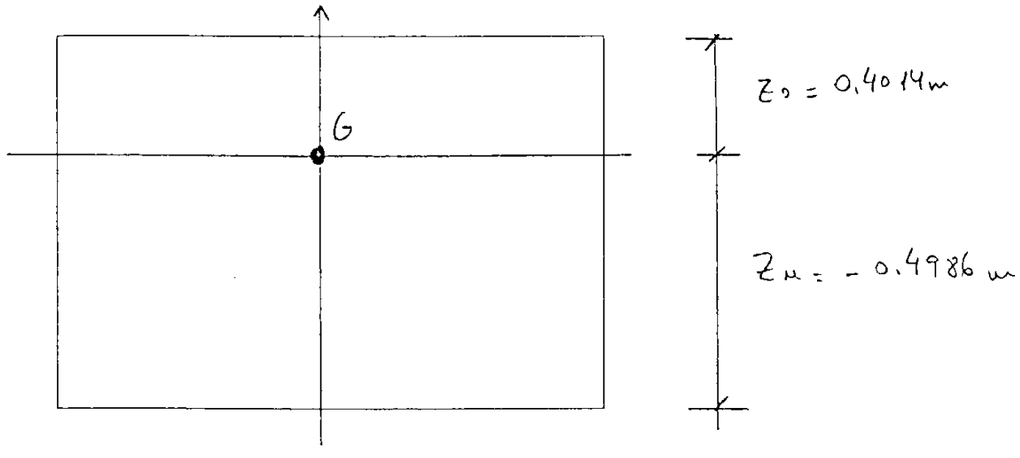
$I_x = 27.62\ 10^6\ cm^4 \times 0.50 = 0.1381\ m^4$

$I_y = 10.33\ 10^6 cm^4 + 15.30\ 10^3\ cm^2 \times (49.86\ cm - 45.00)^2$

$I_y = 0.106913\ m^4$

$Z_u = -0.4986\ m \qquad Z_o = 0.4014\ m$

Sección TRANS3



Características mecánicas Sección "TRANS3" (sin coef. homogeneiz.)

Área Ax = 11.70E3 cm2
Momento de inercia Iy = 7.897E6 cm4 Iz = 16.48E6 cm4 Ip = 24.37E6 cm4
Const. de torsión Ix = 18.07E6 cm4
Momento estático Zy =263.25E3 cm3 Zz = 380.25E3 cm3
Baricentro ys = -0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.6500 m yr = 0.6500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS3" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	11700.0	440.000	1.81E+07	1)

Puntos de contorno [m]:

1	-0.6500	0.0000	2	0.6500	0.0000	3	0.6500	0.9000
4	0.6500	0.9000	5	0.6500	0.0000			

No se ha entrado ninguna armadura!

$I_x = 18.07\ 10^6\ cm^4 \times 0.50 = 0.09035\ m^4$

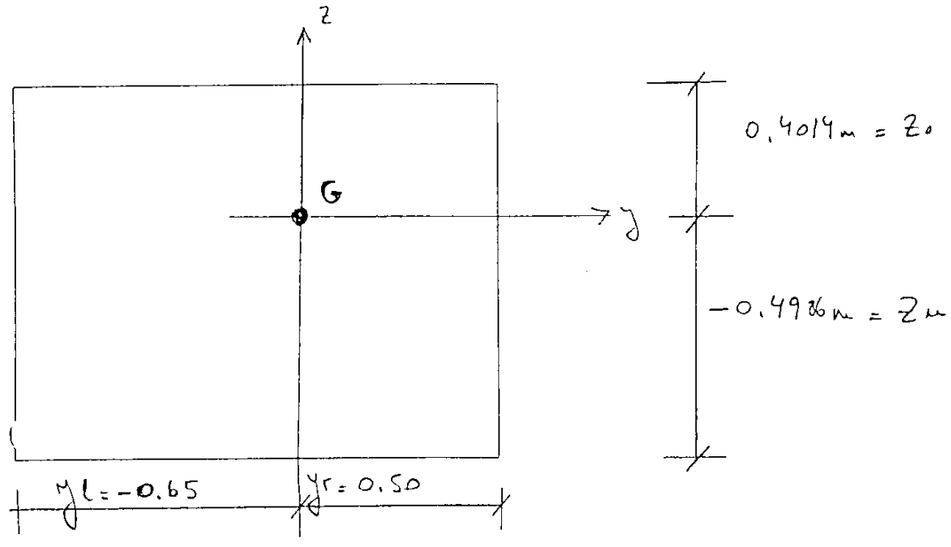
$I_y = 7.897\ 10^6\ cm^4 + 11.70 \times 10^3\ cm^2 \times (49,86\ cm - 45.00)^2$

$I_y = 0,0817335\ m^4$

$Z_u = -0.4986\ m \qquad Z_o = 0,4014\ m$

(

cción TRANS4



'aracterísticas mecánicas Sección "TRANS4" (sin coef. homogeneiz.)

Area Ax = 10.35E3 cm2
Momento de inercia Iy = 6.986E6 cm4 Iz = 11.41E6 cm4 Ip = 18.39E6 cm4
Const. de torsión Ix = 14.59E6 cm4
Momento estático Zy =232.88E3 cm3 Zz = 297.56E3 cm3
Baricentro ys = 0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.5750 m yr = 0.5750 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Co(no de sección parcial, Sección "TRANS4" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	10350.0	410.000	1.46E+07	1)

Puntos de contorno [m]:
1 -0.5750 0.0000 2 0.5750 0.0000 3 0.5750 0.9000
4 -0.5750 0.9000 5 -0.5750 0.0000

No se ha entrado ninguna armadura!

$I_x = 14.59\ 10^6\ cm^4 \times 0.50 = 0.07295\ m^4$

$I_y = 6.986\ 10^6\ cm^4 + 10.35\ 10^3\ cm^2 \times (49.86\ cm - 45.0\ cm)^2$

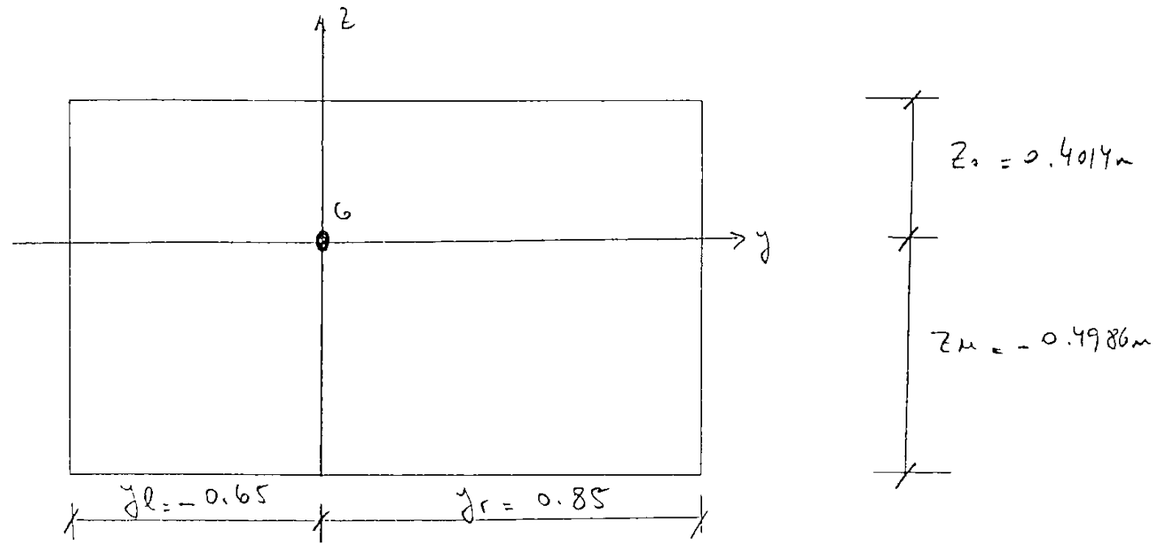
$I_y = 0.0723046\ m^4$

$I_z = 11,41\ 10^6\ cm^4 + 10.35\ 10^3\ cm^2 \times (65.0 - 57.50)^2$

$I_z = 0,11992\ m^4$

$z_u = -0.4986\ m \qquad z_o = 0.4014\ m$

Sección TRANS5



Características mecánicas Sección "TRANS5" (sin coef. homogeneiz.)

Area Ax = 13.50E3 cm2
Momento de inercia Iy = 9.112E6 cm4 Iz = 25.31E6 cm4 Ip = 34.42E6 cm4
Const. de torsión Ix = 22.82E6 cm4
Momento estático Zy =303.75E3 cm3 Zz = 506.25E3 cm3
Baricentro ys = 0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.7500 m yr = 0.7500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS5" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	13500.0	480.000	2.28E+07	1)

Puntos de contorno [m]:
1 -0.7500 0.0000 2 0.7500 0.0000 3 0.7500 0.9000
4 -0.7500 0.9000 5 0.7500 0.0000

No se ha entrado ninguna armadura!

$I_x = 22,82\ 10^6\ cm^4 \times 0.50 = 0.1141\ m^4$

$I_y = 9,112\ 10^6\ cm^4 + 13,50\ 10^3\ cm^2\ (49.86-45)^2$

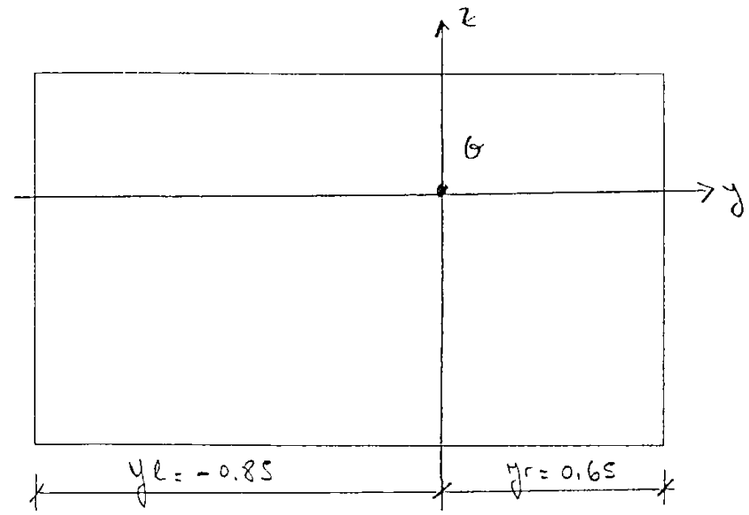
$I_y = 0.094309\ m^4$

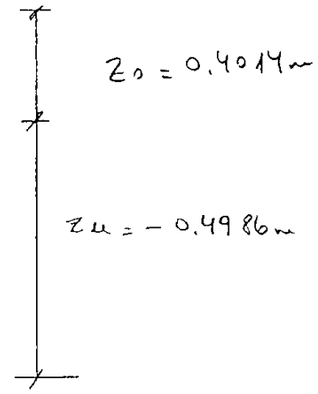
$I_z = 25,31\ 10^6\ cm^4 + 13.50\ 10^3\ cm^2\ (75-65)^2$

$I_z = 0.2666\ m^4$

$z_u = -0.4986\ m \qquad z_o = 0,4014\ m$

Sección TRANS6





Características mecánicas Sección "TRANS6" (sin coef. homogeneiz.)

Area Ax = 13.50E3 cm2
Momento de inercia Iy = 9.112E6 cm4 Iz = 25.31E6 cm4 Ip = 34.42E6 cm4
Const. de torsión Ix = 22.82E6 cm4
Momento estático Zy =303.75E3 cm3 Zz = 506.25E3 cm3
Baricentro ys = 0.0000 m zs = 0.4500 m Angulo= 0.0 Grad
Dist. al borde yl = -0.7500 m yr = 0.7500 m
zo = 0.4500 m zu = -0.4500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS6" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	13500.0	480.000	2.28E+07	1

Puntos de contorno [m]:
1 0.7500 0.0000 2 0.7500 0.0000 3 0.7500 0.9000
4 0.7500 0.9000 5 0.7500 0.0000

No se ha entrado ninguna armadura!

$$I_x = 22.82\,10^6\,cm^4 \times 0.50 = 0.1141\ m^4$$

$$I_y = 9.112\,10^6\,cm^4 + 13.50\,10^3\,cm^2\,(49.86 - 45)^2$$

$$I_y = 0.09430\ m^4$$

$$I_z = 25.31\,10^6\,cm^4 + 13.50\,10^3\,cm^2\,(75 - 65)^2$$

$$I_z = 0.2666\ m^4$$

$$z_u = -0.4986\ m \qquad z_o = 0.4014$$

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
1 .. 291	3.2900E+06	1.3700E-06

STS-Run ok

Load case 1: PESO PROPIO

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Mas.forc2 gl const.	-2.500		Stab	1 .. 160

Load case 2: PESO PAVIMENTO

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z pj const.	-0.106000		Stab	1 .. 32
Force Z pj const.	-0.101000		Stab	33 .. 64
Force Z pj const.	-0.138000		Stab	65 .. 96
Force Z pj const.	-0.101000		Stab	97 .. 128
Force Z pj const.	-0.106000		Stab	129 .. 160

Load case 3: PESO BARRERAS

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z pj const.	-1.000		Stab	1
Moment X lo const.	-1.023		Stab	1
Force Z pj const.	-1.000		Stab	2
Moment X lo const.	-1.023		Stab	2
Force Z pj const.	-1.000		Stab	3
Moment X lo const.	-1.023		Stab	3
Force Z pj const.	-1.000		Stab	4
Moment X lo const.	-1.023		Stab	4
Force Z pj const.	-1.000		Stab	5
Moment X lo const.	-1.023		Stab	5
Force Z pj const.	-1.000		Stab	6
Moment X lo const.	-1.023		Stab	6
Force Z pj const.	-1.000		Stab	7
Moment X lo const.	-1.023		Stab	7
Force Z pj const.	-1.000		Stab	8
Moment X lo const.	-1.023		Stab	8
Force Z pj const.	-1.000		Stab	9
Moment X lo const.	-1.023		Stab	9
Force Z pj const.	-1.000		Stab	10
Moment X lo const.	-1.023		Stab	10
Force Z pj const.	-1.000		Stab	11
Moment X lo const.	-1.023		Stab	11
Force Z pj const.	-1.000		Stab	12
Moment X lo const.	-1.023		Stab	12
Force Z pj const.	-1.000		Stab	13
Moment X lo const.	-1.023		Stab	13
Force Z pj const.	-1.000		Stab	14
Moment X lo const.	-1.023		Stab	14
Force Z pj const.	-1.000		Stab	15
Moment X lo const.	-1.023		Stab	15
Force Z pj const.	-1.000		Stab	16
Moment X lo const.	-1.023		Stab	16
Force Z pj const.	-1.000		Stab	17
Moment X lo const.	-1.023		Stab	17
Force Z pj const.	-1.000		Stab	18
Moment X lo const.	-1.023		Stab	18
Force Z pj const.	-1.000		Stab	19
Moment X lo const.	-1.023		Stab	19
Force Z pj const.	-1.000		Stab	20
Moment X lo const.	-1.023		Stab	20
Force Z pj const.	-1.000		Stab	21
Moment X lo const.	-1.023		Stab	21
Force Z pj const.	-1.000		Stab	22
Moment X lo const.	-1.023		Stab	22
Force Z pj const.	-1.000		Stab	23
Moment X lo const.	-1.023		Stab	23
Force Z pj const.	-1.000		Stab	24
Moment X lo const.	-1.023		Stab	24
Force Z pj const.	-1.000		Stab	25

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Moment X lo const.	-1.023		Stab	25
Force Z pj const.	-1.000		Stab	26
Moment X lo const.	-1.023		Stab	26
Force Z pj const.	-1.000		Stab	27
Moment X lo const.	-1.023		Stab	27
Force Z pj const.	-1.000		Stab	28
Moment X lo const.	-1.023		Stab	28
Force Z pj const.	-1.000		Stab	29
Moment X lo const.	-1.023		Stab	29
Force Z pj const.	-1.000		Stab	30
Moment X lo const.	-1.023		Stab	30
Force Z pj const.	-1.000		Stab	31
Moment X lo const.	-1.023		Stab	31
Force Z pj const.	-1.000		Stab	32
Moment X lo const.	-1.023		Stab	32
Force Z pj const.	-1.000		Stab	129
Moment X lo const.	1.023		Stab	129
Force Z pj const.	-1.000		Stab	130
Moment X lo const.	1.023		Stab	130
Force Z pj const.	-1.000		Stab	131
Moment X lo const.	1.023		Stab	131
Force Z pj const.	-1.000		Stab	132
Moment X lo const.	1.023		Stab	132
Force Z pj const.	-1.000		Stab	133
Moment X lo const	1.023		Stab	133
Force Z pj const.	-1.000		Stab	134
Moment X lo const.	1.023		Stab	134
Force Z pj const.	-1.000		Stab	135
Moment X lo const.	1.023		Stab	135
Force Z pj const.	-1.000		Stab	136
Moment X lo const.	1.023		Stab	136
Force Z pj const.	-1.000		Stab	137
Moment X lo const.	1.023		Stab	137
Force Z pj const.	-1.000		Stab	138
Moment X lo const.	1.023		Stab	138
Force Z pj const.	-1.000		Stab	139
Moment X lo const.	1.023		Stab	139
Force Z pj const.	-1.000		Stab	140
Moment X lo const.	1.023		Stab	140
Force Z pj const.	-1.000		Stab	141
Moment X lo const.	1.023		Stab	141
Force Z pj const.	-1.000		Stab	142
Moment X lo const.	1.023		Stab	142
Force Z pj const.	-1.000		Stab	143
Moment X lo const.	1.023		Stab	143
Force Z pj const.	-1.000		Stab	144
Moment X lo const.	1.023		Stab	144
Force Z pj const.	-1.000		Stab	145
Moment X lo const.	1.023		Stab	145
Force Z pj const.	-1.000		Stab	146
Moment X lo const.	1.023		Stab	146
Force Z pj const.	-1.000		Stab	147
Moment X lo const.	1.023		Stab	147

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z pj const	-1.000		Stab	148
Moment X lo const.	1.023		Stab	148
Force Z pj const.	-1.000		Stab	149
Moment X lo const.	1.023		Stab	149
Force Z pj const.	-1.000		Stab	150
Moment X lo const.	1.023		Stab	150
Force Z pj const.	-1.000		Stab	151
Moment X lo const.	1.023		Stab	151
Force Z pj const.	-1.000		Stab	152
Moment X lo const.	1.023		Stab	152
Force Z pj const.	-1.000		Stab	153
Moment X lo const.	1.023		Stab	153
Force Z pj const.	-1.000		Stab	154
Moment X lo const	1.023		Stab	154
Force Z pj const.	-1.000		Stab	155
Moment X lo const.	1.023		Stab	155
Force Z pj const.	-1.000		Stab	156
Moment X lo const.	1.023		Stab	156
Force Z pj const.	-1.000		Stab	157
Moment X lo const	1.023		Stab	157
Force Z pj const.	-1.000		Stab	158
Moment X lo const.	1.023		Stab	158
Force Z pj const.	-1.000		Stab	159
Moment X lo const.	1.023		Stab	159
Force Z pj const.	-1.000		Stab	160
Moment X lo const.	1.023		Stab	160

Load case 5: RETRACCION

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Strain X lo const.	-0.000292		Stab	1 .. 160

Load case 6: SOB UNIF 1

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z pj const.	-0.800000		Stab	1 .. 32

Load case 7: SOB UNIF 2

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z pj const.	-0.440000		Stab	33 .. 64

Load case 8: SOB UNIF 3

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z pj const.	-0.600000		Stab	65 .. 96

Load case 9: SOB UNIF 4

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z pj const.	-0.440000		Stab	97 .. 128

Load case 10: SOB UNIF 5

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z pj const.	-0.800000		Stab	129 .. 160

Load case 11: VEHICULO HIPOTESIS 11

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl conc.	-10.000	0.850000	Stab	2
Force Z gl conc.	-10.000	1.050	Stab	3
Force Z gl conc.	-10.000	1.250	Stab	4
Force Z gl conc.	-4.130	0.850000	Stab	34
Force Z gl conc.	-4.130	1.050	Stab	35
Force Z gl conc.	-4.130	1.250	Stab	36
Force Z gl conc.	-5.870	0.850000	Stab	66
Force Z gl conc.	-5.870	1.050	Stab	67
Force Z gl conc.	-5.870	1.250	Stab	68

Load case 12: VEHICULO HIPOTESIS 12

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	1.100	Stab	5
Force	Z	gl conc.	-10.000	1.300	Stab	6
Force	Z	gl conc.	-10.000	0.200000	Stab	8
Force	Z	gl conc.	-4.130	1.100	Stab	37
Force	Z	gl conc.	-4.130	1.300	Stab	38
Force	Z	gl conc.	-4.130	0.200000	Stab	40
Force	Z	gl conc.	-5.870	1.100	Stab	69
Force	Z	gl conc.	-5.870	1.300	Stab	70
Force	Z	gl conc.	-5.870	0.200000	Stab	72

Load case 13: VEHICULO HIPOTESIS 13

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.050000	Stab	9
Force	Z	gl conc.	-10.000	0.250000	Stab	10
Force	Z	gl conc.	-10.000	0.450000	Stab	11
Force	Z	gl conc.	-4.130	0.050000	Stab	41
Force	Z	gl conc.	-4.130	0.250000	Stab	42
Force	Z	gl conc.	-4.130	0.450000	Stab	43
Force	Z	gl conc.	-5.870	0.050000	Stab	73
Force	Z	gl conc.	-5.870	0.250000	Stab	74
Force	Z	gl conc.	-5.870	0.450000	Stab	75

Load case 14: VEHICULO HIPOTESIS 14

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.850000	Stab	12
Force	Z	gl conc.	-10.000	0.650000	Stab	13
Force	Z	gl conc.	-10.000	0.450000	Stab	14
Force	Z	gl conc.	-4.130	0.850000	Stab	44
Force	Z	gl conc.	-4.130	0.650000	Stab	45
Force	Z	gl conc.	-4.130	0.450000	Stab	46
Force	Z	gl conc.	-5.870	0.850000	Stab	76
Force	Z	gl conc.	-5.870	0.650000	Stab	77
Force	Z	gl conc.	-5.870	0.450000	Stab	78

Load case 15: VEHICULO HIPOTESIS 15

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.200000	Stab	16
Force	Z	gl conc.	-10.000	0	Stab	17
Force	Z	gl conc.	-10.000	1.500	Stab	17
Force	Z	gl conc.	-4.130	0.200000	Stab	48
Force	Z	gl conc.	-4.130	0	Stab	49
Force	Z	gl conc.	-4.130	1.500	Stab	49
Force	Z	gl conc.	-5.870	0.200000	Stab	80
Force	Z	gl conc.	-5.870	0	Stab	81
Force	Z	gl conc.	-5.870	1.500	Stab	81

Load case 16: VEHICULO HIPOTESIS 16

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	1.250	Stab	19
Force	Z	gl conc.	-10.000	1.050	Stab	20
Force	Z	gl conc.	-10.000	0.850000	Stab	21
Force	Z	gl conc.	-4.130	1.250	Stab	51
Force	Z	gl conc.	-4.130	1.050	Stab	52
Force	Z	gl conc.	-4.130	0.850000	Stab	53
Force	Z	gl conc.	-5.870	1.250	Stab	83
Force	Z	gl conc.	-5.870	1.050	Stab	84
Force	Z	gl conc.	-5.870	0.850000	Stab	85

Load case 17: VEHICULO HIPOTESIS 17

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.850000	Stab	22
Force	Z	gl conc.	-10.000	1.050	Stab	23
Force	Z	gl conc.	-10.000	1.250	Stab	24
Force	Z	gl conc.	-4.130	0.850000	Stab	54
Force	Z	gl conc.	-4.130	1.050	Stab	55
Force	Z	gl conc.	-4.130	1.250	Stab	56
Force	Z	gl conc.	-5.870	0.850000	Stab	86
Force	Z	gl conc.	-5.870	1.050	Stab	87
Force	Z	gl conc.	-5.870	1.250	Stab	88

Load case 18: VEHICULO HIPOTESIS 18

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	1.100	Stab	25
Force	Z	gl conc.	-10.000	1.300	Stab	26
Force	Z	gl conc.	-10.000	0.200000	Stab	28
Force	Z	gl conc.	-4.130	1.100	Stab	57
Force	Z	gl conc.	-4.130	1.300	Stab	58
Force	Z	gl conc.	-4.130	0.200000	Stab	60
Force	Z	gl conc.	-5.870	1.100	Stab	89
Force	Z	gl conc.	-5.870	1.300	Stab	90
Force	Z	gl conc.	-5.870	0.200000	Stab	92

Load case 19: VEHICULO HIPOTESIS 19

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	0.050000	Stab	29
Force	Z	gl conc.	-10.000	0.250000	Stab	30
Force	Z	gl conc.	-10.000	0.450000	Stab	31
Force	Z	gl conc.	-4.130	0.050000	Stab	61
Force	Z	gl conc.	-4.130	0.250000	Stab	62
Force	Z	gl conc.	-4.130	0.450000	Stab	63
Force	Z	gl conc.	-5.870	0.050000	Stab	93
Force	Z	gl conc.	-5.870	0.250000	Stab	94
Force	Z	gl conc.	-5.870	0.450000	Stab	95

Load case 20: VEHICULO HIPOTESIS 20

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.850000	Stab	34
Force	Z	gl conc.	-6.670	1.050	Stab	35
Force	Z	gl conc.	-6.670	1.250	Stab	36
Force	Z	gl conc.	-6.670	0.850000	Stab	66
Force	Z	gl conc.	-6.670	1.050	Stab	67
Force	Z	gl conc.	-6.670	1.250	Stab	68
Force	Z	gl conc.	-6.670	0.850000	Stab	98
Force	Z	gl conc.	-6.670	1.050	Stab	99
Force	Z	gl conc.	-6.670	1.250	Stab	100

Load case 21: VEHICULO HIPOTESIS 21

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	1.100	Stab	37
Force	Z	gl conc.	-6.670	1.300	Stab	38
Force	Z	gl conc.	-6.670	0.200000	Stab	40
Force	Z	gl conc.	-6.670	1.100	Stab	69
Force	Z	gl conc.	-6.670	1.300	Stab	70
Force	Z	gl conc.	-6.670	0.200000	Stab	72
Force	Z	gl conc.	-6.670	1.100	Stab	101
Force	Z	gl conc.	-6.670	1.300	Stab	102
Force	Z	gl conc.	-6.670	0.200000	Stab	104

Load case 22: VEHICULO HIPOTESIS 22

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.050000	Stab	41
Force	Z	gl conc.	-6.670	0.250000	Stab	42
Force	Z	gl conc.	-6.670	0.450000	Stab	43
Force	Z	gl conc.	-6.670	0.050000	Stab	73
Force	Z	gl conc.	-6.670	0.250000	Stab	74
Force	Z	gl conc.	-6.670	0.450000	Stab	75
Force	Z	gl conc.	-6.670	0.050000	Stab	105
Force	Z	gl conc.	-6.670	0.250000	Stab	106
Force	Z	gl conc.	-6.670	0.450000	Stab	107

Load case 23: VEHICULO HIPOTESIS 23

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.850000	Stab	44
Force	Z	gl conc.	-6.670	0.650000	Stab	45
Force	Z	gl conc.	-6.670	0.450000	Stab	46
Force	Z	gl conc.	-6.670	0.850000	Stab	76
Force	Z	gl conc.	-6.670	0.650000	Stab	77
Force	Z	gl conc.	-6.670	0.450000	Stab	78
Force	Z	gl conc.	-6.670	0.850000	Stab	108
Force	Z	gl conc.	-6.670	0.650000	Stab	109
Force	Z	gl conc.	-6.670	0.450000	Stab	110

Load case 24: VEHICULO HIPOTESIS 24

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.200000	Stab	48
Force	Z	gl conc.	-6.670	0	Stab	49
Force	Z	gl conc.	-6.670	1.500	Stab	45
Force	Z	gl conc.	-6.670	0.200000	Stab	80
Force	Z	gl conc.	-6.670	0	Stab	81
Force	Z	gl conc.	-6.670	1.500	Stab	81
Force	Z	gl conc.	-6.670	0.200000	Stab	112
Force	Z	gl conc.	-6.670	0	Stab	113
Force	Z	gl conc.	-6.670	1.500	Stab	113

Load case 25: VEHICULO POSICION 25

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	1.250	Stab	51
Force	Z	gl conc.	-6.670	1.050	Stab	52
Force	Z	gl conc.	-6.670	0.850000	Stab	53
Force	Z	gl conc.	-6.670	1.250	Stab	83
Force	Z	gl conc.	-6.670	1.050	Stab	84
Force	Z	gl conc.	-6.670	0.850000	Stab	85
Force	Z	gl conc.	-6.670	1.250	Stab	115
Force	Z	gl conc.	-6.670	1.050	Stab	116
Force	Z	gl conc.	-6.670	0.850000	Stab	117

Load case 26: VEHICULO POSICION 26

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.850000	Stab	54
Force	Z	gl conc.	-6.670	1.050	Stab	55
Force	Z	gl conc.	-6.670	1.250	Stab	56
Force	Z	gl conc.	-6.670	0.850000	Stab	86
Force	Z	gl conc.	-6.670	1.050	Stab	87
Force	Z	gl conc.	-6.670	1.250	Stab	88
Force	Z	gl conc.	-6.670	0.850000	Stab	118
Force	Z	gl conc.	-6.670	1.050	Stab	119
Force	Z	gl conc.	-6.670	1.250	Stab	120

Load case 27: VEHICULO POSICION 27

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	1.100	Stab	57
Force	Z	gl conc.	-6.670	1.300	Stab	58
Force	Z	gl conc.	-6.670	0.200000	Stab	60
Force	Z	gl conc.	-6.670	1.100	Stab	89
Force	Z	gl conc.	-6.670	1.300	Stab	90
Force	Z	gl conc.	-6.670	0.200000	Stab	92
Force	Z	gl conc.	-6.670	1.100	Stab	121
Force	Z	gl conc.	-6.670	1.300	Stab	122
Force	Z	gl conc.	-6.670	0.200000	Stab	124

Load case 28: VEHICULO POSICION 28

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-6.670	0.050000	Stab	61
Force	Z	gl conc.	-6.670	0.250000	Stab	62
Force	Z	gl conc.	-6.670	0.450000	Stab	63
Force	Z	gl conc.	-6.670	0.050000	Stab	93
Force	Z	gl conc.	-6.670	0.250000	Stab	94
Force	Z	gl conc.	-6.670	0.450000	Stab	95
Force	Z	gl conc.	-6.670	0.050000	Stab	125
Force	Z	gl conc.	-6.670	0.250000	Stab	126
Force	Z	gl conc.	-6.670	0.450000	Stab	127

Load case 29: VEHICULO POSICION 29

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.850000	Stab	66
Force	Z	gl conc.	-5.870	1.050	Stab	67
Force	Z	gl conc.	-5.870	1.250	Stab	68
Force	Z	gl conc.	-4.130	0.850000	Stab	98
Force	Z	gl conc.	-4.130	1.050	Stab	99
Force	Z	gl conc.	-4.130	1.250	Stab	100
Force	Z	gl conc.	-10.000	0.850000	Stab	130
Force	Z	gl conc.	-10.000	1.050	Stab	131
Force	Z	gl conc.	-10.000	1.250	Stab	132

Load case 30: VEHICULO POSICION 30

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	1.100	Stab	69
Force	Z	gl conc.	-5.870	1.300	Stab	70
Force	Z	gl conc.	-5.870	0.200000	Stab	72
Force	Z	gl conc.	-4.130	1.100	Stab	101
Force	Z	gl conc.	-4.130	1.300	Stab	102
Force	Z	gl conc.	-4.130	0.200000	Stab	104
Force	Z	gl conc.	-10.000	1.100	Stab	133
Force	Z	gl conc.	-10.000	1.300	Stab	134
Force	Z	gl conc.	-10.000	0.200000	Stab	136

Load case 31: VEHICULO POSICION 31

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.050000	Stab	73
Force	Z	gl conc.	-5.870	0.250000	Stab	74
Force	Z	gl conc.	-5.870	0.450000	Stab	75
Force	Z	gl conc.	-4.130	0.050000	Stab	105
Force	Z	gl conc.	-4.130	0.250000	Stab	106
Force	Z	gl conc.	-4.130	0.450000	Stab	107
Force	Z	gl conc.	-10.000	0.050000	Stab	137
Force	Z	gl conc.	-10.000	0.250000	Stab	138
Force	Z	gl conc.	-10.000	0.450000	Stab	139

Load case 32: VEHICULO POSICION 32

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.850000	Stab	76
Force	Z	gl conc.	-5.870	0.650000	Stab	77
Force	Z	gl conc.	-5.870	0.450000	Stab	78
Force	Z	gl conc.	-4.130	0.850000	Stab	108
Force	Z	gl conc.	-4.130	0.650000	Stab	109
Force	Z	gl conc.	-4.130	0.450000	Stab	110
Force	Z	gl conc.	-10.000	0.850000	Stab	140
Force	Z	gl conc.	-10.000	0.650000	Stab	141
Force	Z	gl conc.	-10.000	0.450000	Stab	142

Load case 33: VEHICULO POSICION 33

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.200000	Stab	80
Force	Z	gl conc.	-5.870	0	Stab	81
Force	Z	gl conc.	-5.870	1.500	Stab	81
Force	Z	gl conc.	-4.130	0.200000	Stab	112
Force	Z	gl conc.	-4.130	0	Stab	113
Force	Z	gl conc.	-4.130	1.500	Stab	113
Force	Z	gl conc.	-10.000	0.200000	Stab	144
Force	Z	gl conc.	-10.000	0	Stab	145
Force	Z	gl conc.	-10.000	1.500	Stab	145

Load case 34: VEHICULO POSICION 34

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	1.250	Stab	83
Force	Z	gl conc.	-5.870	1.050	Stab	84
Force	Z	gl conc.	-5.870	0.850000	Stab	85
Force	Z	gl conc.	-4.130	1.250	Stab	115
Force	Z	gl conc.	-4.130	1.050	Stab	116
Force	Z	gl conc.	-4.130	0.850000	Stab	117
Force	Z	gl conc.	-10.000	1.250	Stab	147
Force	Z	gl conc.	-10.000	1.050	Stab	148
Force	Z	gl conc.	-10.000	0.850000	Stab	149

Load case 35: VEHICULO POSICION 35

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.850000	Stab	86
Force	Z	gl conc.	-5.870	1.050	Stab	87
Force	Z	gl conc.	-5.870	1.250	Stab	88
Force	Z	gl conc.	-4.130	0.850000	Stab	118
Force	Z	gl conc.	-4.130	1.050	Stab	119
Force	Z	gl conc.	-4.130	1.250	Stab	120
Force	Z	gl conc.	-10.000	0.850000	Stab	150
Force	Z	gl conc.	-10.000	1.050	Stab	151
Force	Z	gl conc.	-10.000	1.250	Stab	152

Load case 36: VEHICULO POSICION 36

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	1.100	Stab	89
Force	Z	gl conc.	-5.870	1.300	Stab	90
Force	Z	gl conc.	-5.870	0.200000	Stab	92
Force	Z	gl conc.	-4.130	1.100	Stab	121
Force	Z	gl conc.	-4.130	1.300	Stab	122
Force	Z	gl conc.	-4.130	0.200000	Stab	124
Force	Z	gl conc.	-10.000	1.100	Stab	153
Force	Z	gl conc.	-10.000	1.300	Stab	154
Force	Z	gl conc.	-10.000	0.200000	Stab	156

Load case 37: VEHICULO HIPOTESIS 37

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-5.870	0.050000	Stab	93
Force	Z	gl conc.	-5.870	0.250000	Stab	94
Force	Z	gl conc.	-5.870	0.450000	Stab	95
Force	Z	gl conc.	-4.130	0.050000	Stab	125
Force	Z	gl conc.	-4.130	0.250000	Stab	126
Force	Z	gl conc.	-4.130	0.450000	Stab	127
Force	Z	gl conc.	-10.000	0.050000	Stab	157
Force	Z	gl conc.	-10.000	0.250000	Stab	158
Force	Z	gl conc.	-10.000	0.450000	Stab	159

Load case 46: SOB UNIF VANO 1

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	pj const.	-0.800000		Stab .. 139	1 .. 11	129
Force	Z	pj const.	-0.440000		Stab .. 107	33 .. 43	97
Force	Z	pj const.	-0.600000		Stab	65 .. 75	

Load case 47: SOB UNIF VANO 2

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	pj const.	-0.440000		Stab .. 117	44 .. 53	108
Force	Z	pj const.	-0.600000		Stab	76 .. 86	
Force	Z	pj const.	-0.800000		Stab .. 149	12 .. 21	140

Load case 48: SOB UNIF VANO 3

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	pj const.	-0.440000		Stab .. 128	54 .. 64	118
Force	Z	pj const.	-0.600000		Stab	86 .. 96	
Force	Z	pj const.	-0.800000		Stab .. 160	22 .. 32	150

Load case 60: FRENADO

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	lc const.	0.054500		Stab	1 .. 160

Load case 62: VIENTO TRANSV SIN SOB.

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Y	lc const.	0.260000		Stab	129 .. 160
Force	X	pj const.	-0.200000		Stab	290 .. 291

Load case 63: VIENTO TRANSV CON SOB

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Y	lc const.	0.760000		Stab	129 .. 160
Force	X	pj const.	-0.200000		Stab	290 .. 291

Load case 64: TEMPERATURA (-)

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Strain	X	lc const.	-0.000363		Stab	1 .. 160

Load case 65: TEMPERATURA (+)

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Strain	X	lc const.	0.000363		Stab	1 .. 160

Load case 66: GRADIENTE

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Curvat.	Y	lc const.	0.000170		Stab	1 .. 160

2.3.2. Cálculo de los coeficientes de reparto

Coeficientes de excentricidad a Flexión

Hipotesis	Barras	My (tm)	Iy (m^4)	Coef Flexion
H12	6	20.25	0.0275	1.51
	38	36.31	0.0632	
	70	43.67	0.0943	
	102	23.4	0.0632	
	134	10.87	0.0275	
H15	16	19.053	0.0275	1.38
	48	37.9	0.0632	
	80	46.53	0.0943	
	112	25.43	0.0632	
	144	9.63	0.0275	
H18	26	16.87	0.0275	1.29
	58	36.31	0.0632	
	90	43.722	0.0943	
	122	23.43	0.0632	
	154	10.873	0.0275	

Coeficiente Flexion = 1.39

Coeficiente Cortante = 2.81

Coeficientes de excentricidad cortante

Hipotesis	Barras	Vz (t)	Iy (m^4)	Coef Cortante
H11	2	22.89	0.0275	4.96
	34	10.48	0.0632	
	66	8.12	0.0943	
	98	4.06	0.0632	
	130	0.74	0.0275	
H13	11	8.08	0.0275	1.50
	43	13.22	0.0632	
	75	26.44	0.0943	
	107	4.72	0.0632	
	139	1.75	0.0275	
H14	12	11.55	0.0275	2.00
	44	14.05	0.0632	
	76	25.35	0.0943	
	108	4.55	0.0632	
	140	2.41	0.0275	
H16	21	11.55	0.0275	1.99
	53	14.05	0.0632	
	85	25.35	0.0943	
	117	4.94	0.0632	
	149	2.40	0.0275	
H17	22	8.08	0.0275	1.45
	54	13.22	0.0632	
	86	26.45	0.0943	
	118	6.29	0.0632	
	150	1.75	0.0275	
H19	31	22.90	0.0275	4.96
	63	10.48	0.0632	
	95	8.12	0.0943	
	127	4.06	0.0632	
	159	0.74	0.0275	

Loadcase Factor Stage Init.def Title
11 1.0000 VEHICULO HIPOTESIS 11

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.126491	0.057964	40.227			
10	0.126487	0.065156	8.303			
156	0.059326	0.056961	0.888022			
160	0.059321	0.065923	-0.448044			
166	-0.366341	-0.621681	15.628	2.239	-0.737014	0.065050
167	-0.005295	0.375660	-2.597	-2.148	0.634102	0.073680
Sume :	-2.53E-11	1.67E-11	60.000			
min.	-0.366341	-0.621681	-2.597	-2.148	-0.737014	0.065050
max.	0.126491	0.375660	40.227	2.239	0.634102	0.073680

SECTION FORCES: "ALL"

Memb.Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1 0	7.18E-14	-1.05E-12	8.95E-14	7.74E-17	-1.07E-12	3.34E-13
1 0.500	7.18E-14	-1.05E-12	8.95E-14	7.74E-17	-1.03E-12	-1.90E-13
2 0	-0.014961	-3.261	22.896	-1.351	-5.755	1.406
2 0.850	-0.014961	-3.261	22.896	-1.351	5.704	-1.366
2 0.850	-0.014961	-1.869	12.993	-1.351	5.708	-1.366
2 1.300	-0.014961	-1.869	12.993	-1.351	15.554	-2.207
3 0	0.038421	-1.560	10.915	-0.861404	4.820	-0.657412
3 1.050	0.038421	-1.560	10.915	-0.861404	16.275	-2.295
3 1.050	0.038421	-0.168092	1.012	-0.861404	16.281	-2.295
3 1.300	0.038421	-0.168092	1.012	-0.861404	16.534	-2.337
4 0	0.083569	-0.533194	3.597	-0.399957	10.726	-1.488
4 1.250	0.083569	-0.533194	3.597	-0.399957	15.222	-2.155
4 1.250	0.083569	0.858537	-6.305	-0.399957	15.222	-2.155
4 1.300	0.083569	0.858537	-6.305	-0.399957	14.907	-2.112
5 0	0.125143	0.441007	-3.350	-0.049571	12.960	-1.809
5 1.300	0.125143	0.441007	-3.350	-0.049571	8.605	-1.235
6 0	0.165467	0.315521	-2.454	0.052411	8.761	-1.231
6 1.300	0.165467	0.315521	-2.454	0.052411	5.591	-0.820693
7 0	0.206219	0.288850	-2.263	0.080788	6.282	-0.888226
7 1.300	0.206219	0.288850	-2.263	0.080788	3.341	-0.512721

SECTION FORCES: "ALL"

Memb.Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
8 0	0.248424	0.276262	-2.185	0.086999	4.205	-0.603277
8 1.300	0.248424	0.276262	-2.185	0.086999	1.364	-0.244137
9 0	0.294783	0.255121	-2.074	0.076454	2.213	-0.329988
9 1.300	0.294783	0.255121	-2.074	0.076454	-0.482633	0.001670
10 0	0.349055	0.204178	-1.762	0.058908	0.207413	-0.057599
10 1.300	0.349055	0.204178	-1.762	0.058908	-2.083	0.207832
11 0	0.407944	0.141896	-1.257	0.067321	-1.515	0.166952
11 1.300	0.407944	0.141896	-1.257	0.067321	-3.150	-0.351417
12 0	0.440530	0.116675	-0.868013	0.110335	-2.042	0.233020
12 1.700	0.440530	0.116675	-0.868013	0.110335	-3.518	0.431367
33 0	3.00E-14	-5.60E-12	-3.17E-12	-6.44E-16	-5.05E-15	2.54E-12
33 0.500	3.00E-14	-5.60E-12	-3.17E-12	-6.44E-16	-1.59E-12	-2.59E-13
34 0	-0.002518	-0.061418	10.482	-8.276	1.657	0.042887
34 0.850	-0.002518	-0.061418	10.482	-8.276	10.565	-0.009311
34 0.850	-0.002518	-0.061418	6.352	-8.276	10.567	-0.009327
34 1.300	-0.002518	-0.061418	6.352	-8.276	13.425	-0.036957
35 0	0.020486	-0.064843	7.246	-6.036	15.319	0.038953
35 1.050	0.020486	-0.064843	7.246	-6.036	22.926	-0.029124
35 1.050	0.020486	-0.064843	3.116	-6.036	22.928	-0.029141
35 1.300	0.020486	-0.064843	3.116	-6.036	23.706	-0.045344
36 0	0.054023	-0.059442	1.217	-2.968	23.903	0.031101
36 1.250	0.054023	-0.059442	1.217	-2.968	25.424	-0.043193
36 1.250	0.054023	-0.059442	-2.913	-2.968	25.423	-0.043208
36 1.300	0.054023	-0.059442	-2.913	-2.968	25.276	-0.046173
37 0	0.087182	-0.056054	-4.627	-0.626269	24.957	0.025834
37 1.300	0.087182	-0.056054	-4.627	-0.626269	18.942	-0.047036
38 0	0.119339	-0.055570	-4.120	0.313490	18.626	0.022660
38 1.300	0.119339	-0.055570	-4.120	0.313490	13.271	-0.049581
39 0	0.150994	-0.056243	-3.587	0.606698	13.269	0.020153
39 1.300	0.150994	-0.056243	-3.587	0.606698	8.606	-0.052963
40 0	0.182360	-0.058250	-3.399	0.675479	8.710	0.018306
40 1.300	0.182360	-0.058250	-3.399	0.675479	4.291	-0.057417
41 0	0.212062	-0.062978	-3.407	0.617467	4.473	0.017648
41 1.300	0.212062	-0.062978	-3.407	0.617467	0.043393	-0.064224
42 0	0.239784	-0.073328	-3.510	0.472629	0.300299	0.016724
42 1.300	0.239784	-0.073328	-3.510	0.472629	-4.262	-0.076602
43 0	0.278019	-0.084771	-2.711	0.481551	-4.089	0.015444

SECTION FORCES: "ALL"

Memb.Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
43 1.300	0.278019	-0.084771	-2.711	0.481551	-7.611	-0.094758
65 0	8.44E-15	-6.15E-12	-1.01E-12	2.26E-14	3.33E-13	-8.52E-13
65 0.500	8.44E-15	-6.15E-12	-1.01E-12	2.26E-14	-1.70E-13	-3.93E-12
66 0	-0.006242	-0.074536	8.121	-8.398	3.856	0.051352
66 0.850	-0.006242	-0.074536	8.121	-8.398	10.758	-0.011993
66 0.850	-0.006242	-0.074536	2.251	-8.398	10.759	-0.012013
66 1.300	-0.006242	-0.074536	2.251	-8.398	11.771	-0.045544
67 0	-0.020072	-0.094451	7.159	-7.273	15.752	0.056160
67 1.050	-0.020072	-0.094451	7.159	-7.273	23.268	-0.043001
67 1.050	-0.020072	-0.094451	1.289	-7.273	23.269	-0.043028
67 1.300	-0.020072	-0.094451	1.289	-7.273	23.591	-0.066626
68 0	-0.029126	-0.091885	2.540	-4.380	25.420	0.045759
68 1.250	-0.029126	-0.091885	2.540	-4.380	28.555	-0.065091
68 1.250	-0.029126	-0.091885	-3.330	-4.380	28.595	-0.065115
68 1.300	-0.029126	-0.091885	-3.330	-4.380	28.429	-0.073657
69 0	-0.033361	-0.088746	-3.341	-1.546	28.709	0.027421
69 1.300	-0.033361	-0.088746	-3.341	-1.546	24.366	-0.077849
70 0	-0.035127	-0.088221	-4.161	0.186281	24.054	0.031586
70 1.300	-0.035127	-0.088221	-4.161	0.186281	16.685	-0.083101
71 0	-0.036861	-0.088468	-4.537	0.974517	16.483	0.026181
71 1.300	-0.036861	-0.088468	-4.537	0.974517	12.564	-0.088828
72 0	-0.041141	-0.087893	-4.600	1.297	12.509	0.020137
72 1.300	-0.041141	-0.087893	-4.600	1.297	6.529	-0.094124
73 0	-0.052404	-0.084608	-4.643	1.417	6.639	0.013219
73 1.300	-0.052404	-0.084608	-4.643	1.417	0.602162	-0.096772
74 0	-0.079751	-0.080599	-5.102	1.451	0.960007	0.008685
74 1.300	-0.079751	-0.080599	-5.102	1.451	-5.673	-0.096094
75 0	-0.143874	-0.113126	-7.982	1.583	-4.982	0.012294
75 1.300	-0.143874	-0.113126	-7.982	1.583	-15.359	-0.134770
97 0	-9.97E-14	-2.53E-12	-6.99E-13	7.69E-15	2.82E-14	-4.00E-13
97 0.500	-9.97E-14	-2.53E-12	-6.99E-13	7.69E-15	-3.21E-13	-1.67E-12
98 0	-0.034843	-0.038694	4.058	-2.354	2.383	0.021518
98 1.300	-0.034843	-0.038694	4.058	-2.354	7.659	-0.028783
99 0	-0.068254	-0.050111	2.475	-2.380	9.790	0.026825
99 1.300	-0.068254	-0.050111	2.475	-2.380	13.007	-0.038315
100 0	-0.104570	-0.052567	0.666001	-1.764	14.151	0.025974
100 1.300	-0.104570	-0.052567	0.666001	-1.764	15.017	-0.042389

SECTION FORCES: "ALL"

Memb.Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
101 0	-0.137994	-0.053975	-1.060	-0.785441	15.373	0.024330
101 1.300	-0.137994	-0.053975	-1.060	-0.785441	13.995	-0.045828
102 0	-0.169481	-0.054662	-1.994	-0.022768	13.917	0.021938
102 1.300	-0.169481	-0.054662	-1.994	-0.022768	11.324	-0.049123
103 0	-0.200389	-0.054357	-2.514	0.445641	11.162	0.018790
103 1.300	-0.200389	-0.054357	-2.514	0.445641	7.895	-0.051874
104 0	-0.230761	-0.052335	-2.796	0.712264	7.756	0.014604
104 1.300	-0.230761	-0.052335	-2.796	0.712264	4.122	-0.053431
105 0	-0.259164	-0.047407	-2.971	0.885716	4.044	0.008747
105 1.300	-0.259164	-0.047407	-2.971	0.885716	0.180852	-0.052662
106 0	-0.282596	-0.037119	-3.016	0.990281	0.138719	-0.000366
106 1.300	-0.282596	-0.037119	-3.016	0.990281	-3.782	-0.048622
107 0	-0.297004	-0.008031	-1.700	0.755571	-4.017	-0.018612
107 1.300	-0.297004	-0.008031	-1.700	0.755571	-6.227	-0.029052
129 0	4.23E-13	-4.80E-11	6.62E-12	-1.07E-15	-9.45E-13	9.75E-12
129 0.500	4.23E-13	-4.60E-11	6.62E-12	-1.07E-15	2.37E-12	-1.43E-11
130 0	-0.064576	0.067689	0.739888	-0.218566	1.939	0.282258
130 1.300	-0.064576	0.067689	0.739888	-0.218566	2.901	0.370254
131 0	-0.093721	-0.209195	-1.360	-0.268788	5.707	0.791907
131 1.300	-0.093721	-0.209195	-1.360	-0.268788	3.940	0.519954
132 0	-0.127035	-0.234467	-1.512	-0.216189	6.611	0.920648
132 1.300	-0.127035	-0.234467	-1.512	-0.216189	4.645	0.615841
133 0	-0.164110	-0.172385	-1.049	-0.105575	6.281	0.872487
133 1.300	-0.164110	-0.172385	-1.049	-0.105575	4.917	0.646357
134 0	-0.203337	-0.125521	-0.710379	-0.007606	5.399	0.744504
134 1.300	-0.203337	-0.125521	-0.710379	-0.007606	4.476	0.581328
135 0	-0.243102	-0.101582	-0.542715	0.055566	4.166	0.566515
135 1.300	-0.243102	-0.101582	-0.542715	0.055566	3.460	0.434459
136 0	-0.262022	-0.089460	-0.464671	0.093340	2.685	0.353662
136 1.300	-0.262022	-0.089460	-0.464671	0.093340	2.081	0.237369
137 0	-0.318417	-0.071726	-0.352297	0.118634	1.021	0.114854
137 1.300	-0.318417	-0.071726	-0.352297	0.118634	0.562924	0.021610
138 0	-0.349552	-0.028507	-0.066596	0.127315	-0.692079	-0.132211
138 1.300	-0.349552	-0.028507	-0.066596	0.127315	-0.778654	-0.169270

SECTION FORCES: "ALL"

Memb.Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
139 0	-0.368224	0.013698	0.187710	0.093445	-1.965	-0.322821
139 1.300	-0.368224	0.013698	0.187710	0.093445	-1.721	-0.305014
min:	-0.368224	-3.261	-7.982	-8.398	-15.359	-2.337
max:	0.440530	0.858537	22.896	1.583	28.709	1.406

Loadcase Factor Stage Init.def Title
12 1.0000 VEHICULO HIPOTESIS 12

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.356267	0.119217	26.355			
10	0.356256	0.139359	-1.780			
156	0.167580	0.116429	2.334			
160	0.167591	0.141617	-1.442			
166	-1.031	-1.254	39.677	4.653	-2.071	0.182707
167	-0.016694	0.777781	-5.337	-4.462	1.761	0.207035
Sume :	-1.00E-10	3.49E-11	60.000			
min:	-1.031	-1.254	-5.337	-4.462	-2.071	0.182707
max:	0.356267	0.777781	39.677	4.653	1.761	0.207035

SECTION FORCES: "ALL"

Memb.Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1 0	1.37E-13	2.94E-11	3.45E-12	7.61E-18	-2.16E-12	-3.71E-12
1 0.500	1.37E-13	2.94E-11	3.45E-12	7.61E-18	-4.58E-13	1.10E-11
2 0	-0.016069	-2.132	14.244	-1.216	-8.539	1.267
2 1.300	-0.016069	-2.132	14.244	-1.216	9.976	-1.485
3 0	0.122943	-1.604	10.871	-1.108	-1.467	0.232305
3 1.300	0.122943	-1.604	10.871	-1.108	12.665	-1.853
4 0	0.246818	-1.537	10.420	-0.978476	2.571	-0.343902
5 0	0.365282	-1.696	11.557	-0.824340	7.109	-0.959046

SECTION FORCES: "ALL"

Memb.Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
5 1.100	0.365282	-1.696	11.557	-0.824340	19.611	-2.655
5 1.100	0.365282	-0.304692	1.654	-0.824340	19.613	-2.855
5 1.300	0.365282	-0.304692	1.654	-0.824340	20.144	-2.916
6 0	0.480783	-0.781442	5.032	-0.508455	13.706	-1.928
6 1.300	0.480783	-0.781442	5.032	-0.508455	20.247	-2.944
6 1.300	0.480783	-0.781442	5.032	-0.508455	20.248	-2.944
7 0	0.595501	0.065382	-1.020	-0.180607	16.870	-2.386
7 1.300	0.595501	0.065382	-1.020	-0.180607	15.544	-2.301
8 0	0.712736	-0.426990	2.430	0.106270	15.112	-2.155
8 0.200	0.712736	-0.426990	2.430	0.106270	15.598	-2.240
8 1.300	0.712738	0.964741	-7.473	0.106270	15.597	-2.240
8 1.300	0.712738	0.964741	-7.473	0.106270	7.378	-1.179
9 0	0.838741	0.739216	-5.963	0.179405	9.074	-1.327
9 1.300	0.838741	0.739216	-5.963	0.179405	1.322	-0.365602
10 0	0.982926	0.581839	-4.555	0.153659	3.033	-0.505554
10 1.300	0.982926	0.581839	-4.555	0.153659	-3.409	0.250837
11 0	1.134	0.409490	-3.559	0.178239	-1.899	0.138817
11 1.300	1.134	0.409490	-3.559	0.178239	-6.526	0.671154
12 0	1.212	0.347214	-2.510	0.293701	-3.617	0.347955
12 1.700	1.212	0.347214	-2.510	0.293701	-7.884	0.938219
33 0	-1.37E-13	-1.99E-11	-5.01E-12	-1.19E-15	-2.03E-13	7.82E-12
33 0.500	-1.37E-13	-1.99E-11	-5.01E-12	-1.19E-15	-2.71E-12	-2.15E-12
34 0	0.006287	-0.159494	4.670	-8.199	-0.053201	0.109912
34 1.300	0.006287	-0.159494	4.670	-8.199	5.976	-0.097430
35 0	0.074586	-0.175620	6.980	-8.036	6.502	0.105015
35 1.300	0.074586	-0.175620	6.980	-8.036	15.578	-0.123291
36 0	0.169190	-0.166604	7.656	-7.251	15.165	0.087503
36 1.300	0.169190	-0.166604	7.656	-7.251	25.115	-0.129082
37 0	0.262361	-0.161108	7.895	-6.009	24.773	0.074975
37 1.100	0.262361	-0.161108	7.895	-6.009	33.456	-0.102224
37 1.100	0.262361	-0.161108	3.765	-6.009	33.458	-0.102266
37 1.300	0.262361	-0.161108	3.765	-6.009	34.210	-0.134466
38 0	0.353211	-0.158138	2.044	-3.821	33.659	0.064575
38 1.300	0.353211	-0.158138	2.044	-3.821	36.317	-0.140983
38 1.300	0.353211	-0.158138	2.044	-3.821	36.317	-0.141004
39 0	0.443040	-0.158002	-3.952	-1.432	35.940	0.056159
39 1.300	0.443040	-0.158002	-3.952	-1.432	30.803	-0.149242

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
40	0	0.531310	-0.161114	-5.755	0.574990	30.658	0.049574
40	0.200	0.531310	-0.161114	-5.755	0.574990	29.507	0.017372
40	0.200	0.531310	-0.161114	-9.885	0.574990	29.505	0.017330
40	1.300	0.531310	-0.161114	-9.885	0.574990	18.634	-0.159875
41	0	0.614730	-0.171123	-9.876	1.323	18.515	0.046085
41	1.300	0.614730	-0.171123	-9.876	1.323	5.675	-0.176375
42	0	0.690970	-0.193078	-9.647	1.220	6.178	0.045663
42	1.300	0.690970	-0.193078	-9.647	1.220	-6.364	-0.205339
43	0	0.789748	-0.210545	-7.687	1.266	-5.899	0.031003
43	1.300	0.789748	-0.210545	-7.687	1.266	-15.892	-0.242710
65	0	-1.54E-12	1.40E-12	-4.09E-13	-3.67E-16	-2.89E-15	-6.26E-12
65	0.500	-1.54E-12	1.40E-12	-4.09E-13	-3.67E-16	-2.07E-13	-5.56E-12
66	0	-0.011795	-0.206237	4.765	-11.382	1.986	0.142276
66	1.300	-0.011795	-0.206237	4.765	-11.382	8.179	-0.125632
67	0	-0.039707	-0.263938	7.544	-12.477	10.722	0.157365
67	1.300	-0.039707	-0.263938	7.544	-12.477	20.128	-0.185754
68	0	-0.059366	-0.260113	8.073	-12.005	21.473	0.130407
68	1.300	-0.059366	-0.260113	8.073	-12.005	31.968	-0.207740
69	0	-0.069728	-0.253397	7.490	-10.057	32.817	0.107574
69	1.100	-0.069728	-0.253397	7.490	-10.057	41.055	-0.170736
69	1.100	-0.069728	-0.253397	1.620	-10.057	41.056	-0.170796
69	1.300	-0.069728	-0.253397	1.620	-10.057	41.380	-0.221442
70	0	-0.074454	-0.250966	1.377	-6.719	41.679	0.090490
70	1.300	-0.074454	-0.250966	1.377	-6.719	43.669	-0.235736
70	1.300	-0.074454	-0.250966	1.277	-6.719	43.669	-0.235769
71	0	-0.078136	-0.249879	-4.914	-2.850	43.722	0.073915
71	1.300	-0.078136	-0.249879	-4.914	-2.850	37.334	-0.250928
72	0	-0.086647	-0.247061	-5.106	0.509968	37.066	0.056181
72	0.200	-0.086647	-0.247061	-5.106	0.509968	36.046	0.006801
72	0.200	-0.086647	-0.247061	-10.976	0.509968	36.044	0.006737
72	1.300	-0.086647	-0.247061	-10.976	0.509968	23.972	-0.264998
73	0	-0.109680	-0.237656	-11.745	2.571	23.648	0.036716
73	1.300	-0.109680	-0.237656	-11.745	2.571	8.579	-0.272237
74	0	-0.166577	-0.226656	-13.243	3.488	9.166	0.024209
74	1.300	-0.166577	-0.226656	-13.243	3.488	-8.050	-0.270444
75	0	-0.300038	-0.318466	-20.229	4.207	-6.449	0.034514

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
97	0	4.84E-13	-8.34E-12	-1.10E-13	1.68E-14	-1.65E-13	-1.66E-12
97	0.500	4.84E-12	-8.34E-12	-1.10E-13	1.68E-14	-2.21E-13	-5.83E-12
98	0	-0.083706	-0.115716	3.876	-5.144	1.957	0.067294
98	1.300	-0.083706	-0.115716	3.876	-5.144	6.995	-0.083137
99	0	-0.173205	-0.145036	3.398	-5.849	8.703	0.079036
99	1.300	-0.173205	-0.145036	3.398	-5.849	13.121	-0.109513
100	0	-0.274573	-0.150725	3.019	-5.871	14.665	0.075246
100	1.300	-0.274573	-0.150725	3.019	-5.871	18.589	-0.120696
101	0	-0.369385	-0.154357	1.936	-5.060	19.962	0.070223
101	1.300	-0.369385	-0.154357	1.936	-5.060	22.479	-0.130441
102	0	-0.459224	-0.155746	-0.314943	-3.471	23.403	0.063020
102	1.300	-0.459224	-0.155746	-0.314943	-3.471	22.994	-0.139450
103	0	-0.547159	-0.154492	-2.869	-1.574	23.430	0.053821
103	1.300	-0.547159	-0.154492	-2.869	-1.574	19.700	-0.147006
104	0	-0.633166	-0.149624	-5.254	0.206062	19.707	0.042462
104	1.300	-0.633166	-0.149624	-5.254	0.206062	12.677	-0.152048
105	0	-0.713482	-0.139034	-6.734	1.506	12.633	0.027722
105	1.300	-0.713482	-0.139034	-6.734	1.506	3.678	-0.153022
106	0	-0.780879	-0.117645	-7.381	2.267	3.674	0.005820
106	1.300	-0.780879	-0.117645	-7.381	2.267	-5.922	-0.147115
107	0	-0.830107	-0.050671	-4.460	1.942	-6.584	-0.040001
107	1.300	-0.830107	-0.050671	-4.460	1.942	-12.381	-0.105873
125	0	1.33E-12	-9.62E-11	1.36E-11	1.11E-15	-1.33E-12	9.67E-12
129	0.500	1.33E-12	-9.62E-11	1.36E-11	1.11E-15	5.47E-12	-3.84E-11
130	0	-0.153293	-0.538540	-3.100	-0.643662	-4.736	0.702451
130	1.300	-0.153293	-0.538540	-3.100	-0.643662	0.706078	0.002349
131	0	-0.243192	-0.656167	-4.292	-0.744803	7.823	1.084
131	1.300	-0.243192	-0.656167	-4.292	-0.744803	2.244	0.230891
132	0	-0.340646	-0.718644	-4.657	-0.750734	9.887	1.378
132	1.300	-0.340646	-0.718644	-4.657	-0.750734	3.833	0.444222
133	0	-0.447105	-0.688298	-4.379	-0.647593	10.992	1.527
133	1.300	-0.447105	-0.688298	-4.379	-0.647593	5.299	0.632380
134	0	-0.558892	-0.578505	-3.583	-0.449136	10.673	1.496
134	1.300	-0.558892	-0.578505	-3.583	-0.449136	6.215	0.744054
135	0	-0.671822	-0.444691	-2.640	-0.207333	9.481	1.284

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
135	1.300	-0.671822	-0.444691	-2.640	-0.207333	6.048	0.706383
136	0	-0.782810	-0.317506	-1.755	0.021533	6.882	0.903761
136	1.300	-0.782810	-0.317506	-1.755	0.021533	4.600	0.491033
137	0	-0.888886	-0.214772	-1.048	0.197358	3.388	0.397656
137	1.300	-0.888886	-0.214772	-1.048	0.197358	2.026	0.118453
138	0	-0.985018	-0.085070	-0.161729	0.287465	-0.556162	-0.175491
138	1.300	-0.985018	-0.085070	-0.161729	0.287465	-0.766430	-0.286083
139	0	-1.052	0.030547	0.526329	0.237943	-3.658	-0.645839
139	1.300	-1.052	0.030547	0.526329	0.237943	-2.974	-0.606127
	min:	-1.052	-2.132	-20.229	-12.477	-32.746	-2.944
	max:	1.212	0.964741	14.244	4.207	43.722	1.527

Loadcase 13 — Factor 1.0000 — Stage — Init.def — Title: VEHICULO HIPOTESIS 13

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T (tm)	MY [tm]	MZ [tm]
6	0.570715	0.074503	14.915			
10	0.570768	0.105836	-7.570			
156	0.275936	0.070252	3.376			
160	0.275944	0.109739	-2.578			
166	-1.639	-0.860785	55.444	3.060	-3.243	0.284786
167	-0.054322	0.500460	-3.289	-2.928	2.775	0.324107
Sums :	-1.65E-10	2.39E-11	60.000			
min:	-1.639	-0.860785	-7.570	-2.928	-3.243	0.284786
max:	0.570715	0.500460	55.444	3.060	2.775	0.324107

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	-8.05E-14	2.51E-11	2.02E-12	-3.16E-17	-4.61E-12	-1.87E-12
1	0.500	-8.05E-14	2.51E-11	2.02E-12	-3.16E-17	-3.79E-12	1.07E-11
2	0	0.050768	-1.403	8.571	-0.849102	-5.990	0.958660
2	1.300	0.050768	-1.403	8.571	-0.849102	5.151	-0.864901
3	0	0.250819	-1.098	7.003	-0.829354	-3.149	0.464081
3	1.300	0.250819	-1.098	7.003	-0.829354	5.955	-0.963913
4	0	0.437055	-1.065	6.758	-0.793100	-1.969	0.286992
4	1.300	0.437055	-1.065	6.758	-0.793100	6.817	-1.097
5	0	0.620303	-1.065	6.734	-0.777255	-0.916715	0.121705
5	1.300	0.620303	-1.065	6.734	-0.777255	7.837	-1.263
6	0	0.803102	-1.071	6.775	-0.764288	0.224092	-0.061093
6	1.300	0.803102	-1.071	6.775	-0.764288	9.031	-1.454
7	0	0.986173	-1.097	6.962	-0.746362	1.581	-0.274079
7	1.300	0.986173	-1.097	6.962	-0.746362	10.631	-1.701
8	0	1.172	-1.241	7.952	-0.688208	3.491	-0.562373
8	1.300	1.172	-1.241	7.952	-0.688208	13.829	-2.176
9	0	1.367	-1.748	11.446	-0.456609	8.157	-1.235
9	0.0499	1.367	-1.748	11.446	-0.456609	8.726	-1.326
9	0.0501	1.367	-0.356429	1.543	-0.456609	8.730	-1.326
9	1.300	1.367	-0.356429	1.543	-0.456609	10.658	-1.772
10	0	1.575	-1.042	6.289	-0.215304	7.273	-1.150
10	0.250	1.575	-1.042	6.289	-0.215304	8.845	-1.410
10	0.250	1.575	0.349611	-3.614	-0.215304	8.845	-1.410
10	1.300	1.575	0.349613	-3.614	-0.215304	5.051	-1.043
11	0	1.777	-0.381440	1.825	0.089659	4.101	-0.775083
11	0.450	1.777	-0.381440	1.825	0.089659	4.922	-0.946682
11	0.450	1.777	1.010	-8.078	0.089659	4.921	-0.946600
11	1.300	1.777	1.010	-8.078	0.089659	-1.944	-0.087984
12	0	1.863	0.677065	-4.715	0.399680	1.305	-0.459542
12	1.700	1.863	0.677065	-4.715	0.399680	-6.710	0.691465
33	0	-8.76E-13	-3.09E-11	-2.10E-12	1.88E-16	-2.81E-13	1.53E-11
33	0.500	-8.76E-13	-3.09E-11	-2.10E-12	1.88E-16	-1.33E-12	-1.34E-13
34	0	0.044586	-0.235035	1.385	-5.938	-0.579117	0.156383
34	1.300	0.044586	-0.235035	1.385	-5.938	1.221	-0.149162
35	0	0.163529	-0.266696	2.576	-6.147	1.046	0.155965
35	1.300	0.163529	-0.266696	2.576	-6.147	4.395	-0.190740
36	0	0.317521	-0.258547	2.592	-6.029	3.685	0.133935

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
36	1.300	0.317521	-0.258547	2.592	-6.029	7.059	-0.202172
37	0	0.467416	-0.253574	2.619	-5.936	6.189	0.117190
37	1.300	0.467416	-0.253574	2.619	-5.936	9.593	-0.212457
38	0	0.612289	-0.251950	2.814	-5.827	6.719	0.102883
38	1.300	0.612289	-0.251950	2.814	-5.827	12.378	-0.224652
39	0	0.755653	-0.252622	3.320	-5.599	11.618	0.089944
39	1.300	0.755653	-0.252622	3.320	-5.599	15.934	-0.238464
40	0	0.896483	-0.255395	3.722	-4.931	15.604	0.077857
40	1.300	0.896483	-0.255395	3.722	-4.931	20.462	-0.254116
41	0	1.029	-0.260636	1.746	-3.305	20.476	0.066064
41	0.0499	1.029	-0.260636	1.746	-3.305	20.565	0.053066
41	0.0501	1.029	-0.260636	-2.384	-3.305	20.565	0.052996
41	1.300	1.029	-0.260636	-2.384	-3.305	17.585	-0.272762
42	0	1.148	-0.274217	-4.755	-1.560	17.994	0.054476
42	0.250	1.148	-0.274217	-4.755	-1.560	16.804	-0.014042
42	0.250	1.148	-0.274217	-8.885	-1.560	16.804	-0.014113
42	1.300	1.148	-0.274217	-8.885	-1.560	7.476	-0.302005
43	0	1.283	-0.261753	-9.091	0.309191	7.877	0.016054
43	0.450	1.283	-0.261753	-9.091	0.309191	3.787	-0.101701
43	0.450	1.283	-0.261753	-13.221	0.309191	3.784	-0.101766
43	1.300	1.283	-0.261753	-13.221	0.309191	-7.452	-0.324224
65	0	-1.65E-13	-5.80E-12	-6.88E-16	3.78E-15	-4.30E-14	-1.16E-11
65	0.500	-1.65E-13	-5.80E-12	-6.88E-16	3.78E-15	-4.30E-14	-1.45E-11
66	0	-0.006166	-0.330042	1.409	-9.405	0.577546	0.227714
66	1.300	-0.006166	-0.330042	1.409	-9.405	2.409	-0.201340
67	0	-0.027603	-0.421961	2.268	-10.554	3.011	0.251526
67	1.300	-0.027603	-0.421961	2.268	-10.554	5.960	-0.296946
68	0	-0.041344	-0.415244	2.558	-10.888	6.275	0.208136
68	1.300	-0.041344	-0.415244	2.558	-10.888	9.601	-0.321681
69	0	-0.048428	-0.404478	2.601	-10.874	9.744	0.172383
69	1.300	-0.048428	-0.404478	2.601	-10.874	13.125	-0.353439
70	0	-0.051539	-0.401786	2.567	-10.570	13.269	0.145212
70	1.300	-0.051539	-0.401786	2.567	-10.570	16.606	-0.377010
71	0	-0.054067	-0.401716	2.285	-9.760	16.926	0.119785
71	1.300	-0.054067	-0.401716	2.285	-9.760	19.896	-0.402445
72	0	-0.060136	-0.398369	1.607	-7.945	20.509	0.091661
72	1.300	-0.060136	-0.398369	1.607	-7.945	22.596	-0.426018

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
73	0	-0.075845	-0.382716	1.358	-4.841	23.439	0.060015
73	0.0499	-0.075845	-0.382716	1.358	-4.841	23.506	0.040929
73	0.0501	-0.075845	-0.382716	-4.512	-4.841	23.506	0.040830
73	1.300	-0.075845	-0.382716	-4.512	-4.841	17.867	-0.437516
74	0	-0.113629	-0.364004	-6.199	-1.067	19.052	0.039011
74	0.250	-0.113629	-0.364004	-6.199	-1.067	17.504	-0.051943
74	0.250	-0.113629	-0.364004	-12.069	-1.067	17.501	-0.052037
74	1.300	-0.113629	-0.364004	-12.069	-1.067	4.830	-0.434195
75	0	-0.202043	-0.509851	-20.578	2.984	6.783	0.054466
75	0.450	-0.202043	-0.509851	-20.578	2.984	-2.465	-0.174680
75	0.450	-0.202043	-0.509851	-26.448	2.984	-2.471	-0.175013
75	1.300	-0.202043	-0.509851	-26.448	2.984	-24.946	-0.608320
97	0	-5.49E-13	-1.43E-11	-8.42E-14	2.92E-15	-7.38E-14	-1.35E-12
97	0.500	-5.49E-13	-1.43E-11	-8.42E-14	2.92E-15	-1.16E-13	-6.52E-12
98	0	-0.098550	-0.204806	1.189	-5.056	1.126	0.126835
98	1.300	-0.098550	-0.204806	1.189	-5.056	2.672	-0.139413
99	0	-0.232232	-0.245297	0.560083	-5.567	3.483	0.137777
99	1.300	-0.232232	-0.245297	0.560083	-5.567	4.212	-0.151110
100	0	-0.391149	-0.247514	0.634553	-5.755	5.184	0.125418
100	1.300	-0.391149	-0.247514	0.634553	-5.755	6.009	-0.196350
101	0	-0.541960	-0.249286	0.650567	-5.765	7.009	0.114120
101	1.300	-0.541960	-0.249286	0.650567	-5.765	7.855	-0.209951
102	0	-0.686097	-0.250469	0.416947	-5.550	8.858	0.101805
102	1.300	-0.686097	-0.250469	0.416947	-5.550	9.400	-0.223862
103	0	-0.828072	-0.250019	-0.159567	-4.993	10.432	0.088103
103	1.300	-0.828072	-0.250019	-0.159567	-4.993	10.224	-0.236921
104	0	-0.967622	-0.246724	-1.341	-3.887	11.292	0.072526
104	1.300	-0.967622	-0.246724	-1.341	-3.887	9.549	-0.246215
105	0	-1.095	-0.239105	-3.738	-2.065	10.498	0.053883
105	1.300	-1.095	-0.239105	-3.738	-2.065	5.638	-0.256954
106	0	-1.211	-0.224428	-6.282	0.012458	6.223	0.028350
106	1.300	-1.211	-0.224428	-6.282	0.012458	-1.943	-0.263406
107	0	-1.314	-0.156047	-4.721	1.037	-2.452	-0.030771
107	1.300	-1.314	-0.156047	-4.721	1.037	-8.569	-0.233632
129	0	3.24E-13	-1.64E-10	2.05E-11	2.39E-17	-1.66E-12	2.37E-11
129	0.500	3.24E-13	-1.64E-10	2.05E-11	2.39E-17	6.57E-12	-5.82E-11

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
130	0	-0.168976	-0.913872	-5.244	-0.682225	4.882	0.766486
130	1.300	-0.168976	-0.913872	-5.244	-0.682229	-1.936	-0.419548
131	0	-0.334850	-0.809962	-5.085	-0.732555	5.141	0.718032
131	1.300	-0.334850	-0.809962	-5.085	-0.732555	-1.469	-0.334915
132	0	-0.502422	-0.840058	-5.215	-0.750158	5.881	0.823364
132	1.300	-0.502422	-0.840058	-5.215	-0.750158	-0.899400	-0.268711
133	0	-0.677645	-0.858896	-5.274	-0.750603	6.565	0.906895
133	1.300	-0.677645	-0.858896	-5.274	-0.750603	-0.292107	-0.209669
134	0	-0.856096	-0.857467	-5.243	-0.721135	7.052	0.952411
134	1.300	-0.856094	-0.857467	-5.243	-0.721139	0.235686	-0.162296
135	0	-1.040	-0.834404	-5.081	-0.644189	7.100	0.933662
135	1.300	-1.040	-0.834404	-5.081	-0.644189	0.494848	-0.151063
136	0	-1.221	-0.770309	-4.629	-0.492431	6.298	0.795627
136	1.300	-1.221	-0.770309	-4.629	-0.492431	0.280471	-0.205775
137	0	-1.402	-0.620455	-3.547	-0.255388	4.146	0.467609
137	1.300	-1.402	-0.620455	-3.547	-0.255388	-0.464921	-0.138982
138	0	-1.579	-0.370223	-1.757	-0.005971	0.764744	-0.040931
138	1.300	-1.579	-0.370223	-1.757	-0.005971	-1.520	-0.522221
139	0	-1.725	-0.106651	-0.112078	0.106710	-2.402	-0.566416
139	1.300	-1.725	-0.106651	-0.112078	0.106710	-2.547	-0.685062
	min:	-1.725	-1.748	-26.448	-10.888	-24.948	-2.176
	max:	1.861	1.016	11.446	2.984	23.506	0.956860

Loadcase Factor Stage Init.def Title
16 1.0000 VEHICULO HIPOTESIS 16

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.647634	-0.072082	7.153			
10	0.647639	-0.047158	-10.479			
156	0.350285	-0.077848	3.801			
160	0.350230	-0.041929	-5.426			
166	-1.730	1.024	56.508	-4.021	-2.915	0.241741
167	-0.345961	-0.784014	8.435	3.932	2.340	0.289956
Sums :	-2.00E-10	-1.68E-11	60.000			
min:	-1.730	-0.784014	-10.476	-4.021	-2.915	0.241741
max:	0.647639	1.024	56.508	3.932	2.340	0.289956

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
12	0	1.961	-1.570	11.552	-0.405653	-5.099	0.365924
12	0.650	1.961	-1.570	11.552	-0.405653	4.718	-0.968178
12	0.650	1.981	-0.178115	1.649	-0.405653	4.720	-0.968475
12	1.700	1.981	-0.178115	1.649	-0.405653	6.122	-1.120
13	0	1.866	-1.163	8.877	-0.030892	3.364	-0.818953
13	0.650	1.866	-1.163	8.877	-0.030892	9.133	-1.576
13	0.650	1.866	0.228415	-1.026	-0.030892	9.134	-1.576
13	1.700	1.866	0.228415	-1.026	-0.030892	8.056	-1.336
14	0	1.751	-0.537146	4.276	0.263660	9.390	-1.622
14	0.450	1.751	-0.537146	4.276	0.263660	11.314	-1.862
14	0.450	1.751	0.854585	-5.626	0.263660	11.314	-1.862
14	1.700	1.751	0.854585	-5.626	0.263660	4.282	-0.795275
15	0	1.654	0.623125	-4.038	0.361146	8.899	-1.534
15	1.700	1.654	0.623125	-4.038	0.361146	2.035	-0.474533
16	0	1.562	0.596762	-3.855	0.375666	7.071	-1.266
16	1.700	1.562	0.596762	-3.855	0.375666	0.517135	-0.251964
17	0	1.472	0.592469	-3.822	0.383119	5.730	-1.068
17	1.700	1.472	0.592469	-3.822	0.383119	-0.767757	-0.060518
18	0	1.381	0.591353	-3.817	0.384672	4.511	-0.884986
18	1.700	1.381	0.591353	-3.817	0.384672	-1.978	0.120314

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
18	0	1.294	0.585144	-3.787	0.378401	3.284	-0.698261
18	1.700	1.294	0.585144	-3.787	0.378401	-3.171	0.295462
20	0	1.217	0.553102	-3.646	0.360113	1.936	-0.494719
20	1.700	1.217	0.553102	-3.646	0.360113	-4.261	0.445554
21	0	1.162	0.472947	-3.128	0.359144	0.586372	-0.296056
21	1.700	1.162	0.472947	-3.128	0.359144	-4.731	0.507953
44	0	1.427	0.083943	14.052	-2.795	-9.706	-0.233892
44	0.650	1.427	0.083943	14.052	-2.795	2.236	-0.162556
44	0.650	1.427	0.083943	9.922	-2.795	2.240	-0.162526
44	1.700	1.427	0.083943	9.922	-2.795	10.672	-0.091188
45	0	1.335	0.103071	8.200	-0.394724	9.354	-0.238700
45	0.650	1.335	0.103071	8.200	-0.394724	14.683	-0.171721
45	0.650	1.335	0.103071	4.070	-0.394724	14.685	-0.171688
45	1.700	1.335	0.103071	4.070	-0.394724	18.958	-0.063478
46	0	1.261	0.090739	0.982586	1.717	16.431	-0.216010
46	0.450	1.261	0.090739	0.982586	1.717	18.873	-0.175152
46	0.450	1.261	0.090739	-3.147	1.717	18.873	-0.175162
46	1.700	1.261	0.090739	-3.147	1.717	14.939	-0.061752
47	0	1.214	0.086715	-3.017	2.651	15.037	-0.204926
47	1.700	1.214	0.086715	-3.017	2.651	9.908	-0.057510
48	0	1.143	0.085532	-2.490	2.862	10.875	-0.197165
48	1.700	1.143	0.085532	-2.490	2.862	6.643	-0.051764
49	0	1.071	0.085307	-2.342	2.930	7.777	-0.190540
49	1.700	1.071	0.085307	-2.342	2.930	3.795	-0.045319
50	0	1.001	0.084562	-2.302	2.946	4.978	-0.183106
50	1.700	1.001	0.084562	-2.302	2.946	1.063	-0.029350
51	0	0.930042	0.081480	-2.315	2.909	2.276	-0.174283
51	1.700	0.930042	0.081480	-2.315	2.909	-1.660	-0.025767
52	0	0.856681	0.072190	-2.439	2.785	-0.377674	-0.161778
52	1.700	0.856681	0.072190	-2.439	2.785	-4.523	-0.038055
53	0	0.787361	0.043080	-2.218	2.718	-3.250	-0.140451
53	1.700	0.787361	0.043080	-2.218	2.718	-7.022	-0.067215
76	0	-0.428075	0.307467	25.351	-7.563	-27.563	-0.598204
76	0.850	-0.428075	0.307467	25.351	-7.563	-6.019	-0.336909
76	0.850	-0.428075	0.307467	19.481	-7.563	-6.011	-0.336804
76	1.700	-0.428075	0.307467	19.481	-7.563	10.544	-0.075509
77	0	-0.307777	0.130097	11.237	-2.412	7.593	-0.370463
77	0.650	-0.307777	0.130097	11.237	-2.412	14.895	-0.285922

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
77	0.650	-0.307777	0.130097	5.367	-2.412	14.895	-0.285878
77	1.700	-0.307777	0.130097	5.367	-2.412	20.533	-0.149298
78	0	-0.273298	0.146402	4.552	1.926	19.045	-0.384714
78	0.450	-0.273298	0.146402	4.552	1.926	21.093	-0.318856
78	0.450	-0.273298	0.146402	-1.318	1.926	21.094	-0.318808
78	1.700	-0.273298	0.146402	-1.318	1.926	19.446	-0.135830
79	0	-0.263858	0.152773	-2.096	4.317	18.526	-0.378716
79	1.700	-0.263858	0.152773	-2.096	4.317	14.964	-0.119003
80	0	-0.262181	0.152929	-2.366	5.155	14.581	-0.365956
80	1.700	-0.262161	0.152929	-2.366	5.155	10.559	-0.105970
81	0	-0.262265	0.152632	-2.352	5.415	10.470	-0.353015
81	1.700	-0.262265	0.152632	-2.352	5.415	6.472	-0.093540
82	0	-0.263634	0.152482	-2.325	5.494	6.468	-0.340338
82	1.700	-0.263634	0.152482	-2.325	5.494	2.510	-0.081119
83	0	-0.270618	0.152963	-2.325	5.510	2.563	-0.328325
83	1.700	-0.270618	0.152963	-2.325	5.510	-1.369	-0.068288
84	0	-0.296994	0.158339	-2.449	5.519	-1.180	-0.319230
84	1.700	-0.296994	0.158339	-2.449	5.519	-5.343	-0.050054
85	0	-0.389443	0.172823	-4.367	5.730	-4.711	-0.306163
85	1.700	-0.389443	0.172823	-4.367	5.730	-12.136	-0.012364
108	0	-1.747	-0.014709	4.551	-3.723	-9.503	-0.129879
108	1.700	-1.747	-0.014709	4.551	-3.723	-1.766	-0.154866
109	0	-1.700	0.067739	4.937	-1.899	-0.176822	-0.202757
109	1.700	-1.700	0.067739	4.937	-1.899	8.217	-0.087601
110	0	-1.645	0.079741	1.677	0.603659	7.750	-0.205561
110	1.700	-1.649	0.079741	1.677	0.603659	10.601	-0.070001
111	0	-1.582	0.084429	0.056140	2.079	9.400	-0.203109
111	1.700	-1.582	0.084429	0.056140	2.079	9.496	-0.059579
112	0	-1.512	0.085440	-0.545864	2.685	8.266	-0.197330
112	1.700	-1.512	0.085440	-0.545864	2.685	7.338	-0.052081
113	0	-1.441	0.085522	-0.763634	2.895	6.132	-0.190724
113	1.700	-1.441	0.085522	-0.763634	2.895	4.834	-0.045337
114	0	-1.370	0.086215	-0.831333	2.965	3.646	-0.184601
114	1.700	-1.370	0.086215	-0.831333	2.965	2.233	-0.036036
115	0	-1.298	0.089498	-0.868392	3.010	1.067	-0.180305
115	1.700	-1.298	0.089498	-0.868392	3.010	-0.409271	-0.028157

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
116	0	-1.222	0.099276	-0.925528	3.053	-1.545	-0.180346
116	1.700	-1.222	0.099276	-0.925528	3.053	-3.118	-0.011577
117	0	-1.120	0.118870	0.217933	2.845	-4.536	-0.189433
117	1.700	-1.120	0.118870	0.217933	2.845	-4.165	0.012647
140	0	-2.136	-0.333144	-2.404	-0.463896	-0.772527	-0.404798
140	1.700	-2.136	-0.333144	-2.404	-0.463896	-4.859	-0.571142
141	0	-2.097	0.029898	-0.147304	-0.251642	0.584233	-0.243504
141	1.700	-2.097	0.029898	-0.147304	-0.251642	0.293817	-0.192677
142	0	-2.014	0.285429	1.640	0.063354	1.415	-0.108824
142	1.700	-2.014	0.285429	1.640	0.063354	4.203	0.276404
143	0	-1.925	0.378782	2.296	0.263517	1.568	-0.072561
143	1.700	-1.925	0.378782	2.296	0.263517	5.452	0.571369
144	0	-1.835	0.401916	2.456	0.348183	1.096	-0.129464
144	1.700	-1.835	0.401916	2.456	0.348183	5.271	0.553794
145	0	-1.744	0.405193	2.479	0.377699	0.215903	-0.235823
145	1.700	-1.744	0.405193	2.479	0.377699	4.429	0.449006
146	0	-1.653	0.405690	2.476	0.387796	-0.840611	-0.375302
146	1.700	-1.653	0.405690	2.476	0.387796	3.372	0.214171
147	0	-1.559	0.411857	2.503	0.394728	-1.969	-0.524812
147	1.700	-1.559	0.411857	2.503	0.394728	2.265	0.175345
148	0	-1.458	0.427455	2.650	0.397111	-3.151	-0.682981
148	1.700	-1.458	0.437455	2.650	0.397111	1.315	0.060693
149	0	-1.344	0.444054	2.681	0.370244	-4.009	-0.751596
149	1.700	-1.344	0.444054	2.681	0.370244	0.547870	-0.036705
	min:	-2.136	-1.570	-5.626	-7.563	-27.563	-1.663
	max:	1.981	0.854585	25.351	5.730	21.094	0.571369

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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.528423	0.002300	3.960			
10	0.528423	-0.002789	-9.374			
156	0.528423	-0.002300	3.960			
160	0.528423	0.002789	-9.374			
166	-1.057	1.910	35.414	-8.404	-0.292662	-0.024556
167	-1.057	-1.910	35.414	8.404	-0.292662	0.024550
Sums :	-1.87E-10	9.27E-13	60.000			
min:	-1.057	-1.910	-9.374	-8.404	-0.292662	-0.024556
max:	0.528423	1.910	35.414	8.404	-0.292662	0.024550

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
12	0	1.507	-0.771054	5.709	-0.513219	-10.488	1.184
12	1.700	1.507	-0.771054	5.709	-0.513219	-0.762081	-0.126278
13	0	1.439	-0.987060	7.301	-0.503702	-7.515	0.777567
13	1.700	1.439	-0.987060	7.301	-0.503702	4.897	-0.900416
14	0	1.405	-1.095	7.934	-0.545886	-2.450	0.106236
14	1.700	1.405	-1.095	7.934	-0.545886	11.038	-1.763
15	0	1.397	-1.209	8.649	-0.511940	3.562	-0.720506
15	1.700	1.397	-1.209	8.649	-0.511940	16.265	-2.776
16	0	1.397	-1.745	12.430	-0.202002	12.777	-2.005
16	0.200	1.397	-1.745	12.430	-0.202002	15.260	-2.354
16	0.200	1.397	-0.353230	2.527	-0.202002	15.263	-2.354
16	1.700	1.397	-0.353230	2.527	-0.202002	19.053	-2.884
17	0	1.397	0.353230	-2.527	0.202002	19.053	-2.884
17	1.7E-4	1.397	0.353230	-2.527	0.202002	19.053	-2.884
17	1.500	1.397	0.353230	-2.527	0.202002	15.263	-2.354
17	1.500	1.397	1.745	-12.430	0.202002	15.260	-2.354
17	1.700	1.397	1.745	-12.430	0.202002	12.777	-2.005
18	0	1.397	1.209	-8.649	0.511940	16.265	-2.776
18	1.700	1.397	1.209	-8.649	0.511940	3.562	-0.720506
19	0	1.405	1.099	-7.934	0.545886	11.038	-1.763

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
19	1.700	1.405	1.099	-7.934	0.545886	-2.450	0.108236
20	0	1.439	0.987060	-7.301	0.503702	4.897	-0.900416
20	1.700	1.439	0.987060	-7.301	0.503702	-7.515	0.777587
21	0	1.507	0.771054	-5.709	0.513219	-0.762081	-0.126378
21	1.700	1.507	0.771054	-5.709	0.513215	-10.488	1.184
44	0	0.948071	0.068811	7.346	-3.833	-20.421	-0.203802
44	1.700	0.948071	0.068811	7.346	-3.833	-7.932	-0.086823
45	0	0.915570	0.032415	8.681	-3.931	-9.890	-0.158320
45	1.700	0.915570	0.032415	8.681	-3.931	4.866	-0.103215
46	0	0.924465	0.006682	8.615	-4.181	2.822	-0.131977
46	1.700	0.924465	0.006682	8.615	-4.181	17.466	-0.117252
47	0	0.926294	0.000665	9.316	-3.667	16.055	-0.124002
47	1.700	0.926294	0.000665	9.316	-3.667	31.893	-0.122672
48	0	0.925801	-0.000307	7.400	-1.465	31.504	-0.123151
48	0.200	0.925801	-0.000307	7.400	-1.465	32.963	-0.123213
48	0.200	0.925801	-0.000307	3.270	-1.465	32.985	-0.123213
48	1.700	0.925801	-0.000307	3.270	-1.465	37.885	-0.123673
49	0	0.925801	0.000307	-3.270	1.465	37.889	-0.123673
49	1.7E-4	0.925801	0.000307	-3.270	1.465	37.888	-0.123673
49	1.500	0.925801	0.000307	-3.270	1.465	32.985	-0.123213
49	1.500	0.925801	0.000307	-7.400	1.465	12.983	-0.123213
49	1.700	0.925801	0.000307	-7.400	1.465	31.504	-0.123151
50	0	0.926294	-0.000665	-9.316	3.667	31.893	-0.122872
50	1.700	0.926294	-0.000665	-9.316	3.667	16.055	-0.124002
51	0	0.924465	-0.008662	-8.615	4.181	17.466	-0.117252
51	1.700	0.924465	-0.006662	-8.615	4.181	2.822	-0.131977
52	0	0.915570	-0.032415	-8.681	3.931	4.866	-0.103215
52	1.700	0.915570	-0.032415	-8.681	3.931	-9.890	-0.158320
53	0	0.948071	-0.068811	-7.346	3.833	-7.932	-0.086823
53	1.700	0.948071	-0.068811	-7.346	3.833	-20.421	-0.203802
76	0	-0.863785	0.068842	17.191	-8.896	-36.710	-0.310988
76	1.700	-0.863785	0.068842	17.191	-8.896	-9.486	-0.193956
77	0	-0.638549	-0.014736	10.671	-8.344	-11.790	-0.213656
77	1.700	-0.638549	-0.014736	10.671	-8.344	6.351	-0.238707
78	0	-0.574242	-0.004510	10.134	-7.808	5.803	-0.229596
78	1.700	-0.574242	-0.004510	10.134	-7.808	23.031	-0.237263

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
79	0	-0.557422	-0.001347	9.376	-6.137	23.424	-0.232973
79	1.700	-0.557422	-0.001347	9.376	-6.137	39.363	-0.235262
80	0	-0.554613	-0.000458	9.077	-2.392	39.911	-0.233680
80	0.200	-0.554613	-0.000458	9.077	-2.392	41.725	-0.233772
80	0.200	-0.554613	-0.000458	3.207	-2.392	41.727	-0.233772
80	1.700	-0.554613	-0.000458	3.207	-2.392	46.537	-0.234458
81	0	-0.554613	0.000458	-3.207	2.392	46.537	-0.234458
81	1.7E-4	-0.554613	0.000458	-3.207	2.392	46.537	-0.234458
81	1.500	-0.554613	0.000458	-3.207	2.392	41.727	-0.233772
81	1.500	-0.554613	0.000458	-9.077	2.392	41.725	-0.233772
81	1.700	-0.554613	0.000458	-9.077	2.392	39.911	-0.233680
82	0	-0.557422	0.001347	-9.376	6.137	39.363	-0.235262
82	1.700	-0.557422	0.001347	-9.376	6.137	23.424	-0.232973
83	0	-0.574242	0.004510	-10.134	7.808	23.031	-0.237263
83	1.700	-0.574242	0.004510	-10.134	7.808	5.803	-0.229596
84	0	-0.638549	0.014736	-10.671	8.344	6.351	-0.238707
84	1.700	-0.638549	0.014736	-10.671	8.344	-11.790	-0.213656
85	0	-0.863785	-0.068842	-17.191	8.896	-9.486	-0.193956
85	1.700	-0.863785	-0.068842	-17.191	8.896	-38.710	-0.310988
108	0	-1.638	-0.115891	2.988	-4.529	-15.244	-0.009203
108	1.700	-1.638	-0.115891	2.988	-4.529	-10.166	-0.206217
109	0	-1.687	-0.033618	5.897	-4.847	-7.848	-0.091358
109	1.700	-1.687	-0.033618	5.897	-4.847	2.177	-0.148509
110	0	-1.702	-0.010901	5.230	-4.228	3.817	-0.113453
110	1.700	-1.702	-0.010901	5.230	-4.228	12.708	-0.131985
111	0	-1.705	-0.002860	4.122	-3.131	14.444	-0.121213
111	1.700	-1.705	-0.002860	4.122	-3.131	21.451	-0.126075
112	0	-1.706	-0.000512	1.572	-1.183	22.755	-0.123330
112	1.700	-1.706	-0.000512	1.572	-1.183	25.427	-0.124200
113	0	-1.706	0.000512	-1.572	1.183	25.427	-0.124200
113	1.700	-1.706	0.000512	-1.572	1.183	22.755	-0.123330
114	0	-1.705	0.002860	-4.122	3.131	21.451	-0.126075
114	1.700	-1.705	0.002860	-4.122	3.131	14.444	-0.121213
115	0	-1.702	0.010901	-5.230	4.228	12.708	-0.131985
115	1.700	-1.702	0.010901	-5.230	4.228	3.817	-0.113453
116	0	-1.687	0.033618	-5.897	4.847	2.177	-0.148509
116	1.700	-1.687	0.033618	-5.897	4.847	-7.848	-0.091358

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
117	0	-1.638	0.115891	-2.988	4.529	-10.166	-0.206217
117	1.700	-1.638	0.115891	-2.988	4.529	-15.244	-0.009203
140	0	-1.864	-0.509523	-3.246	-0.582016	-2.228	-0.494184
140	1.700	-1.864	-0.509523	-3.246	-0.582016	-7.746	-1.360
141	0	-1.939	-0.386727	-2.588	-0.631405	0.896835	-0.081695
141	1.700	-1.939	-0.386727	-2.588	-0.631405	-3.503	-0.735130
142	0	-1.964	-0.285594	-1.969	-0.553202	4.763	0.446028
142	1.700	-1.964	-0.285594	-1.969	-0.553202	1.435	-0.039483
143	0	-1.971	-0.218098	-1.531	-0.401412	6.201	0.916682
143	1.700	-1.971	-0.218098	-1.531	-0.401412	5.588	0.545914
144	0	-1.972	-0.084172	-0.594388	-0.150588	9.636	1.114
144	1.700	-1.972	-0.084172	-0.594388	-0.150588	8.626	0.971106
145	0	-1.972	0.084172	0.594388	0.150588	8.626	0.971106
145	1.700	-1.972	0.084172	0.594388	0.150588	9.636	1.114
146	0	-1.971	0.218098	1.531	0.401412	5.588	0.545914
146	1.700	-1.971	0.218098	1.531	0.401412	6.201	0.916682
147	0	-1.964	0.285594	1.969	0.553202	1.435	-0.039483
147	1.700	-1.964	0.285594	1.969	0.553202	4.763	0.446028
148	0	-1.939	0.386727	2.588	0.631405	-3.503	-0.735130
148	1.700	-1.939	0.386727	2.588	0.631405	0.896835	-0.081695
149	0	-1.864	0.509523	3.246	0.582016	-7.746	-1.360
149	1.700	-1.864	0.509523	3.246	0.582016	-2.228	-0.494184
	min:	-1.972	-1.745	-17.191	-8.896	-36.710	-2.664
	max:	1.507	1.745	17.191	8.896	46.537	1.184

Loadcase Factor Stage Init.def Title
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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.390235	0.077848	1.801			
10	0.390230	0.041929	-5.426			
156	0.647634	0.073062	7.153			
160	0.647639	0.047158	-10.476			
166	-0.345961	0.784014	8.439	-3.932	2.340	-0.289956
167	-1.730	-1.024	56.508	4.021	-2.915	-0.241741
Sums :	-1.62E-10	1.87E-11	60.000			
min:	-1.730	-1.024	-10.476	-3.932	-2.915	-0.289956
max:	0.647639	0.784014	56.508	4.021	2.340	-0.241741

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
12	0	1.162	-0.472947	3.128	-0.359144	-4.731	0.507953
12	1.700	1.162	-0.472947	3.128	-0.359144	0.586372	-0.296056
13	0	1.217	-0.553102	3.646	-0.360113	-4.261	0.445554
13	1.700	1.217	-0.553102	3.646	-0.360113	1.936	-0.494719
14	0	1.294	-0.585144	3.797	-0.378401	-3.171	0.295462
14	1.700	1.294	-0.585144	3.797	-0.378401	3.284	-0.699281
15	0	1.381	-0.591353	3.817	-0.384672	-1.978	0.120314
15	1.700	1.381	-0.591353	3.817	-0.384672	4.511	-0.884966
16	0	1.472	-0.592469	3.822	-0.383119	-0.767757	-0.060516
16	1.700	1.472	-0.592469	3.822	-0.383119	5.730	-1.068
17	0	1.562	-0.596762	3.855	-0.375666	0.517135	-0.251964
17	1.700	1.562	-0.596762	3.855	-0.375666	7.071	-1.266
18	0	1.654	-0.623125	4.038	-0.361146	2.035	-0.474533
18	1.700	1.654	-0.623125	4.038	-0.361146	8.899	-1.534
19	0	1.751	-0.654585	5.626	-0.263660	4.282	-0.795275
19	1.250	1.751	-0.654585	5.626	-0.263660	11.314	-1.863
19	1.250	1.751	0.537148	-4.276	-0.263660	11.314	-1.863
19	1.700	1.751	0.537148	-4.276	-0.263660	9.390	-1.622
20	0	1.866	-0.228415	1.026	0.030892	6.056	-1.336

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
20	1.050	1.866	-0.228415	1.026	0.030892	9.134	-1.576
20	1.050	1.866	1.162	-8.877	0.030892	9.133	-1.576
20	1.700	1.866	1.162	-8.877	0.030892	2.364	-0.819953
21	0	1.981	0.178215	-1.649	0.405653	6.122	-1.120
21	0.850	1.981	0.178215	-1.649	0.405653	4.720	-0.966475
21	0.850	1.981	1.570	-11.552	0.405653	4.718	-0.968178
21	1.700	1.981	1.570	-11.552	0.405653	-5.099	0.365924
44	0	0.787361	-0.043080	2.218	-2.718	-7.022	-0.067215
44	1.700	0.787361	-0.043080	2.218	-2.718	-3.250	-0.140451
45	0	0.856681	-0.072190	2.439	-2.785	-4.523	-0.029055
45	1.700	0.856681	-0.072190	2.439	-2.785	-0.377674	-0.161778
46	0	0.930042	-0.081480	2.315	-2.909	-1.860	-0.035767
46	1.700	0.930042	-0.081480	2.315	-2.909	2.276	-0.174263
47	0	1.001	-0.084562	2.302	-2.946	1.062	-0.039356
47	1.700	1.001	-0.084562	2.302	-2.946	4.978	-0.183106
48	0	1.071	-0.085307	2.342	-2.930	3.755	-0.045316
48	1.700	1.071	-0.085307	2.342	-2.930	7.777	-0.190342
49	0	1.143	-0.085532	2.490	-2.862	6.643	-0.051764
49	1.700	1.142	-0.085532	2.490	-2.862	10.875	-0.197169
50	0	1.214	-0.086715	3.017	-2.651	9.908	-0.057510
50	1.700	1.214	-0.086715	3.017	-2.651	15.037	-0.204926
51	0	1.281	-0.090739	3.147	-1.717	14.935	-0.061753
51	1.250	1.281	-0.090739	3.147	-1.717	18.673	-0.175162
51	1.250	1.281	-0.090739	-0.982586	-1.717	18.673	-0.175162
51	1.700	1.281	-0.090739	-0.982586	-1.717	18.431	-0.216010
52	0	1.335	-0.103071	-4.070	0.394724	18.956	-0.063478
52	1.050	1.335	-0.103071	-4.070	0.394724	14.685	-0.171686
52	1.050	1.335	-0.103071	-8.200	0.394724	14.683	-0.171721
52	1.700	1.335	-0.103071	-8.200	0.394724	9.354	-0.238700
53	0	1.427	-0.083943	-9.922	2.795	10.672	-0.091188
53	0.850	1.427	-0.083943	-9.922	2.795	2.240	-0.162526
53	0.850	1.427	-0.083943	-14.052	2.795	2.236	-0.162555
53	1.700	1.427	-0.083943	-14.052	2.795	-9.706	-0.233852
76	0	-0.389442	-0.172823	4.367	-5.730	-12.136	-0.012364
76	1.700	-0.389442	-0.172823	4.367	-5.730	-4.711	-0.306162
77	0	-0.296994	-0.156339	2.449	-5.516	-5.343	0.050054
77	1.700	-0.296994	-0.156339	2.449	-5.516	-1.169	-0.319230
78	0	-0.270618	-0.152963	2.325	-5.516	-1.389	-0.068269

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
78	1.700	-0.270618	-0.152963	2.325	-5.516	2.563	-0.328329
79	0	-0.263634	-0.152482	2.329	-5.494	2.510	-0.081119
79	1.700	-0.263634	-0.152482	2.329	-5.494	6.466	-0.340336
80	0	-0.262265	-0.152632	2.352	-5.415	6.472	-0.093540
80	1.700	-0.262265	-0.152632	2.352	-5.415	10.470	-0.353015
81	0	-0.262181	-0.152929	2.366	-5.155	10.559	-0.105976
81	1.700	-0.262181	-0.152929	2.366	-5.155	14.581	-0.365950
82	0	-0.263656	-0.152773	2.096	-4.317	14.964	-0.119003
82	1.700	-0.263656	-0.152773	2.096	-4.317	18.526	-0.378716
83	0	-0.273296	-0.146402	1.316	-1.926	19.446	-0.135630
83	1.250	-0.273296	-0.146402	1.316	-1.926	21.094	-0.314808
83	1.250	-0.273296	-0.146402	-4.552	-1.926	21.063	-0.318858
83	1.700	-0.273296	-0.146402	-4.552	-1.926	19.045	-0.384714
84	0	-0.307777	-0.130097	-5.367	2.412	20.533	-0.149298
84	1.050	-0.307777	-0.130097	-5.367	2.412	14.898	-0.285878
84	1.050	-0.307777	-0.130097	-11.237	2.412	14.895	-0.285922
84	1.700	-0.307777	-0.130097	-11.237	2.412	7.593	-0.370463
85	0	-0.428075	-0.307467	-19.481	7.563	10.544	-0.075509
85	0.850	-0.428075	-0.307467	-19.481	7.563	-6.011	-0.336806
85	0.850	-0.428075	-0.307467	-25.351	7.563	-6.019	-0.336905
85	1.700	-0.428075	-0.307467	-25.351	7.563	-27.563	-0.596204
108	0	-1.120	-0.118870	-0.217933	-2.845	-4.165	0.012647
108	1.700	-1.120	-0.118870	-0.217933	-2.845	-4.536	-0.189433
109	0	-1.222	-0.099276	0.925528	-3.053	-3.116	-0.011577
109	1.700	-1.222	-0.099276	0.925528	-3.053	-1.545	-0.180346
110	0	-1.298	-0.089498	0.868392	-3.010	-0.409271	-0.026157
110	1.700	-1.298	-0.089498	0.868392	-3.010	1.067	-0.180305
111	0	-1.370	-0.086215	0.831333	-2.965	2.233	-0.036036
111	1.700	-1.370	-0.086215	0.831333	-2.965	3.646	-0.164601
112	0	-1.441	-0.085522	0.763634	-2.895	4.834	-0.045337
112	1.700	-1.441	-0.085522	0.763634	-2.895	6.132	-0.190724
113	0	-1.512	-0.085440	0.545864	-2.685	7.338	-0.052081
113	1.700	-1.512	-0.085440	0.545864	-2.685	8.266	-0.197330
114	0	-1.582	-0.084429	-0.056140	-2.079	9.496	-0.059579
114	1.700	-1.582	-0.084429	-0.056140	-2.079	9.400	-0.203109
115	0	-1.649	-0.079741	-1.677	-0.603659	10.601	-0.070003
115	1.700	-1.649	-0.079741	-1.677	-0.603659	7.750	-0.205561

SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
116	0	-1.700	-0.067739	-4.937	1.899	8.217	-0.067601
116	1.700	-1.700	-0.067739	-4.937	1.899	-0.176822	-0.202757
117	0	-1.747	0.014709	-4.551	3.723	-1.766	-0.154686
117	1.700	-1.747	0.014709	-4.551	3.723	-9.503	-0.129879
146	0	-1.344	-0.444054	-2.681	-0.370244	0.547870	-0.036705
146	1.700	-1.344	-0.444054	-2.681	-0.370244	-4.009	-0.791596
141	0	-1.458	-0.437455	-2.650	-0.397111	1.315	0.060693
141	1.700	-1.458	-0.437455	-2.650	-0.397111	-3.191	-0.682981
142	0	-1.559	-0.411857	-2.503	-0.394728	2.265	0.175345
143	1.700	-1.559	-0.411857	-2.503	-0.394728	-1.989	-0.524812
143	0	-1.653	-0.405690	-2.478	-0.387796	3.372	0.314371
143	1.700	-1.653	-0.405690	-2.478	-0.387796	-0.640811	-0.375302
144	0	-1.744	-0.405193	-2.479	-0.377695	4.429	0.449006
144	1.700	-1.744	-0.405193	-2.479	-0.377695	0.215903	-0.239823
145	0	-1.835	-0.401916	-2.456	-0.348183	5.271	0.553794
145	1.700	-1.835	-0.401916	-2.456	-0.348183	1.096	-0.129464
146	0	-1.925	-0.378782	-2.296	-0.263517	5.492	0.571366
146	1.700	-1.925	-0.378782	-2.296	-0.263517	1.586	-0.072561
147	0	-2.014	-0.285429	-1.640	-0.063354	4.203	0.376404
147	1.700	-2.014	-0.285429	-1.640	-0.063354	1.415	-0.108624
148	0	-2.097	-0.029898	0.147304	0.251642	0.293617	-0.192677
148	1.700	-2.097	-0.029898	0.147304	0.251642	0.544233	-0.243504
149	0	-2.136	0.333144	2.404	0.463896	-4.859	-0.971142
149	1.700	-2.136	0.333144	2.404	0.463896	-0.772527	-0.404756
	min.	-2.136	-0.854585	-25.351	-5.730	-27.561	-1.863
	max.	1.981	1.570	5.626	7.563	21.094	0.571369

Loadcase Factor Stage Init.def Title
17 1.0000 VEHICULO HIPOTESIS 17

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.275536	-0.070252	3.376			
10	0.275944	-0.109739	-2.876			
156	0.570715	-0.074503	14.915			
160	0.570708	-0.105836	-7.570			
166	-0.054322	-0.560469	-3.285	2.928	2.775	-0.324107
167	-1.639	0.660789	55.444	-3.060	-3.243	-0.284786
Sums :	-1.228-10	-2.24E-11	60.000			
min:	-1.639	-0.560469	-7.570	-3.060	-3.243	-0.324107
max:	0.570715	0.660789	55.444	2.928	2.775	-0.284786

SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
22	0	1.777	-1.010	8.078	-0.089659	-1.944	-0.087984
22	0.850	1.777	-1.010	8.078	-0.089659	4.921	-0.946660
22	0.850	1.777	0.381440	-1.825	-0.089659	4.922	-0.946682
22	1.300	1.777	0.381440	-1.825	-0.089659	4.101	-0.775083
23	0	1.575	-0.349613	3.614	0.215304	5.051	-1.043
23	1.050	1.575	-0.349613	3.614	0.215304	8.845	-1.410
23	1.050	1.575	1.042	-6.289	0.215304	8.845	-1.410
23	1.300	1.575	1.042	-6.289	0.215304	7.273	-1.150
24	0	1.367	0.356429	-1.543	0.456609	10.658	-1.772
24	1.250	1.367	0.356429	-1.543	0.456609	6.730	-1.326
24	1.250	1.367	1.748	-11.446	0.456609	8.726	-1.326
24	1.300	1.367	1.748	-11.446	0.456609	8.157	-1.239
25	0	1.172	1.241	-7.952	0.688206	13.829	-2.176
25	1.300	1.172	1.241	-7.952	0.688206	3.491	-0.562373
26	0	0.986173	1.097	-6.962	0.746362	10.631	-1.701
26	1.300	0.986173	1.097	-6.962	0.746362	1.581	-0.274075
27	0	0.803102	1.071	-6.775	0.764288	9.031	-1.454
27	1.300	0.803102	1.071	-6.775	0.764288	0.224092	-0.061093
28	0	0.620303	1.065	-6.734	0.777255	7.837	-1.263
28	1.300	0.620303	1.065	-6.734	0.777255	-0.916715	0.121705

SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
29	0	0.437055	1.065	-6.758	0.793100	6.817	-1.097
29	1.300	0.437055	1.065	-6.758	0.793100	-1.969	0.286992
30	0	0.250819	1.098	-7.003	0.829354	5.955	-0.963813
30	1.300	0.250819	1.098	-7.003	0.829354	-3.149	0.464081
31	0	0.050768	1.403	-8.571	0.849102	5.151	-0.864901
31	1.300	0.050768	1.403	-8.571	0.849102	-5.990	0.958860
32	0	-2.83E-13	6.20E-11	1.02E-11	1.28E-16	-4.55E-12	-2.95E-11
32	0.500	-2.83E-13	6.20E-11	1.02E-11	1.28E-16	5.71E-13	1.54E-12
54	0	1.283	0.261753	13.221	-0.309191	-7.452	-0.324224
54	0.850	1.283	0.261753	13.221	-0.309191	3.764	-0.101769
54	0.850	1.283	0.261753	9.091	-0.309191	3.787	-0.101701
54	1.300	1.283	0.261753	9.091	-0.309191	7.877	0.016054
55	0	1.148	0.274217	8.885	1.560	7.476	-0.302005
55	1.050	1.148	0.274217	8.885	1.560	16.804	-0.014113
55	1.050	1.148	0.274217	4.755	1.560	16.806	-0.014042
55	1.300	1.148	0.274217	4.755	1.560	17.954	0.054476
56	0	1.029	0.260636	2.384	3.305	17.585	-0.272763
56	1.250	1.029	0.260636	2.384	3.305	20.565	0.052956
56	1.250	1.029	0.260636	-1.746	3.305	20.565	0.053066
56	1.300	1.029	0.260636	-1.746	3.305	20.478	0.066064
57	0	0.896483	0.255395	-3.722	4.931	20.443	-0.254116
57	1.300	0.896483	0.255395	-3.722	4.931	15.604	0.077857
58	0	0.755653	0.252622	-3.320	5.599	15.934	-0.238466
58	1.300	0.755653	0.252622	-3.320	5.599	11.618	0.089944
59	0	0.612289	0.251950	-2.814	5.827	12.378	-0.224652
59	1.300	0.612289	0.251950	-2.814	5.827	8.719	0.102863
60	0	0.467416	0.253574	-2.619	5.936	9.563	-0.212457
60	1.300	0.467416	0.253574	-2.619	5.936	6.189	0.117190
61	0	0.317521	0.258547	-2.592	6.029	7.055	-0.202172
61	1.300	0.317521	0.258547	-2.592	6.029	3.689	0.133839
62	0	0.163529	0.266696	-2.576	6.147	4.395	-0.190740
62	1.300	0.163529	0.266696	-2.576	6.147	1.046	0.155965
63	0	0.044586	0.235035	-1.385	5.938	1.221	-0.149162
63	1.300	0.044586	0.235035	-1.385	5.938	-0.579117	0.156365
64	0	-6.28E-13	4.57E-11	-6.79E-13	-1.08E-16	4.96E-12	-2.09E-11
64	0.500	-6.28E-13	4.57E-11	-6.79E-13	-1.08E-16	5.41E-14	1.97E-12
86	0	-0.202043	0.509851	26.448	-2.984	-24.948	-0.606320

SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
86	0.850	-0.202043	0.509851	26.448	-2.984	-2.473	-0.175013
86	0.850	-0.202043	0.509851	20.578	-2.984	-2.465	-0.174686
86	1.300	-0.202043	0.509851	20.578	-2.984	6.793	0.054486
87	0	-0.113629	0.364004	12.069	1.067	4.830	-0.434195
87	1.050	-0.113629	0.364004	12.069	1.067	17.501	-0.052037
87	1.050	-0.113629	0.364004	6.199	1.067	17.504	-0.051943
87	1.300	-0.113629	0.364004	6.199	1.067	19.052	0.039011
88	0	-0.075849	0.382716	4.512	4.841	17.867	-0.437516
88	1.250	-0.075849	0.382716	4.512	4.841	23.506	0.040830
88	1.250	-0.075849	0.382716	-1.358	4.841	23.506	0.040926
88	1.300	-0.075849	0.382716	-1.358	4.841	23.439	0.060015
89	0	-0.060136	0.398369	-1.607	7.945	22.598	-0.426018
89	1.300	-0.060136	0.398369	-1.607	7.945	20.509	0.091861
90	0	-0.054067	0.401716	-2.285	9.760	19.896	-0.402445
90	1.300	-0.054067	0.401716	-2.285	9.760	16.926	0.119785
91	0	-0.051539	0.401786	-2.567	10.570	16.606	-0.377010
91	1.300	-0.051539	0.401786	-2.567	10.570	13.269	0.145312
92	0	-0.048428	0.404478	-2.601	10.874	13.125	-0.353435
92	1.300	-0.048428	0.404478	-2.601	10.874	9.744	0.172383
93	0	-0.041344	0.415244	-2.558	10.886	9.601	-0.331681
93	1.300	-0.041344	0.415244	-2.558	10.886	6.275	0.208136
94	0	-0.027603	0.421901	-2.268	10.554	5.960	-0.296848
94	1.300	-0.027603	0.421901	-2.268	10.554	3.011	0.251526
95	0	-0.006166	0.330042	-1.409	9.405	2.409	-0.201346
95	1.300	-0.006166	0.330042	-1.409	9.405	0.577546	0.227714
96	0	-2.10E-12	1.99E-11	-1.62E-13	-1.46E-15	1.27E-13	1.05E-12
96	0.500	-2.10E-12	1.99E-11	-1.62E-13	-1.46E-15	4.81E-14	1.10E-11
118	0	-1.314	0.156047	4.721	-1.037	-8.589	-0.233632
118	1.300	-1.314	0.156047	4.721	-1.037	-2.452	-0.030771
119	0	-1.211	0.224428	6.282	-0.012458	-1.943	-0.263406
119	1.300	-1.211	0.224428	6.282	-0.012458	5.223	0.026350
120	0	-1.098	0.239105	3.738	2.065	5.638	-0.256956
120	1.300	-1.098	0.239105	3.738	2.065	10.496	0.053883
121	0	-0.967622	0.246724	1.341	3.887	9.549	-0.248215
121	1.300	-0.967622	0.246724	1.341	3.887	11.292	0.072526
122	0	-0.828072	0.250019	0.159567	4.993	10.224	-0.236521
122	1.300	-0.828072	0.250019	0.159567	4.993	10.432	0.088103

SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
123	0	-0.686097	0.250469	-0.416947	5.550	9.400	-0.223802
123	1.300	-0.686097	0.250469	-0.416947	5.550	6.858	0.101808
124	0	-0.541980	0.249286	-0.650567	5.765	7.855	-0.208551
124	1.300	-0.541980	0.249286	-0.650567	5.765	7.009	0.114120
125	0	-0.391149	0.247514	-0.634553	5.755	6.009	-0.196350
125	1.300	-0.391149	0.247514	-0.634553	5.755	5.184	0.125418
126	0	-0.232232	0.245297	-0.560083	5.567	4.212	-0.181110
126	1.300	-0.232232	0.245297	-0.560083	5.567	3.483	0.137777
127	0	-0.098550	0.204606	-1.189	5.056	2.672	-0.139413
127	1.300	-0.098550	0.204606	-1.189	5.056	1.126	0.126635
128	0	7.18E-13	2.34E-11	-1.41E-13	9.31E-16	8.30E-14	-1.54E-12
128	0.500	7.18E-13	2.34E-11	-1.41E-13	9.31E-16	1.22E-14	1.02E-11
150	0	-1.725	0.106651	0.112078	-0.106710	-2.547	-0.685063
150	1.300	-1.725	0.106651	0.112078	-0.106710	-2.402	-0.546416
151	0	-1.579	0.370223	1.757	0.005971	-1.520	-0.522221
151	1.300	-1.579	0.370223	1.757	0.005971	0.764744	-0.040931
152	0	-1.402	0.620455	3.547	0.255388	-0.464921	-0.338982
152	1.300	-1.402	0.620455	3.547	0.255388	4.146	0.467609
153	0	-1.221	0.770309	4.629	0.492431	0.280473	-0.205775
153	1.300	-1.221	0.770309	4.629	0.492431	6.298	0.795627
154	0	-1.040	0.834404	5.061	0.644189	0.464846	-0.151061
154	1.300	-1.040	0.834404	5.061	0.644189	7.100	0.933662
155	0	-0.858054	0.857467	5.243	0.721139	0.235666	-0.162296
155	1.300	-0.858054	0.857467	5.243	0.721139	7.052	0.952411
156	0	-0.677649	0.858899	5.274	0.750603	-0.282107	-0.209669
156	1.300	-0.677649	0.858899	5.274	0.750603	6.585	0.906895
157	0	-0.502422	0.840058	5.215	0.750158	-0.899400	-0.268711
157	1.300	-0.502422	0.840058	5.215	0.750158	5.881	0.823364
158	0	-0.334850	0.809962	5.085	0.732555	-1.469	-0.334919
158	1.300	-0.334850	0.809962	5.085	0.732555	5.141	0.718032
159	0	-0.168976	0.913672	5.244	0.682229	-1.936	-0.419548
159	1.300	-0.168976	0.913672	5.244	0.682229	4.882	0.766486
160	0	-3.66E-14	-3.21E-11	9.65E-12	1.89E-17	-4.26E-12	1.13E-11
160	0.500	-3.66E-14	-3.21E-11	9.65E-12	1.89E-17	5.64E-13	-4.78E-12

SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
	min:	-1.725	-1.010	-11.446	-2.984	-24.948	-2.176
	max:	1.777	1.748	26.448	10.868	23.506	0.958860

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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.167580	-0.116425	2.334			
10	0.167591	-0.141617	-1.445			
156	0.356267	-0.119217	26.359			
160	0.356258	-0.139356	-1.790			
166	-0.016694	-0.777781	-5.337	4.462	1.781	-0.207035
167	-1.031	1.294	39.877	-4.652	-2.071	-0.182707
Sums :	-7.17E-11	-3.40E-11	60.000			
min:	-1.031	-0.777781	-5.337	-4.653	-2.071	-0.207035
max:	0.356267	1.294	39.877	4.462	1.781	-0.182707

SECTION FORCES: 'ALL'

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
22	0	1.134	-0.409490	3.559	-0.178239	-6.526	0.671156
22	1.300	1.134	-0.409490	3.559	-0.178239	-1.899	0.138817
23	0	0.982928	-0.561839	4.955	-0.153659	-3.409	0.250837
23	1.300	0.982928	-0.561839	4.955	-0.153659	3.023	-0.505554
24	0	0.838741	-0.739216	5.963	-0.179405	1.322	-0.365603
24	1.300	0.838741	-0.739216	5.963	-0.179405	9.076	-1.327
25	0	0.712738	-0.964741	7.473	-0.106270	7.378	-1.176
25	1.100	0.712738	-0.964741	7.473	-0.106270	15.597	-2.240
25	1.100	0.712738	0.426990	-2.430	-0.106270	15.598	-2.240
25	1.300	0.712738	0.426990	-2.430	-0.106270	15.112	-2.155
26	0	0.595501	-0.065382	1.020	0.180607	15.544	-2.301
26	1.300	0.595501	-0.065382	1.020	0.180607	16.870	-2.386

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
26	1.300	0.595501	-0.065382	1.020	0.180607	16.870	-2.386
27	0	0.480783	0.781442	-5.032	0.508455	20.246	-2.944
27	1.300	0.480783	0.781442	-5.032	0.508455	13.706	-1.928
28	0	0.365282	0.304692	-1.654	0.824340	20.144	-2.916
28	0.200	0.365282	0.304692	-1.654	0.824340	19.813	-2.855
28	0.200	0.365282	1.696	-11.557	0.824340	19.811	-2.855
28	1.300	0.365282	1.696	-11.557	0.824340	7.100	-0.989046
29	0	0.246816	1.537	-10.420	0.978476	16.117	-2.342
29	1.300	0.246816	1.537	-10.420	0.978476	2.571	-0.343902
30	0	0.122943	1.604	-10.871	1.108	12.665	-1.852
30	1.300	0.122943	1.604	-10.871	1.108	-1.467	0.232305
31	0	-0.016069	2.132	-14.244	1.218	9.978	-1.485
31	1.300	-0.016069	2.132	-14.244	1.218	-8.535	1.287
32	0	-3.63E-13	1.05E-11	2.13E-12	-4.06E-16	-2.48E-12	-1.21E-11
32	0.500	-3.63E-13	1.05E-11	2.13E-12	-4.06E-16	-1.41E-12	-6.86E-12
54	0	0.788748	0.210549	7.687	-1.268	-15.892	-0.242790
54	1.300	0.788748	0.210549	7.687	-1.268	-5.899	0.031003
55	0	0.690970	0.193078	9.647	-1.220	-6.364	-0.205335
55	1.300	0.690970	0.193078	9.647	-1.220	6.178	0.045662
56	0	0.614730	0.171123	9.876	-1.323	5.675	-0.176375
56	1.300	0.614730	0.171123	9.876	-1.323	18.515	0.046085
57	0	0.531310	0.161114	9.885	-0.574990	18.634	-0.159675
57	1.100	0.531310	0.161114	9.885	-0.574990	29.505	0.017330
57	1.100	0.531310	0.161114	5.755	-0.574990	29.507	0.017372
57	1.300	0.531310	0.161114	5.755	-0.574990	30.658	0.049574
58	0	0.443040	0.158602	3.952	1.432	30.803	-0.145243
58	1.300	0.443040	0.158602	3.952	1.432	35.939	0.056136
58	1.300	0.443040	0.158602	3.952	1.432	35.940	0.056156
59	0	0.353211	0.158138	-2.044	3.821	36.317	-0.141004
59	1.300	0.353211	0.158138	-2.044	3.821	33.659	0.064575
60	0	0.262361	0.161108	-3.765	6.009	34.210	-0.134466
60	0.200	0.262361	0.161108	-3.765	6.009	33.458	-0.102266
60	0.200	0.262361	0.161108	-7.895	6.009	33.456	-0.102224
60	1.300	0.262361	0.161108	-7.895	6.009	24.771	0.074575
61	0	0.169190	0.166604	-7.656	7.251	25.119	-0.129083
61	1.300	0.169190	0.166604	-7.656	7.251	15.165	0.087503
62	0	0.074586	0.175620	-6.980	8.036	15.576	-0.123291

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
62	1.300	0.074586	0.175620	-6.980	8.036	6.502	0.105015
63	0	0.006287	0.159494	-4.670	8.199	5.976	-0.097430
63	1.300	0.006287	0.159494	-4.670	8.199	-0.093201	0.109912
64	0	-6.94E-13	8.58E-12	-2.71E-12	2.70E-15	1.11E-12	-6.08E-12
64	0.500	-6.94E-13	8.58E-12	-2.71E-12	2.70E-15	-2.44E-13	-1.80E-12
86	0	-0.300038	0.318468	20.229	-4.207	-32.746	-0.379454
86	1.300	-0.300038	0.318468	20.229	-4.207	-6.449	0.034514
87	0	-0.166577	0.226656	13.243	-3.488	-8.050	-0.270444
87	1.300	-0.166577	0.226656	13.243	-3.488	9.166	0.024209
88	0	-0.109680	0.237656	11.745	-2.571	6.579	-0.272237
88	1.300	-0.109680	0.237656	11.745	-2.571	23.848	0.036716
89	0	-0.086647	0.247061	10.976	-0.509968	23.972	-0.264998
89	1.100	-0.086647	0.247061	10.976	-0.509968	36.044	0.006737
89	1.100	-0.086647	0.247061	5.106	-0.509968	36.046	0.006803
89	1.300	-0.086647	0.247061	5.106	-0.509968	37.066	0.056181
90	0	-0.078136	0.249879	4.914	2.850	37.334	-0.250928
90	1.300	-0.078136	0.249879	4.914	2.850	43.722	0.073862
90	1.300	-0.078136	0.249879	4.914	2.850	43.722	0.073915
91	0	-0.074454	0.250968	-1.377	6.719	43.669	-0.235769
91	1.300	-0.074454	0.250968	-1.377	6.719	41.879	0.090490
92	0	-0.069728	0.253397	-1.620	10.057	41.380	-0.221442
92	0.200	-0.069728	0.253397	-1.620	10.057	41.056	-0.170796
92	0.200	-0.069728	0.253397	-7.490	10.057	41.055	-0.170730
92	1.300	-0.069728	0.253397	-7.490	10.057	32.617	0.107974
93	0	-0.059366	0.260113	-8.073	12.005	31.968	-0.207740
93	1.300	-0.059366	0.260113	-8.073	12.005	21.473	0.130407
94	0	-0.039707	0.263938	-7.544	12.477	20.128	-0.185754
94	1.300	-0.039707	0.263938	-7.544	12.477	10.322	0.157365
95	0	-0.011795	0.206237	-4.765	11.382	8.179	-0.125832
95	1.300	-0.011795	0.206237	-4.765	11.382	1.984	0.142276
96	0	-2.24E-12	7.71E-12	-1.33E-13	-5.81E-15	2.83E-13	2.05E-12
96	0.500	-2.24E-12	7.71E-12	-1.33E-13	-5.81E-15	2.16E-13	5.91E-12
118	0	-0.830107	0.050671	4.460	-1.942	-12.381	-0.105873
118	1.300	-0.830107	0.050671	4.460	-1.942	-6.584	-0.040001
119	0	-0.780879	0.117645	7.381	-2.267	-5.922	-0.147119
119	1.300	-0.780879	0.117645	7.381	-2.267	3.674	0.005820

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
120	0	-0.713482	0.139034	6.734	-1.506	3.878	-0.153022
120	1.300	-0.713482	0.139034	6.734	-1.506	12.633	0.027922
121	0	-0.633166	0.149624	5.254	-0.206062	12.677	-0.152048
121	1.300	-0.633166	0.149624	5.254	-0.206062	19.707	0.042462
122	0	-0.547159	0.154492	2.869	1.574	19.700	-0.147008
122	1.300	-0.547159	0.154492	2.869	1.574	23.430	0.053831
123	0	-0.459224	0.155746	0.314943	3.471	22.594	-0.139450
123	1.300	-0.459224	0.155746	0.314943	3.471	23.403	0.063020
124	0	-0.369385	0.154357	-1.936	5.060	22.479	-0.130441
124	1.300	-0.369385	0.154357	-1.936	5.060	19.962	0.070223
125	0	-0.274573	0.150725	-3.015	5.871	18.585	-0.120656
125	1.300	-0.274573	0.150725	-3.015	5.871	14.665	0.075246
126	0	-0.173205	0.145038	-3.398	5.849	13.121	-0.109513
126	1.300	-0.173205	0.145038	-3.398	5.849	8.702	0.079038
127	0	-0.083706	0.115716	-3.876	5.144	6.995	-0.083137
127	1.300	-0.083706	0.115716	-3.876	5.144	1.957	0.067264
128	0	1.64E-13	5.97E-12	-4.49E-13	1.94E-16	2.40E-13	-1.38E-12
128	0.500	1.64E-13	5.97E-12	-4.49E-13	1.94E-16	1.53E-14	1.60E-12
150	0	-1.052	-0.030547	-0.526329	-0.237943	-2.974	-0.606127
150	1.300	-1.052	-0.030547	-0.526329	-0.237943	-3.656	-0.645839
151	0	-0.985018	0.085070	0.161729	-0.267465	-0.766430	-0.286083
151	1.300	-0.985018	0.085070	0.161729	-0.267465	-0.556182	-0.175492
152	0	-0.868886	0.214773	1.048	-0.197356	2.026	0.116453
152	1.300	-0.868886	0.214773	1.048	-0.197356	3.388	0.387658
153	0	-0.782610	0.317506	1.755	-0.021533	4.600	0.491033
153	1.300	-0.782810	0.317506	1.755	-0.021533	6.882	0.903791
154	0	-0.671622	0.444691	2.640	0.207333	6.048	0.706363
154	1.300	-0.671622	0.444691	2.640	0.207333	9.461	1.284
155	0	-0.558892	0.578505	3.563	0.449138	6.215	0.744054
155	1.300	-0.558892	0.578505	3.563	0.449138	10.673	1.496
156	0	-0.447105	0.688298	4.379	0.647593	5.299	0.632380
156	1.300	-0.447105	0.688298	4.379	0.647593	10.992	1.527
157	0	-0.340646	0.718644	4.657	0.750734	3.833	0.444222
157	1.300	-0.340646	0.718644	4.657	0.750734	9.867	1.378
158	0	-0.243192	0.656167	4.292	0.744803	2.244	0.230891

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
158	1.300	-0.243192	0.656167	4.292	0.744803	7.823	1.084
159	0	-0.153293	0.538540	3.100	0.643662	0.706076	0.002349
159	1.300	-0.153293	0.538540	3.100	0.643662	4.736	0.702451
160	0	-1.68E-12	-2.63E-13	3.41E-12	-7.26E-17	-2.32E-12	-5.16E-13
160	0.500	-1.68E-12	-2.63E-13	3.41E-12	-7.26E-17	-6.16E-13	-6.47E-13
	min:	-1.052	-0.964741	-14.244	-4.207	-32.746	-2.944
	max:	1.134	2.132	20.229	12.477	43.722	1.527

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SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.059326	-0.056961	0.888025			
10	0.059331	-0.065923	-0.448044			
158	0.126491	-0.057984	40.227			
160	0.126487	-0.065156	6.303			
166	-0.005295	-0.375660	-2.597	2.148	0.634102	-0.073680
167	-0.366341	0.621683	15.628	-2.239	-0.737014	-0.065050
Sums :	-2.44E-11	-1.63E-11	60.000			
min:	-0.366341	-0.375660	-2.597	-2.239	-0.737014	-0.073680
max:	0.126491	0.621683	40.227	2.148	0.634102	-0.065050

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
22	0	0.407944	-0.141896	1.257	-0.067321	-3.150	0.151417
22	1.300	0.407944	-0.141896	1.257	-0.067321	-1.515	0.166952
23	0	0.349055	-0.204178	1.762	-0.058909	-2.083	0.207632
23	1.300	0.349055	-0.204178	1.762	-0.058909	0.207413	-0.057559
24	0	0.294783	-0.255121	2.074	-0.076454	-0.482633	0.001670
24	1.300	0.294783	-0.255121	2.074	-0.076454	2.213	-0.329568
25	0	0.248424	-0.276262	2.185	-0.086956	1.364	-0.244137
25	1.300	0.248424	-0.276262	2.185	-0.086956	4.209	-0.601277
26	0	0.206219	-0.288850	2.263	-0.080788	3.341	-0.512721
26	1.300	0.206219	-0.288850	2.263	-0.080788	6.283	-0.888126
27	0	0.165467	-0.315521	2.454	-0.052411	5.591	-0.820693
27	1.300	0.165467	-0.315521	2.454	-0.052411	8.781	-1.231
28	0	0.125143	-0.441007	3.350	0.049571	8.605	-1.225
28	1.300	0.125143	-0.441007	3.350	0.049571	12.980	-1.809
29	0	0.063569	-0.858537	6.305	0.399557	14.907	-2.112
29	0.0499	0.063569	-0.858537	6.305	0.399557	15.222	-2.155
29	0.0501	0.063569	0.533194	-3.597	0.399557	15.222	-2.155
29	1.300	0.063569	0.533194	-2.597	0.399557	10.728	-1.488
30	0	0.036421	0.168092	-1.012	0.881404	16.536	-2.337
30	0.250	0.036421	0.168092	-1.012	0.881404	16.281	-2.298
30	0.250	0.036421	1.560	-10.915	0.881404	16.279	-2.298
30	1.300	0.036421	1.560	-10.915	0.881404	4.620	-0.657412
31	0	-0.014961	1.865	-12.593	1.351	15.554	-2.207
31	0.450	-0.014961	1.865	-12.593	1.351	9.708	-1.366
31	0.450	-0.014961	3.261	-22.896	1.351	9.704	-1.366
31	1.300	-0.014961	3.261	-22.896	1.351	-0.755	1.406
32	0	2.49E-13	2.46E-11	3.75E-12	-2.92E-16	-1.06E-12	-6.35E-12
32	0.500	2.49E-13	2.46E-11	3.75E-12	-2.92E-16	8.14E-13	3.52E-12
54	0	0.278019	0.084771	2.711	-0.481551	-7.613	-0.094758
54	1.300	0.278019	0.084771	2.711	-0.481551	-4.089	0.015444
55	0	0.239784	0.073328	3.510	-0.472629	-4.262	-0.076662
55	1.300	0.239784	0.073328	3.510	-0.472629	0.300295	0.016724
56	0	0.212062	0.062978	3.407	-0.617467	0.043293	-0.064224
56	1.300	0.212062	0.062978	3.407	-0.617467	4.473	0.017648
57	0	0.182360	0.058250	3.399	-0.675479	4.291	-0.057417
57	1.300	0.182360	0.058250	3.399	-0.675479	8.710	0.018303
58	0	0.150994	0.056243	3.587	-0.606696	8.606	-0.052563

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
58	1.300	0.150994	0.056243	3.587	-0.606696	13.269	0.020153
59	0	0.119339	0.055570	4.120	-0.313490	13.271	-0.049561
59	1.300	0.119339	0.055570	4.120	-0.313490	18.626	0.022660
60	0	0.087182	0.056054	4.627	0.626269	18.942	-0.047036
60	1.300	0.087182	0.056054	4.627	0.626269	24.957	0.025834
61	0	0.054023	0.059442	2.913	2.968	25.278	-0.046173
61	0.0499	0.054023	0.059442	2.913	2.968	25.423	-0.043209
61	0.0501	0.054023	0.059442	-1.217	2.968	25.424	-0.043153
61	1.300	0.054023	0.059442	-1.217	2.968	23.903	0.031101
62	0	0.020486	0.064843	-3.116	6.036	23.706	-0.045344
62	0.250	0.020486	0.064843	-3.116	6.036	22.926	-0.029141
62	0.250	0.020486	0.064843	-7.246	6.036	22.926	-0.029124
62	1.300	0.020486	0.064643	-7.246	6.036	15.319	0.038553
63	0	-0.002518	0.061418	-6.352	8.276	13.425	-0.036957
63	0.450	-0.002518	0.061418	-6.352	8.276	10.567	-0.009327
63	0.450	-0.002518	0.061418	-10.482	8.276	10.565	-0.009311
63	1.300	-0.002518	0.061418	-10.482	8.276	1.657	0.042887
64	0	-7.82E-13	9.33E-13	-9.61E-13	8.34E-16	4.85E-13	-2.30E-12
64	0.500	-7.82E-13	9.33E-13	-9.61E-13	8.34E-16	3.91E-15	-1.83E-12
86	0	-0.143874	0.113126	7.982	-1.583	-15.359	-0.134770
86	1.300	-0.143874	0.113126	7.982	-1.583	-4.982	0.012294
87	0	-0.079791	0.080599	5.102	-1.451	-5.673	-0.096094
87	1.300	-0.079791	0.080599	5.102	-1.451	0.960007	0.008665
88	0	-0.052404	0.084606	4.643	-1.417	0.602162	-0.096771
88	1.300	-0.052404	0.084606	4.643	-1.417	6.639	0.013218
89	0	-0.041141	0.087893	4.600	-1.297	6.529	-0.094124
89	1.300	-0.041141	0.087893	4.600	-1.297	12.509	0.020127
90	0	-0.036861	0.088468	4.537	-0.974517	12.564	-0.088828
90	1.300	-0.036861	0.088468	4.537	-0.974517	16.463	0.026181
91	0	-0.035127	0.088221	4.161	-0.186281	16.685	-0.062101
91	1.300	-0.035127	0.088221	4.161	-0.186281	24.094	0.031586
92	0	-0.033361	0.088746	3.341	1.548	24.366	-0.077949
92	1.300	-0.033361	0.088746	3.341	1.548	28.709	0.037421
93	0	-0.029126	0.091885	3.330	4.380	28.429	-0.073657
93	0.0499	-0.029126	0.091885	3.330	4.380	28.595	-0.069115
93	0.0501	-0.029126	0.091885	-2.540	4.380	28.595	-0.069091
93	1.300	-0.029126	0.091885	-2.540	4.380	25.420	0.045753

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
94	0	-0.020072	0.094451	-1.285	7.273	23.591	-0.066626
94	0.250	-0.020072	0.094451	-1.289	7.271	23.265	-0.043026
94	0.250	-0.020072	0.094451	-7.159	7.277	22.268	-0.043001
94	1.300	-0.020072	0.094451	-7.159	7.275	15.752	0.056160
95	0	-0.006242	0.074536	-2.251	8.398	11.771	-0.045544
95	0.450	-0.006242	0.074536	-2.251	8.398	10.759	-0.012013
95	0.450	-0.006242	0.074536	-8.121	8.398	10.758	-0.011995
95	1.300	-0.006242	0.074536	-8.121	8.398	3.856	0.051352
96	0	1.55E-14	1.35E-11	1.94E-13	-1.31E-14	8.62E-14	-1.67E-12
96	0.500	1.55E-14	1.35E-11	1.94E-13	-1.31E-14	1.83E-13	5.09E-12
118	0	-0.297004	0.008031	1.700	-0.755571	-6.227	-0.029052
118	1.300	-0.297004	0.008031	1.700	-0.755571	-4.017	-0.018612
119	0	-0.262596	0.037119	3.016	-0.990281	-3.762	-0.048622
119	1.300	-0.262596	0.037119	3.016	-0.990281	0.138719	-0.000368
120	0	-0.259164	0.047407	2.971	-0.885716	0.180852	-0.052882
120	1.300	-0.259164	0.047407	2.971	-0.885716	4.044	0.008747
121	0	-0.230761	0.052335	2.796	-0.712264	4.122	-0.053431
121	1.300	-0.230761	0.052335	2.796	-0.712264	7.756	0.014604
122	0	-0.200389	0.054357	2.514	-0.445641	7.895	-0.051874
122	1.300	-0.200389	0.054357	2.514	-0.445641	11.162	0.018750
123	0	-0.169481	0.054662	1.994	0.022766	11.324	-0.049123
123	1.300	-0.169481	0.054662	1.994	0.022766	13.917	0.021938
124	0	-0.137994	0.053975	1.060	0.785441	13.995	-0.045878
124	1.300	-0.137994	0.053975	1.060	0.785441	15.373	0.024230
125	0	-0.104570	0.052587	-0.666001	1.764	15.017	-0.042389
125	1.300	-0.104570	0.052587	-0.666001	1.764	14.151	0.025974
126	0	-0.068254	0.050111	-2.475	2.380	13.007	-0.036316
126	1.300	-0.068254	0.050111	-2.475	2.380	9.790	0.026625
127	0	-0.034843	0.038694	-4.058	2.354	7.659	-0.028782
127	1.300	-0.034843	0.038694	-4.058	2.354	2.381	0.021519
128	0	-8.05E-14	-5.35E-13	-2.36E-13	-6.82E-15	5.16E-14	6.56E-13
128	0.500	-8.05E-14	-5.35E-13	-2.36E-13	-6.82E-15	-6.61E-14	2.68E-13
150	0	-0.368224	-0.013698	-0.187710	-0.093445	-1.721	-0.305014
150	1.300	-0.368224	-0.013698	-0.187710	-0.093445	-1.965	-0.322621
151	0	-0.349592	0.028507	0.066596	-0.127315	-0.778654	-0.169270
151	1.300	-0.349592	0.028507	0.066596	-0.127315	-0.692079	-0.132211

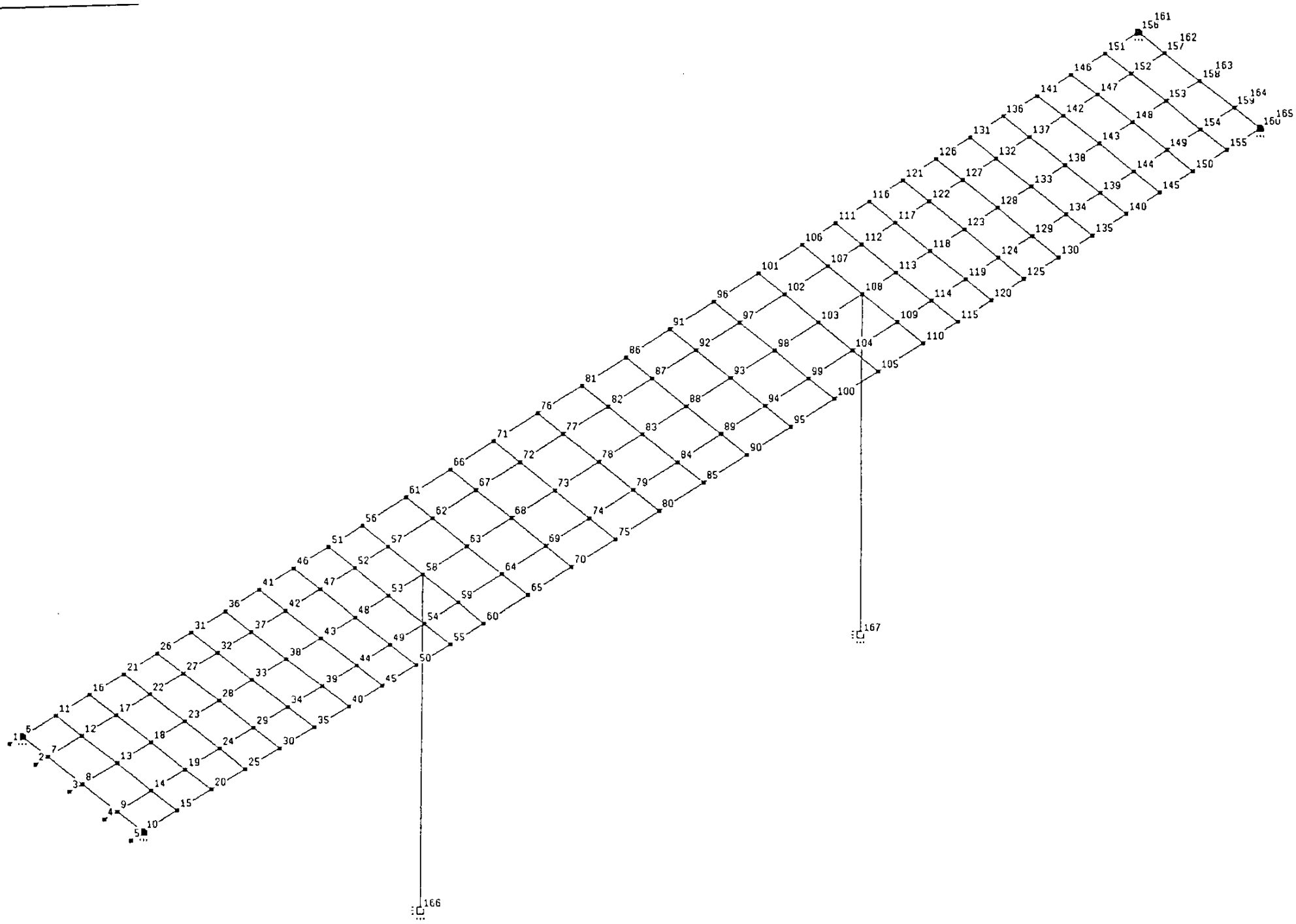
SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
152	0	-0.318417	0.071726	0.352297	-0.118634	0.562524	0.021610
152	1.300	-0.318417	0.071726	0.352297	-0.118634	1.021	0.114654
153	0	-0.282022	0.089460	0.464671	-0.093340	2.081	0.237365
153	1.300	-0.282022	0.089460	0.464671	-0.093340	2.685	0.353662
154	0	-0.243102	0.101582	0.542715	-0.055568	3.460	0.434455
154	1.300	-0.243102	0.101582	0.542715	-0.055568	4.166	0.566515
155	0	-0.203337	0.125521	0.710379	0.007606	4.476	0.581328
155	1.300	-0.203337	0.125521	0.710379	0.007606	5.399	0.744504
156	0	-0.164110	0.172385	1.049	0.105575	4.917	0.648387
156	1.300	-0.164110	0.172385	1.049	0.105575	6.281	0.872467
157	0	-0.127035	0.234467	1.512	0.216189	4.645	0.615841
157	1.300	-0.127035	0.234467	1.512	0.216189	6.611	0.920648
158	0	-0.093721	0.209195	1.360	0.268788	3.940	0.519954
158	1.300	-0.093721	0.209195	1.360	0.268788	5.707	0.791907
159	0	-0.064576	-0.067689	-0.739888	0.218566	2.901	0.370254
159	1.300	-0.064576	-0.067689	-0.739888	0.218566	1.939	0.282258
160	0	6.69E-14	-5.29E-12	2.62E-12	-1.08E-16	-1.03E-12	9.50E-13
160	0.500	6.69E-14	-5.29E-12	2.62E-12	-1.08E-16	2.79E-13	-1.69E-12
	min:	-0.368224	-0.858537	-22.896	-1.583	-15.358	-2.337
	max:	0.407944	3.261	7.962	8.398	28.705	1.406

2.3.3. Cálculo de las armaduras pasivas transversales. Método de Wood.

Scale 1 : 142.9
Structure - NUDOS

ARMADURAS



LOAD COMBINATION DY: 'COMB1'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
11	1.5000			VEHICULO HIPOTESIS 11
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION DZ: 'COMB2'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
12	1.5000			VEHICULO HIPOTESIS 12
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EA: 'COMB3'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
13	1.5000			VEHICULO HIPOTESIS 13
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EB: 'COMB4'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
14	1.5000			VEHICULO HIPOTESIS 14
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EC: 'COMB5'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
15	1.5000			VEHICULO HIPOTESIS 15
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION ED: 'COMB6'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
20	1.5000			VEHICULO HIPOTESIS 20
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EE: 'COMB7'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
21	1.5000			VEHICULO HIPOTESIS 21
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EF: 'COMB8'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
22	1.5000			VEHICULO HIPOTESIS 22
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EG: 'COMB9'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
23	1.5000			VEHICULO HIPOTESIS 23
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EH: 'COMB10'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
5	1.3500			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
24	1.5000			VEHICULO HIPOTESIS 24
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EI: 'COMB11'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
11	1.5000			VEHICULO HIPOTESIS 11
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EJ: 'COMB12'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
12	1.5000			VEHICULO HIPOTESIS 12
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOE
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EK: 'COMB13'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
12	1.5000			VEHICULO HIPOTESIS 12
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOB
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EL: 'COMB14'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
13	1.5000			VEHICULO HIPOTESIS 13
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOB
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EM: 'COMB15'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
14	1.5000			VEHICULO HIPOTESIS 14
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOB
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

LOAD COMBINATION EN: 'COMB16'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO
2	1.0000			PESO PAVIMENTO
3	1.0000			PESO BARRERAS
5	1.0000			RETRACCION
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
15	1.5000			VEHICULO HIPOTESIS 15
60	1.5000			FRENADO
63	0.45000			VIENTO TRANSV CON SOB
64	0.90000			TEMPERATURA (-)
66	0.90000			GRADIENTE

RESUMEN DE ARMADURAS DE WOOD-ARMER

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0 a 1.15	15.98	26.26	14.26	15.32
13	1.15 a 2.45	22.56	18.33	1.75	7.14
18	2.45 a 3.75	29.13	13.59	0.00	7.22
23	3.75 a 5.05	34.73	12.47	1.08	6.17
28	5.05 a 6.35	42.76	10.29	1.14	8.28
33	6.35 a 7.65	40.00	9.34	1.33	8.34
38	7.65 a 8.95	32.21	8.07	1.87	9.61
43	8.95 a 10.25	25.57	7.03	3.48	11.92
48	10.25 a 11.55	16.72	6.70	12.99	14.36
53	11.55 a 12.85	3.97	6.49	25.79	22.28

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	12.85 a 14.55	2.90	3.97	49.40	33.91
63	14.55 a 16.25	9.00	5.74	15.98	17.16
68	16.25 a 17.95	22.18	4.64	1.40	6.18
73	17.95 a 19.65	35.80	3.61	0.00	3.20
78	19.65 a 21.35	44.43	2.03	0.00	2.56
83	21.35 a 23.05	47.04	2.02	0.00	2.47
88	23.05 a 24.75	43.86	2.62	0.00	2.57
93	24.75 a 26.45	34.69	3.55	0.00	3.30
98	26.45 a 28.15	20.59	4.66	1.96	7.14
103	28.15 a 29.85	4.93	6.41	18.54	18.49

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	29.85 a 31.15	1.85	4.32	48.90	31.15
113	31.15 a 32.45	3.28	5.90	24.11	18.90
118	32.45 a 33.75	11.37	5.78	11.31	12.44
123	33.75 a 35.05	18.10	6.05	2.88	10.53
128	35.05 a 36.35	23.93	7.00	1.37	8.00
133	36.35 a 37.65	27.47	7.54	0.88	6.90
138	37.65 a 38.95	28.48	8.01	0.67	6.84
143	38.95 a 40.25	26.69	8.69	1.02	7.35
148	40.25 a 41.55	22.89	10.24	2.10	8.64
153	41.55 a 42.85	18.19	14.11	5.49	8.70
158	42.85 a 44	11.00	17.46	9.87	4.70

Armadura inferior longitudinal: $47.04 \frac{cm^2}{m} \times 3.70m = 174.05 cm^2$

Centro Vano $\phi 25/0.10 \rightarrow 18\phi 25 + 18\phi 25$ ($176.76 cm^2$)

Armadura inferior longitudinal base: $22.56 \frac{cm^2}{m} \times 3.60m = 83.50 cm^2$

$\phi 25/0.20 \rightarrow 18\phi 25$

Armadura sup. longitudinal apoyo: $49.40 cm^2/m$

En el nudo central: $\phi 20/0.20 + \phi 25/0.20 + 14\phi 20$

(4.70m)

Voladizos

Armadura sup. longitudinal base: $15.70 cm^2/m$

269,14.

2.3.4. Riostras sobre pilas y estribos

Plane (2-D) frame -analysis

****
STRUCTURAL - DATA
****

RIOSTRA ESTRIBOS

Project title :

JOINT DATA : (9 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	0.000000	0.000000	0.000000			
2	0.850000	0.000000	0.000000	B B	F	
3	1.850000	0.000000	0.000000			
4	2.850000	0.000000	0.000000			
5	3.850000	0.000000	0.000000			
6	4.850000	0.000000	0.000000			
7	5.850000	0.000000	0.000000			
8	6.850000	0.000000	0.000000	F B	F	
9	7.700000	0.000000	0.000000			

BAR DATA : (8 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	2	0.850000	RIOSTRAE			oS
2	2	3	1.000000	RIOSTRAE			oS
3	3	4	1.000000	RIOSTRAE			oS
4	4	5	1.000000	RIOSTRAE			oS
5	5	6	1.000000	RIOSTRAE			oS
6	6	7	1.000000	RIOSTRAE			oS
7	7	8	1.000000	RIOSTRAE			oS
8	8	9	0.850000	RIOSTRAE			oS

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / zl [M1]	Iy [M4] / zu [M1]	Fz [M2]
RIOSTRAE	6.7500E-01 / -0.4500	4.5562E-02 / 0.4500	5.6250E-01

CS-Name	Ax [M2] / zl [M1]	Iy [M4] / zu [M1]	Fz [M2]

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
1 .. 8	3.5500E+06	1.3000E+06

STS-Run ok

==========
Load case 1: carga permanente
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Force Z gl const.	-9.950		Stab	1	8 2
			..	7	

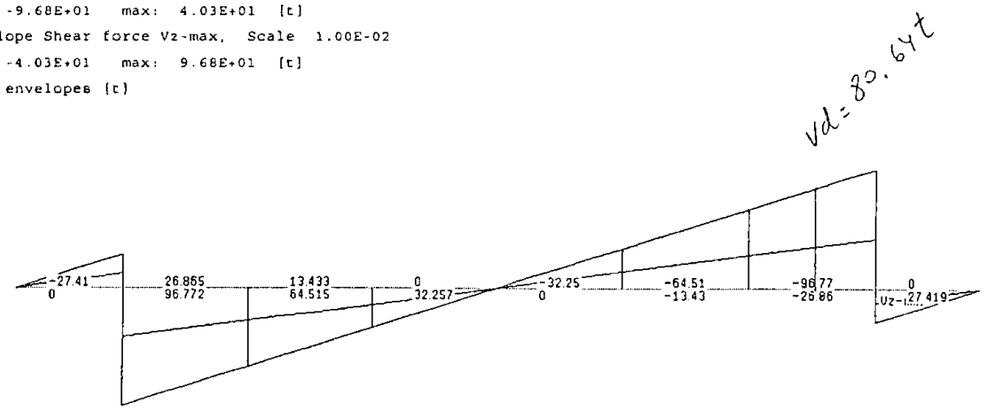
==========
Load case 2: Sobrecarga maxima
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Force Z gl const.	-12.550		Stab	1	8 2
			..	7	

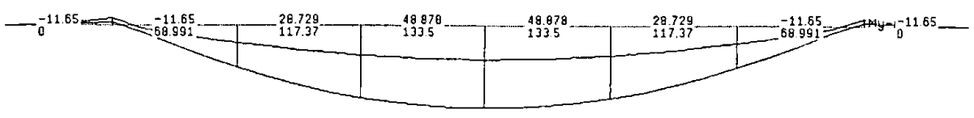
.NVELOPE SPECIFIC.: AB ''

roup	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		carga permanente
B	PLUS	2	1.500		Sobrecarga maxima

Scale 1 : 50.2
Int. Forces envelope Vz, GWSP AB, Subsys. "ALL"
- Structure: Elmnts.
Envelope Shear force Vz-min, Scale 1.00E-02
min: -9.68E+01 max: 4.03E+01 [t]
Envelope Shear force Vz-max, Scale 1.00E-02
min: -4.03E+01 max: 9.68E+01 [t]
- T(envelopes [t]



Scale 1 : 50.2
Int. Forces envelope My, GWSP AB, Subsys. "ALL"
- S(cture: Elmnts.
- Envelope Moment My-min, Scale 5.00E-03
min: -1.17E+01 max: 5.56E+01 [tm]
- Envelope Moment My-max, Scale 5.00E-03
min: -4.85E+00 max: 1.34E+02 [tm]
- Text envelopes [tm]



Características mecánicas Sección "RIOSTRAE" (sin coef. homogeneiz.)

Area	Ax = 6.750E3 cm2		
Momento de inercia	Iy = 4.556E6 cm4	Iz = 3.164E6 cm4	Ip = 7.720E6 cm4
Const. de torsión			Ix = 6.276E6 cm4
Momento estático	Zy =151.88E3 cm3	Zz = 126.56E3 cm3	
Baricentro	ys = 0.00 cm	zs = 45.00 cm	Angulo= 0.0 Grad
Dist. al borde	yl = -37.50 cm	yr = 37.50 cm	
	zo = 45.00 cm	zu = -45.00 cm	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRAE" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	6750.000	330.000	6.28E+06	1)

Puntos de contorno [cm]:
1 37.50 0.00 2 37.50 90.00 3 -37.50 90.00
4 -37.50 0.00

Armadura "B1" As-tot =2.00 cm2 (0.03 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-33.50	86.00
					33.50	86.00
BOTTOM / RQS	AEH500	10.0	2	1.00	-33.50	4.00
					33.50	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	75.00	82.00	0.00	86.00	0.00	4.00
SWY	Vy	90.00	67.00	-33.50	45.00	33.50	45.00
SWT	Torsion	75.00	90.00	0.00	0.00	0.00	90.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "RIOSTRAE"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	1335.00	0.00	

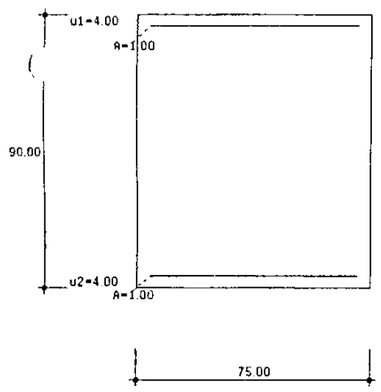
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

Armad. long. :	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
AEH500	-33.50	86.00	33.50	86.00	1.00	----	1.00
1 AEH500	-33.50	4.00	33.50	4.00	1.00	38.77	38.77

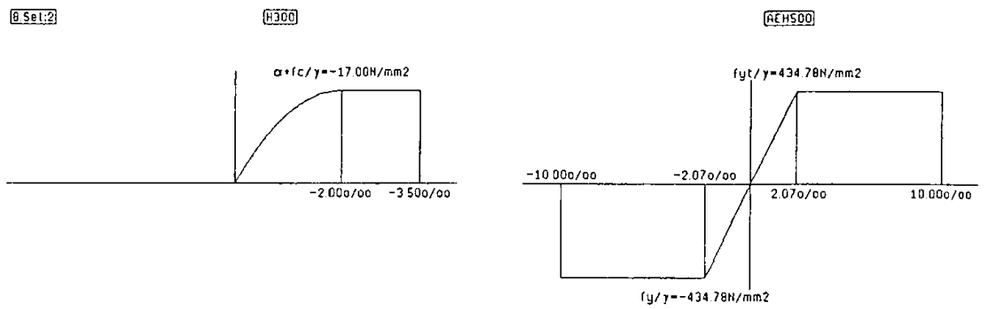
x.x/h = 0.20 As-top/bot = 1.00/38.77 As = 0.59 % = 39.77

←7ϕ32

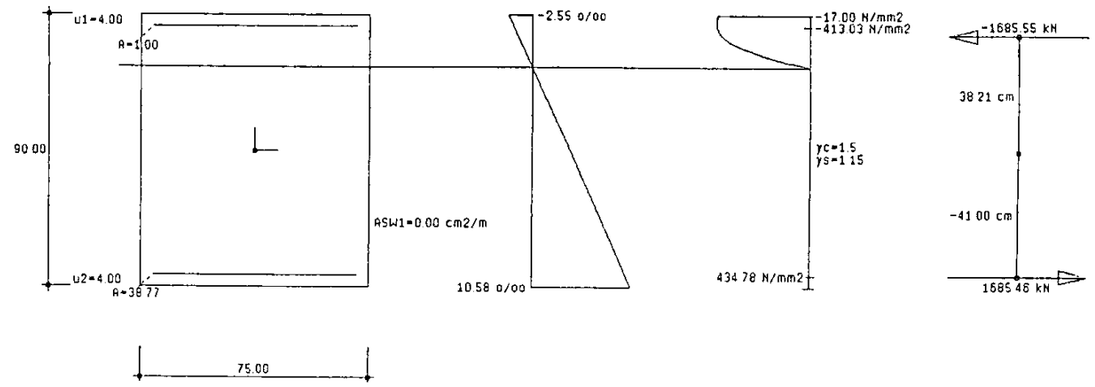
Sección RIOSTRAE



Material acorde a la sección: "RIOSTRAE"



Dimensionamiento, Sección "RIOSTRAE"



Características mecánicas Sección "RIOSTRAE" (sin coef. homogeneiz.)

Area Ax = 6.750E3 cm2
Momento de inercia Iy = 4.556E6 cm4 Iz = 3.164E6 cm4 Ip = 7.720E6 cm4
Const. de torsión Ix = 6.276E6 cm4
Momento estático Zy = 151.88E3 cm3 Zz = 126.56E3 cm3
Baricentro ys = 0.00 cm zs = 45.00 cm Angulo= 0.0 Grad
Dist. al borde yl = -37.50 cm yr = 37.50 cm
zo = 45.00 cm zu = -45.00 cm

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRAE" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	6750.000	330.000	6.28E+06	1)

Puntos de contorno [cm]:
1 37.50 0.00 2 37.50 90.00 3 -37.50 90.00
4 -37.50 0.00

Armadura "B1" As-tot =39.77 cm2 (0.59 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-33.50	86.00
					33.50	86.00
BOTTOM / RQS	AEH500	10.0	2	38.77	-33.50	4.00
					33.50	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	75.00	82.00	0.00	86.00	0.00	4.00
SWY	Vy	90.00	67.00	-33.50	45.00	33.50	45.00
SWT	Torsion	75.00	90.00	0.00	0.00	0.00	90.00

into de resultados:

omb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
SW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

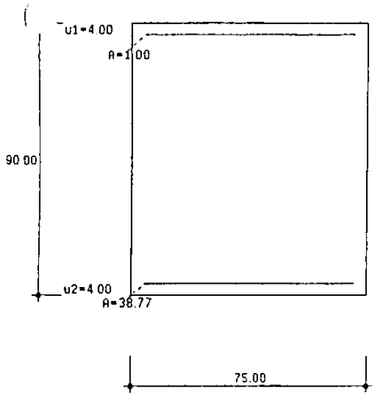
imensionamiento a flexión: Viga Sección "RIOSTRAE"/"B1"

o	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	-116.50	0.00	

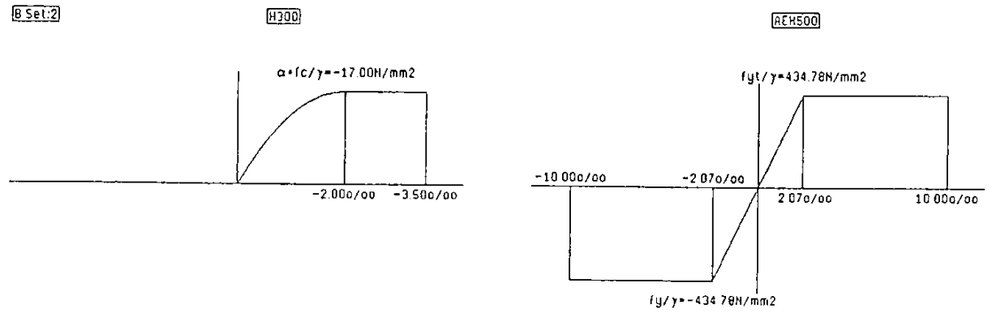
ara ros de cálculo empleados:
et:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
et 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

o	Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
1	AEH500	-33.50	86.00	33.50	86.00	1.00	3.17	3.17
	AEH500	-33.50	4.00	33.50	4.00	1.00	----	1.00
ax.x/h = 0.05		As-top/bot = 3.17/1.00			As = 0.06 % =			4.17

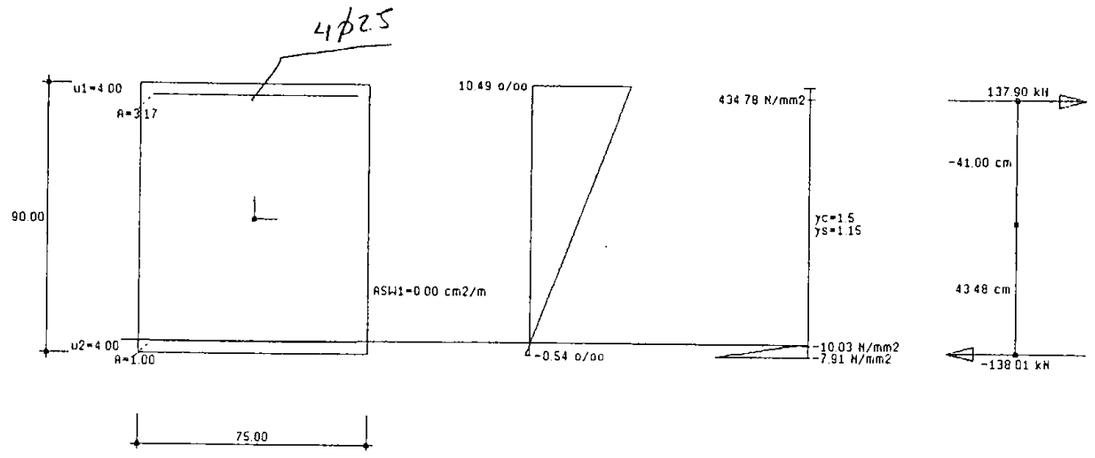
ección RIOSTRAE



Material acorde a la sección: "RIOSTRAE"



Dimensionamiento, Sección "RIOSTRAE"



CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título: Riotra de estribos
Fecha: 24/5/01 13.46.18

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 75 cm, alto 90 cm y canto 86 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 96 T
Cortante reducido a un canto útil del borde del apoyo = 80 T
Axil de cálculo (Tracciones positivas) = -50 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 56 cm2 lo que implica una cuantía geométrica igual a 0.00868
Inclinación de bielas de compresión 45°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 96 T < Vu1 = 387.00 T
Es necesario disponer armadura a cortante al ser Vrd = 80.00 T > Vu2 = 42.01 T
Valores de las tensiones: Eje X = -7.41 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 41.80°
Vcu = 29.30 T. Vsu= 50.70 T.
As cálculo = 16.38 cm2/m. As mínima = 7.50 cm2/m
Mínimo de armadura a disponer = 16.38 cm2/m

$$A_{st} = \frac{0.865\,m}{0.15\,m} \times 2 \times 2 \times 0.78\,cm^2 = 18\,cm^2$$

2 cercos ϕ 10 a 0.15 m

Plane (2-D) frame -analysis

****
STRUCTURAL - DATA
****

RIOSTRA PILAS

Project title :

J O I N T D A T A : (7 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	0.000000	0.000000	0.000000	B B	B	
2	0.391667	0.000000	0.000000			
3	0.783333	0.000000	0.000000			
4	1.175000	0.000000	0.000000			
5	1.566667	0.000000	0.000000			
6	1.958333	0.000000	0.000000			
7	2.350000	0.000000	0.000000			

B A R D A T A : (6 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	2	0.391667	RIOSPIL			oS
2	2	3	0.391667	RIOSPIL			oS
3	3	4	0.391667	RIOSPIL			oS
4	4	5	0.391667	RIOSPIL			oS
5	5	6	0.391667	RIOSPIL			oS
6	6	7	0.391667	RIOSPIL			oS

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / zl [M1]	Iy [M4] / zu [M1]	Fz [M2]
RIOSPIL	1.8000E+00	1.2150E-01	1.5000E+00
	-0.4500	0.4500	

CS-Name	Ax [M2] / zl [M1]	Iy [M4] / zu [M1]	Fz [M2]

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
1 .. 6	3.5500E+06	1.3000E+06

STS-Run ok

****
Load case 1: cargas permanentes
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-50.280		Stab 1 .. 6

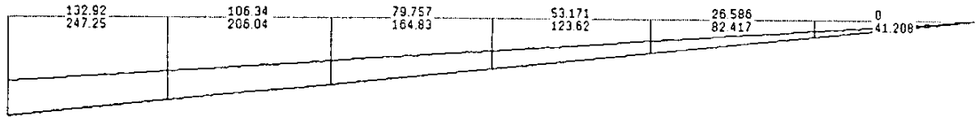
****
Load case 2: sobrecargas maximas
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-24.890		Stab 1 .. 6

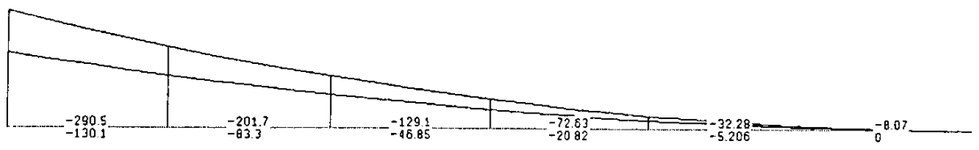
ENVELOPE SPECIFIC.: AA ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		cargas permanentes
B	PLUS	2	1.500		sobrecargas maximas

Scale 1 : 15.3
Int. Forces envelope Vz, GWSP AA, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 1.00E-03
  min: 2.66E-07 max: 1.60E+02 [t]
- Envelope Shear force Vz-max, Scale 1.00E-03
  (4.12E-07 max: 2.47E+02 [t]
- Text envelopes [t]



Scale 1 : 15.3
Int. Forces envelope My, GWSP AA, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 1.00E-03
  min: -2.91E+02 max: 2.65E-13 [tm]
- Envelope Moment My-max, Scale 1.00E-03
  [illegible]: -1.87E+02 max: 1.12E-12 [tm]
- [illegible]t envelopes [tm]



Características mecánicas Sección "RIOSPIL" (sin coef. homogeneiz.)

Area	Ax = 18.00E3 cm2		
Momento de inercia	Iy = 12.15E6 cm4	Iz = 60.00E6 cm4	Ip = 72.15E6 cm4
Const. de torsión			Ix = 34.87E6 cm4
Momento estático	Zy =405.00E3 cm3	Zz = 900.00E3 cm3	
Baricentro	ys = -0.00 cm	zs = 45.00 cm	Angulo= 0.0 Grad
Dist. al borde	yl = -100.00 cm	yr = 100.00 cm	
	zo = 45.00 cm	zu = -45.00 cm	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSPIL" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	18000.0	580.000	3.49E+07	1)

Puntos de contorno [cm]:
1 100.00 0.00 2 100.00 90.00 3 -100.00 90.00
4 -100.00 0.00

Armadura "B1" As-tot =2.00 cm2 (0.01 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-96.00	86.00
					96.00	86.00
BOTTOM / RQS	AEH500	10.0	2	1.00	-96.00	4.00
					96.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	200.00	82.00	0.00	86.00	0.00	4.00
SWY	Vy	90.00	192.00	-96.00	45.00	96.00	45.00
SWT	Torsion	200.00	90.00	0.00	0.00	0.00	90.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "RIOSPIL"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	-2905.00	0.00	

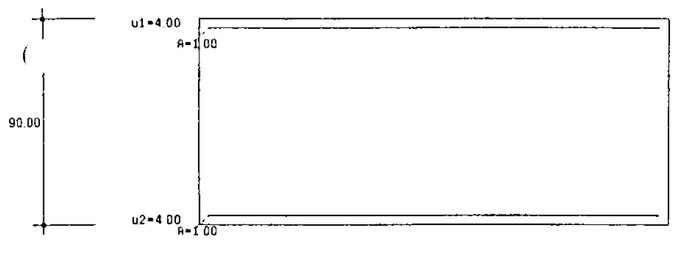
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
1 AEH500	-96.00	86.00	96.00	86.00	1.00	83.30	83.30
AEH500	-96.00	4.00	96.00	4.00	1.00	----	1.00

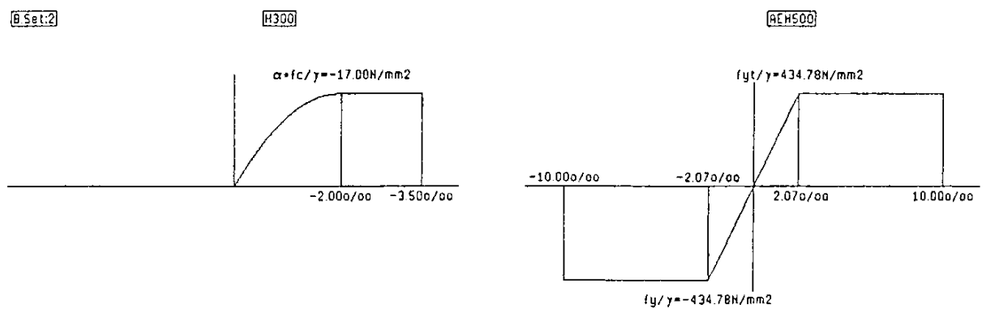
Max.x/h = 0.18 As-top/bot = 83.30/1.00 As = 0.47 % = 84.30

$(10\phi25 + 10\phi25) = 98.20\,cm^2$

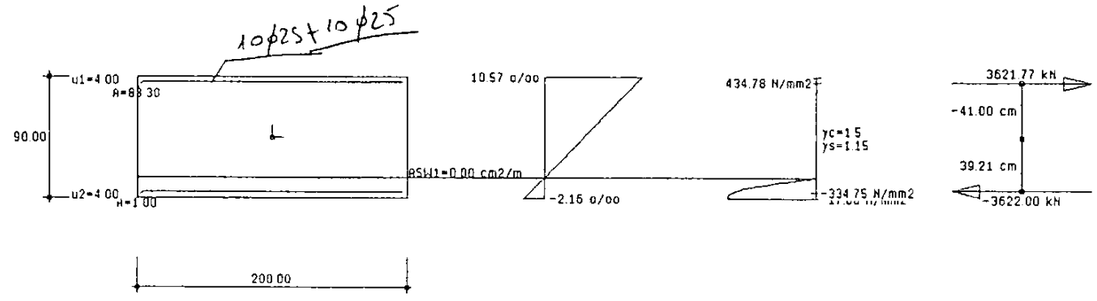
Sección RIOSPIL



Material acorde a la sección: "RIOSPIL"



Dimensionamiento, Sección "RIOSPIL"



CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título: Riotra de pilas
Fecha: 24/5/01 13.48.28

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 200 cm, alto 90 cm y canto 86 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 247 T
Cortante reducido a un canto útil del borde del apoyo = 247 T
Axil de cálculo (Tracciones positivas) = 0 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 98 cm2 lo que implica una cuantía geométrica igual a 0.00570
Inclinación de bielas de compresión 45°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 247 T < Vu1 = 1032.00 T
Es necesario disponer armadura a cortante al ser Vrd = 247.00 T > Vu2 = 80.42 T
Valores de las tensiones: Eje X = 0.00 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 45.00°
Vcu = 67.01 T. Vsu= 179.99 T.
As cálculo = 58.14 cm2/m. As mínima = 20.00 cm2/m
Mínimo de armadura a disponer = 58.14 cm2/m

$$A_{st} = \frac{0.865\,m}{0.10\,m} \cdot 4 \times 2 \times 1.13\,cm^2 = 78.19\,cm^2$$

4 c ϕ12 /0.10

2.3.5. Reacciones y cálculo de neoprenos en planta

PS 315+880

CARACTERÍSTICAS DE LOS NEOPRENOS

APOYOS	DIMENSIONES	δadm.	OBSERVACION
	mm	mm	
E-1	200 x 400 x 52 (37)	25.9	
E-2	200 x 400 x 52 (37)	25.9	

RESUMEN DE LOS DESPLAZAMIENTOS DE LOS APARATOS DE APOYO

APOYOS	DESPLAZAMIENTOS (mm)							
	Reológicos	Térmicos	Frenado	F. Centrif.	Viento (c/S.C.)	δ_{H1}	δ_{H2}	δadm.
	δ_R	δ_T	δ_F	δ_{FC}	$\delta_{V\,C/SC}$	mm	mm	mm
E-1	6.42	8.00	6.65	0.00	21.00	18.95	25.93	25.90
E-2	6.42	8.00	6.65	0.00	21.00	18.95	25.93	25.90

$\delta_{H1} = ((\delta_R + 0.6 \times \delta_T + \delta_F)^2 + (0{,}5 \times 0.6 \times \delta_{V\,C/SC})^2)^{0,5}$

$\delta_{H2} = ((\delta_R + 0.6 \times \delta_T + 0.6\ \delta_F)^2 + (\delta_{V\,C/SC})^2)^{0,5}$

RESUMEN DE LOS DESPLAZAMIENTOS DE LAS JUNTAS DE DILATACION

	DESPLAZAMIENTOS (mm)				
APOYOS	Reológicos	Térmicos	Frenado	δ_{MAX}	δ_{MIN}
	δ_R	δ_T	δ_F	mm	mm
E-1	6.42	8.00	6.65	21	15
E-2	6.42	8.00	6.65	21	15

J.D. ESTRIBOS DE 30 mm DE RECORRIDO, CON 15 mm DE APERTURA INICIAL

COMPROBACION DE TENSIONES DE LOS APARATOS DE APOYO

ESTRIBO 1 : APOYOS DE DIMENSIONES (mm) = 200 x 400 x 52 (37)

REACCION MAXIMA (t) : 100.9 σ_{max} (tm^{-2}) = 1261 < 1500 tm^{-2}

REACCION MINIMA (t): 16.00 σ_{min} (tm^{-2}) = 200 > 200 tm^{-2}

ESTRIBO 2 : APOYOS DE DIMENSIONES (mm) = 200 x 400 x 52 (37)

REACCION MAXIMA (t) : 101.12 σ_{max} (tm^{-2}) = 1264 < 1500 tm^{-2}

REACCION MINIMA (t): 16.00 σ_{min} (tm^{-2}) = 200 > 200 tm^{-2}

RESUMEN DE LAS FUERZAS HORIZONTALES

APOYOS	FUERZAS HORIZONTALES (t)					
	Reológicas	Térmicas	Frenado	Viento (s/S.C.)	Viento (c/S.C.)	Resultante
	F_R	F_T	F_F	$F_{V\ S/SC}$	$F_{V\ C/SC}$	F_{FT}
E-1	1.45	1.80	1.53	1.90	4.90	4.3
E-2	1.45	1.80	1.53	1.90	4.90	4.3

CALCULO DE LAS RIGIDECES PARA STATIK3

APOYOS	RIGIDECES HORIZONTALES (t/m)						
	ALTURA PILAR	I PILAR	E PILAR	F APOYO	T APOYO	K LONG	K TRANSV
E-1	4.00	0.7428	3000000.00	0.08	0.037	193.51	194.59
E-2	4.00	0.7428	3000000.00	0.08	0.037	193.51	194.59

RESUMEN DE LOS DESPLAZAMIENTOS TOTALES (APOYOS+PILARES)

APOYOS	DESPLAZAMIENTOS (mm)						
	Reológicos+Acort. Elas	Térmicos	Frenado	F. Centrif.	Viento (c/S.C.)	δ_{H1}	δ_{H2}
	δ_R	δ_T	δ_F	δ_{FC}	$\delta_{V\ C/SC}$	mm	mm
E-1	6.42	8.00	6.65	0.00	21.00	18.95	25.93
E-2	6.42	8.00	6.65	0.00	21.00	18.95	25.93

$\delta_{H1} = ((\delta_R + 0.6 \times \delta_T + \delta_F)^2 + (0{,}5 \times 0.6 \times \delta_{V\ C/SC})^2)^{0,5}$

$\delta_{H2} = ((\delta_R + 0.6 \times \delta_T + 0.6\ \delta_F)^2 + (\delta_{V\ C/SC})^2)^{0,5}$

ENVELOPE SPECIFIC.: CY 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
E	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	1.000		SOB UNIF 1
F	PLUS	7	1.000		SOB UNIF 2
G	PLUS	8	1.000		SOB UNIF 3
H	PLUS	9	1.000		SOB UNIF 4
I	PLUS	10	1.000		SOB UNIF 5
J	PLUS	11	1.000		VEHICULO HIPOTESIS 11
K	OR	12	1.000		VEHICULO HIPOTESIS 12
L	OR	13	1.000		VEHICULO HIPOTESIS 13
M	OR	14	1.000		VEHICULO HIPOTESIS 14
N	OR	15	1.000		VEHICULO HIPOTESIS 15
O	OR	16	1.000		VEHICULO HIPOTESIS 16
P	OR	17	1.000		VEHICULO HIPOTESIS 17
Q	OR	18	1.000		VEHICULO HIPOTESIS 18
R	OR	19	1.000		VEHICULO HIPOTESIS 19
S	OR	20	1.000		VEHICULO HIPOTESIS 20
T	OR	21	1.000		VEHICULO HIPOTESIS 21
U	OR	22	1.000		VEHICULO HIPOTESIS 22
V	OR	23	1.000		VEHICULO HIPOTESIS 23
W	OR	24	1.000		VEHICULO HIPOTESIS 24
X	OR	25	1.000		VEHICULO POSICION 25
Y	OR	26	1.000		VEHICULO POSICION 26
Z	OR	27	1.000		VEHICULO POSICION 27
AA	OR	28	1.000		VEHICULO POSICION 28
AB	OR	29	1.000		VEHICULO POSICION 29
AC	OR	30	1.000		VEHICULO POSICION 30
AD	OR	31	1.000		VEHICULO POSICION 31
AE	OR	32	1.000		VEHICULO POSICION 32
AF	OR	33	1.000		VEHICULO POSICION 33
AG	OR	34	1.000		VEHICULO POSICION 34
AH	OR	35	1.000		VEHICULO POSICION 35
AI	OR	36	1.000		VEHICULO POSICION 36
AJ	OR	37	1.000		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.000		FRENADO
AL	PLUS	63	0.300000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.600000		TEMPERATURA (-)
AN	OR	65	0.600000		TEMPERATURA (+)
AO	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000	PESO PROPIO
AQ	PL.PERM	2	1.500	PESO PAVIMENTO
AR	OR	2	1.000	PESO PAVIMENTO
AS	PL.PERM	3	1.000	PESO BARRERAS
AT	PL.PERM	5	1.000	RETRACCION
AU	PLUS	6	1.000	SOB UNIF 1
AV	PLUS	7	1.000	SOB UNIF 2
AW	PLUS	8	1.000	SOB UNIF 3
AX	PLUS	9	1.000	SOB UNIF 4

AY	PLUS	10	1.000	SOB UNIF 5
AZ	PLUS	11	1.000	VEHICULO HIPOTESIS 11
BA	OR	12	1.000	VEHICULO HIPOTESIS 12
BB	OR	13	1.000	VEHICULO HIPOTESIS 13
BC	OR	14	1.000	VEHICULO HIPOTESIS 14
BD	OR	15	1.000	VEHICULO HIPOTESIS 15
BE	OR	16	1.000	VEHICULO HIPOTESIS 16
BF	OR	17	1.000	VEHICULO HIPOTESIS 17
BG	OR	18	1.000	VEHICULO HIPOTESIS 18
BH	OR	19	1.000	VEHICULO HIPOTESIS 19
BI	OR	20	1.000	VEHICULO HIPOTESIS 20
BJ	OR	21	1.000	VEHICULO HIPOTESIS 21
BK	OR	22	1.000	VEHICULO HIPOTESIS 22
BL	OR	23	1.000	VEHICULO HIPOTESIS 23
BM	OR	24	1.000	VEHICULO HIPOTESIS 24
BN	OR	25	1.000	VEHICULO POSICION 25
BO	OR	26	1.000	VEHICULO POSICION 26
BP	OR	27	1.000	VEHICULO POSICION 27
BQ	OR	28	1.000	VEHICULO POSICION 28
BR	OR	29	1.000	VEHICULO POSICION 29
BS	OR	30	1.000	VEHICULO POSICION 30
BT	OR	31	1.000	VEHICULO POSICION 31
BU	OR	32	1.000	VEHICULO POSICION 32
BV	OR	33	1.000	VEHICULO POSICION 33
BW	OR	34	1.000	VEHICULO POSICION 34
BX	OR	35	1.000	VEHICULO POSICION 35
BY	OR	36	1.000	VEHICULO POSICION 36
BZ	OR	37	1.000	VEHICULO HIPOTESIS 37
CA	PLUS	60	1.000	FRENADO
CB	PLUS	63	0.300000	VIENTO TRANSV CON SOB
CC	PLUS	64	0.600000	TEMPERATURA (-)
CD	OR	65	0.600000	TEMPERATURA (+)
CE	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

CF	PERM.	1	1.000	PESO PROPIO
CG	PL.PERM	2	1.500	PESO PAVIMENTO
CH	OR	2	1.000	PESO PAVIMENTO
CI	PL.PERM	3	1.000	PESO BARRERAS
CJ	PLUS	46	1.000	SOB UNIF VANO 1
CK	PLUS	47	1.000	SOB UNIF VANO 2
CL	PLUS	48	1.000	SOB UNIF VANO 3
CM	PLUS	11	1.000	VEHICULO HIPOTESIS 11
CN	OR	12	1.000	VEHICULO HIPOTESIS 12
CO	OR	13	1.000	VEHICULO HIPOTESIS 13
CP	OR	14	1.000	VEHICULO HIPOTESIS 14
CQ	OR	15	1.000	VEHICULO HIPOTESIS 15
CR	OR	16	1.000	VEHICULO HIPOTESIS 16
CS	OR	17	1.000	VEHICULO HIPOTESIS 17
CT	OR	18	1.000	VEHICULO HIPOTESIS 18
CU	OR	19	1.000	VEHICULO HIPOTESIS 19
CV	OR	20	1.000	VEHICULO HIPOTESIS 20
CW	OR	21	1.000	VEHICULO HIPOTESIS 21
CX	OR	22	1.000	VEHICULO HIPOTESIS 22
CY	OR	23	1.000	VEHICULO HIPOTESIS 23
CZ	OR	24	1.000	VEHICULO HIPOTESIS 24

DA	OR	25	1.000	VEHICULO POSICION 25
DB	OR	26	1.000	VEHICULO POSICION 26
DC	OR	27	1.000	VEHICULO POSICION 27
DD	OR	28	1.000	VEHICULO POSICION 28
DE	OR	29	1.000	VEHICULO POSICION 29
DF	OR	30	1.000	VEHICULO POSICION 30
DG	OR	31	1.000	VEHICULO POSICION 31
DH	OR	32	1.000	VEHICULO POSICION 32
DI	OR	33	1.000	VEHICULO POSICION 33
DJ	OR	34	1.000	VEHICULO POSICION 34
DK	OR	35	1.000	VEHICULO POSICION 35
DL	OR	36	1.000	VEHICULO POSICION 36
DM	OR	37	1.000	VEHICULO HIPOTESIS 37
DN	PLUS	60	1.000	FRENADO
DO	PLUS	63	0.300000	VIENTO TRANSV CON SOB
DP	PLUS	64	0.600000	TEMPERATURA (-)
DQ	OR	65	0.600000	TEMPERATURA (+)
DR	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

DS	PERM.	1	1.000	PESO PROPIO
DT	PL.PERM	2	1.500	PESO PAVIMENTO
DU	OR	2	1.000	PESO PAVIMENTO
DV	PL.PERM	3	1.000	PESO BARRERAS
DW	PL.PERM	5	1.000	RETRACCION
DX	PLUS	46	1.000	SOB UNIF VANO 1
DY	PLUS	47	1.000	SOB UNIF VANO 2
DZ	PLUS	48	1.000	SOB UNIF VANO 3
EA	PLUS	11	1.000	VEHICULO HIPOTESIS 11
EB	OR	12	1.000	VEHICULO HIPOTESIS 12
EC	OR	13	1.000	VEHICULO HIPOTESIS 13
ED	OR	14	1.000	VEHICULO HIPOTESIS 14
EE	OR	15	1.000	VEHICULO HIPOTESIS 15
EF	OR	16	1.000	VEHICULO HIPOTESIS 16
EG	OR	17	1.000	VEHICULO HIPOTESIS 17
EH	OR	18	1.000	VEHICULO HIPOTESIS 18
EI	OR	19	1.000	VEHICULO HIPOTESIS 19
EJ	OR	20	1.000	VEHICULO HIPOTESIS 20
EK	OR	21	1.000	VEHICULO HIPOTESIS 21
EL	OR	22	1.000	VEHICULO HIPOTESIS 22
EM	OR	23	1.000	VEHICULO HIPOTESIS 23
EN	OR	24	1.000	VEHICULO HIPOTESIS 24
EO	OR	25	1.000	VEHICULO POSICION 25
EP	OR	26	1.000	VEHICULO POSICION 26
EQ	OR	27	1.000	VEHICULO POSICION 27
ER	OR	28	1.000	VEHICULO POSICION 28
ES	OR	29	1.000	VEHICULO POSICION 29
ET	OR	30	1.000	VEHICULO POSICION 30
EU	OR	31	1.000	VEHICULO POSICION 31
EV	OR	32	1.000	VEHICULO POSICION 32
EW	OR	33	1.000	VEHICULO POSICION 33
EX	OR	34	1.000	VEHICULO POSICION 34
EY	OR	35	1.000	VEHICULO POSICION 35
EZ	OR	36	1.000	VEHICULO POSICION 36
FA	OR	37	1.000	VEHICULO HIPOTESIS 37
FB	PLUS	60	1.000	FRENADO

FC	PLUS	63	0.300000	VIENTO TRANSV CON SOE
FD	PLUS	64	0.600000	TEMPERATURA (-)
FE	OF	65	0.600000	TEMPERATURA (+)
FF	PLUS	66	0.600000	GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.091	-3.683	20.036				
	1.761	1.141	100.469				
	Min: AP AR AS AT AX AY BU...			Max: A E D E F G J AL AN AO			
10	2.283	-3.686	16.626				
	-0.568555	1.138	97.227				
	Min: AP AR AS AT AU AV BC...			Max: A E D G H I AE AN AO			
156	-1.091	2.568	20.407				
	1.761	-2.257	100.840				
	Min: AP AR AS AT AX AY BW...			Max: A E D E F G R AK AL AN			
160	2.283	2.571	16.997				
	-2.254	-2.254	97.599				
	Min: AP AR AS AT AU AV BE ...			Max: A B D G H I AJ AK AN...			
166	3.374	-1.935	218.118	15.604	23.708	-0.028301	
	2.90E-10	-0.710816	352.379	11.174	2.13E-09	-3.88E-09	
	Min: CF CH CI CL DC DN DQ...			Max: DS DT DV DW DX DY EM...			
167	3.374	-1.829	219.077	9.951	23.708	0.028301	
	2.78E-10	-3.053	353.338	14.381	2.08E-09	3.63E-09	
	Min: CF CH CI CJ CW DO DQ...			Max: DS DT DV DW DY DZ EG...			

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.091	-3.683	26.641				
	2.283	1.009	60.789				
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F M AL AN			
10	-1.090	1.006	57.547				
	2.284	-3.686	23.231				
	Min: A C D H I AE AN			Max: AP AQ AS AT AU AV AW...			
156	-1.091	2.567	27.013				
	2.283	-2.125	61.160				
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F O AK AL AN			
160	-1.091	-2.122	57.919				
	2.284	2.570	23.603				
	Min: A C D H I AG AK AN			Max: AP AQ AS AT AU AV AW...			
166	-2.615	3.395	313.122	-17.884	-3.159	0.221212	
	5.989	-4.252	319.171	36.214	26.867	-0.249513	
	Min: A C D E F M AN			Max: AP AQ AS AT AW AX AY...			
167	-2.615	-7.158	314.081	43.438	-3.159	-0.221212	

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
	5.989	0.488287	320.130	-10.660	26.867	0.249513	
	Min: A C D E F O AK AN			Max: AP AQ AS AT AW AX AY...			

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-0.167731	-3.836	34.498				
	0.835704	1.280	53.022				
	Min: DS DT DV DW DY DZ EZ...			Max: CF CH CI CJ DF DO DQ...			
10	1.360	-3.839	31.088				
	0.356995	1.277	49.781				
	Min: DS DT DV DW DY DZ EH...			Max: CF CH CI CJ CN DO DR			
156	0.835745	-2.396	53.394				
	-0.167690	2.720	34.870				
	Min: CF CH CI CL DL DN DO...			Max: DS DT DV DW DX DY ET...			
160	0.356954	-2.393	50.152				
	1.360	2.723	31.460				
	Min: CF CH CI CL CT DN DQ...			Max: DS DT DV DW DX DY EB...			
166	3.374	-8.324	297.859	52.595	23.708	-0.028301	
	5.36E-09	6.034	296.749	-23.975	2.74E-08	-1.18E-08	
	Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DQ DF			
167	5.35E-09	-9.797	297.708	55.530	2.73E-08	1.16E-08	
	3.374	4.560	298.816	-27.044	23.708	0.028301	
	Min: CF CG CI CK CZ DN DQ...			Max: DS DU DV DW DX DZ EQ...			

DEFORMATIONS: **
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]	
2	0	-9.927	-4.388	-1.45E-05	-0.001116	0.000178	-1.26E-05	
		4.745	16.012	-2.36E-09	-0.000181	0.000186	2.63E-05	
		Min: A C D E F M AL AN			Max: AP AQ AS AT AW AX AY...			
2	1.300	-9.912	15.434	-1.030	-0.000782	-7.75E-05	-1.13E-05	
		4.718	-4.186	-0.728517	-0.000510	0.000188	1.76E-05	
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN			
31	0	-9.912	-10.583	-1.061	0.000805	-7.66E-05	1.14E-05	
		4.718	9.037	-0.759594	0.000534	0.000189	-1.75E-05	
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AK AN			
31	1.300	-9.927	9.239	-1.74E-08	0.001141	0.000180	1.29E-05	
		4.745	-11.161	-3.23E-09	0.000205	0.000188	-2.61E-05	
		Min: A C D E F O AK AL AN			Max: AP AQ AS AT AW AX AY...			

DEFORMATIONS: **
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]	
75	0	-9.759	-1.872	-1.330	-2.92E-05	-0.001310	-1.79E-05	
		4.522	10.104	-1.311	5.37E-06	0.001078	2.09E-05	
		Min: A E D E F G M AL AN AO			Max: AP AR AS AT AX AY BU...			
75	1.300	-9.735	-1.589	-1.627	-0.000500	-0.001410	-1.89E-05	
		4.495	9.441	-1.601	-0.000536	0.001150	2.17E-05	
		Min: A E D E F G M AL AN AO			Max: AP AR AS AT AX AY BU...			
76	0	-9.735	-1.589	-1.627	-0.000500	-0.001410	-1.89E-05	
		4.495	9.441	-1.601	-0.000536	0.001150	2.17E-05	
		Min: A E D E F G M AL AN AO			Max: AP AR AS AT AX AY BU...			
76	1.700	-9.702	8.576	-3.304	-0.001163	-0.001535	-2.04E-05	
		4.457	-1.219	-2.834	-0.000935	0.001276	2.28E-05	
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN			
85	0	-9.702	-3.725	-3.248	0.001143	-0.001535	2.04E-05	
		4.457	6.071	-2.779	0.000916	0.001276	-2.28E-05	
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AN AN			
85	1.700	-9.735	1.589	-1.627	0.000500	-0.001410	1.89E-05	
		4.495	0.261506	-1.611	0.000419	0.001150	-2.17E-05	
		Min: A B D E F G O AL AN AO			Max: AP AR AS AT AX AY BW...			
86	0	-9.735	1.589	-1.627	0.000500	-0.001410	1.89E-05	
		4.495	0.261506	-1.611	0.000419	0.001150	-2.17E-05	
		Min: A B D E F G O AL AN AO			Max: AP AR AS AT AX AY BW...			
86	1.300	-9.759	6.724	-1.391	-2.60E-06	-0.001310	1.79E-05	
		4.522	-5.252	-1.371	-3.72E-05	0.001078	-2.09E-05	
		Min: A E D E F G O AK AL AN			Max: AP AR AS AT AX AY BW...			
130	0	-9.931	16.026	-1.74E-09	-0.000134	-0.000184	-2.10E-05	
		4.741	-4.375	-1.39E-08	-0.001072	-0.000176	1.79E-05	
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN			
130	1.300	-9.911	-4.173	-0.659427	-0.000459	-0.000213	-1.24E-05	
		4.719	15.447	-0.965400	-0.000733	5.27E-05	1.65E-05	
		Min: A C D E F M AL AN			Max: AP AQ AS AT AW AX AY...			
159	0	-9.911	9.024	-0.690504	0.000482	-0.000214	1.23E-05	
		4.719	-10.596	-0.996477	0.000756	5.17E-05	-1.66E-05	
		Min: A C D E F O AK AL AN			Max: AP AQ AS AT AW AX AY...			
159	1.300	-9.931	-11.174	-2.41E-09	0.000158	-0.000186	2.07E-05	
		4.741	9.226	-1.66E-08	0.001096	-0.000178	-1.82E-05	
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AK AN			

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

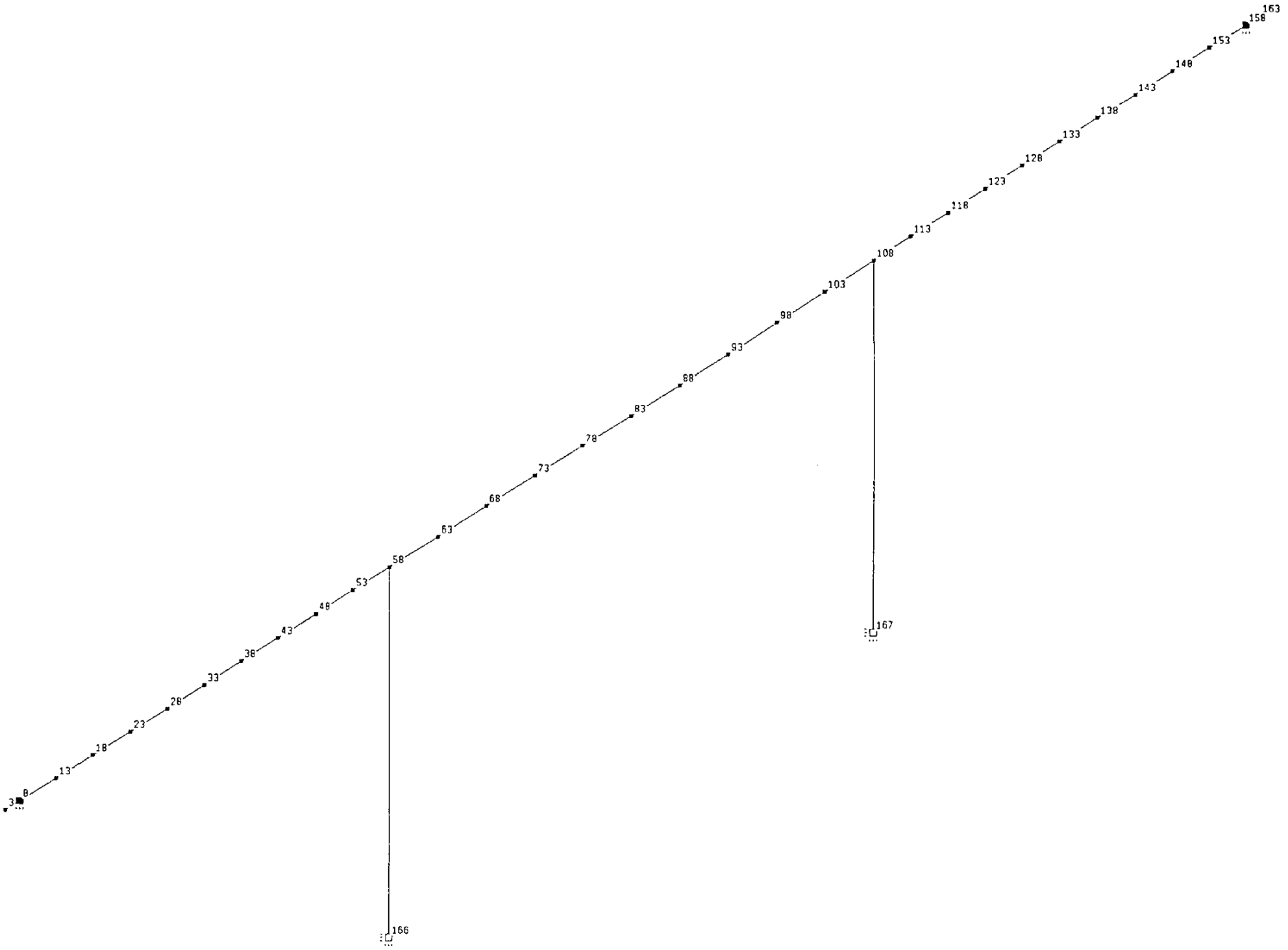
Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-3.633	-5.566	-1.43E-08	-0.001098	0.000283	2.93E-05
		0.729265	16.677	-9.22E-09	-0.000709	0.000154	-2.00E-05
		Min: CF CH CI CJ DF DO DQ...		Max: DS DT DV DW DY DZ EZ...			
2	1.300	-3.666	-5.281	-1.474	-0.001105	0.000194	2.26E-05
		0.755751	16.016	-0.908772	-0.000646	7.11E-05	-2.06E-05
		Min: CF CH CI CJ DF DO DQ...		Max: DS DT DV DW DY DZ EZ...			
31	0	0.755785	-11.165	-0.939849	0.000669	7.20E-05	2.07E-05
		-3.666	10.132	-1.505	0.001128	0.000195	-2.25E-05
		Min: DS DT DV DW DX DY ET...		Max: CF CH CI CL DL DN DQ...			
31	1.300	0.729085	-11.826	-1.07E-08	0.000733	0.000156	2.02E-05
		-3.634	10.417	-1.63E-08	0.001122	0.000285	-2.91E-05
		Min: DS DT DV DW DX DY ET...		Max: CF CH CI CL DL DN DQ...			
75	0	-5.237	-2.959	-2.341	0.000825	-0.000232	2.96E-06
		-1.03E-09	10.666	-0.931812	-8.42E-05	7.32E-13	7.37E-13
		Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...			
75	1.300	-5.241	-2.675	-1.530	0.000333	-0.000260	2.78E-06
		-2.09E-09	10.004	-1.297	-0.000548	6.59E-13	9.23E-13
		Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...			
76	0	-5.241	-2.675	-1.530	0.000333	-0.000260	2.78E-06
		-2.09E-09	10.004	-1.297	-0.000548	6.59E-13	9.23E-13
		Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...			
76	1.700	-5.245	-2.305	-1.599	-0.000298	-0.000260	2.44E-06
		-4.04E-09	9.138	-2.679	-0.000971	6.64E-13	1.02E-12
		Min: CF CH CI CJ CW DO DQ		Max: DS DT DV DW DY DZ EQ...			
85	0	-3.98E-09	-4.286	-2.623	0.000951	6.61E-13	-1.01E-12
		-5.245	7.157	-1.544	0.000279	-0.000260	-2.44E-06
		Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...			
85	1.700	-2.09E-09	-5.152	-1.302	0.000490	6.56E-13	-8.99E-13
		-5.241	7.527	-1.535	-0.000392	-0.000260	-2.78E-06
		Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...			
86	0	-2.09E-09	-5.152	-1.302	0.000490	6.56E-13	-8.99E-13
		-5.241	7.527	-1.535	-0.000392	-0.000260	-2.78E-06
		Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...			
86	1.300	-1.08E-09	-5.814	-0.992653	5.24E-05	7.30E-13	-7.10E-13
		-5.237	7.810	-2.402	-0.000856	-0.000232	-2.96E-06
		Min: DS DT DV DW DX DY EK...		Max: CF CH CI CL DC DN DQ...			
130	0	-1.552	-5.553	-1.37E-08	-0.001054	-0.000282	-2.40E-05
		-5.915	16.691	-8.59E-09	-0.000661	-0.000152	2.53E-05
		Min: CF CH CI CJ CN DQ DR		Max: DS DT DV DW DY DZ EH...			
130	1.300	-1.526	-5.268	-1.409	-0.001057	-0.000219	-1.74E-05
		-5.949	16.029	-0.839682	-0.000594	-9.58E-05	2.59E-05
		Min: CF CH CI CJ CN DQ DR		Max: DS DT DV DW DY DZ EH...			

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

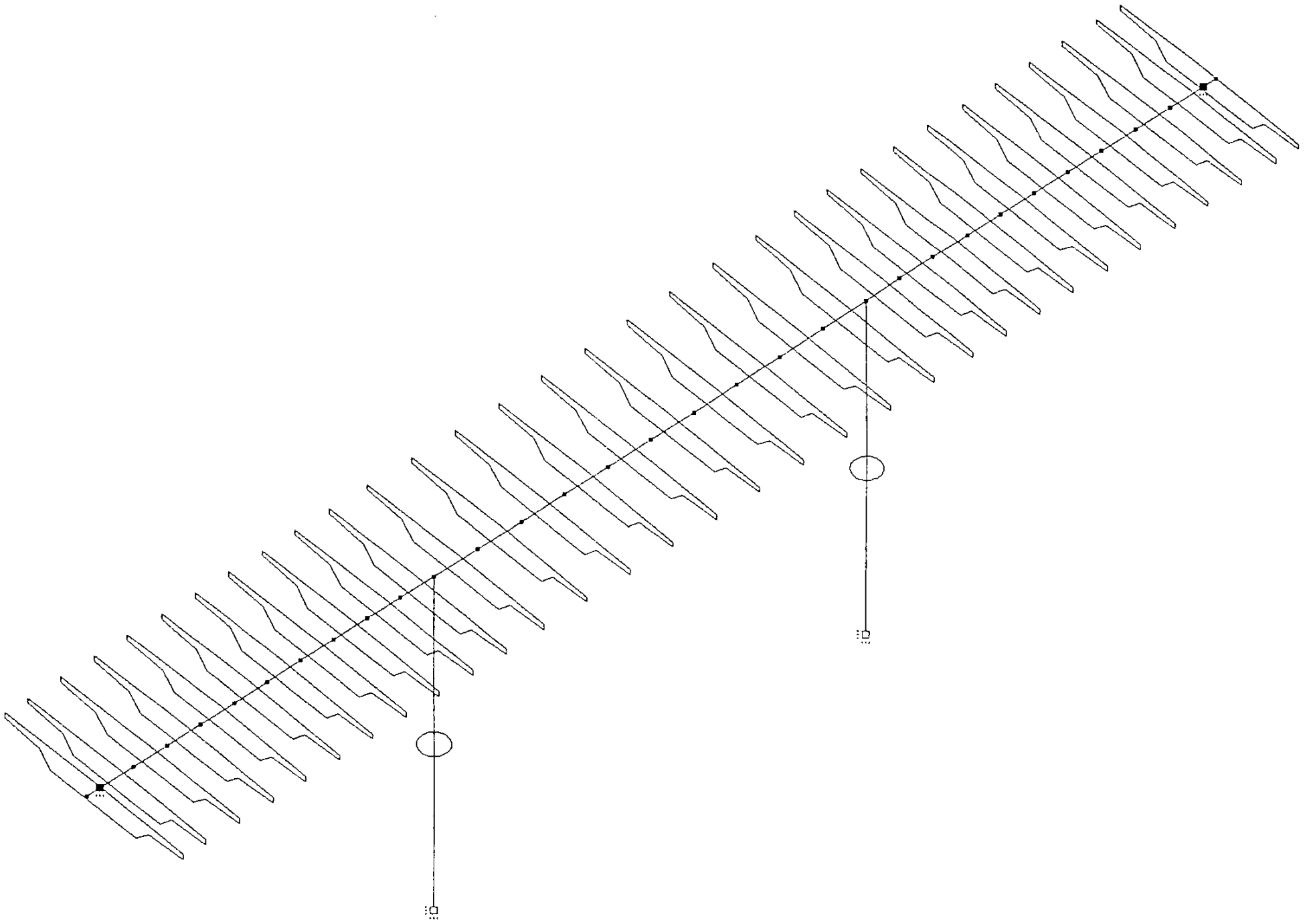
Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
159	0	-5.949	-11.178	-0.870759	0.000617	-9.68E-05	-2.60E-05
		-1.526	10.119	-1.440	0.001080	-0.000220	1.73E-05
		Min: DS DT DV DW DX DY EE...		Max: CF CH CI CL CT DN DQ...			
159	1.300	-5.915	-11.839	-9.85E-09	0.000685	-0.000154	-2.56E-05
		-1.552	10.404	-1.55E-08	0.001078	-0.000284	2.37E-05
		Min: DS DT DV DW DX DY EE...		Max: CF CH CI CL CT DN DQ...			

2.4. Comprobación Longitudinal del tablero

Scale 1 : 129.0
Structure - GEOMETRIA



Scale 1 : 147.9
Structure - SECCIONES



****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (35 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	2.62000	0.00000	0.00000			
8	2.62000	0.50000	0.00000	SSB	FFF	
13	2.62000	1.80000	0.00000			
18	2.62000	3.10000	0.00000			
23	2.62000	4.40000	0.00000			
28	2.62000	5.70000	0.00000			
33	2.62000	7.00000	0.00000			
38	2.62000	8.30000	0.00000			
43	2.62000	9.60000	0.00000			
48	2.62000	10.90000	0.00000			
53	2.62000	12.20000	0.00000			
58	2.62000	13.50000	0.00000			
63	2.62000	15.20000	0.00000			
68	2.62000	16.90000	0.00000			
73	2.62000	18.60000	0.00000			
78	2.62000	20.30000	0.00000			
83	2.62000	22.00000	0.00000			
88	2.62000	23.70000	0.00000			
93	2.62000	25.40000	0.00000			
98	2.62000	27.10000	0.00000			
103	2.62000	28.80000	0.00000			
108	2.62000	30.50000	0.00000			
113	2.62000	31.80000	0.00000			
118	2.62000	33.10000	0.00000			
123	2.62000	34.40000	0.00000			
128	2.62000	35.70000	0.00000			
133	2.62000	37.00000	0.00000			
138	2.62000	38.30000	0.00000			
143	2.62000	39.60000	0.00000			
148	2.62000	40.90000	0.00000			
153	2.62000	42.20000	0.00000			
158	2.62000	43.50000	0.00000	SSB	FFF	
163	2.62000	44.00000	0.00000			
166	2.62000	13.50000	-13.20000	BBE	BBE	
167	2.62000	30.50000	-13.20000	BBB	BBE	

ELASTICALLY SUPPORTED JOINTS: (*B*=Fixed *F*=Free)

Joint	V-X [T/M]	V-Y [T/M]	V-Z [T/M]	R-X [TM/ARC]	R-Y [TM/ARC]	R-Z [TM/ARC]
8	3.892E+02	3.892E+02	B	F	F	F
158	3.892E+02	3.892E+02	B	F	F	F

B A R D A T A : (34 bars)

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
65	3	8	0.50000	TABAPOYO			oS
66	8	13	1.30000	TABAPOYO			oS
67	13	18	1.30000	TABAPOYO			oS
68	18	23	1.30000	TABAPOYO			oS
69	23	28	1.30000	TABAPOYO			oS
70	28	33	1.30000	TABAPOYO			oS
71	33	38	1.30000	TABAPOYO			oS
72	38	43	1.30000	TABAPOYO			oS
73	43	48	1.30000	TABAPOYO			oS
74	48	53	1.30000	TABAPOYO			oS
75	53	58	1.30000	TABAPOYO			oS
76	58	63	1.70000	TABAPOYO			oS
77	63	68	1.70000	TABAPOYO			oS
78	68	73	1.70000	TABAPOYO			oS
79	73	78	1.70000	TABAPOYO			oS
80	78	83	1.70000	TABAPOYO			oS
81	83	88	1.70000	TABAPOYO			oS
82	88	93	1.70000	TABAPOYO			oS
83	93	98	1.70000	TABAPOYO			oS
84	98	103	1.70000	TABAPOYO			oS
85	103	108	1.70000	TABAPOYO			oS
86	108	113	1.30000	TABAPOYO			oS
87	113	118	1.30000	TABAPOYO			oS
88	118	123	1.30000	TABAPOYO			oS
89	123	128	1.30000	TABAPOYO			oS
90	128	133	1.30000	TABAPOYO			oS
91	133	138	1.30000	TABAPOYO			oS
92	138	143	1.30000	TABAPOYO			oS
93	143	148	1.30000	TABAPOYO			oS
94	148	153	1.30000	TABAPOYO			oS
95	153	156	1.30000	TABAPOYO			oS
96	158	167	0.50000	TABAPOYO			oS
290*	166	58	13.20000	PILAS			oS
291*	167	108	13.20000	PILAS			oS

Bars marked with '*' are vertical (except any excentricities).
The corresponding special definition for the default orientation
of the local coordinate system applies.

oS = Bars without shear deformation

CROSS SECTION VALUES: CS-Name	Ax [M2] Ix [M4] zi [M]	Iy [M4] Fy [M2] zu [M]	Iz [M4] Fz [M2] yl [M]	Phi [Degr] yr [M]
PILAS	7.8576E-01	4.9180E-02	4.9086E-02	0.00
	9.8175E-02	7.8576E-01	7.8576E-01	
	-0.5000	0.5000	-0.5000	0.5000
TABAPOYO	4.6531E+00	2.8617E-01	1.3718E+01	0.00
	5.0835E-01	4.6531E+00	4.6531E+00	
	-0.4986	0.4014	-3.8500	3.8500

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
65 .. 291	3.2900E-06	1.3700E-06

STS-Run ok

==========
Load case 1: PESO PROPIO
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Mas.force2 gl const.	-2.500		Stab 65 .. 96

==========
Load case 2: PESO PAVIMENTO
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.512000		Stab 65 .. 96

==========
Load case 3: PESO BARRERAS
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-2.046		Stab 65 .. 96

==========
Load case 5: RETRACCION
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	-0.000292		Stab 65 .. 96

==========
Load case 6: SOB UNIF 1
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-3.200		Stab 65 .. 75

==========
Load case 7: SOBRECARGA UNIF 2
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-3.200		Stab 76 .. 85

==========
Load case 8: SOB UNIF 3
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-3.200		Stab 86 .. 96

==========
Load case 9: SOB UNIF EXC
==========

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-1.600		Stab 65
Moment	X	lo const.	-3.080		Stab 65
Force	Z	gl const.	-1.600		Stab 66
Moment	X	lo const.	-3.080		Stab 66
Force	Z	gl const.	-1.600		Stab 67
Moment	X	lo const.	-3.080		Stab 67
Force	Z	gl const.	-1.600		Stab 68
Moment	X	lo const.	-3.080		Stab 68
Force	Z	gl const.	-1.600		Stab 69
Moment	X	lo const.	-3.080		Stab 69
Force	Z	gl const.	-1.600		Stab 70
Moment	X	lo const.	-3.080		Stab 70
Force	Z	gl const.	-1.600		Stab 71
Moment	X	lo const.	-3.080		Stab 71
Force	Z	gl const.	-1.600		Stab 72
Moment	X	lo const.	-3.080		Stab 72
Force	Z	gl const.	-1.600		Stab 73
Moment	X	lo const.	-3.080		Stab 73
Force	Z	gl const.	-1.600		Stab 74
Moment	X	lo const.	-3.080		Stab 74
Force	Z	gl const.	-1.600		Stab 75
Moment	X	lo const.	-3.080		Stab 75
Force	Z	gl const.	-1.600		Stab 76
Moment	X	lo const.	-3.080		Stab 76
Force	Z	gl const.	-1.600		Stab 77
Moment	X	lo const.	-3.080		Stab 77
Force	Z	gl const.	-1.600		Stab 78
Moment	X	lo const.	-3.080		Stab 78
Force	Z	gl const.	-1.600		Stab 79
Moment	X	lo const.	-3.080		Stab 79
Force	Z	gl const.	-1.600		Stab 80
Moment	X	lo const.	-3.080		Stab 80
Force	Z	gl const.	-1.600		Stab 81
Moment	X	lo const.	-3.080		Stab 81
Force	Z	gl const.	-1.600		Stab 82
Moment	X	lo const.	-3.080		Stab 82
Force	Z	gl const.	-1.600		Stab 83
Moment	X	lo const.	-3.080		Stab 83
Force	Z	gl const.	-1.600		Stab 84
Moment	X	lo const.	-3.080		Stab 84
Force	Z	gl const.	-1.600		Stab 85
Moment	X	lo const.	-3.080		Stab 85
Force	Z	gl const.	-1.600		Stab 86
Moment	X	lo const.	-3.080		Stab 86
Force	Z	gl const.	-1.600		Stab 87
Moment	X	lo const.	-3.080		Stab 87
Force	Z	gl const.	-1.600		Stab 88
Moment	X	lo const.	-3.080		Stab 88
Force	Z	gl const.	-1.600		Stab 89

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Moment	X	lo const.	-3.080		Stab 89
Force	Z	gl const.	-1.600		Stab 90
Moment	X	lo const.	-3.080		Stab 90
Force	Z	gl const.	-1.600		Stab 91
Moment	X	lo const.	-3.080		Stab 91
Force	Z	gl const.	-1.600		Stab 92
Moment	X	lo const.	-3.080		Stab 92
Force	Z	gl const.	-1.600		Stab 93
Moment	X	lo const.	-3.080		Stab 93
Force	Z	gl const.	-1.600		Stab 94
Moment	X	lo const.	-3.080		Stab 94
Force	Z	gl const.	-1.600		Stab 95
Moment	X	lo const.	-3.080		Stab 95
Force	Z	gl const.	-1.600		Stab 96
Moment	X	lo const.	-3.080		Stab 96

Load case 10: SOB UNIF EXC

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Moment	X	lo const.	3.080		Stab 65
Force	Z	lo const.	-1.600		Stab 65
Moment	X	lo const.	3.080		Stab 66
Force	Z	lo const.	-1.600		Stab 66
Moment	X	lo const.	3.080		Stab 67
Force	Z	lo const.	-1.600		Stab 67
Moment	X	lo const.	3.080		Stab 68
Force	Z	lo const.	-1.600		Stab 68
Moment	X	lo const.	3.080		Stab 69
Force	Z	lo const.	-1.600		Stab 69
Moment	X	lo const.	3.080		Stab 70
Force	Z	lo const.	-1.600		Stab 70
Moment	X	lo const.	3.080		Stab 71
Force	Z	lo const.	-1.600		Stab 71
Moment	X	lo const.	3.080		Stab 72
Force	Z	lo const.	-1.600		Stab 72
Moment	X	lo const.	3.080		Stab 73
Force	Z	lo const.	-1.600		Stab 73
Moment	X	lo const.	3.080		Stab 74
Force	Z	lo const.	-1.600		Stab 74
Moment	X	lo const.	3.080		Stab 75
Force	Z	lo const.	-1.600		Stab 75
Moment	X	lo const.	3.080		Stab 76
Force	Z	lo const.	-1.600		Stab 76
Moment	X	lo const.	3.080		Stab 77

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	lo const.	-1.600		Stab 77
Moment	X	lo const.	3.080		Stab 78
Force	Z	lo const.	-1.600		Stab 78
Moment	X	lo const.	3.080		Stab 79
Force	Z	lo const.	-1.600		Stab 79
Moment	X	lo const.	3.080		Stab 80
Force	Z	lo const.	-1.600		Stab 80
Moment	X	lo const.	3.080		Stab 81
Force	Z	lo const.	-1.600		Stab 81
Moment	X	lo const.	3.080		Stab 82
Force	Z	lo const.	-1.600		Stab 82
Moment	X	lo const.	3.080		Stab 83
Force	Z	lo const.	-1.600		Stab 83
Moment	X	lo const.	3.080		Stab 84
Force	Z	lo const.	-1.600		Stab 84
Moment	X	lo const.	3.080		Stab 85
Force	Z	lo const.	-1.600		Stab 85
Moment	X	lo const.	3.080		Stab 86
Force	Z	lo const.	-1.600		Stab 86
Moment	X	lo const.	3.080		Stab 87
Force	Z	lo const.	-1.600		Stab 87
Moment	X	lo const.	3.080		Stab 88
Force	Z	lo const.	-1.600		Stab 88
Moment	X	lo const.	3.080		Stab 89
Force	Z	lo const.	-1.600		Stab 89
Moment	X	lo const.	3.080		Stab 90
Force	Z	lo const.	-1.600		Stab 90
Moment	X	lo const.	3.080		Stab 91
Force	Z	lo const.	-1.600		Stab 91
Moment	X	lo const.	3.080		Stab 92
Force	Z	lo const.	-1.600		Stab 92
Moment	X	lo const.	3.080		Stab 93
Force	Z	lo const.	-1.600		Stab 93
Moment	X	lo const.	3.080		Stab 94
Force	Z	lo const.	-1.600		Stab 94
Moment	X	lo const.	3.080		Stab 95
Force	Z	lo const.	-1.600		Stab 95
Moment	X	lo const.	3.080		Stab 96
Force	Z	lo const.	-1.600		Stab 96

Load case 11: VEHICULO HIPOTESIS 11

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.850000	Stab 66
Moment	X	lo conc.	-30.000	0.850000	Stab 66
Force	Z	gl conc.	-20.000	1.050	Stab 67
Moment	X	lo conc.	-30.000	1.050	Stab 67
Force	Z	gl conc.	-20.000	1.250	Stab 68
Moment	X	lo conc.	-30.000	1.250	Stab 68

Load case 12: VEHICULO HIPOTESIS 12

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.100	Stab 69
Force	Z	gl conc.	-20.000	1.300	Stab 70
Force	Z	gl conc.	-20.000	0.200000	Stab 72
Moment	X	lo conc.	-30.000	1.100	Stab 69
Moment	X	lo conc.	-30.000	1.300	Stab 70
Moment	X	lo conc.	-30.000	0.200000	Stab 72

Load case 13: VEHICULO HIPOTESIS 13

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.050000	Stab 73
Force	Z	gl conc.	-20.000	0.250000	Stab 74
Force	Z	gl conc.	-20.000	0.450000	Stab 75
Moment	X	lo conc.	-30.000	0.050000	Stab 73
Moment	X	lo conc.	-30.000	0.250000	Stab 74
Moment	X	lo conc.	-30.000	0.450000	Stab 75

Load case 14: VEHICULO HIPOTESIS 14

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.850000	Stab 76
Force	Z	gl conc.	-20.000	0.650000	Stab 77
Force	Z	gl conc.	-20.000	0.450000	Stab 78
Moment	X	lo conc.	-30.000	0.850000	Stab 76
Moment	X	lo conc.	-30.000	0.650000	Stab 77
Moment	X	lo conc.	-30.000	0.450000	Stab 78

Load case 15: VEHICULO HIPOTESIS 15

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.200000	Stab 80
Force	Z	gl conc.	-20.000	0	Stab 81
Force	Z	gl conc.	-20.000	1.500	Stab 81
Moment	X	lo conc.	-30.000	0.200000	Stab 80
Moment	X	lo conc.	-30.000	0	Stab 81
Moment	X	lo conc.	-30.000	1.500	Stab 81

Load case 16: VEHICULO HIPOTESIS 16

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.250	Stab 83
Force	Z	gl conc.	-20.000	1.050	Stab 84
Force	Z	gl conc.	-20.000	0.850000	Stab 85
Moment	X	lo conc.	-30.000	1.250	Stab 83
Moment	X	lo conc.	-30.000	1.050	Stab 84
Moment	X	lo conc.	-30.000	0.850000	Stab 85

Load case 17: VEHICULO HIPOTESIS 17

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.850000	Stab 86
Force	Z	gl conc.	-20.000	1.050	Stab 87
Force	Z	gl conc.	-20.000	1.250	Stab 88
Moment	X	lo conc.	-30.000	0.850000	Stab 86
Moment	X	lo conc.	-30.000	1.050	Stab 87
Moment	X	lo conc.	-30.000	1.250	Stab 88

Load case 18: VEHICULO HIPOTESIS 18

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.100	Stab 89
Force	Z	gl conc.	-20.000	1.300	Stab 90
Force	Z	gl conc.	-20.000	0.200000	Stab 92
Moment	X	lo conc.	-30.000	1.100	Stab 89
Moment	X	lo conc.	-30.000	1.300	Stab 90
Moment	X	lo conc.	-30.000	0.200000	Stab 92

Load case 19: VEHICULO HIPOTESIS 19

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.050000	Stab 93
Force	Z	gl conc.	-20.000	0.250000	Stab 94
Force	Z	gl conc.	-20.000	0.450000	Stab 95
Moment	X	lo conc.	-30.000	0.050000	Stab 93
Moment	X	lo conc.	-30.000	0.250000	Stab 94
Moment	X	lo conc.	-30.000	0.450000	Stab 95

Load case 20: VEHICULO HIPOTESIS 20

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.850000	Stab 66
Force	Z	gl conc.	-20.000	1.050	Stab 67
Force	Z	gl conc.	-20.000	1.250	Stab 68

Load case 21: VEHICULO HIPOTESIS 21

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.100	Stab 69
Force	Z	gl conc.	-20.000	1.300	Stab 70
Force	Z	gl conc.	-20.000	0.200000	Stab 72

Load case 22: VEHICULO HIPOTESIS 22

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.050000	Stab 73
Force	Z	gl conc.	-20.000	0.250000	Stab 74
Force	Z	gl conc.	-20.000	0.450000	Stab 75

Load case 23: VEHICULO HIPOTESIS 23

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	76
Force	Z	gl conc.	-20.000	0.650000	Stab	77
Force	Z	gl conc.	-20.000	0.450000	Stab	78

Load case 24: VEHICULO HIPOTESIS 24

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.200000	Stab	80
Force	Z	gl conc.	-20.000	0	Stab	81
Force	Z	gl conc.	-20.000	1.500	Stab	81

Load case 25: VEHICULO POSICION 25

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.250	Stab	83
Force	Z	gl conc.	-20.000	1.050	Stab	84
Force	Z	gl conc.	-20.000	0.850000	Stab	85

Load case 26: VEHICULO POSICION 26

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	86
Force	Z	gl conc.	-20.000	1.050	Stab	87
Force	Z	gl conc.	-20.000	1.250	Stab	88

Load case 27: VEHICULO POSICION 27

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.100	Stab	89
Force	Z	gl conc.	-20.000	1.300	Stab	90
Force	Z	gl conc.	-20.000	0.200000	Stab	92

Load case 28: VEHICULO POSICION 28

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.050000	Stab	93
Force	Z	gl conc.	-20.000	0.250000	Stab	94
Force	Z	gl conc.	-20.000	0.450000	Stab	95

Load case 29: VEHICULO POSICION 29

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	66
Force	Z	gl conc.	-20.000	1.050	Stab	67
Force	Z	gl conc.	-20.000	1.250	Stab	68
Moment	X	lo conc.	30.000	0.850000	Stab	66
Moment	X	lo conc.	30.000	1.050	Stab	67
Moment	X	lo conc.	30.000	1.250	Stab	68

Load case 30: VEHICULO POSICION 30

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.100	Stab	69
Force	Z	gl conc.	-20.000	1.300	Stab	70
Force	Z	gl conc.	-20.000	0.200000	Stab	72
Moment	X	lo conc.	30.000	1.100	Stab	69
Moment	X	lo conc.	30.000	1.300	Stab	70
Moment	X	lo conc.	30.000	0.200000	Stab	72

Load case 31: VEHICULO POSICION 31

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.050000	Stab	73
Force	Z	gl conc.	-20.000	0.250000	Stab	74
Force	Z	gl conc.	-20.000	0.450000	Stab	75
Moment	X	lo conc.	30.000	0.050000	Stab	73
Moment	X	lo conc.	30.000	0.250000	Stab	74
Moment	X	lo conc.	30.000	0.450000	Stab	75

Load case 32: VEHICULO POSICION 32

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	76
Force	Z	gl conc.	-20.000	0.650000	Stab	77
Force	Z	gl conc.	-20.000	0.450000	Stab	78
Moment	X	lo conc.	30.000	0.850000	Stab	76
Moment	X	lo conc.	30.000	0.650000	Stab	77
Moment	X	lo conc.	30.000	0.450000	Stab	78

Load case 33: VEHICULO POSICION 33

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.200000	Stab	80
Force	Z	gl conc.	-20.000	0	Stab	81
Force	Z	gl conc.	-20.000	1.500	Stab	81
Moment	X	lo conc.	30.000	0.200000	Stab	80
Moment	X	lo conc.	30.000	0	Stab	81
Moment	X	lo conc.	30.000	1.500	Stab	81

Load case 34: VEHICULO POSICION 34

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.250	Stab	83
Force	Z	gl conc.	-20.000	1.050	Stab	84
Force	Z	gl conc.	-20.000	0.850000	Stab	85
Moment	X	lo conc.	30.000	1.250	Stab	83
Moment	X	lo conc.	30.000	1.050	Stab	84
Moment	X	lo conc.	30.000	0.850000	Stab	85

Load case 35: VEHICULO POSICION 35

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.850000	Stab	86
Force	Z	gl conc.	-20.000	1.050	Stab	87
Force	Z	gl conc.	-20.000	1.250	Stab	88
Moment	X	lo conc.	30.000	0.850000	Stab	86
Moment	X	lo conc.	30.000	1.050	Stab	87
Moment	X	lo conc.	30.000	1.250	Stab	88

Load case 36: VEHICULO POSICION 36

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	1.100	Stab	89
Force	Z	gl conc.	-20.000	1.300	Stab	90
Force	Z	gl conc.	-20.000	0.200000	Stab	92
Moment	X	lo conc.	30.000	1.100	Stab	89
Moment	X	lo conc.	30.000	1.300	Stab	90
Moment	X	lo conc.	30.000	0.200000	Stab	92

Load case 37: VEHICULO HIPOTESIS 37

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-20.000	0.050000	Stab	93
Force	Z	gl conc.	-20.000	0.250000	Stab	94
Force	Z	gl conc.	-20.000	0.450000	Stab	95
Moment	X	lo conc.	30.000	0.050000	Stab	93
Moment	X	lo conc.	30.000	0.250000	Stab	94
Moment	X	lo conc.	30.000	0.450000	Stab	95

Load case 60: FRENADO

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	lo const.	0.272700		Stab	65 .. 96

Load case 62: VIENTO TRANSV SIN SOB.

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl const.	-0.260000		Stab	65 .. 96
Force	X	pj const.	-0.200000		Stab	290 .. 291

Load case 63: VIENTO TRANSV CON SOB

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	gl const.	-0.760000		Stab	65 .. 96
Force	X	pj const.	-0.200000		Stab	290 .. 291

Load case 64: TEMPERATURA (-)

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	-0.000363		Stab 65 .. 96

Load case 65: TEMPERATURA (+)

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	0.000363		Stab 65 .. 96

Load case 66: GRADIENTE

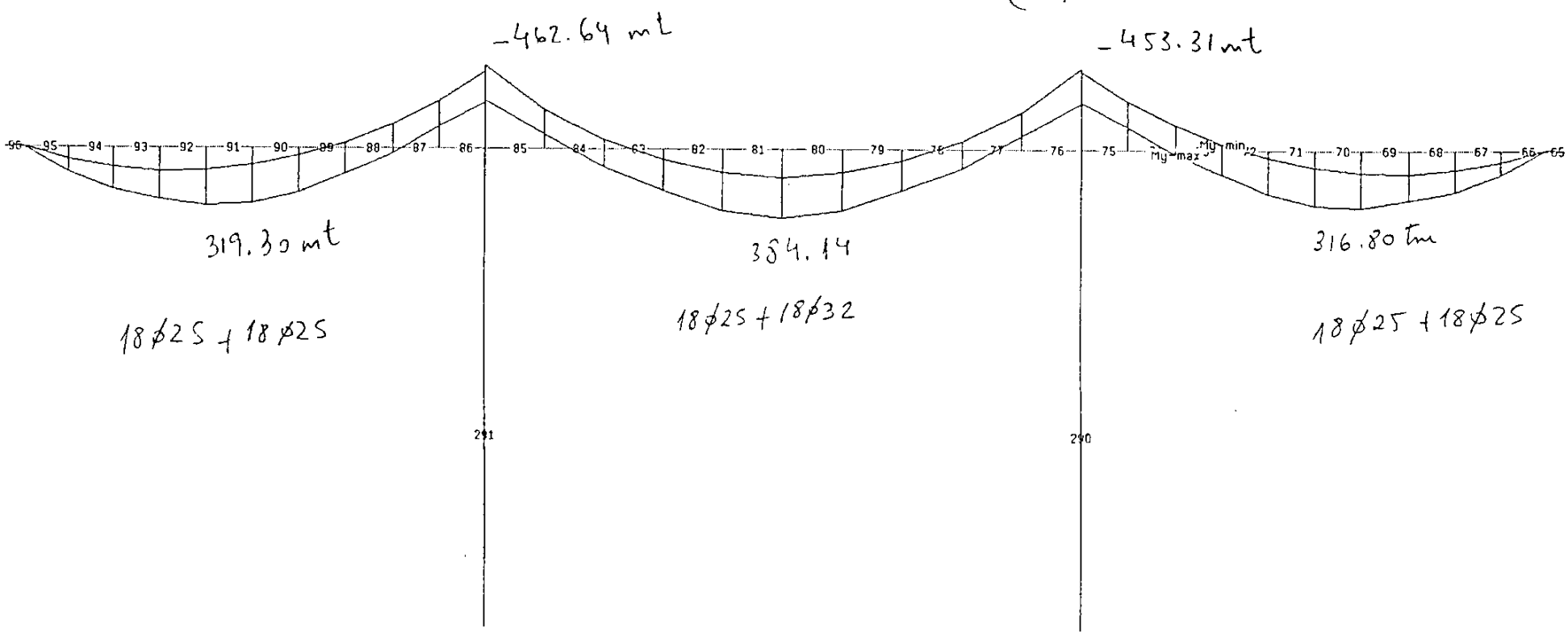
Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Curvat. Y lo const.	0.000170		Stab 65 .. 96

S T

2.4.1.1. Comprobación de estados límitesfisuración

Scale 1 : 173.7
Int. Forces envelope My, GWSP EO (COMBINACION FRECUENTE), Subsys. "LIST"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 5.00E-03
  min: -4.63E+02 max: 1.60E+02 [tm]
- Envelope Moment My-max, Scale 5.00E-03
  min: -2.67E+02 max: 3.84E+02 [tm]

(23φ25 + 14φ20 + φ20/20 × 7.60m)



ENVELOPE SPECIFIC.: EQ 'COMBINACION FRECUENTE'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OP	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	0.600000		SOB UNIF 1
F	PLUS	7	0.600000		SOBRECARGA UNIF 2
G	PLUS	8	0.600000		SOB UNIF 3
H	PLUS	11	0.840000		VEHICULO HIPOTESIS 11
I	OR	12	0.840000		VEHICULO HIPOTESIS 12
J	OR	13	0.840000		VEHICULO HIPOTESIS 13
K	OR	14	0.840000		VEHICULO HIPOTESIS 14
L	OR	15	0.840000		VEHICULO HIPOTESIS 15
M	OR	16	0.840000		VEHICULO HIPOTESIS 16
N	OR	17	0.840000		VEHICULO HIPOTESIS 17
O	OR	18	0.840000		VEHICULO HIPOTESIS 18
P	OR	19	0.840000		VEHICULO HIPOTESIS 19
Q	OR	20	0.840000		VEHICULO HIPOTESIS 20
R	OR	21	0.840000		VEHICULO HIPOTESIS 21
S	OR	22	0.840000		VEHICULO HIPOTESIS 22
T	OR	23	0.840000		VEHICULO HIPOTESIS 23
U	OR	24	0.840000		VEHICULO HIPOTESIS 24
V	OR	25	0.840000		VEHICULO POSICION 25
W	OR	26	0.840000		VEHICULO POSICION 26
X	OR	27	0.840000		VEHICULO POSICION 27
Y	OR	28	0.840000		VEHICULO POSICION 28
Z	OR	29	0.840000		VEHICULO POSICION 29
AA	OR	30	0.840000		VEHICULO POSICION 30
AB	OR	31	0.840000		VEHICULO POSICION 31
AC	OR	32	0.840000		VEHICULO POSICION 32
AD	OR	33	0.840000		VEHICULO POSICION 33
AE	OR	34	0.840000		VEHICULO POSICION 34
AF	OR	35	0.840000		VEHICULO POSICION 35
AG	OR	36	0.840000		VEHICULO POSICION 36
AH	OR	37	0.840000		VEHICULO HIPOTESIS 37
AI	PLUS	60	0.600000		FRENADO
AJ	PLUS	63	0.100000		VIENTO TRANSV CON SOB
AK	PLUS	64	0.200000		TEMPERATURA (-)
AL	OR	65	0.200000		TEMPERATURA (+)
AM	PLUS	66	0.200000		GRADIENTE
	ALTERNATIVE ENVELOPE :				
AN	PERM.	1	1.000		PESO PROPIO
AO	PL.PERM	2	1.500		PESO PAVIMENTO
AP	OR	2	1.000		PESO PAVIMENTO
AQ	PL.PERM	3	1.000		PESO BARRERAS
AR	PLUS	9	0.600000		SOB UNIF EXC
AS	PLUS	10	0.600000		SOB UNIF EXC
AT	PLUS	11	0.840000		VEHICULO HIPOTESIS 11
AU	OR	12	0.840000		VEHICULO HIPOTESIS 12
AV	OR	13	0.840000		VEHICULO HIPOTESIS 13
AW	OR	14	0.840000		VEHICULO HIPOTESIS 14
AX	OR	15	0.840000		VEHICULO HIPOTESIS 15

AY	OR	16	0.840000		VEHICULO HIPOTESIS 16
AZ	OR	17	0.840000		VEHICULO HIPOTESIS 17
BA	OR	18	0.840000		VEHICULO HIPOTESIS 18
BB	OR	19	0.840000		VEHICULO HIPOTESIS 19
BC	OR	20	0.840000		VEHICULO HIPOTESIS 20
BD	OR	21	0.840000		VEHICULO HIPOTESIS 21
BE	OR	22	0.840000		VEHICULO HIPOTESIS 22
BF	OR	23	0.840000		VEHICULO HIPOTESIS 23
BG	OR	24	0.840000		VEHICULO HIPOTESIS 24
BH	OR	25	0.840000		VEHICULO POSICION 25
BI	OR	26	0.840000		VEHICULO POSICION 26
BJ	OR	27	0.840000		VEHICULO POSICION 27
BK	OR	28	0.840000		VEHICULO POSICION 28
BL	OR	29	0.840000		VEHICULO POSICION 29
BM	OR	30	0.840000		VEHICULO POSICION 30
BN	OR	31	0.840000		VEHICULO POSICION 31
BO	OR	32	0.840000		VEHICULO POSICION 32
BP	OR	33	0.840000		VEHICULO POSICION 33
BQ	OR	34	0.840000		VEHICULO POSICION 34
BR	OR	35	0.840000		VEHICULO POSICION 35
BS	OR	36	0.840000		VEHICULO POSICION 36
BT	OR	37	0.840000		VEHICULO HIPOTESIS 37
BU	PLUS	60	0.600000		FRENADO
BV	PLUS	63	0.100000		VIENTO TRANSV CON SOB
BW	PLUS	64	0.200000		TEMPERATURA (-)
BX	OR	65	0.200000		TEMPERATURA (+)
BY	PLUS	66	0.200000		GRADIENTE

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	-8.17E-10	-9.94E-11	-7.25E-08	9.92E-14	-8.29E-13	5.30E-10
		9.01E-13	3.47E-09	-8.08E-08	-1.90E-13	-2.20E-13	-5.00E-10
	Min:	A B D F L AI AK AM		Max:	A C D E G I AL		
65	0.500	-0.081810	3.43E-09	-8.213	1.77E-13	-2.053	1.22E-09
		1.08E-12	3.47E-09	-7.115	-1.90E-13	-1.779	1.23E-09
	Min:	AN AO AQ AR AS AT BU...		Max:	A C D G I AK		
66	0	1.669	-2.767	73.437	3.48E-14	-2.053	-3.80E-08
		-0.630755	-3.255	110.846	-2.65E-14	-1.779	-4.43E-08
	Min:	A E D E F L AI AK		Max:	A C D G H AL AM		
66	1.300	1.501	-2.767	42.637	3.48E-14	65.674	-3.597
		-0.695688	-3.255	84.993	25.200	136.597	-4.231
	Min:	A C D F L AI AK		Max:	A E D E G H AL AM		
67	0	1.501	-2.767	42.637	3.48E-14	65.674	-3.597
		-0.695688	-3.255	84.993	25.200	136.597	-4.231
	Min:	A C D F L AI AK		Max:	A E D E G H AL AM		
67	1.300	1.289	-2.767	24.137	3.48E-14	109.077	-7.194

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-0.695688	-3.255	46.838	50.400	229.007	-8.463
	Min:	A C D F L AI AK		Max:	A E D E G H AL AM		
68	0	1.289	-2.767	24.137	3.48E-14	109.077	-7.194
		-0.695688	-3.255	46.838	50.400	229.007	-8.463
	Min:	A C D F L AI AK		Max:	A E D E G H AL AM		
68	1.300	1.076	-2.767	5.637	3.48E-14	128.430	-10.791
		-0.795944	-3.255	40.609	4.05E-14	281.248	-12.654
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
69	0	1.076	-2.767	5.637	2.35E-13	128.430	-10.791
		-0.795944	-3.255	40.609	3.18E-13	281.248	-12.654
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
69	1.300	0.863157	-2.767	-12.863	2.35E-13	123.733	-14.388
		-0.795944	-3.255	2.455	25.200	316.800	-16.925
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
70	0	0.863157	-2.767	-12.863	2.40E-13	123.733	-14.388
		-0.795944	-3.255	2.455	25.200	316.800	-16.925
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
70	1.300	0.650451	-2.767	-31.363	2.40E-13	94.986	-17.585
		-0.795944	-3.255	-18.900	25.200	306.110	-21.156
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
71	0	0.650451	-2.767	-31.363	3.23E-14	94.986	-17.985
		-0.795944	-3.255	-35.700	50.400	306.110	-21.156
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
71	1.300	0.437745	-2.767	-49.862	3.23E-14	42.190	-21.583
		-0.795944	-3.255	-57.054	50.400	245.820	-25.388
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
72	0	0.437745	-2.767	-49.862	-2.20E-13	42.190	-21.583
		-0.795944	-3.255	-57.054	50.400	245.820	-25.388
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
72	1.300	0.225035	-2.767	-68.362	-2.20E-13	-34.656	-25.180
		-0.795944	-3.255	-95.209	75.600	139.289	-29.619
	Min:	A C D F L AI AK		Max:	A E D E G I AL AM		
73	0	0.225035	-2.767	-68.362	-3.62E-13	-34.656	-25.180
		-0.795944	-3.255	-95.209	75.600	139.289	-29.619
	Min:	A C D F L AI AK		Max:	A B D E G I AL AM		
73	1.300	0.012337	-2.767	-88.407	-3.62E-13	-136.729	-28.777
		-0.740640	-3.255	-95.929	25.200	27.468	-33.850
	Min:	A E D F L AI AK		Max:	A C D E G J AL AM		
74	0	0.012337	-2.767	-88.407	-6.23E-13	-136.729	-28.777
		-0.740640	-3.255	-95.929	25.200	27.468	-33.850
	Min:	A E D F L AI AK		Max:	A C D E G J AL AM		
74	1.300	-0.265306	-2.767	-118.754	-6.23E-13	-267.158	-32.374
		-0.675703	-3.255	-122.236	50.400	-125.284	-38.081

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
	Min:	A B D E F L AI AK		Max:	A C D G J AL AM		
75	0	-0.265306	-2.767	-118.754	-7.73E-13	-267.158	-32.374
		-0.675703	-3.255	-122.236	50.400	-125.284	-38.081
	Min:	A B D E F L AI AK		Max:	A C D G J AL AM		
75	1.300	-0.478012	-2.767	-140.109	-7.73E-13	-435.419	-35.971
		-0.354707	-2.279	-112.540	-6.13E-13	-262.317	-29.625
	Min:	A B D E F L AI AK		Max:	A C D G O AL AM		
76	0	-4.027	1.15E-09	166.074	-37.800	-453.307	-35.902
		2.447	-0.816198	114.873	-25.394	-257.553	-28.964
	Min:	A B D E F L AL		Max:	A C D G O AI AK AM		
76	1.700	-1.588	0.816198	116.690	25.394	-206.732	-41.452
		0.560163	0.590543	122.326	-21.576	-74.093	-39.918
	Min:	A B D E F I AL		Max:	A C D G K AI AK AM		
77	0	-1.588	0.816198	116.690	25.394	-206.732	-41.452
		0.560163	0.590543	122.326	-21.576	-74.093	-39.918
	Min:	A B D E F I AL		Max:	A C D G K AI AK AM		
77	1.700	-0.865035	0.816198	77.565	25.394	-44.387	-40.065
		-0.440823	0.590543	92.533	3.624	107.950	-38.914
	Min:	A C D E I AL		Max:	A B D F G K AI AK AM		
78	0	-0.865035	0.816198	77.565	25.394	-44.387	-40.065
		-0.440823	0.590543	92.533	3.624	107.950	-38.914
	Min:	A C D E I AL		Max:	A B D F G K AI AK AM		
78	1.700	-0.575585	0.816198	52.125	25.394	65.382	-38.677
		-1.838	9.21E-10	79.552	-37.800	232.449	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
79	0	-0.575585	0.816198	52.125	25.394	65.382	-38.677
		-1.838	8.19E-10	79.552	-37.800	232.449	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
79	1.700	-0.575585	0.816198	27.933	25.394	133.432	-37.290
		-2.116	8.19E-10	52.027	-37.800	344.631	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
80	0	-0.575585	0.816198	27.933	25.394	133.432	-37.290
		-2.116	7.85E-10	52.027	-37.800	344.631	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
80	1.700	-0.575585	0.816198	3.741	25.394	160.355	-35.902
		-2.394	7.85E-10	7.302	-12.600	384.141	-35.902
	Min:	A C D E G I AL		Max:	A B D F L AI AK AM		
81	0	-0.575585	-0.816198	-4.840	-25.394	160.355	-35.902
		-2.394	7.21E-10	-8.400	12.600	384.141	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		
81	1.700	-0.853739	-0.816198	-29.032	-25.394	131.565	-37.290
		-2.394	7.21E-10	-53.125	37.800	342.764	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
82	0	-0.853739	-0.816198	-29.032	-25.394	131.565	-37.290
		-2.394	6.96E-10	-53.125	37.800	342.764	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		
82	1.700	-1.132	-0.816198	-53.224	-25.394	61.648	-38.677
		-2.394	6.96E-10	-81.051	37.800	228.715	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		
83	0	-1.132	-0.816198	-53.224	-25.394	61.648	-38.677
		-2.394	7.08E-10	-81.051	37.800	228.715	-35.902
	Min:	A C D E G O AI AL		Max:	A B D F L AK AM		
83	1.700	-1.699	-0.816198	-78.663	-25.394	-49.988	-40.065
		-1.275	-0.590543	-93.632	-3.624	102.348	-38.914
	Min:	A C D G O AI AL		Max:	A B D E F M AK AM		
84	0	-1.699	-0.816198	-78.663	-25.394	-49.988	-40.065
		-1.275	-0.590543	-93.632	-3.624	102.348	-38.914
	Min:	A C D G O AI AL		Max:	A B D E F M AK AM		
84	1.700	-2.700	-0.816198	-117.788	-25.394	-214.200	-41.452
		-0.552453	-0.590543	-123.424	21.576	-81.561	-39.918
	Min:	A B D F G O AI AL		Max:	A C D E F M AK AM		
85	0	-2.700	-0.816198	-117.788	-25.394	-214.200	-41.452
		-0.552453	-0.590543	-123.424	21.576	-81.561	-39.918
	Min:	A B D F G O AI AL		Max:	A C D E M AK AM		
85	1.700	-5.417	6.16E-10	-167.172	37.800	-462.643	-35.902
		1.057	0.816198	-115.972	25.394	-266.889	-28.964
	Min:	A B D F G L AI AL		Max:	A C D E I AK AM		
86	0	0.543500	2.767	139.629	-2.75E-13	-429.182	-35.971
		0.666805	2.279	112.061	-2.02E-13	-256.080	-29.629
	Min:	A B D F G L AK		Max:	A C D E I AI AL AM		
86	1.300	0.543500	2.767	118.274	-2.75E-13	-261.544	-32.374
		0.133104	3.255	121.756	-50.400	-119.671	-38.081
	Min:	A B D F G L AK		Max:	A C D E N AI AL AM		
87	0	0.543500	2.767	118.274	-8.58E-14	-261.544	-32.374
		0.133104	3.255	121.756	-50.400	-119.671	-38.081
	Min:	A B D F G L AK		Max:	A C D E N AI AL AM		
87	1.300	0.608438	2.767	87.927	-6.58E-14	-131.739	-28.777
		-0.144540	3.255	95.449	-25.200	32.458	-33.850
	Min:	A B D F L AK		Max:	A C D E G N AI AL AM		
88	0	0.608438	2.767	87.927	8.24E-14	-131.739	-28.777
		-0.144540	3.255	95.449	-25.200	32.458	-33.850
	Min:	A B D F L AK		Max:	A C D E G N AI AL AM		
88	1.300	0.608434	2.767	67.882	8.24E-14	-30.290	-25.180
		-0.412549	3.255	94.729	-75.600	143.655	-29.619
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
89	0	0.608434	2.767	67.882	3.29E-13	-30.290	-25.180
		-0.412549	3.255	94.729	-75.600	143.655	-29.619
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
89	1.300	0.608434	2.767	49.383	3.29E-13	45.933	-21.583
		-0.625255	3.255	56.575	-50.400	249.562	-25.388
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
90	0	0.608434	2.767	49.383	1.88E-13	45.933	-21.583
		-0.625255	3.255	56.575	-50.400	249.562	-25.388
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
90	1.300	0.608434	2.767	30.883	1.88E-13	98.105	-17.985
		-0.837961	3.255	35.220	-50.400	309.229	-21.156
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
91	0	0.608434	2.767	30.883	-2.66E-15	98.105	-17.985
		-0.837961	3.255	18.420	-25.200	309.229	-21.156
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
91	1.300	0.608434	2.767	12.383	-2.66E-15	126.228	-14.388
		-1.051	3.255	-2.935	-25.200	319.294	-16.925
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
92	0	0.608434	2.767	12.383	1.45E-13	126.228	-14.388
		-1.051	3.255	-2.935	-25.200	319.294	-16.925
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
92	1.300	0.608434	2.767	-6.117	1.45E-13	130.301	-10.791
		-1.263	3.255	-41.089	1.37E-13	283.119	-12.694
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
93	0	0.608434	2.767	-6.117	9.70E-14	130.301	-10.791
		-1.263	3.255	-41.089	1.37E-13	283.119	-12.694
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
93	1.300	0.608434	2.767	-24.617	9.70E-14	110.324	-7.194
		-1.376	3.255	-47.318	-50.400	230.255	-8.463
	Min:	A C D F L AK		Max:	A E D E G P AI AL AM		
94	0	0.608434	2.767	-24.617	1.51E-13	110.324	-7.194
		-1.376	3.255	-47.318	-50.400	230.255	-8.463
	Min:	A C D F L AK		Max:	A B D E G O AI AL AM		
94	1.300	0.608434	2.767	-43.116	1.51E-13	66.297	-3.597
		-1.589	3.255	-85.472	-25.200	137.221	-4.231
	Min:	A C D F L AK		Max:	A E D E G P AI AL AM		
95	0	0.608434	2.767	-43.116	2.98E-13	66.297	-3.597
		-1.589	3.255	-85.472	-25.200	137.221	-4.231
	Min:	A C D F L AK		Max:	A B D E G P AI AL AM		
95	1.300	0.543500	2.767	-73.917	2.98E-13	-2.053	-3.76E-08
		-1.736	3.255	-111.326	5.76E-13	-1.779	-4.41E-08
	Min:	A B D F G L AK		Max:	A C D E P AI AL AM		
96	0	0.081810	3.91E-09	8.213	6.19E-13	-2.053	1.06E-11

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		5.92E-14	3.96E-09	7.115	-1.35E-13	-1.779	-3.08E-10
		Min: A E D E G O AI AL			Max: A C D F L AK AM		
96	0.500	6.11E-10	4.00E-09	6.21E-08	4.67E-13	-1.52E-12	1.99E-09
		5.99E-14	3.96E-09	7.12E-08	-1.35E-13	3.88E-14	1.67E-09
		Min: A E D E G P AI AL AM			Max: A C D F L AK		
290	0	-255.453	0.576378	-4.439	-0.739005	-7.455	-1.902
		-255.453	0.576378	3.646	0.757716	16.175	-1.902
		Min: AN AO AQ AS BF			Max: AN AO AQ AR AZ BV		
290	13.200	-271.302	0.522081	-7.047	0.453014	-90.862	4.176
		-271.302	0.522081	6.518	-0.434303	90.862	4.176
		Min: AN AO AQ AS BL			Max: AN AO AQ AR AT BV		
291	0	-255.453	-0.576378	-4.439	0.739005	-7.455	1.902
		-255.453	-0.576378	3.646	-0.757716	16.175	1.902
		Min: AN AQ AQ AS BN			Max: AN AO AQ AR AV BV		
291	13.200	-304.883	-0.310567	-7.047	-0.453014	-90.862	-2.100
		-304.883	-0.310567	6.518	0.434303	90.862	-2.100
		Min: AN AO AQ AS BR			Max: AN AO AQ AR AZ BV		

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: VERIFICACION DE LA ARMADURA DEL CENTRO DE VANO
Fecha: 23/5/01 18.28.28

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 420 cm Alto = 90 cm Canto útil = 84.90 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 233.23 cm2
Diámetro equivalente = 32.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 384.14 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0065408
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 14.48 cm
Area de hormigón eficaz, Ac,eficaz = 9450.00 cm2
Resistencia a tracción del hormigón, fct,m = .4 Kp/cm2
Momento de fisuración, Mfis = 160.95 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 890.0 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2124.2 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 16.38 cm
Alargamiento medio de las fisuras, Esm = 0.000968898
Apertura de fisura, Wk = 0.270 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.270 mm
Apertura de fisura máxima, Wmax = 0.300 mm

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: VERIFICACION DE LA ARMADURA DEL CENTRO DE VANO
Fecha: 23/5/01 18.31.17

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 420 cm Alto = 90 cm Canto útil = 85.25 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 176.71 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 319.3 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0049355
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 11.67 cm
Area de hormigón eficaz, Ac,eficaz = 9450.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 160.95 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1157.3 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2295.9 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 16.02 cm
Alargamiento medio de las fisuras, Esm = 0.001002137
Apertura de fisura, Wk = 0.273 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.273 mm
Apertura de fisura máxima, Wmax = 0.300 mm

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: VERIFICACION DE LA ARMADURA DEL APOYO
Fecha: 23/5/01 18.36.07

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 460 cm Alto = 90 cm Canto útil = 85.25 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 276.12 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 462.64 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0070411
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 8.18 cm
Area de hormigón eficaz, Ac,eficaz = 10350.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 176.27 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 822.5 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2158.6 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 13.32 cm
Alargamiento medio de las fisuras, Esm = .001000968
Apertura de fisura, Wk = 0.227 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.227 mm
Apertura de fisura máxima, Wmax = 0.300 mm

2.4.1.2. Comprobación de estados límites últimos por flexión longitudinal

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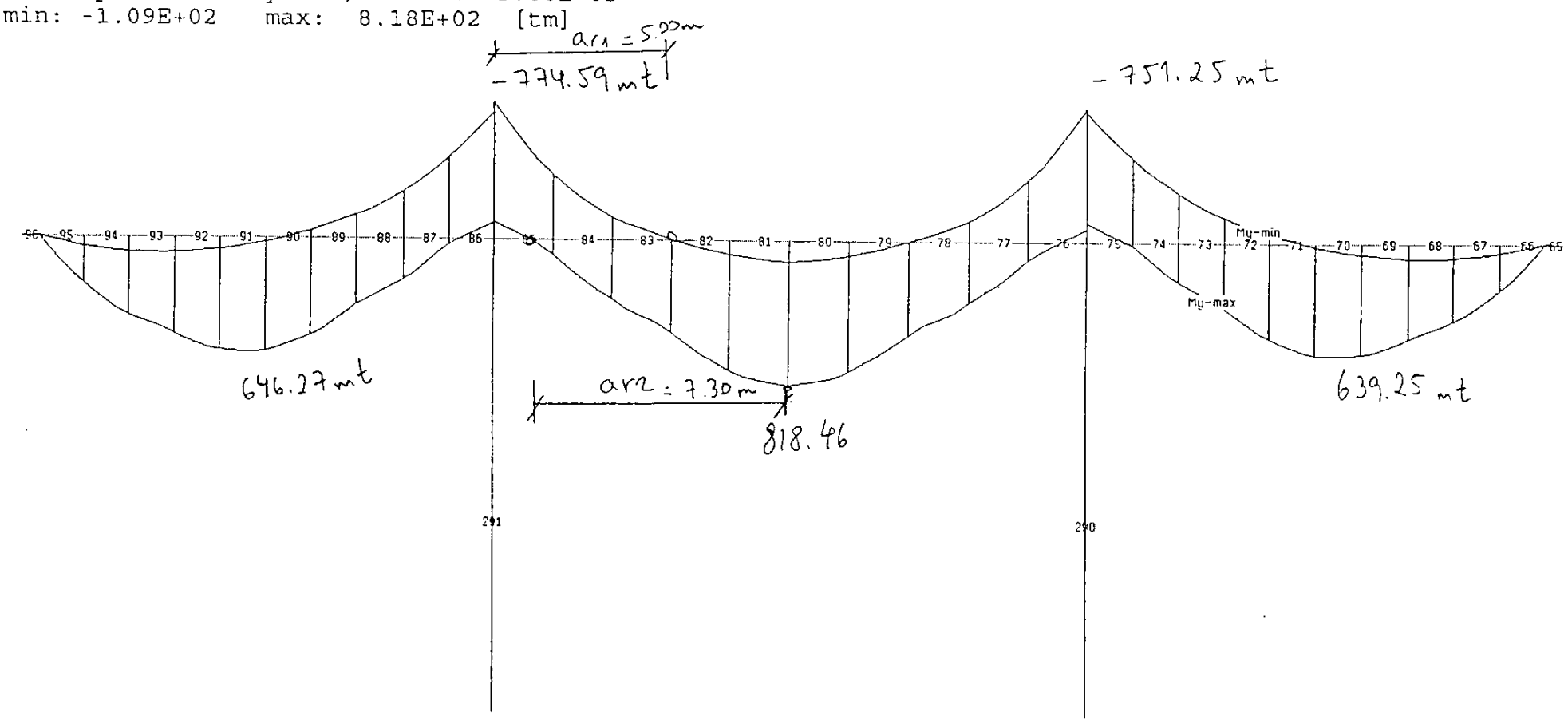
Scale 1 : 173.7
Int. Forces envelope My, GWSP ER (COMBINACION FZAS EXTERIORES), Subsys. "LIST"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 5.00E-03
  min: -7.75E+02 max: 1.18E+02 [tm]
- Envelope Moment My-max, Scale 5.00E-03
  min: -1.09E+02 max: 8.18E+02 [tm]



ENVELOPE SPECIFIC.: ER 'COMEINACION F2AS EXTERIORES'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PL.PERM	5	1.350		RETRACCION
H	OR	5	1.000		RETRACCION
I	PLUS	6	1.500		SOB UNIF 1
J	PLUS	7	1.500		SOBRECARGA UNIF 2
K	PLUS	8	1.500		SOB UNIF 3
L	PLUS	11	2.100		VEHICULO HIPOTESIS 11
M	OR	12	2.100		VEHICULO HIPOTESIS 12
N	OR	13	2.100		VEHICULO HIPOTESIS 13
O	OR	14	2.100		VEHICULO HIPOTESIS 14
P	OR	15	2.100		VEHICULO HIPOTESIS 15
Q	OR	16	2.100		VEHICULO HIPOTESIS 16
R	OR	17	2.100		VEHICULO HIPOTESIS 17
S	OR	18	2.100		VEHICULO HIPOTESIS 18
T	OR	19	2.100		VEHICULO HIPOTESIS 19
U	OR	20	2.100		VEHICULO HIPOTESIS 20
V	OR	21	2.100		VEHICULO HIPOTESIS 21
W	OR	22	2.100		VEHICULO HIPOTESIS 22
X	OR	23	2.100		VEHICULO HIPOTESIS 23
Y	OR	24	2.100		VEHICULO HIPOTESIS 24
Z	OR	25	2.100		VEHICULO POSICION 25
AA	OR	26	2.100		VEHICULO POSICION 26
AB	OR	27	2.100		VEHICULO POSICION 27
AC	OR	28	2.100		VEHICULO POSICION 28
AD	OR	29	2.100		VEHICULO POSICION 29
AE	OR	30	2.100		VEHICULO POSICION 30
AF	OR	31	2.100		VEHICULO POSICION 31
AG	OR	32	2.100		VEHICULO POSICION 32
AH	OR	33	2.100		VEHICULO POSICION 33
AI	OR	34	2.100		VEHICULO POSICION 34
AJ	OR	35	2.100		VEHICULO POSICION 35
AK	OR	36	2.100		VEHICULO POSICION 36
AL	OR	37	2.100		VEHICULO HIPOTESIS 37
AM	PLUS	60	1.500		FRENADO
AN	PLUS	63	0.450000		VIENTO TRANSV CON SOB
AO	PLUS	64	0.900000		TEMPERATURA (-)
AP	OR	65	0.900000		TEMPERATURA (+)
AQ	PLUS	66	0.900000		GRADIENTE
	ALTERNATIVE ENVELOPE :				
AR	PERM.	1	1.350		PESO PROPIO
AS	OR	1	1.000		PESO PROPIO
AT	PL.PERM	2	2.025		PESO PAVIMENTO
AU	OR	2	1.000		PESO PAVIMENTO
AV	PL.PERM	3	1.350		PESO BARRERAS
AW	OR	3	1.000		PESO BARRERAS
AX	PL.PERM	5	1.350		RETRACCION

AY	OR	5	1.000		RETRACCION
AZ	PLUS	9	1.500		SOB UNIF EXC
BA	PLUS	10	1.500		SOB UNIF EXC
BB	PLUS	11	2.100		VEHICULO HIPOTESIS 11
BC	OR	12	2.100		VEHICULO HIPOTESIS 12
BD	OR	13	2.100		VEHICULO HIPOTESIS 13
BE	OR	14	2.100		VEHICULO HIPOTESIS 14
BF	OR	15	2.100		VEHICULO HIPOTESIS 15
BG	OR	16	2.100		VEHICULO HIPOTESIS 16
BH	OR	17	2.100		VEHICULO HIPOTESIS 17
BI	OR	18	2.100		VEHICULO HIPOTESIS 18
BJ	OR	19	2.100		VEHICULO HIPOTESIS 19
BK	OR	20	2.100		VEHICULO HIPOTESIS 20
BL	OR	21	2.100		VEHICULO HIPOTESIS 21
BM	OR	22	2.100		VEHICULO HIPOTESIS 22
BN	OR	23	2.100		VEHICULO HIPOTESIS 23
BO	OR	24	2.100		VEHICULO HIPOTESIS 24
BP	OR	25	2.100		VEHICULO POSICION 25
BQ	OR	26	2.100		VEHICULO POSICION 26
BR	OR	27	2.100		VEHICULO POSICION 27
BS	OR	28	2.100		VEHICULO POSICION 28
BT	OR	29	2.100		VEHICULO POSICION 29
BU	OR	30	2.100		VEHICULO POSICION 30
BV	OR	31	2.100		VEHICULO POSICION 31
BW	OR	32	2.100		VEHICULO POSICION 32
BX	OR	33	2.100		VEHICULO POSICION 33
BY	OR	34	2.100		VEHICULO POSICION 34
BZ	OR	35	2.100		VEHICULO POSICION 35
CA	OR	36	2.100		VEHICULO POSICION 36
CB	OR	37	2.100		VEHICULO HIPOTESIS 37
CC	PLUS	60	1.500		FRENADO
CD	PLUS	63	0.450000		VIENTO TRANSV CON SOB
CE	PLUS	64	0.900000		TEMPERATURA (-)
CF	OR	65	0.900000		TEMPERATURA (+)
CG	PLUS	66	0.900000		GRADIENTE

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65		0	-2.05E-09	-2.48E-10	-9.43E-08	2.48E-13	-1.50E-12	1.32E-09
			-9.23E-12	8.66E-09	-9.87E-08	-4.75E-13	5.40E-13	-1.25E-09
		Min: A C F H J P AM AO AQ			Max: B D E G I K M AP			
65	0.125	-0.051131	-2.48E-10		-3.048	2.48E-13	-0.190500	1.29E-09
			-8.65E-12	8.66E-09		-1.779	-4.75E-13	-0.111177	-1.67E-10
		Min: AR AT AV AY AZ BA BF...			Max: B D F G K M AP			
65	0.250	-0.102263	-2.48E-10		-6.096	2.48E-13	-0.761998	1.26E-09
			-8.88E-12	8.66E-09		-3.558	-4.75E-13	-0.444707	9.16E-10
		Min: AR AT AV AY AZ BA BF...			Max: B D F G K M AG			
65	0.375	-0.153394	8.57E-09		-9.144	4.43E-13	-1.714	1.98E-09

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-8.88E-12	8.66E-09	-5.336	-4.75E-13	-1.001	2.00E-09
		Min: AR AT AV AY AZ BA BE...			Max: B D F G K M AO		
65	0.500	-0.204525	8.57E-09	-12.192	4.43E-13	-3.048	3.05E-09
		-8.88E-12	8.66E-09	-7.115	-4.75E-13	-1.779	3.08E-09
		Min: AR AT AV AY AZ BA BE...			Max: B D F G K M AO		
66		0	8.630	-6.917	102.359	8.71E-14	-3.048	-9.49E-09
			-0.353868	-8.137	180.260	-6.69E-14	-1.779	-1.11E-07
		Min: A C E G I J P AM AO			Max: B D F H K L AP AQ			
66	0.325	8.660	-6.917	44.589	8.71E-14	13.464	-2.248	
		-0.515936	-8.137	225.480	-6.69E-14	71.521	-2.645	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
66	0.650	8.527	-6.917	39.964	8.71E-14	27.204	-4.496	
		-0.515936	-8.137	217.556	-6.69E-14	143.514	-5.289	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
66	0.975	8.394	-6.917	35.339	8.71E-14	39.441	-6.745	
		-0.515936	-8.137	167.631	63.000	207.682	-7.934	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
66	1.300	8.261	-6.917	30.714	8.71E-14	50.175	-8.993	
		-0.515936	-8.137	159.706	63.000	260.874	-10.576	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
67		0	8.261	-6.917	30.714	8.71E-14	50.175	-8.993
			-0.515936	-8.137	159.706	63.000	260.874	-10.576
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
67	0.325	8.128	-6.917	26.089	8.71E-14	59.405	-11.241	
		-0.515936	-8.137	151.781	63.000	311.491	-13.223	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
67	0.650	7.995	-6.917	21.464	8.71E-14	67.133	-13.489	
		-0.515936	-8.137	143.856	63.000	359.532	-15.867	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
67	0.975	7.862	-6.917	16.839	8.71E-14	73.357	-15.737	
		-0.515936	-8.137	135.932	63.000	404.998	-16.512	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
67	1.300	7.729	-6.917	12.214	8.71E-14	78.078	-17.985	
		-0.515936	-8.137	86.007	126.000	437.388	-21.156	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
68		0	7.729	-6.917	12.214	8.71E-14	78.078	-17.985
			-0.515936	-8.137	86.007	126.000	437.388	-21.156
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
68	0.325	7.596	-6.917	7.590	8.71E-14	81.296	-20.234	
		-0.515936	-8.137	78.082	126.000	464.052	-23.801	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
68	0.650	7.463	-6.917	2.965	8.71E-14	83.011	-22.482	
		-0.515936	-8.137	70.157	126.000	488.141	-26.445	
		Min: B D F G J P AM AO			Max: A C E H I K L AP AQ			
68	0.975	7.330	-6.917	-1.660	8.71E-14	83.223	-24.730	
		-0.766575	-8.137	100.048	1.01E-13	510.444	-29.090	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
68	1.300	7.197	-6.917	-6.285	8.71E-14	81.932	-26.978
		-0.766575	-8.137	92.123	1.01E-13	541.671	-31.734
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
69		0	7.197	-6.917	-6.285	5.88E-13	81.932	-26.978
			-0.766575	-8.137	92.123	7.95E-13	541.671	-31.734
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
69	0.325	7.064	-6.917	-10.910	5.88E-13	79.138	-28.226	
		-0.766575	-8.137	84.198	7.95E-13	570.324	-34.379	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
69	0.650	6.931	-6.917	-15.535	5.88E-13	74.840	-31.475	
		-0.766575	-8.137	76.273	7.95E-13	596.400	-37.024	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
69	0.975	6.799	-6.917	-20.160	5.88E-13	69.040	-33.723	
		-0.766575	-8.137	68.349	7.95E-13	619.901	-39.668	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
69	1.300	6.666	-6.917	-24.785	5.88E-13	61.736	-35.971	
		-0.766575	-8.137	18.424	63.000	632.427	-42.313	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
70		0	6.666	-6.917	-24.785	5.99E-13	61.736	-35.971
			-0.766575	-8.137	18.424	63.000	632.427	-42.313
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
70	0.325	6.533	-6.917	-29.410	5.99E-13	52.930	-38.219	
		-0.766575	-8.137	10.499	63.000	637.127	-44.957	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
70	0.650	6.400	-6.917	-34.035	5.99E-13	42.620	-40.467	
		-0.766575	-8.137	2.574	63.000	639.251	-47.602	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
70	0.975	6.267	-6.917	-38.660	5.99E-13	30.807	-42.715	
		-0.766575	-8.137	-5.351	63.000	638.800	-50.246	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
70	1.300	6.134	-6.917	-43.285	5.99E-13	17.491	-44.964	
		-0.766575	-8.137	-13.275	63.000	635.773	-52.891	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
71		0	6.134	-6.917	-43.285	8.07E-14	17.491	-44.964
			-0.766575	-8.137	-55.275	126.000	635.773	-52.891
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
71	0.325	6.001	-6.917	-47.910	8.07E-14	2.672	-47.212	
		-0.766575	-8.137	-63.200	126.000	616.521	-55.535	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
71	0.650	5.868	-6.917	-52.535	8.07E-14	-13.651	-49.460	
		-0.766575	-8.137	-71.125	126.000	594.693	-58.180	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
71	0.975	5.735	-6.917	-57.160	8.07E-14	-31.476	-51.708	
		-0.766575	-8.137	-79.050	126.000	570.290	-60.824	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
71	1.300	5.602	-6.917	-61.785	8.07E-14	-50.805	-53.956	
		-0.766575	-8.137	-86.974	126.000	543.311	-63.469	

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ		
72		0	5.602	-6.917	-61.785	-5.51E-13	-50.805	-53.956
			-0.766575	-8.137	-86.974	126.000	543.311	-63.469
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
72	0.325	5.469	-6.917	-66.410	-5.51E-13	-71.636	-56.209	
		-0.766575	-8.137	-136.899	189.000	508.507	-66.113	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
72	0.650	5.336	-6.917	-71.035	-5.51E-13	-93.971	-58.453	
		-0.766575	-8.137	-144.824	189.000	462.727	-68.758	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
72	0.975	5.203	-6.917	-75.660	-5.51E-13	-117.809	-60.701	
		-0.766575	-8.137	-152.749	189.000	414.371	-71.402	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
72	1.300	5.070	-6.917	-80.285	-5.51E-13	-143.150	-62.949	
		-0.766575	-8.137	-160.674	189.000	363.440	-74.047	
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
73		0	5.070	-6.917	-80.285	-9.06E-13	-143.150	-62.949
			-0.766575	-8.137	-160.674	189.000	363.440	-74.047
		Min: B D F G J P AM AO			Max: A C E H I K M AP AQ			
73	0.325	4.937	-6.917	-84.910	-9.06E-13	-169.994	-65.197	
		-0.628307	-8.137	-120.874	63.000	325.038	-76.692	
		Min: B D F G J P AM AO			Max: A C E H I K N AP AQ			
73	0.650	4.804	-6.917	-116.023	-9.06E-13	-202.824	-67.445	
		-0.628383	-8.137	-102.310	63.000	288.950	-75.336	
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ			
73	0.975	4.672	-6.917	-122.388	-9.06E-13	-241.566	-69.694	
		-0.628383	-8.137	-108.495	63.000	254.694	-81.981	
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ			
73	1.300	4.539	-6.917	-128.753	-9.06E-13	-282.376	-71.942	
		-0.628383	-8.137	-114.680	63.000	218.428	-84.625	
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ			
74		0	4.539	-6.917	-128.753	-1.56E-12	-282.376	-71.942
			-0.628383	-8.137	-114.680	63.000	218.428	-84.625
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ			
74	0.325	4.406	-6.917	-135.117	-1.56E-12	-325.255	-74.190	
		-0.628383	-8.137	-162.865	126.000	177.002	-87.270	
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ			
74	0.650	4.273	-6.917	-141.482	-1.56E-12	-370.203	-76.438	
		-0.628383	-8.137	-169.050	126.000	123.066	-89.914	
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ			
74	0.975	4.140	-6.917	-147.847	-1.56E-12	-417.219	-78.686	
		-0.628383	-8.137	-175.235	126.000	67.120	-92.559	
		Min: A C E G J P AM AO			Max: B D F H I K N AP AQ			
74	1.300	3.844	-6.917	-182.933	-1.56E-12	-474.409	-80.935	
		-0.466039	-8.137	-152.698	126.000	17.269	-95.203	
		Min: A C E G I J P AM AO			Max: B D F H K N AP AQ			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
75		0	3.844	-6.917	-182.933	-1.93E-12	-474.409	-80.935
		-0.466039	-8.137	-152.698	126.000	17.269	-95.203	
		Min: A C E G I J P AM AO			Max: B D F H K N AP AQ			
75	0.325	3.712	-6.917	-190.858	-1.93E-12	-533.150	-83.183	
		0.336450	-5.698	-86.835	-1.53E-12	-17.089	-68.518	
		Min: A C E G I J P AM AO			Max: B D F H K S AP AQ			
75	0.650	3.579	-6.917	-198.783	-1.93E-12	-598.467	-85.431	
		0.336450	-5.698	-91.460	-1.53E-12	-46.062	-70.369	
		Min: A C E G I J P AM AO			Max: B D F H K S AP AQ			
75	0.975	3.446	-6.917	-206.708	-1.93E-12	-664.359	-87.679	
		0.336450	-5.698	-96.085	-1.53E-12	-76.538	-72.221	
		Min: A C E G I J P AM AO			Max: B D F H K S AP AQ			
75	1.300	3.313	-6.917	-214.632	-1.93E-12	-732.827	-89.927	
		0.336450	-5.698	-100.710	-1.53E-12	-108.517	-74.073	
		Min: A C E G I J P AM AO			Max: B D F H K S AP AQ			
76		0	-6.805	2.89E-09	273.382	-94.500	-751.251	-89.755
			15.042	-2.040	105.743	-63.486	-76.899	-72.411
		Min: A C E H I J P AF			Max: B D F G K S AP AQ			
76	0.425	-6.805	2.89E-09	263.019	-94.500	-637.266	-89.755	
		14.868	-2.040	99.695	-63.486	-33.244	-73.276	
		Min: A C E H I J P AP			Max: B D F G K S AM AO AQ			
76	0.850	-6.805	2.89E-09	252.656	-94.500	-527.685	-89.755	
		14.694	-2.040	93.647	-63.486	7.841	-74.145	
		Min: A C E H I J P AP			Max: B D F G K S AM AO AQ			
76	1.275	-0.708267	2.040	188.646	63.486	-429.741	-104.498	
		14.520	-2.040	87.599	-63.486	46.356	-75.012	
		Min: A C E H I J M AP			Max: B D F G K S AM AO AQ			
76	1.700	-0.708267	2.040	178.283	63.486	-351.769	-103.630	
		10.323	1.476	160.662	-53.940	104.148	-99.794	
		Min: A C E H I J M AP			Max: B D F G K O AM AO AQ			
77		0	-0.708267	2.040	178.283	63.486	-351.769	-103.630
			10.323	1.476	160.662	-53.940	104.149	-99.794
		Min: A C E H I J M AP			Max: B D F G K O AM AO AQ			
77	0.425	-0.708267	2.040	167.919	63.486	-278.201	-102.763	
		10.150	1.476	154.614	-53.940	171.145	-99.167	
		Min: A C E H I J M AP			Max: B D F G K O AM AO AQ			
77	0.850	1.054	2.040	128.996	63.486	-216.988	-101.896	
		8.214	1.476	135.126	9.060	235.121	-98.539	
		Min: A C E H I M AP			Max: B D F G J K O AM AO AQ			
77	1.275	1.054	2.040	120.673	63.486	-163.934	-101.029	
		8.040	1.476	127.038	9.060	290.831	-97.912	
		Min: A C E H I M AP			Max: B D F G J K O AM AO AQ			
77	1.700	1.404	2.040	85.048	63.486	-116.253	-100.162	
		7.515	1.476	146.252	9.060	344.940	-97.284	
		Min: B D F H I M AP			Max: A C E G J K O AM AO AQ			
78		0	1.404	2.040	85.048	63.486	-116.253	-100.162
			7.515	1.476	146.252	9.060	344.940	-97.284

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: B D F K I M AP		Max: A C E G J K O AM AO AQ			
78	0.425	1.404	2.040	79.000	63.486	-81.352	-99.294
		7.342	1.476	135.889	9.060	404.894	-96.657
		Min: B D F H I M AF		Max: A C E G J K O AM AO AQ			
78	0.850	2.128	2.040	69.833	63.486	-50.272	-98.427
		6.444	1.476	86.644	72.060	444.815	-96.030
		Min: B D F H I K M AF		Max: A C E G J O AM AO AQ			
78	1.275	2.128	2.040	63.785	63.486	-21.878	-97.560
		6.270	1.476	76.281	72.060	479.436	-95.402
		Min: B D F H I K M AP		Max: A C E G J O AM AO AQ			
78	1.700	2.128	2.040	57.737	63.486	3.945	-96.693
		4.022	2.30E-09	143.160	-94.500	535.656	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
79	0	2.128	2.040	57.737	63.486	3.945	-96.693
		4.022	2.05E-09	143.160	-94.500	535.656	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
79	0.425	2.128	2.040	51.688	63.486	27.198	-95.829
		3.848	2.05E-09	132.797	-94.500	594.297	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
79	0.850	2.128	2.040	45.641	63.486	47.881	-94.958
		3.674	2.05E-09	122.433	-94.500	648.533	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
79	1.275	2.128	2.040	39.593	63.486	65.994	-94.091
		3.501	2.05E-09	112.070	-94.500	698.369	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
79	1.700	2.128	2.040	33.545	63.486	81.536	-93.224
		3.327	2.05E-09	101.707	-94.500	743.793	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
80	0	2.128	2.040	33.545	63.486	81.536	-93.224
		3.327	1.96E-09	101.707	-94.500	743.793	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
80	0.425	2.128	2.040	27.497	63.486	94.507	-92.357
		3.153	1.96E-09	49.344	-31.500	775.366	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
80	0.850	2.128	2.040	21.449	63.486	104.908	-91.489
		2.979	1.96E-09	38.981	-31.500	794.135	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
80	1.275	2.128	2.040	15.401	63.486	112.739	-90.622
		2.805	1.96E-09	28.617	-31.500	808.500	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
80	1.700	2.128	2.040	9.353	63.486	117.995	-89.755
		2.631	1.96E-09	18.254	-31.500	818.460	-89.755
		Min: B D F H I K M AP		Max: A C E G J P AM AO AQ			
81	0	2.128	-2.040	-12.099	-63.486	117.999	-89.755
		2.631	1.80E-09	-21.000	31.500	818.460	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AM AO AQ			
81	0.425	1.954	-2.040	-18.147	-63.486	111.572	-90.622

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		2.631	1.80E-09	-31.363	31.500	807.333	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
81	0.850	1.780	-2.040	-24.195	-63.486	102.574	-91.489
		2.631	1.80E-09	-41.726	31.500	791.801	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
81	1.275	1.607	-2.040	-30.243	-63.486	91.006	-92.357
		2.631	1.80E-09	-52.090	31.500	771.866	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
81	1.700	1.433	-2.040	-36.291	-63.486	76.868	-93.224
		2.631	1.80E-09	-104.453	94.500	739.125	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
82	0	1.433	-2.040	-36.291	-63.486	76.868	-93.224
		2.631	1.74E-09	-104.453	94.500	739.125	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
82	0.425	1.259	-2.040	-42.339	-63.486	60.159	-94.091
		2.631	1.74E-09	-114.816	94.500	692.531	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
82	0.850	1.085	-2.040	-48.387	-63.486	40.880	-94.958
		2.631	1.74E-09	-125.179	94.500	641.532	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
82	1.275 0.911158	-2.040	-54.435	-63.486	19.030	-95.825	
		2.631	1.74E-09	-135.542	94.500	586.129	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
82	1.700 0.737312	-2.040	-60.483	-63.486	-5.390	-96.693	
		2.631	1.74E-09	-145.905	94.500	526.321	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
83	0 0.737312	-2.040	-60.483	-63.486	-5.390	-96.693	
		2.631	1.77E-09	-145.905	94.500	526.321	-89.755
		Min: B D F H I K S AM AP		Max: A C E G J P AO AQ			
83	0.425 0.563466	-2.040	-66.531	-63.486	-32.381	-97.560	
		4.706	-1.476	-79.026	-72.060	468.934	-95.402
		Min: B D F H I K S AM AP		Max: A C E G J Q AO AQ			
83	0.850 0.389619	-2.040	-72.575	-63.486	-61.942	-98.427	
		4.706	-1.476	-89.390	-72.060	433.145	-96.030
		Min: B D F H I K S AM AP		Max: A C E G J Q AO AQ			
83	1.275 -0.507651	-2.040	-81.746	-63.486	-94.229	-99.294	
		5.429	-1.476	-138.634	-9.060	392.056	-96.657
		Min: B D F H K S AM AP		Max: A C E G I J Q AO AQ			
83	1.700 -0.681697	-2.040	-87.794	-63.486	-130.256	-100.162	
		5.429	-1.476	-148.998	-9.060	330.936	-97.284
		Min: B D F H K S AM AP		Max: A C E G I J Q AO AQ			
84	0 -0.681697	-2.040	-87.794	-63.486	-130.256	-100.162	
		5.429	-1.476	-148.998	-9.060	330.936	-97.284
		Min: B D F H K S AM AP		Max: A C E G I J Q AO AQ			
84	0.425	-1.206	-2.040	-123.419	-63.486	-179.104	-101.029
		5.780	-1.476	-129.784	-9.060	275.661	-97.912
		Min: A C E H K S AM AP		Max: B D F G I J Q AO AQ			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
84	0.850	-1.380	-2.040	-131.742	-63.486	-233.325	-101.896
		5.780	-1.476	-137.872	-9.060	218.784	-98.539
		Min: A C E H K S AM AF		Max: B D F G I J Q AO AQ			
84	1.275	-3.316	-2.040	-170.665	-63.486	-295.705	-102.763
		7.542	-1.476	-157.360	53.940	153.641	-99.167
		Min: A C E H J K S AM AF		Max: B D F G I Q AO AQ			
84	1.700	-3.490	-2.040	-181.028	-63.486	-370.440	-103.630
		7.542	-1.476	-163.408	53.940	85.478	-99.794
		Min: A C E H J K S AM AF		Max: B D F G I Q AO AQ			
85	0	-3.490	-2.040	-181.028	-63.486	-370.440	-103.630
		7.542	-1.476	-163.408	53.940	85.478	-99.794
		Min: A C E H J K S AM AF		Max: B D F G I Q AO AQ			
85	0.425	-3.664	-2.040	-191.391	-63.486	-449.579	-104.498
		11.565	2.040	-90.345	63.486	26.518	-75.012
		Min: A C E H J K S AM AP		Max: B D F G I M AO AQ			
85	0.850	-9.934	1.54E-05	-255.401	94.500	-548.690	-89.755
		11.565	2.040	-96.393	63.486	-13.163	-74.145
		Min: A C E H J K F AM AP		Max: B D F G I M AO AQ			
85	1.275	-10.108	1.54E-05	-265.764	94.500	-659.438	-89.755
		11.565	2.040	-102.441	63.486	-55.415	-73.278
		Min: A C E H J K F AM AP		Max: B D F G I M AO AQ			
85	1.700	-10.282	1.54E-05	-276.128	94.500	-774.580	-89.755
		11.565	2.040	-108.489	63.486	-100.236	-72.411
		Min: A C E H J K F AM AP		Max: B D F G I M AO AQ			
86	0	5.867	6.917	213.433	-6.87E-13	-717.233	-89.927
		2.890	5.658	95.510	-5.05E-13	-92.923	-74.072
		Min: A C E G J K F AO		Max: B D F H I M AM AP AQ			
86	0.325	5.867	6.917	205.508	-6.87E-13	-649.155	-87.675
		2.757	5.658	94.885	-5.05E-13	-61.324	-72.221
		Min: A C E G J K F AO		Max: B D F H I M AM AP AQ			
86	0.650	5.867	6.917	197.583	-6.87E-13	-583.653	-85.431
		2.624	5.658	90.260	-5.05E-13	-31.248	-70.369
		Min: A C E G J K F AO		Max: B D F H I M AM AP AQ			
86	0.975	5.867	6.917	189.659	-6.87E-13	-520.726	-83.183
		2.491	5.658	85.635	-5.05E-13	-2.665	-68.518
		Min: A C E G J K F AO		Max: B D F H I M AM AP AQ			
86	1.300	5.867	6.917	181.734	-6.87E-13	-460.375	-80.935
		1.556	8.137	151.499	-126.000	31.303	-95.203
		Min: A C E G J K F AO		Max: B D F H I R AM AP AQ			
87	0	5.867	6.917	181.734	-2.14E-13	-460.375	-80.935
		1.556	8.137	151.499	-126.000	31.303	-95.203
		Min: A C E G J K F AO		Max: B D F H I R AM AP AQ			
87	0.325	6.029	6.917	146.648	-2.14E-13	-403.574	-78.686
		1.261	8.137	174.035	-126.000	80.764	-92.559
		Min: A C E G J P AO		Max: B D F H I K R AM AP AQ			
87	0.650	6.029	6.917	140.283	-2.14E-13	-356.948	-76.438
		1.128	8.137	167.850	-126.000	136.321	-89.914

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A C E G J P AO		Max: B D F H I K R AM AP AQ			
87	0.975	6.029	6.917	133.918	-2.14E-13	-312.391	-74.190
		0.994810	8.137	161.665	-126.000	189.867	-87.270
		Min: A C E G J P AO		Max: B D F H I K R AM AP AQ			
87	1.300	6.029	6.917	127.553	-2.06E-13	-269.902	-71.942
		0.861869	8.137	113.480	-63.000	230.903	-84.625
		Min: A C E G J P AO		Max: B D F H I K R AM AP AQ			
88	0	6.029	6.917	127.553	2.06E-13	-269.902	-71.942
		0.861869	8.137	113.480	-63.000	230.903	-84.625
		Min: A C E G J P AO		Max: B D F H I K R AM AP AQ			
88	0.325	6.029	6.917	121.188	2.06E-13	-229.481	-69.694
		0.728926	8.137	107.295	-63.000	266.775	-81.981
		Min: A C E G J P AO		Max: B D F H I K R AM AP AQ			
88	0.650	6.029	6.917	114.824	2.06E-13	-191.129	-67.445
		0.595986	8.137	101.110	-63.000	300.645	-79.336
		Min: A C E G J P AO		Max: B D F H I K R AM AP AQ			
88	0.975	6.029	6.917	83.710	2.06E-13	-158.688	-65.197
		0.463121	8.137	119.674	-63.000	336.343	-76.692
		Min: B D F G J P AO		Max: A C E H I K R AM AP AQ			
88	1.300	6.029	6.917	79.085	2.06E-13	-132.234	-62.949
		0.191911	8.137	159.474	-189.000	374.355	-74.047
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
89	0	6.029	6.917	79.085	8.23E-13	-132.234	-62.949
		0.191911	8.137	159.474	-189.000	374.355	-74.047
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
89	0.325	6.029	6.917	74.460	8.23E-13	-107.283	-60.701
		0.058970	8.137	151.549	-189.000	424.897	-71.402
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
89	0.650	6.029	6.917	69.835	8.23E-13	-83.835	-58.453
		-0.073971	8.137	143.624	-189.000	472.862	-68.758
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
89	0.975	6.029	6.917	65.210	8.23E-13	-61.890	-56.205
		-0.206912	8.137	135.700	-189.000	518.253	-66.113
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
89	1.300	6.029	6.917	60.585	8.23E-13	-41.448	-53.956
		-0.339854	8.137	85.775	-126.000	552.667	-63.469
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
90	0	6.029	6.917	60.585	4.71E-13	-41.448	-53.956
		-0.339854	8.137	85.775	-126.000	552.667	-63.469
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
90	0.325	6.029	6.917	55.960	4.71E-13	-22.510	-51.708
		-0.472795	8.137	77.850	-126.000	579.256	-60.824
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
90	0.650	6.029	6.917	51.335	4.71E-13	-5.074	-49.460
		-0.605716	8.137	69.925	-126.000	603.270	-58.180
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
90	0.975	6.029	6.917	46.710	4.71E-13	10.858	-47.212

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-0.738677	8.137	62.001	-126.000	624.708	-55.535
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
90	1.300	6.029	6.917	42.085	4.71E-13	25.288	-44.964
		-0.871619	8.137	54.076	-126.000	643.570	-52.891
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
91	0	6.029	6.917	42.085	-6.64E-15	25.288	-44.964
		-0.871619	8.137	12.076	-63.000	643.570	-52.891
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
91	0.325	6.029	6.917	37.461	-6.64E-15	38.214	-42.715
		-1.005	8.137	4.151	-63.000	646.207	-50.246
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
91	0.650	6.029	6.917	32.836	-6.64E-15	49.637	-40.467
		-1.138	8.137	-3.774	-63.000	646.268	-47.602
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
91	0.975	6.029	6.917	28.211	-6.64E-15	59.557	-36.219
		-1.270	8.137	-11.699	-63.000	643.754	-44.957
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
91	1.300	6.029	6.917	23.586	-6.64E-15	67.974	-35.671
		-1.403	8.137	-19.623	-63.000	638.664	-42.313
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
92	0	6.029	6.917	23.586	3.61E-13	67.974	-35.671
		-1.403	8.137	-19.623	-63.000	638.664	-42.313
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
92	0.325	6.029	6.917	18.961	3.61E-13	74.886	-33.523
		-1.536	8.137	-69.548	2.13E-14	625.745	-39.666
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
92	0.650	6.029	6.917	14.336	3.61E-13	80.298	-31.475
		-1.669	8.137	-77.473	2.13E-14	601.858	-37.024
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
92	0.975	6.029	6.917	9.711	3.61E-13	84.206	-29.226
		-1.802	8.137	-85.398	2.13E-14	575.392	-34.379
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
92	1.300	6.029	6.917	5.086	3.61E-13	86.610	-26.978
		-1.935	8.137	-93.322	2.13E-14	546.350	-31.734
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
93	0	6.029	6.917	5.086	2.43E-13	86.610	-26.978
		-1.935	8.137	-93.322	3.44E-13	546.350	-31.734
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
93	0.325	6.029	6.917	0.460898	2.43E-13	87.512	-24.730
		-2.068	8.137	-101.247	3.44E-13	514.732	-29.090
		Min: B D F G J P AO		Max: A C E H I K S AM AP AQ			
93	0.650	6.029	6.917	-4.164	2.43E-13	86.910	-22.482
		-1.950	8.137	-71.357	-126.000	492.039	-26.445
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
93	0.975	6.029	6.917	-8.789	2.43E-13	84.805	-20.234
		-2.083	8.137	-79.282	-126.000	467.561	-23.601
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
93	1.300	6.029	6.917	-13.414	2.43E-13	81.197	-17.985
		-2.216	8.137	-87.206	-126.000	440.506	-21.156
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
94	0	6.029	6.917	-13.414	3.77E-13	81.197	-17.985
		-2.216	8.137	-87.206	-126.000	440.506	-21.156
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
94	0.325	6.029	6.917	-18.039	3.77E-13	75.026	-15.737
		-2.349	8.137	-137.131	-63.000	407.726	-18.512
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
94	0.650	6.029	6.917	-22.664	3.77E-13	69.472	-13.489
		-2.482	8.137	-145.056	-63.000	361.871	-15.867
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
94	0.975	6.029	6.917	-27.289	3.77E-13	61.354	-11.241
		-2.615	8.137	-152.981	-63.000	313.446	-13.223
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
94	1.300	6.029	6.917	-31.914	3.77E-13	51.734	-8.993
		-2.748	8.137	-160.906	-63.000	262.434	-10.578
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
95	0	6.029	6.917	-31.914	7.46E-13	51.734	-8.993
		-2.748	8.137	-160.906	-63.000	262.434	-10.578
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
95	0.325	6.029	6.917	-36.539	7.46E-13	40.610	-6.745
		-2.881	8.137	-168.830	-63.000	208.852	-7.934
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
95	0.650	6.029	6.917	-41.164	7.46E-13	27.984	-4.496
		-3.014	8.137	-218.755	1.44E-12	144.294	-5.289
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
95	0.975	6.029	6.917	-45.789	7.46E-13	13.854	-2.248
		-3.147	8.137	-226.680	1.44E-12	71.911	-2.645
		Min: B D F G J P AO		Max: A C E H I K T AM AP AQ			
95	1.300	5.867	6.917	-103.558	7.46E-13	-3.048	-9.41E-08
		-3.118	8.137	-181.460	1.44E-12	-1.779	-1.10E-07
		Min: A C E G J K P AO		Max: B D F H I T AM AP AQ			
96	0 0.204525	9.77E-09	12.192	1.55E-12	-3.048	2.66E-11	
		-1.43E-11	9.89E-09	7.115	-3.37E-12	-1.779	-7.69E-10
		Min: A C E H I K S AM AP		Max: B D F G J P AO AQ			
96	0.125 0.153394	9.77E-09	9.144	1.55E-12	-1.714	1.25E-09	
		-1.43E-11	9.89E-09	5.336	-3.37E-13	-1.001	4.68E-10
		Min: A C E H I K S AM AP		Max: B D F G J P AO AQ			
96	0.250 0.102262	9.98E-09	6.096	1.17E-12	-0.761998	2.48E-09	
		-1.43E-11	9.89E-09	3.556	-3.37E-13	-0.444707	1.70E-09
		Min: A C E H I K T AM AP		Max: B D F G J P AO AQ			
96	0.375 0.051131	9.99E-09	3.048	1.17E-12	-0.190500	3.73E-09	
		-1.43E-11	9.89E-09	1.779	-3.37E-13	-0.111177	2.94E-09
		Min: A C E H I K T AM AP		Max: B D F G J P AO AQ			
96	0.500 2.02E-09	9.99E-09	1.22E-07	1.17E-12	-3.54E-12	4.97E-09	
		-1.43E-11	9.89E-09	7.12E-08	-3.37E-13	4.28E-13	4.18E-09

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A C E H I K T AM AP AQ			Max: B D F G J P AO		
290	0	-360.888	-2.195	-11.098	-1.848	-18.638	17.438
		-360.888	-2.195	7.531	1.932	57.877	17.438
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		
290	3.300	-360.888	-2.195	-11.098	-1.848	-55.260	10.195
		-360.888	-2.195	7.828	1.932	83.219	10.195
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		
290	6.600	-484.462	-2.859	-17.618	1.133	-110.878	-1.675
		-484.462	-2.859	14.645	-1.048	128.537	-1.675
		Min: AR AT AV AX BA BV			Max: AR AT AV AX AZ BD CD		
290	9.900	-400.509	-2.330	-17.618	1.133	-169.016	-7.667
		-400.509	-2.330	14.942	-1.048	177.355	-7.667
		Min: AR AT AV AX BA BT			Max: AR AT AV AX AZ BB CD		
290	13.200	-400.509	-2.330	-17.618	1.133	-227.154	-15.358
		-400.509	-2.330	15.239	-1.048	227.154	-15.358
		Min: AR AT AV AX BA BT			Max: AR AT AV AX AZ BB CD		
291	0	-360.888	2.195	-11.098	1.848	-18.638	-17.438
		-360.888	2.195	7.531	-1.932	57.877	-17.438
		Min: AR AT AV AX BA BV			Max: AR AT AV AX AZ BD CD		
291	3.300	-360.888	2.195	-11.098	1.848	-55.260	-10.195
		-360.888	2.195	7.828	-1.932	83.219	-10.195
		Min: AR AT AV AX BA BV			Max: AR AT AV AX AZ BD CD		
291	6.600	-484.462	2.859	-17.618	-1.133	-110.878	1.675
		-484.462	2.859	14.645	1.048	128.537	1.675
		Min: AR AT AV AX BA EZ			Max: AR AT AV AX AZ BH CD		
291	9.900	-484.462	2.859	-17.618	-1.133	-169.016	11.111
		-484.462	2.859	14.942	1.048	177.355	11.111
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		
291	13.200	-484.462	2.859	-17.618	-1.133	-227.154	20.546
		-484.462	2.859	15.239	1.048	227.154	20.546
		Min: AR AT AV AX BA BZ			Max: AR AT AV AX AZ BH CD		

Características mecánicas Sección "TABVANOL" (sin coef. homogeneiz.)

Area	Ax = 46.53E3 cm2			
Momento de inercia	Iy = 28.62E6 cm4	Iz = 1.372E9 cm4	Ip = 1.400E9 cm4	
Const. de torsión			Ix = 50.83E6 cm4	
Momento estático	Zy =998.79E3 cm3	Zz = 6.642E6 cm3		
Baricentro	ys = 0.0000 m	zs = 0.4986 m	Angulo= 0.0 Grad	
Dist. al borde	yl = -3.8500 m	yr = 3.8500 m		
	zo = 0.4014 m	zu = -0.4986 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 0.0000 m z = 0.4986 m

Contorno de sección parcial, Sección "TABVANOL" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	46530.5	1625.531	5.08E+07	3)

Puntos de contorno [m]:

1	-1.8500	0.0000	2	1.8500	0.0000	3	2.3500	0.5230
4	3.8500	0.6230	5	3.8500	0.8230	6	0.0000	0.9000
7	-3.8500	0.8230	8	-3.8500	0.6230	9	-2.3500	0.5230
10	-1.8500	0.0000						

Armadura "B1" As-tot =2.0000 cm2 (0.00 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 2 / CS 1	AEH500	1.0	2	1.0000	-3.7500	0.7800
					3.7500	0.7800
LR 1 / CS 1	AEH500	1.0	2	1.0000	-1.8000	0.0600
					1.8000	0.0600

Dimensionamiento a flexión: Viga Sección "TABVANOL"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-0.0000	646.2700	0.0000	

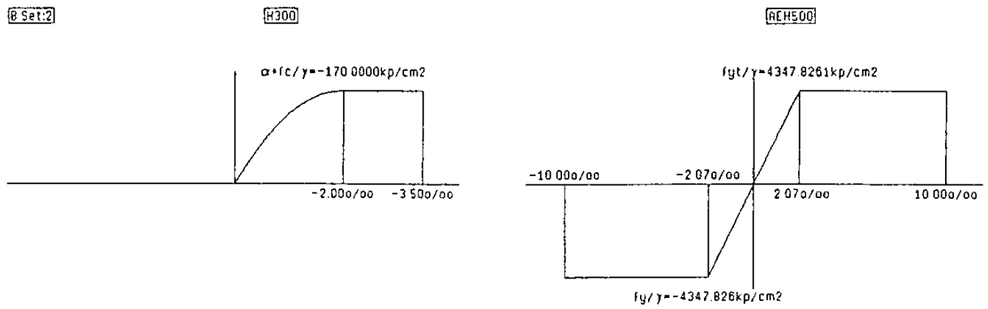
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No	Armad. long.	y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
	AEH500	-3.7500	0.7800	3.7500	0.7800	1.0000	----	1.0000
1	AEH500	-1.8000	0.0600	1.8000	0.0600	1.0000	194.1145	194.1145

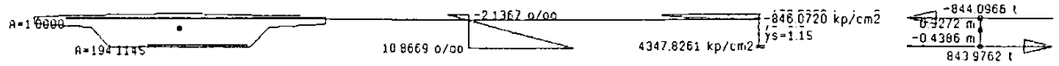
Max.x/h = 0.18 As-top/bot = 1.0000/194.1145 As = 0.42 % = 195.1145

18 ϕ 25 + 18 ϕ 32 (233.10 cm²)

Material acorde a la sección: "TABVANOL"



Dimensionamiento, Sección "TABVANOL"



Características mecánicas Sección "TABVANOL" (sin coef. homogeneiz.)

Area	Ax = 46.53E3 cm2			
Momento de inercia	Iy = 28.62E6 cm4	Iz = 1.372E9 cm4	Ip = 1.400E9 cm4	
Const. de torsión			Ix = 50.83E6 cm4	
Momento estático	Zy =998.79E3 cm3	Zz = 6.642E6 cm3		
Baricentro	ys = 0.0000 m	zs = 0.4986 m	Angulo= 0.0 Grad	
Dist. al borde	yl = -3.8500 m	yr = 3.8500 m		
	zo = 0.4014 m	zu = -0.4986 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 0.0000 m z = 0.4986 m

Contorno de sección parcial, Sección "TABVANOL" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	46530.5	1625.531	5.08E+07	3)

Puntos de contorno [m]:

1	-1.8500	0.0000	2	1.8500	0.0000	3	2.3500	0.5230
4	3.8500	0.6230	5	3.8500	0.8230	6	0.0000	0.9000
7	-3.8500	0.8230	8	-3.8500	0.6230	9	-2.3500	0.5230
10	-1.8500	0.0000						

rmadura "B1" As-tot =195.1145 cm2 (0.42 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 2 / CS 1	AEH500	1.0	2	1.0000	-3.7500	0.7800
					3.7500	0.7800
LR 1 / CS 1	AEH500	1.0	2	194.1145	-1.8000	0.0600
					1.8000	0.0600

Dimensionamiento a flexión: Viga Sección "TABVANOL"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-0.0000	-774.5900	0.0000	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

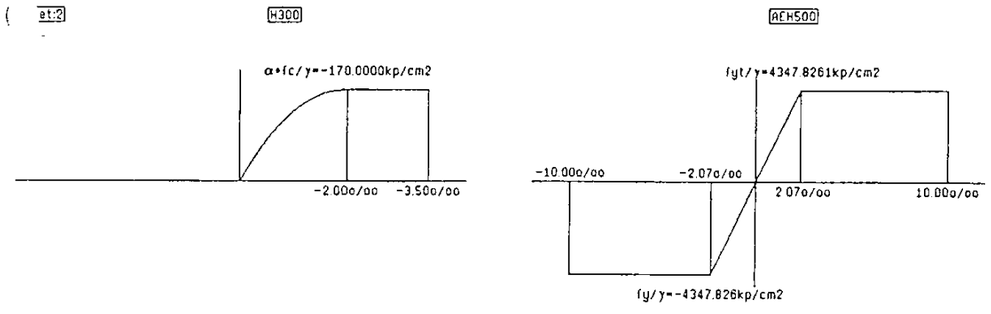
No Armad. long.	:	y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
1 AEH500		-3.7500	0.7800	3.7500	0.7800	1.0000	257.6408	257.6408
AEH500		-1.8000	0.0600	1.8000	0.0600	1.0000	----	1.0000

Max.x/h = 0.27 As-top/bot = 257.6408/1.0000 As = 0.56 % = 258.6408

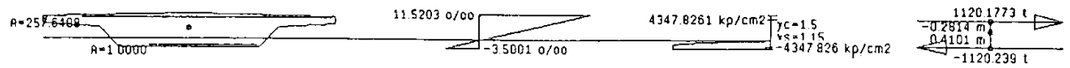
$\phi 20/0.20 \times 7.60m +$

$23\,\phi 25 + 14\,\phi 20 \quad (276.21cm^2)$

Material acorde a la sección: "TABVANOL"



Dimensionamiento, Sección "TABVANOL"



Características mecánicas Sección "TABVANOL" (sin coef. homogeneiz.)

