ANEJO Nº 6. ESTRUCTURAS

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ÍNDICE

1. CUADRO RESUMEN
2. DESCRIPCIÓN (Tipología, aparatos de apoyo, juntas, impermeabilización, etc.)
3. DEFINICIÓN GEOMÉTRICA
   - 3.1. DEFINICIÓN GEOMÉTRICA
   - 3.2. CLASIFICACIÓN DE LAS ESTRUCTURAS (VIADUCTOS, PUENTES, PASOS SUPERIORES, PASOS INFERIORES, PEQUEÑAS OBRAS DE FÁBRICA, PASOS DE FAUNA)
4. CÁLCULOS
   - 4.1. VIADUCTO DEL LLOBREGAT
     1. INTRODUCCIÓN
     2. TIPOLOGÍA Y DESCRIPCIÓN DE LA ESTRUCTURA
     3. BASES DE CÁLCULO
     4. NORMATIVA APLICADA
     5. PROGRAMAS DE CÁLCULO EMPLEADO EN LOS CÁLCULOS
     6. CARACTERÍSTICAS DE LOS MATERIALES EMPLEADOS
     7. ACCIONES CONSIDERADAS EN EL CÁLCULO
        - 7.1. VALORES CARACTERÍSTICOS DE LAS ACCIONES
          - 7.1.1. ACCIONES PERMANENTES
          - 7.1.2. ACCIONES VARIABLES
          - 7.1.3. ACCIONES ACCIDENTALES
        - 7.2. VALORES REPRESENTATIVOS DE LAS ACCIONES
        - 7.3. VALORE DE CÁLCULO DE LAS ACCIONES
        - 7.4. COMBINACIÓN DE ACCIONES
     8. DESARROLLO DEL CÁLCULO
     9. CÁLCULO DEL TABLERO. DIMENSIONAMIENTO
        - 9.1. ARMADO DE LOSA
        - 9.2. ARMADO DE VIGAS
          - 9.2.1. ENVOLVENTE DE ESFUERZOS
          - 9.2.2. E.L.S. (EVOLUCIÓN DE TENSIONES EN SERVICIO)
          - 9.2.3. E.L.U. CÁLCULO A ROTURA
          - 9.2.4. E.L.U. CÁLCULO A CORTANTE
     10. CÁLCULO DE APOYO Y REACCIONES
     11. DIMENSIONAMIENTO DE PILAS
        - 11.1. ESFUERZOS EN CABEZA DE PILA
          - 11.1.1. PILA 1
          - 11.1.2. PILA 2
          - 11.1.3. PILA 3
          - 11.1.4. PILA 4
        - 11.2. CÁLCULO Y DIMENSIONAMIENTO DE PILAS
          - 11.2.1. PILA 2
          - 11.2.2. PILA 4
        - 11.3. REACCIONES Y ESFUERZOS DE CIMENTACIÓN
     12. LISTADOS DE MODELO DE CÁLCULO (FASES DE MONTAJE)
     13. LISTADOS DE MODELO DE CÁLCULO (EMPARRILLADO FINAL)
   - 4.2. CÁLCULOS CORRESPONDIENTES A LA LOSA ENTRE LOS PPKK 400+220 Y 400+399
     - 4.2.1. CÁLCULO 1
     - 4.2.2. CÁLCULO 2
5. PROCESO CONSTRUCTIVO
6. CONTROL DE CALIDAD
   - 6.1. EMPRESA CONSTRUCTORA
     - 6.1.1. ESTRUCTURAS “IN SITU” Y PEQUEÑAS OBRAS DE FÁBRICA
       - CONTROL DEL HORMIGÓN
       - CONTROL DEL ACERO

OTROS ENSAYOS
CONTROL GEOMÉTRICO
6.1.2. ESTRUCTURAS PREFABRICADAS (EXPEDIENTE DE FABRICACIÓN)
6.2. ASISTENCIA TÉCNICA
6.2.1. ESTRUCTURAS “IN SITU” Y PEQUEÑAS OBRAS DE FÁBRICA
CONTROL DEL HORMIGÓN
CONTROL DEL ACERO
OTROS ENSAYOS
CONTROL GEOMÉTRICO
6.2.2. ESTRUCTURAS PREFABRICADAS (EXPEDIENTE DE FABRICACIÓN)
7. ACCESOS Y ELEMENTOS PARA MANTENIMIENTO
8. RECOMENDACIONES PARA LA CONSERVACIÓN Y MANTENIMIENTO
9. MOVIMIENTOS PREVISTOS EN LAS ESTRUCTURAS

1. Cuadro resumen

1. CUADRO RESUMEN

Las estructuras contenidas en el presente proyecto son:

- Viaducto del Llobregat
- Losa entre los PP.KK. 400+229 y 400+399

2. Descripción (Tipología, aparatos de apoyo, juntas, impermeabilización, etc.)

2. DESCRIPCIÓN

VIADUCTO DEL LLOBREGAT

La estructura prefabricada contemplada consta de cinco vanos de longitudes 33,50 m – 45,00 m – 45,00 m – 45,00 m – 33,50 m. La tipología elegida consiste en un puente hiperestático de vigas cajón prefabricadas de canto variable, adosadas de forma que dan lugar a una sección bicelular, y losa “in situ” postesada. Las pilas del puente son también prefabricadas.

La losa de compresión es de 14.00 metros de anchura, de espesor constante igual a 0.30 m en un tramo de 8.00 metros centrada sobre las vigas y variable de 0,30 m a 0,20 m en los vuelos. Para su ejecución se colocan placas prefabricadas nervadas sobre la vigas que sirven de base para el hormigonado de ésta. Como se ha adelantado anteriormente, la losa se postesa en una zona de aproximadamente 30 metros centrados sobre las pilas; el resto es exclusivamente armada.

Las vigas son en la mayor parte de la estructura de canto constante excepto en una zona centrada sobre las pilas, donde el canto se hace variable debido a que sobre ellas se colocan las vigas sombrero. Se ha hecho uso por tanto de tres tipos diferentes de vigas:

- Vigas sombrero, de 16.60 m. de longitud y canto variable de 2.20 a 3.00 m.
- Vigas centrales de longitud 28.40 m. y canto 2.20 m.
- Vigas laterales de 25.70 m. de longitud (contando con entrega de 0.50 m. y 2.20 m. de canto)

La subestructura está formada por cuatro pilas tipo palmera prefabricadas de dimensiones 1.50 metros en el sentido longitudinal del tablero y 2.60 metros en el sentido transversal.

Para las coacciones verticales y transversales del viaducto en estribos y pilas se disponen apoyos tipo POT, de tipo unidireccional o multidireccional. Longitudinalmente, se dispone una junta estructural en el estribo E-1 que permita los movimientos en esa dirección del tablero, mientras que en el estribo E-2 se la materializa el punto fijo del tablero mediante la unión de este con el espaldón del estribo.

Por lo que hace referencia a la cimentación de la estructura se mantiene la filosofía del proyecto original adaptándose a la nueva geometría del viaducto. De esta forma se cimentará el viaducto mediante cimentación profunda con pilotes de 1,80 m de diámetro tanto en pilas como en estribos. Las 4 pilas se cimentarán mediante 4 pilotes de 1,80 m de diámetro unidos mediante un encepado cuadrado de 9 m de lado y 3,3 m de canto. Por lo que hace referencia a los estribos y debido al hecho de que el estribo E-2 está anclado al tablero, su configuración será completamente diferente. El estribo E-1 queda cimentado mediante 4 pilotes de 1,80 m de diámetro y con un encepado rectangular de 15x9 y 2,80 m de canto

En el apartado 4 del presente anejo se adjuntan los cálculos del tablero, tanto de los elementos prefabricados (pilas y vigas) como de la losa de compresión in-situ y de los aparatos de apoyo. De igual forma se adjuntan los cálculos del resto de elementos de cimentación y estribos.

LOSA ENTRE LOS PP.KK. 400+229 Y 400+399

El trazado de la L.A.V. entre los PP.KK. 400+229 y 400+399 se desarrolla entre los estribos y muros de acompañamiento de los pasos de la autovía del Baix-Llobregat y de la carretera BV-1201.

Debido a que dichos estribos y muros son de tierra armada y unido todo ello a la escasa capacidad portante que tiene la plataforma existente situada entre ellos, obliga a disponer el balasto sobre una losa armada de 0,30 m de canto, que tiene una pendiente del 2% hacia el exterior del eje del trazado. A ambos lados de la losa se sitúan unos canales laterales para desaguar el agua de la plataforma.

3. Definición geométrica

3. DEFINICIÓN GEOMÉTRICA

3.1 Definición geométrica

Viaducto del Llobregat

El viaducto tiene una longitud de 202 m, con cinco vanos de 33,5 – 45 – 45 – 45 – 33,5 m. El tablero, constituido por vigas adosadas prefabricadas y una losa de compresión, tiene 14 m de ancho, 0,3 m de espesor la losa de compresión (cuyas alas son de canto variable, de 0,3 a 0,22 m) y las vigas prefabricadas suponen un canto variable entre 2,2 y 3 m.

La subestructura está formada por cuatro pilas tipo palmera prefabricadas de dimensiones 1.50 metros en el sentido longitudinal del tablero y 2.60 metros en el sentido transversal.

Por lo que hace referencia a la cimentación de la estructura se mantiene la filosofía del proyecto original adaptándose a la nueva geometría del viaducto. De esta forma se cimentará el viaducto mediante cimentación profunda con pilotes de 1,80 m de diámetro tanto en pilas como en estribos. Las 4 pilas se cimentarán mediante 4 pilotes de 1,80 m de diámetro unidos mediante un encepado cuadrado de 9 m de lado y 3,3 m de canto. Por lo que hace referencia a los estribos y debido al hecho de que el estribo E-2 está anclado al tablero, su configuración será completamente diferente. El estribo E-1 queda cimentado mediante 4 pilotes de 1,80 m de diámetro y con un encepado rectangular de 15x9 y 2,80 m de canto.

Losa entre los PP.KK. 400+229 y 400+399

La losa que se proyecta como refuerzo entre los PP.KK. 400+229 y 400+399 constará de 9 módulos de 19 m con un ancho de 10,50 m y un canto de 0,30 m. Se ejecutará la losa con una pendiente del 2% hacia el exterior del eje del trazado.

3.2 Clasificación de las estructuras

El viaducto del Llobregat, como su nombre indica, se trata de un viaducto.

La losa entre los PP.KK. 400+229 y 400+399 consiste en una pequeña estructura de cimentación, para la adecuación del aprovechamiento de dos pasos superiores existentes, correspondientes a la autovía A-2 y la carretera BV-1201.

4. Cálculos

4. CALCULOS

A continuación se adjuntan los cálculos correspondientes al Viaducto del Llobregat.

ÍNDICE

1. INTRODUCCIÓN.
2. TIPOLOGÍA Y DESCRIPCIÓN DE LA ESTRUCTURA.
3. BASES DE CÁLCULO
4. NORMATIVA APLICADA
5. PROGRAMAS INFORMÁTICOS EMPLEADOS EN LOS CÁLCULOS
6. CARACTERÍSTICAS DE LOS MATERIALES EMPLEADOS
7. ACCIONES CONSIDERADAS EN EL CÁLCULO
   - 7.1. VALORES CARACTERÍSTICOS DE LAS ACCIONES
     - 7.1.1. ACCIONES PERMANENTES.
     - 7.1.2. ACCIONES VARIABLES
     - 7.1.3. ACCIONES ACCIDENTALES: DESCARRILAMIENTO DE VEHÍCULOS FERROVIARIOS
   - 7.2. VALORES REPRESENTATIVOS DE LAS ACCIONES
   - 7.3. VALORES DE CÁLCULO DE LAS ACCIONES
   - 7.4. COMBINACIÓN DE ACCIONES
8. DESARROLLO DEL CÁLCULO
9. Cálculo del tablero. Dimensionamiento.
   - 9.1. Armado de losa.
   - 9.2. Armado de vigas
     - 9.2.1. Envolvente de esfuerzos
     - 9.2.2. E.L.S. (Evolución de tensiones en servicio)
     - 9.2.3. E.L.U. Cálculo a Rotura.
     - 9.2.4. E.L.U. Cálcuo a Cortante.
10. Cálculo de apoyos y reacciones
11. Dimesionamiento de pilas
    - 11.1. Esfuerzos en cabeza de pila
      - 11.1.1. Pila 1
      - 11.1.2. Pila 2
      - 11.1.3. Pila 3
      - 11.1.4. Pila 4
    - 11.2. Cálculo y dimensionamiento de pilas
      - 11.2.1. PILA 2
      - 11.2.2. PILA 4
    - 11.3. Reacciones y esfuerzos en cimentación
12. Listados de los modelos de cálculo (fases de montaje)
13. Listados de los modelos de cálculo (Emparrillado final)

1. INTRODUCCIÓN.

El objeto del presente documento es el de describir el procedimiento seguido en el cálculo y diseño del Viaducto sobre el Río Llobregat para Ave en Castellbisbal, así como las bases de cálculo, características de los materiales, hipótesis adoptadas, medios empleados en el cálculo, resultados obtenidos y conclusiones derivadas del proceso.

2. TIPOLOGÍA Y DESCRIPCIÓN DE LA ESTRUCTURA

La estructura prefabricada contemplada en el presente proyecto "Viaducto del Llobregat" para ferrocarril de vía internacional consta de cinco vanos de longitudes 33,50 m – 45,00 m – 45,00 m – 45,00 m – 33,50 m. La tipología elegida consiste en un puente hiperestático de vigas cajón prefabricadas de canto variable, adosadas de forma que dan lugar a una sección bicelular, y losa "in situ" postesada. Las pilas del puente son también prefabricadas

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Las vigas son en la mayor parte de la estructura de canto constante excepto en una zona centrada sobre las pilas, donde el canto se hace variable debido a que sobre ellas se colocan las vigas sombrero. Se ha hecho uso por tanto de tres tipos diferentes de vigas:

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La subestructura está formada por cuatro pilas tipo palmera prefabricadas de dimensiones 1.50 metros en el sentido longitudinal del tablero y 2.60 metros en el sentido transversal.
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3. BASES DE CÁLCULO.

El dimensionamiento de la estructura se ha realizado según los principios de la mecánica racional y teoría de estructuras, adaptadas al diseño estructural. Se han seguido las prescripciones recogidas en la normativa vigente en el territorio español (detallada más adelante), así como las recomendaciones y la normativa internacional de aplicación, cuando proceda. De acuerdo con lo anterior, el cálculo se ha realizado siguiendo el principio de los Estados Límites, diferenciados en Estados Límite de Servicio y Estados Límite Últimos, que establece que la seguridad de la estructura en su conjunto, o en cualquiera de sus partes, se garantiza comprobando que la solicitación no supera la respuesta última de las mismas. Para cada Estado Límite se deberá satisfacer la condición correspondiente entre las que a continuación se indican:

$$Ed \leq Cd \quad (E.L.S)$$

$$Sd \leq Rd \quad (E.L.U.)$$

Siendo:

Ed, Sd: valores de cálculo de los efectos y solicitaciones, respectivamente, obtenidas al aplicar al modelo estructural los valores de cálculo de las acciones.

Cd: valor límite admisible del efecto de las acciones para el Estado Límite de Servicio considerado.

Rd: valor de cálculo de la respuesta estructural para el Estado Límite Último considerado.

Para la aplicación de este criterio de seguridad, se consideran tanto situaciones de servicio como de agotamiento, esto es, Estados Límites de Servicio (ELS) y Estados Límites Últimos (ELU), de acuerdo con las definiciones dadas para los mismos en las normativas de referencia. En principio, los Estados Límites Últimos están asociados a la rotura de secciones o elementos. Para ellos, se evalúan las solicitaciones mediante la mayoración de los valores representativos de las acciones (en general característicos), utilizando los oportunos coeficientes parciales que luego se detallan. Las resistencias de las secciones o elementos se estiman mediante las características geométricas, y las resistencias minoradas de los materiales.

Por el contrario, los Estados Límites de Servicio están asociados a la pérdida de funcionalidad de la estructura. Las solicitaciones se evalúan mediante sus valores representativos, en general sin mayorar, afectados de los oportunos coeficientes de combinación, para tener en cuenta la probabilidad de

ocurrencia simultánea (concomitancia) de varias acciones. Las resistencias se estiman a partir de los valores nominales de las dimensiones y resistencias de los elementos o secciones de la estructura, sin minorar.

4. NORMATIVA APLICADA

El dimensionamiento general de la estructura se ha realizado conforme a las instrucciones

- [1] IAPF 2003 Instrucción sobre las acciones a considerar en el proyecto de puentes de ferrocarril Febrero 2003. (Pendiente de Publicación)
- [2] Instrucción de Hormigón Estructural. Ministerio de Fomento. Secretaría General Técnica. 199
- [3] Eurocode 1
- [4] Instrucción relativa a las acciones a considerar en el proyecto de puentes de ferrocarril. (O.M de 1975)

5. PROGRAMAS INFORMÁTICOS EMPLEADOS EN LOS CÁLCULOS.

Los programas informáticos empleados son los que siguen:

- Programa "Cálculo Automático de Emparrillados", desarrollado por Manuel Marín para Alvisa, con wxWindows 2.2.9 y Gcc 2.95.2
- Programa "AvWin 98 Plus 2.1"
- PROGRAMA PILA v1.6: Diseño y cálculo espacial de pilas teniendo en cuenta material no lineal y efectos de segundo orden.
- Diversas hojas de cálculo y programas desarrollados por el proyectista.

- Prontuario Informático del Hormigón Estructural 3.0. Desarrollado por la Unidad Docente de Hormigón Estructural de la E. T. S. I. C. C. P. de Madrid y el Instituto Español del Cemento y sus Aplicaciones.

6. CARACTERÍSTICAS DE LOS MATERIALES EMPLEADOS,.

Las características de los materiales a emplear en la construcción de la estructura objeto de la presente nota de cálculo son, en consonancia con lo dispuesto en la Instrucción EHE, las siguientes:

MATERIAL	*CALIDAD*	*NIVEL DE CONTROL*	*COEFICIENTES*
HORMIGÓN EN ALZADOS DE PILAS	HA-50/F/20/IIa	ESTADÍSTICO	$\gamma c = 1.5$
HORMIGÓN EN LOSA DE TABLERO	HA-30/B/20/IIa	ESTADÍSTICO	$\gamma c = 1.5$
HORMIGÓN EN VIGAS	HP-50/F/12/IIa	ESTADÍSTICO	$\gamma c = 1.5$
HORMIGÓN EN PRELOSAS	HA-35/F/12/IIa	ESTADÍSTICO	$\gamma c = 1.5$
ACERO PASIVO	B-500 S	NORMAL	$\gamma s = 1.15$
ACERO ACTIVO	Y 1860 S7	NORMAL	$\gamma s = 1.15$
EJECUCIÓN		INTENSO	$\gamma g = 1.35$ $\gamma q = 1.5$

7. ACCIONES CONSIDERADAS EN EL CÁLCULO.

La determinación de los valores característicos de las acciones, así como de sus valores representativos y de cálculo y las combinaciones a realizar con las mismas, a fin de verificar el cumplimiento de los estados límite, se lleva a cabo según lo prescrito en la Instrucción IAPF 2003[1]

7.1. VALORES CARACTERÍSTICOS DE LAS ACCIONES.

7.1.1. ACCIONES PERMANENTES.

Peso Propio: El valor característico del peso de los elementos estructurales de hormigón, se determina tomando como peso específico del mencionado material 2.5 t/m^3. (Para las vigas se ha tomado 2.65 T/m^3). Su aplicación en la estructura se realiza según las fases de montajes descritas.

Cargas muertas

Los tipos de carga a considerar serán los siguientes:

- *Balasto* (γ = 1.8 t/m^3) ; valor máximo $\Rightarrow p_{máx} = 1.3 \cdot p_O = 12.29$ T/m
  valor mínimo $\Rightarrow p_{mín} = 0.7 \cdot p_O = 6.62$ T/m
- *Carriles y traviesas* $\Rightarrow$ 2 x 0.64 T/m
- *Conductos + cables* $\Rightarrow$ 2 x 0.30 T/m
- *Murete guardabalasto* $\Rightarrow$ 2 x 0.25 T/m
- *Imposta* $\Rightarrow$ 2 x1 T/m

$Cp_{máx}$ = 8.34 T/m por vía de circulación

$Cp_{mín}$ = 5.50 T/m por vía de circulación

Acciones verticales derivadas de fenómenos diferidos

Debido a las acciones reológicas producidas por la retracción y la fluencia, con el tiempo y, debido al hiperestatismo de la estrucura, se generan unos esfuerzos en la misma.

Cargas horizontales derivadas del rozamiento en apoyos

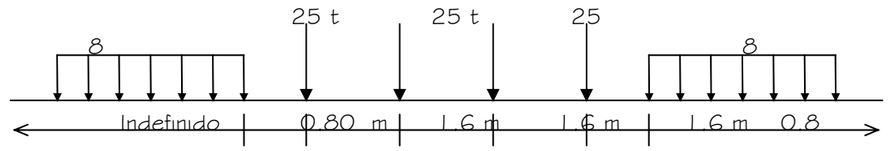
Se considerará una fuerza horizontal por el rozamiento producido en los apoyos deslizantes igual a:

- ***5% de las cargas permanentes*** verticales en caso desfavorable
- ***1% de las cargas permanentes*** verticales en caso favorable

7.1.2. ACCIONES VARIABLES

a) Sobrecarga ferroviaria: Trenes de carga

Se han considerado como sobrecarga de uso ferroviaria los trenes fijados por la instrucción I.P.F;2003 [1] en este caso es el ***Tren UIC71***, el cual también figura en el Eurocódigo.



Estas cargas serán afectadas por un coeficiente de clasificación, α , cuyo valor es de 1,21.

Se considerarán además posibles *ripados de las vías de 30 cm + r/18 =* ***0.383 m*** hacia cada lado del eje de las mismas, siendo r la distancia entre apoyos de las ruedas (1.435 + 0.065 = 1.500 m.).

Para estos trenes se tendrá que, por efectos dinámicos, el valor de las cargas verticales se incrementará con el coeficiente de impacto.

b) Además de lo especificado se considerará una sobrecarga uniforme de 0.5 T/m^2 en aceras, paseos de servicio y zonas de tablero no afectadas directamente por el tráfico ferroviario, extendida en toda su superficie o parte de ella, según sea más desfavorable para el elemento de estudio.

c) Frenado y arranque

Se consideran los siguientes valores para las cargas longitudinales:

- *Frenado* = α:2 t/m x L (por vía cargada) Lmax= 300 m.
- *Arranque* = α:3,3 t/m x L' (por vía cargada) L'max= 30 m.

Para el caso en que se considera sobrecarga en una de las vías se aplicará frenado o arranque según sea el valor más desfavorable, mientras que si están cargadas las dos vías en una de ellas se considerará frenado y en la otra arranque.

a) Fuerza centrífuga

La fuerza centrífuga se supondrá actuando en toda o en parte de la longitud de los puentes que corresponda a la zona de la vía curva en dirección horizontal y perpendicularmente al eje de la vía, a una altura de 1,80 m sobre la perpendicular.

El valor característico de la fuerza centrífuga se obtendrá mediante la aplicación de las siguientes expresiones:

$$Q_{tk} = \alpha \frac{Q_{v,k} v^2}{gr} f$$

$$q_{tk} = \alpha \frac{q_{v,k} v^2}{gr} f$$

donde:

Q_{tk} . q_{tk} : valores característicos de la fuerza centrífuga correspondiente a las cargas puntuales y a la carga uniformemente repartida;

Q_{vk} . q_{vk} : valores de las cargas verticales definidas en 2.3.2.1 de la Instrucción [1], no afectadas por ningún coeficiente de mayoración dinámico.

v. velocidad del tren

g: aceleración de la gravedad

r: radio en planta de la curva

f: coeficiente reductor definido em el epígrafe 2.3.4.2.1. de la instrucción [1]

d) Efecto lazo

Se considerará además, independientemente del número de vías, la actuación de una *carga horizontal de 10 t en sentido transversal*, aplicada en el sitio más desfavorable a la altura superior del carril.

Reglas de aplicación de las sobrecargas de tráfico

Se realizarán dos cálculos paralelos, uno para velocidad de 120 km/h y otro para la velocidad de proyecto (350 km/h), escogiendo en cada caso la situación más desfavorable.

- **Cargas verticales**; Se emplearán las definidas por el tren de cargas anteriores, situadas en el sitio más desfavorable para el caso estudiado, en una o dos vías, afectadas por los coeficientes α y ϕ:

$$\alpha \cdot \phi P_{v,k}$$

- **Cargas horizontales**; Se estudiarán los siguientes casos:
  1) *Frenado y Arranque + Lazo*
  2) *Fuerza centrífuga + Lazo*
  3) *Frenado y Arranque + 50% Fuerza centrífuga + Lazo*
  4) *50% Frenado y Arranque + Fuerza centrífuga + Lazo*

e) Acciones térmicas

Se consideran dos tipos de acciones térmicas:

- Gradiente térmico

Para determinar su valor se hace uso del epígrafe *2.3.12.1.2.1* de la instrucción [1] según el cual:

$$\Delta T_{SI} = (K_1 \cdot K_2 \cdot K_3) \cdot \Delta T_{ref} \approx 7,5º$$

en donde:

$K_1 \approx 0,82$ (canto del tablero = 3)

$K_2 \approx 1.08$ (relación entre ancho de losa superior e inferior ≈ 2.8)

$K_3 \approx 0,804$

$\Delta T_{ref} \approx 10,5º$

- Variación uniforme de la temperatura

Para determinar su valor se hace uso del epígrafe *2.3.12.1.1* de la instrucción [1], según el cual:

$$\Delta T = K \cdot z^a \cdot h^b \cdot s^c \approx 34.7º$$

en donde:

K = 29,13

a = 0,301

b = -0,148

c = 0

z = 3 (zona III)

h = 3,00

s = 1

Esta acción es equivalente a introducir en el hormigón una deformación longitudinal impuesta de $\varepsilon \approx 0,25$ *mm/m*

f) Interacción longitudinal carril-tablero

Para la obtención del valor de esta acción se emplea la fórmula del EC-1 [3], en donde $F_{TK} = \pm(400+5L_T)$ en (KN) por vía de circulación cargada, siendo L_T la longitud del tablero. El valor máximo de F_{TK} no puede ser mayor de 1100 KN por vía.

g) Viento

Dadas las características del puente se puede emplear el cálculo simplificado propuesto por la IAPF 2003 [1] con los siguienes valores:

ENTORNO TIPO II

VELOCIDAD DE REFERENCIA 28 m/s

ρ = 0.268 T/m^2

7.1.3. ACCIONES ACCIDENTALES: DESCARRILAMIENTO DE VEHÍCULOS FERROVIARIOS

De acuerdo con la IAPF 2003 [1] apartado 3.4 se estudiarán las dos situaciones de proyecto prescritas.

- ***Situación de proyecto I:*** Corresponde al descarrilamiento de la locomotora o de los vagones con carga pesada dentro de un área de ancho igual a 1,5 veces el ancho de la vía a cada lado del eje de la misma (2,15 m^2). Las cargas equivalentes a aplicar son dos cargas lineales de α·0.7·UIC71 separadas entre sí el ancho de la vía (1,435 m), paralelas a la vía. En esta situación se debe evitar el colapso total de la estructura siendo tolerable el daño local.
- ***Situación de proyecto II:*** Corresponde al descarrilamiento de la locomotora o de los vagones con carga pesada dentro de un área de ancho igual a 1,5 veces el ancho de la vía a cada lado del eje de la misma (2,15 m^2) o en el borde del tablero, según sea la posición más desfavorable. La carga equivalente a aplicar es una carga lineal de α·0.7·UIC71, paralela a la vía y en una longitud de 20 m.

En cuanto a las *acciones accidentales derivadas del sismo* no corresponde estudiarlas dado que la aceleracíon de cálculo $a_c \leq 0{,}06g$

7.2. VALORES REPRESENTATIVOS DE LAS ACCIONES.

En general, para acciones permanentes, permanentes de valor no constante y accidentales, se considera un único valor representativo (que será el adoptado para la verificación de los estados límite), coincidente con el valor característico descrito en el anterior apartado.

Por el contrario, en el caso de las acciones variables, se tienen en consideración diferentes valores representativos, que se utilizarán en distintas combinaciones de acciones. Dichos valores resultan de afectar al valor característico de la acción de los siguientes coeficientes:

Acciones	Ψ_0 (valor de combinación)	Ψ_1 (valor frecuente)	Ψ_2 (valor cuasi-permanente)
Cargas de tráfico	0,80	0,8, 1 vía cargada 0,6, 2 vías cargadas	0,00
Viento	0,6	0,5	0,2
Temperatura	0,6	0,5	0,2

Tabla 2: Valores de los coeficientes Ψ

7.3. VALORES DE CÁLCULO DE LAS ACCIONES

Estado Límite Último

De acuerdo con el cuadro 4.1 de la IAPF 2003 [1] y las tabla 12.1.a y 12.1.b de la EHE [2] los valores de los coeficienres γ_F para los Estados Límite Últimos se describen en las tablas 3a y 3b.

TIPO DE ACCIÓN	Situación persistente o transitoria		Situación accidental	
	Efecto favorable	Efecto desfavorable	Efecto favorable	Efecto desfavorable
Permanente	γ_G = 1,00	γ_G = 1,35	γ_G = 1,00	γ_G = 1,00
Pretensado	γ_P = 1,00	γ_P = 1,00	γ_P = 1,00	γ_P = 1,00
Permanente de valor no constante	γ_{G^*} = ,.00	γ_{G^*} = 1,50	γ_{G^*} = 1,00	γ_{G^*} = 1,00
Variable	γ_Q = 0,00	γ_Q = 1,50	γ_Q = 0,00	γ_Q = 1,00
Accidental	-	-	γ_A = 1,00	γ_A = 1,00

Tabla 3a. Valores de los Coeficientes γ_F para los Estados Límite Últimos

TIPO DE ACCIÓN	Nivel de Control de ejecución		
	Intenso	Normal	Reducido
Permanente	γ_G = 1,35	γ_G = 1,50	γ_G = 1,60

Pretensado	γ_P = 1,00	γ_P = 1,00	-
Permanente de valor no constante	γ_{G^*} = 1,50	γ_{G^*} = 1,60	γ_{G^*} = 1,80
Variable	γ_Q = 1,50	γ_Q = 1,60	γ_Q = 1,80

Tabla 3b. Valores de los Coeficientes γ_F para los Estados Límite Últimos en función del nivel de ejecución adoptado

Estado límite de Servicio

De acuerdo con el cuadro 4.2 de la IAPF 2003 [1] y la tabla 12.2 de la EHE [2] los valores de los coeficienres γ_F para los Estados Límite de Servicios se describen en la tabla 4.

TIPO DE ACCIÓN		Situación persistente o transitoria	
		Efecto favorable	Efecto desfavorable
Permanente		γ_G = 1,00	γ_G = 1,35
Pretensado	Armadura pretesa	γ_P = 0,95	γ_P = 1,05
	Armadura postesa	γ_P = 0,90	γ_P = 1,10
Permanente de valor no constante		γ_{G^*} = 1,00	γ_{G^*} = 1,00
Variable		γ_Q = 0,00	γ_Q = 1,00

Tabla 4. Valores de los Coeficientes γ_F para los Estados Límite de Servicio

7.4. COMBINACIÓN DE ACCIONES

Tanto la norma española [2] en su artículo 13 como la IAPF 2003 [1] en el capítulo 5 establece las hipótesis de carga a considerar.

Estado límite último

$$\sum_{j\geq 1}\gamma_{G,j}G_{K,j} + \sum_{i\geq 1}\gamma_{G^*,i}G^*_{K,i} + \gamma_P P_K + \gamma_{Q,1}Q_{K,1} + \sum_{i>1}\gamma_{Q,i}\Psi_{0,i}Q_{K,i}$$

Dónde:

$G_{K,J}$ = Valor representativo de cada acción permanente.

$G^*_{K,J}$ = Valor representativo de cada acción permanente de valor no constante

P_k = Valor representativo de la acción del pretensado

$Qk,1$ = Valor representativo (Valor característico) de la acción variable dominante

$\Psi_{oi}Q_{ki}$ = Valor representativo (valores de combinación) de las Acciones variables Concomitantes con la Acción Variable Dominante.

Estado límite de Servicio

- Combinación Característica (poco probable o rara)

$$\sum_{j\geq 1}G_{K,j} + \sum_{i\geq 1}\gamma_{G^*,i}G^*_{K,i} + \gamma_P P_K + \gamma_{Q,1}Q_{K,1} + \sum_{i>1}\gamma_{Q,i}\Psi_{0,i}Q_{K,i}$$

- Combinación Frecuente

$$\sum_{j\geq 1}G_{K,j} + \sum_{i\geq 1}\gamma_{G^*,i}G^*_{K,i} + \gamma_P P_K + \gamma_{Q,1}\Psi_{1,1}Q_{K,1} + \sum_{i>1}\gamma_{Q,i}\Psi_{2,i}Q_{K,i}$$

- Combinación Cuasi-Permanente

$$\sum_{j\geq 1}G_{K,j} + \sum_{i\geq 1}\gamma_{G^*,i}G^*_{K,i} + \gamma_P P_K + \sum_{i>1}\gamma_{Q,i}\Psi_{2,i}Q_{K,i}$$

8. DESARROLLO DEL CÁLCULO

Para realizar el cálculo del tablero se ha procedido a realizar diversos modelos de cálculo que permitan la obtención de los esfuerzos existentes en la estructura de una forma que refleje lo más aproximadamente posible la realidad.

Cálculo del peso propio del tablero. fases de montaje

Para realizar este cálculo se emplea un ***modelo viga continua*** evolutivo según las diferentes fases de montaje de la estructura. Para ello se utilizan unos modelos de barras que representan el tablero existente en cada una de estas fases de ejecución.

Para la ejecución del tablero se han dispuesto las siguientes fases de ejecución, una vez hechas las pilas y estribos:

a) **Montaje de vigas**; las acciones a las que dan lugar son las derivadas del peso propio de las mismas, considerando una densidad para el hormigón de 2.65 t/m^3 y el área correspondiente de la sección.

b) **Montaje de placas de encofrado;** el paso siguiente será el montaje en todo el tablero de las prelosas. La carga introducida corresponde al peso propio de las mismas

c) **Ejecución de empalmes**

d) **Hormigonado de la losa en fase I sobre pilas ;** Se hormigonará la losa sobre una longitud de aproximadamente 16 m a cada lado de las pilas. El peso propio introducido será el que se obtiene de considerar la sección de la losa con una densidad de 2.5 t/m^3.

e) **Retirada de las torretas provisionales de montaje**

f) **Postesado de losa.** Para efectuarse el postesado de la armadura activa deberá cumplirse H. Losa ≥ 250 Kg/cm^2

g) **Hormigonado de resto de losa en fase I en resto.**

h) **Hormigonado de losa en fase II en todo el tablero.** Entre esta fase y la anterior deberán transcurrir al menos 48 horas ó H Losa≥ 200 Kg/cm^2

Cálculo de la estructura sometida al resto de cargas

Se han considerado las cargas especificadas en la Instrucción de Febrero 2003[1].

Para el cálculo de los esfuerzos derivados de cargas muertas y sobrecargas ferroviarias se ha desarrollado un ***modelo de emparrillado plano***, para este caso en particular se ha discretizado mediante seis nervios longitudinales y barras transversales de interejes variables.

9. Cálculo del tablero. Dimensionamiento.

Una vez obtenidos los esfuerzos se estudian las tensiones producidas por el pretensado tanto durante la fabricación (en el instante de la transferencia) como a largo plazo, considerando respectivamente unas pérdidas del 5% y 20%.

La adición de estas tensiones a las producidas por las cargas exteriores conduce a las tensiones reales (en fibra superior e inferior de la viga, y fibra superior de la losa) que aparecen en las distintas fases, fabricación, servicio bajo cargas permanentes, y servicio bajo máxima sobrecarga.

Se comprueba que las tracciones (si existen) son admisibles en función de la clase de comportamiento de la estructura y se obtiene la resistencia característica del hormigón en cada fase para soportar las compresiones existentes.

Los esfuerzos rasantes entre viga y losa se resisten exclusivamente con armadura pasiva, sin contar con la colaboración del hormigón.

El armado de las vigas se realiza aplicando la Instrucción de Hormigón Estructural EHE . Se comprueba la sección en los diversos Estados Límite Últimos y en Estado Límite de Servicio:

COMPROBACIÓN EN SERVICIO

Se comprueban las tensiones admisibles de acuerdo con la EHE .

Fibra extrema en mínima compresión o en tracción nominal:

En elementos de hormigón pretensado, en ausencia de requerimientos específicos, y bajo la combinación de acciones frecuentes las máximas aberturas de fisura para los distintos ambientes serán las definidas a continuación.

σ_c con $\gamma_p = 0,90$

Clase de exposición	Tensión límite
I	Wmáx ≤ 0,2 mm
IIa, IIb, H	Wmáx ≤ 0,2 mm[1]
IIIa, IIIb, N, F	≥ 0 descompresión
IIIc, Qa, Qb, Qc	≥ 0 descompresión

1 Adicionalmente deberá comprobarse que las armaduras acivas se encuentrab en la zona comprimida de la sección, bajo la combinación de acciones cuasipermanentes.

Fibra extrema en máxima compresión

$\sigma_c \leq 0,6\ f_{ck,t}$ (con $\gamma_p = 1,10$)

ESTADOS LÍMITE ÚLTIMOS ANALIZADOS:

- *ROTURA* : Para cada sección se presenta el momento último, el momento de cálculo, y el cociente entre el momento último y el momento de cálculo sin mayorar. Las hipótesis de cálculo adoptadas son las siguientes :
  - Diagrama rectangular simplificado para el hormigón y bilineal para el acero.
  - No se considera la contribución de las armaduras pasivas por defecto.
  - Se supone que las armaduras activas alcanzan la plastificación.
  - Las dimensiones de la cabeza de compresión son el espesor constante de la losa y el intereje.
  - Se mayoran por 1.35 las cargas permanentes + peso propio de viga y losa, y por 1.5 la sobrecarga y el carro.
  - Se minora la resistencia del hormigón y la del acero según los coeficientes descritos en la memoria..
- *CORTANTE*. Para cada sección aparecen:
  - Resistencias del hormigón a tracción media (EHE 98)
  - Tensión en el centro de gravedad a tiempo infinito de la sección según los resultados obtenidos en la comprobación en servicio.
  - Canto útil empleado en el cálculo.
  - Cotangente de referencia de la EHE-98.
  - Cortante de cálculo V_d.
  - Cortante de agotamiento por compresión oblicua en el alma V_{u1}.
  - Parámetro RHOL (cuantía geométrica de armadura longitudinal traccionada).
  - Cortante V_{cu} de contribución del hormigón a la resistencia a esfuerzo cortante.
  - Cortante V_{su} a resistir por los cercos.
  - A90 área de armadura necesaria por metro lineal.
- *RASANTE JUNTA*
  - El rasante de cálculo se obtiene en función de los resultados de rotura de cada sección, afectando la tracción total producida por el pretensado en cada sección por la relación 1.5/Coef. Seg. A rotura.
  - Se realiza la redistribución plásticaLa armadura de cosido que se obtiene se compara con la existente de cortante y torsión.
- *RASANTE FONDO .*
  - Se considera la redistribución plástica entre secciones
  - Se considera que el pretensado inferior entre las almas es el que se d debe resistir
    - El rasante de cálculo se obtiene en función de los resultados de rotura de cada sección, afectando la tracción total producida por el pretensado en cada sección por la relación 1.5/Coef. Seg. A rotura

9.1. Armado de losa

Estado Límite de Servicio. Postesado de losa.

		14.6	13.025	11.45	9.875	8.3	6.64	4.98	3.32	1.66	0	1.66	3.32	4.98	6.64	8.3	9.88	11.46	13.03	14.61
Distancia al estribo		***18.90***	***20.48***	***22.05***	***23.63***	***25.20***	***26.86***	***28.52***	***30.18***	***31.84***	***33.50***	***35.16***	***36.82***	***38.48***	***40.14***	***41.80***	***43.38***	***44.96***	***46.53***	***48.11***
Mk-(retirada de torretas)		-28.5	-30.9	-33.3	-35.7	-38.0	-38.1	-31.8	-25.5	-19.2	-12.9	-10.1	-7.3	-4.5	-1.8	1.0	3.7	6.3	9.0	11.6
Mk-(postesado de losa, sf)		-721.5	-781.6	-841.7	-901.9	-962.0	-1025.4	-1088.7	-1152.1	-1215.5	-1278.8	-1260.7	-1242.6	-1224.5	-1206.4	-1188.3	-1171.1	-1153.9	-1136.6	-1119.4
Mk-(losa, fase 1 en resto, sf)		26.9	-0.4	-27.7	-55.0	-82.3	-111.0	-139.8	-168.5	-197.3	-226.0	-200.5	-175.0	-149.5	-124.0	-98.5	-74.2	-50.0	-25.7	-1.5
Mk-(losa, fase 2 a todo, sf)		44.0	29.8	12.8	-7.0	-29.5	-56.2	-85.9	-118.7	-154.6	-193.5	-154.0	-117.6	-84.2	-53.9	-26.6	-3.6	16.7	34.3	49.1
Mk-(cp)		333.3	226.5	98.9	-49.4	-218.4	-418.9	-642.5	-889.1	-1158.6	-1451.2	-1154.2	-880.2	-629.2	-401.2	-196.2	-22.8	130.0	261.9	373.0
Mk-(sc aceras)		-68.0	-73.6	-79.3	-84.9	-90.6	-102.7	-110.4	-132.3	-156.1	-194.0	-154.7	-124.6	-103.6	-82.8	-61.9	-49.3	-46.3	-47.2	-49.1
Mk-(tren)		-925.1	-1003.7	-1083.1	-1163.5	-1245.5	-1334.2	-1473.3	-1756.1	-2065.4	-2520.3	-2021.7	-1622.8	-1294.6	-985.7	-766.9	-696.5	-643.3	-653.0	-667.4
Md-		-1588.2	-1905.3	-2260.5	-2668.9	-3171.0	-3747.9	-4428.2	-5400.2	-6456.4	-7807.7	-6390.7	-5187.2	-4150.5	-3183.9	-2401.2	-1925.9	-1602.3	-1422.1	-1274.7
h, sf		2.500	2.500	2.500	2.500	2.500	2.680	2.860	3.050	3.230	3.300	3.230	3.050	2.860	2.680	2.500	2.500	2.500	2.500	2.500
Vasf		0.894	0.894	0.894	0.894	0.894	1.060	1.137	1.217	1.291	1.320	1.291	1.217	1.137	1.060	0.894	0.894	0.894	0.894	0.894
Vbsf		-1.369	-1.369	-1.369	-1.369	-1.369	-1.385	-1.487	-1.598	-1.704	-1.745	-1.704	-1.598	-1.487	-1.385	-1.369	-1.369	-1.369	-1.369	-1.369
Vcsf		1.194	1.194	1.194	1.194	1.194	1.360	1.437	1.517	1.591	1.620	1.591	1.517	1.437	1.360	1.194	1.194	1.194	1.194	1.194
Área, sf		2.693	2.693	2.693	2.693	2.693	3.110	3.245	3.245	3.313	3.337	3.313	3.245	3.245	3.110	2.693	2.693	2.693	2.693	2.693
Inercia, sf		2.439	2.439	2.439	2.439	2.439	3.197	4.267	4.267	4.848	5.078	4.848	4.267	4.267	3.197	2.439	2.439	2.439	2.439	2.439
h, f		2.500	2.500	2.500	2.500	2.500	2.680	2.860	3.050	3.230	3.300	3.230	3.050	2.860	2.680	2.500	2.500	2.500	2.500	2.500
Vaf		0.698	0.698	0.698	0.698	0.698	0.856	0.923	0.993	1.291	1.084	1.291	0.993	0.923	0.856	0.698	0.698	0.698	0.698	0.698
Vbf		-1.563	-1.563	-1.563	-1.563	-1.563	-1.587	-1.700	-1.820	-1.704	-1.979	-1.704	-1.820	-1.700	-1.587	-1.563	-1.563	-1.563	-1.563	-1.563
Vcf		0.998	0.998	0.998	0.998	0.998	1.156	1.223	1.293	1.591	1.384	1.591	1.293	1.223	1.156	0.998	0.998	0.998	0.998	0.998
Área, f		3.359	3.359	3.359	3.359	3.359	3.774	3.840	3.910	3.977	4.003	3.977	3.910	3.840	3.774	3.359	3.359	3.359	3.359	3.359
Inercia, f		2.957	2.957	2.957	2.957	2.957	3.922	4.527	5.212	5.903	6.183	5.903	5.212	4.527	3.922	2.957	2.957	2.957	2.957	2.957
LOSA	σ_a (t/m2)	-116.70	-143.79	-171.91	-201.02	-231.15	-238.00	-213.67	-253.43	-260.55	-278.57	-264.87	-262.68	-226.63	-259.51	-263.20	-241.74	-221.29	-201.86	-183.44
	σ_b (t/m2)	178.74	220.24	263.30	307.90	354.05	310.94	279.50	332.78	344.03	368.18	349.74	344.92	296.46	339.04	403.13	370.27	338.95	309.18	280.97
	σ_c (t/m2)	-155.87	-192.06	-229.61	-268.50	-308.74	-305.37	-270.04	-315.92	-321.12	-341.88	-326.45	-327.44	-286.42	-332.96	-351.55	-322.89	-295.58	-269.62	-245.02
RESTO CP	σ_a (t/m2)	78.63	53.42	23.33	-11.65	-51.52	-91.48	-131.02	-169.42	-253.31	-254.50	-252.34	-167.73	-128.31	-87.60	-46.29	-5.37	30.65	61.77	87.99
	σ_b (t/m2)	-176.22	-119.73	-52.28	26.12	115.46	169.48	241.23	310.45	334.47	464.44	333.19	307.35	236.24	162.30	103.75	12.03	-68.70	-138.45	-197.20
	σ_c (t/m2)	112.44	76.39	33.36	-16.66	-73.67	-123.52	-173.59	-220.60	-312.19	-324.92	-311.00	-218.40	-170.00	-118.29	-66.20	-7.67	43.84	88.34	125.83
SC PASEOS	σ_a (t/m2)	-16.03	-17.36	-18.70	-20.04	-21.37	-22.41	-22.51	-25.22	-34.12	-34.03	-33.82	-23.75	-21.13	-18.07	-14.59	-11.62	-10.93	-11.14	-11.59
	σ_b (t/m2)	35.92	38.92	41.91	44.91	47.90	41.53	41.44	46.21	45.05	62.10	44.66	43.52	38.90	33.48	32.70	26.05	24.49	24.96	25.97
	σ_c (t/m2)	-22.92	-24.83	-26.74	-28.65	-30.56	-30.27	-29.82	-32.84	-42.05	-43.44	-41.69	-30.92	-27.99	-24.40	-20.87	-16.62	-15.63	-15.93	-16.57
SC FERROVIARIA	σ_a (t/m2)	-218.22	-236.77	-255.49	-274.45	-293.81	-291.31	-300.44	-334.65	-451.55	-441.99	-442.00	-309.24	-264.00	-215.22	-180.91	-164.30	-151.75	-154.02	-157.42
	σ_b (t/m2)	489.08	530.66	572.62	615.11	658.49	539.72	553.18	613.22	596.23	806.60	583.62	566.66	486.08	398.73	405.45	368.23	340.11	345.20	352.82
	σ_c (t/m2)	-312.07	-338.60	-365.37	-392.48	-420.16	-393.36	-398.08	-435.74	-556.52	-564.28	-544.75	-402.65	-349.79	-290.61	-258.71	-234.96	-217.01	-220.26	-225.12
nº de cables dispuestos en losa		48	48	72	72	72	72	96	96	96	96	96	96	96	72	72	72	72	48	48
h_{cdgp}		0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
V_{cdgp}		1.034	1.034	1.034	1.034	1.034	1.200	1.277	1.357	1.431	1.460	1.431	1.357	1.277	1.200	1.034	1.034	1.034	1.034	1.034
Tiempo inicial	σ_a (t/m2)	670.44	670.44	1005.65	1005.65	1005.65	964.31	1159.21	1242.46	1220.28	1213.96	1220.28	1242.46	1159.21	964.31	1005.65	1005.65	1005.65	670.44	670.44
	σ_b (t/m2)	-186.71	-186.71	-280.06	-280.06	-280.06	-265.62	-244.88	-357.24	-359.31	-360.86	-359.31	-357.24	-244.88	-265.62	-280.06	-280.06	-280.06	-186.71	-186.71
	σ_c (t/m2)	784.09	784.09	1176.13	1176.13	1176.13	1115.25	1319.71	1412.98	1378.53	1368.12	1378.53	1412.98	1319.71	1115.25	1176.13	1176.13	1176.13	784.09	784.09
combinación rara	σ_{2a} (t/m2)	292.26	220.07	424.10	339.70	249.02	168.85	308.54	263.57	28.07	13.19	34.57	282.89	336.11	231.65	341.88	423.84	493.55	259.33	300.11
	σ_{2b} (t/m2)	370.30	512.87	589.71	758.19	940.06	837.98	909.13	1001.83	1017.21	1397.44	1008.63	961.62	851.45	709.88	709.20	540.74	399.01	383.68	305.33
	σ_{2c} (t/m2)	281.87	181.19	402.06	284.13	157.28	86.64	239.80	184.79	-71.02	-122.42	-63.02	210.46	277.13	172.89	293.10	408.28	506.04	242.81	299.40
combinación frecuente	σ_{2a} (t/m2)	362.54	298.70	497.04	421.17	339.16	260.46	395.66	362.76	181.20	162.69	183.66	370.89	407.69	289.79	382.11	455.35	519.55	300.50	342.97
	σ_{2b} (t/m2)	157.38	281.22	343.12	492.50	654.93	604.21	669.16	739.24	762.31	1046.52	759.05	719.54	640.10	538.13	535.92	387.00	257.61	235.98	153.88
	σ_{2c} (t/m2)	389.72	300.99	517.41	411.65	297.22	218.21	364.34	322.57	122.98	76.10	126.02	333.67	381.07	259.26	361.67	464.38	554.27	309.05	368.03

		14.61	13.03	11.46	9.88	8.30	6.64	4.98	3.32	1.66	0	1.66	3.32	4.98	6.64	8.30	9.88	11.46	13.03	14.61
Distancia al estribo		***63.89***	***65.47***	***67.04***	***68.62***	***70.20***	***71.86***	***73.52***	***75.18***	***76.84***	***78.50***	***80.16***	***81.82***	***83.48***	***85.14***	***86.80***	***88.38***	***89.96***	***91.53***	***93.11***
Mk-(retirada de torretas)		38.0	40.6	43.3	45.9	48.5	45.6	27.6	9.6	-8.3	-26.3	-26.3	-26.3	-26.3	-26.3	-26.3	-26.3	-26.3	-26.3	-26.3
Mk-(postesado de losa, sf)		-947.4	-930.2	-912.9	-895.7	-878.5	-860.4	-842.3	-824.2	-806.1	-788.0	-788.0	-788.0	-788.0	-788.0	-788.0	-788.0	-788.0	-788.0	-788.0
Mk-(losa, fase 1 en resto, sf)		6.0	-16.8	-39.5	-62.3	-85.0	-109.0	-132.9	-156.9	-180.8	-204.7	-180.0	-155.3	-130.6	-105.8	-81.1	-57.6	-34.1	-10.6	12.9
Mk-(losa, fase 2 a todo, sf)		44.8	29.2	10.8	-10.3	-34.2	-62.4	-93.5	-127.8	-165.1	-205.5	-165.6	-128.7	-94.9	-64.1	-36.4	-12.9	7.8	25.8	41.0
Mk-(cp)		341.1	223.6	85.2	-73.9	-255.7	-465.4	-700.1	-957.8	-1238.6	-1542.3	-1241.9	-964.6	-710.2	-478.9	-270.6	-93.8	62.1	197.2	311.5
Mk-(sc aceras)		-70.9	-73.0	-75.5	-79.4	-89.0	-101.5	-122.1	-149.9	-177.6	-221.3	-182.4	-151.4	-128.5	-105.8	-83.0	-73.8	-70.4	-69.8	-69.6
Mk-(tren)		-941.0	-978.8	-1017.2	-1075.1	-1158.0	-1295.3	-1594.0	-1920.8	-2280.1	-2807.5	-2311.9	-1921.7	-1588.1	-1298.7	-1092.0	-1008.1	-956.0	-941.7	-930.5
Md-		-1643.8	-1859.5	-2103.2	-2445.9	-2924.1	-3551.8	-4515.3	-5574.6	-6724.5	-8208.2	-6805.6	-5623.2	-4583.4	-3653.9	-2882.5	-2397.9	-2043.8	-1831.7	-1648.6
h, sf		2.500	2.500	2.500	2.500	2.500	2.680	2.860	3.050	3.230	3.300	3.230	3.050	2.860	2.680	2.500	2.500	2.500	2.500	2.500
Vasf		0.894	0.894	0.894	0.894	0.894	1.060	1.137	1.217	1.291	1.320	1.291	1.217	1.137	1.060	0.894	0.894	0.894	0.894	0.894
Vbsf		-1.369	-1.369	-1.369	-1.369	-1.369	-1.385	-1.487	-1.598	-1.704	-1.745	-1.704	-1.598	-1.487	-1.385	-1.369	-1.369	-1.369	-1.369	-1.369
Vcsf		1.194	1.194	1.194	1.194	1.194	1.360	1.437	1.517	1.591	1.620	1.591	1.517	1.437	1.360	1.194	1.194	1.194	1.194	1.194
Área, sf		2.693	2.693	2.693	2.693	2.693	3.110	3.245	3.245	3.313	3.337	3.313	3.245	3.245	3.110	2.693	2.693	2.693	2.693	2.693
Inercia, sf		2.439	2.439	2.439	2.439	2.439	3.197	4.267	4.267	4.848	5.078	4.848	4.267	4.267	3.197	2.439	2.439	2.439	2.439	2.439
h, f		2.500	2.500	2.500	2.500	2.500	2.680	2.860	3.050	3.230	3.300	3.230	3.050	2.860	2.680	2.500	2.500	2.500	2.500	2.500
Vaf		0.698	0.698	0.698	0.698	0.698	0.856	0.923	0.993	1.291	1.084	1.291	0.993	0.923	0.856	0.698	0.698	0.698	0.698	0.698
Vbf		-1.563	-1.563	-1.563	-1.563	-1.563	-1.587	-1.700	-1.820	-1.704	-1.979	-1.704	-1.820	-1.700	-1.587	-1.563	-1.563	-1.563	-1.563	-1.563
Vcf		0.998	0.998	0.998	0.998	0.998	1.156	1.223	1.293	1.591	1.384	1.591	1.293	1.223	1.156	0.998	0.998	0.998	0.998	0.998
Área, f		3.359	3.359	3.359	3.359	3.359	3.774	3.840	3.910	3.977	4.003	3.977	3.910	3.840	3.774	3.359	3.359	3.359	3.359	3.359
Inercia, f		2.957	2.957	2.957	2.957	2.957	3.922	4.527	5.212	5.903	6.183	5.903	5.212	4.527	3.922	2.957	2.957	2.957	2.957	2.957
LOSA	σa (t/m2)	-141.05	-150.99	-161.95	-173.91	-186.89	-184.31	-165.22	-195.94	-201.60	-215.86	-203.88	-200.83	-172.08	-195.67	-197.10	-179.88	-163.67	-148.48	-134.29
	σb (t/m2)	216.04	231.27	248.05	266.37	286.25	240.79	216.13	257.28	266.19	285.30	269.21	263.70	225.09	255.64	301.88	275.51	250.69	227.42	205.69
	σc (t/m2)	-188.40	-201.68	-216.31	-232.29	-249.62	-236.48	-208.81	-244.25	-248.46	-264.92	-251.28	-250.34	-217.47	-251.06	-263.26	-240.26	-218.61	-198.32	-179.37
RESTO CP	σa (t/m2)	80.45	52.73	20.11	-17.42	-60.32	-101.62	-142.77	-182.53	-270.79	-270.47	-271.52	-183.81	-144.83	-104.56	-63.82	-22.14	14.64	46.51	73.48
	σb (t/m2)	-180.31	-118.19	-45.07	39.04	135.20	188.28	262.87	334.47	357.55	493.59	358.52	336.82	266.65	193.72	143.04	49.61	-32.80	-104.24	-164.68
	σc (t/m2)	115.05	75.41	28.75	-24.91	-86.27	-137.22	-189.16	-237.66	-333.73	-345.31	-334.64	-239.33	-191.89	-141.19	-91.27	-31.66	20.93	66.51	105.08
SC PASEOS	σa (t/m2)	-16.72	-17.23	-17.81	-18.72	-20.99	-22.15	-24.90	-28.57	-38.82	-38.80	-39.88	-28.86	-26.21	-23.11	-19.59	-17.40	-16.61	-16.47	-16.42
	σb (t/m2)	37.47	38.62	39.91	41.97	47.05	41.04	45.84	52.35	51.26	70.81	52.66	52.88	48.25	42.82	43.90	39.01	37.23	36.91	36.79
	σc (t/m2)	-23.91	-24.64	-25.47	-26.78	-30.02	-29.91	-32.99	-37.20	-47.84	-49.54	-49.15	-37.58	-34.72	-31.21	-28.01	-24.89	-23.76	-23.55	-23.48
SC FERROVIARIA	σa (t/m2)	-221.97	-230.89	-239.96	-253.61	-273.15	-282.82	-325.04	-366.04	-498.51	-492.36	-505.46	-366.20	-323.84	-283.57	-257.59	-237.80	-225.50	-222.13	-219.48
	σb (t/m2)	497.49	517.48	537.80	568.41	612.21	523.98	598.47	670.75	658.23	898.52	667.41	671.04	596.26	525.37	577.31	532.97	505.40	497.84	491.91
	σc (t/m2)	-317.43	-330.19	-343.15	-362.68	-390.63	-381.90	-430.67	-476.61	-614.39	-628.59	-622.97	-476.82	-429.08	-382.91	-368.36	-340.07	-322.48	-317.66	-313.87
nº de cables dispuestos en losa		48	48	72	72	72	72	96	96	96	96	96	96	96	72	72	72	72	48	48
	h_{cdgp}	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
	V_{cdgp}	1.034	1.034	1.034	1.034	1.034	1.200	1.277	1.357	1.431	1.460	1.431	1.357	1.277	1.200	1.034	1.034	1.034	1.034	1.034
Tiempo inicial	σa (t/m2)	670.44	670.44	1005.65	1005.65	1005.65	964.31	1159.21	1242.46	1220.28	1213.96	1220.28	1242.46	1159.21	964.31	1005.65	1005.65	1005.65	670.44	670.44
	σb (t/m2)	-186.71	-186.71	-280.06	-280.06	-280.06	-265.62	-244.88	-357.24	-359.31	-360.86	-359.31	-357.24	-244.88	-265.62	-280.06	-280.06	-280.06	-186.71	-186.71
	σc (t/m2)	784.09	784.09	1176.13	1176.13	1176.13	1115.25	1319.71	1412.98	1378.53	1368.12	1378.53	1412.98	1319.71	1115.25	1176.13	1176.13	1176.13	784.09	784.09
combinación rara	σ2a (t/m2)	265.29	218.20	447.26	383.20	305.50	221.15	318.24	273.21	17.90	4.79	6.86	266.59	309.23	205.14	308.78	389.65	455.72	224.01	267.86
	σ2b (t/m2)	413.46	511.95	544.85	679.95	844.87	770.42	917.09	1014.02	1030.65	1444.33	1045.22	1023.61	930.04	793.87	830.29	661.25	524.67	500.70	412.49
	σ2c (t/m2)	245.60	179.19	434.26	343.76	233.88	153.65	249.70	194.15	-83.56	-136.25	-97.17	185.81	238.17	132.80	239.53	353.56	446.52	187.27	248.64
combinación frecuente	σ2a (t/m2)	337.55	294.39	513.37	455.40	387.12	309.18	416.88	387.31	193.09	177.78	185.58	380.96	408.30	294.14	383.18	454.61	515.21	296.16	338.92
	σ2b (t/m2)	196.10	285.79	313.58	435.00	578.84	543.28	655.92	724.12	746.61	1050.55	756.52	733.22	668.07	564.93	580.43	432.55	308.24	283.59	197.83
	σ2c (t/m2)	356.29	295.50	539.82	458.06	361.63	280.39	389.49	351.34	137.64	92.26	128.38	343.34	378.54	260.85	356.96	457.49	542.61	297.80	357.60

Por tanto, se demuestra que bajo la combinación frecuente de acciones la losa no se encuentra traccionada.

Estado Límite de Último. Cálculo a Rotura

ARMADURA LONGITUDINAL DE LA LOSA

	19.325	17.750	16.175	14.600	13.025	11.450	9.875	8.300	6.640	4.980	3.320	1.660	0.000	1.660	3.320	4.980	6.640	8.300	9.878	11.456	13.033	14.611	16.189	17.767	19.344
Distancia al estribo 1	***14.18***	***15.75***	***17.33***	***18.90***	***20.48***	***22.05***	***23.63***	***25.20***	***26.86***	***28.52***	***30.18***	***31.84***	***33.50***	***35.16***	***36.82***	***38.48***	***40.14***	***41.80***	***43.38***	***44.96***	***46.53***	***48.11***	***49.69***	***51.27***	***52.84***
Md -	-564	-759	-980	-1588	-1905	-2260	-2669	-3171	-3748	-4428	-5400	-6456	-7808	-6391	-5187	-4150	-3184	-2401	-1926	-1602	-1422	-1275	-650	-597	-569
H total (m)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.68	2.86	3.05	3.23	3.30	3.23	3.05	2.86	2.68	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Ancho fondo (m)	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.70	2.61	2.53	2.44	2.41	2.44	2.53	2.61	2.70	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78
Espesor de fondo (m)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.35	0.35	0.35	0.35	0.40	0.35	0.35	0.35	0.35	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Espesor total de almas (m)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Inercia (m 4)	2.957	2.957	2.957	2.957	2.957	2.957	2.957	2.957	3.922	4.527	5.212	5.903	6.183	5.903	5.212	4.527	3.922	2.957	2.957	2.957	2.957	2.957	2.957	2.957	2.957
Área (m 2)	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.774	3.840	3.910	3.977	4.003	3.977	3.910	3.840	3.774	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.359
Vc	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	1.156	1.223	1.293	1.591	1.384	1.591	1.293	1.223	1.156	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
Wc (m3)	2.964	2.964	2.964	2.964	2.964	2.964	2.964	2.964	3.392	3.701	4.030	3.711	4.466	3.711	4.030	3.701	3.392	2.964	2.964	2.964	2.964	2.964	2.964	2.964	2.964
U_0 (T)	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19928.3	20595.1	21325.8	21811.6	22021.4	21811.6	21325.8	20595.1	19928.3	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9
U_{S1} (T)	234.2	315.5	408.4	666.6	802.6	956.1	1134.3	1355.8	1494.8	1656.6	1899.8	2152.6	2571.1	2129.5	1821.4	1548.5	1262.2	1017.3	811.4	672.6	595.7	533.1	270.1	247.8	236.1
$U_{S(f\ horizontal)}$ (T)	177.9	177.9	177.9	177.9	177.9	177.9	177.9	177.9	177.9	177.9	177.9	177.9	177.9	245.0	245.0	245.0	245.0	245.0	245.0	245.0	245.0	245.0	245.0	245.0	245.0
Armadura estricta (cm2)	**94.78**	**113.49**	**134.86**	**194.24**	**225.52**	**260.82**	**301.80**	**352.75**	**384.72**	**421.95**	**477.88**	**536.03**	**632.27**	**546.14**	**475.26**	**412.51**	**346.65**	**290.32**	**242.98**	**211.05**	**193.36**	**178.96**	**118.47**	**113.34**	**110.64**
Espesor del bloque de compresiones (m)	0.030	0.040	0.052	0.085	0.102	0.121	0.144	0.172	0.195	0.224	0.265	0.311	0.377	0.308	0.254	0.209	0.165	0.129	0.103	0.085	0.076	0.068	0.034	0.031	0.030
Armadura mínima mecánica (cm2)	22.73	22.73	22.73	22.73	22.73	22.73	22.73	22.73	24.26	24.80	25.33	22.02	25.94	22.02	25.33	24.80	24.26	22.73	22.73	22.73	22.73	22.73	22.73	22.73	22.73
Armadura mínima geométrica (cm2)	94.04	94.04	94.04	94.04	94.04	94.04	94.04	94.04	105.67	107.53	109.49	111.35	112.07	111.35	109.49	107.53	105.67	94.04	94.04	94.04	94.04	94.04	94.04	94.04	94.04
nº cables en losa				48	48	72	72	72	72	96	96	96	96	96	96	96	72	72	72	72	48	48	0	0	0
Armadura pasiva necesaria (cm2)	144.44	144.44	144.44	144.44	144.44	144.44	144.44	144.44	144.44	183.69	183.69	183.69	183.69	183.69	183.69	183.69	144.44	144.44	144.44	144.44	144.44	144.44	144.44	144.44	144.44
Armadura pasiva equiv. dispuesta (cm2)	**144.44**	**144.44**	**144.44**	**372.92**	**372.92**	**487.16**	**487.16**	**487.16**	**487.16**	**640.65**	**640.65**	**640.65**	**640.65**	**640.65**	**640.65**	**640.65**	**487.16**	**487.16**	**487.16**	**487.16**	**372.92**	**372.92**	**144.44**	**144.44**	**144.44**

ARMADURA LONGITUDINAL DE LA LOSA

	19.344	17.767	16.189	14.611	13.033	11.456	9.878	8.300	6.640	4.980	3.320	1.660	0.000	1.660	3.320	4.980	6.640	8.300	9.878	11.456	13.033	14.611	16.189	17.767	19.344
	59.16	***60.73***	***62.31***	***63.89***	***65.47***	***67.04***	***68.62***	***70.20***	***71.86***	***73.52***	***75.18***	***76.84***	***78.50***	***80.16***	***81.82***	***83.48***	***85.14***	***86.80***	***88.38***	***89.96***	***91.53***	***93.11***	***94.69***	***96.27***	***97.84***
Md -	-792	-912	-1060	-1644	-1860	-2103	-2446	-2924	-3552	-4515	-5575	-6724	-8208	-6806	-5623	-4583	-3654	-2882	-2398	-2044	-1832	-1649	-1120	-1018	-939
H total (m)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.68	2.86	3.05	3.23	3.30	3.23	3.05	2.86	2.68	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Ancho fondo (m)	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.70	2.61	2.53	2.44	2.41	2.44	2.53	2.61	2.70	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78
Espesor de fondo (m)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.35	0.35	0.35	0.35	0.40	0.35	0.35	0.35	0.35	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Espesor total de almas (m)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Inercia (m 4)	2.957	2.957	2.957	2.957	2.957	2.957	2.957	2.957	3.922	4.527	5.212	5.903	6.183	5.903	5.212	4.527	3.922	2.957	2.957	2.957	2.957	2.957	2.957	2.957	2.957
Área (m 2)	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.774	3.840	3.910	3.977	4.003	3.977	3.910	3.840	3.774	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.359
V c	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	1.156	1.223	1.293	1.591	1.384	1.591	1.293	1.223	1.156	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
W c (m3)	2.964	2.964	2.964	2.964	2.964	2.964	2.964	2.964	3.392	3.701	4.030	3.711	4.466	3.711	4.030	3.701	3.392	2.964	2.964	2.964	2.964	2.964	2.964	2.964	2.964
U 0 (T)	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19928.3	20595.1	21325.8	21811.6	22021.4	21811.6	21325.8	20595.1	19928.3	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9
U S1 (T)	329.5	379.8	442.3	690.3	782.9	887.9	1036.8	1246.5	1413.6	1690.7	1964.3	2247.1	2712.2	2275.8	1982.3	1717.4	1455.8	1228.1	1015.8	862.3	770.9	692.4	467.4	424.3	391.3
U S(t horizontal) (T)	244.9	244.9	244.9	244.9	244.9	244.9	244.9	244.9	244.9	244.9	244.9	244.9	244.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9
Armadura estricta (cm2)	**132.12**	**143.69**	**158.06**	**215.11**	**236.39**	**260.56**	**294.79**	**343.03**	**381.46**	**445.19**	**508.12**	**573.17**	**680.14**	**595.40**	**527.89**	**466.96**	**406.81**	**354.43**	**305.60**	**270.29**	**249.26**	**231.21**	**179.46**	**169.55**	**161.96**
Espesor del bloque de compresiones (m)	0.042	0.048	0.056	0.088	0.099	0.113	0.132	0.158	0.185	0.229	0.274	0.325	0.397	0.329	0.277	0.232	0.190	0.156	0.129	0.109	0.098	0.088	0.059	0.054	0.050
Armadura mínima mecánica (cm2)	22.73	22.73	22.73	22.73	22.73	22.73	22.73	22.73	24.26	24.80	25.33	22.02	25.94	22.02	25.33	24.80	24.26	22.73	22.73	22.73	22.73	22.73	22.73	22.73	22.73
Armadura mínima geométrica (cm2)	94.04	94.04	94.04	94.04	94.04	94.04	94.04	94.04	105.67	107.53	109.49	111.35	112.07	111.35	109.49	107.53	105.67	94.04	94.04	94.04	94.04	94.04	94.04	94.04	94.04
nº cables en losa				48	48	72	72	72	72	96	96	96	96	96	96	96	72	72	72	72	48	48	0	0	0
Armadura pasiva necesaria (cm2)	175.84	175.84	175.84	175.84	175.84	175.84	257.26	257.26	257.26	257.26	257.26	257.26	257.26	257.26	257.26	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86
Armadura pasiva equiv. dispuesta (cm2)	**175.84**	**175.84**	**175.84**	**404.32**	**404.32**	**518.56**	**599.98**	**599.98**	**599.98**	**714.22**	**714.22**	**714.22**	**714.22**	**714.22**	**714.22**	**682.82**	**568.58**	**568.58**	**568.58**	**568.58**	**454.34**	**454.34**	**225.86**	**225.86**	**225.86**

ARMADURA LONGITUDINAL DE LA LOSA

	19.344	17.767	16.189	14.611	13.033	11.456	9.878	8.300	6.640	4.980	3.320	1.660	0.000	1.660	3.320	4.980	6.640	8.300	9.878	11.456	13.033	14.611	16.189	17.767	19.344
	142.84	***141.27***	***139.69***	***138.11***	***136.53***	***134.96***	***133.38***	***131.80***	***130.14***	***128.48***	***126.82***	***125.16***	***123.50***	***121.84***	***120.18***	***118.52***	***116.86***	***115.20***	***113.62***	***112.04***	***110.47***	***108.89***	***107.31***	***105.73***	***104.16***
Md -	-792	-912	-1060	-1644	-1859	-2103	-2446	-2924	-3552	-4515	-5575	-6724	-8208	-6806	-5623	-4583	-3654	-2882	-2398	-2044	-1832	-1649	-1120	-1018	-939
H total (m)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.68	2.86	3.05	3.23	3.30	3.23	3.05	2.86	2.68	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Ancho fondo (m)	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.70	2.61	2.53	2.44	2.41	2.44	2.53	2.61	2.70	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78
Espesor de fondo (m)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.35	0.35	0.35	0.35	0.40	0.35	0.35	0.35	0.35	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Espesor total de almas (m)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Inercia (m 4)	2.957	2.957	2.957	2.957	2.957	2.957	2.957	2.957	3.922	4.527	5.212	5.903	6.183	5.903	5.212	4.527	3.922	2.957	2.957	2.957	2.957	2.957	2.957	2.957	2.957
Área (m 2)	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.774	3.840	3.910	3.977	4.003	3.977	3.910	3.840	3.774	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.359
Y c	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	1.156	1.223	1.293	1.591	1.384	1.591	1.293	1.223	1.156	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
W c (m3)	2.964	2.964	2.964	2.964	2.964	2.964	2.964	2.964	3.392	3.701	4.030	3.711	4.466	3.711	4.030	3.701	3.392	2.964	2.964	2.964	2.964	2.964	2.964	2.964	2.964
U 0 (T)	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19928.3	20595.1	21325.8	21811.6	22021.4	21811.6	21325.8	20595.1	19928.3	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9
U S1 (T)	329.5	379.8	442.3	690.3	782.8	887.9	1036.7	1246.5	1413.6	1690.7	1964.3	2247.1	2712.2	2275.8	1982.3	1717.4	1455.8	1228.1	1015.8	862.3	770.9	692.4	467.4	424.3	391.3
U S(f horizontal) (T)	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9	312.9
Armadura estricta (cm2)	**160.83**	**172.41**	**186.78**	**243.82**	**265.10**	**289.27**	**323.50**	**371.74**	**410.17**	**473.90**	**536.83**	**601.89**	**695.76**	**595.40**	**527.89**	**466.96**	**406.81**	**354.43**	**305.60**	**270.29**	**249.26**	**231.21**	**179.46**	**169.55**	**161.96**
Espesor del bloque de compresiones (m)	0.042	0.048	0.056	0.088	0.099	0.113	0.132	0.158	0.185	0.229	0.274	0.325	0.397	0.329	0.277	0.232	0.190	0.156	0.129	0.109	0.098	0.088	0.059	0.054	0.050
Armadura mínima mecánica (cm2)	22.73	22.73	22.73	22.73	22.73	22.73	22.73	22.73	24.26	24.80	25.33	22.02	25.94	22.02	25.33	24.80	24.26	22.73	22.73	22.73	22.73	22.73	22.73	22.73	22.73
Armadura mínima geométrica (cm2)	94.04	94.04	94.04	94.04	94.04	94.04	94.04	94.04	105.67	107.53	109.49	111.35	112.07	111.35	109.49	107.53	105.67	94.04	94.04	94.04	94.04	94.04	94.04	94.04	94.04
nº cables en losa	0	0	0	48	48	72	72	72	72	96	96	96	96	96	96	96	72	72	72	72	48	48	0	0	0
Armadura pasiva necesaria (cm2)	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86	257.26	257.26	257.26	257.26	257.26	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86
Armadura pasiva equiv. dispuesta (cm2)	**225.86**	**225.86**	**225.86**	**454.34**	**454.34**	**568.58**	**568.58**	**568.58**	**568.58**	**682.82**	**714.22**	**714.22**	**714.22**	**714.22**	**714.22**	**682.82**	**568.58**	**568.58**	**568.58**	**568.58**	**454.34**	**454.34**	**225.86**	**225.86**	**225.86**

9.2.