Area	Ax = 46.53E3 cm2		
Momento de inercia	Iy = 28.62E6 cm4	Iz = 1.372E9 cm4	Ip = 1.400E9 cm4
Const. de torsión			Ix = 50.83E6 cm4
Momento estático	Zy =998.79E3 cm3	Zz = 6.642E6 cm3	
Baricentro	ys = 0.0000 m	zs = 0.4986 m	Angulo= 0.0 Grad
Dist. al borde	yl = -3.8500 m	yr = 3.8500 m	
	zo = 0.4014 m	zu = -0.4986 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 0.0000 m z = 0.4986 m

Contorno de sección parcial, Sección "TABVANOL" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	46530.5	1625.531	5.08E+07	3)

Puntos de contorno [m]:

1	-1.8500	0.0000	2	1.8500	0.0000	3	2.3500	0.5230
4	3.8500	0.6230	5	3.8500	0.8230	6	0.0000	0.9000
7	-3.8500	0.8230	8	-3.8500	0.6230	9	-2.3500	0.5230
10	-1.8500	0.0000						

Armadura "B1" As-tot =258.6408 cm2 (0.56 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 2 / CS 1	AEH500	1.0	2	257.6408	-3.7500	0.7800
					3.7500	0.7800
LR 1 / CS 1	AEH500	1.0	2	1.0000	-1.8000	0.0600
					1.8000	0.0600

Dimensionamiento a flexión: Viga Sección "TABVANOL"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-0.0000	818.4600	0.0000	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

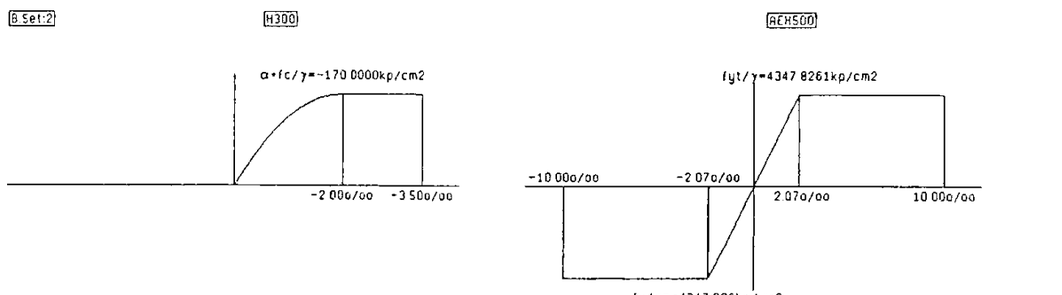
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad. long.		y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
	AEH500	-3.7500	0.7800	3.7500	0.7800	1.0000	----	1.0000
1	AEH500	-1.8000	0.0600	1.8000	0.0600	1.0000	248.5995	248.5995

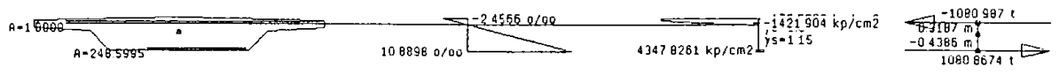
Max.x/h = 0.20 As-top/bot = 1.0000/248.5995 As = 0.54 % = 249.5995

18φ25 + 18φ32 + 4φ25.
(252,74cm²)

Material acorde a la sección: "TABVANOL"

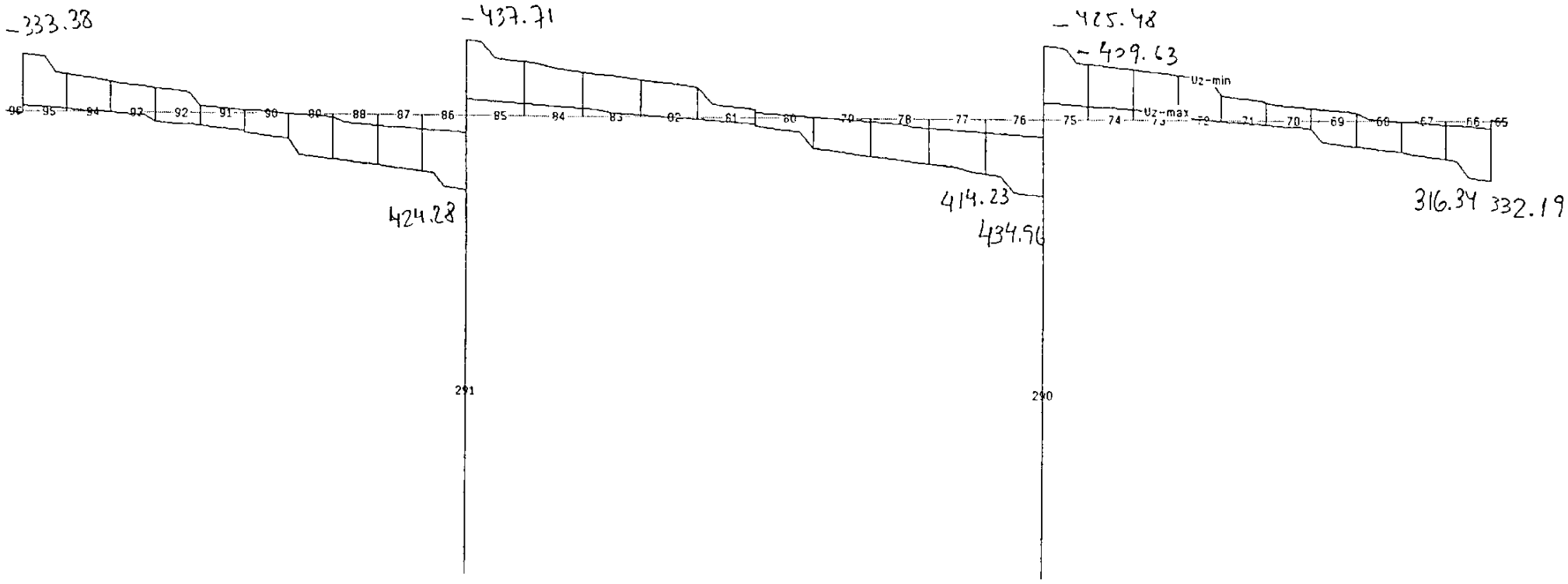


Dimensionamiento, Sección "TABVANOL"



2.4.1.3. Verificación de las secciones a esfuerzos de cortante (E.L.U.)

Scale 1 : 173.7
Int. Forces envelope Vz, GWSP ES (COMBINACION FZAS EXTERIORES), Subsys. "LIST"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 5.00E-03
  min: -4.38E+02 max: 9.76E+01 [t]
- Envelope Shear force Vz-max, Scale 5.00E-03
  min: -9.90E+01 max: 4.35E+02 [t]



ENVELOPE SPECIFIC.: ES 'COMBINACION FZAS EXTERIORES'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PL.PERM	5	1.350		RETRACCION
H	OR	5	1.000		RETRACCION
I	PLUS	6	1.500		SOB UNIF 1
J	PLUS	7	1.500		SOBRECARGA UNIF 2
K	PLUS	8	1.500		SOB UNIF 3
L	PLUS	11	4.220		VEHICULO HIPOTESIS 11
M	OR	12	4.220		VEHICULO HIPOTESIS 12
N	OR	13	4.220		VEHICULO HIPOTESIS 13
O	OR	14	4.220		VEHICULO HIPOTESIS 14
P	OR	15	4.220		VEHICULO HIPOTESIS 15
Q	OR	16	4.220		VEHICULO HIPOTESIS 16
R	OR	17	4.220		VEHICULO HIPOTESIS 17
S	OR	18	4.220		VEHICULO HIPOTESIS 18
T	OR	19	4.220		VEHICULO HIPOTESIS 19
U	OR	20	4.220		VEHICULO HIPOTESIS 20
V	OR	21	4.220		VEHICULO HIPOTESIS 21
W	OR	22	4.220		VEHICULO HIPOTESIS 22
X	OR	23	4.220		VEHICULO HIPOTESIS 23
Y	OR	24	4.220		VEHICULO HIPOTESIS 24
Z	OR	25	4.220		VEHICULO POSICION 25
AA	OR	26	4.220		VEHICULO POSICION 26
AB	OR	27	4.220		VEHICULO POSICION 27
AC	OR	28	4.220		VEHICULO POSICION 28
AD	OR	29	4.220		VEHICULO POSICION 29
AE	OR	30	4.220		VEHICULO POSICION 30
AF	OR	31	4.220		VEHICULO POSICION 31
AG	OR	32	4.220		VEHICULO POSICION 32
AH	OR	33	4.220		VEHICULO POSICION 33
AI	OR	34	4.220		VEHICULO POSICION 34
AJ	OR	35	4.220		VEHICULO POSICION 35
AK	OR	36	4.220		VEHICULO POSICION 36
AL	OR	37	4.220		VEHICULO HIPOTESIS 37
AM	PLUS	60	1.500		FRENADO
AN	PLUS	63	0.450000		VIENTO TRANSV CON SOB
AO	PLUS	64	0.900000		TEMPERATURA (-)
AP	OR	65	0.900000		TEMPERATURA (+)
AQ	PLUS	66	0.900000		GRADIENTE
	ALTERNATIVE ENVELOPE :				
AR	PERM.	1	1.350		PESO PROPIO
AS	OR	1	1.000		PESO PROPIO
AT	PL.PERM	2	2.025		PESO PAVIMENTO
AU	OR	2	1.000		PESO PAVIMENTO
AV	PL.PERM	3	1.350		PESO BARRERAS
AW	OR	3	1.000		PESO BARRERAS
AX	PL.PERM	5	1.350		RETRACCION

AY	OR	5	1.000		RETRACCION
AZ	PLUS	9	1.500		SOB UNIF EXC
BA	PLUS	10	1.500		SOB UNIF EXC
BB	PLUS	11	4.220		VEHICULO HIPOTESIS 11
BC	OR	12	4.220		VEHICULO HIPOTESIS 12
BD	OR	13	4.220		VEHICULO HIPOTESIS 13
BE	OR	14	4.220		VEHICULO HIPOTESIS 14
BF	OR	15	4.220		VEHICULO HIPOTESIS 15
BG	OR	16	4.220		VEHICULO HIPOTESIS 16
BH	OR	17	4.220		VEHICULO HIPOTESIS 17
BI	OR	18	4.220		VEHICULO HIPOTESIS 18
BJ	OR	19	4.220		VEHICULO HIPOTESIS 19
BK	OR	20	4.220		VEHICULO HIPOTESIS 20
BL	OR	21	4.220		VEHICULO HIPOTESIS 21
BM	OR	22	4.220		VEHICULO HIPOTESIS 22
BN	OR	23	4.220		VEHICULO HIPOTESIS 23
BO	OR	24	4.220		VEHICULO HIPOTESIS 24
BP	OR	25	4.220		VEHICULO POSICION 25
BQ	OR	26	4.220		VEHICULO POSICION 26
BR	OR	27	4.220		VEHICULO POSICION 27
BS	OR	28	4.220		VEHICULO POSICION 28
BT	OR	29	4.220		VEHICULO POSICION 29
BU	OR	30	4.220		VEHICULO POSICION 30
BV	OR	31	4.220		VEHICULO POSICION 31
BW	OR	32	4.220		VEHICULO POSICION 32
BX	OR	33	4.220		VEHICULO POSICION 33
BY	OR	34	4.220		VEHICULO POSICION 34
BZ	OR	35	4.220		VEHICULO POSICION 35
CA	OR	36	4.220		VEHICULO POSICION 36
CB	OR	37	4.220		VEHICULO HIPOTESIS 37
CC	PLUS	60	1.500		FRENADO
CD	PLUS	63	0.450000		VIENTO TRANSV CON SOB
CE	PLUS	64	0.900000		TEMPERATURA (-)
CF	OR	65	0.900000		TEMPERATURA (+)
CG	PLUS	66	0.900000		GRADIENTE

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-0.153394	-4.99E-10	-5.336	4.98E-13	-1.001	2.47E-09
		Min: AR AT AV AX AZ BA BC...				Max: B D F H P AM AO AQ	
65	0.500	-8.21E-12	1.74E-08	-12.192	-9.54E-13	-3.048	6.19E-09
		-0.204525	-4.99E-10	-7.115	4.98E-13	-1.779	2.41E-09
		Min: AR AT AV AX AZ BA BC...				Max: B D F H P AM AO AQ	
66	0	8.794	-13.901	37.688	1.75E-13	-1.779	-1.91E-07
		-0.738234	-16.352	332.190	-1.34E-13	-3.048	-2.23E-07
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
66	0.325	8.661	-13.901	33.063	1.75E-13	9.718	-4.518
		-0.738234	-16.352	324.265	-1.34E-13	193.626	-5.314
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
66	0.650	8.528	-13.901	28.438	1.75E-13	19.712	-9.036
		-0.738234	-16.352	316.340	-1.34E-13	207.724	-10.629
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
66	0.975	8.395	-13.901	23.813	1.75E-13	28.203	-13.553
		-0.738234	-16.352	224.015	126.600	298.697	-15.943
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
66	1.300	8.262	-13.901	19.188	1.75E-13	35.190	-18.071
		-0.738234	-16.352	216.091	126.600	370.214	-21.257
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
67	0	8.262	-13.901	19.188	1.75E-13	35.190	-18.071
		-0.738234	-16.352	216.091	126.600	370.214	-21.257
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
67	0.325	8.129	-13.901	14.563	1.75E-13	40.675	-22.589
		-0.736234	-16.352	208.166	126.600	439.156	-26.571
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
67	0.650	7.996	-13.901	9.938	1.75E-13	44.656	-27.107
		-0.738234	-16.352	200.241	126.600	505.522	-31.886
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
67	0.975	7.863	-13.901	5.313	1.75E-13	47.134	-31.624
		-0.738234	-16.352	192.316	126.600	569.313	-37.200
		Min: B D F G J P AM AO				Max: A C E H I K L AP AQ	
67	1.300	7.730	-13.901	0.687888	1.75E-13	48.109	-36.142
		-1.242	-16.352	175.982	2.03E-13	536.923	-42.514
		Min: B D F G J P AM AO				Max: A C E H I K M AP AQ	
68	0	7.730	-13.901	0.687888	1.75E-13	48.109	-36.142
		-1.242	-16.352	175.982	2.03E-13	536.923	-42.514
		Min: B D F G J P AM AO				Max: A C E H I K M AP AQ	
68	0.325	7.597	-13.901	-3.937	1.75E-13	47.581	-40.660
		-1.242	-16.352	168.057	2.03E-13	592.830	-47.828
		Min: B D F G J P AM AO				Max: A C E H I K M AP AQ	
68	0.650	7.464	-13.901	-8.562	1.75E-13	45.550	-45.178
		-1.242	-16.352	160.133	2.03E-13	646.161	-53.143
		Min: B D F G J P AM AO				Max: A C E H I K M AP AQ	
68	0.975	7.333	-13.901	-13.187	1.75E-13	42.016	-49.696
		-1.242	-16.352	152.208	2.03E-13	696.916	-58.457
		Min: B D F G J P AM AO				Max: A C E H I K M AP AQ	

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
68	1.300	6.754	-16.352	-51.430	379.800	500.888	-63.771
		-1.242	-16.352	144.283	2.03E-13	745.096	-63.771
		Min: B D F G J L AM AO				Max: A C E H I K M AP AQ	
69	0	6.754	-16.352	-51.430	379.800	500.888	-63.771
		-1.242	-16.352	144.283	1.60E-12	745.096	-63.771
		Min: B D F G J L AM AO				Max: A C E H I K M AP AQ	
69	0.325	6.621	-16.352	-56.055	379.800	483.422	-69.085
		-1.242	-16.352	136.358	1.60E-12	790.700	-69.085
		Min: B D F G J L AM AO				Max: A C E H I K M AP AQ	
69	0.650	6.488	-16.352	-60.680	379.800	464.452	-74.400
		-1.242	-16.352	128.433	1.60E-12	833.729	-74.400
		Min: B D F G J L AM AO				Max: A C E H I K M AP AQ	
69	0.975	6.355	-16.352	-65.696	379.800	505.016	-79.714
		-1.242	-16.352	120.900	1.60E-12	813.145	-79.714
		Min: A C E G J L AM AO				Max: B D F H I K M AP AQ	
69	1.300	6.222	-16.352	-72.061	379.800	482.630	-85.028
		-0.964122	-16.352	41.819	6.01E-13	472.373	-85.028
		Min: A C E G J L AM AO				Max: B D F H I K N AP AQ	
70	0	6.222	-16.352	-72.061	379.800	482.630	-85.028
		-0.964122	-16.352	41.819	6.22E-13	472.373	-85.028
		Min: A C E G J L AM AO				Max: B D F H I K N AP AQ	
70	0.325	6.089	-16.352	-78.426	379.800	458.176	-90.342
		-0.964122	-16.352	35.634	6.22E-13	484.959	-90.342
		Min: A C E G J L AM AO				Max: B D F H I K N AP AQ	
70	0.650	5.756	-16.352	-85.432	379.800	509.435	-95.657
		-0.801778	-16.352	30.090	6.22E-13	417.753	-95.657
		Min: A C E G I J L AM AO				Max: B D F H K N AP AQ	
70	0.975	5.661	-16.352	-93.357	379.800	480.382	-100.971
		-0.801778	-16.352	25.465	6.22E-13	426.781	-100.971
		Min: A C E G I J L AM AO				Max: B D F H K N AP AQ	
70	1.300	5.528	-16.352	-101.282	379.800	448.753	-106.285
		-0.801778	-16.352	20.840	6.22E-13	434.306	-106.285
		Min: A C E G I J L AM AO				Max: B D F H K N AP AQ	
71	0	5.025	-16.352	-109.691	253.200	769.672	-106.285
		-0.801778	-16.352	20.840	-3.88E-13	434.306	-106.285
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
71	0.325	4.852	-16.352	-117.616	253.200	732.734	-111.599
		-0.801778	-16.352	16.215	-3.88E-13	440.327	-111.599
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
71	0.650	4.759	-16.352	-125.541	253.200	693.221	-116.914
		-0.801778	-16.352	11.591	-3.88E-13	444.846	-116.914
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
71	0.975	4.626	-16.352	-133.465	253.200	651.133	-122.228
		-0.801778	-16.352	6.966	-3.88E-13	447.861	-122.228
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
71	1.300	4.493	-16.352	-141.390	253.200	606.469	-127.542
		-0.801778	-16.352	2.341	-3.88E-13	449.374	-127.542

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
68	1.300	6.754	-16.352	-51.430	379.800	500.888	-63.771
		-1.242	-16.352	144.283	2.03E-13	745.096	-63.771
		Min: B D F G J L AM AO				Max: A C E H I K M AP AQ	
69	0	6.754	-16.352	-51.430	379.800	500.888	-63.771
		-1.242	-16.352	144.283	1.60E-12	745.096	-63.771
		Min: B D F G J L AM AO				Max: A C E H I K M AP AQ	
69	0.325	6.621	-16.352	-56.055	379.800	483.422	-69.085
		-1.242	-16.352	136.358	1.60E-12	790.700	-69.085
		Min: B D F G J L AM AO				Max: A C E H I K M AP AQ	
69	0.650	6.488	-16.352	-60.680	379.800	464.452	-74.400
		-1.242	-16.352	128.433	1.60E-12	833.729	-74.400
		Min: B D F G J L AM AO				Max: A C E H I K M AP AQ	
69	0.975	6.355	-16.352	-65.696	379.800	505.016	-79.714
		-1.242	-16.352	120.900	1.60E-12	813.145	-79.714
		Min: A C E G J L AM AO				Max: B D F H I K M AP AQ	
69	1.300	6.222	-16.352	-72.061	379.800	482.630	-85.028
		-0.964122	-16.352	41.819	6.01E-13	472.373	-85.028
		Min: A C E G J L AM AO				Max: B D F H I K N AP AQ	
70	0	6.222	-16.352	-72.061	379.800	482.630	-85.028
		-0.964122	-16.352	41.819	6.22E-13	472.373	-85.028
		Min: A C E G J L AM AO				Max: B D F H I K N AP AQ	
70	0.325	6.089	-16.352	-78.426	379.800	458.176	-90.342
		-0.964122	-16.352	35.634	6.22E-13	484.959	-90.342
		Min: A C E G J L AM AO				Max: B D F H I K N AP AQ	
70	0.650	5.756	-16.352	-85.432	379.800	509.435	-95.657
		-0.801778	-16.352	30.090	6.22E-13	417.753	-95.657
		Min: A C E G I J L AM AO				Max: B D F H K N AP AQ	
70	0.975	5.661	-16.352	-93.357	379.800	480.382	-100.971
		-0.801778	-16.352	25.465	6.22E-13	426.781	-100.971
		Min: A C E G I J L AM AO				Max: B D F H K N AP AQ	
70	1.300	5.528	-16.352	-101.282	379.800	448.753	-106.285
		-0.801778	-16.352	20.840	6.22E-13	434.306	-106.285
		Min: A C E G I J L AM AO				Max: B D F H K N AP AQ	
71	0	5.025	-16.352	-109.691	253.200	769.672	-106.285
		-0.801778	-16.352	20.840	-3.88E-13	434.306	-106.285
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
71	0.325	4.852	-16.352	-117.616	253.200	732.734	-111.599
		-0.801778	-16.352	16.215	-3.88E-13	440.327	-111.599
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
71	0.650	4.759	-16.352	-125.541	253.200	693.221	-116.914
		-0.801778	-16.352	11.591	-3.88E-13	444.846	-116.914
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
71	0.975	4.626	-16.352	-133.465	253.200	651.133	-122.228
		-0.801778	-16.352	6.966	-3.88E-13	447.861	-122.228
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
71	1.300	4.493	-16.352	-141.390	253.200	606.469	-127.542
		-0.801778	-16.352	2.341	-3.88E-13	449.374	-127.542

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
72	0	4.493	-16.352	-141.390	253.200	606.469	-127.542
		-0.801778	-16.352	2.341	-6.12E-13	449.374	-127.542
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
72	0.325	4.360	-16.352	-233.715	379.800	548.679	-132.856
		-0.801778	-16.352	-2.284	-6.12E-13	449.363	-132.856
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
72	0.650	4.227	-16.352	-241.640	379.800	471.434	-138.171
		-0.801778	-16.352	-6.909	-6.12E-13	447.889	-138.171
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
72	0.975	4.094	-16.352	-249.564	379.800	391.614	-143.485
		-0.801778	-16.352	-11.534	-6.12E-13	444.892	-143.485
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
72	1.300	3.961	-16.352	-257.489	379.800	309.218	-148.799
		-0.801778	-16.352	-16.159	-6.12E-13	440.392	-148.799
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
73	0	3.961	-16.352	-257.489	379.800	309.217	-148.799
		-0.801778	-16.352	-16.159	-2.89E-12	440.392	-148.799
		Min: A C E G I J M AM AO				Max: B D F H K N AP AQ	
73	0.325	3.828	-16.352	-265.414	379.800	224.246	-154.113
		0.810842	-11.450	-47.936	-1.53E-12	178.476	-107.917
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
73	0.650	3.695	-16.352	-273.339	379.800	136.698	-159.428
		0.810842	-11.450	-52.561	-1.53E-12	162.147	-111.639
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
73	0.975	3.562	-16.352	-281.264	379.800	46.576	-164.742
		0.810842	-11.450	-57.186	-1.53E-12	144.313	-115.360
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
73	1.300	3.429	-16.352	-289.188	379.800	-46.123	-170.056
		0.810842	-11.450	-61.811	-1.53E-12	124.976	-119.081
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
74	0	3.429	-16.352	-289.188	379.800	-46.123	-170.056
		0.810842	-11.450	-61.811	-2.52E-12	124.976	-119.081
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
74	0.325	3.296	-16.352	-297.113	379.800	-141.397	-175.371
		0.810842	-11.450	-66.436	-2.52E-12	104.135	-122.803
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
74	0.650	3.163	-16.352	-305.038	379.800	-239.245	-180.685
		0.810842	-11.450	-71.061	-2.52E-12	81.752	-126.524
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
74	0.975	3.030	-16.352	-312.963	379.800	-339.671	-185.999
		0.810842	-11.450	-75.686	-2.52E-12	57.945	-130.245
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
74	1.300	2.897	-16.352	-320.887	379.800	-442.672	-191.313
		0.810842	-11.450	-80.311	-2.52E-12	32.596	-133.966
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
74	0	2.897	-16.352	-320.887	379.800	-442.672	-191.313
		0.810842	-11.450	-80.311	-3.08E-12	32.596	-133.966
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
75	0.325	2.765	-16.352	-328.812	379.800	-548.248	-196.628
		0.810842	-11.450	-84.536	-3.08E-12	5.743	-137.688
		Min: A C E G I J M AM AO				Max: B D F H K S AP AQ	
75	0.650	2.909	-16.352	-409.633	379.800	-505.888	-201.942
		0.810842	-11.450	-89.561	-3.08E-12	-22.613	-141.409
		Min: A C E G I J N AM AO				Max: B D F H K S AP AQ	
75	0.975	2.776	-16.352	-417.558	379.800	-640.307	-207.256
		0.810842	-11.450	-94.186	-3.08E-12	-52.471	-145.130
		Min: A C E G I J N AM AO				Max: B D F H K S AP AQ	
75	1.300	2.644	-16.352	-425.483	379.800	-777.301	-212.570
		0.810842	-11.450	-98.811	-3.08E-12	-83.833	-148.852
		Min: A C E G I J N AM AO				Max: B D F H K S AP AQ	
76	0	2.040	-4.100	96.301	-127.576	-215.069	-145.511
		3.526	2.967	434.962	-234.993	-616.520	-205.582
		Min: B D F H K S AM AP				Max: A C E G I J O AO AQ	
76	0.425	6.866	-4.100	90.253	-127.576	-175.427	-147.254
		3.526	2.967	424.599	-234.993	-433.863	-204.322
		Min: B D F H K S AM AP				Max: A C E G I J O AO AQ	
76	0.850	6.692	-4.100	84.205	-127.576	-138.355	-148.997
		3.526	2.967	414.236	-234.993	-255.611	-203.061
		Min: B D F H K S AM AP				Max: A C E G I J O AO AQ	
76	1.275	6.518	-4.100	78.156	-127.576	-103.853	-150.739
		3.526	2.967	319.473	-108.393	-117.633	-201.800
		Min: B D F H K S AM AP				Max: A C E G I J O AO AQ	
76	1.700	6.344	-4.100	72.108	-127.576	-71.922	-152.482
		3.526	2.967	309.109	-108.393	15.941	-200.539
		Min: B D F H K S AM AP				Max: A C E G I J O AO AQ	
77	0	6.344	-4.100	72.108	-127.576	-71.922	-152.482
		3.526	2.967	309.109	-108.393	15.941	-200.539
		Min: B D F H K S AM AP				Max: A C E G I J O AO AQ	
77	0.425	6.170	-4.100	66.060	-127.576	-42.561	-154.225
		3.526	2.967	298.746	-108.393	145.110	-199.278
		Min: B D F H K S AM AP				Max: A C E G I J O AO AQ	
77	0.850	5.997	-4.100	60.012	-127.576	-15.770	-155.967
		-0.641686	5.23E-09	274.803	-189.900	19.158	-180.365
		Min: B D F H K S AM AP				Max: A C E G I J P AO AQ	
77	1.275	5.823	-4.100	53.964	-127.576	8.450	-157.710
		-0.641686	5.23E-09	264.440	-189.900	133.747	-180.365
		Min: B D F H K S AM AP				Max: A C E G I J P AO AQ	
77	1.700	5.649	-4.100	47.916	-127.576	30.100	-159.453
		-0.641686	5.23E-09	254.077	-189.900	243.932	-180.365
		Min: B D F H K S AM AP				Max: A C E G I J P AO AQ	

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
78	0	5.649	-4.100	47.916	-127.576	30.100	-159.453
		-0.641686	4.63E-09	254.077	-189.900	243.932	-180.365

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: B D F H K S AM AP		Max: A C E G I J P AO AQ			
78	0.425	5.475	-4.100	41.868	-127.576	49.179	-161.195
		-0.641686	4.63E-09	243.713	-189.900	349.712	-180.365
		Min: B D F H K S AM AP		Max: A C E G I J P AO AQ			
78	0.850	-2.783	2.967	25.996	144.807	320.860	-192.974
		-0.641686	4.63E-09	233.350	-189.900	451.088	-180.365
		Min: B D F H K O AM AP		Max: A C E G I J P AO AQ			
78	1.275	-2.956	2.967	19.948	144.807	330.623	-191.713
		-0.641686	4.63E-09	222.987	-189.900	548.060	-180.365
		Min: B D F H K O AM AP		Max: A C E G I J P AO AQ			
78	1.700	-3.130	2.967	13.900	144.807	337.816	-190.452
		-0.641686	4.63E-09	212.624	-189.900	640.627	-180.365
		Min: B D F H K O AM AP		Max: A C E G I J P AO AQ			
79	0	-4.175	2.967	13.900	144.807	502.695	-190.452
		0.403304	4.11E-09	212.624	-189.900	475.746	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
79	0.425	-4.345	2.967	7.852	144.807	507.318	-189.191
		0.403304	4.11E-09	202.261	-189.900	563.911	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
79	0.850	-4.523	2.967	1.804	144.807	509.370	-187.930
		0.403304	4.11E-09	191.897	-189.900	647.670	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
79	1.275	-4.697	2.967	-4.244	144.807	508.851	-186.669
		0.403304	4.11E-09	181.534	-189.900	727.024	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
79	1.700	-4.871	2.967	-10.292	144.807	505.762	-185.408
		0.403304	4.11E-09	171.171	-189.900	801.974	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
80	0	-4.871	2.967	-10.292	144.807	505.762	-185.408
		0.403304	3.94E-09	171.171	-189.900	801.974	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
80	0.425	-5.044	2.967	-16.340	144.807	500.103	-184.147
		0.403304	3.94E-09	76.408	-63.300	853.525	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
80	0.850	-5.218	2.967	-22.388	144.807	491.873	-182.887
		0.403304	3.94E-09	66.045	-63.300	883.800	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
80	1.275	-5.392	2.967	-28.436	144.807	481.073	-181.626
		0.403304	3.94E-09	55.682	-63.300	905.667	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
80	1.700	-5.566	2.967	-34.484	144.807	467.703	-180.365
		0.403304	3.94E-09	45.318	-63.300	931.130	-180.365
		Min: B D F H K O AM AP AQ		Max: A C E G I J P AO			
81	0	-11.847	3.62E-09	-48.064	63.300	1085.477	-180.365
		6.684	-2.967	31.738	-144.807	313.356	-180.365
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AO			
81	0.425	-12.021	3.62E-09	-56.427	63.300	1062.847	-180.365

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		6.684	-2.967	25.690	-144.807	325.559	-181.626
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AO			
81	0.850	-12.195	3.62E-09	-68.790	63.300	1035.814	-180.365
		6.684	-2.967	19.642	-144.807	335.193	-182.887
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AO			
81	1.275	-12.368	3.62E-09	-79.154	63.300	1004.375	-180.365
		6.684	-2.967	13.594	-144.807	342.255	-184.147
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AO			
81	1.700	-12.542	3.62E-09	-173.917	189.900	951.653	-180.365
		6.684	-2.967	7.546	-144.807	346.748	-185.408
		Min: A C E H J K P AM AP AQ		Max: B D F G I Q AO			
82	0	-11.497	3.50E-09	-173.917	189.900	786.774	-180.365
		5.639	-2.967	7.546	-144.807	511.627	-185.408
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
82	0.425	-11.671	3.50E-09	-184.280	189.900	710.657	-180.365
		5.639	-2.967	1.498	-144.807	513.549	-186.669
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
82	0.850	-11.845	3.50E-09	-194.643	189.900	630.136	-180.365
		5.639	-2.967	-4.550	-144.807	512.900	-187.930
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
82	1.275	-12.019	3.50E-09	-205.006	189.900	545.210	-180.365
		5.639	-2.967	-10.598	-144.807	509.682	-189.191
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
82	1.700	-12.193	3.50E-09	-215.370	189.900	455.880	-180.365
		5.639	-2.967	-16.646	-144.807	503.892	-190.452
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
83	0	-12.193	3.56E-09	-215.370	189.900	455.880	-180.365
		5.639	-2.967	-16.646	-144.807	503.892	-190.452
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
83	0.425	-12.366	3.56E-09	-225.733	189.900	362.146	-180.365
		5.639	-2.967	-22.694	-144.807	495.533	-191.713
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
83	0.850	-12.540	3.56E-09	-236.096	189.900	264.007	-180.365
		5.639	-2.967	-28.742	-144.807	484.603	-192.974
		Min: A C E H J K P AM AP		Max: B D F G I Q AO AQ			
83	1.275	-12.714	3.56E-09	-246.459	189.900	161.464	-180.365
		13.723	4.100	-44.614	127.576	211.754	-161.195
		Min: A C E H J K P AM AP		Max: B D F G I M AO AQ			
83	1.700	-12.888	3.56E-09	-256.822	189.900	54.517	-180.365
		13.723	4.100	-50.662	127.576	191.508	-159.453
		Min: A C E H J K P AM AP		Max: B D F G I M AO AQ			
84	0	-12.888	3.51E-09	-256.822	189.900	54.517	-180.365
		13.723	4.100	-50.662	127.576	191.508	-159.453
		Min: A C E H J K P AM AP		Max: B D F G I M AO AQ			
84	0.425	-13.062	3.51E-09	-267.185	189.900	-56.834	-180.365
		13.723	4.100	-56.710	127.576	166.692	-157.710
		Min: A C E H J K P AM AP		Max: B D F G I M AO AQ			

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
84	0.850	-13.236	3.51E-09	-277.549	189.900	-172.580	-180.365
		13.723	4.100	-62.758	127.576	143.305	-155.967
		Min: A C E H J K P AM AP		Max: B D F G I M AO AQ			
84	1.275	-9.241	-2.967	-301.492	108.393	-47.805	-199.278
		13.723	4.100	-68.806	127.576	115.347	-154.225
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
84	1.700	-9.415	-2.967	-311.855	108.393	-178.142	-200.539
		13.723	4.100	-74.854	127.576	84.819	-152.482
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
85	0	-9.415	-2.967	-311.855	108.393	-178.142	-200.539
		13.723	4.100	-74.854	127.576	84.819	-152.482
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
85	0.425	-9.586	-2.967	-322.218	108.393	-312.882	-201.800
		13.723	4.100	-80.902	127.576	51.721	-150.739
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
85	0.850	-9.763	-2.967	-332.581	108.393	-452.027	-203.061
		13.723	4.100	-86.950	127.576	16.052	-148.997
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
85	1.275	-9.937	-2.967	-427.345	234.993	-631.446	-204.322
		13.723	4.100	-92.998	127.576	-22.187	-147.254
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
85	1.700	-10.111	-2.967	-437.708	234.993	-815.270	-205.582
		13.723	4.100	-99.046	127.576	-62.996	-145.511
		Min: A C E H J K Q AM AP		Max: B D F G I M AO AQ			
86	0	3.366	11.450	97.611	-1.01E-12	-68.240	-148.852
		5.197	16.352	424.283	-379.800	-761.707	-212.570
		Min: B D F H I M AM AP AQ		Max: A C E G J K R AO			
86	0.325	3.232	11.450	92.986	-1.01E-12	-37.268	-145.130
		5.197	16.352	416.358	-379.800	-625.103	-207.256
		Min: B D F H I M AM AP AQ		Max: A C E G J K R AO			
86	0.650	3.099	11.450	88.362	-1.01E-12	-7.799	-141.409
		5.197	16.352	408.434	-379.800	-491.074	-201.942
		Min: B D F H I M AM AP AQ		Max: A C E G J K R AO			
86	0.975	2.966	11.450	83.737	-1.01E-12	20.167	-137.688
		4.919	16.352	327.613	-379.800	-533.824	-196.628
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
86	1.300	2.833	11.450	79.112	-1.01E-12	46.630	-133.966
		4.919	16.352	319.688	-379.800	-428.638	-191.313
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
87	0	2.833	11.450	79.112	-5.45E-13	46.630	-133.966
		4.919	16.352	319.688	-379.800	-428.638	-191.313
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
87	0.325	2.700	11.450	74.487	-5.45E-13	73.590	-130.245
		4.919	16.352	311.763	-379.800	-326.027	-185.999
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
87	0.650	2.567	11.450	69.862	-5.45E-13	95.046	-126.524
		4.919	16.352	303.838	-379.800	-225.992	-180.685

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
87	0.975	2.434	11.450	65.237	-5.45E-13	117.000	-122.803
		4.919	16.352	295.914	-379.800	-128.532	-175.371
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
87	1.300	2.301	11.450	60.612	-5.45E-13	137.450	-119.081
		4.919	16.352	287.989	-379.800	-33.648	-170.056
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
88	0	2.301	11.450	60.612	7.48E-13	137.450	-119.081
		4.919	16.352	287.989	-379.800	-33.648	-170.056
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
88	0.325	2.168	11.450	55.987	7.48E-13	156.398	-115.360
		4.919	16.352	280.064	-379.800	58.661	-164.742
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
88	0.650	2.035	11.450	51.362	7.48E-13	173.842	-111.635
		4.919	16.352	272.139	-379.800	148.194	-159.428
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
88	0.975	1.902	11.450	46.737	7.48E-13	189.782	-107.917
		4.919	16.352	264.214	-379.800	235.551	-154.113
		Min: B D F H I M AM AP AQ		Max: A C E G J K S AO			
88	1.300	0.156708	16.352	14.960	2.70E-13	451.307	-148.799
		4.919	16.352	256.290	-379.800	320.133	-148.799
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
89	0	0.156708	16.352	14.960	2.43E-12	451.307	-148.799
		4.919	16.352	256.290	-379.800	320.133	-148.799
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
89	0.325	0.023767	16.352	10.335	2.43E-12	455.417	-143.485
		4.919	16.352	248.365	-379.800	402.139	-143.485
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
89	0.650	-0.109174	16.352	5.710	2.43E-12	458.025	-138.171
		4.919	16.352	240.440	-379.800	481.570	-138.171
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
89	0.975	-0.242116	16.352	1.085	2.43E-12	459.129	-132.856
		4.919	16.352	232.515	-379.800	558.425	-132.856
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
89	1.300	-0.375057	16.352	-3.540	2.43E-12	458.730	-127.542
		4.919	16.352	140.191	-253.200	615.825	-127.542
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
90	0	-0.375057	16.352	-3.540	1.29E-12	458.730	-127.542
		4.919	16.352	140.191	-253.200	615.825	-127.542
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
90	0.325	-0.507998	16.352	-8.165	1.29E-12	456.828	-122.228
		4.919	16.352	132.266	-253.200	660.099	-122.228
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
90	0.650	-0.640939	16.352	-12.790	1.29E-12	453.422	-116.914
		4.919	16.352	124.341	-253.200	701.798	-116.914
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
90	0.975	-0.773881	16.352	-17.415	1.29E-12	448.514	-111.599

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		4.919	16.352	116.416	-253.200	740.921	-111.599
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
90	1.300	-0.906822	16.352	-22.040	1.29E-12	442.103	-106.285
		4.919	16.352	108.491	-253.200	777.468	-106.285
		Min: B D F H I R AM AP AQ		Max: A C E G J K S AO			
91	0	-0.906822	16.352	-22.040	2.29E-12	442.103	-106.285
		5.423	16.352	100.082	-379.800	456.550	-106.285
		Min: B D F H I R AM AP AQ		Max: A C E G J K T AO			
91	0.325	-1.040	16.352	-26.665	2.29E-12	434.188	-100.971
		5.423	16.352	92.157	-379.800	487.789	-100.971
		Min: B D F H I R AM AP AQ		Max: A C E G J K T AO			
91	0.650	-1.173	16.352	-31.290	2.29E-12	424.770	-95.657
		5.423	16.352	84.232	-379.800	516.452	-95.657
		Min: B D F H I R AM AP AQ		Max: A C E G J K T AO			
91	0.975	-1.468	16.352	-36.833	2.29E-12	491.586	-90.342
		5.585	16.352	77.226	-379.800	464.803	-90.342
		Min: B D F H I K R AM AP AQ		Max: A C E G J T AO			
91	1.300	-1.601	16.352	-43.018	2.29E-12	478.610	-85.028
		5.585	16.352	70.861	-379.800	488.868	-85.028
		Min: B D F H I K R AM AP AQ		Max: A C E G J T AO			
92	0	-1.601	16.352	-43.018	5.94E-13	478.610	-85.028
		5.585	16.352	70.861	-379.800	488.868	-85.028
		Min: B D F H I K R AM AP AQ		Max: A C E G J T AO			
92	0.325	-2.012	16.352	-122.099	4.26E-14	818.993	-79.714
		5.585	16.352	64.497	-379.800	510.863	-79.714
		Min: B D F H I K S AM AP AQ		Max: A C E G J T AO			
92	0.650	-2.145	16.352	-129.633	4.26E-14	839.186	-74.400
		5.585	16.352	58.480	-379.800	469.910	-74.400
		Min: A C E H I K S AM AP AQ		Max: B D F G J T AO			
92	0.975	-2.278	16.352	-137.558	4.26E-14	795.768	-69.085
		5.585	16.352	54.855	-379.800	488.485	-69.085
		Min: A C E H I K S AM AP AQ		Max: B D F G J T AO			
92	1.300	-2.410	16.352	-145.483	4.26E-14	749.774	-63.771
		5.585	16.352	50.231	-379.800	505.566	-63.771
		Min: A C E H I K S AM AP AQ		Max: B D F G J T AO			
93	0	-2.410	16.352	-145.483	6.91E-13	749.774	-63.771
		5.585	16.352	50.231	-379.800	505.566	-63.771
		Min: A C E H I K S AM AP AQ		Max: B D F G J T AO			
93	0.325	-2.543	16.352	-153.407	6.91E-13	701.204	-58.457
		6.030	13.901	11.987	4.87E-13	46.304	-49.696
		Min: A C E H I K S AM AP AQ		Max: B D F G J P AO			
93	0.650	-2.676	16.352	-161.332	6.91E-13	650.059	-53.143
		6.030	13.901	7.363	4.87E-13	49.446	-45.178
		Min: A C E H I K S AM AP AQ		Max: B D F G J P AO			
93	0.975	-2.809	16.352	-169.257	6.91E-13	596.338	-47.828
		6.030	13.901	2.738	4.87E-13	51.090	-40.660
		Min: A C E H I K S AM AP AQ		Max: B D F G J P AO			

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
93	1.300	-2.942	16.352	-177.182	6.91E-13	540.042	-42.514
		6.030	13.901	-1.887	4.87E-13	51.228	-36.142
		Min: A C E H I K S AM AP AQ		Max: B D F G J P AO			
94	0	-2.942	16.352	-177.182	1.05E-12	540.042	-42.514
		6.030	13.901	-1.887	7.58E-13	51.228	-36.142
		Min: A C E H I K S AM AP AQ		Max: B D F G J P AO			
94	0.325	-2.572	16.352	-193.516	-126.600	572.042	-37.200
		6.030	13.901	-6.512	7.58E-13	49.863	-31.624
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
94	0.650	-2.704	16.352	-201.441	-126.600	507.861	-31.886
		6.030	13.901	-11.137	7.58E-13	46.995	-27.107
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
94	0.975	-2.837	16.352	-209.365	-126.600	441.105	-26.571
		6.030	13.901	-15.762	7.58E-13	42.624	-22.589
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
94	1.300	-2.970	16.352	-217.290	-126.600	371.774	-21.257
		6.030	13.901	-20.387	7.58E-13	36.749	-18.071
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
95	0	-2.970	16.352	-217.290	-126.600	371.774	-21.257
		6.030	13.901	-20.387	1.50E-12	36.749	-18.071
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
95	0.325	-3.103	16.352	-225.215	-126.600	299.867	-15.943
		6.030	13.901	-25.012	1.50E-12	29.372	-13.553
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
95	0.650	-3.236	16.352	-317.540	2.90E-12	208.504	-10.629
		6.030	13.901	-29.637	1.50E-12	20.492	-9.036
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
95	0.975	-3.369	16.352	-325.465	2.90E-12	104.016	-5.314
		6.030	13.901	-34.262	1.50E-12	10.108	-4.518
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
95	1.300	-3.502	16.352	-333.389	2.90E-12	-3.048	-2.22E-07
		6.030	13.901	-38.887	1.50E-12	-1.779	-1.89E-07
		Min: A C E H I K T AM AP AQ		Max: B D F G J P AO			
96	0	0.204525	2.01E-08	7.115	2.35E-12	-1.779	-4.15E-11
		-6.55E-12	1.96E-08	12.192	3.11E-12	-3.048	5.34E-11
		Min: B D F G T AM AO AQ		Max: AR AT AV AY AZ BA BI...			
96	0.125	0.153394	2.01E-08	5.336	2.35E-12	-1.001	2.47E-09
		-6.55E-12	1.96E-08	9.144	3.11E-12	-1.714	2.51E-09
		Min: B D F G T AM AO AQ		Max: AR AT AV AY AZ BA BI...			
96	0.250	0.102262	2.01E-08	3.558	2.35E-12	-0.444707	4.98E-09
		-6.55E-12	1.96E-08	6.096	3.11E-12	-0.761998	4.96E-09
		Min: B D F G T AM AO AQ		Max: AR AT AV AY AZ BA BI...			
96	0.375	0.051131	2.01E-08	1.779	2.35E-12	-0.111177	7.49E-09
		-6.55E-12	1.96E-08	3.048	3.11E-12	-0.190500	7.42E-09
		Min: B D F G T AM AO AQ		Max: AR AT AV AY AZ BA BI...			
96	0.500	2.01E-09	2.01E-08	7.11E-08	2.35E-12	-4.80E-12	1.00E-08
		-6.55E-12	1.96E-08	1.22E-07	3.11E-12	-1.43E-12	9.87E-09

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [cm]	My [cm]	Mz [cm]
		Min: B D F G T AM AO AQ			Max: AR AT AV AY AZ BA BI...		
290	0	-433.416	-3.572	-31.455	2.547	53.551	19.808
		-433.416	-3.572	27.892	-2.463	-14.312	19.808
		Min: AR AT AV AX BA BT CD			Max: AR AT AV AX AZ BE		
290	3.300	-433.416	-3.572	-31.162	2.547	-49.773	8.020
		-433.416	-3.572	27.892	-2.463	77.732	8.020
		Min: AR AT AV AX BA BT CD			Max: AR AT AV AX AZ BE		
290	6.600	-433.416	-3.572	-30.865	2.547	-152.116	-3.767
		-433.416	-3.572	27.892	-2.463	169.776	-3.767
		Min: AR AT AV AX BA BT CD			Max: AR AT AV AX AZ BE		
290	9.900	-433.416	-3.572	-30.568	2.547	-253.480	-15.554
		-433.416	-3.572	27.892	-2.463	261.820	-15.554
		Min: AR AT AV AX BA BT CD			Max: AR AT AV AX AZ BE		
290	13.200	-433.416	-3.572	-30.271	2.547	-353.864	-27.341
		-433.416	-3.572	27.892	-2.463	353.864	-27.341
		Min: AR AT AV AX BA BT CD			Max: AR AT AV AX AZ BE		
291	0	-602.123	4.634	-31.455	-2.547	53.551	-23.407
		-602.123	4.634	27.892	2.463	-14.312	-23.407
		Min: AR AT AV AX BA BZ CD			Max: AR AT AV AX AZ BH		
291	3.300	-602.123	4.634	-31.162	-2.547	-49.773	-6.113
		-602.123	4.634	27.892	2.463	77.732	-6.113
		Min: AR AT AV AX BA BZ CD			Max: AR AT AV AX AZ BH		
291	6.600	-602.123	4.634	-30.865	-2.547	-152.116	7.180
		-602.123	4.634	27.892	2.463	169.776	7.180
		Min: AR AT AV AX BA BZ CD			Max: AR AT AV AX AZ BH		
291	9.900	-602.123	4.634	-30.568	-2.547	-253.480	22.474
		-602.123	4.634	27.892	2.463	261.820	22.474
		Min: AR AT AV AX BA BZ CD			Max: AR AT AV AX AZ BH		
291	13.200	-602.123	4.634	-30.271	-2.547	-353.864	37.768
		-602.123	4.634	27.892	2.463	353.864	37.768
		Min: AR AT AV AX BA BZ CD			Max: AR AT AV AX AZ BH		

CALCULO A CORTANTE SEGÚN EHE

****

Departamento de Estructuras. AEPO, S.A.

Título:

Fecha: 24/5/01 13.42.42

DATOS DE LA SECCIÓN Y Y MATERIALES

Sección rectangular de ancho 370 cm, alto 90 cm y canto 87 cm.

Situación de proyecto Persistente

Resistencia característica del hormigón = 300 Kp/cm2

Acero B 500 S

Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2

Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO

Cortante reducido en el borde del apoyo = 437 T

Cortante reducido a un canto útil del borde del apoyo = 417 T

Axil de cálculo (Tracciones positivas) = 0 T

RESULTADOS DEL CÁLCULO

Se ha considerado una armadura a tracción de 229 cm2 lo que implica una cuantía geométrica igual a 0.00711

Inclinación de bielas de compresión 45°

Inclinación de las armaduras con el eje de la pieza 90°

Coeficiente de reducción por efecto del esfuerzo axil, K = 1

La sección no rompe por compresión oblicua del alma al ser Vrd = 437 T < Vu1 = 1931.40 T

Es necesario disponer armadura a cortante al ser Vrd = 417.00 T > Vu2 = 161.76 T

Valores de las tensiones: Eje X = 0.00 Kp/cm2. Eje Y = 0.00 Kp/cm2

Ángulo de referencia de inclinación de las fisuras = 45.00°

Vcu = 134.80 T. Vsu= 282.20 T.

As cálculo = 90.10 cm2/m. As mínima = 37.00 cm2/m

Mínimo de armadura a disponer = 90.10 cm2/m

2.4.2. Comprobación del punzonamiento del tablero

ENVELOPE SPECIFIC.: CY 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	1.000		SOB UNIF 1
F	PLUS	7	1.000		SOB UNIF 2
G	PLUS	8	1.000		SOB UNIF 3
H	PLUS	9	1.000		SOB UNIF 4
I	PLUS	10	1.000		SOB UNIF 5
J	PLUS	11	1.000		VEHICULO HIPOTESIS 11
K	OR	12	1.000		VEHICULO HIPOTESIS 12
L	OR	13	1.000		VEHICULO HIPOTESIS 13
M	OR	14	1.000		VEHICULO HIPOTESIS 14
N	OR	15	1.000		VEHICULO HIPOTESIS 15
O	OR	16	1.000		VEHICULO HIPOTESIS 16
P	OR	17	1.000		VEHICULO HIPOTESIS 17
Q	OR	18	1.000		VEHICULO HIPOTESIS 18
R	OR	19	1.000		VEHICULO HIPOTESIS 19
S	OR	20	1.000		VEHICULO HIPOTESIS 20
T	OR	21	1.000		VEHICULO HIPOTESIS 21
U	OR	22	1.000		VEHICULO HIPOTESIS 22
V	OR	23	1.000		VEHICULO HIPOTESIS 23
W	OR	24	1.000		VEHICULO HIPOTESIS 24
X	OR	25	1.000		VEHICULO POSICION 25
Y	OR	26	1.000		VEHICULO POSICION 26
Z	OR	27	1.000		VEHICULO POSICION 27
AA	OR	28	1.000		VEHICULO POSICION 28
AB	OR	29	1.000		VEHICULO POSICION 29
AC	OR	30	1.000		VEHICULO POSICION 30
AD	OR	31	1.000		VEHICULO POSICION 31
AE	OR	32	1.000		VEHICULO POSICION 32
AF	OR	33	1.000		VEHICULO POSICION 33
AG	OR	34	1.000		VEHICULO POSICION 34
AH	OR	35	1.000		VEHICULO POSICION 35
AI	OR	36	1.000		VEHICULO POSICION 36
AJ	OR	37	1.000		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.000		FRENADO
AL	PLUS	63	0.300000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.600000		TEMPERATURA (-)
AN	OR	65	0.600000		TEMPERATURA (+)
AO	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000	PESO PROPIO
AQ	PL.PERM	2	1.500	PESO PAVIMENTO
AR	OR	2	1.000	PESO PAVIMENTO
AS	PL.PERM	3	1.000	PESO BARRERAS
AT	PL.PERM	5	1.000	RETRACCION
AU	PLUS	6	1.000	SOB UNIF 1
AV	PLUS	7	1.000	SOB UNIF 2
AW	PLUS	8	1.000	SOB UNIF 3
AX	PLUS	9	1.000	SOB UNIF 4

AY	PLUS	10	1.000	SOB UNIF 5
AZ	PLUS	11	1.000	VEHICULO HIPOTESIS 11
BA	OR	12	1.000	VEHICULO HIPOTESIS 12
BB	OR	13	1.000	VEHICULO HIPOTESIS 13
BC	OR	14	1.000	VEHICULO HIPOTESIS 14
BD	OR	15	1.000	VEHICULO HIPOTESIS 15
BE	OR	16	1.000	VEHICULO HIPOTESIS 16
BF	OR	17	1.000	VEHICULO HIPOTESIS 17
BG	OR	18	1.000	VEHICULO HIPOTESIS 18
BH	OR	19	1.000	VEHICULO HIPOTESIS 19
BI	OR	20	1.000	VEHICULO HIPOTESIS 20
BJ	OR	21	1.000	VEHICULO HIPOTESIS 21
BK	OR	22	1.000	VEHICULO HIPOTESIS 22
BL	OR	23	1.000	VEHICULO HIPOTESIS 23
BM	OR	24	1.000	VEHICULO HIPOTESIS 24
BN	OR	25	1.000	VEHICULO POSICION 25
BO	OR	26	1.000	VEHICULO POSICION 26
BP	OR	27	1.000	VEHICULO POSICION 27
BQ	OR	28	1.000	VEHICULO POSICION 28
BR	OR	29	1.000	VEHICULO POSICION 29
BS	OR	30	1.000	VEHICULO POSICION 30
BT	OR	31	1.000	VEHICULO POSICION 31
BU	OR	32	1.000	VEHICULO POSICION 32
BV	OR	33	1.000	VEHICULO POSICION 33
BW	OR	34	1.000	VEHICULO POSICION 34
BX	OR	35	1.000	VEHICULO POSICION 35
BY	OR	36	1.000	VEHICULO POSICION 36
BZ	OR	37	1.000	VEHICULO HIPOTESIS 37
CA	PLUS	60	1.000	FRENADO
CB	PLUS	63	0.300000	VIENTO TRANSV CON SOB
CC	PLUS	64	0.600000	TEMPERATURA (-)
CD	OR	65	0.600000	TEMPERATURA (+)
CE	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

CF	PERM.	1	1.000	PESO PROPIO
CG	PL.PERM	2	1.500	PESO PAVIMENTO
CH	OR	2	1.000	PESO PAVIMENTO
CI	PL.PERM	3	1.000	PESO BARRERAS
CJ	PLUS	46	1.000	SOB UNIF VANO 1
CK	PLUS	47	1.000	SOB UNIF VANO 2
CL	PLUS	48	1.000	SOB UNIF VANO 3
CM	PLUS	11	1.000	VEHICULO HIPOTESIS 11
CN	OR	12	1.000	VEHICULO HIPOTESIS 12
CO	OR	13	1.000	VEHICULO HIPOTESIS 13
CP	OR	14	1.000	VEHICULO HIPOTESIS 14
CQ	OR	15	1.000	VEHICULO HIPOTESIS 15
CR	OR	16	1.000	VEHICULO HIPOTESIS 16
CS	OR	17	1.000	VEHICULO HIPOTESIS 17
CT	OR	18	1.000	VEHICULO HIPOTESIS 18
CU	OR	19	1.000	VEHICULO HIPOTESIS 19
CV	OR	20	1.000	VEHICULO HIPOTESIS 20
CW	OR	21	1.000	VEHICULO HIPOTESIS 21
CX	OR	22	1.000	VEHICULO HIPOTESIS 22
CY	OR	23	1.000	VEHICULO HIPOTESIS 23
CZ	OR	24	1.000	VEHICULO HIPOTESIS 24

DA	OR	25	1.000	VEHICULO POSICION 25
DB	OR	26	1.000	VEHICULO POSICION 26
DC	OR	27	1.000	VEHICULO POSICION 27
DD	OR	28	1.000	VEHICULO POSICION 28
DE	OR	29	1.000	VEHICULO POSICION 29
DF	OR	30	1.000	VEHICULO POSICION 30
DG	OR	31	1.000	VEHICULO POSICION 31
DH	OR	32	1.000	VEHICULO POSICION 32
DI	OR	33	1.000	VEHICULO POSICION 33
DJ	OR	34	1.000	VEHICULO POSICION 34
DK	OR	35	1.000	VEHICULO POSICION 35
DL	OR	36	1.000	VEHICULO POSICION 36
DM	OR	37	1.000	VEHICULO HIPOTESIS 37
DN	PLUS	60	1.000	FRENADO
DO	PLUS	63	0.300000	VIENTO TRANSV CON SOB
DP	PLUS	64	0.600000	TEMPERATURA (-)
DQ	OR	65	0.600000	TEMPERATURA (+)
DR	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

DS	PERM.	1	1.000	PESO PROPIO
DT	PL.PERM	2	1.500	PESO PAVIMENTO
DU	OR	2	1.000	PESO PAVIMENTO
DV	PL.PERM	3	1.000	PESO BARRERAS
DW	PL.PERM	5	1.000	RETRACCION
DX	PLUS	46	1.000	SOB UNIF VANO 1
DY	PLUS	47	1.000	SOB UNIF VANO 2
DZ	PLUS	48	1.000	SOB UNIF VANO 3
EA	PLUS	11	1.000	VEHICULO HIPOTESIS 11
EB	OR	12	1.000	VEHICULO HIPOTESIS 12
EC	OR	13	1.000	VEHICULO HIPOTESIS 13
ED	OR	14	1.000	VEHICULO HIPOTESIS 14
EE	OR	15	1.000	VEHICULO HIPOTESIS 15
EF	OR	16	1.000	VEHICULO HIPOTESIS 16
EG	OR	17	1.000	VEHICULO HIPOTESIS 17
EH	OR	18	1.000	VEHICULO HIPOTESIS 18
EI	OR	19	1.000	VEHICULO HIPOTESIS 19
EJ	OR	20	1.000	VEHICULO HIPOTESIS 20
EK	OR	21	1.000	VEHICULO HIPOTESIS 21
EL	OR	22	1.000	VEHICULO HIPOTESIS 22
EM	OR	23	1.000	VEHICULO HIPOTESIS 23
EN	OR	24	1.000	VEHICULO HIPOTESIS 24
EO	OR	25	1.000	VEHICULO POSICION 25
EP	OR	26	1.000	VEHICULO POSICION 26
EQ	OR	27	1.000	VEHICULO POSICION 27
ER	OR	28	1.000	VEHICULO POSICION 28
ES	OR	29	1.000	VEHICULO POSICION 29
ET	OR	30	1.000	VEHICULO POSICION 30
EU	OR	31	1.000	VEHICULO POSICION 31
EV	OR	32	1.000	VEHICULO POSICION 32
EW	OR	33	1.000	VEHICULO POSICION 33
EX	OR	34	1.000	VEHICULO POSICION 34
EY	OR	35	1.000	VEHICULO POSICION 35
EZ	OR	36	1.000	VEHICULO POSICION 36
FA	OR	37	1.000	VEHICULO HIPOTESIS 37
FB	PLUS	60	1.000	FRENADO

FC	PLUS	63	0.300000	VIENTO TRANSV CON SOB
FD	PLUS	64	0.600000	TEMPERATURA (-)
FE	OR	65	0.600000	TEMPERATURA (+)
FF	PLUS	66	0.600000	GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.091	-3.683	20.036				
	1.761	1.141	100.469				
	Min: AP AR AS AT AX AY BU...			Max: A B D E F G J AL AN AO			
10	2.283	-3.686	16.616				
	-0.568555	1.138	97.217				
	Min: AP AR AS AT AU AV BC...			Max: A B D G H I AE AN AO			
156	-1.091	2.568	20.407				
	1.761	-2.257	100.840				
	Min: AP AR AS AT AX AY BW...			Max: A B D E F G R AK AL AN.			
160	2.283	2.571	16.997				
	-0.568596	-2.254	97.599				
	Min: AP AR AS AT AU AV BE...			Max: A B D G H I AJ AK AN...			
166	3.374	-1.935	218.118	15.604	23.708	-0.028301	
	2.90E-10	-0.710816	352.379	11.174	2.13E-09	-3.88E-09	
	Min: CF CH CI CL DC DN DO...			Max: DS DT DV DW DX DY EM...			
167	3.374	-1.829	219.077	9.951	23.708	0.028301	
	2.78E-10	-3.053	353.338	14.381	2.08E-09	3.63E-09	
	Min: CF CH CI CJ CW DO DQ...			Max: DS DT DV DW DY DZ EG...			

Articulo 46 EHE

Dimensiones del soporte

Ancho (m)	0.89
Canto (m)	1.20
Canto útil (m)	1.15

u1 (m)	18.64

Losa sin armadura de punzonamiento

Nd (t)	568.50
β	1.15
Fsd,ef	653.78
τsd (t/m2)	***30.49***

ξ	1.417
ϕ (pm)	25
nº (pm)	5.71428
As (cm2)	28.05
ρ	2.439E-03
fck (Mpa)	25
τrd (MPa)	0.311
τrd (t/m2)	***31.07***

τsd (t/m2)	***< τrd (t/m2)***

2.4.3. Refuerzo de armaduras bajo apoyos

2.4.3. **Refuerzo de armadura bajo apoyos**

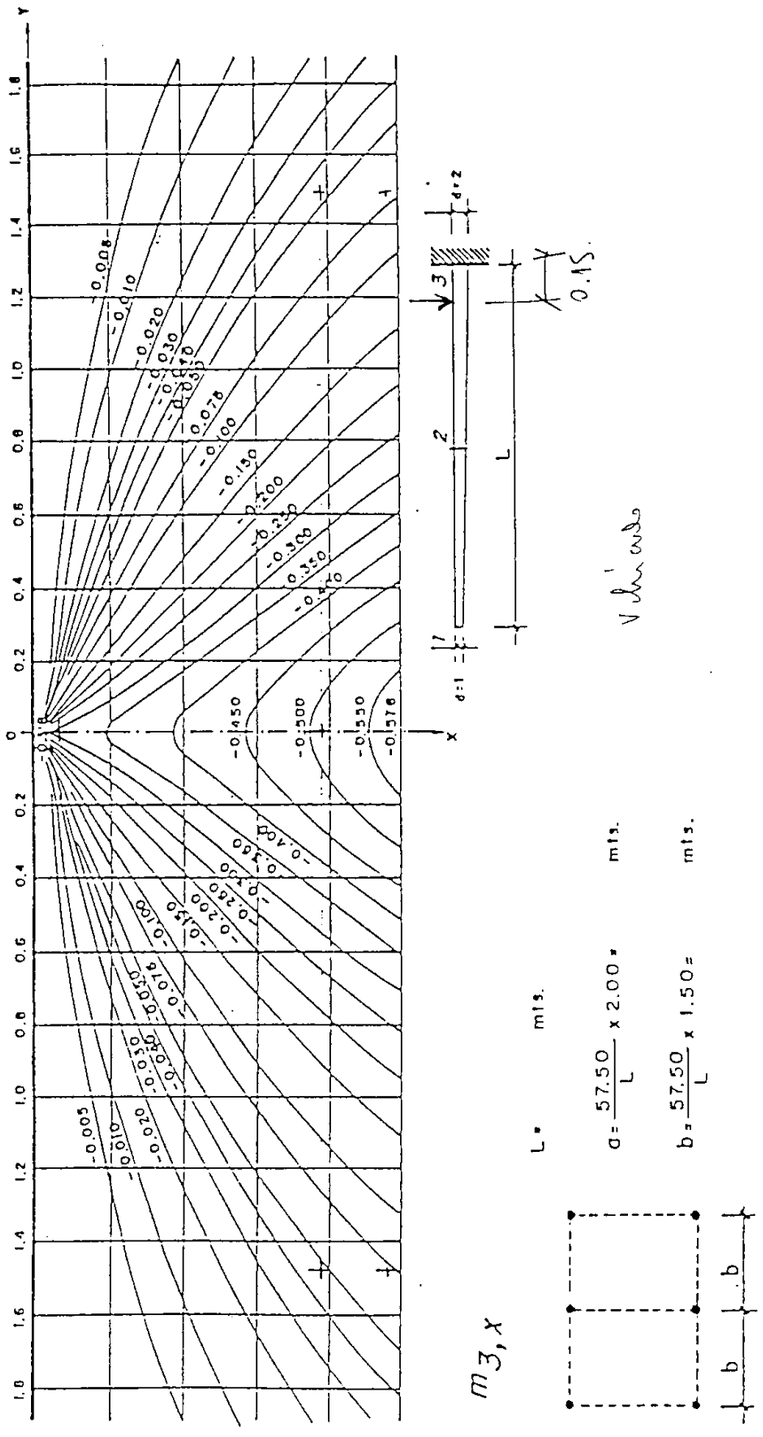
Estribos : Nmaxd = 151.68 Mp (en cada apoyo)

$$As = \frac{0.25 \times Nmaxd}{4.20\ Mp/cm^2}$$

$As = 9.10\ cm^2$

Adoptamos 6 x Φ 16 en cada dirección.

2.4.4. Verificación de las armaduras del voladizo



Cálculo de la armadura del voladizo

Datos :

Longitud del voladizo (m) = **1.50**

Canto mínimo (m) = **0.20**
Canto máximo (m) = **0.30**
Canto util (m) = **0.27**

Carga acera (t/m)= **1.00**

Ancho Acera (m) = **0.85**

Distancia G acera (m) = **1.33**

Peso Propio:

Mpp (mt/m) = -2.615625 V (t/m) = 0.87

Carga muerta :

Mcm (mt/m) = -1.325 V (t/m) = 1.00

Sobrecarga uniforme :

Msu (mt/m) = -0.45 V (t/m) = 0.60

Vehículo 60 t : Coeficientes bajo carga = 0.15
Coeficientes a 1.50 m = 0

Mveh (mt/m) = -1.5 V (t/m) = 10

Momento total diseño : Md (mt/m) = -8.24

As (cm^2/m) = 8.98 ϕ 16 / 20

Cortante total de diseño : Vd (t/m) = 3.43 a un canto útil

Vcu (t/m) = 13.35 verifica

3. Cálculo de la subestructura

3.1. Acciones

Loadcase | Factor | Stage | Init.def | Title
1 | 1.0000 | | | PESO PROPIO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-8.77E-07	-9.44E-05	30.731			
10	8.77E-07	-9.44E-05	30.731			
156	-8.77E-07	9.44E-05	30.731			
160	8.77E-07	9.44E-05	30.731			
166	1.29E-10	0.739549	193.743	-3.253	1.02E-09	-1.01E-09
167	1.31E-10	-0.739549	193.743	3.253	1.04E-09	1.01E-09
Sums :	4.25E-12	-3.55E-15	510.411			
min:	-8.77E-07	-0.739549	30.731	-3.253	1.02E-09	-1.01E-09
max:	8.77E-07	0.739549	193.743	3.253	1.04E-09	1.01E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	4.63E-06	0.000410	0.337475	-0.000675	0.000150	1.63E-09
2	2.58E-06	0.000412	0.156680	-0.000622	0.000111	1.25E-09
3	1.54E-10	0.000412	0.048380	-0.000586	1.18E-16	4.69E-13
4	-2.58E-06	0.000412	0.156650	-0.000622	-0.000111	1.25E-09
5	-4.63E-06	0.000410	0.337475	-0.000675	-0.000150	-1.63E-09
6	3.81E-06	0.000410	-3.07E-96	-0.000675	0.000150	1.68E-09
7	1.95E-06	0.000412	-0.154471	-0.000622	0.000111	1.25E-09
8	-6.06E-11	0.000412	-0.244623	-0.000586	1.18E-16	4.69E-13
9	-1.95E-06	0.000412	-0.154471	-0.000622	-0.000111	1.25E-09
10	-3.81E-06	0.000410	-3.07E-96	-0.000675	-0.000150	-1.68E-09
11	-3.13E-07	0.000411	-0.869963	-0.000623	6.78E-05	1.35E-09
12	1.76E-08	0.000412	-0.940651	-0.000577	5.45E-05	9.42E-10
13	-8.18E-10	0.000412	-0.984826	-0.000546	4.76E-16	4.78E-13
14	-1.92E-08	0.000412	-0.940651	-0.000577	-5.45E-05	-9.41E-10
15	3.11E-07	0.000411	-0.869963	-0.000623	-6.78E-05	-1.34E-09
16	-1.57E-06	0.000411	-1.596	-0.000477	2.02E-05	-3.76E-11
17	-8.41E-07	0.000412	-1.618	-0.000456	1.73E-05	3.54E-10
18	-1.48E-09	0.000412	-1.631	-0.000440	5.39E-16	3.85E-13
19	8.38E-07	0.000412	-1.618	-0.000456	-1.73E-05	-3.54E-10
20	1.57E-06	0.000411	-1.596	-0.000477	-2.02E-05	3.85E-11
21	-1.54E-06	0.000412	-2.103	-0.000295	7.15E-07	-2.33E-10
22	-9.27E-07	0.000412	-2.103	-0.000287	1.06E-06	-1.58E-11
23	-1.92E-09	0.000412	-2.104	-0.000281	5.45E-17	2.21E-13
24	9.23E-07	0.000412	-2.103	-0.000287	-1.06E-06	1.62E-11
25	1.54E-06	0.000412	-2.103	-0.000295	-7.15E-07	2.33E-10
26	-1.31E-06	0.000412	-2.361	-0.000101	-6.04E-06	-2.01E-10
27	-7.58E-07	0.000412	-2.354	-9.89E-05	-4.60E-06	-2.06E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-2.09E-09	0.000411	-2.351	-9.71E-05	-1.04E-15	4.71E-14
29	7.54E-07	0.000412	-2.354	-9.89E-05	4.60E-06	2.06E-10
30	1.30E-06	0.000412	-2.361	-0.000101	6.04E-06	2.91E-10
31	-7.38E-07	0.000412	-2.373	7.86E-05	-8.57E-06	-7.52E-10
32	-2.95E-07	0.000411	-2.364	8.02E-05	-6.74E-06	-5.00E-10
33	-2.00E-09	0.000411	-2.359	8.12E-05	-2.73E-15	-1.11E-13
34	2.91E-07	0.000411	-2.364	8.02E-05	6.74E-06	5.00E-10
35	7.34E-07	0.000412	-2.373	7.86E-05	8.57E-06	7.51E-10
36	9.23E-07	0.000412	-2.174	0.000218	-1.20E-05	-1.88E-09
37	9.68E-07	0.000411	-2.162	0.000222	-9.63E-06	-9.44E-10
38	-1.69E-09	0.000412	-2.154	0.000225	-4.94E-15	-2.37E-13
39	-9.72E-07	0.000411	-2.162	0.000222	9.63E-06	9.44E-10
40	-9.27E-07	0.000412	-2.174	0.000218	1.20E-05	1.88E-09
41	4.59E-06	0.000412	-1.838	0.000287	-2.25E-05	-3.34E-09
42	3.66E-06	0.000410	-1.814	0.000299	-1.82E-05	-1.01E-09
43	-1.21E-09	0.000413	-1.800	0.000308	-7.49E-15	-2.95E-13
44	-3.66E-06	0.000411	-1.814	0.000299	1.82E-05	1.01E-09
45	-4.60E-06	0.000412	-1.838	0.000287	2.25E-05	3.34E-09
46	9.78E-06	0.000407	-1.476	0.000254	-5.00E-05	-2.83E-09
47	7.69E-06	0.000410	-1.424	0.000282	-4.07E-05	9.61E-10
48	-6.93E-10	0.000419	-1.391	0.000304	-1.01E-14	-2.60E-13
49	-7.69E-06	0.000410	-1.424	0.000282	4.07E-05	-9.61E-10
50	-9.78E-06	0.000407	-1.476	0.000254	5.00E-05	2.83E-09
51	1.11E-05	0.000395	-1.239	0.000101	-9.86E-05	4.16E-09
52	1.04E-05	0.000408	-1.133	0.000139	-8.54E-05	8.99E-09
53	-3.11E-10	0.000434	-1.056	0.000185	-1.23E-14	-1.16E-13
54	-1.04E-05	0.000408	-1.133	0.000139	8.54E-05	-8.99E-09
55	-1.13E-05	0.000395	-1.239	0.000101	9.86E-05	-4.16E-09
56	1.53E-06	0.000368	-1.266	-0.000143	-0.000131	1.42E-08
57	-5.75E-07	0.000400	-1.120	-0.000141	-0.000128	3.73E-08
58	-2.45E-10	0.000472	-0.989274	-0.000123	-1.40E-14	9.96E-14
59	5.75E-07	0.000400	-1.120	-0.000141	0.000128	-3.73E-08
60	-1.53E-06	0.000368	-1.266	-0.000143	0.000131	-1.42E-08
61	-7.30E-06	0.000316	-1.771	-0.000448	-8.44E-05	6.55E-05
62	-7.14E-06	0.000328	-1.681	-0.000481	-7.24E-05	9.59E-09
63	-7.16E-10	0.000345	-1.617	-0.000521	-1.31E-14	2.85E-13
64	7.14E-06	0.000328	-1.681	-0.000481	7.24E-05	-9.59E-09
65	7.30E-06	0.000316	-1.771	-0.000448	8.44E-05	-6.55E-09
66	-6.66E-06	0.000245	-2.656	-0.000568	-3.23E-05	-6.78E-11
67	-4.92E-06	0.000246	-2.622	-0.000585	-2.61E-05	1.51E-09
68	-1.66E-09	0.000250	-2.601	-0.000598	-1.08E-14	4.03E-13
69	4.91E-06	0.000246	-2.622	-0.000585	2.61E-05	-1.51E-09
70	6.65E-06	0.000245	-2.656	-0.000568	3.23E-05	6.91E-11
71	-3.62E-06	0.000165	-3.577	-0.000491	-1.32E-05	-1.03E-09
72	-2.44E-06	0.000164	-3.563	-0.000495	-1.06E-05	-2.20E-10
73	-2.64E-09	0.000165	-3.555	-0.000498	-8.52E-15	3.65E-13
74	2.44E-06	0.000164	-3.563	-0.000495	1.06E-05	2.20E-10
75	3.61E-06	0.000165	-3.577	-0.000491	1.32E-05	1.03E-09
76	-1.86E-06	8.26E-05	-4.244	-0.000278	-8.80E-06	-5.19E-10
77	-1.17E-06	8.22E-05	-4.235	-0.000279	-6.94E-06	-2.58E-10
78	-3.32E-09	8.22E-05	-4.229	-0.000280	-6.96E-15	2.09E-13
79	1.16E-06	8.22E-05	-4.235	-0.000279	6.94E-06	2.59E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	1.86E-06	8.26E-05	-4.244	-0.000278	8.80E-06	5.20E-10
81	-1.39E-06	-1.18E-13	-4.485	5.44E-17	-8.14E-06	1.40E-16
82	-8.29E-07	3.80E-14	-4.477	4.93E-17	-6.38E-06	1.39E-16
83	-3.56E-09	2.47E-13	-4.471	4.10E-17	-6.42E-15	1.39E-16
84	8.22E-07	4.56E-13	-4.477	3.56E-17	6.38E-06	1.39E-16
85	1.38E-06	6.12E-13	-4.485	3.61E-17	8.14E-06	1.39E-16
86	-1.86E-06	-8.26E-05	-4.244	0.000278	-8.80E-06	5.19E-10
87	-1.17E-06	-8.22E-05	-4.235	0.000279	-6.94E-06	2.58E-10
88	-3.32E-09	-8.22E-05	-4.229	0.000280	-6.94E-15	-2.08E-13
89	1.16E-06	-8.22E-05	-4.235	0.000279	6.94E-06	-2.59E-10
90	1.86E-06	-8.26E-05	-4.244	0.000278	8.80E-06	-5.20E-10
91	-3.62E-06	-0.000165	-3.577	0.000491	-1.32E-05	1.03E-09
92	-2.44E-06	-0.000164	-3.563	0.000495	-1.06E-05	2.20E-10
93	-2.64E-09	-0.000165	-3.555	0.000498	-8.49E-15	-3.65E-13
94	2.44E-06	-0.000164	-3.563	0.000495	1.06E-05	-2.20E-10
95	3.61E-06	-0.000165	-3.577	0.000491	1.32E-05	-1.03E-09
96	-6.66E-06	-0.000245	-2.656	0.000568	-3.23E-05	6.78E-11
97	-4.92E-06	-0.000246	-2.622	0.000585	-2.61E-05	-1.51E-09
98	-1.66E-09	-0.000250	-2.601	0.000598	-1.08E-14	-4.03E-13
99	4.91E-06	-0.000246	-2.622	0.000585	2.61E-05	1.51E-09
100	6.65E-06	-0.000245	-2.656	0.000568	3.23E-05	6.91E-11
101	-7.30E-06	-0.000316	-1.771	0.000448	-8.44E-05	-6.55E-09
102	-7.14E-06	-0.000328	-1.681	0.000481	-7.24E-05	-9.59E-09
103	-7.18E-10	-0.000345	-1.617	0.000521	-1.30E-14	-2.85E-13
104	7.14E-06	-0.000328	-1.681	0.000481	7.24E-05	9.59E-09
105	7.30E-06	-0.000316	-1.771	0.000448	8.44E-05	6.55E-09
106	1.53E-06	-0.000368	-1.266	0.000143	-0.000131	-1.42E-08
107	-5.75E-07	-0.000400	-1.120	0.000141	-0.000128	-3.73E-08
108	-2.48E-10	-0.000472	-0.989274	0.000123	-1.40E-14	-9.93E-14
109	5.75E-07	-0.000400	-1.120	0.000141	0.000128	3.73E-08
110	-1.53E-06	-0.000368	-1.266	0.000143	0.000131	1.42E-08
111	1.13E-05	-0.000395	-1.239	-0.000101	-9.86E-05	-4.16E-09
112	1.04E-05	-0.000408	-1.133	-0.000139	-8.54E-05	-8.99E-09
113	-3.11E-10	-0.000434	-1.056	-0.000185	-1.23E-14	1.16E-13
114	-1.04E-05	-0.000408	-1.133	-0.000139	8.54E-05	8.99E-09
115	-1.13E-05	-0.000395	-1.239	-0.000101	9.86E-05	4.16E-09
116	9.78E-06	-0.000407	-1.476	-0.000254	-5.00E-05	2.83E-09
117	7.69E-06	-0.000410	-1.424	-0.000282	-4.07E-05	-9.61E-10
118	-6.96E-10	-0.000419	-1.391	-0.000304	-1.00E-14	2.60E-13
119	-7.69E-06	-0.000410	-1.424	-0.000282	4.07E-05	9.61E-10
120	-9.78E-06	-0.000407	-1.476	-0.000254	5.00E-05	-2.83E-09
121	4.59E-06	-0.000412	-1.838	-0.000287	-2.25E-05	3.34E-09
122	3.66E-06	-0.000410	-1.814	-0.000299	-1.82E-05	1.01E-09
123	-1.22E-09	-0.000413	-1.800	-0.000308	-7.41E-15	2.99E-13
124	-3.66E-06	-0.000410	-1.814	-0.000299	1.82E-05	-1.01E-09
125	-4.60E-06	-0.000412	-1.838	-0.000287	2.25E-05	-3.34E-09
126	9.23E-07	-0.000412	-2.174	-0.000218	-1.20E-05	1.88E-09
127	9.68E-07	-0.000411	-2.162	-0.000222	-9.63E-06	9.44E-10
128	-1.70E-09	-0.000412	-2.154	-0.000225	-4.86E-15	2.38E-13
129	-9.72E-07	-0.000411	-2.162	-0.000222	9.63E-06	-9.44E-10
130	-9.27E-07	-0.000412	-2.174	-0.000218	1.20E-05	-1.88E-09
131	-7.38E-07	-0.000412	-2.373	-7.86E-05	-8.57E-06	7.52E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-2.95E-07	-0.000411	-2.364	-8.02E-05	-6.74E-06	5.00E-10
133	-2.01E-09	-0.000411	-2.359	-8.12E-05	-2.66E-15	1.12E-13
134	2.91E-07	-0.000411	-2.364	8.02E-05	6.74E-06	-5.00E-10
135	7.34E-07	-0.000412	-2.373	-7.86E-05	8.57E-06	-7.51E-10
136	-1.31E-06	-0.000412	-2.361	0.000101	-6.04E-06	2.91E-10
137	-7.58E-07	-0.000412	-2.354	9.89E-05	-4.60E-06	2.06E-10
138	-2.09E-09	-0.000411	-2.351	9.71E-05	-9.83E-16	-4.68E-14
139	7.54E-07	-0.000412	-2.354	9.89E-05	4.60E-06	-2.06E-10
140	1.30E-06	-0.000412	-2.361	0.000101	6.04E-06	-2.91E-10
141	-1.54E-06	-0.000412	-2.103	0.000295	7.15E-07	2.33E-10
142	-9.27E-07	-0.000412	-2.103	0.000287	1.06E-06	1.58E-11
143	-1.92E-09	-0.000412	-2.104	0.000281	1.02E-16	-2.20E-13
144	9.23E-07	-0.000412	-2.103	0.000287	-1.06E-06	-1.62E-11
145	1.54E-06	-0.000412	-2.103	0.000295	-7.15E-07	-2.33E-10
146	-1.57E-06	-0.000411	-1.596	0.000477	2.02E-05	3.78E-11
147	-8.41E-07	-0.000412	-1.618	0.000456	1.73E-05	-3.54E-10
148	-1.48E-09	-0.000412	-1.631	0.000440	5.70E-16	-3.84E-13
149	8.38E-07	-0.000412	-1.618	0.000456	-1.73E-05	3.54E-10
150	1.57E-06	-0.000411	-1.596	0.000477	-2.02E-05	-3.85E-11
151	-3.13E-07	-0.000411	-0.869963	0.000623	6.78E-05	-1.35E-09
152	1.76E-08	-0.000412	-0.940651	0.000577	5.45E-05	-9.42E-10
153	-8.24E-10	-0.000412	-0.984826	0.000546	4.92E-16	-4.77E-13
154	-1.92E-08	-0.000412	-0.940651	0.000577	-5.45E-05	9.41E-10
155	3.11E-07	-0.000411	-0.869963	0.000623	-6.78E-05	1.34E-09
156	3.81E-06	-0.000410	-3.07E-96	0.000675	0.000150	-1.68E-09
157	1.95E-06	-0.000412	-0.154471	0.000622	0.000111	-1.25E-09
158	-8.65E-11	-0.000412	-0.244623	0.000586	1.22E-16	-4.69E-13
159	-1.95E-06	-0.000412	-0.154471	0.000622	-0.000111	1.25E-09
160	-3.81E-06	-0.000410	-3.07E-96	0.000675	-0.000150	1.68E-09
161	4.63E-06	-0.000410	0.337475	0.000675	0.000150	-1.63E-09
162	2.58E-06	-0.000412	0.156680	0.000622	0.000111	-1.25E-09
163	1.48E-06	-0.000412	0.048380	0.000586	1.22E-16	-4.69E-13
164	-2.58E-06	-0.000412	0.156680	0.000622	-0.000111	1.25E-09
165	-4.63E-06	-0.000410	0.337475	0.000675	-0.000150	1.63E-09
166	-0	-7.40E-98	-1.94E-95	+0	-0	+0
167	-0	7.40E-98	-1.94E-95	-0	-0	-0
min:	-1.13E-05	-0.000472	-4.485	-0.000675	-0.000150	-3.73E-08
max:	1.13E-05	0.000472	0.337475	0.000675	0.000150	3.73E-08

Loadcase | Factor | Stage | Init.def | Title
2 | 1.0000 | | | PESO PAVIMENTO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-4.17E-08	-4.50E-06	1.462			
10	4.17E-08	-4.50E-06	1.462			
156	-4.17E-08	4.50E-06	1.462			
160	4.17E-08	4.50E-06	1.462			
166	6.23E-12	0.035307	9.219	-0.155311	4.94E-11	-4.84E-11
167	6.34E-12	-0.035307	9.219	0.155311	5.01E-11	4.83E-11
Sums :	2.03E-13	-5.34E-16	24.288			
min:	-4.17E-08	-0.035307	1.462	-0.155311	4.94E-11	-4.84E-11
max:	4.17E-08	0.035307	9.219	0.155311	5.01E-11	4.83E-11

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	2.20E-07	1.96E-05	0.016083	-3.22E-05	6.83E-06	7.68E-11
2	1.23E-07	1.97E-05	0.007812	-2.97E-05	5.05E-06	5.96E-11
3	7.54E-11	1.97E-05	0.002860	-2.79E-05	5.51E-18	2.24E-14
4	-1.23E-07	1.97E-05	0.007812	-2.97E-05	-5.05E-06	-5.96E-11
5	-2.20E-07	1.96E-05	0.016083	-3.22E-05	-6.83E-06	-7.68E-11
6	1.61E-07	1.96E-05	-1.46E-97	-3.22E-05	6.83E-06	8.01E-11
7	9.29E-08	1.97E-05	-0.007019	-2.97E-05	5.05E-06	5.96E-11
8	-3.64E-12	1.97E-05	-0.011107	-2.79E-05	5.51E-16	2.24E-14
9	-9.29E-08	1.97E-05	-0.007019	-2.97E-05	-5.05E-06	-5.96E-11
10	-1.61E-07	1.96E-05	-1.46E-97	-3.22E-05	-6.83E-06	-8.00E-11
11	-1.49E-06	1.96E-05	-0.041463	-2.67E-05	2.90E-06	6.40E-11
12	8.30E-10	1.97E-05	-0.044494	-2.75E-05	2.34E-06	4.48E-11
13	-3.88E-11	1.97E-05	-0.046393	-2.60E-05	2.19E-17	2.28E-14
14	-9.10E-10	1.97E-05	-0.044494	-2.75E-05	-2.34E-06	-4.48E-11
15	1.48E-08	1.96E-05	-0.041463	-2.97E-05	-2.90E-06	-6.40E-11
16	-7.48E-08	1.96E-05	-0.076084	-2.28E-05	6.40E-07	-1.80E-12
17	-4.00E-08	1.96E-05	-0.076767	-2.17E-05	5.72E-07	1.69E-11
18	-7.03E-11	1.97E-05	-0.077218	-2.10E-05	2.41E-17	1.83E-14
19	3.99E-08	1.96E-05	-0.076767	-2.17E-05	-5.72E-07	-1.68E-11
20	7.47E-08	1.96E-05	-0.076084	-2.28E-05	-6.40E-07	-1.84E-12
21	-7.34E-08	1.97E-05	-0.100242	-1.41E-05	-2.67E-07	-1.11E-11
22	-4.41E-08	1.96E-05	-0.059950	-1.37E-05	-2.00E-07	-7.60E-13
23	-9.11E-11	1.97E-05	-0.099770	-1.34E-05	2.65E-15	1.05E-14
24	4.39E-08	1.96E-05	-0.059950	-1.37E-05	2.00E-07	7.60E-13
25	7.38E-08	1.97E-05	-0.100242	-1.41E-05	2.67E-07	1.11E-11
26	-6.22E-08	1.97E-05	-0.112559	-4.87E-06	-5.28E-07	-3.39E-11
27	-3.61E-08	1.96E-05	-0.111958	-4.75E-06	-4.69E-07	-9.82E-12

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-9.93E-11	1.96E-05	-0.111569	-4.67E-06	-5.28E-17	2.27E-15
29	3.55E-08	1.96E-05	-0.111958	-4.75E-06	4.69E-07	9.82E-12
30	6.20E-08	1.97E-05	-0.112585	-4.87E-06	6.08E-07	1.39E-11
31	-1.50E-06	1.97E-05	-0.113230	3.70E-06	-7.28E-07	-3.59E-11
32	-1.40E-08	1.96E-05	-0.112473	3.77E-06	-5.71E-07	-2.39E-11
33	-9.54E-11	1.96E-05	-0.112011	3.82E-06	-1.34E-16	-5.28E-15
34	1.38E-08	1.96E-05	-0.112473	3.77E-06	5.71E-07	2.39E-11
35	3.48E-08	1.97E-05	-0.113230	3.70E-06	7.28E-07	3.59E-11
36	4.43E-08	1.97E-05	-0.103835	1.03E-05	-8.93E-07	-8.97E-11
37	4.63E-08	1.96E-05	-0.102906	1.05E-05	-7.08E-07	-4.50E-11
38	-8.06E-11	1.97E-05	-0.102342	1.07E-05	-2.40E-16	-1.13E-14
39	-4.65E-08	1.96E-05	-0.102906	1.05E-05	7.08E-07	4.50E-11
40	-4.45E-08	1.97E-05	-0.103835	1.03E-05	8.93E-07	8.97E-11
41	2.19E-07	1.97E-05	-0.087853	1.36E-05	-1.39E-06	-1.59E-10
42	1.75E-07	1.96E-05	-0.086403	1.42E-05	-1.11E-06	-4.79E-11
43	-5.79E-11	1.97E-05	-0.085524	1.46E-05	-3.62E-16	-1.42E-14
44	-1.75E-07	1.96E-05	-0.086403	1.42E-05	1.11E-06	4.79E-11
45	-2.20E-07	1.97E-05	-0.087853	1.36E-05	1.39E-06	1.59E-10
46	4.67E-07	1.95E-05	-0.070693	1.21E-05	-2.70E-06	-1.35E-10
47	3.67E-07	1.96E-05	-0.067867	1.34E-05	-2.19E-06	4.60E-11
48	-3.31E-11	2.00E-05	-0.066108	1.44E-05	-4.86E-16	-1.23E-14
49	-3.67E-07	1.96E-05	-0.067867	1.34E-05	2.19E-06	-4.60E-11
50	-4.67E-07	1.95E-05	-0.070693	1.21E-05	2.70E-06	1.35E-10
51	5.41E-07	1.89E-05	-0.059433	4.76E-06	-5.01E-06	1.99E-10
52	4.98E-07	1.95E-05	-0.054079	6.60E-06	-4.31E-06	4.29E-10
53	-1.49E-11	2.07E-05	-0.050235	8.77E-06	-5.94E-16	-5.50E-15
54	-4.98E-07	1.95E-05	-0.054079	6.60E-06	4.31E-06	-4.29E-10
55	-5.41E-07	1.89E-05	-0.059433	4.76E-06	5.01E-06	-1.99E-10
56	7.25E-08	1.76E-05	-0.060797	-6.82E-06	-6.58E-06	6.81E-10
57	-2.77E-08	1.91E-05	-0.053507	-6.74E-06	-6.32E-06	1.78E-09
58	-1.18E-11	2.26E-05	-0.047073	-6.35E-06	-6.75E-16	4.75E-15
59	2.77E-08	1.91E-05	-0.053507	-6.74E-06	6.32E-06	-1.78E-09
60	-7.25E-08	1.76E-05	-0.060797	-6.82E-06	6.58E-06	-6.81E-10
61	-3.49E-07	1.51E-05	-0.084864	-2.13E-05	-4.34E-06	3.12E-10
62	-3.41E-07	1.57E-05	-0.080242	-2.29E-05	-3.70E-06	4.58E-10
63	-3.42E-11	1.65E-05	-0.076998	-2.48E-05	-6.29E-16	1.36E-14
64	3.41E-07	1.57E-05	-0.080242	-2.29E-05	3.70E-06	-4.58E-10
65	3.49E-07	1.51E-05	-0.084864	-2.13E-05	4.34E-06	-3.12E-10
66	-3.18E-07	1.17E-05	-0.126965	-2.71E-05	-1.86E-06	-3.44E-12
67	-2.35E-07	1.18E-05	-0.125025	-2.79E-05	-1.49E-06	7.20E-11
68	-7.60E-11	1.20E-05	-0.123845	-2.85E-05	-5.24E-16	1.92E-14
69	2.35E-07	1.18E-05	-0.125025	-2.79E-05	1.49E-06	-7.19E-11
70	3.18E-07	1.17E-05	-0.126965	-2.71E-05	1.86E-06	3.50E-12
71	-1.72E-07	7.87E-06	-0.170824	-2.34E-05	-9.48E-07	-4.94E-11
72	-1.16E-07	7.85E-06	-0.169837	-2.36E-05	-7.54E-07	-1.05E-11
73	-1.26E-10	7.88E-06	-0.169238	-2.37E-05	-4.13E-16	1.74E-14
74	1.16E-07	7.85E-06	-0.169837	-2.36E-05	7.54E-07	1.06E-11
75	1.72E-07	7.87E-06	-0.170824	-2.34E-05	9.48E-07	4.94E-11
76	-8.88E-08	3.94E-06	-0.202580	-1.32E-05	-7.35E-07	-2.48E-11
77	-5.57E-08	3.93E-06	-0.201812	-1.33E-05	-5.80E-07	-1.23E-11
78	-1.58E-10	3.92E-06	-0.201345	-1.33E-05	-3.39E-16	9.94E-15
79	5.54E-08	3.93E-06	-0.201812	-1.33E-05	5.80E-07	1.24E-11

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	8.84E-08	3.94E-06	-0.202580	-1.32E-05	7.39E-07	2.48E-11
81	-6.60E-08	-5.64E-15	-0.214053	2.62E-18	-7.08E-07	6.66E-18
82	-3.94E-08	1.81E-15	-0.213318	2.35E-18	-5.54E-07	6.65E-18
83	-1.70E-10	1.18E-14	-0.212870	1.92E-18	-3.13E-16	6.65E-18
84	3.91E-08	2.18E-14	-0.213318	1.66E-18	5.54E-07	6.65E-18
85	6.56E-08	2.92E-14	-0.214053	1.72E-18	7.08E-07	6.64E-18
86	-8.88E-08	-3.94E-06	-0.202580	1.32E-05	-7.39E-07	2.48E-11
87	-5.57E-08	-3.93E-06	-0.201812	1.33E-05	-5.80E-07	1.23E-11
88	-1.58E-10	-3.92E-06	-0.201345	1.33E-05	-3.38E-16	-9.92E-15
89	5.54E-08	-3.93E-06	-0.201812	1.33E-05	5.80E-07	-1.24E-11
90	8.84E-08	-3.94E-06	-0.202580	1.32E-05	7.39E-07	-2.48E-11
91	-1.72E-07	-7.87E-06	-0.170824	2.34E-05	-9.48E-07	4.94E-11
92	-1.16E-07	-7.85E-06	-0.169837	2.36E-05	-7.54E-07	1.05E-11
93	-1.26E-10	-7.88E-06	-0.169238	2.37E-05	-4.11E-16	-1.74E-14
94	1.16E-07	-7.85E-06	-0.169837	2.36E-05	7.54E-07	-1.06E-11
95	1.72E-07	-7.87E-06	-0.170824	2.34E-05	9.48E-07	-4.94E-11
96	-3.18E-07	-1.17E-05	-0.126965	2.71E-05	-1.86E-06	3.44E-12
97	-2.35E-07	-1.18E-05	-0.125025	2.79E-05	-1.49E-06	-7.20E-11
98	-7.91E-11	-1.20E-05	-0.123845	2.85E-05	-5.21E-16	-1.92E-14
99	2.35E-07	-1.18E-05	-0.125025	2.79E-05	1.49E-06	7.19E-11
100	3.18E-07	-1.17E-05	-0.126965	2.71E-05	1.86E-06	-3.50E-12
101	-3.49E-07	-1.51E-05	-0.084864	2.13E-05	-4.34E-06	-3.12E-10
102	-3.41E-07	-1.57E-05	-0.080242	2.29E-05	-3.70E-06	-4.58E-10
103	-3.43E-11	-1.65E-05	-0.076998	2.48E-05	-6.26E-16	-1.36E-14
104	3.41E-07	-1.57E-05	-0.080242	2.29E-05	3.70E-06	4.58E-10
105	3.49E-07	-1.51E-05	-0.084864	2.13E-05	4.34E-06	3.12E-10
106	7.25E-08	-1.76E-05	-0.060797	6.82E-06	-6.58E-06	-6.81E-10
107	-2.77E-08	-1.91E-05	-0.053507	6.74E-06	-6.32E-06	-1.78E-09
108	-1.19E-11	-2.26E-05	-0.047073	6.35E-06	-6.72E-16	-4.74E-15
109	2.77E-08	-1.91E-05	-0.053507	6.74E-06	6.32E-06	1.78E-09
110	-7.25E-08	-1.76E-05	-0.060797	6.82E-06	6.58E-06	6.81E-10
111	5.41E-07	-1.89E-05	-0.059433	-4.76E-06	-5.01E-06	-1.99E-10
112	4.98E-07	-1.95E-05	-0.054079	-6.60E-06	-4.31E-06	-4.29E-10
113	-1.51E-11	-2.07E-05	-0.050235	-8.77E-06	-5.91E-16	5.52E-15
114	-4.98E-07	-1.95E-05	-0.054079	-6.60E-06	4.31E-06	4.29E-10
115	-5.41E-07	-1.89E-05	-0.059433	-4.76E-06	5.01E-06	1.99E-10
116	4.67E-07	-1.95E-05	-0.070693	-1.21E-05	-2.70E-06	1.35E-10
117	3.67E-07	-1.96E-05	-0.067867	-1.34E-05	-2.19E-06	-4.60E-11
118	-3.32E-11	-2.00E-05	-0.066108	-1.44E-05	-4.82E-16	1.24E-14
119	-3.67E-07	-1.96E-05	-0.067867	-1.34E-05	2.19E-06	4.60E-11
120	-4.67E-07	-1.95E-05	-0.070693	-1.21E-05	2.70E-06	-1.35E-10
121	2.19E-07	-1.97E-05	-0.087853	-1.36E-05	-1.39E-06	1.59E-10
122	1.75E-07	-1.96E-05	-0.086403	-1.42E-05	-1.11E-06	4.79E-11
123	-5.80E-11	-1.97E-05	-0.085524	-1.46E-05	-3.58E-16	1.42E-14
124	-1.75E-07	-1.96E-05	-0.086403	-1.42E-05	1.11E-06	-4.79E-11
125	-2.20E-07	-1.97E-05	-0.087853	-1.36E-05	1.39E-06	-1.59E-10
126	4.43E-08	-1.97E-05	-0.103835	-1.03E-05	-8.93E-07	8.97E-11
127	4.63E-08	-1.96E-05	-0.102906	-1.05E-05	-7.08E-07	4.50E-11
128	-8.03E-11	-1.97E-05	-0.102342	-1.07E-05	-2.36E-16	1.13E-14
129	-4.65E-08	-1.96E-05	-0.102906	-1.05E-05	7.08E-07	-4.50E-11
130	-4.45E-08	-1.97E-05	-0.103835	-1.03E-05	8.93E-07	-8.97E-11
131	-3.50E-08	-1.97E-05	-0.113230	-3.70E-06	-7.28E-07	3.59E-11

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-1.40E-08	-1.96E-05	-0.112473	-3.77E-06	-5.71E-07	2.39E-11
133	-9.56E-11	-1.96E-05	-0.112011	-3.82E-06	-1.30E-16	5.29E-15
134	1.38E-08	-1.96E-05	-0.112473	-3.77E-06	5.71E-07	-2.39E-11
135	3.48E-08	-1.97E-05	-0.113230	-3.70E-06	7.28E-07	-3.59E-11
136	-6.22E-08	-1.97E-05	-0.112589	4.87E-06	-6.08E-07	1.39E-11
137	-3.61E-08	-1.96E-05	-0.111958	4.75E-06	-4.69E-07	9.82E-12
138	-9.96E-11	-1.96E-05	-0.111569	4.67E-06	-4.98E-17	-2.26E-15
139	3.59E-08	-1.96E-05	-0.111958	4.75E-06	4.69E-07	-9.82E-12
140	6.20E-08	-1.97E-05	-0.112589	4.87E-06	6.08E-07	-1.39E-11
141	-7.34E-08	-1.97E-05	-0.100242	1.41E-05	-2.87E-07	1.11E-11
142	-4.41E-08	-1.96E-05	-0.099950	1.37E-05	-2.00E-07	7.60E-13
143	-9.14E-11	-1.97E-05	-0.099770	1.34E-05	2.60E-18	-1.05E-14
144	4.39E-08	-1.96E-05	-0.099950	1.37E-05	2.00E-07	-7.80E-13
145	7.32E-08	-1.97E-05	-0.100242	1.41E-05	2.87E-07	-1.11E-11
146	-7.48E-08	-1.96E-05	-0.076084	2.28E-05	6.40E-07	1.80E-12
147	-4.00E-08	-1.96E-05	-0.076767	2.17E-05	5.72E-07	-1.69E-11
148	-7.06E-11	-1.97E-05	-0.077219	2.10E-05	2.56E-17	-1.83E-14
149	3.99E-08	-1.96E-05	-0.076767	2.17E-05	-5.72E-07	1.68E-11
150	7.47E-08	-1.96E-05	-0.076084	2.28E-05	-6.40E-07	-1.84E-12
151	-1.49E-08	-1.96E-05	-0.041463	2.97E-05	2.90E-06	-6.40E-11
152	8.30E-10	-1.97E-05	-0.044494	2.75E-05	2.34E-06	-4.48E-11
153	-3.91E-11	-1.97E-05	-0.046393	2.60E-05	2.26E-17	-2.28E-14
154	-9.10E-10	-1.97E-05	-0.044494	2.75E-05	-2.34E-06	4.48E-11
155	1.48E-08	-1.96E-05	-0.041463	2.97E-05	-2.90E-06	6.40E-11
156	1.81E-07	-1.96E-05	-1.46E-97	3.22E-05	6.83E-06	-8.01E-11
157	9.29E-08	-1.97E-05	-0.007019	2.97E-05	5.05E-06	-5.96E-11
158	-3.93E-12	-1.97E-05	-0.011107	2.79E-05	5.72E-18	-2.23E-14
159	-9.29E-08	-1.97E-05	-0.007019	2.97E-05	-5.05E-06	5.96E-11
160	-1.81E-07	-1.96E-05	-1.46E-97	3.22E-05	-6.83E-06	8.00E-11
161	2.20E-07	-1.96E-05	0.016083	3.22E-05	6.83E-06	-7.68E-11
162	1.23E-07	-1.97E-05	0.007812	2.97E-05	5.05E-06	-5.96E-11
163	7.25E-12	-1.97E-05	0.002860	2.79E-05	5.71E-18	-2.23E-14
164	-1.23E-07	-1.97E-05	0.007812	2.97E-05	-5.05E-06	5.96E-11
165	-2.20E-07	-1.96E-05	0.016083	3.22E-05	-6.83E-06	7.68E-11
166	-0	-3.53E-99	-9.22E-97	+0	-0	+0
167	-0	3.53E-99	-9.22E-97	-0	-0	-0
min:	-5.41E-07	-2.26E-05	-0.214053	-3.22E-05	-6.83E-06	-1.78E-09
max:	5.41E-07	2.26E-05	0.016083	3.22E-05	6.83E-06	1.78E-09

Loadcase	Factor	Stage	Init.def	Title
3	1.0000			PESO BARRERAS

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-1.52E-07	-1.72E-05	5.307			
10	1.52E-07	-1.72E-05	5.307			
156	-1.52E-07	1.72E-05	5.307			
160	1.52E-07	1.72E-05	5.307			
166	2.78E-11	0.134950	33.386	-0.593620	2.19E-10	-1.83E-10
167	2.82E-11	-0.134950	33.386	0.593620	2.21E-10	1.83E-10
Sums :	7.93E-13	-6.38E-16	88.000			
min:	-1.52E-07	-0.134950	5.307	-0.593620	2.19E-10	-1.83E-10
max:	1.52E-07	0.134950	33.386	0.593620	2.21E-10	1.83E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	7.94E-07	7.49E-05	0.059667	-0.000119	-7.99E-06	2.63E-10
2	4.46E-07	7.51E-05	0.049601	-0.000110	4.58E-06	2.17E-10
3	3.94E-11	7.53E-05	0.042284	-0.000104	1.41E-17	8.28E-14
4	-4.46E-07	7.51E-05	0.049601	-0.000110	-4.58E-06	-2.17E-10
5	-7.94E-07	7.49E-05	0.059667	-0.000119	7.99E-06	-2.63E-10
6	6.59E-07	7.49E-05	-5.31E-97	-0.000120	3.64E-06	2.94E-10
7	3.38E-07	7.51E-05	-0.005565	-0.000110	4.58E-06	2.17E-10
8	-2.04E-12	7.53E-05	-0.009738	-0.000104	1.42E-17	8.28E-14
9	-3.38E-07	7.51E-05	-0.005565	-0.000110	-4.58E-06	-2.17E-10
10	-6.59E-07	7.49E-05	-5.31E-97	-0.000120	-3.64E-06	-2.93E-10
11	-5.45E-08	7.49E-05	-0.153959	-0.000111	-1.07E-05	2.32E-10
12	2.86E-09	7.51E-05	-0.145023	-0.000102	-5.29E-06	1.63E-10
13	-1.32E-10	7.52E-05	-0.141238	-9.71E-05	3.55E-17	8.44E-14
14	-3.13E-09	7.51E-05	-0.145023	-0.000102	5.29E-06	-1.63E-10
15	5.42E-08	7.49E-05	-0.153959	-0.000111	1.07E-05	-2.32E-10
16	-2.72E-07	7.50E-05	-0.283052	-8.52E-05	-1.89E-05	-6.52E-12
17	-1.45E-07	7.51E-05	-0.265596	-8.15E-05	-1.17E-05	6.11E-11
18	-2.49E-10	7.52E-05	-0.256559	-7.88E-05	2.67E-19	6.83E-14
19	1.45E-07	7.51E-05	-0.265596	-8.15E-05	1.17E-05	-6.10E-11
20	2.71E-07	7.50E-05	-0.283052	-8.52E-05	1.89E-05	6.64E-12
21	-2.66E-07	7.51E-05	-0.374148	-5.37E-05	-2.22E-05	-4.05E-11
22	-1.60E-07	7.51E-05	-0.353156	-5.23E-05	-1.45E-05	-3.23E-12
23	-3.26E-10	7.51E-05	-0.341828	-5.13E-05	-1.31E-16	3.99E-14
24	1.60E-07	7.51E-05	-0.353156	-5.23E-05	1.45E-05	3.31E-12
25	2.66E-07	7.51E-05	-0.374148	-5.37E-05	2.22E-05	4.06E-11
26	-2.25E-07	7.51E-05	-0.422331	-2.03E-05	-2.34E-05	-5.24E-11
27	-1.30E-07	7.51E-05	-0.400115	-1.98E-05	-1.55E-05	-3.73E-11

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-3.58E-10	7.51E-05	-0.388029	-1.95E-05	-3.69E-16	9.96E-15
29	1.29E-07	7.51E-05	-0.400115	-1.98E-05	1.55E-05	3.73E-11
30	2.24E-07	7.51E-05	-0.422331	-2.03E-05	2.34E-05	5.24E-11
31	-1.21E-07	7.52E-05	-0.427948	1.09E-05	-2.38E-05	-1.37E-10
32	-4.57E-08	7.51E-05	-0.405277	1.12E-05	-1.58E-05	-9.05E-11
33	-3.46E-10	7.51E-05	-0.392927	1.14E-05	-7.08E-16	-1.75E-14
34	4.50E-08	7.51E-05	-0.405277	1.12E-05	1.58E-05	9.05E-11
35	1.20E-07	7.52E-05	-0.427948	1.09E-05	2.38E-05	1.37E-10
36	1.81E-07	7.52E-05	-0.397006	3.52E-05	-2.44E-05	-3.40E-10
37	1.84E-07	7.50E-05	-0.373715	3.59E-05	-1.63E-05	-1.70E-10
38	-2.95E-10	7.51E-05	-0.361000	3.63E-05	-1.14E-15	-3.93E-14
39	-1.84E-07	7.50E-05	-0.373715	3.59E-05	1.63E-05	1.70E-10
40	-1.82E-07	7.52E-05	-0.397006	3.52E-05	2.44E-05	3.40E-10
41	8.44E-07	7.51E-05	-0.341958	4.73E-05	-2.62E-05	-6.00E-10
42	6.71E-07	7.49E-05	-0.316793	4.94E-05	-1.78E-05	-1.79E-10
43	-2.14E-10	7.54E-05	-0.302947	5.08E-05	-1.62E-15	-5.00E-14
44	-6.71E-07	7.49E-05	-0.316793	4.94E-05	1.78E-05	1.79E-10
45	-8.45E-07	7.51E-05	-0.341959	4.73E-05	2.62E-05	6.00E-10
46	1.78E-06	7.43E-05	-0.282356	4.18E-05	-3.09E-05	-4.98E-10
47	1.40E-06	7.47E-05	-0.252236	4.67E-05	-2.17E-05	1.81E-10
48	-1.26E-10	7.65E-05	-0.235219	5.04E-05	-2.11E-15	-4.35E-14
49	-1.40E-06	7.47E-05	-0.252236	4.67E-05	2.17E-05	-1.81E-10
50	-1.78E-06	7.43E-05	-0.282356	4.18E-05	3.09E-05	4.98E-10
51	2.05E-06	7.21E-05	-0.243820	1.56E-05	-3.93E-05	7.74E-10
52	1.89E-06	7.44E-05	-0.204574	2.23E-05	-2.93E-05	1.65E-09
53	-6.20E-11	7.93E-05	-0.180024	3.02E-05	-2.55E-15	-1.89E-14
54	-1.89E-06	7.44E-05	-0.204574	2.23E-05	2.93E-05	-1.65E-09
55	-2.05E-06	7.21E-05	-0.243820	1.56E-05	3.93E-05	-7.74E-10
56	2.49E-07	6.72E-05	-0.250783	-2.62E-05	-4.50E-05	2.61E-09
57	-1.22E-07	7.30E-05	-0.204451	-2.58E-05	-3.67E-05	6.80E-09
58	-5.20E-11	8.62E-05	-0.170475	-2.43E-05	-2.89E-15	1.80E-14
59	1.22E-07	7.30E-05	-0.204451	-2.58E-05	3.67E-05	-6.80E-09
60	-2.49E-07	6.72E-05	-0.250783	-2.62E-05	4.50E-05	-2.61E-09
61	-1.35E-06	5.77E-05	-0.340131	-7.84E-05	-3.70E-05	1.17E-09
62	-1.31E-06	5.98E-05	-0.303392	-8.40E-05	-2.72E-05	1.75E-09
63	-1.34E-10	6.29E-05	-0.280925	-9.11E-05	-2.72E-15	4.99E-14
64	1.31E-06	5.98E-05	-0.303392	-8.40E-05	2.72E-05	-1.75E-09
65	1.35E-06	5.77E-05	-0.340131	-7.84E-05	3.70E-05	-1.17E-09
66	-1.21E-06	4.46E-05	-0.494245	-9.88E-05	-2.79E-05	-2.60E-11
67	-8.97E-07	4.50E-05	-0.467265	-0.000102	-1.92E-05	2.70E-10
68	-2.98E-10	4.57E-05	-0.452296	-0.000104	-2.34E-15	7.00E-14
69	8.96E-07	4.50E-05	-0.467265	-0.000102	1.92E-05	-2.70E-10
70	1.21E-06	4.46E-05	-0.494245	-9.88E-05	2.79E-05	2.62E-11
71	-6.47E-07	3.01E-05	-0.654286	-8.52E-05	-2.46E-05	-1.93E-10
72	-4.39E-07	3.00E-05	-0.630777	-8.60E-05	-1.65E-05	-4.27E-11
73	-4.67E-10	3.01E-05	-0.617931	-8.65E-05	-1.94E-15	6.33E-14
74	4.38E-07	3.00E-05	-0.630777	-8.60E-05	1.65E-05	4.29E-11
75	6.46E-07	3.01E-05	-0.654286	-8.52E-05	2.46E-05	1.93E-10
76	-3.26E-07	1.51E-05	-0.770030	-4.83E-05	-2.39E-05	-9.51E-11
77	-2.05E-07	1.50E-05	-0.747321	-4.84E-05	-1.59E-05	-4.78E-11
78	-5.86E-10	1.50E-05	-0.734954	-4.85E-05	-1.67E-15	3.62E-14
79	2.04E-07	1.50E-05	-0.747321	-4.84E-05	1.59E-05	4.79E-11

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	3.25E-07	1.51E-05	-0.770030	-4.83E-05	2.39E-05	9.52E-11
81	-2.39E-07	-2.19E-14	-0.811829	9.93E-18	-2.37E-05	2.51E-17
82	-1.43E-07	6.18E-15	-0.789241	8.99E-18	-1.58E-05	2.50E-17
83	-6.28E-10	4.37E-14	-0.776949	7.09E-18	-1.58E-15	2.50E-17
84	1.42E-07	8.13E-14	-0.789241	6.29E-18	1.58E-05	2.50E-17
85	2.38E-07	1.09E-13	-0.811829	6.44E-18	2.37E-05	2.50E-17
86	-3.26E-07	-1.51E-05	-0.770030	4.83E-05	-2.39E-05	9.51E-11
87	-2.05E-07	-1.50E-05	-0.747321	4.84E-05	-1.59E-05	4.78E-11
88	-5.86E-10	-1.50E-05	-0.734954	4.85E-05	-1.67E-15	-3.61E-14
89	2.04E-07	-1.50E-05	-0.747321	4.84E-05	1.59E-05	-4.79E-11
90	3.25E-07	-1.51E-05	-0.770030	4.83E-05	2.39E-05	-9.52E-11
91	-6.47E-07	-3.01E-05	-0.654286	8.52E-05	-2.46E-05	1.93E-10
92	-4.39E-07	-3.00E-05	-0.630777	8.60E-05	-1.65E-05	4.27E-11
93	-4.67E-10	-3.01E-05	-0.617931	8.65E-05	-1.93E-15	-6.33E-14
94	4.38E-07	-3.00E-05	-0.630777	8.60E-05	1.65E-05	-4.29E-11
95	6.46E-07	-3.01E-05	-0.654286	8.52E-05	2.46E-05	-1.93E-10
96	-1.21E-06	-4.46E-05	-0.494245	9.88E-05	-2.79E-05	2.60E-11
97	-8.97E-07	-4.50E-05	-0.467265	0.000102	-1.92E-05	-2.70E-10
98	-2.98E-10	-4.57E-05	-0.452296	0.000104	-2.33E-15	-7.00E-14
99	8.96E-07	-4.50E-05	-0.467265	0.000102	1.92E-05	2.70E-10
100	1.21E-06	-4.46E-05	-0.494245	9.88E-05	2.79E-05	-2.62E-11
101	-1.35E-06	-5.77E-05	-0.340131	7.84E-05	-3.70E-05	-1.17E-09
102	-1.31E-06	-5.98E-05	-0.303392	8.40E-05	-2.72E-05	-1.75E-09
103	-1.35E-10	-6.29E-05	-0.280925	9.11E-05	-2.71E-15	-4.99E-14
104	1.31E-06	-5.98E-05	-0.303392	8.40E-05	2.72E-05	1.75E-09
105	1.35E-06	-5.77E-05	-0.340131	7.84E-05	3.70E-05	1.17E-09
106	2.49E-07	-6.72E-05	-0.250783	2.62E-05	-4.50E-05	-2.61E-09
107	-1.22E-07	-7.30E-05	-0.204451	2.58E-05	-3.67E-05	-6.80E-09
108	-5.24E-11	-8.62E-05	-0.170475	2.43E-05	-2.88E-15	-1.79E-14
109	1.22E-07	-7.30E-05	-0.204451	2.58E-05	3.67E-05	6.80E-09
110	-2.49E-07	-6.72E-05	-0.250783	2.62E-05	4.50E-05	2.61E-09
111	2.05E-06	-7.21E-05	-0.243820	-1.56E-05	-3.93E-05	-7.74E-10
112	1.89E-06	-7.44E-05	-0.204574	-2.23E-05	-2.93E-05	-1.65E-09
113	-6.25E-11	-7.93E-05	-0.180024	-3.02E-05	-2.54E-15	1.89E-14
114	-1.89E-06	-7.44E-05	-0.204574	-2.23E-05	2.93E-05	1.65E-09
115	-2.05E-06	-7.21E-05	-0.243820	-1.56E-05	3.93E-05	7.74E-10
116	1.78E-06	-7.43E-05	-0.282356	-4.18E-05	-3.09E-05	4.98E-10
117	1.40E-06	-7.47E-05	-0.252236	-4.67E-05	-2.17E-05	-1.81E-10
118	-1.27E-10	-7.65E-05	-0.235219	-5.04E-05	-2.10E-15	4.36E-14
119	-1.40E-06	-7.47E-05	-0.252236	-4.67E-05	2.17E-05	1.81E-10
120	-1.78E-06	-7.43E-05	-0.282356	-4.18E-05	3.09E-05	-4.98E-10
121	8.44E-07	-7.51E-05	-0.341958	-4.73E-05	-2.62E-05	6.00E-10
122	6.71E-07	-7.49E-05	-0.316793	-4.94E-05	-1.78E-05	1.79E-10
123	-2.15E-10	-7.54E-05	-0.302947	-5.08E-05	-1.61E-15	5.01E-14
124	-6.71E-07	-7.49E-05	-0.316793	-4.94E-05	1.78E-05	-1.79E-10
125	-8.45E-07	-7.51E-05	-0.341958	-4.73E-05	2.62E-05	-6.00E-10
126	1.81E-07	-7.52E-05	-0.397006	-3.52E-05	-2.44E-05	3.40E-10
127	1.84E-07	-7.50E-05	-0.373715	-3.59E-05	-1.63E-05	1.70E-10
128	-2.96E-10	-7.51E-05	-0.361000	-3.63E-05	-1.12E-15	3.93E-14
129	-1.84E-07	-7.50E-05	-0.373715	-3.59E-05	1.63E-05	-3.70E-10
130	-1.82E-07	-7.52E-05	-0.397006	-3.52E-05	2.44E-05	-3.40E-10
131	-1.21E-07	-7.52E-05	-0.427948	-1.09E-05	-2.38E-05	1.37E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-4.57E-08	-7.51E-05	-0.405277	-1.12E-05	-1.58E-05	9.05E-11
133	-3.47E-10	-7.51E-05	-0.392927	-1.14E-05	-6.95E-16	1.75E-14
134	4.50E-08	-7.51E-05	-0.405277	-1.12E-05	1.58E-05	-9.05E-11
135	1.20E-07	-7.52E-05	-0.427948	-1.09E-05	2.38E-05	-1.37E-10
136	-2.25E-07	-7.51E-05	-0.422331	2.03E-05	-2.34E-05	5.24E-11
137	-1.30E-07	-7.51E-05	-0.400115	1.98E-05	-1.55E-05	3.73E-11
138	-3.59E-10	-7.51E-05	-0.388029	1.95E-05	-3.58E-16	-9.91E-15
139	1.29E-07	-7.51E-05	-0.400115	1.98E-05	1.55E-05	-3.73E-11
140	2.24E-07	-7.51E-05	-0.422331	2.03E-05	2.34E-05	-5.24E-11
141	-2.66E-07	-7.51E-05	-0.374148	5.37E-05	-2.22E-05	4.05E-11
142	-1.60E-07	-7.51E-05	-0.353156	5.23E-05	-1.45E-05	3.23E-12
143	-3.27E-10	-7.51E-05	-0.341828	5.13E-05	-1.22E-16	-3.99E-14
144	1.60E-07	-7.51E-05	-0.353156	5.23E-05	1.45E-05	-3.31E-12
145	2.66E-07	-7.51E-05	-0.374148	5.37E-05	2.22E-05	-4.06E-11
146	-2.72E-07	-7.50E-05	-0.283052	8.52E-05	-1.89E-05	6.52E-12
147	-1.45E-07	-7.51E-05	-0.265596	8.15E-05	-1.17E-05	-6.11E-11
148	-2.50E-10	-7.52E-05	-0.256559	7.88E-05	5.72E-18	-6.82E-14
149	1.45E-07	-7.51E-05	-0.265596	8.15E-05	1.17E-05	6.10E-11
150	2.71E-07	-7.50E-05	-0.283052	8.52E-05	1.89E-05	-6.64E-12
151	-5.45E-08	-7.49E-05	-0.153959	0.000111	-1.07E-05	-2.32E-10
152	2.86E-09	-7.51E-05	-0.145023	0.000102	-5.29E-06	-1.63E-10
153	-1.33E-10	-7.52E-05	-0.141238	9.71E-05	3.81E-17	-8.43E-14
154	-3.13E-09	-7.51E-05	-0.145023	0.000102	5.29E-06	1.63E-10
155	5.42E-08	-7.49E-05	-0.153959	0.000111	1.07E-05	2.32E-10
156	6.59E-07	-7.49E-05	-5.31E-97	0.000120	3.64E-06	-2.94E-10
157	3.38E-07	-7.51E-05	-0.005565	0.000110	4.58E-06	-2.17E-10
158	-3.12E-12	-7.53E-05	-0.009738	0.000104	1.52E-17	-8.28E-14
159	-3.38E-07	-7.51E-05	-0.005565	0.000110	-4.58E-06	2.17E-10
160	-6.59E-07	-7.49E-05	-5.31E-97	0.000120	-3.64E-06	2.93E-10
161	7.94E-07	-7.49E-05	0.059667	0.000119	-7.99E-06	-2.63E-10
162	4.46E-07	-7.51E-05	0.049601	0.000110	4.58E-06	-2.17E-10
163	3.83E-11	-7.53E-05	0.042284	0.000104	1.52E-17	-8.28E-14
164	-4.46E-07	-7.51E-05	0.049601	0.000110	-4.58E-06	2.17E-10
165	-7.94E-07	-7.49E-05	0.059667	0.000119	7.99E-06	2.63E-10
166	-0	-1.35E-98	-3.34E-96	+0	-0	+0
167	-0	1.35E-98	-3.34E-96	-0	-0	-0
min:	-2.05E-06	-8.62E-05	-0.811829	-0.000120	-4.50E-05	-6.80E-09
max:	2.05E-06	8.62E-05	0.059667	0.000120	4.50E-05	6.80E-09

Loadcase Factor Stage Init.def Title
5 1.0000 RETRACCION

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-5.69E-05	-1.441	-0.295944			
10	5.69E-05	-1.441	-0.295944			
156	-5.69E-05	1.441	-0.295944			
160	5.69E-05	1.441	-0.295944			
166	3.22E-12	1.846	0.591887	12.714	-2.36E-11	-2.24E-10
167	4.16E-12	1.846	0.591887	-12.714	-1.70E-11	2.22E-10
Sums :	-1.12E-12	1.41E-11	-1.20E-12			
min:	-5.69E-05	-1.846	-0.295944	-12.714	-2.36E-11	-2.24E-10
max:	5.69E-05	1.846	0.591887	12.714	-1.70E-11	2.22E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	0.000436	6.411	-0.009271	1.85E-05	-1.53E-06	3.76E-07
2	0.000369	6.412	-0.007445	1.80E-05	-1.13E-06	3.64E-07
3	9.19E-12	6.412	-0.006357	1.77E-05	6.53E-17	-1.27E-14
4	-0.000369	6.412	-0.007449	1.80E-05	1.13E-06	-3.64E-07
5	-0.000436	6.411	-0.009271	1.85E-05	1.53E-06	-3.76E-07
6	0.000247	6.265	2.96E-98	1.85E-05	-1.53E-06	3.76E-07
7	0.000187	6.266	0.001568	1.80E-05	-1.13E-06	3.64E-07
8	1.55E-11	6.266	0.002488	1.77E-05	6.53E-17	-1.27E-14
9	-0.000187	6.266	0.001568	1.80E-05	1.13E-06	-3.64E-07
10	-0.000247	6.265	2.96E-98	1.85E-05	1.53E-06	-3.76E-07
11	-4.00E-05	5.887	0.023979	1.79E-05	-7.30E-07	1.30E-07
12	-3.41E-05	5.887	0.024740	1.75E-05	-5.85E-07	1.29E-07
13	3.37E-11	5.887	0.025214	1.72E-05	-1.63E-15	-1.30E-14
14	3.41E-05	5.887	0.024740	1.75E-05	5.85E-07	-1.29E-07
15	4.00E-05	5.887	0.023975	1.79E-05	7.30E-07	-1.30E-07
16	-8.92E-05	5.508	0.046209	1.60E-05	-2.70E-07	3.20E-09
17	-6.46E-05	5.508	0.046493	1.58E-05	-2.26E-07	2.74E-08
18	5.18E-11	5.508	0.046674	1.57E-05	-1.58E-16	-1.21E-14
19	6.46E-05	5.508	0.046493	1.58E-05	2.26E-07	-2.74E-08
20	8.92E-05	5.508	0.046209	1.60E-05	2.70E-07	-3.20E-09
21	-5.77E-05	5.129	0.065289	1.31E-05	-8.34E-08	-2.38E-08
22	-4.20E-05	5.129	0.065377	1.31E-05	-7.01E-08	-4.01E-09
23	6.79E-11	5.129	0.065430	1.30E-05	2.53E-15	-1.02E-14
24	4.20E-05	5.129	0.065377	1.31E-05	7.01E-08	4.01E-09
25	5.77E-05	5.129	0.065289	1.31E-05	8.34E-08	2.38E-08
26	-2.53E-05	4.750	0.079923	9.20E-06	-3.10E-08	-1.71E-08
27	-1.90E-05	4.750	0.079955	9.19E-06	-2.65E-08	-7.69E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	8.11E-11	4.750	0.079973	9.19E-06	4.30E-15	-7.61E-15
29	1.90E-05	4.750	0.079955	9.19E-06	2.65E-08	7.69E-09
30	2.53E-05	4.750	0.079923	9.20E-06	3.10E-08	1.71E-08
31	-9.08E-06	4.371	0.088724	4.16E-06	-6.89E-08	-6.42E-09
32	-7.15E-06	4.371	0.088796	4.22E-06	-5.83E-08	-3.95E-09
33	9.05E-11	4.371	0.088838	4.27E-06	4.95E-15	-4.27E-15
34	7.15E-06	4.371	0.088796	4.22E-06	5.83E-08	3.95E-09
35	9.08E-06	4.371	0.088724	4.16E-06	6.89E-08	6.42E-09
36	-6.35E-06	3.992	0.090196	-2.07E-06	-2.58E-07	1.31E-09
37	-5.03E-06	3.992	0.090466	-1.85E-06	-2.13E-07	-2.58E-10
38	9.50E-11	3.992	0.090628	-1.70E-06	4.92E-15	2.66E-15
39	5.03E-06	3.992	0.090466	-1.85E-06	2.13E-07	2.58E-10
40	6.35E-06	3.992	0.090196	-2.07E-06	2.58E-07	-1.31E-09
41	-1.24E-05	3.613	0.082702	-9.59E-06	-7.92E-07	5.57E-09
42	-9.51E-06	3.613	0.083528	-9.03E-06	-6.39E-07	8.06E-10
43	9.23E-11	3.613	0.084029	-8.64E-06	4.54E-15	6.49E-15
44	9.51E-06	3.613	0.083528	-9.03E-06	6.39E-07	-8.06E-10
45	1.24E-05	3.613	0.082702	-9.59E-06	7.92E-07	-5.57E-09
46	-2.19E-05	3.234	0.064570	-1.83E-05	-1.81E-06	2.93E-09
47	-1.76E-05	3.234	0.066492	-1.74E-05	-1.53E-06	-3.91E-09
48	7.52E-11	3.234	0.067823	-1.65E-05	4.03E-15	1.40E-14
49	1.76E-05	3.234	0.066492	-1.74E-05	1.53E-06	3.91E-09
50	2.19E-05	3.234	0.064570	-1.83E-05	1.81E-06	-2.93E-09
51	-2.19E-05	2.856	0.035029	-2.67E-05	-2.29E-06	-1.42E-08
52	-2.25E-05	2.855	0.037677	-2.71E-05	-2.47E-06	-2.33E-08
53	5.39E-11	2.855	0.040520	-2.60E-05	3.71E-15	2.05E-14
54	2.25E-05	2.855	0.037677	-2.71E-05	2.47E-06	2.33E-08
55	2.19E-05	2.856	0.035029	-2.67E-05	2.29E-06	1.42E-08
56	3.43E-06	2.477	-0.003629	-3.24E-05	-4.21E-07	-3.53E-08
57	5.56E-06	2.477	-0.003204	-3.47E-05	-2.97E-07	-9.29E-08
58	2.04E-11	2.476	-0.003022	-4.32E-05	3.66E-15	2.20E-14
59	-5.56E-06	2.477	-0.003204	-3.47E-05	2.97E-07	-9.29E-08
60	-3.43E-06	2.477	-0.003629	-3.24E-05	4.21E-07	3.53E-08
61	2.34E-05	1.981	-0.057496	-3.01E-05	2.00E-06	-1.12E-08
62	2.07E-05	1.981	-0.059751	-3.02E-05	2.01E-06	-2.26E-08
63	-3.04E-11	1.981	-0.061933	-2.89E-05	3.66E-15	2.15E-14
64	-2.07E-05	1.981	-0.059751	-3.02E-05	-2.01E-06	2.26E-08
65	-2.34E-05	1.981	-0.057496	-3.01E-05	-2.00E-06	1.12E-08
66	1.63E-05	1.486	-0.103145	-2.29E-05	1.03E-06	3.66E-09
67	1.22E-05	1.486	-0.104227	-2.23E-05	8.35E-07	-2.35E-09
68	-8.95E-11	1.486	-0.104901	-2.18E-05	3.17E-15	1.69E-14
69	-1.22E-05	1.486	-0.104227	-2.23E-05	-8.35E-07	2.35E-09
70	-1.63E-05	1.486	-0.103145	-2.29E-05	-1.03E-06	-3.66E-09
71	5.94E-06	0.990624	-0.135527	-1.51E-05	2.69E-07	3.65E-09
72	4.36E-06	0.990626	-0.135808	-1.49E-05	2.20E-07	1.23E-09
73	-9.34E-11	0.990625	-0.135977	-1.47E-05	2.75E-15	1.06E-14
74	-4.36E-06	0.990626	-0.135808	-1.49E-05	-2.20E-07	-1.23E-09
75	-5.94E-06	0.990624	-0.135527	-1.51E-05	-2.69E-07	-3.65E-09
76	1.11E-06	0.495312	-0.154698	-7.48E-06	4.94E-08	1.42E-09
77	8.57E-07	0.495313	-0.154750	-7.43E-06	4.20E-08	8.18E-10
78	-1.06E-10	0.495313	-0.154781	-7.40E-06	2.60E-15	5.02E-15
79	-8.58E-07	0.495313	-0.154750	-7.43E-06	-4.20E-08	-8.18E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-1.11E-06	0.495312	-0.154698	-7.48E-06	-4.94E-08	-1.42E-09
81	-3.47E-08	-5.90E-12	-0.161052	-2.98E-17	1.10E-08	7.78E-17
82	1.91E-08	-5.81E-12	-0.161064	-2.81E-17	9.65E-09	7.79E-17
83	-1.10E-10	-5.69E-12	-0.161070	-2.54E-17	2.57E-15	7.78E-17
84	-1.94E-08	-5.58E-12	-0.161064	-2.24E-17	-9.65E-09	7.77E-17
85	3.45E-08	-5.49E-12	-0.161052	-2.04E-17	-1.10E-08	7.74E-17
86	1.11E-06	-0.495312	-0.154698	7.48E-06	4.94E-08	-1.42E-09
87	8.57E-07	-0.495313	-0.154750	7.43E-06	4.20E-08	-8.18E-10
88	-1.06E-10	-0.495313	-0.154781	7.40E-06	2.59E-15	-4.86E-15
89	-8.58E-07	-0.495313	-0.154750	7.43E-06	-4.20E-08	8.18E-10
90	-1.11E-06	-0.495312	-0.154698	7.48E-06	-4.94E-08	1.42E-09
91	5.94E-06	-0.990624	-0.135527	1.51E-05	2.69E-07	-3.65E-09
92	4.36E-06	-0.990626	-0.135808	1.49E-05	2.20E-07	-1.23E-09
93	-9.39E-11	-0.990625	-0.135977	1.47E-05	2.74E-15	-1.04E-14
94	-4.36E-06	-0.990626	-0.135808	1.49E-05	-2.20E-07	1.23E-09
95	-5.94E-06	-0.990624	-0.135527	1.51E-05	-2.69E-07	3.65E-09
96	1.63E-05	-1.486	-0.103145	2.29E-05	1.03E-06	-3.66E-09
97	1.22E-05	-1.486	-0.104227	2.23E-05	8.35E-07	-2.35E-09
98	-7.03E-11	-1.486	-0.104901	2.18E-05	3.15E-15	-1.67E-14
99	-1.22E-05	-1.486	-0.104227	2.23E-05	-8.35E-07	-2.35E-09
100	-1.63E-05	-1.486	-0.103145	2.29E-05	-1.03E-06	3.66E-09
101	2.34E-05	-1.981	-0.057496	3.01E-05	2.00E-06	1.12E-08
102	2.07E-05	-1.981	-0.059751	3.02E-05	2.01E-06	2.26E-08
103	-3.15E-11	-1.981	-0.061933	2.89E-05	3.63E-15	-2.13E-14
104	-2.07E-05	-1.981	-0.059751	3.02E-05	-2.01E-06	-2.26E-08
105	-2.34E-05	-1.981	-0.057496	3.01E-05	-2.00E-06	-1.12E-08
106	3.43E-06	-2.477	-0.003625	3.24E-05	-4.21E-07	3.53E-08
107	5.56E-06	-2.477	-0.003204	3.47E-05	-2.97E-07	9.29E-08
108	1.90E-11	-2.476	-0.003022	4.32E-05	3.63E-15	-2.18E-14
109	-5.56E-06	-2.477	-0.003204	3.47E-05	2.97E-07	-9.29E-08
110	-3.43E-06	-2.477	-0.003629	3.24E-05	4.21E-07	-3.53E-08
111	-2.19E-05	-2.856	0.035029	2.67E-05	-2.29E-06	1.42E-08
112	-2.25E-05	-2.855	0.037677	2.71E-05	-2.47E-06	2.33E-08
113	5.23E-11	-2.855	0.040520	2.60E-05	3.66E-15	-2.04E-14
114	2.25E-05	-2.855	0.037677	2.71E-05	2.47E-06	-2.33E-08
115	2.19E-05	-2.856	0.035029	2.67E-05	2.29E-06	-1.42E-08
116	-2.19E-05	-3.234	0.064570	1.83E-05	-1.81E-06	-2.93E-09
117	-1.76E-05	-3.234	0.066492	1.74E-05	-1.53E-06	3.91E-09
118	7.94E-11	-3.234	0.067823	1.65E-05	4.00E-15	-1.38E-14
119	1.76E-05	-3.234	0.066492	1.74E-05	1.53E-06	-3.91E-09
120	2.19E-05	-3.234	0.064570	1.83E-05	1.81E-06	2.93E-09
121	-1.24E-05	-3.613	0.082702	9.59E-06	-7.92E-07	-5.57E-09
122	-9.51E-06	-3.613	0.083528	9.03E-06	-6.39E-07	-8.06E-10
123	9.03E-11	-3.613	0.084029	8.64E-06	4.52E-15	-6.33E-15
124	9.51E-06	-3.613	0.083528	9.03E-06	6.39E-07	8.06E-10
125	1.24E-05	-3.613	0.082702	9.59E-06	7.92E-07	5.57E-09
126	-6.35E-06	-3.992	0.090196	2.07E-06	-2.58E-07	-1.31E-09
127	-5.03E-06	-3.992	0.090466	1.85E-06	-2.13E-07	2.58E-10
128	9.28E-11	-3.992	0.090628	1.70E-06	4.90E-15	-9.90E-17
129	5.03E-06	-3.992	0.090466	1.85E-06	2.13E-07	-2.58E-10
130	6.35E-06	-3.992	0.090196	2.07E-06	2.58E-07	1.31E-09
131	-9.08E-06	-4.371	0.088724	-4.16E-06	-6.89E-08	6.42E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-7.15E-06	-4.371	0.088796	-4.22E-06	-5.83E-08	3.95E-09
133	8.81E-11	-4.371	0.088838	-4.27E-06	4.93E-15	4.43E-15
134	7.15E-06	-4.371	0.088796	-4.22E-06	5.83E-08	-3.95E-09
135	9.08E-06	-4.371	0.088724	-4.16E-06	6.89E-08	-6.42E-09
136	-2.53E-05	-4.750	0.079923	-9.20E-06	-3.10E-08	1.71E-08
137	-1.90E-05	-4.750	0.079955	-9.19E-06	-2.65E-08	7.69E-09
138	7.84E-11	-4.750	0.079973	-9.19E-06	4.29E-15	7.78E-15
139	1.90E-05	-4.750	0.079955	-9.19E-06	2.65E-08	-7.69E-09
140	2.53E-05	-4.750	0.079923	-9.20E-06	3.10E-08	-1.71E-08
141	-5.77E-05	-5.129	0.065289	-1.31E-05	-8.34E-08	2.38E-08
142	4.20E-05	-5.129	0.065377	-1.31E-05	-7.01E-08	4.01E-09
143	6.51E-11	-5.129	0.065430	-1.30E-05	2.52E-15	1.04E-14
144	4.20E-05	-5.129	0.065377	-1.31E-05	7.01E-08	-4.01E-09
145	5.77E-05	-5.129	0.065289	-1.31E-05	8.34E-08	-2.38E-08
146	-8.92E-05	-5.508	0.046209	-1.60E-05	-2.70E-07	-3.20E-09
147	-6.46E-05	-5.508	0.046493	-1.58E-05	-2.26E-07	-2.74E-08
148	4.87E-11	-5.508	0.046674	-1.57E-05	-1.66E-16	1.23E-14
149	6.46E-05	-5.508	0.046493	-1.58E-05	2.26E-07	2.74E-08
150	8.92E-05	-5.508	0.046209	-1.60E-05	2.70E-07	3.20E-09
151	-4.00E-05	-5.887	0.023975	-1.79E-05	-7.30E-07	-1.30E-07
152	-3.41E-05	-5.887	0.024740	-1.75E-05	-5.85E-07	-1.29E-07
153	3.04E-11	-5.887	0.025214	-1.72E-05	-1.63E-15	1.31E-14
154	3.41E-05	-5.887	0.024740	-1.75E-05	5.85E-07	1.29E-07
155	4.00E-05	-5.887	0.023979	-1.79E-05	7.30E-07	1.30E-07
156	0.000247	-6.265	2.96E-98	-1.85E-05	-1.53E-06	-3.76E-07
157	0.000187	-6.266	0.001568	-1.80E-05	-1.13E-06	-3.64E-07
158	1.20E-11	-6.266	0.002486	-1.77E-05	6.47E-17	1.28E-14
159	-0.000187	-6.266	0.001568	-1.80E-05	1.13E-06	3.64E-07
160	-0.000247	-6.265	2.96E-98	-1.85E-05	1.53E-06	3.76E-07
161	0.000436	-6.411	-0.009271	-1.85E-05	-1.53E-06	-3.76E-07
162	0.000369	-6.412	-0.007449	-1.80E-05	-1.13E-06	-3.64E-07
163	5.59E-12	-6.412	-0.006357	-1.77E-05	6.47E-17	1.28E-14
164	-0.000369	-6.412	-0.007449	-1.80E-05	1.13E-06	3.64E-07
165	-0.000436	-6.411	-0.009271	-1.85E-05	1.53E-06	3.76E-07
166	-0	1.85E-97	-5.92E-98	-1.27E-99	+0	+0
167	-0	-1.85E-97	-5.92E-98	1.27E-99	+0	-0
min:	-0.000436	-6.412	-0.161070	-4.32E-05	-2.47E-06	-3.76E-07
max:	0.000436	6.412	0.090628	4.32E-05	2.47E-06	3.76E-07

Loadcase Factor Stage Init.def Title
60 1.0000 FRENADO

SUPPORT REACTIONE :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-4.14E-05	-1.116	-0.371460			
10	4.14E-05	-1.116	-0.371460			
156	4.14E-05	-1.116	0.371460			
160	-4.14E-05	-1.116	0.371460			
166	1.47E-11	-3.763	-0.958693	25.552	7.27E-11	-2.38E-10
167	-1.57E-11	-3.763	0.958693	25.552	-8.03E-11	-2.38E-10
Sums :	-1.83E-12	-11.990	6.52E-13			
min:	-4.14E-05	-3.763	-0.958693	25.552	-8.03E-11	-2.38E-10
max:	4.14E-05	-1.116	0.958693	25.552	7.27E-11	-2.38E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	0.000321	4.852	-0.012012	2.40E-05	-1.91E-06	2.82E-07
2	0.000270	4.852	-0.009726	2.34E-05	-1.42E-06	2.70E-07
3	-1.99E-11	4.852	-0.008355	2.29E-05	4.72E-17	-1.70E-14
4	-0.000270	4.852	-0.009726	2.34E-05	1.42E-06	-2.70E-07
5	-0.000321	4.852	-0.012012	2.40E-05	1.91E-06	-2.82E-07
6	0.000180	4.852	3.71E-98	2.40E-05	-1.91E-06	2.82E-07
7	0.000135	4.852	0.001968	2.34E-05	-1.42E-06	2.70E-07
8	-1.14E-11	4.852	0.003118	2.29E-05	4.72E-17	-1.70E-14
9	-0.000135	4.852	0.001968	2.34E-05	1.42E-06	-2.70E-07
10	-0.000180	4.852	3.71E-98	2.40E-05	1.91E-06	-2.82E-07
11	-3.40E-05	4.852	0.031075	2.33E-05	-9.15E-07	9.45E-08
12	-2.86E-05	4.852	0.032029	2.27E-05	-7.33E-07	9.21E-08
13	1.29E-11	4.852	0.032624	2.23E-05	-1.17E-15	-1.74E-14
14	2.86E-05	4.852	0.032029	2.27E-05	7.33E-07	-9.21E-08
15	3.40E-05	4.852	0.031075	2.33E-05	9.15E-07	-9.45E-08
16	-6.67E-05	4.852	0.059953	2.09E-05	-3.38E-07	-4.56E-10
17	-4.97E-05	4.852	0.060309	2.06E-05	-2.83E-07	1.54E-08
18	3.70E-11	4.852	0.060535	2.04E-05	-2.51E-18	-1.63E-14
19	4.97E-05	4.852	0.060309	2.06E-05	2.83E-07	-1.54E-08
20	6.87E-05	4.852	0.059953	2.09E-05	3.38E-07	4.55E-10
21	-4.37E-05	4.853	0.084878	1.72E-05	-1.05E-07	-1.99E-08
22	-3.18E-05	4.853	0.084588	1.71E-05	-8.84E-08	-7.87E-09
23	5.86E-11	4.853	0.085054	1.71E-05	2.07E-15	-1.39E-14
24	3.18E-05	4.853	0.084928	1.71E-05	8.84E-08	7.87E-09
25	4.37E-05	4.853	0.084878	1.72E-05	1.05E-07	1.99E-08
26	-1.93E-05	4.853	0.104212	1.23E-05	-4.81E-08	-1.38E-08
27	-1.45E-05	4.853	0.104263	1.23E-05	-4.11E-08	-1.00E-08

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	7.66E-11	4.853	0.104290	1.23E-05	3.45E-15	-1.07E-14
29	1.45E-05	4.853	0.104263	1.23E-05	4.11E-08	1.00E-08
30	1.93E-05	4.853	0.104212	1.23E-05	4.81E-08	1.38E-08
31	-8.82E-06	4.853	0.116197	5.92E-06	-1.32E-07	-4.10E-09
32	-6.97E-06	4.853	0.116336	6.05E-06	-1.12E-07	-6.24E-09
33	9.01E-11	4.853	0.116417	6.14E-06	3.94E-15	-6.43E-15
34	6.97E-06	4.853	0.116336	6.05E-06	1.12E-07	6.24E-09
35	8.82E-06	4.853	0.116197	5.92E-06	1.32E-07	4.10E-09
36	-1.18E-05	4.853	0.118895	-1.99E-06	-4.90E-07	4.58E-09
37	-9.14E-06	4.853	0.119407	-1.57E-06	-4.03E-07	-2.45E-09
38	9.70E-11	4.853	0.119714	-1.29E-06	3.81E-15	-3.40E-16
39	9.14E-06	4.853	0.119407	-1.57E-06	4.03E-07	2.45E-09
40	1.18E-05	4.853	0.118895	-1.99E-06	4.90E-07	-4.58E-09
41	-2.63E-05	4.853	0.110135	-1.16E-05	-1.47E-06	1.04E-08
42	-1.99E-05	4.853	0.111672	-1.06E-05	-1.19E-06	-2.20E-09
43	9.38E-11	4.853	0.112604	-9.88E-06	3.23E-15	8.41E-15
44	1.99E-05	4.853	0.111672	-1.06E-05	1.19E-06	2.20E-09
45	2.63E-05	4.853	0.110135	-1.16E-05	1.47E-06	-1.04E-08
46	-4.55E-05	4.853	0.087747	-2.26E-05	-3.26E-06	4.31E-09
47	-3.64E-05	4.853	0.091219	-2.12E-05	-2.77E-06	-1.25E-08
48	7.52E-11	4.853	0.093654	-1.96E-05	2.42E-15	1.88E-14
49	3.64E-05	4.853	0.091219	-2.12E-05	2.77E-06	1.25E-08
50	4.55E-05	4.853	0.087747	-2.26E-05	3.26E-06	-4.31E-09
51	-4.52E-05	4.853	0.051406	-3.24E-05	-3.71E-06	-3.07E-08
52	-4.62E-05	4.853	0.055775	-3.35E-05	-4.21E-06	-5.22E-08
53	3.94E-11	4.852	0.060838	-3.18E-05	1.96E-15	2.62E-14
54	4.62E-05	4.852	0.055775	-3.35E-05	4.21E-06	5.22E-08
55	4.52E-05	4.853	0.051406	-3.24E-05	3.71E-06	3.07E-08
56	7.24E-06	4.853	0.006608	-3.61E-05	5.20E-07	-7.44E-08
57	1.18E-05	4.852	0.005935	-4.07E-05	7.52E-07	-1.95E-07
58	-4.26E-12	4.852	0.004895	-5.85E-05	2.00E-15	2.33E-14
59	-1.18E-05	4.852	0.005935	-4.07E-05	-7.52E-07	1.95E-07
60	-7.24E-06	4.852	0.006608	-3.61E-05	-5.20E-07	7.44E-08
61	4.75E-05	4.853	-0.044517	-2.27E-05	4.98E-06	-2.59E-08
62	4.21E-05	4.853	-0.050088	-2.25E-05	4.89E-06	-5.26E-08
63	-6.12E-11	4.853	-0.055250	-1.94E-05	2.07E-15	1.69E-14
64	-4.21E-05	4.853	-0.050088	-2.25E-05	-4.89E-06	5.26E-08
65	-4.75E-05	4.853	-0.044517	-2.27E-05	-4.98E-06	2.59E-08
66	3.32E-05	4.853	-0.067773	-3.97E-06	2.40E-06	4.42E-09
67	2.49E-05	4.853	-0.070231	-2.60E-06	1.95E-06	-1.12E-08
68	-8.27E-11	4.853	-0.071855	-1.45E-06	1.12E-15	4.11E-15
69	-2.49E-05	4.853	-0.070291	-2.60E-06	-1.95E-06	1.12E-08
70	-3.32E-05	4.853	-0.067773	-3.97E-06	-2.40E-06	-4.42E-09
71	1.24E-05	4.853	-0.061603	1.06E-05	6.13E-07	4.38E-05
72	9.08E-06	4.853	-0.062244	1.11E-05	5.04E-07	-3.92E-09
73	-6.95E-11	4.853	-0.062629	1.14E-05	2.87E-16	-8.37E-15
74	-9.08E-06	4.853	-0.062244	1.11E-05	-5.04E-07	3.92E-09
75	-1.24E-05	4.853	-0.061603	1.06E-05	-6.13E-07	-4.38E-09
76	2.83E-06	4.853	-0.035615	1.91E-05	1.11E-07	-2.00E-11
77	2.13E-06	4.853	-0.035733	1.92E-05	9.54E-08	-4.52E-09
78	-3.77E-11	4.853	-0.035803	1.93E-05	2.29E-17	-1.52E-14
79	-2.13E-06	4.853	-0.035733	1.92E-05	-9.54E-08	4.52E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-2.83E-06	4.853	-0.035615	1.91E-05	-1.13E-07	2.00E-11
81	8.84E-13	4.853	1.17E-13	2.19E-05	4.32E-17	-1.65E-09
82	8.84E-13	4.853	6.91E-14	2.19E-05	4.32E-17	-5.15E-09
83	8.85E-13	4.853	4.31E-15	2.19E-05	4.32E-17	-1.72E-14
84	8.85E-13	4.853	-6.05E-14	2.19E-05	4.33E-17	5.19E-09
85	8.85E-13	4.853	-1.09E-13	2.19E-05	4.33E-17	1.65E-09
86	-2.83E-06	4.853	0.035615	1.91E-05	-1.13E-07	-2.00E-11
87	-2.13E-06	4.853	0.035733	1.92E-05	-9.54E-08	-4.52E-09
88	3.95E-11	4.853	0.035803	1.93E-05	6.34E-17	-1.52E-14
89	2.13E-06	4.853	0.035733	1.92E-05	9.54E-08	4.52E-09
90	2.83E-06	4.853	0.035615	1.91E-05	1.13E-07	2.00E-11
91	-1.24E-05	4.853	0.061603	1.06E-05	-6.13E-07	4.38E-09
92	-9.08E-06	4.853	0.062244	1.11E-05	-5.04E-07	-3.92E-09
93	7.12E-11	4.853	0.062629	1.14E-05	-2.00E-16	-8.36E-15
94	9.08E-06	4.853	0.062244	1.11E-05	5.04E-07	3.92E-09
95	1.24E-05	4.853	0.061603	1.06E-05	6.13E-07	-4.38E-09
96	-3.32E-05	4.853	0.067773	-3.97E-06	-2.40E-06	4.42E-05
97	-2.49E-05	4.853	0.070291	-2.60E-06	-1.95E-06	-1.12E-05
98	8.45E-11	4.853	0.071855	-1.45E-06	-1.01E-15	4.12E-15
99	2.49E-05	4.853	0.070291	-2.60E-06	1.95E-06	1.12E-05
100	3.32E-05	4.853	0.067773	-3.97E-06	2.40E-06	-4.42E-05
101	-4.75E-05	4.853	0.044517	-2.27E-05	-4.98E-06	-2.59E-08
102	-4.21E-05	4.853	0.050088	-2.25E-05	-4.85E-06	-5.26E-08
103	6.29E-11	4.853	0.055260	-1.94E-05	-1.98E-15	1.69E-14
104	4.21E-05	4.853	0.050088	-2.25E-05	4.85E-06	5.26E-08
105	4.75E-05	4.853	0.044517	-2.27E-05	4.98E-06	2.59E-08
106	-7.24E-06	4.853	-0.006608	-3.61E-05	-5.20E-07	-7.44E-08
107	-1.18E-05	4.852	-0.005935	-4.07E-05	-7.52E-07	-1.95E-07
108	6.01E-12	4.852	-0.004895	-5.85E-05	-1.91E-15	2.33E-14
109	1.18E-05	4.852	-0.005935	-4.07E-05	7.52E-07	1.95E-07
110	7.24E-06	4.853	-0.006608	-3.61E-05	5.20E-07	7.44E-08
111	4.52E-05	4.853	-0.051406	-3.24E-05	3.71E-06	-3.07E-08
112	-4.62E-05	4.853	-0.055775	-3.35E-05	4.21E-06	-5.22E-08
113	-3.76E-11	4.852	-0.060838	-3.18E-05	-1.88E-15	2.62E-14
114	-4.62E-05	4.853	-0.055775	-3.35E-05	-4.21E-06	5.22E-08
115	-4.52E-05	4.853	-0.051406	-3.24E-05	-3.71E-06	3.07E-08
116	4.55E-05	4.853	-0.087747	-2.26E-05	3.26E-06	4.31E-09
117	3.64E-05	4.853	-0.091219	-2.12E-05	2.77E-06	-1.25E-08
118	-7.35E-11	4.853	-0.093654	-1.96E-05	-2.35E-15	1.86E-14
119	-3.64E-05	4.853	-0.091219	-2.12E-05	-2.77E-06	1.25E-08
120	-4.55E-05	4.853	-0.087747	-2.26E-05	-3.26E-06	-4.31E-09
121	2.63E-05	4.853	-0.110135	-1.16E-05	1.47E-06	1.04E-08
122	1.99E-05	4.853	-0.111672	-1.06E-05	1.19E-06	-2.20E-09
123	-9.20E-11	4.853	-0.112604	-9.88E-06	-3.17E-15	6.40E-15
124	-1.99E-05	4.853	-0.111672	-1.06E-05	-1.19E-06	2.20E-09
125	-2.63E-05	4.853	-0.110135	-1.16E-05	-1.47E-06	-1.04E-08
126	1.18E-05	4.853	-0.118895	-1.99E-06	4.90E-07	4.55E-09
127	9.14E-06	4.853	-0.119407	-1.57E-06	4.03E-07	-2.45E-09
128	-9.52E-11	4.853	-0.119714	-1.29E-06	-3.76E-15	-3.47E-16
129	-9.14E-06	4.853	-0.119407	-1.57E-06	-4.03E-07	2.45E-09
130	-1.18E-05	4.853	-0.118895	-1.99E-06	-4.90E-07	-4.58E-09
131	8.82E-06	4.853	-0.116197	5.92E-06	1.32E-07	-4.10E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	6.97E-06	4.853	-0.116336	6.05E-06	1.12E-07	-6.24E-09
133	-8.83E-11	4.853	-0.116417	6.14E-06	-3.89E-15	-6.44E-15
134	-6.97E-06	4.853	-0.116336	6.05E-06	-1.12E-07	6.24E-09
135	-8.82E-06	4.853	-0.116197	5.92E-06	-1.32E-07	4.10E-09
136	1.93E-05	4.853	-0.104212	1.23E-05	4.81E-08	-1.38E-08
137	1.45E-05	4.853	-0.104263	1.23E-05	4.11E-08	-1.00E-08
138	-7.49E-11	4.853	-0.104290	1.23E-05	-3.41E-15	-1.07E-14
139	-1.45E-05	4.853	-0.104263	1.23E-05	-4.11E-08	1.00E-08
140	-1.93E-05	4.853	-0.104212	1.23E-05	-4.81E-08	1.38E-08
141	4.37E-05	4.853	-0.084878	1.72E-05	1.05E-07	1.99E-08
142	3.18E-05	4.853	-0.084988	1.71E-05	8.84E-08	-7.87E-09
143	-5.68E-11	4.853	-0.085054	1.71E-05	-2.05E-15	-1.39E-14
144	-3.18E-05	4.853	-0.084988	1.71E-05	-8.84E-08	7.87E-09
145	-4.37E-05	4.853	-0.084878	1.72E-05	-1.05E-07	1.99E-08
146	6.87E-05	4.852	-0.059953	2.09E-05	3.38E-07	-4.56E-10
147	4.97E-05	4.852	-0.060309	2.06E-05	2.83E-07	1.54E-08
148	-3.52E-11	4.852	-0.060535	2.04E-05	2.05E-17	-1.63E-14
149	-4.97E-05	4.852	-0.060309	2.06E-05	-2.83E-07	-1.54E-08
150	-6.87E-05	4.852	-0.059953	2.09E-05	-3.38E-07	4.55E-10
151	3.40E-05	4.852	-0.031075	2.33E-05	9.15E-07	9.45E-08
152	2.86E-05	4.852	-0.032029	2.27E-05	7.33E-07	9.21E-08
153	-1.10E-11	4.852	-0.032624	2.23E-05	1.18E-15	-1.74E-14
154	-2.86E-05	4.852	-0.032029	2.27E-05	-7.33E-07	-9.21E-08
155	-3.40E-05	4.852	-0.031075	2.33E-05	-9.15E-07	-9.45E-08
156	-0.000180	4.852	-3.71E-98	2.40E-05	1.91E-06	2.82E-07
157	-0.000135	4.852	-0.001968	2.34E-05	1.42E-06	2.70E-07
158	1.33E-11	4.852	-0.003119	2.29E-05	-4.59E-17	-1.70E-14
159	0.000135	4.852	-0.001968	2.34E-05	-1.42E-06	-2.70E-07
160	0.000180	4.852	-3.71E-98	2.40E-05	-1.91E-06	-2.82E-07
161	-0.000321	4.852	0.012012	2.40E-05	1.91E-06	2.82E-07
162	-0.000270	4.852	0.009726	2.34E-05	1.42E-06	2.70E-07
163	2.18E-11	4.852	0.008355	2.29E-05	-4.59E-17	-1.70E-14
164	0.000270	4.852	0.009726	2.34E-05	-1.42E-06	-2.70E-07
165	0.000321	4.852	0.012012	2.40E-05	-1.91E-06	-2.82E-07
166	-0	3.76E-97	9.59E-98	-2.56E-95	-0	+0
167	+0	3.76E-97	-9.59E-98	-2.56E-95	+0	+0
min:	-0.000321	3.76E-97	-0.119714	-5.85E-05	-4.98E-06	-2.82E-07
max:	0.000321	4.853	0.119714	2.40E-05	4.98E-06	2.82E-07

Loadcase Factor Stage Init.def Title
62 1.0000 VIENTO TRANSV SIN SOE.

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	1.531	0.004263	3.948			
10	1.531	-0.004262	-4.140			
156	1.531	-0.004263	3.948			
160	1.531	0.004262	-4.140			
166	5.242	-0.002368	-0.804205	0.010415	32.670	-0.040211
167	5.242	0.002368	-0.804205	-0.010415	32.670	0.040211
Sums :	16.609	2.71E-12	-1.592			
min.	1.531	-0.004263	-4.140	-0.010415	32.670	-0.040211
max:	5.242	0.004263	3.948	0.010415	32.670	0.040211

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	-6.653	-0.018533	0.026975	-5.39E-05	1.91E-06	7.49E-06
2	-6.653	-0.010395	0.014646	-3.21E-05	-7.15E-07	7.16E-06
3	-6.654	-1.59E-06	-0.000444	1.85E-06	-4.09E-06	7.06E-06
4	-6.653	0.010395	-0.016000	3.60E-05	-2.85E-07	7.16E-06
5	-6.653	0.018532	-0.029105	5.82E-05	2.91E-06	7.49E-06
6	-6.657	-0.018533	-3.95E-97	-5.39E-05	1.91E-06	7.49E-06
7	-6.657	-0.010398	-0.001395	-3.21E-05	-7.19E-07	7.16E-06
8	-6.657	-1.59E-06	0.000483	1.85E-06	-4.09E-06	7.06E-06
9	-6.657	0.010395	0.002006	3.60E-05	-2.85E-07	7.16E-06
10	-6.657	0.018532	4.14E-97	5.82E-05	2.91E-06	7.50E-06
11	-6.666	-0.018397	-0.078384	-5.90E-05	-3.02E-05	7.40E-06
12	-6.666	-0.010341	-0.044333	-3.40E-05	-3.09E-05	7.15E-06
13	-6.666	-1.49E-06	0.002825	1.73E-06	-3.20E-05	7.11E-06
14	-6.667	0.010338	0.049918	3.76E-05	-3.08E-05	7.15E-06
15	-6.667	0.018394	0.083881	6.29E-05	-3.01E-05	7.40E-06
16	-6.676	-0.018020	-0.160357	-6.04E-05	-6.30E-05	7.14E-06
17	-6.676	-0.010174	-0.089811	-3.56E-05	-6.30E-05	7.01E-06
18	-6.676	-1.38E-06	0.004875	1.40E-06	-6.33E-05	7.02E-06
19	-6.676	0.010171	0.099686	3.85E-05	-6.32E-05	7.01E-06
20	-6.676	0.018017	0.170451	6.35E-05	-6.32E-05	7.14E-06
21	-6.685	-0.017445	-0.243800	-6.13E-05	-9.55E-05	6.86E-06
22	-6.685	-0.009877	-0.136877	-3.64E-05	-9.55E-05	6.77E-06
23	-6.685	-1.32E-06	0.006382	9.02E-07	-9.56E-05	6.79E-06
24	-6.685	0.009874	0.149849	3.83E-05	-9.57E-05	6.77E-06
25	-6.685	0.017442	0.257119	6.32E-05	-9.58E-05	6.86E-06
26	-6.694	-0.016699	-0.328103	-6.18E-05	-0.000128	6.54E-06
27	-6.694	-0.009471	-0.184819	-3.69E-05	-0.000128	6.46E-06

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-6.694	-1.30E-06	0.007183	3.27E-07	-0.000128	6.48E-06
29	-6.694	0.009468	0.199421	3.76E-05	-0.000128	6.46E-06
30	-6.694	0.016696	0.343096	6.24E-05	-0.000128	6.54E-06
31	-6.702	-0.015809	-0.412739	-6.18E-05	-0.000160	6.17E-06
32	-6.702	-0.008981	-0.233267	-3.72E-05	-0.000160	6.10E-06
33	-6.702	-1.29E-06	0.007238	-2.31E-07	-0.000160	6.12E-06
34	-6.702	0.008978	0.247989	3.67E-05	-0.000161	6.10E-06
35	-6.702	0.015806	0.427869	6.14E-05	-0.000161	6.17E-06
36	-6.710	-0.014805	-0.497063	-6.13E-05	-0.000192	5.75E-06
37	-6.710	-0.008425	-0.281822	-3.71E-05	-0.000192	5.70E-06
38	-6.710	-1.27E-06	0.006630	-6.81E-07	-0.000192	5.71E-06
39	-6.710	0.008422	0.295340	3.57E-05	-0.000193	5.70E-06
40	-6.710	0.014803	0.511011	6.00E-05	-0.000193	5.75E-06
41	-6.717	-0.013719	-0.579960	-5.96E-05	-0.000223	5.30E-06
42	-6.717	-0.007819	-0.329813	-3.63E-05	-0.000223	5.27E-06
43	-6.717	-1.26E-06	0.005550	-9.40E-07	-0.000224	5.28E-06
44	-6.717	0.007817	0.341213	3.44E-05	-0.000224	5.27E-06
45	-6.717	0.013716	0.591859	5.79E-05	-0.000224	5.30E-06
46	-6.724	-0.012582	-0.659056	-5.54E-05	-0.000253	4.84E-06
47	-6.724	-0.007176	-0.376080	-3.43E-05	-0.000253	4.82E-06
48	-6.724	-1.35E-06	0.004299	-9.30E-07	-0.000254	4.81E-06
49	-6.724	0.007174	0.385093	3.26E-05	-0.000253	4.82E-06
50	-6.724	0.012580	0.668746	5.39E-05	-0.000253	4.84E-06
51	-6.730	-0.011431	-0.729023	-4.58E-05	-0.000277	4.41E-06
52	-6.730	-0.006504	-0.418531	-2.99E-05	-0.000278	4.39E-06
53	-6.730	-1.64E-06	0.003277	-5.62E-07	-0.000283	4.29E-06
54	-6.730	0.006502	0.425773	2.91E-05	-0.000279	4.39E-06
55	-6.730	0.011429	0.737272	4.52E-05	-0.000278	4.41E-06
56	-6.735	-0.010273	-0.780684	-2.93E-05	-0.000293	4.02E-06
57	-6.735	-0.005832	-0.451527	-1.80E-05	-0.000295	3.96E-06
58	-6.735	-2.01E-06	0.003085	4.26E-07	-0.000316	3.95E-06
59	-6.735	0.005828	0.458725	1.89E-05	-0.000296	3.96E-06
60	-6.735	0.010273	0.789146	3.02E-05	-0.000294	4.03E-06
61	-6.742	-0.008625	-0.817406	-1.08E-05	-0.000312	3.42E-06
62	-6.742	-0.004886	-0.467607	-4.42E-06	-0.000313	3.32E-06
63	-6.742	-1.23E-06	0.005063	1.64E-06	-0.000316	3.39E-06
64	-6.742	0.004884	0.478344	7.44E-06	-0.000314	3.32E-06
65	-6.742	0.008623	0.829060	1.36E-05	-0.000313	3.42E-06
66	-6.747	-0.006714	-0.829054	-2.74E-06	-0.000319	2.66E-06
67	-6.747	-0.003788	-0.471430	-7.32E-07	-0.000315	2.59E-06
68	-6.747	-7.29E-07	0.008147	1.87E-06	-0.000320	2.60E-06
69	-6.747	0.003787	0.488065	4.40E-06	-0.000320	2.59E-06
70	-6.747	0.006712	0.846252	6.30E-06	-0.000320	2.68E-06
71	-6.751	-0.004590	-0.831749	-3.45E-07	-0.000322	1.83E-06
72	-6.751	-0.002588	-0.471515	4.06E-07	-0.000322	1.77E-06
73	-6.751	-4.71E-07	0.011133	1.56E-06	-0.000322	1.78E-06
74	-6.751	0.002587	0.494044	2.69E-06	-0.000322	1.77E-06
75	-6.751	0.004589	0.854715	3.42E-06	-0.000322	1.83E-06
76	-6.753	-0.002329	-0.831989	1.35E-07	-0.000323	9.30E-07
77	-6.753	-0.001313	-0.470729	4.22E-07	-0.000323	9.00E-07
78	-6.753	-2.43E-07	0.013243	8.75E-07	-0.000323	9.02E-07
79	-6.753	0.001313	0.497461	1.32E-06	-0.000323	8.99E-07

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-6.753	0.002328	0.859129	1.61E-06	-0.000323	9.30E-07
81	-6.754	-2.46E-11	-0.831895	-5.18E-16	-0.000323	9.00E-15
82	-6.754	-1.45E-11	-0.470347	-3.19E-16	-0.000323	9.00E-15
83	-6.754	-9.92E-13	0.014000	7.67E-18	-0.000323	9.00E-15
84	-6.754	1.25E-11	0.498591	3.34E-16	-0.000323	9.00E-15
85	-6.754	2.26E-11	0.860544	5.31E-16	-0.000323	9.00E-15
86	-6.753	0.002329	-0.831989	-1.35E-07	-0.000323	-9.30E-07
87	-6.753	0.001313	-0.470729	-4.22E-07	-0.000323	-9.00E-07
88	-6.753	2.43E-07	0.013243	-8.75E-07	-0.000323	-9.02E-07
89	-6.753	-0.001313	0.497461	-1.32E-06	-0.000323	-8.99E-07
90	-6.753	-0.002328	0.859129	-1.61E-06	-0.000323	-9.30E-07
91	-6.751	0.004590	-0.831749	3.45E-07	-0.000322	-1.83E-06
92	-6.751	0.002588	-0.471515	-4.06E-07	-0.000322	-1.77E-06
93	-6.751	4.71E-07	0.011133	-1.56E-06	-0.000322	-1.78E-06
94	-6.751	-0.002587	0.494044	-2.69E-06	-0.000322	-1.77E-06
95	-6.751	-0.004589	0.854715	-3.42E-06	-0.000322	-1.83E-06
96	-6.747	0.006714	-0.829054	2.74E-06	-0.000319	-2.66E-06
97	-6.747	0.003788	-0.471430	7.32E-07	-0.000319	-2.59E-06
98	-6.747	7.29E-07	0.008147	-1.87E-06	-0.000320	-2.60E-06
99	-6.747	-0.003787	0.488065	-4.40E-06	-0.000320	-2.59E-06
100	-6.747	-0.006712	0.846252	-6.30E-06	-0.000320	-2.68E-06
101	-6.742	0.006625	-0.817406	1.08E-05	-0.000312	-3.42E-06
102	-6.742	0.004886	-0.467607	4.42E-06	-0.000313	-3.32E-06
103	-6.742	1.23E-06	0.005063	-1.64E-06	-0.000316	-3.39E-06
104	-6.742	-0.004884	0.478344	-7.44E-06	-0.000314	-3.32E-06
105	-6.742	-0.008623	0.829060	-1.36E-05	-0.000313	-3.42E-06
106	-6.735	0.010273	-0.780684	2.93E-05	-0.000293	-4.02E-06
107	-6.735	0.005832	-0.451527	1.80E-05	-0.000295	-3.96E-06
108	-6.735	2.01E-06	0.003085	-4.26E-07	-0.000316	-3.95E-06
109	-6.735	-0.005828	0.458725	-1.89E-05	-0.000296	-3.96E-06
110	-6.735	-0.010273	0.789146	-3.02E-05	-0.000294	-4.03E-06
111	-6.730	0.011431	-0.729023	4.58E-05	-0.000277	-4.41E-06
112	-6.730	0.006504	-0.418531	2.99E-05	-0.000278	-4.39E-06
113	-6.730	1.64E-06	0.003277	5.62E-07	-0.000283	-4.29E-06
114	-6.730	-0.006502	0.425773	-2.91E-05	-0.000279	-4.39E-06
115	-6.730	-0.011429	0.737272	-4.52E-05	-0.000278	-4.41E-06
116	-6.724	0.012582	-0.659056	5.54E-05	-0.000253	-4.84E-06
117	-6.724	0.007176	-0.376080	3.43E-05	-0.000253	-4.82E-06
118	-6.724	1.35E-06	0.004299	9.30E-07	-0.000254	-4.81E-06
119	-6.724	-0.007174	0.385093	-3.26E-05	-0.000253	-4.82E-06
120	-6.724	-0.012580	0.668746	-5.39E-05	-0.000253	-4.84E-06
121	-6.717	0.013719	-0.579960	5.96E-05	-0.000223	-5.30E-06
122	-6.717	0.007819	-0.329813	3.63E-05	-0.000223	-5.27E-06
123	-6.717	1.26E-06	0.005550	9.40E-07	-0.000224	-5.28E-06
124	-6.717	-0.007817	0.341213	-3.44E-05	-0.000224	-5.27E-06
125	-6.717	-0.013716	0.591859	-5.79E-05	-0.000224	-5.30E-06
126	-6.710	0.014805	-0.497063	6.13E-05	-0.000192	-5.75E-06
127	-6.710	0.008425	-0.281822	3.71E-05	-0.000192	-5.70E-06
128	-6.710	1.27E-06	0.006630	6.81E-07	-0.000192	-5.71E-06
129	-6.710	-0.008422	0.295340	-3.57E-05	-0.000193	-5.70E-06
130	-6.710	-0.014803	0.511011	-6.00E-05	-0.000193	-5.75E-06
131	-6.702	0.015809	-0.412739	6.18E-05	-0.000160	-6.17E-06

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-6.702	0.008981	-0.233267	3.72E-05	-0.000160	-6.10E-06
133	-6.702	1.29E-06	0.007238	2.31E-07	-0.000160	-6.12E-06
134	-6.702	-0.008978	0.247989	-3.67E-05	-0.000161	-6.10E-06
135	-6.702	-0.015806	0.427869	-6.14E-05	-0.000161	-6.17E-06
136	-6.694	0.016699	-0.328103	6.18E-05	-0.000128	-6.54E-06
137	-6.694	0.009471	-0.184819	3.69E-05	-0.000128	-6.46E-06
138	-6.694	1.30E-06	0.007183	-3.27E-07	-0.000128	-6.48E-06
139	-6.694	-0.009468	0.199421	-3.76E-05	-0.000128	-6.46E-06
140	-6.694	-0.016696	0.343096	-6.24E-05	-0.000128	-6.54E-06
141	-6.685	0.017445	-0.243800	6.13E-05	-9.55E-05	-6.86E-06
142	-6.685	0.009877	-0.136877	3.64E-05	-9.55E-05	-6.77E-06
143	-6.685	1.32E-06	0.006382	-9.02E-07	-9.56E-05	-6.79E-06
144	-6.685	-0.009874	0.149849	-3.83E-05	-9.57E-05	-6.77E-06
145	-6.685	-0.017442	0.257119	-6.32E-05	-9.58E-05	-6.86E-06
146	-6.676	0.018020	-0.160357	6.04E-05	-6.30E-05	-7.14E-06
147	-6.676	0.010174	-0.089811	3.56E-05	-6.30E-05	-7.01E-06
148	-6.676	1.38E-06	0.004875	-1.40E-06	-6.33E-05	-7.02E-06
149	-6.676	-0.010171	0.099686	-3.85E-05	-6.32E-05	-7.01E-06
150	-6.676	-0.018017	0.170451	-6.35E-05	-6.32E-05	-7.14E-06
151	-6.666	0.018397	-0.078384	5.90E-05	-3.02E-05	-7.40E-06
152	-6.666	0.010341	-0.044333	3.40E-05	-3.09E-05	-7.15E-06
153	-6.666	1.49E-06	0.002825	-1.73E-06	-3.20E-05	-7.11E-06
154	-6.667	-0.010338	0.049918	-3.76E-05	-3.08E-05	-7.15E-06
155	-6.667	-0.018394	0.083881	-6.29E-05	-3.01E-05	-7.40E-06
156	-6.657	0.018533	-3.95E-97	5.39E-05	1.91E-06	-7.49E-06
157	-6.657	0.010398	-0.001395	3.21E-05	-7.19E-07	-7.16E-06
158	-6.657	1.59E-06	0.000483	-1.85E-06	-4.09E-06	-7.06E-06
159	-6.657	-0.010395	0.002008	-3.60E-05	-2.85E-07	-7.16E-06
160	-6.657	-0.018532	4.14E-97	-5.82E-05	2.91E-06	-7.50E-06
161	-6.653	0.018533	0.026975	5.39E-05	1.91E-06	-7.49E-06
162	-6.653	0.010398	0.014646	3.21E-05	-7.19E-07	-7.16E-06
163	-6.654	1.59E-06	-0.000444	-1.85E-06	-4.09E-06	-7.06E-06
164	-6.653	-0.010395	-0.016000	3.60E-05	-2.85E-07	-7.16E-06
165	-6.653	-0.018532	-0.029105	-5.82E-05	2.91E-06	-7.49E-06
166	-5.24E-97	+0	6.04E-98	-0	-3.27E-95	+0
167	-5.24E-97	-0	6.04E-98	+0	-3.27E-95	-0
min:	-6.754	-0.018533	-0.831989	-6.35E-05	-0.000323	-7.50E-06
max:	-5.24E-97	0.018533	0.860544	6.35E-05	2.91E-06	7.50E-06

Loadcase Factor Stage Init.def Title
6) 1.0000 VIENTO TRANSV CON SOB

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	3.976	0.010057	10.805			
10	3.976	-0.010056	-11.366			
156	3.976	-0.010057	10.805			
160	3.976	0.010056	-11.366			
166	11.245	-0.006921	-1.766	0.030443	79.020	-0.094356
167	11.245	0.006921	-1.766	-0.030443	79.020	0.094356
Sums :	38.395	7.08E-12	-4.654			
min:	3.976	-0.010057	-11.366	-0.030443	79.020	-0.094356
max:	11.245	0.010057	10.805	0.030443	79.020	0.094356

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	-17.278	-0.043724	0.073702	-0.000147	5.17E-06	1.78E-05
2	-17.280	-0.024489	0.039956	-8.75E-05	-2.01E-06	1.69E-05
3	-17.280	-4.64E-06	-0.001299	5.42E-06	-1.12E-05	1.67E-05
4	-17.280	0.024480	-0.043955	9.90E-05	-7.41E-07	1.69E-05
5	-17.279	0.043720	-0.079930	0.000160	6.93E-06	1.78E-05
6	-17.267	-0.043724	-1.08E-96	-0.000147	5.17E-06	1.78E-05
7	-17.288	-0.024489	-0.003766	-8.75E-05	-2.01E-06	1.69E-05
8	-17.289	-4.64E-06	0.001411	5.42E-06	-1.12E-05	1.67E-05
9	-17.285	0.024480	0.005559	9.90E-05	-7.41E-07	1.69E-05
10	-17.288	0.043720	1.14E-96	0.000160	6.93E-06	1.78E-05
11	-17.310	-0.043373	-0.214224	-0.000161	-8.27E-05	1.75E-05
12	-17.311	-0.024344	-0.120932	-9.27E-05	-8.46E-05	1.69E-05
13	-17.311	-4.36E-06	0.008257	5.05E-06	-8.76E-05	1.68E-05
14	-17.311	0.024336	0.137259	0.000103	-8.43E-05	1.69E-05
15	-17.311	0.043367	0.230291	0.000173	-8.24E-05	1.75E-05
16	-17.333	-0.042412	-0.438312	-0.000165	-0.000172	1.68E-05
17	-17.333	-0.023925	-0.245094	-9.71E-05	-0.000173	1.65E-05
18	-17.333	-4.02E-06	0.014249	4.09E-06	-0.000173	1.65E-05
19	-17.333	0.023918	0.273960	0.000106	-0.000173	1.65E-05
20	-17.333	0.042404	0.467818	0.000174	-0.000173	1.68E-05
21	-17.354	-0.040957	-0.666482	-0.000168	-0.000261	1.61E-05
22	-17.354	-0.023182	-0.373674	-9.95E-05	-0.000261	1.59E-05
23	-17.354	-3.86E-06	0.018654	2.64E-06	-0.000262	1.59E-05
24	-17.355	0.023175	0.411593	0.000105	-0.000262	1.59E-05
25	-17.355	0.040950	0.705414	0.000173	-0.000262	1.61E-05
26	-17.375	-0.039093	-0.897068	-0.000169	-0.000350	1.53E-05
27	-17.375	-0.022177	-0.504742	-0.000101	-0.000350	1.51E-05

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-17.375	-3.80E-06	0.020996	9.56E-07	-0.000351	1.52E-05
29	-17.375	0.022170	0.547425	0.000103	-0.000351	1.51E-05
30	-17.376	0.039086	0.940894	0.000171	-0.000351	1.53E-05
31	-17.394	-0.036900	-1.129	-0.000169	-0.000439	1.44E-05
32	-17.394	-0.020977	-0.637285	-0.000102	-0.000439	1.42E-05
33	-17.394	-3.76E-06	0.021159	-6.74E-07	-0.000439	1.43E-05
34	-17.395	0.020969	0.680320	0.000100	-0.000440	1.42E-05
35	-17.395	0.036892	1.173	0.000168	-0.000440	1.44E-05
36	-17.412	-0.034463	-1.359	-0.000168	-0.000526	1.33E-05
37	-17.412	-0.019637	-0.770197	-0.000102	-0.000526	1.32E-05
38	-17.412	-3.70E-06	0.019379	1.99E-06	-0.000527	1.33E-05
39	-17.413	0.019629	0.809712	9.76E-05	-0.000527	1.32E-05
40	-17.413	0.034455	1.400	0.000164	-0.000527	1.33E-05
41	-17.429	-0.031875	-1.586	-0.000163	-0.000611	1.22E-05
42	-17.429	-0.018202	-0.901608	-9.93E-05	-0.000611	1.22E-05
43	-17.429	-3.68E-06	0.016225	-2.75E-06	-0.000612	1.22E-05
44	-17.429	0.018195	0.934933	9.40E-05	-0.000612	1.22E-05
45	-17.430	0.031867	1.621	0.000158	-0.000613	1.22E-05
46	-17.444	-0.029234	-1.803	-0.000152	-0.000691	1.12E-05
47	-17.444	-0.016707	-1.028	-9.39E-05	-0.000692	1.12E-05
48	-17.444	-3.94E-06	0.012566	-2.72E-06	-0.000695	1.11E-05
49	-17.445	0.016699	1.055	8.89E-05	-0.000693	1.12E-05
50	-17.445	0.029226	1.831	0.000147	-0.000693	1.12E-05
51	-17.458	-0.026642	-1.994	-0.000125	-0.000757	1.02E-05
52	-17.458	-0.015173	-1.144	-8.19E-05	-0.000762	1.02E-05
53	-17.458	-4.78E-06	0.009580	-1.64E-06	-0.000775	9.87E-06
54	-17.458	0.015165	1.166	7.94E-05	-0.000764	1.02E-05
55	-17.459	0.026636	2.018	0.000124	-0.000760	1.02E-05
56	-17.471	-0.024118	-2.135	-8.01E-05	-0.000802	9.45E-06
57	-17.471	-0.013684	-1.235	-4.91E-05	-0.000807	9.29E-06
58	-17.470	-5.87E-06	0.009018	1.25E-06	-0.000866	9.26E-06
59	-17.471	0.013674	1.256	5.18E-05	-0.000810	9.29E-06
60	-17.472	0.024112	2.160	8.28E-05	-0.000806	9.47E-06
61	-17.486	-0.020482	-2.236	-2.95E-05	-0.000853	8.17E-06
62	-17.486	-0.011586	-1.279	-1.20E-05	-0.000857	7.89E-06
63	-17.486	-3.58E-06	0.014799	4.78E-06	-0.000866	8.12E-06
64	-17.487	0.011580	1.310	2.08E-05	-0.000859	7.89E-06
65	-17.487	0.020476	2.270	3.77E-05	-0.000856	8.17E-06
66	-17.499	-0.016081	-2.267	-7.37E-06	-0.000874	6.48E-06
67	-17.499	-0.009046	-1.289	-1.79E-06	-0.000874	6.23E-06
68	-17.499	-2.13E-06	0.023815	5.47E-06	-0.000875	6.26E-06
69	-17.499	0.009041	1.337	1.25E-05	-0.000875	6.23E-06
70	-17.500	0.016075	2.318	1.78E-05	-0.000875	6.48E-06
71	-17.508	-0.011055	-2.275	-8.06E-07	-0.000880	4.46E-06
72	-17.508	-0.006213	-1.289	1.31E-06	-0.000880	4.28E-06
73	-17.509	-1.38E-06	0.032541	4.56E-06	-0.000881	4.29E-06
74	-17.509	0.006210	1.354	7.75E-06	-0.000881	4.28E-06
75	-17.509	0.011052	2.342	9.79E-06	-0.000882	4.46E-06
76	-17.514	-0.005627	-2.275	4.56E-07	-0.000883	2.27E-06
77	-17.514	-0.003163	-1.286	1.27E-06	-0.000883	2.18E-06
78	-17.514	-7.10E-07	0.038710	2.56E-06	-0.000883	2.18E-06
79	-17.515	0.003162	1.364	3.83E-06	-0.000884	2.18E-06

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-17.515	0.005625	2.354	4.63E-06	-0.000884	2.27E-06
81	-17.516	-6.38E-11	-2.275	-1.34E-15	-0.000884	2.34E-14
82	-17.516	-3.77E-11	-1.285	-8.28E-16	-0.000884	2.34E-14
83	-17.516	-2.59E-12	0.040924	2.00E-17	-0.000884	2.34E-14
84	-17.517	3.25E-11	1.366	8.66E-16	-0.000885	2.34E-14
85	-17.517	5.87E-11	2.358	1.38E-15	-0.000885	2.34E-14
86	-17.514	0.005627	-2.275	-4.56E-07	-0.000883	-2.27E-06
87	-17.514	0.003163	-1.286	-1.27E-06	-0.000883	-2.18E-06
88	-17.514	7.10E-07	0.038710	-2.56E-06	-0.000883	-2.18E-06
89	-17.515	-0.003162	1.364	-3.83E-06	-0.000884	-2.18E-06
90	-17.515	-0.005625	2.354	-4.63E-06	-0.000884	-2.27E-06
91	-17.508	0.011055	-2.275	8.06E-07	-0.000880	-4.46E-06
92	-17.508	0.006213	-1.289	-1.31E-06	-0.000880	-4.28E-06
93	-17.509	1.38E-06	0.032541	-4.56E-06	-0.000881	-4.29E-06
94	-17.509	-0.006210	1.354	-7.75E-06	-0.000881	-4.28E-06
95	-17.509	-0.011052	2.342	-9.79E-06	-0.000882	-4.46E-06
96	-17.499	0.016081	-2.267	7.37E-06	-0.000874	-6.48E-06
97	-17.499	0.009046	-1.289	1.79E-06	-0.000874	-6.23E-06
98	-17.499	2.13E-06	0.023815	-5.47E-06	-0.000875	-6.26E-06
99	-17.499	-0.009041	1.337	-1.25E-05	-0.000875	-6.23E-06
100	-17.500	-0.016075	2.318	-1.78E-05	-0.000875	-6.48E-06
101	-17.486	0.020482	-2.236	2.95E-05	-0.000853	-8.17E-06
102	-17.486	0.011586	-1.279	1.20E-05	-0.000857	-7.89E-06
103	-17.486	3.58E-06	0.014799	-4.78E-06	-0.000866	-8.12E-06
104	-17.487	-0.011580	1.310	-2.08E-05	-0.000859	-7.89E-06
105	-17.487	-0.020476	2.270	-3.77E-05	-0.000856	-8.17E-06
106	-17.471	0.024118	-2.135	8.01E-05	-0.000802	-9.45E-06
107	-17.471	0.013684	-1.235	4.91E-05	-0.000807	-9.29E-06
108	-17.470	5.87E-06	0.009018	-1.25E-06	-0.000866	-9.26E-06
109	-17.471	-0.013674	1.256	-5.18E-05	-0.000810	-9.29E-06
110	-17.472	-0.024112	2.160	-8.28E-05	-0.000806	-9.47E-06
111	-17.458	0.026642	-1.994	0.000125	-0.000757	-1.02E-05
112	-17.458	0.015173	-1.144	8.19E-05	-0.000762	-1.02E-05
113	-17.458	4.78E-06	0.009580	1.64E-06	-0.000775	-9.87E-06
114	-17.458	-0.015165	1.166	-7.94E-05	-0.000764	-1.02E-05
115	-17.459	-0.026636	2.018	-0.000124	-0.000760	-1.02E-05
116	-17.444	0.029234	-1.803	0.000152	-0.000691	-1.12E-05
117	-17.444	0.016707	-1.028	9.39E-05	-0.000692	-1.12E-05
118	-17.444	3.94E-06	0.012566	2.72E-06	-0.000695	-1.11E-05
119	-17.445	-0.016699	1.055	-8.89E-05	-0.000693	-1.12E-05
120	-17.445	-0.029226	1.831	-0.000147	-0.000693	-1.12E-05
121	-17.429	0.031875	-1.586	0.000163	-0.000611	-1.22E-05
122	-17.429	0.018202	-0.901608	9.93E-05	-0.000611	-1.22E-05
123	-17.429	3.68E-06	0.016225	2.75E-06	-0.000612	-1.22E-05
124	-17.429	-0.018195	0.934933	-9.40E-05	-0.000612	-1.22E-05
125	-17.430	-0.031867	1.621	-0.000158	-0.000613	-1.22E-05
126	-17.412	0.034463	-1.359	0.000168	-0.000526	-1.33E-05
127	-17.412	0.019637	-0.770197	0.000102	-0.000526	-1.32E-05
128	-17.412	3.70E-06	0.019379	1.99E-06	-0.000527	-1.33E-05
129	-17.413	-0.019629	0.809712	-9.76E-05	-0.000527	-1.32E-05
130	-17.413	-0.034455	1.400	-0.000164	-0.000527	-1.33E-05
131	-17.394	0.036900	-1.129	0.000169	-0.000439	-1.44E-05

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-17.394	0.020977	-0.637285	0.000102	-0.000439	-1.42E-05
133	-17.394	3.76E-06	0.021159	6.74E-07	-0.000439	-1.43E-05
134	-17.395	-0.020969	0.680320	-0.000100	-0.000440	-1.42E-05
135	-17.395	-0.036892	1.173	-0.000168	-0.000440	-1.44E-05
136	-17.375	0.039093	-0.897068	0.000169	-0.000350	-1.53E-05
137	-17.375	0.022177	-0.504742	0.000101	-0.000350	-1.51E-05
138	-17.375	3.80E-06	0.020996	-9.56E-07	-0.000351	-1.52E-05
139	-17.375	-0.022170	0.547425	-0.000103	-0.000351	-1.51E-05
140	-17.376	-0.039086	0.940894	-0.000171	-0.000351	-1.53E-05
141	-17.354	0.040957	-0.666482	0.000168	-0.000261	-1.61E-05
142	-17.354	0.023182	-0.373674	9.95E-05	-0.000261	-1.59E-05
143	-17.354	3.86E-06	0.018654	-2.64E-06	-0.000262	-1.59E-05
144	-17.355	-0.023175	0.411593	-0.000105	-0.000262	-1.59E-05
145	-17.355	-0.040950	0.705414	-0.000173	-0.000262	-1.61E-05
146	-17.333	0.042412	-0.438312	0.000165	-0.000172	-1.68E-05
147	-17.333	0.023925	-0.245094	9.71E-05	-0.000173	-1.65E-05
148	-17.333	4.02E-06	0.014249	-4.09E-06	-0.000173	-1.65E-05
149	-17.333	-0.023918	0.273960	-0.000106	-0.000173	-1.65E-05
150	-17.333	-0.042404	0.467818	-0.000174	-0.000173	-1.68E-05
151	-17.310	0.043373	-0.214224	0.000161	-8.27E-05	-1.75E-05
152	-17.311	0.024344	-0.120932	9.27E-05	-8.46E-05	-1.69E-05
153	-17.311	4.36E-06	0.008257	-5.05E-06	-8.76E-05	-1.68E-05
154	-17.311	-0.024336	0.137259	-0.000103	-8.43E-05	-1.69E-05
155	-17.311	-0.043367	0.230291	-0.000173	-8.24E-05	-1.75E-05
156	-17.287	0.043724	-1.08E-96	0.000147	5.17E-06	-1.78E-05
157	-17.288	0.024489	-0.003766	8.75E-05	-2.01E-06	-1.69E-05
158	-17.289	4.64E-06	0.001411	-5.42E-06	-1.12E-05	-1.67E-05
159	-17.288	-0.024480	0.005559	-9.90E-05	-7.41E-07	-1.69E-05
160	-17.288	-0.043720	1.14E-96	-0.000160	6.93E-06	-1.78E-05
161	-17.278	0.043724	0.073702	0.000147	5.17E-06	-1.78E-05
162	-17.280	0.024489	0.039956	8.75E-05	-2.01E-06	-1.69E-05
163	-17.280	4.64E-06	-0.001299	-5.42E-06	-1.12E-05	-1.67E-05
164	-17.280	-0.024480	-0.043955	-9.90E-05	-7.41E-07	-1.69E-05
165	-17.279	-0.043720	-0.079930	-0.000160	6.93E-06	-1.78E-05
166	-1.12E-96	+0	1.77E-97	-0	-7.90E-99	+0
167	-1.12E-96	-0	1.77E-97	+0	-7.90E-99	-0
min:	-17.517	-0.043724	-2.275	-0.000174	-0.000885	-1.78E-05
max:	-1.12E-96	0.043724	2.358	0.000174	6.93E-06	1.78E-05

Loadcase Factor Stage Init.def Title
64 1.0000 TEMPERATURA (-)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-7.09E-05	-1.795	-0.368725			
10	7.09E-05	-1.795	-0.368725			
156	-7.09E-05	1.795	-0.368725			
160	7.09E-05	1.795	-0.368725			
166	3.69E-12	-2.300	0.737449	15.841	-3.18E-11	-2.79E-10
167	5.11E-12	2.300	0.737449	-15.841	-2.18E-11	2.76E-10
Sums :	-2.06E-12	1.30E-11	-1.43E-12			
min:	-7.09E-05	-2.300	-0.368725	-15.841	-3.18E-11	-2.79E-10
max:	7.09E-05	2.300	0.737449	15.841	-2.18E-11	2.76E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	0.000543	7.988	-0.011551	2.31E-05	-1.90E-06	4.69E-07
2	0.000455	7.989	-0.009283	2.25E-05	-1.41E-06	4.53E-07
3	1.22E-11	7.989	-0.007920	2.20E-05	8.16E-17	-1.57E-14
4	-0.000455	7.989	-0.006261	2.25E-05	1.41E-06	-4.53E-07
5	-0.000543	7.988	-0.011551	2.31E-05	1.90E-06	-4.69E-07
6	0.000308	7.806	3.69E-96	2.31E-05	-1.90E-06	4.69E-07
7	0.000233	7.807	0.001954	2.25E-05	-1.41E-06	4.53E-07
8	2.01E-11	7.807	0.003057	2.20E-05	8.16E-17	-1.57E-14
9	-0.000233	7.807	0.001954	2.25E-05	1.41E-06	-4.53E-07
10	-0.000308	7.806	3.69E-96	2.31E-05	1.90E-06	-4.69E-07
11	-4.98E-05	7.334	0.042877	2.23E-05	-9.09E-07	1.62E-07
12	-4.25E-05	7.335	0.030824	2.18E-05	-7.28E-07	1.61E-07
13	4.28E-11	7.335	0.031415	2.14E-05	-2.02E-15	-1.61E-14
14	4.25E-05	7.335	0.030824	2.18E-05	7.28E-07	-1.61E-07
15	4.98E-05	7.334	0.028877	2.23E-05	9.09E-07	-1.62E-07
16	-0.000111	6.862	0.057573	2.00E-05	-3.37E-07	3.98E-09
17	-8.04E-05	6.863	0.057927	1.97E-05	-2.81E-07	3.42E-08
18	6.53E-11	6.863	0.058152	1.95E-05	-1.91E-16	-1.51E-14
19	8.04E-05	6.863	0.057927	1.97E-05	2.81E-07	-3.42E-08
20	0.000111	6.862	0.057573	2.00E-05	3.37E-07	-3.98E-09
21	-7.19E-05	6.390	0.081346	1.64E-05	-1.04E-07	-2.97E-08
22	-5.23E-05	6.390	0.081455	1.63E-05	-8.74E-08	-4.99E-09
23	8.53E-11	6.390	0.081521	1.62E-05	3.16E-15	-1.27E-14
24	5.23E-05	6.390	0.081455	1.63E-05	8.74E-08	4.99E-09
25	7.19E-05	6.390	0.081346	1.64E-05	1.04E-07	2.97E-08
26	-3.15E-05	5.918	0.099578	1.15E-05	-3.87E-08	-2.13E-08
27	-2.36E-05	5.918	0.099619	1.15E-05	-3.30E-08	-9.58E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	1.02E-10	5.918	0.099641	1.14E-05	5.37E-15	-9.46E-15
29	2.36E-05	5.918	0.099619	1.15E-05	3.30E-08	9.58E-09
30	3.15E-05	5.918	0.099578	1.15E-05	3.87E-08	2.13E-08
31	-1.13E-05	5.446	0.110544	5.18E-06	-8.58E-08	-8.00E-09
32	-8.90E-06	5.446	0.110634	5.26E-06	-7.26E-08	-4.92E-09
33	1.13E-10	5.446	0.110686	5.32E-06	6.18E-15	-5.30E-15
34	8.90E-06	5.446	0.110634	5.26E-06	7.26E-08	4.92E-09
35	1.13E-05	5.446	0.110544	5.18E-06	8.58E-08	8.00E-09
36	-7.91E-06	4.974	0.112378	-2.58E-06	-3.21E-07	1.63E-09
37	-6.27E-06	4.974	0.112714	-2.30E-06	-2.65E-07	-3.22E-10
38	1.19E-10	4.974	0.112916	-2.11E-06	6.15E-15	3.49E-16
39	6.27E-06	4.974	0.112714	-2.30E-06	2.65E-07	3.22E-10
40	7.91E-06	4.974	0.112378	-2.58E-06	3.21E-07	-1.63E-09
41	-1.55E-05	4.502	0.103041	-1.20E-05	-9.86E-07	6.95E-09
42	-1.18E-05	4.502	0.104070	-1.13E-05	-7.96E-07	1.00E-09
43	1.16E-10	4.502	0.104654	-1.08E-05	5.67E-15	8.11E-15
44	1.18E-05	4.502	0.104070	-1.13E-05	7.96E-07	-1.00E-09
45	1.55E-05	4.502	0.103041	-1.20E-05	9.86E-07	-6.95E-09
46	-2.73E-05	4.030	0.080449	-2.27E-05	-2.25E-06	3.65E-09
47	-2.19E-05	4.030	0.082845	-2.17E-05	-1.90E-06	-4.88E-05
48	9.92E-11	4.030	0.084503	-2.06E-05	5.04E-15	1.75E-14
49	2.19E-05	4.030	0.082845	-2.17E-05	1.90E-06	4.88E-09
50	2.73E-05	4.030	0.080449	-2.27E-05	2.25E-06	-3.65E-09
51	-2.73E-05	3.558	0.043644	-3.33E-05	-2.85E-06	-1.77E-08
52	-2.80E-05	3.558	0.046942	-3.38E-05	-3.08E-06	-2.91E-08
53	6.77E-11	3.558	0.050485	-3.24E-05	4.65E-15	2.56E-14
54	2.80E-05	3.558	0.046943	-3.38E-05	3.08E-06	2.91E-08
55	2.73E-05	3.558	0.043644	-3.33E-05	2.85E-06	1.77E-08
56	4.27E-06	3.086	-0.004022	-4.04E-05	-5.24E-07	-4.40E-08
57	6.92E-06	3.086	-0.003992	-4.32E-05	-3.70E-07	-1.16E-07
58	2.59E-11	3.085	-0.003765	-4.58E-05	4.58E-15	2.74E-14
59	-6.92E-06	3.086	-0.003992	-4.32E-05	3.70E-07	1.16E-07
60	-4.27E-06	3.086	-0.004522	-4.04E-05	5.24E-07	4.40E-08
61	2.91E-05	2.469	-0.071635	-3.75E-05	2.49E-06	-1.40E-08
62	2.58E-05	2.469	-0.074445	-3.76E-05	2.51E-06	-2.82E-08
63	-3.74E-11	2.468	-0.077164	-3.60E-05	4.57E-15	2.68E-14
64	-2.58E-05	2.469	-0.074445	-3.76E-05	-2.51E-06	2.82E-08
65	-2.91E-05	2.469	-0.071635	-3.75E-05	-2.49E-06	1.40E-08
66	2.03E-05	1.851	-0.128511	-2.85E-05	1.29E-06	4.56E-09
67	1.52E-05	1.851	-0.129860	-2.78E-05	1.04E-06	-2.92E-09
68	-8.62E-11	1.851	-0.130700	-2.72E-05	3.97E-15	2.11E-14
69	-1.52E-05	1.851	-0.129860	-2.78E-05	-1.04E-06	2.92E-05
70	-2.03E-05	1.851	-0.128511	-2.85E-05	-1.29E-06	-4.56E-05
71	7.40E-06	1.234	-0.168857	-1.88E-05	3.35E-07	4.55E-09
72	5.43E-06	1.234	-0.169207	-1.85E-05	2.74E-07	1.53E-09
73	-1.16E-10	1.234	-0.169417	-1.83E-05	3.44E-15	1.32E-14
74	-5.43E-06	1.234	-0.169207	-1.85E-05	-2.74E-07	-1.53E-09
75	-7.40E-06	1.234	-0.168857	-1.88E-05	-3.35E-07	-4.55E-09
76	1.38E-06	0.617123	-0.192743	-9.31E-06	6.16E-08	1.77E-09
77	1.07E-06	0.617124	-0.192807	-9.26E-06	5.23E-08	1.02E-09
78	-1.32E-10	0.617125	-0.192845	-9.22E-06	3.25E-15	6.28E-15
79	-1.07E-06	0.617124	-0.192807	-9.26E-06	-5.23E-08	-1.02E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-1.38E-06	0.617123	-0.192743	-9.31E-06	-6.16E-08	-1.77E-09
81	-4.32E-08	-5.58E-12	-0.200660	-3.02E-17	1.37E-08	1.18E-16
82	2.38E-08	-5.45E-12	-0.200674	-2.76E-17	1.20E-08	1.18E-16
83	-1.37E-10	-5.27E-12	-0.200681	-2.33E-17	3.22E-15	1.18E-16
84	-2.41E-08	-5.09E-12	-0.200674	-1.88E-17	-1.20E-08	1.18E-16
85	4.30E-08	-4.96E-12	-0.200660	-1.59E-17	-1.37E-08	1.18E-16
86	1.38E-06	-0.617123	-0.192743	9.31E-06	6.16E-08	-1.77E-09
87	1.07E-06	-0.617124	-0.192807	9.26E-06	5.23E-08	-1.02E-09
88	-1.32E-10	-0.617125	-0.192845	9.22E-06	3.24E-15	-6.04E-15
89	-1.07E-06	-0.617124	-0.192807	9.26E-06	-5.23E-08	1.02E-09
90	-1.38E-06	-0.617123	-0.192743	9.31E-06	-6.16E-08	1.77E-09
91	7.40E-06	-1.234	-0.168857	1.88E-05	3.35E-07	-4.55E-09
92	5.43E-06	-1.234	-0.169207	1.85E-05	2.74E-07	-1.53E-09
93	-1.17E-10	-1.234	-0.169417	1.83E-05	3.42E-15	-1.29E-14
94	-5.43E-06	-1.234	-0.169207	1.85E-05	-2.74E-07	1.53E-09
95	-7.40E-06	-1.234	-0.168857	1.88E-05	-3.35E-07	4.55E-09
96	2.03E-05	-1.851	-0.128511	2.85E-05	1.29E-06	-4.56E-09
97	-1.52E-05	-1.851	-0.129860	2.78E-05	-1.04E-06	-2.92E-09
98	-8.74E-11	-1.851	-0.130700	2.72E-05	3.94E-15	-2.08E-14
99	-1.52E-05	-1.851	-0.129860	2.78E-05	-1.04E-06	-2.92E-09
100	-2.03E-05	-1.851	-0.128511	2.85E-05	-1.29E-06	4.56E-09
101	2.91E-05	-2.469	-0.071635	3.75E-05	2.49E-06	1.40E-08
102	2.58E-05	-2.469	-0.074445	3.76E-05	2.51E-06	2.82E-08
103	-3.90E-11	-2.468	-0.077164	3.60E-05	4.53E-15	-2.66E-14
104	-2.58E-05	-2.469	-0.074445	3.76E-05	-2.51E-06	-2.82E-08
105	-2.91E-05	-2.469	-0.071635	3.75E-05	-2.49E-06	-1.40E-08
106	4.27E-06	-3.086	-0.004522	4.04E-05	-5.24E-07	4.40E-08
107	6.92E-06	-3.086	-0.003992	4.32E-05	-3.70E-07	1.16E-07
108	2.39E-11	-3.085	-0.003765	5.38E-05	4.53E-15	-2.71E-14
109	-6.92E-06	-3.086	-0.003992	4.32E-05	3.70E-07	-1.16E-07
110	-4.27E-06	-3.086	-0.004522	4.04E-05	5.24E-07	-4.40E-08
111	-2.73E-05	-3.556	-0.043644	3.33E-05	2.85E-06	-1.77E-08
112	-2.80E-05	-3.556	0.046942	3.38E-05	-3.08E-06	2.91E-08
113	6.53E-11	-3.556	0.050485	3.24E-05	4.60E-15	-2.53E-14
114	2.80E-05	-3.556	0.046942	3.38E-05	3.08E-06	-2.91E-08
115	2.73E-05	-3.556	0.043644	3.33E-05	2.85E-06	-1.77E-08
116	-2.73E-05	-4.030	0.080449	2.27E-05	-2.25E-06	-3.65E-09
117	-2.19E-05	-4.030	0.082845	2.17E-05	-1.90E-06	4.88E-09
118	9.66E-11	-4.030	0.084503	2.06E-05	5.00E-15	-1.72E-14
119	2.19E-05	-4.030	0.082845	2.17E-05	1.90E-06	-4.88E-09
120	2.73E-05	-4.030	0.080449	2.27E-05	2.25E-06	3.65E-09
121	-1.55E-05	-4.502	0.103041	1.20E-05	-9.86E-07	-6.95E-09
122	-1.18E-05	-4.502	0.104070	1.13E-05	-7.96E-07	-1.00E-09
123	1.13E-10	-4.502	0.104694	1.08E-05	5.64E-15	-7.86E-15
124	1.18E-05	-4.502	0.104070	1.13E-05	7.96E-07	1.00E-09
125	1.55E-05	-4.502	0.103041	1.20E-05	9.86E-07	6.95E-09
126	-7.91E-06	-4.974	0.112378	2.58E-06	-3.21E-07	1.63E-09
127	-6.27E-06	-4.974	0.112714	2.30E-06	-2.65E-07	3.22E-10
128	1.16E-10	-4.974	0.112916	2.11E-06	6.11E-15	-9.80E-17
129	6.27E-06	-4.974	0.112714	2.30E-06	2.65E-07	-3.22E-10
130	7.91E-06	-4.974	0.112378	2.58E-06	3.21E-07	1.63E-09
131	-1.13E-05	-5.446	0.110544	-5.18E-06	-6.58E-08	8.00E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-8.90E-06	-5.446	0.110634	-5.26E-06	-7.26E-08	4.92E-09
133	1.10E-10	-5.446	0.110686	-5.32E-06	6.15E-15	5.55E-15
134	8.90E-06	-5.446	0.110634	-5.26E-06	7.26E-08	-4.92E-09
135	1.13E-05	-5.446	0.110544	-5.18E-06	8.58E-08	-8.00E-09
136	-3.15E-05	-5.918	0.099578	-1.15E-05	-3.87E-08	2.13E-08
137	-2.36E-05	-5.918	0.099619	-1.15E-05	-3.30E-08	9.58E-09
138	9.77E-11	-5.918	0.099641	-1.14E-05	5.35E-15	9.71E-15
139	2.36E-05	-5.918	0.099619	-1.15E-05	3.30E-08	-9.58E-09
140	3.15E-05	-5.918	0.099578	-1.15E-05	3.87E-08	-2.13E-08
141	-7.19E-05	-6.390	0.081346	-1.64E-05	-1.04E-07	2.97E-08
142	-5.23E-05	-6.390	0.081455	-1.63E-05	-8.74E-08	4.99E-09
143	8.10E-11	-6.390	0.081521	-1.62E-05	3.14E-15	1.29E-14
144	5.23E-05	-6.390	0.081455	-1.63E-05	8.74E-08	-4.99E-09
145	7.19E-05	-6.390	0.081346	-1.64E-05	1.04E-07	-2.97E-08
146	-0.000111	-6.862	0.057573	-2.00E-05	-3.37E-07	-3.98E-09
147	-8.04E-05	-6.863	0.057927	-1.97E-05	-2.81E-07	-3.42E-08
148	6.06E-11	-6.863	0.058152	-1.95E-05	-2.04E-16	1.54E-14
149	8.04E-05	-6.863	0.057927	-1.97E-05	2.81E-07	3.42E-08
150	0.000111	-6.862	0.057573	-2.00E-05	3.37E-07	3.98E-09
151	-4.98E-05	-7.334	0.029877	-2.23E-05	-9.09E-07	-1.62E-07
152	-4.25E-05	-7.335	0.030824	-2.18E-05	-7.28E-07	-1.61E-07
153	3.78E-11	-7.335	0.031415	-2.14E-05	-2.03E-15	1.64E-14
154	4.25E-05	-7.335	0.030824	-2.18E-05	7.28E-07	1.61E-07
155	4.98E-05	-7.334	0.029877	-2.23E-05	9.09E-07	1.62E-07
156	0.000308	-7.806	3.69E-98	-2.31E-05	-1.90E-06	-4.69E-07
157	0.000233	-7.807	0.001954	-2.25E-05	-1.41E-06	-4.53E-07
158	1.48E-11	-7.807	0.003097	-2.20E-05	8.08E-17	1.60E-14
159	-0.000233	-7.807	0.001954	-2.25E-05	1.41E-06	4.53E-07
160	-0.000308	-7.806	3.69E-98	-2.31E-05	1.90E-06	4.69E-07
161	0.000543	-7.988	-0.011551	-2.31E-05	-1.90E-06	-4.69E-07
162	0.000459	-7.989	-0.009281	-2.25E-05	-1.41E-06	-4.53E-07
163	6.80E-12	-7.989	-0.007920	-2.20E-05	8.08E-17	1.60E-14
164	-0.000459	-7.989	-0.009281	-2.25E-05	1.41E-06	4.53E-07
165	-0.000543	-7.988	-0.011551	-2.31E-05	1.90E-06	4.69E-07
166	-0	2.30E-97	-7.37E-98	-1.58E-99	+0	+0
167	-0	-2.30E-97	-7.37E-98	1.58E-99	+0	-0
min:	-0.000543	-7.989	-0.200681	-5.38E-05	-3.08E-06	-4.69E-07
max:	0.000543	7.989	0.112916	5.38E-05	3.08E-06	4.69E-07

Loadcase Factor Stage Init.def Title
6t 1.0000 TEMPERATURA (+)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	7.09E-05	1.795	0.368725			
10	-7.09E-05	1.795	0.368725			
156	7.09E-05	-1.795	0.368725			
160	-7.09E-05	-1.795	0.368725			
166	-3.69E-12	2.300	-0.737449	-15.841	3.18E-11	2.79E-10
167	-5.11E-12	-2.300	-0.737449	15.841	2.18E-11	-2.76E-10
Sums :	2.06E-12	-1.30E-11	1.43E-12			
min:	-7.09E-05	-2.300	-0.737449	-15.841	2.18E-11	-2.76E-10
max:	7.09E-05	2.300	0.368725	15.841	3.18E-11	2.79E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	-0.000543	-7.988	0.011551	-2.31E-05	1.90E-06	-4.69E-07
2	-0.000459	-7.989	0.009281	-2.25E-05	1.41E-06	-4.53E-07
3	-1.22E-11	-7.989	0.007920	-2.20E-05	-8.16E-17	1.57E-14
4	0.000459	-7.989	0.009281	-2.25E-05	-1.41E-06	4.53E-07
5	0.000543	-7.988	0.011551	-2.31E-05	-1.90E-06	4.69E-07
6	-0.000308	-7.806	-3.69E-98	-2.31E-05	1.90E-06	-4.69E-07
7	-0.000233	-7.807	-0.001954	-2.25E-05	1.41E-06	-4.53E-07
8	-2.01E-11	-7.807	-0.003097	-2.20E-05	-8.16E-17	1.57E-14
9	0.000233	-7.807	-0.001954	-2.25E-05	-1.41E-06	4.53E-07
10	0.000308	-7.806	-3.69E-98	-2.31E-05	-1.90E-06	4.69E-07
11	4.99E-05	-7.334	-0.029877	-2.23E-05	9.09E-07	-1.62E-07
12	4.25E-05	-7.335	-0.030824	-2.18E-05	7.28E-07	-1.61E-07
13	-4.28E-11	-7.335	-0.031415	-2.14E-05	2.02E-15	1.61E-14
14	-4.25E-05	-7.335	-0.030824	-2.18E-05	-7.28E-07	1.61E-07
15	-4.98E-05	-7.334	-0.029877	-2.23E-05	-9.09E-07	1.62E-07
16	0.000111	-6.862	-0.057573	-2.00E-05	3.37E-07	-3.98E-09
17	8.04E-05	-6.863	-0.057927	-1.97E-05	2.81E-07	-3.42E-08
18	-6.53E-11	-6.863	-0.058152	-1.95E-05	1.93E-16	1.51E-14
19	-8.04E-05	-6.863	-0.057927	-1.97E-05	-2.81E-07	3.42E-08
20	-0.000111	-6.862	-0.057573	-2.00E-05	-3.37E-07	3.98E-09
21	7.19E-05	-6.390	-0.081346	-1.64E-05	1.04E-07	2.97E-08
22	5.23E-05	-6.390	-0.081455	-1.63E-05	8.74E-08	4.99E-09
23	-8.53E-11	-6.390	-0.081521	-1.62E-05	-3.16E-15	1.27E-14
24	-5.23E-05	-6.390	-0.081455	-1.63E-05	-8.74E-08	-4.99E-09
25	-7.19E-05	-6.390	-0.081346	-1.64E-05	-1.04E-07	-2.97E-08
26	3.15E-05	-5.918	-0.099578	-1.15E-05	3.87E-08	2.13E-08
27	2.36E-05	-5.918	-0.099619	-1.15E-05	3.30E-08	9.58E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	-1.02E-10	-5.918	-0.099641	-1.14E-05	-5.37E-15	9.46E-15
29	-2.36E-05	-5.918	-0.099619	-1.15E-05	-3.30E-08	-9.58E-09
30	-3.15E-05	-5.918	-0.099578	-1.15E-05	-3.87E-08	-2.13E-08
31	1.13E-05	-5.446	-0.110544	-5.18E-06	8.58E-08	8.00E-09
32	8.90E-06	-5.446	-0.110634	-5.26E-06	7.26E-08	4.92E-09
33	-1.13E-10	-5.446	-0.110686	-5.32E-06	-6.18E-15	5.30E-15
34	-8.90E-06	-5.446	-0.110634	-5.26E-06	-7.26E-08	-4.92E-09
35	-1.13E-05	-5.446	-0.110544	-5.18E-06	-8.58E-08	-8.00E-09
36	7.91E-06	-4.974	-0.112378	2.58E-06	3.21E-07	-1.63E-09
37	6.27E-06	-4.974	-0.112714	2.30E-06	2.65E-07	3.22E-10
38	-1.19E-10	-4.974	-0.112916	2.11E-06	-6.15E-15	-3.44E-16
39	-6.27E-06	-4.974	-0.112714	2.30E-06	-2.65E-07	-3.22E-10
40	-7.91E-06	-4.974	-0.112378	2.58E-06	-3.21E-07	1.63E-09
41	1.55E-05	-4.502	-0.103041	1.20E-05	9.86E-07	-6.95E-09
42	1.18E-05	-4.502	-0.104070	1.13E-05	7.96E-07	-1.00E-09
43	-1.16E-10	-4.502	-0.104694	1.08E-05	-5.67E-15	-8.11E-15
44	-1.18E-05	-4.502	-0.104070	1.13E-05	-7.96E-07	1.00E-09
45	-1.55E-05	-4.502	-0.103041	1.20E-05	-9.86E-07	6.95E-09
46	2.73E-05	-4.030	-0.080449	2.27E-05	2.25E-06	-3.65E-09
47	2.19E-05	-4.030	-0.082845	2.17E-05	1.90E-06	4.88E-09
48	-9.92E-11	-4.030	-0.084503	2.06E-05	-5.04E-15	-1.75E-14
49	-2.19E-05	-4.030	-0.082845	2.17E-05	-1.90E-06	-4.88E-09
50	-2.73E-05	-4.030	-0.080449	2.27E-05	-2.25E-06	3.65E-09
51	2.73E-05	-3.556	-0.043644	3.33E-05	2.85E-06	1.77E-08
52	2.80E-05	-3.556	0.046942	3.38E-05	3.08E-06	2.91E-08
53	-6.77E-11	-3.556	-0.050485	3.24E-05	-4.65E-15	-2.56E-14
54	-2.80E-05	-3.558	-0.046942	3.38E-05	-3.08E-06	-2.91E-08
55	-2.73E-05	-3.558	-0.043644	3.33E-05	-2.85E-06	-1.77E-08
56	-4.27E-06	-3.086	0.004522	4.04E-05	5.24E-07	4.40E-08
57	-6.92E-06	-3.086	0.003992	4.32E-05	3.70E-07	1.16E-07
58	-2.59E-11	-3.085	0.003765	5.38E-05	-4.58E-15	-2.74E-14
59	6.92E-06	-3.086	0.003992	4.32E-05	-3.70E-07	-1.16E-07
60	4.27E-06	-3.086	0.004522	4.04E-05	-5.24E-07	-4.40E-08
61	-2.91E-05	-2.469	0.071635	3.75E-05	-2.49E-06	1.40E-08
62	-2.58E-05	-2.469	0.074445	3.76E-05	-2.51E-06	2.82E-08
63	3.74E-11	-2.468	0.077164	3.60E-05	-4.57E-15	-2.68E-14
64	2.58E-05	-2.469	0.074445	3.76E-05	2.51E-06	-2.82E-08
65	2.91E-05	-2.469	0.071635	3.75E-05	2.49E-06	-1.40E-08
66	-2.03E-05	-1.851	0.128511	2.85E-05	-1.29E-06	4.56E-09
67	-1.52E-05	-1.851	0.129860	2.78E-05	-1.04E-06	2.92E-09
68	8.62E-11	-1.851	0.130700	2.72E-05	-3.97E-15	-2.11E-14
69	1.52E-05	-1.851	0.129860	2.78E-05	1.04E-06	-2.92E-09
70	2.03E-05	-1.851	0.128511	2.85E-05	1.29E-06	4.56E-09
71	-7.40E-06	-1.234	0.168857	1.88E-05	-3.35E-07	-4.55E-09
72	-5.43E-06	-1.234	0.169207	1.85E-05	-2.74E-07	-1.53E-09
73	1.16E-10	-1.234	0.169417	1.83E-05	-3.44E-15	-1.32E-14
74	5.43E-06	-1.234	0.169207	1.85E-05	2.74E-07	1.53E-09
75	7.40E-06	-1.234	0.168857	1.88E-05	3.35E-07	4.55E-09
76	-1.38E-06	-0.617123	0.192743	9.31E-06	-6.16E-08	-1.77E-09
77	-1.07E-06	-0.617124	0.192807	9.26E-06	-5.23E-08	-1.02E-09
78	1.32E-10	-0.617125	0.192845	9.22E-06	-3.25E-15	-6.28E-15
79	1.07E-06	-0.617124	0.192807	9.26E-06	5.23E-08	1.02E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	1.38E-06	-0.617123	0.192743	9.31E-06	6.16E-08	1.77E-09
81	4.32E-08	5.58E-12	0.200660	3.02E-17	-1.37E-08	-1.18E-16
82	-2.38E-08	5.45E-12	0.200674	2.76E-17	-1.20E-08	-1.18E-16
83	1.37E-10	5.27E-12	0.200681	2.33E-17	-3.22E-15	-1.18E-16
84	2.41E-08	5.09E-12	0.200674	1.88E-17	1.20E-08	-1.18E-16
85	-4.30E-08	4.96E-12	0.200660	1.59E-17	1.37E-08	-1.18E-16
86	-1.38E-06	0.617123	0.192743	-9.31E-06	-6.16E-08	1.77E-09
87	-1.07E-06	0.617124	0.192807	-9.26E-06	-5.23E-08	1.02E-09
88	1.32E-10	0.617125	0.192845	-9.22E-06	-3.24E-15	6.04E-15
89	1.07E-06	0.617124	0.192807	-9.26E-06	5.23E-08	-1.02E-09
90	1.38E-06	0.617123	0.192743	-9.31E-06	6.16E-08	-1.77E-09
91	-7.40E-06	1.234	0.168857	-1.88E-05	-3.35E-07	4.55E-09
92	-5.43E-06	1.234	0.169207	-1.85E-05	-2.74E-07	1.53E-09
93	1.17E-10	1.234	0.169417	-1.83E-05	-3.42E-15	1.29E-14
94	5.43E-06	1.234	0.169207	-1.85E-05	2.74E-07	-1.53E-09
95	7.40E-06	1.234	0.168857	-1.88E-05	3.35E-07	-4.55E-09
96	-2.03E-05	1.851	0.128511	-2.85E-05	-1.29E-06	4.56E-09
97	-1.52E-05	1.851	0.129860	-2.78E-05	-1.04E-06	-2.92E-09
98	8.74E-11	1.851	0.130700	-2.72E-05	-3.94E-15	2.08E-14
99	1.52E-05	1.851	0.129860	-2.78E-05	1.04E-06	2.92E-09
100	2.03E-05	1.851	0.128511	-2.85E-05	1.25E-06	-4.56E-09
101	-2.91E-05	2.469	0.071635	-3.75E-05	-2.49E-06	1.40E-08
102	-2.58E-05	2.469	0.074445	-3.76E-05	-2.51E-06	2.82E-08
103	3.90E-11	2.468	0.077164	-3.60E-05	-4.53E-15	2.66E-14
104	2.58E-05	2.469	0.074445	-3.76E-05	2.51E-06	2.82E-08
105	2.91E-05	2.469	0.071635	-3.75E-05	2.49E-06	1.40E-08
106	-4.27E-06	3.086	0.004522	-4.04E-05	5.24E-07	-4.40E-08
107	-6.92E-06	3.086	0.003992	-4.32E-05	3.70E-07	-1.16E-07
108	-2.39E-11	3.085	0.003765	-5.38E-05	4.53E-15	2.71E-14
109	6.92E-06	3.086	0.003992	-4.32E-05	-3.70E-07	1.16E-07
110	4.27E-06	3.086	0.004522	-4.04E-05	-5.24E-07	4.40E-08
111	2.73E-05	3.556	-0.043644	-3.33E-05	2.85E-06	-1.77E-08
112	2.80E-05	3.556	-0.046942	-3.38E-05	3.08E-06	-2.91E-08
113	-6.53E-11	3.556	-0.050485	-3.24E-05	-4.60E-15	2.53E-14
114	-2.80E-05	3.556	-0.046942	-3.38E-05	-3.08E-06	2.91E-08
115	-2.73E-05	3.556	-0.043644	-3.33E-05	-2.85E-06	1.77E-08
116	2.73E-05	4.030	-0.080449	-2.27E-05	2.25E-06	3.65E-09
117	2.19E-05	4.030	-0.082845	-2.17E-05	1.90E-06	-4.88E-09
118	-9.66E-11	4.030	-0.084503	-2.06E-05	-5.00E-15	1.72E-14
119	-2.19E-05	4.030	-0.082845	-2.17E-05	-1.90E-06	4.88E-09
120	-2.73E-05	4.030	-0.080449	-2.27E-05	-2.25E-06	-3.65E-09
121	1.55E-05	4.502	-0.103041	-1.20E-05	9.86E-07	6.95E-09
122	1.18E-05	4.502	-0.104070	-1.13E-05	7.96E-07	1.00E-09
123	-1.13E-10	4.502	-0.104694	-1.08E-05	-5.64E-15	7.86E-15
124	-1.18E-05	4.502	-0.104070	-1.13E-05	-7.96E-07	-1.00E-09
125	-1.55E-05	4.502	-0.103041	-1.20E-05	-9.86E-07	-6.95E-09
126	7.91E-06	4.974	-0.112378	-2.58E-06	3.21E-07	1.63E-09
127	6.27E-06	4.974	-0.112714	-2.30E-06	2.65E-07	-3.22E-10
128	-1.16E-10	4.974	-0.112916	-2.11E-06	-6.11E-15	9.80E-17
129	-6.27E-06	4.974	-0.112714	-2.30E-06	-2.65E-07	3.22E-10
130	-7.91E-06	4.974	-0.112378	-2.58E-06	-3.21E-07	1.63E-09
131	1.13E-05	5.446	-0.110544	5.18E-06	6.58E-08	-8.00E-09

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	8.90E-06	5.446	-0.110634	5.26E-06	7.26E-08	-4.92E-09
133	-1.10E-10	5.446	-0.110686	5.32E-06	-6.15E-15	-5.55E-15
134	-8.90E-06	5.446	-0.110634	5.26E-06	-7.26E-08	4.92E-09
135	-1.13E-05	5.446	-0.110544	5.18E-06	-8.58E-08	8.00E-09
136	3.15E-05	5.918	-0.099578	1.15E-05	3.87E-08	-2.13E-08
137	2.36E-05	5.918	-0.099619	1.15E-05	3.30E-08	-9.58E-09
138	-9.77E-11	5.918	-0.099641	1.14E-05	-5.35E-15	-9.71E-15
139	-2.36E-05	5.918	-0.099619	1.15E-05	-3.30E-08	9.58E-09
140	-3.15E-05	5.918	-0.099578	1.15E-05	-3.87E-08	2.13E-08
141	7.19E-05	6.390	-0.081346	1.64E-05	1.04E-07	-2.97E-08
142	5.23E-05	6.390	-0.081455	1.63E-05	8.74E-08	-4.99E-09
143	-5.10E-11	6.390	-0.081521	1.62E-05	-3.14E-15	-1.29E-14
144	-5.23E-05	6.390	-0.081455	1.63E-05	-8.74E-08	4.99E-09
145	-7.19E-05	6.390	-0.081346	1.64E-05	-1.04E-07	2.97E-08
146	0.000111	6.862	-0.057573	2.00E-05	3.37E-07	3.98E-09
147	8.04E-05	6.863	-0.057927	1.97E-05	2.81E-07	3.42E-08
148	-6.06E-11	6.863	-0.058152	1.95E-05	2.04E-16	-1.54E-14
149	-8.04E-05	6.863	-0.057927	1.97E-05	-2.81E-07	-3.42E-08
150	-0.000111	6.862	-0.057573	2.00E-05	-3.37E-07	-3.98E-09
151	4.98E-05	7.334	-0.029877	2.23E-05	9.09E-07	1.62E-07
152	4.25E-05	7.335	-0.030824	2.18E-05	7.28E-07	1.61E-07
153	-3.78E-11	7.335	-0.031415	2.14E-05	2.03E-15	-1.64E-14
154	-4.25E-05	7.335	-0.030824	2.18E-05	-7.28E-07	-1.61E-07
155	-4.98E-05	7.334	-0.029877	2.23E-05	-9.09E-07	-1.62E-07
156	-0.000308	7.806	-3.69E-98	2.31E-05	1.90E-06	4.69E-07
157	-0.000233	7.807	-0.001954	2.25E-05	1.41E-06	4.53E-07
158	-1.48E-11	7.807	-0.003097	2.20E-05	8.08E-17	-1.60E-14
159	0.000233	7.807	-0.001954	2.25E-05	-1.41E-06	-4.53E-07
160	0.000308	7.806	-3.69E-98	2.31E-05	-1.90E-06	-4.69E-07
161	-0.000543	7.988	0.011551	2.31E-05	1.90E-06	4.69E-07
162	-0.000459	7.989	0.009281	2.25E-05	1.41E-06	4.53E-07
163	-6.80E-12	7.989	0.007920	2.20E-05	-8.08E-17	-1.60E-14
164	0.000459	7.989	0.009281	2.25E-05	-1.41E-06	-4.53E-07
165	0.000543	7.988	0.011551	2.31E-05	-1.90E-06	-4.69E-07
166	+0	-2.30E-97	7.37E-98	1.58E-99	-0	+0
167	+0	2.30E-97	7.37E-98	-1.58E-99	-0	+0
min:	-0.000543	-7.989	-0.112916	-5.38E-05	-3.08E-06	-4.69E-07
max:	0.000543	7.989	0.200681	5.38E-05	3.08E-06	4.69E-07

Loadcase	Factor	Stage	Init.def	Title
66	1.0000			GRADIENTE

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.001262	0.001005	7.143			
10	0.001262	0.001005	7.143			
156	-0.001262	-0.001005	7.143			
160	0.001262	-0.001005	7.143			
166	8.72E-09	1.119	-14.286	-4.921	4.38E-08	-1.08E-08
167	8.72E-09	-1.119	-14.286	4.921	4.38E-08	1.08E-08
Sums :	-2.51E-12	1.24E-14	-8.01E-12			
min:	-0.001262	-1.119	-14.286	-4.921	4.38E-08	-1.08E-08
max:	0.001262	1.119	7.143	4.921	4.38E-08	1.08E-08

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	0.014881	-0.004368	-0.348553	0.000739	3.71E-05	2.47E-05
2	0.003935	0.002525	-0.393333	0.000753	2.76E-05	2.25E-06
3	1.58E-08	0.003102	-0.419966	0.000762	1.63E-13	1.92E-12
4	-0.003935	0.002525	-0.393333	0.000753	-2.76E-05	-2.25E-06
5	-0.014881	-0.004368	-0.348553	0.000739	-3.71E-05	-2.47E-05
6	0.005487	-0.004368	-7.14E-97	0.000655	3.71E-05	1.29E-05
7	0.002811	0.002525	-0.038120	0.000668	2.76E-05	2.25E-06
8	1.58E-08	0.003102	-0.060421	0.000677	1.63E-13	1.92E-12
9	-0.002811	0.002525	-0.038120	0.000668	-2.76E-05	-2.25E-06
10	-0.005487	-0.004368	-7.14E-97	0.000655	-3.71E-05	-1.29E-05
11	-0.001962	-0.001357	0.711610	0.000450	1.75E-05	1.42E-06
12	-0.000546	0.000966	0.693319	0.000461	1.41E-05	1.79E-06
13	1.63E-08	0.002190	0.681895	0.000468	9.18E-13	1.93E-12
14	0.000546	0.000966	0.693319	0.000461	-1.41E-05	-1.79E-06
15	0.001962	-0.001357	0.711610	0.000450	-1.75E-05	-1.42E-06
16	-0.001782	0.000280	1.175	0.000275	6.49E-06	-5.63E-07
17	-0.001114	0.000509	1.172	0.000280	5.42E-06	1.80E-07
18	1.38E-08	0.001145	1.168	0.000284	1.44E-12	1.91E-12
19	0.001114	0.000509	1.172	0.000280	-5.42E-06	-1.80E-07
20	0.001782	0.000280	1.179	0.000275	-6.49E-06	5.63E-07
21	-0.000845	0.000754	1.436	0.000124	1.99E-06	-5.39E-07
22	-0.000613	0.000502	1.434	0.000126	1.67E-06	-2.16E-07
23	1.11E-08	0.000666	1.432	0.000128	1.65E-12	1.86E-12
24	0.000613	0.000502	1.434	0.000126	-1.67E-06	2.16E-07
25	0.000845	0.000754	1.436	0.000124	-1.99E-06	5.39E-07
26	-0.000276	0.000777	1.513	-1.54E-06	4.76E-07	-2.75E-07
27	-0.000212	0.000565	1.512	-1.02E-06	4.03E-07	-1.65E-07

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	8.87E-09	0.000553	1.512	-6.65E-07	1.68E-12	1.80E-12
29	0.000212	0.000565	1.512	-1.02E-06	-4.03E-07	1.65E-07
30	0.000276	0.000777	1.513	-1.54E-06	-4.76E-07	2.75E-07
31	-4.29E-05	0.000709	1.443	-0.000102	1.61E-07	-9.84E-08
32	-3.75E-05	0.000606	1.443	-0.000102	1.39E-07	-7.46E-08
33	6.54E-09	0.000566	1.443	-0.000102	1.63E-12	1.73E-12
34	3.75E-05	0.000606	1.443	-0.000102	-1.39E-07	7.46E-08
35	4.29E-05	0.000709	1.443	-0.000102	-1.61E-07	9.84E-08
36	2.15E-05	0.000657	1.260	-0.000175	4.79E-07	-2.19E-08
37	1.33E-05	0.000622	1.259	-0.000176	4.00E-07	-2.38E-08
38	4.31E-09	0.000596	1.259	-0.000176	1.63E-12	1.63E-12
39	-1.33E-05	0.000622	1.259	-0.000176	-4.00E-07	2.38E-08
40	-2.15E-05	0.000657	1.260	-0.000175	-4.79E-07	2.19E-08
41	2.84E-05	0.000631	0.998538	-0.000222	1.70E-06	3.12E-11
42	2.03E-05	0.000625	0.996761	-0.000223	1.39E-06	-3.68E-09
43	2.22E-09	0.000618	0.995693	-0.000224	1.44E-12	1.52E-12
44	-2.03E-05	0.000625	0.996761	-0.000223	-1.39E-06	3.68E-09
45	-2.84E-05	0.000631	0.998538	-0.000222	-1.70E-06	-2.81E-11
46	2.46E-05	0.000616	0.694735	-0.000241	4.56E-06	4.42E-09
47	1.89E-05	0.000623	0.689920	-0.000244	3.78E-06	4.38E-09
48	2.99E-10	0.000634	0.686792	-0.000246	1.34E-12	1.39E-12
49	-1.89E-05	0.000623	0.689920	-0.000244	-3.78E-06	-4.38E-09
50	-2.46E-05	0.000616	0.694735	-0.000241	-4.56E-06	-4.42E-09
51	1.73E-05	0.000596	0.383001	-0.000235	8.45E-06	1.24E-08
52	1.67E-05	0.000619	0.373760	-0.000238	7.80E-06	1.61E-08
53	-1.43E-09	0.000660	0.366175	-0.000242	1.24E-12	1.23E-12
54	-1.67E-05	0.000619	0.373760	-0.000238	-7.80E-06	-1.61E-08
55	-1.73E-05	0.000596	0.383001	-0.000235	-8.45E-06	-1.24E-08
56	-1.39E-06	0.000557	0.092200	-0.000210	9.13E-06	2.28E-08
57	-2.74E-06	0.000607	0.082040	-0.000208	8.88E-06	5.72E-08
58	-2.95E-05	0.000717	0.072945	-0.000201	1.12E-12	1.06E-12
59	2.74E-06	0.000607	0.082040	-0.000208	-8.88E-06	-5.72E-08
60	1.38E-06	0.000557	0.092200	-0.000210	-9.13E-06	-2.28E-08
61	-1.45E-05	0.000481	-0.230820	-0.000168	3.65E-06	6.91E-09
62	-1.27E-05	0.000496	-0.234622	-0.000165	2.91E-06	1.39E-08
63	-4.59E-09	0.000522	-0.236859	-0.000163	1.12E-12	8.51E-13
64	1.27E-05	0.000496	-0.234622	-0.000165	-2.91E-06	-1.39E-08
65	1.45E-05	0.000481	-0.230820	-0.000168	-3.65E-06	-6.91E-09
66	-1.01E-05	0.000372	-0.479242	-0.000124	8.04E-07	-2.33E-09
67	-7.54E-06	0.000373	-0.480081	-0.000124	6.63E-07	1.42E-09
68	-5.85E-05	0.000379	-0.480575	-0.000123	1.12E-12	6.34E-13
69	7.53E-06	0.000373	-0.480081	-0.000124	-6.63E-07	-1.42E-09
70	1.01E-05	0.000372	-0.479242	-0.000124	-8.04E-07	2.33E-09
71	-3.66E-06	0.000250	-0.655278	-8.26E-05	1.22E-07	-2.27E-09
72	-2.69E-06	0.000249	-0.655407	-8.25E-05	1.05E-07	-7.75E-10
73	-6.75E-09	0.000250	-0.655481	-8.24E-05	1.11E-12	4.21E-13
74	2.68E-06	0.000249	-0.655407	-8.25E-05	-1.05E-07	7.76E-10
75	3.65E-06	0.000250	-0.655278	-8.26E-05	-1.22E-07	2.28E-09
76	-6.79E-07	0.000125	-0.760597	-4.13E-05	4.15E-09	-8.77E-10
77	-5.28E-07	0.000125	-0.760601	-4.13E-05	4.35E-09	-5.08E-10
78	-7.28E-09	0.000124	-0.760602	-4.12E-05	1.11E-12	2.10E-13
79	5.13E-07	0.000125	-0.760601	-4.13E-05	-4.34E-09	5.09E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	6.65E-07	0.000125	-0.760597	-4.13E-05	-4.15E-09	8.78E-10
81	2.49E-08	4.31E-14	-0.795675	-3.82E-18	-8.51E-09	-6.74E-17
82	-1.19E-08	-3.24E-14	-0.795666	-4.69E-18	-6.71E-09	-6.74E-17
83	-7.46E-09	-1.33E-13	-0.795659	-6.19E-18	1.11E-12	-6.74E-17
84	-3.05E-09	-2.35E-13	-0.795666	-7.21E-18	6.71E-09	-6.74E-17
85	-3.98E-08	-3.10E-13	-0.795675	-6.76E-18	8.51E-09	-6.74E-17
86	-6.79E-07	-0.000125	-0.760597	4.13E-05	4.15E-09	8.77E-10
87	-5.28E-07	-0.000125	-0.760601	4.13E-05	4.35E-09	5.08E-10
88	-7.28E-09	-0.000124	-0.760602	4.12E-05	1.11E-12	-2.11E-13
89	5.13E-07	-0.000125	-0.760601	4.13E-05	-4.34E-09	-5.09E-10
90	6.65E-07	-0.000125	-0.760597	4.13E-05	-4.15E-09	-8.78E-10
91	-3.66E-06	-0.000250	-0.655278	8.26E-05	1.22E-07	2.27E-09
92	-2.69E-06	-0.000249	-0.655407	8.25E-05	1.05E-07	7.75E-10
93	-6.75E-09	-0.000250	-0.655481	8.24E-05	1.11E-12	-4.21E-13
94	2.68E-06	-0.000249	-0.655407	8.25E-05	-1.05E-07	-7.76E-10
95	3.65E-06	-0.000250	-0.655278	8.26E-05	-1.22E-07	-2.28E-09
96	-1.01E-05	-0.000372	-0.479242	0.000124	8.04E-07	2.33E-09
97	-7.54E-06	-0.000373	-0.480081	0.000124	6.63E-07	-1.42E-09
98	-5.85E-09	-0.000379	-0.480575	0.000123	1.12E-12	-6.34E-13
99	7.53E-06	-0.000373	-0.480081	0.000124	-6.63E-07	1.42E-09
100	1.01E-05	-0.000372	-0.479242	0.000124	-8.04E-07	-2.33E-09
101	-1.45E-05	-0.000481	-0.230820	0.000168	3.65E-06	-6.91E-09
102	-1.27E-05	-0.000496	-0.234622	0.000165	2.91E-06	-1.39E-08
103	-4.59E-09	-0.000522	-0.236859	0.000163	1.12E-12	-8.51E-13
104	1.27E-05	-0.000496	-0.234622	0.000165	-2.91E-06	1.39E-08
105	1.45E-05	-0.000481	-0.230820	0.000168	-3.65E-06	6.91E-09
106	-1.39E-06	-0.000557	0.092200	0.000210	9.13E-06	-2.28E-08
107	-2.74E-06	-0.000607	0.082040	0.000208	8.88E-06	-5.72E-08
108	-2.95E-05	-0.000717	0.072945	0.000201	1.12E-12	-1.06E-12
109	2.74E-06	-0.000607	0.082040	0.000208	-8.88E-06	5.72E-08
110	1.38E-06	-0.000557	0.092200	0.000210	-9.13E-06	2.28E-08
111	1.73E-05	-0.000596	0.383001	0.000235	8.45E-06	-1.24E-08
112	1.67E-05	-0.000619	0.373760	0.000238	7.80E-06	-1.61E-08
113	-1.43E-09	-0.000660	0.366175	0.000242	1.24E-12	-1.23E-12
114	-1.67E-05	-0.000619	0.373760	0.000238	-7.80E-06	1.61E-08
115	-1.73E-05	-0.000596	0.383001	0.000235	-8.45E-06	1.24E-08
116	2.46E-05	-0.000616	0.694735	0.000241	4.56E-06	-4.42E-09
117	1.89E-05	-0.000623	0.689920	0.000244	3.78E-06	-4.38E-09
118	3.01E-10	-0.000634	0.686792	0.000246	1.34E-12	-1.39E-12
119	-1.89E-05	-0.000623	0.689920	0.000244	-3.78E-06	4.38E-09
120	-2.46E-05	-0.000616	0.694735	0.000241	-4.56E-06	4.42E-09
121	2.84E-05	-0.000631	0.998538	0.000222	1.70E-06	-3.12E-11
122	2.03E-05	-0.000625	0.996761	0.000223	1.39E-06	3.68E-09
123	2.23E-09	-0.000618	0.995693	0.000224	1.44E-12	-1.52E-12
124	-2.03E-05	-0.000625	0.996761	0.000223	-1.39E-06	-3.68E-09
125	-2.84E-05	-0.000631	0.998538	0.000222	-1.70E-06	2.81E-11
126	2.15E-05	-0.000657	1.260	0.000175	4.79E-07	2.19E-08
127	1.33E-05	-0.000622	1.259	0.000176	4.00E-07	2.38E-08
128	4.32E-09	-0.000596	1.259	0.000176	1.54E-12	-1.63E-12
129	-1.33E-05	-0.000622	1.259	0.000176	-4.00E-07	-2.38E-08
130	-2.15E-05	-0.000657	1.260	0.000175	-4.79E-07	-2.19E-08
131	-4.29E-05	-0.000709	1.443	0.000102	1.61E-07	9.84E-08

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	-3.75E-05	-0.000606	1.443	0.000102	1.39E-07	7.46E-08
133	6.54E-09	-0.000566	1.443	0.000102	1.63E-12	-1.73E-12
134	3.75E-05	-0.000606	1.443	0.000102	-1.39E-07	-7.46E-08
135	4.29E-05	-0.000709	1.443	0.000102	-1.61E-07	-9.84E-08
136	-0.000276	-0.000777	1.513	1.54E-06	4.76E-07	2.75E-07
137	-0.000212	-0.000565	1.512	1.02E-06	4.03E-07	1.65E-07
138	8.87E-09	-0.000553	1.512	6.65E-07	1.68E-12	-1.80E-12
139	0.000212	-0.000565	1.512	1.02E-06	-4.03E-07	-1.65E-07
140	0.000276	-0.000777	1.513	1.54E-06	-4.76E-07	-2.75E-07
141	-0.000845	-0.000754	1.436	-0.000124	1.99E-06	5.39E-07
142	-0.000613	-0.000502	1.434	-0.000126	1.67E-06	2.16E-07
143	1.11E-08	-0.000666	1.432	-0.000128	1.65E-12	-1.86E-12
144	0.000613	-0.000502	1.434	-0.000126	-1.67E-06	-2.16E-07
145	0.000845	-0.000754	1.436	-0.000124	-1.99E-06	-5.39E-07
146	-0.001782	-0.000280	1.179	-0.000275	6.49E-06	5.63E-07
147	-0.001114	-0.000509	1.172	-0.000280	5.42E-06	-1.80E-07
148	1.38E-08	-0.001145	1.168	-0.000284	1.44E-12	-1.91E-12
149	0.001114	-0.000509	1.172	-0.000280	-5.42E-06	1.80E-07
150	0.001782	-0.000280	1.179	-0.000275	-6.49E-06	-5.63E-07
151	-0.001962	0.001357	0.711610	-0.000450	1.75E-05	-1.42E-06
152	-0.000546	-0.000966	0.693319	-0.000461	1.41E-05	-1.79E-06
153	1.63E-08	-0.002190	0.681895	-0.000468	9.18E-13	-1.93E-12
154	0.000546	-0.000966	0.693319	-0.000461	-1.41E-05	1.79E-06
155	0.001962	0.001357	0.711610	-0.000450	-1.75E-05	1.42E-06
156	0.005487	0.004368	-7.14E-97	-0.000655	3.71E-05	-1.29E-05
157	0.002811	-0.002525	-0.038120	-0.000668	2.76E-05	-2.25E-06
158	1.89E-08	-0.003102	-0.060421	-0.000677	1.63E-13	-1.92E-12
159	-0.002811	-0.002525	-0.038120	-0.000668	-2.76E-05	2.25E-06
160	-0.005487	0.004368	-7.14E-97	-0.000655	-3.71E-05	1.29E-05
161	0.014881	0.004368	-0.348553	-0.000739	3.71E-05	-2.47E-05
162	0.003935	-0.002525	-0.393333	-0.000753	2.76E-05	-2.25E-06
163	1.98E-08	-0.003102	-0.419966	-0.000762	1.63E-13	-1.92E-12
164	-0.003935	-0.002525	-0.393333	-0.000753	-2.76E-05	2.25E-06
165	-0.014881	0.004368	-0.348553	-0.000739	-3.71E-05	2.47E-05
166	-0	-1.12E-97	1.43E-96	+0	-0	+0
167	-0	1.12E-97	1.43E-96	-0	-0	-0
min:	-0.014881	-0.004368	-0.795675	-0.000762	-3.71E-05	-2.47E-05
max:	0.014881	0.004368	1.513	0.000762	3.71E-05	2.47E-05

3.2. Combinación de acciones

ENVELOPE SPECIFIC.: CY 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	1.000		SOB UNIF 1
F	PLUS	7	1.000		SOB UNIF 2
G	PLUS	8	1.000		SOB UNIF 3
H	PLUS	9	1.000		SOB UNIF 4
I	PLUS	10	1.000		SOB UNIF 5
J	PLUS	11	1.000		VEHICULO HIPOTESIS 11
K	OR	12	1.000		VEHICULO HIPOTESIS 12
L	OR	13	1.000		VEHICULO HIPOTESIS 13
M	OR	14	1.000		VEHICULO HIPOTESIS 14
N	OR	15	1.000		VEHICULO HIPOTESIS 15
O	OR	16	1.000		VEHICULO HIPOTESIS 16
P	OR	17	1.000		VEHICULO HIPOTESIS 17
Q	OR	18	1.000		VEHICULO HIPOTESIS 18
R	OR	19	1.000		VEHICULO HIPOTESIS 19
S	OR	20	1.000		VEHICULO HIPOTESIS 20
T	OR	21	1.000		VEHICULO HIPOTESIS 21
U	OR	22	1.000		VEHICULO HIPOTESIS 22
V	OR	23	1.000		VEHICULO HIPOTESIS 23
W	OR	24	1.000		VEHICULO HIPOTESIS 24
X	OR	25	1.000		VEHICULO POSICION 25
Y	OR	26	1.000		VEHICULO POSICION 26
Z	OR	27	1.000		VEHICULO POSICION 27
AA	OR	28	1.000		VEHICULO POSICION 28
AB	OR	29	1.000		VEHICULO POSICION 29
AC	OR	30	1.000		VEHICULO POSICION 30
AD	OR	31	1.000		VEHICULO POSICION 31
AE	OR	32	1.000		VEHICULO POSICION 32
AF	OR	33	1.000		VEHICULO POSICION 33
AG	OR	34	1.000		VEHICULO POSICION 34
AH	OR	35	1.000		VEHICULO POSICION 35
AI	OR	36	1.000		VEHICULO POSICION 36
AJ	OR	37	1.000		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.000		FRENADO
AL	PLUS	63	0.300000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.600000		TEMPERATURA (-)
AN	OR	65	0.600000		TEMPERATURA (+)
AO	PLUS	66	0.600000		GRADIENTE
ALTERNATIVE ENVELOPE :					
AP	PERM.	1	1.000		PESO PROPIO
AQ	PL.PERM	2	1.500		PESO PAVIMENTO
AR	OR	2	1.000		PESO PAVIMENTO
AS	PL.PERM	3	1.000		PESO BARRERAS
AT	PL.PERM	5	1.000		RETRACCION
AU	PLUS	6	1.000		SOB UNIF 1
AV	PLUS	7	1.000		SOB UNIF 2
AW	PLUS	8	1.000		SOB UNIF 3
AX	PLUS	9	1.000		SOB UNIF 4

AY	PLUS	10	1.000		SOB UNIF 5
AZ	PLUS	11	1.000		VEHICULO HIPOTESIS 11
BA	OR	12	1.000		VEHICULO HIPOTESIS 12
BB	OR	13	1.000		VEHICULO HIPOTESIS 13
BC	OR	14	1.000		VEHICULO HIPOTESIS 14
BD	OR	15	1.000		VEHICULO HIPOTESIS 15
BE	OR	16	1.000		VEHICULO HIPOTESIS 16
BF	OR	17	1.000		VEHICULO HIPOTESIS 17
BG	OR	18	1.000		VEHICULO HIPOTESIS 18
BH	OR	19	1.000		VEHICULO HIPOTESIS 19
BI	OR	20	1.000		VEHICULO HIPOTESIS 20
BJ	OR	21	1.000		VEHICULO HIPOTESIS 21
BK	OR	22	1.000		VEHICULO HIPOTESIS 22
BL	OR	23	1.000		VEHICULO HIPOTESIS 23
BM	OR	24	1.000		VEHICULO HIPOTESIS 24
BN	OR	25	1.000		VEHICULO POSICION 25
BO	OR	26	1.000		VEHICULO POSICION 26
BP	OR	27	1.000		VEHICULO POSICION 27
BQ	OR	28	1.000		VEHICULO POSICION 28
BR	OR	29	1.000		VEHICULO POSICION 29
BS	OR	30	1.000		VEHICULO POSICION 30
BT	OR	31	1.000		VEHICULO POSICION 31
BU	OR	32	1.000		VEHICULO POSICION 32
BV	OR	33	1.000		VEHICULO POSICION 33
BW	OR	34	1.000		VEHICULO POSICION 34
BX	OR	35	1.000		VEHICULO POSICION 35
BY	OR	36	1.000		VEHICULO POSICION 36
BZ	OR	37	1.000		VEHICULO HIPOTESIS 37
CA	PLUS	60	1.000		FRENADO
CB	PLUS	63	0.300000		VIENTO TRANSV CON SOB
CC	PLUS	64	0.600000		TEMPERATURA (-)
CD	OR	65	0.600000		TEMPERATURA (+)
CE	PLUS	66	0.600000		GRADIENTE
ALTERNATIVE ENVELOPE :					
CF	PERM.	1	1.000		PESO PROPIO
CG	PL.PERM	2	1.500		PESO PAVIMENTO
CH	OR	2	1.000		PESO PAVIMENTO
CI	PL.PERM	3	1.000		PESO BARRERAS
CJ	PLUS	46	1.000		SOB UNIF VANO 1
CK	PLUS	47	1.000		SOB UNIF VANO 2
CL	PLUS	48	1.000		SOB UNIF VANO 3
CM	PLUS	11	1.000		VEHICULO HIPOTESIS 11
CN	OR	12	1.000		VEHICULO HIPOTESIS 12
CO	OR	13	1.000		VEHICULO HIPOTESIS 13
CP	OR	14	1.000		VEHICULO HIPOTESIS 14
CQ	OR	15	1.000		VEHICULO HIPOTESIS 15
CR	OR	16	1.000		VEHICULO HIPOTESIS 16
CS	OR	17	1.000		VEHICULO HIPOTESIS 17
CT	OR	18	1.000		VEHICULO HIPOTESIS 18
CU	OR	19	1.000		VEHICULO HIPOTESIS 19
CV	OR	20	1.000		VEHICULO HIPOTESIS 20
CW	OR	21	1.000		VEHICULO HIPOTESIS 21
CX	OR	22	1.000		VEHICULO HIPOTESIS 22
CY	OR	23	1.000		VEHICULO HIPOTESIS 23
CZ	OR	24	1.000		VEHICULO HIPOTESIS 24

DA	OR	25	1.000		VEHICULO POSICION 25
DB	OR	26	1.000		VEHICULO POSICION 26
DC	OR	27	1.000		VEHICULO POSICION 27
DD	OR	28	1.000		VEHICULO POSICION 28
DE	OR	29	1.000		VEHICULO POSICION 29
DF	OR	30	1.000		VEHICULO POSICION 30
DG	OR	31	1.000		VEHICULO POSICION 31
DH	OR	32	1.000		VEHICULO POSICION 32
DI	OR	33	1.000		VEHICULO POSICION 33
DJ	OR	34	1.000		VEHICULO POSICION 34
DK	OR	35	1.000		VEHICULO POSICION 35
DL	OR	36	1.000		VEHICULO POSICION 36
DM	OR	37	1.000		VEHICULO HIPOTESIS 37
DN	PLUS	60	1.000		FRENADO
DO	PLUS	63	0.300000		VIENTO TRANSV CON SOB
DP	PLUS	64	0.600000		TEMPERATURA (-)
DQ	OR	65	0.600000		TEMPERATURA (+)
DR	PLUS	66	0.600000		GRADIENTE
ALTERNATIVE ENVELOPE :					
DS	PERM.	1	1.000		PESO PROPIO
DT	PL.PERM	2	1.500		PESO PAVIMENTO
DU	OR	2	1.000		PESO PAVIMENTO
DV	PL.PERM	3	1.000		PESO BARRERAS
DW	PL.PERM	5	1.000		RETRACCION
DX	PLUS	46	1.000		SOB UNIF VANO 1
DY	PLUS	47	1.000		SOB UNIF VANO 2
DZ	PLUS	48	1.000		SOB UNIF VANO 3
EA	PLUS	11	1.000		VEHICULO HIPOTESIS 11
EB	OR	12	1.000		VEHICULO HIPOTESIS 12
EC	OR	13	1.000		VEHICULO HIPOTESIS 13
ED	OR	14	1.000		VEHICULO HIPOTESIS 14
EE	OR	15	1.000		VEHICULO HIPOTESIS 15
EF	OR	16	1.000		VEHICULO HIPOTESIS 16
EG	OR	17	1.000		VEHICULO HIPOTESIS 17
EH	OR	18	1.000		VEHICULO HIPOTESIS 18
EI	OR	19	1.000		VEHICULO HIPOTESIS 19
EJ	OR	20	1.000		VEHICULO HIPOTESIS 20
EK	OR	21	1.000		VEHICULO HIPOTESIS 21
EL	OR	22	1.000		VEHICULO HIPOTESIS 22
EM	OR	23	1.000		VEHICULO HIPOTESIS 23
EN	OR	24	1.000		VEHICULO HIPOTESIS 24
EO	OR	25	1.000		VEHICULO POSICION 25
EP	OR	26	1.000		VEHICULO POSICION 26
EQ	OR	27	1.000		VEHICULO POSICION 27
ER	OR	28	1.000		VEHICULO POSICION 28
ES	OR	29	1.000		VEHICULO POSICION 29
ET	OR	30	1.000		VEHICULO POSICION 30
EU	OR	31	1.000		VEHICULO POSICION 31
EV	OR	32	1.000		VEHICULO POSICION 32
EW	OR	33	1.000		VEHICULO POSICION 33
EX	OR	34	1.000		VEHICULO POSICION 34
EY	OR	35	1.000		VEHICULO POSICION 35
EZ	OR	36	1.000		VEHICULO POSICION 36
FA	OR	37	1.000		VEHICULO HIPOTESIS 37
FB	PLUS	60	1.000		FRENADO

FC	PLUS	63	0.300000		VIENTO TRANSV CON SOB
FD	PLUS	64	0.600000		TEMPERATURA (-)
FE	OR	65	0.600000		TEMPERATURA (+)
FF	PLUS	66	0.600000		GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-1.091	-3.683	20.036			
	1.761	1.141	100.469			
	Min: AP AR AS AT AX AY BU...			Max: A B D E F G J AL AN AO		
10	2.283	-3.686	16.626			
	-0.568555	1.138	97.227			
	Min: AP AR AS AT AU AV BC...			Max: A E D G H I AB AN AO		
156	-1.091	2.568	20.407			
	1.761	-2.257	100.640			
	Min: AP AR AS AT AX AY BW...			Max: A B D E F G R AK AL AN.		
160	2.283	2.571	16.997			
	-0.568596	-2.254	97.599			
	Min: AP AR AS AT AU AV BE...			Max: A B D G H I AJ AK AN...		
166	3.374	-1.935	218.118	15.604	23.706	-0.028301
	2.90E-10	-0.710816	352.379	11.174	2.13E-09	-3.88E-09
	Min: CF CH CI CJ DC DN DQ...			Max: DS DT DV DW DX DY EN...		
167	3.374	-1.829	219.077	9.951	23.706	0.026301
	2.78E-10	-3.053	353.338	14.381	2.08E-09	3.63E-09
	Min: CF CH CI CJ CW DC DQ...			Max: DS DT DV DW DY DZ EO...		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-1.091	-3.683	26.641			
	2.283	1.009	60.789			
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F M AL AN		
10	-1.090	1.006	57.547			
	2.284	-3.686	23.231			
	Min: A C D H I AE AN			Max: AP AQ AS AT AU AV AW...		
156	-1.091	2.567	27.013			
	2.283	-2.125	61.160			
	Min: AP AQ AS AT AW AX AY...			Max: A C D E F O AK AL AN		
160	-1.091	-2.122	57.919			
	2.284	2.570	23.603			
	Min: A C D H I AG AK AN			Max: AP AQ AS AT AU AV AW...		
166	-2.615	3.395	313.122	-17.884	-3.159	0.221212
	5.989	-4.252	319.171	36.214	26.867	-0.249513
	Min: A C D E F M AN			Max: AP AQ AS AT AW AX AY...		
167	-2.615	-7.158	314.081	43.438	-3.159	-0.221212

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
	5.989	0.488287	320.130	-10.660	26.867	0.249513
	Min: A C D E F O AK AN			Max: AP AQ AS AT AW AX AY...		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.167731	-3.836	34.496			
	0.835704	1.280	53.022			
	Min: DS DT DV DW DY DZ EZ...			Max: CF CH CI CJ DF DO DQ...		
10	1.360	-3.839	31.088			
	0.356995	1.277	49.781			
	Min: DS DT DV DW DY DZ EH...			Max: CF CH CI CJ CN DQ DR		
156	0.835745	-2.356	53.394			
	-0.167690	2.720	34.870			
	Min: CF CH CI CL DL DN DQ...			Max: DS DT DV DW DX DY ET...		
160	0.356954	-2.393	50.152			
	1.360	2.723	31.460			
	Min: CF CH CI CL CT DN DQ...			Max: DS DT DV DW DX DY EE...		
166	3.374	-8.324	297.858	52.598	23.706	-0.028301
	5.36E-09	6.034	296.749	-29.975	2.74E-08	-1.18E-08
	Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DQ DR		
167	5.35E-09	-5.787	297.708	55.530	2.73E-08	1.16E-08
	3.374	4.560	298.816	-27.044	23.706	0.028301
	Min: CF CG CI CK CZ DN DQ...			Max: DS DU DV DW DX DZ EQ...		

DEFORMATIONS: ""
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-9.927	-4.388	-1.45E-08	-0.001116	0.000178	-1.26E-05
		4.745	16.012	-2.36E-09	-0.000181	0.000186	2.63E-05
		Min: A C D E F M AL AN			Max: AF AQ AS AT AW AX AY...		
2	1.300	-9.912	15.434	-1.030	-0.000782	-7.75E-05	-1.13E-05
		4.716	-4.186	-0.728517	-0.000188	0.000188	1.76E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN		
31	0	-9.912	-10.583	-1.061	0.000805	-7.66E-05	1.14E-05
		4.718	9.037	-0.759594	0.000534	0.000189	-1.75E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AK AN		
31	1.300	-9.927	9.239	-1.74E-08	0.001141	0.000180	1.29E-05
		4.745	-11.161	-3.23E-09	0.000205	0.000188	-2.61E-05
		Min: A C D E F O AK AL AN			Max: AP AQ AS AT AW AX AY...		

DEFORMATIONS: ""
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
75	0	-9.759	-1.872	-1.330	-2.92E-05	-0.001310	-1.79E-05
		4.522	10.104	-1.311	5.37E-06	0.001078	2.09E-05
		Min: A B D E F G M AL AN AO			Max: AP AR AS AT AX AY BU...		
75	1.300	-9.735	-1.589	-1.627	-0.000500	-0.001410	-1.89E-05
		4.495	9.441	-1.601	-0.000536	0.001150	2.17E-05
		Min: A B D E F G M AL AN AO			Max: AP AR AS AT AX AY BU...		
76	0	-9.735	-1.589	-1.627	-0.000500	-0.001410	-1.89E-05
		4.495	9.441	-1.601	-0.000536	0.001150	2.17E-05
		Min: A B D E F G M AL AN AO			Max: AP AR AS AT AX AY BU...		
76	1.700	-9.702	8.576	-3.304	-0.001163	-0.001535	-2.04E-05
		4.457	-1.219	-2.834	-0.000935	0.001276	2.28E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN		
85	0	-9.702	-3.725	-3.248	0.001143	-0.001535	2.04E-05
		4.457	6.071	-2.779	0.000916	0.001276	-2.28E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AK AN		
85	1.700	-9.735	1.589	-1.627	0.000500	-0.001410	1.89E-05
		4.495	0.261506	-1.611	0.000419	0.001150	-2.17E-05
		Min: A B D E F G O AL AN AO			Max: AP AR AS AT AX AY BW...		
86	0	-9.735	1.589	-1.627	0.000500	-0.001410	1.89E-05
		4.495	0.261506	-1.611	0.000419	0.001150	-2.17E-05
		Min: A B D E F G O AL AN AO			Max: AP AR AS AT AX AY BW...		
86	1.300	-9.759	6.724	-1.391	-2.60E-06	-0.001310	1.79E-05
		4.522	-5.252	-1.371	-3.72E-05	0.001078	-2.09E-05
		Min: A B D E F G O AK AL AN.			Max: AP AR AS AT AX AY BW...		
130	0	-9.931	16.026	-1.74E-09	-0.000134	-0.000184	-2.10E-05
		4.741	-4.375	-1.39E-08	-0.001072	-0.000176	1.79E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AE AN		
130	1.300	-9.911	-4.173	-0.659427	-0.000459	-0.000213	-1.24E-05
		4.719	15.447	-0.965400	-0.000733	5.27E-05	1.65E-05
		Min: A C D E F M AL AN			Max: AP AQ AS AT AW AX AY...		
159	0	-9.911	9.024	-0.690504	0.000482	-0.000214	1.23E-05
		4.715	-10.596	-0.996477	0.000756	5.17E-05	-1.66E-05
		Min: A C D E F O AK AL AN			Max: AP AQ AS AT AW AX AY...		
159	1.300	-9.931	-11.174	-2.41E-09	0.000158	-0.000186	2.07E-05
		4.741	9.226	-1.66E-08	0.001096	-0.000178	-1.82E-05
		Min: AP AQ AS AT AU AV AW...			Max: A C D H I AG AK AN		

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-3.633	-5.566	-1.43E-08	-0.001098	0.000283	2.93E-05
		0.729265	16.677	-9.22E-09	-0.000709	0.000154	-2.00E-05
	Min:	CF CH CI CJ DF DO DQ...	Max:	DS DT DV DW DY DZ EZ...			
2	1.300	-3.666	-5.281	-1.474	-0.001105	0.000194	2.26E-05
		0.755751	16.016	-0.908792	-0.000646	7.11E-05	-2.06E-05
	Min:	CF CH CI CJ DF DO DQ...	Max:	DS DT DV DW DY DZ EZ...			
31	0	0.755785	-11.165	-0.939849	0.000669	7.20E-05	2.07E-05
		-3.666	10.132	-1.505	0.001128	0.000195	-2.25E-05
	Min:	DS DT DV DW DX DY ET...	Max:	CF CH CI CL DL DN DQ...			
31	1.300	0.729085	-11.826	-1.07E-08	0.000733	0.000156	2.02E-05
		-3.634	10.417	-1.63E-08	0.001122	0.000285	-2.91E-05
	Min:	DS DT DV DW DX DY ET...	Max:	CF CH CI CL DL DN DQ...			
75	0	-5.237	-2.959	-2.341	0.000825	-0.000232	2.96E-06
		-1.03E-09	10.666	-0.931812	-8.42E-05	7.32E-13	7.37E-13
	Min:	CF CH CI CJ CW DO DQ	Max:	DS DT DV DW DY DZ EQ...			
75	1.300	-5.241	-2.675	-1.530	0.000333	-0.000260	2.78E-06
		-2.09E-09	10.004	-1.297	-0.000548	6.59E-13	9.23E-13
	Min:	CF CH CI CJ CW DO DQ	Max:	DS DT DV DW DY DZ EQ...			
76	0	-5.241	-2.675	-1.530	0.000333	-0.000260	2.78E-06
		-2.09E-09	10.004	-1.297	-0.000548	6.59E-13	9.23E-13
	Min:	CF CH CI CJ CW DO DQ	Max:	DS DT DV DW DY DZ EQ...			
76	1.700	-5.245	-2.305	-1.599	-0.000296	-0.000260	2.44E-06
		-4.04E-09	9.138	-2.679	-0.000971	6.64E-13	1.02E-12
	Min:	CF CH CI CJ CW DO DQ	Max:	DS DT DV DW DY DZ EQ...			
85	0	-3.98E-09	-4.286	-2.623	0.000951	6.61E-13	-1.01E-12
		-5.245	7.157	-1.544	0.000279	-0.000260	-2.44E-06
	Min:	DS DT DV DW DX DY EK...	Max:	CF CH CI CL DC DN DQ...			
85	1.700	-2.09E-09	-5.151	-1.307	0.000490	6.56E-13	-8.99E-13
		-5.241	7.527	-1.535	-0.000392	-0.000260	-2.78E-06
	Min:	DS DT DV DW DX DY EK...	Max:	CF CH CI CL DC DN DQ...			
86	0	-2.09E-09	-5.152	-1.302	0.000490	6.56E-13	-8.99E-13
		-5.241	7.527	-1.535	-0.000392	-0.000260	-2.78E-06
	Min:	DS DT DV DW DX DY EK...	Max:	CF CH CI CL DC DN DQ...			
86	1.300	-1.08E-09	-5.814	-0.992653	5.24E-05	7.30E-13	-7.10E-13
		-5.237	7.810	-2.402	-0.000856	-0.000232	-2.96E-06
	Min:	DS DT DV DW DX DY EK...	Max:	CF CH CI CL DC DN DQ...			
130	0	-1.552	-5.553	-1.37E-08	-0.001054	-0.000282	-2.40E-05
		-5.915	16.691	-8.59E-09	-0.000661	-0.000152	2.53E-05
	Min:	CF CH CI CJ CN DQ DR	Max:	DS DT DV DW DY DZ EH...			
130	1.300	-1.526	-5.268	-1.409	-0.001057	-0.000219	-1.74E-05
		-5.948	16.025	-0.839682	-0.000594	-9.58E-05	2.59E-05
	Min:	CF CH CI CJ CN DQ DR	Max:	DS DT DV DW DY DZ EH...			

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
159	0	-5.949	-11.178	-0.870759	0.000617	-9.68E-05	-2.60E-05
		-1.526	10.119	-1.440	0.001080	-0.000220	1.73E-05
	Min:	DS DT DV DW DX DY EE...	Max:	CF CH CI CL CT DN DQ...			
159	1.300	-5.915	-11.839	-9.85E-09	0.000685	-0.000154	-2.56E-05
		-1.552	10.404	-1.55E-08	0.001078	-0.000284	2.37E-05
	Min:	DS DT DV DW DX DY EE...	Max:	CF CH CI CL CT DN DQ...			

ENVELOPE for < N > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-352.379	-0.710816	-2.90E-10	3.88E-09	2.13E-09	11.174
		-218.118	-1.935	-3.374	0.028301	23.708	15.604
	Min:	DS DT DV DW DX DY EM...	Max:	CF CH CI CL DC DN DQ...			
290	13.200	-352.379	-0.710816	-2.90E-10	3.88E-09	-1.70E-09	1.791
		-218.118	-1.935	-2.582	0.028301	-15.598	-9.938
	Min:	DS DT DV DW DX DY EM...	Max:	CF CH CI CL DC DN DQ...			
291	0	-353.338	-3.053	-2.78E-10	-3.63E-09	2.08E-09	14.381
		-219.077	-1.829	-3.374	-0.028301	23.708	9.951
	Min:	DS DT DV DW DY DZ EO...	Max:	CF CH CI CJ CW DO DQ...			
291	13.200	-353.338	-3.053	-2.78E-10	-3.63E-09	-1.59E-09	-25.914
		-219.077	-1.829	-2.582	-0.028301	-15.598	-14.186
	Min:	DS DT DV DW DY DZ EO...	Max:	CF CH CI CJ CW DO DQ...			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-313.535	-3.098	2.525	-0.264263	-3.487	20.929
		-316.630	-1.529	-5.898	0.292564	27.196	11.566
	Min:	AP AR AS AT AU AV BE...	Max:	A B D G H I AD AK AL...			
290	13.200	-319.171	-4.252	-5.197	0.249513	-46.963	-19.909
		-313.122	3.395	2.615	-0.221212	31.365	26.929
	Min:	AP AQ AS AT AW AX AY...	Max:	A C D E F M AN			
291	0	-314.494	-0.665613	2.525	0.264263	-3.487	4.626
		-317.589	-2.234	-5.898	-0.292564	27.196	13.988
	Min:	AP AR AS AT AU AV BF...	Max:	A B D G H I AH AL AN...			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
291	13.200	-320.130	0.488287	-5.197	-0.249513	-46.963	-4.214
		-314.081	-7.156	2.615	0.221212	31.365	-51.052
	Min:	AP AQ AS AT AW AX AY...	Max:	A C D E F O AK AN			

ENVELOPE for < Mz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-296.749	6.034	-5.36E-09	1.18E-08	2.74E-08	-29.975
		-297.858	-8.324	-3.374	0.028301	23.708	52.598
	Min:	CF CG CI CK CZ DQ DR	Max:	DS DU DV DW DX DZ EK...			
290	13.200	-297.858	-8.324	-2.582	0.028301	-15.598	-57.273
		-296.749	6.034	-5.36E-09	1.18E-08	-4.34E-08	49.670
	Min:	DS DU DV DW DX DZ EK...	Max:	CF CG CI CK CZ DQ DR			
291	0	-298.816	4.560	-3.374	-0.028301	23.708	-27.044
		-297.708	-5.757	-5.35E-09	-1.16E-08	2.73E-08	55.530
	Min:	DS DU DV DW DX DZ EQ...	Max:	CF CG CI CK CZ DN DQ...			
291	13.200	-297.708	-5.757	-5.35E-09	-1.16E-08	-4.33E-08	-73.793
		-298.816	4.560	-2.582	-0.028301	-15.598	33.150
	Min:	CF CG CI CK CZ DN DQ...	Max:	DS DU DV DW DX DZ EQ...			

PILAS

4.1 Cálculo del fuste

Introducción

Del cálculo del tablero como emparrillado espacial se han obtenido para las distintas hipótesis los valores de las reacciones del tablero, tanto verticales como horizontales.

Con dichos valores se han obtenido las reacciones para las distintas hipótesis de carga, que responden a lo dispuesto por la "Instrucción sobre a las acciones a considerar en el proyecto de puentes de carretera" (IAP).

La pila se ha calculado en segundo orden, considerando la longitud de pandeo real de las mismas, que se obtiene del cálculo de los autovalores estáticos del modelo con sus rigideces resultantes mediante el programa STATIK·3. Con estos valores se ha utilizado la fórmula de la EHE para esbelteces medias.

ENVELOPE SPECIFIC.: CZ 'COMBINACION ELU'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	PL.PERM	2	2.025		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.350		PESO BARRERAS
E	PLUS	6	1.500		SOB UNIF 1
F	PLUS	7	1.500		SOB UNIF 2
G	PLUS	8	1.500		SOB UNIF 3
H	PLUS	9	1.500		SOB UNIF 4
I	PLUS	10	1.500		SOB UNIF 5
J	PLUS	11	1.500		VEHICULO HIPOTESIS 11
K	OR	12	1.500		VEHICULO HIPOTESIS 12
L	OR	13	1.500		VEHICULO HIPOTESIS 13
	OR	14	1.500		VEHICULO HIPOTESIS 14
	OR	15	1.500		VEHICULO HIPOTESIS 15
O	OR	16	1.500		VEHICULO HIPOTESIS 16
P	OR	17	1.500		VEHICULO HIPOTESIS 17
Q	OR	18	1.500		VEHICULO HIPOTESIS 18
R	OR	19	1.500		VEHICULO HIPOTESIS 19
S	OR	20	1.500		VEHICULO HIPOTESIS 20
T	OR	21	1.500		VEHICULO HIPOTESIS 21
U	OR	22	1.500		VEHICULO HIPOTESIS 22
V	OR	23	1.500		VEHICULO HIPOTESIS 23
W	OR	24	1.500		VEHICULO HIPOTESIS 24
X	OR	25	1.500		VEHICULO POSICION 25
Y	OR	26	1.500		VEHICULO POSICION 26
Z	OR	27	1.500		VEHICULO POSICION 27
AA	OR	28	1.500		VEHICULO POSICION 28
AB	OR	29	1.500		VEHICULO POSICION 29
AC	OR	30	1.500		VEHICULO POSICION 30
AD	OR	31	1.500		VEHICULO POSICION 31
AE	OR	32	1.500		VEHICULO POSICION 32
	OR	33	1.500		VEHICULO POSICION 33
	OR	34	1.500		VEHICULO POSICION 34
AH	OR	35	1.500		VEHICULO POSICION 35
AI	OR	36	1.500		VEHICULO POSICION 36
AJ	OR	37	1.500		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.500		FRENADO
AL	PLUS	63	0.750000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.900000		TEMPERATURA (-)
AN	OR	65	0.900000		TEMPERATURA (+)
AO	PLUS	66	0.900000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000		PESO PROPIO
AQ	PL.PERM	2	1.500		PESO PAVIMENTO
AR	OR	2	1.000		PESO PAVIMENTO
AS	PL.PERM	3	1.000		PESO BARRERAS
AT	PL.PERM	5	1.000		RETRACCION
AU	PLUS	6	1.500		SOB UNIF 1
AV	PLUS	7	1.500		SOB UNIF 2
	PLUS	8	1.500		SOB UNIF 3
AX	PLUS	9	1.500		SOB UNIF 4

AY	PLUS	10	1.500	SOB UNIF 5
AZ	PLUS	11	1.500	VEHICULO HIPOTESIS 11
BA	OR	12	1.500	VEHICULO HIPOTESIS 12
BB	OR	13	1.500	VEHICULO HIPOTESIS 13
BC	OR	14	1.500	VEHICULO HIPOTESIS 14
BD	OR	15	1.500	VEHICULO HIPOTESIS 15
BE	OR	16	1.500	VEHICULO HIPOTESIS 16
BF	OR	17	1.500	VEHICULO HIPOTESIS 17
BG	OR	18	1.500	VEHICULO HIPOTESIS 18
BH	OR	19	1.500	VEHICULO HIPOTESIS 19
BI	OR	20	1.500	VEHICULO HIPOTESIS 20
BJ	OR	21	1.500	VEHICULO HIPOTESIS 21
BK	OR	22	1.500	VEHICULO HIPOTESIS 22
BL	OR	23	1.500	VEHICULO HIPOTESIS 23
BM	OR	24	1.500	VEHICULO HIPOTESIS 24
BN	OR	25	1.500	VEHICULO POSICION 25
BO	OR	26	1.500	VEHICULO POSICION 26
BP	OR	27	1.500	VEHICULO POSICION 27
BQ	OR	28	1.500	VEHICULO POSICION 28
BR	OR	29	1.500	VEHICULO POSICION 29
BS	OR	30	1.500	VEHICULO POSICION 30
BT	OR	31	1.500	VEHICULO POSICION 31
BU	OR	32	1.500	VEHICULO POSICION 32
BV	OR	33	1.500	VEHICULO POSICION 33
BW	OR	34	1.500	VEHICULO POSICION 34
BX	OR	35	1.500	VEHICULO POSICION 35
BY	OR	36	1.500	VEHICULO POSICION 36
BZ	OR	37	1.500	VEHICULO HIPOTESIS 37
CA	PLUS	60	1.500	FRENADO
CB	PLUS	63	0.750000	VIENTO TRANSV CON SOB
CC	PLUS	64	0.900000	TEMPERATURA (-)
CD	OR	65	0.900000	TEMPERATURA (+)
CE	PLUS	66	0.900000	GRADIENTE

ALTERNATIVE ENVELOPE :

CF	PERM.	1	1.350	PESO PROPIO
CG	PL.PERM	2	2.025	PESO PAVIMENTO
CH	OR	2	1.000	PESO PAVIMENTO
CI	PL.PERM	3	1.350	PESO BARRERAS
CJ	PLUS	46	1.500	SOB UNIF VANO 1
CK	PLUS	47	1.500	SOB UNIF VANO 2
CL	PLUS	48	1.500	SOB UNIF VANO 3
CM	PLUS	11	1.500	VEHICULO HIPOTESIS 11
CN	OR	12	1.500	VEHICULO HIPOTESIS 12
CO	OR	13	1.500	VEHICULO HIPOTESIS 13
CP	OR	14	1.500	VEHICULO HIPOTESIS 14
CQ	OR	15	1.500	VEHICULO HIPOTESIS 15
CR	OR	16	1.500	VEHICULO HIPOTESIS 16
CS	OR	17	1.500	VEHICULO HIPOTESIS 17
CT	OR	18	1.500	VEHICULO HIPOTESIS 18
CU	OR	19	1.500	VEHICULO HIPOTESIS 19
CV	OR	20	1.500	VEHICULO HIPOTESIS 20
CW	OR	21	1.500	VEHICULO HIPOTESIS 21
CX	OR	22	1.500	VEHICULO HIPOTESIS 22
CY	OR	23	1.500	VEHICULO HIPOTESIS 23
CZ	OR	24	1.500	VEHICULO HIPOTESIS 24

DA	OR	25	1.500	VEHICULO POSICION 25
DB	OR	26	1.500	VEHICULO POSICION 26
DC	OR	27	1.500	VEHICULO POSICION 27
DD	OR	28	1.500	VEHICULO POSICION 28
DE	OR	29	1.500	VEHICULO POSICION 29
DF	OR	30	1.500	VEHICULO POSICION 30
DG	OR	31	1.500	VEHICULO POSICION 31
DH	OR	32	1.500	VEHICULO POSICION 32
DI	OR	33	1.500	VEHICULO POSICION 33
DJ	OR	34	1.500	VEHICULO POSICION 34
DK	OR	35	1.500	VEHICULO POSICION 35
DL	OR	36	1.500	VEHICULO POSICION 36
DM	OR	37	1.500	VEHICULO HIPOTESIS 37
DN	PLUS	60	1.500	FRENADO
DO	PLUS	63	0.750000	VIENTO TRANSV CON SOB
DP	PLUS	64	0.900000	TEMPERATURA (-)
D	OR	65	0.900000	TEMPERATURA (+)
DR	PLUS	66	0.900000	GRADIENTE

ALTERNATIVE ENVELOPE :

DS	PERM.	1	1.000	PESO PROPIO
DT	PL.PERM	2	1.500	PESO PAVIMENTO
DU	OR	2	1.000	PESO PAVIMENTO
DV	PL.PERM	3	1.000	PESO BARRERAS
DW	PL.PERM	5	1.000	RETRACCION
DX	PLUS	46	1.500	SOB UNIF VANO 1
DY	PLUS	47	1.500	SOB UNIF VANO 2
DZ	PLUS	48	1.500	SOB UNIF VANO 3
EA	PLUS	11	1.500	VEHICULO HIPOTESIS 11
EB	OR	12	1.500	VEHICULO HIPOTESIS 12
EC	OR	13	1.500	VEHICULO HIPOTESIS 13
ED	OR	14	1.500	VEHICULO HIPOTESIS 14
EE	OR	15	1.500	VEHICULO HIPOTESIS 15
EF	OR	16	1.500	VEHICULO HIPOTESIS 16
EG	OR	17	1.500	VEHICULO HIPOTESIS 17
E	OR	18	1.500	VEHICULO HIPOTESIS 18
E.	OR	19	1.500	VEHICULO HIPOTESIS 19
EJ	OR	20	1.500	VEHICULO HIPOTESIS 20
EK	OR	21	1.500	VEHICULO HIPOTESIS 21
EL	OR	22	1.500	VEHICULO HIPOTESIS 22
EM	OR	23	1.500	VEHICULO HIPOTESIS 23
EN	OR	24	1.500	VEHICULO HIPOTESIS 24
EO	OR	25	1.500	VEHICULO POSICION 25
EP	OR	26	1.500	VEHICULO POSICION 26
EQ	OR	27	1.500	VEHICULO POSICION 27
ER	OR	28	1.500	VEHICULO POSICION 28
ES	OR	29	1.500	VEHICULO POSICION 29
ET	OR	30	1.500	VEHICULO POSICION 30
EU	OR	31	1.500	VEHICULO POSICION 31
EV	OR	32	1.500	VEHICULO POSICION 32
EW	OR	33	1.500	VEHICULO POSICION 33
EX	OR	34	1.500	VEHICULO POSICION 34
EY	OR	35	1.500	VEHICULO POSICION 35
EZ	OR	36	1.500	VEHICULO POSICION 36
F	OR	37	1.500	VEHICULO HIPOTESIS 37
FB	PLUS	60	1.500	FRENADO

FC	PLUS	63	0.750000	VIENTO TRANSV CON SOB
FD	PLUS	64	0.900000	TEMPERATURA (-)
FE	OR	65	0.900000	TEMPERATURA (+)
FF	PLUS	66	0.900000	GRADIENTE

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-491.897	1.493	-4.19E-10	6.10E-09	2.71E-09	1.461
		-208.997	-6.154	-9.523	0.045376	59.749	39.020
		Min: CF CG CI CJ CK CY DP			Max: DS DU DV DW DZ EQ FB...		
290	11.300	-491.897	1.493	-4.19E-10	6.10E-09	-2.02E-09	18.332
		-208.997	-6.154	-7.828	0.045376	-38.279	-30.525
		Min: CF CG CI CJ CK CY DP			Max: DS DU DV DW DZ EQ FB...		
291	0	-493.319	-8.024	-3.99E-10	-5.68E-09	2.64E-09	36.674
		-210.420	-0.376457	-9.523	-0.045376	59.749	-0.885525
		Min: CF CG CI CK CL DA DN...			Max: DS DU DV DW DX EK FC...		
291	11.300	-493.319	-8.024	-3.99E-10	-5.68E-09	-1.86E-09	-53.996
		-210.420	-0.376457	-7.828	-0.045376	-38.279	-5.139
		Min: CF CG CI CK CL DA DN...			Max: DS DU DV DW DX EK FC...		

ENVELOPE for < My > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-264.115	-5.924	-1.134	-0.701718	-8.941	37.051
		-349.885	-1.245	-8.388	0.747094	68.689	12.659
		Min: AP AR AS AT AX AY BX...			Max: A B D E F G P AK AL AN.		
290	11.300	-441.481	-4.651	-11.904	0.520733	-85.960	-13.484
		-352.179	3.629	4.077	-0.475357	47.681	27.574
		Min: A B D G H I AE AK AL...			Max: AP AR AS AT AU AV BC...		
291	0	-265.537	-0.606722	-1.134	0.701718	-8.941	1.083
		-351.308	-5.286	-8.388	-0.747094	68.689	25.476
		Min: AP AR AS AT AX AY BT...			Max: A B D E F G L AL AN AO		
291	11.300	-442.904	-1.880	-11.904	-0.520733	-85.960	-22.181
		-353.601	-10.160	4.077	0.475357	47.681	-63.239
		Min: A B D G H I AG AL AM...			Max: AP AR AS AT AU AV BE...		

ΔG pile = 1.35 × 22.2 = 30 t

N = 209.00
M = 49.00

N = 239.00
M = 71.36

N = 493.30
M = 54.00

N = 523.30
M = 36.67

N = 442.904
M = 88.77

N = 472.904
M = 73.28

ENVELOPE for < Mz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-408.499	12.240	-8.85E-09	2.01E-08	3.58E-08	-53.110
		-260.485	-15.098	-9.523	0.045376	59.749	85.777
		Min: CF CG CI CK CZ DQ DR			Max: DS DU DV DW DX DZ EQ...		
290	11.300	-328.577	-15.859	-7.828	0.045376	-38.279	-94.753
		-408.499	12.240	-8.85E-09	2.01E-08	-6.43E-08	85.198
		Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DQ DR		
291	0	-261.908	8.567	-9.523	-0.045376	59.749	-47.643
		-409.922	-18.771	-8.83E-09	-1.97E-08	3.57E-08	91.245
		Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DN DQ...		
	11.300	-409.922	-18.771	-8.83E-09	-1.97E-08	-6.41E-08	-120.863
		-330.000	9.328	-7.828	-0.045376	-38.279	59.088
		Min: CF CG CI CK CZ DN DQ...			Max: DS DU DV DW DX DZ EQ...		

ENVELOPE for < Vz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-439.715	1.829	-13.599	0.520733	58.134	0.618926
		-353.945	-2.850	4.077	-0.475357	1.615	25.011
		Min: A B D G H I AE AK AL...			Max: AP AR AS AT AU AV BC...		
290	11.300	-439.715	1.829	-11.904	0.520733	-85.960	21.284
		-353.945	-2.850	4.077	-0.475357	47.681	-7.194
		Min: A B D G H I AE AK AL...			Max: AP AR AS AT AU AV BC...		
291	0	-441.138	-8.360	-13.599	-0.520733	58.134	37.516
		-355.367	3.681	4.077	0.475357	1.615	13.123
		Min: A B D G H I AG AL AN...			Max: AP AR AS AT AU AV BE...		
291	11.300	-441.138	-8.360	-11.904	-0.520733	-85.960	-56.949
		-355.367	-3.681	4.077	0.475357	47.681	-28.471
		Min: A B D G H I AG AL AN...			Max: AP AR AS AT AU AV BE...		

N = 328.60
M = 102.19
N = 358.60
M = 104.53
N = 409.92
M = 120.86
N = 439.92
M = 91.24

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 1 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **49.0** Md (KNm) = 480.2
Nd (T) = **-209.0** Nd (KN) = -2048.2

Pie de pórtico

Md (Tm) = **71.4** Md (KNm) = 699.3
Nd (T) = **-239.0** Nd (KN) = -2342.2

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **11.30**
Mto. Inercia I (m^4) : 0.0491

$\Sigma E * I / L$ dintel = 0.0000 $\Sigma E * I / L$ soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A *\Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **45.20**

$35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\frac{(h+20e_e)}{(h+10ee)}\frac{Lo^2}{50\,ic}$$

e_e = 0.299 Máxima excentricidad de cálculo de 1er orden

Lo = 11.30

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$$is^2 = \frac{1}{6}(d - d')^2$$

β = 1.50

e_a = 0.139

e_{tot} (m) = 0.437

Solicitaciones de cálculo :

Cabeza de pórtico

Md (tm) = 91.35
Nd (t) = -209.00

Md (KNm) = 895.3
Nd (KN) = -2048.2

Pie de pórtico

Md (tm) = 104.47
Nd (t) = -239.00

Md (KNm) = 1023.8
Nd (KN) = -2342.2

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 2 :

Solicitaciones :

Cabeza de pórtico

Md (Tm) = **54.0** Md (KNm) = 529.2

Nd (T) = **-493.3** Nd (KN) = -4834.3

Pie de pórtico

Md (Tm) = **36.7** Md (KNm) = 359.4

Nd (T) = **-523.3** Nd (KN) = -5128.3

Hormigón : **HA - 30**

fck (N/mm^2)= **30**

γ c = **1.50**

fcd (N/mm^2)= 20.0

Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**

fyk (N/mm^2)= **500**

γ s = **1.15**

fyd (N/mm^2)= 434.8

Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**

Ancho B(m): **0.00**

Long. L(m) : **0.00**

Mto. Inercia I (m^4) : 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**

Nº de fustes : **1**

Altura Hp (m): **11.30**

Mto. Inercia I (m^4) : 0.0491

$\Sigma E * I / L$ dintel = 0.0000 $\Sigma E * I / L$ soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A * \Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : $\lambda =$ **45.20**

$35 < \lambda < 100$ Esbeltez moderada

pandeoELUE14

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

$e_e = 0.109$ Máxima excentricidad de cálculo de 1er orden

Lo = 11.30

$\varepsilon y =$ fyd / Es = 0.002070

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$$\beta = \frac{(d - d')^2}{4\,is^2}$$ Factor de armado

De tablas se obtiene :

$$is^2 = \frac{1}{6}(d - d')^2$$

$\beta = 1.50$

$e_a = 0.121$

e_{tot} (m) = **0.230**

Solicitaciones de cálculo :

Cabeza de pórtico

Md (tm) = 113.49 Md (KNm) = **1112.2**

Nd (t) = -493.30 Nd (KN) = **-4834.3**

Pie de pórtico

Md (tm) = 120.39 Md (KNm) = **1179.8**

Nd (t) = -523.30 Nd (KN) = **-5128.3**

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 3 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **88.8** Md (KNm) = 869.9
Nd (T) = **-442.9** Nd (KN) = -4340.4

Pie de pórtico

Md (Tm) = **73.3** Md (KNm) = 718.1
Nd (T) = **-472.9** Nd (KN) = -4634.4

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **11.30**
Mto. Inercia I (m^4) : 0.0491

$\Sigma E * I / L$ dintel = 0.0000 $\Sigma E * I / L$ soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A * \Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : $\lambda = 45.20$

$35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

$e_e = 0.200$ Máxima excentricidad de cálculo de 1er orden

Lo = 11.30

$\varepsilon y =$ fyd / Es = 0.002070

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$$is^2 = \frac{1}{6}(d - d')^2$$

$\beta = 1.50$

$e_a = 0.132$

e_{tot} (m) = 0.332

Solicitaciones de cálculo :

Cabeza de pórtico

Md (tm) = 147.25
Nd (t) = -442.90

Md (KNm) = 1443.0
Nd (KN) = -4340.4

Pie de pórtico

Md (tm) = 157.22
Nd (t) = -472.90

Md (KNm) = 1540.8
Nd (KN) = -4634.4

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 4 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **102.2** Md (KNm) = 1001.6
Nd (T) = **-328.6** Nd (KN) = -3220.3

Pie de pórtico

Md (Tm) = **104.5** Md (KNm) = 1024.4
Nd (T) = **-358.6** Nd (KN) = -3514.3

Hormigón : **HA - 30**
fck (N/mm²)= **30**
γ c = **1.50**
fcd (N/mm²)= 20.0
Ec (KN/mm²) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm²)= **500**
γ s = **1.15**
fyd (N/mm²)= 434.8
Es (KN/mm²) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m⁴) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **11.30**
Mto. Inercia I (m⁴) : 0.0491

Σ E * I / L soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A * \Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : $\lambda = 45.20$

$35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$e_{tot} = e_e + e_a > e_2$

$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$

$e_e = 0.311$ Máxima excentricidad de cálculo de 1er orden

Lo = 11.30

$\varepsilon y = fyd / Es = 0.002070$

$\varepsilon = 0.0045$ Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$

$\beta = 1.50$

$e_a = 0.139$

e_{tot} (m) = 0.450

Solicitaciones de cálculo :

Cabeza de pórtico

Md (tm) = 147.92
Nd (t) = -328.60

Md (KNm) = 1449.6
Nd (KN) = -3220.3

Pie de pórtico

Md (tm) = 161.42
Nd (t) = -358.60

Md (KNm) = 1581.9
Nd (KN) = -3514.3

Estado límite de Inestabilidad : Pórtico traslacional

HIPOTESIS 5 :

Solicitaciones : Cabeza de pórtico

Md (Tm) = **120.9** Md (KNm) = 1184.4
Nd (T) = **-409.9** Nd (KN) = -4017.2

Pie de pórtico

Md (Tm) = **91.2** Md (KNm) = 894.2
Nd (T) = **-439.9** Nd (KN) = -4311.2

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **11.30**
Mto. Inercia I (m^4) : 0.0491

$\Sigma E * I / L$ dintel = 0.0000 $\Sigma E * I / L$ soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A *\Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **45.20**

$35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.295 Máxima excentricidad de cálculo de 1er orden

Lo = 11.30

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$

β = 1.50

e_a = 0.138

e_{tot} (m) = 0.433

Solicitaciones de cálculo :

Cabeza de pórtico

Md (tm) = 177.57
Nd (t) = -409.92

Md (KNm) = 1740.2
Nd (KN) = -4017.2

Pie de pórtico

Md (tm) = 190.56
Nd (t) = -439.92

Md (KNm) = 1867.5
Nd (KN) = -4311.2

Características mecánicas Sección "PILAS" (sin coef. homogeneiz.)

Area	Ax = 7.858E3 cm2		
Momento de inercia	Iy = 4.918E6 cm4	Iz = 4.909E6 cm4	Ip = 9.827E6 cm4
Const. de torsión			Ix = 9.817E6 cm4
Momento estático	Zy =166.73E3 cm3	Zz = 166.73E3 cm3	
Baricentro	ys = -0.0000 m	zs = 0.0000 m	Angulo= 0.0 Grad
Dist. al borde	yl = -0.5000 m	yr = 0.5000 m	
	zo = 0.5000 m	zu = -0.5000 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = -0.0000 m z = 0.0000 m

Sección parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
C1	H300	1.0	0.0000	0.0000	0.5000	9.82E+06

Armadura "B1" As-tot =74.3302 cm2 (0.95 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
CR 6 / C1	AEH500	1.0	1	5.3093	-0.1001	0.4387
CR 5 / C1	AEH500	1.0	1	5.3093	0.1001	0.4387
CR 7 / C1	AEH500	1.0	1	5.3093	-0.2806	0.3518
CR 4 / C1	AEH500	1.0	1	5.3093	0.2806	0.3518
CR 8 / C1	AEH500	1.0	1	5.3093	-0.4054	0.1952
CR 3 / C1	AEH500	1.0	1	5.3093	0.4054	0.1952
CR 9 / C1	AEH500	1.0	1	5.3093	-0.4500	0.0000
CR 2 / C1	AEH500	1.0	1	5.3093	0.4500	0.0000
CR 15 / C1	AEH500	1.0	1	5.3093	0.4054	-0.1952
CR 10 / C1	AEH500	1.0	1	5.3093	-0.4054	-0.1952
CR 14 / C1	AEH500	1.0	1	5.3093	0.2806	-0.3518
CR 11 / C1	AEH500	1.0	1	5.3093	-0.2806	-0.3518
CR 13 / C1	AEH500	1.0	1	5.3093	0.1001	-0.4387
CR / C1	AEH500	1.0	1	5.3093	-0.1001	-0.4387

Dimensionamiento a flexión: Viga Sección "PILAS"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-239.0000	104.4700	0.0000	
2	2	-523.3000	120.3900	0.0000	
3	2	-472.9000	157.2200	0.0000	
4	2	-358.6000	161.4200	0.0000	
5	2	-439.9200	190.5600	0.0000	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

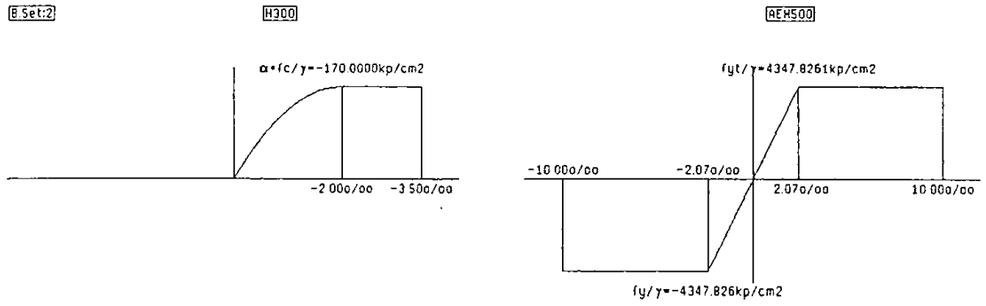
No Armad. long. :	y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
5 AEH500	-0.1001	0.4387			0.5000	4.0981	4.0981
5 AEH500	0.1001	0.4387			0.5000	4.0981	4.0981
5 AEH500	-0.2806	0.3518			0.5000	4.0981	4.0981
5 AEH500	0.2806	0.3518			0.5000	4.0981	4.0981
5 AEH500	-0.4054	0.1952			0.5000	4.0981	4.0981
5 AEH500	0.4054	0.1952			0.5000	4.0981	4.0981
5 AEH500	-0.4500	0.0000			0.5000	4.0981	4.0981
5 AEH500	0.4500	0.0000			0.5000	4.0981	4.0981
5 AEH500	0.4054	-0.1952			0.5000	4.0981	4.0981
5 AEH500	-0.4054	-0.1952			0.5000	4.0981	4.0981
5 AEH500	0.2806	-0.3518			0.5000	4.0981	4.0981
5 AEH500	-0.2806	-0.3518			0.5000	4.0981	4.0981
5 AEH500	0.1001	-0.4387			0.5000	4.0981	4.0981
5 AEH500	-0.1001	-0.4387			0.5000	4.0981	4.0981

Max.x/h = 0.67 As-top/bot = 24.5884/32.7845 As = 0.73 % = 57.3729

14 ϕ 25

Nota: Es necesaria armadura de compresión

Material acorde a la sección: "PILAS"



ENVELOPE SPECIFIC.: DA 'COMBINACION FRECUENTE'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	0.500000		SOB UNIF 1
F	PLUS	7	0.500000		SOB UNIF 2
G	PLUS	8	0.500000		SOB UNIF 3
H	PLUS	9	0.500000		SOB UNIF 4
I	PLUS	10	0.500000		SOB UNIF 5
J	PLUS	11	0.500000		VEHICULO HIPOTESIS 11
K	OR	12	0.500000		VEHICULO HIPOTESIS 12
L	OR	13	0.500000		VEHICULO HIPOTESIS 13
M	OR	14	0.500000		VEHICULO HIPOTESIS 14
N	OR	15	0.500000		VEHICULO HIPOTESIS 15
O	OR	16	0.500000		VEHICULO HIPOTESIS 16
P	OR	17	0.500000		VEHICULO HIPOTESIS 17
Q	OR	18	0.500000		VEHICULO HIPOTESIS 18
R	OR	19	0.500000		VEHICULO HIPOTESIS 19
S	OR	20	0.500000		VEHICULO HIPOTESIS 20
T	OR	21	0.500000		VEHICULO HIPOTESIS 21
U	OR	22	0.500000		VEHICULO HIPOTESIS 22
V	OR	23	0.500000		VEHICULO HIPOTESIS 23
W	OR	24	0.500000		VEHICULO HIPOTESIS 24
X	OR	25	0.500000		VEHICULO POSICION 25
Y	OR	26	0.500000		VEHICULO POSICION 26
Z	OR	27	0.500000		VEHICULO POSICION 27
AA	OR	28	0.500000		VEHICULO POSICION 28
AB	OR	29	0.500000		VEHICULO POSICION 29
AC	OR	30	0.500000		VEHICULO POSICION 30
AD	OR	31	0.500000		VEHICULO POSICION 31
AE	OR	32	0.500000		VEHICULO POSICION 32
AF	OR	33	0.500000		VEHICULO POSICION 33
AG	OR	34	0.500000		VEHICULO POSICION 34
AH	OR	35	0.500000		VEHICULO POSICION 35
AI	OR	36	0.500000		VEHICULO POSICION 36
AJ	OR	37	0.500000		VEHICULO HIPOTESIS 37
AK	PLUS	60	0.500000		FRENADO
AL	PLUS	63	0.100000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.200000		TEMPERATURA (-)
AN	OR	65	0.200000		TEMPERATURA (+)
AO	PLUS	66	0.200000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000		PESO PROPIO
AQ	PL.PERM	2	1.500		PESO PAVIMENTO
AR	OR	2	1.000		PESO PAVIMENTO
AS	PL.PERM	3	1.000		PESO BARRERAS
AT	PLUS	46	0.500000		SOB UNIF VANO 1
AU	PLUS	47	0.500000		SOB UNIF VANO 2
AV	PLUS	48	0.500000		SOB UNIF VANO 3
AW	PLUS	11	0.500000		VEHICULO HIPOTESIS 11
AX	OR	12	0.500000		VEHICULO HIPOTESIS 12

AY	OR	13	0.500000	VEHICULO HIPOTESIS 13
AZ	OR	14	0.500000	VEHICULO HIPOTESIS 14
BA	OR	15	0.500000	VEHICULO HIPOTESIS 15
BB	OR	16	0.500000	VEHICULO HIPOTESIS 16
BC	OR	17	0.500000	VEHICULO HIPOTESIS 17
BD	OR	18	0.500000	VEHICULO HIPOTESIS 18
BE	OR	19	0.500000	VEHICULO HIPOTESIS 19
BF	OR	20	0.500000	VEHICULO HIPOTESIS 20
BG	OR	21	0.500000	VEHICULO HIPOTESIS 21
BH	OR	22	0.500000	VEHICULO HIPOTESIS 22
BI	OR	23	0.500000	VEHICULO HIPOTESIS 23
BJ	OR	24	0.500000	VEHICULO HIPOTESIS 24
BK	OR	25	0.500000	VEHICULO POSICION 25
BL	OR	26	0.500000	VEHICULO POSICION 26
BM	OR	27	0.500000	VEHICULO POSICION 27
BN	OR	28	0.500000	VEHICULO POSICION 28
BO	OR	29	0.500000	VEHICULO POSICION 29
BP	OR	30	0.500000	VEHICULO POSICION 30
BQ	OR	31	0.500000	VEHICULO POSICION 31
BR	OR	32	0.500000	VEHICULO POSICION 32
BS	OR	33	0.500000	VEHICULO POSICION 33
BT	OR	34	0.500000	VEHICULO POSICION 34
BU	OR	35	0.500000	VEHICULO POSICION 35
BV	OR	36	0.500000	VEHICULO POSICION 36
BW	OR	37	0.500000	VEHICULO HIPOTESIS 37
BX	PLUS	60	0.500000	FRENADO
BY	PLUS	63	0.100000	VIENTO TRANSV CON SOB
BZ	PLUS	64	0.200000	TEMPERATURA (-)
CA	OR	65	0.200000	TEMPERATURA (+)
CB	PLUS	66	0.200000	GRADIENTE

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-296.416	1.505	-2.29E-10	2.76E-09	1.53E-09	-4.087
		-228.793	-0.826379	-1.270	0.006050	7.966	7.086
		Min: AP AQ AS AT AU BI BZ			Max: AP AR AS AV BM BX BY...		
290	11.300	-296.416	1.505	-2.29E-10	2.76E-09	-1.05E-09	12.920
		-228.793	-0.826379	-1.044	0.006050	-5.104	-2.252
		Min: AP AQ AS AT AU BI BZ			Max: AP AR AS AV BM BX BY...		
291	0	-296.890	-3.682	-2.23E-10	-2.62E-09	1.52E-09	16.798
		-229.267	-1.351	-1.270	-0.006050	7.966	5.626
		Min: AP AQ AS AU AV BK BX...			Max: AP AR AS AT BG BY CA...		
291	11.300	-296.890	-3.682	-2.23E-10	-2.62E-09	-1.01E-09	-24.809
		-229.267	-1.351	-1.044	-0.006050	-5.104	-9.636
		Min: AP AQ AS AU AV BK BX...			Max: AP AR AS AT BG BY CA...		

ENVELOPE for < My > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-245.268	0.118116	-0.378103	-0.233906	-2.980	1.601
		-250.976	-0.275479	-0.891571	0.239956	10.947	4.475
		Min: A C D H I AH AM			Max: A B D E F G P AK AL AN.		
290	11.300	-281.311	-0.690654	-2.403	0.164502	-20.997	1.202
		-274.819	2.583	1.359	-0.158452	15.894	18.228
		Min: A B D G H I AE AK AL...			Max: A C D E F M AN		
291	0	-245.742	-2.295	-0.378103	0.233906	-2.980	11.111
		-251.450	-1.901	-0.891571	-0.239956	10.947	8.237
		Min: A C D H I AD AK AM			Max: A B D E F G L AL AN AO		
	11.300	-281.785	-1.486	-2.403	-0.164502	-20.997	-13.090
		-275.293	-4.760	1.359	0.158452	15.894	-30.116
		Min: A B D G H I AG AL AM...			Max: A C D E F O AK AN		

ENVELOPE for < Mz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-270.249	4.218	-2.07E-09	6.24E-09	8.69E-09	-17.443
		-244.324	-2.938	-1.270	0.006050	7.966	17.838
		Min: AP AQ AS AU BJ CA CB			Max: AP AR AS AT AV BM BX...		
290	11.300	-267.021	-3.192	-1.044	0.006050	-5.104	-18.675
		-270.249	4.218	-2.07E-09	6.24E-09	-1.47E-08	30.222
		Min: AP AR AS AT AV BG BX...			Max: AP AQ AS AU BJ CA CB		
291	0	-244.798	0.761432	-1.270	-0.006050	7.966	-5.127
		-270.723	-6.395	-2.07E-09	-6.10E-09	8.66E-09	30.155
		Min: AP AR AS AT AV BG BY...			Max: AP AQ AS AU BJ BX CA...		
291	11.300	-270.723	-6.395	-2.07E-09	-6.10E-09	-1.47E-08	-42.111
		-267.495	1.015	-1.044	-0.006050	-5.104	6.786
		Min: AP AQ AS AU BJ BX CA...			Max: AP AR AS AT AV BM BY...		

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: Verificación fisuracion pila PS 313+500
Fecha: 7/5/01 10.18.11

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 88.6 cm Alto = 88.6 cm Canto útil = 83.85 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 24.54 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 42.11 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0033037
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 17.72 cm
Area de hormigón eficaz, Ac,eficaz = 1962.49 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 32.90 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1708.9 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2187.0 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 20.54 cm
Alargamiento medio de las fisuras, Esm = 0.000759679
Apertura de fisura, Wk = 0.265 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.265 mm
Apertura de fisura máxima, Wmax = 0.300 mm

4.2. Cálculo de la cimentación

ENVELOPE SPECIFIC.: DE 'COMBINACION CARACTERISTICA' ELS

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	1.000		SOB UNIF 1
F	PLUS	7	1.000		SOB UNIF 2
G	PLUS	8	1.000		SOB UNIF 3
H	PLUS	9	1.000		SOB UNIF 4
I	PLUS	10	1.000		SOB UNIF 5
J	PLUS	11	1.000		VEHICULO HIPOTESIS 11
K	OR	12	1.000		VEHICULO HIPOTESIS 12
L	OR	13	1.000		VEHICULO HIPOTESIS 13
M	OR	14	1.000		VEHICULO HIPOTESIS 14
N	OR	15	1.000		VEHICULO HIPOTESIS 15
O	OR	16	1.000		VEHICULO HIPOTESIS 16
P	OR	17	1.000		VEHICULO HIPOTESIS 17
Q	OR	18	1.000		VEHICULO HIPOTESIS 18
R	OR	19	1.000		VEHICULO HIPOTESIS 19
S	OR	20	1.000		VEHICULO HIPOTESIS 20
T	OR	21	1.000		VEHICULO HIPOTESIS 21
U	OR	22	1.000		VEHICULO HIPOTESIS 22
V	OR	23	1.000		VEHICULO HIPOTESIS 23
W	OR	24	1.000		VEHICULO HIPOTESIS 24
X	OR	25	1.000		VEHICULO POSICION 25
Y	OR	26	1.000		VEHICULO POSICION 26
Z	OR	27	1.000		VEHICULO POSICION 27
AA	OR	28	1.000		VEHICULO POSICION 28
AB	OR	29	1.000		VEHICULO POSICION 29
AC	OR	30	1.000		VEHICULO POSICION 30
AD	OR	31	1.000		VEHICULO POSICION 31
AE	OR	32	1.000		VEHICULO POSICION 32
AF	OR	33	1.000		VEHICULO POSICION 33
AG	OR	34	1.000		VEHICULO POSICION 34
AH	OR	35	1.000		VEHICULO POSICION 35
AI	OR	36	1.000		VEHICULO POSICION 36
AJ	OR	37	1.000		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.000		FRENADO
AL	PLUS	63	0.300000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.600000		TEMPERATURA (-)
AN	OR	65	0.600000		TEMPERATURA (+)
AO	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000		PESO PROPIO
AQ	PL.PERM	2	1.500		PESO PAVIMENTO
AR	OR	7	1.000		PESO PAVIMENTO
AS	PL.PERM	3	1.000		PESO BARRERAS
AT	PL.PERM	5	1.000		RETRACCION
AU	PLUS	6	1.000		SOB UNIF 1
AV	PLUS	7	1.000		SOB UNIF 2
AW	PLUS	8	1.000		SOB UNIF 3
AX	PLUS	9	1.000		SOB UNIF 4

AY	PLUS	10	1.000	SOB UNIF 5
AZ	PLUS	11	1.000	VEHICULO HIPOTESIS 11
BA	OR	12	1.000	VEHICULO HIPOTESIS 12
BB	OR	13	1.000	VEHICULO HIPOTESIS 13
BC	OR	14	1.000	VEHICULO HIPOTESIS 14
BD	OR	15	1.000	VEHICULO HIPOTESIS 15
BE	OR	16	1.000	VEHICULO HIPOTESIS 16
BF	OR	17	1.000	VEHICULO HIPOTESIS 17
BG	OR	18	1.000	VEHICULO HIPOTESIS 18
BH	OR	19	1.000	VEHICULO HIPOTESIS 19
BI	OR	20	1.000	VEHICULO HIPOTESIS 20
BJ	OR	21	1.000	VEHICULO HIPOTESIS 21
BK	OR	22	1.000	VEHICULO HIPOTESIS 22
BL	OR	23	1.000	VEHICULO HIPOTESIS 23
BM	OR	24	1.000	VEHICULO HIPOTESIS 24
BN	OR	25	1.000	VEHICULO POSICION 25
BO	OR	26	1.000	VEHICULO POSICION 26
BP	OR	27	1.000	VEHICULO POSICION 27
BQ	OR	28	1.000	VEHICULO POSICION 28
BR	OR	29	1.000	VEHICULO POSICION 29
BS	OR	30	1.000	VEHICULO POSICION 30
BT	OR	31	1.000	VEHICULO POSICION 31
BU	OR	32	1.000	VEHICULO POSICION 32
BV	OR	33	1.000	VEHICULO POSICION 33
BW	OR	34	1.000	VEHICULO POSICION 34
BX	OR	35	1.000	VEHICULO POSICION 35
BY	OR	36	1.000	VEHICULO POSICION 36
BZ	OR	37	1.000	VEHICULO HIPOTESIS 37
CA	PLUS	60	1.000	FRENADO
CB	PLUS	63	0.300000	VIENTO TRANSV CON SOB
CC	PLUS	64	0.600000	TEMPERATURA (-)
CD	OR	65	0.600000	TEMPERATURA (+)
CE	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

CF	PERM.	1	1.000	PESO PROPIO
CG	PL.PERM	2	1.500	PESO PAVIMENTO
CH	OR	2	1.000	PESO PAVIMENTO
CI	PL.PERM	3	1.000	PESO BARRERAS
CJ	PLUS	46	1.000	SOB UNIF VANO 1
CK	PLUS	47	1.000	SOB UNIF VANO 2
CL	PLUS	48	1.000	SOB UNIF VANO 3
CM	PLUS	11	1.000	VEHICULO HIPOTESIS 11
CN	OR	12	1.000	VEHICULO HIPOTESIS 12
CO	OR	13	1.000	VEHICULO HIPOTESIS 13
CP	OR	14	1.000	VEHICULO HIPOTESIS 14
CQ	OR	15	1.000	VEHICULO HIPOTESIS 15
CR	OR	16	1.000	VEHICULO HIPOTESIS 16
CS	OR	17	1.000	VEHICULO HIPOTESIS 17
CT	OR	18	1.000	VEHICULO HIPOTESIS 18
CU	OR	19	1.000	VEHICULO HIPOTESIS 19
CV	OR	20	1.000	VEHICULO HIPOTESIS 20
CW	OR	21	1.000	VEHICULO HIPOTESIS 21
CX	OR	22	1.000	VEHICULO HIPOTESIS 22
CY	OR	23	1.000	VEHICULO HIPOTESIS 23
CZ	OR	24	1.000	VEHICULO HIPOTESIS 24

DA	OR	25	1.000	VEHICULO POSICION 25
DB	OR	26	1.000	VEHICULO POSICION 26
DC	OR	27	1.000	VEHICULO POSICION 27
DD	OR	28	1.000	VEHICULO POSICION 28
DE	OR	29	1.000	VEHICULO POSICION 29
DF	OR	30	1.000	VEHICULO POSICION 30
DG	OR	31	1.000	VEHICULO POSICION 31
DH	OR	32	1.000	VEHICULO POSICION 32
DI	OR	33	1.000	VEHICULO POSICION 33
DJ	OR	34	1.000	VEHICULO POSICION 34
DK	OR	35	1.000	VEHICULO POSICION 35
DL	OR	36	1.000	VEHICULO POSICION 36
DM	OR	37	1.000	VEHICULO HIPOTESIS 37
DN	PLUS	60	1.000	FRENADO
DO	PLUS	63	0.300000	VIENTO TRANSV CON SOB
DP	PLUS	64	0.600000	TEMPERATURA (-)
	OR	65	0.600000	TEMPERATURA (+)
DR	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

DS	PERM.	1	1.000	PESO PROPIO
DT	PL.PERM	2	1.500	PESO PAVIMENTO
DU	OR	2	1.000	PESO PAVIMENTO
DV	PL.PERM	3	1.000	PESO BARRERAS
DW	PL.PERM	5	1.000	RETRACCION
DX	PLUS	46	1.000	SOB UNIF VANO 1
DY	PLUS	47	1.000	SOB UNIF VANO 2
DZ	PLUS	48	1.000	SOB UNIF VANO 3
EA	PLUS	11	1.000	VEHICULO HIPOTESIS 11
EB	OR	12	1.000	VEHICULO HIPOTESIS 12
EC	OR	13	1.000	VEHICULO HIPOTESIS 13
ED	OR	14	1.000	VEHICULO HIPOTESIS 14
EE	OR	15	1.000	VEHICULO HIPOTESIS 15
EF	OR	16	1.000	VEHICULO HIPOTESIS 16
EG	OR	17	1.000	VEHICULO HIPOTESIS 17
	OR	18	1.000	VEHICULO HIPOTESIS 18
EI	OR	19	1.000	VEHICULO HIPOTESIS 19
EJ	OR	20	1.000	VEHICULO HIPOTESIS 20
EK	OR	21	1.000	VEHICULO HIPOTESIS 21
EL	OR	22	1.000	VEHICULO HIPOTESIS 22
EM	OR	23	1.000	VEHICULO HIPOTESIS 23
EN	OR	24	1.000	VEHICULO HIPOTESIS 24
EO	OR	25	1.000	VEHICULO POSICION 25
EP	OR	26	1.000	VEHICULO POSICION 26
EQ	OR	27	1.000	VEHICULO POSICION 27
ER	OR	28	1.000	VEHICULO POSICION 28
ES	OR	29	1.000	VEHICULO POSICION 29
ET	OR	30	1.000	VEHICULO POSICION 30
EU	OR	31	1.000	VEHICULO POSICION 31
EV	OR	32	1.000	VEHICULO POSICION 32
EW	OR	33	1.000	VEHICULO POSICION 33
EX	OR	34	1.000	VEHICULO POSICION 34
EY	OR	35	1.000	VEHICULO POSICION 35
EZ	OR	36	1.000	VEHICULO POSICION 36
	OR	37	1.000	VEHICULO HIPOTESIS 37
FB	PLUS	60	1.000	FRENADO

FC	PLUS	63	0.300000	VIENTO TRANSV CON SOB
FD	PLUS	64	0.600000	TEMPERATURA (-)
FE	OR	65	0.600000	TEMPERATURA (+)
FF	PLUS	66	0.600000	GRADIENTE

$\Delta 6 = 22,20$ t

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance	N	Vy (LONG)	Vz (TRANSV.)	T	My (TRANSV)	Mz (LONG)
	[m]	[t]	[t]	[t]	[tm]	[tm]	[tm]
290	0	-352.818	-1.776	-2.94E-10	4.55E-09	1.87E-09	17.676
		-217.955	-1.790	-3.809	0.018150	23.899	13.128
		Min: DS DT DV DW DX DY EM...			Max: CF CH CI CL DC DN DO...		
290	11.300	-352.818	-1.776	-2.94E-10	4.55E-09	-1.46E-09	-2.395
		-217.955	-1.790	-3.131	0.018150	-15.312	-7.101
		Min: DS DT DV DW DX DY EM...			Max: CF CH CI CL DC DN DO...		
291	0	-353.767	-2.578	-2.83E-10	-4.27E-09	1.83E-09	7.747
		-218.904	-2.564	-3.809	-0.018150	23.899	12.295
		Min: DS DT DV DW DY DZ EO...			Max: CF CH CI CJ CW DO DQ...		
291	11.300	-353.767	-2.578	-2.83E-10	-4.27E-09	-1.36E-09	-21.382
		-218.904	-2.564	-3.131	-0.018150	-15.312	-16.675
		Min: DS DT DV DW DY DZ EO...			Max: CF CH CI CJ CW DO DQ...		

ENVELOPE for < My > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance	N	Vy	Vz	T	My	Mz
	[m]	[t]	[t]	[t]	[tm]	[tm]	[tm]
290	0	-255.134	-4.528	-0.756206	-0.467812	-5.960	28.967
		-257.710	-0.710774	-3.053	0.485962	29.860	7.989
		Min: AP AR AS AT AX AY BX...			Max: A B D E F G P AK AL AN.		
290	11.300	-319.561	-5.870	-5.849	0.335055	-47.099	-23.592
		-313.056	4.731	2.718	-0.316905	31.787	31.618
		Min: AP AQ AS AT AW AX AY...			Max: A C D E F M AN		
291	0	-256.082	0.173680	-0.756206	0.467812	-5.960	-3.544
		-258.658	-3.643	-3.053	-0.485962	29.860	17.434
		Min: AP AR AS AT AX AY BT...			Max: A B D E F G L AL AN AO		
291	11.300	-320.509	1.516	-5.849	-0.335055	-47.099	-0.184579
		-314.004	-9.085	2.718	0.316905	31.787	-55.395
		Min: AP AQ AS AT AW AX AY...			Max: A C D E F O AK AN		

ENVELOPE for < Mz > (and accomp. values) ""
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
290	0	-296.433	8.278	-5.92E-09	1.35E-08	2.40E-08	-35.850
		-253.068	-10.642	-3.809	0.018150	23.899	61.444
		Min: CF CG CI CK CZ DQ DR			Max: DS DU DV DW DX DZ EQ...		
290	11.300	-298.463	-11.149	-3.131	0.018150	-15.312	-65.423
		-296.433	8.278	-5.92E-09	1.35E-08	-4.29E-08	57.686
		Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DQ DR		
291	0	-254.016	6.288	-3.809	-0.018150	23.899	-36.021
		-297.381	-12.631	-5.90E-09	-1.33E-08	2.39E-08	61.273
		Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DN DQ...		
291	11.300	-297.381	-12.631	-5.90E-09	-1.33E-08	-4.28E-08	-81.462
		-299.411	6.795	-3.131	-0.018150	-15.312	41.646
		Min: CF CG CI CK CZ DN DQ...			Max: DS DU DV DW DX DZ EQ...		

ENVELOPE SPECIFIC.: DE 'COMBINACION CARACTERISTICA' REACCIONES

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PLUS	6	1.000		SOB UNIF 1
F	PLUS	7	1.000		SOB UNIF 2
G	PLUS	8	1.000		SOB UNIF 3
H	PLUS	9	1.000		SOB UNIF 4
I	PLUS	10	1.000		SOB UNIF 5
J	PLUS	11	1.000		VEHICULO HIPOTESIS 11
K	OR	12	1.000		VEHICULO HIPOTESIS 12
L	OR	13	1.000		VEHICULO HIPOTESIS 13
M	OR	14	1.000		VEHICULO HIPOTESIS 14
N	OR	15	1.000		VEHICULO HIPOTESIS 15
O	OR	16	1.000		VEHICULO HIPOTESIS 16
P	OR	17	1.000		VEHICULO HIPOTESIS 17
Q	OR	18	1.000		VEHICULO HIPOTESIS 18
R	OR	19	1.000		VEHICULO HIPOTESIS 19
S	OR	20	1.000		VEHICULO HIPOTESIS 20
T	OR	21	1.000		VEHICULO HIPOTESIS 21
U	OR	22	1.000		VEHICULO HIPOTESIS 22
V	OR	23	1.000		VEHICULO HIPOTESIS 23
W	OR	24	1.000		VEHICULO HIPOTESIS 24
X	OR	25	1.000		VEHICULO POSICION 25
Y	OR	26	1.000		VEHICULO POSICION 26
Z	OR	27	1.000		VEHICULO POSICION 27
AA	OR	28	1.000		VEHICULO POSICION 28
AB	OR	29	1.000		VEHICULO POSICION 29
AC	OR	30	1.000		VEHICULO POSICION 30
AD	OR	31	1.000		VEHICULO POSICION 31
AE	OR	32	1.000		VEHICULO POSICION 32
AF	OR	33	1.000		VEHICULO POSICION 33
AG	OR	34	1.000		VEHICULO POSICION 34
AH	OR	35	1.000		VEHICULO POSICION 35
AI	OR	36	1.000		VEHICULO POSICION 36
AJ	OR	37	1.000		VEHICULO HIPOTESIS 37
AK	PLUS	60	1.000		FRENADO
AL	PLUS	63	0.300000		VIENTO TRANSV CON SOB
AM	PLUS	64	0.600000		TEMPERATURA (-)
AN	OR	65	0.600000		TEMPERATURA (+)
AO	PLUS	66	0.600000		GRADIENTE

ALTERNATIVE ENVELOPE :

AP	PERM.	1	1.000		PESO PROPIO
AQ	PL.PERM	2	1.500		PESO PAVIMENTO
AR	OR	2	1.000		PESO PAVIMENTO
AS	PL.PERM	3	1.000		PESO BARRERAS
AT	PL.PERM	5	1.000		RETRACCION
AU	PLUS	6	1.000		SOB UNIF 1
AV	PLUS	7	1.000		SOB UNIF 2
AW	PLUS	8	1.000		SOB UNIF 3
AX	PLUS	9	1.000		SOB UNIF 4

AY	PLUS	10	1.000	SOB UNIF 5
AZ	PLUS	11	1.000	VEHICULO HIPOTESIS 11
BA	OR	12	1.000	VEHICULO HIPOTESIS 12
BB	OR	13	1.000	VEHICULO HIPOTESIS 13
BC	OR	14	1.000	VEHICULO HIPOTESIS 14
BD	OR	15	1.000	VEHICULO HIPOTESIS 15
BE	OR	16	1.000	VEHICULO HIPOTESIS 16
BF	OR	17	1.000	VEHICULO HIPOTESIS 17
BG	OR	18	1.000	VEHICULO HIPOTESIS 18
BH	OR	19	1.000	VEHICULO HIPOTESIS 19
BI	OR	20	1.000	VEHICULO HIPOTESIS 20
BJ	OR	21	1.000	VEHICULO HIPOTESIS 21
BK	OR	22	1.000	VEHICULO HIPOTESIS 22
BL	OR	23	1.000	VEHICULO HIPOTESIS 23
BM	OR	24	1.000	VEHICULO HIPOTESIS 24
BN	OR	25	1.000	VEHICULO POSICION 25
BO	OR	26	1.000	VEHICULO POSICION 26
BP	OR	27	1.000	VEHICULO POSICION 27
BQ	OR	28	1.000	VEHICULO POSICION 28
BR	OR	29	1.000	VEHICULO POSICION 29
BS	OR	30	1.000	VEHICULO POSICION 30
BT	OR	31	1.000	VEHICULO POSICION 31
BU	OR	32	1.000	VEHICULO POSICION 32
BV	OR	33	1.000	VEHICULO POSICION 33
BW	OR	34	1.000	VEHICULO POSICION 34
BX	OR	35	1.000	VEHICULO POSICION 35
BY	OR	36	1.000	VEHICULO POSICION 36
BZ	OR	37	1.000	VEHICULO HIPOTESIS 37
CA	PLUS	60	1.000	FRENADO
CB	PLUS	63	0.300000	VIENTO TRANSV CON SOB
CC	PLUS	64	0.600000	TEMPERATURA (-)
CD	OR	65	0.600000	TEMPERATURA (+)
CE	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

CF	PERM.	1	1.000	PESO PROPIO
CG	PL.PERM	2	1.500	PESO PAVIMENTO
CH	OR	2	1.000	PESO PAVIMENTO
CI	PL.PERM	3	1.000	PESO BARRERAS
CJ	PLUS	46	1.000	SOB UNIF VANO 1
CK	PLUS	47	1.000	SOB UNIF VANO 2
CL	PLUS	48	1.000	SOB UNIF VANO 3
CM	PLUS	11	1.000	VEHICULO HIPOTESIS 11
CN	OR	12	1.000	VEHICULO HIPOTESIS 12
CO	OR	13	1.000	VEHICULO HIPOTESIS 13
CP	OR	14	1.000	VEHICULO HIPOTESIS 14
CQ	OR	15	1.000	VEHICULO HIPOTESIS 15
CR	OR	16	1.000	VEHICULO HIPOTESIS 16
CS	OR	17	1.000	VEHICULO HIPOTESIS 17
CT	OR	18	1.000	VEHICULO HIPOTESIS 18
CU	OR	19	1.000	VEHICULO HIPOTESIS 19
CV	OR	20	1.000	VEHICULO HIPOTESIS 20
CW	OR	21	1.000	VEHICULO HIPOTESIS 21
CX	OR	22	1.000	VEHICULO HIPOTESIS 22
CY	OR	23	1.000	VEHICULO HIPOTESIS 23
CZ	OR	24	1.000	VEHICULO HIPOTESIS 24

DA	OR	25	1.000	VEHICULO POSICION 25
DB	OR	26	1.000	VEHICULO POSICION 26
DC	OR	27	1.000	VEHICULO POSICION 27
DD	OR	28	1.000	VEHICULO POSICION 28
DE	OR	29	1.000	VEHICULO POSICION 29
DF	OR	30	1.000	VEHICULO POSICION 30
DG	OR	31	1.000	VEHICULO POSICION 31
DH	OR	32	1.000	VEHICULO POSICION 32
DI	OR	33	1.000	VEHICULO POSICION 33
DJ	OR	34	1.000	VEHICULO POSICION 34
DK	OR	35	1.000	VEHICULO POSICION 35
DL	OR	36	1.000	VEHICULO POSICION 36
DM	OR	37	1.000	VEHICULO HIPOTESIS 37
DN	PLUS	60	1.000	FRENADO
DO	PLUS	63	0.300000	VIENTO TRANSV CON SOB
DP	PLUS	64	0.600000	TEMPERATURA (-)
D	OR	65	0.600000	TEMPERATURA (+)
D.	PLUS	66	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

DS	PERM.	1	1.000	PESO PROPIO
DT	PL.PERM	2	1.500	PESO PAVIMENTO
DU	OR	2	1.000	PESO PAVIMENTO
DV	PL.PERM	3	1.000	PESO BARRERAS
DW	PL.PERM	5	1.000	RETRACCION
DX	PLUS	46	1.000	SOB UNIF VANO 1
DY	PLUS	47	1.000	SOB UNIF VANO 2
DZ	PLUS	48	1.000	SOB UNIF VANO 3
EA	PLUS	11	1.000	VEHICULO HIPOTESIS 11
EB	OR	12	1.000	VEHICULO HIPOTESIS 12
EC	OR	13	1.000	VEHICULO HIPOTESIS 13
ED	OR	14	1.000	VEHICULO HIPOTESIS 14
EE	OR	15	1.000	VEHICULO HIPOTESIS 15
EF	OR	16	1.000	VEHICULO HIPOTESIS 16
EG	OR	17	1.000	VEHICULO HIPOTESIS 17
E	OR	18	1.000	VEHICULO HIPOTESIS 18
E.	OR	19	1.000	VEHICULO HIPOTESIS 19
EJ	OR	20	1.000	VEHICULO HIPOTESIS 20
EK	OR	21	1.000	VEHICULO HIPOTESIS 21
EL	OR	22	1.000	VEHICULO HIPOTESIS 22
EM	OR	23	1.000	VEHICULO HIPOTESIS 23
EN	OR	24	1.000	VEHICULO HIPOTESIS 24
EO	OR	25	1.000	VEHICULO POSICION 25
EP	OR	26	1.000	VEHICULO POSICION 26
EQ	OR	27	1.000	VEHICULO POSICION 27
ER	OR	28	1.000	VEHICULO POSICION 28
ES	OR	29	1.000	VEHICULO POSICION 29
ET	OR	30	1.000	VEHICULO POSICION 30
EU	OR	31	1.000	VEHICULO POSICION 31
EV	OR	32	1.000	VEHICULO POSICION 32
EW	OR	33	1.000	VEHICULO POSICION 33
EX	OR	34	1.000	VEHICULO POSICION 34
EY	OR	35	1.000	VEHICULO POSICION 35
EZ	OR	36	1.000	VEHICULO POSICION 36
F	OR	37	1.000	VEHICULO HIPOTESIS 37
Fb	PLUS	60	1.000	FRENADO

FC	PLUS	63	0.300000	VIENTO TRANSV CON SOB
FD	PLUS	64	0.600000	TEMPERATURA (-)
FE	OR	65	0.600000	TEMPERATURA (+)
FF	PLUS	66	0.600000	GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.098	-3.385	19.890				
	1.484	1.137	100.455				
	Min: AP AR AS AT AX AY BU...						Max: A B D E F G J AL AN AO
10	2.016	-3.387	16.535				
	-0.565750	1.136	97.268				
	Min: AP AR AS AT AU AV BC...						Max: A B D G H I AB AN AO
156	-1.098	2.564	20.256				
	1.484	-1.958	100.821				
	Min: AP AR AS AT AX AY BW...						Max: A B D E F G R AK AL AN.
160	2.016	2.566	16.901				
	-0.565780	-1.956	97.634				
	Min: AP AR AS AT AU AV BE...						Max: A B D G H I AJ AK AN...
166	3.809	-1.790	217.955	13.128	23.899	-0.018150	
	2.94E-10	-1.776	352.818	17.676	1.87E-09	-4.55E-09	
	Min: CF CH CI CL DC DN DO...						Max: DS DT DV DW DX DY EM...
167	3.809	-2.564	218.904	12.295	23.899	0.018150	
	2.83E-10	-2.578	353.767	7.747	1.83E-09	4.27E-09	
	Min: CF CH CI CJ CW DO DQ...						Max: DS DT DV DW DY DZ EO...

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-1.099	-3.384	26.517				
	2.016	1.005	60.759				
	Min: AP AQ AS AT AW AX AY...						Max: A C D E F M AL AN
10	-1.098	1.003	57.572				
	2.017	-3.386	23.162				
	Min: A C D H I AE AN						Max: AP AQ AS AT AU AV AW...
156	-1.099	2.564	26.883				
	2.016	-1.825	61.124				
	Min: AP AQ AS AT AW AX AY...						Max: A C D E F O AK AL AN
160	-1.098	-1.824	57.937				
	2.017	2.565	23.527				
	Min: A C D H I AG AK AN						Max: AP AQ AS AT AU AV AW...
166	-2.718	-2.478	315.021	20.940	1.077	0.316905	
	6.527	1.339	317.596	-0.037189	22.823	-0.335055	
	Min: AP AR AS AT AU AV BC...						Max: A B D G H I AE AK AL...
167	-2.718	-4.765	315.182	21.628	1.077	-0.316905	

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
	6.527	-2.803	319.332	8.315	22.823	0.335055
	Min: A C D E F O AK AM			Max: AP AQ AS AT AW AX AY...		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.145770	-3.539	34.296			
	0.547958	1.277	52.991			
	Min: DS DT DV DW DY DZ EZ...			Max: CF CH CI CJ DF DO DQ...		
10	1.064	-3.540	30.941			
	0.370101	1.275	49.804			
	Min: DS DT DV DW DY DZ EH...			Max: CF CH CI CJ CN DQ DR		
156	0.547988	-2.098	53.357			
	-0.145741	2.718	34.661			
	Min: CF CH CI CL DL DN DO...			Max: DS DT DV DW DX DY ET...		
160	0.370071	-2.096	50.170			
	1.064	2.720	31.306			
	Min: CF CH CI CL CT DN DQ...			Max: DS DT DV DW DX DY EB...		
166	3.809	-11.149	298.463	60.563	23.899	-0.018150
	5.92E-09	8.278	296.433	-35.850	2.40E-08	-1.35E-08
	Min: DS DU DV DW DX DZ EK...			Max: CF CG CI CK CZ DQ DR		
167	5.90E-09	-12.631	297.381	61.273	2.39E-08	1.33E-08
	3.809	6.795	299.411	-35.140	23.899	0.018150
	Min: CF CG CI CK CZ DN DQ...			Max: DS DU DV DW DX DZ EQ...		

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 1 :
Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **15.3** Mk (KNm) = 150.0
Nk (t) = **-218.0** Nk (KN) = -2136.4

Pie de pórtico

Mk (tm) = **23.9** Mk (KNm) = 234.2
Nk (t) = **-240.2** Nk (KN) = -2354.0

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **7.1** Mk (KNm) = 69.6
Nk (t) = **-218.0** Nk (KN) = -2136.4

Pie de pórtico

Mk (tm) = **13.1** Mk (KNm) = 128.6
Nk (t) = **-240.2** Nk (KN) = -2354.0

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γc = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γs = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **11.30**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7{,}5+4*(\Psi A + \Psi B)+1{,}6*\Psi A * \Psi B) / (7{,}5+(\Psi A+\Psi B)))^{0{,}5}$

α = 1.000

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **45.20** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.100 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.055 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 11.30

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.119

e_{tot} (m) = 0.218

Pie de pórtico

Mk (tm) = 52.41
Nk (t) = -240.20

Mk (KNm) = 513.6
Nk (KN) = -2354.0

Solicitaciones de cálculo longitudinales :

e_a = 0.107

e_{tot} (m) = 0.162

Pie de pórtico

Mk (tm) = 38.86
Nk (t) = -240.20

Mk (KNm) = 380.9
Nk (KN) = -2354.0

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 2 :
Dirección transversal
Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-353.8** Nk (KN) = -3467.2

Pie de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-376.0** Nk (KN) = -3684.8

Dirección longitudinal
Solicitaciones : Cabeza de pórtico

Mk (tm) = **21.4** Mk (KNm) = 209.7
Nk (t) = **-353.3** Nk (KN) = -3462.3

Pie de pórtico

Mk (tm) = **7.8** Mk (KNm) = 76.4
Nk (t) = **-379.3** Nk (KN) = -3717.1

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **11.30**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A *\Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **45.20** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.000 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.061 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 11.30

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :
e_a = 0.079

e_{tot} (m) = 0.079

Pie de pórtico

Mk (tm) = 29.78
Nk (t) = -379.30

Mk (KNm) = 291.8
Nk (KN) = -3684.8

Solicitaciones de cálculo longitudinales :
e_a = 0.109

e_{tot} (m) = 0.170

Pie de pórtico

Mk (tm) = 64.35
Nk (t) = -379.30

Mk (KNm) = 630.6
Nk (KN) = -3717.1

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 3 :

Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **31.8** Mk (KNm) = 311.6
Nk (t) = **-314.1** Nk (KN) = -3078.0

Pie de pórtico

Mk (tm) = **29.9** Mk (KNm) = 293.0
Nk (t) = **-336.3** Nk (KN) = -3295.7

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **55.4** Mk (KNm) = 542.9
Nk (t) = **-314.1** Nk (KN) = -3078.2

Pie de pórtico

Mk (tm) = **17.4** Mk (KNm) = 170.8
Nk (t) = **-336.3** Nk (KN) = -3295.7

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **11.30**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A * \Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ = **45.20** $35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.101 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.176 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 11.30

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.119

e_{tot} (m) = 0.220

Pie de pórtico

Mk (tm) = 74.08
Nk (t) = -336.30

Mk (KNm) = 726.0
Nk (KN) = -3295.7

Solicitaciones de cálculo longitudinales :

e_a = 0.130

e_{tot} (m) = 0.306

Pie de pórtico

Mk (tm) = 102.95
Nk (t) = -336.30

Mk (KNm) = 1008.9
Nk (KN) = -3295.7

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 4 :
Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-297.4** Nk (KN) = -2914.5

Pie de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-319.6** Nk (KN) = -3132.1

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **81.5** Mk (KNm) = 798.3
Nk (t) = **-297.4** Nk (KN) = -2914.5

Pie de pórtico

Mk (tm) = **61.3** Mk (KNm) = 600.7
Nk (t) = **-319.6** Nk (KN) = -3132.1

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos del dintel :

Canto H (m): **0.00**
Ancho B(m): **0.00**
Long. L(m) : **0.00**
Mto. Inercia I (m^4) : 0.0000

Σ E * I / L dintel = 0.0000

Datos de los fustes :

Diámetro Φ (m): **1.00**
Nº de fustes : **1**
Altura Hp (m): **11.30**
Mto. Inercia I (m^4) : 0.0491

Σ E * I / L soportes = 0.1241

Relación de rigideces $\Psi = (\Sigma E * I / L \text{ soportes}) / (\Sigma E * I / L \text{ dintel})$

Cabeza del pórtico $\Psi B = 0.00$

En el pie del pórtico $\Psi A = 0.00$

Para pórticos traslacionales se obtiene : $\alpha = ((7,5+4*(\Psi A + \Psi B)+1,6*\Psi A *\Psi B) / (7,5+(\Psi A+\Psi B)))^{0,5}$

$\alpha = 1.000$

Longitud transversal de pandeo : Lo (m) = 11.30

Radio de giro : ic (m) = 0.25

Esbeltez mecánica : λ **= 45.20** $35 < \lambda < 100$ Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0,12\,\beta)(\varepsilon y+\varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.000 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.274 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 11.30

$\varepsilon y = fyd / Es$ = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :
e_a = 0.079

e_{tot} (m) = 0.079

Pie de pórtico

Mk (tm) = 25.31 **Mk (KNm) = 248.1**
Nk (t) = -319.60 **Nk (KN) = -3132.1**

Solicitaciones de cálculo longitudinales :
e_a = 0.137

e_{tot} (m) = 0.411

Pie de pórtico

Mk (tm) = 131.40 **Mk (KNm) = 1287.7**
Nk (t) = -319.60 **Nk (KN) = -3132.1**

Comprobación de punzonamiento
Articulo 46 EHE

Dimensiones del soporte

Ancho (m)	0.89
Canto (m)	1.20
Canto útil (m)	1.15

u1 (m)	18.64

Losa sin armadura de punzonamiento

Nd (t)	523.30
β	1.15
Fsd,ef	601.80
τsd (t/m2)	*28.07*

ξ	1.417
ϕ (pm)	25
nº (pm)	5.71428
As (cm2)	28.05
ρ	2.439E-03
fck (Mpa)	25
τrd (MPa)	0.311
τrd (t/m2)	*31.07*

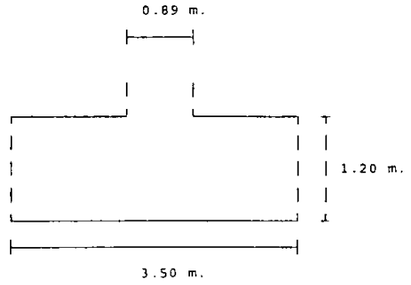
τsd (t/m2)	*< τrd (t/m2)*

uctura ....:Cami de les Codines

Pila N° : 1

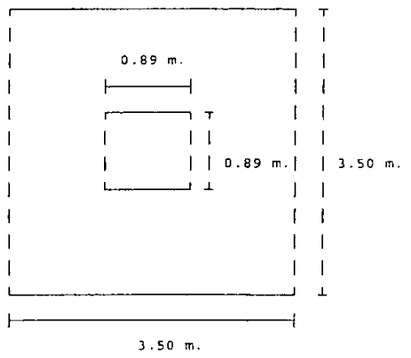
©DIBUJO

• dibujo sin escala



ALZADO

Dirección del eje del tablero



PLANTA

CARACTERISTICAS DE LOS MATERIALES Y CIMENTACION

Fck (Kg/cm²) ..... 250 γcd ... 1.50

Fyk (Kg/cm²) ..... 5100 γyd ... 1.15

Recubrimiento de armaduras ..... 4.0 cms

Tensión admisible del terreno ..... 5.00 Kg/cm²

Coeficiente de rozamiento en cimentación ... 0.55

Coeficiente de seguridad al deslizamiento... 1.50

Coeficiente de seguridad al vuelco 1.50

©ESFUERZOS CONSIDERADOS

• Longitudinal y transversal según la dirección del eje del tablero
• Esfuerzos en t y m.t

Hipótesis	Axil	F.Long	F.Trans	M.Long	M.Trans	γf
1	240.20	1.80	3.81	38.86	52.41	1.50
2	379.30	2.60	0.00	64.35	29.78	1.50
3	336.30	3.64	3.05	102.95	74.08	1.50
4	319.60	12.63	0.00	131.40	25.31	1.50

RESULTADOS DE CALCULO

©Tensiones sobre el Terreno en Kg/cm² y coeficientes de seguridad

Hipótesis	σ1	σ2	σ3	σ4	σcob	Cd	Cv
1	3.63	2.04	2.48	0.89	2.80	39.98	8.51
2	4.76	3.92	2.87	2.04	3.90	88.01	10.79
3	5.64	3.46	2.63	0.46	4.14	56.37	6.08
4	5.31	4.61	1.21	0.50	3.96	15.52	4.26

Tensión cobaricéntrica Máxima 4.14 Kg/cm² para la Hipótesis 3

©Esfuerzos de cálculo

* Esfuerzos en m.t/m y t/m Armaduras en cm²/m

Recubrimiento de armaduras= 4.0 cms

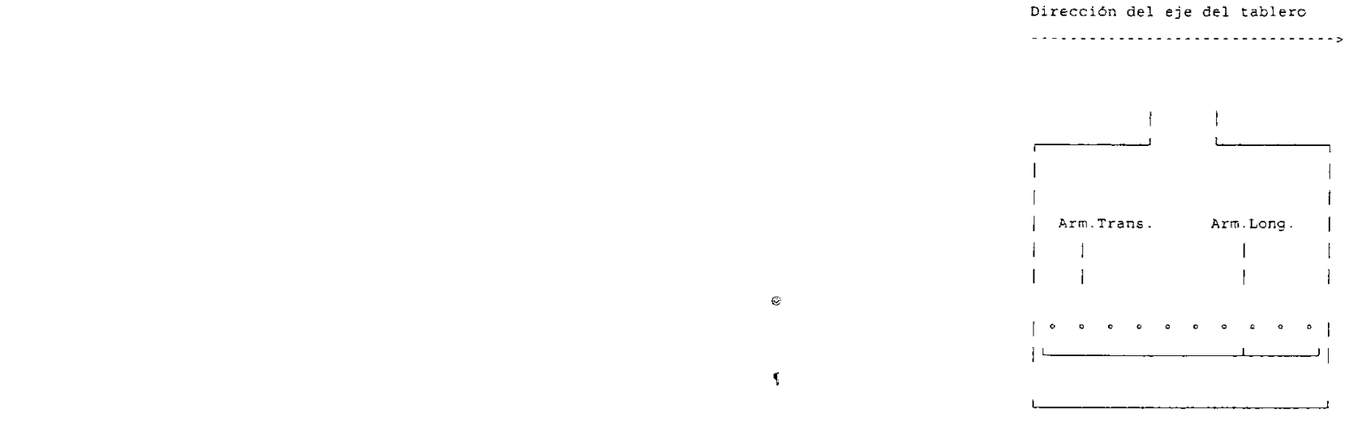
Uc= 1933 t/m

Vcu long..= 149.76 t/m

Vcu trans.= 149.76 t/m

Hipótesis	M.long	M.trans	Ar.long	Ar.trans	Vd long.	Vd Trans.
1	49.37	48.42	9.70	9.52	1.72	1.72
2	65.28	67.53	12.88	13.33	2.43	2.42
3	76.55	78.32	15.14	15.50	2.97	2.96
4	69.22	76.46	13.67	15.12	2.79	2.74

©DIBUJO DE LA ARMADURA



ALZADO

Armadura longitudinal Máxima 15.14 cm²/m para la Hipótesis 3

Armadura transversal Máxima 15.50 cm²/m para la Hipótesis 3

ESTRIBOS

5.1. Geometría

Ver “Documento nº 2. Planos”

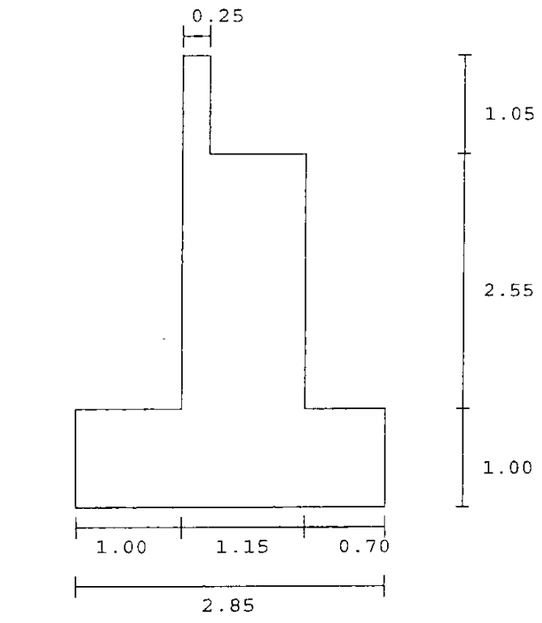
5.2. Cálculo y dimensionamiento

Estructura ....: Reposicion 15 E-5

Estribo .....:E-1

DATOS GEOMETRICOS (sin escala)

* Cotas en mtrs.



Area de la sección 6.04 m²

MATERIALES

Hormigón en zapata ..... 250 Kg/cm²

Hormigón en alzados ..... 300 Kg/cm²

Coeficiente de seguridad del hormigón 1.50

Acero en armaduras, zapata y alzado ..... 5100 Kg/cm²

Coeficiente de seguridad del acero 1.15

CARACTERISTICAS DEL TERRENO

Densidad de las tierras (t/m3) 2.00

Coeficiente de empuje activo horizontal 0.33

Tensión admisible del terreno en cimentación (Kg/cm²) 3.0

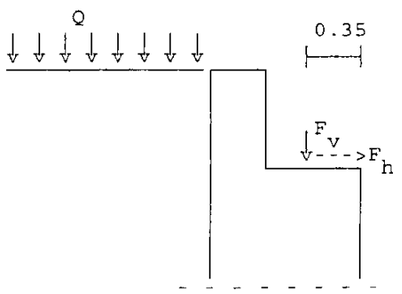
Coeficiente de rozamiento en cota de cimentación 0.55

Coeficiente de seguridad al deslizamiento (Cd) 1.50

Coeficiente de seguridad al vuelco (Cv) 1.80

Altura considerada de empuje de tierras (mtrs.) 4.60

CARGAS ACTUANTES



Reacciones Verticales (Fv t/m)

Cargas Permanentes : 9.95

Sobrecargas Máximas: 12.55
Sobrecargas Mínimas: 0.00
Sobrecarga q (t/m²): 1.00

Reacciones Horizontales (Fh t/m)

Reológicas : 0.38
Temperatura : 0.47
Frenado : 0.40

COMBINACIONES

A) 1.35*(Peso Propio)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

B) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)

C) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Máximas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

D) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Mínimas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

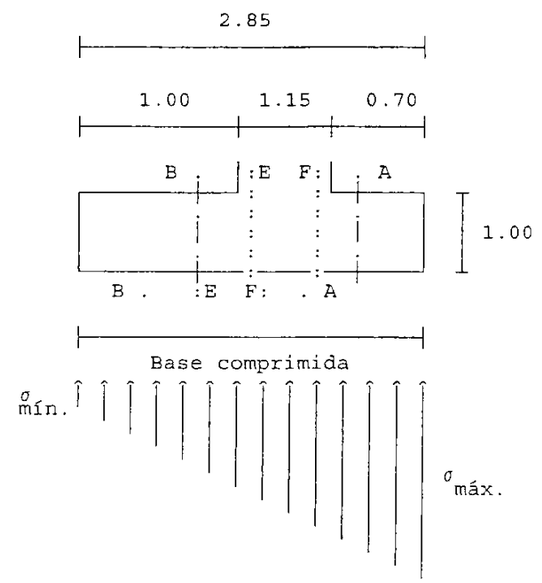
ESFUERZOS DE COMBINACIONES

Combinación	Fv(t/m)	Fh(t/m)	Q(t/m²)
A	0.00 0.00	0.00 0.00	1.00 1.25
B	9.95 13.43	0.85 1.22	1.00 1.50
C	22.50 32.26	1.25 1.31	1.00 1.50
D	9.95 13.43	1.25 1.82	1.00 1.50

COMPROBACION DE ESTABILIDAD:

Hipótesis	ΣFv(t/m)	ΣFh(t/m)	Cd	ΣMe(mt/m)	ΣMv(mt/m)	Cv
A	23.31	8.50	1.51	39.90	14.20	2.81
B	33.26	9.35	1.96	50.35	17.22	2.92
C	45.81	9.75	2.58	63.53	18.64	3.41
D	33.26	9.75	1.88	50.35	18.64	2.70

TENSIONES EN CIMIENTOS



COMPROBACION DE TENSIONES:

Hipótesis	σmáx. (t/m²)	σmín. (t/m²)	σcob. (t/m²)	Base comprimida
A	13.73	2.63	10.57	2.85
B	22.21	1.13	16.70	2.85
C	31.14	1.01	23.38	2.85
D	23.26	0.08	17.44	2.85

ARMADURAS:

ZAPATA

CORTANTE: fcv= 64.55 t/m² (EH-91)

Sección A-A | d = 0.33 m.
Vcu= 42.60 t/m (EH-91)

Sección B-B | d = 0.78 m.
Vcu= 100.70 t/m (EH-91)

FLEXION: | d = 0.96 m.
Uc = 1360 t/m

ZAPATA DELANTERA:

Hipót.	Vd(A-A) (t/m)	Vcu t/m (EHE)	Md(F-F) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	3.59	24.55	5.75	6.00	12.27	3.62
B	6.06	24.55	9.69	10.14	12.27	3.62
C	8.62	24.55	13.85	14.51	12.27	3.62
D	6.41	24.55	10.21	10.68	12.27	3.62

ϕ20/20

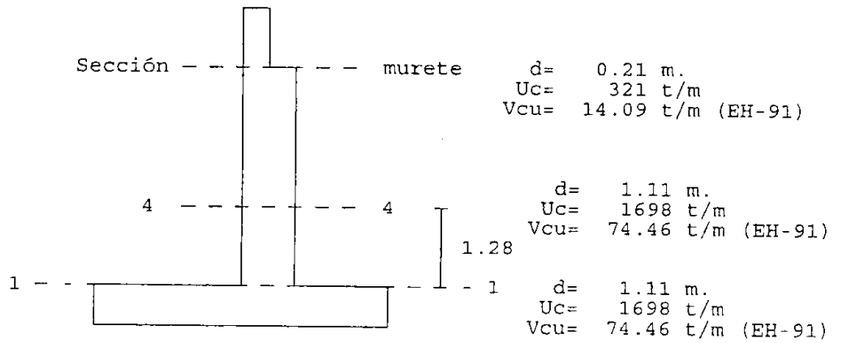
ZAPATA TRASERA:

Hipót.	Vd(B-B) (t/m)	Vcu t/m (EHE)	Md(E-E) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	-6.29	24.55	-7.54	7.88	12.27	3.62
B	-6.88	24.55	-7.88	8.24	12.27	3.62
C	-5.77	24.55	-6.06	6.33	12.27	3.62
D	-7.47	24.55	-8.59	8.98	12.27	3.62

ϕ20/20

ALZADO

fcv= 67.08 t/m²



SECCION 1-1:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	7.90	31.87	10.78	9.97	9.01	15.32	18.40
B	9.42	33.81	24.22	16.64	15.05	15.32	18.40
C	9.50	36.54	43.04	21.09	19.11	15.32	18.40
D	10.02	33.81	24.22	18.17	16.44	15.32	18.40

ϕ16/15+ϕ12/15

ϕ20/20

SECCION 4-4:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	3.63	31.15	5.83	2.79	2.52	15.32	18.40
B	5.04	33.10	19.27	7.59	6.85	15.32	18.40
C	5.13	35.82	38.09	11.93	10.79	15.32	18.40
D	5.64	33.10	19.27	8.35	7.54	15.32	18.40

ϕ16/15+ϕ12/15

ϕ20/20

SECCION MURETE:

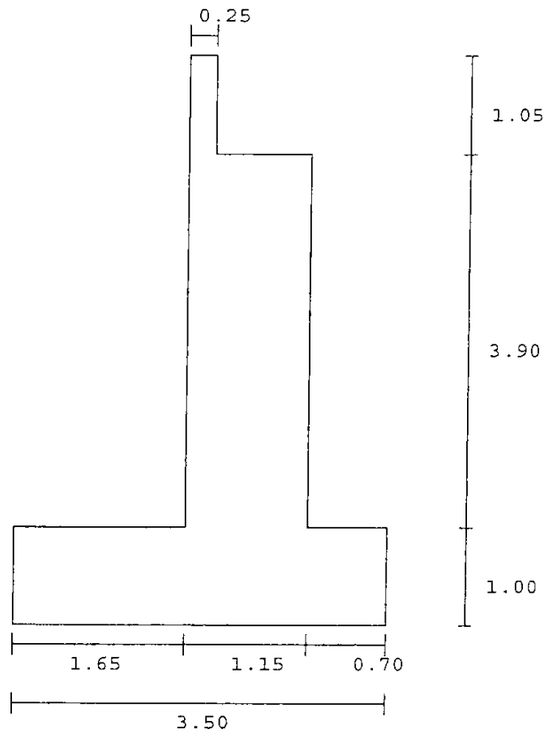
Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	0.98	7.78	0.89	0.42	2.00	2.90	4.00
B	1.07	7.78	0.89	0.46	2.22	2.90	4.00
C	1.07	7.78	0.89	0.46	2.22	2.90	4.00
D	1.07	7.78	0.89	0.46	2.22	2.90	4.00

Estructura ....: Reposicion 15 E-5

Estribo .....:E-2

DATOS GEOMETRICOS (sin escala)

* Cotas en mtrs.