ARMADURA LONGITUDINAL DE LA LOSA

	19.325	17.750	16.175	14.600	13.025	11.450	9.875	8.300	6.640	4.980	3.320	1.660	0.000	1.660	3.320	4.980	6.640	8.300	9.878	11.456	13.033	14.611	16.189
Distancia al estribo 1	***187.83***	***186.25***	***184.68***	***183.10***	***181.53***	***179.95***	***178.38***	***176.80***	***175.14***	***173.48***	***171.82***	***170.16***	***168.50***	***166.84***	***165.18***	***163.52***	***161.86***	***160.20***	***158.62***	***157.04***	***155.47***	***153.89***	***152.31***
Md -	-564	-759	-980	-1588	-1905	-2260	-2669	-3171	-3748	-4428	-5400	-6456	-7808	-6391	-5187	-4150	-3184	-2401	-1926	-1602	-1422	-1275	-650
H total (m)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.68	2.86	3.05	3.23	3.30	3.23	3.05	2.86	2.68	2.50	2.50	2.50	2.50	2.50	2.50
Ancho fondo (m)	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.78	2.70	2.61	2.53	2.44	2.41	2.44	2.53	2.61	2.70	2.78	2.78	2.78	2.78	2.78	2.78
Espesor de fondo (m)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.35	0.35	0.35	0.35	0.40	0.35	0.35	0.35	0.35	0.25	0.25	0.25	0.25	0.25	0.25
Espesor total de almas (m)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.40	0.40	0.40	0.40	0.40
Inercia (m 4)	2.957	2.957	2.957	2.957	2.957	2.957	2.957	2.957	3.922	4.527	5.212	5.903	6.183	5.903	5.212	4.527	3.922	2.957	2.957	2.957	2.957	2.957	2.957
Área (m 2)	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.359	3.774	3.840	3.910	3.977	4.003	3.977	3.910	3.840	3.774	3.359	3.359	3.359	3.359	3.359	3.359
V c	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	1.156	1.223	1.293	1.591	1.384	1.591	1.293	1.223	1.156	0.998	0.998	0.998	0.998	0.998	0.998
W c (m3)	2.964	2.964	2.964	2.964	2.964	2.964	2.964	2.964	3.392	3.701	4.030	3.711	4.466	3.711	4.030	3.701	3.392	2.964	2.964	2.964	2.964	2.964	2.964
U_0 (T)	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9	19928.3	20595.1	21325.8	21811.6	22021.4	21811.6	21325.8	20595.1	19928.3	19100.9	19100.9	19100.9	19100.9	19100.9	19100.9
U_{S1} (T)	234.2	315.5	408.4	666.6	802.6	956.1	1134.3	1355.8	1494.8	1656.6	1899.8	2152.6	2571.1	2129.5	1821.4	1548.5	1262.2	1017.3	811.4	672.6	595.7	533.1	270.1
$U_{S(f\ horizontal)}$ (T)	547.0	547.0	547.0	547.0	547.0	547.0	547.0	547.0	547.0	547.0	547.0	547.0	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8	369.8
Armadura estricta (cm2)	**179.67**	**198.37**	**219.75**	**279.12**	**310.40**	**345.71**	**386.69**	**437.64**	**469.61**	**506.84**	**562.77**	**620.91**	**676.40**	**574.84**	**503.97**	**441.21**	**375.36**	**319.02**	**271.68**	**239.75**	**222.07**	**207.66**	**147.18**
Espesor del bloque de compresiones (m)	0.030	0.040	0.052	0.085	0.102	0.121	0.144	0.172	0.195	0.224	0.265	0.311	0.377	0.308	0.254	0.209	0.165	0.129	0.103	0.085	0.076	0.068	0.034
Armadura mínima mecánica (cm2)	22.73	22.73	22.73	22.73	22.73	22.73	22.73	22.73	24.26	24.80	25.33	22.02	25.94	22.02	25.33	24.80	24.26	22.73	22.73	22.73	22.73	22.73	22.73
Armadura mínima geométrica (cm2)	94.04	94.04	94.04	94.04	94.04	94.04	94.04	94.04	105.67	107.53	109.49	111.35	112.07	111.35	109.49	107.53	105.67	94.04	94.04	94.04	94.04	94.04	94.04
nº cables en losa			0	48	48	72	72	72	72	96	96	96	96	96	96	96	72	72	72	72	48	48	0
Armadura pasiva necesaria (cm2)	225.86	225.86	257.26	257.26	257.26	257.26	257.26	257.26	257.26	257.26	257.26	257.26	257.26	257.26	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86	225.86
Armadura pasiva equiv. dispuesta (cm2)	**225.86**	**225.86**	**257.26**	**485.74**	**485.74**	**599.98**	**599.98**	**599.98**	**599.98**	**714.22**	**714.22**	**714.22**	**714.22**	**714.22**	**682.82**	**682.82**	**568.58**	**568.58**	**568.58**	**568.58**	**454.34**	**454.34**	**225.86**

Armado de vigas

9.2.1. Envolvente de esfuerzos

VIGA 1 (LATERAL)

FLECTORES MÁXIMOS (T x m)

distancia al apoyo (m)	Mpp viga	M prelosas	Mpp losa + retirada de torretas (secc inicial)	Mpp retirada de torretas + losa (sec semifinal)	M c.perma.	M sc aceras	M reología	M temp	M SC FERROVIARIA	M_k
0.00	0.00	0.00	0.00	0.00	0	0.11	0.00	0.00	0.74	0.85
1.58	93.75	26.05	34.82	18.81	141.7	20.86	22.99	20.02	310.73	681.72
3.15	175.00	48.62	63.78	34.87	262.69	43.11	45.98	40.04	627.88	1325.95
4.73	243.75	67.72	86.87	48.17	362.96	55.39	68.97	60.05	863.94	1833.80
6.30	300.00	83.35	104.16	58.72	442.52	69.52	91.96	80.07	1040.87	2239.14
7.88	343.75	95.50	115.57	66.51	501.36	81.47	114.95	100.09	1218.56	2597.73
9.45	375.00	104.19	121.11	71.56	539.5	91.25	137.94	120.11	1367.54	2880.16
11.03	393.75	109.40	120.81	74.00	556.92	98.86	160.93	140.13	1472.75	3071.50
12.60	400.00	111.13	114.66	73.38	553.62	104.3	183.92	160.15	1545.67	3182.77
14.18	393.75	109.40	102.65	70.16	529.62	107.57	206.91	180.16	1592.37	3220.53
15.75	375.00	104.19	84.77	64.19	484.9	108.67	229.90	200.18	1605.85	3177.58
17.33	343.75	95.50	60.98	55.47	419.46	107.6	252.89	220.20	1581.27	3049.04
18.90	300.00	83.38	33.16	45.31	333.32	104.36	275.88	240.22	1527.82	2847.36
20.48	243.75	67.72	27.39	-1.58	226.46	98.95	298.87	260.24	1447.99	2565.70
22.05	175.00	48.62	15.76	-48.22	98.89	91.37	321.86	280.26	1328.54	2199.98
23.63	93.75	26.05	-1.75	-97.61	-49.4	81.61	344.85	300.27	1189.00	1766.67
25.20	0.00	0.00	-25.06	-149.76	-218.4	69.69	367.84	320.29	1012.23	1248.72

VIGA 4 (MARTILLO)

ENVOLVENTE DE FLECTORES (T x m)

distancia a PILA 2 (m)	Mpp viga	M prelosas	Mpp losa + retirada de torretas (secc inicial)	Mpp retirada de torretas + losa (sec semifinal)	M c.perma.	M sc aceras (+)	M sc aceras (-)	M reología	M temp	M SC FERROVIARIA(+)
8.30	0.00	0.00	-69.63	-70.72	-253.73	62.22	-89.00	511.25	333.14	875.64
6.64	-117.62	-34.93	-102.94	-125.77	-465.42	52.63	-101.46	512.26	328.94	698.98
4.98	-262.56	-73.72	-127.77	-198.87	-700.12	48.81	-122.09	513.26	324.74	656.3
3.32	-424.01	-116.36	-159.10	-275.03	-957.83	49.78	-149.93	514.27	320.54	624.07
1.66	-602.45	-162.87	-196.94	-337.58	-1238.55	48.12	-177.55	515.27	316.34	608.1
0.00	-798.86	-213.23	-241.28	-436.51	-1542.27	60.13	-221.25	516.28	312.14	666.07
1.66	-602.45	-162.87	-181.11	-371.85	-1241.91	52.81	-182.42	516.28	312.14	591.48
3.32	-424.01	-116.36	-127.44	-310.26	-964.55	50.92	-151.44	516.28	312.14	561.28
4.98	-262.56	-73.72	-80.28	-251.73	-710.20	54.68	-128.51	516.28	312.14	594.99
6.64	-117.62	-34.93	-39.62	-196.25	-478.86	56.29	-105.84	516.28	312.14	651.69
8.30	0.00	1.00	-5.46	-143.83	-270.53	55.33	-83.03	516.28	312.14	759.74

VIGA 3 (CENTRAL)

FLECTORES MÁXIMOS (T x m)

distancia a VIGA 2 (m)	Mpp viga	M prelosas	Mpp losa + retirada de torretas (secc inicial)	Mpp retirada de torretas + losa (sec semifinal)	M c.perma.	M sc aceras	M reología	M temp	M SC FERROVIARIA	M_k
0.00	0.00	0.00	14.32	-124.07	-196.24	38.74	494.04	405.01	531.94	1001.74
1.58	106.63	29.62	36.09	-74.12	-22.75	44.46	495.00	401.02	717.98	1573.52
3.16	200.71	55.76	51.99	-26.93	129.95	57.65	495.95	397.03	898.00	2101.30
4.73	282.24	78.42	62.02	17.49	261.87	72.50	496.91	393.04	1110.20	2617.47
6.31	351.24	97.58	67.00	59.15	373.00	86.19	497.86	389.04	1295.34	3060.79
7.89	407.69	113.27	101.42	61.06	463.35	97.96	498.82	385.05	1454.54	3429.14
9.47	451.59	125.46	120.71	70.32	53.90	107.55	499.78	381.06	1587.64	3245.58
11.04	482.95	134.18	134.12	76.80	581.69	114.97	500.73	377.07	1685.25	3936.93
12.62	501.77	139.41	141.65	80.50	609.66	120.20	501.69	373.07	1751.51	4070.23
14.20	508.04	141.15	143.29	81.40	616.86	123.26	502.65	369.08	1796.44	4134.53
15.78	501.77	139.41	139.10	79.69	603.27	124.14	503.60	365.09	1801.15	4111.19
17.36	482.95	134.18	129.00	75.12	568.90	122.85	504.56	361.10	1783.07	4017.29
18.93	451.59	125.46	113.03	67.70	513.74	119.37	505.51	357.11	1732.50	3843.17
20.51	407.69	113.27	91.19	57.70	437.80	113.72	506.47	353.11	1658.67	3598.38
22.09	351.24	7.58	19.53	88.79	341.06	105.89	507.43	349.12	1543.75	3174.74
23.67	282.24	78.42	6.05	53.06	223.55	95.88	508.38	345.13	1405.49	2860.15
25.24	200.71	55.72	-13.30	14.56	85.24	83.97	509.34	341.14	1238.94	2379.86
26.82	106.63	29.62	-38.52	-26.70	-73.85	71.32	510.29	337.15	1056.17	1837.25
28.40	0.00	0.00	-69.63	-70.72	-253.73	62.22	511.25	333.15	875.64	1254.92

9.2.2. E.L.S. (Evolución de tensiones en servicio)

VIGA 1 (LATERAL). Flexión positiva en seccicón final

TENSIONES DE FLEXION DEBIDO A LAS CARGAS EXTERIORES SIN PRETENSADO [T/m2]

	EN FABRICA		HORMIGONADO LOSA (en secc inicial)			HORMIGONADO LOSA (en secc final)			EN SERVICIO			CON CARGAS M	
	σ_a	σ_b	σ_a	σ_b	σ_c	σ_a	σ_b	σ_c	σ_a	σ_b	σ_c	σ_a	σ_b
distancia al apoyo (m)													
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	-0.42
1.58	130.42	-73.82	84.68	-47.93	0.00	5.94	-9.70	8.01	254.94	-201.73	55.66	342.65	-383.55
3.15	243.45	-137.79	156.36	-88.50	0.00	11.01	-17.99	14.84	473.67	-374.57	103.19	650.96	-742.08
4.73	339.09	-191.93	215.06	-121.72	0.00	15.21	-24.85	20.50	656.20	-518.51	142.58	901.27	-1026.55
6.30	417.34	-236.22	260.85	-147.64	0.00	18.54	-30.29	24.99	802.61	-633.62	173.83	1101.77	-1253.78
7.88	478.20	-270.66	293.63	-166.19	0.00	21.00	-34.30	28.31	912.78	-719.82	196.93	1265.69	-1451.40
9.45	521.67	-295.27	313.42	-177.40	0.00	22.60	-36.91	30.46	986.77	-777.15	211.91	1386.04	-1604.83
11.03	547.76	-310.03	320.25	-181.26	0.00	23.37	-38.17	31.50	1024.63	-805.68	218.81	1459.26	-1706.67
12.60	556.45	-314.95	314.10	-177.78	0.00	23.17	-37.85	31.23	1026.19	-805.17	217.43	1487.94	-1762.38
14.18	547.76	-310.03	294.99	-166.97	0.00	22.16	-36.19	29.86	991.62	-775.86	207.99	1473.70	-1775.22
15.75	521.67	-295.27	262.87	-148.78	0.00	20.27	-33.11	27.32	920.83	-717.66	190.41	1414.77	-1741.61
17.33	478.20	-270.66	217.68	-123.21	0.00	17.52	-28.61	23.61	813.76	-630.52	164.69	1309.94	-1659.11
18.90	417.34	-236.22	162.12	-91.76	0.00	14.31	-23.37	19.28	673.52	-516.66	131.39	1164.51	-1534.49
20.48	339.09	-191.93	132.31	-74.89	0.00	-0.50	0.81	-0.67	525.08	-378.32	75.49	1004.05	-1371.23
22.05	243.45	-137.79	89.56	-50.69	0.00	-15.23	24.87	-20.52	341.44	-212.66	12.74	798.40	-1159.93
23.63	130.42	-73.82	33.80	-19.13	0.00	-30.83	50.35	-41.54	121.58	-18.10	-58.16	551.19	-908.68
25.20	0.00	0.00	-34.86	19.73	1.00	-47.30	77.24	-63.74	-134.41	205.30	-137.20	258.43	-609.06

CUADRO DE PRETENSADO

Área cables = 0.00014 m^2

Tensión inicial de Tesado = 147500 T/m^2

Tensión tras pérdidas = 130200 T/m^2

distancia al apoyo (m)	TORONES INFERIORES Nº cables	TORONES INFERIORES cota (m)	TORONES SUPERIORES Nº cables	TORONES SUPERIORES cota (cm)
0.00	36	0.4		
1.58	36	0.1		
3.15	72	0.1		
4.73	72	0.1		
6.30	96	0.1		
7.88	96	0.1		
9.45	96	0.1		
11.03	96	0.1		
12.60	96	0.1		
14.18	96	0.1		
15.75	96	0.1		
17.33	96	0.1		
18.90	96	0.1		
20.48	72	0.1		
22.05	72	0.1		
23.63	72	0.1		
25.20	72	0.25		

TORONES POSTESADOS N (T)	TORONES POSTESADOS e (m)	INICIALES CABLES σ_a	INICIALES CABLES σ_b	INICIALES (T/m2) Pa	INICIALES (T/m2) Pb	FINALES (T/m2) Pa	FINALES (T/m2) Pb
656	0.42	0	0	-27	544	-23	458
656	0.720	0	0	-287	691	-242	582
1312	0.72	0	0	-575	1382	-484	1164
1312	0.72	0	0	-575	1382	-484	1164
1750	0.72	0	0	-766	1843	-645	1552
1750	0.72	0	0	-766	1843	-645	1552
1750	0.72	0	0	-766	1843	-645	1552
1750	0.72	0	0	-766	1843	-645	1552
1750	0.72	0	0	-766	1843	-645	1552
1750	0.72	0	0	-766	1843	-645	1552
1750	0.72	0	0	-766	1843	-645	1552
1750	0.72	0	0	-766	1843	-645	1552
1312	0.72	0	0	-575	1382	-484	1164
1312	0.72	0	0	-575	1382	-484	1164
1312	0.72	0	0	-575	1382	-484	1164
1312	0.57	0	0	-314	1235	-265	1040

ESTADO LÍMITE DE SERVICIO:

TENSIONES EN DIFERENTES PUNTOS A LO LARGO DE LA VIGA [T/m2]

FABRICA ..... = Peso Propio + Pretensado con Pérdidas a Corto Plazo

SERVICIO ..... = Cargas Permanentes + Pretensado con Pérdidas Totales

CARGAS MAXIMAS = Servicio + Sobrecargas Máximas

		Ψ_0	Ψ_1	Ψ_2
γ_{g1} = 0.9	SC tráfico	0.8	0.6	0
γ_{g2} = 1.1	sc aceras	0.8	0.6	0
	temp	0.6	0.5	0.2

distancia al apoyo (m)	AL DESTESAR σ_a	AL DESTESAR σ_b	EN FABRICA σ_a	EN FABRICA σ_b	EN SERVICIO σ_a	EN SERVICIO σ_b	EN SERVICIO σ_c	CON CARGAS MÁXIMAS σ_a	CON CARGAS MÁXIMAS σ_b	CON CARGAS MÁXIMAS σ_c	COMBINACIÓN FRECUENTE σ_c	II σ_a	II σ_b	II σ_b
0.00	0.00	0.00	-29.8	598.3	-20.8	503.8	0.0	-20.6	416.4	0.3	0.17	-20.66	416.54	412.21
1.58	130.42	-73.82	-185.6	686.4	34.8	438.5	55.7	122.5	146.1	179.0	131.66	88.85	215.85	308.70
3.15	243.45	-137.79	-388.6	1382.7	33.4	905.9	103.2	210.7	317.2	352.4	256.76	142.61	458.25	646.29
4.73	339.09	-191.93	-292.9	1328.6	215.9	761.9	142.6	461.0	32.7	487.1	355.34	367.24	227.02	488.96
6.30	417.34	-236.22	-425.4	1791.1	215.5	1073.6	173.8	514.7	158.6	594.4	434.22	400.77	394.75	709.67
7.88	478.20	-270.66	-364.5	1756.7	325.7	987.4	196.9	678.6	-39.0	693.0	504.68	544.63	238.73	610.08
9.45	521.67	-295.27	-321.0	1732.1	399.7	930.1	211.9	799.0	-192.5	773.2	560.77	647.87	120.77	539.36
11.03	547.76	-310.03	-294.9	1717.3	437.6	901.6	218.8	872.2	-294.3	829.8	599.52	708.37	45.28	497.44
12.60	556.45	-314.95	-286.2	1712.4	439.1	902.1	217.4	900.9	-350.0	866.6	623.03	727.64	9.09	484.57
14.18	547.76	-310.03	-294.9	1717.3	404.5	931.4	208.0	886.6	-362.9	885.7	632.75	706.70	10.13	500.49
15.75	521.67	-295.27	-321.0	1732.1	333.8	989.6	190.4	827.7	-329.2	884.8	627.19	644.47	50.61	545.30
17.33	478.20	-270.66	-364.5	1756.7	226.7	1076.7	164.7	722.9	-246.7	862.2	605.38	540.17	131.99	619.05
18.90	417.34	-236.22	-425.4	1791.1	86.5	1190.6	131.4	577.4	-122.1	821.6	569.72	398.25	249.33	719.52
20.48	339.09	-191.93	-292.9	1328.6	84.8	902.1	75.5	563.8	-312.0	748.8	505.70	390.80	46.57	495.27
22.05	243.45	-137.79	-388.6	1382.7	-98.9	1067.8	12.7	358.1	-100.7	655.1	426.38	195.39	236.64	647.54
23.63	130.42	-73.82	-501.6	1446.7	-318.7	1262.3	-58.2	110.9	150.6	545.8	334.44	-39.45	462.23	828.70
25.20	0.00	0.00	-345.8	1358.5	-375.3	1349.3	-137.2	17.5	337.4	415.0	226.40	-116.70	615.55	927.11

VIGA 4 (MARTILLO). Flexión negativa en sección inicial

TENSIONES EN SECCIÓN INICIAL T/m2					
EN FABRICA		HORMIGONADO LOSA(secc inicial)		TOTAL EN SECCIÓN INCIAL	
σ_a	σ_b	σ_a	σ_b	σ_a	σ_b
0.00	0.00	-86.21	48.04	-86.21	48.04
-126.10	72.98	-147.81	85.55	-273.91	158.53
-250.73	149.70	-192.41	114.88	-443.14	264.58
-358.72	221.78	-233.05	144.08	-591.77	365.86
-458.27	292.51	-273.70	174.70	-731.96	467.20
-584.20	377.43	-332.38	214.74	-916.59	592.16
-458.27	292.51	-261.66	167.01	-719.92	459.52
-358.72	221.78	-206.26	127.52	-564.98	349.30
-250.73	149.70	-147.06	87.80	-397.79	237.50
-126.10	72.98	-79.93	46.26	-206.03	119.24
0.00	0.00	-5.52	3.08	-5.52	3.08

CUADRO DE PRETENSADO

Área cables = 0.00014

Tensión inicial de Tesado = 147500

Tensión tras pérdidas = 130200

	TORONES SUPERIORES	
	Nº cables	cota (cm)
8.30	36	2.0850
6.64	36	2.2650
4.98	36	2.4450
3.32	36	2.6350
1.66	36	2.8150
0.00	36	2.8850
1.66	36	2.8150
3.32	36	2.6350
4.98	36	2.4450
6.64	36	2.2650
8.30	36	2.0850

TORONES POSTESADOS		INICIALES (T/m2)		FINALES (T/m2)	
N (T)	e (m)	*Pa*	*Pb*	*Pa*	*Pb*
656	-1.27	1268	-261	1068	-220
656	-1.37	1191	-251	1003	-211
656	-1.46	1140	-249	960	-210
656	-1.56	1083	-246	912	-207
656	-1.65	1035	-243	872	-205
656	-1.68	1018	-242	857	-204
656	-1.65	1035	-243	872	-205
656	-1.56	1083	-246	912	-207
656	-1.46	1140	-249	960	-210
656	-1.37	1191	-251	1003	-211
656	-1.27	1268	-261	1068	-220

γ_{g1} =	0.9
γ_{g2} =	1.1

TENSIONES FINALES EN SI (T/m2)	
σ_a	σ_b
885.54	-193.48
638.70	-52.47
430.19	54.54
238.18	158.94
61.23	262.40
-136.68	388.00
73.27	254.71
264.96	142.38
475.54	27.47
706.59	-91.76
966.23	-216.49

VIGA 3 (CENTRAL). Flexión positiva en seccicón final

TENSIONES DE FLEXION DEBIDO A LAS CARGAS EXTERIORES SIN PRETENSADO [T/m2]

	EN FABRICA		HORMIGONADO LOSA (secc inicial)			HORMIGONADO LOSA (secc final)			EN SERVICIO			CON CARGAS MAXIMAS		
	σ_a	σ_b	σ_a	σ_b	σ_c	σ_a	σ_b	σ_c	σ_a	σ_b	σ_c	σ_a	σ_b	σ_c
distancia a VIGA 2 (m)														
0.00	0.00	0.00	19.92	-11.28	0.00	-39.18	63.99	-52.81	-66.21	150.05	-118.81	246.66	-498.55	321.03
1.58	148.34	-83.96	91.41	-51.74	0.00	-23.41	38.23	-31.55	210.90	-86.18	-39.20	569.31	-829.17	464.65
3.16	279.21	-158.04	149.89	-84.84	0.00	-8.50	13.89	-11.46	451.69	-293.44	32.24	855.99	-1131.54	600.59
4.73	392.63	-222.23	195.37	-110.58	0.00	5.52	-9.02	7.44	656.18	-471.71	95.52	1114.45	-1421.71	739.75
6.31	488.62	-276.56	228.95	-129.59	0.00	18.68	-30.51	25.18	825.50	-621.66	150.63	1330.99	-1669.55	861.25
7.89	567.15	-321.01	298.66	-169.04	0.00	19.28	-31.49	25.99	995.95	-751.36	181.83	1542.01	-1883.34	949.47
9.47	628.22	-355.58	342.46	-193.83	0.00	22.21	-36.27	29.93	1005.78	-612.41	48.06	1585.63	-1814.45	863.20
11.04	671.85	-380.27	373.24	-211.26	0.00	24.25	-39.61	32.69	1208.51	-919.64	228.33	1813.15	-2173.05	1078.32
12.62	698.03	-395.09	390.99	-221.30	0.00	25.42	-41.52	34.26	1260.31	-960.28	239.31	1881.70	-2248.44	1112.86
14.20	706.75	-400.02	395.69	-223.96	0.00	25.71	-41.99	34.65	1275.74	-971.92	242.12	1908.27	-2283.16	1131.32
15.78	698.03	-395.09	387.44	-219.29	0.00	25.17	-41.10	33.92	1254.97	-954.69	236.82	1888.50	-2267.99	1127.42
17.36	671.85	-380.27	366.12	-207.22	0.00	23.72	-38.75	31.97	1197.80	-908.40	223.31	1826.35	-2211.38	1106.92
18.93	628.22	-355.58	331.77	-187.78	0.00	21.38	-34.92	28.81	1104.29	-833.08	201.60	1719.56	-2108.54	1066.54
20.51	567.15	-321.01	284.43	-160.99	0.00	18.22	-29.76	24.56	974.55	-728.90	171.81	1570.46	-1964.22	1009.53
22.09	488.62	-276.56	37.71	-21.35	0.00	28.04	-45.80	37.79	635.98	-512.86	152.50	1202.18	-1686.60	948.46
23.67	392.63	-222.23	117.51	-66.51	0.00	16.76	-27.37	22.58	580.38	-426.98	97.77	1110.77	-1526.47	843.37
25.24	279.21	-158.04	59.01	-33.40	1.00	4.60	-7.51	6.20	363.22	-241.22	34.87	850.56	-1251.48	719.96
26.82	148.34	-83.96	-12.38	7.01	2.00	-8.43	13.77	-11.36	109.85	-26.55	-36.20	550.10	-939.17	582.68
28.40	0.00	0.00	-96.86	54.83	3.00	-22.33	36.48	-30.10	-179.90	217.14	-115.44	214.62	-600.71	439.18

CUADRO DE PRETENSADO

Área cables = 0.00014 m^2
Tensión inicial de Tesado = 147500 T/m^2
Tensión tras pérdidas = 130200 T/m^2

	TORONES INFERIORES		TORONES SUPERIORES	
distancia a VIGA 2 (m)	Nº cables	cota (m)	Nº cables	cota (cm)
0.00	84	0.4		
1.58	84	0.1		
3.16	84	0.1		
4.73	84	0.1		
6.31	120	0.1		
7.89	120	0.1		
9.47	120	0.1		
11.04	120	0.1		
12.62	120	0.1		
14.20	120	0.1		
15.78	120	0.1		
17.36	120	0.1		
18.93	120	0.1		
20.51	120	0.1		
22.09	120	0.1		
23.67	84	0.1		
25.24	84	0.1		
26.82	84	0.1		
28.40	84	0.1		

TORONES POSTESADOS		INICIALES CABLES		INICIALES (T/m2)		FINALES (T/m2)	
N (T)	e (m)	σ_a	σ_b	*Pa*	*Pb*	*Pa*	*Pb*
1531	0.42	0	0	-63	1269	-53	1069
1531	0.720	0	0	-670	1613	-564	1358
1531	0.72	0	0	-670	1613	-564	1358
1531	0.72	0	0	-670	1613	-564	1358
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
2187	0.72	0	0	-958	2304	-806	1940
1531	0.72	0	0	-670	1613	-564	1358
1531	0.72	0	0	-670	1613	-564	1358
1531	0.72	0	0	-670	1613	-564	1358
1531	0.72	0	0	-670	1613	-564	1358

ESTADO LÍMITE DE SERVICIO:

TENSIONES EN DIFERENTES PUNTOS A LO LARGO DE LA VIGA [T/m2]

FABRICA ..... = Peso Propio + Pretensado con Pérdidas a Corto Plazo

SERVICIO ..... = Cargas Permanentes + Pretensado con Pérdidas Totales

CARGAS MAXIMAS = Servicio + Sobrecargas Máximas

	Ψ_O	Ψ_1	$\Psi 2$
SC tráfico	0.8	0.6	0
sc aceras	0.8	0.6	0
temp	0.6	0.5	0.2

γ_{g1} =	0.9
γ_{g2} =	1.1

	AL DESTESAR		EN FABRICA		EN SERVICIO			CON CARGAS MÁXIMAS			COMBINACIÓN FRECUENTE			II
distancia a VIGA 2 (m)	σ_a	σ_b	σ_a	σ_b	σ_a	σ_b	σ_c	σ_a	σ_b	σ_c	σ_c	σ_a	σ_b	σ_b
0.00	0.00	0.00	-69.6	1396.0	-116.5	1325.6	-118.8	196.4	510.3	321.0	189.76	102.99	703.87	826.67
1.58	148.34	-83.96	-589.0	1690.0	-322.0	1407.7	-39.2	36.4	452.8	464.6	308.12	-74.91	683.63	850.77
3.16	279.21	-158.04	-458.1	1615.9	-81.2	1200.4	32.2	323.1	150.5	600.6	418.61	193.66	418.81	643.44
4.73	392.63	-222.23	-344.7	1551.7	123.3	1022.1	95.5	581.6	-139.7	739.7	527.76	430.77	172.89	465.08
6.31	488.62	-276.56	-564.8	2257.6	64.2	1512.4	150.6	569.7	161.9	861.2	623.04	400.29	513.12	838.88
7.89	567.15	-321.01	-486.2	2213.2	234.7	1382.7	181.8	780.8	-51.9	949.5	688.80	595.33	332.47	709.10
9.47	628.22	-355.58	-425.2	2178.6	244.5	1521.7	48.1	824.4	17.0	863.2	583.88	625.68	428.87	847.97
11.04	671.85	-380.27	-381.5	2153.9	447.3	1214.4	228.3	1051.9	-341.6	1078.3	785.40	843.53	90.31	540.66
12.62	698.03	-395.09	-355.3	2139.1	499.1	1173.8	239.3	1120.4	-417.0	1112.9	810.86	905.62	28.31	499.94
14.20	706.75	-400.02	-346.6	2134.2	514.5	1162.1	242.1	1147.0	-451.7	1131.3	823.40	927.98	2.32	488.23
15.78	698.03	-395.09	-355.3	2139.1	493.7	1179.4	236.8	1127.2	-436.6	1127.4	819.28	908.06	17.81	505.38
17.36	671.85	-380.27	-381.5	2153.9	436.5	1225.7	223.3	1065.1	-380.0	1106.9	801.92	848.14	69.79	551.59
18.93	628.22	-355.58	-425.2	2178.6	343.0	1301.0	201.6	958.3	-277.1	1066.5	769.36	746.90	161.11	626.83
20.51	567.15	-321.01	-486.2	2213.2	213.3	1405.2	171.8	809.2	-132.8	1009.5	723.58	605.79	288.87	730.94
22.09	488.62	-276.56	-564.8	2257.6	-125.3	1621.2	152.5	440.9	144.8	948.5	679.55	249.64	541.35	946.89
23.67	392.63	-222.23	-344.7	1551.7	47.5	1066.9	97.8	577.9	-244.5	843.4	594.95	401.18	121.85	508.88
25.24	279.21	-158.04	-458.1	1615.9	-169.7	1252.6	34.9	317.7	30.5	720.0	496.09	158.43	360.64	694.56
26.82	148.34	-83.96	-589.0	1690.0	-423.0	1467.3	-36.2	17.2	342.8	582.7	385.64	-122.95	633.38	909.15
28.40	0.00	0.00	-737.4	1773.9	-712.8	1711.0	-115.4	-318.3	681.3	439.2	268.19	-439.89	933.43	1152.77

9.2.3. E.L.U. Cálculo a Rotura.

VIGA 1. FLEXIÓN POSITIVA EN SECCIÓN FINAL

distancia al APOYO (m)	canto viga	canto losa	Md (T x m)	A_p x f_{pyd} (T)	A_s x f_{yd} (T)	h comp (m)	cota torón (m)	rec. As (m)	Mu (T x m)	Mu/Mk	
0.00	2.24	0.30	1.28	745.04		0.08	0.40	0.05	1566.41	1842.83	
1.58	2.24	0.30	975.31	745.04		0.08	0.10	0.05	1789.92	2.63	cumple
3.15	2.24	0.30	1901.18	1490.09		0.15	0.10	0.05	3523.86	2.66	cumple
4.73	2.24	0.30	2629.29	1490.09		0.15	0.10	0.05	3523.86	1.92	cumple
6.30	2.24	0.30	3210.40	1986.78		0.20	0.10	0.05	4648.73	2.08	cumple
7.88	2.24	0.30	3728.19	1986.78		0.20	0.10	0.05	4648.73	1.79	cumple
9.45	2.24	0.30	4138.53	1986.78		0.20	0.10	0.05	4648.73	1.61	cumple
11.03	2.24	0.30	4419.02	1986.78	157.30	0.22	0.10	0.05	5007.65	1.63	cumple
12.60	2.24	0.30	4586.24	1986.78	157.30	0.22	0.10	0.05	5007.65	1.57	cumple
14.18	2.24	0.30	4649.96	1986.78	157.30	0.22	0.10	0.05	5007.65	1.55	cumple
15.75	2.24	0.30	4599.42	1986.78	157.30	0.22	0.10	0.05	5007.65	1.58	cumple
17.33	2.24	0.30	4427.29	1986.78	157.30	0.22	0.10	0.05	5007.65	1.64	cumple
18.90	2.24	0.30	4151.77	1986.78	157.30	0.22	0.10	0.05	5007.65	1.76	cumple
20.48	2.24	0.30	3763.98	1490.09	157.30	0.17	0.10	0.05	3890.66	1.52	cumple
22.05	2.24	0.30	3256.46	1490.09	157.30	0.17	0.10	0.05	3890.66	1.77	cumple
23.63	2.24	0.30	2654.35	1490.09	157.30	0.17	0.10	0.05	3890.66	2.20	cumple
25.20	2.24	0.30	1932.06	1490.09	157.30	0.17	0.25	0.05	3667.15	2.94	cumple

VIGA4. FLEXIÓN NEGATIVA EN SECCIÓN INICIAL

distancia al APOYO (m)	canto viga	canto losa	Md (T x m)	A_p x f_{pyd} (T)	A_s x f_{yd} (T)	Fondo (m)	h comp (m)	cota torón (m)	rec. As (m)	Mu (T x m)		
8.30	2.24	0.30	94.00	745.04		2.78	0.09	0.45	0.05	1518.18		cumple
6.64	2.42	0.30	344.91	745.04		2.70	0.10	0.45	0.05	1651.24		cumple
4.98	2.60	0.30	626.47	745.04		2.61	0.10	0.45	0.05	1784.10		cumple
3.32	2.79	0.30	944.28	745.04		2.53	0.10	0.45	0.05	1924.47		cumple
1.66	2.97	0.30	1299.05	745.04		2.44	0.11	0.45	0.05	2057.15		cumple
0.00	3.04	0.30	1692.05	745.04		2.41	0.11	0.45	0.05	2108.80		cumple
1.66	2.97	0.30	1277.68	745.04		2.44	0.11	0.45	0.05	2057.15		cumple
3.32	2.79	0.30	901.54	745.04		2.53	0.10	0.45	0.05	1924.47		cumple
4.98	2.60	0.30	562.36	745.04		2.61	0.10	0.45	0.05	1784.10		cumple
6.64	2.42	0.30	259.43	745.04		2.70	0.10	0.45	0.05	1651.24		cumple
8.30	2.24	0.30	6.02	745.04		2.78	0.09	0.45	0.05	1518.18		cumple

VIGA 3. FLEXIÓN POSITIVA EN SECCIÓN FINAL

distancia al APOYO (m)	canto viga	canto losa	Md (T x m)	A_p x f_{pyd} (T)	A_s x f_{yd} (T)	h comp (m)	cota torón (m)	rec. As (m)	Mu (T x m)	Mu/Mk	
0.00	2.24	0.30	1548.50	1738.43	157.32	0.16	0.40	0.05	3960.97	3.95	cumple
1.58	2.24	0.30	2348.96	1738.43	157.32	0.16	0.10	0.05	4482.50	2.85	cumple
3.16	2.24	0.30	3090.23	1738.43	157.32	0.16	0.10	0.05	4482.50	2.13	cumple
4.73	2.24	0.30	3820.90	1738.43	157.32	0.16	0.10	0.05	4482.50	1.71	cumple
6.31	2.24	0.30	4448.99	2483.48	157.32	0.22	0.10	0.05	6158.40	2.01	cumple
7.89	2.24	0.30	4971.69	2483.48	157.32	0.22	0.10	0.05	6158.40	1.80	cumple
9.47	2.24	0.30	4745.08	2483.48	157.32	0.22	0.10	0.05	6158.40	1.90	cumple
11.04	2.24	0.30	5693.94	2483.48	157.32	0.22	0.10	0.05	6158.40	1.56	cumple
12.62	2.24	0.30	5884.40	2483.48	157.32	0.22	0.10	0.05	6158.40	1.51	cumple
14.20	2.24	0.30	5978.19	2483.48	157.32	0.22	0.10	0.05	6158.40	1.49	cumple
15.78	2.24	0.30	5947.29	2483.48	157.32	0.22	0.10	0.05	6158.40	1.50	cumple
17.36	2.24	0.30	5817.41	2483.48	157.32	0.22	0.10	0.05	6158.40	1.53	cumple
18.93	2.24	0.30	5574.02	2483.48	157.32	0.22	0.10	0.05	6158.40	1.60	cumple
20.51	2.24	0.30	5231.42	2483.48	157.32	0.22	0.10	0.05	6158.40	1.71	cumple
22.09	2.24	0.30	4640.88	2483.48	157.32	0.22	0.10	0.05	6158.40	1.94	cumple
23.67	2.24	0.30	4193.73	1738.43	157.32	0.16	0.10	0.05	4482.50	1.57	cumple
25.24	2.24	0.30	3518.35	1738.43	157.32	0.16	0.10	0.05	4482.50	1.88	cumple
26.82	2.24	0.30	2756.30	1738.43	157.32	0.16	0.10	0.05	4482.50	2.44	cumple
28.40	2.24	0.30	1941.50	1738.43	157.32	0.16	0.40	0.05	3960.97	3.16	cumple

9.2.4. E.L.U. Cálcuo a Cortante

VIGA I (LATERAL)

CÁLCULO A CORTANTE VIGA LATERAL. Alma Inclinada

fck:	5000	t/m2		γc: 1.5					espesor de la losa central:	0.28							
fcd:	3333.3	t/m2							espesor de la losa de fondo:	0.25							
f1cd:	2000.0	t/m2							espesor de las almas:	0.25							
fyk:	50000	t/m2													***Cuantía mínima de cortante:***		8.33	cm2/m
fpk:	171000	t/m2		γs: 1.15				Tensión de tesado inicial (t/m2):		130200							
fyd:	40000	t/m2						*Tipo de cable: 0.6"*									
Distancia al apoyo (m)	Área (m2)	d	bo	As,eqv. traccionada (cm2)	Nd (t)	ρ	z (m)	σ'cd (t/m2)	ζ	**Vu1** (t)	**Vcu** (t)	**Vd** (t)	**Vrd** (t)	**As (cm2/m)**			
0.00	1.710	2.44	0.25	86.184	-262.483	0.014	2.196	-153.47	1.286	608.49	46.48	-367.47	367.5	34.06			
1.58	1.710	2.44	0.25	86.184	-262.483	0.014	2.196	-153.47	1.286	600.88	46.48	-378.54	378.5	31.76			
3.15	1.710	2.44	0.25	172.368	-524.966	0.020	2.196	-306.94	1.286	585.36	64.51	-351.98	352.0	24.51			
4.73	1.710	2.44	0.25	172.368	-524.966	0.020	2.196	-306.94	1.286	573.37	64.51	-305.51	305.5	19.23			
6.30	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	561.54	73.87	-260.80	260.8	14.09			
7.88	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	554.19	73.87	-205.43	205.4	9.60			
9.45	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	549.28	73.87	-152.83	152.8	5.64			
11.03	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	546.74	73.87	-108.10	108.1	2.42			
12.60	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	546.55	73.87	81.76	81.8	0.56			
14.18	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	548.70	73.87	117.42	117.4	3.10			
15.75	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	553.22	73.87	167.46	167.5	6.80			
17.33	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	560.18	73.87	216.04	216.0	10.65			
18.90	1.710	2.44	0.25	229.824	-699.955	0.020	2.196	-409.26	1.286	569.38	73.87	262.02	262.0	14.71			
20.48	1.710	2.44	0.25	172.368	-524.966	0.020	2.196	-306.94	1.286	580.16	64.51	312.64	312.6	20.53			
22.05	1.710	2.44	0.25	172.368	-524.966	0.020	2.196	-306.94	1.286	590.85	64.51	359.14	359.1	26.02			
23.63	1.710	2.44	0.25	172.368	-524.966	0.020	2.196	-306.94	1.286	602.20	64.51	405.89	405.9	33.09			
25.20	1.710	2.44	0.25	172.368	-524.966	0.020	2.196	-306.94	1.286	604.44	64.51	457.15	457.2	39.03			

CÁLCULO A CORTANTE VIGA LATERAL. Alma Vertical

fck:	5000	t/m2		γc: 1.5					espesor de la losa central:	0.28							
fcd:	3333.3	t/m2							espesor de la losa de fondo:	0.25							
f1cd:	2000.0	t/m2							espesor de las almas:	0.25							
fyk:	50000	t/m2													***Cuantía mínima de cortante:***		#¡REF!	cm2/m
fpk:	171000	t/m2		γs: 1.15				Tensión de tesado inicial (t/m2):		130200							
fyd:	40000	t/m2						*Tipo de cable: 0.6"*									
Distancia al apoyo (m)	Área (m2)	d	bo	As,eqv. traccionada (cm2)	Nd (t)	ρ	z (m)	σ'cd (t/m2)	ζ	**Vu1** (t)	**Vcu** (t)	**Vd** (t)	**Vrd** (t)	**As (cm2/m)**			
0.00	1.710	2.440	0.2	86.184	-262.483	0.018	2.196	-153.47	1.286	486.79	39.19	-333.69	333.7	31.25			
1.58	1.710	2.440	0.2	86.184	-262.483	0.018	2.196	-153.47	1.286	480.70	39.19	-307.52	307.5	25.67			
3.15	1.710	2.440	0.2	172.368	-524.966	0.020	2.196	-306.94	1.286	468.29	51.60	-274.33	274.3	18.99			
4.73	1.710	2.440	0.2	172.368	-524.966	0.020	2.196	-306.94	1.286	458.70	51.60	-237.38	237.4	14.82			
6.30	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	449.23	59.09	-203.47	203.5	10.88			
7.88	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	443.35	59.09	-163.69	163.7	7.63			
9.45	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	439.42	59.09	-125.02	125.0	4.71			
11.03	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	437.40	59.09	-89.92	89.9	2.18			
12.60	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	437.24	59.09	59.96	60.0	0.06			
14.18	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	438.96	59.09	84.82	84.8	1.83			
15.75	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	442.57	59.09	122.59	122.6	4.61			
17.33	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	448.14	59.09	159.09	159.1	7.49			
18.90	1.710	2.440	0.2	229.824	-699.955	0.020	2.196	-409.26	1.286	455.50	59.09	194.74	194.7	10.61			
20.48	1.710	2.440	0.2	172.368	-524.966	0.020	2.196	-306.94	1.286	464.13	51.60	231.46	231.5	14.88			
22.05	1.710	2.440	0.2	172.368	-524.966	0.020	2.196	-306.94	1.286	472.68	51.60	265.05	265.1	18.85			
23.63	1.710	2.440	0.2	172.368	-524.966	0.020	2.196	-306.94	1.286	481.76	51.60	297.41	297.4	23.83			
25.20	1.710	2.440	0.2	172.368	-524.966	0.020	2.196	-306.94	1.286	483.55	51.60	332.84	332.8	27.96			

VIGA 4 (MARTILLO)

CÁLCULO A CORTANTE VIGA MARTILLO. Alma Inclinada

fck:	5000	t/m2	γc:	1.5	espesor de la losa central:	0.30		
fcd:	3333.3	t/m2			espesor de la losa de fondo:	0.25		
f1cd:	2000.0	t/m2			espesor de las almas:	0.25		
fyk:	50000	t/m2					***Cuantía mínima de cortante:***	8.33 cm2/m
fpk:	171000	t/m2	γs:	1.15	Tensión de tesado inicial (t/m2):	130200		
fyd:	40000	t/m2			*Tipo de cable: 0.6"*			

Distancia al apoyo (m)	Área (m2)	d	bo	As,eqv. traccionada (cm2)	Nd (t)	ρ	z (m)	σ'cd (t/m2)	ζ	**Vu1** (t)	**Vcu** (t)	**Vd** (t)	**Vrd** (t)	**As (cm2/m)**
8.30	1.873	2.44	0.25	86.184	-262.483	0.014	2.192	-140.18	1.287	608.22	45.20	526.35	526.4	52.64
6.64	1.906	2.62	0.25	86.184	-524.966	0.013	2.354	-275.47	1.277	612.28	60.72	570.08	570.1	37.52
4.98	1.939	2.80	0.25	0.000	-262.483	0.000	2.516	-135.37	1.268	676.02	14.19	604.63	604.6	45.31
3.32	1.974	2.99	0.25	0.000	-262.483	0.000	2.687	-132.97	1.259	735.71	14.88	639.96	640.0	49.12
1.66	2.007	3.17	0.25	0.000	-262.483	0.000	2.849	-130.77	1.251	789.09	15.52	758.85	758.8	60.58
0.00	2.020	3.24	0.25	0.000	-262.483	0.000	2.912	-129.93	1.249	808.75	15.76	-774.96	775.0	65.19
1.66	2.007	3.17	0.25	0.000	-262.483	0.000	2.849	-130.77	1.251	788.74	15.52	-655.29	655.3	51.85
3.32	1.974	2.99	0.25	0.000	-262.483	0.000	2.687	-132.97	1.259	734.19	14.88	-625.35	625.4	47.40
4.98	1.939	2.80	0.25	0.000	-262.483	0.000	2.516	-135.37	1.268	673.00	14.19	-585.73	585.7	43.11
6.64	1.906	2.62	0.25	86.184	-524.966	0.013	2.354	-275.47	1.277	607.63	60.72	-531.83	531.8	33.98
8.30	1.873	2.44	0.25	86.184	-262.483	0.014	2.192	-140.18	1.287	608.54	45.20	-498.83	498.8	50.41

CÁLCULO A CORTANTE VIGA MARTILLO. Alma Vertical

fck:	5000	t/m2	γc:	1.5	espesor de la losa central:	0.30		
fcd:	3333.3	t/m2			espesor de la losa de fondo:	0.25		
f1cd:	2000.0	t/m2			espesor de las almas:	0.25		
fyk:	50000	t/m2					***Cuantía mínima de cortante:***	8.33 cm2/m
fpk:	171000	t/m2	γs:	1.15	Tensión de tesado inicial (t/m2):	130200		
fyd:	40000	t/m2			*Tipo de cable: 0.6"*			

Distancia al apoyo (m)	Área (m2)	d	bo	As,eqv. traccionada (cm2)	Nd (t)	ρ	z (m)	σ'cd (t/m2)	ζ	**Vu1** (t)	**Vcu** (t)	**Vd** (t)	**Vrd** (t)	**As (cm2/m)**
8.30	1.873	2.435	0.2	86.184	-262.483	0.018	2.192	-140.18	1.287	486.57	38.16	393.89	393.9	38.92
6.64	1.906	2.615	0.2	86.184	-524.966	0.016	2.354	-275.47	1.277	489.82	50.66	429.23	429.2	27.89
4.98	1.939	2.795	0.2	0.000	-262.483	0.000	2.516	-135.37	1.268	540.82	11.35	471.77	471.8	35.33
3.32	1.974	2.985	0.2	0.000	-262.483	0.000	2.687	-132.97	1.259	588.57	11.91	518.21	518.2	39.79
1.66	2.007	3.165	0.2	0.000	-262.483	0.000	2.849	-130.77	1.251	631.27	12.42	573.60	573.6	45.74
0.00	2.020	3.235	0.2	0.000	-262.483	0.000	2.912	-129.93	1.249	647.00	12.61	-585.03	585.0	49.15
1.66	2.007	3.165	0.2	0.000	-262.483	0.000	2.849	-130.77	1.251	630.99	12.42	-529.42	529.4	41.90
3.32	1.974	2.985	0.2	0.000	-262.483	0.000	2.687	-132.97	1.259	587.36	11.91	-483.63	483.6	36.63
4.98	1.939	2.795	0.2	0.000	-262.483	0.000	2.516	-135.37	1.268	538.40	11.35	-439.43	439.4	32.29
6.64	1.906	2.615	0.2	86.184	-524.966	0.016	2.354	-275.47	1.277	486.10	50.66	-396.77	396.8	24.96
8.30	1.873	2.435	0.2	86.184	-262.483	0.018	2.192	-140.18	1.287	486.83	38.16	-371.06	371.1	36.99

VIGA 3 (CENTRAL)

CÁLCULO A CORTANTE VIGA 3 (CENTRAL)

fck:	5000	t/m2	γc: 1.5	espesor de la losa central:	0.30		
fcd:	3333.3	t/m2		espesor de la losa de fondo:	0.25		
f1cd:	2000.0	t/m2		espesor de las almas:	0.25		
fyk:	50000	t/m2				***Cuantía mínima de cortante:***	8.33 cm2/m
fpk:	171000	t/m2	γs: 1.15	Tensión de tesado inicial (t/m2):	130200		
fyd:	40000	t/m2		*Tipo de cable: 0.6"*			

Distancia al apoyo (m)	Área (m2)	d	b_0	As,eqv. traccionada (cm2)	Nd (t)	ρ	z (m)	σ'cd (t/m2)	ζ	Md (m*t)	**Vu1** (t)	**Vcu** (t)	**Vd** (t)	**Vrd** (t)	**As (cm2/m)**
0.00	1.710	2.47	0.25	201.096	-612.461	0.020	2.223	-358.10	1.285		602.01	69.99	-485.40	485.4	37.25
1.58	1.710	2.47	0.25	201.096	-612.461	0.020	2.223	-358.10	1.285		603.93	69.99	-435.17	435.2	33.24
3.16	1.710	2.47	0.25	201.096	-612.461	0.020	2.223	-358.10	1.285		589.76	69.99	-387.59	387.6	26.31
4.73	1.710	2.47	0.25	201.096	-612.461	0.020	2.223	-358.10	1.285		576.93	69.99	-337.79	337.8	20.74
6.31	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		563.28	84.20	-293.75	293.7	15.25
7.89	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		551.74	84.20	-244.61	244.6	11.12
9.47	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		543.72	84.20	-194.86	194.9	7.43
11.04	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		538.15	84.20	-152.40	152.4	4.48
12.62	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		534.92	84.20	-100.86	100.9	1.08
14.20	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		533.94	84.20	94.18	94.2	0.65
15.78	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		535.18	84.20	143.99	144.0	3.89
17.36	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		538.69	84.20	194.01	194.0	7.24
18.93	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		544.54	84.20	237.80	237.8	10.35
20.51	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		552.86	84.20	287.41	287.4	14.16
22.09	1.710	2.47	0.25	287.280	-874.944	0.020	2.223	-511.57	1.285		578.23	84.20	334.68	334.7	19.53
23.67	1.710	2.47	0.25	201.096	-612.461	0.020	2.223	-358.10	1.285		582.84	69.99	381.68	381.7	24.87
25.24	1.710	2.47	0.25	201.096	-612.461	0.020	2.223	-358.10	1.285		596.36	69.99	432.83	432.8	31.29
26.82	1.710	2.47	0.25	201.096	-612.461	0.020	2.223	-358.10	1.285		610.11	69.99	481.61	481.6	39.62
28.40	1.710	2.47	0.25	201.096	-612.461	0.020	2.223	-358.10	1.285		609.21	69.99	529.44	529.4	43.82

CÁLCULO A CORTANTE VIGA 3 (CENTRAL)

fck:	5000	t/m2	γc: 1.5	espesor de la losa central:	0.30		
fcd:	3333.3	t/m2		espesor de la losa de fondo:	0.25		
f1cd:	2000.0	t/m2		espesor de las almas:	0.25		
fyk:	50000	t/m2				***Cuantía mínima de cortante:***	8.33 cm2/m
fpk:	171000	t/m2	γs: 1.15	Tensión de tesado inicial (t/m2):	130200		
fyd:	40000	t/m2		*Tipo de cable: 0.6"*			

Distancia al apoyo (m)	Área (m2)	d	b_0	As,eqv. traccionada (cm2)	Nd (t)	ρ	z (m)	σ'cd (t/m2)	ζ	Md (m*t)	**Vu1** (t)	**Vcu** (t)	**Vd** (t)	**Vrd** (t)	**As (cm2/m)**
0.00	1.710	2.470	0.2	201.096	-612.461	0.020	2.223	-358.10	1.285		481.61	55.99	-401.43	401.4	30.98
1.58	1.710	2.470	0.2	201.096	-612.461	0.020	2.223	-358.10	1.285		483.14	55.99	-326.19	326.2	24.59
3.16	1.710	2.470	0.2	201.096	-612.461	0.020	2.223	-358.10	1.285		471.81	55.99	-293.57	293.6	19.68
4.73	1.710	2.470	0.2	201.096	-612.461	0.020	2.223	-358.10	1.285		461.55	55.99	-258.30	258.3	15.67
6.31	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		450.63	67.36	-223.87	223.9	11.39
7.89	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		441.39	67.36	-186.92	186.9	8.29
9.47	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		434.98	67.36	-149.56	149.6	5.52
11.04	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		430.52	67.36	-115.24	115.2	3.15
12.62	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		427.94	67.36	-76.64	76.6	0.60
14.20	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		427.15	67.36	67.85	67.8	0.03
15.78	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		428.15	67.36	94.01	94.0	1.73
17.36	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		430.95	67.36	131.73	131.7	4.24
18.93	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		435.63	67.36	169.76	169.8	6.90
20.51	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		442.28	67.36	204.74	204.7	9.57
22.09	1.710	2.470	0.2	287.280	-874.944	0.020	2.223	-511.57	1.285		462.58	67.36	241.46	241.5	13.57
23.67	1.710	2.470	0.2	201.096	-612.461	0.020	2.223	-358.10	1.285		466.28	55.99	275.93	275.9	17.55
25.24	1.710	2.470	0.2	201.096	-612.461	0.020	2.223	-358.10	1.285		477.09	55.99	310.28	310.3	21.93
26.82	1.710	2.470	0.2	201.096	-612.461	0.020	2.223	-358.10	1.285		488.08	55.99	343.59	343.6	27.68
28.40	1.710	2.470	0.2	201.096	-612.461	0.020	2.223	-358.10	1.285		487.37	55.99	374.60	374.6	30.39

10. Cálculo de apoyos y reacciones

RESUMEN DE REACCIONES VERTICALES SOBRE APOYOS

Separación entre apoyos interiores: 3.35

Estribos

			Reacciones por apoyo			
			Ext. 1	Int. 1	Int. 2	Ext. 2
	F_z	M_x	F_z	F_z	F_z	F_z
Peso propio de vigas	126.98	0.00		63.49	63.49	
Peso propio de losa	108.34	0.00		54.17	54.17	
Postesado de losa	21.00	0.00		10.50	10.50	
Σ Peso propio	256.33	0.00		128.16	128.16	
Cargas muertas máximas	193.08	0.00		96.54	96.54	
Cargas muertas mínimas	127.53	0.00		63.76	63.76	
Retracción, fluencia (pp+cm)	19.46	0.00		9.73	9.73	
Sobrecarga paseos(+) Un lado	14.48	81.44		31.55	-17.07	
Sobrecarga paseos(+) Dos lados	20.90	0.00		10.45	10.45	
Sobrecarga paseos(-) Un lado	5.91	81.44		-21.36	27.27	
Sobrecarga paseos(-) Dos lados	-6.37	0.00		-3.19	-3.19	
Sobrecarga ferroviaria una vía (+)	219.83	541.23		271.48	-51.65	
Sobrecarga ferroviaria dos vías (+)	385.92	0.00		192.96	192.96	
Sobrecarga ferroviaria una vía (-)	103.45	547.04		-111.57	215.02	
Sobrecarga ferroviaria dos vías (-)	-91.06	0.00		-45.53	-45.53	
Gradiente térmico	42.37	0.00		21.18	21.18	
Viento con cp	0.00	51.60		15.40	-15.40	
Viento con cp + sc	0.00	71.49		21.34	-21.34	
(*)Fc (v= 350) una vía	0.00	29.26		8.73	-8.73	
(*)Fc (v= 350) dos vías	0.00	58.51		17.47	-17.47	

(*) Sólo en Estribo 1

CMAX 569.58

CMÍN 39.60

RESUMEN DE REACCIONES VERTICALES SOBRE APOYOS

Separación entre apoyos interiores: 3.20

Pilas 1 y 4

			Reacciones por apoyo			
			Ext. 1	Int. 1	Int. 2	Ext. 2
	F_z	M_x	F_z	F_z	F_z	F_z
Peso propio de vigas	493.05	0.00		246.53	246.53	
Peso propio de losa	416.08	0.00		208.04	208.04	
Postesado de losa	-31.00	0.00		-15.50	-15.50	
Σ Peso propio	878.14	0.00		439.07	439.07	
Cargas muertas máximas	738.07	0.00		369.03	369.03	
Cargas muertas mínimas	487.48	0.00		243.74	243.74	
Retracción, fluencia (pp+cm)	-18.65	0.00		-9.33	-9.33	
Sobrecarga paseos(+) Un lado	43.59	224.20		91.86	-48.27	
Sobrecarga paseos(+) Dos lados	76.69	0.00		38.35	38.35	
Sobrecarga paseos(-) Un lado	32.34	224.20		-53.89	86.23	
Sobrecarga paseos(-) Dos lados	-8.79	0.00		-4.40	-4.40	
Sobrecarga ferroviaria una vía (+)	559.69	1273.68		677.87	-118.18	
Sobrecarga ferroviaria dos vías (+)	1066.18	0.00		533.09	533.09	
Sobrecarga ferroviaria una vía (-)	414.35	1289.90		-195.92	610.27	
Sobrecarga ferroviaria dos vías (-)	-117.21	0.00		-58.61	-58.61	
Gradiente térmico	-50.78	0.00		-25.39	-25.39	
Viento con cp	0.00	126.42		39.51	-39.51	
Viento con cp + sc	0.00	190.70		59.59	-59.59	
(*)Fc (v= 350) una vía	0.00	74.72		23.35	-23.35	
(*)Fc (v= 350) dos vías	0.00	149.44		46.70	-46.70	

(*) Sólo en Pila 1

CMAX 1630.97

CMÍN 355.29

RESUMEN DE REACCIONES VERTICALES SOBRE APOYOS

Separación entre apoyos interiores: 3.20

Pilas 2 y 3

			Reacciones por apoyo			
			Ext. 1	*Int. 1*	*Int. 2*	*Ext. 2*
	F_z	M_x	F_z	F_z	F_z	F_z
Peso propio de vigas	490.33	0.00		245.16	245.16	
Peso propio de losa	440.47	0.00		220.24	220.24	
Postesado de losa	10.00	0.00		5.00	5.00	
Σ Peso propio	940.80	0.00		470.40	470.40	
Cargas muertas máximas	755.55	0.00		377.78	377.78	
Cargas muertas mínimas	499.02	0.00		249.51	249.51	
Retracción, fluencia (pp+cm)	-0.81	0.00		-0.40	-0.40	
Sobrecarga paseos(+) Un lado	45.46	245.33		99.40	-53.93	
Sobrecarga paseos(+) Dos lados	79.17	0.00		39.58	39.58	
Sobrecarga paseos(-) Un lado	32.13	245.33		-60.60	92.73	
Sobrecarga paseos(-) Dos lados	-11.82	0.00		-5.91	-5.91	
Sobrecarga ferroviaria una vía (+)	577.72	1359.32		713.65	-135.93	
Sobrecarga ferroviaria dos vías (+)	1119.47	0.00		559.73	559.73	
Sobrecarga ferroviaria una vía (-)	399.34	1375.26		-230.10	629.44	
Sobrecarga ferroviaria dos vías (-)	-149.17	0.00		-74.59	-74.59	
Gradiente térmico	8.41	0.00		4.21	4.21	
Viento con cp	0.00	144.48		45.15	-45.15	
Viento con cp + sc	0.00	217.91		68.10	-68.10	
(*)Fc (v= 350) una vía	0.00	78.31		24.47	-24.47	
(*)Fc (v= 350) dos vías	0.00	156.62		48.94	-48.94	

(*) Sólo en Pila 2

CMAX 1722.26

CMÍN 370.28

Reacciones horizontales derivadas del rozamiento en apoyos (cargas permanentes)

	F_x	F_y
Estribo fijo	353	
Estribo libre	23	
Pilas 1 y 4	80	
Pilas 2 y 3	85	

Reacciones horizontales derivadas de la sobrecarga ferroviaria

	F_x	F_y
Estribo fijo	609	10
Estribo libre		10
Pilas		10
	(Frenado+Arranque)	*(Lazo)*

Reacciones horizontales derivadas del viento transversal

SIN SOBRECARGA

	F_x	F_y
Estribo fijo		20
Estribo libre		20
Pilas 1 y 4		49
Pilas 2 y 3		56

CON SOBRECARGA (está multiplicado por 0,5)

	F_x	F_y
Estribo fijo		16
Estribo libre		16
Pilas 1 y 4		39
Pilas 2 y 3		45

Reacciones horizontales derivadas de la interacción longitudinal

	F_x	F_y
Estribo fijo	220	
Estribo libre		
Pilas		

Reacciones horizontales derivadas de la Fuerza centrífuga

	F_x	F_y
Estribo libre		12
Pila 1		25
Pila 2		27

(Considerada con su valor máximo, 2 vías cargadas)

Se ha considerado el estribo 2 fijo.

CÁLCULO DE APOYOS Y COSIDO HORIZONTAL

Según la disposición de coacciones en el tablero, todas las cargas transversales se recogen por un apoyo de cada pareja de apoyos existentes sobre el estribo o las pilas. En la tabla que figura a continuación se reflejan los datos necesarios para el dimensionamiento de apoyos:

APARATOS DE APOYO

Nº	TIPO/ Nº UDS	REF	CARGA MAX VERTICAL (T)	CARGA MIN VERTICAL (T)	CARGA HORIZONTAL (T)	DISTANCIA A	DESPLAZAMIENTOS X		DESPLAZAMIENTOS Y		SITUACION
							D+ (mm)	D- (mm)	D+ (mm)	D- (mm)	
1	UD/1 ud	A	569.58	39.60	31.60	202.00	152	-51	0	0	E-1
2	OD/1 ud	B	569.58	39.60	0.00	202.00	152	-51	2	-1	E-1
3	UD/1 ud	C	1630.97	355.29	64.00	168.50	126	-42	0	0	P-1
4	OD/1 ud	D	1630.97	355.29	0.00	168.50	126	-42	2	-1	P-1
5	UD/1 ud	E	1722.26	370.28	71.20	123.50	93	-31	0	0	P-2
6	OD/1 ud	F	1722.26	370.28	0.00	123.50	93	-31	2	-1	P-2
7	UD/1 ud	G	1722.26	370.28	55.00	78.50	59	-20	2	-1	P-3
8	OD/1 ud	H	1722.26	370.28	0.00	78.50	59	-20	2	-1	P-3
9	UD/1 ud	I	1630.97	355.29	49.00	33.50	25	-8	2	-1	P-4
10	OD/1 ud	J	1630.97	355.29	0.00	33.50	25	-8	2	-1	P-4
11	UD/1 ud	K	569.58	39.60	26.00	0.00	0	0	2	-1	E-2
12	OD/1 ud	L	569.58	39.60	0.00	0.00	0	0	2	-1	E-2

UD- Unidireccional (fijo transversalmente)

OD- Omnidireccional

Todos los esfuerzos longitudinales se recogerán en el estribo fijo del tablero, que en este caso corresponde al estribo 2. Dichos esfuerzos son:

- Rozamiento de apoyos (5% cp) = 353 T
- Frenado + Arranque = 609 T
- Interacción longitudinal vía-tablero = 220 T

11. Dimesionamiento de pilas

11.1. Esfuerzos en cabeza de pila

11.1.1. *Pila 1*

CARGAS MUERTAS MÁXIMAS

PILA nº **1** Distancia entre apoyos: 3.2 m

h = 12 m

Dimensiones (m)**:**

Lx =	1.5	e_{min} =	0	Ix (m4) =	1.624
Ly =	2.6	e_{min} =	0	Iy (m4) =	0.599
				Área (m2) =	2.250

Cargas	Fx	Fy	Fz	**Mx**	**My**
Carga permanente (cp)	80		1597.6	0.0	
Sobrecarga 1 (sc1, una vía)		10.0	585.8	1408.2	
Sobrecarga 2 (sc2, dos vías)		10.0	1112.2	0.0	
Sobrecarga 3 (sc3, una vía)		10.0	440.5	1424.4	
Sobrecarga 4 (sc4, dos vías)		10.0	-122.5	0.0	
Viento 1 (w_{cp})		49.0		126.4	
Viento 2 (w_{sc})		39.3		190.7	
Fcentrífuga (v=120Km/h, con sc 1)		4.3		16.2	

CARGAS MUERTAS MÍNIMAS

PILA nº **1** Distancia entre apoyos: 3.2 m

h = 12 m

Dimensiones (m)**:**

Lx =	1.5	e_{min} =	0.075	Ix (m4) =	1.624
Ly =	2.6	e_{min} =	0.13	Iy (m4) =	0.599
				Área (m2) =	2.250

Cargas	Fx	Fy	Fz	**Mx**	**My**
Carga permanente (cp)	67		1347.0	0.0	
Sobrecarga 1 (sc1, una vía)		10.0	585.8	1408.2	
Sobrecarga 2 (sc2, dos vías)		10.0	1112.2	0.0	
Sobrecarga 3 (sc3, una vía)		10.0	440.5	1424.4	
Sobrecarga 4 (sc4, dos vías)		10.0	-122.5	0.0	
Viento 1 (w_{cp})		49.0		126.4	
Viento 2 (w_{sc})		39.3		190.7	
Fcentrífuga (v=120Km/h, con sc 1)		4.3		16.2	

11.1.2. Pila 2

CARGAS MUERTAS MÁXIMAS

PILA nº **2** Distancia entre apoyos: 3.2 m

h = 12 m

Dimensiones (m)**:**

Lx =	1.5	e_{min} =	0	I_x (m4) =	1.624
Ly =	2.6	e_{min} =	0	I_y (m4) =	0.599
				Área (m2) =	2.250

Cargas	Fx	Fy	Fz	**Mx**	**My**
Carga permanente (cp)	85		1695.5	0.0	
Sobrecarga 1 (sc1, una vía)		10.0	605.0	1506.5	
Sobrecarga 2 (sc2, dos vías)		10.0	1167.0	0.0	
Sobrecarga 3 (sc3, una vía)		10.0	418.6	1522.5	
Sobrecarga 4 (sc4, dos vías)		10.0	-156.3	0.0	
Viento 1 (w_{cp})		56.0		144.5	
Viento 2 (w_{sc})		44.9		217.9	
Fcentrífuga (v=120Km/h, con sc 1)		4.7		17.9	

CARGAS MUERTAS MÍNIMAS

PILA nº **2** Distancia entre apoyos: 3.2 m

h = 12 m

Dimensiones (m)**:**

Lx =	1.5	e_{min} =	0	I_x (m4) =	1.624
Ly =	2.6	e_{min} =	0	I_y (m4) =	0.599
				Área (m2) =	2.250

Cargas	Fx	Fy	Fz	**Mx**	**My**
Carga permanente (cp)	72.0		1439.0	0.0	
Sobrecarga 1 (sc1, una vía)		10.0	605.0	1506.5	
Sobrecarga 2 (sc2, dos vías)		10.0	1167.0	0.0	
Sobrecarga 3 (sc3, una vía)		10.0	418.6	1522.5	
Sobrecarga 4 (sc4, dos vías)		10.0	-156.3	0.0	
Viento 1 (w_{cp})		56.0		144.5	
Viento 2 (w_{sc})		44.9		217.9	
Fcentrífuga (v=120Km/h, con sc 1)		4.7		17.9	

11.1.3. Pila 3

CARGAS MUERTAS MÁXIMAS

PILA nº **3** Distancia entre apoyos: 3.2 m

h = 12 m

Dimensiones (m)**:**

Lx =	1.5	e_{min} =	0.075	Ix (m4) =	1.624
Ly =	2.6	e_{min} =	0.13	Iy (m4) =	0.599
				Área (m2) =	2.250

Cargas	Fx	Fy	Fz	Mx	My
Carga permanente (cp)	85.0		1695.5	0.0	
Sobrecarga 1 (sc1, una vía)		10.0	605.0	1506.5	
Sobrecarga 2 (sc2, dos vías)		10.0	1167.0	0.0	
Sobrecarga 3 (sc3, una vía)		10.0	418.6	1522.5	
Sobrecarga 4 (sc4, dos vías)		10.0	-156.3	0.0	
Viento 1 (w_{cp})		56.0		144.5	
Viento 2 (w_{sc})		44.9		217.9	

CARGAS MUERTAS MÍNIMAS

PILA nº **3** Distancia entre apoyos: 3.2 m

h = 12 m

Dimensiones (m)**:**

Lx =	1.5	e_{min} =	0.075	Ix (m4) =	1.624
Ly =	2.6	e_{min} =	0.13	Iy (m4) =	0.599
				Área (m2) =	2.250

Cargas	Fx	Fy	Fz	Mx	My
Carga permanente (cp)	72.0		1439.0	0.0	
Sobrecarga 1 (sc1, una vía)		10.0	605.0	1506.5	
Sobrecarga 2 (sc2, dos vías)		10.0	1167.0	0.0	
Sobrecarga 3 (sc3, una vía)		10.0	418.6	1522.5	
Sobrecarga 4 (sc4, dos vías)		10.0	-156.3	0.0	
Viento 1 (w_{cp})		56.0		144.5	
Viento 2 (w_{sc})		44.9		217.9	

11.1.4. Pila 4

CARGAS MUERTAS MÁXIMAS

PILA nº **4** Distancia entre apoyos: 3.2 m

h = 7.5 m

Dimensiones (m)**:**

Lx =	1.5	e_{min} =	0	Ix (m4) =	1.624
Ly =	2.6	e_{min} =	0	Iy (m4) =	0.599
				Área (m2) =	2.250

Cargas	Fx	Fy	Fz	**Mx**	**My**
Carga permanente (cp)	80		1597.6	0.0	
Sobrecarga 1 (sc1, una vía)		10.0	585.8	1408.2	
Sobrecarga 2 (sc2, dos vías)		10.0	1112.2	0.0	
Sobrecarga 3 (sc3, una vía)		10.0	440.5	1424.4	
Sobrecarga 4 (sc4, dos vías)		10.0	-122.5	0.0	
Viento 1 (w_{cp})		49.0		126.4	
Viento 2 (w_{sc})		39.3		190.7	

CARGAS MUERTAS MÍNIMAS

PILA nº **4** Distancia entre apoyos: 3.2 m

h = 7.5 m

Dimensiones (m)**:**

Lx =	1.5	e_{min} =	0	Ix (m4) =	1.624
Ly =	2.6	e_{min} =	0	Iy (m4) =	0.599
				Área (m2) =	2.250

Cargas	Fx	Fy	Fz	**Mx**	**My**
Carga permanente (cp)	67		1347.0	0.0	
Sobrecarga 1 (sc1, una vía)		10.0	585.8	1408.2	
Sobrecarga 2 (sc2, dos vías)		10.0	1112.2	0.0	
Sobrecarga 3 (sc3, una vía)		10.0	440.5	1424.4	
Sobrecarga 4 (sc4, dos vías)		10.0	-122.5	0.0	
Viento 1 (w_{cp})		49.0		126.4	
Viento 2 (w_{sc})		39.3		190.7	

11.2. Cálculo y dimensionamiento de pilas

El cálculo se realiza mediante el programa PILA v1.60 de Francisco Morán Cabré, en el consideran los efectos de segundo orden que se producen en la pila. Apartir de las cargas aplicadas en la pila se obtienen las hipótesis de combinación con las que se realiza el cálculo.

Se calculan las pilas 2 y 4.

PILA 2. HIPÓTESIS DE COMBINACIÓN:

CARGAS MUERTAS MÁXIMAS.

Esfuerzos mayorados en cabeza de pila

Hipótesis	Fxd	Fyd	Fzd	Mxd	Myd
H1 (1,35cp + 1,5Wcp)	85	84.00	2288.98	216.72	0.00
H2 (1cp + 1,5Wcp)	85	84.00	1695.54	216.72	0.00
H3 (1,35cp + 1,5(sc1 + 0,6Wsc))	85	55.44	3196.47	2455.91	0.00
H4 (1cp + 1,5(sc1 + 0,6Wsc))	85	55.44	2603.03	2455.91	0.00
H5 (1,35cp + 1,5(sc2 + 0,6Wsc))	85	55.44	4039.43	196.12	0.00
H6 (1cp + 1,5(sc2 + 0,6Wsc))	85	55.44	3445.99	196.12	0.00
H7 (1,35cp + 1,5(sc3 + 0,6Wsc))	85	55.44	2916.91	2479.81	0.00
H8 (1cp + 1,5(sc3 + 0,6Wsc))	85	55.44	2323.47	2479.81	0.00
H9 (1,35cp + 1,5(sc1 + fc1+0,6Wsc))	85	62.49	3196.47	2482.70	0.00
H10 (cp + 1,5(sc1 + fc1+0,6Wsc))	85	62.49	2603.03	2482.70	0.00

CARGAS MUERTAS MÍNIMAS

Esfuerzos mayorados en cabeza de pila

Hipótesis	Fxd	Fyd	Fzd	Mxd	Myd
H11 (1,35cp + 1,5(sc1 + 0,6Wsc))	72	55.44	2850.16	2455.91	0.00
H12 (1cp + 1,5(sc1 + 0,6Wsc))	72	55.44	2346.51	2455.91	0.00
H13 (1,35cp + 1,5(sc3 + 0,6Wsc))	72	55.44	2570.59	2479.81	0.00
H14 (1cp + 1,5(sc3 + 0,6Wsc))	72	55.44	2066.94	2479.81	0.00
H15 (1,35cp + 1,5(sc1 + fc1+0,6Wsc))	72	62.49	2850.16	2482.70	0.00
H16 (cp + 1,5(sc1 + fc1+0,6Wsc))	72	62.49	2346.51	2482.70	0.00

PILA 4. HIPÓTESIS DE COMBINACIÓN:

CARGAS MUERTAS MÁXIMAS.

Esfuerzos mayorados en base de pila (sin pandeo)

Hipótesis	Fxd	Fyd	Fzd	Mxd	Myd
H1 (1,35cp + 1,5Wcp)	80.00	78.02	2215.94	757.84	600.00
H2 (1cp + 1,5Wcp)	80.00	78.02	1641.44	757.84	600.00
H3 (1,35cp + 1,5(sc1 + 0,6Wsc))	80.00	51.74	3094.70	2666.93	600.00
H4 (1cp + 1,5(sc1 + 0,6Wsc))	80.00	51.74	2520.20	2666.93	600.00
H5 (1,35cp + 1,5(sc2 + 0,6Wsc))	80.00	51.74	3884.23	554.63	600.00
H6 (1cp + 1,5(sc2 + 0,6Wsc))	80.00	51.74	3309.73	554.63	600.00
H7 (1,35cp + 1,5(sc3 + 0,6Wsc))	80.00	51.74	2876.69	2691.26	600.00
H8 (1cp + 1,5(sc3 + 0,6Wsc))	80.00	51.74	2302.19	2691.26	600.00

CARGAS MUERTAS MÍNIMAS

Esfuerzos mayorados en cabeza de pila

Hipótesis	Fxd	Fyd	Fzd	Mxd	Myd
H9 (1,35cp + 1,5(sc1 + 0,6Wsc))	67.00	50.39	2697.18	2283.93	
H10 (1cp + 1,5(sc1 + 0,6Wsc))	67.00	50.39	2225.74	2283.93	
H11 (1,35cp + 1,5(sc3 + 0,6Wsc))	67.00	50.39	2479.17	2308.26	
H12 (1cp + 1,5(sc3 + 0,6Wsc))	67.00	50.39	2007.73	2308.26	

11.2.1. PILA 2

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

MATERIALES:	HORMIGON	ACERO
"RESIST. CARACT. (kp/cm2):"	500	5000
"COEFICIENTE MINOR. GAMMA:"	1.35	1.15

"ALTURA DE LA PILA (m):" 12.00

COEFICIENTES ELASTICOS DE MUELLE EN CABEZA Y EN PIE:

SECCION - MOVIMIENTO	CABEZA-DIR x	CABEZA-DIR y	PIE- GIRO x	PIE- GIRO y
COEFICIENTE (unidades)	Kx (t/m)	Ky (t/m)	Fx (rad/mt)	Fy (rad/mt)
	0	0	1E-6	1E-6

DIMENSIONES Y ARMADURAS DE LAS SECCIONES:

SECCION:	BASE		CABEZA		RECUBR.
DIRECCION R/EJE PUENTE:	LONG.(x)	TRAN.(y)	LONG.(x)	TRAN.(y)	(cm)
"DIMENSION EXTERIOR (cm):"	150	260	150	260	
"ESPESOR DE LA PARED(cm):"	36	30	36	30	
"ARMADURA EXTERIOR (cm2):"	316	511	255	321	5
"ARMADURA INTERIOR (cm2):"	48	92	48	52	5

"NUM. DE HIPOTESIS DE CARGA:" 16

ACCIONES MAYORADAS EN LAS DISTINTAS HIPOTESIS:

	FUERZAS Y MOMENTOS EN LA CABEZA					FUERZAS EN EL FUSTE (t/m)				COEF.
	FUERZAS (t)			MOMENTOS (mt)		SEC.BASE		SEC.CABEZA		GAMMA
HIP.	Fx	Fy	Fz	Mx	My	fx0	fy0	fx1	fy1	PP
1	85.0	84.00	2288.98	216.72	000.00	0	0.60	0	0.60	1.35
2	85.0	84.00	1695.54	216.72	000.00	0	0.60	0	0.60	1.00
3	85.0	55.44	3196.47	2455.91	000.00	0	0.18	0	0.18	1.35
4	85.0	55.44	2603.03	2455.91	000.00	0	0.18	0	0.18	1.00
5	85.0	55.44	4039.43	196.12	000.00	0	0.18	0	0.18	1.35
6	85.0	55.44	3445.99	196.12	000.00	0	0.18	0	0.18	1.00
7	85.0	55.44	2916.91	2479.81	000.00	0	0.18	0	0.18	1.35
8	85.0	55.44	2323.47	2479.81	000.00	0	0.18	0	0.18	1.00
9	85.0	62.50	3196.47	2482.70	000.00	0	0.18	0	0.18	1.35
10	85.0	62.50	2603.03	2482.70	000.00	0	0.18	0	0.18	1.00
11	72.0	55.44	2850.16	2455.91	000.00	0	0.18	0	0.18	1.35
12	72.0	55.44	2346.51	2455.91	000.00	0	0.18	0	0.18	1.00
13	72.0	62.50	2570.59	2479.81	000.00	0	0.18	0	0.18	1.35
14	72.0	62.50	2066.94	2479.81	000.00	0	0.18	0	0.18	1.00
15	72.0	62.50	2850.16	2482.70	000.00	0	0.18	0	0.18	1.35
16	72.0	62.50	2346.51	2482.70	000.00	0	0.18	0	0.18	1.00

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VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 1 - TANTEO 1

Fpx = 85.000 t; Fpy = 84.000 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1052.22	1192.83	2383.75	2.672	7.084
1	0.002	0.001	939.77	1086.23	2374.27	2.191	6.019
2	0.005	0.003	827.46	977.62	2364.80	1.818	5.165
3	0.008	0.005	715.43	867.32	2355.32	1.481	4.403
4	0.012	0.008	603.81	755.60	2345.84	1.177	3.705
5	0.017	0.010	492.69	642.71	2336.37	0.914	3.078
6	0.022	0.012	382.18	528.88	2326.89	0.692	2.518
7	0.028	0.015	272.36	414.32	2317.41	0.495	1.990
8	0.034	0.018	163.28	299.19	2307.93	0.299	1.453
9	0.040	0.021	55.01	183.70	2298.46	0.102	0.902
10	0.046	0.023	-52.48	67.80	2288.98	-0.098	0.337

Exc. totales result. cabeza 0.02962 -0.02293
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1107.74	1302.59	2383.75	2.559	7.131
1	0.002	0.002	994.92	1195.22	2374.27	2.167	6.242
2	0.005	0.003	882.23	1085.74	2364.80	1.812	5.451
3	0.009	0.005	769.81	974.44	2355.32	1.490	4.726
4	0.013	0.008	657.77	861.58	2345.84	1.210	4.080
5	0.018	0.010	546.21	747.39	2336.37	0.981	3.517
6	0.024	0.013	435.21	632.07	2326.89	0.785	3.001
7	0.030	0.016	324.83	515.80	2317.41	0.590	2.476
8	0.036	0.018	215.15	398.77	2307.93	0.394	1.935
9	0.043	0.021	106.23	281.16	2298.46	0.196	1.380
10	0.050	0.024	-1.76	163.36	2288.98	-0.003	0.812

Exc. totales result. cabeza 0.07137 -0.00077
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1107.54	1307.26	2383.75	2.564	7.131
1	0.002	0.002	994.92	1200.28	2374.27	2.198	6.307
2	0.005	0.003	882.43	1091.16	2364.80	1.850	5.531
3	0.009	0.005	770.20	980.19	2355.32	1.525	4.807
4	0.013	0.008	658.33	867.62	2345.84	1.239	4.154
5	0.018	0.010	546.93	753.70	2336.37	0.997	3.572
6	0.024	0.013	436.08	638.64	2326.89	0.787	3.035
7	0.030	0.016	325.87	522.60	2317.41	0.592	2.510
8	0.036	0.018	216.34	405.79	2307.93	0.396	1.970
9	0.043	0.021	107.57	288.39	2298.46	0.199	1.416
10	0.050	0.024	-0.37	170.60	2288.98	0.199	0.848

Exc. totales result. cabeza 0.07453 -0.00016
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1107.85	1308.07	2383.75	2.565	7.137
1	0.002	0.002	995.24	1201.11	2374.27	2.208	6.336
2	0.005	0.003	882.76	1092.00	2364.80	1.863	5.563
3	0.009	0.005	770.52	981.04	2355.32	1.538	4.834
4	0.013	0.008	658.47	868.47	2345.84	1.247	4.172
5	0.018	0.010	547.23	754.54	2336.37	1.000	3.581
6	0.024	0.013	436.38	639.46	2326.89	0.788	3.040
7	0.030	0.016	326.14	523.41	2317.41	0.593	2.514
8	0.037	0.019	216.61	406.59	2307.93	0.397	1.974
9	0.043	0.021	107.83	289.17	2298.46	0.199	1.420
10	0.050	0.024	-0.13	171.34	2288.98	0.199	0.851

Exc. totales result. cabeza 0.07486 -0.00006
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1107.97	1308.37	2383.75	2.566	7.140
1	0.002	0.002	995.36	1201.41	2374.27	2.213	6.347
2	0.005	0.003	882.88	1092.31	2364.80	1.868	5.575
3	0.009	0.005	770.63	981.33	2355.32	1.541	4.843
4	0.013	0.008	658.75	868.76	2345.84	1.250	4.177
5	0.018	0.010	547.34	754.82	2336.37	1.001	3.583
6	0.024	0.013	436.48	639.72	2326.89	0.788	3.041
7	0.030	0.016	326.24	523.67	2317.41	0.593	2.515
8	0.037	0.019	216.70	406.83	2307.93	0.397	1.975
9	0.043	0.021	107.91	289.39	2298.46	0.199	1.421
10	0.050	0.024	-0.05	171.56	2288.98	0.199	0.852

Exc. totales result. cabeza 0.07495 -0.00002
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1108.02	1308.48	2383.75	2.567	7.142
1	0.002	0.002	995.41	1201.52	2374.27	2.214	6.351
2	0.005	0.003	882.92	1092.42	2364.80	1.870	5.579
3	0.009	0.005	770.68	981.44	2355.32	1.543	4.846
4	0.013	0.008	658.80	868.86	2345.84	1.250	4.179
5	0.018	0.010	547.38	754.92	2336.37	1.001	3.583
6	0.024	0.013	436.52	639.82	2326.89	0.788	3.041
7	0.030	0.016	326.28	523.76	2317.41	0.593	2.516

8	0.037	0.019	216.73	406.91	2307.93	0.397	1.976
9	0.043	0.021	107.95	289.48	2298.46	0.199	1.422
10	0.050	0.024	-0.02	171.63	2288.98	0.199	0.853

Exc. totales result. cabeza 0.07498 -0.00001
Exc. reales 1er ord. cabeza 0.07500 0.00000

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 84.000 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 2 - TANTEO 1

Fpx = 85.000 t; Fpy = 84.000 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1052.22	1148.28	1765.74	2.768	7.329
1	0.002	0.001	940.65	1042.94	1758.72	2.379	6.353
2	0.005	0.003	829.36	936.02	1751.70	2.026	5.474
3	0.008	0.005	718.45	827.77	1744.68	1.679	4.631
4	0.013	0.008	608.02	718.41	1737.66	1.340	3.822
5	0.017	0.010	498.15	608.17	1730.64	1.018	3.062
6	0.023	0.013	388.93	497.23	1723.62	0.731	2.379
7	0.028	0.016	280.42	385.77	1716.60	0.497	1.797
8	0.034	0.019	172.70	273.96	1709.58	0.306	1.283
9	0.040	0.021	65.81	161.91	1702.56	0.117	0.767
10	0.046	0.024	-40.30	49.60	1695.54	-0.072	0.237

Exc. totales result. cabeza 0.02925 -0.02377
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1094.85	1230.24	1765.74	2.739	7.390
1	0.002	0.002	983.02	1124.38	1758.72	2.376	6.490
2	0.005	0.003	871.45	1016.90	1751.70	2.018	5.620
3	0.009	0.006	760.26	908.02	1744.68	1.662	4.775
4	0.013	0.008	649.53	797.97	1737.66	1.318	3.974
5	0.018	0.010	539.35	686.96	1730.64	1.006	3.252
6	0.024	0.013	429.80	575.19	1723.62	0.757	2.650
7	0.029	0.016	320.95	462.79	1716.60	0.563	2.143
8	0.036	0.019	212.85	349.91	1709.58	0.376	1.638
9	0.042	0.022	105.54	236.67	1702.56	0.188	1.120
10	0.049	0.025	-0.86	123.36	1695.54	0.188	0.590

Exc. totales result. cabeza 0.07276 -0.00051
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1094.18	1231.21	1765.74	2.744	7.407
1	0.002	0.002	982.50	1125.65	1758.72	2.391	6.534
2	0.005	0.003	871.10	1018.45	1751.70	2.037	5.664
3	0.009	0.006	760.06	909.85	1744.68	1.681	4.812
4	0.013	0.008	649.48	800.07	1737.66	1.336	4.007
5	0.018	0.010	539.44	689.32	1730.64	1.023	3.287
6	0.024	0.013	430.04	577.79	1723.62	0.768	2.681
7	0.030	0.016	321.32	465.63	1716.60	0.564	2.157
8	0.036	0.019	213.36	352.98	1709.58	0.377	1.653
9	0.042	0.022	106.18	239.97	1702.56	0.189	1.136
10	0.049	0.025	-0.16	126.73	1695.54	0.189	0.607

Exc. totales result. cabeza 0.07475 -0.00009
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1094.31	1231.51	1765.74	2.746	7.414
1	0.002	0.002	982.64	1125.97	1758.72	2.397	6.553
2	0.005	0.003	871.23	1018.78	1751.70	2.043	5.683
3	0.009	0.006	760.19	910.18	1744.68	1.687	4.829
4	0.013	0.008	649.61	800.40	1737.66	1.342	4.021
5	0.018	0.010	539.57	689.64	1730.64	1.028	3.298
6	0.024	0.013	430.16	578.10	1723.62	0.771	2.686
7	0.030	0.016	321.44	465.93	1716.60	0.565	2.159
8	0.036	0.019	213.47	353.27	1709.58	0.378	1.654
9	0.042	0.022	106.29	240.25	1702.56	0.189	1.137
10	0.049	0.025	-0.06	127.00	1695.54	0.189	0.608

Exc. totales result. cabeza 0.07490 -0.00003
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	1094.36	1231.67	1765.74	2.746	7.417
1	0.002	0.002	982.69	1126.12	1758.72	2.399	6.560
2	0.005	0.003	871.29	1018.93	1751.70	2.046	5.691
3	0.009	0.006	760.25	910.33	1744.68	1.690	4.836
4	0.013	0.008	649.66	800.54	1737.66	1.344	4.026
5	0.018	0.011	539.62	689.78	1730.64	1.030	3.301
6	0.024	0.013	430.21	578.23	1723.62	0.771	2.687
7	0.030	0.016	321.49	466.06	1716.60	0.565	2.160
8	0.036	0.019	213.51	353.39	1709.58	0.378	1.655
9	0.042	0.022	106.32	240.36	1702.56	0.190	1.138
10	0.049	0.025	-0.02	127.10	1695.54	0.190	0.608

Exc. totales result. cabeza 0.07496 -0.00001
Exc. reales 1er ord. cabeza 0.07500 0.00000

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 84.000 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 3 - TANTEO 1

Fpx = 85.000 t; Fpy = 55.440 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3137.22	1021.00	3291.24	8.249	7.451
1	0.002	0.004	3053.95	913.23	3281.76	7.794	6.453
2	0.004	0.010	2967.35	802.45	3272.29	7.418	5.618
3	0.008	0.016	2877.63	689.09	3262.81	7.072	4.794
4	0.012	0.024	2784.99	573.55	3253.33	6.730	3.965
5	0.017	0.032	2689.61	456.25	3243.86	6.384	3.131
6	0.022	0.042	2591.68	337.57	3234.38	6.035	2.295
7	0.028	0.052	2491.39	217.93	3224.90	5.687	1.465
8	0.033	0.063	2388.93	97.72	3215.42	5.345	0.648
9	0.039	0.075	2284.47	-22.68	3205.95	5.018	-0.148
10	0.045	0.088	2177.77	-143.12	3196.47	4.710	-0.920

Exc. totales result. cabeza -0.04477 0.68131
Exc. reales 1er ord. cabeza 0.00000 0.76832

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3426.61	1169.92	3291.24	8.653	8.137
1	0.002	0.005	3341.24	1060.96	3281.76	8.267	7.313
2	0.005	0.011	3252.28	948.57	3272.29	7.913	6.498
3	0.009	0.018	3159.91	833.16	3262.81	7.562	5.673
4	0.014	0.026	3064.32	715.13	3253.33	7.204	4.834
5	0.019	0.035	2965.71	594.88	3243.86	6.842	3.985
6	0.025	0.045	2864.26	472.85	3234.38	6.479	3.132
7	0.032	0.056	2760.16	349.42	3224.90	6.122	2.284
8	0.039	0.068	2653.59	225.00	3215.42	5.778	1.450
9	0.046	0.081	2544.74	99.99	3205.95	5.456	0.634
10	0.053	0.095	2434.13	-25.06	3196.47	5.166	-0.156

Exc. totales result. cabeza -0.00784 0.76151
Exc. reales 1er ord. cabeza 0.00000 0.76832

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3441.44	1191.93	3291.24	8.893	8.458
1	0.002	0.005	3356.71	1083.16	3281.76	8.554	7.657
2	0.005	0.011	3268.25	970.79	3272.29	8.212	6.838
3	0.009	0.018	3176.24	855.23	3262.81	7.859	5.996

4	0.014	0.026	3080.87	736.91	3253.33	7.494	5.134
5	0.020	0.036	2982.34	616.23	3243.86	7.120	4.258
6	0.026	0.046	2880.83	493.62	3234.38	6.744	3.377
7	0.033	0.057	2776.55	369.50	3224.90	6.370	2.499
8	0.040	0.070	2669.69	244.29	3215.42	6.009	1.632
9	0.048	0.083	2560.42	118.40	3205.95	5.667	0.781
10	0.055	0.097	2448.96	-7.75	3196.47	5.352	-0.050

Exc. totales result. cabeza -0.00242 0.76614
Exc. reales 1er ord. cabeza 0.00000 0.76832

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3448.05	1199.28	3291.24	9.018	8.607
1	0.002	0.005	3363.30	1090.49	3281.76	8.697	7.818
2	0.005	0.011	3274.76	978.03	3272.29	8.360	6.997
3	0.009	0.018	3182.60	862.31	3262.81	8.007	6.146
4	0.015	0.026	3087.02	743.75	3253.33	7.638	5.270
5	0.020	0.036	2988.20	622.77	3243.86	7.258	4.379
6	0.027	0.047	2886.34	499.80	3234.38	6.873	3.481
7	0.034	0.058	2781.65	375.28	3224.90	6.490	2.584
8	0.041	0.070	2674.32	249.63	3215.42	6.116	1.698
9	0.049	0.084	2564.54	123.26	3205.95	5.761	0.827
10	0.056	0.098	2452.50	-3.41	3196.47	5.431	-0.023

Exc. totales result. cabeza -0.00107 0.76725
Exc. reales 1er ord. cabeza 0.00000 0.76832

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3451.40	1202.60	3291.24	9.080	8.680
1	0.002	0.005	3366.64	1093.79	3281.76	8.767	7.896
2	0.005	0.011	3278.04	981.28	3272.29	8.432	7.073
3	0.009	0.018	3185.80	865.47	3262.81	8.078	6.217
4	0.015	0.027	3090.10	746.78	3253.33	7.707	5.335
5	0.021	0.036	2991.13	625.65	3243.86	7.324	4.436
6	0.027	0.047	2889.09	502.50	3234.38	6.935	3.529
7	0.034	0.058	2784.19	377.78	3224.90	6.546	2.623
8	0.041	0.071	2676.62	251.90	3215.42	6.166	1.727
9	0.049	0.084	2566.58	125.30	3205.95	5.803	0.847
10	0.057	0.099	2454.25	-1.62	3196.47	5.464	-0.011

Exc. totales result. cabeza -0.00051 0.76780
Exc. reales 1er ord. cabeza 0.00000 0.76832

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3453.02	1204.18	3291.24	9.110	8.716
1	0.002	0.005	3368.25	1095.37	3281.76	8.800	7.934
2	0.005	0.011	3279.64	982.83	3272.29	8.467	7.110
3	0.010	0.018	3187.35	866.97	3262.81	8.112	6.251
4	0.015	0.027	3091.59	748.22	3253.33	7.741	5.366
5	0.021	0.036	2992.55	627.01	3243.86	7.356	4.464
6	0.027	0.047	2890.42	503.78	3234.38	6.965	3.552
7	0.034	0.058	2785.42	378.96	3224.90	6.573	2.642
8	0.042	0.071	2677.74	252.97	3215.42	6.189	1.741
9	0.049	0.084	2567.57	126.26	3205.95	5.821	0.857
10	0.057	0.099	2455.12	-0.78	3196.47	5.478	0.857

Exc. totales result. cabeza -0.00024 0.76807
Exc. reales 1er ord. cabeza 0.00000 0.76832

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3453.80	1204.95	3291.24	9.125	8.733
1	0.002	0.005	3369.03	1096.12	3281.76	8.815	7.951
2	0.005	0.011	3280.40	983.57	3272.29	8.482	7.127
3	0.010	0.018	3188.10	867.70	3262.81	8.128	6.267
4	0.015	0.027	3092.31	748.92	3253.33	7.755	5.381
5	0.021	0.036	2993.23	627.68	3243.86	7.370	4.476
6	0.027	0.047	2891.07	504.40	3234.38	6.978	3.563
7	0.034	0.058	2786.02	379.53	3224.90	6.585	2.650
8	0.042	0.071	2678.29	253.50	3215.42	6.199	1.747
9	0.049	0.085	2568.07	126.73	3205.95	5.830	0.861
10	0.057	0.099	2455.55	-0.36	3196.47	5.496	0.861

Exc. totales result. cabeza -0.00011 0.76821

Exc. reales 1er ord. cabeza 0.00000 0.76832

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3454.15	1205.30	3291.24	9.132	8.742
1	0.002	0.005	3369.37	1096.48	3281.76	8.824	7.960
2	0.005	0.011	3280.74	983.92	3272.29	8.491	7.135
3	0.010	0.018	3188.43	868.03	3262.81	8.136	6.275
4	0.015	0.027	3092.63	749.24	3253.33	7.764	5.388
5	0.021	0.036	2993.53	627.98	3243.86	7.378	4.483
6	0.027	0.047	2891.35	504.68	3234.38	6.985	3.568
7	0.034	0.059	2786.28	379.79	3224.90	6.590	2.654
8	0.042	0.071	2678.52	253.73	3215.42	6.204	1.750
9	0.049	0.085	2568.27	126.94	3205.95	5.834	0.863
10	0.057	0.099	2455.72	-0.18	3196.47	5.502	0.863

Exc. totales result. cabeza -0.00006 0.76826
Exc. reales 1er ord. cabeza 0.00000 0.76832

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3454.34	1205.48	3291.24	9.136	8.746
1	0.002	0.005	3369.56	1096.65	3281.76	8.828	7.964
2	0.005	0.011	3280.93	984.09	3272.29	8.495	7.139
3	0.010	0.018	3188.61	868.20	3262.81	8.140	6.279
4	0.015	0.027	3092.80	749.40	3253.33	7.767	5.392
5	0.021	0.036	2993.70	628.13	3243.86	7.381	4.486
6	0.027	0.047	2891.51	504.83	3234.38	6.988	3.571
7	0.034	0.059	2786.42	379.92	3224.90	6.594	2.656
8	0.042	0.071	2678.65	253.85	3215.42	6.206	1.751
9	0.050	0.085	2568.39	127.04	3205.95	5.836	0.864
10	0.057	0.099	2455.82	-0.09	3196.47	5.505	0.864

Exc. totales result. cabeza -0.00003 0.76829
Exc. reales 1er ord. cabeza 0.00000 0.76832

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 55.440 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 4 - TANTEO 1

Fpx = 85.000 t; Fpy = 55.440 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3137.23	1021.00	2673.23	8.518	7.593
1	0.002	0.004	3056.58	914.28	2666.21	8.165	6.701
2	0.005	0.010	2973.13	805.03	2659.19	7.850	5.896
3	0.008	0.017	2887.03	693.56	2652.17	7.542	5.080
4	0.012	0.024	2798.40	580.21	2645.15	7.227	4.248
5	0.017	0.033	2707.40	465.31	2638.13	6.903	3.401
6	0.023	0.043	2614.18	349.20	2631.11	6.569	2.544
7	0.029	0.054	2518.86	232.19	2624.09	6.229	1.683
8	0.035	0.065	2421.62	114.64	2617.07	5.887	0.825
9	0.041	0.078	2322.58	-3.14	2610.05	5.549	-0.022
10	0.047	0.091	2221.59	-120.99	2603.03	5.221	-0.855

Exc. totales result. cabeza -0.04648 0.85346
Exc. reales 1er ord. cabeza 0.00000 0.94348

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3380.15	1146.45	2673.23	8.929	8.264
1	0.002	0.005	3297.99	1038.86	2666.21	8.612	7.483
2	0.005	0.011	3212.81	928.42	2659.19	8.303	6.689
3	0.009	0.018	3124.77	815.45	2652.17	7.985	5.873
4	0.014	0.026	3033.99	700.27	2645.15	7.656	5.036
5	0.019	0.035	2940.63	583.21	2638.13	7.315	4.181
6	0.026	0.046	2844.82	464.61	2631.11	6.966	3.314
7	0.032	0.057	2746.71	344.81	2624.09	6.614	2.443
8	0.039	0.070	2646.44	224.13	2617.07	6.265	1.575
9	0.047	0.083	2544.18	102.93	2610.05	5.926	0.716
10	0.054	0.097	2440.34	-18.35	2603.03	5.606	-0.126

Exc. totales result. cabeza -0.00705 0.93750
Exc. reales 1er ord. cabeza 0.00000 0.94348

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3390.30	1162.35	2673.23	9.142	8.529
1	0.002	0.005	3308.64	1054.94	2666.21	8.853	7.757
2	0.005	0.011	3223.89	944.57	2659.19	8.551	6.957
3	0.009	0.018	3136.17	831.56	2652.17	8.234	6.128
4	0.014	0.026	3045.62	716.24	2645.15	7.900	5.272
5	0.020	0.036	2952.39	598.96	2638.13	7.553	4.397
6	0.026	0.047	2856.61	480.04	2631.11	7.196	3.509
7	0.033	0.058	2758.45	359.85	2624.09	6.834	2.615
8	0.041	0.071	2658.05	238.72	2617.07	6.473	1.722
9	0.048	0.085	2555.57	117.00	2610.05	6.120	0.837
10	0.056	0.099	2451.16	-4.97	2603.03	5.785	-0.035

Exc. totales result. cabeza -0.00191 0.94166
Exc. reales 1er ord. cabeza 0.00000 0.94348

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3394.81	1167.03	2673.23	9.240	8.639
1	0.002	0.005	3313.15	1059.62	2666.21	8.962	7.872
2	0.005	0.011	3228.36	949.20	2659.19	8.664	7.069
3	0.009	0.018	3140.55	836.10	2652.17	8.348	6.233
4	0.014	0.027	3049.86	720.66	2645.15	8.014	5.370
5	0.020	0.036	2956.45	603.21	2638.13	7.665	4.485
6	0.027	0.047	2860.46	484.09	2631.11	7.304	3.585
7	0.034	0.059	2762.04	363.67	2624.09	6.938	2.678
8	0.041	0.071	2661.34	242.29	2617.07	6.571	1.772
9	0.049	0.085	2558.52	120.29	2610.05	6.211	0.873
10	0.057	0.100	2453.73	-1.97	2603.03	5.867	-0.014

Exc. totales result. cabeza -0.00076 0.94264
Exc. reales 1er ord. cabeza 0.00000 0.94348

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3396.94	1168.94	2673.23	9.284	8.686
1	0.002	0.005	3315.28	1061.52	2666.21	9.009	7.921
2	0.005	0.011	3230.46	951.08	2659.19	8.714	7.118
3	0.009	0.018	3142.60	837.94	2652.17	8.399	6.280
4	0.014	0.027	3051.85	722.43	2645.15	8.065	5.413
5	0.020	0.036	2958.35	604.90	2638.13	7.715	4.523
6	0.027	0.047	2862.26	485.69	2631.11	7.354	3.618
7	0.034	0.059	2763.71	365.16	2624.09	6.985	2.706
8	0.041	0.072	2662.88	243.66	2617.07	6.616	1.793
9	0.049	0.086	2559.90	121.54	2610.05	6.252	0.887
10	0.057	0.100	2454.93	-0.86	2603.03	5.904	0.887

Exc. totales result. cabeza -0.00033 0.94311
Exc. reales 1er ord. cabeza 0.00000 0.94348

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3397.90	1169.78	2673.23	9.303	8.708
1	0.002	0.005	3316.23	1062.35	2666.21	9.030	7.943
2	0.005	0.011	3231.40	951.90	2659.19	8.736	7.139
3	0.009	0.018	3143.52	838.74	2652.17	8.421	6.300
4	0.015	0.027	3052.74	723.20	2645.15	8.087	5.432
5	0.020	0.036	2959.21	605.63	2638.13	7.738	4.540
6	0.027	0.047	2863.07	486.39	2631.11	7.376	3.633
7	0.034	0.059	2764.47	365.81	2624.09	7.007	2.718
8	0.041	0.072	2663.57	244.26	2617.07	6.636	1.802
9	0.049	0.086	2560.52	122.08	2610.05	6.271	0.893
10	0.057	0.100	2455.48	-0.38	2603.03	5.930	0.893

Exc. totales result. cabeza -0.00015 0.94331
Exc. reales 1er ord. cabeza 0.00000 0.94348

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3398.33	1170.15	2673.23	9.310	8.716
1	0.002	0.005	3316.66	1062.72	2666.21	9.038	7.952
2	0.005	0.011	3231.82	952.26	2659.19	8.744	7.148
3	0.009	0.018	3143.93	839.09	2652.17	8.429	6.308
4	0.015	0.027	3053.14	723.54	2645.15	8.096	5.439
5	0.020	0.036	2959.60	605.96	2638.13	7.748	4.548
6	0.027	0.047	2863.44	486.70	2631.11	7.384	3.639
7	0.034	0.059	2764.82	366.10	2624.09	7.015	2.723
8	0.042	0.072	2663.89	244.53	2617.07	6.644	1.806
9	0.049	0.086	2560.82	122.33	2610.05	6.278	0.896
10	0.057	0.100	2455.74	-0.16	2603.03	5.942	0.896

Exc. totales result. cabeza -0.00006 0.94342
Exc. reales 1er ord. cabeza 0.00000 0.94348

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3398.49	1170.30	2673.23	9.315	8.721
1	0.002	0.005	3316.82	1062.87	2666.21	9.043	7.957
2	0.005	0.011	3231.98	952.41	2659.19	8.749	7.152
3	0.009	0.018	3144.09	839.23	2652.17	8.435	6.313
4	0.015	0.027	3053.29	723.68	2645.15	8.101	5.443
5	0.020	0.036	2959.74	606.09	2638.13	7.752	4.551
6	0.027	0.047	2863.57	486.82	2631.11	7.390	3.642
7	0.034	0.059	2764.93	366.21	2624.09	7.020	2.726
8	0.042	0.072	2664.00	244.63	2617.07	6.649	1.808
9	0.049	0.086	2560.91	122.42	2610.05	6.283	0.898
10	0.057	0.100	2455.81	-0.08	2603.03	5.946	0.898

Exc. totales result. cabeza -0.00003 0.94344
Exc. reales 1er ord. cabeza 0.00000 0.94348

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 55.440 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 5 - TANTEO 1

Fpx = 85.000 t; Fpy = 55.440 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	678.91	1324.26	4134.20	1.561	7.135
1	0.002	0.001	606.10	1213.60	4124.72	1.213	6.206
2	0.005	0.002	532.85	1099.30	4115.25	1.048	5.626
3	0.009	0.003	459.26	981.74	4105.77	0.909	5.078
4	0.013	0.005	385.41	861.25	4096.29	0.769	4.507
5	0.019	0.006	311.40	738.21	4086.82	0.627	3.911
6	0.024	0.008	237.31	612.97	4077.34	0.482	3.288
7	0.031	0.009	163.23	485.91	4067.86	0.334	2.639
8	0.037	0.011	89.24	357.43	4058.38	0.185	1.967
9	0.044	0.013	15.44	227.93	4048.91	0.032	1.272
10	0.051	0.015	-58.16	97.58	4039.43	-0.123	0.552

Exc. totales result. cabeza 0.02416 -0.01440
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	738.98	1536.20	4134.20	1.466	7.754
1	0.002	0.001	665.75	1423.80	4124.72	1.297	7.189
2	0.006	0.002	592.03	1307.17	4115.25	1.159	6.669
3	0.010	0.004	517.89	1186.62	4105.77	1.023	6.124
4	0.016	0.005	443.42	1062.51	4096.29	0.883	5.549
5	0.022	0.007	368.71	935.19	4086.82	0.741	4.944
6	0.028	0.008	293.83	805.03	4077.34	0.596	4.309
7	0.036	0.010	218.88	672.41	4067.86	0.448	3.646
8	0.044	0.012	143.95	537.75	4058.38	0.297	2.956
9	0.052	0.014	69.13	401.45	4048.91	0.144	2.238
10	0.061	0.016	-5.44	264.14	4039.43	-0.011	1.494

Exc. totales result. cabeza 0.06539 -0.00135
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	743.30	1571.64	4134.20	1.503	7.987

1	0.002	0.001	670.16	1459.39	4124.72	1.334	7.438
2	0.006	0.002	596.51	1342.75	4115.25	1.180	6.891
3	0.011	0.004	522.42	1222.06	4105.77	1.036	6.333
4	0.016	0.005	448.00	1097.68	4096.29	0.895	5.754
5	0.022	0.007	373.32	969.96	4086.82	0.752	5.145
6	0.029	0.008	298.48	839.28	4077.34	0.607	4.506
7	0.037	0.010	223.56	706.03	4067.86	0.458	3.838
8	0.045	0.012	148.64	570.60	4058.38	0.308	3.142
9	0.054	0.014	73.82	433.43	4048.91	0.154	2.419
10	0.063	0.016	-0.80	294.96	4039.43	0.154	1.670

Exc. totales result. cabeza 0.07302 -0.00020
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	744.00	1579.03	4134.20	1.520	8.058
1	0.002	0.001	670.87	1466.79	4124.72	1.347	7.502
2	0.006	0.002	597.21	1350.12	4115.25	1.187	6.943
3	0.011	0.004	523.12	1229.38	4105.77	1.039	6.378
4	0.016	0.005	448.68	1104.91	4096.29	0.897	5.797
5	0.022	0.007	373.99	977.09	4086.82	0.754	5.186
6	0.029	0.008	299.13	846.27	4077.34	0.608	4.546
7	0.037	0.010	224.19	712.86	4067.86	0.460	3.877
8	0.045	0.012	149.26	577.25	4058.38	0.309	3.180
9	0.054	0.014	74.43	439.86	4048.91	0.156	2.455
10	0.063	0.016	-0.22	301.14	4039.43	0.156	1.705

Exc. totales result. cabeza 0.07455 -0.00005
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	744.21	1580.73	4134.20	1.526	8.078
1	0.002	0.001	671.08	1468.49	4124.72	1.351	7.517
2	0.006	0.002	597.41	1351.81	4115.25	1.189	6.954
3	0.011	0.004	523.32	1231.05	4105.77	1.040	6.387
4	0.016	0.005	448.88	1106.57	4096.29	0.898	5.805
5	0.022	0.007	374.18	978.71	4086.82	0.755	5.195
6	0.029	0.008	299.32	847.86	4077.34	0.609	4.555
7	0.037	0.010	224.37	714.41	4067.86	0.460	3.886
8	0.045	0.012	149.43	578.76	4058.38	0.309	3.188
9	0.054	0.014	74.59	441.33	4048.91	0.156	2.464
10	0.063	0.016	-0.06	302.54	4039.43	0.156	1.713

Exc. totales result. cabeza 0.07490 -0.00002
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	744.27	1581.11	4134.20	1.528	8.084
1	0.002	0.001	671.14	1468.88	4124.72	1.352	7.521
2	0.006	0.002	597.47	1352.20	4115.25	1.189	6.957
3	0.011	0.004	523.37	1231.44	4105.77	1.040	6.389
4	0.016	0.005	448.93	1106.94	4096.29	0.898	5.807
5	0.022	0.007	374.23	979.08	4086.82	0.755	5.197
6	0.029	0.008	299.37	848.23	4077.34	0.609	4.557
7	0.037	0.010	224.42	714.77	4067.86	0.460	3.887
8	0.045	0.012	149.48	579.10	4058.38	0.310	3.190
9	0.054	0.014	74.64	441.66	4048.91	0.156	2.466
10	0.063	0.016	-0.02	302.86	4039.43	0.156	1.714

Exc. totales result. cabeza 0.07498 -0.00000
Exc. reales 1er ord. cabeza 0.07500 0.00000

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 55.440 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 6 - TANTEO 1

Fpx = 85.000 t; Fpy = 55.440 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	678.91	1279.71	3516.19	1.620	6.906
1	0.002	0.001	606.65	1170.58	3509.17	1.225	5.863
2	0.005	0.002	534.05	1058.53	3502.15	1.026	5.223
3	0.009	0.003	461.21	943.89	3495.13	0.877	4.677
4	0.013	0.005	388.21	826.96	3488.11	0.742	4.140
5	0.018	0.006	315.11	708.01	3481.09	0.607	3.587
6	0.023	0.008	241.99	587.34	3474.07	0.470	3.011
7	0.029	0.009	168.91	465.25	3467.05	0.331	2.414
8	0.035	0.011	95.96	342.03	3460.03	0.190	1.797
9	0.042	0.013	23.19	218.01	3453.01	0.046	1.160
10	0.048	0.015	-49.37	93.33	3445.99	-0.100	0.503

Exc. totales result. cabeza 0.02708 -0.01433
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	729.69	1449.41	3516.19	1.462	7.175
1	0.002	0.001	657.15	1339.16	3509.17	1.252	6.527
2	0.005	0.002	584.25	1225.62	3502.15	1.100	5.996
3	0.010	0.003	511.06	1109.09	3495.13	0.967	5.481
4	0.014	0.005	437.66	989.83	3488.11	0.835	4.948
5	0.020	0.006	364.10	868.14	3481.09	0.700	4.390
6	0.026	0.008	290.47	744.28	3474.07	0.564	3.809
7	0.033	0.010	216.83	618.58	3467.05	0.424	3.205
8	0.040	0.012	143.24	491.33	3460.03	0.283	2.579
9	0.048	0.014	69.79	362.85	3453.01	0.139	1.930
10	0.055	0.016	-3.41	233.62	3445.99	-0.007	1.260

Exc. totales result. cabeza 0.06779 -0.00099
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	732.24	1471.72	3516.19	1.482	7.293
1	0.002	0.001	659.78	1361.62	3509.17	1.293	6.706
2	0.006	0.002	586.93	1248.15	3502.15	1.128	6.156
3	0.010	0.003	513.79	1131.61	3495.13	0.979	5.614
4	0.015	0.005	440.42	1012.27	3488.11	0.842	5.072
5	0.020	0.007	366.89	890.42	3481.09	0.707	4.513
6	0.027	0.008	293.29	766.35	3474.07	0.570	3.930
7	0.034	0.010	219.67	640.37	3467.05	0.431	3.323
8	0.041	0.012	146.11	512.78	3460.03	0.289	2.694
9	0.049	0.014	72.67	383.90	3453.01	0.145	2.043
10	0.057	0.016	-0.56	254.08	3445.99	0.145	1.371

Exc. totales result. cabeza 0.07373 -0.00016
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	732.75	1475.73	3516.19	1.494	7.335
1	0.002	0.001	660.29	1365.64	3509.17	1.307	6.753
2	0.006	0.002	587.44	1252.17	3502.15	1.137	6.192
3	0.010	0.004	514.28	1135.59	3495.13	0.983	5.641
4	0.015	0.005	440.90	1016.21	3488.11	0.843	5.094
5	0.020	0.007	367.36	894.31	3481.09	0.708	4.534
6	0.027	0.008	293.74	770.18	3474.07	0.571	3.950
7	0.034	0.010	220.11	644.12	3467.05	0.432	3.343
8	0.041	0.012	146.53	516.44	3460.03	0.290	2.714
9	0.049	0.014	73.08	387.46	3453.01	0.146	2.062
10	0.057	0.016	-0.17	257.52	3445.99	0.146	1.389

Exc. totales result. cabeza 0.07473 -0.00005
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	732.91	1476.60	3516.19	1.498	7.349
1	0.002	0.001	660.45	1366.52	3509.17	1.311	6.766
2	0.006	0.002	587.60	1253.03	3502.15	1.139	6.200
3	0.010	0.004	514.44	1136.45	3495.13	0.984	5.646
4	0.015	0.005	441.05	1017.05	3488.11	0.844	5.098
5	0.020	0.007	367.51	895.14	3481.09	0.709	4.538
6	0.027	0.008	293.88	770.99	3474.07	0.571	3.955
7	0.034	0.010	220.24	644.91	3467.05	0.432	3.347

8	0.041	0.012	146.66	517.20	3460.03	0.290	2.718
9	0.049	0.014	73.20	388.20	3453.01	0.146	2.066
10	0.057	0.016	-0.05	258.23	3445.99	0.146	1.393

Exc. totales result. cabeza 0.07494 -0.00001
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	732.96	1476.81	3516.19	1.500	7.353
1	0.002	0.001	660.50	1366.72	3509.17	1.312	6.769
2	0.006	0.002	587.65	1253.24	3502.15	1.140	6.202
3	0.010	0.004	514.48	1136.65	3495.13	0.984	5.647
4	0.015	0.005	441.10	1017.25	3488.11	0.844	5.099
5	0.020	0.007	367.55	895.33	3481.09	0.709	4.539
6	0.027	0.008	293.93	771.18	3474.07	0.571	3.955
7	0.034	0.010	220.29	645.09	3467.05	0.432	3.348
8	0.041	0.012	146.70	517.38	3460.03	0.290	2.719
9	0.049	0.014	73.24	388.37	3453.01	0.146	2.067
10	0.057	0.016	-0.01	258.39	3445.99	0.146	1.394

Exc. totales result. cabeza 0.07498 -0.00000
Exc. reales 1er ord. cabeza 0.07500 0.00000

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 55.440 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 7 - TANTEO 1

Fpx = 85.000 t; Fpy = 55.440 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3161.14	1021.00	3011.68	8.440	7.530
1	0.002	0.004	3078.96	913.70	3002.20	8.030	6.581
2	0.004	0.010	2993.66	803.61	2992.73	7.681	5.759
3	0.008	0.017	2905.44	691.09	2983.25	7.352	4.938
4	0.012	0.024	2814.46	576.53	2973.77	7.021	4.106
5	0.017	0.033	2720.88	460.30	2964.30	6.682	3.264
6	0.022	0.043	2624.90	342.78	2954.82	6.338	2.415
7	0.028	0.053	2526.67	224.33	2945.34	5.990	1.568
8	0.034	0.065	2426.37	105.33	2935.86	5.645	0.729
9	0.040	0.077	2324.17	-13.86	2926.39	5.309	-0.095
10	0.046	0.090	2219.82	-133.12	2916.91	4.987	-0.898

Exc. totales result. cabeza -0.04564 0.76102
Exc. reales 1er ord. cabeza 0.00000 0.85015

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3432.65	1160.03	3011.68	8.855	8.220
1	0.002	0.005	3348.52	1051.63	3002.20	8.500	7.416
2	0.005	0.011	3261.02	940.06	2992.73	8.166	6.610
3	0.009	0.018	3170.33	825.67	2983.25	7.828	5.788
4	0.014	0.026	3076.62	708.85	2973.77	7.481	4.947
5	0.019	0.036	2980.05	589.96	2964.30	7.126	4.092
6	0.026	0.046	2880.80	469.39	2954.82	6.766	3.230
7	0.032	0.057	2779.04	347.51	2945.34	6.407	2.368
8	0.039	0.070	2674.94	224.71	2935.86	6.056	1.513
9	0.046	0.083	2568.66	101.34	2926.39	5.720	0.674
10	0.054	0.097	2460.77	-22.05	2916.91	5.410	-0.145

Exc. totales result. cabeza -0.00756 0.84362
Exc. reales 1er ord. cabeza 0.00000 0.85015

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3444.51	1178.92	3011.68	9.086	8.517
1	0.002	0.005	3361.06	1070.75	3002.20	8.770	7.729
2	0.005	0.011	3274.14	959.26	2992.73	8.446	6.918
3	0.009	0.018	3183.89	844.83	2983.25	8.108	6.080
4	0.014	0.027	3090.50	727.83	2973.77	7.755	5.219
5	0.020	0.036	2994.13	608.65	2964.30	7.391	4.341
6	0.026	0.047	2894.97	487.68	2954.82	7.019	3.453
7	0.033	0.058	2793.18	365.30	2945.34	6.647	2.564
8	0.041	0.071	2688.95	241.91	2935.86	6.281	1.681
9	0.048	0.084	2582.46	117.88	2926.39	5.929	0.810
10	0.056	0.099	2473.88	-6.40	2916.91	5.599	-0.044

Exc. totales result. cabeza -0.00219 0.84812
Exc. reales 1er ord. cabeza 0.00000 0.85015

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3450.11	1184.91	3011.68	9.200	8.648
1	0.002	0.005	3366.66	1076.74	3002.20	8.899	7.869
2	0.005	0.011	3279.67	965.19	2992.73	8.580	7.055
3	0.009	0.018	3189.31	850.64	2983.25	8.242	6.210
4	0.015	0.027	3095.74	733.47	2973.77	7.887	5.338
5	0.020	0.036	2999.14	614.06	2964.30	7.519	4.447
6	0.027	0.047	2899.69	492.82	2954.82	7.142	3.545
7	0.034	0.059	2797.57	370.13	2945.34	6.763	2.640
8	0.041	0.072	2692.96	246.39	2935.86	6.388	1.740
9	0.049	0.085	2586.03	121.99	2926.39	6.025	0.852
10	0.057	0.100	2476.96	-2.69	2916.91	5.683	-0.019

Exc. totales result. cabeza -0.00092 0.84917
Exc. reales 1er ord. cabeza 0.00000 0.85015

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3452.89	1187.51	3011.68	9.254	8.709
1	0.002	0.005	3369.43	1079.33	3002.20	8.959	7.933
2	0.005	0.011	3282.41	967.75	2992.73	8.642	7.119
3	0.009	0.018	3191.98	853.13	2983.25	8.305	6.269
4	0.015	0.027	3098.32	735.87	2973.77	7.949	5.393
5	0.020	0.036	3001.61	616.35	2964.30	7.580	4.495
6	0.027	0.047	2902.01	494.97	2954.82	7.200	3.586
7	0.034	0.059	2799.72	372.12	2945.34	6.817	2.674
8	0.042	0.072	2694.91	248.22	2935.86	6.437	1.766
9	0.049	0.086	2587.77	123.64	2926.39	6.069	0.870
10	0.057	0.100	2478.47	-1.23	2916.91	5.720	-0.009

Exc. totales result. cabeza -0.00042 0.84969
Exc. reales 1er ord. cabeza 0.00000 0.85015

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3454.20	1188.72	3011.68	9.279	8.738
1	0.002	0.005	3370.74	1080.53	3002.20	8.987	7.963
2	0.005	0.011	3283.70	968.93	2992.73	8.671	7.148
3	0.009	0.018	3193.24	854.28	2983.25	8.334	6.297
4	0.015	0.027	3099.54	736.97	2973.77	7.978	5.418
5	0.021	0.037	3002.77	617.40	2964.30	7.608	4.518
6	0.027	0.047	2903.11	495.95	2954.82	7.227	3.606
7	0.034	0.059	2800.74	373.04	2945.34	6.843	2.689
8	0.042	0.072	2695.84	249.05	2935.86	6.460	1.778
9	0.049	0.086	2588.60	124.39	2926.39	6.089	0.878
10	0.057	0.100	2479.19	-0.57	2916.91	5.737	0.878

Exc. totales result. cabeza -0.00020 0.84994
Exc. reales 1er ord. cabeza 0.00000 0.85015

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3454.81	1189.28	3011.68	9.290	8.750
1	0.002	0.005	3371.35	1081.09	3002.20	8.998	7.976
2	0.005	0.011	3284.30	969.48	2992.73	8.683	7.161
3	0.009	0.018	3193.83	854.82	2983.25	8.346	6.309
4	0.015	0.027	3100.11	737.49	2973.77	7.990	5.429
5	0.021	0.037	3003.32	617.89	2964.30	7.620	4.528
6	0.027	0.047	2903.63	496.41	2954.82	7.239	3.614
7	0.034	0.059	2801.22	373.47	2945.34	6.853	2.696
8	0.042	0.072	2696.29	249.45	2935.86	6.470	1.783
9	0.049	0.086	2589.01	124.75	2926.39	6.098	0.882
10	0.057	0.100	2479.55	-0.25	2916.91	5.755	0.882

Exc. totales result. cabeza -0.00009 0.85006
Exc. reales 1er ord. cabeza 0.00000 0.85015

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3455.07	1189.52	3011.68	9.296	8.757
1	0.002	0.005	3371.60	1081.33	3002.20	9.005	7.983
2	0.005	0.011	3284.55	969.72	2992.73	8.690	7.167
3	0.010	0.018	3194.07	855.05	2983.25	8.353	6.316
4	0.015	0.027	3100.34	737.71	2973.77	7.997	5.435
5	0.021	0.037	3003.54	618.10	2964.30	7.627	4.533
6	0.027	0.047	2903.83	496.61	2954.82	7.245	3.619
7	0.034	0.059	2801.41	373.65	2945.34	6.859	2.700
8	0.042	0.072	2696.45	249.61	2935.86	6.476	1.786
9	0.050	0.086	2589.15	124.89	2926.39	6.101	0.883
10	0.057	0.101	2479.66	-0.13	2916.91	5.762	0.883

Exc. totales result. cabeza -0.00004 0.85010
Exc. reales 1er ord. cabeza 0.00000 0.85015

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 55.440 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 8 - TANTEO 1

Fpx = 85.000 t; Fpy = 55.440 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3161.15	1021.00	2393.67	8.761	7.694
1	0.002	0.004	3081.61	914.76	2386.65	8.471	6.856
2	0.005	0.010	2999.50	806.20	2379.63	8.191	6.064
3	0.008	0.017	2914.93	695.61	2372.61	7.908	5.251
4	0.013	0.025	2828.03	583.28	2365.59	7.614	4.416
5	0.018	0.034	2738.91	469.52	2358.57	7.307	3.561
6	0.023	0.044	2647.71	354.62	2351.55	6.989	2.690
7	0.029	0.055	2554.56	238.90	2344.53	6.662	1.810
8	0.035	0.067	2459.58	122.65	2337.51	6.331	0.927
9	0.042	0.080	2362.90	6.17	2330.49	5.999	0.046
10	0.048	0.094	2264.33	-110.40	2323.47	5.672	-0.826

Exc. totales result. cabeza -0.04751 0.97455
Exc. reales 1er ord. cabeza 0.00000 1.06729

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3385.47	1135.95	2393.67	9.197	8.368
1	0.002	0.005	3304.54	1028.92	2386.65	8.919	7.607
2	0.005	0.011	3220.84	919.29	2379.63	8.637	6.821
3	0.009	0.018	3134.49	807.36	2372.61	8.343	6.008
4	0.014	0.026	3045.61	693.40	2365.59	8.034	5.169
5	0.020	0.036	2954.32	577.73	2358.57	7.713	4.308
6	0.026	0.047	2860.74	460.64	2351.55	7.381	3.431
7	0.033	0.059	2765.01	342.45	2344.53	7.043	2.544
8	0.040	0.071	2667.25	223.44	2337.51	6.703	1.654
9	0.047	0.085	2567.59	103.94	2330.49	6.368	0.765
10	0.055	0.100	2466.46	-15.61	2323.47	6.045	-0.114

Exc. totales result. cabeza -0.00672 1.06154
Exc. reales 1er ord. cabeza 0.00000 1.06729

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3393.18	1149.01	2393.67	9.402	8.613
1	0.002	0.005	3312.80	1042.19	2386.65	9.141	7.852
2	0.005	0.011	3229.58	932.68	2379.63	8.864	7.059
3	0.009	0.018	3143.62	820.78	2372.61	8.570	6.233
4	0.014	0.027	3055.05	706.79	2365.59	8.259	5.379
5	0.020	0.036	2964.00	591.00	2358.57	7.934	4.501
6	0.027	0.047	2870.58	473.73	2351.55	7.596	3.606
7	0.034	0.059	2774.93	355.29	2344.53	7.250	2.699
8	0.041	0.072	2677.18	235.99	2337.51	6.902	1.787
9	0.049	0.086	2577.47	116.14	2330.49	6.556	0.876
10	0.056	0.101	2475.93	-3.93	2323.47	6.222	-0.030

Exc. totales result. cabeza -0.00169 1.06562

Exc. reales 1er ord. cabeza 0.00000 1.06729

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3396.83	1152.65	2393.67	9.489	8.707
1	0.002	0.005	3316.45	1045.84	2386.65	9.235	7.948
2	0.005	0.011	3233.20	936.31	2379.63	8.961	7.152
3	0.009	0.018	3147.18	824.35	2372.61	8.668	6.321
4	0.014	0.027	3058.52	710.27	2365.59	8.358	5.460
5	0.020	0.037	2967.33	594.37	2358.57	8.032	4.575
6	0.027	0.048	2873.75	476.96	2351.55	7.693	3.670
7	0.034	0.060	2777.90	358.35	2344.53	7.345	2.753
8	0.041	0.073	2679.93	238.87	2337.51	6.993	1.830
9	0.049	0.087	2579.95	118.82	2330.49	6.642	0.907
10	0.057	0.102	2478.11	-1.47	2323.47	6.302	-0.011

Exc. totales result. cabeza -0.00063 1.06656
Exc. reales 1er ord. cabeza 0.00000 1.06729

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3398.48	1154.07	2393.67	9.526	8.745
1	0.002	0.005	3318.10	1047.25	2386.65	9.274	7.987
2	0.005	0.011	3234.83	937.70	2379.63	9.001	7.190
3	0.009	0.018	3148.78	825.72	2372.61	8.710	6.357
4	0.014	0.027	3060.07	711.59	2365.59	8.400	5.494
5	0.020	0.037	2968.82	595.64	2358.57	8.074	4.605
6	0.027	0.048	2875.17	478.16	2351.55	7.735	3.697
7	0.034	0.060	2779.23	359.48	2344.53	7.387	2.775
8	0.042	0.073	2681.15	239.92	2337.51	7.033	1.847
9	0.049	0.087	2581.06	119.78	2330.49	6.681	0.919
10	0.057	0.103	2479.09	-0.60	2323.47	6.338	0.919

Exc. totales result. cabeza -0.00026 1.06698
Exc. reales 1er ord. cabeza 0.00000 1.06729

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3399.19	1154.65	2393.67	9.541	8.761
1	0.002	0.005	3318.80	1047.83	2386.65	9.290	8.003
2	0.005	0.011	3235.52	938.27	2379.63	9.018	7.206
3	0.009	0.018	3149.46	826.28	2372.61	8.727	6.372
4	0.015	0.027	3060.73	712.14	2365.59	8.418	5.508
5	0.020	0.037	2969.46	596.16	2358.57	8.093	4.618
6	0.027	0.048	2875.77	478.65	2351.55	7.754	3.708
7	0.034	0.060	2779.80	359.94	2344.53	7.405	2.785
8	0.042	0.073	2681.67	240.34	2337.51	7.051	1.855
9	0.049	0.087	2581.53	120.17	2330.49	6.698	0.924
10	0.057	0.103	2479.51	-0.25	2323.47	6.363	0.924

Exc. totales result. cabeza -0.00011 1.06716
Exc. reales 1er ord. cabeza 0.00000 1.06729

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3399.48	1154.89	2393.67	9.546	8.767
1	0.002	0.005	3319.10	1048.07	2386.65	9.295	8.009
2	0.005	0.011	3235.82	938.51	2379.63	9.024	7.212
3	0.009	0.018	3149.75	826.51	2372.61	8.733	6.378
4	0.015	0.027	3061.01	712.36	2365.59	8.424	5.514
5	0.020	0.037	2969.73	596.38	2358.57	8.098	4.623
6	0.027	0.048	2876.04	478.86	2351.55	7.760	3.713
7	0.034	0.060	2780.05	360.14	2344.53	7.413	2.789
8	0.042	0.073	2681.91	240.53	2337.51	7.059	1.858
9	0.049	0.087	2581.75	120.34	2330.49	6.704	0.926
10	0.057	0.103	2479.70	-0.10	2323.47	6.374	0.926

Exc. totales result. cabeza -0.00004 1.06724
Exc. reales 1er ord. cabeza 0.00000 1.06729

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3399.58	1154.99	2393.67	9.547	8.769
1	0.002	0.005	3319.20	1048.16	2386.65	9.299	8.012
2	0.005	0.011	3235.92	938.61	2379.63	9.028	7.215
3	0.009	0.018	3149.85	826.60	2372.61	8.737	6.381
4	0.015	0.027	3061.11	712.45	2365.59	8.428	5.516

5	0.020	0.037	2969.82	596.46	2358.57	8.103	4.626
6	0.027	0.048	2876.12	478.94	2351.55	7.764	3.715
7	0.034	0.060	2780.12	360.21	2344.53	7.415	2.791
8	0.042	0.073	2681.97	240.59	2337.51	7.061	1.859
9	0.049	0.088	2581.81	120.40	2330.49	6.708	0.927
10	0.057	0.103	2479.75	-0.04	2323.47	6.377	0.927

Exc. totales result. cabeza -0.00002 1.06726
Exc. reales 1er ord. cabeza 0.00000 1.06729

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 55.440 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 9 - TANTEO 1

Fpx = 85.000 t; Fpy = 62.500 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3248.84	1021.00	3291.24	8.632	7.551
1	0.002	0.005	3156.57	913.20	3281.76	8.172	6.568
2	0.004	0.010	3060.79	802.35	3272.29	7.773	5.724
3	0.008	0.017	2961.74	688.86	3262.81	7.398	4.884
4	0.012	0.025	2859.61	573.16	3253.33	7.022	4.037
5	0.017	0.034	2754.61	455.65	3243.86	6.641	3.184
6	0.022	0.044	2646.95	336.75	3234.38	6.255	2.329
7	0.028	0.054	2536.84	216.87	3224.90	5.870	1.481
8	0.034	0.066	2424.48	96.41	3215.42	5.490	0.649
9	0.040	0.078	2310.06	-24.23	3205.95	5.125	-0.160
10	0.046	0.092	2193.34	-144.91	3196.47	4.780	-0.941

Exc. totales result. cabeza -0.04533 0.68618
Exc. reales 1er ord. cabeza 0.00000 0.77670

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3549.91	1171.79	3291.24	9.091	8.292
1	0.002	0.005	3455.44	1062.77	3281.76	8.684	7.462
2	0.005	0.011	3357.18	950.27	3272.29	8.301	6.632
3	0.009	0.018	3255.35	834.67	3262.81	7.915	5.788
4	0.014	0.027	3150.13	716.40	3253.33	7.521	4.929
5	0.020	0.037	3041.74	595.88	3243.86	7.121	4.059
6	0.026	0.047	2930.39	473.53	3234.38	6.718	3.186
7	0.032	0.059	2816.28	349.76	3224.90	6.321	2.319
8	0.039	0.071	2699.61	224.99	3215.42	5.937	1.467
9	0.046	0.085	2580.59	99.62	3205.95	5.575	0.638
10	0.054	0.099	2459.79	-25.78	3196.47	5.247	-0.162

Exc. totales result. cabeza -0.00807 0.76953
Exc. reales 1er ord. cabeza 0.00000 0.77670

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3565.60	1194.50	3291.24	9.360	8.639
1	0.002	0.005	3471.79	1085.66	3281.76	8.992	7.824
2	0.005	0.011	3374.05	973.16	3272.29	8.617	6.987
3	0.009	0.019	3272.57	857.40	3262.81	8.229	6.124
4	0.014	0.027	3167.57	738.81	3253.33	7.826	5.240
5	0.020	0.037	3059.24	617.82	3243.86	7.413	4.342
6	0.027	0.048	2947.81	494.86	3234.38	6.996	3.439
7	0.034	0.060	2833.50	370.37	3224.90	6.581	2.541
8	0.041	0.073	2716.51	244.77	3215.42	6.178	1.655
9	0.049	0.086	2597.04	118.47	3205.95	5.795	0.789
10	0.056	0.101	2475.32	-8.09	3196.47	5.441	-0.053

Exc. totales result. cabeza -0.00253 0.77439
Exc. reales 1er ord. cabeza 0.00000 0.77670

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3572.62	1202.17	3291.24	9.499	8.802
1	0.002	0.005	3478.80	1093.33	3281.76	9.146	7.994
2	0.005	0.011	3380.97	980.73	3272.29	8.775	7.153
3	0.010	0.019	3279.33	864.79	3262.81	8.385	6.280
4	0.015	0.028	3174.08	745.95	3253.33	7.978	5.382
5	0.021	0.037	3065.45	624.64	3243.86	7.559	4.468
6	0.027	0.048	2953.65	501.31	3234.38	7.133	3.547
7	0.034	0.060	2838.89	376.39	3224.90	6.708	2.630
8	0.042	0.073	2721.40	250.32	3215.42	6.292	1.724
9	0.050	0.087	2601.38	123.52	3205.95	5.894	0.838
10	0.057	0.102	2479.05	-3.58	3196.47	5.523	-0.024

Exc. totales result. cabeza -0.00112 0.77556
Exc. reales 1er ord. cabeza 0.00000 0.77670

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3576.20	1205.66	3291.24	9.570	8.885
1	0.002	0.005	3482.36	1096.80	3281.76	9.222	8.077
2	0.005	0.011	3384.47	984.14	3272.29	8.853	7.233
3	0.010	0.019	3282.74	868.11	3262.81	8.462	6.355
4	0.015	0.028	3177.37	749.13	3253.33	8.052	5.450
5	0.021	0.038	3068.58	627.66	3243.86	7.629	4.528
6	0.027	0.049	2956.58	504.14	3234.38	7.199	3.598
7	0.035	0.061	2841.59	379.00	3224.90	6.768	2.671
8	0.042	0.074	2723.85	252.69	3215.42	6.345	1.755
9	0.050	0.088	2603.55	125.65	3205.95	5.939	0.859
10	0.058	0.103	2480.91	-1.71	3196.47	5.559	-0.012

Exc. totales result. cabeza -0.00054 0.77614
Exc. reales 1er ord. cabeza 0.00000 0.77670

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3577.95	1207.34	3291.24	9.607	8.927
1	0.002	0.005	3484.10	1098.47	3281.76	9.258	8.117
2	0.005	0.011	3386.19	985.78	3272.29	8.890	7.272
3	0.010	0.019	3284.41	869.70	3262.81	8.499	6.391
4	0.015	0.028	3178.98	750.66	3253.33	8.088	5.483
5	0.021	0.038	3070.10	629.11	3243.86	7.664	4.557
6	0.028	0.049	2958.01	505.49	3234.38	7.231	3.622
7	0.035	0.061	2842.92	380.24	3224.90	6.796	2.690
8	0.042	0.074	2725.05	253.82	3215.42	6.370	1.769
9	0.050	0.088	2604.62	126.66	3205.95	5.959	0.869
10	0.058	0.103	2481.83	-0.83	3196.47	5.574	0.869

Exc. totales result. cabeza -0.00026 0.77643
Exc. reales 1er ord. cabeza 0.00000 0.77670

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3578.81	1208.16	3291.24	9.624	8.948
1	0.002	0.005	3484.95	1099.28	3281.76	9.275	8.135
2	0.005	0.011	3387.02	986.57	3272.29	8.907	7.290
3	0.010	0.019	3285.22	870.47	3262.81	8.515	6.408
4	0.015	0.028	3179.76	751.40	3253.33	8.104	5.499
5	0.021	0.038	3070.85	629.81	3243.86	7.679	4.570
6	0.028	0.049	2958.71	506.15	3234.38	7.245	3.634
7	0.035	0.061	2843.57	380.86	3224.90	6.809	2.699
8	0.042	0.074	2725.65	254.38	3215.42	6.381	1.776
9	0.050	0.088	2605.15	127.16	3205.95	5.968	0.874
10	0.058	0.103	2482.31	-0.39	3196.47	5.593	0.874

Exc. totales result. cabeza -0.00012 0.77658
Exc. reales 1er ord. cabeza 0.00000 0.77670

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3579.19	1208.55	3291.24	9.634	8.958
1	0.002	0.005	3485.33	1099.66	3281.76	9.284	8.145
2	0.005	0.011	3387.40	986.95	3272.29	8.916	7.299
3	0.010	0.019	3285.59	870.84	3262.81	8.525	6.417
4	0.015	0.028	3180.11	751.75	3253.33	8.113	5.506
5	0.021	0.038	3071.18	630.14	3243.86	7.687	4.577
6	0.028	0.049	2959.02	506.45	3234.38	7.253	3.640
7	0.035	0.061	2843.85	381.14	3224.90	6.816	2.704
8	0.042	0.074	2725.89	254.63	3215.42	6.385	1.779
9	0.050	0.088	2605.37	127.38	3205.95	5.972	0.876
10	0.058	0.103	2482.48	-0.20	3196.47	5.600	0.876

Exc. totales result. cabeza -0.00006 0.77663
Exc. reales 1er ord. cabeza 0.00000 0.77670

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3579.40	1208.75	3291.24	9.639	8.964
1	0.002	0.005	3485.54	1099.86	3281.76	9.288	8.150
2	0.005	0.011	3387.61	987.14	3272.29	8.920	7.304
3	0.010	0.019	3285.79	871.02	3262.81	8.529	6.421
4	0.015	0.028	3180.31	751.93	3253.33	8.117	5.510
5	0.021	0.038	3071.37	630.31	3243.86	7.691	4.581
6	0.028	0.049	2959.19	506.61	3234.38	7.256	3.642
7	0.035	0.061	2844.01	381.28	3224.90	6.819	2.706
8	0.043	0.074	2726.04	254.77	3215.42	6.388	1.781
9	0.050	0.088	2605.50	127.50	3205.95	5.974	0.877
10	0.058	0.103	2482.60	-0.10	3196.47	5.603	0.877

Exc. totales result. cabeza -0.00003 0.77667
Exc. reales 1er ord. cabeza 0.00000 0.77670

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 62.500 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 10 - TANTEO 1

Fpx = 85.000 t; Fpy = 62.500 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3248.85	1021.00	2673.23	8.907	7.683
1	0.002	0.005	3159.30	914.27	2666.21	8.552	6.804
2	0.005	0.010	3066.80	804.95	2659.19	8.216	5.992
3	0.008	0.017	2971.51	693.40	2652.17	7.881	5.163
4	0.013	0.025	2873.57	579.92	2645.15	7.536	4.316
5	0.018	0.035	2773.15	464.87	2638.13	7.178	3.452
6	0.023	0.045	2670.40	348.59	2631.11	6.809	2.579
7	0.029	0.056	2565.48	231.41	2624.09	6.433	1.702
8	0.035	0.068	2458.56	113.67	2617.07	6.055	0.829
9	0.041	0.081	2349.79	-4.30	2610.05	5.679	-0.031
10	0.047	0.095	2239.01	-122.33	2603.03	5.312	-0.873

Exc. totales result. cabeza -0.04700 0.86015
Exc. reales 1er ord. cabeza 0.00000 0.95377

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3501.49	1147.84	2673.23	9.370	8.399
1	0.002	0.005	3410.35	1040.22	2666.21	9.034	7.613
2	0.005	0.011	3316.05	929.69	2659.19	8.698	6.807
3	0.009	0.018	3218.72	816.59	2652.17	8.350	5.976
4	0.014	0.027	3118.53	701.24	2645.15	7.987	5.122
5	0.020	0.037	3015.62	583.99	2638.13	7.611	4.249
6	0.026	0.048	2910.16	465.16	2631.11	7.225	3.365
7	0.033	0.060	2802.31	345.11	2624.09	6.835	2.477
8	0.040	0.073	2692.22	224.19	2617.07	6.446	1.593
9	0.047	0.086	2580.06	102.72	2610.05	6.066	0.722
10	0.055	0.101	2466.30	-18.82	2603.03	5.706	-0.131

Exc. totales result. cabeza -0.00723 0.94747
Exc. reales 1er ord. cabeza 0.00000 0.95377

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3512.25	1164.20	2673.23	9.606	8.683
1	0.002	0.005	3421.65	1056.75	2666.21	9.291	7.900
2	0.005	0.011	3327.77	946.28	2659.19	8.960	7.085
3	0.009	0.019	3230.78	833.13	2652.17	8.610	6.239
4	0.014	0.027	3130.81	717.63	2645.15	8.243	5.366
5	0.020	0.037	3028.03	600.13	2638.13	7.859	4.473
6	0.027	0.049	2922.60	480.97	2631.11	7.464	3.566
7	0.034	0.061	2814.68	360.51	2624.09	7.063	2.654
8	0.041	0.074	2704.45	239.10	2617.07	6.661	1.745
9	0.049	0.088	2592.06	117.09	2610.05	6.267	0.846
10	0.057	0.103	2477.69	-5.17	2603.03	5.890	-0.037

Exc. totales result. cabeza -0.00198 0.95185
Exc. reales 1er ord. cabeza 0.00000 0.95377

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3517.01	1169.07	2673.23	9.714	8.801
1	0.002	0.005	3426.40	1061.61	2666.21	9.407	8.020
2	0.005	0.011	3332.48	951.10	2659.19	9.079	7.201
3	0.009	0.019	3235.39	837.86	2652.17	8.730	6.349
4	0.015	0.028	3135.28	722.23	2645.15	8.361	5.467
5	0.021	0.038	3032.31	604.55	2638.13	7.976	4.563
6	0.027	0.049	2926.65	485.18	2631.11	7.577	3.645
7	0.034	0.061	2818.46	364.49	2624.09	7.171	2.720
8	0.042	0.074	2707.91	242.81	2617.07	6.763	1.797
9	0.049	0.089	2595.17	120.52	2610.05	6.361	0.883
10	0.057	0.104	2480.40	-2.05	2603.03	5.975	-0.015

Exc. totales result. cabeza -0.00079 0.95289
Exc. reales 1er ord. cabeza 0.00000 0.95377

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3519.26	1171.06	2673.23	9.761	8.852
1	0.002	0.005	3428.65	1063.60	2666.21	9.458	8.072
2	0.005	0.011	3334.69	953.06	2659.19	9.131	7.252
3	0.009	0.019	3237.55	839.77	2652.17	8.783	6.396
4	0.015	0.028	3137.38	724.07	2645.15	8.414	5.511
5	0.021	0.038	3034.32	606.31	2638.13	8.029	4.603
6	0.027	0.049	2928.55	486.85	2631.11	7.629	3.679
7	0.034	0.061	2820.23	366.04	2624.09	7.221	2.748
8	0.042	0.075	2709.53	244.24	2617.07	6.810	1.818
9	0.050	0.089	2596.62	121.82	2610.05	6.405	0.898
10	0.058	0.104	2481.67	-0.89	2603.03	6.013	0.898

Exc. totales result. cabeza -0.00034 0.95338
Exc. reales 1er ord. cabeza 0.00000 0.95377

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3520.27	1171.93	2673.23	9.782	8.874
1	0.002	0.005	3429.65	1064.46	2666.21	9.480	8.095
2	0.005	0.011	3335.69	953.91	2659.19	9.154	7.274
3	0.010	0.019	3238.52	840.60	2652.17	8.806	6.418
4	0.015	0.028	3138.32	724.87	2645.15	8.438	5.531
5	0.021	0.038	3035.22	607.07	2638.13	8.052	4.621
6	0.027	0.049	2929.40	487.57	2631.11	7.652	3.695
7	0.034	0.061	2821.02	366.71	2624.09	7.243	2.761
8	0.042	0.075	2710.26	244.86	2617.07	6.832	1.828
9	0.050	0.089	2597.27	122.38	2610.05	6.424	0.905
10	0.058	0.105	2482.24	-0.39	2603.03	6.040	0.905

Exc. totales result. cabeza -0.00015 0.95360
Exc. reales 1er ord. cabeza 0.00000 0.95377

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3520.72	1172.31	2673.23	9.790	8.884
1	0.002	0.005	3430.10	1064.85	2666.21	9.489	8.104
2	0.005	0.011	3336.13	954.29	2659.19	9.163	7.283
3	0.010	0.019	3238.96	840.97	2652.17	8.815	6.426
4	0.015	0.028	3138.74	725.23	2645.15	8.449	5.539
5	0.021	0.038	3035.63	607.42	2638.13	8.063	4.628
6	0.027	0.049	2929.79	487.89	2631.11	7.663	3.701
7	0.035	0.061	2821.39	367.01	2624.09	7.254	2.767
8	0.042	0.075	2710.59	245.14	2617.07	6.840	1.832
9	0.050	0.089	2597.58	122.63	2610.05	6.432	0.908
10	0.058	0.105	2482.51	-0.17	2603.03	6.052	0.908

Exc. totales result. cabeza -0.00006 0.95370
Exc. reales 1er ord. cabeza 0.00000 0.95377

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3520.90	1172.47	2673.23	9.795	8.888
1	0.002	0.005	3430.28	1065.01	2666.21	9.494	8.109

2	0.005	0.011	3336.31	954.45	2659.19	9.169	7.288
3	0.010	0.019	3239.13	841.12	2652.17	8.821	6.431
4	0.015	0.028	3138.91	725.38	2645.15	8.453	5.543
5	0.021	0.038	3035.79	607.56	2638.13	8.067	4.632
6	0.027	0.049	2929.94	488.02	2631.11	7.667	3.704
7	0.035	0.061	2821.52	367.13	2624.09	7.257	2.769
8	0.042	0.075	2710.72	245.25	2617.07	6.845	1.834
9	0.050	0.089	2597.69	122.73	2610.05	6.437	0.909
10	0.058	0.105	2482.61	-0.08	2603.03	6.057	0.909

Exc. totales result. cabeza -0.00003 0.95374
Exc. reales 1er ord. cabeza 0.00000 0.95377

Convergencia del equilibrio sin agotamiento
Fpx = 85.000 t; Fpy = 62.500 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 11 - TANTEO 1

Fpx = 72.000 t; Fpy = 55.440 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3137.22	864.85	2944.93	8.281	6.352
1	0.001	0.004	3055.45	774.06	2935.45	7.836	5.531
2	0.004	0.010	2970.72	680.98	2925.98	7.497	4.835
3	0.007	0.016	2883.21	585.92	2916.50	7.189	4.150
4	0.010	0.024	2793.09	489.18	2907.02	6.884	3.459
5	0.014	0.033	2700.49	391.06	2897.55	6.572	2.757
6	0.019	0.042	2605.59	291.88	2888.07	6.254	2.049
7	0.024	0.053	2508.54	191.93	2878.59	5.930	1.339
8	0.029	0.064	2409.50	91.52	2869.11	5.606	0.633
9	0.034	0.076	2308.63	-9.05	2859.64	5.284	-0.062
10	0.039	0.089	2205.66	-109.69	2850.16	4.971	-0.742

Exc. totales result. cabeza -0.03848 0.77387
Exc. reales 1er ord. cabeza 0.00000 0.86167

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3398.81	979.52	2944.93	8.624	6.886
1	0.002	0.005	3315.17	887.84	2935.45	8.279	6.204
2	0.004	0.011	3228.35	793.56	2925.98	7.968	5.532
3	0.008	0.018	3138.50	696.99	2916.50	7.658	4.851
4	0.012	0.026	3045.76	598.41	2907.02	7.340	4.153
5	0.016	0.035	2950.30	498.15	2897.55	7.014	3.443
6	0.021	0.045	2852.27	396.50	2888.07	6.680	2.723
7	0.027	0.056	2751.83	293.78	2878.59	6.344	2.002
8	0.033	0.068	2649.14	190.29	2869.11	6.010	1.284
9	0.039	0.081	2544.35	86.33	2859.64	5.685	0.576
10	0.045	0.095	2438.00	-17.64	2850.16	5.375	-0.116

Exc. totales result. cabeza -0.00619 0.85539
Exc. reales 1er ord. cabeza 0.00000 0.86167

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3409.63	994.47	2944.93	8.811	7.104
1	0.002	0.005	3326.69	903.00	2935.45	8.516	6.449
2	0.004	0.011	3240.45	808.82	2925.98	8.221	5.778
3	0.008	0.018	3151.08	712.24	2916.50	7.914	5.086
4	0.012	0.026	3058.71	613.56	2907.02	7.593	4.373
5	0.017	0.035	2963.51	513.10	2897.55	7.260	3.644
6	0.022	0.046	2865.64	411.16	2888.07	6.918	2.905
7	0.028	0.057	2765.25	308.08	2878.59	6.571	2.161
8	0.034	0.070	2662.51	204.15	2869.11	6.225	1.420
9	0.040	0.083	2557.59	99.70	2859.64	5.886	0.687
10	0.047	0.097	2450.65	-4.95	2850.16	5.561	-0.034

Exc. totales result. cabeza -0.00174 0.85983
Exc. reales 1er ord. cabeza 0.00000 0.86167

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3414.55	999.08	2944.93	8.901	7.196
1	0.002	0.005	3331.61	907.62	2935.45	8.627	6.553
2	0.004	0.011	3245.34	813.40	2925.98	8.339	5.883
3	0.008	0.018	3155.87	716.74	2916.50	8.034	5.185
4	0.012	0.026	3063.36	617.94	2907.02	7.712	4.465
5	0.017	0.036	2967.97	517.31	2897.55	7.377	3.727
6	0.022	0.046	2869.85	415.18	2888.07	7.031	2.976
7	0.028	0.058	2769.18	311.86	2878.59	6.679	2.221
8	0.035	0.070	2666.11	207.68	2869.11	6.326	1.467
9	0.041	0.084	2560.81	102.96	2859.64	5.978	0.720
10	0.047	0.098	2453.45	-2.00	2850.16	5.643	-0.014

Exc. totales result. cabeza -0.00070 0.86081
Exc. reales 1er ord. cabeza 0.00000 0.86167

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3416.96	1001.01	2944.93	8.943	7.238
1	0.002	0.005	3334.01	909.54	2935.45	8.677	6.599
2	0.004	0.011	3247.70	815.30	2925.98	8.392	5.929
3	0.008	0.018	3158.18	718.59	2916.50	8.088	5.230
4	0.012	0.026	3065.60	619.73	2907.02	7.767	4.506
5	0.017	0.036	2970.11	519.02	2897.55	7.431	3.763
6	0.023	0.046	2871.87	416.79	2888.07	7.083	3.008
7	0.029	0.058	2771.06	313.36	2878.59	6.728	2.247
8	0.035	0.070	2667.82	209.06	2869.11	6.372	1.487
9	0.041	0.084	2562.34	104.21	2859.64	6.020	0.734
10	0.048	0.098	2454.77	-0.89	2850.16	5.680	0.734

Exc. totales result. cabeza -0.00031 0.86128
Exc. reales 1er ord. cabeza 0.00000 0.86167

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3418.06	1001.87	2944.93	8.963	7.257
1	0.002	0.005	3335.11	910.40	2935.45	8.700	6.621
2	0.004	0.011	3248.79	816.15	2925.98	8.417	5.950
3	0.008	0.018	3159.25	719.42	2916.50	8.113	5.250
4	0.012	0.026	3066.63	620.52	2907.02	7.792	4.525
5	0.017	0.036	2971.10	519.78	2897.55	7.455	3.780
6	0.023	0.046	2872.81	417.50	2888.07	7.107	3.023
7	0.029	0.058	2771.92	314.02	2878.59	6.751	2.259
8	0.035	0.071	2668.62	209.67	2869.11	6.393	1.496
9	0.041	0.084	2563.05	104.75	2859.64	6.039	0.740
10	0.048	0.098	2455.39	-0.40	2850.16	5.703	0.740

Exc. totales result. cabeza -0.00014 0.86149
Exc. reales 1er ord. cabeza 0.00000 0.86167

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3418.57	1002.27	2944.93	8.971	7.265
1	0.002	0.005	3335.61	910.79	2935.45	8.709	6.629
2	0.004	0.011	3249.29	816.53	2925.98	8.426	5.959
3	0.008	0.018	3159.74	719.79	2916.50	8.123	5.258
4	0.012	0.026	3067.11	620.89	2907.02	7.802	4.533
5	0.017	0.036	2971.55	520.12	2897.55	7.465	3.787
6	0.023	0.046	2873.24	417.83	2888.07	7.116	3.029
7	0.029	0.058	2772.33	314.33	2878.59	6.760	2.264
8	0.035	0.071	2669.00	209.95	2869.11	6.401	1.500
9	0.041	0.084	2563.40	105.01	2859.64	6.047	0.743
10	0.048	0.099	2455.70	-0.17	2850.16	5.712	0.743

Exc. totales result. cabeza -0.00006 0.86160
Exc. reales 1er ord. cabeza 0.00000 0.86167

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3418.77	1002.43	2944.93	8.974	7.269
1	0.002	0.005	3335.82	910.96	2935.45	8.715	6.634
2	0.004	0.011	3249.49	816.70	2925.98	8.432	5.964
3	0.008	0.018	3159.93	719.95	2916.50	8.129	5.263
4	0.012	0.026	3067.29	621.04	2907.02	7.808	4.537
5	0.017	0.036	2971.73	520.27	2897.55	7.471	3.791
6	0.023	0.046	2873.40	417.96	2888.07	7.122	3.032
7	0.029	0.058	2772.48	314.45	2878.59	6.766	2.267
8	0.035	0.071	2669.13	210.06	2869.11	6.406	1.502

9	0.041	0.084	2563.51	105.11	2859.64	6.050	0.744
10	0.048	0.099	2455.79	-0.08	2850.16	5.717	0.744

Exc. totales result. cabeza -0.00003 0.86163
Exc. reales 1er ord. cabeza 0.00000 0.86167

Convergencia del equilibrio sin agotamiento
Fpx = 72.000 t; Fpy = 55.440 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 12 - TANTEO 1

Fpx = 72.000 t; Fpy = 55.440 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3137.22	864.85	2416.71	8.565	6.471
1	0.002	0.004	3057.69	774.83	2409.69	8.229	5.735
2	0.004	0.010	2975.64	682.85	2402.67	7.948	5.063
3	0.007	0.017	2891.18	589.16	2395.65	7.677	4.383
4	0.011	0.024	2804.44	494.01	2388.63	7.400	3.688
5	0.015	0.033	2715.53	397.64	2381.61	7.112	2.975
6	0.019	0.043	2624.58	300.32	2374.59	6.812	2.249
7	0.024	0.054	2531.71	202.30	2367.57	6.503	1.514
8	0.030	0.066	2437.04	103.84	2360.55	6.188	0.776
9	0.035	0.079	2340.70	5.18	2353.53	5.869	0.039
10	0.040	0.092	2242.49	-93.56	2346.51	5.551	-0.692

Exc. totales result. cabeza -0.03987 0.95567
Exc. reales 1er ord. cabeza 0.00000 1.04662

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3359.32	962.22	2416.71	8.937	7.002
1	0.002	0.005	3278.42	871.54	2409.69	8.658	6.353
2	0.004	0.011	3194.80	778.67	2402.67	8.389	5.696
3	0.008	0.018	3108.60	683.85	2395.65	8.112	5.019
4	0.012	0.026	3019.91	587.33	2388.63	7.823	4.321
5	0.016	0.035	2928.85	489.36	2381.61	7.521	3.604
6	0.022	0.046	2835.55	390.19	2374.59	7.208	2.872
7	0.027	0.057	2740.13	290.09	2367.57	6.886	2.131
8	0.033	0.070	2642.70	189.30	2360.55	6.560	1.386
9	0.040	0.084	2543.41	88.09	2353.53	6.234	0.642
10	0.046	0.098	2442.66	-13.16	2346.51	5.914	-0.095

Exc. totales result. cabeza -0.00561 1.04098
Exc. reales 1er ord. cabeza 0.00000 1.04662

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3367.05	973.24	2416.71	9.112	7.189
1	0.002	0.005	3286.69	882.73	2409.69	8.862	6.553
2	0.004	0.011	3203.54	789.97	2402.67	8.603	5.894
3	0.008	0.018	3117.73	695.19	2395.65	8.329	5.207
4	0.012	0.026	3029.36	598.64	2388.63	8.039	4.497
5	0.017	0.036	2938.55	500.57	2381.61	7.734	3.766
6	0.022	0.047	2845.42	401.25	2374.59	7.416	3.019
7	0.028	0.058	2750.09	300.94	2367.57	7.088	2.261
8	0.034	0.071	2652.69	199.90	2360.55	6.755	1.498
9	0.041	0.085	2553.35	98.40	2353.53	6.420	0.734
10	0.047	0.099	2452.20	-3.29	2346.51	6.089	-0.024

Exc. totales result. cabeza -0.00140 1.04504
Exc. reales 1er ord. cabeza 0.00000 1.04662

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3370.52	976.28	2416.71	9.186	7.260
1	0.002	0.005	3290.16	885.78	2409.69	8.948	6.630
2	0.004	0.011	3207.00	793.00	2402.67	8.694	5.969
3	0.008	0.018	3121.13	698.17	2395.65	8.422	5.279
4	0.012	0.026	3032.67	601.55	2388.63	8.133	4.564
5	0.017	0.036	2941.74	503.40	2381.61	7.828	3.827
6	0.023	0.047	2848.45	403.96	2374.59	7.509	3.073
7	0.028	0.059	2752.94	303.52	2367.57	7.180	2.306
8	0.035	0.072	2655.32	202.33	2360.55	6.843	1.534
9	0.041	0.085	2555.73	100.67	2353.53	6.504	0.760
10	0.048	0.100	2454.30	-1.20	2346.51	6.168	-0.009

Exc. totales result. cabeza -0.00051 1.04594
Exc. reales 1er ord. cabeza 0.00000 1.04662

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3372.09	977.44	2416.71	9.218	7.289
1	0.002	0.005	3291.72	886.94	2409.69	8.984	6.660
2	0.004	0.011	3208.54	794.14	2402.67	8.732	6.000
3	0.008	0.018	3122.65	699.29	2395.65	8.461	5.309
4	0.012	0.026	3034.14	602.64	2388.63	8.173	4.592
5	0.017	0.036	2943.15	504.43	2381.61	7.868	3.852
6	0.023	0.047	2849.80	404.95	2374.59	7.550	3.095
7	0.029	0.059	2754.20	304.45	2367.57	7.220	2.325
8	0.035	0.072	2656.48	203.19	2360.55	6.882	1.548
9	0.041	0.086	2556.78	101.46	2353.53	6.542	0.770
10	0.048	0.100	2455.23	-0.49	2346.51	6.204	0.770

Exc. totales result. cabeza -0.00021 1.04633
Exc. reales 1er ord. cabeza 0.00000 1.04662

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3372.75	977.91	2416.71	9.230	7.301
1	0.002	0.005	3292.39	887.41	2409.69	8.998	6.673
2	0.004	0.011	3209.20	794.61	2402.67	8.747	6.012
3	0.008	0.018	3123.29	699.74	2395.65	8.477	5.321
4	0.012	0.026	3034.77	603.08	2388.63	8.190	4.603
5	0.017	0.036	2943.76	504.86	2381.61	7.886	3.863
6	0.023	0.047	2850.37	405.35	2374.59	7.567	3.104
7	0.029	0.059	2754.74	304.82	2367.57	7.237	2.333
8	0.035	0.072	2656.98	203.54	2360.55	6.900	1.554
9	0.041	0.086	2557.23	101.78	2353.53	6.558	0.774
10	0.048	0.101	2455.62	-0.20	2346.51	6.226	0.774

Exc. totales result. cabeza -0.00009 1.04650
Exc. reales 1er ord. cabeza 0.00000 1.04662

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3373.03	978.11	2416.71	9.235	7.305
1	0.002	0.005	3292.67	887.60	2409.69	9.003	6.678
2	0.004	0.011	3209.47	794.80	2402.67	8.752	6.017
3	0.008	0.018	3123.56	699.94	2395.65	8.483	5.326
4	0.012	0.026	3035.04	603.26	2388.63	8.195	4.607
5	0.017	0.036	2944.02	505.03	2381.61	7.891	3.866
6	0.023	0.047	2850.62	405.52	2374.59	7.573	3.107
7	0.029	0.059	2754.97	304.98	2367.57	7.243	2.336
8	0.035	0.072	2657.20	203.69	2360.55	6.905	1.557
9	0.041	0.086	2557.44	101.92	2353.53	6.564	0.776
10	0.048	0.101	2455.81	-0.08	2346.51	6.236	0.776

Exc. totales result. cabeza -0.00003 1.04658
Exc. reales 1er ord. cabeza 0.00000 1.04662

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3373.12	978.18	2416.71	9.236	7.307
1	0.002	0.005	3292.76	887.68	2409.69	9.005	6.679
2	0.004	0.011	3209.56	794.87	2402.67	8.756	6.019
3	0.008	0.018	3123.65	700.01	2395.65	8.486	5.328
4	0.012	0.026	3035.12	603.33	2388.63	8.199	4.610
5	0.017	0.036	2944.10	505.10	2381.61	7.895	3.868
6	0.023	0.047	2850.70	405.58	2374.59	7.577	3.109
7	0.029	0.059	2755.04	305.04	2367.57	7.247	2.337
8	0.035	0.072	2657.26	203.74	2360.55	6.910	1.558
9	0.041	0.086	2557.49	101.96	2353.53	6.568	0.777
10	0.048	0.101	2455.85	-0.03	2346.51	6.239	0.777

Exc. totales result. cabeza -0.00001 1.04660
Exc. reales 1er ord. cabeza 0.00000 1.04662

Convergencia del equilibrio sin agotamiento

Fpx = 72.000 t; Fpy = 55.440 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 13 - TANTEO 1

Fpx = 72.000 t; Fpy = 62.500 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3245.94	864.84	2665.36	8.801	6.485
1	0.002	0.005	3156.47	774.45	2655.88	8.409	5.720
2	0.004	0.010	3064.14	681.92	2646.41	8.079	5.032
3	0.007	0.017	2969.13	587.52	2636.93	7.764	4.340
4	0.011	0.025	2871.57	491.54	2627.45	7.442	3.633
5	0.015	0.034	2771.61	394.26	2617.98	7.110	2.913
6	0.019	0.044	2669.43	295.96	2608.50	6.767	2.182
7	0.024	0.055	2565.16	196.94	2599.02	6.414	1.446
8	0.029	0.068	2458.98	97.48	2589.54	6.057	0.711
9	0.035	0.080	2351.03	-2.15	2580.07	5.698	-0.016
10	0.040	0.094	2241.04	-101.87	2570.59	5.343	-0.730

Exc. totales result. cabeza -0.03963 0.87180
Exc. reales 1er ord. cabeza 0.00000 0.96469

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3496.69	971.84	2665.36	9.209	7.058
1	0.002	0.005	3405.42	880.61	2655.88	8.879	6.390
2	0.004	0.011	3311.07	786.96	2646.41	8.563	5.716
3	0.008	0.018	3213.79	691.16	2636.93	8.239	5.024
4	0.012	0.027	3113.72	593.50	2627.45	7.903	4.312
5	0.017	0.037	3011.01	494.25	2617.98	7.553	3.584
6	0.022	0.047	2905.81	393.71	2608.50	7.193	2.843
7	0.028	0.059	2798.28	292.15	2599.02	6.824	2.098
8	0.034	0.072	2688.59	189.88	2589.54	6.454	1.352
9	0.040	0.086	2576.88	87.16	2580.07	6.086	0.615
10	0.046	0.100	2463.72	-15.55	2570.59	5.728	-0.108

Exc. totales result. cabeza -0.00605 0.95843
Exc. reales 1er ord. cabeza 0.00000 0.96469

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3505.23	984.58	2665.36	9.408	7.272
1	0.002	0.005	3414.71	893.58	2655.88	9.112	6.619
2	0.004	0.011	3321.02	800.08	2646.41	8.806	5.942
3	0.008	0.019	3224.30	704.34	2636.93	8.484	5.239
4	0.012	0.027	3124.70	606.65	2627.45	8.146	4.513
5	0.017	0.037	3022.36	507.30	2617.98	7.791	3.768
6	0.023	0.048	2917.45	406.58	2608.50	7.423	3.010
7	0.028	0.060	2810.12	304.78	2599.02	7.047	2.245
8	0.035	0.073	2700.53	202.21	2589.54	6.665	1.479
9	0.041	0.087	2588.84	99.14	2580.07	6.285	0.719
10	0.048	0.102	2475.25	-4.11	2570.59	5.914	-0.029

Exc. totales result. cabeza -0.00160 0.96291
Exc. reales 1er ord. cabeza 0.00000 0.96469

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3509.44	988.34	2665.36	9.498	7.357
1	0.002	0.005	3418.94	897.36	2655.88	9.215	6.710
2	0.004	0.011	3325.22	803.84	2646.41	8.914	6.032
3	0.008	0.019	3228.44	708.04	2636.93	8.594	5.325
4	0.012	0.027	3128.72	610.26	2627.45	8.256	4.593
5	0.017	0.037	3026.23	510.79	2617.98	7.900	3.841
6	0.023	0.048	2921.12	409.92	2608.50	7.530	3.073
7	0.029	0.061	2813.56	307.95	2599.02	7.150	2.298
8	0.035	0.074	2703.70	205.19	2589.54	6.764	1.521
9	0.042	0.088	2591.70	101.91	2580.07	6.377	0.749
10	0.048	0.103	2477.74	-1.57	2570.59	5.998	-0.011

Exc. totales result. cabeza -0.00061 0.96388
Exc. reales 1er ord. cabeza 0.00000 0.96469

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3511.45	989.85	2665.36	9.537	7.393
1	0.002	0.005	3420.94	898.86	2655.88	9.259	6.749
2	0.004	0.011	3327.21	805.32	2646.41	8.961	6.071
3	0.008	0.019	3230.38	709.50	2636.93	8.642	5.362
4	0.012	0.027	3130.60	611.67	2627.45	8.304	4.627
5	0.017	0.037	3028.04	512.14	2617.98	7.949	3.871
6	0.023	0.049	2922.83	411.20	2608.50	7.578	3.100
7	0.029	0.061	2815.16	309.15	2599.02	7.196	2.320
8	0.035	0.074	2705.16	206.29	2589.54	6.808	1.538
9	0.042	0.088	2593.02	102.92	2580.07	6.419	0.761
10	0.048	0.103	2478.89	-0.67	2570.59	6.037	0.761

Exc. totales result. cabeza -0.00026 0.96433
Exc. reales 1er ord. cabeza 0.00000 0.96469

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3512.34	990.49	2665.36	9.554	7.409
1	0.002	0.005	3421.83	899.51	2655.88	9.279	6.766
2	0.004	0.011	3328.08	805.96	2646.41	8.982	6.087
3	0.008	0.019	3231.24	710.12	2636.93	8.663	5.378
4	0.012	0.027	3131.44	612.27	2627.45	8.326	4.642
5	0.017	0.037	3028.84	512.71	2617.98	7.970	3.885
6	0.023	0.049	2923.59	411.74	2608.50	7.599	3.112
7	0.029	0.061	2815.87	309.66	2599.02	7.217	2.330
8	0.035	0.074	2705.82	206.76	2589.54	6.829	1.546
9	0.042	0.088	2593.61	103.34	2580.07	6.438	0.766
10	0.049	0.103	2479.41	-0.29	2570.59	6.061	0.766

Exc. totales result. cabeza -0.00011 0.96453
Exc. reales 1er ord. cabeza 0.00000 0.96469

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3512.73	990.77	2665.36	9.560	7.416
1	0.002	0.005	3422.22	899.79	2655.88	9.286	6.772
2	0.004	0.011	3328.47	806.23	2646.41	8.989	6.094
3	0.008	0.019	3231.61	710.39	2636.93	8.671	5.385
4	0.012	0.027	3131.81	612.53	2627.45	8.333	4.648
5	0.017	0.037	3029.20	512.97	2617.98	7.978	3.890
6	0.023	0.049	2923.94	411.98	2608.50	7.607	3.117
7	0.029	0.061	2816.19	309.88	2599.02	7.225	2.334
8	0.035	0.074	2706.12	206.97	2589.54	6.836	1.549
9	0.042	0.088	2593.89	103.54	2580.07	6.446	0.769
10	0.049	0.104	2479.66	-0.12	2570.59	6.071	0.769

Exc. totales result. cabeza -0.00005 0.96463
Exc. reales 1er ord. cabeza 0.00000 0.96469

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3512.87	990.89	2665.36	9.563	7.418
1	0.002	0.005	3422.36	899.90	2655.88	9.290	6.776
2	0.004	0.011	3328.61	806.35	2646.41	8.993	6.097
3	0.008	0.019	3231.75	710.50	2636.93	8.676	5.388
4	0.012	0.027	3131.94	612.64	2627.45	8.338	4.651
5	0.017	0.037	3029.32	513.07	2617.98	7.983	3.893
6	0.023	0.049	2924.05	412.08	2608.50	7.612	3.119
7	0.029	0.061	2816.29	309.97	2599.02	7.230	2.336
8	0.035	0.074	2706.21	207.05	2589.54	6.841	1.551
9	0.042	0.088	2593.96	103.61	2580.07	6.450	0.770
10	0.049	0.104	2479.72	-0.06	2570.59	6.075	0.770

Exc. totales result. cabeza -0.00002 0.96465
Exc. reales 1er ord. cabeza 0.00000 0.96469

Convergencia del equilibrio sin agotamiento
Fpx = 72.000 t; Fpy = 62.500 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 14 - TANTEO 1

Fpx = 72.000 t; Fpy = 62.500 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3245.94	864.85	2137.14	9.136	6.615
1	0.002	0.005	3158.80	775.23	2130.12	8.867	5.936
2	0.004	0.010	3069.27	683.81	2123.10	8.603	5.272
3	0.007	0.017	2977.46	590.83	2116.08	8.330	4.585
4	0.011	0.026	2883.49	496.51	2109.06	8.044	3.876
5	0.015	0.035	2787.46	401.06	2102.04	7.744	3.147
6	0.020	0.046	2689.49	304.73	2095.02	7.430	2.400
7	0.025	0.057	2589.69	207.74	2088.00	7.105	1.640
8	0.030	0.070	2488.19	110.33	2080.98	6.769	0.872
9	0.036	0.084	2385.11	12.74	2073.96	6.426	0.101
10	0.042	0.098	2280.22	-84.94	2066.94	6.079	-0.669

Exc. totales result. cabeza -0.04110 1.10319
Exc. reales 1er ord. cabeza 0.00000 1.19975

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3454.73	953.72	2137.14	9.578	7.174
1	0.002	0.005	3366.28	863.49	2130.12	9.319	6.539
2	0.004	0.011	3275.26	771.26	2123.10	9.051	5.879
3	0.008	0.018	3181.79	677.27	2116.08	8.768	5.193
4	0.012	0.027	3085.97	581.72	2109.06	8.470	4.482
5	0.017	0.037	2987.90	484.85	2102.04	8.157	3.750
6	0.022	0.048	2887.71	386.88	2095.02	7.829	2.999
7	0.028	0.061	2785.49	288.05	2088.00	7.490	2.235
8	0.034	0.074	2681.38	188.60	2080.98	7.143	1.463
9	0.040	0.088	2575.49	88.76	2073.96	6.790	0.687
10	0.047	0.104	2468.26	-11.11	2066.94	6.439	-0.086

Exc. totales result. cabeza -0.00538 1.19416
Exc. reales 1er ord. cabeza 0.00000 1.19975

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3460.38	962.59	2137.14	9.759	7.355
1	0.002	0.005	3372.52	872.56	2130.12	9.512	6.719
2	0.004	0.011	3282.04	780.48	2123.10	9.248	6.054
3	0.008	0.019	3189.04	686.57	2116.08	8.967	5.359
4	0.012	0.027	3093.62	591.06	2109.06	8.669	4.638
5	0.017	0.038	2995.90	494.17	2102.04	8.354	3.894
6	0.023	0.049	2895.99	396.15	2095.02	8.024	3.130
7	0.029	0.061	2794.00	297.22	2088.00	7.681	2.352
8	0.035	0.075	2690.05	197.62	2080.98	7.328	1.564
9	0.041	0.090	2584.27	97.61	2073.96	6.968	0.772
10	0.048	0.105	2476.78	-2.57	2066.94	6.608	-0.020

Exc. totales result. cabeza -0.00125 1.19829
Exc. reales 1er ord. cabeza 0.00000 1.19975

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3463.16	964.92	2137.14	9.829	7.417
1	0.002	0.005	3375.31	874.90	2130.12	9.587	6.783
2	0.004	0.011	3284.82	782.82	2123.10	9.326	6.116
3	0.008	0.019	3191.79	688.88	2116.08	9.047	5.418
4	0.012	0.028	3096.31	593.33	2109.06	8.750	4.693
5	0.017	0.038	2998.51	496.38	2102.04	8.436	3.944
6	0.023	0.049	2898.48	398.28	2095.02	8.106	3.175
7	0.029	0.062	2796.36	299.26	2088.00	7.762	2.390
8	0.035	0.075	2692.25	199.56	2080.98	7.408	1.594
9	0.042	0.090	2586.28	99.44	2073.96	7.046	0.794
10	0.049	0.106	2478.58	-0.87	2066.94	6.683	0.794

Exc. totales result. cabeza -0.00042 1.19915
Exc. reales 1er ord. cabeza 0.00000 1.19975

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3464.35	965.75	2137.14	9.856	7.441
1	0.002	0.005	3376.50	875.73	2130.12	9.616	6.807
2	0.004	0.011	3286.00	783.64	2123.10	9.356	6.139
3	0.008	0.019	3192.94	689.69	2116.08	9.078	5.441
4	0.012	0.028	3097.44	594.12	2109.06	8.782	4.714
5	0.017	0.038	2999.60	497.14	2102.04	8.468	3.963
6	0.023	0.049	2899.52	399.01	2095.02	8.139	3.192
7	0.029	0.062	2797.34	299.95	2088.00	7.796	2.404
8	0.035	0.075	2693.16	200.21	2080.98	7.442	1.606
9	0.042	0.090	2587.12	100.03	2073.96	7.080	0.802
10	0.049	0.106	2479.32	-0.33	2066.94	6.721	0.802

Exc. totales result. cabeza -0.00016 1.19951
Exc. reales 1er ord. cabeza 0.00000 1.19975

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3464.82	966.07	2137.14	9.866	7.450
1	0.002	0.005	3376.97	876.05	2130.12	9.627	6.816
2	0.004	0.011	3286.46	783.95	2123.10	9.368	6.148
3	0.008	0.019	3193.40	690.00	2116.08	9.090	5.449
4	0.012	0.028	3097.89	594.42	2109.06	8.794	4.723
5	0.017	0.038	3000.03	497.43	2102.04	8.481	3.971
6	0.023	0.049	2899.94	399.28	2095.02	8.153	3.199
7	0.029	0.062	2797.73	300.21	2088.00	7.810	2.410
8	0.035	0.075	2693.53	200.45	2080.98	7.456	1.611
9	0.042	0.090	2587.45	100.26	2073.96	7.094	0.805
10	0.049	0.106	2479.62	-0.13	2066.94	6.738	0.805

Exc. totales result. cabeza -0.00006 1.19966
Exc. reales 1er ord. cabeza 0.00000 1.19975

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3465.01	966.19	2137.14	9.869	7.453
1	0.002	0.005	3377.15	876.17	2130.12	9.630	6.819
2	0.004	0.011	3286.65	784.08	2123.10	9.371	6.151
3	0.008	0.019	3193.58	690.12	2116.08	9.094	5.452
4	0.012	0.028	3098.07	594.53	2109.06	8.798	4.725
5	0.017	0.038	3000.20	497.54	2102.04	8.485	3.974
6	0.023	0.049	2900.11	399.39	2095.02	8.156	3.201
7	0.029	0.062	2797.89	300.31	2088.00	7.814	2.412
8	0.035	0.076	2693.68	200.55	2080.98	7.460	1.612
9	0.042	0.090	2587.60	100.35	2073.96	7.098	0.806
10	0.049	0.106	2479.75	-0.04	2066.94	6.745	0.806

Exc. totales result. cabeza -0.00002 1.19972
Exc. reales 1er ord. cabeza 0.00000 1.19975

Convergencia del equilibrio sin agotamiento
Fpx = 72.000 t; Fpy = 62.500 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 15 - TANTEO 1

Fpx = 72.000 t; Fpy = 62.500 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3248.84	864.85	2944.93	8.669	6.433
1	0.002	0.005	3158.12	774.05	2935.45	8.221	5.624
2	0.004	0.010	3064.29	680.91	2925.98	7.860	4.922
3	0.007	0.017	2967.53	585.75	2916.50	7.524	4.225
4	0.010	0.025	2868.01	488.89	2907.02	7.187	3.519
5	0.015	0.034	2765.91	390.63	2897.55	6.841	2.802
6	0.019	0.044	2661.40	291.28	2888.07	6.487	2.078
7	0.024	0.055	2554.64	191.16	2878.59	6.127	1.354
8	0.029	0.067	2445.83	90.57	2869.11	5.764	0.635
9	0.034	0.079	2335.12	-10.19	2859.64	5.405	-0.071
10	0.039	0.092	2222.27	-111.00	2850.16	5.054	-0.759

Exc. totales result. cabeza -0.03895 0.77970
Exc. reales 1er ord. cabeza 0.00000 0.87107

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3521.08	980.89	2944.93	9.066	7.010
1	0.002	0.005	3428.41	889.18	2935.45	8.701	6.324

2	0.004	0.011	3332.38	794.82	2925.98	8.361	5.641
3	0.008	0.018	3233.15	698.11	2916.50	8.019	4.944
4	0.012	0.027	3130.90	599.37	2907.02	7.667	4.231
5	0.017	0.036	3025.79	498.90	2897.55	7.303	3.504
6	0.022	0.047	2917.99	397.03	2888.07	6.932	2.768
7	0.027	0.059	2807.68	294.06	2878.59	6.556	2.031
8	0.033	0.071	2695.04	190.31	2869.11	6.182	1.300
9	0.039	0.085	2580.23	86.10	2859.64	5.816	0.580
10	0.046	0.099	2463.83	-18.14	2850.16	5.466	-0.120

Exc. totales result. cabeza -0.00636 0.86445
Exc. reales 1er ord. cabeza 0.00000 0.87107

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3532.57	996.32	2944.93	9.276	7.247
1	0.002	0.005	3440.62	904.81	2935.45	8.955	6.581
2	0.004	0.011	3345.20	810.54	2925.98	8.629	5.896
3	0.008	0.019	3246.46	713.82	2916.50	8.289	5.188
4	0.012	0.027	3144.58	614.95	2907.02	7.932	4.459
5	0.017	0.037	3039.73	514.27	2897.55	7.562	3.712
6	0.022	0.048	2932.08	412.08	2888.07	7.181	2.956
7	0.028	0.060	2821.81	308.72	2878.59	6.793	2.196
8	0.035	0.073	2709.11	204.52	2869.11	6.406	1.440
9	0.041	0.086	2594.15	99.78	2859.64	6.025	0.694
10	0.047	0.101	2477.13	-5.17	2850.16	5.659	-0.035

Exc. totales result. cabeza -0.00181 0.86912
Exc. reales 1er ord. cabeza 0.00000 0.87107

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3537.79	1001.14	2944.93	9.377	7.347
1	0.002	0.005	3445.84	909.63	2935.45	9.074	6.691
2	0.004	0.011	3350.37	815.32	2925.98	8.754	6.005
3	0.008	0.019	3251.54	718.51	2916.50	8.415	5.291
4	0.012	0.027	3149.50	619.51	2907.02	8.058	4.554
5	0.017	0.037	3044.45	518.66	2897.55	7.684	3.798
6	0.023	0.048	2936.54	416.27	2888.07	7.299	3.030
7	0.029	0.060	2825.97	312.67	2878.59	6.906	2.258
8	0.035	0.073	2712.92	208.20	2869.11	6.511	1.489
9	0.042	0.087	2597.56	103.17	2859.64	6.122	0.729
10	0.048	0.102	2480.08	-2.09	2850.16	5.745	-0.015

Exc. totales result. cabeza -0.00073 0.87016
Exc. reales 1er ord. cabeza 0.00000 0.87107

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3540.35	1003.16	2944.93	9.424	7.392
1	0.002	0.005	3448.39	911.65	2935.45	9.128	6.740
2	0.004	0.011	3352.89	817.31	2925.98	8.811	6.054
3	0.008	0.019	3253.99	720.45	2916.50	8.473	5.338
4	0.012	0.027	3151.88	621.38	2907.02	8.115	4.596
5	0.017	0.037	3046.72	520.44	2897.55	7.741	3.836
6	0.023	0.048	2938.68	417.95	2888.07	7.354	3.063
7	0.029	0.060	2827.96	314.24	2878.59	6.958	2.285
8	0.035	0.073	2714.73	209.64	2869.11	6.560	1.510
9	0.042	0.087	2599.18	104.47	2859.64	6.166	0.744
10	0.048	0.102	2481.49	-0.93	2850.16	5.783	0.744

Exc. totales result. cabeza -0.00033 0.87065
Exc. reales 1er ord. cabeza 0.00000 0.87107