Area de la sección 8.25 m²

MATERIALES

Hormigón en zapata y alzado ..... 250 Kg/cm²

Coeficiente de seguridad del hormigón 1.50

Acero en armaduras, zapata y alzado ..... 5100 Kg/cm²

Coeficiente de seguridad del acero 1.15

CARACTERISTICAS DEL TERRENO

Densidad de las tierras (t/m3) 2.00

Coeficiente de empuje activo horizontal 0.33

Tensión admisible del terreno en cimentación (Kg/cm²) 3.0

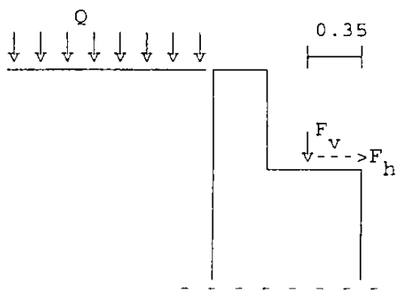
Coeficiente de rozamiento en cota de cimentación 0.55

Coeficiente de seguridad al deslizamiento (Cd) 1.50

Coeficiente de seguridad al vuelco (Cv) 1.80

Altura considerada de empuje de tierras (mtrs.) 5.95

CARGAS ACTUANTES



Reacciones Verticales (Fv t/m)

Cargas Permanentes : 9.95

Sobrecargas Máximas: 12.55
Sobrecargas Mínimas: 0.00
Sobrecarga q (t/m²): 1.00

Reacciones Horizontales (Fh t/m)

Reológicas : 0.38
Temperatura : 0.47
Frenado : 0.40

COMBINACIONES

A) 1.35*(Peso Propio)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

B) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)

C) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Máximas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

D) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Mínimas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

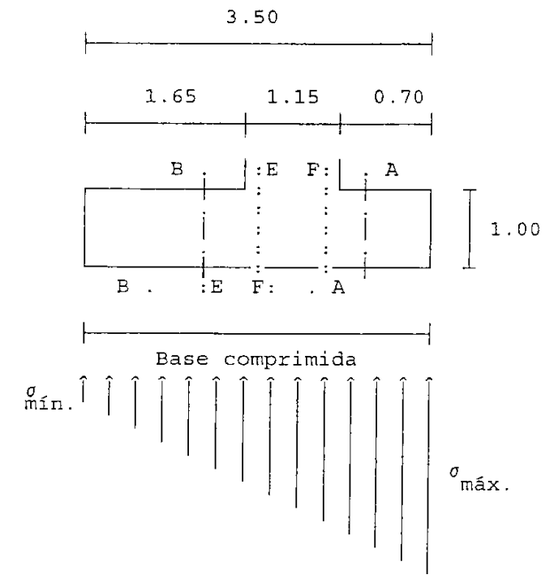
ESFUERZOS DE COMBINACIONES

Combinación	Fv(t/m)	Fh(t/m)	Q(t/m²)
A	0.00 0.00	0.00 0.00	1.00 1.25
B	9.95 13.43	0.85 1.22	1.00 1.50
C	22.50 32.26	1.25 1.31	1.00 1.50
D	9.95 13.43	1.25 1.82	1.00 1.50

COMPROBACION DE ESTABILIDAD:

Hipótesis	ΣFv(t/m)	ΣFh(t/m)	Cd	ΣMe(mt/m)	ΣMv(mt/m)	Cv
A	38.60	13.65	1.56	78.85	29.01	2.72
B	48.55	14.50	1.84	89.30	33.18	2.69
C	61.10	14.90	2.26	102.48	35.14	2.92
D	48.55	14.90	1.79	89.30	35.14	2.54

TENSIONES EN CIMIENTOS



COMPROBACION DE TENSIONES:

Hipótesis	σmáx. (t/m²)	σmín. (t/m²)	σcob. (t/m²)	Base comprimida
A	19.71	2.35	14.95	3.50
B	28.00	0.00	21.00	3.47
C	36.96	0.00	27.72	3.31
D	29.02	0.00	21.76	3.35

ARMADURAS:

ZAPATA

CORTANTE: fcv= 64.55 t/m² (EH-91)

Sección A-A | d = 0.34 m.
Vcu= 43.57 t/m (EH-91)

Sección B-B | d = 0.95 m.
Vcu= 122.64 t/m (EH-91)

FLEXION: | d = 0.95 m.
Uc = 1346 t/m

ZAPATA DELANTERA:

Hipót.	Vd(A-A) (t/m)	Vcu t/m (EHE)	Md(F-F) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	5.57	24.30	8.88	9.38	12.14	3.62
B	8.12	24.30	12.88	13.62	12.14	3.62
C	10.77	24.30	17.08	18.10	12.14	3.62
D	8.49	24.30	13.43	14.21	12.14	3.62

ϕ20/20

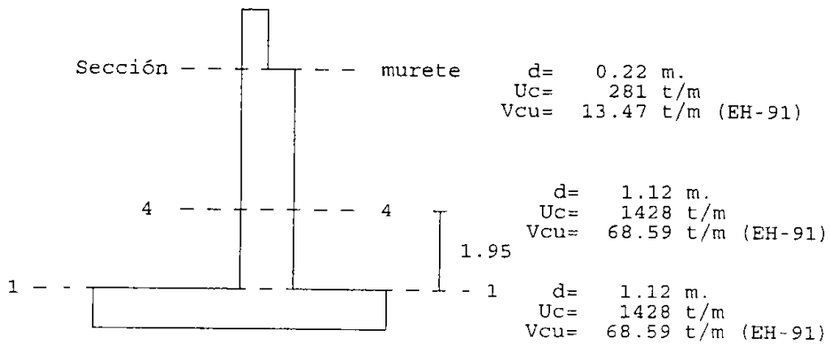
ZAPATA TRASERA:

Hipót.	Vd(B-B) (t/m)	Vcu t/m (EHE)	Md(E-E) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	-16.54	24.30	-22.87	24.29	12.14	3.62
B	-18.12	24.30	-24.78	26.34	12.14	3.62
C	-16.98	24.30	-22.96	24.39	12.14	3.62
D	-19.20	24.30	-26.11	27.77	12.14	3.62

ϕ20/20

ALZADO

fcv= 61.24 t/m²



SECCION 1-1:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	14.17	29.42	16.02	24.67	22.20	12.88	18.40
B	15.80	31.38	29.46	33.45	30.19	12.88	18.40
C	15.88	34.13	48.28	38.03	34.36	12.88	18.40
D	16.40	31.38	29.46	35.79	32.32	12.88	18.40

ϕ20/20

SECCION 4-4:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	5.69	28.32	8.45	5.91	5.29	12.88	18.40
B	7.16	30.28	21.89	11.68	10.47	12.88	18.40
C	7.25	33.03	40.71	16.09	14.44	12.88	18.40
D	7.76	30.28	21.89	12.85	11.52	12.88	18.40

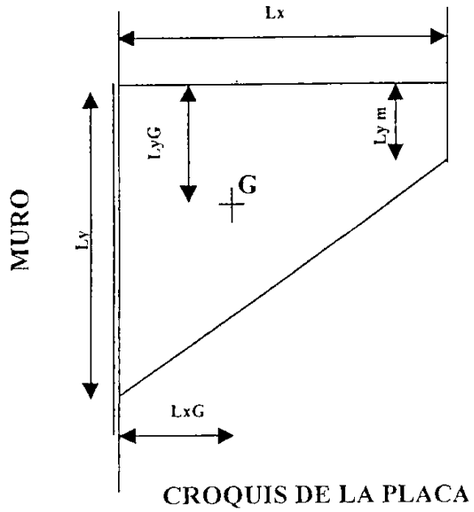
ϕ16/15 + ϕ12/15

ϕ20/20

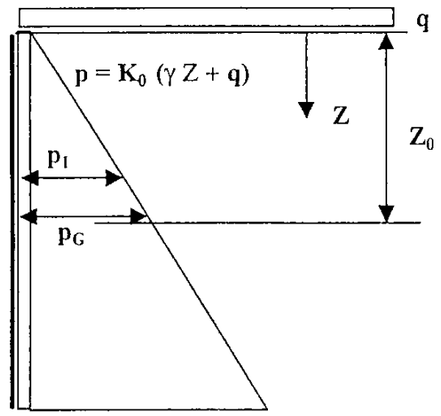
SECCION MURETE:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm^2/m)	Reparto (cm^2/m)
A	0.98	7.23	0.89	0.42	1.91	2.53	4.00
B	1.07	7.23	0.89	0.46	2.12	2.53	4.00
C	1.07	7.23	0.89	0.46	2.12	2.53	4.00
D	1.07	7.23	0.89	0.46	2.12	2.53	4.00

ALETAS MURO DE ESTRIBOS



CROQUIS DE LA PLACA



PRESIONES SOBRE LA PLACA

1, DATOS

GEOMETRIA

Ly_m =	0.500 m
L_Y =	2.600 m
L_X =	2.100 m
L_{YG} =	0.894 m
L_{XG} =	0.813 m
h =	0.300 m
r =	0.035 m
d_x =	0.265 m
d_y =	0.245 m
b = b_w =	1.000 m

EMPUJES

q =	1.80 tm^{-2}
γ =	2.00 tm^{-3}
Φ =	33 º
K_0 =	0.5
$p_1 = K_0 ((L_{y\,m}) \gamma + q)$ =	1.4 tm^{-2}
$p_G = K_0 ((L_{yG})^* \gamma + q)$ =	1.8 tm^{-2}
γ_f =	1.5

MATERIALES

H-30

f_{ck} =	3000 tm^{-2}
γ_c =	1.5
f_{cd} =	2000 tm^{-2}
f_{cv} =	70.7 tm^{-2}

BS500

f_{yk} =	51000 tm^{-2}
γ_y =	1.15
f_{yd} =	44348 tm^{-2}
f_{yad} =	42000 tm^{-2}

2. DETERMINACIÓN DE LAS SOLICITACIO!

$M_{xGd} = \gamma_f \times A \times p_G \times L_{xG} / L_y$ = 2.7

$M_{x1d} = \gamma_f \times p_1 \times L_x^{\,2} / 2$ = 4.6

$V_{xd} = \gamma_f \times A \times p_G / L_y$ = 3.4

3. DIMENSIONAMIENTO

3,1, FLEXIÓN

ARMADURAS MÍNIMAS :

DIRECCIÓN X : $A_{s\,total} = 1{,}6 / 1000 \times h \times b$ =
$A_{s\,min\ c/cara} = 0{,}53 / 1000 \times h$ ›

DIRECCIÓN Y : $A_{s\,total} = 0{,}9 / 1000 \times h \times b$ =
$A_{s\,min\ c/cara} = 0{,}3 / 1000 \times h$ x

DIRECCIÓN X $U_{cx} = 0.85 \times f_{cd} \times d_x \times b$ =
CARA INTERIOR (TIERRAS)

M_d = 4.6

$U_{s1} = U_c \times (1 - (1 - 2 \times M_d /$

$A_{s1} = U_{s1} / f_{yd}$ =

3.2. CORTANTE

DIRECCIÓN X :

$V_{u1x} = 0{,}30 \times b_w \times d_x f_{cd}$ = 159 t

$Vcu = (0.12\ \xi\ (100\ \rho l\ fck)^{1/3})\ bo\ d$ = 12.4

Vd_x = 3.4 t

$Vd_x < V_{u1x}$
$Vd_x < V_{cux}$ No requiere armaduras de cortante

Prueba de carga de la Estructura E-5

OBJETO DE LA PRUEBA

El objeto de esta prueba consiste en comprobar que la estructura en estudio presenta un comportamiento satisfactorio frente a las sobrecargas de cálculo. Dichas sobrecargas son las definidas en la "Instrucción sobre las acciones a considerar en el Proyecto de Puentes de Carreteras: I.A.P.", dada por Orden Ministerial del 12 de Febrero de 1998.

El tren tipo, definido en dicha Instrucción, ha sido sustituido por camiones, cuyas características se indican mas adelante, que, de acuerdo con las "Recomendaciones para el Proyecto y Ejecución de Pruebas de Carga en Puentes de Carretera" del M.O.P.U., originen esfuerzos **"no mas desfavorables que los del tren de cargas de la Instrucción, estimándose como suficientes si tales esfuerzos oscilan en torno al 60 % de los valores teóricos producidos por el tren de carga de la IAP" (Artículo 6.1 de las Recomendaciones).**

DESCRIPCIÓN DEL ENSAYO Y PLAN DE CARGAS

La estructura a ensayar consiste en un tablero continuo tipo losa maciza, con tres vanos de 13.00m – 17.00 m – 13.00 m , con un ancho total de 7.70 m, y un ancho de plataforma de 6.00 m.

El tablero está formado por una losa maciza de hormigón armado de canto constante 0.90 m y un ancho total de 7.70 m, medidos perpendiculares al eje de replanteo de la estructura. El apoyo de la losa sobre los estribos, se realiza mediante dos aparatos de neopreno, y sobre las pilas se empotra el tablero.

El estudio de los momentos máximos flectores positivos se va a realizar en las situaciones siguientes:

El estudio de los momentos flectores positivos vano 1 en el estado de carga 1.

El estudio de los momentos flectores positivos vano 2 en el estado de carga 2.

Los camiones adoptados corresponden a un vehículo con una carga total de 25.0 toneladas, correspondiendo 7.0 t. al eje delantero y 9 t. a cada uno de los dos ejes traseros, siendo las dimensiones del vehículo:

Ancho total . . . . . 2,50 m.

Ancho de la vía anterior. . . . . .2.00 m.

Ancho de las vías posteriores . . . . 2.00 m.

Longitud total. . . . . 8.40 m.

Voladizo posterior. . . . . 1.85 m.

Distancia eje 1° al 2°. . . . . 3,80 m.

Distancia eje 2° al 3°. . . . . 1,35 m.

La disposición de los vehículos durante la realización de la prueba de carga será la siguiente:

Para obtener el máximo momento flector positivo en el vano 1 se colocarán 2 filas de dos camiones en paralelo (cuatro camiones en total situados en el centro del vano 1.

Para obtener el máximo momento flector positivo en el vano 2 se colocarán 2 filas de dos camiones en paralelo (cuatro camiones en total), situados en el centro del vano 2.

El Plan de Carga constará de dos estados de carga, compuestos de los siguientes escalones de carga:

Estado de carga nº 1:

Escalón - 0 : Puente descargado

Escalón - 1 : Carga de la primera fila de camiones en vano 1

Escalón - 2 : Carga de la segunda fila de camiones (máxima flexión positiva en centro de vano)

Estado de carga nº 2:

Escalón - 3 : Paso del primer escalón a la posición sobre el vano 2.

Escalón - 4 : Paso del segundo escalón a la posición sobre el vano 2.(máxima flexión positiva)

Estado de carga nº 3:

Escalón - 7 : Descarga del primer escalón

Escalón - 8 : Descarga del segundo escalón

Escalón - 9 : Puente descargado

Cumpliendo este plan de carga, no se pasará al escalón siguiente hasta que los aparatos de medida no acusen la estabilización de las lecturas, lo que se supondrá ha ocurrido cuando la diferencia entre dos lecturas efectuadas en un intervalo no inferior a 10 minutos, sea inferior al 5% de la flecha correspondiente a la última lectura.

MEDIDAS A REALIZAR

Se determinarán, mediante el uso de flexímetros si el tráfico inferior lo permite, o bien nivelación de alta precisión en caso contrario, los descensos producidos en los apoyos de la losa sobre estribos, pilas y en la sección central de cada vano. El número de unidades de medida será catorce (14), cuatro (4) para los apoyos de los estribos, cuatro (4) para los apoyos en las pilas y seis (6) en el centro de vano

La media de los valores medidos en los apoyos se restará al valor obtenido en las secciones centrales, para determinar la flecha de la losa. Se registrarán en cada escalón todos los valores obtenidos.

Durante la ejecución de las pruebas se medirá la temperatura ambiente en la zona del puente. Deberán elegirse las horas adecuadas para que las condiciones climatológicas perturben lo menos posible el comportamiento de la estructura.

CONCLUSIONES

Estado de carga nº 1:

Máxima flexión positiva en el centro del vano 1 :

Los máximos momentos flectores positivos de sobrecargas, en mT, previstos en el cálculo del tablero, para las secciones más cargadas del centro de vano 1 son:

Barras	S.Unif.+ Carro	Prueba de carga	Porcentaje
70	183.46	109.67	60 %

Las flechas que se esperan para este estado de carga son las siguientes:

Punto de la sección central vano 1 2.03 mm.

Punto de la sección central vano 2 -0.63 mm.

Punto de la sección central vano 3 0.10 mm.

Estado de carga nº 2

Máxima flexión positiva en el centro del vano 2 :

Los máximos momentos flectores positivos de sobrecargas, en mT, previstos en el cálculo del tablero, para las secciones más cargadas del vano 2 son:

Barras	S.Unif.+ Carro	Prueba de carga	Porcentaje
80	199.67	117.406	59 %

Las flechas que se esperan para este estado de carga son las siguientes:

Punto de la sección central vano 1 -0.81 mm.

Punto de la sección central vano 2 3.60 mm.

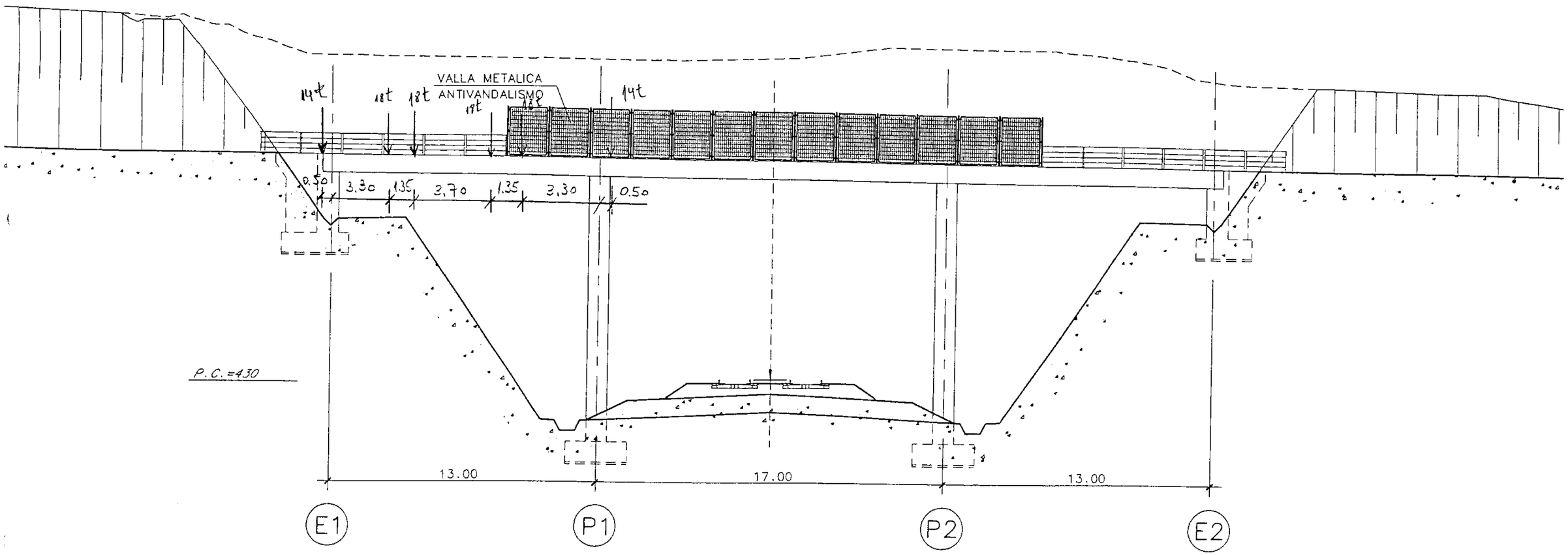
Punto de la sección central vano 3 -0.81 mm.

En todas ellas, se considera positivo el movimiento descendente y negativo el ascendente. Estas flechas corresponden a la deformación de la estructura sin incluir la correspondiente al descenso de apoyos, por lo que, en el ensayo, se obtendrán deduciendo del valor medido en la sección central el correspondiente a la media de registros efectuados en las proximidades de los apoyos, y que representa el descenso de los mismos.

El módulo de elasticidad supuesto para el cálculo de las flechas ha sido:$\mathbf{E = 3{,}55 \cdot 10^6\ T/m^2}$. por lo que las flechas indicadas deberán modificarse con la relación entre este módulo supuesto y el correspondiente al hormigón realmente colocado en obra, el cual, podrá evaluarse a partir de las indicaciones dadas en el art 39.6 dela EH

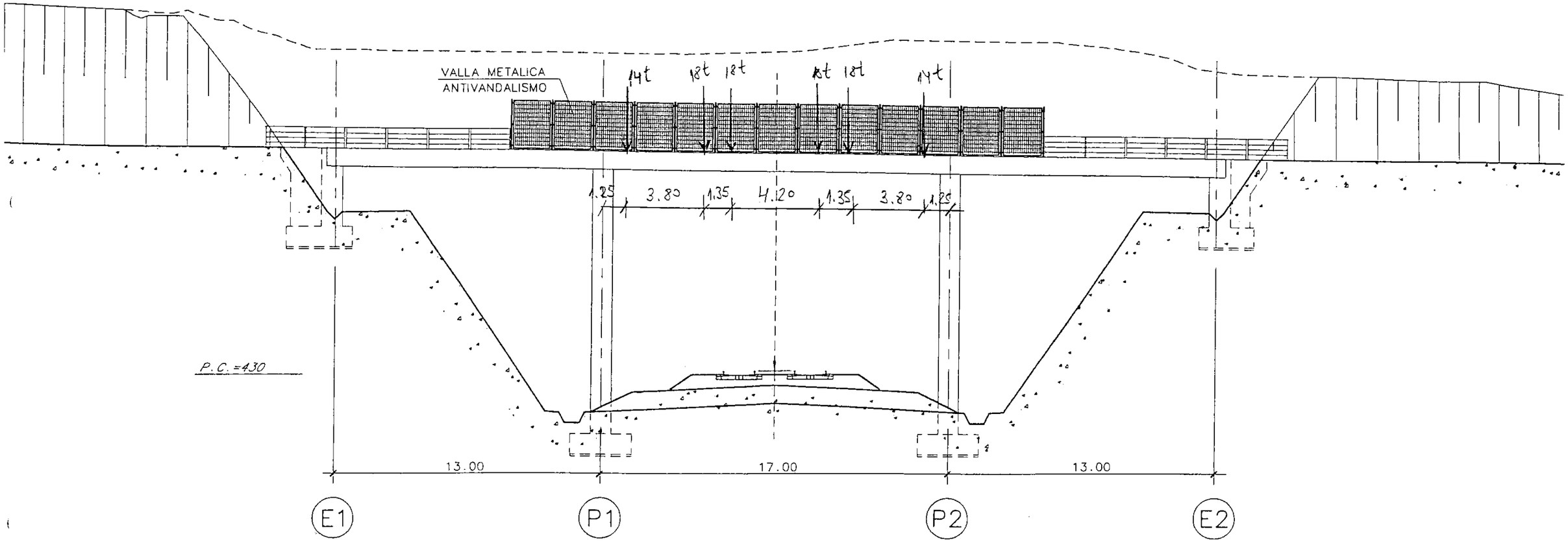
Esquemas

ESTADO DE CARGA 1



ALZADO
ESCALA 1:200

ESTADO DE CARGA 2



ALZADO

Listados de ordenador

LOADING: 'Y'

Loadcase	Factor	Stage	Init.def	Title
70	1.0000			prueba de carga 1

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	-1.08E-12	0	-14.000	0	-7.00E-08	0
65	0.500	-1.08E-12	0	-14.000	0	-7.000	0
66	0	-0.221654	0	30.917	0	-7.000	0
66	1.300	-0.221654	0	30.917	0	33.192	0
67	0	-0.221654	0	30.917	0	33.192	0
67	1.300	-0.221654	0	30.917	0	73.383	0
68	0	-0.221654	0	30.917	0	73.383	0
68	0.700	-0.221654	0	30.917	0	95.021	0
68	0.700	-0.221654	0	12.917	0	95.027	0
68	1.300	-0.221654	0	12.917	0	102.775	0
69	0	-0.221654	0	12.917	0	102.775	0
69	0.750	-0.221654	0	12.917	0	112.461	0
69	0.750	-0.221654	0	-5.083	0	112.462	0
69	1.300	-0.221654	0	-5.083	0	109.667	0
70	0	-0.221654	0	-5.083	0	109.667	0
70	1.300	-0.221654	0	-5.083	0	103.058	0
71	0	-0.221654	0	-5.083	0	103.058	0
71	1.300	-0.221654	0	-5.083	0	96.450	0
72	0	-0.221654	0	-5.083	0	96.450	0
72	0.550	-0.221654	0	-5.083	0	93.659	0
72	0.550	-0.221654	0	-23.083	0	93.651	0
72	1.300	-0.221654	0	-23.083	0	76.341	0
73	0	-0.221654	0	-23.083	0	76.341	0
73	0.600	-0.221654	0	-23.083	0	62.494	0
73	0.600	-0.221654	0	-41.083	0	62.486	0
73	1.300	-0.221654	0	-41.083	0	33.732	0
74	0	-0.221654	0	-41.083	0	33.733	0
74	1.300	-0.221654	0	-41.083	0	-19.675	0
75	0	-0.221654	0	-41.083	0	-19.675	0
75	1.300	-0.221654	0	-41.083	0	-73.084	0
76	0	0.974456	0	18.139	0	-61.500	0
76	0.500	0.974456	0	18.139	0	-52.435	0
76	0.500	0.974456	0	4.139	0	-52.431	0
76	1.700	0.974456	0	4.139	0	-47.465	0

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
77	0	0.974456	0	4.139	0	-47.465	0
77	1.700	0.974456	0	4.139	0	-40.429	0
78	0	0.974456	0	4.139	0	-40.429	0
78	1.700	0.974456	0	4.139	0	-33.392	0
79	0	0.974456	0	4.139	0	-33.392	0
79	1.700	0.974456	0	4.139	0	-26.356	0
80	0	0.974456	0	4.139	0	-26.356	0
80	1.700	0.974456	0	4.139	0	-19.319	0
81	0	0.974456	0	4.139	0	-19.319	0
81	1.700	0.974456	0	4.139	0	-12.283	0
82	0	0.974456	0	4.139	0	-12.283	0
82	1.700	0.974456	0	4.139	0	-5.247	0
83	0	0.974456	0	4.139	0	-5.247	0
83	1.700	0.974456	0	4.139	0	1.790	0
84	0	0.974456	0	4.139	0	1.790	0
84	1.700	0.974456	0	4.139	0	8.826	0
85	0	0.974456	0	4.139	0	8.826	0
85	1.700	0.974456	0	4.139	0	15.863	0
86	0	0.221233	0	-0.791433	0	10.289	0
86	1.300	0.221233	0	-0.791433	0	9.260	0
87	0	0.221233	0	-0.791433	0	9.260	0
87	1.300	0.221233	0	-0.791433	0	8.231	0
88	0	0.221233	0	-0.791433	0	8.231	0
88	1.300	0.221233	0	-0.791433	0	7.202	0
89	0	0.221233	0	-0.791433	0	7.202	0
89	1.300	0.221233	0	-0.791433	0	6.173	0
90	0	0.221233	0	-0.791433	0	6.173	0
90	1.300	0.221233	0	-0.791433	0	5.144	0
91	0	0.221233	0	-0.791433	0	5.144	0
91	1.300	0.221233	0	-0.791433	0	4.115	0
92	0	0.221233	0	-0.791433	0	4.115	0
92	1.300	0.221233	0	-0.791433	0	3.087	0
93	0	0.221233	0	-0.791433	0	3.087	0
93	1.300	0.221233	0	-0.791433	0	2.058	0

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
94	0	0.221233	0	-0.791433	0	2.058	0
94	1.300	0.221233	0	-0.791433	0	1.029	0
95	0	0.221233	0	-0.791433	0	1.029	0
95	1.300	0.221233	0	-0.791433	0	1.03E-06	0
96	0	1.20E-12	0	3.24E-14	0	-4.26E-14	0
96	0.500	1.20E-12	0	3.24E-14	0	-2.64E-14	0
290	0	-59.222	-1.196	0	0	0	4.207
290	13.200	-59.222	-1.196	0	0	0	-11.582
291	0	4.931	0.753222	0	0	0	-4.368
291	13.200	4.931	0.753222	0	0	0	5.574
	min:	-59.222	-1.196	-41.083	0	-73.084	-11.582
	max:	4.931	0.753222	30.917	0	112.462	5.574

Loadcase	Factor	Stage	Init.def	Title
71	1.0000			prueba de carga 2

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	-5.76E-16	0	2.08E-13	0	-6.69E-14	0
65	0.500	-5.76E-16	0	2.08E-13	0	3.70E-14	0
66	0	-0.000904	0	-6.559	0	-8.53E-08	0
66	1.300	-0.000904	0	-6.559	0	-8.527	0
67	0	-0.000904	0	-6.559	0	-8.527	0
67	1.300	-0.000904	0	-6.559	0	-17.053	0
68	0	-0.000904	0	-6.559	0	-17.053	0
68	1.300	-0.000904	0	-6.559	0	-25.580	0
69	0	-0.000904	0	-6.559	0	-25.580	0
69	1.300	-0.000904	0	-6.559	0	-34.106	0
70	0	-0.000904	0	-6.559	0	-34.106	0
70	1.300	-0.000904	0	-6.559	0	-42.633	0
71	0	-0.000904	0	-6.559	0	-42.633	0
71	1.300	-0.000904	0	-6.559	0	-51.160	0

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
72	0	-0.000904	0	-6.559	0	-51.160	0
72	1.300	-0.000904	0	-6.559	0	-59.686	0
73	0	-0.000904	0	-6.559	0	-59.686	0
73	1.300	-0.000904	0	-6.559	0	-68.213	0
74	0	-0.000904	0	-6.559	0	-68.213	0
74	1.300	-0.000904	0	-6.559	0	-76.740	0
75	0	-0.000904	0	-6.559	0	-76.740	0
75	1.300	-0.000904	0	-6.559	0	-85.266	0
76	0	-2.308	0	49.820	0	-105.568	0
76	1.250	-2.308	0	49.820	0	-43.301	0
76	1.250	-2.308	0	35.820	0	-43.286	0
76	1.700	-2.308	0	35.820	0	-27.173	0
77	0	-2.308	0	35.820	0	-27.173	0
77	1.700	-2.308	0	35.820	0	33.722	0
78	0	-2.308	0	35.820	0	33.722	0
78	1.650	-2.308	0	35.820	0	92.819	0
78	1.650	-2.308	0	17.820	0	92.828	0
78	1.700	-2.308	0	17.820	0	93.716	0
79	0	-2.308	0	17.820	0	93.716	0
79	1.350	-2.308	0	17.820	0	117.771	0
79	1.350	-2.308	0	-0.179549	0	117.774	0
79	1.700	-2.308	0	-0.179549	0	117.711	0
80	0	-2.308	0	-0.179549	0	117.711	0
80	1.700	-2.308	0	-0.179549	0	117.406	0
81	0	-2.308	0	-0.179549	0	117.406	0
81	1.700	-2.308	0	-0.179549	0	117.101	0
82	0	-2.308	0	-0.179549	0	117.101	0
82	0.450	-2.308	0	-0.179549	0	117.020	0
82	0.450	-2.308	0	-18.180	0	117.017	0
82	1.700	-2.308	0	-18.180	0	94.295	0
83	0	-2.308	0	-18.180	0	94.295	0
83	0.099	-2.308	0	-18.180	0	92.480	0
83	0.100	-2.308	0	-36.180	0	92.471	0
83	1.700	-2.308	0	-36.180	0	34.590	0
84	0	-2.308	0	-36.180	0	34.590	0
84	1.700	-2.308	0	-36.180	0	-26.915	0
85	0	-2.308	0	-36.180	0	-26.915	0
85	0.450	-2.308	0	-36.180	0	-43.190	0

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
85	0.450	-2.308	0	-50.180	0	-43.204	0
85	1.700	-2.308	0	-50.180	0	-105.920	0
86	0	0.001901	0	6.583	0	-85.561	0
86	1.300	0.001901	0	6.583	0	-77.022	0
87	0	0.001901	0	6.582	0	-77.022	0
87	1.300	0.001901	0	6.583	0	-68.464	0
88	0	0.001901	0	6.583	0	-68.464	0
88	1.300	0.001901	0	6.583	0	-59.906	0
89	0	0.001901	0	6.583	0	-59.906	0
89	1.300	0.001901	0	6.583	0	-51.348	0
90	0	0.001901	0	6.583	0	-51.348	0
90	1.300	0.001901	0	6.583	0	-42.790	0
91	0	0.001901	0	6.583	0	-42.790	0
91	1.300	0.001901	0	6.582	0	-34.232	0
92	0	0.001901	0	6.583	0	-34.232	0
92	1.300	0.001901	0	6.583	0	-25.674	0
93	0	0.001901	0	6.583	0	-25.674	0
93	1.300	0.001901	0	6.583	0	-17.116	0
94	0	0.001901	0	6.583	0	-17.116	0
94	1.300	0.001901	0	6.583	0	-8.558	0
95	0	0.001901	0	6.583	0	-8.558	0
95	1.300	0.001901	0	6.582	0	-6.56E-08	0
96	0	1.33E-14	0	1.27E-13	0	2.77E-13	0
96	0.500	1.33E-14	0	1.27E-13	0	3.40E-13	0
290	0	-56.379	2.308	0	0	0	-10.157
290	13.200	-56.379	2.308	0	0	0	20.302
291	0	-56.763	-2.310	0	0	0	10.156
291	13.200	-56.763	-2.310	0	0	0	-20.340
	min:	-56.763	-2.310	-50.180	0	-105.920	-20.340
	max:	0.001901	2.308	49.820	0	117.774	20.302

ENVELOPE SPECIFIC.: EU 'COMBINACION SOBRECARGAS'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000	0	PESO PROPIC
B	PLUS	6	1.000		SOB UNIF 1
C	PLUS	7	1.000		SOBRECARGA UNIF 2
D	PLUS	8	1.000		SOB UNIF 3
E	PLUS	11	1.000		VEHICULO HIPOTESIS 11
F	OR	12	1.000		VEHICULO HIPOTESIS 12
G	OR	13	1.000		VEHICULO HIPOTESIS 13
H	OR	14	1.000		VEHICULO HIPOTESIS 14
I	OR	15	1.000		VEHICULO HIPOTESIS 15
J	OR	16	1.000		VEHICULO HIPOTESIS 16
K	OR	17	1.000		VEHICULO HIPOTESIS 17
L	OR	18	1.000		VEHICULO HIPOTESIS 18
M	OR	19	1.000		VEHICULO HIPOTESIS 19
N	OR	20	1.000		VEHICULO HIPOTESIS 20
O	OR	21	1.000		VEHICULO HIPOTESIS 21
P	OR	22	1.000		VEHICULO HIPOTESIS 22
Q	OR	23	1.000		VEHICULO HIPOTESIS 23
R	OR	24	1.000		VEHICULO HIPOTESIS 24
S	OR	25	1.000		VEHICULO POSICION 25
T	OR	26	1.000		VEHICULO POSICION 26
U	OR	27	1.000		VEHICULO POSICION 27
V	OR	28	1.000		VEHICULO POSICION 28
W	OR	29	1.000		VEHICULO POSICION 29
X	OR	30	1.000		VEHICULO POSICION 30
Y	OR	31	1.000		VEHICULO POSICION 31
Z	OR	32	1.000		VEHICULO POSICION 32
AA	OR	33	1.000		VEHICULO POSICION 33
AB	OR	34	1.000		VEHICULO POSICION 34
AC	OR	35	1.000		VEHICULO POSICION 35
AD	OR	36	1.000		VEHICULO POSICION 36
AE	OR	37	1.000		VEHICULO HIPOTESIS 37

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	-2.54E-15	-1.18E-10	6.15E-14	1.18E-13	-4.34E-14	6.30E-10
		1.15E-12	4.13E-09	-1.60E-08	-2.26E-13	6.50E-13	-5.55E-10
	Min: A C I				Max: A B D F		
65	0.500	-2.76E-13	4.08E-06	-1.600	2.11E-13	-0.400000	1.43E-09
		1.54E-12	4.13E-09	-5.15E-13	-2.26E-13	6.97E-14	1.47E-09
	Min: A B C E				Max: A D F		
66	0	-0.107568	-3.294	9.523	4.15E-14	-0.400000	-4.52E-08
		0.003163	-3.875	47.002	-3.19E-14	6.11E-07	-5.25E-08
	Min: A B C I				Max: A D E		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
66	1.300	0.000661	-3.294	-8.769	4.15E-14	-11.400	-4.282
		-0.105066	-3.875	41.135	30.000	72.779	-5.037
		Min: A C I			Max: A E D E		
67	0	0.000661	-3.294	-8.769	4.15E-14	-11.400	-4.282
		-0.105066	-3.875	41.135	30.000	72.779	-5.037
		Min: A C I			Max: A E D E		
67	1.300	0.000661	-3.294	-8.769	4.15E-14	-22.800	-8.565
		-0.105066	-3.875	16.975	60.000	118.550	-10.074
		Min: A C I			Max: A E D E		
68	0	0.000661	-3.294	-8.769	4.15E-14	-22.800	-8.565
		-0.105066	-3.875	16.975	60.000	118.550	-10.074
		Min: A C I			Max: A E D E		
68	1.300	0.000661	-3.294	-8.769	4.15E-14	-34.199	-12.847
		-0.224418	-3.875	30.822	4.82E-14	144.142	-15.112
		Min: A C I			Max: A E D F		
69	0	0.000661	-3.294	-8.769	2.80E-13	-34.199	-12.847
		-0.224418	-3.875	30.822	3.79E-13	144.142	-15.112
		Min: A C I			Max: A E D F		
69	1.300	0.000661	-3.294	-8.769	2.80E-13	-45.599	-17.129
		-0.224418	-3.875	6.662	30.000	177.506	-20.149
		Min: A C I			Max: A E D F		
70	0	0.000661	-3.294	-8.769	2.85E-13	-45.599	-17.129
		-0.224418	-3.875	6.662	30.000	177.506	-20.149
		Min: A C I			Max: A E D F		
70	1.300	0.000661	-3.294	-8.769	2.85E-13	-56.999	-21.411
		-0.224418	-3.875	2.502	30.000	183.463	-25.186
		Min: A C I			Max: A E D F		
71	0	0.000661	-3.294	-8.769	3.84E-14	-56.999	-21.411
		-0.224418	-3.875	-17.498	60.000	183.463	-25.186
		Min: A C I			Max: A E D F		
71	1.300	0.000661	-3.294	-8.769	3.84E-14	-68.399	-25.694
		-0.224418	-3.875	-21.658	60.000	158.011	-30.223
		Min: A C I			Max: A E D F		
72	0	0.000661	-3.294	-8.769	-2.62E-13	-68.399	-25.694
		-0.224418	-3.875	-21.658	60.000	158.011	-30.223
		Min: A C I			Max: A E D F		
72	1.300	0.000661	-3.294	-8.769	-2.62E-13	-79.798	-29.976
		-0.224418	-3.875	-45.818	90.000	105.152	-35.260
		Min: A C I			Max: A E D F		
73	0	0.000661	-3.294	-8.769	-4.31E-13	-79.798	-29.976
		-0.224418	-3.875	-45.818	90.000	105.152	-35.260
		Min: A C I			Max: A E D F		
73	1.300	0.000661	-3.294	-8.769	-4.31E-13	-91.198	-34.258

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-0.158576	-3.875	-27.252	30.000	72.235	-40.298
		Min: A C I			Max: A E D G		
74	0	0.000661	-3.294	-8.769	-7.42E-13	-91.198	-34.258
		-0.158576	-3.875	-27.252	30.000	72.235	-40.298
		Min: A C I			Max: A E D G		
74	1.300	-0.107568	-3.294	-27.917	-7.42E-13	-108.002	-38.540
		-0.050347	-3.875	-32.264	60.000	18.507	-45.335
		Min: A E C I			Max: A D G		
75	0	-0.107568	-3.294	-27.917	-9.21E-13	-108.002	-38.540
		-0.050347	-3.875	-32.264	60.000	18.507	-45.335
		Min: A E C I			Max: A D G		
75	1.300	-0.107568	-3.294	-32.077	-9.21E-13	-146.998	-42.823
		0.331790	-2.713	1.301	-7.30E-13	16.919	-35.273
		Min: A E C I			Max: A D L		
76	0	-2.577	1.37E-09	59.279	-45.000	-168.219	-42.740
		1.500	-0.971664	-6.533	-30.231	25.623	-34.481
		Min: A E C I			Max: A D L		
76	1.700	0.325916	0.971664	28.293	-30.231	-86.370	-49.348
		-0.415103	0.703027	31.139	-25.686	24.920	-47.521
		Min: A E C F			Max: A D H		
77	0	0.325916	0.971664	28.293	-30.231	-86.370	-49.348
		-0.415103	0.703027	31.139	-25.686	24.920	-47.521
		Min: A E C F			Max: A D H		
77	1.700	1.500	0.971664	6.533	-30.231	-63.225	-47.696
		-1.590	0.703027	27.459	4.314	77.185	-46.326
		Min: A E F			Max: A C D H		
78	0	1.500	0.971664	6.533	-30.231	-63.225	-47.696
		-1.590	0.703027	27.459	4.314	77.185	-46.326
		Min: A E F			Max: A C D H		
78	1.700	1.983	0.971664	4.454	-30.231	-54.666	-46.044
		-3.060	1.10E-09	40.880	-45.000	109.171	-42.740
		Min: A E D F			Max: A C I		
79	0	1.983	0.971664	4.454	-30.231	-54.666	-46.044
		-3.060	9.75E-10	40.880	-45.000	109.171	-42.740
		Min: A E D F			Max: A C I		
79	1.700	1.983	0.971664	4.454	-30.231	-47.094	-44.392
		-3.060	9.75E-10	35.440	-45.000	174.043	-42.740
		Min: A E D F			Max: A C I		
80	0	1.983	0.971664	4.454	-30.231	-47.094	-44.392
		-3.060	9.34E-10	35.440	-45.000	174.043	-42.740
		Min: A E D F			Max: A C I		
80	1.700	1.983	0.971664	4.454	-30.231	-39.522	-42.740
		-3.060	9.34E-10	10.000	-15.000	199.667	-42.740

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A E D F			Max: A C I		
81	0	1.983	-0.971664	-4.454	-30.231	-39.522	-42.740
		-3.060	8.59E-10	-10.000	15.000	199.667	-42.740
		Min: A E D L			Max: A C I		
81	1.700	1.983	-0.971664	-4.454	-30.231	-47.094	-44.392
		-3.060	8.59E-10	-35.440	45.000	174.043	-42.740
		Min: A E D L			Max: A C I		
82	0	1.983	-0.971664	-4.454	-30.231	-47.094	-44.392
		-3.060	8.28E-10	-35.440	45.000	174.043	-42.740
		Min: A E D L			Max: A C I		
82	1.700	1.983	-0.971664	-4.454	-30.231	-54.666	-46.044
		-3.060	8.28E-10	-40.880	45.000	109.171	-42.740
		Min: A E D L			Max: A C I		
83	0	1.983	-0.971664	-4.454	-30.231	-54.666	-46.044
		-3.060	8.43E-10	-40.880	45.000	109.171	-42.740
		Min: A E D L			Max: A C I		
83	1.700	1.500	-0.971664	-6.533	-30.231	-63.225	-47.696
		-1.590	-0.703027	-27.459	-4.314	77.185	-46.326
		Min: A D L			Max: A E C J		
84	0	1.500	-0.971664	-6.533	-30.231	-63.225	-47.696
		-1.590	-0.703027	-27.459	-4.314	77.185	-46.326
		Min: A D L			Max: A E C J		
84	1.700	0.325916	-0.971664	-28.293	-30.231	-86.370	-49.348
		-0.415103	-0.703027	-31.139	25.686	24.920	-47.521
		Min: A C D L			Max: A E J		
85	0	0.325916	-0.971664	-28.293	-30.231	-86.370	-49.348
		-0.415103	-0.703027	-31.139	25.686	24.920	-47.521
		Min: A C D L			Max: A E J		
85	1.700	-2.577	7.33E-10	-59.275	45.000	-168.219	-42.740
		1.500	0.971664	6.533	30.231	25.623	-34.481
		Min: A C D I			Max: A E F		
86	0	-0.107568	3.294	32.077	-3.27E-13	-146.998	-42.823
		0.331790	2.713	-1.301	-2.40E-13	16.919	-35.273
		Min: A C D I			Max: A E F		
86	1.300	-0.107568	3.294	27.917	-3.27E-13	-108.002	-38.540
		-0.050347	3.875	32.264	-60.000	18.507	-45.335
		Min: A C D I			Max: A E K		
87	0	-0.107568	3.294	27.917	-1.02E-13	-108.002	-38.540
		-0.050347	3.875	32.264	-60.000	18.507	-45.335
		Min: A C D I			Max: A E K		
87	1.300	0.000661	3.294	8.769	-1.02E-13	-91.198	-34.258
		-0.158576	3.875	27.252	-30.000	72.235	-40.298
		Min: A C I			Max: A E D K		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
88	0	0.000661	3.294	8.769	9.81E-14	-91.198	-34.258
		-0.158576	3.875	27.252	-30.000	72.235	-40.298
		Min: A C I			Max: A E D K		
88	1.300	0.000661	3.294	8.769	9.81E-14	-79.798	-29.976
		-0.224418	3.875	45.818	-90.000	105.152	-35.260
		Min: A C I			Max: A E D L		
89	0	0.000661	3.294	8.769	3.92E-13	-79.798	-29.976
		-0.224418	3.875	45.818	-90.000	105.152	-35.260
		Min: A C I			Max: A E D L		
89	1.300	0.000661	3.294	8.769	3.92E-13	-68.399	-25.694
		-0.224418	3.875	21.658	-60.000	158.011	-30.223
		Min: A C I			Max: A E D L		
90	0	0.000661	3.294	8.769	2.24E-13	-68.399	-25.694
		-0.224418	3.875	21.658	-60.000	158.011	-30.223
		Min: A C I			Max: A E D L		
90	1.300	0.000661	3.294	8.769	2.24E-13	-56.999	-21.411
		-0.224418	3.875	17.498	-60.000	183.463	-25.186
		Min: A C I			Max: A E D L		
91	0	0.000661	3.294	8.769	-3.16E-15	-56.999	-21.411
		-0.224418	3.875	-2.502	-30.000	183.463	-25.186
		Min: A C I			Max: A E D L		
91	1.300	0.000661	3.294	8.769	-3.16E-15	-45.599	-17.129
		-0.224418	3.875	-6.662	-30.000	177.506	-20.149
		Min: A C I			Max: A E D L		
92	0	0.000661	3.294	8.769	1.72E-13	-45.599	-17.129
		-0.224418	3.875	-6.662	-30.000	177.506	-20.149
		Min: A C I			Max: A E D L		
92	1.300	0.000661	3.294	8.769	1.72E-13	-34.199	-12.847
		-0.224418	3.875	-30.822	1.07E-14	144.142	-15.112
		Min: A C I			Max: A E D L		
93	0	0.000661	3.294	8.769	1.16E-13	-34.199	-12.847
		-0.224418	3.875	-30.822	1.64E-13	144.142	-15.112
		Min: A C I			Max: A E D L		
93	1.300	0.000661	3.294	8.769	1.16E-13	-22.800	-8.565
		-0.105066	3.875	-16.975	-60.000	118.550	-10.074
		Min: A C I			Max: A E D M		
94	0	0.000661	3.294	8.769	1.80E-13	-22.800	-8.565
		-0.105066	3.875	-16.975	-60.000	118.550	-10.074
		Min: A C I			Max: A E D M		
94	1.300	0.000661	3.294	8.769	1.80E-13	-11.400	-4.282
		-0.105066	3.875	-41.135	-30.000	72.779	-5.037
		Min: A C I			Max: A E D M		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
95	0	0.000661	3.294	8.769	3.55E-13	-11.400	-4.282
		-0.105066	3.875	-41.135	-30.000	72.779	-5.037
		Min: A C I			Max: A E D M		
95	1.300	-0.107568	3.294	-9.523	3.55E-13	-0.400000	-4.48E-08
		0.003163	3.875	-47.002	6.86E-13	6.11E-07	-5.25E-08
		Min: A C D I			Max: A E M		
96	0	3.03E-12	4.65E-09	1.600	7.37E-13	-0.400000	1.27E-11
		9.19E-16	4.71E-09	2.08E-13	-1.61E-13	2.07E-13	-3.66E-10
		Min: A E D L			Max: A C I		
96	0.500	1.22E-12	4.76E-09	1.60E-08	5.56E-13	-1.64E-12	2.37E-09
		9.19E-16	4.71E-09	2.08E-13	-1.61E-13	3.11E-13	1.99E-09
		Min: A B D M			Max: A C I		
290	0	3.345	-0.520912	-1.742	-0.791553	-7.242	3.045
		3.345	-0.520912	1.742	0.791553	7.242	3.045
		Min: A AC			Max: A K		
290	13.200	-15.522	-0.585552	-4.846	-0.627517	-59.769	-5.652
		-15.522	-0.585552	4.846	-0.627517	59.769	-5.652
		Min: A W			Max: A E		
291	0	3.345	0.520912	-1.742	0.791553	-7.242	-3.045
		3.345	0.520912	1.742	-0.791553	7.242	-3.045
		Min: A Y			Max: A G		
291	13.200	-55.500	0.837354	-4.846	-0.627517	-59.769	8.123
		-55.500	0.837354	4.846	0.627517	59.769	8.123
		Min: A AC			Max: A K		

LOADING: 'Y'
Loadcase Factor Stage Init.def Title
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Displacements (in global coordinate directions): "ALL"

Memb.	Distance [m]	DX-g [m]	DY-g [m]	DZ-g [m]	RX-g [rad]	RY-g [rad]	RZ-g [rad]
65	0	0	-5.70E-4	2.49E-4	-4.98E-4	0	0
65	0.500	0	-5.70E-4	2.5E-12	-5.00E-4	0	0
66	0	0	-5.70E-4	-6.5E-12	-5.00E-4	0	0
66	1.300	0	-5.70E-4	-6.44E-4	-4.82E-4	0	0
67	0	0	-5.70E-4	-6.44E-4	-4.82E-4	0	0
67	1.300	0	-5.70E-4	-0.00123	-4.08E-4	0	0
68	0	0	-5.70E-4	-0.00123	-4.08E-4	0	0
68	1.300	0	-5.70E-4	-0.00168	-2.23E-4	0	0
69	0	0	-5.70E-4	-0.00168	-2.23E-4	0	0
69	1.300	0	-5.70E-4	-0.00195	-1.32E-4	0	0
70	0	0	-5.70E-4	-0.00195	-1.32E-4	0	0
70	1.300	0	-5.70E-4	-0.00203	1.48E-5	0	0
71	0	0	-5.70E-4	-0.00203	1.48E-5	0	0
71	1.300	0	-5.70E-4	-0.00151	1.52E-4	0	0
72	0	0	-5.70E-4	-0.00151	1.52E-4	0	0
72	1.300	0	-5.70E-4	-0.00184	2.76E-4	0	0
73	0	0	-5.70E-4	-0.00184	2.76E-4	0	0
73	1.300	0	-5.70E-4	-0.00122	3.56E-4	0	0
74	0	0	-5.70E-4	-0.00122	3.56E-4	0	0
74	1.300	0	-5.70E-4	-7.44E-4	3.65E-4	0	0
75	0	0	-5.70E-4	-7.44E-4	3.65E-4	0	0
75	1.300	0	-5.70E-4	-3.02E-4	3.01E-4	0	0
76	0	0	-5.70E-4	-3.02E-4	3.01E-4	0	0
76	1.700	0	-5.70E-4	1.27E-4	2.07E-4	0	0
77	0	0	-5.70E-4	1.27E-4	2.07E-4	0	0
77	1.700	0	-5.69E-4	4.11E-4	1.26E-4	0	0
78	0	0	-5.69E-4	4.11E-4	1.26E-4	0	0
78	1.700	0	-5.69E-4	5.70E-4	6.15E-5	0	0
79	0	0	-5.69E-4	5.70E-4	6.15E-5	0	0
79	1.700	0	-5.69E-4	6.27E-4	7.55E-6	0	0

Displacements (in global coordinate directions): "ALL"

Memb.	Distance [m]	DX-g [m]	DY-g [m]	DZ-g [m]	RX-g [rad]	RY-g [rad]	RZ-g [rad]
80	0	0	-5.69E-4	6.27E-4	7.55E-6	0	0
80	1.700	0	-5.69E-4	6.03E-4	-3.37E-5	0	0
81	0	0	-5.69E-4	6.03E-4	-3.37E-5	0	0
81	1.700	0	-5.69E-4	5.19E-4	-8.22E-5	0	0
82	0	0	-5.69E-4	5.19E-4	-8.22E-5	0	0
82	1.700	0	-5.69E-4	3.95E-4	-7.80E-5	0	0
83	0	0	-5.69E-4	3.95E-4	-7.80E-5	0	0
83	1.700	0	-5.69E-4	2.61E-4	-8.12E-5	0	0
84	0	0	-5.69E-4	2.61E-4	-8.12E-5	0	0
84	1.700	0	-5.69E-4	1.30E-4	-7.16E-5	0	0
85	0	0	-5.69E-4	1.30E-4	-7.16E-5	0	0
85	1.700	0	-5.69E-4	2.52E-5	-4.93E-5	0	0
86	0	0	-5.69E-4	2.52E-5	-4.93E-5	0	0
86	1.300	0	-5.69E-4	-3.00E-5	-3.55E-5	0	0
87	0	0	-5.69E-4	-3.00E-5	-2.56E-5	0	0
87	1.300	0	-5.69E-4	-6.85E-5	-2.37E-5	0	0
88	0	0	-5.69E-4	-6.85E-5	-2.37E-5	0	0
88	1.300	0	-5.69E-4	-9.23E-5	-1.31E-5	0	0
89	0	0	-5.69E-4	-9.23E-5	-1.31E-5	0	0
89	1.300	0	-5.69E-4	-1.03E-4	-3.83E-6	0	0
90	0	0	-5.69E-4	-1.03E-4	-3.83E-6	0	0
90	1.300	0	-5.69E-4	-1.03E-4	3.91E-6	0	0
91	0	0	-5.69E-4	-1.03E-4	3.91E-6	0	0
91	1.300	0	-5.69E-4	-9.34E-5	1.04E-5	0	0
92	0	0	-5.69E-4	-9.34E-5	1.04E-5	0	0
92	1.300	0	-5.68E-4	-7.65E-5	1.53E-5	0	0
93	0	0	-5.68E-4	-7.65E-5	1.53E-5	0	0
93	1.300	0	-5.68E-4	-5.41E-5	1.89E-5	0	0
94	0	0	-5.68E-4	-5.41E-5	1.89E-5	0	0
94	1.300	0	-5.68E-4	-2.80E-5	2.10E-5	0	0
95	0	0	-5.68E-4	-2.80E-5	2.10E-5	0	0
95	1.300	0	-5.68E-4	-2.9E-13	2.17E-5	0	0
96	0	0	-5.68E-4	1.1E-13	2.17E-5	0	0
96	0.500	0	-5.68E-4	1.09E-5	2.17E-5	0	0

Displacements (in global coordinate directions): "ALL"

Memb.	Distance [m]	DX-g [m]	DY-g [m]	DZ-g [m]	RX-g [rad]	RY-g [rad]	RZ-g [rad]
290	0	0	2.3E-15	-3.0E-12	-3.4E-12	0	0
290	13.200	0	-5.70E-4	-3.02E-4	3.01E-4	0	0
291	0	0	-2.4E-19	2.5E-13	3.6E-12	0	0
291	13.200	0	-5.69E-4	2.52E-5	-4.93E-5	0	0
	min.	0	-0.000576	-0.002029	-0.000590	0	0
	max.	0	2.27E-19	0.000627	0.000365	0	0

Loadcase Factor Stage Init.def Title
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Displacements (in global coordinate directions): "ALL"

Memb.	Distance [m]	DX-g [m]	DY-g [m]	DZ-g [m]	RX-g [rad]	RY-g [rad]	RZ-g [rad]
65	0	0	-2.32E-6	-8.70E-6	1.74E-4	0	0
65	0.500	0	-2.32E-6	-8.7E-13	1.74E-4	0	0
66	0	0	-2.32E-6	2.3E-12	1.74E-4	0	0
66	1.300	0	-2.32E-6	2.24E-4	1.68E-4	0	0
67	0	0	-2.32E-6	2.24E-4	1.68E-4	0	0
67	1.300	0	-2.32E-6	4.32E-4	1.51E-4	0	0
68	0	0	-2.32E-6	4.32E-4	1.51E-4	0	0
68	1.300	0	-2.32E-6	6.10E-4	1.21E-4	0	0
69	0	0	-2.32E-6	6.10E-4	1.21E-4	0	0
69	1.300	0	-2.32E-6	7.42E-4	7.99E-5	0	0
70	0	0	-2.32E-6	7.42E-4	7.99E-5	0	0
70	1.300	0	-2.32E-6	8.13E-4	2.69E-5	0	0
71	0	0	-2.32E-6	8.13E-4	2.69E-5	0	0
71	1.300	0	-2.32E-6	8.07E-4	-3.76E-5	0	0
72	0	0	-2.32E-6	8.07E-4	-3.76E-5	0	0
72	1.300	0	-2.32E-6	7.09E-4	-1.14E-4	0	0
73	0	0	-2.32E-6	7.09E-4	-1.14E-4	0	0
73	1.300	0	-2.32E-6	5.04E-4	-2.03E-4	0	0
74	0	0	-2.32E-6	5.04E-4	-2.03E-4	0	0
74	1.300	0	-2.32E-6	1.77E-4	-3.03E-4	0	0

Displacements (in global coordinate directions): "ALL"

Memb.	Distance [m]	DX-g [m]	DY-g [m]	DZ-g [m]	RX-g [rad]	RY-g [rad]	RZ-g [rad]
75	0	0	-2.32E-6	1.77E-4	-3.03E-4	0	0
75	1.300	0	-2.32E-6	-2.88E-4	-4.15E-4	0	0
76	0	0	-2.32E-6	-2.88E-4	-4.15E-4	0	0
76	1.700	0	-2.58E-6	-0.00111	-5.30E-4	0	0
77	0	0	-2.58E-6	-0.00111	-5.30E-4	0	0
77	1.700	0	-2.84E-6	-0.00201	-5.24E-4	0	0
78	0	0	-2.84E-6	-0.00201	-5.24E-4	0	0
78	1.700	0	-3.09E-6	-0.00123	-4.08E-4	0	0
79	0	0	-3.09E-6	-0.00123	-4.08E-4	0	0
79	1.700	0	-3.35E-6	-0.00337	-2.13E-4	0	0
80	0	0	-3.35E-6	-0.00337	-2.13E-4	0	0
80	1.700	0	-3.61E-6	-0.00339	-8.32E-7	0	0
81	0	0	-3.61E-6	-0.00339	-8.32E-7	0	0
81	1.700	0	-3.86E-6	-0.00337	2.11E-4	0	0
82	0	0	-3.86E-6	-0.00337	2.11E-4	0	0
82	1.700	0	-4.12E-6	-0.00224	4.07E-4	0	0
83	0	0	-4.12E-6	-0.00224	4.07E-4	0	0
83	1.700	0	-4.37E-6	-0.00103	5.25E-4	0	0
84	0	0	-4.37E-6	-0.00103	5.25E-4	0	0
84	1.700	0	-4.63E-6	-0.00111	5.32E-4	0	0
85	0	0	-4.63E-6	-0.00111	5.32E-4	0	0
85	1.700	0	-4.89E-6	-2.90E-4	4.15E-4	0	0
86	0	0	-4.89E-6	-2.90E-4	4.15E-4	0	0
86	1.300	0	-4.89E-6	1.77E-4	3.04E-4	0	0
87	0	0	-4.89E-6	1.77E-4	3.04E-4	0	0
87	1.300	0	-4.89E-6	5.05E-4	2.03E-4	0	0
88	0	0	-4.89E-6	5.05E-4	2.03E-4	0	0
88	1.300	0	-4.89E-6	7.11E-4	1.15E-4	0	0
89	0	0	-4.89E-6	7.11E-4	1.15E-4	0	0
89	1.300	0	-4.89E-6	8.09E-4	3.81E-5	0	0
90	0	0	-4.89E-6	8.09E-4	3.81E-5	0	0
90	1.300	0	-4.89E-6	8.15E-4	-2.69E-5	0	0
91	0	0	-4.89E-6	8.15E-4	-2.69E-5	0	0
91	1.300	0	-4.89E-6	7.44E-4	-8.01E-5	0	0

Displacements (in global coordinate directions): "ALL"

Memb.	Distance [m]	DX-g [m]	DY-g [m]	DZ-g [m]	RX-g [rad]	RY-g [rad]	RZ-g [rad]
91	0	0	-4.89E-6	7.44E-4	-8.01E-5	0	0
92	1.300	0	-4.89E-6	6.12E-4	-1.21E-4	0	0
93	0	0	-4.89E-6	6.12E-4	-1.21E-4	0	0
93	1.300	0	-4.89E-6	4.34E-4	-1.51E-4	0	0
94	0	0	-4.89E-6	4.34E-4	-1.51E-4	0	0
94	1.300	0	-4.89E-6	2.24E-4	-1.69E-4	0	0
95	0	0	-4.89E-6	2.24E-4	-1.69E-4	0	0
95	1.300	0	-4.89E-6	2.3E-12	-1.75E-4	0	0
96	0	0	-4.89E-6	-8.7E-13	-1.75E-4	0	0
96	0.500	0	-4.89E-6	-8.73E-5	-1.75E-4	0	0
290	0	0	-5.5E-19	-2.9E-12	8.3E-12	0	0
290	13.200	0	-2.32E-6	-2.88E-4	-4.15E-4	0	0
291	0	0	5.5E-19	-2.9E-12	-5.3E-12	0	0
291	13.200	0	-4.89E-6	-1.50E-4	4.16E-4	0	0
	min.	0	-4.89E-06	-0.003545	-0.000530	0	0
	max.	0	5.48E-19	0.000819	0.000532	0	0

CÁLCULOS ESTRUCTURALES

FDO. JOSÉ ANGEL HIDALGO GONZÁLEZ
COL. Nº 9.859

Estructura E-6. (PK 317+151)

ESTRUCTURA E-6 (PK 317+151)

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EJECUCIÓN (VALORES DE LOS COEFICIENTES γ_F)

ESTADOS LÍMITES ÚLTIMOS (E.L.U.)

TIPO DE ACCIÓN		SITUACIONES PERSISTENTES Y TRANSITORIAS		SITUACIONES ACCIDENTALES	
		EFECTO FAVORABLE	EFECTO DESFAVOR.	EFECTO FAVORABLE	EFECTO DESFAVOR.
PERMANENTE		$\gamma_G = 1.00$	$\gamma_G = 1.35$	$\gamma_G = 1.00$	$\gamma_G = 1.00$
OTRA PERMANENTE DE VALOR NO CONSTANTE	PRESOLICITACION	$\gamma_{G^*} = 0.95$	$\gamma_{G^*} = 1.05$	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	REÓLOGICA	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.35$	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	ACCION DEL TERRENO	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.50$	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
VARIABLE		$\gamma_Q = 0.00$	$\gamma_Q = 1.50$	$\gamma_Q = 0.00$	$\gamma_Q = 1.00$
ACCIDENTAL				$\gamma_A = 1.00$	$\gamma_A = 1.00$

ESTADO LÍMITE DE SERVICIO (E.L.S.)

TIPO DE ACCIÓN		SITUACIONES PERSISTENTES Y TRANSITORIAS	
		EFECTO FAVORABLE	EFECTO DESFAVOR.
PERMANENTE		$\gamma_G = 1.00$	$\gamma_G = 1.00$
PERMANENTE DE VALOR NO CONSTANTE	OTRA PRESOLICITACION	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	REÓLOGICA	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
	ACCION DEL TERRENO	$\gamma_{G^*} = 1.00$	$\gamma_{G^*} = 1.00$
VARIABLE		$\gamma_Q = 0.00$	$\gamma_Q = 100$

Características de la cimentación

Se han considerado las siguientes tensiones admisibles del terreno de cimentación, de acuerdo con el Informe geotécnico:

Estructura	Cota de cimentación	Tensión admisible del terreno
E-6	405.90 m	5.00 kp.cm^2

El coeficiente de balasto se adoptará igual a 10.000 tm^{-3} y el coeficiente de rozamiento zapata - terreno se considera u = 0.60.

Procedimiento de cálculo

Se han tenido en cuenta para el cálculo del pórtico los siguientes tipos de carga:

- **Acciones gravitatorias**

  - **Peso propio**

    Se calculan con los siguientes pesos específicos:

Hormigón armado:	2,50 t.m^{-3}
Relleno:	2,00 t.m^{-3}

  - **Carga muerta por vía (a repartir en el ancho correspondiente)**

Conducto cableado:	0.300 t/m
Traviesa por vía:	0.520 t/m
Carril por vía:	0.120 t/m

Hormigón de forma: 1.225 t/m

Balasto: 6.00 t/m

Balasto valor máximo: 1.30x6.00 t/m=7.80 0 t/m

Balasto valor mínimo: 0.70x 6.00 t/m=4.20 t/m

* **Sobrecargas**

En base al análisis comparativo realizado se ha considerado las sobrecargas del tren tipo SW/2 de la UIC-776-1, por ser las más desfavorables.

- **Acciones horizontales**

Se considerarán los efectos de las acciones de origen reológico actuando sobre la estructura.

No ee tendrán en cuenta las fuerzas de frenado dada la presencia de una cubierta de tierras importante entre vías y dintel.

No se considerará la acción de la fuerza centrífuga por estar en una zona de trazado recto.

El empuje de las tierras en los laterales del pórtico se considerará en dos hipótesis distintas, una de ellas con un coeficiente de empuje al reposo igual a 0,50, y la otra con el coeficiente correspondiente al empuje activo de valor 0,33. Se tendrán en cuenta dos hipótesis más de empuje desbalanceado en ambos hastiales.

- **Choques de vehículos sobre el hastial del pórtico**

Se consideran de carácter extraordinario, con los coeficientes de mayoración y minoración iguales a la unidad.

- **Acciones sísmicas**

No se considerarán conforme con lo especificado en la I.P.F.75.

- **Procedimiento de cálculo**

La sobrecarga puntual del tren de cargas se asimila a una sobrecarga repartida en función del efecto distribuidor del balasto, del sub-balasto, del relleno de tierras y del propio dintel.

El paso se calcula como un pórtico de un vano y de sección uniforme, con 1.0 m de espesor, apoyado sobre una fundación elástica de acuerdo con la teoría del coeficiente de balasto, adoptándose para éste último un valor de K = 10000 Mp/m^3.

Se consideran también las hipótesis de empuje desigual de tierras a ambos lados, debido a las cargas excéntricas.

Para el desarrollo de los cálculos resueltos por ordenador se han utilizado los siguientes programas:

- STATIK-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10, 1997).
- FAGUS-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10 Marzo 1998).
- ESTRIMUR: desarrollado para el cálculo de estribos y muros.

La descripción de estos programas se ha adjuntado en el ANEJO A del presente documento.

2. Acciones

2.1. Cargas permanentes

2.1.1. Peso propio

El peso propio de la estructura de hormigón lo calcula el Programa STATIK-3 con un peso específico $\gamma = 2.50\ t.m^{-3}$.

2.1.2. Cargas muertas por vía (a repartir en el ancho de 6.04 m)

Conducto cableado:	0.300 t/m
Traviesa por vía:	0.520 t/m
Carril por vía:	0.120 t/m
Hormigón de forma:	1.225 t/m
Balasto:	6.00 t/m
Balasto valor máximo:	1.30x 6.0 t/m=7.80 t/m
Balasto valor mínimo:	0.70x 6.0 t/m=4.20 t/m

2.2. Sobrecargas

2.2.1. Análisis comparativo de sobrecargas

2.2.1.1. Tren de la Instrucción IPF-75

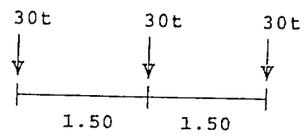
2.2.1.1.A. Sobrecargas

CALCULO DE CARGAS DE FERROCARRIL

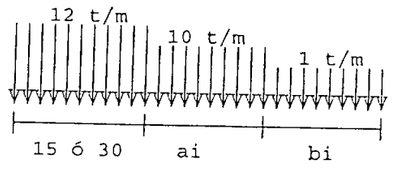
NORMA ESPAÑOLA IPFC-75

- Sobrecarga de 0.50 t/m² actuando en los paseos según la posición mas desfavorable para el elemento en estudio.

- Tren tipo A:



- Tren tipo B:



ai y bi son tales que producen los efectos mas desfavorables.

2.2.1.1.B. Cálculo del coeficiente de impacto

NORMA ESPAÑOLA IPFC-75

$$I = \frac{114\sqrt{L}}{3,10 - 1,76\sqrt{L} + L}$$

Para las estructuras enterradas se puede tomar el coeficiente reducido:

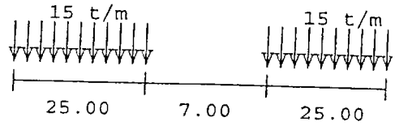
$$\Phi r = \Phi - \frac{h - 1,0}{10,0}$$

2.2.1.2. Tren de la UIC-776-1

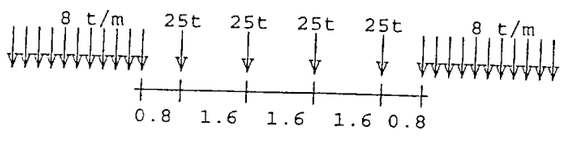
2.2.1.2.A. Sobrecargas

U.I.C-776-1

- Tren tipo SW/2



- Tren tipo UIC-71



2.2.1.2.B. Cálculo del coeficiente de impacto

COEFICIENTES DINAMICOS

U.I.C-776-1

Líneas de alta calidad : Φ2 Flector
: Φ1 Cortante

$$\Phi 1 = \frac{0.96}{\sqrt{L} - 0.2} + 0.88$$

$$\Phi 2 = \frac{1.44}{\sqrt{L} - 0.2} + 0.82$$

Se comparan los trenes de las Normas IPFC-75 (trenes tipo A y B) y los trenes de la norma UIC-776-1 (trenes tipo SW/2 y UIC-71).

Para éste caso se tienen los siguientes parámetros:

Luz de cálculo (m)	16.00
Espesor de losa (m)	1.20
Recubrimiento (m)	2.55
Peso específico del Relleno(t/m3)	2.00
Espesor de Balasto (m)	0.80
Peso específico del Balasto(t/m3)	1.60
Peso de Traviesa (Kg)	520
Separación entre Traviesas (cms)	60
Ancho total de traviesa (m)	2.40
Peso de Carril (Kg/m)	60
Angulo(sexa) reparto cargas puntuales:	30.00
Reparto Cargas Puntuales IPFC-75 (m²):	40.07
Reparto Cargas Puntuales UIC-71 (m²).:	60.60
Reparto Cargas Uniformes (m)	6.04

Se obtienen los siguientes resultados:

Coeficiente de impacto IPFC-75	1.38
Coeficiente de impacto UIC (flexión).	1.13
Coeficiente de impacto UIC (cortante):	1.20

SOBRECARGAS EN CENTRO DE LOSA:

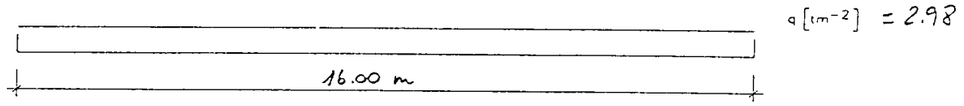
Tren tipo A de IPFC-75 (t/m²)	3.09
Tren tipo B de IPFC-75 (t/m²)	2.74
Tren tipo UIC-71 a flexión (t/m²)	1.87
Tren tipo UIC-71 a cortante (t/m²)	1.98
Tren tipo SW/2 a flexión (t/m²)	2.81
Tren tipo SW/2 a cortante (t/m²)	2.98

CARGAS PERMANENTES (Excepto Peso propio):

Carga de Relleno (t/m²)	5.10
Carga de Balasto (t/m²)	1.28
Carga de Traviesa (t/m²)	0.36
Carga de Carril (t/m²)	0.02
Total Cp (t/m²)	6.76

2.2.1.3. Sobrecarga adoptada

El estudio de esfuerzos se realiza para el tren tipo SW/2



2.2.2. Frenado y arranque

No se considerará la actuación de esta fuerza sobre la estructura, debido a la presencia de la cubierta de tierras.

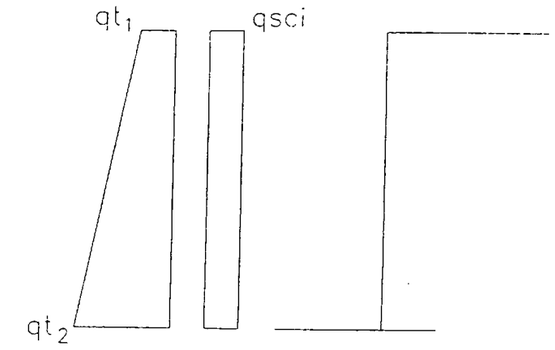
2.2.3. Sobrecargas del terreno

El relleno de tierras se realiza con material del terraplén:

- Peso específico: $\gamma_T = 2.0\ t.m^{-3}$
- Angulo de fricción interna: $\phi = 30°$
- Coeficiente de empuje al reposo: $\lambda_o = 0.50$
- Coeficiente de empuje activo: $\lambda_a = 0.33$

El valor del empuje al reposo del terreno será: $Eho = \gamma_T\ \lambda_o\ H$

El valor del empuje activo del terreno será: $Eho = \gamma_T\ \lambda_a\ H$



2.2.4. Sobrecargas accidentales: Choques

Se asimilará el choque del vehículo a la actuación de una carga estática cuya resultante se encuentra situada a 1.20 m sobre la superficie del pavimento e igual en valor a 100 t en la dirección del tráfico y a 50 t en sentido perpendicular a la indicada dirección, sobre una franja de 2.0 m de ancho. Se adoptarán coeficientes de mayoración y minoración iguales a la unidad.

Se considera una zona de actuación de estas fuerzas de 2.00 metros de ancho, por lo que se aplican 25.0 t.

2.3. Acciones indirectas

2.3.1. Reológicas: Retracción del hormigón

$$E_r = -25 \times 10^{-5}$$

2.4. Acciones sísmicas

De acuerdo con la I.P.F no es necesario considerar los efectos de las acciones sísmicas sobre la estructura.

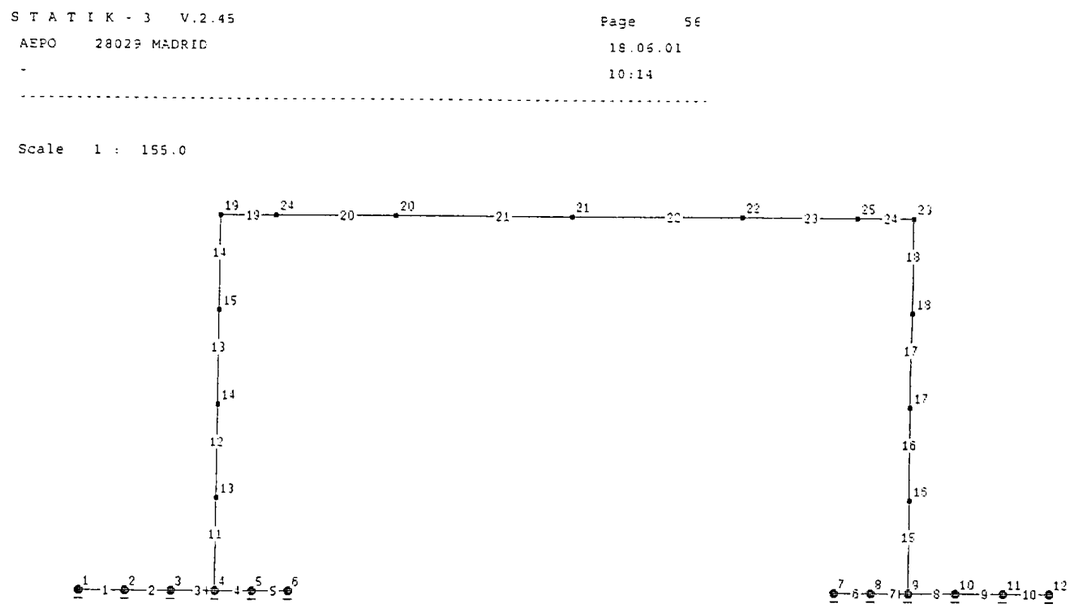
PÓRTICO

3.1. Descripción del modelo

Se utilizará para el cálculo de los esfuerzos en la estructura un modelo de pórtico plano, que representará la sección de estudio del paso sometida a las solicitaciones más desfavorables, de 1.0 m de ancho.

El cálculo se realizará mediante el Programa STATIK-3, cuya descripción ya se ha adjuntado en el ANEJO A.

En el siguiente esquema se representa la numeración de nudos y barras del modelo de cálculo.



Módulo de elasticidad

$$E = 190.000 \sqrt{300} = 3.300.000 \text{ t.m}^{-2}$$

Módulo de elasticidad transversal

$$G = \frac{E}{2(1+\nu)} = \frac{3.300.000 \text{ t.m}^{-2}}{2(1+0.20)}$$

$$G = 1.370.000 \text{ t.m}^{-2}$$

Constantes de los Muelles: Coeficiente de Balasto 10000 $t.m^{-3}$

$K_1 = K_{12}$	=	0.575 m x 1.0 m x 10000 $t.m^{-3}$ =	5750 $t.m^{-1}$
$K_2 = K_{11}$	=	1.150 m x 1.0 m x 10000 $t.m^{-3}$ =	11500 $t.m^{-1}$
$K_3 = K_{10}$	=	1.15 m x 1.0 m x 10000 $t.m^{-3}$ =	11500 $t.m^{-1}$
$K_4 = K_9$	=	1.037m x 1.0 m x 10000 $t.m^{-3}$ =	10370 $t.m^{-1}$
$K_5 = K_8$	=	0.925 m x 1.0 m x 10000 $t.m^{-3}$ =	9250 $t.m^{-1}$
$K_6 = K_7$	=	0.462 m x 1.0 m x 10000 $t.m^{-3}$ =	4625 $t.m^{-1}$

INDICE

3.2. Hipótesis de cálculo

3.2.1. Hipótesis básicas

3.2.2. Combinaciones de hipótesis básicas

3.2.2.1. Estados límites últimos

3.2.2.2. Estados límites de utilización

3.2.3. Análisis del proceso constructivo

3.2.4. Sobrecargas accidentales: choques de vehículos y acciones sísmicas

3.2.1. Hipótesis básicas

Hipótesis de cálculo

Hipótesis básicas

H1 Peso propio

H2 Cargas permanentes

H3 Tren tipo SW/2 sobre todo el dintel

H4 Tren tipo SW/2 sobre un cuarto del dintel

H5 Tren tipo SW/2 sobre un cuarto del dintel

H6 Tren tipo SW/2 sobre un cuarto del dintel

H7 Tren tipo SW/2 sobre un cuarto del dintel

H8 Sobrecarga en el camino

H9 Empuje activo de tierras

H10 Empuje al reposo de tierras

H11 Empuje activo de un lado y al reposo del otro

H12 Empuje al reposo de un lado y activo del otro

H13 Empuje activo debido al tren tipo SW/2 de un lado

H14 Empuje la reposo debido al tren tipo SW/2 de un lado

H15 Empuje activo debido al tren tipo SW/2 del otro lado

H16 Empuje la reposo debido al tren tipo SW/2 del otro lado

H17 Acciones Reológicas

H18 Acciones accidentales: choques

3.2.2.1. Estados límites últimos (E.L.U.)

Se han combinado las 18 hipótesis básicas, de forma de obtener la envolvente de solicitaciones más desfavorables, para el dimensionamiento de armaduras y las comprobaciones en E.L.U.:

ENVELOPE SPECIFIC.: BK ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	0.750000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme total
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
ALTERNATIVE ENVELOPE :					
Q	PERM.	1	1.000		Peso Propio
R	OR	1	1.350		Peso Propio
S	PL.PERM	2	0.750000		Cargas permanentes
T	OR	2	1.350		Cargas permanentes
U	PL.PERM	17	1.000		Reologicas
V	OR	17	1.350		Reologicas
W	PL.PERM	10	1.000		Empuje al reposo de tierras
X	OR	10	1.500		Empuje al reposo de tierras
Y	OR	11	1.000		Empuje act/rep de tierras
Z	OR	11	1.500		Empuje act/rep de tierras
AA	OR	12	1.000		Empuje al rep/act de tierras
AB	OR	12	1.500		Empuje al rep/act de tierras
AC	PLUS	3	1.500		Sobrecarga uniforme total
AD	PLUS	8	1.500		Sobrecarga solera
AE	PLUS	14	1.500		Empuje al reposo sob unif
AF	PLUS	16	1.500		Empuje al reposo sob. parcial
ALTERNATIVE ENVELOPE :					
AG	PERM.	1	1.000		Peso Propio
AH	PL.PERM	2	1.000		Cargas permanentes
AI	PL.PERM	17	1.000		Reologicas
AJ	PL.PERM	9	1.000		Empuje activo de tierras
AK	OR	11	1.000		Empuje act/rep de tierras
AL	OR	12	1.000		Empuje al rep/act de tierras
AM	PLUS	4	1.000		Sob unif parcial dintel dcha
AN	PLUS	5	1.000		Sob unif parcial dintel izqda
AO	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AP	PLUS	7	1.000		Sobrecarga posicion lateral
AQ	PLUS	8	1.000		Sobrecarga solera
AR	PLUS	13	1.000		Empuje activo debido a la sob
AS	PLUS	15	1.000		Empuje activo debido a la sob
AT	PLUS	18	1.000		ACCIDENTAL : Choque
ALTERNATIVE ENVELOPE :					
AU	PERM.	1	1.000		Peso Propio
AV	PL.PERM	2	1.000		Cargas permanentes
AW	PL.PERM	17	1.000		Reologicas
AX	PL.PERM	10	1.000		Empuje al reposo de tierras
AY	OR	11	1.000		Empuje act/rep de tierras
AZ	OR	12	1.000		Empuje al rep/act de tierras
BA	PLUS	4	1.000		Sob unif parcial dintel dcha
BB	PLUS	5	1.000		Sob unif parcial dintel izqda
BC	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BD	PLUS	7	1.000		Sobrecarga posicion lateral
BE	PLUS	8	1.000		Sobrecarga solera
BF	PLUS	14	1.000		Empuje al reposo sob unif
BG	PLUS	16	1.000		Empuje al reposo sob. parcial
BH	PLUS	18	1.000		ACCIDENTAL : Choque

3.2.2.2. Estados límites de servicio (E.L.S.)

Envolvente de máximas reacciones sobre el terreno.(Combinación característica)

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S T A T I K - 3   V.2.45                                          Page     31
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    ENVELOPE SPECIFIC.:  DF  ''
    ==========================================================================
    Group Spec. Loadcase          Factor Stage  Title

      A   PERM.     1               1.000       Peso Propio
      B   PL.PERM   2               1.000       Cargas permanentes
      C   PL.PERM  17               1.000       Reologicas
      D   PL.PERM   9               1.000       Empuje activo de tierras
      E   PLUS      4            0.830000       Sob unif parcial dintel dcha
      F   PLUS      5            0.830000       Sob unif parcial dintel izqda
      G   PLUS      6            0.830000       Sobrecarga uniforme dintel cen
      H   PLUS      7            0.830000       Sobrecarga  posicion lateral
      I   PLUS      8               1.000       Sobrecarga solera
      J   PLUS     13               1.000       Empuje activo debido a la sob
      K   PLUS     15               1.000       Empuje activo debido a la sob
      L   PLUS     18               1.000       Frenado

    ALTERNATIVE ENVELOPE :
      M   PERM.     1               1.000       Peso Propio
      N   PL.PERM   2               1.000       Cargas permanentes
      O   PL.PERM  17               1.000       Reologicas
      P   PL.PERM  10               1.000       Empuje al reposo de tierras
      Q   PLUS      4            0.830000       Sob unif parcial dintel dcha
      R   PLUS      5            0.830000       Sob unif parcial dintel izqda
      S   PLUS      6            0.830000       Sobrecarga uniforme dintel cen
      T   PLUS      7            0.830000       Sobrecarga  posicion lateral
      U   PLUS      8               1.000       Sobrecarga solera
      V   PLUS     14               1.000       Empuje al reposo sob unif
      W   PLUS     16               1.000       Empuje al reposo sob. parcial
      X   PLUS     18               1.000       Frenado
    ==========================================================================
```

Envolvente para verificar el deslizamiento.(Combinación característica)

```
ENVELOPE SPECIFIC.:  DG  ''
==========================================================================
Group Spec. Loadcase          Factor Stage  Title

  A   PERM.     1               1.000       Peso Propio
  B   PL.PERM   2               1.000       Cargas permanentes
  C   PL.PERM  17               1.000       Reologicas
  D   PL.PERM   9               1.000       Empuje activo de tierras
  E   PLUS      4            0.830000       Sob unif parcial dintel dcha
  F   PLUS      5            0.830000       Sob unif parcial dintel izqda
  G   PLUS      6            0.830000       Sobrecarga uniforme dintel cen
  H   PLUS      7            0.830000       Sobrecarga  posicion lateral
  I   PLUS      8               1.000       Sobrecarga solera
  J   PLUS     13               1.000       Empuje activo debido a la sob
  K   PLUS     15               1.000       Empuje activo debido a la sob
  L   PLUS     18               1.000       Frenado
==========================================================================
```

Envolvente de esfuerzos para comprobación de fisuración.(Combinación frecuente)

```
S T A T I K - 3   V.2.45                                          Page     36
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    ENVELOPE SPECIFIC.:  DH  ''
    ==========================================================================
    Group Spec. Loadcase          Factor Stage  Title

      A   PERM.     1               1.000       Peso Propio
      B   PL.PERM   2               1.000       Cargas permanentes
      C   PL.PERM  17               1.000       Reologicas
      D   PL.PERM   9               1.000       Empuje activo de tierras
      E   OR       11               1.000       Empuje act/rep de tierras
      F   OR       12               1.000       Empuje al rep/act de tierras
      G   PLUS      3            0.600000       Sobrecarga uniforme total
      H   PLUS      8            0.600000       Sobrecarga solera
      I   PLUS     13            0.600000       Empuje activo debido a la sob
      J   PLUS     15            0.600000       Empuje activo debido a la sob
      K   PLUS     18            0.600000       Frenado