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3541.53	1004.06	2944.93	9.446	7.413
1	0.002	0.005	3449.56	912.55	2935.45	9.153	6.762
2	0.004	0.011	3354.05	818.19	2925.98	8.837	6.076
3	0.008	0.019	3255.13	721.31	2916.50	8.499	5.359
4	0.012	0.027	3152.98	622.22	2907.02	8.142	4.616
5	0.017	0.037	3047.77	521.23	2897.55	7.767	3.853
6	0.023	0.048	2939.68	418.70	2888.07	7.379	3.078
7	0.029	0.060	2828.88	314.93	2878.59	6.982	2.298
8	0.035	0.074	2715.58	210.27	2869.11	6.582	1.519
9	0.042	0.088	2599.94	105.05	2859.64	6.186	0.750
10	0.049	0.103	2482.15	-0.42	2850.16	5.808	0.750

Exc. totales result. cabeza -0.00015 0.87088
Exc. reales 1er ord. cabeza 0.00000 0.87107

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3542.06	1004.47	2944.93	9.455	7.422
1	0.002	0.005	3450.10	912.95	2935.45	9.163	6.771
2	0.004	0.011	3354.58	818.60	2925.98	8.847	6.085
3	0.008	0.019	3255.65	721.71	2916.50	8.510	5.368
4	0.012	0.027	3153.48	622.60	2907.02	8.152	4.624
5	0.017	0.037	3048.25	521.60	2897.55	7.778	3.861
6	0.023	0.048	2940.14	419.04	2888.07	7.389	3.085
7	0.029	0.061	2829.32	315.25	2878.59	6.992	2.303
8	0.035	0.074	2715.98	210.57	2869.11	6.591	1.523
9	0.042	0.088	2600.30	105.32	2859.64	6.194	0.753
10	0.049	0.103	2482.48	-0.18	2850.16	5.817	0.753

Exc. totales result. cabeza -0.00006 0.87100
Exc. reales 1er ord. cabeza 0.00000 0.87107

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3542.28	1004.65	2944.93	9.459	7.426
1	0.002	0.005	3450.32	913.13	2935.45	9.168	6.776
2	0.004	0.011	3354.79	818.77	2925.98	8.853	6.090
3	0.008	0.019	3255.86	721.87	2916.50	8.516	5.372
4	0.012	0.027	3153.68	622.76	2907.02	8.159	4.628
5	0.017	0.037	3048.44	521.75	2897.55	7.784	3.865
6	0.023	0.048	2940.31	419.18	2888.07	7.396	3.088
7	0.029	0.061	2829.48	315.38	2878.59	6.998	2.306
8	0.035	0.074	2716.12	210.69	2869.11	6.597	1.525
9	0.042	0.088	2600.42	105.42	2859.64	6.197	0.754
10	0.049	0.103	2482.57	-0.09	2850.16	5.823	0.754

Exc. totales result. cabeza -0.00003 0.87103
Exc. reales 1er ord. cabeza 0.00000 0.87107

Convergencia del equilibrio sin agotamiento
Fpx = 72.000 t; Fpy = 62.500 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 2 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 16 - TANTEO 1

Fpx = 72.000 t; Fpy = 62.500 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3248.84	864.85	2416.71	8.958	6.544
1	0.002	0.005	3160.45	774.82	2409.69	8.621	5.819
2	0.004	0.010	3069.40	682.80	2402.67	8.320	5.142
3	0.007	0.017	2975.82	589.04	2395.65	8.023	4.452
4	0.011	0.025	2879.84	493.79	2388.63	7.715	3.743
5	0.015	0.035	2781.60	397.32	2381.61	7.394	3.018
6	0.020	0.045	2681.22	299.87	2374.59	7.061	2.278
7	0.025	0.056	2578.83	201.72	2367.57	6.716	1.531
8	0.030	0.069	2474.59	103.12	2360.55	6.364	0.780
9	0.035	0.082	2368.62	4.32	2353.53	6.007	0.033
10	0.041	0.096	2260.73	-94.55	2346.51	5.650	-0.707

Exc. totales result. cabeza -0.04029 0.96345
Exc. reales 1er ord. cabeza 0.00000 1.05804

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3479.84	963.26	2416.71	9.381	7.111
1	0.002	0.005	3390.01	872.55	2409.69	9.083	6.459
2	0.004	0.011	3297.32	779.62	2402.67	8.788	5.791
3	0.008	0.018	3201.91	684.71	2395.65	8.481	5.102
4	0.012	0.027	3103.89	588.07	2388.63	8.159	4.390
5	0.017	0.037	3003.39	489.95	2381.61	7.823	3.659
6	0.022	0.048	2900.55	390.62	2374.59	7.474	2.914
7	0.028	0.060	2795.49	290.33	2367.57	7.114	2.159
8	0.034	0.073	2688.36	189.36	2360.55	6.749	1.401

9	0.040	0.087	2579.30	87.96	2353.53	6.383	0.647
10	0.046	0.102	2468.75	-13.48	2346.51	6.022	-0.098

Exc. totales result. cabeza -0.00575 1.05210
Exc. reales 1er ord. cabeza 0.00000 1.05804

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3488.05	974.58	2416.71	9.575	7.312
1	0.002	0.005	3398.78	884.05	2409.69	9.301	6.667
2	0.004	0.011	3306.58	791.22	2402.67	9.013	5.996
3	0.008	0.019	3211.57	696.34	2395.65	8.708	5.296
4	0.012	0.027	3113.88	599.66	2388.63	8.384	4.572
5	0.017	0.037	3013.63	501.43	2381.61	8.045	3.827
6	0.023	0.048	2910.95	401.94	2374.59	7.690	3.065
7	0.029	0.061	2805.99	301.44	2367.57	7.324	2.293
8	0.035	0.074	2698.88	200.20	2360.55	6.950	1.517
9	0.041	0.088	2589.76	98.49	2353.53	6.574	0.742
10	0.048	0.104	2478.80	-3.41	2346.51	6.201	-0.026

Exc. totales result. cabeza -0.00145 1.05638
Exc. reales 1er ord. cabeza 0.00000 1.05804

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3491.70	977.75	2416.71	9.657	7.388
1	0.002	0.005	3402.44	887.22	2409.69	9.392	6.747
2	0.004	0.011	3310.21	794.37	2402.67	9.108	6.074
3	0.008	0.019	3215.15	699.44	2395.65	8.805	5.371
4	0.012	0.027	3117.36	602.68	2388.63	8.482	4.641
5	0.017	0.038	3016.98	504.37	2381.61	8.142	3.889
6	0.023	0.049	2914.14	404.75	2374.59	7.787	3.120
7	0.029	0.061	2808.98	304.11	2367.57	7.419	2.340
8	0.035	0.074	2701.65	202.72	2360.55	7.042	1.554
9	0.042	0.089	2592.27	100.84	2353.53	6.661	0.769
10	0.048	0.104	2481.01	-1.25	2346.51	6.283	-0.009

Exc. totales result. cabeza -0.00053 1.05732
Exc. reales 1er ord. cabeza 0.00000 1.05804

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3493.34	978.94	2416.71	9.691	7.419
1	0.002	0.005	3404.08	888.42	2409.69	9.430	6.779
2	0.004	0.011	3311.83	795.55	2402.67	9.147	6.105
3	0.008	0.019	3216.74	700.60	2395.65	8.845	5.401
4	0.012	0.028	3118.90	603.81	2388.63	8.524	4.669
5	0.017	0.038	3018.46	505.44	2381.61	8.184	3.915
6	0.023	0.049	2915.55	405.78	2374.59	7.829	3.143
7	0.029	0.061	2810.31	305.07	2367.57	7.460	2.359
8	0.035	0.075	2702.87	203.61	2360.55	7.082	1.569
9	0.042	0.089	2593.38	101.66	2353.53	6.700	0.779
10	0.049	0.105	2481.99	-0.50	2346.51	6.319	0.779

Exc. totales result. cabeza -0.00021 1.05773
Exc. reales 1er ord. cabeza 0.00000 1.05804

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3494.04	979.43	2416.71	9.705	7.432
1	0.002	0.005	3404.77	888.90	2409.69	9.445	6.792
2	0.004	0.011	3312.52	796.03	2402.67	9.164	6.118
3	0.008	0.019	3217.41	701.07	2395.65	8.862	5.413
4	0.012	0.028	3119.56	604.26	2388.63	8.541	4.681
5	0.017	0.038	3019.09	505.88	2381.61	8.202	3.926
6	0.023	0.049	2916.15	406.19	2374.59	7.847	3.152
7	0.029	0.061	2810.87	305.46	2367.57	7.478	2.367
8	0.035	0.075	2703.39	203.97	2360.55	7.100	1.575
9	0.042	0.089	2593.85	101.99	2353.53	6.717	0.783
10	0.049	0.105	2482.40	-0.21	2346.51	6.342	0.783

Exc. totales result. cabeza -0.00009 1.05791
Exc. reales 1er ord. cabeza 0.00000 1.05804

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3494.33	979.63	2416.71	9.710	7.436
1	0.002	0.005	3405.06	889.11	2409.69	9.450	6.797
2	0.004	0.011	3312.81	796.23	2402.67	9.169	6.123
3	0.008	0.019	3217.69	701.26	2395.65	8.868	5.418
4	0.012	0.028	3119.84	604.45	2388.63	8.547	4.685
5	0.017	0.038	3019.37	506.06	2381.61	8.208	3.930
6	0.023	0.049	2916.41	406.36	2374.59	7.853	3.156
7	0.029	0.061	2811.12	305.63	2367.57	7.484	2.370
8	0.035	0.075	2703.62	204.13	2360.55	7.106	1.577
9	0.042	0.089	2594.07	102.13	2353.53	6.723	0.785
10	0.049	0.105	2482.60	-0.08	2346.51	6.352	0.785

Exc. totales result. cabeza -0.00003 1.05800
Exc. reales 1er ord. cabeza 0.00000 1.05804

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	3494.42	979.71	2416.71	9.712	7.438
1	0.002	0.005	3405.15	889.18	2409.69	9.452	6.799
2	0.004	0.011	3312.90	796.31	2402.67	9.173	6.125
3	0.008	0.019	3217.79	701.34	2395.65	8.871	5.420
4	0.012	0.028	3119.93	604.52	2388.63	8.551	4.688
5	0.017	0.038	3019.45	506.13	2381.61	8.212	3.932
6	0.023	0.049	2916.49	406.43	2374.59	7.857	3.158
7	0.029	0.061	2811.19	305.69	2367.57	7.489	2.371
8	0.035	0.075	2703.69	204.18	2360.55	7.111	1.579
9	0.042	0.089	2594.12	102.18	2353.53	6.728	0.786
10	0.049	0.105	2482.64	-0.04	2346.51	6.356	0.786

Exc. totales result. cabeza -0.00001 1.05801
Exc. reales 1er ord. cabeza 0.00000 1.05804

Convergencia del equilibrio sin agotamiento
Fpx = 72.000 t; Fpy = 62.500 t

11.2.2. PILA 4

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

MATERIALES:	HORMIGON	ACERO
"RESIST. CARACT. (kp/cm2):"	500	5100
"COEFICIENTE MINOR. GAMMA:"	1.35	1.15

"ALTURA DE LA PILA (m):" 7.50

COEFICIENTES ELASTICOS DE MUELLE EN CABEZA Y EN PIE:

SECCION - MOVIMIENTO	CABEZA-DIR x	CABEZA-DIR y	PIE- GIRO x	PIE- GIRO y
COEFICIENTE (unidades)	Kx (t/m)	Ky (t/m)	Fx (rad/mt)	Fy (rad/mt)
	0	0	1E-6	1E-6

DIMENSIONES Y ARMADURAS DE LAS SECCIONES:

SECCION:	BASE		CABEZA		RECUBR.
DIRECCION R/EJE PUENTE:	LONG.(x)	TRAN.(y)	LONG.(x)	TRAN.(y)	(cm)
"DIMENSION EXTERIOR (cm):"	150	260	150	260	
"ESPESOR DE LA PARED(cm):"	36	30	36	30	
"ARMADURA EXTERIOR (cm2):"	219.9	340.8	102.0	164.0	5
"ARMADURA INTERIOR (cm2):"	48	92	48	52	5

"NUM. DE HIPOTESIS DE CARGA:" 12

ACCIONES MAYORADAS EN LAS DISTINTAS HIPOTESIS:

	FUERZAS Y MOMENTOS EN LA CABEZA					FUERZAS EN EL FUSTE (t/m)				COEF.
	FUERZAS (t)			MOMENTOS (mt)		SEC.BASE		SEC.CABEZA		GAMMA
HIP.	Fx	Fy	Fz	Mx	My	fx0	fy0	fx1	fy1	PP
1	80.0	73.50	2156.71	189.63	000.00	0	0.60	0	0.60	1.35
2	80.0	73.50	1597.56	189.63	000.00	0	0.60	0	0.60	1.00
3	80.0	50.39	3035.47	2283.93	000.00	0	0.18	0	0.18	1.35
4	80.0	50.39	2476.33	2283.93	000.00	0	0.18	0	0.18	1.00
5	80.0	50.39	3825.0	171.63	000.00	0	0.18	0	0.18	1.35
6	80.0	50.39	3265.85	171.63	000.00	0	0.18	0	0.18	1.00
7	80.0	50.39	2817.46	2308.26	000.00	0	0.18	0	0.18	1.35
8	80.0	50.39	2258.32	2308.26	000.00	0	0.18	0	0.18	1.00
9	67.3	50.39	2697.18	2283.93	000.00	0	0.18	0	0.18	1.35
10	67.3	50.39	2225.74	2283.93	000.00	0	0.18	0	0.18	1.00

11	67.3	50.39	2479.17	2308.26	000.00	0	0.18	0	0.18	1.35
12	67.3	50.39	2007.73	2308.26	000.00	0	0.18	0	0.18	1.00

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 1 - TANTEO 1

Fpx = 80.000 t; Fpy = 73.500 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	568.68	762.50	2215.94	1.350	4.255
1	0.001	0.000	509.33	700.98	2210.02	1.057	3.644
2	0.002	0.001	450.18	639.01	2204.09	0.894	3.258
3	0.003	0.002	391.27	576.64	2198.17	0.770	2.945
4	0.004	0.002	332.61	513.93	2192.25	0.658	2.650
5	0.005	0.003	274.21	450.91	2186.33	0.549	2.355
6	0.007	0.004	216.09	387.62	2180.40	0.438	2.051
7	0.008	0.004	158.26	324.09	2174.48	0.325	1.738
8	0.010	0.005	100.74	260.37	2168.56	0.210	1.415
9	0.012	0.006	43.54	196.50	2162.63	0.092	1.083
10	0.014	0.006	-13.35	132.48	2156.71	-0.029	0.741

Exc. totales result. cabeza 0.06143 -0.00619
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	582.55	792.88	2215.94	1.196	4.074
1	0.001	0.000	523.14	731.23	2210.02	1.028	3.683
2	0.002	0.001	463.94	669.13	2204.09	0.902	3.374
3	0.003	0.002	404.97	606.61	2198.17	0.791	3.087
4	0.004	0.002	346.25	543.72	2192.25	0.684	2.802
5	0.005	0.003	287.78	480.50	2186.33	0.576	2.508
6	0.007	0.004	229.59	416.97	2180.40	0.466	2.205
7	0.009	0.004	171.67	353.19	2174.48	0.353	1.893
8	0.011	0.005	114.06	289.18	2168.56	0.238	1.571
9	0.012	0.006	56.76	224.99	2162.63	0.120	1.240
10	0.014	0.007	-0.19	160.71	2156.71	0.120	0.898

Exc. totales result. cabeza 0.07451 -0.00009
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	582.40	793.20	2215.94	1.170	4.018
1	0.001	0.000	523.03	731.63	2210.02	1.028	3.684
2	0.002	0.001	463.87	669.61	2204.09	0.905	3.381
3	0.003	0.002	404.94	607.17	2198.17	0.792	3.092
4	0.004	0.002	346.25	544.36	2192.25	0.685	2.806
5	0.005	0.003	287.82	481.21	2186.33	0.576	2.512
6	0.007	0.004	229.66	417.77	2180.40	0.466	2.210
7	0.009	0.004	171.79	354.05	2174.48	0.353	1.898
8	0.011	0.005	114.21	290.12	2168.56	0.238	1.577
9	0.012	0.006	56.95	226.01	2162.63	0.120	1.245
10	0.014	0.007	0.01	161.76	2156.71	0.120	0.904

Exc. totales result. cabeza 0.07500 0.00001
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	582.38	793.17	2215.94	1.164	4.006
1	0.001	0.000	523.01	731.61	2210.02	1.028	3.684
2	0.002	0.001	463.85	669.59	2204.09	0.905	3.382
3	0.003	0.002	404.92	607.15	2198.17	0.792	3.092
4	0.004	0.002	346.24	544.35	2192.25	0.685	2.806
5	0.005	0.003	287.81	481.20	2186.33	0.576	2.512
6	0.007	0.004	229.65	417.76	2180.40	0.466	2.210
7	0.009	0.004	171.78	354.05	2174.48	0.353	1.898
8	0.011	0.005	114.20	290.12	2168.56	0.238	1.577
9	0.012	0.006	56.94	226.01	2162.63	0.120	1.245
10	0.014	0.007	0.00	161.76	2156.71	0.120	0.904

Exc. totales result. cabeza 0.07500 0.00000
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	582.38	793.16	2215.94	1.163	4.004
1	0.001	0.000	523.01	731.60	2210.02	1.028	3.684
2	0.002	0.001	463.85	669.58	2204.09	0.905	3.382
3	0.003	0.002	404.92	607.15	2198.17	0.792	3.092
4	0.004	0.002	346.23	544.34	2192.25	0.685	2.806
5	0.005	0.003	287.81	481.19	2186.33	0.576	2.512
6	0.007	0.004	229.65	417.75	2180.40	0.466	2.210
7	0.009	0.004	171.77	354.04	2174.48	0.353	1.898
8	0.011	0.005	114.20	290.11	2168.56	0.238	1.576
9	0.012	0.006	56.94	226.00	2162.63	0.120	1.245
10	0.014	0.007	0.00	161.76	2156.71	0.120	0.904

Exc. totales result. cabeza 0.07500 0.00000
Exc. reales 1er ord. cabeza 0.07500 0.00000

Convergencia del equilibrio sin agotamiento
Fpx = 80.000 t; Fpy = 73.500 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 2 - TANTEO 1

Fpx = 80.000 t; Fpy = 73.500 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	568.68	720.52	1641.43	1.469	4.328
1	0.001	0.000	509.59	659.44	1637.05	1.194	3.680
2	0.002	0.001	450.72	598.03	1632.66	0.985	3.178
3	0.003	0.002	392.11	536.33	1628.27	0.808	2.759
4	0.004	0.002	333.77	474.39	1623.88	0.660	2.397
5	0.005	0.003	275.71	412.24	1619.50	0.535	2.076
6	0.007	0.004	217.94	349.92	1615.11	0.425	1.778
7	0.008	0.004	160.48	287.44	1610.72	0.317	1.479
8	0.010	0.005	103.34	224.85	1606.33	0.207	1.172
9	0.011	0.006	46.51	162.17	1601.95	0.094	0.856
10	0.013	0.007	-9.98	99.39	1597.56	-0.020	0.532

Exc. totales result. cabeza 0.06221 -0.00625
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	579.06	741.72	1641.43	1.341	4.091
1	0.001	0.000	519.92	680.57	1637.05	1.124	3.577
2	0.002	0.001	461.03	619.08	1632.66	0.941	3.149
3	0.003	0.002	402.38	557.32	1628.27	0.787	2.783
4	0.004	0.002	344.01	495.30	1623.88	0.660	2.464
5	0.005	0.003	285.92	433.06	1619.50	0.550	2.173
6	0.007	0.004	228.11	370.63	1615.11	0.445	1.883
7	0.008	0.004	170.61	308.04	1610.72	0.337	1.585
8	0.010	0.005	113.41	245.31	1606.33	0.227	1.278
9	0.012	0.006	56.54	182.47	1601.95	0.114	0.963
10	0.013	0.007	0.01	119.58	1597.56	0.114	0.640

Exc. totales result. cabeza 0.07485 0.00001
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	578.78	741.43	1641.43	1.303	3.993
1	0.001	0.000	519.68	680.33	1637.05	1.107	3.534
2	0.002	0.001	460.82	618.92	1632.66	0.934	3.133
3	0.003	0.002	402.20	557.21	1628.27	0.787	2.781
4	0.004	0.002	343.86	495.26	1623.88	0.661	2.467
5	0.005	0.003	285.80	433.09	1619.50	0.550	2.174
6	0.007	0.004	228.03	370.73	1615.11	0.444	1.884
7	0.008	0.004	170.55	308.20	1610.72	0.337	1.586
8	0.010	0.005	113.39	245.53	1606.33	0.227	1.280
9	0.012	0.006	56.55	182.76	1601.95	0.114	0.965
10	0.013	0.007	0.04	119.91	1597.56	0.114	0.642

Exc. totales result. cabeza 0.07506 0.00002

Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	578.74	741.33	1641.43	1.288	3.957
1	0.001	0.000	519.64	680.23	1637.05	1.100	3.520
2	0.002	0.001	460.78	618.82	1632.66	0.932	3.129
3	0.003	0.002	402.17	557.12	1628.27	0.787	2.781
4	0.004	0.002	343.83	495.17	1623.88	0.661	2.466
5	0.005	0.003	285.77	433.01	1619.50	0.550	2.173
6	0.007	0.004	228.00	370.65	1615.11	0.444	1.883
7	0.008	0.004	170.52	308.13	1610.72	0.336	1.585
8	0.010	0.005	113.36	245.47	1606.33	0.227	1.279
9	0.012	0.006	56.52	182.70	1601.95	0.114	0.965
10	0.013	0.007	0.01	119.85	1597.56	0.114	0.641

Exc. totales result. cabeza 0.07502 0.00001
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	578.73	741.30	1641.43	1.282	3.944
1	0.001	0.000	519.63	680.20	1637.05	1.099	3.516
2	0.002	0.001	460.77	618.79	1632.66	0.932	3.128
3	0.003	0.002	402.16	557.09	1628.27	0.787	2.781
4	0.004	0.002	343.82	495.15	1623.88	0.661	2.466
5	0.005	0.003	285.75	432.98	1619.50	0.550	2.173
6	0.007	0.004	227.98	370.62	1615.11	0.444	1.883
7	0.008	0.004	170.51	308.10	1610.72	0.336	1.585
8	0.010	0.005	113.35	245.44	1606.33	0.227	1.279
9	0.012	0.006	56.51	182.67	1601.95	0.114	0.965
10	0.013	0.007	0.00	119.83	1597.56	0.114	0.641

Exc. totales result. cabeza 0.07501 0.00000
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	578.73	741.29	1641.43	1.281	3.940
1	0.001	0.000	519.62	680.19	1637.05	1.098	3.515
2	0.002	0.001	460.76	618.78	1632.66	0.932	3.127
3	0.003	0.002	402.15	557.08	1628.27	0.787	2.780
4	0.004	0.002	343.81	495.14	1623.88	0.661	2.466
5	0.005	0.003	285.75	432.97	1619.50	0.550	2.173
6	0.007	0.004	227.98	370.61	1615.11	0.444	1.883
7	0.008	0.004	170.51	308.09	1610.72	0.336	1.585
8	0.010	0.005	113.35	245.43	1606.33	0.226	1.279
9	0.012	0.006	56.51	182.67	1601.95	0.114	0.965
10	0.013	0.007	0.00	119.82	1597.56	0.114	0.641

Exc. totales result. cabeza 0.07500 0.00000
Exc. reales 1er ord. cabeza 0.07500 0.00000

Convergencia del equilibrio sin agotamiento
Fpx = 80.000 t; Fpy = 73.500 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 3 - TANTEO 1

Fpx = 80.000 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2669.55	600.59	3094.70	7.313	4.760
1	0.001	0.002	2623.98	538.79	3088.78	7.084	4.186
2	0.001	0.005	2577.32	476.27	3082.85	6.922	3.704
3	0.002	0.008	2529.58	413.12	3076.93	6.790	3.229
4	0.004	0.011	2480.82	349.42	3071.01	6.666	2.750
5	0.005	0.015	2431.04	285.26	3065.09	6.542	2.261
6	0.006	0.019	2380.29	220.73	3059.16	6.416	1.761
7	0.008	0.024	2328.58	155.92	3053.24	6.288	1.252
8	0.010	0.028	2275.95	90.91	3047.32	6.158	0.734
9	0.011	0.034	2222.42	25.79	3041.39	6.029	0.209
10	0.013	0.039	2167.92	-39.38	3035.47	5.902	-0.321

Exc. totales result. cabeza -0.01297 0.71420
Exc. reales 1er ord. cabeza 0.00000 0.75241

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2788.67	641.02	3094.70	7.417	4.896
1	0.001	0.002	2742.58	579.04	3088.78	7.258	4.427
2	0.001	0.005	2695.34	516.28	3082.85	7.130	3.967
3	0.003	0.008	2646.99	452.85	3076.93	7.009	3.503
4	0.004	0.012	2597.55	388.81	3071.01	6.889	3.029
5	0.005	0.016	2547.04	324.27	3065.09	6.767	2.543
6	0.007	0.020	2495.48	259.29	3059.16	6.641	2.046
7	0.009	0.024	2442.92	193.97	3053.24	6.515	1.540
8	0.010	0.029	2389.37	128.40	3047.32	6.388	1.025
9	0.012	0.035	2334.85	62.66	3041.39	6.264	0.503
10	0.014	0.041	2279.51	-3.11	3035.47	6.146	-0.025

Exc. totales result. cabeza -0.00103 0.75096
Exc. reales 1er ord. cabeza 0.00000 0.75241

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2791.06	643.49	3094.70	7.475	4.947
1	0.001	0.002	2745.18	581.56	3088.78	7.356	4.499
2	0.001	0.005	2698.13	518.85	3082.85	7.245	4.045
3	0.003	0.008	2649.95	455.45	3076.93	7.132	3.580
4	0.004	0.012	2600.65	391.44	3071.01	7.015	3.101
5	0.005	0.016	2550.26	326.90	3065.09	6.894	2.609
6	0.007	0.020	2498.81	261.92	3059.16	6.769	2.105
7	0.009	0.025	2446.33	196.58	3053.24	6.641	1.591
8	0.011	0.030	2392.83	130.99	3047.32	6.514	1.067
9	0.012	0.035	2338.35	65.22	3041.39	6.390	0.534
10	0.014	0.041	2282.92	-0.63	3035.47	6.271	0.534

Exc. totales result. cabeza -0.00021 0.75208
Exc. reales 1er ord. cabeza 0.00000 0.75241

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2792.02	644.07	3094.70	7.505	4.970
1	0.001	0.002	2746.13	582.14	3088.78	7.404	4.532
2	0.002	0.005	2699.08	519.43	3082.85	7.300	4.081
3	0.003	0.008	2650.88	456.02	3076.93	7.192	3.615
4	0.004	0.012	2601.56	391.99	3071.01	7.077	3.134
5	0.005	0.016	2551.13	327.43	3065.09	6.957	2.638
6	0.007	0.020	2499.64	262.42	3059.16	6.832	2.130
7	0.009	0.025	2447.09	197.06	3053.24	6.705	1.611
8	0.011	0.030	2393.53	131.42	3047.32	6.578	1.082
9	0.013	0.035	2338.97	65.62	3041.39	6.453	0.544
10	0.014	0.041	2283.44	-0.27	3035.47	6.338	0.544

Exc. totales result. cabeza -0.00009 0.75225
Exc. reales 1er ord. cabeza 0.00000 0.75241

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2792.50	644.33	3094.70	7.518	4.981
1	0.001	0.002	2746.62	582.41	3088.78	7.427	4.548
2	0.002	0.005	2699.56	519.69	3082.85	7.327	4.098
3	0.003	0.008	2651.35	456.27	3076.93	7.221	3.632
4	0.004	0.012	2602.01	392.23	3071.01	7.107	3.150
5	0.005	0.016	2551.57	327.66	3065.09	6.988	2.653
6	0.007	0.020	2500.05	262.64	3059.16	6.864	2.143
7	0.009	0.025	2447.47	197.25	3053.24	6.737	1.621
8	0.011	0.030	2393.87	131.60	3047.32	6.609	1.089
9	0.013	0.035	2339.27	65.78	3041.39	6.484	0.548
10	0.015	0.041	2283.69	-0.13	3035.47	6.371	0.548

Exc. totales result. cabeza -0.00004 0.75233
Exc. reales 1er ord. cabeza 0.00000 0.75241

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2792.74	644.46	3094.70	7.526	4.986
1	0.001	0.002	2746.86	582.53	3088.78	7.437	4.555
2	0.002	0.005	2699.80	519.82	3082.85	7.339	4.106

3	0.003	0.008	2651.58	456.40	3076.93	7.234	3.640
4	0.004	0.012	2602.23	392.35	3071.01	7.121	3.157
5	0.005	0.016	2551.78	327.77	3065.09	7.002	2.659
6	0.007	0.020	2500.25	262.74	3059.16	6.878	2.148
7	0.009	0.025	2447.66	197.35	3053.24	6.751	1.625
8	0.011	0.030	2394.04	131.69	3047.32	6.624	1.092
9	0.013	0.035	2339.42	65.86	3041.39	6.499	0.550
10	0.015	0.041	2283.82	-0.06	3035.47	6.386	0.550

Exc. totales result. cabeza -0.00002 0.75238
Exc. reales 1er ord. cabeza 0.00000 0.75241

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2792.85	644.52	3094.70	7.530	4.989
1	0.001	0.002	2746.96	582.59	3088.78	7.441	4.558
2	0.002	0.005	2699.90	519.87	3082.85	7.346	4.110
3	0.003	0.008	2651.68	456.45	3076.93	7.241	3.644
4	0.004	0.012	2602.34	392.40	3071.01	7.129	3.161
5	0.005	0.016	2551.88	327.82	3065.09	7.010	2.663
6	0.007	0.020	2500.34	262.79	3059.16	6.886	2.151
7	0.009	0.025	2447.74	197.39	3053.24	6.760	1.628
8	0.011	0.030	2394.11	131.73	3047.32	6.632	1.094
9	0.013	0.035	2339.48	65.89	3041.39	6.505	0.551
10	0.015	0.041	2283.87	-0.03	3035.47	6.395	0.551

Exc. totales result. cabeza -0.00001 0.75239
Exc. reales 1er ord. cabeza 0.00000 0.75241

Convergencia del equilibrio sin agotamiento
Fpx = 80.000 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 4 - TANTEO 1

Fpx = 80.000 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2669.55	600.59	2520.20	7.668	4.912
1	0.001	0.002	2625.22	539.11	2515.82	7.590	4.432
2	0.001	0.005	2579.94	477.01	2511.43	7.510	3.973
3	0.002	0.008	2533.73	414.36	2507.04	7.429	3.497
4	0.004	0.011	2486.60	351.23	2502.65	7.342	3.003
5	0.005	0.015	2438.57	287.68	2498.27	7.249	2.492
6	0.007	0.020	2389.66	223.80	2493.88	7.149	1.963
7	0.008	0.024	2339.88	159.65	2489.49	7.044	1.417
8	0.010	0.029	2289.27	95.33	2485.10	6.933	0.856
9	0.012	0.035	2237.83	30.90	2480.72	6.820	0.281
10	0.014	0.041	2185.51	-33.59	2476.33	6.705	-0.309

Exc. totales result. cabeza -0.01356 0.88256
Exc. reales 1er ord. cabeza 0.00000 0.92230

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2770.36	635.00	2520.20	7.880	5.124
1	0.001	0.002	2725.64	573.37	2515.82	7.806	4.686
2	0.002	0.005	2679.93	511.09	2511.43	7.730	4.232
3	0.003	0.008	2633.25	448.22	2507.04	7.649	3.760
4	0.004	0.012	2585.60	384.82	2502.65	7.561	3.269
5	0.005	0.016	2537.00	320.97	2498.27	7.467	2.761
6	0.007	0.020	2487.48	256.73	2493.88	7.367	2.235
7	0.009	0.025	2437.04	192.20	2489.49	7.262	1.692
8	0.011	0.030	2385.71	127.43	2485.10	7.153	1.135
9	0.013	0.036	2333.51	62.51	2480.72	7.043	0.563
10	0.015	0.042	2280.54	-2.44	2476.33	6.934	-0.022

Exc. totales result. cabeza -0.00099 0.92094
Exc. reales 1er ord. cabeza 0.00000 0.92230

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2772.18	636.93	2520.20	7.983	5.199
1	0.001	0.002	2727.62	575.36	2515.82	7.918	4.761
2	0.002	0.005	2682.05	513.11	2511.43	7.847	4.304
3	0.003	0.008	2635.49	450.26	2507.04	7.769	3.828
4	0.004	0.012	2587.94	386.88	2502.65	7.683	3.332
5	0.006	0.016	2539.44	323.03	2498.27	7.591	2.818
6	0.007	0.020	2489.98	258.80	2493.88	7.492	2.286
7	0.009	0.025	2439.60	194.25	2489.49	7.388	1.737
8	0.011	0.031	2388.31	129.46	2485.10	7.280	1.172
9	0.013	0.036	2336.13	64.53	2480.72	7.172	0.591
10	0.015	0.043	2283.07	-0.48	2476.33	7.064	0.591

Exc. totales result. cabeza -0.00019 0.92196
Exc. reales 1er ord. cabeza 0.00000 0.92230

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2773.00	637.38	2520.20	8.030	5.231
1	0.001	0.002	2728.44	575.81	2515.82	7.970	4.794
2	0.002	0.005	2682.86	513.56	2511.43	7.902	4.336
3	0.003	0.008	2636.28	450.70	2507.04	7.827	3.858
4	0.004	0.012	2588.72	387.30	2502.65	7.743	3.361
5	0.006	0.016	2540.18	323.44	2498.27	7.653	2.844
6	0.007	0.020	2490.68	259.18	2493.88	7.556	2.308
7	0.009	0.025	2440.25	194.61	2489.49	7.453	1.755
8	0.011	0.031	2388.90	129.80	2485.10	7.348	1.185
9	0.013	0.037	2336.65	64.84	2480.72	7.241	0.599
10	0.015	0.043	2283.51	-0.20	2476.33	7.139	0.599

Exc. totales result. cabeza -0.00008 0.92214
Exc. reales 1er ord. cabeza 0.00000 0.92230

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2773.41	637.58	2520.20	8.052	5.246
1	0.001	0.002	2728.85	576.01	2515.82	7.994	4.809
2	0.002	0.005	2683.27	513.75	2511.43	7.928	4.351
3	0.003	0.008	2636.68	450.89	2507.04	7.854	3.873
4	0.004	0.012	2589.10	387.49	2502.65	7.773	3.374
5	0.006	0.016	2540.54	323.62	2498.27	7.684	2.856
6	0.007	0.021	2491.03	259.35	2493.88	7.588	2.319
7	0.009	0.025	2440.57	194.76	2489.49	7.487	1.764
8	0.011	0.031	2389.19	129.94	2485.10	7.383	1.192
9	0.013	0.037	2336.90	64.96	2480.72	7.277	0.603
10	0.015	0.043	2283.73	-0.10	2476.33	7.180	0.603

Exc. totales result. cabeza -0.00004 0.92222
Exc. reales 1er ord. cabeza 0.00000 0.92230

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2773.61	637.68	2520.20	8.059	5.252
1	0.001	0.002	2729.05	576.10	2515.82	8.005	4.816
2	0.002	0.005	2683.46	513.85	2511.43	7.940	4.358
3	0.003	0.008	2636.87	450.98	2507.04	7.868	3.880
4	0.004	0.012	2589.29	387.57	2502.65	7.787	3.381
5	0.006	0.016	2540.72	323.70	2498.27	7.699	2.862
6	0.007	0.021	2491.20	259.43	2493.88	7.604	2.324
7	0.009	0.025	2440.73	194.84	2489.49	7.504	1.769
8	0.011	0.031	2389.33	130.01	2485.10	7.401	1.195
9	0.013	0.037	2337.03	65.02	2480.72	7.297	0.606
10	0.015	0.043	2283.83	-0.04	2476.33	7.202	0.606

Exc. totales result. cabeza -0.00002 0.92227
Exc. reales 1er ord. cabeza 0.00000 0.92230

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2773.70	637.72	2520.20	8.065	5.255
1	0.001	0.002	2729.14	576.15	2515.82	8.009	4.819
2	0.002	0.005	2683.55	513.89	2511.43	7.945	4.361
3	0.003	0.008	2636.96	451.02	2507.04	7.873	3.882
4	0.004	0.012	2589.38	387.62	2502.65	7.792	3.384
5	0.006	0.016	2540.81	323.74	2498.27	7.705	2.865
6	0.007	0.021	2491.28	259.46	2493.88	7.611	2.327
7	0.009	0.025	2440.81	194.87	2489.49	7.511	1.771
8	0.011	0.031	2389.41	130.04	2485.10	7.409	1.197
9	0.013	0.037	2337.09	65.05	2480.72	7.305	0.607

10	0.015	0.043	2283.89	-0.02	2476.33	7.211	0.607

Exc. totales result. cabeza -0.00001 0.92229
Exc. reales 1er ord. cabeza 0.00000 0.92230

Convergencia del equilibrio sin agotamiento
Fpx = 80.000 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 5 - TANTEO 1

Fpx = 80.000 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	383.37	887.75	3884.23	0.829	4.979
1	0.001	0.000	343.41	824.63	3878.31	0.742	4.651
2	0.002	0.001	303.39	760.50	3872.38	0.665	4.354
3	0.003	0.001	263.34	695.44	3866.46	0.586	4.044
4	0.005	0.001	223.26	629.52	3860.54	0.505	3.720
5	0.006	0.002	183.18	562.81	3854.62	0.421	3.380
6	0.008	0.002	143.12	495.39	3848.69	0.334	3.025
7	0.011	0.003	103.09	427.34	3842.77	0.245	2.654
8	0.013	0.003	63.11	358.74	3836.85	0.153	2.268
9	0.015	0.004	23.21	289.68	3830.92	0.057	1.865
10	0.018	0.004	-16.61	220.20	3825.00	-0.042	1.444

Exc. totales result. cabeza 0.05757 -0.00434
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	400.33	955.84	3884.23	0.851	5.304
1	0.001	0.000	360.30	892.37	3878.31	0.778	5.026
2	0.002	0.001	320.19	827.82	3872.38	0.701	4.734
3	0.003	0.001	280.04	762.24	3866.46	0.623	4.428
4	0.005	0.002	239.85	695.71	3860.54	0.542	4.106
5	0.007	0.002	199.65	628.30	3854.62	0.458	3.769
6	0.009	0.003	159.46	560.08	3848.69	0.372	3.416
7	0.011	0.003	119.29	491.14	3842.77	0.283	3.048
8	0.014	0.004	79.16	421.56	3836.85	0.191	2.662
9	0.016	0.004	39.10	351.42	3830.92	0.096	2.260
10	0.019	0.005	-0.87	280.85	3825.00	0.096	1.840

Exc. totales result. cabeza 0.07343 -0.00023
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	400.98	961.00	3884.23	0.854	5.340
1	0.001	0.000	360.96	897.61	3878.31	0.780	5.063
2	0.002	0.001	320.88	833.12	3872.38	0.704	4.771
3	0.003	0.001	280.74	767.60	3866.46	0.625	4.465
4	0.005	0.002	240.58	701.12	3860.54	0.544	4.143
5	0.007	0.002	200.40	633.75	3854.62	0.461	3.807
6	0.009	0.003	160.23	565.57	3848.69	0.374	3.454
7	0.011	0.003	120.07	496.65	3842.77	0.285	3.085
8	0.014	0.004	79.96	427.08	3836.85	0.193	2.700
9	0.017	0.004	39.92	356.94	3830.92	0.098	2.297
10	0.019	0.005	-0.04	286.33	3825.00	0.098	1.878

Exc. totales result. cabeza 0.07486 -0.00001
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	401.01	961.47	3884.23	0.854	5.343
1	0.001	0.000	360.99	898.09	3878.31	0.780	5.066
2	0.002	0.001	320.91	833.61	3872.38	0.704	4.774
3	0.003	0.001	280.78	768.09	3866.46	0.625	4.468
4	0.005	0.002	240.62	701.62	3860.54	0.544	4.146
5	0.007	0.002	200.44	634.25	3854.62	0.461	3.810
6	0.009	0.003	160.26	566.07	3848.69	0.374	3.457
7	0.011	0.003	120.11	497.15	3842.77	0.285	3.088
8	0.014	0.004	80.01	427.58	3836.85	0.193	2.703
9	0.017	0.004	39.96	357.45	3830.92	0.098	2.301
10	0.019	0.005	-0.00	286.83	3825.00	0.098	1.881

Exc. totales result. cabeza 0.07499 -0.00000
Exc. reales 1er ord. cabeza 0.07500 0.00000

Convergencia del equilibrio sin agotamiento
Fpx = 80.000 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 6 - TANTEO 1

Fpx = 80.000 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	383.37	845.78	3309.72	0.818	4.573
1	0.001	0.000	343.59	783.26	3305.34	0.708	4.212
2	0.002	0.001	303.78	719.96	3300.95	0.635	3.926
3	0.003	0.001	263.96	655.95	3296.56	0.560	3.629
4	0.004	0.001	224.14	591.27	3292.17	0.482	3.320
5	0.006	0.002	184.33	526.00	3287.79	0.402	2.998
6	0.008	0.002	144.56	460.18	3283.40	0.320	2.664
7	0.010	0.003	104.83	393.89	3279.01	0.236	2.316
8	0.012	0.003	65.17	327.19	3274.63	0.149	1.955
9	0.014	0.004	25.58	260.15	3270.24	0.059	1.580
10	0.016	0.004	-13.92	192.80	3265.85	-0.033	1.191

Exc. totales result. cabeza 0.05904 -0.00426
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	397.55	898.87	3309.72	0.808	4.762
1	0.001	0.000	357.72	836.13	3305.34	0.737	4.491
2	0.002	0.001	317.85	772.56	3300.95	0.664	4.209
3	0.003	0.001	277.96	708.21	3296.56	0.589	3.914
4	0.005	0.002	238.06	643.14	3292.17	0.512	3.608
5	0.006	0.002	198.18	577.41	3287.79	0.432	3.288
6	0.008	0.002	158.32	511.08	3283.40	0.351	2.956
7	0.010	0.003	118.49	444.22	3279.01	0.266	2.610
8	0.013	0.003	78.72	376.88	3274.63	0.180	2.250
9	0.015	0.004	39.02	309.14	3270.24	0.091	1.877
10	0.017	0.005	-0.58	241.10	3265.85	0.091	1.489

Exc. totales result. cabeza 0.07382 -0.00018
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	397.96	902.12	3309.72	0.809	4.783
1	0.001	0.000	358.15	839.43	3305.34	0.738	4.513
2	0.002	0.001	318.29	775.91	3300.95	0.665	4.231
3	0.003	0.001	278.42	711.60	3296.56	0.590	3.937
4	0.005	0.002	238.54	646.58	3292.17	0.513	3.630
5	0.006	0.002	198.67	580.88	3287.79	0.434	3.310
6	0.008	0.002	158.82	514.59	3283.40	0.352	2.978
7	0.010	0.003	119.01	447.75	3279.01	0.268	2.632
8	0.013	0.003	79.26	380.44	3274.63	0.181	2.273
9	0.015	0.004	39.57	312.72	3270.24	0.092	1.900
10	0.017	0.005	-0.02	244.66	3265.85	0.092	1.511

Exc. totales result. cabeza 0.07491 -0.00001
Exc. reales 1er ord. cabeza 0.07500 0.00000

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	397.98	902.35	3309.72	0.809	4.784
1	0.001	0.000	358.16	839.67	3305.34	0.738	4.514
2	0.002	0.001	318.31	776.15	3300.95	0.665	4.232
3	0.003	0.001	278.44	711.85	3296.56	0.590	3.938
4	0.005	0.002	238.56	646.83	3292.17	0.513	3.631
5	0.006	0.002	198.69	581.14	3287.79	0.434	3.312

6	0.008	0.002	158.84	514.85	3283.40	0.352	2.980
7	0.010	0.003	119.04	448.01	3279.01	0.268	2.634
8	0.013	0.003	79.28	380.70	3274.63	0.181	2.275
9	0.015	0.004	39.60	312.98	3270.24	0.092	1.901
10	0.017	0.005	-0.00	244.92	3265.85	0.092	1.513

Exc. totales result. cabeza 0.07499 -0.00000
Exc. reales 1er ord. cabeza 0.07500 0.00000

Convergencia del equilibrio sin agotamiento
Fpx = 80.000 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 7 - TANTEO 1

Fpx = 80.000 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2693.90	600.59	2876.69	7.524	4.831
1	0.001	0.002	2648.75	538.91	2870.77	7.353	4.295
2	0.001	0.005	2602.53	476.54	2864.84	7.223	3.822
3	0.002	0.008	2555.30	413.57	2858.92	7.109	3.345
4	0.004	0.011	2507.05	350.08	2853.00	6.999	2.859
5	0.005	0.015	2457.83	286.14	2847.08	6.885	2.359
6	0.007	0.019	2407.66	221.85	2841.15	6.768	1.846
7	0.008	0.024	2356.56	157.27	2835.23	6.646	1.320
8	0.010	0.029	2304.56	92.51	2829.31	6.521	0.783
9	0.012	0.034	2251.68	27.64	2823.38	6.394	0.236
10	0.013	0.040	2197.84	-37.29	2817.46	6.268	-0.320

Exc. totales result. cabeza -0.01323 0.78008
Exc. reales 1er ord. cabeza 0.00000 0.81927

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2807.51	638.95	2876.69	7.674	5.003
1	0.001	0.002	2761.85	577.09	2870.77	7.548	4.546
2	0.001	0.005	2715.10	514.50	2864.84	7.439	4.088
3	0.003	0.008	2667.26	451.26	2858.92	7.333	3.619
4	0.004	0.012	2618.36	387.45	2853.00	7.224	3.137
5	0.005	0.016	2568.43	323.14	2847.08	7.111	2.640
6	0.007	0.020	2517.49	258.41	2841.15	6.993	2.130
7	0.009	0.025	2465.56	193.36	2835.23	6.872	1.607
8	0.011	0.030	2412.66	128.06	2829.31	6.749	1.072
9	0.013	0.036	2358.83	62.60	2823.38	6.626	0.528
10	0.014	0.042	2304.19	-2.89	2817.46	6.507	-0.025

Exc. totales result. cabeza -0.00102 0.81782
Exc. reales 1er ord. cabeza 0.00000 0.81927

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2809.50	641.17	2876.69	7.752	5.065
1	0.001	0.002	2764.05	579.38	2870.77	7.654	4.620
2	0.002	0.005	2717.49	516.84	2864.84	7.558	4.164
3	0.003	0.008	2669.83	453.63	2858.92	7.458	3.693
4	0.004	0.012	2621.08	389.84	2853.00	7.352	3.206
5	0.005	0.016	2571.29	325.55	2847.08	7.240	2.704
6	0.007	0.020	2520.46	260.83	2841.15	7.123	2.186
7	0.009	0.025	2468.62	195.77	2835.23	7.002	1.656
8	0.011	0.030	2415.79	130.45	2829.31	6.879	1.113
9	0.013	0.036	2362.01	64.98	2823.38	6.756	0.559
10	0.015	0.042	2307.29	-0.58	2817.46	6.637	0.559

Exc. totales result. cabeza -0.00020 0.81892
Exc. reales 1er ord. cabeza 0.00000 0.81927

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2810.42	641.71	2876.69	7.790	5.093
1	0.001	0.002	2764.97	579.91	2870.77	7.705	4.654
2	0.002	0.005	2718.40	517.37	2864.84	7.616	4.200
3	0.003	0.008	2670.72	454.16	2858.92	7.519	3.727
4	0.004	0.012	2621.96	390.35	2853.00	7.416	3.238
5	0.005	0.016	2572.12	326.03	2847.08	7.305	2.732
6	0.007	0.020	2521.25	261.29	2841.15	7.189	2.211
7	0.009	0.025	2469.35	196.20	2835.23	7.069	1.676
8	0.011	0.030	2416.46	130.86	2829.31	6.946	1.128
9	0.013	0.036	2362.59	65.34	2823.38	6.824	0.568
10	0.015	0.042	2307.78	-0.25	2817.46	6.710	0.568

Exc. totales result. cabeza -0.00009 0.81910
Exc. reales 1er ord. cabeza 0.00000 0.81927

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2810.89	641.95	2876.69	7.808	5.106
1	0.001	0.002	2765.45	580.15	2870.77	7.729	4.670
2	0.002	0.005	2718.87	517.61	2864.84	7.643	4.216
3	0.003	0.008	2671.18	454.39	2858.92	7.549	3.744
4	0.004	0.012	2622.40	390.57	2853.00	7.447	3.253
5	0.005	0.016	2572.55	326.24	2847.08	7.338	2.746
6	0.007	0.020	2521.64	261.49	2841.15	7.223	2.223
7	0.009	0.025	2469.72	196.38	2835.23	7.103	1.685
8	0.011	0.030	2416.79	131.02	2829.31	6.981	1.135
9	0.013	0.036	2362.88	65.49	2823.38	6.860	0.572
10	0.015	0.042	2308.02	-0.12	2817.46	6.748	0.572

Exc. totales result. cabeza -0.00004 0.81919
Exc. reales 1er ord. cabeza 0.00000 0.81927

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2811.13	642.07	2876.69	7.816	5.111
1	0.001	0.002	2765.68	580.27	2870.77	7.740	4.677
2	0.002	0.005	2719.10	517.72	2864.84	7.655	4.224
3	0.003	0.008	2671.41	454.50	2858.92	7.562	3.751
4	0.004	0.012	2622.62	390.68	2853.00	7.463	3.261
5	0.005	0.016	2572.76	326.35	2847.08	7.354	2.753
6	0.007	0.020	2521.85	261.58	2841.15	7.240	2.229
7	0.009	0.025	2469.90	196.47	2835.23	7.121	1.690
8	0.011	0.031	2416.96	131.10	2829.31	6.999	1.139
9	0.013	0.036	2363.03	65.56	2823.38	6.878	0.575
10	0.015	0.042	2308.15	-0.06	2817.46	6.768	0.575

Exc. totales result. cabeza -0.00002 0.81923
Exc. reales 1er ord. cabeza 0.00000 0.81927

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2811.23	642.12	2876.69	7.819	5.114
1	0.001	0.002	2765.79	580.33	2870.77	7.746	4.681
2	0.002	0.005	2719.21	517.78	2864.84	7.662	4.228
3	0.003	0.008	2671.51	454.55	2858.92	7.570	3.755
4	0.004	0.012	2622.72	390.73	2853.00	7.469	3.264
5	0.005	0.016	2572.85	326.40	2847.08	7.361	2.756
6	0.007	0.020	2521.93	261.63	2841.15	7.247	2.232
7	0.009	0.025	2469.99	196.51	2835.23	7.128	1.693
8	0.011	0.031	2417.03	131.14	2829.31	7.007	1.140
9	0.013	0.036	2363.10	65.60	2823.38	6.886	0.576
10	0.015	0.042	2308.20	-0.03	2817.46	6.777	0.576

Exc. totales result. cabeza -0.00001 0.81925
Exc. reales 1er ord. cabeza 0.00000 0.81927

Convergencia del equilibrio sin agotamiento
Fpx = 80.000 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 8 - TANTEO 1

Fpx = 80.000 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2693.90	600.59	2302.19	7.945	5.001
1	0.001	0.002	2650.00	539.24	2297.81	7.957	4.567

2	0.001	0.005	2605.19	477.30	2293.42	7.928	4.120
3	0.003	0.008	2559.48	414.83	2289.03	7.883	3.643
4	0.004	0.012	2512.89	351.91	2284.64	7.825	3.142
5	0.005	0.016	2465.43	288.60	2280.26	7.760	2.619
6	0.007	0.020	2417.12	224.96	2275.87	7.688	2.075
7	0.009	0.025	2367.96	161.08	2271.48	7.610	1.510
8	0.010	0.030	2317.98	97.01	2267.09	7.527	0.924
9	0.012	0.036	2267.18	32.85	2262.71	7.441	0.318
10	0.014	0.042	2215.51	-31.37	2258.32	7.354	-0.308

Exc. totales result. cabeza -0.01389 0.98104
Exc. reales 1er ord. cabeza 0.00000 1.02211

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2789.12	632.80	2302.19	8.231	5.256
1	0.001	0.002	2744.84	571.30	2297.81	8.209	4.834
2	0.002	0.005	2699.62	509.19	2293.42	8.169	4.383
3	0.003	0.008	2653.45	446.52	2289.03	8.118	3.907
4	0.004	0.012	2606.36	383.34	2284.64	8.058	3.408
5	0.006	0.016	2558.35	319.74	2280.26	7.992	2.888
6	0.007	0.021	2509.44	255.78	2275.87	7.920	2.347
7	0.009	0.026	2459.63	191.52	2271.48	7.844	1.785
8	0.011	0.031	2408.95	127.04	2267.09	7.764	1.203
9	0.013	0.037	2357.41	62.42	2262.71	7.683	0.600
10	0.015	0.044	2305.10	-2.24	2258.32	7.604	-0.022

Exc. totales result. cabeza -0.00099 1.02072
Exc. reales 1er ord. cabeza 0.00000 1.02211

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2790.65	634.51	2302.19	8.362	5.346
1	0.001	0.002	2746.54	573.07	2297.81	8.332	4.913
2	0.002	0.005	2701.46	510.99	2293.42	8.291	4.455
3	0.003	0.008	2655.42	448.35	2289.03	8.241	3.974
4	0.004	0.012	2608.45	385.19	2284.64	8.183	3.470
5	0.006	0.016	2560.53	321.60	2280.26	8.120	2.945
6	0.007	0.021	2511.70	257.64	2275.87	8.050	2.397
7	0.009	0.026	2461.96	193.38	2271.48	7.976	1.829
8	0.011	0.032	2411.33	128.89	2267.09	7.900	1.239
9	0.013	0.038	2359.81	64.26	2262.71	7.822	0.628
10	0.015	0.044	2307.43	-0.45	2258.32	7.746	0.628

Exc. totales result. cabeza -0.00020 1.02175
Exc. reales 1er ord. cabeza 0.00000 1.02211

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2791.44	634.93	2302.19	8.419	5.383
1	0.001	0.002	2747.33	573.49	2297.81	8.387	4.946
2	0.002	0.005	2702.24	511.41	2293.42	8.347	4.486
3	0.003	0.008	2656.19	448.75	2289.03	8.298	4.003
4	0.004	0.012	2609.19	385.59	2284.64	8.244	3.497
5	0.006	0.016	2561.25	321.98	2280.26	8.182	2.969
6	0.007	0.021	2512.38	258.00	2275.87	8.116	2.419
7	0.009	0.026	2462.59	193.72	2271.48	8.045	1.847
8	0.011	0.032	2411.90	129.21	2267.09	7.971	1.252
9	0.013	0.038	2360.32	64.55	2262.71	7.897	0.636
10	0.015	0.044	2307.87	-0.19	2258.32	7.829	0.636

Exc. totales result. cabeza -0.00008 1.02194
Exc. reales 1er ord. cabeza 0.00000 1.02211

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2791.83	635.11	2302.19	8.444	5.399
1	0.001	0.002	2747.72	573.67	2297.81	8.412	4.961
2	0.002	0.005	2702.62	511.58	2293.42	8.372	4.500
3	0.003	0.008	2656.57	448.93	2289.03	8.325	4.016
4	0.004	0.012	2609.55	385.75	2284.64	8.272	3.510
5	0.006	0.016	2561.60	322.14	2280.26	8.213	2.981
6	0.007	0.021	2512.71	258.15	2275.87	8.148	2.429
7	0.009	0.026	2462.90	193.86	2271.48	8.080	1.855
8	0.011	0.032	2412.18	129.33	2267.09	8.008	1.259
9	0.013	0.038	2360.57	64.66	2262.71	7.936	0.641
10	0.015	0.044	2308.07	-0.08	2258.32	7.873	0.641

Exc. totales result. cabeza -0.00004 1.02203
Exc. reales 1er ord. cabeza 0.00000 1.02211

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2792.02	635.20	2302.19	8.454	5.406
1	0.001	0.002	2747.90	573.75	2297.81	8.422	4.968
2	0.002	0.005	2702.80	511.67	2293.42	8.384	4.507
3	0.003	0.008	2656.74	449.00	2289.03	8.338	4.023
4	0.004	0.012	2609.73	385.83	2284.64	8.286	3.516
5	0.006	0.016	2561.76	322.21	2280.26	8.228	2.987
6	0.007	0.021	2512.86	258.22	2275.87	8.164	2.434
7	0.009	0.026	2463.04	193.92	2271.48	8.097	1.860
8	0.011	0.032	2412.31	129.39	2267.09	8.027	1.263
9	0.013	0.038	2360.68	64.71	2262.71	7.957	0.643
10	0.015	0.044	2308.17	-0.04	2258.32	7.898	0.643

Exc. totales result. cabeza -0.00002 1.02208
Exc. reales 1er ord. cabeza 0.00000 1.02211

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2792.10	635.23	2302.19	8.458	5.409
1	0.001	0.002	2747.98	573.79	2297.81	8.426	4.970
2	0.002	0.005	2702.89	511.70	2293.42	8.387	4.509
3	0.003	0.008	2656.83	449.04	2289.03	8.342	4.025
4	0.004	0.012	2609.81	385.87	2284.64	8.290	3.518
5	0.006	0.016	2561.84	322.25	2280.26	8.233	2.989
6	0.007	0.021	2512.94	258.25	2275.87	8.170	2.437
7	0.009	0.026	2463.12	193.95	2271.48	8.104	1.862
8	0.011	0.032	2412.38	129.42	2267.09	8.037	1.264
9	0.013	0.038	2360.75	64.74	2262.71	7.968	0.644
10	0.015	0.044	2308.23	-0.02	2258.32	7.911	0.644

Exc. totales result. cabeza -0.00001 1.02210
Exc. reales 1er ord. cabeza 0.00000 1.02211

Convergencia del equilibrio sin agotamiento
Fpx = 80.000 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 9 - TANTEO 1

Fpx = 67.300 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2669.55	505.25	2756.41	7.450	4.068
1	0.000	0.002	2624.72	453.42	2750.49	7.266	3.617
2	0.001	0.005	2578.89	401.03	2744.56	7.143	3.218
3	0.002	0.008	2532.10	348.17	2738.64	7.044	2.821
4	0.003	0.011	2484.36	294.87	2732.72	6.949	2.415
5	0.004	0.015	2435.70	241.22	2726.80	6.854	1.998
6	0.006	0.019	2386.14	187.28	2720.87	6.753	1.568
7	0.007	0.024	2335.70	133.12	2714.95	6.648	1.126
8	0.008	0.029	2284.40	78.79	2709.03	6.538	0.673
9	0.010	0.034	2232.27	24.39	2703.10	6.424	0.210
10	0.011	0.040	2179.21	-30.07	2697.18	6.307	-0.262

Exc. totales result. cabeza -0.01115 0.80796
Exc. reales 1er ord. cabeza 0.00000 0.84678

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2777.43	536.22	2756.41	7.571	4.202
1	0.001	0.002	2732.12	484.25	2750.49	7.453	3.817
2	0.001	0.005	2685.78	431.69	2744.56	7.358	3.435
3	0.002	0.008	2638.42	378.60	2738.64	7.268	3.045
4	0.003	0.012	2590.06	325.05	2732.72	7.177	2.643
5	0.005	0.016	2540.73	271.11	2726.80	7.082	2.229
6	0.006	0.020	2490.43	216.83	2720.87	6.981	1.801
7	0.007	0.025	2439.20	162.28	2714.95	6.875	1.362
8	0.009	0.030	2387.04	107.53	2709.03	6.765	0.911

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
9	0.011	0.035	2333.99	52.66	2703.10	6.652	0.450
10	0.012	0.041	2280.18	-2.24	2697.18	6.539	-0.019

Exc. totales result. cabeza -0.00083 0.84539
Exc. reales 1er ord. cabeza 0.00000 0.84678

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2779.11	537.90	2756.41	7.634	4.245
1	0.001	0.002	2734.02	485.98	2750.49	7.549	3.875
2	0.001	0.005	2687.87	433.46	2744.56	7.470	3.496
3	0.002	0.008	2640.69	380.41	2738.64	7.388	3.105
4	0.003	0.012	2592.50	326.89	2732.72	7.301	2.700
5	0.005	0.016	2543.30	272.96	2726.80	7.208	2.280
6	0.006	0.020	2493.13	218.69	2720.87	7.108	1.847
7	0.007	0.025	2441.99	164.14	2714.95	7.003	1.401
8	0.009	0.030	2389.92	109.39	2709.03	6.893	0.943
9	0.011	0.036	2336.93	54.51	2703.10	6.780	0.475
10	0.012	0.042	2283.05	-0.44	2697.18	6.667	0.475

Exc. totales result. cabeza -0.00016 0.84646
Exc. reales 1er ord. cabeza 0.00000 0.84678

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2779.93	538.30	2756.41	7.664	4.263
1	0.001	0.002	2734.84	486.38	2750.49	7.595	3.900
2	0.001	0.005	2688.69	433.86	2744.56	7.524	3.524
3	0.002	0.008	2641.50	380.81	2738.64	7.446	3.132
4	0.003	0.012	2593.28	327.28	2732.72	7.362	2.725
5	0.005	0.016	2544.06	273.33	2726.80	7.271	2.303
6	0.006	0.020	2493.84	219.04	2720.87	7.173	1.867
7	0.008	0.025	2442.66	164.47	2714.95	7.069	1.417
8	0.009	0.030	2390.52	109.70	2709.03	6.960	0.955
9	0.011	0.036	2337.46	54.79	2703.10	6.848	0.482
10	0.012	0.042	2283.50	-0.18	2697.18	6.737	0.482

Exc. totales result. cabeza -0.00007 0.84662
Exc. reales 1er ord. cabeza 0.00000 0.84678

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2780.36	538.48	2756.41	7.678	4.272
1	0.001	0.002	2735.27	486.56	2750.49	7.617	3.912
2	0.001	0.005	2689.11	434.04	2744.56	7.549	3.537
3	0.002	0.008	2641.91	380.98	2738.64	7.474	3.145
4	0.003	0.012	2593.68	327.44	2732.72	7.392	2.737
5	0.005	0.016	2544.44	273.49	2726.80	7.302	2.314
6	0.006	0.020	2494.20	219.19	2720.87	7.205	1.877
7	0.008	0.025	2442.99	164.61	2714.95	7.102	1.425
8	0.009	0.030	2390.82	109.82	2709.03	6.994	0.961
9	0.011	0.036	2337.73	54.90	2703.10	6.883	0.486
10	0.012	0.042	2283.72	-0.09	2697.18	6.775	0.486

Exc. totales result. cabeza -0.00003 0.84671
Exc. reales 1er ord. cabeza 0.00000 0.84678

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2780.57	538.56	2756.41	7.684	4.276
1	0.001	0.002	2735.47	486.65	2750.49	7.625	3.917
2	0.001	0.005	2689.32	434.13	2744.56	7.559	3.542
3	0.002	0.008	2642.11	381.06	2738.64	7.488	3.151
4	0.003	0.012	2593.88	327.52	2732.72	7.406	2.743
5	0.005	0.016	2544.63	273.56	2726.80	7.318	2.320
6	0.006	0.020	2494.38	219.26	2720.87	7.222	1.881
7	0.008	0.025	2443.16	164.68	2714.95	7.119	1.429
8	0.009	0.030	2390.98	109.88	2709.03	7.012	0.964
9	0.011	0.036	2337.86	54.95	2703.10	6.901	0.487
10	0.012	0.042	2283.83	-0.04	2697.18	6.795	0.487

Exc. totales result. cabeza -0.00001 0.84675
Exc. reales 1er ord. cabeza 0.00000 0.84678

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2780.66	538.60	2756.41	7.686	4.278
1	0.001	0.002	2735.57	486.69	2750.49	7.631	3.920
2	0.001	0.005	2689.41	434.16	2744.56	7.566	3.545
3	0.002	0.008	2642.21	381.10	2738.64	7.493	3.154
4	0.003	0.012	2593.97	327.56	2732.72	7.412	2.746
5	0.005	0.016	2544.71	273.60	2726.80	7.324	2.322
6	0.006	0.020	2494.46	219.29	2720.87	7.229	1.884
7	0.008	0.025	2443.23	164.71	2714.95	7.127	1.431
8	0.009	0.030	2391.04	109.91	2709.03	7.020	0.966
9	0.011	0.036	2337.92	54.98	2703.10	6.910	0.488
10	0.012	0.042	2283.88	-0.02	2697.18	6.804	0.488

Exc. totales result. cabeza -0.00001 0.84677
Exc. reales 1er ord. cabeza 0.00000 0.84678

Convergencia del equilibrio sin agotamiento
Fpx = 67.300 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 10 - TANTEO 1

Fpx = 67.300 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2669.55	505.25	2269.61	7.825	4.193
1	0.000	0.002	2625.77	453.65	2265.23	7.804	3.818
2	0.001	0.005	2581.11	401.57	2260.84	7.771	3.440
3	0.002	0.008	2535.60	349.06	2256.45	7.731	3.042
4	0.003	0.012	2489.23	296.17	2252.06	7.683	2.626
5	0.004	0.015	2442.03	242.96	2247.68	7.629	2.191
6	0.006	0.020	2394.00	189.49	2243.29	7.569	1.738
7	0.007	0.025	2345.15	135.80	2238.90	7.503	1.267
8	0.009	0.030	2295.51	81.98	2234.51	7.432	0.777
9	0.010	0.036	2245.08	28.06	2230.13	7.356	0.271
10	0.012	0.042	2193.79	-25.90	2225.74	7.277	-0.254

Exc. totales result. cabeza -0.01164 0.98565
Exc. reales 1er ord. cabeza 0.00000 1.02614

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2762.12	531.84	2269.61	8.070	4.391
1	0.001	0.002	2717.97	480.13	2265.23	8.043	4.033
2	0.001	0.005	2672.92	427.91	2260.84	8.009	3.656
3	0.002	0.008	2626.96	375.23	2256.45	7.967	3.260
4	0.003	0.012	2580.10	322.14	2252.06	7.919	2.846
5	0.005	0.016	2532.37	268.69	2247.68	7.865	2.413
6	0.006	0.021	2483.75	214.95	2243.29	7.805	1.963
7	0.008	0.026	2434.28	160.96	2238.90	7.740	1.494
8	0.009	0.031	2383.96	106.80	2234.51	7.671	1.008
9	0.011	0.037	2332.79	52.51	2230.13	7.597	0.504
10	0.013	0.043	2280.90	-1.81	2225.74	7.522	-0.018

Exc. totales result. cabeza -0.00081 1.02478
Exc. reales 1er ord. cabeza 0.00000 1.02614

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2763.55	533.21	2269.61	8.182	4.457
1	0.001	0.002	2719.56	481.54	2265.23	8.157	4.095
2	0.001	0.005	2674.66	429.35	2260.84	8.125	3.715
3	0.002	0.008	2628.83	376.70	2256.45	8.086	3.315
4	0.003	0.012	2582.09	323.62	2252.06	8.042	2.897
5	0.005	0.016	2534.45	270.19	2247.68	7.991	2.461
6	0.006	0.021	2485.92	216.45	2243.29	7.934	2.005
7	0.008	0.026	2436.52	162.46	2238.90	7.871	1.531
8	0.009	0.031	2386.25	108.29	2234.51	7.805	1.038
9	0.011	0.037	2335.12	54.00	2230.13	7.734	0.526
10	0.013	0.043	2283.15	-0.36	2225.74	7.662	0.526

Exc. totales result. cabeza -0.00016 1.02579
Exc. reales 1er ord. cabeza 0.00000 1.02614

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2764.29	533.54	2269.61	8.231	4.484
1	0.001	0.002	2720.30	481.87	2265.23	8.208	4.121
2	0.001	0.005	2675.39	429.68	2260.84	8.178	3.740
3	0.002	0.008	2629.55	377.02	2256.45	8.142	3.339
4	0.003	0.012	2582.79	323.94	2252.06	8.100	2.920
5	0.005	0.016	2535.13	270.49	2247.68	8.052	2.481
6	0.006	0.021	2486.56	216.74	2243.29	7.998	2.023
7	0.008	0.026	2437.11	162.73	2238.90	7.939	1.545
8	0.009	0.031	2386.79	108.54	2234.51	7.875	1.049
9	0.011	0.037	2335.60	54.23	2230.13	7.808	0.533
10	0.013	0.044	2283.56	-0.15	2225.74	7.742	0.533

Exc. totales result. cabeza -0.00007 1.02598
Exc. reales 1er ord. cabeza 0.00000 1.02614

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2764.65	533.68	2269.61	8.252	4.495
1	0.001	0.002	2720.67	482.01	2265.23	8.230	4.133
2	0.001	0.005	2675.75	429.82	2260.84	8.202	3.751
3	0.002	0.008	2629.90	377.15	2256.45	8.168	3.350
4	0.003	0.012	2583.13	324.07	2252.06	8.128	2.930
5	0.005	0.016	2535.45	270.61	2247.68	8.082	2.490
6	0.006	0.021	2486.87	216.85	2243.29	8.030	2.031
7	0.008	0.026	2437.40	162.84	2238.90	7.973	1.553
8	0.009	0.031	2387.05	108.64	2234.51	7.911	1.054
9	0.011	0.037	2335.83	54.32	2230.13	7.846	0.537
10	0.013	0.044	2283.76	-0.07	2225.74	7.785	0.537

Exc. totales result. cabeza -0.00003 1.02607
Exc. reales 1er ord. cabeza 0.00000 1.02614

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2764.82	533.75	2269.61	8.261	4.500
1	0.001	0.002	2720.84	482.08	2265.23	8.240	4.138
2	0.001	0.005	2675.92	429.89	2260.84	8.213	3.756
3	0.002	0.008	2630.07	377.22	2256.45	8.180	3.355
4	0.003	0.012	2583.29	324.13	2252.06	8.141	2.935
5	0.005	0.016	2535.61	270.67	2247.68	8.096	2.495
6	0.006	0.021	2487.02	216.91	2243.29	8.046	2.035
7	0.008	0.026	2437.54	162.89	2238.90	7.990	1.556
8	0.009	0.031	2387.17	108.69	2234.51	7.930	1.057
9	0.011	0.037	2335.94	54.36	2230.13	7.867	0.538
10	0.013	0.044	2283.85	-0.03	2225.74	7.808	0.538

Exc. totales result. cabeza -0.00001 1.02611
Exc. reales 1er ord. cabeza 0.00000 1.02614

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2764.90	533.78	2269.61	8.264	4.502
1	0.001	0.002	2720.92	482.11	2265.23	8.243	4.140
2	0.001	0.005	2676.00	429.91	2260.84	8.216	3.758
3	0.002	0.008	2630.14	377.25	2256.45	8.184	3.357
4	0.003	0.012	2583.37	324.16	2252.06	8.145	2.937
5	0.005	0.016	2535.68	270.70	2247.68	8.101	2.497
6	0.006	0.021	2487.09	216.93	2243.29	8.051	2.037
7	0.008	0.026	2437.61	162.92	2238.90	7.996	1.558
8	0.009	0.031	2387.24	108.71	2234.51	7.940	1.059
9	0.011	0.037	2336.00	54.38	2230.13	7.878	0.539
10	0.013	0.044	2283.90	-0.01	2225.74	7.821	0.539

Exc. totales result. cabeza -0.00001 1.02613
Exc. reales 1er ord. cabeza 0.00000 1.02614

Convergencia del equilibrio sin agotamiento
Fpx = 67.300 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 11 - TANTEO 1

Fpx = 67.300 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2693.90	505.25	2538.40	7.699	4.135
1	0.000	0.002	2649.48	453.52	2532.48	7.593	3.721
2	0.001	0.005	2604.12	401.27	2526.55	7.514	3.332
3	0.002	0.008	2557.83	348.56	2520.63	7.443	2.934
4	0.003	0.011	2510.62	295.44	2514.71	7.371	2.523
5	0.004	0.015	2462.51	241.98	2508.79	7.296	2.096
6	0.006	0.020	2413.53	188.24	2502.86	7.214	1.653
7	0.007	0.024	2363.68	134.28	2496.94	7.127	1.196
8	0.009	0.030	2313.00	80.17	2491.02	7.034	0.724
9	0.010	0.035	2261.49	25.98	2485.09	6.936	0.238
10	0.012	0.041	2209.06	-28.27	2479.17	6.834	-0.262

Exc. totales result. cabeza -0.01140 0.89105
Exc. reales 1er ord. cabeza 0.00000 0.93106

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2796.34	534.44	2538.40	7.885	4.304
1	0.001	0.002	2751.47	482.57	2532.48	7.811	3.933
2	0.001	0.005	2705.60	430.15	2526.55	7.745	3.553
3	0.002	0.008	2658.76	377.23	2520.63	7.679	3.159
4	0.003	0.012	2610.94	323.87	2514.71	7.609	2.751
5	0.005	0.016	2562.18	270.12	2508.79	7.533	2.327
6	0.006	0.020	2512.47	216.06	2502.86	7.451	1.886
7	0.008	0.025	2461.85	161.74	2496.94	7.364	1.431
8	0.009	0.031	2410.33	107.22	2491.02	7.271	0.961
9	0.011	0.036	2357.92	52.59	2485.09	7.174	0.478
10	0.012	0.042	2304.77	-2.07	2479.17	7.075	-0.019

Exc. totales result. cabeza -0.00084 0.92965
Exc. reales 1er ord. cabeza 0.00000 0.93106

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2797.70	535.93	2538.40	7.974	4.360
1	0.001	0.002	2753.04	484.12	2532.48	7.919	3.994
2	0.001	0.005	2707.38	431.75	2526.55	7.863	3.614
3	0.002	0.008	2660.72	378.87	2520.63	7.803	3.219
4	0.003	0.012	2613.07	325.53	2514.71	7.736	2.806
5	0.005	0.016	2564.46	271.81	2508.79	7.663	2.377
6	0.006	0.021	2514.89	217.76	2502.86	7.583	1.932
7	0.008	0.025	2464.38	163.44	2496.94	7.497	1.470
8	0.009	0.031	2412.95	108.93	2491.02	7.406	0.993
9	0.011	0.037	2360.62	54.29	2485.09	7.310	0.502
10	0.013	0.043	2307.40	-0.41	2479.17	7.213	0.502

Exc. totales result. cabeza -0.00016 0.93072
Exc. reales 1er ord. cabeza 0.00000 0.93106

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2798.50	536.31	2538.40	8.015	4.384
1	0.001	0.002	2753.85	484.50	2532.48	7.969	4.021
2	0.001	0.005	2708.18	432.12	2526.55	7.919	3.641
3	0.002	0.008	2661.51	379.23	2520.63	7.862	3.245
4	0.003	0.012	2613.84	325.89	2514.71	7.798	2.831
5	0.005	0.016	2565.19	272.15	2508.79	7.728	2.399
6	0.006	0.021	2515.58	218.08	2502.86	7.650	1.951
7	0.008	0.026	2465.03	163.75	2496.94	7.566	1.486
8	0.009	0.031	2413.54	109.22	2491.02	7.477	1.005
9	0.011	0.037	2361.14	54.55	2485.09	7.384	0.509
10	0.013	0.043	2307.84	-0.17	2479.17	7.291	0.509

Exc. totales result. cabeza -0.00007 0.93089
Exc. reales 1er ord. cabeza 0.00000 0.93106

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2798.91	536.47	2538.40	8.033	4.394
1	0.001	0.002	2754.26	484.66	2532.48	7.992	4.033
2	0.001	0.005	2708.59	432.28	2526.55	7.945	3.654
3	0.002	0.008	2661.91	379.39	2520.63	7.890	3.257
4	0.003	0.012	2614.23	326.04	2514.71	7.829	2.842
5	0.005	0.016	2565.56	272.30	2508.79	7.760	2.410

6	0.006	0.021	2515.93	218.22	2502.86	7.684	1.960
7	0.008	0.026	2465.35	163.88	2496.94	7.602	1.494
8	0.009	0.031	2413.83	109.33	2491.02	7.514	1.011
9	0.011	0.037	2361.39	54.66	2485.09	7.423	0.513
10	0.013	0.043	2308.06	-0.08	2479.17	7.333	0.513

Exc. totales result. cabeza -0.00003 0.93098
Exc. reales 1er ord. cabeza 0.00000 0.93106

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2799.11	536.55	2538.40	8.040	4.399
1	0.001	0.002	2754.46	484.74	2532.48	8.003	4.039
2	0.001	0.005	2708.79	432.36	2526.55	7.957	3.660
3	0.002	0.008	2662.10	379.46	2520.63	7.904	3.263
4	0.003	0.012	2614.42	326.11	2514.71	7.843	2.848
5	0.005	0.016	2565.75	272.36	2508.79	7.776	2.415
6	0.006	0.021	2516.11	218.28	2502.86	7.701	1.965
7	0.008	0.026	2465.51	163.94	2496.94	7.620	1.498
8	0.009	0.031	2413.98	109.39	2491.02	7.534	1.014
9	0.011	0.037	2361.52	54.71	2485.09	7.443	0.515
10	0.013	0.043	2308.16	-0.04	2479.17	7.356	0.515

Exc. totales result. cabeza -0.00002 0.93102
Exc. reales 1er ord. cabeza 0.00000 0.93106

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2799.21	536.59	2538.40	8.045	4.401
1	0.001	0.002	2754.56	484.78	2532.48	8.007	4.041
2	0.001	0.005	2708.88	432.40	2526.55	7.962	3.662
3	0.002	0.008	2662.20	379.50	2520.63	7.909	3.265
4	0.003	0.012	2614.51	326.15	2514.71	7.849	2.850
5	0.005	0.016	2565.83	272.40	2508.79	7.782	2.418
6	0.006	0.021	2516.19	218.32	2502.86	7.708	1.967
7	0.008	0.026	2465.59	163.97	2496.94	7.628	1.500
8	0.009	0.031	2414.05	109.41	2491.02	7.542	1.015
9	0.011	0.037	2361.59	54.73	2485.09	7.452	0.515
10	0.013	0.043	2308.22	-0.02	2479.17	7.368	0.515

Exc. totales result. cabeza -0.00001 0.93105
Exc. reales 1er ord. cabeza 0.00000 0.93106

Convergencia del equilibrio sin agotamiento
Fpx = 67.300 t; Fpy = 50.390 t

VIADUCTO DEL LLOBREGAT - PILA TIPO 4 - PROGRAMA PILA V_1.60 - 08.05.95

HIPOTESIS 12 - TANTEO 1

Fpx = 67.300 t; Fpy = 50.390 t;

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2693.90	505.25	2051.60	8.135	4.275
1	0.000	0.002	2650.55	453.75	2047.22	8.220	3.942
2	0.001	0.005	2606.37	401.81	2042.83	8.246	3.574
3	0.002	0.008	2561.37	349.46	2038.44	8.247	3.176
4	0.003	0.012	2515.56	296.76	2034.05	8.236	2.753
5	0.004	0.016	2468.95	243.75	2029.67	8.217	2.309
6	0.006	0.020	2421.53	190.49	2025.28	8.194	1.842
7	0.007	0.025	2373.32	137.04	2020.89	8.167	1.353
8	0.009	0.031	2324.34	83.44	2016.50	8.136	0.842
9	0.011	0.037	2274.58	29.77	2012.12	8.104	0.307
10	0.012	0.043	2223.97	-23.96	2007.73	8.071	-0.252

Exc. totales result. cabeza -0.01193 1.10770
Exc. reales 1er ord. cabeza 0.00000 1.14969

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2780.71	529.92	2051.60	8.467	4.511
1	0.001	0.002	2737.01	478.32	2047.22	8.498	4.167
2	0.001	0.005	2692.44	426.24	2042.83	8.507	3.793
3	0.002	0.008	2647.01	373.73	2038.44	8.500	3.393
4	0.003	0.012	2600.72	320.84	2034.05	8.487	2.972
5	0.005	0.016	2553.59	267.61	2029.67	8.470	2.530
6	0.006	0.021	2505.60	214.10	2025.28	8.449	2.066
7	0.008	0.026	2456.78	160.36	2020.89	8.425	1.580
8	0.009	0.032	2407.13	106.45	2016.50	8.400	1.071
9	0.011	0.038	2356.65	52.42	2012.12	8.374	0.539
10	0.013	0.045	2305.44	-1.63	2007.73	8.349	-0.017

Exc. totales result. cabeza -0.00081 1.14828
Exc. reales 1er ord. cabeza 0.00000 1.14969

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2781.86	531.10	2051.60	8.608	4.590
1	0.001	0.002	2738.32	479.54	2047.22	8.623	4.232
2	0.001	0.005	2693.91	427.50	2042.83	8.626	3.851
3	0.002	0.008	2648.62	375.02	2038.44	8.621	3.447
4	0.003	0.012	2602.46	322.14	2034.05	8.612	3.022
5	0.005	0.016	2555.43	268.93	2029.67	8.598	2.576
6	0.006	0.021	2507.55	215.43	2025.28	8.582	2.107
7	0.008	0.026	2458.81	161.70	2020.89	8.563	1.616
8	0.010	0.032	2409.22	107.79	2016.50	8.543	1.101
9	0.011	0.038	2358.78	53.76	2012.12	8.523	0.562
10	0.013	0.045	2307.52	-0.32	2007.73	8.504	0.562

Exc. totales result. cabeza -0.00016 1.14932
Exc. reales 1er ord. cabeza 0.00000 1.14969

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2782.56	531.40	2051.60	8.666	4.621
1	0.001	0.002	2739.03	479.84	2047.22	8.675	4.259
2	0.001	0.005	2694.61	427.80	2042.83	8.678	3.875
3	0.002	0.008	2649.31	375.31	2038.44	8.675	3.470
4	0.003	0.012	2603.13	322.43	2034.05	8.669	3.043
5	0.005	0.017	2556.08	269.21	2029.67	8.659	2.595
6	0.006	0.021	2508.16	215.69	2025.28	8.646	2.124
7	0.008	0.027	2459.38	161.94	2020.89	8.631	1.630
8	0.010	0.032	2409.74	108.02	2016.50	8.616	1.112
9	0.011	0.039	2359.25	53.97	2012.12	8.600	0.569
10	0.013	0.045	2307.92	-0.13	2007.73	8.591	0.569

Exc. totales result. cabeza -0.00006 1.14952
Exc. reales 1er ord. cabeza 0.00000 1.14969

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2782.89	531.53	2051.60	8.690	4.634
1	0.001	0.002	2739.36	479.97	2047.22	8.697	4.270
2	0.001	0.005	2694.93	427.92	2042.83	8.700	3.885
3	0.002	0.008	2649.63	375.43	2038.44	8.699	3.480
4	0.003	0.012	2603.44	322.55	2034.05	8.695	3.053
5	0.005	0.017	2556.38	269.32	2029.67	8.687	2.604
6	0.006	0.021	2508.44	215.80	2025.28	8.677	2.132
7	0.008	0.027	2459.64	162.04	2020.89	8.665	1.637
8	0.010	0.032	2409.98	108.11	2016.50	8.652	1.117
9	0.011	0.039	2359.47	54.05	2012.12	8.641	0.572
10	0.013	0.045	2308.11	-0.06	2007.73	8.637	0.572

Exc. totales result. cabeza -0.00003 1.14961
Exc. reales 1er ord. cabeza 0.00000 1.14969

Sec.	flch.x	flch.y	Mom.x	Mom.y	Axil	curv.x	curv.y
0	0.000	0.000	2783.04	531.58	2051.60	8.700	4.639
1	0.001	0.002	2739.51	480.02	2047.22	8.707	4.274
2	0.001	0.005	2695.08	427.98	2042.83	8.710	3.890
3	0.002	0.008	2649.77	375.48	2038.44	8.710	3.484
4	0.003	0.012	2603.58	322.60	2034.05	8.706	3.057
5	0.005	0.017	2556.51	269.37	2029.67	8.700	2.608
6	0.006	0.021	2508.57	215.84	2025.28	8.691	2.136
7	0.008	0.027	2459.76	162.08	2020.89	8.681	1.640
8	0.010	0.032	2410.09	108.15	2016.50	8.671	1.120
9	0.011	0.039	2359.57	54.09	2012.12	8.661	0.574
10	0.013	0.045	2308.19	-0.02	2007.73	8.661	0.574

Exc. totales result. cabeza -0.00001 1.14965

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Exc. reales 1er ord. cabeza  0.00000  1.14969

Sec. flch.x   flch.y   Mom.x     Mom.y      Axil     curv.x   curv.y

 0    0.000    0.000   2783.11    531.61   2051.60    8.702    4.641
 1    0.001    0.002   2739.57    480.05   2047.22    8.709    4.276
 2    0.001    0.005   2695.15    428.00   2042.83    8.713    3.891
 3    0.002    0.008   2649.84    375.51   2038.44    8.713    3.486
 4    0.003    0.012   2603.65    322.62   2034.05    8.710    3.059
 5    0.005    0.017   2556.57    269.39   2029.67    8.704    2.609
 6    0.006    0.021   2508.63    215.86   2025.28    8.696    2.137
 7    0.008    0.027   2459.82    162.10   2020.89    8.689    1.642
 8    0.010    0.032   2410.15    108.17   2016.50    8.680    1.121
 9    0.011    0.039   2359.62     54.11   2012.12    8.672    0.574
10    0.013    0.045   2308.24     -0.01   2007.73    8.674    0.574

Exc. totales result. cabeza -0.00000  1.14968
Exc. reales 1er ord. cabeza  0.00000  1.14969

Convergencia del equilibrio sin agotamiento
Fpx =  67.300 t; Fpy =  50.390 t
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A partir de los resultados obtenidos del programa PILA se procede al dimensionamiento de las secciones de las pilas 2 y 4 bajo la combinación pésima de acciones que corresponden a la hipótesis 10 para la pila 2 y a la hipótesis 12 para la pila 4. Se utiliza ahora el programa "Prontuario Informático de Hormigón Estructural 3.0".

PILA 2

PILA 2. RESULTADOS EN 2º ORDEN

Esfuerzos mayorados en base de pila (con pandeo)					
Hipótesis	**Fxd**	**Fyd**	**Fzd**	**Mxd**	**Myd**
CARGAS MUERTAS MÁXIMAS					
H1 (1,35cp + 1,5Wcp)	85.00	84.00	2383.75	1108.77	1308.48
H2 (1cp + 1,5Wcp)	85.00	84.00	1765.74	1094.36	1231.67
H3 (1,35cp + 1,5(sc1 + 0,6Wsc))	85.00	55.44	3291.24	3454.34	1205.24
H4 (1cp + 1,5(sc1 + 0,6Wsc))	85.00	55.44	2673.23	3398.48	1170.30
H5 (1,35cp + 1,5(sc2 + 0,6Wsc))	85.00	55.44	4134.20	744.27	1581.11
H6 (1cp + 1,5(sc2 + 0,6Wsc))	85.00	55.44	3516.19	732.96	1476.81
H7 (1,35cp + 1,5(sc3 + 0,6Wsc))	85.00	55.44	3011.68	3455.07	1189.52
H8 (1cp + 1,5(sc3 + 0,6Wsc))	85.00	55.44	2393.67	3399.58	1154.99
H9 (1,35cp + 1,5(sc1 + fc1+0,5Wsc))	85.00	62.50	3291.24	3579.40	1208.75
H10 (cp + 1,5(sc1 + fc1+0,5Wsc))	85.00	62.50	2673.23	3520.90	1172.47
CARGAS MUERTAS MÍNIMAS					
H11 (1,35cp + 1,5(sc1 + 0,6Wsc))	72.00	55.44	2944.93	3418.77	1002.43
H12 (1cp + 1,5(sc1 + 0,6Wsc))	72.00	55.44	2416.71	3373.12	978.18
H13 (1,35cp + 1,5(sc3 + 0,6Wsc))	72.00	62.50	2665.36	3512.87	990.89
H14 (1cp + 1,5(sc3 + 0,6Wsc))	72.00	62.50	2137.14	3465.01	966.19
H15 (1,35cp + 1,5(sc1 + fc1+0,5Wsc))	72.00	62.50	2944.93	3542.28	1004.65
H16 (cp + 1,5(sc1 + fc1+0,5Wsc))	72.00	62.5	2416.71	3494.42	979.71

PILA 4

PILA 4. RESULTADOS EN 2º ORDEN

Esfuerzos mayorados en base de pila (con pandeo)					
Hipótesis	**Fxd**	**Fyd**	**Fzd**	**Mxd**	**Myd**
CARGAS MUERTAS MÁXIMAS					
H1 (1,35cp + 1,5Wcp)	80.00	73.50	2215.94	582.38	793.16
H2 (1cp + 1,5Wcp)	80.00	73.50	1641.29	578.73	741.29
H3 (1,35cp + 1,5(sc1 + 0,6Wsc))	80.00	50.39	3094.70	2792.85	644.52
H4 (1cp + 1,5(sc1 + 0,6Wsc))	80.00	50.39	2520.20	2773.70	637.70
H5 (1,35cp + 1,5(sc2 + 0,6Wsc))	80.00	50.39	3884.23	401.01	961.47
H6 (1cp + 1,5(sc2 + 0,6Wsc))	80.00	50.39	3309.72	397.98	902.35
H7 (1,35cp + 1,5(sc3 + 0,6Wsc))	80.00	50.39	2876.69	2811.23	642.12
H8 (1cp + 1,5(sc3 + 0,6Wsc))	80.00	50.39	2302.19	2792.10	635.23
CARGAS MUERTAS MÍNIMAS					
H9 (1,35cp + 1,5(sc1 + 0,6Wsc))	80.00	50.39	2756.41	2780.66	538.60
H10 (1cp + 1,5(sc1 + 0,6Wsc))	80.00	50.39	2269.61	2764.90	533.78
H11 (1,35cp + 1,5(sc3 + 0,6Wsc))	80.00	50.39	2538.40	2799.21	538.40
H12 (1cp + 1,5(sc3 + 0,6Wsc))	80.00	50.39	2051.60	2783.11	531.61

PILA 2

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: COPCISA
Fecha: 18/11/2004
Hora: 11:26:59

Cálculo de secciones a flexión compuesta esviada

1 Datos

- Materiales

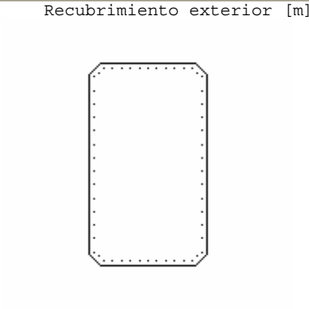
```
Tipo de hormigón : HA-50
Tipo de acero    : B-500-S
fck [MPa]         = 50.00
fyk [MPa]         = 500.00
γc                = 1.50
γs                = 1.15
```

- Sección

```
Sección : PILA
```

Vértice	X [m]	Y [m]	Lado	nº barras
1	0.750	1.150	1-2	3
2	0.600	1.300	2-3	11
3	-0.600	1.300	3-4	3
4	-0.750	1.150	4-5	14
5	-0.750	-1.150	5-6	3
6	-0.600	-1.300	6-7	11
7	0.600	-1.300	7-8	3
8	0.750	-1.150	8-1	14

Recubrimiento exterior [m] : 0.070

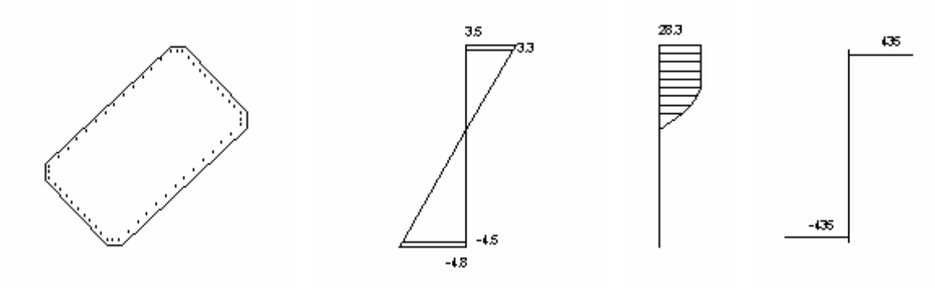


2 Dimensionamiento

Nd [kN] = 26732.3

Mxd [kN·m] = 35209.0

Myd [kN·m] = 11724.7



Plano de deformación de agotamiento

x [m] = 1.13
ß [°] = 46.7
1/r [1/m]·1.E-3 = 3.1
ε_s ·1.E-3 = 3.5
ε_i ·1.E-3 = -4.8

Deformación y tensión de armaduras superior e inferior

Profundidad [m]	Deformación ·1.E^{-3}	Tensión [MPa]
0.07	3.3	435
2.60	-4.5	-435

Propuesta armadura dimensionamiento

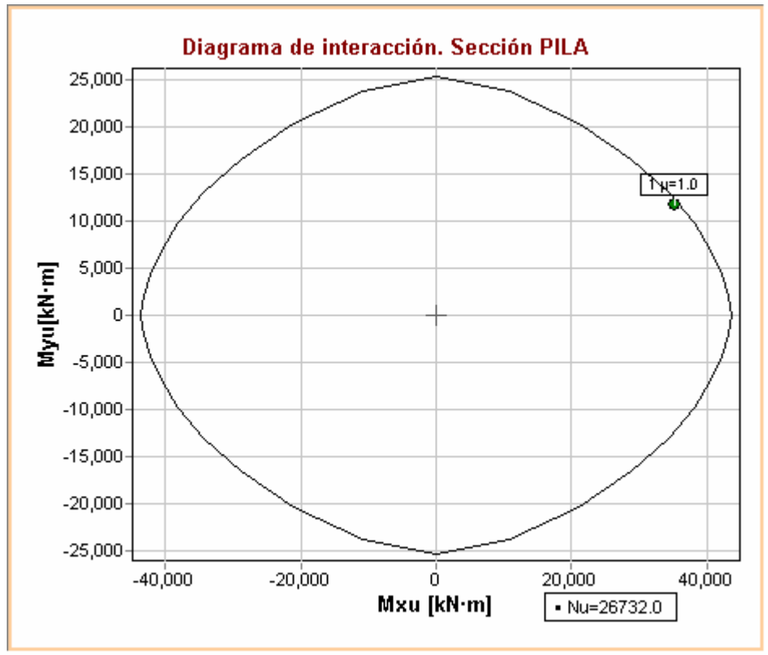
Aest [cm^2]	ϕest [mm]	A [cm^2]	ϕ [mm]	Nu [kN]	Mxu [kN·m]	Myu [kN·m]
422.4	31.6	434.3	32.0	26732.3	35682.0	11882.0

3 Diagrama

ϕ [mm] = 32

Resultados numéricos del diagrama de interacción

Nu [kN]	Mxu [kN·m]	Myu [kN·m]	x [cm]	1/r [1/m] ·1.E-3	β [°]
-26732.3	43616.9	-0.0	0.89	3.9	0.0
-26732.3	43183.8	2064.8	1.00	3.5	10.0
-26732.3	42241.3	4308.4	1.09	3.2	20.0
-26732.3	40589.7	6853.8	1.13	3.1	30.0
-26732.3	38099.2	9710.0	1.14	3.1	40.0
-26732.3	34182.8	13015.5	1.12	3.1	50.0
-26732.3	28659.9	16562.5	1.07	3.3	60.0
-26732.3	20970.0	20351.0	0.94	3.7	70.0
-26732.3	10884.2	23680.7	0.75	4.7	80.0
-26732.3	0.1	25261.8	0.51	6.9	90.0
-26732.3	-10883.9	23680.7	0.75	4.7	100.0
-26732.3	-20969.9	20351.0	0.94	3.7	110.0
-26732.3	-28659.5	16562.7	1.07	3.3	120.0
-26732.3	-34182.3	13016.0	1.12	3.1	130.0
-26732.3	-38099.2	9710.0	1.14	3.1	140.0
-26732.3	-40589.7	6853.8	1.13	3.1	150.0
-26732.3	-42241.3	4308.4	1.09	3.2	160.0
-26732.3	-43183.8	2064.8	1.00	3.5	170.0
-26732.3	-43616.9	-0.0	0.89	3.9	180.0
-26732.3	-43183.8	-2065.0	1.00	3.5	190.0
-26732.3	-42241.3	-4308.5	1.09	3.2	200.0
-26732.3	-40589.7	-6853.9	1.13	3.1	210.0
-26732.3	-38099.1	-9710.2	1.14	3.1	220.0
-26732.3	-34182.3	-13016.0	1.12	3.1	230.0
-26732.3	-28659.5	-16562.7	1.07	3.3	240.0
-26732.3	-20969.9	-20351.0	0.94	3.7	250.0
-26732.3	-10883.9	-23680.7	0.75	4.7	260.0
-26732.3	0.1	-25261.8	0.51	6.9	270.0
-26732.3	10884.2	-23680.7	0.75	4.7	280.0
-26732.3	20970.0	-20351.0	0.94	3.7	290.0
-26732.3	28659.9	-16562.5	1.07	3.3	300.0
-26732.3	34182.8	-13015.5	1.12	3.1	310.0
-26732.3	38099.1	-9710.2	1.14	3.1	320.0
-26732.3	40589.7	-6853.9	1.13	3.1	330.0
-26732.3	42241.3	-4308.5	1.09	3.2	340.0
-26732.3	43183.8	-2065.0	1.00	3.5	350.0



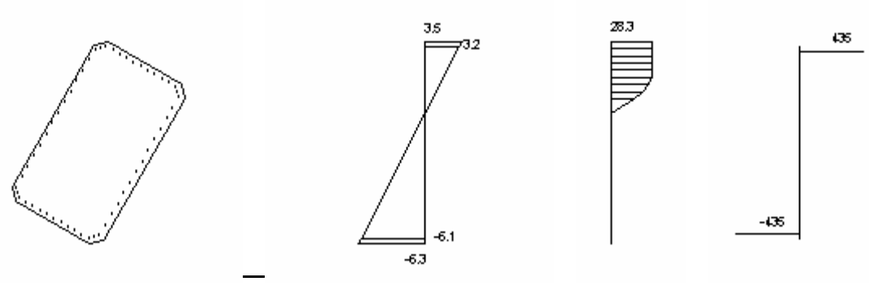
Coeficientes de seguridad de los pares de esfuerzos de cálculo

Punto	Mxd [kN·m]	Myd [kN·m]	γ
1	35209.0	11724.7	1.01

PILA 4

PRONTUARIO INFORMÁTICO DEL HORMIGÓN ESTRUCTURAL 3.0
Cátedra de Hormigón Estructural ETSICCPM - IECA

Obra: COPCISA
Fecha: 18/11/2004
Hora: 11:53:14



Cálculo de secciones a flexión compuesta esviada

1 Datos

- Materiales

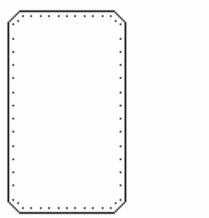
```
Tipo de hormigón : HA-50
Tipo de acero    : B-500-S
fck [MPa]        = 50.00
fyk [MPa]        = 500.00
γc               = 1.50
γs               = 1.15
```

- Sección

```
Sección : PILA
```

Vértice	X [m]	Y [m]	Lado	nº barras
1	0.750	1.150	1-2	3
2	0.600	1.300	2-3	11
3	-0.600	1.300	3-4	3
4	-0.750	1.150	4-5	14
5	-0.750	-1.150	5-6	3
6	-0.600	-1.300	6-7	11
7	0.600	-1.300	7-8	3
8	0.750	-1.150	8-1	14

```
Recubrimiento exterior [m] : 0.070
```



2 Dimensionamiento

```
Nd [kN]     = 20516.0
Mxd [kN·m] = 27831.1
Myd [kN·m] = 5316.1
```

```
Plano de deformación de agotamiento

x    [m]          = 1.01
ß    [°]          = 30.9
1/r [1/m]·1.E-3 = 3.5
εs ·1.E-3        = 3.5
εi ·1.E-3        = -6.3

Deformación y tensión de armaduras superior e inferior

Profundidad    Deformación     Tensión
   [m]           ·1.E-3         [MPa]
  0.07            3.2            435
  2.77           -6.1           -435

Propuesta armadura dimensionamiento

Aest      φest      A         φ         Nu        Mxu       Myu
[cm²]     [mm]      [cm²]     [mm]      [kN]      [kN·m]    [kN·m]
295.6*    26.4      434.3     32.0      20516.0   36996.0   7066.4

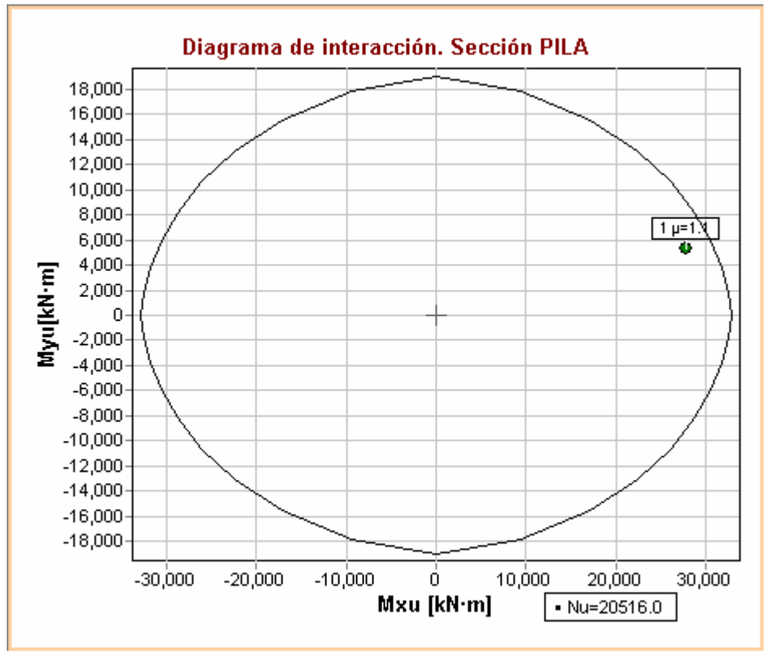
* Cuantía mínima
```

3 Diagrama

ϕ [mm] = 25

Resultados numéricos del diagrama de interacción

Nu [kN]	Mxu [kN·m]	Myu [kN·m]	x [cm]	1/r [1/m] ·1.E-3	β [°]
-20516.0	32850.6	-0.0	0.70	5.0	0.0
-20516.0	32535.8	1815.8	0.82	4.3	10.0
-20516.0	31770.7	3788.2	0.91	3.8	20.0
-20516.0	30522.6	5912.3	0.97	3.6	30.0
-20516.0	28715.1	8187.6	0.99	3.5	40.0
-20516.0	26139.6	10550.0	0.99	3.5	50.0
-20516.0	22454.2	12974.8	0.94	3.7	60.0
-20516.0	17149.9	15486.8	0.83	4.2	70.0
-20516.0	9444.4	17763.2	0.64	5.5	80.0
-20516.0	0.0	18974.2	0.40	8.8	90.0
-20516.0	-9443.9	17763.2	0.64	5.5	100.0
-20516.0	-17149.6	15486.9	0.83	4.2	110.0
-20516.0	-22454.1	12974.9	0.94	3.7	120.0
-20516.0	-26139.3	10550.3	0.99	3.5	130.0
-20516.0	-28715.1	8187.6	0.99	3.5	140.0
-20516.0	-30522.6	5912.3	0.97	3.6	150.0
-20516.0	-31770.7	3788.2	0.91	3.8	160.0
-20516.0	-32535.8	1815.8	0.82	4.3	170.0
-20516.0	-32850.6	-0.0	0.70	5.0	180.0
-20516.0	-32535.8	-1816.0	0.82	4.3	190.0
-20516.0	-31770.7	-3788.3	0.91	3.8	200.0
-20516.0	-30522.5	-5912.5	0.97	3.6	210.0
-20516.0	-28714.9	-8187.8	0.99	3.5	220.0
-20516.0	-26139.3	-10550.3	0.99	3.5	230.0
-20516.0	-22454.1	-12974.9	0.94	3.7	240.0
-20516.0	-17149.6	-15486.9	0.83	4.2	250.0
-20516.0	-9443.9	-17763.2	0.64	5.5	260.0
-20516.0	0.0	-18974.2	0.40	8.8	270.0
-20516.0	9444.4	-17763.2	0.64	5.5	280.0
-20516.0	17149.9	-15486.8	0.83	4.2	290.0
-20516.0	22454.2	-12974.8	0.94	3.7	300.0
-20516.0	26139.6	-10550.0	0.99	3.5	310.0
-20516.0	28714.9	-8187.8	0.99	3.5	320.0
-20516.0	30522.5	-5912.5	0.97	3.6	330.0
-20516.0	31770.7	-3788.3	0.91	3.8	340.0
-20516.0	32535.8	-1816.0	0.82	4.3	350.0



Coeficientes de seguridad de los pares de esfuerzos de cálculo

Punto	Mxd [kN·m]	Myd [kN·m]	γ
1	27831.1	5316.1	1.10

11.3. Reacciones y esfuerzos en cimentación

PILA 1. CARGAS MUERTAS MÁXIMAS

Esfuerzos de servicio en superficie de cimentación

Hipótesis	Fxk	Fyk	Fzk	Mxk	Myk
H1 (Cp + Wcp)	80.00	53.82	1667.76	824.63	1108.76
H2 (Cp + Wcp)	80.00	53.82	1667.76	824.63	1108.76
H3 (Cp + Sc1 + 0,6Wsc)	80.00	35.04	2271.04	2024.09	1133.75
H4 (Cp + Sc1 + 0,6Wsc)	80.00	35.04	2271.04	2024.09	1133.75
H5 (Cp + Sc2 + 0,6Wsc)	80.00	35.04	2810.63	768.04	1174.22
H6 (Cp + Sc2 + 0,6Wsc)	80.00	35.04	2810.63	768.04	1174.22
H7 (Cp + Sc3 + 0,6Wsc)	80.00	35.04	2114.45	2040.31	1122.00
H8 (Cp + Sc3 + 0,6Wsc)	80.00	35.04	2114.45	2040.31	1122.00
H9 (Cp + Sc4 + 0,6Wsc)	80.00	35.04	1541.76	603.09	1079.05
H10 (Cp + Sc4 + 0,6Wsc)	80.00	35.04	1541.76	603.09	1079.05
H11 (cp + (sc1 + fc1+0,5Wsc))	80.00	43.80	2271.04	2184.90	1133.75
H12 (cp + (sc1 + fc1+0,5Wsc))	80.00	43.80	2271.04	2184.90	1133.75
H13 (cp + (sc2 + fc2 + 0,5Wsc))	80.00	56.50	2810.63	1025.52	1174.22
H14 (cp + (sc2 + fc2 + 0,5Wsc))	80.00	56.50	2810.63	1025.52	1174.22

PILA 1. CARGAS MUERTAS MÍNIMAS

Esfuerzos de servicio en superficie de cimentación

Hipótesis	Fxk	Fyk	Fzk	Mxk	Myk
H1 (Cp + Wcp)	80.00	53.82	1417.17	792.05	1089.97
H2 (Cp + Wcp)	80.00	53.82	1417.17	792.05	1089.97
H3 (Cp + Sc1 + 0,6Wsc)	80.00	35.04	2020.45	2024.09	1114.95
H4 (Cp + Sc1 + 0,6Wsc)	80.00	35.04	2020.45	2024.09	1114.95
H5 (Cp + Sc2 + 0,6Wsc)	80.00	35.04	2560.04	735.47	1155.42
H6 (Cp + Sc2 + 0,6Wsc)	80.00	35.04	2560.04	735.47	1155.42
H7 (Cp + Sc3 + 0,6Wsc)	80.00	35.04	1863.86	2040.31	1103.21
H8 (Cp + Sc3 + 0,6Wsc)	80.00	35.04	1863.86	2040.31	1103.21
H9 (Cp + Sc4 + 0,6Wsc)	80.00	35.04	1291.17	570.51	1060.26
H10 (Cp + Sc4 + 0,6Wsc)	80.00	35.04	1291.17	570.51	1060.26
H11 (cp + (sc1 + fc1+0,5Wsc))	80.00	43.80	2020.45	2184.90	1114.95
H12 (cp + (sc1 + fc1+0,5Wsc))	80.00	43.80	2020.45	2184.90	1114.95
H13 (cp + (sc2 + fc2 + 0,5Wsc))	80.00	56.50	2560.04	992.94	1155.42
H14 (cp + (sc2 + fc2 + 0,5Wsc))	80.00	56.50	2560.04	992.94	1155.42

PILA 2. CARGAS MUERTAS MÁXIMAS

Esfuerzos de servicio en superficie de cimentación

Hipótesis	Fxk	Fyk	Fzk	Mxk	Myk
H1 (Cp + Wcp)	85.00	60.82	1765.74	921.36	1176.11
H2 (Cp + Wcp)	85.00	60.82	1765.74	921.36	1176.11
H3 (Cp + Sc1 + 0,6Wsc)	85.00	38.41	2388.92	2187.58	1202.59
H4 (Cp + Sc1 + 0,6Wsc)	85.00	38.41	2388.92	2187.58	1202.59
H5 (Cp + Sc2 + 0,6Wsc)	85.00	38.41	2964.38	828.42	1245.75
H6 (Cp + Sc2 + 0,6Wsc)	85.00	38.41	2964.38	828.42	1245.75
H7 (Cp + Sc3 + 0,6Wsc)	85.00	38.41	2197.21	2203.52	1188.21
H8 (Cp + Sc3 + 0,6Wsc)	85.00	38.41	2197.21	2203.52	1188.21
H9 (Cp + Sc4 + 0,6Wsc)	85.00	38.41	1604.75	651.67	1143.77
H10 (Cp + Sc4 + 0,6Wsc)	85.00	38.41	1604.75	651.67	1143.77
H11 (cp + (sc1 + fc1+0,5Wsc))	85.00	47.21	2388.92	2349.78	1202.59
H12 (cp + (sc1 + fc1+0,5Wsc))	85.00	47.21	2388.92	2349.78	1202.59
H13 (cp + (sc2 + fc2 + 0,5Wsc))	85.00	60.51	2964.38	1093.71	1245.75
H14 (cp + (sc2 + fc2 + 0,5Wsc))	85.00	60.51	2964.38	1093.71	1245.75

PILA 2. CARGAS MUERTAS MÍNIMAS

Esfuerzos de servicio en superficie de cimentación

Hipótesis	Fxk	Fyk	Fzk	Mxk	Myk
H1 (Cp + Wcp)	85.00	60.82	1509.21	888.02	1156.87
H2 (Cp + Wcp)	85.00	60.82	1509.21	888.02	1156.87
H3 (Cp + Sc1 + 0,6Wsc)	85.00	38.41	2132.39	2187.58	1183.35
H4 (Cp + Sc1 + 0,6Wsc)	85.00	38.41	2132.39	2187.58	1183.35
H5 (Cp + Sc2 + 0,6Wsc)	85.00	38.41	2707.85	795.07	1226.51
H6 (Cp + Sc2 + 0,6Wsc)	85.00	38.41	2707.85	795.07	1226.51
H7 (Cp + Sc3 + 0,6Wsc)	85.00	38.41	1940.68	2203.52	1168.97
H8 (Cp + Sc3 + 0,6Wsc)	85.00	38.41	1940.68	2203.52	1168.97
H9 (Cp + Sc4 + 0,6Wsc)	85.00	38.41	1348.22	618.32	1124.53
H10 (Cp + Sc4 + 0,6Wsc)	85.00	38.41	1348.22	618.32	1124.53
H11 (cp + (sc1 + fc1+0,5Wsc))	85.00	47.21	2132.39	2349.78	1183.35
H12 (cp + (sc1 + fc1+0,5Wsc))	85.00	47.21	2132.39	2349.78	1183.35
H13 (cp + (sc2 + fc2 + 0,5Wsc))	85.00	60.51	2707.85	1060.36	1226.51
H14 (cp + (sc2 + fc2 + 0,5Wsc))	85.00	60.51	2707.85	1060.36	1226.51

PILA 3. CARGAS MUERTAS MÁXIMAS

Esfuerzos de servicio en superficie de cimentación

Hipótesis	Fxk	Fyk	Fzk	Mxk	Myk
H1 (Cp + Wcp)	85.00	60.82	1765.74	921.36	1176.11
H2 (Cp + Wcp)	85.00	60.82	1765.74	921.36	1176.11
H3 (Cp + Sc1 + 0,6Wsc)	85.00	38.41	2388.92	2187.58	1202.59
H4 (Cp + Sc1 + 0,6Wsc)	85.00	38.41	2388.92	2187.58	1202.59
H5 (Cp + Sc2 + 0,6Wsc)	85.00	38.41	2964.38	828.42	1245.75
H6 (Cp + Sc2 + 0,6Wsc)	85.00	38.41	2964.38	828.42	1245.75
H7 (Cp + Sc3 + 0,6Wsc)	85.00	38.41	2197.21	2203.52	1188.21
H8 (Cp + Sc3 + 0,6Wsc)	85.00	38.41	2197.21	2203.52	1188.21
H9 (Cp + Sc4 + 0,6Wsc)	85.00	38.41	1604.75	651.67	1143.77
H10 (Cp + Sc4 + 0,6Wsc)	85.00	38.41	1604.75	651.67	1143.77

PILA 3. CARGAS MUERTAS MÍNIMAS

Esfuerzos de servicio en superficie de cimentación

Hipótesis	Fxk	Fyk	Fzk	Mxk	Myk
H1 (Cp + Wcp)	85.00	60.82	1509.21	888.02	1156.87
H2 (Cp + Wcp)	85.00	60.82	1509.21	888.02	1156.87
H3 (Cp + Sc1 + 0,6Wsc)	85.00	38.41	2132.39	2187.58	1183.35
H4 (Cp + Sc1 + 0,6Wsc)	85.00	38.41	2132.39	2187.58	1183.35
H5 (Cp + Sc2 + 0,6Wsc)	85.00	38.41	2707.85	795.07	1226.51
H6 (Cp + Sc2 + 0,6Wsc)	85.00	38.41	2707.85	795.07	1226.51
H7 (Cp + Sc3 + 0,6Wsc)	85.00	38.41	1940.68	2203.52	1168.97
H8 (Cp + Sc3 + 0,6Wsc)	85.00	38.41	1940.68	2203.52	1168.97
H9 (Cp + Sc4 + 0,6Wsc)	85.00	38.41	1348.22	618.32	1124.53
H10 (Cp + Sc4 + 0,6Wsc)	85.00	38.41	1348.22	618.32	1124.53

PILA 4. CARGAS MUERTAS MÁXIMAS

Esfuerzos de servicio en superficie de cimentación

Hipótesis	Fxk	Fyk	Fzk	Mxk	Myk
H1 (Cp + Wcp)	80.00	52.22	1644.36	612.55	772.68
H2 (Cp + Wcp)	80.00	52.22	1644.36	612.55	772.68
H3 (Cp + Sc1 + 0,6Wsc)	80.00	34.56	2247.64	1884.90	808.92
H4 (Cp + Sc1 + 0,6Wsc)	80.00	34.56	2247.64	1884.90	808.92
H5 (Cp + Sc2 + 0,6Wsc)	80.00	34.56	2787.23	628.85	849.39
H6 (Cp + Sc2 + 0,6Wsc)	80.00	34.56	2787.23	628.85	849.39
H7 (Cp + Sc3 + 0,6Wsc)	80.00	34.56	2091.05	1901.12	797.18
H8 (Cp + Sc3 + 0,6Wsc)	80.00	34.56	2091.05	1901.12	797.18
H9 (Cp + Sc4 + 0,6Wsc)	80.00	34.56	1518.36	463.90	754.23
H10 (Cp + Sc4 + 0,6Wsc)	80.00	34.56	1518.36	463.90	754.23

PILA 4. CARGAS MUERTAS MÍNIMAS

Esfuerzos de servicio en superficie de cimentación

Hipótesis	Fxk	Fyk	Fzk	Mxk	Myk
H1 (Cp + Wcp)	80.00	52.22	1393.77	579.97	753.89
H2 (Cp + Wcp)	80.00	52.22	1393.77	579.97	753.89
H3 (Cp + Sc1 + 0,6Wsc)	80.00	34.56	1997.05	1884.90	790.13
H4 (Cp + Sc1 + 0,6Wsc)	80.00	34.56	1997.05	1884.90	790.13
H5 (Cp + Sc2 + 0,6Wsc)	80.00	34.56	2536.64	596.27	830.60
H6 (Cp + Sc2 + 0,6Wsc)	80.00	34.56	2536.64	596.27	830.60
H7 (Cp + Sc3 + 0,6Wsc)	80.00	34.56	1840.46	1901.12	778.38
H8 (Cp + Sc3 + 0,6Wsc)	80.00	34.56	1840.46	1901.12	778.38
H9 (Cp + Sc4 + 0,6Wsc)	80.00	34.56	1267.77	431.32	735.43
H10 (Cp + Sc4 + 0,6Wsc)	80.00	34.56	1267.77	431.32	735.43

12. Listados de los modelos de cálculo (fases de montaje)

Inicial

D A T O S

N U D O S

Nudo	X [M]	Y [M]	Z [M]	Piso
1	0	0	0	0
2	25.2	0	0	0
3	1.575	0	0	0
4	3.15	0	0	0
5	4.725	0	0	0
6	6.3	0	0	0
7	7.875	0	0	0
8	9.45	0	0	0
9	11.025	0	0	0
10	12.6	0	0	0
11	14.175	0	0	0
12	15.75	0	0	0
13	17.325	0	0	0
14	18.9	0	0	0
15	20.475	0	0	0
16	22.05	0	0	0
17	23.625	0	0	0
18	33.5	0	0	0
19	26.86	0	0	0
20	28.52	0	0	0
21	30.18	0	0	0
22	31.84	0	0	0
23	41.8	0	0	0
24	35.16	0	0	0
25	36.82	0	0	0
26	38.48	0	0	0
27	40.14	0	0	0
28	70.2	0	0	0
29	43.3778	0	0	0
30	44.9556	0	0	0
31	46.5333	0	0	0
32	48.1111	0	0	0
33	49.6889	0	0	0
34	51.2667	0	0	0
35	52.8444	0	0	0
36	54.4222	0	0	0
37	56	0	0	0
38	57.5778	0	0	0
39	59.1556	0	0	0
40	60.7333	0	0	0
41	62.3111	0	0	0
42	63.8889	0	0	0
43	65.4667	0	0	0
44	67.0444	0	0	0
45	68.6222	0	0	0
46	78.5	0	0	0
47	71.86	0	0	0
48	73.52	0	0	0
49	75.18	0	0	0
50	76.84	0	0	0
51	86.8	0	0	0
52	80.16	0	0	0
53	81.82	0	0	0
54	83.48	0	0	0
55	85.14	0	0	0
56	115.2	0	0	0
57	88.3778	0	0	0
58	89.9556	0	0	0
59	91.5333	0	0	0
60	93.1111	0	0	0
61	94.6889	0	0	0
62	96.2667	0	0	0
63	97.8444	0	0	0
64	99.4222	0	0	0
65	101	0	0	0
66	102.578	0	0	0
67	104.156	0	0	0
68	105.733	0	0	0
69	107.311	0	0	0
70	108.889	0	0	0
71	110.467	0	0	0
72	112.044	0	0	0
73	113.622	0	0	0
74	123.5	0	0	0
75	116.86	0	0	0
76	118.52	0	0	0
77	120.18	0	0	0
78	121.84	0	0	0
79	131.8	0	0	0
80	125.16	0	0	0
81	126.82	0	0	0
82	128.48	0	0	0
83	130.14	0	0	0
84	160.2	0	0	0
85	133.378	0	0	0
86	134.956	0	0	0
87	136.533	0	0	0
88	138.111	0	0	0
89	139.689	0	0	0
90	141.267	0	0	0
91	142.844	0	0	0
92	144.422	0	0	0
93	146	0	0	0
94	147.578	0	0	0
95	149.156	0	0	0
96	150.733	0	0	0
97	152.311	0	0	0
98	153.889	0	0	0
99	155.467	0	0	0
100	157.044	0	0	0
101	158.622	0	0	0
102	168.5	0	0	0
103	161.86	0	0	0
104	163.52	0	0	0
105	165.18	0	0	0
106	166.84	0	0	0
107	176.8	0	0	0
108	170.16	0	0	0
109	171.82	0	0	0
110	173.48	0	0	0
111	175.14	0	0	0
112	202	0	0	0
113	178.375	0	0	0
114	179.95	0	0	0
115	181.525	0	0	0
116	183.1	0	0	0
117	184.675	0	0	0
118	186.25	0	0	0
119	187.825	0	0	0
120	189.4	0	0	0
121	190.975	0	0	0
122	192.55	0	0	0
123	194.125	0	0	0
124	195.7	0	0	0
125	197.275	0	0	0
126	198.85	0	0	0
127	200.425	0	0	0
128	26.4	0	0	0
129	71.4	0	0	0
130	175.6	0	0	0
131	130.6	0	0	0

R E S T R I C C I O N E S

Nudo	TX	TY	TZ	RX	RY	RZ
1	0	1	0	0	0	0
18	0	1	0	0	0	0
46	0	1	0	0	0	0
74	0	1	0	0	0	0

102	0	1	0	0	0	0
112	0	1	0	0	0	0
128	0	1	0	0	0	0
129	0	1	0	0	0	0
130	0	1	0	0	0	0
131	0	1	0	0	0	0

V I G A S

Viga	NJ	NK	Descripcion	Sección	Material
1	1	3		CADOS 220	H 500x5000
2	3	4		CADOS 220	H 500x5000
3	4	5		CADOS 220	H 500x5000
4	5	6		CADOS 220	H 500x5000
5	6	7		CADOS 220	H 500x5000
6	7	8		CADOS 220	H 500x5000
7	8	9		CADOS 220	H 500x5000
8	9	10		CADOS 220	H 500x5000
9	10	11		CADOS 220	H 500x5000
10	11	12		CADOS 220	H 500x5000
11	12	13		CADOS 220	H 500x5000
12	13	14		CADOS 220	H 500x5000
13	14	15		CADOS 220	H 500x5000
14	15	16		CADOS 220	H 500x5000
15	16	17		CADOS 220	H 500x5000
16	17	2		CADOS 220	H 500x5000
17	2	128		CADOS 229	H 500x5000
18	19	20		CADOS 247	H 500x5000
19	20	21		CADOS 265	H 500x5000
20	21	22		CADOS 284	H 500x5000
21	22	18		CADOS 300	H 500x5000
22	18	24		CADOS 300	H 500x5000
23	24	25		CADOS 284	H 500x5000
24	25	26		CADOS 265	H 500x5000
25	26	27		CADOS 247	H 500x5000
26	27	23		CADOS 229	H 500x5000
27	23	29		CADOS 220	H 500x5000
28	29	30		CADOS 220	H 500x5000
29	30	31		CADOS 220	H 500x5000
30	31	32		CADOS 220	H 500x5000
31	32	33		CADOS 220	H 500x5000
32	33	34		CADOS 220	H 500x5000
33	34	35		CADOS 220	H 500x5000
34	35	36		CADOS 220	H 500x5000
35	36	37		CADOS 220	H 500x5000
36	37	38		CADOS 220	H 500x5000
37	38	39		CADOS 220	H 500x5000
38	39	40		CADOS 220	H 500x5000
39	40	41		CADOS 220	H 500x5000
40	41	42		CADOS 220	H 500x5000
41	42	43		CADOS 220	H 500x5000
42	43	44		CADOS 220	H 500x5000
43	44	45		CADOS 220	H 500x5000
44	45	28		CADOS 220	H 500x5000
45	28	129		CADOS 229	H 500x5000
46	47	48		CADOS 247	H 500x5000
47	48	49		CADOS 265	H 500x5000
48	49	50		CADOS 284	H 500x5000
49	50	46		CADOS 300	H 500x5000
50	46	52		CADOS 300	H 500x5000
51	52	53		CADOS 284	H 500x5000
52	53	54		CADOS 265	H 500x5000
53	54	55		CADOS 247	H 500x5000
54	55	51		CADOS 229	H 500x5000
55	51	57		CADOS 220	H 500x5000
56	57	58		CADOS 220	H 500x5000
57	58	59		CADOS 220	H 500x5000
58	59	60		CADOS 220	H 500x5000
59	60	61		CADOS 220	H 500x5000
60	61	62		CADOS 220	H 500x5000
61	62	63		CADOS 220	H 500x5000
62	63	64		CADOS 220	H 500x5000
63	64	65		CADOS 220	H 500x5000
64	65	66		CADOS 220	H 500x5000
65	66	67		CADOS 220	H 500x5000
66	67	68		CADOS 220	H 500x5000
67	68	69		CADOS 220	H 500x5000
68	69	70		CADOS 220	H 500x5000
69	70	71		CADOS 220	H 500x5000
70	71	72		CADOS 220	H 500x5000
71	72	73		CADOS 220	H 500x5000
72	73	56		CADOS 220	H 500x5000
73	56	75		CADOS 229	H 500x5000
74	75	76		CADOS 247	H 500x5000
75	76	77		CADOS 265	H 500x5000
76	77	78		CADOS 284	H 500x5000
77	78	74		CADOS 300	H 500x5000
78	74	80		CADOS 300	H 500x5000
79	80	81		CADOS 284	H 500x5000
80	81	82		CADOS 265	H 500x5000
81	82	83		CADOS 247	H 500x5000
82	83	131		CADOS 229	H 500x5000
83	79	85		CADOS 220	H 500x5000
84	85	86		CADOS 220	H 500x5000
85	86	87		CADOS 220	H 500x5000
86	87	88		CADOS 220	H 500x5000
87	88	89		CADOS 220	H 500x5000
88	89	90		CADOS 220	H 500x5000
89	90	91		CADOS 220	H 500x5000
90	91	92		CADOS 220	H 500x5000
91	92	93		CADOS 220	H 500x5000
92	93	94		CADOS 220	H 500x5000
93	94	95		CADOS 220	H 500x5000
94	95	96		CADOS 220	H 500x5000
95	96	97		CADOS 220	H 500x5000
96	97	98		CADOS 220	H 500x5000
97	98	99		CADOS 220	H 500x5000
98	99	100		CADOS 220	H 500x5000
99	100	101		CADOS 220	H 500x5000
100	101	84		CADOS 220	H 500x5000
101	84	103		CADOS 229	H 500x5000
102	103	104		CADOS 247	H 500x5000
103	104	105		CADOS 265	H 500x5000
104	105	106		CADOS 284	H 500x5000
105	106	102		CADOS 300	H 500x5000
106	102	108		CADOS 300	H 500x5000
107	108	109		CADOS 284	H 500x5000
108	109	110		CADOS 265	H 500x5000
109	110	111		CADOS 247	H 500x5000
110	111	130		CADOS 229	H 500x5000
111	107	113		CADOS 220	H 500x5000
112	113	114		CADOS 220	H 500x5000
113	114	115		CADOS 220	H 500x5000
114	115	116		CADOS 220	H 500x5000
115	116	117		CADOS 220	H 500x5000
116	117	118		CADOS 220	H 500x5000
117	118	119		CADOS 220	H 500x5000
118	119	120		CADOS 220	H 500x5000
119	120	121		CADOS 220	H 500x5000
120	121	122		CADOS 220	H 500x5000
121	122	123		CADOS 220	H 500x5000
122	123	124		CADOS 220	H 500x5000
123	124	125		CADOS 220	H 500x5000
124	125	126		CADOS 220	H 500x5000
125	126	127		CADOS 220	H 500x5000
126	127	112		CADOS 220	H 500x5000
127	128	19		CADOS 229	H 500x5000
128	129	47		CADOS 229	H 500x5000
129	130	107		CADOS 229	H 500x5000
130	131	79		CADOS 229	H 500x5000

A R T I C U L A C I O N E S

Viga	JM3	KM3	JM2	KM2	TOR	JV2	KV2	JV3	KV3	AXI
17	1	0	0	0	0	0	0	0	0	0
26	0	1	0	0	0	0	0	0	0	0
45	1	0	0	0	0	0	0	0	0	0
54	0	1	0	0	0	0	0	0	0	0
73	1	0	0	0	0	0	0	0	0	0
101	1	0	0	0	0	0	0	0	0	0

129	0	1	0	0	0	0	0	0	0	0
130	0	1	0	0	0	0	0	0	0	0

FUERZA DISTRIBUIDA SOBRE VIGAS

Estado	Viga	Dir.	Valor [Ton/M]
pl	1	Y	-1.4
	2	Y	-1.4
	3	Y	-1.4
	4	Y	-1.4
	5	Y	-1.4
	6	Y	-1.4
	7	Y	-1.4
	8	Y	-1.4
	9	Y	-1.4
	10	Y	-1.4
	11	Y	-1.4
	12	Y	-1.4
	13	Y	-1.4
	14	Y	-1.4
	15	Y	-1.4
	16	Y	-1.4
	17	Y	-1.4
	18	Y	-1.4
	19	Y	-1.4
	20	Y	-1.4
	21	Y	-1.4
	22	Y	-1.4
	23	Y	-1.4
	24	Y	-1.4
	25	Y	-1.4
	26	Y	-1.4
	27	Y	-1.4
	28	Y	-1.4
	29	Y	-1.4
	30	Y	-1.4
	31	Y	-1.4
	32	Y	-1.4
	33	Y	-1.4
	34	Y	-1.4
	35	Y	-1.4
	36	Y	-1.4
	37	Y	-1.4
	38	Y	-1.4
	39	Y	-1.4
	40	Y	-1.4
	41	Y	-1.4
	42	Y	-1.4
	43	Y	-1.4
	44	Y	-1.4
	45	Y	-1.4
	46	Y	-1.4
	47	Y	-1.4
	48	Y	-1.4
	49	Y	-1.4
	50	Y	-1.4
	51	Y	-1.4
	52	Y	-1.4
	53	Y	-1.4
	54	Y	-1.4
	55	Y	-1.4
	56	Y	-1.4
	57	Y	-1.4
	58	Y	-1.4
	59	Y	-1.4
	60	Y	-1.4
	61	Y	-1.4
	62	Y	-1.4
	63	Y	-1.4
	64	Y	-1.4
	65	Y	-1.4
	66	Y	-1.4
	67	Y	-1.4
	68	Y	-1.4
	69	Y	-1.4
	70	Y	-1.4
	71	Y	-1.4
	72	Y	-1.4
	73	Y	-1.4
	74	Y	-1.4
	75	Y	-1.4
	76	Y	-1.4
	77	Y	-1.4
	78	Y	-1.4
	79	Y	-1.4
	80	Y	-1.4
	81	Y	-1.4
	82	Y	-1.4
	83	Y	-1.4
	84	Y	-1.4
	85	Y	-1.4
	86	Y	-1.4
	87	Y	-1.4
	88	Y	-1.4
	89	Y	-1.4
	90	Y	-1.4
	91	Y	-1.4
	92	Y	-1.4
	93	Y	-1.4
	94	Y	-1.4
	95	Y	-1.4
	96	Y	-1.4
	97	Y	-1.4
	98	Y	-1.4
	99	Y	-1.4
	100	Y	-1.4
	101	Y	-1.4
	102	Y	-1.4
	103	Y	-1.4
	104	Y	-1.4
	105	Y	-1.4
	106	Y	-1.4
	107	Y	-1.4
	108	Y	-1.4
	109	Y	-1.4
	110	Y	-1.4
	111	Y	-1.4
	112	Y	-1.4
	113	Y	-1.4
	114	Y	-1.4
	115	Y	-1.4
	116	Y	-1.4
	117	Y	-1.4
	118	Y	-1.4
	119	Y	-1.4
	120	Y	-1.4
	121	Y	-1.4
	122	Y	-1.4
	123	Y	-1.4
	124	Y	-1.4
	125	Y	-1.4
	126	Y	-1.4
	127	Y	-1.4
	128	Y	-1.4
	129	Y	-1.4
	130	Y	-1.4

E S T A D O S D E C A R G A

Estado	Descripción	Comb.	MultX	MultY	MultZ
pp	Peso Propio	0	0	-1	0
pl	prelosas	0	0	0	0

R E S U L T A D O S D E L A N A L I S I S

R E A C C I O N E S

Nudo	FUERZAS [Ton] FX	FY	FZ	MOMENTOS [Ton*M] MX	MY	MZ
Estado pp=Peso Propio						
1	0.00000	63.49242	0.00000	0.00000	0.00000	0.00000
18	0.00000	246.52557	0.00000	0.00000	0.00000	0.00000
46	0.00000	245.16289	0.00000	0.00000	0.00000	0.00000
74	0.00000	245.16289	0.00000	0.00000	0.00000	0.00000
102	0.00000	246.52557	0.00000	0.00000	0.00000	0.00000
112	0.00000	63.49242	0.00000	0.00000	0.00000	0.00000
128	0.00000	-9.42521	0.00000	0.00000	0.00000	0.00000
129	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
130	0.00000	-9.42521	0.00000	0.00000	0.00000	0.00000
131	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	1091.51130	0.00000	0.00000	0.00000	0.00000
Estado pl=prelosas						
1	0.00000	17.64000	0.00000	0.00000	0.00000	0.00000
18	0.00000	63.37859	0.00000	0.00000	0.00000	0.00000
46	0.00000	63.00000	0.00000	0.00000	0.00000	0.00000
74	0.00000	63.00000	0.00000	0.00000	0.00000	0.00000
102	0.00000	63.37859	0.00000	0.00000	0.00000	0.00000
112	0.00000	17.64000	0.00000	0.00000	0.00000	0.00000
128	0.00000	-2.61859	0.00000	0.00000	0.00000	0.00000
129	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
130	0.00000	-2.61859	0.00000	0.00000	0.00000	0.00000
131	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	282.80000	0.00000	0.00000	0.00000	0.00000

V I G A S

E S F U E R Z O S

	M33 [Ton*M]	V2 [Ton]	M22 [Ton*M]	V3 [Ton]
Viga 1				
Estado pp=Peso Propio				
0%	0.00	-63.49	0.00	0.00
16%	16.49	-62.17	0.00	0.00
33%	32.64	-60.85	0.00	0.00
50%	48.44	-59.52	0.00	0.00
66%	63.89	-58.20	0.00	0.00
83%	78.99	-56.88	0.00	0.00
100%	93.75	-55.56	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Estado pl=prelosas				
0%	0.00	-17.64	0.00	0.00
16%	4.58	-17.27	0.00	0.00
33%	9.07	-16.91	0.00	0.00
50%	13.46	-16.54	0.00	0.00
66%	17.75	-16.17	0.00	0.00
83%	21.95	-15.80	0.00	0.00
100%	26.05	-15.44	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 2				
Estado pp=Peso Propio				
0%	93.75	-55.56	0.00	0.00
16%	108.16	-54.23	0.00	0.00
33%	122.22	-52.91	0.00	0.00
50%	135.94	-51.59	0.00	0.00
66%	149.31	-50.26	0.00	0.00
83%	162.33	-48.94	0.00	0.00
100%	175.00	-47.62	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Estado pl=prelosas				
0%	26.05	-15.44	0.00	0.00
16%	30.05	-15.07	0.00	0.00
33%	33.96	-14.70	0.00	0.00
50%	37.77	-14.33	0.00	0.00
66%	41.48	-13.97	0.00	0.00
83%	45.10	-13.60	0.00	0.00
100%	48.62	-13.23	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 3				
Estado pp=Peso Propio				
0%	175.00	-47.62	0.00	0.00
16%	187.33	-46.30	0.00	0.00
33%	199.31	-44.97	0.00	0.00
50%	210.94	-43.65	0.00	0.00
66%	222.22	-42.33	0.00	0.00
83%	233.16	-41.01	0.00	0.00
100%	243.75	-39.68	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Estado pl=prelosas				
0%	48.62	-13.23	0.00	0.00
16%	52.04	-12.86	0.00	0.00
33%	55.37	-12.50	0.00	0.00
50%	58.60	-12.13	0.00	0.00
66%	61.74	-11.76	0.00	0.00
83%	64.78	-11.39	0.00	0.00
100%	67.72	-11.03	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 4				
Estado pp=Peso Propio				
0%	243.75	-39.68	0.00	0.00
16%	253.99	-38.36	0.00	0.00
33%	263.89	-37.04	0.00	0.00
50%	273.44	-35.71	0.00	0.00
66%	282.64	-34.39	0.00	0.00
83%	291.49	-33.07	0.00	0.00
100%	300.00	-31.75	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Estado pl=prelosas				
0%	67.72	-11.03	0.00	0.00
16%	70.57	-10.66	0.00	0.00
33%	73.32	-10.29	0.00	0.00
50%	75.97	-9.92	0.00	0.00
66%	78.53	-9.56	0.00	0.00
83%	80.99	-9.19	0.00	0.00
100%	83.35	-8.82	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 5				
Estado pp=Peso Propio				
0%	300.00	-31.75	0.00	0.00
16%	308.16	-30.42	0.00	0.00
33%	315.97	-29.10	0.00	0.00
50%	323.44	-27.78	0.00	0.00
66%	330.56	-26.46	0.00	0.00
83%	337.33	-25.13	0.00	0.00
100%	343.75	-23.81	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Estado pl=prelosas				
0%	83.35	-8.82	0.00	0.00
16%	85.62	-8.45	0.00	0.00
33%	87.79	-8.09	0.00	0.00
50%	89.86	-7.72	0.00	0.00
66%	91.84	-7.35	0.00	0.00
83%	93.72	-6.98	0.00	0.00
100%	95.50	-6.62	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 6				
Estado pp=Peso Propio				
0%	343.75	-23.81	0.00	0.00
16%	349.83	-22.49	0.00	0.00
33%	355.56	-21.16	0.00	0.00
50%	360.94	-19.84	0.00	0.00
66%	365.97	-18.52	0.00	0.00
83%	370.66	-17.20	0.00	0.00
100%	375.00	-15.87	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	

```
Estado pl=prelosas
  0%  95.50         -6.62         0.00          0.00
 16%  97.19         -6.25         0.00          0.00
 33%  98.78         -5.88         0.00          0.00
 50%  100.28        -5.51         0.00          0.00
 66%  101.68        -5.15         0.00          0.00
 83%  102.98        -4.78         0.00          0.00
100%  104.19        -4.41         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 7
Estado pp=Peso Propio
  0%  375.00        -15.87        0.00          0.00
 16%  379.00        -14.55        0.00          0.00
 33%  382.64        -13.23        0.00          0.00
 50%  385.94        -11.90        0.00          0.00
 66%  388.89        -10.58        0.00          0.00
 83%  391.50        -9.26         0.00          0.00
100%  393.75        -7.94         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  104.19        -4.41         0.00          0.00
 16%  105.30        -4.04         0.00          0.00
 33%  106.31        -3.67         0.00          0.00
 50%  107.23        -3.31         0.00          0.00
 66%  108.05        -2.94         0.00          0.00
 83%  108.77        -2.57         0.00          0.00
100%  109.40        -2.20         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 8
Estado pp=Peso Propio
  0%  393.75        -7.94         0.00          0.00
 16%  395.66        -6.61         0.00          0.00
 33%  397.22        -5.29         0.00          0.00
 50%  398.44        -3.97         0.00          0.00
 66%  399.31        -2.65         0.00          0.00
 83%  399.83        -1.32         0.00          0.00
100%  400.00        0.00          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  109.40        -2.20         0.00          0.00
 16%  109.93        -1.84         0.00          0.00
 33%  110.36        -1.47         0.00          0.00
 50%  110.70        -1.10         0.00          0.00
 66%  110.94        -0.73         0.00          0.00
 83%  111.08        -0.37         0.00          0.00
100%  111.13        0.00          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 9
Estado pp=Peso Propio
  0%  400.00        0.00          0.00          0.00
 16%  399.83        1.32          0.00          0.00
 33%  399.31        2.65          0.00          0.00
 50%  398.44        3.97          0.00          0.00
 66%  397.22        5.29          0.00          0.00
 83%  395.66        6.61          0.00          0.00
100%  393.75        7.94          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  111.13        0.00          0.00          0.00
 16%  111.08        0.37          0.00          0.00
 33%  110.94        0.73          0.00          0.00
 50%  110.70        1.10          0.00          0.00
 66%  110.36        1.47          0.00          0.00
 83%  109.93        1.84          0.00          0.00
100%  109.40        2.20          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 10
Estado pp=Peso Propio
  0%  393.75        7.94          0.00          0.00
 16%  391.50        9.26          0.00          0.00
 33%  388.89        10.58         0.00          0.00
 50%  385.94        11.90         0.00          0.00
 66%  382.64        13.23         0.00          0.00
 83%  379.00        14.55         0.00          0.00
100%  375.00        15.87         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  109.40        2.21          0.00          0.00
 16%  108.77        2.57          0.00          0.00
 33%  108.05        2.94          0.00          0.00
 50%  107.23        3.31          0.00          0.00
 66%  106.31        3.68          0.00          0.00
 83%  105.30        4.04          0.00          0.00
100%  104.19        4.41          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 11
Estado pp=Peso Propio
  0%  375.00        15.87         0.00          0.00
 16%  370.66        17.20         0.00          0.00
 33%  365.97        18.52         0.00          0.00
 50%  360.94        19.84         0.00          0.00
 66%  355.56        21.16         0.00          0.00
 83%  349.83        22.49         0.00          0.00
100%  343.75        23.81         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  104.19        4.41          0.00          0.00
 16%  102.98        4.78          0.00          0.00
 33%  101.68        5.15          0.00          0.00
 50%  100.28        5.51          0.00          0.00
 66%  98.78         5.88          0.00          0.00
 83%  97.19         6.25          0.00          0.00
100%  95.50         6.62          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 12
Estado pp=Peso Propio
  0%  343.75        23.81         0.00          0.00
 16%  337.33        25.13         0.00          0.00
 33%  330.56        26.46         0.00          0.00
 50%  323.44        27.78         0.00          0.00
 66%  315.97        29.10         0.00          0.00
 83%  308.16        30.42         0.00          0.00
100%  300.00        31.75         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  95.50         6.62          0.00          0.00
 16%  93.72         6.98          0.00          0.00
 33%  91.84         7.35          0.00          0.00
 50%  89.86         7.72          0.00          0.00
 66%  87.79         8.09          0.00          0.00
 83%  85.62         8.45          0.00          0.00
100%  83.35         8.82          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 13
Estado pp=Peso Propio
  0%  300.00        31.75         0.00          0.00
 16%  291.49        33.07         0.00          0.00
 33%  282.64        34.39         0.00          0.00
 50%  273.44        35.71         0.00          0.00
 66%  263.89        37.04         0.00          0.00
 83%  253.99        38.36         0.00          0.00
100%  243.75        39.68         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  83.35         8.82          0.00          0.00
 16%  80.99         9.19          0.00          0.00
 33%  78.53         9.56          0.00          0.00
 50%  75.97         9.92          0.00          0.00
 66%  73.32         10.29         0.00          0.00
 83%  70.57         10.66         0.00          0.00
100%  67.72         11.03         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 14
Estado pp=Peso Propio
  0%  243.75        39.68         0.00          0.00
 16%  233.16        41.01         0.00          0.00
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 33%  222.22        42.33        0.00         0.00
 50%  210.94        43.65        0.00         0.00
 66%  199.31        44.97        0.00         0.00
 83%  187.33        46.30        0.00         0.00
100%  175.00        47.62        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  67.72         11.02        0.00         0.00
 16%  64.78         11.39        0.00         0.00
 33%  61.74         11.76        0.00         0.00
 50%  58.60         12.13        0.00         0.00
 66%  55.37         12.49        0.00         0.00
 83%  52.04         12.86        0.00         0.00
100%  48.62         13.23        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 15
Estado pp=Peso Propio
  0%  175.00        47.62        0.00         0.00
 16%  162.33        48.94        0.00         0.00
 33%  149.31        50.26        0.00         0.00
 50%  135.94        51.59        0.00         0.00
 66%  122.22        52.91        0.00         0.00
 83%  108.16        54.23        0.00         0.00
100%  93.75         55.56        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  48.62         13.23        0.00         0.00
 16%  45.10         13.60        0.00         0.00
 33%  41.48         13.97        0.00         0.00
 50%  37.77         14.33        0.00         0.00
 66%  33.96         14.70        0.00         0.00
 83%  30.05         15.07        0.00         0.00
100%  26.05         15.44        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 16
Estado pp=Peso Propio
  0%  93.75         55.56        0.00         0.00
 16%  78.99         56.88        0.00         0.00
 33%  63.89         58.20        0.00         0.00
 50%  48.44         59.52        0.00         0.00
 66%  32.64         60.85        0.00         0.00
 83%  16.49         62.17        0.00         0.00
100%  0.00          63.49        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  26.05         15.44        0.00         0.00
 16%  21.95         15.80        0.00         0.00
 33%  17.75         16.17        0.00         0.00
 50%  13.46         16.54        0.00         0.00
 66%  9.07          16.91        0.00         0.00
 83%  4.58          17.27        0.00         0.00
100%  0.00          17.64        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 17
Estado pp=Peso Propio
  0%  0.00          63.49        0.00         0.00
 16%  -12.81        64.64        0.00         0.00
 33%  -25.85        65.78        0.00         0.00
 50%  -39.13        66.93        0.00         0.00
 66%  -52.63        68.07        0.00         0.00
 83%  -66.35        69.22        0.00         0.00
100%  -80.31        70.36        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  0.00          17.64        0.00         0.00
 16%  -3.56         17.92        0.00         0.00
 33%  -7.17         18.20        0.00         0.00
 50%  -10.84        18.48        0.00         0.00
 66%  -14.56        18.76        0.00         0.00
 83%  -18.34        19.04        0.00         0.00
100%  -22.18        19.32        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 18
Estado pp=Peso Propio
  0%  -117.62       82.42        0.00         0.00
 16%  -140.65       84.05        0.00         0.00
 33%  -164.13       85.68        0.00         0.00
 50%  -188.06       87.32        0.00         0.00
 66%  -212.44       88.95        0.00         0.00
 83%  -237.28       90.58        0.00         0.00
100%  -262.56       92.21        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -32.42        22.58        0.00         0.00
 16%  -38.72        22.97        0.00         0.00
 33%  -45.13        23.36        0.00         0.00
 50%  -51.64        23.74        0.00         0.00
 66%  -58.26        24.13        0.00         0.00
 83%  -64.99        24.52        0.00         0.00
100%  -71.83        24.91        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 19
Estado pp=Peso Propio
  0%  -262.56       92.21        0.00         0.00
 16%  -288.31       93.89        0.00         0.00
 33%  -314.52       95.57        0.00         0.00
 50%  -341.19       97.26        0.00         0.00
 66%  -368.33       98.94        0.00         0.00
 83%  -395.94       100.62       0.00         0.00
100%  -424.01       102.30       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -71.83        24.91        0.00         0.00
 16%  -78.78        25.29        0.00         0.00
 33%  -85.83        25.68        0.00         0.00
 50%  -92.99        26.07        0.00         0.00
 66%  -100.25       26.46        0.00         0.00
 83%  -107.63       26.84        0.00         0.00
100%  -115.11       27.23        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 20
Estado pp=Peso Propio
  0%  -424.01       102.30       0.00         0.00
 16%  -452.55       104.03       0.00         0.00
 33%  -481.57       105.76       0.00         0.00
 50%  -511.07       107.49       0.00         0.00
 66%  -541.05       109.23       0.00         0.00
 83%  -571.51       110.96       0.00         0.00
100%  -602.45       112.69       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -115.11       27.23        0.00         0.00
 16%  -122.69       27.62        0.00         0.00
 33%  -130.39       28.01        0.00         0.00
 50%  -138.19       28.39        0.00         0.00
 66%  -146.10       28.78        0.00         0.00
 83%  -154.11       29.17        0.00         0.00
100%  -162.24       29.55        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 21
Estado pp=Peso Propio
  0%  -602.45       112.69       0.00         0.00
 16%  -633.89       114.57       0.00         0.00
 33%  -665.84       116.44       0.00         0.00
 50%  -698.32       118.32       0.00         0.00
 66%  -731.31       120.19       0.00         0.00
 83%  -764.82       122.07       0.00         0.00
100%  -798.86       123.94       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -162.24       29.55        0.00         0.00
 16%  -170.47       29.94        0.00         0.00
 33%  -178.81       30.33        0.00         0.00
 50%  -187.25       30.72        0.00         0.00
 66%  -195.80       31.10        0.00         0.00
 83%  -204.46       31.49        0.00         0.00
100%  -213.23       31.88        0.00         0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 22
Estado pp=Peso Propio
  0%  -798.86       -122.58       0.00          0.00
 16%  -765.20       -120.71       0.00          0.00
 33%  -732.07       -118.83       0.00          0.00
 50%  -699.45       -116.96       0.00          0.00
 66%  -667.35       -115.08       0.00          0.00
 83%  -635.77       -113.20       0.00          0.00
100%  -604.71       -111.33       0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -213.23       -31.50        0.00          0.00
 16%  -204.57       -31.11        0.00          0.00
 33%  -196.01       -30.73        0.00          0.00
 50%  -187.56       -30.34        0.00          0.00
 66%  -179.22       -29.95        0.00          0.00
 83%  -170.99       -29.56        0.00          0.00
100%  -162.87       -29.18        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 23
Estado pp=Peso Propio
  0%  -604.71       -111.33       0.00          0.00
 16%  -574.15       -109.60       0.00          0.00
 33%  -544.07       -107.86       0.00          0.00
 50%  -514.46       -106.13       0.00          0.00
 66%  -485.34       -104.40       0.00          0.00
 83%  -456.70       -102.67       0.00          0.00
100%  -428.53       -100.94       0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -162.87       -29.18        0.00          0.00
 16%  -154.85       -28.79        0.00          0.00
 33%  -146.94       -28.40        0.00          0.00
 50%  -139.13       -28.01        0.00          0.00
 66%  -131.44       -27.63        0.00          0.00
 83%  -123.85       -27.24        0.00          0.00
100%  -116.36       -26.85        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 24
Estado pp=Peso Propio
  0%  -428.53       -100.94       0.00          0.00
 16%  -400.84       -99.25        0.00          0.00
 33%  -373.61       -97.57        0.00          0.00
 50%  -346.85       -95.89        0.00          0.00
 66%  -320.55       -94.21        0.00          0.00
 83%  -294.72       -92.53        0.00          0.00
100%  -269.35       -90.85        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -116.36       -26.85        0.00          0.00
 16%  -108.99       -26.46        0.00          0.00
 33%  -101.72       -26.08        0.00          0.00
 50%  -94.56        -25.69        0.00          0.00
 66%  -87.50        -25.30        0.00          0.00
 83%  -80.56        -24.92        0.00          0.00
100%  -73.72        -24.53        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 25
Estado pp=Peso Propio
  0%  -269.35       -90.85        0.00          0.00
 16%  -244.44       -89.22        0.00          0.00
 33%  -219.98       -87.59        0.00          0.00
 50%  -195.98       -85.95        0.00          0.00
 66%  -172.42       -84.32        0.00          0.00
 83%  -149.32       -82.69        0.00          0.00
100%  -126.67       -81.06        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -73.72        -24.53        0.00          0.00
 16%  -66.98        -24.14        0.00          0.00
 33%  -60.36        -23.75        0.00          0.00
 50%  -53.84        -23.37        0.00          0.00
 66%  -47.43        -22.98        0.00          0.00
 83%  -41.13        -22.59        0.00          0.00
100%  -34.93        -22.20        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 26
Estado pp=Peso Propio
  0%  -126.67       -81.06        0.00          0.00
 16%  -104.46       -79.47        0.00          0.00
 33%  -82.69        -77.89        0.00          0.00
 50%  -61.36        -76.31        0.00          0.00
 66%  -40.47        -74.72        0.00          0.00
 83%  -20.02        -73.14        0.00          0.00
100%  0.00          -71.55        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -34.93        -22.20        0.00          0.00
 16%  -28.84        -21.82        0.00          0.00
 33%  -22.86        -21.43        0.00          0.00
 50%  -16.98        -21.04        0.00          0.00
 66%  -11.21        -20.65        0.00          0.00
 83%  -5.55         -20.27        0.00          0.00
100%  0.00          -19.88        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 27
Estado pp=Peso Propio
  0%  0.00          -71.55        0.00          0.00
 16%  18.64         -70.23        0.00          0.00
 33%  36.94         -68.90        0.00          0.00
 50%  54.88         -67.58        0.00          0.00
 66%  72.48         -66.25        0.00          0.00
 83%  89.73         -64.93        0.00          0.00
100%  106.63        -63.60        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  0.00          -19.88        0.00          0.00
 16%  5.18          -19.51        0.00          0.00
 33%  10.26         -19.14        0.00          0.00
 50%  15.25         -18.78        0.00          0.00
 66%  20.14         -18.41        0.00          0.00
 83%  24.93         -18.04        0.00          0.00
100%  29.62         -17.67        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 28
Estado pp=Peso Propio
  0%  106.63        -63.60        0.00          0.00
 16%  123.18        -62.28        0.00          0.00
 33%  139.38        -60.95        0.00          0.00
 50%  155.23        -59.63        0.00          0.00
 66%  170.74        -58.30        0.00          0.00
 83%  185.90        -56.98        0.00          0.00
100%  200.71        -55.65        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  29.62         -17.67        0.00          0.00
 16%  34.22         -17.30        0.00          0.00
 33%  38.72         -16.93        0.00          0.00
 50%  43.13         -16.57        0.00          0.00
 66%  47.44         -16.20        0.00          0.00
 83%  51.65         -15.83        0.00          0.00
100%  55.76         -15.46        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 29
Estado pp=Peso Propio
  0%  200.71        -55.65        0.00          0.00
 16%  215.17        -54.33        0.00          0.00
 33%  229.28        -53.00        0.00          0.00
 50%  243.04        -51.68        0.00          0.00
 66%  256.46        -50.35        0.00          0.00
 83%  269.53        -49.03        0.00          0.00
100%  282.24        -47.70        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  55.76         -15.46        0.00          0.00
```

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 16%  59.78         -15.09        0.00          0.00
 33%  63.70         -14.73        0.00          0.00
 50%  67.52         -14.36        0.00          0.00
 66%  71.25         -13.99        0.00          0.00
 83%  74.88         -13.62        0.00          0.00
100%  78.42         -13.25        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 30
Estado pp=Peso Propio
  0%  282.24         -47.70        0.00          0.00
 16%  294.61         -46.38        0.00          0.00
 33%  306.64         -45.05        0.00          0.00
 50%  318.31         -43.73        0.00          0.00
 66%  329.63         -42.40        0.00          0.00
 83%  340.61         -41.08        0.00          0.00
100%  351.24         -39.75        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  78.42          -13.25        0.00          0.00
 16%  81.85          -12.89        0.00          0.00
 33%  85.19          -12.52        0.00          0.00
 50%  88.44          -12.15        0.00          0.00
 66%  91.58          -11.78        0.00          0.00
 83%  94.63          -11.41        0.00          0.00
100%  97.58          -11.04        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 31
Estado pp=Peso Propio
  0%  351.24         -39.75        0.00          0.00
 16%  361.52         -38.43        0.00          0.00
 33%  371.45         -37.10        0.00          0.00
 50%  381.03         -35.78        0.00          0.00
 66%  390.26         -34.45        0.00          0.00
 83%  399.15         -33.13        0.00          0.00
100%  407.69         -31.80        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  97.58          -11.04        0.00          0.00
 16%  100.44         -10.68        0.00          0.00
 33%  103.20         -10.31        0.00          0.00
 50%  105.86         -9.94         0.00          0.00
 66%  108.43         -9.57         0.00          0.00
 83%  110.90         -9.20         0.00          0.00
100%  113.27         -8.84         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 32
Estado pp=Peso Propio
  0%  407.69         -31.80        0.00          0.00
 16%  415.88         -30.48        0.00          0.00
 33%  423.72         -29.15        0.00          0.00
 50%  431.21         -27.83        0.00          0.00
 66%  438.35         -26.50        0.00          0.00
 83%  445.14         -25.18        0.00          0.00
100%  451.59         -23.85        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  113.27         -8.84         0.00          0.00
 16%  115.54         -8.47         0.00          0.00
 33%  117.72         -8.10         0.00          0.00
 50%  119.80         -7.73         0.00          0.00
 66%  121.79         -7.36         0.00          0.00
 83%  123.67         -6.99         0.00          0.00
100%  125.46         -6.63         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 33
Estado pp=Peso Propio
  0%  451.59         -23.85        0.00          0.00
 16%  457.69         -22.53        0.00          0.00
 33%  463.44         -21.20        0.00          0.00
 50%  468.84         -19.88        0.00          0.00
 66%  473.89         -18.55        0.00          0.00
 83%  478.60         -17.23        0.00          0.00
100%  482.95         -15.90        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  125.46         -6.63         0.00          0.00
 16%  127.16         -6.26         0.00          0.00
 33%  128.76         -5.89         0.00          0.00
 50%  130.26         -5.52         0.00          0.00
 66%  131.66         -5.15         0.00          0.00
 83%  132.97         -4.79         0.00          0.00
100%  134.18         -4.42         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 34
Estado pp=Peso Propio
  0%  482.95         -15.90        0.00          0.00
 16%  486.96         -14.58        0.00          0.00
 33%  490.62         -13.25        0.00          0.00
 50%  493.93         -11.93        0.00          0.00
 66%  496.89         -10.60        0.00          0.00
 83%  499.50         -9.28         0.00          0.00
100%  501.77         -7.95         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  134.18         -4.42         0.00          0.00
 16%  135.29         -4.05         0.00          0.00
 33%  136.31         -3.68         0.00          0.00
 50%  137.23         -3.31         0.00          0.00
 66%  138.05         -2.95         0.00          0.00
 83%  138.78         -2.58         0.00          0.00
100%  139.41         -2.21         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 35
Estado pp=Peso Propio
  0%  501.77         -7.95         0.00          0.00
 16%  503.68         -6.63         0.00          0.00
 33%  505.25         -5.30         0.00          0.00
 50%  506.47         -3.98         0.00          0.00
 66%  507.34         -2.65         0.00          0.00
 83%  507.87         -1.33         0.00          0.00
100%  508.04         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  139.41         -2.21         0.00          0.00
 16%  139.94         -1.84         0.00          0.00
 33%  140.37         -1.47         0.00          0.00
 50%  140.71         -1.10         0.00          0.00
 66%  140.95         -0.74         0.00          0.00
 83%  141.10         -0.37         0.00          0.00
100%  141.15         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 36
Estado pp=Peso Propio
  0%  508.04         0.00          0.00          0.00
 16%  507.87         1.33          0.00          0.00
 33%  507.34         2.65          0.00          0.00
 50%  506.47         3.98          0.00          0.00
 66%  505.25         5.30          0.00          0.00
 83%  503.68         6.63          0.00          0.00
100%  501.77         7.95          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  141.15         0.00          0.00          0.00
 16%  141.10         0.37          0.00          0.00
 33%  140.95         0.74          0.00          0.00
 50%  140.71         1.10          0.00          0.00
 66%  140.37         1.47          0.00          0.00
 83%  139.94         1.84          0.00          0.00
100%  139.41         2.21          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 37
Estado pp=Peso Propio
  0%  501.77         7.95          0.00          0.00
 16%  499.50         9.28          0.00          0.00
 33%  496.89         10.60         0.00          0.00
 50%  493.93         11.93         0.00          0.00
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 66%  490.62        13.25         0.00          0.00
 83%  486.96        14.58         0.00          0.00
100%  482.95        15.90         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  139.41         2.21         0.00          0.00
 16%  138.78         2.58         0.00          0.00
 33%  138.05         2.95         0.00          0.00
 50%  137.23         3.31         0.00          0.00
 66%  136.31         3.68         0.00          0.00
 83%  135.29         4.05         0.00          0.00
100%  134.18         4.42         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 38
Estado pp=Peso Propio
  0%  482.95        15.90         0.00          0.00
 16%  478.60        17.23         0.00          0.00
 33%  473.89        18.55         0.00          0.00
 50%  468.84        19.88         0.00          0.00
 66%  463.44        21.20         0.00          0.00
 83%  457.69        22.53         0.00          0.00
100%  451.59        23.85         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  134.18         4.42         0.00          0.00
 16%  132.97         4.79         0.00          0.00
 33%  131.66         5.15         0.00          0.00
 50%  130.26         5.52         0.00          0.00
 66%  128.76         5.89         0.00          0.00
 83%  127.16         6.26         0.00          0.00
100%  125.46         6.63         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 39
Estado pp=Peso Propio
  0%  451.59        23.85         0.00          0.00
 16%  445.14        25.18         0.00          0.00
 33%  438.35        26.50         0.00          0.00
 50%  431.21        27.83         0.00          0.00
 66%  423.72        29.15         0.00          0.00
 83%  415.88        30.48         0.00          0.00
100%  407.69        31.80         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  125.46         6.63         0.00          0.00
 16%  123.67         6.99         0.00          0.00
 33%  121.79         7.36         0.00          0.00
 50%  119.80         7.73         0.00          0.00
 66%  117.72         8.10         0.00          0.00
 83%  115.54         8.47         0.00          0.00
100%  113.27         8.84         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 40
Estado pp=Peso Propio
  0%  407.69        31.80         0.00          0.00
 16%  399.15        33.13         0.00          0.00
 33%  390.26        34.45         0.00          0.00
 50%  381.03        35.78         0.00          0.00
 66%  371.45        37.10         0.00          0.00
 83%  361.52        38.43         0.00          0.00
100%  351.24        39.75         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  113.27         8.84         0.00          0.00
 16%  110.90         9.20         0.00          0.00
 33%  108.43         9.57         0.00          0.00
 50%  105.86         9.94         0.00          0.00
 66%  103.20        10.31         0.00          0.00
 83%  100.44        10.68         0.00          0.00
100%  97.58         11.04         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 41
Estado pp=Peso Propio
  0%  351.24        39.75         0.00          0.00
 16%  340.61        41.08         0.00          0.00
 33%  329.63        42.40         0.00          0.00
 50%  318.31        43.73         0.00          0.00
 66%  306.64        45.05         0.00          0.00
 83%  294.61        46.38         0.00          0.00
100%  282.24        47.70         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  97.58         11.04         0.00          0.00
 16%  94.63         11.41         0.00          0.00
 33%  91.58         11.78         0.00          0.00
 50%  88.44         12.15         0.00          0.00
 66%  85.19         12.52         0.00          0.00
 83%  81.85         12.89         0.00          0.00
100%  78.42         13.25         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 42
Estado pp=Peso Propio
  0%  282.24        47.70         0.00          0.00
 16%  269.53        49.03         0.00          0.00
 33%  256.46        50.35         0.00          0.00
 50%  243.04        51.68         0.00          0.00
 66%  229.28        53.00         0.00          0.00
 83%  215.17        54.33         0.00          0.00
100%  200.71        55.65         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  78.42         13.25         0.00          0.00
 16%  74.88         13.62         0.00          0.00
 33%  71.25         13.99         0.00          0.00
 50%  67.52         14.36         0.00          0.00
 66%  63.70         14.73         0.00          0.00
 83%  59.78         15.09         0.00          0.00
100%  55.76         15.46         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 43
Estado pp=Peso Propio
  0%  200.71        55.65         0.00          0.00
 16%  185.90        56.98         0.00          0.00
 33%  170.74        58.30         0.00          0.00
 50%  155.23        59.63         0.00          0.00
 66%  139.38        60.95         0.00          0.00
 83%  123.18        62.28         0.00          0.00
100%  106.63        63.60         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  55.76         15.46         0.00          0.00
 16%  51.65         15.83         0.00          0.00
 33%  47.44         16.20         0.00          0.00
 50%  43.13         16.57         0.00          0.00
 66%  38.72         16.93         0.00          0.00
 83%  34.22         17.30         0.00          0.00
100%  29.62         17.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 44
Estado pp=Peso Propio
  0%  106.63        63.60         0.00          0.00
 16%  89.73         64.93         0.00          0.00
 33%  72.48         66.25         0.00          0.00
 50%  54.88         67.58         0.00          0.00
 66%  36.94         68.90         0.00          0.00
 83%  18.64         70.23         0.00          0.00
100%  0.00          71.55         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  29.62         17.67         0.00          0.00
 16%  24.93         18.04         0.00          0.00
 33%  20.14         18.41         0.00          0.00
 50%  15.25         18.78         0.00          0.00
 66%  10.26         19.14         0.00          0.00
 83%  5.18          19.51         0.00          0.00
100%  0.00          19.88         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
```

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Viga 45
Estado pp=Peso Propio
  0%  0.00          71.55         0.00          0.00
 16%  -14.43        72.70         0.00          0.00
 33%  -29.08        73.84         0.00          0.00
 50%  -43.96        74.99         0.00          0.00
 66%  -59.08        76.13         0.00          0.00
 83%  -74.42        77.28         0.00          0.00
100%  -89.99        78.42         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  0.00          19.88         0.00          0.00
 16%  -4.00         20.16         0.00          0.00
 33%  -8.06         20.44         0.00          0.00
 50%  -12.18        20.72         0.00          0.00
 66%  -16.35        21.00         0.00          0.00
 83%  -20.58        21.28         0.00          0.00
100%  -24.86        21.56         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 46
Estado pp=Peso Propio
  0%  -126.67       81.06         0.00          0.00
 16%  -149.32       82.69         0.00          0.00
 33%  -172.42       84.32         0.00          0.00
 50%  -195.98       85.95         0.00          0.00
 66%  -219.98       87.59         0.00          0.00
 83%  -244.44       89.22         0.00          0.00
100%  -269.35       90.85         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -34.93        22.20         0.00          0.00
 16%  -41.13        22.59         0.00          0.00
 33%  -47.43        22.98         0.00          0.00
 50%  -53.84        23.37         0.00          0.00
 66%  -60.36        23.75         0.00          0.00
 83%  -66.98        24.14         0.00          0.00
100%  -73.72        24.53         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 47
Estado pp=Peso Propio
  0%  -269.35       90.85         0.00          0.00
 16%  -294.72       92.53         0.00          0.00
 33%  -320.55       94.21         0.00          0.00
 50%  -346.85       95.89         0.00          0.00
 66%  -373.61       97.57         0.00          0.00
 83%  -400.84       99.25         0.00          0.00
100%  -428.53       100.94        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -73.72        24.53         0.00          0.00
 16%  -80.56        24.92         0.00          0.00
 33%  -87.50        25.30         0.00          0.00
 50%  -94.56        25.69         0.00          0.00
 66%  -101.72       26.08         0.00          0.00
 83%  -108.99       26.46         0.00          0.00
100%  -116.36       26.85         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 48
Estado pp=Peso Propio
  0%  -428.53       100.94        0.00          0.00
 16%  -456.70       102.67        0.00          0.00
 33%  -485.34       104.40        0.00          0.00
 50%  -514.46       106.13        0.00          0.00
 66%  -544.07       107.86        0.00          0.00
 83%  -574.15       109.60        0.00          0.00
100%  -604.71       111.33        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -116.36       26.85         0.00          0.00
 16%  -123.85       27.24         0.00          0.00
 33%  -131.44       27.63         0.00          0.00
 50%  -139.13       28.01         0.00          0.00
 66%  -146.94       28.40         0.00          0.00
 83%  -154.85       28.79         0.00          0.00
100%  -162.87       29.18         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 49
Estado pp=Peso Propio
  0%  -604.71       111.33        0.00          0.00
 16%  -635.77       113.20        0.00          0.00
 33%  -667.35       115.08        0.00          0.00
 50%  -699.45       116.96        0.00          0.00
 66%  -732.07       118.83        0.00          0.00
 83%  -765.20       120.71        0.00          0.00
100%  -798.86       122.58        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -162.87       29.18         0.00          0.00
 16%  -170.99       29.56         0.00          0.00
 33%  -179.22       29.95         0.00          0.00
 50%  -187.56       30.34         0.00          0.00
 66%  -196.01       30.73         0.00          0.00
 83%  -204.57       31.11         0.00          0.00
100%  -213.23       31.50         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 50
Estado pp=Peso Propio
  0%  -798.86       -122.58       0.00          0.00
 16%  -765.20       -120.71       0.00          0.00
 33%  -732.07       -118.83       0.00          0.00
 50%  -699.45       -116.96       0.00          0.00
 66%  -667.35       -115.08       0.00          0.00
 83%  -635.77       -113.20       0.00          0.00
100%  -604.71       -111.33       0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -213.23       -31.50        0.00          0.00
 16%  -204.57       -31.11        0.00          0.00
 33%  -196.01       -30.73        0.00          0.00
 50%  -187.56       -30.34        0.00          0.00
 66%  -179.22       -29.95        0.00          0.00
 83%  -170.99       -29.56        0.00          0.00
100%  -162.87       -29.18        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 51
Estado pp=Peso Propio
  0%  -604.71       -111.33       0.00          0.00
 16%  -574.15       -109.60       0.00          0.00
 33%  -544.07       -107.86       0.00          0.00
 50%  -514.46       -106.13       0.00          0.00
 66%  -485.34       -104.40       0.00          0.00
 83%  -456.70       -102.67       0.00          0.00
100%  -428.53       -100.94       0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -162.87       -29.18        0.00          0.00
 16%  -154.85       -28.79        0.00          0.00
 33%  -146.94       -28.40        0.00          0.00
 50%  -139.13       -28.01        0.00          0.00
 66%  -131.44       -27.63        0.00          0.00
 83%  -123.85       -27.24        0.00          0.00
100%  -116.36       -26.85        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 52
Estado pp=Peso Propio
  0%  -428.53       -100.94       0.00          0.00
 16%  -400.84       -99.25        0.00          0.00
 33%  -373.61       -97.57        0.00          0.00
 50%  -346.85       -95.89        0.00          0.00
 66%  -320.55       -94.21        0.00          0.00
 83%  -294.72       -92.53        0.00          0.00
100%  -269.35       -90.85        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -116.36       -26.85        0.00          0.00
 16%  -108.99       -26.46        0.00          0.00
 33%  -101.72       -26.08        0.00          0.00
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 50%  -94.56        -25.69        0.00          0.00
 66%  -87.50        -25.30        0.00          0.00
 83%  -80.56        -24.92        0.00          0.00
100%  -73.72        -24.53        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 53
Estado pp=Peso Propio
  0%  -269.35       -90.85        0.00          0.00
 16%  -244.44       -89.22        0.00          0.00
 33%  -219.98       -87.59        0.00          0.00
 50%  -195.98       -85.95        0.00          0.00
 66%  -172.42       -84.32        0.00          0.00
 83%  -149.32       -82.69        0.00          0.00
100%  -126.67       -81.06        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -73.72         -24.53        0.00          0.00
 16%  -66.98         -24.14        0.00          0.00
 33%  -60.36         -23.75        0.00          0.00
 50%  -53.84         -23.37        0.00          0.00
 66%  -47.43         -22.98        0.00          0.00
 83%  -41.13         -22.59        0.00          0.00
100%  -34.93         -22.20        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 54
Estado pp=Peso Propio
  0%  -126.67       -81.06        0.00          0.00
 16%  -104.46       -79.47        0.00          0.00
 33%  -82.69        -77.89        0.00          0.00
 50%  -61.36        -76.31        0.00          0.00
 66%  -40.47        -74.72        0.00          0.00
 83%  -20.02        -73.14        0.00          0.00
100%  0.00          -71.55        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -34.93         -22.20        0.00          0.00
 16%  -28.84         -21.82        0.00          0.00
 33%  -22.86         -21.43        0.00          0.00
 50%  -16.98         -21.04        0.00          0.00
 66%  -11.21         -20.65        0.00          0.00
 83%  -5.55          -20.27        0.00          0.00
100%  0.00          -19.88        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 55
Estado pp=Peso Propio
  0%  0.00           -71.55        0.00          0.00
 16%  18.64          -70.23        0.00          0.00
 33%  36.94          -68.90        0.00          0.00
 50%  54.88          -67.58        0.00          0.00
 66%  72.48          -66.25        0.00          0.00
 83%  89.73          -64.93        0.00          0.00
100%  106.63         -63.60        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  0.00           -19.88        0.00          0.00
 16%  5.18           -19.51        0.00          0.00
 33%  10.26          -19.14        0.00          0.00
 50%  15.25          -18.78        0.00          0.00
 66%  20.14          -18.41        0.00          0.00
 83%  24.93          -18.04        0.00          0.00
100%  29.62          -17.67        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 56
Estado pp=Peso Propio
  0%  106.63         -63.60        0.00          0.00
 16%  123.18         -62.28        0.00          0.00
 33%  139.38         -60.95        0.00          0.00
 50%  155.23         -59.63        0.00          0.00
 66%  170.74         -58.30        0.00          0.00
 83%  185.90         -56.98        0.00          0.00
100%  200.71         -55.65        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
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  0%  29.62          -17.67        0.00          0.00
 16%  34.22          -17.30        0.00          0.00
 33%  38.72          -16.93        0.00          0.00
 50%  43.13          -16.57        0.00          0.00
 66%  47.44          -16.20        0.00          0.00
 83%  51.65          -15.83        0.00          0.00
100%  55.76          -15.46        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 57
Estado pp=Peso Propio
  0%  200.71         -55.65        0.00          0.00
 16%  215.17         -54.33        0.00          0.00
 33%  229.28         -53.00        0.00          0.00
 50%  243.04         -51.68        0.00          0.00
 66%  256.46         -50.35        0.00          0.00
 83%  269.53         -49.03        0.00          0.00
100%  282.24         -47.70        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  55.76          -15.46        0.00          0.00
 16%  59.78          -15.09        0.00          0.00
 33%  63.70          -14.73        0.00          0.00
 50%  67.52          -14.36        0.00          0.00
 66%  71.25          -13.99        0.00          0.00
 83%  74.88          -13.62        0.00          0.00
100%  78.42          -13.25        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 58
Estado pp=Peso Propio
  0%  282.24         -47.70        0.00          0.00
 16%  294.61         -46.38        0.00          0.00
 33%  306.64         -45.05        0.00          0.00
 50%  318.31         -43.73        0.00          0.00
 66%  329.63         -42.40        0.00          0.00
 83%  340.61         -41.08        0.00          0.00
100%  351.24         -39.75        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  78.42          -13.25        0.00          0.00
 16%  81.85          -12.89        0.00          0.00
 33%  85.19          -12.52        0.00          0.00
 50%  88.44          -12.15        0.00          0.00
 66%  91.58          -11.78        0.00          0.00
 83%  94.63          -11.41        0.00          0.00
100%  97.58          -11.04        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 59
Estado pp=Peso Propio
  0%  351.24         -39.75        0.00          0.00
 16%  361.52         -38.43        0.00          0.00
 33%  371.45         -37.10        0.00          0.00
 50%  381.03         -35.78        0.00          0.00
 66%  390.26         -34.45        0.00          0.00
 83%  399.15         -33.13        0.00          0.00
100%  407.69         -31.80        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  97.58          -11.04        0.00          0.00
 16%  100.44         -10.68        0.00          0.00
 33%  103.20         -10.31        0.00          0.00
 50%  105.86         -9.94         0.00          0.00
 66%  108.43         -9.57         0.00          0.00
 83%  110.90         -9.20         0.00          0.00
100%  113.27         -8.84         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 60
Estado pp=Peso Propio
  0%  407.69         -31.80        0.00          0.00
 16%  415.88         -30.48        0.00          0.00
 33%  423.72         -29.15        0.00          0.00
 50%  431.21         -27.83        0.00          0.00
 66%  438.35         -26.50        0.00          0.00
 83%  445.14         -25.18        0.00          0.00
```