    ALTERNATIVE ENVELOPE :
      L   PERM.     1               1.000       Peso Propio
      M   PL.PERM   2               1.000       Cargas permanentes
      N   PL.PERM  17               1.000       Reologicas
      O   PL.PERM  10               1.000       Empuje al reposo de tierras
      P   OR       11               1.000       Empuje act/rep de tierras
      Q   OR       12               1.000       Empuje al rep/act de tierras
      R   PLUS      3            0.600000       Sobrecarga uniforme total
      S   PLUS      8            0.600000       Sobrecarga solera
      T   PLUS     14            0.600000       Empuje al reposo sob unif
      U   PLUS     16            0.600000       Empuje al reposo sob. parcial
      V   PLUS     18            0.600000       Frenado
    ==========================================================================
```

Se supone que durante la construcción no existirá una excesiva diferencia de nivel en la altura del terraplén a ambos lados del pórtico,siendo como máximo esta diferencia de 2.00m.

La compactación del trasdos se podrá ejecutar en uno de los dos lados del pórtico, y se considerará una sobrecarga lateral de 2.0 t/m2. Esta hipótesis queda absorbida por la de desequilibrios de empujes a ambos lados del pórtico.

3.2.4. Sobrecargas Accidentales y Acciones Sísmicas

Sobrecargas accidentales: choques de vehículos

Se considerará una carga estática, situada a 1.20 m sobre el pavimento, e igual en valor a 25 t. en sentido perpendicular al mismo.

Acciones sísmicas

De acuerdo con la I.P.F. no es necesario considerar estas acciones.

INDICE

3.3. Cálculos y resultados (listados de ordenador)

- GEOMETRÍA

- E.L.U. (Envolvente de esfuerzos)
- E.L.S. (Combinación característica) (Reacciones)
- E.L.S. (Combinación característica) (Delizamiento)
- E.L.S. (Combinación frecuente) (Fisuración)

Plane (2-D) frame -analysis

****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (25 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports F XYZ	Specialities
1	0.00000	0.00000	0.00000	F	S F	
2	1.15000	0.00000	0.00000	F	S F	
3	2.30000	0.00000	0.00000	F	S F	
4	3.45000	0.00000	0.00000	E	S F	
5	4.37500	0.00000	0.00000	F	S F	
6	5.30000	0.00000	0.00000	F	S F	
7	13.90000	0.00000	0.00000	F	S F	
8	13.82500	0.00000	0.00000	F	S F	
9	20.75000	0.00000	0.00000	E	S F	
10	21.90000	0.00000	0.00000	F	S F	
11	23.05000	0.00000	0.00000	F	S F	
12	24.20000	0.00000	0.00000	F	S F	
13	3.45000	0.00000	2.35000			
14	3.45000	0.00000	4.70000			
15	3.45000	0.00000	7.05000			
16	20.75000	0.00000	2.35000			
17	20.75000	0.00000	4.70000			
18	20.75000	0.00000	7.05000			
19	3.45000	0.00000	9.40000			
20	7.77500	0.00000	9.40000			
21	12.10000	0.00000	9.40000			
22	16.42500	0.00000	9.40000			
23	20.75000	0.00000	9.40000			
24	4.85300	0.00000	9.40000			
25	19.35000	0.00000	9.40000			

ELASTICALLY SUPPORTED JOINTS: (*F*=Fixed *F*=Free)

Joint	V-X [KN/M]	V-Y [KN/M]	V-Z [KN/M]	R-X [KNM/ARC]	R-Y [KNM/ARC]	R-Z [KNM/ARC]
1	F		5.750E-04		F	
2	F		5.500E-04		F	
3	F		5.500E-04		F	
4	E		6.375E-04		F	
5	F		7.250E-04		F	
6	F		4.125E-04		F	
7	F		4.125E-04		F	
8	F		7.250E-04		F	
9	E		6.375E-04		F	

Joint	V-X [KN/M]	V-Y [KN/M]	V-Z [KN/M]	R-X [KNM/ARC]	R-Y [KNM/ARC]	R-Z [KNM/ARC]
10	F		5.500E-04		F	
11	F		5.500E-04		F	
12	F		5.750E-04		F	

B A R D A T A : (24 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	2	1.15000	ZAPATA			cS
2	2	3	1.15000	ZAPATA			cS
3	3	4	1.15000	ZAPATA			cS
4	4	5	0.92500	ZAPATA			cS
5	5	6	0.92500	ZAPATA			cS
6	7	8	0.92500	ZAPATA			cS
7	8	9	0.92500	ZAPATA			cS
8	9	10	1.15000	ZAPATA			cS
9	10	11	1.15000	ZAPATA			cS
10	11	12	1.15000	ZAPATA			cS
11*	4	13	2.35000	HASTIAL			cS
12*	13	14	2.35000	HASTIAL			cS
13*	14	15	2.35000	HASTIAL			cS
14*	15	19	2.35000	HASTIAL			cS
15*	9	16	2.35000	HASTIAL			cS
16*	16	17	2.35000	HASTIAL			cS
17*	17	18	2.35000	HASTIAL			cS
18*	18	23	2.35000	HASTIAL			cS
19	19	24	1.40000	CARTELA			cS
20	24	20	2.92500	DINTEL			cS
21	20	21	4.32500	DINTEL			cS
22	21	22	4.32500	DINTEL			cS
23	22	25	2.92500	DINTEL			cS
24	25	23	1.40000	CARTELA			cS

Bars marked with "*" are vertical (except any excentricities).
The corresponding spacial definition for the default orientation
of the local coordinate system applies

cS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / Az [M2]	Iy [M4] / Izu [M4]	Iz [M4]
CARTELA	1.450[illegible]	[illegible]	[illegible]
DINTEL	[illegible]	[illegible]	[illegible]
HASTIAL	1.2004E+00 / -0.5[illegible]	[illegible]	1.2004E-00

CS-Name	Ax [M2] / Az [M2]	Iy [M4] / Izu [M4]	Iz [M4]
ZAPATA	1.2002E+00 / -0.6000	1.4406E-01 / 0.6000	1.2002E-00

MATERIAL PROPERT. :

Bar (cc bar)	E-Modulus [KN/ M2]	Shear-M [KN/ M2]
1 .. 24	3.0000E+07	1.2500E+07

STS-Run ck

****
Load case 1: Peso Propio
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Mas.forcZ gl const.	-25.000		Stab 1 .. 24

****
Load case 2: Cargas permanentes
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-67.600		Stab 1 .. 3
Force Z gl const.	-28.400		Stab 4 .. 7
Force Z gl const.	-67.600		Stab 8 .. 10 21 .. 22
			18 .. 20 23 .. 24

****
Load case 3: Sobrecarga uniforme total
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-29.800		Stab 11 .. 22 13 .. 20 23 .. 24

****
Load case 4: Sob unif parcial dintel dcha
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-29.800		Stab 19 .. 20

****
Load case 5: Sob unif parcial dintel izqda
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-29.800		Stab 21

****
Load case 6: Sobrecarga uniforme dintel cen
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-29.800		Stab 22

****
Load case 7: Sobrecarga posicion lateral
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-29.800		Stab 23 .. 24

****
Load case 8: Sobrecarga solera
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-4.000		Stab 4 .. 7

****
Load case 9: Empuje activo de tierras
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	gl trapez. from...to	78.870 0	63.360 2.350	Stab 11
Force	X	gl trapez. from...to	63.360 0	47.850 2.350	Stab 12
Force	X	gl trapez. from...to	47.850 0	32.340 2.350	Stab 13
Force	X	gl trapez. from...to	32.340 0	16.830 2.350	Stab 14
Force	X	gl trapez. from...to	-78.870 0	-63.360 2.350	Stab 15
Force	X	gl trapez. from...to	-63.360 0	-47.850 2.350	Stab 16
Force	X	gl trapez. from...to	-47.850 0	-32.340 2.350	Stab 17
Force	X	gl trapez. from...to	-32.340 0	-16.830 2.350	Stab 18
Force	Z	gl const.	-239.000		Stab 1 .. 3 8 .. 10

****
Load case 10: Empuje al reposo de tierras
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	gl trapez. from...to	119.500 0	96.000 2.350	Stab 11
Force	X	gl trapez. from...to	96.000 0	72.500 2.350	Stab 12
Force	X	gl trapez. from...to	72.500 0	49.000 2.350	Stab 13
Force	X	gl trapez. from...to	49.000 0	25.500 2.350	Stab 14
Force	X	gl trapez. from...to	-119.500 0	-96.000 2.350	Stab 15
Force	X	gl trapez. from...to	-96.000 0	-72.500 2.350	Stab 16
Force	X	gl trapez. from...to	-72.500 0	-49.000 2.350	Stab 17
Force	X	gl trapez. from...to	-49.000 0	-25.500 2.350	Stab 18
Force	Z	gl const.	-239.000		Stab 1 .. 3 8 .. 10

****
Load case 11: Empuje act/rep de tierras
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-239.000		Stab 1 .. 3 8 .. 10
Force	X	gl trapez.	78.870	63.360	
		from...to	0	2.350	Stab 11
Force	X	gl trapez.	63.360	47.850	
		from...to	0	2.350	Stab 12
Force	X	gl trapez.	47.850	32.340	
		from...to	0	2.350	Stab 13
Force	X	gl trapez.	32.340	16.830	
		from...to	0	2.350	Stab 14
Force	X	gl trapez.	-119.800	-96.230	
		from...to	0	2.350	Stab 15
Force	X	gl trapez.	-96.230	-72.660	
		from...to	0	2.350	Stab 16
Force	X	gl trapez.	-72.660	-49.090	
		from...to	0	2.350	Stab 17
Force	X	gl trapez.	-49.090	-25.520	
		from...to	0	2.350	Stab 18

****
Load case 12: Empuje al rep/act de tierras
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl consc.	-239.000		Stab 1 .. 3 8 .. 10
Force	X	gl trapez.	119.500	96.000	
		from...to	0	2.350	Stab 11
Force	X	gl trapez.	96.000	72.500	
		from...to	0	2.350	Stab 12
Force	X	gl trapez.	72.500	49.000	
		from...to	0	2.350	Stab 13
Force	X	gl trapez.	49.000	25.500	
		from...to	0	2.350	Stab 14
Force	X	gl trapez.	-78.870	-63.360	
		from...to	0	2.350	Stab 15
Force	X	gl trapez.	-63.360	-47.850	
		from...to	0	2.350	Stab 16
Force	X	gl trapez.	-47.850	-32.340	
		from...to	0	2.350	Stab 17
Force	X	gl trapez.	-32.340	-16.830	
		from...to	0	2.350	Stab 18

****
Load case 13: Empuje activo debido a la sob
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	gl const.	9.830		Stab 11 .. 14

****
Load case 14: Empuje al reposo sob unif
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	gl const.	14.900		Stab 11 .. 14

****
Load case 15: Empuje activo debido a la sob
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	gl const.	-9.830		Stab 15 .. 18

****
Load case 16: Empuje al reposo sob. parcial
****

Loadtype			Value(a)	Distanc Value(b)	Joint - member numb
Force	X	gl const.	-14.900		Stab 15 .. 18

****
Load case 17: Geologicas
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Strain	X	lo const.	-0.000250		Stab 21 .. 22 19 .. 20 23 .. 24

****
Load case 18: Frenado
****

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	lo const.	3.750		Stab 21 .. 22 19 .. 20 23 .. 24

E.L.U. (Envolventes de esfuerzos)

LOADING: 'Dead loads'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			Peso Propio

ENVELOPE SPECIFIC.: DC ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	GR	1	1.350		Peso Propio
C	PL.PERM	2	0.750000		Cargas permanentes
D	GR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	GR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	GR	9	1.500		Empuje activo de tierras
I	GR	11	1.000		Empuje act/rep de tierras
J	GR	11	1.500		Empuje act/rep de tierras
K	GR	12	1.000		Empuje al rep/act de tierras
L	GR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme total
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
Q	PLUS	18	1.500		Frenado
ALTERNATIVE ENVELOPE :					
R	PERM.	1	1.000		Peso Propio
S	GR	1	1.350		Peso Propio
T	PL.PERM	2	0.750000		Cargas permanentes
U	GR	2	1.350		Cargas permanentes
V	PL.PERM	17	1.000		Reologicas
W	GR	17	1.350		Reologicas
X	PL.PERM	10	1.000		Empuje al reposo de tierras
Y	GR	10	1.500		Empuje al reposo de tierras
Z	GR	11	1.000		Empuje act/rep de tierras
AA	GR	11	1.500		Empuje act/rep de tierras
AB	GR	12	1.000		Empuje al rep/act de tierras
AC	GR	12	1.500		Empuje al rep/act de tierras
AD	PLUS	3	1.500		Sobrecarga uniforme total
AE	PLUS	8	1.500		Sobrecarga solera
AF	PLUS	14	1.500		Empuje al reposo sob unif
AG	PLUS	16	1.500		Empuje al reposo sob. parcial
AH	PLUS	18	1.500		Frenado
ALTERNATIVE ENVELOPE :					
AI	PERM.	1	1.000		Peso Propio
AJ	PL.PERM	2	1.000		Cargas permanentes
AK	PL.PERM	17	1.000		Reologicas
AL	PL.PERM	9	1.000		Empuje activo de tierras
AM	GR	11	1.000		Empuje act/rep de tierras
AN	GR	12	1.000		Empuje al rep/act de tierras
AO	PLUS	4	1.000		Sob unif parcial dintel dcha

AP	PLUS	5	1.000	Sob unif parcial dintel izqda
AQ	PLUS	6	1.000	Sobrecarga uniforme dintel cen
AR	PLUS	7	1.000	Sobrecarga posicion lateral
AS	PLUS	8	1.000	Sobrecarga solera
AT	PLUS	13	1.000	Empuje activo debido a la sob
AU	PLUS	15	1.000	Empuje activo debido a la sob
AV	PLUS	18	1.000	Frenado
AW	PLUS	19	1.000	ACCIDENTAL : Choque
ALTERNATIVE ENVELOPE :				
AX	PERM.	1	1.000	Peso Propio
AY	PL.PERM	2	1.000	Cargas permanentes
AZ	PL.PERM	17	1.000	Reologicas
BA	PL.PERM	10	1.000	Empuje al reposo de tierras
BB	GR	11	1.000	Empuje act/rep de tierras
BC	GR	12	1.000	Empuje al rep/act de tierras
BD	PLUS	4	1.000	Sob unif parcial dintel dcha
BE	PLUS	5	1.000	Sob unif parcial dintel izqda
BF	PLUS	6	1.000	Sobrecarga uniforme dintel cen
BG	PLUS	7	1.000	Sobrecarga posicion lateral
BH	PLUS	8	1.000	Sobrecarga solera
BI	PLUS	14	1.000	Empuje al reposo sob unif
BJ	PLUS	16	1.000	Empuje al reposo sob. parcial
BK	PLUS	18	1.000	Frenado
BL	PLUS	19	1.000	ACCIDENTAL : Choque

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
1	0	-0	234.099	2.63E-06
		+0	707.754	8.14E-06
Min: 1				Max: 1
1	0.287	-0	140.184	54.091
		+0	566.802	131.217
Min: 1				Max: 1
1	0.575	-0	31.200	96.295
		+0	426.863	329.611
Min: 1				Max: 1
1	0.863	-0	-85.071	25.652
		-0	293.831	331.075
Min: 1				Max: 1
1	1.150	-0	-211.349	47.276
		-0	188.936	463.145
Min: 1				Max: 1
2	0	-0	1.0...	0.0...
		+0	258.55...	[illegible]
Min: 1				Max: 1
2	0.287	-0	-5.521	61.241

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
		+0	663.595	732.211
Min: 1				Max: 1
2	0.575	-0	-131.803	44.199
		-0	558.252	842.433
Min: 1				Max: 1
2	0.863	-0	-258.074	-11.846
		-0	451.656	937.608
Min: 1				Max: 1
2	1.150	-0	-384.345	-104.193
		-0	345.061	1102.136
Min: 1				Max: 1
3	0	+0	-2.203	-104.193
		+0	913.481	1102.136
Min: 1				Max: 1
3	0.287	+0	-128.475	-122.972
		+0	811.885	1350.876
Min: 1				Max: 1
3	0.575	+0	-254.746	-178.066
		+0	705.290	1568.970
Min: 1				Max: 1
3	0.863	-0	-381.017	-269.457
		+0	598.694	1756.417
Min: 1				Max: 1
3	1.150	-0	-507.289	-397.151
		+0	492.099	1913.219
Min: 1				Max: 1
4	0	-0	-1209.450	1581.908
		+0	-543.702	707.335
Min: 1				Max: 1
4	0.231	-0	-1227.683	1300.114
		+0	-556.953	580.072
Min: 1				Max: 1
4	0.463	-0	-1245.916	1014.104
		+0	-570.205	449.744
Min: 1				Max: 1
4	0.694	-0	-1264.150	723.878
		+0	-583.457	316.352
Min: 1				Max: 1
4	0.925	-0	-1282.383	429.435
		+0	-596.709	179.895
Min: 1				Max: 1
5	0	-0	-427.788	429.435
		-0	-167.978	179.895
Min: 1				Max: 1
5	0.231	-0	-446.021	328.401
		-0	-181.230	139.518
Min: 1				Max: 1
5	0.463	-0	-464.254	223.150

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
		-0	-194.482	95.077
Min: 1				Max: 1
5	0.694	-0	-433.202	114.909
		-0	-207.019	49.245
Min: 1				Max: 1
5	0.925	-0	-502.823	4.65E-06
		+0	-218.883	2.03E-06
Min: 1				Max: 1
6	0	+0	202.922	1.83E-06
		+0	437.800	4.51E-06
Min: 1				Max: 1
6	0.231	-0	183.415	45.364
		-0	468.179	110.635
Min: 1				Max: 1
6	0.463	+0	175.460	37.825
		+0	449.231	218.202
Min: 1				Max: 1
6	0.694	+0	161.029	126.731
		+0	430.998	317.976
Min: 1				Max: 1
6	0.925	-0	146.599	162.301
		-0	412.766	415.639
Min: 1				Max: 1
7	0	+0	667.434	165.861
		+0	1293.418	415.639
Min: 1				Max: 1
7	0.231	+0	554.133	295.542
		+0	1236.185	703.234
Min: 1				Max: 1
7	0.463	+0	540.931	422.170
		+0	1216.951	990.812
Min: 1				Max: 1
7	0.694	+0	527.679	545.713
		+0	1193.718	1266.124
Min: 1				Max: 1
7	0.926	+0	514.427	668.221
		+0	1183.486	1541.219
Min: 1				Max: 1
8	[illegible]	+0	1551.869	2073.436
		+0	447.936	-233.091
Min: 1				Max: 1
8	0.287	+0	1468.166	1823.451
		+0	421.624	-127.424
Min: 1				Max: 1
8	[illegible]	+0	1.0...	61.812
Min: 1				Max: 1
8	0.575	+0	1384.464	1573.467

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
		-0	69.122	-15.110
Min: 1				Max: 1
8	1.150	-0	-978.251	1191.617
		-0	-57.150	-13.339
Min: 1				Max: 1
9	0	+0	-394.688	1193.617
		-0	335.082	-13.339
Min: 1				Max: 1
9	0.287	+0	-501.283	1064.821
		-0	208.810	64.756
Min: 1				Max: 1
9	0.575	+0	-607.879	905.379
		-0	82.539	106.677
Min: 1				Max: 1
9	0.863	+0	-718.090	750.760
		-0	-43.732	112.256
Min: 1				Max: 1
9	1.150	+0	-859.042	524.047
		-0	-170.004	81.531
Min: 1				Max: 1
10	0	+0	-216.858	494.557
		-0	181.646	81.531
Min: 1				Max: 1
10	0.287	+0	-323.454	415.837
		-0	55.375	115.623
Min: 1				Max: 1
10	0.575	+0	-455.693	343.071
		-0	-70.897	113.372
Min: 1				Max: 1
10	0.863	+0	-596.645	191.797
		-0	-172.009	62.665
Min: 1				Max: 1
10	1.150	+0	-737.597	8.43E-06
		-0	-263.924	3.04E-06
Min: 1				Max: 1
11	0	-1963.515	-232.319	812.136
		-900.901	805.731	-1585.372
Min: 1				Max: 1
11	0.588	-1944.654	-277.517	652.320
		-883.226	689.880	-1145.259
Min: 1				Max: 1
11	1.175	-1920.793	-320.435	456.560
		-865.552	579.206	-773.749
Min: 1				Max: 1
11	1.762	-1896.932	-361.077	284.255
		-847.877	473.709	-464.702
Min: 1				Max: 1
11	2.350	-1873.072	-399.440	62.742

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
		-830.202	373.390	-216.126
Min: 1				Max: 1
12	0	-1873.072	-399.440	62.742
		-830.202	373.390	-216.126
Min: 1				Max: 1
12	0.588	-1849.211	-435.525	-182.641
		-812.528	278.248	-24.961
Min: 1				Max: 1
12	1.175	-1825.350	-469.332	-448.554
		-794.853	188.284	111.829
Min: 1				Max: 1
12	1.762	-1801.489	-500.861	-733.659
		-777.178	103.496	157.225
Min: 1				Max: 1
12	2.350	-1738.574	-530.170	-960.976
		-759.504	23.836	234.451
Min: 1				Max: 1
13	0	-1788.574	-530.171	-960.976
		-759.504	23.836	234.451
Min: 1				Max: 1
13	0.588	-1764.713	-570.630	-1134.523
		-741.829	-60.946	226.356
Min: 1				Max: 1
13	1.175	-1740.852	-607.672	-1630.737
		-724.154	-119.802	176.073
Min: 1				Max: 1
13	1.762	-1684.156	-645.017	-1646.313
		-717.363	-166.691	-117.433
Min: 1				Max: 1
13	2.350	-1660.296	-690.787	-2038.959
		-730.510	-193.150	-545.044
Min: 1				Max: 1
14	0	-1660.295	-690.787	-2038.959
		-730.510	-193.150	-545.044
Min: 1				Max: 1
14	0.588	-1609.613	-742.631	-2177.388
		-733.191	-217.248	-342.011
Min: 1				Max: 1
14	1.175	-1558.931	-791.131	-2667.631
		-712.718	-231.832	-570.221
Min: 1				Max: 1
14	1.762	-1565.131	-834.549	-3128.452
		-695.042	-246.835	-1113.191
Min: 1				Max: 1
14	[illegible]	-1533.11...	-874.11...	-3...
		-687.30...	-247.102	-1121.20...
Min: 1				Max: 1

E.L.S. (Combinación característica)
(Comprobación al deslizamiento)

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
15	0	-930.189	-758.958	1395.622
		-1472.115	314.342	-879.640
Min: 1				Max: 1
15	0.588	-912.515	-642.850	974.095
		-1454.440	360.039	-681.283
Min: 1				Max: 1
15	1.175	-894.840	-521.935	629.257
		-1436.766	402.958	-457.041
Min: 1				Max: 1
15	1.762	-877.165	-426.212	345.055
		-1419.091	443.599	-208.253
Min: 1				Max: 1
15	2.350	-859.491	-325.683	127.441
		-1401.416	481.962	63.742
Min: 1				Max: 1
16	0	-859.491	-325.683	127.441
		-1401.416	481.962	63.742
Min: 1				Max: 1
16	0.588	-841.816	-230.346	-35.639
		-1383.741	513.047	357.606
Min: 1				Max: 1
16	1.175	-824.141	-143.202	-144.233
		-1354.700	517.739	417.859
Min: 1				Max: 1
16	1.762	-806.467	-55.250	-201.192
		-1830.840	549.268	731.404
Min: 1				Max: 1
16	2.350	-788.792	24.509	-210.168
		-1806.979	578.519	1062.803
Min: 1				Max: 1
17	0	-788.792	24.509	-210.168
		-1806.979	573.519	1062.803
Min: 1				Max: 1
17	0.588	-771.117	99.074	-173.612
		-1794.001	618.913	1339.011
Min: 1				Max: 1
17	1.175	-753.443	168.447	-94.773
		-1770.140	655.955	1713.671
Min: 1				Max: 1
17	1.762	-746.713	215.639	223.049
		-1713.630	693.674	1758.339
Min: 1				Max: 1
17	2.350	-759.984	246.806	686.673
		-1689.769	739.443	2179.571
Min: 1				Max: 1
18	0	-759.984	246.806	686.673
		-1689.769	739.443	2179.571
Min: 1				Max: 1

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
18	0.588	-759.865	265.904	1009.139
		-1639.297	791.291	2369.066
Min: 1				Max: 1
18	1.175	-742.191	281.487	1170.107
		-1615.437	839.537	2848.453
Min: 1				Max: 1
18	1.762	-724.516	294.791	1339.530
		-1591.578	883.206	3354.861
Min: 1				Max: 1
18	2.350	-706.841	305.818	1516.041
		-1567.715	921.397	3885.216
Min: 1				Max: 1
19	0	-426.609	618.106	-341.725
		-758.168	1597.687	-4074.224
Min: 1				Max: 1
19	0.350	-428.577	587.674	-630.714
		-758.168	1532.973	-3525.359
Min: 1				Max: 1
19	0.700	-430.546	557.241	-430.353
		-758.168	1468.259	-3001.143
Min: 1				Max: 1
19	1.050	-432.515	526.809	-240.645
		-758.168	1403.545	-2493.578
Min: 1				Max: 1
19	1.400	-434.484	496.376	-61.587
		-758.168	1338.831	-2018.662
Min: 1				Max: 1
20	0	-434.484	496.376	-61.587
		-758.168	1338.831	-2018.662
Min: 1				Max: 1
20	0.731	-438.597	417.361	279.910
		-758.168	1209.739	-1086.923
Min: 1				Max: 1
20	1.462	-442.710	378.345	578.653
		-758.168	1081.748	-249.346
Min: 1				Max: 1
20	2.194	-446.824	318.333	823.143
		-758.168	951.707	459.701
Min: 1				Max: 1
21	0.916	-460.937	260.314	1048.372
		-758.168	822.665	1141.620
Min: 1				Max: 1
		-460.937	260.314	1048.372
		-758.168	822.665	1141.620
Min: 1				Max: 1
		-457.015	173.251	1125.879
		-758.168	822.381	1525.870
Min: 1				Max: 1

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
21	2.163	-463.101	85.790	1419.297
		-758.168	441.056	2503.935
Min: 1				Max: 1
21	3.244	-434.725	-4.569	2101.427
		-758.168	250.251	2282.663
Min: 1				Max: 1
21	4.325	-438.779	-142.326	2021.992
		-481.557	103.433	1930.535
Min: 1				Max: 1
22	0	-438.779	-142.326	2021.992
		-481.557	103.433	1930.535
Min: 1				Max: 1
22	1.081	-752.926	-279.540	2891.149
		-486.589	-27.816	1393.058
Min: 1				Max: 1
22	2.163	-759.008	-470.344	2485.743
		-486.589	-115.078	1315.806
Min: 1				Max: 1
22	3.244	-765.090	-661.149	1374.030
		-486.589	-202.340	1144.202
Min: 1				Max: 1
22	4.325	-771.172	-851.954	1056.008
		-486.589	-289.602	878.245
Min: 1				Max: 1
23	0	-771.172	-851.954	1056.008
		-486.589	-289.603	878.245
Min: 1				Max: 1
23	0.731	-775.285	-980.995	385.837
		-486.589	-348.618	644.856
Min: 1				Max: 1
23	1.462	-779.398	-1110.036	-378.697
		-486.589	-407.634	368.392
Min: 1				Max: 1
23	2.194	-783.511	-1239.078	-1237.592
		-486.539	-466.649	43.732
Min: 1				Max: 1
23	2.926	-787.625	-1368.119	-2190.248
		-486.539	-525.665	-314.023
Min: 1				Max: 1
24	0	-788.826	-1368.119	-2192.220
		-485.388	-525.665	-312.711
Min: 1				Max: 1
24	0.350	-790.795	-1432.833	-2683.128
		-485.388	-556.097	-502.619
Min: 1				Max: 1
24	0.700	-792.763	-1497.547	-3195.203
		-485.388	-586.530	-701.979
Min: 1				Max: 1

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
24	1.050	-794.732	-1562.261	-3730.669
		-485.388	-616.962	-912.590
Min: 1				Max: 1
24	1.400	-796.701	-1626.975	-4288.735
		-485.388	-647.395	-1133.852
Min: 1				Max: 1

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
1	0	-0	234.099	2.69E-06
		+0	707.754	8.14E-06
Min: 1				Max: 1
1	0.287	-0	142.184	54.021
		+0	566.302	193.217
Min: 1				Max: 1
1	0.575	-0	50.269	91.736
		+0	425.850	326.911
Min: 1				Max: 1
1	0.863	-0	-41.646	92.736
		+0	284.399	429.032
Min: 1				Max: 1
1	1.150	-0	-211.343	47.373
		+0	143.047	439.728
Min: 1				Max: 1
2	0	-0	120.740	47.373
		+0	309.546	439.728
Min: 1				Max: 1
2	0.287	-0	-6.531	63.341
		+0	668.595	702.211
Min: 1				Max: 1
2	0.575	-0	-133.803	44.192
		+0	517.240	874.157
Min: 1				Max: 1
2	0.863	-0	-268.074	-20.338
		+0	326.661	1105.619
Min: 1				Max: 1
2	1.150	-0	-334.345	-194.139
		+0	136.081	1177.111
Min: 1				Max: 1
3		-0	-268.074	-194.139
		+0	118.481	1177.111
Min: 1				Max: 1

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
3	0.287	+0	-128.475	-125.978
		+0	811.235	1350.876
Min: 1				Max: 1
3	0.575	+0	-254.746	-178.066
		+0	705.290	1563.970
Min: 1				Max: 1
3	0.863	+0	-381.017	-269.457
		+0	599.694	1756.417
Min: 1				Max: 1
3	1.150	+0	-507.289	-357.151
		+0	492.099	1913.219
Min: 1				Max: 1
4	0	+0	-543.702	707.335
		-0	-1209.450	1531.908
Min: 1				Max: 1
4	0.231	+0	-556.953	580.072
		-0	-1227.683	1300.114
Min: 1				Max: 1
4	0.463	+0	-570.205	449.744
		-0	-1245.916	1014.104
Min: 1				Max: 1
4	0.694	+0	-583.457	316.352
		-0	-1264.150	723.873
Min: 1				Max: 1
4	0.925	+0	-596.709	179.895
		-0	-1282.383	429.435
Min: 1				Max: 1
5	0	-0	-167.978	179.895
		-0	-427.798	429.435
Min: 1				Max: 1
5	0.231	-0	-183.291	139.504
		-0	-443.960	328.415
Min: 1				Max: 1
5	0.463	-0	-195.155	95.746
		-0	-463.581	223.481
Min: 1				Max: 1
5	0.694	-0	-207.019	49.245
		-0	-483.202	114.009
Min: 1				Max: 1
5	0.925	-0	-218.883	2.02E-06
		-0	-502.823	4.65E-06
Min: 1				Max: 1
6	0	+0	202.922	1.82E-06
		+0	487.800	4.51E-06
Min: 1				Max: 1
6	0.231	+0	189.415	45.362
		+0	468.179	110.535
Min: 1				Max: 1

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
6	0.463	+0	175.909	87.605
		+0	448.558	216.533
Min: 1				Max: 1
6	0.694	+0	162.403	126.722
		+0	428.938	317.993
Min: 1				Max: 1
6	0.925	+0	148.898	162.301
		-0	412.765	415.539
Min: 1				Max: 1
7	0	+0	579.162	162.301
		+0	1253.413	415.539
Min: 1				Max: 1
7	0.231	+0	564.731	294.563
		+0	1235.135	703.284
Min: 1				Max: 1
7	0.463	+0	540.831	422.175
		-0	1216.951	986.812
Min: 1				Max: 1
7	0.694	+0	527.679	545.728
		+0	1198.713	1265.124
Min: 1				Max: 1
7	0.925	+0	514.427	666.212
		+0	1180.486	1541.219
Min: 1				Max: 1
8	0	-0	447.936	-238.091
		-0	-881.869	2073.436
Min: 1				Max: 1
8	0.287	-0	321.664	-127.461
		-0	-858.469	1399.451
Min: 1				Max: 1
8	0.575	-0	195.393	-53.124
		-0	-765.060	1694.819
Min: 1				Max: 1
8	0.863	-0	69.122	-15.119
		-0	-671.656	1453.641
Min: 1				Max: 1
8	1.150	-0	-57.150	-53.382
		-0	-578.251	1191.671
Min: 1				Max: 1
9	0	-0	336.080	-13.382
		-0	-354.638	1191.671
Min: 1				Max: 1
9	0.287	-0	208.810	-14.276
		-0	-330.238	1.191.671
Min: 1				Max: 1
9	0.575	-0	81.539	-10.977
		-0	-305.838	1191.671
Min: 1				Max: 1

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
9	0.863	-0	-443.732	112.256
		+0	-718.090	750.760
Min: 1				Max: 1
9	1.150	-0	-170.004	81.531
		+0	-859.042	524.647
Min: 1				Max: 1
10	0	-0	181.646	81.531
		+0	-173.790	524.647
Min: 1				Max: 1
10	0.287	-0	11.821	108.719
		+0	-314.742	453.821
Min: 1				Max: 1
10	0.575	-0	-30.094	98.905
		+0	-455.693	343.071
Min: 1				Max: 1
10	0.863	-0	-172.009	62.665
		+0	-596.645	191.797
Min: 1				Max: 1
10	1.150	-0	-263.924	3.04E-06
		+0	-737.597	8.43E-06
Min: 1				Max: 1
11	0	-900.931	805.731	-1585.372
		-1968.515	-232.319	812.196
Min: 1				Max: 1
11	0.588	-883.226	689.880	-1145.239
		-1944.654	-277.517	662.320
Min: 1				Max: 1
11	1.175	-865.552	579.206	-771.749
		-1920.793	-320.435	486.560
Min: 1				Max: 1
11	1.762	-847.877	473.709	-464.708
		-1896.932	-361.077	236.255
Min: 1				Max: 1
11	2.350	-1240.307	2.674	-321.507
		-1473.726	36.926	169.955
Min: 1				Max: 1
12	0	-1240.307	2.674	-321.507
		-1473.726	36.926	169.955
Min: 1				Max: 1
12	0.588	-1609.287	-248.087	-407.533
		-1063.210	69.627	229.706
Min: 1				Max: 1
12	1.175	-1747.374	-315.963	-578.816
		-883.583	13.730	259.365
Min: 1				Max: 1
12	1.762	-1723.513	-347.491	-773.817
		-865.913	-71.057	242.272
Min: 1				Max: 1

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
12	2.350	-1777.628	-519.160	-1043.205
		-759.504	12.935	246.033
Min: 1				Max: 1
13	0	-1777.628	-519.160	-1043.205
		-759.504	12.935	246.033
Min: 1				Max: 1
13	0.588	-1753.767	-546.133	-1361.247
		-741.819	-61.497	231.519
Min: 1				Max: 1
13	1.175	-1729.907	-630.578	-1693.608
		-724.154	-121.002	173.935
Min: 1				Max: 1
13	1.762	-1706.046	-602.995	-2041.394
		-706.480	-185.080	68.770
Min: 1				Max: 1
13	2.350	-1682.185	-623.134	-2401.681
		-688.805	-243.981	-37.520
Min: 1				Max: 1
14	0	-1682.185	-623.134	-2401.681
		-688.805	-243.981	-37.520
Min: 1				Max: 1
14	0.588	-1669.270	-697.096	-2736.944
		-671.130	-297.704	-196.894
Min: 1				Max: 1
14	1.175	-1646.409	-720.470	-3103.511
		-653.456	-346.250	-366.309
Min: 1				Max: 1
14	1.762	-1621.549	-741.628	-3633.452
		-635.781	-388.418	-602.055
Min: 1				Max: 1
14	2.350	-1597.687	-768.168	-4074.224
		-618.106	-426.609	-841.725
Min: 1				Max: 1
15	0	-1597.687	230.727	-1013.627
		-930.130	-768.968	1325.612
Min: 1				Max: 1
15	0.588	-1574.026	326.623	-335.212
		-912.459	-721.350	974.096
Min: 1				Max: 1
15	1.175	-1550.364	368.833	-633.913
		-894.787	-691.935	629.167
Min: 1				Max: 1
15	1.762	-1526.703	3.5.483	-472.197
		-877.116	1.1.516	218.775
Min: 1				Max: 1
15	2.350	-1503.201	11.730	-258.028
		-1165.709	315.250	294.350
Min: 1				Max: 1

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
16	0	-1503.201	11.730	-258.028
		-1165.709	315.250	294.350
Min: 1				Max: 1
16	0.588	-1092.685	-20.970	-239.193
		-1314.585	408.178	507.993
Min: 1				Max: 1
16	1.175	-913.063	34.926	-290.257
		-1306.910	191.955	746.595
Min: 1				Max: 1
16	1.762	-395.388	119.713	-244.523
		-1299.235	223.514	863.760
Min: 1				Max: 1
16	2.350	-782.792	35.459	-221.755
		-1306.979	567.568	1074.389
Min: 1				Max: 1
17	0	-782.792	35.459	-221.755
		-1306.979	567.568	1074.389
Min: 1				Max: 1
17	0.588	-771.117	110.025	-178.764
		-1783.118	594.541	1415.870
Min: 1				Max: 1
17	1.175	-753.443	169.649	-97.635
		-1759.257	628.936	1776.672
Min: 1				Max: 1
17	1.762	-735.768	233.829	21.141
		-1735.396	651.432	2152.897
Min: 1				Max: 1
17	2.350	-718.093	292.816	176.097
		-1711.535	671.541	2541.623
Min: 1				Max: 1
18	0	-718.093	292.816	176.097
		-1711.535	671.541	2541.623
Min: 1				Max: 1
18	0.588	-700.419	346.611	364.183
		-1698.552	745.379	2954.917
Min: 1				Max: 1
18	1.175	-682.744	395.213	522.349
		-1674.697	762.753	3359.863
Min: 1				Max: 1
18	1.762	-665.069	437.421	826.876
		-1650.836	789.911	3853.192
Min: 1				Max: 1
18	2.350	-647.395	475.633	1095.341
		-1626.975	806.451	4327.297
Min: 1				Max: 1
19	0	-758.168	1597.687	-4074.224
		-426.609	618.106	-841.725

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
Min: 1				Max: 1
19	0.350	-758.168	1532.973	-3525.359
		-428.577	587.674	-630.714
Min: 1				Max: 1
19	0.700	-758.168	1468.259	-3001.143
		-430.546	557.241	-430.353
Min: 1				Max: 1
19	1.050	-758.168	1403.545	-2496.572
		-432.515	526.809	-240.645
Min: 1				Max: 1
19	1.400	-758.168	1338.831	-2013.662
		-434.484	496.376	-61.527
Min: 1				Max: 1
20	0	-758.168	1338.831	-2013.662
		-434.484	496.376	-61.527
Min: 1				Max: 1
20	0.731	-758.168	1209.789	-1086.829
		-438.597	437.361	279.810
Min: 1				Max: 1
20	1.462	-436.589	526.527	-319.724
		-417.076	595.031	711.977
Min: 1				Max: 1
20	2.194	-486.589	467.511	43.741
		-718.422	803.519	1283.170
Min: 1				Max: 1
20	2.925	-486.589	408.496	364.031
		-722.515	674.434	1823.587
Min: 1				Max: 1
21	0	-486.589	408.496	364.031
		-722.515	674.434	1823.587
Min: 1				Max: 1
21	1.031	-486.589	321.233	758.541
		-652.684	484.662	2457.413
Min: 1				Max: 1
21	2.063	-486.589	233.971	1358.693
		-652.746	323.762	2833.704
Min: 1				Max: 1
21	3.094	-550.515	119.373	125.338
		-604.729	143.574	3111.127
Min: 1				Max: 1
21	4.125	-601.162	3.49E-06	1105.736
		-577.397	-29.474	3183.492
Min: 1				Max: 1
		[illegible]	[illegible]	[illegible]
Min: 1		[illegible]	[illegible]	[illegible]
		-610.810	-103.[illegible]	3021.[illegible]

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line: Corresp.load group)

Memb.	distance [m]	N [kN]	Vz [kN]	My [kNm]
Min: 1				Max: 1
22	2.163	-493.380	-263.260	995.635
		-671.159	-333.108	2219.353
Min: 1				Max: 1
22	3.244	-504.462	-350.522	663.809
		-671.159	-523.913	2356.026
Min: 1				Max: 1
22	4.325	-510.544	-437.784	237.631
		-747.217	-703.772	1696.622
Min: 1				Max: 1
23	0	-510.544	-437.784	237.631
		-747.217	-703.772	1696.622
Min: 1				Max: 1
23	0.731	-514.657	-496.800	-104.076
		-747.217	-832.813	1134.909
Min: 1				Max: 1
23	1.462	-518.770	-555.815	-428.933
		-747.217	-961.855	478.633
Min: 1				Max: 1
23	2.194	-794.462	-1239.078	-1277.474
		-475.638	-466.649	32.615
Min: 1				Max: 1
23	2.925	-798.576	-1368.119	-2230.731
		-475.638	-525.665	-274.200
Min: 1				Max: 1
24	0	-798.576	-1368.119	-2230.731
		-475.638	-525.665	-274.200
Min: 1				Max: 1
24	0.350	-800.544	-1432.833	-2720.997
		-475.638	-556.097	-463.508
Min: 1				Max: 1
24	0.700	-802.513	-1497.547	-3233.714
		-475.638	-586.530	-663.468
Min: 1				Max: 1
24	1.050	-804.482	-1562.261	-3769.130
		-475.638	-616.962	-874.079
Min: 1				Max: 1
24	1.400	-806.451	-1626.975	-4327.297
		-475.638	-647.395	-1095.341
Min: 1				Max: 1

E.L.S. (Combinación característica)
(Reacciones)

ENVELOPE SPECIFIC.: DF ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	PLUS	4	0.830000		Sob unif parcial dintel dcha
F	PLUS	5	0.830000		Sob unif parcial dintel izqda
G	PLUS	6	0.830000		Sobrecarga uniforme dintel cen
H	PLUS	7	0.830000		Sobrecarga posicion lateral
I	PLUS	8	1.000		Sobrecarga solera
J	PLUS	13	1.000		Empuje activo debido a la sob
K	PLUS	15	1.000		Empuje activo debido a la sob
L	PLUS	18	1.000		Frenado
ALTERNATIVE ENVELOPE :					
M	PERM.	1	1.000		Peso Propio
N	PL.PERM	2	1.000		Cargas permanentes
O	PL.PERM	17	1.000		Reologicas
P	PL.PERM	10	1.000		Empuje al reposo de tierras
Q	PLUS	4	0.830000		Sob unif parcial dintel dcha
R	PLUS	5	0.830000		Sob unif parcial dintel izqda
S	PLUS	6	0.830000		Sobrecarga uniforme dintel cen
T	PLUS	7	0.830000		Sobrecarga posicion lateral
U	PLUS	8	1.000		Sobrecarga solera
V	PLUS	14	1.000		Empuje al reposo sob unif
W	PLUS	16	1.000		Empuje al reposo sob. parcial
X	PLUS	18	1.000		Frenado

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
1		197.923		
		232.190		
	Min: M N O P V X			Max: A B C D E F G H I K
2		451.815		
		530.419		
	Min: M N O P V X			Max: A B C D E F G H I K
3		505.853		
		589.852		
	Min: M N O P V X			Max: A B C D E F G H I K
4	-49.259	479.473		
	-234.654	545.760		
	Min: A B C D K			Max: M N O P Q R S T U V X
5		410.402		
		507.193		
	Min: A B C D H K			Max: M N O P Q R S U V X
6		194.176		
		261.775		

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
7		193.546		
		251.145		
	Min: A B C D E J L			Max: M N O P R S T U W
8		398.203		
		494.993		
	Min: A B C D E J L			Max: M N O P R S T U W
9	18.822	476.205		
	252.216	542.450		
	Min: A B C D J L			Max: M N O P Q P S T U W
10		515.273		
		599.203		
	Min: N N O P W			Max: A B C D E F G H I J L
11		472.168		
		600.783		
	Min: M N O P W			Max: A B C D E F G H I J L
12		213.125		
		297.646		
	Min: M N O P W			Max: A B C D E F G H I J L

ENVELOPE SPECIFIC : EQ **

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	PLUS	4	0.830000		Sob unif parcial dintel dcha
F	PLUS	5	0.830000		Sob unif parcial dintel izqda
G	PLUS	6	0.830000		Sobrecarga uniforme dintel cen
H	PLUS	7	0.830000		Sobrecarga posicion lateral
I	PLUS	8	1.000		Sobrecarga solera
J	PLUS	13	1.000		Empuje activo debido a la sob
K	PLUS	15	1.000		Empuje activo debido a la sob
L	PLUS	16	1.000		Frenado

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
4	-174.099	491.015		
	24.080	524.702		
	Min: A B C D J L			Max: A B C D E F G H I K
9	-56.517	521.432		
	141.661	487.745		
	Min: A B C D E F G H I J L			Max: A B C D K

ENVELOPE for < N > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-0	262.957	3.02E-06	A B C D E F G I K L
		-0	237.895	2.74E-06	A B C D H J
1	1.150	-0	-124.132	79.821	A B C D E F G I K L
		-0	-149.201	50.999	A B C D H J
2	0	-0	429.583	79.821	A B C D E F G I K L
		-0	354.757	50.999	A B C D H J
2	1.150	-0	42.487	351.261	A B C D E F G I K L
		-0	-32.339	236.389	A B C D H J
3	0	-0	592.888	340.562	A B C D F G I
		-0	521.787	247.082	A B C D E H J K L
3	1.150	-0	205.792	799.809	A B C D F G I
		-0	134.691	624.557	A B C D E H J K L
4	0	-0	-615.033	793.644	A B C D E F J L
		+0	-495.381	639.032	A B C D G H I K
4	0.925	-0	-669.103	199.705	A B C D E F J L
		+0	-553.106	154.107	A B C D G H I K
5	0	+0	-151.023	166.393	A B C D F G H I
		+0	-175.603	187.419	A B C D E J K L
5	0.925	+0	-203.747	1.93E-06	A B C D F G H I
		+0	-229.627	2.12E-06	A B C D E J K L
6	0	-0	225.764	2.09E-06	A B C D F G H I J K
		-0	191.351	1.77E-06	A B C D E L
6	0.925	-0	168.039	132.134	A B C D F G H I J K
		-0	137.326	152.013	A B C D E L
7	0	-0	616.420	176.625	A B C D E G H I
		-0	560.125	157.522	A B C D F J K L
7	0.925	-0	558.716	720.135	A B C D E G H I
		-0	506.100	650.651	A B C D F J K L
8	0	+0	-203.507	796.151	A B C D F G
		+0	-227.016	848.731	A B C D E H I J K L

ENVELOPE for < N > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
8	1.150	+0	-590.603	339.517	A B C D F G
		+0	-614.111	365.082	A B C D E H I J K L
9	0	+0	-24.667	326.796	A B C D E G I K L
		+0	-56.691	377.824	A B C D F H J
9	1.150	+0	-411.752	75.560	A B C D E G I K L
		+0	-443.737	90.045	A B C D F H J
10	0	-0	130.777	72.187	A B C D F
		-0	112.050	93.722	A B C D E G H I J K L
10	1.150	-0	-256.319	2.95E-06	A B C D F
		-0	-275.046	3.16E-06	A B C D E G H I J K L
11	0	-1383.826	-24.080	294.256	A B C D E F G H I K
		-1106.239	174.069	-292.565	A B C D J L
11	2.350	-1290.127	-191.203	24.109	A B C D E F G H I K
		-1035.143	-16.122	-114.081	A B C D J L
12	0	-1290.127	-191.203	24.109	A B C D E F G H I K
		-1035.143	-16.122	-114.081	A B C D J L
12	2.350	-1018.409	-321.871	-636.231	A B C D E F J H I F
		-964.442	-169.994	-339.738	A B C D J L
13	0	-1018.409	-321.871	-636.231	A B C D E F J H I F
		-964.442	-169.994	-339.738	A B C D J L
13	2.350	-746.691	-451.539	-1193.553	A B C D E F G H I F
		-823.740	-316.869	-679.472	A B C D J L
14	0	-746.691	-451.539	-1193.553	A B C D E F G H I F
		-823.740	-316.869	-679.472	A B C D J L
14	2.350	-475.973	-581.211	-1881.011	A B C D E F G H I
		-683.038	-463.868	-1082.912	A B C D J L
15	0	-1379.753	56.517	-425.458	A B C D E F G H I J L
		-1124.765	-141.661	151.362	A B C D J
15	2.350	-1316.053	223.637	-89.139	A B C D E F G H I J L
		-1059.066	48.560	49.106	A B C D J
16	0	-1309.053	223.637	-89.139	A B C D E F G H I J L
		-1054.066	48.560	49.106	A B C D K
16	2.350	-1238.355	354.309	597.035	A B C D E F G H I J L
		-983.368	202.332	351.042	A B C D K
17	0	-1238.355	354.309	597.035	A B C D E F G H I J L
		-983.368	202.332	351.042	A B C D K
17	2.350	-1167.656	448.532	1547.562	A B C D E F G H I J L
		-912.669	319.656	971.515	A B C D K
18	0	-1167.656	448.532	1547.562	A B C D E F G H I J L
		-912.669	319.656	971.515	A B C D K
18	2.350	-1096.957	506.307	2676.636	A B C D E F G H I J L

ENVELOPE for < N > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-841.970	400.531	1824.872	A B C D K
19	0	-495.843	1066.975	-2429.099	A B C D E F G H I J K
		-346.119	834.100	-1744.989	A B C D L
19	1.400	-495.843	836.952	-1061.346	A B C D E F G H I J K
		-351.369	688.710	-679.022	A B C D L
20	0	-495.843	886.953	-1061.346	A B C D E F G H I J K
		-351.369	688.710	-679.022	A B C D L
20	2.925	-495.843	529.116	1009.663	A B C D E F G H I J K
		-362.338	403.216	917.920	A B C D L
21	0	-495.843	529.116	1009.663	A B C D E F G H I J K
		-362.338	403.216	917.920	A B C D L
21	4.325	-495.843	5.29E-06	2153.876	A B C D E F G H I J K
		-378.557	-18.926	1748.946	A B C D L
22	0	-495.843	-18.926	2153.876	A B C D E F G H I J K...
		-378.557	-4.22E-06	1748.946	A B C D
22	4.325	-512.062	-543.042	927.308	A B C D E F G H I J K...
		-378.557	-422.142	836.065	A B C D
23	0	-512.062	-543.042	927.308	A B C D E F G H I J K...
		-378.557	-422.142	836.065	A B C D
23	2.925	-523.031	-905.884	-1198.559	A B C D E F G H I J K...
		-378.557	-707.636	-816.235	A B C D
24	0	-523.031	-905.884	-1198.559	A B C D E F G H I J K...
		-378.557	-707.636	-816.235	A B C D
24	1.400	-528.221	-1035.901	-2592.309	A B C D E F G H I J K...
		-378.557	-853.026	-1908.699	A B C D

E.L.S. (Combinación frecuente)
(Fisuración)

ENVELOPE SPECIFIC.: DH ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	QR	11	1.000		Empuje act/rep de tierras
F	QR	12	1.000		Empuje al rep/act de tierras
G	PLUS	3	0.600000		Sobrecarga uniforme total
H	PLUS	8	0.600000		Sobrecarga solera
I	PLUS	13	0.600000		Empuje activo debido a la sob
J	PLUS	15	0.600000		Empuje activo debido a la sob
K	PLUS	18	0.600000		Frenado
ALTERNATIVE ENVELOPE :					
L	PERM.	1	1.000		Peso Propio
M	PL.PERM	2	1.000		Cargas permanentes
N	PL.PERM	17	1.000		Reologicas
O	PL.PERM	10	1.000		Empuje al reposo de tierras
P	QR	11	1.000		Empuje act/rep de tierras
Q	QR	12	1.000		Empuje al rep/act de tierras
R	PLUS	3	0.600000		Sobrecarga uniforme total
S	PLUS	8	0.600000		Sobrecarga solera
T	PLUS	14	0.600000		Empuje al reposo sob unif
U	PLUS	16	0.600000		Empuje al reposo sob. parcial
V	PLUS	18	0.600000		Frenado

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-0	192.810	2.22E-06	L M N Q T V
		-0	295.874	3.40E-06	L M N P R S U
1	0.287	-0	96.036	41.522	L M N Q T V
		-0	199.100	71.152	L M N P R S U
1	0.575	-0	-0.738273	55.221	L M N Q T V
		-0	102.326	114.482	L M N P R S U
1	0.862	-0	-97.512	41.097	L M N Q T V
		-0	5.552	129.990	L M N P R S U
1	1.150	-0	-194.286	-0.849012	L M N Q T V
		-0	-91.222	117.675	L M N P R S U
2	0	-0	250.722	-0.849011	L M N Q T V
		-0	501.362	117.675	L M N P R S U
2	0.287	-0	153.948	57.322	L M N Q T V
		-0	404.588	247.905	L M N P R S U
2	0.575	-0	57.175	87.671	L M N Q T V
		-0	307.815	350.313	L M N P R S U
2	0.862	-0	-39.599	90.198	L M N Q T V

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
2	1.150	-0	211.041	424.899	L M N P R S U
		-0	-136.373	64.902	L M N Q T V
		-0	114.267	471.662	L M N P R S U
3	0	-0	366.358	64.902	L M N Q T V
		+0	700.855	471.662	L M N P R S U
3	0.288	-0	269.584	156.318	L M N Q T V
		+0	604.081	659.246	L M N P R S U
3	0.575	-0	172.810	219.913	L M N Q T V
		+0	507.307	819.008	L M N P R S U
3	0.863	-0	76.036	255.684	L M N Q T V
		+0	410.533	950.948	L M N P R S U
3	1.150	-0	-20.737	263.634	L M N Q T V
		+0	313.759	1055.065	L M N P R S U
4	0	+0	-464.956	598.361	L M N P S U
		+0	-648.971	839.308	L M N Q R T V
4	0.231	-0	-479.017	489.214	L M N P S U
		+0	-662.478	687.672	L M N Q R T V
4	0.462	+0	-493.078	376.815	L M N P S U
		+0	-675.984	532.912	L M N Q R T V
4	0.694	+0	-507.140	261.165	L M N P S U
		+0	-689.490	375.030	L M N Q R T V
4	0.925	-0	-521.201	142.261	L M N P S U
		+0	-702.996	214.023	L M N Q R T V
5	0	-0	-125.576	142.263	L M N P S U
		+0	-204.264	214.023	L M N Q R T V
5	0.231	-0	-133.737	111.575	L M N P S U
		+0	-217.270	165.292	L M N Q R T V
5	0.462	-0	-154.178	77.554	L M N P U
		+0	-230.996	113.339	L M N Q R S T V
5	0.694	-0	-167.634	40.319	L M N P U
		+0	-245.058	58.295	L M N Q R S T V
5	0.925	-0	-181.191	1.68E-05	L M N P U
		+0	-259.119	2.43E-06	L M N Q R S T V
6	0	+0	174.901	1.62E-06	L M N Q T V
		+0	262.904	2.34E-06	L M N P R S U
6	0.231	-0	161.395	38.884	L M N Q T V
		+0	238.843	56.258	L M N P R S U
6	0.463	-0	147.889	74.646	L M N Q T V
		+0	214.782	110.465	L M N P R S U
6	0.694	-0	133.448	107.212	L M N Q S T V
		-0	211.656	160.891	L M N P R U
6	0.926	-0	119.336	136.446	L M N Q S T V
		-0	188.190	203.275	L M N P R U
7	0	-0	597.636	136.446	L M N Q S T V
		-0	649.969	203.275	L M N P R U
7	0.231	-0	493.638	252.226	L M N Q S T V

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
7	0.463	+0	676.159	366.193	L M N P R U
		-0	479.577	364.753	L M N Q S T V
7	0.694	+0	662.653	520.938	L M N P R U
		-0	465.518	474.030	L M N Q S T V
7	0.925	+0	649.146	672.675	L M N P R U
		-0	451.455	580.054	L M N Q S T V
		+0	635.640	821.229	L M N P R U
8	0	+0	-5.717	328.335	L M N P U
		-0	-340.428	1120.370	L M N Q R S T V
8	0.287	+0	-192.491	312.830	L M N P U
		-0	-437.202	1008.536	L M N Q R S T V
8	0.575	+0	-199.265	269.453	L M N P U
		-0	-533.976	862.979	L M N Q R S T V
8	0.862	+0	-296.038	199.253	L M N P U
		-0	-630.750	701.549	L M N Q R S T V
8	1.150	+0	-392.812	99.231	L M N P U
		-0	-727.524	506.297	L M N Q R S T V
9	0	-0	115.473	99.231	L M N P U
		+0	-135.351	506.297	L M N Q R S T V
9	0.288	-0	18.699	113.518	L M N P U
		+0	-232.125	453.473	L M N Q R S T V
9	0.575	-0	-78.075	109.981	L M N P U
		+0	-328.899	372.826	L M N Q R S T V
9	0.863	-0	-174.849	73.625	L M N P U
		+0	-425.673	264.356	L M N Q R S T V
9	1.150	-0	-271.623	9.445	L M N P U
		+0	-522.446	128.064	L M N Q R S T V
10	0	-0	185.335	9.445	L M N P U
		-0	82.133	128.064	L M N Q R S T V
10	0.287	-0	88.561	43.817	L M N P U
		-0	-14.586	137.732	L M N Q R S T V
10	0.575	-0	-8.213	60.367	L M N P U
		+0	-111.360	119.677	L M N Q R S T V
10	0.862	-0	-104.987	44.095	L M N P U
		-0	-208.134	73.750	L M N Q R S T V
10	1.150	-0	-201.761	2.32E-06	L M N P U
		-0	-304.908	3.51E-06	L M N Q R S T V
11	0	-1093.993	344.387	-532.344	L M N Q T V
		-1321.075	-43.936	413.374	L M N P R S U
11	0.583	-1076.315	270.654	-361.845	L M N Q T V
		-1309.400	-89.184	374.143	L M N P R S U
11	1.175	-1058.640	200.373	-211.649	L M N Q T V
		-1285.726	-132.103	309.029	L M N P R S U
11	1.763	-1040.965	133.543	-115.731	L M N Q T V
		-1268.051	-172.744	219.369	L M N P R S U
11	2.350	-1047.133	-48.028	-85.873	A B C D I K
		-1229.939	-107.316	137.492	L M N Q R S U

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2 line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
12	0	-1047.133	-48.028	-85.873	A B C D I K
		-1229.939	-107.316	137.492	L M N Q R S U
12	0.588	-1050.754	-164.562	-157.629	A B C D G K
		-1047.443	-71.741	96.388	L M N Q S T U
12	1.175	-1171.079	-198.775	-264.590	A B C D G E
		-1029.773	-128.216	37.482	L M N Q S T U
12	1.763	-1155.406	-230.304	-390.744	A B C D G K
		-1012.098	-131.240	-53.590	L M N Q S T U
12	2.350	-1179.673	-341.316	-551.922	L M N P R U
		-952.592	-149.294	-157.662	L M N Q S T V
13	0	-1179.673	-341.316	-551.922	L M N P R U
		-952.592	-149.294	-157.662	L M N Q S T V
13	0.527	-1162.003	-369.289	-760.480	L M N P R U
		-934.917	-195.414	-259.089	L M N Q S T V
13	1.175	-1144.328	-392.934	-984.215	L M N P R U
		-917.243	-239.023	-386.558	L M N Q S T V
13	1.762	-1126.654	-415.400	-1221.790	L M N P R U
		-899.568	-277.320	-532.160	L M N Q S T V
13	2.350	-1108.979	-438.533	-1471.885	L M N P R U
		-881.893	-313.065	-711.749	L M N Q S T V
14	0	-1108.979	-438.539	-1471.965	L M N P R U
		-881.893	-313.065	-711.749	L M N Q S T V
14	0.588	-1091.314	-463.400	-1733.102	L M N P R U
		-864.218	-345.379	-926.336	L M N Q S T V
14	1.175	-1073.630	-468.933	-2004.163	L M N P R U
		-846.544	-374.242	-1116.894	L M N Q S T V
14	1.763	-1055.955	-432.750	-2283.967	L M N P R S U
		-829.869	-359.190	-1344.132	L M N Q T V
14	2.350	-1038.281	-493.772	-2570.833	L M N P R S U
		-811.195	-421.143	-1585.282	L M N Q T V
15	0	-1332.315	63.205	-496.935	L M N Q R S T V
		-1135.029	-316.196	449.513	L M N P U
15	0.588	-1314.640	108.403	-446.463	L M N Q R S T V
		-1087.664	-252.291	278.758	L M N P U
15	1.175	-1296.965	151.322	-379.058	L M N Q R S T V
		-1069.990	-181.833	152.405	L M N P U
15	1.763	-1279.291	191.963	-269.127	L M N Q R S T V
		-1052.315	-114.959	65.419	L M N P U
15	2.350	-1211.135	126.778	-176.476	L M N Q R S T V
		-1058.439	67.491	45.889	A B C D J
16	0	-1431.135	126.778	-176.476	L M N Q R S T V
		-1261.439	67.491	45.889	A B C D J
16	0.588	-1253.811	21.236	-123.735	L M N Q R S T V
		-1242.121	184.431	110.073	A B C D E
16	1.175	-1431.619	147.679	-53.593	L M N Q S T V
		-1433.435	218.234	248.474	A B C D G

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
16	1.763	-1023.454	200.702	48.903	L M N Q S T U V
		-1166.760	249.787	335.062	A B C D G
16	2.350	-963.832	168.577	163.178	L M N P S U
		-1190.917	360.535	553.640	L M N Q R T V
17	0	-963.832	168.577	163.178	L M N P S U
		-1190.917	360.535	553.640	L M N Q R T V
17	0.587	-945.157	214.736	275.961	L M N P S U
		-1173.243	387.508	778.489	L M N Q R T V
17	1.175	-928.482	257.533	414.874	L M N P S U
		-1155.568	412.203	1013.516	L M N Q R T V
17	1.762	-910.808	296.819	577.834	L M N P S U
		-1137.893	434.619	1262.381	L M N Q R T V
17	2.350	-893.133	332.642	762.958	L M N P S U
		-1120.218	454.758	1523.747	L M N Q R T V
18	0	-893.133	332.642	762.958	L M N P S U
		-1120.218	454.758	1523.747	L M N Q R T V
18	0.588	-875.458	365.064	952.061	L M N P S U
		-1102.544	472.619	1796.276	L M N Q R T V
18	1.175	-857.784	393.924	1191.159	L M N P S U
		-1084.869	485.202	2076.629	L M N Q R T V
18	1.763	-840.109	418.879	1429.963	L M N P U
		-1067.194	501.969	2369.723	L M N Q R S T V
18	2.350	-822.434	440.855	1632.680	L M N P U
		-1049.520	512.995	2667.981	L M N Q R S T V
19	0	-493.776	1033.220	-2570.933	L M N P R S U
		-421.149	811.195	-1585.282	L M N Q T V
19	0.350	-493.776	995.675	-2214.991	L M N P R S U
		-421.937	774.847	-1307.724	L M N Q T V
19	0.700	-493.776	953.069	-1873.961	L M N P R S U
		-422.724	738.500	-1042.889	L M N Q T V
19	1.050	-493.776	910.464	-1547.843	L M N P R S U
		-423.512	702.152	-790.775	L M N Q T V
19	1.400	-493.776	867.858	-1236.636	L M N P R S U
		-424.299	665.805	-551.382	L M N Q T V
20	0	-493.776	867.858	-1236.636	L M N P R S U
		-424.299	665.805	-551.382	L M N Q T V
20	0.731	-493.776	783.410	-632.851	L M N P R S U
		-425.945	594.431	-90.603	L M N Q T V
20	1.463	-441.318	595.431	-101.831	L M N P S U
		-480.048	626.538	323.955	L M N Q R T V
20	2.194	-441.318	524.137	337.463	L M N P S U
		-481.694	542.089	756.234	L M N Q R T V
20	2.925	-441.318	452.734	664.626	L M N P S U
		-483.339	457.641	1121.761	L M N Q R T V
21	0	-441.318	452.734	664.626	L M N P S U
		-483.339	457.641	1121.761	L M N Q R T V

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
21	1.081	-441.318	347.193	1097.089	L M N P S U
		-485.772	332.773	1549.078	L M N Q R T V
21	2.162	-441.318	241.663	1415.442	L M N P S U
		-488.205	207.905	1841.382	L M N Q R T V
21	3.244	-483.145	115.550	1614.378	L M N O S U
		-441.757	196.879	2004.234	A B C D G I K
21	4.325	-503.129	4.22E-06	1671.567	L M N O S T U
		-431.015	-11.356	2059.375	A B C D G K
22	0	-503.129	-11.356	1671.567	L M N O S T U V
		-431.015	-4.99E-06	2059.375	A B C D G
22	1.081	-485.578	-126.945	1602.100	L M N O S T V
		-444.200	-118.235	1981.956	A B C D G J
22	2.163	-445.940	-252.902	1381.311	L M N Q S T V
		-493.314	-219.114	1916.903	L M N P R U
22	3.244	-448.373	-358.438	1060.806	L M N Q S T V
		-493.314	-344.013	1512.445	L M N P R U
22	4.325	-450.806	-463.972	616.190	L M N Q S T V
		-493.314	-468.331	1072.974	L M N P R U
23	0	-450.806	-463.973	616.190	L M N Q S T V
		-493.314	-468.331	1072.974	L M N P R U
23	0.731	-462.451	-535.347	250.813	L M N Q S T V
		-493.314	-553.329	639.229	L M N P R U
23	1.463	-474.096	-606.720	-166.755	L M N Q S T V
		-493.314	-637.773	205.710	L M N P R U
23	2.194	-503.200	-734.649	-726.984	L M N Q R S T V
		-440.955	-635.871	-164.052	L M N P U
23	2.925	-508.845	-375.593	-1317.943	L M N Q R S T V
		-440.955	-677.044	-633.045	L M N P U
24	0	-509.845	-379.095	-1317.943	L M N Q R S T V
		-440.955	-677.044	-633.045	L M N P U
24	0.350	-510.603	-601.703	-1533.083	L M N Q R S T V
		-440.955	-573.352	-375.371	L M N P U
24	0.700	-511.420	-584.305	-1393.141	L M N Q R S T V
		-440.955	-749.719	-1192.419	L M N P U
24	1.050	-512.208	-1006.914	-2113.105	L M N Q R S T V
		-440.955	-736.087	-1421.135	L M N P U
24	1.400	-512.995	-1249.610	-2667.981	L M N Q R S T V
		-440.955	-824.434	-1421.680	L M N P U

ENVELOPE SPECIFIC.: DF ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	PLUS	4	0.830000		Sob unif parcial dintel dcha
F	PLUS	5	0.830000		Sob unif parcial dintel izqda
G	PLUS	6	0.830000		Sobrecarga uniforme dintel cen
H	PLUS	7	0.830000		Sobrecarga posicion lateral
I	PLUS	8	1.000		Sobrecarga solera
J	PLUS	13	1.000		Empuje activo debido a la sob
K	PLUS	15	1.000		Empuje activo debido a la sob
L	PLUS	18	1.000		Frenado

ALTERNATIVE ENVELOPE :

M	PERM.	1	1.000		Peso Propio
N	PL.PERM	2	1.000		Cargas permanentes
O	PL.PERM	17	1.000		Reologicas
P	PL.PERM	10	1.000		Empuje al reposo de tierras
Q	PLUS	4	0.830000		Sob unif parcial dintel dcha
R	PLUS	5	0.830000		Sob unif parcial dintel izqda
S	PLUS	6	0.830000		Sobrecarga uniforme dintel cen
T	PLUS	7	0.830000		Sobrecarga posicion lateral
U	PLUS	8	1.000		Sobrecarga solera
V	PLUS	14	1.000		Empuje al reposo sob unif
W	PLUS	16	1.000		Empuje al reposo sob. parcial
X	PLUS	18	1.000		Frenado

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
1		197.928		
		282.390	/0.475 m² = 59.37 t/m²	
	Min: M N O P V X			Max: A B C D E F G H I K
2		451.815		
		580.419	/1.15 m² = 50.47 t/m²	
	Min: M N O P V X			Max: A B C D E F G H I K
3		505.853		
		589.852	/1.15 m² = 51.30 t/m²	
	Min: M N O P V X			Max: A B C D E F G H I K
4	-49.259	479.479		
	-284.654	545.760	/1.0375 m² = 52.60 t/m²	
	Min: A B C D K			Max: M N O P Q R S T U V X
5		410.402		
		507.188	/0.975 m² = 52.02 t/m²	
	Min: A B C D H K			Max: M N O P Q R S U V X
6		194.176		
		261.775	/0.5125 m² = 51.08 t/m² < 50.0 t/m² × 1.25 = 62.50 t/m²	

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
7		183.546		
		251.145		
	Min: A B C D H K			Max: M N O P Q R S U V X
8		398.207		
		494.993		
	Min: A B C D E J L			Max: M N O P R S T U W
9	16.822	476.209		
	252.216	542.490		
	Min: A B C D J L			Max: M N O P R S T U W
10		515.273		
		599.273	/1.037 m² = 57.78 t/m²	
	Min: M N O P W			Max: A B C D E F G H I J L
11		472.158		
		600.763	/0.975 m² = 61.6 t/m² < 62.50 t/m²	
	Min: M N O P W			Max: A B C D E F G H I J L
12		213.185		
		297.646	/0.5125 m² = 58.08 t/m² < 62.50 t/m²	
	Min: M N O P W			Max: A B C D E F G H I J L

Verifica Tensiones

ENVELOPE SPECIFIC.: DG ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	PL.PERM	2	1.000		Cargas permanentes
C	PL.PERM	17	1.000		Reologicas
D	PL.PERM	9	1.000		Empuje activo de tierras
E	PLUS	4	0.830000		Sob unif parcial dintel dcha
F	PLUS	5	0.830000		Sob unif parcial dintel izqda
G	PLUS	6	0.830000		Sobrecarga uniforme dintel cen
H	PLUS	7	0.830000		Sobrecarga posicion lateral
I	PLUS	8	1.000		Sobrecarga solera
J	PLUS	13	1.000		Empuje activo debido a la sob
K	PLUS	15	1.000		Empuje activo debido a la sob
L	PLUS	18	1.000		Frenado

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FZ [kN]	MY [kNm]	
4	-174.099	491.015		
	24.080	524.702		
	Min: A B C D J L			Max: A B C D E F G H I K
9	-56.517	521.432		
	141.661	487.745		
	Min: A B C D E F G H I J L			Max: A B C D K

ENVELOPE for < N > (and acccomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-0	262.957	3.02E-06	A B C D E F G I K L
		-0	237.895	2.74E-06	A B C D H J
1	1.150	-0	-124.138	79.821	A B C D E F G I K L
		-0	-149.201	50.999	A B C D H J
2	0	-0	429.583	79.821	A B C D E F G I K L
		-0	354.757	50.999	A B C D H J
2	1.150	-0	42.487	351.261	A B C D E F G I K L
		0	32.339	236.389	A B C D H J
3	0	0	592.888	340.566	A B C D F G I
		0	521.787	247.082	A B C D E H J K L
3	1.150	0	205.792	799.809	A B C D F G I
		-0	134.691	624.557	A B C D E H J K L
4	0	-0	615.083	793.644	A B C D E F J L

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		+0	-495.381	639.032	A B C D G H I K
4	0.925	-0	-659.108	199.705	A B C D E F J L
		+0	-553.106	154.107	A B C D G H I K
5	0	+0	-151.023	166.393	A B C D F G H I
		+0	-175.603	187.419	A B C D E J K L
5	0.925	+0	-208.747	1.93E-06	A B C D F G H I
		+0	-229.627	2.12E-06	A B C D E J K L
6	0	-0	225.764	2.09E-06	A B C D F G H I J K
		-0	191.351	1.77E-06	A B C D E L
6	0.925	-0	168.039	182.134	A B C D F G H I J K
		-0	137.326	152.013	A B C D E L
7	0	-0	616.440	176.625	A B C D E G H I
		-0	560.125	157.522	A B C D F J K L
7	0.925	-0	558.716	720.135	A B C D E G H I
		-0	506.100	650.651	A B C D F J K L
8	0	+0	-203.507	796.151	A B C D F G
		+0	-227.016	848.731	A B C D E H I J K L
8	1.150	+0	-590.603	339.537	A B C D F G
		+0	-614.112	365.082	A B C D E H I J K L
9	0	+0	-24.657	326.795	A B C D E G I K L
		+0	-56.691	377.824	A B C D F H J
9	1.150	+0	-411.752	75.860	A B C D E G I K L
		+0	-443.787	90.049	A B C D F H J
10	0	-0	130.777	72.187	A B C D F
		-0	112.050	93.722	A B C D E G H I J K L
10	1.150	-0	-256.319	2.95E-06	A B C D F
		-0	-275.046	3.16E-06	A B C D E G H I J K L
11	0	-1360.826	-24.080	284.255	A B C D E F G H I K
		-1105.839	174.099	-292.565	A B C D J L
11	2.350	-1290.127	-191.200	24.165	A B C D E F G H I K
		-1035.140	-16.122	-114.081	A B C D J L
12	0	-1290.127	-191.200	24.165	A B C D E F G H I K
		-1035.140	16.122	-114.081	A B C D J L
12	2.350	-1219.429	321.871	-585.832	A B C D E F G H I K
		-964.442	169.894	339.788	A B C D J L
13	0	-1219.429	321.872	-585.832	A B C D E F G H I K
		-964.442	169.894	-339.798	A B C D J L
13	2.350	1148.730	-415.095	1460.080	A B C D E F G H I K
		-893.743	287.218	-884.033	A B C D J L
14	0	-1148.730	415.324	-1461.011	A B C D E F G H K
		-893.743	-287.989	-883.102	A B C D I J L

$$C_{SD} = \frac{N \times 0.55}{F_H} \geq 1.50$$

$$C_{SD} = \frac{1125.84\ kN \times 0.55}{174.10\ kN} = 3.50$$

VERIFICA DESLIZAMIENTO

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
14	2.350	-1078.031	-473.099	-2512.045	A B C D E F G H K
		-823.044	-368.864	-1662.042	A B C D I J L
15	0	-1379.752	56.517	-425.458	A B C D E F G H I J L
		-1124.765	-141.661	151.362	A B C D K
15	2.350	-1309.053	223.637	-89.139	A B C D E F G H I J L
		-1054.066	48.560	49.106	A B C D K
16	0	-1309.053	223.637	-89.139	A B C D E F G H I J L
		-1054.066	48.560	49.106	A B C D K
16	2.350	-1238.355	354.309	597.085	A B C D E F G H I J L
		-983.368	202.332	351.042	A B C D K
17	0	-1238.355	354.309	597.085	A B C D E F G H I J L
		-983.368	202.332	351.042	A B C D K
17	2.350	-1167.656	448.532	1547.562	A B C D E F G H I J L
		-912.669	319.656	971.515	A B C D K
18	0	-1167.656	448.532	1547.562	A B C D E F G H I J L
		-912.669	319.656	971.515	A B C D K
18	2.350	-1096.957	506.307	2676.636	A B C D E F G H I J L
		-841.970	400.531	1824.872	A B C D K
19	0	-495.843	1066.975	-2429.099	A B C D E F G H I J K
		-346.119	834.100	-1744.989	A B C D L
19	1.400	-495.843	886.958	-1061.346	A B C D E F G H I J K
		-351.369	688.710	-679.022	A B C D L
20	0	-495.843	886.958	-1061.346	A B C D E F G H I J K
		-351.369	688.710	-679.022	A B C D L
20	2.925	-495.843	529.116	1009.663	A B C D E F G H I J K
		-362.338	403.216	917.920	A B C D L
21	0	-495.843	529.116	1009.663	A B C D E F G H I J K
		-362.338	403.216	917.920	A B C D L
21	4.325	-495.843	5.29E-06	2153.876	A B C D E F G H I J K
		-378.557	-18.926	1748.946	A B C D L
22	0	-495.843	-18.926	2153.876	A B C D E F G H I J K...
		-378.557	-4.22E-06	1748.946	A B C D
22	4.325	-512.062	-548.042	927.808	A B C D E F G H I J K...
		-378.557	-422.142	836.065	A B C D
23	0	-512.062	-548.042	927.808	A B C D E F G H I J K...
		-378.557	-422.142	836.065	A B C D
23	2.925	523.031	905.884	1198.559	A B C D E F G H I J K...
		378.557	707.636	816.235	A B C D
24	0	-523.031	-905.884	-1198.559	A B C D E F G H I J K...
		378.557	707.636	816.235	A B C D
24	1.400	529.281	-1085.901	2592.809	A B C D E F G H I J K...

ENVELOPE for < N > (and accomp. values) ""
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-378.557	-853.026	-1908.699	A B C D

INDICE

3.5. Dimensionamiento

3.5.1. Envolvente de esfuerzos para dimensionamiento

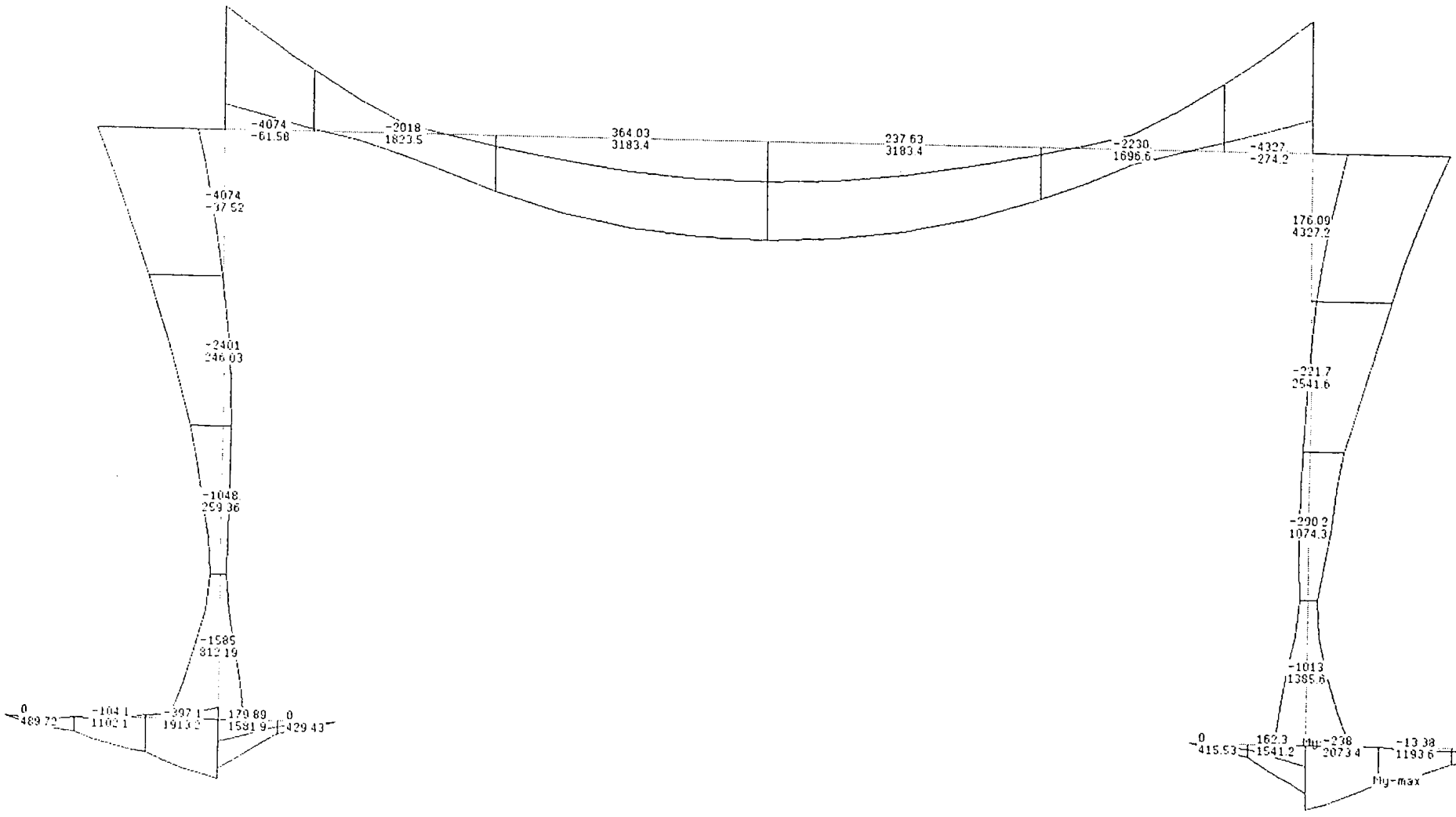
3.5.2. Cálculo de armaduras

3.5.3. Comprobación a cortante

3.5.1. Envolvente de esfuerzos

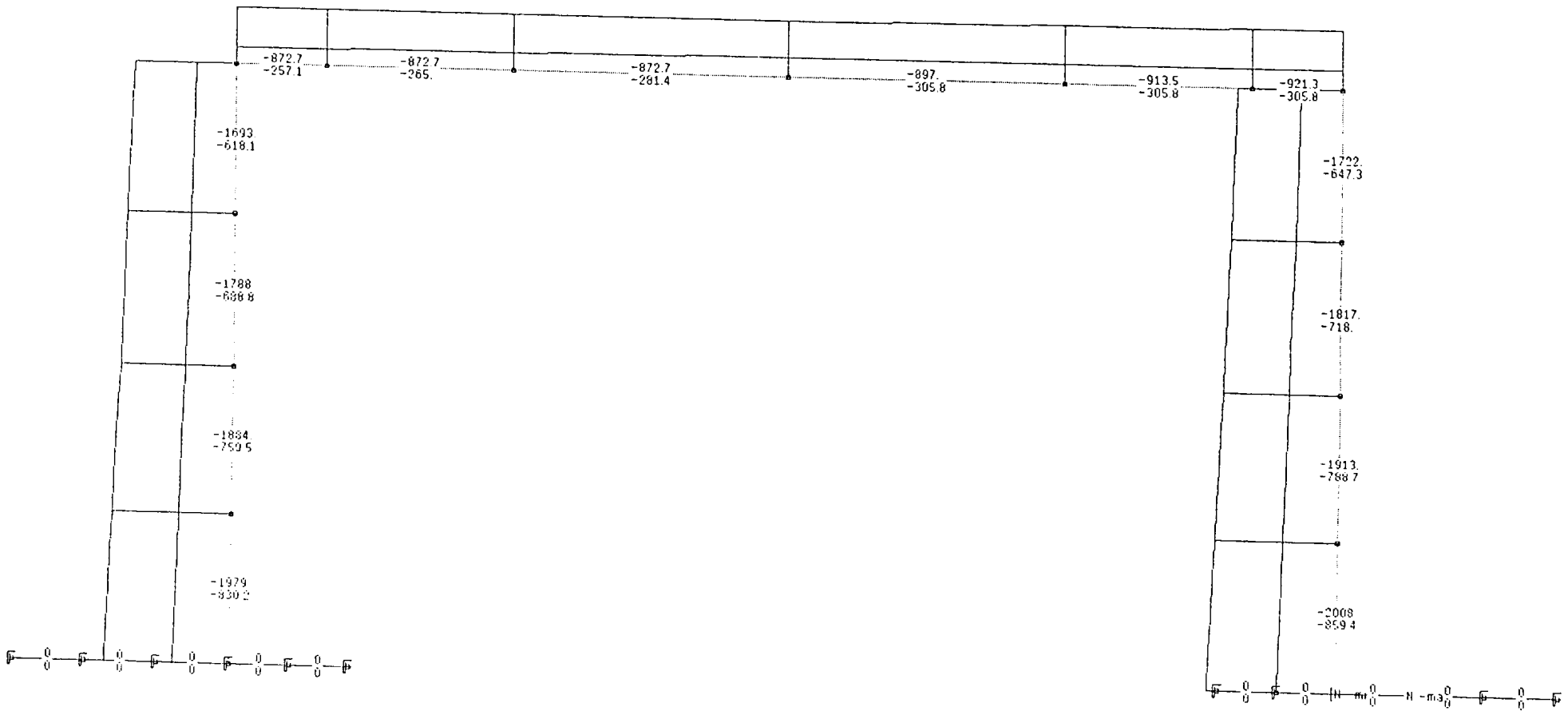
(Dimensionamiento)

Scale 1 : 95.5
Int. Forces envelope My, GWSP DC, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 5.00E-04
  min: -4.33E+03 max: 1.31E+03 [kNm]
- Envelope Moment My-max, Scale 5.00E-04
  min: -1.10E+03 max: 4.33E+03 [kNm]
- Text envelopes [kNm]

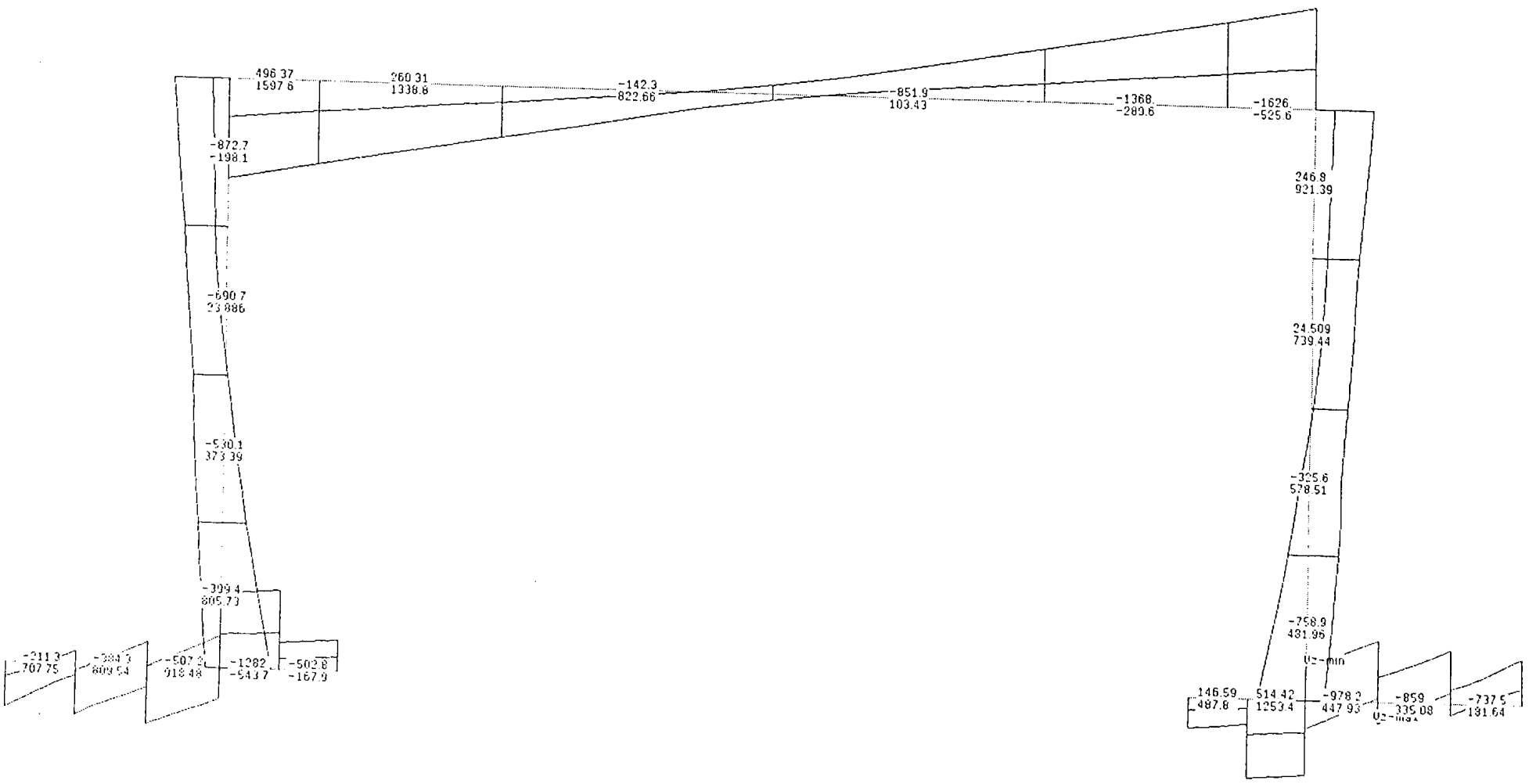


EL U Rotura Flexión

Scale 1 : 95.5
Int. Forces envelope N , GWSP DC, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Normal force N-min, Scale 1.00E-03
  min: -2.01E+03 max: -0.00E+00 [kN]
- Envelope Normal force N-max, Scale 1.00E-03
  min: -9.30E+02 max: 0.00E+00 [kN]
- Text envelopes [kN]



Scale 1 : 95.5
Int. Forces envelope Vz, GWSP DC, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 1.00E-03
  min: -1.63E+03 max: 6.18E+02 [kN]
- Envelope Shear force Vz-max, Scale 1.00E-03
  min: -6.47E+02 max: 1.60E+03 [kN]
- Text envelopes [kN]



LL1 - Cortante

3.5.2. Cálculo de armaduras

A partir de los resultados obtenidos del programa STATIK-3 se determinan las armaduras correspondientes, mediante el postprocesador FAGUS-3.

Se ha considerado una armadura mínima de flexión, en la dirección principal, del 0.18 % como cuantía geométrica y una armadura mínima en la otra dirección, ortogonal a la principal, (secundaria o de reparto) del 20% de la armadura de la dirección principal.

Envolvente de cálculo de solicitaciones: E.L.U. De flexión

	Group	Spec.	Loadcase	Factor	Stage	Title
A		PERM.	1	1.00		Peso Propio
B		OR	1	1.35		Peso Propio
C		PL.PERM	2	0.75		Cargas permanentes
D		OR	2	1.35		Cargas permanentes
E		PL.PERM	17	1.00		Reologicas
F		OR	17	1.35		Reologicas
G		PL.PERM	9	1.00		Empuje activo de tierras
H		OR	9	1.50		Empuje activo de tierras
I		OR	11	1.00		Empuje act/rep de tierras
J		OR	11	1.50		Empuje act/rep de tierras
K		OR	12	1.00		Empuje al rep/act de tier
L		OR	12	1.50		Empuje al rep/act de tier
M		PLUS	3	1.50		Sobrecarga uniforme total
N		PLUS	8	1.50		Sobrecarga solera
O		PLUS	13	1.50		Empuje activo debido a la
P		PLUS	15	1.50		Empuje activo debido a la
Q		PLUS	18	1.50		Frenado
ALTERNATIVA						
R		PERM.	1	1.00		Peso Propio
S		OR	1	1.35		Peso Propio
T		PL.PERM	2	0.75		Cargas permanentes
U		OR	2	1.35		Cargas permanentes
V		PL.PERM	17	1.00		Reologicas
W		OR	17	1.35		Reologicas
X		PL.PERM	10	1.00		Empuje al reposo de tierr
Y		OR	10	1.50		Empuje al reposo de tierr
Z		OR	11	1.00		Empuje act/rep de tierras
AA		OR	11	1.50		Empuje act/rep de tierras
AB		OR	12	1.00		Empuje al rep/act de tier
AC		OR	12	1.50		Empuje al rep/act de tier
AD		PLUS	3	1.50		Sobrecarga uniforme total
AE		PLUS	8	1.50		Sobrecarga solera
AF		PLUS	14	1.50		Empuje al reposo sob unif
AG		PLUS	16	1.50		Empuje al reposo sob. par
AH		PLUS	18	1.50		Frenado
ALTERNATIVA						
AI		PERM.	1	1.00		Peso Propio
AJ		PL.PERM	2	1.00		Cargas permanentes
AK		PL.PERM	17	1.00		Reologicas
AL		PL.PERM	9	1.00		Empuje activo de tierras
AM		OR	11	1.00		Empuje act/rep de tierras
AN		OR	12	1.00		Empuje al rep/act de tier
AO		PLUS	4	1.00		Sob unif parcial dintel d
AP		PLUS	5	1.00		Sob unif parcial dintel i
AQ		PLUS	6	1.00		Sobrecarga uniforme dinte
AR		PLUS	7	1.00		Sobrecarga posicion late
AS		PLUS	8	1.00		Sobrecarga solera
AT		PLUS	13	1.00		Empuje activo debido a la
AU		PLUS	15	1.00		Empuje activo debido a la
AV		PLUS	18	1.00		Frenado
AW		PLUS	19	1.00		ACCIDENTAL : Choque
ALTERNATIVA						
AX		PERM.	1	1.00		Peso Propio
AY		PL.PERM	2	1.00		Cargas permanentes
AZ		PL.PERM	17	1.00		Reologicas
BA		PL.PERM	10	1.00		Empuje al reposo de tierr
BB		OR	11	1.00		Empuje act/rep de tierras
BC		OR	12	1.00		Empuje al rep/act de tier
BD		PLUS	4	1.00		Sob unif parcial dintel d
BE		PLUS	5	1.00		Sob unif parcial dintel i
BF		PLUS	6	1.00		Sobrecarga uniforme dinte
BG		PLUS	7	1.00		Sobrecarga posicion late
BH		PLUS	8	1.00		Sobrecarga solera
BI		PLUS	14	1.00		Empuje al reposo sob unif
BJ		PLUS	16	1.00		Empuje al reposo sob. par
BK		PLUS	18	1.00		Frenado

Cálculo de las secciones de un pórtico o marco

Cálculo de cuantías de armaduras mínimas : Hormigón Armado

Materiales :

Hormigón : fck (N/mm^2)= 30 — γ c = 1.50 — fcd (N/mm^2)= 20.0

h (m) = **1.20** — b (m) = **1.00** — Ac (m^2) = 1.20

rec (m) = 0.03 — d (m) = 1.16 — d' (m) = 0.045 — d' < h/7 Verifica

Acero pasivo : **B 500 S**

fs (N/mm^2)= **550**

fyk (N/mm^2)= **500**

γ s = **1.15**

fyd (N/mm^2)= 434.8

FLEXIÓN SIMPLE O COMPUESTA : sección rectangular

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 0,056 *0.85* fcd *b*d /fyd =

Cuantía mecánica mínima armadura de compresión :

A's(cm^2/m) = 0,05*Nd / fycd

DINTEL : h (m) = **1.20** — **LOSA**

Cuantía geométrica mínima As ^{MIN} (cm^2/m) = 21.6 — repartidas en las dos caras

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 25.29 — ϕ20/0.125

HASTIAL : h (m) = **1.20** — **MURO**

Cuantía geométrica mínima :

As ^{MIN} (cm^2/m) = 10.80 — Armadura vertical cara de tracción

As ^{MIN} (cm^2/m) = 3.24 — Armadura vertical otra cara

As min horizontal (cm2/m) = 25.60 — Armadura horizontal en cara vista — ϕ20/0.125

As min horizontal (cm2/m) = 12.80 — Armadura horizontal en cara oculta — ϕ16/0.25 + ϕ12/0.25

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 25.29

Cuantía mecánica mínima armadura de compresión : Nd max (t/m)x= -135.78

A's(cm^2/m) = 1.56

SOLERA : h (m) = **1.20** — b(m) = **5.30** — **LOSA DE CIMENTACION**

Cuantía geométrica mínima :

As ^{MIN} (cm^2/m) = 7.8 — repartidas en las dos caras y laterales

Cuantía mecánica mínima armadura traccionada :

As(cm^2/m) = 25.29

S T A T I K - 3 V.2.45
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LOADING: 'Dead loads'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			Peso Propio

ENVELOPE SPECIFIC.: DC ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		Peso Propio
B	OR	1	1.350		Peso Propio
C	PL.PERM	2	0.750000		Cargas permanentes
D	OR	2	1.350		Cargas permanentes
E	PL.PERM	17	1.000		Reologicas
F	OR	17	1.350		Reologicas
G	PL.PERM	9	1.000		Empuje activo de tierras
H	OR	9	1.500		Empuje activo de tierras
I	OR	11	1.000		Empuje act/rep de tierras
J	OR	11	1.500		Empuje act/rep de tierras
K	OR	12	1.000		Empuje al rep/act de tierras
L	OR	12	1.500		Empuje al rep/act de tierras
M	PLUS	3	1.500		Sobrecarga uniforme total
N	PLUS	8	1.500		Sobrecarga solera
O	PLUS	13	1.500		Empuje activo debido a la sob
P	PLUS	15	1.500		Empuje activo debido a la sob
Q	PLUS	18	1.500		Frenado
ALTERNATIVE ENVELOPE :					
R	PERM.	1	1.000		Peso Propio
S	OR	1	1.350		Peso Propio
T	PL.PERM	2	0.750000		Cargas permanentes
U	OR	2	1.350		Cargas permanentes
V	PL.PERM	17	1.000		Reologicas
W	OR	17	1.350		Reologicas
X	PL.PERM	10	1.000		Empuje al reposo de tierras
Y	OR	10	1.500		Empuje al reposo de tierras
Z	OR	11	1.000		Empuje act/rep de tierras
AA	OR	11	1.500		Empuje act/rep de tierras
AB	OR	12	1.000		Empuje al rep/act de tierras
AC	OR	12	1.500		Empuje al rep/act de tierras
AD	PLUS	3	1.500		Sobrecarga uniforme total
AE	PLUS	8	1.500		Sobrecarga solera
AF	PLUS	14	1.500		Empuje al reposo sob unif
AG	PLUS	16	1.500		Empuje al reposo sob. parcial
AH	PLUS	18	1.500		Frenado
ALTERNATIVE ENVELOPE :					
AI	PERM.	1	1.000		Peso Propio
AJ	PL.PERM	2	1.000		Cargas permanentes
AK	PL.PERM	17	1.000		Reologicas
AL	PL.PERM	9	1.000		Empuje activo de tierras
AM	OR	11	1.000		Empuje act/rep de tierras
AN	OR	12	1.000		Empuje al rep/act de tierras
AO	PLUS	4	1.000		Sob unif parcial dintel dcha

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Group	Spec.	Loadcase	Factor	Stage	Title
AP	PLUS	5	1.000		Sob unif parcial dintel izqda
AQ	PLUS	6	1.000		Sobrecarga uniforme dintel cen
AR	PLUS	7	1.000		Sobrecarga posicion lateral
AS	PLUS	8	1.000		Sobrecarga solera
AT	PLUS	13	1.000		Empuje activo debido a la sob
AU	PLUS	15	1.000		Empuje activo debido a la sob
AV	PLUS	18	1.000		Frenado
AW	PLUS	19	1.000		ACCIDENTAL : Choque
ALTERNATIVE ENVELOPE :					
AX	PERM.	1	1.000		Peso Propio
AY	PL.PERM	2	1.000		Cargas permanentes
AZ	PL.PERM	17	1.000		Reologicas
BA	PL.PERM	10	1.000		Empuje al reposo de tierras
BB	OR	11	1.000		Empuje act/rep de tierras
BC	OR	12	1.000		Empuje al rep/act de tierras
BD	PLUS	4	1.000		Sob unif parcial dintel dcha
BE	PLUS	5	1.000		Sob unif parcial dintel izqda
BF	PLUS	6	1.000		Sobrecarga uniforme dintel cen
BG	PLUS	7	1.000		Sobrecarga posicion lateral
BH	PLUS	8	1.000		Sobrecarga solera
BI	PLUS	14	1.000		Empuje al reposo sob unif
BJ	PLUS	16	1.000		Empuje al reposo sob. parcial
BK	PLUS	18	1.000		Frenado
BL	PLUS	19	1.000		ACCIDENTAL : Choque

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FAGUS-3 - post-processor module::
Section forces restored from STATIK-3

Section forces restored from STATIK-3:

Analysis	C.Set	N	Vy	Vz	T	My	Mz
Design	2	ELU!		ELU!		ELU!	

Calculation parameters Construction code: EH 91

Calculation set 2: Design(Standard)

Concrete stress strain diagram .... type 2
Concrete in tension .... type 0

Max. strains:
Max. concrete strain at ult. limit state (compr.). -2.00 [o/oo]
Max. concrete strain at ult. limit state (bending) -3.50 [o/oo]
Max. strain in reinforcement bars (ult.limit state 10.00 [o/oo]

Resistance coefficients:
Concrete... 1.5
Steel.. 1.15
Prestressing steel............................... 1.15
Structural steel................................. 1.15

Inclination of diagonal in compression............ 45
Creep coefficient................................. 0

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
1	0.00	0.00	0.00	0.00	0.00	707.75	0.00	2 E
		-0.00	0.00	0.00	0.00	234.10	0.00	2 E
		0.00	0.00	0.00	0.00	434.53	0.00	2 E
		-0.00	0.00	0.00	0.00	525.39	0.00	2 E
		0.00	0.00	0.00	0.00	707.75	0.00	2 E
		-0.00	0.00	0.00	0.00	234.10	0.00	2 E
1	0.29	0.00	183.22	0.00	0.00	566.80	0.00	2 E
		-0.00	54.09	0.00	0.00	142.13	0.00	2 E
		0.00	106.79	0.00	0.00	308.31	0.00	2 E
		-0.00	131.08	0.00	0.00	335.44	0.00	2 E
		0.00	183.22	0.00	0.00	566.80	0.00	2 E
		-0.00	54.09	0.00	0.00	142.13	0.00	2 E
1	0.57	0.00	325.91	0.00	0.00	425.85	0.00	2 E
		-0.00	81.76	0.00	0.00	50.27	0.00	2 E
		0.00	177.28	0.00	0.00	182.04	0.00	2 E
		-0.00	221.63	0.00	0.00	244.43	0.00	2 E
		0.00	325.91	0.00	0.00	425.85	0.00	2 E
		-0.00	96.30	0.00	0.00	41.20	0.00	2 E

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
1	0.86	0.00	423.03	0.00	0.00	234.90	0.00	2 E
		-0.00	33.00	0.00	0.00	-41.65	0.00	2 E
		0.00	211.45	0.00	0.00	55.77	0.00	2 E
		-0.00	271.66	0.00	0.00	103.54	0.00	2 E
		-0.00	391.08	0.00	0.00	293.53	0.00	2 E
		-0.00	89.99	0.00	0.00	-85.07	0.00	2 E
1	1.15	0.00	459.73	0.00	0.00	143.95	0.00	2 E
		-0.00	47.33	0.00	0.00	-211.34	0.00	2 E
		0.00	209.35	0.00	0.00	-70.53	0.00	2 E
		-0.00	281.16	0.00	0.00	-37.41	0.00	2 E
		-0.00	460.15	0.00	0.00	136.94	0.00	2 E
		-0.00	47.33	0.00	0.00	-211.34	0.00	2 E
2	0.00	0.00	439.73	0.00	0.00	309.55	0.00	2 E
		-0.00	47.33	0.00	0.00	120.74	0.00	2 E
		0.00	209.35	0.00	0.00	351.16	0.00	2 E
		-0.00	281.16	0.00	0.00	512.93	0.00	2 E
		0.00	439.73	0.00	0.00	809.55	0.00	2 E
		-0.00	47.33	0.00	0.00	120.74	0.00	2 E
2	0.29	0.00	702.21	0.00	0.00	663.59	0.00	2 E
		-0.00	63.94	0.00	0.00	-5.53	0.00	2 E
		0.00	292.15	0.00	0.00	224.89	0.00	2 E
		-0.00	408.34	0.00	0.00	371.87	0.00	2 E
		0.00	702.21	0.00	0.00	663.59	0.00	2 E
		-0.00	63.94	0.00	0.00	-5.53	0.00	2 E
2	0.57	0.00	874.17	0.00	0.00	527.64	0.00	2 E
		-0.00	44.20	0.00	0.00	-131.80	0.00	2 E
		0.00	333.66	0.00	0.00	93.60	0.00	2 E
		-0.00	494.99	0.00	0.00	230.30	0.00	2 E
		-0.00	342.43	0.00	0.00	553.25	0.00	2 E
		-0.00	44.20	0.00	0.00	-131.80	0.00	2 E
2	0.86	0.00	1005.61	0.00	0.00	336.69	0.00	2 E
		-0.00	-11.85	0.00	0.00	-253.07	0.00	2 E
		0.00	343.35	0.00	0.00	-27.65	0.00	2 E
		-0.00	541.12	0.00	0.00	89.97	0.00	2 E
		-0.00	937.61	0.00	0.00	451.66	0.00	2 E
		-0.00	-11.85	0.00	0.00	-253.07	0.00	2 E
2	1.15	-0.00	1102.14	0.00	0.00	345.06	0.00	2 E
		-0.00	-104.13	0.00	0.00	-334.35	0.00	2 E
		0.00	322.76	0.00	0.00	-153.91	0.00	2 E
		-0.00	546.73	0.00	0.00	-57.98	0.00	2 E
		[illegible]	1102.14	0.00	0.00	345.06	0.00	2 E
		[illegible]	-104.13	0.00	0.00	-334.35	0.00	2 E
3	[illegible]	[illegible]	1102.14	0.00	0.00	913.43	0.00	2 E
		[illegible]	-104.13	0.00	0.00	-2.20	0.00	2 E
		[illegible]	529.15	0.00	0.00	535.30	0.00	2 E
		[illegible]	203.57	0.00	0.00	232.73	0.00	2 E
		[illegible]	1102.14	0.00	0.00	913.43	0.00	2 E
		[illegible]	-104.13	0.00	0.00	[illegible]	0.00	2 E
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 E
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 E
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 E
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 E
		[illegible]	1350.28	[illegible]	[illegible]	[illegible]	0.00	2 E
		[illegible]	-122.98	0.00	[illegible]	[illegible]	0.00	2 E

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
3	0.57	0.00	1568.97	0.00	0.00	705.29	0.00	2 E
		0.00	-178.07	0.00	0.00	-254.75	0.00	2 E
		0.00	852.21	0.00	0.00	253.93	0.00	2 E
		-0.00	362.01	0.00	0.00	36.24	0.00	2 E
		0.00	1568.97	0.00	0.00	705.29	0.00	2 E
		0.00	-178.07	0.00	0.00	-254.75	0.00	2 E
3	0.86	0.00	1756.42	0.00	0.00	598.69	0.00	2 E
		0.00	-269.46	0.00	0.00	-381.02	0.00	2 E
		0.00	904.96	0.00	0.00	112.98	0.00	2 E
		-0.00	354.27	0.00	0.00	-90.03	0.00	2 E
		0.00	1756.42	0.00	0.00	598.69	0.00	2 E
		0.00	-269.46	0.00	0.00	-381.02	0.00	2 E
3	1.15	0.00	1913.22	0.00	0.00	492.10	0.00	2 E
		0.00	-397.15	0.00	0.00	-507.29	0.00	2 E
		0.00	917.17	0.00	0.00	-27.97	0.00	2 E
		-0.00	310.24	0.00	0.00	-216.31	0.00	2 E
		0.00	1913.22	0.00	0.00	492.10	0.00	2 E
		0.00	-397.15	0.00	0.00	-507.29	0.00	2 E
4	0.00	-0.00	1581.91	0.00	0.00	-1209.45	0.00	2 E
		0.00	707.34	0.00	0.00	-543.70	0.00	2 E
		0.00	944.37	0.00	0.00	-731.91	0.00	2 E
		-0.00	1367.80	0.00	0.00	-1050.07	0.00	2 E
		0.00	707.34	0.00	0.00	-543.70	0.00	2 E
		-0.00	1581.91	0.00	0.00	-1209.45	0.00	2 E
4	0.23	-0.00	1300.11	0.00	0.00	-1227.63	0.00	2 E
		0.00	580.07	0.00	0.00	-556.95	0.00	2 E
		0.00	773.46	0.00	0.00	-746.20	0.00	2 E
		-0.00	1122.99	0.00	0.00	-1067.26	0.00	2 E
		0.00	580.07	0.00	0.00	-556.95	0.00	2 E
		-0.00	1300.11	0.00	0.00	-1227.63	0.00	2 E
4	0.46	-0.00	1014.10	0.00	0.00	-1245.92	0.00	2 E
		0.00	449.74	0.00	0.00	-570.21	0.00	2 E
		0.00	599.25	0.00	0.00	-760.50	0.00	2 E
		-0.00	874.20	0.00	0.00	-1084.45	0.00	2 E
		0.00	449.74	0.00	0.00	-570.21	0.00	2 E
		-0.00	1014.10	0.00	0.00	-1245.92	0.00	2 E
4	0.69	-0.00	723.83	0.00	0.00	-1264.15	0.00	2 E
		0.00	316.35	0.00	0.00	-583.46	0.00	2 E
		0.00	421.73	0.00	0.00	-774.79	0.00	2 E
		-0.00	621.43	0.00	0.00	-1101.64	0.00	2 E
		0.00	316.35	0.00	0.00	-583.46	0.00	2 E
		-0.00	723.83	0.00	0.00	-1264.15	0.00	2 E
4	0.93	-0.00	429.44	0.00	0.00	-1282.38	0.00	2 E
		0.00	179.90	0.00	0.00	-596.71	0.00	2 E
		0.00	240.91	0.00	0.00	-789.03	0.00	2 E
		-0.00	364.69	0.00	0.00	-1113.84	0.00	2 E
		0.00	179.90	0.00	0.00	-596.71	0.00	2 E
		-0.00	429.44	0.00	0.00	-1282.38	0.00	2 E
5	0.00	-0.00	429.44	0.00	0.00	-427.79	0.00	2 E
		-0.00	179.90	0.00	0.00	-167.98	0.00	2 E
		0.00	276.75	0.00	0.00	-270.61	0.00	2 E
		-0.00	348.92	0.00	0.00	-342.82	0.00	2 E
		-0.00	179.90	0.00	0.00	-167.98	0.00	2 E
		-0.00	429.44	0.00	0.00	-427.79	0.00	2 E

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
5	0.23	-0.00	328.42	0.00	0.00	-443.96	0.00	2 E
		-0.00	139.50	0.00	0.00	-133.29	0.00	2 E
		0.00	212.52	0.00	0.00	-284.90	0.00	2 E
		-0.00	267.65	0.00	0.00	-360.01	0.00	2 E
		-0.00	139.52	0.00	0.00	-131.23	0.00	2 E
		-0.00	328.43	0.00	0.00	-446.02	0.00	2 E
5	0.46	-0.00	223.43	0.00	0.00	-463.58	0.00	2 E
		-0.00	95.75	0.00	0.00	-195.15	0.00	2 E
		0.00	144.99	0.00	0.00	-299.19	0.00	2 E
		-0.00	182.41	0.00	0.00	-377.21	0.00	2 E
		-0.00	95.03	0.00	0.00	-194.48	0.00	2 E
		-0.00	223.15	0.00	0.00	-464.25	0.00	2 E
5	0.69	-0.00	114.01	0.00	0.00	-433.20	0.00	2 E
		-0.00	49.24	0.00	0.00	-207.02	0.00	2 E
		0.00	74.15	0.00	0.00	-313.49	0.00	2 E
		-0.00	93.19	0.00	0.00	-394.40	0.00	2 E
		-0.00	49.24	0.00	0.00	-207.02	0.00	2 E
		-0.00	114.01	0.00	0.00	-433.20	0.00	2 E
5	0.93	-0.00	0.00	0.00	0.00	-502.32	0.00	2 E
		-0.00	0.00	0.00	0.00	-213.83	0.00	2 E
		0.00	0.00	0.00	0.00	-327.78	0.00	2 E
		-0.00	0.00	0.00	0.00	-411.59	0.00	2 E
		-0.00	0.00	0.00	0.00	-213.83	0.00	2 E
		-0.00	0.00	0.00	0.00	-502.82	0.00	2 E
6	0.00	0.00	0.00	0.00	0.00	437.30	0.00	2 E
		0.00	0.00	0.00	0.00	202.92	0.00	2 E
		0.00	0.00	0.00	0.00	377.10	0.00	2 E
		-0.00	0.00	0.00	0.00	337.10	0.00	2 E
		0.00	0.00	0.00	0.00	437.30	0.00	2 E
		0.00	0.00	0.00	0.00	202.92	0.00	2 E
6	0.23	0.00	110.54	0.00	0.00	463.18	0.00	2 E
		0.00	45.36	0.00	0.00	139.42	0.00	2 E
		0.00	35.55	0.00	0.00	362.21	0.00	2 E
		-0.00	87.53	0.00	0.00	359.90	0.00	2 E
		0.00	110.54	0.00	0.00	463.18	0.00	2 E
		0.00	45.36	0.00	0.00	139.42	0.00	2 E
6	0.46	0.00	216.53	0.00	0.00	448.56	0.00	2 E
		0.00	87.60	0.00	0.00	179.91	0.00	2 E
		0.00	167.30	0.00	0.00	343.52	0.00	2 E
		-0.00	171.08	0.00	0.00	352.71	0.00	2 E
		0.00	216.23	0.00	0.00	449.33	0.00	2 E
		0.00	87.30	0.00	0.00	175.46	0.00	2 E
6	0.69	0.00	317.93	0.00	0.00	428.94	[illegible]	2 E
		0.00	126.72	0.00	0.00	162.40	[illegible]	2 E
		0.00	246.74	0.00	0.00	334.23	[illegible]	2 E
		-0.00	250.66	0.00	0.00	335.52	[illegible]	2 E
		0.00	317.93	0.00	0.00	431.00	[illegible]	2 E
		0.00	126.73	0.00	0.00	161.03	[illegible]	2 E
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]
		0.00	415.54	0.00	[illegible]	412.76	[illegible]	[illegible]
		0.00	162.30	0.00	[illegible]	146.60	[illegible]	E

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
7	0.00	0.00	415.54	0.00	0.00	1253.42	0.00	2 E
		0.00	162.30	0.00	0.00	579.16	0.00	2 E
		0.00	304.70	0.00	0.00	976.10	0.00	2 E
		-0.00	329.08	0.00	0.00	994.14	0.00	2 E
		0.00	415.54	0.00	0.00	1253.42	0.00	2 E
		0.00	165.86	0.00	0.00	567.43	0.00	2 E
7	0.23	0.00	703.28	0.00	0.00	1235.18	0.00	2 E
		0.00	294.56	0.00	0.00	564.73	0.00	2 E
		0.00	528.31	0.00	0.00	957.87	0.00	2 E
		-0.00	557.44	0.00	0.00	980.89	0.00	2 E
		0.00	703.28	0.00	0.00	1235.18	0.00	2 E
		0.00	295.55	0.00	0.00	554.18	0.00	2 E
7	0.46	0.00	936.81	0.00	0.00	1216.95	0.00	2 E
		0.00	422.17	0.00	0.00	540.93	0.00	2 E
		0.00	747.71	0.00	0.00	939.64	0.00	2 E
		-0.00	782.74	0.00	0.00	967.64	0.00	2 E
		0.00	936.81	0.00	0.00	1216.95	0.00	2 E
		0.00	422.17	0.00	0.00	540.93	0.00	2 E
7	0.69	0.00	1266.12	0.00	0.00	1198.72	0.00	2 E
		0.00	545.73	0.00	0.00	527.68	0.00	2 E
		0.00	962.90	0.00	0.00	921.40	0.00	2 E
		-0.00	1004.97	0.00	0.00	954.39	0.00	2 E
		0.00	1266.12	0.00	0.00	1198.72	0.00	2 E
		0.00	545.73	0.00	0.00	527.68	0.00	2 E
7	0.93	0.00	1541.22	0.00	0.00	1180.49	0.00	2 E
		0.00	666.22	0.00	0.00	514.43	0.00	2 E
		0.00	1173.86	0.00	0.00	903.17	0.00	2 E
		-0.00	1224.14	0.00	0.00	941.13	0.00	2 E
		0.00	1541.22	0.00	0.00	1180.49	0.00	2 E
		0.00	666.22	0.00	0.00	514.43	0.00	2 E
8	0.00	-0.00	2073.44	0.00	0.00	-551.87	0.00	2 E
		-0.00	-238.09	0.00	0.00	447.94	0.00	2 E
		0.00	1464.95	0.00	0.00	-315.40	0.00	2 E
		-0.00	370.40	0.00	0.00	234.95	0.00	2 E
		-0.00	2073.44	0.00	0.00	-551.87	0.00	2 E
		-0.00	-238.09	0.00	0.00	447.94	0.00	2 E
8	0.29	-0.00	1899.45	0.00	0.00	-658.46	0.00	2 E
		-0.00	-127.46	0.00	0.00	321.66	0.00	2 E
		0.00	1360.36	0.00	0.00	-412.17	0.00	2 E
		-0.00	418.12	0.00	0.00	97.02	0.00	2 E
		-0.00	1899.45	0.00	0.00	-658.46	0.00	2 E
		-0.00	-127.46	0.00	0.00	321.66	0.00	2 E
8	0.57	-0.00	1694.82	0.00	0.00	-765.06	0.00	2 E
		-0.00	-53.13	0.00	0.00	195.39	0.00	2 E
		0.00	1227.95	0.00	0.00	-508.95	0.00	2 E
		-0.00	426.19	0.00	0.00	-40.91	0.00	2 E
		-0.00	1694.82	0.00	0.00	-765.06	0.00	2 E
		-0.00	-53.13	0.00	0.00	195.39	0.00	2 E
8	0.86	-0.00	1459.54	0.00	0.00	-871.66	0.00	2 E
		-0.00	-15.11	0.00	0.00	69.12	0.00	2 E
		0.00	1067.71	0.00	0.00	-605.72	0.00	2 E
		-0.00	394.60	0.00	0.00	-178.84	0.00	2 E
		-0.00	1459.54	0.00	0.00	-871.66	0.00	2 E
		-0.00	-15.11	0.00	0.00	69.12	0.00	2 E

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
8	1.15	-0.00	1193.62	0.00	0.00	-978.25	0.00	2 E
		-0.00	-13.39	0.00	0.00	-57.15	0.00	2 E
		0.00	879.66	0.00	0.00	-702.49	0.00	2 E
		-0.00	323.35	0.00	0.00	-316.78	0.00	2 E
		-0.00	1193.62	0.00	0.00	-978.25	0.00	2 E
		-0.00	-13.39	0.00	0.00	-57.15	0.00	2 E
9	0.00	0.00	1193.62	0.00	0.00	-394.69	0.00	2 E
		-0.00	-13.39	0.00	0.00	335.08	0.00	2 E
		0.00	919.15	0.00	0.00	-257.31	0.00	2 E
		-0.00	212.35	0.00	0.00	204.29	0.00	2 E
		0.00	1193.62	0.00	0.00	-394.69	0.00	2 E
		-0.00	-13.39	0.00	0.00	335.08	0.00	2 E
9	0.29	0.00	1082.62	0.00	0.00	-436.19	0.00	2 E
		-0.00	64.80	0.00	0.00	208.81	0.00	2 E
		0.00	831.27	0.00	0.00	-354.08	0.00	2 E
		-0.00	252.93	0.00	0.00	78.02	0.00	2 E
		-0.00	64.80	0.00	0.00	208.81	0.00	2 E
		0.00	1064.82	0.00	0.00	-501.23	0.00	2 E
9	0.57	0.00	936.95	0.00	0.00	-577.14	0.00	2 E
		-0.00	106.68	0.00	0.00	82.54	0.00	2 E
		0.00	715.56	0.00	0.00	-450.85	0.00	2 E
		-0.00	257.21	0.00	0.00	-43.25	0.00	2 E
		-0.00	106.68	0.00	0.00	82.54	0.00	2 E
		0.00	905.38	0.00	0.00	-607.88	0.00	2 E
9	0.86	0.00	750.76	0.00	0.00	-713.09	0.00	2 E
		-0.00	112.26	0.00	0.00	-43.73	0.00	2 E
		0.00	572.02	0.00	0.00	-547.63	0.00	2 E
		-0.00	225.19	0.00	0.00	-174.52	0.00	2 E
		-0.00	112.26	0.00	0.00	-43.73	0.00	2 E
		0.00	750.76	0.00	0.00	-713.09	0.00	2 E
9	1.15	0.00	524.05	0.00	0.00	-859.04	0.00	2 E
		-0.00	81.53	0.00	0.00	-170.00	0.00	2 E
		0.00	400.67	0.00	0.00	-644.40	0.00	2 E
		-0.00	156.86	0.00	0.00	-300.79	0.00	2 E
		-0.00	81.53	0.00	0.00	-170.00	0.00	2 E
		0.00	524.05	0.00	0.00	-859.04	0.00	2 E
10	0.00	0.00	524.05	0.00	0.00	-173.79	0.00	2 E
		-0.00	81.53	0.00	0.00	181.65	0.00	2 E
		0.00	471.78	0.00	0.00	-128.34	0.00	2 E
		-0.00	99.77	0.00	0.00	165.73	0.00	2 E
		-0.00	81.53	0.00	0.00	181.65	0.00	2 E
		0.00	494.56	0.00	0.00	-216.86	0.00	2 E
10	0.29	0.00	453.82	0.00	0.00	-314.74	0.00	2 E
		-0.00	108.72	0.00	0.00	11.82	0.00	2 E
		0.00	414.62	0.00	0.00	-269.30	0.00	2 E
		-0.00	129.29	0.00	0.00	39.51	0.00	2 E
		-0.00	115.60	0.00	0.00	55.37	0.00	2 E
		0.00	416.89	0.00	0.00	-323.45	0.00	2 E
[illegible]	[illegible]	[illegible]	343.07	0.00	0.00	-455.69	[illegible]	2 E
		[illegible]	98.91	[illegible]	[illegible]	[illegible]	[illegible]	2 E
		[illegible]	116.94	0.00	0.00	-411.76	[illegible]	2 E
		[illegible]	112.43	0.00	0.00	-80.76	[illegible]	2 E
		-0.00	113.37	0.00	0.00	-70.90	0.00	2 E
		0.00	343.07	0.00	0.00	-455.69	0.00	2 E

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
10	0.86	0.00	191.80	0.00	0.00	-596.64	0.00	2 E
		-0.00	62.67	0.00	0.00	-172.01	0.00	2 E
		0.00	173.73	0.00	0.00	-551.20	0.00	2 E
		-0.00	79.40	0.00	0.00	-213.03	0.00	2 E
		-0.00	62.67	0.00	0.00	-172.01	0.00	2 E
		0.00	191.80	0.00	0.00	-596.64	0.00	2 E
10	1.15	0.00	0.00	0.00	0.00	-737.60	0.00	2 E
		-0.00	0.00	0.00	0.00	-263.92	0.00	2 E
		0.00	0.00	0.00	0.00	-692.15	0.00	2 E
		-0.00	0.00	0.00	0.00	-339.30	0.00	2 E
		-0.00	0.00	0.00	0.00	-263.92	0.00	2 E
		0.00	0.00	0.00	0.00	-737.60	0.00	2 E
11	0.00	-1968.52	812.20	0.00	0.00	-232.32	0.00	2 E
		-900.90	-1585.37	0.00	0.00	805.73	0.00	2 E
		-1979.46	566.76	0.00	0.00	-83.43	0.00	2 E
		-900.90	-1585.37	0.00	0.00	805.73	0.00	2 E
		-1968.52	812.20	0.00	0.00	-232.32	0.00	2 E
		-900.90	-1585.37	0.00	0.00	805.73	0.00	2 E
11	0.59	-1944.65	662.32	0.00	0.00	-277.52	0.00	2 E
		-883.23	-1146.29	0.00	0.00	639.88	0.00	2 E
		-1955.60	497.63	0.00	0.00	-151.28	0.00	2 E
		-883.23	-1146.29	0.00	0.00	639.88	0.00	2 E
		-1944.65	662.32	0.00	0.00	-277.52	0.00	2 E
		-883.23	-1146.29	0.00	0.00	639.88	0.00	2 E
11	1.18	-1920.79	486.56	0.00	0.00	-320.44	0.00	2 E
		-865.55	-773.75	0.00	0.00	579.21	0.00	2 E
		-1931.74	389.63	0.00	0.00	-215.66	0.00	2 E
		-865.55	-773.75	0.00	0.00	579.21	0.00	2 E
		-1920.79	486.56	0.00	0.00	-320.44	0.00	2 E
		-865.55	-773.75	0.00	0.00	579.21	0.00	2 E
11	1.76	-1896.93	286.25	0.00	0.00	-361.08	0.00	2 E
		-847.88	-464.71	0.00	0.00	473.71	0.00	2 E
		-1907.88	244.91	0.00	0.00	-276.62	0.00	2 E
		-847.88	-464.71	0.00	0.00	473.71	0.00	2 E
		-1896.93	286.25	0.00	0.00	-361.08	0.00	2 E
		-847.88	-464.71	0.00	0.00	473.71	0.00	2 E
11	2.35	-1473.73	169.96	0.00	0.00	36.93	0.00	2 E
		-1240.31	-321.51	0.00	0.00	2.67	0.00	2 E
		-1884.02	65.32	0.00	0.00	-334.16	0.00	2 E
		-830.20	-216.13	0.00	0.00	373.39	0.00	2 E
		-1873.07	62.74	0.00	0.00	-399.44	0.00	2 E
		-830.20	-216.13	0.00	0.00	373.39	0.00	2 E
12	0.00	-1473.73	169.96	0.00	0.00	36.93	0.00	2 E
		-1240.31	-321.51	0.00	0.00	2.67	0.00	2 E
		-1884.02	65.32	0.00	0.00	-334.16	0.00	2 E
		-830.20	-216.13	0.00	0.00	373.39	0.00	2 E
		-1873.07	62.74	0.00	0.00	-399.44	0.00	2 E
		-830.20	-216.13	0.00	0.00	373.39	0.00	2 E
12	0.59	-1063.21	229.71	0.00	0.00	69.63	0.00	2 E
		-1609.29	-407.59	0.00	0.00	-242.09	0.00	2 E
		-1360.16	-147.07	0.00	0.00	-333.23	0.00	2 E
		-812.53	-24.96	0.00	0.00	278.25	0.00	2 E
		-1349.21	-132.64	0.00	0.00	-435.52	0.00	2 E
		-812.53	-24.96	0.00	0.00	278.25	0.00	2 E

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
12	1.18	-883.59	259.37	0.00	0.00	13.73	0.00	2 E
		-1747.37	-578.82	0.00	0.00	-315.96	0.00	2 E
		-794.85	111.83	0.00	0.00	188.28	0.00	2 E
		-1336.30	-390.25	0.00	0.00	-439.00	0.00	2 E
		-794.85	111.83	0.00	0.00	188.28	0.00	2 E
		-1825.35	-448.55	0.00	0.00	-469.33	0.00	2 E
12	1.76	-865.91	242.27	0.00	0.00	-71.06	0.00	2 E
		-1723.51	-773.82	0.00	0.00	-347.49	0.00	2 E
		-777.18	197.29	0.00	0.00	103.59	0.00	2 E
		-1812.43	-662.22	0.00	0.00	-485.29	0.00	2 E
		-777.18	197.29	0.00	0.00	103.59	0.00	2 E
		-1801.49	-733.66	0.00	0.00	-500.86	0.00	2 E
12	2.35	-759.50	246.04	0.00	0.00	12.94	0.00	2 E
		-1777.63	-1048.20	0.00	0.00	-519.16	0.00	2 E
		-759.50	234.45	0.00	0.00	23.39	0.00	2 E
		-1788.57	-960.98	0.00	0.00	-530.17	0.00	2 E
		-759.50	234.45	0.00	0.00	23.39	0.00	2 E
		-1788.57	-960.98	0.00	0.00	-530.17	0.00	2 E
13	0.00	-759.50	246.04	0.00	0.00	12.94	0.00	2 E
		-1777.63	-1048.20	0.00	0.00	-519.16	0.00	2 E
		-759.50	234.45	0.00	0.00	23.39	0.00	2 E
		-1788.57	-960.98	0.00	0.00	-530.17	0.00	2 E
		-759.50	234.45	0.00	0.00	23.39	0.00	2 E
		-1788.57	-960.98	0.00	0.00	-530.17	0.00	2 E
13	0.59	-741.83	231.52	0.00	0.00	-61.50	0.00	2 E
		-1753.77	-1361.25	0.00	0.00	-546.13	0.00	2 E
		-741.83	226.37	0.00	0.00	-50.55	0.00	2 E
		-1764.71	-1284.50	0.00	0.00	-570.63	0.00	2 E
		-741.83	226.37	0.00	0.00	-50.55	0.00	2 E
		-1764.71	-1284.50	0.00	0.00	-570.63	0.00	2 E
13	1.18	-724.15	178.94	0.00	0.00	-131.00	0.00	2 E
		-1729.91	-1593.61	0.00	0.00	-580.58	0.00	2 E
		-724.15	176.07	0.00	0.00	-119.30	0.00	2 E
		-1740.85	-1630.30	0.00	0.00	-607.67	0.00	2 E
		-724.15	176.07	0.00	0.00	-119.30	0.00	2 E
		-1740.85	-1630.30	0.00	0.00	-607.67	0.00	2 E
13	1.76	-706.48	33.77	0.00	0.00	-189.08	0.00	2 E
		-1706.05	-2041.39	0.00	0.00	-602.39	0.00	2 E
		-706.43	36.61	0.00	0.00	-183.33	0.00	2 E
		-1716.99	-1937.85	0.00	0.00	-641.30	0.00	2 E
		-1684.19	-1646.31	0.00	0.00	-645.02	0.00	2 E
		-717.36	-117.43	0.00	0.00	-186.97	0.00	2 E
13	2.35	[illegible]	-2431.68	0.00	0.00	[illegible]	[illegible]	2 E
		-688.80	-37.52	0.00	0.00	[illegible]	[illegible]	2 E
		[illegible]	-1333.65	0.00	0.00	[illegible]	[illegible]	2 E
		-688.80	-32.97	0.00	0.00	[illegible]	[illegible]	2 E
		-1660.30	-2038.96	0.00	0.00	[illegible]	[illegible]	2 E
		-730.51	-546.07	0.00	0.00	-192.14	[illegible]	2 E
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	-2038.96	0.00	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	-546.07	0.00	0.00	[illegible]	[illegible]	[illegible]

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
14	0.59	-1669.27	-2736.94	0.00	0.00	-697.10	0.00	2 E
		-671.13	-196.39	0.00	0.00	-297.70	0.00	2 E
		-1669.27	-2736.20	0.00	0.00	-698.30	0.00	2 E
		-671.13	-197.64	0.00	0.00	-296.50	0.00	2 E
		-1609.82	-2199.87	0.00	0.00	-742.63	0.00	2 E
		-730.39	-340.00	0.00	0.00	-217.25	0.00	2 E
14	1.18	-1645.41	-3203.52	0.00	0.00	-720.47	0.00	2 E
		-653.46	-386.31	0.00	0.00	-346.25	0.00	2 E
		-1645.41	-3203.48	0.00	0.00	-721.67	0.00	2 E
		-653.46	-386.35	0.00	0.00	-345.05	0.00	2 E
		-1585.96	-2650.62	0.00	0.00	-791.13	0.00	2 E
		-712.72	-972.32	0.00	0.00	-232.83	0.00	2 E
14	1.76	-1621.55	-3633.49	0.00	0.00	-741.63	0.00	2 E
		-635.72	-602.06	0.00	0.00	-388.42	0.00	2 E
		-1621.55	-3633.49	0.00	0.00	-741.63	0.00	2 E
		-635.72	-602.06	0.00	0.00	-388.42	0.00	2 E
		-1562.10	-3128.49	0.00	0.00	-834.55	0.00	2 E
		-695.04	-1111.13	0.00	0.00	-246.14	0.00	2 E
14	2.35	-1597.69	-4074.22	0.00	0.00	-758.17	0.00	2 E
		-618.11	-341.73	0.00	0.00	-426.61	0.00	2 E
		-1597.69	-4074.22	0.00	0.00	-758.17	0.00	2 E
		-618.11	-341.73	0.00	0.00	-426.61	0.00	2 E
		-1533.24	-3630.26	0.00	0.00	-372.74	0.00	2 E
		-677.37	-1261.09	0.00	0.00	-257.16	0.00	2 E
15	0.00	-930.19	1385.62	0.00	0.00	-758.96	0.00	2 E
		-1997.87	-1013.53	0.00	0.00	280.73	0.00	2 E
		-930.19	1332.43	0.00	0.00	-749.21	0.00	2 E
		-2008.75	-714.41	0.00	0.00	122.02	0.00	2 E
		-930.19	1385.62	0.00	0.00	-758.96	0.00	2 E
		-1472.12	-879.64	0.00	0.00	314.84	0.00	2 E
15	0.59	-912.51	974.10	0.00	0.00	-642.85	0.00	2 E
		-1974.00	-835.21	0.00	0.00	325.92	0.00	2 E
		-912.51	926.69	0.00	0.00	-633.10	0.00	2 E
		-1984.89	-622.65	0.00	0.00	189.81	0.00	2 E
		-912.51	974.10	0.00	0.00	-642.85	0.00	2 E
		-1454.44	-681.28	0.00	0.00	360.04	0.00	2 E
15	1.18	-894.84	629.26	0.00	0.00	-531.93	0.00	2 E
		-1950.14	-631.01	0.00	0.00	368.84	0.00	2 E
		-894.84	587.53	0.00	0.00	-522.18	0.00	2 E
		-1961.03	-492.06	0.00	0.00	254.19	0.00	2 E
		-894.84	629.26	0.00	0.00	-531.93	0.00	2 E
		-1436.77	-457.04	0.00	0.00	402.96	0.00	2 E
15	1.76	-877.17	343.06	0.00	0.00	-426.21	0.00	2 E
		-1926.23	-402.27	0.00	0.00	409.43	0.00	2 E
		-877.17	312.10	0.00	0.00	-416.46	0.00	2 E
		-1937.17	-324.64	0.00	0.00	315.15	0.00	2 E
		-877.17	343.06	0.00	0.00	-426.21	0.00	2 E
		-1419.09	-203.25	0.00	0.00	443.60	0.00	2 E
15	2.35	-1165.71	294.35	0.00	0.00	315.25	0.00	2 E
		-1503.20	-253.03	0.00	0.00	11.73	0.00	2 E
		-859.49	97.21	0.00	0.00	-315.93	0.00	2 E
		-1913.31	-122.42	0.00	0.00	372.70	0.00	2 E
		-1401.42	63.74	0.00	0.00	431.96	0.00	2 E
		-859.49	127.44	0.00	0.00	-325.63	0.00	2 E

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Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
16	0.00	-1165.71	294.35	0.00	0.00	315.25	0.00	2 E
		-1503.20	-253.03	0.00	0.00	11.73	0.00	2 E
		-859.49	97.21	0.00	0.00	-315.93	0.00	2 E
		-1913.31	-122.42	0.00	0.00	372.70	0.00	2 E
		-1401.42	63.74	0.00	0.00	431.96	0.00	2 E
		-859.49	127.44	0.00	0.00	-325.63	0.00	2 E
16	0.59	-1324.59	508.00	0.00	0.00	408.13	0.00	2 E
		-1092.63	-289.19	0.00	0.00	-20.97	0.00	2 E
		-1339.44	112.61	0.00	0.00	426.92	0.00	2 E
		-841.32	-60.14	0.00	0.00	-220.60	0.00	2 E
		-1383.74	357.61	0.00	0.00	518.05	0.00	2 E
		-841.32	-35.64	0.00	0.00	-220.35	0.00	2 E
16	1.18	-1306.91	746.60	0.00	0.00	191.98	0.00	2 E
		-913.06	-230.27	0.00	0.00	34.93	0.00	2 E
		-1365.53	378.43	0.00	0.00	477.53	0.00	2 E
		-824.14	-163.00	0.00	0.00	-130.45	0.00	2 E
		-1354.70	417.36	0.00	0.00	517.74	0.00	2 E
		-824.14	-144.23	0.00	0.00	-140.20	0.00	2 E
16	1.76	-1289.24	868.76	0.00	0.00	223.51	0.00	2 E
		-895.39	-244.59	0.00	0.00	119.71	0.00	2 E
		-1341.72	673.04	0.00	0.00	524.83	0.00	2 E
		-806.47	-214.43	0.00	0.00	-45.50	0.00	2 E
		-1330.84	731.40	0.00	0.00	549.27	0.00	2 E
		-806.47	-201.39	0.00	0.00	-55.25	0.00	2 E
16	2.35	-1306.98	1074.39	0.00	0.00	567.57	0.00	2 E
		-788.79	-221.75	0.00	0.00	35.46	0.00	2 E
		-1317.86	994.43	0.00	0.00	568.70	0.00	2 E
		-788.79	-217.43	0.00	0.00	34.26	0.00	2 E
		-1306.98	1062.30	0.00	0.00	578.52	0.00	2 E
		-788.79	-210.17	0.00	0.00	24.51	0.00	2 E
17	0.00	-1306.98	1074.39	0.00	0.00	567.57	0.00	2 E
		-788.79	-221.75	0.00	0.00	35.46	0.00	2 E
		-1317.86	994.43	0.00	0.00	568.70	0.00	2 E
		-788.79	-217.43	0.00	0.00	34.26	0.00	2 E
		-1306.98	1062.30	0.00	0.00	578.52	0.00	2 E
		-788.79	-210.17	0.00	0.00	24.51	0.00	2 E
17	0.59	-1783.12	1415.37	0.00	0.00	594.54	0.00	2 E
		-771.12	-178.75	0.00	0.00	110.03	0.00	2 E
		-1794.00	1340.60	0.00	0.00	609.16	0.00	2 E
		-771.12	-175.20	0.00	0.00	103.32	0.00	2 E
		-1794.00	1339.01	0.00	0.00	618.91	0.00	2 E
		-771.12	-173.61	0.00	0.00	99.07	0.00	2 E
17	1.18	-1759.26	1776.67	0.00	0.00	623.99	0.00	2 E
		-753.44	-87.83	0.00	0.00	169.65	0.00	2 E
		-1770.14	1705.57	0.00	0.00	646.21	0.00	2 E
		-753.44	-90.83	0.00	0.00	173.20	0.00	2 E
		-1770.14	1713.67	0.00	0.00	655.96	0.00	2 E
		-753.44	-84.77	0.00	0.00	168.45	0.00	2 E
17	1.76	[illegible]	[illegible]	[illegible]	[illegible]	651.43	[illegible]	2 E
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	0.00	642.3[illegible]	0.00	2 E
		-1746.13	[illegible]	[illegible]	0.00	670.31	0.00	2 E
		-1713.62	1753.14	[illegible]	0.00	693.67	0.00	2 E
		-748.71	[illegible]	0.00	0.00	215.69	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
17	2.35	-1711.54	2541.62	0.00	0.00	671.54	0.00	2 B
		-713.09	176.10	0.00	0.00	292.82	0.00	2 B
		-718.09	193.15	0.00	0.00	301.37	0.00	2 E
		-1722.42	2507.66	0.00	0.00	710.04	0.00	2 E
		-1689.77	2179.57	0.00	0.00	733.44	0.00	2 E
		-759.98	686.68	0.00	0.00	246.81	0.00	2 E
18	0.00	-1711.54	2541.63	0.00	0.00	671.54	0.00	2 E
		-713.09	176.10	0.00	0.00	292.82	0.00	2 E
		-718.09	191.70	0.00	0.00	302.57	0.00	2 E
		-1722.42	2509.11	0.00	0.00	708.24	0.00	2 E
		-1689.77	2179.57	0.00	0.00	733.44	0.00	2 E
		-759.98	686.68	0.00	0.00	246.81	0.00	2 E
18	0.59	-1698.56	2954.92	0.00	0.00	745.38	0.00	2 E
		-700.42	364.18	0.00	0.00	346.61	0.00	2 B
		-700.42	335.51	0.00	0.00	356.36	0.00	2 B
		-1698.56	2933.59	0.00	0.00	735.63	0.00	2 B
		-1639.30	2369.07	0.00	0.00	791.29	0.00	2 B
		-759.87	1009.20	0.00	0.00	265.90	0.00	2 B
18	1.18	-1674.70	3399.26	0.00	0.00	762.75	0.00	2 E
		-682.74	532.35	0.00	0.00	355.21	0.00	2 E
		-681.74	609.40	0.00	0.00	404.96	0.00	2 E
		-1674.70	3372.81	0.00	0.00	759.00	0.00	2 E
		-1615.44	2848.46	0.00	0.00	839.84	0.00	2 E
		-742.19	1170.11	0.00	0.00	281.49	0.00	2 E
18	1.76	-1650.84	3858.20	0.00	0.00	789.91	0.00	2 E
		-665.07	826.82	0.00	0.00	437.42	0.00	2 E
		-665.07	860.33	0.00	0.00	448.37	0.00	2 B
		-1650.84	3824.75	0.00	0.00	772.96	0.00	2 B
		-1591.58	3354.86	0.00	0.00	823.21	0.00	2 E
		-724.52	1339.50	0.00	0.00	294.79	0.00	2 E
18	2.35	-1626.98	4327.30	0.00	0.00	806.45	0.00	2 E
		-647.39	1095.32	0.00	0.00	475.64	0.00	2 E
		-647.39	1135.22	0.00	0.00	486.59	0.00	2 E
		-1626.98	4297.41	0.00	0.00	795.50	0.00	2 B
		-1567.72	3385.22	0.00	0.00	921.40	0.00	2 B
		-706.84	1516.04	0.00	0.00	305.82	0.00	2 B
19	0.00	-758.17	-4074.22	0.00	0.00	1597.69	0.00	2 E
		-426.61	-841.73	0.00	0.00	618.11	0.00	2 E
		-872.74	-3630.26	0.00	0.00	1538.24	0.00	2 E
		-257.16	-1261.09	0.00	0.00	677.37	0.00	2 E
		-426.61	-841.73	0.00	0.00	618.11	0.00	2 E
		-758.17	-4074.22	0.00	0.00	1597.69	0.00	2 E
19	0.35	-758.17	-3526.36	0.00	0.00	1532.97	0.00	2 E
		-428.53	-630.71	0.00	0.00	587.67	0.00	2 E
		-872.74	-3103.29	0.00	0.00	1473.53	0.00	2 B
		-259.13	-1029.33	0.00	0.00	646.93	0.00	2 E
		-428.53	-630.71	0.00	0.00	587.67	0.00	2 E
		-758.17	-3526.36	0.00	0.00	1532.97	0.00	2 E
19	0.70	-758.17	-3001.14	0.00	0.00	1468.26	0.00	2 E
		-430.55	-430.35	0.00	0.00	557.24	0.00	2 E
		-872.74	-2598.79	0.00	0.00	1408.81	0.00	2 E
		-261.10	-808.23	0.00	0.00	616.50	0.00	2 E
		-430.55	-430.35	0.00	0.00	557.24	0.00	2 E
		-758.17	-3001.14	0.00	0.00	1468.26	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
19	1.05	-758.17	-2498.58	0.00	0.00	1423.55	0.00	2 E
		-432.51	-240.64	0.00	0.00	526.81	0.00	2 E
		-872.74	-2117.03	0.00	0.00	1344.10	0.00	2 E
		-263.07	-597.73	0.00	0.00	526.07	0.00	2 E
		-432.51	-240.64	0.00	0.00	526.81	0.00	2 E
		-758.17	-2493.53	0.00	0.00	1403.55	0.00	2 E
19	1.40	-758.17	-2019.66	0.00	0.00	1338.83	0.00	2 E
		-434.42	-61.59	0.00	0.00	496.38	0.00	2 E
		-872.74	-1657.92	0.00	0.00	1275.12	0.00	2 E
		-265.04	-397.93	0.00	0.00	555.64	0.00	2 E
		-434.43	-61.59	0.00	0.00	496.38	0.00	2 E
		-758.17	-2013.66	0.00	0.00	1338.83	0.00	2 E
20	0.00	-758.17	-2013.66	0.00	0.00	1338.83	0.00	2 E
		-434.43	-61.59	0.00	0.00	496.38	0.00	2 E
		-872.74	-1657.92	0.00	0.00	1279.33	0.00	2 E
		-265.04	-397.93	0.00	0.00	555.64	0.00	2 E
		-434.43	-61.59	0.00	0.00	496.38	0.00	2 E
		-758.17	-2013.66	0.00	0.00	1338.83	0.00	2 E
20	0.73	-433.60	279.81	0.00	0.00	437.36	0.00	2 E
		-758.17	-1086.82	0.00	0.00	1209.79	0.00	2 E
		-872.74	-765.56	0.00	0.00	1150.34	0.00	2 E
		-269.15	-113.25	0.00	0.00	498.62	0.00	2 E
		-438.60	279.81	0.00	0.00	437.36	0.00	2 E
		-758.17	-1086.82	0.00	0.00	1209.79	0.00	2 E
20	1.46	-417.08	711.93	0.00	0.00	595.03	0.00	2 E
		-436.59	-319.70	0.00	0.00	526.91	0.00	2 E
		-373.26	328.32	0.00	0.00	437.61	0.00	2 E
		-372.74	-24.45	0.00	0.00	1021.30	0.00	2 E
		-442.71	-578.05	0.00	0.00	373.35	0.00	2 E
		-758.17	-2495.35	0.00	0.00	1080.75	0.00	2 E
20	2.19	-719.43	1233.17	0.00	0.00	803.52	0.00	2 E
		-436.59	43.74	0.00	0.00	487.51	0.00	2 E
		-277.38	626.75	0.00	0.00	378.55	0.00	2 E
		-872.74	-724.10	0.00	0.00	892.06	0.00	2 E
		-758.17	493.77	0.00	0.00	951.71	0.00	2 E
		-445.82	833.14	0.00	0.00	319.33	0.00	2 E
20	2.92	-722.53	1823.57	0.00	0.00	674.48	0.00	2 E
		-436.59	364.03	0.00	0.00	425.52	0.00	2 E
		-281.49	882.01	0.00	0.00	319.57	0.00	2 E
		-872.74	1329.33	0.00	0.00	763.22	0.00	2 E
		-758.17	1142.53	0.00	0.00	822.67	0.00	2 E
21	0.00	-460.94	1026.07	0.00	0.00	260.31	0.00	2 E
		-722.53	1823.57	0.00	0.00	674.48	0.00	2 E
		-436.59	364.03	0.00	0.00	408.60	0.00	2 E
		-281.49	882.01	0.00	0.00	315.57	0.00	2 E
		-872.74	1329.33	0.00	0.00	763.22	0.00	2 E
		-758.17	1142.53	0.00	0.00	822.67	0.00	2 E
		-460.94	1045.07	0.00	0.00	260.31	0.00	2 E
21	1.05	-682.66	2451.31	0.00	0.00	494.66	0.00	2 E
		-436.59	733.54	0.00	0.00	361.53	0.00	2 E
		-277.57	1180.11	0.00	0.00	234.34	0.00	2 E
		-872.74	2061.46	0.00	0.00	827.41	0.00	2 E
		-758.17	1919.88	0.00	0.00	691.58	0.00	2 E
		-687.92	2079.36	0.00	0.00	193.35	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
21	2.16	-653.75	2883.00	0.00	0.00	303.76	0.00	2 B
		-436.59	1058.70	0.00	0.00	233.97	0.00	2 E
		-293.65	1334.39	0.00	0.00	145.05	0.00	2 E
		-872.74	2567.23	0.00	0.00	331.61	0.00	2 E
		-758.17	2508.92	0.00	0.00	441.06	0.00	2 E
		-463.10	1419.30	0.00	0.00	85.79	0.00	2 B
21	3.24	-604.73	3112.96	0.00	0.00	141.77	0.00	2 B
		-550.51	1257.39	0.00	0.00	113.87	0.00	2 E
		-299.74	1494.05	0.00	0.00	57.79	0.00	2 B
		-872.74	2376.69	0.00	0.00	190.80	0.00	2 E
		-758.17	2382.66	0.00	0.00	250.25	0.00	2 E
		-434.72	2101.41	0.00	0.00	-4.57	0.00	2 E
21	4.33	-577.40	3183.49	0.00	0.00	-29.47	0.00	2 B
		-601.16	1305.71	0.00	0.00	0.00	0.00	2 E
		-305.82	1509.35	0.00	0.00	-29.47	0.00	2 B
		-872.74	2979.84	0.00	0.00	0.00	0.00	2 B
		-481.56	1980.54	0.00	0.00	103.43	0.00	2 B
		-438.73	2021.99	0.00	0.00	-142.33	0.00	2 E
22	0.00	-577.40	3183.49	0.00	0.00	-0.00	0.00	2 B
		-601.16	1305.71	0.00	0.00	-29.47	0.00	2 B
		-305.82	1509.35	0.00	0.00	-0.00	0.00	2 E
		-872.74	2979.84	0.00	0.00	-29.47	0.00	2 B
		-481.56	1980.54	0.00	0.00	103.43	0.00	2 E
		-438.73	2021.99	0.00	0.00	-142.33	0.00	2 E
22	1.08	-610.81	3031.09	0.00	0.00	-173.25	0.00	2 B
		-556.60	1225.52	0.00	0.00	-143.35	0.00	2 B
		-305.82	1462.18	0.00	0.00	-87.26	0.00	2 E
		-878.82	2844.82	0.00	0.00	-220.28	0.00	2 E
		-486.59	1993.06	0.00	0.00	-27.82	0.00	2 B
		-752.93	2891.15	0.00	0.00	-279.54	0.00	2 B
22	2.16	-671.16	2819.35	0.00	0.00	-333.11	0.00	2 B
		-492.38	995.63	0.00	0.00	-263.26	0.00	2 B
		-305.82	1320.65	0.00	0.00	-174.52	0.00	2 B
		-884.90	2503.49	0.00	0.00	-411.08	0.00	2 B
		-486.59	1315.81	0.00	0.00	-115.02	0.00	2 B
		-759.01	2485.74	0.00	0.00	-470.34	0.00	2 B
22	3.24	-671.16	2356.03	0.00	0.00	-523.91	0.00	2 B
		-504.46	663.81	0.00	0.00	-350.52	0.00	2 B
		-305.82	1084.77	0.00	0.00	-261.79	0.00	2 B
		-890.99	1955.85	0.00	0.00	-601.89	0.00	2 E
		-486.59	1144.20	0.00	0.00	-202.34	0.00	2 E
		-765.09	1374.03	0.00	0.00	-661.15	0.00	2 B
22	4.33	-747.22	1696.62	0.00	0.00	-703.77	0.00	2 B
		-510.54	237.63	0.00	0.00	-437.78	0.00	2 B
		-305.82	754.54	0.00	0.00	-349.05	0.00	2 B
		-897.07	1201.90	0.00	0.00	-792.69	0.00	2 B
		-486.59	878.25	0.00	0.00	-289.60	0.00	2 B
		-771.17	1056.01	0.00	0.00	-851.95	0.00	2 E
23	0.00	-747.22	1696.62	0.00	0.00	-703.77	0.00	2 B
		-510.54	237.63	0.00	0.00	-437.78	0.00	2 B
		-305.82	754.54	0.00	0.00	-349.05	0.00	2 B
		-897.07	1201.90	0.00	0.00	-792.69	0.00	2 B
		-486.59	878.25	0.00	0.00	-289.60	0.00	2 B
		-771.17	1056.01	0.00	0.00	-851.95	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
23	0.73	-747.22	1134.31	0.00	0.00	-832.91	0.00	2 B
		-514.66	-104.08	0.00	0.00	-436.80	0.00	2 B
		-305.82	477.72	0.00	0.00	-408.06	0.00	2 E
		-901.13	575.07	0.00	0.00	-921.73	0.00	2 E
		-486.59	644.90	0.00	0.00	-343.62	0.00	2 E
		-775.28	385.84	0.00	0.00	-981.00	0.00	2 E
23	1.46	-747.22	476.63	0.00	0.00	-961.85	0.00	2 E
		-518.77	-428.84	0.00	0.00	-555.82	0.00	2 E
		-305.82	157.74	0.00	0.00	-467.03	0.00	2 E
		-905.30	-146.13	0.00	0.00	-1050.72	0.00	2 E
		-486.59	362.33	0.00	0.00	-407.63	0.00	2 E
		-779.40	-378.70	0.00	0.00	-1110.04	0.00	2 E
23	2.19	-475.64	83.61	0.00	0.00	-466.65	0.00	2 E
		-784.46	-1277.47	0.00	0.00	-1233.08	0.00	2 E
		-909.47	-961.59	0.00	0.00	-1179.82	0.00	2 E
		-305.82	-295.33	0.00	0.00	-528.10	0.00	2 E
		-486.59	48.73	0.00	0.00	-466.65	0.00	2 E
		-783.51	-1237.59	0.00	0.00	-1239.08	0.00	2 E
23	2.92	-793.53	-2230.73	0.00	0.00	-1362.12	0.00	2 E
		-475.64	-274.20	0.00	0.00	-525.66	0.00	2 E
		-913.52	-1871.62	0.00	0.00	-1308.86	0.00	2 E
		-305.82	-611.67	0.00	0.00	-585.11	0.00	2 E
		-787.62	-2193.85	0.00	0.00	-1363.12	0.00	2 E
		-486.59	-314.06	0.00	0.00	-525.66	0.00	2 E
24	0.00	-788.58	-2230.73	0.00	0.00	-1362.12	0.00	2 E
		-475.64	-274.20	0.00	0.00	-525.66	0.00	2 E
		-913.52	-1871.62	0.00	0.00	-1308.86	0.00	2 E
		-305.82	-611.67	0.00	0.00	-585.11	0.00	2 E
		-782.83	-2192.22	0.00	0.00	-1363.12	0.00	2 E
		-486.59	-312.71	0.00	0.00	-525.66	0.00	2 E
24	0.35	-800.54	-2723.90	0.00	0.00	-1432.83	0.00	2 E
		-475.64	-468.51	0.00	0.00	-556.10	0.00	2 E
		-915.48	-2241.04	0.00	0.00	-1373.57	0.00	2 E
		-305.82	-801.79	0.00	0.00	-615.54	0.00	2 E
		-792.79	-2688.33	0.00	0.00	-1432.83	0.00	2 E
		-486.59	-502.04	0.00	0.00	-556.10	0.00	2 E
24	0.70	-800.54	-2733.77	0.00	0.00	-1497.55	0.00	2 E
		-475.64	-468.47	0.00	0.00	-586.53	0.00	2 E
		-917.46	-2811.11	0.00	0.00	-1438.25	0.00	2 E
		-305.82	-1042.68	0.00	0.00	-645.98	0.00	2 E
		-792.76	-3136.22	0.00	0.00	-1497.55	0.00	2 E
		-486.59	-701.58	0.00	0.00	-586.53	0.00	2 E
24	1.05	-804.48	-2763.13	0.00	0.00	-1562.26	0.00	2 E
		-475.64	-674.02	0.00	0.00	-616.96	0.00	2 E
		-919.43	-2847.24	0.00	0.00	-1503.00	0.00	2 E
		-305.82	-1274.97	0.00	0.00	-676.41	0.00	2 E
		-794.73	-3793.65	0.00	0.00	-1562.26	0.00	2 E
		-486.59	-912.59	0.00	0.00	-616.96	0.00	2 E
24	1.40	-806.46	-4327.30	0.00	0.00	-1626.98	0.00	2 E
		-475.64	-1095.32	0.00	0.00	-647.39	0.00	2 E
		-921.40	-3385.22	0.00	0.00	-1567.72	0.00	2 E
		-305.82	-1516.04	0.00	0.00	-706.84	0.00	2 E
		-796.70	-4297.41	0.00	0.00	-1626.98	0.00	2 E
		-486.59	-1135.22	0.00	0.00	-647.39	0.00	2 E

sum of reinforced steel area — run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Asw-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASwI [cm2/m]	
1	0.00	1.00	1.00	1.00	9.14	0.00	-------
1	0.29	1.00	1.00	3.75	10.27	0.00	-------
1	0.57	1.00	1.00	6.72	11.62	0.00	-------
1	0.86	1.00	1.00	8.86	12.23	0.00	-------
1	1.15	1.00	1.00	10.15	12.58	0.00	-------
2	0.00	1.00	1.00	10.15	19.45	0.00	-------
2	0.29	1.00	1.00	14.64	22.33	0.00	-------
2	0.57	1.00	1.00	18.31	24.73	0.00	-------
2	0.86	1.00	3.97	21.14	26.33	0.00	-------
2	1.15	2.12	6.54	23.22	27.19	0.00	-------
3	0.00	2.12	2.15	23.22	33.78	0.00	-------
3	0.29	2.51	1.99	28.64	37.97	0.00	-------
3	0.57	3.65	6.58	33.44	41.55	0.00	-------
3	0.86	5.54	9.92	37.61	44.49	0.00	-------
3	1.15	8.21	14.04	41.13	46.79	0.00	-------
4	0.00	1.00	1.00	33.72	47.63	0.00	-------
4	0.23	1.00	1.00	27.53	41.64	0.00	-------
4	0.46	1.00	1.00	21.32	35.65	0.00	-------
4	0.69	1.00	1.00	15.11	29.64	0.00	-------
4	0.93	1.00	1.00	8.88	23.63	0.00	-------
5	0.00	1.00	1.00	8.83	13.80	0.00	-------
5	0.23	1.00	1.00	6.77	11.90	0.00	-------
5	0.46	1.00	1.00	4.59	9.93	0.00	-------
5	0.69	1.00	1.00	2.33	7.88	0.00	-------
5	0.93	1.00	1.00	1.00	6.78	0.00	-------
6	0.00	1.00	1.00	1.00	6.61	0.00	-------
6	0.23	1.00	1.00	2.25	7.64	0.00	-------
6	0.46	1.00	1.00	4.44	9.61	0.00	-------
6	0.69	1.00	1.00	6.55	11.51	0.00	-------
6	0.93	1.00	1.00	8.59	13.34	0.00	-------
7	0.00	1.00	1.00	8.59	23.01	0.00	-------
7	0.23	1.00	1.00	14.57	29.87	0.00	-------
7	0.46	1.00	1.00	20.73	34.73	0.00	-------
7	0.69	1.00	1.00	25.78	40.57	0.00	-------
7	0.93	1.00	1.00	32.82	46.40	0.00	-------
8	0.00	4.89	10.04	44.76	51.11	0.00	-------
8	0.29	2.60	6.30	40.82	48.39	0.00	-------
8	0.57	1.08	3.32	36.23	45.01	0.00	-------
8	0.86	1.00	1.79	31.02	41.04	0.00	-------
8	1.15	1.00	1.66	25.20	36.45	0.00	-------
9	0.00	1.00	4.85	25.20	29.74	0.00	-------
9	0.29	1.00	1.00	22.80	23.56	0.00	-------
9	0.57	1.00	1.00	19.66	25.65	0.00	-------

sum of reinforced steel area — run: "STD"

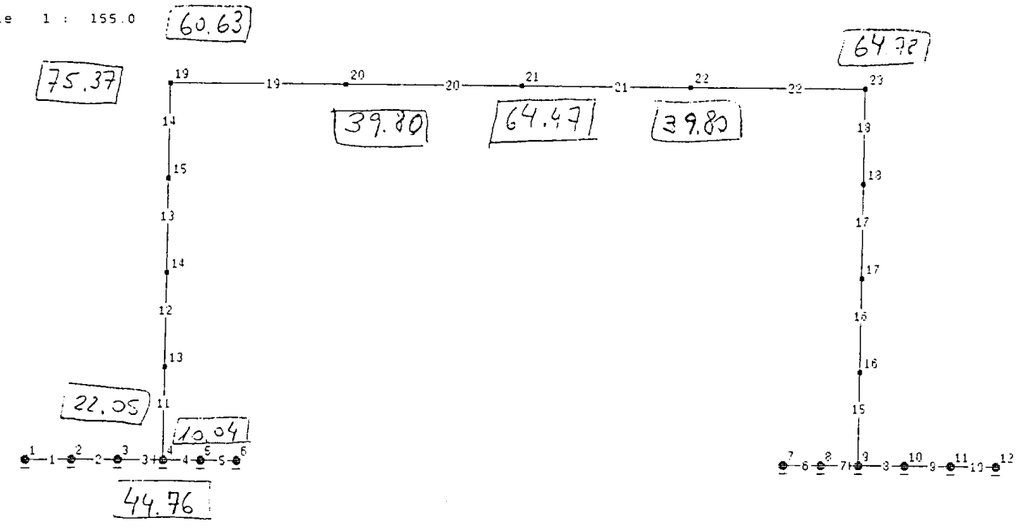
bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Asw-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASwI [cm2/m]	
9	0.86	1.00	1.00	15.63	23.94	0.00	-------
9	1.15	1.00	1.00	10.87	20.75	0.00	-------
10	0.00	1.00	1.00	10.87	13.37	0.00	-------
10	0.29	1.00	1.00	9.40	13.12	0.00	-------
10	0.57	1.00	1.00	7.03	12.32	0.00	-------
10	0.86	1.00	1.00	3.93	10.79	0.00	-------
10	1.15	1.00	1.00	1.00	9.43	0.00	-------
11	0.00	23.62	32.89	1.00	3.67	0.00	-------
11	0.59	14.11	22.05	1.00	4.19	0.00	-------
11	1.18	6.22	13.88	1.00	4.69	0.00	-------
11	1.76	1.00	6.45	1.00	5.15	0.00	-------
11	2.35	1.00	5.29	1.00	5.59	0.00	-------
12	0.00	1.00	5.29	1.00	5.59	0.00	-------
12	0.59	1.00	6.01	1.00	1.83	0.00	-------
12	1.18	1.00	6.40	1.00	3.17	0.00	-------
12	1.76	1.00	6.76	1.00	2.19	0.00	-------
12	2.35	2.07	8.16	1.00	1.27	0.00	-------
13	0.00	2.07	8.16	1.00	1.27	0.00	-------
13	0.59	9.34	15.91	1.00	1.71	0.00	-------
13	1.18	17.17	24.16	1.00	2.39	0.00	-------
13	1.76	25.50	32.92	1.00	3.13	0.00	-------
13	2.35	34.30	42.24	1.00	1.00	0.00	-------
14	0.00	34.30	42.24	1.00	1.00	0.00	-------
14	0.59	43.09	52.33	1.00	1.00	0.00	-------
14	1.18	54.42	63.52	1.00	1.00	0.00	-------
14	1.76	65.77	75.37	1.00	1.00	0.00	-------
14	2.35	77.31	87.95	1.00	1.00	0.00	-------
15	0.00	1.71	5.33	18.47	27.20	0.00	-------
15	0.59	1.00	5.14	9.80	17.00	0.00	-------
15	1.18	1.00	5.63	2.63	8.80	0.00	-------
15	1.76	1.00	6.10	1.00	5.90	0.00	-------
15	2.35	1.00	5.29	1.00	6.64	0.00	-------
16	0.00	1.00	5.29	1.00	6.64	0.00	-------
16	0.59	1.00	3.65	1.00	6.96	0.00	-------
16	1.18	1.00	2.61	1.00	6.55	0.00	-------
16	1.76	1.00	2.32	3.39	6.71	0.00	-------
16	2.35	1.00	1.41	2.20	9.95	0.00	-------
17	0.00	1.00	1.41	2.20	9.95	0.00	-------
17	0.59	1.00	5.05	9.05	17.11	0.00	-------
17	1.18	1.00	5.05	13.84	25.33	0.00	-------
17	1.76	1.00	1.00	27.15	35.07	0.00	-------
17	2.35	1.00	1.00	36.52	45.02	0.00	-------

sum of reinforced steel area

run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. As+=top [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. As+=bot [cm2]	stirrup ASW [cm2 m]	
18	0.00	1.00	1.00	36.63	40.29	0.00	--------
18	0.35	1.00	1.00	48.84	53.72	0.00	--------
18	1.12	1.00	1.00	67.75	74.53	0.00	--------
18	1.75	1.00	1.00	68.77	75.65	0.00	--------
18	2.35	1.00	1.00	82.48	90.73	0.00	--------
19	0.00	83.75	92.13	1.00	1.00	10.15	--------
19	0.35	53.44	71.07	1.00	1.00	10.93	--------
19	0.70	43.75	60.63	1.00	1.00	9.65	--------
19	1.05	34.65	50.75	1.00	1.00	8.40	--------
19	1.40	26.08	41.48	1.00	1.00	8.33	--------
20	0.00	34.90	50.30	1.00	1.00	0.00	--------
20	0.73	14.19	28.10	1.00	6.07	0.00	--------
20	1.46	1.00	13.43	9.93	21.56	0.00	--------
20	2.19	1.00	1.00	18.59	29.54	0.00	--------
20	2.92	1.00	1.00	30.32	39.78	0.00	--------
21	0.00	1.00	1.00	30.32	39.78	0.00	--------
21	1.08	1.00	1.00	45.10	52.36	0.00	--------
21	2.16	1.00	1.00	54.97	60.05	0.00	--------
21	3.24	1.00	1.00	60.90	61.73	0.00	--------
21	4.33	1.00	1.00	62.84	64.47	0.00	--------
22	0.00	1.00	1.00	62.84	64.47	0.00	--------
22	1.08	1.00	1.00	60.09	63.30	0.00	--------
22	2.16	1.00	1.00	53.37	58.72	0.00	--------
22	3.24	1.00	1.00	42.74	50.35	0.00	--------
22	4.33	1.00	1.00	27.26	37.06	0.00	--------
23	0.00	1.00	1.00	27.26	37.06	0.00	--------
23	0.73	1.00	6.71	15.09	26.37	0.00	--------
23	1.46	4.08	15.84	1.87	12.94	0.00	--------
23	2.19	17.95	32.20	1.00	6.37	0.00	--------
23	2.92	39.32	55.06	1.00	1.00	0.00	--------
24	0.00	29.42	45.15	1.00	1.00	8.33	--------
24	0.35	38.21	54.63	1.00	1.00	8.33	--------
24	0.70	47.56	64.78	1.00	1.00	8.33	--------
24	1.05	57.51	75.48	1.00	1.00	8.33	--------
24	1.40	68.13	86.84	1.00	1.00	8.33	--------

Scale 1 : 155.0



$A_{HCV} = 25.60\ cm^2/m \rightarrow \phi 20/0.125$

$A_{HCO} = 12.80\ cm^2/m \rightarrow \phi 16/0.25 + \phi 12/0.25$

3.5.3. Comprobación a cortante

Envolvente de cálculo de solicitaciones: E.L.U. De Cortante

Group	Spec.	Loadcase	Factor Stage	Title
A	PERM.	1	1	Peso Propio
B	OR	1	1.35	Peso Propio
C	PL.PERM	2	0.75	Cargas permanentes
D	OR	2	1.35	Cargas permanentes
E	PL.PERM	17	1	Reologicas
F	OR	17	1.35	Reologicas
G	PL.PERM	9	1	Empuje activo de tierras
H	OR	9	1.5	Empuje activo de tierras
I	OR	11	1	Empuje act/rep de tierras
J	OR	11	1.5	Empuje act/rep de tierras
K	OR	12	1	Empuje al rep/act de tier
L	OR	12	1.5	Empuje al rep/act de tier
M	PLUS	3	1.5	Sobrecarga uniforme total
N	PLUS	8	1.5	Sobrecarga solera
O	PLUS	13	1.5	Empuje activo debido a la
P	PLUS	15	1.5	Empuje activo debido a la
Q	PLUS	18	1.5	Frenado
ALTERNATIV	0	0	0	0
R	PERM.	1	1	Peso Propio
S	OR	1	1.35	Peso Propio
T	PL.PERM	2	0.75	Cargas permanentes
U	OR	2	1.35	Cargas permanentes
V	PL.PERM	17	1	Reologicas
W	OR	17	1.35	Reologicas
X	PL.PERM	10	1	Empuje al reposo de tierr
Y	OR	10	1.5	Empuje al reposo de tierr
Z	OR	11	1	Empuje act/rep de tierras
AA	OR	11	1.5	Empuje act/rep de tierras
AB	OR	12	1	Empuje al rep/act de tier
AC	OR	12	1.5	Empuje al rep/act de tier
AD	PLUS	3	1.5	Sobrecarga uniforme total
AE	PLUS	8	1.5	Sobrecarga solera
AF	PLUS	14	1.5	Empuje al reposo sob unif
AG	PLUS	16	1.5	Empuje al reposo sob. par
AH	PLUS	18	1.5	Frenado
ALTERNATIV	0	0	0	0
AI	PERM.	1	1	Peso Propio
AJ	PL.PERM	2	1	Cargas permanentes
AK	PL.PERM	17	1	Reologicas
AL	PL.PERM	9	1	Empuje activo de tierras
AM	OR	11	1	Empuje act/rep de tierras
AN	OR	12	1	Empuje al rep/act de tier
AO	PLUS	4	1	Sob unif parcial dintel d
AP	PLUS	5	1	Sob unif parcial dintel i
AQ	PLUS	6	1	Sobrecarga uniforme dinte
AR	PLUS	7	1	Sobrecarga posicion late
AS	PLUS	8	1	Sobrecarga solera
AT	PLUS	13	1	Empuje activo debido a la
AU	PLUS	15	1	Empuje activo debido a la
AV	PLUS	18	1	Frenado
AW	PLUS	19	1	ACCIDENTAL : Choque
ALTERNATIV	0	0	0	0
AX	PERM.	1	1	Peso Propio
AY	PL.PERM	2	1	Cargas permanentes
AZ	PL.PERM	17	1	Reologicas
BA	PL.PERM	10	1	Empuje al reposo de tierr
BB	OR	11	1	Empuje act/rep de tierras
BC	OR	12	1	Empuje al rep/act de tier
BD	PLUS	4	1	Sob unif parcial dintel d
BE	PLUS	5	1	Sob unif parcial dintel i
BF	PLUS	6	1	Sobrecarga uniforme dinte
BG	PLUS	7	1	Sobrecarga posicion late
BH	PLUS	8	1	Sobrecarga solera
BI	PLUS	14	1	Empuje al reposo sob unif
BJ	PLUS	16	1	Empuje al reposo sob. par
BK	PLUS	18	1	Frenado

Cálculo de las secciones de un pórtico o marco

Cálculo de cuantías de armaduras mínimas : Hormigón Armado

Materiales :

Hormigón : fck (N/mm^2)= 30 — γ c = 1.50 — fcd (N/mm^2)= 20.0 — h (m) = 1.20 — b (m) = 1.00 — Ac (m^2) = 1.20 — rec (m) = 0.03 — d (m) = 1.16 — d' (m) = 0.045 — d' < h/7 Verifica

Acero pasivo : B 500 S

fs (N/mm^2)= 550
fyk (N/mm^2)= 500
γ s = 1.15
fyd (N/mm^2)= 434.8
ftd (N/mm^2)= 400.0

CORTANTE : Armadura mínima

Ast (cm^2) = (0.02 x fcd x b0 x d) / ftd d x n x (π x Φ^2 / 4) / sep

DINTEL : h (m) = 1.20 — d (m) = 1.16 — LOSA

Ast (cm^2) = (0.02 x fcd x b0 x d) / ftd = 11.55

Ast (cm^2) = d x n x (π x Φ^2 / 4) / sep = 2 c Φ 8 c/ 0.20 m

HASTIAL : h (m) = 1.20 — d (m) = 1.16 — MURO

Ast (cm^2) = (0.02 x fcd x b0 x d) / ftd = 11.55

Ast (cm^2) = d x n x (π x Φ^2 / 4) / sep = 2 c Φ 8 c/ 0.20 m

SOLERA : h (m) = 1.20 — d (m) = 1.16 — LOSA DE CIMENTACION

Ast (cm^2) = (0.02 x fcd x b0 x d) / ftd 11.55

Ast (cm^2) = d x n x (π x Φ^2 / 4) / sep = 2 c Φ 8 c/ 0.20 m

Verificación a cortante
Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE		ρ	Vcu [KN/m]	CORTANTE			
									As superior (cm^2/m)	As inferior (cm^2/m)			Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu' [KN/m]
1	0.000	1.20	1.16	0.00	234.10	0.00	R T W AB AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	707.75	0.00	S U V AA AD AE AG	19635.00	10.00	49.10	0.0053	493.98	296.10	7.12	10.00	411.65
1	0.287	1.20	1.16	0.00	142.18	54.09	R T W AB AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	566.80	183.22	S U V AA AD AE AG	19635.00	10.00	49.10	0.0053	493.98	155.15	3.73	10.00	411.65
1	0.575	1.20	1.16	0.00	41.20	96.30	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	425.85	325.91	S U V AA AD AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
1	0.862	1.20	1.16	0.00	-85.07	89.99	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	293.53	391.08	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
1	1.150	1.20	1.16	0.00	-211.34	47.38	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	186.94	460.15	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
2	0.000	1.20	1.16	0.00	120.74	47.38	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	809.55	489.73	S U V AA AD AE AG	19635.00	10.00	49.10	0.0053	493.98	397.90	9.57	10.00	411.65
2	0.287	1.20	1.16	0.00	-5.53	63.94	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	668.60	702.21	S U V AA AD AE AG	19635.00	10.00	49.10	0.0053	493.98	256.95	6.18	10.00	411.65
2	0.575	1.20	1.16	0.00	-131.80	44.20	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	558.25	842.43	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98	146.60	3.53	10.00	411.65
2	0.862	1.20	1.16	0.00	-258.07	-11.85	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	451.66	987.61	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
2	1.150	1.20	1.16	0.00	-384.35	-104.19	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	345.06	1102.14	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
3	0.000	1.20	1.16	0.00	-2.20	-104.19	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	918.48	1102.14	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98	506.83	12.19	10.00	411.65
3	0.288	1.20	1.16	0.00	-128.48	-122.98	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	811.89	1350.88	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98	400.24	9.63	10.00	411.65
3	0.575	1.20	1.16	0.00	-254.75	-178.07	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	705.29	1568.97	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98	293.64	7.06	10.00	411.65
3	0.863	1.20	1.16	0.00	-381.02	-269.46	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	598.69	1756.42	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98	187.04	4.50	10.00	411.65
3	1.150	1.20	1.16	0.00	-507.29	-397.15	R T W AC AF AH	19635.00	10.00	49.10	0.0053	493.98	95.64	2.30	10.00	411.65
		1.20	1.16	0.00	492.10	1913.22	S U V Z AD AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
4	0.000	1.20	1.16	0.00	-1209.45	1581.91	S U W AC AD AF AH	19635.00	10.00	49.10	0.0053	493.98	797.80	19.19	10.00	411.65
		1.20	1.16	0.00	-543.70	707.34	R T V Z AE AG	19635.00	10.00	49.10	0.0053	493.98	132.05	3.18	10.00	411.65
4	0.231	1.20	1.16	0.00	-1227.68	1300.11	S U W AC AD AF AH	19635.00	10.00	49.10	0.0053	493.98	816.03	19.63	10.00	411.65
		1.20	1.16	0.00	-556.95	580.07	R T V Z AE AG	19635.00	10.00	49.10	0.0053	493.98	145.30	3.49	10.00	411.65
4	0.462	1.20	1.16	0.00	-1245.92	1014.10	S U W AC AD AF AH	19635.00	10.00	49.10	0.0053	493.98	834.27	20.06	10.00	411.65
		1.20	1.16	0.00	-570.21	449.74	R T V Z AE AG	19635.00	10.00	49.10	0.0053	493.98	158.56	3.81	10.00	411.65
4	0.694	1.20	1.16	0.00	-1264.15	723.88	S U W AC AD AF AH	19635.00	10.00	49.10	0.0053	493.98	852.50	20.50	10.00	411.65
		1.20	1.16	0.00	-583.46	316.35	R T V Z AE AG	19635.00	10.00	49.10	0.0053	493.98	171.81	4.13	10.00	411.65
4	0.925	1.20	1.16	0.00	-1282.38	429.44	S U W AC AD AF AH	19635.00	10.00	49.10	0.0053	493.98	870.73	20.94	10.00	411.65
		1.20	1.16	0.00	-596.71	179.90	R T V Z AE AG	19635.00	10.00	49.10	0.0053	493.98	185.06	4.45	10.00	411.65

Verificación a cortante

Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE As superior (cm^2/m)	FLEXION SIMPLE As inferior (cm^2/m)	ρ	Vcu [KN/m]	CORTANTE Vsu [KN/m]	CORTANTE Ast (cm^2/m)	CORTANTE Astmin (cm^2/m)	CORTANTE Vcu* [KN/m]
5	0.000	1.20	1.16	0.00	-427.79	429.44	S U W AC AD AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	-167.98	179.90	R T V Z AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
5	0.231	1.20	1.16	0.00	-446.02	328.40	S U W AC AD AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	-181.23	139.52	R T V Z AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
5	0.462	1.20	1.16	0.00	-464.25	223.15	S U W AC AD AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	-194.48	96.08	R T V Z AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
5	0.694	1.20	1.16	0.00	-483.20	114.01	S U W AC AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	-207.02	49.25	R T V Z AG	19635.00	10.00	49.10	0.0053	493.98				411.65
5	0.925	1.20	1.16	0.00	-502.82	0.00	S U W AC AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	91.17	2.19	10.00	411.65
		1.20	1.16	0.00	-218.88	0.00	R T V Z AG	19635.00	10.00	49.10	0.0053	493.98				411.65
6	0.000	1.20	1.16	0.00	202.92	0.00	AX AY AZ BC BD BI BK...	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	487.80	0.00	S U W AA AD AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
6	0.231	1.20	1.16	0.00	189.42	45.36	AX AY AZ BC BD BI BK...	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	468.18	110.54	S U W AA AD AE AG	19635.00	10.00	49.10	0.0053	493.98				411.65
6	0.463	1.20	1.16	0.00	175.46	87.83	AX AY AZ BC BD BH BI...	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	449.23	216.20	S U W AA AD AG	19635.00	10.00	49.10	0.0053	493.98				411.65
6	0.694	1.20	1.16	0.00	161.03	126.73	AX AY AZ BC BD BH BI...	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	431.00	317.98	S U W AA AD AG	19635.00	10.00	49.10	0.0053	493.98				411.65
6	0.925	1.20	1.16	0.00	146.60	162.30	AX AY AZ BC BD BH BI...	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	412.77	415.54	S U W AA AD AG	19635.00	10.00	49.10	0.0053	493.98				411.65
7	0.000	1.20	1.16	0.00	567.43	165.86	R T V AB AE AF AH	19635.00	10.00	49.10	0.0053	493.98	155.78	3.75	10.00	411.65
		1.20	1.16	0.00	1253.42	415.54	S U W AA AD AG	19635.00	10.00	49.10	0.0053	493.98	841.77	20.24	10.00	411.65
7	0.231	1.20	1.16	0.00	554.18	295.55	R T V AB AE AF AH	19635.00	10.00	49.10	0.0053	493.98	142.53	3.43	10.00	411.65
		1.20	1.16	0.00	1235.19	703.28	S U W AA AD AG	19635.00	10.00	49.10	0.0053	493.98	823.54	19.81	10.00	411.65
7	0.463	1.20	1.16	0.00	540.93	422.17	R T V AB AE AF AH	19635.00	10.00	49.10	0.0053	493.98	129.28	3.11	10.00	411.65
		1.20	1.16	0.00	1216.95	986.81	S U W AA AD AG	19635.00	10.00	49.10	0.0053	493.98	805.30	19.37	10.00	411.65
7	0.694	1.20	1.16	0.00	527.68	545.73	R T V AB AE AF AH	19635.00	10.00	49.10	0.0053	493.98	116.03	2.79	10.00	411.65
		1.20	1.16	0.00	1198.72	1266.12	S U W AA AD AG	19635.00	10.00	49.10	0.0053	493.98	787.07	18.93	10.00	411.65
7	0.925	1.20	1.16	0.00	514.43	666.22	R T V AB AE AF AH	19635.00	10.00	49.10	0.0053	493.98	102.78	2.47	10.00	411.65
		1.20	1.16	0.00	1180.49	1541.22	S U W AA AD AG	19635.00	10.00	49.10	0.0053	493.98	768.84	18.49	10.00	411.65
8	0.000	1.20	1.16	0.00	-551.87	2073.44	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	140.22	3.37	10.00	411.65
		1.20	1.16	0.00	447.94	-238.09	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
8	0.287	1.20	1.16	0.00	-658.47	1899.45	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	246.82	5.94	10.00	411.65
		1.20	1.16	0.00	321.67	-127.46	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
8	0.575	1.20	1.16	0.00	-765.06	1694.82	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	353.41	8.50	10.00	411.65
		1.20	1.16	0.00	195.39	-53.13	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
8	0.862	1.20	1.16	0.00	-871.66	1459.54	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	460.01	11.06	10.00	411.65
		1.20	1.16	0.00	69.12	-15.11	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
8	1.150	1.20	1.16	0.00	-978.25	1193.62	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	566.60	13.63	10.00	411.65
		1.20	1.16	0.00	-57.15	-13.39	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65

Verificación a cortante

Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE As superior (cm^2/m)	FLEXION SIMPLE As inferior (cm^2/m)	ρ	Vcu [KN/m]	CORTANTE Vsu [KN/m]	CORTANTE Ast (cm^2/m)	CORTANTE Astmin (cm^2/m)	CORTANTE Vcu* [KN/m]
9	0.000	1.20	1.16	0.00	-394.69	1193.62	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	335.08	-13.39	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
9	0.288	1.20	1.16	0.00	-501.28	1064.82	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	89.63	2.16	10.00	411.65
		1.20	1.16	0.00	208.81	64.80	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
9	0.575	1.20	1.16	0.00	-607.88	905.38	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	196.23	4.72	10.00	411.65
		1.20	1.16	0.00	82.54	106.68	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
9	0.863	1.20	1.16	0.00	-718.09	750.76	S U V AC AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	306.44	7.37	10.00	411.65
		1.20	1.16	0.00	-43.73	112.26	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
9	1.150	1.20	1.16	0.00	-859.04	524.05	S U V AC AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	447.39	10.76	10.00	411.65
		1.20	1.16	0.00	-170.00	81.53	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
10	0.000	1.20	1.16	0.00	-216.86	494.56	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98		2Cϕ10/20/m		411.65
		1.20	1.16	0.00	181.65	81.53	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
10	0.287	1.20	1.16	0.00	-323.45	416.89	S U V AB AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	55.38	115.60	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
10	0.575	1.20	1.16	0.00	-455.69	343.07	S U V AC AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98				411.65
		1.20	1.16	0.00	-70.90	113.37	R T W AA AG	19635.00	10.00	49.10	0.0053	493.98				411.65
10	0.862	1.20	1.16	0.00	-596.65	191.80	S U V AC AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	185.00	4.45	10.00	411.65
		1.20	1.16	0.00	-172.01	62.67	R T W Z AG	19635.00	10.00	49.10	0.0053	493.98				411.65
10	1.150	1.20	1.16	0.00	-737.60	0.00	S U V AC AD AE AF AH	19635.00	10.00	49.10	0.0053	493.98	325.95	7.84	10.00	411.65
		1.20	1.16	0.00	-263.92	0.00	R T W Z AG	19635.00	10.00	49.10	0.0053	493.98				411.65

Verificación a cortante

Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE		ρ	Vcu [KN/m]	CORTANTE			
									As superior (cm^2/m)	As inferior (cm^2/m)			Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu* [KN/m]
11	0.000	1.20	1.16	-1968.52	-232.32	812.20	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	676.28				
		1.20	1.16	-900.90	805.73	-1585.37	R T W AC AF AH	19635.00	10.00	24.55	0.0027	522.14	348.94	8.39	10.00	610.93
11	0.588	1.20	1.16	-1944.65	-277.52	662.32	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	672.83				456.79
		1.20	1.16	-883.23	689.88	-1146.29	R T W AC AF AH	19635.00	10.00	24.55	0.0027	519.59	235.64	5.67	10.00	607.49
11	1.175	1.20	1.16	-1920.79	-320.44	486.56	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	669.39				454.24
		1.20	1.16	-865.55	579.21	-773.75	R T W AC AF AH	19635.00	10.00	24.55	0.0027	517.04	127.52	3.07	10.00	604.04
11	1.763	1.20	1.16	-1896.93	-361.08	286.26	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	665.94				451.69
		1.20	1.16	-847.88	473.71	-464.71	R T W AC AF AH	19635.00	10.00	24.55	0.0027	514.48				600.60
11	2.350	1.20	1.16	-1873.07	-399.44	62.74	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	662.50				449.14
		1.20	1.16	-830.20	373.39	-216.13	R T W AC AF AH	19635.00	10.00	24.55	0.0027	511.93				597.15
12	0.000	1.20	1.16	-1873.07	-399.44	62.74	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	662.50				446.59
		1.20	1.16	-830.20	373.39	-216.13	R T W AC AF AH	19635.00	10.00	24.55	0.0027	511.93				597.15
12	0.588	1.20	1.16	-1849.21	-435.53	-182.64	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	659.05				446.59
		1.20	1.16	-812.53	278.25	-24.96	R T W AC AF AH	19635.00	10.00	24.55	0.0027	509.38				593.71
12	1.175	1.20	1.16	-1825.35	-469.33	-448.55	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	655.61				444.03
		1.20	1.16	-794.85	188.28	111.83	R T W AC AF AH	19635.00	10.00	24.55	0.0027	506.83				590.26
12	1.763	1.20	1.16	-1801.49	-500.86	-733.66	S U V Z AD AE AG	19635.00	10.00	24.55	0.0027	652.16				441.48
		1.20	1.16	-777.18	103.50	197.29	R T W AC AF AH	19635.00	10.00	24.55	0.0027	504.28				586.82
12	2.350	1.20	1.16	-1788.57	-530.17	-960.98	S U V AA AD AE AG	19635.00	10.00	24.55	0.0027	650.30				438.93
		1.20	1.16	-759.50	23.89	234.45	R T W AC AF AH	19635.00	10.00	24.55	0.0027	501.72				584.95
13	0.000	1.20	1.16	-1788.57	-530.17	-960.98	S U V AA AD AE AG	19635.00	10.00	24.55	0.0027	650.30				436.38
		1.20	1.16	-759.50	23.89	234.45	R T W AC AF AH	19635.00	10.00	24.55	0.0027	501.72				584.95
13	0.587	1.20	1.16	-1764.71	-570.63	-1284.50	S U V AA AD AE AG	19635.00	10.00	24.55	0.0027	646.85				436.38
		1.20	1.16	-741.83	-50.55	226.37	R T W AC AF AH	19635.00	10.00	24.55	0.0027	499.17				581.51
13	1.175	1.20	1.16	-1740.85	-607.67	-1630.80	S U V AA AD AE AG	19635.00	10.00	24.55	0.0027	643.41				433.83
		1.20	1.16	-724.15	-119.80	176.07	R T W AC AF AH	19635.00	10.00	24.55	0.0027	496.62				578.06
13	1.762	1.20	1.16	-1684.16	-645.02	-1646.31	S U V Y AD AE AG	19635.00	10.00	24.55	0.0027	635.22	75.14	1.81	10.00	431.28
		1.20	1.16	-717.36	-166.97	-117.43	R T W AB AF AH	19635.00	10.00	24.55	0.0027	495.64				569.88
13	2.350	1.20	1.16	-1660.30	-690.79	-2038.96	S U V Y AD AE AG	19635.00	10.00	24.55	0.0027	631.78	124.36	2.99	10.00	430.30
		1.20	1.16	-730.51	-198.15	-546.07	A C F G O Q	19635.00	10.00	24.55	0.0027	497.54				566.43
14	0.000	1.20	1.16	-1660.30	-690.79	-2038.96	S U V Y AD AE AG	19635.00	73.65	24.55	0.0027	631.78	124.36	2.99	10.00	432.19
		1.20	1.16	-730.51	-198.15	-546.07	A C F G O Q	19635.00	73.65	24.55	0.0027	497.54				566.43
14	0.588	1.20	1.16	-1609.82	-742.64	-2199.87	S U V Y AD AE AF AG	19635.00	73.65	24.55	0.0027	624.49	183.49	4.41	10.00	432.19
		1.20	1.16	-730.39	-217.25	-840.00	A C F G Q	19635.00	73.65	24.55	0.0027	497.52				559.14
14	1.175	1.20	1.16	-1585.96	-791.18	-2650.68	S U V Y AD AE AF AG	19635.00	73.65	24.55	0.0027	621.04	235.48	5.66	10.00	432.18
		1.20	1.16	-712.72	-232.83	-972.32	A C F G Q	19635.00	73.65	24.55	0.0027	494.97				555.70
14	1.763	1.20	1.16	-1562.10	-834.55	-3128.49	S U V Y AD AE AF AG	19635.00	73.65	24.55	0.0027	617.60	282.29	6.79	10.00	429.62
		1.20	1.16	-695.04	-246.14	-1113.13	A C F G Q	19635.00	73.65	24.55	0.0027	492.42				552.25
14	2.350	1.20	1.16	-1538.24	-872.74	-3630.26	S U V Y AD AE AF AG	19635.00	73.65	24.55	0.0027	614.15	323.93	7.79	10.00	427.07
		1.20	1.16	-677.37	-257.16	-1261.09	A C F G Q	19635.00	73.65	24.55	0.0027	489.87				548.81
																424.52

Verificación a cortante

Valores de diseño de las solicitaciones

									FLEXION SIMPLE				CORTANTE			
Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	As superior (cm^2/m)	As inferior (cm^2/m)	ρ	Vcu [KN/m]	Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu' [KN/m]
15	0.000	1.20	1.16	-930.19	-758.96	1385.62	R T W AA AG	19635.00	24.55	10.05	0.0011	425.41	382.06	9.19	10.00	376.89
		1.20	1.16	-1472.12	314.84	-879.64	AX AY AZ BC BD BE BF...	19635.00	24.55	10.05	0.0011	503.66				455.14
15	0.588	1.20	1.16	-912.52	-642.85	974.10	R T W AA AG	19635.00	24.55	10.05	0.0011	422.86	268.51	6.46	10.00	374.34
		1.20	1.16	-1454.44	360.04	-681.28	AX AY AZ BC BD BE BF...	19635.00	24.55	10.05	0.0011	501.10				452.58
15	1.175	1.20	1.16	-894.84	-531.94	629.26	R T W AA AG	19635.00	24.55	10.05	0.0011	420.31	160.14	3.85	10.00	371.79
		1.20	1.16	-1436.77	402.96	-457.04	AX AY AZ BC BD BE BF...	19635.00	24.55	10.05	0.0011	498.55				450.03
15	1.763	1.20	1.16	-877.17	-426.21	348.06	R T W AA AG	19635.00	24.55	10.05	0.0011	417.76	56.97	1.37	10.00	369.24
		1.20	1.16	-1419.09	443.60	-208.25	AX AY AZ BC BD BE BF...	19635.00	24.55	10.05	0.0011	496.00				447.48
15	2.350	1.20	1.16	-859.49	-325.68	127.44	R T W AA AG	19635.00	24.55	10.05	0.0011	415.21				366.69
		1.20	1.16	-1401.42	481.96	63.74	AX AY AZ BC BD BE BF...	19635.00	24.55	10.05	0.0011	493.45				444.93
16	0.000	1.20	1.16	-859.49	-325.68	127.44	R T W AA AG	19635.00	24.55	10.05	0.0011	415.21				366.69
		1.20	1.16	-1401.42	481.96	63.74	AX AY AZ BC BD BE BF...	19635.00	24.55	10.05	0.0011	493.45				444.93
16	0.588	1.20	1.16	-841.82	-230.35	-35.64	R T W AA AG	19635.00	24.55	10.05	0.0011	412.66				364.14
		1.20	1.16	-1383.74	518.05	357.61	AX AY AZ BC BD BE BF...	19635.00	24.55	10.05	0.0011	490.90	75.67	1.82	10.00	442.38
16	1.175	1.20	1.16	-824.14	-140.20	-144.23	R T W AA AG	19635.00	24.55	10.05	0.0011	410.10				361.58
		1.20	1.16	-1854.70	517.74	417.86	S U V AB AD AE AF AH	19635.00	24.55	10.05	0.0011	558.89				510.37
16	1.763	1.20	1.16	-806.47	-55.25	-201.39	R T W AA AG	19635.00	24.55	10.05	0.0011	407.55				359.03
		1.20	1.16	-1830.84	549.27	731.40	S U V AB AD AE AF AH	19635.00	24.55	10.05	0.0011	555.45				506.93
16	2.350	1.20	1.16	-788.79	24.51	-210.17	R T W AA AG	19635.00	24.55	10.05	0.0011	405.00				356.48
		1.20	1.16	-1806.98	578.52	1062.80	S U V AB AD AE AF AH	19635.00	24.55	10.05	0.0011	552.00	75.04	1.80	10.00	503.48
17	0.000	1.20	1.16	-788.79	24.51	-210.17	R T W AA AG	19635.00	24.55	10.05	0.0011	405.00				356.48
		1.20	1.16	-1806.98	578.52	1062.80	S U V AB AD AE AF AH	19635.00	24.55	10.05	0.0011	552.00	75.04	1.80	10.00	503.48
17	0.587	1.20	1.16	-771.12	99.07	-173.61	R T W AA AG	19635.00	24.55	10.05	0.0011	402.45				353.93
		1.20	1.16	-1794.00	618.91	1339.01	S U V AC AD AE AF AH	19635.00	24.55	10.05	0.0011	550.13	117.31	2.82	10.00	501.61
17	1.175	1.20	1.16	-753.44	168.45	-94.77	R T W AA AG	19635.00	24.55	10.05	0.0011	399.90				351.38
		1.20	1.16	-1770.14	655.96	1713.67	S U V AC AD AE AF AH	19635.00	24.55	10.05	0.0011	546.68	157.79	3.79	10.00	498.16
17	1.762	1.20	1.16	-746.71	215.69	228.05	R T W Z AG	19635.00	24.55	10.05	0.0011	398.93				350.41
		1.20	1.16	-1713.63	693.67	1758.34	S U V Y AD AE AF AH	19635.00	24.55	10.05	0.0011	538.52	203.67	4.90	10.00	490.00
17	2.350	1.20	1.16	-759.98	246.81	686.68	A C F G P	19635.00	24.55	10.05	0.0011	400.84				352.32
		1.20	1.16	-1689.77	739.44	2179.57	S U V Y AD AE AF AH	19635.00	24.55	10.05	0.0011	535.08	252.88	6.08	10.00	486.56
18	0.000	1.20	1.16	-759.98	246.81	686.68	A C F G P	19635.00	24.55	73.65	0.0080	675.19				580.94
		1.20	1.16	-1689.77	739.44	2179.57	S U V Y AD AE AF AH	19635.00	24.55	73.65	0.0080	809.43				715.18
18	0.588	1.20	1.16	-759.87	265.90	1009.20	A C F G	19635.00	24.55	73.65	0.0080	675.17				580.93
		1.20	1.16	-1639.30	791.29	2369.07	S U V Y AD AE AF AG AH	19635.00	24.55	73.65	0.0080	802.14				707.89
18	1.175	1.20	1.16	-742.19	281.49	1170.11	A C F G	19635.00	24.55	73.65	0.0080	672.62				578.37
		1.20	1.16	-1615.44	839.84	2848.46	S U V Y AD AE AF AG AH	19635.00	24.55	73.65	0.0080	798.69	135.39	3.26	10.00	704.45
18	1.763	1.20	1.16	-724.52	294.79	1339.50	A C F G	19635.00	24.55	73.65	0.0080	670.07				575.82
		1.20	1.16	-1591.58	883.21	3354.86	S U V Y AD AE AF AG AH	19635.00	24.55	73.65	0.0080	795.25	182.20	4.38	10.00	701.00
18	2.350	1.20	1.16	-706.84	305.82	1516.04	A C F G	19635.00	24.55	73.65	0.0080	667.51				573.27
		1.20	1.16	-1567.72	921.40	3885.22	S U V Y AD AE AF AG AH	19635.00	24.55	73.65	0.0080	791.80	223.84	5.38	10.00	697.56

Verificación a cortante

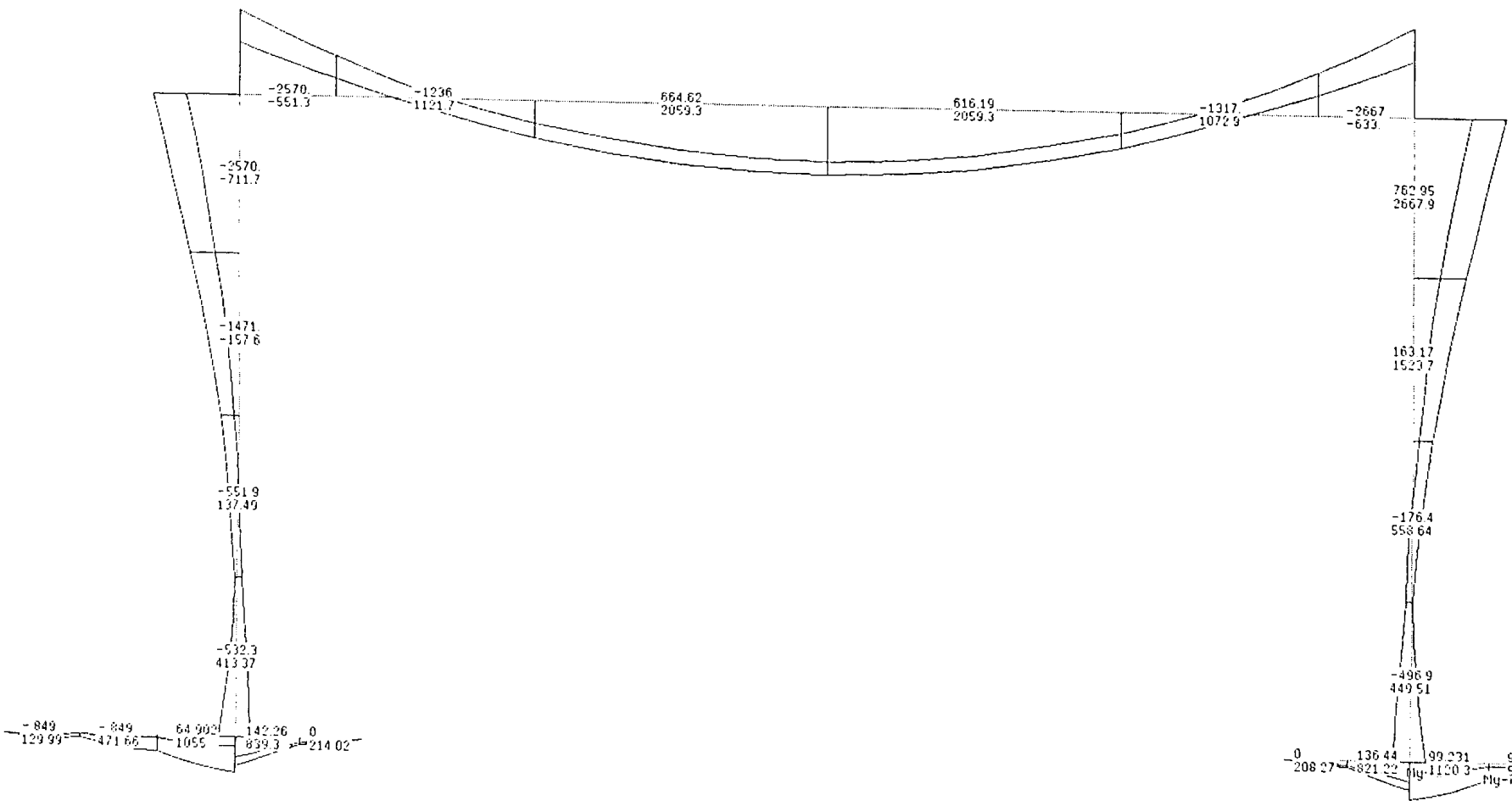
Valores de diseño de las solicitaciones

Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	FLEXION SIMPLE As superior (cm^2/m)	FLEXION SIMPLE As inferior (cm^2/m)	ρ	Vcu [KN/m]	CORTANTE Vsu [KN/m]	CORTANTE Ast (cm^2/m)	CORTANTE Astmin (cm^2/m)	CORTANTE Vcu* [KN/m]
19	0.000	1.45	1.41	-426.61	618.11	-841.73	R T W AC AF AH	23885.00	64.80	49.10	0.0044	609.48	99.87	1.97	10.00	518.23
		1.45	1.41	-758.17	1597.69	-4074.22	S U V AA AD AE AG	23885.00	64.80	49.10	0.0044	657.67	1031.26	20.39	10.00	566.42
19	0.350	1.45	1.41	-428.58	587.67	-630.71	R T W AC AF AH	23885.00	64.80	49.10	0.0044	609.76				518.52
		1.45	1.41	-758.17	1532.97	-3526.36	S U V AA AD AE AG	23885.00	64.80	49.10	0.0044	657.67	966.55	19.11	10.00	566.42
19	0.700	1.45	1.41	-430.55	557.24	-430.35	R T W AC AF AH	23885.00	64.80	49.10	0.0044	610.05				518.80
		1.45	1.41	-758.17	1468.26	-3001.14	S U V AA AD AE AG	23885.00	64.80	49.10	0.0044	657.67	901.84	17.83	10.00	566.42
19	1.050	1.45	1.41	-432.52	526.81	-240.65	R T W AC AF AH	23885.00	64.80	49.10	0.0044	610.34				519.09
		1.45	1.41	-758.17	1403.55	-2498.58	S U V AA AD AE AG	23885.00	64.80	49.10	0.0044	657.67	837.12	16.55	10.00	566.42
19	1.400	1.45	1.41	-434.48	496.38	-61.59	R T W AC AF AH	23885.00	64.80	49.10	0.0044	610.62				519.38
		1.45	1.41	-758.17	1338.83	-2018.66	S U V AA AD AE AG	23885.00	64.80	49.10	0.0044	657.67	772.41	15.27	10.00	566.42
20	0.000	1.20	1.16	-434.48	496.38	-61.59	R T W AC AF AH	19635.00	15.70	64.80	0.0070	604.57				514.26
		1.20	1.16	-758.17	1338.83	-2018.66	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30	777.84	18.71	10.00	561.00
20	0.731	1.20	1.16	-438.60	437.36	279.81	R T W AC AF AH	19635.00	15.70	64.80	0.0070	605.16				514.86
		1.20	1.16	-758.17	1209.79	-1086.82	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30	648.79	15.60	10.00	561.00
20	1.463	1.20	1.16	-442.71	378.35	578.05	R T W AC AF AH	19635.00	15.70	64.80	0.0070	605.76				515.45
		1.20	1.16	-758.17	1080.75	-249.35	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30	519.75	12.50	10.00	561.00
20	2.194	1.20	1.16	-446.82	319.33	833.14	R T W AC AF AH	19635.00	15.70	64.80	0.0070	606.35				516.05
		1.20	1.16	-758.17	951.71	493.77	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30	390.71	9.40	10.00	561.00
20	2.925	1.20	1.16	-450.94	260.31	1045.07	R T W AC AF AH	19635.00	15.70	64.80	0.0070	606.95				516.64
		1.20	1.16	-758.17	822.67	1142.53	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30	261.67	6.29	10.00	561.00
21	0.000	1.20	1.16	-450.94	260.31	1045.07	R T W AC AF AH	19635.00	15.70	64.80	0.0070	606.95				516.64
		1.20	1.16	-758.17	822.67	1142.53	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30	261.67	6.29	10.00	561.00
21	1.081	1.20	1.16	-457.02	173.05	1279.36	R T W AC AF AH	19635.00	15.70	64.80	0.0070	607.82				517.52
		1.20	1.16	-758.17	631.86	1928.88	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30				561.00
21	2.162	1.20	1.16	-463.10	85.79	1419.30	R T W AC AF AH	19635.00	15.70	64.80	0.0070	608.70				518.40
		1.20	1.16	-758.17	441.06	2508.93	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30				561.00
21	3.244	1.20	1.16	-434.73	-4.57	2101.41	AX AY AZ BC BD BE BI...	19635.00	15.70	64.80	0.0070	604.61				514.30
		1.20	1.16	-758.17	250.25	2882.66	S U V AA AD AE AG	19635.00	15.70	64.80	0.0070	651.30				561.00
21	4.325	1.20	1.16	-438.78	-142.33	2021.99	AX AY AZ BC BD BE BI...	19635.00	15.70	64.80	0.0070	605.19				514.88
		1.20	1.16	-481.56	103.43	1980.54	AX AY AZ BB BF BG BH...	19635.00	15.70	64.80	0.0070	611.37				521.06
22	0.000	1.20	1.16	-438.78	-142.33	2021.99	AX AY AZ BC BD BE BI...	19635.00	15.70	64.80	0.0070	605.19				514.88
		1.20	1.16	-481.56	103.43	1980.54	AX AY AZ BB BF BG BH...	19635.00	15.70	64.80	0.0070	611.37				521.06
22	1.081	1.20	1.16	-752.93	-279.54	2891.15	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	650.55				560.24
		1.20	1.16	-486.59	-27.82	1393.06	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09				521.79
22	2.163	1.20	1.16	-759.01	-470.34	2485.74	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	651.42				561.12
		1.20	1.16	-486.59	-115.08	1315.81	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09				521.79
22	3.244	1.20	1.16	-765.09	-661.15	1874.03	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	652.30	99.15	2.38	10.00	562.00
		1.20	1.16	-486.59	-202.34	1144.20	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09				521.79
22	4.325	1.20	1.16	-771.17	-851.95	1056.01	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	653.18	289.08	6.95	10.00	562.87
		1.20	1.16	-486.59	-289.60	878.25	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09				521.79

Verificación a cortante
Valores de diseño de las solicitaciones

									FLEXION SIMPLE				CORTANTE			
Barras Nº	Distancia [m]	Canto (m)	Canto útil (m)	Axil Nd [KN/m]	Cortante Vzd [KN/m]	Flector Myd [KNm/m]	Grupo crítico de cargas	Uo (KN/m)	As superior (cm^2/m)	As inferior (cm^2/m)	ρ	Vcu [KN/m]	Vsu [KN/m]	Ast (cm^2/m)	Astmin (cm^2/m)	Vcu* [KN/m]
23	0.000	1.20	1.16	-771.17	-851.95	1056.01	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	653.18	289.08	6.95	10.00	562.87
		1.20	1.16	-486.59	-289.60	878.25	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09				521.79
23	0.731	1.20	1.16	-775.29	-981.00	385.84	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	653.77	417.53	10.04	10.00	563.47
		1.20	1.16	-486.59	-348.62	644.90	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09		2c ϕ12/25		521.79
23	1.463	1.20	1.16	-779.40	-1110.04	-378.70	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	654.37	545.98	13.13	10.00	564.06
		1.20	1.16	-486.59	-407.63	368.39	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09				521.79
23	2.194	1.20	1.16	-783.51	-1239.08	-1237.59	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	654.96	674.42	16.22	10.00	564.65
		1.20	1.16	-486.59	-466.65	48.73	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09				521.79
23	2.925	1.20	1.16	-787.63	-1368.12	-2190.85	S U W AC AD AF AH	19635.00	15.70	64.80	0.0070	655.56	802.87	19.31	10.00	565.25
		1.20	1.16	-486.59	-525.67	-314.08	R T V AA AE AG	19635.00	15.70	64.80	0.0070	612.09				521.79
24	0.000	1.45	1.41	-788.83	-1368.12	-2192.22	S U W AC AD AE AF AH	23885.00	64.80	49.10	0.0044	662.12	797.24	15.76	10.00	570.88
		1.45	1.41	-485.39	-525.67	-312.71	R T V AA AG	23885.00	64.80	49.10	0.0044	618.02				526.78
24	0.350	1.45	1.41	-790.80	-1432.83	-2682.39	S U W AC AD AE AF AH	23885.00	64.80	49.10	0.0044	662.41	861.67	17.04	10.00	571.16
		1.45	1.41	-485.39	-556.10	-502.02	R T V AA AG	23885.00	64.80	49.10	0.0044	618.02				526.78
24	0.700	1.45	1.41	-792.76	-1497.55	-3195.20	S U W AC AD AE AF AH	23885.00	64.80	49.10	0.0044	662.70	926.10	18.31	10.00	571.45
		1.45	1.41	-485.39	-586.53	-701.98	R T V AA AG	23885.00	64.80	49.10	0.0044	618.02				526.78
24	1.050	1.45	1.41	-794.73	-1562.26	-3730.67	S U W AC AD AE AF AH	23885.00	64.80	49.10	0.0044	662.98	990.52	19.58	10.00	571.74
		1.45	1.41	-485.39	-616.96	-912.59	R T V AA AG	23885.00	64.80	49.10	0.0044	618.02				526.78
24	1.400	1.45	1.41	-796.70	-1626.98	-4288.79	S U W AC AD AE AF AH	23885.00	64.80	49.10	0.0044	663.27	1054.95	20.86	10.00	572.02
		1.45	1.41	-485.39	-647.40	-1133.85	R T V AA AG	23885.00	64.80	49.10	0.0044	618.02	120.62	2.38	10.00	526.78

Scale 1 : 95.5
Int. Forces envelope My, GWSP DH, Subsys. "LIST"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 5.00E-04
  min: -2.67E+03 max: 1.68E+03 [kNm]
- Envelope Moment My-max, Scale 5.00E-04
  min: -1.68E+03 max: 2.67E+03 [kNm]
- Text envelopes [kNm]



E L S — Flexión

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: verificacion fisuracion centro del dintel
Fecha: 18/6/01 11.18.54

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 120 cm Canto útil = 115.75 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 63.81 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 206 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0055131
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 7.69 cm
Area de hormigón eficaz, Ac,eficaz = 2300.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 68.12 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1003.2 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 3033.5 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 12.04 cm
Alargamiento medio de las fisuras, Esm = 0.001433798
Apertura de fisura, Wk = 0.294 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.294 mm
Apertura de fisura máxima, Wmax = 0.300 mm

****
****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: verificacion fisuracion apoyo del dintel
Fecha: 18/6/01 11.20.08

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 170 cm Canto útil = 165.75 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 63.81 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 266 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0038500
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 7.69 cm
Area de hormigón eficaz, Ac,eficaz = 2300.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 136.72 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1388.3 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2701.0 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 12.04 cm
Alargamiento medio de las fisuras, Esm = 0.001172111
Apertura de fisura, Wk = 0.240 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.240 mm
Apertura de fisura máxima, Wmax = 0.300 mm

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****** ELS FISURACIÓN HORMIGÓN ARMADO *******
****

Departamento de Estructuras. AEPO, S.A.
Título: verificacion fisuracion zapata
Fecha: 18/6/01 11.21.04

HIPÓTESIS DE CÁLCULO
Se ha seguido el artículo 49 y el Anejo 9 de EHE.

DATOS DE CÁLCULO
Clase de exposición: IIa, IIb, H -> Apertura máxima de fisura wmax = 0.3 mm
Coeficiente Beta = 1.7
Hormigón HA 30 fck = 30 N/mm2 Ec = 28576.8 N/mm2
Acero B 500 S fyk = 500 N/mm2 Es = 200000 N/mm2

SECCIÓN DE CÁLCULO
Ancho = 100 cm Alto = 120 cm Canto útil = 115.75 cm
Armadura a compresión = 0.00 cm2
Armadura a tracción = 49.09 cm2
Diámetro equivalente = 25.00 mm
Sección tipo losa, muro o viga plana

ACCIONES SOLICITANTES EN SERVICIO
Axil, Nk = 0 T
Momento flector, Mk = 112 mT
Coeficiente K2 = 0.5

RESULTADOS INTERMEDIOS DE CALCULO
Cuantía a tracción, ro1 = 0.0042408
Cuantía a compresión, ro2 = 0.0000000
Coeficiente K1 = 0.125
Separación entre armaduras longitudinales, s = 10.00 cm
Area de hormigón eficaz, Ac,eficaz = 2300.00 cm2
Resistencia a tracción del hormigón, fct,m = 28.4 Kp/cm2
Momento de fisuración, Mfis = 68.12 mT
Tensión en armaduras a tracción con la sección fisurada sometida a Mfis, 1291.9 Kp/cm2
Tensión en armaduras a tracción con la sección fisurada sometida a Mk, 2123.9 Kp/cm2

RESULTADOS DE CALCULO
Separación media de fisuras, Sm = 13.86 cm
Alargamiento medio de las fisuras, Esm = 0.000865516
Apertura de fisura, Wk = 0.204 mm

Se cumple el ELS de FISURACIÓN al ser la apertura de fisura menor que la máxima

Apertura de fisura, Wk = 0.204 mm
Apertura de fisura máxima, Wmax = 0.300 mm

VIGA CANALON

4.1. Cálculo de las acciones

4.1.1. Acciones permanentes

4.1.1.1. Peso propio

El peso propio de la estructura de hormigón se calcula con un peso específico

$$\gamma = 2.50 Mp/m^3.$$

4.1.2. Acciones permanentes de valor no constante

4.1.2.1. Reológicas: Retracción

Se han calculado en el punto 2.3 considerando una humedad relativa del 60%, y un espesor medio de 334mm. La edad del hormigón al entrar en carga es de 28 días, y el mismo es de endurecimiento normal. Los valores utilizados son:

ε retracción =-0.0004328

Cálculo de la retracción del hormigón del canal

$$\varepsilon_{cs}(t, t_s) = \varepsilon_{cso}\,\beta s\,(t - t_s)$$

Edad del hormigón al comienzo de la retracción (días)	ts = **28.0**
Edad del hormigón en el instante de evaluación (días)	t = **10000.0**
Coeficiente básico de retracción	$\varepsilon_{cso} = \varepsilon_s\ \beta_{HR}$
Resistencia característica del hormigón	f ck (N / mm2) = **30**
	ε_s = 0.00042
Humedad relativa en tanto por ciento	HR = **60**
	β_{HR} = -1.2152
	ε_{cso} = -0.0005104
Area de la seccion transversal (m^2)	Ac = **2.485**
Perímetro en contacto con la atmósfera (m)	u = **14.900**
Espesor medio (mm)	e = 334
Coeficiente de evolución temporal de la retracción	$\beta s\,(t - ts)$ = 0.8480

$\varepsilon_{cs}(t, t_s) = \varepsilon_{cso}\,\beta s\,(t - t_s)$ = -0.00043282

4.1.2.3. Sobrecargas del terreno

El relleno de tierras en el trasdós de los estribos se realiza con material del terraplén, que tiene las siguientes características:

Peso específico	:	$\gamma_T = 2.0\ Mp/m^3$
Ángulo de fricción interna	:	$\phi = 30°$
Coeficiente de empuje activo	:	$\lambda_{-\alpha} = 0.33$

4.1.3. Acciones variables

4.1.3.1. Agua

Sobrecarga uniforme: 5.10 Mp/m

4.1.3.2. Acciones climáticas

a.) Viento

CALCULO DE LAS ACCIONES DEBIDAS AL VIENTO CONFORME A LA I.A.P

Proyecto : E-6
Estructura : VIGA DEL CANAL

Velocidad de referencia : V_{REF} (m/seg) = **28.00**

Velocidad de cálculo : V_C (m/seg) = $C_T \times C_R \times C_Z \times C_G \times V_{REF}$

Factor de topografía : C_T = **1.10**

Período de retorno (años) T = **100**

Factor de riesgo : $C_R = (0.562x\{1-0.2x \ln [- \ln (1- 1/T)]\}) 1/2$
C_R = 1.04

Factor de altura : $C_Z = K_Z \times LN (Z/ Zo)$ si $Z > Z_{MIN}$
$C_Z = K_Z \times LN (Z_{MIN}/ Zo)$ si $Z < Z_{MIN}$

Los valores de K_Z , Zo y Z_{MIN} se obtendrán de la tabla adjunta .

Tipo de Entorno	K_Z	Zo (m)	Z_{MIN} (m)
I	0.17	0.01	2.00
II	0.19	0.05	4.00
III	0.22	0.30	8.00
IV	0.24	1.00	16.00

K_Z = **0.22**

Zo = **0.3**

Z_{MIN} = **7.50**

OBTENCIÓN DE LA VELOCIDAD DE CÁLCULO PARA EL TABLERO :

En función de la altura Z considerada se obtendrán los valores de C_Z y C_G y en consecuencia de V_C

V_C (m/seg) = $C_T \times C_R \times C_Z \times C_G \times V_{REF}$

V_{REF} (m/seg) = 28.00

Para el tablero la altura considerada será : Z (m) = **7.50**

C_Z = 0.708

Factor de ráfaga : $C_G = (1 + 7 \times K_Z / C_Z / C_T)^{1/2}$

C_G = 1.725

ACCIÓN DEL VIENTO SOBRE EL TABLERO

El empuje producido sobre cualquier elemento del puente se calculará con la siguiente fórmula :

$$F (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$$

Donde :

C_D : Coeficiente de arrastre

A : Área expuesta

$1/2\ \rho\ V_C^2$: Presión básica de cálculo (N/m^2)

ρ : masa específica del aire 1.25 kg/m^3

V_C : Velocidad de cálculo (m/seg)

EMPUJE TRANSVERSAL DE VIENTO

Empuje del Viento : $F (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$

TABLERO DE ALMA LLENA

Altura Z del tablero : Z (m) = **7.50**
Ancho del tablero : B (m) = **3.70**
Longitud del tramo : L (m) = **17.20**
Altura de barrera : $h_{BARRERA}$ (m) = **1.70** De tabla se obtiene : η = **0.15**
Altura equivalente : $h_{TABLERO}$ (m) = **0.35**
$h_{BAR.\ OPAC}$(m) = $h_{BARRERA} + \Sigma\ \eta\ h_{BARRERA}$
$h_{BAR.\ OPAC}$(m) = 1.96
h_{SOBREC} (m) = **1.70**

Sin sobrecarga : h_{eq} (m) = $h_{TABLERO} + h_{BARRERA\ OPACA}$
h_{eq} (m) = 2.31

Con sobrecarga : h_{eq} (m) = $h_{TABLERO} + h_{SOBRECARGA} + h_{BARRERA}$
h_{eq} (m) = 2.31

Área expuesta : A (m^2) = L x h_{eq}

Sin sobrecarga : A (m^2) = 39.6
Con sobrecarga : A (m^2) = 39.6
Coeficiente de arrastre : $C_D = 2.50 - 0.3 \times (B / h_{eq})$
$1.30 < C_D < 2.40$
Sin sobrecarga : C_D = 2.02
Con sobrecarga : C_D = 2.02

Cálculo del empuje transversal del viento sobre el tablero :

$$F\ (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$$

Donde : V_C (m/seg) = 39.09
ρ (kg/m^3) = 1.25

Empuje sin la sobrecarga en el tablero : F (Mp) = 7.64

Longitud tramo L_T (m) = 17.20 F (Mp/m) = 0.44

Distancia de aplicación del empuje transversal horizontal respecto de la base del tablero : d (m) = 1.23

Empuje con la sobrecarga en el tablero : F (Mp) = 7.64

Longitud tramo L_T (m) = 17.20 F (Mp/m) = 0.44

Distancia de aplicación del empuje transversal horizontal respecto de la base del tablero : d (m) = 1.23

4.1.3.2.b) Nieve

La estructura está en Zona II.

$$q = 0.80 \times S_K$$

$$q = 0.80 \times 40\ Kp/m^2 = 0.032\ Mp/m^2$$

Es despreciable.

4.1.3.2.c) Térmicas

De acuerdo con la I.A.P. se ha considerado un incremento uniforme de temperatura que es función de los siguientes parámetros:

- La estructura está ubicada en la región climática denominada zona IV (Z = 4) .
- La sección del tablero está formada por una losa maciza de hormigón (S = 1). con un canto total de 0.35 m (h = 0.35).

$$\Delta T = K\ z^a\ h^b\ s^c = 23.89 \times 4^{-.292} \times 0.35^{-0.139}$$

Sobre la base de estos datos se obtiene que el rango anual de la temperatura media es de 41.44 °C, y por lo tanto consideraremos un incremento uniforme de temperatura de

$$\Delta T = \pm 41.44\ °C$$

$$\varepsilon_t = \pm 41.44 \times 10^{-5}$$

El incremento de temperatura entre caras superior e inferior del tablero, gradiente térmico vertical, será:

- Gradiente térmico vertical positivo °C/m

Losa maciza de hormigón:

$\Delta T_{SI} = K\ \Delta T_{SI}$, ref.

$K = K_1 \cdot K_2$ $K_1 = 1.32$ $K_2 = 1.00$

ΔT_{SI}, ref = 11.50°C

$\Delta T_{SI} = 1.32 \times 11.50°C/m$

$\Delta T_{SI} = 15.18\ °C/m$

- Gradiente térmico vertical inverso

Tableros de hormigón: sin pavimento bituminoso –3.0 °C

4.1.4. Acciones accidentales

4.1.4.1. Acciones sísmicas

De acuerdo a la Norma NCS-94 esta estructura se clasifica como de especial importancia.

La aceleración sísmica básica de la zona es ab≤ 0.04 g.

$a_c = \rho\ a_b$

$\rho = (t/50)^{0.37}$

t = 100 años, $\rho = 1.30$

$a_c = 1.30 \times 0.04\ g = 0.052\ g \leq 0.06\ g$ No se consideran las acciones sísmicas.

Cálculo transversal de la viga

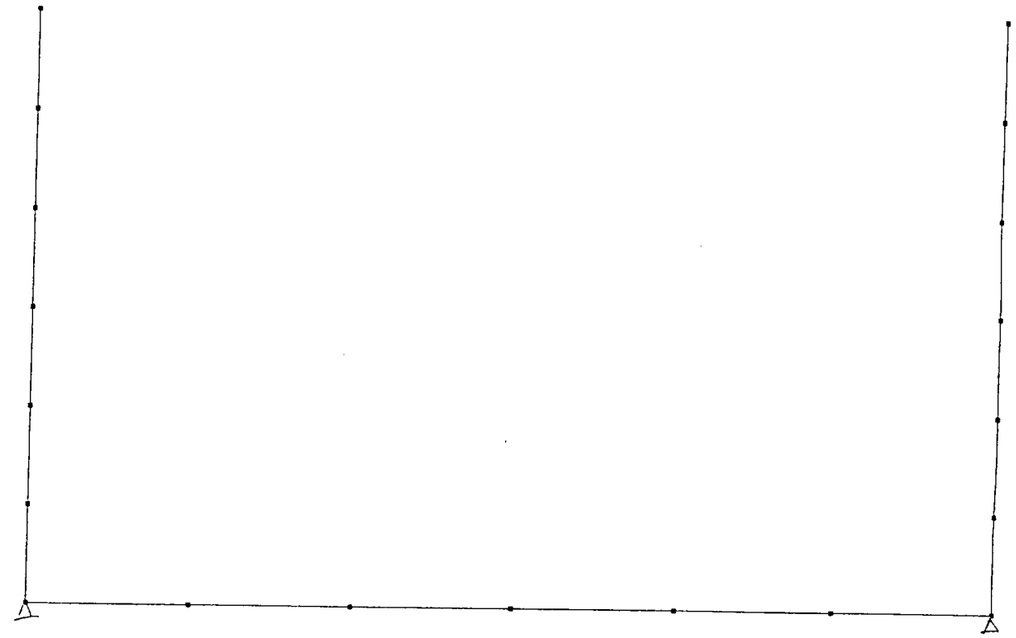
Se ha generado el modelo de pórtico plano mediante el programa STATIK3, y se han introducido todas las cargas, incluido el viento, lo que nos permitirá obtener los esfuerzos transversales con la influencia de la posición de las cargas, el ancho del tablero, y el apoyo puntual en las pilas.

Se han introducido las acciones individuales, correspondientes a cada hipótesis básica de cálculo.

Posteriormente se ha calculado la envolvente pésima de esfuerzos para cada acción, con los diferentes coeficientes de ponderación de la Instrucción.

Mediante el programa FAGUS·3 con dichos esfuerzos de cálculo se obtienen las armaduras transversales necesarias.

Scale 1 : 21.5



Plane (2-D) frame -analysis

****
* STRUCTURAL - DATA *
****

Project title :

JOINT DATA : (19 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V	Supports R	Specialities XYZ	Specialities XYZ
1	0.000000	0.000000	0.000000	B	B	F	
2	3.350000	0.000000	0.000000	F	B	F	
3	0.000000	0.000000	2.050000				
4	3.350000	0.000000	2.050000				
5	0.555830	0.000000	0.000000				
6	1.116600	0.000000	0.000000				
7	1.675000	0.000000	0.000000				
8	2.233800	0.000000	0.000000				
9	2.791600	0.000000	0.000000				
10	0.000000	0.000000	0.341600				
11	3.350000	0.000000	0.341600				
12	0.000000	0.000000	0.683300				
13	3.350000	0.000000	0.683300				
14	0.000000	0.000000	1.025000				
15	3.350000	0.000000	1.025000				
16	0.000000	0.000000	1.366600				
17	3.350000	0.000000	1.366600				
18	0.000000	0.000000	1.708300				
19	3.350000	0.000000	1.708300				

BAR DATA : (18 bars)

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	5	0.555830	LOSA35			oS
2	5	6	0.560770	LOSA35			oS
3	6	7	0.558400	LOSA35			oS
4	7	8	0.558000	LOSA35			oS
5	8	9	0.558600	LOSA35			oS
6	9	2	0.558400	LOSA35			oS
7*	10	1	0.341600	ALA35			oS
8*	2	11	0.341600	ALA35			oS
9*	12	10	0.341700	ALA35			oS
10*	11	13	0.341700	ALA35			oS
11*	14	12	0.341700	ALA35			oS
12*	13	15	0.341700	ALA35			oS
13*	15	14	0.341600	ALA35			oS
14*	15	17	0.341600	ALA35			oS

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
15*	18	16	0.341700	ALA35			oS
16*	17	19	0.341700	ALA35			oS
17*	3	12	0.341700	ALA35			oS
18*	19	4	0.341700	ALA35			oS

Bars marked with *** are vertical (except any excentricities).
The corresponding special definition for the default orientation
of the local coordinate system applies.

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / zi [M]	Iy [M4] / zu [M]	Fz [M2]
ALA35	3.5000E-01	3.5729E-03	2.9167E-01
	-0.1750	0.1750	
LOSA35	3.5000E-01	3.5729E-03	2.9167E-01
	-0.1750	0.1750	

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [KP/CM2]	Shear-M [KP/CM2]
1 .. 18	3.3000E+07	1.3000E+07

STS-Run ok

Load case 1:

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Mas.forcZ gl const	-25.000		Stab	1	18

Load case 2: AGUA

Loadtype		Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X gl trapez.	0	-2.834		
	from...to	0	0.341700	Stab	17
Force	X gl trapez.	-2.834	-5.667		
	from...to	0	0.341700	Stab	15
Force	X gl trapez.	-5.667	-8.500		
	from...to	0	0.341600	Stab	13
Force	X gl trapez.	-8.500	-11.334		
	from...to	0	0.341700	Stab	11
Force	X gl trapez.	-11.334	-14.167		
	from...to	0	0.341700	Stab	9
Force	X gl trapez.	-14.167	-17.000		
	from...to	0	0.341600	Stab	7
Force	X gl trapez.	17.000	14.167		
	from...to	0	0.341600	Stab	8
Force	X gl trapez.	14.167	11.334		
	from...to	0	0.341700	Stab	10
Force	X gl trapez.	11.334	8.500		
	from...to	0	0.341700	Stab	12
Force	X gl trapez.	8.500	5.667		
	from...to	0	0.341600	Stab	14
Force	X gl trapez.	5.667	2.834		
	from...to	0	0.341700	Stab	16
Force	X gl trapez.	2.834	9.5E-0005		
	from...to	0	0.341700	Stab	13
Force	Z pj const.	-17.000		Stab	1 .. 6

Load case 3: gradiente

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Curvat. Y lo const.	0.000434		Stab	1 ..	18

Load case 4: gradiente

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Curvat. Y lo const.	-0.000434		Stab	1 ..	18

Load case 5: viento

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb			
Force X gl const	-1.913		Stab	8	10	12
				14	16	18

ENVELOPE SPECIFIC.: AT ..

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		
B	PLUS	2	1.500		AGUA
C	PLUS	3	1.500		gradiente
D	CP	4	1.500		gradiente
E	PLUS	5	0.450000		viento
F	CP	5	-0.450000		viento

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	1.393	19.360	1.03E-07	A C F
		24.745	62.925	-17.861	A B D E
1	0.139	1.393	17.718	2.576	A C F
		24.745	57.743	-9.477	A B D E
1	0.278	1.393	16.077	4.924	A C F
		24.745	52.555	-1.814	A B D E
1	0.417	1.393	14.435	7.044	A C F
		24.745	47.370	5.129	A B D E
1	0.556	1.393	12.794	8.936	A C F
		24.745	42.185	11.351	A B D E
2	0	1.393	12.794	8.936	A C F
		24.745	42.185	11.351	A B D E
2	0.140	1.393	11.138	10.614	A C F
		24.745	36.954	16.893	A B D E
2	0.280	1.393	9.482	12.059	A C F
		24.745	31.723	21.712	A B D E
2	0.421	1.393	7.826	13.272	A C F
		24.745	26.492	25.793	A B D E
2	0.561	1.393	6.170	14.253	A C F
		24.745	21.262	29.141	A B D E
3	0	1.393	6.170	14.253	A C F
		24.745	21.262	29.141	A B D E
3	0.140	1.393	4.521	14.999	A C F
		24.745	16.053	31.745	A B D E
3	0.279	1.393	2.872	15.515	A C F
		24.745	10.844	33.622	A B D E
3	0.419	1.393	1.223	15.801	A C F
		24.745	5.635	34.773	A B D E
3	0.558	27.530	-0.426209	33.768	A B C F
		-1.393	0.426209	17.285	A D E
4	0	27.530	-0.426210	33.768	A B C F
		-1.393	0.426209	17.285	A D E
4	0.140	27.530	-5.631	33.345	A B C F

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
4	0.279	-1.393	-1.222	17.229	A D E
		27.530	-10.836	33.197	A B C F
4	0.419	-1.393	-2.859	16.944	A D E
		27.530	-16.041	30.322	A B C F
4	0.558	-1.393	-4.517	16.429	A D E
		27.530	-21.247	27.721	A B C F
5	0	-1.393	-6.155	15.683	A D E
		27.530	-21.247	27.721	A B C F
5	0.140	-1.393	-7.815	14.707	A D E
		27.530	-26.457	24.330	A B C F
5	0.279	-1.393	-9.454	13.501	A D E
		27.530	-31.668	20.332	A B C F
5	0.419	-1.393	-11.114	12.064	A D E
		27.530	-36.879	15.545	A B C F
5	0.558	-1.393	-12.764	10.397	A D E
		27.530	-42.089	10.031	A B C F
6	0	-1.393	-12.764	10.397	A D E
		27.530	-42.089	10.031	A B C F
6	0.140	-1.393	-14.414	8.503	A D E
		27.530	-47.298	3.932	A B C F
6	0.279	-1.393	-16.062	6.373	A D E
		27.530	-52.507	-3.171	A B C F
6	0.419	-1.393	-17.711	4.016	A D E
		27.530	-57.716	-10.668	A B C F
6	0.558	-1.393	-19.361	1.431	A D E
		27.530	-62.926	-18.288	A B C F
7	0	-20.180	-18.162	-10.337	A B C F
		-20.180	2.44E-11	2.54E-11	A D E
7	0.0854	-21.139	-20.013	-11.966	A B C F
		-21.139	2.44E-11	2.54E-11	A D E
7	0.171	-22.158	-21.964	-13.763	A B C F
		-22.158	2.44E-11	2.54E-11	A D E
7	0.256	-23.207	-24.006	-15.732	A B C F
		-23.207	2.44E-11	2.54E-11	A D E
7	0.342	-24.256	-26.137	-17.901	A B C F
		-24.256	2.44E-11	2.54E-11	A D E
8	0	-24.256	-1.353	-1.353	A D E
		-24.256	27.530	-19.430	A B C F
8	0.0854	-23.207	-1.335	-1.311	A D E
		-23.207	26.341	-18.311	A B C F
8	0.171	-22.158	-1.317	-1.269	A D E
		-22.158	25.152	-17.192	A B C F
8	0.256	-21.139	-1.299	-1.227	A D E
		-21.139	23.963	-16.073	A B C F
8	0.342	-20.180	-1.281	-1.185	A D E
		-20.180	22.774	-14.954	A B C F

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
9	0	-16.144	-11.617	-5.292	A B C F
		-16.144	2.83E-11	1.57E-11	A D E
9	0.0854	-17.153	-13.115	-6.348	A B C F
		-17.153	2.83E-11	1.81E-11	A D E
9	0.171	-18.162	-14.703	-7.536	A B C F
		-18.162	2.83E-11	2.05E-11	A D E
9	0.256	-19.171	-16.382	-8.863	A B C F
		-19.171	2.83E-11	2.29E-11	A D E
9	0.342	-20.180	-18.152	-10.337	A B C F
		-20.180	2.83E-11	2.53E-11	A D E
10	0	-20.180	-1.161	0.991605	A D E
		-20.180	19.313	-11.329	A B C F
10	0.0854	-19.171	-1.103	0.894913	A D E
		-19.171	17.425	-9.758	A B C F
10	0.171	-18.162	-1.045	0.803139	A D E
		-18.162	15.743	-8.339	A B C F
10	0.256	-17.153	-0.986719	0.716420	A D E
		-17.153	14.102	-7.065	A B C F
10	0.342	-16.144	-0.928673	0.634603	A D E
		-16.144	12.546	-5.927	A B C F
11	0	-12.108	-6.534	-2.233	A B C F
		-12.108	2.07E-11	5.14E-12	A D E
11	0.0854	-13.117	-7.669	-2.839	A B C F
		-13.117	2.07E-11	6.91E-12	A D E
11	0.171	-14.126	-8.894	-3.545	A B C F
		-14.126	2.07E-11	8.68E-12	A D E
11	0.256	-15.135	-10.210	-4.361	A B C F
		-15.135	2.07E-11	1.05E-11	A D E
11	0.342	-16.144	-11.617	-5.292	A B C F
		-16.144	2.07E-11	1.22E-11	A D E
12	0	-16.144	-0.928673	0.634603	A D E
		-16.144	12.546	-5.927	A B C F
12	0.0854	-15.135	-0.870626	0.557756	A D E
		-15.135	11.081	-4.919	A B C F
12	0.171	-14.126	-0.812580	0.485862	A D E
		-14.126	9.707	-4.031	A B C F
12	0.256	-13.117	-0.754534	0.418927	A D E
		-13.117	8.423	-3.258	A B C F
12	0.342	-12.108	-0.696488	0.356950	A D E
		-12.108	7.231	-2.590	A B C F
13	0	-8.073	-2.905	-0.661693	A B C F
		-8.073	9.41E-12	1.51E-12	A D E
13	0.0854	-9.081	-3.676	-0.942053	A B C F
		-9.081	9.41E-12	2.31E-12	A D E
13	0.171	-10.090	-4.538	-1.292	A B C F
		-10.090	9.41E-12	3.12E-12	A D E

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
13	0.256	-11.099	-5.491	-1.720	A B C F
		-11.099	9.41E-12	3.92E-12	A D E
13	0.342	-12.108	-6.534	-2.233	A B C F
		-12.108	9.41E-12	4.72E-12	A D E
14	0	-12.108	-0.696487	0.356950	A D E
		-12.108	7.231	-2.590	A B C F
14	0.0854	-11.099	-0.638458	0.299943	A D E
		-11.099	6.129	-2.020	A B C F
14	0.171	-10.090	-0.580429	0.247901	A D E
		-10.090	5.119	-1.540	A B C F
14	0.256	-9.081	-0.522400	0.200810	A D E
		-9.081	4.198	-1.143	A B C F
14	0.342	-8.073	-0.464370	0.158675	A D E
		-8.073	3.369	-0.820374	A B C F
15	0	-4.036	-0.726183	-0.082712	A B C F
		-4.036	1.07E-11	-2.33E-12	A D E
15	0.0854	-5.045	-1.135	-0.161547	A B C F
		-5.045	1.07E-11	-1.46E-12	A D E
15	0.171	-6.054	-1.634	-0.273154	A B C F
		-6.054	1.07E-11	-5.52E-13	A D E
15	0.256	-7.064	-2.224	-0.443236	A B C F
		-7.064	1.07E-11	3.61E-13	A D E
15	0.342	-8.073	-2.905	-0.661693	A B C F
		-8.073	1.07E-11	1.27E-12	A D E
16	0	-8.073	-0.464370	0.158675	A D E
		-8.073	3.369	-0.820374	A B C F
16	0.0854	-7.064	-0.406324	0.121436	A D E
		-7.064	2.630	-0.564772	A B C F
16	0.171	-6.054	-0.348273	0.089255	A D E
		-6.054	1.932	-0.363409	A B C F
16	0.256	-5.045	-0.290231	0.061983	A D E
		-5.045	1.425	-0.223530	A B C F
16	0.342	-4.036	-0.232185	0.039660	A D E
		-4.036	0.958369	-0.122331	A B C F
17	0	-4.04E-03	-5.22E-12	2.41E-12	A C F
		-4.04E-03	3.54E-12	-2.35E-12	A B D E
17	0.0854	-1.009	-0.045336	[illegible]	A B [illegible]
		-1.009	3.51E-12	[illegible]	A D E
17	0.171	-2.018	-0.181548	[illegible]	A B [illegible] F
		-2.018	3.51E-12	-1.78E-12	A C E
17	0.256	-3.027	-0.408478	[illegible]	A B [illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
18	0	[illegible]	-0.232135	[illegible]	A C F
		-4.036	[illegible]	[illegible]	A B D E

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
18	0.0854	-3.027	-0.174139	0.022314	A C E
		-3.027	0.532617	-0.057208	A B D F
18	0.171	-2.018	-0.116093	0.009917	A C E
		-2.018	0.297639	-0.020256	A B D F
18	0.256	-1.009	-0.058046	0.002479	A C E
		-1.009	0.103433	-0.003772	A B D F
18	0.342	-4.04E-03	-2.32E-09	1.65E-12	A C E
		-4.04E-03	2.32E-09	-3.29E-13	A B D F

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	27.530	62.072	-17.861	A B C F
		-1.393	20.212	1.12E-07	A D E
1	0.139	27.530	56.887	-9.595	A B C F
		-1.393	18.571	2.695	A D E
1	0.278	27.530	51.703	-2.051	A B C F
		-1.393	16.929	5.161	A D E
1	0.417	27.530	46.518	4.773	A B C F
		-1.393	15.288	7.399	A D E
1	0.556	1.393	12.794	8.936	A C F
		24.745	42.185	11.351	A B D E
2	0	1.393	12.794	8.936	A C F
		24.745	42.185	11.351	A B D E
2	0.140	1.393	11.138	10.614	A C F
		24.745	36.954	16.898	A B D E
2	0.280	1.393	9.432	12.059	A C F
		24.745	31.723	21.712	A B D E
2	0.421	1.393	7.826	13.272	A C F
		24.745	26.492	25.793	A B D E
2	0.561	1.393	6.170	14.253	A C F
		24.745	21.262	29.141	A B D E
3	0	1.393	6.170	14.253	A C F
		24.745	21.262	29.141	A B D E
3	0.140	1.393	4.521	14.999	A C F
		24.745	16.053	31.745	A B D E
3	0.279	1.393	2.872	15.515	A C F
		24.745	10.844	33.622	A B D E
3	0.419	1.393	1.223	15.801	A C F
		24.745	5.635	34.773	A B D E
3	0.553	1.393	-0.426209	15.857	A C F
		24.745	0.426208	35.196	A B D E

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
4	0	1.393	-0.426209	15.857	A C F
		24.745	0.426208	35.196	A B D E
4	0.140	1.393	-2.074	15.632	A C F
		24.745	-4.779	34.892	A B D E
4	0.279	1.393	-3.722	15.278	A C F
		24.745	-9.984	33.862	A B D E
4	0.419	1.393	-5.370	14.644	A C F
		24.745	-15.189	32.107	A B D E
4	0.553	1.393	-7.018	13.780	A C F
		24.745	-20.394	29.625	A B D E
5	0	1.393	-7.018	13.780	A C F
		24.745	-20.394	29.625	A B D E
5	0.140	1.393	-8.667	12.635	A C F
		24.745	-25.605	26.413	A B D E
5	0.279	1.393	-10.317	11.359	A C F
		24.745	-30.816	22.473	A B D E
5	0.419	1.393	-11.966	9.303	A C F
		24.745	-36.026	17.806	A B D E
5	0.553	1.393	-13.616	3.017	A C F
		24.745	-41.237	12.411	A B D E
6	0	1.393	-13.616	3.017	A C F
		24.745	-41.237	12.411	A B D E
6	0.140	27.530	-47.298	3.793	A B C F
		-1.393	-14.412	3.500	A D E
6	0.279	27.530	-52.507	-3.174	A B C F
		-1.393	-16.062	6.373	A D E
6	0.419	27.530	-57.716	-10.869	A B C F
		-1.393	-17.711	4.015	A D E
6	0.553	27.530	-62.925	-19.283	A B C F
		-1.393	-19.360	1.428	A D E
7	0	-20.180	-18.152	-10.337	A B C F
		-20.180	2.44E-11	2.54E-11	A D E
7	0.0854	-21.139	-20.012	-11.966	A B C F
		-21.139	2.44E-11	2.71E-11	A D E
7	0.171	-22.198	-21.904	-13.753	A B C F
		-22.198	2.44E-11	2.98E-11	A D E
7	0.256	-23.207	[illegible]	-15.700	A B C F
		-23.207	2.44E-11	3.17E-11	A D E
7	0.342	-24.216	-26.137	-17.801	A B C F
		-24.216	2.44E-11	3.33E-11	A D E
8	0	-24.216	[illegible]	-19.23[illegible]	A B C F
		[illegible]	[illegible]	[illegible]	A D E
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
8	0.171	-22.198	[illegible]	[illegible]	A B C F
		-22.198	[illegible]	[illegible]	A D E
8	0.256	-21.189	[illegible]	-13.05[illegible]	A B C F

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-21.189	-1.219	1.093	A D E
8	0.342	-20.180	19.313	-11.329	A B C F
		-20.180	-1.161	0.991605	A D E
9	0	-16.144	-11.617	-5.292	A B C F
		-16.144	2.83E-11	1.57E-11	A D E
9	0.0854	-17.153	-13.115	-6.348	A B C F
		-17.153	2.83E-11	1.81E-11	A D E
9	0.171	-18.162	-14.703	-7.536	A B C F
		-18.162	2.83E-11	2.05E-11	A D E
9	0.256	-19.171	-16.382	-8.863	A B C F
		-19.171	2.83E-11	2.29E-11	A D E
9	0.342	-20.180	-18.152	-10.337	A B C F
		-20.180	2.83E-11	2.53E-11	A D E
10	0	-20.180	19.313	-11.329	A B C F
		-20.180	-1.161	0.991605	A D E
10	0.0854	-19.171	17.425	-9.758	A B C F
		-19.171	-1.103	0.894913	A D E
10	0.171	-18.162	15.743	-8.339	A B C F
		-18.162	-1.045	0.803139	A D E
10	0.256	-17.153	14.102	-7.065	A B C F
		-17.153	-0.986719	0.716420	A D E
10	0.342	-16.144	12.546	-5.927	A B C F
		-16.144	-0.928673	0.634603	A D E
11	0	-12.108	-6.534	-2.233	A B C F
		-12.108	2.07E-11	5.14E-12	A D E
11	0.0854	-13.117	-7.669	-2.839	A B C F
		-13.117	2.07E-11	6.91E-12	A D E
11	0.171	-14.126	-8.894	-3.545	A B C F
		-14.126	2.07E-11	8.68E-12	A D E
11	0.256	-15.135	-10.210	-4.361	A B C F
		-15.135	2.07E-11	1.05E-11	A D E
11	0.342	-16.144	-11.617	-5.292	A B C F
		-16.144	2.07E-11	1.22E-11	A D E
12	0	-16.144	12.546	-5.927	A B C F
		-16.144	-0.928673	0.634603	A D E
12	0.0854	-15.135	11.081	-4.919	A B C F
		-15.135	-0.870626	0.557756	A D E
12	0.171	-14.126	9.707	-4.031	A B C F
		-14.126	-0.812580	0.485862	A D E
12	0.256	-13.117	8.423	-3.258	A B C F
		-13.117	-0.754534	0.418927	A D E
12	0.342	-12.108	7.231	-2.590	A B C F
		-12.108	-0.696488	0.356950	A D E
13	0	-8.073	-2.905	-0.661693	A B C E
		-8.073	9.21E-12	1.53E-12	A D F
13	0.0854	-9.081	-3.676	-0.942053	A B C E

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-9.081	9.21E-12	2.32E-12	A D F
13	0.171	-10.090	-4.538	-1.292	A B C F
		-10.090	9.41E-12	3.12E-12	A D E
13	0.256	-11.099	-5.491	-1.720	A B C F
		-11.099	9.41E-12	3.92E-12	A D E
13	0.342	-12.108	-6.534	-2.233	A B C F
		-12.108	9.41E-12	4.72E-12	A D E
14	0	-12.108	7.231	-2.590	A B C F
		-12.108	-0.696437	0.356950	A D E
14	0.0854	-11.099	6.129	-2.020	A B C F
		-11.099	-0.638458	0.299943	A D E
14	0.171	-10.090	5.119	-1.540	A B C F
		-10.090	-0.580429	0.247901	A D E
14	0.256	-9.081	4.198	-1.143	A B C F
		-9.081	-0.522400	0.200810	A D E
14	0.342	-8.073	3.369	-0.820374	A B C F
		-8.073	-0.464370	0.158675	A D E
15	0	-4.036	-0.726183	-0.082712	A B D F
		-4.036	-1.03E-11	1.34E-12	A C E
15	0.0854	-5.045	-1.135	-0.161547	A B D F
		-5.045	-1.03E-11	9.56E-13	A C E
15	0.171	-6.054	-1.634	-0.273154	A B D F
		-6.054	-1.03E-11	7.43E-13	A C E
15	0.256	-7.064	-2.224	-0.443236	A B C F
		-7.064	1.07E-11	3.61E-13	A D E
15	0.342	-8.073	-2.905	-0.661693	A B C F
		-8.073	1.07E-11	1.27E-12	A D E
16	0	-8.073	3.369	-0.820374	A B C F
		-8.073	-0.464370	0.158675	A D E
16	0.0854	-7.064	2.630	-0.564772	A B C F
		-7.064	-0.406324	0.121436	A D E
16	0.171	-6.054	1.932	-0.363409	A B C F
		-6.054	-0.348273	0.089255	A D E
16	0.256	-5.045	1.425	-0.223530	A B C F
		-5.045	-0.290231	0.061983	A D E
16	0.342	-4.036	0.958369	-0.122331	A B C F
		-4.036	-0.232135	0.039660	A C F
17	0	-4.04E-03	3.41E-12	-2.37E-12	A C F
		-4.04E-03	-5.12E-12	2.44E-12	A B [illegible]
17	0.0854	-1.009	-0.045336	-0.003262	A B D F
		-1.009	-5.12E-12	1.33E-12	A C E
17	[illegible]	-2.018	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	-5.12E-12	[illegible]	[illegible]
17	0.342	-4.036	[illegible]	[illegible]	A B [illegible]
		-4.036	-5.12E-12	[illegible]	A [illegible] E

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
18	0	-4.036	0.958369	-0.122331	A B D F
		-4.036	-0.232185	0.039663	A C E
18	0.0354	-3.027	0.532617	-0.057208	A B D F
		-3.027	-0.174133	0.022314	A C E
18	0.171	-2.018	0.297639	-0.020255	A B D F
		-2.018	-0.116093	0.009917	A C E
18	0.256	-1.009	0.163433	-0.003772	A B D F
		-1.009	-0.058046	0.002479	A C E
18	0.342	-4.04E-08	2.32E-09	-8.93E-13	A D F
		-4.04E-08	-2.32E-09	1.72E-12	A B C E

ENVELOPE SPECIFIC.: AU ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		
B	PLUS	2	1.000		AGUA
C	PLUS	3	0.600000		gradiente
D	OR	4	0.600000		gradiente

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	17.425	43.131	-11.907	A B C
		-1.51E-11	14.556	8.15E-08	A D
1	0.139	17.425	39.553	-6.162	A B C
		-1.51E-11	13.440	1.952	A D
1	0.278	17.425	35.975	-0.914685	A B C
		-1.51E-11	12.324	3.735	A D
1	0.417	17.425	32.397	3.836	A B C
		-1.51E-11	11.009	5.349	A D
1	0.556	1.05E-11	9.793	6.795	A C
		17.425	28.819	8.089	A B D
2	0	1.05E-11	9.793	6.795	A C
		17.425	28.819	8.089	A B D
2	0.140	1.05E-11	8.566	8.082	A C
		17.425	25.209	11.876	A B D
2	0.280	1.05E-11	7.339	9.197	A C

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		17.425	21.599	15.157	A B D
2	0.421	1.05E-11	6.113	10.139	A C
		17.425	17.989	17.932	A B D
2	0.561	1.05E-11	4.886	10.910	A C
		17.425	14.379	20.201	A B D
3	0	1.05E-11	4.886	10.910	A C
		17.425	14.379	20.201	A B D
3	0.140	1.05E-11	3.664	11.507	A C
		17.425	10.784	21.957	A B D
3	0.279	1.05E-11	2.443	11.934	A C
		17.425	7.189	23.212	A B D
3	0.419	1.05E-11	1.221	12.139	A C
		17.425	3.595	23.964	A B D
3	0.558	1.05E-11	4.99E-03	12.275	A C
		17.425	-2.55E-07	24.215	A B D
4	0	1.05E-11	-4.98E-03	12.275	A C
		17.425	-5.42E-07	24.215	A B D
4	0.140	1.05E-11	-1.221	12.139	A C
		17.425	-3.592	23.965	A B D
4	0.279	1.05E-11	-2.441	11.934	A C
		17.425	-7.184	23.213	A B D
4	0.419	1.05E-11	-3.660	11.508	A C
		17.425	-10.776	21.960	A B D
4	0.558	1.05E-11	-4.880	10.912	A C
		17.425	-14.369	20.207	A B D
5	0	1.05E-11	-4.880	10.912	A C
		17.425	-14.369	20.207	A B D
5	0.140	1.05E-11	-5.104	13.146	A C
		17.425	-17.964	17.949	A B D
5	0.279	1.05E-11	-7.326	9.207	A C
		17.425	-21.560	15.139	A B D
5	0.419	1.05E-11	-9.548	8.089	A C
		17.425	-25.156	11.927	A B D
5	0.559	1.05E-11	-9.770	6.820	A C
		17.425	-28.752	9.163	A B D
6	0	1.05E-11	-9.770	6.820	A C
		17.425	-28.752	9.163	A B D
6	0.1[illegible]	1.05E-11	-31.[illegible]	3.[illegible]	A B C
		-1.51E-11	[illegible]	6.[illegible]	A D
6	0.279	17.425	-36.[illegible]	-0.[illegible]	A B C
		-1.51E-11	[illegible]	[illegible]	A D
7	[illegible]	[illegible]	[illegible]	[illegible]	A B C
		[illegible]	[illegible]	[illegible]	A D
7	0	-14.949	[illegible]	[illegible]	A B C

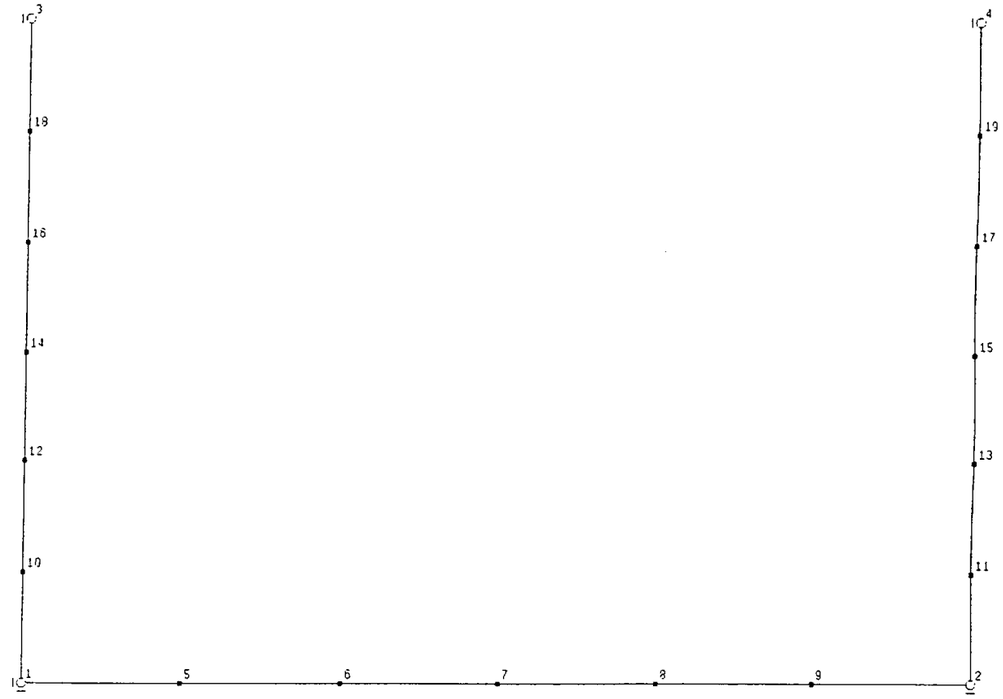
ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		14.949	1.05E-11	1.69E-11	A D
7	0.0354	-15.696	-13.342	-7.977	A B C
		15.696	1.05E-11	1.18E-11	A D
7	0.171	-16.443	-14.642	-9.172	A B C
		16.443	1.05E-11	1.27E-11	A D
7	0.256	17.190	-16.003	-10.480	A B C
		17.190	1.05E-11	1.36E-11	A D
7	0.342	-17.937	-17.425	-11.907	A B C
		17.937	1.05E-11	1.45E-11	A D
8	0	-17.937	17.425	-11.907	A B C
		-17.937	-1.48E-11	2.53E-11	A D
8	0.0354	-17.190	16.003	-10.480	A B C
		-17.190	-1.48E-11	2.40E-11	A D
8	0.171	-16.443	14.642	-9.172	A B C
		-16.443	-1.48E-11	2.27E-11	A D
8	0.256	-15.696	13.342	-7.977	A B C
		-15.696	-1.48E-11	2.15E-11	A D
8	0.342	-14.949	12.102	-6.891	A B C
		-14.949	-1.48E-11	2.02E-11	A D
9	0	-11.959	-7.745	-3.528	A B C
		-11.959	1.24E-11	6.72E-12	A D
9	0.0354	-11.706	-8.743	-4.232	A B C
		-12.706	1.24E-11	7.72E-12	A D
9	0.171	-13.454	-9.802	-5.024	A B C
		-13.454	1.24E-11	8.84E-12	A D
9	0.256	-14.201	-10.922	-5.909	A B C
		-14.201	1.24E-11	9.90E-12	A D
9	0.342	-14.948	-12.102	-6.891	A B C
		-14.948	1.24E-11	1.10E-11	A D
10	0	-14.948	12.102	-6.891	A B C
		-14.942	-1.79E-11	2.02E-11	A D
10	0.0354	-14.201	10.922	-5.909	A B C
		-14.201	-1.79E-11	1.86E-11	A D
10	0.171	-13.454	9.802	-5.024	A B C
		-13.454	-1.79E-11	1.71E-11	A D
10	0.256	-12.706	8.743	-4.232	A B C
		-12.706	-1.79E-11	1.55E-11	A D
10	0.342	-11.959	7.745	-3.528	A B C
		-11.959	-1.79E-11	1.40E-11	A D
11	0	-3.969	-4.356	-1.433	A B C
		-3.969	9.34E-12	2.21E-12	A D
11	0.0354	-3.716	-5.113	-1.892	A B C
		-5.716	9.34E-12	3.01E-12	A D
11	0.171	-10.464	-5.930	-2.364	A B C
		-10.464	9.34E-12	3.80E-12	A D
11	0.256	-11.211	-6.807	-2.907	A B C
		-11.211	9.34E-12	4.60E-12	A D

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
11	0.342	-11.959	-7.745	-3.528	A B C
		-11.959	9.34E-12	5.40E-12	A D
12	0	-11.959	7.745	-3.528	A B C
		-11.959	-1.80E-11	1.45E-11	A D
12	0.0354	-11.211	6.807	-2.907	A B C
		-11.211	-1.80E-11	1.29E-11	A D
12	0.171	-10.464	5.930	-2.364	A B C
		-10.464	-1.80E-11	1.14E-11	A D
12	0.256	-9.716	5.113	-1.892	A B C
		-9.716	-1.80E-11	9.83E-12	A D
12	0.342	-8.969	4.356	-1.433	A B C
		-8.969	-1.80E-11	8.29E-12	A D
13	0	-6.980	-1.936	-0.441132	A B C
		-6.980	4.31E-12	5.63E-13	A D
13	0.0354	-6.727	-2.451	-0.629035	A B C
		-6.727	4.31E-12	5.36E-13	A D
13	0.171	-7.474	-3.026	-0.861435	A B C
		-7.474	4.31E-12	1.30E-12	A D
13	0.256	-8.222	-3.661	-1.146	A B C
		-8.222	4.31E-12	1.67E-12	A D
13	0.342	-8.969	-4.356	-1.433	A B C
		-8.969	4.31E-12	2.04E-12	A D
14	0	-8.969	4.356	-1.433	A B C
		-8.969	-1.35E-11	1.45E-12	A D
14	0.0354	-8.222	3.661	-1.146	A B C
		-8.222	-1.35E-11	1.29E-12	A D
14	0.171	-7.474	3.026	-0.861435	A B C
		-7.474	-1.35E-11	1.13E-12	A D
14	0.256	-6.727	2.451	-0.629035	A B C
		-6.727	-1.35E-11	9.81E-13	A D
14	0.342	-5.980	1.936	-0.441132	A B C
		-5.980	-1.35E-11	2.71E-13	A D
15	[illegible]	[illegible]	[illegible]	[illegible]	A B D
		[illegible]	[illegible]	[illegible]	A C
15	[illegible]	[illegible]	[illegible]	[illegible]	A B C
		[illegible]	[illegible]	[illegible]	A D
15	[illegible]	[illegible]	[illegible]	[illegible]	A C
		[illegible]	[illegible]	[illegible]	A B D
16	[illegible]	[illegible]	[illegible]	[illegible]	A B C
		[illegible]	[illegible]	[illegible]	A D
16	[illegible]	[illegible]	[illegible]	[illegible]	A B C
		[illegible]	[illegible]	[illegible]	A D
16	[illegible]	[illegible]	[illegible]	[illegible]	A B D
		[illegible]	[illegible]	[illegible]	A C
17	[illegible]	[illegible]	[illegible]	[illegible]	A D
		[illegible]	[illegible]	[illegible]	A B C
17	[illegible]	[illegible]	[illegible]	[illegible]	A B D
		[illegible]	[illegible]	[illegible]	A C
17	[illegible]	[illegible]	[illegible]	[illegible]	A B D
		[illegible]	[illegible]	[illegible]	A C
17	[illegible]	[illegible]	[illegible]	[illegible]	A B D
		[illegible]	[illegible]	[illegible]	A C
18	[illegible]	[illegible]	[illegible]	[illegible]	A D
		[illegible]	[illegible]	[illegible]	A B C

Scale 1 : 18.6
Structure - GEOMETRIA



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Plane (2-D) frame -analysis

* STRUCTURAL - DATA *

Project title :

J O I N T D A T A : (19 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports F XYZ	Specialities
1	0.000000	0.000000	0.000000	E E	F	
2	3.350000	0.000000	0.000000	F E	F	
3	0.000000	0.000000	2.050000	E F	F	
4	3.350000	0.000000	2.050000	E F	F	
5	0.555330	0.000000	0.000000			
6	1.116600	0.000000	0.000000			
7	1.675000	0.000000	0.000000			
8	2.233000	0.000000	0.000000			
9	2.791600	0.000000	0.000000			
10	0.000000	0.000000	0.341600			
11	3.350000	0.000000	0.341600			
12	0.000000	0.000000	0.683300			
13	3.350000	0.000000	0.683300			
14	0.000000	0.000000	1.025000			
15	3.350000	0.000000	1.025000			
16	0.000000	0.000000	1.366600			
17	3.350000	0.000000	1.366600			
18	0.000000	0.000000	1.708300			
19	3.350000	0.000000	1.708300			

B A R D A T A : (18 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
1	1	5	0.555330	LOSA35			oS
2	5	6	0.560770	LOSA35			oS
3	6	7	0.558400	LOSA35			oS
4	7	8	0.558000	LOSA35			oS
5	8	9	0.558600	LOSA35			oS
6	9	2	0.558400	LOSA35			oS
7*	10	1	0.341600	ALA35			oS
8*	2	11	0.341600	ALA35			oS
9*	12	10	0.341700	ALA35			oS
10*	11	13	0.341700	ALA35			oS
11*	14	12	0.341700	ALA35			oS
12*	13	15	0.341700	ALA35			oS
13*	16	14	0.341600	ALA35			oS
14*	15	17	0.341600	ALA35			oS

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Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
15*	18	16	0.341700	ALA35			oS
16*	17	19	0.341700	ALA35			oS
17*	3	18	0.341700	ALA35			oS
18*	19	4	0.341700	ALA35			oS

Bars marked with "*" are vertical (except any excentricities). The corresponding special definition for the default orientation of the local coordinate system applies.

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / z1 [M1]	Iy [M4] / zu [M1]	Fz [M2]
ALA35	3.5000E-01	3.5729E-03	2.9167E-01
	-0.1750	0.1750	
LOSA35	3.5000E-01	3.5729E-03	2.9167E-01
	-0.1750	0.1750	

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [KN/M2]	Shear-M [KN/M2]
1 .. 18	3.3000E+07	1.3000E+07

STS-Run ok

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Load case 1:

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Mas.forcZ gl const.	-25.000		Stab 1 .. 18

Load case 2: AGUA

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force X gl trapez.	0	-2.834	
from...to	0	0.341700	Stab 17
Force X gl trapez.	-2.834	-5.667	
from...to	0	0.341700	Stab 15
Force X gl trapez.	-5.667	-8.500	
from...to	0	0.341600	Stab 13
Force X gl trapez.	-8.500	-11.334	
from...to	0	0.341700	Stab 11
Force X gl trapez.	-11.334	-14.167	
from...to	0	0.341700	Stab 9
Force X gl trapez.	-14.167	-17.000	
from...to	0	0.341600	Stab 7
Force X gl trapez.	17.000	14.167	
from...to	0	0.341600	Stab 8
Force X gl trapez.	14.167	11.334	
from...to	0	0.341700	Stab 10
Force X gl trapez.	11.334	8.500	
from...to	0	0.341700	Stab 12
Force X gl trapez.	8.500	5.667	
from...to	0	0.341600	Stab 14
Force X gl trapez.	5.667	2.834	
from...to	0	0.341700	Stab 16
Force X gl trapez.	2.834	9.5E-0007	
from...to	0	0.341700	Stab 18
Force Z pj const.	-17.000		Stab 1 .. 6

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Load case 3: gradiente

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Curvat. Y lo const.	0.000434		Stab 1 .. 18

Load case 4: gradiente

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Curvat. Y lo const.	-0.000434		Stab 1 .. 18

Load case 5: viento

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force X gl const.	-1.513		Stab 3 10 12 14 16 18

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ENVELOPE SPECIFIC.: AR ""

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		
B	PLUS	2	1.500		AGUA
C	PLUS	3	1.500		gradiente
D	CR	4	1.500		gradiente
E	PLUS	5	0.450000		viento
F	CR	5	-0.450000		viento

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	-33.079	19.575	80.199	A C F
		72.260	62.847	-115.008	A B D E
1	0.139	-33.079	17.933	82.805	A C F
		72.260	57.662	-106.635	A B D E
1	0.278	-33.079	16.292	85.182	A C F
		72.260	52.477	-98.982	A B D E
1	0.417	-33.079	14.650	87.332	A C F
		72.260	47.292	-92.051	A B D E
1	0.556	-33.079	13.009	89.254	A C F
		72.260	42.107	-85.839	A B D E
2	0	-33.079	13.009	89.254	A C F
		72.260	42.107	-85.839	A B D E
2	0.140	-33.079	11.353	90.962	A C F
		72.260	36.877	-80.303	A B D E
2	0.280	-33.079	9.697	92.437	A C F
		72.260	31.646	-75.500	A B D E
2	0.421	-33.079	8.041	93.680	A C F
		72.260	26.415	-71.430	A B D E
2	0.561	-33.079	6.385	94.692	A C F
		72.260	21.134	-68.093	A B D E
3	0	-33.079	6.385	94.692	A C F
		72.260	21.134	-68.093	A B D E
3	0.140	-33.079	4.736	95.453	A C F
		72.260	15.975	-65.500	A B D E
3	0.279	-33.079	3.037	96.014	A C F
		72.260	10.766	-63.633	A B D E
3	0.419	-33.079	1.433	96.330	A C F
		72.260	5.557	-62.494	A B D E
3	0.558	-33.079	-0.211356	96.415	A C F
		72.260	0.348438	-62.082	A B D E
4	0	-33.079	-0.211356	96.415	A C F
		72.260	0.348438	-62.082	A B D E
4	0.140	-11.515	-5.310	112.895	A B C F

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ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		45.696	-1.406	-79.021	A D E
4	0.279	-11.515	-10.515	111.792	A B C F
		45.696	-3.054	-79.312	A D E
4	0.419	-11.515	-15.720	109.962	A B C F
		45.696	-4.702	-79.873	A D E
4	0.558	-11.515	-20.925	107.406	A B C F
		45.696	-6.349	-80.643	A D E
5	0	-11.515	-20.925	107.406	A B C F
		45.696	-6.349	-80.643	A D E
5	0.140	-11.515	-26.136	104.120	A B C F
		45.696	-7.999	-81.645	A D E
5	0.279	-11.515	-31.347	100.106	A B C F
		45.696	-9.649	-82.877	A D E
5	0.419	-11.515	-36.557	95.365	A B C F
		45.696	-11.298	-84.340	A D E
5	0.559	-11.515	-41.768	89.895	A B C F
		45.696	-12.948	-86.033	A D E
6	0	-11.515	-41.768	89.895	A B C F
		45.696	-12.948	-86.033	A D E
6	0.140	-11.515	-46.977	83.701	A B C F
		45.696	-14.597	-87.955	A D E
6	0.279	-11.515	-52.186	76.730	A B C F
		45.696	-16.246	-90.103	A D E
6	0.419	-11.515	-57.394	69.131	A B C F
		45.696	-17.895	-92.492	A D E
6	0.558	-11.515	-62.603	60.755	A B C F
		45.696	-19.544	-95.105	A D E
7	0	-20.130	-65.541	-91.296	A B D E
		-20.130	39.121	66.335	A C F
7	0.0854	-21.139	-67.401	-96.972	A B D E
		-21.139	39.121	70.176	A C F
7	0.171	-22.192	-69.352	-102.811	A B D E
		-22.193	39.121	73.517	A C F
7	0.256	-23.2[illegible]	-71.394	-109.220	A B D E
		-23.[illegible]	39.121	76.852	A C F
7	0.341	-24.216	-73.526	-115.008	A B D E
		-24.[illegible]	39.121	80.199	A C F
8	0	-24.216	-39.611	79.775	A C E
		-24.216	73.792	-114.125	A B D F
8	0.0854	-23.[illegible]	-39.553	76.334	A C E
		[illegible]	71.602	-107.917	A B D F
8	[illegible]	[illegible]	[illegible]	73.[illegible]	A C E
		[illegible]	[illegible]	[illegible]	A B D F
8	[illegible]	[illegible]	[illegible]	[illegible]	A C E
		[illegible]	67.[illegible]	-98.[illegible]	A B D F
8	0.341	[illegible]	-38.379	66.233	A C E
		[illegible]	65.575	-92.261	A B D F

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
9	0	-16.144	-59.006	-70.059	A B D E
		-16.144	39.121	53.467	A C F
9	0.0854	-17.153	-60.504	-75.163	A B D E
		-17.153	39.121	56.809	A C F
9	0.171	-18.162	-62.092	-80.398	A B D E
		-18.162	39.121	60.151	A C F
9	0.256	-19.171	-63.771	-85.774	A B D E
		-19.171	39.121	63.493	A C F
9	0.342	-20.180	-65.541	-91.295	A B D E
		-20.180	39.121	66.835	A C F
10	0	-20.180	-39.379	66.281	A C E
		-20.180	65.575	-90.362	A B D F
10	0.0854	-19.171	-39.321	62.922	A C E
		-19.171	63.747	-84.839	A B D F
10	0.171	-18.162	-39.263	59.565	A C E
		-18.162	62.010	-79.468	A B D F
10	0.256	-17.153	-39.205	56.214	A C E
		-17.153	60.363	-74.242	A B D F
10	0.342	-16.144	-39.147	52.867	A C E
		-16.144	58.807	-69.153	A B D F
11	0	-12.108	-53.923	-50.806	A B D E
		-12.108	39.121	40.099	A C F
11	0.0854	-13.117	-55.058	-55.460	A B D E
		-13.117	39.121	43.441	A C F
11	0.171	-14.126	-56.283	-60.215	A B D E
		-14.126	39.121	46.783	A C F
11	0.256	-15.135	-57.599	-65.079	A B D E
		-15.135	39.121	50.125	A C F
11	0.342	-16.144	-59.006	-70.059	A B D E
		-16.144	39.121	53.467	A C F
12	0	-16.144	-39.147	52.867	A C E
		-16.144	58.807	-69.153	A B D F
12	0.0854	-15.135	-39.089	49.526	A C E
		-15.135	57.342	-64.192	A B D F
12	0.171	-14.126	-39.031	46.189	A C E
		-14.126	55.968	-59.353	A B D F
12	0.256	-13.117	-38.973	42.857	A C E
		-13.117	54.685	-54.627	A B D F
12	0.342	-12.108	-38.914	39.530	A C E
		-12.108	53.492	-50.008	A B D F
13	0	-8.073	-50.294	-33.047	A B D E
		-8.073	39.121	26.735	A C F
13	0.0854	-9.081	-51.065	-37.375	A B D E
		-9.081	39.121	30.076	A C F
13	0.171	-10.090	-51.927	-41.772	A B D E
		-10.090	39.121	33.417	A C F

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
13	0.256	-11.099	-52.880	-45.246	A B D E
		-11.099	39.121	36.758	A C F
13	0.342	-12.108	-53.923	-50.806	A B D E
		-12.108	39.121	40.099	A C F
14	0	-12.108	-38.914	39.530	A C E
		-12.108	53.492	-50.008	A B D F
14	0.0854	-11.099	-38.856	36.210	A C E
		-11.099	52.391	-45.487	A B D F
14	0.171	-10.090	-38.892	33.469	A C F
		-10.090	51.474	-41.632	A B D E
14	0.256	-9.081	-38.950	30.146	A C F
		-9.081	50.670	-37.271	A B D E
14	0.342	-8.073	-39.008	26.817	A C F
		-8.073	49.956	-32.975	A B D E
15	0	-4.036	-48.115	-16.275	A B D E
		-4.036	39.121	13.368	A C F
15	0.0854	-5.045	-48.523	-20.402	A B D E
		-5.045	39.121	16.710	A C F
15	0.171	-6.054	-49.023	-24.563	A B D E
		-6.054	39.121	20.052	A C F
15	0.256	-7.064	-49.613	-28.731	A B D E
		-7.064	39.121	23.394	A C F
15	0.342	-8.073	-50.294	-33.047	A B D E
		-8.073	39.121	26.735	A C F
16	0	-8.073	-39.008	26.817	A C F
		-8.073	49.956	-32.975	A B D E
16	0.0854	-7.064	-39.068	23.482	A C F
		-7.064	49.333	-28.735	A B D E
16	0.171	-6.054	-39.124	20.142	A C F
		-6.054	48.802	-24.544	A B D E
16	0.256	-5.045	-39.182	16.799	A C F
		-5.045	48.360	-20.399	A B D E
16	0.342	-4.036	-39.240	13.448	A C F
		-4.036	48.010	-16.279	A B D E
17	0	-4.04E-08	-47.389	-1.62E-07	A B D E
		-4.04E-08	39.121	1.34E-07	A C F
17	0.0854	-1.009	-47.434	-4.049	A B D E
		-1.009	39.121	3.342	A C F
17	0.171	-2.018	-47.570	-8.137	A B D E
		-2.018	39.121	6.684	A C F
17	0.256	-3.027	-47.797	-12.259	A B D F
		-3.027	39.121	10.026	A C F
		-3.027	49.115	-16.275	A B D E
		-3.027	49.121	13.368	A C F
18		-4.036	-39.240	13.448	A C F
		-4.036	48.010	-16.279	A B D E

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
18	0.0854	-3.027	-39.298	10.033	A C F
		-3.027	47.750	-12.195	A B D E
18	0.171	-2.018	-39.356	6.691	A C F
		-2.018	47.581	-8.119	A B D E
18	0.256	-1.009	-39.414	3.349	A C F
		-1.009	47.503	-4.052	A B D E
18	0.342	-4.04E-08	-39.472	1.35E-07	A C F
		-4.04E-08	47.516	-1.62E-07	A B D E

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	72.260	62.847	-115.008	A B D E
		-38.079	19.575	80.199	A C F
1	0.139	72.260	57.662	-106.635	A B D E
		-38.079	17.933	82.835	A C F
1	0.278	72.260	52.477	-98.982	A B D E
		-38.079	16.292	85.132	A C F
1	0.417	72.260	47.292	-92.051	A B D E
		-38.079	14.650	87.332	A C F
1	0.556	45.696	13.462	-85.608	A D E
		-11.515	41.654	90.023	A B C F
2	0	45.696	13.462	-36.608	A D E
		-11.515	41.654	90.023	A B C F
2	0.140	45.696	11.806	-84.837	A D E
		-11.515	36.423	95.496	A B C F
2	0.280	47.228	10.039	-23.302	A D F
		-13.047	31.303	100.249	A B C E
2	0.421	47.228	8.333	-82.011	A D F
		-13.047	26.073	104.262	A B C E
2	0.561	47.228	6.727	-80.952	A D F
		-13.047	20.842	107.550	A B C E
3	0	47.228	6.727	-80.952	A D F
		-13.047	20.842	107.550	A B C E
3	0.140	47.228	5.073	-80.123	A D F
		-13.047	15.633	110.096	A B C E
3	0.279	47.228	3.429	-79.534	A D F
		-13.047	10.424	111.915	A B C E
3	0.419	47.228	1.780	-79.171	A D F
		-13.047	5.215	113.007	A B C E
3	0.558	47.228	0.130766	-79.037	A D F
		-13.047	0.006316	113.371	A B C E

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
4	0	47.228	0.130766	-79.037	A D F
		-13.047	0.006316	113.371	A B C E
4	0.140	47.228	-1.517	-79.124	A D F
		-13.047	-5.199	113.009	A B C E
4	0.279	47.228	-3.165	-79.461	A D F
		-13.047	-10.404	111.911	A B C E
4	0.419	47.228	-4.813	-80.017	A D F
		-13.047	-15.609	110.106	A B C E
4	0.558	47.228	-6.461	-80.803	A D F
		-13.047	-20.814	107.566	A B C E
5	0	47.228	-6.461	-80.803	A D F
		-13.047	-20.814	107.566	A B C E
5	0.140	47.228	-8.110	-81.821	A D F
		-13.047	-26.025	104.295	A B C E
5	0.279	47.228	-9.760	-83.069	A D F
		-13.047	-31.235	100.297	A B C E
5	0.419	47.228	-11.409	-84.547	A D F
		-13.047	-36.446	95.571	A B C E
5	0.559	47.228	-13.059	-86.256	A D F
		-13.047	-41.657	90.118	A B C E
6	0	47.228	-13.059	-86.256	A D F
		-13.047	-41.657	90.118	A B C E
6	0.140	73.792	-32.638	-91.322	A B C F
		-39.611	-44.949	87.087	A C E
6	0.279	73.792	-51.342	-93.195	A B C F
		-39.611	-46.683	84.847	A C E
6	0.419	73.792	-67.062	-108.756	A B D F
		-39.611	-48.237	82.438	A C E
6	0.559	73.792	-82.261	-124.125	A B D F
		-39.611	-49.858	79.775	A C E
7	0	-20.180	-65.541	-91.296	A B D E
		-20.180	39.121	66.835	A C F
7	0.0854	-21.189	-67.431	-96.971	A B D E
		-21.189	39.121	70.176	A C F
7	0.171	-22.198	-69.405	-102.801	A B D E
		-22.198	39.121	73.518	A C F
7	0.256	-23.207	-71.471	-108.787	A B D F
		-23.207	39.121	76.860	A C F
7	0.342	-24.216	-73.630	-114.929	A B D F
		-24.216	39.121	80.202	A C F
8		-20.180	-64.507	-90.522	A B D E
		-20.180	38.312	66.443	A C F
8	0.085	-21.189	-66.396	-96.197	A B D E
		-21.189	38.312	69.784	A C F
8	0.171	-22.198	-68.376	-102.028	A B D E
		-22.198	38.312	73.126	A C F
8	0.256	-23.207	-70.447	-108.014	A B D F
		-23.207	38.312	76.468	A C F
8	0.342	-24.216	-72.610	-114.156	A B D F
		-24.216	38.312	79.810	A C F

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-21.189	-38.263	69.712	A C F
8	0.342	-20.180	64.507	-90.522	A B D E
		-20.180	-38.312	66.443	A C F
9	0	-16.144	-59.006	-70.059	A B D E
		-16.144	39.121	53.467	A C F
9	0.0854	-17.153	-60.504	-75.163	A B D E
		-17.153	39.121	56.809	A C F
9	0.171	-18.162	-62.092	-80.398	A B D E
		-18.162	39.121	60.151	A C F
9	0.256	-19.171	-63.771	-85.774	A B D E
		-19.171	39.121	63.493	A C F
9	0.342	-20.180	-65.541	-91.296	A B D E
		-20.180	39.121	66.835	A C F
10	0	-20.180	64.507	-90.522	A B D E
		-20.180	-38.312	66.443	A C F
10	0.0854	-19.171	62.796	-85.085	A B D E
		-19.171	-38.370	63.103	A C F
10	0.171	-18.162	61.174	-79.791	A B D E
		-18.162	-38.428	59.838	A C F
10	0.256	-17.153	59.644	-74.631	A B D E
		-17.153	-38.486	56.602	A C F
10	0.342	-16.144	58.204	-69.598	A B D E
		-16.144	-38.544	53.312	A C F
11	0	-12.108	-53.923	-50.806	A B D E
		-12.108	39.121	40.099	A C F
11	0.0854	-13.117	-55.058	-55.460	A B D E
		-13.117	39.121	43.441	A C F
11	0.171	-14.126	-56.283	-60.215	A B D E
		-14.126	39.121	46.783	A C F
11	0.256	-15.135	-57.599	-65.079	A B D E
		-15.135	39.121	50.125	A C F
11	0.342	-16.144	-59.006	-70.059	A B D E
		-16.144	39.121	53.467	A C F
12	0	-16.144	58.204	-69.598	A B D E
		-16.144	-38.544	53.312	A C F
12	0.0854	-15.135	56.856	-64.634	A B D E
		-15.135	-38.602	50.017	A C F
12	0.171	-14.126	55.598	-59.881	A B D E
		-14.126	-38.660	46.717	A C F
12	0.256	-13.117	54.430	-55.192	A B D E
		-13.117	-38.718	43.412	A C F
12	0.342	-12.108	53.354	-50.579	A B D E
		-12.108	-38.776	40.102	A C F
13	0	-8.073	-50.294	-33.047	A B D E
		-8.073	39.121	26.735	A C F
13	0.0854	-9.081	-51.065	-37.375	A B D E

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-9.081	39.121	30.076	A C F
13	0.171	-10.090	-51.927	-41.772	A B D E
		-10.090	39.121	33.417	A C F
13	0.256	-11.099	-52.880	-45.246	A B D E
		-11.099	39.121	36.758	A C F
13	0.342	-12.108	-53.923	-50.806	A B D E
		-12.108	39.121	40.099	A C F
14	0	-12.108	53.354	-50.579	A B D E
		-12.108	-38.776	40.102	A C F
14	0.0854	-11.099	52.368	-46.066	A B D E
		-11.099	-38.834	36.733	A C F
14	0.171	-10.090	51.474	-41.632	A B D E
		-10.090	-38.892	33.469	A C F
14	0.256	-9.081	50.670	-37.271	A B D E
		-9.081	-38.950	30.146	A C F
14	0.342	-8.073	49.956	-32.975	A B D E
		-8.073	-39.008	26.817	A C F
15	0	-4.036	-48.115	-16.275	A B D E
		-4.036	39.121	13.368	A C F
15	0.0854	-5.045	-48.523	-20.402	A B D E
		-5.045	39.121	16.710	A C F
15	0.171	-6.054	-49.023	-24.563	A B D E
		-6.054	39.121	20.052	A C F
15	0.256	-7.064	-49.613	-28.731	A B D E
		-7.064	39.121	23.394	A C F
15	0.342	-8.073	-50.294	-33.047	A B D E
		-8.073	39.121	26.735	A C F
16	0	-8.073	49.956	-32.975	A B D E
		-8.073	-39.008	26.817	A C F
16	0.0854	-7.064	49.333	-28.735	A B D E
		-7.064	-39.068	23.482	A C F
16	0.171	-6.054	48.802	-24.544	A B D E
		-6.054	-39.124	20.142	A C F
16	0.256	-5.045	48.360	-20.399	A B D E
		-5.045	-39.182	16.799	A C F
16	0.342	-4.036	48.010	-16.279	A B D E
		-4.036	-39.240	13.448	A C F
17	0	-4.04E-08	47.389	-1.62E-07	A B D E
		-4.04E-08	-39.121	1.34E-07	A C F
17	0.0854	-1.009	47.434	-4.049	A B D E
		-1.009	-39.121	3.342	A C F
17	0.171	-2.018	47.570	-8.137	A B D E
		-2.018	-39.121	6.684	A C F
17	0.256	-3.027	47.797	-12.259	A B D F
		-3.027	-39.121	10.026	A C F
		-3.027	49.115	-16.275	A B D E
		-3.027	-49.121	13.368	A C F
18		-4.036	48.010	-16.279	A B D E
		-4.036	-39.240	13.448	A C F

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
12	0	-4.036	48.010	-16.279	A B D E
		-4.036	-39.240	13.448	A C F
12	0.0854	-3.027	47.750	-12.130	A B D E
		-3.027	-39.298	10.093	A C F
13	0.171	-2.018	47.521	-8.119	A B D E
		-2.018	-39.356	6.734	A C F
13	0.256	-1.009	47.502	-4.059	A B D E
		-1.009	-39.414	3.369	A C F
13	0.342	-4.04E-02	47.516	-1.62E-07	A B D E
		-4.04E-02	-39.472	1.35E-07	A C F

ENVELOPE SPECIFIC.: AS ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM	1	1.000		
B	PLUS	2	1.000		AGUA
C	PLUS	3	0.600000		gradiente
D	CR	4	0.600000		gradiente

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
1	0	37.592	43.282	-53.754	A B D
		-14.240	14.599	29.334	A C
1	0.139	37.532	39.704	-47.983	A B D
		-14.240	13.383	31.328	A C
1	0.278	37.592	36.126	-42.720	A B D
		-14.240	12.167	33.104	A C
1	0.417	37.592	32.548	-37.949	A B D
		-14.240	10.952	34.710	A C
1	0.556	19.882	9.872	-34.137	A D
		3.469	28.833	36.660	A B C
2	0	19.882	9.872	-34.137	A D
		3.469	28.833	36.660	A B C
2	0.140	19.882	8.646	-32.889	A D
		3.469	25.223	40.442	A B C
2	0.280	19.882	7.419	-31.763	A D

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		3.469	21.613	43.732	A B C
2	0.421	19.882	6.192	-30.809	A D
		3.469	18.003	46.503	A B C
2	0.561	19.882	4.966	-30.027	A D
		3.469	14.393	48.779	A B C
3	0	19.882	4.966	-30.027	A D
		3.469	14.393	48.779	A B C
3	0.140	19.882	3.744	-29.419	A D
		3.469	10.782	50.533	A B C
3	0.279	19.882	2.523	-28.981	A D
		3.469	7.203	51.784	A B C
3	0.419	19.882	1.301	-28.714	A D
		3.469	3.609	52.549	A B C
3	0.558	19.882	0.079733	-28.619	A D
		3.469	0.013913	52.802	A B C
4	0	19.882	0.079733	-28.619	A D
		3.469	0.013913	52.802	A B C
4	0.140	19.882	-1.141	-28.692	A D
		3.469	-3.573	52.551	A B C
4	0.279	19.882	-2.362	-28.936	A D
		3.469	-7.170	51.793	A B C
4	0.419	19.882	-3.583	-29.351	A D
		3.469	-10.762	50.551	A B C
4	0.558	19.882	-4.803	-29.936	A D
		3.469	-14.359	48.801	A B C
5	0	19.882	-4.803	-29.936	A D
		3.469	-14.359	48.801	A B C
5	0.140	19.882	-6.025	-30.692	A D
		3.469	-17.951	46.545	A B C
5	0.279	19.882	-7.247	-31.619	A D
		3.469	-21.547	43.787	A B C
5	0.419	19.882	-8.469	-32.716	A D
		3.469	-25.143	40.527	A B C
5	0.559	19.882	-9.691	-33.984	A D
		3.469	-28.739	36.765	A B C
6	0	19.882	-9.691	-33.984	A D
		3.469	-28.739	36.765	A B C
6	0.141	37.592	-32.136	-37.567	A B C
		-14.240	-11.049	34.537	A C
6	0.279	37.652	-35.701	-41.151	A B C
		-14.240	-12.272	32.840	A C
7	0	37.592	-35.316	-41.151	A B C
		-14.240	-12.272	32.840	A C
	0.139	37.592	-38.908	-44.735	A B C
		-14.240	-13.495	30.685	A C
7	0.278	37.592	-42.500	-48.319	A B C
		-14.240	-14.718	28.071	A C
7	0	14.949	-32.515	-48.706	A B C

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
		-14.949	14.334	24.483	A C
7	0.0854	-15.696	-33.755	-44.595	A B D
		-15.696	14.334	25.712	A C
7	0.171	-16.443	-35.056	-47.533	A B D
		-16.443	14.334	26.936	A C
7	0.256	-17.190	-36.417	-50.584	A B D
		-17.190	14.334	28.160	A C
7	0.342	-17.937	-37.838	-53.754	A B D
		-17.937	14.334	29.384	A C
8	0	-17.937	37.592	-53.249	A B D
		-17.937	-14.240	29.191	A C
8	0.0854	-17.190	36.170	-50.100	A B D
		-17.190	-14.240	27.977	A C
8	0.171	-16.443	34.809	-47.070	A B D
		-16.443	-14.240	26.761	A C
8	0.256	-15.696	33.509	-44.153	A B D
		-15.696	-14.240	25.544	A C
8	0.342	-14.949	32.269	-41.345	A B D
		-14.949	-14.240	24.328	A C
9	0	-11.959	-28.158	-31.427	A B D
		-11.959	14.334	19.590	A C
9	0.0854	-12.706	-29.157	-31.875	A B D
		-12.706	14.334	20.814	A C
9	0.171	-13.454	-30.216	-36.410	A B D
		-13.454	14.334	22.039	A C
9	0.256	-14.201	-31.335	-39.039	A B D
		-14.201	14.334	23.263	A C
9	0.342	-14.948	-32.515	-41.768	A B D
		-14.948	14.334	24.488	A C
10	0	-14.948	32.269	-41.345	A B D
		-14.948	-14.240	24.328	A C
10	0.0854	-14.201	31.089	-38.639	A B D
		-14.201	-14.240	23.112	A C
10	0.171	-13.454	29.969	-36.031	A B D
		-13.454	-14.240	21.895	A C
10	0.256	-12.706	28.910	-33.517	A B D
		-12.706	-14.240	20.679	A C
10	0.342	-11.959	27.912	-31.090	A B D
		-11.959	-14.240	19.462	A C
11	0	-8.969	-24.770	-22.412	A B D
		-8.969	14.334	14.695	A C
11	0.0854	-9.716	-25.526	-24.560	A B D
		-9.716	14.334	15.917	A C
11	0.171	-10.464	-26.343	-26.775	A B D
		-10.464	14.334	17.141	A C
11	0.256	-11.211	-27.220	-29.082	A B D
		-11.211	14.334	18.365	A C

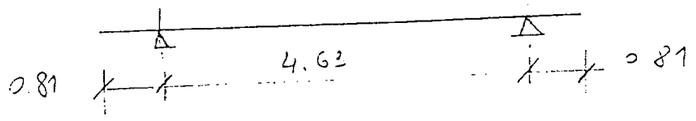
ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
11	0.342	-11.959	-28.158	-31.427	A B D
		-11.959	14.334	19.590	A C
12	0	-11.959	27.912	-31.090	A B D
		-11.959	-14.240	19.462	A C
12	0.0854	-11.211	26.974	-28.747	A B D
		-11.211	-14.240	18.246	A C
12	0.171	-10.464	26.096	-26.480	A B D
		-10.464	-14.240	17.029	A C
12	0.256	-9.716	25.280	-24.236	A B D
		-9.716	-14.240	15.813	A C
12	0.342	-8.969	24.523	-22.160	A B D
		-8.969	-14.240	14.596	A C
13	0	-5.980	-22.350	-14.392	A B D
		-5.980	14.334	9.786	A C
13	0.0854	-6.727	-22.564	-16.322	A B D
		-6.727	14.334	11.010	A C
13	0.171	-7.474	-23.439	-18.269	A B D
		-7.474	14.334	12.244	A C
13	0.256	-8.222	-24.074	-20.327	A B D
		-8.222	14.334	13.469	A C
13	0.342	-8.969	-24.770	-22.412	A B D
		-8.969	14.334	14.692	A C
14	0	-8.969	14.623	-22.160	A B D
		-8.969	-14.240	14.596	A C
14	0.0854	-8.222	13.808	-20.099	A B D
		-8.222	-14.240	13.380	A C
14	0.171	-7.474	13.152	-18.068	A B D
		-7.474	-14.240	12.164	A C
14	0.256	-6.727	12.615	-16.132	A B D
		-6.727	-14.240	10.948	A C
14	0.342	-5.980	12.133	-14.203	A B D
		-5.980	-14.240	9.732	A C
15	0	-2.990	-20.397	-7.032	A B D
		-2.990	14.334	4.898	A C
15	0.0854	-3.737	-21.152	-8.227	A B D
		-3.737	14.334	5.711	A C
15	0.171	-4.485	-21.959	-10.523	A B D
		-4.485	14.334	7.259	A C
15	0.256	-5.232	-22.826	-12.902	A B D
		-5.232	14.334	8.807	A C
15	0.342	-5.980	-23.753	-14.392	A B D
		-5.980	14.334	9.786	A C
16	0	-4.485	-21.959	-10.523	A B D
		-4.485	14.334	7.259	A C
16	0.0854	-5.232	-22.826	-12.902	A B D
		-5.232	14.334	8.807	A C

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

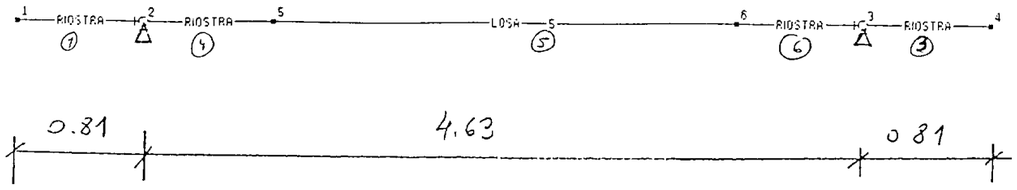
Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]	Crit. load groups
16	0.171	-4.485	21.256	-10.523	A B D
		-4.485	-14.240	7.259	A C
16	0.256	-3.737	20.923	-8.722	A B D
		-3.737	-14.240	6.082	A C
16	0.342	-2.990	20.651	-6.946	A B D
		-2.990	-14.240	4.866	A C
17	0	-2.99E-03	-20.413	-6.93E-03	A B D
		-2.99E-03	14.334	4.90E-03	A C
17	0.0854	-0.747469	-20.444	-1.745	A B D
		-0.747469	14.334	1.224	A C
17	0.171	-1.495	-20.534	-3.495	A B D
		-1.495	14.334	2.449	A C
17	0.256	-2.242	-20.686	-5.255	A B D
		-2.242	14.334	3.673	A C
17	0.342	-2.950	-20.997	-7.030	A B D
		-2.990	14.334	4.898	A C
18	0	-2.990	20.651	-6.946	A B D
		-2.990	-14.240	4.866	A C
18	0.0854	-2.242	20.439	-5.192	A B D
		-2.242	-14.240	3.649	A C
18	0.171	-1.495	20.283	-3.452	A B D
		-1.495	-14.240	2.433	A C
18	0.256	-0.747469	20.197	-1.724	A B D
		-0.747469	-14.240	1.216	A C
18	0.342	-2.99E-03	20.167	-6.89E-03	A B D
		-2.99E-03	-14.240	4.87E-03	A C

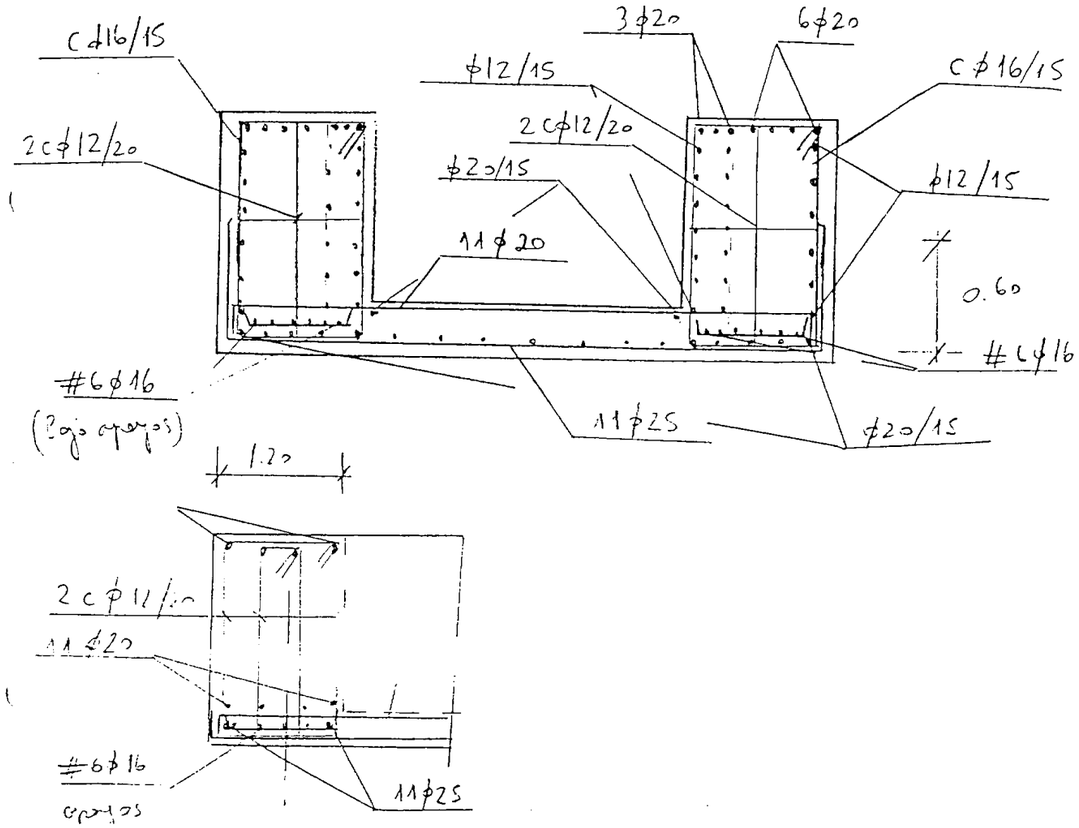
RIOSTRA ESTRIBO:



Carga permanente = 571.55 kN / 6.25 m = 91.45 kN/m

Sobrecarga = 469.20 kN / 6.25 m = 75.07 kN/m





Plane (2-D) frame -analysis

* STRUCTURAL - DATA *

Project title :

JOINT DATA : 1 6 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	R XYZ	Specialities
1	0.000000	0.000000	0.000000			
2	0.810000	0.000000	0.000000	B	F	
3	5.440000	0.000000	0.000000	B	F	
4	6.250000	0.000000	0.000000			
5	1.620000	0.000000	0.000000			
6	4.630000	0.000000	0.000000			

BAR DATA : (5 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (Haunched)	Hinges start	end	Specialities
1	1	2	0.810000	RIOSTRA			oS
3	3	4	0.810000	RIOSTRA			oS
4	2	5	0.810000	RIOSTRA			oS
5	5	6	3.010000	LOSA			oS
6	6	3	0.810000	RIOSTRA			oS

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / zl [M]	Iy [M4] / zu [M]	Fz [M2]
LOSA	4.2000E-01 / -0.1750	4.2375E-03 / 0.1750	3.5000E-01
RIOSTRA	2.4600E-00 / -1.0250	8.6151E-01 / 1.0250	2.0500E-00

CS-Name	Ax [M2] / zl [M]	Iy [M4] / zu [M]	Fz [M2]

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [KN/ M2]	Shear-M [KN/ M2]
1 .. 6	3.3000E+07	1.3000E-07

STS-Run ok

Load case 1: PESO PROPIO

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Mas.forcZ gl const.	-25.000		Stab 1 5 3 .. 4 6

Load case 2: PERMANENTES

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-91.450		Stab 1 5 3 .. 4 6

Load case 3: SOBRECARGA

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-75.070		Stab 1 5 3 .. 4 6

ENVELOPS SPECIFIC.: AA ""

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
	AND	2	1.350		PERMANENTES
E	PLUS	3	1.500		SOBRECARGA

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]
1	0	0	-2.58E-06	-1.33E-10
		0	-1.67E-06	-8.72E-11
1	0.203	0	-64.615	-6.542
		0	-41.813	-4.234
1	0.405	0	-129.230	-26.169
		0	-83.625	-16.934
1	0.608	0	-193.846	-58.851
		0	-125.438	-38.102
1	0.810	0	-258.461	-104.677
		0	-167.251	-67.737
3	0	0	167.251	-67.737
		0	258.461	-104.677
3	0.202	0	125.438	-38.102
		0	193.846	-58.851
3	0.405	0	83.625	-16.934
		0	129.230	-26.169
3	0.607	0	41.813	-4.234
		0	64.615	-6.542
3	0.810	0	1.67E-06	2.16E-10
		0	2.58E-06	3.72E-10
4	0	0	374.383	-67.737
		0	635.068	-104.677
4	0.203	0	332.575	3.843

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]
		0	570.453	17.322
4	0.405	0	290.762	66.956
		0	505.838	126.357
4	0.608	0	243.950	121.602
		0	441.223	222.247
4	0.810	0	207.137	167.781
		0	376.607	305.052
5	0	0	297.137	167.781
		0	376.607	305.052
5	0.752	0	103.568	284.634
		0	188.304	517.600
5	1.505	0	7.82E-11	323.651
		0	1.42E-10	588.447
5	2.257	0	-188.304	517.600
		0	-103.568	284.634
5	3.010	0	-376.607	305.052
		0	-297.137	167.781
6	0	0	-376.607	305.052
		0	-207.137	167.781
6	0.203	0	-441.223	222.247
		0	-243.950	121.602
6	0.405	0	-505.838	126.357
		0	-290.762	66.956
6	0.608	0	-570.453	17.322
		0	-332.575	3.843
6	0.810	0	-635.068	-104.677
		0	-374.383	-67.737

$V_{\partial z} = -376.607\ kN$

$V_{\partial} = -635.068\ kN$

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vz [kN]	My [kNm]
1	0	0	-2.58E-06	-1.33E-10
		0	-1.67E-06	-8.72E-11
1	0.203	0	-64.615	-6.542
		0	-41.813	-4.234
1	0.405	0	-129.230	-26.169
		0	-83.625	-16.934
1	0.608	0	-193.846	-58.851
		0	-125.438	-38.102
1	0.810	0	-258.461	-104.677
		0	-167.251	-67.737
3	0	0	167.251	-67.737
		0	258.461	-104.677
3	0.202	0	125.438	-38.102
		0	193.846	-58.851
3	0.405	0	83.625	-16.934
		0	129.230	-26.169
3	0.607	0	41.813	-4.234
		0	64.615	-6.542
3	0.810	0	1.67E-06	2.16E-10
		0	2.58E-06	3.72E-10
4	0	0	635.068	-104.677
		0	374.383	-67.737
4	0.203	0	570.453	17.322
		0	332.575	3.843
4	0.405	0	505.838	126.357
		0	290.762	66.956
4	0.608	0	441.223	222.247
		0	243.950	121.602
4	0.810	0	376.607	305.052
		0	207.137	167.781
5	0	0	207.137	167.781
		0	376.607	305.052
5	0.752	0	188.304	517.600
		0	103.568	284.634
5	1.505	0	1.42E-10	588.447
		0	7.82E-11	323.651
5	2.257	0	103.568	284.634
		0	188.304	517.600
5	3.010	0	207.137	167.781
		0	376.607	305.052
6	0	0	207.137	167.781
		0	376.607	305.052
6	0.203	0	243.950	121.602
		0	441.223	222.247
6	0.405	0	290.762	66.956
		0	505.838	126.357
6	0.608	0	332.575	3.843
		0	570.453	17.322
6	0.810	0	374.383	-67.737
		0	635.068	-104.677

$M_{\partial}^{+} = 588.44\ kNm$

$M_{\partial}^{-} = -104.67\ kNm$

Características mecánicas Sección "LOSA" (sin coef. homogeneiz.)

Area	Ax = 4.200E3 cm2		
Momento de inercia	Iy =428.75E3 cm4	Iz = 5.040E6 cm4	Ip = 5.469E6 cm4
Const. de torsión			Ix = 1.400E6 cm4
Momento estático	Zy = 36.75E3 cm3	Zz = 126.00E3 cm3	
Baricentro	ys = -0.00 cm	zs = 17.50 cm	Angulo= 0.0 Grad
Dist. al borde	yl = -60.00 cm	yr = 60.00 cm	
	zo = 17.50 cm	zu = -17.50 cm	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "LOSA" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	4200.000	310.000	1.40E+06	1)

Puntos de contorno [cm]:
1 60.00 0.00 2 60.00 35.00 3 -60.00 35.00
4 -60.00 0.00

Armadura "B1" As-tot =2.00 cm2 (0.05 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-56.00	31.00
					56.00	31.00
BOTTOM / RQS	AEH500	10.0	2	1.00	-56.00	4.00
					56.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	120.00	27.00	0.00	31.00	0.00	4.00
SWY	Vy	35.00	112.00	-56.00	17.50	56.00	17.50
SWT	Torsion	120.00	35.00	0.00	0.00	0.00	35.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			

Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)

Dimensionamiento a flexión: Viga Sección "LOSA"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	586.44	0.00	

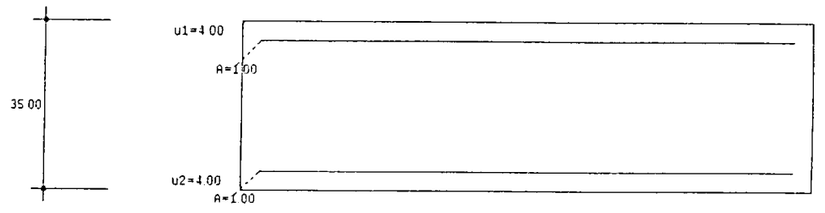
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

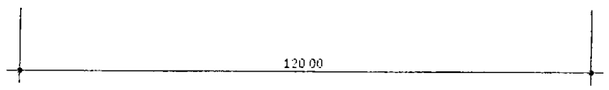
No Armad. long. :	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
AEH500	-56.00	31.00	56.00	31.00	1.00	----	1.00
1 AEH500	-56.00	4.00	56.00	4.00	1.00	53.56	53.56

Max.x/h = 0.45 As-top/bot = 1.00/53.56 As = 1.30 % = 54.56

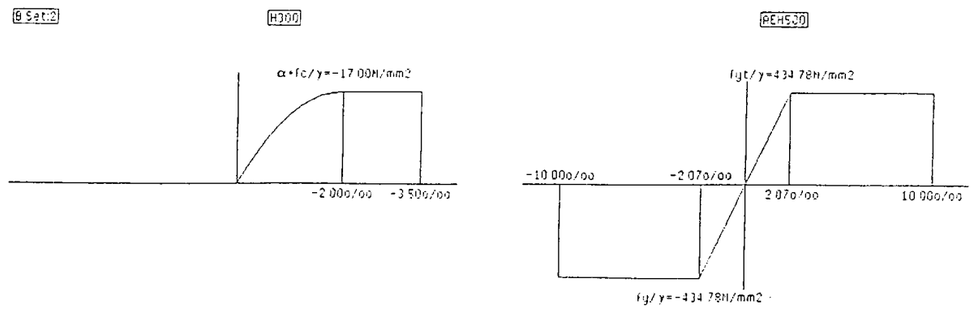
/1,20m = 44.63 cm²/m
.11 ϕ25

Sección LOSA

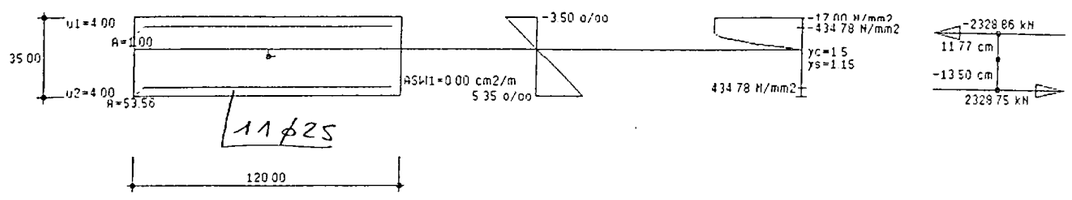




Material acorde a la sección: "LOSA"



Dimensionamiento,Sección "LOSA"



Características mecánicas Sección "LOSA" (sin coef. homogeneiz.)

Area	Ax = 4.200E3 cm2			
Momento de inercia	Iy =428.75E3 cm4	Iz = 5.040E6 cm4	Ip = 5.469E6 cm4	
Const. de torsión			Ix = 1.400E6 cm4	
Momento estático	Zy = 36.75E3 cm3	Zz = 126.00E3 cm3		
Baricentro	ys = -0.00 cm	zs = 17.50 cm	Angulo= 0.0 Grad	
Dist. al borde	yl = -60.00 cm	yr = 60.00 cm		
	zo = 17.50 cm	zu = -17.50 cm		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "LOSA" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	4200.000	310.000	1.40E+06	1)

Puntos de contorno [cm]:

1	60.00	0.00	2	60.00	35.00	3	-60.00	35.00
4	-60.00	0.00					

Armadura "B1" As-tot =54.56 cm2 (1.30 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-56.00	31.00
					56.00	31.00
BOTTOM / RQS	AEH500	10.0	2	53.56	-56.00	4.00
					56.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	120.00	27.00	0.00	31.00	0.00	4.00
SWY	Vy	35.00	112.00	-56.00	17.50	56.00	17.50
SWT	Torsion	120.00	35.00	0.00	0.00	0.00	35.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "LOSA"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	0.00	0.00	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0, 3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad. long. :	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
AEH500	-56.00	31.00	56.00	31.00	1.00	----	1.00
AEH500	-56.00	4.00	56.00	4.00	1.00	----	1.00

Max.x/h = 0.00 As-top/bot = 1.00/1.00 As = 0.05 % = 2.00

Dimensionamiento al corte de la sección "LOSA"

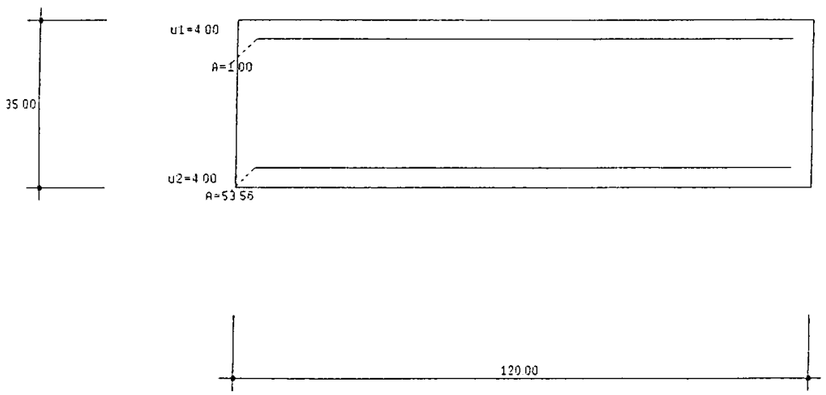
No	Set	Vy [kN]	Vz [kN]	T [kNm]	Notas :
1	2	0.00	376.60	0.00	

Armadura de estribos (estáticamente necesaria):
H300,AEH500,TauMax=10.59/1.76,fy=500.00/1.15,45.00

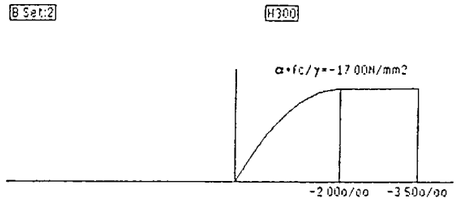
No	Pared corte	Solicit.	Fuerza kN	kNm	Ancho bw [cm]	Altur. z [cm]	Tau [N/mm2]	AsL/2 [cm2]	Asw [cm2/m] &
1	SWZ	Vz	376.60		120.00	27.00	1.16	4.33	20.17

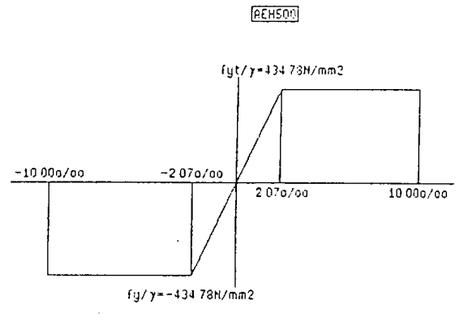
Sección LOSA

2c ϕ ϕ12/20

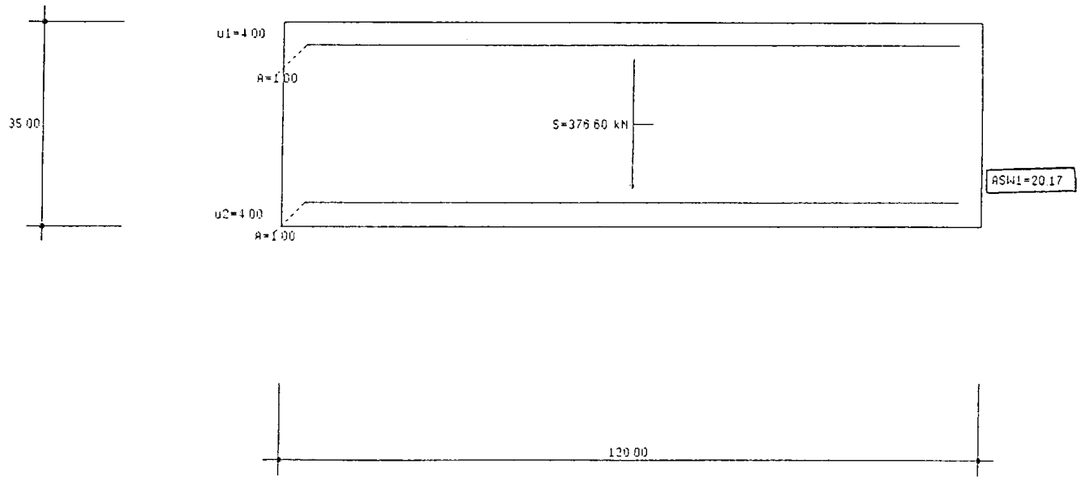


Material acorde a la sección: "LOSA"





Dimensionamiento,Sección "LOSA"



Características mecánicas Sección "RIOSTRA" (sin coef. homogeneiz.)

Area	Ax =	2.460 m2				
Momento de inercia	Iy =	0.8615 m4	Iz =	0.2952 m4	Ip =	1.157 m4
Const. de torsión					Ix =	0.7496 m4
Momento estático	Zy =	1.261 m3	Zz =	0.7380 m3		
Baricentro	ys =	-0.00 cm	zs =	102.50 cm	Angulo=	0.0 Grad
Dist. al borde	yl =	-60.00 cm	yr =	60.00 cm		
	zo =	102.50 cm	zu =	-102.50 cm		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRA" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	24600.0	650.000	7.50E+07	1)

Puntos de contorno [cm]:
1 60.00 0.00 2 60.00 205.00 3 -60.00 205.00
4 -60.00 0.00

Armadura "B1" As-tot =4.52 cm2 (0.02 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-56.00	201.00
					56.00	201.00
BOTTOM / RQS	AEH500	10.0	2	3.52	-56.00	4.00
					56.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	120.00	197.00	0.00	201.00	0.00	4.00
SWY	Vy	205.00	112.00	-56.00	102.50	56.00	102.50
SWT	Torsion	120.00	205.00	0.00	0.00	0.00	205.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "RIOSTRA"/"B1"

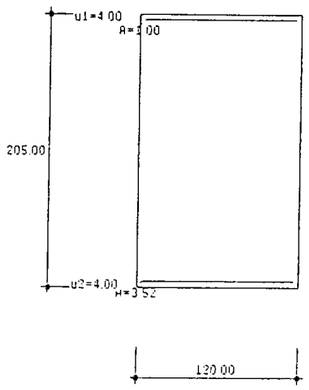
No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	104.67	0.00	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0, 3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

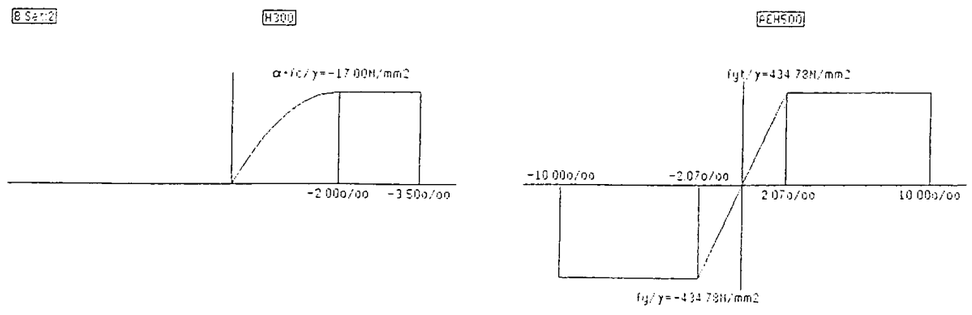
No Armad. long. :	yl [cm]	zl [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
1 AEH500	-56.00	201.00	56.00	201.00	1.00	1.20	1.20
AEH500	-56.00	4.00	56.00	4.00	1.00	----	1.00

Max.x/h = 0.02 As-top/bot = 1.20/1.00 As = 0.01 % = 2.20

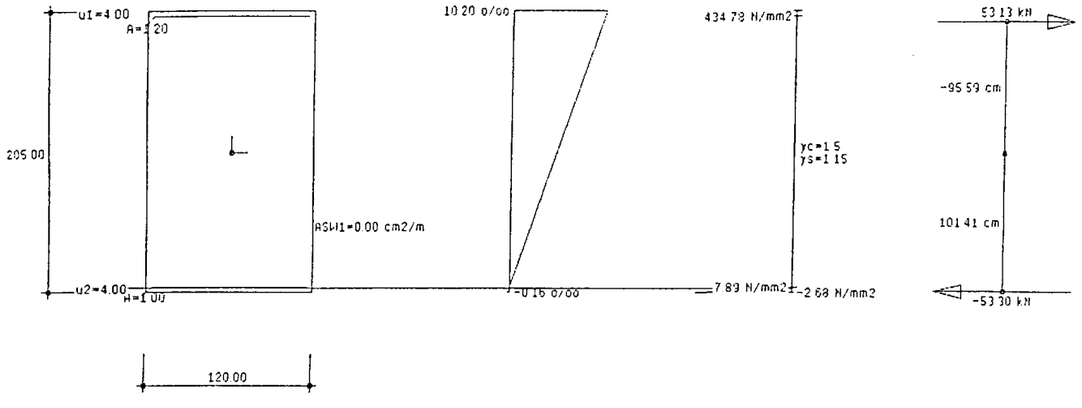
Sección RIOSTRA



Material acorde a la sección: "RIOSTRA"



Dimensionamiento,Sección "RIOSTRA"



Características mecánicas Sección "RIOSTRA" (sin coef. homogeneiz.)

Area	Ax =	2.460 m2			
Momento de inercia	Iy =	0.8615 m4	Iz =	0.2952 m4	Ip = 1.157 m4
Const. de torsión					Ix = 0.7496 m4
Momento estático	Zy =	1.261 m3	Zz =	0.7380 m3	
Baricentro	ys =	-0.00 cm	zs =	102.50 cm	Angulo= 0.0 Grad
Dist. al borde	yl =	-60.00 cm	yr =	60.00 cm	
	zo =	102.50 cm	zu =	-102.50 cm	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRA" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	24600.0	650.000	7.50E+07	1)

Puntos de contorno [cm]:

1	60.00	0.00	2	60.00	205.00	3	-60.00	205.00
4	-60.00	0.00						

Armadura "B1" As-tot =2.20 cm2 (0.01 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.20	-56.00	201.00
					56.00	201.00
BOTTOM / RQS	AEH500	10.0	2	1.00	-56.00	4.00
					56.00	4.00

Ared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
EWZ	Vz	120.00	197.00	0.00	201.00	0.00	4.00
EWY	Vy	205.00	112.00	-56.00	102.50	56.00	102.50

SWT	Torsion	120.00	205.00	0.00	0.00	0.00	205.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			

Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)

Dimensionamiento a flexión: Viga Sección "RIOSTRA"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	305.05	0.00	

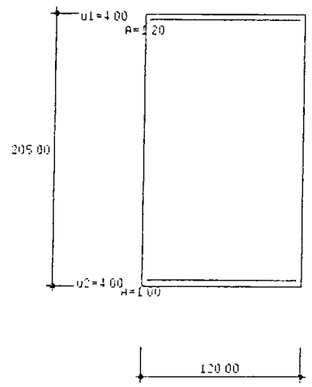
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

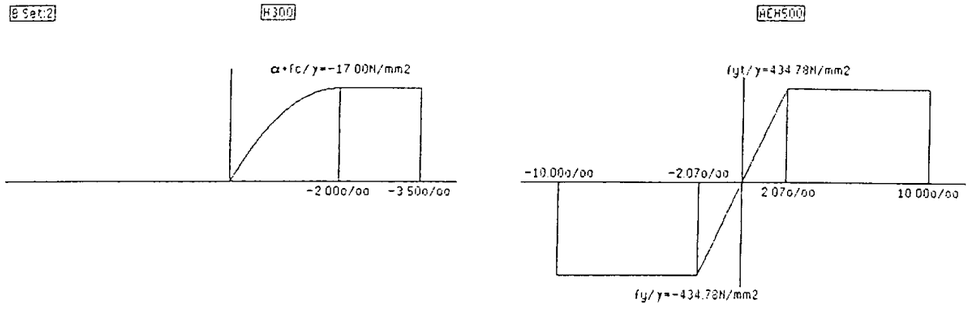
No	Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
	AEH500	-56.00	201.00	56.00	201.00	1.00	----	1.00
1	AEH500	-56.00	4.00	56.00	4.00	1.00	3.52	3.52

Max.x/h = 0.03 As-top/bot = 1.00/3.52 As = 0.02 % = 4.52

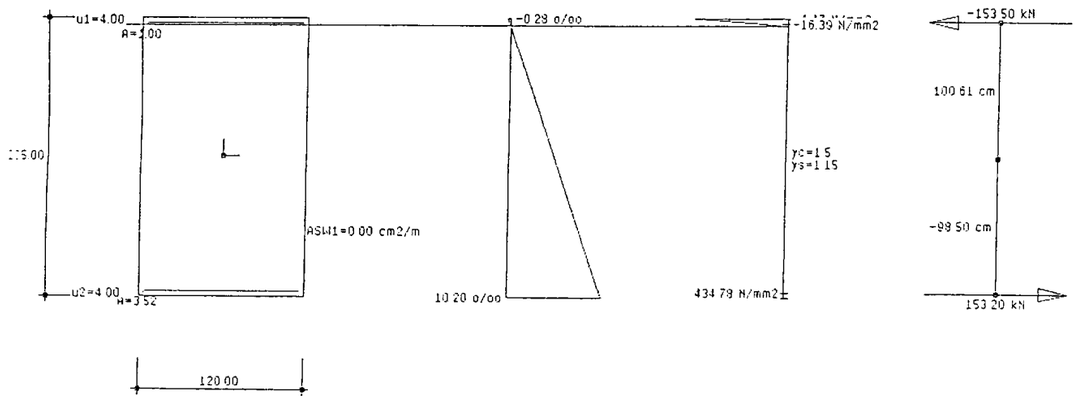
Sección RIOSTRA



Material acorde a la sección: "RIOSTRA"



Dimensionamiento, Sección "RIOSTRA"



Características mecánicas Sección "RIOSTRA" (sin coef. homogeniz.)

Area	Ax = 2.460 m2				
Momento de inercia	Iy = 0.8615 m4	Iz = 0.2952 m4	Ip = 1.157 m4		
Const. de torsión			Ix = 0.7496 m4		
Momento estático	Zy = 1.261 m3	Zz = 0.7380 m3			
Baricentro	ys = 0.00 cm	zs = 102.50 cm	Angulo= 0.0 Grad		
Dist. al borde	yl = -60.00 cm	yr = 60.00 cm			
	zo = 102.50 cm	zu = 102.50 cm			

S Punto de aplic. de fuerzas en el baricentro de la sección
T Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRA" (sin coef. homogeniz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	24600.0	650.000	7.50E+07	1)

Puntos de contorno [cm]:

1	60.00	0.00	2	60.00	205.00	3	-60.00	205.00
4	-60.00	0.00						

Armadura "B1" As-tot =4.52 cm2 (0.02 o/o)

Nombre / Sección	Material	w	Céd.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-56.00	201.00
					56.00	201.00
BOTTOM / RQS	AEH500	10.0	2	3.52	-56.00	4.00
					56.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	120.00	197.00	0.00	201.00	0.00	4.00
SWY	Vy	205.00	112.00	-56.00	102.50	56.00	102.50
SWT	Torsion	120.00	205.00	0.00	0.00	0.00	205.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "RIOSTRA"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	0.00	0.00	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
AEH500	-56.00	201.00	56.00	201.00	1.00	----	1.00
AEH500	-56.00	4.00	56.00	4.00	1.00	----	1.00

Max.x/h = 0.00 As-top/bot = 1.00/1.00 As = 0.01 % = 2.00

Dimensionamiento al corte de la sección "RIOSTRA"

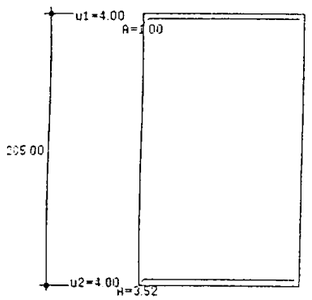
No	Set	Vy [kN]	Vz [kN]	T [kNm]	Notas:
1	2	0.00	635.07	0.00	

Armadura de estribos (estáticamente necesaria):
H300,AEH500,TauMax=10.59/1.76,fy=500.00/1.15,45.00

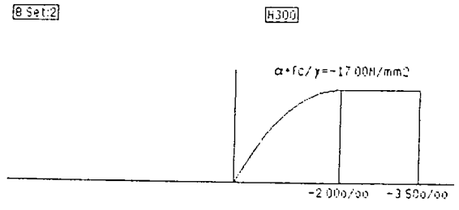
Nº Pared corte	Solicit.	Fuerza kN kNm	Ancho bw [cm]	Altur. z [cm]	Tau [N/mm2]	AsL/2 [cm2]	Asw [cm2/m]&
1 SWZ	Vz	635.07	120.00	197.00	0.27	7.30	20.17

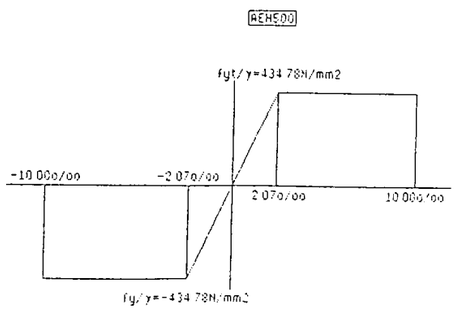
2cϕ12/20

Sección RIOSTRA

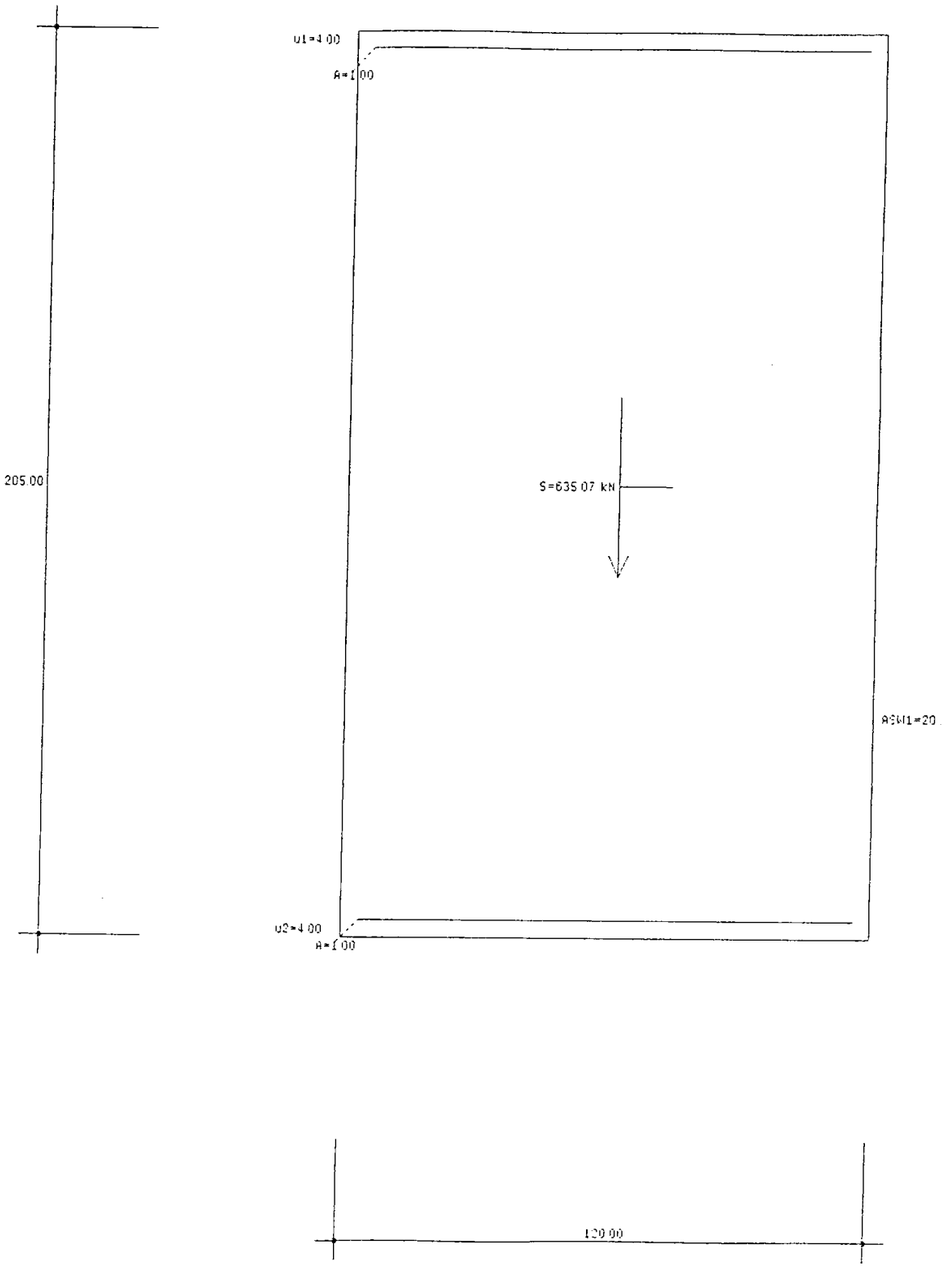


Material acorde a la sección: "RIOSTRA"





Dimensionamiento,Sección "RIOSTRA"



4.2. Comprobación Longitudinal del tablero

4.2.1. Verificación de las secciones

****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (37 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	R XYZ	Specialities
1	0.40000	0.00000	0.00000			
2	1.00000	0.00000	0.00000	SSB	BFF	
3	1.50588	0.00000	0.00000			
4	2.01176	0.00000	0.00000			
5	2.51764	0.00000	0.00000			
6	3.02353	0.00000	0.00000			
7	3.52941	0.00000	0.00000			
8	4.03529	0.00000	0.00000			
9	4.54118	0.00000	0.00000			
10	5.04706	0.00000	0.00000			
11	5.55294	0.00000	0.00000			
12	6.05882	0.00000	0.00000			
13	6.56471	0.00000	0.00000			
14	7.07059	0.00000	0.00000			
15	7.57647	0.00000	0.00000			
16	8.08235	0.00000	0.00000			
17	8.58823	0.00000	0.00000			
18	9.09412	0.00000	0.00000			
19	9.60000	0.00000	0.00000			
20	10.10588	0.00000	0.00000			
21	10.61176	0.00000	0.00000			
22	11.11764	0.00000	0.00000			
23	11.62350	0.00000	0.00000			
24	12.12941	0.00000	0.00000			
25	12.63530	0.00000	0.00000			
26	13.14117	0.00000	0.00000			
27	13.64706	0.00000	0.00000			
28	14.15294	0.00000	0.00000			
29	14.65882	0.00000	0.00000			
30	15.16470	0.00000	0.00000			
31	15.67059	0.00000	0.00000			
32	16.17647	0.00000	0.00000			
33	16.68235	0.00000	0.00000			
34	17.18823	0.00000	0.00000			
35	17.69410	0.00000	0.00000			
36	18.20000	0.00000	0.00000	SSB	BFF	
37	18.30000	0.00000	0.00000			

ELASTICALLY SUPPORTED JOINTS: ('B'=Fixed 'F'=Free)

Joint	V-X [KN/M]	V-Y [KN/M]	V-Z [KN/M]	R-X [KNM/ARC]	R-Y [KNM/ARC]	R-Z [KNM/ARC]
2	2.947E-03	2.947E-03	B	B	F	F
36	2.947E-03	2.947E-03	B	B	F	F

B A R D A T A : (36 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
1	1	2	0.60000	CANALU			GS
2	2	3	0.50588	CANALU			GS
3	3	4	0.50588	CANALU			GS
4	4	5	0.50588	CANALU			GS
5	5	6	0.50589	CANALU			GS
6	6	7	0.50588	CANALU			GS
7	7	8	0.50588	CANALU			GS
8	8	9	0.50589	CANALU			GS
9	9	10	0.50588	CANALU			GS
10	10	11	0.50588	CANALU			GS
11	11	12	0.50588	CANALU			GS
12	12	13	0.50588	CANALU			GS
13	13	14	0.50588	CANALU			GS
14	14	15	0.50588	CANALU			GS
15	15	16	0.50588	CANALU			GS
16	16	17	0.50588	CANALU			GS
17	17	18	0.50588	CANALU			GS
18	18	19	0.50588	CANALU			GS
19	19	20	0.50588	CANALU			GS
20	20	21	0.50588	CANALU			GS
21	21	22	0.50588	CANALU			GS
22	22	23	0.50588	CANALU			GS
23	23	24	0.50591	CANALU			GS
24	24	25	0.50589	CANALU			GS
25	25	26	0.50587	CANALU			GS
26	26	27	0.50589	CANALU			GS
27	27	28	0.50588	CANALU			GS
28	28	29	0.50588	CANALU			GS
29	29	30	0.50588	CANALU			GS
30	30	31	0.50588	CANALU			GS
31	31	32	0.50588	CANALU			GS
32	32	33	0.50588	CANALU			GS
33	33	34	0.50588	CANALU			GS
34	34	35	0.50587	CANALU			GS
35	35	36	0.50591	CANALU			GS
36	36	37	0.50588	CANALU			GS

GS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / Ix [M4] / zi [M]	Iy [M4] / Fz [M2] / zs [M]	Iz [M4] / Fs [M2] / yi [M]	Phi [Degr] / yr [M]
CANALU	2.4350E-00	9.5135E-01	4.8382E-00	0.00
	9.2161E-01	2.4350E+00	2.4350E+00	
	-0.6653	1.3341	-1.8500	1.8500

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [KN/ M2]	Shear-M [KN/ M2]
1 .. 36	3.0000E+07	1.3700E+07

STS-Run ok

****
Load case 1: PESO PROPIO
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Mas.forcZ gl const.	-25.000		Stab 1 .. 36

****
Load case 3: REOLOGICAS
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	-0.000433		Stab 1 .. 36

****
Load case 4: SOBRECARGA AGUA
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z lo const.	-51.000		Stab 1 .. 36

****
Load case 5: TEMPERATURA(+)
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	-0.000414		Stab 1 .. 36

****
Load case 6: TEMPERATURA(-)
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	0.000414		Stab 1 .. 36

****
Load case 7: GRADIENTE(+)
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Curvat. Y lo const.	5.9E-0005		Stab 1 .. 36

****
Load case 8: GRADIENTE(-)
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Curvat. Y lo const.	-5.9E-0005		Stab 1 .. 36

****
Load case 9: VIENTO
****

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Y gl const.	4.400		Stab 1 .. 36

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO

****

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	0	0	571.553	0		
36	0	0	571.550	0		
Sums :	0	0	1143.100			
min:	0	0	571.553	0	Undef	Undef
max:	0	0	571.550	0	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
3	1.0000			REOLOGICAS

****

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	-10.967	0	0	0		
36	10.967	0	0	0		
Sums :	-1.82E-10	0	0			
min:	-10.967	0	0	0	Undef	Undef
max:	10.967	0	0	0	Undef	Undef

Loadcase Factor Stage Init.def Title
4 1.0000 SOBRECARGA AGUA

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	0	0	469.200	0		
36	0	0	469.200	0		
Sums :	0	0	938.400			
min:	0	0	-469.200	0	Undef	Undef
max:	0	0	469.200	0	Undef	Undef

Loadcase Factor Stage Init.def Title
5 1.0000 TEMPERATURA(+)

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	-10.500	0	0	0		
36	10.500	0	0	0		
Sums :	-1.77E-10	0	0			
min:	-10.500	0	0	0	Undef	Undef
max:	10.500	0	0	0	Undef	Undef

Loadcase Factor Stage Init.def Title
6 1.0000 TEMPERATURA(-)

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	10.500	0	0	0		
36	-10.500	0	0	0		
Sums :	1.77E-10	0	0			
min:	-10.500	0	0	0	Undef	Undef
max:	10.500	0	0	0	Undef	Undef

Loadcase Factor Stage Init.def Title
7 1.0000 GRADIENTE(+)

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	0	0	3.99E-10	0		
36	0	0	1.10E-09	0		
Sums :	0	0	1.50E-09			
min:	0	0	3.99E-10	0	Undef	Undef
max:	0	0	1.10E-09	0	Undef	Undef

Loadcase Factor Stage Init.def Title
8 1.0000 GRADIENTE(-)

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	0	0	-3.99E-10	0		
36	0	0	-1.10E-09	0		
Sums :	0	0	-1.50E-09			
min:	0	0	-1.10E-09	0	Undef	Undef
max:	0	0	-3.99E-10	0	Undef	Undef

Loadcase Factor Stage Init.def Title
9 1.0000 VIENTO

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	0	-40.480	0	0		
36	0	-40.480	0	0		
Sums :	0	-80.960	0			
min:	0	-40.480	0	0	Undef	Undef
max:	0	-40.480	0	0	Undef	Undef

4.2.1.1. Comprobación de estados límites servicio (ELS)

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
36	0.450	-4.94E-11	0	9.319	0	-0.698906	0
		-4.94E-11	0	24.055	0	-1.804	0
		Min: B C I		Max: A C E H			
36	0.600	-4.94E-11	0	3.73E-07	0	-5.71E-12	0
		-4.94E-11	0	9.62E-07	0	-8.87E-12	0
		Min: B C I		Max: A C E H			

ENVELOPE SPECIFIC.: DD .. E.L.S Fisuración

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	3	1.000		REOLOGICAS
C	PLUS	4	1.000		SOBRECARGA AGUA
D	PLUS	5	0.600000		TEMPERATURA(+)
E	CR	6	0.600000		TEMPERATURA(-)
F	PLUS	7	0.600000		GRADIENTE(+)
G	CR	8	0.600000		GRADIENTE(-)
H	PLUS	9	0.300000		VIENTO

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
1	0	2.62E-11	0	-6.79E-07	0	-1.92E-11	0
		2.62E-11	0	-3.73E-07	0	-8.40E-12	0
		Min: A E C F		Max: A B G			
1	0.150	2.62E-11	0	-16.969	0	-1.273	0
		2.62E-11	0	-9.319	0	-0.698906	0
		Min: A E C F		Max: A B G			
1	0.300	2.62E-11	0	-33.937	0	-5.091	0
		2.62E-11	0	-18.637	0	-2.796	0
		Min: A E C G		Max: A B F			
1	0.450	2.62E-11	0	-50.906	0	-11.454	0
		2.62E-11	0	-27.956	0	-6.290	0
		Min: A E C G		Max: A B F			
1	0.600	2.62E-11	0	-67.875	0	-20.362	0
		2.62E-11	0	-37.275	0	-11.182	0
		Min: A E C G		Max: A B F			
2	0	10.967	0	972.875	0	-20.362	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		10.967	0	534.275	0	-11.182	0
		Min: A E C G		Max: A B F			
2	0.126	10.967	0	526.418	0	55.890	0
		10.967	0	958.568	0	101.772	0
		Min: A B G		Max: A B C F			
2	0.253	10.967	0	518.561	0	121.970	0
		10.967	0	944.261	0	222.093	0
		Min: A B G		Max: A B C F			
2	0.379	10.967	0	510.704	0	187.055	0
		10.967	0	929.954	0	340.614	0
		Min: A B G		Max: A B C F			
2	0.506	10.967	0	502.847	0	251.147	0
		10.967	0	915.647	0	457.320	0
		Min: A B G		Max: A B C F			
3	0	10.967	0	502.847	0	251.147	0
		10.967	0	915.647	0	457.320	0
		Min: A B G		Max: A B C F			
3	0.126	10.967	0	494.990	0	314.245	0
		10.967	0	901.340	0	572.218	0
		Min: A B G		Max: A B C F			
3	0.253	10.967	0	487.133	0	376.350	0
		10.967	0	887.033	0	685.305	0
		Min: A B G		Max: A B C F			
3	0.379	10.967	0	479.276	0	437.461	0
		10.967	0	872.727	0	796.584	0
		Min: A B G		Max: A B C F			
3	0.506	10.967	0	471.419	0	497.578	0
		10.967	0	858.420	0	906.053	0
		Min: A B G		Max: A B C F			
4	0	10.967	0	471.419	0	497.578	0
		10.967	0	858.420	0	906.053	0
		Min: A B G		Max: A B C F			
4	0.126	10.967	0	463.561	0	556.702	0
		10.967	0	844.113	0	1013.712	0
		Min: A B G		Max: A B C F			
4	0.253	10.967	0	455.704	0	614.830	0
		10.967	0	829.806	0	1119.503	0
		Min: A B G		Max: A B C F			
4	0.379	10.967	0	447.847	0	671.958	0
		10.967	0	815.499	0	1223.294	0
		Min: A B G		Max: A B C F			
4	0.506	10.967	0	439.990	0	729.110	0
		10.967	0	801.192	0	1326.836	0
		Min: A B G		Max: A B C F			
		10.967	0	801.192	0	1326.836	0
		Min: A B G		Max: A B C F			
5	0.126	10.967	0	432.132	0	783.160	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		10.967	0	786.825	0	1426.259	0
		Min: A B G		Max: A B C F			
5	0.253	10.967	0	424.277	0	837.417	0
		10.967	0	772.578	0	1524.874	0
		Min: A B G		Max: A B C F			
5	0.379	10.967	0	416.420	0	890.579	0
		10.967	0	758.270	0	1621.679	0
		Min: A B G		Max: A B C F			
5	0.506	10.967	0	408.563	0	942.748	0
		10.967	0	743.963	0	1716.674	0
		Min: A B G		Max: A B C F			
6	0	10.967	0	408.563	0	942.748	0
		10.967	0	743.963	0	1716.674	0
		Min: A B G		Max: A B C F			
6	0.126	10.967	0	400.706	0	993.922	0
		10.967	0	729.656	0	1809.859	0
		Min: A B G		Max: A B C F			
6	0.253	10.967	0	392.849	0	1044.103	0
		10.967	0	715.349	0	1901.234	0
		Min: A B G		Max: A B C F			
6	0.379	10.967	0	384.992	0	1093.290	0
		10.967	0	701.042	0	1990.799	0
		Min: A B G		Max: A B C F			
6	0.506	10.967	0	377.135	0	1141.483	0
		10.967	0	686.735	0	2078.555	0
		Min: A B G		Max: A B C F			
7	0	10.967	0	377.135	0	1141.483	0
		10.967	0	686.735	0	2078.555	0
		Min: A B G		Max: A B C F			
7	0.126	10.967	0	369.278	0	1188.682	0
		10.967	0	672.429	0	2164.502	0
		Min: A B G		Max: A B C F			
7	0.253	10.967	0	361.422	0	1234.838	0
		10.967	0	658.122	0	2248.639	0
		Min: A B G		Max: A B C F			
7	0.379	10.967	0	353.565	0	1280.100	0
		10.967	0	643.815	0	2330.967	0
		Min: A B G		Max: A B C F			
7	0.506	10.967	0	345.708	0	1324.319	0
		10.967	0	629.508	0	2411.486	0
		Min: A B G		Max: A B C F			
8	0	10.967	0	345.708	0	1324.319	0
		10.967	0	629.508	0	2411.486	0
		Min: A B G		Max: A B C F			
8	0.126	10.967	0	337.851	0	1367.544	0
		10.967	0	615.201	0	2490.196	0
		Min: A B G		Max: A B C F			
8	0.253	10.967	0	329.994	0	1409.775	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		10.967	0	600.894	0	2567.096	0
		Min: A B G		Max: A B C F			
8	0.379	10.967	0	322.136	0	1451.014	0
		10.967	0	586.587	0	2642.182	0
		Min: A B G		Max: A B C F			
8	0.506	10.967	0	314.279	0	1491.258	0
		10.967	0	572.279	0	2715.469	0
		Min: A B G		Max: A B C F			
9	0	10.967	0	314.279	0	1491.258	0
		10.967	0	572.279	0	2715.469	0
		Min: A B G		Max: A B C F			
9	0.126	10.967	0	306.422	0	1530.503	0
		10.967	0	557.972	0	2786.941	0
		Min: A B G		Max: A B C F			
9	0.253	10.967	0	298.565	0	1569.765	0
		10.967	0	543.666	0	2856.604	0
		Min: A B G		Max: A B C F			
9	0.379	10.967	0	290.709	0	1608.028	0
		10.967	0	529.359	0	2924.457	0
		Min: A B G		Max: A B C F			
9	0.506	10.967	0	282.852	0	1642.297	0
		10.967	0	515.052	0	2990.930	0
		Min: A B G		Max: A B C F			
10	0	10.967	0	282.852	0	1642.297	0
		10.967	0	515.052	0	2990.930	0
		Min: A B G		Max: A B C F			
10	0.126	10.967	0	274.995	0	1677.572	0
		10.967	0	500.745	0	3054.734	0
		Min: A B G		Max: A B C F			
10	0.253	10.967	0	267.138	0	1711.854	0
		10.967	0	486.438	0	3117.189	0
		Min: A B G		Max: A B C F			
10	0.379	10.967	0	259.281	0	1745.142	0
		10.967	0	472.131	0	3178.276	0
		Min: A B G		Max: A B C F			
10	0.506	10.967	0	251.424	0	1777.437	0
		10.967	0	457.824	0	3237.993	0
		Min: A B G		Max: A B C F			
11		10.967	0	251.424	0	1777.437	0
		10.967	0	457.824	0	3237.993	0
		Min: A B G		Max: A B C F			
11		10.967	0	243.567	0	1808.738	0
		[illegible]		[illegible]		[illegible]	
		Min: A B G		Max: A B C F			
11		10.967	0	235.710	0	1839.046	0
		[illegible]		[illegible]		[illegible]	
		Min: A B G		Max: A B C F			
11	0.379	10.967	0	227.853	0	1868.360	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		10.967	0	414.903	0	3102.142	0
		Min: A B G		Max: A B C F			
11	0.506	10.967	0	219.996	0	1896.678	0
		10.967	0	400.596	0	3453.710	0
		Min: A B G		Max: A B C F			
12	0	10.967	0	219.996	0	1896.678	0
		10.967	0	400.596	0	3453.710	0
		Min: A B G		Max: A B C F			
12	0.126	10.967	0	212.139	0	1924.000	0
		10.967	0	386.289	0	3503.469	0
		Min: A B G		Max: A B C F			
12	0.253	10.967	0	204.282	0	1950.337	0
		10.967	0	371.982	0	3551.418	0
		Min: A B G		Max: A B C F			
12	0.379	10.967	0	196.425	0	1975.676	0
		10.967	0	357.675	0	3597.558	0
		Min: A B G		Max: A B C F			
12	0.506	10.967	0	188.568	0	2000.021	0
		10.967	0	343.368	0	3641.839	0
		Min: A B G		Max: A B C F			
13	0	10.967	0	188.568	0	2000.021	0
		10.967	0	343.368	0	3641.839	0
		Min: A B G		Max: A B C F			
13	0.126	10.967	0	180.711	0	2023.372	0
		10.967	0	329.061	0	3684.410	0
		Min: A B G		Max: A B C F			
13	0.253	10.967	0	172.854	0	2045.730	0
		10.967	0	314.754	0	3725.122	0
		Min: A B G		Max: A B C F			
13	0.379	10.967	0	164.997	0	2067.094	0
		10.967	0	300.447	0	3764.024	0
		Min: A B G		Max: A B C F			
13	0.506	10.967	0	157.140	0	2087.464	0
		10.967	0	286.140	0	3801.117	0
		Min: A B G		Max: A B C F			
14	0	10.967	0	157.140	0	2087.464	0
		10.967	0	286.140	0	3801.117	0
		Min: A B G		Max: A B C F			
14	0.126	10.967	0	149.283	0	2106.841	0
		10.967	0	271.833	0	3835.401	0
		Min: A B G		Max: A B C F			
14	0.253	10.967	0	141.426	0	2125.224	0
		10.967	0	257.526	0	3869.875	0
		Min: A B G		Max: A B C F			
14	0.379	10.967	0	133.569	0	2142.614	0
		10.967	0	243.219	0	3901.543	0
		Min: A B G		Max: A B C F			
14	0.506	10.967	0	125.712	0	2159.009	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		10.967	0	238.912	0	3331.395	0
		Min: A B G		Max: A B C F			
15	0	10.967	0	125.712	0	2159.009	0
		10.967	0	228.912	0	3331.395	0
		Min: A B G		Max: A B C F			
15	0.126	10.967	0	117.855	0	2174.411	0
		10.967	0	214.605	0	3363.441	0
		Min: A B G		Max: A B C F			
15	0.253	10.967	0	109.998	0	2188.819	0
		10.967	0	200.298	0	3395.677	0
		Min: A B G		Max: A B C F			
15	0.379	10.967	0	102.141	0	2202.234	0
		10.967	0	185.991	0	4210.124	0
		Min: A B G		Max: A B C F			
15	0.506	10.967	0	94.284	0	2214.655	0
		10.967	0	171.684	0	4032.722	0
		Min: A B G		Max: A B C F			
16	0	10.967	0	94.284	0	2214.655	0
		10.967	0	171.684	0	4032.722	0
		Min: A B G		Max: A B C F			
16	0.126	10.967	0	86.427	0	2226.082	0
		10.967	0	157.377	0	4063.600	0
		Min: A B G		Max: A B C F			
16	0.253	10.967	0	78.570	0	2236.516	0
		10.967	0	143.070	0	4092.629	0
		Min: A B G		Max: A B C F			
16	0.379	10.967	0	70.713	0	2245.956	0
		10.967	0	128.763	0	4120.719	0
		Min: A B G		Max: A B C F			
16	0.506	10.967	0	62.856	0	2254.402	0
		10.967	0	114.456	0	4147.869	0
		Min: A B G		Max: A B C F			
17	0	10.967	0	62.856	0	2254.402	0
		10.967	0	114.456	0	4147.869	0
		Min: A B G		Max: A B C F			
17	0.126	10.967		[illegible]	0	2261.854	0
		10.967		[illegible]	0	4173.674	0
		Min: A B G		Max: A B C F			
17	0.253	10.967		[illegible]	0	2268.314	0
		10.967		[illegible]	0	4198.181	0
		Min: A B G		Max: A B C F			
17	0.379	10.967		[illegible]	0	2273.784	0
		[illegible]		[illegible]		[illegible]	
		Min: A B G		Max: A B C F			
	0.506	[illegible]		[illegible]	0	2278.262	0
		[illegible]		[illegible]		[illegible]	
		Min: A B G		Max: A B C F			

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
19	0	10.967	0	31.428	0	2278.251	0
		10.967	0	57.228	0	4148.525	0
	Min:	A B G		Max:	A B C F		
19	0.126	10.967	0	23.571	0	2281.723	0
		10.967	0	42.921	0	4154.858	0
	Min:	A B G		Max:	A B C F		
19	0.253	10.967	0	15.714	0	2284.213	0
		10.967	0	28.614	0	4159.381	0
	Min:	A B G		Max:	A B C F		
19	0.379	10.967	0	7.857	0	2285.703	0
		10.967	0	14.307	0	4162.095	0
	Min:	A B G		Max:	A B C F		
19	0.506	10.967	0	3.17E-07	0	2286.200	0
		10.967	0	5.73E-07	0	4163.000	0
	Min:	A B G		Max:	A B C F		
19	0	10.967	0	-3.12E-07	0	2286.200	0
		10.967	0	-5.70E-07	0	4163.000	0
	Min:	A B G		Max:	A B C F		
19	0.126	10.967	0	-7.857	0	2285.703	0
		10.967	0	-14.307	0	4162.095	0
	Min:	A B G		Max:	A B C F		
19	0.253	10.967	0	-15.714	0	2284.213	0
		10.967	0	-28.614	0	4159.381	0
	Min:	A B G		Max:	A B C F		
19	0.379	10.967	0	-23.571	0	2281.723	0
		10.967	0	-42.921	0	4154.858	0
	Min:	A B G		Max:	A B C F		
19	0.506	10.967	0	-31.428	0	2278.251	0
		10.967	0	-57.228	0	4148.525	0
	Min:	A B G		Max:	A B C F		
20	0	10.967	0	-31.428	0	2278.251	0
		10.967	0	-57.228	0	4148.525	0
	Min:	A B G		Max:	A B C F		
20	0.126	10.967	0	-39.285	0	2273.779	0
		10.967	0	-71.535	0	4140.382	0
	Min:	A B G		Max:	A B C F		
20	0.253	10.967	0	-47.142	0	2268.314	0
		10.967	0	-85.842	0	4130.431	0
	Min:	A B G		Max:	A B C F		
20	0.379	10.967	0	-54.999	0	2261.855	0
		10.967	0	-100.148	0	4118.670	0
	Min:	A B G		Max:	A B C F		
20	0.506	10.967	0	-62.856	0	2254.403	0
		10.967	0	-114.455	0	4105.099	0
	Min:	A B G		Max:	A B C F		
21	0	10.967	0	-62.856	0	2254.403	0
		10.967	0	-114.455	0	4105.099	0
	Min:	A B G		Max:	A B C F		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
21	0.126	10.967	0	-70.713	0	2245.956	0
		10.967	0	-128.762	0	4089.719	0
	Min:	A B G		Max:	A B C F		
21	0.253	10.967	0	-78.569	0	2236.517	0
		10.967	0	-143.069	0	4072.530	0
	Min:	A B G		Max:	A B C F		
21	0.379	10.967	0	-86.425	0	2226.083	0
		10.967	0	-157.376	0	4053.532	0
	Min:	A B G		Max:	A B C F		
21	0.506	10.967	0	-94.283	0	2214.656	0
		10.967	0	-171.683	0	4032.723	0
	Min:	A B G		Max:	A B C F		
22	0	10.967	0	-94.283	0	2214.656	0
		10.967	0	-171.683	0	4032.723	0
	Min:	A B G		Max:	A B C F		
22	0.126	10.967	0	-102.140	0	2202.226	0
		10.967	0	-185.989	0	4010.107	0
	Min:	A B G		Max:	A B C F		
22	0.253	10.967	0	-109.997	0	2188.952	0
		10.967	0	-200.296	0	3985.691	0
	Min:	A B G		Max:	A B C F		
22	0.379	10.967	0	-117.853	0	2174.414	0
		10.967	0	-214.602	0	3958.446	0
	Min:	A B G		Max:	A B C F		
22	0.506	10.967	0	-125.710	0	2159.013	0
		10.967	0	-228.908	0	3931.402	0
	Min:	A B G		Max:	A B C F		
23	0	10.967	0	-125.710	0	2159.013	0
		10.967	0	-228.908	0	3931.402	0
	Min:	A B G		Max:	A B C F		
23	0.126	10.967	0	-133.567	0	2142.617	0
		10.967	0	-243.215	0	3901.646	0
	Min:	A B G		Max:	A B C F		
23	0.253	10.967	0	-141.423	0	2125.226	0
		10.967	0	-257.524	0	3869.892	0
	Min:	A B G		Max:	A B C F		
23	0.379	10.967	0	-149.281	0	2106.854	0
		10.967	0	-271.831	0	3837.149	0
	Min:	A B G		Max:	A B C F		
24	0	10.967	0	-149.281	0	2106.854	0
		10.967	0	-271.831	0	3837.149	0
	Min:	A B G		Max:	A B C F		
24	0.126	10.967	0	-157.137	0	2087.504	0
		10.967	0	-286.137	0	3802.424	0
	Min:	A B G		Max:	A B C F		
24	0.253	10.967	0	-164.994	0	2067.178	0
		10.967	0	-300.443	0	3766.724	0
	Min:	A B G		Max:	A B C F		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
24	0.253	10.967	0	-172.854	0	2045.730	0
		10.967	0	-314.754	0	3725.121	0
	Min:	A B G		Max:	A B C F		
24	0.379	10.967	0	-180.711	0	2023.372	0
		10.967	0	-329.061	0	3684.409	0
	Min:	A B G		Max:	A B C F		
24	0.506	10.967	0	-188.568	0	2000.020	0
		10.967	0	-343.362	0	3641.837	0
	Min:	A B G		Max:	A B C F		
25	0	10.967	0	-188.568	0	2000.020	0
		10.967	0	-343.362	0	3641.837	0
	Min:	A B G		Max:	A B C F		
25	0.126	10.967	0	-196.425	0	1975.675	0
		10.967	0	-357.675	0	3597.557	0
	Min:	A B G		Max:	A B C F		
25	0.253	10.967	0	-204.282	0	1950.337	0
		10.967	0	-371.982	0	3551.419	0
	Min:	A B G		Max:	A B C F		
25	0.379	10.967	0	-212.138	0	1924.005	0
		10.967	0	-386.288	0	3503.470	0
	Min:	A B G		Max:	A B C F		
25	0.506	10.967	0	-219.995	0	1896.680	0
		10.967	0	-400.595	0	3453.713	0
	Min:	A B G		Max:	A B C F		
26	0	10.967	0	-219.995	0	1896.680	0
		10.967	0	-400.595	0	3453.713	0
	Min:	A B G		Max:	A B C F		
26	0.126	10.967	0	-227.852	0	1868.360	0
		10.967	0	-414.902	0	3402.144	0
	Min:	A B G		Max:	A B C F		
26	0.253	10.967	0	-235.709	0	1839.046	0
		10.967	0	-429.209	0	3343.766	0
	Min:	A B G		Max:	A B C F		
26	0.379	10.967	0	-243.566	0	1808.738	0
		10.967	0	-443.516	0	3293.578	0
	Min:	A B G		Max:	A B C F		
26	0.506	10.967	0	-251.424	0	1777.437	0
		10.967	0	-457.824	0	3236.581	0
	Min:	A B G		Max:	A B C F		
27	0	10.967	0	-251.424	0	1777.437	0
		10.967	0	-457.824	0	3236.581	0
	Min:	A B G		Max:	A B C F		
27	0.126	10.967	0	-259.281	0	1745.143	0
		10.967	0	-472.130	0	3177.775	0
	Min:	A B G		Max:	A B C F		
27	0.253	10.967	0	-267.137	0	1711.855	0
		10.967	0	-486.437	0	3117.160	0
	Min:	A B G		Max:	A B C F		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
27	0.379	10.967	0	-274.994	0	1677.573	0
		10.967	0	-500.744	0	3084.795	0
	Min:	A B G		Max:	A B C F		
27	0.506	10.967	0	-282.851	0	1642.297	0
		10.967	0	-515.051	0	2990.501	0
	Min:	A B G		Max:	A B C F		
28	0	10.967	0	-282.851	0	1642.297	0
		10.967	0	-515.051	0	2990.501	0
	Min:	A B G		Max:	A B C F		
28	0.126	10.967	0	-290.708	0	1606.019	0
		10.967	0	-529.358	0	2924.457	0
	Min:	A B G		Max:	A B C F		
28	0.253	10.967	0	-298.565	0	1568.765	0
		10.967	0	-543.665	0	2856.604	0
	Min:	A B G		Max:	A B C F		
28	0.379	10.967	0	-306.422	0	1530.508	0
		10.967	0	-557.972	0	2786.942	0
	Min:	A B G		Max:	A B C F		
28	0.506	10.967	0	-314.279	0	1491.258	0
		10.967	0	-572.279	0	2715.470	0
	Min:	A B G		Max:	A B C F		
29	0	10.967	0	-314.279	0	1491.258	0
		10.967	0	-572.279	0	2715.470	0
	Min:	A B G		Max:	A B C F		
29	0.126	10.967	0	-322.136	0	1451.014	0
		10.967	0	-586.586	0	2642.189	0
	Min:	A B G		Max:	A B C F		
29	0.253	10.967	0	-329.993	0	1409.777	0
		10.967	0	-600.893	0	2567.098	0
	Min:	A B G		Max:	A B C F		
29	0.379	10.967	0	-337.850	0	1367.545	0
		10.967	0	-615.200	0	2490.193	0
	Min:	A B G		Max:	A B C F		
30	0.506	10.967	0	-345.707	0	1324.319	0
		10.967	0	-629.507	0	2411.469	0
	Min:	A B G		Max:	A B C F		
30	0	10.967	0	-345.707	0	1324.319	0
		10.967	0	-629.507	0	2411.469	0
	Min:	A B G		Max:	A B C F		
30	0.126	10.967	0	-353.564	0	1280.099	0
		10.967	0	-643.814	0	2330.993	0
	Min:	A B G		Max:	A B C F		
30	0.253	10.967	0	-361.421	0	1234.885	0
		10.967	0	-658.121	0	2249.018	0
	Min:	A B G		Max:	A B C F		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
30	0.506	10.967	0	-377.135	0	1141.424	0
		10.967	0	-686.735	0	2078.557	0
	Min:	A B G		Max:	A B C F		
31	0	10.967	0	-377.135	0	1141.424	0
		10.967	0	-686.735	0	2078.557	0
	Min:	A B G		Max:	A B C F		
31	0.126	10.967	0	-384.992	0	1093.260	0
		10.967	0	-701.042	0	1993.330	0
	Min:	A B G		Max:	A B C F		
31	0.253	10.967	0	-392.849	0	1044.103	0
		10.967	0	-715.349	0	1901.234	0
	Min:	A B G		Max:	A B C F		
31	0.379	10.967	0	-400.706	0	993.953	0
		10.967	0	-729.656	0	1809.359	0
	Min:	A B G		Max:	A B C F		
31	0.506	10.967	0	-408.563	0	942.748	0
		10.967	0	-743.963	0	1716.674	0
	Min:	A B G		Max:	A B C F		
32	0	10.967	0	-408.563	0	942.748	0
		10.967	0	-743.963	0	1716.674	0
	Min:	A B G		Max:	A B C F		
32	0.126	10.967	0	-416.420	0	890.580	0
		10.967	0	-758.270	0	1621.621	0
	Min:	A B G		Max:	A B C F		
32	0.253	10.967	0	-424.277	0	837.419	0
		10.967	0	-772.577	0	1524.877	0
	Min:	A B G		Max:	A B C F		
32	0.379	10.967	0	-432.134	0	783.264	0
		10.967	0	-786.884	0	1426.265	0
	Min:	A B G		Max:	A B C F		
32	0.506	10.967	0	-439.991	0	728.115	0
		10.967	0	-801.191	0	1325.843	0
	Min:	A B G		Max:	A B C F		
33	0	10.967	0	-439.991	0	728.115	0
		10.967	0	-801.191	0	1325.843	0
	Min:	A B G		Max:	A B C F		
33	0.126	10.967	0	-447.848	0	671.972	0
		10.967	0	-815.498	0	1223.611	0
	Min:	A B G		Max:	A B C F		
33	0.253	10.967	0	-455.705	0	614.835	0
		10.967	0	-829.805	0	1119.569	0
	Min:	A B G		Max:	A B C F		
33	0.379	10.967	0	-463.562	0	556.705	0
		10.967	0	-844.112	0	1013.718	0
	Min:	A B G		Max:	A B C F		
33	0.506	10.967	0	-471.419	0	497.581	0
		10.967	0	-858.419	0	906.057	0
	Min:	A B G		Max:	A B C F		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
34	0	10.967	0	-471.419	0	497.581	0
		10.967	0	-858.419	0	906.057	0
	Min:	A B G		Max:	A B C F		
34	0.126	10.967	0	-479.276	0	437.465	0
		10.967	0	-872.725	0	796.591	0
	Min:	A B G		Max:	A B C F		
34	0.253	10.967	0	-487.133	0	376.356	0
		10.967	0	-887.032	0	685.316	0
	Min:	A B G		Max:	A B C F		
34	0.379	10.967	0	-494.989	0	314.253	0
		10.967	0	-901.339	0	572.232	0
	Min:	A B G		Max:	A B C F		
34	0.506	10.967	0	-502.846	0	251.157	0
		10.967	0	-915.645	0	457.339	0
	Min:	A B G		Max:	A B C F		
35	0	10.967	0	-502.846	0	251.157	0
		10.967	0	-915.645	0	457.339	0
	Min:	A B G		Max:	A B C F		
35	0.126	10.967	0	-510.703	0	187.063	0
		10.967	0	-929.953	0	340.648	0
	Min:	A B G		Max:	A B C F		
35	0.253	10.967	0	-518.560	0	121.975	0
		10.967	0	-944.260	0	222.227	0
	Min:	A B G		Max:	A B C F		
35	0.379	10.967	0	-526.413	0	55.893	0
		10.967	0	-958.568	0	101.777	0
	Min:	A B G		Max:	A B C F		
35	0.506	10.967	0	-972.875	0	-20.362	0
		10.967	0	-934.275	0	-111.192	0
	Min:	A B C F		Max:	A B G		
36	0	-3.66E-11	0	67.875	0	-20.362	0
		-3.66E-11	0	37.175	0	-111.192	0
	Min:	A B C F		Max:	A B G		
36	0.150	-3.66E-11	0	60.900	0	-7.454	0
		-3.66E-11	0	27.562	0	-58.551	0
	Min:	A B G		Max:	A B C F		
36	0.300	-3.66E-11	0	33.925	0	5.454	0
		-3.66E-11	0	18.487	0	-6.911	0
	Min:	A B G		Max:	A B C F		
36	0.451	-3.66E-11	0	16.950	0	18.363	0
		-3.66E-11	0	9.350	0	0.000	0
	Min:	A B G		Max:	A B C F		

Características mecánicas Sección "CANALU" (sin coef. homogeneiz.)

Area	Ax =	2.485 m2				
Momento de inercia	Iy =	0.9513 m4	Iz =	4.828 m4	Ip =	5.780 m4
Const. de torsión					Ix =	0.0922 m4
Momento estático	Zy =	1.341 m3	Zz =	3.191 m3		
Baricentro	ys =	0.00 cm	zs =	66.58 cm	Angulo=	0.0 Grad
Dist. al borde	yl =	-185.00 cm	yr =	185.00 cm		
	zo =	138.42 cm	zu =	-66.58 cm		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 0.00 cm z = 66.58 cm

Contorno de sección parcial, Sección "CANALU" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	24850.0	1490.000	9.22E+06	3)

Puntos de contorno [cm]:

1	-185.00	0.00	2	185.00	0.00	3	185.00	205.00
4	150.00	205.00	5	150.00	35.00	6	-150.00	35.00
7	-150.00	205.00	8	-185.00	205.00	9	-185.00	0.00

Armadura "B1" As-tot =152.72 cm2 (0.61 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
LR 4 / CS 1	AEH500	1.0	2	1.00	156.00	199.00
					179.00	199.00
LR 3 / CS 1	AEH500	1.0	2	1.00	-180.00	199.00
					-156.00	199.00
LR 2 / CS 1	AEH500	1.0	2	75.36	-180.00	29.00
					180.00	29.00
LR 1 / CS 1	AEH500	1.0	2	75.36	-180.00	6.00
					180.00	6.00

Verif. estado de tens.: Viga Sección "CANALU"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	1	0.00	4163.00	0.00	

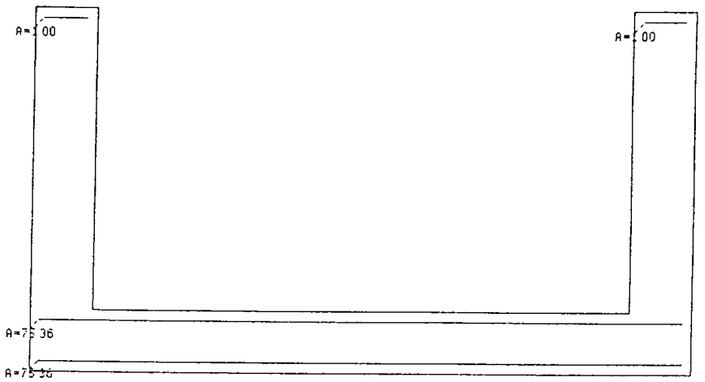
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 1: EH/1/0/Eps=-2.0, 3.5,10.0/Gamma=1,1/Dia=45/Phi=0

Deformaciones y tensiones extremas:

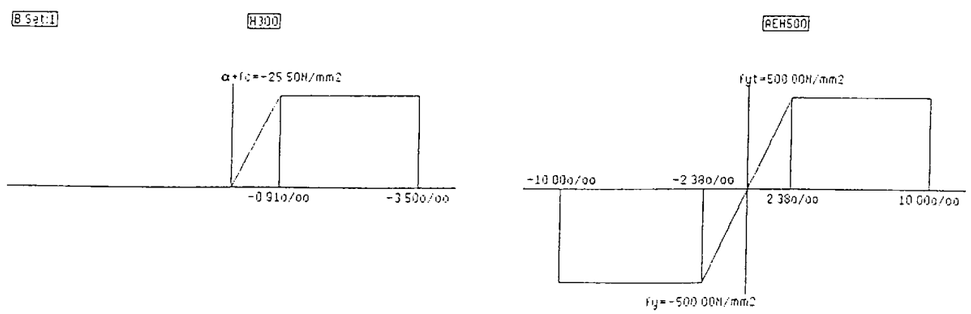
Parte-Sección	Material	Coordenadas y [cm]	z [cm]	Eps [o/oo]	Sigma/Gamma [N/mm2]	Gamma
CS 1	H300	185.00	205.00	-0.40	-11.18	1.18
CS 1	H300	-185.00	0.00	0.90	0.00	1.18
LR 4	AEH500	179.00	199.00	-0.36	-75.74	1.00
LR 1	AEH500	-180.00	6.00	0.86	180.05	1.00

Sección CANALU

$\sigma_s = 1805\ kg/cm^2$



Material acorde a la sección: "CANALU"



$$\delta_m = 2c + 0.2 \times S + 0.42 \times 0.125 \times \frac{A_f}{A_1}$$

$$\delta_m = 2 \times 3.5\,cm + 0.2 \times 15\,cm + 0.42 \times 0.125 \times \frac{35/4 \times 1^2}{3.14}$$

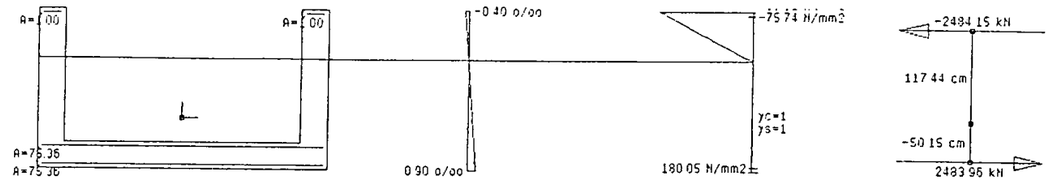
$$\delta_m = 12.08\,cm$$

$$\varepsilon_{sm} = \frac{\sigma_s}{E_s}\left(1 - K_2\left(\frac{\sigma_{sr}}{\sigma_s}\right)^2\right) = \frac{180.5}{2.10\,10^6}\left(1 - 0.5\left(\frac{120.1}{180.5}\right)^2\right)$$

$$\varepsilon_{sm} = 8.55\,10^{-4}$$

$$W_k = 1.70 \times \delta_m \times \varepsilon_{sm} = 0.175\,mm < 0.20\,mm \quad \text{Verifié}$$

Verificación de tensiones con fuerzas, Sección "CANALU"



ENVELOPE SPECIFIC. : EC **

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	3	1.350		REOLOGICAS
D	OR	3	1.000		REOLOGICAS
E	PLUS	4	1.500		SOBRECARGA AGUA
F	PLUS	5	1.500		TEMPERATURA(+)
G	OR	6	1.500		TEMPERATURA(-)
H	PLUS	7	1.500		GRADIENTE(+)
I	OR	8	1.500		GRADIENTE(-)
J	PLUS	9	0.450000		VIENTO

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
1	0	3.54E-11	0	-9.62E-07	0	-3.02E-11	0
		3.54E-11	0	-3.73E-07	0	-3.64E-12	0
	Min:	A C E H		Max:	B C I		
1	0.150	3.54E-11	0	-24.055	0	-1.804	0
		3.54E-11	0	-9.319	0	-0.698906	0
	Min:	A C E H		Max:	B C I		
1	0.300	3.54E-11	0	-48.111	0	-7.217	0
		3.54E-11	0	-18.637	0	-2.796	0
	Min:	A C E I		Max:	B C H		
1	0.450	3.54E-11	0	-72.166	0	-16.237	0
		3.54E-11	0	-27.956	0	-6.290	0
	Min:	A C E I		Max:	B C H		
1	0.600	3.54E-11	0	-96.221	0	-28.866	0
		3.54E-11	0	-37.275	0	-11.182	0
	Min:	A C E I		Max:	B C H		
2	0	14.805	0	1379.171	0	-28.866	0
		14.805	0	534.275	0	-11.182	0
	Min:	A C E I		Max:	B C H		
2	0.126	14.805	0	526.412	0	55.890	0
		14.805	0	1358.839	0	144.275	0
	Min:	B C I		Max:	A C E H		
2	0.253	14.805	0	512.561	0	121.970	0
		14.805	0	1338.608	0	314.851	0
	Min:	B C I		Max:	A C E H		
2	0.379	14.805	0	510.704	0	187.055	0
		14.805	0	1318.325	0	482.852	0
	Min:	B C I		Max:	A C E H		
2	0.506	14.805	0	502.847	0	251.147	0
		14.805	0	1298.044	0	648.308	0
	Min:	B C I		Max:	A C E H		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
3	0	14.805	0	502.847	0	251.147	0
		14.805	0	1298.044	0	648.308	0
	Min:	B C I		Max:	A C E H		
3	0.126	14.805	0	494.990	0	314.245	0
		14.805	0	1277.762	0	811.190	0
	Min:	B C I		Max:	A C E H		
3	0.253	14.805	0	487.133	0	376.350	0
		14.805	0	1257.480	0	971.506	0
	Min:	B C I		Max:	A C E H		
3	0.379	14.805	0	479.276	0	437.461	0
		14.805	0	1237.193	0	1129.257	0
	Min:	B C I		Max:	A C E H		
3	0.506	14.805	0	471.419	0	497.578	0
		14.805	0	1216.917	0	1284.443	0
	Min:	B C I		Max:	A C E H		
4	0	14.805	0	471.419	0	497.578	0
		14.805	0	1216.917	0	1284.443	0
	Min:	B C I		Max:	A C E H		
4	0.126	14.805	0	463.562	0	556.702	0
		14.805	0	1196.635	0	1437.063	0
	Min:	B C I		Max:	A C E H		
4	0.253	14.805	0	455.706	0	614.831	0
		14.805	0	1176.353	0	1587.119	0
	Min:	B C I		Max:	A C E H		
4	0.379	14.805	0	447.849	0	671.968	0
		14.805	0	1156.071	0	1734.810	0
	Min:	B C I		Max:	A C E H		
4	0.506	14.805	0	439.992	0	728.110	0
		14.805	0	1135.789	0	1879.536	0
	Min:	B C I		Max:	A C E H		
5	0	14.805	0	439.992	0	728.110	0
		14.805	0	1135.789	0	1879.536	0
	Min:	B C I		Max:	A C E H		
5	0.126	14.805	0	432.135	0	789.263	0
		14.805	0	1115.507	0	2021.899	0
	Min:	B C I		Max:	A C E H		
5	0.253	14.805	0	424.277	0	847.417	0
		14.805	0	1095.225	0	2161.975	0
	Min:	B C I		Max:	A C E H		
5	0.379	14.805	0	416.420	0	901.570	0
		14.805	0	1074.943	0	2298.921	0
	Min:	B C I		Max:	A C E H		
5	0.506	14.805	0	408.563	0	951.718	0
		14.805	0	1054.661	0	2432.737	0
	Min:	B C I		Max:	A C E H		
6	0	14.805	0	408.563	0	951.718	0
		14.805	0	1054.661	0	2432.737	0
	Min:	B C I		Max:	A C E H		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
6	0.126	14.805	0	400.706	0	993.922	0
		14.805	0	1034.378	0	2565.700	0
	Min:	B C I		Max:	A C E H		
6	0.253	14.805	0	392.849	0	1044.103	0
		14.805	0	1014.097	0	2695.235	0
	Min:	B C I		Max:	A C E H		
6	0.379	14.805	0	384.992	0	1093.290	0
		14.805	0	993.815	0	2822.205	0
	Min:	B C I		Max:	A C E H		
6	0.506	14.805	0	377.135	0	1141.483	0
		14.805	0	973.533	0	2946.610	0
	Min:	B C I		Max:	A C E H		
7	0	14.805	0	377.135	0	1141.483	0
		14.805	0	973.533	0	2946.610	0
	Min:	B C I		Max:	A C E H		
7	0.126	14.805	0	369.278	0	1188.622	0
		14.805	0	953.251	0	3063.451	0
	Min:	B C I		Max:	A C E H		
7	0.253	14.805	0	361.422	0	1234.888	0
		14.805	0	932.969	0	3137.726	0
	Min:	B C I		Max:	A C E H		
7	0.379	14.805	0	353.565	0	1280.100	0
		14.805	0	912.687	0	3304.436	0
	Min:	B C I		Max:	A C E H		
7	0.506	14.805	0	345.708	0	1324.319	0
		14.805	0	892.406	0	3418.581	0
	Min:	B C I		Max:	A C E H		
8	0	14.805	0	345.708	0	1324.319	0
		14.805	0	892.406	0	3418.581	0
	Min:	B C I		Max:	A C E H		
8	0.126	14.805	0	337.851	0	1367.544	0
		14.805	0	872.124	0	3530.162	0
	Min:	B C I		Max:	A C E H		
8	0.253	14.805	0	329.994	0	1409.776	0
		14.805	0	851.841	0	3639.178	0
	Min:	B C I		Max:	A C E H		
8	0.379	14.805	0	322.136	0	1451.014	0
		14.805	0	831.559	0	3745.630	0
	Min:	B C I		Max:	A C E H		
8	0.506	14.805	0	314.279	0	1491.258	0
		14.805	0	811.277	0	3849.516	0
	Min:	B C I		Max:	A C E H		
9	0	14.805	0	314.279	0	1491.258	0
		14.805	0	811.277	0	3849.516	0
	Min:	B C I		Max:	A C E H		
9	0.126	14.805	0	306.422	0	1530.509	0
		14.805	0	790.995	0	3950.336	0
	Min:	B C I		Max:	A C E H		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
9	0.253	14.805	0	298.565	0	1563.765	0
		14.805	0	770.713	0	4049.591	0
	Min:	B C I		Max:	A C E H		
9	0.379	14.805	0	290.709	0	1606.028	0
		14.805	0	750.432	0	4145.781	0
	Min:	B C I		Max:	A C E H		
9	0.506	14.805	0	282.852	0	1642.297	0
		14.805	0	730.150	0	4239.406	0
	Min:	B C I		Max:	A C E H		
10	0	14.805	0	282.852	0	1642.297	0
		14.805	0	730.150	0	4239.406	0
	Min:	B C I		Max:	A C E H		
10	0.126	14.805	0	274.995	0	1677.572	0
		14.805	0	709.868	0	4330.466	0
	Min:	B C I		Max:	A C E H		
10	0.253	14.805	0	267.133	0	1711.854	0
		14.805	0	689.586	0	4418.961	0
	Min:	B C I		Max:	A C E H		
10	0.379	14.805	0	259.281	0	1745.142	0
		14.805	0	669.304	0	4504.890	0
	Min:	B C I		Max:	A C E H		
10	0.506	14.805	0	251.424	0	1777.437	0
		14.805	0	649.022	0	4588.255	0
	Min:	B C I		Max:	A C E H		
11	0	14.805	0	251.424	0	1777.437	0
		14.805	0	649.022	0	4588.255	0
	Min:	B C I		Max:	A C E H		
11	0.126	14.805	0	243.567	0	1808.738	0
		14.805	0	628.740	0	4669.055	0
	Min:	B C I		Max:	A C E H		
11	0.253	14.805	0	235.710	0	1839.045	0
		14.805	0	608.458	0	4747.289	0
	Min:	B C I		Max:	A C E H		
11	0.379	14.805	0	227.853	0	1868.358	0
		14.805	0	588.176	0	4822.959	0
	Min:	B C I		Max:	A C E H		
11	0.506	14.805	0	219.996	0	1896.678	0
		14.805	0	567.894	0	4896.063	0
	Min:	B C I		Max:	A C E H		
12	0	14.805	0	219.996	0	1896.678	0
		14.805	0	567.894	0	4896.063	0
	Min:	B C I		Max:	A C E H		
12	0.126	14.805	0	212.139	0	1924.004	0
		14.805	0	547.612	0	4966.553	0
	Min:	B C I		Max:	A C E H		
12	0.253	14.805	0	204.282	0	1950.337	0
		14.805	0	527.330	0	5034.927	0
	Min:	B C I		Max:	A C E H		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
12	0.379	14.805	0	196.425	0	1955.676	0
		14.805	0	507.048	0	5099.926	0
	Min:	B C I		Max:	A C E H		
12	0.506	14.805	0	188.568	0	2000.021	0
		14.805	0	486.766	0	5162.831	0
	Min:	B C I		Max:	A C E H		
13	0	14.805	0	188.568	0	2000.021	0
		14.805	0	486.766	0	5162.831	0
	Min:	B C I		Max:	A C E H		
13	0.126	14.805	0	180.711	0	2023.372	0
		14.805	0	466.484	0	5223.110	0
	Min:	B C I		Max:	A C E H		
13	0.253	14.805	0	172.854	0	2045.730	0
		14.805	0	446.202	0	5280.824	0
	Min:	B C I		Max:	A C E H		
13	0.379	14.805	0	164.997	0	2067.094	0
		14.805	0	425.921	0	5335.973	0
	Min:	B C I		Max:	A C E H		
13	0.506	14.805	0	157.140	0	2087.464	0
		14.805	0	405.639	0	5388.556	0
	Min:	B C I		Max:	A C E H		
14	0	14.805	0	157.140	0	2087.464	0
		14.805	0	405.639	0	5388.556	0
	Min:	B C I		Max:	A C E H		
14	0.126	14.805	0	149.283	0	2106.841	0
		14.805	0	385.357	0	5438.575	0
	Min:	B C I		Max:	A C E H		
14	0.253	14.805	0	141.426	0	2125.224	0
		14.805	0	365.075	0	5486.029	0
	Min:	B C I		Max:	A C E H		
14	0.379	14.805	0	133.569	0	2142.614	0
		14.805	0	344.793	0	5530.919	0
	Min:	B C I		Max:	A C E H		
14	0.506	14.805	0	125.712	0	2159.009	0
		14.805	0	324.511	0	5573.241	0
	Min:	B C I		Max:	A C E H		
15	0	14.805	0	125.712	0	2159.009	0
		14.805	0	324.511	0	5573.241	0
	Min:	B C I		Max:	A C E H		
15	0.126	14.805	0	117.855	0	2174.411	0
		14.805	0	304.229	0	5613.002	0
	Min:	B C I		Max:	A C E H		
15	0.253	14.805	0	109.998	0	2188.819	0
		14.805	0	283.947	0	5650.193	0
	Min:	B C I		Max:	A C E H		
15	0.379	14.805	0	102.141	0	2202.234	0
		14.805	0	263.665	0	5684.821	0
	Min:	B C I		Max:	A C E H		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
15	0.506	14.805	0	94.284	0	2214.655	0
		14.805	0	243.384	0	5716.884	0
	Min:	B C I		Max:	A C E H		
16	0	14.805	0	94.284	0	2214.655	0
		14.805	0	243.384	0	5716.884	0
	Min:	B C I		Max:	A C E H		
16	0.126	14.805	0	86.427	0	2226.081	0
		14.805	0	223.102	0	5745.383	0
	Min:	B C I		Max:	A C E H		
16	0.253	14.805	0	78.570	0	2235.516	0
		14.805	0	202.820	0	5771.319	0
	Min:	B C I		Max:	A C E H		
16	0.379	14.805	0	70.713	0	2243.956	0
		14.805	0	182.538	0	5797.685	0
	Min:	B C I		Max:	A C E H		
16	0.506	14.805	0	62.856	0	2250.402	0
		14.805	0	162.255	0	5819.488	0
	Min:	B C I		Max:	A C E H		
17	0	14.805	0	62.856	0	2250.402	0
		14.805	0	162.255	0	5819.488	0
	Min:	B C I		Max:	A C E H		
17	0.126	14.805	0	54.999	0	2261.853	0
		14.805	0	141.974	0	5838.725	0
	Min:	B C I		Max:	A C E H		
17	0.253	14.805	0	47.142	0	2268.314	0
		14.805	0	121.692	0	5855.399	0
	Min:	B C I		Max:	A C E H		
17	0.379	14.805	0	39.285	0	2273.775	0
		14.805	0	101.410	0	5869.507	0
	Min:	B C I		Max:	A C E H		
17	0.506	14.805	0	31.428	0	2278.251	0
		14.805	0	81.128	0	5881.049	0
	Min:	B C I		Max:	A C E H		
18	0	14.805	0	31.428	0	2278.251	0
		14.805	0	81.128	0	5881.049	0
	Min:	B C I		Max:	A C E H		
18	0.126	14.805	0	23.571	0	2281.743	0
		14.805	0	60.846	0	5890.112	0
	Min:	B C I		Max:	A C E H		
18	0.253	14.805	0	15.714	0	2284.253	0
		14.805	0	40.564	0	5896.693	0
	Min:	B C I		Max:	A C E H		
18	0.379	14.805	0	7.857	0	2285.779	0
		14.805	0	20.282	0	5900.791	0
	Min:	B C I		Max:	A C E H		
18	0.506	14.805	0	0.000	0	2286.322	0
		14.805	0	0.000	0	5902.406	0
	Min:	B C I		Max:	A C E H		

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: B C I			Max: A C E H		
19	0	14.805	0	-3.11E-07	0	2236.200	0
		14.805	0	-8.06E-07	0	5901.570	0
		Min: B C I			Max: A C E H		
19	0.126	14.805	0	-7.857	0	2285.763	0
		14.805	0	-20.262	0	5900.287	0
		Min: B C I			Max: A C E H		
19	0.253	14.805	0	-15.714	0	2284.213	0
		14.805	0	-40.564	0	5896.440	0
		Min: B C I			Max: A C E H		
19	0.379	14.805	0	-23.571	0	2281.729	0
		14.805	0	-60.846	0	5890.027	0
		Min: B C I			Max: A C E H		
19	0.506	14.805	0	-31.428	0	2278.251	0
		14.805	0	-81.128	0	5881.049	0
		Min: B C I			Max: A C E H		
20	0	14.805	0	-31.428	0	2278.251	0
		14.805	0	-81.128	0	5881.049	0
		Min: B C I			Max: A C E H		
20	0.126	14.805	0	-39.285	0	2273.779	0
		14.805	0	-101.409	0	5869.507	0
		Min: B C I			Max: A C E H		
20	0.253	14.805	0	-47.142	0	2268.314	0
		14.805	0	-121.691	0	5855.399	0
		Min: B C I			Max: A C E H		
20	0.379	14.805	0	-54.999	0	2261.855	0
		14.805	0	-141.973	0	5838.726	0
		Min: B C I			Max: A C E H		
20	0.506	14.805	0	-62.856	0	2254.403	0
		14.805	0	-162.255	0	5819.489	0
		Min: B C I			Max: A C E H		
21	0	14.805	0	-62.856	0	2254.403	0
		14.805	0	-162.255	0	5819.489	0
		Min: B C I			Max: A C E H		
21	0.126	14.805	0	-70.713	0	2245.956	0
		14.805	0	-182.537	0	5797.626	0
		Min: B C I			Max: A C E H		
21	0.253	14.805	0	-78.569	0	2236.517	0
		14.805	0	-202.818	0	5773.313	0
		Min: B C I			Max: A C E H		
21	0.379	14.805	0	-86.426	0	2226.083	0
		14.805	0	-223.100	0	5746.385	0
		Min: B C I			Max: A C E H		
21	0.506	14.805	0	-94.233	0	2214.656	0
		14.805	0	-243.382	0	5716.937	0
		Min: B C I			Max: A C E H		
22	0	14.805	0	-94.233	0	2214.656	0
		14.805	0	-243.382	0	5716.937	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: B C I			Max: A C E H		
22	0.126	14.805	0	-102.140	0	2202.236	0
		14.805	0	-263.663	0	5684.825	0
		Min: B C I			Max: A C E H		
22	0.253	14.805	0	-109.997	0	2188.822	0
		14.805	0	-283.944	0	5650.199	0
		Min: B C I			Max: A C E H		
22	0.379	14.805	0	-117.853	0	2174.414	0
		14.805	0	-304.225	0	5613.007	0
		Min: B C I			Max: A C E H		
22	0.506	14.805	0	-125.710	0	2159.013	0
		14.805	0	-324.506	0	5573.251	0
		Min: B C I			Max: A C E H		
23	0	14.805	0	-125.710	0	2159.013	0
		14.805	0	-324.506	0	5573.251	0
		Min: B C I			Max: A C E H		
23	0.126	14.805	0	-133.567	0	2142.617	0
		14.805	0	-344.789	0	5530.925	0
		Min: B C I			Max: A C E H		
23	0.253	14.805	0	-141.425	0	2125.226	0
		14.805	0	-365.072	0	5486.035	0
		Min: B C I			Max: A C E H		
23	0.379	14.805	0	-149.282	0	2106.841	0
		14.805	0	-385.355	0	5438.579	0
		Min: B C I			Max: A C E H		
23	0.506	14.805	0	-157.140	0	2087.465	0
		14.805	0	-405.638	0	5388.557	0
		Min: B C I			Max: A C E H		
24	0	14.805	0	-157.140	0	2087.465	0
		14.805	0	-405.638	0	5388.557	0
		Min: B C I			Max: A C E H		
24	0.126	14.805	0	-164.997	0	2067.094	0
		14.805	0	-425.921	0	5335.973	0
		Min: B C I			Max: A C E H		
24	0.253	14.805	0	-172.854	0	2045.730	0
		14.805	0	-446.203	0	5281.323	0
		Min: B C I			Max: A C E H		
24	0.379	14.805	0	-180.711	0	2023.374	0
		14.805	0	-466.486	0	5223.112	0
		Min: B C I			Max: A C E H		
24	0.506	14.805	0	-188.568	0	2000.026	0
		14.805	0	-486.769	0	5161.273	0
		Min: B C I			Max: A C E H		
[illegible]							
		Min: B C I			Max: A C E H		
25	0.126	14.805	0	-196.425	0	1976.674	0
		14.805	0	-507.053	0	5095.925	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: B C I			Max: A C E H		
25	0.253	14.805	0	-204.282	0	1950.337	0
		14.805	0	-527.330	0	5014.577	0
		Min: B C I			Max: A C E H		
25	0.379	14.805	0	-212.138	0	1924.006	0
		14.805	0	-547.612	0	4966.605	0
		Min: B C I			Max: A C E H		
25	0.506	14.805	0	-219.995	0	1896.620	0
		14.805	0	-567.893	0	4896.067	0
		Min: B C I			Max: A C E H		
26	0	14.805	0	-219.995	0	1896.620	0
		14.805	0	-567.893	0	4896.067	0
		Min: B C I			Max: A C E H		
26	0.126	14.805	0	-227.852	0	1868.360	0
		14.805	0	-588.175	0	4822.962	0
		Min: B C I			Max: A C E H		
26	0.253	14.805	0	-235.709	0	1839.046	0
		14.805	0	-608.457	0	4747.291	0
		Min: B C I			Max: A C E H		
26	0.379	14.805	0	-243.566	0	1808.733	0
		14.805	0	-628.740	0	4669.056	0
		Min: B C I			Max: A C E H		
26	0.506	14.805	0	-251.424	0	1777.437	0
		14.805	0	-649.022	0	4588.255	0
		Min: B C I			Max: A C E H		
27	0	14.805	0	-251.424	0	1777.437	0
		14.805	0	-649.022	0	4588.255	0
		Min: B C I			Max: A C E H		
27	0.126	14.805	0	-259.281	0	1745.143	0
		14.805	0	-669.304	0	4504.891	0
		Min: B C I			Max: A C E H		
27	0.253	14.805	0	-267.137	0	1711.855	0
		14.805	0	-689.586	0	4418.961	0
		Min: B C I			Max: A C E H		
27	0.379	14.805	0	-274.994	0	1677.573	0
		14.805	0	-709.867	0	4330.467	0
		Min: B C I			Max: A C E H		
27	0.506	14.805	0	-282.851	0	1642.297	0
		14.805	0	-730.149	0	4239.407	0
		Min: B C I			Max: A C E H		
28	0	14.805	0	-282.851	0	1642.297	0
		14.805	0	-730.149	0	4239.407	0
		Min: B C I			Max: A C E H		
28	0.126	14.805	0	-290.708	0	1606.028	0
		14.805	0	-750.431	0	4145.782	0
		Min: B C I			Max: A C E H		
28	0.253	14.805	0	-298.565	0	1568.765	0
		14.805	0	-770.713	0	4049.592	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: B C I			Max: A C E H		
28	0.379	14.805	0	-306.422	0	1530.508	0
		14.805	0	-790.995	0	3950.837	0
		Min: B C I			Max: A C E H		
28	0.506	14.805	0	-314.279	0	1491.253	0
		14.805	0	-811.277	0	3849.516	0
		Min: B C I			Max: A C E H		
29	0	14.805	0	-314.279	0	1491.253	0
		14.805	0	-811.277	0	3849.516	0
		Min: B C I			Max: A C E H		
29	0.126	14.805	0	-322.136	0	1451.014	0
		14.805	0	-831.559	0	3745.631	0
		Min: B C I			Max: A C E H		
29	0.253	14.805	0	-329.993	0	1409.777	0
		14.805	0	-851.841	0	3639.181	0
		Min: B C I			Max: A C E H		
29	0.379	14.805	0	-337.850	0	1367.545	0
		14.805	0	-872.123	0	3530.166	0
		Min: B C I			Max: A C E H		
29	0.506	14.805	0	-345.707	0	1324.320	0
		14.805	0	-892.406	0	3418.585	0
		Min: B C I			Max: A C E H		
30	0	14.805	0	-345.707	0	1324.320	0
		14.805	0	-892.406	0	3418.585	0
		Min: B C I			Max: A C E H		
30	0.126	14.805	0	-353.564	0	1282.130	0
		14.805	0	-912.687	0	3304.440	0
		Min: B C I			Max: A C E H		
30	0.253	14.805	0	-361.421	0	1239.989	0
		14.805	0	-932.969	0	3187.709	0
		Min: B C I			Max: A C E H		
30	0.379	14.805	0	-369.278	0	1198.633	0
		14.805	0	-953.251	0	3068.383	0
		Min: B C I			Max: A C E H		
30	0.506	14.805	0	-377.135	0	1161.484	0
		14.805	0	-973.533	0	2946.812	0
		Min: B C I			Max: A C E H		
31	0	14.805	0	-377.135	0	1161.484	0
		14.805	0	-973.533	0	2946.812	0
		Min: B C I			Max: A C E H		
31	0.126	14.805	0	-384.992	0	1131.253	0
		14.805	0	-993.814	0	2822.837	0
		Min: B C I			Max: A C E H		
[illegible]							
		Min: B C I			Max: A C E H		
31	0.379	14.805	0	-400.706	0	1077.257	0
		14.805	0	-1034.378	0	2568.412	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: B C I			Max: A C E H		
31	0.506	14.805	0	-408.563	0	942.743	0
		14.805	0	-1054.660	0	2433.599	0
		Min: B C I			Max: A C E H		
32	0	14.805	0	-408.563	0	942.743	0
		14.805	0	-1054.660	0	2433.599	0
		Min: B C I			Max: A C E H		
32	0.126	14.805	0	-416.420	0	890.530	0
		14.805	0	-1074.942	0	2293.934	0
		Min: B C I			Max: A C E H		
32	0.253	14.805	0	-424.277	0	837.419	0
		14.805	0	-1095.224	0	2161.703	0
		Min: B C I			Max: A C E H		
32	0.379	14.805	0	-432.134	0	783.264	0
		14.805	0	-1115.506	0	2021.908	0
		Min: B C I			Max: A C E H		
32	0.506	14.805	0	-439.991	0	728.115	0
		14.805	0	-1135.788	0	1879.547	0
		Min: B C I			Max: A C E H		
33	0	14.805	0	-439.991	0	728.115	0
		14.805	0	-1135.788	0	1879.547	0
		Min: B C I			Max: A C E H		
33	0.126	14.805	0	-447.848	0	671.972	0
		14.805	0	-1156.070	0	1734.620	0
		Min: B C I			Max: A C E H		
33	0.253	14.805	0	-455.705	0	614.835	0
		14.805	0	-1176.352	0	1587.123	0
		Min: B C I			Max: A C E H		
33	0.379	14.805	0	-463.562	0	556.705	0
		14.805	0	-1196.634	0	1437.071	0
		Min: B C I			Max: A C E H		
33	0.506	14.805	0	-471.419	0	497.581	0
		14.805	0	-1216.916	0	1284.449	0
		Min: B C I			Max: A C E H		
34	0	14.805	0	-471.419	0	497.581	0
		14.805	0	-1216.916	0	1284.449	0
		Min: B C I			Max: A C E H		
34	0.126	14.805	0	-479.276	0	437.465	0
		14.805	0	-1237.197	0	1129.257	0
		Min: B C I			Max: A C E H		
34	0.253	14.805	0	-487.133	0	376.356	0
		14.805	0	-1257.479	0	971.521	0
		Min: B C I			Max: A C E H		
34	0.379	14.805	0	-494.989	0	314.253	0
		14.805	0	-1277.759	0	811.210	0
		Min: B C I			Max: A C E H		
34	0.506	14.805	0	-502.846	0	251.157	0
		14.805	0	-1298.041	0	643.334	0

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: B C I			Max: A C E H		
35	0	14.805	0	-502.846	0	251.157	0
		14.805	0	-1293.041	0	643.334	0
		Min: B C I			Max: A C E H		
35	0.126	14.805	0	-510.703	0	187.063	0
		14.805	0	-1313.323	0	432.832	0
		Min: B C I			Max: A C E H		
35	0.253	14.805	0	-518.560	0	121.975	0
		14.805	0	-1333.606	0	314.864	0
		Min: B C I			Max: A C E H		
35	0.379	14.805	0	-526.419	0	55.893	0
		14.805	0	-1352.887	0	144.232	0
		Min: B C I			Max: A C E H		
35	0.506	14.805	0	-1379.171	0	-23.866	0
		14.805	0	-534.275	0	-11.182	0
		Min: A C E H			Max: B C I		
36	0	-4.94E-11	0	96.221	0	-23.866	0
		-4.94E-11	0	37.275	0	-11.182	0
		Min: A C E H			Max: B C I		
36	0.150	-4.94E-11	0	72.156	0	-16.237	0
		-4.94E-11	0	27.956	0	-8.229	0
		Min: A C E I			Max: B C H		
36	0.300	-4.94E-11	0	48.111	0	-7.217	0
		-4.94E-11	0	18.638	0	-2.736	0
		Min: A C E I			Max: B C H		
36	0.450	-4.94E-11	0	24.055	0	-1.804	0
		-4.94E-11	0	9.319	0	-0.693806	0
		Min: A C E I			Max: B C H		
36	0.600	-4.94E-11	0	9.62E-07	0	-1.39E-11	0
		-4.94E-11	0	3.73E-07	0	4.35E-12	0
		Min: A C E I			Max: B C H		

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
1	0	3.54E-11	0	3.61E-07	0	-1.41E-11	0
		3.54E-11	0	1.67E-07	0	-1.95E-11	0
		Min: A C E I			Max: B C H		
[illegible]							
		3.54E-11			0	-9.63E-12	0
		Min: A C E I			Max: B C H		
1	0.300	3.54E-11	0	43.111	0	-7.217	0
		3.54E-11	0	18.638	0	-2.736	0

Características mecánicas Sección "CANALU" (sin coef. homogeneiz.)

Area	Ax =	2.485 m2					
Momento de inercia	Iy =	0.9513 m4	Iz =	4.828 m4	Ip =	5.780 m4	
Const. de torsión					Ix =	0.0922 m4	
Momento estático	Zy =	1.341 m3	Zz =	3.191 m3			
Baricentro	ys =	0.00 m	zs =	0.67 m	Angulo=	0.0 Grad	
Dist. al borde	yl =	-1.85 m	yr =	1.85 m			
	zo =	1.38 m	zu =	-0.67 m			

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 0.00 m z = 0.67 m

Contorno de sección parcial, Sección "CANALU" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H300	1.00	24850.0	1490.000	9.22E+06	3)

Puntos de contorno [m]:

1	-1.85	0.00	2	1.85	0.00	3	1.85	2.05
4	1.50	2.05	5	1.50	0.35	6	-1.50	0.35
7	-1.50	2.05	8	-1.85	2.05	9	-1.85	0.00

Armadura "B1" As-tot =4.00 cm2 (0.02 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 4 / CS 1	AEH500	1.0	2	1.00	1.56	1.99
					1.79	1.99
LR 3 / CS 1	AEH500	1.0	2	1.00	-1.80	1.99
					-1.56	1.99
LR 2 / CS 1	AEH500	1.0	2	1.00	-1.80	0.29
					1.80	0.29
LR 1 / CS 1	AEH500	1.0	2	1.00	-1.80	0.06
					1.80	0.06

Dimensionamiento a flexión: Viga Sección "CANALU"/"B1"

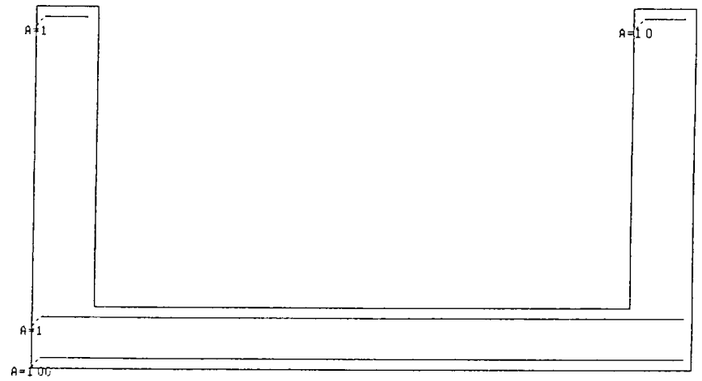
Nº	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	5901.60	0.00	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

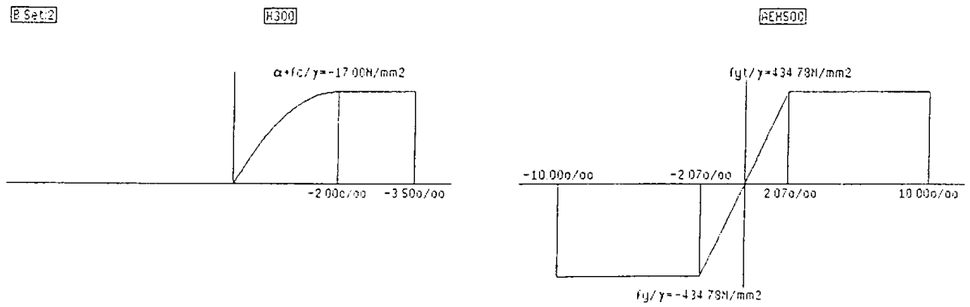
Nº Armad. long.	y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
AEH500	1.56	1.99	1.79	1.99	1.00	----	1.00
AEH500	-1.80	1.99	-1.56	1.99	1.00	----	1.00
AEH500	-1.80	0.29	1.80	0.29	1.00	39.30	39.30
1 AEH500	-1.80	0.06	1.80	0.06	1.00	39.30	39.30

Max.x/h = 0.21 As-top/bot = 2.00/78.60 As = 0.32 % = 80.60

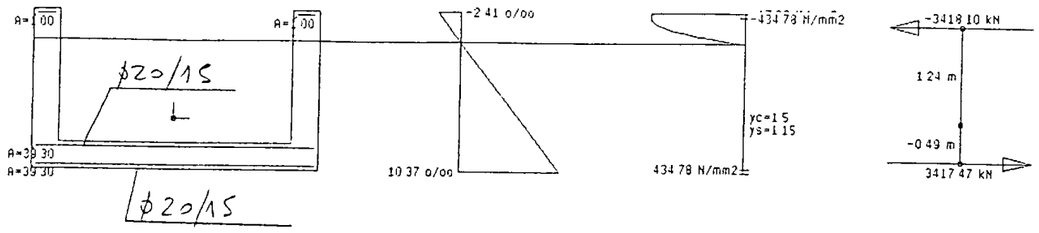
Sección CANALU



Material acorde a la sección: "CANALU"



Dimensionamiento,Sección "CANALU"



4.2.1.3. Verificación de las secciones a esfuerzos de cortante (E.L.U.)

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: A C E I		Max: B C H			
1	0.450	3.54E-11	0	-72.166	0	-16.237	0
		3.54E-11	0	-27.956	0	-6.290	0
		Min: A C E I		Max: B C H			
1	0.600	3.54E-11	0	-96.221	0	-28.866	0
		3.54E-11	0	-37.275	0	-11.182	0
		Min: A C E I		Max: B C H			
2	0	14.805	0	534.275	0	-11.182	0
		14.805	0	1379.171	0	-23.866	0
		Min: B C I		Max: A C E H			
2	0.126	14.805	0	526.418	0	55.590	0
		14.805	0	1358.889	0	144.275	0
		Min: B C I		Max: A C E H			
2	0.253	14.805	0	518.561	0	121.970	0
		14.805	0	1338.608	0	314.351	0
		Min: B C I		Max: A C E H			
2	0.379	14.805	0	510.704	0	187.055	0
		14.805	0	1318.326	0	482.962	0
		Min: B C I		Max: A C E H			
2	0.506	14.805	0	502.847	0	251.147	0
		14.805	0	1298.044	0	648.308	0
		Min: B C I		Max: A C E H			
3	0	14.805	0	502.847	0	251.147	0
		14.805	0	1298.044	0	648.308	0
		Min: B C I		Max: A C E H			
3	0.126	14.805	0	494.990	0	314.245	0
		14.805	0	1277.762	0	811.190	0
		Min: B C I		Max: A C E H			
3	0.253	14.805	0	487.133	0	376.350	0
		14.805	0	1257.480	0	971.506	0
		Min: B C I		Max: A C E H			
3	0.379	14.805	0	479.276	0	437.461	0
		14.805	0	1237.198	0	1129.257	0
		Min: B C I		Max: A C E H			
3	0.506	14.805	0	471.419	0	497.573	0
		14.805	0	1216.917	0	1284.443	0
		Min: B C I		Max: A C E H			
4	0	14.805	0	471.419	0	497.573	0
		14.805	0	1216.917	0	1284.443	0
		Min: B C I		Max: A C E H			
4	0.126	14.805	0	463.562	0	556.702	0
		14.805	0	1196.635	0	1437.063	0
		Min: B C I		Max: A C E H			
4	0.253	14.805	0	455.706	0	614.832	0
		14.805	0	1176.353	0	1587.119	0
		Min: B C I		Max: A C E H			
4	0.379	14.805	0	447.849	0	671.963	0
		14.805	0	1156.071	0	1734.610	0

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: B C I		Max: A C E H			
4	0.506	14.805	0	439.992	0	728.110	0
		14.805	0	1135.789	0	1379.536	0
		Min: B C I		Max: A C E H			
5	0	14.805	0	439.992	0	728.110	0
		14.805	0	1135.789	0	1379.536	0
		Min: B C I		Max: A C E H			
5	0.126	14.805	0	432.135	0	783.260	0
		14.805	0	1115.507	0	2021.899	0
		Min: B C I		Max: A C E H			
5	0.253	14.805	0	424.277	0	837.417	0
		14.805	0	1095.225	0	2161.698	0
		Min: B C I		Max: A C E H			
5	0.379	14.805	0	416.420	0	890.579	0
		14.805	0	1074.943	0	2293.931	0
		Min: B C I		Max: A C E H			
5	0.506	14.805	0	408.563	0	942.748	0
		14.805	0	1054.660	0	2433.599	0
		Min: B C I		Max: A C E H			
6	0	14.805	0	408.563	0	942.748	0
		14.805	0	1054.660	0	2433.599	0
		Min: B C I		Max: A C E H			
6	0.126	14.805	0	400.706	0	993.922	0
		14.805	0	1034.378	0	2565.700	0
		Min: B C I		Max: A C E H			
6	0.253	14.805	0	392.849	0	1044.103	0
		14.805	0	1014.097	0	2695.235	0
		Min: B C I		Max: A C E H			
6	0.379	14.805	0	384.992	0	1093.290	0
		14.805	0	993.816	0	2822.205	0
		Min: B C I		Max: A C E H			
6	0.506	14.805	0	377.135	0	1141.483	0
		14.805	0	973.533	0	2946.610	0
		Min: B C I		Max: A C E H			
7	0	14.805	0	377.135	0	1141.483	0
		14.805	0	973.533	0	2946.610	0
		Min: B C H		Max: A C E I			
7	0.126	14.805	0	369.278	0	1188.681	0
		14.805	0	953.251	0	3068.451	0
		Min: B C H		Max: A C E I			
7	0.253	14.805	0	361.420	0	1234.888	0
		14.805	0	932.969	0	3187.726	0
		Min: B C H		Max: A C E I			
7	0.379	14.805	0	353.563	0	1280.105	0
		14.805	0	912.687	0	3304.435	0
		Min: B C H		Max: A C E I			
7	0.506	14.805	0	345.706	0	1324.332	0
		14.805	0	892.406	0	3419.681	0

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		Min: B C H		Max: A C E I			
8	0	14.805	0	345.708	0	1324.319	0
		14.805	0	892.406	0	3418.581	0
		Min: B C I		Max: A C E H			
8	0.126	14.805	0	337.851	0	1367.544	0
		14.805	0	872.124	0	3530.162	0
		Min: B C I		Max: A C E H			
8	0.253	14.805	0	329.994	0	1409.776	0
		14.805	0	851.841	0	3639.178	0
		Min: B C I		Max: A C E H			
8	0.379	14.805	0	322.136	0	1451.014	0
		14.805	0	831.559	0	3745.630	0
		Min: B C I		Max: A C E H			
8	0.506	14.805	0	314.279	0	1491.258	0
		14.805	0	811.277	0	3849.516	0
		Min: B C I		Max: A C E H			
9	0	14.805	0	314.279	0	1491.258	0
		14.805	0	811.277	0	3849.516	0
		Min: B C H		Max: A C E I			
9	0.126	14.805	0	306.422	0	1530.508	0
		14.805	0	790.995	0	3950.836	0
		Min: B C H		Max: A C E I			
9	0.253	14.805	0	298.565	0	1568.765	0
		14.805	0	770.713	0	4049.591	0
		Min: B C H		Max: A C E I			
9	0.379	14.805	0	290.709	0	1606.028	0
		14.805	0	750.432	0	4145.731	0
		Min: B C H		Max: A C E I			
9	0.506	14.805	0	282.852	0	1642.297	0
		14.805	0	730.150	0	4239.406	0
		Min: B C H		Max: A C E I			
10	0	14.805	0	282.852	0	1642.297	0
		14.805	0	730.150	0	4239.406	0
		Min: B C H		Max: A C E I			
10	0.126	14.805	0	274.995	0	1677.572	0
		14.805	0	709.868	0	4330.466	0
		Min: B C H		Max: A C E I			
10	0.253	14.805	0	267.138	0	1711.854	0
		14.805	0	689.586	0	4418.961	0
		Min: B C H		Max: A C E I			
10	0.379	14.805	0	259.281	0	1745.142	0
		14.805	0	669.304	0	4504.890	0
		Min: B C H		Max: A C E I			
10	0.506	14.805	0	251.424	0	1777.437	0
		14.805	0	649.022	0	4588.255	0
		Min: B C H		Max: A C E I			
11	0	14.805	0	251.424	0	1777.437	0

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		14.805	0	649.022	0	4588.255	0
		Min: B C I		Max: A C E H			
11	0.126	14.805	0	243.567	0	1809.732	0
		14.805	0	628.740	0	4669.055	0
		Min: B C I		Max: A C E H			
11	0.253	14.805	0	235.710	0	1839.048	0
		14.805	0	608.458	0	4747.239	0
		Min: B C I		Max: A C E H			
11	0.379	14.805	0	227.853	0	1865.358	0
		14.805	0	588.176	0	4821.959	0
		Min: B C I		Max: A C E H			
11	0.506	14.805	0	219.996	0	1890.673	0
		14.805	0	567.894	0	4893.063	0
		Min: B C I		Max: A C E H			
12	0	14.805	0	219.996	0	1890.673	0
		14.805	0	567.894	0	4893.063	0
		Min: B C I		Max: A C E H			
12	0.126	14.805	0	212.139	0	1914.004	0
		14.805	0	547.612	0	4960.603	0
		Min: B C I		Max: A C E H			
12	0.253	14.805	0	204.282	0	1950.337	0
		14.805	0	527.330	0	5024.577	0
		Min: B C I		Max: A C E H			
12	0.379	14.805	0	196.425	0	1975.676	0
		14.805	0	507.049	0	5085.986	0
		Min: B C I		Max: A C E H			
12	0.506	14.805	0	188.568	0	2000.021	0
		14.805	0	486.766	0	5142.831	0
		Min: B C I		Max: A C E H			
13	0	14.805	0	188.568	0	2000.021	0
		14.805	0	486.766	0	5142.831	0
		Min: B C I		Max: A C E H			
13	0.126	14.805	0	180.711	0	2023.372	0
		14.805	0	466.484	0	5223.110	0
		Min: B C I		Max: A C E H			
13	0.253	14.805	0	172.854	0	2045.730	0
		14.805	0	446.202	0	5281.324	0
		Min: B C I		Max: A C E H			
13	0.379	14.805	0	164.997	0	2067.094	0
		14.805	0	425.921	0	5337.472	0
		Min: B C I		Max: A C E H			
13	0.506	14.805	0	157.140	0	2087.464	0
		14.805	0	405.639	0	5391.555	0
		Min: B C I		Max: A C E H			
14	0	14.805	0	157.140	0	2087.464	0
		14.805	0	405.639	0	5391.555	0
		Min: B C H		Max: A C E I			
14	0.126	14.805	0	149.283	0	2106.841	0

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		14.805	0	385.357	0	5432.575	0
		Min: B C I		Max: A C E H			
14	0.253	14.805	0	141.426	0	2125.224	0
		14.805	0	365.075	0	5436.029	0
		Min: B C I		Max: A C E H			
14	0.379	14.805	0	133.569	0	2142.614	0
		14.805	0	344.793	0	5530.913	0
		Min: B C I		Max: A C E H			
14	0.506	14.805	0	125.712	0	2159.009	0
		14.805	0	324.511	0	5573.241	0
		Min: B C I		Max: A C E H			
15	0	14.805	0	125.712	0	2159.009	0
		14.805	0	324.511	0	5573.241	0
		Min: B C I		Max: A C E H			
15	0.126	14.805	0	117.855	0	2174.411	0
		14.805	0	304.229	0	5613.000	0
		Min: B C I		Max: A C E H			
15	0.253	14.805	0	109.998	0	2188.819	0
		14.805	0	283.947	0	5650.193	0
		Min: B C I		Max: A C E H			
15	0.379	14.805	0	102.141	0	2202.234	0
		14.805	0	263.665	0	5684.821	0
		Min: B C I		Max: A C E H			
15	0.506	14.805	0	94.284	0	2214.655	0
		14.805	0	243.384	0	5716.834	0
		Min: B C I		Max: A C E H			
16	0	14.805	0	94.284	0	2214.655	0
		14.805	0	243.384	0	5716.834	0
		Min: B C H		Max: A C E I			
16	0.126	14.805	0	86.427	0	2226.082	0
		14.805	0	223.102	0	5745.383	0
		Min: B C H		Max: A C E I			
16	0.253	14.805	0	78.570	0	2236.516	0
		14.805	0	202.820	0	5773.316	0
		Min: B C H		Max: A C E I			
16	0.379	14.805	0	70.713	0	2245.956	0
		14.805	0	182.538	0	5797.635	0
		Min: B C H		Max: A C E I			
16	0.506	14.805	0	62.856	0	2254.402	0
		14.805	0	162.255	0	5819.438	0
		Min: B C H		Max: A C E I			
17	0	14.805	0	62.856	0	2254.402	0
		14.805	0	162.255	0	5819.438	0
		Min: B C H		Max: A C E I			
17	0.126	14.805	0	54.999	0	2261.855	0
		14.805	0	141.974	0	5833.726	0
		Min: B C H		Max: A C E I			
17	0.253	14.805	0	47.142	0	2268.314	0

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		14.805	0	121.692	0	5855.399	0
		Min: B C H		Max: A C E I			
17	0.379	14.805	0	39.285	0	2273.779	0
		14.805	0	101.410	0	5869.507	0
		Min: B C H		Max: A C E I			
17	0.506	14.805	0	31.428	0	2279.251	0
		14.805	0	81.128	0	5881.049	0
		Min: B C H		Max: A C E I			
18	0	14.805	0	31.428	0	2279.251	0
		14.805	0	81.128	0	5881.049	0
		Min: B C H		Max: A C E I			
18	0.126	14.805	0	23.571	0	2281.723	0
		14.805	0	60.846	0	5890.027	0
		Min: B C H		Max: A C E I			
18	0.253	14.805	0	15.714	0	2284.213	0
		14.805	0	40.564	0	5896.440	0
		Min: B C H		Max: A C E I			
18	0.379	14.805	0	7.857	0	2285.703	0
		14.805	0	20.282	0	5900.287	0
		Min: B C H		Max: A C E I			
18	0.506	14.805	0	3.113E-07	0	2286.200	0
		14.805	0	3.178E-07	0	5901.570	0
		Min: B C H		Max: A C E I			
19	0	14.805	0	-3.738E-07	0	6901.670	0
		14.805	0	-3.118E-07	0	2286.200	0
		Min: A C E H		Max: B C I			
19	0.126	14.805	0	-20.283	0	5900.287	0
		14.805	0	-17.857	0	2285.703	0
		Min: A C E H		Max: B C I			
19	0.253	14.805	0	-40.564	0	5896.440	0
		14.805	0	-35.714	0	2284.213	0
		Min: A C E H		Max: B C I			
19	0.379	14.805	0	-60.846	0	5890.027	0
		14.805	0	-53.571	0	2281.723	0
		Min: A C E H		Max: B C I			
19	0.506	14.805	0	-81.128	0	5881.049	0
		14.805	0	-81.428	0	2279.251	0
		Min: A C E H		Max: B C I			
20	0	14.805	0	-81.128	0	5881.049	0
		14.805	0	-81.428	0	2279.251	0
		Min: A C E H		Max: B C I			
20	0.126	14.805	0	-101.410	0	5869.507	0
		14.805	0	-39.285	0	2273.779	0
		Min: A C E H		Max: B C I			
20	0.379	14.805	0	-121.692	0	5855.399	0

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		14.805	0	-54.999	0	2261.855	0
		Min: A C E H		Max: B C I			
20	0.506	14.805	0	-162.255	0	5319.439	0
		14.805	0	-62.856	0	2254.403	0
		Min: A C E H		Max: B C I			
21	0	14.805	0	-162.255	0	5819.489	0
		14.805	0	-62.856	0	2254.403	0
		Min: A C E H		Max: B C I			
21	0.126	14.805	0	-182.537	0	5797.686	0
		14.805	0	-70.713	0	2245.956	0
		Min: A C E H		Max: B C I			
21	0.253	14.805	0	-202.818	0	5773.318	0
		14.805	0	-78.569	0	2236.517	0
		Min: A C E H		Max: B C I			
21	0.379	14.805	0	-223.100	0	5746.385	0
		14.805	0	-86.426	0	2226.083	0
		Min: A C E H		Max: B C I			
21	0.506	14.805	0	-243.382	0	5716.887	0
		14.805	0	-94.283	0	2214.656	0
		Min: A C E H		Max: B C I			
22	0	14.805	0	-243.382	0	5716.887	0
		14.805	0	-94.283	0	2214.656	0
		Min: A C E H		Max: B C I			
22	0.126	14.805	0	-263.663	0	5684.825	0
		14.805	0	-102.140	0	2202.236	0
		Min: A C E H		Max: B C I			
22	0.253	14.805	0	-283.944	0	5650.199	0
		14.805	0	-109.997	0	2188.822	0
		Min: A C E H		Max: B C I			
22	0.379	14.805	0	-304.225	0	5613.007	0
		14.805	0	-117.853	0	2174.414	0
		Min: A C E H		Max: B C I			
22	0.506	14.805	0	-324.506	0	5573.251	0
		14.805	0	-125.710	0	2159.013	0
		Min: A C E H		Max: B C I			
23	0	14.805	0	-324.506	0	5573.251	0
		14.805	0	-125.710	0	2159.013	0
		Min: A C E I		Max: B C H			
23	0.126	14.805	0	-344.789	0	5530.925	0
		14.805	0	-133.567	0	2142.617	0
		Min: A C E I		Max: B C H			
23	0.253	14.805	0	-365.072	0	5486.035	0
		14.805	0	-141.425	0	2125.226	0
		Min: A C E I		Max: B C H			
23	0.379	14.805	0	-385.355	0	5438.579	0
		14.805	0	-149.282	0	2106.842	0
		Min: A C E I		Max: B C H			
23	0.506	14.805	0	-405.638	0	5388.557	0

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		14.805	0	-157.140	0	2087.465	0
		Min: A C E I		Max: B C H			
24	0	14.805	0	-405.638	0	5388.557	0
		14.805	0	-157.140	0	2087.465	0
		Min: A C E H		Max: B C I			
24	0.126	14.805	0	-425.921	0	5335.973	0
		14.805	0	-164.997	0	2067.054	0
		Min: A C E H		Max: B C I			
24	0.253	14.805	0	-446.203	0	5280.823	0
		14.805	0	-172.854	0	2045.730	0
		Min: A C E H		Max: B C I			
24	0.379	14.805	0	-466.485	0	5223.103	0
		14.805	0	-180.711	0	2023.372	0
		Min: A C E H		Max: B C I			
24	0.506	14.805	0	-486.767	0	5162.823	0
		14.805	0	-188.568	0	2000.020	0
		Min: A C E H		Max: B C I			
25	0	14.805	0	-486.767	0	5162.823	0
		14.805	0	-188.568	0	2000.020	0
		Min: A C E I		Max: B C H			
25	0.126	14.805	0	-507.049	0	5099.985	0
		14.805	0	-196.425	0	1975.675	0
		Min: A C E I		Max: B C H			
25	0.253	14.805	0	-527.330	0	5034.577	0
		14.805	0	-204.282	0	1950.337	0
		Min: A C E I		Max: B C H			
25	0.379	14.805	0	-547.612	0	4966.605	0
		14.805	0	-212.138	0	1924.009	0
		Min: A C E I		Max: B C H			
25	0.506	14.805	0	-567.893	0	4896.067	0
		14.805	0	-219.995	0	1896.680	0
		Min: A C E I		Max: B C H			
26	0	14.805	0	-567.893	0	4896.067	0
		14.805	0	-219.995	0	1896.680	0
		Min: A C E H		Max: B C I			
26	0.126	14.805	0	-588.175	0	4822.962	0
		14.805	0	-227.852	0	1868.346	0
		Min: A C E H		Max: B C I			
26	0.253	14.805	0	-608.457	0	4747.291	0
		14.805	0	-235.709	0	1839.042	0
		Min: A C E H		Max: B C I			
26	0.379	14.805	0	-628.740	0	4668.054	0
		14.805	0	-243.565	0	1808.768	0
		Min: A C E H		Max: B C I			
26	0.506	14.805	0	-649.022	0	4586.255	0
		14.805	0	-251.424	0	1777.437	0
		Min: A C E H		Max: B C I			

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
27	0	14.805	0	-649.022	0	4586.255	0
		14.805	0	-251.424	0	1777.437	0
		Min: A C E I		Max: B C H			
27	0.126	14.805	0	-669.304	0	4504.891	0
		14.805	0	-259.281	0	1745.143	0
		Min: A C E I		Max: B C H			
27	0.253	14.805	0	-689.586	0	4418.961	0
		14.805	0	-267.137	0	1711.855	0
		Min: A C E I		Max: B C H			
27	0.379	14.805	0	-709.867	0	4330.467	0
		14.805	0	-274.994	0	1677.573	0
		Min: A C E I		Max: B C H			
27	0.506	14.805	0	-730.149	0	4239.407	0
		14.805	0	-282.851	0	1642.297	0
		Min: A C E I		Max: B C H			
28	0	14.805	0	-730.149	0	4239.407	0
		14.805	0	-282.851	0	1642.297	0
		Min: A C E I		Max: B C H			
28	0.126	14.805	0	-750.431	0	4145.782	0
		14.805	0	-290.708	0	1606.028	0
		Min: A C E I		Max: B C H			
28	0.253	14.805	0	-770.713	0	4049.592	0
		14.805	0	-298.565	0	1568.765	0
		Min: A C E I		Max: B C H			
28	0.379	14.805	0	-790.995	0	3950.837	0
		14.805	0	-306.422	0	1530.508	0
		Min: A C E I		Max: B C H			
28	0.506	14.805	0	-811.277	0	3849.516	0
		14.805	0	-314.279	0	1491.258	0
		Min: A C E I		Max: B C H			
29	0	14.805	0	-811.277	0	3849.516	0
		14.805	0	-314.279	0	1491.258	0
		Min: A C E H		Max: B C I			
29	0.126	14.805	0	-831.559	0	3745.631	0
		14.805	0	-322.136	0	1451.014	0
		Min: A C E H		Max: B C I			
29	0.253	14.805	0	-851.841	0	3639.181	0
		14.805	0	-329.993	0	1409.777	0
		Min: A C E H		Max: B C I			
29	0.379	14.805	0	-872.123	0	3530.166	0
		14.805	0	-337.850	0	1367.545	0
		Min: A C E H		Max: B C I			
29	0.506	14.805	0	-892.405	0	3418.585	0
		14.805	0	-345.707	0	1324.320	0
		Min: A C E H		Max: B C I			
30	0	14.805	0	-892.405	0	3418.585	0
		14.805	0	-345.707	0	1324.320	0
		Min: A C E H		Max: B C I			

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
30	0.126	14.805	0	-912.687	0	3304.440	0
		14.805	0	-353.564	0	1283.102	0
		Min: A C E H		Max: B C I			
30	0.253	14.805	0	-932.969	0	3187.729	0
		14.805	0	-361.421	0	1234.839	0
		Min: A C E H		Max: B C I			
30	0.379	14.805	0	-953.251	0	3068.453	0
		14.805	0	-369.278	0	1153.683	0
		Min: A C E H		Max: B C I			
30	0.506	14.805	0	-973.533	0	2946.612	0
		14.805	0	-377.135	0	1141.484	0
		Min: A C E H		Max: B C I			
31	0	14.805	0	-973.533	0	2946.612	0
		14.805	0	-377.135	0	1141.424	0
		Min: A C E H		Max: B C I			
31	0.126	14.805	0	-993.815	0	2822.207	0
		14.805	0	-384.992	0	1093.290	0
		Min: A C E H		Max: B C I			
31	0.253	14.805	0	-1014.096	0	2695.236	0
		14.805	0	-392.849	0	1044.103	0
		Min: A C E H		Max: B C I			
31	0.379	14.805	0	-1034.378	0	2565.700	0
		14.805	0	-400.706	0	993.923	0
		Min: A C E H		Max: B C I			
31	0.506	14.805	0	-1054.660	0	2433.599	0
		14.805	0	-408.563	0	942.748	0
		Min: A C E H		Max: B C I			
32	0	14.805	0	-1054.660	0	2433.599	0
		14.805	0	-408.563	0	942.748	0
		Min: A C E H		Max: B C I			
32	0.126	14.805	0	-1074.942	0	2298.934	0
		14.805	0	-416.420	0	890.583	0
		Min: A C E H		Max: B C I			
32	0.253	14.805	0	-1095.224	0	2161.703	0
		14.805	0	-424.277	0	837.419	0
		Min: A C E H		Max: B C I			
32	0.379	14.805	0	-1115.506	0	2021.902	0
		14.805	0	-432.134	0	783.274	0
		Min: A C E H		Max: B C I			
32	0.506	14.805	0	-1135.788	0	1879.540	0
		14.805	0	-439.991	0	728.149	0
		Min: A C E H		Max: B C I			
33	0	14.805	0	-1135.788	0	1879.540	0
		14.805	0	-439.991	0	728.149	0
		Min: A C E H		Max: B C I			
33	0.126	14.805	0	-1156.070	0	1734.618	0
		14.805	0	-447.848	0	671.992	0
		Min: A C E H		Max: B C I			
33	0.253	14.805	0	-1176.352	0	1587.128	0
		14.805	0	-455.705	0	614.835	0
		Min: A C E H		Max: B C I			
33	0.379	14.805	0	-1196.634	0	1437.071	0
		14.805	0	-463.562	0	556.705	0
		Min: A C E H		Max: B C I			
33	0.506	14.805	0	-1216.916	0	1284.449	0
		14.805	0	-471.419	0	497.581	0
		Min: A C E H		Max: B C I			
34	0	14.805	0	-1216.916	0	1284.449	0
		14.805	0	-471.419	0	497.581	0
		Min: A C E H		Max: B C I			
34	0.126	14.805	0	-1237.197	0	1129.267	0
		14.805	0	-479.276	0	437.465	0
		Min: A C E H		Max: B C I			
34	0.253	14.805	0	-1257.478	0	971.521	0
		14.805	0	-487.133	0	376.356	0
		Min: A C E H		Max: B C I			
34	0.379	14.805	0	-1277.759	0	811.210	0
		14.805	0	-494.989	0	314.253	0
		Min: A C E H		Max: B C I			
34	0.506	14.805	0	-1298.041	0	648.334	0
		14.805	0	-502.846	0	251.157	0
		Min: A C E H		Max: B C I			
35	0	14.805	0	-1298.041	0	648.334	0
		14.805	0	-502.846	0	251.157	0
		Min: A C E H		Max: B C I			
35	0.126	14.805	0	-1318.323	0	482.832	0
		14.805	0	-510.703	0	187.063	0
		Min: A C E H		Max: B C I			
35	0.253	14.805	0	-1338.606	0	314.864	0
		14.805	0	-518.560	0	121.976	0
		Min: A C E H		Max: B C I			
35	0.379	14.805	0	-1358.889	0	144.282	0
		14.805	0	-526.418	0	55.893	0
		Min: A C E H		Max: B C I			
35	0.506	14.805	0	-1379.171	0	-28.866	0
		14.805	0	-534.275	0	-11.182	0
		Min: A C E H		Max: B C I			
36	0	-4.94E-11	0	37.275	0	-11.182	0
		-4.94E-11	0	98.221	0	-28.866	0
		Min: B C I		Max: A C E H			
36	0.150	-4.94E-11	0	27.955	0	-6.290	0
		-4.94E-11	0	72.166	0	-16.237	0
		Min: B C I		Max: A C E H			
36	0.300	-4.94E-11	0	18.637	0	-2.796	0
		-4.94E-11	0	48.111	0	-7.217	0
		Min: B C I		Max: A C E H			

CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título:
Fecha: 18/6/01 12.38.39

DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 70 cm, alto 205 cm y canto 201 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 138 T
Cortante reducido a un canto útil del borde del apoyo = 105 T
Axil de cálculo (Tracciones positivas) = 0 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 151 cm2 lo que implica una cuantía geométrica igual a 0.01073
Inclinación de bielas de compresión 45°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 138 T < Vu1 = 844.20 T
Es necesario disponer armadura a cortante al ser Vrd = 105.00 T > Vu2 = 72.10 T
Valores de las tensiones: Eje X = 0.00 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 45.00°
Vcu = 60.08 T. Vsu= 44.92 T.
As cálculo = 6.21 cm2/m. As mínima = 7.00 cm2/m
Mínimo de armadura a disponer = 7.00 cm2/m

2 c ϕ 12/30

4.2.1.4. Verificación de las secciones a esfuerzos de rasante (E.L.U.)

LOAD COMBINATION DA: **

LoadCase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
3	1.3500			RECLOGICAS
4	1.5000			SOBRECARGA AGUA
8	1.5000			GRADIENTE(-)

SUPPORT REACTIONS :

Node	FX [kN]	FY [kN]	FZ [kN]	T [kNm]	MY [kNm]	MZ [kNm]
2	-14.805	0	1475.392	0		
36	14.805	0	1475.392	0		
Sums :	-2.46E-10	0	2950.785			
min:	-14.805	0	1475.392	0	Undef	Undef
max:	14.805	0	1475.392	0	Undef	Undef

SECTION FORCES: **

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
1	0	3.54E-11	0	-9.62E-07	0	-1.43E-11	0
1	0.150	3.54E-11	0	-24.055	0	-1.804	0
1	0.300	3.54E-11	0	-48.111	0	-7.217	0
1	0.450	3.54E-11	0	-72.166	0	-16.237	0
1	0.600	3.54E-11	0	-96.221	0	-28.866	0
2	0	14.805	0	1379.171	0	-28.866	0
2	0.126	14.805	0	1353.829	0	144.275	0
2	0.253	14.805	0	1328.605	0	314.851	0
2	0.379	14.805	0	1319.326	0	482.862	0
2	0.506	14.805	0	1298.044	0	648.308	0
3	0	14.805	0	1298.044	0	648.308	0
3	0.126	14.805	0	1277.762	0	811.190	0
3	0.253	14.805	0	1257.480	0	971.506	0
3	0.379	14.805	0	1237.198	0	1129.257	0
3	0.506	14.805	0	1216.917	0	1284.443	0
4	0	14.805	0	1216.917	0	1284.443	0
4	0.126	14.805	0	1196.635	0	1437.063	0
4	0.253	14.805	0	1176.353	0	1587.119	0
4	0.379	14.805	0	1156.071	0	1734.610	0
4	0.506	14.805	0	1135.789	0	1879.536	0
5	0	14.805	0	1135.789	0	1879.536	0
5	0.126	14.805	0	1115.507	0	2021.899	0
5	0.253	14.805	0	1095.225	0	2161.698	0
5	0.379	14.805	0	1074.943	0	2298.931	0

SECTION FORCES: **

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
5	0.506	14.805	0	1054.660	0	2433.599	0
6	0	14.805	0	1054.660	0	2433.599	0
6	0.126	14.805	0	1034.378	0	2565.700	0
6	0.253	14.805	0	1014.097	0	2695.235	0
6	0.379	14.805	0	993.815	0	2822.205	0
6	0.506	14.805	0	973.533	0	2946.610	0
7	0	14.805	0	973.533	0	2946.610	0
7	0.126	14.805	0	953.251	0	3068.451	0
7	0.253	14.805	0	932.969	0	3187.726	0
7	0.379	14.805	0	912.687	0	3304.436	0
7	0.506	14.805	0	892.406	0	3418.581	0
8	0	14.805	0	892.406	0	3418.581	0
8	0.126	14.805	0	872.124	0	3530.162	0
8	0.253	14.805	0	851.842	0	3639.178	0
8	0.379	14.805	0	831.560	0	3745.630	0
8	0.506	14.805	0	811.277	0	3849.516	0
9	0	14.805	0	811.277	0	3849.516	0
9	0.126	14.805	0	790.995	0	3950.836	0
9	0.253	14.805	0	770.713	0	4049.591	0
9	0.379	14.805	0	750.432	0	4145.781	0
9	0.506	14.805	0	730.150	0	4239.406	0
10	0	14.805	0	730.150	0	4239.406	0
10	0.126	14.805	0	709.868	0	4330.466	0
10	0.253	14.805	0	689.586	0	4418.961	0
10	0.379	14.805	0	669.304	0	4504.890	0
10	0.506	14.805	0	649.022	0	4588.255	0
11	0	14.805	0	649.022	0	4588.255	0
11	0.126	14.805	0	628.740	0	4669.056	0
11	0.253	14.805	0	608.458	0	4747.292	0
11	0.379	14.805	0	588.176	0	4822.963	0
11	0.506	14.805	0	567.894	0	4896.069	0
12	0	14.805	0	567.894	0	4896.069	0
12	0.126	14.805	0	547.612	0	4966.609	0
12	0.253	14.805	0	527.330	0	5034.584	0
12	0.379	14.805	0	507.049	0	5099.993	0
12	0.506	14.805	0	486.767	0	5162.837	0
13	0	14.805	0	486.767	0	5162.837	0
13	0.126	14.805	0	466.485	0	5223.113	0
13	0.253	14.805	0	446.203	0	5280.824	0
13	0.379	14.805	0	425.921	0	5335.969	0
13	0.506	14.805	0	405.639	0	5388.548	0

SECTION FORCES: **

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
14	0.379	14.805	0	344.793	0	5530.913	0
14	0.506	14.805	0	324.511	0	5573.241	0
15	0	14.805	0	324.511	0	5573.241	0
15	0.126	14.805	0	304.229	0	5613.000	0
15	0.253	14.805	0	283.947	0	5650.193	0
15	0.379	14.805	0	263.665	0	5684.821	0
15	0.506	14.805	0	243.384	0	5716.884	0
16	0	14.805	0	243.384	0	5716.884	0
16	0.126	14.805	0	223.102	0	5746.333	0
16	0.253	14.805	0	202.820	0	5773.216	0
16	0.379	14.805	0	182.538	0	5797.535	0
16	0.506	14.805	0	162.255	0	5819.288	0
17	0	14.805	0	162.255	0	5819.288	0
17	0.126	14.805	0	141.974	0	5838.726	0
17	0.253	14.805	0	121.692	0	5855.399	0
17	0.379	14.805	0	101.410	0	5869.507	0
17	0.506	14.805	0	81.129	0	5881.049	0
18	0	14.805	0	81.129	0	5881.049	0
18	0.126	14.805	0	60.846	0	5890.027	0
18	0.253	14.805	0	40.564	0	5896.440	0
18	0.379	14.805	0	20.282	0	5900.287	0
18	0.506	14.805	0	8.17E-07	0	5901.570	0
19	0	14.805	0	-8.06E-07	0	5901.570	0
19	0.126	14.805	0	-20.282	0	5900.287	0
19	0.253	14.805	0	-40.564	0	5896.440	0
19	0.379	14.805	0	-60.846	0	5890.027	0
19	0.506	14.805	0	-81.128	0	5881.049	0
20	0	14.805	0	-81.128	0	5881.049	0
20	0.126	14.805	0	-101.409	0	5869.507	0
20	0.253	14.805	0	-121.691	0	5855.399	0
20	0.379	14.805	0	-141.973	0	5838.726	0
20	0.506	14.805	0	-162.255	0	5819.489	0
21	0	14.805	0	-162.255	0	5819.489	0
21	0.126	14.805	0	-182.537	0	5797.686	0
21	0.253	14.805	0	-202.818	0	5773.318	0
21	0.379	14.805	0	-223.100	0	5746.385	0
21	0.506	14.805	0	-243.382	0	5716.887	0
22	0	14.805	0	-243.382	0	5716.887	0
22	0.126	14.805	0	-263.663	0	5684.825	0
22	0.253	14.805	0	-283.944	0	5650.199	0
22	0.379	14.805	0	-304.225	0	5613.007	0
22	0.506	14.805	0	-324.506	0	5573.251	0
23	0	14.805	0	-324.506	0	5573.251	0
23	0.126	14.805	0	-344.788	0	5530.929	0

SECTION FORCES: **

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
23	0.253	14.805	0	-365.072	0	5486.035	0
23	0.379	14.805	0	-385.355	0	5438.579	0
23	0.506	14.805	0	-405.638	0	5388.557	0
24	0	14.805	0	-405.638	0	5388.557	0
24	0.126	14.805	0	-425.921	0	5335.973	0
24	0.253	14.805	0	-446.203	0	5280.823	0
24	0.379	14.805	0	-466.485	0	5223.108	0
24	0.506	14.805	0	-486.767	0	5162.828	0
25	0	14.805	0	-486.767	0	5162.828	0
25	0.126	14.805	0	-507.049	0	5099.983	0
25	0.253	14.805	0	-527.330	0	5034.577	0
25	0.379	14.805	0	-547.612	0	4966.606	0
25	0.506	14.805	0	-567.893	0	4896.069	0
26	0	14.805	0	-567.893	0	4896.069	0
26	0.126	14.805	0	-588.175	0	4822.968	0
26	0.253	14.805	0	-608.457	0	4747.291	0
26	0.379	14.805	0	-628.740	0	4669.058	0
26	0.506	14.805	0	-649.022	0	4588.255	0
27	0	14.805	0	-649.022	0	4588.255	0
27	0.126	14.805	0	-669.304	0	4504.891	0
27	0.253	14.805	0	-689.586	0	4418.961	0
27	0.379	14.805	0	-709.867	0	4330.466	0
27	0.506	14.805	0	-730.149	0	4239.406	0
28	0	14.805	0	-730.149	0	4239.406	0
28	0.126	14.805	0	-750.431	0	4145.781	0
28	0.253	14.805	0	-770.713	0	4049.591	0
28	0.379	14.805	0	-790.995	0	3950.836	0
28	0.506	14.805	0	-811.277	0	3849.516	0
29	0	14.805	0	-811.277	0	3849.516	0
29	0.126	14.805	0	-831.559	0	3745.631	0
29	0.253	14.805	0	-851.841	0	3639.181	0
29	0.379	14.805	0	-872.123	0	3530.166	0
29	0.506	14.805	0	-892.406	0	3418.586	0
30	0	14.805	0	-892.406	0	3418.586	0
30	0.126	14.805	0	-912.687	0	3304.441	0
30	0.253	14.805	0	-932.969	0	3187.731	0
30	0.379	14.805	0	-953.251	0	3068.456	0
30	0.506	14.805	0	-973.533	0	2946.616	0
31	0	14.805	0	-973.533	0	2946.616	0
31	0.126	14.805	0	-993.815	0	2822.211	0
31	0.253	14.805	0	-1014.097	0	2695.241	0
31	0.379	14.805	0	-1034.378	0	2565.706	0
31	0.506	14.805	0	-1054.660	0	2433.605	0
32	0	14.805	0	-1054.660	0	2433.605	0

SECTION FORCES: **

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
32	0.126	14.805	0	-1074.942	0	2298.934	0
32	0.253	14.805	0	-1095.224	0	2161.703	0
32	0.379	14.805	0	-1115.506	0	2021.908	0
32	0.506	14.805	0	-1135.788	0	1879.547	0
33	0	14.805	0	-1135.788	0	1879.547	0
33	0.126	14.805	0	-1156.070	0	1734.620	0
33	0.253	14.805	0	-1176.352	0	1587.128	0
33	0.379	14.805	0	-1196.634	0	1437.071	0
33	0.506	14.805	0	-1216.916	0	1284.449	0
34	0	14.805	0	-1216.916	0	1284.449	0
34	0.126	14.805	0	-1237.197	0	1129.267	0
34	0.253	14.805	0	-1257.478	0	971.521	0
34	0.379	14.805	0	-1277.759	0	811.210	0
34	0.506	14.805	0	-1298.041	0	648.334	0
35	0	14.805	0	-1298.041	0	648.334	0
35	0.126	14.805	0	-1318.323	0	482.892	0
35	0.253	14.805	0	-1338.606	0	314.884	0
35	0.379	14.805	0	-1358.889	0	144.282	0
35	0.506	14.805	0	-1379.171	0	-28.866	0
36	0	-4.94E-11	0	96.221	0	-28.866	0
36	0.150	-4.94E-11	0	72.166	0	-16.237	0
36	0.300	-4.94E-11	0	48.111	0	-7.217	0
36	0.450	-4.94E-11	0	24.055	0	-1.804	0
36	0.600	-4.94E-11	0	9.62E-07	0	-1.89E-11	0
min:		-4.94E-11	0	-1379.171	0	-28.866	0
max:		14.805	0	1379.171	0	5901.570	0

$\Delta Md = 5901.57$ KNm

$d_f = 8.60$ m

$z = 2.05m - 0.10m - \frac{0.35}{2} = 1.775$ m

$Fd = \frac{\Delta Md}{z} = 3324.8$ KN

$Sd = \frac{3324.8\ KN}{8.60m} = 386.6\ KN/m$

$\sigma_{bd} = \frac{2\,Sd}{b} = \frac{2 \times 386.6}{2 \times 0.35m} = 1104.6\ KN/m^2$

$\sigma_{bd} \leq 0.40 \times f_{cd} = 8000\ KN/m^2$ Verifica

$Ast = \frac{Sd}{fyd} = 9.6\ cm^2$

2,40 cm²/m Armado / cara

cm²/m

2 ϕ16/15 ← Cortante + flexión transversal

E.L.S Reactions

ENVELOPE SPECIFIC.: DE **

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	3	1.000		REOLOGICAS
C	PLUS	4	1.000		SOBRECARGA AGUA
D	PLUS	5	1.000		TEMPERATURA(+)
E	OR	6	1.000		TEMPERATURA(-)
F	PLUS	7	1.000		GRADIENTE(+)
G	OR	8	1.000		GRADIENTE(-)
H	PLUS	9	0.500000		VIENTO
ALTERNATIVE ENVELOPE :					
I	PERM.	1	1.000		PESO PROPIO
J	PL.PERM	3	1.000		REOLOGICAS
K	PLUS	4	0.500000		SOBRECARGA AGUA
L	PLUS	5	1.000		TEMPERATURA(+)
M	OR	6	1.000		TEMPERATURA(-)
N	PLUS	7	1.000		GRADIENTE(+)
O	OR	8	1.000		GRADIENTE(-)
P	PLUS	9	1.000		VIENTO

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FY [kN]	FZ [kN]	MX [kNm]	MY [kNm]	MZ [kNm]
2	-21.467	0	571.550	0		
	-0.466238	0	571.550	0		
	Min: A B D			Max: A B E		
36	0.466238	0	571.550	0		
	21.467	0	571.550	0		
	Min: A B E			Max: A B D		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FY [kN]	FZ [kN]	MX [kNm]	MY [kNm]	MZ [kNm]
2	-10.967	-40.480	571.550	0		
	-10.967	0	571.550	0		
	Min: I J P			Max: A B		
36	10.967	-40.480	571.550	0		
	10.967	0	571.550	0		
	Min: A B G			Max: A B		

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [kN]	FY [kN]	FZ [kN]	MX [kNm]	MY [kNm]	MZ [kNm]
2	-10.967	0	571.550	0		
	-10.967	0	1040.750	0		
	Min: A B G			Max: A B C F		
36	10.967	0	571.550	0		
	10.967	0	1040.750	0		
	Min: A B G			Max: A B C F		

DEFORMATIONS: **
ENVELOPE for < DZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	3.721	0	-6.30E-09	0	0.001345	0
		3.721	0	2.67E-10	0	-5.27E-05	0
		Min: A B C G			Max: A B F		
2	0.506	3.502	0	-0.672215	0	0.001311	0
		3.502	0	0.019407	0	-2.43E-05	0
		Min: A B C G			Max: A B F		
19	0	-2.16E-09	0	-6.627	0	-1.04E-12	0
		-2.16E-09	0	-0.269514	0	-1.05E-13	0
		Min: A B C G			Max: A B F		
19	0.506	-0.213871	0	-6.661	0	-0.000104	0
		-0.213871	0	-0.266871	0	-1.04E-05	0
		Min: A B C G			Max: A B F		
20	0	-0.213871	0	-6.661	0	-0.000104	0
		-0.213871	0	-0.266871	0	-1.04E-05	0
		Min: A B C G			Max: A B F		
20	0.506	-0.437741	0	-6.582	0	-0.000207	0
		-0.437741	0	-0.263012	0	-2.06E-05	0
		Min: A B C G			Max: A B F		
36	0	-3.721	0	-3.16E-10	0	5.27E-05	0

DEFORMATIONS: **
ENVELOPE for < DZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
		-3.721	0	3.07E-09	0	-0.001345	0
		Min: A B F			Max: A B C G		
36	0.600	-3.930	0	-0.042347	0	8.84E-05	0
		-3.930	0	0.817675	0	-0.001381	0
		Min: A B F			Max: A B C G		

viga cuneton

CARACTERÍSTICAS DE LOS NEOPRENOS

APOYOS	DIMENSIONES	δadm.	OBSERVACION
	mm	mm	
E-1	200 x 250 x 41 (29)	20.3	
E-2	200 x 250 x 41 (29)	20.3	

RESUMEN DE LOS DESPLAZAMIENTOS DE LOS APARATOS DE APOYO

APOYOS	DESPLAZAMIENTOS (mm)							
	Reológicos	Térmicos	Frenado	F. Centrif.	Viento (s/S.C.)	δ_{HI}	$\delta_{HNEOPRENO}$	δadm.
	δ_R	δ_T	δ_F	δ_{FC}	$\delta_{V\,C/SC}$	mm	mm	mm
E-1	3.72	3.56	0.00	0.00	13.73	14.93	14.93	20.30
E-2	3.72	3.56	0.00	0.00	13.73	14.93	14.93	20.30

$$\delta_{HI} = ((\delta_R + 0.6 \times \delta_T + \delta_F)^2 + (1.0 \times \delta_{V\,S/SC})^2)^{0.5}$$

RESUMEN DE LOS DESPLAZAMIENTOS DE LAS JUNTAS DE DILATACION

	DESPLAZAMIENTOS (mm)				
APOYOS	Reológicos+Acort Elas	Térmicos	Frenado	δ_{MAX}	δ_{MIN}
	δ_R	δ_T	δ_F	mm	mm
E-1	3.72	3.56	0.00	7	4
E-2	3.72	3.56	0.00	7	4

J.D. ESTRIBOS DE 20 mm DE RECORRIDO, CON 5 mm DE APERTURA INICIAL

COMPROBACION DE TENSIONES DE LOS APARATOS DE APOYO

ESTRIBO 1 : APOYOS DE DIMENSIONES (mm) = 200 x 250 x 41 (29) Area (m^2)= 0.05

REACCION MAXIMA (t) :	52.00	σ_{max} (tm^{-2}) =	1040	< 1500 tm^{-2}
REACCION MINIMA (t):	28.58	σ_{min} (tm^{-2}) =	572	> 200 tm^{-2}

ESTRIBO 2 : APOYOS DE DIMENSIONES (mm) = 200 x 250 x 41 (29) Area (m^2)= 0.05

REACCION MAXIMA (t) :	52.00	σ_{max} (tm^{-2}) =	1040	< 1500 tm^{-2}
REACCION MINIMA (t):	28.58	σ_{min} (tm^{-2}) =	572	> 200 tm^{-2}

RESUMEN DE LAS FUERZAS HORIZONTALES

APOYOS	FUERZAS HORIZONTALES (t)					
	Reológicas	Térmicas	Frenado	Viento (s/S.C.)	Viento (c/S.C.)	Resultante
	F_R	F_T	F_F	$F_{V\ S/SC}$	$F_{V\ C/SC}$	F_{FT}
E-1	1.10	1.05	0.00	8.10	4.05	8.4
E-2	1.10	1.05	0.00	8.10	4.05	8.4

CALCULO DE LAS RIGIDECES PARA STATIK3

APOYOS	RIGIDECES HORIZONTALES (t/m)						
	ALTURA PILAR	I PILAR	E PILAR	F APOYO	T APOYO	K LONG	K TRANSV
E-1	7.80	0.3330	3000000.00	0.100	0.061	137.88	137.88
E-2	7.80	0.3330	3000000.00	0.100	0.061	137.88	147.54

RESUMEN DE LOS DESPLAZAMIENTOS TOTALES (APOYOS+PILARES)

APOYOS	DESPLAZAMIENTOS (mm)						
	Reológicos+Acort. Elas	Térmicos	Frenado	F. Centrif.	Viento (c/S.C.)	δ_{HI}	δneopreno
	δ_R	δ_T	δ_F	δ_{FC}	$\delta_{V\ C/SC}$	mm	mm
E-1	3.72	3.56	0.00	0.00	13.73	14.93	14.93
E-2	3.72	3.56	0.00	0.00	13.73	14.93	14.93

$$\delta_{HI} = ((\delta_R + 0.6 \times \delta_T + \delta_F)^2 + (1.0 \times \delta_{V\ C/SC})^2)^{0.5}$$

4.3. Refuerzo de armadura bajo apoyos

Estribos : Nmaxd = 78.0 Mp (en cada apoyo)

$$As = \frac{0.25 \times Nmaxd}{4.20\ Mp/cm^2}$$

$As = 5.00\ cm^2$

Adoptamos 6 x Φ 16 en cada dirección.

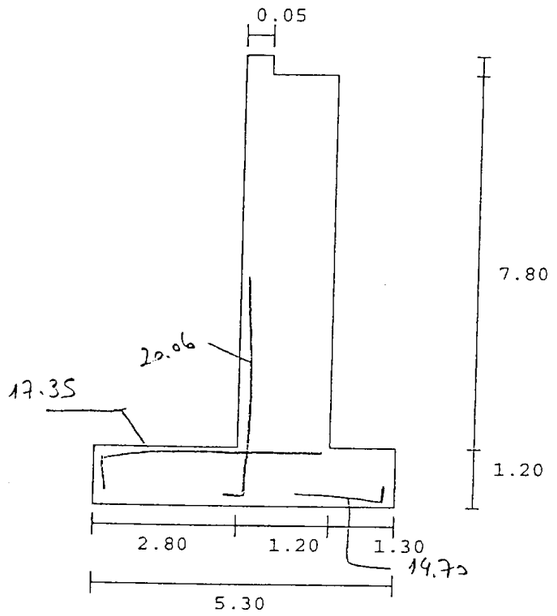
ALETAS

Estructura ....:VIGA CANAL E-6

Estribo .....:E-1 E-2

DATOS GEOMETRICOS (sin escala)

* Cotas en mtrs.



Area de la sección 15.72 m²

MATERIALES

Hormigón en zapata ..... 250 Kg/cm²

Hormigón en alzados ..... 300 Kg/cm²

Coeficiente de seguridad del hormigón 1.50

Acero en armaduras, zapata y alzado ..... 5100 Kg/cm²

Coeficiente de seguridad del acero 1.15

CARACTERISTICAS DEL TERRENO

Densidad de las tierras (t/m3) 2.00

Coeficiente de empuje activo horizontal 0.33

Tensión admisible del terreno en cimentación (Kg/cm²) 5.0

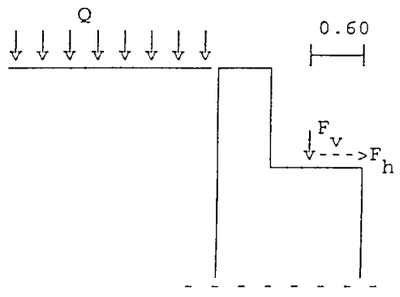
Coeficiente de rozamiento en cota de cimentación 0.55

Coeficiente de seguridad al deslizamiento (Cd) 1.50

Coeficiente de seguridad al vuelco (Cv) 1.80

Altura considerada de empuje de tierras (mtrs.) 9.05

CARGAS ACTUANTES



Reacciones Verticales (Fv t/m)

Cargas Permanentes : 15.45

Sobrecargas Máximas: 12.70
Sobrecargas Mínimas: 0.00
Sobrecarga q (t/m²): 1.00

Reacciones Horizontales (Fh t/m)

Reológicas : 0.30
Temperatura : 0.28
Frenado : 0.00

COMBINACIONES

A) 1.35*(Peso Propio)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

B) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)

C) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Máximas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

D) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Mínimas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

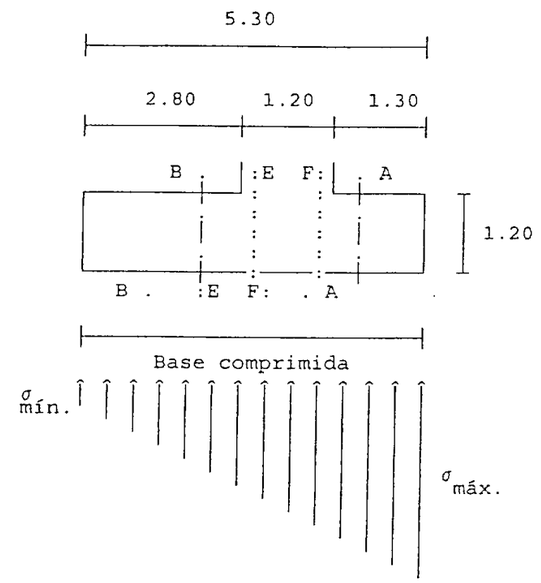
ESFUERZOS DE COMBINACIONES

Combinación	Fv(t/m)	Fh(t/m)	Q(t/m²)
A	0.00 0.00	0.00 0.00	1.00 1.25
B	15.45 20.86	0.58 0.83	1.00 1.50
C	28.15 39.91	0.58 0.42	1.00 1.50
D	15.45 20.86	0.58 0.83	1.00 1.50

COMPROBACION DE ESTABILIDAD:

Hipótesis	ΣFv(t/m)	ΣFh(t/m)	Cd	ΣMe(mt/m)	ΣMv(mt/m)	Cv
A	86.07	30.01	1.58	268.97	95.05	2.83
B	101.52	30.59	1.82	298.33	100.27	2.98
C	114.22	30.59	2.05	322.46	100.27	3.22
D	101.52	30.59	1.82	298.33	100.27	2.98

TENSIONES EN CIMIENTOS



COMPROBACION DE TENSIONES:

Hipótesis	σmáx. (t/m²)	σmín. (t/m²)	σcob. (t/m²)	Base comprimida
A	27.81	4.67	21.29	5.30
B	34.31	4.00	26.02	5.30
C	38.74	4.36	29.36	5.30
D	34.31	4.00	26.02	5.30

ARMADURAS:

ZAPATA

CORTANTE: fcv= 64.55 t/m² (EH-91)

Sección A-A | d = 1.09 m.
Vcu= 140.40 t/m (EH-91)

Sección B-B | d = 1.15 m.
Vcu= 74.23 t/m (EH-91)

FLEXION: | d = 1.15 m.
Uc = 1629 t/m

ZAPATA DELANTERA:

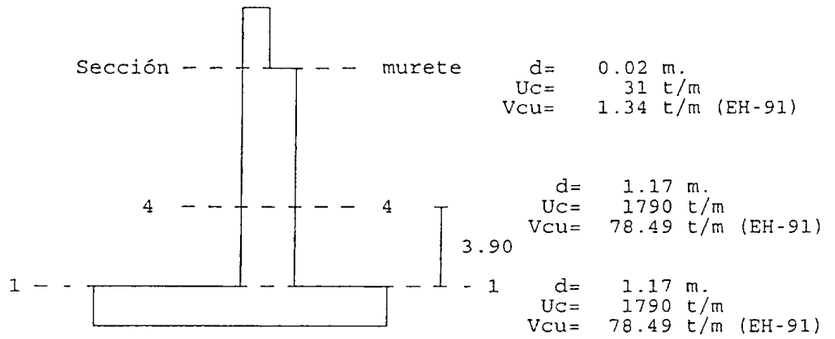
Hipót.	Vd(A-A) (t/m)	Vcu t/m (EHE)	Md(F-F) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	24.84	28.62	36.50	32.05	14.69	4.34	
B	30.95	28.62	45.45	40.01	14.69	4.34	Aα= 0.54 cm²/
C	34.98	28.62	51.42	45.34	14.69	4.34	Aα= 1.46 cm²/
D	30.95	28.62	45.45	40.01	14.69	4.34	Aα= 0.54 cm²/

ZAPATA TRASERA:

Hipót.	Vd(B-B) (t/m)	Vcu t/m (EHE)	Md(E-E) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	-33.17	30.25	-83.48	74.28	17.35	4.34	Aα= 0.67 cm²/
B	-32.60	30.04	-80.52	71.59	16.99	4.34	Aα= 0.59 cm²/
C	-29.26	28.62	-70.89	62.86	14.69	4.34	Aα= 0.15 cm²/
D	-32.60	30.04	-80.52	71.59	16.99	4.34	Aα= 0.59 cm²/

ALZADO

fcv= 67.08 t/m²



SECCION 1-1:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	33.74	38.04	31.60	92.52	80.91	18.82	19.20
B	35.21	41.80	52.46	101.50	88.96	20.06	19.20
C	34.81	44.24	71.51	98.37	86.15	19.45	19.20
D	35.21	41.80	52.46	101.50	88.96	20.06	19.20

SECCION 4-4:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	9.35	34.06	15.80	13.38	11.47	16.15	19.20
B	10.50	37.11	36.66	17.24	14.80	16.15	19.20
C	10.10	39.90	55.71	15.68	13.45	16.15	19.20
D	10.50	37.11	36.66	17.24	14.80	16.15	19.20

SECCION MURETE:

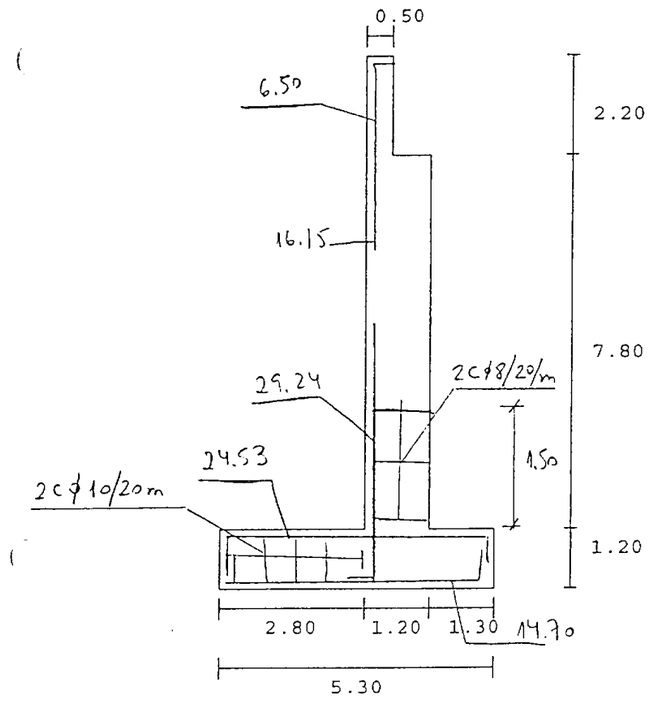
Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	0.02	1.16	0.01	0.00	0.03	0.28	0.80
B	0.03	1.16	0.01	0.00	0.03	0.28	0.80
C	0.03	1.16	0.01	0.00	0.03	0.28	0.80
D	0.03	1.16	0.01	0.00	0.03	0.28	0.80

Estructura ....:MURO HASTIAL

Estribo .....:E-1 E-2

DATOS GEOMETRICOS (sin escala)

* Cotas en mtrs.



Area de la sección 16.82 m²

MATERIALES

Hormigón en zapata ..... 250 Kg/cm²

Hormigón en alzados ..... 300 Kg/cm²

Coeficiente de seguridad del hormigón 1.50

Acero en armaduras, zapata y alzado ..... 5100 Kg/cm²

Coeficiente de seguridad del acero 1.15

CARACTERISTICAS DEL TERRENO

Densidad de las tierras (t/m3) 2.00

Coeficiente de empuje activo horizontal 0.30

Tensión admisible del terreno en cimentación (Kg/cm²) 5.0

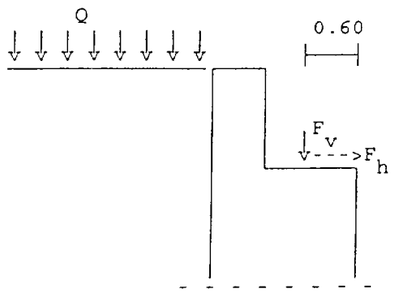
Coeficiente de rozamiento en cota de cimentación 0.57

Coeficiente de seguridad al deslizamiento (Cd) 1.50

Coeficiente de seguridad al vuelco (Cv) 1.80

Altura considerada de empuje de tierras (mtrs.) 11.20

CARGAS ACTUANTES



Reacciones Verticales (Fv t/m)

Cargas Permanentes :	0.00
Sobrecargas Máximas:	0.00
Sobrecargas Mínimas:	0.00
Sobrecarga q (t/m²):	0.00

Reacciones Horizontales (Fh t/m)

Reológicas :	0.00
Temperatura :	0.00
Frenado :	0.00

COMBINACIONES

A) 1.35*(Peso Propio)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

B) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)

C) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Máximas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

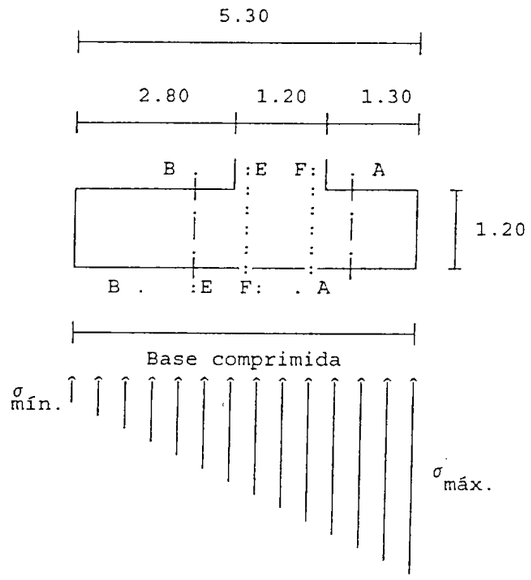
D) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Mínimas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

ESFUERZOS DE COMBINACIONES

Combinación	Fv(t/m)	Fh(t/m)	Q(t/m²)
A	0.00 0.00	0.00 0.00	0.00 0.00
B	0.00 0.00	0.00 0.00	0.00 0.00
C	0.00 0.00	0.00 0.00	0.00 0.00
D	0.00 0.00	0.00 0.00	0.00 0.00

TENSIONES EN CIMIENTOS



COMPROBACION DE TENSIONES:

Hipótesis	σmáx. (t/m²)	σmín. (t/m²)	σcob. (t/m²)	Base comprimida
A	37.04	0.00	27.78	5.29
B	37.04	0.00	27.78	5.29
C	37.04	0.00	27.78	5.29
D	37.04	0.00	27.78	5.29

COMPROBACION DE ESTABILIDAD:

Hipótesis	ΣFv(t/m)	ΣFh(t/m)	Cd	ΣMe(mt/m)	ΣMv(mt/m)	Cv
A	98.05	37.00	1.51	311.18	138.15	2.25
B	98.05	37.00	1.51	311.18	138.15	2.25
C	98.05	37.00	1.51	311.18	138.15	2.25
D	98.05	37.00	1.51	311.18	138.15	2.25

ARMADURAS:

ZAPATA

CORTANTE: fcv= 64.55 t/m² (EH-91)

Sección A-A | d = 1.09 m.
Vcu= 140.40 t/m (EH-91)

Sección B-B | d = 1.15 m.
Vcu= 74.23 t/m (EH-91)

FLEXION: | d = 1.15 m.
Uc = 1629 t/m

ZAPATA DELANTERA:

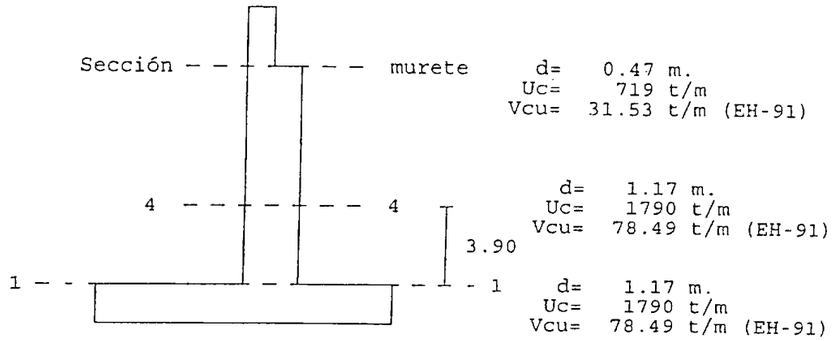
Hipót.	Vd(A-A) (t/m)	Vcu t/m (EHE)	Md(F-F) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	33.86	28.62	49.52	43.64	14.69	4.34	Aα= 1.20 cm²/
B	33.86	28.62	49.52	43.64	14.69	4.34	Aα= 1.20 cm²/
C	33.86	28.62	49.52	43.64	14.69	4.34	Aα= 1.20 cm²/
D	33.86	28.62	49.52	43.64	14.69	4.34	Aα= 1.20 cm²/

ZAPATA TRASERA:

Hipót.	Vd(B-B) (t/m)	Vcu t/m (EHE)	Md(E-E) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	-48.34	33.95	-120.92	108.78	24.53	4.77	Aα= 3.31 cm²/
B	-48.34	33.95	-120.92	108.78	24.53	4.77	Aα= 3.31 cm²/
C	-48.34	33.95	-120.92	108.78	24.53	4.77	Aα= 3.31 cm²/
D	-48.34	33.95	-120.92	108.78	24.53	4.77	Aα= 3.31 cm²/

ALZADO

fcv= 67.08 t/m²



SECCION 1-1:

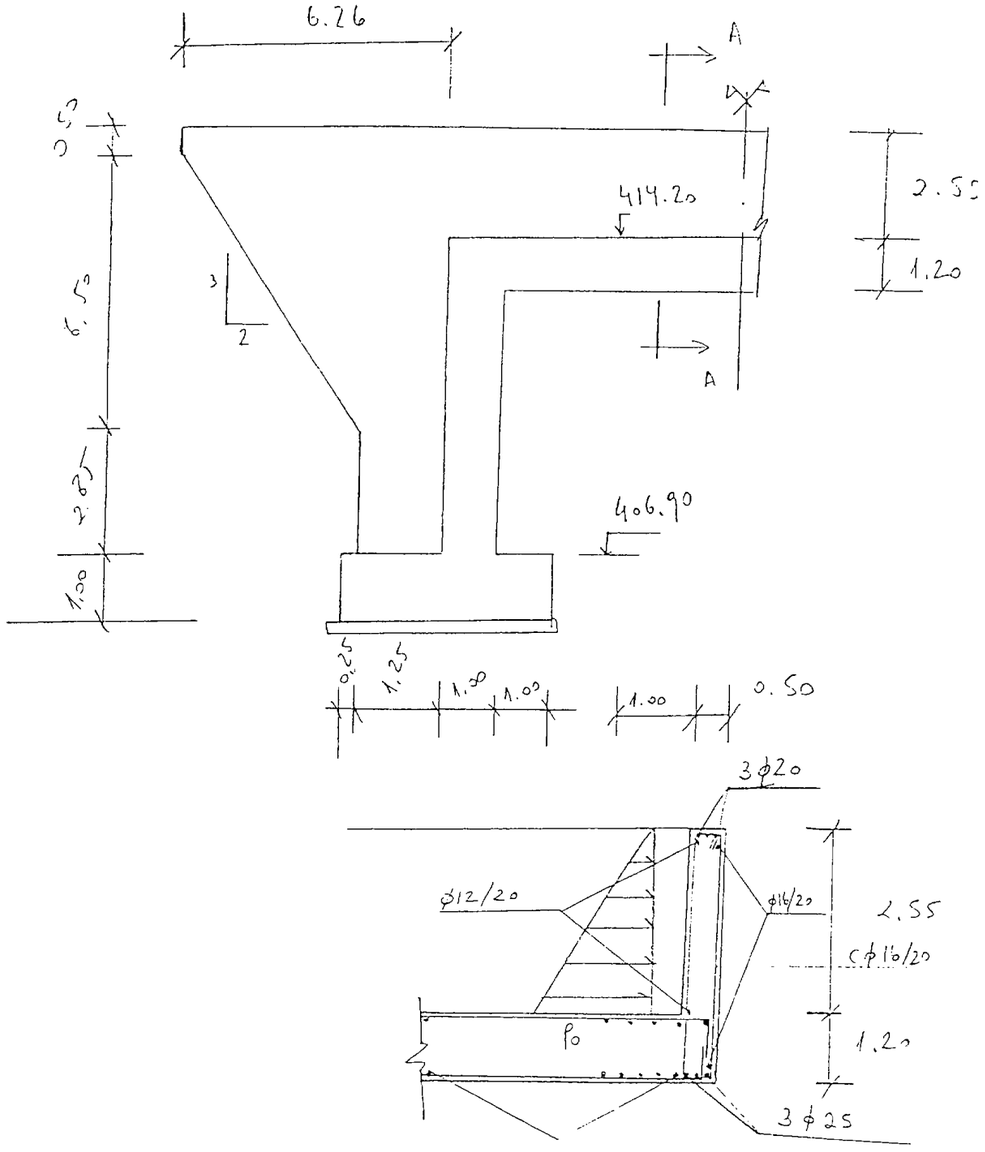
Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	44.25	43.86	35.30	146.20	129.65	29.24	19.20	Aα= 0.09 cm²/m
B	44.25	43.86	35.30	146.20	129.65	29.24	19.20	Aα= 0.09 cm²/m
C	44.25	43.86	35.30	146.20	129.65	29.24	19.20	Aα= 0.09 cm²/m
D	44.25	43.86	35.30	146.20	129.65	29.24	19.20	Aα= 0.09 cm²/m

SECCION 4-4:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	16.47	34.60	19.51	32.18	27.72	16.15	19.20
B	16.47	34.60	19.51	32.18	27.72	16.15	19.20
C	16.47	34.60	19.51	32.18	27.72	16.15	19.20
D	16.47	34.60	19.51	32.18	27.72	16.15	19.20

SECCION MURETE:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	2.14	15.31	3.71	1.57	3.35	6.49	8.00
B	2.14	15.31	3.71	1.57	3.35	6.49	8.00
C	2.14	15.31	3.71	1.57	3.35	6.49	8.00
D	2.14	15.31	3.71	1.57	3.35	6.49	8.00



$p_o = 0.50 \times 2.55\,m \times 2.0\,t/m^3 = 2.55\,t/m^2$

$Md = 1.50 \times 2.55\,t/m^2 \times \frac{1.70\,m}{2} \times \frac{2.55\,m}{3} = 4,145\,mt/m$

$As = 2.27\,cm^2/m \rightarrow \phi 16/20$

2. DETERMINACIÓN DE LAS SOLICITACIONES

$M_{sup} = \gamma_h \times A \times p_o \times l_{sup}^2/2 =$ 20.3 mt

$M_{inf} = \gamma_h \times p_o \times l_{inf}^2/2 =$ 18.8 mt

$V_{sup} = \gamma_h \times A \times p_o / l_{sup} =$ 11.4 t

3. DIMENSIONAMIENTO

3.1. FLEXIÓN

ARMADURAS MÍNIMAS

DIRECCIÓN X
$A_{s,min} = 3.2 / 1000 \times h \times b =$ 16.00 cm²
$A_{s,min,cara} = 1.066 / 1000 \times h \times b =$ 5.33 cm²

DIRECCIÓN Y
$A_{s,min} = 0.9 / 1000 \times h \times b =$ 4.50 cm²
$A_{s,min,sup} = 0.3 / 1000 \times h \times b =$ 1.95 cm²

DIRECCIÓN X — ϕ16/20
DIRECCIÓN Y — ϕ12/20
CARA INTERIOR (TIERRAS) — ϕ12/20

$U_r = 0.85 x f_{cd} \times d_r \times b =$ 708 t

$M_{rd} =$ 18.8 mt

$U_p = U_r \times (1 - (1 - 2 \times M_{rd} / (U_r \times d)^2)^{0.5}) =$ 31.5 t

$A_s = U_p / f_{yd} =$ 0.37 cm² — ϕ16/20

3.2. CORTANTE

DIRECCIÓN X

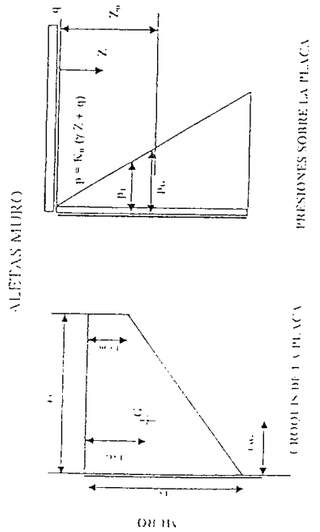
$V_{cu} = 0.30 \times b_w \times d_r \times f_{cd} =$ 232.5 t

$V_{cu} = 0.12 \times r \times (100\,\rho\,fck)^{1/3} \times b_w \times d_r =$ 15.82 t

$Vd =$ 11.4 t

$Vd < V_{cu}$

$Vd < V_{cu}$ No requiere armaduras de cortante



1. DATOS

GEOMETRÍA

$L_{y,tot} =$	0.500 m
$L_x =$	7.900 m
$L_{x,1} =$	6.900 m
$L_{x,2} =$	2.144 m
$L_{x,3} =$	1.770 m
$h =$	0.500 m
$d_x =$	0.405 m
$d_y =$	0.445 m
$b = b_{w,x} =$	1.000 m

ESPUELAS

$q =$	1.00 tn/m²
$\gamma_m =$	2.00 tn/m³
$\phi =$	33 º
$K_a =$	0.5
$p_1 = K_a \cdot (\gamma_{rell} \cdot z + q) =$	1.0 tn/m²
$p_2 = K_a \cdot (\gamma_{rell} \cdot (z+y) + q) =$	2.8 tn/m²
$z_p =$	1.5

MATERIALES

H-250

AEH - 500

$f_{cd} =$	51000 tn/m²
$\gamma_c =$	1.5
$f_{yd} =$	443478 tn/m²
$f_{yd,a} =$	429000 tn/m²

CÁLCULOS ESTRUCTURALES

FDO. JOSÉ ANGEL HIDALGO GONZÁLEZ
COL. Nº 9.859

Estructura E-7. (PK 317+505)

ESTRUCTURA E-7 (PK 317+500)

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- PROYECTO DE PRUEBA DE CARGA

Cálculos Estructurales

1. Introducción

1.1. Descripción de la solución adoptada

La Reposición 17, (Estructura E-7) ubicada en el P.K. 317+500, de la obra "Línea de Alta Velocidad Madrid-Barcelona-Frontera Francesa. Tramo: Lleida-Martorell. Subtramo III-B " consta de tres vanos, con luces de 25.00 m, 36.00 m y 25.00 m, con una longitud total de 87.00 m. Está apoyada mediante neoprenos en los extremos en estribos del tipo cerrado y en los puntos intermedios en pilas con un único fuste de sección circular con diámetro de 1.20 m, la cimentación es del tipo superficial.

El tablero es una losa continua de 12.06 m de ancho, limitado por barreras rígidas y aceras con barandilla antivandálica a ambos lados, siendo el ancho de plataforma de 9.00 m.

La sección del tablero es aligerada con un canto de 1.50 m, con bombeo del 2.0%.Del núcleo surgen voladizos de 2.40 m de longitud, que tienen un espesor variable, entre 0.20 m en el extremo y 0.40 m en la sección de unión con el núcleo.

Ambos estribos son cerrados y están cimentados mediante zapatas directamente en el terreno, y se completan con aletas a 45° para impedir que el terraplén invada la plataforma.

Las pilas tienen un único fuste circular de 1.20 m de diámetro. La cimentación es superficial mediante zapatas.

La ejecución del tablero se realizará en una sola fase, con hormigonado completo de la losa sobre cimbra y postesado total al alcanzar el 78% de la resistencia característica especificada para el hormigón (275 Kp/cm^2) .

1.2. Instrucciones y normas empleadas

Para el cálculo de las acciones que actúan sobre los diversos elementos de la estructura, se ha utilizado la "Instrucción sobre las acciones a considerar en el proyecto de puentes de carreteras (IAP)", aprobada el 12 de febrero de 1998.

Se ha tenido en cuenta la "Norma de Construcción Sismorresistente (Parte General y Edificación) NCS-94", aprobada por Real Decreto 2543/1994 de 29 de Diciembre.

Para el dimensionamiento y comprobación de los elementos de hormigón armado y de hormigón pretensado se ha seguido la "Instrucción de Hormigón Estructural" EHE, aprobada por Real Decreto 2661/1998 de 11 de Diciembre.

- Acciones sísmicas

De acuerdo a la Norma NCS-94 esta estructura se clasifica como de especial importancia.

La aceleración sísmica básica de la zona es a_b =0.04 g y el coeficiente de contribución K=1.0.

La aceleración sísmica de cálculo será entonces:

$\alpha_\chi = \rho\ \alpha_\beta$

$\rho = (\tau/50)^{0.37}$

t = 100 años, $\rho = 1.30$

$a_c = 1.30 \times 0.04$ g

$a_c = 0.052$ g < 0.06 g

Conforme con lo prescrito en la NCS-94, como la aceleración de cálculo es
$a_c = 0.052$ g < 0.06 g no se deberán tener en cuenta las acciones sísmicas.

1.3. Características de los materiales

Hormigones - Resistencia Característica

Hormigón en capas de regularización	$\phi_{\chi K} \geq 125$ kp/cm²
Hormigón en estribos	$\phi_{\chi K} \geq 250$ kp/cm²
Hormigón en pilas	$\phi_{\chi K} \geq 300$ kp/cm²
Hormigón en tablero postesado	$\phi_{\chi K} \geq 350$ kp/cm²

Aceros

Armaduras pasivas	AEH-500N (límite elástico f yk ≥5100 kp/cm²
Armaduras activas	- cordones de 0,6" de diámetro nominal (15.24 mm)
	- tensión de rotura f max ≥ 19000 kp/cm²
	- baja relajación (2,0% a 1000 h con 70%$ß_z$)

1.4. Niveles de control y coeficientes de seguridad

Hormigones	:	Nivel de control normal	$\gamma_\chi = 1.50$
Aceros :		Nivel de control normal	$\gamma_\psi = 1.15$
Acciones	:		
		Nivel de control intenso	$\gamma_F = 1.50$ (acciones variables)
		Conforme a la IAP	$\gamma_{G^*} = 1.50$ (acción del terreno)
			$\gamma_G = 1.35$ (acciones permanentes y reológicas

1.5. Características de la cimentación

Se han considerado las siguientes tensiones admisibles en la cimentación:

Estructura	Profundidad de cimentación	Tensión admisible del terreno	Observaciones
Estribos	> 3.00 m	3.00 kp/cm²	
Pilas	> 3.00 m	3.00 kp/cm²	

1.6. Procedimiento de cálculo y descripción de los programas utilizados

El cálculo del tablero se realiza mediante programas de ordenador en modelos estructurales de emparrillado plano y reticulado plano, basados en la matriz de rigidez y equilibrio de los nudos, donde se suponen las hipótesis básicas de la Resistencia de Materiales es decir, de linealidad geométrica y del material, despreciando la deformación por esfuerzo cortante.

Se ejecuta el cálculo con un modelo de emparrillado plano mediante el programa STATIK·3, del que se obtienen los esfuerzos transversales y los esfuerzos longitudinales incluyendo el efecto del reparto transversal de las cargas.

Considerando los esfuerzos obtenidos se realizan las comprobaciones de tensiones y el cálculo a rotura del tablero mediante el programa STATIK3, con un modelo lineal y utilizando como postprocesador FAGUS·3.

Se completa el cálculo con el dimensionamiento de la armadura de la losa en sentido transversal mediante la aplicación de la regla de WOOD-ARMER y los cálculos de esfuerzos locales, como por ejemplo los de apoyo o introducción de las fuerzas de tesado.

Los estribos y las pilas, tanto en alzado como en fundaciones, se calcularon y dimensionaron en hormigón armado.

Para el desarrollo de los cálculos resueltos por ordenador se han utilizado los siguientes programas:

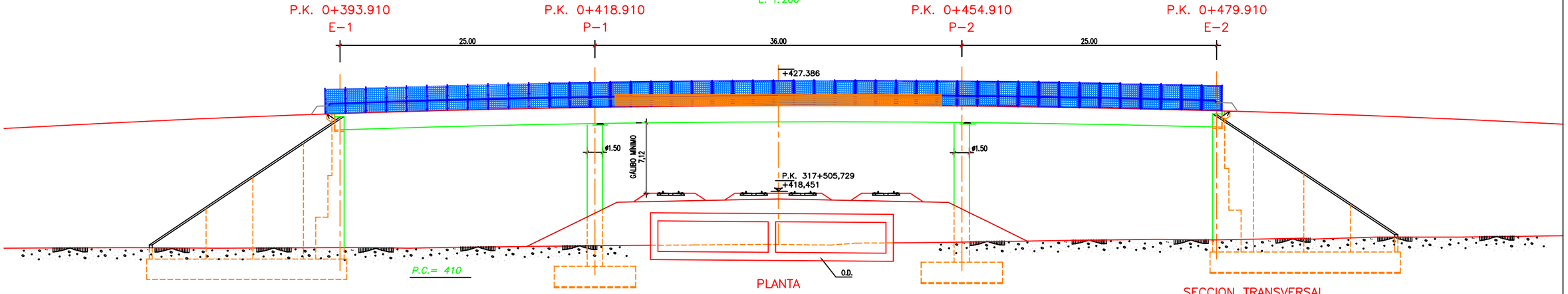
- STATIK-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10, 1997) .

- FAGUS-3: Desarrollado para el análisis y dimensionamiento de secciones de hormigón armado y pretensado, por CUBUS A.G. Zurich. (Versión 1.10 1997) .

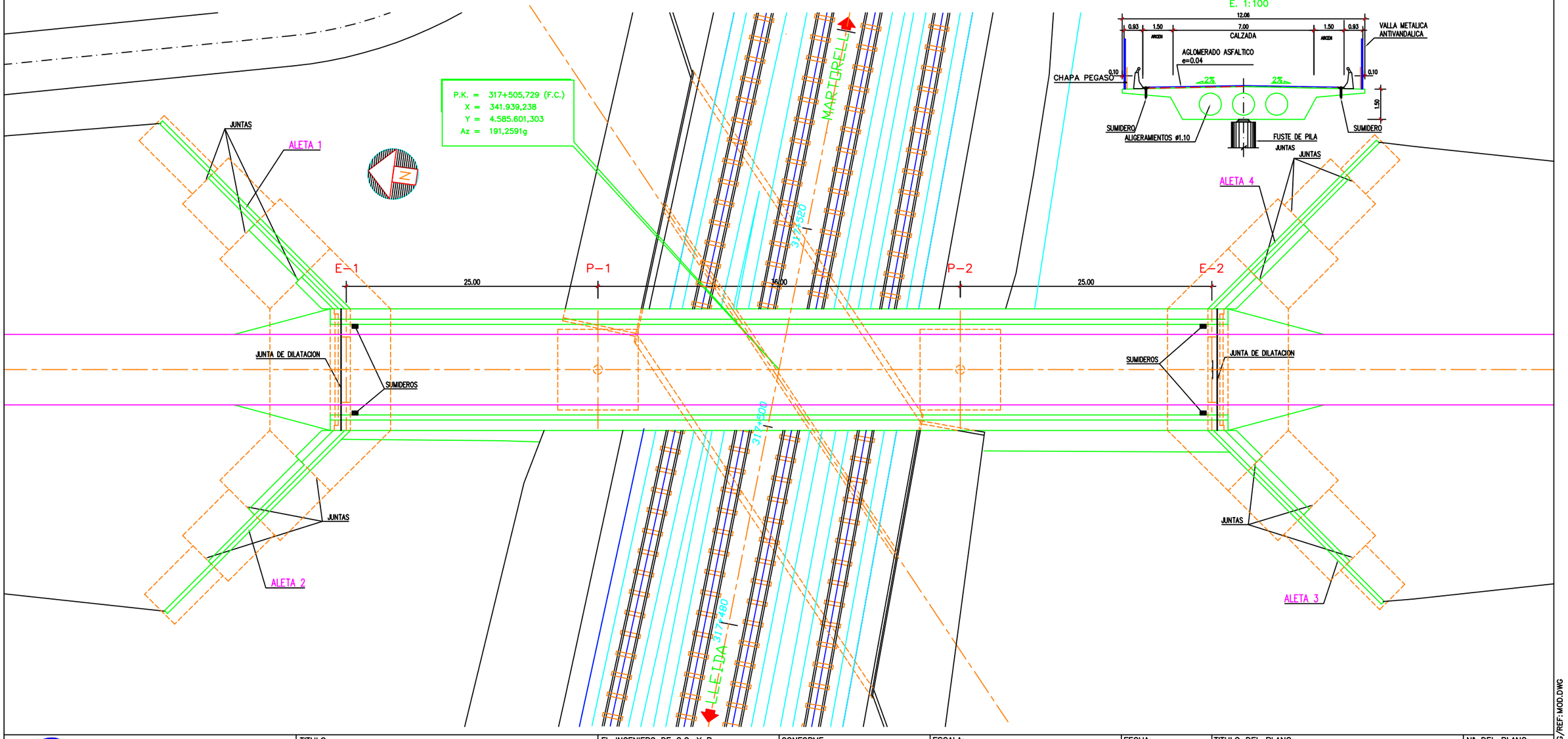
TABLERO

2.1. Geometría (Ver planos)

ALZADO
E. 1:200



PLANTA
E. 1:200



SECCION TRANSVERSAL
E. 1:100

GIF Gestor de Infraestructuras Ferroviarias	TITULO: LIQUIDACION DE LA MODIFICACION N°1 DEL PROYECTO CONSTRUCTIVO L.A.V. MADRID–ZARAGOZA–BARCELONA–FRONTERA FRANCESA TRAMO: LLEIDA–MARTORELL, SUBTRAMO III–B PLATAFORMA	EL INGENIERO DE C.C. Y P. AUTOR DE LA LIQUIDACION: FDO: D.JAIME GARCIA–GERMAN LOPEZ–BELMONTE	CONFORME: Sacyr EL CONTRATISTA	ESCALA: 1:100 1:200 (en A–1) Numérica 0 2,5 5m. 0 5 10m. Gráfica	FECHA: ABRIL 2.003	TITULO DEL PLANO: PASO SUPERIOR E–7 P.K. 317+505 REPOSICION 17 PLANO GENERAL	N° DEL PLANO: 2.9–7.1 Hoja 1 de 1

2.9–7.1.DWG/REF:MOD.DWG

2.2. Cálculo de las acciones

2.2.1. Acciones permanentes

2.2.1.1. Peso propio

El peso propio de la estructura de hormigón se calcula con un peso específico

$$\gamma = 2.50 Mp/m^3.$$

2.2.1.2. Cargas muertas

Firme mínimo	0.08 m x 2.30 Mp/m^3	=	0.184 Mp/m^2
Firme máximo	0.12 m x 2.30 Mp/m^3	=	0.276 Mp/m^2
Barandillas	2 x 0.10 Mp/m	=	0.20 Mp/m
Impostas	2 x 0.70 Mp/m	=	1.40 Mp/m
Barrera rígida	2 x 0.75 Mp/m	=	1.50 Mp/m

2.2.2. Acciones permanentes de valor no constante

2.2.2.1. Pretensado

Las pérdidas son calculadas por el programa de cálculo tal como se indica en el punto 2.3.

2.2.2.2. Reológicas: Retracción y fluencia

Se han calculado en el punto 2.3 considerando una humedad relativa del 60%, y un espesor medio de 846 mm. La edad del hormigón al entrar en carga es de 28 días, y el mismo es de endurecimiento normal. Los valores utilizados son:

ε retracción =-0.00029572

ε fluencia =-0.000315

Cálculo de la retracción del hormigón

$\varepsilon_{cs}(t, t_s) = \varepsilon_{cso}\,\beta s\,(t - t_s)$

Edad del hormigón al comienzo de la retracción (días)	ts =	**28.0**
Edad del hormigón en el instante de evaluación (días)	t =	**10000.0**
Coeficiente básico de retracción	$\varepsilon_{cso} = \varepsilon_s\ \beta_{HR}$	
Resistencia característica del hormigón	f ck (N / mm2) =	**35**
	ε_s =	0.000395
Humedad relativa en tanto por ciento	HR =	**60**
	β_{HR} =	-1.2152
	ε_{cso} =	-0.0004800
Area de la seccion transversal (m^2)	Ac =	**8.818**
Perímetro en contacto con la atmósfera (m)	u =	**25.842**
Espesor medio (mm)	e =	682
Coeficiente de evolución temporal de la retracción	$\beta s(t - ts)$ =	0.6161

$\varepsilon_{cs}(t, t_s) = \varepsilon_{cso}\,\beta s\,(t - t_s)$ = **-0.00029572**

Cálculo de la fluencia del hormigón

Edad del hormigón en el momento de tesar (días)	to =	**28.0**
Edad del hormigón en el instante de evaluación (días)	t =	**10000.0**
Resistencia media a compresión del hormigón	$f_{cm,28}$ (N / mm2) =	43
Módulo de deformación longitudinal inicial del hormigón	$E_{0,28}$ =	35,034
Tensión constante aplicada	$\sigma(to)$ (N / mm2) =	**40.00**

$\sigma(to)$ (N / mm2) < 0,45 * f cm = 19.35

Resistencia media a compresión del hormigón con endurecimiento normal	$f_{cm,to}$ (N / mm2) =	43.0
Módulo de deformación longitudinal inicial del hormigón	$E_{0,to}$ =	35,034
Coeficiente de fluencia	$\varphi(t,to) = \varphi o\ \beta c(t - to)$	
Coeficiente básico de fluencia	$\varphi o = \varphi_{HR}\ \beta(f cm)\ \beta(to)$	
	φ_{HR} =	1.45892
	$\beta(f cm)$ =	2.56198
	$\beta(to)$ =	0.48845
	φo =	1.82568
	β_H = 1276	< 1500
Función que describe el desarrollo de la fluencia	$\beta c(t - to)$ =	0.96451
Coeficiente de fluencia	$\varphi(t,to)$ =	1.76089
Deformación de fluencia	$\varepsilon_{c\sigma}(t, to) = \sigma(to)(1/E_{o,to} + \varphi(t,to)/E_{0,28})$	

$\varepsilon_{c\sigma}(t, to) = \sigma(to)(1/E_{o,to} + \varphi(t,to)/E_{0,28})$ = **-0.000315**

2.2.2.3. Sobrecargas del terreno

El relleno de tierras en el trasdós de los estribos se realiza con material del terraplén, que tiene las siguientes características:

Peso específico	:	$\gamma_T = 2.0$ Mp/m^3
Ángulo de fricción interna	:	$\phi = 33°$
Coeficiente de empuje activo	:	$\lambda_\alpha = 0.295$

2.2.3. Acciones variables

2.2.3.1. Sobrecargas de uso

2.2.3.1.1. Tren de cargas

a) Componentes verticales

Como el ancho de plataforma es inferior a 12.0 m, conforme a la IAP se ha utilizado el siguiente tren de cargas:

- Sobrecarga uniforme: 0.40 Mp/m²
- Vehículo de 60 Mp

b) Componentes horizontales

b.1) Frenado y arranque

Se considerará la actuación de esta fuerza sobre la estructura.

$$F_F = \frac{10.40 \text{ x } 93.95 \text{ m x } 0.4 \text{ Mp m}^{-2} + 60 \text{ Mp}}{20}$$

$F_F = 22.54$ Mp

Valor mínimo: $F_F = 20.80$ Mp

b.2) Fuerza centrífuga

La estructura está ubicada en un tramo de radio infinito, por lo tanto esta fuerza no actúa.

2.2.3.2. Acciones climáticas

a.) Viento

CALCULO DE LAS ACCIONES DEBIDAS AL VIENTO CONFORME A LA I.A.P

Proyecto : GIF SUBTRAMO IIIB Lleida-Martorell
Estructura : E-7 PS 317+500

Velocidad de referencia : V_{REF} (m/seg) = **28.00**

Velocidad de cálculo : V_C (m/seg) = $C_T \times C_R \times C_Z \times C_G \times V_{REF}$

Factor de topografía : C_T = **1.10**

Período de retorno (años) T = **100**

Factor de riesgo : $C_R = (0.562x\{1-0.2x \ln [- \ln (1- 1/T)]\}) 1/2$
$C_R = 1.04$

Factor de altura : $C_Z = K_Z \times LN (Z/ Zo)$ si $Z > Z_{MIN}$
$C_Z = K_Z \times LN (Z_{MIN}/ Zo)$ si $Z < Z_{MIN}$

Los valores de K_Z , Zo y Z_{MIN} se obtendrán de la tabla adjunta .

Tipo de Entorno	K_Z	Zo (m)	Z_{MIN} (m)
I	0.17	0.01	2.00
II	0.19	0.05	4.00
III	0.22	0.30	8.00
IV	0.24	1.00	16.00

K_Z = **0.22**

Zo = **0.3**

Z_{MIN} = **8.00**

OBTENCIÓN DE LA VELOCIDAD DE CÁLCULO PARA EL TABLERO :

En función de la altura Z considerada se obtendrán los valores de C_Z y C_G y en consecuencia de V_C

V_C (m/seg) = $C_T \times C_R \times C_Z \times C_G \times V_{REF}$

V_{REF} (m/seg) = 28.00

Para el tablero la altura considerada será : Z (m) = **13.00**

$C_Z = 0.829$

Factor de ráfaga : $C_G = (1 + 7 \times K_Z / C_Z / C_T)^{1/2}$

$C_G = 1.640$

TABLERO : V_C (m/seg) = 43.50

ACCIÓN DEL VIENTO SOBRE EL TABLERO

El empuje producido sobre cualquier elemento del puente se calculará con la siguiente fórmula :

$$F\ (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$$

Donde :

C_D : Coeficiente de arrastre

A : Área expuesta

$1/2\ \rho\ V_C^2$: Presión básica de cálculo (N/m^2)

ρ : masa específica del aire 1.25 kg/m^3

V_C : Velocidad de cálculo (m/seg)

EMPUJE TRANSVERSAL DE VIENTO

Empuje del Viento : $F\ (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$

TABLERO DE ALMA LLENA

Altura Z del tablero : Z (m) = **13.00**
Ancho del tablero : B (m) = **12.06**
Longitud del tramo : L (m) = **87.00**
Altura de barrera : $h_{BARRERA}$ (m) = **0.75** De tabla se obtiene : η = **2.00**
Altura equivalente : $h_{TABLERO}$ (m) = **1.50**
$h_{BAR.\ OPAC}(m) = h_{BARRERA} + \Sigma\ \eta\ h_{BARRERA}$
$h_{BAR.\ OPAC}(m)$ = 2.25
$h_{SOBREC.}$ (m) = **2.00**

Sin sobrecarga : h_{eq} (m) = $h_{TABLERO} + h_{BARRERA\ OPACA}$
h_{eq} (m) = 3.75

Con sobrecarga : h_{eq} (m) = $h_{TABLERO} + h_{SOBRECARGA} + h_{BARRERA}$
h_{eq} (m) = 5.00

Área expuesta : A (m^2) = $L \times h_{eq}$

Sin sobrecarga : A (m^2) = 326.3
Con sobrecarga : A (m^2) = 435.0
Coeficiente de arrastre : $C_D = 2.50 - 0.3 \times (B / h_{eq})$
$1.30 < C_D < 2.40$
Sin sobrecarga : C_D = 1.54
Con sobrecarga : C_D = 1.78

Cálculo del empuje transversal del viento sobre el tablero :

$$F\ (Mp) = C_D \times A \times (1/2 \times \rho \times V_C^2) \times 10^{-4}$$

Donde : V_C (m/seg) = 43.50
ρ (kg/m^3) = 1.25

Empuje sin la sobrecarga en el tablero : **F (Mp) = 59.23**

Longitud tramo L_T (m) = 87.00 **F (Mp/m) = 0.68**

Distancia de aplicación del empuje transversal horizontal respecto de la base del tablero : **d (m) = 1.35**

Empuje con la sobrecarga en el tablero : **F (Mp) = 91.38**

Longitud tramo L_T (m) = 87.00 **F (Mp/m) = 1.05**

Distancia de aplicación del empuje transversal horizontal respecto de la base del tablero : **d (m) = 2.10**

2.2.3.2.b) Nieve

La estructura está en Zona III.

$$q = 0.80 \times S_K$$

$$q = 0.80 \times 40\ Kp/m^2 = 0.032\ Mp/m^2$$

Es despreciable.

2.2.3.2.c) Térmicas

De acuerdo con la I.A.P. se ha considerado un incremento uniforme de temperatura que es función de los siguientes parámetros:

- La estructura está ubicada en la región climática denominada zona IV (Z = 4) .
- La sección del tablero está formada por una losa aligerada de hormigón (S = 1), con un canto total de 1.50 m (h = 1.50).

$$\Delta T = K\, z^a\, h^b\, s^c = 24.91 \times 4^{.292} \times 1.5^{-0.172}$$

Sobre la base de estos datos se obtiene que el rango anual de la temperatura media es de 34.80 °C, y por lo tanto consideraremos un incremento uniforme de temperatura de

$$\Delta T = \pm 34.80\ ^\circ C$$

$$\varepsilon_\tau = \pm 34.80 \times 10^{-5}$$

El incremento de temperatura entre caras superior e inferior del tablero, gradiente térmico vertical, será:

- Gradiente térmico vertical positivo °C/m

  Losa aligerada de hormigón:

  $\Delta T_{SI} = K\ \Delta T_{SI}$, ref.

  $K = K_1 \cdot K_3 \cdot K_4$ $\qquad K_1 = .78$

  $K_2 = 1.06$

  ΔT_{SI}, ref = 11.50°C $\qquad K_4 = 1.18$

  $\Delta T_{SI} = .975 \times 11.50^\circ C/m$

  $\Delta T_{SI} = 11.22^\circ C/m$

- Gradiente térmico vertical inverso

  Tableros de hormigón: con pavimento bituminoso 0

2.2.3.3. Sobrecargas debidas al agua

No se consideran

.2.4. Acciones accidentales

2.2.4.1. Acciones sísmicas

De acuerdo a la Norma NCS-94 esta estructura se clasifica como de especial importancia.

La aceleración sísmica básica de la zona es ab≤ 0.04 g.

$a_c = \rho\, a_b$

$\rho = (t/50)^{0.37}$

t = 100 años, $\rho = 1.30$

$a_c = 1.30 \times 0.04$ g

$a_c = 0.052\ g \leq 0.06\ g$

No se consideran las acciones sísmicas.

2.2.4.2. Impacto de vehículos contra la pila

El impacto del vehículo contra la pila no se considerará debido a la existencia de la bionda.

2.3. Cálculo como emparrillado

2.3. Cálculo como emparrillado

Se ha generado el modelo de emparrillado mediante el programa STATIK3, y se han introducido todas las cargas, incluido el pretensado, lo que nos permitirá obtener los esfuerzos transversales con la influencia de la posición de las cargas, el ancho del tablero, y el apoyo puntual en las pilas.

Se han introducido las acciones individuales, correspondientes a cada hipótesis básica de cálculo.

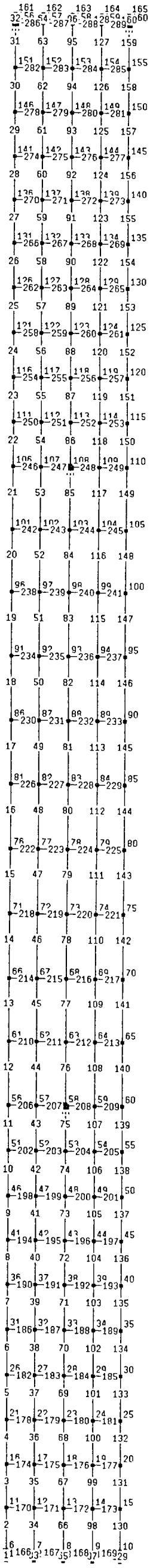
Posteriormente se ha calculado la envolvente pésima de esfuerzos para cada acción, con los diferentes coeficientes de ponderación de la Instrucción.

Por aplicación de la regla de WOOD-ARMER a dichos esfuerzos de cálculo se obtienen las armaduras transversales necesarias.

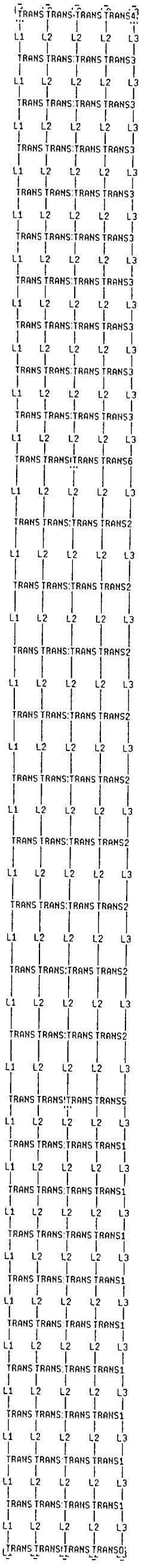
Finalmente se calculan los coeficientes de reparto transversal.

2.3.1. Modelo de cálculo

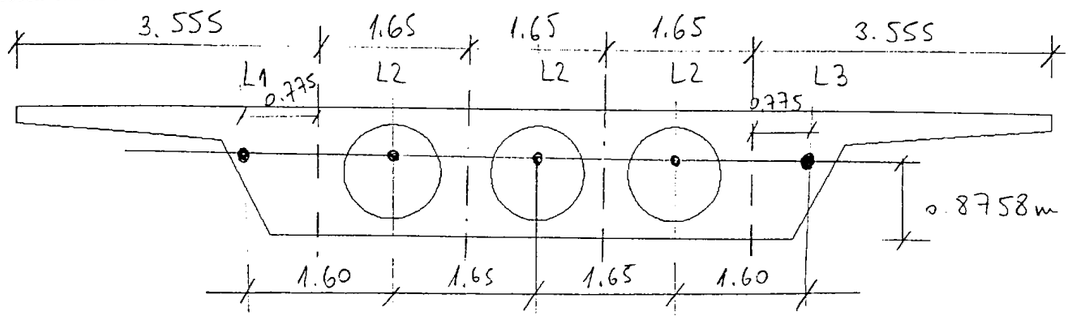
Scale 1 : 259.1
Structure - GEOMETRIA



Scale 1 : 259.1
Structure - BARRAS



Sección TABVANO



Características mecánicas Sección "TABVANO" (sin coef. homogeneiz.)

Area	Ax =	8.818 m2				
Momento de inercia	Iy =	2.067 m4	Iz =	67.09 m4	Ip =	69.16 m4
Const. de torsión					Ix =	2.742 m4
Momento estático	Zy =	3.816 m3	Zz =	20.90 m3		
Baricentro	ys =	6.0268 m	zs =	0.8758 m	Angulo=	0.0 Grad
Dist. al borde	yl =	-6.0268 m	yr =	6.0332 m		
	zo =	0.6242 m	zu =	-0.8758 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TABVANO" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	88177.0	2584.263	2.74E+08	6)

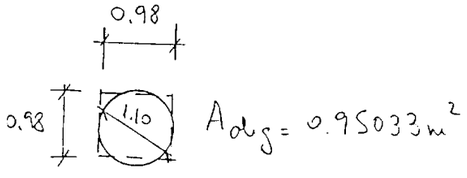
Puntos de contorno [m]:

1	0.0000	1.3000	2	2.4000	1.1000	3	3.0000	0.0000
4	9.0600	0.0000	5	9.6600	1.1000	6	12.0600	1.3000
7	12.0600	1.5000	8	0.0000	1.5000	9	0.0000	1.3000

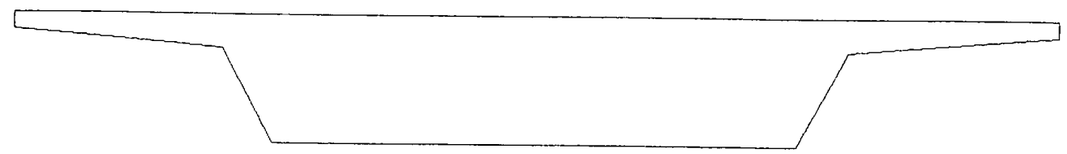
Sección parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
CS 2	Hueco		6.0600	0.7500	0.5500	
Nombre de la sección maestra: CS 1						
CS 3	Hueco		4.3800	0.7500	0.5500	
Nombre de la sección maestra: CS 1						
CS 4	Hueco		7.6800	0.7500	0.5500	
Nombre de la sección maestra: CS 1						

No se ha entrado ninguna armadura!



Sección TABAPOYO



Características mecánicas Sección "TABAPOYO" (sin coef. homogeneiz.)

Area	Ax =	11.67 m2				
Momento de inercia	Iy =	2.317 m4	Iz =	72.48 m4	Ip =	74.80 m4
Const. de torsión					Ix =	3.173 m4
Momento estático	Zy =	4.547 m3	Zz =	24.26 m3		
Baricentro	ys =	6.0300 m	zs =	0.8450 m	Angulo=	0.0 Grad
Dist. al borde	yl =	-6.0300 m	yr =	6.0300 m		
	zo =	0.6550 m	zu =	-0.8450 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TABAPOYO" (sin coef. homogeneiz.)

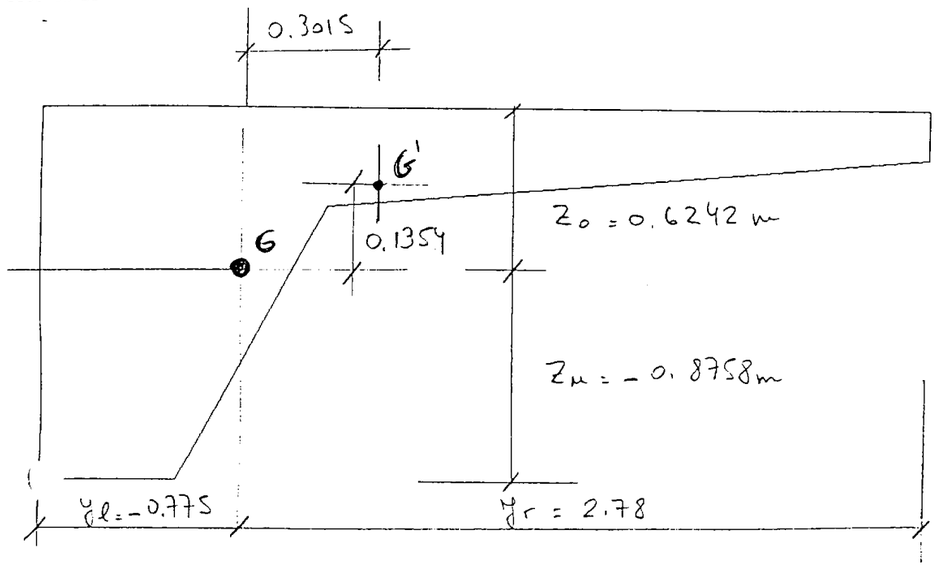
Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	116700.0	2584.263	3.17E+08	3)

Puntos de contorno [m]:

1	0.0000	1.3000	2	2.4000	1.1000	3	3.0000	0.0000
4	9.0600	0.0000	5	9.6600	1.1000	6	12.0600	1.3000
7	12.0600	1.5000	8	0.0000	1.5000	9	0.0000	1.3000

No se ha entrado ninguna armadura!

Sección L1



Características mecánicas Sección "L1" (sin coef. homogeneiz.)

Area	Ax = 21.23E3 cm2			
Momento de inercia	Iy = 23.00E6 cm4	Iz = 202.98E6 cm4	Ip =225.98E6 cm4	
rel. a ejes dados	Iye= 37.03E6 cm4	Ize= 188.95E6 cm4	Iyz= -4.8E00 cm4	
Const. de torsión			Ix = 14.21E6 cm4	
Momento estático	Zy =755.58E3 cm3	Zz = 1.652E6 cm3		
Baricentro	ys = 1.0765 m	zs = 1.0112 m	Angulo= 16.2 Grad	
Dist. al borde	yl = -1.0765 m	yr = 2.4785 m		
	zo = 0.4888 m	zu = -1.0112 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

$$I_y = 23.10^6\ cm^4 + 21.23\,10^3\ cm^2 \times (13.54cm)^2$$

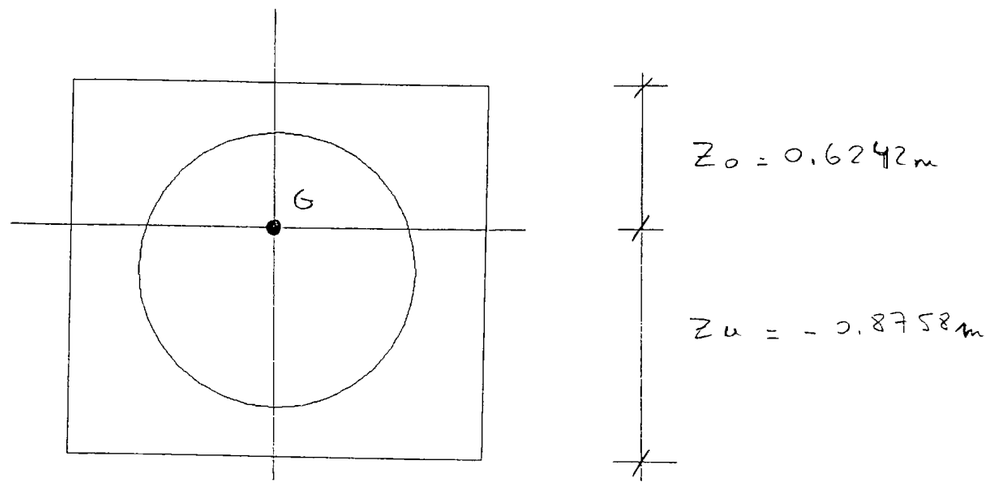
$$I_y = 0.26892\ m^4$$

$$I_z = 202.98\ 10^6\ cm^4 + 21.23\ 10^3\ cm^2 \times (30.15cm)^2$$

$$I_z = 2.2228\ m^4$$

$$Beta = 16.20^\circ$$

Sección L2



Características mecánicas Sección "L2" (sin coef. homogeneiz.)

Area	Ax = 15.24E3 cm2			
Momento de inercia	Iy = 39.21E6 cm4	Iz = 48.96E6 cm4	Ip = 88.17E6 cm4	
Const. de torsión			Ix = 60.63E6 cm4	
Momento estático	Zy =706.21E3 cm3	Zz = 799.02E3 cm3		
Baricentro	ys = 0.8250 m	zs = 0.7500 m	Angulo= 0.0 Grad	
Dist. al borde	yl = -0.8250 m	yr = 0.8250 m		
	zo = 0.7500 m	zu = -0.7500 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L2" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	15242.3	630.000	6.06E+07	7)

Puntos de contorno [m]:

1	0.0000	0.0000	2	1.6500	0.0000	3	1.6500	1.5000
4	0.0000	1.5000	5	0.0000	0.0000			

Sección parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
CS 2	Hueco		0.8250	0.7500	0.5500	

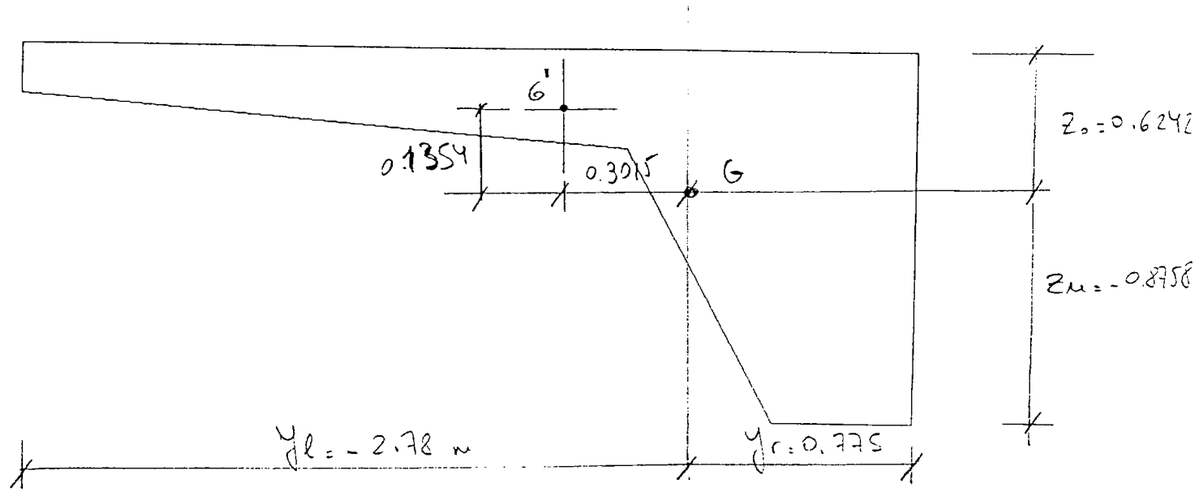
Nombre de la sección maestra: CS 1

No se ha entrado ninguna armadura!

$$I_y = 39.21\ 10^6\ cm^4 + 15.24\ 10^3\ cm^2 \times (12.58cm)^2$$

$$I_y = 0.4162\ cm^4$$

Sección L3



Características mecánicas Sección "L3" (sin coef. homogeneiz.)

Area	Ax = 21.23E3 cm2			
Momento de inercia	Iy = 23.00E6 cm4	Iz = 202.98E6 cm4	Ip =225.98E6 cm4	
rel. a ejes dados	Iye= 37.03E6 cm4	Ize= 188.95E6 cm4	Iyz= 48.26E6 cm4	
Const. de torsión			Ix = 14.21E6 cm4	
Momento estático	Zy =755.58E3 cm3	Zz = 1.652E6 cm3		
Baricentro	ys = 2.4785 m	zs = 1.0112 m	Angulo=-16.2 Grad	
Dist. al borde	yl = -2.4785 m	yr = 1.0765 m		
	zo = 0.4888 m	zu = -1.0112 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L3" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	21225.0	947.132	1.42E+07	3)

Puntos de contorno [m]:

1	0.0000	1.5000	2	0.0000	1.3000	3	2.4000	1.1000
4	3.0000	0.0000	5	3.5550	0.0000	6	3.5550	1.5000
7	0.0000	1.5000						

No se ha entrado ninguna armadura!

$I_y = 23\ 10^6\ cm^4 + 21.23\ 10^3\ cm^2 \times (13.54\ cm)^2$

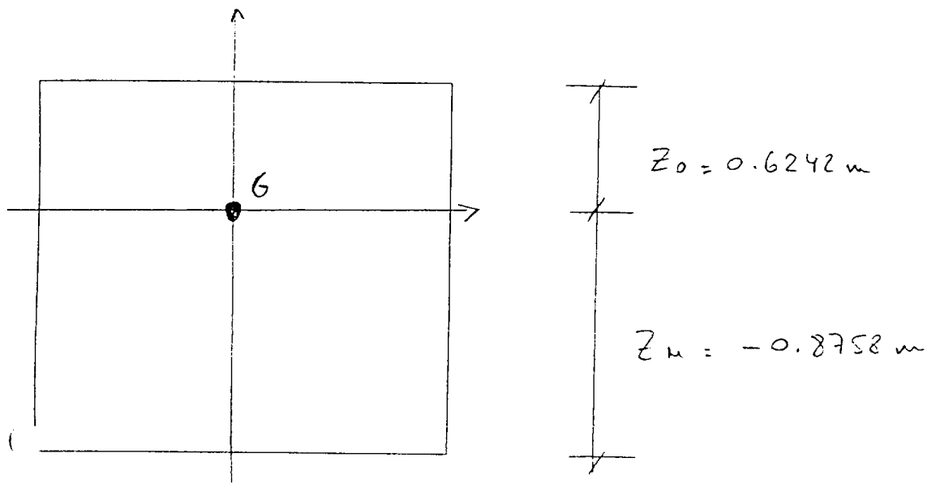
$I_y = 0.26892\ m^4$

$I_z = 202.98\ 10^6\ cm^4 + 21.23\ 10^3\ cm^2 \times (30.15\ cm)^2$

$I_z = 2.2228\ m^4$

$\alpha = -16.20^\circ$

Sección L2APOYO



Características mecánicas Sección "L2APOYO" (sin coef. homogeneiz.)

Area	Ax = 24.75E3 cm2			
Momento de inercia	Iy = 46.41E6 cm4	Iz = 56.15E6 cm4	Ip =102.56E6 cm4	
Const. de torsión			Ix = 85.31E6 cm4	
Momento estático	Zy =928.13E3 cm3	Zz = 1.021E6 cm3		
Baricentro	ys = 0.8250 m	zs = 0.7500 m	Angulo= 0.0 Grad	
Dist. al borde	yl = -0.8250 m	yr = 0.8250 m		
	zo = 0.7500 m	zu = -0.7500 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "L2APOYO" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	24750.0	630.000	8.53E+07	1)

Puntos de contorno [m]:

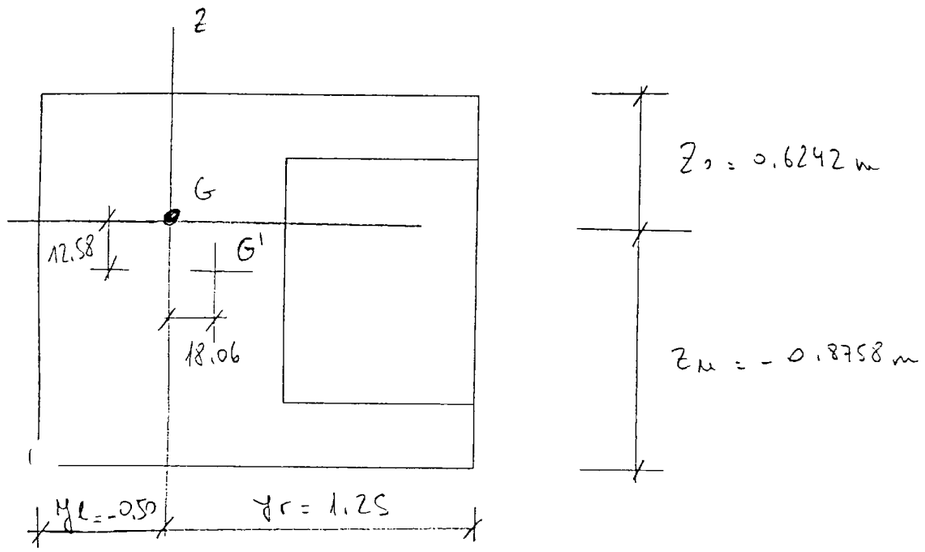
1	0.0000	0.0000	2	1.6500	0.0000	3	1.6500	1.5000
4	0.0000	1.5000	5	0.0000	0.0000			

No se ha entrado ninguna armadura!

$I_y = 46.41\ 10^6\ cm^4 + 24.75 \times 10^3\ cm^2 \times (12.58\ cm)^2$

$I_y = 0.50327\ m^4$

Sección TRANS0



Características mecánicas Sección "TRANS0" (sin coef. homogeneiz.)

Area	Ax = 18.90E3 cm2				
Momento de inercia	Iy = 43.34E6 cm4	Iz = 38.03E6 cm4	Ip = 81.36E6 cm4		
Const. de torsión			Ix = 81.36E6 cm4		
Momento estático	Zy =804.30E3 cm3	Zz = 694.73E3 cm3			
Baricentro	ys = 0.6806 m	zs = 0.7500 m	Angulo= 0.0 Grad		
Dist. al borde	yl = -0.6806 m	yr = 1.0694 m			
	zo = 0.7500 m	zu = -0.7500 m			

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS0" (sin coef. homogeneiz.)

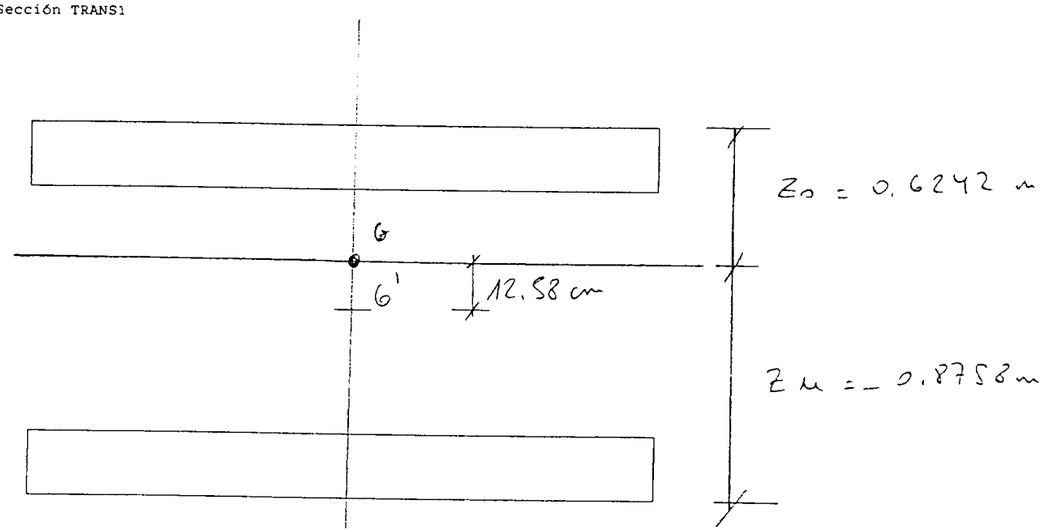
Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
Puntos de hueco [m]: (CS 2)						
1 1.0000 0.2600	2 1.7500 0.2600	3 1.7500 1.2400				
4 1.0000 1.2400	5 1.0000 0.2600					
Nombre de la sección maestra: CS 1						
CS 1	H350	1.00	18900.0	650.000	8.80E+07	6)
Puntos de contorno [m]:						
1 0.0000 0.0000	2 1.7500 0.0000	3 1.7500 1.5000				
4 0.0000 1.5000	5 0.0000 0.0000					

No se ha entrado ninguna armadura!

$$I_y = 43.34\,10^6\,cm^4 + 18.90\,10^3\,cm^2 \times (12.58\,cm)^2 = 0.4633\,m^4$$

$$I_z = 38.03\,10^6\,cm^4 + 18.90\,10^3\,cm^2 \times (18.06\,cm)^2 = 0.44194\,m^4$$

Sección TRANS1



Características mecánicas Sección "TRANS1" (sin coef. homogeneiz.)

Area	Ax = 1.300 m2				
Momento de inercia	Iy = 0.5070 m4	Iz = 0.6771 m4	Ip = 1.184 m4		
Const. de torsión			Ix = 0.0274 m4		
Momento estático	Zy = 0.8060 m3	Zz = 0.8125 m3			
Baricentro	ys = 1.2500 m	zs = 0.7500 m	Angulo= 0.0 Grad		
Dist. al borde	yl = -1.2500 m	yr = 1.2500 m			
	zo = 0.7500 m	zu = -0.7500 m			

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

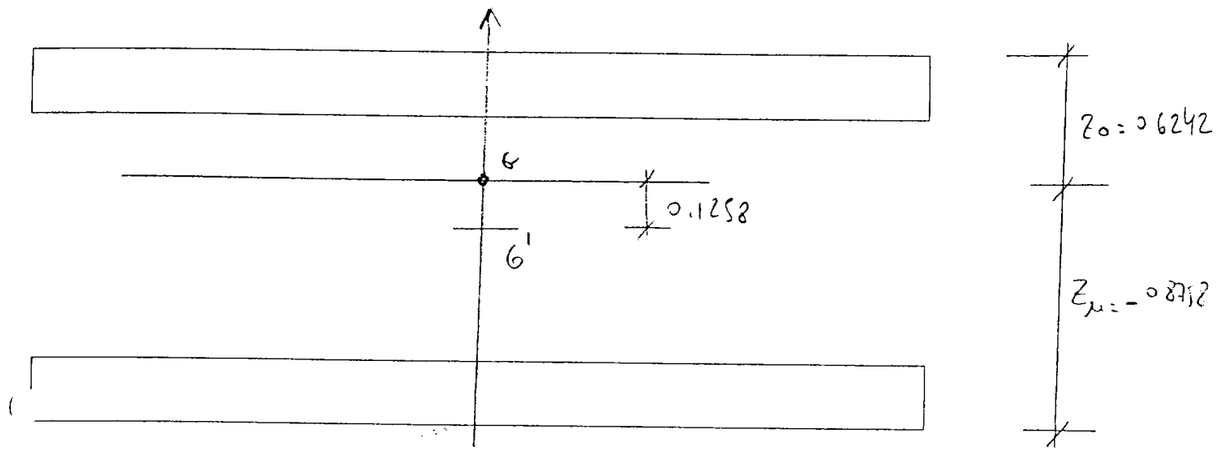
Contorno de sección parcial, Sección "TRANS1" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 2	H350	1.00	6500.000	552.000	1.37E+06	1)
Puntos de contorno [m]:						
1 0.0000 1.2400	2 2.5000 1.2400	3 2.5000 1.5000				
4 0.0000 1.5000	5 0.0000 1.2400					
CS 1	H350	1.00	6500.000	552.000	1.37E+06	1)
Puntos de contorno [m]:						
1 0.0000 0.0000	2 2.5000 0.0000	3 2.5000 0.2600				
4 0.0000 0.2600	5 0.0000 0.0000					

No se ha entrado ninguna armadura!

$$I_y = 0.5070\,m^4 + 1.30\,m^2 \times (0.1258\,m)^2 = 0.5275\,m^4$$

Sección TRANS2



Características mecánicas Sección "TRANS2" (sin coef. homogeneiz.)

Area	Ax =	1.872 m2				
Momento de inercia	Iy =	0.7301 m4	Iz =	2.022 m4	Ip =	2.752 m4
Const. de torsión					Ix =	0.0403 m4
Momento estático	Zy =	1.161 m3	Zz =	1.685 m3		
Baricentro	ys =	1.8000 m	zs =	0.7500 m	Angulo=	0.0 Grad
Dist. al borde	yl =	-1.8000 m	yr =	1.8000 m		
	zo =	0.7500 m	zu =	-0.7500 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

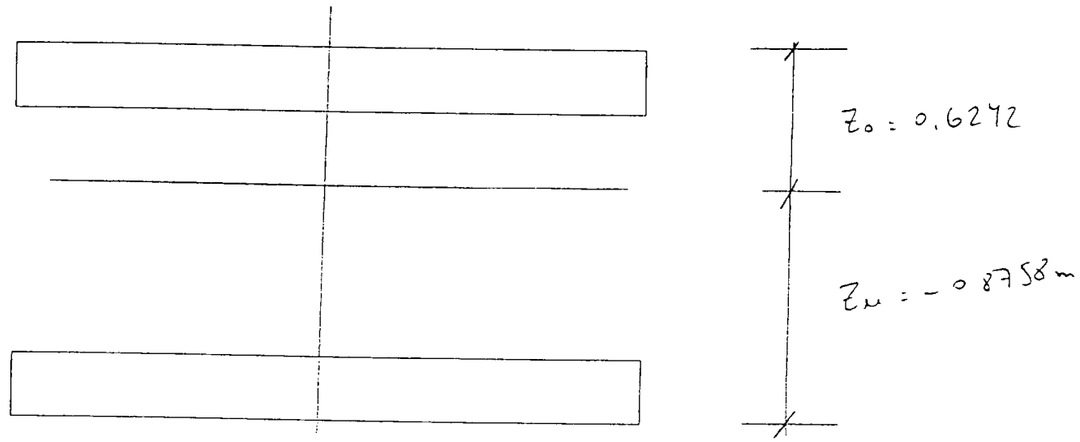
Contorno de sección parcial, Sección "TRANS2" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 2	H350	1.00	9360.000	772.000	2.01E+06	1)
Puntos de contorno [m]:						
1 0.0000 1.2400	2 3.6000 1.2400	3 3.6000 1.5000				
4 0.0000 1.5000	5 0.0000 1.2400					
CS 1	H350	1.00	9360.000	772.000	2.01E+06	1)
Puntos de contorno [m]:						
1 0.0000 0.0000	2 3.6000 0.0000	3 3.6000 0.2600				
4 0.0000 0.2600	5 0.0000 0.0000					

No se ha entrado ninguna armadura!

$$I_y = 0.7301\ m^4 + 1.872\ m^2\ (0.1258\ m)^2 = 0.75972\ m^4$$

Sección TRANS3



Características mecánicas Sección "TRANS3" (sin coef. homogeneiz.)

Area	Ax =	1.300 m2				
Momento de inercia	Iy =	0.5070 m4	Iz =	0.6771 m4	Ip =	1.184 m4
Const. de torsión					Ix =	0.0274 m4
Momento estático	Zy =	0.8060 m3	Zz =	0.8125 m3		
Baricentro	ys =	1.2500 m	zs =	0.7500 m	Angulo=	0.0 Grad
Dist. al borde	yl =	-1.2500 m	yr =	1.2500 m		
	zo =	0.7500 m	zu =	-0.7500 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

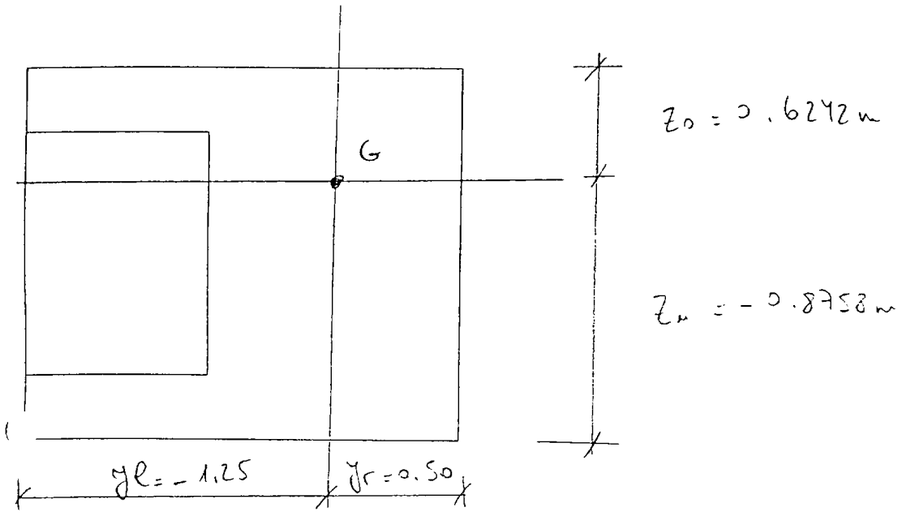
Contorno de sección parcial, Sección "TRANS3" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 2	H350	1.00	6500.000	552.000	1.37E+06	1)
Puntos de contorno [m]:						
1 0.0000 1.2400	2 2.5000 1.2400	3 2.5000 1.5000				
4 0.0000 1.5000	5 0.0000 1.2400					
CS 1	H350	1.00	6500.000	552.000	1.37E+06	1)
Puntos de contorno [m]:						
1 0.0000 0.0000	2 2.5000 0.0000	3 2.5000 0.2600				
4 0.0000 0.2600	5 0.0000 0.0000					

No se ha entrado ninguna armadura!

$$I_y = 0.5275\ m^4$$

Sección TRANS4



Características mecánicas Sección "TRANS4" (sin coef. homogeneiz.)

Area Ax = 18.90E3 cm2
Momento de inercia Iy = 43.34E6 cm4 Iz = 38.03E6 cm4 Ip = 81.36E6 cm4
Const. de torsión Ix = 81.36E6 cm4
Momento estático Zy =804.30E3 cm3 Zz = 694.73E3 cm3
Baricentro ys = 1.0694 m zs = 0.7500 m Angulo= 0.0 Grad
Dist. al borde yl = -1.0694 m yr = 0.6806 m
zo = 0.7500 m zu = -0.7500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS4" (sin coef. homogeneiz.)
Sección parcial Material w *ax[cm2] *u[cm] *ix[cm4] Nr

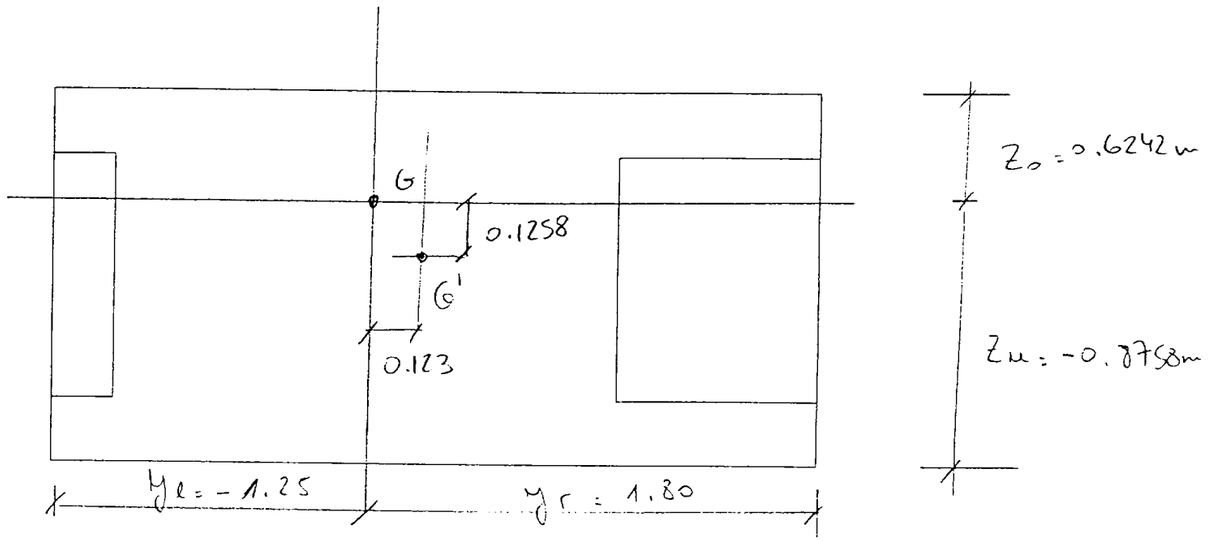
Puntos de hueco [m]: (CS 2)
1 0.0000 0.2600 2 0.7500 0.2600 3 0.7500 1.2400
4 0.0000 1.2400 5 0.0000 0.2600
Nombre de la sección maestra: CS 1
CS 1 H350 1.00 18900.0 650.000 8.80E+07 6)
Puntos de contorno [m]:
1 0.0000 0.0000 2 1.7500 0.0000 3 1.7500 1.5000
4 0.0000 1.5000 5 0.0000 0.0000

No se ha entrado ninguna armadura!

$I_y = 0,4633\ m^4$

$I_z = 0.44194\ m^4$

Sección TRANS5



Características mecánicas Sección "TRANS5" (sin coef. homogeneiz.)

Area Ax = 3.546 m2
Momento de inercia Iy = 0.7755 m4 Iz = 1.949 m4 Ip = 2.725 m4
Const. de torsión Ix = 2.285 m4
Momento estático Zy = 1.464 m3 Zz = 2.216 m3
Baricentro ys = 1.3730 m zs = 0.7500 m Angulo= 0.0 Grad
Dist. al borde yl = -1.3730 m yr = 1.6770 m
zo = 0.7500 m zu = -0.7500 m

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

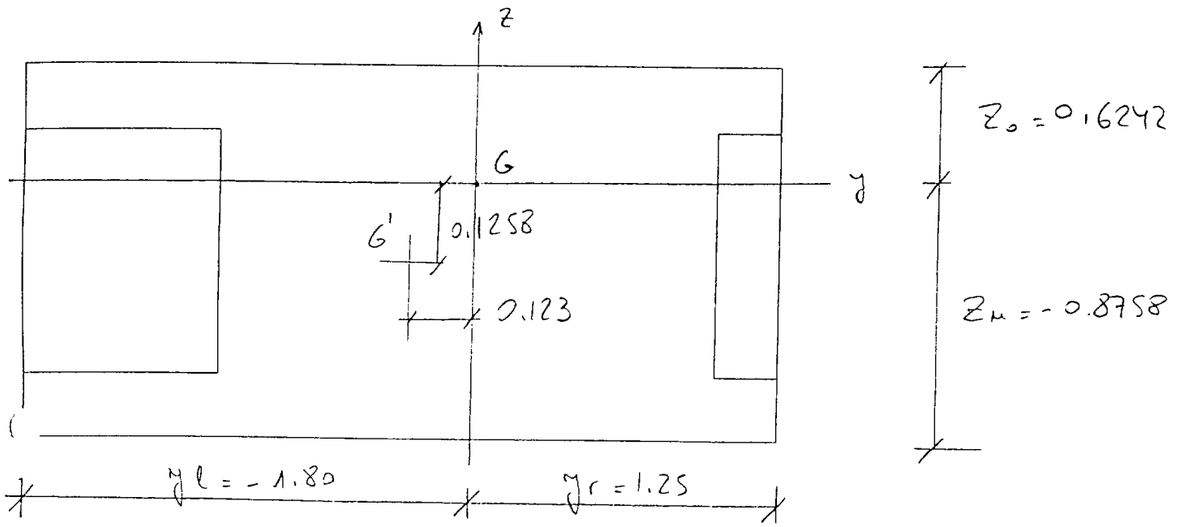
Contorno de sección parcial, Sección "TRANS5" (sin coef. homogeneiz.)
Sección parcial Material w *ax[cm2] *u[cm] *ix[cm4] Nr

Puntos de hueco [m]: (CS 3)
1 2.2500 0.2600 2 3.0500 0.2600 3 3.0500 1.2400
4 2.2500 1.2400 5 2.2500 0.2600
Nombre de la sección maestra: CS 1
Puntos de hueco [m]: (CS 2)
1 0.0000 0.2600

$I_y = 0,7755\ m^4 + 3,546\ m^2 \times (0.1258\ m)^2 = 0.831617\ m^4$

$I_y = 1.949\ m^4 + 3,546\ m^2 \times (0.123\ m)^2 = 2,002\ m^4.$

Sección TRANS6



Características mecánicas Sección "TRANS6" (sin coef. homogeneiz.)

Area	Ax =	3.546 m2				
Momento de inercia	Iy =	0.7755 m4	Iz =	1.949 m4	Ip =	2.725 m4
Const. de torsión					Ix =	2.285 m4
Momento estático	Zy =	1.464 m3	Zz =	2.216 m3		
Baricentro	ys =	1.6770 m	zs =	0.7500 m	Angulo=	0.0 Grad
Dist. al borde	yl =	1.6770 m	yr =	1.3730 m		
	zo =	0.7500 m	zu =	-0.7500 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "TRANS6" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr

Puntos de hueco [m]: (CS 3)

1	2.8000	0.2600	2	3.0500	0.2600	3	3.0500	1.2400
4	2.8000	1.2400	5	2.8000	0.2600			

Nombre de la sección maestra: CS 1

Puntos de hueco [m]: (CS 2)

1	0.0000	0.2600	2	0.8000	0.2600	3	0.8000	1.2400
4	0.0000	1.2400	5	0.0000	0.2600			

Nombre de la sección maestra: CS 1

CS 1	H350	1.00	35460.0	910.000	2.28E+08 6)

Puntos de contorno [m]:

1	0.0000	0.0000	2	3.0500	0.0000	3	3.0500	1.5000
4	0.0000	1.5000	5	0.0000	0.0000			

No se ha entrado ninguna armadura!

$I_y = 0.831617\ m^4$

$I_z = 2.003\ m^4$

Cálculo de las rigideces a torsión :

Módulo de Young (t / m^2)= 3.55E+06 Módulo transversal (t/m^2)= 1.48E+06

a) Rigidez a torsión de la viga cajón :

Barra	canto d	ancho b	B	canto At d1	Ancho At a*	A t	O ds/t	I TL
L2	1.50	1.65	0.98	1.240	1.315	1.6306	5.11	1.2764

b) Rigidez equivalente de las barras transversales

Barra	canto d	ancho a	Dist. Aliger. b	esp. Montante e	Ibz	esp losa sup	Is1	esp losa inf	Is2	t*	a1	A t	O ds/t	I TT
TRANS0	1.5	1.7500	1.65	0.67	0.021931	0.26	0.002417	0.26	0.002417	0.03535	1.7146	2.12615986	5.9093	1.4392
TRANS1	1.5	2.5000	1.65	0.67	0.031329	0.26	0.002417	0.26	0.002417	0.03693	2.4631	3.0542078	7.4061	1.6496
TRANS2	1.5	3.6000	1.65	0.67	0.045114	0.26	0.002417	0.26	0.002417	0.03814	3.5619	4.41670643	9.6037	1.8396
TRANS3	1.5	2.5000	1.65	0.67	0.031329	0.26	0.002417	0.26	0.002417	0.03693	2.4631	3.0542078	7.4061	1.6496
TRANS4	1.5	1.7500	1.65	0.67	0.021931	0.26	0.002417	0.26	0.002417	0.03535	1.7146	2.12615986	5.9093	1.4392
TRANS5	1.5	3.0500	1.65	0.67	0.038222	0.26	0.002417	0.26	0.002417	0.03763	3.0124	3.7353335	8.5047	1.7568
TRANS6	1.5	3.0500	1.65	0.67	0.038222	0.26	0.002417	0.26	0.002417	0.03763	3.0124	3.7353335	8.5047	1.7568

Rigidez a torsión vigas longitudinales y transversales del emparrillado :

Zona	m	I T longit m^4	I T transv m^4
TRANS0	1.12755	0.599940	0.67646
TRANS1	1.29235	0.556808	0.71959
TRANS2	1.44123	0.522851	0.75355
TRANS3	1.29235	0.556808	0.71959
TRANS4	1.12755	0.599940	0.67646
TRANS5	1.37639	0.537116	0.73928
TRANS6	1.37639	0.537116	0.73928
LONG	1.29054	0.558654	

****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (165 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	0.00000	0.00000	0.00000			
2	1.60000	0.00000	0.00000			
3	3.25000	0.00000	0.00000			
4	4.90000	0.00000	0.00000			
5	6.50000	0.00000	0.00000			
6	0.00000	0.50000	0.00000	SSS	FFF	
7	1.60000	0.50000	0.00000			
8	3.25000	0.50000	0.00000			
9	4.90000	0.50000	0.00000			
10	6.50000	0.50000	0.00000	SSE	FFF	
11	0.00000	3.00000	0.00000			
12	1.60000	3.00000	0.00000			
13	3.25000	3.00000	0.00000			
14	4.90000	3.00000	0.00000			
15	6.50000	3.00000	0.00000			
16	0.00000	5.50000	0.00000			
17	1.60000	5.50000	0.00000			
18	3.25000	5.50000	0.00000			
19	4.90000	5.50000	0.00000			
20	6.50000	5.50000	0.00000			
21	0.00000	8.00000	0.00000			
22	1.60000	8.00000	0.00000			
23	3.25000	8.00000	0.00000			
24	4.90000	8.00000	0.00000			
25	6.50000	8.00000	0.00000			
26	0.00000	10.50000	0.00000			
27	1.60000	10.50000	0.00000			
28	3.25000	10.50000	0.00000			
29	4.90000	10.50000	0.00000			
30	6.50000	10.50000	0.00000			
31	0.00000	13.00000	0.00000			
32	1.60000	13.00000	0.00000			
33	3.25000	13.00000	0.00000			
34	4.90000	13.00000	0.00000			
35	6.50000	13.00000	0.00000			
36	0.00000	15.50000	0.00000			
37	1.60000	15.50000	0.00000			
38	3.25000	15.50000	0.00000			
39	4.90000	15.50000	0.00000			
40	6.50000	15.50000	0.00000			
41	0.00000	18.00000	0.00000			
42	1.60000	18.00000	0.00000			

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
43	3.25000	18.00000	0.00000		
44	4.90000	18.00000	0.00000		
45	6.50000	18.00000	0.00000		
46	0.00000	20.50000	0.00000		
47	1.60000	20.50000	0.00000		
48	3.25000	20.50000	0.00000		
49	4.90000	20.50000	0.00000		
50	6.50000	20.50000	0.00000		
51	0.00000	23.00000	0.00000		
52	1.60000	23.00000	0.00000		
53	3.25000	23.00000	0.00000		
54	4.90000	23.00000	0.00000		
55	6.50000	23.00000	0.00000		
56	0.00000	25.50000	0.00000		
57	1.60000	25.50000	0.00000		
58	3.25000	25.50000	0.00000	SSE	FFF
59	4.90000	25.50000	0.00000		
60	6.50000	25.50000	0.00000		
61	0.00000	28.10000	0.00000		
62	1.60000	28.10000	0.00000		
63	3.25000	28.10000	0.00000		
64	4.90000	28.10000	0.00000		
65	6.50000	28.10000	0.00000		
66	0.00000	32.70000	0.00000		
67	1.60000	32.70000	0.00000		
68	3.25000	32.70000	0.00000		
69	4.90000	32.70000	0.00000		
70	6.50000	32.70000	0.00000		
71	0.00000	36.30000	0.00000		
72	1.60000	36.30000	0.00000		
73	3.25000	36.30000	0.00000		
74	4.90000	36.30000	0.00000		
75	6.50000	36.30000	0.00000		
76	0.00000	39.90000	0.00000		
77	1.60000	39.90000	0.00000		
78	3.25000	39.90000	0.00000		
79	4.90000	39.90000	0.00000		
80	6.50000	39.90000	0.00000		
81	0.00000	43.50000	0.00000		
82	1.60000	43.50000	0.00000		
83	3.25000	43.50000	0.00000		
84	4.90000	43.50000	0.00000		
85	6.50000	43.50000	0.00000		
86	0.00000	47.10000	0.00000		
87	1.60000	47.10000	0.00000		
88	3.25000	47.10000	0.00000		
89	4.90000	47.10000	0.00000		
90	6.50000	47.10000	0.00000		
91	0.00000	50.70000	0.00000		
92	1.60000	50.70000	0.00000		
93	3.25000	50.70000	0.00000		
94	4.90000	50.70000	0.00000		
95	6.50000	50.70000	0.00000		

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
96	0.00000	54.30000	0.00000		
97	1.60000	54.30000	0.00000		
98	3.25000	54.30000	0.00000		
99	4.90000	54.30000	0.00000		
100	6.50000	54.30000	0.00000		
101	0.00000	57.90000	0.00000		
102	1.60000	57.90000	0.00000		
103	3.25000	57.90000	0.00000		
104	4.90000	57.90000	0.00000		
105	6.50000	57.90000	0.00000		
106	0.00000	61.50000	0.00000		
107	1.60000	61.50000	0.00000		
108	3.25000	61.50000	0.00000	SSE	FFF
109	4.90000	61.50000	0.00000		
110	6.50000	61.50000	0.00000		
111	0.00000	64.00000	0.00000		
112	1.60000	64.00000	0.00000		
113	3.25000	64.00000	0.00000		
114	4.90000	64.00000	0.00000		
115	6.50000	64.00000	0.00000		
116	0.00000	66.50000	0.00000		
117	1.60000	66.50000	0.00000		
118	3.25000	66.50000	0.00000		
119	4.90000	66.50000	0.00000		
120	6.50000	66.50000	0.00000		
121	0.00000	69.00000	0.00000		
122	1.60000	69.00000	0.00000		
123	3.25000	69.00000	0.00000		
124	4.90000	69.00000	0.00000		
125	6.50000	69.00000	0.00000		
126	0.00000	71.50000	0.00000		
127	1.60000	71.50000	0.00000		
128	3.25000	71.50000	0.00000		
129	4.90000	71.50000	0.00000		
130	6.50000	71.50000	0.00000		
131	0.00000	74.00000	0.00000		
132	1.60000	74.00000	0.00000		
133	3.25000	74.00000	0.00000		
134	4.90000	74.00000	0.00000		
135	6.50000	74.00000	0.00000		
136	0.00000	76.50000	0.00000		
137	1.60000	76.50000	0.00000		
138	3.25000	76.50000	0.00000		
139	4.90000	76.50000	0.00000		
140	6.50000	76.50000	0.00000		
141	0.00000	79.00000	0.00000		
142	1.60000	79.00000	0.00000		
143	3.25000	79.00000	0.00000		
144	4.90000	79.00000	0.00000		
145	6.50000	79.00000	0.00000		
146	0.00000	81.50000	0.00000		
147	1.60000	81.50000	0.00000		
148	3.25000	81.50000	0.00000		

Joints	X [M]	Y [M]	Z [M]	V XYZ	R XYZ
149	4.90000	81.50000	0.00000		
150	6.50000	81.50000	0.00000		
151	0.00000	84.00000	0.00000		
152	1.60000	84.00000	0.00000		
153	3.25000	84.00000	0.00000		
154	4.90000	84.00000	0.00000		
155	6.50000	84.00000	0.00000		
156	0.00000	86.50000	0.00000	SSE	FFF
157	1.60000	86.50000	0.00000		
158	3.25000	86.50000	0.00000		
159	4.90000	86.50000	0.00000		
160	6.50000	86.50000	0.00000	SSS	FFF
161	0.00000	87.00000	0.00000		
162	1.60000	87.00000	0.00000		
163	3.25000	87.00000	0.00000		
164	4.90000	87.00000	0.00000		
165	6.50000	87.00000	0.00000		

ELASTICALLY SUPPORTED JOINTS: ('B'=Fixed 'F'=Free)

Joint	V-X [T/M]	V-Y [T/M]	V-Z [T/M]	R-X [TM/ARC]	R-Y [TM/ARC]	R-Z [TM/ARC]
6	2.300E+02	2.300E+02	E	F	F	F
10	2.300E+02	2.300E+02	E	F	F	F
56	1.400E+03	1.400E+03	E	F	F	F
108	1.400E+03	1.400E+03	E	F	F	F
156	2.300E+02	2.300E+02	E	F	F	F
160	2.300E+02	2.300E+02	E	F	F	F

B A R D A T A : (284 bars)

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1	1	6	0.50000	%Q0001			O oS
2	6	11	2.50000	%Q0001			O oS
3	11	16	2.50000	%Q0001			O oS
4	16	21	2.50000	%Q0001			O oS
5	21	26	2.50000	%Q0001			O oS
6	26	31	2.50000	%Q0001			O oS
7	31	36	2.50000	%Q0001			O oS
8	36	41	2.50000	%Q0001			O oS
9	41	46	2.50000	%Q0001			O oS
10	46	51	2.50000	%Q0001			O oS
11	51	56	2.50000	%Q0001			O oS
12	56	61	3.60000	%Q0001			O oS
13	61	66	3.60000	%Q0001			O oS
14	66	71	3.60000	%Q0001			O oS
15	71	76	3.60000	%Q0001			O oS

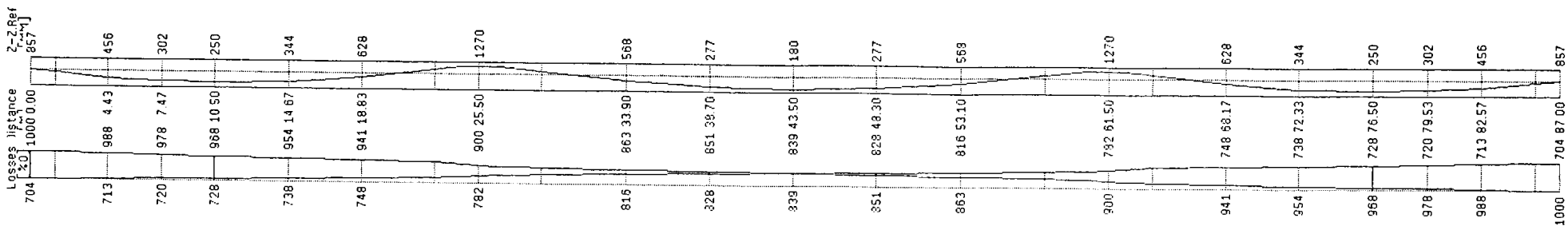
Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
16	76	81	3.60000	%Q0001			O oS
17	81	86	3.60000	%Q0001			O oS
18	86	91	3.60000	%Q0001			O oS
19	91	96	3.60000	%Q0001			O oS
20	96	101	3.60000	%Q0001			O oS
21	101	106	3.60000	%Q0001			O oS
22	106	111	2.50000	%Q0001			O oS
23	111	116	2.50000	%Q0001			O oS
24	116	121	2.50000	%Q0001			O oS
25	121	126	2.50000	%Q0001			O oS
26	126	131	2.50000	%Q0001			O oS
27	131	136	2.50000	%Q0001			O oS
28	136	141	2.50000	%Q0001			O oS
29	141	146	2.50000	%Q0001			O oS
30	146	151	2.50000	%Q0001			O oS
31	151	156	2.50000	%Q0001			O oS
32	156	161	0.50000	%Q0001			O oS
33	2	7	0.50000	%Q0001			oS
34	7	12	2.50000	%Q0002			oS
35	12	17	2.50000	%Q0002			oS
36	17	22	2.50000	%Q0002			oS
37	22	27	2.50000	%Q0002			oS
38	27	32	2.50000	%Q0002			oS
39	32	37	2.50000	%Q0002			oS
40	37	42	2.50000	%Q0002			oS
41	42	47	2.50000	%Q0002			oS
42	47	52	2.50000	%Q0002			oS
43	52	57	2.50000	%Q0002			oS
44	57	62	3.60000	%Q0002			oS
45	62	67	3.60000	%Q0002			oS
46	67	72	3.60000	%Q0002			oS
47	72	77	3.60000	%Q0002			oS
48	77	82	3.60000	%Q0002			oS
49	82	87	3.60000	%Q0002			oS
50	87	92	3.60000	%Q0002			oS
51	92	97	3.60000	%Q0002			oS
52	97	102	3.60000	%Q0002			oS
53	102	107	3.60000	%Q0002			oS
54	107	112	2.50000	%Q0002			oS
55	112	117	2.50000	%Q0002			oS
56	117	122	2.50000	%Q0002			oS
57	122	127	2.50000	%Q0002			oS
58	127	132	2.50000	%Q0002			oS
59	132	137	2.50000	%Q0002			oS
60	137	142	2.50000	%Q0002			oS
61	142	147	2.50000	%Q0002			oS
62	147	152	2.50000	%Q0002			oS
63	152	157	2.50000	%Q0002			oS
64	157	162	0.50000	%Q0002			oS
65	2	8	0.50000	%Q0002			oS
66	8	13	2.50000	%Q0002			oS
67	13	18	2.50000	%Q0002			oS
68	18	23	2.50000	%Q0002			oS

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
69	23	28	2.50000	%Q0002			oS
70	28	33	2.50000	%Q0002			oS
71	33	38	2.50000	%Q0002			oS
72	38	43	2.50000	%Q0002			oS
73	43	48	2.50000	%Q0002			oS
74	48	53	2.50000	%Q0002			oS
75	53	58	2.50000	%Q0002			oS
76	58	63	3.60000	%Q0002			oS
77	63	68	3.60000	%Q0002			oS
78	68	73	3.60000	%Q0002			oS
79	73	78	3.60000	%Q0002			oS
80	78	83	3.60000	%Q0002			oS
81	83	88	3.60000	%Q0002			oS
82	88	93	3.60000	%Q0002			oS
83	93	98	3.60000	%Q0002			oS
84	98	103	3.60000	%Q0002			oS
85	103	108	3.60000	%Q0002			oS
86	108	113	2.50000	%Q0002			oS
87	113	118	2.50000	%Q0002			oS
88	118	123	2.50000	%Q0002			oS
89	123	128	2.50000	%Q0002			oS
90	128	133	2.50000	%Q0002			oS
91	133	138	2.50000	%Q0002			oS
92	138	143	2.50000	%Q0002			oS
93	143	148	2.50000	%Q0002			oS
94	148	153	2.50000	%Q0002			oS
95	153	156	2.50000	%Q0002			oS
96	158	163	0.50000	%Q0002			oS
97	4	9	0.50000	%Q0002			oS
98	9	14	2.50000	%Q0002			oS
99	14	19	2.50000	%Q0002			oS
100	19	24	2.50000	%Q0002			oS
101	24	29	2.50000	%Q0002			oS
102	29	34	2.50000	%Q0002			oS
103	34	39	2.50000	%Q0002			oS
104	39	44	2.50000	%Q0002			oS
105	44	49	2.50000	%Q0002			oS
106	49	54	2.50000	%Q0002			oS
107	54	59	2.50000	%Q0002			oS
108	59	64	3.60000	%Q0002			oS
109	64	69	3.60000	%Q0002			oS
110	69	74	3.60000	%Q0002			oS
111	74	79	3.60000	%Q0002			oS
112	79	84	3.60000	%Q0002			oS
113	84	89	3.60000	%Q0002			oS
114	89	94	3.60000	%Q0002			oS
115	94	99	3.60000	%Q0002			oS
116	99	104	3.60000	%Q0002			oS
117	104	109	3.60000	%Q0002			oS
118	109	114	2.50000	%Q0002			oS
119	114	119	2.50000	%Q0002			oS
120	119	124	2.50000	%Q0002			oS
121	124	129	2.50000	%Q0002			oS

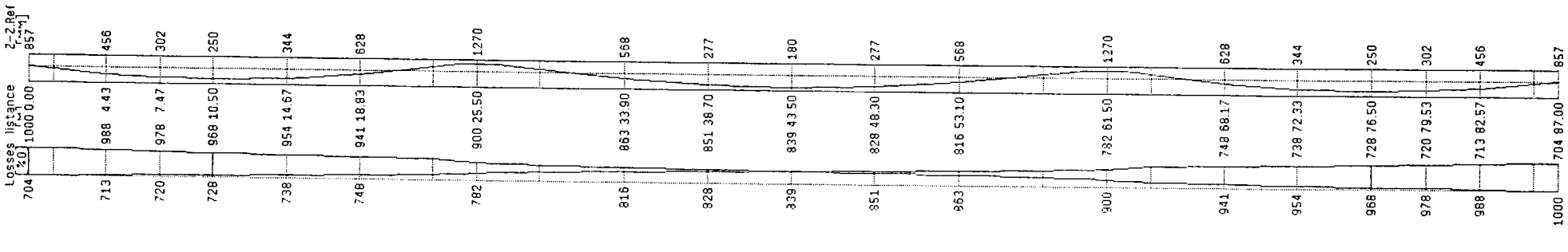
Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
122	129	134	2.50000	%Q0002			oS
123	134	139	2.50000	%Q0002			oS
124	139	144	2.50000	%Q0002			oS
125	144	149	2.50000	%Q0002			oS
126	149	154	2.50000	%Q0002			oS
127	154	159	2.50000	%Q0002			oS
128	159	164	0.50000	%Q0002			oS
129	5	10	0.50000	%Q0003			O oS
130	10	15	2.50000	%Q0003			O oS
131	15	20	2.50000	%Q0003			O oS
132	20	25	2.50000	%Q0003			O oS
133	25	30	2.50000	%Q0003			O oS
134	30	35	2.50000	%Q0003			O oS
135	35	40	2.50000	%Q0003			O oS
136	40	45	2.50000	%Q0003			O oS
137	45	50	2.50000	%Q0003			O oS
138	50	55	2.50000	%Q0003			O oS
139	55	60	2.50000	%Q0003			O oS
140	60	65	3.60000	%Q0003			O oS
141	65	70	3.60000	%Q0003			O oS
142	70	75	3.60000	%Q0003			O oS
143	75	80	3.60000	%Q0003			O oS
144	80	85	3.60000	%Q0003			O oS
145	85	90	3.60000	%Q0003			O oS
146	90	95	3.60000	%Q0003			O oS
147	95	100	3.60000	%Q0003			O oS
148	100	105	3.60000	%Q0003			O oS
149	105	110	3.60000	%Q0003			O oS
150	110	115	2.50000	%Q0003			O oS
151	115	120	2.50000	%Q0003			O oS
152	120	125	2.50000	%Q0003			O oS
153	125	130	2.50000	%Q0003			O oS
154	130	135	2.50000	%Q0003			O oS
155	135	140	2.50000	%Q0003			O oS
156	140	145	2.50000	%Q0003			O oS
157	145	150	2.50000	%Q0003			O oS
158	150	155	2.50000	%Q0003			O oS
159	155	160	2.50000	%Q0003			O oS
160	160	165	0.50000	%Q0003			O oS
166	6	7	1.60000	%Q0004			oS
167	7	8	1.65000	%Q0004			oS
168	8	9	1.65000	%Q0004			oS
169	9	10	1.60000	%Q0004			oS
170	11	12	1.60000	%Q0005			oS
171	12	13	1.65000	%Q0005			oS
172	13	14	1.65000	%Q0005			oS
173	14	15	1.60000	%Q0005			oS
174	16	17	1.60000	%Q0005			oS
175	17	18	1.65000	%Q0005			oS
176	18	19	1.65000	%Q0005			oS
177	19	20	1.60000	%Q0005			oS
178	21	22	1.60000	%Q0005			oS
179	22	23	1.65000	%Q0005			oS

Bar	Incidences Start	Incidences End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
180	23	24	1.65000	%Q0005			oS
181	24	25	1.60000	%Q0005			oS
182	26	27	1.60000	%Q0005			oS
183	27	28	1.65000	%Q0005			oS
184	28	29	1.65000	%Q0005			oS
185	29	30	1.60000	%Q0005			oS
186	31	32	1.60000	%Q0005			oS
187	32	33	1.65000	%Q0005			oS
188	33	34	1.65000	%Q0005			oS
189	34	35	1.60000	%Q0005			oS
190	36	37	1.60000	%Q0005			oS
191	37	38	1.65000	%Q0005			oS
192	38	39	1.65000	%Q0005			oS
193	39	40	1.60000	%Q0005			oS
194	41	42	1.60000	%Q0005			oS
195	42	43	1.65000	%Q0005			oS
196	43	44	1.65000	%Q0005			oS
197	44	45	1.60000	%Q0005			oS
198	46	47	1.60000	%Q0005			oS
199	47	48	1.65000	%Q0005			oS
200	48	49	1.65000	%Q0005			oS
201	49	50	1.60000	%Q0005			oS
202	51	52	1.60000	%Q0005			oS
203	52	53	1.65000	%Q0005			oS
204	53	54	1.65000	%Q0005			oS
205	54	55	1.60000	%Q0005			oS
206	56	57	1.60000	%Q0006			oS
207	57	58	1.65000	%Q0006			oS
208	58	59	1.65000	%Q0006			oS
209	59	60	1.60000	%Q0006			oS
210	61	62	1.60000	%Q0007			oS
211	62	63	1.65000	%Q0007			oS
212	63	64	1.65000	%Q0007			oS
213	64	65	1.60000	%Q0007			oS
214	66	67	1.60000	%Q0007			oS
215	67	68	1.65000	%Q0007			oS
216	68	69	1.65000	%Q0007			oS
217	69	70	1.60000	%Q0007			oS
218	71	72	1.60000	%Q0007			oS
219	72	73	1.65000	%Q0007			oS
220	73	74	1.65000	%Q0007			oS
221	74	75	1.60000	%Q0007			oS
222	76	77	1.60000	%Q0007			oS
223	77	78	1.65000	%Q0007			oS
224	78	79	1.65000	%Q0007			oS
225	79	80	1.60000	%Q0007			oS
226	81	82	1.60000	%Q0007			oS
227	82	83	1.65000	%Q0007			oS
228	83	84	1.65000	%Q0007			oS
229	84	85	1.60000	%Q0007			oS
230	86	87	1.60000	%Q0007			oS
231	87	88	1.65000	%Q0007			oS
232	88	89	1.65000	%Q0007			oS

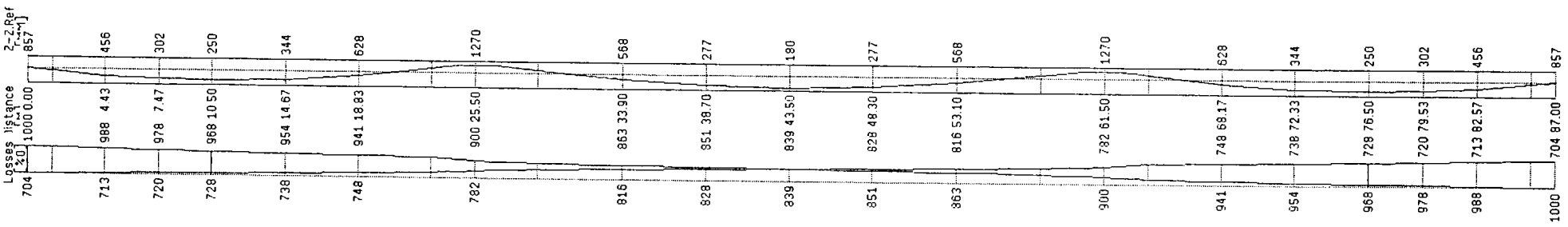
Scale 1 : 347.8
Prestr. cable
- Cable nr.1: Geometry (scale.1.00)



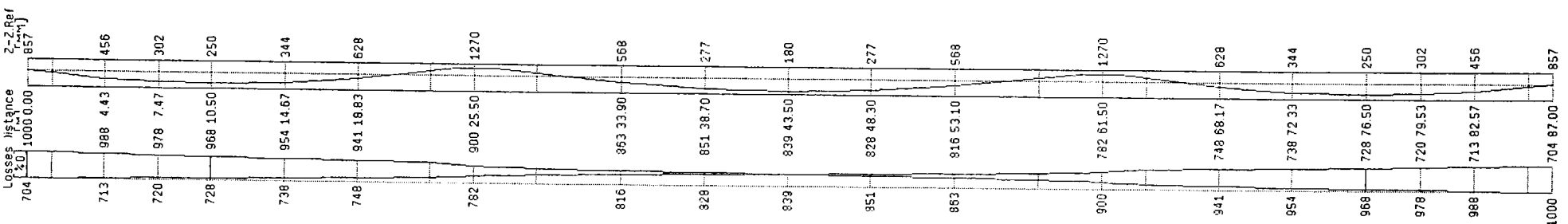
Scale 1 : 347.8
Prestr. cable
- Cable nr.2: Geometry (scale.1.00)



Scale 1 : 347.8
Prestr. cable
- Cable nr.3: Geometry (scale.1.00)



Scale 1 : 347.8
Prestr. cable
- Cable nr.4: Geometry (scale.1.00)



Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
233	89	90	1.60000	%Q0007			oS
234	91	92	1.60000	%Q0007			oS
235	92	93	1.65000	%Q0007			oS
236	93	94	1.65000	%Q0007			oS
237	94	95	1.60000	%Q0007			oS
238	96	97	1.60000	%Q0007			oS
239	97	98	1.65000	%Q0007			oS
240	98	99	1.65000	%Q0007			oS
241	99	100	1.60000	%Q0007			oS
242	101	102	1.60000	%Q0007			oS
243	102	103	1.65000	%Q0007			oS
244	103	104	1.65000	%Q0007			oS
245	104	105	1.60000	%Q0007			oS
246	106	107	1.60000	%Q0008			oS
247	107	108	1.65000	%Q0008			oS
248	108	109	1.65000	%Q0008			oS
249	109	110	1.60000	%Q0008			oS
250	111	112	1.60000	%Q0009			oS
251	112	113	1.65000	%Q0009			oS
252	113	114	1.65000	%Q0009			oS
253	114	115	1.60000	%Q0009			oS
254	116	117	1.60000	%Q0009			oS
255	117	118	1.65000	%Q0009			oS
256	118	119	1.65000	%Q0009			oS
257	119	120	1.60000	%Q0009			oS
258	121	122	1.60000	%Q0009			oS
259	122	123	1.65000	%Q0009			oS
260	123	124	1.65000	%Q0009			oS
261	124	125	1.60000	%Q0009			oS
262	126	127	1.60000	%Q0009			oS
263	127	128	1.65000	%Q0009			oS
264	128	129	1.65000	%Q0009			oS
265	129	130	1.60000	%Q0009			oS
266	131	132	1.60000	%Q0009			oS
267	132	133	1.65000	%Q0009			oS
268	133	134	1.65000	%Q0009			oS
269	134	135	1.60000	%Q0009			oS
270	136	137	1.60000	%Q0009			oS
271	137	138	1.65000	%Q0009			oS
272	138	139	1.65000	%Q0009			oS
273	139	140	1.60000	%Q0009			oS
274	141	142	1.60000	%Q0009			oS
275	142	143	1.65000	%Q0009			oS
276	143	144	1.65000	%Q0009			oS
277	144	145	1.60000	%Q0009			oS
278	146	147	1.60000	%Q0009			oS
279	147	148	1.65000	%Q0009			oS
280	148	149	1.65000	%Q0009			oS
281	149	150	1.60000	%Q0009			oS
282	151	152	1.60000	%Q0009			oS
283	152	153	1.65000	%Q0009			oS
284	153	154	1.65000	%Q0009			oS
285	154	155	1.60000	%Q0009			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
286	156	157	1.60000	%Q0010			oS
287	157	158	1.65000	%Q0010			oS
288	158	159	1.65000	%Q0010			oS
289	159	160	1.60000	%Q0010			oS

Cross sections marked with '*' (i.e *HEB200) are rotated 90 degr.
about the local x-axis.

O = Rotated bars (bar orientations)
oS = Bars without shear deformation.

HAUNCHED AND NON DEFAULT ORIENTED MEMBERS:

Bar	haunched bars CS-Start	CS-End	Bar orientation. x/k1/angle Beta	y/k2	z
1			16.2000		
2			16.2000		
3			16.2000		
4			16.2000		
5			16.2000		
6			16.2000		
7			16.2000		
8			16.2000		
9			16.2000		
10			16.2000		
11			16.2000		
12			16.2000		
13			16.2000		
14			16.2000		
15			16.2000		
16			16.2000		
17			16.2000		
18			16.2000		
19			16.2000		
20			16.2000		
21			16.2000		
22			16.2000		
23			16.2000		
24			16.2000		
25			16.2000		
26			16.2000		
27			16.2000		
28			16.2000		
29			16.2000		
30			16.2000		
31			16.2000		
32			16.2000		
129			-16.2000		
130			-16.2000		
131			-16.2000		

Bar	haunched bars CS-Start	CS-End	Bar orientation x/k1/angle Beta	y/k2	z
132			-16.2000		
133			-16.2000		
134			-16.2000		
135			-16.2000		
136			-16.2000		
137			-16.2000		
138			-16.2000		
139			-16.2000		
140			-16.2000		
141			-16.2000		
142			-16.2000		
143			-16.2000		
144			-16.2000		
145			-16.2000		
146			-16.2000		
147			-16.2000		
148			-16.2000		
149			-16.2000		
150			-16.2000		
151			-16.2000		
152			-16.2000		
153			-16.2000		
154			-16.2000		
155			-16.2000		
156			-16.2000		
157			-16.2000		
158			-16.2000		
159			-16.2000		
160			-16.2000		

CROSS SECTION VALUES: CS-Name	Ax [M2] Ix [M4] zl [M1]	Iy [M4] Fy [M2] zu [M1]	Iz [M4] Fz [M2] yl [M1]	Phi [Degr] yr [M1]
%Q0001	2.1225E+00	2.6892E-01	2.2228E+00	16.21
(L1)	5.5865E-01	2.1225E+00	2.1225E+00	
	-0.8758	0.6242	-0.7750	2.7800
%Q0002	1.5242E+00	4.1620E-01	4.8965E-01	0.00
(L2)	5.5665E-01	1.5242E+00	1.5242E+00	
	-0.8758	0.6242	-0.8250	0.8250
%Q0003	2.1225E+00	2.6892E-01	2.2228E+00	-16.21
(L3)	5.5865E-01	2.1225E+00	2.1225E+00	
	-0.8758	0.6242	-2.7800	0.7750

CROSS SECTION VALUES: CS-Name	Ax [M2] Ix [M4] zl [M1]	Iy [M4] Fy [M2] zu [M1]	Iz [M4] Fz [M2] yl [M1]	Phi [Degr] yr [M1]
%Q0004	1.8900E+00	4.6330E-01	4.4194E-01	0.00
(TRANS0)	6.7466E-01	1.8900E+00	1.8900E+00	
	-0.8758	0.6242	-0.5000	1.2500
%Q0005	1.3000E+00	5.2750E-01	6.7710E-01	0.00
(TRANS1)	7.1959E-01	1.3000E+00	1.3000E+00	
	-0.8758	0.6242	-1.2500	1.2500
%Q0006	3.5460E+00	8.3160E-01	2.0030E+00	0.00
(TRANS5)	7.3928E-01	3.5460E+00	3.5460E+00	
	-0.8758	0.6242	-1.2500	1.8000
%Q0007	1.8720E+00	7.5972E-01	2.0218E+00	0.00
(TRANS2)	7.5355E-01	1.8720E+00	1.8720E+00	
	-0.8758	0.6242	-1.8000	1.8000
%Q0008	3.5460E+00	8.3160E-01	2.0030E+00	0.00
(TRANS6)	7.3928E-01	3.5460E+00	3.5460E+00	
	-0.8758	0.6242	-1.8000	1.2500
%Q0009	1.3000E+00	5.2750E-01	6.7706E-01	0.00
(TRANS3)	7.1959E-01	1.3000E+00	1.3000E+00	
	-0.8758	0.6242	-1.2500	1.2500
%Q0010	1.8900E+00	4.6330E-01	4.4194E-01	0.00
(TRANS4)	6.7466E-01	1.8900E+00	1.8900E+00	
	-0.8758	0.6242	-1.2500	0.5000

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
1 .. 289	3.5500E+06	1.4800E+06

STS-Run ok

****
* CABLE INPUT *
********** Cubus **

Member serie with members

33	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50	51	52
53	54	55	56	57	58	59	60	61	62
63	64								

Referen.level: -0.87580

Friction val.

Mu-friction parameter	0.2000
Delta-Alpha parameter	0.0060

Cab.type

Cable area	0.0087
Min radius of curvat.	8.0000
Slip-parameter	0.0045
E-modulus	1.95E+0007

Cable input : Cable 1

Distance	0.0000
Startlevel	0.8568
Start angle	0.0000

Element type with the parameters

1. Str-Par	1.4000	10.5000	0.2500
2. Par-Par	12.5000	15.0000	1.2700
3. Par-Par	3.6000	18.0000	0.1800
4. Par-Par	14.4000	18.0000	1.2700
5. Par-Par	2.5000	15.0000	0.2500
6. Par-Str	9.1000	10.5000	0.8568

Member serie with members

65	66	67	68	69	70	71	72	73	74
75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94
95	96								

Referen.level: -0.87580

Friction val.

Mu-friction parameter	0.2000
Delta-Alpha parameter	0.0060

Cab.type

Cable area	0.0087
Min radius of curvat.	8.0000
Slip-parameter	0.0045
E-modulus	1.95E+0007

Cable input : Cable 2

Distance	0.0000
Startlevel	0.8568
Start angle	0.0000

Element type with the parameters

1. Str-Par	1.4000	10.5000	0.2500
2. Par-Par	12.5000	15.0000	1.2700
3. Par-Par	3.6000	18.0000	0.1800
4. Par-Par	14.4000	18.0000	1.2700
5. Par-Par	2.5000	15.0000	0.2500
6. Par-Str	9.1000	10.5000	0.8568

Member serie with members

65	66	67	68	69	70	71	72	73	74
75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94
95	96								

Referen.level: -0.87580

Friction val.

Mu-friction parameter	0.2000
Delta-Alpha parameter	0.0060

Cab.type

Cable area	0.0087
Min radius of curvat.	8.0000
Slip-parameter	0.0045
E-modulus	1.95E+0007

Cable input : Cable 3

Distance	0.0000
Startlevel	0.8568
Start angle	0.0000

Element type with the parameters

1. Str-Par	1.4000	10.5000	0.2500
2. Par-Par	12.5000	15.0000	1.2700
3. Par-Par	3.6000	18.0000	0.1800
4. Par-Par	14.4000	18.0000	1.2700
5. Par-Par	2.5000	15.0000	0.2500
6. Par-Str	9.1000	10.5000	0.8568

Member serie with members

97	98	99	100	101	102	103	104	105	106
107	108	109	110	111	112	113	114	115	116
117	118	119	120	121	122	123	124	125	126
127	128								

Referen.level: -0.87580

Friction val.

Mu-friction parameter	0.2000
Delta-Alpha parameter	0.0060

Cab.type

Cable area	0.0087

Min radius of curvat.	8.0000
Slip-parameter	0.0045
E-modulus	1.95E+0007

Cable input : Cable 4

Distance	0.0000
Startlevel	0.8568
Start angle	0.0000

Element type with the parameters

1. Str-Par	1.4000	10.5000	0.2500
2. Par-Par	12.5000	15.0000	1.2700
3. Par-Par	3.6000	18.0000	0.1800
4. Par-Par	14.4000	18.0000	1.2700
5. Par-Par	2.5000	15.0000	0.2500
6. Par-Str	9.1000	10.5000	0.8568

C A B L E O U T P U T : Cable Nr. 1

Referen.level	-0.87580
Mu-friction paramet.	0.20000
Delta-Alpha F.Parameter	0.00600
Area	0.00868
Min.radius of curvat.	8.0000
Slip parameter	0.00450
E-Modulus	1.95E+7
Distance	0
Length of cable	87.2261

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
1G	33	0	0.85660	-0.01900	0
1G	34	1.0000	0.75482	-0.12098	0
1*	34	1.4000	0.71402	-0.16178	0
1P	34	2.0000	0.65485	-0.22095	0
1P	34	3.0000	0.56520	-0.31060	0
1P	35	4.0000	0.48675	-0.38905	0
1P	35	5.0000	0.41951	-0.45629	0
1P	36	6.0000	0.36347	-0.51233	0
1P	36	7.0000	0.31864	-0.55716	0
1P	36	8.0000	0.28502	-0.59078	0
1P	37	9.0000	0.26261	-0.61319	0
1P	37	10.0000	0.25140	-0.62440	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
1P	37	10.5000	0.25000	-0.62580	0
2P	38	11.0000	0.25136	-0.62444	0
2P	38	12.0000	0.26224	-0.61356	0
2P	38	13.0000	0.28400	-0.59180	0
2P	39	14.0000	0.31664	-0.55916	0
2P	39	15.0000	0.36016	-0.51564	0
2P	40	16.0000	0.41456	-0.46124	0
2P	40	17.0000	0.47984	-0.39596	0
2P	40	18.0000	0.55600	-0.31980	0
2P	41	19.0000	0.64304	-0.23276	0
2P	41	20.0000	0.74096	-0.13484	0
2P	42	21.0000	0.84976	-0.02604	0
2P	42	22.0000	0.96944	0.09364	0
2*	42	23.0000	1.1000	0.22420	0
2P	43	24.0000	1.2088	0.33300	0
2P	43	25.0000	1.2632	0.38740	0
2P	43	25.5000	1.2700	0.39420	0
3P	44	26.0000	1.2658	0.38999	0
3P	44	27.0000	1.2322	0.35635	0
3P	44	28.0000	1.1649	0.28907	0
3P	44	29.0000	1.0639	0.18814	0
3*	44	29.1000	1.0520	0.17620	0
3P	45	30.0000	0.94641	0.07061	0
3P	45	31.0000	0.83707	-0.03873	0
3P	45	32.0000	0.73614	-0.13966	0
3P	46	33.0000	0.64363	-0.23217	0
3P	46	34.0000	0.55952	-0.31628	0
3P	46	35.0000	0.48383	-0.39197	0
3P	46	36.0000	0.41655	-0.45925	0
3P	47	37.0000	0.35767	-0.51813	0
3P	47	38.0000	0.30721	-0.56859	0
3P	47	39.0000	0.26516	-0.61064	0
3P	48	40.0000	0.23151	-0.64429	0
3P	48	41.0000	0.20628	-0.66952	0
3P	48	42.0000	0.18946	-0.68634	0
3P	48	43.0000	0.18105	-0.69475	0
3P	48	43.5000	0.18000	-0.69580	0
4P	49	44.0000	0.18105	-0.69475	0
4P	49	45.0000	0.18946	-0.68634	0
4P	49	46.0000	0.20628	-0.66952	0
4P	49	47.0000	0.23151	-0.64429	0
4P	50	48.0000	0.26516	-0.61064	0
4P	50	49.0000	0.30721	-0.56859	0
4P	50	50.0000	0.35767	-0.51813	0
4P	51	51.0000	0.41655	-0.45925	0
4P	51	52.0000	0.48383	-0.39197	0
4P	51	53.0000	0.55952	-0.31628	0
4P	51	54.0000	0.64363	-0.23217	0
4P	52	55.0000	0.73614	-0.13966	0
4P	52	56.0000	0.83707	-0.03873	0
4P	52	57.0000	0.94641	0.07061	0
4P	53	58.0000	1.0639	0.18814	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
4P	53	59.0000	1.1649	0.28907	0
4P	53	60.0000	1.2322	0.35635	0
4P	53	61.0000	1.2658	0.38999	0
4P	53	61.5000	1.2700	0.39420	0
5P	54	62.0000	1.2632	0.38740	0
5P	54	63.0000	1.2088	0.33300	0
5*	54	64.0000	1.1000	0.22420	0
5P	55	65.0000	0.96944	0.09364	0
5P	55	66.0000	0.84976	-0.02604	0
5P	56	67.0000	0.74096	-0.13484	0
5P	56	68.0000	0.64304	-0.23276	0
5P	56	69.0000	0.55600	-0.31980	0
5P	57	70.0000	0.47984	-0.39596	0
5P	57	71.0000	0.41456	-0.46124	0
5P	58	72.0000	0.36016	-0.51564	0
5P	58	73.0000	0.31664	-0.55916	0
5P	58	74.0000	0.28400	-0.59180	0
5P	59	75.0000	0.26224	-0.61356	0
5P	59	76.0000	0.25136	-0.62444	0
5P	59	76.5000	0.25000	-0.62580	0
6P	60	77.0000	0.25140	-0.62440	0
6P	60	78.0000	0.26261	-0.61319	0
6P	60	79.0000	0.28502	-0.59078	0
6P	61	80.0000	0.31864	-0.55716	0
6P	61	81.0000	0.36347	-0.51233	0
6P	62	82.0000	0.41951	-0.45629	0
6P	62	83.0000	0.48675	-0.38905	0
6P	62	84.0000	0.56520	-0.31060	0
6P	63	85.0000	0.65485	-0.22095	0
6*	63	85.6000	0.71402	-0.16178	0
6G	63	86.0000	0.75482	-0.12098	0
6G	64	87.0000	0.85680	-0.01900	0

CABLE INCLIN., CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvacure	Y-Incl	Fric.l
1G	33	0	-0.10198	0	0	1.0000
1G	34	1.0000	-0.10198	0	0	0.99880
1*	34	1.4000	-0.10198	0	0	0.99832
1P	34	2.0000	-0.09526	0.01121	0	0.99627
1P	34	3.0000	-0.08405	0.01121	0	0.99285
1P	35	4.0000	-0.07285	0.01121	0	0.98944
1P	35	5.0000	-0.06164	0.01121	0	0.98604
1P	36	6.0000	-0.05043	0.01121	0	0.98266
1P	36	7.0000	-0.03922	0.01121	0	0.97927
1P	36	8.0000	-0.02802	0.01121	0	0.97591
1P	37	9.0000	-0.01681	0.01121	0	0.97256
1P	37	10.0000	-0.00560	0.01121	0	0.96922
1P	37	10.5000	0	0.01121	0	0.96754
2P	38	11.0000	0.00544	0.01088	0	0.96592
2P	38	12.0000	0.01632	0.01088	0	0.96268

CABLE INCLIN..CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.l
2F	38	13.0000	0.02720	0.01088	0	0.95943
2F	39	14.0000	0.03808	0.01088	0	0.95619
2P	39	15.0000	0.04896	0.01088	0	0.95296
2F	40	16.0000	0.05984	0.01088	0	0.94976
2P	40	17.0000	0.07072	0.01088	0	0.94656
2P	40	18.0000	0.08160	0.01088	0	0.94337
2F	41	19.0000	0.09248	0.01088	0	0.94018
2F	41	20.0000	0.10336	0.01088	0	0.93702
2P	42	21.0000	0.11424	0.01088	0	0.93387
2P	42	22.0000	0.12512	0.01088	0	0.93071
2*	42	23.0000	0.13600	0.01088	0	0.92756
2P	43	24.0000	0.08160	-0.05440	0	0.91643
2P	43	25.0000	0.02720	-0.05440	0	0.90543
2F	43	25.5000	0	-0.05440	0	0.89997
3F	44	26.0000	-0.01682	-0.03364	0	0.89642
3F	44	27.0000	-0.05046	-0.03364	0	0.88934
3F	44	28.0000	-0.08410	-0.03364	0	0.88231
3F	44	29.0000	-0.11775	-0.03364	0	0.87534
3*	44	29.1000	-0.12111	-0.03364	0	0.87464
3F	45	30.0000	-0.11354	0.00841	0	0.87239
3P	45	31.0000	-0.10513	0.00841	0	0.86989
3F	45	32.0000	-0.09672	0.00841	0	0.86738
3F	46	33.0000	-0.08831	0.00841	0	0.86488
3F	46	34.0000	-0.07990	0.00841	0	0.86238
3F	46	35.0000	-0.07149	0.00841	0	0.85991
3P	46	36.0000	-0.06308	0.00841	0	0.85744
3F	47	37.0000	-0.05467	0.00841	0	0.85497
3F	47	38.0000	-0.04626	0.00841	0	0.85250
3F	47	39.0000	-0.03785	0.00841	0	0.85004
3F	48	40.0000	-0.02944	0.00841	0	0.84761
3F	48	41.0000	-0.02103	0.00841	0	0.84517
3F	48	42.0000	-0.01262	0.00841	0	0.84274
3F	48	43.0000	-0.00421	0.00841	0	0.84030
3P	48	43.5000	0	0.00841	0	0.83909
4F	49	44.0000	0.00421	0.00841	0	0.83789
4F	49	45.0000	0.01262	0.00841	0	0.83545
4P	49	46.0000	0.02103	0.00841	0	0.83308
4F	49	47.0000	0.02944	0.00841	0	0.83068
4F	50	48.0000	0.03785	0.00841	0	0.82825
4P	50	49.0000	0.04626	0.00841	0	0.82590
4P	50	50.0000	0.05467	0.00841	0	0.82353
4P	51	51.0000	0.06308	0.00841	0	0.82116
4F	51	52.0000	0.07149	0.00841	0	0.81879
4P	51	53.0000	0.07990	0.00841	0	0.81643
4F	51	54.0000	0.08831	0.00841	0	0.81405
4P	52	55.0000	0.09672	0.00841	0	0.81175
4P	52	56.0000	0.10513	0.00841	0	0.80941
4F	52	57.0000	0.11354	0.00841	0	0.80708
4*	52	57.9000	0.12111	0.00841	0	0.80498
4P	53	56.0000	0.11775	-0.03364	0	0.80434
4P	53	55.0000	0.08410	-0.03364	0	0.79799
4P	53	60.0000	0.05046	-0.03364	0	0.79165
4F	53	61.0000	0.01682	-0.03364	0	0.78544

CABLE INCLIN..CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.l
4P	53	61.5000	0	-0.03364	0	0.78232
5P	54	62.0000	-0.02720	-0.05440	0	0.77762
5P	54	63.0000	-0.08160	-0.05440	0	0.76828
5*	54	64.0000	-0.13600	-0.05440	0	0.75905
5P	55	65.0000	-0.12512	0.01088	0	0.75651
5P	55	66.0000	-0.11424	0.01088	0	0.75396
5P	56	67.0000	-0.10336	0.01088	0	0.75142
5P	56	68.0000	-0.09248	0.01088	0	0.74887
5P	56	69.0000	-0.08160	0.01088	0	0.74636
5P	57	70.0000	-0.07072	0.01088	0	0.74385
5F	57	71.0000	-0.05984	0.01088	0	0.74134
5P	58	72.0000	-0.04896	0.01088	0	0.73883
5P	58	73.0000	-0.03808	0.01088	0	0.73635
5F	58	74.0000	-0.02720	0.01088	0	0.73387
5P	59	75.0000	-0.01632	0.01088	0	0.73140
5F	59	76.0000	-0.00544	0.01088	0	0.72892
5P	59	76.5000	0	0.01088	0	0.72769
6F	60	77.0000	0.00560	0.01121	0	0.72644
6F	60	78.0000	0.01681	0.01121	0	0.72395
6P	60	79.0000	0.02802	0.01121	0	0.72146
6P	61	80.0000	0.03922	0.01121	0	0.71898
6P	61	81.0000	0.05043	0.01121	0	0.71651
6F	62	82.0000	0.06164	0.01121	0	0.71405
6P	62	83.0000	0.07285	0.01121	0	0.71159
6F	62	84.0000	0.08405	0.01121	0	0.70915
6F	63	85.0000	0.09526	0.01121	0	0.70671
6*	63	85.6000	0.10198	0.01121	0	0.70525
6G	63	86.0000	0.10198	0	0	0.70491
6G	64	87.0000	0.10198	0	0	0.70408

C A B L E O U T P U T : Cable Nr. 2

Referen.level	-0.87580
Mu-friction paramet.	0.20000
Delta-Alpha F.Parameter	0.00600
Area	0.00868
Min.radius of curvat.	8.0000
Slip parameter	0.00450
E-Modulus	1.95E+7
Distance	0
Length of cable	87.2261

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
1G	65	0	0.85680	-0.01900	0
1G	66	1.0000	0.75482	-0.12098	0
1*	66	1.4000	0.71402	-0.16178	0
1P	66	2.0000	0.65485	-0.22095	0
1P	66	3.0000	0.56520	-0.31060	0
1F	67	4.0000	0.48675	-0.38905	0
1F	67	5.0000	0.41951	-0.45629	0
1P	68	6.0000	0.36347	-0.51233	0
1P	68	7.0000	0.31864	-0.55716	0
1F	68	8.0000	0.28502	-0.59078	0
1P	69	9.0000	0.26261	-0.61319	0
1F	69	10.0000	0.25140	-0.62440	0
1P	69	10.5000	0.25000	-0.62580	0
2F	70	11.0000	0.25136	-0.62444	0
2P	70	12.0000	0.26224	-0.61356	0
2P	70	13.0000	0.28400	-0.59180	0
2F	71	14.0000	0.31664	-0.55916	0
2P	71	15.0000	0.36016	-0.51564	0
2P	72	16.0000	0.41456	-0.46124	0
2P	72	17.0000	0.47984	-0.39596	0
2F	72	18.0000	0.55600	-0.31980	0
2F	73	19.0000	0.64304	-0.23276	0
2F	73	20.0000	0.74096	-0.13484	0
2F	74	21.0000	0.84976	-0.02604	0
2P	74	22.0000	0.96944	0.09364	0
2*	74	23.0000	1.1000	0.22420	0
2P	75	24.0000	1.2088	0.33300	0
2P	75	25.0000	1.2632	0.38740	0
2F	75	25.5000	1.2700	0.39420	0
3F	76	26.0000	1.2656	0.38999	0
3F	76	27.0000	1.2322	0.35635	0
3F	76	28.0000	1.1649	0.28907	0
3F	76	29.0000	1.0639	0.18814	0
3*	76	29.1000	1.0520	0.17620	0
3F	77	30.0000	0.94641	0.07061	0
3F	77	31.0000	0.83707	-0.03873	0
3F	77	32.0000	0.73614	-0.13966	0
3F	78	33.0000	0.64363	-0.23217	0
3F	78	34.0000	0.55952	-0.31628	0
3F	78	35.0000	0.48383	-0.39197	0
3F	78	36.0000	0.41655	-0.45925	0
3F	79	37.0000	0.35767	-0.51813	0
3F	79	38.0000	0.30721	-0.56859	0
3F	79	39.0000	0.26516	-0.61064	0
3F	80	40.0000	0.23151	-0.64429	0
3F	80	41.0000	0.20628	-0.66952	0
3F	80	42.0000	0.18946	-0.68634	0
3P	80	43.0000	0.18105	-0.69475	0
3F	80	43.5000	0.18000	-0.69580	0
4F	81	44.0000	0.18105	-0.69475	0
4F	81	45.0000	0.18946	-0.68634	0
4F	81	46.0000	0.20628	-0.66952	0
4F	81	47.0000	0.23151	-0.64429	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
4P	82	48.0000	0.26516	-0.61064	0
4P	82	49.0000	0.30721	-0.56859	0
4P	82	50.0000	0.35767	-0.51813	0
4P	83	51.0000	0.41655	-0.45925	0
4F	83	52.0000	0.48383	-0.39197	0
4F	83	53.0000	0.55952	-0.31628	0
4P	83	54.0000	0.64363	-0.23217	0
4F	84	55.0000	0.73614	-0.13966	0
4F	84	56.0000	0.82707	-0.03873	0
4P	84	57.0000	0.94641	0.07061	0
4*	84	57.9000	1.0520	0.17620	0
4F	85	58.0000	1.0639	0.18814	0
4P	85	59.0000	1.1649	0.28907	0
4P	85	60.0000	1.2322	0.35635	0
4F	85	61.0000	1.2658	0.38999	0
4P	85	61.5000	1.2700	0.39420	0
5P	86	62.0000	1.2632	0.38740	0
5F	86	63.0000	1.2088	0.33300	0
5*	86	64.0000	1.1000	0.22420	0
5P	87	65.0000	0.96944	0.09364	0
5P	87	66.0000	0.84976	-0.02604	0
5P	88	67.0000	0.74096	-0.13484	0
5P	88	68.0000	0.64304	-0.23276	0
5P	88	69.0000	0.55600	-0.31980	0
5F	89	70.0000	0.47984	-0.39596	0
5P	89	71.0000	0.41456	-0.46124	0
5P	90	72.0000	0.36016	-0.51564	0
5P	90	73.0000	0.31664	-0.55916	0
5P	90	74.0000	0.28400	-0.59180	0
5P	91	75.0000	0.26224	-0.61356	0
5F	91	76.0000	0.25136	-0.62444	0
5F	91	76.5000	0.25000	-0.62580	0
6P	92	77.0000	0.25140	-0.62440	0
6P	92	78.0000	0.26261	-0.61319	0
6F	92	79.0000	0.28502	-0.59078	0
6F	93	80.0000	0.31864	-0.55716	0
6P	93	81.0000	0.36347	-0.51233	0
6P	94	82.0000	0.41951	-0.45629	0
6P	94	83.0000	0.48675	-0.38905	0
6P	94	84.0000	0.56520	-0.31060	0
6F	95	85.0000	0.65485	-0.22095	0
6*	95	85.6000	0.71402	-0.16178	0
6G	95	86.0000	0.75482	-0.12098	0
6G	96	87.0000	0.85680	-0.01900	0

CABLE INCLIN..CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.l
1G	65	0	-0.10198	0	0	1.0000
1G	66	1.0000	-0.12098	0	0	0.99880
1*	66	1.4000	-0.10198	0	0	0.99832
1P	66	2.0000	-0.09526	0.01121	0	0.99627
1P	66	3.0000	-0.08405	0.01121	0	0.99285
1P	67	4.0000	-0.07285	0.01121	0	0.98944
1P	67	5.0000	-0.06164	0.01121	0	0.98604
1P	68	6.0000	-0.05043	0.01121	0	0.98266
1P	68	7.0000	-0.03922	0.01121	0	0.97927
1F	68	8.0000	-0.02802	0.01121	0	0.97591
1P	69	9.0000	-0.01681	0.01121	0	0.97256
1P	69	10.0000	-0.00560	0.01121	0	0.96922
1P	69	10.5000	0	0.01121	0	0.96754
2P	70	11.0000	0.00544	0.01088	0	0.96592
2F	70	12.0000	0.01632	0.01088	0	0.96268
2F	70	13.0000	0.02720	0.01088	0	0.95943
2F	71	14.0000	0.03808	0.01088	0	0.95619
2P	71	15.0000	0.04896	0.01088	0	0.95296
2F	72	16.0000	0.05984	0.01088	0	0.94976
2F	72	17.0000	0.07072	0.01088	0	0.94656
2F	72	18.0000	0.08160	0.01088	0	0.94337
2F	73	19.0000	0.09248	0.01088	0	0.94018
2F	73	20.0000	0.10336	0.01088	0	0.93702
2P	74	21.0000	0.11424	0.01088	0	0.93387
2P	74	22.0000	0.12512	0.01088	0	0.93071
2*	74	23.0000	0.13600	0.01088	0	0.92756
2F	75	24.0000	0.08160	-0.05440	0	0.91643
2F	75	25.0000	0.02720	-0.05440	0	0.90543
2F	75	25.5000	0	-0.05440	0	0.89997
3F	76	26.0000	-0.01682	-0.03364	0	0.89642
3F	76	27.0000	-0.05046	-0.03364	0	0.88934
3F	76	28.0000	-0.08410	-0.03364	0	0.88231
3F	76	29.0000	-0.11775	-0.03364	0	0.87534
3*	76	29.1000	-0.12111	-0.03364	0	0.87464
3F	77	30.0000	-0.11354	0.00841	0	0.87239
3F	77	31.0000	-0.10513	0.00841	0	0.86989
3F	77	32.0000	-0.09672	0.00841	0	0.86738
3F	78	33.0000	-0.08831	0.00841	0	0.86488
3F	78	34.0000	-0.07990	0.00841	0	0.86238
3F	78	35.0000	-0.07149	0.00841	0	0.85991
3F	78	36.0000	-0.06308	0.00841	0	0.85744
3F	79	37.0000	-0.05467	0.00841	0	0.85497
3F	79	38.0000	-0.04626	0.00841	0	0.85250
3F	79	39.0000	-0.03785	0.00841	0	0.85004
3F	80	40.0000	-0.02944	0.00841	0	0.84761
3F	80	41.0000	-0.02103	0.00841	0	0.84517
3F	80	42.0000	-0.01262	0.00841	0	0.84274
3F	80	43.0000	-0.00421	0.00841	0	0.84030
3F	80	43.5000	0	0.00841	0	0.83909
4F	81	44.0000	0.00421	0.00841	0	0.83789
4F	81	45.0000	0.01262	0.00841	0	0.83545
4F	81	46.0000	0.02103	0.00841	0	0.83308
4F	81	47.0000	0.02944	0.00841	0	0.83068

CABLE INCLIN..CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.l
4F	82	48.0000	0.03785	0.00841	0	0.82825
4F	82	49.0000	0.04626	0.00841	0	0.82590
4P	82	50.0000	0.05467	0.00841	0	0.82353
4P	83	51.0000	0.06308	0.00841	0	0.82116
4P	83	52.0000	0.07149	0.00841	0	0.81879
4F	83	53.0000	0.07990	0.00841	0	0.81642
4F	83	54.0000	0.08831	0.00841	0	0.81405
4F	84	55.0000	0.09672	0.00841	0	0.81175
4F	84	56.0000	0.10513	0.00841	0	0.80941
4F	84	57.0000	0.11354	0.00841	0	0.80708
4*	84	57.9000	0.12111	0.00841	0	0.80498
4F	85	58.0000	0.11775	-0.03364	0	0.80434
4F	85	59.0000	0.08410	-0.03364	0	0.79799
4F	85	60.0000	0.05046	-0.03364	0	0.79165
4F	85	61.0000	0.01682	-0.03364	0	0.78544
4P	85	61.5000	0	-0.03364	0	0.78232
5P	86	62.0000	-0.02720	-0.05440	0	0.77762
5F	86	63.0000	-0.08160	-0.05440	0	0.76828
5*	86	64.0000	-0.13600	-0.05440	0	0.75905
5F	87	65.0000	-0.12512	0.01088	0	0.75651
5F	87	66.0000	-0.11424	0.01088	0	0.75396
5P	88	67.0000	-0.10336	0.01088	0	0.75142
5F	88	68.0000	-0.09248	0.01088	0	0.74887
5P	88	69.0000	-0.08160	0.01088	0	0.74636
5F	89	70.0000	-0.07072	0.01088	0	0.74385
5P	89	71.0000	-0.05984	0.01088	0	0.74134
5F	90	72.0000	-0.04896	0.01088	0	0.73883
5F	90	73.0000	-0.03808	0.01088	0	0.73635
5P	90	74.0000	-0.02720	0.01088	0	0.73387
5F	91	75.0000	-0.01632	0.01088	0	0.73140
5F	91	76.0000	-0.00544	0.01088	0	0.72892
5F	91	76.5000	0	0.01088	0	0.72769
6F	92	77.0000	0.00560	0.01121	0	0.72644
6F	92	78.0000	0.01681	0.01121	0	0.72395
6P	92	79.0000	0.02802	0.01121	0	0.72146
6P	93	80.0000	0.03922	0.01121	0	0.71898
6F	93	81.0000	0.05043	0.01121	0	0.71651
6F	94	82.0000	0.06164	0.01121	0	0.71405
6P	94	83.0000	0.07285	0.01121	0	0.71159
6P	94	84.0000	0.08405	0.01121	0	0.70915
6F	95	85.0000	0.09526	0.01121	0	0.70671
6*	95	85.6000	0.10198	0.01121	0	0.70525
6G	95	86.0000	0.10198	0	0	0.70491
6G	96	87.0000	0.10198	0	0	0.70408

C A B L E O U T P U T : Cable Nr. 3

Referen.level	-0.87580
Mu-friction paramet.	0.20000
Delta-Alpha F.Parameter	0.00600
Area	0.00868
Min.radius of curvat.	8.0000
Slip parameter	0.00450
E-Modulus	1.95E+7
Distance	0
Length of cable	87.2261

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
1G	65	0	0.85680	-0.01900	0
1G	66	1.0000	0.75482	-0.12098	0
1*	66	1.4000	0.71402	-0.16178	0
1P	66	2.0000	0.65485	-0.22095	0
1P	66	3.0000	0.56520	-0.31060	0
1P	67	4.0000	0.48675	-0.38905	0
1P	67	5.0000	0.41951	-0.45629	0
1P	68	6.0000	0.36347	-0.51233	0
1P	68	7.0000	0.31864	-0.55716	0
1P	68	8.0000	0.28502	-0.59079	0
1P	69	9.0000	0.26261	-0.61319	0
1P	69	10.0000	0.25140	-0.62440	0
1P	69	10.5000	0.25000	-0.62586	0
2P	70	11.0000	0.25136	-0.62444	0
2P	70	12.0000	0.26224	-0.61356	0
2P	70	13.0000	0.28400	-0.59180	0
2P	71	14.0000	0.31664	-0.55916	0
2P	71	15.0000	0.36016	-0.51564	0
2P	72	16.0000	0.41456	-0.46124	0
2P	72	17.0000	0.47984	-0.39596	0
2P	72	18.0000	0.55600	-0.31980	0
2P	73	19.0000	0.64304	-0.23276	0
2P	73	20.0000	0.74096	-0.13484	0
2P	74	21.0000	0.84976	-0.02604	0
2P	74	22.0000	0.96944	0.09364	0
2*	74	23.0000	1.1000	0.22420	0
2P	75	24.0000	1.2088	0.33300	0
2P	75	25.0000	1.2632	0.38740	0
2P	75	25.5000	1.2700	0.39420	0
3P	76	26.0000	1.2658	0.38999	0
3P	76	27.0000	1.2322	0.35635	0
3P	76	28.0000	1.1649	0.28907	0
3P	76	29.0000	1.0639	0.18814	0
3*	76	29.1000	1.0520	0.17620	0
3P	77	30.0000	0.94641	0.07061	0
3P	77	31.0000	0.83707	-0.03873	0
3P	77	32.0000	0.73614	-0.13966	0
3P	78	33.0000	0.64363	-0.23217	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
3P	78	34.0000	0.55952	-0.31628	0
3P	78	35.0000	0.48383	-0.39197	0
3P	78	36.0000	0.41655	-0.45925	0
3P	79	37.0000	0.35767	-0.51813	0
3P	79	38.0000	0.30721	-0.56859	0
3P	79	39.0000	0.26516	-0.61064	0
3P	80	40.0000	0.23151	-0.64429	0
3P	80	41.0000	0.20628	-0.66952	0
3P	80	42.0000	0.18946	-0.68634	0
3P	80	43.0000	0.18105	-0.69475	0
3P	80	43.5000	0.18000	-0.69580	0
4P	81	44.0000	0.18105	-0.69475	0
4P	81	45.0000	0.18946	-0.68634	0
4P	81	46.0000	0.20628	-0.66952	0
4P	81	47.0000	0.23151	-0.64429	0
4P	82	48.0000	0.26516	-0.61064	0
4P	82	49.0000	0.30721	-0.56859	0
4P	82	50.0000	0.35767	-0.51813	0
4P	83	51.0000	0.41655	-0.45925	0
4P	83	52.0000	0.48383	-0.39197	0
4P	83	53.0000	0.55952	-0.31628	0
4P	83	54.0000	0.64363	-0.23217	0
4P	84	55.0000	0.73614	-0.13966	0
4P	84	56.0000	0.83707	-0.03873	0
4P	84	57.0000	0.94641	0.07061	0
4*	84	57.9000	1.0520	0.17620	0
4P	85	58.0000	1.0639	0.18814	0
4P	85	59.0000	1.1649	0.28907	0
4P	85	60.0000	1.2322	0.35635	0
4P	85	61.0000	1.2658	0.38999	0
4P	85	61.5000	1.2700	0.39420	0
5P	86	62.0000	1.2632	0.38740	0
5P	86	63.0000	1.2088	0.33300	0
5*	86	64.0000	1.1000	0.22420	0
5P	87	65.0000	0.96944	0.09364	0
5P	87	66.0000	0.84976	-0.02604	0
5P	88	67.0000	0.74096	-0.13484	0
5P	88	68.0000	0.64304	-0.23276	0
5P	88	69.0000	0.55600	-0.31980	0
5P	89	70.0000	0.47984	-0.39596	0
5P	89	71.0000	0.41456	-0.46124	0
5P	90	72.0000	0.36016	-0.51564	0
5P	90	73.0000	0.31664	-0.55916	0
5P	90	74.0000	0.28400	-0.59180	0
5P	91	75.0000	0.26224	-0.61356	0
5P	91	76.0000	0.25136	-0.62444	0
5P	91	76.5000	0.25000	-0.62580	0
6P	92	77.0000	0.25140	-0.62440	0
6P	92	78.0000	0.26261	-0.61319	0
6P	92	79.0000	0.28502	-0.59078	0
6P	93	80.0000	0.31864	-0.55716	0
6P	93	81.0000	0.36347	-0.51233	0
6P	94	82.0000	0.41951	-0.45629	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
6P	94	83.0000	0.48675	-0.38905	0
6P	94	84.0000	0.56520	-0.31060	0
6P	95	85.0000	0.65485	-0.22095	0
6*	95	85.6000	0.71402	-0.16178	0
6G	95	86.0000	0.75482	-0.12098	0
6G	96	87.0000	0.85680	-0.01900	0

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.1
1G	65	0	-0.10198	0	0	1.0000
1G	66	1.0000	-0.10198	0	0	0.99880
1*	66	1.4000	-0.10198	0	0	0.99832
1P	66	2.0000	-0.09526	0.01121	0	0.99627
1P	66	3.0000	-0.08405	0.01121	0	0.99285
1P	67	4.0000	-0.07285	0.01121	0	0.98944
1P	67	5.0000	-0.06164	0.01121	0	0.98604
1P	68	6.0000	-0.05043	0.01121	0	0.98266
1P	68	7.0000	-0.03922	0.01121	0	0.97927
1P	68	8.0000	-0.02802	0.01121	0	0.97591
1P	69	9.0000	-0.01681	0.01121	0	0.97256
1P	69	10.0000	-0.00560	0.01121	0	0.96922
1P	69	10.5000	0	0.01121	0	0.96754
2P	70	11.0000	0.00544	0.01088	0	0.96592
2P	70	12.0000	0.01632	0.01088	0	0.96268
2P	70	13.0000	0.02720	0.01088	0	0.95943
2P	71	14.0000	0.03808	0.01088	0	0.95619
2P	71	15.0000	0.04896	0.01088	0	0.95296
2P	72	16.0000	0.05984	0.01088	0	0.94976
2P	72	17.0000	0.07072	0.01088	0	0.94656
2P	72	18.0000	0.08160	0.01088	0	0.94337
2P	73	19.0000	0.09248	0.01088	0	0.94018
2P	73	20.0000	0.10336	0.01088	0	0.93702
2P	74	21.0000	0.11424	0.01088	0	0.93387
2P	74	22.0000	0.12512	0.01088	0	0.93073
2*	74	23.0000	0.13600	0.01088	0	0.92759
2P	75	24.0000	0.08160	-0.05440	0	0.91643
2P	75	25.0000	0.02720	-0.05440	0	0.90543
2P	75	25.5000	0	-0.05440	0	0.89997
3P	76	26.0000	-0.01682	-0.03364	0	0.89642
3P	76	27.0000	-0.05046	-0.03364	0	0.88534
3P	76	28.0000	-0.08410	-0.03364	0	0.88231
3P	76	29.0000	-0.11775	-0.03364	0	0.87534
3*	76	29.1000	-0.12111	-0.03364	0	0.87464
3P	77	30.0000	-0.11354	0.00841	0	0.87239
3P	77	31.0000	-0.10513	0.00841	0	0.86985
3P	77	32.0000	-0.09672	0.00841	0	0.86736
3P	78	33.0000	-0.08831	0.00841	0	0.86488
3P	78	34.0000	-0.07990	0.00841	0	0.86239
3P	78	35.0000	-0.07149	0.00841	0	0.85991
3P	78	36.0000	-0.06308	0.00841	0	0.85744

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.1
3P	79	37.0000	-0.05467	0.00841	0	0.85497
3P	79	38.0000	-0.04626	0.00841	0	0.85250
3P	79	39.0000	-0.03785	0.00841	0	0.85004
3P	80	40.0000	-0.02944	0.00841	0	0.84761
3P	80	41.0000	-0.02103	0.00841	0	0.84517
3P	80	42.0000	-0.01262	0.00841	0	0.84274
3P	80	43.0000	-0.00421	0.00841	0	0.84030
3P	80	43.5000	0	0.00841	0	0.83909
4P	81	44.0000	0.00421	0.00841	0	0.83789
4P	81	45.0000	0.01262	0.00841	0	0.83548
4P	81	46.0000	0.02103	0.00841	0	0.83308
4P	81	47.0000	0.02944	0.00841	0	0.83068
4P	82	48.0000	0.03785	0.00841	0	0.82828
4P	82	49.0000	0.04626	0.00841	0	0.82590
4P	82	50.0000	0.05467	0.00841	0	0.82353
4P	83	51.0000	0.06308	0.00841	0	0.82116
4P	83	52.0000	0.07149	0.00841	0	0.81879
4P	83	53.0000	0.07990	0.00841	0	0.81643
4P	83	54.0000	0.08831	0.00841	0	0.81408
4F	84	55.0000	0.09672	0.00841	0	0.81175
4P	84	56.0000	0.10513	0.00841	0	0.80941
4P	84	57.0000	0.11354	0.00841	0	0.80708
4*	84	57.9000	0.12111	0.00841	0	0.80498
4P	85	58.0000	0.11775	-0.03364	0	0.80434
4P	85	59.0000	0.08410	-0.03364	0	0.79788
4P	85	60.0000	0.05046	-0.03364	0	0.79169
4P	85	61.0000	0.01682	-0.03364	0	0.78544
4F	85	61.5000	0	-0.03364	0	0.78232
5P	86	62.0000	-0.02720	-0.05440	0	0.77762
5P	86	63.0000	-0.08160	-0.05440	0	0.76828
5*	86	64.0000	-0.13600	-0.05440	0	0.75905
5P	87	65.0000	-0.12512	0.01088	0	0.75651
5P	87	66.0000	-0.11424	0.01088	0	0.75396
5P	88	67.0000	-0.10336	0.01088	0	0.75142
5P	88	68.0000	-0.09248	0.01088	0	0.74887
5P	88	69.0000	-0.08160	0.01088	0	0.74636
5P	89	70.0000	-0.07072	0.01088	0	0.74385
5P	89	71.0000	-0.05984	0.01088	0	0.74134
5P	90	72.0000	-0.04896	0.01088	0	0.73883
5P	90	73.0000	-0.03808	0.01088	0	0.73635
5P	90	74.0000	-0.02720	0.01088	0	0.73387
5P	91	75.0000	-0.01632	0.01088	0	0.73140
5F	91	76.0000	-0.00544	0.01088	0	0.72892
5F	91	76.5000	0	0.01088	0	0.72769
6F	92	77.0000	0.00560	0.01121	0	0.72644
6F	92	78.0000	0.01681	0.01121	0	0.72395
6F	92	79.0000	0.02802	0.01121	0	0.72146
6P	93	80.0000	0.03922	0.01121	0	0.71898
6P	93	81.0000	0.05043	0.01121	0	0.71651
6P	94	82.0000	0.06164	0.01121	0	0.71405
6P	94	83.0000	0.07285	0.01121	0	0.71159
6P	94	84.0000	0.08405	0.01121	0	0.70915
6P	95	85.0000	0.09526	0.01121	0	0.70671

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.1
6*	95	85.6000	0.10198	0.01121	0	0.70528
6G	95	86.0000	0.10198	0	0	0.70491
6G	96	87.0000	0.10198	0	0	0.70408

C A B L E O U T P U T : Cable Nr. 4

Referen.level	-0.87580
Mu-friction paramet.	0.20000
Delta-Alpha F.Parameter	0.00600
Area	0.00868
Min.radius of curvat.	8.0000
Slip parameter	0.00450
E-Modulus	1.95E+7
Distance	0
Length of cable	87.2261

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
1G	97	0	0.85680	-0.01900	0
1G	98	1.0000	0.75482	-0.12098	0
1*	98	1.4000	0.71402	-0.16178	0
1P	98	2.0000	0.65485	-0.22095	0
1P	98	3.0000	0.56520	-0.31060	0
1P	99	4.0000	0.48675	-0.38905	0
1P	99	5.0000	0.41951	-0.45629	0
1P	100	6.0000	0.36347	-0.51233	0
1P	100	7.0000	0.31864	-0.55716	0
1P	100	8.0000	0.28502	-0.59079	0
1P	101	9.0000	0.26261	-0.61319	0
1P	101	10.0000	0.25140	-0.62440	0
1P	101	10.5000	0.25000	-0.62586	0
2P	102	11.0000	0.25136	-0.62444	0
2P	102	12.0000	0.26224	-0.61356	0
2P	102	13.0000	0.28400	-0.59180	0
2P	103	14.0000	0.31664	-0.55916	0
2P	103	15.0000	0.36016	-0.51564	0
2P	104	16.0000	0.41456	-0.46124	0
2P	104	17.0000	0.47984	-0.39596	0
2P	104	18.0000	0.55600	-0.31980	0
2P	105	19.0000	0.64304	-0.23276	0
2P	105	20.0000	0.74096	-0.13484	0
2P	106	21.0000	0.84976	-0.02604	0
2P	106	22.0000	0.96944	0.09364	0
2*	106	23.0000	1.1000	0.22420	0
2P	107	24.0000	1.2088	0.33300	0
2P	107	25.0000	1.2632	0.38740	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from ber axis Z-Excentr	Y-Excentr
2P	107	25.5000	1.2700	0.39420	0
3P	108	26.0000	1.2658	0.38999	0
3P	108	27.0000	1.2322	0.35635	0
3P	108	28.0000	1.1649	0.28907	0
3P	108	29.0000	1.0639	0.18814	0
3*	108	29.1000	1.0520	0.17620	0
3P	109	30.0000	0.94641	0.07061	0
3P	109	31.0000	0.83707	-0.03873	0
3P	109	32.0000	0.73614	-0.13966	0
3P	110	33.0000	0.64363	-0.23217	0
3P	110	34.0000	0.55952	-0.31628	0
3P	110	35.0000	0.48383	-0.39197	0
3P	110	36.0000	0.41655	-0.45925	0
3P	111	37.0000	0.35767	-0.51813	0
3P	111	38.0000	0.30721	-0.56859	0
3P	111	39.0000	0.26516	-0.61064	0
3P	112	40.0000	0.23151	-0.64429	0
3P	112	41.0000	0.20628	-0.66952	0
3P	112	42.0000	0.18946	-0.68634	0
3P	112	43.0000	0.18105	-0.69475	0
3P	112	43.5000	0.18000	-0.69580	0
4P	113	44.0000	0.18105	-0.69475	0
4P	113	45.0000	0.18946	-0.68634	0
4P	113	46.0000	0.20628	-0.66952	0
4P	113	47.0000	0.23151	-0.64429	0
4P	114	48.0000	0.26516	-0.61064	0
4P	114	49.0000	0.30721	-0.56859	0
4P	114	50.0000	0.35767	-0.51813	0
4P	115	51.0000	0.41655	-0.45925	0
4P	115	52.0000	0.48383	-0.39197	0
4P	115	53.0000	0.55952	-0.31628	0
4P	115	54.0000	0.64363	-0.23217	0
4P	116	55.0000	0.73614	-0.13966	0
4P	116	56.0000	0.83707	-0.03873	0
4P	116	57.0000	0.94641	0.07061	0
4*	116	57.9000	1.0520	0.17620	0
4P	117	58.0000	1.0639	0.18814	0
4P	117	59.0000	1.1649	0.28907	0
4P	117	60.0000	1.2322	0.35635	0
4P	117	61.0000	1.2658	0.38999	0
4P	117	61.5000	1.2700	0.39420	0
5P	118	62.0000	1.2632	0.38740	0
5P	118	63.0000	1.2088	0.33300	0
5*	118	64.0000	1.1000	0.22420	0
5P	119	65.0000	0.96944	0.09364	0
5P	119	66.0000	0.84976	-0.02604	0
5P	120	67.0000	0.74096	-0.13484	0
5P	120	68.0000	0.64304	-0.23276	0
5P	120	69.0000	0.55600	-0.31980	0
5P	121	70.0000	0.47984	-0.39596	0
5P	121	71.0000	0.41456	-0.46124	0
5P	122	72.0000	0.36016	-0.51564	0
5P	122	73.0000	0.31664	-0.55916	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
5P	122	74.0000	0.28400	-0.59180	0
5P	123	75.0000	0.26224	-0.61356	0
5P	123	76.0000	0.25136	-0.62444	0
5P	123	76.5000	0.25000	-0.62580	0
6P	124	77.0000	0.25140	-0.62440	0
6P	124	78.0000	0.26261	-0.61319	0
6P	124	79.0000	0.28502	-0.59078	0
6P	125	80.0000	0.31864	-0.55716	0
6P	125	81.0000	0.36347	-0.51233	0
6P	126	82.0000	0.41951	-0.45629	0
6P	126	83.0000	0.48675	-0.38905	0
6P	126	84.0000	0.56520	-0.31060	0
6P	127	85.0000	0.65485	-0.22095	0
6*	127	85.6000	0.71402	-0.16178	0
6G	127	86.0000	0.75482	-0.12096	0
6G	128	87.0000	0.85680	-0.01900	0

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.1
1G	97	0	-0.10198	0	0	1.0000
1G	98	1.0000	-0.10198	0	0	0.99880
1*	98	1.4000	-0.10198	0	0	0.99832
1P	98	2.0000	-0.09526	0.01121	0	0.99627
1P	98	3.0000	-0.08405	0.01121	0	0.99285
1P	99	4.0000	-0.07285	0.01121	0	0.98944
1P	99	5.0000	-0.06164	0.01121	0	0.98604
1P	100	6.0000	-0.05043	0.01121	0	0.98266
1P	100	7.0000	-0.03922	0.01121	0	0.97927
1P	100	8.0000	-0.02802	0.01121	0	0.97591
1P	101	9.0000	-0.01681	0.01121	0	0.97256
1P	101	10.0000	-0.00560	0.01121	0	0.96922
1P	101	10.5000	0	0.01121	0	0.96754
2P	102	11.0000	0.00544	0.01088	0	0.96592
2P	102	12.0000	0.01632	0.01088	0	0.96268
2P	102	13.0000	0.02720	0.01088	0	0.95943
2P	103	14.0000	0.03808	0.01088	0	0.95619
2P	103	15.0000	0.04896	0.01088	0	0.95296
2P	104	16.0000	0.05984	0.01088	0	0.94976
2P	104	17.0000	0.07072	0.01088	0	0.94656
2P	104	18.0000	0.08160	0.01088	0	0.94337
2P	105	19.0000	0.09248	0.01088	0	0.94018
2P	105	20.0000	0.10336	0.01088	0	0.93702
2P	106	21.0000	0.11424	0.01088	0	0.93387
2P	106	22.0000	0.12512	0.01088	0	0.93071
2*	106	23.0000	0.13600	0.01088	0	0.92756
2P	107	24.0000	0.08160	-0.05440	0	0.91643
2P	107	25.0000	0.02720	-0.05440	0	0.90543
2F	107	25.5000	0	-0.05440	0	0.89997
3F	108	26.0000	-0.01682	-0.03364	0	0.89642
3P	108	27.0000	-0.05046	-0.03364	0	0.88934

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.1
3P	108	28.0000	-0.08410	-0.03364	0	0.88231
3P	108	29.0000	-0.11775	-0.03364	0	0.87534
3*	108	29.1000	-0.12111	-0.03364	0	0.87464
3P	109	30.0000	-0.11354	0.00841	0	0.87239
3P	109	31.0000	-0.10513	0.00841	0	0.86989
3P	109	32.0000	-0.09672	0.00841	0	0.86738
3P	110	33.0000	-0.08831	0.00841	0	0.86488
3P	110	34.0000	-0.07990	0.00841	0	0.86238
3P	110	35.0000	-0.07149	0.00841	0	0.85991
3P	110	36.0000	-0.06308	0.00841	0	0.85744
3P	111	37.0000	-0.05467	0.00841	0	0.85497
3P	111	38.0000	-0.04626	0.00841	0	0.85250
3P	111	39.0000	-0.03785	0.00841	0	0.85004
3P	112	40.0000	-0.02944	0.00841	0	0.84761
3P	112	41.0000	-0.02103	0.00841	0	0.84517
3P	112	42.0000	-0.01262	0.00841	0	0.84274
3P	112	43.0000	-0.00421	0.00841	0	0.84030
3P	112	43.5000	0	0.00841	0	0.83909
4P	113	44.0000	0.00421	0.00841	0	0.83785
4P	113	45.0000	0.01262	0.00841	0	0.83548
4P	113	46.0000	0.02103	0.00841	0	0.83308
4P	113	47.0000	0.02944	0.00841	0	0.83069
4P	114	48.0000	0.03785	0.00841	0	0.82828
4P	114	49.0000	0.04626	0.00841	0	0.82590
4P	114	50.0000	0.05467	0.00841	0	0.82353
4P	115	51.0000	0.06308	0.00841	0	0.82116
4P	115	52.0000	0.07149	0.00841	0	0.81879
4P	115	53.0000	0.07990	0.00841	0	0.81643
4P	115	54.0000	0.08831	0.00841	0	0.81409
4P	116	55.0000	0.09672	0.00841	0	0.81175
4P	116	56.0000	0.10513	0.00841	0	0.80941
4P	116	57.0000	0.11354	0.00841	0	0.80706
4*	116	57.5000	0.12111	0.00841	0	0.80498
4P	117	58.0000	0.11775	-0.03364	0	0.80434
4P	117	59.0000	0.08410	-0.03364	0	0.79799
4P	117	60.0000	0.05046	-0.03364	0	0.79169
4P	117	61.0000	0.01682	-0.03364	0	0.78544
4P	117	61.5000	0	-0.03364	0	0.78232
5P	118	62.0000	-0.02720	-0.05440	0	0.77922
5P	118	63.0000	-0.08160	-0.05440	0	0.76825
5*	118	64.0000	-0.13600	-0.05440	0	0.75905
5P	119	65.0000	-0.12512	0.01088	0	0.75651
5P	119	66.0000	-0.11424	0.01088	0	0.75396
5P	120	67.0000	-0.10336	0.01088	0	0.75142
5P	120	68.0000	-0.09248	0.01088	0	0.74887
5P	120	69.0000	-0.08160	0.01088	0	0.74636
5P	121	70.0000	-0.07072	0.01088	0	0.74385
5P	121	71.0000	-0.05984	0.01088	0	0.74134
5P	122	72.0000	-0.04896	0.01088	0	0.73883
5P	122	73.0000	-0.03808	0.01088	0	0.73635
5P	122	74.0000	-0.02720	0.01088	0	0.73387
5P	123	75.0000	-0.01632	0.01088	0	0.73140
5P	123	76.0000	-0.00544	0.01088	0	0.72892

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.1
5P	123	76.5000	0	0.01088	0	0.72769
6P	124	77.0000	0.00560	0.01121	0	0.72644
6P	124	78.0000	0.01681	0.01121	0	0.72395
6P	124	79.0000	0.02802	0.01121	0	0.72146
6P	125	80.0000	0.03922	0.01121	0	0.71898
6P	125	81.0000	0.05043	0.01121	0	0.71651
6P	126	82.0000	0.06164	0.01121	0	0.71405
6P	126	83.0000	0.07285	0.01121	0	0.71159
6P	126	84.0000	0.08405	0.01121	0	0.70915
6P	127	85.0000	0.09526	0.01121	0	0.70671
6*	127	85.6000	0.10198	0.01121	0	0.70525
6G	127	86.0000	0.10198	0	0	0.70491
6G	128	87.0000	0.10198	0	0	0.70408

Cable nr.1 Graph created

Cable nr.2 Graph created

Cable nr.3 Graph created

Cable nr.4 Graph created

Cable input terminated succesfully

==========
Load case 1: PESO PROPIO
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Mas.forcZ gl const.	-2.500		Stab 1 .. 160

==========
Load case 2: PESO PAVIMENTO
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.372600		Stab 1 .. 32
Force Z pj const.	-0.303600		Stab 33 .. 128
Force Z pj const.	-0.372600		Stab 129 .. 160

==========
Load case 3: PESO BARRERAS
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-1.550		Stab 1 .. 32 129 .. 160

==========
Load case 4: PRETENSADO
==========

Cable 1: Units : (M)(T)
==========

Step	Pos	Stres-process	Force	str.elon/Slip	to Max. Force
1	Start	PRESTRES.	1236.00	0.5361	
2	Start	ANCHORING	1132.63	-0.0045	
3	End	PRESTRES.	1236.00	0.0481	
4	End	ANCHORING	1132.63	-0.0045	

Distr.of prestr.force(Pos:distance cable start)

Pos	Force	Pos	Force	Pos	Force	Pos	Force
0.000	1132.63	1.400	1134.53	4.433	1146.44	7.467	1158.47
10.500	1170.62	14.667	1179.18	18.833	1162.71	23.000	1146.47
23.833	1134.98	24.667	1123.61	25.500	1112.36	26.700	1101.83
27.900	1091.39	29.100	1081.06	33.900	1066.21	38.700	1051.56
43.500	1037.11	48.300	1051.56	53.100	1066.21	57.900	1081.06
59.100	1091.39	60.300	1101.83	61.500	1112.36	62.333	1123.61
63.167	1134.98	64.000	1146.47	68.167	1162.71	72.333	1179.18
76.500	1170.62	79.533	1158.47	82.567	1146.44	85.600	1134.53
87.000	1132.63						

Distr.of prestr.force(Pos:distance cable start)

Pos	Force	Pos	Force	Pos	Force	Pos	Force
63.167	1134.98	64.000	1146.47	68.167	1162.71	72.333	1179.18
76.500	1170.62	79.533	1158.47	82.567	1146.44	85.600	1134.53
87.000	1132.63						

Cable 2: Units : (M)(T)
==========

Step	Pos	Stres-process	Force	str.elon/Slip	to Max. Force
1	Start	PRESTRES.	1236.00	0.5361	
2	Start	ANCHORING	1132.63	-0.0045	
3	End	PRESTRES.	1236.00	0.0481	
4	End	ANCHORING	1132.63	-0.0045	

Distr.of prestr.force(Pos:distance cable start)

Pos	Force	Pos	Force	Pos	Force	Pos	Force
0.000	1132.63	1.400	1134.53	4.433	1146.44	7.467	1158.47
10.500	1170.62	14.667	1179.18	18.833	1162.71	23.000	1146.47
23.833	1134.98	24.667	1123.61	25.500	1112.36	26.700	1101.83
27.900	1091.39	29.100	1081.06	33.900	1066.21	38.700	1051.56
43.500	1037.11	48.300	1051.56	53.100	1066.21	57.900	1081.06
59.100	1091.39	60.300	1101.83	61.500	1112.36	62.333	1123.61
63.167	1134.98	64.000	1146.47	68.167	1162.71	72.333	1179.18
76.500	1170.62	79.533	1158.47	82.567	1146.44	85.600	1134.53
87.000	1132.63						

Cable 4: Units : (M)(T)
==========

Step	Pos	Stres-process	Force	str.elon/Slip	to Max. Force
1	Start	PRESTRES.	1236.00	0.5361	
2	Start	ANCHORING	1132.63	-0.0045	
3	End	PRESTRES.	1236.00	0.0481	
4	End	ANCHORING	1132.63	-0.0045	

Distr.of prestr.force(Pos:distance cable start)

Pos	Force	Pos	Force	Pos	Force	Pos	Force
0.000	1132.63	1.400	1134.53	4.433	1146.44	7.467	1158.47
10.500	1170.62	14.667	1179.18	18.833	1162.71	23.000	1146.47
23.833	1134.98	24.667	1123.61	25.500	1112.36	26.700	1101.83
27.900	1091.39	29.100	1081.06	33.900	1066.21	38.700	1051.56
43.500	1037.11	48.300	1051.56	53.100	1066.21	57.900	1081.06
59.100	1091.39	60.300	1101.83	61.500	1112.36	62.333	1123.61
63.167	1134.98	64.000	1146.47	68.167	1162.71	72.333	1179.18
76.500	1170.62	79.533	1158.47	82.567	1146.44	85.600	1134.53
87.000	1132.63						

==========
Load case 5: RETRACCION Y FLUENCIA
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Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lc const.	-0.000611		Stab 1 .. 160

Load case 6: SOE UNIF 1

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-1.222		Stab 1 .. 32

Load case 7: SOE UNIF 2

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.660000		Stab 33 .. 64

Load case 8: SOE UNIF 3

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.660000		Stab 65 .. 96

Load case 9: SOE UNIF 4

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-0.660000		Stab 97 .. 128

Load case 10: SOE UNIF 5

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-1.222		Stab 129 .. 160

Load case 11: VEHICULO HIPOTESIS 11

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-11.130	1.450	Stab 2
Moment X lo conc.	-5.800	1.450	Stab 2
Force Z gl conc.	-11.130	0.450000	Stab 3
Force Z gl conc.	-11.130	2.050	Stab 3
Moment X lo conc.	-5.800	0.450000	Stab 3
Moment X lo conc.	-5.800	2.050	Stab 3
Force Z gl conc.	-8.880	1.450	Stab 34
Force Z gl conc.	-8.880	0.450000	Stab 35
Force Z gl conc.	-8.880	2.050	Stab 35

Load case 12: VEHICULO HIPOTESIS 12

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-11.130	1.000	Stab 5
Moment X lo conc.	-5.800	1.000	Stab 5
Force Z gl conc.	-11.130	0	Stab 6
Force Z gl conc.	-11.130	1.500	Stab 6
Moment X lo conc.	-5.800	0	Stab 6
Moment X lo conc.	-5.800	1.500	Stab 6
Force Z gl conc.	-8.880	1.000	Stab 37
Force Z gl conc.	-8.880	0	Stab 38
Force Z gl conc.	-8.880	1.500	Stab 38

Load case 13: VEHICULO HIPOTESIS 13

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Moment X lo conc.	-5.800	0.550000	Stab 10
Moment X lo conc.	-5.800	2.050	Stab 10
Force Z gl conc.	-11.130	0.550000	Stab 10
Force Z gl conc.	-11.130	2.050	Stab 10
Moment X lo conc.	-5.800	1.050	Stab 11
Force Z gl conc.	-11.130	1.050	Stab 11
Force Z gl conc.	-8.880	0.550000	Stab 42
Force Z gl conc.	-8.880	2.050	Stab 42
Force Z gl conc.	-8.880	1.050	Stab 43

Load case 14: VEHICULO HIPOTESIS 14

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-11.130	1.450	Stab 12
Moment X lo conc.	-5.800	1.450	Stab 12
Force Z gl conc.	-11.130	2.950	Stab 12
Force Z gl conc.	-11.130	0.850000	Stab 13
Moment X lo conc.	-5.800	2.950	Stab 12
Moment X lo conc.	-5.800	0.850000	Stab 13
Force Z gl conc.	-8.880	1.450	Stab 44
Force Z gl conc.	-8.880	2.050	Stab 44
Force Z gl conc.	-8.880	0.850000	Stab 45

Load case 15: VEHICULO HIPOTESIS 15

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Moment X lo conc.	-5.800	2.100	Stab 16
Force Z gl conc.	-11.130	2.100	Stab 16
Moment X lo conc.	-5.800	0	Stab 17
Moment X lo conc.	-5.800	1.500	Stab 17
Force Z gl conc.	-11.130	0	Stab 17
Force Z gl conc.	-11.130	1.500	Stab 17
Force Z gl conc.	-8.880	2.100	Stab 48
Force Z gl conc.	-8.880	0	Stab 49
Force Z gl conc.	-8.880	1.500	Stab 49

Load case 16: VEHICULO POSICION 16

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-11.130	2.750	Stab 20
Moment X lo conc.	-5.800	2.750	Stab 20
Force Z gl conc.	-11.130	0.650000	Stab 21
Force Z gl conc.	-11.130	2.150	Stab 21
Moment X lo conc.	-5.800	0.650000	Stab 21
Moment X lo conc.	-5.800	2.150	Stab 21
Force Z gl conc.	-8.880	2.750	Stab 52
Force Z gl conc.	-8.880	0.650000	Stab 53
Force Z gl conc.	-8.880	2.150	Stab 53

Load case 17: VEHICULO POSICION 17

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-11.130	1.450	Stab 22
Force Z gl conc.	-11.130	0.450000	Stab 23
Moment X lo conc.	-5.800	1.450	Stab 22
Moment X lo conc.	-5.800	0.450000	Stab 23
Force Z gl conc.	-11.130	2.050	Stab 23
Moment X lo conc.	-5.800	2.050	Stab 23
Force Z gl conc.	-8.880	1.450	Stab 54
Force Z gl conc.	-8.880	0.450000	Stab 55
Force Z gl conc.	-8.880	2.050	Stab 55

Load case 18: VEHICULO POSICION 18

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Moment X lo conc.	-5.800	1.000	Stab 27
Force Z gl conc.	-11.130	1.000	Stab 27
Moment X lo conc.	-5.800	0	Stab 28
Moment X lo conc.	-5.800	1.500	Stab 28
Force Z gl conc.	-11.130	0	Stab 28
Force Z gl conc.	-11.130	1.500	Stab 28
Force Z gl conc.	-8.880	1.000	Stab 59
Force Z gl conc.	-8.880	0	Stab 60
Force Z gl conc.	-8.880	1.500	Stab 60

Load case 19: VEHICULO POSICION 19

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-11.130	0.550000	Stab 30
Moment X lo conc.	-5.800	0.550000	Stab 30
Force Z gl conc.	-11.130	2.050	Stab 30
Force Z gl conc.	-11.130	1.050	Stab 31
Moment X lo conc.	-5.800	2.050	Stab 30
Moment X lo conc.	-5.800	1.050	Stab 31
Force Z gl conc.	-8.880	0.550000	Stab 62
Force Z gl conc.	-8.880	2.050	Stab 62
Force Z gl conc.	-8.880	1.050	Stab 63

Load case 20: VEHICULO HIPOTESIS 20

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-11.130	1.450	Stab	130
Moment	X	lo conc.	5.800	1.450	Stab	130
Force	Z	gl conc.	-11.130	0.450000	Stab	131
Force	Z	gl conc.	-11.130	2.050	Stab	131
Moment	X	lo conc.	5.800	0.450000	Stab	131
Moment	X	lo conc.	5.800	2.050	Stab	131
Force	Z	gl conc.	-8.880	1.450	Stab	98
Force	Z	gl conc.	-8.880	0.450000	Stab	95
Force	Z	gl conc.	-8.880	2.050	Stab	99

Load case 21: VEHICULO HIPOTESIS 21

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-11.130	1.000	Stab	133
Moment	X	lo conc.	5.800	1.000	Stab	133
Force	Z	gl conc.	-11.130	0	Stab	134
Force	Z	gl conc.	-11.130	1.500	Stab	134
Moment	X	lo conc.	5.800	0	Stab	134
Moment	X	lo conc.	5.800	1.500	Stab	134
Force	Z	gl conc.	-8.880	1.000	Stab	101
Force	Z	gl conc.	-8.880	0	Stab	102
Force	Z	gl conc.	-8.880	1.500	Stab	102

Load case 22: VEHICULO HIPOTESIS 22

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-11.130	1.450	Stab	136
Moment	X	lo conc.	5.800	0.550000	Stab	136
Force	Z	gl conc.	-11.130	0.550000	Stab	138
Force	Z	gl conc.	-11.130	2.050	Stab	138
Moment	X	lo conc.	5.800	1.050	Stab	139
Force	Z	gl conc.	-11.130	1.050	Stab	139
Force	Z	gl conc.	-8.880	0.550000	Stab	106
Force	Z	gl conc.	-8.880	2.050	Stab	106
Force	Z	gl conc.	-8.880	1.050	Stab	107

Load case 23: VEHICULO HIPOTESIS 23

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-11.130	1.450	Stab	140
Moment	X	lo conc.	5.800	1.450	Stab	140
Force	Z	gl conc.	-11.130	2.950	Stab	140
Force	Z	gl conc.	-11.130	0.850000	Stab	141
Moment	X	lo conc.	5.800	0.850000	Stab	141
Moment	X	lo conc.	5.800	2.950	Stab	140
Force	Z	gl conc.	-8.880	1.450	Stab	108
Force	Z	gl conc.	-8.880	2.950	Stab	108
Force	Z	gl conc.	-8.880	0.850000	Stab	109

Load case 24: VEHICULO HIPOTESIS 24

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Moment	X	lo conc.	5.800	2.100	Stab	144
Force	Z	gl conc.	-11.130	2.100	Stab	144
Moment	X	lo conc.	5.800	0	Stab	145
Moment	X	lo conc.	5.800	1.500	Stab	145
Force	Z	gl conc.	-11.130	0	Stab	145
Force	Z	gl conc.	-11.130	1.500	Stab	145
Force	Z	gl conc.	-8.880	2.100	Stab	112
Force	Z	gl conc.	-8.880	0	Stab	113
Force	Z	gl conc.	-8.880	1.500	Stab	113

Load case 25: VEHICULO POSICION 25

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-11.130	2.750	Stab	148
Moment	X	lo conc.	5.800	2.750	Stab	148
Force	Z	gl conc.	-11.130	0.650000	Stab	149
Force	Z	gl conc.	-11.130	2.150	Stab	149
Moment	X	lo conc.	5.800	0.650000	Stab	149
Moment	X	lo conc.	5.800	2.150	Stab	149
Force	Z	gl conc.	-8.880	2.750	Stab	116
Force	Z	gl conc.	-8.880	0.650000	Stab	117
Force	Z	gl conc.	-8.880	2.150	Stab	117

Load case 26: VEHICULO POSICION 26

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-11.130	1.450	Stab	150
Force	Z	gl conc.	-11.130	0.450000	Stab	151
Moment	X	lo conc.	5.800	1.450	Stab	150
Moment	X	lo conc.	5.800	0.450000	Stab	151
Force	Z	gl conc.	-11.130	2.050	Stab	151
Moment	X	lo conc.	5.800	2.050	Stab	151
Force	Z	gl conc.	-8.880	1.450	Stab	118
Force	Z	gl conc.	-8.880	0.450000	Stab	119
Force	Z	gl conc.	-8.880	2.050	Stab	119

Load case 27: VEHICULO POSICION 27

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Moment	X	lo conc.	5.800	1.000	Stab	155
Force	Z	gl conc.	-11.130	1.000	Stab	155
Moment	X	lo conc.	5.800	0	Stab	156
Moment	X	lo conc.	5.800	1.500	Stab	156
Force	Z	gl conc.	-11.130	0	Stab	156
Force	Z	gl conc.	-11.130	1.500	Stab	156
Force	Z	gl conc.	-8.880	1.000	Stab	123
Force	Z	gl conc.	-8.880	0	Stab	124
Force	Z	gl conc.	-8.880	1.500	Stab	124

Load case 28: VEHICULO POSICION 28

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-11.130	0.550000	Stab	158
Moment	X	lo conc.	5.800	0.550000	Stab	158
Force	Z	gl conc.	-11.130	2.050	Stab	158
Force	Z	gl conc.	-11.130	1.050	Stab	159
Moment	X	lo conc.	5.800	2.050	Stab	158
Moment	X	lo conc.	5.800	1.050	Stab	159
Force	Z	gl conc.	-8.880	0.550000	Stab	126
Force	Z	gl conc.	-8.880	2.050	Stab	126
Force	Z	gl conc.	-8.880	1.050	Stab	127

Load case 29:

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-0.000100	0	Stab	34

Load case 30: FRENADO

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	X	lo const.	0.041380		Stab	1 .. 160

Load case 32: VIENTO TRANSV SIN SOB.

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Y	lo const.	0.680000		Stab	129 .. 160

Load case 33: VIENTO TRANSV CON SOB

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Y	lo const.	1.050		Stab	129 .. 160

Load case 34: TEMPERATURA (-)

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Strain	X	lo const.	-0.000346		Stab	1 .. 160

Load case 35: TEMPERATURA (+)

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Strain	X	lo const.	0.000348		Stab	1 .. 160

Load case 36: GRADIENTE

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Curvat.	Y	lo const.	7.5E-0005		Stab	1 .. 160

Load case 37: VEHICULO HIPOTESIS 37

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.060	1.450	Stab	34	98
Force	Z	gl conc.	-6.060	0.450000	Stab	35	99
Force	Z	gl conc.	-6.060	2.050	Stab	35	99
Force	Z	gl conc.	-7.880	1.450	Stab	66	
Force	Z	gl conc.	-7.880	0.450000	Stab	67	
Force	Z	gl conc.	-7.880	2.050	Stab	67	

Load case 38: VEHICULO HIPOTESIS 38

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.061	1.000	Stab	37	101
Force	Z	gl conc.	-6.061	0	Stab	38	102
Force	Z	gl conc.	-6.061	1.500	Stab	38	102
Force	Z	gl conc.	-7.880	1.000	Stab	69	
Force	Z	gl conc.	-7.880	0	Stab	70	
Force	Z	gl conc.	-7.880	1.500	Stab	70	

Load case 39: VEHICULO HIPOTESIS 39

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.061	0.550000	Stab	42	106
Force	Z	gl conc.	-6.061	2.050	Stab	42	106
Force	Z	gl conc.	-6.061	1.050	Stab	43	107
Force	Z	gl conc.	-7.880	0.550000	Stab	74	
Force	Z	gl conc.	-7.880	2.050	Stab	74	
Force	Z	gl conc.	-7.880	1.050	Stab	75	

Load case 40: VEHICULO HIPOTESIS 40

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.061	1.450	Stab	44	108
Force	Z	gl conc.	-6.061	2.950	Stab	44	108
Force	Z	gl conc.	-6.061	0.850000	Stab	45	109
Force	Z	gl conc.	-7.880	1.450	Stab	76	
Force	Z	gl conc.	-7.880	2.950	Stab	76	
Force	Z	gl conc.	-7.880	0.850000	Stab	77	

Load case 41: VEHICULO HIPOTESIS 41

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.061	2.100	Stab	48	112
Force	Z	gl conc.	-6.061	0	Stab	49	113
Force	Z	gl conc.	-6.061	1.500	Stab	49	113
Force	Z	gl conc.	-7.880	2.100	Stab	80	
Force	Z	gl conc.	-7.880	0	Stab	81	
Force	Z	gl conc.	-7.880	1.500	Stab	81	

Load case 42: VEHICULO POSICION 42

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.061	2.750	Stab	52	116
Force	Z	gl conc.	-6.061	0.650000	Stab	53	117
Force	Z	gl conc.	-6.061	2.150	Stab	53	117
Force	Z	gl conc.	-7.880	2.750	Stab	84	
Force	Z	gl conc.	-7.880	0.650000	Stab	85	
Force	Z	gl conc.	-7.880	2.150	Stab	85	

Load case 43: VEHICULO POSICION 43

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.061	1.450	Stab	54	118
Force	Z	gl conc.	-6.061	0.450000	Stab	55	119
Force	Z	gl conc.	-6.061	2.050	Stab	55	119
Force	Z	gl conc.	-7.880	1.450	Stab	86	
Force	Z	gl conc.	-7.880	0.450000	Stab	87	
Force	Z	gl conc.	-7.880	2.050	Stab	87	

Load case 44: VEHICULO POSICION 44

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.061	1.000	Stab	59	123
Force	Z	gl conc.	-6.061	0	Stab	60	124
Force	Z	gl conc.	-6.061	1.500	Stab	60	124
Force	Z	gl conc.	-7.880	1.000	Stab	91	
Force	Z	gl conc.	-7.880	0	Stab	92	
Force	Z	gl conc.	-7.880	1.500	Stab	92	

Load case 45: VEHICULO POSICION 45

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	gl conc.	-6.061	0.550000	Stab	62	126
Force	Z	gl conc.	-6.061	2.050	Stab	62	126
Force	Z	gl conc.	-6.061	1.050	Stab	63	127
Force	Z	gl conc.	-7.880	0.550000	Stab	94	
Force	Z	gl conc.	-7.880	2.050	Stab	94	
Force	Z	gl conc.	-7.880	1.050	Stab	95	

Load case 46: SOB UNIF VANO 1

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	pj const.	-1.220		Stab	1 .. 11	129
					.. 139		
Force	Z	pj const.	-0.660000		Stab	33 .. 43	65
					.. 75	97 .. 107	

Load case 47: SOB UNIF VANO 2

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	pj const.	-0.660000		Stab	44 .. 53	76
					.. 85	108 .. 117	
Force	Z	pj const.	-1.220		Stab	12 .. 21	140
					.. 149		

Load case 48: SOB UNIF VANO 3

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb		
Force	Z	pj const.	-0.660000		Stab	54 .. 64	86
					.. 96	118 .. 128	
Force	Z	pj const.	-1.220		Stab	22 .. 32	150
					.. 160		

Load case 50: PRUEBA DE CARGA ESTADO 2

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	2.100	Stab	3
Force	Z	gl conc.	-3.250	0.800000	Stab	5
Force	Z	gl conc.	-10.000	0	Stab	7
Force	Z	gl conc.	-3.250	1.625	Stab	8
Force	Z	gl conc.	-10.000	0	Stab	26
Force	Z	gl conc.	-3.250	1.625	Stab	27
Force	Z	gl conc.	-10.000	2.100	Stab	28
Force	Z	gl conc.	-3.250	0.800000	Stab	30
Force	Z	gl conc.	-10.000	2.100	Stab	35
Force	Z	gl conc.	-3.250	0.800000	Stab	37
Force	Z	gl conc.	-10.000	0	Stab	39
Force	Z	gl conc.	-3.250	1.625	Stab	40
Force	Z	gl conc.	-10.000	0	Stab	58
Force	Z	gl conc.	-3.250	1.625	Stab	59
Force	Z	gl conc.	-10.000	2.100	Stab	60

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-3.250	0.800000	Stab	62
Force	Z	gl conc.	-10.000	2.100	Stab	67
Force	Z	gl conc.	-3.250	0.800000	Stab	69
Force	Z	gl conc.	-10.000	0	Stab	71
Force	Z	gl conc.	-3.250	1.625	Stab	72
Force	Z	gl conc.	-10.000	0	Stab	90
Force	Z	gl conc.	-3.250	1.625	Stab	91
Force	Z	gl conc.	-10.000	2.100	Stab	92
Force	Z	gl conc.	-3.250	0.800000	Stab	94
Force	Z	gl conc.	-10.000	2.100	Stab	99
Force	Z	gl conc.	-3.250	0.800000	Stab	101
Force	Z	gl conc.	-10.000	0	Stab	103
Force	Z	gl conc.	-3.250	1.625	Stab	104
Force	Z	gl conc.	-10.000	0	Stab	122
Force	Z	gl conc.	-3.250	1.625	Stab	123
Force	Z	gl conc.	-10.000	2.100	Stab	124
Force	Z	gl conc.	-3.250	0.800000	Stab	126

Load case 51: PRUEBA DE CARGA ESTADO 1

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb	
Force	Z	gl conc.	-10.000	2.100	Stab	3
Force	Z	gl conc.	-3.250	0.800000	Stab	5
Force	Z	gl conc.	-10.000	0	Stab	7
Force	Z	gl conc.	-3.250	1.625	Stab	8
Force	Z	gl conc.	-10.000	0	Stab	15
Force	Z	gl conc.	-3.250	1.625	Stab	16
Force	Z	gl conc.	-10.000	2.100	Stab	35
Force	Z	gl conc.	-3.250	0.800000	Stab	37
Force	Z	gl conc.	-10.000	0	Stab	39
Force	Z	gl conc.	-3.250	1.625	Stab	40
Force	Z	gl conc.	-10.000	0	Stab	47
Force	Z	gl conc.	-3.250	1.625	Stab	48
Force	Z	gl conc.	-10.000	2.100	Stab	67
Force	Z	gl conc.	-3.250	0.800000	Stab	69
Force	Z	gl conc.	-10.000	0	Stab	71
Force	Z	gl conc.	-3.250	1.625	Stab	72
Force	Z	gl conc.	-10.000	0	Stab	79
Force	Z	gl conc.	-3.250	1.625	Stab	80
Force	Z	gl conc.	-10.000	2.100	Stab	99
Force	Z	gl conc.	-3.250	0.800000	Stab	101
Force	Z	gl conc.	-10.000	0	Stab	103
Force	Z	gl conc.	-3.250	1.625	Stab	104
Force	Z	gl conc.	-10.000	0	Stab	111

2.3.2. Cálculo de los coeficientes de reparto

Coeficientes de excentricidad a Flexión

Hipotesis	Barras	My (tm)	Iy (m^4)	Coef Flexion
H12	6	77.95	0.2689	2.15
	38	47.63	0.4162	
	70	40.82	0.4162	
	102	33.793	0.4162	
	134	40.51	0.2689	
H15	16	82.38	0.2689	2.08
	48	52.94	0.4162	
	80	47.53	0.4162	
	112	38.8	0.4162	
	144	41.96	0.2689	

Coeficiente Flexion =	2.11

Coeficientes de excentricidad cortante

Hipotesis	Barras	Vz (t)	Iy (m^4)	Coef Cortante
H11	2	26.53	0.2689	4.00
	34	11.53	0.4162	
	66	3.95	0.4162	
	98	2.06	0.4162	
	130	0.02	0.2689	
H13	11	13.67	0.2689	1.73
	43	13.24	0.4162	
	75	11.76	0.4162	
	107	7.04	0.4162	
	139	6.65	0.2689	
H14	12	17.94	0.2689	2.18
	44	17.29	0.4162	
	76	9.11	0.4162	
	108	5.66	0.4162	
	140	4.67	0.2689	

Coeficiente Cortante =	2.64

Loadcase Factor Stage Init.def Title
11 1.0000 VEHICULO HIPOTESIS 11

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	-6.59E-15	1.87E-12	-2.99E-12	-7.82E-16	-3.75E-13	-9.60E-13
1	0.500	-6.59E-15	1.87E-12	-2.99E-12	-7.82E-16	-1.87E-12	-2.38E-14
2	0	3.996	23.601	26.535	-14.898	-14.288	1.031
2	1.450	3.996	23.601	26.535	-14.898	24.181	35.246
2	1.450	3.996	20.495	15.647	-9.098	24.192	35.257
2	2.500	3.996	20.495	15.647	-9.098	40.827	56.772
3	0	7.894	10.031	15.337	-12.821	27.854	57.666
3	0.450	7.894	10.031	15.337	-12.821	34.752	62.178
3	0.450	7.894	6.926	4.649	-7.021	34.757	62.182
3	2.050	7.894	6.926	4.649	-7.021	42.184	73.260
3	2.050	7.894	3.821	-6.039	-1.221	42.193	73.263
3	2.500	7.894	3.821	-6.039	-1.221	39.477	74.981
4	0	3.610	-4.547	-3.843	-2.147	36.212	67.593
4	2.500	3.610	-4.547	-3.843	-2.147	26.605	56.226
5	0	0.854771	-5.062	-2.520	-0.773916	26.017	52.346
5	2.500	0.854771	-5.062	-2.520	-0.773916	19.718	35.653
6	0	0.229229	-4.314	-2.172	-0.035958	19.580	28.685
6	2.500	0.229229	-4.314	-2.172	-0.035958	14.151	28.101
7	0	0.141581	-3.814	-2.039	0.319851	14.405	28.123
7	2.500	0.141581	-3.614	-2.039	0.319851	9.305	18.588
8	0	0.138745	-3.584	-1.979	0.453076	9.761	18.790
8	2.500	0.138745	-3.584	-1.979	0.453076	4.833	9.825
9	0	0.124177	-3.464	-1.942	0.436116	5.375	10.026
9	2.500	0.124177	-3.464	-1.942	0.436116	0.520051	1.367
10	0	0.026041	-3.204	-1.852	0.308687	1.007	1.417
10	2.500	0.026041	-3.204	-1.852	0.308687	-3.622	-6.592
11	0	-0.110729	-2.475	-1.385	0.343772	-2.305	-6.651
11	2.500	-0.110729	-2.475	-1.385	0.343772	-6.777	-12.841
12	0	-0.052385	-0.352947	-0.330959	1.027	-6.105	-12.425
12	3.600	-0.052385	-0.352947	-0.330959	1.027	-7.301	-13.695
13	0	0.044274	0.367589	0.058571	0.936563	-6.227	-12.761
13	3.600	0.044274	0.367589	0.058571	0.936563	-6.014	-11.365
14	0	0.045007	0.441063	0.055275	0.778564	-5.170	-10.784

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
14	3.600	0.045007	0.441063	0.055275	0.778564	-4.571	-9.196
15	0	0.007765	0.409782	0.051762	0.736832	-4.176	-8.756
15	3.600	0.007765	0.409782	0.051762	0.736832	-3.969	-7.286
16	0	-0.004495	0.397237	0.052108	0.729293	-3.210	-6.829
16	3.600	-0.004495	0.397237	0.052108	0.729293	-3.022	-5.399
17	0	-0.005804	0.395367	0.052248	0.728360	-2.247	-4.936
17	3.600	-0.005804	0.395367	0.052248	0.728360	-2.059	-3.513
18	0	-0.007632	0.397388	0.052049	0.729230	-1.285	-3.051
18	3.600	-0.007632	0.397388	0.052049	0.729230	-1.097	-1.620
19	0	-0.014930	0.402239	0.052160	0.735585	-0.320148	-1.160
19	3.600	-0.014930	0.402239	0.052160	0.735585	-0.132273	0.287711
20	0	-0.017461	0.389113	0.051004	0.760693	0.652392	0.769117
20	3.600	-0.017461	0.389113	0.051004	0.760693	0.636007	2.170
21	0	-0.000298	0.246472	-0.024418	0.767403	1.656	2.704
21	3.600	-0.000298	0.246472	-0.024418	0.767403	1.570	3.591
22	0	0.002617	-0.118597	-0.260244	0.611356	2.295	4.003
22	2.500	0.002617	-0.118597	-0.260244	0.611356	1.644	3.707
23	0	-0.009967	-0.245096	-0.350471	0.598623	2.296	3.951
23	2.500	-0.009967	-0.245096	-0.350471	0.598623	1.418	3.336
24	0	-0.018781	-0.288527	-0.366605	0.623888	2.055	3.595
24	2.500	-0.018781	-0.288527	-0.366605	0.623888	1.182	2.874
25	0	-0.013722	-0.293310	-0.369560	0.636776	1.680	3.158
25	2.500	-0.013722	-0.293310	-0.369560	0.636776	0.956110	2.424
26	0	-0.007153	-0.290390	-0.370756	0.644477	1.661	2.715
26	2.500	-0.007153	-0.290390	-0.370756	0.644477	0.733950	1.989
27	0	-0.003750	-0.288918	-0.371527	0.645913	1.442	2.279
27	2.500	-0.003750	-0.288918	-0.371527	0.645913	0.512766	1.557
28	0	-0.002437	-0.291089	-0.372392	0.645371	1.221	1.845
28	2.500	-0.002437	-0.291089	-0.372392	0.645371	0.289798	1.117
29	0	-0.001610	-0.298468	-0.374293	0.642879	0.996573	1.404
29	2.500	-0.001610	-0.298468	-0.374293	0.642879	0.060841	0.657802
30	0	-0.006324	-0.306858	-0.380297	0.634617	0.766362	0.934608
30	2.500	-0.006324	-0.306858	-0.380297	0.634617	-0.184382	0.167463
31	0	-0.045176	-0.276000	-0.435698	0.575462	0.527411	0.395466
31	2.500	-0.045176	-0.276000	-0.435698	0.575482	-0.561834	-0.294532

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
32	0	-8.41E-17	-7.89E-14	1.30E-13	-3.23E-16	-7.64E-14	6.80E-14
32	0.500	-8.41E-17	-7.89E-14	1.30E-13	-3.23E-16	-1.16E-14	2.85E-14
33	0	-3.06E-17	1.28E-14	8.38E-13	-2.11E-16	-1.42E-13	-1.43E-14
33	0.500	-3.06E-17	1.28E-14	8.38E-13	-2.11E-16	2.77E-13	-7.92E-15
34	0	-0.674421	-4.867	11.535	-12.109	-1.160	5.551
34	1.450	-0.674421	-4.867	11.535	-12.109	15.563	-1.505
34	1.450	-0.674421	-4.867	2.655	-12.109	15.566	-1.508
34	2.500	-0.674421	-4.867	2.655	-12.109	18.353	-6.617
35	0	-1.315	-0.021609	10.682	-7.091	18.373	-0.927069
35	0.450	-1.315	-0.021609	10.682	-7.091	23.178	-0.936787
35	0.450	-1.315	-0.021609	1.802	-7.091	23.181	-0.936798
35	2.050	-1.315	-0.021609	1.802	-7.091	26.062	-0.971361
35	2.050	-1.315	-0.021609	-7.078	-7.091	26.061	-0.971372
35	2.500	-1.315	-0.021609	-7.078	-7.091	22.876	-0.981090
36	0	1.114	2.315	-2.135	-2.492	23.168	-3.426
36	2.500	1.114	2.315	-2.135	-2.492	17.641	2.372
37	0	1.232	1.030	-1.600	-0.726353	17.832	-1.292
37	2.500	1.232	1.030	-1.600	-0.726353	13.832	1.284
38	0	0.589009	0.298697	-1.414	0.008756	13.870	-0.314651
38	2.500	0.589009	0.298697	-1.414	0.008756	10.334	0.432592
39	0	0.217634	0.099560	-1.342	0.348748	10.386	-0.106236
39	2.500	0.217634	0.099560	-1.342	0.348748	7.031	0.142684
40	0	0.051952	0.052610	-1.306	0.468693	7.105	-0.072585
40	2.500	0.051952	0.052610	-1.306	0.468693	3.841	0.058537
41	0	-0.013341	0.057286	-1.296	0.487697	3.954	-0.063496
41	2.500	-0.013341	0.057286	-1.296	0.487697	0.714683	0.056717
42	0	0.012036	0.065384	-1.383	0.373234	0.919101	-0.104177
42	2.500	0.012036	0.065384	-1.383	0.373234	-2.539	0.109263
43	0	0.084996	0.048122	-1.569	0.315355	-2.287	-0.062375
43	2.500	0.084996	0.048122	-1.569	0.315355	-6.210	0.077930
44	0	0.065115	0.044330	0.406746	1.027	-6.132	-0.066420
44	3.600	0.065115	0.044330	0.406746	1.027	-4.668	0.093168
45	0	-0.024814	0.036846	0.184243	0.883771	-4.756	-0.070641
45	3.600	-0.024814	0.036846	0.184243	0.883771	-4.055	0.062004
46	0	-0.027347	0.059616	0.163782	0.760122	-4.066	-0.114972
46	3.600	-0.027347	0.059616	0.163782	0.760122	-2.476	0.099647

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
47	0	-0.006026	0.055244	0.173067	0.733148	-3.388	-0.101513
47	3.600	-0.006026	0.055244	0.173067	0.733148	-2.765	0.097365
48	0	-0.002111	0.050375	0.175129	0.726656	-2.670	-0.090477
48	3.600	-0.002111	0.050375	0.175129	0.726656	-2.035	0.090873
49	0	-0.001498	0.049392	0.175386	0.726197	-1.944	-0.088408
49	3.600	-0.001498	0.049392	0.175386	0.726197	-1.312	0.089404
50	0	-0.000702	0.050374	0.174895	0.726602	-1.216	-0.089632
50	3.600	-0.000702	0.050374	0.174895	0.726602	-0.586731	0.091513
51	0	0.002263	0.051740	0.172644	0.732351	-0.452117	-0.091264
51	3.600	0.002263	0.051740	0.172644	0.732351	0.130121	0.094959
52	0	-0.000227	0.049123	0.176029	0.751487	0.213747	-0.086976
52	3.600	-0.000227	0.049123	0.176029	0.751487	0.647451	0.085866
53	0	-0.022423	0.053493	0.210905	0.767280	0.910520	-0.096822
53	3.600	-0.022423	0.053493	0.210905	0.767280	1.670	0.095751
54	0	-0.015906	0.031031	-0.135880	0.606440	1.748	-0.042888
54	2.500	-0.015906	0.031031	-0.135880	0.606440	1.408	0.032685
55	0	-0.005696	0.030988	-0.107826	0.609521	1.508	-0.038362
55	2.500	-0.005696	0.030988	-0.107826	0.609521	1.239	0.039108
56	0	0.004145	0.025942	-0.091934	0.632062	1.330	-0.030298
56	2.500	0.004145	0.025942	-0.091934	0.632062	1.100	0.034557
57	0	0.003546	0.023565	-0.091038	0.642240	1.175	-0.027556
57	2.500	0.003546	0.023565	-0.091038	0.642240	0.947893	0.031356
58	0	0.000898	0.024951	-0.091754	0.645683	1.017	-0.030307
58	2.500	0.000898	0.024951	-0.091754	0.645683	0.787448	0.032070
59	0	-0.000990	0.026701	-0.092449	0.646222	0.854130	-0.033134
59	2.500	-0.000990	0.026701	-0.092449	0.646222	0.623008	0.033619
60	0	-0.003410	0.027852	-0.092905	0.645369	0.686676	-0.035043
60	2.500	-0.003410	0.027852	-0.092905	0.645369	0.456415	0.034586
61	0	-0.009132	0.029796	-0.093047	0.643554	0.521228	-0.038104
61	2.500	-0.009132	0.029796	-0.093047	0.643554	0.288610	0.036387
62	0	-0.014515	0.036458	-0.097598	0.640745	0.354053	-0.044751
62	2.500	-0.014515	0.036458	-0.097598	0.640745	0.110057	0.046393
63	0	0.024008	0.026204	-0.109538	0.612111	0.175918	-0.034762
63	2.500	0.024008	0.026204	-0.109538	0.612111	-0.097926	0.030747
64	0	-1.72E-15	6.21E-14	1.94E-14	6.51E-16	-5.72E-14	-2.55E-14

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
64	0.500	-1.72E-15	6.21E-14	1.94E-14	6.51E-16	-4.75E-14	5.56E-15
65	0	1.32E-15	-1.07E-14	4.55E-13	-9.18E-17	-7.80E-14	1.11E-14
65	0.500	1.32E-15	-1.07E-14	4.55E-13	-9.18E-17	1.50E-13	5.71E-15
66	0	-1.710	-2.907	3.950	-9.878	3.270	3.523
66	2.500	-1.710	-2.907	3.950	-9.878	13.146	-3.745
67	0	-2.665	-0.571272	1.462	-6.277	15.390	0.471711
67	2.500	-2.665	-0.571272	1.462	-6.277	19.044	-0.956466
68	0	-0.844619	1.351	-1.027	-2.438	16.839	-2.027
68	2.500	-0.844619	1.351	-1.027	-2.438	16.273	1.350
69	0	0.318805	1.119	-1.194	-0.738957	16.103	-1.571
69	2.500	0.318805	1.119	-1.194	-0.738957	13.117	1.227
70	0	0.350970	0.539857	-1.219	0.014703	13.055	-0.720273
70	2.500	0.350970	0.539857	-1.219	0.014703	10.008	0.629370
71	0	0.139014	0.230571	-1.231	0.362890	9.990	-0.298911
71	2.500	0.139014	0.230571	-1.231	0.362890	6.912	0.277516
72	0	-0.005704	0.102121	-1.237	0.521916	6.923	-0.131640
72	2.500	-0.005704	0.102121	-1.237	0.521916	3.830	0.123662
73	0	-0.051911	0.046882	-1.251	0.594703	3.901	-0.060795
73	2.500	-0.051911	0.046882	-1.251	0.594703	0.772873	0.056406
74	0	0.011545	0.021746	-1.322	0.631123	0.976376	-0.028755
74	2.500	0.011545	0.021746	-1.322	0.631123	-2.326	0.025615
75	0	0.106475	0.014474	-2.192	0.659664	-1.760	-0.019022
75	2.500	0.106475	0.014474	-2.192	0.659664	-7.239	0.017163
76	0	0.094021	0.039629	0.843116	0.701691	-7.121	-0.074139
76	3.600	0.094021	0.039629	0.843116	0.701691	-4.095	0.069244
77	0	-0.033564	0.034289	0.161553	0.720045	-4.596	-0.062167
77	3.600	-0.033564	0.034289	0.161553	0.720045	-4.015	0.061272
78	0	-0.045245	0.030944	0.189259	0.725522	-4.095	-0.055499
78	3.600	-0.045245	0.030944	0.189259	0.725522	-3.414	0.055901
79	0	-0.013382	0.029842	0.198462	0.727386	-3.430	-0.053374
79	3.600	-0.013382	0.029842	0.198462	0.727386	-2.716	0.054058
80	0	-0.001119	0.029517	0.201761	0.727950	-2.718	-0.052770
80	3.600	-0.001119	0.029517	0.201761	0.727950	-1.991	0.053491
81	0	0.000715	0.029495	0.202094	0.727988	-1.992	-0.052738
81	3.600	0.000715	0.029495	0.202094	0.727988	-1.264	0.053444

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
82	0	0.002647	0.029747	0.201490	0.727551	-1.264	-0.053181
82	3.600	0.002647	0.029747	0.201490	0.727551	-0.539018	0.053907
83	0	0.008325	0.030645	0.199774	0.726038	-0.542060	-0.054688
83	3.600	0.008325	0.030645	0.199774	0.726038	0.177106	0.055623
84	0	0.006103	0.033401	0.194660	0.721604	0.162312	-0.059103
84	3.600	0.006103	0.033401	0.194660	0.721604	0.863086	0.061140
85	0	-0.017596	0.037604	0.320487	0.706351	0.770595	-0.064825
85	3.600	-0.017596	0.037604	0.320487	0.706351	1.924	0.070547
86	0	-0.020285	0.004213	-0.239621	0.671246	1.944	-0.003604
86	2.500	-0.020289	0.004213	-0.239621	0.671246	1.345	0.006928
87	0	-0.003067	0.001698	-0.079064	0.656626	1.450	-0.001024
87	2.500	-0.003067	0.001698	-0.079064	0.656626	1.253	0.003221
88	0	0.010053	0.003358	-0.066232	0.651586	1.291	-0.003577
88	2.500	0.010053	0.003358	-0.066232	0.651586	1.125	0.004819
89	0	0.009208	0.005500	-0.064413	0.649205	1.140	-0.006642
89	2.500	0.009208	0.005500	-0.064413	0.649205	0.978742	0.007106
90	0	0.004322	0.006729	-0.065102	0.647779	0.983354	-0.008275
90	2.500	0.004322	0.006729	-0.065102	0.647779	0.820598	0.008547
91	0	0.000834	0.007802	-0.065632	0.646480	0.821654	-0.009625
91	2.500	0.000834	0.007802	-0.065632	0.646480	0.657574	0.009876
92	0	-0.001962	0.009651	-0.065802	0.644563	0.657020	-0.012018
92	2.500	-0.001962	0.009851	-0.065802	0.644563	0.492516	0.012609
93	0	-0.006386	0.013896	-0.065691	0.641481	0.490078	-0.016125
93	2.500	-0.006386	0.013896	-0.065691	0.641481	0.325851	0.018615
94	0	-0.011050	0.013822	-0.063945	0.635538	0.318556	-0.015467
94	2.500	-0.011050	0.013822	-0.063945	0.635538	0.158693	0.019088
95	0	-0.006107	-0.007530	-0.046672	0.601376	0.138956	0.003980
95	2.500	-0.006107	-0.007530	-0.046672	0.601376	0.022275	-0.014845
96	0	-1.20E-15	4.31E-15	6.50E-14	1.05E-15	-5.58E-14	-1.05E-15
96	0.500	-1.20E-15	4.31E-15	6.50E-14	1.05E-15	-2.33E-14	1.11E-15
97	0	3.15E-15	-4.69E-15	-7.28E-14	-4.12E-16	3.78E-14	8.45E-15
97	0.500	3.15E-15	-4.69E-15	-7.28E-14	-4.12E-16	1.36E-15	6.11E-15
98	0	-1.715	-1.629	2.064	-7.402	3.675	2.124
98	2.500	-1.715	-1.629	2.064	-7.402	8.836	-1.948

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
99	0	-2.345	-1.057	1.183	-5.486	11.294	1.382
99	2.500	-2.345	-1.057	1.183	-5.486	14.253	-1.262
100	0	-1.597	0.312107	-0.116131	-2.669	14.713	-0.533355
100	2.500	-1.597	0.312107	-0.116131	-2.669	14.418	0.246911
101	0	-0.642109	0.697826	-0.782505	-0.892440	14.265	-1.043
101	2.500	-0.642109	0.697826	-0.782505	-0.892440	12.309	0.701216
102	0	-0.200743	0.511624	-1.009	-0.046106	12.184	-0.734741
102	2.500	-0.200743	0.511624	-1.009	-0.046106	9.661	0.544319
103	0	-0.091553	0.284136	-1.121	0.345281	9.566	-0.387267
103	2.500	-0.091553	0.284136	-1.121	0.345281	6.765	0.323043
104	0	-0.078489	0.146791	-1.176	0.545360	6.696	-0.163275
104	2.500	-0.078489	0.146791	-1.176	0.545360	3.756	0.163702
105	0	-0.074114	0.056757	-1.210	0.695265	3.732	-0.064620
105	2.500	-0.074114	0.056757	-1.210	0.695265	0.705530	0.082273
106	0	-0.020476	-0.010174	-1.322	0.886935	0.775956	0.007125
106	2.500	-0.020476	-0.010174	-1.322	0.886935	-2.526	-0.018310
107	0	0.076825	0.025366	-1.533	0.999162	-2.410	-0.046090
107	2.500	0.076825	0.025366	-1.533	0.999162	-6.241	0.017334
108	0	0.049795	0.071375	0.480892	0.377400	-6.320	-0.145522
108	3.600	0.049795	0.071375	0.480892	0.377400	-4.589	0.111428
109	0	-0.025378	0.066641	0.241222	0.555292	-4.875	-0.118296
109	3.600	-0.025378	0.066641	0.241222	0.555292	-4.006	0.127611
110	0	-0.025643	0.040904	0.218625	0.690651	-4.170	-0.065356
110	3.600	-0.025643	0.040904	0.218625	0.690651	-3.391	0.081895
111	0	-0.004654	0.043661	0.226915	0.721518	-3.487	-0.075779
111	3.600	-0.004654	0.043661	0.226915	0.721518	-2.670	0.081402
112	0	0.001556	0.048044	0.226683	0.727161	-2.767	-0.085941
112	3.600	0.001556	0.048044	0.226683	0.727161	-1.943	0.087015
113	0	0.002153	0.048994	0.228920	0.727741	-2.040	-0.087989
113	3.600	0.002153	0.048994	0.228920	0.727741	-1.216	0.088388
114	0	0.003138	0.048389	0.228656	0.726414	-1.312	-0.087258
114	3.600	0.003138	0.048389	0.228656	0.726414	-0.488658	0.086942
115	0	0.007407	0.048333	0.227424	0.719509	-0.586215	-0.086091
115	3.600	0.007407	0.048333	0.227424	0.719509	0.232512	0.085908
116	0	0.010065	0.055024	0.232183	0.690850	0.124050	-0.099174

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
116	3.600	0.010065	0.055024	0.232183	0.690850	0.959907	0.098611
117	0	0.000181	0.056617	0.282652	0.647336	0.627486	-0.100272
117	3.600	0.000181	0.056617	0.282652	0.647336	1.845	0.110651
118	0	-0.015022	0.027343	-0.106785	0.732870	1.767	-0.032128
118	2.500	-0.015022	0.027343	-0.106785	0.732870	1.500	0.036230
119	0	0.005999	0.013441	-0.061613	0.704931	1.468	-0.014461
119	2.500	0.005999	0.013441	-0.061613	0.704931	1.314	0.019142
120	0	0.011452	0.023436	-0.041190	0.671752	1.274	-0.030754
120	2.500	0.011452	0.023436	-0.041190	0.671752	1.171	0.027835
121	0	0.007293	0.029045	-0.039106	0.656357	1.115	-0.037885
121	2.500	0.007293	0.029045	-0.039106	0.656357	1.017	0.034727
122	0	0.003416	0.029385	-0.039035	0.649889	0.952861	-0.037253
122	2.500	0.003416	0.029385	-0.039035	0.649889	0.856274	0.036110
123	0	0.001768	0.029169	-0.038565	0.646588	0.790839	-0.036474
123	2.500	0.001768	0.029169	-0.038565	0.646588	0.693426	0.036447
124	0	0.001802	0.030724	-0.038502	0.643138	0.626844	-0.037944
124	2.500	0.001802	0.030724	-0.038502	0.643138	0.530588	0.038865
125	0	0.003036	0.034994	-0.037324	0.636485	0.462113	-0.042032
125	2.500	0.003036	0.034994	-0.037324	0.636485	0.368802	0.045452
126	0	0.000471	0.038246	-0.029762	0.621191	0.293789	-0.042569
126	2.500	0.000471	0.038246	-0.029762	0.621191	0.219385	0.053026
127	0	-0.031176	0.011327	-0.003705	0.574187	0.130545	-0.013622
127	2.500	-0.031176	0.011327	-0.003705	0.574187	0.121286	0.014696
128	0	-5.49E-17	-1.18E-14	-2.75E-14	2.33E-16	-9.02E-15	6.56E-15
128	0.500	-5.49E-17	-1.18E-14	-2.75E-14	2.33E-16	-2.28E-14	6.76E-16
129	0	9.44E-16	1.91E-12	-6.84E-13	-1.23E-15	-1.00E-12	-1.37E-12
129	0.500	9.44E-16	1.91E-12	-6.84E-12	-1.23E-15	-1.35E-12	-4.14E-13
130	0	0.102688	-6.090	-0.022854	-5.891	6.842	-3.861
130	2.500	0.102688	-6.090	-0.022854	-5.891	6.785	-19.085
131	0	-1.569	-3.674	-0.621130	-5.025	14.077	-20.820
131	2.500	-1.569	-3.674	-0.621130	-5.025	12.524	-30.005
132	0	-2.284	-0.520253	-0.666928	-2.788	17.011	-31.157
132	2.500	-2.284	-0.520253	-0.666928	-2.788	15.343	-32.457
133	0	-1.764	1.631	-0.910186	-1.044	17.079	-33.575
133	2.500	-1.764	1.631	-0.910186	-1.044	14.803	-29.497

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
134	0	-0.969115	2.606	-1.124	-0.123442	15.099	-30.297
134	2.500	-0.969115	2.606	-1.124	-0.123442	12.288	-23.782
135	0	-0.407327	2.948	-1.249	0.314368	11.980	-24.167
135	2.500	-0.407327	2.948	-1.249	0.314368	8.857	-16.798
136	0	-0.107155	3.079	-1.311	0.547225	8.291	-16.854
136	2.500	-0.107155	3.079	-1.311	0.547225	5.013	-9.157
137	0	0.014538	3.119	-1.332	0.734332	4.301	-8.971
137	2.500	0.014538	3.119	-1.332	0.734332	0.971641	-1.174
138	0	-0.029797	2.937	-1.270	0.947167	0.103184	-0.722217
138	2.500	-0.029797	2.937	-1.270	0.947167	-3.072	6.619
139	0	-0.160218	2.224	-0.832928	0.966255	-4.164	7.256
139	2.500	-0.160218	2.224	-0.832928	0.966255	-6.247	12.816
140	0	-0.120920	0.058706	0.119682	0.377575	-7.037	13.191
140	3.600	-0.120920	0.058706	0.119682	0.377575	-6.607	13.402
141	0	0.043108	-0.661790	0.496714	0.500798	-7.057	13.340
141	3.600	0.043108	-0.661790	0.496714	0.500798	-5.269	10.958
142	0	0.052854	-0.705006	0.487902	0.671646	-5.963	11.290
142	3.600	0.052854	-0.705006	0.487902	0.671646	-4.207	8.751
143	0	0.017923	-0.670398	0.482677	0.717627	-4.956	9.236
143	3.600	0.017923	-0.670398	0.482677	0.717627	-3.219	6.823
144	0	0.005794	-0.656852	0.482487	0.726478	-3.966	7.301
144	3.600	0.005794	-0.656852	0.482487	0.726478	-2.249	4.937
145	0	0.004060	-0.654914	0.482591	0.727500	-3.022	5.405
145	3.600	0.004060	-0.654914	0.482591	0.727500	-1.285	3.047
146	0	0.002176	-0.657710	0.482808	0.725614	-2.057	3.514
146	3.600	0.002176	-0.657710	0.482808	0.725614	-0.318876	1.147
147	0	-0.003437	-0.665263	0.484298	0.715623	-1.088	1.614
147	3.600	-0.003437	-0.665263	0.484298	0.715623	0.655966	-0.761035
148	0	0.001147	-0.660568	0.487685	0.680251	-0.100933	-0.345765
148	3.600	0.001147	-0.660568	0.487685	0.680251	1.655	-2.724
149	0	0.039762	-0.533313	0.421615	0.647606	0.948087	-2.274
149	3.600	0.039762	-0.533313	0.421615	0.647606	2.466	-4.254
150	0	0.048504	-0.106202	0.286450	0.726580	1.718	-3.851
150	2.500	0.048504	-0.106202	0.286450	0.726580	2.434	-4.156

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
151	0	0.012637	0.033287	0.210504	0.717554	1.640	-3.783
151	2.500	0.012637	0.033287	0.210504	0.717554	2.166	-3.700
152	0	-0.006965	0.068678	0.198357	0.680553	1.415	-3.366
152	2.500	-0.006965	0.068678	0.198357	0.680553	1.911	-3.194
153	0	-0.006421	0.067310	0.197307	0.660185	1.163	-2.867
153	2.500	-0.006421	0.067310	0.197307	0.660185	1.676	-2.729
154	0	-0.001579	0.060994	0.197211	0.651126	0.958507	-2.443
154	2.500	-0.001579	0.060994	0.197211	0.651126	1.452	-2.291
155	0	0.002042	0.056513	0.197455	0.646590	0.739767	-2.007
155	2.500	0.002042	0.056513	0.197455	0.646590	1.233	-1.866
156	0	0.005911	0.053271	0.198178	0.641972	0.525251	-1.584
156	2.500	0.005911	0.053271	0.198178	0.641972	1.021	-1.450
157	0	0.013996	0.048951	0.199774	0.632314	0.317263	-1.174
157	2.500	0.013996	0.048951	0.199774	0.632314	0.816717	-1.052
158	0	0.031322	0.044695	0.202025	0.607403	0.124227	-0.790084
158	2.500	0.031322	0.044695	0.202025	0.607403	0.629290	-0.676346
159	0	0.058356	0.053914	0.218451	0.525817	-0.034738	-0.439373
159	2.500	0.058356	0.053914	0.218451	0.525817	0.511351	-0.304588
160	0	-8.79E-16	6.55E-13	1.39E-14	-4.11E-17	1.69E-14	-2.21E-13
160	0.500	-8.79E-16	6.55E-13	1.39E-14	-4.11E-17	2.39E-14	1.07E-13
166	0	-15.258	3.997	18.898	13.433	-14.898	-4.976
166	1.600	-15.258	3.997	18.898	13.433	15.340	1.419
167	0	-10.391	3.323	7.364	14.593	3.230	-4.132
167	1.650	-10.391	3.323	7.364	14.593	15.361	1.351
168	0	-7.484	1.612	3.413	11.323	5.503	-2.172
168	1.650	-7.484	1.612	3.413	11.323	11.135	0.468350
169	0	-5.854	-0.102127	1.349	7.648	3.733	-1.635
169	1.600	-5.854	-0.102127	1.349	7.648	5.891	-1.799
170	0	9.906	3.898	3.409	12.208	-3.723	-4.478
170	1.600	9.906	3.898	3.409	12.208	1.731	1.756
171	0	5.061	3.257	-4.619	12.188	6.749	-3.932
171	1.650	5.061	3.257	-4.619	12.188	-0.871356	1.442
172	0	2.725	2.303	-2.130	9.944	2.730	-2.775
172	1.650	2.725	2.303	-2.130	9.944	-0.783908	1.025
173	0	2.153	1.672	-1.249	7.486	1.132	-2.306

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
172	1.600	2.152	1.672	-1.249	7.486	-0.865907	0.368769
174	0	8.648	-4.283	0.225908	5.197	-0.926982	6.186
174	1.600	8.648	-4.283	0.225908	5.197	-0.565529	-0.668742
175	0	6.307	-1.854	-4.714	4.886	4.034	1.776
175	1.650	6.307	-1.854	-4.714	4.886	-3.744	-1.284
176	0	4.385	-0.034146	-2.225	5.051	0.095192	-0.213075
176	1.650	4.385	-0.034146	-2.225	5.051	-3.577	-0.269416
177	0	3.016	0.714593	-0.923838	4.630	-0.759178	-0.957654
177	1.600	3.016	0.714593	-0.923838	4.630	-2.237	0.145694
178	0	0.863637	-2.756	-1.127	1.647	1.374	3.562
178	1.600	0.863637	-2.756	-1.127	1.647	-0.429526	-0.847395
179	0	2.152	-2.638	-1.666	1.655	1.336	2.616
179	1.650	2.152	-2.638	-1.666	1.655	-1.413	-1.536
180	0	2.384	-1.474	-1.496	1.825	0.286388	1.389
180	1.650	2.384	-1.474	-1.496	1.825	-2.166	-1.048
181	0	1.998	-0.519885	-0.833864	1.976	-0.409409	0.242070
181	1.600	1.998	-0.519885	-0.833864	1.976	-1.746	-0.589753
182	0	-0.620945	-0.625542	-0.542818	0.357342	0.737957	0.736734
182	1.600	-0.620945	-0.625542	-0.542818	0.357342	-0.130551	-0.264133
183	0	0.110484	-1.268	-0.728260	0.319928	0.605556	1.325
183	1.650	0.110484	-1.268	-0.728260	0.319928	-0.596052	-0.757985
184	0	0.689857	-1.236	-0.703691	0.381277	0.157566	1.190
184	1.650	0.689857	-1.236	-0.703691	0.381277	-1.004	-0.849550
185	0	0.876059	-0.794674	-0.477317	0.506747	-0.157168	0.586006
185	1.600	0.876059	-0.794674	-0.477317	0.506747	-0.520875	-0.685472
186	0	-0.442648	-0.087649	-0.267356	-0.250327	0.355809	0.049600
186	1.600	-0.442648	-0.087649	-0.267356	-0.250327	-0.071960	-0.050638
187	0	-0.243311	-0.459023	-0.339716	-0.302521	0.268032	0.448190
187	1.650	-0.243311	-0.459023	-0.339716	-0.302521	-0.292500	-0.309198
188	0	0.065976	-0.670978	-0.327235	-0.264132	0.055687	0.619084
188	1.650	0.065976	-0.670978	-0.327235	-0.264132	-0.484251	-0.468030
189	0	0.293463	-0.561788	-0.215590	-0.188697	-0.092864	0.442585
189	1.600	0.293463	-0.561788	-0.215590	-0.188697	-0.437609	-0.455277
190	0	-0.203966	-0.002835	-0.121379	-0.509644	0.133225	-0.062765
190	1.600	-0.203966	-0.002835	-0.121379	-0.509644	-0.060981	-0.067306

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
191	0	-0.157016	-0.168517	-0.157938	-0.583771	0.072964	0.147947
191	1.650	-0.157016	-0.168517	-0.157938	-0.583771	-0.187633	-0.130107
192	0	-0.028566	-0.313236	-0.151813	-0.595732	-0.028607	0.279045
192	1.650	-0.028566	-0.313236	-0.151813	-0.595732	-0.279098	-0.237790
193	0	0.108779	-0.300172	-0.096149	-0.527383	-0.079019	0.266528
193	1.600	0.108779	-0.300172	-0.096149	-0.527383	-0.232857	-0.211747
194	0	-0.105688	-0.014568	-0.069088	-0.575185	-0.016960	-0.036378
194	1.600	-0.105688	-0.014568	-0.069088	-0.575185	-0.127500	-0.061686
195	0	-0.110364	-0.079861	-0.078796	-0.688723	-0.123496	0.080748
195	1.650	-0.110364	-0.079861	-0.078796	-0.688723	-0.253510	-0.051023
196	0	-0.055125	-0.126068	-0.064944	-0.760092	-0.180724	0.133460
196	1.650	-0.055125	-0.126068	-0.064944	-0.760092	-0.267881	-0.074572
197	0	0.032869	-0.121693	-0.030709	-0.735764	-0.137972	0.173750
197	1.600	0.032869	-0.121693	-0.030709	-0.735764	-0.187107	-0.020955
198	0	-0.224152	-0.098136	-0.159176	-0.481552	-0.127426	0.086325
198	1.600	-0.224152	-0.098136	-0.159176	-0.481552	-0.362110	-0.066693
199	0	-0.252250	-0.072760	-0.071684	-0.685970	-0.496573	0.095201
199	1.650	-0.252250	-0.072760	-0.071684	-0.685970	-0.614851	-0.024252
200	0	-0.227116	-0.009304	-0.001190	-0.689473	-0.578430	0.060309
200	1.650	-0.227116	-0.009304	-0.001190	-0.689472	-0.560294	0.044957
201	0	-0.158146	0.044335	0.109933	-0.955898	-0.388728	0.120205
201	1.600	-0.158146	0.044335	0.109933	-0.955898	-0.212835	0.191141
202	0	-0.570939	-0.136770	-0.647849	-0.287633	0.035085	0.146352
202	1.600	-0.570939	-0.136770	-0.647849	-0.287633	-1.001	-0.072480
203	0	-0.533677	-0.063810	-0.462240	-0.539415	-1.059	0.079178
203	1.650	-0.533677	-0.063810	-0.462240	-0.539415	-1.822	-0.026108
204	0	-0.526403	0.031121	0.407561	-1.106	-1.794	0.018530
204	1.650	-0.526403	0.031121	0.407561	-1.106	-1.121	0.069880
205	0	-0.561946	0.130421	0.618562	-1.226	-1.009	0.097659
205	1.600	-0.561946	0.130421	0.618562	-1.226	-0.019088	0.306333
206	0	-1.743	0.018344	-1.608	-0.757533	0.682119	-0.213181
206	1.600	-1.743	0.018344	-1.608	-0.757533	-1.890	-0.183831
207	0	-1.739	0.002463	-3.584	-0.835153	-1.177	-0.039480
207	1.650	-1.739	0.002463	-3.584	-0.835153	-7.090	-0.035417

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
208	0	-1.768	-0.010269	3.532	-0.943179	-7.048	0.055886
208	1.650	-1.768	-0.010269	3.532	-0.943175	-1.220	0.038942
209	0	-1.814	-0.039298	1.519	-0.863722	-1.842	0.201798
209	1.600	-1.814	-0.039298	1.519	-0.863722	0.588676	0.138922
210	0	-0.602457	0.136660	-0.580666	-1.292	-0.090329	-0.598044
210	1.600	-0.602457	0.136660	-0.580666	-1.292	-1.019	-0.379389
211	0	-0.594973	0.042730	-0.358162	-1.202	-1.163	-0.215586
211	1.650	-0.594973	0.042730	-0.358162	-1.202	-1.794	-0.145075
212	0	-0.589433	-0.084855	0.323403	-0.700760	-1.736	-0.013663
212	1.650	-0.589433	-0.084855	0.323403	-0.700760	-1.262	-0.153674
213	0	-0.586699	-0.164028	0.563073	-0.415116	-1.024	0.077052
213	1.600	-0.586699	-0.164028	0.563073	-0.415116	-0.123219	-0.185393
214	0	-0.052270	0.000733	-0.011754	-0.974199	-0.157996	-0.322116
214	1.600	-0.052270	0.000733	-0.011754	-0.974199	-0.176805	-0.320944
215	0	-0.075040	-0.001800	0.008707	-1.003	-0.300454	-0.143969
215	1.650	-0.075040	-0.001800	0.008707	-1.003	-0.286067	-0.146935
216	0	-0.071696	-0.013480	-0.018995	-0.922943	-0.286016	-0.030166
216	1.650	-0.071696	-0.013480	-0.018995	-0.922943	-0.311956	-0.052410
217	0	-0.043956	-0.009745	0.003595	-0.759626	-0.176660	0.140759
217	1.600	-0.043956	-0.009745	0.003595	-0.759626	-0.170848	0.125166
218	0	0.029059	-0.037242	0.012101	-0.867173	-0.041731	-0.201356
218	1.600	0.029059	-0.037242	0.012101	-0.867173	-0.022270	-0.260983
219	0	0.033432	-0.017922	0.002816	-0.975422	-0.049344	-0.059623
219	1.650	0.033432	-0.017922	0.002816	-0.975422	-0.044697	-0.069356
220	0	0.034534	0.013942	-0.006386	-0.958937	-0.042834	0.019882
220	1.650	0.034534	0.013942	-0.006386	-0.958937	-0.053372	0.042885
221	0	0.031776	0.034931	-0.014673	-0.854961	-0.022504	0.200556
221	1.600	0.031776	0.034931	-0.014673	-0.854961	-0.045980	0.256445
222	0	0.012143	-0.012260	0.003167	-0.874419	-0.007539	-0.215834
222	1.600	0.012143	-0.012260	0.003167	-0.874419	-0.002472	-0.215450
223	0	0.017012	-0.006346	0.001105	-0.969474	-0.006924	-0.047609
223	1.650	0.017012	-0.006346	0.001105	-0.969474	-0.005101	-0.058075
224	0	0.017338	0.005917	-0.002194	-0.967560	-0.004536	0.048749
224	1.650	0.017338	0.005917	-0.002194	-0.967560	-0.008155	0.056512
225	0	0.012955	0.012128	-0.003962	-0.870510	-0.002512	0.225857

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
225	1.600	0.012955	0.012128	-0.003962	-0.870510	-0.008851	0.245263
226	0	0.001835	-0.001309	0.000387	-0.873083	-0.000933	-0.227996
226	1.600	0.001835	-0.001309	0.000387	-0.873083	-0.000314	-0.230090
227	0	0.002818	-0.000696	0.000130	-0.968996	-0.000813	-0.050606
227	1.650	0.002818	-0.000696	0.000130	-0.968996	-0.000599	-0.051997
228	0	0.002840	0.001139	-0.000203	-0.968707	-0.000561	0.054272
228	1.650	0.002840	0.001139	-0.000203	-0.968707	-0.000896	0.056150
229	0	0.001890	0.001734	-0.000441	-0.872535	-0.000317	0.231159
229	1.600	0.001890	0.001734	-0.000441	-0.872535	-0.001022	0.233929
230	0	-0.001996	-0.001626	-0.000372	-0.873019	0.000870	-0.228145
230	1.600	-0.001996	-0.001626	-0.000372	-0.873019	0.000275	-0.231073
231	0	-0.002978	-0.001033	0.000119	-0.968828	0.000680	-0.051837
231	1.650	-0.002978	-0.001033	0.000119	-0.968828	0.000876	-0.053541
232	0	-0.003230	0.000899	0.000723	-0.968432	0.000439	0.053084
232	1.650	-0.003230	0.000899	0.000723	-0.968432	0.001632	0.054568
233	0	-0.002625	0.001884	0.000988	-0.872143	0.000305	0.230214
233	1.600	-0.002625	0.001884	0.000988	-0.872143	0.001886	0.233229
234	0	-0.004628	-0.007298	-0.001460	-0.874474	0.006355	-0.224521
234	1.600	-0.004628	-0.007298	-0.001460	-0.874474	0.004019	-0.236197
235	0	-0.005995	-0.004333	0.000591	-0.969088	0.007766	-0.053420
235	1.650	-0.005995	-0.004333	0.000591	-0.969088	0.008743	-0.060569
236	0	-0.006893	0.001345	0.002306	-0.966926	0.007229	0.048027
236	1.650	-0.006893	0.001345	0.002306	-0.966926	0.011035	0.050248
237	0	-0.006637	0.005613	0.003538	-0.868469	0.004130	0.225280
237	1.600	-0.006637	0.005613	0.003538	-0.868469	0.009791	0.234261
238	0	0.012283	-0.002531	0.004772	-0.887914	0.025107	-0.243348
238	1.600	0.012283	-0.002531	0.004772	-0.887914	0.032743	-0.247398
239	0	0.014899	-0.005021	0.001587	-0.971540	0.051879	-0.065422
239	1.650	0.014899	-0.005021	0.001587	-0.971540	0.054498	-0.073708
240	0	0.012144	-0.007243	0.006702	-0.956746	0.054064	0.041027
240	1.650	0.012144	-0.007243	0.006702	-0.956746	0.061122	0.029076
241	0	0.005453	-0.004585	0.001943	-0.848283	0.032462	0.214159
241	1.600	0.005453	-0.004585	0.001943	-0.848283	0.035572	0.206823
242	0	0.115935	0.017164	0.112223	-0.937949	0.006710	-0.283415
242	1.600	0.115935	0.017164	0.112223	-0.937949	0.186266	-0.255957

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
243	0	0.111566	-0.005032	0.077347	-1.001	0.202059	-0.069267
243	1.650	0.111566	-0.005032	0.077347	-1.001	0.329681	-0.077570
244	0	0.107362	-0.028731	-0.048480	-0.908527	0.314468	0.048396
244	1.650	0.107362	-0.028731	-0.048480	-0.908527	0.234476	0.000951
245	0	0.103765	-0.038615	-0.098950	-0.776099	0.190963	0.200274
245	1.600	0.103765	-0.038615	-0.098950	-0.776099	0.032643	0.138469
246	0	0.284780	0.002915	0.328313	-0.811440	-0.156047	-0.193520
246	1.600	0.284780	0.002915	0.328313	-0.811440	0.369254	-0.188865
247	0	0.307242	0.009433	0.675098	-0.889446	0.208414	-0.050226
247	1.650	0.307242	0.009433	0.675098	-0.889446	1.322	-0.034662
248	0	0.341168	0.006462	-0.638395	-0.909445	1.287	0.039489
248	1.650	0.341168	0.006462	-0.638395	-0.909445	0.233828	0.050151
249	0	0.372442	-0.008741	-0.248558	-0.831136	0.319362	0.192930
249	1.600	0.372442	-0.008741	-0.248558	-0.831136	-0.078572	0.178944
250	0	0.096303	-0.012584	0.121936	-0.692486	-0.012533	-0.053230
250	1.600	0.096303	-0.012584	0.121936	-0.692486	0.182565	-0.073365
251	0	0.096346	-0.002377	0.093862	-0.792710	0.165646	-0.000315
251	1.650	0.096346	-0.002377	0.093862	-0.792710	0.340552	-0.004236
252	0	0.096861	0.014646	-0.066675	-0.897671	0.325533	0.003717
252	1.650	0.096861	0.014646	-0.066675	-0.897671	0.215915	0.028212
253	0	0.112762	0.035867	-0.111846	-0.866226	0.187980	0.078903
253	1.600	0.112762	0.035867	-0.111846	-0.866226	0.009026	0.136281
254	0	0.037206	-0.008814	0.027631	-0.725338	0.025065	-0.056908
254	1.600	0.037206	-0.008814	0.027611	-0.725338	0.069242	-0.071010
255	0	0.042252	0.001029	0.011718	-0.816630	0.051782	-0.001604
255	1.650	0.042252	0.001029	0.011718	-0.816630	0.111118	9.44E-05
256	0	0.040592	0.014149	-0.001115	-0.854760	0.106060	0.006693
256	1.650	0.040592	0.014149	-0.001115	-0.854760	0.104241	0.030239
257	0	0.030567	0.019601	-0.021538	-0.815016	0.071062	0.080134
257	1.600	0.030567	0.019601	-0.021538	-0.815016	0.036601	0.111497
258	0	0.003768	0.005059	0.004172	-0.748985	0.014888	-0.077600
258	1.600	0.003768	0.005059	0.004172	-0.748985	0.021564	-0.068707
259	0	0.006144	0.004459	0.003276	-0.824257	0.031741	-0.060872
259	1.650	0.006144	0.004459	0.003276	-0.824257	0.037146	-0.060238

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
260	0	0.004002	0.003614	0.001457	-0.838688	0.034763	0.011225
260	1.650	0.004002	0.003614	0.001457	-0.838688	0.037168	0.017189
261	0	-0.001607	-0.000544	-0.000627	-0.782045	0.021771	0.082909
261	1.600	-0.001607	-0.000544	-0.000627	-0.782045	0.020768	0.082039
262	0	-0.003137	0.006569	0.000334	-0.757931	0.005701	-0.082622
262	1.600	-0.003137	0.006569	0.000334	-0.757931	0.006234	-0.072312
263	0	-0.004523	0.003921	0.001050	-0.826891	0.009677	-0.010646
263	1.650	-0.004523	0.003921	0.001050	-0.826891	0.011410	-0.004176
264	0	-0.005752	-0.000964	0.001740	-0.831503	0.009585	0.011207
264	1.650	-0.005752	-0.000964	0.001740	-0.831502	0.012656	0.009616
265	0	-0.006091	-0.004841	0.001669	-0.768405	0.006382	0.081696
265	1.600	-0.006091	-0.004841	0.001669	-0.768405	0.009055	0.073950
266	0	-0.001629	0.003403	0.000330	-0.760389	0.001436	-0.080872
266	1.600	-0.001629	0.003403	0.000330	-0.760389	0.001965	-0.075427
267	0	-0.003379	0.001515	0.001025	-0.827071	0.002504	-0.010223
267	1.650	-0.003379	0.001515	0.001025	-0.827071	0.004195	-0.007723
268	0	-0.004452	-0.001673	0.001555	-0.826127	0.002896	0.010453
268	1.650	-0.004452	-0.001673	0.001555	-0.826127	0.005461	0.007157
269	0	-0.004235	-0.003622	0.001485	-0.762692	0.002160	0.079762
269	1.600	-0.004235	-0.003622	0.001485	-0.762692	0.003885	0.073987
270	0	0.001843	0.001313	0.001436	-0.760259	-0.000542	-0.079072
270	1.600	0.001843	0.001313	0.001436	-0.760259	0.001756	-0.076571
271	0	0.000692	-0.001107	0.001892	-0.825925	0.000902	-0.008305
271	1.650	0.000692	-0.001107	0.001892	-0.825925	0.004025	-0.010136
272	0	-0.001357	-0.003903	0.002062	-0.825276	0.002108	0.011758
272	1.650	-0.001357	-0.003903	0.002062	-0.825276	0.005510	0.005318
273	0	-0.002912	-0.003869	0.001599	-0.758794	0.002060	0.079711
273	1.600	-0.002912	-0.003869	0.001599	-0.758794	0.004619	0.073520
274	0	0.006556	0.000827	0.003685	-0.758690	-0.002493	-0.078101
274	1.600	0.006556	0.000827	0.003685	-0.758690	0.003723	-0.076777
275	0	0.004612	-0.004895	0.004027	-0.823503	0.001908	-0.004087
275	1.650	0.004612	-0.004895	0.004027	-0.823503	0.008552	-0.012163
276	0	0.000566	-0.009319	0.003916	-0.821065	0.005469	0.016571
276	1.650	0.000566	-0.009319	0.003916	-0.821065	0.011930	0.001195
277	0	-0.003703	-0.008085	0.002738	-0.752589	0.005278	0.082092

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
277	1.600	-0.003703	-0.008085	0.002738	-0.752589	0.009658	0.069156
278	0	0.006381	-0.004715	0.008107	-0.754734	-0.008261	-0.068961
278	1.600	0.006381	-0.004715	0.008107	-0.754734	0.004709	-0.076524
279	0	-0.000280	-0.010098	0.012657	-0.820177	0.001901	0.004613
279	1.650	-0.000280	-0.010098	0.012657	-0.820177	0.022786	-0.012046
280	0	-0.000206	-0.014761	0.010912	-0.812882	0.016842	0.022034
280	1.650	-0.000206	-0.014761	0.010912	-0.812882	0.034847	-0.002322
281	0	-0.003458	-0.017326	0.003349	-0.737869	0.019552	0.085719
281	1.600	-0.003458	-0.017326	0.003349	-0.737869	0.024911	0.057997
282	0	-0.045089	-0.038852	0.044592	-0.747141	-0.059136	-0.020366
282	1.600	-0.045089	-0.038852	0.044592	-0.747141	0.012211	-0.062529
283	0	-0.034835	-0.000329	0.056531	-0.813002	-0.016424	-0.001374
283	1.650	-0.034835	-0.000329	0.056531	-0.813002	0.076853	-0.001916
284	0	-0.013483	0.004613	0.039258	-0.793265	0.042691	0.013191
284	1.650	-0.013483	0.004613	0.039258	-0.793265	0.107486	0.020803
285	0	0.013435	-0.027033	0.013202	-0.704429	0.060463	0.087452
285	1.600	0.013435	-0.027033	0.013202	-0.704429	0.081586	0.044158
286	0	-0.143089	0.045111	0.551280	-0.621696	-0.575462	-0.126092
286	1.600	-0.143089	0.045111	0.551280	-0.621696	0.306566	-0.053914
287	0	-0.116885	0.021103	0.441742	-0.719624	-0.305544	-0.023167
287	1.650	-0.116885	0.021103	0.441742	-0.719624	0.423330	0.011653
288	0	-0.124415	0.027210	0.395070	-0.697348	-0.178045	-0.003191
288	1.650	-0.124415	0.027210	0.395070	-0.697348	0.473820	0.041706
289	0	-0.113088	0.058386	0.391365	-0.576062	-0.100367	0.056402
289	1.600	-0.113088	0.058386	0.391365	-0.576062	0.525817	0.149820
	min:	-15.258	-6.090	-7.078	-14.858	-14.858	-33.575
	max:	9.906	23.601	26.535	14.593	42.154	74.961

Loadcase Factor Scage Init.def Title
12 1.0000 VEHICULO HIPOTESIS 12

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
15	0	0.027366	1.086	0.011555	2.548	-11.610	-24.718
15	3.600	0.027366	1.086	0.011555	2.548	-11.566	-20.808
16	0	-0.012974	1.047	0.013162	2.525	-8.871	-19.244
16	3.600	-0.012974	1.047	0.013162	2.525	-8.824	-15.675
17	0	-0.017488	1.041	0.013791	2.522	-6.141	-13.673
17	3.600	-0.017488	1.041	0.013791	2.522	-6.091	-10.125
18	0	-0.022806	1.047	0.013151	2.524	-3.409	-8.521
18	3.600	-0.022806	1.047	0.013151	2.524	-3.361	-4.753
19	0	-0.044209	1.060	0.013048	2.541	-0.672635	-3.159
19	3.600	-0.044209	1.060	0.013048	2.541	-0.625661	0.655350
20	0	-0.053831	1.020	0.008351	2.605	2.084	2.306
20	3.600	-0.053831	1.020	0.008351	2.605	2.114	5.979
21	0	-0.012074	0.610188	-0.208632	2.620	4.923	7.770
21	3.600	-0.012074	0.610188	-0.208632	2.620	4.172	9.967
22	0	-0.005848	-0.406586	-0.909399	2.153	6.691	11.352
22	2.500	-0.005848	-0.406586	-0.909399	2.153	4.618	10.375
23	0	-0.034420	-0.761552	-1.170	2.111	6.714	11.261
23	2.500	-0.034420	-0.761552	-1.170	2.111	3.789	9.357
24	0	-0.056176	-0.887337	-1.217	2.179	6.169	10.272
24	2.500	-0.056176	-0.887337	-1.217	2.179	3.126	8.055
25	0	-0.040512	-0.902836	-1.226	2.215	5.552	9.040
25	2.500	-0.040512	-0.902836	-1.226	2.215	2.487	6.783
26	0	-0.021429	-0.895612	-1.230	2.234	4.932	7.789
26	2.500	-0.021429	-0.895612	-1.230	2.234	1.857	5.549
27	0	-0.011938	-0.852375	-1.232	2.237	4.309	6.551
27	2.500	-0.011938	-0.852375	-1.232	2.237	1.229	4.320
28	0	-0.009111	-0.900226	-1.235	2.234	3.681	5.316
28	2.500	-0.009111	-0.900226	-1.235	2.234	0.593191	3.085
29	0	-0.009134	-0.924629	-1.242	2.223	3.040	4.055
29	2.500	-0.009134	-0.924629	-1.242	2.223	-0.064156	1.743
30	0	-0.029504	-0.952594	-1.261	2.189	2.375	2.697
30	2.500	-0.029504	-0.952594	-1.261	2.189	-0.777957	0.315073
31	0	-0.160438	-0.852492	-1.441	1.578	1.672	1.108
31	2.500	-0.160438	-0.852492	-1.441	1.578	-1.930	-1.023

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
32	0	4.09E-15	-1.22E-12	2.01E-13	1.74E-15	-2.08E-13	4.63E-13
32	0.500	4.09E-15	-1.22E-12	2.01E-13	1.74E-15	-1.08E-13	-1.47E-13
33	0	1.16E-15	-3.44E-14	1.60E-13	4.28E-16	5.66E-15	3.98E-14
33	0.500	1.16E-15	-3.44E-14	1.60E-13	4.28E-16	8.56E-14	2.26E-14
34	0	0.839251	-1.400	5.580	-17.354	-2.175	1.690
34	2.500	0.839251	-1.400	5.580	-17.354	11.774	-1.609
35	0	0.523258	-1.879	5.695	-17.189	10.472	2.336
35	2.500	0.523258	-1.879	5.695	-17.189	24.706	-2.362
36	0	1.645	-2.954	6.025	-15.480	23.251	3.326
36	2.500	1.645	-2.954	6.025	-15.480	36.313	-4.055
37	0	0.665989	-2.327	9.720	-11.293	36.659	2.130
37	1.000	0.665989	-2.327	9.720	-11.293	46.376	-0.156437
37	1.000	0.665989	-2.327	0.839842	-11.293	46.379	-0.197600
37	2.500	0.665985	-2.327	0.839842	-11.293	47.638	-3.687
38	0	0.752933	1.625	0.300606	-4.900	46.857	-2.753
38	2.5E-4	0.752933	1.625	0.300606	-4.900	46.857	-2.753
38	1.500	0.752933	1.625	0.300606	-4.900	47.308	-0.355557
38	1.500	0.752933	1.625	-8.575	-4.900	47.308	-0.355144
38	2.500	0.752933	1.625	-8.575	-4.900	38.725	1.270
39	0	2.003	2.226	-4.897	-0.754539	38.866	-3.062
39	2.500	2.003	2.226	-4.897	-0.754539	26.628	2.484
40	0	1.221	0.864076	-4.479	0.769746	26.696	-1.054
40	2.500	1.221	0.864076	-4.479	0.769746	15.499	1.107
41	0	0.425801	0.359124	-4.329	1.283	15.608	-0.430540
41	2.500	0.425801	0.359124	-4.329	1.283	4.985	0.467270
42	0	0.215501	0.330563	-4.559	1.162	5.626	-0.388111
42	2.500	0.215501	0.330563	-4.559	1.162	-5.771	0.438296
43	0	0.330344	0.190119	-5.125	1.091	-4.959	-0.178454
43	2.500	0.330344	0.190119	-5.125	1.091	-17.772	0.296843
44	0	0.237590	0.171198	1.208	3.437	-17.508	-0.269231
44	3.600	0.237590	0.171198	1.208	3.437	-13.159	0.347062
45	0	-0.072280	0.138089	0.505325	3.005	-13.422	-0.263845
45	3.600	-0.072280	0.138089	0.505325	3.005	-11.603	0.233277
46	0	-0.084587	0.206169	0.442666	2.619	-11.485	-0.396056
46	3.600	-0.084587	0.206169	0.442666	2.619	-9.891	0.346155
47	0	-0.024323	0.190530	0.473289	2.536	-9.584	-0.349732
47	3.600	-0.024323	0.190530	0.473289	2.536	-7.860	0.336175

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
46	0	-0.005985	0.174445	0.480169	2.523	-7.550	-0.313435
46	3.600	-0.005985	0.174445	0.480169	2.523	-5.822	0.314567
49	0	-0.004305	0.171088	0.481093	2.522	-5.489	-0.306426
49	3.600	-0.004305	0.171088	0.481093	2.522	-3.757	0.309488
50	0	-0.002328	0.173527	0.479644	2.523	-3.425	-0.310579
50	3.600	-0.002328	0.173527	0.479644	2.523	-1.699	0.315559
51	0	0.005546	0.176221	0.473569	2.532	-1.370	-0.315363
51	3.600	0.005546	0.176221	0.473569	2.532	0.334682	0.326234
52	0	-0.003216	0.172075	0.482118	2.584	0.632081	-0.305313
52	3.600	-0.003216	0.172075	0.482118	2.584	2.368	0.314156
53	0	-0.070122	0.186977	0.576225	2.620	2.608	-0.336707
53	3.600	-0.070122	0.186977	0.576225	2.620	4.682	0.336409
54	0	-0.045046	0.106423	-0.394660	2.140	4.953	-0.145390
54	2.500	-0.045046	0.106423	-0.394660	2.140	3.566	0.120667
55	0	-0.019481	0.101921	-0.320393	2.141	4.292	-0.125559
55	2.500	-0.019481	0.101921	-0.320393	2.141	3.491	0.129244
56	0	0.009796	0.089136	-0.276704	2.201	3.791	-0.105224
56	2.500	0.009796	0.089136	-0.276704	2.201	3.099	0.117622
57	0	0.009173	0.083402	-0.274531	2.229	3.354	-0.096802
57	2.500	0.009173	0.083402	-0.274531	2.229	2.667	0.109702
58	0	0.002006	0.087873	-0.276811	2.238	2.904	-0.107259
58	2.500	0.002006	0.087873	-0.276811	2.238	2.212	0.112384
59	0	-0.003464	0.093320	-0.279021	2.236	2.443	-0.115921
59	2.500	-0.003464	0.093320	-0.279021	2.236	1.745	0.117377
60	0	-0.011136	0.097431	-0.280605	2.234	1.973	-0.122351
60	2.500	-0.011136	0.097431	-0.280605	2.234	1.272	0.121187
61	0	-0.029585	0.104894	-0.261420	2.227	1.497	-0.133306
61	2.500	-0.029585	0.104894	-0.261420	2.227	0.793644	0.128928
62	0	-0.045782	0.126893	-0.298124	2.213	1.023	-0.154406
62	2.500	-0.045782	0.126893	-0.298124	2.213	0.277983	0.162825
63	0	0.065426	0.086150	-0.343697	2.108	0.513279	-0.113851
63	2.500	0.065426	0.086150	-0.343697	2.108	-0.346463	0.101523
64	0	-5.70E-15	5.32E-13	2.66E-13	6.73E-16	-2.35E-13	-1.58E-13
64	0.500	-5.70E-15	5.32E-13	2.66E-13	6.73E-16	-9.23E-14	1.08E-13

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	7.70E-16	-2.23E-13	-2.00E-12	5.61E-16	3.91E-13	5.46E-14
65	0.500	7.70E-16	-2.23E-13	-2.00E-12	5.61E-16	-6.11E-13	-5.70E-14
66	0	-0.197894	-0.514215	3.189	-16.234	1.572	0.492448
66	2.500	-0.197894	-0.514215	3.189	-16.234	9.544	-0.753088
67	0	-0.230041	-1.711	4.326	-16.551	11.013	2.056
67	2.500	-0.230041	-1.711	4.326	-16.551	21.628	-2.221
68	0	-0.292610	-2.389	4.377	-15.044	22.663	2.656
68	2.500	-0.292610	-2.389	4.377	-15.044	33.605	-3.315
69	0	-1.298	-1.433	2.390	-11.026	34.777	1.356
69	2.500	-1.298	-1.433	2.390	-11.026	40.753	-2.227
70	0	-1.200	1.110	-1.945	-5.049	40.821	-1.829
70	2.500	-1.200	1.110	-1.945	-5.049	35.959	0.946287
71	0	0.076156	1.950	-3.936	-0.941914	35.006	-2.803
71	2.500	0.076156	1.950	-3.936	-0.941914	25.166	2.072
72	0	0.411387	1.219	-3.993	0.797854	24.916	-1.671
72	2.500	0.411387	1.219	-3.993	0.797854	14.933	1.377
73	0	0.165556	0.552590	-4.056	1.597	15.057	-0.728816
73	2.500	0.165556	0.552590	-4.056	1.597	4.917	0.652658
74	0	0.170566	0.235814	-4.294	1.978	5.529	-0.307978
74	2.500	0.170566	0.235814	-4.294	1.978	-5.206	0.281556
75	0	0.371039	0.124904	-7.085	2.191	-3.403	-0.158899
75	2.500	0.371039	0.124904	-7.085	2.191	-21.115	0.153362
76	0	0.296254	0.156045	2.624	2.392	-20.778	-0.292020
76	3.600	0.296254	0.156045	2.624	2.392	-11.331	0.269743
77	0	-0.109811	0.125950	0.443349	2.481	-12.937	-0.229635
77	3.600	-0.109811	0.125950	0.443349	2.481	-11.341	0.223787
78	0	-0.145066	0.109697	0.532479	2.509	-11.597	-0.197317
78	3.600	-0.145066	0.109697	0.532479	2.509	-9.680	0.197591
79	0	-0.042604	0.104261	0.562007	2.518	-9.733	-0.186775
79	3.600	-0.042604	0.104261	0.562007	2.518	-7.710	0.188564
80	0	-0.003326	0.102602	0.572569	2.521	-7.716	-0.183629
80	3.600	-0.003326	0.102602	0.572569	2.521	-5.655	0.185738
81	0	0.002413	0.102350	0.573660	2.521	-5.656	-0.183160
81	3.600	0.002413	0.102350	0.573660	2.521	-3.591	0.185301
82	0	0.007762	0.103163	0.571946	2.520	-3.592	-0.184567

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
82	3.600	0.007762	0.103163	0.571946	2.520	-1.533	0.186822
83	0	0.023798	0.106255	0.567070	2.514	-1.541	-0.189735
83	3.600	0.023798	0.106255	0.567070	2.514	0.500040	0.192762
84	0	0.017483	0.115792	0.552553	2.499	0.458049	-0.204993
84	3.600	0.017483	0.115792	0.552553	2.499	2.447	0.211857
85	0	-0.049731	0.130347	0.909669	2.446	2.165	-0.224803
85	3.600	-0.049731	0.130347	0.909669	2.446	5.460	0.244446
86	0	-0.057616	0.014677	-0.679998	2.325	5.516	-0.012662
86	2.500	-0.057616	0.014677	-0.679998	2.325	3.816	0.024030
87	0	-0.008686	0.005971	-0.224315	2.274	4.115	-0.003720
87	2.500	-0.008686	0.005971	-0.224315	2.274	3.554	0.011206
88	0	0.026566	0.011719	-0.187894	2.257	3.662	-0.012552
88	2.500	0.026566	0.011719	-0.187894	2.257	3.192	0.016746
89	0	0.026171	0.019136	-0.182731	2.248	3.233	-0.022162
89	2.500	0.026171	0.019136	-0.182731	2.248	2.777	0.024679
90	0	0.012306	0.023393	-0.184689	2.243	2.790	-0.028610
90	2.500	0.012306	0.023393	-0.184689	2.243	2.328	0.029672
91	0	0.002407	0.027108	-0.186192	2.239	2.331	-0.023489
91	2.500	0.002407	0.027108	-0.186192	2.239	1.865	0.034280
92	0	-0.005528	0.034204	-0.186673	2.232	1.866	-0.041759
92	2.500	-0.005528	0.034204	-0.186673	2.232	1.357	0.043752
93	0	-0.016082	0.048215	-0.186358	2.222	1.350	-0.055976
93	2.500	-0.016082	0.048215	-0.186358	2.222	0.924412	0.064562
94	0	-0.031320	0.047959	-0.181406	2.201	0.903716	-0.053690
94	2.500	-0.031320	0.047959	-0.181406	2.201	0.450200	0.066209
95	0	-0.017316	-0.025996	-0.132405	2.083	0.394207	0.011684
95	2.500	-0.017316	-0.025996	-0.132405	2.083	0.063154	-0.051312
96	0	-5.40E-16	-9.82E-14	1.82E-13	1.75E-15	-1.59E-13	3.22E-14
96	0.500	-5.40E-16	-9.82E-14	1.82E-13	1.75E-15	-6.83E-14	-1.69E-14
97	0	-1.13E-15	-4.16E-14	1.36E-12	-1.99E-16	-4.45E-13	3.83E-14
97	0.500	-1.13E-15	-4.16E-14	1.36E-13	-1.99E-16	2.36E-12	1.74E-14
98	0	-1.097	-0.745984	2.122	-14.643	13.651	-0.791504
98	2.500	-1.097	-0.745984	2.122	-14.643	9.159	-0.502567
99	0	-0.801307	-2.165	2.887	-15.512	12.224	2.760
99	2.500	-0.801307	-2.165	2.887	-15.512	19.442	-2.652

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
100	0	-1.500	-2.260	2.510	-14.163	22.046	2.622
100	2.500	-1.500	-2.260	2.510	-14.163	28.315	-3.028
101	0	-2.446	-1.269	0.946472	-10.471	30.545	1.270
101	2.500	-2.446	-1.269	0.946472	-10.471	32.911	-1.902
102	0	-2.453	0.388695	-1.227	-5.457	33.763	-0.820634
102	2.500	-2.453	0.388695	-1.227	-5.457	30.725	0.151103
103	0	-1.511	1.231	-2.841	-1.486	30.331	-1.629
103	2.500	-1.511	1.231	-2.841	-1.486	23.230	1.248
104	0	-0.686992	1.075	-3.502	0.673540	22.767	-1.506
104	2.500	-0.686992	1.075	-3.502	0.673540	14.032	1.182
105	0	-0.361576	0.591097	-3.775	1.843	13.651	-0.791504
105	2.500	-0.361576	0.591097	-3.775	1.843	4.413	0.686239
106	0	-0.124260	0.167322	-4.220	2.762	4.580	-0.255709
106	2.500	-0.124260	0.167322	-4.220	2.762	-5.970	0.162595
107	0	0.211213	0.174572	-4.940	3.241	-5.629	-0.266737
107	2.500	0.211213	0.174572	-4.940	3.241	-17.975	0.169694
108	0	0.136343	0.258272	1.484	1.349	-18.263	-0.521162
108	3.600	0.136343	0.258272	1.484	1.349	-12.920	0.408615
109	0	-0.103405	0.238199	0.709315	1.951	-13.861	-0.415615
109	3.600	-0.103405	0.238199	0.709315	1.951	-11.308	0.441902
110	0	-0.084992	0.145761	0.634774	2.397	-11.656	-0.236176
110	3.600	-0.084992	0.145761	0.634774	2.397	-9.571	0.288571
111	0	-0.015827	0.153396	0.660515	2.499	-9.929	-0.267275
111	3.600	-0.015827	0.153396	0.660515	2.499	-7.551	0.284949
112	0	0.004658	0.166998	0.665893	2.518	-7.887	-0.298980
112	3.600	0.004658	0.166998	0.665893	2.518	-5.490	0.302212
113	0	0.006748	0.169977	0.666586	2.520	-5.823	-0.305369
113	3.600	0.006748	0.169977	0.666588	2.520	-3.423	0.306549
114	0	0.009643	0.168354	0.665871	2.518	-3.756	-0.303416
114	3.600	0.009643	0.168354	0.665871	2.518	-1.359	0.302657
115	0	0.022220	0.168570	0.662615	2.496	-1.696	-0.306394
115	3.600	0.022220	0.168570	0.662615	2.496	0.689294	0.300457
116	0	0.031453	0.188815	0.676607	2.412	0.321491	-0.339924
116	3.600	0.031453	0.188815	0.676607	2.412	2.757	0.339809

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
117	0	0.007335	0.201483	0.824722	2.279	2.320	-0.346733
117	3.600	0.007335	0.201483	0.824722	2.279	5.289	0.378607
118	0	-0.042689	0.095895	-0.293896	2.499	5.018	-0.114747
118	2.500	-0.042689	0.095895	-0.293896	2.499	4.283	0.124990
119	0	0.020399	0.052099	-0.160340	2.412	4.152	-0.057692
119	2.500	0.020399	0.052099	-0.160340	2.412	3.751	0.072555
120	0	0.034544	0.082019	-0.100958	2.314	3.598	-0.106505
120	2.500	0.034544	0.082019	-0.100958	2.314	3.345	0.098536
121	0	0.021668	0.098952	-0.094673	2.269	3.143	-0.128118
121	2.500	0.021668	0.098952	-0.094673	2.269	2.907	0.119263
122	0	0.010317	0.100457	-0.094226	2.249	2.686	-0.127293
122	2.500	0.010317	0.100457	-0.094226	2.249	2.451	0.123850
123	0	0.005749	0.100322	-0.093789	2.239	2.224	-0.125402
123	2.500	0.005749	0.100322	-0.093789	2.239	1.989	0.125402
124	0	0.006651	0.105582	-0.092187	2.228	1.759	-0.130627
124	2.500	0.006651	0.105582	-0.092187	2.228	1.526	0.133329
125	0	0.012366	0.119642	-0.088432	2.207	1.292	-0.144454
125	2.500	0.012366	0.119642	-0.088432	2.207	1.071	0.154650
126	0	0.006007	0.131977	-0.063183	2.157	0.814577	-0.148264
126	2.500	0.006007	0.131977	-0.063183	2.157	0.656620	0.161655
127	0	-0.105723	0.043968	0.022637	2.000	0.356145	-0.053895
127	2.500	-0.105723	0.043968	0.022637	2.000	0.412736	0.056026
128	0	1.16E-15	1.25E-13	-4.17E-14	8.36E-16	-6.49E-14	5.79E-15
128	0.500	1.16E-15	1.25E-13	-4.17E-14	8.36E-16	-6.57E-14	6.64E-14
129	0	-4.77E-15	2.81E-12	9.98E-13	1.26E-15	-2.63E-12	-2.18E-12
129	0.500	-4.77E-15	2.81E-12	9.98E-13	1.26E-15	-2.13E-12	-1.77E-12
130	0	1.274	-7.318	-2.259	-13.006	12.906	-7.896
130	2.500	1.274	-7.318	-2.259	-13.006	7.259	-26.190
131	0	-0.502657	-6.732	-2.777	-14.748	24.069	-21.602
131	2.500	-0.502657	-6.732	-2.777	-14.748	17.125	-48.434
132	0	-2.760	-4.731	-3.150	-13.562	33.950	-53.162
132	2.500	-2.760	-4.731	-3.150	-13.562	26.074	-64.990
133	0	-4.292	-1.185	-3.328	-10.165	40.064	-65.220
133	2.500	-4.292	-1.185	-3.328	-10.165	31.743	-72.163
134	0	-4.442	3.115	-3.286	-5.663	40.512	-75.554

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
134	2.500	-4.442	3.115	-3.286	-5.663	32.297	-67.806
135	0	-3.344	6.744	-3.500	-1.642	35.716	-70.187
135	2.500	-3.344	6.744	-3.500	-1.642	24.966	-53.337
136	0	-1.842	8.911	-3.870	0.511782	26.976	-54.686
136	2.500	-1.842	8.911	-3.870	0.511782	17.302	-32.406
137	0	-0.745281	9.768	-4.098	1.852	15.636	-32.666
137	2.500	-0.745281	9.768	-4.098	1.852	5.390	-8.245
138	0	-0.432692	9.411	-3.999	2.921	2.746	-7.268
138	2.500	-0.432692	9.411	-3.999	2.921	-7.249	16.260
139	0	-0.637547	7.204	-2.651	3.138	-10.793	18.115
139	2.500	-0.637547	7.204	-2.651	3.138	-17.419	36.124
140	0	-0.422942	0.305634	0.364657	1.345	-20.082	37.285
140	3.600	-0.422942	0.305634	0.364657	1.345	-18.769	36.285
141	0	0.126354	-1.977	1.556	1.776	-20.352	36.257
141	3.600	0.126354	-1.977	1.556	1.776	-14.789	31.139
142	0	0.164405	-2.105	1.524	2.335	-17.207	32.310
142	3.600	0.164405	-2.105	1.524	2.335	-11.723	24.731
143	0	0.055224	-1.991	1.505	2.486	-14.323	26.400
143	3.600	0.055224	-1.991	1.505	2.486	-8.904	19.232
144	0	0.017463	-1.947	1.504	2.516	-11.563	20.864
144	3.600	0.017463	-1.947	1.504	2.516	-6.146	13.676
145	0	0.012467	-1.940	1.504	2.520	-8.824	15.495
145	3.600	0.012467	-1.940	1.504	2.520	-3.406	8.511
146	0	0.007565	-1.948	1.505	2.514	-6.084	10.127
146	3.600	0.007565	-1.948	1.505	2.514	-0.665521	3.114
147	0	-0.007519	-1.970	1.510	2.485	-3.330	4.729
147	3.600	-0.007519	-1.970	1.510	2.485	2.105	-2.364
148	0	0.007947	-1.960	1.521	2.381	-0.525371	-0.642675
148	3.600	0.007947	-1.960	1.521	2.381	4.949	-7.898
149	0	0.124428	-1.603	1.336	2.280	2.466	-6.630
149	3.600	0.124428	-1.603	1.336	2.280	7.276	-12.402
150	0	0.151149	-0.371867	0.983979	2.480	4.692	-11.002
150	2.500	0.151149	-0.371867	0.983979	2.480	7.152	-11.931
151	0	0.042139	0.028092	0.772900	2.448	6.448	-10.661
151	2.500	0.042139	0.028092	0.772900	2.448	6.380	-10.611

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
152	0	-0.016779	0.126033	0.739674	2.341	3.795	-9.477
152	2.500	-0.016779	0.126033	0.739674	2.341	5.648	-9.162
153	0	-0.016550	0.120231	0.737289	2.280	3.136	-8.136
153	2.500	-0.016550	0.120231	0.737289	2.280	4.978	-7.837
154	0	-0.003250	0.101246	0.737359	2.253	2.495	-6.847
154	2.500	-0.003250	0.101246	0.737359	2.253	4.343	-6.554
155	0	0.007197	0.087588	0.738370	2.239	1.875	-5.609
155	2.500	0.007197	0.087588	0.738370	2.239	3.725	-5.390
156	0	0.019075	0.076692	0.740918	2.224	1.272	-4.411
156	2.500	0.019075	0.076692	0.740918	2.224	3.125	-4.219
157	0	0.044387	0.060773	0.746541	2.193	0.687361	-3.259
157	2.500	0.044387	0.060773	0.746541	2.193	2.556	-3.107
158	0	0.100549	0.044744	0.755513	2.112	0.151625	-2.196
158	2.500	0.100549	0.044744	0.755513	2.112	2.040	-2.084
159	0	0.197991	0.083463	0.824611	1.837	-0.274617	-1.260
159	2.500	0.197991	0.083463	0.824611	1.837	1.787	-1.052
160	0	-1.72E-16	1.21E-12	3.03E-14	7.95E-16	1.63E-14	-5.51E-13
160	0.500	-1.72E-16	1.21E-12	3.03E-14	7.95E-16	3.15E-14	5.32E-14
166	0	-10.320	-0.816392	18.295	17.849	-16.562	2.756
166	1.600	-10.320	-0.816392	18.295	17.849	12.690	1.450
167	0	-8.921	0.022858	12.716	20.024	-4.664	-0.260045
167	1.650	-8.921	0.022858	12.716	20.024	16.317	-0.202329
168	0	-8.406	-0.175035	9.527	18.451	0.082303	-0.694777
168	1.650	-8.406	-0.175035	9.527	18.451	15.802	-0.963566
169	0	-7.660	-1.272	7.405	14.556	1.156	-1.944
169	1.600	-7.660	-1.272	7.405	14.556	13.006	-3.581
170	0	-2.677	1.828	1.356	20.683	-0.569069	-0.556912
170	1.600	-2.677	1.828	1.356	20.683	1.601	2.368
171	0	-2.196	1.512	1.241	22.186	1.766	-1.777
171	1.650	-2.196	1.512	1.241	22.186	3.615	0.718628
172	0	-1.001	1.480	0.103995	20.716	3.457	-2.130
172	1.650	-1.001	1.480	0.103995	20.716	3.669	0.312513
173	0	0.417721	1.776	-0.661399	17.652	2.800	-3.350
173	1.600	0.417721	1.776	-0.661399	17.652	1.742	-0.506400

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
174	0	-0.030067	1.897	-0.912766	19.451	1.375	-0.510727
174	1.600	-0.030067	1.897	-0.912766	19.451	-0.081151	2.522
175	0	1.044	3.019	-1.243	20.909	1.628	-3.165
175	1.650	1.044	3.019	-1.243	20.909	-0.422861	1.615
176	0	1.722	2.956	-1.294	20.074	1.085	-3.061
176	1.650	1.722	2.956	-1.294	20.074	-1.050	1.816
177	0	1.817	2.257	-0.916453	17.476	0.299815	-3.456
177	1.600	1.817	2.257	-0.916453	17.476	-1.167	0.153385
178	0	5.925	4.462	-1.014	16.363	0.426538	-4.433
178	1.600	5.925	4.462	-1.014	16.363	-1.196	2.707
179	0	5.298	3.484	-4.709	16.017	2.991	-3.478
179	1.650	5.298	3.484	-4.709	16.017	-4.779	2.270
180	0	4.343	2.478	-2.723	16.845	-0.760697	-2.402
180	1.650	4.343	2.478	-2.723	16.845	-5.253	1.687
181	0	3.352	1.533	-1.156	14.615	-1.562	-2.611
181	1.600	3.352	1.533	-1.156	14.615	-3.417	-0.156606
182	0	12.298	-0.028736	0.671880	9.535	-2.950	1.007
182	1.600	12.298	-0.028736	0.671880	9.535	-1.675	0.960575
183	0	8.346	0.056208	-7.669	10.320	4.516	0.066412
183	1.650	8.346	0.056208	-7.669	10.320	-8.136	0.162455
184	0	5.803	0.156407	-3.334	10.252	-2.159	-0.235658
184	1.650	5.803	0.156407	-3.334	10.252	-7.660	0.022213
185	0	4.145	0.149490	-1.160	9.370	-2.646	-1.059
185	1.600	4.145	0.149490	-1.160	9.370	-4.502	-0.819813
186	0	5.708	-4.566	-1.140	2.741	0.357493	6.475
186	1.600	5.708	-4.566	-1.140	2.741	-1.487	-0.830228
187	0	5.107	-3.316	-4.823	2.602	2.679	3.521
187	1.650	5.107	-3.316	-4.823	2.602	-5.278	-1.950
188	0	4.267	-2.040	-2.631	3.556	-1.172	1.799
188	1.650	4.267	-2.040	-2.631	3.556	-5.643	-1.566
189	0	3.425	-1.098	-1.218	3.950	-1.872	0.413675
189	1.600	3.425	-1.098	-1.218	3.950	-3.821	-1.342
190	0	-0.270978	-1.879	-1.261	-0.233503	1.221	2.310
190	1.600	-0.270978	-1.879	-1.261	-0.233503	-0.796199	-0.696813
191	0	1.091	-2.661	-1.679	-0.304170	0.726086	2.841

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
191	1.650	1.091	-2.661	-1.679	-0.304170	-2.041	-1.549
192	0	1.822	-2.326	-1.622	-0.054410	-0.301723	2.193
192	1.650	1.822	-2.326	-1.622	-0.054410	-2.977	-1.644
193	0	1.978	-1.502	-0.960388	0.388468	-0.817530	1.110
193	1.600	1.978	-1.502	-0.960388	0.388468	-2.354	-1.292
194	0	-0.896034	-0.381251	-0.644893	-1.276	0.420487	0.325720
194	1.600	-0.896034	-0.381251	-0.644893	-1.276	-0.611342	-0.284281
195	0	-0.391082	-1.177	-0.794406	-1.585	-0.097772	1.253
195	1.650	-0.391082	-1.177	-0.794406	-1.585	-1.409	-0.688805
196	0	0.275660	-1.423	-0.731379	-1.709	-0.609505	1.417
196	1.650	0.275660	-1.423	-0.731379	-1.709	-1.816	-0.930230
197	0	0.759482	-1.097	-0.457906	-1.528	-0.647067	1.042
197	1.600	0.759482	-1.097	-0.457906	-1.528	-1.380	-0.712642
198	0	-1.084	-0.344617	-0.716737	-1.391	-0.159105	0.317586
198	1.600	-1.084	-0.344617	-0.716737	-1.391	-1.306	-0.233801
199	0	-1.056	-0.554917	-0.487306	-2.032	-1.427	0.621580
199	1.650	-1.056	-0.554917	-0.487306	-2.032	-2.231	-0.294033
200	0	-0.738884	-0.549906	-0.249653	-2.643	-1.851	0.666604
200	1.650	-0.738884	-0.549906	-0.249653	-2.643	-2.263	-0.240741
201	0	-0.315109	-0.312590	0.195095	-2.610	-1.342	0.701208
201	1.600	-0.315109	-0.312590	0.195095	-2.610	-1.030	0.201063
202	0	-1.988	-0.445933	-2.167	-0.964215	0.230263	0.453413
202	1.600	-1.988	-0.445933	-2.167	-0.964215	-3.237	-0.260080
203	0	-1.848	-0.331090	-1.601	-1.776	-3.308	0.356670
203	1.650	-1.848	-0.331090	-1.601	-1.776	-5.948	-0.189629
204	0	-1.737	-0.130618	1.191	-3.579	-5.735	0.250826
204	1.650	-1.737	-0.130618	1.191	-3.579	-3.771	0.035306
205	0	-1.744	0.204855	1.511	-3.920	-3.273	0.466638
205	1.600	-1.744	0.204855	1.511	-3.920	-0.216515	0.792408
206	0	-5.675	0.027921	-5.206	-2.563	2.259	-0.694234
206	1.600	-5.675	0.027921	-5.206	-2.563	-6.070	-0.649561
207	0	-5.656	-0.064833	-11.539	-2.828	-3.724	-0.083486
207	1.650	-5.656	-0.064833	-11.539	-2.828	-22.763	-0.190461
208	0	-5.699	-0.139734	11.244	-3.165	-22.561	0.254921
208	1.650	-5.699	-0.139734	11.244	-3.165	-4.006	0.024360

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
209	0	-5.763	-0.214604	4.620	-2.881	-5.920	0.715217
209	1.600	-5.763	-0.214604	4.620	-2.881	1.792	0.371850
210	0	-1.943	0.406387	-1.877	-4.332	-0.260932	-1.930
210	1.600	-1.943	0.406387	-1.877	-4.332	-3.264	-1.280
211	0	-1.910	0.096517	-1.174	-4.070	-3.696	-0.668906
211	1.650	-1.910	0.096517	-1.174	-4.070	-5.633	-0.509646
212	0	-1.880	-0.309548	1.006	-2.464	-5.545	-0.010265
212	1.650	-1.880	-0.309548	1.006	-2.464	-3.884	-0.521023
213	0	-1.860	-0.549297	1.761	-1.523	-3.281	0.303210
213	1.600	-1.860	-0.549297	1.761	-1.523	-0.430844	-0.575664
214	0	-0.172581	-0.008902	-0.043960	-3.336	-0.495295	-1.076
214	1.600	-0.172581	-0.008902	-0.043960	-3.336	-0.565631	-1.090
215	0	-0.240661	-0.021209	0.018698	-3.454	-0.951626	-0.460425
215	1.650	-0.240661	-0.021209	0.018698	-3.454	-0.920774	-0.495420
216	0	-0.224408	-0.056464	-0.070432	-3.198	-0.893432	-0.074216
216	1.650	-0.224406	-0.056464	-0.070432	-3.198	-1.010	-0.167482
217	0	-0.131970	-0.038051	0.004105	-2.649	-0.565538	0.510590
217	1.600	-0.131970	-0.038051	0.004105	-2.649	-0.556964	0.449709
218	0	0.051081	-0.122710	0.036533	-3.065	-0.129897	-0.700000
218	1.600	0.051081	-0.122710	0.036533	-3.065	-0.071444	-0.896336
219	0	0.106721	-0.062446	0.005911	-3.373	-0.154401	-0.200445
219	1.650	0.106721	-0.062446	0.005911	-3.373	-0.144649	-0.303481
220	0	0.112157	0.040017	-0.023617	-3.320	-0.135421	0.080885
220	1.650	0.112157	0.040017	-0.023617	-3.320	-0.174389	0.146912
221	0	0.104522	0.109181	-0.049358	-2.962	-0.072093	0.702758
221	1.600	0.104522	0.109181	-0.049358	-2.962	-0.151065	0.677447
222	0	0.038135	-0.040340	0.009385	-3.027	-0.022898	-0.749756
222	1.600	0.038135	-0.040340	0.009385	-3.027	-0.007882	-0.814298
223	0	0.054220	-0.022002	0.002505	-3.356	-0.021004	-0.164688
223	1.650	0.054220	-0.022002	0.002505	-3.356	-0.016871	-0.200592
224	0	0.055879	0.017275	-0.008057	-3.350	-0.013992	0.171201
224	1.650	0.055879	0.017275	-0.008057	-3.350	-0.027286	0.199705
225	0	0.042276	0.037761	-0.013435	-3.014	-0.008092	0.783635
225	1.600	0.042276	0.037761	-0.013435	-3.014	-0.029588	0.844053

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
226	0	0.005786	-0.004513	0.001046	-3.023	-0.002697	-0.788681
226	1.600	0.005786	-0.004513	0.001046	-3.023	-0.001023	-0.797102
227	0	0.009143	-0.002833	0.000122	-3.356	-0.002329	-0.176106
227	1.650	0.009143	-0.002833	0.000122	-3.356	-0.002128	-0.180781
228	0	0.009395	0.002906	-0.000965	-3.355	-0.001690	0.188116
228	1.650	0.009395	0.002906	-0.000965	-3.355	-0.003288	0.152911
229	0	0.006416	0.004996	-0.001663	-3.022	-0.001057	0.830452
229	1.600	0.006416	0.004996	-0.001663	-3.022	-0.003718	0.808486
230	0	-0.005547	-0.005318	-0.000945	-3.023	0.002221	-0.791384
230	1.600	-0.005547	-0.005318	-0.000945	-3.023	0.000709	-0.796693
231	0	-0.008386	-0.003341	0.000504	-3.355	0.001652	-0.179827
231	1.650	-0.008386	-0.003341	0.000504	-3.355	0.002484	-0.185339
232	0	-0.009199	0.002008	0.002217	-3.354	0.001070	0.164528
232	1.650	-0.009199	0.002008	0.002217	-3.354	0.004729	0.187840
233	0	-0.007576	0.004902	0.002934	-3.021	0.000806	0.797805
233	1.600	-0.007576	0.004902	0.002934	-3.021	0.005560	0.805649
234	0	-0.012516	-0.021403	-0.003529	-3.027	0.016993	-0.780373
234	1.600	-0.012516	-0.021403	-0.003529	-3.027	0.011346	-0.814619
235	0	-0.016810	-0.013529	0.002546	-3.355	0.021032	-0.163696
235	1.650	-0.016810	-0.013529	0.002546	-3.355	0.025233	-0.206020
236	0	-0.019901	0.002507	0.007422	-3.347	0.020025	0.170537
236	1.650	-0.019901	0.002507	0.007422	-3.347	0.032272	0.174673
237	0	-0.020117	0.015084	0.010678	-3.010	0.011731	0.783724
237	1.600	-0.020117	0.015084	0.010678	-3.010	0.028816	0.807656
238	0	0.036968	-0.009622	0.015632	-3.062	0.067998	-0.831086
238	1.600	0.036968	-0.009622	0.015632	-3.062	0.093009	-0.846475
239	0	0.043115	-0.018384	0.007083	-3.360	0.144254	-0.214928
239	1.650	0.043115	-0.018384	0.007083	-3.360	0.156042	-0.245263
240	0	0.033576	-0.024699	0.021601	-3.318	0.140699	0.152512
240	1.650	0.033576	-0.024699	0.021601	-3.318	0.176340	0.111756
241	0	0.013332	-0.015466	0.007609	-2.950	0.092037	0.752140
241	1.600	0.013333	-0.015466	0.007609	-2.950	0.104212	0.727353
242	0	0.332826	0.041757	0.322650	-3.196	0.010940	-0.635942
242	1.600	0.332826	0.041757	0.322650	-3.196	0.527180	-0.685130
243	0	0.317924	-0.025149	0.228543	-3.438	0.563339	-0.218267

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
243	1.650	0.317924	-0.025149	0.228543	-3.438	0.940435	-0.259762
244	0	0.303365	-0.092363	-0.128573	-3.175	0.587752	0.176888
244	1.650	0.303365	-0.092363	-0.128573	-3.175	0.675606	0.624500
245	0	0.290700	-0.116481	-0.276689	-2.738	0.543448	0.711042
245	1.600	0.290700	-0.116481	-0.276689	-2.738	0.100746	0.524672
246	0	0.780894	0.006226	0.956613	-2.816	-0.466981	-0.665396
246	1.600	0.780894	0.006226	0.956613	-2.816	1.064	-0.655424
247	0	0.861448	0.031302	1.927	-3.087	0.582571	-0.173635
247	1.650	0.861448	0.031302	1.927	-3.087	3.764	-0.121986
248	0	0.978609	0.023303	-1.800	-2.143	3.642	0.135122
248	1.650	0.976809	0.023303	-1.800	-2.143	0.671576	0.173572
249	0	1.084	-0.026721	-0.681770	-2.872	0.890794	0.666926
249	1.600	1.084	-0.026721	-0.681770	-2.872	-0.200036	0.624172
250	0	0.268185	-0.028572	0.349223	-2.453	-0.042307	-0.210186
250	1.600	0.268185	-0.028572	0.349223	-2.453	0.516450	-0.255901
251	0	0.272686	-0.003008	0.274956	-2.778	0.517426	-0.009675
251	1.650	0.272686	-0.003008	0.274956	-2.778	0.971104	-0.014638
252	0	0.281392	0.045922	-0.180727	-3.077	0.920473	0.013112
252	1.650	0.281392	0.045922	-0.180727	-3.077	0.622274	0.088883
253	0	0.325188	0.109010	-0.314282	-2.946	0.535260	0.271566
253	1.600	0.325188	0.109010	-0.314282	-2.946	0.032356	0.445962
254	0	0.107668	-0.021756	0.080261	-2.540	0.067533	-0.214038
254	1.600	0.107668	-0.021756	0.080261	-2.540	0.195951	-0.248848
255	0	0.120451	0.007521	0.036572	-2.840	0.256601	-0.014380
255	1.650	0.120451	0.007521	0.036572	-2.840	0.316944	-0.001970
256	0	0.114703	0.044772	0.000151	-2.948	0.299456	0.021788
256	1.650	0.114703	0.044772	0.000151	-2.948	0.299745	0.055662
257	0	0.084783	0.058918	-0.059232	-2.795	0.202254	0.274726
257	1.600	0.084783	0.058918	-0.059232	-2.795	0.107483	0.368995
258	0	0.012377	0.015664	0.012950	-2.604	0.040417	-0.270666
258	1.600	0.012377	0.015664	0.012950	-2.604	0.061136	-0.245603
259	0	0.018114	0.015041	0.010777	-2.859	0.088391	-0.029179
259	1.650	0.018114	0.015041	0.010777	-2.859	0.106173	-0.004360
260	0	0.010697	0.012647	0.005614	-2.900	0.097918	0.035548
260	1.650	0.010697	0.012647	0.005614	-2.900	0.107180	0.056414

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
261	0	-0.006237	-0.000230	-0.000671	-2.698	0.061855	0.283070
261	1.600	-0.006237	-0.000230	-0.000671	-2.698	0.060781	0.282703
262	0	-0.007979	0.019083	0.001573	-2.628	0.015130	-0.283961
262	1.600	-0.007979	0.019083	0.001573	-2.628	0.017646	-0.253429
263	0	-0.012450	0.011916	0.003853	-2.865	0.026472	-0.036425
263	1.650	-0.012450	0.011916	0.003853	-2.865	0.032829	-0.016767
264	0	-0.016706	-0.001948	0.005811	-2.878	0.027892	0.036722
264	1.650	-0.016706	-0.001948	0.005811	-2.878	0.037480	0.033507
265	0	-0.018211	-0.013299	0.005363	-2.658	0.018179	0.280066
265	1.600	-0.018211	-0.013299	0.005363	-2.658	0.026760	0.258785
266	0	-0.003808	0.009491	0.001505	-2.634	0.003107	-0.277832
266	1.600	-0.003808	0.009491	0.001505	-2.634	0.005514	-0.262647
267	0	-0.009255	0.004020	0.003715	-2.865	0.006181	-0.034340
267	1.650	-0.009255	0.004020	0.003715	-2.865	0.012312	-0.027707
268	0	-0.012970	-0.005879	0.005216	-2.868	0.007813	0.035455
268	1.650	-0.012970	-0.005879	0.005216	-2.868	0.016423	0.025754
269	0	-0.012835	-0.010447	0.004781	-2.641	0.006191	0.275006
269	1.600	-0.012835	-0.010447	0.004781	-2.641	0.013841	0.256291
270	0	0.006716	0.002827	0.005023	-2.633	-0.003152	-0.272014
270	1.600	0.006716	0.002827	0.005023	-2.633	0.004885	-0.267490
271	0	0.002605	-0.004645	0.006607	-2.860	0.001139	-0.027723
271	1.650	0.002605	-0.004645	0.006607	-2.860	0.012020	-0.035717
272	0	-0.004492	-0.012780	0.007086	-2.859	0.005361	0.040321
272	1.650	-0.004492	-0.012780	0.007088	-2.859	0.017076	0.019234
273	0	-0.009752	-0.011878	0.005487	-2.628	0.005941	0.275263
273	1.600	-0.009752	-0.011878	0.005487	-2.628	0.014720	0.256259
274	0	0.021615	-2.31E-05	0.013095	-2.626	-0.010878	-0.267588
274	1.600	0.021615	-2.31E-05	0.013095	-2.626	0.010074	-0.267625
275	0	0.014353	-0.018472	0.013911	-2.851	0.002273	-0.013131
275	1.650	0.014353	-0.018472	0.013911	-2.851	0.025228	-0.043611
276	0	0.000342	-0.031027	0.013596	-2.844	0.014552	0.056117
276	1.650	0.000342	-0.031027	0.013596	-2.844	0.036985	0.004523
277	0	-0.013718	-0.025312	0.009841	-2.608	0.015459	0.282705
277	1.600	-0.013718	-0.025312	0.009841	-2.608	0.031205	0.242205

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
278	0	0.021190	-0.020370	0.026586	-2.609	-0.033825	-0.235367
278	1.600	0.021190	-0.020370	0.026586	-2.609	0.008712	-0.267959
279	0	-0.000809	-0.036566	0.043290	-2.838	-0.004926	0.015377
279	1.650	-0.000809	-0.036566	0.043290	-2.838	0.066502	-0.044957
280	0	-0.000554	-0.049803	0.038338	-2.618	0.045918	0.073295
280	1.650	-0.000554	-0.049803	0.038338	-2.618	0.109175	-0.008881
281	0	-0.012889	-0.056162	0.013088	-2.561	0.060116	0.294054
281	1.600	-0.012889	-0.056162	0.013088	-2.561	0.081058	0.204194
282	0	-0.146251	-0.130934	0.144601	-2.574	-0.211834	-0.077907
282	1.600	-0.146251	-0.130934	0.144601	-2.574	0.019527	-0.287402
283	0	-0.105508	0.000284	0.190374	-2.809	-0.085394	-0.010727
283	1.650	-0.105508	0.000284	0.190374	-2.809	0.228722	-0.010258
284	0	-0.031550	0.014288	0.141372	-2.753	0.110410	0.042266
284	1.650	-0.031550	0.014288	0.141372	-2.753	0.343674	0.065842
285	0	0.056459	-0.097442	0.055552	-2.453	0.186641	0.301395
285	1.600	0.056459	-0.097442	0.055552	-2.453	0.275525	0.145488
286	0	-0.415445	0.160372	1.859	-2.139	-1.978	-0.444088
286	1.600	-0.415445	0.160372	1.859	-2.139	0.997151	-0.167493
287	0	-0.325295	0.074935	1.515	-2.485	-1.111	-0.085670
287	1.650	-0.325295	0.074935	1.515	-2.485	1.389	0.037673
288	0	-0.355294	0.092251	1.383	-2.422	-0.693445	-0.013639
288	1.650	-0.355294	0.092251	1.383	-2.422	1.588	0.138575
289	0	-0.311325	0.197574	1.405	-2.009	-0.412182	0.194600
289	1.600	-0.311325	0.197974	1.405	-2.009	1.837	0.511359
	min:	-10.320	-13.693	-11.538	-17.354	-22.762	-75.594
	max:	12.298	18.190	18.526	22.166	77.956	138.666

Loadcase	Factor	Stage	Init.def	Title
13	1.0000			VEHICULO HIPOTESIS 13

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	4.02E-15	2.61E-12	-4.58E-12	2.69E-16	5.90E-13	8.09E-16
1	0.500	4.02E-15	2.61E-12	-4.58E-12	2.69E-16	-1.70E-12	1.38E-12
2	0	-1.179	4.351	9.015	-13.575	-13.243	-7.193
2	2.500	-1.179	4.351	9.015	-13.575	9.294	3.686
3	0	-0.301881	4.962	7.957	-15.151	-7.595	-1.891
3	2.500	-0.301881	4.962	7.957	-15.151	12.295	10.513
4	0	-0.062407	4.832	7.853	-15.432	-4.663	3.963
4	2.500	-0.062407	4.832	7.853	-15.432	14.970	16.043
5	0	0.045729	4.780	7.843	-15.461	-2.036	9.265
5	2.500	0.045729	4.780	7.843	-15.461	17.570	21.216
6	0	0.180252	4.954	7.899	-15.335	0.618123	14.478
6	2.500	0.180252	4.954	7.899	-15.335	20.366	26.882
7	0	0.456360	5.442	8.061	-15.020	3.611	20.350
7	2.500	0.456360	5.442	8.061	-15.020	23.763	33.955
8	0	1.280	6.342	8.482	-14.433	7.357	26.222
8	2.500	1.280	6.342	8.482	-14.433	28.562	44.077
9	0	3.972	6.711	9.986	-13.476	12.497	40.986
9	2.500	3.972	6.711	9.986	-13.476	37.463	57.766
10	0	7.986	1.135	13.110	-14.985	23.465	57.805
10	0.550	7.986	1.135	13.110	-14.985	30.672	58.430
10	0.550	7.986	-1.970	2.422	-9.185	30.676	58.429
10	2.050	7.986	-1.970	2.422	-9.185	34.307	55.476
10	2.050	7.986	-5.075	-8.266	-3.385	34.306	55.476
10	2.500	7.986	-5.075	-8.266	-3.385	30.588	53.192
11	0	5.565	-11.335	-2.983	-5.592	24.641	47.213
11	1.050	5.565	-11.335	-2.983	-5.592	21.505	35.314
11	1.050	5.565	-14.440	-13.671	0.208434	21.505	35.307
11	2.500	5.565	-14.440	-13.671	0.208434	1.688	14.373
12	0	1.047	-6.826	-4.712	5.041	4.660	6.749
12	3.600	1.047	-6.826	-4.712	5.041	-12.083	-17.826
13	0	0.769727	-1.138	-1.592	5.986	-5.361	-14.128
13	3.600	0.769727	-1.138	-1.592	5.986	-11.093	-18.224
14	0	0.480810	-0.192309	-1.360	5.648	-5.084	-14.626

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
14	3.600	0.480810	-0.192309	-1.360	5.648	-9.961	-15.319
15	0	0.130173	-0.173234	-1.295	5.608	-2.975	-12.057
15	3.600	0.130173	-0.173234	-1.295	5.608	-8.628	-12.720
16	0	0.000576	-0.189053	-1.264	5.632	-2.633	-9.284
16	3.600	0.000576	-0.189053	-1.264	5.632	-7.166	-9.965
17	0	-0.027370	-0.185098	-1.254	5.648	-1.178	-6.398
17	3.600	-0.027370	-0.185098	-1.254	5.648	-5.651	-7.064
18	0	-0.035755	-0.178666	-1.252	5.654	0.320036	-3.465
18	3.600	-0.035755	-0.178666	-1.252	5.654	-4.187	-4.109
19	0	-0.054189	-0.177117	-1.255	5.656	1.626	-0.516148
19	3.600	-0.054189	-0.177117	-1.255	5.656	-2.651	-1.154
20	0	-0.081160	-0.223147	-1.271	5.664	3.322	2.444
20	3.600	-0.081160	-0.223147	-1.271	5.664	-1.251	1.641
21	0	-0.121131	-0.495990	-1.419	5.594	4.786	5.219
21	3.600	-0.121131	-0.495990	-1.419	5.594	-0.327143	3.433
22	0	-0.135033	-0.880863	-2.103	5.106	5.382	6.611
22	2.500	-0.135033	-0.880863	-2.103	5.106	0.124456	4.409
23	0	-0.083147	-1.041	-2.290	5.023	5.623	6.705
23	2.500	-0.083147	-1.041	-2.290	5.023	-0.100990	4.104
24	0	-0.063982	-1.134	-2.328	5.027	5.430	6.341
24	2.500	-0.063982	-1.134	-2.328	5.027	-0.409136	3.506
25	0	-0.042309	-1.161	-2.338	5.032	5.108	5.752
25	2.500	-0.042309	-1.161	-2.338	5.032	-0.737324	2.850
26	0	-0.026875	-1.167	-2.343	5.031	4.780	5.095
26	2.500	-0.026875	-1.167	-2.343	5.031	-1.079	2.178
27	0	-0.022475	-1.174	-2.348	5.023	4.435	4.412
27	2.500	-0.022475	-1.174	-2.348	5.023	-1.434	1.478
28	0	-0.028633	-1.194	-2.354	5.006	4.070	3.699
28	2.500	-0.028633	-1.194	-2.354	5.006	-1.615	0.714920
29	0	-0.050162	-1.242	-2.368	4.965	3.668	2.911
29	2.500	-0.050162	-1.242	-2.368	4.965	-2.251	-0.192875
30	0	-0.126255	-1.294	-2.403	4.849	3.193	1.911
30	2.500	-0.126255	-1.294	-2.403	4.849	-2.815	-1.324
31	0	-0.391883	-1.121	-2.713	4.319	2.571	0.482482
31	2.500	-0.391883	-1.121	-2.713	4.319	-4.211	-2.321

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
32	0	4.16E-15	-1.43E-13	5.81E-13	-2.31E-15	-2.33E-13	1.03E-13
32	0.500	4.16E-15	-1.43E-13	5.81E-13	-2.31E-15	5.73E-14	3.11E-14
33	0	2.49E-15	4.04E-13	-5.66E-13	-1.36E-17	7.65E-14	-1.80E-14
33	0.500	2.49E-15	4.04E-13	-5.66E-13	-1.36E-17	-2.06E-13	1.84E-13
34	0	0.635816	-0.540754	1.851	-14.546	-2.536	0.645482
34	2.500	0.635816	-0.540754	1.851	-14.546	2.089	-0.706403
35	0	-0.237034	-0.915955	1.466	-15.357	0.328296	1.195
35	2.500	-0.237034	-0.915955	1.466	-15.357	3.994	-1.095
36	0	-0.139417	-0.795955	1.345	-15.478	2.341	0.990980
36	2.500	-0.139417	-0.795955	1.345	-15.478	5.703	-0.998908
37	0	0.024073	-0.769581	1.359	-15.477	4.113	0.961659
37	2.500	0.024073	-0.769581	1.359	-15.477	7.510	-0.962253
38	0	0.205888	-0.830863	1.401	-15.346	5.934	1.051
38	2.500	0.205888	-0.830863	1.401	-15.346	9.438	-1.028
39	0	0.568101	-1.067	1.456	-15.015	7.903	1.366
39	2.500	0.568101	-1.067	1.456	-15.015	11.649	-1.301
40	0	1.279	-1.804	1.722	-14.335	10.233	2.222
40	2.500	1.279	-1.804	1.722	-14.335	14.535	-2.267
41	0	1.668	-3.066	2.216	-12.806	13.478	3.360
41	2.500	1.668	-3.066	2.216	-12.806	19.018	-4.305
42	0	0.531207	-1.187	6.640	-8.794	16.343	0.707402
42	0.550	0.531207	-1.187	6.640	-8.794	21.993	0.054759
42	0.550	0.531207	-1.187	-2.240	-8.794	21.994	0.054169
42	2.050	0.531207	-1.187	-2.240	-8.794	18.635	-1.726
42	2.050	0.531207	-1.187	-11.120	-8.794	18.632	-1.727
42	2.500	0.531207	-1.187	-11.120	-8.794	13.621	-2.261
43	0	1.958	2.346	-4.360	-2.931	14.357	-3.423
43	1.050	1.958	2.346	-4.360	-2.931	5.781	-0.960627
43	1.050	1.958	2.346	-13.240	-2.931	5.776	-0.959454
43	2.500	1.958	2.346	-13.240	-2.931	-9.418	2.442
44	0	2.131	1.364	0.971124	4.945	-8.725	-2.466
44	3.600	2.131	1.364	0.971124	4.945	-5.225	2.441
45	0	0.457230	0.599027	-0.045530	5.715	-5.710	-1.104
45	3.600	0.457230	0.599027	-0.045530	5.715	-5.874	1.053
46	0	0.005073	0.542825	-0.025529	5.561	-5.532	-1.030
46	3.600	0.005073	0.542825	-0.025529	5.561	-5.624	0.924775

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
47	0	-0.001530	0.456202	0.073432	5.594	-4.525	-0.838628
47	3.600	-0.001530	0.456202	0.073432	5.594	-4.661	0.803701
48	0	0.001155	0.403504	0.102403	5.632	-3.515	-0.727041
48	3.600	0.001155	0.403504	0.102403	5.632	-3.550	0.725574
49	0	-0.005266	0.387602	0.105850	5.649	-2.804	-0.695291
49	3.600	-0.005266	0.387602	0.105850	5.649	-2.408	0.700077
50	0	-0.009002	0.386833	0.110141	5.654	-1.662	-0.693171
50	3.600	-0.009002	0.386833	0.110141	5.654	-1.265	0.699429
51	0	-0.010135	0.392250	0.104881	5.652	-0.520606	-0.701011
51	3.600	-0.010135	0.392250	0.104881	5.652	-0.143037	0.711089
52	0	-0.030666	0.400494	0.105219	5.654	0.583992	-0.714813
52	3.600	-0.030666	0.400494	0.105219	5.654	0.962781	0.726964
53	0	-0.104160	0.431967	0.112113	5.593	1.666	-0.764366
53	3.600	-0.104160	0.431967	0.112113	5.593	2.071	0.790715
54	0	-0.026813	0.230054	-0.303673	5.106	2.679	-0.300613
54	2.500	-0.026813	0.230054	-0.303673	5.106	1.919	0.274522
55	0	-0.044276	0.186791	-0.312539	5.034	2.486	-0.224682
55	2.500	-0.044276	0.186791	-0.312539	5.034	1.705	0.242295
56	0	-0.015235	0.194130	-0.301448	5.036	2.255	-0.237383
56	2.500	-0.015235	0.194130	-0.301448	5.036	1.501	0.247942
57	0	-0.005272	0.200382	-0.303706	5.036	2.026	-0.246615
57	2.500	-0.005272	0.200382	-0.303706	5.036	1.269	0.254340
58	0	-0.005760	0.207915	-0.307276	5.032	1.767	-0.257814
58	2.500	-0.005760	0.207915	-0.307276	5.032	1.019	0.261973
59	0	-0.009593	0.215434	-0.310742	5.025	1.533	-0.268267
59	2.500	-0.009593	0.215434	-0.310742	5.025	0.756631	0.270267
60	0	-0.021118	0.225645	-0.314313	5.010	1.270	-0.281774
60	2.500	-0.021118	0.225645	-0.314313	5.010	0.484200	0.282339
61	0	-0.051778	0.247983	-0.318632	4.981	0.999423	-0.308739
61	2.500	-0.051778	0.247983	-0.318632	4.981	0.202842	0.311219
62	0	-0.069067	0.289186	-0.363359	4.920	0.741300	-0.341482
62	2.500	-0.069067	0.289186	-0.363359	4.920	-0.167096	0.381482
63	0	0.208950	0.157724	-0.499998	4.641	0.416221	-0.204872
63	2.500	0.208950	0.157724	-0.499998	4.641	-0.833775	0.189437
64	0	-5.56E-15	1.51E-12	-5.62E-14	8.28E-16	-1.20E-13	-3.94E-13

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
64	0.500	-5.56E-15	1.51E-12	-5.62E-14	8.28E-16	-1.48E-13	3.61E-13
65	0	-1.73E-16	1.01E-12	-2.18E-13	-3.37E-17	3.12E-14	-1.69E-13
65	0.500	-1.73E-16	1.01E-12	-2.18E-13	-3.37E-17	-7.80E-14	3.37E-13
66	0	-0.061076	0.167485	0.464337	-14.556	0.222053	-0.340636
66	2.500	-0.061076	0.167485	0.464337	-14.556	1.383	0.078076
67	0	-0.109757	-0.361775	0.636078	-15.370	1.581	0.495166
67	2.500	-0.109757	-0.361775	0.636078	-15.370	3.171	-0.409266
68	0	-0.056814	-0.391699	0.653465	-15.476	3.246	0.517160
68	2.500	-0.056814	-0.391699	0.653465	-15.476	4.862	-0.462067
69	0	0.012406	-0.359386	0.654630	-15.463	4.920	0.450875
69	2.500	0.012406	-0.359386	0.654630	-15.463	6.556	-0.447590
70	0	0.103522	-0.465703	0.654287	-15.313	6.600	0.571743
70	2.500	0.103522	-0.465703	0.654287	-15.313	8.236	-0.592514
71	0	0.231220	-0.815202	0.656012	-14.908	8.340	0.972724
71	2.500	0.231220	-0.815202	0.656012	-14.908	9.960	-1.065
72	0	0.213166	-1.540	0.643611	-13.993	10.261	1.746
72	2.500	0.213166	-1.540	0.643611	-13.993	11.690	-2.104
73	0	-0.452666	-2.168	0.424665	-11.941	10.756	2.314
73	2.500	-0.452666	-2.168	0.424665	-11.941	13.610	-3.106
74	0	-1.285	-0.925252	-2.613	-7.238	15.570	0.717815
74	2.500	-1.285	-0.925252	-2.613	-7.238	9.439	-1.595
75	0	-0.120548	1.315	-11.764	-1.215	12.321	-2.025
75	2.500	-0.120548	1.315	-11.764	-1.215	-17.079	1.263
76	0	1.154	1.561	3.967	2.934	-17.359	-3.300
76	3.600	1.154	1.561	3.967	2.934	-3.078	2.517
77	0	0.064792	0.760175	0.109467	4.750	-6.057	-1.455
77	3.600	0.064792	0.760175	0.109467	4.750	-5.663	1.278
78	0	-0.220949	0.403061	0.245188	5.360	-6.166	-0.745312
78	3.600	-0.220949	0.403061	0.245188	5.360	-5.287	0.761709
79	0	-0.079281	0.265513	0.297980	5.562	-5.392	-0.518705
79	3.600	-0.079281	0.265513	0.297980	5.562	-4.319	0.508142
80	0	-0.008645	0.247376	0.317667	5.628	-4.332	-0.445534
80	3.600	-0.008645	0.247376	0.317667	5.628	-2.189	0.445019
81	0	0.002987	0.235396	0.320356	5.649	-3.190	-0.422217
81	3.600	0.002987	0.235396	0.320356	5.649	-2.037	0.425217

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