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100%  451.59        -23.85        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  113.27        -8.84         0.00          0.00
 16%  115.54        -8.47         0.00          0.00
 33%  117.72        -8.10         0.00          0.00
 50%  119.80        -7.73         0.00          0.00
 66%  121.79        -7.36         0.00          0.00
 83%  123.67        -6.99         0.00          0.00
100%  125.46        -6.63         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 61
Estado pp=Peso Propio
  0%  451.59        -23.85        0.00          0.00
 16%  457.69        -22.53        0.00          0.00
 33%  463.44        -21.20        0.00          0.00
 50%  468.84        -19.88        0.00          0.00
 66%  473.89        -18.55        0.00          0.00
 83%  478.60        -17.23        0.00          0.00
100%  482.95        -15.90        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  125.46        -6.63         0.00          0.00
 16%  127.16        -6.26         0.00          0.00
 33%  128.76        -5.89         0.00          0.00
 50%  130.26        -5.52         0.00          0.00
 66%  131.66        -5.15         0.00          0.00
 83%  132.97        -4.79         0.00          0.00
100%  134.18        -4.42         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 62
Estado pp=Peso Propio
  0%  482.95        -15.90        0.00          0.00
 16%  486.96        -14.58        0.00          0.00
 33%  490.62        -13.25        0.00          0.00
 50%  493.93        -11.93        0.00          0.00
 66%  496.89        -10.60        0.00          0.00
 83%  499.50        -9.28         0.00          0.00
100%  501.77        -7.95         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  134.18        -4.42         0.00          0.00
 16%  135.29        -4.05         0.00          0.00
 33%  136.31        -3.68         0.00          0.00
 50%  137.23        -3.31         0.00          0.00
 66%  138.05        -2.95         0.00          0.00
 83%  138.78        -2.58         0.00          0.00
100%  139.41        -2.21         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 63
Estado pp=Peso Propio
  0%  501.77        -7.95         0.00          0.00
 16%  503.68        -6.63         0.00          0.00
 33%  505.25        -5.30         0.00          0.00
 50%  506.47        -3.98         0.00          0.00
 66%  507.34        -2.65         0.00          0.00
 83%  507.87        -1.33         0.00          0.00
100%  508.04        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  139.41        -2.21         0.00          0.00
 16%  139.94        -1.84         0.00          0.00
 33%  140.37        -1.47         0.00          0.00
 50%  140.71        -1.10         0.00          0.00
 66%  140.95        -0.74         0.00          0.00
 83%  141.10        -0.37         0.00          0.00
100%  141.15        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 64
Estado pp=Peso Propio
  0%  508.04        0.00          0.00          0.00
 16%  507.87        1.33          0.00          0.00
 33%  507.34        2.65          0.00          0.00
 50%  506.47        3.98          0.00          0.00
 66%  505.25        5.30          0.00          0.00
 83%  503.68        6.63          0.00          0.00
100%  501.77        7.95          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  141.15        0.00          0.00          0.00
 16%  141.10        0.37          0.00          0.00
 33%  140.95        0.74          0.00          0.00
 50%  140.71        1.10          0.00          0.00
 66%  140.37        1.47          0.00          0.00
 83%  139.94        1.84          0.00          0.00
100%  139.41        2.21          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 65
Estado pp=Peso Propio
  0%  501.77        7.95          0.00          0.00
 16%  499.50        9.28          0.00          0.00
 33%  496.89        10.60         0.00          0.00
 50%  493.93        11.93         0.00          0.00
 66%  490.62        13.25         0.00          0.00
 83%  486.96        14.58         0.00          0.00
100%  482.95        15.90         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  139.41        2.21          0.00          0.00
 16%  138.78        2.58          0.00          0.00
 33%  138.05        2.95          0.00          0.00
 50%  137.23        3.31          0.00          0.00
 66%  136.31        3.68          0.00          0.00
 83%  135.29        4.05          0.00          0.00
100%  134.18        4.42          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 66
Estado pp=Peso Propio
  0%  482.95        15.90         0.00          0.00
 16%  478.60        17.23         0.00          0.00
 33%  473.89        18.55         0.00          0.00
 50%  468.84        19.88         0.00          0.00
 66%  463.44        21.20         0.00          0.00
 83%  457.69        22.53         0.00          0.00
100%  451.59        23.85         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  134.18        4.42          0.00          0.00
 16%  132.97        4.79          0.00          0.00
 33%  131.66        5.15          0.00          0.00
 50%  130.26        5.52          0.00          0.00
 66%  128.76        5.89          0.00          0.00
 83%  127.16        6.26          0.00          0.00
100%  125.46        6.63          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 67
Estado pp=Peso Propio
  0%  451.59        23.85         0.00          0.00
 16%  445.14        25.18         0.00          0.00
 33%  438.35        26.50         0.00          0.00
 50%  431.21        27.83         0.00          0.00
 66%  423.72        29.15         0.00          0.00
 83%  415.88        30.48         0.00          0.00
100%  407.69        31.80         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  125.46        6.63          0.00          0.00
 16%  123.67        6.99          0.00          0.00
 33%  121.79        7.36          0.00          0.00
 50%  119.80        7.73          0.00          0.00
 66%  117.72        8.10          0.00          0.00
 83%  115.54        8.47          0.00          0.00
100%  113.27        8.84          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 68
Estado pp=Peso Propio
```

```
  0%  407.69        31.80         0.00          0.00
 16%  399.15        33.13         0.00          0.00
 33%  390.26        34.45         0.00          0.00
 50%  381.03        35.78         0.00          0.00
 66%  371.45        37.10         0.00          0.00
 83%  361.52        38.43         0.00          0.00
100%  351.24        39.75         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  113.27         8.84         0.00          0.00
 16%  110.90         9.20         0.00          0.00
 33%  108.43         9.57         0.00          0.00
 50%  105.86         9.94         0.00          0.00
 66%  103.20        10.31         0.00          0.00
 83%  100.44        10.68         0.00          0.00
100%  97.58         11.04         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 69
Estado pp=Peso Propio
  0%  351.24        39.75         0.00          0.00
 16%  340.61        41.08         0.00          0.00
 33%  329.63        42.40         0.00          0.00
 50%  318.31        43.73         0.00          0.00
 66%  306.64        45.05         0.00          0.00
 83%  294.61        46.38         0.00          0.00
100%  282.24        47.70         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  97.58         11.04         0.00          0.00
 16%  94.63         11.41         0.00          0.00
 33%  91.58         11.78         0.00          0.00
 50%  88.44         12.15         0.00          0.00
 66%  85.19         12.52         0.00          0.00
 83%  81.85         12.89         0.00          0.00
100%  78.42         13.25         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 70
Estado pp=Peso Propio
  0%  282.24        47.70         0.00          0.00
 16%  269.53        49.03         0.00          0.00
 33%  256.46        50.35         0.00          0.00
 50%  243.04        51.68         0.00          0.00
 66%  229.28        53.00         0.00          0.00
 83%  215.17        54.33         0.00          0.00
100%  200.71        55.65         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  78.42         13.25         0.00          0.00
 16%  74.88         13.62         0.00          0.00
 33%  71.25         13.99         0.00          0.00
 50%  67.52         14.36         0.00          0.00
 66%  63.70         14.73         0.00          0.00
 83%  59.78         15.09         0.00          0.00
100%  55.76         15.46         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 71
Estado pp=Peso Propio
  0%  200.71        55.65         0.00          0.00
 16%  185.90        56.98         0.00          0.00
 33%  170.74        58.30         0.00          0.00
 50%  155.23        59.63         0.00          0.00
 66%  139.38        60.95         0.00          0.00
 83%  123.18        62.28         0.00          0.00
100%  106.63        63.60         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  55.76         15.46         0.00          0.00
 16%  51.65         15.83         0.00          0.00
 33%  47.44         16.20         0.00          0.00
 50%  43.13         16.57         0.00          0.00
 66%  38.72         16.93         0.00          0.00
 83%  34.22         17.30         0.00          0.00
100%  29.62         17.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 72
Estado pp=Peso Propio
  0%  106.63        63.60         0.00          0.00
 16%  89.73         64.93         0.00          0.00
 33%  72.48         66.25         0.00          0.00
 50%  54.88         67.58         0.00          0.00
 66%  36.94         68.90         0.00          0.00
 83%  18.64         70.23         0.00          0.00
100%  0.00          71.55         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  29.62         17.67         0.00          0.00
 16%  24.93         18.04         0.00          0.00
 33%  20.14         18.41         0.00          0.00
 50%  15.25         18.78         0.00          0.00
 66%  10.26         19.14         0.00          0.00
 83%  5.18          19.51         0.00          0.00
100%  0.00          19.88         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 73
Estado pp=Peso Propio
  0%  0.00          71.55         0.00          0.00
 16%  -20.02        73.14         0.00          0.00
 33%  -40.47        74.72         0.00          0.00
 50%  -61.36        76.31         0.00          0.00
 66%  -82.69        77.89         0.00          0.00
 83%  -104.46       79.47         0.00          0.00
100%  -126.67       81.06         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  0.00          19.88         0.00          0.00
 16%  -5.55         20.27         0.00          0.00
 33%  -11.21        20.65         0.00          0.00
 50%  -16.98        21.04         0.00          0.00
 66%  -22.86        21.43         0.00          0.00
 83%  -28.84        21.82         0.00          0.00
100%  -34.93        22.20         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 74
Estado pp=Peso Propio
  0%  -126.67       81.06         0.00          0.00
 16%  -149.32       82.69         0.00          0.00
 33%  -172.42       84.32         0.00          0.00
 50%  -195.98       85.95         0.00          0.00
 66%  -219.98       87.59         0.00          0.00
 83%  -244.44       89.22         0.00          0.00
100%  -269.35       90.85         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -34.93        22.20         0.00          0.00
 16%  -41.13        22.59         0.00          0.00
 33%  -47.43        22.98         0.00          0.00
 50%  -53.84        23.37         0.00          0.00
 66%  -60.36        23.75         0.00          0.00
 83%  -66.98        24.14         0.00          0.00
100%  -73.72        24.53         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 75
Estado pp=Peso Propio
  0%  -269.35       90.85         0.00          0.00
 16%  -294.72       92.53         0.00          0.00
 33%  -320.55       94.21         0.00          0.00
 50%  -346.85       95.89         0.00          0.00
 66%  -373.61       97.57         0.00          0.00
 83%  -400.84       99.25         0.00          0.00
100%  -428.53       100.94        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -73.72        24.53         0.00          0.00
 16%  -80.56        24.92         0.00          0.00
 33%  -87.50        25.30         0.00          0.00
 50%  -94.56        25.69         0.00          0.00
 66%  -101.72       26.08         0.00          0.00
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 83%  -108.99       26.46         0.00          0.00
100%  -116.36       26.85         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 76
Estado pp=Peso Propio
  0%  -428.53       100.94        0.00          0.00
 16%  -456.70       102.67        0.00          0.00
 33%  -485.34       104.40        0.00          0.00
 50%  -514.46       106.13        0.00          0.00
 66%  -544.07       107.86        0.00          0.00
 83%  -574.15       109.60        0.00          0.00
100%  -604.71       111.33        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -116.36       26.85         0.00          0.00
 16%  -123.85       27.24         0.00          0.00
 33%  -131.44       27.63         0.00          0.00
 50%  -139.13       28.01         0.00          0.00
 66%  -146.94       28.40         0.00          0.00
 83%  -154.85       28.79         0.00          0.00
100%  -162.87       29.18         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 77
Estado pp=Peso Propio
  0%  -604.71       111.33        0.00          0.00
 16%  -635.77       113.20        0.00          0.00
 33%  -667.35       115.08        0.00          0.00
 50%  -699.45       116.96        0.00          0.00
 66%  -732.07       118.83        0.00          0.00
 83%  -765.20       120.71        0.00          0.00
100%  -798.86       122.58        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -162.87       29.18         0.00          0.00
 16%  -170.99       29.56         0.00          0.00
 33%  -179.22       29.95         0.00          0.00
 50%  -187.56       30.34         0.00          0.00
 66%  -196.01       30.73         0.00          0.00
 83%  -204.57       31.11         0.00          0.00
100%  -213.23       31.50         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 78
Estado pp=Peso Propio
  0%  -798.86       -122.58       0.00          0.00
 16%  -765.20       -120.71       0.00          0.00
 33%  -732.07       -118.83       0.00          0.00
 50%  -699.45       -116.96       0.00          0.00
 66%  -667.35       -115.08       0.00          0.00
 83%  -635.77       -113.20       0.00          0.00
100%  -604.71       -111.33       0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -213.23       -31.50        0.00          0.00
 16%  -204.57       -31.11        0.00          0.00
 33%  -196.01       -30.73        0.00          0.00
 50%  -187.56       -30.34        0.00          0.00
 66%  -179.22       -29.95        0.00          0.00
 83%  -170.99       -29.56        0.00          0.00
100%  -162.87       -29.18        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 79
Estado pp=Peso Propio
  0%  -604.71       -111.33       0.00          0.00
 16%  -574.15       -109.60       0.00          0.00
 33%  -544.07       -107.86       0.00          0.00
 50%  -514.46       -106.13       0.00          0.00
 66%  -485.34       -104.40       0.00          0.00
 83%  -456.70       -102.67       0.00          0.00
100%  -428.53       -100.94       0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -162.87       -29.18        0.00          0.00
 16%  -154.85       -28.79        0.00          0.00
 33%  -146.94       -28.40        0.00          0.00
 50%  -139.13       -28.01        0.00          0.00
 66%  -131.44       -27.63        0.00          0.00
 83%  -123.85       -27.24        0.00          0.00
100%  -116.36       -26.85        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 80
Estado pp=Peso Propio
  0%  -428.53       -100.94       0.00          0.00
 16%  -400.84       -99.25        0.00          0.00
 33%  -373.61       -97.57        0.00          0.00
 50%  -346.85       -95.89        0.00          0.00
 66%  -320.55       -94.21        0.00          0.00
 83%  -294.72       -92.53        0.00          0.00
100%  -269.35       -90.85        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -116.36       -26.85        0.00          0.00
 16%  -108.99       -26.46        0.00          0.00
 33%  -101.72       -26.08        0.00          0.00
 50%  -94.56        -25.69        0.00          0.00
 66%  -87.50        -25.30        0.00          0.00
 83%  -80.56        -24.92        0.00          0.00
100%  -73.72        -24.53        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 81
Estado pp=Peso Propio
  0%  -269.35       -90.85        0.00          0.00
 16%  -244.44       -89.22        0.00          0.00
 33%  -219.98       -87.59        0.00          0.00
 50%  -195.98       -85.95        0.00          0.00
 66%  -172.42       -84.32        0.00          0.00
 83%  -149.32       -82.69        0.00          0.00
100%  -126.67       -81.06        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -73.72        -24.53        0.00          0.00
 16%  -66.98        -24.14        0.00          0.00
 33%  -60.36        -23.75        0.00          0.00
 50%  -53.84        -23.37        0.00          0.00
 66%  -47.43        -22.98        0.00          0.00
 83%  -41.13        -22.59        0.00          0.00
100%  -34.93        -22.20        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 82
Estado pp=Peso Propio
  0%  -126.67       -81.06        0.00          0.00
 16%  -120.47       -80.62        0.00          0.00
 33%  -114.31       -80.18        0.00          0.00
 50%  -108.18       -79.74        0.00          0.00
 66%  -102.08       -79.30        0.00          0.00
 83%  -96.02        -78.86        0.00          0.00
100%  -89.99        -78.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -34.93        -22.20        0.00          0.00
 16%  -33.23        -22.10        0.00          0.00
 33%  -31.54        -21.99        0.00          0.00
 50%  -29.86        -21.88        0.00          0.00
 66%  -28.19        -21.77        0.00          0.00
 83%  -26.52        -21.67        0.00          0.00
100%  -24.86        -21.56        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 83
Estado pp=Peso Propio
  0%  0.00          -71.55        0.00          0.00
 16%  18.64         -70.23        0.00          0.00
 33%  36.94         -68.90        0.00          0.00
 50%  54.88         -67.58        0.00          0.00
 66%  72.48         -66.25        0.00          0.00
 83%  89.73         -64.93        0.00          0.00
100%  106.63        -63.60        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
```

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Estado pl=prelosas
  0%  0.00          -19.88        0.00          0.00
 16%  5.18          -19.51        0.00          0.00
 33%  10.26         -19.14        0.00          0.00
 50%  15.25         -18.78        0.00          0.00
 66%  20.14         -18.41        0.00          0.00
 83%  24.93         -18.04        0.00          0.00
100%  29.62         -17.67        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 84
Estado pp=Peso Propio
  0%  106.63        -63.60        0.00          0.00
 16%  123.18        -62.28        0.00          0.00
 33%  139.38        -60.95        0.00          0.00
 50%  155.23        -59.63        0.00          0.00
 66%  170.74        -58.30        0.00          0.00
 83%  185.90        -56.98        0.00          0.00
100%  200.71        -55.65        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  29.62         -17.67        0.00          0.00
 16%  34.22         -17.30        0.00          0.00
 33%  38.72         -16.93        0.00          0.00
 50%  43.13         -16.57        0.00          0.00
 66%  47.44         -16.20        0.00          0.00
 83%  51.65         -15.83        0.00          0.00
100%  55.76         -15.46        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 85
Estado pp=Peso Propio
  0%  200.71        -55.65        0.00          0.00
 16%  215.17        -54.33        0.00          0.00
 33%  229.28        -53.00        0.00          0.00
 50%  243.04        -51.68        0.00          0.00
 66%  256.46        -50.35        0.00          0.00
 83%  269.53        -49.03        0.00          0.00
100%  282.24        -47.70        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  55.76         -15.46        0.00          0.00
 16%  59.78         -15.09        0.00          0.00
 33%  63.70         -14.73        0.00          0.00
 50%  67.52         -14.36        0.00          0.00
 66%  71.25         -13.99        0.00          0.00
 83%  74.88         -13.62        0.00          0.00
100%  78.42         -13.25        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 86
Estado pp=Peso Propio
  0%  282.24        -47.70        0.00          0.00
 16%  294.61        -46.38        0.00          0.00
 33%  306.64        -45.05        0.00          0.00
 50%  318.31        -43.73        0.00          0.00
 66%  329.63        -42.40        0.00          0.00
 83%  340.61        -41.08        0.00          0.00
100%  351.24        -39.75        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  78.42         -13.25        0.00          0.00
 16%  81.85         -12.89        0.00          0.00
 33%  85.19         -12.52        0.00          0.00
 50%  88.44         -12.15        0.00          0.00
 66%  91.58         -11.78        0.00          0.00
 83%  94.63         -11.41        0.00          0.00
100%  97.58         -11.04        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 87
Estado pp=Peso Propio
  0%  351.24        -39.75        0.00          0.00
 16%  361.52        -38.43        0.00          0.00
 33%  371.45        -37.10        0.00          0.00
 50%  381.03        -35.78        0.00          0.00
 66%  390.26        -34.45        0.00          0.00
 83%  399.15        -33.13        0.00          0.00
100%  407.69        -31.80        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  97.58         -11.04        0.00          0.00
 16%  100.44        -10.68        0.00          0.00
 33%  103.20        -10.31        0.00          0.00
 50%  105.86        -9.94         0.00          0.00
 66%  108.43        -9.57         0.00          0.00
 83%  110.90        -9.20         0.00          0.00
100%  113.27        -8.84         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 88
Estado pp=Peso Propio
  0%  407.69        -31.80        0.00          0.00
 16%  415.88        -30.48        0.00          0.00
 33%  423.72        -29.15        0.00          0.00
 50%  431.21        -27.83        0.00          0.00
 66%  438.35        -26.50        0.00          0.00
 83%  445.14        -25.18        0.00          0.00
100%  451.59        -23.85        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  113.27        -8.84         0.00          0.00
 16%  115.54        -8.47         0.00          0.00
 33%  117.72        -8.10         0.00          0.00
 50%  119.80        -7.73         0.00          0.00
 66%  121.79        -7.36         0.00          0.00
 83%  123.67        -6.99         0.00          0.00
100%  125.46        -6.63         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 89
Estado pp=Peso Propio
  0%  451.59        -23.85        0.00          0.00
 16%  457.69        -22.53        0.00          0.00
 33%  463.44        -21.20        0.00          0.00
 50%  468.84        -19.88        0.00          0.00
 66%  473.89        -18.55        0.00          0.00
 83%  478.60        -17.23        0.00          0.00
100%  482.95        -15.90        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  125.46        -6.63         0.00          0.00
 16%  127.16        -6.26         0.00          0.00
 33%  128.76        -5.89         0.00          0.00
 50%  130.26        -5.52         0.00          0.00
 66%  131.66        -5.15         0.00          0.00
 83%  132.97        -4.79         0.00          0.00
100%  134.18        -4.42         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 90
Estado pp=Peso Propio
  0%  482.95        -15.90        0.00          0.00
 16%  486.96        -14.58        0.00          0.00
 33%  490.62        -13.25        0.00          0.00
 50%  493.93        -11.93        0.00          0.00
 66%  496.89        -10.60        0.00          0.00
 83%  499.50        -9.28         0.00          0.00
100%  501.77        -7.95         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  134.18        -4.42         0.00          0.00
 16%  135.29        -4.05         0.00          0.00
 33%  136.31        -3.68         0.00          0.00
 50%  137.23        -3.31         0.00          0.00
 66%  138.05        -2.95         0.00          0.00
 83%  138.78        -2.58         0.00          0.00
100%  139.41        -2.21         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 91
Estado pp=Peso Propio
  0%  501.77        -7.95         0.00          0.00
 16%  503.68        -6.63         0.00          0.00
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 33%  505.25        -5.30         0.00          0.00
 50%  506.47        -3.98         0.00          0.00
 66%  507.34        -2.65         0.00          0.00
 83%  507.87        -1.33         0.00          0.00
100%  508.04        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  139.41        -2.21         0.00          0.00
 16%  139.94        -1.84         0.00          0.00
 33%  140.37        -1.47         0.00          0.00
 50%  140.71        -1.10         0.00          0.00
 66%  140.95        -0.74         0.00          0.00
 83%  141.10        -0.37         0.00          0.00
100%  141.15        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 92
Estado pp=Peso Propio
  0%  508.04        0.00          0.00          0.00
 16%  507.87        1.33          0.00          0.00
 33%  507.34        2.65          0.00          0.00
 50%  506.47        3.98          0.00          0.00
 66%  505.25        5.30          0.00          0.00
 83%  503.68        6.63          0.00          0.00
100%  501.77        7.95          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  141.15        0.00          0.00          0.00
 16%  141.10        0.37          0.00          0.00
 33%  140.95        0.74          0.00          0.00
 50%  140.71        1.10          0.00          0.00
 66%  140.37        1.47          0.00          0.00
 83%  139.94        1.84          0.00          0.00
100%  139.41        2.21          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 93
Estado pp=Peso Propio
  0%  501.77        7.95          0.00          0.00
 16%  499.50        9.28          0.00          0.00
 33%  496.89        10.60         0.00          0.00
 50%  493.93        11.93         0.00          0.00
 66%  490.62        13.25         0.00          0.00
 83%  486.96        14.58         0.00          0.00
100%  482.95        15.90         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  139.41        2.21          0.00          0.00
 16%  138.78        2.58          0.00          0.00
 33%  138.05        2.95          0.00          0.00
 50%  137.23        3.31          0.00          0.00
 66%  136.31        3.68          0.00          0.00
 83%  135.29        4.05          0.00          0.00
100%  134.18        4.42          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 94
Estado pp=Peso Propio
  0%  482.95        15.90         0.00          0.00
 16%  478.60        17.23         0.00          0.00
 33%  473.89        18.55         0.00          0.00
 50%  468.84        19.88         0.00          0.00
 66%  463.44        21.20         0.00          0.00
 83%  457.69        22.53         0.00          0.00
100%  451.59        23.85         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  134.18        4.42          0.00          0.00
 16%  132.97        4.79          0.00          0.00
 33%  131.66        5.15          0.00          0.00
 50%  130.26        5.52          0.00          0.00
 66%  128.76        5.89          0.00          0.00
 83%  127.16        6.26          0.00          0.00
100%  125.46        6.63          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 95
Estado pp=Peso Propio
  0%  451.59        23.85         0.00          0.00
 16%  445.14        25.18         0.00          0.00
 33%  438.35        26.50         0.00          0.00
 50%  431.21        27.83         0.00          0.00
 66%  423.72        29.15         0.00          0.00
 83%  415.88        30.48         0.00          0.00
100%  407.69        31.80         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  125.46        6.63          0.00          0.00
 16%  123.67        6.99          0.00          0.00
 33%  121.79        7.36          0.00          0.00
 50%  119.80        7.73          0.00          0.00
 66%  117.72        8.10          0.00          0.00
 83%  115.54        8.47          0.00          0.00
100%  113.27        8.84          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 96
Estado pp=Peso Propio
  0%  407.69        31.80         0.00          0.00
 16%  399.15        33.13         0.00          0.00
 33%  390.26        34.45         0.00          0.00
 50%  381.03        35.78         0.00          0.00
 66%  371.45        37.10         0.00          0.00
 83%  361.52        38.43         0.00          0.00
100%  351.24        39.75         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  113.27        8.84          0.00          0.00
 16%  110.90        9.20          0.00          0.00
 33%  108.43        9.57          0.00          0.00
 50%  105.86        9.94          0.00          0.00
 66%  103.20        10.31         0.00          0.00
 83%  100.44        10.68         0.00          0.00
100%  97.58         11.04         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 97
Estado pp=Peso Propio
  0%  351.24        39.75         0.00          0.00
 16%  340.61        41.08         0.00          0.00
 33%  329.63        42.40         0.00          0.00
 50%  318.31        43.73         0.00          0.00
 66%  306.64        45.05         0.00          0.00
 83%  294.61        46.38         0.00          0.00
100%  282.24        47.70         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  97.58         11.04         0.00          0.00
 16%  94.63         11.41         0.00          0.00
 33%  91.58         11.78         0.00          0.00
 50%  88.44         12.15         0.00          0.00
 66%  85.19         12.52         0.00          0.00
 83%  81.85         12.89         0.00          0.00
100%  78.42         13.25         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 98
Estado pp=Peso Propio
  0%  282.24        47.70         0.00          0.00
 16%  269.53        49.03         0.00          0.00
 33%  256.46        50.35         0.00          0.00
 50%  243.04        51.68         0.00          0.00
 66%  229.28        53.00         0.00          0.00
 83%  215.17        54.33         0.00          0.00
100%  200.71        55.65         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  78.42         13.25         0.00          0.00
 16%  74.88         13.62         0.00          0.00
 33%  71.25         13.99         0.00          0.00
 50%  67.52         14.36         0.00          0.00
 66%  63.70         14.73         0.00          0.00
 83%  59.78         15.09         0.00          0.00
100%  55.76         15.46         0.00          0.00
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      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 99
Estado pp=Peso Propio
  0%  200.71        55.65         0.00          0.00
 16%  185.90        56.98         0.00          0.00
 33%  170.74        58.30         0.00          0.00
 50%  155.23        59.63         0.00          0.00
 66%  139.38        60.95         0.00          0.00
 83%  123.18        62.28         0.00          0.00
100%  106.63        63.60         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  55.76         15.46         0.00          0.00
 16%  51.65         15.83         0.00          0.00
 33%  47.44         16.20         0.00          0.00
 50%  43.13         16.57         0.00          0.00
 66%  38.72         16.93         0.00          0.00
 83%  34.22         17.30         0.00          0.00
100%  29.62         17.67         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 100
Estado pp=Peso Propio
  0%  106.63        63.60         0.00          0.00
 16%  89.73         64.93         0.00          0.00
 33%  72.48         66.25         0.00          0.00
 50%  54.88         67.58         0.00          0.00
 66%  36.94         68.90         0.00          0.00
 83%  18.64         70.23         0.00          0.00
100%  0.00          71.55         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  29.62         17.67         0.00          0.00
 16%  24.93         18.04         0.00          0.00
 33%  20.14         18.41         0.00          0.00
 50%  15.25         18.78         0.00          0.00
 66%  10.26         19.14         0.00          0.00
 83%  5.18          19.51         0.00          0.00
100%  0.00          19.88         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 101
Estado pp=Peso Propio
  0%  0.00          71.55         0.00          0.00
 16%  -20.02        73.14         0.00          0.00
 33%  -40.47        74.72         0.00          0.00
 50%  -61.36        76.31         0.00          0.00
 66%  -82.69        77.89         0.00          0.00
 83%  -104.46       79.47         0.00          0.00
100%  -126.67       81.06         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  0.00          19.88         0.00          0.00
 16%  -5.55         20.27         0.00          0.00
 33%  -11.21        20.65         0.00          0.00
 50%  -16.98        21.04         0.00          0.00
 66%  -22.86        21.43         0.00          0.00
 83%  -28.84        21.82         0.00          0.00
100%  -34.93        22.20         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 102
Estado pp=Peso Propio
  0%  -126.67       81.06         0.00          0.00
 16%  -149.32       82.69         0.00          0.00
 33%  -172.42       84.32         0.00          0.00
 50%  -195.98       85.95         0.00          0.00
 66%  -219.98       87.59         0.00          0.00
 83%  -244.44       89.22         0.00          0.00
100%  -269.35       90.85         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -34.93        22.20         0.00          0.00
 16%  -41.13        22.59         0.00          0.00
 33%  -47.43        22.98         0.00          0.00
 50%  -53.84        23.37         0.00          0.00
 66%  -60.36        23.75         0.00          0.00
 83%  -66.98        24.14         0.00          0.00
100%  -73.72        24.53         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 103
Estado pp=Peso Propio
  0%  -269.35       90.85         0.00          0.00
 16%  -294.72       92.53         0.00          0.00
 33%  -320.55       94.21         0.00          0.00
 50%  -346.85       95.89         0.00          0.00
 66%  -373.61       97.57         0.00          0.00
 83%  -400.84       99.25         0.00          0.00
100%  -428.53       100.94        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -73.72        24.53         0.00          0.00
 16%  -80.56        24.92         0.00          0.00
 33%  -87.50        25.30         0.00          0.00
 50%  -94.56        25.69         0.00          0.00
 66%  -101.72       26.08         0.00          0.00
 83%  -108.99       26.46         0.00          0.00
100%  -116.36       26.85         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 104
Estado pp=Peso Propio
  0%  -428.53       100.94        0.00          0.00
 16%  -456.70       102.67        0.00          0.00
 33%  -485.34       104.40        0.00          0.00
 50%  -514.46       106.13        0.00          0.00
 66%  -544.07       107.86        0.00          0.00
 83%  -574.15       109.60        0.00          0.00
100%  -604.71       111.33        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -116.36       26.85         0.00          0.00
 16%  -123.85       27.24         0.00          0.00
 33%  -131.44       27.63         0.00          0.00
 50%  -139.13       28.01         0.00          0.00
 66%  -146.94       28.40         0.00          0.00
 83%  -154.85       28.79         0.00          0.00
100%  -162.87       29.18         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 105
Estado pp=Peso Propio
  0%  -604.71       111.33        0.00          0.00
 16%  -635.77       113.20        0.00          0.00
 33%  -667.35       115.08        0.00          0.00
 50%  -699.45       116.96        0.00          0.00
 66%  -732.07       118.83        0.00          0.00
 83%  -765.20       120.71        0.00          0.00
100%  -798.86       122.58        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -162.87       29.18         0.00          0.00
 16%  -170.99       29.56         0.00          0.00
 33%  -179.22       29.95         0.00          0.00
 50%  -187.56       30.34         0.00          0.00
 66%  -196.01       30.73         0.00          0.00
 83%  -204.57       31.11         0.00          0.00
100%  -213.23       31.50         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 106
Estado pp=Peso Propio
  0%  -798.86       -123.94       0.00          0.00
 16%  -764.82       -122.07       0.00          0.00
 33%  -731.31       -120.19       0.00          0.00
 50%  -698.32       -118.32       0.00          0.00
 66%  -665.84       -116.44       0.00          0.00
 83%  -633.89       -114.57       0.00          0.00
100%  -602.45       -112.69       0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -213.23       -31.88        0.00          0.00
```

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 16%  -204.46       -31.49        0.00          0.00
 33%  -195.80       -31.10        0.00          0.00
 50%  -187.25       -30.72        0.00          0.00
 66%  -178.81       -30.33        0.00          0.00
 83%  -170.47       -29.94        0.00          0.00
100%  -162.24       -29.55        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 107
Estado pp=Peso Propio
  0%  -602.45       -112.69       0.00          0.00
 16%  -571.51       -110.96       0.00          0.00
 33%  -541.05       -109.23       0.00          0.00
 50%  -511.07       -107.49       0.00          0.00
 66%  -481.57       -105.76       0.00          0.00
 83%  -452.55       -104.03       0.00          0.00
100%  -424.01       -102.30       0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -162.24       -29.55        0.00          0.00
 16%  -154.11       -29.17        0.00          0.00
 33%  -146.10       -28.78        0.00          0.00
 50%  -138.19       -28.39        0.00          0.00
 66%  -130.39       -28.01        0.00          0.00
 83%  -122.69       -27.62        0.00          0.00
100%  -115.11       -27.23        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 108
Estado pp=Peso Propio
  0%  -424.01       -102.30       0.00          0.00
 16%  -395.94       -100.62       0.00          0.00
 33%  -368.33       -98.94        0.00          0.00
 50%  -341.19       -97.26        0.00          0.00
 66%  -314.52       -95.57        0.00          0.00
 83%  -288.31       -93.89        0.00          0.00
100%  -262.56       -92.21        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -115.11       -27.23        0.00          0.00
 16%  -107.63       -26.84        0.00          0.00
 33%  -100.25       -26.46        0.00          0.00
 50%  -92.99        -26.07        0.00          0.00
 66%  -85.83        -25.68        0.00          0.00
 83%  -78.78        -25.29        0.00          0.00
100%  -71.83        -24.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 109
Estado pp=Peso Propio
  0%  -262.56       -92.21        0.00          0.00
 16%  -237.28       -90.58        0.00          0.00
 33%  -212.44       -88.95        0.00          0.00
 50%  -188.06       -87.32        0.00          0.00
 66%  -164.13       -85.68        0.00          0.00
 83%  -140.65       -84.05        0.00          0.00
100%  -117.62       -82.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -71.83        -24.91        0.00          0.00
 16%  -64.99        -24.52        0.00          0.00
 33%  -58.26        -24.13        0.00          0.00
 50%  -51.64        -23.74        0.00          0.00
 66%  -45.13        -23.36        0.00          0.00
 83%  -38.72        -22.97        0.00          0.00
100%  -32.42        -22.58        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 110
Estado pp=Peso Propio
  0%  -117.62       -82.42        0.00          0.00
 16%  -111.32       -81.98        0.00          0.00
 33%  -105.05       -81.54        0.00          0.00
 50%  -98.81        -81.10        0.00          0.00
 66%  -92.61        -80.66        0.00          0.00
 83%  -86.45        -80.22        0.00          0.00
100%  -80.31        -79.79        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -32.42        -22.58        0.00          0.00
 16%  -30.69        -22.48        0.00          0.00
 33%  -28.97        -22.37        0.00          0.00
 50%  -27.26        -22.26        0.00          0.00
 66%  -25.56        -22.15        0.00          0.00
 83%  -23.86        -22.05        0.00          0.00
100%  -22.18        -21.94        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 111
Estado pp=Peso Propio
  0%  0.00          -63.49        0.00          0.00
 16%  16.49         -62.17        0.00          0.00
 33%  32.64         -60.85        0.00          0.00
 50%  48.44         -59.52        0.00          0.00
 66%  63.89         -58.20        0.00          0.00
 83%  78.99         -56.88        0.00          0.00
100%  93.75         -55.56        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  0.00          -17.64        0.00          0.00
 16%  4.58          -17.27        0.00          0.00
 33%  9.07          -16.91        0.00          0.00
 50%  13.46         -16.54        0.00          0.00
 66%  17.75         -16.17        0.00          0.00
 83%  21.95         -15.80        0.00          0.00
100%  26.05         -15.44        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 112
Estado pp=Peso Propio
  0%  93.75         -55.56        0.00          0.00
 16%  108.16        -54.23        0.00          0.00
 33%  122.22        -52.91        0.00          0.00
 50%  135.94        -51.59        0.00          0.00
 66%  149.31        -50.26        0.00          0.00
 83%  162.33        -48.94        0.00          0.00
100%  175.00        -47.62        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  26.05         -15.44        0.00          0.00
 16%  30.05         -15.07        0.00          0.00
 33%  33.96         -14.70        0.00          0.00
 50%  37.77         -14.33        0.00          0.00
 66%  41.48         -13.97        0.00          0.00
 83%  45.10         -13.60        0.00          0.00
100%  48.62         -13.23        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 113
Estado pp=Peso Propio
  0%  175.00        -47.62        0.00          0.00
 16%  187.33        -46.30        0.00          0.00
 33%  199.31        -44.97        0.00          0.00
 50%  210.94        -43.65        0.00          0.00
 66%  222.22        -42.33        0.00          0.00
 83%  233.16        -41.01        0.00          0.00
100%  243.75        -39.68        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  48.62         -13.23        0.00          0.00
 16%  52.04         -12.86        0.00          0.00
 33%  55.37         -12.50        0.00          0.00
 50%  58.60         -12.13        0.00          0.00
 66%  61.74         -11.76        0.00          0.00
 83%  64.78         -11.39        0.00          0.00
100%  67.72         -11.03        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 114
Estado pp=Peso Propio
  0%  243.75        -39.68        0.00          0.00
 16%  253.99        -38.36        0.00          0.00
 33%  263.89        -37.04        0.00          0.00
 50%  273.44        -35.71        0.00          0.00
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 66%  282.64        -34.39        0.00          0.00
 83%  291.49        -33.07        0.00          0.00
100%  300.00        -31.75        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  67.72         -11.03        0.00          0.00
 16%  70.57         -10.66        0.00          0.00
 33%  73.32         -10.29        0.00          0.00
 50%  75.97         -9.92         0.00          0.00
 66%  78.53         -9.56         0.00          0.00
 83%  80.99         -9.19         0.00          0.00
100%  83.35         -8.82         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 115
Estado pp=Peso Propio
  0%  300.00        -31.75        0.00          0.00
 16%  308.16        -30.42        0.00          0.00
 33%  315.97        -29.10        0.00          0.00
 50%  323.44        -27.78        0.00          0.00
 66%  330.56        -26.46        0.00          0.00
 83%  337.33        -25.13        0.00          0.00
100%  343.75        -23.81        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  83.35         -8.82         0.00          0.00
 16%  85.62         -8.45         0.00          0.00
 33%  87.79         -8.09         0.00          0.00
 50%  89.86         -7.72         0.00          0.00
 66%  91.84         -7.35         0.00          0.00
 83%  93.72         -6.98         0.00          0.00
100%  95.50         -6.62         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 116
Estado pp=Peso Propio
  0%  343.75        -23.81        0.00          0.00
 16%  349.83        -22.49        0.00          0.00
 33%  355.56        -21.16        0.00          0.00
 50%  360.94        -19.84        0.00          0.00
 66%  365.97        -18.52        0.00          0.00
 83%  370.66        -17.20        0.00          0.00
100%  375.00        -15.87        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  95.50         -6.62         0.00          0.00
 16%  97.19         -6.25         0.00          0.00
 33%  98.78         -5.88         0.00          0.00
 50%  100.28        -5.51         0.00          0.00
 66%  101.68        -5.15         0.00          0.00
 83%  102.98        -4.78         0.00          0.00
100%  104.19        -4.41         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 117
Estado pp=Peso Propio
  0%  375.00        -15.87        0.00          0.00
 16%  379.00        -14.55        0.00          0.00
 33%  382.64        -13.23        0.00          0.00
 50%  385.94        -11.90        0.00          0.00
 66%  388.89        -10.58        0.00          0.00
 83%  391.50        -9.26         0.00          0.00
100%  393.75        -7.94         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  104.19        -4.41         0.00          0.00
 16%  105.30        -4.04         0.00          0.00
 33%  106.31        -3.68         0.00          0.00
 50%  107.23        -3.31         0.00          0.00
 66%  108.05        -2.94         0.00          0.00
 83%  108.77        -2.57         0.00          0.00
100%  109.40        -2.21         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 118
Estado pp=Peso Propio
  0%  393.75        -7.94         0.00          0.00
 16%  395.66        -6.61         0.00          0.00
 33%  397.22        -5.29         0.00          0.00
 50%  398.44        -3.97         0.00          0.00
 66%  399.31        -2.65         0.00          0.00
 83%  399.83        -1.32         0.00          0.00
100%  400.00        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  109.40        -2.21         0.00          0.00
 16%  109.93        -1.84         0.00          0.00
 33%  110.36        -1.47         0.00          0.00
 50%  110.70        -1.10         0.00          0.00
 66%  110.94        -0.74         0.00          0.00
 83%  111.08        -0.37         0.00          0.00
100%  111.13        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 119
Estado pp=Peso Propio
  0%  400.00        0.00          0.00          0.00
 16%  399.83        1.32          0.00          0.00
 33%  399.31        2.65          0.00          0.00
 50%  398.44        3.97          0.00          0.00
 66%  397.22        5.29          0.00          0.00
 83%  395.66        6.61          0.00          0.00
100%  393.75        7.94          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  111.13        0.00          0.00          0.00
 16%  111.08        0.37          0.00          0.00
 33%  110.94        0.73          0.00          0.00
 50%  110.70        1.10          0.00          0.00
 66%  110.36        1.47          0.00          0.00
 83%  109.93        1.84          0.00          0.00
100%  109.40        2.20          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 120
Estado pp=Peso Propio
  0%  393.75        7.94          0.00          0.00
 16%  391.50        9.26          0.00          0.00
 33%  388.89        10.58         0.00          0.00
 50%  385.94        11.90         0.00          0.00
 66%  382.64        13.23         0.00          0.00
 83%  379.00        14.55         0.00          0.00
100%  375.00        15.87         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  109.40        2.21          0.00          0.00
 16%  108.77        2.57          0.00          0.00
 33%  108.05        2.94          0.00          0.00
 50%  107.23        3.31          0.00          0.00
 66%  106.31        3.68          0.00          0.00
 83%  105.30        4.04          0.00          0.00
100%  104.19        4.41          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 121
Estado pp=Peso Propio
  0%  375.00        15.87         0.00          0.00
 16%  370.66        17.20         0.00          0.00
 33%  365.97        18.52         0.00          0.00
 50%  360.94        19.84         0.00          0.00
 66%  355.56        21.16         0.00          0.00
 83%  349.83        22.49         0.00          0.00
100%  343.75        23.81         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  104.19        4.41          0.00          0.00
 16%  102.98        4.78          0.00          0.00
 33%  101.68        5.15          0.00          0.00
 50%  100.28        5.51          0.00          0.00
 66%  98.78         5.88          0.00          0.00
 83%  97.19         6.25          0.00          0.00
100%  95.50         6.62          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
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Viga 122
Estado pp=Peso Propio
  0%  343.75        23.81         0.00          0.00
 16%  337.33        25.13         0.00          0.00
 33%  330.56        26.46         0.00          0.00
 50%  323.44        27.78         0.00          0.00
 66%  315.97        29.10         0.00          0.00
 83%  308.16        30.42         0.00          0.00
100%  300.00        31.75         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  95.50         6.62          0.00          0.00
 16%  93.72         6.98          0.00          0.00
 33%  91.84         7.35          0.00          0.00
 50%  89.86         7.72          0.00          0.00
 66%  87.79         8.09          0.00          0.00
 83%  85.62         8.45          0.00          0.00
100%  83.35         8.82          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 123
Estado pp=Peso Propio
  0%  300.00        31.75         0.00          0.00
 16%  291.49        33.07         0.00          0.00
 33%  282.64        34.39         0.00          0.00
 50%  273.44        35.71         0.00          0.00
 66%  263.89        37.04         0.00          0.00
 83%  253.99        38.36         0.00          0.00
100%  243.75        39.68         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  83.35         8.82          0.00          0.00
 16%  80.99         9.19          0.00          0.00
 33%  78.53         9.56          0.00          0.00
 50%  75.97         9.92          0.00          0.00
 66%  73.32         10.29         0.00          0.00
 83%  70.57         10.66         0.00          0.00
100%  67.72         11.03         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 124
Estado pp=Peso Propio
  0%  243.75        39.68         0.00          0.00
 16%  233.16        41.01         0.00          0.00
 33%  222.22        42.33         0.00          0.00
 50%  210.94        43.65         0.00          0.00
 66%  199.31        44.97         0.00          0.00
 83%  187.33        46.30         0.00          0.00
100%  175.00        47.62         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  67.72         11.03         0.00          0.00
 16%  64.78         11.39         0.00          0.00
 33%  61.74         11.76         0.00          0.00
 50%  58.60         12.13         0.00          0.00
 66%  55.37         12.50         0.00          0.00
 83%  52.04         12.86         0.00          0.00
100%  48.62         13.23         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 125
Estado pp=Peso Propio
  0%  175.00        47.62         0.00          0.00
 16%  162.33        48.94         0.00          0.00
 33%  149.31        50.26         0.00          0.00
 50%  135.94        51.59         0.00          0.00
 66%  122.22        52.91         0.00          0.00
 83%  108.16        54.23         0.00          0.00
100%  93.75         55.56         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  48.62         13.23         0.00          0.00
 16%  45.10         13.60         0.00          0.00
 33%  41.48         13.97         0.00          0.00
 50%  37.77         14.33         0.00          0.00
 66%  33.96         14.70         0.00          0.00
 83%  30.05         15.07         0.00          0.00
100%  26.05         15.44         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 126
Estado pp=Peso Propio
  0%  93.75         55.56         0.00          0.00
 16%  78.99         56.88         0.00          0.00
 33%  63.89         58.20         0.00          0.00
 50%  48.44         59.52         0.00          0.00
 66%  32.64         60.85         0.00          0.00
 83%  16.49         62.17         0.00          0.00
100%  0.00          63.49         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  26.05         15.44         0.00          0.00
 16%  21.95         15.80         0.00          0.00
 33%  17.75         16.17         0.00          0.00
 50%  13.46         16.54         0.00          0.00
 66%  9.07          16.91         0.00          0.00
 83%  4.58          17.27         0.00          0.00
100%  0.00          17.64         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 127
Estado pp=Peso Propio
  0%  -80.31        79.79         0.00          0.00
 16%  -86.45        80.22         0.00          0.00
 33%  -92.61        80.66         0.00          0.00
 50%  -98.81        81.10         0.00          0.00
 66%  -105.05       81.54         0.00          0.00
 83%  -111.32       81.98         0.00          0.00
100%  -117.62       82.42         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -22.18        21.94         0.00          0.00
 16%  -23.86        22.05         0.00          0.00
 33%  -25.56        22.15         0.00          0.00
 50%  -27.26        22.26         0.00          0.00
 66%  -28.97        22.37         0.00          0.00
 83%  -30.69        22.48         0.00          0.00
100%  -32.42        22.58         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 128
Estado pp=Peso Propio
  0%  -89.99        78.42         0.00          0.00
 16%  -96.02        78.86         0.00          0.00
 33%  -102.08       79.30         0.00          0.00
 50%  -108.18       79.74         0.00          0.00
 66%  -114.31       80.18         0.00          0.00
 83%  -120.47       80.62         0.00          0.00
100%  -126.67       81.06         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -24.86        21.56         0.00          0.00
 16%  -26.52        21.67         0.00          0.00
 33%  -28.19        21.77         0.00          0.00
 50%  -29.86        21.88         0.00          0.00
 66%  -31.54        21.99         0.00          0.00
 83%  -33.23        22.10         0.00          0.00
100%  -34.93        22.20         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 129
Estado pp=Peso Propio
  0%  -80.31        -70.36        0.00          0.00
 16%  -66.35        -69.22        0.00          0.00
 33%  -52.63        -68.07        0.00          0.00
 50%  -39.13        -66.93        0.00          0.00
 66%  -25.85        -65.78        0.00          0.00
 83%  -12.81        -64.64        0.00          0.00
100%  0.00          -63.49        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -22.18        -19.32        0.00          0.00
 16%  -18.34        -19.04        0.00          0.00
 33%  -14.56        -18.76        0.00          0.00
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 50%  -10.84        -18.48        0.00          0.00
 66%  -7.17         -18.20        0.00          0.00
 83%  -3.56         -17.92        0.00          0.00
100%  0.00          -17.64        0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 130
Estado pp=Peso Propio
  0%  -89.99        -78.42        0.00          0.00
 16%  -74.42        -77.28        0.00          0.00
 33%  -59.08        -76.13        0.00          0.00
 50%  -43.96        -74.99        0.00          0.00
 66%  -29.08        -73.84        0.00          0.00
 83%  -14.43        -72.70        0.00          0.00
100%  0.00          -71.55        0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado pl=prelosas
  0%  -24.86        -21.56        0.00          0.00
 16%  -20.58        -21.28        0.00          0.00
 33%  -16.35        -21.00        0.00          0.00
 50%  -12.18        -20.72        0.00          0.00
 66%  -8.06         -20.44        0.00          0.00
 83%  -4.00         -20.16        0.00          0.00
100%  0.00          -19.88        0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
```

Hormigonado de losa en Fase I en pilas

D A T O S

N U D O S

Nudo	X [M]	Y [M]	Z [M]	Piso
1	0	0	0	0
2	25.2	0	0	0
3	1.575	0	0	0
4	3.15	0	0	0
5	4.725	0	0	0
6	6.3	0	0	0
7	7.875	0	0	0
8	9.45	0	0	0
9	11.025	0	0	0
10	12.6	0	0	0
11	14.175	0	0	0
12	15.75	0	0	0
13	17.325	0	0	0
14	18.9	0	0	0
15	20.475	0	0	0
16	22.05	0	0	0
17	23.625	0	0	0
18	33.5	0	0	0
19	26.86	0	0	0
20	28.52	0	0	0
21	30.18	0	0	0
22	31.84	0	0	0
23	41.8	0	0	0
24	35.16	0	0	0
25	36.82	0	0	0
26	38.48	0	0	0
27	40.14	0	0	0
28	70.2	0	0	0
29	43.3778	0	0	0
30	44.9556	0	0	0
31	46.5333	0	0	0
32	48.1111	0	0	0
33	49.6889	0	0	0
34	51.2667	0	0	0
35	52.8444	0	0	0
36	54.4222	0	0	0
37	56	0	0	0
38	57.5778	0	0	0
39	59.1556	0	0	0
40	60.7333	0	0	0
41	62.3111	0	0	0
42	63.8889	0	0	0
43	65.4667	0	0	0
44	67.0444	0	0	0
45	68.6222	0	0	0
46	78.5	0	0	0
47	71.86	0	0	0
48	73.52	0	0	0
49	75.18	0	0	0
50	76.84	0	0	0
51	86.8	0	0	0
52	80.16	0	0	0
53	81.82	0	0	0
54	83.48	0	0	0
55	85.14	0	0	0
56	115.2	0	0	0
57	88.3778	0	0	0
58	89.9556	0	0	0
59	91.5333	0	0	0
60	93.1111	0	0	0
61	94.6889	0	0	0
62	96.2667	0	0	0
63	97.8444	0	0	0
64	99.4222	0	0	0
65	101	0	0	0
66	102.578	0	0	0
67	104.156	0	0	0
68	105.733	0	0	0
69	107.311	0	0	0
70	108.889	0	0	0
71	110.467	0	0	0
72	112.044	0	0	0
73	113.622	0	0	0
74	123.5	0	0	0
75	116.86	0	0	0
76	118.52	0	0	0
77	120.18	0	0	0
78	121.84	0	0	0
79	131.8	0	0	0
80	125.16	0	0	0
81	126.82	0	0	0
82	128.48	0	0	0
83	130.14	0	0	0
84	160.2	0	0	0
85	133.378	0	0	0
86	134.956	0	0	0
87	136.533	0	0	0
88	138.111	0	0	0
89	139.689	0	0	0
90	141.267	0	0	0
91	142.844	0	0	0
92	144.422	0	0	0
93	146	0	0	0
94	147.578	0	0	0
95	149.156	0	0	0
96	150.733	0	0	0
97	152.311	0	0	0
98	153.889	0	0	0
99	155.467	0	0	0
100	157.044	0	0	0
101	158.622	0	0	0
102	168.5	0	0	0
103	161.86	0	0	0
104	163.52	0	0	0
105	165.18	0	0	0
106	166.84	0	0	0
107	176.8	0	0	0
108	170.16	0	0	0
109	171.82	0	0	0
110	173.48	0	0	0
111	175.14	0	0	0
112	202	0	0	0
113	178.375	0	0	0
114	179.95	0	0	0
115	181.525	0	0	0

116	183.1	0	0	0
117	184.675	0	0	0
118	186.25	0	0	0
119	187.825	0	0	0
120	189.4	0	0	0
121	190.975	0	0	0
122	192.55	0	0	0
123	194.125	0	0	0
124	195.7	0	0	0
125	197.275	0	0	0
126	198.85	0	0	0
127	200.425	0	0	0
128	26.4	0	0	0
129	71.4	0	0	0
130	175.6	0	0	0
131	130.6	0	0	0

R E S T R I C C I O N E S

Nudo	TX	TY	TZ	RX	RY	RZ
1	0	1	0	0	0	0
18	0	1	0	0	0	0
46	0	1	0	0	0	0
74	0	1	0	0	0	0
102	0	1	0	0	0	0
112	0	1	0	0	0	0
128	0	1	0	0	0	0
129	0	1	0	0	0	0
130	0	1	0	0	0	0
131	0	1	0	0	0	0

V I G A S

Viga	NJ	NK	Descripcion	Sección	Material
1	1	3		CADOS 220	H 500x5000
2	3	4		CADOS 220	H 500x5000
3	4	5		CADOS 220	H 500x5000
4	5	6		CADOS 220	H 500x5000
5	6	7		CADOS 220	H 500x5000
6	7	8		CADOS 220	H 500x5000
7	8	9		CADOS 220	H 500x5000
8	9	10		CADOS 220	H 500x5000
9	10	11		CADOS 220	H 500x5000
10	11	12		CADOS 220	H 500x5000
11	12	13		CADOS 220	H 500x5000
12	13	14		CADOS 220	H 500x5000
13	14	15		CADOS 220	H 500x5000
14	15	16		CADOS 220	H 500x5000
15	16	17		CADOS 220	H 500x5000
16	17	2		CADOS 220	H 500x5000
17	2	128		CADOS 229	H 500x5000
18	19	20		CADOS 247	H 500x5000
19	20	21		CADOS 265	H 500x5000
20	21	22		CADOS 284	H 500x5000
21	22	18		CADOS 300	H 500x5000
22	18	24		CADOS 300	H 500x5000
23	24	25		CADOS 284	H 500x5000
24	25	26		CADOS 265	H 500x5000
25	26	27		CADOS 247	H 500x5000
26	27	23		CADOS 229	H 500x5000
27	23	29		CADOS 220	H 500x5000
28	29	30		CADOS 220	H 500x5000
29	30	31		CADOS 220	H 500x5000
30	31	32		CADOS 220	H 500x5000
31	32	33		CADOS 220	H 500x5000
32	33	34		CADOS 220	H 500x5000
33	34	35		CADOS 220	H 500x5000
34	35	36		CADOS 220	H 500x5000
35	36	37		CADOS 220	H 500x5000
36	37	38		CADOS 220	H 500x5000
37	38	39		CADOS 220	H 500x5000
38	39	40		CADOS 220	H 500x5000
39	40	41		CADOS 220	H 500x5000
40	41	42		CADOS 220	H 500x5000
41	42	43		CADOS 220	H 500x5000
42	43	44		CADOS 220	H 500x5000
43	44	45		CADOS 220	H 500x5000
44	45	28		CADOS 220	H 500x5000
45	28	129		CADOS 229	H 500x5000
46	47	48		CADOS 247	H 500x5000
47	48	49		CADOS 265	H 500x5000
48	49	50		CADOS 284	H 500x5000
49	50	46		CADOS 300	H 500x5000
50	46	52		CADOS 300	H 500x5000
51	52	53		CADOS 284	H 500x5000
52	53	54		CADOS 265	H 500x5000
53	54	55		CADOS 247	H 500x5000
54	55	51		CADOS 229	H 500x5000
55	51	57		CADOS 220	H 500x5000
56	57	58		CADOS 220	H 500x5000
57	58	59		CADOS 220	H 500x5000
58	59	60		CADOS 220	H 500x5000
59	60	61		CADOS 220	H 500x5000
60	61	62		CADOS 220	H 500x5000
61	62	63		CADOS 220	H 500x5000
62	63	64		CADOS 220	H 500x5000
63	64	65		CADOS 220	H 500x5000
64	65	66		CADOS 220	H 500x5000
65	66	67		CADOS 220	H 500x5000
66	67	68		CADOS 220	H 500x5000
67	68	69		CADOS 220	H 500x5000
68	69	70		CADOS 220	H 500x5000
69	70	71		CADOS 220	H 500x5000
70	71	72		CADOS 220	H 500x5000
71	72	73		CADOS 220	H 500x5000
72	73	56		CADOS 220	H 500x5000
73	56	75		CADOS 229	H 500x5000
74	75	76		CADOS 247	H 500x5000
75	76	77		CADOS 265	H 500x5000
76	77	78		CADOS 284	H 500x5000
77	78	74		CADOS 300	H 500x5000
78	74	80		CADOS 300	H 500x5000
79	80	81		CADOS 284	H 500x5000
80	81	82		CADOS 265	H 500x5000
81	82	83		CADOS 247	H 500x5000
82	83	131		CADOS 229	H 500x5000
83	79	85		CADOS 220	H 500x5000
84	85	86		CADOS 220	H 500x5000
85	86	87		CADOS 220	H 500x5000
86	87	88		CADOS 220	H 500x5000
87	88	89		CADOS 220	H 500x5000
88	89	90		CADOS 220	H 500x5000
89	90	91		CADOS 220	H 500x5000
90	91	92		CADOS 220	H 500x5000
91	92	93		CADOS 220	H 500x5000
92	93	94		CADOS 220	H 500x5000
93	94	95		CADOS 220	H 500x5000
94	95	96		CADOS 220	H 500x5000
95	96	97		CADOS 220	H 500x5000
96	97	98		CADOS 220	H 500x5000
97	98	99		CADOS 220	H 500x5000
98	99	100		CADOS 220	H 500x5000
99	100	101		CADOS 220	H 500x5000
100	101	84		CADOS 220	H 500x5000
101	84	103		CADOS 229	H 500x5000
102	103	104		CADOS 247	H 500x5000
103	104	105		CADOS 265	H 500x5000
104	105	106		CADOS 284	H 500x5000
105	106	102		CADOS 300	H 500x5000
106	102	108		CADOS 300	H 500x5000
107	108	109		CADOS 284	H 500x5000
108	109	110		CADOS 265	H 500x5000
109	110	111		CADOS 247	H 500x5000
110	111	130		CADOS 229	H 500x5000
111	107	113		CADOS 220	H 500x5000
112	113	114		CADOS 220	H 500x5000
113	114	115		CADOS 220	H 500x5000
114	115	116		CADOS 220	H 500x5000
115	116	117		CADOS 220	H 500x5000
116	117	118		CADOS 220	H 500x5000

117	118	119	CADOS 220	H 500x5000
118	119	120	CADOS 220	H 500x5000
119	120	121	CADOS 220	H 500x5000
120	121	122	CADOS 220	H 500x5000
121	122	123	CADOS 220	H 500x5000
122	123	124	CADOS 220	H 500x5000
123	124	125	CADOS 220	H 500x5000
124	125	126	CADOS 220	H 500x5000
125	126	127	CADOS 220	H 500x5000
126	127	112	CADOS 220	H 500x5000
127	128	19	CADOS 229	H 500x5000
128	129	47	CADOS 229	H 500x5000
129	130	107	CADOS 229	H 500x5000
130	131	79	CADOS 229	H 500x5000

FUERZA DISTRIBUIDA SOBRE VIGAS

Estado	Viga	Dir.	Valor [Ton/M]
f1	1	Y	0
	2	Y	0
	3	Y	0
	4	Y	0
	5	Y	0
	6	Y	0
	7	Y	0
	8	Y	0
	9	Y	0
	10	Y	0
	11	Y	0
	12	Y	-2.36
	13	Y	-2.36
	14	Y	-2.36
	15	Y	-2.36
	16	Y	-2.36
	17	Y	-2.36
	18	Y	-2.36
	19	Y	-2.36
	20	Y	-2.36
	21	Y	-2.36
	22	Y	-2.36
	23	Y	-2.36
	24	Y	-2.36
	25	Y	-2.36
	26	Y	-2.36
	27	Y	-2.36
	28	Y	-2.36
	29	Y	-2.36
	30	Y	-2.36
	31	Y	-2.36
	32	Y	0
	33	Y	0
	34	Y	0
	35	Y	0
	36	Y	0
	37	Y	0
	38	Y	0
	39	Y	0
	40	Y	-2.36
	41	Y	-2.36
	42	Y	-2.36
	43	Y	-2.36
	44	Y	-2.36
	45	Y	-2.36
	46	Y	-2.36
	47	Y	-2.36
	48	Y	-2.36
	49	Y	-2.36
	50	Y	-2.36
	51	Y	-2.36
	52	Y	-2.36
	53	Y	-2.36
	54	Y	-2.36
	55	Y	-2.36
	56	Y	-2.36
	57	Y	-2.36
	58	Y	-2.36
	59	Y	-2.36
	60	Y	0
	61	Y	0
	62	Y	0
	63	Y	0
	64	Y	0
	65	Y	0
	66	Y	0
	67	Y	0
	68	Y	-2.36
	69	Y	-2.36
	70	Y	-2.36
	71	Y	-2.36
	72	Y	-2.36
	73	Y	-2.36
	74	Y	-2.36
	75	Y	-2.36
	76	Y	-2.36
	77	Y	-2.36
	78	Y	-2.36
	79	Y	-2.36
	80	Y	-2.36
	81	Y	-2.36
	82	Y	-2.36
	83	Y	-2.36
	84	Y	-2.36
	85	Y	-2.36
	86	Y	-2.36
	87	Y	-2.36
	88	Y	0
	89	Y	0
	90	Y	0
	91	Y	0
	92	Y	0
	93	Y	0
	94	Y	0
	95	Y	0
	96	Y	-2.36
	97	Y	-2.36
	98	Y	-2.36
	99	Y	-2.36
	100	Y	-2.36
	101	Y	-2.36
	102	Y	-2.36
	103	Y	-2.36
	104	Y	-2.36
	105	Y	-2.36
	106	Y	-2.36
	107	Y	-2.36
	108	Y	-2.36
	109	Y	-2.36
	110	Y	-2.36
	111	Y	-2.36
	112	Y	-2.36
	113	Y	-2.36
	114	Y	-2.36
	115	Y	-2.36
	116	Y	0
	117	Y	0
	118	Y	0
	119	Y	0
	120	Y	0
	121	Y	0
	122	Y	0
	123	Y	0
	124	Y	0
	125	Y	0
	126	Y	0
	127	Y	-2.36
	128	Y	-2.36
	129	Y	-2.36
	130	Y	-2.36

E S T A D O S D E C A R G A

Estado	Descripción	Comb.	MultX	MultY	MultZ

f1	fase 1 sobre pilas	0	0	0	0	

R E S U L T A D O S D E L A N A L I S I S

R E A C C I O N E S

Nudo	FUERZAS [Ton] FX	FY	FZ	MOMENTOS [Ton*M] MX	MY	MZ
Estado f1=fase 1 sobre pilas						
1	0.00000	1.90948	0.00000	0.00000	0.00000	0.00000
18	0.00000	64.78214	0.00000	0.00000	0.00000	0.00000
46	0.00000	66.87480	0.00000	0.00000	0.00000	0.00000
74	0.00000	66.87480	0.00000	0.00000	0.00000	0.00000
102	0.00000	64.78214	0.00000	0.00000	0.00000	0.00000
112	0.00000	1.90948	0.00000	0.00000	0.00000	0.00000
128	0.00000	6.73133	0.00000	0.00000	0.00000	0.00000
129	0.00000	12.49258	0.00000	0.00000	0.00000	0.00000
130	0.00000	6.73133	0.00000	0.00000	0.00000	0.00000
131	0.00000	12.49258	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	305.58067	0.00000	0.00000	0.00000	0.00000

V I G A S

E S F U E R Z O S

	M33 [Ton*M]	V2 [Ton]	M22 [Ton*M]	V3 [Ton]
Viga 1				
Estado f1=fase 1 sobre pilas				
0%	0.00	-1.91	0.00	0.00
16%	0.50	-1.91	0.00	0.00
33%	1.00	-1.91	0.00	0.00
50%	1.50	-1.91	0.00	0.00
66%	2.00	-1.91	0.00	0.00
83%	2.51	-1.91	0.00	0.00
100%	3.01	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 2				
Estado f1=fase 1 sobre pilas				
0%	3.01	-1.91	0.00	0.00
16%	3.51	-1.91	0.00	0.00
33%	4.01	-1.91	0.00	0.00
50%	4.51	-1.91	0.00	0.00
66%	5.01	-1.91	0.00	0.00
83%	5.51	-1.91	0.00	0.00
100%	6.01	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 3				
Estado f1=fase 1 sobre pilas				
0%	6.01	-1.91	0.00	0.00
16%	6.52	-1.91	0.00	0.00
33%	7.02	-1.91	0.00	0.00
50%	7.52	-1.91	0.00	0.00
66%	8.02	-1.91	0.00	0.00
83%	8.52	-1.91	0.00	0.00
100%	9.02	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 4				
Estado f1=fase 1 sobre pilas				
0%	9.02	-1.91	0.00	0.00
16%	9.52	-1.91	0.00	0.00
33%	10.02	-1.91	0.00	0.00
50%	10.53	-1.91	0.00	0.00
66%	11.03	-1.91	0.00	0.00
83%	11.53	-1.91	0.00	0.00
100%	12.03	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 5				
Estado f1=fase 1 sobre pilas				
0%	12.03	-1.91	0.00	0.00
16%	12.53	-1.91	0.00	0.00
33%	13.03	-1.91	0.00	0.00
50%	13.53	-1.91	0.00	0.00
66%	14.03	-1.91	0.00	0.00
83%	14.54	-1.91	0.00	0.00
100%	15.04	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 6				
Estado f1=fase 1 sobre pilas				
0%	15.04	-1.91	0.00	0.00
16%	15.54	-1.91	0.00	0.00
33%	16.04	-1.91	0.00	0.00
50%	16.54	-1.91	0.00	0.00
66%	17.04	-1.91	0.00	0.00
83%	17.54	-1.91	0.00	0.00
100%	18.04	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 7				
Estado f1=fase 1 sobre pilas				
0%	18.04	-1.91	0.00	0.00
16%	18.55	-1.91	0.00	0.00
33%	19.05	-1.91	0.00	0.00
50%	19.55	-1.91	0.00	0.00
66%	20.05	-1.91	0.00	0.00
83%	20.55	-1.91	0.00	0.00
100%	21.05	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 8				
Estado f1=fase 1 sobre pilas				
0%	21.05	-1.91	0.00	0.00
16%	21.55	-1.91	0.00	0.00
33%	22.05	-1.91	0.00	0.00
50%	22.56	-1.91	0.00	0.00
66%	23.06	-1.91	0.00	0.00
83%	23.56	-1.91	0.00	0.00
100%	24.06	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 9				
Estado f1=fase 1 sobre pilas				
0%	24.06	-1.91	0.00	0.00
16%	24.56	-1.91	0.00	0.00
33%	25.06	-1.91	0.00	0.00
50%	25.56	-1.91	0.00	0.00
66%	26.06	-1.91	0.00	0.00
83%	26.57	-1.91	0.00	0.00
100%	27.07	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 10				
Estado f1=fase 1 sobre pilas				
0%	27.07	-1.91	0.00	0.00
16%	27.57	-1.91	0.00	0.00
33%	28.07	-1.91	0.00	0.00
50%	28.57	-1.91	0.00	0.00
66%	29.07	-1.91	0.00	0.00
83%	29.57	-1.91	0.00	0.00
100%	30.07	-1.91	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 11				
Estado f1=fase 1 sobre pilas				
0%	30.07	-1.91	0.00	0.00
16%	30.58	-1.91	0.00	0.00
33%	31.08	-1.91	0.00	0.00
50%	31.58	-1.91	0.00	0.00
66%	32.08	-1.91	0.00	0.00
83%	32.58	-1.91	0.00	0.00
100%	33.08	-1.91	0.00	0.00

```
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 12
Estado f1=fase 1 sobre pilas
  0%  33.08         -1.91         0.00          0.00
 16%  33.50         -1.29         0.00          0.00
 33%  33.76         -0.67         0.00          0.00
 50%  33.85         -0.05         0.00          0.00
 66%  33.79         0.57          0.00          0.00
 83%  33.56         1.19          0.00          0.00
100%  33.16         1.81          0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 13
Estado f1=fase 1 sobre pilas
  0%  33.16         1.81          0.00          0.00
 16%  32.61         2.43          0.00          0.00
 33%  31.89         3.05          0.00          0.00
 50%  31.01         3.67          0.00          0.00
 66%  29.96         4.29          0.00          0.00
 83%  28.76         4.91          0.00          0.00
100%  27.39         5.52          0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 14
Estado f1=fase 1 sobre pilas
  0%  27.39         5.52          0.00          0.00
 16%  25.86         6.14          0.00          0.00
 33%  24.16         6.76          0.00          0.00
 50%  22.31         7.38          0.00          0.00
 66%  20.29         8.00          0.00          0.00
 83%  18.10         8.62          0.00          0.00
100%  15.76         9.24          0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 15
Estado f1=fase 1 sobre pilas
  0%  15.76         9.24          0.00          0.00
 16%  13.25         9.86          0.00          0.00
 33%  10.58         10.48         0.00          0.00
 50%  7.75          11.10         0.00          0.00
 66%  4.76          11.72         0.00          0.00
 83%  1.60          12.34         0.00          0.00
100%  -1.72         12.96         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 16
Estado f1=fase 1 sobre pilas
  0%  -1.72         12.96         0.00          0.00
 16%  -5.21         13.58         0.00          0.00
 33%  -8.85         14.20         0.00          0.00
 50%  -12.66        14.82         0.00          0.00
 66%  -16.63        15.44         0.00          0.00
 83%  -20.76        16.06         0.00          0.00
100%  -25.06        16.68         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 17
Estado f1=fase 1 sobre pilas
  0%  -25.06        16.68         0.00          0.00
 16%  -28.44        17.15         0.00          0.00
 33%  -31.92        17.62         0.00          0.00
 50%  -35.49        18.09         0.00          0.00
 66%  -39.16        18.56         0.00          0.00
 83%  -42.92        19.04         0.00          0.00
100%  -46.77        19.51         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 18
Estado f1=fase 1 sobre pilas
  0%  -52.90        13.86         0.00          0.00
 16%  -56.82        14.51         0.00          0.00
 33%  -60.93        15.17         0.00          0.00
 50%  -65.21        15.82         0.00          0.00
 66%  -69.68        16.47         0.00          0.00
 83%  -74.33        17.13         0.00          0.00
100%  -79.16        17.78         0.00          0.00
```