82	0	0.005267	0.233432	0.319531	5.652	-2.038	-0.417975
82	3.600	0.005267	0.233432	0.319531	5.652	-0.887582	0.422378
83	0	0.013412	0.239112	0.316758	5.643	-0.892501	-0.427124
83	3.600	0.013412	0.239112	0.316758	5.643	0.247830	0.423675
84	0	0.009681	0.260101	0.308658	5.609	0.224419	-0.460561
84	3.600	0.009681	0.260101	0.308658	5.609	1.336	0.475804
85	0	-0.027788	0.292632	0.507529	5.491	1.189	-0.504755
85	3.600	-0.027788	0.292632	0.507529	5.491	3.016	0.546720
86	0	-0.032076	0.033040	-0.377726	5.218	3.046	-0.026601
86	2.500	-0.032076	0.033040	-0.377726	5.218	2.104	0.054000
87	0	-0.004846	0.013477	-0.123964	5.104	2.270	-0.008490
87	2.500	-0.004846	0.013477	-0.123964	5.104	1.960	0.025203
88	0	0.015894	0.026375	-0.103682	5.065	2.020	-0.028302
88	2.500	0.015894	0.026375	-0.103682	5.065	1.761	0.037626
89	0	0.014556	0.043020	-0.100806	5.047	1.784	-0.052107
89	2.500	0.014558	0.043020	-0.100806	5.047	1.532	0.055444
90	0	0.006836	0.052572	-0.101896	5.036	1.539	-0.064777
90	2.500	0.006836	0.052572	-0.101896	5.036	1.284	0.066653
91	0	0.001329	0.060910	-0.102733	5.026	1.286	-0.075276
91	2.500	0.001329	0.060910	-0.102733	5.026	1.029	0.077000
92	0	-0.003066	0.076839	-0.103002	5.011	1.026	-0.093631
92	2.500	-0.003066	0.076839	-0.103002	5.011	0.770965	0.096267
93	0	-0.009995	0.108289	-0.102830	4.987	0.767145	-0.125739
93	2.500	-0.009995	0.108289	-0.102830	4.987	0.510075	0.144984
94	0	-0.017294	0.107715	-0.100097	4.941	0.456656	-0.120601
94	2.500	-0.017294	0.107715	-0.100097	4.941	0.248413	0.148686
95	0	-0.009559	-0.058298	-0.073059	4.675	0.217517	0.030640
95	2.500	-0.009559	-0.058298	-0.073059	4.675	0.034869	-0.115105
96	0	9.78E-16	-4.11E-13	9.17E-14	3.21E-15	-8.80E-14	1.08E-13
96	0.500	9.78E-16	-4.11E-13	9.17E-14	3.21E-15	-4.21E-14	-9.74E-14
97	0	2.77E-15	-4.06E-13	5.66E-15	1.02E-16	-2.48E-15	1.52E-13
97	0.500	2.77E-15	-4.06E-13	5.66E-15	1.02E-16	3.54E-16	-5.05E-14
98	0	-0.707412	-0.392194	-0.724428	-14.167	2.771	0.485361
98	2.500	-0.707412	-0.392194	-0.724428	-14.167	0.959762	-0.495125

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SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
99	0	0.096682	-0.935080	-0.199365	-15.157	2.950	1.263
99	2.500	0.096682	-0.935080	-0.199365	-15.157	2.451	-1.074
100	0	0.082669	-0.858183	-0.049715	-15.394	4.206	1.093
100	2.500	0.082669	-0.858183	-0.049715	-15.394	4.082	-1.052
101	0	-0.014394	-0.833631	-0.056948	-15.416	5.730	1.039
101	2.500	-0.014394	-0.833631	-0.056948	-15.416	5.587	-1.049
102	0	-0.111131	-0.933916	-0.108030	-15.236	7.231	1.141
102	2.500	-0.111131	-0.933916	-0.108030	-15.236	6.961	-1.194
103	0	-0.323969	-1.186	-0.230303	-14.717	8.651	1.412
103	2.500	-0.323969	-1.186	-0.230303	-14.717	8.075	-1.554
104	0	-0.911308	-1.564	-0.505005	-13.474	9.904	1.809
104	2.500	-0.911308	-1.564	-0.505005	-13.474	8.641	-2.101
105	0	-2.004	-1.758	-1.361	-10.686	10.825	1.967
105	2.500	-2.004	-1.758	-1.361	-10.686	7.424	-2.428
106	0	-2.665	-1.119	-3.732	-5.507	9.873	1.048
106	2.500	-2.665	-1.119	-3.732	-5.507	0.542284	-1.748
107	0	-1.804	0.339345	-7.040	0.046297	1.774	-0.857047
107	2.500	-1.804	0.339345	-7.040	0.046297	-15.824	-0.008685
108	0	-0.608498	1.510	2.710	0.742658	-16.703	-3.109
108	3.600	-0.608498	1.510	2.710	0.742658	-6.949	2.326
109	0	-0.521809	0.950861	0.839350	3.707	-8.940	-1.788
109	3.600	-0.521809	0.950861	0.839350	3.707	-5.919	1.635
110	0	-0.281756	0.480350	0.545985	5.127	-7.104	-0.839742
110	3.600	-0.281756	0.480350	0.545985	5.127	-5.139	0.889519
111	0	-0.076156	0.393025	0.540770	5.518	-5.947	-0.695584
111	3.600	-0.076156	0.393025	0.540770	5.518	-4.000	0.719306
112	0	-0.006363	0.368547	0.534849	5.621	-4.756	-0.697215
112	3.600	-0.006363	0.368547	0.534849	5.621	-2.830	0.701555
113	0	0.008796	0.386455	0.531378	5.647	-3.579	-0.694464
113	3.600	0.008796	0.386455	0.531378	5.647	-1.666	0.696779
114	0	0.013976	0.384259	0.529861	5.650	-2.413	-0.690522
114	3.600	0.013976	0.384259	0.529861	5.650	-0.505740	0.692809
115	0	0.025662	0.387076	0.529783	5.632	-1.259	-0.696460
115	3.600	0.025662	0.387076	0.529783	5.632	0.651990	0.697015
116	0	0.046263	0.409850	0.541958	5.558	-0.114353	-0.734152

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SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
116	3.600	0.046263	0.409850	0.541958	5.558	1.837	0.741310
117	0	0.069049	0.440058	0.669952	5.404	1.022	-0.769961
117	3.600	0.069049	0.440058	0.669952	5.404	3.434	0.814249
118	0	-0.022065	0.224212	-0.077666	5.306	2.826	-0.283584
118	2.500	-0.022065	0.224212	-0.077666	5.306	2.632	0.276947
119	0	0.044761	0.159053	0.046734	5.184	2.173	-0.186899
119	2.500	0.044761	0.159053	0.046734	5.184	2.290	0.210733
120	0	0.039898	0.190168	0.093041	5.099	1.822	-0.238103
120	2.500	0.039898	0.190168	0.093041	5.099	2.054	0.237318
121	0	0.022415	0.209044	0.100010	5.059	1.556	-0.252942
121	2.500	0.022415	0.209044	0.100010	5.059	1.806	0.259667
122	0	0.012589	0.214922	0.102559	5.039	1.298	-0.268948
122	2.500	0.012589	0.214922	0.102559	5.039	1.554	0.268359
123	0	0.010835	0.219324	0.105036	5.025	1.041	-0.273565
123	2.500	0.010835	0.219324	0.105036	5.025	1.304	0.274745
124	0	0.018610	0.230149	0.108613	5.007	0.789282	-0.286325
124	2.500	0.018610	0.230149	0.108613	5.007	1.061	0.289047
125	0	0.042243	0.256119	0.114553	4.970	0.539862	-0.314886
125	2.500	0.042243	0.256119	0.114553	4.970	0.826245	0.325411
126	0	0.047092	0.291985	0.163995	4.890	0.272808	-0.338096
126	2.500	0.047092	0.291985	0.163995	4.890	0.682795	0.391867
127	0	-0.220163	0.134439	0.322732	4.581	0.063512	-0.171781
127	2.500	-0.220163	0.134439	0.322732	4.581	0.870342	0.164317
128	0	6.09E-16	-6.76E-13	-5.46E-14	6.20E-16	2.27E-14	1.95E-13
128	0.500	6.09E-16	-6.76E-13	-5.46E-14	6.20E-16	-4.59E-15	-1.43E-13
129	0	1.91E-15	-2.84E-12	8.78E-12	1.06E-16	-3.20E-12	-1.09E-12
129	0.500	1.91E-15	-2.84E-12	8.78E-12	1.06E-16	1.19E-12	-2.51E-12
130	0	1.312	1.075	-6.855	-13.078	12.740	-7.293
130	2.500	1.312	1.075	-6.855	-13.078	-4.398	-4.606
131	0	0.552060	1.470	-6.185	-14.873	12.014	-10.289
131	2.500	0.552060	1.470	-6.185	-14.873	-3.448	-6.619
132	0	0.176039	1.376	-6.119	-15.305	13.374	-12.999
132	2.500	0.176039	1.376	-6.119	-15.305	-1.923	-9.559
133	0	-0.067745	1.337	-6.113	-15.366	15.032	-16.180
133	2.500	-0.067745	1.337	-6.113	-15.366	-0.250886	-12.839

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SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
134	0	-0.378461	1.475	-6.170	-15.161	16.640	-19.382
134	2.500	-0.378461	1.475	-6.170	-15.161	1.214	-15.695
135	0	-0.931642	1.947	-6.312	-14.553	17.788	-21.905
135	2.500	-0.931642	1.947	-6.312	-14.553	2.008	-17.037
136	0	-1.861	3.162	-6.576	-13.100	17.728	-22.571
136	2.500	-1.861	3.162	-6.576	-13.100	1.289	-14.667
137	0	-3.144	5.495	-6.905	-10.025	14.944	-18.936
137	2.500	-3.144	5.495	-6.905	-10.025	-2.318	-5.197
138	0	-4.568	7.991	-6.658	-5.015	6.982	-7.237
138	2.500	-4.568	7.991	-6.658	-5.015	-9.662	12.729
139	0	-5.598	7.573	-4.310	-0.529035	-6.900	13.161
139	2.500	-5.598	7.573	-4.310	-0.529035	-17.675	32.113
140	0	-3.724	0.480135	1.204	0.504280	-18.653	30.451
140	3.600	-3.724	0.480135	1.204	0.504280	-14.319	32.180
141	0	-0.770399	-2.492	2.591	3.286	-17.239	29.437
141	3.600	-0.770399	-2.492	2.591	3.286	-7.907	20.464
142	0	0.016373	-2.356	2.267	4.980	-13.070	22.139
142	3.600	0.016373	-2.356	2.267	4.980	-4.908	13.656
143	0	0.026345	-2.017	2.143	5.483	-10.650	17.021
143	3.600	0.026345	-2.017	2.143	5.483	-2.936	9.761
144	0	0.012829	-1.883	2.111	5.613	-8.869	13.347
144	3.600	0.012829	-1.883	2.111	5.613	-1.271	6.567
145	0	0.020404	-1.850	2.101	5.645	-7.264	10.166
145	3.600	0.020404	-1.850	2.101	5.645	0.300950	3.505
146	0	0.025065	-1.850	2.100	5.648	-5.706	7.112
146	3.600	0.025065	-1.850	2.100	5.648	1.854	0.450070
147	0	0.024802	-1.869	2.106	5.624	-4.146	4.053
147	3.600	0.024802	-1.869	2.106	5.624	3.434	-2.675
148	0	0.055434	-1.887	2.125	5.537	-2.536	0.649005
148	3.600	0.055434	-1.887	2.125	5.537	5.113	-5.945
149	0	0.183562	-1.734	2.049	5.405	-0.736815	-2.659
149	3.600	0.183562	-1.734	2.049	5.405	6.639	-8.900
150	0	0.215872	-0.866468	2.147	5.291	0.894192	-5.736
150	2.500	0.215872	-0.866468	2.147	5.291	6.262	-7.902

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SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
151	0	0.087392	-0.605751	2.071	5.210	0.535689	-5.403
151	2.500	0.087392	-0.605751	2.071	5.210	5.714	-6.917
152	0	0.023310	-0.574698	2.064	5.117	0.090746	-4.558
152	2.500	0.023310	-0.574698	2.064	5.117	5.252	-5.994
153	0	0.010493	-0.595899	2.069	5.066	-0.313978	-3.727
153	2.500	0.010493	-0.595899	2.069	5.066	4.857	-5.217
154	0	0.013094	-0.616393	2.072	5.041	-0.679673	-2.981
154	2.500	0.013094	-0.616393	2.072	5.041	4.500	-4.522
155	0	0.019788	-0.632795	2.075	5.024	-1.021	-2.298
155	2.500	0.019788	-0.632795	2.075	5.024	4.168	-3.880
156	0	0.034090	-0.654693	2.081	5.001	-1.337	-1.668
156	2.500	0.034090	-0.654693	2.081	5.001	3.867	-3.304
157	0	0.069575	-0.697780	2.095	4.948	-1.612	-1.124
157	2.500	0.069575	-0.697780	2.095	4.948	3.625	-2.869
158	0	0.165409	-0.743696	2.124	4.806	-1.798	-0.786459
158	2.500	0.165409	-0.743696	2.124	4.806	3.511	-2.648
159	0	0.412540	-0.604825	2.373	4.242	-1.799	-0.824342
159	2.500	0.412540	-0.604825	2.373	4.242	4.132	-2.336
160	0	1.23E-15	-5.98E-13	-3.94E-13	3.32E-16	4.50E-13	4.43E-13
160	0.500	1.23E-15	-5.98E-13	-3.94E-13	3.32E-16	2.53E-13	1.43E-13
166	0	-1.655	-1.178	12.206	14.724	-13.575	3.213
166	1.600	-1.655	-1.178	12.206	14.724	5.959	1.328
167	0	-1.114	-0.542109	10.356	17.262	-6.591	0.682563
167	1.650	-1.114	-0.542109	10.356	17.262	8.496	-0.211917
168	0	-1.281	-0.603186	9.891	17.040	-6.060	0.126720
168	1.650	-1.281	-0.603186	9.891	17.040	10.261	-0.866536
169	0	-0.889152	-1.311	10.616	14.269	-3.907	-1.352
169	1.600	-0.889152	-1.311	10.616	14.269	13.078	-3.449
170	0	-0.881075	0.877442	0.845764	17.774	-1.576	0.643205
170	1.600	-0.881075	0.877442	0.845764	17.774	-0.223232	2.047
171	0	-0.505673	0.004592	1.231	19.533	-1.034	0.145513
171	1.650	-0.505673	0.004592	1.231	19.533	0.996766	0.153090
172	0	0.023387	-0.044089	1.059	19.336	0.183317	-0.264003
172	1.650	0.023387	-0.044089	1.059	19.336	1.931	-0.336750
173	0	0.566273	0.760005	0.533876	17.346	0.940441	-2.095

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SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
173	1.600	0.566273	0.760005	0.533876	17.346	1.795	-0.879132
174	0	0.095296	0.239474	0.135742	18.115	-0.281032	1.556
174	1.600	0.095296	0.239474	0.135742	18.115	-0.063845	1.942
175	0	-0.024703	0.337090	0.256464	19.768	-0.185262	-0.144095
175	1.650	-0.024703	0.337090	0.256464	19.768	0.237903	0.412103
176	0	0.005220	0.390033	0.239076	19.690	0.131590	-0.514326
176	1.650	0.005220	0.390033	0.239076	19.690	0.526066	0.129229
177	0	-0.071678	0.376020	0.089426	17.935	0.289384	-2.036
177	1.600	-0.071678	0.376020	0.089426	17.935	0.432466	-1.437
178	0	0.047050	0.108136	0.024259	18.224	-0.029304	1.763
178	1.600	0.047050	0.108136	0.024259	18.224	0.009510	1.936
179	0	0.020676	0.271627	0.010295	19.814	0.010660	-0.024089
179	1.650	0.020676	0.271627	0.010295	19.814	0.027846	0.424095
180	0	-0.011637	0.340847	0.009130	19.777	0.040566	-0.488867
180	1.650	-0.011637	0.340847	0.009130	19.777	0.055631	0.073531
181	0	-0.036188	0.243784	0.016364	18.129	0.034077	-2.016
181	1.600	-0.036188	0.243784	0.016364	18.129	0.060259	-1.626
182	0	-0.151034	0.134523	-0.102492	18.158	0.126161	1.742
182	1.600	-0.151034	0.134523	-0.102492	18.158	-0.037826	1.957
183	0	-0.089752	0.316338	-0.144923	19.734	0.092927	-0.056870
183	1.650	-0.089752	0.316338	-0.144923	19.734	-0.146196	0.465087
184	0	0.016565	0.407453	-0.144580	19.690	0.004267	-0.554247
184	1.650	0.016565	0.407453	-0.144580	19.690	-0.234291	0.118051
185	0	0.116849	0.310716	-0.093499	18.046	-0.054819	-2.069
185	1.600	0.116849	0.310716	-0.093499	18.046	-0.204418	-1.571
186	0	-0.423995	0.276109	-0.291055	17.907	0.314824	1.579
186	1.600	-0.423995	0.276109	-0.291055	17.907	-0.150665	2.021
187	0	-0.187869	0.638322	-0.388168	19.442	0.179978	-0.371057
187	1.650	-0.187869	0.638322	-0.388168	19.442	-0.460498	0.662174
188	0	0.161631	0.766019	-0.389893	19.338	-0.056011	-0.883063
188	1.650	0.161631	0.766019	-0.389893	19.338	-0.699333	0.380869
189	0	0.414165	0.553182	-0.267619	17.648	-0.180591	-2.224
189	1.600	0.414165	0.553182	-0.267619	17.648	-0.608782	-1.339
190	0	-0.746145	0.824020	-0.655837	17.354	0.587773	0.928028
190	1.600	-0.746145	0.824020	-0.655837	17.354	-0.461567	2.246

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SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
191	0	-0.009571	1.535	-0.879398	18.769	0.218893	-1.276
191	1.650	-0.009571	1.535	-0.879398	18.769	-1.232	1.256
192	0	0.715243	1.517	-0.866997	18.468	-0.317143	-1.555
192	1.650	0.715243	1.517	-0.866997	18.468	-1.748	0.947566
193	0	1.093	0.929348	-0.592295	16.640	-0.504560	-2.416
193	1.600	1.093	0.929348	-0.592295	16.640	-1.452	-0.928966
194	0	0.064698	2.691	-1.548	16.289	0.954329	-1.517
194	1.600	0.064698	2.691	-1.548	16.289	-1.522	2.789
195	0	1.327	3.081	-2.041	17.349	0.006511	-2.859
195	1.650	1.327	3.061	-2.041	17.349	-3.362	2.225
196	0	1.955	2.375	-1.823	16.488	-1.310	-2.193
196	1.650	1.955	2.375	-1.823	16.488	-4.317	1.726
197	0	2.149	1.283	-0.966784	14.304	-1.529	-2.343
197	1.600	2.149	1.283	-0.966784	14.304	-3.076	-0.290106
198	0	6.226	4.014	-1.444	13.432	-1.507	-3.942
198	1.600	6.226	4.014	-1.444	13.432	-3.817	2.461
199	0	4.347	2.877	-5.868	14.108	0.194561	-2.531
199	1.650	4.347	2.877	-5.866	14.108	-9.468	2.216
200	0	3.104	2.085	-2.831	11.949	-4.784	-1.607
200	1.650	3.104	2.085	-2.831	11.949	-9.455	1.633
201	0	2.465	1.424	-0.459056	9.499	-4.275	-1.643
201	1.600	2.465	1.424	-0.459056	9.499	-5.010	0.635615
202	0	7.485	-2.421	-3.327	7.379	-2.206	4.082
202	1.600	7.485	-2.421	-3.327	7.379	-7.529	0.208257
203	0	3.952	-0.994752	-10.087	6.653	-1.666	1.371
203	1.650	3.952	-0.994752	-10.087	6.653	-18.310	-0.270142
204	0	1.712	0.169013	-0.936170	3.762	-12.288	0.159156
204	1.650	1.712	0.169013	-0.936170	3.762	-13.832	0.438028
205	0	0.253730	1.030	2.371	2.529	-8.279	-0.453259
205	1.600	0.253730	1.030	2.371	2.529	-4.486	1.195
206	0	-4.812	-4.518	-10.726	-0.940033	4.832	8.213
206	1.600	-4.812	-4.518	-10.728	-0.940033	-12.332	0.984469
207	0	-3.830	-4.344	-24.938	-1.633	-4.456	5.895
207	1.650	-3.830	-4.344	-24.938	-1.633	-45.609	-1.273

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SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
208	0	-4.102	-3.069	17.023	-1.354	-41.459	3.092
208	1.650	-4.102	-3.069	17.023	-1.354	-13.368	-1.971
209	0	-5.273	-1.873	7.274	-0.474887	-12.671	1.129
209	1.600	-5.273	-1.873	7.274	-0.474887	-1.033	-1.868
210	0	-4.592	-0.277404	-4.583	-7.488	0.945629	-1.675
210	1.600	-4.592	-0.277404	-4.583	-7.488	-6.387	-2.119
211	0	-3.827	-1.951	-3.566	-7.005	-5.616	1.426
211	1.650	-3.827	-1.951	-3.566	-7.005	-11.500	-1.793
212	0	-3.026	-3.041	0.291156	-4.026	-9.685	2.182
212	1.650	-3.026	-3.041	0.291156	-4.026	-9.204	-2.835
213	0	-2.466	-2.954	2.161	-2.035	-6.240	1.279
213	1.600	-2.468	-2.954	2.161	-2.035	-2.781	-3.448
214	0	-0.843305	-0.288927	-0.486536	-6.775	-0.338659	-1.778
214	1.600	-0.843305	-0.288927	-0.486536	-6.775	-1.117	-2.241
215	0	-0.787203	-0.741085	-0.506537	-7.117	-1.271	-0.157959
215	1.650	-0.787203	-0.741085	-0.506537	-7.117	-2.108	-1.381
216	0	-0.430089	-1.027	-0.642257	-6.611	-1.496	0.646434
216	1.650	-0.430089	-1.027	-0.642257	-6.611	-2.556	-1.048
217	0	0.040421	-0.786772	-0.348892	-5.426	-1.138	1.427
217	1.600	0.040421	-0.786772	-0.348892	-5.426	-1.694	0.188132
218	0	-0.000156	-0.350637	-0.067835	-6.666	-0.040227	-1.419
218	1.600	-0.000156	-0.350637	-0.067835	-6.666	-0.148764	-1.960
219	0	0.086567	-0.357240	-0.166796	-7.365	-0.116138	-0.216181
219	1.650	0.086567	-0.357240	-0.166796	-7.365	-0.391352	-0.805628
220	0	0.204115	-0.215572	-0.219569	-7.260	-0.189511	0.415786
220	1.650	0.204115	-0.215572	-0.219569	-7.260	-0.551834	0.060092
221	0	0.291440	-0.009972	-0.214374	-6.452	-0.160690	1.645
221	1.600	0.291440	-0.009972	-0.214374	-6.452	-0.503689	1.629
222	0	0.023805	-0.129597	-0.025236	-6.725	0.024387	-1.624
222	1.600	0.023805	-0.129597	-0.025236	-6.725	-0.015991	-1.832
223	0	0.076503	-0.126912	-0.054208	-7.467	0.021400	-0.300971
223	1.650	0.076503	-0.126912	-0.054208	-7.467	-0.068042	-0.510375
224	0	0.114640	-0.056276	-0.073896	-7.454	-0.001621	0.442302
224	1.650	0.114640	-0.056276	-0.073896	-7.454	-0.123549	0.350446
225	0	0.119118	0.013516	-0.067975	-6.698	-0.020961	1.767

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SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
225	1.600	0.119118	0.013516	-0.067975	-6.698	-0.129731	1.789
226	0	-0.000822	-0.027946	-0.011344	-6.763	0.016525	-1.749
226	1.600	-0.000822	-0.027946	-0.011344	-6.763	-0.001625	-1.794
227	0	0.015080	-0.034367	-0.018791	-7.510	0.015995	-0.373032
227	1.650	0.015080	-0.034367	-0.018791	-7.510	-0.015008	-0.429737
228	0	0.027057	-0.022735	-0.021479	-7.508	0.005830	0.437499
228	1.650	0.027057	-0.022735	-0.021479	-7.508	-0.029611	0.399967
229	0	0.029149	-0.007575	-0.018008	-6.760	-0.003230	1.796
229	1.600	0.029149	-0.007575	-0.018008	-6.760	-0.032044	1.784
230	0	-0.005492	-0.008385	-0.003435	-6.776	0.005401	-1.779
230	1.600	-0.005492	-0.008385	-0.003435	-6.776	-9.47E-05	-1.793
231	0	-0.004723	-0.012121	-0.003726	-7.523	0.004487	-0.399432
231	1.650	-0.004723	-0.012121	-0.003726	-7.523	-0.001661	-0.419432
232	0	-0.002757	-0.009841	-0.002901	-7.522	0.001754	0.423764
232	1.650	-0.002757	-0.009841	-0.002901	-7.522	-0.003032	0.407528
233	0	-0.000560	-0.004661	-0.001384	-6.774	-0.000389	1.795
233	1.600	-0.000560	-0.004661	-0.001384	-6.774	-0.002604	1.787
234	0	-0.002527	-0.018434	0.002427	-6.777	0.001927	-1.773
234	1.600	-0.002527	-0.018434	0.002427	-6.777	0.005810	-1.802
235	0	-0.007943	-0.019568	0.007688	-7.521	0.004296	-0.401666
235	1.650	-0.007943	-0.019568	0.007688	-7.521	0.016981	-0.433950
236	0	-0.013623	-0.011423	0.010460	-7.517	0.007478	0.415552
236	1.650	-0.013623	-0.011423	0.010460	-7.517	0.024738	0.396703
237	0	-0.016441	0.000263	0.010538	-6.767	0.006503	1.766
237	1.600	-0.016441	0.000263	0.010538	-6.767	0.023364	1.786
238	0	0.039863	-0.026971	0.027779	-6.779	0.008119	-1.777
238	1.600	0.039863	-0.026971	0.027779	-6.779	0.052565	-1.820
239	0	0.031619	-0.047502	0.027440	-7.506	0.054091	-0.394489
239	1.650	0.031619	-0.047502	0.027440	-7.506	0.059367	-0.472868
240	0	0.010630	-0.051233	0.035541	-7.482	0.065654	0.421371
240	1.650	0.010630	-0.051233	0.035541	-7.482	0.124297	0.336837
241	0	-0.012145	-0.030631	0.023365	-6.716	0.050327	1.768
241	1.600	-0.012145	-0.030631	0.023365	-6.716	0.087712	1.719
242	0	0.220706	-0.039971	0.218291	-6.790	-0.069423	-1.754
242	1.600	0.220706	-0.039971	0.218291	-6.790	0.279843	-1.817

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
243	0	0.189232	-0.113465	0.211398	-7.495	0.219216	-0.326136
243	1.650	0.189232	-0.113465	0.211398	-7.495	0.568022	-0.513355
244	0	0.156702	-0.150934	0.012527	-7.349	0.450012	0.467204
244	1.650	0.156702	-0.150934	0.012527	-7.349	0.470662	0.218163
245	0	0.126494	-0.128148	-0.115467	-6.534	0.316340	1.729
245	1.600	0.126494	-0.128148	-0.115467	-6.534	0.131593	1.524
246	0	0.178652	-0.013902	0.764592	-6.369	-0.485226	-1.459
246	1.600	0.178652	-0.013902	0.764592	-6.369	0.736120	-1.481
247	0	0.380565	0.063445	1.181	-6.976	0.250792	-0.389583
247	1.650	0.380565	0.063445	1.181	-6.976	2.199	-0.284895
248	0	0.644255	0.058824	-0.895413	-7.008	1.926	0.292422
248	1.650	0.644255	0.058824	-0.895413	-7.008	0.448169	0.389481
249	0	0.860101	-0.032290	-0.147795	-6.400	0.350242	1.487
249	1.600	0.860101	-0.032290	-0.147795	-6.400	0.113769	1.436
250	0	0.101225	0.051885	0.223945	-5.921	-0.086539	-0.670679
250	1.600	0.101225	0.051885	0.223945	-5.921	0.271773	-0.587663
251	0	0.144489	0.034423	0.232611	-6.488	0.199654	-0.086456
251	1.650	0.144489	0.034423	0.232611	-6.488	0.583502	-0.031661
252	0	0.164052	0.061654	-0.021151	-6.654	0.469882	0.030829
252	1.650	0.164052	0.061654	-0.021151	-6.654	0.434963	0.132557
253	0	0.229211	0.128480	-0.145551	-6.196	0.313676	0.596404
253	1.600	0.229211	0.128480	-0.145551	-6.196	0.080995	0.801971
254	0	0.079260	0.015165	0.062435	-5.916	0.003908	-0.611115
254	1.600	0.079260	0.019165	0.062435	-5.916	0.103804	-0.580450
255	0	0.071921	0.046206	0.051344	-6.466	0.106500	-0.100773
255	1.650	0.071921	0.046206	0.051344	-6.466	0.191216	-0.021232
256	0	0.059023	0.068945	0.031061	-6.527	0.152066	0.032273
256	1.650	0.059023	0.068945	0.031061	-6.527	0.203317	0.146033
257	0	0.027908	0.064081	-0.015246	-6.058	0.117849	0.594866
257	1.600	0.027908	0.064081	-0.015246	-6.058	0.093555	0.657398
258	0	0.022596	0.021673	0.017570	-5.925	0.005227	-0.617621
258	1.600	0.022596	0.021673	0.017570	-5.925	0.033428	-0.582944
259	0	0.016344	0.031636	0.019826	-6.452	0.033372	-0.088387
259	1.650	0.016344	0.031636	0.019826	-6.452	0.066068	-0.036187

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
260	0	-0.000302	0.030300	0.016952	-6.475	0.047563	0.053556
260	1.650	-0.000302	0.030300	0.016952	-6.475	0.075535	0.103552
261	0	-0.019177	0.012817	0.009984	-5.977	0.035052	0.603812
261	1.600	-0.019177	0.012817	0.009984	-5.977	0.051027	0.624320
262	0	0.004190	0.015434	0.006727	-5.924	-0.001388	-0.616062
262	1.600	0.004190	0.015434	0.006727	-5.924	0.009376	-0.591368
263	0	-0.003343	0.014946	0.010298	-6.442	0.005451	-0.079214
263	1.650	-0.003343	0.014946	0.010298	-6.442	0.022443	-0.054553
264	0	-0.012895	0.007225	0.011388	-6.450	0.011364	0.065668
264	1.650	-0.012895	0.007225	0.011388	-6.450	0.030155	0.077588
265	0	-0.018774	-0.002601	0.008838	-5.941	0.010570	0.606202
265	1.600	-0.018774	-0.002601	0.008838	-5.941	0.024711	0.602041
266	0	0.005493	0.004401	0.006142	-5.918	-0.007334	-0.607055
266	1.600	0.005493	0.004401	0.006142	-5.918	0.002493	-0.600014
267	0	-0.002026	0.000567	0.009607	-6.433	-0.005211	-0.069744
267	1.650	-0.002026	0.000567	0.009607	-6.433	0.010640	-0.068808
268	0	-0.010364	-0.004540	0.010444	-6.434	0.000544	0.073121
268	1.650	-0.010364	-0.004940	0.010444	-6.434	0.017776	0.064970
269	0	-0.014765	-0.006694	0.007967	-5.922	0.004011	0.606894
269	1.600	-0.014765	-0.006694	0.007967	-5.922	0.016758	0.596184
270	0	0.017626	-0.006159	0.011664	-5.905	-0.016854	-0.597173
270	1.600	0.017626	-0.006159	0.011664	-5.905	0.001807	-0.607026
271	0	0.007415	-0.017683	0.015235	-6.419	-0.012677	-0.054965
271	1.650	0.007415	-0.017683	0.015235	-6.419	0.012261	-0.064142
272	0	-0.008514	-0.022078	0.015504	-6.418	-0.002641	0.086686
272	1.650	-0.008514	-0.022078	0.015504	-6.418	0.022941	0.050261
273	0	-0.019339	-0.014303	0.011927	-5.903	0.004177	0.611331
273	1.600	-0.019339	-0.014303	0.011927	-5.903	0.023260	0.588446
274	0	0.042107	-0.021528	0.026638	-5.879	-0.041618	-0.579076
274	1.600	0.042107	-0.021528	0.026638	-5.879	0.001002	-0.613522
275	0	0.019769	-0.052188	0.030957	-6.394	-0.028123	-0.022443
275	1.650	0.019769	-0.052188	0.030957	-6.394	0.022956	-0.108554
276	0	-0.011680	-0.059117	0.030784	-6.390	-0.001003	0.115451
276	1.650	-0.011680	-0.059117	0.030784	-6.390	0.049791	0.017908
277	0	-0.037651	-0.035484	0.024844	-5.869	0.013089	0.621841

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
277	1.600	-0.037651	-0.035484	0.024844	-5.869	0.052840	0.565066
278	0	0.040536	-0.076094	0.048250	-5.815	-0.115901	-0.501845
278	1.600	0.040536	-0.076094	0.048250	-5.815	-0.036702	-0.623595
279	0	-0.000667	-0.093384	0.092977	-6.353	-0.099283	0.029105
279	1.650	-0.000667	-0.093384	0.092977	-6.353	0.054118	-0.124978
280	0	-9.29E-05	-0.100683	0.090244	-6.342	0.007915	0.140608
280	1.650	-9.29E-05	-0.100683	0.090244	-6.342	0.156818	-0.025520
281	0	-0.035960	-0.095835	0.040803	-5.788	0.076661	0.637987
281	1.600	-0.035960	-0.095835	0.040803	-5.788	0.141965	0.484652
282	0	-0.252284	-0.265628	0.249200	-5.675	-0.529393	-0.231950
282	1.600	-0.252284	-0.265628	0.249200	-5.675	-0.130672	-0.656994
283	0	-0.120822	0.012389	0.385840	-6.255	-0.410288	-0.070660
283	1.650	-0.120822	0.012389	0.385840	-6.255	0.226347	-0.050198
284	0	0.045191	0.020124	0.356801	-6.228	-0.035218	0.067645
284	1.650	0.045191	0.020124	0.356801	-6.228	0.552604	0.101054
285	0	0.202737	-0.247131	0.200064	-5.609	0.244434	0.664706
285	1.600	0.202737	-0.247131	0.200064	-5.609	0.564536	0.265293
286	0	-0.317438	0.351753	3.789	-4.691	-4.319	-1.054
286	1.600	-0.317438	0.351753	3.789	-4.691	1.743	-0.426888
287	0	-0.159714	0.182804	3.289	-5.525	-2.898	-0.237445
287	1.650	-0.159714	0.182804	3.289	-5.525	2.529	0.064177
288	0	-0.218012	0.192363	3.216	-5.490	-2.145	-0.050527
288	1.650	-0.218012	0.192363	3.216	-5.490	3.161	0.266472
289	0	-0.083573	0.412526	3.539	-4.620	-1.420	0.430788
289	1.600	-0.083573	0.412526	3.539	-4.620	4.242	1.091
	min:	-5.598	-14.440	-24.938	-15.478	-45.605	-22.571
	max:	7.986	7.991	17.023	19.814	37.462	58.430

Loadcase	Factor	Stage	Init.def	Title
14	1.0000			VEHICULO HIPOTESIS 14

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	6.61E-15	1.08E-11	-2.48E-12	7.56E-16	4.64E-13	-1.16E-12
1	0.500	6.61E-15	1.08E-11	-2.48E-12	7.56E-16	-7.73E-13	4.23E-12
2	0	-1.186	1.345	6.481	-11.966	-11.655	-6.634
2	2.500	-1.186	1.345	6.481	-11.966	4.547	-3.271
3	0	-0.498356	1.716	5.821	-13.589	-10.451	-8.451
3	2.500	-0.498356	1.716	5.821	-13.589	4.102	-4.157
4	0	-0.206193	1.597	5.745	-14.005	-11.251	-10.030
4	2.500	-0.206193	1.597	5.745	-14.005	3.112	-6.036
5	0	-0.077955	1.484	5.715	-14.152	-12.404	-12.179
5	2.500	-0.077955	1.484	5.715	-14.152	1.883	-8.470
6	0	0.030170	1.422	5.713	-14.207	-13.706	-14.662
6	2.500	0.030170	1.422	5.713	-14.207	0.579311	-11.108
7	0	0.204958	1.376	5.739	-14.247	-15.051	-17.253
7	2.500	0.204958	1.376	5.739	-14.247	-0.702808	-13.813
8	0	0.483601	1.408	5.809	-14.345	-16.383	-19.994
8	2.500	0.483601	1.408	5.809	-14.345	-1.861	-16.383
9	0	0.716562	1.512	5.964	-14.607	-17.622	-22.660
9	2.500	0.716562	1.512	5.964	-14.607	-2.661	-17.881
10	0	0.571910	4.156	6.683	-14.964	-18.635	-24.838
10	2.500	0.571910	4.156	6.683	-14.964	-1.928	-14.449
11	0	0.990985	9.965	10.325	-13.572	-18.420	-20.740
11	2.500	0.990985	9.965	10.325	-13.572	7.392	4.172
12	0	6.576	15.351	17.943	-10.085	-6.456	6.265
12	1.450	6.576	15.351	17.943	-10.085	19.557	30.538
12	1.450	6.576	12.246	7.255	-4.285	19.566	30.546
12	2.950	6.576	12.246	7.255	-4.289	30.444	48.905
12	2.950	6.576	9.141	-3.433	1.511	30.445	48.917
12	3.600	6.576	9.141	-3.433	1.511	28.215	54.855
13	0	5.518	-0.449134	4.590	-0.788506	28.363	52.597
13	0.850	5.518	-0.449134	4.590	-0.788506	32.263	52.215
13	0.850	5.518	-3.554	-6.099	5.011	32.262	52.214
13	3.600	5.518	-3.554	-6.099	5.011	15.493	42.441
14	0	1.392	-4.006	-3.655	5.891	22.420	38.867

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
14	3.600	1.392	-4.006	-3.655	5.891	9.263	24.465
15	0	0.401877	-3.085	-3.044	6.702	16.387	27.127
15	3.600	0.401877	-3.085	-3.044	6.702	5.439	16.020
16	0	0.123494	-2.705	-2.863	7.055	12.896	20.097
16	3.600	0.123494	-2.705	-2.863	7.055	2.590	10.356
17	0	0.022459	-2.575	-2.801	7.187	10.216	14.805
17	3.600	0.022459	-2.575	-2.801	7.187	0.131150	5.521
18	0	-0.012728	-2.548	-2.783	7.226	7.813	10.093
18	3.600	-0.012728	-2.548	-2.783	7.226	-2.205	0.919180
19	0	-0.021463	-2.563	-2.785	7.206	5.483	5.523
19	3.600	-0.021463	-2.563	-2.785	7.206	-4.542	-3.704
20	0	-0.065845	-2.580	-2.808	7.088	3.110	0.801862
20	3.600	-0.065845	-2.580	-2.808	7.088	-6.997	-8.487
21	0	-0.241330	-2.340	-2.688	6.915	0.488380	-6.302
21	3.600	-0.241330	-2.340	-2.688	6.915	-9.185	-12.728
22	0	-0.285509	-1.106	-2.756	6.805	-1.815	-8.671
22	2.500	-0.285509	-1.106	-2.756	6.805	-8.706	-11.436
23	0	-0.113258	-0.730393	-2.633	6.702	-1.339	-8.211
23	2.500	-0.113258	-0.730393	-2.633	6.702	-7.922	-10.037
24	0	-0.026629	-0.678315	-2.620	6.573	-0.698209	-6.898
24	2.500	-0.026629	-0.678315	-2.620	6.573	-7.249	-8.694
25	0	-0.010585	-0.704950	-2.625	6.502	-0.104517	-5.784
25	2.500	-0.010585	-0.704950	-2.625	6.502	-6.667	-7.546
26	0	-0.016005	-0.732651	-2.629	6.468	0.437914	-4.679
26	2.500	-0.016005	-0.732651	-2.629	6.468	-6.135	-6.511
27	0	-0.025600	-0.754600	-2.633	6.445	0.947682	-3.658
27	2.500	-0.025600	-0.754600	-2.633	6.445	-5.636	-5.544
28	0	-0.044698	-0.782837	-2.641	6.415	1.426	-2.707
28	2.500	-0.044698	-0.782837	-2.641	6.415	-5.177	-4.664
29	0	-0.091606	-0.837592	-2.658	6.346	1.850	-1.869
29	2.500	-0.091606	-0.837592	-2.658	6.346	-4.795	-3.961
30	0	-0.216552	-0.695804	-2.695	6.161	2.158	-1.287
30	2.500	-0.216552	-0.695804	-2.695	6.161	-4.578	-3.537
31	0	-0.531541	-0.721254	-3.008	5.433	2.227	-1.196
31	2.500	-0.531541	-0.721254	-3.008	5.433	-5.252	-2.999

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
32	0	1.12E-14	5.69E-13	3.06E-13	7.37E-16	8.74E-14	-1.77E-13
32	0.500	1.12E-14	5.69E-13	3.06E-13	7.37E-16	2.40E-13	1.18E-13
33	0	-3.38E-15	7.57E-13	4.91E-15	-9.00E-17	-4.61E-15	-5.60E-14
33	0.500	-3.38E-15	7.57E-13	4.91E-15	-9.00E-17	-2.35E-15	3.20E-12
34	0	0.632732	-0.364484	0.787023	-12.942	-2.454	0.446184
34	2.500	0.632732	-0.364484	0.787023	-12.942	-0.526021	-0.462026
35	0	-0.114725	-0.831241	0.321768	-13.835	-2.306	1.121
35	2.500	-0.114725	-0.831241	0.321768	-13.835	-1.503	-0.957205
36	0	-0.106060	-0.738443	0.180215	-14.071	-3.083	0.941793
36	2.500	-0.106060	-0.738443	0.180215	-14.071	-2.632	-0.504314
37	0	-0.039515	-0.677187	0.167756	-14.169	-4.112	0.850861
37	2.500	-0.039515	-0.677187	0.167756	-14.169	-3.693	-0.842107
38	0	-0.018672	-0.681901	0.171379	-14.204	-5.148	0.847301
38	2.500	-0.018672	-0.681901	0.171379	-14.204	-4.719	-0.857451
39	0	-0.031624	-0.736891	0.195002	-14.217	-6.148	0.895645
39	2.500	-0.031624	-0.736891	0.195002	-14.217	-5.661	-0.946583
40	0	-0.042754	-0.797785	0.239963	-14.245	-7.014	0.943851
40	2.500	-0.042754	-0.797785	0.239963	-14.245	-6.414	-1.051
41	0	0.139666	-0.780673	0.265619	-14.357	-7.549	0.944607
41	2.500	0.139666	-0.780673	0.265619	-14.357	-6.685	-1.067
42	0	1.053	-0.930675	-0.152437	-14.594	-7.446	1.250
42	2.500	1.053	-0.930675	-0.152437	-14.594	-7.827	-1.077
43	0	2.612	-2.333	-1.690	-13.696	-7.856	2.716
43	2.500	2.612	-2.333	-1.690	-13.696	-12.083	-3.117
44	0	1.348	-2.030	17.293	-5.161	-14.981	3.136
44	1.450	1.348	-2.030	17.293	-5.161	10.087	0.192714
44	1.450	1.348	-2.030	8.413	-5.161	10.096	0.191252
44	2.050	1.348	-2.030	8.413	-5.161	15.137	-1.025
44	2.050	1.348	-2.030	-0.467434	-5.161	15.140	-1.027
44	3.600	1.348	-2.030	-0.467434	-5.161	14.416	-4.173
45	0	1.405	2.159	6.298	2.903	13.921	-4.406
45	0.850	1.405	2.159	6.298	2.903	19.272	-2.572
45	0.850	1.405	2.159	-2.582	2.903	19.274	-2.571
45	3.600	1.405	2.159	-2.582	2.903	12.173	3.365
46	0	1.181	1.354	-1.143	5.750	12.735	-2.539
46	3.600	1.181	1.354	-1.143	5.750	8.619	2.336

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
47	0	0.380726	0.733103	-0.900287	6.703	9.418	-1.326
47	3.600	0.380726	0.733103	-0.900287	6.703	6.177	1.311
48	0	0.102781	0.568400	-0.791555	7.065	7.112	-1.027
48	3.600	0.102781	0.568400	-0.791555	7.065	4.263	1.020
49	0	0.021181	0.518063	-0.756757	7.193	5.217	-0.933287
49	3.600	0.021181	0.518063	-0.756757	7.193	2.493	0.931739
50	0	-0.007145	0.500389	-0.745138	7.230	3.451	-0.900361
50	3.600	-0.007145	0.500389	-0.745138	7.230	0.766759	0.901020
51	0	-0.030498	0.499067	-0.741432	7.217	1.731	-0.898888
51	3.600	-0.030498	0.499067	-0.741432	7.217	-0.938378	0.897753
52	0	-0.055534	0.528102	-0.757235	7.116	0.048657	-0.946420
52	3.600	-0.055534	0.528102	-0.757235	7.116	-2.677	0.954746
53	0	-0.084905	0.566148	-0.934263	6.913	-1.621	-0.989801
53	3.600	-0.084905	0.566148	-0.934263	6.913	-4.985	1.048
54	0	0.032937	0.287148	0.138536	6.825	-4.205	-0.362185
54	2.500	0.032937	0.287148	0.138536	6.825	-3.858	0.355685
55	0	-0.057675	0.201331	-0.032330	6.665	-3.281	-0.236015
55	2.500	-0.057675	0.201331	-0.032330	6.665	-3.362	0.267312
56	0	-0.053830	0.243528	-0.087322	6.547	-2.765	-0.305416
56	2.500	-0.053830	0.243528	-0.087322	6.547	-3.012	0.303405
57	0	-0.030660	0.268957	-0.106713	6.491	-2.376	-0.336785
57	2.500	-0.030660	0.268957	-0.106713	6.491	-2.643	0.333603
58	0	-0.017025	0.276331	-0.109660	6.465	-1.991	-0.345985
58	2.500	-0.017025	0.276331	-0.109660	6.465	-2.266	0.344842
59	0	-0.014198	0.281678	-0.112560	6.447	-1.605	-0.351347
59	2.500	-0.014198	0.281678	-0.112560	6.447	-1.891	0.352647
60	0	-0.023757	0.295644	-0.117553	6.422	-1.231	-0.367671
60	2.500	-0.023757	0.295644	-0.117553	6.422	-1.524	0.371443
61	0	-0.053299	0.329351	-0.125345	6.374	-0.855501	-0.404493
61	2.500	-0.053299	0.329351	-0.125345	6.374	-1.169	0.418864
62	0	-0.056165	0.374797	-0.169269	6.269	-0.457324	-0.433265
62	2.500	-0.056165	0.374797	-0.169269	6.269	-0.930496	0.503728
63	0	0.263574	0.169540	-0.395237	5.871	-0.132265	-0.216763
63	2.500	0.263574	0.169540	-0.395237	5.871	-1.120	0.208068
64	0	-9.42E-15	4.73E-13	1.46E-13	-1.44E-16	-4.30E-14	-1.30E-13

SECTION FORCES: "ALL"

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
64	0.500	-9.42E-15	4.73E-13	1.46E-13	-1.44E-16	3.02E-14	1.06E-13
65	0	-1.50E-16	-9.78E-13	-4.19E-14	4.69E-17	3.66E-14	2.72E-13
65	0.500	-1.50E-16	-9.78E-13	-4.19E-14	4.69E-17	1.56E-14	-2.16E-13
66	0	0.041843	0.163963	-0.313238	-13.251	-0.149396	-0.324579
66	2.500	0.041843	0.163963	-0.313238	-13.251	-0.932490	0.085328
67	0	0.076778	-0.306567	-0.429181	-14.001	-1.065	0.425552
67	2.500	0.076778	-0.306567	-0.429181	-14.001	-2.138	-0.345665
68	0	0.046134	-0.314964	-0.440479	-14.126	-2.186	0.420628
68	2.500	0.046134	-0.314964	-0.440479	-14.126	-3.287	-0.366581
69	0	0.009079	-0.236767	-0.439236	-14.179	-2.301	0.301603
69	2.500	0.009079	-0.236767	-0.439236	-14.179	-4.299	-0.290315
70	0	-0.041049	-0.216041	-0.432121	-14.189	-4.392	0.270727
70	2.500	-0.041049	-0.216041	-0.432121	-14.189	-5.472	-0.269276
71	0	-0.136385	-0.247095	-0.415879	-14.145	-5.424	0.307416
71	2.500	-0.136385	-0.247095	-0.415879	-14.145	-6.464	-0.310322
72	0	-0.243496	-0.346893	-0.398424	-14.013	-6.296	0.428236
72	2.500	-0.243496	-0.346893	-0.398424	-14.013	-7.294	-0.438694
73	0	-0.117115	-0.602930	-0.469725	-13.701	-6.794	0.731327
73	2.500	-0.117115	-0.602930	-0.469725	-13.701	-7.968	-0.775999
74	0	0.577118	-1.208	-0.943894	-13.003	-6.656	1.297
74	2.500	0.577118	-1.208	-0.943894	-13.003	-9.016	-1.624
75	0	1.170	-2.074	-5.707	-11.649	-5.564	2.164
75	2.500	1.170	-2.074	-5.707	-11.649	-19.831	-3.022
76	0	-0.467124	-1.334	9.111	-6.687	-17.635	2.050
76	3.600	-0.467124	-1.334	9.111	-6.687	15.165	-2.754
77	0	-0.684518	1.748	-0.036593	1.615	11.622	-3.541
77	3.600	-0.684518	1.748	-0.036593	1.615	11.491	2.751
78	0	0.166997	1.333	-0.552601	5.417	10.354	-2.614
78	3.600	0.166997	1.333	-0.552601	5.417	8.364	2.184
79	0	0.113345	0.659411	-0.483398	6.642	8.157	-1.245
79	3.600	0.113345	0.659411	-0.483398	6.642	6.417	1.125
80	0	0.026123	0.411772	-0.475250	7.057	6.270	-0.756030
80	3.600	0.026123	0.411772	-0.475250	7.057	4.655	0.726350
81	0	0.002016	0.333509	-0.472720	7.193	4.649	-0.603368
81	3.600	0.002016	0.333509	-0.472720	7.193	2.948	0.597264

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
82	0	-0.006170	0.310390	-0.470700	7.233	2.946	-0.557683
82	3.600	-0.006170	0.310390	-0.470700	7.233	1.252	0.559722
83	0	-0.019654	0.310826	-0.466502	7.233	1.256	-0.555956
83	3.600	-0.019654	0.310826	-0.466502	7.233	-0.421047	0.563015
84	0	-0.014371	0.335464	-0.454502	7.194	-0.386570	-0.594304
84	3.600	-0.014371	0.335464	-0.454502	7.194	-2.023	0.612366
85	0	0.040997	0.376469	-0.748420	7.044	-1.807	-0.649486
85	3.600	0.040997	0.376469	-0.748420	7.044	-4.501	0.705804
86	0	0.047415	0.042421	0.559983	6.694	-4.548	-0.036693
86	2.500	0.047415	0.042421	0.559983	6.694	-3.148	0.069361
87	0	0.007156	0.017327	0.184926	6.548	-3.393	-0.010903
87	2.500	0.007156	0.017327	0.184926	6.548	-2.931	0.032414
88	0	-0.023501	0.033803	0.154945	6.498	-3.020	-0.036216
88	2.500	-0.023501	0.033803	0.154945	6.498	-2.633	0.048285
89	0	-0.021529	0.055128	0.150699	6.474	-2.667	-0.066725
89	2.500	-0.021529	0.055128	0.150699	6.474	-2.290	0.071095
90	0	-0.010117	0.067371	0.152311	6.460	-2.301	-0.082971
90	2.500	-0.010117	0.067371	0.152311	6.460	-1.920	0.085456
91	0	-0.001968	0.078063	0.153548	6.447	-1.922	-0.096440
91	2.500	-0.001968	0.078063	0.153548	6.447	-1.536	0.098718
92	0	0.004571	0.098495	0.153944	6.428	-1.537	-0.120247
92	2.500	0.004571	0.098495	0.153944	6.428	-1.152	0.125990
93	0	0.014522	0.113883	0.153684	6.397	-1.147	-0.161183
93	2.500	0.014522	0.113883	0.153684	6.397	-0.762332	0.165911
94	0	0.025836	0.136100	0.149600	6.338	-0.745265	-0.154596
94	2.500	0.025836	0.136100	0.149600	6.338	-0.371265	0.190652
95	0	0.014283	-0.074856	0.109190	5.997	-0.325089	0.039401
95	2.500	0.014283	-0.074856	0.109190	5.997	-0.052116	-0.147745
96	0	4.59E-15	-4.71E-13	-2.02E-13	4.22E-16	1.54E-13	1.33E-13
96	0.500	4.59E-15	-4.71E-13	-2.02E-13	4.22E-16	5.36E-14	-1.03E-13
97	0	9.71E-17	4.62E-13	7.54E-14	4.25E-18	-4.27E-15	-1.41E-13
97	0.500	9.71E-17	4.62E-13	7.54E-14	4.25E-18	3.34E-14	8.95E-14
98	0	-0.583918	-0.465760	-1.547	-13.197	2.327	0.557371
98	2.500	-0.583918	-0.465760	-1.547	-13.197	-1.531	-0.607025

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
99	0	0.211671	-0.821057	-1.177	-13.966	0.057051	1.078
99	2.500	0.211671	-0.821057	-1.177	-13.966	-2.845	-0.975127
100	0	0.151353	-0.702656	-1.055	-14.116	-1.328	0.877926
100	2.500	0.151353	-0.702656	-1.055	-14.116	-3.966	-0.878713
101	0	0.048540	-0.643676	-1.047	-14.173	-2.507	0.804090
101	2.500	0.048540	-0.643676	-1.047	-14.173	-5.126	-0.805101
102	0	-0.017195	-0.616666	-1.043	-14.163	-3.663	0.777625
102	2.500	-0.017195	-0.616666	-1.043	-14.163	-6.271	-0.763835
103	0	-0.110286	-0.611025	-1.047	-14.056	-4.762	0.787721
103	2.500	-0.110286	-0.611025	-1.047	-14.056	-7.400	-0.739842
104	0	-0.270440	-0.699100	-1.082	-13.752	-5.831	0.918816
104	2.500	-0.270440	-0.699100	-1.082	-13.752	-8.535	-0.826933
105	0	-0.458556	-1.074	-1.237	-12.994	-6.742	1.352
105	2.500	-0.458556	-1.074	-1.237	-12.994	-9.835	-1.332
106	0	-0.532307	-1.780	-2.005	-11.334	-7.490	2.052
106	2.500	-0.532307	-1.780	-2.005	-11.334	-12.502	-2.398
107	0	-0.722090	-2.129	-2.561	-9.086	-9.765	2.135
107	2.500	-0.722090	-2.129	-3.561	-9.086	-18.672	-3.188
108	0	-2.039	-0.996472	5.669	-8.150	-16.646	1.414
108	3.600	-2.029	-0.996472	5.669	-8.190	3.762	-2.174
109	0	-2.231	1.326	1.677	0.074973	2.703	-2.664
109	3.600	-2.231	1.326	1.677	0.074973	8.741	2.110
110	0	-0.917657	1.215	0.232307	4.918	7.058	-2.344
110	3.600	-0.917657	1.215	0.232307	4.918	7.895	2.030
111	0	-0.269172	0.783944	-0.045407	6.527	6.761	-1.466
111	3.600	-0.269172	0.783944	-0.045407	6.527	6.598	1.356
112	0	-0.060997	0.588590	-0.151943	7.028	5.592	-1.073
112	3.600	-0.060997	0.588590	-0.151943	7.028	5.045	1.046
113	0	-0.020144	0.522443	-0.187701	7.185	4.075	-0.941852
113	3.600	-0.020144	0.522443	-0.187701	7.185	3.399	0.938943
114	0	0.001160	0.505365	-0.197312	7.233	2.438	-0.907025
114	3.600	0.001160	0.505365	-0.197312	7.233	1.728	0.912288
115	0	0.007599	0.506957	-0.193200	7.246	0.772013	-0.906128
115	3.600	0.007599	0.506957	-0.193200	7.246	0.076452	0.918917
116	0	0.036361	0.514288	-0.195890	7.260	-0.852669	-0.917857

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
116	3.600	0.036361	0.514288	-0.195890	7.260	-1.558	0.933579
117	0	0.136689	0.554191	-0.218213	7.193	-2.452	-0.981523
117	3.600	0.136689	0.554191	-0.218213	7.193	-3.237	1.014
118	0	0.039290	0.295796	0.428789	6.530	-4.017	-0.387377
118	2.500	0.039290	0.295796	0.428789	6.530	-2.945	0.352112
119	0	0.056940	0.242332	0.428604	6.442	-3.682	-0.291866
119	2.500	0.056940	0.242332	0.428604	6.442	-2.611	0.313965
120	0	0.017358	0.249387	0.408761	6.455	-3.324	-0.304357
120	2.500	0.017358	0.249387	0.408761	6.455	-2.302	0.319110
121	0	0.005299	0.256157	0.411191	6.458	-2.982	-0.314660
121	2.500	0.005299	0.256157	0.411191	6.458	-1.954	0.325734
122	0	0.006905	0.265973	0.415866	6.455	-2.619	-0.329527
122	2.500	0.006905	0.265973	0.415866	6.455	-1.560	0.335405
123	0	0.012341	0.275912	0.420406	6.448	-2.240	-0.343541
123	2.500	0.012341	0.275912	0.420406	6.448	-1.189	0.346236
124	0	0.027479	0.288926	0.424982	6.427	-1.847	-0.360882
124	2.500	0.027479	0.288926	0.424982	6.427	-0.784708	0.361433
125	0	0.067521	0.317190	0.430350	6.351	-1.445	-0.385360
125	2.500	0.067521	0.317190	0.430350	6.351	-0.369157	0.397674
126	0	0.090986	0.370607	0.487227	6.315	-1.058	-0.438337
126	2.500	0.090986	0.370607	0.487227	6.315	0.159760	0.468201
127	0	-0.266830	0.204732	0.660165	5.959	-0.584719	-0.266232
127	2.500	-0.266830	0.204732	0.660165	5.959	1.066	0.245599
128	0	2.16E-15	-2.90E-13	-5.23E-14	-5.19E-16	1.29E-13	2.11E-14
128	0.500	2.16E-15	-2.90E-13	-5.23E-14	-5.19E-16	1.03E-13	-1.24E-13
129	0	4.31E-15	-4.63E-12	1.12E-11	2.73E-17	-2.51E-12	3.39E-13
129	0.500	4.31E-15	-4.63E-12	1.12E-11	2.73E-17	3.11E-12	-2.08E-12
130	0	1.095	3.557	-7.939	-12.299	11.994	-6.565
130	2.500	1.095	3.557	-7.939	-12.299	-7.654	2.328
131	0	0.324600	4.074	-7.018	-13.771	7.465	-2.775
131	2.500	0.324600	4.074	-7.018	-13.771	-10.079	7.410
132	0	0.116692	3.929	-6.916	-14.071	5.360	1.439
132	2.500	0.116692	3.929	-6.916	-14.071	-11.931	11.259
133	0	0.056778	3.617	-6.882	-14.156	3.557	5.033
133	2.500	0.056778	3.617	-6.682	-14.156	-13.607	14.576

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
134	0	0.046673	3.823	-6.874	-14.140	1.937	8.290
134	2.500	0.046673	3.832	-6.874	-14.140	-15.247	17.669
135	0	0.073267	3.971	-6.883	-13.997	0.226904	11.595
135	2.500	0.073267	3.971	-6.883	-13.997	-16.981	21.504
136	0	0.073018	4.226	-6.916	-13.595	-1.720	15.361
136	2.500	0.073018	4.226	-6.916	-13.595	-19.010	25.911
137	0	-0.280630	4.430	-6.970	-12.637	-4.241	20.373
137	2.500	-0.280630	4.430	-6.970	-12.637	-21.686	31.448
138	0	-1.670	3.850	-6.761	-10.790	-8.021	27.573
138	2.500	-1.670	3.850	-6.761	-10.790	-24.932	37.199
139	0	-4.051	1.219	-4.673	-8.917	-13.571	35.266
139	2.500	-4.051	1.219	-4.673	-8.917	-25.254	38.319
140	0	-5.418	-6.047	1.516	-7.951	-15.154	34.276
140	3.600	-5.418	-6.047	1.516	-7.951	-9.689	12.509
141	0	-4.007	-4.642	3.328	-0.564763	-5.414	7.215
141	3.600	-4.007	-4.642	3.328	-0.564763	6.565	-9.494
142	0	-1.821	-1.819	2.378	4.562	2.745	-10.452
142	3.600	-1.821	-1.819	2.378	4.562	11.308	-17.000
143	0	-0.626366	-0.602575	1.818	6.417	4.684	-14.522
143	3.600	-0.626366	-0.602575	1.818	6.417	11.228	-16.651
144	0	-0.170990	-0.239884	1.621	6.995	3.637	-12.811
144	3.600	-0.170990	-0.239884	1.621	6.995	9.671	-13.679
145	0	-0.025101	-0.126234	1.554	7.175	2.056	-9.286
145	3.600	-0.025101	-0.126234	1.554	7.175	7.651	-9.741
146	0	0.025293	-0.085531	1.534	7.231	-0.033668	-5.190
146	3.600	0.025293	-0.085531	1.534	7.231	5.490	-5.498
147	0	0.064426	-0.071165	1.532	7.251	-2.217	-0.912560
147	3.600	0.064426	-0.071165	1.532	7.251	3.256	-1.169
148	0	0.103800	-0.129491	1.550	7.276	-4.418	3.445
148	3.600	0.103800	-0.129491	1.550	7.276	1.161	2.979
149	0	0.148959	-0.519931	1.761	7.194	-6.593	7.594
149	3.600	0.148959	-0.519931	1.761	7.194	-0.253735	5.722
150	0	0.165975	-1.136	2.696	6.536	-7.574	9.786
150	2.500	0.165975	-1.136	2.696	6.536	-0.834247	6.956

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
151	0	0.106945	-1.382	2.961	6.425	-7.866	9.884
151	2.500	0.106945	-1.382	2.961	6.425	-0.461649	6.429
152	0	0.086710	-1.514	3.014	6.439	-7.522	9.287
152	2.500	0.086710	-1.514	3.014	6.439	0.012585	5.502
153	0	0.057984	-1.549	3.028	6.452	-7.060	8.362
153	2.500	0.057984	-1.549	3.028	6.452	0.509794	4.516
154	0	0.036352	-1.555	3.035	6.452	-6.566	7.390
154	2.500	0.036352	-1.555	3.035	6.452	1.022	3.504
155	0	0.029534	-1.563	3.041	6.444	-6.051	6.370
155	2.500	0.029534	-1.563	3.041	6.444	1.551	2.464
156	0	0.036514	-1.586	3.049	6.423	-5.510	5.314
156	2.500	0.036514	-1.586	3.049	6.423	2.111	1.343
157	0	0.062570	-1.650	3.067	6.371	-4.924	4.162
157	2.500	0.062570	-1.650	3.067	6.371	2.742	0.035891
158	0	0.158004	-1.718	3.112	6.225	-4.243	2.736
158	2.500	0.158004	-1.718	3.112	6.225	3.537	-1.558
159	0	0.500622	-1.493	3.516	5.549	-3.379	0.757397
159	2.500	0.500622	-1.493	3.516	5.549	5.410	-2.975
160	0	6.70E-15	-5.00E-12	-1.04E-12	-1.24E-15	1.01E-12	2.01E-12
160	0.500	6.70E-15	-5.00E-12	-1.04E-12	-1.24E-15	4.90E-13	-4.66E-13
166	0	0.525488	-1.184	9.849	13.043	-11.966	3.119
166	1.600	0.525488	-1.184	9.849	13.043	3.792	1.224
167	0	0.885972	-0.551632	9.062	15.537	-9.150	0.775785
167	1.650	0.885972	-0.551632	9.062	15.537	5.802	-0.134405
168	0	0.726010	-0.509785	9.375	15.686	-7.449	0.150170
168	1.650	0.726010	-0.509785	9.375	15.686	8.020	-0.650982
169	0	1.192	-1.094	10.922	13.349	-5.176	-1.208
169	1.600	1.192	-1.094	10.922	13.349	12.295	-2.956
170	0	-0.541552	0.687320	0.529679	15.648	-1.623	0.790062
170	1.600	-0.541552	0.687320	0.529679	15.648	-0.775663	1.890
171	0	-0.074795	-0.060137	0.994934	17.625	-1.666	0.305852
171	1.650	-0.074795	-0.060137	0.994934	17.625	-0.026675	0.206625
172	0	0.397735	-0.025202	1.111	17.762	-0.777171	-0.133599
172	1.650	0.397735	-0.025202	1.111	17.762	1.056	-0.175162
173	0	0.753032	0.770387	0.740570	16.134	0.286802	-1.860

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
173	1.600	0.753032	0.770387	0.740570	16.134	1.472	-0.627110
174	0	0.094369	0.290203	0.106224	16.382	-0.415476	1.356
174	1.600	0.094369	0.290203	0.106224	16.382	-0.245516	1.621
175	0	0.001571	0.298869	0.247773	17.962	-0.481101	-0.078332
175	1.650	0.001571	0.298869	0.247773	17.962	-0.072275	0.414802
176	0	0.007966	0.268225	0.259071	18.010	-0.196983	-0.351852
176	1.650	0.007966	0.268225	0.259071	18.010	0.230485	0.090679
177	0	-0.110434	0.207908	0.137473	16.493	0.080535	-1.762
177	1.600	-0.110434	0.207908	0.137473	16.493	0.300492	-1.430
178	0	0.100410	0.130238	0.061262	16.614	-0.147221	1.570
178	1.600	0.100410	0.130238	0.061262	16.614	-0.049201	1.775
179	0	0.039154	0.196783	0.073725	18.094	-0.147192	0.023456
179	1.650	0.039154	0.196783	0.073725	18.094	-0.025546	0.346148
180	0	-0.039042	0.159728	0.072482	18.107	-0.078978	-0.320036
180	1.650	-0.039042	0.159728	0.072482	18.107	0.040617	-0.056485
181	0	-0.098022	0.057915	0.064636	16.648	-0.017186	-1.739
181	1.600	-0.098022	0.057915	0.064636	16.648	0.086232	-1.647
182	0	0.058987	0.108125	0.018426	16.696	-0.054886	1.598
182	1.600	0.058987	0.108125	0.018426	16.696	-0.025405	1.771
183	0	0.063701	0.128967	0.014803	18.151	-0.061172	0.082056
183	1.650	0.063701	0.128967	0.014803	18.151	-0.036747	0.294854
184	0	0.042974	0.078840	0.007688	18.144	-0.044458	-0.266188
184	1.650	0.042974	0.078840	0.007688	18.144	-0.033773	-0.136103
185	0	0.015963	0.012105	0.003580	16.681	-0.023723	-1.719
185	1.600	0.015963	0.012105	0.003580	16.681	-0.017995	-1.700
186	0	0.051271	0.174788	-0.011977	16.724	-0.040160	1.540
186	1.600	0.051271	0.174788	-0.011977	16.724	-0.059324	1.820
187	0	0.106262	0.161836	-0.035601	18.153	-0.071595	0.066991
187	1.650	0.106262	0.161836	-0.035601	18.153	-0.130337	0.334019
188	0	0.137316	0.066499	-0.051842	18.105	-0.086097	-0.242772
188	1.650	0.137316	0.066499	-0.051842	18.105	-0.171636	-0.133048
189	0	0.131676	-0.026594	-0.048005	16.616	-0.065949	-1.685
189	1.600	0.131676	-0.026594	-0.048005	16.616	-0.142757	-1.727
190	0	-0.011597	0.278644	-0.075659	16.757	-0.097504	1.475
190	1.600	-0.011597	0.278644	-0.075659	16.757	-0.218559	1.921

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
191	0	0.049296	0.267514	-0.120620	18.110	-0.247388	0.030124
191	1.650	0.049296	0.267514	-0.120620	18.110	-0.446412	0.471522
192	0	0.149094	0.160401	-0.138076	17.944	-0.314575	-0.267039
192	1.650	0.149094	0.160401	-0.138076	17.944	-0.542400	-0.002377
193	0	0.237169	0.000249	-0.103375	16.375	-0.236330	-1.661
193	1.600	0.237169	0.000249	-0.103375	16.375	-0.401729	-1.661
194	0	-0.434201	0.232961	-0.309160	16.887	-0.262027	1.631
194	1.600	-0.434201	0.232961	-0.309160	16.887	-0.756683	2.004
195	0	-0.451313	0.415381	-0.334816	18.021	-0.867966	0.008708
195	1.650	-0.451313	0.415381	-0.334816	18.021	-1.420	0.694087
196	0	-0.195276	0.541764	-0.263515	17.521	-1.109	-0.476233
196	1.650	-0.195276	0.541764	-0.263515	17.521	-1.543	0.417678
197	0	0.179226	0.353648	-0.107946	15.726	-0.785878	-1.766
197	1.600	0.179226	0.353648	-0.107946	15.726	-0.958556	-1.196
198	0	-1.960	-0.144653	-1.287	17.280	-0.356800	2.224
198	1.600	-1.960	-0.144653	-1.287	17.280	-2.431	1.993
199	0	-1.810	0.769026	-0.878623	17.842	-2.668	-0.264406
199	1.650	-1.810	0.769026	-0.878623	17.842	-4.116	1.004
200	0	-1.205	1.463	-0.404455	16.530	-3.420	-1.166
200	1.650	-1.205	1.463	-0.404455	16.530	-4.087	1.246
201	0	-0.458453	1.390	0.362853	14.184	-2.427	-2.136
201	1.600	-0.458453	1.390	0.362853	14.184	-1.847	0.685514
202	0	-4.562	0.419075	-5.118	17.593	1.351	1.441
202	1.600	-4.562	0.419075	-5.118	17.593	-6.759	2.113
203	0	-3.160	1.976	-3.581	17.624	-5.899	-1.682
203	1.650	-3.160	1.976	-3.581	17.624	-11.807	1.562
204	0	-2.254	2.571	1.182	14.172	-10.454	-2.206
204	1.650	-2.254	2.571	1.182	14.172	-8.503	2.036
205	0	-1.944	2.383	2.739	11.440	-6.256	-2.495
205	1.600	-1.944	2.383	2.739	11.440	-1.873	1.312
206	0	-3.047	5.585	-8.619	12.148	3.483	-7.812
206	1.600	-3.047	5.585	-8.819	12.148	-10.627	1.124
207	0	-3.350	4.321	-27.801	15.046	-2.051	-5.129
207	1.650	-3.350	4.321	-27.801	15.046	-47.965	2.001

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
208	0	-4.117	2.683	17.203	12.851	-43.002	-3.071
208	1.650	-4.117	2.683	17.203	12.851	-14.618	1.357
209	0	-5.250	1.366	7.573	10.825	-13.722	-3.245
209	1.600	-5.250	1.366	7.973	10.825	-0.966367	-1.059
210	0	11.448	-1.058	-5.029	0.487300	-3.295	2.210
210	1.600	11.448	-1.058	-5.029	0.487300	-10.345	0.516612
211	0	7.259	-1.001	-11.794	0.981659	-2.281	0.749852
211	1.650	7.259	-1.001	-11.794	0.981659	-21.740	-0.901504
212	0	4.177	-1.218	-2.646	4.524	-13.438	-0.114248
212	1.650	4.177	-1.218	-2.646	4.524	-17.604	-2.124
213	0	1.854	-1.411	1.346	5.582	-9.535	-1.634
213	1.600	1.854	-1.411	1.346	5.582	-7.386	-3.891
214	0	1.116	-4.126	-2.221	-5.660	0.679100	5.345
214	1.600	1.116	-4.126	-2.221	-5.660	-2.674	-1.257
215	0	1.920	-4.351	-3.660	-6.221	0.172490	4.647
215	1.650	1.920	-4.351	-3.660	-6.221	-5.866	-2.532
216	0	2.335	-3.499	-3.144	-5.085	-2.064	2.833
216	1.650	2.335	-3.499	-3.144	-5.085	-7.252	-2.941
217	0	2.446	-2.186	-1.699	-3.402	-2.408	1.513
217	1.600	2.446	-2.186	-1.699	-3.402	-5.127	-1.964
218	0	-0.714018	-0.989718	-0.843346	-7.593	0.611036	-0.566843
218	1.600	-0.714018	-0.989718	-0.843346	-7.593	-0.538318	-2.150
219	0	-0.093072	-1.790	-1.086	-8.352	0.414527	1.514
219	1.650	-0.093072	-1.790	-1.086	-8.352	-1.378	-1.440
220	0	0.580516	-1.843	-1.155	-8.185	-0.152886	1.989
220	1.650	0.580516	-1.843	-1.155	-8.185	-2.059	-1.052
221	0	1.012	-1.195	-0.877759	-7.052	-0.450628	2.444
221	1.600	1.012	-1.195	-0.877759	-7.052	-1.855	0.531615
222	0	-0.314411	-0.276383	-0.280173	-8.298	0.353647	-1.834
222	1.600	-0.314411	-0.276383	-0.280173	-8.298	-0.094630	-2.280
223	0	-0.149707	-0.556328	-0.388905	-9.233	0.267986	0.057528
223	1.650	-0.149707	-0.556328	-0.388905	-9.233	-0.373704	-0.860413
224	0	0.097931	-0.643550	-0.397052	-9.186	0.041340	1.025
224	1.650	0.097931	-0.643550	-0.397052	-9.186	-0.613796	-0.036872
225	0	0.293285	-0.455375	-0.290516	-8.180	-0.113033	2.392

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
225	1.600	0.253285	-0.455375	-0.290516	-8.180	-0.577859	1.664
226	0	-0.104185	-0.101035	-0.094070	-6.563	0.132070	-2.143
226	1.600	-0.104185	-0.101035	-0.094070	-6.563	-0.018442	-2.305
227	0	-0.053848	-0.182635	-0.128868	-9.518	0.109134	-0.352010
227	1.650	-0.053848	-0.162635	-0.128868	-9.518	-0.103498	-0.853357
228	0	0.024416	-0.206742	-0.131399	-9.508	0.032033	0.676361
228	1.650	0.024416	-0.206742	-0.131399	-9.508	-0.184775	0.335237
229	0	0.090563	-0.145889	-0.095641	-8.537	-0.027388	2.323
229	1.600	0.090563	-0.145889	-0.095641	-8.537	-0.180414	2.090
230	0	-0.024304	-0.035187	-0.026330	-8.652	0.038165	-2.247
230	1.600	-0.024304	-0.035187	-0.026330	-8.652	-0.003962	-2.303
231	0	-0.006631	-0.063513	-0.037949	-9.611	0.033166	-0.470807
231	1.650	-0.006631	-0.063513	-0.037949	-9.611	-0.029430	-0.575603
232	0	0.016486	-0.071698	-0.039966	-9.610	0.010917	0.579343
232	1.650	0.016486	-0.071698	-0.039966	-9.610	-0.055031	0.461041
233	0	0.033566	-0.050394	-0.030358	-8.649	-0.007077	2.307
233	1.600	0.033566	-0.050394	-0.030358	-8.649	-0.055649	2.226
234	0	0.013697	-0.008735	0.005930	-8.667	-0.015892	-2.276
234	1.600	0.013697	-0.008735	0.005930	-8.667	-0.010403	-2.290
235	0	0.015220	-0.032088	0.002224	-9.629	-0.023655	-0.490422
235	1.650	0.015220	-0.032088	0.002224	-9.629	-0.019985	-0.543366
236	0	0.014784	-0.045572	-0.001974	-9.636	-0.020262	0.572312
236	1.650	0.014784	-0.045572	-0.001974	-9.636	-0.023516	0.457118
237	0	0.013192	-0.039134	-0.006086	-8.680	-0.010428	2.316
237	1.600	0.013192	-0.039134	-0.006086	-8.680	-0.020173	2.253
238	0	0.009530	-0.044382	0.026769	-8.605	-0.117550	-2.193
238	1.600	0.009530	-0.044382	0.026769	-8.605	-0.074719	-2.264
239	0	-0.019104	-0.073417	0.042572	-9.552	-0.172978	-0.419431
239	1.650	-0.019104	-0.073417	0.042572	-9.552	-0.102734	-0.540570
240	0	-0.043743	-0.068135	0.030572	-9.627	-0.142024	0.616749
240	1.650	-0.043743	-0.068135	0.030572	-9.627	-0.091580	0.504326
241	0	-0.051074	-0.039373	0.033262	-8.697	-0.077895	2.341
241	1.600	-0.051074	-0.039373	0.033262	-8.697	-0.024676	2.278
242	0	-0.197086	-0.175485	-0.181616	-8.356	-0.173413	-1.930
242	1.600	-0.197086	-0.175485	-0.181616	-8.356	-0.462995	-2.210

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
243	0	-0.235133	-0.200856	-0.004588	-9.412	-0.666793	-0.265929
243	1.650	-0.235133	-0.200856	-0.004588	-9.412	-0.677363	-0.597342
244	0	-0.276138	-0.145488	0.289330	-9.628	-0.827439	0.666512
244	1.650	-0.276138	-0.145488	0.289330	-9.628	-0.350045	0.425457
245	0	-0.316041	-0.045159	0.311653	-8.734	-0.417247	2.341
245	1.600	-0.316041	-0.045159	0.311653	-8.734	0.081397	2.268
246	0	-1.204	-0.044179	-0.278831	-8.212	-0.109290	-1.836
246	1.600	-1.204	-0.044179	-0.278831	-8.212	-0.555418	-1.909
247	0	-0.925329	0.073663	-1.352	-8.992	-0.662677	-0.498281
247	1.650	-0.925329	0.073663	-1.352	-8.992	-2.873	-0.376736
248	0	-0.589308	0.080383	1.717	-8.946	-3.223	0.365761
248	1.650	-0.589308	0.080383	1.717	-8.946	-0.350410	0.498392
249	0	-0.330513	-0.017016	1.070	-8.166	-1.053	1.896
249	1.600	-0.330513	-0.017016	1.070	-8.166	0.658274	1.872
250	0	-0.326378	0.172251	-0.222872	-7.975	-0.103214	-1.042
250	1.600	-0.326378	0.172251	-0.222872	-7.975	-0.459810	-0.765914
251	0	-0.240561	0.081638	-0.052005	-8.552	-0.619822	-0.174214
251	1.650	-0.240561	0.081638	-0.052005	-8.552	-0.705631	-0.039511
252	0	-0.215466	0.041380	0.323052	-8.306	-0.651266	0.040753
252	1.650	-0.215466	0.041380	0.323052	-8.306	-0.318231	0.109030
253	0	-0.162003	0.059030	0.322237	-7.569	-0.405777	0.753007
253	1.600	-0.162003	0.059030	0.322237	-7.569	0.111403	0.847455
254	0	-0.046334	0.086629	-0.027182	-7.785	-0.129457	-0.903090
254	1.600	-0.046334	0.086629	-0.027182	-7.785	-0.172948	-0.764484
255	0	-0.088531	0.090474	0.037810	-8.378	-0.290991	-0.191755
255	1.650	-0.088531	0.090474	0.037810	-8.378	-0.228605	-0.042473
256	0	-0.105008	0.059817	0.067787	-8.289	-0.278768	0.026155
256	1.650	-0.105008	0.059817	0.067787	-8.289	-0.166919	0.124858
257	0	-0.112062	0.020235	0.087630	-7.576	-0.154802	0.743180
257	1.600	-0.112062	0.020235	0.087630	-7.576	-0.014594	0.775555
258	0	0.024236	0.015643	0.012048	-7.672	-0.070927	-0.801607
258	1.600	0.024236	0.015643	0.012048	-7.672	-0.051650	-0.776577
259	0	-0.001192	0.038814	0.021439	-8.308	-0.107497	-0.134384
259	1.650	-0.001192	0.038814	0.021439	-8.308	-0.072123	-0.070341

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
260	0	-0.022517	0.040785	0.025689	-8.275	-0.095656	0.044672
260	1.650	-0.022517	0.040785	0.025689	-8.275	-0.053472	0.111968
261	0	-0.029288	0.028726	0.023259	-7.595	-0.049581	0.745738
261	1.600	-0.029288	0.028726	0.023259	-7.595	-0.012367	0.791700
262	0	0.025495	-0.005020	0.011535	-7.623	-0.033965	-0.771015
262	1.600	0.025495	-0.005020	0.011535	-7.623	-0.015509	-0.779047
263	0	0.018121	0.008615	0.014703	-8.274	-0.042150	-0.059459
263	1.650	0.018121	0.008615	0.014703	-8.274	-0.017891	-0.085249
264	0	0.005878	0.020026	0.013091	-8.264	-0.032089	0.068821
264	1.650	0.005878	0.020026	0.013091	-8.264	-0.010489	0.101865
265	0	-0.003938	0.021633	0.008415	-7.598	-0.013979	0.757126
265	1.600	-0.003938	0.021633	0.008415	-7.598	-0.000514	0.791738
266	0	0.019837	-0.009595	0.010394	-7.587	-0.022423	-0.763806
266	1.600	0.019837	-0.009595	0.010394	-7.587	-0.005792	-0.779156
267	0	0.014490	-0.006768	0.013474	-8.254	-0.024044	-0.082969
267	1.650	0.014490	-0.006768	0.013474	-8.254	-0.001813	-0.094136
268	0	0.003798	0.001381	0.012237	-8.252	-0.014759	0.067759
268	1.650	0.003798	0.001381	0.012237	-8.252	0.005431	0.090038
269	0	-0.006140	0.006617	0.007697	-7.592	-0.003846	0.768984
269	1.600	-0.006140	0.006617	0.007697	-7.592	0.006469	0.779652
270	0	0.024953	-0.019087	0.015319	-7.572	-0.030493	-0.754060
270	1.600	0.024953	-0.019087	0.015319	-7.572	-0.005962	-0.764616
271	0	0.010985	-0.028656	0.019912	-8.233	-0.030469	-0.064057
271	1.650	0.010985	-0.028656	0.019912	-8.233	0.002365	-0.111380
272	0	-0.009446	-0.022116	0.019516	-8.234	-0.016729	0.107585
272	1.650	-0.009446	-0.022116	0.019516	-8.234	0.015472	0.071090
273	0	-0.022461	-0.006980	0.014939	-7.576	-0.002943	0.778210
273	1.600	-0.022461	-0.006980	0.014939	-7.576	0.020960	0.767042
274	0	0.047816	-0.046908	0.031678	-7.528	-0.068966	-0.723484
274	1.600	0.047816	-0.046908	0.031678	-7.528	-0.018260	-0.758537
275	0	0.014111	-0.076449	0.039470	-8.197	-0.066160	-0.022602
275	1.650	0.014111	-0.076449	0.039470	-8.197	-0.001034	-0.148743
276	0	-0.026232	-0.066098	0.039730	-8.203	-0.031766	0.138430
276	1.650	-0.026232	-0.066098	0.039730	-8.203	0.033767	0.029368
277	0	-0.054496	-0.026056	0.034362	-7.543	-0.002775	0.766102

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
277	1.600	-0.054496	-0.026056	0.034362	-7.543	0.052204	0.744413
278	0	0.045642	-0.124947	0.051553	-7.423	-0.184873	-0.619982
278	1.600	0.045642	-0.124947	0.051553	-7.423	-0.102387	-0.619857
279	0	0.000195	-0.129812	0.115477	-8.134	-0.207257	0.033252
279	1.650	0.000195	-0.129812	0.115477	-8.134	-0.016720	-0.181938
280	0	0.000933	-0.118898	0.119561	-8.151	-0.075986	0.158571
280	1.650	0.000933	-0.118898	0.119561	-8.151	0.121267	-0.037611
281	0	-0.052485	-0.095434	0.062684	-7.462	0.045628	0.798378
281	1.600	-0.052485	-0.095434	0.062684	-7.462	0.145922	0.645688
282	0	-0.254620	-0.314989	0.251445	-7.188	-0.727917	-0.345487
282	1.600	-0.254620	-0.314989	0.251445	-7.188	-0.325605	-0.853469
283	0	-0.049963	0.026750	0.457413	-7.986	-0.724232	-0.132956
283	1.650	-0.049963	0.026750	0.457413	-7.986	0.030500	-0.088820
284	0	0.162996	0.015196	0.497823	-8.032	-0.310171	0.062431
284	1.650	0.162996	0.015196	0.497823	-8.032	0.511237	0.067505
285	0	0.328870	-0.342619	0.324881	-7.288	0.155564	0.641937
285	1.600	0.328870	-0.342619	0.324881	-7.288	0.675394	0.293747
286	0	0.149762	0.531414	4.513	-5.919	-5.432	-1.403
286	1.600	0.149762	0.531414	4.513	-5.919	1.788	-0.553037
287	0	0.319702	0.247840	4.111	-7.039	-4.083	-0.344965
287	1.650	0.319702	0.247840	4.111	-7.039	2.712	0.063967
288	0	0.244844	0.233557	4.227	-7.091	-3.285	-0.063778
288	1.650	0.244844	0.233557	4.227	-7.091	3.689	0.301591
289	0	0.449576	0.500387	4.887	-6.026	-2.270	0.547180
289	1.600	0.449576	0.500387	4.887	-6.026	5.549	1.348

min:	-5.418	-6.047	-27.801	-14.964	-47.965	-24.826	
max:	11.448	15.351	17.943	18.153	32.263	54.855	

Loadcase	Factor	Stage	Init.def	Title
15	1.0000			VEHICULO HIPOTESIS 15

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	-1.94E-15	-1.08E-12	-2.07E-12	8.79E-16	7.22E-13	1.11E-12
1	0.500	-1.94E-15	-1.08E-12	-2.07E-12	8.79E-16	-3.15E-13	5.71E-13
2	0	-0.934678	-0.851157	3.504	-8.418	-8.187	-4.875
2	2.500	-0.934678	-0.851157	3.504	-8.418	0.573409	-7.003
3	0	-0.501830	-0.702666	3.240	-9.723	-10.058	-10.626
3	2.500	-0.501830	-0.702666	3.240	-9.723	-1.958	-12.584
4	0	-0.225299	-0.770938	3.204	-10.121	-13.041	-16.771
4	2.500	-0.225299	-0.770938	3.204	-10.121	-5.032	-18.695
5	0	-0.095619	-0.841411	3.178	-10.276	-16.291	-23.122
5	2.500	-0.095619	-0.841411	3.178	-10.276	-8.345	-25.226
6	0	-0.029433	-0.898091	3.167	-10.353	-19.683	-29.740
6	2.500	-0.029433	-0.898091	3.167	-10.353	-11.764	-31.985
7	0	0.041774	-0.961345	3.165	-10.435	-23.165	-36.517
7	2.500	0.041774	-0.961345	3.165	-10.435	-15.253	-38.971
8	0	0.143365	-1.099	3.170	-10.606	-26.757	-43.526
8	2.500	0.143365	-1.099	3.170	-10.606	-18.833	-46.273
9	0	0.167012	-1.110	3.196	-11.004	-30.543	-51.047
9	2.500	0.167012	-1.110	3.196	-11.004	-22.554	-53.822
10	0	-0.194051	-0.380696	3.449	-11.703	-34.713	-59.315
10	2.500	-0.194051	-0.380696	3.449	-11.703	-26.092	-60.267
11	0	-0.845417	2.389	4.999	-11.822	-39.061	-66.456
11	2.500	-0.845417	2.389	4.999	-11.822	-26.564	-60.483
12	0	-0.631362	10.628	7.918	-10.038	-38.547	-66.845
12	3.600	-0.631362	10.628	7.918	-10.038	-10.043	-27.665
13	0	0.214094	13.563	9.331	-10.457	-21.006	-32.872
13	3.600	0.214094	13.563	9.331	-10.457	12.588	16.028
14	0	0.541062	14.261	9.501	-10.629	0.906961	9.770
14	3.600	0.541062	14.261	9.501	-10.629	35.112	61.161
15	0	1.519	15.380	10.335	-9.448	23.678	56.278
15	3.600	1.519	15.380	10.335	-9.448	60.885	111.645
16	0	6.599	12.530	13.378	-7.578	50.257	115.755

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
16	2.100	6.599	12.530	13.378	-7.578	78.345	142.064
16	2.100	6.599	9.425	2.690	-1.778	78.351	142.072
16	3.600	6.599	9.425	2.690	-1.778	82.384	156.206
17	0	6.599	-9.425	-2.690	1.778	82.384	156.206
17	3.6E-4	6.599	-9.425	-2.690	1.778	82.382	156.203
17	1.500	6.599	-9.425	-2.690	1.778	78.351	142.072
17	1.500	6.599	-12.530	-13.378	7.578	78.345	142.064
17	3.600	6.599	-12.530	-13.378	7.578	50.257	115.755
18	0	1.519	-15.380	-10.335	9.448	60.885	111.645
18	3.600	1.519	-15.380	-10.335	9.448	23.678	56.278
19	0	0.541062	-14.261	-9.501	10.629	35.112	61.161
19	3.600	0.541062	-14.261	-9.501	10.629	0.906961	9.770
20	0	0.214094	-13.563	-9.331	10.457	12.588	16.028
20	3.600	0.214094	-13.563	-9.331	10.457	-21.006	-32.872
21	0	-0.631361	-10.628	-7.918	10.038	-10.043	-27.865
21	3.600	-0.631361	-10.628	-7.918	10.038	-38.547	-66.845
22	0	-0.845416	-2.389	-4.999	11.822	-26.564	-60.483
22	2.500	-0.845416	-2.389	-4.999	11.822	-39.061	-66.456
23	0	-0.194052	0.380710	-3.449	11.703	-26.092	-60.267
23	2.500	-0.194052	0.380710	-3.449	11.703	-34.713	-59.315
24	0	0.167012	1.110	-3.196	11.004	-22.554	-53.822
24	2.500	0.167012	1.110	-3.196	11.004	-30.543	-51.047
25	0	0.143365	1.099	-3.170	10.606	-18.833	-46.273
25	2.500	0.143365	1.099	-3.170	10.606	-26.757	-43.526
26	0	0.041774	0.961354	-3.165	10.435	-15.253	-38.971
26	2.500	0.041774	0.961354	-3.165	10.435	-23.165	-36.517
27	0	-0.029433	0.898100	-3.167	10.353	-11.764	-31.985
27	2.500	-0.029433	0.898100	-3.167	10.353	-19.683	-29.740
28	0	-0.095619	0.841420	-3.178	10.276	-8.345	-25.226
28	2.500	-0.095619	0.841420	-3.178	10.276	-16.291	-23.122
29	0	-0.225299	0.770947	-3.204	10.121	-5.032	-18.695
29	2.500	-0.225299	0.770947	-3.204	10.121	-13.041	-16.771
30	0	-0.501830	0.702674	-3.240	9.723	-1.958	-12.584
30	2.500	-0.501830	0.702674	-3.240	9.723	-10.058	-10.626
31	0	-0.934677	0.851161	-3.504	8.418	0.573410	-7.002
31	2.500	-0.934677	0.851161	-3.504	8.418	-8.187	-4.875

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
32	0	-4.87E-15	2.27E-12	-8.50E-13	-7.70E-15	9.40E-13	-1.58E-12
32	0.500	-4.87E-15	2.27E-12	-8.50E-13	-7.70E-15	5.15E-13	-4.40E-13
33	0	4.22E-16	3.75E-13	-1.23E-14	-5.33E-17	-2.55E-14	-2.32E-13
33	0.500	4.22E-16	3.75E-13	-1.23E-14	-5.33E-17	-3.16E-14	-4.47E-14
34	0	0.498545	-0.181741	-0.055326	-9.192	-1.940	0.235767
34	2.500	0.498545	-0.181741	-0.055326	-9.192	-2.079	-0.218585
35	0	-0.006170	-0.611921	-0.471895	-9.943	-3.500	0.846415
35	2.500	-0.006170	-0.611921	-0.471895	-9.943	-4.680	-0.681386
36	0	-0.048751	-0.559870	-0.592826	-10.188	-5.680	0.727335
36	2.500	-0.048751	-0.559870	-0.592826	-10.188	-7.362	-0.672336
37	0	-0.028973	-0.492596	-0.611461	-10.295	-8.456	0.623270
37	2.500	-0.028973	-0.492596	-0.611461	-10.295	-9.986	-0.608220
38	0	-0.030190	-0.470713	-0.618200	-10.351	-11.051	0.587663
38	2.500	-0.030190	-0.470713	-0.618200	-10.351	-12.596	-0.589098
39	0	-0.062760	-0.479669	-0.617757	-10.410	-13.640	0.586860
39	2.500	-0.062760	-0.479669	-0.617757	-10.410	-15.185	-0.612311
40	0	-0.136971	-0.477491	-0.617152	-10.531	-16.183	0.564786
40	2.500	-0.136971	-0.477471	-0.617152	-10.531	-17.726	-0.628679
41	0	-0.211146	-0.374241	-0.655315	-10.823	-18.596	0.437246
41	2.500	-0.211146	-0.374241	-0.655315	-10.823	-20.234	-0.496355
42	0	-0.089687	-0.189561	-1.051	-11.456	-20.769	0.277495
42	2.500	-0.089687	-0.189561	-1.051	-11.456	-23.397	-0.196408
43	0	0.314903	-0.447039	-1.914	-11.947	-23.768	0.600566
43	2.500	0.314903	-0.447039	-1.914	-11.947	-26.555	-0.516623
44	0	0.085240	-0.985861	5.781	-10.040	-29.807	1.663
44	3.600	0.085240	-0.985861	5.781	-10.040	-8.994	-1.686
45	0	-0.018923	-0.982180	4.846	-10.683	-11.247	1.757
45	3.600	-0.018923	-0.982180	4.846	-10.683	6.199	-1.776
46	0	0.447267	-1.038	4.879	-10.732	4.432	1.851
46	3.600	0.447267	-1.038	4.879	-10.732	21.997	-1.885
47	0	1.626	-1.836	5.098	-9.431	20.581	3.193
47	3.600	1.626	-1.836	5.098	-9.431	38.933	-3.415
48	0	1.385	-2.266	8.125	-4.755	37.012	3.469
48	2.100	1.385	-2.266	8.125	-4.755	54.070	-1.273
48	2.100	1.385	-2.266	-0.755462	-4.755	54.072	-1.274
48	3.600	1.385	-2.266	-0.755462	-4.755	52.946	-4.675

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
49	0	1.385	2.266	0.755462	4.755	52.946	-4.675
49	3.6E-4	1.385	2.266	0.755462	4.755	52.940	-4.674
49	1.500	1.385	2.266	0.755462	4.755	54.071	-1.274
49	1.500	1.385	2.266	-8.125	4.755	54.070	-1.273
49	3.600	1.385	2.266	-8.125	4.755	37.012	3.469
50	0	1.626	1.836	-5.098	9.431	38.933	-3.415
50	3.600	1.626	1.836	-5.098	9.431	20.581	3.193
51	0	0.447267	1.038	-4.879	10.732	21.997	-1.885
51	3.600	0.447267	1.038	-4.879	10.732	4.432	1.851
52	0	-0.018923	0.982180	-4.846	10.683	6.199	-1.776
52	3.600	-0.018923	0.982180	-4.846	10.683	-11.247	1.757
53	0	0.085240	0.985861	-5.781	10.040	-8.994	-1.686
53	3.600	0.085240	0.985861	-5.781	10.040	-29.807	1.663
54	0	0.314906	0.447034	1.914	11.947	-28.552	-0.516627
54	2.500	0.314906	0.447034	1.914	11.947	-23.768	0.600957
55	0	-0.089686	0.189552	1.051	11.456	-23.397	-0.196396
55	2.500	-0.089686	0.189552	1.051	11.456	-20.769	0.277486
56	0	-0.211146	0.374232	0.655315	10.823	-20.234	-0.496345
56	2.500	-0.211146	0.374232	0.655315	10.823	-18.596	0.437236
57	0	-0.136971	0.477463	0.617152	10.531	-17.726	-0.628870
57	2.500	-0.136971	0.477463	0.617152	10.531	-16.183	0.564785
58	0	-0.062760	0.479661	0.617757	10.410	-15.185	-0.612302
58	2.500	-0.062760	0.479661	0.617757	10.410	-13.640	0.586851
59	0	-0.030190	0.470705	0.618200	10.351	-12.596	-0.589089
59	2.500	-0.030190	0.470705	0.618200	10.351	-11.051	0.587674
60	0	-0.028973	0.492588	0.611461	10.295	-9.986	-0.608210
60	2.500	-0.028973	0.492588	0.611461	10.295	-8.456	0.623261
61	0	-0.048751	0.559863	0.592826	10.188	-7.362	-0.672327
61	2.500	-0.048751	0.559863	0.592826	10.188	-5.680	0.727330
62	0	-0.008169	0.611915	0.471894	9.943	-4.680	-0.681361
62	2.500	-0.008169	0.611915	0.471894	9.943	-3.500	0.846407
63	0	0.498542	0.181738	0.055326	9.192	-2.079	-0.218580
63	2.500	0.498542	0.181738	0.055326	9.192	-1.940	0.235765
64	0	-1.89E-14	3.37E-12	-1.39E-12	-1.04E-14	8.08E-13	-5.99E-13
64	0.500	-1.89E-14	3.37E-12	-1.39E-12	-1.04E-14	1.14E-13	6.86E-13

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	1.55E-16	-5.50E-13	9.41E-14	1.79E-17	3.94E-15	1.23E-13
65	0.500	1.55E-16	-5.50E-13	9.41E-14	1.79E-17	5.10E-14	-1.52E-13
66	0	0.097396	0.120592	-0.743760	-9.626	-0.354964	-0.237665
66	2.500	0.097396	0.120592	-0.743760	-9.626	-2.214	0.063812
67	0	0.176375	-0.221195	-1.019	-10.172	-2.529	0.305506
67	2.500	0.176375	-0.221195	-1.019	-10.172	-5.076	-0.247484
68	0	0.102306	-0.222432	-1.047	-10.267	-5.193	0.298005
68	2.500	0.102306	-0.222432	-1.047	-10.267	-7.810	-0.258075
69	0	0.031070	-0.157789	-1.048	-10.317	-7.848	0.202001
69	2.500	0.031070	-0.157789	-1.048	-10.317	-10.469	-0.192471
70	0	-0.017964	-0.125231	-1.045	-10.347	-10.476	0.158551
70	2.500	-0.017964	-0.125231	-1.045	-10.347	-13.088	-0.154527
71	0	-0.086017	-0.108598	-1.034	-10.367	-13.066	0.137940
71	2.500	-0.086017	-0.108598	-1.034	-10.367	-15.651	-0.133556
72	0	-0.183536	-0.090158	-1.020	-10.388	-15.559	0.116380
72	2.500	-0.183536	-0.090158	-1.020	-10.388	-18.110	-0.109014
73	0	-0.200991	-0.058723	-1.057	-10.423	-17.822	0.083096
73	2.500	-0.200991	-0.058723	-1.057	-10.423	-20.464	-0.063711
74	0	0.059452	-0.038186	-1.312	-10.496	-19.703	0.064236
74	2.500	0.059452	-0.038186	-1.312	-10.496	-22.984	-0.031125
75	0	0.401684	-0.088000	-4.513	-10.713	-20.867	0.133322
75	2.500	0.401684	-0.088000	-4.513	-10.713	-32.170	-0.086678
76	0	0.349741	-0.656800	6.654	-11.222	-31.768	1.220
76	3.600	0.349741	-0.656800	6.654	-11.222	-7.614	-1.144
77	0	-0.069211	-0.689427	4.145	-11.291	-9.647	1.234
77	3.600	-0.069211	-0.689427	4.145	-11.291	5.273	-1.248
78	0	0.105179	-0.962549	4.224	-10.836	5.024	1.656
78	3.600	0.105179	-0.962549	4.224	-10.836	20.232	-1.807
79	0	0.426647	-1.740	4.331	-9.329	20.272	2.856
79	3.600	0.426647	-1.740	4.331	-9.329	35.863	-3.407
80	0	-0.798287	-1.688	2.967	-4.487	36.852	2.633
80	3.600	-0.798287	-1.688	2.967	-4.487	47.534	-3.443
81	0	-0.798287	1.688	-2.967	4.487	47.534	-3.443
81	3.600	-0.798287	1.688	-2.967	4.487	36.852	2.633
82	0	0.426647	1.740	-4.331	9.329	35.863	-3.407

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
82	3.600	0.426647	1.740	-4.331	9.329	20.272	2.856
83	0	0.105179	0.962549	-4.224	10.836	20.232	-1.807
83	3.600	0.105179	0.962549	-4.224	10.836	5.024	1.656
84	0	-0.069211	0.689427	-4.145	11.291	5.273	-1.248
84	3.600	-0.069211	0.689427	-4.145	11.291	-9.647	1.234
85	0	0.349741	0.656800	-6.654	11.222	-7.814	-1.144
85	3.600	0.349741	0.656800	-6.654	11.222	-31.768	1.220
86	0	0.401682	0.087996	4.513	10.713	-32.170	-0.086675
86	2.500	0.401682	0.087996	4.513	10.713	-20.687	0.133319
87	0	0.059493	0.036182	1.312	10.496	-22.984	-0.031124
87	2.500	0.059493	0.036182	1.312	10.496	-19.703	0.064321
88	0	-0.200990	0.058719	1.057	10.423	-20.464	-0.063706
88	2.500	-0.200990	0.058719	1.057	10.423	-17.822	0.083091
89	0	-0.183535	0.090153	1.020	10.388	-18.110	-0.109006
89	2.500	-0.183535	0.090153	1.020	10.388	-15.559	0.116375
90	0	-0.086017	0.108594	1.034	10.367	-15.651	-0.133551
90	2.500	-0.086017	0.108594	1.034	10.367	-13.066	0.137935
91	0	-0.017964	0.125227	1.045	10.347	-13.088	-0.154522
91	2.500	-0.017964	0.125227	1.045	10.347	-10.476	0.158546
92	0	0.031070	0.157785	1.048	10.317	-10.469	-0.192466
92	2.500	0.031070	0.157785	1.048	10.317	-7.848	0.201996
93	0	0.102307	0.222428	1.047	10.267	-7.810	-0.258070
93	2.500	0.102307	0.222428	1.047	10.267	-5.193	0.298000
94	0	0.176375	0.221192	1.019	10.172	-5.076	-0.247480
94	2.500	0.176375	0.221192	1.019	10.172	-2.529	0.305500
95	0	0.097396	-0.120594	0.743760	9.626	-2.214	0.063815
95	2.500	0.097396	-0.120594	0.743760	9.626	-0.354964	-0.237671
96	0	4.84E-15	7.92E-13	-1.26E-12	1.23E-15	8.92E-13	-3.77E-14
96	0.500	4.84E-15	7.92E-13	-1.26E-12	1.23E-15	2.61E-13	3.58E-13
97	0	1.39E-15	3.63E-13	4.43E-13	9.43E-18	-1.41E-13	-6.84E-14
97	0.500	1.39E-15	3.63E-13	4.43E-13	9.43E-18	8.09E-14	1.13E-13
98	0	-0.384505	-0.418905	-1.749	-9.796	1.568	0.491560
98	2.500	-0.384505	-0.418905	-1.749	-9.796	-2.805	-0.555703
99	0	0.232011	-0.583725	-1.558	-10.255	-1.750	0.742887
99	2.500	0.232011	-0.583725	-1.558	-10.255	-5.644	-0.716426

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
100	0	0.146332	-0.477172	-1.485	-10.300	-4.596	0.582661
100	2.500	0.146332	-0.477172	-1.485	-10.300	-8.306	-0.610266
101	0	0.054697	-0.445146	-1.482	-10.329	-7.271	0.552693
101	2.500	0.054697	-0.445146	-1.482	-10.329	-10.977	-0.560173
102	0	0.013926	-0.424081	-1.475	-10.340	-9.925	0.534556
102	2.500	0.013926	-0.424081	-1.475	-10.340	-13.611	-0.525648
103	0	-0.023150	-0.391393	-1.462	-10.325	-12.540	0.506183
103	2.500	-0.023150	-0.391393	-1.462	-10.325	-16.196	-0.472258
104	0	-0.079330	-0.367802	-1.450	-10.249	-15.081	0.496928
104	2.500	-0.079330	-0.367802	-1.450	-10.249	-18.706	-0.422576
105	0	-0.100614	-0.423433	-1.471	-10.032	-17.464	0.570347
105	2.500	-0.100614	-0.423433	-1.471	-10.032	-21.142	-0.486235
106	0	0.081667	-0.538015	-1.799	-9.553	-19.580	0.674338
106	2.500	0.081667	-0.538015	-1.799	-9.553	-24.078	-0.670716
107	0	0.297655	-0.519416	-2.396	-9.424	-22.338	0.569920
107	2.500	0.297655	-0.519416	-2.396	-9.424	-26.329	-0.726619
108	0	0.352881	-0.691136	4.567	-12.423	-27.076	1.579
108	3.600	0.352881	-0.691136	4.567	-12.423	-10.562	-1.629
109	0	-0.136652	-0.916552	3.812	-11.858	-9.672	1.651
109	3.600	-0.136652	-0.916552	3.812	-11.858	4.049	-1.649
110	0	-0.367669	-1.256	3.597	-10.867	5.390	2.197
110	3.600	-0.367669	-1.256	3.597	-10.867	18.340	-2.324
111	0	-0.987534	-1.720	3.217	-8.979	20.010	2.850
111	3.600	-0.987534	-1.720	3.217	-8.979	31.563	-3.237
112	0	-2.379	-1.304	1.487	-3.952	33.445	2.026
112	3.600	-2.379	-1.304	1.487	-3.952	38.802	-2.668
113	0	-2.379	1.304	-1.487	3.952	38.802	-2.668
113	3.600	-2.379	1.304	-1.487	3.952	33.445	2.026
114	0	-0.987534	1.720	-3.217	8.979	31.563	-3.237
114	3.600	-0.987534	1.720	-3.217	8.979	20.010	2.850
115	0	-0.367669	1.256	-3.597	10.867	18.340	-2.324
115	3.600	-0.367669	1.256	-3.597	10.867	5.390	2.197
116	0	-0.136652	0.916552	-3.812	11.858	4.049	-1.649
116	3.600	-0.136652	0.916552	-3.812	11.858	-9.672	1.651

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
117	0	0.352881	0.691136	-4.567	12.423	-10.562	-1.629
117	3.600	0.352881	0.691136	-4.567	12.423	-27.076	1.579
118	0	0.297652	0.519412	2.396	9.424	-26.329	-0.726615
118	2.500	0.297652	0.519412	2.396	9.424	-22.338	0.569914
119	0	0.081667	0.538012	1.799	9.553	-24.078	-0.670701
119	2.500	0.081667	0.538012	1.799	9.553	-19.580	0.674330
120	0	-0.100613	0.423425	1.471	10.032	-21.142	-0.488226
120	2.500	-0.100613	0.423425	1.471	10.032	-17.464	0.570338
121	0	-0.079330	0.367794	1.450	10.249	-18.706	-0.422566
121	2.500	-0.079330	0.367794	1.450	10.249	-15.081	0.496919
122	0	-0.023150	0.391385	1.462	10.325	-16.196	-0.472285
122	2.500	-0.023150	0.391385	1.462	10.325	-12.540	0.506172
123	0	0.013926	0.424073	1.475	10.340	-13.611	-0.525636
123	2.500	0.013926	0.424073	1.475	10.340	-9.925	0.534544
124	0	0.054697	0.445138	1.482	10.329	-10.977	-0.560163
124	2.500	0.054697	0.445138	1.482	10.329	-7.271	0.552683
125	0	0.146332	0.477164	1.485	10.300	-8.308	-0.610256
125	2.500	0.146332	0.477164	1.485	10.300	-4.596	0.582652
126	0	0.232010	0.583718	1.558	10.255	-5.644	-0.716416
126	2.500	0.232010	0.583718	1.558	10.255	-1.750	0.742876
127	0	-0.384502	0.418902	1.749	9.796	-2.805	-0.555698
127	2.500	-0.384502	0.418902	1.749	9.796	1.568	0.491557
128	0	2.28E-14	5.98E-13	9.98E-13	-8.02E-15	2.04E-13	-1.64E-13
128	0.500	2.28E-14	5.98E-13	9.98E-13	-8.02E-15	7.03E-13	1.36E-13
129	0	1.94E-15	-3.57E-12	7.78E-12	7.99E-17	-7.15E-13	1.25E-12
129	0.500	1.94E-15	-3.57E-12	7.78E-12	7.99E-17	3.17E-12	-5.38E-13
130	0	0.723307	4.406	-6.966	-9.209	8.991	-4.715
130	2.500	0.723307	4.406	-6.966	-9.209	-8.424	6.301
131	0	0.101678	4.899	-6.081	-10.157	2.967	2.651
131	2.500	0.101678	4.899	-6.081	-10.157	-12.235	14.899
132	0	0.025476	4.765	-5.985	-10.289	-0.943285	10.469
132	2.500	0.025476	4.765	-5.985	-10.289	-15.905	22.381
133	0	0.038890	4.649	-5.954	-10.328	-4.594	17.793
133	2.500	0.038890	4.649	-5.954	-10.328	-19.480	29.414
134	0	0.063726	4.619	-5.940	-10.334	-6.150	24.801

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
134	2.500	0.063726	4.619	-5.940	-10.334	-23.001	36.349
135	0	0.130217	4.656	-5.927	-10.300	-11.685	31.701
135	2.500	0.130217	4.656	-5.927	-10.300	-26.502	43.341
136	0	0.256536	4.723	-5.906	-10.178	-15.250	38.675
136	2.500	0.256536	4.723	-5.906	-10.178	-30.015	50.482
137	0	0.345802	4.644	-5.852	-9.866	-18.914	45.971
137	2.500	0.345802	4.644	-5.852	-9.866	-33.545	57.580
138	0	0.142643	3.803	-5.541	-9.334	-22.800	53.626
138	2.500	0.142643	3.803	-5.541	-9.334	-36.653	63.136
139	0	-0.168761	1.272	-3.779	-9.521	-26.551	59.502
139	2.500	-0.168761	1.272	-3.779	-9.521	-35.997	62.682
140	0	-0.156449	-6.091	0.696389	-12.412	-24.474	56.167
140	3.600	-0.156449	-6.091	0.696389	-12.412	-21.967	34.238
141	0	0.010745	-8.786	2.095	-12.008	-8.708	25.686
141	3.600	0.010745	-8.786	2.095	-12.008	-1.167	-5.940
142	0	-0.725787	-8.670	1.861	-10.824	11.087	-12.650
142	3.600	-0.725787	-8.670	1.861	-10.824	17.786	-43.862
143	0	-2.564	-7.208	1.189	-6.852	29.021	-48.396
143	3.600	-2.564	-7.208	1.189	-6.852	33.302	-74.344
144	0	-4.808	-3.225	0.202538	-3.656	41.231	-76.213
144	3.600	-4.808	-3.225	0.202538	-3.656	41.960	-87.824
145	0	-4.808	3.225	-0.202538	3.656	41.960	-87.824
145	3.600	-4.808	3.225	-0.202538	3.656	41.231	-76.213
146	0	-2.564	7.208	-1.189	6.852	33.302	-74.344
146	3.600	-2.564	7.208	-1.189	6.852	29.021	-48.396
147	0	-0.725787	8.670	-1.861	10.824	17.786	-43.862
147	3.600	-0.725787	8.670	-1.861	10.824	11.087	-12.650
148	0	0.010745	8.786	-2.095	12.008	-1.167	-5.940
148	3.600	0.010745	8.786	-2.095	12.008	-8.708	25.686
149	0	-0.156449	6.091	-0.696389	12.412	-21.967	34.238
149	3.600	-0.156449	6.091	-0.696389	12.412	-24.474	56.167
150	0	-0.168760	-1.272	3.779	9.521	-35.997	62.683
150	2.500	-0.168760	-1.272	3.779	9.521	-26.550	59.502
151	0	0.142642	-3.803	5.541	9.334	-36.653	63.136
151	2.500	0.142642	-3.803	5.541	9.334	-22.800	53.625

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
152	0	0.345802	-4.644	5.852	9.866	-33.545	57.580
152	2.500	0.345802	-4.644	5.852	9.866	-18.914	45.971
153	0	0.256535	-4.723	5.906	10.178	-30.015	50.482
153	2.500	0.256535	-4.723	5.906	10.178	-15.250	38.675
154	0	0.130217	-4.656	5.927	10.300	-26.502	43.341
154	2.500	0.130217	-4.656	5.927	10.300	-11.685	31.701
155	0	0.063726	-4.619	5.940	10.334	-23.001	36.349
155	2.500	0.063726	-4.619	5.940	10.334	-6.150	24.801
156	0	0.038890	-4.649	5.954	10.328	-19.480	29.414
156	2.500	0.038890	-4.649	5.954	10.328	-4.594	17.793
157	0	0.025476	-4.765	5.985	10.289	-15.905	22.381
157	2.500	0.025476	-4.765	5.985	10.289	-0.943282	10.469
158	0	0.101675	-4.899	6.081	10.157	-12.235	14.899
158	2.500	0.101675	-4.899	6.081	10.157	2.967	2.651
159	0	0.723306	-4.406	6.966	9.209	-8.424	6.301
159	2.500	0.723306	-4.406	6.966	9.209	8.991	-4.715
160	0	1.93E-14	-8.19E-12	-2.03E-12	-4.11E-15	2.33E-12	4.96E-12
160	0.500	1.93E-14	-8.19E-12	-2.03E-12	-4.11E-15	1.32E-12	6.64E-13
166	0	1.801	-0.933962	6.270	9.222	-8.416	2.397
166	1.600	1.801	-0.933962	6.270	9.222	1.614	0.902810
167	0	1.983	-0.435416	6.325	11.163	-7.578	0.667043
167	1.650	1.983	-0.435416	6.325	11.163	2.856	-0.051394
168	0	1.862	-0.338020	7.069	11.518	-6.767	0.186275
168	1.650	1.862	-0.338020	7.069	11.518	4.896	-0.371458
169	0	2.281	-0.722526	8.816	9.949	-4.900	-0.863018
169	1.600	2.281	-0.722526	8.816	9.949	9.209	-2.019
170	0	-0.216332	0.432849	0.212378	11.277	-1.305	0.706870
170	1.600	-0.216332	0.432849	0.212378	11.277	-0.965300	1.399
171	0	0.213848	-0.073866	0.628947	12.698	-1.717	0.332428
171	1.650	0.213848	-0.073866	0.628947	12.698	-0.679237	0.210548
172	0	0.555636	0.005113	0.904212	13.012	-1.226	-0.031143
172	1.650	0.555636	0.005113	0.904212	13.012	0.265933	-0.022707
173	0	0.720456	0.621629	0.712646	11.957	-0.192992	-1.321
173	1.600	0.720456	0.621629	0.712646	11.957	0.947242	-0.326691

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
174	0	0.055480	0.276531	0.053747	11.811	-0.398263	0.928913
174	1.600	0.055480	0.276531	0.053747	11.811	-0.312267	1.371
175	0	0.003429	0.235950	0.174679	13.011	-0.556681	-0.037366
175	1.650	0.003429	0.235950	0.174679	13.011	-0.268461	0.351951
176	0	0.004666	0.161881	0.202456	13.127	-0.363535	-0.193538
176	1.650	0.004666	0.161881	0.202456	13.127	-0.029483	0.073566
177	0	-0.101888	0.076203	0.129527	12.079	-0.074703	-1.226
177	1.600	-0.101888	0.076203	0.129527	12.079	0.132540	-1.104
178	0	0.060594	0.129680	0.044035	12.046	-0.155005	1.106
178	1.600	0.060594	0.129680	0.044035	12.046	-0.084554	1.314
179	0	-0.006680	0.149458	0.062670	13.142	-0.191214	0.016200
179	1.650	-0.006680	0.149458	0.062670	13.142	-0.067809	0.264805
180	0	-0.071323	0.078221	0.064176	13.181	-0.137006	-0.195270
180	1.650	-0.071323	0.078221	0.064176	13.181	-0.031109	-0.068206
181	0	-0.103349	-0.013415	0.061770	12.143	-0.059687	-1.225
181	1.600	-0.103349	-0.013415	0.061770	12.143	0.039145	-1.251
182	0	0.051356	0.066186	0.026391	12.146	-0.076515	1.172
182	1.600	0.051356	0.066186	0.026391	12.146	-0.034250	1.278
183	0	0.029473	0.064969	0.033130	13.211	-0.091000	0.082120
183	1.650	0.029473	0.064969	0.033130	13.211	-0.036336	0.189318
184	0	-0.003085	0.015935	0.029532	13.219	-0.066701	-0.161704
184	1.650	-0.003085	0.015935	0.029532	13.219	-0.017972	-0.135411
185	0	-0.024151	-0.024836	0.021744	12.167	-0.029455	-1.230
185	1.600	-0.024151	-0.024836	0.021744	12.167	0.005332	-1.270
186	0	0.079242	0.071207	0.025667	12.213	-0.081636	1.172
186	1.600	0.079242	0.071207	0.025667	12.213	-0.040567	1.285
187	0	0.086196	0.038637	0.025214	13.257	-0.099031	0.109541
187	1.650	0.086196	0.038637	0.025214	13.257	-0.057427	0.173292
188	0	0.071566	-0.025416	0.014667	13.234	-0.077508	-0.115175
188	1.650	0.071566	-0.025416	0.014667	13.234	-0.053309	-0.167711
189	0	0.038877	-0.066491	0.002418	12.164	-0.037570	-1.200
189	1.600	0.038877	-0.066491	0.002418	12.164	-0.033703	-1.306
190	0	0.114049	0.101592	0.028229	12.318	-0.171454	1.165
190	1.600	0.114049	0.101592	0.028229	12.318	-0.126327	1.327
191	0	0.111851	0.027381	0.027624	13.316	-0.247226	0.150083

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
191	1.650	0.111851	0.027381	0.027624	13.316	-0.201646	0.195261
192	0	0.093410	-0.070138	0.013908	13.224	-0.222877	-0.056474
192	1.650	0.093410	-0.070138	0.013908	13.224	-0.199528	-0.170602
193	0	0.069820	-0.126318	0.001642	12.108	-0.124085	-1.140
193	1.600	0.069820	-0.126318	0.001642	12.108	-0.121461	-1.342
194	0	0.018125	0.023647	-0.021862	12.577	-0.398264	1.317
194	1.600	0.018125	0.023647	-0.021862	12.577	-0.433244	1.355
195	0	-0.085105	-0.050528	0.016300	13.447	-0.726119	0.289305
195	1.650	-0.085105	-0.050528	0.016300	13.447	-0.699223	0.205833
196	0	-0.116540	-0.067983	0.052545	13.159	-0.753663	0.013723
196	1.650	-0.116540	-0.067983	0.052545	13.159	-0.647163	-0.096450
197	0	-0.060909	-0.089267	0.073745	11.918	-0.430361	-1.091
197	1.600	-0.060909	-0.089267	0.073745	11.918	-0.312366	-1.234
198	0	-0.629812	-0.361064	-0.446412	13.209	-0.658425	1.683
198	1.600	-0.629812	-0.361064	-0.446412	13.209	-1.413	1.305
199	0	-0.814491	-0.239604	-0.050628	13.744	-2.045	0.525515
199	1.650	-0.814491	-0.239604	-0.050628	13.744	-2.129	0.134172
200	0	-0.835028	0.020879	0.205064	12.964	-2.202	0.006125
200	1.650	-0.835028	0.020879	0.205064	12.964	-1.863	0.040575
201	0	-0.720442	0.203160	0.533087	11.421	-1.385	-1.122
201	1.600	-0.720442	0.203160	0.533087	11.421	-0.531683	-0.796943
202	0	-2.227	-0.651365	-2.261	14.180	-0.119158	2.225
202	1.600	-2.227	-0.651365	-2.261	14.180	-2.737	1.283
203	0	-1.970	-0.246776	-1.399	14.552	-4.228	0.485276
203	1.650	-1.970	-0.246776	-1.399	14.552	-6.537	0.078097
204	0	-1.920	0.095416	1.802	12.454	-6.753	-0.086355
204	1.650	-1.920	0.095416	1.802	12.454	-3.781	0.071082
205	0	-1.939	0.311404	2.399	10.715	-3.651	-1.170
205	1.600	-1.939	0.311404	2.399	10.715	0.186490	-0.671303
206	0	-7.269	0.214055	-5.157	13.282	1.784	2.766
206	1.600	-7.269	0.214055	-5.157	13.282	-6.466	3.109
207	0	-6.751	-0.015609	-12.852	14.537	-4.561	0.729364
207	1.650	-6.751	-0.015609	-12.852	14.537	-25.767	0.703610
208	0	-6.194	-0.067538	13.335	14.136	-26.276	-0.603230
208	1.650	-6.194	-0.067538	13.335	14.136	-4.273	-0.714667

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
209	0	-5.823	-0.012312	6.352	12.883	-7.272	-3.023
209	1.600	-5.823	-0.012312	6.352	12.883	2.891	-3.042
210	0	-2.252	0.845455	-2.126	11.923	-0.418876	1.750
210	1.600	-2.252	0.845455	-2.126	11.923	-3.821	3.103
211	0	-2.255	0.741292	-1.191	14.175	-4.463	-0.341155
211	1.650	-2.255	0.741292	-1.191	14.175	-6.428	0.881977
212	0	-2.223	0.322340	1.319	16.009	-6.497	-1.496
212	1.650	-2.223	0.322340	1.319	16.009	-4.320	-0.964023
213	0	-2.197	-0.167194	2.095	15.118	-3.755	-4.244
213	1.600	-2.197	-0.167194	2.095	15.118	-0.404115	-4.511
214	0	-0.622252	0.326969	-0.358089	12.963	-0.172871	2.751
214	1.600	-0.622252	0.326969	-0.358089	12.963	-0.745813	3.274
215	0	-0.566598	0.793159	-0.391355	14.730	-0.795310	-0.355629
215	1.650	-0.566598	0.793159	-0.391355	14.730	-1.441	0.953083
216	0	-0.293477	0.967549	-0.471189	14.980	-0.985835	-1.953
216	1.650	-0.293477	0.967549	-0.471189	14.980	-1.763	-0.357043
217	0	0.045846	0.736532	-0.256828	13.639	-0.772464	-4.203
217	1.600	0.045846	0.736532	-0.256828	13.639	-1.183	-3.024
218	0	-0.822698	0.977735	-1.108	12.348	1.182	1.516
218	1.600	-0.822698	0.977735	-1.108	12.348	-0.590566	3.083
219	0	-0.024951	2.157	-1.326	13.764	0.711163	-1.996
219	1.650	-0.024951	2.157	-1.326	13.764	-1.477	1.562
220	0	0.752818	2.478	-1.433	13.724	0.029503	-3.102
220	1.650	0.752818	2.478	-1.433	13.724	-2.335	0.986478
221	0	1.217	1.858	-1.053	12.054	-0.446847	-4.192
221	1.600	1.217	1.858	-1.053	12.054	-2.132	-1.219
222	0	3.585	5.080	-2.126	9.060	1.870	-6.911
222	1.600	3.585	5.080	-2.126	9.060	-1.522	1.217
223	0	4.017	4.840	-5.153	10.982	3.143	-5.686
223	1.650	4.017	4.840	-5.153	10.982	-5.359	2.299
224	0	3.965	3.615	-3.789	9.992	-0.518124	-3.741
224	1.650	3.965	3.615	-3.789	9.992	-6.770	2.223
225	0	3.549	2.223	-2.058	8.136	-1.743	-3.141
225	1.600	3.549	2.223	-2.058	8.136	-5.036	0.417039

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
226	0	16.601	6.35E-10	-0.705358	6.45E-08	-2.244	1.58E-08
226	1.600	16.601	6.35E-10	-0.705358	6.45E-08	-3.373	1.68E-08
227	0	12.065	1.90E-09	-11.096	7.17E-08	6.138	1.43E-09
227	1.650	12.065	1.90E-09	-11.096	7.17E-08	-12.171	4.56E-09
228	0	8.689	2.79E-09	-5.162	7.18E-08	-3.156	-6.61E-09
228	1.650	8.689	2.79E-09	-5.162	7.18E-08	-11.714	-2.00E-09
229	0	6.082	2.58E-09	-2.189	6.44E-08	-3.810	-1.84E-08
229	1.600	6.082	2.58E-09	-2.189	6.44E-08	-7.212	-1.42E-08
230	0	3.585	-5.080	-2.126	-9.060	1.870	6.911
230	1.600	3.585	-5.080	-2.126	-9.060	-1.522	-1.217
231	0	4.017	-4.840	-5.153	-10.982	3.143	5.686
231	1.650	4.017	-4.840	-5.153	-10.982	-5.359	-2.299
232	0	3.965	-3.615	-3.789	-9.992	-0.518124	3.741
232	1.650	3.965	-3.615	-3.789	-9.992	-6.770	-2.223
233	0	3.549	-2.223	-2.058	-8.136	-1.743	3.141
233	1.600	3.549	-2.223	-2.058	-8.136	-5.036	-0.417039
234	0	-0.822698	-0.977734	-1.108	-12.348	1.182	-1.516
234	1.600	-0.822698	-0.977734	-1.108	-12.348	-0.590566	-3.083
235	0	-0.024951	-2.157	-1.326	-13.764	0.711163	1.996
235	1.650	-0.024951	-2.157	-1.326	-13.764	-1.477	-1.562
236	0	0.752818	-2.478	-1.433	-13.724	0.029503	3.102
236	1.650	0.752818	-2.478	-1.433	-13.724	-2.335	-0.986478
237	0	1.217	-1.858	-1.053	-12.054	-0.446847	4.192
237	1.600	1.217	-1.858	-1.053	-12.054	-2.132	1.219
238	0	-0.622252	-0.326969	-0.358089	-12.963	-0.172871	-2.751
238	1.600	-0.622252	-0.326969	-0.358089	-12.963	-0.745813	-3.274
239	0	-0.566598	-0.793159	-0.391355	-14.730	-0.795309	0.355629
239	1.650	-0.566598	-0.793159	-0.391355	-14.730	-1.441	-0.953083
240	0	-0.293477	-0.967549	-0.471189	-14.980	-0.985835	1.953
240	1.650	-0.293477	-0.967549	-0.471189	-14.980	-1.763	0.357043
241	0	0.045846	-0.736532	-0.256828	-13.639	-0.772464	4.203
241	1.600	0.045846	-0.736532	-0.256828	-13.639	-1.183	3.024
242	0	-2.252	-0.845455	-2.126	-11.923	-0.418876	-1.750
242	1.600	-2.252	-0.845455	-2.126	-11.923	-3.821	-3.103
243	0	-2.255	-0.741292	-1.191	-14.175	-4.463	0.341155

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
243	1.650	-2.255	-0.741292	-1.191	-14.175	-6.428	-0.881977
244	0	-2.223	-0.322340	1.319	-16.009	-6.497	1.496
244	1.650	-2.223	-0.322340	1.319	-16.009	-4.320	0.964023
245	0	-2.197	0.167193	2.095	-15.118	-3.755	4.244
245	1.600	-2.197	0.167193	2.095	-15.118	-0.404115	4.511
246	0	-7.289	-0.214054	-5.157	-13.282	1.784	-2.766
246	1.600	-7.289	-0.214054	-5.157	-13.282	-6.468	-3.109
247	0	-6.751	0.015612	-12.852	-14.537	-4.561	-0.729367
247	1.650	-6.751	0.015612	-12.852	-14.537	-25.767	-0.703607
248	0	-6.194	0.067540	13.335	-14.136	-26.276	0.603229
248	1.650	-6.194	0.067540	13.335	-14.136	-4.273	0.714670
249	0	-5.823	0.012311	6.352	-12.883	-7.272	3.023
249	1.600	-5.823	0.012311	6.352	-12.883	2.891	3.042
250	0	-2.227	0.651364	-2.261	-14.180	-0.119158	-2.325
250	1.600	-2.227	0.651364	-2.261	-14.180	-3.737	-1.283
251	0	-1.970	0.246772	-1.399	-14.552	-4.228	-0.465264
251	1.650	-1.970	0.246772	-1.399	-14.552	-6.537	-0.078090
252	0	-1.920	-0.095417	1.802	-12.454	-6.753	0.086356
252	1.650	-1.920	-0.095417	1.802	-12.454	-3.761	-0.071085
253	0	-1.939	-0.311402	2.399	-10.715	-3.651	1.170
253	1.600	-1.939	-0.311402	2.399	-10.715	0.186490	0.671287
254	0	-0.629810	0.361064	-0.446412	-13.209	-0.698435	-1.883
254	1.600	-0.629810	0.361064	-0.446412	-13.209	-1.413	-1.305
255	0	-0.814491	0.239604	-0.050628	-13.744	-2.045	-0.529506
255	1.650	-0.814491	0.239604	-0.050628	-13.744	-2.129	-0.134163
256	0	-0.835027	-0.020879	0.205064	-12.984	-2.202	-0.006125
256	1.650	-0.835027	-0.020879	0.205064	-12.984	-1.663	-0.040576
257	0	-0.720440	-0.203159	0.533086	-11.421	-1.385	1.122
257	1.600	-0.720440	-0.203159	0.533086	-11.421	-0.531683	0.796925
258	0	0.018127	-0.023647	-0.021862	-12.577	-0.398264	-1.317
258	1.600	0.018127	-0.023647	-0.021862	-12.577	-0.433244	-1.355
259	0	-0.065104	0.050529	0.016300	-13.447	-0.726119	-0.289196
259	1.650	-0.065104	0.050529	0.016300	-13.447	-0.699223	-0.205625
260	0	-0.116539	0.067983	0.052545	-13.159	-0.733663	-0.013725
260	1.650	-0.116539	0.067983	0.052545	-13.159	-0.647163	0.098447

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
261	0	-0.060907	0.089267	0.073745	-11.918	-0.430361	1.091
261	1.600	-0.060907	0.089267	0.073745	-11.918	-0.312366	1.234
262	0	0.114049	-0.101591	0.028229	-12.316	-0.171494	-1.165
262	1.600	0.114049	-0.101591	0.028229	-12.316	-0.126326	-1.227
263	0	0.111852	-0.027381	0.027624	-13.316	-0.247226	-0.150077
263	1.650	0.111852	-0.027381	0.027624	-13.316	-0.201646	-0.195255
264	0	0.093411	0.070136	0.013908	-13.224	-0.222877	0.054670
264	1.650	0.093411	0.070136	0.013908	-13.224	-0.199528	0.170398
265	0	0.069820	0.126318	0.001642	-12.108	-0.124065	1.140
265	1.600	0.069820	0.126318	0.001642	-12.108	-0.121461	1.342
266	0	0.079242	-0.071207	0.025657	-12.213	-0.081639	-1.172
266	1.600	0.079242	-0.071207	0.025657	-12.213	-0.040567	-1.265
267	0	0.088198	-0.038637	0.025214	-13.257	-0.099031	-0.109536
267	1.650	0.088198	-0.038637	0.025214	-13.257	-0.057427	-0.173287
268	0	0.071566	0.029416	0.014667	-13.234	-0.077508	0.119170
268	1.650	0.071566	0.029416	0.014667	-13.234	-0.053306	0.167706
269	0	0.038877	0.066491	0.002416	-12.164	-0.037570	1.200
269	1.600	0.038877	0.066491	0.002416	-12.164	-0.033701	1.306
270	0	0.051356	-0.066186	0.026391	-12.146	-0.076515	-1.172
270	1.600	0.051356	-0.066186	0.026391	-12.146	-0.034250	-1.278
271	0	0.029473	-0.064969	0.033130	-13.211	-0.091000	-0.082119
271	1.650	0.029473	-0.064969	0.033130	-13.211	-0.036336	-0.189313
272	0	-0.003085	-0.015935	0.029532	-13.219	-0.066701	0.161699
272	1.650	-0.003085	-0.015935	0.029532	-13.219	-0.017973	0.135406
273	0	-0.024151	0.024836	0.021744	-12.167	-0.029459	1.230
273	1.600	-0.024151	0.024836	0.021744	-12.167	0.005332	1.270
274	0	0.060594	-0.129680	0.044035	-12.046	-0.155009	-1.106
274	1.600	0.060594	-0.129680	0.044035	-12.046	-0.084554	-1.314
275	0	-0.006681	-0.149458	0.062670	-13.142	-0.191214	-0.018195
275	1.650	-0.006681	-0.149458	0.062670	-13.142	-0.087809	-0.264600
276	0	-0.071324	-0.078221	0.064176	-13.181	-0.137000	0.195266
276	1.650	-0.071324	-0.078221	0.064176	-13.181	-0.031105	0.066202
277	0	-0.103349	0.013414	0.061770	-12.143	-0.059687	1.229
277	1.600	-0.103349	0.013414	0.061770	-12.143	0.039145	1.251

SECTION FORCES: *ALL*

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
278	0	0.055481	-0.276531	0.053748	-11.811	-0.398263	-0.928891
278	1.600	0.055481	-0.276531	0.053748	-11.811	-0.312266	-1.371
279	0	0.003429	-0.235949	0.174679	-13.011	-0.556681	0.037371
279	1.650	0.003429	-0.235949	0.174679	-13.011	-0.268461	-0.351945
280	0	0.004665	-0.161881	0.202456	-13.127	-0.363535	0.193535
280	1.650	0.004665	-0.161881	0.202456	-13.127	-0.029483	-0.073569
281	0	-0.101890	-0.076203	0.129527	-12.079	-0.074703	1.226
281	1.600	-0.101890	-0.076203	0.129527	-12.079	0.132540	1.104
282	0	-0.216328	-0.432847	0.212378	-11.277	-1.305	-0.706851
282	1.600	-0.216328	-0.432847	0.212378	-11.277	-0.985300	-1.399
283	0	0.213849	0.073864	0.628946	-12.698	-1.717	-0.332418
283	1.650	0.213849	0.073864	0.628946	-12.698	-0.679237	-0.210542
284	0	0.556635	-0.005114	0.904212	-13.012	-1.226	0.031142
284	1.650	0.556635	-0.005114	0.904212	-13.012	0.265933	0.022704
285	0	0.720451	-0.621627	0.712647	-11.957	-0.192982	1.321
285	1.600	0.720451	-0.621627	0.712647	-11.957	0.947242	0.326477
286	0	1.801	0.933960	6.270	-9.222	-8.418	-2.397
286	1.600	1.801	0.933960	6.270	-9.222	1.614	-0.902811
287	0	1.983	0.425418	6.325	-11.163	-7.576	-0.667045
287	1.650	1.983	0.425418	6.325	-11.163	2.658	0.051395
288	0	1.862	0.338022	7.069	-11.518	-6.767	-0.186276
288	1.650	1.862	0.338022	7.069	-11.518	4.856	0.371460
289	0	2.261	0.722525	8.818	-9.945	-4.900	0.863018
289	1.600	2.261	0.722525	8.818	-9.945	9.205	2.019
min:		-7.289	-15.380	-13.378	-16.009	-36.063	-87.624
max:		16.601	15.380	13.378	16.009	62.384	156.206

2.3.3. Armaduras pasivas. Método de Wood-Armer

LOAD COMBINATION CH: 'COMB1'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85000			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
11	1.5000			VEHICULO HIPOTESIS 11
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE

LOAD COMBINATION DI: 'COMB2'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85500			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
12	1.5000			VEHICULO HIPOTESIS 12
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE

LOAD COMBINATION DJ: 'COMB3'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85500			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
13	1.5000			VEHICULO HIPOTESIS 13
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE

LOAD COMBINATION DK: 'COMB4'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85500			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
14	1.5000			VEHICULO HIPOTESIS 14
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE

LOAD COMBINATION DL: 'COMB5'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85500			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
15	1.5000			VEHICULO HIPOTESIS 15
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE

LOAD COMBINATION DM: 'COMB6'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85500			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE
37	1.5000			VEHICULO HIPOTESIS 37

LOAD COMBINATION DN: 'COMB7'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85000			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE
38	1.5000			VEHICULO HIPOTESIS 38

LOAD COMBINATION DO: 'COMB8'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85000			PRETENSADO
5	1.0000			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE
39	1.5000			VEHICULO HIPOTESIS 39

LOAD COMBINATION DP: 'COMB9'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85000			PRETENSADO
5	1.0000			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE
40	1.5000			VEHICULO HIPOTESIS 40

LOAD COMBINATION DQ: 'COMB10'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85000			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
6	1.5000			SOB UNIF 1
7	1.5000			SOB UNIF 2
8	1.5000			SOB UNIF 3
9	1.5000			SOB UNIF 4
10	1.5000			SOB UNIF 5
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE
41	1.5000			VEHICULO HIPOTESIS 41

LOAD COMBINATION DR: 'COMB11'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85000			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE
38	1.5000			VEHICULO HIPOTESIS 38
46	1.5000			SOB UNIF VANO 1
48	1.5000			SOB UNIF VANO 3

LOAD COMBINATION DS: 'COMB12'

Loadcase	Factor	Stage	Init.def	Title
1	1.3500			PESO PROPIO
2	2.0250			PESO PAVIMENTO
3	1.3500			PESO BARRERAS
4	0.85000			PRETENSADO
5	1.3500			RETRACCION Y FLUENCIA
30	1.5000			FRENADO
33	0.45000			VIENTO TRANSV CON SOB
34	0.90000			TEMPERATURA (-)
36	0.90000			GRADIENTE
41	1.5000			VEHICULO HIPOTESIS 41
47	1.5000			SOB UNIF VANO 2

HIPOTESIS DE COMBINACION Nº 1

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	15.29	33.24	27.32	12.45
13	1.75 a 4.25	5.75	17.11	13.81	2.45
18	4.25 a 6.75	6.55	12.66	11.22	9.64
23	6.75 a 9.25	5.25	9.41	11.30	7.40
28	9.25 a 11.75	4.73	4.74	13.39	11.08
33	11.75 a 14.25	3.67	4.13	13.45	10.83
38	14.25 a 16.75	2.95	3.54	13.25	10.40
43	16.75 a 19.25	2.91	3.24	12.02	9.84
48	19.25 a 21.75	3.03	2.95	11.23	9.37
53	21.75 a 24.25	3.66	5.58	13.90	12.06

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.75	5.30	45.50	40.12
63	27.85 a 31.45	16.17	2.11	0.00	5.83
68	31.45 a 35.050	24.38	0.97	0.00	4.27
73	35.05 a 38.650	32.63	0.87	0.00	4.29
78	38.65 a 42.250	37.92	0.23	0.00	4.13
83	42.25 a 45.850	40.43	0.00	0.00	3.84
88	45.85 a 49.450	38.46	0.45	0.00	4.15
93	49.45 a 53.050	33.69	0.77	0.00	4.32
98	53.05 a 56.650	26.03	1.32	0.00	4.31
103	56.65 a 60.250	17.97	3.10	0.06	5.81

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	1.49	4.51	43.30	39.39
113	62.75 a 65.250	4.16	5.77	13.17	12.27
118	65.25 a 67.750	3.30	4.08	11.38	9.70
123	67.75 a 70.250	2.96	3.47	13.05	10.19
128	70.25 a 72.750	2.76	3.52	15.11	10.75
133	72.75 a 75.250	3.23	3.86	16.10	11.15
138	75.25 a 77.750	3.99	4.23	16.89	11.28
143	77.75 a 80.250	5.09	4.68	17.03	11.07
148	80.25 a 82.750	6.56	8.98	18.39	10.40
153	82.75 a 85.250	8.81	17.26	22.40	12.60
158	85.25 a 86.400	11.26	27.75	23.07	6.26

HIPOTESIS DE COMBINACION Nº 2

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	15.66	33.44	27.49	10.86
13	1.75 a 4.25	5.11	19.46	17.41	3.05
18	4.25 a 6.75	6.97	16.36	13.12	12.47
23	6.75 a 9.25	8.38	14.03	9.98	10.84
28	9.25 a 11.75	10.09	6.35	10.19	14.57
33	11.75 a 14.25	5.93	4.31	9.01	12.20
38	14.25 a 16.75	4.05	3.36	9.07	10.51
43	16.75 a 19.25	3.41	2.95	9.05	9.57
48	19.25 a 21.75	3.05	2.66	9.77	9.02
53	21.75 a 24.25	3.24	5.37	14.16	11.86

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.00	4.96	47.65	40.65
63	27.85 a 31.45	13.82	1.88	0.00	6.04
68	31.45 a 35.050	21.94	0.66	0.00	4.24
73	35.05 a 38.650	30.70	0.58	0.00	4.28
78	38.65 a 42.250	36.41	0.00	0.00	4.14
83	42.25 a 45.850	39.44	0.26	0.00	3.86
88	45.85 a 49.450	38.02	0.74	0.00	4.19
93	49.45 a 53.050	33.94	1.05	0.00	4.38
98	53.05 a 56.650	26.96	1.60	0.00	4.40
103	56.65 a 60.250	19.16	3.41	0.17	5.96

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	2.12	4.82	42.54	39.58
113	62.75 a 65.250	4.72	6.06	12.64	12.67
118	65.25 a 67.750	3.80	4.36	11.13	10.16
123	67.75 a 70.250	3.40	3.76	13.05	10.67
128	70.25 a 72.750	3.14	3.83	15.29	11.24
133	72.75 a 75.250	3.57	4.16	16.43	11.64
138	75.25 a 77.750	4.31	4.54	17.35	11.77
143	77.75 a 80.250	5.39	4.99	17.55	11.55
148	80.25 a 82.750	6.84	9.44	18.95	10.87
153	82.75 a 85.250	9.08	17.73	22.97	12.90
158	85.25 a 86.400	11.61	28.21	23.48	5.94

HIPOTESIS DE COMBINACION Nº 3

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= **1.45**

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	14.47	31.45	26.37	10.24
13	1.75 a 4.25	3.76	18.25	19.10	2.82
18	4.25 a 6.75	5.06	15.43	17.69	11.76
23	6.75 a 9.25	6.25	13.39	17.31	10.24
28	9.25 a 11.75	7.24	8.17	20.08	15.70
33	11.75 a 14.25	6.60	7.31	18.75	15.59
38	14.25 a 16.75	6.28	6.69	17.16	15.20
43	16.75 a 19.25	6.66	6.26	14.32	14.59
48	19.25 a 21.75	7.31	5.73	10.87	13.70
53	21.75 a 24.25	6.37	6.50	11.31	14.89

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.54	5.01	46.10	42.62
63	27.85 a 31.45	15.18	1.50	0.00	6.01
68	31.45 a 35.050	22.81	0.15	0.00	4.22
73	35.05 a 38.650	31.69	0.28	0.00	4.28
78	38.65 a 42.250	37.57	0.38	0.00	4.16
83	42.25 a 45.850	40.74	0.75	0.00	3.90
88	45.85 a 49.450	39.39	1.22	0.00	4.26
93	49.45 a 53.050	35.34	1.54	0.00	4.49
98	53.05 a 56.650	27.76	2.09	0.00	4.61
103	56.65 a 60.250	19.96	4.02	0.86	6.72

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	2.52	5.42	43.85	40.44
113	62.75 a 65.250	5.13	6.61	13.94	13.50
118	65.25 a 67.750	4.22	4.91	12.35	10.98
123	67.75 a 70.250	3.82	4.30	14.21	11.48
128	70.25 a 72.750	3.58	4.36	16.40	12.05
133	72.75 a 75.250	4.03	4.70	17.49	12.45
138	75.25 a 77.750	4.78	5.07	18.37	12.58
143	77.75 a 80.250	5.87	5.94	18.50	12.36
148	80.25 a 82.750	7.33	10.21	19.83	11.66
153	82.75 a 85.250	9.54	18.45	23.78	13.35
158	85.25 a 86.400	12.17	28.81	24.06	5.85

HIPOTESIS DE COMBINACION Nº 4

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	14.00	30.73	25.92	10.22
13	1.75 a 4.25	3.35	17.72	19.44	2.71
18	4.25 a 6.75	4.60	14.62	18.83	11.46
23	6.75 a 9.25	5.39	11.23	19.12	9.96
28	9.25 a 11.75	6.15	7.54	22.48	15.29
33	11.75 a 14.25	5.30	6.99	21.87	15.16
38	14.25 a 16.75	4.77	6.41	21.11	14.78
43	16.75 a 19.25	4.94	6.18	19.20	14.27
48	19.25 a 21.75	5.31	5.88	17.88	13.90
53	21.75 a 24.25	6.24	8.62	19.84	16.89

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	3.65	8.22	50.43	46.71
63	27.85 a 31.45	20.76	2.17	0.00	7.38
68	31.45 a 35.050	27.35	0.21	0.00	4.57
73	35.05 a 38.650	35.22	0.54	0.00	4.35
78	38.65 a 42.250	40.66	0.63	0.00	4.19
83	42.25 a 45.850	43.28	1.00	0.00	3.93
88	45.85 a 49.450	41.35	1.47	0.00	4.30
93	49.45 a 53.050	36.28	1.75	0.00	4.56
98	53.05 a 56.650	27.96	2.34	0.00	4.74
103	56.65 a 60.250	19.70	4.35	1.47	7.43

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	2.37	5.75	46.00	41.18
113	62.75 a 65.250	5.00	6.93	15.89	14.01
118	65.25 a 67.750	4.12	5.21	14.09	11.42
123	67.75 a 70.250	3.77	4.59	15.76	11.91
128	70.25 a 72.750	3.57	4.63	17.79	12.46
133	72.75 a 75.250	4.06	4.97	18.71	12.87
138	75.25 a 77.750	4.86	5.34	19.44	13.00
143	77.75 a 80.250	6.00	6.25	19.39	12.78
148	80.25 a 82.750	7.45	10.58	20.55	12.06
153	82.75 a 85.250	9.72	18.77	24.32	13.56
158	85.25 a 86.400	12.42	29.05	24.32	6.13

HIPOTESIS DE COMBINACION Nº 5

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	13.09	29.62	25.02	10.92
13	1.75 a 4.25	2.91	16.53	19.11	2.55
18	4.25 a 6.75	4.26	12.40	18.98	10.70
23	6.75 a 9.25	4.31	9.30	19.43	9.20
28	9.25 a 11.75	4.95	6.78	22.86	14.15
33	11.75 a 14.25	3.99	6.23	22.70	14.01
38	14.25 a 16.75	3.34	5.65	22.34	13.62
43	16.75 a 19.25	3.39	5.39	20.86	13.09
48	19.25 a 21.75	3.61	5.09	19.89	12.68
53	21.75 a 24.25	4.39	7.88	22.43	15.58

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	1.64	7.59	54.28	44.83
63	27.85 a 31.45	19.49	4.12	1.91	10.18
68	31.45 a 35.050	30.33	2.86	0.00	5.15
73	35.05 a 38.650	42.34	2.79	0.00	4.82
78	38.65 a 42.250	50.81	1.56	0.00	4.81
83	42.25 a 45.850	54.09	0.00	0.00	4.96
88	45.85 a 49.450	50.81	1.56	0.00	4.81
93	49.45 a 53.050	42.34	2.37	0.00	4.82
98	53.05 a 56.650	30.33	3.01	0.00	5.15
103	56.65 a 60.250	19.49	5.30	3.13	10.18

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	1.64	6.69	53.31	43.85
113	62.75 a 65.250	4.39	7.88	22.43	15.58
118	65.25 a 67.750	3.61	6.10	19.89	12.68
123	67.75 a 70.250	3.39	5.39	20.86	13.09
128	70.25 a 72.750	3.34	5.37	22.34	13.62
133	72.75 a 75.250	3.99	5.73	22.70	14.01
138	75.25 a 77.750	4.94	6.10	22.88	14.15
143	77.75 a 80.250	6.23	6.83	22.21	13.94
148	80.25 a 82.750	7.85	11.60	22.76	13.17
153	82.75 a 85.250	10.14	19.62	25.88	14.11
158	85.25 a 86.400	13.09	29.62	25.01	7.24

HIPOTESIS DE COMBINACION Nº 6

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	10.57	25.40	26.13	22.27
13	1.75 a 4.25	3.60	8.56	9.25	7.79
18	4.25 a 6.75	4.20	4.81	5.80	4.63
23	6.75 a 9.25	3.96	2.44	6.10	3.27
28	9.25 a 11.75	1.46	0.91	5.71	5.29
33	11.75 a 14.25	0.54	0.53	6.61	5.70
38	14.25 a 16.75	0.00	0.13	7.31	5.79
43	16.75 a 19.25	0.00	0.45	8.10	5.74
48	19.25 a 21.75	0.00	0.10	9.67	5.85
53	21.75 a 24.25	0.26	3.71	15.01	9.61

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.00	2.89	49.63	40.25
63	27.85 a 31.45	12.96	1.01	0.00	6.13
68	31.45 a 35.050	23.52	0.00	0.00	4.43
73	35.05 a 38.650	34.88	0.07	0.00	4.51
78	38.65 a 42.250	41.67	0.14	0.00	4.38
83	42.25 a 45.850	44.32	0.05	0.00	4.08
88	45.85 a 49.450	42.04	0.14	0.00	4.37
93	49.45 a 53.050	35.63	0.07	0.00	4.50
98	53.05 a 56.650	24.64	0.49	0.00	4.41
103	56.65 a 60.250	14.40	2.96	0.00	6.04

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	0.00	2.80	47.54	39.63
113	62.75 a 65.250	0.52	3.65	13.85	9.46
118	65.25 a 67.750	0.00	1.46	9.45	5.81
123	67.75 a 70.250	0.00	0.37	8.73	5.75
128	70.25 a 72.750	0.00	0.05	8.81	5.80
133	72.75 a 75.250	0.00	0.17	8.90	5.73
138	75.25 a 77.750	0.43	0.36	8.77	5.40
143	77.75 a 80.250	1.30	1.20	8.76	4.72
148	80.25 a 82.750	2.56	3.65	10.17	4.20
153	82.75 a 85.250	4.86	10.59	14.77	8.60
158	85.25 a 86.400	6.33	22.61	18.12	12.83

HIPOTESIS DE COMBINACION Nº 7

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	9.96	24.14	25.16	21.30
13	1.75 a 4.25	2.63	7.82	9.44	7.05
18	4.25 a 6.75	4.60	4.55	4.66	4.47
23	6.75 a 9.25	5.02	2.60	0.95	2.29
28	9.25 a 11.75	3.46	0.66	0.00	4.28
33	11.75 a 14.25	2.65	0.66	0.16	5.04
38	14.25 a 16.75	1.38	0.36	2.65	5.62
43	16.75 a 19.25	0.68	0.64	5.33	5.70
48	19.25 a 21.75	0.13	0.32	8.86	5.90
53	21.75 a 24.25	0.04	3.84	16.28	9.93

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.00	2.98	52.98	41.40
63	27.85 a 31.45	10.57	1.08	0.00	6.33
68	31.45 a 35.050	21.53	0.00	0.00	4.44
73	35.05 a 38.650	33.36	0.07	0.00	4.50
78	38.65 a 42.250	40.57	0.14	0.00	4.36
83	42.25 a 45.850	43.59	0.05	0.00	4.07
88	45.85 a 49.450	41.63	0.14	0.00	4.36
93	49.45 a 53.050	35.48	0.07	0.00	4.49
98	53.05 a 56.650	24.70	0.49	0.00	4.40
103	56.65 a 60.250	14.59	2.95	0.00	6.03

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	0.00	2.79	47.06	39.53
113	62.75 a 65.250	0.64	3.64	13.44	9.44
118	65.25 a 67.750	0.00	1.60	8.90	5.80
123	67.75 a 70.250	0.00	0.42	8.10	5.72
128	70.25 a 72.750	0.00	0.07	8.15	5.78
133	72.75 a 75.250	0.01	0.29	8.24	5.71
138	75.25 a 77.750	0.60	0.36	8.15	5.38
143	77.75 a 80.250	1.45	1.20	8.23	4.70
148	80.25 a 82.750	2.68	3.69	9.77	4.20
153	82.75 a 85.250	4.94	10.81	14.53	8.59
158	85.25 a 86.400	6.35	22.60	18.07	12.81

HIPOTESIS DE COMBINACION Nº 8

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	9.08	22.76	24.05	20.14
13	1.75 a 4.25	1.54	6.79	11.49	6.60
18	4.25 a 6.75	3.14	3.98	9.55	4.49
23	6.75 a 9.25	3.10	1.91	8.54	3.08
28	9.25 a 11.75	0.94	0.76	6.98	5.37
33	11.75 a 14.25	0.43	0.48	6.76	5.70
38	14.25 a 16.75	0.19	0.25	6.43	5.74
43	16.75 a 19.25	0.32	0.48	5.98	5.58
48	19.25 a 21.75	0.63	0.09	6.52	5.43
53	21.75 a 24.25	1.19	4.17	13.04	9.87

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.00	3.19	51.75	42.17
63	27.85 a 31.45	12.23	1.13	0.00	6.46
68	31.45 a 35.050	22.86	0.00	0.00	4.45
73	35.05 a 38.650	34.45	0.07	0.00	4.50
78	38.65 a 42.250	41.43	0.14	0.00	4.36
83	42.25 a 45.850	44.22	0.05	0.00	4.07
88	45.85 a 49.450	42.03	0.14	0.00	4.36
93	49.45 a 53.050	35.65	0.07	0.00	4.49
98	53.05 a 56.650	24.64	0.49	0.00	4.40
103	56.65 a 60.250	14.31	2.97	0.00	6.05

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	0.00	2.80	47.62	39.64
113	62.75 a 65.250	0.52	3.65	13.93	9.47
118	65.25 a 67.750	0.00	1.50	9.32	5.80
123	67.75 a 70.250	0.00	0.39	8.47	5.72
128	70.25 a 72.750	0.00	0.06	8.46	5.78
133	72.75 a 75.250	0.00	0.23	8.50	5.71
138	75.25 a 77.750	0.54	0.36	8.36	5.38
143	77.75 a 80.250	1.41	1.20	8.39	4.70
148	80.25 a 82.750	2.65	3.69	9.87	4.19
153	82.75 a 85.250	4.92	10.74	14.57	8.58
158	85.25 a 86.400	6.34	22.57	18.05	12.79

HIPOTESIS DE COMBINACION Nº 9

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	8.82	22.36	23.73	19.79
13	1.75 a 4.25	1.22	6.64	12.08	6.45
18	4.25 a 6.75	2.70	3.94	10.95	4.45
23	6.75 a 9.25	2.47	1.91	10.67	3.07
28	9.25 a 11.75	0.12	0.76	9.83	5.39
33	11.75 a 14.25	0.00	0.24	10.34	5.72
38	14.25 a 16.75	0.00	0.03	10.64	5.80
43	16.75 a 19.25	0.00	0.34	11.08	5.78
48	19.25 a 21.75	0.00	0.00	12.37	5.98
53	21.75 a 24.25	0.00	3.60	17.57	10.11

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.00	3.05	52.48	42.22
63	27.85 a 31.45	16.64	0.98	0.00	5.77
68	31.45 a 35.050	27.13	0.00	0.00	4.22
73	35.05 a 38.650	38.00	0.06	0.00	4.47
78	38.65 a 42.250	44.24	0.13	0.00	4.36
83	42.25 a 45.850	46.26	0.05	0.00	4.07
88	45.85 a 49.450	43.34	0.14	0.00	4.36
93	49.45 a 53.050	36.21	0.07	0.00	4.49
98	53.05 a 56.650	24.45	0.50	0.00	4.41
103	56.65 a 60.250	13.41	3.00	0.00	6.11

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	0.00	2.83	49.43	40.01
113	62.75 a 65.250	0.11	3.69	15.50	9.57
118	65.25 a 67.750	0.00	1.31	10.70	5.83
123	67.75 a 70.250	0.00	0.33	9.67	5.73
128	70.25 a 72.750	0.00	0.04	9.48	5.78
133	72.75 a 75.250	0.00	0.12	9.35	5.72
138	75.25 a 77.750	0.35	0.36	9.04	5.38
143	77.75 a 80.250	1.25	1.20	8.89	4.71
148	80.25 a 82.750	2.54	3.67	10.19	4.18
153	82.75 a 85.250	4.84	10.51	14.71	8.55
158	85.25 a 86.400	6.30	22.47	18.01	12.75

HIPOTESIS DE COMBINACION Nº 10

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	8.68	22.16	23.57	19.61
13	1.75 a 4.25	1.05	6.57	12.39	6.38
18	4.25 a 6.75	2.48	3.92	11.67	4.43
23	6.75 a 9.25	2.14	1.91	11.78	3.07
28	9.25 a 11.75	0.00	0.55	11.32	5.39
33	11.75 a 14.25	0.00	0.19	12.21	5.72
38	14.25 a 16.75	0.00	0.02	12.89	5.80
43	16.75 a 19.25	0.00	0.29	13.69	5.77
48	19.25 a 21.75	0.00	0.00	15.33	5.94
53	21.75 a 24.25	0.00	2.97	20.86	9.99

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.00	2.99	55.67	41.64
63	27.85 a 31.45	11.40	1.09	0.00	6.36
68	31.45 a 35.050	25.76	0.00	0.00	4.43
73	35.05 a 38.650	40.98	0.15	0.00	4.45
78	38.65 a 42.250	51.46	0.30	0.00	4.03
83	42.25 a 45.850	56.95	0.17	0.00	3.26
88	45.85 a 49.450	51.46	0.30	0.00	4.03
93	49.45 a 53.050	40.98	0.15	0.00	4.45
98	53.05 a 56.650	25.76	0.53	0.00	4.43
103	56.65 a 60.250	11.40	3.17	0.17	6.36

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	0.00	2.95	55.64	41.61
113	62.75 a 65.250	0.00	2.97	20.86	9.99
118	65.25 a 67.750	0.00	1.12	15.33	5.94
123	67.75 a 70.250	0.00	0.29	13.69	5.77
128	70.25 a 72.750	0.00	0.01	12.89	5.80
133	72.75 a 75.250	0.00	0.07	12.21	5.72
138	75.25 a 77.750	0.00	0.19	11.32	5.39
143	77.75 a 80.250	0.75	1.18	10.59	4.72
148	80.25 a 82.750	2.16	3.62	11.29	4.12
153	82.75 a 85.250	4.57	9.80	15.17	8.45
158	85.25 a 86.400	6.16	22.16	17.90	12.60

HIPOTESIS DE COMBINACION Nº 11

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	10.40	24.80	25.70	21.88
13	1.75 a 4.25	3.16	8.05	8.46	7.29
18	4.25 a 6.75	5.33	4.62	2.34	4.53
23	6.75 a 9.25	7.07	2.63	0.00	1.82
28	9.25 a 11.75	7.47	0.67	0.00	4.23
33	11.75 a 14.25	6.65	0.66	0.00	4.86
38	14.25 a 16.75	5.08	0.35	0.00	5.31
43	16.75 a 19.25	3.80	0.49	0.00	5.35
48	19.25 a 21.75	2.70	0.20	0.00	5.37
53	21.75 a 24.25	4.06	3.30	4.89	8.66

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.00	2.68	39.65	36.69
63	27.85 a 31.45	12.46	0.85	0.00	5.33
68	31.45 a 35.050	16.58	0.00	0.00	4.04
73	35.05 a 38.650	23.20	0.07	0.00	4.17
78	38.65 a 42.250	27.27	0.14	0.00	4.05
83	42.25 a 45.850	29.25	0.05	0.00	3.75
88	45.85 a 49.450	28.33	0.13	0.00	4.05
93	49.45 a 53.050	25.32	0.06	0.00	4.16
96	53.05 a 56.650	19.75	0.41	0.00	4.00
103	56.65 a 60.250	16.48	2.53	0.00	5.03

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	0.29	2.70	33.72	34.81
113	62.75 a 65.250	6.42	3.09	2.04	8.17
118	65.25 a 67.750	2.56	1.22	0.00	5.27
123	67.75 a 70.250	2.11	0.42	0.00	5.42
128	70.25 a 72.750	1.75	0.25	1.03	5.74
133	72.75 a 75.250	1.72	0.27	2.27	5.69
138	75.25 a 77.750	1.99	0.36	3.40	5.36
143	77.75 a 80.250	2.51	1.24	4.69	4.67
148	80.25 a 82.750	3.45	3.80	7.48	4.31
153	82.75 a 85.250	5.50	11.31	13.56	8.81
158	85.25 a 86.400	6.65	23.26	18.33	13.12

HIPOTESIS DE COMBINACION Nº 12

Canto total del tablero (m)= 1.50 Canto útil del tablero (m)= 1.45

Ancho de las barras long. extremas (m) = 3.56

Ancho de las barras long. laterales(m) = 1.65 α(rad)= 1.570797 angulo que forman las barras transversales con el eje longitudinal

Ancho de las barras long. centrales(m) = 1.65 θ(rad)= 0.0000 angulo que forman las barras longitudinales con el eje vertical

Ancho de las barras trans vanos 1 y 2(m)= 2.50 Ancho de las barras trans. Vano 2 (m) = 3.60

NUDO	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
8	0.00 a 1.75	6.94	19.60	21.45	17.36
13	1.75 a 4.25	0.00	5.13	15.97	5.69
18	4.25 a 6.75	0.09	3.42	18.64	4.03
23	6.75 a 9.25	0.00	1.21	21.03	2.82
28	9.25 a 11.75	0.00	0.24	21.83	5.12
33	11.75 a 14.25	0.00	0.11	22.85	5.42
38	14.25 a 16.75	0.00	0.02	22.67	5.47
43	16.75 a 19.25	0.00	0.21	21.48	5.40
48	19.25 a 21.75	0.00	0.00	20.12	5.45
53	21.75 a 24.25	0.00	2.54	21.46	9.09

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
58	24.25 a 27.850	0.00	2.78	50.77	38.55
63	27.85 a 31.45	15.03	0.93	0.00	5.87
68	31.45 a 35.050	29.73	0.00	0.00	4.36
73	35.05 a 38.650	44.97	0.14	0.00	4.43
78	38.65 a 42.250	55.45	0.30	0.00	4.02
83	42.25 a 45.850	60.95	0.17	0.00	3.26
88	45.85 a 49.450	55.45	0.30	0.00	4.02
93	49.45 a 53.050	44.97	0.14	0.00	4.43
98	53.05 a 56.650	29.73	0.47	0.00	4.36
103	56.65 a 60.250	15.03	2.83	0.00	5.87

Nudo	Dist.	ARMADURA INFERIOR		ARMADURA SUPERIOR	
		AsLONG	AsTRANS	AsLONG	AsTRANS
Nº	(m)	(cm2/m)	(cm2/m)	(cm2/m)	(cm2/m)
108	60.25 a 62.750	0.00	2.72	50.74	38.52
113	62.75 a 65.250	0.00	2.55	21.46	9.09
118	65.25 a 67.750	0.00	0.86	20.12	5.45
123	67.75 a 70.250	0.00	0.21	21.48	5.40
128	70.25 a 72.750	0.00	0.01	22.67	5.47
133	72.75 a 75.250	0.00	0.07	22.85	5.42
138	75.25 a 77.750	0.00	0.16	21.83	5.12
143	77.75 a 80.250	0.00	0.58	19.89	4.54
148	80.25 a 82.750	0.00	2.62	18.21	3.66
153	82.75 a 85.250	2.52	7.06	18.41	7.53
158	85.25 a 86.400	4.91	19.60	16.78	11.31

2.3.4. Riostras sobre pilas y estribos

Plane (2-D) frame -analysis

* STRUCTURAL - DATA *

RIOSTRA ESTRIBOS

Project title :

JOINT DATA : (9 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	R XYZ	Specialities
1	0.000000	0.000000	0.000000			
2	1.000000	0.000000	0.000000	E E	F	
3	2.083333	0.000000	0.000000			
4	3.166666	0.000000	0.000000			
5	4.250000	0.000000	0.000000			
6	5.333333	0.000000	0.000000			
7	6.416667	0.000000	0.000000			
8	7.500000	0.000000	0.000000	F E	F	
9	8.500000	0.000000	0.000000			

BAR DATA : (8 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
1	1	2	1.000000	RIOSTRA			oS
2	2	3	1.083333	RIOSTRA			oS
3	3	4	1.083333	RIOSTRA			oS
4	4	5	1.083334	RIOSTRA			oS
5	5	6	1.083333	RIOSTRA			oS
6	6	7	1.083334	RIOSTRA			oS
7	7	8	1.083333	RIOSTRA			oS
8	8	9	1.000000	RIOSTRA			oS

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] zl [M1]	Iy [M4] zu [M1]	Fz [M2]
RIOSTRA	1.5000E+00	2.8125E-01	1.2500E+00
	-0.7500	0.7500	

CS-Name	Ax [M2] zl [M1]	Iy [M4] zu [M1]	Fz [M2]

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Shear-M [T/ M2]
1 .. 8	3.5500E+06	1.4700E+06

STS-Run ok

Load case 1: carga permanente

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-35.040		Stab 1 .. 8

Load case 2: SOB UNIF 1

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-10.680		Stab 1 .. 2

Load case 3: SOB UNIF 2

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-10.680		Stab 3 .. 6

Load case 4: SOB UNIF 3

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl const.	-10.680		Stab 7 .. 8

Load case 5: GRADIENTE

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z lc const.	-2.560		Stab 1 .. 8

Load case 6: VEH CENTRADO

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z lc conc.	-30.000	0.083300	Stab 4
Force Z lc conc.	-30.000	1.000	Stab 5

Load case 7: VEH EXCENTRICO

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z lc conc.	-30.000	0	Stab 1
Force Z lc conc.	-30.000	1.000	Stab 2

Load case 8: VEH CANTO UTIL

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z lc conc.	-30.000	0.366660	Stab 3
Force Z lc conc.	-30.000	0.200000	Stab 5

ENVELOPE SPECIFIC.: AC ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		carga permanente
B	PLUS	2	1.500		SOB UNIF 1
C	PLUS	3	1.500		SOB UNIF 2
D	PLUS	4	1.500		SOB UNIF 3
E	PLUS	5	1.500		GRADIENTE
F	PLUS	6	1.500		VEH CENTRADO
G	OR	7	1.500		VEH EXCENTRICO
H	OR	8	1.500		VEH CANTO UTIL

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
1	0	0	-45.000	-4.50E-07	A E D E G
		0	-4.73E-07	1.47E-13	A C
1	0.250	0	-61.791	-13.345	A E D E G
		0	-11.826	-1.476	A C
1	0.500	0	-78.582	-30.895	A E D E G
		0	-23.652	-5.911	A C
1	0.750	0	-95.373	-52.640	A E D E G
		0	-35.478	-13.304	A C
1	1.000	0	-112.164	-76.587	A E D E G
		0	-47.304	-23.652	A C
2	0	0	153.738	-23.652	A
		0	274.360	-33.582	A E C D E H
2	0.271	0	140.927	16.250	A
		0	256.170	38.261	A E C D E H
2	0.542	0	128.115	52.663	A
		0	237.979	105.177	A E C D E H
2	0.812	0	115.304	85.646	A
		0	215.789	167.166	A E C D E H
2	1.000	0	106.439	106.422	A
		0	207.203	207.174	A E C D E H
2	1.000	0	106.429	106.446	A
		0	207.188	207.218	A E C D E H
2	1.083	0	102.278	116.298	A E
		0	201.813	223.070	A C D E H
3	0	0	102.278	116.298	A E G
		0	201.813	223.070	A C D E H
3	0.271	0	89.467	142.263	A E G
		0	183.623	275.265	A C D E H
3	0.367	0	84.939	150.610	A E G
		0	177.194	292.533	A C D E H
3	0.367	0	84.928	150.629	A E G
		0	166.103	276.509	A C D E F

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
3	0.542	0	76.655	164.759	A E G
		0	154.356	304.533	A C D E F
3	0.812	0	63.844	183.785	A E G
		0	136.165	343.874	A C D E F
3	1.083	0	51.032	199.341	A E G
		0	117.975	378.289	A C D E F
4	0	0	51.032	199.341	A E G
		0	117.975	378.289	A C D E F
4	0.0832	0	47.097	203.423	A E G
		0	112.388	387.871	A C D E F
4	0.0834	0	47.087	203.433	A E G
		0	78.450	376.815	A C D E H
4	0.271	0	38.221	211.427	A E G
		0	65.862	390.339	A C D E H
4	0.542	0	25.409	220.044	A E G
		0	47.671	405.713	A C D E H
4	0.813	0	12.598	225.191	A E G
		0	29.481	416.161	A C D E H
4	1.083	0	-0.213942	302.073	A E C G
		0	11.291	346.477	A D E H
5	0	0	-0.213943	320.433	A E C E G
		0	11.291	328.117	A D H
5	0.200	0	-13.639	319.048	A E C E G
		0	1.835	329.429	A D H
5	0.200	0	-47.577	422.507	A E C E H
		0	-9.252	327.213	A D F
5	0.271	0	-52.327	418.974	A E C E H
		0	-12.597	326.440	A D F
5	0.542	0	-70.517	402.339	A E C E H
		0	-25.409	321.293	A D F
5	0.812	0	-88.708	380.777	A E C E H
		0	-38.220	312.677	A D F
5	1.000	0	-101.294	362.974	A E C E H
		0	-47.085	304.684	A D F
5	1.000	0	-112.385	387.874	A E C E F
		0	-47.095	203.424	A D
5	1.083	0	-117.975	378.288	A E C E F
		0	-51.032	199.341	A D
6	0	0	-117.975	378.288	A E C E F
		0	-51.032	199.341	A D
6	0.271	0	-136.165	343.873	A E C E F
		0	-63.844	183.785	A D
6	0.542	0	-154.356	304.532	A E C E F
		0	-76.655	164.759	A D
6	0.813	0	-172.545	260.264	A E C E F
		0	-89.467	142.264	A D
6	1.083	0	-190.736	211.070	A E C E F
		0	-102.278	116.298	A D

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
7	0	0	-190.736	211.070	A B C E F
		0	-102.278	116.298	A D
7	0.271	0	-208.712	158.166	A B C D E F
		0	-115.303	85.646	A
7	0.542	0	-226.902	99.176	A B C D E F
		0	-128.115	52.683	A
7	0.813	0	-245.093	35.260	A B C D E F
		0	-140.926	16.250	A
7	1.083	0	-263.283	-33.582	A B C D E F
		0	-153.738	-23.652	A
8	0	0	47.304	-23.652	A F
		0	67.164	-33.582	A B C D E
8	0.250	0	35.478	-13.304	A F
		0	50.373	-18.890	A B C D E
8	0.500	0	23.652	-5.913	A F
		0	33.582	-8.396	A B C D E
8	0.750	0	11.826	-1.478	A F
		0	16.791	-2.099	A B C D E
8	1.000	0	4.73E-07	-5.44E-13	A F
		0	6.72E-07	-4.38E-13	A B C D E

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
1	0	0	-45.000	-4.50E-07	A B C E G
		0	-4.73E-07	4.33E-13	A D F
1	0.250	0	-61.791	-13.349	A B C E G
		0	-11.826	-1.478	A D F
1	0.500	0	-78.582	-30.896	A B C E G
		0	-23.652	-5.913	A D F
1	0.750	0	-95.373	-52.640	A B E G
		0	-35.478	-13.304	A C D F
1	1.000	0	-112.164	-78.582	A B E G
		0	-47.304	-23.652	A C F
2	0	0	228.359	-78.582	A B E G
		0	244.739	-23.652	A C D H
2	0.271	0	198.729	-20.517	A B G
		0	243.367	42.216	A C D E H
2	0.542	0	181.579	30.983	A B G
		0	229.516	106.252	A C D E H
2	0.812	0	160.304	77.209	A G
		0	219.789	167.166	A B C D E H

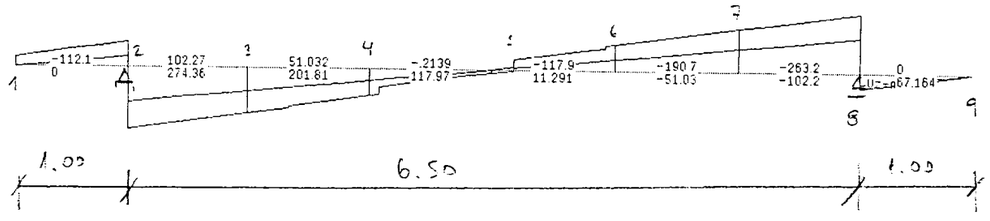
ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
2	1.000	0	151.439	106.418	A G
		0	207.203	207.174	A B C D E H
2	1.000	0	106.429	106.446	A
		0	207.189	207.218	A B C D E H
2	1.083	0	102.492	115.139	A
		0	201.599	224.229	A B C D E H
3	0	0	102.492	115.139	A
		0	201.599	224.229	A B C D E H
3	0.271	0	89.681	141.163	A
		0	183.409	276.365	A B C D E H
3	0.367	0	85.153	149.530	A
		0	176.980	293.613	A B C D E H
3	0.367	0	85.142	149.548	A
		0	131.965	293.647	A B C D E H
3	0.542	0	76.869	163.716	A
		0	120.219	315.700	A B C D E H
3	0.812	0	64.056	182.800	A
		0	102.028	345.796	A B C D E H
3	1.083	0	51.246	198.414	A
		0	117.761	379.216	A B C D E F
4	0	0	51.246	196.414	A
		0	117.761	379.216	A B C D E F
4	0.0832	0	47.311	202.514	A
		0	112.174	388.780	A B C D E F
4	0.0834	0	47.300	202.524	A
		0	67.159	388.800	A B C D E F
4	0.271	0	38.435	210.558	A
		0	54.571	400.208	A B C D E F
4	0.542	0	25.623	219.233	A
		0	36.381	412.524	A B C D E F
4	0.813	0	12.812	224.437	A
		0	18.190	419.914	A B C D E F
4	1.083	0	5.12E-07	226.172	A
		0	11.077	422.378	A B C D E H
5	0	0	-5.12E-07	226.172	A
		0	11.077	422.378	A B C D E H
5	0.200	0	-9.456	225.227	A
		0	-2.349	423.250	A B C D E H
5	0.200	0	-9.466	225.225	A
		0	-47.363	423.245	A B C D E H
5	0.271	0	-12.811	224.437	A
		0	-18.190	419.914	A B C D E F
5	0.542	0	-25.623	219.233	A
		0	-36.380	412.524	A B C D E F
5	0.812	0	-38.434	210.558	A
		0	-54.570	400.208	A B C D E F
5	1.000	0	-47.299	202.525	A
		0	-67.156	388.803	A B C D E F

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

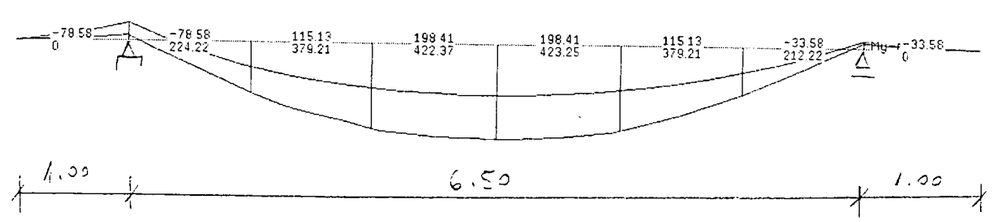
Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
5	1.000	0	-47.309	202.515	A
		0	-112.171	388.783	A B C D E F
5	1.083	0	-51.246	198.414	A
		0	-117.761	379.215	A B C D E F
6	0	0	-51.246	198.414	A
		0	-117.761	379.215	A B C D E F
6	0.271	0	-64.057	182.800	A
		0	-135.951	344.858	A B C D E F
6	0.542	0	-76.869	163.716	A
		0	-154.141	305.575	A B C D E F
6	0.813	0	-89.680	141.163	A
		0	-172.332	261.365	A B C D E F
6	1.083	0	-102.492	115.139	A
		0	-190.522	212.229	A B C D E F
7	0	0	-102.492	115.139	A
		0	-190.522	212.229	A B C D E F
7	0.271	0	-115.303	85.646	A
		0	-208.712	158.166	A B C D E F
7	0.542	0	-136.579	51.608	A D
		0	-218.439	100.252	A B C E F
7	0.813	0	-153.729	12.295	A D
		0	-232.290	39.216	A B C E F
7	1.083	0	-183.359	-33.582	A D E
		0	-233.662	-23.652	A B C F
8	0	0	67.164	-33.582	A B C D E H
		0	47.304	-23.652	A G
8	0.250	0	50.373	-18.890	A B C D E H
		0	35.478	-13.304	A G
8	0.500	0	33.582	-8.396	A B C D E H
		0	23.652	-5.913	A G
8	0.750	0	16.791	-2.099	A B C D E H
		0	11.826	-1.478	A G
8	1.000	0	5.11E-07	-6.28E-13	A B C E H
		0	6.33E-07	-3.90E-13	A D G

Scale 1 : 55.4
Int. Forces envelope Vz, GWSP AC, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 2.00E-03
  min: -2.63E+02 max: 1.54E+02 [t]
- Envelope Shear force Vz-max, Scale 2.00E-03
  min: -1.54E+02 max: 2.74E+02 [t]
- Text envelopes [t]



ELU Cortante

Scale 1 : 55.4
Int. Forces envelope My, GWSP AC, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 2.00E-03
  min: -7.86E+01 max: 2.26E+02 [tm]
- Envelope Moment My-max, Scale 2.00E-03
  min: -2.37E+01 max: 4.23E+02 [tm]
- Text envelopes [tm]



ELU Flexión

Características mecánicas Sección "RIOSTRA" (sin coef. homogeneiz.)

Area	Ax = 15.00E3 cm2		
Momento de inercia	Iy = 28.12E6 cm4	Iz = 12.50E6 cm4	Ip = 40.62E6 cm4
Const. de torsión			Ix = 29.34E6 cm4
Momento estático	Zy =562.50E3 cm3	Zz = 375.00E3 cm3	
Baricentro	ys = -0.00 cm	zs = 75.00 cm	Angulo= 0.0 Grad
Dist. al borde	yl = -50.00 cm	yr = 50.00 cm	
	zo = 75.00 cm	zu = -75.00 cm	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRA" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	15000.0	500.000	2.93E+07	1)

Puntos de contorno [cm]:
1 50.00 0.00 2 50.00 150.00 3 -50.00 150.00
4 -50.00 0.00

Armadura "B1" As-tot =2.00 cm2 (0.01 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-46.00	146.00
					46.00	146.00
BOTTOM / RQS	AEH500	10.0	2	1.00	-46.00	4.00
					46.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	100.00	142.00	0.00	146.00	0.00	4.00
SWY	Vy	150.00	92.00	-46.00	75.00	46.00	75.00
SWT	Torsion	100.00	150.00	0.00	0.00	0.00	150.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			

Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)

Dimensionamiento a flexión: Viga Sección "RIOSTRA"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	4232.50	0.00	

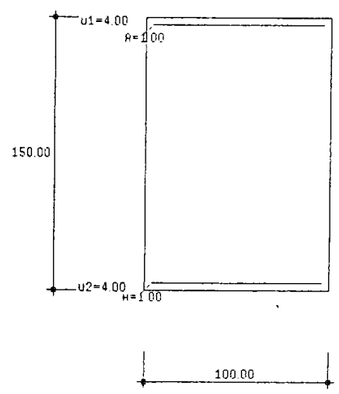
Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
AEH500	-46.00	146.00	46.00	146.00	1.00	----	1.00
1 AEH500	-46.00	4.00	46.00	4.00	1.00	71.50	71.50

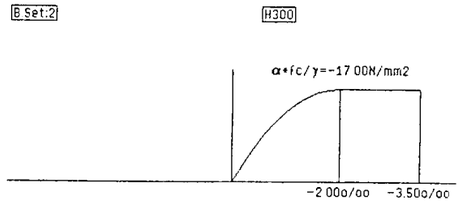
Max.x/h = 0.18 As-top/bot = 1.00/71.50 As = 0.48 % = 72.50

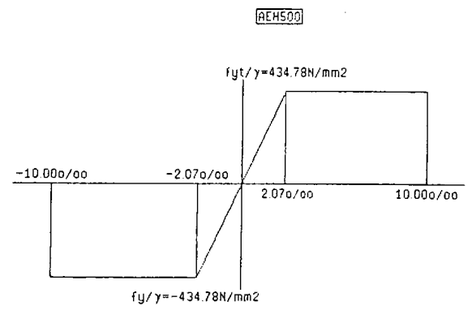
15 ϕ 25

Sección RIOSTRA

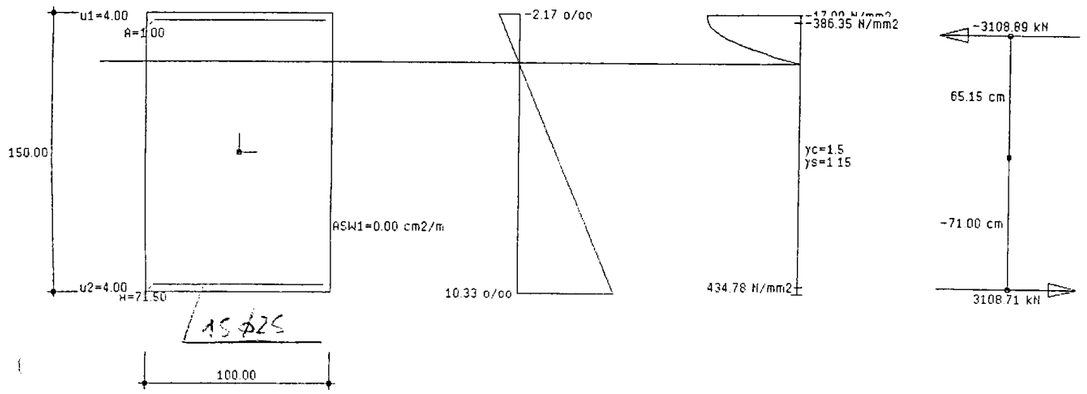


Material acorde a la sección: "RIOSTRA"





Dimensionamiento,Sección "RIOSTRA"



Características mecánicas Sección "RIOSTRA" (sin coef. homogeneiz.)

Area	Ax = 15.00E3 cm2			
Momento de inercia	Iy = 28.12E6 cm4	Iz = 12.50E6 cm4	Ip = 40.62E6 cm4	
Const. de torsión			Ix = 29.34E6 cm4	
Momento estático	Zy =562.50E3 cm3	Zz = 375.00E3 cm3		
Baricentro	ys = -0.00 cm	zs = 75.00 cm	Angulo= 0.0 Grad	
Dist. al borde	yl = -50.00 cm	yr = 50.00 cm		
	zo = 75.00 cm	zu = -75.00 cm		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

orno de sección parcial, Sección "RIOSTRA" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	15000.0	500.000	2.93E+07	1)

Puntos de contorno [cm]:
1 50.00 0.00 2 50.00 150.00 3 -50.00 150.00
4 -50.00 0.00

Armadura "B1" As-tot =72.50 cm2 (0.48 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	1.00	-46.00	146.00
					46.00	146.00
BOTTOM / RQS	AEH500	10.0	2	71.50	-46.00	4.00
					46.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
S.	Vz	100.00	142.00	0.00	146.00	0.00	4.00
SWY	Vy	150.00	92.00	-46.00	75.00	46.00	75.00

SWT	Torsion	100.00	150.00	0.00	0.00	0.00	150.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "RIOSTRA"/"B1"

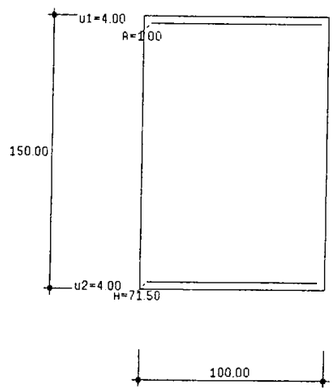
No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	-785.80	0.00	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

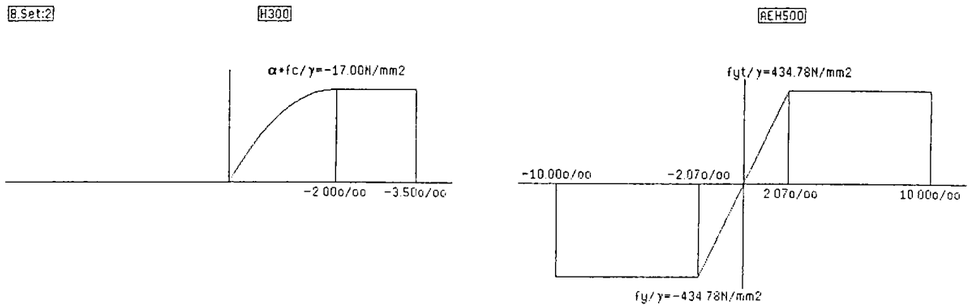
No	Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
1	AEH500	-46.00	146.00	46.00	146.00	1.00	12.68	12.68
	AEH500	-46.00	4.00	46.00	4.00	1.00	----	1.00

Max.x/h = 0.07 As-top/bot = 12.68/1.00 As = 0.09 % = 13.68

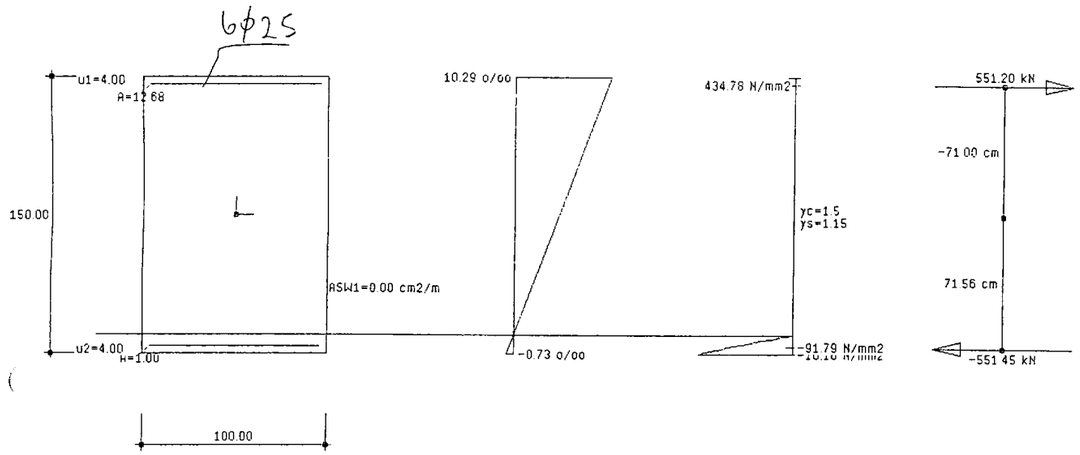
Sección RIOSTRA



Material acorde a la sección: "RIOSTRA"



Dimensionamiento, Sección "RIOSTRA"



CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título: RIOSTRA DE ESTRIBOS
Fecha: 31/5/01 13.24.22

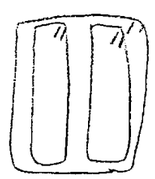
DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 100 cm, alto 150 cm y canto 146 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 263 T
Cortante reducido a un canto útil del borde del apoyo = 190 T
Axil de cálculo (Tracciones positivas) = 0 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 71 cm2 lo que implica una cuantía geométrica igual a 0.00486
Inclinación de bielas de compresión 45°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 263 T < Vu1 = 876.00 T
Es necesario disponer armadura a cortante al ser Vrd = 190.00 T > Vu2 = 59.85 T
Valores de las tensiones: Eje X = 0.00 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 45.00°
Vcu = 49.88 T. Vsu= 140.12 T.
As cálculo = 26.66 cm2/m. As mínima = 10.00 cm2/m
Mínimo de armadura a disponer = 26.66 cm2/m

3cφ12/20



Plane (2-D) frame -analysis

* STRUCTURAL - DATA * RIOSTRA PILA

Project title :

JOINT DATA : (7 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	F XYZ	Specialities
1	0.000000	0.000000	0.000000	E E	E	
2	0.555500	0.000000	0.000000			
3	1.111000	0.000000	0.000000			
4	1.665000	0.000000	0.000000			
5	2.220000	0.000000	0.000000			
6	2.775000	0.000000	0.000000			
7	3.330000	0.000000	0.000000			

BAR DATA : (6 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
1	1	2	0.555500	RIOSTRA			oS
2	2	3	0.555500	RIOSTRA			oS
3	3	4	0.554000	RIOSTRA			oS
4	4	5	0.555000	RIOSTRA			oS
5	5	6	0.555000	RIOSTRA			oS
6	6	7	0.555000	RIOSTRA			oS

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] zl [M1]	Iy [M4] zu [M1]	Fz [M2]
RIOSTRA	3.0000E-00 -0.7500	5.6250E-01 0.7500	2.5000E+00

CS-Name	Ax [M2] zl [M1]	Iy [M4] zu [M1]	Fz [M2]

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/ M2]	Sheer-M [T/ M2]
1 .. 6	3.5500E+06	1.4700E+06

STS-Run ok

Load case 1: CARGA PERMANENTE

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-133.130		Stab 1 .. 6

Load case 2: sobrecargas maximas

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-23.960		Stab 1 .. 6

Load case 3: VEHICULO EXCENTRICO

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-30.000	0.390000	Stab 4
Force Z gl conc.	-30.000	0.555000	Stab 6
Moment Y gl conc.	15.000	0.555000	Stab 6

Load case 4: VEHICULO CANTO UTIL

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-30.000	0.555000	Stab 4

ENVELOPE SPECIFIC.: AE ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		CARGA PERMANENTE
B	PLUS	2	1.500		sobrecargas maximas
C	PLUS	3	1.500		VEHICULO EXCENTRICO
D	OR	4	1.500		VEHICULO CANTO UTIL

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
1	0	0	598.486	-996.479	A
		0	808.166	-1460.572	A B C
1	0.139	0	573.527	-915.097	A
		0	778.216	-1350.417	A B C
1	0.278	0	548.567	-837.182	A
		0	748.265	-1244.422	A B C
1	0.417	0	523.608	-762.733	A
		0	718.314	-1142.587	A B C
1	0.555	0	498.648	-691.750	A

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
		0	688.364	-1044.910	A B C
2	0	0	498.648	-691.750	A
		0	688.364	-1044.910	A B C
2	0.139	0	473.689	-624.233	A
		0	658.413	-951.394	A B C
2	0.278	0	448.730	-560.183	A
		0	628.463	-862.036	A B C
2	0.417	0	423.770	-499.599	A
		0	598.512	-776.838	A B C
2	0.555	0	398.811	-442.481	A
		0	568.562	-695.799	A B C
3	0	0	398.811	-442.481	A
		0	568.562	-695.799	A B C
3	0.139	0	373.919	-388.965	A
		0	538.692	-619.122	A B C
3	0.277	0	349.027	-338.905	A
		0	508.822	-546.582	A B C
3	0.416	0	324.135	-292.289	A
		0	478.953	-478.178	A B C
3	0.554	0	299.243	-249.120	A
		0	449.083	-413.912	A B C
4	0	0	299.243	-249.120	A
		0	449.083	-413.912	A B C
4	0.139	0	274.306	-209.330	A
		0	419.159	-353.677	A B C
4	0.278	0	249.369	-173.000	A
		0	389.236	-297.595	A B C
4	0.390	0	229.160	-146.096	A
		0	364.985	-255.151	A B C
4	0.390	0	229.140	-146.070	A
		0	319.962	-255.153	A B C
4	0.416	0	224.432	-140.130	A
		0	314.312	-246.846	A B C
4	0.555	0	199.505	-110.731	A
		0	284.401	-205.327	A B C
5	0	0	199.495	-110.720	A D
		0	284.389	-205.311	A B C
5	0.139	0	174.558	-84.770	A D
		0	254.465	-167.928	A B C
5	0.277	0	149.621	-62.280	A D
		0	224.542	-134.697	A B C
5	0.416	0	124.685	-43.250	A D
		0	194.618	-105.617	A B C
5	0.555	0	99.748	-27.680	A D
		0	164.694	-80.690	A B C
6	0	0	99.748	-27.680	A

ENVELOPE for < Vz > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
6	0.139	0	164.694	-80.690	A B C
		0	74.811	-15.570	A
6	0.278	0	134.771	-59.915	A B C
		0	49.874	-6.920	A
6	0.416	0	104.847	-43.291	A B C
		0	24.937	-1.730	A
6	0.555	0	74.924	-30.820	A B C
		0	9.97E-07	1.28E-11	A
		0	45.000	-22.500	A B C

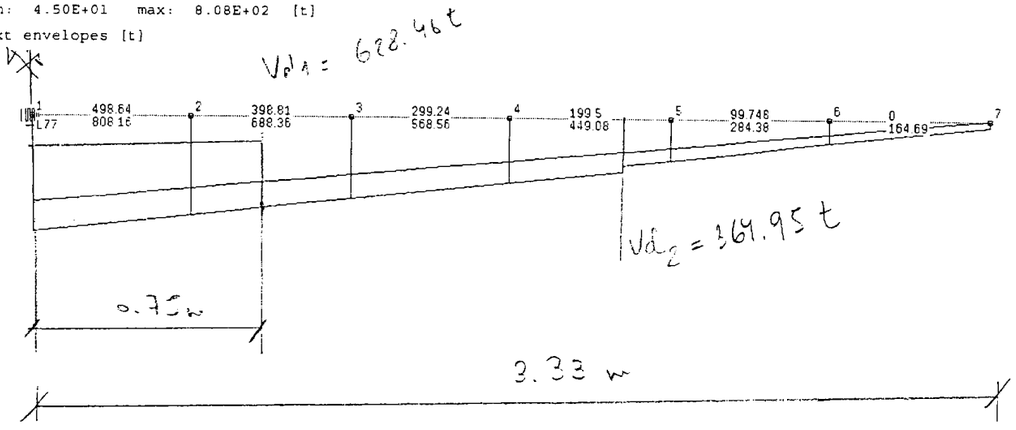
ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
1	0	0	808.166	-1460.572	A B C
		0	598.486	-996.479	A
1	0.139	0	778.216	-1350.417	A B C
		0	573.527	-915.097	A
1	0.278	0	748.265	-1244.422	A B C
		0	548.567	-837.182	A
1	0.417	0	718.314	-1142.587	A B C
		0	523.608	-762.733	A
1	0.555	0	688.364	-1044.910	A B C
		0	498.648	-691.750	A
2	0	0	688.364	-1044.910	A B C
		0	498.648	-691.750	A
2	0.139	0	658.413	-951.394	A B C
		0	473.689	-624.233	A
2	0.278	0	628.463	-862.036	A B C
		0	448.730	-560.183	A
2	0.417	0	598.512	-776.838	A B C
		0	423.770	-499.599	A
2	0.555	0	568.562	-695.799	A B C
		0	398.811	-442.481	A
3	0	0	568.562	-695.799	A B C
		0	398.811	-442.481	A
3	0.139	0	538.692	-619.122	A B C
		0	373.919	-388.965	A
3	0.277	0	508.822	-546.582	A B C
		0	349.027	-338.905	A
3	0.416	0	478.953	-478.178	A B C
		0	324.135	-292.289	A
3	0.554	0	449.083	-413.912	A B C
		0	299.243	-249.120	A

ENVELOPE for < My > (and accomp. values) "ALL"
(1. line : MIN., 2. line : MAX.)

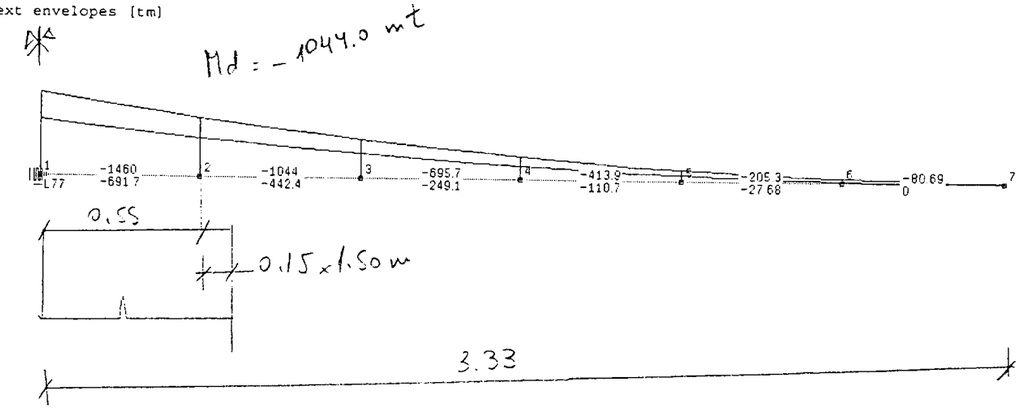
Memb.	Distance [m]	N [t]	Vz [t]	My [tm]	Crit. load groups
4	0	0	449.083	-413.912	A B C
		0	299.243	-249.120	A
4	0.139	0	419.159	-353.677	A B C
		0	274.306	-209.330	A
4	0.278	0	389.236	-297.595	A B C
		0	249.369	-173.000	A
4	0.390	0	364.985	-255.191	A B C
		0	229.160	-146.096	A
4	0.390	0	319.962	-255.153	A B C
		0	229.140	-146.070	A
4	0.416	0	314.312	-246.846	A B C
		0	224.432	-140.130	A
4	0.555	0	284.401	-205.327	A B C
		0	199.505	-110.731	A
5	0	0	284.389	-205.311	A B C
		0	199.495	-110.720	A D
5	0.139	0	254.465	-167.928	A B C
		0	174.558	-84.770	A D
5	0.277	0	224.542	-134.697	A B C
		0	149.621	-62.280	A D
5	0.416	0	194.618	-105.617	A B C
		0	124.685	-43.250	A D
5	0.555	0	164.694	-80.690	A B C
		0	99.748	-27.680	A D
6	0	0	164.694	-80.690	A B C
		0	99.748	-27.680	A D
6	0.139	0	134.771	-59.915	A B C
		0	74.811	-15.570	A D
6	0.278	0	104.847	-43.291	A B C
		0	49.874	-6.920	A D
6	0.416	0	74.924	-30.820	A B C
		0	24.937	-1.730	A D
6	0.555	0	45.000	-22.500	A B C
		0	9.97E-07	1.44E-11	A D

Scale 1 : 21.7
Int. Forces envelope Vz, GWSP AB, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Shear force Vz-min, Scale 5.00E-04
  min: 9.97E-07 max: 5.98E+02 [t]
- Envelope Shear force Vz-max, Scale 5.00E-04
  min: 4.50E+01 max: 8.08E+02 [t]
- Text envelopes [t]



ELU Cortante

Scale 1 : 21.7
Int. Forces envelope My, GWSP AB, Subsys. "ALL"
- Structure: Elmnts.
- Envelope Moment My-min, Scale 2.00E-04
  min: -1.46E+03 max: -2.25E+01 [tm]
- Envelope Moment My-max, Scale 2.00E-04
  min: -9.96E+02 max: 1.44E-11 [tm]
- Text envelopes [tm]



ELU Flexion

Características mecánicas Sección "RIOSTRA" (sin coef. homogeneiz.)

Area	Ax =	3.000 m2				
Momento de inercia	Iy =	0.5625 m4	Iz =	1.0000 m4	Ip =	1.562 m4
Const. de torsión					Ix =	1.215 m4
Momento estático	Zy =	1.125 m3	Zz =	1.500 m3		
Baricentro	ys =	-0.00 cm	zs =	75.00 cm	Angulo=	0.0 Grad
Dist. al borde	yl =	-100.00 cm	yr =	100.00 cm		
	zo =	75.00 cm	zu =	-75.00 cm		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección

Contorno de sección parcial, Sección "RIOSTRA" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
RQS	H300	1.00	30000.0	700.000	1.21E+08	1)

Ejes de contorno [cm]:

1	100.00	0.00	2	100.00	150.00	3	-100.00	150.00
4	-100.00	0.00						

Armadura "B1" As-tot =261.30 cm2 (0.87 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
TOP / RQS	AEH500	10.0	2	260.30	-96.00	146.00
					96.00	146.00
BOTTOM / RQS	AEH500	10.0	2	1.00	-96.00	4.00
					96.00	4.00

Pared	Solicit.	Ancho	Alt.	y1	z1	y2	z2
SWZ	Vz	200.00	142.00	0.00	146.00	0.00	4.00
SWY	Vy	150.00	192.00	-96.00	75.00	96.00	75.00
SWT	Torsion	200.00	150.00	0.00	0.00	0.00	150.00

Punto de resultados:

Nomb / Sección parcial	Resultado	Unidad	y[cm]	z [cm]
ASW1	Res.Kmb.			
Fórmula: ASWMIN(SWZ) | ASW(SWZ)+ASW(SWT)				

Dimensionamiento a flexión: Viga Sección "RIOSTRA"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	0.00	-10440.00	0.00	

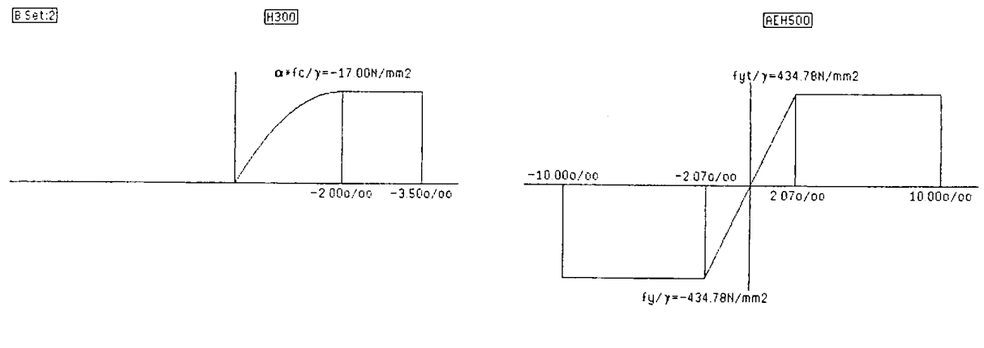
Parámetros de cálculo empleados:

Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

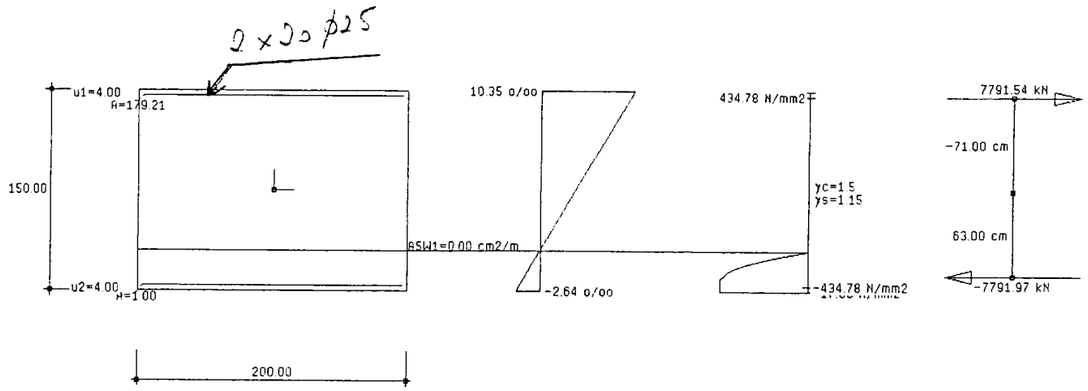
No Armad. long.	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
1 AEH500	-96.00	146.00	96.00	146.00	1.00	179.21	179.21
AEH500	-96.00	4.00	96.00	4.00	1.00	----	1.00

Max.x/h = 0.21 As-top/bot = 179.21/1.00 As = 0.60 % = 180.21

Material acorde a la sección: "RIOSTRA"



Dimensionamiento, Sección "RIOSTRA"



CALCULO A CORTANTE SEGÚN EHE
****

Departamento de Estructuras. AEPO, S.A.
Título: CORTANTE EN LAS PILAS
Fecha: 31/5/01 15.52.47

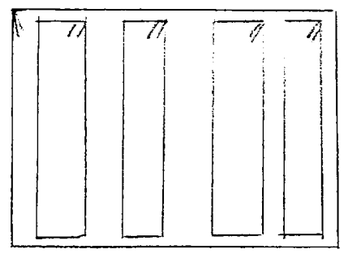
DATOS DE LA SECCIÓN Y Y MATERIALES
Sección rectangular de ancho 200 cm, alto 150 cm y canto 145 cm.

Situación de proyecto Persistente
Resistencia característica del hormigón = 300 Kp/cm2
Acero B 500 S
Resistencia de cálculo del hormigón fcd = 200.00 Kp/cm2
Resistencia de cálculo del acero fyd = 4260.87 Kp/cm2

ACCIONES DE CÁLCULO
Cortante reducido en el borde del apoyo = 629 T
Cortante reducido a un canto útil del borde del apoyo = 365 T
Axil de cálculo (Tracciones positivas) = 0 T

RESULTADOS DEL CÁLCULO
Se ha considerado una armadura a tracción de 179 cm2 lo que implica una cuantía geométrica igual a 0.00617
Inclinación de bielas de compresión 45°
Inclinación de las armaduras con el eje de la pieza 90°
Coeficiente de reducción por efecto del esfuerzo axil, K = 1
La sección no rompe por compresión oblicua del alma al ser Vrd = 629 T < Vu1 = 1740.00 T
Es necesario disponer armadura a cortante al ser Vrd = 365.00 T > Vu2 = 128.84 T
Valores de las tensiones: Eje X = 0.00 Kp/cm2. Eje Y = 0.00 Kp/cm2
Ángulo de referencia de inclinación de las fisuras = 45.00°
Vcu = 107.36 T. Vsu= 257.64 T.
As cálculo = 49.36 cm2/m. As mínima = 20.00 cm2/m
Mínimo de armadura a disponer = 49.36 cm2/m

5 c ϕ 12/20



2.3.5. Reacciones y cálculo de neoprenos en planta

LOADING: 'Y'

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.004576	0.001130	99.991			
10	0.004576	0.001130	99.991			
58	1.07E-09	0.000163	758.944			
108	1.04E-09	-0.000163	758.944			
156	-0.004576	-0.001130	99.991			
160	0.004576	-0.001130	99.991			
Sums :	7.55E-12	6.68E-13	1917.850			
min:	-0.004576	-0.001130	99.991	Undef	Undef	Undef
max:	0.004576	0.001130	758.944	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
2	1.0000			PESO PAVIMENTO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.000344	8.48E-05	7.511			
10	0.000344	8.48E-05	7.511			
58	8.01E-11	1.28E-05	57.013			
108	7.82E-11	-1.28E-05	57.013			
156	-0.000344	-8.48E-05	7.511			
160	0.000344	-8.48E-05	7.511			
Sums :	6.01E-13	4.85E-14	144.072			
min:	-0.000344	-8.48E-05	7.511	Undef	Undef	Undef
max:	0.000344	8.48E-05	57.013	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
3	1.0000			PESO BARRERAS

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.000646	0.000161	14.064			
10	0.000646	0.000161	14.064			
58	1.54E-10	7.47E-06	106.722			
108	1.50E-10	-7.47E-06	106.722			
156	-0.000646	-0.000161	14.064			
160	0.000646	-0.000161	14.064			
Sums :	1.08E-12	8.66E-14	269.700			
min:	-0.000646	-0.000161	14.064	Undef	Undef	Undef
max:	0.000646	0.000161	106.722	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
4	1.0000			PRETENSADO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.021904	-1.150	12.747			
10	0.021904	-1.150	12.747			
58	-2.46E-09	-2.904	-31.265			
108	-2.56E-09	2.914	-11.414			
156	-0.022442	1.145	8.592			
160	0.022442	1.145	8.592			
Sums :	2.02E-11	2.78E-11	-3.19E-10			
min:	-0.022442	-2.904	-31.265	Undef	Undef	Undef
max:	0.022442	2.914	12.747	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
5	1.0000			RETRACCION Y FLUENCIA

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-9.27E-05	-6.034	-7.15E-05			
10	9.27E-05	-6.034	-7.15E-05			
58	1.37E-11	-15.366	0.000143			
108	-1.65E-11	15.366	0.000143			
156	-9.27E-05	6.034	-7.15E-05			
160	9.27E-05	6.034	-7.15E-05			
Sums :	-2.86E-12	1.37E-10	-3.36E-11			
min:	-9.27E-05	-15.366	-7.15E-05	Undef	Undef	Undef
max:	9.27E-05	15.366	0.000143	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
6	1.0000			SOE UNIF 1

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.009271	0.001474	32.122			
10	-0.008762	-0.001347	-21.035			
58	0.018032	2.94E-06	42.069			
108	0.018032	-2.94E-06	42.069			
156	-0.009271	-0.001474	32.122			
160	-0.008762	0.001347	-21.035			
Sums :	3.22E-12	-7.08E-14	106.314			
min:	-0.009271	-0.001474	-21.035	Undef	Undef	Undef
max:	0.018032	0.001474	42.069	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
7	1.0000			SOE UNIF 2

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.002610	0.000420	10.281			
10	-0.002337	-0.000353	-4.295			
58	0.004947	7.79E-06	22.723			
108	0.004947	-7.79E-06	22.723			
156	-0.002610	-0.000420	10.281			
160	-0.002337	0.000353	-4.295			
Sums :	9.99E-13	-1.22E-14	57.420			
min:	-0.002610	-0.000420	-4.295	Undef	Undef	Undef
max:	0.004947	0.000420	22.723	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
8	1.0000			SOE UNIF 3

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.000136	3.33E-05	2.993			
10	0.000136	3.33E-05	2.993			
58	3.08E-11	8.27E-06	22.724			
108	3.01E-11	-8.27E-06	22.724			
156	-0.000136	-3.33E-05	2.993			
160	0.000136	-3.33E-05	2.993			
Sums :	2.28E-13	1.80E-14	57.420			
min:	-0.000136	-3.33E-05	2.993	Undef	Undef	Undef
max:	0.000136	3.33E-05	22.724	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
9	1.0000			SOE UNIF 4

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.002337	-0.000353	-4.295			
10	0.002610	0.000420	10.281			
58	-0.004947	7.79E-06	22.723			
108	-0.004947	-7.79E-06	22.723			
156	0.002337	0.000353	-4.295			
160	0.002610	-0.000420	10.281			
Sums :	-5.38E-13	4.26E-14	57.420			
min:	-0.004947	-0.000420	-4.295	Undef	Undef	Undef
max:	0.002610	0.000420	22.723	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
10	1.0000			SOE UNIF 5

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.008762	-0.001347	-21.035			
10	0.009271	0.001474	32.122			
58	-0.018032	2.94E-06	42.069			
108	-0.018032	-2.94E-06	42.069			
156	0.008762	0.001347	-21.035			
160	0.009271	-0.001474	32.122			
Sums :	-2.35E-12	1.57E-13	106.314			
min:	-0.018032	-0.001474	-21.035	Undef	Undef	Undef
max:	0.009271	0.001474	42.069	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
11	1.0000			VEHICULO HIPOTESIS 11

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.002289	0.001212	50.964			
10	-0.000120	-0.000561	0.328129			
58	0.003708	-0.000277	10.151			
108	-0.000534	-0.000278	-1.874			
156	-0.000396	-6.51E-05	1.047			
160	-0.000368	-3.04E-05	-0.586101			
Sums :	-3.78E-13	1.81E-14	60.030			
min:	-0.002289	-0.000561	-1.874	Undef	Undef	Undef
max:	0.003708	0.001212	50.964	Undef	Undef	Undef

Loadcase	Factor	Stage	Init.def	Title
12	1.0000			VEHICULO HIPOTESIS 12

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.004843	0.001567	39.081			
10	-0.002876	-0.001286	-7.533			
58	0.011723	-0.000117	32.492			
108	-0.001691	-0.000114	-5.318			
156	-0.001196	-6.66E-05	3.481			
160	-0.001117	1.71E-05	-2.174			
Sums :	-2.09E-12	4.94E-14	60.030			
min:	-0.004843	-0.001286	-7.533	Undef	Undef	Undef
max:	0.011723	0.001567	39.081	Undef	Undef	Undef

Loadcase 13 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 13

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.008948	0.001397	22.077			
10	-0.008673	-0.001467	-17.499			
58	0.026668	0.000518	57.692			
108	-0.004098	-0.000333	-2.961			
156	-0.002496	-0.000130	6.707			
160	-0.002452	1.38E-05	-5.986			
Sums :	6.39E-13	6.66E-14	60.030			
min:	-0.008948	-0.001467	-17.499	Undef	Undef	Undef
max:	0.026668	0.001397	57.692	Undef	Undef	Undef

Loadcase 14 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 14

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.009284	0.001352	16.448			
10	-0.009470	-0.001280	-19.538			
58	0.027369	-0.000483	59.821			
108	-0.001973	0.000302	4.377			
156	-0.003299	-0.000127	7.602			
160	-0.003354	0.000236	-8.680			
Sums :	5.34E-12	-2.79E-14	60.030			
min:	-0.009470	-0.001280	-19.538	Undef	Undef	Undef
max:	0.027369	0.001352	59.821	Undef	Undef	Undef

Loadcase 15 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 15

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.006060	0.000717	9.397			
10	-0.006501	-0.000781	-16.737			
58	0.012560	1.31E-05	37.355			
108	0.012560	-1.31E-05	37.355			
156	-0.006060	-0.000717	9.397			
160	-0.006501	0.000781	-16.737			
Sums :	1.63E-11	-6.14E-14	60.030			
min:	-0.006501	-0.000781	-16.737	Undef	Undef	Undef
max:	0.012560	0.000781	37.355	Undef	Undef	Undef

Loadcase 16 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO POSICION 16

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.003305	0.000130	7.601			
10	-0.003373	-0.000240	-8.732			
58	-0.001888	-0.000304	4.596			
108	0.027279	0.000487	59.790			
156	-0.009261	-0.001349	16.356			
160	-0.009455	0.001276	-19.581			
Sums :	2.33E-12	-1.23E-13	60.030			
min:	-0.009455	-0.001349	-19.581	Undef	Undef	Undef
max:	0.027279	0.001276	59.790	Undef	Undef	Undef

Loadcase 17 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO POSICION 17

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.002452	0.000129	6.700			
10	-0.002449	-1.42E-05	-5.973			
58	-0.004090	0.000330	-2.983			
108	0.026623	-0.000513	57.647			
156	-0.008935	-0.001396	22.118			
160	-0.008657	0.001466	-17.478			
Sums :	-5.86E-12	-1.45E-13	60.030			
min:	-0.008935	-0.001396	-17.478	Undef	Undef	Undef
max:	0.026623	0.001466	57.647	Undef	Undef	Undef

Loadcase 18 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO POSICION 18

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.001156	6.66E-05	3.481			
10	-0.001117	-1.71E-05	-2.174			
58	-0.001691	0.000114	-5.318			
108	0.011723	0.000117	32.492			
156	-0.004843	-0.001567	39.081			
160	-0.002876	0.001286	-7.533			
Sums :	-1.16E-11	-7.04E-14	60.030			
min:	-0.004843	-0.001567	-7.533	Undef	Undef	Undef
max:	0.011723	0.001286	39.081	Undef	Undef	Undef

Loadcase 19 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO POSICION 19

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.000392	6.52E-05	1.035			
10	-0.000365	3.07E-05	-0.576979			
58	-0.000525	0.000279	-1.854			
108	0.003671	0.000276	10.040			
156	-0.002276	-0.001209	51.022			
160	-0.000109	0.000556	0.366732			
Sums :	-4.88E-12	-2.80E-14	60.030			
min:	-0.002276	-0.001209	-1.854	Undef	Undef	Undef
max:	0.003671	0.000556	51.022	Undef	Undef	Undef

Loadcase 20 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 20

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.000120	-0.000561	0.328129			
10	0.002289	0.001212	50.964			
58	-0.003708	-0.000277	10.151			
108	0.000534	-0.000278	-1.874			
156	0.000368	-3.04E-05	-0.556101			
160	0.000396	-6.51E-05	1.047			
Sums :	-3.76E-12	2.19E-15	60.030			
min:	-0.003708	-0.000561	-1.874	Undef	Undef	Undef
max:	0.002289	0.001212	50.964	Undef	Undef	Undef

Loadcase 21 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 21

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.002876	-0.001286	-7.533			
10	0.004843	0.001567	39.081			
58	-0.011723	-0.000117	32.492			
108	0.001691	-0.000114	-5.318			
156	0.001117	1.71E-05	-2.174			
160	0.001156	-6.66E-05	3.481			
Sums :	-6.75E-12	-1.23E-14	60.030			
min:	-0.011723	-0.001286	-7.533	Undef	Undef	Undef
max:	0.004843	0.001567	39.081	Undef	Undef	Undef

Loadcase 22 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 22

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.008673	-0.001467	-17.499			
10	0.008948	0.001397	22.077			
58	-0.026668	0.000518	57.692			
108	0.004098	-0.000333	-2.961			
156	0.002452	1.38E-05	-5.986			
160	0.002496	-0.000130	6.707			
Sums :	-6.65E-12	-7.17E-15	60.030			
min:	-0.026668	-0.001467	-17.499	Undef	Undef	Undef
max:	0.008948	0.001397	57.692	Undef	Undef	Undef

Loadcase 23 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 23

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.009455	-0.001276	-19.581			
10	0.009261	0.001349	16.356			
58	-0.027279	-0.000487	59.790			
108	0.001888	0.000304	4.596			
156	0.003373	0.000240	-8.732			
160	0.003305	-0.000130	7.601			
Sums :	6.74E-13	-8.72E-15	60.030			
min:	-0.027279	-0.001276	-19.581	Undef	Undef	Undef
max:	0.009455	0.001349	59.790	Undef	Undef	Undef

Loadcase 24 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 24

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.006501	-0.000781	-16.737			
10	0.006060	0.000717	9.397			
58	-0.012560	1.31E-05	37.355			
108	-0.012560	-1.31E-05	37.355			
156	0.006501	0.000781	-16.737			
160	0.006060	-0.000717	9.397			
Sums :	1.48E-11	1.91E-13	60.030			
min:	-0.012560	-0.000781	-16.737	Undef	Undef	Undef
max:	0.006501	0.000781	37.355	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
25 1.0000 VEHICULO POSICION 25

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.003373	-0.000240	-8.732			
10	0.003305	0.000130	7.601			
58	0.001886	-0.000304	4.596			
108	-0.027279	0.000487	59.790			
156	0.009455	0.001276	-19.581			
160	0.009261	-0.001349	16.356			
Sums :	6.33E-12	1.73E-13	60.030			
min:	-0.027279	-0.001349	-19.581	Undef	Undef	Undef
max:	0.009455	0.001276	59.790	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
26 1.0000 VEHICULO POSICION 26

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.002449	-1.42E-05	-5.972			
10	0.002492	0.000125	6.700			
58	0.004090	0.000330	-2.583			
108	-0.026623	-0.000513	57.647			
156	0.008657	0.001466	-17.478			
160	0.008935	-0.001398	22.118			
Sums :	-3.19E-12	1.13E-13	60.030			
min:	-0.026623	-0.001398	-17.478	Undef	Undef	Undef
max:	0.008935	0.001466	57.647	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
27 1.0000 VEHICULO POSICION 27

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.001117	-1.71E-05	-2.174			
10	0.001196	6.66E-05	3.481			
58	0.001691	0.000114	-5.318			
108	-0.011723	0.000117	32.492			
156	0.002876	0.001286	-7.533			
160	0.004843	-0.001567	39.081			
Sums :	-1.89E-11	1.41E-13	60.030			
min:	-0.011723	-0.001567	-7.533	Undef	Undef	Undef
max:	0.004843	0.001286	39.081	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
28 1.0000 VEHICULO POSICION 28

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.000365	3.07E-05	-0.578579			
10	0.000392	6.52E-05	1.035			
58	0.000529	0.000279	-1.854			
108	-0.003671	0.000278	10.040			
156	0.000109	0.000556	0.366732			
160	0.002276	-0.001209	51.022			
Sums :	-1.23E-11	5.59E-14	60.030			
min:	-0.003671	-0.001209	-1.854	Undef	Undef	Undef
max:	0.002276	0.000556	51.022	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
30 1.0000 FRENADO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-1.83E-05	-1.113	-2.44E-05			
10	1.83E-05	-1.113	-2.44E-05			
58	-4.22E-12	-6.774	0.000116			
108	7.85E-12	-6.774	-0.000116			
156	1.83E-05	-1.113	2.44E-05			
160	-1.83E-05	-1.113	2.44E-05			
Sums :	5.25E-12	-18.000	-3.41E-12			
min:	-1.83E-05	-6.774	-0.000116	Undef	Undef	Undef
max:	1.83E-05	-1.113	0.000116	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
32 1.0000 VIENTO TRANSV SIN SOB.

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	3.499	0.003330	-3.266			
10	3.500	-0.003335	4.987			
58	21.406	3.06E-06	6.531			
108	21.406	-3.06E-06	6.531			
156	3.499	-0.003330	-3.266			
160	3.500	0.003335	4.987			
Sums :	56.811	-1.64E-11	16.505			
min:	3.499	-0.003335	-3.266	Undef	Undef	Undef
max:	21.406	0.003335	6.531	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
33 1.0000 VIENTO TRANSV CON SOB

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	5.404	0.005143	-5.042			
10	5.404	-0.005150	7.700			
58	33.054	4.73E-06	10.085			
108	33.054	-4.73E-06	10.085			
156	5.404	-0.005143	-5.042			
160	5.404	0.005150	7.700			
Sums :	87.723	-2.56E-11	25.486			
min:	5.404	-0.005150	-5.042	Undef	Undef	Undef
max:	33.054	0.005150	10.085	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
34 1.0000 TEMPERATURA (-)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-5.28E-05	-3.43E	-4.07E-05			
10	5.28E-05	-3.43E	-4.07E-05			
58	7.40E-12	-8.75E	8.15E-05			
108	-9.48E-12	8.75E	8.15E-05			
156	-5.28E-05	3.43E	-4.07E-05			
160	5.28E-05	3.43E	-4.07E-05			
Sums :	-2.31E-12	9.11E-11	1.78E-12			
min:	-5.28E-05	-8.75E	-4.07E-05	Undef	Undef	Undef
max:	5.28E-05	8.75E	8.15E-05	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
35 1.0000 TEMPERATURA (+)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	5.28E-05	3.43E	4.07E-05			
10	-5.28E-05	3.43E	4.07E-05			
58	-7.40E-12	8.75E	-8.15E-05			
108	9.48E-12	-8.75E	-8.15E-05			
156	5.28E-05	-3.43E	4.07E-05			
160	-5.28E-05	-3.43E	4.07E-05			
Sums :	2.31E-12	-9.11E-11	-1.78E-12			
min:	-5.28E-05	-8.75E	-8.15E-05	Undef	Undef	Undef
max:	5.28E-05	8.75E	4.07E-05	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
36 1.0000 GRADIENTE

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.001366	-0.001510	14.448			
10	-0.001366	-0.001510	14.448			
58	3.85E-06	-3.94E-06	-28.895			
108	3.85E-06	3.94E-06	-28.895			
156	0.001366	0.001510	14.448			
160	-0.001366	0.001510	14.448			
Sums :	4.56E-11	-1.37E-13	-7.97E-11			
min:	-0.001366	-0.001510	-28.895	Undef	Undef	Undef
max:	0.001366	0.001510	14.448	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
37 1.0000 VEHICULO HIPOTESIS 37

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.001010	0.000290	25.629			
10	0.001010	0.000290	25.629			
58	6.69E-11	-0.000247	10.164			
108	-3.17E-11	-0.000247	-1.884			
156	-1.39E-05	-4.27E-05	0.231558			
160	1.39E-05	-4.27E-05	0.231558			
Sums :	-2.04E-12	9.63E-15	60.000			
min:	-0.001010	-0.000247	-1.884	Undef	Undef	Undef
max:	0.001010	0.000290	25.629	Undef	Undef	Undef

Loadcase Factor Stage Init.def Title
38 1.0000 VEHICULO HIPOTESIS 38

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.001007	0.000158	15.768			
10	0.001007	0.000158	15.768			
58	1.50E-10	-0.000132	32.480			
108	-8.60E-11	-0.000129	-5.316			
156	-3.93E-05	-2.72E-05	0.653159			
160	3.93E-05	-2.72E-05	0.653159			
Sums :	-4.42E-12	2.00E-14	60.006			
min:	-0.001007	-0.000132	-5.316	Undef	Undef	Undef
max:	0.001007	0.000158	32.480	Undef	Undef	Undef

Loadcase 35 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 35

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.000137	-2.77E-05	2.278			
10	0.000137	-2.77E-05	2.278			
5E	5.25E-11	0.000443	57.714			
10E	-3.45E-11	-0.000287	-2.997			
15E	-2.21E-05	-5.05E-05	0.366966			
16C	2.21E-05	-5.05E-05	0.366966			
Sums :	-2.01E-12	1.88E-14	60.006			
min:	-0.000137	-0.000287	-2.997	Undef	Undef	Undef
max:	0.000137	0.000443	57.714	Undef	Undef	Undef

Loadcase 40 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 40

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	9.75E-05	2.72E-05	-1.623			
10	-9.75E-05	2.72E-05	-1.623			
5E	3.87E-11	-0.000398	59.814			
10E	-3.08E-12	0.000251	4.555			
15E	3.36E-05	4.63E-05	-0.558209			
16C	-3.36E-05	4.63E-05	-0.558209			
Sums :	3.04E-12	-5.71E-15	60.006			
min:	-9.75E-05	-0.000398	-1.623	Undef	Undef	Undef
max:	9.75E-05	0.000251	59.814	Undef	Undef	Undef

Loadcase 41 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO HIPOTESIS 41

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.000221	-3.22E-05	-3.668			
10	-0.000221	-3.22E-05	-3.668			
5E	7.16E-11	1.52E-05	37.340			
10E	7.56E-11	-1.52E-05	37.340			
15E	0.000221	3.22E-05	-3.668			
16C	-0.000221	3.22E-05	-3.668			
Sums :	1.56E-11	5.27E-14	60.006			
min:	-0.000221	-3.22E-05	-3.668	Undef	Undef	Undef
max:	0.000221	3.22E-05	37.340	Undef	Undef	Undef

Loadcase 42 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO POSICION 42

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	3.36E-05	-4.63E-05	-0.558209			
10	-3.36E-05	-4.63E-05	-0.558209			
5E	-3.74E-12	-0.000251	4.555			
10E	4.03E-11	0.000398	59.814			
15E	9.75E-05	-2.72E-05	-1.623			
16C	-9.75E-05	-2.72E-05	-1.623			
Sums :	4.33E-12	2.19E-14	60.006			
min:	-9.75E-05	-0.000251	-1.623	Undef	Undef	Undef
max:	9.75E-05	0.000398	59.814	Undef	Undef	Undef

Loadcase 43 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO POSICION 43

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-2.22E-05	5.03E-05	0.369627			
10	2.22E-05	5.03E-05	0.369627			
5E	-3.49E-11	0.000286	-3.019			
10E	5.10E-11	-0.000441	57.666			
15E	-0.000139	2.73E-05	2.309			
16C	0.000139	2.73E-05	2.309			
Sums :	-4.51E-12	-1.33E-14	60.006			
min:	-0.000139	-0.000441	-3.019	Undef	Undef	Undef
max:	0.000139	0.000286	57.666	Undef	Undef	Undef

Loadcase 44 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO POSICION 44

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-3.93E-05	2.72E-05	0.653159			
10	3.93E-05	2.72E-05	0.653159			
5E	-8.50E-11	0.000125	-5.316			
10E	1.41E-10	0.000132	32.480			
15E	-0.001007	-0.000158	15.768			
16C	0.001007	-0.000158	15.768			
Sums :	-1.52E-11	3.05E-14	60.006			
min:	-0.001007	-0.000158	-5.316	Undef	Undef	Undef
max:	0.001007	0.000132	32.480	Undef	Undef	Undef

Loadcase 45 | Factor 1.0000 | Stage | Init.def | Title: VEHICULO POSICION 45

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-1.38E-05	4.28E-05	0.229233			
10	1.38E-05	4.28E-05	0.229233			
5E	-3.10E-11	0.000248	-1.865			
10E	6.13E-11	0.000248	10.054			
15E	-0.001008	-0.000290	25.679			
16C	0.001008	-0.000290	25.679			
Sums :	-8.36E-12	1.47E-14	60.006			
min:	-0.001008	-0.000290	-1.865	Undef	Undef	Undef
max:	0.001008	0.000248	25.679	Undef	Undef	Undef

Loadcase 46 | Factor 1.0000 | Stage | Init.def | Title: SOB UNIF VANO 1

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.001256	0.000219	25.664			
10	0.001256	0.000219	25.664			
5E	2.00E-10	4.36E-05	66.903			
10E	-1.15E-10	-0.000349	-7.314			
15E	-5.39E-05	-6.56E-05	0.897035			
16C	5.39E-05	-6.56E-05	0.897035			
Sums :	-5.76E-12	3.12E-14	112.710			
min:	-0.001256	-0.000349	-7.314	Undef	Undef	Undef
max:	0.001256	0.000219	66.903	Undef	Undef	Undef

Loadcase 47 | Factor 1.0000 | Stage | Init.def | Title: SOB UNIF VANO 2

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	0.000392	-5.71E-05	-6.512			
10	-0.000392	-5.71E-05	-6.512			
5E	1.28E-10	-0.000363	92.583			
10E	1.35E-10	0.000363	92.582			
15E	0.000392	5.71E-05	-6.512			
16C	-0.000392	5.71E-05	-6.512			
Sums :	2.60E-11	8.10E-14	159.120			
min:	-0.000392	-0.000363	-6.512	Undef	Undef	Undef
max:	0.000392	0.000363	92.583	Undef	Undef	Undef

Loadcase 48 | Factor 1.0000 | Stage | Init.def | Title: SOB UNIF VANO 3

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-5.39E-05	6.56E-05	0.897035			
10	5.39E-05	6.56E-05	0.897035			
5E	-1.14E-10	0.000349	-7.314			
10E	1.80E-10	-4.36E-05	66.903			
15E	-0.001256	-0.000219	25.664			
16C	0.001256	-0.000219	25.664			
Sums :	-1.86E-11	1.68E-14	112.710			
min:	-0.001256	-0.000219	-7.314	Undef	Undef	Undef
max:	0.001256	0.000349	66.903	Undef	Undef	Undef

LOADING: 'TEMPERATURA UNIF.(-)'

Loadcase	Factor	Stage	Init.def	Title
35	1.0000			TEMPERATURA (+)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	5.10E-05	3.438	2.04E-08			
10	-5.10E-05	3.438	2.04E-08			
58	-3.09E-13	8.756	-4.08E-08			
108	8.23E-12	-8.756	-4.08E-08			
156	5.10E-05	-3.438	2.04E-08			
160	-5.10E-05	-3.438	2.04E-08			
Sums :	9.14E-12	-6.10E-10	-1.36E-13			
min:	-5.10E-05	-8.756	-4.08E-08	Undef	Undef	Undef
max:	5.10E-05	8.756	2.04E-08	Undef	Undef	Undef

DISPLACEMENTS: ""

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	-0.000222	-14.949	-0	1.65E-10	4.34E-12	-2.27E-07
10	0.000222	-14.949	-0	1.65E-10	-4.34E-12	2.27E-07
58	2.21E-13	-6.254	+0	-3.59E-11	-3.74E-15	2.11E-16
108	-5.86E-12	6.254	+0	3.59E-11	-3.74E-15	1.34E-16
156	-0.000222	14.949	-0	-1.65E-10	4.34E-12	2.27E-07
160	0.000222	14.949	-0	-1.65E-10	-4.34E-12	-2.27E-07
min:	-0.000222	-14.949	-0	-1.65E-10	-4.34E-12	-2.27E-07
max:	0.000222	14.949	+0	1.65E-10	4.34E-12	2.27E-07

LOADING: 'GRADIENTE.(+)'

Loadcase	Factor	Stage	Init.def	Title
36	1.0000			GRADIENTE

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.004128	0.002498	10.855			
10	0.004128	0.002498	10.855			
58	5.59E-08	-7.82E-06	-21.710			
108	5.59E-08	7.83E-06	-21.710			
156	-0.004128	-0.002498	10.855			
160	0.004128	-0.002498	10.855			
Sums :	7.99E-11	-7.92E-14	-5.50E-11			
min:	-0.004128	-0.002498	-21.710	Undef	Undef	Undef
max:	0.004128	0.002498	10.855	Undef	Undef	Undef

DISPLACEMENTS: ""

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	0.017948	-0.010859	-1.09E-96	0.000565	1.14E-05	2.68E-05
10	-0.017948	-0.010859	-1.09E-96	0.000565	-1.14E-05	-2.68E-05
58	-3.99E-08	5.59E-06	2.17E-96	-0.000210	5.68E-12	4.31E-12
108	-3.99E-08	-5.59E-06	2.17E-96	0.000210	5.68E-12	-4.31E-12
156	0.017948	0.010859	-1.09E-96	-0.000565	1.14E-05	-2.68E-05
160	-0.017948	0.010859	-1.09E-96	-0.000565	-1.14E-05	2.68E-05
min:	-0.017948	-0.010859	-1.09E-96	-0.000565	-1.14E-05	-2.68E-05
max:	0.017948	0.010859	2.17E-96	0.000565	1.14E-05	2.68E-05

ENVELOPE SPECIFIC.: DD 'COMB SOB UNIFORME'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1		0	PESO PROPIO
B	PLUS	6	1.000		SOB UNIF 1
C	PLUS	7	1.000		SOB UNIF 2
D	PLUS	8	1.000		SOB UNIF 3
E	PLUS	9	1.000		SOB UNIF 4
F	PLUS	10	1.000		SOB UNIF 5
ALTERNATIVE ENVELOPE :					
G	PERM.	1		0	PESO PROPIO
H	PLUS	46	1.000		SOB UNIF VANO 1
I	PLUS	47	1.000		SOB UNIF VANO 2
J	PLUS	48	1.000		SOB UNIF VANO 3

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	5.49E-06	-8.10E-07	-25.336			
	-6.22E-06	9.93E-07	45.388			
	Min: A E F			Max: A E C D		
10	-5.49E-06	-8.11E-07	-25.336			
	6.22E-06	9.93E-07	45.388			
	Min: A E C			Max: A D E F		
58	4.02E-10	2.82E-07	-7.384			
	-1.05E-09	-2.66E-07	159.585			
	Min: G J			Max: G H I		
108	4.01E-10	-2.82E-07	-7.384			
	-1.05E-09	2.66E-07	159.585			
	Min: G H			Max: G I J		
156	5.49E-06	8.10E-07	-25.336			
	-6.22E-06	-9.93E-07	45.388			
	Min: A E F			Max: A E C D		
160	-5.49E-06	8.11E-07	-25.336			
	6.22E-06	-9.93E-07	45.388			
	Min: A E C			Max: A D E F		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-6.22E-06	9.93E-07	45.388			
	5.49E-06	-8.10E-07	-25.336			
	Min: A E C			Max: A E F		
10	-5.49E-06	-8.11E-07	-25.336			
	6.22E-06	9.93E-07	45.388			
	Min: A E C			Max: A D E F		
58	-1.16E-05	1.05E-08	87.533			
	1.16E-05	5.72E-09	64.805			
	Min: A D E F			Max: A E C		
108	-1.16E-05	-1.05E-08	87.533			
	1.16E-05	-5.72E-09	64.805			
	Min: A D E F			Max: A E C		
156	-6.22E-06	-9.93E-07	45.388			
	5.49E-06	8.10E-07	-25.336			
	Min: A E C D			Max: A E F		
160	-5.49E-06	8.11E-07	-25.336			
	6.22E-06	-9.93E-07	45.388			
	Min: A E C			Max: A D E F		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	5.49E-06	-8.10E-07	-25.336			
	-6.22E-06	9.93E-07	45.388			
	Min: A E F			Max: A E C D		
10	-5.49E-06	-8.11E-07	-25.336			
	6.22E-06	9.93E-07	45.388			
	Min: A E C			Max: A D E F		
58	-6.21E-10	-3.02E-07	92.600			
	-2.42E-11	3.18E-07	59.601			
	Min: G I			Max: G H J		
108	-3.05E-11	-3.18E-07	59.601			
	-6.17E-10	3.02E-07	92.600			
	Min: G H J			Max: G I		
156	-6.22E-06	-9.93E-07	45.388			
	5.49E-06	8.10E-07	-25.336			
	Min: A E C D			Max: A E F		
160	6.22E-06	-9.93E-07	45.388			
	-5.49E-06	8.11E-07	-25.336			
	Min: A D E F			Max: A E C		

ENVELOPE SPECIFIC.: DE 'COMBINACION VEHICULO'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1		0	PESO PROPIO
B	PLUS	11	1.000		VEHICULO HIPOTESIS 11
C	OR	12	1.000		VEHICULO HIPOTESIS 12
D	OR	13	1.000		VEHICULO HIPOTESIS 13
E	OR	14	1.000		VEHICULO HIPOTESIS 14
F	OR	15	1.000		VEHICULO HIPOTESIS 15
G	OR	16	1.000		VEHICULO POSICION 16
H	OR	17	1.000		VEHICULO POSICION 17
I	OR	18	1.000		VEHICULO POSICION 18
J	OR	19	1.000		VEHICULO POSICION 19
K	OR	20	1.000		VEHICULO HIPOTESIS 20
L	OR	21	1.000		VEHICULO HIPOTESIS 21
M	OR	22	1.000		VEHICULO HIPOTESIS 22
N	OR	23	1.000		VEHICULO HIPOTESIS 23
O	OR	24	1.000		VEHICULO HIPOTESIS 24
P	OR	25	1.000		VEHICULO POSICION 25
Q	OR	26	1.000		VEHICULO POSICION 26
R	OR	27	1.000		VEHICULO POSICION 27
S	OR	28	1.000		VEHICULO POSICION 28
T	OR	37	1.000		VEHICULO HIPOTESIS 37
U	OR	38	1.000		VEHICULO HIPOTESIS 38
V	OR	39	1.000		VEHICULO HIPOTESIS 39
W	OR	40	1.000		VEHICULO HIPOTESIS 40
X	OR	41	1.000		VEHICULO HIPOTESIS 41
Y	OR	42	1.000		VEHICULO POSICION 42
Z	OR	43	1.000		VEHICULO POSICION 43
AA	OR	44	1.000		VEHICULO POSICION 44
AB	OR	45	1.000		VEHICULO POSICION 45

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	4.90E-06	-6.19E-07	-19.614			
	-1.45E-06	7.64E-07	50.970			
	Min: A N			Max: A E		
10	-4.91E-06	-6.21E-07	-19.571			
	1.45E-06	7.63E-07	50.970			
	Min: A E			Max: A K		
58	9.20E-07	9.24E-08	-5.356			
	1.42E-05	-4.07E-07	59.881			
	Min: A E			Max: A F		
108	9.20E-07	-9.24E-08	-5.356			
	-1.42E-05	4.12E-07	59.851			
	Min: A L			Max: A F		
156	4.90E-06	6.19E-07	-19.614			
	-1.44E-06	-7.63E-07	51.027			
	Min: A P			Max: A J		
160	-4.90E-06	6.19E-07	-19.614			
	1.44E-06	-7.63E-07	51.027			
	Min: A G			Max: A S		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-4.76E-06	6.82E-07	16.452			
	4.90E-06	-6.19E-07	-19.614			
	Min: A E			Max: A N		
10	-4.91E-06	-6.21E-07	-19.571			
	4.75E-06	6.81E-07	16.359			
	Min: A E			Max: A N		
58	-1.42E-05	-4.12E-07	59.851			
	1.42E-05	-4.07E-07	59.881			
	Min: A N			Max: A E		
108	-1.42E-05	4.12E-07	59.851			
	1.42E-05	4.12E-07	59.851			
	Min: A F			Max: A G		
156	-4.75E-06	-6.81E-07	16.359			
	4.90E-06	6.19E-07	-19.614			
	Min: A G			Max: A P		
160	-4.90E-06	6.19E-07	-19.614			
	4.75E-06	-6.81E-07	16.359			
	Min: A G			Max: A F		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	4.46E-06	-7.36E-07	-17.531				
	-2.75E-06	8.40E-07	39.073				
	Min: A M						Max: A C
10	-4.46E-06	-7.37E-07	-17.531				
	2.75E-06	8.39E-07	39.073				
	Min: A D						Max: A L
58	-1.42E-05	-4.12E-07	59.851				
	1.39E-05	4.24E-07	57.758				
	Min: A N						Max: A C
108	1.39E-05	-4.20E-07	57.713				
	-1.42E-05	4.12E-07	59.851				
	Min: A H						Max: A F
156	-2.75E-06	-8.40E-07	39.073				
	4.45E-06	7.36E-07	-17.510				
	Min: A I						Max: A Q
160	2.75E-06	-8.39E-07	39.073				
	-4.45E-06	7.36E-07	-17.510				
	Min: A F						Max: A H

ENVELOPE SPECIFIC.: DF 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OF	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PL.PERM	4	0.900000		PRETENSADO
F	OF	4	1.100		PRETENSADO
G	PLUS	6	1.000		SOB UNIF 1
H	PLUS	7	1.000		SOB UNIF 2
I	PLUS	8	1.000		SOB UNIF 3
J	PLUS	9	1.000		SOB UNIF 4
K	PLUS	10	1.000		SOB UNIF 5
L	PLUS	11	1.000		VEHICULO HIPOTESIS 11
M	OF	12	1.000		VEHICULO HIPOTESIS 12
N	OF	13	1.000		VEHICULO HIPOTESIS 13
O	OF	14	1.000		VEHICULO HIPOTESIS 14
P	OF	15	1.000		VEHICULO HIPOTESIS 15
Q	OF	16	1.000		VEHICULO POSICION 16
R	OF	17	1.000		VEHICULO POSICION 17
S	OF	18	1.000		VEHICULO POSICION 18
T	OF	19	1.000		VEHICULO POSICION 19
U	OF	20	1.000		VEHICULO HIPOTESIS 20
V	OF	21	1.000		VEHICULO HIPOTESIS 21
W	OF	22	1.000		VEHICULO HIPOTESIS 22
X	OF	23	1.000		VEHICULO HIPOTESIS 23
Y	OF	24	1.000		VEHICULO HIPOTESIS 24

Z	OF	25	1.000	VEHICULO POSICION 25
AA	OF	26	1.000	VEHICULO POSICION 26
AB	OF	27	1.000	VEHICULO POSICION 27
AC	OF	28	1.000	VEHICULO POSICION 28
AD	OF	37	1.000	VEHICULO HIPOTESIS 37
AE	OF	38	1.000	VEHICULO HIPOTESIS 38
AF	OF	39	1.000	VEHICULO HIPOTESIS 39
AG	OF	40	1.000	VEHICULO HIPOTESIS 40
AH	OF	41	1.000	VEHICULO HIPOTESIS 41
AI	OF	42	1.000	VEHICULO POSICION 42
AJ	OF	43	1.000	VEHICULO POSICION 43
AK	OF	44	1.000	VEHICULO POSICION 44
AL	OF	45	1.000	VEHICULO POSICION 45
AM	PLUS	30	1.000	FRENADO
AN	PLUS	33	0.300000	VIENTO TRANSV CON SOB
AO	PLUS	34	0.600000	TEMPERATURA (-)
AP	OF	35	0.600000	TEMPERATURA (+)
AQ	PLUS	36	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

AR	PERM.	1	1.000	PESO PROPIO
AS	PL.PERM	2	1.500	PESO PAVIMENTO
AT	OF	2	1.000	PESO PAVIMENTO
AU	PL.PERM	3	1.000	PESO BARRERAS
AV	PL.PERM	4	0.765000	PRETENSADO
AW	OF	4	0.935000	PRETENSADO
AX	PL.PERM	5	1.000	RETRACCION Y FLUENCIA
AY	PLUS	6	1.000	SOB UNIF 1
AZ	PLUS	7	1.000	SOB UNIF 2
BA	PLUS	8	1.000	SOB UNIF 3
BB	PLUS	9	1.000	SOB UNIF 4
BC	PLUS	10	1.000	SOB UNIF 5
BD	PLUS	11	1.000	VEHICULO HIPOTESIS 11
BE	OF	11	1.000	VEHICULO HIPOTESIS 11
BF	OF	12	1.000	VEHICULO HIPOTESIS 12
BG	OF	13	1.000	VEHICULO HIPOTESIS 13
BH	OF	14	1.000	VEHICULO HIPOTESIS 14
BI	OF	15	1.000	VEHICULO HIPOTESIS 15
BJ	OF	16	1.000	VEHICULO POSICION 16
BK	OF	17	1.000	VEHICULO POSICION 17
BL	OF	18	1.000	VEHICULO POSICION 18
BM	OF	19	1.000	VEHICULO POSICION 19
BN	OF	20	1.000	VEHICULO HIPOTESIS 20
BO	OF	21	1.000	VEHICULO HIPOTESIS 21
BP	OF	22	1.000	VEHICULO HIPOTESIS 22
BQ	OF	23	1.000	VEHICULO HIPOTESIS 23
BR	OF	24	1.000	VEHICULO HIPOTESIS 24
BS	OF	25	1.000	VEHICULO POSICION 25
BT	OF	26	1.000	VEHICULO POSICION 26
BU	OF	27	1.000	VEHICULO POSICION 27
BV	OF	28	1.000	VEHICULO POSICION 28
BW	OF	37	1.000	VEHICULO HIPOTESIS 37
BX	OF	38	1.000	VEHICULO HIPOTESIS 38
BY	OF	39	1.000	VEHICULO HIPOTESIS 39
BZ	OF	40	1.000	VEHICULO HIPOTESIS 40
CA	OF	41	1.000	VEHICULO HIPOTESIS 41
CB	OF	42	1.000	VEHICULO POSICION 42

CC	OF	43	1.000	VEHICULO POSICION 43
CD	OF	44	1.000	VEHICULO POSICION 44
CE	OF	45	1.000	VEHICULO POSICION 45
CF	PLUS	30	1.000	FRENADO
CG	PLUS	33	0.300000	VIENTO TRANSV CON SOB
CH	OF	34	0.600000	TEMPERATURA (-)
CI	PLUS	35	0.600000	TEMPERATURA (+)
CJ	PLUS	36	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

CJ	PERM.	1	1.000	PESO PROPIO
CK	PL.PERM	2	1.500	PESO PAVIMENTO
CL	OF	2	1.000	PESO PAVIMENTO
CM	PL.PERM	3	1.000	PESO BARRERAS
CN	PL.PERM	4	0.900000	PRETENSADO
CO	OF	4	1.100	PRETENSADO
CP	PLUS	46	1.000	SOB UNIF VANO 1
CQ	PLUS	47	1.000	SOB UNIF VANO 2
CR	PLUS	48	1.000	SOB UNIF VANO 3
CS	PLUS	11	1.000	VEHICULO HIPOTESIS 11
CT	OF	12	1.000	VEHICULO HIPOTESIS 12
CU	OF	13	1.000	VEHICULO HIPOTESIS 13
CV	OF	14	1.000	VEHICULO HIPOTESIS 14
CW	OF	15	1.000	VEHICULO HIPOTESIS 15
CX	OF	16	1.000	VEHICULO POSICION 16
CY	OF	17	1.000	VEHICULO POSICION 17
CZ	OF	18	1.000	VEHICULO POSICION 18
DA	OF	19	1.000	VEHICULO POSICION 19
DB	OF	20	1.000	VEHICULO HIPOTESIS 20
DC	OF	21	1.000	VEHICULO HIPOTESIS 21
DD	OF	22	1.000	VEHICULO HIPOTESIS 22
DE	OF	23	1.000	VEHICULO HIPOTESIS 23
DF	OF	24	1.000	VEHICULO HIPOTESIS 24
DG	OF	25	1.000	VEHICULO POSICION 25
DH	OF	26	1.000	VEHICULO POSICION 26
DI	OF	27	1.000	VEHICULO POSICION 27
DJ	OF	28	1.000	VEHICULO POSICION 28
DK	OF	37	1.000	VEHICULO HIPOTESIS 37
DL	OF	38	1.000	VEHICULO HIPOTESIS 38
DM	OF	39	1.000	VEHICULO HIPOTESIS 39
DN	OF	40	1.000	VEHICULO HIPOTESIS 40
DO	OF	41	1.000	VEHICULO HIPOTESIS 41
DP	OF	42	1.000	VEHICULO POSICION 42
DQ	OF	43	1.000	VEHICULO POSICION 43
DR	OF	44	1.000	VEHICULO POSICION 44
DS	OF	45	1.000	VEHICULO POSICION 45
DT	PLUS	30	1.000	FRENADO
DU	PLUS	33	0.300000	VIENTO TRANSV CON SOB
DV	PLUS	34	0.600000	TEMPERATURA (-)
DW	OF	35	0.600000	TEMPERATURA (+)
DX	PLUS	36	0.600000	GRADIENTE

ALTERNATIVE ENVELOPE :

DY	PERM.	1	1.000	PESO PROPIO
DZ	PL.PERM	2	1.500	PESO PAVIMENTO
EA	OF	2	1.000	PESO PAVIMENTO

EB	PL.PERM	3	1.000	PESO BARRERAS
EC	PL.PERM	4	0.765000	PRETENSADO
ED	OF	4	0.935000	PRETENSADO
EE	PL.PERM	5	1.000	RETRACCION Y FLUENCIA
EF	PLUS	46	1.000	SOB UNIF VANO 1
EG	PLUS	47	1.000	SOB UNIF VANO 2
EH	PLUS	48	1.000	SOB UNIF VANO 3
EI	PLUS	11	1.000	VEHICULO HIPOTESIS 11
EJ	OF	12	1.000	VEHICULO HIPOTESIS 12
EK	OF	13	1.000	VEHICULO HIPOTESIS 13
EL	OF	14	1.000	VEHICULO HIPOTESIS 14
EM	OF	15	1.000	VEHICULO HIPOTESIS 15
EN	OF	16	1.000	VEHICULO POSICION 16
EO	OF	17	1.000	VEHICULO POSICION 17
EP	OF	18	1.000	VEHICULO POSICION 18
EQ	OF	19	1.000	VEHICULO POSICION 19
ER	OF	20	1.000	VEHICULO HIPOTESIS 20
ES	OF	21	1.000	VEHICULO HIPOTESIS 21
ET	OF	22	1.000	VEHICULO HIPOTESIS 22
EU	OF	23	1.000	VEHICULO HIPOTESIS 23
EV	OF	24	1.000	VEHICULO HIPOTESIS 24
EW	OF	25	1.000	VEHICULO POSICION 25
EX	OF	26	1.000	VEHICULO POSICION 26
EY	OF	27	1.000	VEHICULO POSICION 27
EZ	OF	28	1.000	VEHICULO POSICION 28
FA	OF	37	1.000	VEHICULO HIPOTESIS 37
FB	OF	38	1.000	VEHICULO HIPOTESIS 38
FC	OF	39	1.000	VEHICULO HIPOTESIS 39
FD	OF	40	1.000	VEHICULO HIPOTESIS 40
FE	OF	41	1.000	VEHICULO HIPOTESIS 41
FF	OF	42	1.000	VEHICULO POSICION 42
FG	OF	43	1.000	VEHICULO POSICION 43
FH	OF	44	1.000	VEHICULO POSICION 44
FI	OF	45	1.000	VEHICULO POSICION 45
FJ	PLUS	30	1.000	FRENADO
FK	PLUS	33	0.300000	VIENTO TRANSV CON SOB
FL	PLUS	34	0.600000	TEMPERATURA (-)
FM	OF	35	0.600000	TEMPERATURA (+)
FN	PLUS	36	0.600000	GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-0.026478	-10.241	94.640				
	1.580	0.583853	255.657				
	Min: AR AT AU AV AX BE BC...						Max: A B D F G H I L AN AP..
10	1.647	-10.242	92.372				
	0.040342	0.582248	254.144				
	Min: AR AT AU AV AX AY AZ...						Max: A B D F I J K U AP AQ
58	9.917	1.500	841.978				
	1.42E-05	-30.005	1134.611				
	Min: CJ CL CM CO CR DI DU...						Max: DY DZ EE EC EE EF EG...
108	9.917	-8.274	841.978				
	-1.42E-05	23.231	1134.581				
	Min: CJ CL CM CO CP DC DT...						Max: DY DZ EE EC EE EG EH...
156	-0.026461	9.128	94.640				
	1.580	-1.697	255.715				
	Min: AR AT AU AV AX BE BC...						Max: A E D F G H I T AM AN..
160	1.647	9.128	92.330				
	0.040325	-1.695	254.202				
	Min: AR AT AU AV AX AY AZ...						Max: A E D F I J K AC AM AP.

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-0.040424	-4.657	219.627				
	1.594	-5.000	96.153				
	Min: A E D F G H I O AM AO..						Max: AR AT AU AV AX EE BC...
10	0.026399	-5.002	94.682				
	1.661	-4.658	217.224				
	Min: AR AT AU AV AX AY AZ...						Max: A E D F I J K X AM AN..
58	-2.58E-05	-12.723	1062.530				
	9.917	-15.762	979.405				
	Min: AR AS AU AV AX BA BE...						Max: A C D F G H C AM AN AO.
108	-2.58E-05	16.457	1062.530				
	9.917	-1.500	979.375				
	Min: AR AS AU AV AX BA BE...						Max: A C D F G H Q AN AP AQ
156	-0.040407	3.544	219.536				
	1.594	3.887	96.153				
	Min: A E D F G H I O AO AC						Max: AR AT AU AV AX BE BC...
160	0.026382	3.585	94.640				
	1.661	3.545	217.224				
	Min: AR AT AU AV AX AY AZ...						Max: A E D F I J K Z AN AO..

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]	
6	-0.032333	-10.470	100.747				
	1.587	0.853349	239.026				
	Min: AR AT AU AW AX EE BC...						Max: A E D E G H I M AN AP..
10	1.653	-10.471	98.437				
	0.033456	0.851745	237.513				
	Min: AR AT AU AW AX AY AZ...						Max: A E D E I J K V AP AQ
58	-1.42E-05	-30.585	1018.009				
	9.917	2.162	1023.086				
	Min: DY EA EE ED EE EG EU...						Max: CJ CK CM CN CP CR CU...
108	9.917	-8.956	1023.041				
	-1.42E-05	23.611	1018.009				
	Min: CJ CK CM CN CP CR CV...						Max: DY EA EE ED EE EG EW...
156	1.587	-1.966	239.026				
	-0.032316	9.357	100.768				
	Min: A E D E G H I S AM AN..						Max: AR AT AU AW AX BE BC...
160	0.033438	-1.965	237.513				
	1.653	9.358	98.458				
	Min: A E D E I J K AB AM AP.						Max: AR AT AU AW AX AY AZ...

DEFORMATIONS: ""
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]	
2	0	-6.931	21.739	3.31E-08	0.001324	0.000216	0.000113	
	0.175758	20.247	5.88E-08	0.002350	0.000250	0.000174		
	Min: AR AT AU AV AX EE BC...						Max: A E D F G H I O AM AO..	
2	2.500	-7.128	19.527	6.165	0.002313	0.000181	5.76E-05	
	-0.047619	20.606	2.493	0.000954	-5.35E-05	3.74E-05		
	Min: A E D F I J K X AM AN..						Max: AR AT AU AV AX AY AZ...	
31	0	-7.128	-14.688	6.165	-0.002313	0.000181	-5.76E-05	
	-0.047586	-15.767	2.498	-0.000956	-5.35E-05	-3.74E-05		
	Min: A E D F I J K Z AN AO...						Max: AR AT AU AV AX AY AZ...	
31	2.500	-6.931	-16.900	3.42E-08	-0.001324	0.000216	-0.000113	
	0.175681	-15.407	5.81E-08	-0.002352	0.000250	-0.000174		
	Min: AR AT AU AV AX EE BC...						Max: A E D F G H I Q AO AQ	
75	0	-7.052	23.757	2.414	-0.000954	-0.000948	1.09E-06	
	1.58E-05	-1.197	2.876	-0.001281	0.000918	-1.38E-09		
	Min: AR AT AU AV AX AY AZ...						Max: A E D F I J K W AP	
75	2.500	-7.084	11.273	2.49E-08	-0.001375	-0.001021	1.28E-06	
	1.84E-05	9.088	2.04E-08	-0.001178	0.000989	-1.58E-09		
	Min: A C D F G H O AM AN AO.						Max: AR AS AU AV AX BA BE...	
76	0	-7.084	11.273	-4.95E-06	-0.001375	-0.001021	1.28E-06	
	1.84E-05	9.088	-4.24E-08	-0.001178	0.000989	-1.58E-09		

DEFORMATIONS: **
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
	Min: A C D F G H O AM AN AO.		Max: AR AS AU AV AX BA BE...				
76	3.600	-7.091	12.100	-5.044	-0.001340	-0.001104	1.39E-06
		2.60E-05	5.133	-3.861	-0.000768	0.001071	-1.10E-09
	Min: AR AS AU AV AX AY AZ...		Max: A C D F J K X AO				
85		0	-7.091	-7.261	-5.063	0.001345	-0.001105	-1.39E-06
		2.60E-05	-0.293319	-3.861	0.000768	0.001071	1.10E-09
	Min: AR AS AU AV AX AY AZ...		Max: A C D F J K Z AM AO				
85	3.600	-7.084	1.071	-7.74E-08	0.001379	-0.001020	-1.28E-06
		1.84E-05	-11.755	-6.83E-08	0.001178	0.000989	1.58E-09
	Min: A C D F G H Q AN AP AQ		Max: AR AS AU AV AX BA BE...				
86		0	-7.084	1.071	3.45E-08	0.001379	-0.001020	-1.28E-06
		1.84E-05	-11.755	2.95E-08	0.001178	0.000989	1.58E-09
	Min: A C D F G H Q AN AP AQ		Max: AR AS AU AV AX BA BE...				
86	2.500	-7.082	-10.368	2.412	0.000953	-0.000947	-1.09E-06
		1.58E-05	-2.513	2.874	0.001280	0.000917	1.38E-09
	Min: AR AT AU AV AX AY AZ...		Max: A E D F I J K AA AM AO				
130		0	-7.222	20.254	5.90E-08	0.002360	-0.000250	-0.000171
		-0.114780	21.746	3.31E-08	0.001323	-0.000217	-0.000110
	Min: A E D F I J K X AM AN..		Max: AR AT AU AV AX AY AZ...				
130	2.500	-7.009	20.613	2.519	0.000964	4.95E-05	-3.51E-05
		0.075799	19.534	6.164	0.002313	-0.000185	-5.53E-05
	Min: AR AT AU AV AX EE EC...		Max: A E D F G H I O AM AO..				
159		0	-7.009	-15.774	2.519	-0.000964	4.95E-05	3.51E-05
		0.075769	-14.695	6.170	-0.002315	-0.000185	5.53E-05
	Min: AR AT AU AV AX EE EC...		Max: A E D F G H I Q AO AQ				
159	2.500	-7.222	-15.414	5.63E-08	-0.002360	-0.000250	0.000171
		-0.114703	-16.907	3.43E-08	-0.001325	-0.000217	0.000110
	Min: A E D F I J K Z AN AO..		Max: AR AT AU AV AX AY AZ...				

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2		0	-6.900	-3.710	3.47E-08	0.001390	0.000240	0.000148
		0.140580	45.521	4.27E-08	0.001707	0.000243	0.000135
	Min: A E D E G H I M AN AP..		Max: AR AT AU AW AX BE BC...				
2	2.500	-7.115	-3.344	3.111	0.001146	-5.20E-05	4.77E-05
		-0.058411	43.308	4.122	0.001573	0.000180	4.58E-05
	Min: A E D E G H I M AN AP..		Max: AR AT AU AW AX BE BC...				

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
31		0	-0.058380	-38.468	4.120	-0.001572	0.000180	-4.58E-05
		-7.115	8.184	3.111	-0.001146	-5.20E-05	-4.77E-05
	Min: AR AT AU AW AX BE BC...		Max: A E D E G H I S AM AN..				
31	2.500	0.140503	-40.681	4.43E-08	-0.001706	0.000243	-0.000135
		-6.900	8.549	3.27E-08	-0.001390	0.000240	-0.000148
	Min: AR AT AU AW AX EE EC...		Max: A E D E G H I S AM AN..				
75		0	8.69E-09	-1.757	2.454	-0.000987	3.68E-12	3.18E-12
		-7.082	24.232	3.108	-0.001335	0.000145	1.08E-06
	Min: A E D E G H I J K AF...		Max: AR AT AU AW AX ER CE...				
75	2.500	-7.084	-1.559	6.10E-09	-0.000636	-0.000424	1.28E-06
		1.01E-05	21.846	3.36E-08	-0.001702	0.000425	-7.84E-10
	Min: CJ CK CM CN CP CR CU...		Max: DY EA EE ED EE EG EU...				
76		0	-7.084	-1.559	-2.30E-08	-0.000636	-0.000424	1.28E-06
		1.01E-05	21.846	-6.13E-08	-0.001702	0.000425	-7.84E-10
	Min: CJ CK CM CN CP CR CU...		Max: DY EA EE ED EE EG EU..				
76	3.600	-7.091	-1.259	-3.051	-0.000645	-0.000210	1.39E-06
		-8.03E-06	18.434	-4.695	-0.001189	-0.000374	-1.20E-10
	Min: CJ CL CM CN CR CY DU...		Max: DY DZ EE ED EE EF EG...				
85		0	-8.02E-06	-13.595	-4.693	0.001188	-0.000373	1.20E-10
		-7.091	6.099	-3.052	0.000645	-0.000211	-1.39E-06
	Min: DY DZ EB ED EE EG EH...		Max: CJ CL CM CN CP CU DT...				
85	3.600	1.01E-05	-17.008	-8.89E-08	0.001702	0.000425	7.84E-10
		-7.084	6.397	-4.76E-08	0.000637	-0.000424	-1.28E-06
	Min: DY EA EE ED EE EG EW...		Max: CJ CK CM CN CP CR CY...				
86		0	1.01E-05	-17.008	4.26E-08	0.001702	0.000425	7.84E-10
		-7.084	6.397	1.59E-08	0.000637	-0.000424	-1.28E-06
	Min: DY EA EE ED EE EG EW...		Max: CJ CK CM CN CP CR CY...				
86	2.500	-7.082	-19.393	3.108	0.001335	0.000145	-1.08E-06
		8.69E-09	6.596	2.452	0.000986	3.68E-12	-3.18E-12
	Min: AR AT AU AW AX EP CF...		Max: A E D E G H I J K AJ...				
130		0	-0.145455	-3.703	3.48E-08	0.001391	-0.000241	-0.000145
		-7.187	45.528	4.29E-08	0.001715	-0.000243	-0.000133
	Min: A E D E I J K V AP AQ		Max: AR AT AU AW AX AY AZ...				
130	2.500	0.063153	-3.338	3.115	0.001147	4.79E-05	-4.54E-05
		-6.994	43.315	4.143	0.001581	-0.000184	-4.35E-05
	Min: A E D E I J K V AP AQ		Max: AR AT AU AW AX AY AZ...				
159		0	-6.994	-38.475	4.141	-0.001580	-0.000184	4.35E-05
		0.063122	8.177	3.115	-0.001147	4.79E-05	4.54E-05
	Min: AR AT AU AW AX AY AZ...		Max: A E D E I J K AE AM AP.				
159	2.500	-7.187	-40.688	4.45E-08	-0.001714	-0.000243	0.000133
		-0.145382	8.543	3.28E-08	-0.001391	-0.000241	0.000145
	Min: AR AT AU AW AX AY AZ...		Max: A E D E I J K AE AM AP.				

E 317+500

CARACTERÍSTICAS DE LOS NEOPRENOS

APOYOS	DIMENSIONES	δadm.	OBSERVACION
	mm	mm	
E-1	400 x 550 x 99 (71)	49.7	
P-1	Φ1000 x 56 (41)	28.7	
P-2	Φ1000 x 56 (41)	28.7	
E-2	400 x 550 x 99 (71)	49.7	

RESUMEN DE LOS DESPLAZAMIENTOS DE LOS APARATOS DE APOYO

APOYOS	DESPLAZAMIENTOS (mm)							
	Reológicos+Acort. Elas	Térmicos	Frenado	F. Centrif.	Viento (c/S.C.)	δ_{H1}	$\delta_{HNEOPRENO}$	δadm.
	δ_R	δ_T	δ_F	δ_{FC}	$\delta_{V\ C/SC}$	mm	mm	mm
E-1	32.09	15.00	4.84	0.00	23.50	46.47	46.47	49.70
P-1	13.44	6.25	4.84	0.00	23.50	23.13	23.13	28.70
P-2	13.44	6.25	4.84	0.00	23.50	23.13	23.13	28.70
E-2	32.09	15.00	4.84	0.00	23.50	46.47	46.47	49.70

$$\delta_{H1} = ((\delta_R + 0.6 \times \delta_T + \delta_F)^2 + (0{,}5 \times 0.6 \times \delta_{V\ C/SC})^2)^{0,5}$$

RESUMEN DE LOS DESPLAZAMIENTOS DE LAS JUNTAS DE DILATACION

	DESPLAZAMIENTOS (mm)				
APOYOS	Reológicos+Acort Elas	Térmicos	Frenado	δ_{MAX}	δ_{MIN}
	δ_R	δ_T	δ_F	mm	mm
E-1	32.09	15.00	4.84	52	20
E-2	32.09	15.00	4.84	52	20

J.D. ESTRIBOS DE 60 mm DE RECORRIDO, CON 20 mm DE APERTURA INICIAL

COMPROBACION DE TENSIONES DE LOS APARATOS DE APOYO

ESTRIBO 1 : APOYOS DE DIMENSIONES (mm) = 400 x 550 x 99 (71)

REACCION MAXIMA (t) :	255.71	σ_{max} (tm^{-2}) =	1162 < 1500 tm^{-2}
REACCION MINIMA (t):	92.33	σ_{min} (tm^{-2}) =	420 > 200 tm^{-2}

ESTRIBO 2 : APOYOS DE DIMENSIONES (mm) = 400 x 550 x 99 (71)

REACCION MAXIMA (t) :	255.71	σ_{max} (tm^{-2}) =	1162 < 1500 tm^{-2}
REACCION MINIMA (t):	92.37	σ_{min} (tm^{-2}) =	420 > 200 tm^{-2}

PILA 1 : APOYO DE DIMENSIONES (mm) = Φ1000 x 56 (41)

REACCION MAXIMA (t) :	1134.60	σ_{max} (tm^{-2}) =	1445 < 1500 tm^{-2}
REACCION MINIMA (t):	841.98	σ_{min} (tm^{-2}) =	1072 > 200 tm^{-2}

PILA 2 : APOYO DE DIMENSIONES (mm) = Φ1000 x 56 (41)

REACCION MAXIMA (t) :	1134.60	σ_{max} (tm^{-2}) =	1445 < 1500 tm^{-2}
REACCION MINIMA (t):	841.98	σ_{min} (tm^{-2}) =	1072 > 200 tm^{-2}

RESUMEN DE LAS FUERZAS HORIZONTALES

APOYOS	FUERZAS HORIZONTALES (t)					
	Reológicas	Térmicas	Frenado	Viento (s/S.C.)	Viento (c/S.C.)	Resultante
	F_R	F_T	F_F	$F_{V\ S/SC}$	$F_{V\ C/SC}$	F_{FT}
E-1	7.18	3.44	1.11	3.50	5.40	11.4
P-1	18.27	8.76	6.77	21.40	33.06	32.6
P-2	18.27	8.76	6.77	21.40	33.06	32.6
E-2	7.18	3.44	1.11	3.50	5.40	11.4

CALCULO DE LAS RIGIDECES PARA STATIK3

APOYOS	RIGIDECES HORIZONTALES (t/m)						
	ALTURA PILAR	I PILAR	E PILAR	F APOYO	T APOYO	K LONG	K TRANSV
E-1	10.00	2.4603	3000000.00	0.22	0.071	268.72	278.87
P-1	10.00	0.0848	3000000.00	0.7854	0.041	221.74	221.74
P-2	10.00	0.0842	3000000.00	0.7854	0.041	220.39	220.39
E-2	10.00	2.4603	3000000.00	0.22	0.071	268.72	278.87

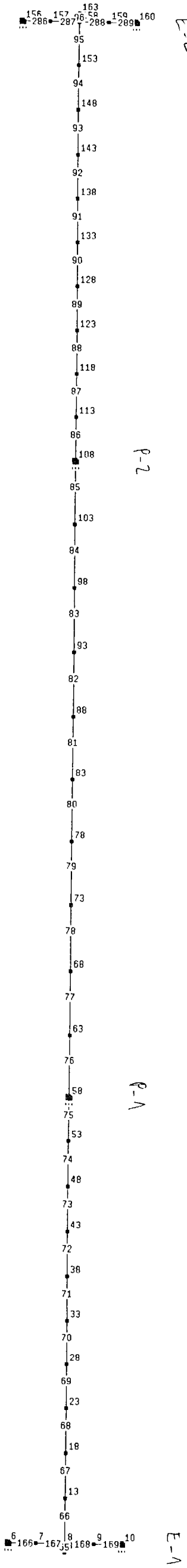
RESUMEN DE LOS DESPLAZAMIENTOS TOTALES (APOYOS+PILARES)

APOYOS	DESPLAZAMIENTOS (mm)						
	Reológicos+Acort. Elas	Térmicos	Frenado	F. Centrif.	Viento (c/S.C.)	δ_{H1}	δneopreno
	δ_R	δ_T	δ_F	δ_{FC}	$\delta_{V\ C/SC}$	mm	mm
E-1	32.09	15.00	4.84	0.00	23.50	46.47	46.47
P-1	13.44	6.25	4.84	0.00	23.50	23.13	23.13
P-2	13.44	6.25	4.84	0.00	23.50	23.13	23.13
E-2	32.09	15.00	4.84	0.00	23.50	46.47	46.47

$$\delta_{H1} = ((\delta_R + 0.6 \times \delta_T + \delta_F)^2 + (0{,}5 \times 0.6 \times \delta_{V\ C/SC})^2)^{0,5}$$

2.4. Comprobación Longitudinal del tablero

Scale 1 : 259.1
Structure - GEOMETRIA



****
* STRUCTURAL - DATA *
****

Project title :

J O I N T D A T A : (41 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V	R	Specialities
3	3.25000	0.00000	0.00000			
6	0.00000	0.50000	0.00000	SSE	FFF	
7	1.60000	0.50000	0.00000			
8	3.25000	0.50000	0.00000			
9	4.90000	0.50000	0.00000			
10	6.50000	0.50000	0.00000	SSE	FFF	
13	3.25000	3.00000	0.00000			
18	3.25000	5.50000	0.00000			
23	3.25000	8.00000	0.00000			
28	3.25000	10.50000	0.00000			
33	3.25000	13.00000	0.00000			
38	3.25000	15.50000	0.00000			
43	3.25000	18.00000	0.00000			
48	3.25000	20.50000	0.00000			
53	3.25000	23.00000	0.00000			
58	3.25000	25.50000	0.00000	SSE	FFF	
63	3.25000	29.10000	0.00000			
68	3.25000	32.70000	0.00000			
73	3.25000	36.30000	0.00000			
78	3.25000	39.90000	0.00000			
83	3.25000	43.50000	0.00000			
88	3.25000	47.10000	0.00000			
93	3.25000	50.70000	0.00000			
98	3.25000	54.30000	0.00000			
103	3.25000	57.90000	0.00000			
108	3.25000	61.50000	0.00000	SSE	FFF	
113	3.25000	64.00000	0.00000			
118	3.25000	66.50000	0.00000			
123	3.25000	69.00000	0.00000			
128	3.25000	71.50000	0.00000			
133	3.25000	74.00000	0.00000			
138	3.25000	76.50000	0.00000			
143	3.25000	79.00000	0.00000			
148	3.25000	81.50000	0.00000			
153	3.25000	84.00000	0.00000			
156	0.00000	86.50000	0.00000	SSE	FFF	
157	1.60000	86.50000	0.00000			
158	3.25000	86.50000	0.00000			
159	4.90000	86.50000	0.00000			
160	6.50000	86.50000	0.00000	SSE	FFF	
163	3.25000	87.00000	0.00000			

ELASTICALLY SUPPORTED JOINTS: ("E"=Fixed "F"=Free)

Joint	V-X [T/M]	V-Y [T/M]	V-Z [T/M]	R-X [TM/ARC]	R-Y [TM/ARC]	R-Z [TM/ARC]
6	2.300E+02	2.300E+02	E	F	F	F
10	2.300E+02	2.300E+02	E	F	F	F
58	1.400E+03	1.400E+03	E	F	F	F
108	1.400E+03	1.400E+03	E	F	F	F
156	2.300E+02	2.300E+02	E	F	F	F
160	2.300E+02	2.300E+02	E	F	F	F

B A R D A T A : (40 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
65	3	8	0.50000	TABAPOYO			oS
66	8	13	2.50000	haunched			oS
67	13	18	2.50000	TABVANO			oS
68	18	23	2.50000	TABVANO			oS
69	23	28	2.50000	TABVANO			oS
70	28	33	2.50000	TABVANO			oS
71	33	38	2.50000	TABVANO			oS
72	38	43	2.50000	TABVANO			oS
73	43	48	2.50000	TABVANO			oS
74	48	53	2.50000	TABVANO			oS
75	53	58	2.50000	haunched			oS
76	58	63	3.60000	haunched			oS
77	63	68	3.60000	TABVANO			oS
78	68	73	3.60000	TABVANO			oS
79	73	78	3.60000	TABVANO			oS
80	78	83	3.60000	TABVANO			oS
81	83	88	3.60000	TABVANO			oS
82	88	93	3.60000	TABVANO			oS
83	93	98	3.60000	TABVANO			oS
84	98	103	3.60000	TABVANO			oS
85	103	108	3.60000	haunched			oS
86	108	113	2.50000	haunched			oS
87	113	118	2.50000	TABVANO			oS
88	118	123	2.50000	TABVANO			oS
89	123	128	2.50000	TABVANO			oS
90	128	133	2.50000	TABVANO			oS
91	133	138	2.50000	TABVANO			oS
92	138	143	2.50000	TABVANO			oS
93	143	148	2.50000	TABVANO			oS
94	148	153	2.50000	TABVANO			oS
95	153	158	2.50000	haunched			oS
96	158	163	0.50000	TABAPOYO			oS
166	6	7	1.60000	%Q0001			oS
167	7	8	1.65000	%Q0001			oS
168	8	9	1.65000	%Q0001			oS
169	9	10	1.60000	%Q0001			oS
286	156	157	1.60000	%Q0002			oS
287	157	158	1.65000	%Q0002			oS

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	end	Specialities
288	158	159	1.65000	%Q0002			oS
289	159	160	1.60000	%Q0002			oS

oS = Bars without shear deformation

HAUNCHED AND NON DEFAULT ORIENTED MEMBERS:

Bar	haunched bars CS-Start	CS-End	Bar orientation x/k1/angle Beta	y/k2	z
66	TABAPOYO	TABVANC			
75	TABVANC	TABAPOYO			
76	TABAPOYC	TABVANC			
85	TABVANC	TABAPOYC			
86	TABAPOYO	TABVANC			
95	TABVANC	TABAPOYC			

CROSS SECTION VALUES: CS-Name	Ax [M2] Ix [M4] zi [M]	Iy [M4] Fy [M2] zu [M]	Iz [M4] Fz [M2] yl [M]	Phi [Degr] yr [M]
%Q0001	1.8900E+00	4.6330E-01	4.4194E-01	0.00
(TRANS0)	6.7466E-01	1.8900E+00	1.8900E+00	
	-0.875E	0.6242	-0.5000	1.2500
%Q0002	1.8900E+00	4.6330E-01	4.4194E-01	0.00
(TRANS4)	6.7466E-01	1.8900E+00	1.8900E+00	
	-0.875E	0.6242	-1.2500	0.5000
TABAPOYC	1.1670E+01	2.3171E+00	7.2484E+01	0.00
	3.1731E+00	1.1670E+01	1.1670E+01	
	-0.8450	0.6550	-6.0300	6.0300
TABVANC	8.8177E+00	2.0670E+00	6.7091E+01	0.00
	2.7418E+00	8.8177E+00	8.8177E+00	
	-0.875E	0.6242	-6.0268	6.0332

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [T/M2]	Shear-M [T/M2]
65 .. 289	3.5500E+06	1.4800E+06

STS-Run ok

==========
Load case 1: PESO PROPIO
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Mss.forcZ gl const.	-2.500		Stab	65 .. 94	
			96	95	66 .. 67

==========
Load case 2: PESO PAVIMENTO
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Force Z pj const.	-1.656		Stab	65 .. 94	
			96	95	66 .. 67

==========
Load case 3: PESO BARRERAS
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Force Z gl const.	-3.100		Stab	65 .. 94	
			96	95	66 .. 67

==========
Load case 4: PRETENSADO
==========

Cable 1: Units : (M)[T)

Step	Pos	Stres-process	Force	str.elon/Slip	to Max. Force
1	Start	PRESTRES.	4944.00	0.5361	
2	Start	ANCHORING	4530.51	-0.0045	
3	End	PRESTRES.	4944.00	0.0481	
4	End	ANCHORING	4530.51	-0.0045	

Distr.of prestr.force(Pos:distance cable start)

Pos	Force	Pos	Force	Pos	Force	Pos	Force
0.000	4530.51	1.400	4536.13	4.433	4585.75	7.467	4633.87
10.500	4682.50	14.667	4716.71	18.833	4650.83	23.000	4585.86
23.833	4539.93	24.667	4494.46	25.500	4449.44	26.700	4407.31
27.900	4365.58	29.100	4324.24	33.900	4264.83	38.700	4206.23
43.500	4148.45	48.300	4206.23	53.100	4264.83	57.900	4324.24
58.100	4365.58	60.300	4407.31	61.500	4449.44	62.333	4494.46
63.167	4539.93	64.000	4585.86	68.167	4650.83	72.333	4716.71
76.500	4682.50	79.533	4633.87	82.567	4585.75	85.600	4538.13
87.000	4530.51						

==========
Load case 5: RETRACCION Y FLUENCIA
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb		
Strain X lc const.	-0.000611		Stab	65	66 .. 94
			96	95	66 .. 67

==========
Load case 11: VEHICULO HIPOTESIS 37
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl conc.	-20.000	1.450	Stab	66
Force Z gl conc.	-20.000	0.450000	Stab	67
Force Z gl conc.	-20.000	2.050	Stab	67

==========
Load case 12: VEHICULO HIPOTESIS 38
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl conc.	-20.000	1.000	Stab	69
Force Z gl conc.	-20.000	0	Stab	70
Force Z gl conc.	-20.000	1.500	Stab	70

==========
Load case 13: VEHICULO HIPOTESIS 39
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb	
Force Z gl conc.	-20.000	0.550000	Stab	74
Force Z gl conc.	-20.000	2.050	Stab	74
Force Z gl conc.	-20.000	1.050	Stab	75

Load case 6: SOE UNIF 1

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-1.220		Stab 65
Moment	X	lo const.	-7.270		Stab 65
Force	Z	gl const.	-1.220		Stab 66
Moment	X	lo const.	-7.270		Stab 66
Force	Z	gl const.	-1.220		Stab 67
Moment	X	lo const.	-7.270		Stab 67
Force	Z	gl const.	-1.220		Stab 68
Moment	X	lo const.	-7.270		Stab 68
Force	Z	gl const.	-1.220		Stab 69
Moment	X	lo const.	-7.270		Stab 69
Force	Z	gl const.	-1.220		Stab 70
Moment	X	lo const.	-7.270		Stab 70
Force	Z	gl const.	-1.220		Stab 71
Moment	X	lo const.	-7.270		Stab 71
Force	Z	gl const.	-1.220		Stab 72
Moment	X	lo const.	-7.270		Stab 72
Force	Z	gl const.	-1.220		Stab 73
Moment	X	lo const.	-7.270		Stab 73
Force	Z	gl const.	-1.220		Stab 74
Moment	X	lo const.	-7.270		Stab 74
Force	Z	gl const.	-1.220		Stab 75
Moment	X	lo const.	-7.270		Stab 75
Force	Z	gl const.	-1.220		Stab 76
Moment	X	lo const.	-7.270		Stab 76
Force	Z	gl const.	-1.220		Stab 77
Moment	X	lo const.	-7.270		Stab 77
Force	Z	gl const.	-1.220		Stab 78
Moment	X	lo const.	-7.270		Stab 78
Force	Z	gl const.	-1.220		Stab 79
Moment	X	lo const.	-7.270		Stab 79
Force	Z	gl const.	-1.220		Stab 80
Moment	X	lo const.	-7.270		Stab 80
Force	Z	gl const.	-1.220		Stab 81
Moment	X	lo const.	-7.270		Stab 81
Force	Z	gl const.	-1.220		Stab 82
Moment	X	lo const.	-7.270		Stab 82
Force	Z	gl const.	-1.220		Stab 83
Moment	X	lo const.	-7.270		Stab 83
Force	Z	gl const.	-1.220		Stab 84
Moment	X	lo const.	-7.270		Stab 84
Force	Z	gl const.	-1.220		Stab 85
Moment	X	lo const.	-7.270		Stab 85
Force	Z	gl const.	-1.220		Stab 86
Moment	X	lo const.	-7.270		Stab 86
Force	Z	gl const.	-1.220		Stab 87
Moment	X	lo const.	-7.270		Stab 87
Force	Z	gl const.	-1.220		Stab 88
Moment	X	lo const.	-7.270		Stab 88
Force	Z	gl const.	-1.220		Stab 89

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Moment	X	lo const.	-7.270		Stab 89
Force	Z	gl const.	-1.220		Stab 90
Moment	X	lo const.	-7.270		Stab 90
Force	Z	gl const.	-1.220		Stab 91
Moment	X	lo const.	-7.270		Stab 91
Force	Z	gl const.	-1.220		Stab 92
Moment	X	lo const.	-7.270		Stab 92
Force	Z	gl const.	-1.220		Stab 93
Moment	X	lo const.	-7.270		Stab 93
Force	Z	gl const.	-1.220		Stab 94
Moment	X	lo const.	-7.270		Stab 94
Force	Z	gl const.	-1.220		Stab 95
Moment	X	lo const.	-7.270		Stab 95
Force	Z	gl const.	-1.220		Stab 96
Moment	X	lo const.	-7.270		Stab 96

Load case 10: SOE UNIF 5

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl const.	-1.220		Stab 65
Moment	X	lo const.	7.270		Stab 65
Force	Z	gl const.	-1.220		Stab 66
Moment	X	lo const.	7.270		Stab 66
Force	Z	gl const.	-1.220		Stab 67
Moment	X	lo const.	7.270		Stab 67
Force	Z	gl const.	-1.220		Stab 68
Moment	X	lo const.	7.270		Stab 68
Force	Z	gl const.	-1.220		Stab 69
Moment	X	lo const.	7.270		Stab 69
Force	Z	gl const.	-1.220		Stab 70
Moment	X	lo const.	7.270		Stab 70
Force	Z	gl const.	-1.220		Stab 71
Moment	X	lo const.	7.270		Stab 71
Force	Z	gl const.	-1.220		Stab 72
Moment	X	lo const.	7.270		Stab 72
Force	Z	gl const.	-1.220		Stab 73
Moment	X	lo const.	7.270		Stab 73
Force	Z	gl const.	-1.220		Stab 74
Moment	X	lo const.	7.270		Stab 74
Force	Z	gl const.	-1.220		Stab 75
Moment	X	lo const.	7.270		Stab 75
Force	Z	gl const.	-1.220		Stab 76
Moment	X	lo const.	7.270		Stab 76
Force	Z	gl const.	-1.220		Stab 77

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Moment	X	lo const.	7.270		Stab 77
Force	Z	gl const.	-1.220		Stab 78
Moment	X	lo const.	7.270		Stab 78
Force	Z	gl const.	-1.220		Stab 79
Moment	X	lo const.	7.270		Stab 79
Force	Z	gl const.	-1.220		Stab 80
Moment	X	lo const.	7.270		Stab 80
Force	Z	gl const.	-1.220		Stab 81
Moment	X	lo const.	7.270		Stab 81
Force	Z	gl const.	-1.220		Stab 82
Moment	X	lo const.	7.270		Stab 82
Force	Z	gl const.	-1.220		Stab 83
Moment	X	lo const.	7.270		Stab 83
Force	Z	gl const.	-1.220		Stab 84
Moment	X	lo const.	7.270		Stab 84
Force	Z	gl const.	-1.220		Stab 85
Moment	X	lo const.	7.270		Stab 85
Force	Z	gl const.	-1.220		Stab 86
Moment	X	lo const.	7.270		Stab 86
Force	Z	gl const.	-1.220		Stab 87
Moment	X	lo const.	7.270		Stab 87
Force	Z	gl const.	-1.220		Stab 88
Moment	X	lo const.	7.270		Stab 88
Force	Z	gl const.	-1.220		Stab 89
Moment	X	lo const.	7.270		Stab 89
Force	Z	gl const.	-1.220		Stab 90
Moment	X	lo const.	7.270		Stab 90
Force	Z	gl const.	-1.220		Stab 91
Moment	X	lo const.	7.270		Stab 91
Force	Z	gl const.	-1.220		Stab 92
Moment	X	lo const.	7.270		Stab 92
Force	Z	gl const.	-1.220		Stab 93
Moment	X	lo const.	7.270		Stab 93
Force	Z	gl const.	-1.220		Stab 94
Moment	X	lo const.	7.270		Stab 94
Force	Z	gl const.	-1.220		Stab 95
Moment	X	lo const.	7.270		Stab 95
Force	Z	gl const.	-1.220		Stab 96

Stab 166 .. 169 286 .. 289

Load case 14: VEHICULO HIPOTESIS 40

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.450	Stab 76
Force	Z	gl conc.	-20.000	2.950	Stab 76
Force	Z	gl conc.	-20.000	0.850000	Stab 77

Load case 15: VEHICULO HIPOTESIS 41

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	2.100	Stab 80
Force	Z	gl conc.	-20.000	0	Stab 81
Force	Z	gl conc.	-20.000	1.500	Stab 81

Load case 16: VEHICULO POSICION 42

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	2.750	Stab 84
Force	Z	gl conc.	-20.000	0.650000	Stab 85
Force	Z	gl conc.	-20.000	2.150	Stab 85

Load case 17: VEHICULO POSICION 43

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.450	Stab 86
Force	Z	gl conc.	-20.000	0.450000	Stab 87
Force	Z	gl conc.	-20.000	2.050	Stab 87

Load case 18: VEHICULO POSICION 44

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	1.000	Stab 91
Force	Z	gl conc.	-20.000	0	Stab 92
Force	Z	gl conc.	-20.000	1.500	Stab 92

Load case 19: VEHICULO POSICION 45

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Z	gl conc.	-20.000	0.550000	Stab 94
Force	Z	gl conc.	-20.000	2.050	Stab 94
Force	Z	gl conc.	-20.000	1.050	Stab 95

Load case 30: FRENADO

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	X	lo const.	0.206900		Stab 65 66 .. 94 96 95 66 .. 67

Load case 32: VIENTO SIN SOE

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Y	gl const.	0.620000		Stab 65 66 .. 94 96 95 66 .. 67

Load case 33: VIENTO CON SOE

Loadtype			Value(a)	Distanc Value(b)	Joint -/member numb
Force	Y	gl const.	1.050		Stab 65 66 .. 94 96 95 66 .. 67

Load case 34: TEMPERATURA (-)

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	-0.000348		Stab 65 66 .. 94 96 95 66 .. 67

Load case 35: TEMPERATURA (+)

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Strain X lo const.	0.000348		Stab 65 66 .. 94 96 95 66 .. 67

Load case 36: GRADIENTE

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Curvat. Y lo const.	7.5E-0005		Stab 65 66 .. 94 96 95 66 .. 67

Load case 46: SOE UNIF VANO 1

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-4.820		Stab 65 66 .. 75 66 .. 67

Load case 47: SOE UNIF VANO 2

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-4.820		Stab 76 .. 85

Load case 48: SOE UNIF VANO 3

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z pj const.	-4.820		Stab 86 .. 94 96 95

Loadcase	Factor	Stage	Init.def	Title
1	1.0000			PESO PROPIO

Loadcase	Factor	Stage	Init.def	Title
4	1.0000			PRETENSADO

Load case 21: VEHICULO HIPOTESIS 21

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	1.450	Stab 66
Force Z gl conc.	-20.000	0.450000	Stab 67
Force Z gl conc.	-20.000	2.050	Stab 67
Moment X lo conc.	180.000	1.450	Stab 66
Moment X lo conc.	180.000	0.450000	Stab 67
Moment X lo conc.	180.000	2.050	Stab 67

Load case 22: VEHICULO HIPOTESIS 22

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	1.000	Stab 69
Force Z gl conc.	-20.000	0	Stab 70
Force Z gl conc.	-20.000	1.500	Stab 70
Moment X lo conc.	180.000	1.000	Stab 69
Moment X lo conc.	180.000	0	Stab 70
Moment X lo conc.	180.000	1.500	Stab 70

Load case 23: VEHICULO HIPOTESIS 23

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	0.550000	Stab 74
Force Z gl conc.	-20.000	2.050	Stab 74
Force Z gl conc.	-20.000	1.050	Stab 75
Moment X lo conc.	180.000	0.550000	Stab 74
Moment X lo conc.	180.000	2.050	Stab 74
Moment X lo conc.	180.000	1.050	Stab 75

Load case 24: VEHICULO HIPOTESIS 24

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	1.450	Stab 76
Force Z gl conc.	-20.000	2.950	Stab 76
Force Z gl conc.	-20.000	0.850000	Stab 77
Moment X lo conc.	180.000	1.450	Stab 76
Moment X lo conc.	180.000	2.950	Stab 76
Moment X lo conc.	180.000	0.850000	Stab 77

Load case 25: VEHICULO HIPOTESIS 25

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	2.100	Stab 80
Force Z gl conc.	-20.000	0	Stab 81
Force Z gl conc.	-20.000	1.500	Stab 81
Moment X lo conc.	180.000	2.100	Stab 80
Moment X lo conc.	180.000	0	Stab 81
Moment X lo conc.	180.000	1.500	Stab 81

Load case 26: VEHICULO POSICION 26

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	2.750	Stab 84
Force Z gl conc.	-20.000	0.650000	Stab 85
Force Z gl conc.	-20.000	2.150	Stab 85
Moment X lo conc.	180.000	2.750	Stab 84
Moment X lo conc.	180.000	0.650000	Stab 85
Moment X lo conc.	180.000	2.150	Stab 85

Load case 27: VEHICULO POSICION 27

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	1.450	Stab 86
Force Z gl conc.	-20.000	0.450000	Stab 87
Force Z gl conc.	-20.000	2.050	Stab 87
Moment X lo conc.	180.000	1.450	Stab 86 .. 87
Moment X lo conc.	180.000	2.050	Stab 87

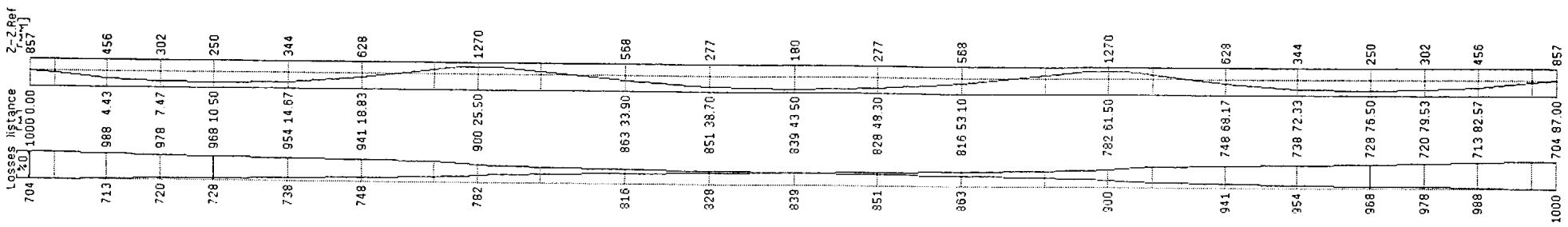
Load case 28: VEHICULO POSICION 28

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	1.000	Stab 91
Force Z gl conc.	-20.000	0	Stab 92
Force Z gl conc.	-20.000	1.500	Stab 92
Moment X lo conc.	180.000	1.000	Stab 91
Moment X lo conc.	180.000	0	Stab 92
Moment X lo conc.	180.000	1.500	Stab 92

Load case 29: VEHICULO POSICION 29

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z gl conc.	-20.000	0.550000	Stab 94
Force Z gl conc.	-20.000	2.050	Stab 94
Force Z gl conc.	-20.000	1.050	Stab 95
Moment X lo conc.	180.000	0.550000	Stab 94
Moment X lo conc.	180.000	2.050	Stab 95
Moment X lo conc.	180.000	1.050	Stab 95

Scale 1 : 347.8
Prestr. cable
- Cable nr.1: Geometry (scale.1.00)



****
* CABLE INPUT *
********** Cubus **

Member serie with members

65	66	67	68	69	70	71	72	73	74
75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94
95	96								

Referen.level: -0.87580

Friction val.

Mu-friction parameter.....	0.2000
Delta-Alpha parameter.....	0.0060

Cab.type

Cable area	0.0347
Min radius of curvat.	8.0000
Slip-parameter	0.0045
E-modulus.....	1.95E+0007

Cable input : Cable 1

Distance.....	0.0000
Startlevel.....	0.8568
Start angle	0.0000

Element type with the parameters

1. Str-Par	1.4000	10.5000	0.2500
2. Par-Par	12.5000	15.0000	1.3000
3. Par-Par	3.6000	18.0000	0.1800
4. Par-Par	14.4000	18.0000	1.3000
5. Par-Par	2.5000	15.0000	0.2500
6. Par-Str	9.1000	10.5000	0.8568

C A B L E O U T P U T : Cable Nr. 1

Referen.level.....	-0.87580
Mu-friction paramet.	0.20000
Delta-Alpha F.Parameter...	0.00600
Area	0.03472
Min.radius of curvat.	8.0000
Slip parameter	0.00450
E-Modulus	1.95E+7
Distance.....	0
Length of cable	87.2364

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
1G	65	0	0.85680	-0.01900	0
1G	66	1.0000	0.75482	-0.12095	0
1*	66	1.4000	0.71402	-0.16178	0
1F	66	2.0000	0.65485	-0.22095	0
1F	66	3.0000	0.56520	-0.31060	0
1F	67	4.0000	0.48675	-0.38905	0
1P	67	5.0000	0.41951	-0.45629	0
1F	68	6.0000	0.36347	-0.51233	0
1F	68	7.0000	0.31864	-0.55716	0
1F	68	8.0000	0.28502	-0.59078	0
1F	69	9.0000	0.26261	-0.61319	0
1F	69	10.0000	0.25140	-0.62440	0
1F	69	10.5000	0.25000	-0.62580	0
2F	70	11.0000	0.25140	-0.62440	0
2F	70	12.0000	0.26260	-0.61320	0
2F	70	13.0000	0.28500	-0.59080	0
2F	71	14.0000	0.31860	-0.55720	0
2F	71	15.0000	0.36340	-0.51240	0
2P	72	16.0000	0.41940	-0.45640	0
2F	72	17.0000	0.48660	-0.38920	0
2F	72	18.0000	0.56500	-0.31080	0
2F	73	19.0000	0.65460	-0.22120	0
2F	73	20.0000	0.75540	-0.12040	0
2F	74	21.0000	0.86740	-0.00840	0
2*	74	22.0000	0.99060	0.11480	0
2P	75	23.0000	1.1250	0.24520	0
2P	75	24.0000	1.2370	0.36120	0
2P	75	25.0000	1.2930	0.41720	0
2F	75	25.5000	1.3000	0.42420	0
3F	76	26.0000	1.2957	0.41988	0
3F	76	27.0000	1.2611	0.38531	0
3P	76	28.0000	1.1920	0.31618	0
3P	76	29.0000	1.0883	0.21247	0
3*	76	29.1000	1.0760	0.20020	0
3P	77	30.0000	0.96750	0.09170	0
3F	77	31.0000	0.85515	-0.02065	0
3F	77	32.0000	0.75145	-0.12435	0
3F	78	33.0000	0.65639	-0.21941	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
3F	78	34.0000	0.56997	-0.30583	0
3F	78	35.0000	0.49219	-0.38361	0
3P	78	36.0000	0.42306	-0.45274	0
3P	79	37.0000	0.36256	-0.51324	0
3F	79	38.0000	0.31071	-0.56509	0
3F	79	39.0000	0.26750	-0.60830	0
3F	80	40.0000	0.23293	-0.64287	0
3F	80	41.0000	0.20701	-0.66879	0
3F	80	42.0000	0.18972	-0.68608	0
3F	80	43.0000	0.18108	-0.69472	0
3P	80	43.5000	0.18000	-0.69580	0
4F	81	44.0000	0.18108	-0.69472	0
4F	81	45.0000	0.18972	-0.68608	0
4F	81	46.0000	0.20701	-0.66879	0
4P	81	47.0000	0.23293	-0.64287	0
4F	82	48.0000	0.26750	-0.60830	0
4F	82	49.0000	0.31071	-0.56509	0
4P	82	50.0000	0.36256	-0.51324	0
4P	83	51.0000	0.42306	-0.45274	0
4P	83	52.0000	0.49219	-0.38361	0
4F	83	53.0000	0.56997	-0.30583	0
4F	83	54.0000	0.65635	-0.21941	0
4F	84	55.0000	0.75145	-0.12435	0
4F	84	56.0000	0.85515	-0.02065	0
4F	84	57.0000	0.96750	0.09170	0
4*	84	57.9000	1.0760	0.20020	0
4F	85	58.0000	1.0883	0.21247	0
4F	85	59.0000	1.1920	0.31618	0
4F	85	60.0000	1.2611	0.38531	0
4F	85	61.0000	1.2957	0.41988	0
4P	85	61.5000	1.3000	0.42420	0
5F	86	62.0000	1.2930	0.41720	0
5F	86	63.0000	1.2370	0.36120	0
5*	86	64.0000	1.1250	0.24920	0
5F	87	65.0000	0.99060	0.11480	0
5F	87	66.0000	0.86740	-0.00840	0
5F	88	67.0000	0.75540	-0.12040	0
5F	88	68.0000	0.65460	-0.22120	0
5F	88	69.0000	0.56500	-0.31080	0
5F	89	70.0000	0.48660	-0.38920	0
5F	89	71.0000	0.41940	-0.45640	0
5F	90	72.0000	0.36340	-0.51240	0
5F	90	73.0000	0.31860	-0.55720	0
5F	90	74.0000	0.28500	-0.59080	0
5P	91	75.0000	0.26260	-0.61320	0
5F	91	76.0000	0.25140	-0.62440	0
5F	91	76.5000	0.25000	-0.62580	0
6F	92	77.0000	0.25140	-0.62440	0
6F	92	78.0000	0.26261	-0.61319	0
6F	92	79.0000	0.28502	-0.59078	0
6P	93	80.0000	0.31864	-0.55716	0
6F	93	81.0000	0.36347	-0.51233	0
6F	94	82.0000	0.41951	-0.45629	0

CABLE GEOMETRY

nr.	Memb	X-Hor	from Z-ref.	from bar axis Z-Excentr	Y-Excentr
6F	94	83.0000	0.48675	-0.38905	0
6F	94	84.0000	0.56520	-0.31060	0
6F	95	85.0000	0.65485	-0.22095	0
6*	95	85.6000	0.71402	-0.16178	0
6G	95	86.0000	0.75482	-0.12095	0
6G	96	87.0000	0.85680	-0.01900	0

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.l
1G	65	0	-0.10195	0	0	1.0000
1G	66	1.0000	-0.10195	0	0	0.99800
1*	66	1.4000	-0.10195	0	0	0.99832
1F	66	2.0000	-0.09526	0.01121	0	0.99627
1F	66	3.0000	-0.08405	0.01121	0	0.99285
1F	67	4.0000	-0.07285	0.01121	0	0.98944
1F	67	5.0000	-0.06164	0.01121	0	0.98604
1F	68	6.0000	-0.05043	0.01121	0	0.98266
1F	68	7.0000	-0.03922	0.01121	0	0.97927
1F	68	8.0000	-0.02802	0.01121	0	0.97591
1F	69	9.0000	-0.01681	0.01121	0	0.97256
1F	69	10.0000	-0.00560	0.01121	0	0.96922
1F	69	10.5000	0	0.01121	0	0.96754
2F	70	11.0000	0.00560	0.01120	0	0.96589
2F	70	12.0000	0.01680	0.01120	0	0.96256
2F	70	13.0000	0.02800	0.01120	0	0.95926
2F	71	14.0000	0.03920	0.01120	0	0.95598
2F	71	15.0000	0.05040	0.01120	0	0.95265
2F	72	16.0000	0.06160	0.01120	0	0.94943
2P	72	17.0000	0.07280	0.01120	0	0.94617
2F	72	18.0000	0.08400	0.01120	0	0.94291
2F	73	19.0000	0.09520	0.01120	0	0.93966
2F	73	20.0000	0.10640	0.01120	0	0.93645
2F	74	21.0000	0.11760	0.01120	0	0.93324
2F	74	22.0000	0.12880	0.01120	0	0.93003
2*	74	23.0000	0.14000	0.01120	0	0.92682
2F	75	24.0000	0.08400	-0.05600	0	0.91541
2F	75	25.0000	0.02800	-0.05600	0	0.90413
2F	75	25.5000	0	-0.05600	0	0.89853
3F	76	26.0000	-0.01728	-0.03457	0	0.89490
3F	76	27.0000	-0.05185	-0.03457	0	0.88767
3P	76	28.0000	-0.08642	-0.03457	0	0.88049
3F	76	29.0000	-0.12099	-0.03457	0	0.87337
3*	76	29.1000	-0.12444	-0.03457	0	0.87266
3F	77	30.0000	-0.11667	0.00864	0	0.87038
3F	77	31.0000	-0.10802	0.00864	0	0.86784
3F	77	32.0000	-0.09938	0.00864	0	0.86530
3F	78	33.0000	-0.09074	0.00864	0	0.86277
3F	78	34.0000	-0.08210	0.00864	0	0.86023
3P	78	35.0000	-0.07346	0.00864	0	0.85770
3F	79	36.0000	-0.06481	0.00864	0	0.85523

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.l
3P	79	37.0000	-0.05617	0.00864	0	0.85273
3P	79	38.0000	-0.04753	0.00864	0	0.85022
3P	79	39.0000	-0.03889	0.00864	0	0.84773
3P	80	40.0000	-0.03025	0.00864	0	0.84526
3F	80	41.0000	-0.02160	0.00864	0	0.84280
3P	80	42.0000	-0.01296	0.00864	0	0.84033
3P	80	43.0000	-0.00432	0.00864	0	0.83786
3P	80	43.5000	0	0.00864	0	0.83663
4P	81	44.0000	0.00432	0.00864	0	0.83541
4P	81	45.0000	0.01296	0.00864	0	0.83298
4F	81	46.0000	0.02160	0.00864	0	0.83055
4P	81	47.0000	0.03025	0.00864	0	0.82811
4F	82	48.0000	0.03889	0.00864	0	0.82568
4P	82	49.0000	0.04753	0.00864	0	0.82327
4F	82	50.0000	0.05617	0.00864	0	0.82087
4P	83	51.0000	0.06481	0.00864	0	0.81847
4P	83	52.0000	0.07346	0.00864	0	0.81608
4F	83	53.0000	0.08210	0.00864	0	0.81368
4P	83	54.0000	0.09074	0.00864	0	0.81131
4P	84	55.0000	0.09938	0.00864	0	0.80894
4F	84	56.0000	0.10802	0.00864	0	0.80658
4P	84	57.0000	0.11667	0.00864	0	0.80421
4*	84	57.9000	0.12444	0.00864	0	0.80208
4F	85	58.0000	0.12095	-0.03457	0	0.80144
4F	85	59.0000	0.08642	-0.03457	0	0.79456
4P	85	60.0000	0.05185	-0.03457	0	0.78854
4F	85	61.0000	0.01728	-0.03457	0	0.78217
4F	85	61.5000	0	-0.03457	0	0.77899
5F	86	62.0000	-0.02800	-0.05600	0	0.77419
5F	86	63.0000	-0.08400	-0.05600	0	0.76464
5*	86	64.0000	-0.14000	-0.05600	0	0.75527
5F	87	65.0000	-0.12880	0.01120	0	0.75264
5F	87	66.0000	-0.11760	0.01120	0	0.75006
5F	88	67.0000	-0.10640	0.01120	0	0.74748
5F	88	68.0000	-0.09520	0.01120	0	0.74490
5P	88	69.0000	-0.08400	0.01120	0	0.74235
5F	89	70.0000	-0.07280	0.01120	0	0.73981
5F	89	71.0000	-0.06160	0.01120	0	0.73728
5F	90	72.0000	-0.05040	0.01120	0	0.73477
5F	90	73.0000	-0.03920	0.01120	0	0.73220
5F	90	74.0000	-0.02800	0.01120	0	0.72970
5F	91	75.0000	-0.01680	0.01120	0	0.72719
5F	91	76.0000	-0.00560	0.01120	0	0.72469
5F	91	76.5000	0	0.01120	0	0.72343
6F	92	77.0000	0.00560	0.01121	0	0.72219
6F	92	78.0000	0.01681	0.01121	0	0.71971
6F	92	79.0000	0.02802	0.01121	0	0.71724
6F	93	80.0000	0.03922	0.01121	0	0.71477
6F	93	81.0000	0.05043	0.01121	0	0.71232
6F	94	82.0000	0.06164	0.01121	0	0.70987
6F	94	83.0000	0.07285	0.01121	0	0.70743
6F	94	84.0000	0.08405	0.01121	0	0.70501
6F	95	85.0000	0.09526	0.01121	0	0.70258

CABLE INCLIN.,CABLE CURVATURE AND FRICTION LOSSES

nr.	Memb	X-Hor	Z-Incl	Z-Curvature	Y-Incl	Fric.l
6*	95	85.6000	0.10198	0.01121	0	0.70113
6G	95	86.0000	0.10198	0	0	0.70079
6G	96	87.0000	0.10198	0	0	0.69996

Cable nr.1 Graph created

Cable input terminated succesfully

2.4.1. Verificación de las secciones

2.4.1.1. Comprobación de estados límites servicio (ELS)

ENVELOPE SPECIFIC.: FI **

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	4	0.900000		PRETENSADO
C	OR	4	1.100		PRETENSADO

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	-4957.848	-2.46E-23	-505.617	1.15E-28	-94.199	-3.42E-24
		-4056.421	-2.02E-23	-413.687	1.12E-28	-77.072	-2.79E-24
		Min: A C		Max: A E			
65	0.500	-4960.826	-2.46E-23	-520.508	1.15E-28	-350.863	-1.57E-23
		-4058.857	-2.02E-23	-428.523	1.12E-28	-287.733	-1.29E-23
		Min: A C		Max: A E			
66	0	-4957.812	-2.40E-15	-256.269	-4.98E-13	-350.863	-3.87E-12
		-4056.392	-1.96E-15	-174.047	-4.12E-13	-287.733	-3.16E-12
		Min: A C		Max: A E			
66	2.500	-4998.923	-2.40E-15	-234.795	-4.98E-13	-1016.886	-3.87E-12
		-4090.028	-1.96E-15	-168.118	-4.12E-13	-758.818	-3.17E-12
		Min: A C		Max: A E			
67	0	-4998.923	-2.44E-14	-234.795	-1.60E-15	-1016.886	-5.93E-12
		-4090.028	-2.00E-14	-168.118	-2.13E-15	-758.818	-4.85E-12
		Min: A C		Max: A E			
67	2.500	-5051.997	-2.44E-14	-152.739	-1.60E-15	-1523.365	-5.99E-12
		-4133.452	-2.00E-14	-111.001	-2.13E-15	-1125.768	-4.90E-12
		Min: A C		Max: A E			
68	0	-5051.997	-2.44E-14	-152.739	-1.60E-15	-1523.365	-5.99E-12
		-4133.452	-2.00E-14	-111.001	-2.13E-15	-1125.768	-4.90E-12
		Min: A C		Max: A E			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
68	2.500	-5101.647	-2.44E-14	-67.613	-1.60E-15	-1826.398	-6.05E-12
		-4174.075	-2.00E-14	-51.373	-2.13E-15	-1351.312	-4.95E-12
		Min: A C		Max: A E			
69	0	-5101.647	-2.44E-14	-67.613	-1.60E-15	-1826.398	-6.05E-12
		-4174.075	-2.00E-14	-51.373	-2.13E-15	-1351.312	-4.95E-12
		Min: A C		Max: A E			
69	2.500	-5147.734	-2.44E-14	20.296	-1.60E-15	-1914.385	-6.11E-12
		-4211.783	-2.00E-14	10.532	-2.13E-15	-1425.960	-5.00E-12
		Min: A C		Max: A E			
70	0	-5147.734	-2.44E-14	20.296	-1.60E-15	-1914.385	-6.11E-12
		-4211.783	-2.00E-14	10.532	-2.13E-15	-1425.960	-5.00E-12
		Min: A C		Max: A E			
70	2.500	-5166.401	-2.44E-14	105.848	-1.60E-15	-1769.639	-6.17E-12
		-4228.692	-2.00E-14	70.509	-2.13E-15	-1335.240	-5.05E-12
		Min: A C		Max: A E			
71	0	-5168.401	-2.44E-14	105.848	-1.60E-15	-1769.639	-6.17E-12
		-4228.692	-2.00E-14	70.509	-2.13E-15	-1335.240	-5.05E-12
		Min: A C		Max: A E			
71	2.500	-5163.234	-2.44E-14	191.118	-1.60E-15	-1395.549	-6.23E-12
		-4224.464	-2.00E-14	130.256	-2.13E-15	-1081.925	-5.10E-12
		Min: A C		Max: A E			
72	0	-5163.234	-2.44E-14	191.118	-1.60E-15	-1395.549	-6.23E-12
		-4224.464	-2.00E-14	130.256	-2.13E-15	-1081.925	-5.10E-12
		Min: A C		Max: A E			
72	2.500	-5110.393	-2.44E-14	272.218	-1.60E-15	-794.091	-6.29E-12
		-4181.231	-2.00E-14	186.590	-2.13E-15	-667.632	-5.15E-12
		Min: A C		Max: A E			
73	0	-5110.393	-2.44E-14	272.218	-1.60E-15	-794.091	-6.29E-12
		-4181.231	-2.00E-14	186.590	-2.13E-15	-667.632	-5.15E-12
		Min: A C		Max: A E			
73	2.500	-4135.471	-2.00E-14	240.297	-2.13E-15	-124.056	-5.20E-12
		-5054.465	-2.44E-14	350.107	-1.60E-15	-4.003	-6.35E-12
		Min: A E		Max: A C			
74	0	-4135.471	-2.00E-14	240.297	-2.13E-15	-124.056	-5.20E-12
		-5054.465	-2.44E-14	350.107	-1.60E-15	-4.003	-6.35E-12
		Min: A E		Max: A C			
74	2.500	-4087.163	-2.00E-14	291.169	-2.13E-15	537.658	-5.25E-12
		-4995.421	-2.44E-14	424.530	-1.60E-15	961.093	-6.42E-12
		Min: A E		Max: A C			
75	0	-4087.163	-2.00E-14	291.169	-2.13E-15	537.658	-5.25E-12
		-4995.421	-2.44E-14	424.530	-1.60E-15	961.093	-6.42E-12
		Min: A E		Max: A C			
75	2.500	-4002.030	-2.00E-14	-329.045	-2.13E-15	460.467	-5.30E-12

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-4891.370	-2.44E-14	-319.281	-1.60E-15	1055.350	-6.48E-12
		Min: A E		Max: A C			
76	0	-3999.035	-1.79E-14	409.632	-2.13E-15	460.467	-5.30E-12
		-4887.710	-2.19E-14	409.632	-1.60E-15	1055.350	-6.48E-12
		Min: A E		Max: A C			
76	3.600	-3858.122	-1.79E-14	-150.485	-2.13E-15	863.681	-5.36E-12
		-4715.482	-2.19E-14	-254.468	-1.60E-15	1259.051	-6.55E-12
		Min: A E		Max: A C			
77	0	-3858.122	-1.79E-14	-150.485	-2.13E-15	863.681	-5.36E-12
		-4715.482	-2.19E-14	-254.468	-1.60E-15	1259.051	-6.55E-12
		Min: A E		Max: A C			
77	3.600	-3830.460	-1.79E-14	-110.351	-2.13E-15	395.331	-5.43E-12
		-4681.674	-2.19E-14	-187.780	-1.60E-15	464.417	-6.63E-12
		Min: A E		Max: A C			
78	0	-3830.460	-1.79E-14	-110.351	-2.13E-15	395.331	-5.43E-12
		-4681.674	-2.19E-14	-187.780	-1.60E-15	464.417	-6.63E-12
		Min: A E		Max: A C			
78	3.600	-4643.892	-2.19E-14	-122.899	-1.60E-15	-80.871	-6.71E-12
		-3799.548	-1.79E-14	-71.696	-2.13E-15	79.047	-5.49E-12
		Min: A C		Max: A E			
79	0	-4643.892	-2.19E-14	-122.899	-1.60E-15	-80.871	-6.71E-12
		-3799.548	-1.79E-14	-71.696	-2.13E-15	79.047	-5.49E-12
		Min: A C		Max: A E			
79	3.600	-4602.180	-2.19E-14	-60.187	-1.60E-15	-385.949	-6.79E-12
		-3765.420	-1.79E-14	-34.815	-2.13E-15	-92.646	-5.56E-12
		Min: A C		Max: A E			
80	0	-4602.180	-2.19E-14	-60.187	-1.60E-15	-385.949	-6.79E-12
		-3765.420	-1.79E-14	-34.815	-2.13E-15	-92.646	-5.56E-12
		Min: A C		Max: A E			
80	3.600	-4556.617	-2.19E-14	-5.89E-07	-1.60E-15	-462.581	-6.87E-12
		-3728.141	-1.79E-14	-3.37E-07	-2.13E-15	-129.373	-5.62E-12
		Min: A C		Max: A E			
81	0	-4556.617	-2.19E-14	5.85E-07	-1.60E-15	-462.581	-6.87E-12
		-3728.141	-1.79E-14	3.36E-07	-2.13E-15	-129.373	-5.62E-12
		Min: A C		Max: A E			
81	3.600	-4602.180	-2.19E-14	60.187	-1.60E-15	-385.949	-6.95E-12
		-3765.420	-1.79E-14	34.815	-2.13E-15	-92.646	-5.69E-12
		Min: A C		Max: A E			
82	0	-4602.180	-2.19E-14	60.187	-1.60E-15	-385.949	-6.95E-12
		-3765.420	-1.79E-14	34.815	-2.13E-15	-92.646	-5.69E-12
		Min: A C		Max: A E			
82	3.600	-4643.892	-2.19E-14	122.899	-1.60E-15	-80.871	-7.03E-12
		-3799.548	-1.79E-14	71.696	-2.13E-15	79.047	-5.75E-12

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A C		Max: A E			
83	0	-4643.892	-2.19E-14	122.899	-1.60E-15	-80.871	-7.03E-12
		-3799.548	-1.79E-14	71.696	-2.13E-15	79.047	-5.75E-12
		Min: A C		Max: A E			
83	3.600	-3830.460	-1.79E-14	110.351	-2.13E-15	395.331	-5.81E-12
		-4681.674	-2.19E-14	187.780	-1.60E-15	464.417	-7.11E-12
		Min: A E		Max: A C			
84	0	-3830.460	-1.79E-14	110.351	-2.13E-15	395.331	-5.81E-12
		-4681.674	-2.19E-14	187.780	-1.60E-15	464.417	-7.11E-12
		Min: A E		Max: A C			
84	3.600	-3858.122	-1.79E-14	150.485	-2.13E-15	863.681	-5.88E-12
		-4715.482	-2.19E-14	254.468	-1.60E-15	1259.051	-7.19E-12
		Min: A E		Max: A C			
85	0	-3858.122	-1.79E-14	150.485	-2.13E-15	863.681	-5.88E-12
		-4715.482	-2.19E-14	254.468	-1.60E-15	1259.051	-7.19E-12
		Min: A E		Max: A C			
85	3.600	-3999.035	-1.79E-14	409.632	-2.13E-15	460.467	-5.94E-12
		-4887.710	-2.19E-14	409.632	-1.60E-15	1055.350	-7.26E-12
		Min: A E		Max: A C			
86	0	-4002.030	-1.34E-14	329.045	-2.13E-15	460.467	-5.94E-12
		-4891.370	-1.64E-14	319.281	-1.60E-15	1055.350	-7.26E-12
		Min: A E		Max: A C			
86	2.500	-4087.163	-1.34E-14	-291.169	-2.13E-15	537.658	-5.98E-12
		-4995.421	-1.64E-14	-424.530	-1.60E-15	961.093	-7.31E-12
		Min: A E		Max: A C			
87	0	-4087.163	-1.34E-14	-291.169	-2.13E-15	537.658	-5.98E-12
		-4995.421	-1.64E-14	-424.530	-1.60E-15	961.093	-7.31E-12
		Min: A E		Max: A C			
87	2.500	-4135.471	-1.34E-14	-240.297	-2.13E-15	-124.056	-6.01E-12
		-5054.465	-1.64E-14	-350.107	-1.60E-15	-4.003	-7.35E-12
		Min: A E		Max: A C			
88	0	-4135.471	-1.34E-14	-240.297	-2.13E-15	-124.056	-6.01E-12
		-5054.465	-1.64E-14	-350.107	-1.60E-15	-4.003	-7.35E-12
		Min: A E		Max: A C			
88	2.500	-5110.393	-1.64E-14	-272.218	-1.60E-15	-794.091	-7.39E-12
		-4181.231	-1.34E-14	-186.590	-2.13E-15	-667.632	-6.04E-12
		Min: A C		Max: A E			
89	0	-5110.393	-1.64E-14	-272.218	-1.60E-15	-794.091	-7.39E-12
		-4181.231	-1.34E-14	-186.590	-2.13E-15	-667.632	-6.04E-12
		Min: A C		Max: A E			
89	2.500	-5163.234	-1.64E-14	-191.118	-1.60E-15	-1395.549	-7.43E-12
		-4224.464	-1.34E-14	-130.256	-2.13E-15	-1081.925	-6.08E-12
		Min: A C		Max: A E			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
90	0	-5163.234	-1.64E-14	-191.118	-1.60E-15	-1395.549	-7.43E-12
		-4224.464	-1.34E-14	-130.256	-2.13E-15	-1081.925	-6.08E-12
		Min: A C		Max: A E			
90	2.500	-5168.401	-1.64E-14	-105.848	-1.60E-15	-1769.639	-7.47E-12
		-4228.692	-1.34E-14	-70.509	-2.13E-15	-1335.240	-6.11E-12
		Min: A C		Max: A E			
91	0	-5168.401	-1.64E-14	-105.848	-1.60E-15	-1769.639	-7.47E-12
		-4228.692	-1.34E-14	-70.509	-2.13E-15	-1335.240	-6.11E-12
		Min: A C		Max: A E			
91	2.500	-5147.734	-1.64E-14	-20.296	-1.60E-15	-1914.385	-7.51E-12
		-4211.783	-1.34E-14	-10.532	-2.13E-15	-1425.960	-6.15E-12
		Min: A C		Max: A E			
92	0	-5147.734	-1.64E-14	-20.296	-1.60E-15	-1914.385	-7.51E-12
		-4211.783	-1.34E-14	-10.532	-2.13E-15	-1425.960	-6.15E-12
		Min: A C		Max: A E			
92	2.500	-5101.647	-1.64E-14	67.613	-1.60E-15	-1826.398	-7.55E-12
		-4174.075	-1.34E-14	51.373	-2.13E-15	-1351.312	-6.18E-12
		Min: A C		Max: A E			
93	0	-5101.647	-1.64E-14	67.613	-1.60E-15	-1826.398	-7.55E-12
		-4174.075	-1.34E-14	51.373	-2.13E-15	-1351.312	-6.18E-12
		Min: A C		Max: A E			
93	2.500	-5051.997	-1.64E-14	152.739	-1.60E-15	-1523.365	-7.59E-12
		-4133.452	-1.34E-14	111.001	-2.13E-15	-1125.768	-6.21E-12
		Min: A C		Max: A E			
94	0	-5051.997	-1.64E-14	152.739	-1.60E-15	-1523.365	-7.59E-12
		-4133.452	-1.34E-14	111.001	-2.13E-15	-1125.768	-6.21E-12
		Min: A C		Max: A E			
94	2.500	-4998.923	-1.64E-14	234.795	-1.60E-15	-1016.886	-7.63E-12
		-4090.028	-1.34E-14	168.118	-2.13E-15	-758.818	-6.25E-12
		Min: A C		Max: A E			
95	0	-4998.923	-1.64E-14	234.795	-1.60E-15	-1016.886	-7.63E-12
		-4090.028	-1.34E-14	168.118	-2.13E-15	-758.818	-6.25E-12
		Min: A C		Max: A E			
95	2.500	-4957.812	-1.64E-14	256.269	-1.60E-15	-350.863	-7.67E-12
		-4056.392	-1.34E-14	174.047	-2.13E-15	-287.733	-6.28E-12
		Min: A C		Max: A E			
96	0	-4960.826	-9.95E-15	520.508	1.04E-12	-350.863	7.47E-12
		-4058.856	-8.14E-15	428.523	9.18E-13	-287.733	6.11E-12
		Min: A C		Max: A E			
96	0.500	-4957.848	-9.95E-15	505.617	1.04E-12	-94.199	7.46E-12
		-4056.421	-8.14E-15	413.687	9.18E-13	-77.072	6.11E-12
		Min: A C		Max: A E			

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
65	0	-45.919	-39.821	-42.484	-42.484	-42.484
		-37.570	-32.581	-34.759	-34.759	-34.759
		Min: A C		Max: A E		
65	0.500	-55.305	-32.592	-42.509	-42.509	-42.509
		-45.274	-26.647	-34.780	-34.780	-34.780
		Min: A C		Max: A E		
66	0	-55.279	-32.566	-42.483	-42.483	-42.483
		-45.252	-26.626	-34.759	-34.759	-34.759
		Min: A C		Max: A E		
66	2.500	-99.776	-25.983	-56.692	-56.692	-56.692
		-78.534	-23.468	-46.384	-46.384	-46.384
		Min: A C		Max: A E		
67	0	-99.776	-25.983	-56.692	-56.692	-56.692
		-78.534	-23.468	-46.384	-46.384	-46.384
		Min: A C		Max: A E		
67	2.500	-121.836	-11.289	-57.294	-57.294	-57.294
		-94.574	-12.879	-46.877	-46.877	-46.877
		Min: A C		Max: A E		
68	0	-121.836	-11.289	-57.294	-57.294	-57.294
		-94.574	-12.879	-46.877	-46.877	-46.877
		Min: A C		Max: A E		
68	2.500	-135.239	-2.701	-57.857	-57.857	-57.857
		-104.590	-6.529	-47.337	-47.337	-47.337
		Min: A C		Max: A E		
69	0	-135.239	-2.701	-57.857	-57.857	-57.857
		-104.590	-6.529	-47.337	-47.337	-47.337
		Min: A C		Max: A E		
69	2.500	-139.489	-0.566384	-58.380	-58.380	-58.380
		-108.181	-4.702	-47.765	-47.765	-47.765
		Min: A C		Max: A E		
70	0	-139.489	-0.566384	-58.380	-58.380	-58.380
		-108.181	-4.702	-47.765	-47.765	-47.765
		Min: A C		Max: A E		
70	2.500	-133.591	-5.172	-58.614	-58.614	-58.614
		-104.529	-7.633	-47.957	-47.957	-47.957
		Min: A C		Max: A E		
71	0	-133.591	-5.172	-58.614	-58.614	-58.614
		-104.529	-7.633	-47.957	-47.957	-47.957
		Min: A C		Max: A E		
71	2.500	-117.683	-16.411	-58.555	-58.555	-58.555
		-93.748	-15.235	-47.909	-47.909	-47.909
		Min: A C		Max: A E		

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
72	0	-117.683	-16.411	-58.555	-58.555	-58.555
		-93.748	-15.235	-47.909	-47.909	-47.909
	Min: A C			Max: A E		
72	2.500	-91.600	-33.975	-57.956	-57.956	-57.956
		-75.705	-27.257	-47.419	-47.419	-47.419
	Min: A C			Max: A E		
73	0	-91.600	-33.975	-57.956	-57.956	-57.956
		-75.705	-27.257	-47.419	-47.419	-47.419
	Min: A C			Max: A E		
73	2.500	-52.156	-43.153	-46.900	-46.900	-46.900
		-57.491	-57.201	-57.322	-57.322	-57.322
	Min: A E			Max: A C		
74	0	-52.156	-43.153	-46.900	-46.900	-46.900
		-57.491	-57.201	-57.322	-57.322	-57.322
	Min: A E			Max: A C		
74	2.500	-23.572	-62.589	-46.352	-46.352	-46.352
		-15.932	-85.677	-56.652	-56.652	-56.652
	Min: A E			Max: A C		
75	0	-23.572	-62.589	-46.352	-46.352	-46.352
		-15.932	-85.677	-56.652	-56.652	-56.652
	Min: A E			Max: A C		
75	2.500	-17.501	-47.309	-34.293	-34.293	-34.293
		-3.427	-71.745	-41.914	-41.914	-41.914
	Min: A E			Max: A C		
76	0	-17.475	-47.283	-34.268	-34.268	-34.268
		-3.395	-71.714	-41.883	-41.883	-41.883
	Min: A E			Max: A C		
76	3.600	-7.161	-69.837	-43.754	-43.754	-43.754
		-0.133411	-91.500	-53.477	-53.477	-53.477
	Min: A E			Max: A C		
77	0	-7.161	-69.837	-43.754	-43.754	-43.754
		-0.133412	-91.500	-53.477	-53.477	-53.477
	Min: A E			Max: A C		
77	3.600	-26.691	-55.379	-43.441	-43.441	-43.441
		-33.417	-67.119	-53.094	-53.094	-53.094
	Min: A E			Max: A C		
78	0	-26.691	-55.379	-43.441	-43.441	-43.441
		-33.417	-67.119	-53.094	-53.094	-53.094
	Min: A E			Max: A C		
78	3.600	-56.092	-50.223	-52.666	-52.666	-52.666
		-39.741	-45.477	-43.090	-43.090	-43.090
	Min: A C			Max: A E		

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
79	0	-56.092	-50.223	-52.666	-52.666	-52.666
		-39.741	-45.477	-43.090	-43.090	-43.090
	Min: A C			Max: A E		
79	3.600	-68.545	-40.537	-52.193	-52.193	-52.193
		-46.628	-39.905	-42.703	-42.703	-42.703
	Min: A C			Max: A E		
80	0	-68.545	-40.537	-52.193	-52.193	-52.193
		-46.628	-39.905	-42.703	-42.703	-42.703
	Min: A C			Max: A E		
80	3.600	-71.275	-37.706	-51.676	-51.676	-51.676
		-47.762	-38.373	-42.280	-42.280	-42.280
	Min: A C			Max: A E		
81	0	-71.275	-37.706	-51.676	-51.676	-51.676
		-47.762	-38.373	-42.280	-42.280	-42.280
	Min: A C			Max: A E		
81	3.600	-68.545	-40.537	-52.193	-52.193	-52.193
		-46.628	-39.905	-42.703	-42.703	-42.703
	Min: A C			Max: A E		
82	0	-68.545	-40.537	-52.193	-52.193	-52.193
		-46.628	-39.905	-42.703	-42.703	-42.703
	Min: A C			Max: A E		
82	3.600	-56.092	-50.223	-52.666	-52.666	-52.666
		-39.741	-45.477	-43.090	-43.090	-43.090
	Min: A C			Max: A E		
83	0	-56.092	-50.223	-52.666	-52.666	-52.666
		-39.741	-45.477	-43.090	-43.090	-43.090
	Min: A C			Max: A E		
83	3.600	-26.691	-55.375	-43.441	-43.441	-43.441
		-33.417	-67.119	-53.094	-53.094	-53.094
	Min: A E			Max: A C		
84	0	-26.691	-55.379	-43.441	-43.441	-43.441
		-33.417	-67.119	-53.094	-53.094	-53.094
	Min: A E			Max: A C		
84	3.600	-7.161	-69.837	-43.754	-43.754	-43.754
		-0.133412	-91.500	-53.477	-53.477	-53.477
	Min: A E			Max: A C		
85	0	-7.161	-69.837	-43.754	-43.754	-43.754
		-0.133411	-91.500	-53.477	-53.477	-53.477
	Min: A E			Max: A C		
85	3.600	-17.475	-47.283	-34.268	-34.268	-34.268
		-3.395	-71.714	-41.883	-41.883	-41.883
	Min: A E			Max: A C		

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
86	0	-17.501	-47.309	-34.293	-34.293	-34.293
		-3.427	-71.745	-41.914	-41.914	-41.914
	Min: A E			Max: A C		
86	2.500	-23.572	-62.589	-46.352	-46.352	-46.352
		-15.932	-85.677	-56.652	-56.652	-56.652
	Min: A E			Max: A C		
87	0	-23.572	-62.589	-46.352	-46.352	-46.352
		-15.932	-85.677	-56.652	-56.652	-56.652
	Min: A E			Max: A C		
87	2.500	-52.156	-43.153	-46.900	-46.900	-46.900
		-57.491	-57.201	-57.322	-57.322	-57.322
	Min: A E			Max: A C		
88	0	-52.156	-43.153	-46.900	-46.900	-46.900
		-57.491	-57.201	-57.322	-57.322	-57.322
	Min: A E			Max: A C		
88	2.500	-91.600	-33.975	-57.956	-57.956	-57.956
		-75.705	-27.257	-47.419	-47.419	-47.419
	Min: A C			Max: A E		
89	0	-91.600	-33.975	-57.956	-57.956	-57.956
		-75.705	-27.257	-47.419	-47.419	-47.419
	Min: A C			Max: A E		
89	2.500	-117.683	-16.411	-58.555	-58.555	-58.555
		-93.748	-15.235	-47.909	-47.909	-47.909
	Min: A C			Max: A E		
90	0	-117.683	-16.411	-58.555	-58.555	-58.555
		-93.748	-15.235	-47.909	-47.909	-47.909
	Min: A C			Max: A E		
90	2.500	-133.591	-5.171	-58.614	-58.614	-58.614
		-104.529	-7.633	-47.957	-47.957	-47.957
	Min: A C			Max: A E		
91	0	-133.591	-5.171	-58.614	-58.614	-58.614
		-104.529	-7.633	-47.957	-47.957	-47.957
	Min: A C			Max: A E		
91	2.500	-139.489	-0.566384	-58.380	-58.380	-58.380
		-108.181	-4.702	-47.765	-47.765	-47.765
	Min: A C			Max: A E		
92	0	-139.489	-0.566384	-58.380	-58.380	-58.380
		-108.181	-4.702	-47.765	-47.765	-47.765
	Min: A C			Max: A E		
92	2.500	-135.239	-2.701	-57.857	-57.857	-57.857
		-104.590	-6.529	-47.337	-47.337	-47.337
	Min: A C			Max: A E		

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
93	0	-135.239	-2.701	-57.857	-57.857	-57.857
		-104.590	-6.529	-47.337	-47.337	-47.337
	Min: A C			Max: A E		
93	2.500	-121.836	-11.289	-57.294	-57.294	-57.294
		-94.574	-12.879	-46.877	-46.877	-46.877
	Min: A C			Max: A E		
94	0	-121.836	-11.289	-57.294	-57.294	-57.294
		-94.574	-12.879	-46.877	-46.877	-46.877
	Min: A C			Max: A E		
94	2.500	-99.776	-25.983	-56.692	-56.692	-56.692
		-78.534	-23.468	-46.384	-46.384	-46.384
	Min: A C			Max: A E		
95	0	-99.776	-25.983	-56.692	-56.692	-56.692
		-78.534	-23.468	-46.384	-46.384	-46.384
	Min: A C			Max: A E		
95	2.500	-55.275	-32.566	-42.483	-42.483	-42.483
		-45.252	-26.626	-34.759	-34.759	-34.759
	Min: A C			Max: A E		
96	0	-55.305	-32.592	-42.509	-42.509	-42.509
		-45.274	-26.647	-34.780	-34.780	-34.780
	Min: A C			Max: A E		
96	0.500	-45.919	-39.821	-42.484	-42.484	-42.484
		-37.570	-32.581	-34.759	-34.759	-34.759
	Min: A C			Max: A E		
Minimum:		-139.489	-91.500	-58.614	-58.614	-58.614
Maximum:		-0.133411	-0.566384	-34.268	-34.268	-34.268

Toda la sección comprimida.

ENVELOPE SPECIFIC.: FK 'COMBINACION FRECUENTE'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PL.PERM	4	0.900000		PRETENSADO
F	OR	4	1.100		PRETENSADO
G	PLUS	46	0.500000		SOB UNIF VANO 1
H	PLUS	47	0.500000		SOB UNIF VANO 2
I	PLUS	48	0.500000		SOB UNIF VANO 3
J	PLUS	11	1.055		VEHICULO HIPOTESIS 37
K	OR	12	1.055		VEHICULO HIPOTESIS 38
L	OR	13	1.055		VEHICULO HIPOTESIS 39
M	OR	14	1.055		VEHICULO HIPOTESIS 40
N	OR	15	1.055		VEHICULO HIPOTESIS 41
O	OR	16	1.055		VEHICULO POSICION 42
P	OR	17	1.055		VEHICULO POSICION 43
Q	OR	18	1.055		VEHICULO POSICION 44
R	OR	19	1.055		VEHICULO POSICION 45
S	PLUS	30	0.500000		FRENADO
T	PLUS	33	0.100000		VIENTO CON SOE
U	PLUS	34	0.200000		TEMPERATURA (-)
V	OR	35	0.200000		TEMPERATURA (+)
W	OR	36	0.200000		GRADIENTE
ALTERNATIVE ENVELOPE :					
X	PERM.	1	1.000		PESO PROPIO
Y	PL.PERM	2	1.500		PESO PAVIMENTO
Z	OR	2	1.000		PESO PAVIMENTO
AA	PL.PERM	3	1.000		PESO BARRERAS
AB	PL.PERM	4	0.778500		PRETENSADO
AC	OR	4	0.951500		PRETENSADO
AD	PLUS	46	0.500000		SOB UNIF VANO 1
AE	PLUS	47	0.500000		SOB UNIF VANO 2
AF	PLUS	48	0.500000		SOB UNIF VANO 3
AG	PLUS	11	1.055		VEHICULO HIPOTESIS 37
AH	OR	12	1.055		VEHICULO HIPOTESIS 38
AI	OR	13	1.055		VEHICULO HIPOTESIS 39
AJ	OR	14	1.055		VEHICULO HIPOTESIS 40
AK	OR	15	1.055		VEHICULO HIPOTESIS 41
AL	OR	16	1.055		VEHICULO POSICION 42
AM	OR	17	1.055		VEHICULO POSICION 43
AN	OR	18	1.055		VEHICULO POSICION 44
AO	OR	19	1.055		VEHICULO POSICION 45
AP	PLUS	30	0.500000		FRENADO
AQ	PLUS	33	0.100000		VIENTO CON SOE
AR	PLUS	34	0.200000		TEMPERATURA (-)
AS	OR	35	0.200000		TEMPERATURA (+)
AT	OR	36	0.200000		GRADIENTE

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
65	0	-4957.848	-2.46E-23	-505.617	1.17E-26	-94.199	-3.42E-24
		-3508.804	-1.74E-23	-357.839	6.69E-29	-66.667	-2.42E-24
		Min: A C D F L W				Max: X Y AA AB AD AE AF AG	
65	0.500	-4960.826	-2.46E-23	-524.505	7.10E-29	-351.862	-1.57E-23
		-3510.912	-1.74E-23	-375.019	1.14E-28	-249.976	-1.11E-23
		Min: A B D F G H I J				Max: X Z AA AE AJ AT	
66	0	-4957.812	-2.40E-15	-197.126	-5.38E-13	-351.862	-3.87E-12
		-3508.779	-1.70E-15	-23.508	-3.73E-13	-249.976	-2.74E-12
		Min: A B D F G H N				Max: X Z AA AB AF AG AT	
66	2.500	-4998.923	-2.40E-15	-221.229	-5.31E-13	-968.702	-3.87E-12
		-3537.874	-1.70E-15	-34.421	-3.81E-13	-314.488	-2.74E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AG AT	
67	0	-4998.923	-2.44E-14	-221.229	-1.76E-15	-968.702	-5.93E-12
		-3537.874	-1.73E-14	-34.421	-6.36E-15	-314.488	-4.19E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AG AT	
67	2.500	-5051.997	-2.44E-14	-151.063	-1.76E-15	-1456.128	-5.99E-12
		-3575.436	-1.73E-14	-12.187	-5.13E-15	-418.008	-4.24E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
68	0	-5051.997	-2.44E-14	-151.063	-1.76E-15	-1456.128	-5.99E-12
		-3575.436	-1.73E-14	-12.187	-5.13E-15	-418.008	-4.24E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
68	2.500	-5101.647	-2.44E-14	-77.826	-1.76E-15	-1769.833	-6.05E-12
		-3610.575	-1.73E-14	11.967	-5.13E-15	-437.812	-4.28E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
69	0	-5101.647	-2.44E-14	-77.826	-1.76E-15	-1769.833	-6.05E-12
		-3610.575	-1.73E-14	11.967	-5.13E-15	-437.812	-4.28E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
69	2.500	-5147.734	-2.44E-14	-1.808	-1.76E-15	-1898.216	-6.11E-12
		-3643.192	-1.73E-14	16.990	-5.13E-15	-427.303	-4.32E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
70	0	-5147.734	-2.44E-14	-1.808	-1.76E-15	-1898.216	-6.11E-12
		-3643.192	-1.73E-14	-4.110	-5.13E-15	-427.303	-4.32E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
70	2.500	-5168.401	-2.44E-14	71.854	-1.76E-15	-1823.592	-6.17E-12
		-3657.819	-1.73E-14	-0.755253	-5.13E-15	-437.263	-4.37E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
71	0	-5168.401	-2.44E-14	71.854	-1.76E-15	-1823.592	-6.17E-12
		-3657.819	-1.73E-14	-0.755253	-5.13E-15	-437.263	-4.37E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
71	2.500	-5163.234	-2.44E-14	145.235	-1.76E-15	-1549.348	-6.23E-12
		-3654.161	-1.73E-14	23.501	-5.13E-15	-406.791	-4.41E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
72	0	-5163.234	-2.44E-14	145.235	-1.76E-15	-1549.348	-6.23E-12

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-3654.161	-1.73E-14	23.501	-5.13E-15	-406.791	-4.41E-12
		Min: A C D F H N				Max: X Y AA AB AD AF AH AT	
72	2.500	-5110.393	-2.44E-14	206.999	-1.87E-15	-1081.071	-6.29E-12
		-3616.765	-1.73E-14	52.250	-5.02E-15	-302.025	-4.45E-12
		Min: A B D F H N				Max: X Z AA AB AD AF AH AT	
73	0	-5110.393	-2.44E-14	206.999	-1.87E-15	-1081.071	-6.29E-12
		-3616.765	-1.73E-14	52.250	-5.02E-15	-302.025	-4.45E-12
		Min: A B D F H N				Max: X Z AA AB AD AF AH AT	
73	2.500	-3577.183	-1.73E-14	94.409	-2.72E-15	-664.466	-4.50E-12
		-5054.465	-2.44E-14	284.809	-2.58E-15	122.338	-6.35E-12
		Min: X Y AA AE AE AK				Max: A C D F G I L W	
74	0	-3577.183	-1.73E-14	94.409	-2.72E-15	-664.466	-4.50E-12
		-5054.465	-2.44E-14	284.809	-2.58E-15	122.338	-6.35E-12
		Min: X Y AA AE AE AK				Max: A C D F G I L W	
74	2.500	-3535.396	-1.73E-14	89.429	-4.27E-15	-413.353	-4.54E-12
		-4995.421	-2.44E-14	326.700	-1.04E-15	862.055	-6.42E-12
		Min: X Y AA AE AD AE AK				Max: A C D F I L W	
75	0	-3535.396	-1.73E-14	89.429	-4.27E-15	-413.353	-4.54E-12
		-4995.421	-2.44E-14	326.700	-1.04E-15	862.055	-6.42E-12
		Min: X Y AA AB AD AE AK				Max: A C D F I L W	
75	2.500	-3461.756	-1.73E-14	-475.684	-4.27E-15	-921.487	-4.58E-12
		-4891.370	-2.44E-14	-390.072	3.12E-16	771.250	-6.48E-12
		Min: X Y AA AE AD AE AK				Max: A C D F I Q W	
76	0	-3459.166	-1.55E-14	588.326	-4.27E-15	-921.487	-4.58E-12
		-4887.710	-2.19E-14	467.680	3.12E-16	771.250	-6.48E-12
		Min: X Y AA AE AD AE AK				Max: A C D F I Q W	
76	3.600	-3337.275	-1.55E-14	35.358	-6.30E-15	169.838	-4.64E-12
		-4715.482	-2.19E-14	-171.622	-6.34E-16	1273.541	-6.55E-12
		Min: X Y AA AE AD AE AH				Max: A C D F I M W	
77	0	-3337.275	-1.55E-14	35.358	-6.30E-15	169.838	-4.64E-12
		-4715.482	-2.19E-14	-171.622	-6.34E-16	1273.541	-6.55E-12
		Min: X Y AA AE AD AE AH				Max: A C D F I M W	
77	3.600	-3313.348	-1.55E-14	-4.389	-6.39E-15	216.067	-4.69E-12
		-4681.674	-2.19E-14	-108.186	-5.39E-16	761.769	-6.63E-12
		Min: X Z AA AE AD AH				Max: A B D F H I M W	
78	0	-3313.348	-1.55E-14	-4.389	-6.39E-15	216.067	-4.69E-12
		-4681.674	-2.19E-14	-108.186	-5.39E-16	761.769	-6.63E-12
		Min: X Z AA AE AD AH				Max: A B D F H I M W	
78	3.600	-4643.892	-2.19E-14	-84.248	-4.48E-15	-44.809	-6.71E-12
		-3286.609	-1.55E-14	48.617	-2.41E-15	801.238	-4.75E-12
		Min: A C D F G I K				Max: X Y AA AB AE AK AT	
79	0	-4643.892	-2.19E-14	-84.248	-4.48E-15	-44.809	-6.71E-12
		-3286.609	-1.55E-14	48.617	-2.41E-15	801.238	-4.75E-12

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A C D F G I K				Max: X Y AA AB AE AK AT	
79	3.600	-4602.180	-2.19E-14	-38.657	-4.48E-15	-241.562	-6.79E-12
		-3257.088	-1.55E-14	41.027	-2.41E-15	979.921	-4.81E-12
		Min: A C D F G I K				Max: X Y AA AB AE AK AT	
80	0	-4602.180	-2.19E-14	-38.657	-4.48E-15	-241.562	-6.79E-12
		-3257.088	-1.55E-14	41.027	-2.41E-15	979.921	-4.81E-12
		Min: A C D F G I K				Max: X Y AA AB AE AK AT	
80	3.600	-4556.617	-2.19E-14	4.408	-4.48E-15	-271.508	-6.87E-12
		-3224.842	-1.55E-14	10.550	-2.41E-15	1101.527	-4.86E-12
		Min: A C D F G I K				Max: X Y AA AB AE AK AT	
81	0	-4556.617	-2.19E-14	-4.408	-1.55E-15	-271.508	-6.87E-12
		-3224.842	-1.55E-14	-10.550	-2.41E-15	1101.527	-4.86E-12
		Min: A C D F G I Q				Max: X Y AA AB AE AK AT	
81	3.600	-4602.180	-2.19E-14	38.657	-1.55E-15	-241.562	-6.95E-12
		-3257.088	-1.55E-14	-41.027	-2.41E-15	979.921	-4.92E-12
		Min: A C D F G I Q				Max: X Y AA AB AE AK AT	
82	0	-4602.180	-2.19E-14	38.657	-1.55E-15	-241.562	-6.95E-12
		-3257.088	-1.55E-14	-41.027	-2.41E-15	979.921	-4.92E-12
		Min: A C D F G I Q				Max: X Y AA AB AE AK AT	
82	3.600	-4643.892	-2.19E-14	84.248	-1.55E-15	-44.809	-7.03E-12
		-3286.609	-1.55E-14	-48.617	-2.41E-15	801.238	-4.97E-12
		Min: A C D F G I Q				Max: X Y AA AB AE AK AT	
83	0	-4643.892	-2.19E-14	84.248	-1.55E-15	-44.809	-7.03E-12
		-3286.609	-1.55E-14	-48.617	-2.41E-15	801.238	-4.97E-12
		Min: A C D F G I Q				Max: X Y AA AB AE AK AT	
83	3.600	-3313.348	-1.55E-14	4.389	-8.58E-16	216.067	-5.03E-12
		-4681.674	-2.19E-14	108.186	-3.30E-15	761.769	-7.11E-12
		Min: X Z AA AB AF AN				Max: A B D F G H O W	
84	0	-3313.348	-1.55E-14	4.389	-8.58E-16	216.067	-5.03E-12
		-4681.674	-2.19E-14	108.186	-3.30E-15	761.769	-7.11E-12
		Min: X Z AA AB AF AN				Max: A B D F G H O W	
84	3.600	-3337.275	-1.55E-14	-35.358	-7.63E-16	169.838	-5.09E-12
		-4715.482	-2.19E-14	171.622	-3.40E-15	1273.541	-7.19E-12
		Min: X Y AA AB AE AF AN				Max: A C D F G O W	
85	0	-3337.275	-1.55E-14	-35.358	-7.63E-16	169.838	-5.09E-12
		-4715.482	-2.19E-14	171.622	-3.40E-15	1273.541	-7.19E-12
		Min: X Y AA AB AE AF AN				Max: A C D F G O W	
85	3.600	-3459.166	-1.55E-14	-588.326	-1.67E-15	-921.487	-5.14E-12
		-4887.710	-2.19E-14	-487.680	-5.22E-15	771.250	-7.26E-12
		Min: X Y AA AB AE AF AK				Max: A C D F G K W	
86	0	-3461.756	-1.16E-14	475.684	-1.67E-15	-921.487	-5.14E-12
		-4891.370	-1.64E-14	390.072	-5.22E-15	771.250	-7.26E-12
		Min: X Y AA AB AE AF AK				Max: A C D F G K W	

$$\varepsilon_o = \frac{N}{8 \times A_p \times E_p}$$

$N = -3224.842\ kp$

$A_p = 43.40\ cm^2$

$E_p = 1.95\,10^6\ kg/cm^2$

$\varepsilon_o = 4.763\ 10^{-3}$

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
86	2.500	-3535.396	-1.16E-14	-89.429	-1.67E-15	-413.353	-5.17E-12
		-4995.421	-1.64E-14	-326.765	-3.29E-15	861.398	-7.31E-12
		Min: X Y AA AB AE AF AK				Max: A C D F G P W	
87	0	-3535.396	-1.16E-14	-89.429	-1.67E-15	-413.353	-5.17E-12
		-4995.421	-1.64E-14	-326.765	-3.29E-15	861.398	-7.31E-12
		Min: X Y AA AB AE AF AK				Max: A C D F G P W	
87	2.500	-3577.183	-1.16E-14	-94.409	-2.72E-15	-664.466	-5.20E-12
		-5054.465	-1.64E-14	-284.873	-2.23E-15	123.631	-7.35E-12
		Min: X Y AA AB AE AK				Max: A C D F G I P W	
88	0	-3577.183	-1.16E-14	-94.409	-2.72E-15	-664.466	-5.20E-12
		-5054.465	-1.64E-14	-284.873	-2.23E-15	123.631	-7.35E-12
		Min: X Y AA AB AE AK				Max: A C D F G I P W	
88	2.500	-5110.393	-1.64E-14	-206.999	-1.87E-15	-1081.071	-7.39E-12
		-3616.765	-1.16E-14	-52.250	-2.09E-15	-302.025	-5.23E-12
		Min: A B D F H N				Max: X Z AA AE AD AF AN AT	
89	0	-5110.393	-1.64E-14	-206.999	-1.87E-15	-1081.071	-7.39E-12
		-3616.765	-1.16E-14	-52.250	-2.09E-15	-302.025	-5.23E-12
		Min: A B D F H N				Max: X Z AA AE AD AF AN AT	
89	2.500	-5163.234	-1.64E-14	-145.235	-1.76E-15	-1549.348	-7.43E-12
		-3654.161	-1.16E-14	-23.501	-2.21E-15	-406.791	-5.26E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
90	0	-5163.234	-1.64E-14	-145.235	-1.76E-15	-1549.348	-7.43E-12
		-3654.161	-1.16E-14	-23.501	-2.21E-15	-406.791	-5.26E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
90	2.500	-5168.401	-1.64E-14	-71.854	-1.76E-15	-1823.592	-7.47E-12
		-3657.819	-1.16E-14	0.755253	-2.21E-15	-437.263	-5.29E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
91	0	-5168.401	-1.64E-14	-71.854	-1.76E-15	-1823.592	-7.47E-12
		-3657.819	-1.16E-14	0.755253	-2.21E-15	-437.263	-5.29E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
91	2.500	-5147.734	-1.64E-14	1.808	-1.76E-15	-1898.216	-7.51E-12
		-3643.192	-1.16E-14	4.110	-2.21E-15	-427.303	-5.32E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
92	0	-5147.734	-1.64E-14	1.808	-1.76E-15	-1898.216	-7.51E-12
		-3643.192	-1.16E-14	-16.950	-2.21E-15	-427.303	-5.32E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
92	2.500	-5101.647	-1.64E-14	77.826	-1.76E-15	-1769.833	-7.55E-12
		-3610.575	-1.16E-14	-11.967	-2.21E-15	-437.812	-5.34E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
93	0	-5101.647	-1.64E-14	77.826	-1.76E-15	-1769.833	-7.55E-12
		-3610.575	-1.16E-14	-11.967	-2.21E-15	-437.812	-5.34E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
93	2.500	-5051.997	-1.64E-14	151.063	-1.76E-15	-1456.128	-7.59E-12

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-3575.436	-1.16E-14	12.187	-2.21E-15	-418.008	-5.37E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
94	0	-5051.997	-1.64E-14	151.063	-1.76E-15	-1456.128	-7.59E-12
		-3575.436	-1.16E-14	12.187	-2.21E-15	-418.008	-5.37E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AN AT	
94	2.500	-4998.923	-1.64E-14	221.229	-1.76E-15	-968.702	-7.63E-12
		-3537.874	-1.16E-14	34.320	-1.14E-15	-314.234	-5.40E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AO AT	
95	0	-4998.923	-1.64E-14	221.229	-1.76E-15	-968.702	-7.63E-12
		-3537.874	-1.16E-14	34.320	-1.14E-15	-314.234	-5.40E-12
		Min: A C D F H N				Max: X Y AA AE AD AF AO AT	
95	2.500	-4957.812	-1.64E-14	197.127	-8.12E-16	-351.862	-7.67E-12
		-3508.779	-1.16E-14	23.406	-2.09E-15	-249.976	-5.43E-12
		Min: A B D F H I N				Max: X Z AA AE AD AO AT	
96	0	-4960.826	-9.95E-15	524.505	1.05E-12	-351.862	7.47E-12
		-3510.912	-7.04E-15	375.019	8.99E-13	-249.976	5.29E-12
		Min: A B D F H I O				Max: X Z AA AE AD AO AT	
96	0.500	-4957.849	-9.95E-15	505.617	1.11E-12	-94.199	7.46E-12
		-3508.805	-7.04E-15	357.839	8.21E-13	-66.667	5.28E-12
		Min: A B D F G H R W				Max: X Z AA AB AF AN	

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton, zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zc [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
65	0	-45.919	-39.821	-42.484	-42.484	-42.484
		-32.498	-28.182	-30.067	-30.067	-30.067
		Min: A C D F L W			Max: X Y AA AB AD AE AF AG	
65	0.500	-55.341	-32.563	-42.509	-42.509	-42.509
		-39.201	-23.019	-30.085	-30.085	-30.085
		Min: A B D F G H I J			Max: X Z AA AE AJ AT	
66	0	-55.315	-32.538	-42.483	-42.483	-42.483
		-39.183	-23.001	-30.067	-30.067	-30.067
		Min: A B D F G H N			Max: X Z AA AE AF AG AT	
66	2.500	-97.734	-27.438	-56.692	-56.692	-56.692
		-53.447	-30.625	-40.122	-40.122	-40.122
		Min: A C D F H N			Max: X Y AA AB AD AF AG AT	
67	0	-97.734	-27.438	-56.692	-56.692	-56.692
		-53.447	-30.625	-40.122	-40.122	-40.122

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
	Min:	A C D F H N		Max:	X Y AA AB AD AF AG AT	
67	2.500	-118.988	-13.320	-57.294	-57.294	-57.294
		-58.259	-27.925	-40.548	-40.548	-40.548
	Min:	A C D F H N		Max:	X Y AA AB AD AF AH AT	
68	0	-118.988	-13.320	-57.294	-57.294	-57.294
		-58.259	-27.925	-40.548	-40.548	-40.548
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
68	2.500	-132.842	-4.409	-57.857	-57.857	-57.857
		-59.496	-27.725	-40.947	-40.947	-40.947
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
69	0	-132.842	-4.409	-57.857	-57.857	-57.857
		-59.496	-27.725	-40.947	-40.947	-40.947
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
69	2.500	-138.804	-1.055	-58.380	-58.380	-58.380
		-59.421	-28.413	-41.317	-41.317	-41.317
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
70	0	-138.804	-1.055	-58.380	-58.380	-58.380
		-59.421	-28.413	-41.317	-41.317	-41.317