```
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 19
Estado f1=fase 1 sobre pilas
  0%  -79.16        17.78         0.00          0.00
 16%  -84.17        18.43         0.00          0.00
 33%  -89.36        19.09         0.00          0.00
 50%  -94.73        19.74         0.00          0.00
 66%  -100.28       20.39         0.00          0.00
 83%  -106.01       21.04         0.00          0.00
100%  -111.92       21.70         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 20
Estado f1=fase 1 sobre pilas
  0%  -111.92       21.70         0.00          0.00
 16%  -118.02       22.35         0.00          0.00
 33%  -124.29       23.00         0.00          0.00
 50%  -130.75       23.66         0.00          0.00
 66%  -137.38       24.31         0.00          0.00
 83%  -144.20       24.96         0.00          0.00
100%  -151.19       25.61         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 21
Estado f1=fase 1 sobre pilas
  0%  -151.19       25.61         0.00          0.00
 16%  -158.37       26.27         0.00          0.00
 33%  -165.73       26.92         0.00          0.00
 50%  -173.27       27.57         0.00          0.00
 66%  -180.98       28.23         0.00          0.00
 83%  -188.88       28.88         0.00          0.00
100%  -196.96       29.53         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 22
Estado f1=fase 1 sobre pilas
  0%  -196.96       -35.25        0.00          0.00
 16%  -187.30       -34.60        0.00          0.00
 33%  -177.82       -33.94        0.00          0.00
 50%  -168.52       -33.29        0.00          0.00
 66%  -159.40       -32.64        0.00          0.00
 83%  -150.46       -31.99        0.00          0.00
100%  -141.70       -31.33        0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 23
Estado f1=fase 1 sobre pilas
  0%  -141.70       -31.33        0.00          0.00
 16%  -133.12       -30.68        0.00          0.00
 33%  -124.72       -30.03        0.00          0.00
 50%  -116.51       -29.37        0.00          0.00
 66%  -108.47       -28.72        0.00          0.00
 83%  -100.62       -28.07        0.00          0.00
100%  -92.94        -27.41        0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 24
Estado f1=fase 1 sobre pilas
  0%  -92.94        -27.41        0.00          0.00
 16%  -85.45        -26.76        0.00          0.00
 33%  -78.13        -26.11        0.00          0.00
 50%  -71.00        -25.46        0.00          0.00
 66%  -64.05        -24.80        0.00          0.00
 83%  -57.28        -24.15        0.00          0.00
100%  -50.68        -23.50        0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 25
Estado f1=fase 1 sobre pilas
  0%  -50.68        -23.50        0.00          0.00
 16%  -44.27        -22.84        0.00          0.00
 33%  -38.04        -22.19        0.00          0.00
 50%  -31.99        -21.54        0.00          0.00
 66%  -26.13        -20.89        0.00          0.00
 83%  -20.44        -20.23        0.00          0.00
100%  -14.93        -19.58        0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 26
Estado f1=fase 1 sobre pilas
  0%  -14.93        -19.58        0.00          0.00
 16%  -9.60         -18.93        0.00          0.00
 33%  -4.46         -18.27        0.00          0.00
 50%  0.51          -17.62        0.00          0.00
 66%  5.29          -16.97        0.00          0.00
 83%  9.90          -16.31        0.00          0.00
100%  14.32         -15.66        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 27
Estado f1=fase 1 sobre pilas
  0%  14.32         -15.66        0.00          0.00
 16%  18.36         -15.04        0.00          0.00
 33%  22.23         -14.42        0.00          0.00
 50%  25.94         -13.80        0.00          0.00
 66%  29.49         -13.18        0.00          0.00
 83%  32.87         -12.56        0.00          0.00
100%  36.09         -11.94        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 28
Estado f1=fase 1 sobre pilas
  0%  36.09         -11.94        0.00          0.00
 16%  39.15         -11.32        0.00          0.00
 33%  42.05         -10.70        0.00          0.00
 50%  44.78         -10.08        0.00          0.00
 66%  47.35         -9.46         0.00          0.00
 83%  49.75         -8.84         0.00          0.00
100%  51.99         -8.21         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 29
Estado f1=fase 1 sobre pilas
  0%  51.99         -8.21         0.00          0.00
 16%  54.07         -7.59         0.00          0.00
 33%  55.99         -6.97         0.00          0.00
 50%  57.74         -6.35         0.00          0.00
 66%  59.33         -5.73         0.00          0.00
 83%  60.75         -5.11         0.00          0.00
100%  62.02         -4.49         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 30
Estado f1=fase 1 sobre pilas
  0%  62.02         -4.49         0.00          0.00
 16%  63.12         -3.87         0.00          0.00
 33%  64.05         -3.25         0.00          0.00
 50%  64.83         -2.63         0.00          0.00
 66%  65.43         -2.01         0.00          0.00
 83%  65.88         -1.39         0.00          0.00
100%  66.17         -0.77         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 31
Estado f1=fase 1 sobre pilas
  0%  66.17         -0.77         0.00          0.00
 16%  66.29         -0.15         0.00          0.00
 33%  66.24         0.47          0.00          0.00
 50%  66.04         1.09          0.00          0.00
 66%  65.67         1.71          0.00          0.00
 83%  65.13         2.34          0.00          0.00
100%  64.44         2.96          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 32
Estado f1=fase 1 sobre pilas
  0%  64.44         2.96          0.00          0.00
 16%  63.66         2.96          0.00          0.00
 33%  62.88         2.96          0.00          0.00
 50%  62.11         2.96          0.00          0.00
 66%  61.33         2.96          0.00          0.00
 83%  60.55         2.96          0.00          0.00
100%  59.78         2.96          0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 33
Estado f1=fase 1 sobre pilas
  0%  59.78         2.96          0.00          0.00
 16%  59.00         2.96          0.00          0.00
 33%  58.22         2.96          0.00          0.00
 50%  57.44         2.96          0.00          0.00
 66%  56.67         2.96          0.00          0.00
 83%  55.89         2.96          0.00          0.00
100%  55.11         2.96          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 34
Estado f1=fase 1 sobre pilas
  0%  55.11         2.96          0.00          0.00
 16%  54.33         2.96          0.00          0.00
 33%  53.56         2.96          0.00          0.00
 50%  52.78         2.96          0.00          0.00
 66%  52.00         2.96          0.00          0.00
 83%  51.23         2.96          0.00          0.00
100%  50.45         2.96          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 35
Estado f1=fase 1 sobre pilas
  0%  50.45         2.96          0.00          0.00
 16%  49.67         2.96          0.00          0.00
 33%  48.89         2.96          0.00          0.00
 50%  48.12         2.96          0.00          0.00
 66%  47.34         2.96          0.00          0.00
 83%  46.56         2.96          0.00          0.00
100%  45.78         2.96          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 36
Estado f1=fase 1 sobre pilas
  0%  45.78         2.96          0.00          0.00
 16%  45.01         2.96          0.00          0.00
 33%  44.23         2.96          0.00          0.00
 50%  43.45         2.96          0.00          0.00
 66%  42.68         2.96          0.00          0.00
 83%  41.90         2.96          0.00          0.00
100%  41.12         2.96          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 37
Estado f1=fase 1 sobre pilas
  0%  41.12         2.96          0.00          0.00
 16%  40.34         2.96          0.00          0.00
 33%  39.57         2.96          0.00          0.00
 50%  38.79         2.96          0.00          0.00
 66%  38.01         2.96          0.00          0.00
 83%  37.23         2.96          0.00          0.00
100%  36.46         2.96          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 38
Estado f1=fase 1 sobre pilas
  0%  36.46         2.96          0.00          0.00
 16%  35.68         2.96          0.00          0.00
 33%  34.90         2.96          0.00          0.00
 50%  34.13         2.96          0.00          0.00
 66%  33.35         2.96          0.00          0.00
 83%  32.57         2.96          0.00          0.00
100%  31.79         2.96          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 39
Estado f1=fase 1 sobre pilas
  0%  31.79         2.96          0.00          0.00
 16%  31.02         2.96          0.00          0.00
 33%  30.24         2.96          0.00          0.00
 50%  29.46         2.96          0.00          0.00
 66%  28.68         2.96          0.00          0.00
 83%  27.91         2.96          0.00          0.00
100%  27.13         2.96          0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 40
Estado f1=fase 1 sobre pilas
  0%  27.13         2.96          0.00          0.00
 16%  26.27         3.58          0.00          0.00
 33%  25.25         4.20          0.00          0.00
 50%  24.06         4.82          0.00          0.00
 66%  22.72         5.44          0.00          0.00
 83%  21.20         6.06          0.00          0.00
100%  19.53         6.68          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 41
Estado f1=fase 1 sobre pilas
  0%  19.53         6.68          0.00          0.00
 16%  17.69         7.30          0.00          0.00
 33%  15.69         7.92          0.00          0.00
 50%  13.53         8.54          0.00          0.00
 66%  11.20         9.16          0.00          0.00
 83%  8.71          9.78          0.00          0.00
100%  6.05          10.40         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 42
Estado f1=fase 1 sobre pilas
  0%  6.05          10.40         0.00          0.00
 16%  3.24          11.02         0.00          0.00
 33%  0.26          11.64         0.00          0.00
 50%  -2.89         12.26         0.00          0.00
 66%  -6.20         12.89         0.00          0.00
 83%  -9.67         13.51         0.00          0.00
100%  -13.30        14.13         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 43
Estado f1=fase 1 sobre pilas
  0%  -13.30        14.13         0.00          0.00
 16%  -17.09        14.75         0.00          0.00
 33%  -21.05        15.37         0.00          0.00
 50%  -25.18        15.99         0.00          0.00
 66%  -29.46        16.61         0.00          0.00
 83%  -33.91        17.23         0.00          0.00
100%  -38.52        17.85         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 44
Estado f1=fase 1 sobre pilas
  0%  -38.52        17.85         0.00          0.00
 16%  -43.30        18.47         0.00          0.00
 33%  -48.24        19.09         0.00          0.00
 50%  -53.34        19.71         0.00          0.00
 66%  -58.61        20.33         0.00          0.00
 83%  -64.03        20.95         0.00          0.00
100%  -69.63        21.57         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 45
Estado f1=fase 1 sobre pilas
  0%  -69.63        21.57         0.00          0.00
 16%  -73.99        22.05         0.00          0.00
 33%  -78.44        22.52         0.00          0.00
 50%  -82.99        22.99         0.00          0.00
 66%  -87.64        23.46         0.00          0.00
 83%  -92.38        23.93         0.00          0.00
100%  -97.21        24.41         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 46
Estado f1=fase 1 sobre pilas
  0%  -102.94       13.00         0.00          0.00
 16%  -106.63       13.65         0.00          0.00
 33%  -110.50       14.30         0.00          0.00
 50%  -114.54       14.96         0.00          0.00
 66%  -118.77       15.61         0.00          0.00
 83%  -123.18       16.26         0.00          0.00
100%  -127.77       16.92         0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 47
Estado f1=fase 1 sobre pilas
  0%  -127.77       16.92         0.00          0.00
 16%  -132.54       17.57         0.00          0.00
 33%  -137.49       18.22         0.00          0.00
 50%  -142.62       18.88         0.00          0.00
 66%  -147.94       19.53         0.00          0.00
 83%  -153.43       20.18         0.00          0.00
100%  -159.10       20.83         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 48
Estado f1=fase 1 sobre pilas
  0%  -159.10       20.83         0.00          0.00
 16%  -164.96       21.49         0.00          0.00
 33%  -170.99       22.14         0.00          0.00
 50%  -177.21       22.79         0.00          0.00
 66%  -183.61       23.45         0.00          0.00
 83%  -190.18       24.10         0.00          0.00
100%  -196.94       24.75         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 49
Estado f1=fase 1 sobre pilas
  0%  -196.94       24.75         0.00          0.00
 16%  -203.88       25.40         0.00          0.00
 33%  -211.00       26.06         0.00          0.00
 50%  -218.30       26.71         0.00          0.00
 66%  -225.78       27.36         0.00          0.00
 83%  -233.44       28.02         0.00          0.00
100%  -241.28       28.67         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 50
Estado f1=fase 1 sobre pilas
  0%  -241.28       -38.21        0.00          0.00
 16%  -230.80       -37.55        0.00          0.00
 33%  -220.50       -36.90        0.00          0.00
 50%  -210.38       -36.25        0.00          0.00
 66%  -200.44       -35.59        0.00          0.00
 83%  -190.69       -34.94        0.00          0.00
100%  -181.11       -34.29        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 51
Estado f1=fase 1 sobre pilas
  0%  -181.11       -34.29        0.00          0.00
 16%  -171.71       -33.64        0.00          0.00
 33%  -162.50       -32.98        0.00          0.00
 50%  -153.46       -32.33        0.00          0.00
 66%  -144.61       -31.68        0.00          0.00
 83%  -135.93       -31.02        0.00          0.00
100%  -127.44       -30.37        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 52
Estado f1=fase 1 sobre pilas
  0%  -127.44       -30.37        0.00          0.00
 16%  -119.13       -29.72        0.00          0.00
 33%  -111.00       -29.06        0.00          0.00
 50%  -103.05       -28.41        0.00          0.00
 66%  -95.28        -27.76        0.00          0.00
 83%  -87.69        -27.11        0.00          0.00
100%  -80.28        -26.45        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 53
Estado f1=fase 1 sobre pilas
  0%  -80.28        -26.45        0.00          0.00
 16%  -73.05        -25.80        0.00          0.00
 33%  -66.00        -25.15        0.00          0.00
 50%  -59.14        -24.49        0.00          0.00
 66%  -52.45        -23.84        0.00          0.00
 83%  -45.94        -23.19        0.00          0.00
100%  -39.62        -22.54        0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 54
Estado f1=fase 1 sobre pilas
  0%  -39.62        -22.54        0.00          0.00
 16%  -33.47        -21.88        0.00          0.00
 33%  -27.51        -21.23        0.00          0.00
 50%  -21.73        -20.58        0.00          0.00
 66%  -16.12        -19.92        0.00          0.00
 83%  -10.70        -19.27        0.00          0.00
100%  -5.46         -18.62        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 55
Estado f1=fase 1 sobre pilas
  0%  -5.46         -18.62        0.00          0.00
 16%  -0.65         -18.00        0.00          0.00
 33%  4.00          -17.38        0.00          0.00
 50%  8.49          -16.76        0.00          0.00
 66%  12.82         -16.14        0.00          0.00
 83%  16.98         -15.51        0.00          0.00
100%  20.98         -14.89        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 56
Estado f1=fase 1 sobre pilas
  0%  20.98         -14.89        0.00          0.00
 16%  24.81         -14.27        0.00          0.00
 33%  28.48         -13.65        0.00          0.00
 50%  31.99         -13.03        0.00          0.00
 66%  35.34         -12.41        0.00          0.00
 83%  38.52         -11.79        0.00          0.00
100%  41.54         -11.17        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 57
Estado f1=fase 1 sobre pilas
  0%  41.54         -11.17        0.00          0.00
 16%  44.39         -10.55        0.00          0.00
 33%  47.09         -9.93         0.00          0.00
 50%  49.62         -9.31         0.00          0.00
 66%  51.98         -8.69         0.00          0.00
 83%  54.19         -8.07         0.00          0.00
100%  56.23         -7.45         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 58
Estado f1=fase 1 sobre pilas
  0%  56.23         -7.45         0.00          0.00
 16%  58.10         -6.83         0.00          0.00
 33%  59.82         -6.21         0.00          0.00
 50%  61.37         -5.59         0.00          0.00
 66%  62.75         -4.96         0.00          0.00
 83%  63.98         -4.34         0.00          0.00
100%  65.04         -3.72         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 59
Estado f1=fase 1 sobre pilas
  0%  65.04         -3.72         0.00          0.00
 16%  65.94         -3.10         0.00          0.00
 33%  66.67         -2.48         0.00          0.00
 50%  67.24         -1.86         0.00          0.00
 66%  67.65         -1.24         0.00          0.00
 83%  67.89         -0.62         0.00          0.00
100%  67.98         0.00          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 60
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.98         0.00          0.00          0.00
 33%  67.98         0.00          0.00          0.00
 50%  67.98         0.00          0.00          0.00
 66%  67.98         0.00          0.00          0.00
 83%  67.98         0.00          0.00          0.00
100%  67.98         0.00          0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 61
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.98         0.00          0.00          0.00
 33%  67.98         0.00          0.00          0.00
 50%  67.98         0.00          0.00          0.00
 66%  67.98         0.00          0.00          0.00
 83%  67.98         0.00          0.00          0.00
100%  67.98         0.00          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 62
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.98         0.00          0.00          0.00
 33%  67.98         0.00          0.00          0.00
 50%  67.98         0.00          0.00          0.00
 66%  67.98         0.00          0.00          0.00
 83%  67.98         0.00          0.00          0.00
100%  67.98         0.00          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 63
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.98         0.00          0.00          0.00
 33%  67.98         0.00          0.00          0.00
 50%  67.98         0.00          0.00          0.00
 66%  67.98         0.00          0.00          0.00
 83%  67.98         0.00          0.00          0.00
100%  67.98         0.00          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 64
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.98         0.00          0.00          0.00
 33%  67.98         0.00          0.00          0.00
 50%  67.98         0.00          0.00          0.00
 66%  67.98         0.00          0.00          0.00
 83%  67.98         0.00          0.00          0.00
100%  67.98         0.00          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 65
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.98         0.00          0.00          0.00
 33%  67.98         0.00          0.00          0.00
 50%  67.98         0.00          0.00          0.00
 66%  67.98         0.00          0.00          0.00
 83%  67.98         0.00          0.00          0.00
100%  67.98         0.00          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 66
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.98         0.00          0.00          0.00
 33%  67.98         0.00          0.00          0.00
 50%  67.98         0.00          0.00          0.00
 66%  67.98         0.00          0.00          0.00
 83%  67.98         0.00          0.00          0.00
100%  67.98         0.00          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 67
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.98         0.00          0.00          0.00
 33%  67.98         0.00          0.00          0.00
 50%  67.98         0.00          0.00          0.00
 66%  67.98         0.00          0.00          0.00
 83%  67.98         0.00          0.00          0.00
100%  67.98         0.00          0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 68
Estado f1=fase 1 sobre pilas
  0%  67.98         0.00          0.00          0.00
 16%  67.89         0.62          0.00          0.00
 33%  67.65         1.24          0.00          0.00
 50%  67.24         1.86          0.00          0.00
 66%  66.67         2.48          0.00          0.00
 83%  65.94         3.10          0.00          0.00
100%  65.04         3.72          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 69
Estado f1=fase 1 sobre pilas
  0%  65.04         3.72          0.00          0.00
 16%  63.98         4.34          0.00          0.00
 33%  62.75         4.96          0.00          0.00
 50%  61.37         5.59          0.00          0.00
 66%  59.82         6.21          0.00          0.00
 83%  58.10         6.83          0.00          0.00
100%  56.23         7.45          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 70
Estado f1=fase 1 sobre pilas
  0%  56.23         7.45          0.00          0.00
 16%  54.19         8.07          0.00          0.00
 33%  51.98         8.69          0.00          0.00
 50%  49.62         9.31          0.00          0.00
 66%  47.09         9.93          0.00          0.00
 83%  44.39         10.55         0.00          0.00
100%  41.54         11.17         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 71
Estado f1=fase 1 sobre pilas
  0%  41.54         11.17         0.00          0.00
 16%  38.52         11.79         0.00          0.00
 33%  35.34         12.41         0.00          0.00
 50%  31.99         13.03         0.00          0.00
 66%  28.48         13.65         0.00          0.00
 83%  24.81         14.27         0.00          0.00
100%  20.98         14.89         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 72
Estado f1=fase 1 sobre pilas
  0%  20.98         14.89         0.00          0.00
 16%  16.98         15.51         0.00          0.00
 33%  12.82         16.14         0.00          0.00
 50%  8.49          16.76         0.00          0.00
 66%  4.00          17.38         0.00          0.00
 83%  -0.65         18.00         0.00          0.00
100%  -5.46         18.62         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 73
Estado f1=fase 1 sobre pilas
  0%  -5.46         18.62         0.00          0.00
 16%  -10.70        19.27         0.00          0.00
 33%  -16.12        19.92         0.00          0.00
 50%  -21.73        20.58         0.00          0.00
 66%  -27.51        21.23         0.00          0.00
 83%  -33.47        21.88         0.00          0.00
100%  -39.62        22.54         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 74
Estado f1=fase 1 sobre pilas
  0%  -39.62        22.54         0.00          0.00
 16%  -45.94        23.19         0.00          0.00
 33%  -52.45        23.84         0.00          0.00
 50%  -59.14        24.49         0.00          0.00
 66%  -66.00        25.15         0.00          0.00
 83%  -73.05        25.80         0.00          0.00
100%  -80.28        26.45         0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 75
Estado f1=fase 1 sobre pilas
  0%  -80.28        26.45         0.00          0.00
 16%  -87.69        27.11         0.00          0.00
 33%  -95.28        27.76         0.00          0.00
 50%  -103.05       28.41         0.00          0.00
 66%  -111.00       29.06         0.00          0.00
 83%  -119.13       29.72         0.00          0.00
100%  -127.44       30.37         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 76
Estado f1=fase 1 sobre pilas
  0%  -127.44       30.37         0.00          0.00
 16%  -135.93       31.02         0.00          0.00
 33%  -144.61       31.68         0.00          0.00
 50%  -153.46       32.33         0.00          0.00
 66%  -162.50       32.98         0.00          0.00
 83%  -171.71       33.64         0.00          0.00
100%  -181.11       34.29         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 77
Estado f1=fase 1 sobre pilas
  0%  -181.11       34.29         0.00          0.00
 16%  -190.69       34.94         0.00          0.00
 33%  -200.44       35.59         0.00          0.00
 50%  -210.38       36.25         0.00          0.00
 66%  -220.50       36.90         0.00          0.00
 83%  -230.80       37.55         0.00          0.00
100%  -241.28       38.21         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 78
Estado f1=fase 1 sobre pilas
  0%  -241.28       -28.67        0.00          0.00
 16%  -233.44       -28.02        0.00          0.00
 33%  -225.78       -27.36        0.00          0.00
 50%  -218.30       -26.71        0.00          0.00
 66%  -211.00       -26.06        0.00          0.00
 83%  -203.88       -25.40        0.00          0.00
100%  -196.94       -24.75        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 79
Estado f1=fase 1 sobre pilas
  0%  -196.94       -24.75        0.00          0.00
 16%  -190.18       -24.10        0.00          0.00
 33%  -183.61       -23.45        0.00          0.00
 50%  -177.21       -22.79        0.00          0.00
 66%  -170.99       -22.14        0.00          0.00
 83%  -164.96       -21.49        0.00          0.00
100%  -159.10       -20.83        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 80
Estado f1=fase 1 sobre pilas
  0%  -159.10       -20.83        0.00          0.00
 16%  -153.43       -20.18        0.00          0.00
 33%  -147.94       -19.53        0.00          0.00
 50%  -142.62       -18.88        0.00          0.00
 66%  -137.49       -18.22        0.00          0.00
 83%  -132.54       -17.57        0.00          0.00
100%  -127.77       -16.92        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 81
Estado f1=fase 1 sobre pilas
  0%  -127.77       -16.92        0.00          0.00
 16%  -123.18       -16.26        0.00          0.00
 33%  -118.77       -15.61        0.00          0.00
 50%  -114.54       -14.96        0.00          0.00
 66%  -110.50       -14.30        0.00          0.00
 83%  -106.63       -13.65        0.00          0.00
100%  -102.94       -13.00        0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 82
Estado f1=fase 1 sobre pilas
  0%  -102.94       -13.00        0.00          0.00
 16%  -101.95       -12.82        0.00          0.00
 33%  -100.98       -12.64        0.00          0.00
 50%  -100.02       -12.46        0.00          0.00
 66%  -99.07        -12.27        0.00          0.00
 83%  -98.13        -12.09        0.00          0.00
100%  -97.21        -11.91        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 83
Estado f1=fase 1 sobre pilas
  0%  -69.63        -21.57        0.00          0.00
 16%  -64.03        -20.95        0.00          0.00
 33%  -58.61        -20.33        0.00          0.00
 50%  -53.34        -19.71        0.00          0.00
 66%  -48.24        -19.09        0.00          0.00
 83%  -43.30        -18.47        0.00          0.00
100%  -38.52        -17.85        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 84
Estado f1=fase 1 sobre pilas
  0%  -38.52        -17.85        0.00          0.00
 16%  -33.91        -17.23        0.00          0.00
 33%  -29.46        -16.61        0.00          0.00
 50%  -25.18        -15.99        0.00          0.00
 66%  -21.05        -15.37        0.00          0.00
 83%  -17.09        -14.75        0.00          0.00
100%  -13.30        -14.13        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 85
Estado f1=fase 1 sobre pilas
  0%  -13.30        -14.13        0.00          0.00
 16%  -9.67         -13.51        0.00          0.00
 33%  -6.20         -12.89        0.00          0.00
 50%  -2.89         -12.26        0.00          0.00
 66%  0.26          -11.64        0.00          0.00
 83%  3.24          -11.02        0.00          0.00
100%  6.05         -10.40        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 86
Estado f1=fase 1 sobre pilas
  0%  6.05          -10.40        0.00          0.00
 16%  8.71          -9.78         0.00          0.00
 33%  11.20         -9.16         0.00          0.00
 50%  13.53         -8.54         0.00          0.00
 66%  15.69         -7.92         0.00          0.00
 83%  17.69         -7.30         0.00          0.00
100%  19.53         -6.68         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 87
Estado f1=fase 1 sobre pilas
  0%  19.53         -6.68         0.00          0.00
 16%  21.20         -6.06         0.00          0.00
 33%  22.72         -5.44         0.00          0.00
 50%  24.06         -4.82         0.00          0.00
 66%  25.25         -4.20         0.00          0.00
 83%  26.27         -3.58         0.00          0.00
100%  27.13         -2.96         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 88
Estado f1=fase 1 sobre pilas
  0%  27.13         -2.96         0.00          0.00
 16%  27.91         -2.96         0.00          0.00
 33%  28.68         -2.96         0.00          0.00
 50%  29.46         -2.96         0.00          0.00
 66%  30.24         -2.96         0.00          0.00
 83%  31.02         -2.96         0.00          0.00
100%  31.79         -2.96         0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 89
Estado f1=fase 1 sobre pilas
  0%  31.79         -2.96         0.00          0.00
 16%  32.57         -2.96         0.00          0.00
 33%  33.35         -2.96         0.00          0.00
 50%  34.13         -2.96         0.00          0.00
 66%  34.90         -2.96         0.00          0.00
 83%  35.68         -2.96         0.00          0.00
100%  36.46         -2.96         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 90
Estado f1=fase 1 sobre pilas
  0%  36.46         -2.96         0.00          0.00
 16%  37.23         -2.96         0.00          0.00
 33%  38.01         -2.96         0.00          0.00
 50%  38.79         -2.96         0.00          0.00
 66%  39.57         -2.96         0.00          0.00
 83%  40.34         -2.96         0.00          0.00
100%  41.12         -2.96         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 91
Estado f1=fase 1 sobre pilas
  0%  41.12         -2.96         0.00          0.00
 16%  41.90         -2.96         0.00          0.00
 33%  42.68         -2.96         0.00          0.00
 50%  43.45         -2.96         0.00          0.00
 66%  44.23         -2.96         0.00          0.00
 83%  45.01         -2.96         0.00          0.00
100%  45.78         -2.96         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 92
Estado f1=fase 1 sobre pilas
  0%  45.78         -2.96         0.00          0.00
 16%  46.56         -2.96         0.00          0.00
 33%  47.34         -2.96         0.00          0.00
 50%  48.12         -2.96         0.00          0.00
 66%  48.89         -2.96         0.00          0.00
 83%  49.67         -2.96         0.00          0.00
100%  50.45         -2.96         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 93
Estado f1=fase 1 sobre pilas
  0%  50.45         -2.96         0.00          0.00
 16%  51.23         -2.96         0.00          0.00
 33%  52.00         -2.96         0.00          0.00
 50%  52.78         -2.96         0.00          0.00
 66%  53.56         -2.96         0.00          0.00
 83%  54.33         -2.96         0.00          0.00
100%  55.11         -2.96         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 94
Estado f1=fase 1 sobre pilas
  0%  55.11         -2.96         0.00          0.00
 16%  55.89         -2.96         0.00          0.00
 33%  56.67         -2.96         0.00          0.00
 50%  57.44         -2.96         0.00          0.00
 66%  58.22         -2.96         0.00          0.00
 83%  59.00         -2.96         0.00          0.00
100%  59.78         -2.96         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 95
Estado f1=fase 1 sobre pilas
  0%  59.78         -2.96         0.00          0.00
 16%  60.55         -2.96         0.00          0.00
 33%  61.33         -2.96         0.00          0.00
 50%  62.11         -2.96         0.00          0.00
 66%  62.88         -2.96         0.00          0.00
 83%  63.66         -2.96         0.00          0.00
100%  64.44         -2.96         0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 96
Estado f1=fase 1 sobre pilas
  0%  64.44         -2.96         0.00          0.00
 16%  65.13         -2.34         0.00          0.00
 33%  65.67         -1.71         0.00          0.00
 50%  66.04         -1.09         0.00          0.00
 66%  66.24         -0.47         0.00          0.00
 83%  66.29          0.15         0.00          0.00
100%  66.17          0.77         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 97
Estado f1=fase 1 sobre pilas
  0%  66.17          0.77         0.00          0.00
 16%  65.88          1.39         0.00          0.00
 33%  65.43          2.01         0.00          0.00
 50%  64.83          2.63         0.00          0.00
 66%  64.05          3.25         0.00          0.00
 83%  63.12          3.87         0.00          0.00
100%  62.02          4.49         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 98
Estado f1=fase 1 sobre pilas
  0%  62.02          4.49         0.00          0.00
 16%  60.75          5.11         0.00          0.00
 33%  59.33          5.73         0.00          0.00
 50%  57.74          6.35         0.00          0.00
 66%  55.99          6.97         0.00          0.00
 83%  54.07          7.59         0.00          0.00
100%  51.99          8.21         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 99
Estado f1=fase 1 sobre pilas
  0%  51.99          8.21         0.00          0.00
 16%  49.75          8.84         0.00          0.00
 33%  47.35          9.46         0.00          0.00
 50%  44.78         10.08         0.00          0.00
 66%  42.05         10.70         0.00          0.00
 83%  39.15         11.32         0.00          0.00
100%  36.09         11.94         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 100
Estado f1=fase 1 sobre pilas
  0%  36.09         11.94         0.00          0.00
 16%  32.87         12.56         0.00          0.00
 33%  29.49         13.18         0.00          0.00
 50%  25.94         13.80         0.00          0.00
 66%  22.23         14.42         0.00          0.00
 83%  18.36         15.04         0.00          0.00
100%  14.32         15.66         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 101
Estado f1=fase 1 sobre pilas
  0%  14.32         15.66         0.00          0.00
 16%  9.90          16.31         0.00          0.00
 33%  5.29          16.97         0.00          0.00
 50%  0.51          17.62         0.00          0.00
 66%  -4.46         18.27         0.00          0.00
 83%  -9.60         18.93         0.00          0.00
100%  -14.93        19.58         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 102
Estado f1=fase 1 sobre pilas
  0%  -14.93        19.58         0.00          0.00
 16%  -20.44        20.23         0.00          0.00
 33%  -26.13        20.89         0.00          0.00
 50%  -31.99        21.54         0.00          0.00
 66%  -38.04        22.19         0.00          0.00
 83%  -44.27        22.84         0.00          0.00
100%  -50.68        23.50         0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 103
Estado f1=fase 1 sobre pilas
  0%  -50.68        23.50         0.00          0.00
 16%  -57.28        24.15         0.00          0.00
 33%  -64.05        24.80         0.00          0.00
 50%  -71.00        25.46         0.00          0.00
 66%  -78.13        26.11         0.00          0.00
 83%  -85.45        26.76         0.00          0.00
100%  -92.94        27.41         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 104
Estado f1=fase 1 sobre pilas
  0%  -92.94        27.41         0.00          0.00
 16%  -100.62       28.07         0.00          0.00
 33%  -108.47       28.72         0.00          0.00
 50%  -116.51       29.37         0.00          0.00
 66%  -124.72       30.03         0.00          0.00
 83%  -133.12       30.68         0.00          0.00
100%  -141.70       31.33         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 105
Estado f1=fase 1 sobre pilas
  0%  -141.70       31.33         0.00          0.00
 16%  -150.46       31.99         0.00          0.00
 33%  -159.40       32.64         0.00          0.00
 50%  -168.52       33.29         0.00          0.00
 66%  -177.82       33.94         0.00          0.00
 83%  -187.30       34.60         0.00          0.00
100%  -196.96       35.25         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 106
Estado f1=fase 1 sobre pilas
  0%  -196.96       -29.53        0.00          0.00
 16%  -188.88       -28.88        0.00          0.00
 33%  -180.98       -28.23        0.00          0.00
 50%  -173.27       -27.57        0.00          0.00
 66%  -165.73       -26.92        0.00          0.00
 83%  -158.37       -26.27        0.00          0.00
100%  -151.19       -25.61        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 107
Estado f1=fase 1 sobre pilas
  0%  -151.19       -25.61        0.00          0.00
 16%  -144.20       -24.96        0.00          0.00
 33%  -137.38       -24.31        0.00          0.00
 50%  -130.75       -23.66        0.00          0.00
 66%  -124.29       -23.00        0.00          0.00
 83%  -118.02       -22.35        0.00          0.00
100%  -111.92       -21.70        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 108
Estado f1=fase 1 sobre pilas
  0%  -111.92       -21.70        0.00          0.00
 16%  -106.01       -21.04        0.00          0.00
 33%  -100.28       -20.39        0.00          0.00
 50%  -94.73        -19.74        0.00          0.00
 66%  -89.36        -19.09        0.00          0.00
 83%  -84.17        -18.43        0.00          0.00
100%  -79.16        -17.78        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 109
Estado f1=fase 1 sobre pilas
  0%  -79.16        -17.78        0.00          0.00
 16%  -74.33        -17.13        0.00          0.00
 33%  -69.68        -16.47        0.00          0.00
 50%  -65.21        -15.82        0.00          0.00
 66%  -60.93        -15.17        0.00          0.00
 83%  -56.82        -14.51        0.00          0.00
100%  -52.90        -13.86        0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 110
Estado f1=fase 1 sobre pilas
  0%  -52.90        -13.86        0.00          0.00
 16%  -51.84        -13.68        0.00          0.00
 33%  -50.80        -13.50        0.00          0.00
 50%  -49.77        -13.32        0.00          0.00
 66%  -48.76        -13.14        0.00          0.00
 83%  -47.76        -12.96        0.00          0.00
100%  -46.77        -12.78        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 111
Estado f1=fase 1 sobre pilas
  0%  -25.06        -16.68        0.00          0.00
 16%  -20.76        -16.06        0.00          0.00
 33%  -16.63        -15.44        0.00          0.00
 50%  -12.66        -14.82        0.00          0.00
 66%  -8.85         -14.20        0.00          0.00
 83%  -5.21         -13.58        0.00          0.00
100%  -1.72         -12.96        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 112
Estado f1=fase 1 sobre pilas
  0%  -1.72         -12.96        0.00          0.00
 16%  1.60          -12.34        0.00          0.00
 33%  4.76          -11.72        0.00          0.00
 50%  7.75          -11.10        0.00          0.00
 66%  10.58         -10.48        0.00          0.00
 83%  13.25         -9.86         0.00          0.00
100%  15.76         -9.24         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 113
Estado f1=fase 1 sobre pilas
  0%  15.76         -9.24         0.00          0.00
 16%  18.10         -8.62         0.00          0.00
 33%  20.29         -8.00         0.00          0.00
 50%  22.31         -7.38         0.00          0.00
 66%  24.16         -6.76         0.00          0.00
 83%  25.86         -6.14         0.00          0.00
100%  27.39         -5.52         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 114
Estado f1=fase 1 sobre pilas
  0%  27.39         -5.52         0.00          0.00
 16%  28.76         -4.91         0.00          0.00
 33%  29.96         -4.29         0.00          0.00
 50%  31.01         -3.67         0.00          0.00
 66%  31.89         -3.05         0.00          0.00
 83%  32.61         -2.43         0.00          0.00
100%  33.16         -1.81         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 115
Estado f1=fase 1 sobre pilas
  0%  33.16         -1.81         0.00          0.00
 16%  33.56         -1.19         0.00          0.00
 33%  33.79         -0.57         0.00          0.00
 50%  33.85         0.05          0.00          0.00
 66%  33.76         0.67          0.00          0.00
 83%  33.50         1.29          0.00          0.00
100%  33.08         1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 116
Estado f1=fase 1 sobre pilas
  0%  33.08         1.91          0.00          0.00
 16%  32.58         1.91          0.00          0.00
 33%  32.08         1.91          0.00          0.00
 50%  31.58         1.91          0.00          0.00
 66%  31.08         1.91          0.00          0.00
 83%  30.58         1.91          0.00          0.00
100%  30.07         1.91          0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 117
Estado f1=fase 1 sobre pilas
  0%  30.07         1.91          0.00          0.00
 16%  29.57         1.91          0.00          0.00
 33%  29.07         1.91          0.00          0.00
 50%  28.57         1.91          0.00          0.00
 66%  28.07         1.91          0.00          0.00
 83%  27.57         1.91          0.00          0.00
100%  27.07         1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 118
Estado f1=fase 1 sobre pilas
  0%  27.07         1.91          0.00          0.00
 16%  26.57         1.91          0.00          0.00
 33%  26.06         1.91          0.00          0.00
 50%  25.56         1.91          0.00          0.00
 66%  25.06         1.91          0.00          0.00
 83%  24.56         1.91          0.00          0.00
100%  24.06         1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 119
Estado f1=fase 1 sobre pilas
  0%  24.06         1.91          0.00          0.00
 16%  23.56         1.91          0.00          0.00
 33%  23.06         1.91          0.00          0.00
 50%  22.56         1.91          0.00          0.00
 66%  22.05         1.91          0.00          0.00
 83%  21.55         1.91          0.00          0.00
100%  21.05         1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 120
Estado f1=fase 1 sobre pilas
  0%  21.05         1.91          0.00          0.00
 16%  20.55         1.91          0.00          0.00
 33%  20.05         1.91          0.00          0.00
 50%  19.55         1.91          0.00          0.00
 66%  19.05         1.91          0.00          0.00
 83%  18.55         1.91          0.00          0.00
100%  18.04         1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 121
Estado f1=fase 1 sobre pilas
  0%  18.04         1.91          0.00          0.00
 16%  17.54         1.91          0.00          0.00
 33%  17.04         1.91          0.00          0.00
 50%  16.54         1.91          0.00          0.00
 66%  16.04         1.91          0.00          0.00
 83%  15.54         1.91          0.00          0.00
100%  15.04         1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 122
Estado f1=fase 1 sobre pilas
  0%  15.04         1.91          0.00          0.00
 16%  14.54         1.91          0.00          0.00
 33%  14.03         1.91          0.00          0.00
 50%  13.53         1.91          0.00          0.00
 66%  13.03         1.91          0.00          0.00
 83%  12.53         1.91          0.00          0.00
100%  12.03         1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 123
Estado f1=fase 1 sobre pilas
  0%  12.03         1.91          0.00          0.00
 16%  11.53         1.91          0.00          0.00
 33%  11.03         1.91          0.00          0.00
 50%  10.53         1.91          0.00          0.00
 66%  10.02         1.91          0.00          0.00
 83%  9.52          1.91          0.00          0.00
100%  9.02          1.91          0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 124
Estado f1=fase 1 sobre pilas
  0%  9.02          1.91          0.00          0.00
 16%  8.52          1.91          0.00          0.00
 33%  8.02          1.91          0.00          0.00
 50%  7.52          1.91          0.00          0.00
 66%  7.02          1.91          0.00          0.00
 83%  6.52          1.91          0.00          0.00
100%  6.01          1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 125
Estado f1=fase 1 sobre pilas
  0%  6.01          1.91          0.00          0.00
 16%  5.51          1.91          0.00          0.00
 33%  5.01          1.91          0.00          0.00
 50%  4.51          1.91          0.00          0.00
 66%  4.01          1.91          0.00          0.00
 83%  3.51          1.91          0.00          0.00
100%  3.01          1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 126
Estado f1=fase 1 sobre pilas
  0%  3.01          1.91          0.00          0.00
 16%  2.51          1.91          0.00          0.00
 33%  2.00          1.91          0.00          0.00
 50%  1.50          1.91          0.00          0.00
 66%  1.00          1.91          0.00          0.00
 83%  0.50          1.91          0.00          0.00
100%  0.00          1.91          0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 127
Estado f1=fase 1 sobre pilas
  0%  -46.77        12.78         0.00          0.00
 16%  -47.76        12.96         0.00          0.00
 33%  -48.76        13.14         0.00          0.00
 50%  -49.77        13.32         0.00          0.00
 66%  -50.80        13.50         0.00          0.00
 83%  -51.84        13.68         0.00          0.00
100%  -52.90        13.86         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 128
Estado f1=fase 1 sobre pilas
  0%  -97.21        11.91         0.00          0.00
 16%  -98.13        12.09         0.00          0.00
 33%  -99.07        12.27         0.00          0.00
 50%  -100.02       12.46         0.00          0.00
 66%  -100.98       12.64         0.00          0.00
 83%  -101.95       12.82         0.00          0.00
100%  -102.94       13.00         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 129
Estado f1=fase 1 sobre pilas
  0%  -46.77        -19.51        0.00          0.00
 16%  -42.92        -19.04        0.00          0.00
 33%  -39.16        -18.56        0.00          0.00
 50%  -35.49        -18.09        0.00          0.00
 66%  -31.92        -17.62        0.00          0.00
 83%  -28.44        -17.15        0.00          0.00
100%  -25.06        -16.68        0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 130
Estado f1=fase 1 sobre pilas
  0%  -97.21        -24.41        0.00          0.00
 16%  -92.38        -23.93        0.00          0.00
 33%  -87.64        -23.46        0.00          0.00
 50%  -82.99        -22.99        0.00          0.00
 66%  -78.44        -22.52        0.00          0.00
 83%  -73.99        -22.05        0.00          0.00
100%  -69.63        -21.57        0.00          0.00
```

```
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
```

Retirada de torretas , postesado de losa, y hormigonado de resto de losa en Fase I

D A T O S

N U D O S

Nudo	X [M]	Y [M]	Z [M]	Piso
1	0	0	0	0
2	25.2	0	0	0
3	1.575	0	0	0
4	3.15	0	0	0
5	4.725	0	0	0
6	6.3	0	0	0
7	7.875	0	0	0
8	9.45	0	0	0
9	11.025	0	0	0
10	12.6	0	0	0
11	14.175	0	0	0
12	15.75	0	0	0
13	17.325	0	0	0
14	18.9	0	0	0
15	20.475	0	0	0
16	22.05	0	0	0
17	23.625	0	0	0
18	33.5	0	0	0
19	26.86	0	0	0
20	28.52	0	0	0
21	30.18	0	0	0
22	31.84	0	0	0
23	41.8	0	0	0
24	35.16	0	0	0
25	36.82	0	0	0
26	38.48	0	0	0
27	40.14	0	0	0
28	70.2	0	0	0
29	43.3778	0	0	0
30	44.9556	0	0	0
31	46.5333	0	0	0
32	48.1111	0	0	0
33	49.6889	0	0	0
34	51.2667	0	0	0
35	52.8444	0	0	0
36	54.4222	0	0	0
37	56	0	0	0
38	57.5778	0	0	0
39	59.1556	0	0	0
40	60.7333	0	0	0
41	62.3111	0	0	0
42	63.8889	0	0	0
43	65.4667	0	0	0
44	67.0444	0	0	0
45	68.6222	0	0	0
46	78.5	0	0	0
47	71.86	0	0	0
48	73.52	0	0	0
49	75.18	0	0	0
50	76.84	0	0	0
51	86.8	0	0	0
52	80.16	0	0	0
53	81.82	0	0	0
54	83.48	0	0	0
55	85.14	0	0	0
56	115.2	0	0	0
57	88.3778	0	0	0
58	89.9556	0	0	0

59	91.5333	0	0	0
60	93.1111	0	0	0
61	94.6889	0	0	0
62	96.2667	0	0	0
63	97.8444	0	0	0
64	99.4222	0	0	0
65	101	0	0	0
66	102.578	0	0	0
67	104.156	0	0	0
68	105.733	0	0	0
69	107.311	0	0	0
70	108.889	0	0	0
71	110.467	0	0	0
72	112.044	0	0	0
73	113.622	0	0	0
74	123.5	0	0	0
75	116.86	0	0	0
76	118.52	0	0	0
77	120.18	0	0	0
78	121.84	0	0	0
79	131.8	0	0	0
80	125.16	0	0	0
81	126.82	0	0	0
82	128.48	0	0	0
83	130.14	0	0	0
84	160.2	0	0	0
85	133.378	0	0	0
86	134.956	0	0	0
87	136.533	0	0	0
88	138.111	0	0	0
89	139.689	0	0	0
90	141.267	0	0	0
91	142.844	0	0	0
92	144.422	0	0	0
93	146	0	0	0
94	147.578	0	0	0
95	149.156	0	0	0
96	150.733	0	0	0
97	152.311	0	0	0
98	153.889	0	0	0
99	155.467	0	0	0
100	157.044	0	0	0
101	158.622	0	0	0
102	168.5	0	0	0
103	161.86	0	0	0
104	163.52	0	0	0
105	165.18	0	0	0
106	166.84	0	0	0
107	176.8	0	0	0
108	170.16	0	0	0
109	171.82	0	0	0
110	173.48	0	0	0
111	175.14	0	0	0
112	202	0	0	0
113	178.375	0	0	0
114	179.95	0	0	0
115	181.525	0	0	0
116	183.1	0	0	0
117	184.675	0	0	0
118	186.25	0	0	0
119	187.825	0	0	0
120	189.4	0	0	0
121	190.975	0	0	0
122	192.55	0	0	0
123	194.125	0	0	0
124	195.7	0	0	0
125	197.275	0	0	0
126	198.85	0	0	0
127	200.425	0	0	0
128	26.4	0	0	0
129	71.4	0	0	0
130	175.6	0	0	0
131	130.6	0	0	0

R E S T R I C C I O N E S

Nudo	TX	TY	TZ	RX	RY	RZ
1	0	1	0	0	0	0
18	0	1	0	0	0	0
46	0	1	0	0	0	0
74	0	1	0	0	0	0
102	0	1	0	0	0	0
112	0	1	0	0	0	0

F U E R Z A S

Estado	Nudo	FX [Ton]	FY [Ton]	FZ [Ton]	MX [Ton*M]	MY [Ton*M]	MZ [Ton*M]
TO	128	0	5.31247	0	0	0	0
	129	0	-12.4926	0	0	0	0
	130	0	5.31247	0	0	0	0
	131	0	-12.4926	0	0	0	0
PO	14	0	0	0	0	0	1881.6
	20	0	0	0	0	0	1197.54
	26	0	0	0	0	0	-1197.54
	32	0	0	0	0	0	-1881.6
	42	0	0	0	0	0	1881.6
	48	0	0	0	0	0	1197.54
	54	0	0	0	0	0	-1197.54
	60	0	0	0	0	0	-1881.6
	70	0	0	0	0	0	1881.6
	76	0	0	0	0	0	1197.54
	82	0	0	0	0	0	-1197.54
	88	0	0	0	0	0	-1881.6
	98	0	0	0	0	0	1881.6
	104	0	0	0	0	0	1197.54
	110	0	0	0	0	0	-1197.54
	116	0	0	0	0	0	-1881.6

V I G A S

Viga	NJ	NK	Descripcion	Sección	Material
1	1	3	CADOS 220	H 500x5000	
2	3	4	CADOS 220	H 500x5000	
3	4	5	CADOS 220	H 500x5000	
4	5	6	CADOS 220	H 500x5000	
5	6	7	CADOS 220	H 500x5000	
6	7	8	CADOS 220	H 500x5000	
7	8	9	CADOS 220	H 500x5000	
8	9	10	CADOS 220	H 500x5000	
9	10	11	CADOS 220	H 500x5000	
10	11	12	CADOS 220	H 500x5000	
11	12	13	CADOS 220	H 500x5000	
12	13	14	CADOS 220SF	H 500x5000	
13	14	15	CADOS 220SF	H 500x5000	
14	15	16	CADOS 220SF	H 500x5000	
15	16	17	CADOS 220SF	H 500x5000	
16	17	2	CADOS 220SF	H 500x5000	
17	2	128	CADOS 229SF	H 500x5000	
18	19	20	CADOS 247SF	H 500x5000	
19	20	21	CADOS 265SF	H 500x5000	
20	21	22	CADOS 284SF	H 500x5000	
21	22	18	CADOS 300SF	H 500x5000	
22	18	24	CADOS 300SF	H 500x5000	
23	24	25	CADOS 284SF	H 500x5000	
24	25	26	CADOS 265SF	H 500x5000	
25	26	27	CADOS 247SF	H 500x5000	
26	27	23	CADOS 229SF	H 500x5000	
27	23	29	CADOS 220SF	H 500x5000	
28	29	30	CADOS 220SF	H 500x5000	
29	30	31	CADOS 220SF	H 500x5000	
30	31	32	CADOS 220SF	H 500x5000	
31	32	33	CADOS 220SF	H 500x5000	
32	33	34	CADOS 220	H 500x5000	
33	34	35	CADOS 220	H 500x5000	
34	35	36	CADOS 220	H 500x5000	
35	36	37	CADOS 220	H 500x5000	
36	37	38	CADOS 220	H 500x5000	
37	38	39	CADOS 220	H 500x5000	

38	39	40	CADOS 220	H 500x5000
39	40	41	CADOS 220	H 500x5000
40	41	42	CADOS 220SF	H 500x5000
41	42	43	CADOS 220SF	H 500x5000
42	43	44	CADOS 220SF	H 500x5000
43	44	45	CADOS 220SF	H 500x5000
44	45	28	CADOS 220SF	H 500x5000
45	28	129	CADOS 229SF	H 500x5000
46	47	48	CADOS 247SF	H 500x5000
47	48	49	CADOS 265SF	H 500x5000
48	49	50	CADOS 284SF	H 500x5000
49	50	46	CADOS 300SF	H 500x5000
50	46	52	CADOS 300SF	H 500x5000
51	52	53	CADOS 284SF	H 500x5000
52	53	54	CADOS 265SF	H 500x5000
53	54	55	CADOS 247SF	H 500x5000
54	55	51	CADOS 229SF	H 500x5000
55	51	57	CADOS 220SF	H 500x5000
56	57	58	CADOS 220SF	H 500x5000
57	58	59	CADOS 220SF	H 500x5000
58	59	60	CADOS 220SF	H 500x5000
59	60	61	CADOS 220SF	H 500x5000
60	61	62	CADOS 220	H 500x5000
61	62	63	CADOS 220	H 500x5000
62	63	64	CADOS 220	H 500x5000
63	64	65	CADOS 220	H 500x5000
64	65	66	CADOS 220	H 500x5000
65	66	67	CADOS 220	H 500x5000
66	67	68	CADOS 220	H 500x5000
67	68	69	CADOS 220	H 500x5000
68	69	70	CADOS 220SF	H 500x5000
69	70	71	CADOS 220SF	H 500x5000
70	71	72	CADOS 220SF	H 500x5000
71	72	73	CADOS 220SF	H 500x5000
72	73	56	CADOS 220SF	H 500x5000
73	56	75	CADOS 229SF	H 500x5000
74	75	76	CADOS 247SF	H 500x5000
75	76	77	CADOS 265SF	H 500x5000
76	77	78	CADOS 284SF	H 500x5000
77	78	74	CADOS 300SF	H 500x5000
78	74	80	CADOS 300SF	H 500x5000
79	80	81	CADOS 284SF	H 500x5000
80	81	82	CADOS 265SF	H 500x5000
81	82	83	CADOS 247SF	H 500x5000
82	83	131	CADOS 229SF	H 500x5000
83	79	85	CADOS 220SF	H 500x5000
84	85	86	CADOS 220SF	H 500x5000
85	86	87	CADOS 220SF	H 500x5000
86	87	88	CADOS 220SF	H 500x5000
87	88	89	CADOS 220SF	H 500x5000
88	89	90	CADOS 220	H 500x5000
89	90	91	CADOS 220	H 500x5000
90	91	92	CADOS 220	H 500x5000
91	92	93	CADOS 220	H 500x5000
92	93	94	CADOS 220	H 500x5000
93	94	95	CADOS 220	H 500x5000
94	95	96	CADOS 220	H 500x5000
95	96	97	CADOS 220	H 500x5000
96	97	98	CADOS 220SF	H 500x5000
97	98	99	CADOS 220SF	H 500x5000
98	99	100	CADOS 220SF	H 500x5000
99	100	101	CADOS 220SF	H 500x5000
100	101	84	CADOS 220SF	H 500x5000
101	84	103	CADOS 229SF	H 500x5000
102	103	104	CADOS 247SF	H 500x5000
103	104	105	CADOS 265SF	H 500x5000
104	105	106	CADOS 284SF	H 500x5000
105	106	102	CADOS 300SF	H 500x5000
106	102	108	CADOS 300SF	H 500x5000
107	108	109	CADOS 284SF	H 500x5000
108	109	110	CADOS 265SF	H 500x5000
109	110	111	CADOS 247SF	H 500x5000
110	111	130	CADOS 229SF	H 500x5000
111	107	113	CADOS 220SF	H 500x5000
112	113	114	CADOS 220SF	H 500x5000
113	114	115	CADOS 220SF	H 500x5000
114	115	116	CADOS 220SF	H 500x5000
115	116	117	CADOS 220SF	H 500x5000
116	117	118	CADOS 220	H 500x5000
117	118	119	CADOS 220	H 500x5000
118	119	120	CADOS 220	H 500x5000
119	120	121	CADOS 220	H 500x5000
120	121	122	CADOS 220	H 500x5000
121	122	123	CADOS 220	H 500x5000
122	123	124	CADOS 220	H 500x5000
123	124	125	CADOS 220	H 500x5000
124	125	126	CADOS 220	H 500x5000
125	126	127	CADOS 220	H 500x5000
126	127	112	CADOS 220	H 500x5000
127	128	19	CADOS 229SF	H 500x5000
128	129	47	CADOS 229SF	H 500x5000
129	130	107	CADOS 229SF	H 500x5000
130	131	79	CADOS 229SF	H 500x5000

FUERZA DISTRIBUIDA SOBRE VIGAS

Estado	Viga	Dir.	Valor [Ton/M]
f1	1	Y	-2.36
	2	Y	-2.36
	3	Y	-2.36
	4	Y	-2.36
	5	Y	-2.36
	6	Y	-2.36
	7	Y	-2.36
	8	Y	-2.36
	9	Y	-2.36
	10	Y	-2.36
	11	Y	-2.36
	12	Y	0
	13	Y	0
	14	Y	0
	15	Y	0
	16	Y	0
	17	Y	0
	18	Y	0
	19	Y	0
	20	Y	0
	21	Y	0
	22	Y	0
	23	Y	0
	24	Y	0
	25	Y	0
	26	Y	0
	27	Y	0
	28	Y	0
	29	Y	0
	30	Y	0
	31	Y	0
	32	Y	-2.36
	33	Y	-2.36
	34	Y	-2.36
	35	Y	-2.36
	36	Y	-2.36
	37	Y	-2.36
	38	Y	-2.36
	39	Y	-2.36
	40	Y	0
	41	Y	0
	42	Y	0
	43	Y	0
	44	Y	0
	45	Y	0
	46	Y	0
	47	Y	0
	48	Y	0
	49	Y	0
	50	Y	0
	51	Y	0
	52	Y	0
	53	Y	0
	54	Y	0
	55	Y	0

56	Y	0
57	Y	0
58	Y	0
59	Y	0
60	Y	-2.36
61	Y	-2.36
62	Y	-2.36
63	Y	-2.36
64	Y	-2.36
65	Y	-2.36
66	Y	-2.36
67	Y	-2.36
68	Y	0
69	Y	0
70	Y	0
71	Y	0
72	Y	0
73	Y	0
74	Y	0
75	Y	0
76	Y	0
77	Y	0
78	Y	0
79	Y	0
80	Y	0
81	Y	0
82	Y	0
83	Y	0
84	Y	0
85	Y	0
86	Y	0
87	Y	0
88	Y	-2.36
89	Y	-2.36
90	Y	-2.36
91	Y	-2.36
92	Y	-2.36
93	Y	-2.36
94	Y	-2.36
95	Y	-2.36
96	Y	0
97	Y	0
98	Y	0
99	Y	0
100	Y	0
101	Y	0
102	Y	0
103	Y	0
104	Y	0
105	Y	0
106	Y	0
107	Y	0
108	Y	0
109	Y	0
110	Y	0
111	Y	0
112	Y	0
113	Y	0
114	Y	0
115	Y	0
116	Y	-2.36
117	Y	-2.36
118	Y	-2.36
119	Y	-2.36
120	Y	-2.36
121	Y	-2.36
122	Y	-2.36
123	Y	-2.36
124	Y	-2.36
125	Y	-2.36
126	Y	-2.36
127	Y	0
128	Y	0
129	Y	0
130	Y	0

E S T A D O S D E C A R G A

Estado	Descripción	Comb.	MultX	MultY	MultZ
f1	fase 1 en resto	0	0	0	0
TO	QUITAR TORRETAS	0	0	0	0
PO	POSTESADO DE LOSA	0	0	0	0

R E S U L T A D O S D E L A N A L I S I S

R E A C C I O N E S

Nudo	FUERZAS [Ton] FX	FY	FZ	MOMENTOS [Ton*M] MX	MY	MZ
Estado f1=fase 1 en resto						
1	0.00000	23.56785	0.00000	0.00000	0.00000	0.00000
18	0.00000	32.68602	0.00000	0.00000	0.00000	0.00000
46	0.00000	29.31580	0.00000	0.00000	0.00000	0.00000
74	0.00000	29.31580	0.00000	0.00000	0.00000	0.00000
102	0.00000	32.68602	0.00000	0.00000	0.00000	0.00000
112	0.00000	23.56785	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	171.13933	0.00000	0.00000	0.00000	0.00000
Estado TO=QUITAR TORRETAS						
1	0.00000	-1.50957	0.00000	0.00000	0.00000	0.00000
18	0.00000	-2.13050	0.00000	0.00000	0.00000	0.00000
46	0.00000	10.82019	0.00000	0.00000	0.00000	0.00000
74	0.00000	10.82019	0.00000	0.00000	0.00000	0.00000
102	0.00000	-2.13050	0.00000	0.00000	0.00000	0.00000
112	0.00000	-1.50957	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	14.36026	0.00000	0.00000	0.00000	0.00000
Estado PO=POSTESADO DE LOSA						
1	0.00000	38.17458	0.00000	0.00000	0.00000	0.00000
18	0.00000	-49.08537	0.00000	0.00000	0.00000	0.00000
46	0.00000	10.91079	0.00000	0.00000	0.00000	0.00000
74	0.00000	10.91079	0.00000	0.00000	0.00000	0.00000
102	0.00000	-49.08537	0.00000	0.00000	0.00000	0.00000
112	0.00000	38.17458	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

V I G A S

E S F U E R Z O S

	M33 [Ton*M]	V2 [Ton]	M22 [Ton*M]	V3 [Ton]
Viga 1				
Estado f1=fase 1 en resto				
0%	0.00	-23.57	0.00	0.00
16%	6.11	-22.95	0.00	0.00
33%	12.05	-22.33	0.00	0.00
50%	17.83	-21.71	0.00	0.00
66%	23.45	-21.09	0.00	0.00
83%	28.90	-20.47	0.00	0.00
100%	34.19	-19.85	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Estado TO=QUITAR TORRETAS				
0%	0.00	1.51	0.00	0.00
16%	-0.40	1.51	0.00	0.00
33%	-0.79	1.51	0.00	0.00
50%	-1.19	1.51	0.00	0.00
66%	-1.59	1.51	0.00	0.00
83%	-1.98	1.51	0.00	0.00
100%	-2.38	1.51	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Estado PO=POSTESADO DE LOSA				
0%	0.00	-38.17	0.00	0.00
16%	10.02	-38.17	0.00	0.00

```
 33%  20.04         -38.17        0.00          0.00
 50%  30.06         -38.17        0.00          0.00
 66%  40.08         -38.17        0.00          0.00
 83%  50.10         -38.17        0.00          0.00
100%  60.12         -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 2
Estado f1=fase 1 en resto
  0%  34.19         -19.85        0.00          0.00
 16%  39.32         -19.23        0.00          0.00
 33%  44.29         -18.61        0.00          0.00
 50%  49.09         -17.99        0.00          0.00
 66%  53.73         -17.37        0.00          0.00
 83%  58.21         -16.75        0.00          0.00
100%  62.53         -16.13        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -2.38          1.51         0.00          0.00
 16%  -2.77          1.51         0.00          0.00
 33%  -3.17          1.51         0.00          0.00
 50%  -3.57          1.51         0.00          0.00
 66%  -3.96          1.51         0.00          0.00
 83%  -4.36          1.51         0.00          0.00
100%  -4.76          1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  60.12         -38.17        0.00          0.00
 16%  70.15         -38.17        0.00          0.00
 33%  80.17         -38.17        0.00          0.00
 50%  90.19         -38.17        0.00          0.00
 66%  100.21        -38.17        0.00          0.00
 83%  110.23        -38.17        0.00          0.00
100%  120.25        -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 3
Estado f1=fase 1 en resto
  0%  62.53         -16.13        0.00          0.00
 16%  66.68         -15.51        0.00          0.00
 33%  70.68         -14.89        0.00          0.00
 50%  74.50         -14.28        0.00          0.00
 66%  78.17         -13.66        0.00          0.00
 83%  81.67         -13.04        0.00          0.00
100%  85.01         -12.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -4.76          1.51         0.00          0.00
 16%  -5.15          1.51         0.00          0.00
 33%  -5.55          1.51         0.00          0.00
 50%  -5.94          1.51         0.00          0.00
 66%  -6.34          1.51         0.00          0.00
 83%  -6.74          1.51         0.00          0.00
100%  -7.13          1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  120.25        -38.17        0.00          0.00
 16%  130.27        -38.17        0.00          0.00
 33%  140.29        -38.17        0.00          0.00
 50%  150.31        -38.17        0.00          0.00
 66%  160.33        -38.17        0.00          0.00
 83%  170.35        -38.17        0.00          0.00
100%  180.37        -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 4
Estado f1=fase 1 en resto
  0%  85.01         -12.42        0.00          0.00
 16%  88.19         -11.80        0.00          0.00
 33%  91.21         -11.18        0.00          0.00
 50%  94.06         -10.56        0.00          0.00
 66%  96.75          -9.94        0.00          0.00
 83%  99.28          -9.32        0.00          0.00
100%  101.64        -8.70         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -7.13          1.51         0.00          0.00
 16%  -7.53          1.51         0.00          0.00
 33%  -7.93          1.51         0.00          0.00
 50%  -8.32          1.51         0.00          0.00
 66%  -8.72          1.51         0.00          0.00
 83%  -9.11          1.51         0.00          0.00
100%  -9.51          1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  180.37        -38.17        0.00          0.00
 16%  190.40        -38.17        0.00          0.00
 33%  200.42        -38.17        0.00          0.00
 50%  210.44        -38.17        0.00          0.00
 66%  220.46        -38.17        0.00          0.00
 83%  230.48        -38.17        0.00          0.00
100%  240.50        -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 5
Estado f1=fase 1 en resto
  0%  101.64        -8.70         0.00          0.00
 16%  103.85        -8.08         0.00          0.00
 33%  105.89        -7.46         0.00          0.00
 50%  107.76        -6.84         0.00          0.00
 66%  109.48        -6.22         0.00          0.00
 83%  111.03        -5.60         0.00          0.00
100%  112.42        -4.98         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -9.51          1.51         0.00          0.00
 16%  -9.91          1.51         0.00          0.00
 33%  -10.30         1.51         0.00          0.00
 50%  -10.70         1.51         0.00          0.00
 66%  -11.10         1.51         0.00          0.00
 83%  -11.49         1.51         0.00          0.00
100%  -11.89         1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  240.50        -38.17        0.00          0.00
 16%  250.52        -38.17        0.00          0.00
 33%  260.54        -38.17        0.00          0.00
 50%  270.56        -38.17        0.00          0.00
 66%  280.58        -38.17        0.00          0.00
 83%  290.60        -38.17        0.00          0.00
100%  300.62        -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 6
Estado f1=fase 1 en resto
  0%  112.42        -4.98         0.00          0.00
 16%  113.65        -4.36         0.00          0.00
 33%  114.71        -3.74         0.00          0.00
 50%  115.61        -3.12         0.00          0.00
 66%  116.35        -2.50         0.00          0.00
 83%  116.93        -1.89         0.00          0.00
100%  117.34        -1.27         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -11.89         1.51         0.00          0.00
 16%  -12.28         1.51         0.00          0.00
 33%  -12.68         1.51         0.00          0.00
 50%  -13.08         1.51         0.00          0.00
 66%  -13.47         1.51         0.00          0.00
 83%  -13.87         1.51         0.00          0.00
100%  -14.27         1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  300.62        -38.17        0.00          0.00
 16%  310.65        -38.17        0.00          0.00
 33%  320.67        -38.17        0.00          0.00
 50%  330.69        -38.17        0.00          0.00
 66%  340.71        -38.17        0.00          0.00
 83%  350.73        -38.17        0.00          0.00
100%  360.75        -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 7
Estado f1=fase 1 en resto
```

```
  0%  117.34        -1.27        0.00         0.00
 16%  117.59        -0.65        0.00         0.00
 33%  117.68        -0.03        0.00         0.00
 50%  117.60        0.59         0.00         0.00
 66%  117.37        1.21         0.00         0.00
 83%  116.97        1.83         0.00         0.00
100%  116.41        2.45         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -14.27        1.51         0.00         0.00
 16%  -14.66        1.51         0.00         0.00
 33%  -15.06        1.51         0.00         0.00
 50%  -15.45        1.51         0.00         0.00
 66%  -15.85        1.51         0.00         0.00
 83%  -16.25        1.51         0.00         0.00
100%  -16.64        1.51         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  360.75        -38.17       0.00         0.00
 16%  370.77        -38.17       0.00         0.00
 33%  380.79        -38.17       0.00         0.00
 50%  390.81        -38.17       0.00         0.00
 66%  400.83        -38.17       0.00         0.00
 83%  410.85        -38.17       0.00         0.00
100%  420.87        -38.17       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 8
Estado f1=fase 1 en resto
  0%  116.41        2.45         0.00         0.00
 16%  115.68        3.07         0.00         0.00
 33%  114.79        3.69         0.00         0.00
 50%  113.74        4.31         0.00         0.00
 66%  112.53        4.93         0.00         0.00
 83%  111.16        5.55         0.00         0.00
100%  109.62        6.17         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -16.64        1.51         0.00         0.00
 16%  -17.04        1.51         0.00         0.00
 33%  -17.44        1.51         0.00         0.00
 50%  -17.83        1.51         0.00         0.00
 66%  -18.23        1.51         0.00         0.00
 83%  -18.62        1.51         0.00         0.00
100%  -19.02        1.51         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  420.87        -38.17       0.00         0.00
 16%  430.90        -38.17       0.00         0.00
 33%  440.92        -38.17       0.00         0.00
 50%  450.94        -38.17       0.00         0.00
 66%  460.96        -38.17       0.00         0.00
 83%  470.98        -38.17       0.00         0.00
100%  481.00        -38.17       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 9
Estado f1=fase 1 en resto
  0%  109.62        6.17         0.00         0.00
 16%  107.92        6.79         0.00         0.00
 33%  106.05        7.41         0.00         0.00
 50%  104.03        8.03         0.00         0.00
 66%  101.84        8.65         0.00         0.00
 83%  99.49         9.27         0.00         0.00
100%  96.98         9.89         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -19.02        1.51         0.00         0.00
 16%  -19.42        1.51         0.00         0.00
 33%  -19.81        1.51         0.00         0.00
 50%  -20.21        1.51         0.00         0.00
 66%  -20.61        1.51         0.00         0.00
 83%  -21.00        1.51         0.00         0.00
100%  -21.40        1.51         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  481.00        -38.17       0.00         0.00
 16%  491.02        -38.17       0.00         0.00
 33%  501.04        -38.17       0.00         0.00
 50%  511.06        -38.17       0.00         0.00
 66%  521.08        -38.17       0.00         0.00
 83%  531.10        -38.17       0.00         0.00
100%  541.12        -38.17       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 10
Estado f1=fase 1 en resto
  0%  96.98         9.89         0.00         0.00
 16%  94.30         10.50        0.00         0.00
 33%  91.46         11.12        0.00         0.00
 50%  88.46         11.74        0.00         0.00
 66%  85.30         12.36        0.00         0.00
 83%  81.97         12.98        0.00         0.00
100%  78.48         13.60        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -21.40        1.51         0.00         0.00
 16%  -21.79        1.51         0.00         0.00
 33%  -22.19        1.51         0.00         0.00
 50%  -22.59        1.51         0.00         0.00
 66%  -22.98        1.51         0.00         0.00
 83%  -23.38        1.51         0.00         0.00
100%  -23.78        1.51         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  541.12        -38.17       0.00         0.00
 16%  551.15        -38.17       0.00         0.00
 33%  561.17        -38.17       0.00         0.00
 50%  571.19        -38.17       0.00         0.00
 66%  581.21        -38.17       0.00         0.00
 83%  591.23        -38.17       0.00         0.00
100%  601.25        -38.17       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 11
Estado f1=fase 1 en resto
  0%  78.48         13.60        0.00         0.00
 16%  74.83         14.22        0.00         0.00
 33%  71.01         14.84        0.00         0.00
 50%  67.04         15.46        0.00         0.00
 66%  62.90         16.08        0.00         0.00
 83%  58.59         16.70        0.00         0.00
100%  54.13         17.32        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -23.78        1.51         0.00         0.00
 16%  -24.17        1.51         0.00         0.00
 33%  -24.57        1.51         0.00         0.00
 50%  -24.96        1.51         0.00         0.00
 66%  -25.36        1.51         0.00         0.00
 83%  -25.76        1.51         0.00         0.00
100%  -26.15        1.51         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  601.25        -38.17       0.00         0.00
 16%  611.27        -38.17       0.00         0.00
 33%  621.29        -38.17       0.00         0.00
 50%  631.31        -38.17       0.00         0.00
 66%  641.33        -38.17       0.00         0.00
 83%  651.35        -38.17       0.00         0.00
100%  661.37        -38.17       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 12
Estado f1=fase 1 en resto
  0%  54.13         17.32        0.00         0.00
 16%  49.58         17.32        0.00         0.00
 33%  45.04         17.32        0.00         0.00
 50%  40.49         17.32        0.00         0.00
 66%  35.94         17.32        0.00         0.00
 83%  31.40         17.32        0.00         0.00
100%  26.85         17.32        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
```

```
  0%  -26.15        1.51          0.00          0.00
 16%  -26.55        1.51          0.00          0.00
 33%  -26.95        1.51          0.00          0.00
 50%  -27.34        1.51          0.00          0.00
 66%  -27.74        1.51          0.00          0.00
 83%  -28.13        1.51          0.00          0.00
100%  -28.53        1.51          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  661.37        -38.17        0.00          0.00
 16%  671.40        -38.17        0.00          0.00
 33%  681.42        -38.17        0.00          0.00
 50%  691.44        -38.17        0.00          0.00
 66%  701.46        -38.17        0.00          0.00
 83%  711.48        -38.17        0.00          0.00
100%  721.50        -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 13
Estado f1=fase 1 en resto
  0%  26.85         17.32         0.00          0.00
 16%  22.31         17.32         0.00          0.00
 33%  17.76         17.32         0.00          0.00
 50%  13.21         17.32         0.00          0.00
 66%  8.67          17.32         0.00          0.00
 83%  4.12          17.32         0.00          0.00
100%  -0.43         17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -28.53        1.51          0.00          0.00
 16%  -28.93        1.51          0.00          0.00
 33%  -29.32        1.51          0.00          0.00
 50%  -29.72        1.51          0.00          0.00
 66%  -30.12        1.51          0.00          0.00
 83%  -30.51        1.51          0.00          0.00
100%  -30.91        1.51          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1160.10      -38.17        0.00          0.00
 16%  -1150.08      -38.17        0.00          0.00
 33%  -1140.06      -38.17        0.00          0.00
 50%  -1130.04      -38.17        0.00          0.00
 66%  -1120.02      -38.17        0.00          0.00
 83%  -1110.00      -38.17        0.00          0.00
100%  -1099.98      -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 14
Estado f1=fase 1 en resto
  0%  -0.43         17.32         0.00          0.00
 16%  -4.97         17.32         0.00          0.00
 33%  -9.52         17.32         0.00          0.00
 50%  -14.06        17.32         0.00          0.00
 66%  -18.61        17.32         0.00          0.00
 83%  -23.16        17.32         0.00          0.00
100%  -27.70        17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -30.91        1.51          0.00          0.00
 16%  -31.30        1.51          0.00          0.00
 33%  -31.70        1.51          0.00          0.00
 50%  -32.10        1.51          0.00          0.00
 66%  -32.49        1.51          0.00          0.00
 83%  -32.89        1.51          0.00          0.00
100%  -33.29        1.51          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1099.98      -38.17        0.00          0.00
 16%  -1089.95      -38.17        0.00          0.00
 33%  -1079.93      -38.17        0.00          0.00
 50%  -1069.91      -38.17        0.00          0.00
 66%  -1059.89      -38.17        0.00          0.00
 83%  -1049.87      -38.17        0.00          0.00
100%  -1039.85      -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 15
Estado f1=fase 1 en resto
  0%  -27.70        17.32         0.00          0.00
 16%  -32.25        17.32         0.00          0.00
 33%  -36.80        17.32         0.00          0.00
 50%  -41.34        17.32         0.00          0.00
 66%  -45.89        17.32         0.00          0.00
 83%  -50.44        17.32         0.00          0.00
100%  -54.98        17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -33.29        1.51          0.00          0.00
 16%  -33.68        1.51          0.00          0.00
 33%  -34.08        1.51          0.00          0.00
 50%  -34.47        1.51          0.00          0.00
 66%  -34.87        1.51          0.00          0.00
 83%  -35.27        1.51          0.00          0.00
100%  -35.66        1.51          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1039.85      -38.17        0.00          0.00
 16%  -1029.83      -38.17        0.00          0.00
 33%  -1019.81      -38.17        0.00          0.00
 50%  -1009.79      -38.17        0.00          0.00
 66%  -999.77       -38.17        0.00          0.00
 83%  -989.75       -38.17        0.00          0.00
100%  -979.73       -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 16
Estado f1=fase 1 en resto
  0%  -54.98        17.32         0.00          0.00
 16%  -59.53        17.32         0.00          0.00
 33%  -64.07        17.32         0.00          0.00
 50%  -68.62        17.32         0.00          0.00
 66%  -73.17        17.32         0.00          0.00
 83%  -77.71        17.32         0.00          0.00
100%  -82.26        17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -35.66        1.51          0.00          0.00
 16%  -36.06        1.51          0.00          0.00
 33%  -36.46        1.51          0.00          0.00
 50%  -36.85        1.51          0.00          0.00
 66%  -37.25        1.51          0.00          0.00
 83%  -37.64        1.51          0.00          0.00
100%  -38.04        1.51          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -979.73       -38.17        0.00          0.00
 16%  -969.70       -38.17        0.00          0.00
 33%  -959.68       -38.17        0.00          0.00
 50%  -949.66       -38.17        0.00          0.00
 66%  -939.64       -38.17        0.00          0.00
 83%  -929.62       -38.17        0.00          0.00
100%  -919.60       -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 17
Estado f1=fase 1 en resto
  0%  -82.26        17.32         0.00          0.00
 16%  -85.72        17.32         0.00          0.00
 33%  -89.19        17.32         0.00          0.00
 50%  -92.65        17.32         0.00          0.00
 66%  -96.11        17.32         0.00          0.00
 83%  -99.58        17.32         0.00          0.00
100%  -103.04       17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -38.04        1.51          0.00          0.00
 16%  -38.34        1.51          0.00          0.00
 33%  -38.64        1.51          0.00          0.00
 50%  -38.95        1.51          0.00          0.00
 66%  -39.25        1.51          0.00          0.00
 83%  -39.55        1.51          0.00          0.00
100%  -39.85        1.51          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
```

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  0%  -919.60       -38.17        0.00          0.00
 16%  -911.97       -38.17        0.00          0.00
 33%  -904.33       -38.17        0.00          0.00
 50%  -896.70       -38.17        0.00          0.00
 66%  -889.06       -38.17        0.00          0.00
 83%  -881.43       -38.17        0.00          0.00
100%  -873.79       -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
------------------------------------------------------------
Viga 18
Estado f1=fase 1 en resto
  0%  -111.01       17.32         0.00          0.00
 16%  -115.80       17.32         0.00          0.00
 33%  -120.59       17.32         0.00          0.00
 50%  -125.38       17.32         0.00          0.00
 66%  -130.18       17.32         0.00          0.00
 83%  -134.97       17.32         0.00          0.00
100%  -139.76       17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -38.10        -3.80         0.00          0.00
 16%  -37.05        -3.80         0.00          0.00
 33%  -36.00        -3.80         0.00          0.00
 50%  -34.95        -3.80         0.00          0.00
 66%  -33.89        -3.80         0.00          0.00
 83%  -32.84        -3.80         0.00          0.00
100%  -31.79        -3.80         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -856.23       -38.17        0.00          0.00
 16%  -845.67       -38.17        0.00          0.00
 33%  -835.11       -38.17        0.00          0.00
 50%  -824.55       -38.17        0.00          0.00
 66%  -813.98       -38.17        0.00          0.00
 83%  -803.42       -38.17        0.00          0.00
100%  -792.86       -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
------------------------------------------------------------
Viga 19
Estado f1=fase 1 en resto
  0%  -139.76       17.32         0.00          0.00
 16%  -144.55       17.32         0.00          0.00
 33%  -149.34       17.32         0.00          0.00
 50%  -154.13       17.32         0.00          0.00
 66%  -158.93       17.32         0.00          0.00
 83%  -163.72       17.32         0.00          0.00
100%  -168.51       17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -31.79        -3.80         0.00          0.00
 16%  -30.74        -3.80         0.00          0.00
 33%  -29.69        -3.80         0.00          0.00
 50%  -28.63        -3.80         0.00          0.00
 66%  -27.58        -3.80         0.00          0.00
 83%  -26.53        -3.80         0.00          0.00
100%  -25.48        -3.80         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1990.40      -38.17        0.00          0.00
 16%  -1979.84      -38.17        0.00          0.00
 33%  -1969.28      -38.17        0.00          0.00
 50%  -1958.72      -38.17        0.00          0.00
 66%  -1948.15      -38.17        0.00          0.00
 83%  -1937.59      -38.17        0.00          0.00
100%  -1927.03      -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
------------------------------------------------------------
Viga 20
Estado f1=fase 1 en resto
  0%  -168.51       17.32         0.00          0.00
 16%  -173.30       17.32         0.00          0.00
 33%  -178.09       17.32         0.00          0.00
 50%  -182.88       17.32         0.00          0.00
 66%  -187.67       17.32         0.00          0.00
 83%  -192.47       17.32         0.00          0.00
100%  -197.26       17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -25.48        -3.80         0.00          0.00
 16%  -24.43        -3.80         0.00          0.00
 33%  -23.37        -3.80         0.00          0.00
 50%  -22.32        -3.80         0.00          0.00
 66%  -21.27        -3.80         0.00          0.00
 83%  -20.22        -3.80         0.00          0.00
100%  -19.16        -3.80         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1927.03      -38.17        0.00          0.00
 16%  -1916.47      -38.17        0.00          0.00
 33%  -1905.91      -38.17        0.00          0.00
 50%  -1895.35      -38.17        0.00          0.00
 66%  -1884.78      -38.17        0.00          0.00
 83%  -1874.22      -38.17        0.00          0.00
100%  -1863.66      -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
------------------------------------------------------------
Viga 21
Estado f1=fase 1 en resto
  0%  -197.26       17.32         0.00          0.00
 16%  -202.05       17.32         0.00          0.00
 33%  -206.84       17.32         0.00          0.00
 50%  -211.63       17.32         0.00          0.00
 66%  -216.42       17.32         0.00          0.00
 83%  -221.22       17.32         0.00          0.00
100%  -226.01       17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -19.16        -3.80         0.00          0.00
 16%  -18.11        -3.80         0.00          0.00
 33%  -17.06        -3.80         0.00          0.00
 50%  -16.01        -3.80         0.00          0.00
 66%  -14.96        -3.80         0.00          0.00
 83%  -13.90        -3.80         0.00          0.00
100%  -12.85        -3.80         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1863.66      -38.17        0.00          0.00
 16%  -1853.10      -38.17        0.00          0.00
 33%  -1842.54      -38.17        0.00          0.00
 50%  -1831.98      -38.17        0.00          0.00
 66%  -1821.41      -38.17        0.00          0.00
 83%  -1810.85      -38.17        0.00          0.00
100%  -1800.29      -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
------------------------------------------------------------
Viga 22
Estado f1=fase 1 en resto
  0%  -226.01       -15.37        0.00          0.00
 16%  -221.76       -15.37        0.00          0.00
 33%  -217.51       -15.37        0.00          0.00
 50%  -213.25       -15.37        0.00          0.00
 66%  -209.00       -15.37        0.00          0.00
 83%  -204.75       -15.37        0.00          0.00
100%  -200.50       -15.37        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -12.85        -1.67         0.00          0.00
 16%  -12.39        -1.67         0.00          0.00
 33%  -11.93        -1.67         0.00          0.00
 50%  -11.46        -1.67         0.00          0.00
 66%  -11.00        -1.67         0.00          0.00
 83%  -10.54        -1.67         0.00          0.00
100%  -10.08        -1.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1800.29      10.91         0.00          0.00
 16%  -1803.31      10.91         0.00          0.00
 33%  -1806.33      10.91         0.00          0.00
 50%  -1809.35      10.91         0.00          0.00
 66%  -1812.37      10.91         0.00          0.00
 83%  -1815.38      10.91         0.00          0.00
100%  -1818.40      10.91         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
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```

```
Viga 23
Estado f1=fase 1 en resto
  0%  -200.50       -15.37        0.00          0.00
 16%  -196.25       -15.37        0.00          0.00
 33%  -192.00       -15.37        0.00          0.00
 50%  -187.74       -15.37        0.00          0.00
 66%  -183.49       -15.37        0.00          0.00
 83%  -179.24       -15.37        0.00          0.00
100%  -174.99       -15.37        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -10.08        -1.67         0.00          0.00
 16%  -9.61         -1.67         0.00          0.00
 33%  -9.15         -1.67         0.00          0.00
 50%  -8.69         -1.67         0.00          0.00
 66%  -8.22         -1.67         0.00          0.00
 83%  -7.76         -1.67         0.00          0.00
100%  -7.30         -1.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1818.40      10.91         0.00          0.00
 16%  -1821.42      10.91         0.00          0.00
 33%  -1824.44      10.91         0.00          0.00
 50%  -1827.46      10.91         0.00          0.00
 66%  -1830.48      10.91         0.00          0.00
 83%  -1833.50      10.91         0.00          0.00
100%  -1836.52      10.91         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 24
Estado f1=fase 1 en resto
  0%  -174.99       -15.37        0.00          0.00
 16%  -170.74       -15.37        0.00          0.00
 33%  -166.49       -15.37        0.00          0.00
 50%  -162.24       -15.37        0.00          0.00
 66%  -157.98       -15.37        0.00          0.00
 83%  -153.73       -15.37        0.00          0.00
100%  -149.48       -15.37        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -7.30         -1.67         0.00          0.00
 16%  -6.84         -1.67         0.00          0.00
 33%  -6.37         -1.67         0.00          0.00
 50%  -5.91         -1.67         0.00          0.00
 66%  -5.45         -1.67         0.00          0.00
 83%  -4.99         -1.67         0.00          0.00
100%  -4.52         -1.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1836.52      10.91         0.00          0.00
 16%  -1839.53      10.91         0.00          0.00
 33%  -1842.55      10.91         0.00          0.00
 50%  -1845.57      10.91         0.00          0.00
 66%  -1848.59      10.91         0.00          0.00
 83%  -1851.61      10.91         0.00          0.00
100%  -1854.63      10.91         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 25
Estado f1=fase 1 en resto
  0%  -149.48       -15.37        0.00          0.00
 16%  -145.23       -15.37        0.00          0.00
 33%  -140.98       -15.37        0.00          0.00
 50%  -136.73       -15.37        0.00          0.00
 66%  -132.48       -15.37        0.00          0.00
 83%  -128.22       -15.37        0.00          0.00
100%  -123.97       -15.37        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -4.52         -1.67         0.00          0.00
 16%  -4.06         -1.67         0.00          0.00
 33%  -3.60         -1.67         0.00          0.00
 50%  -3.14         -1.67         0.00          0.00
 66%  -2.67         -1.67         0.00          0.00
 83%  -2.21         -1.67         0.00          0.00
100%  -1.75         -1.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -657.09       10.91         0.00          0.00
 16%  -660.11       10.91         0.00          0.00
 33%  -663.12       10.91         0.00          0.00
 50%  -666.14       10.91         0.00          0.00
 66%  -669.16       10.91         0.00          0.00
 83%  -672.18       10.91         0.00          0.00
100%  -675.20       10.91         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 26
Estado f1=fase 1 en resto
  0%  -123.97       -15.37        0.00          0.00
 16%  -119.72       -15.37        0.00          0.00
 33%  -115.47       -15.37        0.00          0.00
 50%  -111.22       -15.37        0.00          0.00
 66%  -106.97       -15.37        0.00          0.00
 83%  -102.71       -15.37        0.00          0.00
100%  -98.46        -15.37        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -1.75         -1.67         0.00          0.00
 16%  -1.28         -1.67         0.00          0.00
 33%  -0.82         -1.67         0.00          0.00
 50%  -0.36         -1.67         0.00          0.00
 66%  0.10          -1.67         0.00          0.00
 83%  0.57          -1.67         0.00          0.00
100%  1.03          -1.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -675.20       10.91         0.00          0.00
 16%  -678.22       10.91         0.00          0.00
 33%  -681.24       10.91         0.00          0.00
 50%  -684.26       10.91         0.00          0.00
 66%  -687.27       10.91         0.00          0.00
 83%  -690.29       10.91         0.00          0.00
100%  -693.31       10.91         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 27
Estado f1=fase 1 en resto
  0%  -98.46        -15.37        0.00          0.00
 16%  -94.42        -15.37        0.00          0.00
 33%  -90.38        -15.37        0.00          0.00
 50%  -86.34        -15.37        0.00          0.00
 66%  -82.30        -15.37        0.00          0.00
 83%  -78.26        -15.37        0.00          0.00
100%  -74.22        -15.37        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  1.03          -1.67         0.00          0.00
 16%  1.47          -1.67         0.00          0.00
 33%  1.91          -1.67         0.00          0.00
 50%  2.35          -1.67         0.00          0.00
 66%  2.79          -1.67         0.00          0.00
 83%  3.23          -1.67         0.00          0.00
100%  3.67          -1.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -693.31       10.91         0.00          0.00
 16%  -696.18       10.91         0.00          0.00
 33%  -699.05       10.91         0.00          0.00
 50%  -701.92       10.91         0.00          0.00
 66%  -704.79       10.91         0.00          0.00
 83%  -707.66       10.91         0.00          0.00
100%  -710.53       10.91         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 28
Estado f1=fase 1 en resto
  0%  -74.22        -15.37        0.00          0.00
 16%  -70.18        -15.37        0.00          0.00
 33%  -66.14        -15.37        0.00          0.00
 50%  -62.09        -15.37        0.00          0.00
 66%  -58.05        -15.37        0.00          0.00
 83%  -54.01        -15.37        0.00          0.00
100%  -49.97        -15.37        0.00          0.00
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      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  3.67          -1.67         0.00          0.00
 16%  4.11          -1.67         0.00          0.00
 33%  4.55          -1.67         0.00          0.00
 50%  4.99          -1.67         0.00          0.00
 66%  5.43          -1.67         0.00          0.00
 83%  5.87          -1.67         0.00          0.00
100%  6.31          -1.67         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -710.53       10.91         0.00          0.00
 16%  -713.40       10.91         0.00          0.00
 33%  -716.26       10.91         0.00          0.00
 50%  -719.13       10.91         0.00          0.00
 66%  -722.00       10.91         0.00          0.00
 83%  -724.87       10.91         0.00          0.00
100%  -727.74       10.91         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 29
Estado f1=fase 1 en resto
  0%  -49.97        -15.37        0.00          0.00
 16%  -45.93        -15.37        0.00          0.00
 33%  -41.89        -15.37        0.00          0.00
 50%  -37.85        -15.37        0.00          0.00
 66%  -33.81        -15.37        0.00          0.00
 83%  -29.77        -15.37        0.00          0.00
100%  -25.73        -15.37        0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  6.31          -1.67         0.00          0.00
 16%  6.75          -1.67         0.00          0.00
 33%  7.19          -1.67         0.00          0.00
 50%  7.63          -1.67         0.00          0.00
 66%  8.07          -1.67         0.00          0.00
 83%  8.51          -1.67         0.00          0.00
100%  8.95          -1.67         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -727.74       10.91         0.00          0.00
 16%  -730.61       10.91         0.00          0.00
 33%  -733.48       10.91         0.00          0.00
 50%  -736.35       10.91         0.00          0.00
 66%  -739.22       10.91         0.00          0.00
 83%  -742.09       10.91         0.00          0.00
100%  -744.96       10.91         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 30
Estado f1=fase 1 en resto
  0%  -25.73        -15.37        0.00          0.00
 16%  -21.69        -15.37        0.00          0.00
 33%  -17.64        -15.37        0.00          0.00
 50%  -13.60        -15.37        0.00          0.00
 66%  -9.56         -15.37        0.00          0.00
 83%  -5.52         -15.37        0.00          0.00
100%  -1.48         -15.37        0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  8.95          -1.67         0.00          0.00
 16%  9.38          -1.67         0.00          0.00
 33%  9.82          -1.67         0.00          0.00
 50%  10.26         -1.67         0.00          0.00
 66%  10.70         -1.67         0.00          0.00
 83%  11.14         -1.67         0.00          0.00
100%  11.58         -1.67         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -744.96       10.91         0.00          0.00
 16%  -747.82       10.91         0.00          0.00
 33%  -750.69       10.91         0.00          0.00
 50%  -753.56       10.91         0.00          0.00
 66%  -756.43       10.91         0.00          0.00
 83%  -759.30       10.91         0.00          0.00
100%  -762.17       10.91         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 31
Estado f1=fase 1 en resto
  0%  -1.48         -15.37        0.00          0.00
 16%  2.56          -15.37        0.00          0.00
 33%  6.60          -15.37        0.00          0.00
 50%  10.64         -15.37        0.00          0.00
 66%  14.68         -15.37        0.00          0.00
 83%  18.72         -15.37        0.00          0.00
100%  22.76         -15.37        0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  11.58         -1.67         0.00          0.00
 16%  12.02         -1.67         0.00          0.00
 33%  12.46         -1.67         0.00          0.00
 50%  12.90         -1.67         0.00          0.00
 66%  13.34         -1.67         0.00          0.00
 83%  13.78         -1.67         0.00          0.00
100%  14.22         -1.67         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1119.43       10.91         0.00          0.00
 16%  1116.56       10.91         0.00          0.00
 33%  1113.69       10.91         0.00          0.00
 50%  1110.82       10.91         0.00          0.00
 66%  1107.95       10.91         0.00          0.00
 83%  1105.08       10.91         0.00          0.00
100%  1102.21       10.91         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 32
Estado f1=fase 1 en resto
  0%  22.76         -15.37        0.00          0.00
 16%  26.72         -14.75        0.00          0.00
 33%  30.52         -14.13        0.00          0.00
 50%  34.15         -13.51        0.00          0.00
 66%  37.62         -12.88        0.00          0.00
 83%  40.93         -12.26        0.00          0.00
100%  44.07         -11.64        0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  14.22         -1.67         0.00          0.00
 16%  14.66         -1.67         0.00          0.00
 33%  15.10         -1.67         0.00          0.00
 50%  15.54         -1.67         0.00          0.00
 66%  15.98         -1.67         0.00          0.00
 83%  16.42         -1.67         0.00          0.00
100%  16.86         -1.67         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1102.21       10.91         0.00          0.00
 16%  1099.35       10.91         0.00          0.00
 33%  1096.48       10.91         0.00          0.00
 50%  1093.61       10.91         0.00          0.00
 66%  1090.74       10.91         0.00          0.00
 83%  1087.87       10.91         0.00          0.00
100%  1085.00       10.91         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 33
Estado f1=fase 1 en resto
  0%  44.07         -11.64        0.00          0.00
 16%  47.05         -11.02        0.00          0.00
 33%  49.87         -10.40        0.00          0.00
 50%  52.52         -9.78         0.00          0.00
 66%  55.01         -9.16         0.00          0.00
 83%  57.34         -8.54         0.00          0.00
100%  59.51         -7.92         0.00          0.00
      Axial: 0.00       [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  16.86         -1.67         0.00          0.00
 16%  17.30         -1.67         0.00          0.00
 33%  17.74         -1.67         0.00          0.00
 50%  18.18         -1.67         0.00          0.00
 66%  18.62         -1.67         0.00          0.00
 83%  19.06         -1.67         0.00          0.00
100%  19.50         -1.67         0.00          0.00
```

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      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1085.00        10.91          0.00           0.00
 16%  1082.13        10.91          0.00           0.00
 33%  1079.26        10.91          0.00           0.00
 50%  1076.39        10.91          0.00           0.00
 66%  1073.52        10.91          0.00           0.00
 83%  1070.65        10.91          0.00           0.00
100%  1067.79        10.91          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 34
Estado f1=fase 1 en resto
  0%  59.51          -7.92          0.00           0.00
 16%  61.51          -7.30          0.00           0.00
 33%  63.34          -6.68          0.00           0.00
 50%  65.02          -6.06          0.00           0.00
 66%  66.53          -5.44          0.00           0.00
 83%  67.88          -4.82          0.00           0.00
100%  69.06          -4.20          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  19.50          -1.67          0.00           0.00
 16%  19.94          -1.67          0.00           0.00
 33%  20.38          -1.67          0.00           0.00
 50%  20.82          -1.67          0.00           0.00
 66%  21.26          -1.67          0.00           0.00
 83%  21.70          -1.67          0.00           0.00
100%  22.14          -1.67          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1067.79        10.91          0.00           0.00
 16%  1064.92        10.91          0.00           0.00
 33%  1062.05        10.91          0.00           0.00
 50%  1059.18        10.91          0.00           0.00
 66%  1056.31        10.91          0.00           0.00
 83%  1053.44        10.91          0.00           0.00
100%  1050.57        10.91          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 35
Estado f1=fase 1 en resto
  0%  69.06          -4.20          0.00           0.00
 16%  70.09          -3.58          0.00           0.00
 33%  70.94          -2.96          0.00           0.00
 50%  71.64          -2.33          0.00           0.00
 66%  72.17          -1.71          0.00           0.00
 83%  72.54          -1.09          0.00           0.00
100%  72.75          -0.47          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  22.14          -1.67          0.00           0.00
 16%  22.58          -1.67          0.00           0.00
 33%  23.02          -1.67          0.00           0.00
 50%  23.46          -1.67          0.00           0.00
 66%  23.90          -1.67          0.00           0.00
 83%  24.34          -1.67          0.00           0.00
100%  24.78          -1.67          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1050.57        10.91          0.00           0.00
 16%  1047.70        10.91          0.00           0.00
 33%  1044.83        10.91          0.00           0.00
 50%  1041.96        10.91          0.00           0.00
 66%  1039.09        10.91          0.00           0.00
 83%  1036.22        10.91          0.00           0.00
100%  1033.36        10.91          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 36
Estado f1=fase 1 en resto
  0%  72.75          -0.47          0.00           0.00
 16%  72.79          0.15           0.00           0.00
 33%  72.67          0.77           0.00           0.00
 50%  72.39          1.39           0.00           0.00
 66%  71.94          2.01           0.00           0.00
 83%  71.33          2.63           0.00           0.00
100%  70.56          3.25           0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  24.78          -1.67          0.00           0.00
 16%  25.22          -1.67          0.00           0.00
 33%  25.66          -1.67          0.00           0.00
 50%  26.10          -1.67          0.00           0.00
 66%  26.54          -1.67          0.00           0.00
 83%  26.98          -1.67          0.00           0.00
100%  27.42          -1.67          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1033.36        10.91          0.00           0.00
 16%  1030.49        10.91          0.00           0.00
 33%  1027.62        10.91          0.00           0.00
 50%  1024.75        10.91          0.00           0.00
 66%  1021.88        10.91          0.00           0.00
 83%  1019.01        10.91          0.00           0.00
100%  1016.14        10.91          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 37
Estado f1=fase 1 en resto
  0%  70.56          3.25           0.00           0.00
 16%  69.62          3.87           0.00           0.00
 33%  68.52          4.49           0.00           0.00
 50%  67.26          5.11           0.00           0.00
 66%  65.83          5.73           0.00           0.00
 83%  64.24          6.35           0.00           0.00
100%  62.49          6.97           0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  27.42          -1.67          0.00           0.00
 16%  27.86          -1.67          0.00           0.00
 33%  28.30          -1.67          0.00           0.00
 50%  28.74          -1.67          0.00           0.00
 66%  29.18          -1.67          0.00           0.00
 83%  29.61          -1.67          0.00           0.00
100%  30.05          -1.67          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1016.14        10.91          0.00           0.00
 16%  1013.27        10.91          0.00           0.00
 33%  1010.40        10.91          0.00           0.00
 50%  1007.53        10.91          0.00           0.00
 66%  1004.66        10.91          0.00           0.00
 83%  1001.80        10.91          0.00           0.00
100%  998.93         10.91          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 38
Estado f1=fase 1 en resto
  0%  62.49          6.97           0.00           0.00
 16%  60.57          7.60           0.00           0.00
 33%  58.49          8.22           0.00           0.00
 50%  56.25          8.84           0.00           0.00
 66%  53.85          9.46           0.00           0.00
 83%  51.28          10.08          0.00           0.00
100%  48.55          10.70          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  30.05          -1.67          0.00           0.00
 16%  30.49          -1.67          0.00           0.00
 33%  30.93          -1.67          0.00           0.00
 50%  31.37          -1.67          0.00           0.00
 66%  31.81          -1.67          0.00           0.00
 83%  32.25          -1.67          0.00           0.00
100%  32.69          -1.67          0.00           0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  998.93         10.91          0.00           0.00
 16%  996.06         10.91          0.00           0.00
 33%  993.19         10.91          0.00           0.00
 50%  990.32         10.91          0.00           0.00
 66%  987.45         10.91          0.00           0.00
 83%  984.58         10.91          0.00           0.00
100%  981.71         10.91          0.00           0.00
```