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
70	2.500	-135.877	-3.543	-58.614	-58.614	-58.614
		-60.009	-28.278	-41.483	-41.483	-41.483
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
71	0	-135.877	-3.543	-58.614	-58.614	-58.614
		-60.009	-28.278	-41.483	-41.483	-41.483
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
71	2.500	-124.199	-11.766	-58.555	-58.555	-58.555
		-58.676	-29.156	-41.441	-41.441	-41.441
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
72	0	-124.199	-11.766	-58.555	-58.555	-58.555
		-58.676	-29.156	-41.441	-41.441	-41.441
	Min:	A C D F H N		Max:	X Y AA AE AD AF AH AT	
72	2.500	-103.759	-25.308	-57.956	-57.956	-57.956
		-53.813	-31.896	-41.017	-41.017	-41.017
	Min:	A B D F H N		Max:	X Z AA AE AD AF AH AT	
73	0	-103.759	-25.308	-57.956	-57.956	-57.956
		-53.813	-31.896	-41.017	-41.017	-41.017
	Min:	A B D F H N		Max:	X Z AA AE AD AF AH AT	
73	2.500	-68.721	-20.502	-40.568	-40.568	-40.568
		-52.139	-61.016	-57.322	-57.322	-57.322
	Min:	X Y AA AB AE AK		Max:	A C D F G I L W	
74	0	-68.721	-20.502	-40.568	-40.568	-40.568
		-52.139	-61.016	-57.322	-57.322	-57.322

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
	Min:	X Y AA AE AE AK		Max:	A C D F G I L W	
74	2.500	-57.607	-27.611	-40.094	-40.094	-40.094
		-20.128	-82.686	-56.652	-56.652	-56.652
	Min:	X Y AA AB AD AE AK		Max:	A C D F I L W	
75	0	-57.607	-27.611	-40.094	-40.094	-40.094
		-20.128	-82.686	-56.652	-56.652	-56.652
	Min:	X Y AA AB AD AE AK		Max:	A C D F I L W	
75	2.500	-63.269	-3.617	-29.664	-29.664	-29.664
		-13.788	-63.714	-41.914	-41.914	-41.914
	Min:	X Y AA AB AD AE AK		Max:	A C D F I Q W	
76	0	-63.247	-3.594	-29.642	-29.642	-29.642
		-13.756	-63.683	-41.883	-41.883	-41.883
	Min:	X Y AA AB AD AE AK		Max:	A C D F I Q W	
76	3.600	-30.652	-42.976	-37.847	-37.847	-37.847
		0.480471	-91.938	-53.477	-53.477	-53.477
	Min:	X Y AA AB AD AE AH		Max:	A C D F I M W	
77	0	-30.652	-42.976	-37.847	-37.847	-37.847
		0.480471	-91.938	-53.477	-53.477	-53.477
	Min:	X Y AA AB AD AE AH		Max:	A C D F I M W	
77	3.600	-28.422	-44.101	-37.576	-37.576	-37.576
		-20.819	-76.099	-53.094	-53.094	-53.094
	Min:	X Z AA AB AD AH		Max:	A B D F H I M W	
78	0	-28.422	-44.101	-37.576	-37.576	-37.576
		-20.819	-76.099	-53.094	-53.094	-53.094
	Min:	X Z AA AB AD AH		Max:	A B D F H I M W	
78	3.600	-54.564	-51.312	-52.666	-52.666	-52.666
		-3.326	-61.470	-37.273	-37.273	-37.273
	Min:	A C D F G I K		Max:	X Y AA AB AE AE AK AT	
79	0	-54.564	-51.312	-52.666	-52.666	-52.666
		-3.326	-61.470	-37.273	-37.273	-37.273
	Min:	A C D F G I K		Max:	X Y AA AE AE AE AK AT	
79	3.600	-62.427	-44.897	-52.193	-52.193	-52.193
		4.580	-66.531	-36.938	-36.938	-36.938
	Min:	A C D F G I K		Max:	X Y AA AB AE AE AK AT	
80	0	-62.427	-44.897	-52.193	-52.193	-52.193
		4.580	-66.531	-36.938	-36.938	-36.938
	Min:	A C D F G I K		Max:	X Y AA AE AE AE AK AT	
80	3.600	-63.179	-43.476	-51.676	-51.676	-51.676
		10.098	-69.838	-36.572	-36.572	-36.572
	Min:	A C D F G I K		Max:	X Y AA AE AE AK AT	
81	0	-63.179	-43.476	-51.676	-51.676	-51.676
		10.098	-69.838	-36.572	-36.572	-36.572

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
	Min:	A C D F G I Q		Max:	X Y AA AB AE AK AT	
81	3.600	-62.427	-44.897	-52.193	-52.193	-52.193
		4.580	-66.531	-36.938	-36.938	-36.938
	Min:	A C D F G I Q		Max:	X Y AA AB AE AK AT	
82	0	-62.427	-44.897	-52.193	-52.193	-52.193
		4.580	-66.531	-36.938	-36.938	-36.938
	Min:	A C D F G I Q		Max:	X Y AA AB AE AK AT	
82	3.600	-54.564	-51.312	-52.666	-52.666	-52.666
		-3.326	-61.470	-37.273	-37.273	-37.273
	Min:	A C D F G I Q		Max:	X Y AA AB AE AK AT	
83	0	-54.564	-51.312	-52.666	-52.666	-52.666
		-3.326	-61.470	-37.273	-37.273	-37.273
	Min:	A C D F G I Q		Max:	X Y AA AE AE AK AT	
83	3.600	-28.422	-44.101	-37.576	-37.576	-37.576
		-20.819	-76.099	-53.094	-53.094	-53.094
	Min:	X Z AA AB AF AN		Max:	A B D F G H O W	
84	0	-28.422	-44.101	-37.576	-37.576	-37.576
		-20.819	-76.099	-53.094	-53.094	-53.094
	Min:	X Z AA AB AF AN		Max:	A B D F G H O W	
84	3.600	-30.652	-42.976	-37.847	-37.847	-37.847
		0.480471	-91.938	-53.477	-53.477	-53.477
	Min:	X Y AA AB AE AF AN		Max:	A C D F G O W	
85	0	-30.652	-42.976	-37.847	-37.847	-37.847
		0.480471	-91.938	-53.477	-53.477	-53.477
	Min:	X Y AA AB AE AF AN		Max:	A C D F G O W	
85	3.600	-63.247	-3.594	-29.642	-29.642	-29.642
		-13.756	-63.683	-41.883	-41.883	-41.883
	Min:	X Y AA AB AE AF AK		Max:	A C D F G K W	
86	0	-63.269	-3.617	-29.664	-29.664	-29.664
		-13.788	-63.714	-41.914	-41.914	-41.914
	Min:	X Y AA AB AE AF AK		Max:	A C D F G K W	
86	2.500	-57.607	-27.611	-40.094	-40.094	-40.094
		-20.156	-82.666	-56.652	-56.652	-56.652
	Min:	X Y AA AB AE AF AK		Max:	A C D F G P W	
87	0	-57.607	-27.611	-40.094	-40.094	-40.094
		-20.156	-82.666	-56.652	-56.652	-56.652
	Min:	X Y AA AB AE AF AK		Max:	A C D F G P W	
87	2.500	-68.721	-20.502	-40.568	-40.568	-40.568
		-52.084	-61.055	-57.322	-57.322	-57.322
	Min:	X Y AA AB AE AK		Max:	A C D F G I P W	
88	0	-68.721	-20.502	-40.568	-40.568	-40.568
		-52.084	-61.055	-57.322	-57.322	-57.322

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
	Min:	X Y AA AE AE AK		Max:	A C D F G I P W	
88	2.500	-103.759	-25.308	-57.956	-57.956	-57.956
		-53.813	-31.896	-41.017	-41.017	-41.017
	Min:	A B D F H N		Max:	X Z AA AB AD AF AN AT	
89	0	-103.759	-25.308	-57.956	-57.956	-57.956
		-53.813	-31.896	-41.017	-41.017	-41.017
	Min:	A B D F H N		Max:	X Z AA AE AD AF AN AT	
89	2.500	-124.199	-11.766	-58.555	-58.555	-58.555
		-58.676	-29.156	-41.441	-41.441	-41.441
	Min:	A C D F H N		Max:	X Y AA AE AD AF AN AT	
90	0	-124.199	-11.766	-58.555	-58.555	-58.555
		-58.676	-29.156	-41.441	-41.441	-41.441
	Min:	A C D F H N		Max:	X Y AA AE AD AF AN AT	
90	2.500	-135.877	-3.543	-58.614	-58.614	-58.614
		-60.009	-28.278	-41.483	-41.483	-41.483
	Min:	A C D F H N		Max:	X Y AA AE AD AF AN AT	
91	0	-135.877	-3.543	-58.614	-58.614	-58.614
		-60.009	-28.278	-41.483	-41.483	-41.483
	Min:	A C D F H N		Max:	X Y AA AE AD AF AN AT	
91	2.500	-138.804	-1.055	-58.380	-58.380	-58.380
		-59.421	-28.413	-41.317	-41.317	-41.317
	Min:	A C D F H N		Max:	X Y AA AE AD AF AN AT	
92	0	-138.804	-1.055	-58.380	-58.380	-58.380
		-59.421	-28.413	-41.317	-41.317	-41.317
	Min:	A C D F H N		Max:	X Y AA AB AD AF AN AT	
92	2.500	-132.842	-4.409	-57.857	-57.857	-57.857
		-59.496	-27.725	-40.947	-40.947	-40.947
	Min:	A C D F H N		Max:	X Y AA AE AD AF AN AT	
93	0	-132.842	-4.409	-57.857	-57.857	-57.857
		-59.496	-27.725	-40.947	-40.947	-40.947
	Min:	A C D F H N		Max:	X Y AA AE AD AF AN AT	
93	2.500	-118.988	-13.320	-57.294	-57.294	-57.294
		-58.259	-27.925	-40.548	-40.548	-40.548
	Min:	A C D F H N		Max:	X Y AA AE AD AF AN AT	
94	0	-118.988	-13.320	-57.294	-57.294	-57.294
		-58.259	-27.925	-40.548	-40.548	-40.548
	Min:	A C D F H N		Max:	X Y AA AB AD AF AN AT	
94	2.500	-97.734	-27.438	-56.692	-56.692	-56.692
		-53.436	-30.633	-40.122	-40.122	-40.122
	Min:	A C D F H N		Max:	X Y AA AB AD AF AO AT	
95	0	-97.734	-27.438	-56.692	-56.692	-56.692
		-53.436	-30.633	-40.122	-40.122	-40.122

EXTREME STRESSES for ENVELOPES of < My > **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)
(zu= z-botton,zo= z-top, yl= y-left, yr= y-right, Sp=grav.center)

Memb.	distance [m]	Sigma-zu [kp/cm2]	Sigma-zo [kp/cm2]	Sigma-yl [kp/cm2]	Sigma-yr [kp/cm2]	Sigma-Sp [kp/cm2]
	Min:	A C D F H N		Max:	X Y AA AE AD AF AO AT	
95	2.500	-55.315	-32.538	-42.483	-42.483	-42.483
		-39.183	-23.001	-30.067	-30.067	-30.067
	Min:	A B D F H I N		Max:	X Z AA AE AD AO AT	
96	0	-55.341	-32.563	-42.509	-42.509	-42.509
		-39.201	-23.019	-30.085	-30.085	-30.085
	Min:	A B D F H I O		Max:	X Z AA AE AD AO AT	
96	0.500	-45.919	-39.821	-42.484	-42.484	-42.484
		-32.496	-28.182	-30.067	-30.067	-30.067
	Min:	A B D F G H R W		Max:	X Z AA AE AF AN	
Minimum:		-138.804	-91.938	-58.614	-58.614	-58.614
Maximum:		10.098	-1.055	-29.642	-29.642	-29.642

Características mecánicas Sección "TABLERO" (sin coef. homogeneiz.)

Area	Ax =	8.818 m2				
Momento de inercia	Iy =	2.067 m4	Iz =	67.09 m4	Ip =	69.16 m4
Const. de torsión					Ix =	2.742 m4
Momento estático	Zy =	3.816 m3	Zz =	20.90 m3		
Baricentro	ys =	6.0268 m	zs =	0.8758 m	Angulo=	0.0 Grad
Dist. al borde	yl =	-6.0268 m	yr =	6.0332 m		
	zo =	0.6242 m	zu =	-0.8758 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 6.0268 m z = 0.8758 m

Contorno de sección parcial, Sección "TABLERO" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	88177.0	2584.263	2.74E+08	6)

Puntos de contorno [m]:

1	0.0000	1.3000	2	2.4000	1.1000	3	3.0000	0.0000
4	9.0600	0.0000	5	9.6600	1.1000	6	12.0600	1.3000
7	12.0600	1.5000	8	0.0000	1.5000	9	0.0000	1.3000

Sección parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
CS 2	Hueco		6.0600	0.7500	0.5500	
Nombre de la sección maestra: CS 1						
CS 3	Hueco		4.3800	0.7500	0.5500	
Nombre de la sección maestra: CS 1						
CS 4	Hueco		7.6800	0.7500	0.5500	
Nombre de la sección maestra: CS 1						

Armadura "E1" As-tot =2.00 cm2 (0.00 o/o) , As+Ap-tot=349.20

Nr / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
PR 8 / CS 1	A1900	1.0	0	43.40	8.4020	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 7 / CS 1	A1900	1.0	0	43.40	8.1620	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 6 / CS 1	A1900	1.0	0	43.40	6.9650	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 5 / CS 1	A1900	1.0	0	43.40	6.7250	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 4 / CS 1	A1900	1.0	0	43.40	5.3350	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 3 / CS 1	A1900	1.0	0	43.40	5.0950	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 2 / CS 1	A1900	1.0	0	43.40	3.8980	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						

PR 1 / CS 1	A1900	1.0	0	43.40	3.6580	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
LR 1 / CS 1	AEH500	1.0	2	1.00	0.0600	1.4400
					12.0000	1.4400
LR 2 / CS 1	AEH500	1.0	2	1.00	3.0800	0.0600
					9.0800	0.0600

Verif. estado de tens.: Viga Sección "TABLERO"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	1	0.00	0.00	0.00	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia
Set 1: EH/1/0/Eps=-2.0,-3.5,10.0/Gamma=1,1,1/Dia=45/Phi=0

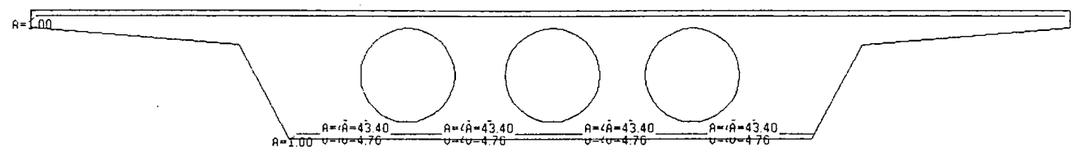
Deformaciones y tensiones extremas:

Parte-Sección	Material	Coordenadas y [m]]	z [m]]	Eps [o/oo]	Sigma/Gamma [kp/cm2]	Gamma
CS 1	H350	9.0600	0.0000	-0.61	-182.23	1.18
CS 1	H350	0.0000	1.5000	0.89	0.00	1.18
LR 2	AEH500	9.0800	0.0600	-0.55	-1160.59	1.00
LR 1	AEH500	0.0600	1.4400	0.83	1734.62	1.00
PR 8	A1900	8.4020	0.1800	4.33	8660.42	1.00
PR 1	A1900	3.6580	0.1800	4.33	8661.71	1.00

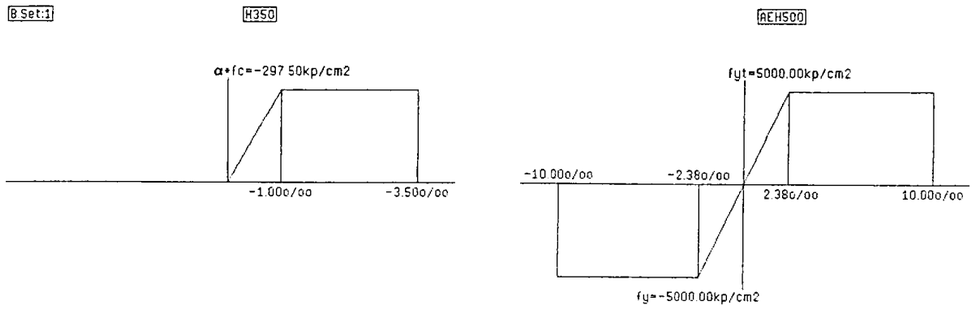
Tensión descargado

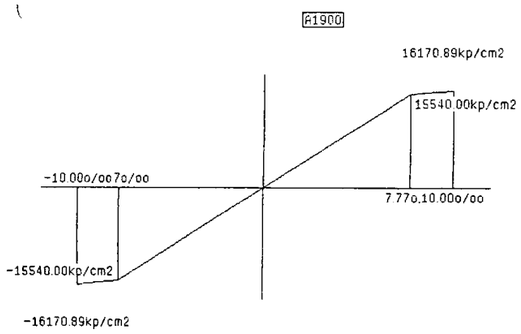
$\sigma_o = 8660.42\ kp/cm^2$

Sección TABLERO

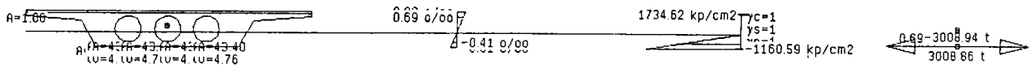


Material acorde a la sección: "TABLERO"





Verificación de tensiones con fuerzas,Sección "TABLERO"



Características mecánicas Sección "TABLERO" (sin coef. homogeneiz.)

Area	Ax =	8.818 m2				
Momento de inercia	Iy =	2.067 m4	Iz =	67.09 m4	Ip =	69.16 m4
Const. de torsión					Ix =	2.742 m4
Momento estático	Zy =	3.816 m3	Zz =	20.90 m3		
Baricentro	ys =	6.0268 m	zs =	0.8758 m	Angulo=	0.0 Grad
Dist. al borde	yl =	-6.0268 m	yr =	6.0332 m		
	zo =	0.6242 m	zu =	-0.8758 m		

M-: Punto de aplic. de fuerzas en el baricentro de la sección
V-: Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 6.0268 m z = 0.8758 m

Contorno de sección parcial, Sección "TABLERO" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	88177.0	2584.263	2.74E+08	6)

Puntos de contorno [m]:

1	0.0000	1.3000	2	2.4000	1.1000	3	3.0000	0.0000
4	9.0600	0.0000	5	9.6600	1.1000	6	12.0600	1.3000
7	12.0600	1.5000	8	0.0000	1.5000	9	0.0000	1.3000

Sección parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
CS 2	Hueco		6.0600	0.7500	0.5500	
Nombre de la sección maestra: CS 1						
CS 3	Hueco		4.3800	0.7500	0.5500	
Nombre de la sección maestra: CS 1						
CS 4	Hueco		7.6800	0.7500	0.5500	
Nombre de la sección maestra: CS 1						

Armadura "B1" As-tot =2.00 cm2 (0.00 o/o) , As+Ap-tot=349.20

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
PR 8 / CS 1	A1900	1.0	0	43.40	8.4020	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 7 / CS 1	A1900	1.0	0	43.40	8.1620	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 6 / CS 1	A1900	1.0	0	43.40	6.9650	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 5 / CS 1	A1900	1.0	0	43.40	6.7250	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 4 / CS 1	A1900	1.0	0	43.40	5.3350	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 3 / CS 1	A1900	1.0	0	43.40	5.0950	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 2 / CS 1	A1900	1.0	0	43.40	3.8980	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
PR 1 / CS 1	A1900	1.0	0	43.40	3.6580	0.1800
Cable de pretensado: Eps=4.76 o/oo (Con adh.)						
LR 1 / CS 1	AEH500	1.0	2	1.00	0.0600	1.4400
					12.0000	1.4400
LR 2 / CS 1	AEH500	1.0	2	1.00	3.0800	0.0600
					9.0800	0.0600

Verif. estado de tens.: Viga Sección "TABLERO"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	1	0.00	1101.53	0.00	

Parámetros de cálculo empleados:

Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

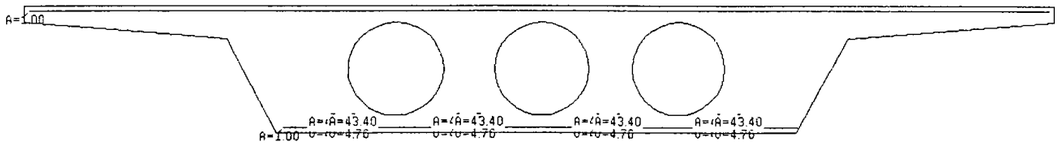
Set 1: EH/1/0/Eps=-2.0,-3.5,10.0/Gamma=1,1,1/Dia=45/Phi=0

Deformaciones y tensiones extremas:

Parte-Sección	Material	Coordenadas y [m]]	z [m]]	Eps [o/oo]	Sigma/Gamma [kp/cm2]	Gamma
	H350	9.0600	0.0000	-0.27	-81.51	1.18
CS 1	H350	0.0000	1.5000	-0.01	-2.81	1.18
LR 2	AEH500	9.0800	0.0600	-0.26	-553.16	1.00
LR 1	AEH500	0.0600	1.4400	-0.02	-41.99	1.00
PR 6	A1900	8.4020	0.1800	4.52	9041.50	1.00
PR 1	A1900	3.6580	0.1800	4.52	9042.07	1.00

$\sigma_1 = 9042.07$ kp/cm²

Sección TABLERO

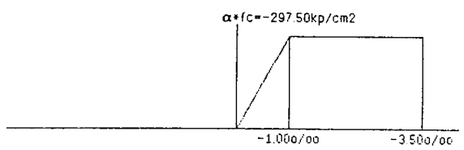


$\Delta\sigma = 9042.07$ kp/cm² − 8660.42 Kp/cm² = 381.65 kp/cm²

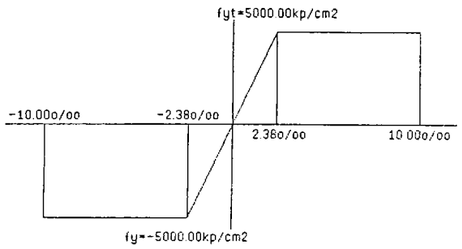
$\Delta\sigma < 2000$ kp/cm² $W_k < 0.20$ mm VERIFICA

Material acorde a la sección: "TABLERO"

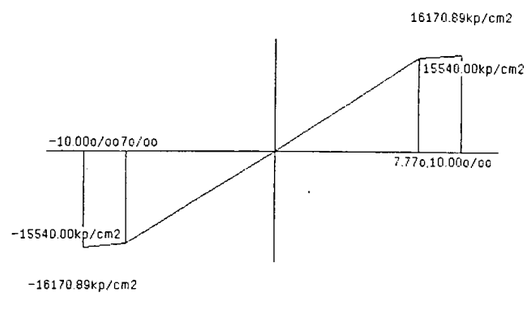
B.Set:1 H350



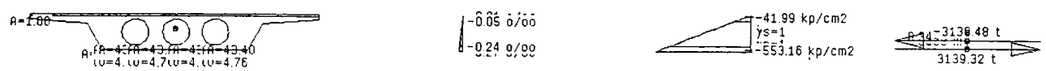
AEH500



A1900



Verificación de tensiones con fuerzas,Sección "TABLERO"



Armaduras activas en zona comprimida

2.4.1.2. Comprobación de estados límites últimos por flexión longitudinal

LOADING: 'PRET. HIPERESTATICO'

Loadcase	Factor	Stage	Init.def	Title
42	1.0000			PRETENSADO

(Z = Only restraint actions due to prestres.)

ENVELOPE SPECIFIC.: FP ''

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
E	OR	1	1.000		PESO PROPIO

SPECIFICATINS DESIGN ENVELOPE File:ELUCT0, 'ELUT0'

Load group	Char.Actions	Factor	File
1	Postproc.File: ELUC	1.000	

FAGUS-3 - post-processor module::

Section forces and prestressing restored from STATIK-3

Prestressing restored from STATIK-3

Prestressing steel .....: A1900
Prestressing conditions (grouting).....: bonded

Parameters for evaluation of long term losses:
Concrete shrinkage .....: 0.00 [o/oo]
Steel relaxation class .....: 0
Coefficient of concrete creep .....: 1.00
Friction losses calculated in module STV .....

Section forces restored from STATIK-3:

Analysis	C.Set	N	Vy	Vz	T	My	Mz
Design	2	ELUCT0	ELUCT0	ELUCT0			

Calculation parameters Construction code: EH 91

Calculation set 2: Design(Standard)

Concrete stress strain diagram ..... type 2
Concrete in tension ..... type 0

Max. strains:
Max. concrete strain at ult. limit state (compr.). -2.00 [o/oo]
Max. concrete strain at ult. limit state (bending) -3.50 [o/oo]
Max. strain in reinforcement bars (ult.limit state 10.00 [o/oo]

Resistance coefficients:
Concrete..... 1.5
Steel..... 1.15
Prestressing steel..... 1.15
Structural steel..... 1.15

Inclination of diagonal in compression..... 45
Creep coefficient..... 0

STATIK-3 prestressing:
Strains used at..... t=o

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
65	0.00	-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
		-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
		-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
		-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
		-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
65	0.25	-0.00	-9.30	-0.00	0.00	-74.40	0.00	2 E
		-0.00	-6.88	-0.00	0.00	-55.11	0.00	2 E
		-0.00	-9.30	-0.00	0.00	-74.40	0.00	2 E
		-0.00	-9.30	-0.00	0.00	-74.40	0.00	2 E
		-0.00	-9.30	-0.00	0.00	-74.40	0.00	2 E
		-0.00	-6.88	-0.00	0.00	-55.11	0.00	2 E
65	0.50	-0.00	-37.20	-0.00	0.00	-148.80	0.00	2 E
		-0.00	-27.56	-0.00	0.00	-110.22	0.00	2 E
		-0.00	-37.20	-0.00	0.00	-148.80	0.00	2 E
		-0.00	-37.20	-0.00	0.00	-148.80	0.00	2 E
		-0.00	-37.20	-0.00	0.00	-148.80	0.00	2 E
		-0.00	-27.56	-0.00	0.00	-110.22	0.00	2 E
66	0.00	-0.00	-37.20	-0.00	0.00	2544.43	0.00	2 E
		-0.00	-27.56	-0.00	0.00	1884.77	0.00	2 E
		-0.00	-37.20	-0.00	0.00	2544.43	0.00	2 E
		-0.00	-37.20	-0.00	0.00	2544.43	0.00	2 E
		-0.00	-27.56	-0.00	0.00	1884.77	0.00	2 E
		-0.00	-37.20	-0.00	0.00	2544.43	0.00	2 E
66	1.25	-0.00	2910.85	-0.00	0.00	2172.44	0.00	2 E
		-0.00	2156.18	-0.00	0.00	1609.21	0.00	2 E
		-0.00	2910.85	-0.00	0.00	2172.44	0.00	2 E
		-0.00	2910.85	-0.00	0.00	2172.44	0.00	2 E
		-0.00	2910.85	-0.00	0.00	2172.44	0.00	2 E
		-0.00	2156.18	-0.00	0.00	1609.21	0.00	2 E
66	2.50	-0.00	5393.89	-0.00	0.00	1800.44	0.00	2 E
		-0.00	3995.48	-0.00	0.00	1333.66	0.00	2 E
		-0.00	5393.89	-0.00	0.00	1800.44	0.00	2 E
		-0.00	5393.89	-0.00	0.00	1800.44	0.00	2 E
		-0.00	5393.89	-0.00	0.00	1800.44	0.00	2 E
		-0.00	3995.48	-0.00	0.00	1333.66	0.00	2 E
67	0.00	-0.00	5393.89	-0.00	0.00	1800.44	0.00	2 E
		-0.00	3995.48	-0.00	0.00	1333.66	0.00	2 E
		-0.00	5393.89	-0.00	0.00	1800.44	0.00	2 E
		-0.00	5393.89	-0.00	0.00	1800.44	0.00	2 E
		-0.00	5393.89	-0.00	0.00	1800.44	0.00	2 E
		-0.00	3995.48	-0.00	0.00	1333.66	0.00	2 E
67	1.25	-0.00	7411.95	-0.00	0.00	1428.44	0.00	2 E
		-0.00	5490.33	-0.00	0.00	1058.11	0.00	2 E
		-0.00	7411.95	-0.00	0.00	1428.44	0.00	2 E
		-0.00	7411.95	-0.00	0.00	1428.44	0.00	2 E
		-0.00	7411.95	-0.00	0.00	1428.44	0.00	2 E
		-0.00	5490.33	-0.00	0.00	1058.11	0.00	2 E
67	2.50	-0.00	8965.00	-0.00	0.00	1056.45	0.00	2 E
		-0.00	6640.74	-0.00	0.00	782.55	0.00	2 E
		-0.00	8965.00	-0.00	0.00	1056.45	0.00	2 E
		-0.00	8965.00	-0.00	0.00	1056.45	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	8965.00	-0.00	0.00	1056.45	0.00	2 E
		-0.00	6640.74	-0.00	0.00	782.55	0.00	2 E
68	0.00	-0.00	8965.00	-0.00	0.00	1056.45	0.00	2 E
		-0.00	6640.74	-0.00	0.00	782.55	0.00	2 E
		-0.00	8965.00	-0.00	0.00	1056.45	0.00	2 E
		-0.00	8965.00	-0.00	0.00	1056.45	0.00	2 E
		-0.00	8965.00	-0.00	0.00	1056.45	0.00	2 E
		-0.00	6640.74	-0.00	0.00	782.55	0.00	2 E
68	1.25	-0.00	10053.06	-0.00	0.00	684.45	0.00	2 E
		-0.00	7446.71	-0.00	0.00	507.00	0.00	2 E
		-0.00	10053.06	-0.00	0.00	684.45	0.00	2 E
		-0.00	10053.06	-0.00	0.00	684.45	0.00	2 E
		-0.00	10053.06	-0.00	0.00	684.45	0.00	2 E
		-0.00	7446.71	-0.00	0.00	507.00	0.00	2 E
68	2.50	-0.00	10676.13	-0.00	0.00	312.45	0.00	2 E
		-0.00	7908.24	-0.00	0.00	231.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	312.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	312.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	312.45	0.00	2 E
		-0.00	7908.24	-0.00	0.00	231.45	0.00	2 E
69	0.00	-0.00	10676.13	-0.00	0.00	312.45	0.00	2 E
		-0.00	7908.24	-0.00	0.00	231.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	312.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	312.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	312.45	0.00	2 E
		-0.00	7908.24	-0.00	0.00	231.45	0.00	2 E
69	1.25	-0.00	10834.20	-0.00	0.00	-59.54	0.00	2 E
		-0.00	8025.33	-0.00	0.00	-44.11	0.00	2 E
		-0.00	10834.20	-0.00	0.00	-59.54	0.00	2 E
		-0.00	10834.20	-0.00	0.00	-59.54	0.00	2 E
		-0.00	8025.33	-0.00	0.00	-44.11	0.00	2 E
		-0.00	10834.20	-0.00	0.00	-59.54	0.00	2 E
69	2.50	-0.00	10527.27	-0.00	0.00	-431.54	0.00	2 E
		-0.00	7797.98	-0.00	0.00	-319.66	0.00	2 E
		-0.00	10527.27	-0.00	0.00	-431.54	0.00	2 E
		-0.00	10527.27	-0.00	0.00	-431.54	0.00	2 E
		-0.00	7797.98	-0.00	0.00	-319.66	0.00	2 E
		-0.00	10527.27	-0.00	0.00	-431.54	0.00	2 E
70	0.00	-0.00	10527.27	-0.00	0.00	-431.54	0.00	2 E
		-0.00	7797.98	-0.00	0.00	-319.66	0.00	2 E
		-0.00	10527.27	-0.00	0.00	-431.54	0.00	2 E
		-0.00	10527.27	-0.00	0.00	-431.54	0.00	2 E
		-0.00	7797.98	-0.00	0.00	-319.66	0.00	2 E
		-0.00	10527.27	-0.00	0.00	-431.54	0.00	2 E
70	1.25	-0.00	9755.35	-0.00	0.00	-803.54	0.00	2 E
		-0.00	7226.18	-0.00	0.00	-595.21	0.00	2 E
		-0.00	9755.35	-0.00	0.00	-803.54	0.00	2 E
		-0.00	9755.35	-0.00	0.00	-803.54	0.00	2 E
		-0.00	7226.18	-0.00	0.00	-595.21	0.00	2 E
		-0.00	9755.35	-0.00	0.00	-803.54	0.00	2 E
70	2.50	-0.00	8518.43	-0.00	0.00	-1175.53	0.00	2 E
		-0.00	6309.95	-0.00	0.00	-870.77	0.00	2 E
		-0.00	8518.43	-0.00	0.00	-1175.53	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	8518.43	-0.00	0.00	-1175.53	0.00	2 E
		-0.00	6309.95	-0.00	0.00	-870.77	0.00	2 E
		-0.00	8518.43	-0.00	0.00	-1175.53	0.00	2 E
71	0.00	-0.00	8518.43	-0.00	0.00	-1175.53	0.00	2 E
		-0.00	6309.95	-0.00	0.00	-870.77	0.00	2 E
		-0.00	8518.43	-0.00	0.00	-1175.53	0.00	2 E
		-0.00	8518.43	-0.00	0.00	-1175.53	0.00	2 E
		-0.00	6309.95	-0.00	0.00	-870.77	0.00	2 E
		-0.00	8518.43	-0.00	0.00	-1175.53	0.00	2 E
71	1.25	-0.00	6816.51	-0.00	0.00	-1547.53	0.00	2 E
		-0.00	5049.27	-0.00	0.00	-1146.32	0.00	2 E
		-0.00	6816.51	-0.00	0.00	-1547.53	0.00	2 E
		-0.00	6816.51	-0.00	0.00	-1547.53	0.00	2 E
		-0.00	5049.27	-0.00	0.00	-1146.32	0.00	2 E
		-0.00	6816.51	-0.00	0.00	-1547.53	0.00	2 E
71	2.50	-0.00	4649.60	-0.00	0.00	-1919.53	0.00	2 E
		-0.00	3444.15	-0.00	0.00	-1421.87	0.00	2 E
		-0.00	4649.60	-0.00	0.00	-1919.53	0.00	2 E
		-0.00	4649.60	-0.00	0.00	-1919.53	0.00	2 E
		-0.00	3444.15	-0.00	0.00	-1421.87	0.00	2 E
		-0.00	4649.60	-0.00	0.00	-1919.53	0.00	2 E
72	0.00	-0.00	4649.60	-0.00	0.00	-1919.53	0.00	2 E
		-0.00	3444.15	-0.00	0.00	-1421.87	0.00	2 E
		-0.00	4649.60	-0.00	0.00	-1919.53	0.00	2 E
		-0.00	4649.60	-0.00	0.00	-1919.53	0.00	2 E
		-0.00	3444.15	-0.00	0.00	-1421.87	0.00	2 E
		-0.00	4649.60	-0.00	0.00	-1919.53	0.00	2 E
72	1.25	-0.00	2017.69	-0.00	0.00	-2291.52	0.00	2 E
		-0.00	1494.59	-0.00	0.00	-1697.42	0.00	2 E
		-0.00	2017.69	-0.00	0.00	-2291.52	0.00	2 E
		-0.00	2017.69	-0.00	0.00	-2291.52	0.00	2 E
		-0.00	1494.59	-0.00	0.00	-1697.42	0.00	2 E
		-0.00	2017.69	-0.00	0.00	-2291.52	0.00	2 E
72	2.50	-0.00	-1079.21	-0.00	0.00	-2663.52	0.00	2 E
		-0.00	-799.41	-0.00	0.00	-1972.98	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	-2663.52	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	-2663.52	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	-2663.52	0.00	2 E
		-0.00	-799.41	-0.00	0.00	-1972.98	0.00	2 E
73	0.00	-0.00	-1079.21	-0.00	0.00	-2663.52	0.00	2 E
		-0.00	-799.41	-0.00	0.00	-1972.98	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	-2663.52	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	-2663.52	0.00	2 E
		-0.00	-799.41	-0.00	0.00	-1972.98	0.00	2 E
73	1.25	-0.00	-4641.11	-0.00	0.00	-3035.52	0.00	2 E
		-0.00	-3437.86	-0.00	0.00	-2248.53	0.00	2 E
		-0.00	-4641.11	-0.00	0.00	-3035.52	0.00	2 E
		-0.00	-4641.11	-0.00	0.00	-3035.52	0.00	2 E
		-0.00	-4641.11	-0.00	0.00	-3035.52	0.00	2 E
		-0.00	-3437.86	-0.00	0.00	-2248.53	0.00	2 E
73	2.50	-0.00	-8668.00	-0.00	0.00	-3407.51	0.00	2 E
		-0.00	-6420.74	-0.00	0.00	-2524.09	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	-3407.51	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	-8668.00	-0.00	0.00	-3407.51	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	-3407.51	0.00	2 E
		-0.00	-6420.74	-0.00	0.00	-2524.09	0.00	2 E
74	0.00	-0.00	-8668.00	-0.00	0.00	-3407.51	0.00	2 E
		-0.00	-6420.74	-0.00	0.00	-2524.09	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	-3407.51	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	-3407.51	0.00	2 E
		-0.00	-6420.74	-0.00	0.00	-2524.09	0.00	2 E
74	1.25	-0.00	-13159.89	-0.00	0.00	-3779.51	0.00	2 E
		-0.00	-9748.07	-0.00	0.00	-2799.64	0.00	2 E
		-0.00	-13159.89	-0.00	0.00	-3779.51	0.00	2 E
		-0.00	-13159.89	-0.00	0.00	-3779.51	0.00	2 E
		-0.00	-13159.89	-0.00	0.00	-3779.51	0.00	2 E
		-0.00	-9748.07	-0.00	0.00	-2799.64	0.00	2 E
74	2.50	-0.00	-18116.78	-0.00	0.00	-4151.51	0.00	2 E
		-0.00	-13419.84	-0.00	0.00	-3075.19	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	-4151.51	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	-4151.51	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	-4151.51	0.00	2 E
		-0.00	-13419.84	-0.00	0.00	-3075.19	0.00	2 E
75	0.00	-0.00	-18116.78	-0.00	0.00	-4151.51	0.00	2 E
		-0.00	-13419.84	-0.00	0.00	-3075.19	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	-4151.51	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	-4151.51	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	-4151.51	0.00	2 E
		-0.00	-13419.84	-0.00	0.00	-3075.19	0.00	2 E
75	1.25	-0.00	-23538.66	-0.00	0.00	-4523.51	0.00	2 E
		-0.00	-17436.05	-0.00	0.00	-3350.74	0.00	2 E
		-0.00	-23538.66	-0.00	0.00	-4523.51	0.00	2 E
		-0.00	-23538.66	-0.00	0.00	-4523.51	0.00	2 E
		-0.00	-23538.66	-0.00	0.00	-4523.51	0.00	2 E
		-0.00	-17436.05	-0.00	0.00	-3350.74	0.00	2 E
75	2.50	-0.00	-29425.54	-0.00	0.00	-4895.50	0.00	2 E
		-0.00	-21796.70	-0.00	0.00	-3626.30	0.00	2 E
		-0.00	-29425.54	-0.00	0.00	-4895.50	0.00	2 E
		-0.00	-29425.54	-0.00	0.00	-4895.50	0.00	2 E
		-0.00	-29425.54	-0.00	0.00	-4895.50	0.00	2 E
		-0.00	-21796.70	-0.00	0.00	-3626.30	0.00	2 E
76	0.00	-0.00	-29425.54	-0.00	0.00	5356.75	0.00	2 E
		-0.00	-21796.70	-0.00	0.00	3967.97	0.00	2 E
		-0.00	-29425.54	-0.00	0.00	5356.75	0.00	2 E
		-0.00	-29425.54	-0.00	0.00	5356.75	0.00	2 E
		-0.00	-21796.70	-0.00	0.00	3967.97	0.00	2 E
		-0.00	-29425.54	-0.00	0.00	5356.75	0.00	2 E
76	1.80	-0.00	-20265.49	-0.00	0.00	4821.08	0.00	2 E
		-0.00	-15011.48	-0.00	0.00	3571.17	0.00	2 E
		-0.00	-20265.49	-0.00	0.00	4821.08	0.00	2 E
		-0.00	-20265.49	-0.00	0.00	4821.08	0.00	2 E
		-0.00	-15011.48	-0.00	0.00	3571.17	0.00	2 E
		-0.00	-20265.49	-0.00	0.00	4821.08	0.00	2 E
76	3.60	-0.00	-12069.66	-0.00	0.00	4285.40	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	-8940.49	-0.00	0.00	3174.37	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	4285.40	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	4285.40	0.00	2 E
		-0.00	-8940.49	-0.00	0.00	3174.37	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	4285.40	0.00	2 E
77	0.00	-0.00	-12069.66	-0.00	0.00	4285.40	0.00	2 E
		-0.00	-8940.49	-0.00	0.00	3174.37	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	4285.40	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	4285.40	0.00	2 E
		-0.00	-8940.49	-0.00	0.00	3174.37	0.00	2 E
77	1.80	-0.00	-4838.04	-0.00	0.00	3749.73	0.00	2 E
		-0.00	-3583.74	-0.00	0.00	2777.58	0.00	2 E
		-0.00	-4838.04	-0.00	0.00	3749.73	0.00	2 E
		-0.00	-4838.04	-0.00	0.00	3749.73	0.00	2 E
		-0.00	-3583.74	-0.00	0.00	2777.58	0.00	2 E
77	3.60	-0.00	-4838.04	-0.00	0.00	3749.73	0.00	2 E
		-0.00	1058.78	-0.00	0.00	2380.78	0.00	2 E
		-0.00	1429.36	-0.00	0.00	3214.05	0.00	2 E
		-0.00	1429.36	-0.00	0.00	3214.05	0.00	2 E
		-0.00	1429.36	-0.00	0.00	3214.05	0.00	2 E
		-0.00	1058.78	-0.00	0.00	2380.78	0.00	2 E
78	0.00	-0.00	1429.36	-0.00	0.00	3214.05	0.00	2 E
		-0.00	1058.78	-0.00	0.00	2380.78	0.00	2 E
		-0.00	1429.36	-0.00	0.00	3214.05	0.00	2 E
		-0.00	1429.36	-0.00	0.00	3214.05	0.00	2 E
		-0.00	1429.36	-0.00	0.00	3214.05	0.00	2 E
		-0.00	1058.78	-0.00	0.00	2380.78	0.00	2 E
78	1.80	-0.00	6732.54	-0.00	0.00	2678.38	0.00	2 E
		-0.00	4987.07	-0.00	0.00	1983.98	0.00	2 E
		-0.00	6732.54	-0.00	0.00	2678.38	0.00	2 E
		-0.00	6732.54	-0.00	0.00	2678.38	0.00	2 E
		-0.00	4987.07	-0.00	0.00	1983.98	0.00	2 E
78	3.60	-0.00	11071.51	-0.00	0.00	2142.70	0.00	2 E
		-0.00	8201.12	-0.00	0.00	1587.19	0.00	2 E
		-0.00	11071.51	-0.00	0.00	2142.70	0.00	2 E
		-0.00	11071.51	-0.00	0.00	2142.70	0.00	2 E
		-0.00	11071.51	-0.00	0.00	2142.70	0.00	2 E
		-0.00	8201.12	-0.00	0.00	1587.19	0.00	2 E
79	0.00	-0.00	11071.52	-0.00	0.00	2142.70	0.00	2 E
		-0.00	8201.12	-0.00	0.00	1587.19	0.00	2 E
		-0.00	11071.52	-0.00	0.00	2142.70	0.00	2 E
		-0.00	11071.52	-0.00	0.00	2142.70	0.00	2 E
		-0.00	8201.12	-0.00	0.00	1587.19	0.00	2 E
79	1.80	-0.00	14446.27	-0.00	0.00	1607.03	0.00	2 E
		-0.00	10700.94	-0.00	0.00	1190.39	0.00	2 E
		-0.00	14446.27	-0.00	0.00	1607.03	0.00	2 E
		-0.00	14446.27	-0.00	0.00	1607.03	0.00	2 E
		-0.00	14446.27	-0.00	0.00	1607.03	0.00	2 E
		-0.00	10700.94	-0.00	0.00	1190.39	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
79	3.60	-0.00	16856.81	-0.00	0.00	1071.35	0.00	2 E
		-0.00	12486.53	-0.00	0.00	793.59	0.00	2 E
		-0.00	16856.81	-0.00	0.00	1071.35	0.00	2 E
		-0.00	16856.81	-0.00	0.00	1071.35	0.00	2 E
		-0.00	16856.81	-0.00	0.00	1071.35	0.00	2 E
		-0.00	12486.53	-0.00	0.00	793.59	0.00	2 E
80	0.00	-0.00	16856.81	-0.00	0.00	1071.35	0.00	2 E
		-0.00	12486.53	-0.00	0.00	793.59	0.00	2 E
		-0.00	16856.81	-0.00	0.00	1071.35	0.00	2 E
		-0.00	16856.81	-0.00	0.00	1071.35	0.00	2 E
		-0.00	16856.81	-0.00	0.00	1071.35	0.00	2 E
		-0.00	12486.53	-0.00	0.00	793.59	0.00	2 E
80	1.80	-0.00	18303.13	-0.00	0.00	535.68	0.00	2 E
		-0.00	13557.88	-0.00	0.00	396.80	0.00	2 E
		-0.00	18303.13	-0.00	0.00	535.68	0.00	2 E
		-0.00	18303.13	-0.00	0.00	535.68	0.00	2 E
		-0.00	18303.13	-0.00	0.00	535.68	0.00	2 E
		-0.00	13557.88	-0.00	0.00	396.80	0.00	2 E
80	3.60	-0.00	18785.24	-0.00	0.00	0.00	0.00	2 E
		-0.00	13914.99	-0.00	0.00	0.00	0.00	2 E
		-0.00	18785.24	-0.00	0.00	0.00	0.00	2 E
		-0.00	18785.24	-0.00	0.00	0.00	0.00	2 E
		-0.00	18785.24	-0.00	0.00	0.00	0.00	2 E
		-0.00	13914.99	-0.00	0.00	0.00	0.00	2 E
81	0.00	-0.00	18785.24	-0.00	0.00	-0.00	0.00	2 E
		-0.00	13914.99	-0.00	0.00	-0.00	0.00	2 E
		-0.00	18785.24	-0.00	0.00	-0.00	0.00	2 E
		-0.00	18785.24	-0.00	0.00	-0.00	0.00	2 E
		-0.00	13914.99	-0.00	0.00	-0.00	0.00	2 E
		-0.00	18785.24	-0.00	0.00	-0.00	0.00	2 E
81	1.80	-0.00	18303.13	-0.00	0.00	-535.68	0.00	2 E
		-0.00	13557.88	-0.00	0.00	-396.80	0.00	2 E
		-0.00	18303.13	-0.00	0.00	-535.68	0.00	2 E
		-0.00	18303.13	-0.00	0.00	-535.68	0.00	2 E
		-0.00	13557.88	-0.00	0.00	-396.80	0.00	2 E
		-0.00	18303.13	-0.00	0.00	-535.68	0.00	2 E
81	3.60	-0.00	16856.81	-0.00	0.00	-1071.35	0.00	2 E
		-0.00	12486.53	-0.00	0.00	-793.59	0.00	2 E
		-0.00	16856.81	-0.00	0.00	-1071.35	0.00	2 E
		-0.00	16856.81	-0.00	0.00	-1071.35	0.00	2 E
		-0.00	12486.53	-0.00	0.00	-793.59	0.00	2 E
82	0.00	-0.00	16856.81	-0.00	0.00	-1071.35	0.00	2 E
		-0.00	12486.53	-0.00	0.00	-793.59	0.00	2 E
		-0.00	16856.81	-0.00	0.00	-1071.35	0.00	2 E
		-0.00	16856.81	-0.00	0.00	-1071.35	0.00	2 E
		-0.00	12486.53	-0.00	0.00	-793.59	0.00	2 E
		-0.00	16856.81	-0.00	0.00	-1071.35	0.00	2 E
82	1.80	-0.00	14446.27	-0.00	0.00	-1607.03	0.00	2 E
		-0.00	10700.94	-0.00	0.00	-1190.39	0.00	2 E
		-0.00	14446.27	-0.00	0.00	-1607.03	0.00	2 E
		-0.00	14446.27	-0.00	0.00	-1607.03	0.00	2 E
		-0.00	10700.94	-0.00	0.00	-1190.39	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	14446.27	-0.00	0.00	-1607.03	0.00	2 E
82	3.60	-0.00	11071.52	-0.00	0.00	-2142.70	0.00	2 E
		-0.00	8201.12	-0.00	0.00	-1587.19	0.00	2 E
		-0.00	11071.52	-0.00	0.00	-2142.70	0.00	2 E
		-0.00	11071.52	-0.00	0.00	-2142.70	0.00	2 E
		-0.00	8201.12	-0.00	0.00	-1587.19	0.00	2 E
83	0.00	-0.00	11071.51	-0.00	0.00	-2142.70	0.00	2 E
		-0.00	8201.12	-0.00	0.00	-1587.19	0.00	2 E
		-0.00	11071.51	-0.00	0.00	-2142.70	0.00	2 E
		-0.00	11071.51	-0.00	0.00	-2142.70	0.00	2 E
		-0.00	8201.12	-0.00	0.00	-1587.19	0.00	2 E
83	1.80	-0.00	11071.51	-0.00	0.00	-2142.70	0.00	2 E
		-0.00	6732.54	-0.00	0.00	-2678.38	0.00	2 E
		-0.00	4987.07	-0.00	0.00	-1983.98	0.00	2 E
		-0.00	6732.54	-0.00	0.00	-2678.38	0.00	2 E
		-0.00	6732.54	-0.00	0.00	-2678.38	0.00	2 E
		-0.00	4987.07	-0.00	0.00	-1983.98	0.00	2 E
83	3.60	-0.00	6732.54	-0.00	0.00	-2678.38	0.00	2 E
		-0.00	1429.36	-0.00	0.00	-3214.05	0.00	2 E
		-0.00	1058.78	-0.00	0.00	-2380.78	0.00	2 E
		-0.00	1429.36	-0.00	0.00	-3214.05	0.00	2 E
		-0.00	1429.36	-0.00	0.00	-3214.05	0.00	2 E
		-0.00	1058.78	-0.00	0.00	-2380.78	0.00	2 E
84	0.00	-0.00	1429.36	-0.00	0.00	-3214.05	0.00	2 E
		-0.00	1058.78	-0.00	0.00	-2380.78	0.00	2 E
		-0.00	1429.36	-0.00	0.00	-3214.05	0.00	2 E
		-0.00	1429.36	-0.00	0.00	-3214.05	0.00	2 E
		-0.00	1058.78	-0.00	0.00	-2380.78	0.00	2 E
		-0.00	1429.36	-0.00	0.00	-3214.05	0.00	2 E
84	1.80	-0.00	-4838.04	-0.00	0.00	-3749.73	0.00	2 E
		-0.00	-3583.74	-0.00	0.00	-2777.58	0.00	2 E
		-0.00	-4838.04	-0.00	0.00	-3749.73	0.00	2 E
		-0.00	-4838.04	-0.00	0.00	-3749.73	0.00	2 E
		-0.00	-4838.04	-0.00	0.00	-3749.73	0.00	2 E
		-0.00	-3583.74	-0.00	0.00	-2777.58	0.00	2 E
84	3.60	-0.00	-12069.66	-0.00	0.00	-4285.40	0.00	2 E
		-0.00	-8940.49	-0.00	0.00	-3174.37	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	-4285.40	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	-4285.40	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	-4285.40	0.00	2 E
		-0.00	-8940.49	-0.00	0.00	-3174.37	0.00	2 E
85	0.00	-0.00	-12069.66	-0.00	0.00	-4285.40	0.00	2 E
		-0.00	-8940.49	-0.00	0.00	-3174.37	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	-4285.40	0.00	2 E
		-0.00	-12069.66	-0.00	0.00	-4285.40	0.00	2 E
		-0.00	-8940.49	-0.00	0.00	-3174.37	0.00	2 E
85	1.80	-0.00	-20265.49	-0.00	0.00	-4821.08	0.00	2 E
		-0.00	-15011.48	-0.00	0.00	-3571.17	0.00	2 E
		-0.00	-20265.49	-0.00	0.00	-4821.08	0.00	2 E
		-0.00	-20265.49	-0.00	0.00	-4821.08	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	-20265.49	-0.00	0.00	-4821.08	0.00	2 E
		-0.00	-15011.48	-0.00	0.00	-3571.17	0.00	2 E
85	3.60	-0.00	-20425.54	-0.00	0.00	-5356.75	0.00	2 E
		-0.00	-21796.70	-0.00	0.00	-3967.97	0.00	2 E
		-0.00	-20425.54	-0.00	0.00	-5356.75	0.00	2 E
		-0.00	-20425.54	-0.00	0.00	-5356.75	0.00	2 E
		-0.00	-20425.54	-0.00	0.00	-5356.75	0.00	2 E
		-0.00	-21796.70	-0.00	0.00	-3967.97	0.00	2 E
86	0.00	-0.00	-20425.54	-0.00	0.00	4895.50	0.00	2 E
		-0.00	-21796.70	-0.00	0.00	3626.30	0.00	2 E
		-0.00	-20425.54	-0.00	0.00	4895.50	0.00	2 E
		-0.00	-20425.54	-0.00	0.00	4895.50	0.00	2 E
		-0.00	-21796.70	-0.00	0.00	3626.30	0.00	2 E
		-0.00	-20425.54	-0.00	0.00	4895.50	0.00	2 E
86	1.25	-0.00	-23538.66	-0.00	0.00	4523.51	0.00	2 E
		-0.00	-17436.05	-0.00	0.00	3350.74	0.00	2 E
		-0.00	-23538.66	-0.00	0.00	4523.51	0.00	2 E
		-0.00	-23538.66	-0.00	0.00	4523.51	0.00	2 E
		-0.00	-17436.05	-0.00	0.00	3350.74	0.00	2 E
		-0.00	-23538.66	-0.00	0.00	4523.51	0.00	2 E
86	2.50	-0.00	-18116.78	-0.00	0.00	4151.51	0.00	2 E
		-0.00	-13419.84	-0.00	0.00	3075.19	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	4151.51	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	4151.51	0.00	2 E
		-0.00	-13419.84	-0.00	0.00	3075.19	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	4151.51	0.00	2 E
87	0.00	-0.00	-18116.78	-0.00	0.00	4151.51	0.00	2 E
		-0.00	-13419.84	-0.00	0.00	3075.19	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	4151.51	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	4151.51	0.00	2 E
		-0.00	-13419.84	-0.00	0.00	3075.19	0.00	2 E
		-0.00	-18116.78	-0.00	0.00	4151.51	0.00	2 E
87	1.25	-0.00	-13159.89	-0.00	0.00	3779.51	0.00	2 E
		-0.00	-9748.07	-0.00	0.00	2799.64	0.00	2 E
		-0.00	-13159.89	-0.00	0.00	3779.51	0.00	2 E
		-0.00	-13159.89	-0.00	0.00	3779.51	0.00	2 E
		-0.00	-9748.07	-0.00	0.00	2799.64	0.00	2 E
		-0.00	-13159.89	-0.00	0.00	3779.51	0.00	2 E
87	2.50	-0.00	-8668.00	-0.00	0.00	3407.51	0.00	2 E
		-0.00	-6420.74	-0.00	0.00	2524.09	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	3407.51	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	3407.51	0.00	2 E
		-0.00	-6420.74	-0.00	0.00	2524.09	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	3407.51	0.00	2 E
88	0.00	-0.00	-8668.00	-0.00	0.00	3407.51	0.00	2 E
		-0.00	-6420.74	-0.00	0.00	2524.09	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	3407.51	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	3407.51	0.00	2 E
		-0.00	-6420.74	-0.00	0.00	2524.09	0.00	2 E
		-0.00	-8668.00	-0.00	0.00	3407.51	0.00	2 E
88	1.25	-0.00	-4641.11	-0.00	0.00	3035.52	0.00	2 E
		-0.00	-3437.86	-0.00	0.00	2248.53	0.00	2 E
		-0.00	-4641.11	-0.00	0.00	3035.52	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	-4641.11	-0.00	0.00	3035.52	0.00	2 E
		-0.00	-3437.86	-0.00	0.00	2248.53	0.00	2 E
88	2.50	-0.00	-1079.21	-0.00	0.00	2663.52	0.00	2 E
		-0.00	-799.41	-0.00	0.00	1972.98	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	2663.52	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	2663.52	0.00	2 E
		-0.00	-799.41	-0.00	0.00	1972.98	0.00	2 E
89	0.00	-0.00	-1079.21	-0.00	0.00	2663.52	0.00	2 E
		-0.00	-799.41	-0.00	0.00	1972.98	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	2663.52	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	2663.52	0.00	2 E
		-0.00	-799.41	-0.00	0.00	1972.98	0.00	2 E
		-0.00	-1079.21	-0.00	0.00	2663.52	0.00	2 E
89	1.25	-0.00	2017.69	-0.00	0.00	2291.52	0.00	2 E
		-0.00	1494.59	-0.00	0.00	1697.42	0.00	2 E
		-0.00	2017.69	-0.00	0.00	2291.52	0.00	2 E
		-0.00	2017.69	-0.00	0.00	2291.52	0.00	2 E
		-0.00	2017.69	-0.00	0.00	2291.52	0.00	2 E
		-0.00	1494.59	-0.00	0.00	1697.42	0.00	2 E
89	2.50	-0.00	4649.60	-0.00	0.00	1919.53	0.00	2 E
		-0.00	3444.15	-0.00	0.00	1421.87	0.00	2 E
		-0.00	4649.60	-0.00	0.00	1919.53	0.00	2 E
		-0.00	4649.60	-0.00	0.00	1919.53	0.00	2 E
		-0.00	4649.60	-0.00	0.00	1919.53	0.00	2 E
		-0.00	3444.15	-0.00	0.00	1421.87	0.00	2 E
90	0.00	-0.00	4649.60	-0.00	0.00	1919.53	0.00	2 E
		-0.00	3444.15	-0.00	0.00	1421.87	0.00	2 E
		-0.00	4649.60	-0.00	0.00	1919.53	0.00	2 E
		-0.00	4649.60	-0.00	0.00	1919.53	0.00	2 E
		-0.00	4649.60	-0.00	0.00	1919.53	0.00	2 E
		-0.00	3444.15	-0.00	0.00	1421.87	0.00	2 E
90	1.25	-0.00	6816.51	-0.00	0.00	1547.53	0.00	2 E
		-0.00	5049.27	-0.00	0.00	1146.32	0.00	2 E
		-0.00	6816.51	-0.00	0.00	1547.53	0.00	2 E
		-0.00	6816.51	-0.00	0.00	1547.53	0.00	2 E
		-0.00	6816.51	-0.00	0.00	1547.53	0.00	2 E
		-0.00	5049.27	-0.00	0.00	1146.32	0.00	2 E
90	2.50	-0.00	8518.43	-0.00	0.00	1175.53	0.00	2 E
		-0.00	6309.95	-0.00	0.00	870.77	0.00	2 E
		-0.00	8518.43	-0.00	0.00	1175.53	0.00	2 E
		-0.00	8518.43	-0.00	0.00	1175.53	0.00	2 E
		-0.00	8518.43	-0.00	0.00	1175.53	0.00	2 E
		-0.00	6309.95	-0.00	0.00	870.77	0.00	2 E
91	0.00	-0.00	8518.43	-0.00	0.00	1175.53	0.00	2 E
		-0.00	6309.95	-0.00	0.00	870.77	0.00	2 E
		-0.00	8518.43	-0.00	0.00	1175.53	0.00	2 E
		-0.00	8518.43	-0.00	0.00	1175.53	0.00	2 E
		-0.00	8518.43	-0.00	0.00	1175.53	0.00	2 E
		-0.00	6309.95	-0.00	0.00	870.77	0.00	2 E
91	1.25	-0.00	9755.35	-0.00	0.00	803.54	0.00	2 E
		-0.00	7226.18	-0.00	0.00	595.21	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	9755.35	-0.00	0.00	803.54	0.00	2 E
		-0.00	9755.35	-0.00	0.00	803.54	0.00	2 E
		-0.00	9755.35	-0.00	0.00	803.54	0.00	2 E
		-0.00	7226.18	-0.00	0.00	595.21	0.00	2 E
91	2.50	-0.00	10527.27	-0.00	0.00	431.54	0.00	2 E
		-0.00	7797.98	-0.00	0.00	319.66	0.00	2 E
		-0.00	10527.27	-0.00	0.00	431.54	0.00	2 E
		-0.00	10527.27	-0.00	0.00	431.54	0.00	2 E
		-0.00	10527.27	-0.00	0.00	431.54	0.00	2 E
		-0.00	7797.98	-0.00	0.00	319.66	0.00	2 E
92	0.00	-0.00	10527.27	-0.00	0.00	431.54	0.00	2 E
		-0.00	7797.98	-0.00	0.00	319.66	0.00	2 E
		-0.00	10527.27	-0.00	0.00	431.54	0.00	2 E
		-0.00	10527.27	-0.00	0.00	431.54	0.00	2 E
		-0.00	10527.27	-0.00	0.00	431.54	0.00	2 E
		-0.00	7797.98	-0.00	0.00	319.66	0.00	2 E
92	1.25	-0.00	10834.20	-0.00	0.00	59.54	0.00	2 E
		-0.00	8025.33	-0.00	0.00	44.11	0.00	2 E
		-0.00	10834.20	-0.00	0.00	59.54	0.00	2 E
		-0.00	10834.20	-0.00	0.00	59.54	0.00	2 E
		-0.00	10834.20	-0.00	0.00	59.54	0.00	2 E
		-0.00	8025.33	-0.00	0.00	44.11	0.00	2 E
92	2.50	-0.00	10676.13	-0.00	0.00	-312.45	0.00	2 E
		-0.00	7908.24	-0.00	0.00	-231.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	-312.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	-312.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	-312.45	0.00	2 E
		-0.00	7908.24	-0.00	0.00	-231.45	0.00	2 E
93	0.00	-0.00	10676.13	-0.00	0.00	-312.45	0.00	2 E
		-0.00	7908.24	-0.00	0.00	-231.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	-312.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	-312.45	0.00	2 E
		-0.00	7908.24	-0.00	0.00	-231.45	0.00	2 E
		-0.00	10676.13	-0.00	0.00	-312.45	0.00	2 E
93	1.25	-0.00	10053.06	-0.00	0.00	-684.45	0.00	2 E
		-0.00	7446.71	-0.00	0.00	-507.00	0.00	2 E
		-0.00	10053.06	-0.00	0.00	-684.45	0.00	2 E
		-0.00	10053.06	-0.00	0.00	-684.45	0.00	2 E
		-0.00	7446.71	-0.00	0.00	-507.00	0.00	2 E
		-0.00	10053.06	-0.00	0.00	-684.45	0.00	2 E
93	2.50	-0.00	8965.00	-0.00	0.00	-1056.45	0.00	2 E
		-0.00	6640.74	-0.00	0.00	-782.55	0.00	2 E
		-0.00	8965.00	-0.00	0.00	-1056.45	0.00	2 E
		-0.00	8965.00	-0.00	0.00	-1056.45	0.00	2 E
		-0.00	6640.74	-0.00	0.00	-782.55	0.00	2 E
		-0.00	8965.00	-0.00	0.00	-1056.45	0.00	2 E
94	0.00	-0.00	8965.00	-0.00	0.00	-1056.45	0.00	2 E
		-0.00	6640.74	-0.00	0.00	-782.55	0.00	2 E
		-0.00	8965.00	-0.00	0.00	-1056.45	0.00	2 E
		-0.00	8965.00	-0.00	0.00	-1056.45	0.00	2 E
		-0.00	6640.74	-0.00	0.00	-782.55	0.00	2 E
		-0.00	8965.00	-0.00	0.00	-1056.45	0.00	2 E
94	1.25	-0.00	7411.95	-0.00	0.00	-1428.44	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	5490.33	-0.00	0.00	-1058.11	0.00	2 E
		-0.00	7411.95	-0.00	0.00	-1428.44	0.00	2 E
		-0.00	7411.95	-0.00	0.00	-1428.44	0.00	2 E
		-0.00	5490.33	-0.00	0.00	-1058.11	0.00	2 E
		-0.00	7411.95	-0.00	0.00	-1428.44	0.00	2 E
94	2.50	-0.00	5393.89	-0.00	0.00	-1800.44	0.00	2 E
		-0.00	3995.48	-0.00	0.00	-1333.66	0.00	2 E
		-0.00	5393.89	-0.00	0.00	-1800.44	0.00	2 E
		-0.00	5393.89	-0.00	0.00	-1800.44	0.00	2 E
		-0.00	3995.48	-0.00	0.00	-1333.66	0.00	2 E
		-0.00	5393.89	-0.00	0.00	-1800.44	0.00	2 E
95	0.00	-0.00	5393.89	-0.00	0.00	-1800.44	0.00	2 E
		-0.00	3995.48	-0.00	0.00	-1333.66	0.00	2 E
		-0.00	5393.89	-0.00	0.00	-1800.44	0.00	2 E
		-0.00	5393.89	-0.00	0.00	-1800.44	0.00	2 E
		-0.00	3995.48	-0.00	0.00	-1333.66	0.00	2 E
		-0.00	5393.89	-0.00	0.00	-1800.44	0.00	2 E
95	1.25	-0.00	2910.85	-0.00	0.00	-2172.44	0.00	2 E
		-0.00	2156.18	-0.00	0.00	-1609.21	0.00	2 E
		-0.00	2910.85	-0.00	0.00	-2172.44	0.00	2 E
		-0.00	2910.85	-0.00	0.00	-2172.44	0.00	2 E
		-0.00	2156.18	-0.00	0.00	-1609.21	0.00	2 E
		-0.00	2910.85	-0.00	0.00	-2172.44	0.00	2 E
95	2.50	-0.00	-37.20	-0.00	0.00	-2544.43	0.00	2 E
		-0.00	-27.56	-0.00	0.00	-1884.77	0.00	2 E
		-0.00	-37.20	-0.00	0.00	-2544.43	0.00	2 E
		-0.00	-37.20	-0.00	0.00	-2544.43	0.00	2 E
		-0.00	-37.20	-0.00	0.00	-2544.43	0.00	2 E
		-0.00	-27.56	-0.00	0.00	-1884.77	0.00	2 E
96	0.00	-0.00	-37.20	-0.00	0.00	148.80	-0.00	2 E
		-0.00	-27.56	-0.00	0.00	110.22	-0.00	2 E
		-0.00	-37.20	-0.00	0.00	148.80	-0.00	2 E
		-0.00	-37.20	-0.00	0.00	148.80	-0.00	2 E
		-0.00	-27.56	-0.00	0.00	110.22	-0.00	2 E
		-0.00	-37.20	-0.00	0.00	148.80	-0.00	2 E
96	0.25	-0.00	-9.30	-0.00	0.00	74.40	-0.00	2 E
		-0.00	-6.89	-0.00	0.00	55.11	-0.00	2 E
		-0.00	-9.30	-0.00	0.00	74.40	-0.00	2 E
		-0.00	-9.30	-0.00	0.00	74.40	-0.00	2 E
		-0.00	-6.89	-0.00	0.00	55.11	-0.00	2 E
		-0.00	-9.30	-0.00	0.00	74.40	-0.00	2 E
96	0.50	-0.00	-0.00	-0.00	0.00	0.00	-0.00	2 E
		-0.00	-0.00	-0.00	0.00	0.00	-0.00	2 E
		-0.00	-0.00	-0.00	0.00	0.00	-0.00	2 E
		-0.00	-0.00	-0.00	0.00	0.00	-0.00	2 E
		-0.00	-0.00	-0.00	0.00	0.00	-0.00	2 E

Tendons restored from STATIK-3:

	bar	distance	tendon	force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
			1	46440.00	0.095	0.70	6.668	0.152	0.0	2.2	0.0	2.20
>	73	2.50										
			1	46250.00	0.108	0.70	6.660	0.142	0.0	2.1	0.0	2.07
>	74	0.00										
			1	46250.00	0.108	0.70	6.660	0.142	0.0	2.1	0.0	2.07
>	74	1.25										
			1	46050.00	0.121	0.70	6.632	0.159	0.0	2.3	0.0	2.32
>	74	2.50										
			1	45860.00	0.135	0.70	6.604	0.212	0.0	3.1	0.0	3.06
>	75	0.00										
			1	45860.00	0.135	0.70	6.604	0.212	0.0	3.1	0.0	3.06
>	75	1.25										
			1	45170.00	0.068	0.68	6.505	0.278	0.0	4.0	0.0	4.01
>	75	2.50										
			1	44490.00	0.000	0.67	6.407	0.304	0.0	4.4	0.0	4.43
>	76	0.00										
			1	44490.00	-0.000	0.67	6.407	0.304	0.0	4.4	0.0	4.43
>	76	1.80										
			1	43860.00	-0.060	0.66	6.316	0.267	0.0	4.0	0.0	3.98
>	76	3.60										
			1	43240.00	-0.120	0.66	6.227	0.186	0.0	2.9	0.0	2.86
>	77	0.00										
			1	43240.00	-0.120	0.66	6.227	0.186	0.0	2.9	0.0	2.86
>	77	1.80										
			1	43020.00	-0.105	0.65	6.195	0.134	0.0	2.1	0.0	2.10
>	77	3.60										
			1	42800.00	-0.090	0.65	6.164	0.129	0.0	2.0	0.0	2.03
>	78	0.00										
			1	42800.00	-0.090	0.65	6.164	0.129	0.0	2.0	0.0	2.03
>	78	1.80										
			1	42580.00	-0.075	0.65	6.132	0.153	0.0	2.4	0.0	2.41
>	78	3.60										
			1	42360.00	-0.060	0.64	6.100	0.192	0.0	3.0	0.0	3.01
>	79	0.00										
			1	42360.00	-0.060	0.64	6.100	0.192	0.0	3.0	0.0	3.01
>	79	1.80										
			1	42140.00	-0.045	0.64	6.069	0.234	0.0	3.6	0.0	3.64
>	79	3.60										
			1	41920.00	-0.030	0.64	6.037	0.269	0.0	4.2	0.0	4.17
>	80	0.00										
			1	41920.00	-0.030	0.64	6.037	0.269	0.0	4.2	0.0	4.17
>	80	1.80										
			1	41700.00	-0.015	0.63	6.005	0.291	0.0	4.5	0.0	4.52
>	80	3.60										
			1	41480.00	-0.000	0.63	5.974	0.298	0.0	4.6	0.0	4.64
>	81	0.00										
			1	41480.00	0.000	0.63	5.974	0.298	0.0	4.6	0.0	4.64
>	81	1.80										
			1	41700.00	0.015	0.63	6.005	0.291	0.0	4.5	0.0	4.52
>	81	3.60										
			1	41920.00	0.030	0.64	6.037	0.269	0.0	4.2	0.0	4.17
>	82	0.00										

Tendons restored from STATIK-3:

	bar	distance	tendon	force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
			1	41920.00	0.030	0.64	6.037	0.269	0.0	4.2	0.0	4.17
>	82	1.80										
			1	42140.00	0.045	0.64	6.069	0.234	0.0	3.6	0.0	3.64
>	82	3.60										
			1	42360.00	0.060	0.64	6.100	0.192	0.0	3.0	0.0	3.01
>	83	0.00										
			1	42360.00	0.060	0.64	6.100	0.192	0.0	3.0	0.0	3.01
>	83	1.80										
			1	42580.00	0.075	0.65	6.132	0.153	0.0	2.4	0.0	2.41
>	83	3.60										
			1	42800.00	0.090	0.65	6.164	0.129	0.0	2.0	0.0	2.03
>	84	0.00										
			1	42800.00	0.090	0.65	6.164	0.129	0.0	2.0	0.0	2.03
>	84	1.80										
			1	43020.00	0.105	0.65	6.195	0.134	0.0	2.1	0.0	2.10
>	84	3.60										
			1	43240.00	0.120	0.66	6.227	0.186	0.0	2.9	0.0	2.86
>	85	0.00										
			1	43240.00	0.120	0.66	6.227	0.186	0.0	2.9	0.0	2.86
>	85	1.80										
			1	43860.00	0.060	0.66	6.316	0.267	0.0	4.0	0.0	3.98
>	85	3.60										
			1	44490.00	0.000	0.67	6.407	0.304	0.0	4.4	0.0	4.43
>	86	0.00										
			1	44490.00	-0.000	0.67	6.407	0.304	0.0	4.4	0.0	4.43
>	86	1.25										
			1	45170.00	-0.068	0.68	6.505	0.278	0.0	4.0	0.0	4.01
>	86	2.50										
			1	45860.00	-0.135	0.70	6.604	0.212	0.0	3.1	0.0	3.06
>	87	0.00										
			1	45860.00	-0.135	0.70	6.604	0.212	0.0	3.1	0.0	3.06
>	87	1.25										
			1	46050.00	-0.121	0.70	6.632	0.159	0.0	2.3	0.0	2.32
>	87	2.50										
			1	46250.00	-0.108	0.70	6.660	0.142	0.0	2.1	0.0	2.07
>	88	0.00										
			1	46250.00	-0.108	0.70	6.660	0.142	0.0	2.1	0.0	2.07
>	88	1.25										
			1	46440.00	-0.095	0.70	6.688	0.152	0.0	2.2	0.0	2.20
>	88	2.50										
			1	46640.00	-0.081	0.71	6.717	0.180	0.0	2.6	0.0	2.57
>	89	0.00										
			1	46640.00	-0.081	0.71	6.717	0.180	0.0	2.6	0.0	2.57
>	89	1.25										
			1	46840.00	-0.068	0.71	6.745	0.218	0.0	3.1	0.0	3.08
>	89	2.50										
			1	47040.00	-0.054	0.71	6.774	0.260	0.0	3.6	0.0	3.63
>	90	0.00										
			1	47040.00	-0.054	0.71	6.774	0.260	0.0	3.6	0.0	3.63
>	90	1.25										
			1	47130.00	-0.041	0.71	6.787	0.299	0.0	4.1	0.0	4.14
>	90	2.50										

Tendons restored from STATIK-3:

	bar	distance	tendon	force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
			1	47030.00	-0.027	0.71	6.773	0.331	0.0	4.6	0.0	4.56
>	91	0.00										
			1	47030.00	-0.027	0.71	6.773	0.331	0.0	4.6	0.0	4.56
>	91	1.25										
			1	46930.00	-0.014	0.71	6.758	0.354	0.0	4.9	0.0	4.85
>	91	2.50										
			1	46820.00	-0.000	0.71	6.743	0.364	0.0	5.0	0.0	5.00
>	92	0.00										
			1	46820.00	0.000	0.71	6.743	0.364	0.0	5.0	0.0	5.00
>	92	1.25										
			1	46620.00	0.014	0.71	6.714	0.361	0.0	5.0	0.0	4.97
>	92	2.50										
			1	46420.00	0.028	0.70	6.685	0.345	0.0	4.8	0.0	4.79
>	93	0.00										
			1	46420.00	0.028	0.70	6.685	0.345	0.0	4.8	0.0	4.79
>	93	1.25										
			1	46230.00	0.042	0.70	6.658	0.318	0.0	4.5	0.0	4.46
>	93	2.50										
			1	46030.00	0.056	0.70	6.629	0.283	0.0	4.0	0.0	4.01
>	94	0.00										
			1	46030.00	0.056	0.70	6.629	0.283	0.0	4.0	0.0	4.01
>	94	1.25										
			1	45830.00	0.070	0.69	6.600	0.243	0.0	3.5	0.0	3.48
>	94	2.50										
			1	45630.00	0.084	0.69	6.571	0.203	0.0	2.9	0.0	2.95
>	95	0.00										
			1	45630.00	0.084	0.69	6.571	0.203	0.0	2.9	0.0	2.95
>	95	1.25										
			1	45440.00	0.098	0.69	6.544	0.169	0.0	2.5	0.0	2.49
>	95	2.50										
			1	45330.00	0.101	0.69	6.528	0.149	0.0	2.2	0.0	2.21
>	96	0.00										
			1	45330.00	0.101	0.69	6.528	0.149	0.0	2.2	0.0	2.21
>	96	0.25										
			1	45320.00	0.101	0.69	6.526	0.147	0.0	2.2	0.0	2.18
>	96	0.50										
			1	45310.00	0.101	0.69	6.525	0.146	0.0	2.2	0.0	2.17

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
		-45076.12	-856.45	0.00	-4597.76
		-44119.89	-838.28	0.00	-4500.23
65	0.25	-45086.07	-2006.33	0.00	-4598.78
		-44123.40	-1963.49	0.00	-4500.58
65	0.50	-45096.02	-3156.27	0.00	-4599.79
		-44121.91	-3088.09	0.00	-4500.43
66	0.00	-45096.02	-3156.27	0.00	-4599.79
		-44122.47	-3088.13	0.00	-4500.49
66	1.25	-45223.09	-8899.90	0.00	-4434.58
		-44126.77	-8684.15	0.00	-4327.07
66	2.50	-45469.67	-14122.88	0.00	-3821.73

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
		-44168.69	-13718.80	0.00	-3712.38
67	0.00	-45469.67	-14122.88	0.00	-3821.73
		-44168.69	-13718.80	0.00	-3712.38
67	1.25	-45718.00	-18602.65	0.00	-3202.09
		-44181.33	-17977.38	0.00	-3094.46
67	2.50	-45957.92	-22321.76	0.00	-2575.02
		-44190.69	-21463.42	0.00	-2476.00
68	0.00	-45957.92	-22321.76	0.00	-2575.02
		-44190.69	-21463.42	0.00	-2476.00
68	1.25	-46189.22	-25265.50	0.00	-1941.33
		-44223.18	-24190.08	0.00	-1858.70
68	2.50	-46401.79	-27414.18	0.00	-1300.18
		-44287.59	-26165.11	0.00	-1240.94
69	0.00	-46401.79	-27414.18	0.00	-1300.18
		-44287.59	-26165.11	0.00	-1240.94
69	1.25	-46615.43	-28761.72	0.00	-653.08
		-44414.93	-27404.01	0.00	-622.25
69	2.50	-46820.00	-29299.96	0.00	-0.00
		-44601.10	-27911.37	0.00	-0.00
70	0.00	-46820.00	-29299.96	0.00	0.00
		-44601.10	-27911.37	0.00	0.00
70	1.25	-46925.66	-28967.21	0.00	632.19
		-44762.13	-27631.66	0.00	608.76
70	2.50	-47012.61	-27822.06	0.00	1278.74
		-44969.61	-26613.02	0.00	1223.17
71	0.00	-47012.61	-27822.06	0.00	1278.74
		-44969.61	-26613.02	0.00	1223.17
71	1.25	-47090.82	-25866.99	0.00	1921.31
		-45224.62	-24841.88	0.00	1845.16
71	2.50	-46970.55	-23006.18	0.00	2555.20
		-45330.41	-22202.83	0.00	2465.97
72	0.00	-46970.55	-23006.18	0.00	2555.20
		-45330.41	-22202.83	0.00	2465.97
72	1.25	-46732.08	-19314.37	0.00	3177.78
		-45338.58	-18738.43	0.00	3083.02
72	2.50	-46485.49	-14866.06	0.00	3793.22
		-45321.59	-14493.84	0.00	3698.24
73	0.00	-46485.49	-14866.06	0.00	3793.22
		-45321.59	-14493.84	0.00	3698.24
73	1.25	-46230.98	-9676.14	0.00	4401.19
		-45237.47	-9468.20	0.00	4306.61
73	2.50	-45978.67	-3761.05	0.00	5002.48
		-45045.95	-3684.76	0.00	4901.00
74	0.00	-45978.67	-3761.05	0.00	5002.48
		-45045.95	-3684.76	0.00	4901.00
74	1.25	-45708.87	2865.95	0.00	5594.77
		-44674.38	2801.08	0.00	5468.14
74	2.50	-45441.68	10186.02	0.00	6180.07
		-44094.67	9886.02	0.00	5996.87
75	0.00	-45441.68	10188.02	0.00	6180.07
		-44094.67	9886.02	0.00	5996.87
75	1.25	-45065.93	15849.69	0.00	3064.48
		-43331.88	15239.82	0.00	2946.57

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
75	2.50	-44490.00	17537.96	0.00	0.00
		-42607.60	16795.91	0.00	0.00
76	0.00	-44490.00	17537.96	0.00	-0.00
		-42608.21	16796.15	0.00	-0.00
76	1.80	-43779.79	14872.00	0.00	-2651.30
		-42109.45	14304.58	0.00	-2550.15
76	3.60	-42926.38	7563.63	0.00	-5198.39
		-41733.78	7353.49	0.00	-5053.96
77	0.00	-42926.38	7563.63	0.00	-5198.39
		-41733.78	7353.49	0.00	-5053.96
77	1.80	-42780.33	-1205.55	0.00	-4534.72
		-41901.39	-1180.78	0.00	-4441.55
77	3.60	-42624.53	-8750.82	0.00	-3871.59
		-41776.52	-8576.72	0.00	-3794.56
78	0.00	-42624.53	-8750.82	0.00	-3871.59
		-41776.52	-8576.72	0.00	-3794.56
78	1.80	-42458.55	-15081.26	0.00	-3213.69
		-41460.65	-14726.82	0.00	-3138.16
78	3.60	-42282.54	-20202.60	0.00	-2560.63
		-41050.54	-19613.95	0.00	-2486.02
79	0.00	-42282.54	-20202.60	0.00	-2560.63
		-41050.54	-19613.95	0.00	-2486.02
79	1.80	-42096.60	-24129.77	0.00	-1912.03
		-40621.82	-23284.43	0.00	-1845.04
79	3.60	-41900.80	-26870.98	0.00	-1268.76
		-40226.73	-25797.40	0.00	-1218.07
80	0.00	-41900.80	-26870.98	0.00	-1268.76
		-40226.73	-25797.40	0.00	-1218.07
80	1.80	-41695.22	-28444.48	0.00	-631.27
		-39896.43	-27217.34	0.00	-604.03
80	3.60	-41480.00	-28861.78	0.00	-0.00
		-39647.03	-27586.40	0.00	-0.00
81	0.00	-41480.00	-28861.78	0.00	0.00
		-39647.03	-27586.40	0.00	0.00
81	1.80	-41695.22	-28444.48	0.00	631.27
		-39896.43	-27217.34	0.00	604.03
81	3.60	-41900.80	-26870.98	0.00	1268.76
		-40226.73	-25797.40	0.00	1218.07
82	0.00	-41900.80	-26870.98	0.00	1268.76
		-40226.73	-25797.40	0.00	1218.07
82	1.80	-42096.60	-24129.77	0.00	1912.03
		-40621.82	-23284.43	0.00	1845.04
82	3.60	-42282.54	-20202.60	0.00	2560.63
		-41050.54	-19613.95	0.00	2486.02
83	0.00	-42282.54	-20202.60	0.00	2560.63
		-41050.54	-19613.95	0.00	2486.02
83	1.80	-42458.55	-15081.28	0.00	3213.69
		-41460.65	-14726.82	0.00	3138.16
83	3.60	-42624.53	-8750.82	0.00	3871.59
		-41776.52	-8576.72	0.00	3794.56
84	0.00	-42624.53	-8750.82	0.00	3871.59
		-41776.52	-8576.72	0.00	3794.56
84	1.80	-42780.33	-1205.55	0.00	4534.72

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
		-41901.39	-1180.78	0.00	4441.55
84	3.60	-42926.38	7563.63	0.00	5198.39
		-41733.78	7353.49	0.00	5053.96
85	0.00	-42926.38	7563.63	0.00	5198.39
		-41733.78	7353.49	0.00	5053.96
85	1.80	-43779.79	14872.00	0.00	2651.30
		-42109.45	14304.58	0.00	2550.15
85	3.60	-44490.00	17537.96	0.00	0.00
		-42608.21	16796.15	0.00	0.00
86	0.00	-44490.00	17537.96	0.00	-0.00
		-42607.60	16795.91	0.00	-0.00
86	1.25	-45065.93	15849.69	0.00	-3064.48
		-43331.88	15239.82	0.00	-2946.57
86	2.50	-45441.68	10188.02	0.00	-6180.07
		-44094.67	9886.02	0.00	-5996.87
87	0.00	-45441.68	10188.02	0.00	-6180.07
		-44094.67	9886.02	0.00	-5996.87
87	1.25	-45708.87	2865.95	0.00	-5594.77
		-44674.38	2801.08	0.00	-5468.14
87	2.50	-45978.67	-3761.05	0.00	-5002.48
		-45045.95	-3684.76	0.00	-4901.00
88	0.00	-45978.67	-3761.05	0.00	-5002.48
		-45045.95	-3684.76	0.00	-4901.00
88	1.25	-46230.98	-9676.14	0.00	-4401.19
		-45237.47	-9468.20	0.00	-4306.61
88	2.50	-46485.49	-14866.06	0.00	-3793.22
		-45321.59	-14493.84	0.00	-3698.24
89	0.00	-46485.49	-14866.06	0.00	-3793.22
		-45321.59	-14493.84	0.00	-3698.24
89	1.25	-46732.08	-19314.37	0.00	-3177.78
		-45338.58	-18738.43	0.00	-3083.02
89	2.50	-46970.55	-23006.18	0.00	-2555.26
		-45330.41	-22202.83	0.00	-2465.97
90	0.00	-46970.55	-23006.18	0.00	-2555.26
		-45330.41	-22202.83	0.00	-2465.97
90	1.25	-47090.82	-25866.99	0.00	-1921.31
		-45224.62	-24841.88	0.00	-1845.16
90	2.50	-47012.61	-27822.06	0.00	-1278.74
		-44969.61	-26613.02	0.00	-1223.17
91	0.00	-47012.61	-27822.06	0.00	-1278.74
		-44969.61	-26613.02	0.00	-1223.17
91	1.25	-46925.66	-28967.21	0.00	-638.19
		-44762.13	-27631.66	0.00	-608.76
91	2.50	-46820.00	-29299.96	0.00	-0.00
		-44601.10	-27911.37	0.00	-0.00
92	0.00	-46820.00	-29299.96	0.00	0.00
		-44601.10	-27911.37	0.00	0.00
92	1.25	-46615.43	-28761.72	0.00	653.08
		-44414.93	-27404.01	0.00	622.25
92	2.50	-46401.79	-27414.18	0.00	1300.18
		-44287.59	-26165.11	0.00	1240.94
93	0.00	-46401.79	-27414.18	0.00	1300.18
		-44287.59	-26165.11	0.00	1240.94

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
93	1.25	-46185.22	-25265.50	0.00	1941.33
		-44223.18	-24190.08	0.00	1858.70
93	2.50	-45957.92	-22321.76	0.00	2575.02
		-44190.69	-21463.42	0.00	2476.00
94	0.00	-45957.92	-22321.76	0.00	2575.02
		-44190.69	-21463.42	0.00	2476.00
94	1.25	-45718.00	-18602.65	0.00	3202.09
		-44181.33	-17977.38	0.00	3094.46
94	2.50	-45469.67	-14122.88	0.00	3821.73
		-44168.69	-13718.80	0.00	3712.38
95	0.00	-45469.67	-14122.88	0.00	3821.73
		-44168.69	-13718.80	0.00	3712.38
95	1.25	-45223.09	-8899.90	0.00	4434.58
		-44126.77	-8684.15	0.00	4327.07
95	2.50	-45096.02	-3156.27	0.00	4599.79
		-44122.47	-3088.13	0.00	4500.49
96	0.00	-45096.02	-3156.27	0.00	4599.79
		-44121.91	-3088.09	0.00	4500.43
96	0.25	-45086.07	-2006.33	0.00	4598.78
		-44123.40	-1963.49	0.00	4500.59
96	0.50	-45076.12	-856.45	0.00	4597.76
		-44119.89	-838.28	0.00	4500.23

sum of reinforced steel area run: 'STD'

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
65	0.00	1.00	1.00	1.00	1.00	0.00	-------
65	0.00	1.00	1.00	1.00	1.00	0.00	-------
65	0.25	1.00	1.00	1.00	1.00	0.00	-------
65	0.25	1.00	1.00	1.00	1.00	0.00	-------
65	0.50	1.00	1.00	1.00	1.00	0.00	-------
65	0.50	1.00	1.00	1.00	1.00	0.00	-------
66	0.00	1.00	1.00	1.00	1.00	0.00	-------
66	0.60	1.00	1.00	1.00	1.00	0.00	-------
66	0.65	1.00	1.00	1.00	1.00	0.00	-------
66	1.25	1.00	1.00	1.00	1.00	0.00	-------
66	1.25	1.00	1.00	1.00	1.00	0.00	-------
66	1.85	1.00	1.00	1.00	1.00	0.00	-------
67	0.00	1.00	1.00	1.00	1.00	0.00	-------
67	0.60	1.00	1.00	1.00	1.00	0.00	-------
67	0.65	1.00	1.00	1.00	1.00	0.00	-------
67	1.25	1.00	1.00	1.00	1.00	0.00	-------
67	1.25	1.00	1.00	1.00	1.00	0.00	-------
67	1.85	1.00	1.00	1.00	1.00	0.00	-------
68	0.00	1.00	1.00	1.00	1.00	0.00	-------
68	0.60	1.00	1.00	1.00	1.00	0.00	-------
68	0.65	1.00	1.00	1.00	1.00	0.00	-------
68	1.25	1.00	1.00	1.00	1.00	0.00	-------
68	1.25	1.00	1.00	1.00	1.00	0.00	-------
68	1.85	1.00	1.00	1.00	1.00	0.00	-------
69	0.00	1.00	1.00	1.00	1.00	0.00	-------
69	0.60	1.00	1.00	1.00	1.00	0.00	-------
69	0.65	1.00	1.00	1.00	1.00	0.00	-------
69	1.25	1.00	1.00	1.00	1.00	0.00	-------
69	1.25	1.00	1.00	1.00	1.00	0.00	-------
69	1.85	1.00	1.00	1.00	1.00	0.00	-------
70	0.00	1.00	1.00	1.00	1.00	0.00	-------
70	0.60	1.00	1.00	1.00	1.00	0.00	-------
70	0.65	1.00	1.00	1.00	1.00	0.00	-------
70	1.25	1.00	1.00	1.00	1.00	0.00	-------
70	1.25	1.00	1.00	1.00	1.00	0.00	-------
70	1.85	1.00	1.00	1.00	1.00	0.00	-------
71	0.00	1.00	1.00	1.00	1.00	0.00	-------
71	0.60	1.00	1.00	1.00	1.00	0.00	-------
71	0.65	1.00	1.00	1.00	1.00	0.00	-------
71	1.25	1.00	1.00	1.00	1.00	0.00	-------
71	1.25	1.00	1.00	1.00	1.00	0.00	-------
71	1.85	1.00	1.00	1.00	1.00	0.00	-------
72	0.00	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: 'STD'

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
72	0.60	1.00	1.00	1.00	1.00	0.00	-------
72	0.65	1.00	1.00	1.00	1.00	0.00	-------
72	1.25	1.00	1.00	1.00	1.00	0.00	-------
72	1.25	1.00	1.00	1.00	1.00	0.00	-------
72	1.85	1.00	1.00	1.00	1.00	0.00	-------
73	0.00	1.00	1.00	1.00	1.00	0.00	-------
73	0.60	1.00	1.00	1.00	1.00	0.00	-------
73	0.65	1.00	1.00	1.00	1.00	0.00	-------
73	1.25	1.00	1.00	1.00	1.00	0.00	-------
73	1.25	1.00	1.00	1.00	1.00	0.00	-------
73	1.85	1.00	1.00	1.00	1.00	0.00	-------
74	0.00	1.00	1.00	1.00	1.00	0.00	-------
74	0.60	1.00	1.00	1.00	1.00	0.00	-------
74	0.65	1.00	1.00	1.00	1.00	0.00	-------
74	1.25	1.00	1.00	1.00	1.00	0.00	-------
74	1.25	1.00	1.00	1.00	1.00	0.00	-------
74	1.85	1.00	1.00	1.00	1.00	0.00	-------
75	0.00	1.00	1.00	1.00	1.00	0.00	-------
75	0.60	1.00	1.00	1.00	1.00	0.00	-------
75	0.65	1.00	1.00	1.00	1.00	0.00	-------
75	1.25	1.00	1.00	1.00	1.00	0.00	-------
75	1.25	1.00	1.00	1.00	1.00	0.00	-------
75	1.85	1.00	1.00	1.00	1.00	0.00	-------
76	0.00	1.00	1.00	1.00	1.00	0.00	-------
76	0.60	1.00	1.00	1.00	1.00	0.00	-------
76	1.20	1.00	1.00	1.00	1.00	0.00	-------
76	1.80	1.00	1.00	1.00	1.00	0.00	-------
76	1.80	1.00	1.00	1.00	1.00	0.00	-------
76	2.40	1.00	1.00	1.00	1.00	0.00	-------
77	0.00	1.00	1.00	1.00	1.00	0.00	-------
77	0.60	1.00	1.00	1.00	1.00	0.00	-------
77	1.20	1.00	1.00	1.00	1.00	0.00	-------
77	1.80	1.00	1.00	1.00	1.00	0.00	-------
77	1.80	1.00	1.00	1.00	1.00	0.00	-------
77	2.40	1.00	1.00	1.00	1.00	0.00	-------
78	0.00	1.00	1.00	1.00	1.00	0.00	-------
78	0.60	1.00	1.00	1.00	1.00	0.00	-------
78	1.20	1.00	1.00	1.00	1.00	0.00	-------
78	1.80	1.00	1.00	1.00	1.00	0.00	-------
78	1.80	1.00	1.00	1.00	1.00	0.00	-------
78	2.40	1.00	1.00	1.00	1.00	0.00	-------
79	0.00	1.00	1.00	1.00	1.00	0.00	-------
79	0.60	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area — run: *STD*

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
79	1.20	1.00	1.00	1.00	1.00	0.00	-------
79	1.80	1.00	1.00	1.00	1.00	0.00	-------
79	1.80	1.00	1.00	1.00	1.00	0.00	-------
79	2.40	1.00	1.00	1.00	1.00	0.00	-------
80	0.00	1.00	1.00	1.00	1.00	0.00	-------
80	0.60	1.00	1.00	1.00	1.00	0.00	-------
80	1.20	1.00	1.00	1.00	1.00	0.00	-------
80	1.80	1.00	1.00	1.00	1.00	0.00	-------
80	1.80	1.00	1.00	1.00	1.00	0.00	-------
80	2.40	1.00	1.00	1.00	1.00	0.00	-------
81	0.00	1.00	1.00	1.00	1.00	0.00	-------
81	0.60	1.00	1.00	1.00	1.00	0.00	-------
81	1.20	1.00	1.00	1.00	1.00	0.00	-------
81	1.80	1.00	1.00	1.00	1.00	0.00	-------
81	1.80	1.00	1.00	1.00	1.00	0.00	-------
81	2.40	1.00	1.00	1.00	1.00	0.00	-------
82	0.00	1.00	1.00	1.00	1.00	0.00	-------
82	0.60	1.00	1.00	1.00	1.00	0.00	-------
82	1.20	1.00	1.00	1.00	1.00	0.00	-------
82	1.80	1.00	1.00	1.00	1.00	0.00	-------
82	1.80	1.00	1.00	1.00	1.00	0.00	-------
82	2.40	1.00	1.00	1.00	1.00	0.00	-------
83	0.00	1.00	1.00	1.00	1.00	0.00	-------
83	0.60	1.00	1.00	1.00	1.00	0.00	-------
83	1.20	1.00	1.00	1.00	1.00	0.00	-------
83	1.80	1.00	1.00	1.00	1.00	0.00	-------
83	1.80	1.00	1.00	1.00	1.00	0.00	-------
83	2.40	1.00	1.00	1.00	1.00	0.00	-------
84	0.00	1.00	1.00	1.00	1.00	0.00	-------
84	0.60	1.00	1.00	1.00	1.00	0.00	-------
84	1.20	1.00	1.00	1.00	1.00	0.00	-------
84	1.80	1.00	1.00	1.00	1.00	0.00	-------
84	1.80	1.00	1.00	1.00	1.00	0.00	-------
84	2.40	1.00	1.00	1.00	1.00	0.00	-------
85	0.00	1.00	1.00	1.00	1.00	0.00	-------
85	0.60	1.00	1.00	1.00	1.00	0.00	-------
85	1.20	1.00	1.00	1.00	1.00	0.00	-------
85	1.80	1.00	1.00	1.00	1.00	0.00	-------
85	1.80	1.00	1.00	1.00	1.00	0.00	-------
85	2.40	1.00	1.00	1.00	1.00	0.00	-------
86	0.00	1.00	1.00	1.00	1.00	0.00	-------
86	0.60	1.00	1.00	1.00	1.00	0.00	-------
86	0.65	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area — run: *STD*

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
86	1.25	1.00	1.00	1.00	1.00	0.00	-------
86	1.25	1.00	1.00	1.00	1.00	0.00	-------
86	1.85	1.00	1.00	1.00	1.00	0.00	-------
87	0.00	1.00	1.00	1.00	1.00	0.00	-------
87	0.60	1.00	1.00	1.00	1.00	0.00	-------
87	0.65	1.00	1.00	1.00	1.00	0.00	-------
87	1.25	1.00	1.00	1.00	1.00	0.00	-------
87	1.25	1.00	1.00	1.00	1.00	0.00	-------
87	1.85	1.00	1.00	1.00	1.00	0.00	-------
88	0.00	1.00	1.00	1.00	1.00	0.00	-------
88	0.60	1.00	1.00	1.00	1.00	0.00	-------
88	0.65	1.00	1.00	1.00	1.00	0.00	-------
88	1.25	1.00	1.00	1.00	1.00	0.00	-------
88	1.25	1.00	1.00	1.00	1.00	0.00	-------
88	1.85	1.00	1.00	1.00	1.00	0.00	-------
89	0.00	1.00	1.00	1.00	1.00	0.00	-------
89	0.60	1.00	1.00	1.00	1.00	0.00	-------
89	0.65	1.00	1.00	1.00	1.00	0.00	-------
89	1.25	1.00	1.00	1.00	1.00	0.00	-------
89	1.25	1.00	1.00	1.00	1.00	0.00	-------
89	1.85	1.00	1.00	1.00	1.00	0.00	-------
90	0.00	1.00	1.00	1.00	1.00	0.00	-------
90	0.60	1.00	1.00	1.00	1.00	0.00	-------
90	0.65	1.00	1.00	1.00	1.00	0.00	-------
90	1.25	1.00	1.00	1.00	1.00	0.00	-------
90	1.25	1.00	1.00	1.00	1.00	0.00	-------
90	1.85	1.00	1.00	1.00	1.00	0.00	-------
91	0.00	1.00	1.00	1.00	1.00	0.00	-------
91	0.60	1.00	1.00	1.00	1.00	0.00	-------
91	0.65	1.00	1.00	1.00	1.00	0.00	-------
91	1.25	1.00	1.00	1.00	1.00	0.00	-------
91	1.25	1.00	1.00	1.00	1.00	0.00	-------
91	1.85	1.00	1.00	1.00	1.00	0.00	-------
92	0.00	1.00	1.00	1.00	1.00	0.00	-------
92	0.60	1.00	1.00	1.00	1.00	0.00	-------
92	0.65	1.00	1.00	1.00	1.00	0.00	-------
92	1.25	1.00	1.00	1.00	1.00	0.00	-------
92	1.25	1.00	1.00	1.00	1.00	0.00	-------
92	1.85	1.00	1.00	1.00	1.00	0.00	-------
93	0.00	1.00	1.00	1.00	1.00	0.00	-------
93	0.60	1.00	1.00	1.00	1.00	0.00	-------
93	0.65	1.00	1.00	1.00	1.00	0.00	-------
93	1.25	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area — run: *STD*

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
93	1.25	1.00	1.00	1.00	1.00	0.00	-------
93	1.85	1.00	1.00	1.00	1.00	0.00	-------
94	0.00	1.00	1.00	1.00	1.00	0.00	-------
94	0.60	1.00	1.00	1.00	1.00	0.00	-------
94	0.65	1.00	1.00	1.00	1.00	0.00	-------
94	1.25	1.00	1.00	1.00	1.00	0.00	-------
94	1.25	1.00	1.00	1.00	1.00	0.00	-------
94	1.85	1.00	1.00	1.00	1.00	0.00	-------
95	0.00	1.00	1.00	1.00	1.00	0.00	-------
95	0.60	1.00	1.00	1.00	1.00	0.00	-------
95	0.65	1.00	1.00	1.00	1.00	0.00	-------
95	1.25	1.00	1.00	1.00	1.00	0.00	-------
95	1.25	1.00	1.00	1.00	1.00	0.00	-------
95	1.85	1.00	1.00	1.00	1.00	0.00	-------
96	0.00	1.00	1.00	1.00	1.00	0.00	-------
96	0.00	1.00	1.00	1.00	1.00	0.00	-------
96	0.25	1.00	1.00	1.00	1.00	0.00	-------
96	0.25	1.00	1.00	1.00	1.00	0.00	-------
96	0.50	1.00	1.00	1.00	1.00	0.00	-------
96	0.50	1.00	1.00	1.00	1.00	0.00	-------

ENVELOPE SPECIFIC.: FQ 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PLUS	46	1.500		SOB UNIF VANO 1
H	PLUS	47	1.500		SOB UNIF VANO 2
I	PLUS	48	1.500		SOB UNIF VANO 3
J	PLUS	11	3.150		VEHICULO HIPOTESIS 37
K	OR	12	3.150		VEHICULO HIPOTESIS 38
L	OR	13	3.150		VEHICULO HIPOTESIS 39
M	OR	14	3.150		VEHICULO HIPOTESIS 40
N	OR	15	3.150		VEHICULO HIPOTESIS 41
O	OR	16	3.150		VEHICULO POSICION 42
P	OR	17	3.150		VEHICULO POSICION 43
Q	OR	18	3.150		VEHICULO POSICION 44
R	OR	19	3.150		VEHICULO POSICION 45
S	PLUS	30	1.500		FRENADO
T	PLUS	33	0.450000		VIENTO CON SOB
U	PLUS	34	0.900000		TEMPERATURA (-)
V	OR	35	0.900000		TEMPERATURA (+)
W	OR	36	0.900000		GRADIENTE

SPECIFICATINS DESIGN ENVELOPE File:ELUVANO, 'ELUVA'

Load group	Char.Actions	Factor	File
1	COMEINACION CARACTERISTICA	1.000	(ELUV)

FAGUS-3 - post-processor module::

Section forces and prestressing restored from STATIK-3

Prestressing restored from STATIK-3

Prestressing steel ..... : A1900
Prestressing conditions (grouting)..... : bonded

Parameters for evaluation of long term losses:
Concrete shrinkage ..... : 0.00 [o/oo]
Steel relaxation class ..... : 0
Coefficient of concrete creep ..... : 1.00
Friction losses calculated in module STV .....

Section forces restored from STATIK-3:

Analysis	C.Set	N	Vy	Vz	T	My	Mz
Design	2	ELUVANO	. ELUVANO		. ELUVANO	.	

Calculation parameters Construction code: EH 91

Calculation set 2: Design(Standard)

Concrete stress strain diagram ..... type 2
Concrete in tension ..... type 0

Max. strains:
Max. concrete strain at ult. limit state (compr.). -2.00 [o/oo]
Max. concrete strain at ult. limit state (bending) -3.50 [o/oo]
Max. strain in reinforcement bars (ult.limit state 10.00 [o/oo]

Resistance coefficients:
Concrete..... 1.5
Steel..... 1.15
Prestressing steel..... 1.15
Structural steel..... 1.15

Inclination of diagonal in compression..... 45
Creep coefficient..... 0

STATIK-3 prestressing:
Strains used at..... t=o

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
65	0.00	-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
		-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
		-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
		0.00	-0.00	0.00	0.00	-0.00	0.00	2 E
		-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
		-0.00	-0.00	-0.00	0.00	-0.00	0.00	2 E
65	0.25	-0.00	-13.92	-0.00	0.00	-111.32	0.00	2 E
		-0.00	-8.36	-0.00	0.00	-67.00	0.00	2 E
		-1.96	-11.66	-0.00	0.00	-93.25	0.00	2 E
		0.00	-11.66	0.00	0.00	-93.25	0.00	2 E
		-0.00	-13.92	-0.00	0.00	-111.32	0.00	2 E
		-0.00	-8.36	-0.00	0.00	-67.00	0.00	2 E
65	0.50	-0.00	-55.66	-0.00	0.00	-222.64	0.00	2 E
		-0.00	-33.50	-0.00	0.00	-134.00	0.00	2 E
		-3.91	-46.62	0.00	0.00	-186.49	0.00	2 E
		0.00	-46.62	0.00	0.00	-186.49	0.00	2 E
		-0.00	-55.66	-0.00	0.00	-222.64	0.00	2 E
		-0.00	-33.50	-0.00	0.00	-134.00	0.00	2 E
66	0.00	-0.00	-55.66	-0.00	0.00	-134.00	0.00	2 E
		-0.00	-33.50	-0.00	0.00	-67.00	0.00	2 E
		-61.79	-46.62	0.00	-0.00	3188.96	0.00	2 E
		141.99	-46.62	-0.00	0.00	3188.96	0.00	2 E
		-0.00	-33.50	-0.00	0.00	1847.13	0.00	2 E
		-0.00	-55.66	-0.00	0.00	5860.20	0.00	2 E
66	1.25	-0.00	6921.72	-0.00	0.00	5303.60	0.00	2 E
		-0.00	2066.03	-0.00	0.00	1512.13	0.00	2 E
		132.21	3648.19	-0.00	0.00	2722.73	0.00	2 E
		-61.79	3648.19	0.00	-0.00	2722.73	0.00	2 E
		-0.00	6921.72	-0.00	0.00	5303.60	0.00	2 E
		-0.00	2066.03	-0.00	0.00	1512.13	0.00	2 E
66	2.50	-0.00	12541.85	-0.00	0.00	4117.00	0.00	2 E
		-0.00	3746.81	-0.00	0.00	1177.12	0.00	2 E
		122.42	6760.21	-0.00	0.00	2256.51	0.00	2 E
		-61.79	6760.21	0.00	-0.00	2256.51	0.00	2 E
		-0.00	11651.14	-0.00	0.00	4126.12	0.00	2 E
		-0.00	3746.81	-0.00	0.00	1177.12	0.00	2 E
67	0.00	-0.00	12541.85	-0.00	0.00	4117.00	-0.00	2 E
		-0.00	3746.81	-0.00	0.00	1177.12	-0.00	2 E
		122.42	6760.21	-0.00	0.00	2256.51	0.00	2 E
		-61.79	6760.21	0.00	-0.00	2256.51	0.00	2 E
		-0.00	11651.14	-0.00	0.00	4126.12	-0.00	2 E
		-0.00	3746.81	-0.00	0.00	1177.12	-0.00	2 E
67	1.25	-0.00	16836.22	-0.00	0.00	2930.40	-0.00	2 E
		-0.00	5008.84	-0.00	0.00	842.12	-0.00	2 E
		112.63	9289.46	-0.00	0.00	1790.28	0.00	2 E
		-61.79	9289.46	0.00	-0.00	1790.28	0.00	2 E
		-0.00	16460.91	-0.00	0.00	3569.51	-0.00	2 E
		-0.00	5008.84	-0.00	0.00	842.12	-0.00	2 E
67	2.50	-0.00	20574.92	-0.00	0.00	3012.91	-0.00	2 E
		-0.00	5852.11	-0.00	0.00	507.12	-0.00	2 E
		102.85	11235.92	-0.00	0.00	1324.05	0.00	2 E
		-61.79	11235.92	0.00	-0.00	1324.05	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	20574.92	-0.00	0.00	3012.91	-0.00	2 E
		-0.00	11253.20	-0.00	0.00	459.63	-0.00	2 E
68	0.00	-0.00	20574.92	-0.00	0.00	3012.91	-0.00	2 E
		-0.00	5852.11	-0.00	0.00	507.12	-0.00	2 E
		102.85	11235.92	-0.00	0.00	1324.05	0.00	2 E
		-61.79	11235.92	0.00	-0.00	1324.05	0.00	2 E
		-0.00	20574.92	-0.00	0.00	3012.91	-0.00	2 E
		-0.00	11253.20	-0.00	0.00	459.63	-0.00	2 E
68	1.25	-0.00	23993.19	-0.00	0.00	2456.31	-0.00	2 E
		-0.00	6276.63	-0.00	0.00	172.11	-0.00	2 E
		93.06	12599.59	-0.00	0.00	857.83	0.00	2 E
		-61.79	12599.59	0.00	-0.00	857.83	0.00	2 E
		-0.00	23993.19	-0.00	0.00	2456.31	-0.00	2 E
		-0.00	11618.37	-0.00	0.00	124.63	-0.00	2 E
68	2.50	-0.00	26715.70	-0.00	0.00	1899.71	-0.00	2 E
		-0.00	6282.39	-0.00	0.00	-162.89	-0.00	2 E
		83.28	13380.48	-0.00	0.00	391.60	0.00	2 E
		-61.79	13380.48	0.00	-0.00	391.60	0.00	2 E
		-0.00	26715.70	-0.00	0.00	1899.71	-0.00	2 E
		-0.00	11564.78	-0.00	0.00	-210.37	-0.00	2 E
69	0.00	-0.00	26715.70	-0.00	0.00	1899.71	-0.00	2 E
		-0.00	6282.39	-0.00	0.00	-162.89	-0.00	2 E
		83.28	13380.48	-0.00	0.00	391.60	0.00	2 E
		-61.79	13380.48	0.00	-0.00	391.60	0.00	2 E
		-0.00	26715.70	-0.00	0.00	1899.71	-0.00	2 E
		-0.00	11564.78	-0.00	0.00	-210.37	-0.00	2 E
69	1.25	-0.00	28584.96	-0.00	0.00	713.11	-0.00	2 E
		-0.00	5869.40	-0.00	0.00	-497.85	-0.00	2 E
		73.49	13578.59	-0.00	0.00	-74.63	0.00	2 E
		-61.79	13578.59	0.00	-0.00	-74.63	0.00	2 E
		-0.00	24763.15	-0.00	0.00	734.11	-0.00	2 E
		-0.00	14914.25	-0.00	0.00	-566.38	-0.00	2 E
69	2.50	-0.00	29128.47	-0.00	0.00	156.51	-0.00	2 E
		-0.00	5037.66	-0.00	0.00	-832.90	-0.00	2 E
		63.71	13193.92	-0.00	0.00	-540.85	0.00	2 E
		-61.79	13193.92	0.00	-0.00	-540.85	0.00	2 E
		-0.00	25414.93	-0.00	0.00	308.73	-0.00	2 E
		-0.00	13914.89	-0.00	0.00	-1032.61	-0.00	2 E
70	0.00	-0.00	29128.47	-0.00	0.00	-473.49	-0.00	2 E
		-0.00	5037.66	-0.00	0.00	-832.90	-0.00	2 E
		63.71	13193.92	-0.00	0.00	-540.85	0.00	2 E
		-61.79	13193.92	0.00	-0.00	-540.85	0.00	2 E
		-0.00	17877.87	-0.00	0.00	90.53	-0.00	2 E
		-0.00	13914.85	-0.00	0.00	-1032.61	-0.00	2 E
70	1.25	-0.00	28188.73	-0.00	0.00	-1030.10	-0.00	2 E
		-0.00	3787.16	-0.00	0.00	-1167.90	-0.00	2 E
		61.79	12226.46	-0.00	0.00	-1007.08	0.00	2 E
		-69.65	12226.46	-0.00	0.00	-1007.08	0.00	2 E
		-0.00	13298.84	-0.00	0.00	-322.42	0.00	2 E
		-0.00	16759.06	-0.00	0.00	-1511.27	-0.00	2 E
70	2.50	-0.00	25923.23	-0.00	0.00	-2216.70	-0.00	2 E
		-0.00	2117.91	-0.00	0.00	-1502.90	-0.00	2 E
		61.79	10676.22	-0.00	0.00	-1473.31	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-79.44	10676.22	-0.00	0.00	-1473.31	0.00	2 E
		-0.00	12686.45	-0.00	0.00	-657.42	0.00	2 E
		-0.00	20022.54	-0.00	0.00	-2688.75	-0.00	2 E
71	0.00	-0.00	25923.23	-0.00	0.00	-2216.70	-0.00	2 E
		-0.00	2117.91	-0.00	0.00	-1502.90	-0.00	2 E
		61.79	10676.22	-0.00	0.00	-1473.31	0.00	2 E
		-79.44	10676.22	-0.00	0.00	-1473.31	0.00	2 E
		-0.00	12686.45	-0.00	0.00	-657.42	0.00	2 E
		-0.00	20022.54	-0.00	0.00	-2688.75	-0.00	2 E
71	1.25	-0.00	22804.48	-0.00	0.00	-2773.30	-0.00	2 E
		-0.00	29.90	-0.00	0.00	-1837.91	-0.00	2 E
		61.79	8543.19	-0.00	0.00	-1939.53	0.00	2 E
		-89.23	8543.19	-0.00	0.00	-1939.53	0.00	2 E
		-0.00	11655.29	-0.00	0.00	-992.42	0.00	2 E
		-0.00	16313.72	-0.00	0.00	-3245.36	-0.00	2 E
71	2.50	-0.00	18988.98	-0.00	0.00	-3329.90	-0.00	2 E
		-0.00	-2476.86	-0.00	0.00	-2172.91	-0.00	2 E
		61.79	5827.39	-0.00	0.00	-2405.76	0.00	2 E
		-99.01	5827.39	-0.00	0.00	-2405.76	0.00	2 E
		-0.00	10205.39	-0.00	0.00	-1327.43	0.00	2 E
		-0.00	11909.15	-0.00	0.00	-3801.96	-0.00	2 E
72	0.00	-0.00	18989.98	-0.00	0.00	-3329.90	-0.00	2 E
		-0.00	-2476.86	-0.00	0.00	-2172.91	-0.00	2 E
		61.79	5827.39	-0.00	0.00	-2405.76	0.00	2 E
		-99.01	5827.39	-0.00	0.00	-2405.76	0.00	2 E
		-0.00	10205.39	-0.00	0.00	-1327.43	0.00	2 E
		-0.00	11905.15	-0.00	0.00	-3801.96	-0.00	2 E
72	1.25	-0.00	14479.73	-0.00	0.00	-3866.50	-0.00	2 E
		-0.00	-5402.37	-0.00	0.00	-2507.51	-0.00	2 E
		61.79	2528.79	-0.00	0.00	-2871.99	0.00	2 E
		-106.80	2528.79	-0.00	0.00	-2871.99	0.00	2 E
		-0.00	8336.73	-0.00	0.00	-1662.43	0.00	2 E
		-0.00	6808.83	-0.00	0.00	-4358.56	-0.00	2 E
72	2.50	-0.00	9654.42	-0.00	0.00	-3503.53	-0.00	2 E
		-0.00	-9127.34	-0.00	0.00	-3782.49	0.00	2 E
		-118.58	-1352.58	-0.00	0.00	-3338.21	0.00	2 E
		61.79	-1352.58	-0.00	0.00	-3338.21	0.00	2 E
		-0.00	6049.31	-0.00	0.00	-1997.43	0.00	2 E
		-0.00	1012.76	-0.00	0.00	-4915.16	-0.00	2 E
73	0.00	-0.00	9654.42	-0.00	0.00	-3503.53	-0.00	2 E
		-0.00	-9127.34	-0.00	0.00	-3782.49	0.00	2 E
		-118.58	-1352.58	-0.00	0.00	-3338.21	0.00	2 E
		61.79	-1352.58	-0.00	0.00	-3338.21	0.00	2 E
		-0.00	6049.31	-0.00	0.00	-1997.43	0.00	2 E
		-0.00	1012.76	-0.00	0.00	-4915.16	-0.00	2 E
73	1.25	-0.00	5642.78	-0.00	0.00	-2887.12	-0.00	2 E
		-0.00	-14146.83	-0.00	0.00	-4248.71	0.00	2 E
		-128.37	-5816.74	-0.00	0.00	-3804.44	0.00	2 E
		61.79	-5816.74	-0.00	0.00	-3804.44	0.00	2 E
		-0.00	3343.14	-0.00	0.00	-2332.44	0.00	2 E
		-0.00	-5479.07	-0.00	0.00	-5471.76	-0.00	2 E
73	2.50	-0.00	1768.02	-0.00	0.00	-3312.50	-0.00	2 E
		-0.00	-19749.12	-0.00	0.00	-4714.94	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-138.15	-10863.68	0.00	0.00	-4270.67	0.00	2 E
		61.79	-10863.68	-0.00	0.00	-4270.67	0.00	2 E
		-0.00	218.22	-0.00	0.00	-2667.44	0.00	2 E
		-0.00	-12666.65	-0.00	0.00	-6028.36	-0.00	2 E
74	0.00	-0.00	1768.02	-0.00	0.00	-3312.50	-0.00	2 E
		-0.00	-19749.12	-0.00	0.00	-4714.94	0.00	2 E
		-138.15	-10863.68	0.00	0.00	-4270.67	0.00	2 E
		61.79	-10863.68	-0.00	0.00	-4270.67	0.00	2 E
		-0.00	218.22	-0.00	0.00	-2667.44	0.00	2 E
		-0.00	-12666.65	-0.00	0.00	-6028.36	-0.00	2 E
74	1.25	-0.00	-25934.18	-0.00	0.00	-5181.17	0.00	2 E
		-0.00	-3075.47	-0.00	0.00	-4367.88	-0.00	2 E
		-147.94	-16493.41	0.00	0.00	-4736.89	0.00	2 E
		61.79	-16493.41	-0.00	0.00	-4736.89	0.00	2 E
		-0.00	-20549.98	-0.00	0.00	-6584.97	-0.00	2 E
		-0.00	-5451.93	-0.00	0.00	-3102.51	0.00	2 E
74	2.50	-0.00	-32990.82	-0.00	0.00	-6473.20	-0.00	2 E
		-0.00	-8799.88	-0.00	0.00	-4587.45	0.00	2 E
		-157.72	-22705.92	0.00	0.00	-5203.12	0.00	2 E
		61.79	-22705.92	-0.00	0.00	-5203.12	0.00	2 E
		-0.00	-26100.70	-0.00	0.00	-7359.77	-0.00	2 E
		-0.00	-9539.45	-0.00	0.00	-3437.51	0.00	2 E
75	0.00	-0.00	-32990.82	-0.00	0.00	-6473.20	-0.00	2 E
		-0.00	-8799.88	-0.00	0.00	-4587.45	0.00	2 E
		-157.72	-22705.92	0.00	0.00	-5203.12	0.00	2 E
		61.79	-22705.92	-0.00	0.00	-5203.12	0.00	2 E
		-0.00	-26100.70	-0.00	0.00	-7359.77	-0.00	2 E
		-0.00	-9539.45	-0.00	0.00	-3437.51	0.00	2 E
75	1.25	-0.00	-41430.20	-0.00	0.00	-7029.80	-0.00	2 E
		-0.00	-14045.72	-0.00	0.00	-3772.52	0.00	2 E
		-167.51	-29501.21	0.00	0.00	-5669.35	0.00	2 E
		61.79	-29501.21	-0.00	0.00	-5669.35	0.00	2 E
		-0.00	-35774.29	-0.00	0.00	-8546.38	-0.00	2 E
		-0.00	-14045.72	-0.00	0.00	-3772.52	0.00	2 E
75	2.50	-0.00	-50565.33	-0.00	0.00	-7586.40	-0.00	2 E
		-0.00	-18970.75	-0.00	0.00	-4107.52	0.00	2 E
		-177.30	-36879.29	0.00	0.00	-6135.57	0.00	2 E
		61.79	-36879.29	-0.00	0.00	-6135.57	0.00	2 E
		-0.00	-46805.13	-0.00	0.00	-9102.98	-0.00	2 E
		-0.00	-18970.75	-0.00	0.00	-4107.52	0.00	2 E
76	0.00	-0.00	-50565.33	-0.00	0.00	9652.81	-0.00	2 E
		-0.00	-18970.75	-0.00	0.00	4602.33	0.00	2 E
		-140.60	-36879.29	0.00	-0.00	6713.67	0.00	2 E
		281.51	-36879.29	-0.00	0.00	6713.67	0.00	2 E
		-0.00	-24683.44	-0.00	0.00	4602.33	0.00	2 E
		-0.00	-41646.77	-0.00	0.00	9890.27	-0.00	2 E
76	1.80	-0.00	-34951.63	-0.00	0.00	8251.30	-0.00	2 E
		-0.00	-11120.72	-0.00	0.00	4119.92	0.00	2 E
		-140.60	-25398.92	0.00	-0.00	6042.30	0.00	2 E
		267.42	-25398.92	-0.00	0.00	6042.30	0.00	2 E
		-0.00	-16833.42	-0.00	0.00	4119.92	0.00	2 E
		-0.00	-24786.15	-0.00	0.00	8458.76	-0.00	2 E
76	3.60	-0.00	-21607.48	-0.00	0.00	6633.77	-0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	-2649.96	-0.00	0.00	4288.95	0.00	2 E
		-140.60	-15127.01	0.00	-0.00	5370.93	0.00	2 E
		253.33	-15127.01	-0.00	0.00	5370.93	0.00	2 E
		-0.00	-9851.72	-0.00	0.00	3637.52	0.00	2 E
		-0.00	-15147.94	-0.00	0.00	7449.80	-0.00	2 E
77	0.00	-0.00	-21607.48	-0.00	0.00	6633.77	-0.00	2 E
		-0.00	-2649.96	-0.00	0.00	4288.95	0.00	2 E
		-140.60	-15127.01	0.00	-0.00	5370.93	0.00	2 E
		253.33	-15127.01	-0.00	0.00	5370.93	0.00	2 E
		-0.00	-9851.72	-0.00	0.00	3637.52	0.00	2 E
		-0.00	-15147.94	-0.00	0.00	7449.80	-0.00	2 E
77	1.80	-0.00	4681.78	-0.00	0.00	4087.53	0.00	2 E
		-0.00	-11032.35	-0.00	0.00	4921.29	-0.00	2 E
		-140.60	-6063.56	0.00	-0.00	4699.57	0.00	2 E
		239.24	-6063.56	-0.00	0.00	4699.57	0.00	2 E
		-0.00	-3738.36	-0.00	0.00	3155.11	0.00	2 E
		-0.00	-2459.66	-0.00	0.00	6648.29	-0.00	2 E
77	3.60	-0.00	11992.25	-0.00	0.00	4608.75	0.00	2 E
		-0.00	-3282.47	-0.00	0.00	3116.15	-0.00	2 E
		225.15	1791.43	-0.00	0.00	4028.20	0.00	2 E
		-140.60	1791.43	0.00	-0.00	4028.20	0.00	2 E
		-0.00	8785.91	-0.00	0.00	5846.78	-0.00	2 E
		-0.00	1506.68	-0.00	0.00	2672.71	0.00	2 E
78	0.00	-0.00	11992.25	-0.00	0.00	4608.75	0.00	2 E
		-0.00	-3282.47	-0.00	0.00	3116.15	-0.00	2 E
		225.15	1791.43	-0.00	0.00	4028.20	0.00	2 E
		-140.60	1791.43	0.00	-0.00	4028.20	0.00	2 E
		-0.00	3073.21	-0.00	0.00	5846.78	-0.00	2 E
		-0.00	7219.37	-0.00	0.00	2672.71	0.00	2 E
78	1.80	-0.00	20333.31	-0.00	0.00	4952.53	-0.00	2 E
		-0.00	1817.29	-0.00	0.00	2541.00	-0.00	2 E
		211.06	8437.96	-0.00	0.00	3356.83	0.00	2 E
		-140.60	8437.96	0.00	-0.00	3356.83	0.00	2 E
		-0.00	12876.07	-0.00	0.00	5045.28	-0.00	2 E
		-0.00	11596.08	-0.00	0.00	2190.30	0.00	2 E
78	3.60	-0.00	28526.51	-0.00	0.00	4151.03	-0.00	2 E
		-0.00	5956.92	-0.00	0.00	2058.59	-0.00	2 E
		196.97	13876.03	-0.00	0.00	2685.47	0.00	2 E
		-140.60	13876.03	0.00	-0.00	2685.47	0.00	2 E
		-0.00	21236.21	-0.00	0.00	4243.77	-0.00	2 E
		-0.00	15104.46	-0.00	0.00	1707.90	0.00	2 E
79	0.00	-0.00	28526.51	-0.00	0.00	4151.03	-0.00	2 E
		-0.00	5956.92	-0.00	0.00	2058.59	-0.00	2 E
		196.97	13876.03	-0.00	0.00	2685.47	0.00	2 E
		-140.60	13876.03	0.00	-0.00	2685.47	0.00	2 E
		-0.00	21236.21	-0.00	0.00	4243.77	-0.00	2 E
		-0.00	15104.46	-0.00	0.00	1707.90	0.00	2 E
79	1.80	-0.00	35277.00	-0.00	0.00	3349.52	-0.00	2 E
		-0.00	9228.22	-0.00	0.00	1576.19	-0.00	2 E
		182.87	18105.63	-0.00	0.00	2014.10	0.00	2 E
		-140.60	18105.63	0.00	-0.00	2014.10	0.00	2 E
		-0.00	28153.64	-0.00	0.00	3442.26	-0.00	2 E
		-0.00	17744.51	-0.00	0.00	1225.49	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
79	3.60	-0.00	40584.78	-0.00	0.00	2548.01	-0.00	2 E
		-0.00	11631.20	-0.00	0.00	1093.78	-0.00	2 E
		168.78	21126.78	-0.00	0.00	1342.73	0.00	2 E
		-140.60	21126.78	0.00	-0.00	1342.73	0.00	2 E
		-0.00	33628.37	-0.00	0.00	2640.76	-0.00	2 E
		-0.00	19516.24	-0.00	0.00	743.09	0.00	2 E
80	0.00	-0.00	40584.78	-0.00	0.00	2548.01	-0.00	2 E
		-0.00	11631.20	-0.00	0.00	1093.78	-0.00	2 E
		168.78	21126.78	-0.00	0.00	1342.73	0.00	2 E
		-140.60	21126.78	0.00	-0.00	1342.73	0.00	2 E
		-0.00	33628.37	-0.00	0.00	2640.76	-0.00	2 E
		-0.00	19516.24	-0.00	0.00	743.09	0.00	2 E
80	1.80	-0.00	44449.85	-0.00	0.00	1746.51	-0.00	2 E
		-0.00	13165.85	-0.00	0.00	611.39	-0.00	2 E
		154.69	22939.47	-0.00	0.00	671.37	0.00	2 E
		-140.60	22939.47	0.00	-0.00	671.37	0.00	2 E
		-0.00	37660.37	-0.00	0.00	1839.25	-0.00	2 E
		-0.00	20419.64	-0.00	0.00	260.68	0.00	2 E
80	3.60	-0.00	45927.21	-0.00	0.00	315.00	-0.00	2 E
		-0.00	13832.17	-0.00	0.00	128.98	-0.00	2 E
		140.60	23543.70	-0.00	0.00	0.00	0.00	2 E
		-140.60	23543.70	0.00	-0.00	0.00	0.00	2 E
		-0.00	39304.67	-0.00	0.00	407.74	-0.00	2 E
		-0.00	20454.70	-0.00	0.00	-221.72	0.00	2 E
81	0.00	-0.00	45927.21	-0.00	0.00	-315.00	-0.00	2 E
		-0.00	13832.17	-0.00	0.00	-128.98	0.00	2 E
		140.60	23543.70	-0.00	0.00	-0.00	0.00	2 E
		-140.60	23543.70	0.00	0.00	-0.00	0.00	2 E
		-0.00	14742.01	-0.00	0.00	221.72	-0.00	2 E
		-0.00	45017.36	-0.00	0.00	-407.74	0.00	2 E
81	1.80	-0.00	44449.85	-0.00	0.00	-1746.51	-0.00	2 E
		-0.00	13165.85	-0.00	0.00	-611.38	0.00	2 E
		140.60	22939.47	-0.00	0.00	-671.37	0.00	2 E
		-154.69	22939.47	0.00	0.00	-671.37	0.00	2 E
		-0.00	14706.94	-0.00	0.00	-260.68	-0.00	2 E
		-0.00	43373.07	-0.00	0.00	-1839.25	0.00	2 E
81	3.60	-0.00	40584.78	-0.00	0.00	-2548.01	-0.00	2 E
		-0.00	11631.20	-0.00	0.00	-1093.78	0.00	2 E
		140.60	21126.78	-0.00	0.00	-1342.73	0.00	2 E
		-168.78	21126.78	0.00	0.00	-1342.73	0.00	2 E
		-0.00	13803.55	-0.00	0.00	-743.09	-0.00	2 E
		-0.00	39341.06	-0.00	0.00	-2640.76	0.00	2 E
82	0.00	-0.00	40584.78	-0.00	0.00	-2548.01	-0.00	2 E
		-0.00	11631.20	-0.00	0.00	-1093.78	0.00	2 E
		140.60	21126.78	-0.00	0.00	-1342.73	0.00	2 E
		-168.78	21126.78	0.00	0.00	-1342.73	0.00	2 E
		-0.00	13803.55	-0.00	0.00	-743.09	-0.00	2 E
		-0.00	39341.06	-0.00	0.00	-2640.76	0.00	2 E
82	1.80	-0.00	35277.00	-0.00	0.00	-3349.52	-0.00	2 E
		-0.00	9228.22	-0.00	0.00	-1576.19	0.00	2 E
		140.60	18105.63	-0.00	0.00	-2014.10	0.00	2 E
		-182.87	18105.63	0.00	0.00	-2014.10	0.00	2 E
		-0.00	12031.82	-0.00	0.00	-1225.49	-0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	33866.34	-0.00	0.00	-3442.26	0.00	2 E
82	3.60	-0.00	28526.51	-0.00	0.00	-4151.03	-0.00	2 E
		-0.00	5956.92	-0.00	0.00	-2058.59	0.00	2 E
		140.60	13876.03	-0.00	0.00	-2685.47	0.00	2 E
		-196.97	13876.03	0.00	0.00	-2685.47	0.00	2 E
		-0.00	9391.77	-0.00	0.00	-1707.90	-0.00	2 E
		-0.00	26948.91	-0.00	0.00	-4243.77	0.00	2 E
83	0.00	-0.00	28526.51	-0.00	0.00	-4151.03	-0.00	2 E
		-0.00	5956.92	-0.00	0.00	-2058.59	0.00	2 E
		140.60	13876.03	-0.00	0.00	-2685.47	0.00	2 E
		-196.97	13876.03	0.00	0.00	-2685.47	0.00	2 E
		-0.00	9391.77	-0.00	0.00	-1707.90	-0.00	2 E
		-0.00	26948.91	-0.00	0.00	-4243.77	0.00	2 E
83	1.80	-0.00	20333.31	-0.00	0.00	-4952.53	-0.00	2 E
		-0.00	1817.29	-0.00	0.00	-2541.00	0.00	2 E
		140.60	8437.96	-0.00	0.00	-3356.83	0.00	2 E
		-211.06	8437.96	0.00	0.00	-3356.83	0.00	2 E
		-0.00	5883.39	-0.00	0.00	-2190.30	-0.00	2 E
		-0.00	18588.76	-0.00	0.00	-5045.28	0.00	2 E
83	3.60	-0.00	11992.25	-0.00	0.00	-4608.75	-0.00	2 E
		-0.00	-3282.47	-0.00	0.00	-3116.15	0.00	2 E
		140.60	1791.43	-0.00	0.00	-4028.20	0.00	2 E
		-225.15	1791.43	0.00	0.00	-4028.20	0.00	2 E
		-0.00	1506.68	-0.00	0.00	-2672.71	-0.00	2 E
		-0.00	8785.91	-0.00	0.00	-5846.78	0.00	2 E
84	0.00	-0.00	11992.25	-0.00	0.00	-4608.75	-0.00	2 E
		-0.00	-3282.47	-0.00	0.00	-3116.15	0.00	2 E
		140.60	1791.43	-0.00	0.00	-4028.20	0.00	2 E
		-225.15	1791.43	0.00	0.00	-4028.20	0.00	2 E
		-0.00	1506.68	-0.00	0.00	-2672.71	-0.00	2 E
		-0.00	8785.91	-0.00	0.00	-5846.78	0.00	2 E
84	1.80	-0.00	4681.78	-0.00	0.00	-4087.53	-0.00	2 E
		-0.00	-11032.35	-0.00	0.00	-4921.29	0.00	2 E
		-239.24	-6063.56	0.00	0.00	-4699.57	0.00	2 E
		140.60	-6063.56	-0.00	0.00	-4699.57	0.00	2 E
		-0.00	-2459.66	-0.00	0.00	-6648.29	0.00	2 E
		-0.00	-3738.36	-0.00	0.00	-3155.11	-0.00	2 E
84	3.60	-0.00	-21607.48	-0.00	0.00	-6633.77	0.00	2 E
		-0.00	-2649.96	-0.00	0.00	-4288.95	-0.00	2 E
		-253.33	-15127.01	0.00	0.00	-5370.93	0.00	2 E
		140.60	-15127.01	-0.00	0.00	-5370.93	0.00	2 E
		-0.00	-15147.94	-0.00	0.00	-7449.80	0.00	2 E
		-0.00	-9851.72	-0.00	0.00	-3637.52	-0.00	2 E
85	0.00	-0.00	-21607.48	-0.00	0.00	-6633.77	0.00	2 E
		-0.00	-2649.96	-0.00	0.00	-4288.95	-0.00	2 E
		-253.33	-15127.01	0.00	0.00	-5370.93	0.00	2 E
		140.60	-15127.01	-0.00	0.00	-5370.93	0.00	2 E
		-0.00	-15147.94	-0.00	0.00	-7449.80	0.00	2 E
		-0.00	-9851.72	-0.00	0.00	-3637.52	-0.00	2 E
85	1.80	-0.00	-34991.63	-0.00	0.00	-8251.30	0.00	2 E
		-0.00	-11120.72	-0.00	0.00	-4119.92	-0.00	2 E
		-267.42	-25398.92	0.00	0.00	-6042.30	0.00	2 E
		140.60	-25398.92	-0.00	0.00	-6042.30	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	-24786.15	-0.00	0.00	-8458.76	0.00	2 E
		-0.00	-16833.42	-0.00	0.00	-4119.92	-0.00	2 E
85	3.60	-0.00	-50565.33	-0.00	0.00	-9052.81	0.00	2 E
		-0.00	-18970.75	-0.00	0.00	-4602.33	-0.00	2 E
		-281.51	-36879.29	0.00	0.00	-6713.67	0.00	2 E
		140.60	-36879.29	-0.00	0.00	-6713.67	0.00	2 E
		-0.00	-41646.77	-0.00	0.00	-9890.27	0.00	2 E
		-0.00	-24683.44	-0.00	0.00	-4602.33	-0.00	2 E
86	0.00	-0.00	-50565.33	-0.00	0.00	7586.40	0.00	2 E
		-0.00	-18970.75	-0.00	0.00	4107.52	-0.00	2 E
		-61.79	-36879.29	0.00	-0.00	6135.57	0.00	2 E
		177.30	-36879.29	-0.00	0.00	6135.57	0.00	2 E
		-0.00	-18970.75	-0.00	0.00	4107.52	-0.00	2 E
		-0.00	-46819.62	-0.00	0.00	9101.04	0.00	2 E
86	1.25	-0.00	-41430.20	-0.00	0.00	7029.80	0.00	2 E
		-0.00	-14045.72	-0.00	0.00	3772.52	-0.00	2 E
		-61.79	-29501.21	0.00	-0.00	5669.35	0.00	2 E
		167.51	-29501.21	-0.00	0.00	5669.35	0.00	2 E
		-0.00	-14045.72	-0.00	0.00	3772.52	-0.00	2 E
		-0.00	-35791.20	-0.00	0.00	8544.43	0.00	2 E
86	2.50	-0.00	-32990.82	-0.00	0.00	6473.20	0.00	2 E
		-0.00	-8819.22	-0.00	0.00	4595.51	-0.00	2 E
		-61.79	-22705.92	0.00	-0.00	5203.12	0.00	2 E
		157.72	-22705.92	-0.00	0.00	5203.12	0.00	2 E
		-0.00	-9539.45	-0.00	0.00	3437.51	-0.00	2 E
		-0.00	-26120.03	-0.00	0.00	7357.83	0.00	2 E
87	0.00	-0.00	-32990.82	-0.00	0.00	6473.20	0.00	2 E
		-0.00	-8819.22	-0.00	0.00	4595.51	-0.00	2 E
		-61.79	-22705.92	0.00	-0.00	5203.12	0.00	2 E
		157.72	-22705.92	-0.00	0.00	5203.12	0.00	2 E
		-0.00	-9539.45	-0.00	0.00	3437.51	-0.00	2 E
		-0.00	-26120.03	-0.00	0.00	7357.83	0.00	2 E
87	1.25	-0.00	-25934.18	-0.00	0.00	5181.17	0.00	2 E
		-0.00	-3101.23	-0.00	0.00	4365.94	0.00	2 E
		-61.79	-16493.41	0.00	-0.00	4736.89	0.00	2 E
		147.94	-16493.41	-0.00	0.00	4736.89	0.00	2 E
		-0.00	-5451.93	-0.00	0.00	3102.51	-0.00	2 E
		-0.00	-20549.93	-0.00	0.00	6584.97	0.00	2 E
87	2.50	-0.00	1806.82	-0.00	0.00	3310.56	0.00	2 E
		-0.00	-19749.12	-0.00	0.00	4714.94	0.00	2 E
		-61.79	-10863.68	0.00	-0.00	4270.67	0.00	2 E
		138.15	-10863.68	-0.00	0.00	4270.67	0.00	2 E
		-0.00	257.03	-0.00	0.00	2665.50	-0.00	2 E
		-0.00	-12666.65	-0.00	0.00	6028.36	0.00	2 E
88	0.00	-0.00	1806.82	-0.00	0.00	3310.56	0.00	2 E
		-0.00	-19749.12	-0.00	0.00	4714.94	0.00	2 E
		-61.79	-10863.68	0.00	-0.00	4270.67	0.00	2 E
		138.15	-10863.68	-0.00	0.00	4270.67	0.00	2 E
		-0.00	257.03	-0.00	0.00	2665.50	-0.00	2 E
		-0.00	-12666.65	-0.00	0.00	6028.36	0.00	2 E
88	1.25	-0.00	5679.16	-0.00	0.00	2885.18	0.00	2 E
		-0.00	-14146.83	-0.00	0.00	4248.71	0.00	2 E
		-61.79	-5816.74	0.00	-0.00	3804.44	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		128.37	-5816.74	-0.00	0.00	3804.44	0.00	2 E
		-0.00	3379.53	-0.00	0.00	2330.50	-0.00	2 E
		-0.00	-5479.07	-0.00	0.00	5471.76	0.00	2 E
88	2.50	-0.00	9654.42	-0.00	0.00	3503.53	0.00	2 E
		-0.00	-9127.34	-0.00	0.00	3782.49	0.00	2 E
		-61.79	-1352.58	0.00	-0.00	3338.21	0.00	2 E
		118.58	-1352.58	-0.00	0.00	3338.21	0.00	2 E
		-0.00	1012.76	-0.00	0.00	4915.16	0.00	2 E
		-0.00	6083.27	-0.00	0.00	1995.49	-0.00	2 E
89	0.00	-0.00	9654.42	-0.00	0.00	3503.53	0.00	2 E
		-0.00	-9127.34	-0.00	0.00	3782.49	0.00	2 E
		-61.79	-1352.58	0.00	-0.00	3338.21	0.00	2 E
		118.58	-1352.58	-0.00	0.00	3338.21	0.00	2 E
		-0.00	1012.76	-0.00	0.00	4915.16	0.00	2 E
		-0.00	6083.27	-0.00	0.00	1995.49	-0.00	2 E
89	1.25	-0.00	14479.73	-0.00	0.00	3886.50	0.00	2 E
		-0.00	-5402.37	-0.00	0.00	2507.91	-0.00	2 E
		108.80	2528.79	-0.00	0.00	2871.99	0.00	2 E
		-61.79	2528.79	0.00	-0.00	2871.99	0.00	2 E
		-0.00	6808.83	-0.00	0.00	4358.56	0.00	2 E
		-0.00	8368.26	-0.00	0.00	1660.49	-0.00	2 E
89	2.50	-0.00	18989.98	-0.00	0.00	3329.90	0.00	2 E
		-0.00	-2476.86	-0.00	0.00	2172.91	-0.00	2 E
		99.01	5827.39	0.00	0.00	2405.76	0.00	2 E
		-61.79	5827.39	0.00	-0.00	2405.76	0.00	2 E
		-0.00	11909.15	-0.00	0.00	3801.96	0.00	2 E
		-0.00	10234.49	-0.00	0.00	1325.49	-0.00	2 E
90	0.00	-0.00	18989.98	-0.00	0.00	3329.90	0.00	2 E
		-0.00	-2476.86	-0.00	0.00	2172.91	-0.00	2 E
		99.01	5827.39	0.00	0.00	2405.76	0.00	2 E
		-61.79	5827.39	0.00	-0.00	2405.76	0.00	2 E
		-0.00	11909.15	-0.00	0.00	3801.96	0.00	2 E
		-0.00	10234.49	-0.00	0.00	1325.49	-0.00	2 E
90	1.25	-0.00	22804.48	-0.00	0.00	2773.30	0.00	2 E
		-0.00	29.90	-0.00	0.00	1837.91	-0.00	2 E
		89.23	8543.19	0.00	0.00	1939.53	0.00	2 E
		-61.79	8543.19	0.00	-0.00	1939.53	0.00	2 E
		-0.00	16313.72	-0.00	0.00	3245.36	0.00	2 E
		-0.00	11681.98	-0.00	0.00	990.48	-0.00	2 E
90	2.50	-0.00	25923.23	-0.00	0.00	2216.70	0.00	2 E
		-0.00	2117.91	-0.00	0.00	1502.90	-0.00	2 E
		79.44	10676.22	0.00	0.00	1473.31	0.00	2 E
		-61.79	10676.22	0.00	-0.00	1473.31	0.00	2 E
		-0.00	20022.54	-0.00	0.00	2688.75	0.00	2 E
		-0.00	12710.70	-0.00	0.00	655.48	-0.00	2 E
91	0.00	-0.00	25923.23	-0.00	0.00	2216.70	0.00	2 E
		-0.00	2117.91	-0.00	0.00	1502.90	-0.00	2 E
		79.44	10676.22	0.00	0.00	1473.31	0.00	2 E
		-61.79	10676.22	0.00	-0.00	1473.31	0.00	2 E
		-0.00	20022.54	-0.00	0.00	2688.75	0.00	2 E
		-0.00	12710.70	-0.00	0.00	655.48	-0.00	2 E
91	1.25	-0.00	28188.73	-0.00	0.00	1030.10	0.00	2 E
		-0.00	3787.16	-0.00	0.00	1167.90	-0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		69.65	12226.46	0.00	0.00	1007.08	0.00	2 E
		-61.79	12226.46	0.00	-0.00	1007.08	0.00	2 E
		-0.00	16730.08	-0.00	0.00	1508.24	0.00	2 E
		-0.00	13320.67	-0.00	0.00	320.48	-0.00	2 E
91	2.50	-0.00	29128.47	-0.00	0.00	473.49	0.00	2 E
		-0.00	5037.66	-0.00	0.00	832.90	-0.00	2 E
		61.79	13193.92	-0.00	0.00	540.85	0.00	2 E
		-63.71	13193.92	0.00	0.00	540.85	0.00	2 E
		-0.00	13882.13	-0.00	0.00	1029.58	0.00	2 E
		-0.00	17897.27	-0.00	0.00	-92.47	0.00	2 E
92	0.00	-0.00	29128.47	-0.00	0.00	-156.51	0.00	2 E
		-0.00	5037.66	-0.00	0.00	832.90	-0.00	2 E
		61.79	13193.92	-0.00	0.00	540.85	0.00	2 E
		-63.71	13193.92	0.00	0.00	540.85	0.00	2 E
		-0.00	13882.13	-0.00	0.00	1029.58	0.00	2 E
		-0.00	25414.93	-0.00	0.00	-308.73	0.00	2 E
92	1.25	-0.00	28584.96	-0.00	0.00	-713.11	0.00	2 E
		-0.00	5869.40	-0.00	0.00	497.89	-0.00	2 E
		61.79	13578.59	-0.00	0.00	74.63	0.00	2 E
		-73.49	13578.59	0.00	0.00	74.63	0.00	2 E
		-0.00	14877.71	-0.00	0.00	563.36	0.00	2 E
		-0.00	24763.15	-0.00	0.00	-734.11	0.00	2 E
92	2.50	-0.00	26715.70	-0.00	0.00	-1899.71	0.00	2 E
		-0.00	6282.39	-0.00	0.00	162.89	-0.00	2 E
		61.79	13380.48	-0.00	0.00	-391.60	0.00	2 E
		-83.28	13380.48	0.00	0.00	-391.60	0.00	2 E
		-0.00	11524.46	-0.00	0.00	207.35	0.00	2 E
		-0.00	26715.70	-0.00	0.00	-1899.71	0.00	2 E
93	0.00	-0.00	26715.70	-0.00	0.00	-1899.71	0.00	2 E
		-0.00	6282.39	-0.00	0.00	162.89	-0.00	2 E
		61.79	13380.48	-0.00	0.00	-391.60	0.00	2 E
		-83.28	13380.48	0.00	0.00	-391.60	0.00	2 E
		-0.00	11524.46	-0.00	0.00	207.35	0.00	2 E
		-0.00	26715.70	-0.00	0.00	-1899.71	0.00	2 E
93	1.25	-0.00	23993.19	-0.00	0.00	-2456.31	0.00	2 E
		-0.00	6276.63	-0.00	0.00	-172.11	-0.00	2 E
		61.79	12599.59	-0.00	0.00	-857.83	0.00	2 E
		-93.06	12599.59	0.00	0.00	-857.83	0.00	2 E
		-0.00	11574.27	-0.00	0.00	-127.66	0.00	2 E
		-0.00	23993.19	-0.00	0.00	-2456.31	0.00	2 E
93	2.50	-0.00	20574.92	-0.00	0.00	-3012.91	0.00	2 E
		-0.00	5852.11	-0.00	0.00	-507.12	-0.00	2 E
		61.79	11235.92	-0.00	0.00	-1324.05	0.00	2 E
		-102.85	11235.92	0.00	0.00	-1324.05	0.00	2 E
		-0.00	11205.32	-0.00	0.00	-462.66	0.00	2 E
		-0.00	20574.92	-0.00	0.00	-3012.91	0.00	2 E
94	0.00	-0.00	20574.92	-0.00	0.00	-3012.91	0.00	2 E
		-0.00	5852.11	-0.00	0.00	-507.12	-0.00	2 E
		61.79	11235.92	-0.00	0.00	-1324.05	0.00	2 E
		-102.85	11235.92	0.00	0.00	-1324.05	0.00	2 E
		-0.00	11205.32	-0.00	0.00	-462.66	0.00	2 E
		-0.00	20574.92	-0.00	0.00	-3012.91	0.00	2 E
94	1.25	-0.00	16847.56	-0.00	0.00	-2933.42	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		-0.00	5008.84	-0.00	0.00	-842.12	-0.00	2 E
		61.79	9289.46	-0.00	0.00	-1790.28	0.00	2 E
		-112.63	9289.46	0.00	0.00	-1790.28	0.00	2 E
		-0.00	5008.84	-0.00	0.00	-842.12	-0.00	2 E
		-0.00	16460.91	-0.00	0.00	-3569.51	0.00	2 E
94	2.50	-0.00	12549.41	-0.00	0.00	-4120.02	0.00	2 E
		-0.00	3746.81	-0.00	0.00	-1177.12	-0.00	2 E
		61.79	6760.21	-0.00	0.00	-2256.51	0.00	2 E
		-122.42	6760.21	0.00	0.00	-2256.51	0.00	2 E
		-0.00	3746.81	-0.00	0.00	-1177.12	-0.00	2 E
		-0.00	11651.14	-0.00	0.00	-4126.12	0.00	2 E
95	0.00	-0.00	12549.41	-0.00	0.00	-4120.02	0.00	2 E
		-0.00	3746.81	-0.00	0.00	-1177.12	-0.00	2 E
		61.79	6760.21	-0.00	0.00	-2256.51	0.00	2 E
		-122.42	6760.21	0.00	0.00	-2256.51	0.00	2 E
		-0.00	3746.81	-0.00	0.00	-1177.12	-0.00	2 E
		-0.00	11651.14	-0.00	0.00	-4126.12	0.00	2 E
95	1.25	-0.00	6925.50	-0.00	0.00	-5306.63	0.00	2 E
		-0.00	2066.03	-0.00	0.00	-1512.13	-0.00	2 E
		61.79	3648.19	-0.00	0.00	-2722.73	0.00	2 E
		-132.21	3648.19	0.00	0.00	-2722.73	0.00	2 E
		-0.00	2066.03	-0.00	0.00	-1512.13	-0.00	2 E
		-0.00	6925.50	-0.00	0.00	-5306.63	0.00	2 E
95	2.50	-0.00	-55.66	-0.00	0.00	-3545.63	0.00	2 E
		-0.00	-33.50	-0.00	0.00	-4164.73	0.00	2 E
		-141.99	-46.62	0.00	0.00	-3188.96	0.00	2 E
		61.79	-46.62	-0.00	0.00	-3188.96	0.00	2 E
		-0.00	-55.66	-0.00	0.00	-5863.23	0.00	2 E
		-0.00	-33.50	-0.00	0.00	-1847.13	-0.00	2 E
96	0.00	-0.00	-55.66	-0.00	0.00	222.64	0.00	2 E
		-0.00	-33.50	-0.00	0.00	134.00	-0.00	2 E
		-0.00	-46.62	-0.00	-0.00	186.49	-0.00	2 E
		3.91	-46.62	0.00	-0.00	186.49	-0.00	2 E
		-0.00	-33.50	-0.00	0.00	134.00	-0.00	2 E
		-0.00	-55.66	-0.00	0.00	222.64	-0.00	2 E
96	0.25	-0.00	-13.92	-0.00	0.00	111.32	0.00	2 E
		-0.00	-8.38	-0.00	0.00	67.00	-0.00	2 E
		-0.00	-11.66	-0.00	-0.00	93.25	-0.00	2 E
		1.96	-11.66	0.00	-0.00	93.25	-0.00	2 E
		-0.00	-8.38	-0.00	0.00	67.00	-0.00	2 E
		-0.00	-13.92	-0.00	0.00	111.32	-0.00	2 E
96	0.50	-0.00	0.00	-0.00	0.00	0.00	-0.00	2 E
		-0.00	-0.00	-0.00	0.00	0.00	0.00	2 E
		-0.00	-0.00	-0.00	-0.00	0.00	-0.00	2 E
		0.00	-0.00	0.00	-0.00	0.00	-0.00	2 E
		-0.00	-0.00	-0.00	0.00	0.00	-0.00	2 E
		-0.00	-0.00	-0.00	0.00	0.00	-0.00	2 E

Tendons restored from STATIK-3:

	bar	distance	tendon force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
	65	0.00									
			1 45310.00	-0.101	0.69	6.525	0.146	0.0	2.2	0.0	2.17
>	65	0.25									
			1 45320.00	-0.101	0.69	6.526	0.147	0.0	2.2	0.0	2.18
>	65	0.50									
			1 45330.00	-0.101	0.69	6.528	0.149	0.0	2.2	0.0	2.21
>	66	0.00									
			1 45330.00	-0.101	0.69	6.528	0.149	0.0	2.2	0.0	2.21
>	66	1.25									
			1 45440.00	-0.098	0.69	6.544	0.169	0.0	2.5	0.0	2.49
>	66	2.50									
			1 45630.00	-0.084	0.69	6.571	0.203	0.0	2.9	0.0	2.95
>	67	0.00									
			1 45630.00	-0.084	0.69	6.571	0.203	0.0	2.9	0.0	2.95
>	67	1.25									
			1 45830.00	-0.070	0.69	6.600	0.243	0.0	3.5	0.0	3.48
>	67	2.50									
			1 46030.00	-0.056	0.70	6.629	0.283	0.0	4.0	0.0	4.01
>	68	0.00									
			1 46030.00	-0.056	0.70	6.629	0.283	0.0	4.0	0.0	4.01
>	68	1.25									
			1 46230.00	-0.042	0.70	6.658	0.318	0.0	4.5	0.0	4.46
>	68	2.50									
			1 46420.00	-0.028	0.70	6.685	0.345	0.0	4.8	0.0	4.79
>	69	0.00									
			1 46420.00	-0.028	0.70	6.685	0.345	0.0	4.8	0.0	4.79
>	69	1.25									
			1 46620.00	-0.014	0.71	6.714	0.361	0.0	5.0	0.0	4.97
>	69	2.50									
			1 46820.00	-0.000	0.71	6.743	0.364	0.0	5.0	0.0	5.00
>	70	0.00									
			1 46820.00	0.000	0.71	6.743	0.364	0.0	5.0	0.0	5.00
>	70	1.25									
			1 46930.00	0.014	0.71	6.758	0.354	0.0	4.9	0.0	4.85
>	70	2.50									
			1 47030.00	0.027	0.71	6.773	0.331	0.0	4.6	0.0	4.56
>	71	0.00									
			1 47030.00	0.027	0.71	6.773	0.331	0.0	4.6	0.0	4.56
>	71	1.25									
			1 47130.00	0.041	0.71	6.787	0.299	0.0	4.1	0.0	4.14
>	71	2.50									
			1 47040.00	0.054	0.71	6.774	0.260	0.0	3.6	0.0	3.63
>	72	0.00									
			1 47040.00	0.054	0.71	6.774	0.260	0.0	3.6	0.0	3.63
>	72	1.25									
			1 46840.00	0.068	0.71	6.745	0.218	0.0	3.1	0.0	3.08
>	72	2.50									
			1 46640.00	0.081	0.71	6.717	0.180	0.0	2.6	0.0	2.57
>	73	0.00									
			1 46640.00	0.081	0.71	6.717	0.180	0.0	2.6	0.0	2.57
>	73	1.25									

Tendons restored from STATIK-3:

	bar	distance	tendon force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
	73	2.50									
			1 46250.00	0.108	0.70	6.660	0.142	0.0	2.1	0.0	2.07
>	74	0.00									
			1 46250.00	0.108	0.70	6.660	0.142	0.0	2.1	0.0	2.07
>	74	1.25									
			1 46050.00	0.121	0.70	6.632	0.159	0.0	2.3	0.0	2.32
>	74	2.50									
			1 45860.00	0.135	0.70	6.604	0.212	0.0	3.1	0.0	3.06
>	75	0.00									
			1 45860.00	0.135	0.70	6.604	0.212	0.0	3.1	0.0	3.06
>	75	1.25									
			1 45170.00	0.068	0.68	6.505	0.278	0.0	4.0	0.0	4.01
>	75	2.50									
			1 44490.00	0.000	0.67	6.407	0.304	0.0	4.4	0.0	4.43
>	76	0.00									
			1 44490.00	-0.000	0.67	6.407	0.304	0.0	4.4	0.0	4.43
>	76	1.80									
			1 43860.00	-0.060	0.66	6.316	0.267	0.0	4.0	0.0	3.98
>	76	3.60									
			1 43240.00	-0.120	0.66	6.227	0.186	0.0	2.9	0.0	2.86
>	77	0.00									
			1 43240.00	-0.120	0.66	6.227	0.186	0.0	2.9	0.0	2.86
>	77	1.80									
			1 43020.00	-0.105	0.65	6.195	0.134	0.0	2.1	0.0	2.10
>	77	3.60									
			1 42800.00	-0.090	0.65	6.164	0.125	0.0	2.0	0.0	2.03
>	78	0.00									
			1 42800.00	-0.090	0.65	6.164	0.129	0.0	2.0	0.0	2.03
>	78	1.80									
			1 42580.00	-0.075	0.65	6.132	0.153	0.0	2.4	0.0	2.41
>	78	3.60									
			1 42360.00	-0.060	0.64	6.100	0.192	0.0	3.0	0.0	3.01
>	79	0.00									
			1 42360.00	-0.060	0.64	6.100	0.192	0.0	3.0	0.0	3.01
>	79	1.80									
			1 42140.00	-0.045	0.64	6.069	0.234	0.0	3.6	0.0	3.64
>	79	3.60									
			1 41920.00	-0.030	0.64	6.037	0.269	0.0	4.2	0.0	4.17
>	80	0.00									
			1 41920.00	-0.030	0.64	6.037	0.269	0.0	4.2	0.0	4.17
>	80	1.80									
			1 41700.00	-0.015	0.63	6.005	0.291	0.0	4.5	0.0	4.52
>	80	3.60									
			1 41480.00	-0.000	0.63	5.974	0.298	0.0	4.6	0.0	4.64
>	81	0.00									
			1 41480.00	0.000	0.63	5.974	0.298	0.0	4.6	0.0	4.64
>	81	1.80									
			1 41700.00	0.015	0.63	6.005	0.291	0.0	4.5	0.0	4.52
>	81	3.60									
			1 41920.00	0.030	0.64	6.037	0.269	0.0	4.2	0.0	4.17
>	82	0.00									

Tendons restored from STATIK-3:

	bar	distance	tendon force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
	82	1.80									
			1 42140.00	0.045	0.64	6.069	0.234	0.0	3.6	0.0	3.64
>	82	3.60									
			1 42360.00	0.060	0.64	6.100	0.192	0.0	3.0	0.0	3.01
>	83	0.00									
			1 42360.00	0.060	0.64	6.100	0.192	0.0	3.0	0.0	3.01
>	83	1.80									
			1 42580.00	0.075	0.65	6.132	0.153	0.0	2.4	0.0	2.41
>	83	3.60									
			1 42800.00	0.090	0.65	6.164	0.129	0.0	2.0	0.0	2.03
>	84	0.00									
			1 42800.00	0.090	0.65	6.164	0.129	0.0	2.0	0.0	2.03
>	84	1.80									
			1 43020.00	0.105	0.65	6.195	0.134	0.0	2.1	0.0	2.10
>	84	3.60									
			1 43240.00	0.120	0.66	6.227	0.186	0.0	2.9	0.0	2.86
>	85	0.00									
			1 43240.00	0.120	0.66	6.227	0.186	0.0	2.9	0.0	2.86
>	85	1.80									
			1 43860.00	0.060	0.66	6.316	0.267	0.0	4.0	0.0	3.98
>	85	3.60									
			1 44490.00	0.000	0.67	6.407	0.304	0.0	4.4	0.0	4.43
>	86	0.00									
			1 44490.00	-0.000	0.67	6.407	0.304	0.0	4.4	0.0	4.43
>	86	1.25									
			1 45170.00	-0.068	0.68	6.505	0.278	0.0	4.0	0.0	4.01
>	86	2.50									
			1 45860.00	-0.135	0.70	6.604	0.212	0.0	3.1	0.0	3.06
>	87	0.00									
			1 45860.00	-0.135	0.70	6.604	0.212	0.0	3.1	0.0	3.06
>	87	1.25									
			1 46050.00	-0.121	0.70	6.632	0.159	0.0	2.3	0.0	2.32
>	87	2.50									
			1 46250.00	-0.108	0.70	6.660	0.142	0.0	2.1	0.0	2.07
>	88	0.00									
			1 46250.00	-0.108	0.70	6.660	0.142	0.0	2.1	0.0	2.07
>	88	1.25									
			1 46440.00	-0.095	0.70	6.688	0.152	0.0	2.2	0.0	2.20
>	88	2.50									
			1 46640.00	-0.081	0.71	6.717	0.180	0.0	2.6	0.0	2.57
>	89	0.00									
			1 46640.00	-0.081	0.71	6.717	0.180	0.0	2.6	0.0	2.57
>	89	1.25									
			1 46840.00	-0.068	0.71	6.745	0.218	0.0	3.1	0.0	3.08
>	89	2.50									
			1 47040.00	-0.054	0.71	6.774	0.260	0.0	3.6	0.0	3.63
>	90	0.00									
			1 47040.00	-0.054	0.71	6.774	0.260	0.0	3.6	0.0	3.63
>	90	1.25									
			1 47130.00	-0.041	0.71	6.787	0.299	0.0	4.1	0.0	4.14
>	90	2.50									

Tendons restored from STATIK-3:

	bar	distance	tendon force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
	91	0.00									
			1 47030.00	-0.027	0.71	6.773	0.331	0.0	4.6	0.0	4.56
>	91	1.25									
			1 46930.00	-0.014	0.71	6.758	0.354	0.0	4.9	0.0	4.85
>	91	2.50									
			1 46820.00	-0.000	0.71	6.743	0.364	0.0	5.0	0.0	5.00
>	92	0.00									
			1 46820.00	0.000	0.71	6.743	0.364	0.0	5.0	0.0	5.00
>	92	1.25									
			1 46620.00	0.014	0.71	6.714	0.361	0.0	5.0	0.0	4.97
>	92	2.50									
			1 46420.00	0.028	0.70	6.685	0.345	0.0	4.8	0.0	4.79
>	93	0.00									
			1 46420.00	0.028	0.70	6.685	0.345	0.0	4.8	0.0	4.79
>	93	1.25									
			1 46230.00	0.042	0.70	6.658	0.318	0.0	4.5	0.0	4.46
>	93	2.50									
			1 46030.00	0.056	0.70	6.629	0.283	0.0	4.0	0.0	4.01
>	94	0.00									
			1 46030.00	0.056	0.70	6.629	0.283	0.0	4.0	0.0	4.01
>	94	1.25									
			1 45830.00	0.070	0.69	6.600	0.243	0.0	3.5	0.0	3.48
>	94	2.50									
			1 45630.00	0.084	0.69	6.571	0.203	0.0	2.9	0.0	2.95
>	95	0.00									
			1 45630.00	0.084	0.69	6.571	0.203	0.0	2.9	0.0	2.95
>	95	1.25									
			1 45440.00	0.098	0.69	6.544	0.169	0.0	2.5	0.0	2.49
>	95	2.50									
			1 45330.00	0.101	0.69	6.528	0.149	0.0	2.2	0.0	2.21
>	96	0.00									
			1 45330.00	0.101	0.69	6.528	0.149	0.0	2.2	0.0	2.21
>	96	0.25									
			1 45320.00	0.101	0.69	6.526	0.147	0.0	2.2	0.0	2.18
>	96	0.50									
			1 45310.00	0.101	0.69	6.525	0.146	0.0	2.2	0.0	2.17

Action forces due to prestressing (STATIK-3) (1st line t=c, 2nd line t=oo)

bar	distance	Np [kN]	MyP [kNm]	Mzp [kNm]	Vzp [kN]
		-45076.12	-856.45	0.00	-4597.76
65	0.00	-44119.89	-838.28	0.00	-4500.23
		-45086.07	-2006.33	0.00	-4598.78
65	0.25	-44123.40	-1963.49	0.00	-4500.59
		-45096.02	-3156.27	0.00	-4599.79
65	0.50	-44121.91	-3088.09	0.00	-4500.43
		-45096.02	-3156.27	0.00	-4599.79
66	0.00	-44122.47	-3088.13	0.00	-4500.49
		-45223.09	-8899.96	0.00	-4434.56
66	1.25	-44126.77	-8684.15	0.00	-4327.07
		-45469.67	-14122.88	0.00	-3821.73

Action forces due to prestressing (STATIK-3) (1st line t=c, 2nd line t=oo)

bar	distance	Np [kN]	MyP [kNm]	Mzp [kNm]	Vzp [kN]
		-44168.69	-13718.80	0.00	-3712.38
67	0.00	-45469.67	-14122.88	0.00	-3821.73
		-44168.69	-13718.80	0.00	-3712.38
67	1.25	-45718.00	-18602.65	0.00	-3202.09
		-44181.33	-17977.38	0.00	-3094.46
67	2.50	-45957.92	-22321.76	0.00	-2575.02
		-44190.69	-21463.42	0.00	-2476.00
68	0.00	-45957.92	-22321.76	0.00	-2575.02
		-44190.69	-21463.42	0.00	-2476.00
68	1.25	-46189.22	-25265.50	0.00	-1941.33
		-44223.18	-24190.08	0.00	-1858.70
68	2.50	-46401.79	-27414.18	0.00	-1300.18
		-44287.59	-26165.11	0.00	-1240.94
69	0.00	-46401.79	-27414.18	0.00	-1300.18
		-44287.59	-26165.11	0.00	-1240.94
69	1.25	-46615.43	-28761.72	0.00	-653.08
		-44414.93	-27404.01	0.00	-622.25
69	2.50	-46820.00	-29299.96	0.00	-0.00
		-44601.10	-27911.37	0.00	-0.00
70	0.00	-46820.00	-29299.96	0.00	0.00
		-44601.10	-27911.37	0.00	0.00
70	1.25	-46925.66	-28967.21	0.00	638.19
		-44762.13	-27631.66	0.00	608.76
70	2.50	-47012.61	-27822.06	0.00	1278.74
		-44969.61	-26613.02	0.00	1223.17
71	0.00	-47012.61	-27822.06	0.00	1278.74
		-44969.61	-26613.02	0.00	1223.17
71	1.25	-47090.82	-25866.99	0.00	1921.31
		-45224.62	-24841.88	0.00	1845.16
71	2.50	-46970.55	-23006.18	0.00	2555.20
		-45330.41	-22202.83	0.00	2465.97
72	0.00	-46970.55	-23006.18	0.00	2555.20
		-45330.41	-22202.83	0.00	2465.97
72	1.25	-46732.06	-19314.37	0.00	3177.78
		-45338.58	-18738.43	0.00	3083.02
72	2.50	-46485.49	-14866.06	0.00	3793.22
		-45321.59	-14493.84	0.00	3698.24
73	0.00	-46485.49	-14866.06	0.00	3793.22
		-45321.59	-14493.84	0.00	3698.24
73	1.25	-46230.96	-9676.14	0.00	4401.19
		-45237.47	-9468.20	0.00	4306.61
73	2.50	-45978.67	-3761.05	0.00	5002.48
		-45045.95	-3684.76	0.00	4901.00
74	0.00	-45978.67	-3761.05	0.00	5002.48
		-45045.95	-3684.76	0.00	4901.00
74	1.25	-45708.87	2865.95	0.00	5594.77
		-44674.38	2801.08	0.00	5458.14
74	2.50	-45441.68	10188.02	0.00	6180.07
		-44094.67	9886.02	0.00	5996.87
75	0.00	-45441.68	10188.02	0.00	6180.07
		-44094.67	9886.02	0.00	5996.87
75	1.25	-45065.93	15849.69	0.00	3064.48
		-43331.88	15239.82	0.00	2946.57

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
75	2.50	-44490.00	17537.96	0.00	0.00
		-42607.60	16795.91	0.00	0.00
76	0.00	-44490.00	17537.96	0.00	-0.00
		-42608.21	16796.15	0.00	-0.00
76	1.80	-43779.79	14872.00	0.00	-2651.30
		-42109.45	14304.58	0.00	-2550.15
76	3.60	-42926.38	7563.63	0.00	-5198.39
		-41733.78	7353.49	0.00	-5053.96
77	0.00	-42926.38	7563.63	0.00	-5198.39
		-41733.78	7353.49	0.00	-5053.96
77	1.80	-42780.33	-1205.55	0.00	-4534.72
		-41901.39	-11180.78	0.00	-4441.55
77	3.60	-42624.53	-8750.82	0.00	-3871.59
		-41776.52	-8576.72	0.00	-3794.56
78	0.00	-42624.53	-8750.82	0.00	-3871.59
		-41776.52	-8576.72	0.00	-3794.56
78	1.80	-42458.55	-15081.26	0.00	-3213.69
		-41460.65	-14726.82	0.00	-3138.16
78	3.60	-42282.54	-20202.60	0.00	-2560.63
		-41050.54	-19613.95	0.00	-2486.02
79	0.00	-42282.54	-20202.60	0.00	-2560.63
		-41050.54	-19613.95	0.00	-2486.02
79	1.80	-42096.60	-24129.77	0.00	-1912.03
		-40621.82	-23284.43	0.00	-1845.04
79	3.60	-41900.80	-26870.98	0.00	-1268.76
		-40226.73	-25797.40	0.00	-1218.07
80	0.00	-41900.80	-26870.98	0.00	-1268.76
		-40226.73	-25797.40	0.00	-1218.07
80	1.80	-41695.22	-28444.48	0.00	-631.27
		-39896.43	-27217.34	0.00	-604.03
80	3.60	-41480.00	-28861.78	0.00	-0.00
		-39647.03	-27586.40	0.00	-0.00
81	0.00	-41480.00	-28861.78	0.00	0.00
		-39647.03	-27586.40	0.00	0.00
81	1.80	-41695.22	-28444.48	0.00	631.27
		-39896.43	-27217.34	0.00	604.03
81	3.60	-41900.80	-26870.98	0.00	1268.76
		-40226.73	-25797.40	0.00	1218.07
82	0.00	-41900.80	-26870.98	0.00	1268.76
		-40226.73	-25797.40	0.00	1218.07
82	1.80	-42096.60	-24129.77	0.00	1912.03
		-40621.82	-23284.43	0.00	1845.04
82	3.60	-42282.54	-20202.60	0.00	2560.63
		-41050.54	-19613.95	0.00	2486.02
83	0.00	-42282.54	-20202.60	0.00	2560.63
		-41050.54	-19613.95	0.00	2486.02
83	1.80	-42458.55	-15081.26	0.00	3213.69
		-41460.65	-14726.82	0.00	3138.16
83	3.60	-42624.53	-8750.82	0.00	3871.59
		-41776.52	-8576.72	0.00	3794.56
84	0.00	-42624.53	-8750.82	0.00	3871.59
		-41776.52	-8576.72	0.00	3794.56
84	1.80	-42780.33	-1205.55	0.00	4534.72

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
		-41901.39	-11180.78	0.00	4441.55
84	3.60	-42926.38	7563.63	0.00	5198.39
		-41733.78	7353.49	0.00	5053.96
85	0.00	-42926.38	7563.63	0.00	5198.39
		-41733.78	7353.49	0.00	5053.96
85	1.80	-43779.79	14872.00	0.00	2651.30
		-42109.45	14304.58	0.00	2550.15
85	3.60	-44490.00	17537.96	0.00	0.00
		-42608.21	16796.15	0.00	0.00
86	0.00	-44490.00	17537.96	0.00	-0.00
		-42607.60	16795.91	0.00	-0.00
86	1.25	-45065.93	15849.69	0.00	-3064.48
		-43331.88	15239.82	0.00	-2946.57
86	2.50	-45441.68	10188.02	0.00	-6180.07
		-44094.67	9886.02	0.00	-5996.87
87	0.00	-45441.68	10188.02	0.00	-6180.07
		-44094.67	9886.02	0.00	-5996.87
87	1.25	-45708.87	2865.95	0.00	-5594.77
		-44674.38	2801.06	0.00	-5468.14
87	2.50	-45978.67	-3761.05	0.00	-5002.48
		-45045.95	-3684.76	0.00	-4901.00
88	0.00	-45978.67	-3761.05	0.00	-5002.48
		-45045.95	-3684.76	0.00	-4901.00
88	1.25	-46230.98	-9676.14	0.00	-4401.19
		-45237.47	-9468.20	0.00	-4306.61
88	2.50	-46485.49	-14866.06	0.00	-3793.22
		-45321.59	-14493.84	0.00	-3698.24
89	0.00	-46485.49	-14866.06	0.00	-3793.22
		-45321.59	-14493.84	0.00	-3698.24
89	1.25	-46732.08	-19314.37	0.00	-3177.78
		-45338.58	-18738.43	0.00	-3083.02
89	2.50	-46970.55	-23006.18	0.00	-2555.20
		-45330.41	-22202.83	0.00	-2465.97
90	0.00	-46970.55	-23006.18	0.00	-2555.20
		-45330.41	-22202.83	0.00	-2465.97
90	1.25	-47090.82	-25866.99	0.00	-1921.31
		-45224.62	-24841.88	0.00	-1845.16
90	2.50	-47012.61	-27822.06	0.00	-1278.74
		-44969.61	-26613.02	0.00	-1223.17
91	0.00	-47012.61	-27822.06	0.00	-1278.74
		-44969.61	-26613.02	0.00	-1223.17
91	1.25	-46925.66	-28967.21	0.00	-638.19
		-44762.13	-27631.66	0.00	-608.76
91	2.50	-46820.00	-29299.96	0.00	-0.00
		-44601.10	-27911.37	0.00	-0.00
92	0.00	-46820.00	-29299.96	0.00	0.00
		-44601.10	-27911.37	0.00	0.00
92	1.25	-46615.43	-28761.72	0.00	653.08
		-44414.93	-27404.01	0.00	622.25
92	2.50	-46401.79	-27414.18	0.00	1300.18
		-44287.59	-26165.11	0.00	1240.94
93	0.00	-46401.79	-27414.18	0.00	1300.18
		-44287.59	-26165.11	0.00	1240.94

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
93	1.25	-46189.22	-25265.50	0.00	1941.33
		-44223.18	-24190.08	0.00	1858.70
93	2.50	-45957.92	-22321.76	0.00	2575.02
		-44190.69	-21463.42	0.00	2476.00
94	0.00	-45957.92	-22321.76	0.00	2575.02
		-44190.69	-21463.42	0.00	2476.00
94	1.25	-45718.00	-18602.65	0.00	3202.09
		-44181.33	-17977.36	0.00	3094.46
94	2.50	-45469.67	-14122.88	0.00	3821.73
		-44168.69	-13718.80	0.00	3712.38
95	0.00	-45469.67	-14122.88	0.00	3821.73
		-44168.69	-13718.80	0.00	3712.38
95	1.25	-45223.09	-8899.90	0.00	4434.56
		-44126.77	-8684.15	0.00	4327.07
95	2.50	-45096.02	-3156.27	0.00	4599.79
		-44122.47	-3088.13	0.00	4500.45
96	0.00	-45096.02	-3156.27	0.00	4599.79
		-44121.91	-3088.09	0.00	4500.43
96	0.25	-45086.07	-2006.33	0.00	4598.78
		-44123.40	-1963.49	0.00	4500.59
96	0.50	-45076.12	-856.45	0.00	4597.76
		-44119.89	-838.26	0.00	4500.23

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
65	0.00	1.00	1.00	1.00	1.00	0.00	-------
65	0.00	1.00	1.00	1.00	1.00	0.00	-------
65	0.25	1.00	1.00	1.00	1.00	0.00	-------
65	0.25	1.00	1.00	1.00	1.00	0.00	-------
65	0.50	1.00	1.00	1.00	1.00	0.00	-------
65	0.50	1.00	1.00	1.00	1.00	0.00	-------
66	0.00	1.00	1.00	1.00	1.00	0.00	-------
66	0.60	1.00	1.00	1.00	1.00	0.00	-------
66	0.65	1.00	1.00	1.00	1.00	0.00	-------
66	1.25	1.00	1.00	1.00	1.00	0.00	-------
66	1.25	1.00	1.00	1.00	1.00	0.00	-------
66	1.85	1.00	1.00	1.00	1.00	0.00	-------
67	0.00	1.00	1.00	1.00	1.00	0.00	-------
67	0.60	1.00	1.00	1.00	1.00	0.00	-------
67	0.65	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
67	1.25	1.00	1.00	1.00	1.00	0.00	-------
67	1.25	1.00	1.00	1.00	1.00	0.00	-------
67	1.85	1.00	1.00	1.00	1.00	0.00	-------
68	0.00	1.00	1.00	1.00	1.00	0.00	-------
68	0.60	1.00	1.00	1.00	1.00	0.00	-------
68	0.65	1.00	1.00	1.00	1.00	0.00	-------
68	1.25	1.00	1.00	1.00	1.00	0.00	-------
68	1.25	1.00	1.00	1.00	1.00	0.00	-------
68	1.85	1.00	1.00	1.00	1.00	0.00	-------
69	0.00	1.00	1.00	1.00	1.00	0.00	-------
69	0.60	1.00	1.00	1.00	1.00	0.00	-------
69	0.65	1.00	1.00	1.00	1.00	0.00	-------
69	1.25	1.00	1.00	1.00	1.00	0.00	-------
69	1.25	1.00	1.00	1.00	1.00	0.00	-------
69	1.85	1.00	1.00	1.00	1.00	0.00	-------
70	0.00	1.00	1.00	1.00	1.00	0.00	-------
70	0.60	1.00	1.00	1.00	1.00	0.00	-------
70	0.65	1.00	1.00	1.00	1.00	0.00	-------
70	1.25	1.00	1.00	1.00	1.00	0.00	-------
70	1.25	1.00	1.00	1.00	1.00	0.00	-------
70	1.85	1.00	1.00	1.00	1.00	0.00	-------
71	0.00	1.00	1.00	1.00	1.00	0.00	-------
71	0.60	1.00	1.00	1.00	1.00	0.00	-------
71	0.65	1.00	1.00	1.00	1.00	0.00	-------
71	1.25	1.00	1.00	1.00	1.00	0.00	-------
71	1.25	1.00	1.00	1.00	1.00	0.00	-------
71	1.85	1.00	1.00	1.00	1.00	0.00	-------
72	0.00	1.00	1.00	1.00	1.00	0.00	-------
72	0.60	1.00	1.00	1.00	1.00	0.00	-------
72	0.65	1.00	1.00	1.00	1.00	0.00	-------
72	1.25	1.00	1.00	1.00	1.00	0.00	-------
72	1.25	1.00	1.00	1.00	1.00	0.00	-------
72	1.85	1.00	1.00	1.00	1.00	0.00	-------
73	0.00	1.00	1.00	1.00	1.00	0.00	-------
73	0.60	1.00	1.00	1.00	1.00	0.00	-------
73	0.65	1.00	1.00	1.00	1.00	0.00	-------
73	1.25	1.00	1.00	1.00	1.00	0.00	-------
73	1.25	1.00	1.00	1.00	1.00	0.00	-------
73	1.85	1.00	1.00	1.00	1.00	0.00	-------
74	0.00	1.00	1.00	1.00	1.00	0.00	-------
74	0.60	1.00	1.00	1.00	1.00	0.00	-------
74	0.65	1.00	1.00	1.00	1.00	0.00	-------
74	1.25	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
74	1.25	1.00	1.00	1.00	1.00	0.00	-------
74	1.85	1.00	1.00	1.00	1.00	0.00	-------
75	0.00	1.00	1.00	1.00	1.00	0.00	-------
75	0.60	1.00	1.00	1.00	1.00	0.00	-------
75	0.65	1.00	1.00	1.00	1.00	0.00	-------
75	1.25	1.00	1.00	1.00	1.00	0.00	-------
75	1.25	1.00	1.00	1.00	1.00	0.00	-------
75	1.85	1.00	1.00	1.00	1.00	0.00	-------
76	0.00	1.00	1.00	1.00	1.00	0.00	-------
76	0.60	1.00	1.00	1.00	1.00	0.00	-------
76	1.20	1.00	1.00	1.00	1.00	0.00	-------
76	1.80	1.00	1.00	1.00	1.00	0.00	-------
76	1.80	1.00	1.00	1.00	1.00	0.00	-------
76	2.40	1.00	1.00	1.00	1.00	0.00	-------
77	0.00	1.00	1.00	1.00	1.00	0.00	-------
77	0.60	1.00	1.00	1.00	1.00	0.00	-------
77	1.20	1.00	1.00	1.00	1.00	0.00	-------
77	1.80	1.00	1.00	1.00	1.00	0.00	-------
77	1.80	1.00	1.00	1.00	1.00	0.00	-------
77	2.40	1.00	1.00	1.00	1.00	0.00	-------
78	0.00	1.00	1.00	1.00	1.00	0.00	-------
78	0.60	1.00	1.00	1.00	1.00	0.00	-------
78	1.20	1.00	1.00	1.00	1.00	0.00	-------
78	1.80	1.00	1.00	1.00	1.00	0.00	-------
78	1.80	1.00	1.00	1.00	1.00	0.00	-------
78	2.40	1.00	1.00	1.00	1.00	0.00	-------
79	0.00	1.00	1.00	1.00	1.00	0.00	-------
79	0.60	1.00	1.00	1.00	1.00	0.00	-------
79	1.20	1.00	1.00	1.00	1.00	0.00	-------
79	1.80	1.00	1.00	1.00	1.00	0.00	-------
79	1.80	1.00	1.00	1.00	1.00	0.00	-------
79	2.40	1.00	1.00	1.00	1.00	0.00	-------
80	0.00	1.00	1.00	1.00	1.00	0.00	-------
80	0.60	1.00	1.00	1.00	1.00	0.00	-------
80	1.20	1.00	1.00	1.00	1.00	0.00	-------
80	1.80	1.00	1.00	1.00	1.00	0.00	-------
80	1.80	1.00	1.00	1.00	1.00	0.00	-------
80	2.40	1.00	1.00	1.00	1.00	0.00	-------
81	0.00	1.00	1.00	1.00	1.00	0.00	-------
81	0.60	1.00	1.00	1.00	1.00	0.00	-------
81	1.20	1.00	1.00	1.00	1.00	0.00	-------
81	1.80	1.00	1.00	1.00	1.00	0.00	-------
81	1.80	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
81	2.40	1.00	1.00	1.00	1.00	0.00	-------
82	0.00	1.00	1.00	1.00	1.00	0.00	-------
82	0.60	1.00	1.00	1.00	1.00	0.00	-------
82	1.20	1.00	1.00	1.00	1.00	0.00	-------
82	1.80	1.00	1.00	1.00	1.00	0.00	-------
82	1.80	1.00	1.00	1.00	1.00	0.00	-------
82	2.40	1.00	1.00	1.00	1.00	0.00	-------
83	0.00	1.00	1.00	1.00	1.00	0.00	-------
83	0.60	1.00	1.00	1.00	1.00	0.00	-------
83	1.20	1.00	1.00	1.00	1.00	0.00	-------
83	1.80	1.00	1.00	1.00	1.00	0.00	-------
83	1.80	1.00	1.00	1.00	1.00	0.00	-------
83	2.40	1.00	1.00	1.00	1.00	0.00	-------
84	0.00	1.00	1.00	1.00	1.00	0.00	-------
84	0.60	1.00	1.00	1.00	1.00	0.00	-------
84	1.20	1.00	1.00	1.00	1.00	0.00	-------
84	1.80	1.00	1.00	1.00	1.00	0.00	-------
84	1.80	1.00	1.00	1.00	1.00	0.00	-------
84	2.40	1.00	1.00	1.00	1.00	0.00	-------
85	0.00	1.00	1.00	1.00	1.00	0.00	-------
85	0.60	1.00	1.00	1.00	1.00	0.00	-------
85	1.20	1.00	1.00	1.00	1.00	0.00	-------
85	1.80	1.00	1.00	1.00	1.00	0.00	-------
85	1.80	1.00	1.00	1.00	1.00	0.00	-------
85	2.40	1.00	1.00	1.00	1.00	0.00	-------
86	0.00	1.00	1.00	1.00	1.00	0.00	-------
86	0.60	1.00	1.00	1.00	1.00	0.00	-------
86	0.65	1.00	1.00	1.00	1.00	0.00	-------
86	1.25	1.00	1.00	1.00	1.00	0.00	-------
86	1.25	1.00	1.00	1.00	1.00	0.00	-------
86	1.85	1.00	1.00	1.00	1.00	0.00	-------
87	0.00	1.00	1.00	1.00	1.00	0.00	-------
87	0.60	1.00	1.00	1.00	1.00	0.00	-------
87	0.65	1.00	1.00	1.00	1.00	0.00	-------
87	1.25	1.00	1.00	1.00	1.00	0.00	-------
87	1.25	1.00	1.00	1.00	1.00	0.00	-------
87	1.85	1.00	1.00	1.00	1.00	0.00	-------
88	0.00	1.00	1.00	1.00	1.00	0.00	-------
88	0.60	1.00	1.00	1.00	1.00	0.00	-------
88	0.65	1.00	1.00	1.00	1.00	0.00	-------
88	1.25	1.00	1.00	1.00	1.00	0.00	-------
88	1.25	1.00	1.00	1.00	1.00	0.00	-------
88	1.85	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
89	0.00	1.00	1.00	1.00	1.00	0.00	-------
89	0.60	1.00	1.00	1.00	1.00	0.00	-------
89	0.65	1.00	1.00	1.00	1.00	0.00	-------
89	1.25	1.00	1.00	1.00	1.00	0.00	-------
89	1.25	1.00	1.00	1.00	1.00	0.00	-------
89	1.85	1.00	1.00	1.00	1.00	0.00	-------
90	0.00	1.00	1.00	1.00	1.00	0.00	-------
90	0.60	1.00	1.00	1.00	1.00	0.00	-------
90	0.65	1.00	1.00	1.00	1.00	0.00	-------
90	1.25	1.00	1.00	1.00	1.00	0.00	-------
90	1.25	1.00	1.00	1.00	1.00	0.00	-------
90	1.85	1.00	1.00	1.00	1.00	0.00	-------
91	0.00	1.00	1.00	1.00	1.00	0.00	-------
91	0.60	1.00	1.00	1.00	1.00	0.00	-------
91	0.65	1.00	1.00	1.00	1.00	0.00	-------
91	1.25	1.00	1.00	1.00	1.00	0.00	-------
91	1.25	1.00	1.00	1.00	1.00	0.00	-------
91	1.85	1.00	1.00	1.00	1.00	0.00	-------
92	0.00	1.00	1.00	1.00	1.00	0.00	-------
92	0.60	1.00	1.00	1.00	1.00	0.00	-------
92	0.65	1.00	1.00	1.00	1.00	0.00	-------
92	1.25	1.00	1.00	1.00	1.00	0.00	-------
92	1.25	1.00	1.00	1.00	1.00	0.00	-------
92	1.85	1.00	1.00	1.00	1.00	0.00	-------
93	0.00	1.00	1.00	1.00	1.00	0.00	-------
93	0.60	1.00	1.00	1.00	1.00	0.00	-------
93	0.65	1.00	1.00	1.00	1.00	0.00	-------
93	1.25	1.00	1.00	1.00	1.00	0.00	-------
93	1.25	1.00	1.00	1.00	1.00	0.00	-------
93	1.85	1.00	1.00	1.00	1.00	0.00	-------
94	0.00	1.00	1.00	1.00	1.00	0.00	-------
94	0.60	1.00	1.00	1.00	1.00	0.00	-------
94	0.65	1.00	1.00	1.00	1.00	0.00	-------
94	1.25	1.00	1.00	1.00	1.00	0.00	-------
94	1.25	1.00	1.00	1.00	1.00	0.00	-------
94	1.85	1.00	1.00	1.00	1.00	0.00	-------
95	0.00	1.00	1.00	1.00	1.00	0.00	-------
95	0.60	1.00	1.00	1.00	1.00	0.00	-------
95	0.65	1.00	1.00	1.00	1.00	0.00	-------
95	1.25	1.00	1.00	1.00	1.00	0.00	-------
95	1.25	1.00	1.00	1.00	1.00	0.00	-------
95	1.85	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
96	0.00	1.00	1.00	1.00	1.00	0.00	-------
96	0.00	1.00	1.00	1.00	1.00	0.00	-------
96	0.25	1.00	1.00	1.00	1.00	0.00	-------
96	0.25	1.00	1.00	1.00	1.00	0.00	-------
96	0.50	1.00	1.00	1.00	1.00	0.00	-------
96	0.50	1.00	1.00	1.00	1.00	0.00	-------

LOADING: 'PRET. HIPERESTATICO 0'

Loadcase	Factor	Stage	Init.def	Title
4Z	0.85000			PRETENSADO

(Z = Only restraint actions due to prestres.)

ENVELOPE SPECIFIC.: FR 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PL.PERM	5	1.350		RETRACCION Y FLUENCIA
H	OR	5	1.000		RETRACCION Y FLUENCIA
I	PLUS	46	1.500		SOE UNIF VANO 1
J	PLUS	47	1.500		SOE UNIF VANO 2
K	PLUS	48	1.500		SOE UNIF VANO 3
L	PLUS	11	3.150		VEHICULO HIPOTESIS 37
M	OR	12	3.150		VEHICULO HIPOTESIS 38
N	OR	13	3.150		VEHICULO HIPOTESIS 39
O	OR	14	3.150		VEHICULO HIPOTESIS 40
P	OR	15	3.150		VEHICULO HIPOTESIS 41
Q	OR	16	3.150		VEHICULO POSICION 42
R	OR	17	3.150		VEHICULO POSICION 43
S	OR	18	3.150		VEHICULO POSICION 44
T	OR	19	3.150		VEHICULO POSICION 45
U	PLUS	30	1.500		FRENADO
V	PLUS	32	0.450000		VIENTO SIN SOE
W	PLUS	34	0.900000		TEMPERATURA (-)
X	OR	35	0.900000		TEMPERATURA (+)
Y	OR	36	0.900000		GRADIENTE

SPECIFICATINS DESIGN ENVELOPE File:ELUVAN00, 'ELUVA00'

Load group	Char.Actions	Factor	File
1	COMBINACION CARACTERISTICA	1.000	(ELUV00)

FAGUS-3 - post-processor module::

Section forces and prestressing restored from STATIK-3

Prestressing restored from STATIK-3

Prestressing steel A1900
Prestressing conditions (grouting)..... bonded

Parameters for evaluation of long term losses:
Concrete shrinkage ..... 0.30 [o/oo]
Steel relaxation class 2
Coefficient of concrete creep 1.76
Friction losses calculated in module STV .....

Section forces restored from STATIK-3:

Analysis	C.Set	N	Vy	Vz	T	My	Mz
Design	2	ELUVAN00	.ELUVAN00			.ELUVAN00	

Calculation parameters Construction code: EH 91

Calculation set 2: Design(Standard)

Concrete stress strain diagram ..... type 2
Concrete in tension ..... type 0

Max. strains:
Max. concrete strain at ult. limit state (compr.). -2.00 [o/oo]
Max. concrete strain at ult. limit state (bending) -3.50 [o/oo]
Max. strain in reinforcement bars (ult.limit state 10.00 [o/oo]

Resistance coefficients:
Concrete..... 1.5
Steel..... 1.15
Prestressing steel..... 1.15
Structural steel..... 1.15

Inclination of diagonal in compression..... 45
Creep coefficient..... 0

STATIK-3 prestressing:
Scrains used at..... t=o

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
65	0.00	-0.00	-0.00	0.00	-0.00	-0.00	0.00	2 E
		-0.00	-0.00	0.00	-0.00	-0.00	0.00	2 E
		-0.00	-0.00	0.00	-0.00	-0.00	0.00	2 E
		-0.00	-0.00	0.00	-0.00	-0.00	0.00	2 E
		-0.00	-0.00	0.00	-0.00	-0.00	0.00	2 E
		-0.00	-0.00	0.00	-0.00	-0.00	0.00	2 E
65	0.25	-0.00	-13.92	0.00	-0.00	-111.32	0.00	2 E
		-0.00	-8.38	0.00	-0.00	-67.00	0.00	2 E
		-1.47	-11.66	-0.00	-0.00	-93.25	0.00	2 E
		-0.00	-11.66	0.00	-0.00	-93.25	0.00	2 E
		-0.00	-13.92	0.00	-0.00	-111.32	0.00	2 E
		-0.00	-8.38	0.00	-0.00	-67.00	0.00	2 E
65	0.50	-0.00	-55.66	0.00	-0.00	-222.64	0.00	2 E
		-0.00	-33.50	0.00	-0.00	-134.00	0.00	2 E
		-2.95	-46.62	-0.00	-0.00	-186.49	0.00	2 E
		-0.00	-46.62	0.00	-0.00	-186.49	0.00	2 E
		-0.00	-55.66	0.00	-0.00	-222.64	0.00	2 E
		-0.00	-33.50	0.00	-0.00	-134.00	0.00	2 E
66	0.00	162.64	-55.66	-0.00	0.00	3545.63	0.00	2 E
		162.64	-33.50	-0.00	0.00	4161.70	0.00	2 E
		58.69	-46.62	-0.00	-0.00	3188.96	0.00	2 E
		284.81	-46.62	-0.00	0.00	3188.96	0.00	2 E
		162.64	-33.50	-0.00	0.00	1847.11	0.00	2 E
		162.64	-55.66	-0.00	0.00	5860.20	0.00	2 E
66	1.25	162.64	6921.72	-0.00	0.00	5303.60	0.00	2 E
		162.64	2066.03	-0.00	0.00	1512.13	0.00	2 E
		277.44	3648.19	-0.00	0.00	2722.73	0.00	2 E
		58.69	3648.19	-0.00	-0.00	2722.73	0.00	2 E
		162.64	6921.72	-0.00	0.00	5303.60	0.00	2 E
		162.64	2066.03	-0.00	0.00	1512.13	0.00	2 E
66	2.50	162.64	12541.85	-0.00	0.00	4117.00	0.00	2 E
		162.64	3746.81	-0.00	0.00	1177.12	0.00	2 E
		270.08	6760.21	-0.00	0.00	2256.51	0.00	2 E
		58.69	6760.21	-0.00	-0.00	2256.51	0.00	2 E
		162.64	11651.14	-0.00	0.00	4126.12	0.00	2 E
		162.64	3746.81	-0.00	0.00	1177.12	0.00	2 E
67	0.00	162.64	12541.85	-0.00	-0.00	4117.00	-0.00	2 E
		162.64	3746.81	-0.00	-0.00	1177.12	-0.00	2 E
		270.08	6760.21	-0.00	0.00	2256.51	0.00	2 E
		58.69	6760.21	-0.00	-0.00	2256.51	0.00	2 E
		162.64	11651.14	-0.00	-0.00	4126.12	-0.00	2 E
		162.64	3746.81	-0.00	-0.00	1177.12	-0.00	2 E
67	1.25	162.64	16836.22	-0.00	-0.00	2930.40	-0.00	2 E
		162.64	5008.84	-0.00	-0.00	842.12	-0.00	2 E
		262.71	9289.46	-0.00	0.00	1790.28	0.00	2 E
		58.69	9289.46	-0.00	-0.00	1790.28	0.00	2 E
		162.64	16460.91	-0.00	-0.00	3569.51	-0.00	2 E
		162.64	5008.84	-0.00	-0.00	842.12	-0.00	2 E
67	2.50	162.64	20574.92	-0.00	-0.00	3012.91	-0.00	2 E
		162.64	5852.11	-0.00	-0.00	507.12	-0.00	2 E
		255.34	11235.92	-0.00	0.00	1324.05	0.00	2 E
		58.69	11235.92	-0.00	-0.00	1324.05	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		162.64	20574.92	-0.00	-0.00	3012.91	-0.00	2 E
		162.64	11253.20	-0.00	-0.00	459.63	-0.00	2 E
68	0.00	162.64	20574.92	-0.00	-0.00	3012.91	-0.00	2 E
		162.64	5852.11	-0.00	-0.00	507.12	-0.00	2 E
		255.34	11235.92	-0.00	0.00	1324.05	0.00	2 E
		58.69	11235.92	-0.00	-0.00	1324.05	0.00	2 E
		162.64	20574.92	-0.00	-0.00	3012.91	-0.00	2 E
		162.64	11253.20	-0.00	-0.00	459.63	-0.00	2 E
68	1.25	162.64	23993.19	-0.00	-0.00	2456.31	-0.00	2 E
		162.64	6276.63	-0.00	-0.00	172.11	-0.00	2 E
		247.98	12599.59	-0.00	0.00	857.83	0.00	2 E
		58.69	12599.59	-0.00	-0.00	857.83	0.00	2 E
		162.64	23993.19	-0.00	-0.00	2456.31	-0.00	2 E
		162.64	11618.37	-0.00	-0.00	124.63	-0.00	2 E
68	2.50	162.64	26715.70	-0.00	-0.00	1899.71	-0.00	2 E
		162.64	6282.39	-0.00	-0.00	-162.89	-0.00	2 E
		240.61	13380.48	-0.00	0.00	391.60	0.00	2 E
		58.69	13380.48	-0.00	-0.00	391.60	0.00	2 E
		162.64	26715.70	-0.00	-0.00	1899.71	-0.00	2 E
		162.64	11564.78	-0.00	-0.00	-210.37	-0.00	2 E
69	0.00	162.64	26715.70	-0.00	-0.00	1899.71	-0.00	2 E
		162.64	6282.39	-0.00	-0.00	-162.89	-0.00	2 E
		240.61	13380.48	-0.00	0.00	391.60	0.00	2 E
		58.69	13380.48	-0.00	-0.00	391.60	0.00	2 E
		162.64	26715.70	-0.00	-0.00	1899.71	-0.00	2 E
		162.64	11564.78	-0.00	-0.00	-210.37	-0.00	2 E
69	1.25	162.64	28584.96	-0.00	-0.00	713.11	-0.00	2 E
		162.64	5869.40	-0.00	-0.00	-497.89	-0.00	2 E
		233.24	13578.59	-0.00	0.00	-74.63	0.00	2 E
		58.69	13578.59	-0.00	-0.00	-74.63	0.00	2 E
		162.64	24763.15	-0.00	-0.00	734.11	-0.00	2 E
		162.64	14914.25	-0.00	-0.00	-566.38	-0.00	2 E
69	2.50	162.64	29128.47	-0.00	-0.00	156.51	-0.00	2 E
		162.64	5037.66	-0.00	-0.00	-832.90	-0.00	2 E
		225.88	13193.92	-0.00	0.00	-540.85	0.00	2 E
		58.69	13193.92	-0.00	-0.00	-540.85	0.00	2 E
		162.64	25414.93	-0.00	-0.00	308.73	-0.00	2 E
		162.64	13914.89	-0.00	-0.00	-1032.61	-0.00	2 E
70	0.00	162.64	29128.47	-0.00	-0.00	-473.49	-0.00	2 E
		162.64	5037.66	-0.00	-0.00	-832.90	-0.00	2 E
		225.88	13193.92	-0.00	0.00	-540.85	0.00	2 E
		58.69	13193.92	-0.00	-0.00	-540.85	0.00	2 E
		162.64	17877.87	-0.00	-0.00	90.53	-0.00	2 E
		162.64	13914.89	-0.00	-0.00	-1032.61	-0.00	2 E
70	1.25	162.64	28188.73	-0.00	-0.00	-1030.10	-0.00	2 E
		162.64	3787.16	-0.00	-0.00	-1167.90	-0.00	2 E
		224.43	12226.46	-0.00	-0.00	-1007.08	0.00	2 E
		52.77	12226.46	-0.00	0.00	-1007.08	0.00	2 E
		162.64	13298.84	-0.00	-0.00	-322.42	0.00	2 E
		162.64	16759.06	-0.00	-0.00	-1511.27	-0.00	2 E
70	2.50	162.64	25923.23	-0.00	-0.00	-2216.70	-0.00	2 E
		162.64	2117.91	-0.00	-0.00	-1502.90	-0.00	2 E
		224.43	10676.22	-0.00	-0.00	-1473.31	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		45.40	10676.22	-0.00	0.00	-1473.31	0.00	2 E
		162.64	12686.45	-0.00	-0.00	-657.42	0.00	2 E
		162.64	20022.54	-0.00	-0.00	-2688.75	-0.00	2 E
71	0.00	162.64	25923.23	-0.00	-0.00	-2216.70	-0.00	2 E
		162.64	2117.91	-0.00	-0.00	-1502.90	-0.00	2 E
		224.43	10676.22	-0.00	-0.00	-1473.31	0.00	2 E
		45.40	10676.22	-0.00	0.00	-1473.31	0.00	2 E
		162.64	12686.45	-0.00	-0.00	-657.42	0.00	2 E
		162.64	20022.54	-0.00	-0.00	-2688.75	-0.00	2 E
71	1.25	162.64	22804.48	-0.00	-0.00	-2773.30	-0.00	2 E
		162.64	29.90	-0.00	-0.00	-1837.91	-0.00	2 E
		224.43	8543.19	-0.00	-0.00	-1939.53	0.00	2 E
		38.03	8543.19	-0.00	0.00	-1939.53	0.00	2 E
		162.64	11655.29	-0.00	-0.00	-992.42	0.00	2 E
		162.64	16313.72	-0.00	-0.00	-3245.36	-0.00	2 E
71	2.50	162.64	18989.98	-0.00	-0.00	-3329.90	-0.00	2 E
		162.64	-2476.86	-0.00	-0.00	-2172.91	-0.00	2 E
		224.43	5827.39	-0.00	-0.00	-2405.76	0.00	2 E
		30.67	5827.39	-0.00	0.00	-2405.76	0.00	2 E
		162.64	10205.39	-0.00	-0.00	-1327.43	0.00	2 E
		162.64	11909.15	-0.00	-0.00	-3801.96	-0.00	2 E
72	0.00	162.64	18989.98	-0.00	-0.00	-3329.90	-0.00	2 E
		162.64	-2476.86	-0.00	-0.00	-2172.91	-0.00	2 E
		224.43	5827.39	-0.00	-0.00	-2405.76	0.00	2 E
		30.67	5827.39	-0.00	0.00	-2405.76	0.00	2 E
		162.64	10205.39	-0.00	-0.00	-1327.43	0.00	2 E
		162.64	11909.15	-0.00	-0.00	-3801.96	-0.00	2 E
72	1.25	162.64	14479.73	-0.00	-0.00	-3686.50	-0.00	2 E
		162.64	-5402.37	-0.00	-0.00	-2507.91	-0.00	2 E
		224.43	2528.79	-0.00	-0.00	-2871.99	0.00	2 E
		23.30	2528.79	-0.00	0.00	-2871.99	0.00	2 E
		162.64	8336.73	-0.00	-0.00	-1662.43	0.00	2 E
		162.64	6808.63	-0.00	-0.00	-4358.56	-0.00	2 E
72	2.50	162.64	9654.42	-0.00	-0.00	-3503.53	-0.00	2 E
		162.64	-9127.34	-0.00	-0.00	-3782.49	0.00	2 E
		15.93	-1352.58	-0.00	0.00	-3338.21	0.00	2 E
		224.43	-1352.58	-0.00	-0.00	-3338.21	0.00	2 E
		162.64	6049.31	-0.00	-0.00	-1997.43	0.00	2 E
		162.64	1012.76	-0.00	-0.00	-4915.16	-0.00	2 E
73	0.00	162.64	9654.42	-0.00	-0.00	-3503.53	-0.00	2 E
		162.64	-9127.34	-0.00	-0.00	-3782.49	0.00	2 E
		15.93	-1352.58	-0.00	0.00	-3338.21	0.00	2 E
		224.43	-1352.58	-0.00	-0.00	-3338.21	0.00	2 E
		162.64	6049.31	-0.00	-0.00	-1997.43	0.00	2 E
		162.64	1012.76	-0.00	-0.00	-4915.16	-0.00	2 E
73	1.25	162.64	5642.78	-0.00	-0.00	-2887.12	-0.00	2 E
		162.64	-14146.83	-0.00	-0.00	-4248.71	0.00	2 E
		8.57	-5816.74	-0.00	0.00	-3804.44	0.00	2 E
		224.43	-5816.74	-0.00	-0.00	-3804.44	0.00	2 E
		162.64	3343.14	-0.00	-0.00	-2332.44	0.00	2 E
		162.64	-5479.07	-0.00	-0.00	-5471.76	-0.00	2 E
73	2.50	162.64	1768.02	-0.00	-0.00	-3312.50	-0.00	2 E
		162.64	-19749.12	-0.00	-0.00	-4714.94	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		1.20	-10863.68	-0.00	0.00	-4270.67	0.00	2 E
		224.43	-10863.68	-0.00	-0.00	-4270.67	0.00	2 E
		162.64	218.22	-0.00	-0.00	-2667.44	0.00	2 E
		162.64	-12666.65	-0.00	-0.00	-6028.36	-0.00	2 E
74	0.00	162.64	1768.02	-0.00	-0.00	-3312.50	-0.00	2 E
		162.64	-19749.12	-0.00	-0.00	-4714.94	0.00	2 E
		1.20	-10863.68	-0.00	0.00	-4270.67	0.00	2 E
		224.43	-10863.68	-0.00	-0.00	-4270.67	0.00	2 E
		162.64	218.22	-0.00	-0.00	-2667.44	0.00	2 E
		162.64	-12666.65	-0.00	-0.00	-6028.36	-0.00	2 E
74	1.25	162.64	-25934.18	-0.00	-0.00	-5181.17	0.00	2 E
		162.64	-3079.47	-0.00	-0.00	-4367.88	-0.00	2 E
		-6.17	-16493.41	-0.00	0.00	-4736.85	0.00	2 E
		224.43	-16493.41	-0.00	-0.00	-4736.85	0.00	2 E
		162.64	-20549.98	-0.00	-0.00	-6584.97	-0.00	2 E
		162.64	-5451.93	-0.00	-0.00	-3102.51	0.00	2 E
74	2.50	162.64	-32990.82	-0.00	-0.00	-6473.20	-0.00	2 E
		162.64	-8799.88	-0.00	-0.00	-4597.45	0.00	2 E
		-13.53	-22705.92	-0.00	0.00	-5203.12	0.00	2 E
		224.43	-22705.92	-0.00	-0.00	-5203.12	0.00	2 E
		162.64	-26100.70	-0.00	-0.00	-7359.77	-0.00	2 E
		162.64	-9539.45	-0.00	-0.00	-3437.51	0.00	2 E
75	0.00	162.64	-32990.82	-0.00	-0.00	-6473.20	-0.00	2 E
		162.64	-8799.88	-0.00	-0.00	-4597.45	0.00	2 E
		-13.53	-22705.92	-0.00	0.00	-5203.12	0.00	2 E
		224.43	-22705.92	-0.00	-0.00	-5203.12	0.00	2 E
		162.64	-26100.70	-0.00	-0.00	-7359.77	-0.00	2 E
		162.64	-9539.45	-0.00	-0.00	-3437.51	0.00	2 E
75	1.25	162.64	-41430.20	-0.00	-0.00	-7029.80	-0.00	2 E
		162.64	-14045.72	-0.00	-0.00	-3772.52	0.00	2 E
		-20.90	-29501.21	-0.00	0.00	-5669.35	0.00	2 E
		224.43	-29501.21	-0.00	-0.00	-5669.35	0.00	2 E
		162.64	-35774.29	-0.00	-0.00	-8546.38	-0.00	2 E
		162.64	-14045.72	-0.00	-0.00	-3772.52	0.00	2 E
75	2.50	162.64	-50565.13	-0.00	-0.00	-7586.40	-0.00	2 E
		162.64	-18970.75	-0.00	-0.00	-4107.52	0.00	2 E
		-28.27	-36879.29	-0.00	0.00	-6135.57	0.00	2 E
		224.43	-36879.29	-0.00	-0.00	-6135.57	0.00	2 E
		162.64	-46805.13	-0.00	-0.00	-9102.98	-0.00	2 E
		162.64	-18970.75	-0.00	-0.00	-4107.52	0.00	2 E
76	0.00	370.11	-50565.33	-0.00	0.00	9052.81	-0.00	2 E
		370.11	-18970.75	-0.00	0.00	4602.33	0.00	2 E
		133.55	-36879.29	-0.00	0.00	6713.67	0.00	2 E
		616.79	-36879.29	-0.00	0.00	6713.67	0.00	2 E
		370.11	-24683.44	-0.00	0.00	4602.33	0.00	2 E
		370.11	-41646.77	-0.00	0.00	9890.27	-0.00	2 E
76	1.80	370.11	-34991.63	-0.00	0.00	8251.30	-0.00	2 E
		370.11	-11120.72	-0.00	0.00	4119.92	0.00	2 E
		606.18	-25398.92	-0.00	0.00	6042.30	0.00	2 E
		370.11	-16833.42	-0.00	0.00	4119.92	0.00	2 E
		370.11	-24786.15	-0.00	0.00	8458.76	-0.00	2 E
76	3.60	370.11	-21607.48	-0.00	0.00	6633.77	-0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		370.11	-2649.96	-0.00	0.00	4288.95	0.00	2 E
		133.55	-15127.01	-0.00	0.00	5370.93	0.00	2 E
		595.57	-15127.01	-0.00	0.00	5370.93	0.00	2 E
		370.11	-9851.72	-0.00	0.00	3637.52	0.00	2 E
		370.11	-15147.94	-0.00	0.00	7449.80	-0.00	2 E
77	0.00	370.11	-21607.48	-0.00	0.00	6633.77	-0.00	2 E
		370.11	-2649.96	-0.00	0.00	4288.95	0.00	2 E
		133.55	-15127.01	-0.00	0.00	5370.93	0.00	2 E
		595.57	-15127.01	-0.00	0.00	5370.93	0.00	2 E
		370.11	-9851.72	-0.00	0.00	3637.52	0.00	2 E
		370.11	-15147.94	-0.00	0.00	7449.80	-0.00	2 E
77	1.80	370.11	4681.78	-0.00	0.00	4087.53	0.00	2 E
		370.11	-11032.35	-0.00	0.00	4921.29	-0.00	2 E
		133.55	-6063.56	-0.00	0.00	4699.57	0.00	2 E
		584.97	-6063.56	-0.00	0.00	4699.57	0.00	2 E
		370.11	-3738.36	-0.00	0.00	3155.11	0.00	2 E
		370.11	-2459.66	-0.00	0.00	6648.29	-0.00	2 E
77	3.60	370.11	11992.25	-0.00	0.00	4608.75	0.00	2 E
		370.11	-3282.47	-0.00	0.00	3116.15	-0.00	2 E
		574.36	1791.43	-0.00	0.00	4028.20	0.00	2 E
		133.55	1791.43	-0.00	0.00	4028.20	0.00	2 E
		370.11	8785.91	-0.00	0.00	5846.78	-0.00	2 E
		370.11	1506.68	-0.00	0.00	2672.71	0.00	2 E
78	0.00	370.11	11992.25	-0.00	0.00	4608.75	0.00	2 E
		370.11	-3282.47	-0.00	0.00	3116.15	-0.00	2 E
		574.36	1791.43	-0.00	0.00	4028.20	0.00	2 E
		133.55	1791.43	-0.00	0.00	4028.20	0.00	2 E
		370.11	3073.21	-0.00	0.00	5846.78	-0.00	2 E
		370.11	7219.37	-0.00	0.00	2672.71	0.00	2 E
78	1.80	370.11	20333.31	-0.00	0.00	4952.53	-0.00	2 E
		370.11	1817.29	-0.00	0.00	2541.00	-0.00	2 E
		563.75	8437.96	-0.00	0.00	3356.83	0.00	2 E
		133.55	8437.96	-0.00	0.00	3356.83	0.00	2 E
		370.11	12876.07	-0.00	0.00	5045.28	-0.00	2 E
		370.11	11596.08	-0.00	0.00	2190.30	0.00	2 E
78	3.60	370.11	28526.51	-0.00	0.00	4151.03	-0.00	2 E
		370.11	5956.92	-0.00	0.00	2058.59	-0.00	2 E
		553.14	13876.03	-0.00	0.00	2685.47	0.00	2 E
		133.55	13876.03	-0.00	0.00	2685.47	0.00	2 E
		370.11	21236.21	-0.00	0.00	4243.77	-0.00	2 E
		370.11	15104.46	-0.00	0.00	1707.90	0.00	2 E
79	0.00	370.11	28526.51	-0.00	0.00	4151.03	-0.00	2 E
		370.11	5956.92	-0.00	0.00	2058.59	-0.00	2 E
		553.14	13876.03	-0.00	0.00	2685.47	0.00	2 E
		133.55	13876.03	-0.00	0.00	2685.47	0.00	2 E
		370.11	21236.21	-0.00	0.00	4243.77	-0.00	2 E
		370.11	15104.46	-0.00	0.00	1707.90	0.00	2 E
79	1.80	370.11	35277.00	-0.00	0.00	3349.52	-0.00	2 E
		370.11	9228.22	-0.00	0.00	1576.19	-0.00	2 E
		542.53	18105.63	-0.00	0.00	2014.10	0.00	2 E
		133.55	18105.63	-0.00	0.00	2014.10	0.00	2 E
		370.11	28153.64	-0.00	0.00	3442.26	-0.00	2 E
		370.11	17744.51	-0.00	0.00	1225.49	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
79	3.60	370.11	40584.78	-0.00	0.00	2548.01	-0.00	2 E
		370.11	11631.20	-0.00	0.00	1093.78	-0.00	2 E
		531.92	21126.78	-0.00	0.00	1342.73	0.00	2 E
		133.55	21126.78	-0.00	0.00	1342.73	0.00	2 E
		370.11	33628.37	-0.00	0.00	2640.76	-0.00	2 E
		370.11	19516.24	-0.00	0.00	743.09	0.00	2 E
80	0.00	370.11	40584.78	-0.00	0.00	2548.01	-0.00	2 E
		370.11	11631.20	-0.00	0.00	1093.78	-0.00	2 E
		531.92	21126.78	-0.00	0.00	1342.73	0.00	2 E
		133.55	21126.78	-0.00	0.00	1342.73	0.00	2 E
		370.11	33628.37	-0.00	0.00	2640.76	-0.00	2 E
		370.11	19516.24	-0.00	0.00	743.09	0.00	2 E
80	1.80	370.11	44449.85	-0.00	0.00	1746.51	-0.00	2 E
		370.11	13165.85	-0.00	0.00	611.38	-0.00	2 E
		521.32	22939.47	-0.00	0.00	671.37	0.00	2 E
		133.55	22939.47	-0.00	0.00	671.37	0.00	2 E
		370.11	37660.37	-0.00	0.00	1839.25	-0.00	2 E
		370.11	20419.64	-0.00	0.00	260.68	0.00	2 E
80	3.60	370.11	45927.21	-0.00	0.00	315.00	-0.00	2 E
		370.11	13832.17	-0.00	0.00	128.98	-0.00	2 E
		510.71	23543.70	-0.00	0.00	0.00	0.00	2 E
		133.55	23543.70	-0.00	0.00	0.00	0.00	2 E
		370.11	39304.67	-0.00	0.00	407.74	-0.00	2 E
		370.11	20454.70	-0.00	0.00	-221.72	0.00	2 E
81	0.00	370.11	45927.21	-0.00	0.00	-315.00	-0.00	2 E
		370.11	13832.17	-0.00	0.00	-128.98	0.00	2 E
		510.71	23543.70	-0.00	0.00	-0.00	0.00	2 E
		133.55	23543.70	-0.00	0.00	-0.00	0.00	2 E
		370.11	14742.01	-0.00	0.00	221.72	-0.00	2 E
		370.11	45017.36	-0.00	0.00	-407.74	0.00	2 E
81	1.80	370.11	44449.85	-0.00	0.00	-1746.51	-0.00	2 E
		370.11	13165.85	-0.00	0.00	-611.38	0.00	2 E
		510.71	22939.47	-0.00	0.00	-671.37	0.00	2 E
		122.94	22939.47	-0.00	0.00	-671.37	0.00	2 E
		370.11	14706.94	-0.00	0.00	-260.68	-0.00	2 E
		370.11	43373.07	-0.00	0.00	-1839.25	0.00	2 E
81	3.60	370.11	40584.78	-0.00	0.00	-2548.01	-0.00	2 E
		370.11	11631.20	-0.00	0.00	-1093.78	0.00	2 E
		510.71	21126.78	-0.00	0.00	-1342.73	0.00	2 E
		112.34	21126.78	-0.00	0.00	-1342.73	0.00	2 E
		370.11	13803.55	-0.00	0.00	-743.09	-0.00	2 E
		370.11	39341.06	-0.00	0.00	-2640.76	0.00	2 E
82	0.00	370.11	40584.78	-0.00	0.00	-2548.01	-0.00	2 E
		370.11	11631.20	-0.00	0.00	-1093.78	0.00	2 E
		510.71	21126.78	-0.00	0.00	-1342.73	0.00	2 E
		112.34	21126.78	-0.00	0.00	-1342.73	0.00	2 E
		370.11	13803.55	-0.00	0.00	-743.09	-0.00	2 E
		370.11	39341.06	-0.00	0.00	-2640.76	0.00	2 E
82	1.80	370.11	35277.00	-0.00	0.00	-3349.52	-0.00	2 E
		370.11	9228.22	-0.00	0.00	-1576.19	0.00	2 E
		510.71	18105.63	-0.00	0.00	-2014.10	0.00	2 E
		101.73	18105.63	-0.00	0.00	-2014.10	0.00	2 E
		370.11	12031.82	-0.00	0.00	-1225.49	-0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		370.11	33866.34	-0.00	0.00	-3442.26	0.00	2 E
82	3.60	370.11	28526.51	-0.00	0.00	-4151.03	-0.00	2 E
		370.11	5956.92	-0.00	0.00	-2058.59	0.00	2 E
		510.71	13876.03	-0.00	0.00	-2685.47	0.00	2 E
		91.12	13876.03	-0.00	0.00	-2685.47	0.00	2 E
		370.11	9391.77	-0.00	0.00	-1707.90	-0.00	2 E
		370.11	26948.91	-0.00	0.00	-4243.77	0.00	2 E
83	0.00	370.11	28526.51	-0.00	0.00	-4151.03	-0.00	2 E
		370.11	5956.92	-0.00	0.00	-2058.59	0.00	2 E
		510.71	13876.03	-0.00	0.00	-2685.47	0.00	2 E
		91.12	13876.03	-0.00	0.00	-2685.47	0.00	2 E
		370.11	9391.77	-0.00	0.00	-1707.90	-0.00	2 E
		370.11	26948.91	-0.00	0.00	-4243.77	0.00	2 E
83	1.80	370.11	20333.31	-0.00	0.00	-4952.53	-0.00	2 E
		370.11	1817.29	-0.00	0.00	-2541.00	0.00	2 E
		510.71	8437.96	-0.00	0.00	-3356.83	0.00	2 E
		80.51	8437.96	-0.00	0.00	-3356.83	0.00	2 E
		370.11	5833.39	-0.00	0.00	-2190.30	-0.00	2 E
		370.11	18588.76	-0.00	0.00	-5045.28	0.00	2 E
83	3.60	370.11	11992.25	-0.00	0.00	-4608.75	-0.00	2 E
		370.11	-3282.47	-0.00	0.00	-3116.15	0.00	2 E
		510.71	1791.43	-0.00	0.00	-4028.20	0.00	2 E
		69.90	1791.43	-0.00	0.00	-4028.20	0.00	2 E
		370.11	1506.68	-0.00	0.00	-2672.71	-0.00	2 E
		370.11	8785.91	-0.00	0.00	-5846.78	0.00	2 E
84	0.00	370.11	11992.25	-0.00	0.00	-4608.75	-0.00	2 E
		370.11	-3282.47	-0.00	0.00	-3116.15	0.00	2 E
		510.71	1791.43	-0.00	0.00	-4028.20	0.00	2 E
		69.90	1791.43	-0.00	0.00	-4028.20	0.00	2 E
		370.11	1506.68	-0.00	0.00	-2672.71	-0.00	2 E
		370.11	8785.91	-0.00	0.00	-5846.78	0.00	2 E
84	1.80	370.11	4681.78	-0.00	0.00	-4087.53	-0.00	2 E
		370.11	-11032.35	-0.00	0.00	-4921.29	0.00	2 E
		59.29	-6063.56	-0.00	0.00	-4699.57	0.00	2 E
		510.71	-6063.56	-0.00	0.00	-4699.57	0.00	2 E
		370.11	-2459.66	-0.00	0.00	-6648.29	0.00	2 E
		370.11	-3738.36	-0.00	0.00	-3155.11	-0.00	2 E
84	3.60	370.11	-21607.48	-0.00	0.00	-6633.77	0.00	2 E
		370.11	-2649.96	-0.00	0.00	-4288.95	-0.00	2 E
		48.69	-15127.01	-0.00	0.00	-5370.93	0.00	2 E
		510.71	-15127.01	-0.00	0.00	-5370.93	0.00	2 E
		370.11	-15147.94	-0.00	0.00	-7449.80	0.00	2 E
		370.11	-9851.72	-0.00	0.00	-3637.52	-0.00	2 E
85	0.00	370.11	-21607.48	-0.00	0.00	-6633.77	0.00	2 E
		370.11	-2649.96	-0.00	0.00	-4288.95	-0.00	2 E
		48.69	-15127.01	-0.00	0.00	-5370.93	0.00	2 E
		510.71	-15127.01	-0.00	0.00	-5370.93	0.00	2 E
		370.11	-15147.94	-0.00	0.00	-7449.80	0.00	2 E
		370.11	-9851.72	-0.00	0.00	-3637.52	-0.00	2 E
85	1.80	370.11	-34991.63	-0.00	0.00	-8251.30	0.00	2 E
		370.11	-11120.72	-0.00	0.00	-4119.92	-0.00	2 E
		38.08	-25398.92	-0.00	0.00	-6042.30	0.00	2 E
		510.71	-25398.92	-0.00	0.00	-6042.30	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		370.11	-24786.15	-0.00	0.00	-8458.76	0.00	2 E
		370.11	-16833.42	-0.00	0.00	-4119.92	-0.00	2 E
85	3.60	370.11	-50565.33	-0.00	0.00	-9052.81	0.00	2 E
		370.11	-18970.75	-0.00	0.00	-4602.33	-0.00	2 E
		27.47	-36879.29	-0.00	0.00	-6713.67	0.00	2 E
		510.71	-36879.29	-0.00	0.00	-6713.67	0.00	2 E
		370.11	-41646.77	-0.00	0.00	-9890.27	0.00	2 E
		370.11	-24683.44	-0.00	0.00	-4602.33	-0.00	2 E
86	0.00	162.64	-50565.33	-0.00	0.00	7586.40	0.00	2 E
		162.64	-18970.75	-0.00	0.00	4107.52	-0.00	2 E
		58.69	-36879.29	-0.00	0.00	6135.57	0.00	2 E
		311.39	-36879.29	-0.00	0.00	6135.57	0.00	2 E
		162.64	-18970.75	-0.00	0.00	4107.52	-0.00	2 E
		162.64	-46819.62	-0.00	0.00	9101.04	0.00	2 E
86	1.25	162.64	-41430.20	-0.00	0.00	7029.80	0.00	2 E
		162.64	-14045.72	-0.00	0.00	3772.52	-0.00	2 E
		58.69	-29501.21	-0.00	0.00	5669.35	0.00	2 E
		304.02	-29501.21	-0.00	0.00	5669.35	0.00	2 E
		162.64	-14045.72	-0.00	0.00	3772.52	-0.00	2 E
		162.64	-35791.20	-0.00	0.00	8544.43	0.00	2 E
86	2.50	162.64	-32990.82	-0.00	0.00	6473.20	0.00	2 E
		162.64	-8819.22	-0.00	0.00	4595.51	-0.00	2 E
		58.69	-22705.92	-0.00	0.00	5203.12	0.00	2 E
		296.66	-22705.92	-0.00	0.00	5203.12	0.00	2 E
		162.64	-9539.45	-0.00	0.00	3437.51	-0.00	2 E
		162.64	-26120.03	-0.00	0.00	7357.83	0.00	2 E
87	0.00	162.64	-32990.82	-0.00	0.00	6473.20	0.00	2 E
		162.64	-8819.22	-0.00	0.00	4595.51	-0.00	2 E
		58.69	-22705.92	-0.00	0.00	5203.12	0.00	2 E
		296.66	-22705.92	-0.00	0.00	5203.12	0.00	2 E
		162.64	-9539.45	-0.00	0.00	3437.51	-0.00	2 E
		162.64	-26120.03	-0.00	0.00	7357.83	0.00	2 E
87	1.25	162.64	-25934.18	-0.00	0.00	5181.17	0.00	2 E
		162.64	-3101.23	-0.00	0.00	4365.94	0.00	2 E
		58.69	-16493.41	-0.00	0.00	4736.89	0.00	2 E
		289.29	-16493.41	-0.00	0.00	4736.89	0.00	2 E
		162.64	-5451.93	-0.00	0.00	3102.51	-0.00	2 E
		162.64	-20549.98	-0.00	0.00	6584.97	0.00	2 E
87	2.50	162.64	1806.82	-0.00	0.00	3310.56	0.00	2 E
		162.64	-19749.12	-0.00	0.00	4714.94	0.00	2 E
		58.69	-10863.68	-0.00	0.00	4270.67	0.00	2 E
		281.92	-10863.68	-0.00	0.00	4270.67	0.00	2 E
		162.64	257.03	-0.00	0.00	2665.50	-0.00	2 E
		162.64	-12666.65	-0.00	0.00	6028.36	0.00	2 E
88	0.00	162.64	1806.82	-0.00	0.00	3310.56	0.00	2 E
		162.64	-19749.12	-0.00	0.00	4714.94	0.00	2 E
		58.69	-10863.68	-0.00	0.00	4270.67	0.00	2 E
		281.92	-10863.68	-0.00	0.00	4270.67	0.00	2 E
		162.64	257.03	-0.00	0.00	2665.50	-0.00	2 E
		162.64	-12666.65	-0.00	0.00	6028.36	0.00	2 E
88	1.25	162.64	5679.16	-0.00	0.00	2885.18	0.00	2 E
		162.64	-14146.83	-0.00	0.00	4248.71	0.00	2 E
		58.69	-5816.74	-0.00	0.00	3804.44	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		274.56	-5816.74	-0.00	0.00	3804.44	0.00	2 E
		162.64	3379.53	-0.00	0.00	2330.50	-0.00	2 E
		162.64	-5479.07	-0.00	0.00	5471.76	0.00	2 E
88	2.50	162.64	9654.42	-0.00	0.00	3503.53	0.00	2 E
		162.64	-9127.34	-0.00	0.00	3782.49	0.00	2 E
		58.69	-1352.58	-0.00	0.00	3338.21	0.00	2 E
		267.19	-1352.58	-0.00	0.00	3338.21	0.00	2 E
		162.64	1012.76	-0.00	0.00	4915.16	0.00	2 E
		162.64	6083.27	-0.00	0.00	1995.49	-0.00	2 E
89	0.00	162.64	9654.42	-0.00	0.00	3503.53	0.00	2 E
		162.64	-9127.34	-0.00	0.00	3782.49	0.00	2 E
		58.69	-1352.58	-0.00	0.00	3338.21	0.00	2 E
		267.19	-1352.58	-0.00	0.00	3338.21	0.00	2 E
		162.64	1012.76	-0.00	0.00	4915.16	0.00	2 E
		162.64	6083.27	-0.00	0.00	1995.49	-0.00	2 E
89	1.25	162.64	14479.73	-0.00	0.00	3886.50	0.00	2 E
		162.64	-5402.37	-0.00	0.00	2507.91	-0.00	2 E
		259.82	2528.79	-0.00	0.00	2871.99	0.00	2 E
		58.69	2528.79	-0.00	0.00	2871.99	0.00	2 E
		162.64	6808.83	-0.00	0.00	4358.56	0.00	2 E
		162.64	8368.26	-0.00	0.00	1660.49	-0.00	2 E
89	2.50	162.64	18989.98	-0.00	0.00	3329.90	0.00	2 E
		162.64	-2476.86	-0.00	0.00	2172.91	-0.00	2 E
		252.46	5827.39	-0.00	0.00	2405.76	0.00	2 E
		58.69	5827.39	-0.00	0.00	2405.76	0.00	2 E
		162.64	11909.15	-0.00	0.00	3801.96	0.00	2 E
		162.64	10234.49	-0.00	0.00	1325.49	-0.00	2 E
90	0.00	162.64	18989.99	-0.00	0.00	3329.90	0.00	2 E
		162.64	-2476.86	-0.00	0.00	2172.91	-0.00	2 E
		252.46	5827.39	-0.00	0.00	2405.76	0.00	2 E
		58.69	5827.39	-0.00	0.00	2405.76	0.00	2 E
		162.64	11909.19	-0.00	0.00	3801.96	0.00	2 E
		162.64	10234.49	-0.00	0.00	1325.49	-0.00	2 E
90	1.25	162.64	22804.48	-0.00	0.00	2773.30	0.00	2 E
		162.64	29.90	-0.00	0.00	1837.91	-0.00	2 E
		245.09	8543.19	-0.00	0.00	1939.53	0.00	2 E
		58.69	8543.19	-0.00	0.00	1939.53	0.00	2 E
		162.64	16313.72	-0.00	0.00	3245.36	0.00	2 E
		162.64	11681.98	-0.00	0.00	990.48	-0.00	2 E
90	2.50	162.64	25923.23	-0.00	0.00	2216.70	0.00	2 E
		162.64	2117.91	-0.00	0.00	1502.90	-0.00	2 E
		237.72	10676.22	-0.00	0.00	1473.31	0.00	2 E
		58.69	10676.22	-0.00	0.00	1473.31	0.00	2 E
		162.64	20022.54	-0.00	0.00	2688.75	0.00	2 E
		162.64	12710.70	-0.00	0.00	655.48	-0.00	2 E
91	0.00	162.64	25923.23	-0.00	0.00	2216.70	0.00	2 E
		162.64	2117.91	-0.00	0.00	1502.90	-0.00	2 E
		237.72	10676.22	-0.00	0.00	1473.31	0.00	2 E
		58.69	10676.22	-0.00	0.00	1473.31	0.00	2 E
		162.64	20022.54	-0.00	0.00	2688.75	0.00	2 E
		162.64	12710.70	-0.00	0.00	655.48	-0.00	2 E
91	1.25	162.64	28188.73	-0.00	0.00	1030.10	0.00	2 E
		162.64	3787.16	-0.00	0.00	1167.90	-0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		230.35	12226.46	-0.00	0.00	1007.08	0.00	2 E
		58.69	12226.46	-0.00	0.00	1007.08	0.00	2 E
		162.64	16730.08	-0.00	0.00	1508.24	0.00	2 E
		162.64	13320.67	-0.00	0.00	320.48	-0.00	2 E
91	2.50	162.64	29128.47	-0.00	0.00	473.49	0.00	2 E
		162.64	5037.66	-0.00	0.00	832.90	-0.00	2 E
		224.43	13193.92	-0.00	0.00	540.85	0.00	2 E
		57.25	13193.92	-0.00	0.00	540.85	0.00	2 E
		162.64	13882.13	-0.00	0.00	1029.58	0.00	2 E
		162.64	17897.27	-0.00	0.00	-92.47	0.00	2 E
92	0.00	162.64	29128.47	-0.00	0.00	-156.51	0.00	2 E
		162.64	5037.66	-0.00	0.00	832.90	-0.00	2 E
		224.43	13193.92	-0.00	0.00	540.85	0.00	2 E
		57.25	13193.92	-0.00	0.00	540.85	0.00	2 E
		162.64	13882.13	-0.00	0.00	1029.58	0.00	2 E
		162.64	25414.93	-0.00	0.00	-308.73	0.00	2 E
92	1.25	162.64	28584.98	-0.00	0.00	-713.11	0.00	2 E
		162.64	5869.40	-0.00	0.00	497.89	-0.00	2 E
		224.43	13578.59	-0.00	0.00	74.63	0.00	2 E
		49.88	13578.59	-0.00	0.00	74.63	0.00	2 E
		162.64	14877.71	-0.00	0.00	563.36	0.00	2 E
		162.64	24763.15	-0.00	0.00	-734.11	0.00	2 E
92	2.50	162.64	26715.70	-0.00	0.00	-1899.71	0.00	2 E
		162.64	6282.39	-0.00	0.00	162.89	-0.00	2 E
		224.43	13380.48	-0.00	0.00	-391.60	0.00	2 E
		42.51	13380.48	-0.00	0.00	-391.60	0.00	2 E
		162.64	11524.46	-0.00	0.00	207.35	0.00	2 E
		162.64	26715.70	-0.00	0.00	-1899.71	0.00	2 E
93	0.00	162.64	26715.70	-0.00	0.00	-1899.71	0.00	2 E
		162.64	6282.39	-0.00	0.00	162.89	-0.00	2 E
		224.43	13380.48	-0.00	0.00	-391.60	0.00	2 E
		42.51	13380.48	-0.00	0.00	-391.60	0.00	2 E
		162.64	11524.46	-0.00	0.00	207.35	0.00	2 E
		162.64	26715.70	-0.00	0.00	-1899.71	0.00	2 E
93	1.25	162.64	23993.19	-0.00	0.00	-2456.31	0.00	2 E
		162.64	6276.63	-0.00	0.00	-172.11	-0.00	2 E
		224.43	12599.59	-0.00	0.00	-857.83	0.00	2 E
		35.14	12599.59	-0.00	0.00	-857.83	0.00	2 E
		162.64	11574.27	-0.00	0.00	-127.66	0.00	2 E
		162.64	23993.19	-0.00	0.00	-2456.31	0.00	2 E
93	2.50	162.64	20574.92	-0.00	0.00	-3012.91	0.00	2 E
		162.64	5852.11	-0.00	0.00	-507.12	-0.00	2 E
		224.43	11235.92	-0.00	0.00	-1324.05	0.00	2 E
		27.78	11235.92	-0.00	0.00	-1324.05	0.00	2 E
		162.64	11205.32	-0.00	0.00	-462.66	0.00	2 E
		162.64	20574.92	-0.00	0.00	-3012.91	0.00	2 E
94	0.00	162.64	20574.92	-0.00	0.00	-3012.91	0.00	2 E
		162.64	5852.11	-0.00	0.00	-507.12	-0.00	2 E
		224.43	11235.92	-0.00	0.00	-1324.05	0.00	2 E
		27.78	11235.92	-0.00	0.00	-1324.05	0.00	2 E
		162.64	11205.32	-0.00	0.00	-462.66	0.00	2 E
		162.64	20574.92	-0.00	0.00	-3012.91	0.00	2 E
94	1.25	162.64	16847.56	-0.00	0.00	-2933.42	0.00	2 E

Action forces restored from STATIK-3

bar	distance	N [kN]	My [kNm]	Mz [kNm]	Vy [kN]	Vz [kN]	T [kNm]	Set
		162.64	5008.84	-0.00	0.00	-842.12	-0.00	2 E
		224.43	9289.46	-0.00	0.00	-1790.28	0.00	2 E
		20.41	9289.46	-0.00	0.00	-1790.28	0.00	2 E
		162.64	5008.84	-0.00	0.00	-842.12	-0.00	2 E
		162.64	16460.91	-0.00	0.00	-3569.51	0.00	2 E
94	2.50	162.64	12549.41	-0.00	0.00	-4120.02	0.00	2 E
		162.64	3746.81	-0.00	0.00	-1177.12	-0.00	2 E
		224.43	6760.21	-0.00	0.00	-2256.51	0.00	2 E
		13.04	6760.21	0.00	0.00	-2256.51	0.00	2 E
		162.64	3746.81	-0.00	0.00	-1177.12	-0.00	2 E
		162.64	11651.14	-0.00	0.00	-4126.12	0.00	2 E
95	0.00	162.64	12549.41	-0.00	0.00	-4120.02	0.00	2 E
		162.64	3746.81	-0.00	0.00	-1177.12	-0.00	2 E
		224.43	6760.21	-0.00	0.00	-2256.51	0.00	2 E
		13.04	6760.21	0.00	0.00	-2256.51	0.00	2 E
		162.64	3746.81	-0.00	0.00	-1177.12	-0.00	2 E
		162.64	11651.14	-0.00	0.00	-4126.12	0.00	2 E
95	1.25	162.64	6925.50	-0.00	0.00	-5306.63	0.00	2 E
		162.64	2066.03	-0.00	0.00	-1512.13	-0.00	2 E
		224.43	3648.19	-0.00	0.00	-2722.73	0.00	2 E
		5.68	3648.19	0.00	0.00	-2722.73	0.00	2 E
		162.64	2066.03	-0.00	0.00	-1512.13	-0.00	2 E
		162.64	6925.50	-0.00	0.00	-5306.63	0.00	2 E
95	2.50	162.64	-55.66	-0.00	0.00	-3545.63	0.00	2 E
		162.64	-33.50	-0.00	0.00	-4164.73	0.00	2 E
		-1.69	-46.62	0.00	0.00	-3188.96	0.00	2 E
		224.43	-46.62	-0.00	0.00	-3188.96	0.00	2 E
		162.64	-55.66	-0.00	0.00	-5863.23	0.00	2 E
		162.64	-33.50	-0.00	0.00	-1847.13	-0.00	2 E
96	0.00	0.00	-55.66	0.00	0.00	222.64	0.00	2 E
		0.00	-33.50	0.00	0.00	134.00	-0.00	2 E
		0.00	-46.62	-0.00	0.00	186.46	-0.00	2 E
		2.95	-46.62	0.00	0.00	186.46	-0.00	2 E
		0.00	-33.50	0.00	0.00	134.00	-0.00	2 E
		0.00	-55.66	0.00	0.00	222.64	-0.00	2 E
96	0.25	0.00	-13.92	0.00	0.00	111.32	0.00	2 E
		0.00	-8.38	0.00	0.00	67.00	-0.00	2 E
		0.00	-11.66	-0.00	0.00	93.25	-0.00	2 E
		1.47	-11.66	0.00	0.00	93.25	-0.00	2 E
		0.00	-8.38	0.00	0.00	67.00	-0.00	2 E
		0.00	-13.92	0.00	0.00	111.32	-0.00	2 E
96	0.50	0.00	0.00	0.00	0.00	0.00	-0.00	2 E
		0.00	-0.00	0.00	0.00	0.00	0.00	2 E
		0.00	-0.00	-0.00	0.00	0.00	-0.00	2 E
		0.00	-0.00	0.00	0.00	0.00	-0.00	2 E
		0.00	-0.00	0.00	0.00	0.00	-0.00	2 E
		0.00	-0.00	0.00	0.00	0.00	-0.00	2 E

Tendons restored from STATIK-3:

bar	distance	tendon	force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
		1	38510.00	-0.101	0.58	5.546	0.124	5.1	3.8	2.9	11.82
> 65	0.25										
		1	38520.00	-0.101	0.58	5.547	0.125	5.1	3.8	2.9	11.84
> 65	0.50										
		1	38530.00	-0.101	0.58	5.549	0.127	5.1	3.9	2.9	11.89
> 66	0.00										
		1	38530.00	-0.101	0.58	5.549	0.127	5.1	3.9	2.9	11.89
> 66	1.25										
		1	38620.00	-0.098	0.59	5.562	0.144	5.1	4.3	2.9	12.34
> 66	2.50										
		1	38790.00	-0.084	0.59	5.586	0.172	5.0	5.1	3.0	13.10
> 67	0.00										
		1	38790.00	-0.084	0.59	5.586	0.172	5.0	5.1	3.0	13.10
> 67	1.25										
		1	38950.00	-0.070	0.59	5.609	0.206	4.9	6.1	3.0	13.97
> 67	2.50										
		1	39120.00	-0.056	0.59	5.634	0.240	4.9	7.0	3.0	14.82
> 68	0.00										
		1	39120.00	-0.056	0.59	5.634	0.240	4.9	7.0	3.0	14.82
> 68	1.25										
		1	39290.00	-0.042	0.60	5.658	0.270	4.8	7.7	3.0	15.55
> 68	2.50										
		1	39460.00	-0.028	0.60	5.683	0.293	4.7	8.3	3.1	16.10
> 69	0.00										
		1	39460.00	-0.028	0.60	5.683	0.293	4.7	8.3	3.1	16.10
> 69	1.25										
		1	39630.00	-0.014	0.60	5.707	0.307	4.7	8.6	3.1	16.41
> 69	2.50										
		1	39800.00	-0.000	0.60	5.732	0.309	4.7	8.6	3.2	16.47
> 70	0.00										
		1	39800.00	0.000	0.60	5.732	0.309	4.7	8.6	3.2	16.47
> 70	1.25										
		1	39890.00	0.014	0.60	5.745	0.301	4.7	8.4	3.2	16.27
> 70	2.50										
		1	39980.00	0.027	0.61	5.757	0.282	4.7	7.9	3.2	15.84
> 71	0.00										
		1	39980.00	0.027	0.61	5.757	0.282	4.7	7.9	3.2	15.84
> 71	1.25										
		1	40060.00	0.041	0.61	5.769	0.255	4.7	7.2	3.3	15.20
> 71	2.50										
		1	39980.00	0.054	0.61	5.757	0.221	4.8	6.3	3.3	14.39
> 72	0.00										
		1	39980.00	0.054	0.61	5.757	0.221	4.8	6.3	3.3	14.39
> 72	1.25										
		1	39810.00	0.068	0.60	5.733	0.185	4.9	5.4	3.3	13.51
> 72	2.50										
		1	39640.00	0.081	0.60	5.709	0.153	4.9	4.5	3.3	12.68
> 73	0.00										
		1	39640.00	0.081	0.60	5.709	0.153	4.9	4.5	3.3	12.68
> 73	1.25										

Tendons restored from STATIK-3:

bar	distance	tendon	force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
		1	39480.00	0.095	0.60	5.685	0.129	5.0	3.8	3.2	12.06
> 73	2.50										
		1	39310.00	0.108	0.60	5.661	0.121	5.0	3.6	3.2	11.83
> 74	0.00										
		1	39310.00	0.108	0.60	5.661	0.121	5.0	3.6	3.2	11.83
> 74	1.25										
		1	39150.00	0.121	0.59	5.638	0.135	5.0	4.0	3.1	12.18
> 74	2.50										
		1	38980.00	0.135	0.59	5.613	0.180	5.0	5.3	3.0	13.31
> 75	0.00										
		1	38980.00	0.135	0.59	5.613	0.180	5.0	5.3	3.0	13.31
> 75	1.25										
		1	38400.00	0.068	0.58	5.530	0.236	4.9	7.0	2.8	14.68
> 75	2.50										
		1	37820.00	0.000	0.57	5.446	0.259	5.0	7.7	2.6	15.23
> 76	0.00										
		1	37820.00	-0.000	0.57	5.446	0.258	5.0	7.7	2.6	15.23
> 76	1.80										
		1	37280.00	-0.060	0.57	5.369	0.227	5.1	6.9	2.4	14.42
> 76	3.60										
		1	36760.00	-0.120	0.56	5.294	0.158	5.3	5.0	2.3	12.58
> 77	0.00										
		1	36760.00	-0.120	0.56	5.294	0.158	5.3	5.0	2.3	12.58
> 77	1.80										
		1	36570.00	-0.105	0.55	5.266	0.114	5.4	3.7	2.3	11.34
> 77	3.60										
		1	36380.00	-0.090	0.55	5.239	0.110	5.4	3.5	2.2	11.20
> 78	0.00										
		1	36380.00	-0.090	0.55	5.239	0.110	5.4	3.5	2.2	11.20
> 78	1.80										
		1	36190.00	-0.075	0.55	5.212	0.130	5.4	4.2	2.1	11.76
> 78	3.60										
		1	36000.00	-0.060	0.55	5.184	0.163	5.4	5.2	2.1	12.67
> 79	0.00										
		1	36000.00	-0.060	0.55	5.184	0.163	5.4	5.2	2.1	12.67
> 79	1.80										
		1	35820.00	-0.045	0.54	5.158	0.199	5.3	6.3	2.0	13.63
> 79	3.60										
		1	35630.00	-0.030	0.54	5.131	0.228	5.3	7.2	1.9	14.44
> 80	0.00										
		1	35630.00	-0.030	0.54	5.131	0.228	5.3	7.2	1.9	14.44
> 80	1.80										
		1	35450.00	-0.015	0.54	5.105	0.248	5.3	7.8	1.8	14.96
> 80	3.60										
		1	35260.00	-0.000	0.53	5.078	0.253	5.3	8.0	1.8	15.10
> 81	0.00										
		1	35260.00	0.000	0.53	5.078	0.253	5.3	8.0	1.8	15.10
> 81	1.80										
		1	35450.00	0.015	0.54	5.105	0.248	5.3	7.8	1.8	14.96
> 81	3.60										
		1	35630.00	0.030	0.54	5.131	0.228	5.3	7.2	1.9	14.44
> 82	0.00										

Tendons restored from STATIK-3:

bar	distance	tendon	force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
		1	35630.00	0.030	0.54	5.131	0.228	5.3	7.2	1.9	14.44
> 82	1.80										
		1	35820.00	0.045	0.54	5.158	0.199	5.3	6.3	2.0	13.63
> 82	3.60										
		1	36000.00	0.060	0.55	5.184	0.163	5.4	5.2	2.1	12.67
> 83	0.00										
		1	36000.00	0.060	0.55	5.184	0.163	5.4	5.2	2.1	12.67
> 83	1.80										
		1	36190.00	0.075	0.55	5.212	0.130	5.4	4.2	2.1	11.76
> 83	3.60										
		1	36380.00	0.090	0.55	5.239	0.110	5.4	3.5	2.2	11.20
> 84	0.00										
		1	36380.00	0.090	0.55	5.239	0.110	5.4	3.5	2.2	11.20
> 84	1.80										
		1	36570.00	0.105	0.55	5.266	0.114	5.4	3.7	2.3	11.34
> 84	3.60										
		1	36760.00	0.120	0.56	5.294	0.158	5.3	5.0	2.3	12.58
> 85	0.00										
		1	36760.00	0.120	0.56	5.294	0.158	5.3	5.0	2.3	12.58
> 85	1.80										
		1	37280.00	0.060	0.57	5.369	0.227	5.1	6.9	2.4	14.42
> 85	3.60										
		1	37820.00	0.000	0.57	5.446	0.258	5.0	7.7	2.6	15.23
> 86	0.00										
		1	37820.00	-0.000	0.57	5.446	0.259	5.0	7.7	2.6	15.23
> 86	1.25										
		1	38400.00	-0.068	0.58	5.530	0.236	4.9	7.0	2.8	14.68
> 86	2.50										
		1	38980.00	-0.135	0.59	5.613	0.180	5.0	5.3	3.0	13.31
> 87	0.00										
		1	38980.00	-0.135	0.59	5.613	0.180	5.0	5.3	3.0	13.31
> 87	1.25										
		1	39150.00	-0.121	0.59	5.638	0.135	5.0	4.0	3.1	12.18
> 87	2.50										
		1	39310.00	-0.108	0.60	5.661	0.121	5.0	3.6	3.2	11.83
> 88	0.00										
		1	39310.00	-0.108	0.60	5.661	0.121	5.0	3.6	3.2	11.83
> 88	1.25										
		1	39480.00	-0.095	0.60	5.685	0.129	5.0	3.8	3.2	12.06
> 88	2.50										
		1	39640.00	-0.081	0.60	5.709	0.153	4.9	4.5	3.3	12.68
> 89	0.00										
		1	39640.00	-0.081	0.60	5.709	0.153	4.9	4.5	3.3	12.68
> 89	1.25										
		1	39810.00	-0.068	0.60	5.733	0.185	4.9	5.4	3.3	13.51
> 89	2.50										
		1	39980.00	-0.054	0.61	5.757	0.221	4.8	6.3	3.3	14.39
> 90	0.00										
		1	39980.00	-0.054	0.61	5.757	0.221	4.8	6.3	3.3	14.39
> 90	1.25										
		1	40060.00	-0.041	0.61	5.769	0.255	4.7	7.2	3.3	15.20
> 90	2.50										

Tendons restored from STATIK-3:

bar	distance	tendon	force [kN]	z-incl dz/dx	prestr. level	prestr. [o/oo]	decomp [o/oo]	losses cs	losses cc	[o/o] sr	[o/o] total
		1	39980.00	-0.027	0.61	5.757	0.282	4.7	7.9	3.2	15.84
> 91	0.00										
		1	39980.00	-0.027	0.61	5.757	0.282	4.7	7.9	3.2	15.84
> 91	1.25										
		1	39890.00	-0.014	0.60	5.745	0.301	4.7	8.4	3.2	16.27
> 91	2.50										
		1	39800.00	-0.000	0.60	5.732	0.309	4.7	8.6	3.2	16.47
> 92	0.00										
		1	39800.00	0.000	0.60	5.732	0.309	4.7	8.6	3.2	16.47
> 92	1.25										
		1	39630.00	0.014	0.60	5.707	0.307	4.7	8.6	3.1	16.41
> 92	2.50										
		1	39460.00	0.028	0.60	5.683	0.293	4.7	8.3	3.1	16.10
> 93	0.00										
		1	39460.00	0.028	0.60	5.683	0.293	4.7	8.3	3.1	16.10
> 93	1.25										
		1	39290.00	0.042	0.60	5.658	0.270	4.8	7.7	3.0	15.55
> 93	2.50										
		1	39120.00	0.056	0.59	5.634	0.240	4.9	7.0	3.0	14.82
> 94	0.00										
		1	39120.00	0.056	0.59	5.634	0.240	4.9	7.0	3.0	14.82
> 94	1.25										
		1	38950.00	0.070	0.59	5.609	0.206	4.9	6.1	3.0	13.97
> 94	2.50										
		1	38790.00	0.084	0.59	5.586	0.172	5.0	5.1	3.0	13.10
> 95	0.00										
		1	38790.00	0.084	0.59	5.586	0.172	5.0	5.1	3.0	13.10
> 95	1.25										
		1	38620.00	0.098	0.59	5.562	0.144	5.1	4.3	2.9	12.34
> 95	2.50										
		1	38530.00	0.101	0.58	5.549	0.127	5.1	3.9	2.9	11.89
> 96	0.00										
		1	38530.00	0.101	0.58	5.549	0.127	5.1	3.9	2.9	11.89
> 96	0.25										
		1	38520.00	0.101	0.58	5.547	0.125	5.1	3.8	2.9	11.84
> 96	0.50										
		1	38510.00	0.101	0.58	5.546	0.124	5.1	3.8	2.9	11.82

Action forces due to prestressing (STATIK-3) (1st line t=0, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
		-38311.22	-727.91	0.00	-3907.74
		-33882.26	-643.76	0.00	-3455.99
65	0.25	-38321.17	-1705.29	0.00	-3908.76
		-33882.44	-1507.77	0.00	-3456.01
65	0.50	-38321.12	-2682.79	0.00	-3909.77
		-33876.31	-2371.00	0.00	-3455.38
66	0.00	-38331.12	-2682.79	0.00	-3909.77
		-33877.02	-2371.05	0.00	-3455.46
66	1.25	-36435.65	-7564.14	0.00	-3769.00
		-33811.39	-6654.08	0.00	-3315.55
66	2.50	-38653.71	-12005.84	0.00	-3248.84

Action forces due to prestressing (STATIK-3) (1st line t=0, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
		-33741.11	-10479.99	0.00	-2835.94
67	0.00	-38653.71	-12005.84	0.00	-3248.84
		-33741.11	-10479.99	0.00	-2835.94
67	1.25	-38854.81	-15810.02	0.00	-2721.39
		-33619.56	-13679.80	0.00	-2354.71
67	2.50	-39058.74	-18970.83	0.00	-2188.46
		-33507.56	-16274.62	0.00	-1877.43
68	0.00	-39058.74	-18970.83	0.00	-2188.46
		-33507.56	-16274.62	0.00	-1877.43
68	1.25	-39255.34	-21472.67	0.00	-1649.90
		-33429.62	-18286.00	0.00	-1405.05
68	2.50	-39444.52	-23303.82	0.00	-1105.24
		-33407.55	-19737.18	0.00	-936.08
69	0.00	-39444.52	-23303.82	0.00	-1105.24
		-33407.55	-19737.18	0.00	-936.08
69	1.25	-39626.11	-24449.31	0.00	-555.16
		-33455.29	-20641.91	0.00	-468.71
69	2.50	-39800.00	-24906.84	0.00	-0.00
		-33578.92	-21013.69	0.00	-0.00
70	0.00	-39800.00	-24906.84	0.00	0.00
		-33578.92	-21013.69	0.00	0.00
70	1.25	-39886.31	-24621.82	0.00	542.45
		-33718.80	-20814.62	0.00	458.58
70	2.50	-39965.22	-23651.42	0.00	1087.05
		-33931.08	-20080.42	0.00	922.93
71	0.00	-39965.22	-23651.42	0.00	1087.05
		-33931.08	-20080.42	0.00	922.93
71	1.25	-40026.70	-21986.67	0.00	1633.09
		-34198.41	-18785.19	0.00	1395.30
71	2.50	-39920.97	-19553.29	0.00	2171.70
		-34387.23	-16842.86	0.00	1870.67
72	0.00	-39920.97	-19553.29	0.00	2171.70
		-34387.23	-16842.86	0.00	1870.67
72	1.25	-39718.25	-16415.56	0.00	2700.84
		-34521.57	-14267.76	0.00	2347.47
72	2.50	-39508.68	-12634.88	0.00	3223.91
		-34630.19	-11074.74	0.00	2825.82
73	0.00	-39508.68	-12634.88	0.00	3223.91
		-34630.19	-11074.74	0.00	2825.82
73	1.25	-39302.30	-8225.97	0.00	3741.58
		-34667.71	-7255.95	0.00	3300.37
73	2.50	-39079.38	-3196.69	0.00	4251.84
		-34554.09	-2826.52	0.00	3759.48
74	0.00	-39079.38	-3196.69	0.00	4251.84
		-34554.09	-2826.52	0.00	3759.48
74	1.25	-38859.99	2436.52	0.00	4756.46
		-34237.30	2146.68	0.00	4190.64
74	2.50	-38624.44	8659.60	0.00	5252.92
		-33642.96	7542.75	0.00	4575.44
75	0.00	-38624.44	8659.60	0.00	5252.92
		-33642.96	7542.75	0.00	4575.44
75	1.25	-38311.53	13474.16	0.00	2605.18
		-32916.10	11576.59	0.00	2238.29

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
75	2.50	-37820.00	14908.64	0.00	0.00
		-32321.76	12741.24	0.00	0.00
76	0.00	-37820.00	14908.64	0.00	-0.00
		-32322.51	12741.54	0.00	-0.00
76	1.80	-37211.83	12640.86	0.00	-2253.55
		-32063.33	10891.91	0.00	-1941.76
76	3.60	-36493.38	6430.13	0.00	-4419.35
		-32036.57	5644.84	0.00	-3879.63
77	0.00	-36493.38	6430.13	0.00	-4419.35
		-32036.57	5644.84	0.00	-3879.63
77	1.80	-36366.27	-1024.80	0.00	-3854.82
		-32330.13	-911.06	0.00	-3426.99
77	3.60	-36230.85	-7438.19	0.00	-3290.85
		-32257.43	-6622.45	0.00	-2929.94
78	0.00	-36230.85	-7438.19	0.00	-3290.85
		-32257.43	-6622.45	0.00	-2929.94
78	1.80	-36086.78	-12818.02	0.00	-2731.41
		-31946.17	-11347.28	0.00	-2418.01
78	3.60	-35934.17	-17169.34	0.00	-2176.17
		-31520.74	-15060.61	0.00	-1908.90
79	0.00	-35934.17	-17169.34	0.00	-2176.17
		-31520.74	-15060.61	0.00	-1908.90
79	1.80	-35783.11	-20510.88	0.00	-1625.27
		-31085.79	-17818.38	0.00	-1411.92
79	3.60	-35613.68	-22839.05	0.00	-1078.38
		-30691.03	-19682.16	0.00	-929.32
80	0.00	-35613.68	-22839.05	0.00	-1078.38
		-30691.03	-19682.16	0.00	-929.32
80	1.80	-35445.94	-24181.22	0.00	-536.65
		-30390.33	-20732.28	0.00	-460.11
80	3.60	-35260.00	-24533.91	0.00	-0.00
		-30187.27	-21004.30	0.00	-0.00
81	0.00	-35260.00	-24533.91	0.00	0.00
		-30187.27	-21004.30	0.00	0.00
81	1.80	-35445.94	-24181.22	0.00	536.65
		-30390.33	-20732.28	0.00	460.11
81	3.60	-35613.68	-22839.05	0.00	1078.38
		-30691.03	-19682.16	0.00	929.32
82	0.00	-35613.68	-22839.05	0.00	1078.38
		-30691.03	-19682.16	0.00	929.32
82	1.80	-35783.11	-20510.88	0.00	1625.27
		-31085.79	-17818.38	0.00	1411.92
82	3.60	-35934.17	-17169.34	0.00	2176.17
		-31520.74	-15060.61	0.00	1908.90
83	0.00	-35934.17	-17169.34	0.00	2176.17
		-31520.74	-15060.61	0.00	1908.90
83	1.80	-36086.78	-12818.02	0.00	2731.41
		-31946.17	-11347.28	0.00	2418.01
83	3.60	-36230.85	-7438.19	0.00	3290.85
		-32257.43	-6622.45	0.00	2929.94
84	0.00	-36230.85	-7438.19	0.00	3290.85
		-32257.43	-6622.45	0.00	2929.94
84	1.80	-36366.27	-1024.80	0.00	3854.82

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
		-32330.13	-911.06	0.00	3426.99
84	3.60	-36493.38	6430.13	0.00	4419.35
		-32036.57	5644.84	0.00	3879.63
85	0.00	-36493.38	6430.13	0.00	4419.35
		-32036.57	5644.84	0.00	3879.63
85	1.80	-37211.83	12640.86	0.00	2253.55
		-32063.33	10891.91	0.00	1941.76
85	3.60	-37820.00	14908.64	0.00	0.00
		-32322.51	12741.54	0.00	0.00
86	0.00	-37820.00	14908.64	0.00	-0.00
		-32321.76	12741.24	0.00	-0.00
86	1.25	-38311.53	13474.16	0.00	-2605.18
		-32916.10	11576.59	0.00	-2238.29
86	2.50	-38624.44	8659.60	0.00	-5252.92
		-33642.96	7542.75	0.00	-4575.44
87	0.00	-38624.44	8659.60	0.00	-5252.92
		-33642.96	7542.75	0.00	-4575.44
87	1.25	-38859.99	2436.52	0.00	-4756.46
		-34237.30	2146.68	0.00	-4190.64
87	2.50	-39079.38	-3196.69	0.00	-4251.84
		-34554.09	-2826.52	0.00	-3759.48
88	0.00	-39079.38	-3196.69	0.00	-4251.84
		-34554.09	-2826.52	0.00	-3759.48
88	1.25	-39302.30	-8225.97	0.00	-3741.58
		-34667.71	-7255.95	0.00	-3300.37
88	2.50	-39508.68	-12634.88	0.00	-3223.91
		-34630.19	-11074.74	0.00	-2825.82
89	0.00	-39508.68	-12634.88	0.00	-3223.91
		-34630.19	-11074.74	0.00	-2825.82
89	1.25	-39718.28	-16415.56	0.00	-2700.84
		-34521.57	-14267.76	0.00	-2347.47
89	2.50	-39920.97	-19553.29	0.00	-2171.70
		-34387.23	-16842.86	0.00	-1870.67
90	0.00	-39920.97	-19553.29	0.00	-2171.70
		-34387.23	-16842.86	0.00	-1870.67
90	1.25	-40026.70	-21986.67	0.00	-1633.09
		-34198.41	-18785.19	0.00	-1395.30
90	2.50	-39965.22	-23651.42	0.00	-1087.05
		-33931.08	-20080.42	0.00	-922.93
91	0.00	-39965.22	-23651.42	0.00	-1087.05
		-33931.08	-20080.42	0.00	-922.93
91	1.25	-39886.31	-24621.82	0.00	-542.45
		-33718.80	-20814.62	0.00	-458.58
91	2.50	-39800.00	-24906.84	0.00	-0.00
		-33578.92	-21013.69	0.00	-0.00
92	0.00	-39800.00	-24906.84	0.00	0.00
		-33578.92	-21013.69	0.00	0.00
92	1.25	-39626.11	-24449.31	0.00	555.16
		-33455.29	-20641.91	0.00	468.71
92	2.50	-39444.52	-21303.82	0.00	1105.24
		-33407.55	-19737.18	0.00	936.08
93	0.00	-39444.52	-23303.82	0.00	1105.24
		-33407.55	-19737.18	0.00	936.08

Action forces due to prestressing (STATIK-3) (1st line t=o, 2nd line t=oo)

bar	distance	Np [kN]	Myp [kNm]	Mzp [kNm]	Vzp [kN]
93	1.25	-39255.34	-21472.67	0.00	1649.90
		-33429.62	-18286.00	0.00	1405.05
93	2.50	-39058.74	-18970.83	0.00	2188.46
		-33507.56	-16274.62	0.00	1877.43
94	0.00	-39058.74	-18970.83	0.00	2188.46
		-33507.56	-16274.62	0.00	1877.43
94	1.25	-38854.81	-15810.02	0.00	2721.35
		-33619.56	-13679.80	0.00	2354.71
94	2.50	-38653.71	-12005.84	0.00	3248.84
		-33741.11	-10479.99	0.00	2835.94
95	0.00	-38653.71	-12005.84	0.00	3248.84
		-33741.11	-10479.99	0.00	2835.94
95	1.25	-38435.65	-7564.14	0.00	3769.00
		-33811.39	-6654.08	0.00	3315.55
95	2.50	-38331.12	-2682.79	0.00	3909.77
		-33877.02	-2371.05	0.00	3455.46
96	0.00	-38331.12	-2682.79	0.00	3909.77
		-33876.31	-2371.00	0.00	3455.38
96	0.25	-38321.17	-1705.29	0.00	3908.76
		-33882.44	-1507.77	0.00	3456.01
96	0.50	-38311.22	-727.91	0.00	3907.74
		-33882.26	-643.76	0.00	3455.95

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
65	0.00	1.00	1.00	1.00	1.00	0.00	-------
65	0.00	1.00	1.00	1.00	1.00	0.00	-------
65	0.25	1.00	1.00	1.00	1.00	0.00	-------
65	0.25	1.00	1.00	1.00	1.00	0.00	-------
65	0.50	1.00	1.00	1.00	1.00	0.00	-------
65	0.50	1.00	1.00	1.00	1.00	0.00	-------
66	0.00	1.00	1.00	1.00	1.00	0.00	-------
66	0.60	1.00	1.00	1.00	1.00	0.00	-------
66	0.65	1.00	1.00	1.00	1.00	0.00	-------
66	1.25	1.00	1.00	1.00	1.00	0.00	-------
66	1.25	1.00	1.00	1.00	1.00	0.00	-------
66	1.85	1.00	1.00	1.00	1.00	0.00	-------
67	0.00	1.00	1.00	1.00	1.00	0.00	-------
67	0.60	1.00	1.00	1.00	1.00	0.00	-------
67	0.65	1.00	1.00	1.00	1.00	0.00	-------
67	1.25	1.00	1.00	1.00	1.00	0.00	-------
67	1.25	1.00	1.00	1.00	1.00	0.00	-------
67	1.85	1.00	1.00	1.00	1.00	0.00	-------
68	0.00	1.00	1.00	1.00	1.00	0.00	-------
68	0.60	1.00	1.00	1.00	1.00	0.00	-------
68	0.65	1.00	1.00	1.00	1.00	0.00	-------
68	1.25	1.00	1.00	1.00	1.00	0.00	-------
68	1.25	1.00	1.00	1.00	1.00	0.00	-------
68	1.85	1.00	1.00	1.00	1.00	0.00	-------
69	0.00	1.00	1.00	1.00	1.00	0.00	-------
69	0.60	1.00	1.00	1.00	1.00	0.00	-------
69	0.65	1.00	1.00	1.00	1.00	0.00	-------
69	1.25	1.00	1.00	1.00	1.00	0.00	-------
69	1.25	1.00	1.00	1.00	1.00	0.00	-------
69	1.85	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
70	0.00	1.00	1.00	1.00	1.00	0.00	-------
70	0.60	1.00	1.00	1.00	1.00	0.00	-------
70	0.65	1.00	1.00	1.00	1.00	0.00	-------
70	1.25	1.00	1.00	1.00	1.00	0.00	-------
70	1.25	1.00	1.00	1.00	1.00	0.00	-------
70	1.85	1.00	1.00	1.00	1.00	0.00	-------
71	0.00	1.00	1.00	1.00	1.00	0.00	-------
71	0.60	1.00	1.00	1.00	1.00	0.00	-------
71	0.65	1.00	1.00	1.00	1.00	0.00	-------
71	1.25	1.00	1.00	1.00	1.00	0.00	-------
71	1.25	1.00	1.00	1.00	1.00	0.00	-------
71	1.85	1.00	1.00	1.00	1.00	0.00	-------
72	0.00	1.00	1.00	1.00	1.00	0.00	-------
72	0.60	1.00	1.00	1.00	1.00	0.00	-------
72	0.65	1.00	1.00	1.00	1.00	0.00	-------
72	1.25	1.00	1.00	1.00	1.00	0.00	-------
72	1.25	1.00	1.00	1.00	1.00	0.00	-------
72	1.85	1.00	1.00	1.00	1.00	0.00	-------
73	0.00	1.00	1.00	1.00	1.00	0.00	-------
73	0.60	1.00	1.00	1.00	1.00	0.00	-------
73	0.65	1.00	1.00	1.00	1.00	0.00	-------
73	1.25	1.00	1.00	1.00	1.00	0.00	-------
73	1.25	1.00	1.00	1.00	1.00	0.00	-------
73	1.85	1.00	1.00	1.00	1.00	0.00	-------
74	0.00	1.00	1.00	1.00	1.00	0.00	-------
74	0.60	1.00	1.00	1.00	1.00	0.00	-------
74	0.65	1.00	1.00	1.00	1.00	0.00	-------
74	1.25	1.00	1.00	1.00	1.00	0.00	-------
74	1.25	1.00	1.00	1.00	1.00	0.00	-------
74	1.85	1.00	1.00	1.00	1.00	0.00	-------
75	0.00	1.00	1.00	1.00	1.00	0.00	-------
75	0.60	1.00	1.00	1.00	1.00	0.00	-------
75	0.65	1.00	1.00	1.00	1.00	0.00	-------
75	1.25	1.00	1.00	1.00	1.00	0.00	-------
75	1.25	1.00	1.00	1.00	1.00	0.00	-------
75	1.85	1.00	1.00	1.00	1.00	0.00	-------
76	0.00	1.00	1.00	1.00	1.00	0.00	-------
76	0.60	1.00	1.00	1.00	1.00	0.00	-------
76	1.20	1.00	1.00	1.00	1.00	0.00	-------
76	1.80	1.00	1.00	1.00	1.00	0.00	-------
76	2.40	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: "STD"

bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
77	0.00	1.00	1.00	1.00	1.00	0.00	-------
77	0.60	1.00	1.00	1.00	1.00	0.00	-------
77	1.20	1.00	1.00	1.00	1.00	0.00	-------
77	1.80	1.00	1.00	1.00	1.00	0.00	-------
77	1.80	1.00	1.00	1.00	1.00	0.00	-------
77	2.40	1.00	1.00	1.00	1.00	0.00	-------
78	0.00	1.00	1.00	1.00	1.00	0.00	-------
78	0.60	1.00	1.00	1.00	1.00	0.00	-------
78	1.20	1.00	1.00	1.00	1.00	0.00	-------
78	1.80	1.00	1.00	1.00	1.00	0.00	-------
78	1.80	1.00	1.00	1.00	1.00	0.00	-------
78	2.40	1.00	1.00	1.00	1.00	0.00	-------
79	0.00	1.00	1.00	1.00	1.00	0.00	-------
79	0.60	1.00	1.00	1.00	1.00	0.00	-------
79	1.20	1.00	1.00	1.00	1.00	0.00	-------
79	1.80	1.00	1.00	1.00	1.00	0.00	-------
79	1.80	1.00	1.00	1.00	1.00	0.00	-------
79	2.40	1.00	1.00	1.00	1.00	0.00	-------
80	0.00	1.00	1.00	1.00	1.00	0.00	-------
80	0.60	1.00	1.00	1.00	1.00	0.00	-------
80	1.20	1.00	1.00	1.00	1.00	0.00	-------
80	1.80	1.00	1.00	1.00	1.00	0.00	-------
80	1.80	1.00	1.00	1.00	1.00	0.00	-------
80	2.40	1.00	1.00	1.00	1.00	0.00	-------
81	0.00	1.00	1.00	1.00	1.00	0.00	-------
81	0.60	1.00	1.00	1.00	1.00	0.00	-------
81	1.20	1.00	1.00	1.00	1.00	0.00	-------
81	1.80	1.00	1.00	1.00	1.00	0.00	-------
81	1.80	1.00	1.00	1.00	1.00	0.00	-------
81	2.40	1.00	1.00	1.00	1.00	0.00	-------
82	0.00	1.00	1.00	1.00	1.00	0.00	-------
82	0.60	1.00	1.00	1.00	1.00	0.00	-------
82	1.20	1.00	1.00	1.00	1.00	0.00	-------
82	1.80	1.00	1.00	1.00	1.00	0.00	-------
82	1.80	1.00	1.00	1.00	1.00	0.00	-------
82	2.40	1.00	1.00	1.00	1.00	0.00	-------
83	0.00	1.00	1.00	1.00	1.00	0.00	-------
83	0.60	1.00	1.00	1.00	1.00	0.00	-------
83	1.20	1.00	1.00	1.00	1.00	0.00	-------
83	1.80	1.00	1.00	1.00	1.00	0.00	-------
83	1.80	1.00	1.00	1.00	1.00	0.00	-------
83	2.40	1.00	1.00	1.00	1.00	0.00	-------
84	0.00	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: "STD"

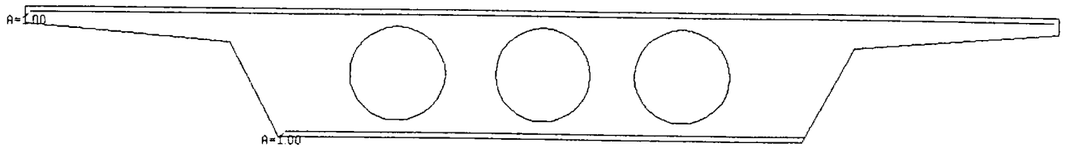
bar	distance	top reinforc. As(N,M) [cm2]	top reinforc. Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	bottom reinforc. Asu-tot [cm2]	stirrup ASW1 [cm2/m]	
84	0.60	1.00	1.00	1.00	1.00	0.00	-------
84	1.20	1.00	1.00	1.00	1.00	0.00	-------
84	1.80	1.00	1.00	1.00	1.00	0.00	-------
84	1.80	1.00	1.00	1.00	1.00	0.00	-------
84	2.40	1.00	1.00	1.00	1.00	0.00	-------
85	0.00	1.00	1.00	1.00	1.00	0.00	-------
85	0.60	1.00	1.00	1.00	1.00	0.00	-------
85	1.20	1.00	1.00	1.00	1.00	0.00	-------
85	1.80	1.00	1.00	1.00	1.00	0.00	-------
85	1.80	1.00	1.00	1.00	1.00	0.00	-------
85	2.40	1.00	1.00	1.00	1.00	0.00	-------
86	0.00	1.00	1.00	1.00	1.00	0.00	-------
86	0.60	1.00	1.00	1.00	1.00	0.00	-------
86	0.65	1.00	1.00	1.00	1.00	0.00	-------
86	1.25	1.00	1.00	1.00	1.00	0.00	-------
86	1.25	1.00	1.00	1.00	1.00	0.00	-------
86	1.85	1.00	1.00	1.00	1.00	0.00	-------
87	0.00	1.00	1.00	1.00	1.00	0.00	-------
87	0.60	1.00	1.00	1.00	1.00	0.00	-------
87	0.65	1.00	1.00	1.00	1.00	0.00	-------
87	1.25	1.00	1.00	1.00	1.00	0.00	-------
87	1.25	1.00	1.00	1.00	1.00	0.00	-------
87	1.85	1.00	1.00	1.00	1.00	0.00	-------
88	0.00	1.00	1.00	1.00	1.00	0.00	-------
88	0.60	1.00	1.00	1.00	1.00	0.00	-------
88	0.65	1.00	1.00	1.00	1.00	0.00	-------
88	1.25	1.00	1.00	1.00	1.00	0.00	-------
88	1.25	1.00	1.00	1.00	1.00	0.00	-------
88	1.85	1.00	1.00	1.00	1.00	0.00	-------
89	0.00	1.00	1.00	1.00	1.00	0.00	-------
89	0.60	1.00	1.00	1.00	1.00	0.00	-------
89	0.65	1.00	1.00	1.00	1.00	0.00	-------
89	1.25	1.00	1.00	1.00	1.00	0.00	-------
89	1.25	1.00	1.00	1.00	1.00	0.00	-------
89	1.85	1.00	1.00	1.00	1.00	0.00	-------
90	0.00	1.00	1.00	1.00	1.00	0.00	-------
90	0.60	1.00	1.00	1.00	1.00	0.00	-------
90	0.65	1.00	1.00	1.00	1.00	0.00	-------
90	1.25	1.00	1.00	1.00	1.00	0.00	-------
90	1.25	1.00	1.00	1.00	1.00	0.00	-------
90	1.85	1.00	1.00	1.00	1.00	0.00	-------
91	0.00	1.00	1.00	1.00	1.00	0.00	-------
91	0.60	1.00	1.00	1.00	1.00	0.00	-------

sum of reinforced steel area run: 'STD'

bar	distance	top reinforc. As(N,M) [cm2]	Aso-tot [cm2]	bottom reinforc. As(N,M) [cm2]	Asu-tot [cm2]	stirrup ASwl [cm2/m]	
91	0.65	1.00	1.00	1.00	1.00	0.00	-------
91	1.25	1.00	1.00	1.00	1.00	0.00	-------
91	1.25	1.00	1.00	1.00	1.00	0.00	-------
91	1.85	1.00	1.00	1.00	1.00	0.00	-------
92	0.00	1.00	1.00	1.00	1.00	0.00	-------
92	0.60	1.00	1.00	1.00	1.00	0.00	-------
92	0.65	1.00	1.00	1.00	1.00	0.00	-------
92	1.25	1.00	1.00	1.00	1.00	0.00	-------
92	1.25	1.00	1.00	1.00	1.00	0.00	-------
92	1.85	1.00	1.00	1.00	1.00	0.00	-------
93	0.00	1.00	1.00	1.00	1.00	0.00	-------
93	0.60	1.00	1.00	1.00	1.00	0.00	-------
93	0.65	1.00	1.00	1.00	1.00	0.00	-------
93	1.25	1.00	1.00	1.00	1.00	0.00	-------
93	1.25	1.00	1.00	1.00	1.00	0.00	-------
93	1.85	1.00	1.00	1.00	1.00	0.00	-------
94	0.00	1.00	1.00	1.00	1.00	0.00	-------
94	0.60	1.00	1.00	1.00	1.00	0.00	-------
94	0.65	1.00	1.00	1.00	1.00	0.00	-------
94	1.25	1.00	1.00	1.00	1.00	0.00	-------
94	1.25	1.00	1.00	1.00	1.00	0.00	-------
94	1.85	1.00	1.00	1.00	1.00	0.00	-------
95	0.00	1.00	1.00	1.00	1.00	0.00	-------
95	0.60	1.00	1.00	1.00	1.00	0.00	-------
95	0.65	1.00	1.00	1.00	1.00	0.00	-------
95	1.25	1.00	1.00	1.00	1.00	0.00	-------
95	1.25	1.00	1.00	1.00	1.00	0.00	-------
95	1.85	1.00	1.00	1.00	1.00	0.00	-------
96	0.00	1.00	1.00	1.00	1.00	0.00	-------
96	0.00	1.00	1.00	1.00	1.00	0.00	-------
96	0.25	1.00	1.00	1.00	1.00	0.00	-------
96	0.25	1.00	1.00	1.00	1.00	0.00	-------
96	0.50	1.00	1.00	1.00	1.00	0.00	-------
96	0.50	1.00	1.00	1.00	1.00	0.00	-------

2.4.1.3. Comprobación de las secciones a cortante y torsión

Sección TABVANO



Características mecánicas Sección "TABVANO" (sin coef. homogeneiz.)

Area	Ax =	8.818 m2				
Momento de inercia	Iy =	2.067 m4	Iz =	67.09 m4	Ip =	69.16 m4
Const. de torsión					Ix =	2.742 m4
Momento estático	Zy =	3.816 m3	Zz =	20.90 m3		
Baricentro	ys =	6.0268 m	zs =	0.8758 m	Angulo=	0.0 Grad
Dist. al borde	yl =	-6.0268 m	yr =	6.0332 m		
	zo =	0.6242 m	zu =	-0.8758 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 6.0268 m z = 0.8758 m

Contorno de sección parcial, Sección "TABVANO" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	88177.0	2584.263	2.74E+08	6)

Puntos de contorno [m]:

1	0.0000	1.3000	2	2.4000	1.1000	3	3.0000	0.0000
4	9.0600	0.0000	5	9.6600	1.1000	6	12.0600	1.3000
7	12.0600	1.5000	8	0.0000	1.5000	9	0.0000	1.3000

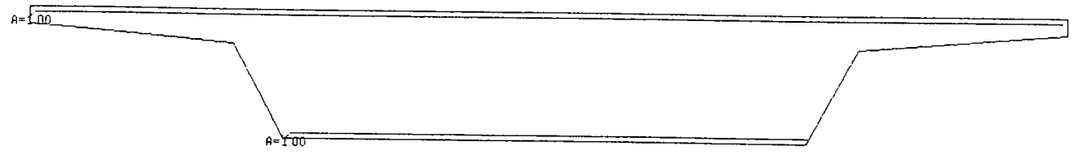
Sección parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
CS 2	Hueco		6.0600	0.7500	0.5500	
Nombre de la sección maestra: CS 1						
CS 3	Hueco		4.3800	0.7500	0.5500	
Nombre de la sección maestra: CS 1						
CS 4	Hueco		7.6800	0.7500	0.5500	
Nombre de la sección maestra: CS 1						

Armadura "B1" As-tot =2.00 cm2 (0.00 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 1 / CS 1	AEH500	1.0	2	1.00	0.0600	1.4400
					12.0000	1.4400
LR 2 / CS 1	AEH500	1.0	2	1.00	3.0800	0.0600
					9.0800	0.0600

Sección TABAPOYO



Características mecánicas Sección "TABAPOYO" (sin coef. homogeneiz.)

Area	Ax =	11.67 m2				
Momento de inercia	Iy =	2.317 m4	Iz =	72.48 m4	Ip =	74.80 m4
Const. de torsión					Ix =	3.173 m4
Momento estático	Zy =	4.547 m3	Zz =	24.26 m3		
Baricentro	ys =	6.0300 m	zs =	0.8450 m	Angulo=	0.0 Grad
Dist. al borde	yl =	-6.0300 m	yr =	6.0300 m		
	zo =	0.6550 m	zu =	-0.8450 m		

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = 6.0300 m z = 0.8450 m

Contorno de sección parcial, Sección "TABAPOYO" (sin coef. homogeneiz.)

Sección parcial	Material	w	*ax[cm2]	*u[cm]	*ix[cm4]	Nr
CS 1	H350	1.00	116700.0	2584.263	3.17E+08	3)

Puntos de contorno [m]:

1	0.0000	1.3000	2	2.4000	1.1000	3	3.0000	0.0000
4	9.0600	0.0000	5	9.6600	1.1000	6	12.0600	1.3000
7	12.0600	1.5000	8	0.0000	1.5000	9	0.0000	1.3000

Armadura "B1" As-tot =2.00 cm2 (0.00 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
LR 1 / CS 1	AEH500	1.0	2	1.00	0.0600	1.4400
					12.0000	1.4400
LR 2 / CS 1	AEH500	1.0	2	1.00	3.0800	0.0600
					9.0800	0.0600

Estado límite de Agotamiento frente a cortante

Datos generales :

Materiales :

Hormigón : **HP - 35 / F / 50 / IIa + F**

Resistencia característica	fck (N/mm^2)= **35**
Coeficiente parcial de seguridad	γ c = **1.50**
Resistencia de cálculo	fcd (N/mm^2)= 23.3
Resistencia a compresión	f_{1cd} (N/mm^2)= 14.0
Resistencia media a tracción del hormigón	fct,m (N/mm^2)= 3.2
Ángulo entre las bielas de compresión del hormigón y el eje de la pieza. 0,5 < cotg Θ < 2,0	Θ (º) = **30**
	cotg Θ = 1.73

Acero pasivo : **B 500 S**

Carga unitaria de rotura	fs (N/mm^2)= **550**
Límite elástico característico	fyk (N/mm^2)= **500**
Coeficiente parcial de seguridad	γ s = **1.15**
Resistencia de cálculo	fyd (N/mm^2)= 434.8
Tensión de cálculo para armadura de cortante	fsd (N/mm^2)= **400**
Ángulo de las armaduras con el eje de la pieza	α (º) = **90**
	cotg α = 0.00
Área de la armadura pasiva mínima	As (cm^2/m) = **10.05**
Recubrimiento mecánico de armadura	d' (m) = **0.07**

Acero activo : **Y 1860 S7 (Cordones de 7 alambres)**

Carga unitaria máxima a tracción	fmax (N/mm^2)= **1860**
Límite elástico característico	fpk (N/mm^2)= **1640**
Coeficiente parcial de seguridad	γ s = **1.15**
Resistencia de cálculo	fpd (N/mm^2)= 1426.1
Área de la armadura activa 31 T ϕ 0.6"	Ap (cm^2) = **43.4**
Diámetro de las vainas	Φ vainas (cm) = **12**
Número de cables	nº cables = **8**

Características geométricas :

	Sección de apoyo :	Sección de vano :
Área de la sección bruta	Ac (m^2) = **11.67**	Ac (m^2) = **8.82**
Anchura de la sección	b (m) = **6.06**	b (m) = **3.58**
Canto de la sección	h (m) = **1.50**	h (m) = 1.50
Canto útil de la sección	d (m) = 1.43	d (m) = 1.43
Módulo resistente inferior	W_{inf} (m^3) = **2.74201**	W_{inf} (m^3) = **2.36013**
Módulo resistente superior	W_{sup} (m^3) = **3.53740**	W_{sup} (m^3) = **3.31144**
Anchura neta :	bo (m) = b - 0,5 * Σ Φ v	bo (m) = b - 0,5 * Σ Φ v
	bo (m) = **5.58**	bo (m) = **3.10**
	ξ = 1.3740	ξ = 1.3740

ENVELOPE SPECIFIC.: FT 'COMBINACION FZAS EXTERIORES'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PL.PERM	4	1.000		PRETENSADO
H	PLUS	46	1.500		SOB UNIF VANO 1
I	PLUS	47	1.500		SOB UNIF VANO 2
J	PLUS	48	1.500		SOB UNIF VANO 3
K	PLUS	11	3.960		VEHICULO HIPOTESIS 37
L	OR	12	3.960		VEHICULO HIPOTESIS 38
M	OR	13	3.960		VEHICULO HIPOTESIS 39
N	OR	14	3.960		VEHICULO HIPOTESIS 40
O	OR	15	3.960		VEHICULO HIPOTESIS 41
P	OR	16	3.960		VEHICULO POSICION 42
Q	OR	17	3.960		VEHICULO POSICION 43
R	OR	18	3.960		VEHICULO POSICION 44
S	OR	19	3.960		VEHICULO POSICION 45
T	PLUS	30	1.500		FRENADO
U	PLUS	32	0.450000		VIENTO SIN SOE
V	PLUS	34	0.900000		TEMPERATURA (-)
W	OR	35	0.900000		TEMPERATURA (+)
X	OR	36	0.900000		GRADIENTE

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
65	0	-45071.3	2.78E-21	-4596.520	2.64E-27	-856.356	-7.80E-22
		-45071.3	2.78E-21	-4596.520	3.03E-27	-856.356	-7.80E-22
66	0	-45070.3	3.37E-12	-2337.738	-1.45E-12	-3190.010	-1.58E-10
		-45070.3	3.37E-12	2149.129	-1.36E-12	-3212.170	-1.58E-10
67	0	-45444.0	1.79E-14	-2230.493	-5.68E-14	-9341.015	-1.04E-10
		-45444.0	1.79E-14	1032.636	-1.02E-13	-651.356	-1.04E-10
68	0	-45926.5	1.79E-14	-1713.217	-1.79E-13	-7606.650	-1.04E-10
		-45926.5	1.79E-14	1166.406	-1.02E-13	1896.889	-1.04E-10
69	0	-46377.9	1.79E-14	-1108.341	-1.79E-13	-11384.4	-1.04E-10

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		-46377.9	1.79E-14	1328.084	-1.02E-13	4764.150	-1.04E-10
70	0	-46796.8	1.79E-14	-630.402	-1.74E-13	-9916.241	-1.04E-10
		-46796.8	1.79E-14	600.966	-5.43E-14	-6320.825	-1.04E-10
71	0	-46984.7	1.79E-14	-1167.455	-1.42E-13	92.182	-1.04E-10
		-46984.7	1.79E-14	1131.768	-9.79E-15	-8755.288	-1.04E-10
72	0	-46937.8	1.79E-14	-1004.464	-1.42E-13	-2596.513	-1.04E-10
		-46937.8	1.79E-14	1737.956	-9.79E-15	-5141.930	-1.04E-10
73	0	-46457.4	1.79E-14	-879.394	-1.42E-13	-4748.716	-1.04E-10
		-46457.4	1.79E-14	2306.224	-9.79E-15	115.913	-1.04E-10
74	0	-45948.9	1.79E-14	-783.509	-1.42E-13	-6716.607	-1.04E-10
		-45948.9	1.79E-14	2645.305	-9.79E-15	6666.062	-1.04E-10
75	0	-45412.2	1.79E-14	-993.453	-8.98E-14	-4816.918	-1.03E-10
		-45412.2	1.79E-14	3227.073	7.94E-14	11554.2	-1.03E-10
76	0	-44432.1	3.47E-13	4569.160	1.03E-13	4973.900	-1.03E-10
		-44432.1	3.47E-13	10348.6	-1.09E-13	-12922.4	-1.03E-10
77	0	-42866.3	3.47E-13	-1594.789	1.03E-13	9710.566	-1.02E-10
		-42866.3	3.47E-13	2493.657	-1.20E-13	3651.240	-1.02E-10
78	0	-42559.0	3.47E-13	-1231.896	7.94E-14	10348.1	-1.01E-10
		-42559.0	3.47E-13	2218.346	-9.66E-14	6433.000	-1.01E-10
79	0	-42215.5	3.47E-13	-885.426	7.94E-14	6663.566	-9.97E-11
		-42215.5	3.47E-13	1926.612	-9.66E-14	14020.6	-9.97E-11
80	0	-41836.3	3.47E-13	-558.675	7.94E-14	4286.696	-9.84E-11
		-41836.3	3.47E-13	1615.159	-9.66E-14	20618.3	-9.84E-11
81	0	-41422.1	3.47E-13	-488.745	-1.99E-14	30643.8	-9.72E-11
		-41422.1	3.47E-13	254.885	-1.39E-13	-2602.194	-9.72E-11

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
82	0	-41836.3	3.47E-13	-1615.159	-1.99E-14	26331.0	-9.59E-11
		-41836.3	3.47E-13	558.675	-1.39E-13	-1425.997	-9.59E-11
83	0	-42215.5	3.47E-13	-1926.612	-1.99E-14	19733.3	-9.47E-11
		-42215.5	3.47E-13	885.426	-1.39E-13	950.873	-9.47E-11
84	0	-42559.0	3.47E-13	-2218.346	-1.99E-14	12145.7	-9.34E-11
		-42559.0	3.47E-13	1231.896	-1.39E-13	4635.380	-9.34E-11
85	0	-42866.3	3.47E-13	-2493.657	-1.99E-14	3651.240	-9.22E-11
		-42866.3	3.47E-13	1594.789	-1.39E-13	9710.566	-9.22E-11
86	0	-44466.3	1.12E-13	3622.816	-1.63E-13	10686.6	-9.09E-11
		-44466.3	1.12E-13	9076.099	2.32E-14	-17956.4	-9.09E-11
87	0	-45412.2	1.12E-13	-3227.073	-1.63E-13	11554.2	-9.07E-11
		-45412.2	1.12E-13	991.013	2.32E-14	-4841.231	-9.07E-11
88	0	-45948.9	1.12E-13	-2847.744	-9.74E-14	6714.851	-9.04E-11
		-45948.9	1.12E-13	783.509	9.97E-14	-6716.607	-9.04E-11
89	0	-46457.4	1.12E-13	-2308.663	-9.74E-14	158.603	-9.01E-11
		-46457.4	1.12E-13	879.394	9.97E-14	-4748.716	-9.01E-11
90	0	-46937.8	1.12E-13	-1740.395	-9.74E-14	-5105.338	-8.98E-11
		-46937.8	1.12E-13	1004.464	9.97E-14	-2596.513	-8.98E-11
91	0	-46984.7	1.12E-13	-1134.207	-9.74E-14	-8724.795	-8.95E-11
		-46984.7	1.12E-13	1167.455	9.97E-14	92.182	-8.95E-11
92	0	-46796.8	1.12E-13	-875.282	3.49E-14	3154.336	-8.93E-11
		-46796.8	1.12E-13	626.600	8.23E-14	-9957.426	-8.93E-11
93	0	-46377.9	1.12E-13	-1328.084	3.96E-14	4764.150	-8.90E-11
		-46377.9	1.12E-13	1104.540	7.76E-14	-11435.1	-8.90E-11
94	0	-45926.5	1.12E-13	-1166.406	3.96E-14	1896.889	-8.87E-11

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		-45926.5	1.12E-13	1709.415	7.76E-14	-7666.842	-8.87E-11
95	0	-45444.0	1.12E-13	-1032.636	3.96E-14	-651.357	-8.84E-11
		-45444.0	1.12E-13	2230.493	-5.68E-14	-9341.015	-8.84E-11
96	0	-45098.4	1.54E-14	4733.282	-3.87E-12	-3190.011	4.36E-11
		-45098.4	1.54E-14	4821.921	-4.03E-12	-3212.170	4.36E-11

Cálculo del cortante a tiempo inicial

As = Aspasiva+Aactiva x fyp / fyd

Aαreal $(cm^2/m) = \frac{1}{st} * n * \frac{\pi \Phi^2}{4}$

BARRA	TIPO	Nd KN	Vd KN	Md m KN	Ac m^2	bo m	As cm^2	σ'_{cd} N/mm^2	K -	Vu1 KN	Vd < Vu1 Verifica	ρ1	cotg Θ_e	β	Vcu KN	Vsu KN	Aα cm^2/m	Aαmin cm^2/m	Aαreal cm^2/m		Vsureal KN	ΔT KN	Apasiv cm^2	Sd m
65	APOYO	-45071.3	-4596.5	-856.4	11.67	5.58	1423.52	-3.86	1.00	48372.5	SI	0.0196	1.48431	0.51959	4734.8	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-45071.3	-4596.5	-856.4	11.67	5.58	1423.52	-3.86	1.00	48372.5	SI	0.0196	1.48431	0.51959	4734.8	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
66	APOYO	-45070.3	-2337.7	-3190.0	11.67	5.58	1423.52	-3.86	1.00	48372.5	SI	0.0196	1.48430	0.51958	4734.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-45070.3	2149.1	-3212.2	11.67	5.58	1423.52	-3.86	1.00	48372.5	SI	0.0196	1.48430	0.51958	4734.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
67	VANO	-45444.0	-2230.5	-9341.0	8.82	3.10	1423.52	-5.15	1.00	26873.6	SI	0.0200	1.61415	0.69444	4122.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	373.0	8.58	0.22
		-45444.0	1032.6	-651.4	8.82	3.10	1423.52	-5.15	1.00	26873.6	SI	0.0200	1.61415	0.69444	4122.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
68	VANO	-45926.5	-1713.2	-7606.7	8.82	3.10	1423.52	-5.21	1.00	26873.6	SI	0.0200	1.61942	0.70406	4205.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-45926.5	1166.4	1896.9	8.82	3.10	1423.52	-5.21	1.00	26873.6	SI	0.0200	1.61942	0.70406	4205.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
69	VANO	-46377.9	-1108.3	-11384.4	8.82	3.10	1423.52	-5.26	1.00	26873.6	SI	0.0200	1.62434	0.71328	4285.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46377.9	1328.1	4764.2	8.82	3.10	1423.52	-5.26	1.00	26873.6	SI	0.0200	1.62434	0.71328	4285.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
70	VANO	-46796.8	-630.4	-9916.2	8.82	3.10	1423.52	-5.31	1.00	26873.6	SI	0.0200	1.62889	0.72202	4360.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46796.8	601.0	-6320.8	8.82	3.10	1423.52	-5.31	1.00	26873.6	SI	0.0200	1.62889	0.72202	4360.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
71	VANO	-46984.7	-1167.5	92.2	8.82	3.10	1423.52	-5.33	1.00	26873.6	SI	0.0200	1.63093	0.72600	4394.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46984.7	1131.8	-8755.3	8.82	3.10	1423.52	-5.33	1.00	26873.6	SI	0.0200	1.63093	0.72600	4394.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
72	VANO	-46937.8	-1004.5	-2596.5	8.82	3.10	1423.52	-5.32	1.00	26873.6	SI	0.0200	1.63042	0.72500	4386.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46937.8	1738.0	-5141.9	8.82	3.10	1423.52	-5.32	1.00	26873.6	SI	0.0200	1.63042	0.72500	4386.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
73	VANO	-46457.4	-879.4	-4748.7	8.82	3.10	1423.52	-5.27	1.00	26873.6	SI	0.0200	1.62520	0.71492	4299.2	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46457.4	2306.2	115.9	8.82	3.10	1423.52	-5.27	1.00	26873.6	SI	0.0200	1.62520	0.71492	4299.2	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	504.2	11.60	0.28
74	VANO	-45948.9	-783.5	-6716.6	8.82	3.10	1423.52	-5.21	1.00	26873.6	SI	0.0200	1.61967	0.70451	4209.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-45948.9	2845.3	6666.1	8.82	3.10	1423.52	-5.21	1.00	26873.6	SI	0.0200	1.61967	0.70451	4209.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	1437.9	33.07	0.65
75	APOYO	-45412.2	-993.5	-4816.9	11.67	5.58	1423.52	-3.89	1.00	48372.5	SI	0.0196	1.48737	0.52270	4781.4	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-45412.2	3227.1	11554.2	11.67	5.58	1423.52	-3.89	1.00	48372.5	SI	0.0196	1.48737	0.52270	4781.4	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
76	APOYO	-44432.1	4569.2	4973.9	11.67	5.58	1423.52	-3.81	1.00	48372.5	SI	0.0196	1.47855	0.51385	4648.8	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-44432.1	10348.6	-12922.4	11.67	5.58	1423.52	-3.81	1.00	48372.5	SI	0.0196	1.47855	0.51385	4648.8	5699.8	110.7	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	7453.3	171.43	0.93
77	VANO	-42866.3	-1594.8	9710.6	8.82	3.10	1423.52	-4.86	1.00	26873.6	SI	0.0200	1.58569	0.64674	3714.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-42866.3	2493.7	3651.2	8.82	3.10	1423.52	-4.86	1.00	26873.6	SI	0.0200	1.58569	0.64674	3714.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	828.8	19.06	0.43
78	VANO	-42559.0	-1231.9	10348.1	8.82	3.10	1423.52	-4.83	1.00	26873.6	SI	0.0200	1.58226	0.64143	3668.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-42559.0	2218.3	6433.0	8.82	3.10	1423.52	-4.83	1.00	26873.6	SI	0.0200	1.58226	0.64143	3668.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	351.9	8.09	0.20
79	VANO	-42215.5	-885.4	6663.6	8.82	3.10	1423.52	-4.79	1.00	26873.6	SI	0.0200	1.57843	0.63559	3618.8	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-42215.5	1926.6	14020.6	8.82	3.10	1423.52	-4.79	1.00	26873.6	SI	0.0200	1.57843	0.63559	3618.8	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
80	VANO	-41836.3	-558.7	4286.7	8.82	3.10	1423.52	-4.74	1.00	26873.6	SI	0.0200	1.57418	0.62925	3564.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-41836.3	1615.2	20618.3	8.82	3.10	1423.52	-4.74	1.00	26873.6	SI	0.0200	1.57418	0.62925	3564.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
81	VANO	-41422.1	-488.7	30643.8	8.82	3.10	1423.52	-4.70	1.00	26873.6	SI	0.0200	1.56952	0.62244	3506.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-41422.1	254.9	-2602.2	8.82	3.10	1423.52	-4.70	1.00	26873.6	SI	0.0200	1.56952	0.62244	3506.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
82	VANO	-41836.3	-1615.2	26331.0	8.82	3.10	1423.52	-4.74	1.00	26873.6	SI	0.0200	1.57418	0.62925	3564.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-41836.3	558.7	-1426.0	8.82	3.10	1423.52	-4.74	1.00	26873.6	SI	0.0200	1.57418	0.62925	3564.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
83	VANO	-42215.5	-1926.6	19733.3	8.82	3.10	1423.52	-4.79	1.00	26873.6	SI	0.0200	1.57843	0.63559	3618.8	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-42215.5	885.4	950.9	8.82	3.10	1423.52	-4.79	1.00	26873.6	SI	0.0200	1.57843	0.63559	3618.8	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
84	VANO	-42559.0	-2218.3	12145.7	8.82	3.10	1423.52	-4.83	1.00	26873.6	SI	0.0200	1.58226	0.64143	3668.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-42559.0	1231.9	4635.4	8.82	3.10	1423.52	-4.83	1.00	26873.6	SI	0.0200	1.58226	0.64143	3668.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	351.9	8.09	0.20
85	APOYO	-42866.3	-2493.7	3651.2	11.67	5.58	1423.52	-3.67	1.00	48372.5	SI	0.0196	1.46435	0.50023	4445.2	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-42866.3	1594.8	9710.6	11.67	5.58	1423.52	-3.67	1.00	48372.5	SI	0.0196	1.46435	0.50023	4445.2	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
86	APOYO	-44466.3	3622.8	10686.6	11.67	5.58	1423.52	-3.81	1.00	48372.5	SI	0.0196	1.47886	0.51416	4653.4	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-44466.3	9076.1	-17956.4	11.67	5.58	1423.52	-3.81	1.00	48372.5	SI	0.0196	1.47886	0.51416	4653.4	4422.7	85.9	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	5249.2	120.73	0.74
87	VANO	-45412.2	-3227.1	11554.2	8.82	3.10	1423.52	-5.15	1.00	26873.6	SI	0.0200	1.61380	0.69382	4117.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	2099.1	48.28	0.84
		-45412.2	991.0	-4841.2	8.82	3.10	1423.52	-5.15	1.00	26873.6	SI	0.0200	1.61380	0.69382	4117.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
88	VANO	-45948.9	-2847.7	6714.9	8.82	3.10	1423.52	-5.21	1.00	26873.6	SI	0.0200	1.61967	0.70451	4209.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	1442.1	33.17	0.65
		-45948.9	783.5	-6716.6	8.82	3.10	1423.52	-5.21	1.00	26873.6	SI	0.0200	1.61967	0.70451	4209.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
89	VANO	-46457.4	-2308.7	158.6	8.82	3.10	1423.52	-5.27	1.00	26873.6	SI	0.0200	1.62520	0.71492	4299.2	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	508.4	11.69	0.28
		-46457.4	879.4	-4748.7	8.82	3.10	1423.52	-5.27	1.00	26873.6	SI	0.0200	1.62520	0.71492	4299.2	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
90	VANO	-46937.8	-1740.4	-5105.3	8.82	3.10	1423.52	-5.32	1.00	26873.6	SI	0.0200	1.63042	0.72500	4386.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46937.8	1004.5	-2596.5	8.82	3.10	1423.52	-5.32	1.00	26873.6	SI	0.0200	1.63042	0.72500	4386.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
91	VANO	-46984.7	-1134.2	-8724.8	8.82	3.10	1423.52	-5.33	1.00	26873.6	SI	0.0200	1.63093	0.72600	4394.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46984.7	1167.5	92.2	8.82	3.10	1423.52	-5.33	1.00	26873.6	SI	0.0200	1.63093	0.72600	4394.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
92	VANO	-46796.8	-875.3	3154.3	8.82	3.10	1423.52	-5.31	1.00	26873.6	SI	0.0200	1.62889	0.72202	4360.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46796.8	626.6	-9957.4	8.82	3.10	1423.52	-5.31	1.00	26873.6	SI	0.0200	1.62889	0.72202	4360.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
93	VANO	-46377.9	-1328.1	4764.2	8.82	3.10	1423.52	-5.26	1.00	26873.6	SI	0.0200	1.62434	0.71328	4285.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-46377.9	1104.5	-11435.1	8.82	3.10	1423.52	-5.26	1.00	26873.6	SI	0.0200	1.62434	0.71328	4285.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
94	VANO	-45926.5	-1166.4	1896.9	8.82	3.10	1423.52	-5.21	1.00	26873.6	SI	0.0200	1.61942	0.70406	4205.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-45926.5	1709.4	-7666.8	8.82	3.10	1423.52	-5.21	1.00	26873.6	SI	0.0200	1.61942	0.70406	4205.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
95	APOYO	-45444.0	-1032.6	-651.4	11.67	5.58	1423.52	-3.89	1.00	48372.5	SI	0.0196	1.48766	0.52299	4785.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-45444.0	2230.5	-9341.0	11.67	5.58	1423.52	-3.89	1.00	48372.5	SI	0.0196	1.48766	0.52299	4785.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
96	APOYO	-45098.4	4733.3	-3190.0	11.67	5.58	1423.52	-3.86	1.00	48372.5	SI	0.0196	1.48455	0.51984	4738.5	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-45098.4	4821.9	-3212.2	11.67	5.58	1423.52	-3.86	1.00	48372.5	SI	0.0196	1.48455	0.51984	4738.5	83.4	1.6	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00

ENVELOPE SPECIFIC.: FW 'COMBINACION FZAS EXTERIORES'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PL.PERM	4	0.850000		PRETENSADO
H	PLUS	46	1.500		SOB UNIF VANO 1
I	PLUS	47	1.500		SOB UNIF VANO 2
J	PLUS	48	1.500		SOB UNIF VANO 3
K	PLUS	11	3.960		VEHICULO HIPOTESIS 37
L	OR	12	3.960		VEHICULO HIPOTESIS 38
M	OR	13	3.960		VEHICULO HIPOTESIS 39
N	OR	14	3.960		VEHICULO HIPOTESIS 40
O	OR	15	3.960		VEHICULO HIPOTESIS 41
P	OR	16	3.960		VEHICULO POSICION 42
Q	OR	17	3.960		VEHICULO POSICION 43
R	OR	18	3.960		VEHICULO POSICION 44
S	OR	19	3.960		VEHICULO POSICION 45
T	PLUS	30	1.500		FRENADO
U	PLUS	32	0.450000		VIENTO SIN SOB
V	PLUS	34	0.900000		TEMPERATURA (-)
W	OR	35	0.900000		TEMPERATURA (+)
X	OR	36	0.900000		GRADIENTE

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
65	0	-38310.6	2.37E-21	-3907.042	2.50E-27	-727.902	-6.63E-22
		-38310.6	2.37E-21	-3907.042	2.89E-27	-727.902	-6.63E-22
66	0	-38309.7	2.86E-12	-1718.922	-1.17E-12	-2716.534	-1.34E-10
		-38309.7	2.86E-12	2767.945	-1.08E-12	-2738.694	-1.34E-10
67	0	-38627.4	1.52E-14	-1728.265	-4.90E-14	-7400.126	-8.83E-11
		-38627.4	1.52E-14	1534.864	-9.44E-14	1289.532	-8.83E-11
68	0	-39037.5	1.52E-14	-1398.035	-1.71E-13	-4613.914	-8.82E-11
		-39037.5	1.52E-14	1481.588	-9.44E-14	4889.624	-8.82E-11
69	0	-39421.2	1.52E-14	-984.392	-1.71E-13	-7805.170	-8.82E-11

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		-39421.2	1.52E-14	1452.034	-9.44E-14	8343.428	-8.82E-11
70	0	-39777.3	1.52E-14	-701.478	-1.66E-13	-6231.542	-8.81E-11
		-39777.3	1.52E-14	529.890	-4.65E-14	-2636.126	-8.81E-11
71	0	-39937.0	1.52E-14	-1430.343	-1.35E-13	3377.061	-8.81E-11
		-39937.0	1.52E-14	868.879	-1.96E-15	-5470.409	-8.81E-11
72	0	-39897.1	1.52E-14	-1458.782	-1.35E-13	-212.072	-8.81E-11
		-39897.1	1.52E-14	1283.638	-1.96E-15	-2757.489	-8.81E-11
73	0	-39488.8	1.52E-14	-1519.453	-1.35E-13	-3762.639	-8.80E-11
		-39488.8	1.52E-14	1666.165	-1.96E-15	1101.990	-8.80E-11
74	0	-39056.6	1.52E-14	-1604.932	-1.35E-13	-7573.992	-8.80E-11
		-39056.6	1.52E-14	2023.883	-1.96E-15	5808.677	-8.80E-11
75	0	-38600.4	1.52E-14	-1991.511	-8.19E-14	-7944.290	-8.80E-11
		-38600.4	1.52E-14	2229.015	8.72E-14	8426.780	-8.80E-11
76	0	-37767.2	2.95E-13	4569.160	1.11E-13	566.041	-8.79E-11
		-37767.2	2.95E-13	10348.6	-1.01E-13	-17330.2	-8.79E-11
77	0	-36436.4	2.95E-13	-814.918	1.11E-13	6799.056	-8.69E-11
		-36436.4	2.95E-13	3273.528	-1.12E-13	739.730	-8.69E-11
78	0	-36175.1	2.95E-13	-651.180	8.72E-14	9883.692	-8.58E-11
		-36175.1	2.95E-13	2799.062	-8.88E-14	5968.619	-8.58E-11
79	0	-35883.2	2.95E-13	-501.402	8.72E-14	7916.715	-8.47E-11
		-35883.2	2.95E-13	2310.636	-8.88E-14	15273.7	-8.47E-11
80	0	-35560.9	2.95E-13	-368.385	8.72E-14	6540.233	-8.37E-11
		-35560.9	2.95E-13	1805.449	-8.88E-14	22871.8	-8.37E-11
81	0	-35208.8	2.95E-13	-488.745	-1.21E-14	33196.7	-8.26E-11
		-35208.8	2.95E-13	254.885	-1.31E-13	-49.367	-8.26E-11

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
82	0	-35560.9	2.95E-13	-1805.449	-1.21E-14	28584.5	-8.15E-11
		-35560.9	2.95E-13	368.385	-1.31E-13	827.540	-8.15E-11
83	0	-35883.2	2.95E-13	-2310.636	-1.21E-14	20986.4	-8.05E-11
		-35883.2	2.95E-13	501.402	-1.31E-13	2204.022	-8.05E-11
84	0	-36175.1	2.95E-13	-2799.062	-1.21E-14	11681.3	-7.94E-11
		-36175.1	2.95E-13	651.180	-1.31E-13	4170.999	-7.94E-11
85	0	-36436.4	2.95E-13	-3273.528	-1.21E-14	739.730	-7.84E-11
		-36436.4	2.95E-13	814.918	-1.31E-13	6799.056	-7.84E-11
86	0	-37796.3	9.51E-14	3693.892	-1.55E-13	6278.734	-7.73E-11
		-37796.3	9.51E-14	9147.175	3.10E-14	-22364.3	-7.73E-11
87	0	-38600.4	9.51E-14	-2229.015	-1.55E-13	8426.780	-7.71E-11
		-38600.4	9.51E-14	1989.072	3.10E-14	-7968.603	-7.71E-11
88	0	-39056.6	9.51E-14	-2026.322	-8.96E-14	5857.465	-7.68E-11
		-39056.6	9.51E-14	1604.932	1.08E-13	-7573.992	-7.68E-11
89	0	-39488.8	9.51E-14	-1668.604	-8.96E-14	1144.680	-7.66E-11
		-39488.8	9.51E-14	1519.453	1.08E-13	-3762.639	-7.66E-11
90	0	-39897.1	9.51E-14	-1286.077	-8.96E-14	-2720.898	-7.63E-11
		-39897.1	9.51E-14	1458.782	1.08E-13	-212.072	-7.63E-11
91	0	-39937.0	9.51E-14	-871.319	-8.96E-14	-5439.916	-7.61E-11
		-39937.0	9.51E-14	1430.343	1.08E-13	3377.061	-7.61E-11
92	0	-39777.3	9.51E-14	-804.206	4.27E-14	6839.035	-7.59E-11
		-39777.3	9.51E-14	657.676	9.01E-14	-6272.727	-7.59E-11
93	0	-39421.2	9.51E-14	-1452.034	4.74E-14	8343.428	-7.56E-11
		-39421.2	9.51E-14	986.590	8.54E-14	-7855.859	-7.56E-11
94	0	-39037.5	9.51E-14	-1481.588	4.74E-14	4889.624	-7.54E-11

ENVELOPE for < Vz > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		-39037.5	9.51E-14	1394.233	8.54E-14	-4674.107	-7.54E-11
95	0	-38627.4	9.51E-14	-1534.864	4.74E-14	1289.532	-7.52E-11
		-38627.4	9.51E-14	1728.265	-4.90E-14	-7400.126	-7.52E-11
96	0	-38333.7	1.31E-14	4043.390	-3.35E-12	-2716.534	3.71E-11
		-38333.7	1.31E-14	4132.029	-3.51E-12	-2738.694	3.71E-11

Cálculo del cortante a tiempo infinito

As = Aspasiva+Aactiva x fyp / fyd

Aαreal $(cm^2/m) = \frac{1}{st} \cdot n \cdot \frac{\pi \Phi^2}{4}$

BARRA	TIPO	Nd KN	Vd KN	Md m KN	Ac m^2	bo m	As cm^2	σ'_{cd} N/mm²	K -	Vu1 KN	Vd<Vu1 Verifica	ρ1	cotg Θ_e	β	Vcu KN	Vsu KN	Aα cm^2/m	Aαmin cm^2/m	Aαreal cm^2/m		Vsureal KN	ΔT KN	Apasiv cm^2	Sd m
65	APOYO	-38310.6	-3907.0	-727.9	11.67	5.58	1423.52	-3.28	1.00	48372.5	SI	0.0196	1.42222	0.46375	3904.4	2.6	0.1	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-38310.6	-3907.0	-727.9	11.67	5.58	1423.52	-3.28	1.00	48372.5	SI	0.0196	1.42222	0.46375	3904.4	2.6	0.1	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
66	APOYO	-38309.7	-1718.9	-2716.5	11.67	5.58	1423.52	-3.28	1.00	48372.5	SI	0.0196	1.42221	0.46375	3904.3	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-38309.7	2767.9	-2738.7	11.67	5.58	1423.52	-3.28	1.00	48372.5	SI	0.0196	1.42221	0.46375	3904.3	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
67	VANO	-38627.4	-1728.3	-7400.1	8.82	3.10	1423.52	-4.38	1.00	26873.6	SI	0.0200	1.53775	0.57966	3143.5	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-38627.4	1534.9	1289.5	8.82	3.10	1423.52	-4.38	1.00	26873.6	SI	0.0200	1.53775	0.57966	3143.5	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
68	VANO	-39037.5	-1398.0	-4613.9	8.82	3.10	1423.52	-4.43	1.00	26873.6	SI	0.0200	1.54245	0.58562	3193.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39037.5	1481.6	4889.6	8.82	3.10	1423.52	-4.43	1.00	26873.6	SI	0.0200	1.54245	0.58562	3193.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
69	VANO	-39421.2	-984.4	-7805.2	8.82	3.10	1423.52	-4.47	1.00	26873.6	SI	0.0200	1.54684	0.59129	3242.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39421.2	1452.0	8343.4	8.82	3.10	1423.52	-4.47	1.00	26873.6	SI	0.0200	1.54684	0.59129	3242.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
70	VANO	-39777.3	-701.5	-6231.5	8.82	3.10	1423.52	-4.51	1.00	26873.6	SI	0.0200	1.55090	0.59663	3287.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39777.3	529.9	-2636.1	8.82	3.10	1423.52	-4.51	1.00	26873.6	SI	0.0200	1.55090	0.59663	3287.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
71	VANO	-39937.0	-1430.3	3377.1	8.82	3.10	1423.52	-4.53	1.00	26873.6	SI	0.0200	1.55272	0.59906	3307.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39937.0	868.9	-5470.4	8.82	3.10	1423.52	-4.53	1.00	26873.6	SI	0.0200	1.55272	0.59906	3307.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
72	VANO	-39897.1	-1458.8	-212.1	8.82	3.10	1423.52	-4.52	1.00	26873.6	SI	0.0200	1.55226	0.59845	3302.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39897.1	1283.6	-2757.5	8.82	3.10	1423.52	-4.52	1.00	26873.6	SI	0.0200	1.55226	0.59845	3302.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
73	VANO	-39488.8	-1519.5	-3762.6	8.82	3.10	1423.52	-4.48	1.00	26873.6	SI	0.0200	1.54761	0.59230	3250.5	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39488.8	1666.2	1102.0	8.82	3.10	1423.52	-4.48	1.00	26873.6	SI	0.0200	1.54761	0.59230	3250.5	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
74	VANO	-39056.6	-1604.9	-7574.0	8.82	3.10	1423.52	-4.43	1.00	26873.6	SI	0.0200	1.54267	0.58590	3196.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39056.6	2023.9	5808.7	8.82	3.10	1423.52	-4.43	1.00	26873.6	SI	0.0200	1.54267	0.58590	3196.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	15.1	0.35	0.01
75	APOYO	-38600.4	-1991.5	-7944.3	11.67	5.58	1423.52	-3.31	1.00	48372.5	SI	0.0196	1.42493	0.46594	3936.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-38600.4	2229.0	8426.8	11.67	5.58	1423.52	-3.31	1.00	48372.5	SI	0.0196	1.42493	0.46594	3936.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
76	APOYO	-37767.2	4569.2	566.0	11.67	5.58	1423.52	-3.24	1.00	48372.5	SI	0.0196	1.41711	0.45969	3844.6	724.6	14.1	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-37767.2	10348.6	-17330.2	11.67	5.58	1423.52	-3.24	1.00	48372.5	SI	0.0196	1.41711	0.45969	3844.6	6504.0	126.3	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	7453.3	171.43	0.93
77	VANO	-36436.4	-814.9	6799.1	8.82	3.10	1423.52	-4.13	1.00	26873.6	SI	0.0200	1.51237	0.54949	2889.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-36436.4	3273.5	739.7	8.82	3.10	1423.52	-4.13	1.00	26873.6	SI	0.0200	1.51237	0.54949	2889.1	384.4	7.5	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	2179.6	50.13	0.86
78	VANO	-36175.1	-651.2	9883.7	8.82	3.10	1423.52	-4.10	1.00	26873.6	SI	0.0200	1.50931	0.54607	2860.4	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-36175.1	2799.1	5968.6	8.82	3.10	1423.52	-4.10	1.00	26873.6	SI	0.0200	1.50931	0.54607	2860.4	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	1357.8	31.23	0.62
79	VANO	-35883.2	-501.4	7916.7	8.82	3.10	1423.52	-4.07	1.00	26873.6	SI	0.0200	1.50589	0.54229	2828.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-35883.2	2310.6	15273.7	8.82	3.10	1423.52	-4.07	1.00	26873.6	SI	0.0200	1.50589	0.54229	2828.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	511.8	11.77	0.29
80	VANO	-35560.9	-368.4	6540.2	8.82	3.10	1423.52	-4.03	1.00	26873.6	SI	0.0200	1.50211	0.53817	2794.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-35560.9	1805.4	22871.8	8.82	3.10	1423.52	-4.03	1.00	26873.6	SI	0.0200	1.50211	0.53817	2794.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
81	VANO	-35208.8	-488.7	33196.7	8.82	3.10	1423.52	-3.99	1.00	26873.6	SI	0.0200	1.49796	0.53372	2756.8	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-35208.8	254.9	-49.4	8.82	3.10	1423.52	-3.99	1.00	26873.6	SI	0.0200	1.49796	0.53372	2756.8	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
82	VANO	-35560.9	-1805.4	28584.5	8.82	3.10	1423.52	-4.03	1.00	26873.6	SI	0.0200	1.50211	0.53817	2794.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-35560.9	368.4	827.5	8.82	3.10	1423.52	-4.03	1.00	26873.6	SI	0.0200	1.50211	0.53817	2794.1	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
83	VANO	-35883.2	-2310.6	20986.4	8.82	3.10	1423.52	-4.07	1.00	26873.6	SI	0.0200	1.50589	0.54229	2828.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	511.8	11.77	0.29
		-35883.2	501.4	2204.0	8.82	3.10	1423.52	-4.07	1.00	26873.6	SI	0.0200	1.50589	0.54229	2828.6	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
84	VANO	-36175.1	-2799.1	11681.3	8.82	3.10	1423.52	-4.10	1.00	26873.6	SI	0.0200	1.50931	0.54607	2860.4	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	1357.8	31.23	0.62
		-36175.1	651.2	4171.0	8.82	3.10	1423.52	-4.10	1.00	26873.6	SI	0.0200	1.50931	0.54607	2860.4	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
85	APOYO	-36436.4	-3273.5	739.7	11.67	5.58	1423.52	-3.12	1.00	48372.5	SI	0.0196	1.40452	0.44997	3701.9	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-36436.4	814.9	6799.1	11.67	5.58	1423.52	-3.12	1.00	48372.5	SI	0.0196	1.40452	0.44997	3701.9	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
86	APOYO	-37796.3	3693.9	6278.7	11.67	5.58	1423.52	-3.24	1.00	48372.5	SI	0.0196	1.41738	0.45991	3847.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-37796.3	9147.2	-22364.3	11.67	5.58	1423.52	-3.24	1.00	48372.5	SI	0.0196	1.41738	0.45991	3847.7	5299.4	102.9	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	5372.3	123.56	0.76
87	VANO	-38600.4	-2229.0	8426.8	8.82	3.10	1423.52	-4.38	1.00	26873.6	SI	0.0200	1.53744	0.57927	3140.2	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	370.4	8.52	0.21
		-38600.4	1989.1	-7968.6	8.82	3.10	1423.52	-4.38	1.00	26873.6	SI	0.0200	1.53744	0.57927	3140.2	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
88	VANO	-39056.6	-2026.3	5857.5	8.82	3.10	1423.52	-4.43	1.00	26873.6	SI	0.0200	1.54267	0.58590	3196.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	19.3	0.45	0.01
		-39056.6	1604.9	-7574.0	8.82	3.10	1423.52	-4.43	1.00	26873.6	SI	0.0200	1.54267	0.58590	3196.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
89	VANO	-39488.8	-1668.6	1144.7	8.82	3.10	1423.52	-4.48	1.00	26873.6	SI	0.0200	1.54761	0.59230	3250.5	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39488.8	1519.5	-3762.6	8.82	3.10	1423.52	-4.48	1.00	26873.6	SI	0.0200	1.54761	0.59230	3250.5	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
90	VANO	-39897.1	-1286.1	-2720.9	8.82	3.10	1423.52	-4.52	1.00	26873.6	SI	0.0200	1.55226	0.59845	3302.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39897.1	1458.8	-212.1	8.82	3.10	1423.52	-4.52	1.00	26873.6	SI	0.0200	1.55226	0.59845	3302.7	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
91	VANO	-39937.0	-871.3	-5439.9	8.82	3.10	1423.52	-4.53	1.00	26873.6	SI	0.0200	1.55272	0.59906	3307.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39937.0	1430.3	3377.1	8.82	3.10	1423.52	-4.53	1.00	26873.6	SI	0.0200	1.55272	0.59906	3307.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
92	VANO	-39777.3	-804.2	6839.0	8.82	3.10	1423.52	-4.51	1.00	26873.6	SI	0.0200	1.55090	0.59663	3287.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39777.3	697.7	-6272.7	8.82	3.10	1423.52	-4.51	1.00	26873.6	SI	0.0200	1.55090	0.59663	3287.3	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
93	VANO	-39421.2	-1452.0	8343.4	8.82	3.10	1423.52	-4.47	1.00	26873.6	SI	0.0200	1.54684	0.59129	3242.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39421.2	980.6	-7855.9	8.82	3.10	1423.52	-4.47	1.00	26873.6	SI	0.0200	1.54684	0.59129	3242.0	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
94	VANO	-39037.5	-1481.6	4889.6	8.82	3.10	1423.52	-4.43	1.00	26873.6	SI	0.0200	1.54245	0.58562	3193.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
		-39037.5	1394.2	-4674.1	8.82	3.10	1423.52	-4.43	1.00	26873.6	SI	0.0200	1.54245	0.58562	3193.9	0.0	0.0	36.2	**45.2**	**4 c ϕ 12/0.20**	4030.3	0.0	0.00	0.00
95	APOYO	-38627.4	-1534.9	1289.5	11.67	5.58	1423.52	-3.31	1.00	48372.5	SI	0.0196	1.42519	0.46615	3939.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-38627.4	1728.3	-7400.1	11.67	5.58	1423.52	-3.31	1.00	48372.5	SI	0.0196	1.42519	0.46615	3939.7	0.0	0.0	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
96	APOYO	-38333.7	4043.4	-2716.5	11.67	5.58	1423.52	-3.28	1.00	48372.5	SI	0.0196	1.42243	0.46393	3907.0	136.4	2.7	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00
		-38333.7	4132.0	-2738.7	11.67	5.58	1423.52	-3.28	1.00	48372.5	SI	0.0196	1.42243	0.46393	3907.0	225.1	4.4	65.1	**135.6**	**15 c ϕ 12/0.25**	12090.9	0.0	0.00	0.00

Estado límite de Agotamiento frente torsión

Datos generales :

Materiales :

Hormigón : **HP - 35 / F / 50 / IIa + F**

Resistencia característica	fck (N/mm^2)= **35**
Coeficiente parcial de seguridad	γ c = **1.50**
Resistencia de cálculo	fcd (N/mm^2)= 23.3
Resistencia a compresión	f_{1cd} (N/mm^2)= 14.0
Resistencia media a tracción del hormigón	fct,m (N/mm^2)= 3.2
Ángulo entre las bielas de compresión del hormigón y el eje de la pieza. 0,5 < cotg Θ < 2,0	Θ (º) = **30**
	cotg Θ = 1.73

Acero pasivo : **B 500 S**

Carga unitaria de rotura	fs (N/mm^2)= **550**
Límite elástico característico	fyk (N/mm^2)= **500**
Coeficiente parcial de seguridad	γ s = **1.15**
Resistencia de cálculo	fyd (N/mm^2)= 434.8
Tensión de cálculo para armadura de cortante	fsd (N/mm^2)= **400**
Ángulo de las armaduras con el eje de la pieza	α (º) = **90**
	cotg α = 0.00
Área de la armadura pasiva mínima	As (cm^2/m) = **10.05**
Recubrimiento mecánico de armadura	d' (m) = **0.07**

Acero activo : **Y 1860 S7 (Cordones de 7 alambres)**

Carga unitaria máxima a tracción	fmax (N/mm^2)= **1860**
Límite elástico característico	fpk (N/mm^2)= **1640**
Coeficiente parcial de seguridad	γ s = **1.15**
Resistencia de cálculo	fpd (N/mm^2)= 1426.1
Área de la armadura activa 31 T ϕ 0.6"	Ap (cm^2) = **43.4**
Diámetro de las vainas	Φ vainas (cm) = **12**
Número de cables	nº cables = **8**

Características geométricas :

	Sección de apoyo :	Sección de vano :
Área de la sección bruta transversal	Ac (m^2) = **11.67**	Ac (m^2) = **8.82**
Perímetro exterior de la sección transversal	u (m) = **25.84**	u (m) = **25.84**
Espesor eficaz	he (m) = **0.45**	he (m) = **0.20**
Espesor eficaz debe verificar	he (m) < A/u = 0.45	he (m) < A/u = 0.34
Espesor real de la pared	he < ho (m) = **1.50**	he < ho (m) = **0.20**
Recubrimiento de las armaduras longitudinales	he > 2c (m) = **0.12**	he > 2c (m) = **0.12**
Área eficaz de la sección	Ae (m^2) = **6.52**	Ae (m^2) = **8.40**
Perímetro de la linea media de Ae	ue (m) = **14.02**	ue (m) = **15.02**
Anchura de la sección	b (m) = **6.06**	b (m) = **3.58**
Canto de la sección	h (m) = **1.50**	h (m) = 1.50
Canto útil de la sección	d (m) = 1.43	d (m) = 1.43
Módulo resistente inferior	W_{inf} (m^3) = **2.74201**	W_{inf} (m^3) = **2.36013**
Módulo resistente superior	W_{sup} (m^3) = **3.53740**	W_{sup} (m^3) = **3.31144**
Anchura neta :	bo (m) = b - 0,5 * Σ Φ v	bo (m) = b - 0,5 * Σ Φ v
Torsor0	bo (m) = **5.58**	bo (m) = **3.10**

ENVELOPE SPECIFIC.: FY 'COMBINACION FZAS EXTERIORES'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PL.PERM	4	1.000		PRETENSADO
H	PLUS	6	1.500		SOB UNIF 1
I	PLUS	7	1.500		SOB UNIF 2
J	PLUS	8	1.500		SOB UNIF 3
K	PLUS	9	1.500		SOB UNIF 4
L	PLUS	10	1.500		SOB UNIF 5
M	PLUS	21	1.500		VEHICULO HIPOTESIS 21
N	OR	22	1.500		VEHICULO HIPOTESIS 22
O	OR	23	1.500		VEHICULO HIPOTESIS 23
P	OR	24	1.500		VEHICULO HIPOTESIS 24
Q	OR	25	1.500		VEHICULO HIPOTESIS 25
R	OR	26	1.500		VEHICULO POSICION 26
S	OR	27	1.500		VEHICULO POSICION 27
T	OR	28	1.500		VEHICULO POSICION 28
U	OR	29	1.500		VEHICULO POSICION 29
V	PLUS	30	1.500		FRENADO
W	PLUS	32	0.450000		VIENTO SIN SOB
X	PLUS	34	0.900000		TEMPERATURA (-)
Y	OR	35	0.900000		TEMPERATURA (+)
Z	OR	36	0.900000		GRADIENTE

ENVELOPE for < T > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
65	0	-45071.3	2.78E-21	-4596.520	-5.45E-07	-856.356	-7.80E-22
		-45071.3	2.78E-21	-4596.520	5.45E-07	-856.356	-7.80E-22
66	0	-45070.3	3.37E-12	-1449.068	-4689.150	-3192.298	-1.58E-10
		-45070.3	3.37E-12	241.142	12394.6	-3209.133	-1.58E-10
67	0	-45444.0	1.79E-14	-1284.881	-4416.525	-6871.164	-1.04E-10
		-45444.0	1.79E-14	-432.411	11481.0	-4437.795	-1.04E-10
68	0	-45926.5	1.79E-14	-928.760	-4538.497	-7651.251	-1.04E-10
		-45926.5	1.79E-14	-195.456	11208.4	-5423.185	-1.04E-10
69	0	-46377.9	1.79E-14	-412.070	-4265.872	-9578.139	-1.04E-10
		-46377.9	1.79E-14	69.407	10935.7	-5831.596	-1.04E-10
70	0	-46796.8	1.79E-14	129.913	-3993.247	-10193.0	-1.04E-10
		-46796.8	1.79E-14	-44.345	9562.370	-9596.653	-1.04E-10
71	0	-46984.7	1.79E-14	354.812	-4361.574	-6715.867	-1.04E-10
		-46984.7	1.79E-14	224.386	9289.745	-9489.177	-1.04E-10
72	0	-46937.8	1.79E-14	872.815	-4088.949	-5155.130	-1.04E-10
		-46937.8	1.79E-14	490.562	9017.120	-8569.288	-1.04E-10
73	0	-46457.4	1.79E-14	1352.897	-3816.324	-2170.372	-1.04E-10
		-46457.4	1.79E-14	718.817	8744.495	-6854.946	-1.04E-10
74	0	-45948.9	1.79E-14	1803.794	-3543.699	1886.231	-1.04E-10
		-45948.9	1.79E-14	917.887	8471.870	-4698.327	-1.04E-10
75	0	-45412.2	1.79E-14	2223.179	-3271.074	6890.854	-1.03E-10
		-45412.2	1.79E-14	968.686	7660.297	-4850.327	-1.03E-10
76	0	-44432.1	3.47E-13	5493.523	-4099.180	4150.638	-1.03E-10
		-44432.1	3.47E-13	8120.923	7387.672	-11788.5	-1.03E-10

ENVELOPE for < T > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
77	0	-42866.3	3.47E-13	-797.414	-3706.600	11986.4	-1.02E-10
		-42866.3	3.47E-13	1068.566	5620.320	1890.586	-1.02E-10
78	0	-42559.0	3.47E-13	-647.262	-3852.968	11326.8	-1.01E-10
		-42559.0	3.47E-13	941.842	5227.740	5522.169	-1.01E-10
79	0	-42215.5	3.47E-13	-427.779	-3460.388	9518.413	-9.97E-11
		-42215.5	3.47E-13	798.694	4835.160	8781.806	-9.97E-11
80	0	-41836.3	3.47E-13	-228.014	-3067.808	8560.498	-9.84E-11
		-41836.3	3.47E-13	635.828	4442.580	11586.5	-9.84E-11
81	0	-41422.1	3.47E-13	-51.211	-2675.228	8343.227	-9.72E-11
		-41422.1	3.47E-13	51.211	2675.228	8991.847	-9.72E-11
82	0	-41836.3	3.47E-13	-273.197	-4442.580	11593.5	-9.59E-11
		-41836.3	3.47E-13	-134.618	3067.808	8563.504	-9.59E-11
83	0	-42215.5	3.47E-13	-73.432	-4835.160	10747.0	-9.47E-11
		-42215.5	3.47E-13	-297.483	3460.388	7553.210	-9.47E-11
84	0	-42559.0	3.47E-13	146.051	-5227.740	10751.1	-9.34E-11
		-42559.0	3.47E-13	-440.632	3852.968	6097.931	-9.34E-11
85	0	-42866.3	3.47E-13	381.959	-5620.320	11688.6	-9.22E-11
		-42866.3	3.47E-13	-653.359	3673.106	2182.390	-9.22E-11
86	0	-44466.3	1.12E-13	4335.676	-7387.672	3883.791	-9.09E-11
		-44466.3	1.12E-13	7003.417	4065.686	-11526.9	-9.09E-11
87	0	-45412.2	1.12E-13	-2602.398	-7660.297	6423.271	-9.07E-11
		-45412.2	1.12E-13	-589.467	3271.074	-4382.744	-9.07E-11
88	0	-45948.9	1.12E-13	-2300.695	-8505.364	2624.257	-9.04E-11
		-45948.9	1.12E-13	-421.909	3543.699	-5617.873	-9.04E-11

ENVELOPE for < T > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
89	0	-46457.4	1.12E-13	-1849.799	-8777.989	-2474.599	-9.01E-11
		-46457.4	1.12E-13	-222.840	3816.324	-6534.548	-9.01E-11
90	0	-46937.8	1.12E-13	-1369.716	-9050.614	-6701.611	-8.98E-11
		-46937.8	1.12E-13	5.415	4088.949	-7008.947	-8.98E-11
91	0	-46984.7	1.12E-13	-851.713	-9323.239	-9504.601	-8.95E-11
		-46984.7	1.12E-13	271.591	4361.574	-6688.893	-8.95E-11
92	0	-46796.8	1.12E-13	-331.155	-9595.864	-10865.6	-8.93E-11
		-46796.8	1.12E-13	243.223	3914.080	-8930.432	-8.93E-11
93	0	-46377.9	1.12E-13	-192.156	-10935.7	-7731.448	-8.90E-11
		-46377.9	1.12E-13	533.378	4186.705	-7697.487	-8.90E-11
94	0	-45926.5	1.12E-13	324.535	-11208.4	-7315.124	-8.87E-11
		-45926.5	1.12E-13	798.241	4459.330	-5782.112	-8.87E-11
95	0	-45444.0	1.12E-13	813.317	-11481.0	-5692.253	-8.84E-11
		-45444.0	1.12E-13	903.975	4416.525	-5616.706	-8.84E-11
96	0	-45098.4	1.54E-14	4801.284	-54.525	-3207.011	4.36E-11
		-45098.4	1.54E-14	4750.919	54.525	-3194.420	4.36E-11

Verificación a torsión en tiempo inicial

BARRA	TIPO	Nd KN	Vd KN	Md m KN	Td m KN	Ae m^2	he m	Tu1 KN	Td<Tu1 Verifica	A transv cm^2/m	A long cm^2/m	σmd N/mm^2	τtd N/mm^2	σcd N/mm^2	σcd<1.2*f1cd Verifica	β	Vu1 KN	$(Td/Tu1)^{\beta}$ + $(Vd/Vu1)^{\beta}$	$(Td/Tu1)^{\beta}+(Vd/Vu1)^{\beta}$ < 1.00
65	APOYO	-45071.3	-4596.5	-856.4	0.0	6.52	0.45	21345.35	SI	0.00	0.00	-5.47	0.0000	5.474	SI	1.85	**48372.5**	0.013	SI
		-45071.3	-4596.5	-856.4	0.0	6.52	0.45	21345.35	SI	0.00	0.00	-5.47	0.0000	5.474	SI	1.85	**48372.5**	0.013	SI
66	APOYO	-45070.3	-1449.1	-3192.3	-4689.2	6.52	0.45	21345.35	SI	5.19	3.93	-6.46	0.7990	6.561	SI	1.85	**48372.5**	0.062	SI
		-45070.3	241.1	-3209.1	12394.6	6.52	0.45	21345.35	SI	13.72	10.39	-6.47	2.1121	7.099	SI	1.85	**48372.5**	0.366	SI
67	VANO	-45444.0	-1284.9	-6871.2	-4416.5	8.40	0.20	12218.44	SI	3.80	3.70	-8.06	1.3148	8.274	SI	1.93	**26873.6**	0.143	SI
		-45444.0	-432.4	-4437.8	11481.0	8.40	0.20	12218.44	SI	9.87	9.62	-7.03	3.4178	8.421	SI	1.93	**26873.6**	0.887	SI
68	VANO	-45926.5	-928.8	-7651.3	-4538.5	8.40	0.20	12218.44	SI	3.90	3.80	-8.45	1.3511	8.661	SI	1.93	**26873.6**	0.149	SI
		-45926.5	-195.5	-5423.2	11208.4	8.40	0.20	12218.44	SI	9.63	9.39	-7.51	3.3366	8.775	SI	1.93	**26873.6**	0.846	SI
69	VANO	-46377.9	-412.1	-9578.1	-4265.9	8.40	0.20	12218.44	SI	3.67	3.57	-9.32	1.2699	9.488	SI	1.93	**26873.6**	0.131	SI
		-46377.9	69.4	-5831.6	10935.7	8.40	0.20	12218.44	SI	9.40	9.16	-7.73	3.2554	8.919	SI	1.93	**26873.6**	0.807	SI
70	VANO	-46796.8	129.9	-10193.0	-3993.2	8.40	0.20	12218.44	SI	3.43	3.35	-9.63	1.1687	9.770	SI	1.93	**26873.6**	0.115	SI
		-46796.8	-44.3	-9596.7	9562.4	8.40	0.20	12218.44	SI	8.22	8.01	-9.37	2.8466	10.170	SI	1.93	**26873.6**	0.622	SI
71	VANO	-46984.7	354.8	-6715.9	-4361.6	8.40	0.20	12218.44	SI	3.75	3.65	-8.17	1.2984	8.375	SI	1.93	**26873.6**	0.137	SI
		-46984.7	224.4	-9489.2	9289.7	8.40	0.20	12218.44	SI	7.98	7.78	-9.35	2.7655	10.106	SI	1.93	**26873.6**	0.589	SI
72	VANO	-46937.8	872.8	-5155.1	-4088.9	8.40	0.20	12218.44	SI	3.51	3.43	-7.51	1.2172	7.700	SI	1.93	**26873.6**	0.122	SI
		-46937.8	490.6	-8569.3	9017.1	8.40	0.20	12218.44	SI	7.75	7.56	-8.95	2.6843	9.697	SI	1.93	**26873.6**	0.556	SI
73	VANO	-46457.4	1352.9	-2170.4	-3816.3	8.40	0.20	12218.44	SI	3.28	3.20	-6.19	1.1361	6.390	SI	1.93	**26873.6**	0.108	SI
		-46457.4	718.8	-6854.9	8744.5	8.40	0.20	12218.44	SI	7.51	7.33	-8.17	2.6031	8.932	SI	1.93	**26873.6**	0.525	SI
74	VANO	-45948.9	1803.8	1886.2	-3543.7	8.40	0.20	12218.44	SI	3.05	2.97	-4.41	1.0549	4.651	SI	1.93	**26873.6**	0.097	SI
		-45948.9	917.9	-4698.3	8471.9	8.40	0.20	12218.44	SI	7.28	7.10	-7.20	2.5220	7.997	SI	1.93	**26873.6**	0.494	SI
75	APOYO	-45412.2	2223.2	6890.9	-3271.1	6.52	0.45	21345.35	SI	3.62	2.74	-2.23	0.5574	2.362	SI	1.85	**48372.5**	0.034	SI
		-45412.2	968.7	-4850.3	7660.3	6.52	0.45	21345.35	SI	8.48	6.42	-7.21	1.3053	7.434	SI	1.85	**48372.5**	0.151	SI
76	APOYO	-44432.1	5493.5	4150.6	-4099.2	6.52	0.45	21345.35	SI	4.54	3.43	-3.28	0.6985	3.423	SI	1.85	**48372.5**	0.065	SI
		-44432.1	8120.9	-11788.9	7387.7	6.52	0.45	21345.35	SI	8.18	6.19	-10.03	1.2589	10.189	SI	1.85	**48372.5**	0.177	SI
77	VANO	-42866.3	-797.4	11986.4	-3706.6	8.40	0.20	12218.44	SI	3.19	3.11	0.22	1.1034	1.218	SI	1.93	**26873.6**	0.101	SI
		-42866.3	1068.6	1890.6	5620.3	8.40	0.20	12218.44	SI	4.83	4.71	-4.06	1.6731	4.661	SI	1.93	**26873.6**	0.225	SI
78	VANO	-42559.0	-647.3	11326.8	-3853.0	8.40	0.20	12218.44	SI	3.31	3.23	-0.03	1.1470	1.161	SI	1.93	**26873.6**	0.108	SI
		-42559.0	941.8	5522.2	5227.7	8.40	0.20	12218.44	SI	4.49	4.38	-2.49	1.5562	3.235	SI	1.93	**26873.6**	0.195	SI
79	VANO	-42215.5	-427.8	9518.4	-3460.4	8.40	0.20	12218.44	SI	2.97	2.90	-0.75	1.0301	1.474	SI	1.93	**26873.6**	0.088	SI
		-42215.5	798.7	8781.8	4835.2	8.40	0.20	12218.44	SI	4.16	4.05	-1.07	1.4394	2.068	SI	1.93	**26873.6**	0.168	SI
80	VANO	-41836.3	-228.0	8560.5	-3067.8	8.40	0.20	12218.44	SI	2.64	2.57	-1.12	0.9133	1.629	SI	1.93	**26873.6**	0.069	SI
		-41836.3	635.8	11586.5	4442.6	8.40	0.20	12218.44	SI	3.82	3.72	0.16	1.3225	1.408	SI	1.93	**26873.6**	0.142	SI
81	VANO	-41422.1	-51.2	8343.2	-2675.2	8.40	0.20	12218.44	SI	2.30	2.24	-1.16	0.7964	1.567	SI	1.93	**26873.6**	0.053	SI
		-41422.1	51.2	8991.8	2675.2	8.40	0.20	12218.44	SI	2.30	2.24	-0.89	0.7964	1.355	SI	1.93	**26873.6**	0.053	SI
82	VANO	-41836.3	-273.2	11593.5	-4442.6	8.40	0.20	12218.44	SI	3.82	3.72	0.17	1.3225	1.409	SI	1.93	**26873.6**	0.141	SI
		-41836.3	-134.6	8553.5	3067.8	8.40	0.20	12218.44	SI	2.64	2.57	-1.12	0.9133	1.631	SI	1.93	**26873.6**	0.069	SI
83	VANO	-42215.5	-73.4	10747.0	-4835.2	8.40	0.20	12218.44	SI	4.16	4.05	-0.23	1.4394	1.561	SI	1.93	**26873.6**	0.166	SI
		-42215.5	-297.5	7553.2	3460.4	8.40	0.20	12218.44	SI	2.97	2.90	-1.59	1.0301	2.094	SI	1.93	**26873.6**	0.087	SI
84	VANO	-42559.0	146.1	10751.1	-5227.7	8.40	0.20	12218.44	SI	4.49	4.38	-0.27	1.5562	1.698	SI	1.93	**26873.6**	0.194	SI
		-42559.0	-440.6	6097.9	3853.0	8.40	0.20	12218.44	SI	3.31	3.23	-2.24	1.1470	2.725	SI	1.93	**26873.6**	0.108	SI
85	APOYO	-42866.3	382.0	11688.6	-5620.3	6.52	0.45	21345.35	SI	6.22	4.71	0.09	0.9577	1.004	SI	1.85	**48372.5**	0.085	SI
		-42866.3	-653.4	2182.4	3673.1	6.52	0.45	21345.35	SI	4.07	3.08	-3.94	0.6259	4.034	SI	1.85	**48372.5**	0.039	SI
86	APOYO	-44466.3	4335.7	3883.8	-7387.7	6.52	0.45	21345.35	SI	8.18	6.19	-3.40	1.2589	3.813	SI	1.85	**48372.5**	0.152	SI
		-44466.3	7003.4	-11528.9	4065.7	6.52	0.45	21345.35	SI	4.50	3.41	-9.93	0.6928	9.976	SI	1.85	**48372.5**	0.074	SI
87	VANO	-45412.2	-2602.4	6423.3	-7660.3	8.40	0.20	12218.44	SI	6.58	6.42	-2.43	2.2804	3.798	SI	1.93	**26873.6**	0.416	SI
		-45412.2	-589.5	-4382.7	3271.1	8.40	0.20	12218.44	SI	2.81	2.74	-7.01	0.9738	7.140	SI	1.93	**26873.6**	0.079	SI
88	VANO	-45948.9	-2300.7	2824.3	-8505.4	8.40	0.20	12218.44	SI	7.31	7.13	-4.01	2.5320	5.238	SI	1.93	**26873.6**	0.505	SI
		-45948.9	-421.9	-5617.9	3543.7	8.40	0.20	12218.44	SI	3.05	2.97	-7.59	1.0549	7.735	Si	1.93	**26873.6**	0.092	SI
89	VANO	-46457.4	-1849.8	-2474.6	-8778.0	8.40	0.20	12218.44	SI	7.54	7.35	-6.32	2.6131	7.258	SI	1.93	**26873.6**	0.533	SI
		-46457.4	-222.8	-6534.5	3816.3	8.40	0.20	12218.44	SI	3.28	3.20	-8.04	1.1361	8.195	SI	1.93	**26873.6**	0.105	SI
90	VANO	-46937.8	-1369.7	-6701.6	-9050.6	8.40	0.20	12218.44	SI	7.78	7.58	-8.16	2.6943	8.972	SI	1.93	**26873.6**	0.563	SI
		-46937.8	5.4	-7008.9	4088.9	8.40	0.20	12218.44	SI	3.51	3.43	-8.29	1.2172	8.468	SI	1.93	**26873.6**	0.120	SI
91	VANO	-46984.7	-851.7	-9504.6	-9323.2	8.40	0.20	12218.44	SI	8.01	7.81	-9.36	2.7754	10.117	SI	1.93	**26873.6**	0.594	SI
		-46984.7	271.6	-6688.9	4361.6	8.40	0.20	12218.44	SI	3.75	3.65	-8.16	1.2984	8.364	SI	1.93	**26873.6**	0.137	SI
92	VANO	-46796.8	-331.2	-10865.6	-9595.9	8.40	0.20	12218.44	SI	8.25	8.04	-9.91	2.8566	10.675	SI	1.93	**26873.6**	0.627	SI
		-46796.8	243.2	-8930.4	3914.1	8.40	0.20	12218.44	SI	3.36	3.28	-9.09	1.1652	9.238	SI	1.93	**26873.6**	0.111	SI
93	VANO	-46377.9	-192.2	-7731.4	-10935.7	8.40	0.20	12218.44	SI	9.40	9.16	-8.54	3.2554	9.635	SI	1.93	**26873.6**	0.807	SI
		-46377.9	533.4	-7697.5	4186.7	8.40	0.20	12218.44	SI	3.60	3.51	-8.52	1.2463	8.699	SI	1.93	**26873.6**	0.127	SI
94	VANO	-45926.5	324.5	-7315.1	-11208.4	8.40	0.20	12218.44	SI	9.63	9.39	-8.31	3.3366	9.482	SI	1.93	**26873.6**	0.847	SI
		-45926.5	798.2	-5782.1	4459.3	8.40	0.20	12218.44	SI	3.83	3.74	-7.66	1.3275	7.882	SI	1.93	**26873.6**	0.143	SI
95	APOYO	-45444.0	813.3	-5692.3	-11481.0	6.52	0.45	21345.35	SI	12.71	9.62	-7.57	1.9564	8.041	SI	1.85	**48372.5**	0.318	SI
		-45444.0	904.0	-5616.7	4416.5	6.52	0.45	21345.35	SI	4.89	3.70	-7.53	0.7526	7.608	SI	1.85	**48372.5**	0.055	SI
96	APOYO	-45098.4	4801.3	-3207.0	-54.5	6.52	0.45	21345.35	SI	0.06	0.05	-6.47	0.0093	6.473	SI	1.85	**48372.5**	0.014	SI
		-45098.4	4750.9	-3194.4	54.5	6.52	0.45	21345.35	SI	0.06	0.05	-6.47	0.0093	6.468	SI	1.85	**48372.5**	0.014	SI

ENVELOPE SPECIFIC.: FX 'COMBINACION FZAS EXTERIORES'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	OR	1	1.000		PESO PROPIO
C	PL.PERM	2	2.025		PESO PAVIMENTO
D	OR	2	1.000		PESO PAVIMENTO
E	PL.PERM	3	1.350		PESO BARRERAS
F	OR	3	1.000		PESO BARRERAS
G	PL.PERM	4	0.850000		PRETENSADO
H	PL.PERM	5	1.350		RETRACCION Y FLUENCIA
I	OR	5	1.000		RETRACCION Y FLUENCIA
J	PLUS	6	1.500		SOB UNIF 1
K	PLUS	7	1.500		SOB UNIF 2
L	PLUS	8	1.500		SOB UNIF 3
M	PLUS	9	1.500		SOB UNIF 4
N	PLUS	10	1.500		SOB UNIF 5
O	PLUS	21	1.500		VEHICULO HIPOTESIS 21
P	OR	22	1.500		VEHICULO HIPOTESIS 22
Q	OR	23	1.500		VEHICULO HIPOTESIS 23
R	OR	24	1.500		VEHICULO HIPOTESIS 24
S	OR	25	1.500		VEHICULO HIPOTESIS 25
T	OR	26	1.500		VEHICULO POSICION 26
U	OR	27	1.500		VEHICULO POSICION 27
V	OR	28	1.500		VEHICULO POSICION 28
W	OR	29	1.500		VEHICULO POSICION 29
X	PLUS	30	1.500		FRENADO
Y	PLUS	32	0.450000		VIENTO SIN SOB
Z	PLUS	34	0.900000		TEMPERATURA (-)
AA	OR	35	0.900000		TEMPERATURA (+)
AB	OR	36	0.900000		GRADIENTE

ENVELOPE for < T > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
65	0	-38310.6	-1.66E-21	-3907.042	-5.45E-07	-727.902	2.17E-21
		-38310.6	-1.66E-21	-3907.042	5.45E-07	-727.902	2.17E-21
66	0	-38147.1	4.06E-12	-830.252	-4689.150	-2718.821	-7.80E-10
		-38147.1	4.06E-12	859.958	12394.6	-2735.656	-7.80E-10
67	0	-38464.8	-5.86E-14	-782.653	-4416.525	-4930.275	-6.72E-10
		-38464.8	-5.86E-14	69.818	11481.0	-2496.906	-6.72E-10
68	0	-38874.9	-5.86E-14	-613.578	-4538.497	-4658.516	-6.73E-10

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ENVELOPE for < T > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		-38874.9	-5.86E-14	119.726	11208.4	-2430.450	-6.73E-10
69	0	-39258.5	-5.86E-14	-288.120	-4265.872	-5998.861	-6.73E-10
		-39258.5	-5.86E-14	193.357	10935.7	-2252.318	-6.73E-10
70	0	-39614.7	-5.86E-14	58.836	-3993.247	-6508.329	-6.73E-10
		-39614.7	-5.86E-14	-115.421	9562.370	-5911.954	-6.73E-10
71	0	-39774.4	-5.86E-14	91.923	-4361.574	-3430.988	-6.73E-10
		-39774.4	-5.86E-14	-36.502	9289.745	-6204.298	-6.73E-10
72	0	-39734.4	-5.86E-14	418.497	-4088.949	-2770.690	-6.73E-10
		-39734.4	-5.86E-14	36.244	9017.120	-6184.848	-6.73E-10
73	0	-39326.1	-5.86E-14	712.838	-3816.324	-1184.295	-6.73E-10
		-39326.1	-5.86E-14	78.758	8744.495	-5868.869	-6.73E-10
74	0	-38894.0	-5.86E-14	982.372	-3543.699	1028.845	-6.73E-10
		-38894.0	-5.86E-14	96.464	8471.870	-5555.712	-6.73E-10
75	0	-38437.7	-5.86E-14	1225.120	-3271.074	3763.482	-6.74E-10
		-38437.7	-5.86E-14	-29.373	7660.297	-7977.699	-6.74E-10
76	0	-37397.1	1.97E-12	5493.523	-4099.180	-257.221	-6.74E-10
		-37397.1	1.97E-12	8120.923	7387.672	-16196.7	-6.74E-10
77	0	-36066.3	1.97E-12	-17.543	-3706.600	9074.922	-6.67E-10
		-36066.3	1.97E-12	1848.437	5620.320	-1020.924	-6.67E-10
78	0	-35805.0	1.97E-12	-66.546	-3852.968	10862.4	-6.60E-10
		-35805.0	1.97E-12	1522.558	5227.740	5057.788	-6.60E-10
79	0	-35513.1	1.97E-12	-43.755	-3460.388	10771.6	-6.53E-10
		-35513.1	1.97E-12	1182.718	4835.160	10035.0	-6.53E-10
80	0	-35190.8	1.97E-12	-37.724	-3067.808	10814.0	-6.45E-10
		-35190.8	1.97E-12	826.118	4442.580	13840.0	-6.45E-10

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ENVELOPE for < T > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
81	0	-34838.7	1.97E-12	-51.211	-2675.228	10896.1	-6.38E-10
		-34838.7	1.97E-12	51.211	2675.228	11544.7	-6.38E-10
82	0	-35190.8	1.97E-12	-463.487	-4442.580	13847.0	-6.31E-10
		-35190.8	1.97E-12	-324.907	3067.808	10807.0	-6.31E-10
83	0	-35513.1	1.97E-12	-457.455	-4835.160	12000.2	-6.24E-10
		-35513.1	1.97E-12	-681.507	3460.388	8806.360	-6.24E-10
84	0	-35805.0	1.97E-12	-434.664	-5227.740	10286.7	-6.17E-10
		-35805.0	1.97E-12	-1021.347	3852.968	5633.550	-6.17E-10
85	0	-36066.3	1.97E-12	-397.913	-5620.320	8777.112	-6.10E-10
		-36066.3	1.97E-12	-1433.230	3673.106	-729.121	-6.10E-10
86	0	-37633.7	6.26E-13	4406.752	-7387.672	-524.067	-6.03E-10
		-37633.7	6.26E-13	7074.493	4065.686	-15936.8	-6.03E-10
87	0	-38437.7	6.26E-13	-1604.339	-7660.297	3295.899	-6.01E-10
		-38437.7	6.26E-13	408.551	3271.074	-7510.117	-6.01E-10
88	0	-38894.0	6.26E-13	-1479.273	-8505.364	1966.871	-6.00E-10
		-38894.0	6.26E-13	395.513	3543.699	-6475.258	-6.00E-10
89	0	-39326.1	6.26E-13	-1209.740	-8777.989	-1488.522	-5.98E-10
		-39326.1	6.26E-13	417.219	3816.324	-5548.471	-5.98E-10
90	0	-39734.4	6.26E-13	-915.398	-9050.614	-4317.170	-5.97E-10
		-39734.4	6.26E-13	459.733	4088.949	-4624.507	-5.97E-10
91	0	-39774.4	6.26E-13	-588.824	-9323.239	-6219.722	-5.95E-10
		-39774.4	6.26E-13	534.480	4361.574	-3404.014	-5.95E-10
92	0	-39614.7	6.26E-13	-260.078	-9595.864	-7180.911	-5.94E-10
		-39614.7	6.26E-13	314.299	3914.080	-5245.733	-5.94E-10
93	0	-39258.5	6.26E-13	-316.105	-10935.7	-4152.170	-5.92E-10

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ENVELOPE for < T > (and accomp. values) **
(1. line : MIN., 2. line : MAX.)

Memb.	Distance [m]	N [kN]	Vy [kN]	Vz [kN]	T [kNm]	My [kNm]	Mz [kNm]
		-39258.5	6.26E-13	409.428	4186.705	-4118.209	-5.92E-10
94	0	-38874.9	6.26E-13	9.353	-11208.4	-4322.389	-5.90E-10
		-38874.9	6.26E-13	483.059	4459.330	-2789.377	-5.90E-10
95	0	-38464.8	6.26E-13	311.089	-11481.0	-3751.364	-5.89E-10
		-38464.8	6.26E-13	401.747	4416.525	-3675.817	-5.89E-10
96	0	-38333.7	5.48E-13	4111.392	-54.525	-2733.535	1.12E-10
		-38333.7	5.48E-13	4061.027	54.525	-2720.943	1.12E-10

Verificación a torsión en tiempo infinito

BARRA	TIPO	Nd KN	Vd KN	Md m KN	Td m KN	Ae m^2	he m	Tu1 KN	Td<Tu1 Verifica	A transv cm^2/m	A long cm^2/m	σmd N/mm^2	τld N/mm^2	σcd N/mm^2	σcd<1.2*f1cd Verifica	β	Vu1 KN	$(Td/Tu1)^{\beta}$ + $(Vd/Vu1)^{\beta}$	$(Td/Tu1)^{\beta}+(Vd/Vu1)^{\beta}$ < 1.00
65	APOYO	-38310.6	-3907.0	-727.9	0.0	6.52	0.45	21345.35	SI	0.00	0.00	-4.65	0.0000	4.653	SI	1.85	**48372.5**	0.009	SI
		-38310.6	-3907.0	-727.9	0.0	6.52	0.45	21345.35	SI	0.00	0.00	-4.65	0.0000	4.653	SI	1.85	**48372.5**	0.009	SI
66	APOYO	-38147.1	-830.3	-2718.8	-4689.2	6.52	0.45	21345.35	SI	5.19	3.93	-5.48	0.7990	5.592	SI	1.85	**48372.5**	0.061	SI
		-38147.1	860.0	-2735.7	12394.6	6.52	0.45	21345.35	SI	13.72	10.39	-5.49	2.1121	6.204	SI	1.85	**48372.5**	0.366	SI
67	VANO	-38464.8	-782.7	-4930.3	-4416.5	8.40	0.20	12218.44	SI	3.80	3.70	-6.45	1.3148	6.709	SI	1.93	**26873.6**	0.141	SI
		-38464.8	69.8	-2496.9	11481.0	8.40	0.20	12218.44	SI	9.87	9.62	-5.42	3.4178	7.072	SI	1.93	**26873.6**	0.887	SI
68	VANO	-38874.9	-613.6	-4658.5	-4538.5	8.40	0.20	12218.44	SI	3.90	3.80	-6.38	1.3511	6.657	SI	1.93	**26873.6**	0.148	SI
		-38874.9	119.7	-2430.5	11208.4	8.40	0.20	12218.44	SI	9.63	9.39	-5.44	3.3366	7.024	SI	1.93	**26873.6**	0.846	SI
69	VANO	-39258.5	-288.1	-5998.9	-4265.9	8.40	0.20	12218.44	SI	3.67	3.57	-6.99	1.2699	7.217	SI	1.93	**26873.6**	0.131	SI
		-39258.5	193.4	-2252.3	10935.7	8.40	0.20	12218.44	SI	9.40	9.16	-5.41	3.2554	6.935	SI	1.93	**26873.6**	0.807	SI
70	VANO	-39614.7	58.8	-6508.3	-3993.2	8.40	0.20	12218.44	SI	3.43	3.35	-7.25	1.1887	7.440	SI	1.93	**26873.6**	0.115	SI
		-39614.7	-115.4	-5912.0	9562.4	8.40	0.20	12218.44	SI	8.22	8.01	-7.00	2.8466	8.009	SI	1.93	**26873.6**	0.623	SI
71	VANO	-39774.4	91.9	-3431.0	-4361.6	8.40	0.20	12218.44	SI	3.75	3.65	-5.96	1.2984	6.235	SI	1.93	**26873.6**	0.136	SI
		-39774.4	-38.5	-6204.3	9289.7	8.40	0.20	12218.44	SI	7.98	7.78	-7.14	2.7655	8.085	SI	1.93	**26873.6**	0.589	SI
72	VANO	-39734.4	418.5	-2770.7	-4088.9	8.40	0.20	12218.44	SI	3.51	3.43	-5.68	1.2172	5.930	SI	1.93	**26873.6**	0.121	SI
		-39734.4	36.2	-6184.8	9017.1	8.40	0.20	12218.44	SI	7.75	7.56	-7.13	2.6843	8.025	SI	1.93	**26873.6**	0.556	SI
73	VANO	-39326.1	712.8	-1184.3	-3816.3	8.40	0.20	12218.44	SI	3.28	3.20	-4.96	1.1361	5.209	SI	1.93	**26873.6**	0.106	SI
		-39326.1	78.8	-5868.9	8744.5	8.40	0.20	12218.44	SI	7.51	7.33	-6.95	2.6031	7.814	SI	1.93	**26873.6**	0.524	SI
74	VANO	-38894.0	982.4	1028.8	-3543.7	8.40	0.20	12218.44	SI	3.05	2.97	-3.97	1.0549	4.237	SI	1.93	**26873.6**	0.093	SI
		-38894.0	96.5	-5555.7	8471.9	8.40	0.20	12218.44	SI	7.28	7.10	-6.76	2.5220	7.601	SI	1.93	**26873.6**	0.493	SI
75	APOYO	-38437.7	1225.1	3763.5	-3271.1	6.52	0.45	21345.35	SI	3.62	2.74	-2.76	0.5574	2.873	SI	1.85	**48372.5**	0.032	SI
		-38437.7	-29.4	-7977.7	7660.3	6.52	0.45	21345.35	SI	8.48	6.42	-7.74	1.3053	7.953	SI	1.85	**48372.5**	0.150	SI
76	APOYO	-37397.1	5493.5	-257.2	-4099.2	6.52	0.45	21345.35	SI	4.54	3.43	-4.35	0.6985	4.459	SI	1.85	**48372.5**	0.065	SI
		-37397.1	8120.9	-16196.7	7387.7	6.52	0.45	21345.35	SI	8.18	6.19	-11.10	1.2589	11.245	SI	1.85	**48372.5**	0.177	SI
77	VANO	-36066.3	-17.5	9074.9	-3706.6	8.40	0.20	12218.44	SI	3.19	3.11	-0.24	1.1034	1.233	SI	1.93	**26873.6**	0.100	SI
		-36066.3	1848.4	-1020.9	5620.3	8.40	0.20	12218.44	SI	4.83	4.71	-4.52	1.6731	5.074	SI	1.93	**26873.6**	0.228	SI
78	VANO	-35805.0	-66.5	10862.4	-3853.0	8.40	0.20	12218.44	SI	3.31	3.23	0.54	1.1470	1.450	SI	1.93	**26873.6**	0.107	SI
		-35805.0	1522.6	5057.8	5227.7	8.40	0.20	12218.44	SI	4.49	4.38	-1.92	1.5562	2.787	SI	1.93	**26873.6**	0.197	SI
79	VANO	-35513.1	-43.8	10771.6	-3460.4	8.40	0.20	12218.44	SI	2.97	2.90	0.54	1.0301	1.333	SI	1.93	**26873.6**	0.087	SI
		-35513.1	1182.7	10035.0	4835.2	8.40	0.20	12218.44	SI	4.16	4.05	0.22	1.4394	1.556	SI	1.93	**26873.6**	0.169	SI
80	VANO	-35190.8	-37.7	10814.0	-3067.8	8.40	0.20	12218.44	SI	2.64	2.57	0.59	0.9133	1.255	SI	1.93	**26873.6**	0.069	SI
		-35190.8	826.1	13840.0	4442.6	8.40	0.20	12218.44	SI	3.82	3.72	1.87	1.3225	2.557	SI	1.93	**26873.6**	0.143	SI
81	VANO	-34838.7	-51.2	10896.1	-2675.2	8.40	0.20	12218.44	SI	2.30	2.24	0.67	0.7964	1.196	SI	1.93	**26873.6**	0.053	SI
		-34838.7	51.2	11544.7	2675.2	8.40	0.20	12218.44	SI	2.30	2.24	0.94	0.7964	1.395	SI	1.93	**26873.6**	0.053	SI
82	VANO	-35190.8	-463.5	13847.0	-4442.6	8.40	0.20	12218.44	SI	3.82	3.72	1.88	1.3225	2.560	SI	1.93	**26873.6**	0.142	SI
		-35190.8	-324.9	10807.0	3067.8	8.40	0.20	12218.44	SI	2.64	2.57	0.59	0.9133	1.254	SI	1.93	**26873.6**	0.069	SI
83	VANO	-35513.1	-457.5	12000.2	-4835.2	8.40	0.20	12218.44	SI	4.16	4.05	1.06	1.4394	2.062	SI	1.93	**26873.6**	0.167	SI
		-35513.1	-681.5	8806.4	3460.4	8.40	0.20	12218.44	SI	2.97	2.90	-0.30	1.0301	1.189	SI	1.93	**26873.6**	0.088	SI
84	VANO	-35805.0	-434.7	10286.7	-5227.7	8.40	0.20	12218.44	SI	4.49	4.38	0.30	1.5562	1.712	SI	1.93	**26873.6**	0.194	SI
		-35805.0	-1021.3	5633.6	3853.0	8.40	0.20	12218.44	SI	3.31	3.23	-1.67	1.1470	2.256	SI	1.93	**26873.6**	0.109	SI
85	APOYO	-36066.3	-397.9	8777.1	-5620.3	6.52	0.45	21345.35	SI	6.22	4.71	-0.37	0.9577	1.161	SI	1.85	**48372.5**	0.085	SI
		-36066.3	-1433.2	-729.1	3673.1	6.52	0.45	21345.35	SI	4.07	3.08	-4.40	0.6259	4.486	SI	1.85	**48372.5**	0.040	SI
86	APOYO	-37633.7	4406.8	-524.1	-7387.7	6.52	0.45	21345.35	SI	8.18	6.19	-4.49	1.2589	4.819	SI	1.85	**48372.5**	0.152	SI
		-37633.7	7074.5	-15936.8	4065.7	6.52	0.45	21345.35	SI	4.50	3.41	-11.02	0.6928	11.064	SI	1.85	**48372.5**	0.075	SI
87	VANO	-38437.7	-1604.3	3295.9	-7660.3	8.40	0.20	12218.44	SI	6.58	6.42	-2.96	2.2804	4.201	SI	1.93	**26873.6**	0.410	SI
		-38437.7	408.6	-7510.1	3271.1	8.40	0.20	12218.44	SI	2.81	2.74	-7.54	0.9738	7.665	SI	1.93	**26873.6**	0.078	SI
88	VANO	-38894.0	-1479.3	1966.9	-8505.4	8.40	0.20	12218.44	SI	7.31	7.13	-3.58	2.5320	4.889	SI	1.93	**26873.6**	0.500	SI
		-38894.0	399.5	-6475.3	3543.7	8.40	0.20	12218.44	SI	3.05	2.97	-7.15	1.0549	7.307	SI	1.93	**26873.6**	0.092	SI
89	VANO	-39326.1	-1209.7	-1488.5	-8778.0	8.40	0.20	12218.44	SI	7.54	7.35	-5.09	2.6131	6.193	SI	1.93	**26873.6**	0.530	SI
		-39326.1	417.2	-5548.5	3816.3	8.40	0.20	12218.44	SI	3.28	3.20	-6.81	1.1361	6.995	SI	1.93	**26873.6**	0.106	SI
90	VANO	-39734.4	-915.4	-4317.2	-9050.6	8.40	0.20	12218.44	SI	7.78	7.58	-6.34	2.6943	7.326	SI	1.93	**26873.6**	0.561	SI
		-39734.4	459.7	-4624.5	4088.9	8.40	0.20	12218.44	SI	3.51	3.43	-6.47	1.2172	6.687	SI	1.93	**26873.6**	0.121	SI
91	VANO	-39774.4	-588.8	-6219.7	-9323.2	8.40	0.20	12218.44	SI	8.01	7.81	-7.15	2.7754	8.097	SI	1.93	**26873.6**	0.593	SI
		-39774.4	534.5	-3404.0	4361.6	8.40	0.20	12218.44	SI	3.75	3.65	-5.95	1.2984	6.224	SI	1.93	**26873.6**	0.137	SI
92	VANO	-39614.7	-260.1	-7180.9	-9595.9	8.40	0.20	12218.44	SI	8.25	8.04	-7.54	2.8566	8.496	SI	1.93	**26873.6**	0.627	SI
		-39614.7	314.3	-5245.7	3914.1	8.40	0.20	12218.44	SI	3.36	3.28	-6.72	1.1652	6.912	SI	1.93	**26873.6**	0.111	SI
93	VANO	-39258.5	-316.1	-4152.2	-10935.7	8.40	0.20	12218.44	SI	9.40	9.16	-6.21	3.2554	7.605	SI	1.93	**26873.6**	0.807	SI
		-39258.5	409.4	-4118.2	4186.7	8.40	0.20	12218.44	SI	3.60	3.51	-6.20	1.2463	6.438	SI	1.93	**26873.6**	0.126	SI
94	VANO	-38874.9	9.4	-4322.4	-11208.4	8.40	0.20	12218.44	SI	9.63	9.39	-6.24	3.3366	7.688	SI	1.93	**26873.6**	0.846	SI
		-38874.9	483.1	-2789.4	4459.3	8.40	0.20	12218.44	SI	3.83	3.74	-5.59	1.3275	5.890	SI	1.93	**26873.6**	0.143	SI
95	APOYO	-38464.8	311.1	-3751.4	-11481.0	6.52	0.45	21345.35	SI	12.71	9.62	-5.95	1.9564	6.537	SI	1.85	**48372.5**	0.317	SI
		-38464.8	401.7	-3675.8	4416.5	6.52	0.45	21345.35	SI	4.89	3.70	-5.92	0.7526	6.014	SI	1.85	**48372.5**	0.054	SI
96	APOYO	-38333.7	4111.4	-2733.5	-54.5	6.52	0.45	21345.35	SI	0.06	0.05	-5.51	0.0093	5.505	SI	1.85	**48372.5**	0.010	SI
		-38333.7	4061.0	-2720.9	54.5	6.52	0.45	21345.35	SI	0.06	0.05	-5.50	0.0093	5.500	SI	1.85	**48372.5**	0.010	SI

2.4.2. Cálculo de armaduras de refuerzo por introducción de fuerzas de postesado

2.4.2. Refuerzo de armaduras por la introducción de la fuerza de tesado

- Los cables estarán formados por 31 torones paralelos de 15.24 mm de diámetro.

- Los cables se alojarán en vainas corrugadas estancas, de diámetro exterior 120 mm que los aíslen del hormigón y que se solidarizarán a la armadura pasiva cada 1.00 m.

Características de los cables

- Tensión garantizada de rotura (Rg) ≥ 190 Kp/mm^2
- Límite elástico al 0,2 % de deformación ≥ 170 Kp/mm^2
- Relajación garantizada a 1000 horas para 0.70 Rg ≥ 2.00 %
- Tipo de cable 31 T 0.6"
- Área de la sección 4340 mm^2
- Peso por ml (sin vaina) 34.16 kg/m
- Los coeficientes supuestos en el proyecto para la evaluación de las pérdidas de pretensado por rozamiento según la fórmula $P = P_0 \times e^{-(\mu\alpha\propto+K1)}$

$\mu = 0.20$

$K/\mu = 0.006$ radianes por metro

La penetración de cuña prevista es de 4.50 mm

- La fuerza de tesado de cada cable será:

Fuerza máxima de tesado en cada cable: (UNE 36-098-94)

Con carácter temporal, antes de anclar las armaduras:

P_{0max} =618 Mp < 0.85 x $f_{MAX,K}$ = 700.4 Mp

P_{0max} =618 Mp < 0.95 x $f_{MAX,K}$ = 700.91 Mp

Antes de anclar las armaduras:

P_O < 0.75 x $f_{MAX,K}$ = 618 Mp

P_O < 0.90 x $f_{MAX,K}$ = 664 Mp

σc = Pomax / (bo x h) = 749.09 Mp / m2

A = 0.47 m B= 0.47 m

Bo =0.55 m h = 1.50 m

Z = 0.5 x0.83 x h xbo x 0.30 x σc = 76.640 Mp

Zd = 1.50 x Z = 114.96 Mp

Fyd = 2.0 Mp/cm2

As = 57.48 cm^2 Adoptamos 3 x4 ϕ 25 EN CADA CABLE

2.4.3.Comprobación del punzonamiento del tablero

2.4.3. Verificación al punzonamiento

Conforme al EC-2:

N_{MAXD} = 1573.26 Mp – 34.60 Mp

Peso losa a h/2 del apoyo G=34.60 Mp

u1 = Π x (1.50 + 2x1.5x1.45 m)= 18.37 m^2

u1 = 18.37 m

d = 1.45 m

τ pd = Nmaxd / (u1 x d) = 57.76 mp/ m^2

τ rd = T rd x kx (1.20+40 x (ρ + σ cpo/fyd))

Ac = 11.67 m2

σ cpo = 8 x 618 Mp x 0.90x 0.85 / 11.67 m2 = 324.08 Mp/m2

τ rd = 0.37 x 1x (1.20+40 x (0.00185 +324.08/4434))

τ rd = 57.96 Mp/m2

τ pd < τ rd

No requiere armadura de punzonamiento.

2.4.4. Refuerzo de armaduras bajo apoyos

2.4.4. Refuerzo de armadura bajo apoyos

Estribos : Nmaxd = 255.71 x 1.5 Mp = 383.56 Mp (en cada apoyo)

$$As = \frac{0.25 \times Nmaxd}{4.00\ Mp/cm^2}$$

$As = 23.0\ cm^2$

Adoptamos 2 x 5 x Φ 20 en cada dirección.

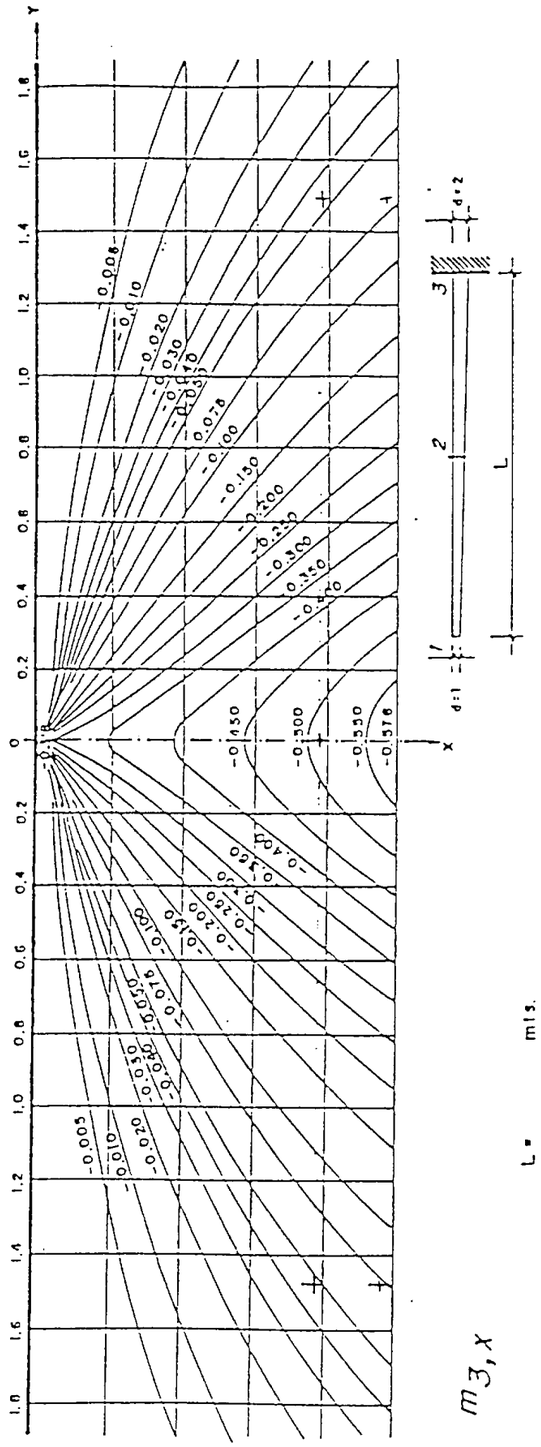
Pila : Nmaxd = 1573.26 Mp

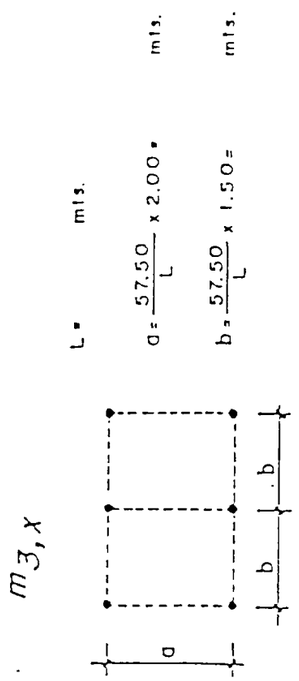
$$As = \frac{0.25 \times Nmaxd}{4.00\ Mp/cm^2} \cdot \frac{(1.50 - 1.00)}{1.50}$$

$As = 32.77\ cm^2$

Adoptamos 2 x 5 Φ 25 en cada dirección.

2.4.5. Verificación del voladizo





Cálculo de la armadura del voladizo

Datos :

Longitud del voladizo (m) = **2.40**

Canto mínimo (m) = **0.20**
Canto máximo (m) = **0.40**
Canto util (m) = **0.37**

Carga acera (t/m)= **1.50**

Ancho Acera (m) = **1.70**

Distancia G acera (m) = **1.55**

Peso Propio:

Mpp (mt/m) = -8.136 V (t/m) = 1.70

Carga muerta :

Mcm (mt/m) = -2.325 V (t/m) = 1.50

Sobrecarga uniforme :

Msu (mt/m) = -1.152 V (t/m) = 0.96

Vehículo 60 t : Coeficientes bajo carga = 0.45
Coeficientes a 1.50 m = 0.015

Mveh (mt/m) = -4.8 V (t/m) = 6.7

Momento total diseño : Md (mt/m) = -23.05

As (cm^2/m) = 15.75 ϕ 20 / 20

Cortante total de diseño : Vd (t/m) = 14.90 a un canto útil

Vcu (t/m) = 17.90 verifica

3.1. Acciones

LOADING: 'PESO PROPIO'
Loadcase Factor Stage Init.def Title
1 1.0000 PESO PROPIO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-3.64E-06	9.08E-07	99.918			
10	3.64E-06	9.05E-07	99.918			
58	-3.22E-09	9.10E-08	759.089			
108	-3.24E-09	-9.10E-08	759.089			
156	-3.64E-06	-9.09E-07	99.918			
160	3.64E-06	-9.05E-07	99.918			
Sums :	-7.28E-11	7.76E-16	1917.850			
min:	-3.64E-06	-9.09E-07	99.918	Undef	Undef	Undef
max:	3.64E-06	9.08E-07	759.089	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	1.58E-05	-3.95E-06	-9.99E-96	-0.000857	9.02E-05	6.45E-05
10	-1.58E-05	-3.93E-06	-9.99E-96	-0.000857	-9.02E-05	-6.44E-05
58	2.30E-09	-6.50E-08	-7.59E-95	-0.000588	-2.84E-14	1.66E-12
108	2.31E-09	6.50E-08	-7.59E-95	0.000588	-2.85E-14	-1.66E-12
156	1.58E-05	3.95E-06	-9.99E-96	0.000857	9.02E-05	-6.45E-05
160	-1.58E-05	3.93E-06	-9.99E-96	0.000857	-9.02E-05	6.44E-05
min:	-1.58E-05	-3.95E-06	-7.59E-95	-0.000857	-9.02E-05	-6.45E-05
max:	1.58E-05	3.95E-06	-9.99E-96	0.000857	9.02E-05	6.45E-05

LOADING: 'PESO PAVIMENTO'
Loadcase Factor Stage Init.def Title
2 1.0000 PESO PAVIMENTO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-2.74E-07	6.82E-08	7.506			
10	2.74E-07	6.79E-08	7.506			
58	-2.42E-10	7.17E-09	57.024			
108	-2.43E-10	-7.17E-09	57.024			
156	-2.74E-07	-6.82E-08	7.506			
160	2.74E-07	-6.79E-08	7.506			
Sums :	-5.47E-12	5.88E-17	144.072			
min:	-2.74E-07	-6.82E-08	7.506	Undef	Undef	Undef
max:	2.74E-07	6.82E-08	57.024	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	1.19E-06	-2.97E-07	-7.51E-97	-6.44E-05	6.91E-06	4.84E-10
10	-1.19E-06	-2.95E-07	-7.51E-97	-6.44E-05	-6.91E-06	-4.83E-10
58	1.73E-10	-5.12E-09	-5.70E-96	-4.42E-05	-2.13E-15	1.25E-13
108	1.74E-10	5.12E-09	-5.70E-96	4.42E-05	-2.14E-15	-1.25E-13
156	1.19E-06	2.97E-07	-7.51E-97	6.44E-05	6.91E-06	-4.84E-10
160	-1.19E-06	2.95E-07	-7.51E-97	6.44E-05	-6.91E-06	4.83E-10
min:	-1.19E-06	-2.97E-07	-5.70E-96	-6.44E-05	-6.91E-06	-4.84E-10
max:	1.19E-06	2.97E-07	-7.51E-97	6.44E-05	6.91E-06	4.84E-10

LOADING: 'PESO BARRERAS+IMPOSTAS'
Loadcase Factor Stage Init.def Title
3 1.0000 PESO BARRERAS

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-5.14E-07	1.29E-07	14.053			
10	5.14E-07	1.29E-07	14.053			
58	-4.46E-10	2.42E-09	106.745			
108	-4.48E-10	-2.42E-09	106.745			
156	-5.14E-07	-1.29E-07	14.053			
160	5.14E-07	-1.29E-07	14.053			
Sums :	-1.03E-11	1.10E-16	269.700			
min:	-5.14E-07	-1.29E-07	14.053	Undef	Undef	Undef
max:	5.14E-07	1.29E-07	106.745	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	2.23E-06	-5.62E-07	-1.41E-96	-0.000121	8.58E-06	9.28E-10
10	-2.24E-06	-5.60E-07	-1.41E-96	-0.000121	-8.58E-06	-9.26E-10
58	3.19E-10	-1.73E-09	-1.07E-95	-8.29E-05	-4.00E-15	2.33E-13
108	3.20E-10	1.73E-09	-1.07E-95	8.29E-05	-4.00E-15	-2.34E-13
156	2.23E-06	5.62E-07	-1.41E-96	0.000121	8.58E-06	-9.28E-10
160	-2.24E-06	5.60E-07	-1.41E-96	0.000121	-8.58E-06	9.26E-10
min:	-2.24E-06	-5.62E-07	-1.07E-95	-0.000121	-8.58E-06	-9.28E-10
max:	2.23E-06	5.62E-07	-1.41E-96	0.000121	8.58E-06	9.28E-10

LOADING: 'PRETENSADO t=0'
Loadcase Factor Stage Init.def Title
4 1.0000 PRETENSADO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.034440	-1.347	23.676			
10	0.034440	-1.347	23.676			
58	5.64E-09	-3.413	-47.352			
108	5.66E-09	3.413	-47.352			
156	-0.034440	1.347	23.676			
160	0.034440	1.347	23.676			
Sums :	3.86E-10	2.37E-10	-5.41E-10			
min:	-0.034440	-3.413	-47.352	Undef	Undef	Undef
max:	0.034440	3.413	23.676	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	0.149738	5.859	-2.37E-96	0.002961	0.000124	0.000144
10	-0.149738	5.859	-2.37E-96	0.002961	-0.000124	-0.000144
58	-4.03E-09	2.438	4.74E-96	-0.000349	4.13E-12	1.02E-12
108	-4.04E-09	-2.438	4.74E-96	0.000349	4.13E-12	-1.02E-12
156	0.149738	-5.859	-2.37E-96	-0.002961	0.000124	-0.000144
160	-0.149738	-5.859	-2.37E-96	-0.002961	-0.000124	0.000144
min:	-0.149738	-5.859	-2.37E-96	-0.002961	-0.000124	-0.000144
max:	0.149738	5.859	4.74E-96	0.002961	0.000124	0.000144

LOADING: 'PRETENSADO t=00'
Loadcase Factor Stage Init.def Title
4 0.85000 PRETENSADO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.029274	-1.145	20.125			
10	0.029274	-1.145	20.125			
58	4.79E-09	-2.901	-40.249			
108	4.81E-09	2.901	-40.249			
156	-0.029274	1.145	20.125			
160	0.029274	1.145	20.125			
Sums :	3.28E-10	2.01E-10	-4.60E-10			
min:	-0.029274	-2.901	-40.249	Undef	Undef	Undef
max:	0.029274	2.901	20.125	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	0.127277	4.980	-2.01E-96	0.002517	0.000106	0.000122
10	-0.127277	4.980	-2.01E-96	0.002517	-0.000106	-0.000122
58	-3.42E-05	2.072	4.02E-96	-0.000297	3.51E-12	8.65E-13
108	-3.44E-09	-2.072	4.02E-96	0.000297	3.51E-12	-8.64E-13
156	0.127277	-4.980	-2.01E-96	-0.002517	0.000106	-0.000122
160	-0.127277	-4.980	-2.01E-96	-0.002517	-0.000106	0.000122
min:	-0.127277	-4.980	-2.01E-96	-0.002517	-0.000106	-0.000122
max:	0.127277	4.980	4.02E-96	0.002517	0.000106	0.000122

LOADING: 'FLUENCIA Y RETRACCION'
Loadcase Factor Stage Init.def Title
5 1.0000 RETRACCION Y FLUENCIA

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-8.94E-05	-6.034	-3.58E-08			
10	8.94E-05	-6.034	-3.58E-08			
58	-9.09E-14	-15.366	7.15E-08			
108	-1.44E-11	15.366	7.15E-08			
156	-8.94E-05	6.034	-3.58E-08			
160	8.94E-05	6.034	-3.58E-08			
Sums :	-1.68E-11	1.09E-09	2.25E-13			
min:	-8.94E-05	-15.366	-3.58E-08	Undef	Undef	Undef
max:	8.94E-05	15.366	7.15E-08	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	0.000389	26.234	+0	-2.90E-10	-7.62E-12	3.98E-07
10	-0.000389	26.234	+0	-2.89E-10	7.62E-12	-3.98E-07
58	6.49E-14	10.976	-0	6.30E-11	6.57E-15	-3.57E-16
108	1.03E-11	-10.976	-0	-6.30E-11	6.57E-15	-2.19E-16
156	0.000389	-26.234	+0	2.90E-10	-7.62E-12	-3.98E-07
160	-0.000389	-26.234	+0	2.89E-10	7.62E-12	3.98E-07
min:	-0.000389	-26.234	-0	-2.90E-10	-7.62E-12	-3.98E-07
max:	0.000389	26.234	+0	2.90E-10	7.62E-12	3.98E-07

LOADING: 'FRENADO Y ARRANQUE'

Loadcase	Factor	Stage	Init.def	Title
30	1.0000			FRENADO

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-1.76E-05	-1.113	-1.23E-08			
10	1.76E-05	-1.113	-1.22E-08			
58	2.77E-12	-6.774	5.84E-08			
108	-5.19E-12	-6.774	-5.84E-08			
156	1.76E-05	-1.113	1.23E-08			
160	-1.76E-05	-1.113	1.22E-08			
Sums :	-2.73E-12	-18.000	-1.47E-15			
min:	-1.76E-05	-6.774	-5.84E-08	Undef	Undef	Undef
max:	1.76E-05	-1.113	5.84E-08	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	7.67E-05	4.839	+0	-5.49E-11	-1.63E-12	7.58E-08
10	-7.67E-05	4.839	+0	-5.49E-11	1.63E-12	-7.58E-08
58	-1.98E-12	4.839	-0	2.61E-11	2.23E-15	-1.78E-16
108	3.70E-12	4.839	+0	2.61E-11	-2.23E-15	-1.44E-16
156	-7.67E-05	4.839	-0	-5.49E-11	1.63E-12	7.58E-08
160	7.67E-05	4.839	-0	-5.49E-11	-1.63E-12	-7.58E-08
min:	-7.67E-05	4.839	-0	-5.49E-11	-1.63E-12	-7.58E-08
max:	7.67E-05	4.839	+0	2.61E-11	1.63E-12	7.58E-08

LOADING: 'VIENTO TRANSV. SIN SOB'

Loadcase	Factor	Stage	Init.def	Title
32	1.0000			VIENTO TRANSV SIN SOB.

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	3.498	0.003462	3.266			
10	3.498	-0.003484	-4.986			
58	21.409	2.11E-06	-6.533			
108	21.409	-2.11E-06	-6.533			
156	3.498	-0.003462	3.266			
160	3.498	0.003484	-4.986			
Sums :	56.811	8.90E-12	-16.505			
min:	3.498	-0.003484	-6.533	Undef	Undef	Undef
max:	21.409	0.003484	3.266	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	-15.210	-0.015052	-3.27E-97	-2.17E-06	-1.41E-06	5.09E-08
10	-15.211	0.015148	4.99E-97	1.70E-05	-3.64E-07	5.27E-08
58	-15.292	-1.51E-06	6.53E-97	5.07E-06	-6.87E-05	2.76E-08
108	-15.292	1.51E-06	6.53E-97	-5.07E-06	-6.87E-05	-2.76E-08
156	-15.210	0.015052	-3.27E-97	2.17E-06	-1.41E-06	-5.09E-08
160	-15.211	-0.015148	4.99E-97	-1.70E-05	-3.64E-07	-5.27E-08
min:	-15.292	-0.015148	-3.27E-97	-1.70E-05	-6.87E-05	-5.27E-08
max:	-15.210	0.015148	6.53E-97	1.70E-05	-3.64E-07	5.27E-08

LOADING: 'VIENTO TRANSV. CON SOB'

Loadcase	Factor	Stage	Init.def	Title
33	1.0000			VIENTO TRANSV CON SOB

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	5.402	0.005346	5.044			
10	5.402	-0.005380	-7.699			
58	33.058	3.26E-06	-10.087			
108	33.058	-3.26E-06	-10.087			
156	5.402	-0.005346	5.044			
160	5.402	0.005380	-7.699			
Sums :	87.723	1.34E-11	-25.486			
min:	5.402	-0.005380	-10.087	Undef	Undef	Undef
max:	33.058	0.005380	5.044	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	-23.486	-0.023242	-5.04E-97	-3.35E-06	-2.18E-06	7.86E-06
10	-23.487	0.023390	7.70E-97	2.63E-05	-5.61E-07	8.13E-06
58	-23.613	-2.33E-06	1.01E-96	7.83E-06	-0.000106	4.26E-06
108	-23.613	2.33E-06	1.01E-96	-7.83E-06	-0.000106	-4.26E-06
156	-23.486	0.023242	-5.04E-97	3.35E-06	-2.18E-06	-7.86E-06
160	-23.487	-0.023390	7.70E-97	-2.63E-05	-5.61E-07	-8.13E-06
min:	-23.613	-0.023390	-5.04E-97	-2.63E-05	-0.000106	-8.13E-06
max:	-23.486	0.023390	1.01E-96	2.63E-05	-5.61E-07	8.13E-06

LOADING: 'TEMPERATURA UNIF.(+)'

Loadcase	Factor	Stage	Init.def	Title
34	1.0000			TEMPERATURA (-)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-5.10E-05	-3.438	-2.04E-08			
10	5.10E-05	-3.438	-2.04E-08			
58	3.09E-13	-8.756	4.08E-08			
108	-8.23E-12	8.756	4.08E-08			
156	-5.10E-05	3.438	-2.04E-08			
160	5.10E-05	3.438	-2.04E-08			
Sums :	-9.14E-12	6.10E-10	1.36E-13			
min:	-5.10E-05	-8.756	-2.04E-08	Undef	Undef	Undef
max:	5.10E-05	8.756	4.08E-08	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	0.000222	14.949	+0	-1.65E-10	-4.34E-12	2.27E-07
10	-0.000222	14.949	+0	-1.65E-10	4.34E-12	-2.27E-07
58	-2.21E-13	6.254	-0	3.59E-11	3.74E-15	-2.11E-16
108	5.88E-12	-6.254	-0	-3.59E-11	3.74E-15	-1.34E-16
156	0.000222	-14.949	+0	1.65E-10	-4.34E-12	-2.27E-07
160	-0.000222	-14.949	+0	1.65E-10	4.34E-12	2.27E-07
min:	-0.000222	-14.949	-0	-1.65E-10	-4.34E-12	-2.27E-07
max:	0.000222	14.949	+0	1.65E-10	4.34E-12	2.27E-07

LOADING: 'TEMPERATURA UNIF.(-)'

Loadcase	Factor	Stage	Init.def	Title
35	1.0000			TEMPERATURA (+)

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	5.10E-05	3.438	2.04E-08			
10	-5.10E-05	3.438	2.04E-08			
58	-3.09E-13	8.756	-4.08E-08			
108	8.23E-12	-8.756	-4.08E-08			
156	5.10E-05	-3.438	2.04E-08			
160	-5.10E-05	-3.438	2.04E-08			
Sums :	9.14E-12	-6.10E-10	-1.36E-13			
min:	-5.10E-05	-8.756	-4.08E-08	Undef	Undef	Undef
max:	5.10E-05	8.756	2.04E-08	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	-0.000222	-14.949	-0	1.65E-10	4.34E-12	-2.27E-07
10	0.000222	-14.949	-0	1.65E-10	-4.34E-12	2.27E-07
58	2.21E-13	-6.254	+0	-3.59E-11	-3.74E-15	2.11E-16
108	-5.88E-12	6.254	+0	3.59E-11	-3.74E-15	1.34E-16
156	-0.000222	14.949	-0	-1.65E-10	4.34E-12	2.27E-07
160	0.000222	14.949	-0	-1.65E-10	-4.34E-12	-2.27E-07
min:	-0.000222	-14.949	-0	-1.65E-10	-4.34E-12	-2.27E-07
max:	0.000222	14.949	+0	1.65E-10	4.34E-12	2.27E-07

LOADING: 'GRADIENTE.(+)'

Loadcase	Factor	Stage	Init.def	Title
36	1.0000			GRADIENTE

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-0.004128	0.002498	10.855			
10	0.004128	0.002498	10.855			
58	5.59E-08	-7.82E-06	-21.710			
108	5.59E-08	7.83E-06	-21.710			
156	-0.004128	-0.002498	10.855			
160	0.004128	-0.002498	10.855			
Sums :	7.99E-11	-7.92E-14	-5.50E-11			
min:	-0.004128	-0.002498	-21.710	Undef	Undef	Undef
max:	0.004128	0.002498	10.855	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
6	0.017948	-0.010859	-1.09E-96	0.000565	1.14E-05	2.68E-05
10	-0.017948	-0.010859	-1.09E-96	0.000565	-1.14E-05	-2.68E-05
58	-3.99E-08	5.55E-06	2.17E-96	-0.000210	5.68E-12	4.31E-12
108	-3.99E-08	-5.59E-06	2.17E-96	0.000210	5.68E-12	-4.31E-12
156	0.017948	0.010859	-1.09E-96	-0.000565	1.14E-05	-2.68E-05
160	-0.017948	0.010859	-1.09E-96	-0.000565	-1.14E-05	2.68E-05
min:	-0.017948	-0.010859	-1.09E-96	-0.000565	-1.14E-05	-2.68E-05
max:	0.017948	0.010859	2.17E-96	0.000565	1.14E-05	2.68E-05

ENVELOPE SPECIFIC.: DD 'COMB SOB UNIFORME'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	0		PESO PROPIO
B	PLUS	6	1.000		SOB UNIF 1
C	PLUS	7	1.000		SOB UNIF 2
D	PLUS	8	1.000		SOB UNIF 3
E	PLUS	9	1.000		SOB UNIF 4
F	PLUS	10	1.000		SOB UNIF 5
ALTERNATIVE ENVELOPE :					
G	PERM.	1	0		PESO PROPIO
H	PLUS	46	1.000		SOB UNIF VANO 1
I	PLUS	47	1.000		SOB UNIF VANO 2
J	PLUS	48	1.000		SOB UNIF VANO 3

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	5.49E-06	-8.10E-07	-25.336			
	-6.22E-06	9.93E-07	45.388			
	Min: A E F			Max: A B C D		
10	-5.49E-06	-8.11E-07	-25.336			
	6.22E-06	9.93E-07	45.388			
	Min: A B C			Max: A D E F		
58	4.02E-10	2.82E-07	-7.384			
	-1.05E-09	-2.66E-07	159.585			
	Min: G J			Max: G H I		
108	4.01E-10	-2.82E-07	-7.384			
	-1.05E-09	2.66E-07	159.585			
	Min: G H			Max: G I J		
156	5.49E-06	8.10E-07	-25.336			
	-6.22E-06	-9.93E-07	45.388			
	Min: A E F			Max: A B C D		
160	-5.49E-06	8.11E-07	-25.336			
	6.22E-06	-9.93E-07	45.388			
	Min: A B C			Max: A D E F		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-6.22E-06	9.93E-07	45.388			
	5.49E-06	-8.10E-07	-25.336			
	Min: A B C D			Max: A E F		
10	-5.49E-06	-8.11E-07	-25.336			
	6.22E-06	9.93E-07	45.388			
	Min: A B C			Max: A D E F		
58	-1.16E-05	1.05E-08	87.533			
	1.16E-05	5.72E-09	64.805			
	Min: A D E F			Max: A E C		
108	-1.16E-05	-1.05E-08	87.533			
	1.16E-05	-5.72E-09	64.805			
	Min: A D E F			Max: A E C		
156	-6.22E-06	-9.93E-07	45.388			
	5.49E-06	8.10E-07	-25.336			
	Min: A B C D			Max: A E F		
160	-5.49E-06	8.11E-07	-25.336			
	6.22E-06	-9.93E-07	45.388			
	Min: A B C			Max: A D E F		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	5.49E-06	-8.10E-07	-25.336			
	-6.22E-06	9.93E-07	45.388			
	Min: A E F			Max: A B C D		
10	-5.49E-06	-8.11E-07	-25.336			
	6.22E-06	9.93E-07	45.388			
	Min: A B C			Max: A D E F		
58	-6.21E-10	-3.02E-07	92.600			
	-2.42E-11	3.18E-07	59.601			
	Min: G I			Max: G H J		
108	-3.05E-11	-3.18E-07	59.601			
	-6.17E-10	3.02E-07	92.600			
	Min: G H J			Max: G I		
156	-6.22E-06	-9.93E-07	45.388			
	5.49E-06	8.10E-07	-25.336			
	Min: A B C D			Max: A E F		
160	6.22E-06	-9.93E-07	45.388			
	-5.49E-06	8.11E-07	-25.336			
	Min: A D E F			Max: A B C		

ENVELOPE SPECIFIC.: DE 'COMBINACION VEHICULO'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	0		PESO PROPIO
B	PLUS	11	1.000		VEHICULO HIPOTESIS 11
C	OR	12	1.000		VEHICULO HIPOTESIS 12
D	OR	13	1.000		VEHICULO HIPOTESIS 13
E	OR	14	1.000		VEHICULO HIPOTESIS 14
F	OR	15	1.000		VEHICULO HIPOTESIS 15
G	OR	16	1.000		VEHICULO POSICION 16
H	OR	17	1.000		VEHICULO POSICION 17
I	OR	18	1.000		VEHICULO POSICION 18
J	OR	19	1.000		VEHICULO POSICION 19
K	OR	20	1.000		VEHICULO HIPOTESIS 20
L	OR	21	1.000		VEHICULO HIPOTESIS 21
M	OR	22	1.000		VEHICULO HIPOTESIS 22
N	OR	23	1.000		VEHICULO HIPOTESIS 23
O	OR	24	1.000		VEHICULO HIPOTESIS 24
P	OR	25	1.000		VEHICULO POSICION 25
Q	OR	26	1.000		VEHICULO POSICION 26
R	OR	27	1.000		VEHICULO POSICION 27
S	OR	28	1.000		VEHICULO POSICION 28
T	OR	37	1.000		VEHICULO HIPOTESIS 37
U	OR	38	1.000		VEHICULO HIPOTESIS 38
V	OR	39	1.000		VEHICULO HIPOTESIS 39
W	OR	40	1.000		VEHICULO HIPOTESIS 40
X	OR	41	1.000		VEHICULO HIPOTESIS 41
Y	OR	42	1.000		VEHICULO POSICION 42
Z	OR	43	1.000		VEHICULO POSICION 43
AA	OR	44	1.000		VEHICULO POSICION 44
AE	OR	45	1.000		VEHICULO POSICION 45

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	4.90E-06	-6.19E-07	-19.614			
	-1.45E-06	7.64E-07	50.970			
	Min: A N			Max: A E		
10	-4.91E-06	-6.21E-07	-19.571			
	1.45E-06	7.63E-07	50.970			
	Min: A E			Max: A K		
58	9.20E-07	9.24E-08	-5.356			
	1.42E-05	-4.07E-07	59.881			
	Min: A R			Max: A E		
108	9.20E-07	-9.24E-08	-5.356			
	-1.42E-05	4.12E-07	59.851			
	Min: A L			Max: A P		
156	4.90E-06	6.19E-07	-19.614			
	-1.44E-06	-7.63E-07	51.027			
	Min: A P			Max: A J		
160	-4.90E-06	6.19E-07	-19.614			
	1.44E-06	-7.63E-07	51.027			
	Min: A G			Max: A S		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-4.76E-06	6.82E-07	16.452			
	4.90E-06	-6.19E-07	-19.614			
	Min: A E			Max: A N		
10	-4.91E-06	-6.21E-07	-19.571			
	4.75E-06	6.81E-07	16.359			
	Min: A E			Max: A N		
58	-1.42E-05	-4.12E-07	59.851			
	1.42E-05	-4.07E-07	59.881			
	Min: A N			Max: A E		
108	-1.42E-05	4.12E-07	59.851			
	1.42E-05	4.12E-07	59.851			
	Min: A P			Max: A G		
156	-4.75E-06	-6.81E-07	16.359			
	4.90E-06	6.19E-07	-19.614			
	Min: A G			Max: A F		
160	-4.90E-06	6.19E-07	-19.614			
	4.75E-06	-6.81E-07	16.359			
	Min: A G			Max: A F		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	4.46E-06	-7.36E-07	-17.531			
	-2.75E-06	8.40E-07	39.073			
	Min: A M			Max: A C		
10	-4.46E-06	-7.37E-07	-17.531			
	2.75E-06	8.39E-07	39.073			
	Min: A D			Max: A L		
58	-1.42E-05	-4.12E-07	59.851			
	1.39E-05	4.24E-07	57.758			
	Min: A N			Max: A D		
108	1.39E-05	-4.20E-07	57.713			
	-1.42E-05	4.12E-07	59.851			
	Min: A H			Max: A P		
156	-2.75E-06	-8.40E-07	39.073			
	4.45E-06	7.36E-07	-17.510			
	Min: A I			Max: A Q		
160	2.75E-06	-8.39E-07	39.073			
	-4.45E-06	7.36E-07	-17.510			
	Min: A R			Max: A H		

3.2. Combinación de acciones

PILAS

Introducción

Del cálculo del tablero como emparrillado se han obtenido para las distintas hipótesis los valores de las reacciones del tablero, tanto verticales como horizontales.

Dichos valores se han resumido en una tabla que se adjunta a continuación, obteniendo así las reacciones para las distintas hipótesis de carga, que responden a lo dispuesto por la "Instrucción sobre a las acciones a considerar en el proyecto de puentes de carretera" (IAP)

Plane (2-D) frame -analysis

****
* STRUCTURAL - DATA *
****

Project title : Calculo de la pila en 2° orden

J O I N T D A T A : (8 Joints)

Joints	X [M]	Y [M]	Z [M]	Supports V XYZ	Supports R XYZ	Specialities
1	0.00000	0.00000	0.00000	B B	B	
2	0.00000	0.00000	2.00000			
3	0.00000	0.00000	4.00000			
4	0.00000	0.00000	6.00000			
5	0.00000	0.00000	8.00000			
6	0.00000	0.00000	10.00000			
7	0.00000	0.00000	12.00000			
8	0.00000	0.00000	14.00000	S F	F	

ELASTICALLY SUPPORTED JOINTS: ("B"=Fixed "F"=Free)

Joint	V-X [KN/M]	V-Y [KN/M]	V-Z [KN/M]	R-X [KNM/ARC]	R-Y [KNM/ARC]	R-Z [KNM/ARC]
8	1.295E+04		F		F	

B A R D A T A : (7 bars)

Bar	Incidences Start	End	Length [M]	CS-Name (haunched)	Hinges start	Hinges end	Specialities
1*	1	2	2.00000	PILA			oS
2*	2	3	2.00000	PILA			oS
3*	3	4	2.00000	PILA			oS
4*	4	5	2.00000	PILA			oS
5*	5	6	2.00000	PILA			oS
6*	6	7	2.00000	PILA			oS
7*	7	8	2.00000	PILA			oS

Bars marked with "*" are vertical (except any excentricities).
The corresponding special definition for the default orientation
of the local coordinate system applies.

oS = Bars without shear deformation

CROSS SECTION VALUES:

CS-Name	Ax [M2] / zl [M1]	Iy [M4] / zu [M1]	Fz [M2]
PILA	1.7680E+00 / -0.7500	2.4897E-01 / 0.7500	1.7680E+00

MATERIAL PROPERT. :

Bar (to bar)	E-Modulus [KN/ M2]	Shear-M [KN/ M2]
1 .. 7	3.5500E+07	1.3700E+07

STS-Run ok

==========
Load case 1: CARGA UNITARIA VERTICAL
==========

Loadtype	Value(a)	Distanc Value(b)	Joint -/member numb
Force Z	-10000.0		Joint 8

LOADING: 'Eigenmode 1'

Loadcase	Factor	Stage	Init.def	Title
101 Mod.s	1.0000			Mode shape 1: Kfac=25.46423

Displacements (in global coordinate directions): ""

Memb.	Distance [m]	DX-g [m]	DZ-g [m]	RY-g [rad]
1	0	-5.5E-20	0	-5.5E-12
1	0.500	-3.52E-5	0	-1.42E-4
1	1.000	-1.44E-4	0	-2.95E-4
1	1.500	-3.31E-4	0	-4.57E-4
	2.000	-6.02E-4	0	-6.29E-4
2	0	-6.02E-4	0	-6.29E-4
2	0.500	-9.61E-4	0	-8.08E-4
2	1.000	-0.00141	0	-9.93E-4
2	1.500	-0.00195	0	-0.00118
2	2.000	-0.00259	0	-0.00138
3	0	-0.00259	0	-0.00138
3	0.500	-0.00333	0	-0.00157
3	1.000	-0.00417	0	-0.00177
3	1.500	-0.00510	0	-0.00196
3	2.000	-0.00613	0	-0.00216
4	0	-0.00613	0	-0.00216
4	0.500	-0.00725	0	-0.00235
4	1.000	-0.00847	0	-0.00253
4	1.500	-0.00979	0	-0.00271
4	2.000	-0.01118	0	-0.00288
5	0	-0.01118	0	-0.00288
5	0.500	-0.01267	0	-0.00304
5	1.000	-0.01423	0	-0.00320
5	1.500	-0.01586	0	-0.00334
5	2.000	-0.01756	0	-0.00347
6	0	-0.01756	0	-0.00347
6	0.500	-0.01933	0	-0.00358
6	1.000	-0.02114	0	-0.00369
6	1.500	-0.02301	0	-0.00378
6	2.000	-0.02492	0	-0.00385
7	0	-0.02492	0	-0.00385
7	0.500	-0.02686	0	-0.00391
7	1.000	-0.02882	0	-0.00395
7	1.500	-0.03080	0	-0.00397
7	2.000	-0.03279	0	-0.00398
	min:	-0.032789	0	-0.003981
	max:	-5.50E-20	0	-5.50E-12

Scale 1 : 66.4
Structure - GEOMETRIA

ENVELOPE SPECIFIC.: DU 'COMBINACION ELU'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.350		PESO PROPIO
B	PL.PERM	2	2.025		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.350		PESO BARRERAS
E	PL.PERM	4	1.000		PRETENSADO
F	OR	4	0.850000		PRETENSADO
G	PLUS	6	1.500		SOB UNIF 1
H	PLUS	7	1.500		SOB UNIF 2
I	PLUS	8	1.500		SOB UNIF 3
J	PLUS	9	1.500		SOB UNIF 4
K	PLUS	10	1.500		SOB UNIF 5
L	PLUS	11	1.500		VEHICULO HIPOTESIS 11
M	OR	12	1.500		VEHICULO HIPOTESIS 12
N	OR	13	1.500		VEHICULO HIPOTESIS 13
O	OR	14	1.500		VEHICULO HIPOTESIS 14
P	OR	15	1.500		VEHICULO HIPOTESIS 15
Q	OR	16	1.500		VEHICULO POSICION 16
R	OR	17	1.500		VEHICULO POSICION 17
S	OR	18	1.500		VEHICULO POSICION 18
T	OR	19	1.500		VEHICULO POSICION 19
U	OR	20	1.500		VEHICULO HIPOTESIS 20
V	OR	21	1.500		VEHICULO HIPOTESIS 21
W	OR	22	1.500		VEHICULO HIPOTESIS 22
X	OR	23	1.500		VEHICULO HIPOTESIS 23
Y	OR	24	1.500		VEHICULO HIPOTESIS 24
Z	OR	25	1.500		VEHICULO POSICION 25
AA	OR	26	1.500		VEHICULO POSICION 26
AB	OR	27	1.500		VEHICULO POSICION 27
AC	OR	28	1.500		VEHICULO POSICION 28
AD	OR	37	1.500		VEHICULO HIPOTESIS 37
AE	OR	38	1.500		VEHICULO HIPOTESIS 38
AF	OR	39	1.500		VEHICULO HIPOTESIS 39
AG	OR	40	1.500		VEHICULO HIPOTESIS 40
AH	OR	41	1.500		VEHICULO HIPOTESIS 41
AI	OR	42	1.500		VEHICULO POSICION 42
AJ	OR	43	1.500		VEHICULO POSICION 43
AK	OR	44	1.500		VEHICULO POSICION 44
AL	OR	45	1.500		VEHICULO POSICION 45
AM	PLUS	30	1.500		FRENADO
AN	PLUS	33	0.450000		VIENTO TRANSV CON SOB
AO	PLUS	34	0.900000		TEMPERATURA (-)
AP	OR	35	0.900000		TEMPERATURA (+)
AQ	PLUS	36	0.900000		GRADIENTE

ALTERNATIVE ENVELOPE :

AR	PERM.	1	1.000		PESO PROPIO
AS	PL.PERM	2	1.500		PESO PAVIMENTO
AT	OR	2	1.000		PESO PAVIMENTO
AU	PL.PERM	3	1.000		PESO BARRERAS
AV	PL.PERM	5	1.000		RETRACCION Y FLUENCIA
AW	PL.PERM	4	1.000		PRETENSADO
AX	OR	4	0.850000		PRETENSADO

AY	PLUS	6	1.500	SOB UNIF 1
AZ	PLUS	7	1.500	SOB UNIF 2
BA	PLUS	8	1.500	SOB UNIF 3
BB	PLUS	9	1.500	SOB UNIF 4
BC	PLUS	10	1.500	SOB UNIF 5
BD	PLUS	11	1.500	VEHICULO HIPOTESIS 11
BE	OR	12	1.500	VEHICULO HIPOTESIS 12
BF	OR	13	1.500	VEHICULO HIPOTESIS 13
BG	OR	14	1.500	VEHICULO HIPOTESIS 14
BH	OR	15	1.500	VEHICULO HIPOTESIS 15
BI	OR	16	1.500	VEHICULO POSICION 16
BJ	OR	17	1.500	VEHICULO POSICION 17
BK	OR	18	1.500	VEHICULO POSICION 18
BL	OR	19	1.500	VEHICULO POSICION 19
BM	OR	20	1.500	VEHICULO HIPOTESIS 20
BN	OR	21	1.500	VEHICULO HIPOTESIS 21
BO	OR	22	1.500	VEHICULO HIPOTESIS 22
BP	OR	23	1.500	VEHICULO HIPOTESIS 23
BQ	OR	24	1.500	VEHICULO HIPOTESIS 24
BR	OR	25	1.500	VEHICULO POSICION 25
BS	OR	26	1.500	VEHICULO POSICION 26
BT	OR	27	1.500	VEHICULO POSICION 27
BU	OR	28	1.500	VEHICULO POSICION 28
BV	OR	37	1.500	VEHICULO HIPOTESIS 37
BW	OR	38	1.500	VEHICULO HIPOTESIS 38
BX	OR	39	1.500	VEHICULO HIPOTESIS 39
BY	OR	40	1.500	VEHICULO HIPOTESIS 40
BZ	OR	41	1.500	VEHICULO HIPOTESIS 41
CA	OR	42	1.500	VEHICULO POSICION 42
CB	OR	43	1.500	VEHICULO POSICION 43
CC	OR	44	1.500	VEHICULO POSICION 44
CD	OR	45	1.500	VEHICULO POSICION 45
CE	PLUS	30	1.500	FRENADO
CF	PLUS	33	0.450000	VIENTO TRANSV CON SOB
CG	PLUS	34	0.900000	TEMPERATURA (-)
CH	OR	35	0.900000	TEMPERATURA (+)
CI	PLUS	36	0.900000	GRADIENTE

ALTERNATIVE ENVELOPE :

CJ	PERM.	1	1.350	PESO PROPIO
CK	PL.PERM	2	2.025	PESO PAVIMENTO
CL	OR	2	1.000	PESO PAVIMENTO
CM	PL.PERM	3	1.350	PESO BARRERAS
CN	PL.PERM	4	1.000	PRETENSADO
CO	OR	4	0.850000	PRETENSADO
CP	PLUS	46	1.500	SOB UNIF VANO 1
CQ	PLUS	47	1.500	SOB UNIF VANO 2
CR	PLUS	48	1.500	SOB UNIF VANO 3
CS	PLUS	11	1.500	VEHICULO HIPOTESIS 11
CT	OR	12	1.500	VEHICULO HIPOTESIS 12
CU	OR	13	1.500	VEHICULO HIPOTESIS 13
CV	OR	14	1.500	VEHICULO HIPOTESIS 14
CW	OR	15	1.500	VEHICULO HIPOTESIS 15
CX	OR	16	1.500	VEHICULO POSICION 16
CY	OR	17	1.500	VEHICULO POSICION 17
CZ	OR	18	1.500	VEHICULO POSICION 18

DA	OR	19	1.500	VEHICULO POSICION 19
DB	OR	20	1.500	VEHICULO HIPOTESIS 20
DC	OR	21	1.500	VEHICULO HIPOTESIS 21
DD	OR	22	1.500	VEHICULO HIPOTESIS 22
DE	OR	23	1.500	VEHICULO HIPOTESIS 23
DF	OR	24	1.500	VEHICULO HIPOTESIS 24
DG	OR	25	1.500	VEHICULO POSICION 25
DH	OR	26	1.500	VEHICULO POSICION 26
DI	OR	27	1.500	VEHICULO POSICION 27
DJ	OR	28	1.500	VEHICULO POSICION 28
DK	OR	37	1.500	VEHICULO HIPOTESIS 37
DL	OR	38	1.500	VEHICULO HIPOTESIS 38
DM	OR	39	1.500	VEHICULO HIPOTESIS 39
DN	OR	40	1.500	VEHICULO HIPOTESIS 40
DO	OR	41	1.500	VEHICULO HIPOTESIS 41
DP	OR	42	1.500	VEHICULO POSICION 42
	OR	43	1.500	VEHICULO POSICION 43
DR	OR	44	1.500	VEHICULO POSICION 44
DS	OR	45	1.500	VEHICULO POSICION 45
DT	PLUS	30	1.500	FRENADO
DU	PLUS	33	0.450000	VIENTO TRANSV CON SOB
DV	PLUS	34	0.900000	TEMPERATURA (-)
DW	OR	35	0.900000	TEMPERATURA (+)
DX	PLUS	36	0.900000	GRADIENTE

ALTERNATIVE ENVELOPE :

DY	PERM.	1	1.000	PESO PROPIO
DZ	PL.PERM	2	1.500	PESO PAVIMENTO
EA	OR	2	1.000	PESO PAVIMENTO
EB	PL.PERM	3	1.000	PESO BARRERAS
EC	PL.PERM	5	1.000	RETRACCION Y FLUENCIA
ED	PL.PERM	4	1.000	PRETENSADO
EE	OR	4	0.850000	PRETENSADO
EF	PLUS	46	1.500	SOB UNIF VANO 1
EG	PLUS	47	1.500	SOB UNIF VANO 2
	PLUS	48	1.500	SOB UNIF VANO 3
EI	PLUS	11	1.500	VEHICULO HIPOTESIS 11
EJ	OR	12	1.500	VEHICULO HIPOTESIS 12
EK	OR	13	1.500	VEHICULO HIPOTESIS 13
EL	OR	14	1.500	VEHICULO HIPOTESIS 14
EM	OR	15	1.500	VEHICULO HIPOTESIS 15
EN	OR	16	1.500	VEHICULO POSICION 16
EO	OR	17	1.500	VEHICULO POSICION 17
EP	OR	18	1.500	VEHICULO POSICION 18
EQ	OR	19	1.500	VEHICULO POSICION 19
ER	OR	20	1.500	VEHICULO HIPOTESIS 20
ES	OR	21	1.500	VEHICULO HIPOTESIS 21
ET	OR	22	1.500	VEHICULO HIPOTESIS 22
EU	OR	23	1.500	VEHICULO HIPOTESIS 23
EV	OR	24	1.500	VEHICULO HIPOTESIS 24
EW	OR	25	1.500	VEHICULO POSICION 25
EX	OR	26	1.500	VEHICULO POSICION 26
EY	OR	27	1.500	VEHICULO POSICION 27
EZ	OR	28	1.500	VEHICULO POSICION 28
	OR	37	1.500	VEHICULO HIPOTESIS 37
FB	OR	38	1.500	VEHICULO HIPOTESIS 38

FC	OR	39	1.500	VEHICULO HIPOTESIS 39
FD	OR	40	1.500	VEHICULO HIPOTESIS 40
FE	OR	41	1.500	VEHICULO HIPOTESIS 41
FF	OR	42	1.500	VEHICULO POSICION 42
FG	OR	43	1.500	VEHICULO POSICION 43
FH	OR	44	1.500	VEHICULO POSICION 44
FI	OR	45	1.500	VEHICULO POSICION 45
FJ	PLUS	30	1.500	FRENADO
FK	PLUS	33	0.450000	VIENTO TRANSV CON SOB
FL	PLUS	34	0.900000	TEMPERATURA (-)
FM	OR	35	0.900000	TEMPERATURA (+)
FN	PLUS	36	0.900000	GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.029424	-11.943	74.178			
	2.393	1.752	349.312			
	Min: AR AT AU AV AX BB BC...			Max: A B D E G H I L AN AP..		
10	2.460	-11.946	70.776			
	0.038127	1.749	347.043			
	Min: AR AT AU AV AX AY AZ...			Max: A B D E I J K U AP AQ		
58	14.876	-10.898	832.317			
	2.14E-05	-20.943	1573.299			
	Min: DY EA EB EC ED EH EY...			Max: CJ CK CM CO CP CQ CV...		
108	14.876	0.737242	832.317			
	-2.13E-05	10.781	1573.254			
	Min: DY EA EB EC ED EF ES...			Max: CJ CK CM CO CQ CR DG...		
156	-0.029398	10.274	74.178			
	2.393	-3.421	349.399			
	Min: AR AT AU AV AX BB BC...			Max: A B D E G H I T AM AN..		
160	2.460	10.276	70.713			
	0.038100	-3.419	347.129			
	Min: AR AT AU AV AX AY AZ...			Max: A B D E I J K AC AM AP.		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.038338	-12.143	251.436			
	2.402	1.952	116.337			
	Min: AR AS AU AV AW AY AZ...			Max: A C D F J K X AN AP		
10	0.029218	1.949	114.131			
	2.469	-12.145	247.832			
	Min: A C D F G H O AP			Max: AR AS AU AV AW BA BB...		
58	-3.87E-05	4.980	1465.177			
	14.876	-36.821	1038.457			
	Min: A B D F I J K X AP			Max: AR AT AU AV AW AY AZ...		
108	-3.87E-05	0.620366	1465.177			
	14.876	10.898	1038.412			
	Min: A B D F I J K Z AM AO			Max: AR AT AU AV AW AY AZ...		
156	-0.038311	10.474	251.297			
	2.402	-3.621	116.337			
	Min: AR AS AU AV AW AY AZ...			Max: A C D F J K Z AM AN AP		
160	0.029192	-3.619	114.067			
	2.469	10.476	247.832			
	Min: A C D F G H Q AM AP			Max: AR AS AU AV AW BA BB...		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.034591	-12.145	80.852			
	2.398	1.954	327.916			
	Min: AR AT AU AV AW BB BC...			Max: A B D F G H I M AN AP..		
10	2.466	-12.148	77.388			
	0.032963	1.951	325.646			
	Min: AR AT AU AV AW AY AZ...			Max: A B D F I J K V AP AQ		
58	-2.12E-05	-36.821	1084.643			
	14.876	4.980	1415.599			
	Min: DY EA EB EC ED EG EU...			Max: CJ CK CM CO CP CR CU...		
108	14.876	-15.141	1415.532			
	-2.12E-05	26.660	1084.643			
	Min: CJ CK CM CO CP CR CY...			Max: DY EA EB EC ED EG EW...		
156	2.398	-3.623	327.916			
	-0.034565	10.476	80.884			
	Min: A B D F G H I S AM AN..			Max: AR AT AU AV AW BB BC...		
160	0.032936	-3.621	325.646			
	2.465	10.478	77.419			
	Min: A B D F I J K AB AM AP.			Max: AR AT AU AV AW AY AZ...		

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELU
HIPOTESIS 1 :
Dirección transversal
Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1573.3** Nk (KN) = -15418.3
HTk (t) = **0.0**

Pie de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1656.8** Nk (KN) = -16236.6

Dirección longitudinal
Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1573.3** Nk (KN) = -15418.3
HLk (t) = **20.9**

Pie de pórtico

Mk (tm) = **293.2** Mk (KNm) = 2873.0
Nk (t) = **-1656.8** Nk (KN) = -16236.6

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **14.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$\lambda = \pi^2 \times E \times I / Lo^2 =$ 25.4642

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : λ = **49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.000 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.177 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.142

e_{tot} (m) = 0.142

Pie de pórtico

Mk (tm) = 234.47
Nk (t) = -1656.80

Mk (KNm) = 2297.8
Nk (KN) = -16236.6

Solicitaciones de cálculo longitudinales :

e_a = 0.218

e_{tot} (m) = 0.395

Pie de pórtico

Mk (tm) = 654.52
Nk (t) = -1656.80

Mk (KNm) = 6414.3
Nk (KN) = -16236.6

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELU
HIPOTESIS 2 :
Dirección transversal
Solicitaciones :

Cabeza de pórtico
Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-832.3** Nk (KN) = -8156.7
HTk (t) = **14.9**

Pie de pórtico
Mk (tm) = **208.3** Mk (KNm) = 2041.5
Nk (t) = **-915.8** Nk (KN) = -8975.0

Dirección longitudinal
Solicitaciones :

Cabeza de pórtico
Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-832.3** Nk (KN) = -8156.7
HLk (t) = **11.0**

Pie de pórtico
Mk (tm) = **154.0** Mk (KNm) = 1509.2
Nk (t) = **-915.8** Nk (KN) = -8975.0

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **14.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$$\lambda = \pi^2 \times E \times I / Lo^2 = \quad 25.4642$$

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : λ **= 49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.227 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.168 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.227

e_{tot} (m) = 0.454

Pie de pórtico

Mk (tm) = 416.03 **Mk (KNm) = 4077.1**
Nk (t) = -915.82 **Nk (KN) = -8975.0**

Solicitaciones de cálculo longitudinales :

e_a = 0.216

e_{tot} (m) = 0.384

Pie de pórtico

Mk (tm) = 352.11 **Mk (KNm) = 3450.6**
Nk (t) = -915.82 **Nk (KN) = -8975.0**

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELU
HIPOTESIS 3 :
Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1038.5** Nk (KN) = -10177.3
HTk (t) = **14.9**

Pie de pórtico

Mk (tm) = **208.6** Mk (KNm) = 2044.3
Nk (t) = **-1122.0** Nk (KN) = -10995.6

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1038.5** Nk (KN) = -10177.3
HLk (t) = **36.8**

Pie de pórtico

Mk (tm) = **515.5** Mk (KNm) = 5051.7
Nk (t) = **-1122.0** Nk (KN) = -10995.6

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **14.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$\lambda = \pi^2 \times E \times I / Lo^2 =$ 25.4642

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : λ = **49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.186 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.459 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.220

e_{tot} (m) = 0.406

Pie de pórtico

Mk (tm) = 455.27
Nk (t) = -1122.00

Mk (KNm) = 4461.6
Nk (KN) = -10995.6

Solicitaciones de cálculo longitudinales :

e_a = 0.248

e_{tot} (m) = 0.708

Pie de pórtico

Mk (tm) = 793.97
Nk (t) = -1122.00

Mk (KNm) = 7780.9
Nk (KN) = -10995.6

Características mecánicas Sección "PILA" (sin coef. homogeneiz.) PIE DE PILA

Area	Ax = 17.68E3 cm2		
Momento de inercia	Iy = 24.90E6 cm4	Iz = 24.85E6 cm4	Ip = 49.75E6 cm4
Const. de torsión			Ix = 49.70E6 cm4
Momento estático	Zy =562.72E3 cm3	Zz = 562.72E3 cm3	
Baricentro	ys = -0.0000 m	zs = 0.0000 m	Angulo= 0.0 Grad
Dist. al borde	yl = -0.7500 m	yr = 0.7500 m	
	zo = 0.7500 m	zu = -0.7500 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = -0.0000 m z = 0.0000 m

Sección parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
CS 1	H300	1.0	0.0000	0.0000	0.7500	4.97E+07

Armadura "B1" As-tot =302.82 cm2 (1.71 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
CR 1 / CS 1	AEH500	1.0	1	302.82	0.0000	0.0000 (*)

(*) = Armadura de contorno: Radio = 0.7000 m

Dimensionamiento a flexión: Viga Sección "PILA"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-1656.80	654.52	234.47	
2	2	-915.82	352.11	416.03	
3	2	-1122.00	793.97	455.27	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

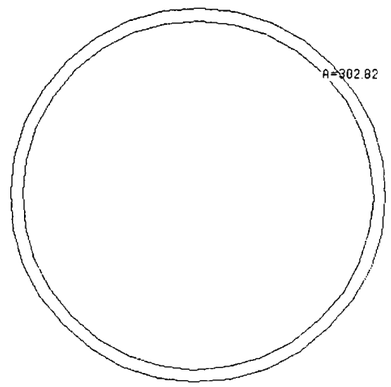
Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

No	Armad. long.	:	y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
3	AEH500		0.0000	0.0000	long. perim		1.00	269.23	269.23

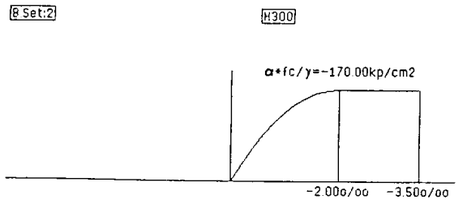
Max.x/h = 0.70 As-top/bot = 0.00/269.23 As = 1.52 % = 269.23

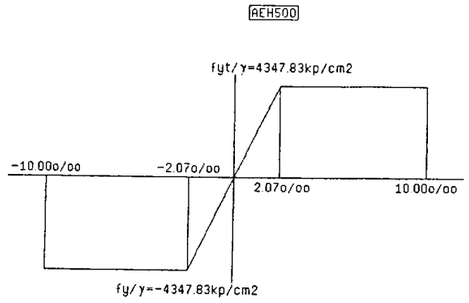
Nota: Es necesaria armadura de compresión

Sección PILA

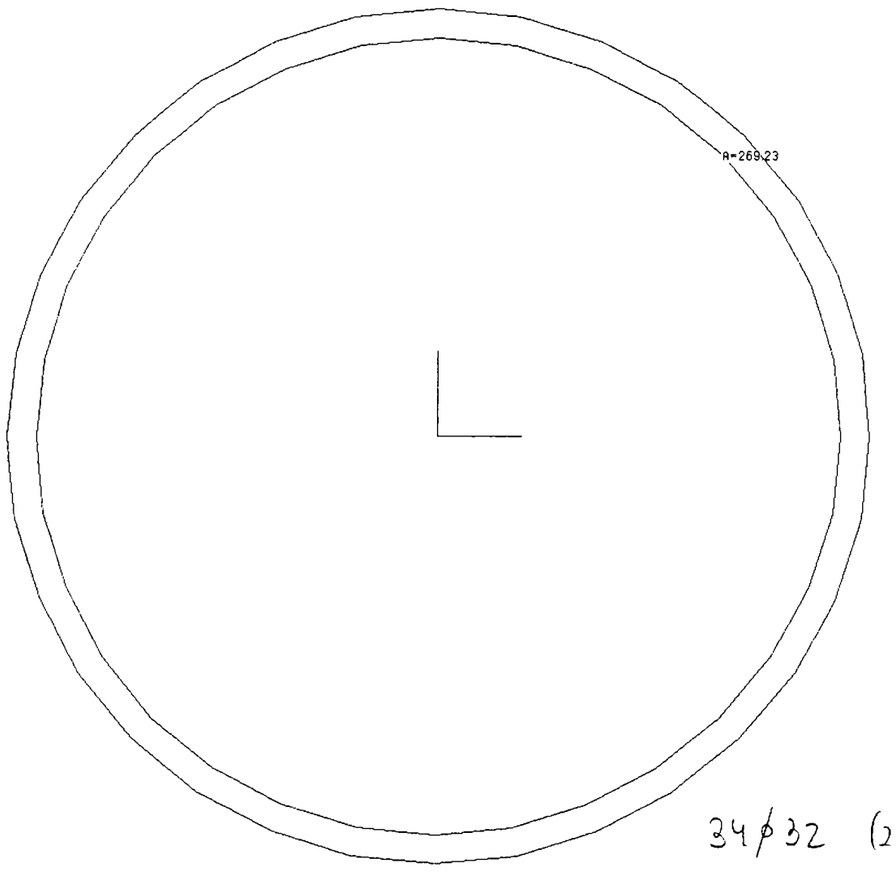


Material acorde a la sección: "PILA"





Dimensionamiento,Sección "PILA"



34 ϕ 32 (273.36 cm²)

cercos $A_s \geq \frac{0.01}{3.2\,cm \times 1S} \times 34 \times 8.04\,cm^2 \times 20\,cm = 1,139\,cm^2$

C ϕ 12 a 0.20 cm

Características mecánicas Sección "PILA" (sin coef. homogeneiz.) PUNTO MEDIO

Area	Ax = 17.68E3 cm2		
Momento de inercia	Iy = 24.90E6 cm4	Iz = 24.85E6 cm4	Ip = 49.75E6 cm4
Const. de torsión			Ix = 49.70E6 cm4
Momento estático	Zy =562.72E3 cm3	Zz = 562.72E3 cm3	
Baricentro	ys = -0.0000 m	zs = 0.0000 m	Angulo= 0.0 Grad
Dist. al borde	yl = -0.7500 m	yr = 0.7500 m	
	zo = 0.7500 m	zu = -0.7500 m	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = -0.0000 m z = 0.0000 m

Sección parcial circular:

Nombre	Material	w	ym[m]	zm[m]	r[m]	ix[cm4]
CS 1	H300	1.0	0.0000	0.0000	0.7500	4.97E+07

Armadura "B1" As-tot =269.23 cm2 (1.52 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[m]	z [m]
CR 1 / CS 1	AEH500	1.0	1	269.23	0.0000	0.0000 (*)

(*) = Armadura de contorno: Radio = 0.7000 m

Dimensionamiento a flexión: Viga Sección "PILA"/"B1"

No	Set	N [t]]	My [tm]]	Mz [tm]]	Notas:
1	2	-1573.30	327.26	117.23	
2	2	-832.30	176.05	208.01	
3	2	-1038.50	396.85	227.63	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

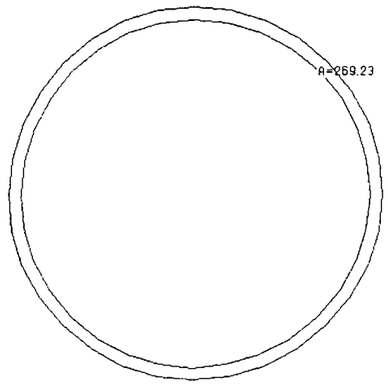
No	Armad. long.	:	y1 [m]	z1 [m]	y2 [m]	z2 [m]	dados [cm2]	dimens. [cm2]	As [cm2]
3	AEH500		0.0000	0.0000	long. perim		1.00	17.73	17.73

Max.x/h = 0.81 As-top/bot = 0.00/17.73 As = 0.10 % = 17.73

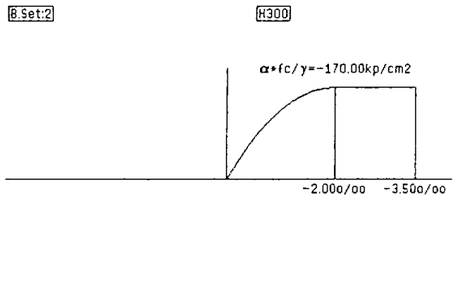
Nota: Es necesaria armadura de compresión

CUANTÍA MÍNIMA

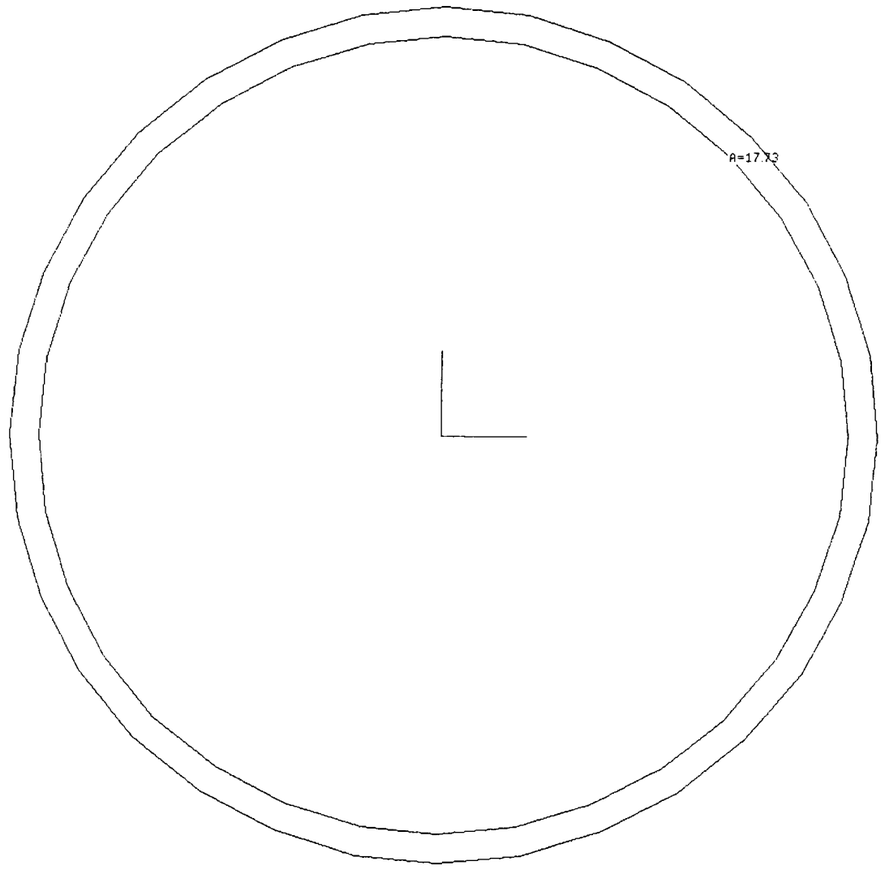
Sección PILA



Material acorde a la sección: "PILA"



Dimensionamiento,Sección "PILA"



Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELU
HIPOTESIS 1 :
Dirección transversal
Solicitaciones :

Cabeza de pórtico
Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1573.3** Nk (KN) = -15418.3
HTk (t) = **0.0**

Pie de pórtico
Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1656.8** Nk (KN) = -16236.6

Dirección longitudinal
Solicitaciones :

Cabeza de pórtico
Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1573.3** Nk (KN) = -15418.3
HLk (t) = **20.9**

Pie de pórtico
Mk (tm) = **209.4** Mk (KNm) = 2052.1
Nk (t) = **-1656.8** Nk (KN) = -16236.6

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **10.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$$\lambda = \pi^2 \times E \times I / Lo^2 = \quad 25.4642$$

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : λ **= 49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.000 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.126 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$$\beta = \frac{(d - d')^2}{4\,is^2}$$ Factor de armado

De tablas se obtiene :

$$is^2 = \frac{1}{6}(d - d')^2 \qquad \beta = 1.50$$

Solicitaciones de cálculo transversales :

e_a = 0.142

e_{tot} (m) = 0.142

Pie de pórtico

Mk (tm) = 234.47 **Mk (KNm) = 2297.8**
Nk (t) = -1656.80 **Nk (KN) = -16236.6**

Solicitaciones de cálculo longitudinales :

e_a = 0.206

e_{tot} (m) = 0.333

Pie de pórtico

Mk (tm) = 551.09 **Mk (KNm) = 5400.7**
Nk (t) = -1656.80 **Nk (KN) = -16236.6**

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELU
HIPOTESIS 2 :
Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-832.3** Nk (KN) = -8156.7
HTk (t) = **14.9**

Pie de pórtico

Mk (tm) = **148.8** Mk (KNm) = 1458.2
Nk (t) = **-915.8** Nk (KN) = -8975.0

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-832.3** Nk (KN) = -8156.7
HLk (t) = **11.0**

Pie de pórtico

Mk (tm) = **110.0** Mk (KNm) = 1078.0
Nk (t) = **-915.8** Nk (KN) = -8975.0

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **10.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$$\lambda = \pi^2 \times E \times I / Lo^2 = 25.4642$$

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : λ = **49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.162 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.120 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.215

e_{tot} (m) = 0.378

Pie de pórtico

Mk (tm) = 345.80 **Mk (KNm) = 3388.8**
Nk (t) = -915.82 **Nk (KN) = -8975.0**

Solicitaciones de cálculo longitudinales :

e_a = 0.204

e_{tot} (m) = 0.325

Pie de pórtico

Mk (tm) = 297.24 **Mk (KNm) = 2912.9**
Nk (t) = -915.82 **Nk (KN) = -8975.0**

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELU
HIPOTESIS 3 :
Dirección transversal

Solicitaciones :

Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1038.5** Nk (KN) = -10177.3
HTk (t) = **14.9**

Pie de pórtico

Mk (tm) = **149.0** Mk (KNm) = 1460.2
Nk (t) = **-1122.0** Nk (KN) = -10995.6

Dirección longitudinal

Solicitaciones :

Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1038.5** Nk (KN) = -10177.3
HLk (t) = **36.8**

Pie de pórtico

Mk (tm) = **368.2** Mk (KNm) = 3608.4
Nk (t) = **-1122.0** Nk (KN) = -10995.6

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **10.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$\lambda = \pi^2 \times E \times I / Lo^2 =$ 25.4642

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : **λ = 49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.133 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.328 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.208

e_{tot} (m) = 0.341

Pie de pórtico

Mk (tm) = 382.35 **Mk (KNm) = 3747.0**
Nk (t) = -1122.00 **Nk (KN) = -10995.6**

Solicitaciones de cálculo longitudinales :

e_a = 0.239

e_{tot} (m) = 0.567

Pie de pórtico

Mk (tm) = 635.96 **Mk (KNm) = 6232.4**
Nk (t) = -1122.00 **Nk (KN) = -10995.6**

Características mecánicas Sección "PILA" (sin coef. homogeneiz.)

Area	Ax = 17.68E3 cm2		
Momento de inercia	Iy = 24.90E6 cm4	Iz = 24.85E6 cm4	Ip = 49.75E6 cm4
Const. de torsión			Ix = 49.70E6 cm4
Momento estático	Zy =562.72E3 cm3	Zz = 562.72E3 cm3	
Baricentro	ys = -0.00 cm	zs = 0.00 cm	Angulo= 0.0 Grad
Dist. al borde	yl = -75.00 cm	yr = 75.00 cm	
	zo = 75.00 cm	zu = -75.00 cm	

M-N-Punto de aplic. de fuerzas en el baricentro de la sección
V-T-Punto de aplic. de fuerzas en el baricentro de la sección
Schubmittelpunkt y = -0.00 cm z = 0.00 cm

Sección parcial circular:

Nombre	Material	w	ym[cm]	zm[cm]	r[cm]	ix[cm4]
CS 1	H300	1.0	0.00	0.00	75.00	4.97E+07

Armadura "B1" As-tot =188.20 cm2 (1.06 o/o)

Nombre / Sección	Material	w	Cód.	A[cm2]	y[cm]	z [cm]
CR 1 / CS 1	AEH500	1.0	1	188.20	0.00	0.00 (*)

(*) = Armadura de contorno: Radio = 70.00 cm

Dimensionamiento a flexión: Viga Sección "PILA"/"B1"

No	Set	N [kN]	My [kNm]	Mz [kNm]	Notas:
1	2	-16236.60	5400.70	2297.80	
2	2	-8975.00	2912.00	3388.00	
3	2	-10995.60	6232.00	3747.00	

Parámetros de cálculo empleados:
Set:Norma/TipoDiag/Máx.Deform./Coef.minor.res./Diag.Horm./Coef.Fluencia

Set 2: EH/2/0/Eps=-2.0,-3.5,10.0/Gamma=1.5,1.15/Dia=45/Phi=0

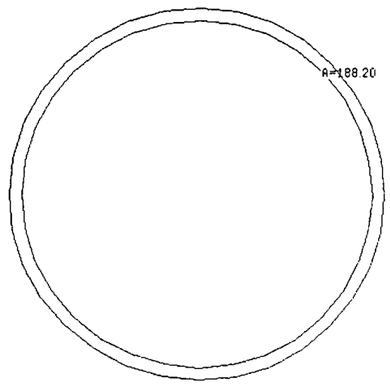
No Armad. long. :	y1 [cm]	z1 [cm]	y2 [cm]	z2 [cm]	dados [cm2]	dimens. [cm2]	As [cm2]
3 AEH500	0.00	0.00	long. perim		1.00	163.95	163.95

Max.x/h = 0.71 As-top/bot = 0.00/163.95 As = 0.93 % = 163.95

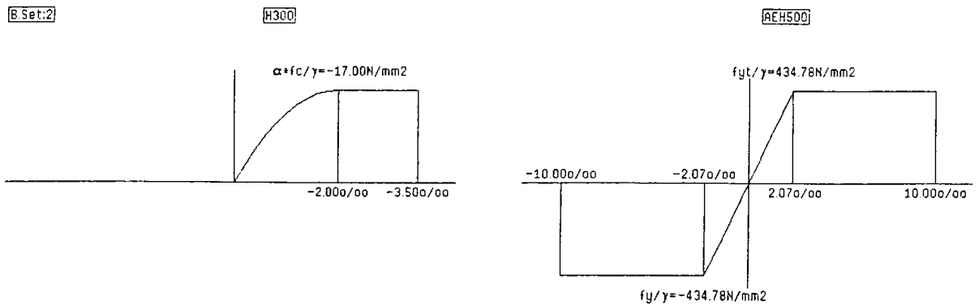
(34 ϕ 25)

Nota: Es necesaria armadura de compresión

Sección PILA



Material acorde a la sección: "PILA"



ENVELOPE SPECIFIC.: DF 'COMBINACION CARACTERISTICA'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	1.000		PESO PROPIO
B	PL.PERM	2	1.500		PESO PAVIMENTO
C	OR	2	1.000		PESO PAVIMENTO
D	PL.PERM	3	1.000		PESO BARRERAS
E	PL.PERM	4	0.900000		PRETENSADO
F	OR	4	1.100		PRETENSADO
G	PLUS	6	1.000		SOB UNIF 1
H	PLUS	7	1.000		SOB UNIF 2
I	PLUS	8	1.000		SOB UNIF 3
J	PLUS	9	1.000		SOB UNIF 4
K	PLUS	10	1.000		SOB UNIF 5
L	PLUS	11	1.000		VEHICULO HIPOTESIS 11
M	OR	12	1.000		VEHICULO HIPOTESIS 12
N	OR	13	1.000		VEHICULO HIPOTESIS 13
O	OR	14	1.000		VEHICULO HIPOTESIS 14
P	OR	15	1.000		VEHICULO HIPOTESIS 15
Q	OR	16	1.000		VEHICULO POSICION 16
R	OR	17	1.000		VEHICULO POSICION 17
S	OR	18	1.000		VEHICULO POSICION 18
T	OR	19	1.000		VEHICULO POSICION 19
U	OR	20	1.000		VEHICULO HIPOTESIS 20
V	OR	21	1.000		VEHICULO HIPOTESIS 21
W	OF	22	1.000		VEHICULO HIPOTESIS 22
X	OR	23	1.000		VEHICULO HIPOTESIS 23
Y	OR	24	1.000		VEHICULO HIPOTESIS 24

Z	OR	25	1.000		VEHICULO POSICION 25
AA	OR	26	1.000		VEHICULO POSICION 26
AB	OR	27	1.000		VEHICULO POSICION 27
AC	OR	28	1.000		VEHICULO POSICION 28
AD	OR	37	1.000		VEHICULO HIPOTESIS 37
AE	OR	38	1.000		VEHICULO HIPOTESIS 38
AF	OR	39	1.000		VEHICULO HIPOTESIS 39
AG	OR	40	1.000		VEHICULO HIPOTESIS 40
AH	OR	41	1.000		VEHICULO HIPOTESIS 41
AI	OR	42	1.000		VEHICULO POSICION 42
AJ	OR	43	1.000		VEHICULO POSICION 43
AK	OR	44	1.000		VEHICULO POSICION 44
AL	OR	45	1.000		VEHICULO POSICION 45
AM	PLUS	30	1.000		FRENADO
AN	PLUS	33	0.300000		VIENTO TRANSV CON SOB
AO	PLUS	34	0.600000		TEMPERATURA (-)
AP	OR	35	0.600000		TEMPERATURA (+)
AQ	PLUS	36	0.600000		GRADIENTE
ALTERNATIVE ENVELOPE :					
AR	PERM.	1	1.000		PESO PROPIO
AS	PL.PERM	2	1.500		PESO PAVIMENTO
AT	OR	2	1.000		PESO PAVIMENTO
AU	PL.PERM	3	1.000		PESO BARRERAS
AV	PL.PERM	4	0.765000		PRETENSADO
AW	OR	4	0.935000		PRETENSADO
AX	PL.PERM	5	1.000		RETRACCION Y FLUENCIA
AY	PLUS	6	1.000		SOB UNIF 1
AZ	PLUS	7	1.000		SOB UNIF 2
BA	PLUS	8	1.000		SOB UNIF 3
BB	PLUS	9	1.000		SOB UNIF 4
BC	PLUS	10	1.000		SOB UNIF 5
BD	PLUS	11	1.000		VEHICULO HIPOTESIS 11
BE	OR	12	1.000		VEHICULO HIPOTESIS 12
BF	OR	13	1.000		VEHICULO HIPOTESIS 13
BG	OR	14	1.000		VEHICULO HIPOTESIS 14
BH	OR	15	1.000		VEHICULO HIPOTESIS 15
BI	OR	16	1.000		VEHICULO POSICION 16
BJ	OR	17	1.000		VEHICULO POSICION 17
BK	OR	18	1.000		VEHICULO POSICION 18
BL	OR	19	1.000		VEHICULO POSICION 19
BM	OR	20	1.000		VEHICULO HIPOTESIS 20
BN	OR	21	1.000		VEHICULO HIPOTESIS 21
BO	OR	22	1.000		VEHICULO HIPOTESIS 22
BP	OR	23	1.000		VEHICULO HIPOTESIS 23
BQ	OR	24	1.000		VEHICULO HIPOTESIS 24
BR	OR	25	1.000		VEHICULO POSICION 25
BS	OR	26	1.000		VEHICULO POSICION 26
BT	OR	27	1.000		VEHICULO POSICION 27
BU	OR	28	1.000		VEHICULO POSICION 28
BV	OR	37	1.000		VEHICULO HIPOTESIS 37
BW	OR	38	1.000		VEHICULO HIPOTESIS 38
BX	OR	39	1.000		VEHICULO HIPOTESIS 39
BY	OR	40	1.000		VEHICULO HIPOTESIS 40
BZ	OR	41	1.000		VEHICULO HIPOTESIS 41
CA	OR	42	1.000		VEHICULO POSICION 42

CB	OR	43	1.000	VEHICULO POSICION 43
CC	OR	44	1.000	VEHICULO POSICION 44
CD	OR	45	1.000	VEHICULO POSICION 45
CE	PLUS	30	1.000	FRENADO
CF	PLUS	33	0.300000	VIENTO TRANSV CON SOB
CG	PLUS	34	0.600000	TEMPERATURA (-)
CH	OR	35	0.600000	TEMPERATURA (+)
CI	PLUS	36	0.600000	GRADIENTE
ALTERNATIVE ENVELOPE :				
CJ	PERM.	1	1.000	PESO PROPIO
CK	PL.PERM	2	1.500	PESO PAVIMENTO
CL	OR	2	1.000	PESO PAVIMENTO
CM	PL.PERM	3	1.000	PESO BARRERAS
CN	PL.PERM	4	0.900000	PRETENSADO
CO	OR	4	1.100	PRETENSADO
CP	PLUS	46	1.000	SOB UNIF VANO 1
CQ	PLUS	47	1.000	SOB UNIF VANO 2
CR	PLUS	48	1.000	SOB UNIF VANO 3
CS	PLUS	11	1.000	VEHICULO HIPOTESIS 11
CT	OR	12	1.000	VEHICULO HIPOTESIS 12
CU	OR	13	1.000	VEHICULO HIPOTESIS 13
CV	OR	14	1.000	VEHICULO HIPOTESIS 14
CW	OR	15	1.000	VEHICULO HIPOTESIS 15
CX	OR	16	1.000	VEHICULO POSICION 16
CY	OR	17	1.000	VEHICULO POSICION 17
CZ	OR	18	1.000	VEHICULO POSICION 18
DA	OR	19	1.000	VEHICULO POSICION 19
DB	OR	20	1.000	VEHICULO HIPOTESIS 20
DC	OR	21	1.000	VEHICULO HIPOTESIS 21
DD	OR	22	1.000	VEHICULO HIPOTESIS 22
DE	OR	23	1.000	VEHICULO HIPOTESIS 23
DF	OR	24	1.000	VEHICULO HIPOTESIS 24
DG	OR	25	1.000	VEHICULO POSICION 25
DH	OR	26	1.000	VEHICULO POSICION 26
DI	OR	27	1.000	VEHICULO POSICION 27
DJ	OR	28	1.000	VEHICULO POSICION 28
DK	OR	37	1.000	VEHICULO HIPOTESIS 37
DL	OR	38	1.000	VEHICULO HIPOTESIS 38
DM	OR	39	1.000	VEHICULO HIPOTESIS 39
DN	OR	40	1.000	VEHICULO HIPOTESIS 40
DO	OR	41	1.000	VEHICULO HIPOTESIS 41
DP	OR	42	1.000	VEHICULO POSICION 42
DQ	OR	43	1.000	VEHICULO POSICION 43
DR	OR	44	1.000	VEHICULO POSICION 44
DS	OR	45	1.000	VEHICULO POSICION 45
DT	PLUS	30	1.000	FRENADO
DU	PLUS	33	0.300000	VIENTO TRANSV CON SOB
DV	PLUS	34	0.600000	TEMPERATURA (-)
DW	OR	35	0.600000	TEMPERATURA (+)
DX	PLUS	36	0.600000	GRADIENTE
ALTERNATIVE ENVELOPE :				
DY	PERM.	1	1.000	PESO PROPIO
DZ	PL.PERM	2	1.500	PESO PAVIMENTO
EA	OR	2	1.000	PESO PAVIMENTO

EB	PL.PERM	3	1.000		PESO BARRERAS
EC	PL.PERM	4	0.765000		PRETENSADO
ED	OR	4	0.935000		PRETENSADO
EE	PL.PERM	5	1.000		RETRACCION Y FLUENCIA
EF	PLUS	46	1.000		SOB UNIF VANO 1
EG	PLUS	47	1.000		SOB UNIF VANO 2
EH	PLUS	48	1.000		SOB UNIF VANO 3
EI	PLUS	11	1.000		VEHICULO HIPOTESIS 11
EJ	OR	12	1.000		VEHICULO HIPOTESIS 12
EK	OR	13	1.000		VEHICULO HIPOTESIS 13
EL	OR	14	1.000		VEHICULO HIPOTESIS 14
EM	OR	15	1.000		VEHICULO HIPOTESIS 15
EN	OR	16	1.000		VEHICULO POSICION 16
EO	OR	17	1.000		VEHICULO POSICION 17
EP	OR	18	1.000		VEHICULO POSICION 18
EQ	OR	19	1.000		VEHICULO POSICION 19
ER	OR	20	1.000		VEHICULO HIPOTESIS 20
ES	OR	21	1.000		VEHICULO HIPOTESIS 21
ET	OR	22	1.000		VEHICULO HIPOTESIS 22
EU	OR	23	1.000		VEHICULO HIPOTESIS 23
EV	OR	24	1.000		VEHICULO HIPOTESIS 24
EW	OR	25	1.000		VEHICULO POSICION 25
EX	OR	26	1.000		VEHICULO POSICION 26
EY	OR	27	1.000		VEHICULO POSICION 27
EZ	OR	28	1.000		VEHICULO POSICION 28
FA	OR	37	1.000		VEHICULO HIPOTESIS 37
FB	OR	38	1.000		VEHICULO HIPOTESIS 38
FC	OR	39	1.000		VEHICULO HIPOTESIS 39
FD	OR	40	1.000		VEHICULO HIPOTESIS 40
FE	OR	41	1.000		VEHICULO HIPOTESIS 41
FF	OR	42	1.000		VEHICULO POSICION 42
FG	OR	43	1.000		VEHICULO POSICION 43
FH	OR	44	1.000		VEHICULO POSICION 44
FI	OR	45	1.000		VEHICULO POSICION 45
FJ	PLUS	30	1.000		FRENADO
FK	PLUS	33	0.300000		VIENTO TRANSV CON SOB
FL	PLUS	34	0.600000		TEMPERATURA (-)
FM	OR	35	0.600000		TEMPERATURA (+)
FN	PLUS	36	0.600000		GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.026476	-10.241	94.640			
	1.580	0.583851	255.657			
	Min: AR AT AU AV AX BB BC...			Max: A B D F G H I L AN AP..		
10	1.647	-10.242	92.372			
	0.040342	0.582248	254.144			
	Min: AR AT AU AV AX AY AZ...			Max: A E D F I J K U AP AQ		
58	9.917	1.500	841.978			
	1.42E-05	-30.005	1134.611			
	Min: CJ CL CM CO CR DI DU...			Max: DY DZ EB EC EE EF EG...		
108	9.917	-8.274	841.978			
	-1.42E-05	23.231	1134.581			
	Min: CJ CL CM CO CP DC DT...			Max: DY DZ EB EC EE EG EH...		
156	-0.026461	9.128	94.640			
	1.580	-1.697	255.715			
	Min: AR AT AU AV AX BE BC...			Max: A E D F G H I T AM AN..		
160	1.647	9.129	92.330			
	0.040325	-1.695	254.202			
	Min: AR AT AU AV AX AY AZ...			Max: A E D F I J K AC AM AP.		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.040424	-4.657	219.627			
	1.594	-5.000	96.153			
	Min: A E D F G H I O AM AO..			Max: AR AT AU AV AX BE BC...		
10	0.026399	-5.002	94.682			
	1.661	-4.658	217.224			
	Min: AR AT AU AV AX AY AZ...			Max: A E D F I J K X AM AN..		
58	-2.58E-05	-12.723	1062.530			
	9.917	-15.782	979.405			
	Min: AR AS AU AV AX BA BE...			Max: A C D F G H O AM AN AO.		
108	-2.58E-05	16.457	1062.530			
	9.917	-1.500	979.375			
	Min: AR AS AU AV AX EA BE...			Max: A C D F G H Q AN AP AQ		
156	-0.040407	3.544	219.534			
	1.594	3.887	96.153			
	Min: A E D F G H I Q AO AQ..			Max: AR AT AU AV AX BE BC...		
160	0.026382	3.889	94.640			
	1.661	3.545	217.224			
	Min: AR AT AU AV AX AY AZ...			Max: A E D F I J K Z AN AO..		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.032333	-10.470	100.747			
	1.587	0.853349	239.026			
	Min: AR AT AU AW AX BE BC...			Max: A B D E G H I M AN AP..		
10	1.653	-10.471	98.437			
	0.033456	0.851745	237.513			
	Min: AR AT AU AW AX AY AZ...			Max: A B D E I J K V AP AQ		
58	-1.42E-05	-30.585	1018.009			
	9.917	2.182	1023.086			
	Min: DY EA EB ED EE EG EU...			Max: CJ CK CM CN CP CR CU...		
108	9.917	-8.956	1023.041			
	-1.42E-05	23.811	1018.009			
	Min: CJ CK CM CN CP CR CY...			Max: DY EA EB ED EE EG EW...		
156	1.587	-1.966	239.026			
	-0.032316	9.357	100.768			
	Min: A B D E G H I S AM AN..			Max: AR AT AU AW AX EE BC...		
160	0.033438	-1.965	237.513			
	1.653	9.358	98.458			
	Min: A B D E I J K AB AM AP.			Max: AR AT AU AW AX AY AZ...		

DEFORMATIONS: **
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-6.931	21.739	3.31E-08	0.001324	0.000216	0.000113
		0.175758	20.247	5.88E-08	0.002350	0.000250	0.000174
		Min: AR AT AU AV AX BE BC...			Max: A E D F G H I O AM AO..		
2	2.500	-7.128	19.527	6.165	0.002313	0.000181	5.76E-05
		-0.047619	20.606	2.493	0.000954	-5.35E-05	3.74E-05
		Min: A B D F I J K X AM AN..			Max: AR AT AU AV AX AY AZ...		
31	0	-7.128	-14.688	6.165	-0.002313	0.000181	-5.76E-05
		-0.047588	-15.767	2.498	-0.000956	-5.35E-05	-3.74E-05
		Min: A E D F I J K Z AN AO..			Max: AR AT AU AV AX AY AZ..		
31	2.500	-6.931	-16.900	3.42E-08	-0.001324	0.000216	-0.000113
		0.175681	-15.407	5.81E-08	-0.002352	0.000250	-0.000174
		Min: AR AT AU AV AX BE BC...			Max: A B D F G H I Q AO AQ		
75	0	-7.082	23.757	2.414	-0.000954	-0.000948	1.09E-06
		1.58E-05	-1.197	2.876	-0.001281	0.000918	-1.38E-09
		Min: AR AT AU AV AX AY AZ...			Max: A E D F I J K W AP		
75	2.500	-7.084	11.273	2.49E-08	-0.001375	-0.001021	1.28E-06
		1.84E-05	9.088	2.04E-08	-0.001178	0.000989	-1.58E-09
		Min: A C D F G H O AM AN AO.			Max: AR AS AU AV AX BA BB...		
76	0	-7.084	11.273	-4.95E-08	-0.001375	-0.001021	1.28E-06
		1.84E-05	9.088	-4.24E-08	-0.001178	0.000989	-1.58E-09

DEFORMATIONS: **
ENVELOPE for < DX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
	Min: A C D F G H O AM AN AO...			Max: AR AS AU AV AX BA BB...			
76	3.600	-7.091	12.100	-5.044	-0.001340	-0.001104	1.39E-06
		2.60E-05	5.133	-3.861	-0.000768	0.001071	-1.10E-09
	Min: AR AS AU AV AX AY AZ...			Max: A C D F J K X AO			
85	0	-7.091	-7.261	-5.063	0.001345	-0.001105	-1.39E-06
		2.60E-05	-0.293319	-3.861	0.000768	0.001071	1.10E-05
	Min: AR AS AU AV AX AY AZ...			Max: A C D F J K Z AM AO			
85	3.600	-7.084	1.071	-7.74E-08	0.001379	-0.001020	-1.28E-06
		1.84E-05	-11.755	-6.83E-08	0.001178	0.000989	1.58E-09
	Min: A C D F G H Q AN AP AQ			Max: AR AS AU AV AX BA BB...			
86	0	-7.084	1.071	3.45E-08	0.001379	-0.001020	-1.28E-06
		1.84E-05	-11.755	2.95E-08	0.001178	0.000989	1.58E-05
	Min: A C D F G H Q AN AP AQ			Max: AR AS AU AV AX BA BB...			
86	2.500	-7.082	-10.368	2.412	0.000953	-0.000947	-1.09E-06
		1.58E-05	-2.513	2.874	0.001280	0.000917	1.38E-05
	Min: AR AT AU AV AX AY AZ...			Max: A E D F I J K AA AM AO			
130	0	-7.222	20.254	5.90E-08	0.002360	-0.000250	-0.000172
		-0.114780	21.746	3.31E-08	0.001323	-0.000217	-0.000110
	Min: A B D F I J K X AM AN...			Max: AR AT AU AV AX AY AZ...			
130	2.500	-7.005	20.613	2.519	0.000964	4.95E-05	-3.51E-05
		0.075799	19.534	6.164	0.002313	-0.000185	-5.53E-05
	Min: AR AT AU AV AX EB EC...			Max: A E D F G H I O AO AC...			
159	0	-7.005	-15.774	2.519	-0.000964	4.95E-05	3.51E-05
		0.075769	-14.695	6.170	-0.002315	-0.000185	5.53E-05
	Min: AR AT AU AV AX EB EC...			Max: A E D F G H I O AO AC...			
159	2.500	-7.222	-15.414	5.83E-08	-0.002360	-0.000250	0.000172
		-0.114703	-16.907	3.43E-08	-0.001325	-0.000217	0.000110
	Min: A E D F I J K Z AN AO..			Max: AR AT AU AV AX AY AZ...			

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
2	0	-6.900	-3.710	3.47E-08	0.001390	0.000240	0.000148
		0.140580	45.521	4.27E-08	0.001707	0.000243	0.000135
	Min: A B D E G H I M AN AP..			Max: AR AT AU AW AX BB BC...			
2	2.500	-7.115	-3.344	3.111	0.001146	-5.20E-05	4.77E-05
		-0.058411	43.308	4.122	0.001573	0.000180	4.58E-05
	Min: A E D E G H I M AN AP..			Max: AR AT AU AW AX BB BC...			

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
31	0	-0.058380	-38.468	4.120	-0.001572	0.000180	-4.58E-05
		-7.115	8.184	3.111	-0.001146	-5.20E-05	-4.77E-05
	Min: AR AT AU AW AX BB BC...			Max: A B D E G H I S AM AN..			
31	2.500	0.140503	-40.681	4.43E-08	-0.001706	0.000243	-0.000135
		-6.900	8.549	3.27E-08	-0.001390	0.000240	-0.000148
	Min: AR AT AU AW AX BE BC...			Max: A B D E G H I S AN AN..			
75	0	8.69E-09	-1.757	2.454	-0.000987	3.68E-12	3.18E-12
		-7.082	24.232	3.108	-0.001335	0.000145	1.08E-06
	Min: A E D E G H I J K AF...			Max: AR AT AU AW AX BR CE...			
75	2.500	-7.084	-1.559	6.10E-09	-0.000638	-0.000424	1.28E-06
		1.01E-05	21.846	3.36E-08	-0.001702	0.000425	-7.84E-10
	Min: CJ CK CM CN CP CR CU...			Max: DY EA EB ED EE EG EU...			
76	0	-7.084	-1.559	-2.30E-08	-0.000638	-0.000424	1.28E-06
		1.01E-05	21.846	-6.13E-08	-0.001702	0.000425	-7.84E-10
	Min: CJ CK CM CN CP CR CU...			Max: DY EA EB ED EE EG EU...			
76	3.600	-7.091	-1.259	-3.051	-0.000645	-0.000210	1.39E-06
		-8.03E-06	18.434	-4.695	-0.001189	-0.000374	-1.20E-10
	Min: CJ CL CM CN CR CY DU...			Max: DY DZ EB ED EE EF EG...			
85	0	-8.02E-06	-13.595	-4.693	0.001188	-0.000373	1.20E-10
		-7.091	6.099	-3.052	0.000645	-0.000211	-1.39E-06
	Min: DY DZ EB ED EE EG EH...			Max: CJ CL CM CN CP CU DT...			
85	3.600	1.01E-05	-17.008	-8.89E-08	0.001702	0.000425	7.84E-10
		-7.084	6.397	-4.76E-08	0.000637	-0.000424	-1.28E-06
	Min: DY EA EB ED EE EG EW...			Max: CJ CK CM CN CP CR CY...			
86	0	1.01E-05	-17.008	4.26E-08	0.001702	0.000425	7.84E-10
		-7.084	6.397	1.59E-08	0.000637	-0.000424	-1.28E-06
	Min: DY EA EB ED EE EG EW...			Max: CJ CK CM CN CP CR CY...			
86	2.500	-7.082	-19.393	3.108	0.001335	0.000145	-1.08E-06
		8.69E-05	6.596	2.452	0.000986	3.68E-12	-3.18E-12
	Min: AR AT AU AW AX BP CF...			Max: A B D E G H I J K AJ...			
130	0	-0.145459	-3.703	3.48E-08	0.001391	-0.000241	-0.000145
		-7.187	45.528	4.29E-08	0.001715	-0.000243	-0.000133
	Min: A B D E I J K V AP AQ			Max: AR AT AU AW AX AY AZ...			
130	2.500	0.063153	-3.338	3.115	0.001147	4.79E-05	-4.54E-05
		-6.994	43.315	4.143	0.001581	-0.000184	-4.35E-05
	Min: A B D E I J K V AP AQ			Max: AR AT AU AW AX AY AZ...			
159	0	-6.994	-38.475	4.141	-0.001580	-0.000184	4.35E-05
		0.063122	8.177	3.115	-0.001147	4.79E-05	4.54E-05
	Min: AR AT AU AW AX AY AZ...			Max: A B D E I J K AB AM AP.			
159	2.500	-7.187	-40.688	4.45E-08	-0.001714	-0.000243	0.000133
		-0.145382	8.543	3.28E-08	-0.001391	-0.000241	0.000145
	Min: AR AT AU AW AX AY AZ...			Max: A B D E I J K AB AM AP.			

DEFORMATIONS: **
ENVELOPE for < DY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]

ENVELOPE SPECIFIC.: DG 'COMBINACION SOBRECARGAS'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1	0		PESO PROPIO
E	PLUS	6	1.000		SOB UNIF 1
C	PLUS	7	1.000		SOB UNIF 2
D	PLUS	8	1.000		SOB UNIF 3
E	PLUS	9	1.000		SOB UNIF 4
F	PLUS	10	1.000		SOB UNIF 5
G	PLUS	11	1.000		VEHICULO HIPOTESIS 11
H	OR	12	1.000		VEHICULO HIPOTESIS 12
I	OR	13	1.000		VEHICULO HIPOTESIS 13
J	OR	14	1.000		VEHICULO HIPOTESIS 14
K	OR	15	1.000		VEHICULO HIPOTESIS 15
L	OR	16	1.000		VEHICULO POSICION 16
M	OR	17	1.000		VEHICULO POSICION 17
N	OR	18	1.000		VEHICULO POSICION 18
O	OR	19	1.000		VEHICULO POSICION 19
P	OR	20	1.000		VEHICULO HIPOTESIS 20
Q	OR	21	1.000		VEHICULO HIPOTESIS 21
R	OR	22	1.000		VEHICULO HIPOTESIS 22
S	OR	23	1.000		VEHICULO HIPOTESIS 23
T	OR	24	1.000		VEHICULO HIPOTESIS 24
U	OR	25	1.000		VEHICULO POSICION 25
V	OR	26	1.000		VEHICULO POSICION 26
W	OR	27	1.000		VEHICULO POSICION 27
X	OR	28	1.000		VEHICULO POSICION 28
Y	OR	37	1.000		VEHICULO HIPOTESIS 37
Z	OR	38	1.000		VEHICULO HIPOTESIS 38
AA	OR	39	1.000		VEHICULO HIPOTESIS 39
AB	OR	40	1.000		VEHICULO HIPOTESIS 40
AC	OR	41	1.000		VEHICULO HIPOTESIS 41
AD	OR	42	1.000		VEHICULO POSICION 42
AE	OR	43	1.000		VEHICULO POSICION 43
AF	OR	44	1.000		VEHICULO POSICION 44
AG	OR	45	1.000		VEHICULO POSICION 45
AH	PLUS	30	1.000		FRENADO
AI	PLUS	33	0.500000		VIENTO TRANSV CON SOB
AJ	PLUS	34	1.000		TEMPERATURA (-)
AK	OR	35	1.000		TEMPERATURA (+)
AL	PLUS	36	1.000		GRADIENTE

ALTERNATIVE ENVELOPE :

Group	Spec.	Loadcase	Factor	Stage	Title
AM	PERM.	1	0		PESO PROPIO
AN	PLUS	46	1.000		SOB UNIF VANO 1
AO	PLUS	47	1.000		SOB UNIF VANO 2
AP	PLUS	48	1.000		SOB UNIF VANO 3
AQ	PLUS	11	1.000		VEHICULO HIPOTESIS 11
AR	OR	12	1.000		VEHICULO HIPOTESIS 12
AS	OR	13	1.000		VEHICULO HIPOTESIS 13
AT	OR	14	1.000		VEHICULO HIPOTESIS 14
AU	OR	15	1.000		VEHICULO HIPOTESIS 15
AV	OR	16	1.000		VEHICULO POSICION 16
AW	OR	17	1.000		VEHICULO POSICION 17
AX	OR	18	1.000		VEHICULO POSICION 18
AY	OR	19	1.000		VEHICULO POSICION 19
AZ	OR	20	1.000		VEHICULO HIPOTESIS 20
BA	OR	21	1.000		VEHICULO HIPOTESIS 21
BB	OR	22	1.000		VEHICULO HIPOTESIS 22
BC	OR	23	1.000		VEHICULO HIPOTESIS 23
BD	OR	24	1.000		VEHICULO HIPOTESIS 24
BE	OR	25	1.000		VEHICULO POSICION 25
BF	OR	26	1.000		VEHICULO POSICION 26
BG	OR	27	1.000		VEHICULO POSICION 27
BH	OR	28	1.000		VEHICULO POSICION 28
BI	OR	37	1.000		VEHICULO HIPOTESIS 37
BJ	OR	38	1.000		VEHICULO HIPOTESIS 38
BK	OR	39	1.000		VEHICULO HIPOTESIS 39
BL	OR	40	1.000		VEHICULO HIPOTESIS 40
BM	OR	41	1.000		VEHICULO HIPOTESIS 41
BN	OR	42	1.000		VEHICULO POSICION 42
BO	OR	43	1.000		VEHICULO POSICION 43
BP	OR	44	1.000		VEHICULO POSICION 44
BQ	OR	45	1.000		VEHICULO POSICION 45
BR	PLUS	30	1.000		FRENADO
BS	PLUS	33	0.500000		VIENTO TRANSV CON SOB
BT	PLUS	34	1.000		TEMPERATURA (-)
BU	OR	35	1.000		TEMPERATURA (+)
BV	PLUS	36	1.000		GRADIENTE

SUPPORT REACTIONS: ENVELOPE for < FZ > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-5.82E-05	-4.551	-44.949			
	2.697	3.443	109.735			
	Min: A E F S AH AJ			Max: A E C D G AI AK AL		
10	2.701	-4.554	-48.757			
	0.004085	3.441	107.213			
	Min: A B C J AH AI AJ			Max: A D E F P AK AL		
58	16.529	8.756	-39.494			
	1.42E-05	-15.530	219.466			
	Min: AM AP BG BS BU BV			Max: AM AN AO AT BR BT		
108	16.529	-15.530	-39.494			
	-1.42E-05	8.756	219.436			
	Min: AM AN BA BR BS BU BV			Max: AM AO AP BE BT		
156	-4.06E-05	3.438	-44.949			
	2.697	-4.557	109.793			
	Min: A E F U AJ			Max: A E C D O AH AI AK AL		
160	2.701	3.441	-48.799			
	0.004067	-4.554	107.271			
	Min: A B C L AI AJ			Max: A D E F X AH AK AL		

SUPPORT REACTIONS: ENVELOPE for < FX > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-0.004208	-4.549	72.698			
	2.701	3.441	-42.427			
	Min: A B C D J AH AJ AL			Max: A E F S AI AK		
10	-6.14E-05	3.438	-44.907			
	2.705	-4.552	68.753			
	Min: A B C J AK			Max: A D E F S AH AI AJ AL		
58	-2.58E-05	8.756	147.385			
	16.529	-15.530	97.933			
	Min: A D E F S AK			Max: A B C J AH AI AJ AL		
108	-2.58E-05	1.982	147.385			
	16.529	-8.756	97.903			
	Min: A D E F U AH AJ			Max: A B C L AI AK AL		
156	-0.004190	3.436	72.603			
	2.701	-4.554	-42.427			
	Min: A B C D L AJ AL			Max: A E F U AH AI AK		
160	-7.90E-05	-4.551	-44.949			
	2.705	3.436	68.753			
	Min: A B C L AH AK			Max: A D E F U AI AJ AL		

SUPPORT REACTIONS: ENVELOPE for < FY > (and accomp. values)
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups

Node	FX [t]	FY [t]	FZ [t]	MX [tm]	MY [tm]	MZ [tm]
6	-5.87E-05	-4.551	-42.867			
	2.697	3.443	97.838			
	Min: A E F R AH AJ			Max: A E C D H AI AK AL		
10	2.701	-4.554	-46.717			
	0.004086	3.441	95.317			
	Min: A B C I AH AI AJ			Max: A D E F Q AK AL		
58	-1.41E-05	-15.530	130.741			
	16.529	8.756	112.316			
	Min: AM AO BC BR BT BV			Max: AM AN AP AS BS BU		
108	16.529	-15.530	112.270			
	-1.41E-05	8.756	130.741			
	Min: AM AN AP AW BR BS BU			Max: AM AO BE BT BV		
156	2.697	-4.557	-97.838			
	-4.10E-05	3.438	-42.646			
	Min: A B C D N AH AI AK AL			Max: A E F V AJ		
160	0.004068	-4.554	95.317			
	2.701	3.441	-46.696			
	Min: A D E F W AH AK AL			Max: A B C M AI AJ		

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 1 :
Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1134.6** Nk (KN) = -11119.2
HTk (t) = **0.0**

Pie de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1196.5** Nk (KN) = -11725.3

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-1134.6** Nk (KN) = -11119.2
HLk (t) = **30.0**

Pie de pórtico

Mk (tm) = **420.0** Mk (KNm) = 4116.0
Nk (t) = **-1196.5** Nk (KN) = -11725.3

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **14.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$$\lambda = \pi^2 \times E \times I / Lo^2 = 25.4642$$

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : **λ = 49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.000 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.351 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.142

e_{tot} (m) = 0.142

Pie de pórtico

Mk (tm) = 169.32
Nk (t) = -1196.46

Mk (KNm) = 1659.4
Nk (KN) = -11725.3

Solicitaciones de cálculo longitudinales :

e_a = 0.241

e_{tot} (m) = 0.592

Pie de pórtico

Mk (tm) = 707.95
Nk (t) = -1196.46

Mk (KNm) = 6937.9
Nk (KN) = -11725.3

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 2 :
Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-979.4** Nk (KN) = -9598.2
HTk (t) = **9.9**

Pie de pórtico

Mk (tm) = **138.9** Mk (KNm) = 1361.0
Nk (t) = **-1041.3** Nk (KN) = -10204.3

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-979.4** Nk (KN) = -9598.2
HLk (t) = **15.8**

Pie de pórtico

Mk (tm) = **221.2** Mk (KNm) = 2167.8
Nk (t) = **-1041.3** Nk (KN) = -10204.3

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **14.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$\lambda = \pi^2 \times E \times I / Lo^2 =$ 25.4642

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : **λ = 49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_a)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

e_e = 0.133 Máxima excentricidad de cálculo de 1er orden transversal
e_e = 0.212 Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.208

e_{tot} (m) = 0.342

Pie de pórtico

Mk (tm) = 355.59 **Mk (KNm) = 3484.8**
Nk (t) = -1041.26 **Nk (KN) = -10204.3**

Solicitaciones de cálculo longitudinales :

e_a = 0.224

e_{tot} (m) = 0.437

Pie de pórtico

Mk (tm) = 454.93 **Mk (KNm) = 4458.3**
Nk (t) = -1041.26 **Nk (KN) = -10204.3**

Estado límite de Inestabilidad : Pórtico traslacional
Cálculo de solicitaciones de 2º orden en las zapatas ELS
HIPOTESIS 3 :
Dirección transversal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-841.9** Nk (KN) = -8250.6
HTk (t) = **9.9**

Pie de pórtico

Mk (tm) = **138.9** Mk (KNm) = 1361.0
Nk (t) = **-903.8** Nk (KN) = -8856.8

Dirección longitudinal

Solicitaciones : Cabeza de pórtico

Mk (tm) = **0.0** Mk (KNm) = 0.0
Nk (t) = **-841.9** Nk (KN) = -8250.6
HLk (t) = **8.3**

Pie de pórtico

Mk (tm) = **115.9** Mk (KNm) = 1136.0
Nk (t) = **-903.8** Nk (KN) = -8856.8

Hormigón : **HA - 30**
fck (N/mm^2)= **30**
γ c = **1.50**
fcd (N/mm^2)= 20.0
Ec (KN/mm^2) = 28.6

Acero pasivo : **B 500 S**
fyk (N/mm^2)= **500**
γ s = **1.15**
fyd (N/mm^2)= 434.8
Es (KN/mm^2) = **210**

Datos de los fustes :

Diámetro Φ (m): **1.50**
Nº de fustes : **1**
Altura Hp (m): **14.00**
Mto. Inercia I (m^4) : 0.2485

Con el programa STATIK3 se ha calculado el autovalor correspondiente a la pila con las rigideces que corresponden a las reales del conjunto neoprenos - tablero, tanto en sentido transversal como longitudinal. Los cálculos correspondientes se adjuntan a continuación.

Del cálculo de 2º orden obtenemos:

$$\lambda = \pi^2 \times E \times I / Lo^2 = \quad 25.4642$$

Longitud transversal de pandeo : Lo (m) = 18.50

Radio de giro : ic (m) = 0.38

Esbeltez mecánica : **λ = 49.33** $35 < \lambda <$ **100** Esbeltez moderada

Método aproximado . Flexión compuesta recta

$$e_{tot} = e_e + e_a > e_2$$

$$e_a = (1 + 0{,}12\,\beta)(\varepsilon y + \varepsilon)\,\frac{(h+20e_e)}{(h+10ee)}\,\frac{Lo^2}{50\,ic}$$

$e_e = 0.154$ Máxima excentricidad de cálculo de 1er orden transversal
$e_e = 0.128$ Máxima excentricidad de cálculo de 1er orden longitudinal

Lo = 18.50

εy = fyd / Es = 0.002070

ε = 0.0045 Axil cuasi permanente > 70% Axil total

$\beta = \frac{(d - d')^2}{4\,is^2}$ Factor de armado

De tablas se obtiene :

$is^2 = \frac{1}{6}(d - d')^2$ β = 1.50

Solicitaciones de cálculo transversales :

e_a = 0.213

e_{tot} (m) = 0.367

Pie de pórtico

Mk (tm) = 331.50
Nk (t) = -903.75

Mk (KNm) = 3248.7
Nk (KN) = -8856.8

Solicitaciones de cálculo longitudinales :

e_a = 0.207

e_{tot} (m) = 0.335

Pie de pórtico

Mk (tm) = 302.77
Nk (t) = -903.75

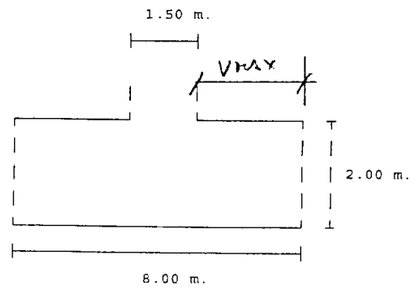
Mk (KNm) = 2967.2
Nk (KN) = -8856.8

ructura ....:PS 317+500

Pila Nº : 1

©DIBUJO

* dibujo sin escala

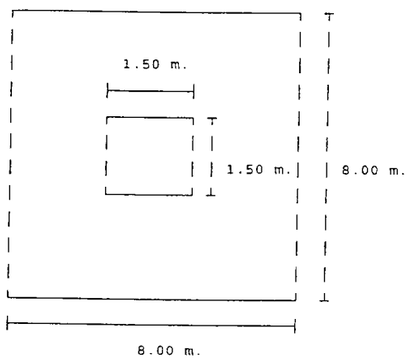


ALZADO

$V_{max} = 3.25m < 2 \times 2.0m = 4.00m$

RIGIDA

Dirección del eje del tablero



PLANTA

CARACTERISTICAS DE LOS MATERIALES Y CIMENTACION

Fck (Kg/cm²) ..... 300 γcd ... 1.50

Fyk (Kg/cm²) ..... 5100 γyd ... 1.15

Recubrimiento de armaduras ..... 3.5 cms

Tensión admisible del terreno ..... 3.00 Kg/cm²

Coeficiente de rozamiento en cimentación ... 0.55

Coeficiente de seguridad al deslizamiento... 1.50

Coeficiente de seguridad al vuelco 1.80

©ESFUERZOS CONSIDERADOS

* Longitudinal y transversal según la dirección del eje del tablero
* Esfuerzos en t y m.t

Hipótesis	Axil	F.Long	F.Trans	M.Long	M.Trans	γf
1	1196.46	30.00	0.00	707.95	169.32	1.50
2	1041.26	15.80	9.90	454.93	355.59	1.50
3	903.75	8.30	9.90	302.77	331.50	1.50

RESULTADOS DE CALCULO

©Tensiones sobre el Terreno en Kg/cm² y coeficientes de seguridad

Hipótesis	σ1	σ2	σ3	σ4	σcob	Cd	Cv
1	1.60	1.20	-0.20	-0.60	1.44	5.87	1.67
2	1.51	0.63	0.37	-0.51	1.14	11.14	2.63
3	2.70	1.87	1.95	1.13	2.20	67.99	13.93

Tensión cobaricéntrica Máxima 2.20 Kg/cm² para la Hipótesis 3

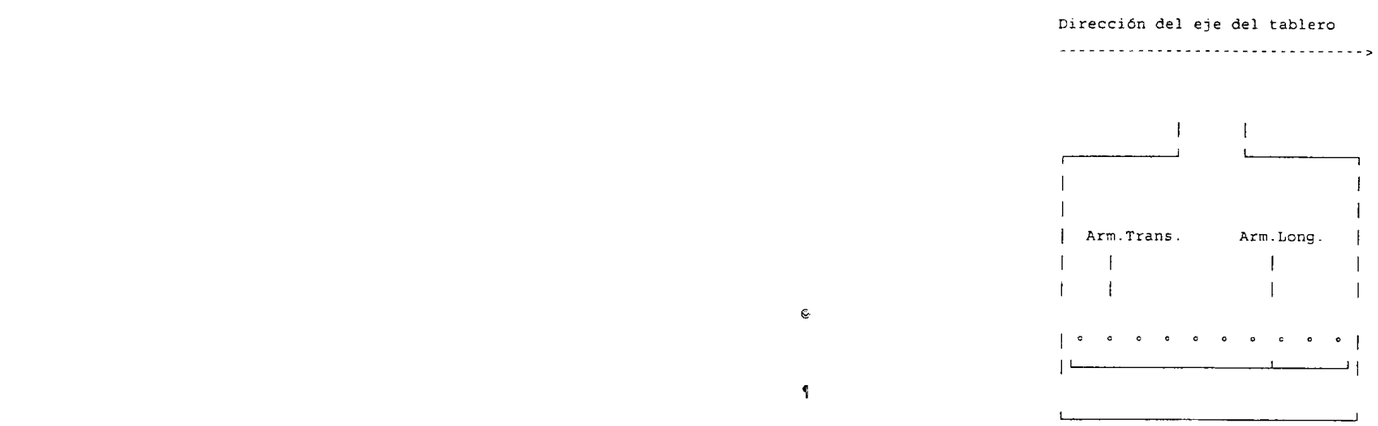
©Esfuerzos de cálculo

* Esfuerzos en m.t/m y t/m Armaduras en cm²/m

Recubrimiento de armaduras= 3.5 cms

Uc= 3930 t/m

©DIBUJO DE LA ARMADURA



ALZADO

Armadura longitudinal Máxima 28.60 cm²/m para la Hipótesis 1 ϕ25/15

Armadura transversal Máxima 30.78 cm²/m para la Hipótesis 1 ϕ25/15

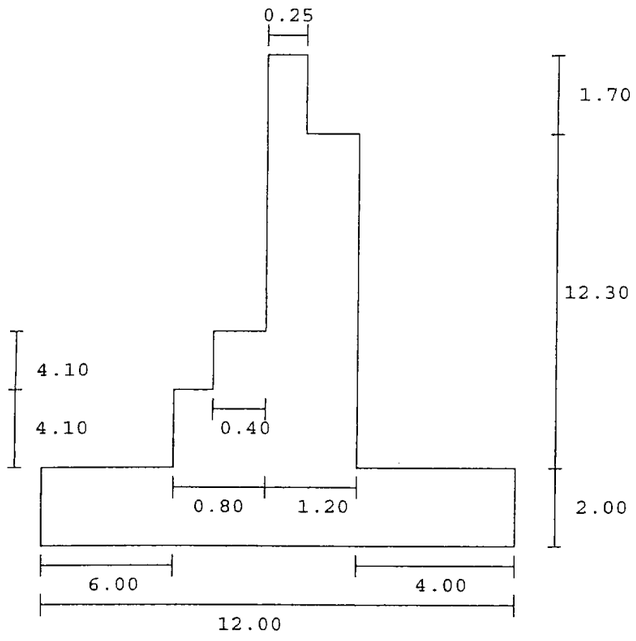
ESTRIBOS

Estructura ....:PS 317+500

Estribo .....:E-1

DATOS GEOMETRICOS (sin escala)

* Cotas en mtrs.



Area de la sección 44.11 m²

MATERIALES

Hormigón en zapata ..... 250 Kg/cm²

Hormigón en alzados ..... 300 Kg/cm²

Coeficiente de seguridad del hormigón 1.50

Acero en armaduras, zapata y alzado ..... 5100 Kg/cm²

Coeficiente de seguridad del acero 1.15

CARACTERISTICAS DEL TERRENO

Densidad de las tierras (t/m3) 2.00

Coeficiente de empuje activo horizontal 0.33

Tensión admisible del terreno en cimentación (Kg/cm²) 3.0

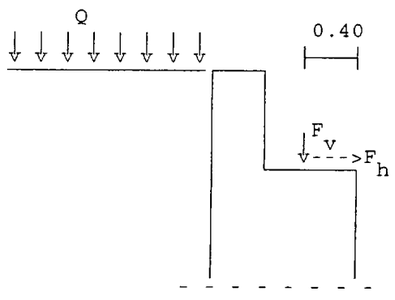
Coeficiente de rozamiento en cota de cimentación 0.55

Coeficiente de seguridad al deslizamiento (Cd) 1.50

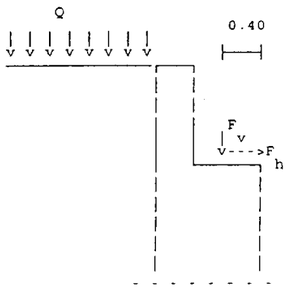
Coeficiente de seguridad al vuelco (Cv) 1.80

Altura considerada de empuje de tierras (mtrs.) 16.00

CARGAS ACTUANTES



CARGAS ACTUANTES



Reacciones Verticales (Fv t/m)

Cargas Permanentes : 24.70

Sobrecargas Máximas: 14.30
Sobrecargas Mínimas: 0.00
Sobrecarga q (t/m²): 1.00

Reacciones Horizontales (Fh t/m)

Reológicas : 1.22
Temperatura : 0.57
Frenado : 0.18

COMBINACIONES

A) 1.35*(Peso Propio)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

B) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)

C) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Máximas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

D) 1.35*(Peso Propio+ Cargas Permanentes)
1.50*(Sobrecargas Mínimas)
1.50*(Empuje del terreno)
1.50*(Sobrecarga en el trasdós)

1.35*(Reológicas)
1.50*(Temperatura)
1.50*(Frenado)

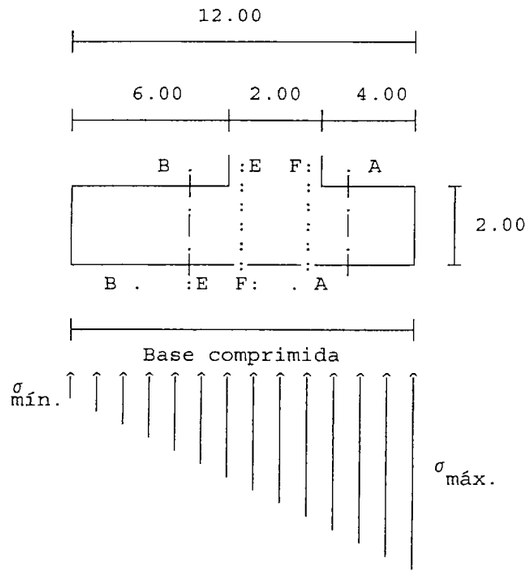
ESFUERZOS DE COMBINACIONES

Combinación	Fv(t/m)	Fh(t/m)	Q(t/m²)
A	0.00 0.00	0.00 0.00	1.00 1.25
B	24.70 33.35	1.79 2.50	1.00 1.50
C	39.00 54.80	1.97 1.13	1.00 1.50
D	24.70 33.35	1.97 2.78	1.00 1.50

COMPROBACION DE ESTABILIDAD:

Hipótesis	ΣFv(t/m)	ΣFh(t/m)	Cd	ΣMe(mt/m)	ΣMv(mt/m)	Cv
A	297.62	89.76	1.82	2244.66	492.80	4.55
B	322.32	91.55	1.94	2353.34	518.40	4.54
C	336.62	91.73	2.02	2416.26	521.03	4.64
D	322.32	91.73	1.93	2353.34	521.03	4.52

TENSIONES EN CIMIENTOS



COMPROBACION DE TENSIONES:

Hipótesis	σmáx. (t/m²)	σmín. (t/m²)	σcob. (t/m²)	Base comprimida
A	26.21	23.39	25.28	12.00
B	30.98	22.74	28.31	12.00
C	33.24	22.86	29.89	12.00
D	31.09	22.63	28.35	12.00

ARMADURAS:

ZAPATA

CORTANTE: fcv= 64.55 t/m² (EH-91)

Sección A-A | d = 1.96 m.
Vcu= 253.03 t/m (EH-91)

Sección B-B | d = 1.96 m.
Vcu= 126.52 t/m (EH-91)

FLEXION: | d = 1.96 m.
Uc = 2777 t/m

ZAPATA DELANTERA:

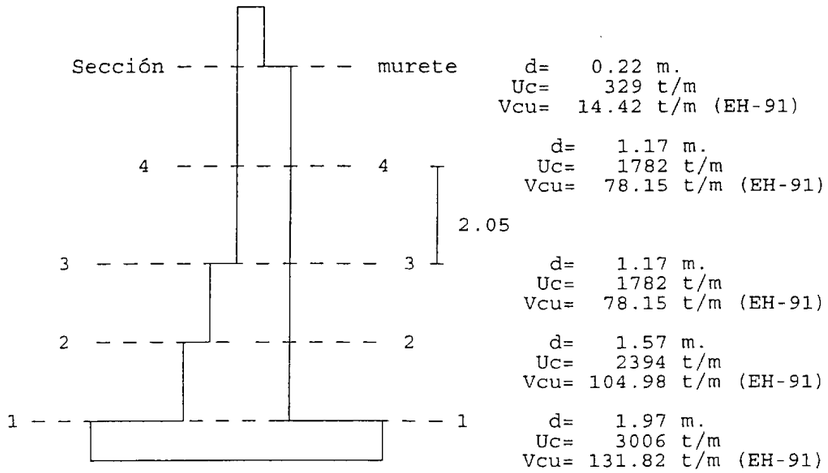
Hipót.	Vd(A-A) (t/m)	Vcu t/m (EHE)	Md(F-F) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	92.46	50.25	283.65	148.70	33.53	7.24	Aα= 5.70 cm²/
B	109.70	53.31	336.88	177.56	40.04	7.80	Aα= 7.61 cm²/
C	116.48	54.43	357.72	188.94	42.60	8.29	Aα= 8.38 cm²/
D	110.07	53.37	338.04	178.19	40.18	7.83	Aα= 7.65 cm²/

ZAPATA TRASERA:

Hipót.	Vd(B-B) (t/m)	Vcu t/m (EHE)	Md(E-E) (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	-81.06	56.42	-396.87	210.46	47.46	9.20	Aα= 3.33 cm²/
B	-80.27	56.18	-391.96	207.75	46.85	9.08	Aα= 3.25 cm²/
C	-74.69	54.78	-364.40	192.60	43.43	8.44	Aα= 2.69 cm²/
D	-80.71	56.28	-394.08	208.92	47.11	9.13	Aα= 3.30 cm²/

ALZADO

fcv= 67.08 t/m²



d= 0.22 m.
Uc= 329 t/m
Vcu= 14.42 t/m (EH-91)

d= 1.17 m.
Uc= 1782 t/m
Vcu= 78.15 t/m (EH-91)

d= 1.17 m.
Uc= 1782 t/m
Vcu= 78.15 t/m (EH-91)

d= 1.57 m.
Uc= 2394 t/m
Vcu= 104.98 t/m (EH-91)

d= 1.97 m.
Uc= 3006 t/m
Vcu= 131.82 t/m (EH-91)

SECCION 1-1:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	102.80	77.48	87.69	491.26	261.37	58.94	32.00	Aα= 3.41 cm²/m
B	106.45	85.03	121.24	550.01	294.31	66.36	32.00	Aα= 2.88 cm²/m
C	105.08	88.02	142.69	546.01	292.05	65.86	32.00	Aα= 2.30 cm²/m
D	106.73	85.17	121.24	553.40	296.22	66.80	32.00	Aα= 2.90 cm²/m

(Φ25/10+Φ25/20)

SECCION 2-2:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)	
A	52.60	50.63	47.64	178.76	117.09	26.40	25.60	Aα= 0.33 cm²/m
B	55.92	58.51	81.08	216.60	142.65	32.17	25.60	
C	54.55	61.46	102.53	213.94	140.84	31.76	25.60	
D	56.19	58.68	81.08	218.86	144.19	32.51	25.60	

SECCION 3-3:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	19.04	34.24	18.04	38.45	33.32	16.08	19.20
B	22.02	39.09	51.38	56.77	49.41	16.08	19.20
C	20.65	42.22	72.83	55.43	48.24	16.08	19.20
D	22.30	39.09	51.38	57.90	50.41	16.08	19.20

SECCION 4-4:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	8.51	33.03	9.74	10.92	9.40	16.08	19.20
B	11.32	37.89	43.08	23.30	20.11	16.08	19.20
C	9.95	41.01	64.53	24.78	21.40	16.08	19.20
D	11.60	37.89	43.08	23.86	20.60	16.08	19.20

SECCION MURETE:

Hipót.	Vd (t/m)	Vcu t/m (EHE)	Nd (t/m)	Md (mt/m)	Us (t/m)	As (cm²/m)	Reparto (cm²/m)
A	2.13	8.03	1.43	1.41	6.61	2.97	4.00
B	2.27	8.03	1.43	1.53	7.18	2.97	4.00
C	2.27	8.03	1.43	1.53	7.18	2.97	4.00
D	2.27	8.03	1.43	1.53	7.18	2.97	4.00

DATOS DE ENTRADA

Muro ..... : Aleta 1 MODULO A

GEOMETRIA:

Longitud muro ..... :	5.50	m
Altura mínima total.....:	12.00	m
Altura máxima total.....:	15.00	m
Canto de Zapata..... :	2.00	m
Ancho coronacion ..... :	0.40	m
Talud trasdós..... :	12.50	%
Talud exterior..... :	0.00	%
Angulo muro-calzada .....:	45.00	°
Distancia muro-calzada.....:	1.00	m
Talud de terraplén (H/V)...:	3 / 2	
Angulo de talud trasdós....:	25.24	°

TERRENO:

Densidad de tierras.....:	2.00	t/m3
Angulo de rozam. interno...:	33.00	°
Roz. Muro-tierras .....:	11.00	°
Coeficiente de roz.....:	0.55	
Tensión admisible .....:	3.00	Kg/cm²
Sobrecarga terraplén..... :	1.00	t/m²
Kh inclinado .....:	0.495	
Kh horizontal.....:	0.324	
Kv inclinado .....:	0.096	
Kv horizontal.....:	0.063	

MATERIALES

Fck (Kg/cm²).....:	300	
Gc .....:	1.50	
Fyk (Kg/cm²).....:	5100	
Gs .....:	1.15	
Recubrimiento en Alzados...:	4	cms
Recubrimiento en Cimientos.:	4	cms

SEGURIDAD

Coeficiente desliz.....:	1.50	
Coeficiente vuelco.....:	1.80	
Coeficiente de acciones....:	1.50	

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	10.27	61.17	11.89	276.71	97.26	61.17	185.35	399.04	994.06
1.00	2.00	1.50	10.82	62.19	12.09	285.84	98.88	62.19	187.79	410.22	1016.70
2.00	3.00	2.50	11.36	62.97	12.24	291.98	101.35	62.97	197.35	417.93	1079.21
3.00	4.00	3.50	11.91	63.64	12.37	296.67	102.43	63.64	198.63	423.96	1094.72
4.00	5.00	4.50	12.45	64.32	12.50	301.41	103.52	64.32	200.36	430.04	1108.65
5.00	5.50	5.25	12.86	64.83	12.60	304.99	104.34	64.83	200.33	434.65	1113.39

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	10.27	2.80	8.18	1.67	2.49	3.73	0.80	2.89	8.18
1.00	2.00	1.50	10.82	2.95	8.18	1.66	2.48	3.74	0.85	2.91	8.18
2.00	3.00	2.50	11.36	2.95	8.28	1.72	2.58	3.75	1.02	2.94	8.28
3.00	4.00	3.50	11.91	3.10	8.28	1.72	2.58	3.73	1.07	2.94	8.28
4.00	5.00	4.50	12.45	3.20	8.28	1.71	2.58	3.74	1.10	2.96	8.28
5.00	5.50	5.25	12.86	3.30	8.28	1.70	2.56	3.74	1.10	2.96	8.28

Coeficiente global de seg. al deslizamiento ...	1.70
Coeficiente global de seg. al vuelco	2.55
Tensión máxima en solera (Kg/cm²).....	3.75

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 1.96 m
ε = 1.319 m

		Z A R P A D E L A N T E R A					Z A R P A T R A S E R A				
Zona		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	115.21	20.30	174.48	88.31	24.26	94.46	21.80	233.19	118.91	30.05
1.00	2.00	120.15	20.69	187.93	95.28	25.70	95.92	21.62	225.16	114.70	29.34
2.00	3.00	124.05	21.02	200.03	101.57	26.94	96.02	21.37	214.13	108.93	28.31
3.00	4.00	127.75	21.32	212.22	107.93	28.13	95.44	21.05	201.25	102.20	27.06
4.00	5.00	131.50	21.62	225.03	114.63	29.32	94.38	20.69	188.02	95.33	25.71
5.00	5.50	134.32	21.83	234.82	119.77	30.20	93.18	20.41	178.42	90.35	24.69

A L Z A D O S

		Sección					
Zona		H	d	Vd	Vcu	Md	Us	As
0.00	1.00	7.70	0.72	18.20	25.85	30.47	44.48	10.98
		5.14	1.04	41.31	29.57	114.49	116.50	26.27
		2.57	1.36	72.54	33.08	277.01	218.21	49.21
		0.00	1.68	88.44	32.42	376.68	236.91	53.42
1.00	2.00	8.11	0.74	17.46	25.42	29.95	42.58	10.77
		5.41	1.08	41.08	29.09	116.74	114.62	25.85
		2.70	1.41	73.71	32.79	289.10	218.77	49.33
		0.00	1.75	90.74	32.37	397.89	239.91	54.10
2.00	3.00	8.52	0.76	16.57	24.90	28.92	40.04	10.41
		5.68	1.11	40.64	28.54	117.69	111.58	25.16
		2.84	1.47	74.64	32.47	299.25	217.78	49.11
		0.00	1.82	92.80	32.31	417.12	241.44	54.44
3.00	4.00	8.93	0.77	15.53	24.24	27.32	36.85	9.87
		5.95	1.14	39.97	27.93	117.22	107.38	24.21
		2.98	1.52	75.31	32.11	307.24	215.25	48.54
		0.00	1.89	94.62	32.22	434.06	241.49	54.45
4.00	5.00	9.34	0.79	14.35	23.43	25.12	33.01	9.13
		6.23	1.18	39.08	27.24	115.20	102.04	23.01
		3.11	1.57	75.74	31.72	312.82	211.17	47.62
		0.00	1.96	96.20	32.12	448.42	240.07	54.13

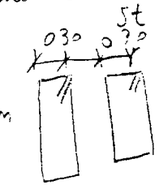
5.00	5.50	9.65	0.80	13.36	22.68	23.04	29.70	8.43
		6.43	1.20	38.27	26.67	112.59	97.27	21.93
		3.22	1.61	75.90	31.40	315.28	207.10	46.70
		0.00	2.01	97.23	32.04	457.31	238.04	53.68

$Vd_1 = 97.23\,t$

$Vd_2 = 85.30\,t$

$V_{su\,max} = 85.30\,t - 32.04\,t = 53.26\,t$

$A_{st} = \frac{V_{su}}{0.9 \times 4.0\,t/cm^2} = 14.80\,cm^2 = \frac{d}{5t} \, n \, \frac{\pi \phi^2}{4}$



2 c φ 12 / 0.20 pm

$A_{st\,min} = 0.02 \times \frac{f_{cd}}{f_{ct}} \times b_o \times d = 16\,cm^2 \quad (d = 1.60\,m)$

$A_{st\,min} = 0.02 \times \frac{30\,N/mm^2}{1.50 \times 400\,N/mm^2} \times 1000\,mm = 10\,cm^2$

2 c φ 12 / 0.30 pm ($12.53\,cm^2$)

DATOS DE ENTRADA

Muro ..... : Aleta 1 Modulo B

GEOMETRIA:

Longitud muro ..... :	7.00	m
Altura mínima total.....:	9.00	m
Altura máxima total.....:	12.00	m
Canto de Zapata..... :	2.00	m
Ancho coronacion ..... :	0.40	m
Talud trasdós..... :	12.50	%
Talud exterior..... :	0.00	%
Angulo muro-calzada .....:	45.00	°
Distancia muro-calzada.....:	6.91	m
Talud de terraplén (H/V)...:	3 / 2	
Angulo de talud trasdós....:	25.24	°

TERRENO:

Densidad de tierras.....:	2.00	t/m3
Angulo de rozam. interno...:	33.00	°
Roz. Muro-tierras .....:	11.00	°
Coeficiente de roz.....:	0.55	
Tensión admisible .....:	3.00	Kg/cm²
Sobrecarga terraplén..... :	0.00	t/m²
Kh inclinado .....:	0.495	
Kh horizontal.....:	0.324	
Kv inclinado .....:	0.096	
Kv horizontal.....:	0.063	

MATERIALES

Fck (Kg/cm²).....:	300	
Gc .....:	1.50	
Fyk (Kg/cm²).....:	5100	
Gs .....:	1.15	
Recubrimiento en Alzados...:	4	cms
Recubrimiento en Cimientos.:	4	cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	7.21	40.98	7.96	124.30	48.59	40.98	112.56	206.25	431.80
1.00	2.00	1.50	7.64	46.72	9.08	151.34	60.39	46.72	128.18	244.78	537.91
2.00	3.00	2.50	8.07	51.67	10.04	178.08	71.30	51.67	140.91	281.41	636.16
3.00	4.00	3.50	8.50	55.96	10.88	206.30	81.58	55.96	153.75	318.22	736.34
4.00	5.00	4.50	8.93	59.15	11.50	230.93	89.67	59.15	162.99	349.22	818.39
5.00	6.00	5.50	9.36	61.57	11.97	252.28	95.74	61.57	169.42	375.42	880.50
6.00	7.00	6.50	9.79	63.46	12.34	271.03	100.54	63.46	174.29	397.96	931.61

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	7.21	1.70	6.10	1.51	2.09	3.74	0.00	2.81	6.01
1.00	2.00	1.50	7.64	1.85	6.65	1.51	2.20	3.73	0.12	2.80	6.65
2.00	3.00	2.50	8.07	2.05	7.10	1.50	2.26	3.72	0.25	2.80	7.10
3.00	4.00	3.50	8.50	2.20	7.50	1.51	2.31	3.74	0.36	2.83	7.50
4.00	5.00	4.50	8.93	2.40	7.80	1.52	2.34	3.73	0.45	2.83	7.80
5.00	6.00	5.50	9.36	2.60	8.00	1.51	2.35	3.74	0.50	2.84	8.00
6.00	7.00	6.50	9.79	2.80	8.15	1.51	2.34	3.73	0.54	2.85	8.15

Coeficiente global de seg. al deslizamiento ...	1.51
Coeficiente global de seg. al vuelco	2.29
Tensión máxima en solera (Kg/cm²).....	3.74

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 1.96 m
ε = 1.319 m

		ZARPA DELANTERA					ZARPA TRASERA				
Zona		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	69.38	15.29	66.04	32.96	10.37	69.77	19.69	155.91	78.72	22.17
1.00	2.00	77.57	16.24	80.39	40.20	12.43	76.39	20.27	173.79	87.95	24.19
2.00	3.00	85.95	17.15	96.33	48.27	14.65	83.10	20.81	192.40	97.60	26.16
3.00	4.00	94.06	18.00	113.34	56.92	16.92	89.29	21.28	210.35	106.95	27.95
4.00	5.00	101.23	18.76	130.97	65.92	19.17	94.73	21.66	226.96	115.64	29.50
5.00	6.00	108.05	19.44	148.70	75.02	21.33	99.20	21.97	241.60	123.33	30.78
6.00	7.00	113.90	20.03	165.98	83.92	23.32	102.50	22.20	253.70	129.70	31.77

$A_{st} = 22.30\ cm^2$

$2C\phi 12/30$ pm

A L Z A D O S

		Sección						
Zona		H	d	Vd	Vcu	Md	Us	As
0.00	1.00	5.41	0.63	12.14	23.49	14.35	24.06	6.76
		3.61	0.85	28.19	26.76	54.24	67.11	15.13
		1.80	1.08	50.34	30.37	132.87	131.35	29.62
		0.00	1.30	60.24	29.29	174.97	141.28	31.86
1.00	2.00	5.73	0.64	13.26	24.01	16.44	27.01	7.43
		3.82	0.88	31.04	27.46	62.83	75.53	17.03
		1.91	1.12	55.68	31.15	154.81	148.04	33.38
		0.00	1.36	67.01	30.11	205.61	159.96	36.07
2.00	3.00	6.05	0.65	14.43	24.49	18.73	30.15	8.12
		4.04	0.90	34.03	28.13	72.29	84.50	19.05
		2.02	1.16	61.25	31.91	179.02	165.82	37.39
		0.00	1.41	73.76	30.91	239.46	179.78	40.54
3.00	4.00	6.38	0.67	15.65	24.93	21.21	33.49	8.82
		4.25	0.93	37.16	28.79	82.64	94.04	21.21
		2.13	1.20	66.35	32.62	205.16	184.29	41.56
		0.00	1.46	79.73	31.64	275.43	199.81	45.05
4.00	5.00	6.70	0.68	16.91	25.34	23.90	37.04	9.53
		4.46	0.96	40.29	29.42	93.90	104.11	23.48
		2.23	1.24	70.65	33.23	231.92	202.16	45.59
		0.00	1.52	84.88	32.27	311.94	218.82	49.34
5.00	6.00	7.02	0.69	18.22	25.71	26.81	40.78	10.23
		4.68	0.98	42.77	29.98	105.49	114.03	25.71
		2.34	1.28	74.15	33.70	257.87	218.19	49.20
		0.00	1.57	89.23	32.77	347.38	235.76	53.16
6.00	7.00	7.34	0.71	19.50	26.04	29.93	44.71	10.92
		4.89	1.01	44.49	30.38	116.29	122.55	27.63
		2.45	1.32	76.86	34.00	281.59	231.23	52.14
		0.00	1.62	92.76	33.13	380.18	249.70	56.30

$$A_{st} = \frac{80.43\,t - 33.13\,t}{0.9 \times 4.0\,t/cm^2} = 13.13\ cm^2$$

$A_{st\,min} = 10\ cm^2$

$2C\phi 12/30$ pm

DATOS DE ENTRADA

Muro ..... : Aleta 1 Modulo C

GEOMETRIA:

Longitud muro ..... :	6.50	m
Altura mínima total.....:	5.50	m
Altura máxima total.....:	9.00	m
Canto de Zapata..... :	1.50	m
Ancho coronacion ..... :	0.40	m
Talud trasdós..... :	12.50	%
Talud exterior..... :	0.00	%
Angulo muro-calzada .....:	45.00	°
Distancia muro-calzada.....:	16.77	m
Talud de terraplén (H/V)...:	3 / 2	
Angulo de talud trasdós....:	25.24	°

TERRENO:

Densidad de tierras.....:	2.00	t/m3
Angulo de rozam. interno...:	33.00	°
Roz. Muro-tierras .....:	11.00	°
Coeficiente de roz.....:	0.55	
Tensión admisible .....:	3.00	Kg/cm²
Sobrecarga terraplén..... :	0.00	t/m²
Kh inclinado .....:	0.495	
Kh horizontal.....:	0.324	
Kv inclinado .....:	0.096	
Kv horizontal.....:	0.063	

MATERIALES

Fck (Kg/cm²).....:	300	
Gc .....:	1.50	
Fyk (Kg/cm²).....:	5100	
Gs .....:	1.15	
Recubrimiento en Alzados...:	4	cms
Recubrimiento en Cimientos.:	4	cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	4.27	15.55	3.02	29.05	10.53	15.55	48.90	52.37	95.29
1.00	2.00	1.50	4.81	18.82	3.66	38.69	13.84	18.82	55.02	66.92	120.84
2.00	3.00	2.50	5.35	22.56	4.39	50.79	18.13	22.56	62.23	84.64	153.93
3.00	4.00	3.50	5.88	28.03	5.45	70.34	25.79	28.03	76.89	112.39	218.71
4.00	5.00	4.50	6.42	34.29	6.67	95.16	35.88	34.29	94.05	146.59	305.14
5.00	6.00	5.50	6.96	40.96	7.96	124.25	48.04	40.96	111.88	185.70	409.65
6.00	6.50	6.25	7.37	46.70	9.08	151.23	59.76	46.70	127.95	221.28	512.60

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	4.27	0.25	3.48	1.73	1.82	3.71	0.00	2.79	2.63
1.00	2.00	1.50	4.81	0.50	3.78	1.61	1.81	3.74	0.00	2.81	2.94
2.00	3.00	2.50	5.35	0.75	4.13	1.52	1.82	3.73	0.00	2.79	3.34
3.00	4.00	3.50	5.88	0.85	4.73	1.51	1.95	3.71	0.00	2.78	4.15
4.00	5.00	4.50	6.42	0.95	5.38	1.51	2.08	3.72	0.00	2.79	5.06
5.00	6.00	5.50	6.96	1.10	6.03	1.50	2.21	3.73	0.00	2.79	6.01
6.00	6.50	6.25	7.37	1.20	6.58	1.51	2.32	3.74	0.15	2.81	6.58

Coeficiente global de seg. al deslizamiento ...	1.53
Coeficiente global de seg. al vuelco	2.09
Tensión máxima en solera (Kg/cm²).....	3.74

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 1.46 m
ε = 1.370 m

		Z A R P A D E L A N T E R A					Z A R P A T R A S E R A				
Zona		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	13.58	6.39	2.26	1.50	0.51	28.23	18.33	59.29	39.94	11.97
1.00	2.00	19.46	8.19	4.78	3.18	1.07	33.86	19.81	77.69	52.56	15.11
2.00	3.00	26.14	9.84	8.36	5.57	1.85	39.90	21.17	99.41	67.58	18.45
3.00	4.00	33.26	11.40	13.10	8.73	2.88	46.56	22.39	124.71	85.28	21.82
4.00	5.00	40.40	12.89	19.13	12.77	4.16	53.74	23.43	153.85	105.90	24.99
5.00	6.00	48.49	14.32	26.57	17.76	5.70	61.36	24.69	187.09	129.75	29.26
6.00	6.50	54.77	15.35	33.14	22.19	(7.03)	67.42	25.91	214.88	149.96	(33.81)

A L Z A D O S

Sección ....

Zona		H	d	Vd	Vcu	Md	Us	As
0.00	1.00	3.20	0.53	5.59	18.65	4.34	8.51	2.67
		2.13	0.67	11.97	22.63	14.66	22.92	6.58
		1.07	0.80	20.49	25.00	33.93	44.26	11.36
		0.00	0.93	22.97	23.97	40.49	44.81	12.01
1.00	2.00	3.61	0.55	6.79	19.90	5.80	11.05	3.40
		2.40	0.70	14.74	23.81	20.06	29.90	8.22
		1.20	0.85	25.41	25.96	46.91	57.74	13.77
		0.00	1.00	28.96	25.07	57.40	59.41	14.95
2.00	3.00	4.01	0.57	8.11	21.05	7.57	13.99	4.21
		2.67	0.73	17.81	24.82	26.64	37.97	9.94
		1.34	0.90	30.87	26.91	62.82	73.29	16.53
		0.00	1.07	35.64	25.95	78.45	76.35	17.87
3.00	4.00	4.41	0.58	9.55	22.10	9.66	17.35	5.10
		2.94	0.77	21.17	25.66	34.53	47.17	11.68
		1.47	0.95	36.85	28.25	81.98	90.98	20.52
		0.00	1.14	43.02	27.00	104.11	95.70	21.58
4.00	5.00	4.82	0.60	11.11	23.07	12.11	21.16	6.04
		3.21	0.80	24.82	26.34	43.83	57.54	13.37
		1.61	1.00	43.37	29.52	104.69	110.87	25.00
		0.00	1.20	51.09	28.29	134.82	117.51	26.50
5.00	6.00	5.22	0.62	12.78	23.95	14.94	25.43	7.04
		3.48	0.84	28.75	27.22	54.67	69.11	15.58
		1.74	1.05	50.41	30.73	131.25	133.03	30.00
		0.00	1.27	59.85	29.53	171.05	141.85	31.99
6.00	6.50	5.52	0.63	14.11	24.55	17.33	28.94	7.80
		3.68	0.86	31.89	28.03	63.88	78.60	17.72
		1.84	1.09	56.05	31.61	153.87	151.17	34.09
		0.00	1.32	66.87	30.43	202.11	161.81	(36.49)

DATOS DE ENTRADA

Modulo D

Muro ..... : Aleta 1

GEOMETRIA:

Longitud muro ..... :	6.50	m
Altura mínima total.....:	3.00	m
Altura máxima total.....:	5.50	m
Canto de Zapata..... :	1.00	m
Ancho coronacion ..... :	0.40	m
Talud trasdós..... :	12.50	%
Talud exterior..... :	0.00	%
Angulo muro-calzada .....:	45.00	°
Distancia muro-calzada.....:	30.19	m
Talud de terraplén (H/V)...:	3 / 2	
Angulo de talud trasdós....:	25.24	°

TERRENO:

Densidad de tierras.....:	2.00	t/m3
Angulo de rozam. interno...:	33.00	°
Roz. Muro-tierras .....:	11.00	°
Coeficiente de roz.....:	0.55	
Tensión admisible .....:	3.00	Kg/cm²
Sobrecarga terraplén..... :	0.00	t/m²
Kh inclinado .....:	0.495	
Kh horizontal.....:	0.324	
Kv inclinado .....:	0.096	
Kv horizontal.....:	0.063	

MATERIALES

Fck (Kg/cm²).....:	300	
Gc .....:	1.50	
Fyk (Kg/cm²).....:	5100	
Gs .....:	1.15	
Recubrimiento en Alzados...:	4	cms
Recubrimiento en Cimientos.:	4	cms

SEGURIDAD

Coeficiente desliz.....:	1.50
Coeficiente vuelco.....:	1.80
Coeficiente de acciones....:	1.50

CONDICIONES DE EQUILIBRIO

H = Altura (m) del alzado de la sección
Eh = Empuje Horizontal (t)
Ev = Empuje Vertical (t)
Meh = Momento (m.t) de los empujes Horizontales
Mev = Momento (m.t) de los empujes Verticales
ΣFh = Sumatorio de Fuerzas horizontales (t)
ΣFv = Sumatorio de Fuerzas verticales (t)
ΣMeh = Sumatorio de Momentos (m.t) de los empujes Horizontales
ΣMev = Sumatorio de Momentos (m.t) de los empujes Verticales

Zona		Secc	H	Eh	Ev	Meh	Mev	ΣFh	ΣFv	ΣMeh	ΣMev
0.00	1.00	0.50	2.19	3.70	0.72	3.37	1.26	3.70	13.10	7.07	12.84
1.00	2.00	1.50	2.58	5.26	1.02	5.72	2.10	5.26	17.40	10.98	19.98
2.00	3.00	2.50	2.96	7.18	1.40	9.13	3.28	7.18	22.70	16.31	29.54
3.00	4.00	3.50	3.35	9.30	1.81	13.45	4.79	9.30	28.26	22.75	41.52
4.00	5.00	4.50	3.73	11.47	2.23	18.42	6.47	11.47	33.30	29.89	54.15
5.00	6.00	5.50	4.12	14.24	2.77	25.47	8.86	14.24	40.53	39.71	72.05
6.00	6.50	6.25	4.40	16.34	3.18	31.32	10.80	16.34	45.62	47.66	86.20

H = Altura (m) de la sección en estudio
Zarpa = Longitud (m) de la parte delantera de la zapata
Zap = Longitud (m) total de la zapata
Csd = Coeficiente de seguridad al Deslizamiento
Csv = Coeficiente de seguridad al Vuelco
σmáx = Tensión (Kg/cm²) punta en cota de cimentación
σmín = Tensión (Kg/cm²) mínima en cota de cimentación
σcob = Tensión (Kg/cm²) de comparación
Base = Base comprimida (m) para el caso de diagrama triangular

Zona		Secc	H	Zarpa	Zap	Csd	Csv	σmáx	σmín	σcob	Base
0.00	1.00	0.50	2.19	0.20	1.75	1.95	1.82	1.98	0.00	1.49	1.32
1.00	2.00	1.50	2.58	0.20	2.05	1.82	1.82	2.24	0.00	1.68	1.55
2.00	3.00	2.50	2.96	0.15	2.35	1.74	1.81	2.60	0.00	1.95	1.75
3.00	4.00	3.50	3.35	0.15	2.65	1.67	1.82	2.84	0.00	2.13	1.99
4.00	5.00	4.50	3.73	0.20	2.90	1.60	1.81	3.05	0.00	2.29	2.19
5.00	6.00	5.50	4.12	0.15	3.20	1.57	1.81	3.39	0.00	2.54	2.39
6.00	6.50	6.25	4.40	0.15	3.40	1.54	1.81	3.60	0.00	2.70	2.53

Coeficiente global de seg. al deslizamiento ...	1.64
Coeficiente global de seg. al vuelco	1.81
Tensión máxima en solera (Kg/cm²).....	3.60

A R M A D U R A S EHE

Para cada sección:

H = Altura (m) sobre cara superior de zapata
d = Canto útil (m)
Vd = Cortante de cálculo (t)
Vcu= Contribución del hormigón a cortante (t)
Md = Momento de cálculo de la sección (m.t)
Us = Capacidad necesaria (t)
As = Armadura en cm²

Z A P A T A :

d = 0.96 m
ε = 1.456 m

		Z A R P A D E L A N T E R A					Z A R P A T R A S E R A				
Zona		Vd	Vcu	Md	Us	As	Vd	Vcu	Md	Us	As
0.00	1.00	4.38	5.25	0.46	0.46	0.16	8.53	12.39	6.15	6.23	2.05
1.00	2.00	5.09	5.46	0.51	0.52	0.18	11.36	14.59	10.20	10.36	3.35
2.00	3.00	6.04	5.61	0.56	0.57	0.19	14.47	16.69	15.65	15.94	5.02
3.00	4.00	6.60	5.72	0.59	0.60	0.20	17.85	18.70	22.68	23.19	7.06
4.00	5.00	7.07	5.79	0.61	0.62	0.21	21.39	20.58	31.47	32.35	9.40
5.00	6.00	7.45	5.83	0.63	0.63	0.21	25.23	22.30	42.23	43.65	11.97
6.00	6.50	8.05	5.83	0.63	0.63	0.21	28.24	23.46	51.69	53.69	13.93

A L Z A D O S

		Sección						
Zona		H	d	Vd	Vcu	Md	Us	As
0.00	1.00	1.64	0.47	1.70	11.95	0.78	1.74	0.58
		1.10	0.54	3.43	15.26	2.33	4.52	1.47
		0.55	0.61	5.64	17.67	5.00	8.56	2.71
		0.00	0.67	5.64	16.32	5.00	7.63	2.45
1.00	2.00	1.93	0.48	2.20	13.25	1.13	2.47	0.82
		1.29	0.56	4.55	16.83	3.53	6.56	2.10
		0.64	0.64	7.67	19.47	7.92	12.80	3.95
		0.00	0.72	7.86	18.09	8.21	11.69	3.67
2.00	3.00	2.22	0.49	2.77	14.47	1.59	3.38	1.11
		1.48	0.59	5.82	18.25	5.10	9.06	2.85
		0.74	0.68	9.90	20.94	11.57	17.71	5.30
		0.00	0.77	10.45	19.64	12.57	16.77	5.13
3.00	4.00	2.51	0.50	3.41	15.63	2.14	4.45	1.45
		1.67	0.61	7.25	19.55	7.06	12.06	3.72
		0.84	0.71	12.41	22.22	16.21	23.57	6.82
		0.00	0.82	13.40	21.01	18.25	22.93	6.81
4.00	5.00	2.80	0.52	4.11	16.73	2.82	5.71	1.84
		1.87	0.63	8.84	20.73	9.47	15.56	4.69
		0.93	0.75	15.20	23.35	21.94	30.42	8.46
		0.00	0.87	16.73	22.21	25.42	30.21	8.67
5.00	6.00	3.09	0.53	4.87	17.76	3.62	7.17	2.28
		2.06	0.66	10.58	21.80	12.38	19.60	5.76
		1.03	0.79	18.28	24.32	28.89	38.27	10.20
		0.00	0.91	20.42	23.26	34.26	38.63	10.67
6.00	6.50	3.30	0.54	5.49	18.51	4.32	8.40	2.64
		2.20	0.68	11.99	22.54	14.91	22.99	6.61
		1.10	0.81	20.77	24.96	34.96	44.85	11.53
		0.00	0.95	23.43	23.97	42.10	45.72	12.25

6. Prueba de carga

OBJETO DE LA PRUEBA

El objeto de esta prueba consiste en comprobar que la estructura en estudio presenta un comportamiento satisfactorio frente a las sobrecargas de cálculo. Dichas sobrecargas son las definidas en la "Instrucción sobre las acciones a considerar en el Proyecto de Puentes de Carreteras: I.A.P.", dada por Orden Ministerial del 12 de Febrero de 1998.

El tren tipo, definido en dicha Instrucción, ha sido sustituido por camiones, cuyas características se indican mas adelante, que, de acuerdo con las "Recomendaciones para el Proyecto y Ejecución de Pruebas de Carga en Puentes de Carretera" del M.O.P.U., originen esfuerzos "**no mas desfavorables que los del tren de cargas de la Instrucción, estimándose como suficientes si tales esfuerzos oscilan en torno al 60 % de los valores teóricos producidos por el tren de carga de la IAP" (Artículo 6.1 de las Recomendaciones).**

DESCRIPCIÓN DEL ENSAYO Y PLAN DE CARGAS

La estructura a ensayar consiste en un tablero continuo tipo losa aligerada, con tres vanos de 25.00m – 36.00 m – 25.00 m , con un ancho total de 12.06 m, y un ancho de plataforma de 9.00 m.

El tablero está formado por una losa aligerada de hormigón postesado de canto constante 1.50 m y un ancho total de 12.06 m, medidos perpendiculares al eje de replanteo de la estructura. El apoyo de la losa sobre los estribos, se realiza mediante dos aparatos de neopreno, y sobre las pilas mediante un aparato de apoyo de diámetro igual a 1.00 m.

El estudio de los momentos máximos flectores positivos se va a realizar en el centro de los vanos impares para el estado de carga 1, y en el centro del vano 2 para el estado de cargas 3.

El estudio de los momentos flectores negativos se realizará para el apoyo central sobre la pila 1, en el estado de carga 2.

Los camiones adoptados corresponden a un vehículo con una carga total de 26.0 toneladas, correspondiendo 6.0 t. al eje delantero y 10 t. a cada uno de los dos ejes traseros, siendo las dimensiones del vehículo:

Ancho total . . . . . 2,50 m.

Ancho de la vía anterior. . . . . .1,99 m.

Ancho de las vías posteriores . . . . 1,80 m.

Longitud total. . . . . 9.68 m.

Voladizo posterior. . . . . 2.49 m.

Distancia eje 1º al 2º. . . . . 3,85 m.

Distancia eje 2º al 3º. . . . . 1,35 m.

La disposición de los vehículos durante la realización de la prueba de carga será la siguiente:

Para obtener el máximo momento flector positivo en los vanos 1 y 3 se colocarán 2 filas de cuatro camiones en paralelo (ocho camiones en total), cuatro camiones situados en el centro del vano 1 y cuatro en el centro del vano 3.

Para obtener el máximo momento flector negativo en el apoyo de la pila 1 se colocarán 2 filas de cuatros camiones en paralelo (ocho camiones en total), dos camiones situados en el centro del vano 1 y cuatro en el centro del vano 2.

Para obtener el máximo momento flector positivo en el vano 2 se colocarán 2 filas de cuatro camiones en paralelo (ocho camiones en total), situados en el centro del vano 2.

El Plan de Carga constará de tres estados de carga, compuestos de los siguientes escalones de carga:

Estado de carga nº 1:

Escalón - 0 : Puente descargado

Escalón - 1 : Carga de la primera fila de camiones en vano 1 y vano 3

Escalón - 2 : Carga de la segunda fila de camiones (máxima flexión positiva en centro de vanos)

Estado de carga nº 2:

Escalón - 3 : Paso del primer escalón a la posición sobre el vano 1 y el vano 2.

Escalón - 4 : Paso del segundo escalón a la posición sobre el vano 1 y el vano 2.

(máxima flexión negativa en el apoyo de la pila 1).

Estado de carga nº 3:

Escalón - 5 : Carga de la primera fila de camiones en vano 2.

Escalón - 6: Carga de la segunda fila de camiones (máxima flexión positiva en centro de vano)

Escalón - 7 : Descarga del primer escalón

Escalón - 8 : Descarga del segundo escalón

Escalón - 9 : Puente descargado

Cumpliendo este plan de carga, no se pasará al escalón siguiente hasta que los aparatos de medida no acusen la estabilización de las lecturas, lo que se supondrá ha ocurrido cuando la diferencia entre dos lecturas efectuadas en un intervalo no inferior a 10 minutos, sea inferior al 5% de la flecha correspondiente a la última lectura.

MEDIDAS A REALIZAR

Se determinarán, mediante el uso de flexímetros si el tráfico inferior lo permite, o bien nivelación de alta precisión en caso contrario, los descensos producidos en los apoyos de la losa sobre estribos, pilas y en la sección central de cada vano. El número de unidades de medida será catorce (14), cuatro (4) para los apoyos de los estribos, cuatro (4) para los apoyos en las pilas y seis (6) en el vano central.

La media de los valores medidos en los apoyos se restará al valor obtenido en las secciones centrales, para determinar la flecha de la losa. Se registrarán en cada escalón todos los valores obtenidos.

Durante la ejecución de las pruebas se medirá la temperatura ambiente en la zona del puente. Deberán elegirse las horas adecuadas para que las condiciones climatológicas perturben lo menos posible el comportamiento de la estructura.

CONCLUSIONES

Estado de carga nº 1:

Máxima flexión positiva en el centro de los vanos 1 y 3:

Los máximos momentos flectores positivos de sobrecargas, en mT, previstos en el cálculo del tablero como emparrillado, para las secciones más cargadas del centro de vano 1 son:

Barras	S.Unif.+ Carro	Prueba de carga	Porcentaje
5	101.05	52.25	51.71
37	142.43	77.00	54.06
69	134.03	74.30	55.43
101	142.4	71.86	50.45
134	101.05	44.04	43.58

Los máximos momentos flectores positivos de sobrecargas, en mT, previstos en el cálculo del tablero como emparrillado, para las secciones más cargadas del centro de vano 3 son:

Barras	S.Unif.+ Carro	Prueba de carga	Porcentaje
28	101.05	59.74	59.10
60	142.43	87.43	61.38
92	134.03	84.60	63.12
124	142.43	82.25	57.75
156	101.05	51.60	51.06

Las flechas que se esperan para este estado de carga son las siguientes:

Punto 35 (borde derecho) de la sección central vano 1 2.41 mm.

Punto 31 (borde izquierdo) de la sección central vano 1 2.97 mm.

Punto 60 (borde derecho) de la sección apoyo pila 1 -0.33 m.

Punto 56 (borde izquierdo) de la sección apoyo pila 1 0.35 mm.

Punto 85 (borde derecho) de la sección central vano 2: -3.18mm.

Punto 81 (borde izquierdo) de la sección central vano 2: -2.37 mm.

Punto 110 (borde derecho) de la sección apoyo pila 2: -0.44 m.

Punto 106 (borde izquierdo) de la sección apoyo pila 2: 0.50 mm.

Punto 135 (borde derecho) de la sección central vano 3: 2.95 mm.

Punto 131 (borde izquierdo) de la sección central vano 3: 3.72 mm.

Estado de carga nº 2

Máxima flexión negativa en la pila 1:

Los máximos momentos flectores negativos de sobrecargas, en mT, previstos en el cálculo del tablero como emparrillado, para las secciones más cargadas del apoyo de la pila 1 son:

Barras	S.Unif.+ Carro	Prueba de carga	Porcentaje
11	-92.51	-58.35	63.07
43	-158.85	-100.86	63.50
75	-174.67	-109.61	62.75
107	-158.85	-99.90	62.89
139	-92.51	-57.11	61.73

Las flechas que se esperan para este estado de carga son las siguientes:

Punto 35 (borde derecho) de la sección central vano 1 0.03 mm.

Punto 31 (borde izquierdo) de la sección central vano 1 0.97 mm.

Punto 60 (borde derecho) de la sección apoyo pila 1 -0.67mm

Punto 56 (borde izquierdo) de la sección apoyo pila 1 0.77 mm.

Punto 85 (borde derecho) de la sección central vano 2: 4.51 mm.

Punto 81 (borde izquierdo) de la sección central vano 2: 6.32 mm.

Punto 110 (borde derecho) de la sección apoyo pila 2: -0.54mm.

Punto 106 (borde izquierdo) de la sección apoyo pila 2: 0.60 mm.

Punto 135 (borde derecho) de la sección central vano 3: -1.77mm.

Punto 131 (borde izquierdo) de la sección central vano 3: -1.21mm.

Estado de carga nº 3

Máxima flexión positiva en el centro del vano 2

Los máximos momentos flectores positivos de sobrecargas, en mT, previstos en el cálculo del tablero como emparrillado, para las secciones más cargadas del centro de vano 2 son:

Barras	S.Unif.+ Carro	Prueba de carga	Porcentaje
16	116.98	77.08	65.90
48	176.35	120.32	68.16
80	167.55	117.55	70.10
112	176.35	114.44	64.90
144	116.98	68.13	58.24

Las flechas que se esperan para este estado de carga son las siguientes:

Punto 35 (borde derecho) de la sección central vano 1 -2.72mm.

Punto 31 (borde izquierdo) de la sección central vano 1 -1.97mm.

Punto 60 (borde derecho) de la sección apoyo pila 1 -0.71mm.

Punto 56 (borde izquierdo) de la sección apoyo pila 1 0.80 mm.

Punto 85 (borde derecho) de la sección central vano 2: 7.27 mm.

Punto 81 (borde izquierdo) de la sección central vano 2: 9.58 mm.

Punto 110 (borde derecho) de la sección apoyo pila 2: -0.75mm.

Punto 106 (borde izquierdo) de la sección apoyo pila 2: 0.84 mm.

Punto 135 (borde derecho) de la sección central vano 3: -2.83m.

Punto 131 (borde izquierdo) de la sección central vano 3: -2.05mm.

En todas ellas, se considera positivo el movimiento descendente y negativo el ascendente. Estas flechas corresponden a la deformación de la estructura sin incluir la correspondiente al descenso de apoyos, por lo que, en el ensayo, se obtendrán deduciendo del valor medido en la sección central el correspondiente a la media de registros efectuados en las proximidades de los apoyos, y que representa el descenso de los mismos.

El módulo de elasticidad supuesto para el cálculo de las flechas ha sido: $\mathbf{E = 3{,}55 \cdot 10^6\ T/m^2}$. por lo que las flechas indicadas deberán modificarse con la relación entre este módulo supuesto y el correspondiente al hormigón realmente colocado en obra, el cual, podrá evaluarse a partir de las indicaciones dadas en el art 39.6 dela EH

Esquemas

ESTADO CARGA 1

ALZADO
E. 1:200

P.K. 0+393.910 E-1 | P.K. 0+418.910 P-1 | P.K. 0+454.910 P-2 | P.K. 0+479.910 E-2

25.00 | 36.00 | 25.00

2ot 6.5t 2ot 6.5ot

P.K. 0+436,91 +427.426

0.50 | 4.525 | 5.66 | 4.525 | 9.79 | ø1.50 | ø1.50 | 3.50 | 4.525 | 5.66 | 4.525 | 4.79

P.K. 317+505,729 +418,451

P.C.= 410

O.D.

PLANTA
E. 1:200

P.K. = 0+436,91 (CARRETERA)
P.K. = 317+505,729 (F.C.)
X = 341.939,238
Y = 4.585.601,303
Az = 191,2591g

MARTORELL

317+520

317+500

317+480

LLEIDA

JUNTAS

ALETA 1

ALETA 2

ALETA 3

ALETA 4

E-1 | P-1 | P-2 | E-2

25.00 | 36.00 | 25.00

JUNTA DE DILATACION

SUMIDEROS

0+400

0+500

SECCION TRANSVERSAL
E. 1:100

12.06

1.20 | 0.50 | 1.00 | 7.00 | 1.00 | 0.50 | 1.20

ACERA | ARCEN | CALZADA | ARCEN | ACERA

AGLOMERADO ASFALTICO e=0.04

2% | 2%

VALLA METALICA ANTIVANDALICA

BARANDILLA

SUMIDERO | SUMIDERO

1.50

ALIGERAMIENTOS ø1.10

FUSTE DE PILA

PROYECTO	GIF-IIIB
FICHERO	E-7-01
EDICION	B
REVISION	08-05-2001

GIF Gestor de Infraestructuras Ferroviarias

TITULO: LINEA DE ALTA VELOCIDAD MADRID-BARCELONA-FRONTERA FRANCESA
TRAMO:LLEIDA-MARTORELL. SUBTRAMO:III-B PLATAFORMA
PROYECTO CONSTRUCTIVO

CONSTRUCTORA: Sacyr

ESCALAS
1:100
1:200
ORIGINALES EN A1

0 2 4m.
0 4 8m.

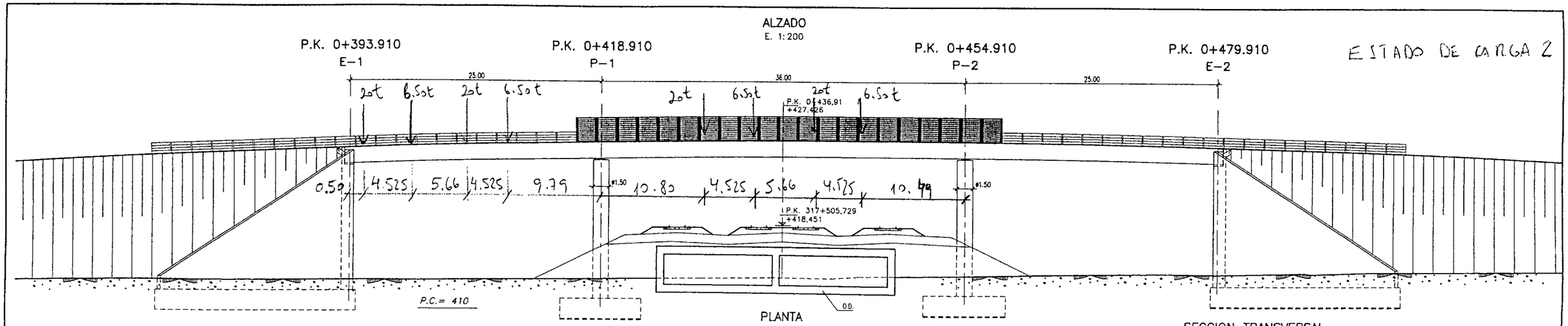
FECHA
MAYO-2001

TITULO DEL PLANO SUBTRAMO III-B
PASOS SUPERIORES
REPOSICION 17. E-7 P.K.317+500
PLANO GENERAL

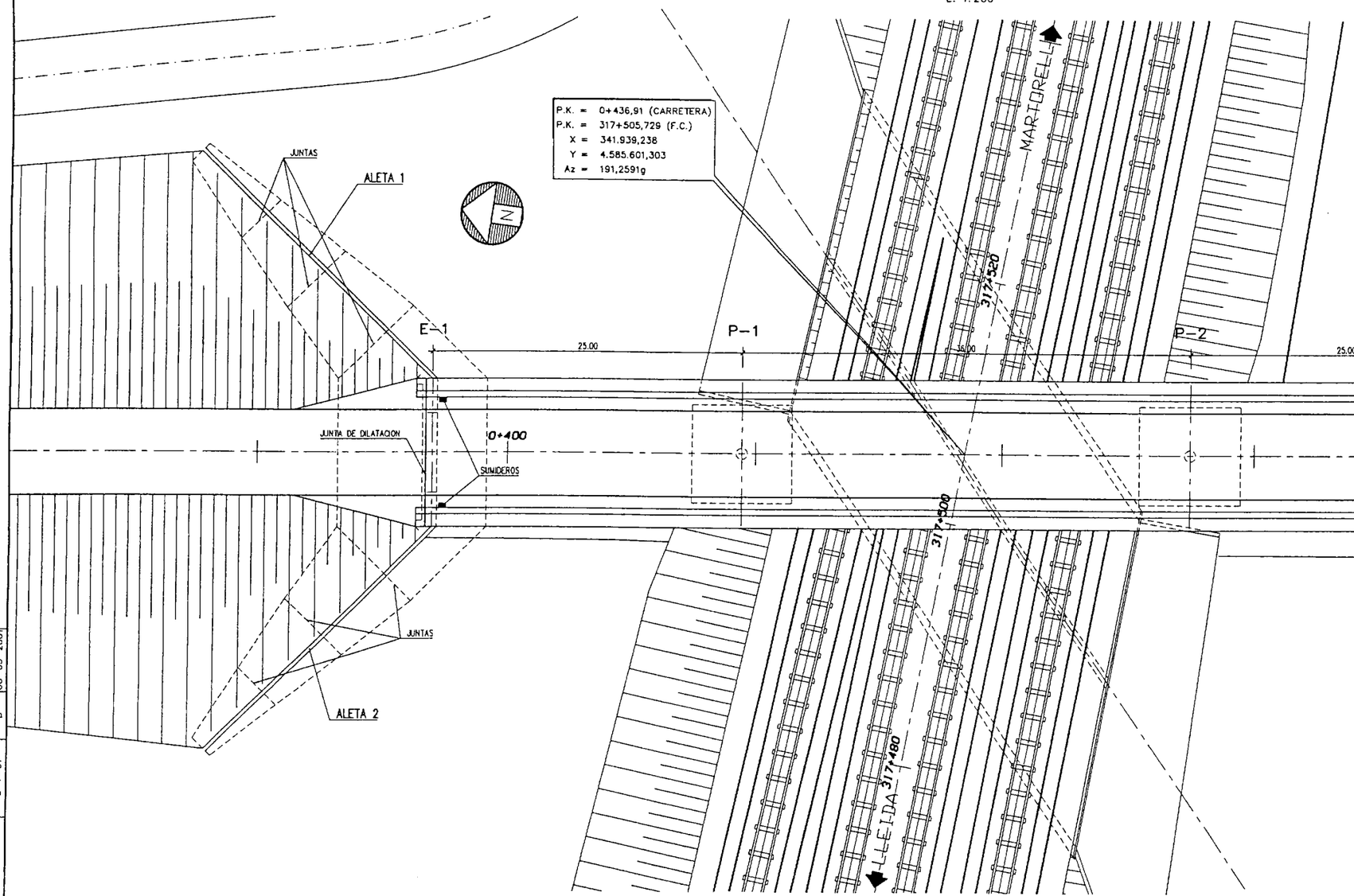
N.º DE PLANO
—
Hoja 1 de 13

ESTADO DE CARGA 2

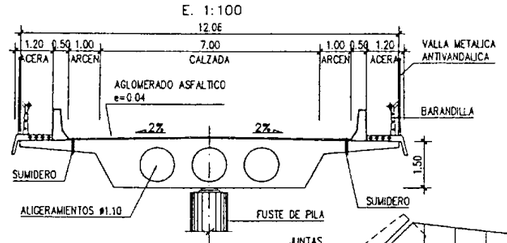
ALZADO
E. 1:200



PLANTA
E. 1:200



SECCION TRANSVERSAL
E. 1:100



PROYECTO	FICHERO	EDICION	REVISION
GIF-IIIB	E-7-01	B	08-05-2001

GIF Gestor de Infraestructuras Ferroviarias

TÍTULO: LÍNEA DE ALTA VELOCIDAD
MADRID-BARCELONA-FRONTERA FRANCESA
TRAMO:LLEIDA-MARTORELL. SUBTRAMO:III-B PLATAFORMA
PROYECTO CONSTRUCTIVO

CONSTRUCTORA: Sacyr

ESCALAS
1:100
1:200
ORIGINALES EN A1
0 2 4m.
0 4 8m.

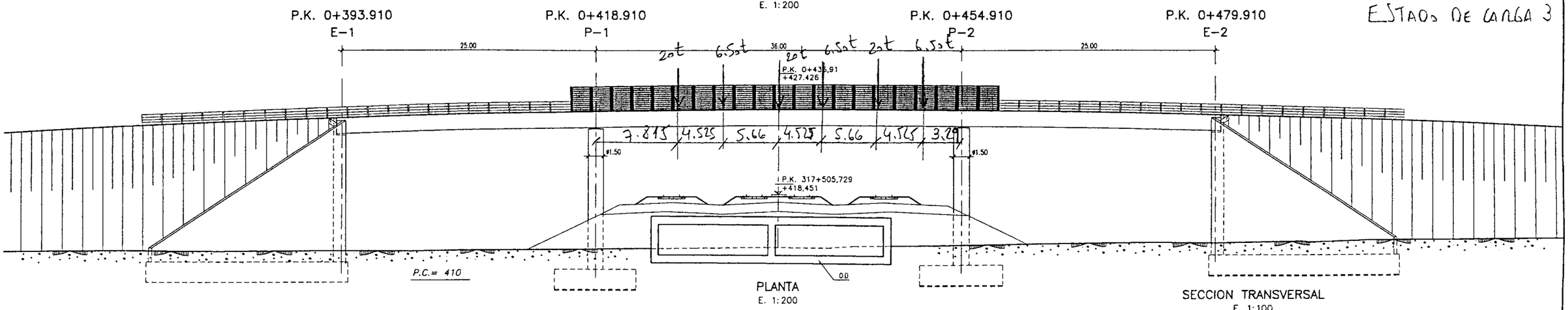
FECHA
MAYO-2001

TÍTULO DEL PLANO SUBTRAMO III-B
PASOS SUPERIORES
REPOSICION 17. E-7 P.K.317+500
PLANO GENERAL

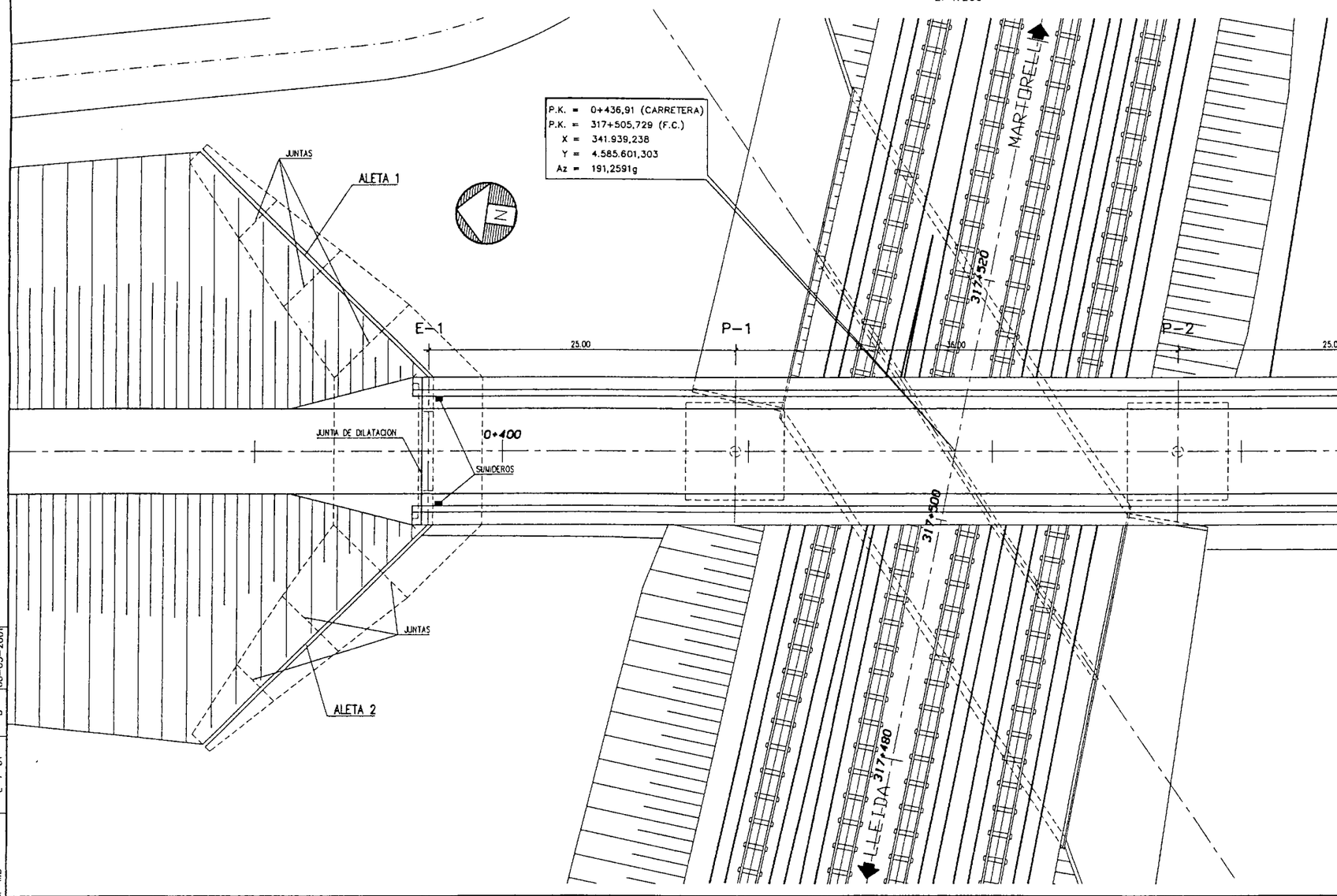
N.º DE PLANO
—
Hoja 1 de 13

ESTADO DE CARGA 3

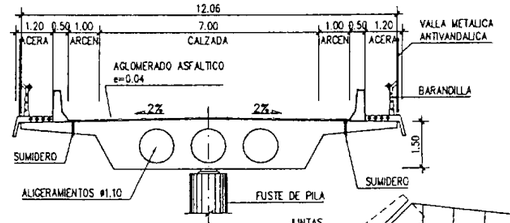
ALZADO
E. 1:200



PLANTA
E. 1:200



SECCION TRANSVERSAL
E. 1:100



PROYECTO	GIF-IIIB						
FICHERO	E-7-01	EDICION	B	REVISION	08-05-2001		

GIF Gestor de Infraestructuras Ferroviarias

TÍTULO: LÍNEA DE ALTA VELOCIDAD
MADRID-BARCELONA-FRONTERA FRANCESA
TRAMO:LLEIDA-MARTORELL. SUBTRAMO:III-B PLATAFORMA
PROYECTO CONSTRUCTIVO

CONSTRUCTORA: Sacyr

ESCALAS
1:100
1:200
ORIGINALES EN A1
0 2 4m.
0 4 8m.

FECHA
MAYO-2001

TÍTULO DEL PLANO: SUBTRAMO III-B
PASOS SUPERIORES
REPOSICION 17. E-7 P.K.317+500
PLANO GENERAL

N.º DE PLANO
—
203
Hoja 1 de 13

Listados de ordenador

Loadcase Factor Stage Init.def Title
50 1.0000 PRUEBA DE CARGA ESTADO 1

SUPPORT REACTIONS :
Node FX [t] FY [t] FZ [t] T [tm] MY [tm] MZ [tm]

6	-2.09E-06	5.09E-07	52.513			
10	6.37E-08	-1.22E-08	23.883			
58	1.25E-06	1.07E-07	27.275			
108	3.90E-06	-2.52E-07	66.248			
156	-2.61E-06	-5.42E-07	33.224			
160	-5.08E-07	1.91E-07	8.854			
Sums :	-5.70E-11	2.31E-16	212.000			
min:	-2.61E-06	-5.42E-07	8.854	Undef	Undef	Undef
max:	3.90E-06	5.09E-07	66.248	Undef	Undef	Undef

DISPLACEMENTS: **
Node DX [mm] DY [mm] DZ [mm] RX [rad] RY [rad] RZ [rad]

1	9.93E-06	-2.21E-06	0.199600	-0.000399	3.76E-05	1.68E-09
2	7.21E-06	-7.11E-08	0.130155	-0.000378	2.88E-05	1.20E-09
3	4.54E-06	1.23E-06	0.094313	-0.000359	5.35E-08	4.89E-10
4	1.87E-06	1.43E-06	0.114478	-0.000350	-2.95E-05	-3.18E-10
5	-1.11E-06	5.33E-08	0.174318	-0.000349	-4.20E-05	-1.66E-09
6	9.09E-06	-2.21E-06	-5.25E-96	-0.000399	3.76E-05	1.68E-09
7	6.61E-06	-7.11E-08	-0.058937	-0.000378	2.88E-05	1.20E-09
8	4.30E-06	1.23E-06	-0.085290	-0.000359	5.35E-08	4.89E-10
9	2.02E-06	1.43E-06	-0.060633	-0.000350	-2.95E-05	-3.18E-10
10	-2.77E-07	5.33E-06	-2.39E-96	-0.000349	-4.20E-05	-1.66E-09
11	2.90E-06	-1.97E-06	-0.988720	-0.000375	-2.74E-06	1.27E-09
12	3.07E-06	-2.28E-07	-0.960787	-0.000354	-8.24E-06	1.03E-09
13	2.99E-06	9.17E-07	-0.956880	-0.000335	-2.14E-05	4.54E-10
14	2.94E-06	1.14E-06	-0.910005	-0.000325	-3.49E-05	-1.63E-10
15	3.21E-06	3.57E-07	-0.848431	-0.000322	-4.10E-05	-8.11E-10
16	-2.89E-07	-1.43E-06	-1.855	-0.000307	-3.50E-05	4.48E-10
17	6.96E-07	-4.86E-07	-1.796	-0.000293	-3.77E-05	7.13E-10
18	1.67E-06	4.31E-07	-1.730	-0.000278	-4.26E-05	4.26E-10
19	2.63E-06	7.80E-07	-1.656	-0.000266	-4.76E-05	1.12E-10
20	3.57E-06	6.62E-07	-1.577	-0.000258	-5.00E-05	-9.27E-11
21	-2.09E-06	-1.16E-06	-2.511	-0.000211	-5.77E-05	5.04E-10
22	-8.78E-07	-4.53E-07	-2.418	-0.000200	-5.92E-05	4.63E-10
23	4.96E-07	1.60E-07	-2.318	-0.000189	-6.15E-05	3.47E-10
24	1.85E-06	5.74E-07	-2.215	-0.000178	-6.34E-05	2.23E-10
25	3.05E-06	6.53E-07	-2.112	-0.000169	-6.41E-05	-8.75E-11
26	-4.00E-06	-6.67E-07	-2.898	-9.09E-05	-7.45E-05	1.94E-11
27	-2.09E-06	-4.84E-07	-2.778	-8.35E-05	-7.54E-05	2.06E-10

DISPLACEMENTS: **
Node DX [mm] DY [mm] DZ [mm] RX [rad] RY [rad] RZ [rad]

28	-4.10E-07	-1.06E-07	-2.652	-7.51E-05	-7.66E-05	2.48E-10
29	1.13E-06	2.98E-07	-2.525	-6.71E-05	-7.80E-05	2.52E-10
30	2.60E-06	5.75E-07	-2.399	-6.05E-05	-7.83E-05	1.02E-10
31	-3.19E-06	-1.84E-07	-2.969	3.23E-05	-8.49E-05	-5.14E-10
32	-2.03E-06	-5.14E-07	-2.832	3.69E-05	-8.56E-05	-4.04E-11
33	-7.91E-07	-3.42E-07	-2.690	4.20E-05	-8.65E-05	1.49E-10
34	4.24E-07	2.13E-08	-2.547	4.67E-05	-8.69E-05	2.63E-10
35	1.56E-06	4.82E-07	-2.408	5.07E-05	-8.68E-05	3.40E-10
36	-2.32E-06	-3.48E-08	-2.755	0.000177	-9.17E-05	-5.11E-11
37	-1.62E-06	-4.20E-07	-2.608	0.000139	-9.21E-05	-1.42E-10
38	-8.99E-07	-4.07E-07	-2.456	0.000143	-9.24E-05	7.15E-11
39	-1.72E-07	-1.15E-07	-2.303	0.000145	-9.27E-05	2.33E-10
40	5.11E-07	3.40E-07	-2.155	0.000148	-9.26E-05	3.25E-10
41	-1.23E-06	9.54E-08	-2.312	0.000214	-9.61E-05	-4.09E-10
42	-1.08E-06	-3.21E-07	-2.158	0.000216	-9.62E-05	-1.56E-10
43	-8.68E-07	-3.76E-07	-1.999	0.000218	-9.62E-05	3.10E-11
44	-6.22E-07	-1.62E-07	-1.840	0.000220	-9.60E-05	1.84E-10
45	-3.76E-07	2.20E-07	-1.687	0.000222	-9.58E-05	2.71E-10
46	-5.09E-07	7.27E-08	-1.713	0.000261	-0.000100	-3.00E-10
47	-6.75E-07	-2.48E-07	-1.553	0.000263	-9.97E-05	-1.20E-10
48	-8.39E-07	-3.09E-07	-1.389	0.000265	-9.90E-05	1.72E-11
49	-9.76E-07	-1.63E-07	-1.226	0.000266	-9.83E-05	1.41E-10
50	-1.08E-06	1.42E-07	-1.070	0.000267	-9.75E-05	2.35E-10
51	3.65E-08	1.31E-08	-1.035	0.000277	-0.000105	-2.37E-10
52	-4.11E-07	-1.97E-07	-0.868449	0.000280	-0.000104	-5.73E-11
53	-8.50E-07	-2.15E-07	-0.698665	0.000283	-0.000102	1.78E-11
54	-1.28E-06	-1.30E-07	-0.532942	0.000284	-9.94E-05	8.57E-11
55	-1.70E-06	7.33E-08	-0.374578	0.000284	-9.87E-05	1.91E-10
56	-1.71E-07	-1.07E-07	-0.351891	0.000266	-0.000109	-4.50E-12
57	-3.58E-07	-1.05E-07	-0.177094	0.000268	-0.000109	1.32E-11
58	-8.93E-07	-7.62E-08	-2.73E-96	0.000270	-0.000104	3.43E-11
59	-1.42E-06	-3.80E-08	0.167191	0.000272	-9.97E-05	1.90E-11
60	-1.94E-06	-3.81E-08	0.326224	0.000273	-9.94E-05	-2.64E-11
61	-4.25E-07	-2.25E-07	0.538707	0.000227	-0.000110	1.86E-10
62	-7.31E-07	-2.53E-08	0.715089	0.000227	-0.000110	8.85E-11
63	-1.05E-06	6.32E-08	0.895292	0.000228	-0.000108	2.89E-11
64	-1.37E-06	5.48E-08	1.073	0.000231	-0.000107	-4.74E-11
65	-1.68E-06	-1.41E-07	1.243	0.000234	-0.000106	-2.17E-10
66	-1.14E-06	-1.83E-07	1.272	0.000181	-0.000113	7.21E-11
67	-1.17E-06	-7.15E-08	1.453	0.000182	-0.000113	6.80E-11
68	-1.21E-06	9.73E-09	1.639	0.000184	-0.000113	3.12E-11
69	-1.26E-06	1.61E-08	1.824	0.000186	-0.000112	-2.38E-11
70	-1.29E-06	-8.66E-08	2.004	0.000188	-0.000112	-1.05E-10
71	-1.42E-06	-1.36E-07	1.832	0.000130	-0.000117	-8.92E-12
72	-1.40E-06	-1.12E-07	2.019	0.000132	-0.000117	3.33E-11
73	-1.38E-06	-5.62E-08	2.212	0.000134	-0.000117	3.25E-11
74	-1.36E-06	-2.03E-08	2.405	0.000136	-0.000117	1.33E-11
75	-1.34E-06	-3.13E-08	2.591	0.000137	-0.000117	-2.20E-11
76	-1.57E-06	-1.28E-07	2.204	7.57E-05	-0.000121	-1.84E-11
77	-1.56E-06	-1.22E-07	2.397	7.72E-05	-0.000121	2.44E-11
78	-1.55E-06	-7.34E-08	2.597	7.91E-05	-0.000121	3.38E-11
79	-1.54E-06	-2.60E-08	2.796	8.10E-05	-0.000121	2.47E-11

DISPLACEMENTS: **
Node DX [mm] DY [mm] DZ [mm] RX [rad] RY [rad] RZ [rad]

80	-1.53E-06	-1.57E-08	2.990	8.25E-05	-0.000121	-1.00E-11
81	-1.74E-06	-1.36E-07	2.369	1.61E-05	-0.000125	-9.50E-12
82	-1.71E-06	-1.22E-07	2.563	1.97E-05	-0.000125	2.75E-11
83	-1.72E-06	-7.02E-08	2.776	1.96E-05	-0.000125	3.51E-11
84	-1.71E-06	-2.12E-08	2.982	2.14E-05	-0.000125	2.41E-11
85	-1.71E-06	-1.47E-08	3.182	2.30E-05	-0.000125	-1.64E-11
86	-1.95E-06	-1.41E-07	2.312	-4.82E-05	-0.000129	-3.16E-13
87	-1.93E-06	-1.22E-07	2.519	-4.66E-05	-0.000129	2.84E-11
88	-1.90E-06	-7.07E-08	2.732	-4.47E-05	-0.000129	3.64E-11
89	-1.87E-06	-1.73E-08	2.945	-4.29E-05	-0.000129	2.60E-11
90	-1.85E-06	2.14E-08	3.152	-4.13E-05	-0.000129	-2.29E-11
91	-2.16E-06	-1.12E-07	2.014	-0.000117	-0.000134	-3.27E-11
92	-2.12E-06	-1.47E-07	2.228	-0.000116	-0.000134	1.04E-12
93	-2.08E-06	-1.19E-07	2.448	-0.000114	-0.000133	3.79E-11
94	-2.04E-06	-3.75E-08	2.668	-0.000112	-0.000133	5.62E-11
95	-2.00E-06	2.65E-08	2.882	-0.000110	-0.000133	1.23E-11
96	-2.03E-06	9.29E-05	1.459	-0.000191	-0.000139	-2.38E-10
97	-2.11E-06	-2.44E-07	1.680	-0.000189	-0.000138	-8.40E-11
98	-2.28E-06	-2.79E-07	1.908	-0.000187	-0.000138	3.52E-11
99	-2.42E-06	-1.32E-07	2.134	-0.000186	-0.000137	1.44E-10
100	-2.51E-06	1.57E-07	2.353	-0.000185	-0.000137	2.22E-10
101	-8.54E-07	9.23E-08	0.625376	-0.000272	-0.000147	-4.71E-10
102	-1.66E-06	-3.19E-07	0.859202	-0.000268	-0.000145	-1.04E-10
103	-2.49E-06	-3.54E-07	1.096	-0.000264	-0.000142	3.77E-11
104	-3.32E-06	-2.15E-07	1.327	-0.000264	-0.000138	1.66E-10
105	-4.10E-06	2.41E-07	1.547	-0.000265	-0.000137	4.70E-10
106	-4.39E-07	-3.11E-07	-0.504118	-0.000352	-0.000157	-6.63E-10
107	-1.63E-06	1.74E-08	-0.252268	-0.000351	-0.000151	1.75E-10
108	-2.78E-06	1.80E-07	-6.62E-96	-0.000350	-0.000146	2.03E-11
109	-3.91E-06	7.89E-08	0.228353	-0.000348	-0.000134	-1.22E-10
110	-5.03E-06	-2.07E-07	0.442234	-0.000346	-0.000134	-2.16E-10
111	-2.28E-06	-5.85E-07	-1.424	-0.000376	-0.000154	1.21E-09
112	-2.70E-06	4.24E-07	-1.178	-0.000379	-0.000153	3.63E-10
113	-3.01E-06	5.57E-07	-0.930048	-0.000380	-0.000148	-1.22E-11
114	-3.31E-06	2.85E-07	-0.691229	-0.000377	-0.000142	-3.27E-10
115	-3.67E-06	-6.30E-07	-0.465446	-0.000373	-0.000140	-9.85E-10
116	-5.40E-06	-2.71E-07	-2.330	-0.000338	-0.000149	9.02E-10
117	-4.05E-06	4.56E-07	-2.092	-0.000341	-0.000148	1.93E-10
118	-3.09E-06	4.50E-07	-1.848	-0.000343	-0.000147	-1.03E-10
119	-2.26E-06	7.42E-08	-1.606	-0.000344	-0.000146	-3.59E-10
120	-1.34E-06	-7.39E-07	-1.373	-0.000344	-0.000145	-7.31E-10
121	-5.20E-06	3.92E-07	-3.066	-0.000247	-0.000141	-3.22E-10
122	-3.95E-06	2.41E-07	-2.839	-0.000252	-0.000142	-8.58E-11
123	-2.71E-06	8.98E-08	-2.605	-0.000256	-0.000142	-1.77E-10
124	-1.50E-06	-3.15E-07	-2.371	-0.000263	-0.000142	-2.85E-10
125	-2.86E-07	-7.09E-07	-2.145	-0.000267	-0.000141	-1.02E-10
126	-4.21E-06	6.48E-07	-3.546	-0.000134	-0.000131	-1.45E-10
127	-3.23E-06	3.96E-07	-3.335	-0.000141	-0.000132	-2.35E-10
128	-2.07E-06	-3.79E-09	-3.117	-0.000148	-0.000132	-2.81E-10
129	-6.61E-07	-5.03E-07	-2.899	-0.000156	-0.000132	-3.01E-10
130	2.38E-07	-8.75E-07	-2.687	-0.000162	-0.000132	-1.10E-10
131	-3.69E-06	7.83E-07	-3.717	-3.75E-06	-0.000118	2.62E-10

DISPLACEMENTS: **
Node DX [mm] DY [mm] DZ [mm] RX [rad] RY [rad] RZ [rad]

132	-2.56E-06	6.45E-07	-3.528	-1.21E-05	-0.000118	-2.82E-10
133	-1.26E-06	3.37E-08	-3.332	-2.17E-05	-0.000119	-3.85E-10
134	6.29E-08	-6.05E-07	-3.135	-3.11E-05	-0.000120	-3.94E-10
135	1.28E-06	-1.14E-06	-2.943	-3.89E-05	-0.000119	-3.32E-10
136	-3.82E-06	1.20E-06	-3.547	0.000140	-0.000101	-1.46E-10
137	-1.91E-06	6.75E-07	-3.385	0.000128	-0.000101	-4.67E-10
138	-2.50E-07	-1.22E-07	-3.217	0.000116	-0.000102	-4.83E-10
139	1.29E-06	-8.44E-07	-3.047	0.000103	-0.000103	-4.29E-10
140	2.77E-06	-1.30E-06	-2.881	9.22E-05	-0.000104	-1.95E-10
141	-1.29E-06	1.72E-06	-3.018	0.000274	-7.77E-05	-7.10E-10
142	-5.18E-08	6.19E-07	-2.893	0.000260	-7.88E-05	-7.40E-10
143	1.27E-06	-4.02E-07	-2.762	0.000244	-8.03E-05	-5.78E-10
144	2.54E-06	-1.13E-06	-2.628	0.000228	-8.14E-05	-3.90E-10
145	3.71E-06	-1.36E-06	-2.497	0.000215	-8.17E-05	5.72E-11
146	1.61E-06	2.07E-06	-2.192	0.000378	-5.01E-05	-9.24E-10
147	2.36E-06	5.77E-07	-2.110	0.000361	-5.16E-05	-9.77E-10
148	3.06E-06	-6.85E-07	-2.023	0.000342	-5.43E-05	-6.38E-10
149	3.76E-06	-1.35E-06	-1.931	0.000325	-5.71E-05	-2.79E-10
150	4.46E-06	-1.33E-06	-1.838	0.000312	-5.85E-05	1.90E-10
151	5.88E-06	2.38E-06	-1.149	0.000443	-1.69E-05	-1.48E-09
152	5.44E-06	4.02E-07	-1.121	0.000423	-1.95E-05	-1.16E-09
153	4.94E-06	-1.02E-06	-1.083	0.000403	-2.64E-05	-6.51E-10
154	4.55E-06	-1.60E-06	-1.033	0.000387	-3.37E-05	-6.83E-11
155	4.41E-06	-1.09E-06	-0.976248	0.000376	-3.73E-05	6.99E-10
156	1.11E-05	2.36E-06	-3.32E-96	0.000461	1.85E-05	-1.07E-09
157	8.99E-06	4.63E-07	-0.030768	0.000442	1.51E-05	-1.28E-09
158	6.71E-06	-1.18E-06	-0.045483	0.000423	1.23E-07	-7.31E-10
159	4.45E-06	-1.83E-06	-0.032997	0.000409	-1.60E-05	2.59E-11
160	2.21E-06	-8.31E-07	-8.85E-97	0.000401	-2.40E-05	1.44E-09
161	1.19E-05	2.36E-06	0.230256	0.000461	1.85E-05	-1.07E-09
162	9.63E-06	4.63E-07	0.190385	0.000442	1.51E-05	-1.28E-09
163	7.08E-06	-1.18E-06	0.165904	0.000423	1.23E-07	-7.31E-10
164	4.44E-06	-1.83E-06	0.171317	0.000409	-1.60E-05	2.59E-11
165	1.49E-06	-8.31E-07	0.200517	0.000401	-2.40E-05	1.44E-09
min:	-5.40E-06	-2.21E-06	-3.717	-0.000399	-0.000157	-1.66E-09
max:	1.19E-05	2.38E-06	3.182	0.000461	3.76E-05	1.68E-09

SECTION FORCES: **
Memb. Distance [m] N [t] Vy [t] Vz [t] T [tm] My [tm] Mz [tm]

1	0	5.08E-20	-4.92E-12	-4.09E-12	-2.64E-16	1.03E-12	-6.56E-13
1	0.500	5.08E-20	-4.92E-12	-4.09E-12	-2.64E-16	-1.02E-12	-3.12E-12
2	0	0.000739	-6.813	23.487	-13.349	-12.594	3.660
2	2.500	0.000739	-4.023	13.884	-13.349	26.677	-7.722
3	0	0.001465	-2.717	9.387	-10.656	13.186	-3.802
3	2.500	0.001465	-2.717	9.387	-10.656	36.652	-10.593
4	0	0.000984	-1.802	6.229	-7.534	27.369	-7.897
4	2.500	0.000984	-1.802	6.229	-7.534	42.941	-12.403
5	0	0.001475	-1.886	6.504	-5.558	35.998	-10.385
5	2.500	0.001475	-1.886	6.504	-5.558	52.255	-15.100
6	0	0.001456	0.520496	-1.799	-3.433	47.482	-13.713
6	2.500	0.001456	0.520496	-1.799	-3.433	42.956	-12.411
7	0	0.000659	0.388278	-1.355	-2.248	40.063	-11.564
7	2.500	0.000659	1.295	-4.476	-2.248	35.207	-10.167
8	0	0.000183	1.159	-4.016	-1.454	33.397	-9.642
8	2.500	0.000183	1.159	-4.016	-1.454	23.357	-6.744
9	0	-6.83E-05	1.130	-3.917	-1.284	22.020	-6.356
9	2.500	-6.83E-05	1.130	-3.917	-1.284	12.228	-3.532
10	0	-0.000180	1.088	-3.771	-1.510	10.834	-3.127
10	2.500	-0.000180	1.088	-3.771	-1.510	1.407	-0.406987
11	0	-0.000361	0.830078	-2.879	-1.541	-0.427561	0.125625
11	2.500	-0.000361	0.830078	-2.879	-1.541	-7.624	2.201
12	0	-0.000254	0.212474	-0.737871	-0.279671	-8.741	2.525
12	3.600	-0.000254	0.212474	-0.737871	-0.279671	-11.387	3.290
13	0	9.35E-05	0.007172	-0.026662	-0.589114	-11.696	3.378
13	3.600	9.35E-05	0.007172	-0.026662	-0.589114	-11.792	3.404
14	0	9.92E-05	0.013328	-0.047373	-0.881498	-12.686	3.666
14	3.600	9.52E-05	0.013328	-0.047373	-0.881498	-12.866	3.714
15	0	1.57E-05	0.013484	-0.048169	-0.942719	-13.880	4.008
15	3.600	1.57E-05	0.013484	-0.048169	-0.942719	-14.059	4.057
16	0	-1.55E-05	0.013252	-0.047495	-0.957512	-15.087	4.357
16	3.600	-1.55E-05	0.013252	-0.047495	-0.957512	-15.259	4.405
17	0	-1.14E-05	0.013154	-0.047243	-0.967685	-16.300	4.707
17	3.600	-1.14E-05	0.013154	-0.047243	-0.967685	-16.470	4.755
18	0	6.04E-05	0.012572	-0.045553	-0.999655	-17.526	5.061

SECTION FORCES: **
Memb. Distance [m] N [t] Vy [t] Vz [t] T [tm] My [tm] Mz [tm]

18	3.600	6.04E-05	0.012572	-0.045553	-0.999655	-17.690	5.106
19	0	0.000255	0.012619	-0.046285	-1.143	-18.754	5.427
19	3.600	0.000255	0.012619	-0.046285	-1.143	-18.960	5.473
20	0	0.000174	0.025089	-0.087634	-1.826	-20.322	5.867
20	3.600	0.000174	0.025089	-0.087634	-1.826	-20.636	5.958
21	0	-0.000843	-0.486454	1.685	-2.445	-23.414	6.762
21	3.600	-0.000843	-0.486454	1.685	-2.445	-17.347	5.010
22	0	-0.000826	-2.066	7.157	1.127	-17.616	5.147
22	2.500	-0.000826	-2.066	7.157	1.127	0.076642	-0.019046
23	0	0.000946	-2.752	9.522	1.653	1.881	-0.540280
23	2.500	0.000946	-2.752	9.522	1.653	25.685	-7.421
24	0	0.001998	-3.209	11.080	2.473	27.435	-7.927
24	2.500	0.001998	-0.419141	1.477	2.473	35.690	-10.300
25	0	0.000772	-0.607351	2.112	3.376	38.891	-11.232
25	2.500	0.000772	-0.607351	2.112	3.376	44.172	-12.750
26	0	0.000405	0.132882	-0.445611	4.443	48.380	-13.973
26	2.500	0.000405	0.132882	-0.445611	4.443	47.266	-13.640
27	0	0.001270	0.005548	-0.018939	5.626	52.619	-15.194
27	2.500	0.001270	0.005548	-0.018939	5.626	52.572	-15.180
28	0	0.001540	2.404	-8.295	7.606	59.736	-17.261
28	2.500	0.001540	2.404	-8.295	7.606	38.998	-11.250
29	0	0.001084	2.291	-7.918	9.137	48.097	-13.894
29	2.500	0.001084	3.198	-11.039	9.137	26.836	-7.740
30	0	0.000920	3.153	-10.892	10.978	37.656	-10.884
30	2.500	0.000920	3.153	-10.892	10.978	10.425	-3.002
31	0	-6.56E-05	3.981	-13.739	11.693	23.437	-6.784
31	2.500	-6.56E-05	3.981	-13.739	11.693	-10.911	3.170
32	0	-7.17E-17	-1.29E-11	5.47E-12	7.82E-14	-4.29E-12	1.79E-12
32	0.500	-7.17E-17	-1.29E-11	5.47E-12	7.82E-14	-1.55E-12	-4.64E-12
33	0	-1.61E-20	5.94E-17	2.55E-12	2.83E-15	-7.48E-13	2.05E-17
33	0.500	-1.61E-20	5.94E-17	2.55E-12	2.83E-15	5.29E-13	5.02E-17
34	0	-0.000341	-0.000998	16.757	-12.241	1.629	0.001129
34	2.500	-0.000341	-0.000998	6.757	-12.241	23.272	-0.001366
35	0	-0.000557	-0.000264	8.753	-9.727	25.309	0.000109
35	2.500	-0.000557	-0.000264	8.753	-9.727	47.192	-0.000551

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
36	0	7.19E-05	-0.000140	5.707	-7.136	47.333	9.17E-07
36	2.500	7.19E-05	-0.000140	5.707	-7.136	61.602	-0.000349
37	0	-6.73E-05	-0.000496	6.299	-5.358	61.208	0.000442
37	2.500	-6.73E-05	-0.000496	6.299	-5.358	76.955	-0.000798
38	0	-6.56E-05	0.000350	-4.305	-3.370	76.536	-0.000605
38	2.500	-6.56E-05	0.000350	-4.305	-3.370	65.773	0.000266
39	0	0.000203	0.000240	-3.878	-2.134	65.548	-0.000371
39	2.500	0.000203	0.000240	-7.128	-2.134	54.325	0.000229
40	0	0.000215	0.000228	-7.137	-1.362	54.196	-0.000294
40	2.500	0.000215	0.000228	-7.137	-1.362	36.354	0.000275
41	0	0.000157	7.79E-05	-6.969	-1.161	36.348	-7.27E-05
41	2.500	0.000157	7.79E-05	-6.969	-1.161	18.926	0.000122
42	0	0.000111	5.69E-05	-7.033	-1.390	19.059	-2.72E-05
42	2.500	0.000111	5.69E-05	-7.033	-1.390	1.476	0.000115
43	0	0.000199	-3.24E-06	-7.058	-1.667	1.646	5.31E-05
43	2.500	0.000199	-3.24E-06	-7.058	-1.667	-16.000	4.50E-05
44	0	0.000120	-8.48E-05	-0.320990	-0.221659	-16.157	0.000189
44	3.600	0.000120	-8.48E-05	-0.320990	-0.221659	-17.313	-0.000116
45	0	-6.94E-05	-7.01E-05	-0.449767	-0.674481	-17.738	0.000116
45	3.600	-6.94E-05	-7.01E-05	-0.449767	-0.674481	-19.357	-0.000136
46	0	-6.16E-05	-2.12E-05	-0.490767	-0.910727	-19.638	2.13E-05
46	3.600	-6.16E-05	-2.12E-05	-0.490767	-0.910727	-21.405	-5.49E-05
47	0	-1.46E-05	-2.53E-05	-0.489089	-0.948879	-21.605	4.13E-05
47	3.600	-1.46E-05	-2.53E-05	-0.489089	-0.948879	-23.365	-4.99E-05
48	0	8.04E-07	-3.44E-05	-0.490304	-0.958189	-23.554	6.34E-05
48	3.600	8.04E-07	-3.44E-05	-0.490304	-0.958189	-25.320	-6.04E-05
49	0	-9.91E-07	-4.31E-05	-0.490568	-0.964549	-25.504	7.80E-05
49	3.600	-9.91E-07	-4.31E-05	-0.490568	-0.964549	-27.270	-7.72E-05
50	0	-3.71E-05	-6.47E-05	-0.493166	-0.984746	-27.446	0.000103
50	3.600	-3.71E-05	-6.47E-05	-0.493166	-0.984746	-29.221	-0.000130
51	0	-0.000146	-7.12E-05	-0.487498	-1.074	-29.373	8.70E-05
51	3.600	-0.000146	-7.12E-05	-0.487498	-1.074	-31.128	-0.000169
52	0	-0.000112	6.05E-05	-0.576645	-1.629	-31.085	-0.000119
52	3.600	-0.000112	6.05E-05	-0.576645	-1.629	-33.161	9.93E-05

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
53	0	0.000536	6.88E-05	-0.809991	-2.608	-32.782	9.92E-06
53	3.600	0.000536	6.88E-05	-0.809991	-2.608	-35.698	0.000258
54	0	0.000838	-0.000532	15.604	1.359	-35.883	0.000797
54	2.500	0.000838	-0.000532	15.604	1.359	3.126	-0.000533
55	0	6.85E-05	-0.000879	15.954	1.380	2.310	0.000981
55	2.500	6.85E-05	-0.000879	15.954	1.380	42.194	-0.001217
56	0	-0.000466	0.000311	15.021	2.232	41.905	-0.000583
56	2.500	-0.000466	0.000311	5.021	2.232	59.207	0.000195
57	0	0.000337	0.000435	5.333	3.312	59.306	-0.000647
57	2.500	0.000337	0.000435	5.333	3.312	72.638	0.000439
58	0	0.000537	2.32E-05	2.308	4.378	73.094	-6.12E-05
58	2.500	0.000537	2.32E-05	2.308	4.378	78.864	-3.19E-06
59	0	6.64E-05	-0.000380	2.852	5.613	79.487	0.000346
59	2.500	6.64E-05	-0.000380	2.852	5.613	86.616	-0.000604
60	0	-0.000121	0.000470	-7.761	7.509	87.437	-0.000778
60	2.500	-0.000121	0.000470	-7.761	7.509	68.035	0.000398
61	0	-9.15E-05	0.000348	-7.308	8.994	69.002	-0.000599
61	2.500	-9.15E-05	0.000348	-10.558	8.994	49.203	0.000271
62	0	-0.000380	0.000540	-10.585	10.592	49.932	-0.000806
62	2.500	-0.000380	0.000540	-10.585	10.592	23.470	0.000545
63	0	0.000132	0.000656	-9.454	11.457	23.176	-0.000903
63	2.500	0.000132	0.000656	-9.454	11.457	-0.457700	0.000738
64	0	-2.33E-17	-3.49E-16	1.16E-11	-5.08E-14	-5.05E-12	6.83E-17
64	0.500	-2.33E-17	-3.49E-16	1.16E-11	-5.08E-14	7.64E-13	-1.06E-16
65	0	3.09E-19	-1.10E-16	-1.02E-12	3.17E-18	1.20E-13	2.24E-17
65	0.500	3.09E-19	-1.10E-16	-1.02E-12	3.17E-18	-3.87E-13	-3.27E-17
66	0	-0.000673	-0.000175	13.046	-7.091	6.050	0.000194
66	2.500	-0.000673	-0.000175	3.046	-7.091	18.416	-0.000243
67	0	-0.001052	-0.000291	8.026	-7.022	23.940	0.000344
67	2.500	-0.001052	-0.000291	8.026	-7.022	44.005	-0.000382
68	0	-0.000586	-0.000273	5.363	-6.242	46.023	0.000286
68	2.500	-0.000586	-0.000273	5.363	-6.242	59.431	-0.000397
69	0	-0.000577	-0.000217	5.622	-4.996	60.009	0.000203
69	2.500	-0.000577	-0.000217	5.622	-4.996	74.065	-0.000341
70	0	-0.000511	0.000153	-4.074	-3.261	74.303	-0.000261

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
70	2.500	-0.000511	0.000153	-4.074	-3.261	64.118	0.000123
71	0	-0.000139	0.000223	-3.812	-1.977	64.317	-0.000332
71	2.500	-0.000139	0.000223	-7.062	-1.977	53.259	0.000225
72	0	6.68E-05	0.000213	-6.954	-1.238	53.403	-0.000294
72	2.500	6.68E-05	0.000213	-6.954	-1.238	36.018	0.000238
73	0	0.000145	0.000118	-6.910	-0.941631	36.202	-0.000158
73	2.500	0.000145	0.000118	-6.910	-0.941631	18.927	0.000138
74	0	0.000204	4.33E-05	-6.906	-0.874764	19.287	-5.37E-05
74	2.500	0.000204	4.33E-05	-6.906	-0.874764	2.022	5.46E-05
75	0	0.000300	1.17E-05	-8.704	-0.880526	3.285	-1.08E-05
75	2.500	0.000300	1.17E-05	-8.704	-0.880526	-18.474	1.86E-05
76	0	0.000209	-2.82E-05	0.604198	-0.936883	-18.193	5.33E-05
76	3.600	0.000209	-2.82E-05	0.604198	-0.936883	-16.018	-4.80E-05
77	0	-8.04E-05	-2.52E-05	-0.659032	-0.956721	-17.066	4.65E-05
77	3.600	-8.04E-05	-2.52E-05	-0.659032	-0.956721	-19.439	-4.43E-05
78	0	-9.91E-05	-2.27E-05	-0.539987	-0.959007	-19.530	4.15E-05
78	3.600	-9.91E-05	-2.27E-05	-0.539987	-0.959007	-21.474	-4.02E-05
79	0	-2.58E-05	-2.21E-05	-0.542703	-0.959272	-21.501	4.04E-05
79	3.600	-2.58E-05	-2.21E-05	-0.542703	-0.959272	-23.455	-3.92E-05
80	0	4.85E-06	-2.20E-05	-0.541817	-0.959294	-23.460	4.03E-05
80	3.600	4.85E-06	-2.20E-05	-0.541817	-0.959294	-25.410	-3.91E-05
81	0	-8.70E-07	-2.20E-05	-0.541802	-0.959297	-25.408	4.03E-05
81	3.600	-8.70E-07	-2.20E-05	-0.541802	-0.959297	-27.359	-3.90E-05
82	0	-7.31E-05	-2.22E-05	-0.539780	-0.959253	-27.346	4.07E-05
82	3.600	-7.31E-05	-2.22E-05	-0.539780	-0.959253	-29.289	-3.93E-05
83	0	-0.000240	-2.41E-05	-0.546402	-0.958564	-29.223	4.40E-05
83	3.600	-0.000240	-2.41E-05	-0.546402	-0.958564	-31.190	-4.27E-05
84	0	-0.000113	-3.57E-05	-0.257328	-0.951173	-30.970	6.36E-05
84	3.600	-0.000113	-3.57E-05	-0.257328	-0.951173	-31.897	-6.51E-05
85	0	0.000804	-8.21E-05	-3.329	-0.890279	-29.356	0.000139
85	3.600	0.000804	-8.21E-05	-3.329	-0.890279	-41.341	-0.000156
86	0	0.000816	-0.000287	19.294	-0.639188	-42.067	0.000336
86	2.500	0.000816	-0.000287	19.294	-0.639188	6.167	-0.000381
87	0	-0.000232	-0.000307	15.070	0.152146	2.981	0.000321
87	2.500	-0.000232	-0.000307	15.070	0.152146	40.656	-0.000446

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
88	0	-0.000780	4.08E-05	15.345	1.761	39.762	-0.000103
88	2.500	-0.000780	4.08E-05	5.345	1.761	57.874	-5.21E-07
89	0	-0.000203	9.85E-05	5.612	3.194	57.670	-0.000196
89	2.500	-0.000203	9.85E-05	5.612	3.194	71.701	5.04E-05
90	0	8.11E-05	-3.47E-05	2.505	4.272	71.603	-2.85E-05
90	2.500	8.11E-05	-3.47E-05	2.505	4.272	77.864	-0.000115
91	0	-0.000336	-9.73E-05	2.751	5.573	77.706	5.32E-05
91	2.500	-0.000336	-9.73E-05	2.751	5.573	84.583	-0.000190
92	0	-0.000607	0.000252	-6.953	7.317	84.448	-0.000381
92	2.500	-0.000607	0.000252	-6.953	7.317	67.065	0.000249
93	0	-0.000611	0.000363	-6.690	8.586	66.806	-0.000495
93	2.500	-0.000611	0.000363	-9.940	8.586	48.553	0.000413
94	0	-0.000731	0.000361	-9.590	9.207	47.533	-0.000461
94	2.500	-0.000731	0.000361	-9.590	9.207	23.559	0.000442
95	0	-0.000348	5.81E-05	-6.955	8.788	20.648	-0.000128
95	2.500	-0.000348	5.81E-05	-6.955	8.788	3.260	1.73E-05
96	0	-1.37E-17	3.90E-17	-1.72E-12	-1.17E-14	-3.69E-13	-8.42E-17
96	0.500	-1.37E-17	3.90E-17	-1.72E-12	-1.17E-14	-1.23E-12	-6.47E-17
97	0	4.10E-19	6.86E-17	2.10E-13	-2.12E-15	2.06E-13	-1.67E-17
97	0.500	4.10E-19	6.86E-17	2.10E-13	-2.12E-15	3.10E-13	1.76E-17
98	0	-0.000643	0.000418	14.834	-1.792	4.446	-0.000415
98	2.500	-0.000643	0.000418	4.834	-1.792	21.283	0.000631
99	0	-0.000773	-0.000495	7.337	-4.209	25.733	0.000811
99	2.500	-0.000773	-0.000495	7.337	-4.209	44.077	-0.000428
100	0	-0.000445	-0.000484	4.809	-5.221	46.295	0.000682
100	2.500	-0.000445	-0.000484	4.809	-5.221	58.317	-0.000528
101	0	-0.000597	-0.000165	4.650	-4.825	59.491	0.000226
101	2.500	-0.000597	-0.000165	4.650	-4.825	71.117	-0.000187
102	0	-0.000600	-8.79E-05	-3.642	-2.963	71.855	0.000118
102	2.500	-0.000600	-8.79E-05	-3.642	-2.963	62.751	-0.000102
103	0	-0.000296	3.13E-05	-3.806	-1.901	63.209	-6.01E-05
103	2.500	-0.000296	3.13E-05	-7.056	-1.901	52.168	1.80E-05
104	0	-0.000102	9.40E-05	-6.723	-1.095	52.513	-0.000151
104	2.500	-0.000102	9.40E-05	-6.723	-1.095	35.707	8.36E-05

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
105	0	-7.07E-07	7.00E-05	-6.886	-0.753535	35.938	-0.000117
105	2.500	-7.07E-07	7.00E-05	-6.886	-0.753535	18.724	5.76E-05
106	0	7.17E-05	-2.55E-05	-7.074	-0.379285	19.058	-6.54E-06
106	2.500	7.17E-05	-2.55E-05	-7.074	-0.379285	1.372	-7.04E-05
107	0	0.000198	-1.77E-05	-7.097	-0.094102	1.763	-2.43E-05
107	2.500	0.000198	-1.77E-05	-7.097	-0.094102	-15.978	-6.85E-05
108	0	0.000139	8.12E-07	-0.458344	-1.657	-15.839	-3.35E-05
108	3.600	0.000139	8.12E-07	-0.458344	-1.657	-17.489	-3.06E-05
109	0	-5.81E-05	-8.27E-06	-0.556340	-1.237	-17.538	2.63E-05
109	3.600	-5.81E-05	-8.27E-06	-0.556340	-1.237	-19.541	-3.49E-06
110	0	-5.48E-05	-5.35E-05	-0.594462	-1.007	-19.450	0.000114
110	3.600	-5.48E-05	-5.35E-05	-0.594462	-1.007	-21.590	-7.85E-05
111	0	-8.44E-06	-4.86E-05	-0.592214	-0.969600	-21.419	9.29E-05
111	3.600	-8.44E-06	-4.86E-05	-0.592214	-0.969600	-23.551	-8.20E-05
112	0	7.21E-06	-3.94E-05	-0.593373	-0.960385	-23.369	7.06E-05
112	3.600	7.21E-06	-3.94E-05	-0.593373	-0.960385	-25.505	-7.12E-05
113	0	5.74E-06	-3.07E-05	-0.593647	-0.954008	-25.318	5.62E-05
113	3.600	5.74E-06	-3.07E-05	-0.593647	-0.954008	-27.456	-5.44E-05
114	0	-3.02E-05	-9.35E-06	-0.596444	-0.933517	-27.261	3.14E-05
114	3.600	-3.02E-05	-9.35E-06	-0.596444	-0.933517	-29.408	-2.25E-06
115	0	-0.000142	-5.44E-06	-0.592447	-0.841422	-29.188	5.24E-05
115	3.600	-0.000142	-5.44E-06	-0.592447	-0.841422	-31.321	3.28E-05
116	0	-0.000125	-0.000153	-0.695145	-0.266561	-30.902	0.000287
116	3.600	-0.000125	-0.000153	-0.695145	-0.266561	-33.405	-0.000266
117	0	0.000442	-0.000229	-1.013	0.848725	-32.641	0.000272
117	3.600	0.000442	-0.000229	-1.013	0.848725	-36.286	-0.000550
118	0	0.000446	5.05E-05	15.082	-2.576	-36.105	-0.000205
118	2.500	0.000446	5.05E-05	15.082	-2.576	1.601	-7.92E-05
119	0	-0.000456	0.000256	14.679	-1.252	0.937195	-0.000343
119	2.500	-0.000456	0.000256	14.679	-1.252	37.636	0.000298
120	0	-0.000842	-5.53E-05	15.940	1.475	36.649	0.000121
120	2.500	-0.000842	-5.53E-05	5.940	1.475	56.249	-1.71E-05
121	0	-0.000406	-0.000132	5.905	3.071	55.921	0.000153
121	2.500	-0.000406	-0.000132	5.905	3.071	70.682	-0.000177
122	0	-0.000222	7.32E-05	2.765	4.210	70.087	-0.000156

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
122	2.500	-0.000222	7.32E-05	2.765	4.210	76.998	2.71E-05
123	0	-0.000518	0.000264	2.428	5.312	76.181	-0.000354
123	2.500	-0.000518	0.000264	2.428	5.312	82.252	0.000306
124	0	-0.000628	0.000309	-5.891	7.291	81.255	-0.000359
124	2.500	-0.000628	0.000309	-5.891	7.291	66.528	0.000412
125	0	-0.000471	0.000510	-5.977	8.041	65.189	-0.000560
125	2.500	-0.000471	0.000510	-9.227	8.041	48.718	0.000715
126	0	-0.000540	0.000477	-8.566	7.733	46.830	-0.000450
126	2.500	-0.000540	0.000477	-8.566	7.733	25.416	0.000743
127	0	-0.000498	-0.000207	-7.397	5.882	22.313	0.000324
127	2.500	-0.000498	-0.000207	-7.397	5.882	3.821	-0.000193
128	0	-6.43E-17	1.80E-16	5.05E-12	2.16E-14	-6.02E-12	-3.38E-17
128	0.500	-6.43E-17	1.80E-16	5.05E-12	2.16E-14	-3.50E-12	5.63E-17
129	0	-4.03E-20	5.79E-13	-3.39E-12	-3.98E-15	5.32E-13	-5.89E-13
129	0.500	-4.03E-20	5.79E-13	-3.39E-12	-3.98E-15	-1.16E-12	-3.00E-13
130	0	0.000917	2.028	7.016	0.341313	0.950912	0.274135
130	2.500	0.000917	2.028	7.016	0.341313	18.490	5.345
131	0	0.000917	0.691029	2.410	-2.988	20.447	5.912
131	2.500	0.000917	0.691029	2.410	-2.988	26.472	7.640
132	0	-2.53E-05	0.282079	0.993066	-4.650	31.550	9.115
132	2.500	-2.53E-05	0.282079	0.993066	-4.650	34.033	9.821
133	0	-0.000235	0.012121	0.051429	-4.691	39.672	11.458
133	2.500	-0.000235	0.012121	0.051429	-4.691	39.800	11.489
134	0	-0.000280	-0.754814	-2.604	-2.827	44.040	12.720
134	2.500	-0.000280	-0.754814	-2.604	-2.827	37.531	10.833
135	0	-0.000429	-1.027	-3.553	-1.905	40.039	11.562
135	2.500	-0.000429	-1.027	-3.553	-1.905	31.156	8.994
136	0	-0.000363	-1.280	-4.429	-1.058	32.620	9.419
136	2.500	-0.000363	-1.280	-4.429	-1.058	21.547	6.220
137	0	-0.000234	-1.322	-4.576	-0.688745	22.489	6.494
137	2.500	-0.000234	-1.322	-4.576	-0.688745	11.050	3.190
138	0	-0.000207	-1.295	-4.483	-0.289033	11.649	3.364
138	2.500	-0.000207	-1.295	-4.483	-0.289033	0.441423	0.126606
139	0	-0.000336	-1.040	-3.603	-0.226178	0.525384	0.151271
139	2.500	-0.000336	-1.040	-3.603	-0.226178	-8.481	-2.450

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
140	0	-0.000215	-0.383929	-1.328	-1.602	-7.618	-2.199
140	3.600	-0.000215	-0.383929	-1.328	-1.602	-12.400	-3.581
141	0	0.000114	-0.175983	-0.608086	-1.321	-10.638	-3.071
141	3.600	0.000114	-0.175983	-0.608086	-1.321	-12.827	-3.704
142	0	0.000116	-0.181227	-0.625636	-1.036	-11.653	-3.363
142	3.600	0.000116	-0.181227	-0.625636	-1.036	-13.906	-4.016
143	0	3.25E-05	-0.181271	-0.626043	-0.975656	-12.839	-3.706
143	3.600	3.25E-05	-0.181271	-0.626043	-0.975656	-15.093	-4.359
144	0	2.06E-06	-0.181022	-0.625309	-0.961040	-14.047	-4.055
144	3.600	2.06E-06	-0.181022	-0.625309	-0.961040	-16.298	-4.707
145	0	6.96E-06	-0.180929	-0.625071	-0.950814	-15.260	-4.405
145	3.600	6.96E-06	-0.180929	-0.625071	-0.950814	-17.511	-5.057
146	0	7.94E-05	-0.180401	-0.623570	-0.918214	-16.486	-4.759
146	3.600	7.94E-05	-0.180401	-0.623570	-0.918214	-18.731	-5.409
147	0	0.000272	-0.180893	-0.625851	-0.770163	-17.756	-5.126
147	3.600	0.000272	-0.180893	-0.625851	-0.770163	-20.009	-5.777
148	0	0.000176	-0.196365	-0.677633	-0.057738	-19.301	-5.571
148	3.600	0.000176	-0.196365	-0.677633	-0.057738	-21.740	-6.278
149	0	-0.000938	0.296475	1.030	0.721978	-22.504	-6.497
149	3.600	-0.000938	0.296475	1.030	0.721978	-18.794	-5.430
150	0	-0.001274	1.800	6.238	-2.222	-17.623	-5.090
150	2.500	-0.001274	1.800	6.238	-2.222	-2.029	-0.589402
151	0	-0.000328	2.306	7.982	-1.541	0.649551	0.186917
151	2.500	-0.000328	2.306	7.982	-1.541	20.603	5.951
152	0	9.08E-05	1.687	5.842	1.350	20.936	6.047
152	2.500	9.08E-05	1.687	5.842	1.350	35.541	10.264
153	0	-0.000501	1.354	4.683	2.983	32.757	9.456
153	2.500	-0.000501	1.354	4.683	2.983	44.464	12.840
154	0	-0.000802	1.060	3.660	4.189	40.484	11.684
154	2.500	-0.000802	1.060	3.660	4.189	49.634	14.334
155	0	-0.000483	0.812349	2.796	5.189	44.619	12.877
155	2.500	-0.000483	0.812349	2.796	5.189	51.608	14.908
156	0	-0.000184	0.049808	0.155580	7.233	44.742	12.913
156	2.500	-0.000184	0.049808	0.155580	7.233	45.131	13.038

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
157	0	8.94E-05	-0.232306	-0.827549	7.691	36.639	10.571
157	2.500	8.94E-05	-0.232306	-0.827549	7.691	34.570	9.990
158	0	0.000730	-0.548029	-1.921	7.003	25.843	7.455
158	2.500	0.000730	-0.548029	-1.921	7.003	21.039	6.085
159	0	0.000780	-1.098	-3.813	4.394	14.083	4.065
159	2.500	0.000780	-1.098	-3.813	4.394	4.551	1.320
160	0	5.88E-17	2.94E-11	-1.04E-11	-4.99E-14	3.45E-12	-9.94E-12
160	0.500	5.88E-17	2.94E-11	-1.04E-11	-4.99E-14	-1.76E-12	4.74E-12
	min:	-0.001274	-6.813	-13.739	-13.349	-42.067	-17.261
	max:	0.001998	3.981	23.487	11.693	87.437	14.908

Loadcase 51 — Factor 1.0000 — Stage — Init.def — Title: PRUEBA DE CARGA ESTADO 2

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-3.02E-06	6.03E-07	50.300			
10	-1.56E-06	-2.90E-07	11.849			
58	5.43E-06	-1.81E-07	106.485			
108	2.57E-06	-1.55E-07	53.049			
156	-1.48E-06	-1.65E-07	2.433			
160	-1.95E-06	1.87E-07	-12.116			
Sums :	2.25E-11	5.05E-17	212.000			
min:	-3.02E-06	-2.90E-07	-12.116	Undef	Undef	Undef
max:	5.43E-06	6.03E-07	106.485	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	1.38E-05	-2.62E-06	0.088441	-0.000177	2.93E-05	1.29E-09
2	1.21E-05	-6.14E-07	0.028499	-0.000152	2.34E-05	1.33E-09
3	1.03E-05	1.11E-06	-0.026202	-0.000128	1.26E-07	8.35E-10
4	8.38E-06	2.00E-06	0.005014	-0.000111	-2.44E-05	1.56E-10
5	6.09E-06	1.26E-06	0.051051	-0.000102	-3.60E-05	-1.35E-09
6	1.31E-05	-2.62E-06	-5.03E-96	-0.000177	2.93E-05	1.29E-09
7	1.14E-05	-6.14E-07	-0.047709	-0.000152	2.34E-05	1.33E-09
8	9.83E-06	1.11E-06	-0.069954	-0.000128	1.25E-07	8.35E-10
9	8.30E-06	2.00E-06	-0.050363	-0.000111	-2.44E-05	1.56E-10
10	6.77E-06	1.26E-06	-1.18E-96	-0.000102	-3.60E-05	-1.35E-09
11	7.29E-06	-2.50E-06	-0.442784	-0.000162	-1.73E-05	1.19E-09
12	7.59E-06	-6.84E-07	-0.412536	-0.000136	-2.15E-05	1.20E-09
13	7.72E-06	8.70E-07	-0.368791	-0.000110	-3.22E-05	7.71E-10
14	7.93E-06	1.69E-06	-0.306137	-9.21E-05	-4.34E-05	2.65E-10
15	8.42E-06	1.58E-06	-0.231730	-8.09E-05	-4.88E-05	-3.59E-10
16	3.60E-06	-2.14E-06	-0.802586	-0.000116	-5.88E-05	5.64E-10
17	4.58E-06	-1.71E-07	-0.706717	-9.55E-05	-6.10E-05	9.70E-10
18	5.56E-06	5.11E-07	-0.602658	-7.33E-05	-6.51E-05	7.53E-10
19	6.54E-06	1.43E-06	-0.491665	-5.37E-05	-6.93E-05	4.83E-10
20	7.45E-06	1.80E-06	-0.378901	-3.85E-05	-7.14E-05	1.26E-10
21	5.74E-07	-1.88E-06	-1.026	-5.57E-05	-9.26E-05	6.74E-10
22	2.17E-06	-8.10E-07	-0.876380	-3.84E-05	-9.39E-05	7.72E-10
23	3.53E-06	3.20E-07	-0.719736	-1.89E-05	-9.58E-05	6.81E-10
24	4.85E-06	1.28E-06	-0.560104	-1.68E-07	-9.74E-05	5.45E-10
25	6.03E-06	1.74E-06	-0.403627	1.55E-05	-9.80E-05	5.20E-11
26	-1.85E-06	-1.41E-06	-1.085	1.53E-05	-0.000121	2.00E-10
27	7.50E-08	-8.33E-07	-0.890447	2.94E-05	-0.000122	5.31E-10
28	1.76E-06	8.03E-08	-0.688576	4.55E-05	-0.000123	5.83E-10
29	3.31E-06	1.02E-06	-0.484769	6.12E-05	-0.000124	5.58E-10
30	4.78E-06	1.65E-06	-0.285664	7.46E-05	-0.000124	2.24E-10
31	-1.57E-06	-9.18E-07	-0.868555	7.53E-05	-0.000143	-3.37E-10
32	-7.68E-07	-8.70E-07	-0.718908	8.66E-05	-0.000144	2.77E-10
33	5.25E-07	-1.70E-07	-0.500906	9.55E-05	-0.000144	4.83E-10
34	1.79E-06	7.38E-07	-0.261986	0.000112	-0.000145	5.76E-10
35	2.97E-06	1.57E-06	-0.030221	0.000123	-0.000145	4.68E-10
36	-1.98E-06	-6.53E-07	-0.743886	0.000102	-0.000162	-3.87E-10
37	-1.22E-06	-8.11E-07	-0.484348	0.000112	-0.000162	1.37E-10
38	-4.35E-07	-3.02E-07	-0.216482	0.000123	-0.000162	4.06E-10
39	3.53E-07	5.68E-07	0.051444	0.000133	-0.000162	5.84E-10
40	1.09E-06	1.48E-06	0.311067	0.000142	-0.000162	5.07E-10
41	-1.52E-06	-4.86E-07	-0.500082	8.79E-05	-0.000179	-4.61E-10
42	-1.39E-06	-7.97E-07	-0.213815	9.73E-05	-0.000179	4.04E-11
43	-1.26E-06	-4.12E-07	0.080475	0.000107	-0.000178	3.67E-10
44	-1.09E-06	4.41E-07	0.373337	0.000117	-0.000177	6.20E-10
45	-8.71E-07	1.47E-06	0.656017	0.000124	-0.000176	6.28E-10
46	-7.99E-07	-3.79E-07	-0.348722	2.84E-05	-0.000197	-6.78E-10
47	-1.39E-06	-8.43E-07	-0.034548	3.90E-05	-0.000196	-6.26E-12
48	-2.08E-06	-4.93E-07	0.285762	4.95E-05	-0.000193	3.56E-10
49	-2.74E-06	3.33E-07	0.601190	5.80E-05	-0.000190	6.62E-10
50	-3.27E-06	1.53E-06	0.903366	6.40E-05	-0.000188	9.11E-10
51	3.66E-07	-4.68E-07	-0.403596	-7.65E-05	-0.000219	-7.06E-10
52	-1.30E-06	-8.00E-07	-0.055106	-6.29E-05	-0.000216	1.04E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
53	-2.95E-06	-3.49E-07	0.294795	-4.95E-05	-0.000207	3.62E-10
54	-4.57E-06	3.74E-07	0.628757	-4.38E-05	-0.000198	5.72E-10
55	-6.19E-06	1.46E-06	0.943505	-4.08E-05	-0.000196	9.47E-10
56	2.42E-07	-9.03E-07	-0.771820	-0.000218	-0.000241	1.99E-10
57	-1.82E-06	-4.70E-07	-0.385765	-0.000209	-0.000240	3.49E-10
58	-3.88E-06	1.29E-07	-1.06E-95	-0.000198	-0.000222	3.79E-10
59	-5.91E-06	7.09E-07	0.347102	-0.000189	-0.000204	3.26E-10
60	-7.90E-06	1.07E-06	0.671591	-0.000182	-0.000203	1.22E-10
61	-3.52E-06	-1.48E-06	-1.902	-0.000391	-0.000253	1.16E-09
62	-4.64E-06	-4.53E-08	-1.499	-0.000387	-0.000251	7.26E-10
63	-5.75E-06	8.20E-07	-1.090	-0.000379	-0.000245	3.87E-10
64	-6.83E-06	1.13E-06	-0.691306	-0.000366	-0.000239	-1.54E-11
65	-7.88E-06	5.43E-07	-0.310918	-0.000353	-0.000237	-7.86E-10
66	-9.14E-06	-1.33E-06	-3.444	-0.000440	-0.000268	1.17E-09
67	-8.43E-06	3.17E-08	-3.016	-0.000433	-0.000268	6.43E-10
68	-7.77E-06	7.48E-07	-2.574	-0.000425	-0.000267	2.99E-10
69	-7.12E-06	9.58E-07	-2.134	-0.000415	-0.000266	-2.68E-11
70	-6.47E-06	5.16E-07	-1.709	-0.000406	-0.000265	-5.43E-10
71	-1.23E-05	-3.13E-07	-4.916	-0.000356	-0.000282	-3.13E-10
72	-1.08E-05	-3.24E-07	-4.465	-0.000353	-0.000282	2.03E-10
73	-9.33E-06	7.78E-08	-3.999	-0.000348	-0.000283	2.43E-10
74	-7.98E-06	3.98E-07	-3.532	-0.000344	-0.000283	1.68E-10
75	-6.71E-06	6.35E-07	-3.079	-0.000341	-0.000283	1.81E-10
76	-1.14E-05	-7.09E-06	-5.946	-0.000208	-0.000287	-1.36E-12
77	-1.06E-05	-2.52E-06	-5.486	-0.000207	-0.000288	4.16E-11
78	-9.71E-06	7.44E-08	-5.011	-0.000206	-0.000288	6.66E-11
79	-8.77E-06	1.92E-07	-4.535	-0.000205	-0.000288	8.02E-11
80	-7.90E-06	3.30E-07	-4.074	-0.000204	-0.000288	1.08E-10
81	-1.19E-05	3.60E-08	-6.367	-2.23E-05	-0.000286	4.19E-10
82	-1.09E-05	3.31E-07	-5.909	-2.39E-05	-0.000286	2.95E-11
83	-9.78E-06	2.52E-07	-5.436	-2.59E-05	-0.000287	-7.80E-11
84	-8.70E-06	1.04E-07	-4.962	-2.78E-05	-0.000287	-1.02E-10
85	-7.67E-06	-9.74E-08	-4.502	-2.90E-05	-0.000287	-1.77E-10
86	-1.27E-05	7.91E-07	-6.074	0.000186	-0.000276	-4.40E-10
87	-1.10E-05	2.72E-07	-5.631	0.000180	-0.000277	-2.49E-10
88	-9.49E-06	-6.25E-08	-5.174	0.000173	-0.000278	-1.79E-10
89	-8.06E-06	-2.91E-07	-4.715	0.000166	-0.000278	-1.06E-10
90	-6.71E-06	-3.01E-07	-4.269	0.000159	-0.000278	9.53E-11
91	-9.56E-06	1.22E-06	-5.080	0.000352	-0.000256	-5.39E-10
92	-8.74E-06	4.24E-07	-4.670	0.000343	-0.000257	-4.91E-10
93	-7.89E-06	-2.24E-07	-4.246	0.000332	-0.000257	-3.35E-10
94	-7.06E-06	-5.84E-07	-3.821	0.000321	-0.000257	-1.30E-10
95	-6.28E-06	-5.13E-07	-3.410	0.000312	-0.000257	2.08E-10
96	-5.94E-06	1.38E-06	-3.621	0.000439	-0.000231	-5.36E-10
97	-5.88E-06	5.21E-07	-3.251	0.000429	-0.000231	-5.55E-10
98	-5.80E-06	-2.48E-07	-2.871	0.000417	-0.000231	-4.04E-10
99	-5.70E-06	-7.00E-07	-2.491	0.000404	-0.000230	-1.66E-10
100	-5.58E-06	-6.40E-07	-2.123	0.000393	-0.000230	2.29E-10
101	-2.52E-06	1.37E-06	-2.016	0.000433	-0.000206	-5.40E-10
102	-3.14E-06	5.50E-07	-1.687	0.000425	-0.000205	-5.23E-10
103	-3.77E-06	-2.06E-07	-1.350	0.000414	-0.000202	-4.19E-10
104	-4.39E-06	-7.21E-07	-1.019	0.000399	-0.000199	-2.06E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
105	-4.99E-06	-6.70E-07	-0.700796	0.000387	-0.000198	2.92E-10
106	2.30E-07	1.07E-06	-0.591978	0.000342	-0.000184	-1.20E-10
107	-8.07E-07	7.12E-07	-0.297512	0.000331	-0.000183	-3.35E-10
108	-1.84E-06	1.10E-07	-5.30E-96	0.000318	-0.000174	-3.92E-10
109	-2.84E-06	-4.99E-07	0.278242	0.000307	-0.000165	-3.46E-10
110	-3.81E-06	-8.76E-07	0.542011	0.000297	-0.000165	-1.23E-10
111	7.43E-07	8.59E-07	0.154466	0.000252	-0.000162	3.33E-10
112	-7.11E-08	8.57E-07	0.413227	0.000239	-0.000161	-2.33E-10
113	-8.67E-07	3.19E-07	0.675256	0.000226	-0.000156	-3.74E-10
114	-1.66E-06	-3.41E-07	0.929328	0.000216	-0.000152	-4.56E-10
115	-2.45E-06	-1.03E-06	1.171	0.000209	-0.000151	-4.89E-10
116	6.80E-07	8.36E-07	0.663372	0.000169	-0.000141	2.63E-10
117	4.05E-07	8.40E-07	0.908397	0.000158	-0.000140	-2.00E-10
118	6.23E-08	3.45E-07	1.139	0.000146	-0.000139	-3.67E-10
119	-2.84E-07	-3.31E-07	1.366	0.000135	-0.000137	-4.71E-10
120	-5.72E-07	-1.02E-06	1.585	0.000126	-0.000136	-4.36E-10
121	1.04E-06	9.20E-07	1.018	9.72E-05	-0.000122	4.29E-11
122	1.03E-06	7.57E-07	1.213	8.69E-05	-0.000122	-2.55E-10
123	9.85E-07	2.45E-07	1.413	7.52E-05	-0.000121	-3.63E-10
124	9.35E-07	-4.00E-07	1.613	6.39E-05	-0.000121	-4.13E-10
125	9.13E-07	-9.21E-07	1.806	5.43E-05	-0.000120	-2.27E-10
126	1.63E-06	9.89E-07	1.185	3.49E-05	-0.000104	-7.42E-11
127	1.87E-06	6.99E-07	1.351	2.49E-05	-0.000104	-3.10E-10
128	1.91E-06	1.51E-07	1.522	1.34E-05	-0.000104	-3.62E-10
129	1.95E-06	-4.52E-07	1.693	1.93E-06	-0.000103	-3.57E-10
130	1.59E-06	-8.44E-07	1.855	-7.87E-06	-0.000121	-1.11E-10
131	2.78E-06	1.02E-06	1.208	-1.76E-05	-8.61E-05	-1.08E-10
132	2.80E-06	6.75E-07	1.346	-2.76E-05	-8.61E-05	-3.35E-10
133	2.84E-06	1.06E-07	1.488	-3.91E-05	-8.60E-05	-3.62E-10
134	2.87E-06	-4.73E-07	1.630	-5.05E-05	-8.59E-05	-3.32E-10
135	2.90E-06	-8.09E-07	1.767	-6.04E-05	-8.58E-05	-7.53E-11
136	3.76E-06	1.02E-06	1.112	-6.06E-05	-6.86E-05	-1.11E-10
137	3.77E-06	6.70E-07	1.222	-7.05E-05	-6.85E-05	-3.40E-10
138	3.77E-06	9.71E-08	1.335	-8.20E-05	-6.84E-05	-3.63E-10
139	3.78E-06	-4.75E-07	1.448	-9.35E-05	-6.83E-05	-3.27E-10
140	3.78E-06	-8.01E-07	1.557	-0.000103	-6.83E-05	-7.14E-11
141	4.73E-06	1.01E-06	0.920320	-9.41E-05	-5.12E-05	-1.06E-10
142	4.73E-06	6.73E-07	1.002	-0.000104	-5.11E-05	-3.30E-10
143	4.71E-06	1.15E-07	1.086	-0.000115	-5.08E-05	-3.61E-10
144	4.69E-06	-4.62E-07	1.170	-0.000127	-5.06E-05	-3.39E-10
145	4.67E-06	-8.10E-07	1.251	-0.000137	-5.06E-05	-8.57E-11
146	5.65E-06	9.57E-07	0.656305	-0.000118	-3.43E-05	-8.00E-11
147	5.66E-06	6.83E-07	0.710920	-0.000128	-3.39E-05	-2.93E-10
148	5.66E-06	1.70E-07	0.766364	-0.000139	-3.33E-05	-3.51E-10
149	5.67E-06	-4.18E-07	0.820861	-0.000151	-3.28E-05	-3.70E-10
150	5.65E-06	-8.38E-07	0.873167	-0.000161	-3.26E-05	-1.50E-10
151	6.39E-06	8.50E-07	0.342679	-0.000134	-1.88E-05	3.99E-11
152	6.44E-06	7.20E-07	0.371936	-0.000142	-1.77E-05	-2.16E-10
153	6.58E-06	2.56E-07	0.399699	-0.000153	-1.60E-05	-3.36E-10
154	6.77E-06	-3.42E-07	0.424702	-0.000164	-1.45E-05	-3.96E-10
155	6.95E-06	-8.74E-07	0.447516	-0.000175	-1.42E-05	-3.22E-10
156	6.42E-06	7.17E-07	-2.43E-97	-0.000141	-6.59E-06	4.30E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
157	6.92E-06	8.19E-07	0.008016	-0.000148	-3.81E-06	-1.94E-10
158	7.43E-06	3.01E-07	0.010423	-0.000157	1.08E-07	-3.80E-10
159	7.93E-06	-3.89E-07	0.006595	-0.000168	3.30E-06	-4.30E-10
160	8.46E-06	-8.11E-07	1.21E-96	-0.000177	3.14E-06	-4.68E-11
161	6.20E-06	7.17E-07	-0.070697	-0.000141	-6.59E-06	4.30E-10
162	7.02E-06	8.19E-07	-0.065961	-0.000148	-3.81E-06	-1.94E-10
163	7.62E-06	3.01E-07	-0.068316	-0.000157	1.08E-07	-3.80E-10
164	8.15E-06	-3.89E-07	-0.077529	-0.000168	3.30E-06	-4.30E-10
165	8.48E-06	-8.11E-07	-0.088633	-0.000177	3.14E-06	-4.68E-11
min:	-1.27E-05	-2.62E-06	-6.367	-0.000440	-0.000288	-1.35E-09
max:	1.38E-05	2.00E-06	1.856	0.000439	2.93E-05	1.33E-09

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	9.28E-19	-2.11E-12	-2.43E-12	-6.90E-16	5.87E-13	-3.43E-13
1	0.500	9.28E-19	-2.11E-12	-2.43E-12	-6.90E-16	-6.28E-13	-1.40E-12
2	0	0.000384	-6.528	22.495	-15.399	-14.661	4.260
2	2.500	0.000384	-3.738	12.892	-15.399	22.130	-6.410
3	0	0.001075	-2.592	8.943	-13.744	5.570	-1.598
3	2.500	0.001075	-2.592	8.943	-13.744	27.928	-8.077
4	0	0.000789	-1.698	5.856	-11.156	14.803	-4.265
4	2.500	0.000789	-1.698	5.856	-11.156	29.443	-8.509
5	0	0.001413	-1.786	6.146	-9.387	16.363	-5.290
5	2.500	0.001413	-1.786	6.146	-9.387	33.728	-9.754
6	0	0.001477	0.618109	-2.147	-7.352	24.708	-7.133
6	2.500	0.001477	0.618109	-2.147	-7.352	19.340	-5.588
7	0	0.000799	0.482835	-1.694	-6.249	12.111	-3.489
7	2.500	0.000799	1.390	-4.815	-6.249	6.409	-1.856
8	0	0.000504	1.248	-4.335	-5.629	0.199033	-0.052970
8	2.500	0.000504	1.248	-4.335	-5.629	-10.637	3.066
9	0	0.000322	1.206	-4.191	-5.931	-16.615	4.802
9	2.500	0.000322	1.206	-4.191	-5.931	-27.093	7.816
10	0	-0.000267	1.062	-3.691	-7.184	-33.856	9.779
10	2.500	-0.000267	1.062	-3.691	-7.184	-43.082	12.434
11	0	-0.001313	0.062646	-0.233502	-7.435	-51.767	14.956
11	2.500	-0.001313	0.062646	-0.233502	-7.435	-52.351	15.112

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
12	0	-0.001211	-2.320	8.027	-2.593	-58.346	16.853
12	3.600	-0.001211	-2.320	8.027	-2.593	-29.450	8.500
13	0	0.000313	-3.142	10.871	-3.490	-32.187	9.299
13	3.600	0.000313	-3.142	10.871	-3.490	6.947	-2.011
14	0	0.002133	-3.341	11.548	-3.224	2.379	-0.680082
14	3.600	0.002133	-0.551510	1.945	-3.224	33.388	-9.640
15	0	0.000507	-0.990321	3.432	-1.222	31.363	-9.056
15	3.600	0.000507	-0.990321	3.432	-1.222	43.719	-12.621
16	0	0.000224	-1.200	4.144	0.297267	43.083	-12.437
16	3.600	0.000224	-0.253770	1.023	0.297267	49.574	-14.310
17	0	0.001580	-0.567273	1.949	2.164	50.639	-14.617
17	3.600	0.001580	2.223	-7.654	2.164	49.014	-14.148
18	0	0.000898	1.744	-6.029	4.584	53.152	-15.352
18	3.600	0.000898	1.744	-6.029	4.584	31.447	-9.075
19	0	0.000329	2.439	-8.436	5.827	37.315	-10.780
19	3.600	0.000329	2.439	-8.436	5.827	6.944	-1.999
20	0	-1.27E-05	2.408	-8.329	5.687	13.549	-3.917
20	3.600	-1.27E-05	2.408	-8.329	5.687	-16.434	4.751
21	0	-0.000621	2.009	-6.945	5.100	-10.864	3.131
21	3.600	-0.000621	2.009	-6.945	5.100	-35.667	10.363
22	0	-0.000650	0.904833	-3.117	7.219	-28.901	8.340
22	2.500	-0.000650	0.904833	-3.117	7.219	-36.693	10.602
23	0	-6.92E-05	0.412159	-1.413	7.017	-28.575	8.245
23	2.500	-6.92E-05	0.412159	-1.413	7.017	-32.107	9.275
24	0	0.000253	0.346078	-1.182	6.306	-25.021	7.218
24	2.500	0.000253	0.346078	-1.182	6.306	-27.977	8.083
25	0	0.000209	0.338167	-1.155	5.983	-21.391	6.170
25	2.500	0.000209	0.338167	-1.155	5.983	-24.279	7.015
26	0	8.91E-05	0.334347	-1.142	5.863	-17.857	5.150
26	2.500	8.91E-05	0.334347	-1.142	5.863	-20.713	5.986
27	0	1.07E-05	0.332425	-1.136	5.806	-14.356	4.139
27	2.500	1.07E-05	0.332425	-1.136	5.806	-17.195	4.970
28	0	-4.76E-05	0.331100	-1.131	5.741	-10.881	3.136
28	2.500	-4.76E-05	0.331100	-1.131	5.741	-13.710	3.964

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
29	0	-0.000149	0.329790	-1.127	5.578	-7.477	2.153
29	2.500	-0.000149	0.329790	-1.127	5.578	-10.294	2.978
30	0	-0.000322	0.320258	-1.094	5.137	-4.294	1.235
30	2.500	-0.000322	0.320258	-1.094	5.137	-7.030	2.035
31	0	-0.000401	0.267713	-0.913864	4.038	-1.647	0.472069
31	2.500	-0.000401	0.267713	-0.913864	4.038	-3.932	1.141
32	0	2.45E-17	3.82E-12	-1.48E-12	-1.85E-14	1.33E-12	-5.92E-13
32	0.500	2.45E-17	3.82E-12	-1.48E-12	-1.85E-14	5.93E-13	1.32E-12
33	0	2.49E-19	-4.32E-17	1.27E-12	-2.81E-15	-2.03E-13	-3.46E-17
33	0.500	2.49E-19	-4.32E-17	1.27E-12	-2.81E-15	4.33E-13	-5.62E-17
34	0	-0.000151	-0.000880	14.282	-14.832	0.192334	0.001007
34	2.500	-0.000151	-0.000880	4.282	-14.832	15.647	-0.001192
35	0	-0.000406	-0.000400	5.820	-13.071	16.530	0.000343
35	2.500	-0.000406	-0.000400	5.820	-13.071	31.080	-0.000656
36	0	0.000134	-0.000309	2.653	-10.864	30.431	0.000249
36	2.500	0.000134	-0.000309	2.653	-10.864	37.063	-0.000524
37	0	-5.04E-05	-0.000629	3.211	-9.222	36.039	0.000619
37	2.500	-5.04E-05	-0.000629	3.211	-9.222	44.065	-0.000954
38	0	-8.10E-05	0.000223	-7.405	-7.290	43.080	-0.000455
38	2.500	-8.10E-05	0.000223	-7.405	-7.290	24.567	0.000103
39	0	0.000128	8.52E-05	-6.987	-6.106	23.812	-0.000204
39	2.500	0.000128	8.52E-05	-10.237	-6.106	4.815	9.00E-06
40	0	3.18E-05	6.97E-05	-10.267	-5.448	4.211	-0.000154
40	2.500	3.18E-05	6.97E-05	-10.267	-5.448	-21.455	1.98E-05
41	0	-0.000100	5.96E-05	-10.145	-5.578	-21.797	-0.000107
41	2.500	-0.000100	5.96E-05	-10.145	-5.578	-47.159	4.21E-05
42	0	9.27E-05	0.000281	-10.604	-6.771	-46.936	-0.000274
42	2.500	9.27E-05	0.000281	-10.604	-6.771	-73.447	0.000428
43	0	0.000714	7.02E-05	-10.778	-7.954	-73.025	8.24E-05
43	2.500	0.000714	7.02E-05	-10.778	-7.954	-99.969	0.000258
44	0	0.000638	-0.000398	15.598	-2.401	-100.861	0.000899
44	3.600	0.000638	-0.000398	15.598	-2.401	-44.709	-0.000535
45	0	0.000116	-0.000595	15.314	-3.894	-46.771	0.001031
45	3.600	0.000116	-0.000595	15.314	-3.894	8.358	-0.001111
46	0	-0.000534	-0.000360	15.353	-3.369	7.202	0.000435

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
46	3.600	-0.000534	-0.000360	5.353	-3.369	51.474	-0.000860
47	0	0.000449	0.000263	5.021	-1.244	50.585	-0.000552
47	3.600	0.000449	0.000263	5.021	-1.244	68.661	0.000396
48	0	0.000535	-5.36E-05	5.482	0.274319	68.707	9.07E-05
48	3.600	0.000535	-5.36E-05	2.232	0.274319	79.668	-0.000102
49	0	-8.78E-05	-0.000246	2.669	2.168	79.923	0.000308
49	3.600	-8.78E-05	-0.000246	-7.331	2.168	80.532	-0.000577
50	0	0.000228	0.000421	-7.684	4.640	80.910	-0.000875
50	3.600	0.000228	0.000421	-7.684	4.640	53.248	0.000641
51	0	0.000146	0.000437	-10.722	5.947	54.496	-0.000817
51	3.600	0.000146	0.000437	-10.722	5.947	15.897	0.000755
52	0	4.40E-05	0.000359	-10.595	5.893	17.380	-0.000630
52	3.600	4.40E-05	0.000359	-10.595	5.893	-20.761	0.000661
53	0	0.000244	0.000351	-10.879	4.997	-18.997	-0.000541
53	3.600	0.000244	0.000351	-10.879	4.997	-58.160	0.000723
54	0	0.000312	3.59E-05	2.433	7.485	-57.109	2.61E-05
54	2.500	0.000312	3.59E-05	2.433	7.485	-51.026	0.000116
55	0	-3.47E-05	-8.67E-05	2.268	6.814	-50.757	0.000131
55	2.500	-3.47E-05	-8.67E-05	2.268	6.814	-45.088	-8.58E-05
56	0	-0.000181	7.80E-05	1.987	6.149	-44.709	-0.000136
56	2.500	-0.000181	7.80E-05	1.987	6.149	-39.740	5.95E-05
57	0	-0.000125	0.000174	1.953	5.921	-39.073	-0.000256
57	2.500	-0.000125	0.000174	1.953	5.921	-34.191	0.000179
58	0	-5.10E-05	0.000173	1.938	5.844	-33.430	-0.000233
58	2.500	-5.10E-05	0.000173	1.938	5.844	-28.585	0.000199
59	0	-1.16E-05	0.000156	1.931	5.808	-27.786	-0.000198
59	2.500	-1.16E-05	0.000156	1.931	5.808	-22.956	0.000192
60	0	5.42E-06	0.000165	1.921	5.768	-22.134	-0.000200
60	2.500	5.42E-06	0.000165	1.921	5.768	-17.331	0.000213
61	0	2.31E-05	0.000203	1.889	5.664	-16.459	-0.000228
61	2.500	2.31E-05	0.000203	1.889	5.664	-11.737	0.000279
62	0	8.02E-05	0.000196	1.751	5.358	-10.739	-0.000192
62	2.500	8.02E-05	0.000196	1.751	5.358	-6.361	0.000299
63	0	0.000214	-4.42E-05	1.380	4.602	-5.120	7.08E-05
63	2.500	0.000214	-4.42E-05	1.380	4.602	-1.669	-3.96E-05

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
64	0	1.18E-17	6.80E-17	-1.74E-12	1.23E-14	1.16E-12	-4.10E-17
64	0.500	1.18E-17	6.80E-17	-1.74E-12	1.23E-14	2.93E-13	-7.02E-18
65	0	-3.91E-19	2.88E-16	1.13E-13	-5.04E-18	1.03E-13	-4.32E-17
65	0.500	-3.91E-19	2.88E-16	1.13E-13	-5.04E-18	1.60E-13	1.01E-16
66	0	-0.000529	-0.000138	10.691	-10.679	4.939	0.000127
66	2.500	-0.000529	-0.000138	0.691150	-10.679	11.417	-0.000217
67	0	-0.000777	-0.000343	4.796	-10.892	15.937	0.000416
67	2.500	-0.000777	-0.000343	4.796	-10.892	27.928	-0.000441
68	0	-0.000412	-0.000326	2.051	-10.157	29.578	0.000357
68	2.500	-0.000412	-0.000326	2.051	-10.157	34.706	-0.000458
69	0	-0.000519	-0.000250	2.307	-8.917	35.168	0.000245
69	2.500	-0.000519	-0.000250	2.307	-8.917	40.936	-0.000321
70	0	-0.000541	0.000130	-7.393	-7.183	41.146	-0.000231
70	2.500	-0.000541	0.000130	-7.393	-7.183	22.663	9.31E-05
71	0	-0.000287	0.000202	-7.136	-5.900	22.886	-0.000306
71	2.500	-0.000287	0.000202	-10.386	-5.900	3.519	0.000199
72	0	-0.000238	0.000196	-10.284	-5.161	3.771	-0.000272
72	2.500	-0.000238	0.000196	-10.284	-5.161	-21.938	0.000217
73	0	-0.000175	0.000108	-10.254	-4.869	-21.428	-0.000143
73	2.500	-0.000175	0.000108	-10.254	-4.869	-47.062	0.000128
74	0	0.000311	3.85E-05	-10.248	-4.822	-45.732	-4.37E-05
74	2.500	0.000311	3.85E-05	-10.248	-4.822	-71.351	5.25E-05
75	0	0.001035	-6.62E-06	-17.266	-4.920	-66.451	2.00E-05
75	2.500	0.001035	-6.62E-06	-17.266	-4.920	-109.615	3.46E-06
76	0	0.001039	-0.000223	19.063	-5.225	-108.531	0.000405
76	3.600	0.001039	-0.000223	19.063	-5.225	-39.905	-0.000397
77	0	-0.000109	-0.000349	14.135	-5.071	-44.040	0.000585
77	3.600	-0.000109	-0.000349	14.135	-5.071	6.845	-0.000670
78	0	-0.001007	-0.000262	14.844	-3.593	6.346	0.000444
78	3.600	-0.001007	-0.000262	4.844	-3.593	48.784	-0.000498
79	0	-5.18E-06	8.11E-05	5.240	-1.275	48.746	-0.000231
79	3.600	-5.18E-06	8.11E-05	5.240	-1.275	67.609	6.08E-05
80	0	0.000267	-4.40E-05	5.426	0.246231	67.606	9.30E-06
80	3.600	0.000267	-4.40E-05	2.176	0.246231	78.365	-0.000149

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
81	0	-0.000473	-7.64E-05	2.464	2.165	78.274	8.86E-05
81	3.600	-0.000473	-7.64E-05	-7.536	2.165	78.143	-0.000187
82	0	-0.000242	0.000300	-7.090	4.711	78.218	-0.000615
82	3.600	-0.000242	0.000300	-7.090	4.711	52.696	0.000465
83	0	-3.59E-05	0.000341	-10.139	6.107	52.839	-0.000648
83	3.600	-3.59E-05	0.000341	-10.139	6.107	16.337	0.000581
84	0	6.33E-05	0.000246	-9.873	6.479	16.564	-0.000450
84	3.600	6.33E-05	0.000246	-9.873	6.479	-18.978	0.000436
85	0	0.000475	0.000212	-12.331	6.389	-16.928	-0.000370
85	3.600	0.000475	0.000212	-12.331	6.389	-61.321	0.000395
86	0	0.000452	1.34E-05	5.768	5.989	-61.861	-4.52E-06
86	2.500	0.000452	1.34E-05	5.768	5.989	-47.442	2.91E-05
87	0	5.65E-05	3.92E-06	2.271	5.848	-49.879	4.50E-07
87	2.500	5.65E-05	3.92E-06	2.271	5.848	-44.202	1.03E-05
88	0	-0.000217	1.46E-05	2.272	5.819	-44.852	-1.57E-05
88	2.500	-0.000217	1.46E-05	2.272	5.819	-39.172	2.08E-05
89	0	-0.000203	2.61E-05	2.263	5.812	-39.390	-3.21E-05
89	2.500	-0.000203	2.61E-05	2.263	5.812	-33.733	3.32E-05
90	0	-9.80E-05	3.11E-05	2.255	5.811	-33.805	-3.88E-05
90	2.500	-9.80E-05	3.11E-05	2.259	5.811	-28.159	3.89E-05
91	0	-1.95E-05	3.54E-05	2.256	5.810	-28.174	-4.44E-05
91	2.500	-1.95E-05	3.54E-05	2.256	5.810	-22.535	4.40E-05
92	0	3.94E-05	4.86E-05	2.253	5.809	-22.515	-6.00E-05
92	2.500	3.94E-05	4.86E-05	2.253	5.809	-16.883	6.16E-05
93	0	0.000118	7.78E-05	2.251	5.800	-16.804	-9.02E-05
93	2.500	0.000118	7.78E-05	2.251	5.800	-11.177	0.000104
94	0	0.000187	7.78E-05	2.195	5.732	-10.926	-8.67E-05
94	2.500	0.000187	7.78E-05	2.195	5.732	-5.439	0.000108
95	0	9.77E-05	-5.49E-05	1.601	5.316	-4.757	3.82E-05
95	2.500	9.77E-05	-5.49E-05	1.601	5.316	-0.754806	-9.91E-05
96	0	8.75E-18	3.62E-17	7.31E-13	1.88E-15	2.36E-13	-2.22E-17
96	0.500	8.75E-18	3.62E-17	7.31E-13	1.88E-15	6.02E-13	-4.10E-18
97	0	1.61E-18	-1.97E-16	-2.98E-14	-1.54E-15	-1.26E-14	4.85E-17
97	0.500	1.61E-18	-1.97E-16	-2.98E-14	-1.54E-15	-2.75E-14	-5.01E-17
98	0	-0.000665	0.000209	11.607	-6.288	4.738	-0.000186

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
98	2.500	-0.000665	0.000209	1.607	-6.288	13.504	0.000337
99	0	-0.000564	-0.000617	3.800	-8.559	17.939	0.000923
99	2.500	-0.000564	-0.000617	3.800	-8.559	27.438	-0.000620
100	0	-0.000334	-0.000533	1.287	-9.301	30.015	0.000709
100	2.500	-0.000334	-0.000533	1.287	-9.301	33.233	-0.000622
101	0	-0.000563	-0.000218	1.119	-8.798	34.865	0.000281
101	2.500	-0.000563	-0.000218	1.119	-8.798	37.681	-0.000264
102	0	-0.000610	-0.000135	-7.180	-6.886	36.948	0.000181
102	2.500	-0.000610	-0.000135	-7.180	-6.886	20.999	-0.000156
103	0	-0.000366	1.51E-05	-7.352	-5.774	22.020	-1.28E-05
103	2.500	-0.000366	1.51E-05	-10.602	-5.774	2.114	2.48E-05
104	0	-0.000276	8.56E-05	-10.286	-4.856	3.076	-8.23E-05
104	2.500	-0.000276	8.56E-05	-10.286	-4.856	-22.640	0.000132
105	0	-0.000235	-6.65E-05	-10.487	-4.196	-21.655	0.000112
105	2.500	-0.000235	-6.65E-05	-10.487	-4.196	-47.873	-5.40E-05
106	0	9.04E-05	-0.000389	-11.036	-2.901	-46.365	0.000424
106	2.500	9.04E-05	-0.000389	-11.036	-2.901	-73.956	-0.000549
107	0	0.000725	-0.000286	-11.058	-1.849	-72.227	0.000187
107	2.500	0.000725	-0.000286	-11.058	-1.849	-99.871	-0.000529
108	0	0.000639	-0.000163	14.779	-8.038	-99.070	0.000129
108	3.600	0.000639	-0.000163	14.779	-8.038	-45.866	-0.000459
109	0	-0.000265	-0.000163	14.161	-6.229	-45.686	0.000288
109	3.600	-0.000265	-0.000163	14.161	-6.229	5.292	-0.000299
110	0	-0.000841	-0.000271	14.222	-3.861	5.414	0.000581
110	3.600	-0.000841	-0.000271	4.222	-3.861	45.612	-0.000393
111	0	-0.000311	-0.000151	5.543	-1.221	46.734	0.000229
111	3.600	-0.000311	-0.000151	5.543	-1.221	66.689	-0.000314
112	0	-0.000132	1.33E-05	5.387	0.220077	66.528	-0.000112
112	3.600	-0.000132	1.33E-05	2.137	0.220077	77.145	-6.41E-05
113	0	-0.000594	0.000117	2.145	2.079	76.729	-0.000213
113	3.600	-0.000594	0.000117	-7.855	2.079	75.449	0.000209
114	0	-0.000440	0.000257	-6.448	4.827	75.401	-0.000475
114	3.600	-0.000440	0.000257	-6.448	4.827	52.187	0.000452
115	0	-0.000174	0.000370	-9.517	6.252	51.059	-0.000684
115	3.600	-0.000174	0.000370	-9.517	6.252	16.798	0.000650

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
116	0	-3.19E-05	0.000283	-9.764	7.026	15.744	-0.000530
116	3.600	-3.19E-05	0.000283	-9.764	7.026	-19.406	0.000491
117	0	0.000333	0.000252	-9.920	7.800	-20.235	-0.000521
117	3.600	0.000333	0.000252	-9.920	7.800	-55.949	0.000386
118	0	0.000343	0.000235	2.776	4.447	-56.954	-0.000370
118	2.500	0.000343	0.000235	2.776	4.447	-50.014	0.000217
119	0	2.12E-05	0.000290	2.844	4.898	-51.349	-0.000373
119	2.500	2.12E-05	0.000290	2.844	4.898	-44.240	0.000351
120	0	-0.000149	0.000151	2.617	5.496	-45.466	-0.000148
120	2.500	-0.000149	0.000151	2.617	5.496	-38.923	0.000229
121	0	-0.000112	7.30E-05	2.596	5.705	-39.870	-5.23E-05
121	2.500	-0.000112	7.30E-05	2.596	5.705	-33.380	0.000130
122	0	-4.53E-05	8.07E-05	2.585	5.778	-34.237	-8.30E-05
122	2.500	-4.53E-05	8.07E-05	2.585	5.778	-27.774	0.000119
123	0	-4.90E-06	0.000103	2.580	5.811	-28.595	-0.000125
123	2.500	-4.90E-06	0.000103	2.580	5.811	-22.144	0.000131
124	0	2.87E-05	0.000111	2.578	5.842	-22.943	-0.000147
124	2.500	2.87E-05	0.000111	2.578	5.842	-16.498	0.000131
125	0	9.38E-05	0.000121	2.580	5.904	-17.266	-0.000173
125	2.500	9.38E-05	0.000121	2.580	5.904	-10.815	0.000129
126	0	0.000164	0.000187	2.647	6.041	-11.520	-0.000251
126	2.500	0.000164	0.000187	2.647	6.041	-4.903	0.000216
127	0	-0.000100	0.000179	2.496	5.897	-5.348	-0.000247
127	2.500	-0.000100	0.000179	2.496	5.897	0.890682	0.000195
128	0	3.34E-18	-1.49E-16	-5.68E-12	-7.63E-15	3.44E-12	8.11E-17
128	0.500	3.34E-18	-1.49E-16	-5.68E-12	-7.63E-15	6.03E-13	6.55E-18
129	0	-4.81E-19	1.21E-13	-5.78E-13	-2.06E-15	2.67E-14	-1.88E-13
129	0.500	-4.81E-19	1.21E-13	-5.78E-13	-2.06E-15	-2.62E-13	-1.28E-13
130	0	0.000961	0.592631	2.063	-4.204	5.185	1.504
130	2.500	0.000961	0.592631	2.063	-4.204	10.342	2.986
131	0	0.000672	-0.445102	-1.514	-7.475	17.455	5.051
131	2.500	0.000672	-0.445102	-1.514	-7.475	13.670	3.939
132	0	-0.000176	-0.822414	-2.822	-8.801	23.358	6.753
132	2.500	-0.000176	-0.822414	-2.822	-8.801	16.303	4.697

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
133	0	-0.000281	-1.084	-3.734	-8.689	26.337	7.612
133	2.500	-0.000281	-1.084	-3.734	-8.689	17.003	4.903
134	0	-0.000246	-1.847	-6.376	-6.750	25.550	7.385
134	2.500	-0.000246	-1.847	-6.376	-6.750	9.609	2.768
135	0	-0.000275	-2.116	-7.315	-5.750	16.368	4.731
135	2.500	-0.000275	-2.116	-7.315	-5.750	-1.919	-0.559080
136	0	-2.29E-05	-2.362	-8.169	-4.733	3.706	1.075
136	2.500	-2.29E-05	-2.362	-8.169	-4.733	-16.718	-4.831
137	0	0.000188	-2.390	-8.266	-3.908	-11.848	-3.416
137	2.500	0.000188	-2.390	-8.266	-3.908	-32.514	-9.391
138	0	-0.000227	-2.257	-7.803	-2.532	-28.690	-8.279
138	2.500	-0.000227	-2.257	-7.803	-2.532	-48.197	-13.920
139	0	-0.001162	-1.253	-4.331	-2.353	-46.284	-13.363
139	2.500	-0.001162	-1.253	-4.331	-2.353	-57.112	-16.495
140	0	-0.001104	1.340	4.650	-7.804	-52.070	-15.032
140	3.600	-0.001104	1.340	4.650	-7.804	-35.330	-10.207
141	0	-5.57E-05	2.137	7.408	-6.533	-26.813	-7.738
141	3.600	-5.57E-05	2.137	7.408	-6.533	-0.146198	-0.045386
142	0	0.000249	1.716	5.951	-3.986	5.896	1.707
142	3.600	0.000249	1.716	5.951	-3.986	27.321	7.887
143	0	-0.000640	0.902351	3.130	-1.217	29.157	8.421
143	3.600	-0.000640	0.902351	3.130	-1.217	40.426	11.669
144	0	-0.000894	0.561781	1.945	0.222180	41.176	11.886
144	3.600	-0.000894	0.561781	1.945	0.222180	48.178	13.910
145	0	-0.000426	0.092221	0.313426	2.048	47.355	13.670
145	3.600	-0.000426	0.092221	0.313426	2.048	48.483	14.002
146	0	-0.000444	-0.793644	-2.756	4.845	43.956	12.688
146	3.600	-0.000444	-0.793644	-2.756	4.845	34.034	9.831
147	0	-0.000266	-1.164	-4.041	6.292	27.913	8.054
147	3.600	-0.000266	-1.164	-4.041	6.292	13.364	3.864
148	0	-6.28E-05	-1.236	-4.291	7.166	6.129	1.764
148	3.600	-6.28E-05	-1.236	-4.291	7.166	-9.317	-2.684
149	0	-0.000431	-0.830859	-2.889	7.690	-17.754	-5.133
149	3.600	-0.000431	-0.830859	-2.889	7.690	-28.153	-8.124
150	0	-0.000458	0.544741	1.874	4.692	-34.645	-10.009

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
150	2.500	-0.000458	0.544741	1.874	4.692	-29.960	-8.647
151	0	2.62E-05	1.050	3.622	4.718	-34.713	-10.028
151	2.500	2.62E-05	1.050	3.622	4.718	-25.656	-7.402
152	0	0.000294	1.124	3.879	5.350	-31.305	-9.043
152	2.500	0.000294	1.124	3.879	5.350	-21.609	-6.233
153	0	0.000231	1.134	3.914	5.648	-27.717	-8.007
153	2.500	0.000231	1.134	3.914	5.648	-17.932	-5.172
154	0	0.000105	1.139	3.929	5.759	-24.193	-6.990
154	2.500	0.000105	1.139	3.929	5.759	-14.370	-4.144
155	0	2.52E-05	1.141	3.937	5.810	-20.691	-5.980
155	2.500	2.52E-05	1.141	3.937	5.810	-10.848	-3.127
156	0	-2.58E-05	1.144	3.947	5.856	-17.205	-4.973
156	2.500	-2.58E-05	1.144	3.947	5.856	-7.338	-2.113
157	0	-8.58E-05	1.152	3.973	5.938	-13.747	-3.975
157	2.500	-8.58E-05	1.152	3.973	5.938	-3.814	-1.096
158	0	-0.000109	1.177	4.063	6.088	-10.336	-2.990
158	2.500	-0.000109	1.177	4.063	6.088	-0.179375	-0.046784
159	0	0.000190	1.437	4.954	5.734	-6.981	-2.023
159	2.500	0.000190	1.437	4.954	5.734	5.404	1.570
160	0	-1.45E-17	-1.29E-11	3.71E-12	1.84E-14	-1.39E-12	4.45E-12
160	0.500	-1.45E-17	-1.29E-11	3.71E-12	1.84E-14	4.62E-13	-2.01E-12
	min:	-0.001313	-6.528	-17.266	-15.399	-109.615	-16.495
	max:	0.002133	2.439	22.495	7.800	80.910	16.853

Loadcase Factor Stage Init.def Title
52 1.0000 PRUEBA DE CARGA ESTADO 3

SUPPORT REACTIONS :

Node	FX [t]	FY [t]	FZ [t]	T [tm]	MY [tm]	MZ [tm]
6	-1.95E-06	1.97E-07	2.073			
10	-2.69E-06	-3.24E-07	-17.327			
52	4.42E-06	-1.43E-07	89.128			
108	5.17E-06	1.74E-07	100.997			
156	-2.09E-06	-2.40E-07	2.240			
160	-2.86E-06	3.36E-07	-18.110			
Sums :	6.17E-11	1.38E-17	159.000			
min:	-2.86E-06	-3.24E-07	-18.110	Undef	Undef	Undef
max:	5.17E-06	3.36E-07	100.997	Undef	Undef	Undef

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
1	8.19E-06	-8.56E-07	-0.113528	0.000227	-9.96E-06	-5.96E-10
2	9.42E-06	-1.00E-06	-0.105296	0.000236	-5.95E-06	2.65E-10
3	1.04E-05	-2.73E-07	-0.107606	0.000248	1.43E-07	5.41E-10
4	1.12E-05	7.25E-07	-0.120721	0.000263	5.26E-06	6.37E-10
5	1.18E-05	1.41E-06	-0.137444	0.000275	5.36E-06	1.55E-10
6	8.49E-06	-8.56E-07	-2.07E-97	0.000227	-9.96E-06	-5.96E-10
7	9.29E-06	-1.00E-06	0.012457	0.000236	-5.95E-06	2.65E-10
8	1.01E-05	-2.73E-07	0.016421	0.000248	1.43E-07	5.41E-10
9	1.09E-05	7.25E-07	0.010563	0.000263	5.26E-06	6.37E-10
10	1.17E-05	1.41E-06	1.73E-96	0.000275	5.36E-06	1.55E-10
11	8.55E-06	-1.04E-06	0.552452	0.000216	-2.56E-05	-6.23E-11
12	8.64E-06	-8.62E-07	0.592244	0.000227	-2.40E-05	3.02E-10
13	8.87E-06	-2.02E-07	0.629596	0.000241	-2.13E-05	4.83E-10
14	9.15E-06	6.70E-07	0.662601	0.000256	-1.90E-05	5.84E-10
15	9.43E-06	1.48E-06	0.692240	0.000271	-1.84E-05	5.08E-10
16	7.55E-06	-1.20E-06	1.060	0.000192	-4.60E-05	1.33E-10
17	7.55E-06	-7.99E-07	1.133	0.000204	-4.54E-05	4.17E-10
18	7.56E-06	-6.54E-08	1.207	0.000219	-4.44E-05	5.03E-10
19	7.57E-06	7.85E-07	1.280	0.000234	-4.36E-05	5.38E-10
20	7.54E-06	1.42E-06	1.349	0.000248	-4.33E-05	2.44E-10
21	6.23E-06	-1.28E-06	1.490	0.000153	-6.83E-05	1.79E-10
22	6.21E-06	-7.78E-07	1.595	0.000166	-6.81E-05	4.74E-10
23	6.21E-06	2.07E-08	1.711	0.000182	-6.78E-05	5.17E-10
24	6.17E-06	8.49E-07	1.822	0.000197	-6.75E-05	4.87E-10
25	6.14E-06	1.37E-06	1.930	0.000210	-6.73E-05	1.46E-10
26	4.83E-06	-1.30E-06	1.806	0.000101	-9.14E-05	1.89E-10
27	4.85E-06	-7.72E-07	1.952	0.000114	-9.14E-05	4.90E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
28	4.86E-06	4.92E-08	2.102	0.000129	-9.12E-05	5.18E-10
29	4.87E-06	8.69E-07	2.253	0.000144	-9.11E-05	4.69E-10
30	4.87E-06	1.36E-06	2.398	0.000158	-9.10E-05	1.24E-10
31	3.42E-06	-1.29E-06	1.971	3.29E-05	-0.000115	1.84E-10
32	3.47E-06	-7.81E-07	2.154	4.62E-05	-0.000115	4.82E-10
33	3.53E-06	3.30E-08	2.344	6.15E-05	-0.000115	5.18E-10
34	3.59E-06	8.64E-07	2.533	7.68E-05	-0.000114	4.77E-10
35	3.64E-06	1.37E-06	2.716	9.00E-05	-0.000114	1.31E-10
36	2.07E-06	-1.24E-06	1.948	-4.99E-05	-0.000139	1.25E-10
37	2.14E-06	-8.21E-07	2.169	-3.65E-05	-0.000138	4.39E-10
38	2.21E-06	-4.44E-08	2.397	-2.11E-05	-0.000138	5.18E-10
39	2.28E-06	8.28E-07	2.625	-5.67E-06	-0.000138	5.21E-10
40	2.34E-06	1.43E-06	2.845	7.15E-06	-0.000138	1.92E-10
41	1.00E-06	-1.12E-06	1.699	-0.000148	-0.000163	-7.53E-11
42	9.72E-07	-9.19E-07	1.959	-0.000134	-0.000162	3.45E-10
43	8.85E-07	-2.03E-07	2.226	-0.000119	-0.000161	5.19E-10
44	7.92E-07	7.39E-07	2.492	-0.000103	-0.000161	6.16E-10
45	7.52E-07	1.56E-06	2.748	-9.09E-05	-0.000160	3.91E-10
46	6.42E-07	-9.83E-07	1.185	-0.000262	-0.000189	-4.45E-10
47	1.65E-07	-1.06E-06	1.466	-0.000247	-0.000187	2.54E-10
48	-4.35E-07	-3.67E-07	1.753	-0.000230	-0.000185	5.25E-10
49	-1.04E-06	6.22E-07	2.056	-0.000216	-0.000182	7.12E-10
50	-1.53E-06	1.72E-06	2.357	-0.000205	-0.000181	2.46E-10
51	9.88E-07	-1.03E-06	0.364663	-0.000392	-0.000218	-5.45E-10
52	-4.03E-07	-1.07E-06	0.712573	-0.000374	-0.000216	3.18E-10
53	-1.77E-06	-3.01E-07	1.063	-0.000356	-0.000209	5.35E-10
54	-3.12E-06	6.42E-07	1.401	-0.000343	-0.000201	6.72E-10
55	-4.47E-06	1.71E-06	1.720	-0.000334	-0.000199	8.25E-10
56	2.88E-07	-1.42E-06	-0.797769	-0.000533	-0.000249	2.66E-10
57	-1.45E-06	-7.87E-07	-0.399966	-0.000518	-0.000248	5.24E-10
58	-3.16E-06	1.02E-07	-8.91E-96	-0.000502	-0.000233	5.56E-10
59	-4.83E-06	9.29E-07	0.367619	-0.000486	-0.000217	4.55E-10
60	-6.48E-06	1.40E-06	0.713941	-0.000473	-0.000217	1.42E-10
61	-4.44E-06	-1.98E-06	-1.011	-0.000670	-0.000276	1.22E-09
62	-5.23E-06	-3.72E-07	-2.570	-0.000660	-0.000274	8.82E-10
63	-5.99E-06	7.54E-07	-2.122	-0.000646	-0.000269	5.59E-10
64	-6.71E-06	1.33E-06	-1.681	-0.000627	-0.000265	1.39E-10
65	-7.42E-06	9.07E-07	-1.259	-0.000610	-0.000263	-7.15E-10
66	-1.12E-05	-1.72E-06	-5.462	-0.000660	-0.000305	1.16E-09
67	-9.98E-06	-2.80E-07	-4.974	-0.000648	-0.000305	7.34E-10
68	-8.88E-06	6.38E-07	-4.476	-0.000634	-0.000305	4.43E-10
69	-7.87E-06	1.09E-06	-3.965	-0.000619	-0.000304	1.24E-10
70	-6.87E-06	8.34E-07	-3.481	-0.000606	-0.000304	-4.58E-10
71	-1.33E-05	-7.06E-07	-7.594	-0.000506	-0.000330	-2.19E-10
72	-1.20E-05	-5.61E-07	-7.066	-0.000498	-0.000330	3.07E-10
73	-1.07E-05	2.69E-08	-6.520	-0.000489	-0.000331	3.63E-10
74	-9.38E-06	5.36E-07	-5.973	-0.000480	-0.000331	2.73E-10
75	-8.15E-06	8.63E-07	-5.444	-0.000473	-0.000331	1.87E-10
76	-1.39E-05	-4.51E-07	-9.036	-0.000283	-0.000346	1.24E-10
77	-1.29E-05	-2.27E-07	-8.481	-0.000278	-0.000347	1.80E-10
78	-1.18E-05	6.38E-08	-7.909	-0.000272	-0.000347	1.87E-10
79	-1.07E-05	3.39E-07	-7.335	-0.000267	-0.000348	1.56E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
80	-9.61E-06	4.83E-07	-6.779	-0.000262	-0.000347	2.55E-11
81	-1.59E-05	-5.81E-09	-9.579	-9.63E-06	-0.000354	9.91E-12
82	-1.42E-05	9.94E-09	-9.012	-8.87E-06	-0.000355	1.39E-11
83	-1.27E-05	3.09E-08	-8.426	-7.91E-06	-0.000355	1.63E-11
84	-1.12E-05	5.77E-08	-7.839	-7.00E-06	-0.000356	2.23E-11
85	-9.82E-06	9.41E-08	-7.269	-6.25E-06	-0.000356	2.95E-11
86	-1.42E-05	4.72E-07	-9.103	0.000266	-0.000350	-1.56E-10
87	-1.32E-05	2.50E-07	-8.543	0.000262	-0.000350	-1.54E-10
88	-1.21E-05	1.33E-08	-7.963	0.000258	-0.000351	-1.54E-10
89	-1.10E-05	-2.18E-07	-7.383	0.000254	-0.000351	-1.35E-10
90	-1.00E-05	-3.45E-07	-6.822	0.000250	-0.000351	-2.07E-11
91	-1.35E-05	6.80E-07	-7.712	0.000494	-0.000336	2.98E-10
92	-1.23E-05	6.41E-07	-7.174	0.000488	-0.000337	-2.50E-10
93	-1.09E-05	5.26E-07	-6.618	0.000480	-0.000337	-3.32E-10
94	-9.60E-06	-3.66E-07	-6.062	0.000471	-0.000337	-2.93E-10
95	-8.31E-06	-8.08E-07	-5.522	0.000466	-0.000337	-3.26E-10
96	-1.21E-05	1.67E-06	-5.605	0.000659	-0.000314	-9.93E-10
97	-1.07E-05	3.81E-07	-5.102	0.000649	-0.000314	-6.81E-10
98	-9.37E-06	-5.03E-07	-4.583	0.000636	-0.000314	-4.31E-10
99	-8.12E-06	-9.59E-07	-4.065	0.000623	-0.000314	-1.29E-10
100	-6.88E-06	-7.37E-07	-3.563	0.000611	-0.000313	4.19E-10
101	-5.90E-06	2.18E-06	-3.127	0.000687	-0.000288	-1.44E-09
102	-6.31E-06	3.77E-07	-2.667	0.000678	-0.000286	-9.40E-10
103	-6.75E-06	-7.88E-07	-2.199	0.000664	-0.000281	-5.57E-10
104	-7.21E-06	-1.33E-06	-1.739	0.000645	-0.000276	-9.08E-11
105	-7.68E-06	-7.72E-07	-1.299	0.000628	-0.000274	8.53E-10
106	1.37E-08	1.65E-06	-0.839580	0.000554	-0.000262	-4.59E-10
107	-1.86E-06	1.23E-07	-0.420590	0.000539	-0.000261	6.14E-10
108	-3.69E-06	-1.24E-07	-1.01E-95	0.000522	-0.000244	-5.86E-10
109	-5.49E-06	-9.61E-07	0.384026	0.000506	-0.000227	-4.41E-10
110	-7.24E-06	-1.36E-06	0.744874	0.000492	-0.000226	-6.37E-11
111	9.74E-07	1.23E-06	0.371014	0.000409	-0.000230	5.64E-10
112	-6.18E-07	1.22E-06	0.737019	0.000390	-0.000227	-3.67E-10
113	-2.16E-06	3.76E-07	1.105	0.000370	-0.000219	-5.81E-10
114	-3.69E-06	-6.23E-07	1.459	0.000357	-0.000210	6.14E-10
115	-5.20E-06	-1.77E-06	1.793	0.000348	-0.000208	-9.14E-10
116	5.67E-07	1.16E-06	1.225	0.000273	-0.000198	4.94E-10
117	4.04E-10	1.23E-06	1.542	0.000257	-0.000197	-2.75E-10
118	-6.97E-07	4.84E-07	1.864	0.000240	-0.000194	-5.72E-10
119	-1.39E-06	-5.90E-07	2.182	0.000225	-0.000191	-7.81E-10
120	-1.96E-06	-1.81E-06	2.486	0.000213	-0.000190	-8.52E-10
121	9.01E-07	1.31E-06	1.761	0.000154	-0.000171	8.40E-11
122	8.59E-07	1.09E-06	2.034	0.000140	-0.000170	-3.70E-10
123	7.46E-07	3.11E-07	2.315	0.000123	-0.000169	-5.66E-10
124	6.29E-07	-7.19E-07	2.593	0.000108	-0.000168	-6.80E-10
125	5.77E-07	-1.64E-06	2.862	9.44E-05	-0.000168	-4.55E-10
126	2.04E-06	1.44E-06	2.021	5.23E-05	-0.000145	-1.44E-10
127	2.11E-06	9.78E-07	2.254	3.82E-05	-0.000145	-4.75E-10
128	2.19E-06	1.35E-07	2.493	2.20E-05	-0.000145	-5.64E-10
129	2.26E-06	-8.19E-07	2.732	6.04E-06	-0.000144	-5.73E-10
130	2.33E-06	-1.49E-06	2.963	-7.60E-06	-0.000144	-2.29E-10
131	3.51E-06	1.50E-06	2.046	-3.39E-05	-0.000121	-2.13E-10

DISPLACEMENTS: **

Node	DX [mm]	DY [mm]	DZ [mm]	RX [rad]	RY [rad]	RZ [rad]
132	3.56E-06	9.33E-07	2.239	-4.78E-05	-0.000120	-5.25E-10
133	3.63E-06	4.63E-08	2.437	-6.39E-05	-0.000120	-5.64E-10
134	3.69E-06	-8.61E-07	2.636	-7.99E-05	-0.000120	-5.22E-10
135	3.74E-06	-1.43E-06	2.828	-9.38E-05	-0.000120	-1.57E-10
136	5.04E-06	1.51E-06	1.875	-0.000104	-9.59E-05	-2.20E-10
137	5.06E-06	9.22E-07	2.028	-0.000118	-9.58E-05	-5.35E-10
138	5.07E-06	2.67E-08	2.186	-0.000134	-9.57E-05	-5.64E-10
139	5.09E-06	-8.67E-07	2.344	-0.000150	-9.55E-05	-5.13E-10
140	5.09E-06	-1.41E-06	2.497	-0.000164	-9.54E-05	-1.49E-10
141	6.55E-06	1.49E-06	1.547	-0.000159	-7.17E-05	-2.09E-10
142	6.55E-06	9.28E-07	1.662	-0.000173	-7.15E-05	-5.18E-10
143	6.53E-06	5.59E-08	1.779	-0.000189	-7.11E-05	-5.62E-10
144	6.50E-06	-8.47E-07	1.896	-0.000205	-7.08E-05	-5.31E-10
145	6.46E-06	-1.42E-06	2.010	-0.000219	-7.06E-05	-1.73E-10
146	7.99E-06	1.41E-06	1.101	-0.000199	-4.82E-05	-1.61E-10
147	7.99E-06	9.49E-07	1.178	-0.000212	-4.76E-05	-4.58E-10
148	8.00E-06	1.46E-07	1.255	-0.000228	-4.66E-05	-5.48E-10
149	8.01E-06	-7.79E-07	1.332	-0.000244	-4.57E-05	-5.84E-10
150	7.99E-06	-1.47E-06	1.404	-0.000258	-4.54E-05	-2.75E-10
151	9.10E-06	1.24E-06	0.573946	-0.000224	-2.68E-05	4.25E-11
152	9.20E-06	1.01E-06	0.615644	-0.000236	-2.52E-05	-3.38E-10
153	9.43E-06	2.88E-07	0.654807	-0.000250	-2.23E-05	-5.27E-10
154	9.73E-06	-6.59E-07	0.689447	-0.000267	-1.99E-05	-6.31E-10
155	1.00E-05	-1.54E-06	0.720582	-0.000282	-1.93E-05	-5.51E-10
156	9.09E-06	1.05E-06	-2.24E-97	-0.000236	-1.04E-05	6.02E-10
157	9.53E-06	1.16E-06	0.012968	-0.000245	-6.19E-06	-3.00E-10
158	1.08E-05	3.62E-07	0.017084	-0.000258	1.51E-07	-5.88E-10
159	1.16E-05	-7.17E-07	0.010981	-0.000273	5.47E-06	-6.87E-10
160	1.24E-05	-1.46E-06	1.81E-96	-0.000286	5.56E-06	-1.80E-10
161	8.79E-06	1.05E-06	-0.117967	-0.000236	-1.04E-05	6.02E-10
162	1.01E-05	1.16E-06	-0.109439	-0.000245	-6.19E-06	-3.00E-10
163	1.11E-05	3.62E-07	-0.111909	-0.000258	1.51E-07	-5.88E-10
164	1.19E-05	-7.17E-07	-0.125620	-0.000273	5.47E-06	-6.87E-10
165	1.25E-05	-1.46E-06	-0.143055	-0.000286	5.56E-06	-1.80E-10
min:	-1.59E-05	-1.98E-06	-9.579	-0.000670	-0.000356	-1.44E-09
max:	1.25E-05	2.18E-06	2.963	0.000687	5.56E-06	1.22E-09

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	5.64E-19	2.53E-12	2.46E-12	5.69E-16	-3.51E-13	4.41E-13
1	0.500	5.64E-19	2.53E-12	2.46E-12	5.69E-16	8.79E-13	1.71E-12
2	0	-0.000560	-0.215419	0.729451	-5.178	-5.064	1.470
2	2.500	-0.000560	-0.215419	0.729451	-5.178	-3.241	0.931447
3	0	-0.000483	-0.323258	1.100	-6.734	-10.246	2.966
3	2.500	-0.000483	-0.323258	1.100	-6.734	-7.497	2.158
4	0	-0.000228	-0.340270	1.158	-7.395	-15.434	4.464
4	2.500	-0.000228	-0.340270	1.158	-7.395	-12.539	3.613
5	0	-7.26E-05	-0.343112	1.168	-7.641	-20.829	6.021
5	2.500	-7.26E-05	-0.343112	1.168	-7.641	-17.909	5.164
6	0	2.21E-05	-0.345449	1.176	-7.744	-26.324	7.608
6	2.500	2.21E-05	-0.345449	1.176	-7.744	-23.384	6.744
7	0	0.000155	-0.348704	1.187	-7.837	-31.869	9.209
7	2.500	0.000155	-0.348704	1.187	-7.837	-28.902	8.337
8	0	0.000358	-0.355224	1.208	-8.035	-37.492	10.832
8	2.500	0.000358	-0.355224	1.208	-8.035	-34.472	9.944
9	0	0.000425	-0.368954	1.256	-8.572	-43.335	12.519
9	2.500	0.000425	-0.368954	1.256	-8.572	-40.195	11.596
10	0	-0.000143	-0.481484	1.648	-9.747	-49.890	14.411
10	2.500	-0.000143	-0.481484	1.648	-9.747	-45.769	13.208
11	0	-0.001168	-1.313	4.523	-10.038	-57.166	16.516
11	2.500	-0.001168	-1.313	4.523	-10.038	-45.858	13.235
12	0	-0.001165	-3.225	11.155	-6.218	-55.190	15.945
12	3.600	-0.001165	-3.225	11.155	-6.218	-15.031	4.334
13	0	0.000539	-3.928	13.586	-6.759	-21.682	6.269
13	3.600	0.000539	-3.928	13.586	-6.759	27.227	-7.871
14	0	0.002117	-4.309	14.878	-5.677	19.484	-5.618
14	3.600	0.002117	-1.519	5.275	-5.677	50.958	-14.712
15	0	0.000534	-1.872	6.470	-3.710	46.053	-13.291
15	3.600	0.000534	-0.964899	3.349	-3.710	64.976	-18.760
16	0	0.000931	-1.216	4.199	-1.822	61.966	-17.885
16	3.600	0.000931	-1.216	4.199	-1.822	77.081	-22.262
17	0	0.001000	1.025	-3.541	0.973945	76.570	-22.114
17	3.600	0.001000	1.025	-3.541	0.973945	63.821	-18.422
18	0	0.000435	0.755461	-2.626	3.139	66.097	-19.083

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
18	3.600	0.000435	1.662	-5.747	3.139	48.215	-13.916
19	0	0.002078	1.323	-4.597	4.967	52.457	-15.144
19	3.600	0.002078	4.112	-14.200	4.967	23.423	-6.756
20	0	0.001059	3.708	-12.829	6.054	30.302	-8.757
20	3.600	0.001059	4.614	-15.950	6.054	-17.130	4.954
21	0	-0.001020	3.675	-12.710	6.026	-10.966	3.159
21	3.600	-0.001020	3.675	-12.710	6.026	-56.722	16.389
22	0	-0.001391	1.471	-5.072	10.626	-47.041	13.577
22	2.500	-0.001391	1.471	-5.072	10.626	-59.721	17.255
23	0	-0.000221	0.524121	-1.795	10.362	-47.568	13.727
23	2.500	-0.000221	0.524121	-1.795	10.362	-52.056	15.037
24	0	0.000459	0.395071	-1.345	9.053	-41.796	12.058
24	2.500	0.000459	0.395071	-1.345	9.053	-45.159	13.046
25	0	0.000403	0.379128	-1.290	8.450	-35.830	10.336
25	2.500	0.000403	0.379128	-1.290	8.450	-39.055	11.284
26	0	0.000179	0.371674	-1.265	8.229	-30.031	8.663
26	2.500	0.000179	0.371674	-1.265	8.229	-33.196	9.592
27	0	2.85E-05	0.368030	-1.253	8.126	-24.292	7.006
27	2.500	2.85E-05	0.368030	-1.253	8.126	-27.424	7.926
28	0	-7.53E-05	0.365513	-1.245	8.017	-18.595	5.361
28	2.500	-7.53E-05	0.365513	-1.245	8.017	-21.707	6.275
29	0	-0.000238	0.362558	-1.234	7.760	-13.008	3.748
29	2.500	-0.000238	0.362558	-1.234	7.760	-16.094	4.655
30	0	-0.000504	0.344944	-1.174	7.071	-7.764	2.235
30	2.500	-0.000504	0.344944	-1.174	7.071	-10.695	3.097
31	0	-0.000586	0.233945	-0.792735	5.444	-3.341	0.960067
31	2.500	-0.000586	0.233945	-0.792735	5.444	-5.323	1.545
32	0	2.62E-17	5.96E-12	-9.79E-13	6.43E-15	2.12E-12	-6.80E-13
32	0.500	2.62E-17	5.96E-12	-9.79E-13	6.43E-15	1.63E-12	2.10E-12
33	0	7.28E-20	7.27E-17	8.74E-13	-7.81E-17	-5.65E-14	-5.17E-18
33	0.500	7.28E-20	7.27E-17	8.74E-13	-7.81E-17	3.80E-13	3.12E-17
34	0	0.000299	8.60E-05	-2.310	-5.980	-2.320	-8.19E-05
34	2.500	0.000299	8.60E-05	-2.310	-5.980	-8.095	0.000133
35	0	0.000137	-0.000263	-2.868	-7.061	-9.845	0.000409
35	2.500	0.000137	-0.000263	-2.868	-7.061	-17.014	-0.000249

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
36	0	4.53E-05	-0.000281	-3.059	-7.523	-18.380	0.000391
36	2.500	4.53E-05	-0.000281	-3.059	-7.523	-26.028	-0.000311
37	0	1.14E-05	-0.000227	-3.106	-7.682	-27.204	0.000295
37	2.500	1.14E-05	-0.000227	-3.106	-7.682	-34.969	-0.000273
38	0	-1.93E-05	-0.000217	-3.121	-7.746	-36.071	0.000266
38	2.500	-1.93E-05	-0.000217	-3.121	-7.746	-43.874	-0.000277
39	0	-8.66E-05	-0.000247	-3.133	-7.804	-44.935	0.000279
39	2.500	-8.66E-05	-0.000247	-3.133	-7.804	-52.766	-0.000339
40	0	-0.000210	-0.000248	-3.156	-7.933	-53.764	0.000245
40	2.500	-0.000210	-0.000248	-3.156	-7.933	-61.655	-0.000375
41	0	-0.000296	-8.25E-05	-3.212	-8.311	-62.496	4.02E-05
41	2.500	-0.000296	-8.25E-05	-3.212	-8.311	-70.525	-0.000166
42	0	-2.44E-05	0.000202	-3.671	-9.413	-70.885	-0.000208
42	2.500	-2.44E-05	0.000202	-3.671	-9.413	-80.064	0.000296
43	0	0.000605	1.06E-05	-3.902	-10.491	-80.242	0.000130
43	2.500	0.000605	1.06E-05	-3.902	-10.491	-89.996	0.000156
44	0	0.000624	-0.000562	18.392	-6.080	-91.419	0.001185
44	3.600	0.000624	-0.000562	18.392	-6.080	-25.208	-0.000839
45	0	0.000139	-0.000822	18.300	-7.109	-27.803	0.001407
45	3.600	0.000139	-0.000822	18.300	-7.109	38.077	-0.001550
46	0	-0.000422	-7.19E-05	17.850	-5.809	36.637	-7.70E-05
46	3.600	-0.000422	-7.19E-05	7.850	-5.809	77.897	-0.000336
47	0	0.000502	-1.69E-05	8.070	-3.739	76.775	-3.07E-05
47	3.600	0.000502	-1.69E-05	4.820	-3.739	101.278	-9.15E-05
48	0	0.000355	-0.000410	5.480	-1.830	100.599	0.000658
48	3.600	0.000355	-0.000410	5.480	-1.830	120.325	-0.000819
49	0	0.000361	0.000341	-4.911	0.952053	120.209	-0.000696
49	3.600	0.000361	0.000341	-4.911	0.952053	102.528	0.000533
50	0	0.000587	7.96E-05	-3.994	3.212	103.043	-0.000189
50	3.600	0.000587	7.96E-05	-7.244	3.212	79.868	9.73E-05
51	0	-0.000390	-3.84E-05	-7.088	5.093	81.030	-0.000139
51	3.600	-0.000390	-3.84E-05	-17.088	5.093	42.512	-0.000277
52	0	-7.13E-06	0.000654	-17.644	6.418	43.773	-0.001303
52	3.600	-7.13E-06	0.000654	-20.894	6.418	-21.047	0.001053

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
53	0	0.000713	0.000739	-21.297	5.874	-18.456	-0.001172
53	3.600	0.000713	0.000739	-21.297	5.874	-95.124	0.001487
54	0	0.000801	1.91E-05	4.071	11.156	-93.605	0.000147
54	2.500	0.000801	1.91E-05	4.071	11.156	-83.427	0.000195
55	0	2.98E-05	-0.000247	3.852	9.993	-83.304	0.000373
55	2.500	2.98E-05	-0.000247	3.852	9.993	-73.676	-0.000245
56	0	-0.000318	6.88E-05	3.342	8.760	-73.353	-0.000152
56	2.500	-0.000318	6.88E-05	3.342	8.760	-64.998	2.02E-05
57	0	-0.000236	0.000262	3.282	8.336	-64.134	-0.000401
57	2.500	-0.000236	0.000262	3.282	8.336	-55.929	0.000254
58	0	-9.91E-05	0.000265	3.256	8.192	-54.889	-0.000365
58	2.500	-9.91E-05	0.000265	3.256	8.192	-46.749	0.000297
59	0	-2.27E-05	0.000231	3.244	8.127	-45.639	-0.000296
59	2.500	-2.27E-05	0.000231	3.244	8.127	-37.530	0.000282
60	0	1.16E-05	0.000239	3.228	8.060	-36.375	-0.000288
60	2.500	1.16E-05	0.000239	3.228	8.060	-28.305	0.000311
61	0	4.71E-05	0.000294	3.179	7.894	-27.073	-0.000326
61	2.500	4.71E-05	0.000294	3.179	7.894	-19.126	0.000409
62	0	0.000142	0.000275	2.978	7.412	-17.695	-0.000261
62	2.500	0.000142	0.000275	2.978	7.412	-10.250	0.000428
63	0	0.000313	-8.89E-05	2.397	6.282	-8.420	0.000138
63	2.500	0.000313	-8.89E-05	2.397	6.282	-2.428	-8.44E-05
64	0	2.41E-17	-3.87E-16	7.59E-13	2.20E-15	8.60E-13	5.26E-17
64	0.500	2.41E-17	-3.87E-16	7.59E-13	2.20E-15	1.24E-12	-1.41E-16
65	0	2.33E-21	1.11E-17	3.46E-13	1.03E-17	-6.37E-14	1.25E-17
65	0.500	2.33E-21	1.11E-17	3.46E-13	1.03E-17	1.09E-13	1.80E-17
66	0	0.000154	7.33E-05	-2.522	-7.088	-1.189	-0.000132
66	2.500	0.000154	7.33E-05	-2.522	-7.088	-7.494	5.10E-05
67	0	0.000295	-0.000104	-3.458	-7.644	-8.569	0.000144
67	2.500	0.000295	-0.000104	-3.458	-7.644	-17.214	-0.000116
68	0	0.000186	-0.000104	-3.546	-7.733	-17.609	0.000139
68	2.500	0.000186	-0.000104	-3.546	-7.733	-26.475	-0.000120
69	0	6.17E-05	-6.48E-05	-3.550	-7.745	-26.598	8.21E-05
69	2.500	6.17E-05	-6.48E-05	-3.550	-7.745	-35.472	-7.99E-05
70	0	-3.50E-05	-4.71E-05	-3.554	-7.747	-35.502	5.86E-05

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
70	2.500	-3.50E-05	-4.71E-05	-3.554	-7.747	-44.387	-5.91E-05
71	0	-0.000168	-4.14E-05	-3.559	-7.748	-44.358	5.18E-05
71	2.500	-0.000168	-4.14E-05	-3.559	-7.748	-53.256	-5.16E-05
72	0	-0.000343	-3.48E-05	-3.565	-7.750	-53.136	4.44E-05
72	2.500	-0.000343	-3.48E-05	-3.565	-7.750	-62.049	-4.26E-05
73	0	-0.000355	-2.04E-05	-3.581	-7.758	-61.683	2.92E-05
73	2.500	-0.000355	-2.04E-05	-3.581	-7.758	-70.636	-2.18E-05
74	0	0.000142	-1.09E-05	-3.580	-7.796	-69.544	2.10E-05
74	2.500	0.000142	-1.09E-05	-3.580	-7.796	-78.493	-6.21E-06
75	0	0.000873	-3.80E-05	-9.454	-7.977	-74.401	6.16E-05
75	2.500	0.000873	-3.80E-05	-9.454	-7.977	-98.035	-3.34E-05
76	0	0.000980	-0.000366	20.948	-8.461	-97.135	0.000661
76	3.600	0.000980	-0.000366	20.948	-8.461	-21.721	-0.000658
77	0	-0.000173	-0.000489	16.863	-8.108	-25.227	0.000824
77	3.600	-0.000173	-0.000489	16.863	-8.108	35.481	-0.000937
78	0	-0.000919	-0.000158	17.626	-5.998	35.051	0.000246
78	3.600	-0.000919	-0.000158	7.626	-5.998	75.506	-0.000323
79	0	5.55E-05	-6.54E-05	7.969	-3.777	75.491	3.26E-05
79	3.600	5.55E-05	-6.54E-05	4.719	-3.777	99.629	-0.000203
80	0	-4.93E-05	-0.000209	4.983	-1.842	99.571	0.000293
80	3.600	-4.93E-05	-0.000209	4.983	-1.842	117.509	-0.000458
81	0	-2.65E-05	0.000139	-4.624	0.928753	117.546	-0.000333
81	3.600	-2.65E-05	0.000139	-4.624	0.928753	100.399	0.000168
82	0	0.000169	0.000126	-3.610	3.308	100.729	-0.000312
82	3.600	0.000169	0.000126	-6.860	3.308	78.957	0.000141
83	0	-0.000945	9.03E-05	-7.065	5.272	79.246	-0.000210
83	3.600	-0.000945	9.03E-05	-17.065	5.272	40.813	0.000115
84	0	-0.000428	0.000376	-16.380	7.517	41.141	-0.000737
84	3.600	-0.000428	0.000376	-19.630	7.517	-19.126	0.000615
85	0	0.000997	0.000445	-24.096	8.583	-15.126	-0.000815
85	3.600	0.000997	0.000445	-24.096	8.583	-101.870	0.000787
86	0	0.001083	9.55E-05	10.385	8.323	-102.859	-0.000116
86	2.500	0.001083	9.55E-05	10.385	8.323	-76.895	0.000123
87	0	0.000233	3.44E-05	3.726	8.169	-81.526	-3.65E-05
87	2.500	0.000233	3.44E-05	3.726	8.169	-72.210	4.94E-05

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
88	0	-0.000373	2.75E-05	3.728	8.136	-73.444	-3.01E-05
88	2.500	-0.000373	2.75E-05	3.728	8.136	-64.124	3.87E-05
89	0	-0.000383	3.76E-05	3.710	8.129	-64.538	-4.57E-05
89	2.500	-0.000383	3.76E-05	3.710	8.129	-55.263	4.82E-05
90	0	-0.000191	4.35E-05	3.703	8.128	-55.400	-5.41E-05
90	2.500	-0.000191	4.35E-05	3.703	8.128	-46.142	5.46E-05
91	0	-4.25E-05	4.93E-05	3.698	8.127	-46.175	-6.19E-05
91	2.500	-4.25E-05	4.93E-05	3.698	8.127	-36.931	6.14E-05
92	0	6.33E-05	6.79E-05	3.693	8.125	-36.902	-8.37E-05
92	2.500	6.33E-05	6.79E-05	3.693	8.125	-27.670	8.61E-05
93	0	0.000194	0.000109	3.689	8.112	-27.542	-0.000126
93	2.500	0.000194	0.000109	3.689	8.112	-18.319	0.000146
94	0	0.000307	0.000105	3.598	8.018	-17.909	-0.000121
94	2.500	0.000307	0.000109	3.598	8.018	-8.914	0.000151
95	0	0.000160	-7.69E-05	2.624	7.435	-7.796	5.35E-05
95	2.500	0.000160	-7.69E-05	2.624	7.435	-1.237	-0.000139
96	0	7.06E-18	2.02E-16	3.40E-13	-2.93E-15	6.47E-13	-1.76E-16
96	0.500	7.06E-18	2.02E-16	3.40E-13	-2.93E-15	8.17E-13	-7.53E-17
97	0	-4.59E-19	1.18E-16	-2.06E-12	-1.51E-16	3.15E-13	-4.48E-17
97	0.500	-4.59E-19	1.18E-16	-2.06E-12	-1.51E-16	-7.15E-13	1.39E-17
98	0	-0.000120	-0.000265	-3.797	-8.020	1.093	0.000294
98	2.500	-0.000120	-0.000265	-3.797	-8.020	-8.398	-0.000369
99	0	0.000249	-0.000248	-4.061	-8.138	-7.901	0.000278
99	2.500	0.000249	-0.000248	-4.061	-8.138	-18.054	-0.000342
100	0	0.000140	-0.000151	-3.982	-7.901	-17.150	0.000153
100	2.500	0.000140	-0.000151	-3.982	-7.901	-27.104	-0.000224
101	0	4.27E-05	-0.000140	-3.982	-7.797	-26.093	0.000163
101	2.500	4.27E-05	-0.000140	-3.982	-7.797	-36.048	-0.000188
102	0	-1.01E-05	-0.000128	-3.987	-7.746	-34.985	0.000165
102	2.500	-1.01E-05	-0.000128	-3.987	-7.746	-44.953	-0.000154
103	0	-7.86E-05	-9.10E-05	-3.995	-7.692	-43.854	0.000144
103	2.500	-7.86E-05	-9.10E-05	-3.995	-7.692	-53.842	-8.31E-05
104	0	-0.000193	-8.15E-05	-4.014	-7.570	-52.683	0.000168
104	2.500	-0.000193	-8.15E-05	-4.014	-7.570	-62.717	-3.57E-05

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
105	0	-0.000254	-0.000224	-4.052	-7.214	-61.407	0.000346
105	2.500	-0.000254	-0.000224	-4.052	-7.214	-71.537	-0.000214
106	0	4.47E-05	-0.000480	-4.444	-6.197	-69.756	0.000572
106	2.500	4.47E-05	-0.000480	-4.444	-6.197	-80.866	-0.000627
107	0	0.000620	-0.000395	-4.378	-5.394	-78.899	0.000347
107	2.500	0.000620	-0.000395	-4.378	-5.394	-89.845	-0.000649
108	0	0.000597	-0.000361	17.031	-10.826	-88.511	0.000497
108	3.600	0.000597	-0.000361	17.031	-10.826	-27.201	-0.000802
109	0	-0.000352	-0.000307	16.367	-9.151	-26.210	0.000546
109	3.600	-0.000352	-0.000307	16.367	-9.151	32.710	-0.000561
110	0	-0.000836	-0.000358	17.451	-6.119	33.125	0.000716
110	3.600	-0.000836	-0.000358	7.451	-6.119	72.949	-0.000572
111	0	-0.000296	-0.000237	7.907	-3.767	74.162	0.000370
111	3.600	-0.000296	-0.000237	4.657	-3.767	92.077	-0.000483
112	0	-0.000423	-8.98E-05	4.330	-1.955	98.767	9.73E-05
112	3.600	-0.000423	-8.98E-05	4.330	-1.955	114.356	-0.000226
113	0	-0.000415	-4.73E-06	-4.024	1.106	114.445	-6.76E-05
113	3.600	-0.000415	-4.73E-06	-4.024	1.106	99.960	-8.46E-05
114	0	-0.000223	0.000288	-6.038	3.202	99.906	-0.000594
114	3.600	-0.000223	0.000288	-6.038	3.202	78.171	0.000442
115	0	-0.000891	0.000324	-4.548	5.402	76.242	-0.000504
115	3.600	-0.000891	0.000324	-17.798	5.402	38.094	0.000662
116	0	-0.000551	0.000231	-16.147	8.670	38.137	-0.000398
116	3.600	-0.000551	0.000231	-19.397	8.670	-21.294	0.000434
117	0	0.000549	0.000341	-19.522	11.317	-22.025	-0.000783
117	3.600	0.000549	0.000341	-19.522	11.317	-92.306	0.000445
118	0	0.000730	0.000471	4.649	5.404	-93.692	-0.000779
118	2.500	0.000730	0.000471	4.649	5.404	-82.069	0.000397
119	0	7.28E-05	0.000570	4.683	6.356	-84.209	-0.000756
119	2.500	7.28E-05	0.000570	4.683	6.356	-72.500	0.000667
120	0	-0.000279	0.000261	4.229	7.519	-74.429	-0.000256
120	2.500	-0.000279	0.000261	4.229	7.519	-63.857	0.000396
121	0	-0.000218	8.50E-05	4.183	7.925	-65.252	-3.18E-05
121	2.500	-0.000218	8.50E-05	4.183	7.925	-54.795	0.000181
122	0	-9.05E-05	8.99E-05	4.161	8.063	-56.018	-7.73E-05

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
122	2.500	-9.05E-05	8.99E-05	4.161	8.063	-45.615	0.000148
123	0	-1.29E-05	0.000131	4.152	8.124	-46.770	-0.000157
123	2.500	-1.29E-05	0.000131	4.152	8.124	-36.391	0.000170
124	0	4.45E-05	0.000147	4.147	8.178	-37.507	-0.000196
124	2.500	4.45E-05	0.000147	4.147	8.178	-27.140	0.000170
125	0	0.000146	0.000159	4.146	8.286	-28.202	-0.000235
125	2.500	0.000146	0.000159	4.146	8.286	-17.836	0.000162
126	0	0.000260	0.000260	4.230	8.532	-18.787	-0.000358
126	2.500	0.000260	0.000260	4.230	8.532	-8.212	0.000292
127	0	-0.000126	0.000277	3.956	8.404	-8.738	-0.000385
127	2.500	-0.000126	0.000277	3.956	8.404	1.152	0.000307
128	0	2.21E-17	1.60E-16	-9.78E-12	-1.04E-14	5.39E-12	-1.44E-17
128	0.500	2.21E-17	1.60E-16	-9.78E-12	-1.04E-14	4.99E-13	6.55E-17
129	0	-4.47E-19	-4.85E-13	1.70E-12	2.06E-16	-8.78E-15	5.47E-13
129	0.500	-4.47E-19	-4.85E-13	1.70E-12	2.06E-16	8.42E-13	3.04E-13
130	0	0.000227	-2.058	-7.095	-7.850	7.384	2.145
130	2.500	0.000227	-2.058	-7.095	-7.850	-10.353	-2.999
131	0	-0.000196	-1.674	-5.776	-8.232	-1.112	-0.314462
131	2.500	-0.000196	-1.674	-5.776	-8.232	-15.553	-4.499
132	0	-0.000143	-1.635	-5.642	-7.960	-6.794	-1.955
132	2.500	-0.000143	-1.635	-5.642	-7.960	-20.859	-6.042
133	0	-4.30E-05	-1.624	-5.604	-7.821	-12.333	-3.554
133	2.500	-4.30E-05	-1.624	-5.604	-7.821	-26.342	-7.613
134	0	4.23E-05	-1.619	-5.588	-7.745	-17.861	-5.150
134	2.500	4.23E-05	-1.619	-5.588	-7.745	-31.832	-9.198
135	0	0.000178	-1.615	-5.575	-7.660	-23.411	-6.752
135	2.500	0.000178	-1.615	-5.575	-7.660	-37.350	-10.791
136	0	0.000389	-1.608	-5.551	-7.472	-29.030	-8.374
136	2.500	0.000389	-1.608	-5.551	-7.472	-42.906	-12.394
137	0	0.000480	-1.591	-5.493	-6.967	-34.845	-10.053
137	2.500	0.000480	-1.591	-5.493	-6.967	-48.578	-14.031
138	0	-1.92E-05	-1.470	-5.068	-5.889	-41.296	-11.915
138	2.500	-1.92E-05	-1.470	-5.068	-5.889	-53.967	-15.589
139	0	-0.000930	-0.623422	-2.142	-5.805	-48.219	-13.918
139	2.500	-0.000930	-0.623422	-2.142	-5.805	-53.574	-15.477

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
140	0	-0.001035	1.630	5.660	-10.621	-45.022	-12.993
140	3.600	-0.001035	1.630	5.660	-10.621	-24.646	-7.126
141	0	-0.000153	2.272	7.880	-9.423	-13.086	-3.772
141	3.600	-0.000153	2.272	7.880	-9.423	15.281	4.407
142	0	6.06E-05	1.510	5.243	-6.180	24.424	7.060
142	3.600	6.06E-05	1.510	5.243	-6.180	43.297	12.496
143	0	-0.000796	0.883102	3.067	-3.768	48.129	13.900
143	3.600	-0.000796	0.883102	3.067	-3.768	59.168	17.079
144	0	-0.000814	0.473607	1.642	-1.990	62.224	17.966
144	3.600	-0.000814	0.473607	1.642	-1.990	68.134	19.672
145	0	-0.000920	-0.522278	-1.807	1.220	68.637	19.818
145	3.600	-0.000920	-0.522278	-1.807	1.220	62.131	17.938
146	0	-0.000968	-0.761251	-2.645	3.084	59.574	17.196
146	3.600	-0.000968	-0.761251	-2.645	3.084	50.054	14.455
147	0	0.000148	-1.493	-5.182	5.491	46.291	13.361
147	3.600	0.000148	-1.493	-5.182	5.491	27.637	7.987
148	0	-7.25E-05	-2.383	-8.265	9.004	19.190	5.536
148	3.600	-7.25E-05	-2.383	-8.265	9.004	-10.565	-3.044
149	0	-0.001238	-1.933	-6.709	11.102	-22.359	-6.465
149	3.600	-0.001238	-1.933	-6.709	11.102	-46.511	-13.424
150	0	-0.001223	0.572172	1.964	5.864	-55.370	-15.996
150	2.500	-0.001223	0.572172	1.964	5.864	-50.460	-14.566
151	0	-0.000114	1.526	5.262	6.001	-56.229	-16.243
151	2.500	-0.000114	1.526	5.262	6.001	-43.074	-12.428
152	0	0.000511	1.662	5.737	7.236	-50.605	-14.617
152	2.500	0.000511	1.662	5.737	7.236	-36.262	-10.461
153	0	0.000434	1.681	5.801	7.813	-44.682	-12.907
153	2.500	0.000434	1.681	5.801	7.813	-30.180	-8.706
154	0	0.000202	1.689	5.828	8.027	-38.896	-11.237
154	2.500	0.000202	1.689	5.828	8.027	-24.325	-7.016
155	0	4.98E-05	1.693	5.843	8.121	-33.153	-9.580
155	2.500	4.98E-05	1.693	5.843	8.121	-18.547	-5.347
156	0	-4.40E-05	1.698	5.859	8.202	-27.441	-7.931
156	2.500	-4.40E-05	1.698	5.859	8.202	-12.794	-3.686

SECTION FORCES: **

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
157	0	-0.000149	1.709	5.899	8.347	-21.779	-6.296
157	2.500	-0.000149	1.709	5.899	8.347	-7.030	-2.023
158	0	-0.000205	1.750	6.039	8.629	-16.215	-4.691
158	2.500	-0.000205	1.750	6.039	8.629	-1.117	-0.315693
159	0	0.000239	2.150	7.415	8.223	-10.801	-3.129
159	2.500	0.000239	2.150	7.415	8.223	7.736	2.247
160	0	-4.43E-17	-2.14E-11	4.12E-12	-8.76E-17	-1.38E-12	7.30E-12
160	0.500	-4.43E-17	-2.14E-11	4.12E-12	-8.76E-17	6.80E-13	-3.40E-12
	min:	-0.001391	-4.309	-24.096	-10.826	-102.859	-22.262
	max:	0.002117	4.614	20.948	11.317	120.325	19.818

ENVELOPE SPECIFIC.: DV 'COMBINACION SOBRECARGAS'

Group	Spec.	Loadcase	Factor	Stage	Title
A	PERM.	1		0	PESO PROPIO
B	PLUS	6	1.000		SOB UNIF 1
C	PLUS	7	1.000		SOB UNIF 2
D	PLUS	8	1.000		SOB UNIF 3
E	PLUS	9	1.000		SOB UNIF 4
F	PLUS	10	1.000		SOB UNIF 5
G	PLUS	11	1.000		VEHICULO HIPOTESIS 11
H	OR	12	1.000		VEHICULO HIPOTESIS 12
I	OR	13	1.000		VEHICULO HIPOTESIS 13
J	OR	14	1.000		VEHICULO HIPOTESIS 14
K	OR	15	1.000		VEHICULO HIPOTESIS 15
L	OR	16	1.000		VEHICULO POSICION 16
M	OR	17	1.000		VEHICULO POSICION 17
N	OR	18	1.000		VEHICULO POSICION 18
O	OR	19	1.000		VEHICULO POSICION 19
P	OR	20	1.000		VEHICULO HIPOTESIS 20
Q	OR	21	1.000		VEHICULO HIPOTESIS 21
R	OR	22	1.000		VEHICULO HIPOTESIS 22
S	OR	23	1.000		VEHICULO HIPOTESIS 23
T	OR	24	1.000		VEHICULO HIPOTESIS 24
U	OR	25	1.000		VEHICULO POSICION 25
V	OR	26	1.000		VEHICULO POSICION 26
W	OR	27	1.000		VEHICULO POSICION 27
X	OR	28	1.000		VEHICULO POSICION 28
Y	OR	37	1.000		VEHICULO HIPOTESIS 37
Z	OR	38	1.000		VEHICULO HIPOTESIS 38
AA	OR	39	1.000		VEHICULO HIPOTESIS 39
AB	OR	40	1.000		VEHICULO HIPOTESIS 40
AC	OR	41	1.000		VEHICULO HIPOTESIS 41
AD	OR	42	1.000		VEHICULO POSICION 42
AE	OR	43	1.000		VEHICULO POSICION 43
AF	OR	44	1.000		VEHICULO POSICION 44
AG	OR	45	1.000		VEHICULO POSICION 45
ALTERNATIVE ENVELOPE :					
AH	PERM.	1		0	PESO PROPIO
AI	PLUS	46	1.000		SOB UNIF VANO 1
AJ	PLUS	47	1.000		SOB UNIF VANO 2
AK	PLUS	48	1.000		SOB UNIF VANO 3
AL	PLUS	11	1.000		VEHICULO HIPOTESIS 11
AM	OR	12	1.000		VEHICULO HIPOTESIS 12
AN	OR	13	1.000		VEHICULO HIPOTESIS 13
AO	OR	14	1.000		VEHICULO HIPOTESIS 14
AP	OR	15	1.000		VEHICULO HIPOTESIS 15
AQ	OR	16	1.000		VEHICULO POSICION 16
AR	OR	17	1.000		VEHICULO POSICION 17
AS	OR	18	1.000		VEHICULO POSICION 18
AT	OR	19	1.000		VEHICULO POSICION 19
AU	OR	20	1.000		VEHICULO HIPOTESIS 20
AV	OR	21	1.000		VEHICULO HIPOTESIS 21
AW	OR	22	1.000		VEHICULO HIPOTESIS 22
AX	OR	23	1.000		VEHICULO HIPOTESIS 23
AY	OR	24	1.000		VEHICULO HIPOTESIS 24
AZ	OR	25	1.000		VEHICULO POSICION 25
BA	OR	26	1.000		VEHICULO POSICION 26
BB	OR	27	1.000		VEHICULO POSICION 27
BC	OR	28	1.000		VEHICULO POSICION 28
BD	OR	37	1.000		VEHICULO HIPOTESIS 37
BE	OR	38	1.000		VEHICULO HIPOTESIS 38
BF	OR	39	1.000		VEHICULO HIPOTESIS 39
BG	OR	40	1.000		VEHICULO HIPOTESIS 40
BH	OR	41	1.000		VEHICULO HIPOTESIS 41
BI	OR	42	1.000		VEHICULO POSICION 42
BJ	OR	43	1.000		VEHICULO POSICION 43
BK	OR	44	1.000		VEHICULO POSICION 44
BL	OR	45	1.000		VEHICULO POSICION 45

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
1	0	-9.93E-19	4.14E-12	4.30E-12	4.58E-16	-1.25E-12	6.95E-13
		3.75E-18	1.70E-09	-5.87E-09	-2.83E-16	2.45E-12	-1.30E-12
		Min: AH AJ AY			Max: AH AI AK AV		
1	0.500	4.99E-18	0.170464	-0.586739	1.59E-15	-0.146685	0.042616
		-9.93E-19	4.14E-12	4.30E-12	4.58E-16	9.01E-13	2.76E-12
		Min: A B C D E Q			Max: AH AJ AY		
2	0	-0.001319	-10.183	35.095	-41.641	-39.800	11.559
		0.002074	5.045	-17.353	32.534	31.464	-9.136
		Min: A B C D H			Max: A E F R		
2	2.500	0.001670	4.973	-17.117	29.053	-14.746	4.290
		0.002129	-8.828	30.443	-36.177	56.173	-16.277
		Min: A E F T			Max: A B C D G		
3	0	0.000341	-5.733	19.747	-37.901	-17.745	5.159
		0.000474	3.641	-12.502	37.212	41.519	-12.029
		Min: A B C J			Max: A D E F Q		
3	2.500	-0.000265	2.248	-7.757	11.082	-20.829	6.025
		0.001713	-5.034	17.395	-22.085	64.790	-18.726
		Min: AH AJ AY			Max: AH AI AK AM		
4	0	-0.000306	-0.465358	1.584	-9.966	-20.673	5.979
		-0.000613	-0.327814	1.169	13.175	58.570	-16.926
		Min: AH AJ AP			Max: AH AI AK AV		
4	2.500	-0.000194	2.195	-7.577	10.720	-27.976	8.088
		0.002341	-4.716	16.289	-19.326	87.056	-25.153
		Min: AH AJ AY			Max: AH AI AK AM		
5	0	-9.62E-05	-0.469173	1.597	-10.297	-27.884	8.061
		0.001214	-1.588	5.488	0.088170	72.294	-20.874
		Min: AH AJ AP			Max: AH AI AK BE		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
5	2.500	-6.03E-05	2.180	-7.525	10.533	-35.249	10.187
		0.004931	-2.119	7.324	-11.419	101.045	-29.192
		Min: AH AJ AY			Max: AH AI AK AM		
6	0	3.57E-05	-0.472454	1.609	-10.439	-35.229	10.182
		0.004691	-0.675721	2.313	-5.713	91.833	-26.516
		Min: AH AJ AP			Max: AH AI AK AM		
6	2.500	5.76E-05	2.174	-7.504	10.427	-42.588	12.306
		0.004691	3.280	-11.304	0.087435	83.266	-24.037
		Min: AH AJ AY			Max: AH AI AK AM		
7	0	0.000223	-0.477255	1.624	-10.574	-42.646	12.323
		0.001493	1.877	-6.500	1.366	83.192	-24.020
		Min: AH AJ AP			Max: AH AI AK AM		
7	2.500	0.000247	2.169	-7.485	10.302	-49.965	14.436
		0.000158	1.922	-6.646	-1.082	63.863	-18.437
		Min: AH AJ AY			Max: AH AI AK BE		
8	0	0.000497	-0.487114	1.657	-10.872	-50.181	14.498
		0.000387	2.010	-6.969	1.888	65.333	-18.862
		Min: AH AJ AP			Max: AH AI AK AM		
8	2.500	0.000531	2.156	-7.448	10.019	-57.399	16.581
		0.000672	-1.033	3.544	-16.053	52.085	-15.051
		Min: AH AJ AY			Max: AH AI AK AN		
9	0	0.000548	-0.508127	1.730	-11.684	-58.045	16.768
		0.000457	2.388	-8.278	1.512	46.320	-13.375
		Min: AH AJ AP			Max: AH AI AK AM		
9	2.500	0.000615	2.132	-7.360	9.253	-65.007	18.777
		0.002733	-1.025	3.505	-15.760	47.118	-13.623
		Min: AH AJ AY			Max: AH AI AK AN		
10	0	-0.000336	-0.675286	2.313	-13.477	-66.979	19.348
		0.005274	-2.641	9.047	-16.394	31.932	-9.209
		Min: AH AJ AP			Max: AH AI AK AN		
10	2.500	2.55E-05	4.150	-14.336	6.316	-74.810	21.611
		0.005077	2.221	-7.653	-3.506	27.828	-8.045
		Min: AH AI AJ AY			Max: AH AK AN		
11	0	-0.002438	-0.676739	2.304	-15.360	-81.525	23.558
		0.003494	0.448416	-1.570	-3.447	22.510	-6.503
		Min: AH AI AJ AP			Max: AH AK AN		
11	2.500	-0.002097	2.777	-9.587	6.042	-89.737	25.924
		9.64E-05	-0.272197	0.937395	-2.010	11.692	-3.378
		Min: AH AI AJ AY			Max: AH AK AS		
12	0	-0.001970	-4.697	16.231	-6.798	-92.509	26.728
		0.000149	0.535027	-1.849	2.180	12.136	-3.507
		Min: AH AI AJ AP			Max: AH AK BE		
12	3.600	-0.001605	-1.361	4.743	16.224	-53.963	15.595

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		0.004202	1.549	-5.309	-0.345341	23.332	-6.741
		Min: AH AI AJ AY			Max: AH AK AO		
13	0	0.000729	-5.504	19.028	-9.100	-49.063	14.177
		0.003362	-1.197	4.114	0.560904	23.086	-6.671
		Min: AH AI AJ AP			Max: AH AK AO		
13	3.600	0.000263	-0.197156	0.686084	3.933	-30.636	8.847
		0.001280	-1.625	5.644	0.906568	29.934	-8.641
		Min: AH AI AM			Max: AH AJ AK BG		
14	0	0.000384	-0.622918	2.155	-2.247	-30.131	8.701
		0.000744	-1.155	4.002	7.529	34.550	-9.980
		Min: AH AI AV			Max: AH AJ AK AO		
14	3.600	0.000337	0.054850	-0.184354	2.818	-27.235	7.866
		0.000428	-3.355	11.618	-11.395	66.154	-19.107
		Min: AH AI AK AM			Max: AH AJ AP		
15	0	9.69E-05	-0.390175	1.348	-2.485	-27.141	7.838
		-0.001173	-1.699	5.891	9.611	64.576	-18.653
		Min: AH AI AK AV			Max: AH AJ AY		
15	3.600	7.93E-05	0.054970	-0.185561	2.605	-25.049	7.235
		0.000436	-2.834	9.811	-11.324	96.502	-27.869
		Min: AH AI AK AM			Max: AH AJ AP		
16	0	1.29E-06	-0.390950	1.350	-2.533	-25.027	7.228
		0.000673	-1.745	6.028	0.864717	89.163	-25.741
		Min: AH AI AK AV			Max: AH AJ BH		
16	3.600	-1.48E-05	0.054145	-0.183143	2.557	-22.927	6.622
		0.004136	-0.148746	0.540549	-3.496	116.980	-33.782
		Min: AH AI AK AM			Max: AH AJ AP		
17	0	-1.48E-05	-0.054145	0.183143	-2.557	-22.927	6.622
		0.004136	0.148746	-0.540549	3.496	116.980	-33.782
		Min: AH AI AK AS			Max: AH AJ AP		
17	3.600	1.29E-06	0.390950	-1.350	2.533	-25.027	7.228
		0.000673	1.745	-6.028	-0.864717	89.163	-25.741
		Min: AH AI AK BE			Max: AH AJ BH		
18	0	7.93E-05	-0.054970	0.185561	-2.605	-25.049	7.235
		0.000436	2.834	-9.811	11.324	96.502	-27.869
		Min: AH AI AK AS			Max: AH AJ AP		
18	3.600	9.69E-05	0.390175	-1.348	2.485	-27.141	7.838
		-0.001173	1.699	-5.891	-9.611	64.576	-18.653
		Min: AH AI AK BE			Max: AH AJ AY		
19	0	0.000337	-0.054850	0.184354	-2.818	-27.235	7.866
		0.000428	3.355	-11.618	11.395	66.154	-19.107
		Min: AH AI AK AS			Max: AH AJ AP		
19	3.600	0.000384	0.622918	-2.155	2.247	-30.131	8.701
		0.000757	1.141	-3.954	-7.507	35.135	-10.149

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: AH AK BE			Max: AH AI AJ AQ		
20	0	0.000263	0.197156	-0.686084	-3.933	-30.638	8.847
		0.001280	1.625	-5.644	-0.906568	29.934	-8.641
		Min: AH AK AS			Max: AH AI AJ BI		
20	3.600	0.000729	5.504	-19.028	-9.100	-49.063	14.177
		0.003486	1.192	-4.097	-0.405695	23.823	-6.884
		Min: AH AJ AK AP			Max: AH AI AQ		
21	0	-0.001609	1.361	-4.743	-16.224	-53.963	15.595
		0.004144	-1.382	4.734	0.443405	24.145	-6.976
		Min: AH AJ AK AY			Max: AH AI AQ		
21	3.600	-0.001970	4.697	-16.231	6.798	-92.509	26.728
		0.000149	-0.535027	1.849	-2.180	12.136	-3.507
		Min: AH AJ AK AP			Max: AH AI AV		
22	0	-0.002097	-2.777	9.587	-6.042	-89.737	25.924
		9.64E-05	0.272197	-0.937395	2.010	11.692	-3.378
		Min: AH AJ AK AY			Max: AH AI AM		
22	2.500	-0.002438	0.676739	-2.304	15.360	-81.525	23.558
		0.003454	-0.434240	1.522	3.439	22.298	-6.441
		Min: AH AJ AK AP			Max: AH AI AR		
23	0	2.55E-05	-4.150	14.336	-6.316	-74.810	21.611
		0.005028	-2.202	7.586	3.555	27.545	-7.963
		Min: AH AJ AK AY			Max: AH AI AR		
23	2.500	-0.000336	0.675286	-2.313	13.477	-66.979	19.348
		0.005225	2.661	-9.114	16.443	32.549	-9.388
		Min: AH AJ AP			Max: AH AI AK AR		
24	0	0.000615	-2.132	7.360	-9.253	-65.007	18.777
		0.002801	1.049	-3.588	15.710	47.551	-13.749
		Min: AH AJ AY			Max: AH AI AK AR		
24	2.500	0.000548	0.508127	-1.730	11.684	-58.045	16.768
		0.000457	-2.388	8.278	-1.512	46.320	-13.375
		Min: AH AJ AP			Max: AH AI AK AS		
25	0	0.000531	-2.156	7.448	-10.019	-57.399	16.581
		0.000694	1.040	-3.569	16.045	52.295	-15.112
		Min: AH AJ AY			Max: AH AI AK AR		
25	2.500	0.000497	0.487114	-1.657	10.872	-50.181	14.498
		0.000387	-2.010	6.969	-1.888	65.333	-18.862
		Min: AH AJ AP			Max: AH AI AK AS		
26	0	0.000247	-2.169	7.485	-10.302	-49.965	14.436
		0.000158	-1.922	6.646	1.082	63.863	-18.437
		Min: AH AJ AY			Max: AH AI AK BK		
26	2.500	0.000223	0.477255	-1.624	10.574	-42.646	12.323
		0.001493	-1.877	6.500	-1.366	83.192	-24.020
		Min: AH AI AP			Max: AH AI AK AS		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
27	0	5.76E-05	-2.174	7.504	-10.427	-42.588	12.306
		0.004691	-3.280	11.304	-0.087435	83.266	-24.037
		Min: AH AJ AY			Max: AH AI AK AS		
27	2.500	3.57E-05	0.472454	-1.609	10.439	-35.229	10.182
		0.004691	0.675721	-2.313	5.713	91.833	-26.516
		Min: AH AJ AP			Max: AH AI AK AS		
28	0	-6.03E-05	-2.180	7.525	-10.533	-35.249	10.187
		0.004931	2.119	-7.324	11.419	101.045	-29.192
		Min: AH AJ AY			Max: AH AI AK AS		
28	2.500	-9.62E-05	0.469173	-1.597	10.297	-27.884	8.061
		0.001214	1.588	-5.488	-0.088170	72.294	-20.874
		Min: AH AJ AP			Max: AH AI AK BK		
29	0	-0.000194	-2.195	7.577	-10.720	-27.976	8.088
		0.002341	4.716	-16.289	19.326	87.056	-25.153
		Min: AH AJ AY			Max: AH AI AK AS		
29	2.500	-0.000306	0.465358	-1.584	9.966	-20.673	5.979
		-0.000612	0.327814	-1.169	-13.175	58.570	-16.926
		Min: AH AJ AP			Max: AH AI AK BE		
30	0	-0.000265	-2.248	7.757	-11.082	-20.829	6.025
		0.001713	5.034	-17.395	22.085	64.790	-18.726
		Min: AH AJ AY			Max: AH AI AK AS		
30	2.500	0.000338	5.725	-19.717	37.875	-17.784	5.170
		0.000474	-3.641	12.502	-37.212	41.519	-12.029
		Min: A B C L			Max: A D E F W		
31	0	0.001670	-4.973	17.117	-29.053	-14.746	4.290
		0.002164	8.846	-30.503	36.168	56.327	-16.322
		Min: A E F T			Max: A B C D G		
31	2.500	-0.001319	10.183	-35.095	41.641	-39.800	11.559
		0.002075	-5.042	17.344	-32.535	31.466	-9.136
		Min: A B C D N			Max: A E F V		
32	0	-8.20E-17	-0.170464	0.586739	1.69E-14	-0.146685	0.042616
		3.67E-17	9.45E-12	-1.81E-12	-1.14E-14	3.03E-12	-1.42E-12
		Min: A B C D E N			Max: AH AJ AY		
32	0.500	-1.05E-16	-1.72E-09	5.86E-09	2.63E-14	-3.90E-12	-6.50E-12
		3.67E-17	9.45E-12	-1.81E-12	-1.14E-14	2.13E-12	3.31E-12
		Min: AH AI AK BK			Max: AH AJ AY		
33	0	7.01E-20	-1.23E-17	4.18E-12	-1.96E-16	-8.14E-13	-5.46E-19
		2.97E-20	-7.07E-16	-1.47E-12	2.97E-16	4.73E-13	2.34E-16
		Min: AH AJ AL			Max: A B D E F AA		
33	0.500	-2.98E-19	-6.77E-16	-0.330000	-3.10E-17	-0.082500	-1.13E-16
		-2.10E-19	-3.57E-17	4.38E-12	1.44E-12	-1.59E-17	
		Min: A B C E F AA			Max: AH AJ BE		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
34	0	0.000982	-0.001105	8.792	-38.579	-8.233	0.001283
		-0.002130	0.001175	4.606	28.914	12.140	-0.001569
	Min:	A B C I		Max:	A D E F P		
34	2.500	-0.000162	0.000356	-5.082	10.793	-11.226	0.000495
		-0.000972	-0.003799	14.801	-19.188	53.450	-0.005240
	Min:	AH AJ AY		Max:	AH AI AK AL		
35	0	0.000182	-0.000354	-3.826	-9.518	-13.167	0.000550
		-0.002003	6.34E-05	20.310	-9.885	56.306	-0.000952
	Min:	AH AJ AP		Max:	AH AI AK AL		
35	2.500	0.000333	0.000335	-5.434	10.957	-24.134	0.000461
		-0.000525	-0.001054	15.821	-21.138	84.489	-0.001524
	Min:	AH AJ AY		Max:	AH AI AK AM		
36	0	6.03E-05	-0.000377	-4.084	-10.138	-24.570	0.000525
		-0.001245	0.001626	10.489	14.406	83.981	-0.002098
	Min:	AH AJ AP		Max:	AH AI AK AV		
36	2.500	0.000187	0.000205	-5.326	10.641	-36.229	0.000303
		0.000547	-0.001619	13.932	-18.475	120.388	-0.002400
	Min:	AH AJ AY		Max:	AH AI AK AM		
37	0	1.46E-05	-0.000307	-4.147	-10.351	-36.361	0.000399
		2.67E-05	-0.001305	15.402	-12.876	119.300	0.001087
	Min:	AH AJ AP		Max:	AH AI AK AM		
37	2.500	5.53E-05	0.000189	-5.327	10.502	-48.182	0.000253
		2.67E-05	-0.001305	4.872	-12.876	142.423	-0.002177
	Min:	AH AJ AY		Max:	AH AI AK AM		
38	0	-2.88E-05	-0.000296	-4.167	-10.439	-48.211	0.000361
		0.000174	0.001143	-0.204765	-3.986	141.453	-0.001920
	Min:	AH AJ AP		Max:	AH AI AK AM		
38	2.500	-1.83E-05	0.000170	-5.334	10.432	-60.082	0.000204
		0.000174	0.001143	-10.735	-3.986	129.999	0.000937
	Min:	AH AJ AY		Max:	AH AI AK AM		
39	0	-0.000124	-0.000336	-4.184	-10.525	-60.053	0.000377
		0.001129	0.001469	-9.328	1.027	129.339	-0.002026
	Min:	AH AJ AP		Max:	AH AI AK AM		
39	2.500	-0.000116	0.000120	-5.346	10.352	-71.961	0.000107
		0.001129	0.001469	-10.978	1.027	103.956	0.001647
	Min:	AH AJ AY		Max:	AH AI AK AM		
40	0	-0.000294	-0.000328	-4.219	-10.718	-71.843	0.000320
		0.000573	0.000443	-11.211	1.945	103.931	-0.000548
	Min:	AH AJ AP		Max:	AH AI AK AM		
40	2.500	-0.000273	0.000116	-5.374	10.167	-83.822	5.40E-05
		0.000573	0.000443	-12.861	1.945	73.840	0.000559
	Min:	AH AJ AY		Max:	AH AI AK AM		
41	0	-0.000393	-7.68E-05	-4.303	-11.287	-83.485	1.81E-05

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-7.49E-05	0.000131	-13.547	1.743	74.278	-0.000189
	Min:	AH AJ AP		Max:	AH AI AK AM		
41	2.500	-0.000338	0.000335	-5.433	9.630	-95.600	0.000338
		0.000608	-0.001978	-5.179	-14.873	59.055	-0.002838
	Min:	AH AJ AY		Max:	AH AI AK AN		
42	0	3.72E-05	0.000323	-4.984	-12.948	-94.609	-0.000316
		-0.000130	-0.000503	-3.604	-10.110	58.825	0.000122
	Min:	AH AJ AP		Max:	AH AI AK AN		
42	2.500	-2.62E-06	0.000941	-17.648	6.997	-111.825	0.001230
		8.02E-06	-0.000757	-11.384	-9.016	30.134	-0.001439
	Min:	AH AI AJ AY		Max:	AH AK AN		
43	0	0.001320	0.000204	-17.872	-16.334	-110.264	3.54E-05
		0.000941	0.001549	-6.944	-1.011	29.913	-0.002236
	Min:	AH AI AJ AP		Max:	AH AK AN		
43	2.500	0.001320	0.000204	-19.522	-16.334	-157.008	0.000546
		-7.23E-05	3.02E-05	0.749371	2.682	18.476	2.17E-05
	Min:	AH AI AJ AP		Max:	AH AK BE		
44	0	0.000894	-0.000871	28.109	-6.370	-158.847	0.001850
		-3.98E-05	0.000131	-2.491	2.153	18.880	-0.000256
	Min:	AH AI AJ AP		Max:	AH AK BE		
44	3.600	0.000979	-0.000226	18.617	7.510	-68.432	-0.000156
		0.000533	-0.001258	1.106	-6.806	28.024	-0.002591
	Min:	AH AI AJ AM		Max:	AH AK AO		
45	0	-0.000490	-0.000330	16.813	-0.563075	-70.127	0.000512
		0.000642	0.001347	4.494	4.227	27.467	-0.002750
	Min:	AH AI AJ AV		Max:	AH AK AO		
45	3.600	-0.000174	-3.42E-05	2.240	3.607	-45.936	-7.95E-05
		0.000334	0.001260	7.528	5.129	50.799	0.001878
	Min:	AH AI AM		Max:	AH AJ AK AO		
46	0	-0.000204	-5.06E-05	2.372	-2.359	-46.304	3.09E-05
		0.000506	0.000878	7.552	7.282	51.008	-0.001680
	Min:	AH AI AV		Max:	AH AJ AK AO		
46	3.600	-0.000193	-0.000144	0.800515	2.716	-41.663	0.000205
		-1.82E-05	-0.000460	15.805	-11.525	98.938	-0.000879
	Min:	AH AI AK AM		Max:	AH AJ AP		
47	0	-4.09E-05	-6.15E-05	1.081	-2.507	-41.714	9.22E-05
		-0.000508	0.001039	12.325	10.071	98.421	-0.001754
	Min:	AH AI AK AV		Max:	AH AJ AY		
47	3.600	-4.72E-05	-0.000135	0.807636	2.583	-38.314	0.000226
		0.000993	-0.001069	12.603	-11.225	146.393	-0.001974
	Min:	AH AI AK AN		Max:	AH AJ AP		
48	0	6.47E-06	-9.01E-05	1.077	-2.538	-38.328	0.000162
		0.000577	-0.001397	13.636	-6.314	144.854	0.002142

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
	Min:	AH AI AK AV		Max:	AH AJ AP		
48	3.600	6.82E-06	0.000103	-1.077	2.548	-34.943	0.000186
		0.000577	-0.001397	2.380	-6.314	176.348	-0.002887
	Min:	AH AI AK BE		Max:	AH AJ AP		
49	0	6.82E-06	-0.000103	1.077	-2.548	-34.943	0.000186
		0.000577	0.001397	-2.380	6.314	176.348	-0.002887
	Min:	AH AI AK AV		Max:	AH AJ AP		
49	3.600	6.47E-06	9.01E-05	-1.077	2.538	-38.328	0.000162
		0.000577	0.001397	-13.636	6.314	144.854	0.002142
	Min:	AH AI AK BE		Max:	AH AJ AP		
50	0	-4.72E-05	-0.000135	-0.807636	-2.583	-38.314	0.000226
		0.000993	0.001069	-12.603	11.225	146.393	-0.001974
	Min:	AH AI AK AS		Max:	AH AJ AP		
50	3.600	-4.09E-05	6.15E-05	-1.081	2.507	-41.714	9.22E-05
		-0.000508	-0.001039	-12.325	-10.071	98.421	-0.001754
	Min:	AH AI AK BE		Max:	AH AJ AY		
51	0	-0.000193	-0.000144	-0.800515	-2.716	-41.663	0.000205
		-1.82E-05	0.000460	-15.805	11.525	98.938	-0.000879
	Min:	AH AI AK AS		Max:	AH AJ AP		
51	3.600	-0.000204	5.06E-05	-2.372	2.359	-46.304	3.09E-05
		0.000526	-0.000898	-7.514	-7.278	51.815	-0.001718
	Min:	AH AK BE		Max:	AH AI AJ AQ		
52	0	-0.000174	3.42E-05	-2.240	-3.607	-45.936	-7.95E-05
		0.000305	-0.001268	-7.282	-5.012	51.506	0.001882
	Min:	AH AK AS		Max:	AH AI AJ AQ		
52	3.600	-0.000490	0.000330	-16.813	0.563075	-70.127	0.000512
		0.000613	-0.001356	-4.249	-4.110	29.058	-0.002777
	Min:	AH AJ AK BE		Max:	AH AI AQ		
53	0	0.000979	0.000226	-18.617	-7.510	-68.432	-0.000156
		0.000553	0.001353	0.555698	7.030	29.996	-0.002758
	Min:	AH AJ AK AS		Max:	AH AI AQ		
53	3.600	0.000894	0.000871	-28.109	6.370	-158.847	0.001850
		-3.98E-05	-0.000131	2.491	-2.153	18.880	-0.000256
	Min:	AH AJ AK AP		Max:	AH AI AV		
54	0	0.001320	-0.000204	19.522	16.334	-157.008	0.000546
		-7.23E-05	-3.02E-05	-0.749371	-2.682	18.476	2.17E-05
	Min:	AH AJ AK AP		Max:	AH AI AV		
54	2.500	0.001320	-0.000204	17.872	16.334	-110.264	3.54E-05
		0.000941	-0.001533	6.923	0.984676	29.712	-0.002207
	Min:	AH AJ AK AP		Max:	AH AI AR		
55	0	-2.62E-06	-0.000941	17.648	-6.997	-111.825	0.001230
		3.92E-05	0.000701	11.281	8.878	29.941	-0.001370
	Min:	AH AJ AK AY		Max:	AH AI AR		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
55	2.500	3.72E-05	-0.000323	4.984	12.948	-94.609	-0.000316
		-9.88E-05	0.000447	3.501	9.972	59.262	5.13E-05
	Min:	AH AJ AP		Max:	AH AI AK AR		
56	0	-0.000338	-0.000335	5.433	-9.630	-95.600	0.000338
		0.000576	0.001970	5.136	14.800	59.483	-0.002832
	Min:	AH AJ AY		Max:	AH AI AK AR		
56	2.500	-0.000393	7.68E-05	4.303	11.287	-83.485	1.81E-05
		-7.49E-05	0.000131	13.547	-1.743	74.278	-0.000189
	Min:	AH AJ AP		Max:	AH AI AK AS		
57	0	-0.000273	-0.000116	5.374	-10.167	-83.822	5.40E-05
		0.000573	-0.000443	12.861	-1.945	73.840	0.000559
	Min:	AH AJ AY		Max:	AH AI AK AS		
57	2.500	-0.000294	0.000328	4.219	10.718	-71.843	0.000320
		0.000573	-0.000443	11.211	-1.945	103.931	-0.000548
	Min:	AH AJ AP		Max:	AH AI AK AS		
58	0	-0.000116	-0.000120	5.346	-10.352	-71.961	0.000107
		0.001129	-0.001469	10.978	-1.027	103.956	0.001647
	Min:	AH AJ AY		Max:	AH AI AK AS		
58	2.500	-0.000124	0.000336	4.184	10.525	-60.053	0.000377
		0.001129	-0.001469	9.328	-1.027	129.339	-0.002026
	Min:	AH AJ AP		Max:	AH AI AK AS		
59	0	-1.83E-05	-0.000170	5.334	-10.432	-60.082	0.000204
		0.000174	-0.001143	10.735	3.986	129.999	0.000937
	Min:	AH AJ AY		Max:	AH AI AK AS		
59	2.500	-2.88E-05	0.000296	4.167	10.439	-48.211	0.000361
		0.000174	-0.001143	0.204765	3.986	141.453	-0.001920
	Min:	AH AJ AP		Max:	AH AI AK AS		
60	0	5.53E-05	-0.000189	5.327	-10.502	-48.182	0.000253
		2.67E-05	0.001305	-4.872	12.876	142.423	-0.002177
	Min:	AH AJ AY		Max:	AH AI AK AS		
60	2.500	1.46E-05	0.000307	4.147	10.351	-36.361	0.000399
		2.67E-05	0.001305	-15.402	12.876	119.300	0.001087
	Min:	AH AJ AP		Max:	AH AI AK AS		
61	0	0.000187	-0.000205	5.326	-10.641	-36.229	0.000303
		0.000547	0.001619	-13.932	18.475	120.388	-0.002400
	Min:	AH AJ AY		Max:	AH AI AK AS		
61	2.500	6.03E-05	0.000377	4.084	10.138	-24.570	0.000525
		-0.001245	-0.001626	-10.489	-14.406	83.981	-0.002098
	Min:	AH AJ AP		Max:	AH AI AK BE		
62	0	0.000333	-0.000335	5.434	-10.957	-24.134	0.000461
		-0.000525	0.001054	-15.821	21.136	84.489	-0.001524
	Min:	AH AJ AY		Max:	AH AI AK AS		
62	2.500	0.000182	0.000354	3.826	9.518	-13.167	0.000550

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-0.002039	-0.000116	-20.423	9.747	56.405	-0.001018
	Min:	AH AJ AP		Max:	AH AI AK AT		
63	0	-0.000162	-0.000356	5.082	-10.793	-11.226	0.000495
		-0.000985	0.003825	-14.833	19.159	53.553	-0.005280
	Min:	AH AJ AY		Max:	AH AI AK AT		
63	2.500	0.000982	0.001106	-8.805	38.590	-8.232	0.001284
		-0.002134	-0.001177	-4.590	-28.862	12.140	-0.001573
	Min:	A B C M		Max:	A D E F X		
64	0	-1.53E-17	-5.86E-17	0.330000	-5.57E-14	-0.082500	-1.00E-18
		2.46E-17	3.41E-16	-5.47E-12	3.76E-14	3.24E-12	5.72E-17
	Min:	AH AI AK BK		Max:	AH AJ AY		
64	0.500	-2.57E-18	-9.59E-16	3.31E-09	-6.61E-14	-2.06E-12	-3.28E-16
		1.37E-17	-3.15E-16	-2.23E-12	2.72E-14	1.07E-12	-1.63E-16
	Min:	AH AI AK AS		Max:	AH AJ AP		
65	0	4.03E-19	-9.91E-18	7.45E-13	-1.85E-17	-1.97E-13	2.16E-17
		1.13E-18	-7.67E-17	-3.30E-09	-3.04E-18	1.49E-12	1.09E-17
	Min:	A B C E I		Max:	AH AI AJ AK AM		
65	0.500	1.44E-18	2.08E-16	-0.330000	-1.20E-17	-0.082500	7.88E-17
		7.32E-20	2.91E-16	1.04E-12	-1.60E-17	3.80E-13	3.35E-17
	Min:	AH AI AJ AK AV		Max:	A C E F		
66	0	0.000206	-9.78E-05	-3.370	9.548	-1.589	0.000177
		-0.001919	0.001808	13.810	11.620	9.457	-0.002191
	Min:	AH AJ AY		Max:	AH AI AK AU		
66	2.500	0.000206	-9.78E-05	-3.370	9.548	-10.015	-6.75E-05
		-0.001726	-1.77E-06	8.502	1.03E-09	41.970	-2.24E-06
	Min:	AH AJ AY		Max:	AH AI AK BD		
67	0	0.000394	0.000141	-4.622	10.297	-11.452	-0.000195
		-0.003237	0.000315	11.197	6.824	49.392	-0.000262
	Min:	AH AJ AY		Max:	AH AI AK AU		
67	2.500	0.000394	0.000141	-4.622	10.297	-23.006	0.000157
		-0.001374	0.000991	13.927	17.906	80.405	-0.001273
	Min:	AH AJ AY		Max:	AH AI AK AV		
68	0	0.000249	0.000141	-4.739	10.418	-23.532	-0.000189
		-0.001018	0.001526	13.034	16.645	83.481	-0.001723
	Min:	AH AJ AY		Max:	AH AI AK AV		
68	2.500	0.000249	0.000141	-4.739	10.418	-35.381	0.000163
		-0.001174	-1.23E-06	12.263	7.93E-10	114.181	-1.90E-06
	Min:	AH AJ AY		Max:	AH AI AK BE		
69	0	8.11E-05	8.83E-05	-4.744	10.434	-35.546	-0.000112
		-0.001266	0.000907	7.133	11.880	116.512	-0.000892
	Min:	AH AJ AY		Max:	AH AI AK AV		
69	2.500	8.11E-05	8.83E-05	-4.744	10.434	-47.406	0.000109
		-0.001107	-5.81E-07	4.164	3.76E-10	134.031	-1.16E-06

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
	Min:	AH AJ AY		Max:	AH AI AK BE		
70	0	-5.32E-05	6.44E-05	-4.750	10.437	-47.442	-7.98E-05
		-0.000832	2.05E-07	-0.383002	-1.06E-10	134.301	-7.04E-07
	Min:	AH AJ AY		Max:	AH AI AK BE		
70	2.500	-5.32E-05	6.44E-05	-4.750	10.437	-59.317	8.12E-05
		-0.000994	-0.000751	-3.351	4.475	126.236	-0.000694
	Min:	AH AJ AY		Max:	AH AI AK AV		
71	0	-0.000238	5.68E-05	-4.758	10.438	-59.271	-7.07E-05
		-0.000228	8.45E-07	-8.493	-5.25E-10	124.768	-1.47E-06
	Min:	AH AJ AY		Max:	AH AI AK BE		
71	2.500	-0.000238	5.68E-05	-4.758	10.438	-71.165	7.13E-05
		-8.59E-05	-0.001284	-9.262	-0.320739	103.493	-0.001397
	Min:	AH AJ AY		Max:	AH AI AK AV		
72	0	-0.000472	4.79E-05	-4.767	10.440	-70.982	-6.03E-05
		4.45E-05	-0.000737	-10.639	-1.805	102.774	0.000989
	Min:	AH AJ AY		Max:	AH AI AK AV		
72	2.500	-0.000472	4.79E-05	-4.767	10.440	-82.900	5.93E-05
		4.47E-05	0.000739	-12.289	1.805	74.115	0.000855
	Min:	AH AJ AY		Max:	AH AI AK AM		
73	0	-0.000445	2.70E-05	-4.791	10.452	-82.346	-3.77E-05
		-0.000229	0.000256	-13.280	2.163	74.161	-0.000321
	Min:	AH AJ AY		Max:	AH AI AK AM		
73	2.500	-0.000445	2.70E-05	-4.791	10.452	-94.324	2.98E-05
		-0.000918	8.69E-07	-6.682	-5.94E-10	53.406	8.84E-07
	Min:	AH AJ AY		Max:	AH AI AK BF		
74	0	0.000322	6.89E-06	-4.787	10.505	-92.677	-1.75E-05
		-0.001114	0.000615	-13.052	7.757	55.403	-0.000529
	Min:	AH AJ AY		Max:	AH AI AK AW		
74	2.500	0.000204	7.88E-06	-16.064	10.505	-106.936	9.69E-07
		-0.000774	3.25E-07	-10.863	-2.02E-10	23.105	3.36E-07
	Min:	AH AI AJ AY		Max:	AH AK BF		
75	0	0.001303	2.04E-05	-13.439	10.758	-98.492	-4.70E-05
		0.000436	1.43E-06	-26.609	-8.22E-10	26.397	-1.71E-06
	Min:	AH AJ AY		Max:	AH AI AK BF		
75	2.500	0.001823	2.13E-05	-31.520	10.758	-174.684	5.26E-06
		-0.000107	4.56E-06	1.575	2.326	13.605	1.02E-06
	Min:	AH AI AJ AY		Max:	AH AK BE		
76	0	0.001587	0.000357	34.403	11.486	-172.638	-0.000668
		-9.65E-05	7.65E-05	-2.772	2.483	19.474	-0.000143
	Min:	AH AI AJ AY		Max:	AH AK BE		
76	3.600	0.001544	-7.70E-05	25.770	-2.483	-58.500	-0.000134
		-0.000437	0.000882	10.038	7.772	25.835	0.001766
	Min:	AH AI AJ AV		Max:	AH AK AX		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
77	0	-0.000616	-6.88E-05	15.578	-2.538	-65.852	0.000125
		-0.000619	-0.001099	-0.848313	-2.680	23.016	0.002195
		Min: AH AI AJ AV			Max: AH AK AX		
77	3.600	-0.000185	-6.77E-05	1.802	-2.538	-45.644	-0.000121
		-0.001050	-0.001100	10.551	-2.680	51.557	-0.001764
		Min: AH AI AV			Max: AH AJ AK AX		
78	0	-0.000343	-6.07E-05	2.243	-2.544	-45.996	0.000109
		-0.000210	-0.000816	8.312	-6.665	49.729	0.001595
		Min: AH AI AV			Max: AH AJ AK AX		
78	3.600	-0.000317	-6.06E-05	0.946278	-2.544	-41.333	-0.000109
		-0.000282	-0.000494	15.088	-11.654	97.607	-0.000917
		Min: AH AI AK AV			Max: AH AJ AP		
79	0	-9.44E-05	-5.89E-05	0.937176	-2.545	-41.431	0.000106
		0.000268	-0.001058	13.800	-10.788	97.802	0.001741
		Min: AH AI AK AV			Max: AH AJ AP		
79	3.600	-9.44E-05	-5.89E-05	0.937176	-2.545	-38.057	-0.000107
		0.000268	0.001056	11.424	10.788	143.203	0.002062
		Min: AH AI AK AV			Max: AH AJ AY		
80	0	6.26E-07	-5.87E-05	0.940093	-2.545	-38.076	0.000105
		-0.000668	0.001051	7.455	5.513	144.996	-0.001680
		Min: AH AI AK AV			Max: AH AJ AY		
80	3.600	4.19E-06	5.87E-05	-0.940142	2.545	-34.693	0.000105
		-0.000668	0.001051	5.079	5.513	167.555	0.002102
		Min: AH AI AK BE			Max: AH AJ AY		
81	0	4.19E-06	-5.87E-05	0.940142	-2.545	-34.693	0.000105
		-0.000668	-0.001051	-5.079	-5.513	167.555	0.002102
		Min: AH AI AK AV			Max: AH AJ AY		
81	3.600	6.26E-07	5.87E-05	-0.940093	2.545	-38.076	0.000105
		-0.000668	-0.001051	-7.455	-5.513	144.996	-0.001680
		Min: AH AI AK BE			Max: AH AJ AY		
82	0	-9.44E-05	5.89E-05	-0.937176	2.545	-38.057	-0.000107
		0.000268	-0.001056	-11.424	-10.788	143.203	0.002062
		Min: AH AI AK BE			Max: AH AJ AY		
82	3.600	-9.44E-05	5.89E-05	-0.937176	2.545	-41.431	0.000106
		0.000268	0.001058	-13.800	10.788	97.802	0.001741
		Min: AH AI AK BE			Max: AH AJ AP		
83	0	-0.000317	6.06E-05	-0.946278	2.544	-41.333	-0.000109
		-0.000282	0.000494	-15.088	11.654	97.607	-0.000917
		Min: AH AI AK BE			Max: AH AJ AP		
83	3.600	-0.000343	6.07E-05	-2.243	2.544	-45.996	0.000109
		-0.000210	0.000816	-8.312	6.665	49.729	0.001595
		Min: AH AK BE			Max: AH AI AJ AZ		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
84	0	-0.000185	6.77E-05	-1.802	2.538	-45.644	-0.000121
		-0.001050	0.001100	-10.551	2.680	51.557	-0.001764
		Min: AH AK BE			Max: AH AI AJ AZ		
84	3.600	-0.000616	6.88E-05	-15.578	2.538	-65.852	0.000125
		-0.000619	0.001099	0.848313	2.680	23.016	0.002195
		Min: AH AJ AK BE			Max: AH AI AZ		
85	0	0.001544	7.70E-05	-25.770	2.483	-58.500	-0.000134
		-0.000437	-0.000852	-10.038	-7.772	25.835	0.001766
		Min: AH AJ AK BE			Max: AH AI AZ		
85	3.600	0.001587	-0.000357	-34.403	-11.486	-172.638	-0.000668
		-9.65E-05	-7.65E-05	2.772	-2.483	19.474	-0.000143
		Min: AH AJ AK AY			Max: AH AI AV		
86	0	0.001823	-2.13E-05	31.520	-10.758	-174.684	5.25E-06
		-0.000107	-4.56E-06	-1.575	-2.326	19.605	1.02E-06
		Min: AH AJ AK AY			Max: AH AI AV		
86	2.500	0.001303	-2.04E-05	13.439	-10.758	-98.492	-4.70E-05
		0.000446	-1.43E-06	26.577	8.25E-10	26.234	-1.71E-06
		Min: AH AJ AY			Max: AH AI AK BJ		
87	0	0.000204	-7.88E-06	16.064	-10.505	-106.936	9.67E-07
		-0.000768	-3.32E-07	10.778	2.06E-10	22.951	3.44E-07
		Min: AH AJ AK AY			Max: AH AI BJ		
87	2.500	0.000322	-6.89E-06	4.787	-10.505	-92.677	-1.75E-05
		-0.001101	-0.000584	13.146	-7.649	55.497	-0.000488
		Min: AH AJ AY			Max: AH AI AK BA		
88	0	-0.000445	-2.70E-05	4.791	-10.452	-94.324	2.98E-05
		-0.000928	-8.73E-07	6.628	5.96E-10	53.782	8.90E-07
		Min: AH AJ AY			Max: AH AI AK BJ		
88	2.500	-0.000445	-2.70E-05	4.791	-10.452	-82.346	-3.77E-05
		-0.000229	-0.000256	13.280	-2.163	74.161	-0.000321
		Min: AH AJ AY			Max: AH AI AK AS		
89	0	-0.000472	-4.78E-05	4.767	-10.440	-82.900	5.93E-05
		4.47E-05	-0.000739	12.289	-1.805	74.115	0.000855
		Min: AH AJ AY			Max: AH AI AK AS		
89	2.500	-0.000472	-4.78E-05	4.767	-10.440	-70.982	-6.03E-05
		4.45E-05	0.000737	10.639	1.805	102.774	0.000989
		Min: AH AJ AY			Max: AH AI AK BE		
90	0	-0.000238	-5.68E-05	4.758	-10.438	-71.165	7.13E-05
		-6.59E-05	0.001284	9.262	0.320739	103.493	-0.001397
		Min: AH AJ AY			Max: AH AI AK BE		
90	2.500	-0.000238	-5.68E-05	4.758	-10.438	-59.271	-7.07E-05
		-0.000228	-8.45E-07	8.493	5.20E-10	124.768	-1.47E-06
		Min: AH AJ AY			Max: AH AI AK BK		
91	0	-5.32E-05	-6.44E-05	4.750	-10.437	-59.317	8.12E-05

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		-0.000994	0.000751	3.351	-4.475	126.236	-0.000694
		Min: AH AJ AY			Max: AH AI AK BE		
91	2.500	-5.32E-05	-6.44E-05	4.750	-10.437	-47.442	-7.98E-05
		-0.000832	-2.05E-07	0.383002	1.02E-10	134.301	-7.04E-07
		Min: AH AJ AY			Max: AH AI AK BK		
92	0	8.11E-05	-8.83E-05	4.744	-10.434	-47.405	0.000109
		-0.001107	5.81E-07	-4.164	-3.81E-10	134.031	-1.16E-06
		Min: AH AJ AY			Max: AH AI AK BK		
92	2.500	8.11E-05	-8.83E-05	4.744	-10.434	-35.546	-0.000112
		-0.001266	-0.000907	-7.133	-11.880	116.512	-0.000892
		Min: AH AJ AY			Max: AH AI AK BE		
93	0	0.000249	-0.000141	4.739	-10.418	-35.381	0.000163
		-0.001174	1.23E-06	-12.263	-7.99E-10	114.181	-1.90E-06
		Min: AH AJ AY			Max: AH AI AK BK		
93	2.500	0.000249	-0.000141	4.739	-10.418	-23.532	-0.000189
		-0.001018	-0.001526	-13.034	-16.645	83.481	-0.001723
		Min: AH AJ AY			Max: AH AI AK BE		
94	0	0.000394	-0.000141	4.622	-10.297	-23.006	0.000157
		-0.001374	-0.000991	-13.527	-17.906	80.405	0.001273
		Min: AH AJ AY			Max: AH AI AK BE		
94	2.500	0.000394	-0.000141	4.622	-10.297	-11.452	-0.000195
		-0.003251	-0.000290	-11.112	-6.713	49.444	-0.000233
		Min: AH AJ AY			Max: AH AI AK BC		
95	0	0.000206	9.78E-05	3.370	-9.548	-10.015	-6.75E-05
		-0.001737	1.77E-06	-8.529	-1.03E-09	42.035	-2.23E-06
		Min: AH AJ AK BK			Max: AH AJ AG		
95	2.500	0.000206	9.78E-05	3.370	-9.548	-1.589	0.000177
		-0.001934	-0.001819	-13.816	-11.577	9.473	-0.002205
		Min: AH AJ AY			Max: AH AI AK BC		
96	0	3.59E-18	2.43E-18	0.330000	-1.36E-15	-0.082500	-6.99E-18
		5.31E-18	-6.86E-18	1.73E-12	1.04E-14	7.71E-14	-4.59E-17
		Min: AH AI AK BK			Max: AH AJ AG		
96	0.500	-1.30E-20	1.14E-16	3.30E-09	-1.25E-14	-2.82E-12	-3.97E-17
		5.70E-18	-8.60E-17	2.69E-12	6.19E-15	1.37E-12	1.62E-16
		Min: AH AI AK AS			Max: AH AJ AY		
97	0	-2.73E-18	-1.19E-17	-3.30E-09	5.27E-16	-3.94E-13	3.98E-17
		4.74E-15	3.40E-16	-3.31E-09	4.40E-16	1.71E-12	-6.31E-17
		Min: A B D E F Z			Max: AH AJ AK AV		
97	0.500	1.19E-18	3.51E-16	-0.330000	6.87E-16	-0.082500	1.01E-16
		-1.76E-18	4.74E-16	1.29E-12	-2.47E-17	4.85E-13	9.72E-17
		Min: AH AI AK AP			Max: A B D T		
98	0	0.000981	0.001104	8.792	38.579	-8.233	-0.001281
		-0.002130	-0.001177	4.606	-28.914	12.140	0.001571

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: A E F R			Max: A B C D G		
98	2.500	-0.000162	-0.000356	-5.082	-10.793	-11.226	-0.000494
		-0.000973	0.003795	14.801	19.188	53.450	0.005236
		Min: AH AJ AP			Max: AH AI AK AU		
99	0	0.000183	0.000355	-3.826	9.518	-13.167	-0.000550
		-0.002004	-6.53E-05	20.310	9.885	56.306	0.000954
		Min: AH AJ AY			Max: AH AI AK AU		
99	2.500	0.000334	-0.000334	-5.434	-10.957	-24.134	-0.000460
		-0.000527	0.001051	15.821	21.138	84.489	0.001520
		Min: AH AJ AP			Max: AH AI AK AV		
100	0	6.14E-05	0.000378	-4.084	10.138	-24.570	-0.000526
		-0.001249	-0.001628	10.489	-14.406	83.981	0.002100
		Min: AH AJ AY			Max: AH AI AK AM		
100	2.500	0.000188	-0.000204	-5.326	-10.641	-36.229	-0.000302
		0.000544	0.001617	13.932	18.475	120.388	0.002396
		Min: AH AJ AP			Max: AH AI AK AV		
101	0	1.61E-05	0.000308	-4.147	10.351	-36.361	-0.000399
		2.29E-05	0.001304	15.402	12.876	119.300	-0.001086
		Min: AH AJ AY			Max: AH AI AK AV		
101	2.500	5.68E-05	-0.000188	-5.327	-10.502	-48.182	-0.000252
		2.29E-05	0.001304	4.872	12.876	142.423	0.002174
		Min: AH AJ AP			Max: AH AI AK AV		
102	0	-2.69E-05	0.000296	-4.167	10.439	-48.211	-0.000361
		0.000170	-0.001143	-0.204765	3.986	141.453	0.001919
		Min: AH AJ AY			Max: AH AI AK AV		
102	2.500	-5.64E-05	-0.000169	-5.334	-10.432	-60.082	-0.000203
		0.000170	-0.001143	-10.735	1.986	129.999	-0.000938
		Min: AH AJ AP			Max: AH AI AK AV		
103	0	-0.000122	0.000337	-4.184	10.525	-60.053	-0.000378
		0.001125	-0.001468	-9.328	-1.027	129.339	0.002023
		Min: AH AJ AY			Max: AH AI AK AV		
103	2.500	-0.000113	-0.000119	-5.346	-10.352	-71.961	-0.000105
		0.001125	-0.001468	-10.978	-1.027	103.956	-0.001646
		Min: AH AJ AP			Max: AH AI AK AV		
104	0	-0.000291	0.000329	-4.219	10.718	-71.843	-0.000320
		0.000570	-0.000441	-11.211	-1.945	103.931	0.000544
		Min: AH AJ AY			Max: AH AI AK AV		
104	2.500	-0.000270	-0.000115	-5.374	-10.167	-83.622	-5.23E-05
		0.000570	-0.000441	-12.861	-1.945	73.840	-0.000557
		Min: AH AJ AP			Max: AH AI AK AV		
105	0	-0.000390	7.76E-05	-4.303	11.287	-83.485	-1.84E-05
		-7.67E-05	-0.000128	-13.547	-1.743	74.278	0.000186
		Min: AH AJ AY			Max: AH AI AK AV		

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
105	2.500	-0.000335	-0.000334	-5.431	-9.630	-95.600	-0.000336
		0.000606	0.001979	-5.179	14.873	59.055	0.002839
		Min: AH AJ AP			Max: AH AI AK AW		
106	0	4.06E-05	-0.000322	-4.984	12.948	-94.609	0.000316
		-0.000131	0.000505	-3.604	10.110	58.825	-0.000125
		Min: AH AJ AY			Max: AH AI AK AW		
106	2.500	4.61E-07	-0.000939	-17.648	-6.997	-111.825	-0.001226
		7.63E-06	0.000757	-11.384	9.016	30.134	0.001439
		Min: AH AI AJ AP			Max: AH AK AW		
107	0	0.001323	-0.000203	-17.872	16.334	-110.264	-3.55E-05
		0.000940	-0.001548	-6.944	1.011	29.913	0.002234
		Min: AH AI AJ AY			Max: AH AK AW		
107	2.500	0.001323	-0.000203	-19.522	16.334	-157.008	-0.000544
		-7.29E-05	-3.02E-05	0.749371	-2.682	18.476	-2.18E-05
		Min: AH AI AJ AY			Max: AH AK AS		
108	0	0.000896	0.000868	28.109	6.370	-158.847	0.001845
		-4.03E-05	-0.000131	-2.491	-2.153	18.880	0.000255
		Min: AH AI AJ AY			Max: AH AK AS		
108	3.600	0.000981	0.000225	18.617	-7.510	-68.432	0.000155
		0.000553	0.001352	-0.555696	7.030	29.996	0.002756
		Min: AH AI AJ AV			Max: AH AK AX		
109	0	-0.000488	0.000328	16.813	0.563075	-70.127	-0.000508
		0.000612	-0.001355	4.249	-4.110	29.058	0.002776
		Min: AH AI AJ AM			Max: AH AK AX		
109	3.600	-0.000172	3.39E-05	2.240	-3.607	-45.936	7.94E-05
		0.000305	-0.001270	7.282	-5.012	51.506	-0.001885
		Min: AH AI AV			Max: AH AJ AK AX		
110	0	-0.000203	5.02E-05	2.372	2.359	-46.304	-2.99E-05
		0.000524	-0.000899	7.514	-7.278	51.815	0.001719
		Min: AH AI AM			Max: AH AJ AK AX		
110	3.600	-0.000191	-0.000144	0.800515	-2.716	-41.663	-0.000205
		-2.04E-05	0.000458	15.805	11.525	98.938	0.000874
		Min: AH AI AK AV			Max: AH AJ AY		
111	0	-3.95E-05	6.13E-05	1.081	2.507	-41.714	-9.17E-05
		-0.000512	-0.001041	12.325	-10.071	98.421	0.001756
		Min: AH AI AK AM			Max: AH AJ AP		
111	3.600	-4.57E-05	-0.000135	0.807636	-2.583	-36.314	-0.000225
		0.000989	0.001067	12.603	11.225	146.393	0.001970
		Min: AH AI AK AV			Max: AH AJ AY		
112	0	7.78E-06	9.00E-05	1.077	2.536	-38.328	-0.000161
		0.000572	0.001396	13.636	6.314	144.854	-0.002142
		Min: AH AI AK AM			Max: AH AJ AY		
112	3.600	8.00E-06	-0.000103	-1.077	-2.548	-34.943	-0.000186

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		0.000572	0.001396	2.380	6.314	176.348	0.002884
		Min: AH AI AK AS			Max: AH AJ AY		
113	0	8.00E-06	0.000103	1.077	2.548	-34.943	-0.000186
		0.000572	-0.001396	-2.380	-6.314	176.348	0.002884
		Min: AH AI AK AM			Max: AH AJ AY		
113	3.600	7.78E-06	-9.00E-05	-1.077	-2.536	-38.328	-0.000161
		0.000572	-0.001396	-13.636	-6.314	144.854	-0.002142
		Min: AH AI AK AS			Max: AH AJ AY		
114	0	-4.57E-05	0.000135	-0.807636	2.583	-38.314	-0.000225
		0.000989	-0.001067	-12.603	-11.225	146.393	0.001970
		Min: AH AI AK BE			Max: AH AJ AY		
114	3.600	-3.95E-05	-6.13E-05	-1.081	-2.507	-41.714	-9.17E-05
		-0.000512	0.001041	-12.325	10.071	98.421	0.001756
		Min: AH AI AK AS			Max: AH AJ AP		
115	0	-0.000191	0.000144	-0.800515	2.716	-41.663	-0.000205
		-2.04E-05	-0.000458	-15.805	-11.525	98.938	0.000874
		Min: AH AI AK BE			Max: AH AJ AY		
115	3.600	-0.000203	-5.02E-05	-2.372	-2.359	-46.304	-2.99E-05
		0.000524	0.000899	-7.514	7.278	51.815	0.001719
		Min: AH AK AS			Max: AH AI AJ AZ		
116	0	-0.000172	-3.39E-05	-2.240	3.607	-45.936	7.94E-05
		0.000305	0.001270	-7.282	5.012	51.506	-0.001885
		Min: AH AK BE			Max: AH AI AJ AZ		
116	3.600	-0.000488	-0.000328	-16.813	-0.563075	-70.127	-0.000508
		0.000612	0.001355	-4.249	4.110	29.058	0.002776
		Min: AH AJ AK AS			Max: AH AI AZ		
117	0	0.000981	-0.000225	18.617	7.510	-68.432	0.000155
		0.000553	-0.001352	0.555696	-7.030	29.996	0.002756
		Min: AH AJ AK BE			Max: AH AI AZ		
117	3.600	0.000896	-0.000868	-28.109	-6.370	-158.847	-0.001845
		-4.03E-05	0.000131	2.491	2.153	18.880	0.000255
		Min: AH AJ AK AY			Max: AH AI AM		
118	0	0.001323	0.000203	19.522	-16.334	-157.008	-0.000544
		-7.29E-05	3.02E-05	-0.749371	2.682	18.476	-2.18E-05
		Min: AH AJ AK AY			Max: AH AI AM		
118	2.500	0.001323	0.000203	17.872	-16.334	-110.264	-3.55E-05
		0.000940	0.001532	6.923	-0.984676	29.712	0.002206
		Min: AH AJ AK AY			Max: AH AI BA		
119	0	4.63E-07	0.000939	17.648	6.997	-111.825	-0.001226
		3.88E-05	-0.000702	11.281	-8.878	29.941	0.001370
		Min: AH AJ AK AP			Max: AH AI BA		
119	2.500	4.06E-05	0.000322	4.984	-12.948	-94.609	0.000316
		-9.95E-05	-0.000449	3.501	-9.972	59.262	-5.42E-05

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN , 2. line : MAX , 3. line : accomp load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: AH AJ AY		Max: AH AI AK BA			
120	0	-0.000335	0.000334	5.433	9.630	-95.600	-0.000336
		0.000574	-0.001971	5.136	-14.800	59.483	0.002832
		Min: AH AJ AF		Max: AH AI AK BA			
120	2.500	-0.000390	-7.76E-05	4.303	-11.287	-83.485	-1.84E-05
		-7.67E-05	-0.000128	13.547	1.743	74.278	0.000186
		Min: AH AJ AY		Max: AH AI AK BE			
121	0	-0.000270	0.000115	5.374	10.167	-83.822	-5.23E-05
		0.000570	0.000441	12.861	1.945	73.840	-0.000557
		Min: AH AJ AF		Max: AH AI AK EE			
121	2.500	-0.000291	-0.000329	4.215	-10.718	-71.843	-0.000320
		0.000570	0.000441	11.211	1.945	103.931	0.000544
		Min: AH AJ AY		Max: AH AI AK BE			
122	0	-0.000113	0.000119	5.346	10.352	-71.961	-0.000105
		0.001125	0.001468	10.978	1.027	103.956	-0.001646
		Min: AH AJ AF		Max: AH AI AK BE			
122	2.500	-0.000122	-0.000337	4.184	-10.525	-60.053	-0.000376
		0.001125	0.001468	9.328	1.027	125.339	0.002023
		Min: AH AJ AY		Max: AH AI AK BE			
123	0	-1.64E-05	0.000169	5.334	10.432	-60.082	-0.000203
		0.000170	0.001142	10.735	-3.986	129.999	-0.000939
		Min: AH AJ AF		Max: AH AI AK BE			
123	2.500	-2.69E-05	-0.000296	4.167	-10.439	-48.211	-0.000361
		0.000170	0.001143	0.204765	-3.986	141.453	0.001919
		Min: AH AJ AY		Max: AH AI AK BE			
124	0	5.68E-05	0.000188	5.327	10.502	-48.182	-0.000252
		2.29E-05	-0.001304	-4.872	-12.876	142.423	0.002174
		Min: AH AJ AF		Max: AH AI AK EE			
124	2.500	1.61E-05	-0.000308	4.147	-10.351	-36.361	-0.000395
		2.29E-05	-0.001304	-15.402	-12.876	119.300	-0.001086
		Min: AH AJ AY		Max: AH AI AK EE			
125	0	0.000188	0.000204	5.326	10.641	-36.229	-0.000302
		0.000544	-0.001617	-13.932	-16.475	120.388	0.002396
		Min: AH AJ AP		Max: AH AI AK BE			
125	2.500	-6.14E-05	-0.000378	4.084	-10.138	-24.570	-0.000526
		-0.001249	0.001628	-10.489	14.406	83.981	0.002100
		Min: AH AJ AY		Max: AH AI AK AS			
126	0	0.000334	0.000334	5.434	10.957	-24.134	-0.000460
		-0.000527	-0.001051	-15.821	-21.138	84.489	0.001520
		Min: AH AJ AP		Max: AH AI AK BE			
126	2.500	0.000183	-0.000355	3.826	-9.518	-13.167	-0.000550
		-0.002040	0.000118	-20.423	-9.747	56.405	0.001020
		Min: AH AJ AY		Max: AH AI AK BC			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
127	0	-0.000162	0.000356	5.082	10.793	-11.226	-0.000494
		-0.000586	-0.003821	-14.833	-19.159	53.553	0.005276
		Min: AH AJ AP		Max: AH AI AK BC			
127	2.500	0.000961	-0.001105	-8.805	-38.590	-8.232	-0.001282
		-0.002134	0.001179	-4.590	28.862	12.140	0.001575
		Min: A E F V		Max: A B C D O			
128	0	-4.52E-17	5.04E-17	0.330000	9.16E-16	-0.082500	-5.02E-17
		1.30E-17	5.87E-16	-1.13E-11	-4.95E-15	6.83E-12	-2.61E-16
		Min: AH AI AK BK		Max: AH AJ BH			
128	0.500	-4.54E-17	-4.74E-16	3.32E-09	1.33E-14	-4.09E-12	-2.05E-16
		1.56E-17	-5.87E-16	-1.00E-11	-1.28E-14	1.53E-12	-1.23E-17
		Min: AH AI AK BE		Max: AH AJ AP			
129	0	1.52E-18	-1.70E-09	-5.86E-09	3.11E-17	-4.10E-13	-1.07E-12
		-7.61E-19	-1.70E-09	-5.87E-09	-4.26E-16	3.08E-13	-4.66E-13
		Min: AH AI AJ AK AV		Max: A F Y			
129	0.500	1.65E-18	-0.170464	-0.586739	-1.32E-17	-0.146685	-0.042616
		-1.45E-18	-5.06E-13	1.95E-12	2.92E-16	1.04E-12	4.72E-13
		Min: A C D E F O		Max: AH AJ AP			
130	0	-0.001319	10.183	35.095	41.641	-39.800	-11.559
		0.002073	-5.045	-17.353	-32.534	31.464	9.136
		Min: A D E F Q		Max: A B C I			
130	2.500	0.001669	-4.973	-17.117	-29.053	-14.746	-4.290
		0.002127	8.828	30.443	36.177	56.173	16.277
		Min: A B C P		Max: A D E F P			
131	0	0.000338	5.725	19.717	37.875	-17.784	-5.170
		0.000465	-3.641	-12.502	-37.212	41.519	12.029
		Min: A E F S		Max: A B C D H			
131	2.500	-0.000263	-2.248	-7.757	-11.082	-20.829	-6.025
		0.001707	5.034	17.395	22.085	64.790	18.726
		Min: AH AJ AP		Max: AH AI AK AV			
131		-0.000303	0.465357	1.584	9.966	-20.673	-5.979
		-0.000622	0.327816	1.169	-13.175	58.570	16.926
		Min: AH AJ AY		Max: AH AI AK AM			
132	2.500	-0.000191	-2.195	-7.577	-10.720	-27.976	-8.088
		0.002332	4.716	16.289	19.326	87.056	25.153
		Min: AH AJ AP		Max: AH AI AK AV			
133	0	-5.21E-05	0.469172	1.597	10.297	-27.864	-8.061
		0.001202	1.588	5.488	-0.088170	72.294	20.874
		Min: AH AJ AY		Max: AH AI AK BE			
133	2.500	-5.62E-05	-2.180	-7.525	-10.533	-35.249	-10.187
		0.004919	2.119	7.324	11.419	101.045	29.192
		Min: AH AJ AP		Max: AH AI AK AV			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN , 2. line : MAX , 3. line : accomp load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
134	0	4.09E-05	0.472452	1.609	10.439	-35.229	-10.182
		0.004679	0.675719	2.313	5.713	91.833	26.517
		Min: AH AJ AY		Max: AH AI AK AV			
134	2.500	6.29E-05	-2.174	-7.504	-10.427	-42.588	-12.306
		0.004679	-3.280	-11.304	-0.087435	83.266	24.037
		Min: AH AJ AF		Max: AH AI AK AV			
135	0	0.000229	0.477254	1.624	10.574	-42.646	-12.323
		0.001483	-1.877	-6.500	-1.366	83.192	24.020
		Min: AH AJ AY		Max: AH AI AK AV			
135	2.500	0.000253	-2.169	-7.485	-10.302	-49.965	-14.436
		0.000147	-1.922	-6.646	1.082	63.863	18.437
		Min: AH AJ AF		Max: AH AI AK BE			
136	0	0.000505	0.487113	1.657	10.872	-50.161	-14.498
		0.000375	-2.010	-6.969	-1.888	65.333	18.862
		Min: AH AJ AY		Max: AH AI AK AV			
136	2.500	0.000535	-2.156	-7.445	-10.019	-57.399	-16.581
		0.000665	1.033	3.544	16.053	52.085	15.051
		Min: AH AJ AF		Max: AH AI AK AW			
137	0	0.000557	0.501126	1.730	11.684	-58.045	-16.766
		0.000451	-2.388	-8.278	-1.512	46.320	13.375
		Min: AH AJ AY		Max: AH AI AK AW			
137	2.500	0.000624	-2.132	-7.360	-9.253	-65.007	-18.777
		0.002727	1.025	3.505	15.760	47.118	13.623
		Min: AH AI AJ AF		Max: AH AI AK AW			
138	0	-0.000326	0.675285	2.313	13.477	-66.979	-19.348
		0.005270	2.641	9.047	16.394	31.932	9.205
		Min: AH AJ AY		Max: AH AI AK AW			
138	2.500	3.47E-05	-4.150	-14.336	-6.316	-74.810	-21.611
		0.005074	-2.221	-7.653	3.506	27.828	8.045
		Min: AH AI AJ AP		Max: AH AK AW			
139	0	-0.002426	0.676738	2.304	15.360	-81.528	-23.558
		0.003453	-0.448418	-1.570	3.447	22.510	6.503
		Min: AH AI AJ AY		Max: AH AK AW			
139	2.500	-0.002085	-2.777	-9.587	-6.042	-89.737	-25.924
		9.47E-05	0.272197	0.937395	2.010	11.692	3.378
		Min: AH AI AJ AF		Max: AH AK BE			
140	0	-0.001960	4.697	16.231	6.798	-92.509	-26.728
		0.000147	-0.535028	-1.845	-2.180	12.136	3.507
		Min: AH AI AJ AY		Max: AH AK AS			
140	3.600	-0.001559	1.361	4.743	-16.224	-53.963	-15.595
		0.004143	-1.382	-4.734	0.443405	24.145	6.976
		Min: AH AI AJ AP		Max: AH AK AX			
141	0	0.000732	5.504	19.028	9.100	-49.063	-14.177

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN , 2. line : MAX , 3. line : accomp load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		0.003484	1.192	4.097	-0.405895	23.823	6.884
		Min: AH AI AJ AY		Max: AH AK AX			
141	3.600	0.000269	0.197156	0.686084	-3.933	-30.638	-8.847
		0.001277	1.625	5.644	-0.906568	29.934	8.641
		Min: AH AI AV		Max: AH AJ AK BG			
142	0	0.000388	0.622919	2.155	2.247	-30.131	-8.701
		0.000751	1.141	3.954	-7.507	35.135	10.149
		Min: AH AI AJ AV		Max: AH AJ AK AX			
142	3.600	0.000341	-0.054850	-0.184354	-2.818	-27.235	-7.866
		0.000422	3.355	11.618	11.395	66.154	19.107
		Min: AH AI AK AV		Max: AH AJ AY			
143	0	0.000101	0.390175	1.348	2.485	-27.141	-7.838
		-0.001185	1.699	5.891	-9.611	64.576	18.653
		Min: AH AI AK AM		Max: AH AJ AF			
143	3.600	5.32E-05	-0.054969	-0.185561	-2.605	-25.045	-7.235
		0.000425	2.834	9.811	11.324	96.502	27.869
		Min: AH AI AK AV		Max: AH AJ AY			
144	0	4.86E-06	0.390951	1.350	2.533	-25.027	-7.228
		0.000659	1.745	6.028	-0.864717	89.162	25.741
		Min: AH AI AK AM		Max: AH AJ BH			
144	3.600	-1.12E-05	-0.054145	-0.183143	-2.557	-22.927	-6.622
		0.004120	0.148748	0.540548	3.496	116.980	33.782
		Min: AH AI AK AV		Max: AH AJ AY			
145	0	-1.12E-05	0.054145	0.183143	2.557	-22.927	-6.622
		0.004120	-0.148748	-0.540548	-3.496	116.980	33.782
		Min: AH AI AK BE		Max: AH AJ AY			
145	3.600	4.86E-06	-0.390951	-1.350	-2.533	-25.027	-7.228
		0.000659	-1.745	-6.028	0.864717	89.162	25.741
		Min: AH AI AK AS		Max: AH AJ BH			
146	0	5.32E-05	0.054969	0.185561	2.605	-25.045	-7.235
		0.000425	-2.834	-9.811	-11.324	96.502	27.869
		Min: AH AI AK BE		Max: AH AJ AY			
146	3.600	0.000101	-0.390175	-1.348	-2.485	-27.141	-7.838
		-0.001185	-1.699	-5.891	9.611	64.576	18.653
		Min: AH AI AK AS		Max: AH AJ AF			
147	0	0.000341	0.054850	0.184354	2.818	-27.235	-7.866
		0.000422	-3.355	-11.618	-11.395	66.154	19.107
		Min: AH AI AK BE		Max: AH AJ AY			
147	3.600	0.000388	-0.622919	-2.155	-2.247	-30.131	-8.701
		0.000751	-1.141	-3.954	7.507	35.135	10.149
		Min: AH AK AS		Max: AH AI AJ AZ			
148	0	0.000265	-0.197156	-0.686084	3.933	-30.638	-8.847
		0.001277	-1.625	-5.644	0.906568	29.934	8.641

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
		Min: AH AK BE		Max: AH AJ BI			
148	3.600	0.000732	-5.504	-19.028	-9.100	-49.063	-14.177
		0.003484	-1.192	-4.097	0.405895	23.823	6.884
		Min: AH AJ AK AY		Max: AH AI AZ			
149	0	-0.001599	-1.361	-4.743	16.224	-53.963	-15.595
		0.004143	1.382	4.734	-0.443405	24.145	6.976
		Min: AH AJ AK AP		Max: AH AI AZ			
149	3.600	-0.001960	-4.697	-16.231	-6.798	-92.509	-26.728
		0.000147	0.535028	1.849	2.180	12.136	3.507
		Min: AH AJ AK AV		Max: AH AI AM			
150	0	-0.002085	2.777	9.587	6.042	-89.737	-25.924
		9.47E-05	-0.272197	-0.937395	-2.010	11.692	3.378
		Min: AH AJ AK AP		Max: AH AI AV			
150	2.500	-0.002426	-0.676738	-2.304	-15.360	-81.528	-23.558
		0.003453	0.434243	1.522	-3.439	22.296	6.443
		Min: AH AI AK AV		Max: AH AI BA			
151	0	3.47E-05	4.150	14.336	6.316	-74.810	-21.611
		0.005025	2.202	7.586	-3.555	27.545	7.963
		Min: AH AJ AK AF		Max: AH AI BA			
151	2.500	-0.000326	-0.675285	-2.313	-13.477	-66.979	-19.348
		0.005221	-2.661	-9.114	-16.443	32.549	9.358
		Min: AH AJ AY		Max: AH AI AK BA			
152	0	0.000624	2.132	7.360	9.253	-65.007	-18.777
		0.002796	-1.049	-3.588	-15.710	47.551	13.749
		Min: AH AJ AP		Max: AH AI AK BA			
152	2.500	0.000557	-0.508126	-1.730	-11.684	-58.045	-16.766
		0.000451	2.388	8.278	1.512	46.320	13.375
		Min: AH AJ AY		Max: AH AI AK BE			
153	0	0.000539	2.158	7.448	10.019	-57.399	-16.581
		0.000687	-1.040	-3.569	-16.049	52.295	15.112
		Min: AH AJ AF		Max: AH AI AK BA			
153	2.500	0.000505	-0.487113	-1.657	-10.872	-50.161	-14.498
		0.000375	2.010	6.969	1.888	65.333	18.862
		Min: AH AJ AY		Max: AH AI AK BE			
154	0	0.000253	2.169	7.485	10.302	-49.965	-14.436
		0.000147	1.922	6.646	-1.082	63.863	18.437
		Min: AH AJ AP		Max: AH AI AK BK			
154	2.500	0.000229	-0.477254	-1.624	-10.574	-42.646	-12.323
		0.001483	1.877	6.500	1.366	83.192	24.020
		Min: AH AJ AY		Max: AH AI AK EE			
155	0	6.29E-05	2.174	7.504	10.427	-42.588	-12.306
		0.004679	3.280	11.304	0.087435	83.266	24.037
		Min: AH AJ AF		Max: AH AI AK EE			

ENVELOPE for < My > (and accomp. values) **
(1. line : MIN., 2. line : MAX., 3. line : accomp.load groups)

Memb.	Distance [m]	N [t]	Vy [t]	Vz [t]	T [tm]	My [tm]	Mz [tm]
155	2.500	4.09E-05	-0.472452	-1.609	-10.439	-35.229	-10.182
		0.004679	-0.675719	-2.313	-5.713	91.833	26.517
		Min: AH AJ AY		Max: AH AI AK BE			
156	0	-5.62E-05	2.180	7.525	10.533	-35.249	-10.187
		0.004919	-2.119	-7.324	-11.419	101.045	29.192
		Min: AH AJ AP		Max: AH AI AK BE			
156	2.500	-9.21E-05	-0.469172	-1.597	-10.297	-27.864	-8.061
		0.001202	-1.588	-5.488	0.088170	72.294	20.874
		Min: AH AJ AY		Max: AH AI AK BK			
157	0	-0.000191	2.195	7.577	10.720	-27.976	-8.088
		0.002332	-4.716	-16.289	-19.326	87.056	25.153
		Min: AH AJ AP		Max: AH AI AK BE			
157	2.500	-0.000303	-0.465357	-1.584	-9.966	-20.673	-5.979
		-0.000622	-0.327816	-1.169	13.175	58.570	16.926
		Min: AH AJ AY		Max: AH AI AK AS			
158	0	-0.000263	2.248	7.757	11.082	-20.829	-6.025
		0.001707	-5.034	-17.395	-22.085	64.790	18.726
		Min: AH AJ AP		Max: AH AI AK EE			
158	2.500	0.000338	-5.725	-19.717	-37.875	-17.784	-5.170
		0.000465	3.641	12.502	37.212	41.519	12.029
		Min: A E F U		Max: A B C D N			
159	0	0.001669	4.973	17.117	29.053	-14.746	-4.290
		0.002162	-8.846	-30.503	-36.168	56.327	16.322
		Min: A B C K		Max: A D E F X			
159	2.500	-0.001319	-10.183	-35.095	-41.641	-39.800	-11.559
		0.002074	5.042	17.344	32.535	31.466	9.136
		Min: A D E F W		Max: A B C M			
160	0	-1.77E-17	0.170464	0.586739	-7.22E-15	-0.146685	-0.042616
		2.93E-17	2.75E-11	-9.15E-12	-4.32E-14	-2.86E-12	-9.36E-12
		Min: A E F K		Max: A C D E AF			
160	0.500	5.65E-17	1.75E-09	5.84E-09	-3.94E-14	-2.18E-12	8.25E-12
		-1.39E-17	-2.69E-11	9.03E-12	1.24E-14	1.52E-12	-4.36E-12
		Min: AH AI AK BK		Max: AH AJ AP			

CÁLCULOS ESTRUCTURALES

FDO. JOSÉ ANGEL HIDALGO GONZÁLEZ