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      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 39
Estado f1=fase 1 en resto
  0%  48.55         10.70         0.00          0.00
 16%  45.65         11.32         0.00          0.00
 33%  42.59         11.94         0.00          0.00
 50%  39.37         12.56         0.00          0.00
 66%  35.99         13.18         0.00          0.00
 83%  32.44         13.80         0.00          0.00
100%  28.73         14.42         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  32.69         -1.67         0.00          0.00
 16%  33.13         -1.67         0.00          0.00
 33%  33.57         -1.67         0.00          0.00
 50%  34.01         -1.67         0.00          0.00
 66%  34.45         -1.67         0.00          0.00
 83%  34.89         -1.67         0.00          0.00
100%  35.33         -1.67         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  981.71        10.91         0.00          0.00
 16%  978.84        10.91         0.00          0.00
 33%  975.97        10.91         0.00          0.00
 50%  973.10        10.91         0.00          0.00
 66%  970.23        10.91         0.00          0.00
 83%  967.37        10.91         0.00          0.00
100%  964.50        10.91         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 40
Estado f1=fase 1 en resto
  0%  28.73         14.42         0.00          0.00
 16%  24.94         14.42         0.00          0.00
 33%  21.15         14.42         0.00          0.00
 50%  17.35         14.42         0.00          0.00
 66%  13.56         14.42         0.00          0.00
 83%  9.77          14.42         0.00          0.00
100%  5.98          14.42         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  35.33         -1.67         0.00          0.00
 16%  35.77         -1.67         0.00          0.00
 33%  36.21         -1.67         0.00          0.00
 50%  36.65         -1.67         0.00          0.00
 66%  37.09         -1.67         0.00          0.00
 83%  37.53         -1.67         0.00          0.00
100%  37.97         -1.67         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  964.50        10.91         0.00          0.00
 16%  961.63        10.91         0.00          0.00
 33%  958.76        10.91         0.00          0.00
 50%  955.89        10.91         0.00          0.00
 66%  953.02        10.91         0.00          0.00
 83%  950.15        10.91         0.00          0.00
100%  947.28        10.91         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 41
Estado f1=fase 1 en resto
  0%  5.98          14.42         0.00          0.00
 16%  2.18          14.42         0.00          0.00
 33%  -1.61         14.42         0.00          0.00
 50%  -5.40         14.42         0.00          0.00
 66%  -9.19         14.42         0.00          0.00
 83%  -12.99        14.42         0.00          0.00
100%  -16.78        14.42         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  37.97         -1.67         0.00          0.00
 16%  38.41         -1.67         0.00          0.00
 33%  38.85         -1.67         0.00          0.00
 50%  39.29         -1.67         0.00          0.00
 66%  39.73         -1.67         0.00          0.00
 83%  40.17         -1.67         0.00          0.00
100%  40.61         -1.67         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -934.32       10.91         0.00          0.00
 16%  -937.19       10.91         0.00          0.00
 33%  -940.06       10.91         0.00          0.00
 50%  -942.93       10.91         0.00          0.00
 66%  -945.79       10.91         0.00          0.00
 83%  -948.66       10.91         0.00          0.00
100%  -951.53       10.91         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 42
Estado f1=fase 1 en resto
  0%  -16.78        14.42         0.00          0.00
 16%  -20.57        14.42         0.00          0.00
 33%  -24.36        14.42         0.00          0.00
 50%  -28.15        14.42         0.00          0.00
 66%  -31.95        14.42         0.00          0.00
 83%  -35.74        14.42         0.00          0.00
100%  -39.53        14.42         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  40.61         -1.67         0.00          0.00
 16%  41.05         -1.67         0.00          0.00
 33%  41.49         -1.67         0.00          0.00
 50%  41.93         -1.67         0.00          0.00
 66%  42.37         -1.67         0.00          0.00
 83%  42.81         -1.67         0.00          0.00
100%  43.25         -1.67         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -951.53       10.91         0.00          0.00
 16%  -954.40       10.91         0.00          0.00
 33%  -957.27       10.91         0.00          0.00
 50%  -960.14       10.91         0.00          0.00
 66%  -963.01       10.91         0.00          0.00
 83%  -965.88       10.91         0.00          0.00
100%  -968.75       10.91         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 43
Estado f1=fase 1 en resto
  0%  -39.53        14.42         0.00          0.00
 16%  -43.32        14.42         0.00          0.00
 33%  -47.12        14.42         0.00          0.00
 50%  -50.91        14.42         0.00          0.00
 66%  -54.70        14.42         0.00          0.00
 83%  -58.49        14.42         0.00          0.00
100%  -62.29        14.42         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  43.25         -1.67         0.00          0.00
 16%  43.69         -1.67         0.00          0.00
 33%  44.13         -1.67         0.00          0.00
 50%  44.57         -1.67         0.00          0.00
 66%  45.01         -1.67         0.00          0.00
 83%  45.45         -1.67         0.00          0.00
100%  45.89         -1.67         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -968.75       10.91         0.00          0.00
 16%  -971.62       10.91         0.00          0.00
 33%  -974.49       10.91         0.00          0.00
 50%  -977.36       10.91         0.00          0.00
 66%  -980.22       10.91         0.00          0.00
 83%  -983.09       10.91         0.00          0.00
100%  -985.96       10.91         0.00          0.00
      Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 44
Estado f1=fase 1 en resto
  0%  -62.29        14.42         0.00          0.00
 16%  -66.08        14.42         0.00          0.00
 33%  -69.87        14.42         0.00          0.00
 50%  -73.66        14.42         0.00          0.00
 66%  -77.46        14.42         0.00          0.00
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 83%  -81.25        14.42         0.00          0.00
100%  -85.04        14.42         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  45.89         -1.67         0.00          0.00
 16%  46.33         -1.67         0.00          0.00
 33%  46.77         -1.67         0.00          0.00
 50%  47.21         -1.67         0.00          0.00
 66%  47.65         -1.67         0.00          0.00
 83%  48.09         -1.67         0.00          0.00
100%  48.53         -1.67         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -985.96       10.91         0.00          0.00
 16%  -988.83       10.91         0.00          0.00
 33%  -991.70       10.91         0.00          0.00
 50%  -994.57       10.91         0.00          0.00
 66%  -997.44       10.91         0.00          0.00
 83%  -1000.31      10.91         0.00          0.00
100%  -1003.18      10.91         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 45
Estado f1=fase 1 en resto
  0%  -85.04        14.42         0.00          0.00
 16%  -87.92        14.42         0.00          0.00
 33%  -90.81        14.42         0.00          0.00
 50%  -93.69        14.42         0.00          0.00
 66%  -96.58        14.42         0.00          0.00
 83%  -99.46        14.42         0.00          0.00
100%  -102.35       14.42         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  48.53         -1.67         0.00          0.00
 16%  48.86         -1.67         0.00          0.00
 33%  49.19         -1.67         0.00          0.00
 50%  49.53         -1.67         0.00          0.00
 66%  49.86         -1.67         0.00          0.00
 83%  50.20         -1.67         0.00          0.00
100%  50.53         -1.67         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1003.18      10.91         0.00          0.00
 16%  -1005.36      10.91         0.00          0.00
 33%  -1007.54      10.91         0.00          0.00
 50%  -1009.72      10.91         0.00          0.00
 66%  -1011.91      10.91         0.00          0.00
 83%  -1014.09      10.91         0.00          0.00
100%  -1016.27      10.91         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 46
Estado f1=fase 1 en resto
  0%  -108.98       14.42         0.00          0.00
 16%  -112.97       14.42         0.00          0.00
 33%  -116.96       14.42         0.00          0.00
 50%  -120.95       14.42         0.00          0.00
 66%  -124.94       14.42         0.00          0.00
 83%  -128.93       14.42         0.00          0.00
100%  -132.92       14.42         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  45.56         10.82         0.00          0.00
 16%  42.56         10.82         0.00          0.00
 33%  39.57         10.82         0.00          0.00
 50%  36.57         10.82         0.00          0.00
 66%  33.58         10.82         0.00          0.00
 83%  30.59         10.82         0.00          0.00
100%  27.59         10.82         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1021.29      10.91         0.00          0.00
 16%  -1024.31      10.91         0.00          0.00
 33%  -1027.33      10.91         0.00          0.00
 50%  -1030.35      10.91         0.00          0.00
 66%  -1033.36      10.91         0.00          0.00
 83%  -1036.38      10.91         0.00          0.00
100%  -1039.40      10.91         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 47
Estado f1=fase 1 en resto
  0%  -132.92       14.42         0.00          0.00
 16%  -136.91       14.42         0.00          0.00
 33%  -140.90       14.42         0.00          0.00
 50%  -144.89       14.42         0.00          0.00
 66%  -148.88       14.42         0.00          0.00
 83%  -152.87       14.42         0.00          0.00
100%  -156.86       14.42         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  27.59         10.82         0.00          0.00
 16%  24.60         10.82         0.00          0.00
 33%  21.61         10.82         0.00          0.00
 50%  18.61         10.82         0.00          0.00
 66%  15.62         10.82         0.00          0.00
 83%  12.63         10.82         0.00          0.00
100%  9.63          10.82         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2236.94      10.91         0.00          0.00
 16%  -2239.96      10.91         0.00          0.00
 33%  -2242.98      10.91         0.00          0.00
 50%  -2246.00      10.91         0.00          0.00
 66%  -2249.02      10.91         0.00          0.00
 83%  -2252.03      10.91         0.00          0.00
100%  -2255.05      10.91         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 48
Estado f1=fase 1 en resto
  0%  -156.86       14.42         0.00          0.00
 16%  -160.85       14.42         0.00          0.00
 33%  -164.84       14.42         0.00          0.00
 50%  -168.83       14.42         0.00          0.00
 66%  -172.82       14.42         0.00          0.00
 83%  -176.81       14.42         0.00          0.00
100%  -180.80       14.42         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  9.63          10.82         0.00          0.00
 16%  6.64          10.82         0.00          0.00
 33%  3.64          10.82         0.00          0.00
 50%  0.65          10.82         0.00          0.00
 66%  -2.34         10.82         0.00          0.00
 83%  -5.34         10.82         0.00          0.00
100%  -8.33         10.82         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2255.05      10.91         0.00          0.00
 16%  -2258.07      10.91         0.00          0.00
 33%  -2261.09      10.91         0.00          0.00
 50%  -2264.11      10.91         0.00          0.00
 66%  -2267.13      10.91         0.00          0.00
 83%  -2270.15      10.91         0.00          0.00
100%  -2273.17      10.91         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 49
Estado f1=fase 1 en resto
  0%  -180.80       14.42         0.00          0.00
 16%  -184.79       14.42         0.00          0.00
 33%  -188.78       14.42         0.00          0.00
 50%  -192.77       14.42         0.00          0.00
 66%  -196.76       14.42         0.00          0.00
 83%  -200.75       14.42         0.00          0.00
100%  -204.74       14.42         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -8.33         10.82         0.00          0.00
 16%  -11.32        10.82         0.00          0.00
 33%  -14.32        10.82         0.00          0.00
 50%  -17.31        10.82         0.00          0.00
 66%  -20.30        10.82         0.00          0.00
```

```
 83%  -23.30       10.82        0.00         0.00
100%  -26.29       10.82        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2273.17      10.91        0.00         0.00
 16%  -2276.18      10.91        0.00         0.00
 33%  -2279.20      10.91        0.00         0.00
 50%  -2282.22      10.91        0.00         0.00
 66%  -2285.24      10.91        0.00         0.00
 83%  -2288.26      10.91        0.00         0.00
100%  -2291.28      10.91        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 50
Estado f1=fase 1 en resto
  0%  -204.74       -14.89       0.00         0.00
 16%  -200.62       -14.89       0.00         0.00
 33%  -196.50       -14.89       0.00         0.00
 50%  -192.38       -14.89       0.00         0.00
 66%  -188.26       -14.89       0.00         0.00
 83%  -184.14       -14.89       0.00         0.00
100%  -180.01       -14.89       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00         0.00         0.00
 16%  -26.29        0.00         0.00         0.00
 33%  -26.29        0.00         0.00         0.00
 50%  -26.29        0.00         0.00         0.00
 66%  -26.29        0.00         0.00         0.00
 83%  -26.29        0.00         0.00         0.00
100%  -26.29        0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2291.28      0.00         0.00         0.00
 16%  -2291.28      0.00         0.00         0.00
 33%  -2291.28      0.00         0.00         0.00
 50%  -2291.28      0.00         0.00         0.00
 66%  -2291.28      0.00         0.00         0.00
 83%  -2291.28      0.00         0.00         0.00
100%  -2291.28      0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 51
Estado f1=fase 1 en resto
  0%  -180.01       -14.89       0.00         0.00
 16%  -175.89       -14.89       0.00         0.00
 33%  -171.77       -14.89       0.00         0.00
 50%  -167.65       -14.89       0.00         0.00
 66%  -163.53       -14.89       0.00         0.00
 83%  -159.41       -14.89       0.00         0.00
100%  -155.29       -14.89       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00         0.00         0.00
 16%  -26.29        0.00         0.00         0.00
 33%  -26.29        0.00         0.00         0.00
 50%  -26.29        0.00         0.00         0.00
 66%  -26.29        0.00         0.00         0.00
 83%  -26.29        0.00         0.00         0.00
100%  -26.29        0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2291.28      0.00         0.00         0.00
 16%  -2291.28      0.00         0.00         0.00
 33%  -2291.28      0.00         0.00         0.00
 50%  -2291.28      0.00         0.00         0.00
 66%  -2291.28      0.00         0.00         0.00
 83%  -2291.28      0.00         0.00         0.00
100%  -2291.28      0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 52
Estado f1=fase 1 en resto
  0%  -155.29       -14.89       0.00         0.00
 16%  -151.17       -14.89       0.00         0.00
 33%  -147.05       -14.89       0.00         0.00
 50%  -142.93       -14.89       0.00         0.00
 66%  -138.81       -14.89       0.00         0.00
 83%  -134.69       -14.89       0.00         0.00
100%  -130.57       -14.89       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00         0.00         0.00
 16%  -26.29        0.00         0.00         0.00
 33%  -26.29        0.00         0.00         0.00
 50%  -26.29        0.00         0.00         0.00
 66%  -26.29        0.00         0.00         0.00
 83%  -26.29        0.00         0.00         0.00
100%  -26.29        0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2291.28      0.00         0.00         0.00
 16%  -2291.28      0.00         0.00         0.00
 33%  -2291.28      0.00         0.00         0.00
 50%  -2291.28      0.00         0.00         0.00
 66%  -2291.28      0.00         0.00         0.00
 83%  -2291.28      0.00         0.00         0.00
100%  -2291.28      0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 53
Estado f1=fase 1 en resto
  0%  -130.57       -14.89       0.00         0.00
 16%  -126.45       -14.89       0.00         0.00
 33%  -122.32       -14.89       0.00         0.00
 50%  -118.20       -14.89       0.00         0.00
 66%  -114.08       -14.89       0.00         0.00
 83%  -109.96       -14.89       0.00         0.00
100%  -105.84       -14.89       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00         0.00         0.00
 16%  -26.29        0.00         0.00         0.00
 33%  -26.29        0.00         0.00         0.00
 50%  -26.29        0.00         0.00         0.00
 66%  -26.29        0.00         0.00         0.00
 83%  -26.29        0.00         0.00         0.00
100%  -26.29        0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00         0.00         0.00
 16%  -1093.74      0.00         0.00         0.00
 33%  -1093.74      0.00         0.00         0.00
 50%  -1093.74      0.00         0.00         0.00
 66%  -1093.74      0.00         0.00         0.00
 83%  -1093.74      0.00         0.00         0.00
100%  -1093.74      0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 54
Estado f1=fase 1 en resto
  0%  -105.84       -14.89       0.00         0.00
 16%  -101.72       -14.89       0.00         0.00
 33%  -97.60        -14.89       0.00         0.00
 50%  -93.48        -14.89       0.00         0.00
 66%  -89.36        -14.89       0.00         0.00
 83%  -85.24        -14.89       0.00         0.00
100%  -81.12        -14.89       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00         0.00         0.00
 16%  -26.29        0.00         0.00         0.00
 33%  -26.29        0.00         0.00         0.00
 50%  -26.29        0.00         0.00         0.00
 66%  -26.29        0.00         0.00         0.00
 83%  -26.29        0.00         0.00         0.00
100%  -26.29        0.00         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00         0.00         0.00
 16%  -1093.74      0.00         0.00         0.00
 33%  -1093.74      0.00         0.00         0.00
 50%  -1093.74      0.00         0.00         0.00
 66%  -1093.74      0.00         0.00         0.00
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 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 55
Estado f1=fase 1 en resto
  0%  -81.12        -14.89        0.00          0.00
 16%  -77.20        -14.89        0.00          0.00
 33%  -73.28        -14.89        0.00          0.00
 50%  -69.37        -14.89        0.00          0.00
 66%  -65.45        -14.89        0.00          0.00
 83%  -61.53        -14.89        0.00          0.00
100%  -57.62        -14.89        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 56
Estado f1=fase 1 en resto
  0%  -57.62        -14.89        0.00          0.00
 16%  -53.70        -14.89        0.00          0.00
 33%  -49.78        -14.89        0.00          0.00
 50%  -45.87        -14.89        0.00          0.00
 66%  -41.95        -14.89        0.00          0.00
 83%  -38.03        -14.89        0.00          0.00
100%  -34.12        -14.89        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 57
Estado f1=fase 1 en resto
  0%  -34.12        -14.89        0.00          0.00
 16%  -30.20        -14.89        0.00          0.00
 33%  -26.28        -14.89        0.00          0.00
 50%  -22.37        -14.89        0.00          0.00
 66%  -18.45        -14.89        0.00          0.00
 83%  -14.53        -14.89        0.00          0.00
100%  -10.62        -14.89        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
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 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 58
Estado f1=fase 1 en resto
  0%  -10.62        -14.89        0.00          0.00
 16%  -6.70         -14.89        0.00          0.00
 33%  -2.78         -14.89        0.00          0.00
 50%  1.13          -14.89        0.00          0.00
 66%  5.05          -14.89        0.00          0.00
 83%  8.97          -14.89        0.00          0.00
100%  12.88         -14.89        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 59
Estado f1=fase 1 en resto
  0%  12.88         -14.89        0.00          0.00
 16%  16.80         -14.89        0.00          0.00
 33%  20.72         -14.89        0.00          0.00
 50%  24.63         -14.89        0.00          0.00
 66%  28.55         -14.89        0.00          0.00
 83%  32.47         -14.89        0.00          0.00
100%  36.38         -14.89        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86        0.00          0.00          0.00
 16%  787.86        0.00          0.00          0.00
 33%  787.86        0.00          0.00          0.00
 50%  787.86        0.00          0.00          0.00
 66%  787.86        0.00          0.00          0.00
 83%  787.86        0.00          0.00          0.00
100%  787.86        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 60
Estado f1=fase 1 en resto
  0%  36.38         -14.89        0.00          0.00
 16%  40.22         -14.27        0.00          0.00
 33%  43.89         -13.65        0.00          0.00
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 50%  47.40         -13.03        0.00          0.00
 66%  50.74         -12.41        0.00          0.00
 83%  53.92         -11.79        0.00          0.00
100%  56.94         -11.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         0.00          0.00          0.00
 16%  -26.29         0.00          0.00          0.00
 33%  -26.29         0.00          0.00          0.00
 50%  -26.29         0.00          0.00          0.00
 66%  -26.29         0.00          0.00          0.00
 83%  -26.29         0.00          0.00          0.00
100%  -26.29         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86         0.00          0.00          0.00
 16%  787.86         0.00          0.00          0.00
 33%  787.86         0.00          0.00          0.00
 50%  787.86         0.00          0.00          0.00
 66%  787.86         0.00          0.00          0.00
 83%  787.86         0.00          0.00          0.00
100%  787.86         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 61
Estado f1=fase 1 en resto
  0%  56.94         -11.17        0.00          0.00
 16%  59.80         -10.55        0.00          0.00
 33%  62.49         -9.93         0.00          0.00
 50%  65.02         -9.31         0.00          0.00
 66%  67.39         -8.69         0.00          0.00
 83%  69.59         -8.07         0.00          0.00
100%  71.63         -7.45         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         0.00          0.00          0.00
 16%  -26.29         0.00          0.00          0.00
 33%  -26.29         0.00          0.00          0.00
 50%  -26.29         0.00          0.00          0.00
 66%  -26.29         0.00          0.00          0.00
 83%  -26.29         0.00          0.00          0.00
100%  -26.29         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86         0.00          0.00          0.00
 16%  787.86         0.00          0.00          0.00
 33%  787.86         0.00          0.00          0.00
 50%  787.86         0.00          0.00          0.00
 66%  787.86         0.00          0.00          0.00
 83%  787.86         0.00          0.00          0.00
100%  787.86         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 62
Estado f1=fase 1 en resto
  0%  71.63         -7.45         0.00          0.00
 16%  73.51         -6.83         0.00          0.00
 33%  75.22         -6.21         0.00          0.00
 50%  76.77         -5.59         0.00          0.00
 66%  78.16         -4.96         0.00          0.00
 83%  79.38         -4.34         0.00          0.00
100%  80.44         -3.72         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         0.00          0.00          0.00
 16%  -26.29         0.00          0.00          0.00
 33%  -26.29         0.00          0.00          0.00
 50%  -26.29         0.00          0.00          0.00
 66%  -26.29         0.00          0.00          0.00
 83%  -26.29         0.00          0.00          0.00
100%  -26.29         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86         0.00          0.00          0.00
 16%  787.86         0.00          0.00          0.00
 33%  787.86         0.00          0.00          0.00
 50%  787.86         0.00          0.00          0.00
 66%  787.86         0.00          0.00          0.00
 83%  787.86         0.00          0.00          0.00
100%  787.86         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 63
Estado f1=fase 1 en resto
  0%  80.44         -3.72         0.00          0.00
 16%  81.34         -3.10         0.00          0.00
 33%  82.08         -2.48         0.00          0.00
 50%  82.65         -1.86         0.00          0.00
 66%  83.05         -1.24         0.00          0.00
 83%  83.30         -0.62         0.00          0.00
100%  83.38         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         0.00          0.00          0.00
 16%  -26.29         0.00          0.00          0.00
 33%  -26.29         0.00          0.00          0.00
 50%  -26.29         0.00          0.00          0.00
 66%  -26.29         0.00          0.00          0.00
 83%  -26.29         0.00          0.00          0.00
100%  -26.29         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86         0.00          0.00          0.00
 16%  787.86         0.00          0.00          0.00
 33%  787.86         0.00          0.00          0.00
 50%  787.86         0.00          0.00          0.00
 66%  787.86         0.00          0.00          0.00
 83%  787.86         0.00          0.00          0.00
100%  787.86         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 64
Estado f1=fase 1 en resto
  0%  83.38         0.00          0.00          0.00
 16%  83.30         0.62          0.00          0.00
 33%  83.05         1.24          0.00          0.00
 50%  82.65         1.86          0.00          0.00
 66%  82.08         2.48          0.00          0.00
 83%  81.34         3.10          0.00          0.00
100%  80.44         3.72          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         0.00          0.00          0.00
 16%  -26.29         0.00          0.00          0.00
 33%  -26.29         0.00          0.00          0.00
 50%  -26.29         0.00          0.00          0.00
 66%  -26.29         0.00          0.00          0.00
 83%  -26.29         0.00          0.00          0.00
100%  -26.29         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86         0.00          0.00          0.00
 16%  787.86         0.00          0.00          0.00
 33%  787.86         0.00          0.00          0.00
 50%  787.86         0.00          0.00          0.00
 66%  787.86         0.00          0.00          0.00
 83%  787.86         0.00          0.00          0.00
100%  787.86         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 65
Estado f1=fase 1 en resto
  0%  80.44         3.72          0.00          0.00
 16%  79.38         4.34          0.00          0.00
 33%  78.16         4.96          0.00          0.00
 50%  76.77         5.59          0.00          0.00
 66%  75.22         6.21          0.00          0.00
 83%  73.51         6.83          0.00          0.00
100%  71.63         7.45          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         0.00          0.00          0.00
 16%  -26.29         0.00          0.00          0.00
 33%  -26.29         0.00          0.00          0.00
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 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86        0.00          0.00          0.00
 16%  787.86        0.00          0.00          0.00
 33%  787.86        0.00          0.00          0.00
 50%  787.86        0.00          0.00          0.00
 66%  787.86        0.00          0.00          0.00
 83%  787.86        0.00          0.00          0.00
100%  787.86        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 66
Estado f1=fase 1 en resto
  0%  71.63         7.45          0.00          0.00
 16%  69.59         8.07          0.00          0.00
 33%  67.39         8.69          0.00          0.00
 50%  65.02         9.31          0.00          0.00
 66%  62.49         9.93          0.00          0.00
 83%  59.80         10.55         0.00          0.00
100%  56.94         11.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86        0.00          0.00          0.00
 16%  787.86        0.00          0.00          0.00
 33%  787.86        0.00          0.00          0.00
 50%  787.86        0.00          0.00          0.00
 66%  787.86        0.00          0.00          0.00
 83%  787.86        0.00          0.00          0.00
100%  787.86        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 67
Estado f1=fase 1 en resto
  0%  56.94         11.17         0.00          0.00
 16%  53.92         11.79         0.00          0.00
 33%  50.74         12.41         0.00          0.00
 50%  47.40         13.03         0.00          0.00
 66%  43.89         13.65         0.00          0.00
 83%  40.22         14.27         0.00          0.00
100%  36.38         14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86        0.00          0.00          0.00
 16%  787.86        0.00          0.00          0.00
 33%  787.86        0.00          0.00          0.00
 50%  787.86        0.00          0.00          0.00
 66%  787.86        0.00          0.00          0.00
 83%  787.86        0.00          0.00          0.00
100%  787.86        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 68
Estado f1=fase 1 en resto
  0%  36.38         14.89         0.00          0.00
 16%  32.47         14.89         0.00          0.00
 33%  28.55         14.89         0.00          0.00
 50%  24.63         14.89         0.00          0.00
 66%  20.72         14.89         0.00          0.00
 83%  16.80         14.89         0.00          0.00
100%  12.88         14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  787.86        0.00          0.00          0.00
 16%  787.86        0.00          0.00          0.00
 33%  787.86        0.00          0.00          0.00
 50%  787.86        0.00          0.00          0.00
 66%  787.86        0.00          0.00          0.00
 83%  787.86        0.00          0.00          0.00
100%  787.86        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 69
Estado f1=fase 1 en resto
  0%  12.88         14.89         0.00          0.00
 16%  8.97          14.89         0.00          0.00
 33%  5.05          14.89         0.00          0.00
 50%  1.13          14.89         0.00          0.00
 66%  -2.78         14.89         0.00          0.00
 83%  -6.70         14.89         0.00          0.00
100%  -10.62        14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 70
Estado f1=fase 1 en resto
  0%  -10.62        14.89         0.00          0.00
 16%  -14.53        14.89         0.00          0.00
 33%  -18.45        14.89         0.00          0.00
 50%  -22.37        14.89         0.00          0.00
 66%  -26.28        14.89         0.00          0.00
 83%  -30.20        14.89         0.00          0.00
100%  -34.12        14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
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 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 71
Estado f1=fase 1 en resto
  0%  -34.12        14.89         0.00          0.00
 16%  -38.03        14.89         0.00          0.00
 33%  -41.95        14.89         0.00          0.00
 50%  -45.87        14.89         0.00          0.00
 66%  -49.78        14.89         0.00          0.00
 83%  -53.70        14.89         0.00          0.00
100%  -57.62        14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 72
Estado f1=fase 1 en resto
  0%  -57.62        14.89         0.00          0.00
 16%  -61.53        14.89         0.00          0.00
 33%  -65.45        14.89         0.00          0.00
 50%  -69.37        14.89         0.00          0.00
 66%  -73.28        14.89         0.00          0.00
 83%  -77.20        14.89         0.00          0.00
100%  -81.12        14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 73
Estado f1=fase 1 en resto
  0%  -81.12        14.89         0.00          0.00
 16%  -85.24        14.89         0.00          0.00
 33%  -89.36        14.89         0.00          0.00
 50%  -93.48        14.89         0.00          0.00
 66%  -97.60        14.89         0.00          0.00
 83%  -101.72       14.89         0.00          0.00
100%  -105.84       14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 74
Estado f1=fase 1 en resto
  0%  -105.84       14.89         0.00          0.00
 16%  -109.96       14.89         0.00          0.00
 33%  -114.08       14.89         0.00          0.00
 50%  -118.20       14.89         0.00          0.00
 66%  -122.32       14.89         0.00          0.00
 83%  -126.45       14.89         0.00          0.00
100%  -130.57       14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1093.74      0.00          0.00          0.00
 16%  -1093.74      0.00          0.00          0.00
 33%  -1093.74      0.00          0.00          0.00
 50%  -1093.74      0.00          0.00          0.00
 66%  -1093.74      0.00          0.00          0.00
 83%  -1093.74      0.00          0.00          0.00
100%  -1093.74      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 75
Estado f1=fase 1 en resto
  0%  -130.57       14.89         0.00          0.00
 16%  -134.69       14.89         0.00          0.00
 33%  -138.81       14.89         0.00          0.00
 50%  -142.93       14.89         0.00          0.00
 66%  -147.05       14.89         0.00          0.00
 83%  -151.17       14.89         0.00          0.00
100%  -155.29       14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29        0.00          0.00          0.00
 16%  -26.29        0.00          0.00          0.00
 33%  -26.29        0.00          0.00          0.00
 50%  -26.29        0.00          0.00          0.00
 66%  -26.29        0.00          0.00          0.00
 83%  -26.29        0.00          0.00          0.00
100%  -26.29        0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2291.28      0.00          0.00          0.00
 16%  -2291.28      0.00          0.00          0.00
 33%  -2291.28      0.00          0.00          0.00
 50%  -2291.28      0.00          0.00          0.00
 66%  -2291.28      0.00          0.00          0.00
 83%  -2291.28      0.00          0.00          0.00
100%  -2291.28      0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 76
Estado f1=fase 1 en resto
  0%  -155.29       14.89         0.00          0.00
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 16%  -159.41       14.89         0.00          0.00
 33%  -163.53       14.89         0.00          0.00
 50%  -167.65       14.89         0.00          0.00
 66%  -171.77       14.89         0.00          0.00
 83%  -175.89       14.89         0.00          0.00
100%  -180.01       14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         0.00          0.00          0.00
 16%  -26.29         0.00          0.00          0.00
 33%  -26.29         0.00          0.00          0.00
 50%  -26.29         0.00          0.00          0.00
 66%  -26.29         0.00          0.00          0.00
 83%  -26.29         0.00          0.00          0.00
100%  -26.29         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2291.28       0.00          0.00          0.00
 16%  -2291.28       0.00          0.00          0.00
 33%  -2291.28       0.00          0.00          0.00
 50%  -2291.28       0.00          0.00          0.00
 66%  -2291.28       0.00          0.00          0.00
 83%  -2291.28       0.00          0.00          0.00
100%  -2291.28       0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 77
Estado f1=fase 1 en resto
  0%  -180.01        14.89         0.00          0.00
 16%  -184.14        14.89         0.00          0.00
 33%  -188.26        14.89         0.00          0.00
 50%  -192.38        14.89         0.00          0.00
 66%  -196.50        14.89         0.00          0.00
 83%  -200.62        14.89         0.00          0.00
100%  -204.74        14.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         0.00          0.00          0.00
 16%  -26.29         0.00          0.00          0.00
 33%  -26.29         0.00          0.00          0.00
 50%  -26.29         0.00          0.00          0.00
 66%  -26.29         0.00          0.00          0.00
 83%  -26.29         0.00          0.00          0.00
100%  -26.29         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2291.28       0.00          0.00          0.00
 16%  -2291.28       0.00          0.00          0.00
 33%  -2291.28       0.00          0.00          0.00
 50%  -2291.28       0.00          0.00          0.00
 66%  -2291.28       0.00          0.00          0.00
 83%  -2291.28       0.00          0.00          0.00
100%  -2291.28       0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 78
Estado f1=fase 1 en resto
  0%  -204.74        -14.42        0.00          0.00
 16%  -200.75        -14.42        0.00          0.00
 33%  -196.76        -14.42        0.00          0.00
 50%  -192.77        -14.42        0.00          0.00
 66%  -188.78        -14.42        0.00          0.00
 83%  -184.79        -14.42        0.00          0.00
100%  -180.80        -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.29         -10.82        0.00          0.00
 16%  -23.30         -10.82        0.00          0.00
 33%  -20.30         -10.82        0.00          0.00
 50%  -17.31         -10.82        0.00          0.00
 66%  -14.32         -10.82        0.00          0.00
 83%  -11.32         -10.82        0.00          0.00
100%  -8.33          -10.82        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2291.28       -10.91        0.00          0.00
 16%  -2288.26       -10.91        0.00          0.00
 33%  -2285.24       -10.91        0.00          0.00
 50%  -2282.22       -10.91        0.00          0.00
 66%  -2279.20       -10.91        0.00          0.00
 83%  -2276.18       -10.91        0.00          0.00
100%  -2273.17       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 79
Estado f1=fase 1 en resto
  0%  -180.80        -14.42        0.00          0.00
 16%  -176.81        -14.42        0.00          0.00
 33%  -172.82        -14.42        0.00          0.00
 50%  -168.83        -14.42        0.00          0.00
 66%  -164.84        -14.42        0.00          0.00
 83%  -160.85        -14.42        0.00          0.00
100%  -156.86        -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -8.33          -10.82        0.00          0.00
 16%  -5.34          -10.82        0.00          0.00
 33%  -2.34          -10.82        0.00          0.00
 50%  0.65           -10.82        0.00          0.00
 66%  3.64           -10.82        0.00          0.00
 83%  6.64           -10.82        0.00          0.00
100%  9.63           -10.82        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2273.17       -10.91        0.00          0.00
 16%  -2270.15       -10.91        0.00          0.00
 33%  -2267.13       -10.91        0.00          0.00
 50%  -2264.11       -10.91        0.00          0.00
 66%  -2261.09       -10.91        0.00          0.00
 83%  -2258.07       -10.91        0.00          0.00
100%  -2255.05       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 80
Estado f1=fase 1 en resto
  0%  -156.86        -14.42        0.00          0.00
 16%  -152.87        -14.42        0.00          0.00
 33%  -148.88        -14.42        0.00          0.00
 50%  -144.89        -14.42        0.00          0.00
 66%  -140.90        -14.42        0.00          0.00
 83%  -136.91        -14.42        0.00          0.00
100%  -132.92        -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  9.63           -10.82        0.00          0.00
 16%  12.63          -10.82        0.00          0.00
 33%  15.62          -10.82        0.00          0.00
 50%  18.61          -10.82        0.00          0.00
 66%  21.61          -10.82        0.00          0.00
 83%  24.60          -10.82        0.00          0.00
100%  27.59          -10.82        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -2255.05       -10.91        0.00          0.00
 16%  -2252.03       -10.91        0.00          0.00
 33%  -2249.02       -10.91        0.00          0.00
 50%  -2246.00       -10.91        0.00          0.00
 66%  -2242.98       -10.91        0.00          0.00
 83%  -2239.96       -10.91        0.00          0.00
100%  -2236.94       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 81
Estado f1=fase 1 en resto
  0%  -132.92        -14.42        0.00          0.00
 16%  -128.93        -14.42        0.00          0.00
 33%  -124.94        -14.42        0.00          0.00
 50%  -120.95        -14.42        0.00          0.00
 66%  -116.96        -14.42        0.00          0.00
 83%  -112.97        -14.42        0.00          0.00
100%  -108.98        -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  27.59          -10.82        0.00          0.00
```

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 16%  30.59         -10.82        0.00          0.00
 33%  33.58         -10.82        0.00          0.00
 50%  36.57         -10.82        0.00          0.00
 66%  39.57         -10.82        0.00          0.00
 83%  42.56         -10.82        0.00          0.00
100%  45.56         -10.82        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1039.40      -10.91        0.00          0.00
 16%  -1036.38      -10.91        0.00          0.00
 33%  -1033.36      -10.91        0.00          0.00
 50%  -1030.35      -10.91        0.00          0.00
 66%  -1027.33      -10.91        0.00          0.00
 83%  -1024.31      -10.91        0.00          0.00
100%  -1021.29      -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 82
Estado f1=fase 1 en resto
  0%  -108.98       -14.42        0.00          0.00
 16%  -107.87       -14.42        0.00          0.00
 33%  -106.77       -14.42        0.00          0.00
 50%  -105.66       -14.42        0.00          0.00
 66%  -104.56       -14.42        0.00          0.00
 83%  -103.45       -14.42        0.00          0.00
100%  -102.35       -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  45.56         -10.82        0.00          0.00
 16%  46.38         -10.82        0.00          0.00
 33%  47.21         -10.82        0.00          0.00
 50%  48.04         -10.82        0.00          0.00
 66%  48.87         -10.82        0.00          0.00
 83%  49.70         -10.82        0.00          0.00
100%  50.53         -10.82        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1021.29      -10.91        0.00          0.00
 16%  -1020.45      -10.91        0.00          0.00
 33%  -1019.62      -10.91        0.00          0.00
 50%  -1018.78      -10.91        0.00          0.00
 66%  -1017.94      -10.91        0.00          0.00
 83%  -1017.11      -10.91        0.00          0.00
100%  -1016.27      -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 83
Estado f1=fase 1 en resto
  0%  -85.04        -14.42        0.00          0.00
 16%  -81.25        -14.42        0.00          0.00
 33%  -77.46        -14.42        0.00          0.00
 50%  -73.66        -14.42        0.00          0.00
 66%  -69.87        -14.42        0.00          0.00
 83%  -66.08        -14.42        0.00          0.00
100%  -62.29        -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  48.53         1.67          0.00          0.00
 16%  48.09         1.67          0.00          0.00
 33%  47.65         1.67          0.00          0.00
 50%  47.21         1.67          0.00          0.00
 66%  46.77         1.67          0.00          0.00
 83%  46.33         1.67          0.00          0.00
100%  45.89         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1003.18      -10.91        0.00          0.00
 16%  -1000.31      -10.91        0.00          0.00
 33%  -997.44       -10.91        0.00          0.00
 50%  -994.57       -10.91        0.00          0.00
 66%  -991.70       -10.91        0.00          0.00
 83%  -988.83       -10.91        0.00          0.00
100%  -985.96       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 84
Estado f1=fase 1 en resto
  0%  -62.29        -14.42        0.00          0.00
 16%  -58.49        -14.42        0.00          0.00
 33%  -54.70        -14.42        0.00          0.00
 50%  -50.91        -14.42        0.00          0.00
 66%  -47.12        -14.42        0.00          0.00
 83%  -43.32        -14.42        0.00          0.00
100%  -39.53        -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  45.89         1.67          0.00          0.00
 16%  45.45         1.67          0.00          0.00
 33%  45.01         1.67          0.00          0.00
 50%  44.57         1.67          0.00          0.00
 66%  44.13         1.67          0.00          0.00
 83%  43.69         1.67          0.00          0.00
100%  43.25         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -985.96       -10.91        0.00          0.00
 16%  -983.09       -10.91        0.00          0.00
 33%  -980.22       -10.91        0.00          0.00
 50%  -977.36       -10.91        0.00          0.00
 66%  -974.49       -10.91        0.00          0.00
 83%  -971.62       -10.91        0.00          0.00
100%  -968.75       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 85
Estado f1=fase 1 en resto
  0%  -39.53        -14.42        0.00          0.00
 16%  -35.74        -14.42        0.00          0.00
 33%  -31.95        -14.42        0.00          0.00
 50%  -28.15        -14.42        0.00          0.00
 66%  -24.36        -14.42        0.00          0.00
 83%  -20.57        -14.42        0.00          0.00
100%  -16.78        -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  43.25         1.67          0.00          0.00
 16%  42.81         1.67          0.00          0.00
 33%  42.37         1.67          0.00          0.00
 50%  41.93         1.67          0.00          0.00
 66%  41.49         1.67          0.00          0.00
 83%  41.05         1.67          0.00          0.00
100%  40.61         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -968.75       -10.91        0.00          0.00
 16%  -965.88       -10.91        0.00          0.00
 33%  -963.01       -10.91        0.00          0.00
 50%  -960.14       -10.91        0.00          0.00
 66%  -957.27       -10.91        0.00          0.00
 83%  -954.40       -10.91        0.00          0.00
100%  -951.53       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 86
Estado f1=fase 1 en resto
  0%  -16.78        -14.42        0.00          0.00
 16%  -12.99        -14.42        0.00          0.00
 33%  -9.19         -14.42        0.00          0.00
 50%  -5.40         -14.42        0.00          0.00
 66%  -1.61         -14.42        0.00          0.00
 83%  2.18          -14.42        0.00          0.00
100%  5.98          -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  40.61         1.67          0.00          0.00
 16%  40.17         1.67          0.00          0.00
 33%  39.73         1.67          0.00          0.00
 50%  39.29         1.67          0.00          0.00
 66%  38.85         1.67          0.00          0.00
 83%  38.41         1.67          0.00          0.00
100%  37.97         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -951.53       -10.91        0.00          0.00
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 16%  -948.66       -10.91        0.00          0.00
 33%  -945.79       -10.91        0.00          0.00
 50%  -942.93       -10.91        0.00          0.00
 66%  -940.06       -10.91        0.00          0.00
 83%  -937.19       -10.91        0.00          0.00
100%  -934.32       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 87
Estado f1=fase 1 en resto
  0%  5.98          -14.42        0.00          0.00
 16%  9.77          -14.42        0.00          0.00
 33%  13.56         -14.42        0.00          0.00
 50%  17.35         -14.42        0.00          0.00
 66%  21.15         -14.42        0.00          0.00
 83%  24.94         -14.42        0.00          0.00
100%  28.73         -14.42        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  37.97         1.67          0.00          0.00
 16%  37.53         1.67          0.00          0.00
 33%  37.09         1.67          0.00          0.00
 50%  36.65         1.67          0.00          0.00
 66%  36.21         1.67          0.00          0.00
 83%  35.77         1.67          0.00          0.00
100%  35.33         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  947.28        -10.91        0.00          0.00
 16%  950.15        -10.91        0.00          0.00
 33%  953.02        -10.91        0.00          0.00
 50%  955.89        -10.91        0.00          0.00
 66%  958.76        -10.91        0.00          0.00
 83%  961.63        -10.91        0.00          0.00
100%  964.50        -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 88
Estado f1=fase 1 en resto
  0%  28.73         -14.42        0.00          0.00
 16%  32.44         -13.80        0.00          0.00
 33%  35.99         -13.18        0.00          0.00
 50%  39.37         -12.56        0.00          0.00
 66%  42.59         -11.94        0.00          0.00
 83%  45.65         -11.32        0.00          0.00
100%  48.55         -10.70        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  35.33         1.67          0.00          0.00
 16%  34.89         1.67          0.00          0.00
 33%  34.45         1.67          0.00          0.00
 50%  34.01         1.67          0.00          0.00
 66%  33.57         1.67          0.00          0.00
 83%  33.13         1.67          0.00          0.00
100%  32.69         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  964.50        -10.91        0.00          0.00
 16%  967.37        -10.91        0.00          0.00
 33%  970.23        -10.91        0.00          0.00
 50%  973.10        -10.91        0.00          0.00
 66%  975.97        -10.91        0.00          0.00
 83%  978.84        -10.91        0.00          0.00
100%  981.71        -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 89
Estado f1=fase 1 en resto
  0%  48.55         -10.70        0.00          0.00
 16%  51.28         -10.08        0.00          0.00
 33%  53.85         -9.46         0.00          0.00
 50%  56.25         -8.84         0.00          0.00
 66%  58.49         -8.22         0.00          0.00
 83%  60.57         -7.60         0.00          0.00
100%  62.49         -6.97         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  32.69         1.67          0.00          0.00
 16%  32.25         1.67          0.00          0.00
 33%  31.81         1.67          0.00          0.00
 50%  31.37         1.67          0.00          0.00
 66%  30.93         1.67          0.00          0.00
 83%  30.49         1.67          0.00          0.00
100%  30.05         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  981.71        -10.91        0.00          0.00
 16%  984.58        -10.91        0.00          0.00
 33%  987.45        -10.91        0.00          0.00
 50%  990.32        -10.91        0.00          0.00
 66%  993.19        -10.91        0.00          0.00
 83%  996.06        -10.91        0.00          0.00
100%  998.93        -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 90
Estado f1=fase 1 en resto
  0%  62.49         -6.97         0.00          0.00
 16%  64.24         -6.35         0.00          0.00
 33%  65.83         -5.73         0.00          0.00
 50%  67.26         -5.11         0.00          0.00
 66%  68.52         -4.49         0.00          0.00
 83%  69.62         -3.87         0.00          0.00
100%  70.56         -3.25         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  30.05         1.67          0.00          0.00
 16%  29.61         1.67          0.00          0.00
 33%  29.18         1.67          0.00          0.00
 50%  28.74         1.67          0.00          0.00
 66%  28.30         1.67          0.00          0.00
 83%  27.86         1.67          0.00          0.00
100%  27.42         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  998.93        -10.91        0.00          0.00
 16%  1001.80       -10.91        0.00          0.00
 33%  1004.66       -10.91        0.00          0.00
 50%  1007.53       -10.91        0.00          0.00
 66%  1010.40       -10.91        0.00          0.00
 83%  1013.27       -10.91        0.00          0.00
100%  1016.14       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 91
Estado f1=fase 1 en resto
  0%  70.56         -3.25         0.00          0.00
 16%  71.33         -2.63         0.00          0.00
 33%  71.94         -2.01         0.00          0.00
 50%  72.39         -1.39         0.00          0.00
 66%  72.67         -0.77         0.00          0.00
 83%  72.79         -0.15         0.00          0.00
100%  72.75         0.47          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  27.42         1.67          0.00          0.00
 16%  26.98         1.67          0.00          0.00
 33%  26.54         1.67          0.00          0.00
 50%  26.10         1.67          0.00          0.00
 66%  25.66         1.67          0.00          0.00
 83%  25.22         1.67          0.00          0.00
100%  24.78         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1016.14       -10.91        0.00          0.00
 16%  1019.01       -10.91        0.00          0.00
 33%  1021.88       -10.91        0.00          0.00
 50%  1024.75       -10.91        0.00          0.00
 66%  1027.62       -10.91        0.00          0.00
 83%  1030.49       -10.91        0.00          0.00
100%  1033.36       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 92
```

```
Estado f1=fase 1 en resto
  0%  72.75         0.47         0.00         0.00
 16%  72.54         1.09         0.00         0.00
 33%  72.17         1.71         0.00         0.00
 50%  71.64         2.33         0.00         0.00
 66%  70.94         2.96         0.00         0.00
 83%  70.09         3.58         0.00         0.00
100%  69.06         4.20         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  24.78         1.67         0.00         0.00
 16%  24.34         1.67         0.00         0.00
 33%  23.90         1.67         0.00         0.00
 50%  23.46         1.67         0.00         0.00
 66%  23.02         1.67         0.00         0.00
 83%  22.58         1.67         0.00         0.00
100%  22.14         1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1033.36       -10.91        0.00         0.00
 16%  1036.22       -10.91        0.00         0.00
 33%  1039.09       -10.91        0.00         0.00
 50%  1041.96       -10.91        0.00         0.00
 66%  1044.83       -10.91        0.00         0.00
 83%  1047.70       -10.91        0.00         0.00
100%  1050.57       -10.91        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 93
Estado f1=fase 1 en resto
  0%  69.06         4.20         0.00         0.00
 16%  67.88         4.82         0.00         0.00
 33%  66.53         5.44         0.00         0.00
 50%  65.02         6.06         0.00         0.00
 66%  63.34         6.68         0.00         0.00
 83%  61.51         7.30         0.00         0.00
100%  59.51         7.92         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  22.14         1.67         0.00         0.00
 16%  21.70         1.67         0.00         0.00
 33%  21.26         1.67         0.00         0.00
 50%  20.82         1.67         0.00         0.00
 66%  20.38         1.67         0.00         0.00
 83%  19.94         1.67         0.00         0.00
100%  19.50         1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1050.57       -10.91        0.00         0.00
 16%  1053.44       -10.91        0.00         0.00
 33%  1056.31       -10.91        0.00         0.00
 50%  1059.18       -10.91        0.00         0.00
 66%  1062.05       -10.91        0.00         0.00
 83%  1064.92       -10.91        0.00         0.00
100%  1067.79       -10.91        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 94
Estado f1=fase 1 en resto
  0%  59.51         7.92         0.00         0.00
 16%  57.34         8.54         0.00         0.00
 33%  55.01         9.16         0.00         0.00
 50%  52.52         9.78         0.00         0.00
 66%  49.87        10.40         0.00         0.00
 83%  47.05        11.02         0.00         0.00
100%  44.07        11.64         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  19.50         1.67         0.00         0.00
 16%  19.06         1.67         0.00         0.00
 33%  18.62         1.67         0.00         0.00
 50%  18.18         1.67         0.00         0.00
 66%  17.74         1.67         0.00         0.00
 83%  17.30         1.67         0.00         0.00
100%  16.86         1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1067.79       -10.91        0.00         0.00
 16%  1070.65       -10.91        0.00         0.00
 33%  1073.52       -10.91        0.00         0.00
 50%  1076.39       -10.91        0.00         0.00
 66%  1079.26       -10.91        0.00         0.00
 83%  1082.13       -10.91        0.00         0.00
100%  1085.00       -10.91        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 95
Estado f1=fase 1 en resto
  0%  44.07         11.64        0.00         0.00
 16%  40.93         12.26        0.00         0.00
 33%  37.62         12.88        0.00         0.00
 50%  34.15         13.51        0.00         0.00
 66%  30.52         14.13        0.00         0.00
 83%  26.72         14.75        0.00         0.00
100%  22.76         15.37        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  16.86         1.67         0.00         0.00
 16%  16.42         1.67         0.00         0.00
 33%  15.98         1.67         0.00         0.00
 50%  15.54         1.67         0.00         0.00
 66%  15.10         1.67         0.00         0.00
 83%  14.66         1.67         0.00         0.00
100%  14.22         1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1085.00       -10.91        0.00         0.00
 16%  1087.87       -10.91        0.00         0.00
 33%  1090.74       -10.91        0.00         0.00
 50%  1093.61       -10.91        0.00         0.00
 66%  1096.48       -10.91        0.00         0.00
 83%  1099.35       -10.91        0.00         0.00
100%  1102.21       -10.91        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 96
Estado f1=fase 1 en resto
  0%  22.76         15.37        0.00         0.00
 16%  18.72         15.37        0.00         0.00
 33%  14.68         15.37        0.00         0.00
 50%  10.64         15.37        0.00         0.00
 66%  6.60          15.37        0.00         0.00
 83%  2.56          15.37        0.00         0.00
100%  -1.48         15.37        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  14.22         1.67         0.00         0.00
 16%  13.78         1.67         0.00         0.00
 33%  13.34         1.67         0.00         0.00
 50%  12.90         1.67         0.00         0.00
 66%  12.46         1.67         0.00         0.00
 83%  12.02         1.67         0.00         0.00
100%  11.58         1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  1102.21       -10.91        0.00         0.00
 16%  1105.08       -10.91        0.00         0.00
 33%  1107.95       -10.91        0.00         0.00
 50%  1110.82       -10.91        0.00         0.00
 66%  1113.69       -10.91        0.00         0.00
 83%  1116.56       -10.91        0.00         0.00
100%  1119.43       -10.91        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 97
Estado f1=fase 1 en resto
  0%  -1.48         15.37        0.00         0.00
 16%  -5.52         15.37        0.00         0.00
 33%  -9.56         15.37        0.00         0.00
 50%  -13.60        15.37        0.00         0.00
 66%  -17.64        15.37        0.00         0.00
 83%  -21.69        15.37        0.00         0.00
100%  -25.73        15.37        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
```

```
Estado TO=QUITAR TORRETAS
  0%  11.58         1.67         0.00         0.00
 16%  11.14         1.67         0.00         0.00
 33%  10.70         1.67         0.00         0.00
 50%  10.26         1.67         0.00         0.00
 66%  9.82          1.67         0.00         0.00
 83%  9.38          1.67         0.00         0.00
100%  8.95          1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -762.17       -10.91       0.00         0.00
 16%  -759.30       -10.91       0.00         0.00
 33%  -756.43       -10.91       0.00         0.00
 50%  -753.56       -10.91       0.00         0.00
 66%  -750.69       -10.91       0.00         0.00
 83%  -747.82       -10.91       0.00         0.00
100%  -744.96       -10.91       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 98
Estado f1=fase 1 en resto
  0%  -25.73        15.37        0.00         0.00
 16%  -29.77        15.37        0.00         0.00
 33%  -33.81        15.37        0.00         0.00
 50%  -37.85        15.37        0.00         0.00
 66%  -41.89        15.37        0.00         0.00
 83%  -45.93        15.37        0.00         0.00
100%  -49.97        15.37        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  8.95          1.67         0.00         0.00
 16%  8.51          1.67         0.00         0.00
 33%  8.07          1.67         0.00         0.00
 50%  7.63          1.67         0.00         0.00
 66%  7.19          1.67         0.00         0.00
 83%  6.75          1.67         0.00         0.00
100%  6.31          1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -744.96       -10.91       0.00         0.00
 16%  -742.09       -10.91       0.00         0.00
 33%  -739.22       -10.91       0.00         0.00
 50%  -736.35       -10.91       0.00         0.00
 66%  -733.48       -10.91       0.00         0.00
 83%  -730.61       -10.91       0.00         0.00
100%  -727.74       -10.91       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 99
Estado f1=fase 1 en resto
  0%  -49.97        15.37        0.00         0.00
 16%  -54.01        15.37        0.00         0.00
 33%  -58.05        15.37        0.00         0.00
 50%  -62.09        15.37        0.00         0.00
 66%  -66.14        15.37        0.00         0.00
 83%  -70.18        15.37        0.00         0.00
100%  -74.22        15.37        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  6.31          1.67         0.00         0.00
 16%  5.87          1.67         0.00         0.00
 33%  5.43          1.67         0.00         0.00
 50%  4.99          1.67         0.00         0.00
 66%  4.55          1.67         0.00         0.00
 83%  4.11          1.67         0.00         0.00
100%  3.67          1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -727.74       -10.91       0.00         0.00
 16%  -724.87       -10.91       0.00         0.00
 33%  -722.00       -10.91       0.00         0.00
 50%  -719.13       -10.91       0.00         0.00
 66%  -716.26       -10.91       0.00         0.00
 83%  -713.40       -10.91       0.00         0.00
100%  -710.53       -10.91       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 100
Estado f1=fase 1 en resto
  0%  -74.22        15.37        0.00         0.00
 16%  -78.26        15.37        0.00         0.00
 33%  -82.30        15.37        0.00         0.00
 50%  -86.34        15.37        0.00         0.00
 66%  -90.38        15.37        0.00         0.00
 83%  -94.42        15.37        0.00         0.00
100%  -98.46        15.37        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  3.67          1.67         0.00         0.00
 16%  3.23          1.67         0.00         0.00
 33%  2.79          1.67         0.00         0.00
 50%  2.35          1.67         0.00         0.00
 66%  1.91          1.67         0.00         0.00
 83%  1.47          1.67         0.00         0.00
100%  1.03          1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -710.53       -10.91       0.00         0.00
 16%  -707.66       -10.91       0.00         0.00
 33%  -704.79       -10.91       0.00         0.00
 50%  -701.92       -10.91       0.00         0.00
 66%  -699.05       -10.91       0.00         0.00
 83%  -696.18       -10.91       0.00         0.00
100%  -693.31       -10.91       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 101
Estado f1=fase 1 en resto
  0%  -98.46        15.37        0.00         0.00
 16%  -102.71       15.37        0.00         0.00
 33%  -106.97       15.37        0.00         0.00
 50%  -111.22       15.37        0.00         0.00
 66%  -115.47       15.37        0.00         0.00
 83%  -119.72       15.37        0.00         0.00
100%  -123.97       15.37        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  1.03          1.67         0.00         0.00
 16%  0.57          1.67         0.00         0.00
 33%  0.10          1.67         0.00         0.00
 50%  -0.36         1.67         0.00         0.00
 66%  -0.82         1.67         0.00         0.00
 83%  -1.28         1.67         0.00         0.00
100%  -1.75         1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -693.31       -10.91       0.00         0.00
 16%  -690.29       -10.91       0.00         0.00
 33%  -687.27       -10.91       0.00         0.00
 50%  -684.26       -10.91       0.00         0.00
 66%  -681.24       -10.91       0.00         0.00
 83%  -678.22       -10.91       0.00         0.00
100%  -675.20       -10.91       0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------------
Viga 102
Estado f1=fase 1 en resto
  0%  -123.97       15.37        0.00         0.00
 16%  -128.22       15.37        0.00         0.00
 33%  -132.48       15.37        0.00         0.00
 50%  -136.73       15.37        0.00         0.00
 66%  -140.98       15.37        0.00         0.00
 83%  -145.23       15.37        0.00         0.00
100%  -149.48       15.37        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -1.75         1.67         0.00         0.00
 16%  -2.21         1.67         0.00         0.00
 33%  -2.67         1.67         0.00         0.00
 50%  -3.14         1.67         0.00         0.00
 66%  -3.60         1.67         0.00         0.00
 83%  -4.06         1.67         0.00         0.00
100%  -4.52         1.67         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
```

```
Estado PO=POSTESADO DE LOSA
  0%  -675.20       -10.91        0.00          0.00
 16%  -672.18       -10.91        0.00          0.00
 33%  -669.16       -10.91        0.00          0.00
 50%  -666.14       -10.91        0.00          0.00
 66%  -663.12       -10.91        0.00          0.00
 83%  -660.11       -10.91        0.00          0.00
100%  -657.09       -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 103
Estado f1=fase 1 en resto
  0%  -149.48       15.37         0.00          0.00
 16%  -153.73       15.37         0.00          0.00
 33%  -157.98       15.37         0.00          0.00
 50%  -162.24       15.37         0.00          0.00
 66%  -166.49       15.37         0.00          0.00
 83%  -170.74       15.37         0.00          0.00
100%  -174.99       15.37         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -4.52         1.67          0.00          0.00
 16%  -4.99         1.67          0.00          0.00
 33%  -5.45         1.67          0.00          0.00
 50%  -5.91         1.67          0.00          0.00
 66%  -6.37         1.67          0.00          0.00
 83%  -6.84         1.67          0.00          0.00
100%  -7.30         1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1854.63      -10.91        0.00          0.00
 16%  -1851.61      -10.91        0.00          0.00
 33%  -1848.59      -10.91        0.00          0.00
 50%  -1845.57      -10.91        0.00          0.00
 66%  -1842.55      -10.91        0.00          0.00
 83%  -1839.53      -10.91        0.00          0.00
100%  -1836.52      -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 104
Estado f1=fase 1 en resto
  0%  -174.99       15.37         0.00          0.00
 16%  -179.24       15.37         0.00          0.00
 33%  -183.49       15.37         0.00          0.00
 50%  -187.74       15.37         0.00          0.00
 66%  -192.00       15.37         0.00          0.00
 83%  -196.25       15.37         0.00          0.00
100%  -200.50       15.37         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -7.30         1.67          0.00          0.00
 16%  -7.76         1.67          0.00          0.00
 33%  -8.22         1.67          0.00          0.00
 50%  -8.69         1.67          0.00          0.00
 66%  -9.15         1.67          0.00          0.00
 83%  -9.61         1.67          0.00          0.00
100%  -10.08        1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1836.52      -10.91        0.00          0.00
 16%  -1833.50      -10.91        0.00          0.00
 33%  -1830.48      -10.91        0.00          0.00
 50%  -1827.46      -10.91        0.00          0.00
 66%  -1824.44      -10.91        0.00          0.00
 83%  -1821.42      -10.91        0.00          0.00
100%  -1818.40      -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 105
Estado f1=fase 1 en resto
  0%  -200.50       15.37         0.00          0.00
 16%  -204.75       15.37         0.00          0.00
 33%  -209.00       15.37         0.00          0.00
 50%  -213.25       15.37         0.00          0.00
 66%  -217.51       15.37         0.00          0.00
 83%  -221.76       15.37         0.00          0.00
100%  -226.01       15.37         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -10.08        1.67          0.00          0.00
 16%  -10.54        1.67          0.00          0.00
 33%  -11.00        1.67          0.00          0.00
 50%  -11.46        1.67          0.00          0.00
 66%  -11.93        1.67          0.00          0.00
 83%  -12.39        1.67          0.00          0.00
100%  -12.85        1.67          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1818.40      -10.91        0.00          0.00
 16%  -1815.38      -10.91        0.00          0.00
 33%  -1812.37      -10.91        0.00          0.00
 50%  -1809.35      -10.91        0.00          0.00
 66%  -1806.33      -10.91        0.00          0.00
 83%  -1803.31      -10.91        0.00          0.00
100%  -1800.29      -10.91        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 106
Estado f1=fase 1 en resto
  0%  -226.01       -17.32        0.00          0.00
 16%  -221.22       -17.32        0.00          0.00
 33%  -216.42       -17.32        0.00          0.00
 50%  -211.63       -17.32        0.00          0.00
 66%  -206.84       -17.32        0.00          0.00
 83%  -202.05       -17.32        0.00          0.00
100%  -197.26       -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -12.85        3.80          0.00          0.00
 16%  -13.90        3.80          0.00          0.00
 33%  -14.96        3.80          0.00          0.00
 50%  -16.01        3.80          0.00          0.00
 66%  -17.06        3.80          0.00          0.00
 83%  -18.11        3.80          0.00          0.00
100%  -19.16        3.80          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1800.29      38.17         0.00          0.00
 16%  -1810.85      38.17         0.00          0.00
 33%  -1821.41      38.17         0.00          0.00
 50%  -1831.98      38.17         0.00          0.00
 66%  -1842.54      38.17         0.00          0.00
 83%  -1853.10      38.17         0.00          0.00
100%  -1863.66      38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 107
Estado f1=fase 1 en resto
  0%  -197.26       -17.32        0.00          0.00
 16%  -192.47       -17.32        0.00          0.00
 33%  -187.67       -17.32        0.00          0.00
 50%  -182.88       -17.32        0.00          0.00
 66%  -178.09       -17.32        0.00          0.00
 83%  -173.30       -17.32        0.00          0.00
100%  -168.51       -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -19.16        3.80          0.00          0.00
 16%  -20.22        3.80          0.00          0.00
 33%  -21.27        3.80          0.00          0.00
 50%  -22.32        3.80          0.00          0.00
 66%  -23.37        3.80          0.00          0.00
 83%  -24.43        3.80          0.00          0.00
100%  -25.48        3.80          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1863.66      38.17         0.00          0.00
 16%  -1874.22      38.17         0.00          0.00
 33%  -1884.78      38.17         0.00          0.00
 50%  -1895.35      38.17         0.00          0.00
 66%  -1905.91      38.17         0.00          0.00
 83%  -1916.47      38.17         0.00          0.00
100%  -1927.03      38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
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Viga 108
Estado f1=fase 1 en resto
  0%  -168.51       -17.32        0.00          0.00
 16%  -163.72       -17.32        0.00          0.00
 33%  -158.93       -17.32        0.00          0.00
 50%  -154.13       -17.32        0.00          0.00
 66%  -149.34       -17.32        0.00          0.00
 83%  -144.55       -17.32        0.00          0.00
100%  -139.76       -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -25.48         3.80          0.00          0.00
 16%  -26.53         3.80          0.00          0.00
 33%  -27.58         3.80          0.00          0.00
 50%  -28.63         3.80          0.00          0.00
 66%  -29.69         3.80          0.00          0.00
 83%  -30.74         3.80          0.00          0.00
100%  -31.79         3.80          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1927.03       38.17         0.00          0.00
 16%  -1937.59       38.17         0.00          0.00
 33%  -1948.15       38.17         0.00          0.00
 50%  -1958.72       38.17         0.00          0.00
 66%  -1969.28       38.17         0.00          0.00
 83%  -1979.84       38.17         0.00          0.00
100%  -1990.40       38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
---------------------------------------------------------
Viga 109
Estado f1=fase 1 en resto
  0%  -139.76       -17.32        0.00          0.00
 16%  -134.97       -17.32        0.00          0.00
 33%  -130.18       -17.32        0.00          0.00
 50%  -125.38       -17.32        0.00          0.00
 66%  -120.59       -17.32        0.00          0.00
 83%  -115.80       -17.32        0.00          0.00
100%  -111.01       -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -31.79         3.80          0.00          0.00
 16%  -32.84         3.80          0.00          0.00
 33%  -33.89         3.80          0.00          0.00
 50%  -34.95         3.80          0.00          0.00
 66%  -36.00         3.80          0.00          0.00
 83%  -37.05         3.80          0.00          0.00
100%  -38.10         3.80          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -792.86        38.17         0.00          0.00
 16%  -803.42        38.17         0.00          0.00
 33%  -813.98        38.17         0.00          0.00
 50%  -824.55        38.17         0.00          0.00
 66%  -835.11        38.17         0.00          0.00
 83%  -845.67        38.17         0.00          0.00
100%  -856.23        38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
---------------------------------------------------------
Viga 110
Estado f1=fase 1 en resto
  0%  -111.01       -17.32        0.00          0.00
 16%  -109.68       -17.32        0.00          0.00
 33%  -108.35       -17.32        0.00          0.00
 50%  -107.03       -17.32        0.00          0.00
 66%  -105.70       -17.32        0.00          0.00
 83%  -104.37       -17.32        0.00          0.00
100%  -103.04       -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -38.10         3.80          0.00          0.00
 16%  -38.39         3.80          0.00          0.00
 33%  -38.69         3.80          0.00          0.00
 50%  -38.98         3.80          0.00          0.00
 66%  -39.27         3.80          0.00          0.00
 83%  -39.56         3.80          0.00          0.00
100%  -39.85         3.80          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -856.23        38.17         0.00          0.00
 16%  -859.16        38.17         0.00          0.00
 33%  -862.08        38.17         0.00          0.00
 50%  -865.01        38.17         0.00          0.00
 66%  -867.94        38.17         0.00          0.00
 83%  -870.86        38.17         0.00          0.00
100%  -873.79        38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
---------------------------------------------------------
Viga 111
Estado f1=fase 1 en resto
  0%  -82.26        -17.32        0.00          0.00
 16%  -77.71        -17.32        0.00          0.00
 33%  -73.17        -17.32        0.00          0.00
 50%  -68.62        -17.32        0.00          0.00
 66%  -64.07        -17.32        0.00          0.00
 83%  -59.53        -17.32        0.00          0.00
100%  -54.98        -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -38.04         -1.51         0.00          0.00
 16%  -37.64         -1.51         0.00          0.00
 33%  -37.25         -1.51         0.00          0.00
 50%  -36.85         -1.51         0.00          0.00
 66%  -36.46         -1.51         0.00          0.00
 83%  -36.06         -1.51         0.00          0.00
100%  -35.66         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -919.60        38.17         0.00          0.00
 16%  -929.62        38.17         0.00          0.00
 33%  -939.64        38.17         0.00          0.00
 50%  -949.66        38.17         0.00          0.00
 66%  -959.68        38.17         0.00          0.00
 83%  -969.70        38.17         0.00          0.00
100%  -979.73        38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
---------------------------------------------------------
Viga 112
Estado f1=fase 1 en resto
  0%  -54.98        -17.32        0.00          0.00
 16%  -50.44        -17.32        0.00          0.00
 33%  -45.89        -17.32        0.00          0.00
 50%  -41.34        -17.32        0.00          0.00
 66%  -36.80        -17.32        0.00          0.00
 83%  -32.25        -17.32        0.00          0.00
100%  -27.70        -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -35.66         -1.51         0.00          0.00
 16%  -35.27         -1.51         0.00          0.00
 33%  -34.87         -1.51         0.00          0.00
 50%  -34.47         -1.51         0.00          0.00
 66%  -34.08         -1.51         0.00          0.00
 83%  -33.68         -1.51         0.00          0.00
100%  -33.29         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -979.73        38.17         0.00          0.00
 16%  -989.75        38.17         0.00          0.00
 33%  -999.77        38.17         0.00          0.00
 50%  -1009.79       38.17         0.00          0.00
 66%  -1019.81       38.17         0.00          0.00
 83%  -1029.83       38.17         0.00          0.00
100%  -1039.85       38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
---------------------------------------------------------
Viga 113
Estado f1=fase 1 en resto
  0%  -27.70        -17.32        0.00          0.00
 16%  -23.16        -17.32        0.00          0.00
 33%  -18.61        -17.32        0.00          0.00
 50%  -14.06        -17.32        0.00          0.00
 66%  -9.52         -17.32        0.00          0.00
 83%  -4.97         -17.32        0.00          0.00
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100%  -0.43         -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -33.29         -1.51         0.00          0.00
 16%  -32.89         -1.51         0.00          0.00
 33%  -32.49         -1.51         0.00          0.00
 50%  -32.10         -1.51         0.00          0.00
 66%  -31.70         -1.51         0.00          0.00
 83%  -31.30         -1.51         0.00          0.00
100%  -30.91         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1039.85       38.17         0.00          0.00
 16%  -1049.87       38.17         0.00          0.00
 33%  -1059.89       38.17         0.00          0.00
 50%  -1069.91       38.17         0.00          0.00
 66%  -1079.93       38.17         0.00          0.00
 83%  -1089.95       38.17         0.00          0.00
100%  -1099.98       38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 114
Estado f1=fase 1 en resto
  0%  -0.43          -17.32        0.00          0.00
 16%  4.12           -17.32        0.00          0.00
 33%  8.67           -17.32        0.00          0.00
 50%  13.21          -17.32        0.00          0.00
 66%  17.76          -17.32        0.00          0.00
 83%  22.31          -17.32        0.00          0.00
100%  26.85          -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -30.91         -1.51         0.00          0.00
 16%  -30.51         -1.51         0.00          0.00
 33%  -30.12         -1.51         0.00          0.00
 50%  -29.72         -1.51         0.00          0.00
 66%  -29.32         -1.51         0.00          0.00
 83%  -28.93         -1.51         0.00          0.00
100%  -28.53         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1099.98       38.17         0.00          0.00
 16%  -1110.00       38.17         0.00          0.00
 33%  -1120.02       38.17         0.00          0.00
 50%  -1130.04       38.17         0.00          0.00
 66%  -1140.06       38.17         0.00          0.00
 83%  -1150.08       38.17         0.00          0.00
100%  -1160.10       38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 115
Estado f1=fase 1 en resto
  0%  26.85          -17.32        0.00          0.00
 16%  31.40          -17.32        0.00          0.00
 33%  35.94          -17.32        0.00          0.00
 50%  40.49          -17.32        0.00          0.00
 66%  45.04          -17.32        0.00          0.00
 83%  49.58          -17.32        0.00          0.00
100%  54.13          -17.32        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -28.53         -1.51         0.00          0.00
 16%  -28.13         -1.51         0.00          0.00
 33%  -27.74         -1.51         0.00          0.00
 50%  -27.34         -1.51         0.00          0.00
 66%  -26.95         -1.51         0.00          0.00
 83%  -26.55         -1.51         0.00          0.00
100%  -26.15         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  721.50         38.17         0.00          0.00
 16%  711.48         38.17         0.00          0.00
 33%  701.46         38.17         0.00          0.00
 50%  691.44         38.17         0.00          0.00
 66%  681.42         38.17         0.00          0.00
 83%  671.40         38.17         0.00          0.00
100%  661.37         38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 116
Estado f1=fase 1 en resto
  0%  54.13          -17.32        0.00          0.00
 16%  58.59          -16.70        0.00          0.00
 33%  62.90          -16.08        0.00          0.00
 50%  67.04          -15.46        0.00          0.00
 66%  71.01          -14.84        0.00          0.00
 83%  74.83          -14.22        0.00          0.00
100%  78.48          -13.60        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -26.15         -1.51         0.00          0.00
 16%  -25.76         -1.51         0.00          0.00
 33%  -25.36         -1.51         0.00          0.00
 50%  -24.96         -1.51         0.00          0.00
 66%  -24.57         -1.51         0.00          0.00
 83%  -24.17         -1.51         0.00          0.00
100%  -23.78         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  661.37         38.17         0.00          0.00
 16%  651.35         38.17         0.00          0.00
 33%  641.33         38.17         0.00          0.00
 50%  631.31         38.17         0.00          0.00
 66%  621.29         38.17         0.00          0.00
 83%  611.27         38.17         0.00          0.00
100%  601.25         38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 117
Estado f1=fase 1 en resto
  0%  78.48          -13.60        0.00          0.00
 16%  81.97          -12.98        0.00          0.00
 33%  85.30          -12.36        0.00          0.00
 50%  88.46          -11.74        0.00          0.00
 66%  91.46          -11.12        0.00          0.00
 83%  94.30          -10.50        0.00          0.00
100%  96.98          -9.89         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -23.78         -1.51         0.00          0.00
 16%  -23.38         -1.51         0.00          0.00
 33%  -22.98         -1.51         0.00          0.00
 50%  -22.59         -1.51         0.00          0.00
 66%  -22.19         -1.51         0.00          0.00
 83%  -21.79         -1.51         0.00          0.00
100%  -21.40         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  601.25         38.17         0.00          0.00
 16%  591.23         38.17         0.00          0.00
 33%  581.21         38.17         0.00          0.00
 50%  571.19         38.17         0.00          0.00
 66%  561.17         38.17         0.00          0.00
 83%  551.15         38.17         0.00          0.00
100%  541.12         38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 118
Estado f1=fase 1 en resto
  0%  96.98          -9.89         0.00          0.00
 16%  99.49          -9.27         0.00          0.00
 33%  101.84         -8.65         0.00          0.00
 50%  104.03         -8.03         0.00          0.00
 66%  106.05         -7.41         0.00          0.00
 83%  107.92         -6.79         0.00          0.00
100%  109.62         -6.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -21.40         -1.51         0.00          0.00
 16%  -21.00         -1.51         0.00          0.00
 33%  -20.61         -1.51         0.00          0.00
 50%  -20.21         -1.51         0.00          0.00
 66%  -19.81         -1.51         0.00          0.00
 83%  -19.42         -1.51         0.00          0.00
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100%  -19.02        -1.51         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  541.12         38.17         0.00          0.00
 16%  531.10         38.17         0.00          0.00
 33%  521.08         38.17         0.00          0.00
 50%  511.06         38.17         0.00          0.00
 66%  501.04         38.17         0.00          0.00
 83%  491.02         38.17         0.00          0.00
100%  481.00         38.17         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 119
Estado f1=fase 1 en resto
  0%  109.62         -6.17         0.00          0.00
 16%  111.16         -5.55         0.00          0.00
 33%  112.53         -4.93         0.00          0.00
 50%  113.74         -4.31         0.00          0.00
 66%  114.79         -3.69         0.00          0.00
 83%  115.68         -3.07         0.00          0.00
100%  116.41         -2.45         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -19.02         -1.51         0.00          0.00
 16%  -18.62         -1.51         0.00          0.00
 33%  -18.23         -1.51         0.00          0.00
 50%  -17.83         -1.51         0.00          0.00
 66%  -17.44         -1.51         0.00          0.00
 83%  -17.04         -1.51         0.00          0.00
100%  -16.64         -1.51         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  481.00         38.17         0.00          0.00
 16%  470.98         38.17         0.00          0.00
 33%  460.96         38.17         0.00          0.00
 50%  450.94         38.17         0.00          0.00
 66%  440.92         38.17         0.00          0.00
 83%  430.90         38.17         0.00          0.00
100%  420.87         38.17         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 120
Estado f1=fase 1 en resto
  0%  116.41         -2.45         0.00          0.00
 16%  116.97         -1.83         0.00          0.00
 33%  117.37         -1.21         0.00          0.00
 50%  117.60         -0.59         0.00          0.00
 66%  117.68         0.03          0.00          0.00
 83%  117.59         0.65          0.00          0.00
100%  117.34         1.27          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -16.64         -1.51         0.00          0.00
 16%  -16.25         -1.51         0.00          0.00
 33%  -15.85         -1.51         0.00          0.00
 50%  -15.45         -1.51         0.00          0.00
 66%  -15.06         -1.51         0.00          0.00
 83%  -14.66         -1.51         0.00          0.00
100%  -14.27         -1.51         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  420.87         38.17         0.00          0.00
 16%  410.85         38.17         0.00          0.00
 33%  400.83         38.17         0.00          0.00
 50%  390.81         38.17         0.00          0.00
 66%  380.79         38.17         0.00          0.00
 83%  370.77         38.17         0.00          0.00
100%  360.75         38.17         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 121
Estado f1=fase 1 en resto
  0%  117.34         1.27          0.00          0.00
 16%  116.93         1.89          0.00          0.00
 33%  116.35         2.50          0.00          0.00
 50%  115.61         3.12          0.00          0.00
 66%  114.71         3.74          0.00          0.00
 83%  113.65         4.36          0.00          0.00
100%  112.42         4.98          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -14.27         -1.51         0.00          0.00
 16%  -13.87         -1.51         0.00          0.00
 33%  -13.47         -1.51         0.00          0.00
 50%  -13.08         -1.51         0.00          0.00
 66%  -12.68         -1.51         0.00          0.00
 83%  -12.28         -1.51         0.00          0.00
100%  -11.89         -1.51         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  360.75         38.17         0.00          0.00
 16%  350.73         38.17         0.00          0.00
 33%  340.71         38.17         0.00          0.00
 50%  330.69         38.17         0.00          0.00
 66%  320.67         38.17         0.00          0.00
 83%  310.65         38.17         0.00          0.00
100%  300.62         38.17         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 122
Estado f1=fase 1 en resto
  0%  112.42         4.98          0.00          0.00
 16%  111.03         5.60          0.00          0.00
 33%  109.48         6.22          0.00          0.00
 50%  107.76         6.84          0.00          0.00
 66%  105.89         7.46          0.00          0.00
 83%  103.85         8.08          0.00          0.00
100%  101.64         8.70          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -11.89         -1.51         0.00          0.00
 16%  -11.49         -1.51         0.00          0.00
 33%  -11.10         -1.51         0.00          0.00
 50%  -10.70         -1.51         0.00          0.00
 66%  -10.30         -1.51         0.00          0.00
 83%  -9.91          -1.51         0.00          0.00
100%  -9.51          -1.51         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  300.62         38.17         0.00          0.00
 16%  290.60         38.17         0.00          0.00
 33%  280.58         38.17         0.00          0.00
 50%  270.56         38.17         0.00          0.00
 66%  260.54         38.17         0.00          0.00
 83%  250.52         38.17         0.00          0.00
100%  240.50         38.17         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 123
Estado f1=fase 1 en resto
  0%  101.64         8.70          0.00          0.00
 16%  99.28          9.32          0.00          0.00
 33%  96.75          9.94          0.00          0.00
 50%  94.06          10.56         0.00          0.00
 66%  91.21          11.18         0.00          0.00
 83%  88.19          11.80         0.00          0.00
100%  85.01          12.42         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -9.51          -1.51         0.00          0.00
 16%  -9.11          -1.51         0.00          0.00
 33%  -8.72          -1.51         0.00          0.00
 50%  -8.32          -1.51         0.00          0.00
 66%  -7.93          -1.51         0.00          0.00
 83%  -7.53          -1.51         0.00          0.00
100%  -7.13          -1.51         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  240.50         38.17         0.00          0.00
 16%  230.48         38.17         0.00          0.00
 33%  220.46         38.17         0.00          0.00
 50%  210.44         38.17         0.00          0.00
 66%  200.42         38.17         0.00          0.00
 83%  190.40         38.17         0.00          0.00
```

```
100%  180.37        38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 124
Estado f1=fase 1 en resto
  0%  85.01         12.42         0.00          0.00
 16%  81.67         13.04         0.00          0.00
 33%  78.17         13.66         0.00          0.00
 50%  74.50         14.28         0.00          0.00
 66%  70.68         14.89         0.00          0.00
 83%  66.68         15.51         0.00          0.00
100%  62.53         16.13         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -7.13         -1.51         0.00          0.00
 16%  -6.74         -1.51         0.00          0.00
 33%  -6.34         -1.51         0.00          0.00
 50%  -5.94         -1.51         0.00          0.00
 66%  -5.55         -1.51         0.00          0.00
 83%  -5.15         -1.51         0.00          0.00
100%  -4.76         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  180.37        38.17         0.00          0.00
 16%  170.35        38.17         0.00          0.00
 33%  160.33        38.17         0.00          0.00
 50%  150.31        38.17         0.00          0.00
 66%  140.29        38.17         0.00          0.00
 83%  130.27        38.17         0.00          0.00
100%  120.25        38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 125
Estado f1=fase 1 en resto
  0%  62.53         16.13         0.00          0.00
 16%  58.21         16.75         0.00          0.00
 33%  53.73         17.37         0.00          0.00
 50%  49.09         17.99         0.00          0.00
 66%  44.29         18.61         0.00          0.00
 83%  39.32         19.23         0.00          0.00
100%  34.19         19.85         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -4.76         -1.51         0.00          0.00
 16%  -4.36         -1.51         0.00          0.00
 33%  -3.96         -1.51         0.00          0.00
 50%  -3.57         -1.51         0.00          0.00
 66%  -3.17         -1.51         0.00          0.00
 83%  -2.77         -1.51         0.00          0.00
100%  -2.38         -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  120.25        38.17         0.00          0.00
 16%  110.23        38.17         0.00          0.00
 33%  100.21        38.17         0.00          0.00
 50%  90.19         38.17         0.00          0.00
 66%  80.17         38.17         0.00          0.00
 83%  70.15         38.17         0.00          0.00
100%  60.12         38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 126
Estado f1=fase 1 en resto
  0%  34.19         19.85         0.00          0.00
 16%  28.90         20.47         0.00          0.00
 33%  23.45         21.09         0.00          0.00
 50%  17.83         21.71         0.00          0.00
 66%  12.05         22.33         0.00          0.00
 83%  6.11          22.95         0.00          0.00
100%  0.00          23.57         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -2.38         -1.51         0.00          0.00
 16%  -1.98         -1.51         0.00          0.00
 33%  -1.59         -1.51         0.00          0.00
 50%  -1.19         -1.51         0.00          0.00
 66%  -0.79         -1.51         0.00          0.00
 83%  -0.40         -1.51         0.00          0.00
100%  0.00          -1.51         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  60.12         38.17         0.00          0.00
 16%  50.10         38.17         0.00          0.00
 33%  40.08         38.17         0.00          0.00
 50%  30.06         38.17         0.00          0.00
 66%  20.04         38.17         0.00          0.00
 83%  10.02         38.17         0.00          0.00
100%  0.00          38.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 127
Estado f1=fase 1 en resto
  0%  -103.04       17.32         0.00          0.00
 16%  -104.37       17.32         0.00          0.00
 33%  -105.70       17.32         0.00          0.00
 50%  -107.03       17.32         0.00          0.00
 66%  -108.35       17.32         0.00          0.00
 83%  -109.68       17.32         0.00          0.00
100%  -111.01       17.32         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -39.85        -3.80         0.00          0.00
 16%  -39.56        -3.80         0.00          0.00
 33%  -39.27        -3.80         0.00          0.00
 50%  -38.98        -3.80         0.00          0.00
 66%  -38.69        -3.80         0.00          0.00
 83%  -38.39        -3.80         0.00          0.00
100%  -38.10        -3.80         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -873.79       -38.17        0.00          0.00
 16%  -870.86       -38.17        0.00          0.00
 33%  -867.94       -38.17        0.00          0.00
 50%  -865.01       -38.17        0.00          0.00
 66%  -862.08       -38.17        0.00          0.00
 83%  -859.16       -38.17        0.00          0.00
100%  -856.23       -38.17        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 128
Estado f1=fase 1 en resto
  0%  -102.35       14.42         0.00          0.00
 16%  -103.45       14.42         0.00          0.00
 33%  -104.56       14.42         0.00          0.00
 50%  -105.66       14.42         0.00          0.00
 66%  -106.77       14.42         0.00          0.00
 83%  -107.87       14.42         0.00          0.00
100%  -108.98       14.42         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  50.53         10.82         0.00          0.00
 16%  49.70         10.82         0.00          0.00
 33%  48.87         10.82         0.00          0.00
 50%  48.04         10.82         0.00          0.00
 66%  47.21         10.82         0.00          0.00
 83%  46.38         10.82         0.00          0.00
100%  45.56         10.82         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1016.27      10.91         0.00          0.00
 16%  -1017.11      10.91         0.00          0.00
 33%  -1017.94      10.91         0.00          0.00
 50%  -1018.78      10.91         0.00          0.00
 66%  -1019.62      10.91         0.00          0.00
 83%  -1020.45      10.91         0.00          0.00
100%  -1021.29      10.91         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 129
Estado f1=fase 1 en resto
  0%  -103.04       -17.32        0.00          0.00
 16%  -99.58        -17.32        0.00          0.00
 33%  -96.11        -17.32        0.00          0.00
 50%  -92.65        -17.32        0.00          0.00
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 66%  -89.19        -17.32        0.00          0.00
 83%  -85.72        -17.32        0.00          0.00
100%  -82.26        -17.32        0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  -39.85        -1.51         0.00          0.00
 16%  -39.55        -1.51         0.00          0.00
 33%  -39.25        -1.51         0.00          0.00
 50%  -38.95        -1.51         0.00          0.00
 66%  -38.64        -1.51         0.00          0.00
 83%  -38.34        -1.51         0.00          0.00
100%  -38.04        -1.51         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -873.79       38.17         0.00          0.00
 16%  -881.43       38.17         0.00          0.00
 33%  -889.06       38.17         0.00          0.00
 50%  -896.70       38.17         0.00          0.00
 66%  -904.33       38.17         0.00          0.00
 83%  -911.97       38.17         0.00          0.00
100%  -919.60       38.17         0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
Viga 130
Estado f1=fase 1 en resto
  0%  -102.35       -14.42        0.00          0.00
 16%  -99.46        -14.42        0.00          0.00
 33%  -96.58        -14.42        0.00          0.00
 50%  -93.69        -14.42        0.00          0.00
 66%  -90.81        -14.42        0.00          0.00
 83%  -87.92        -14.42        0.00          0.00
100%  -85.04        -14.42        0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado TO=QUITAR TORRETAS
  0%  50.53         1.67          0.00          0.00
 16%  50.20         1.67          0.00          0.00
 33%  49.86         1.67          0.00          0.00
 50%  49.53         1.67          0.00          0.00
 66%  49.19         1.67          0.00          0.00
 83%  48.86         1.67          0.00          0.00
100%  48.53         1.67          0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
Estado PO=POSTESADO DE LOSA
  0%  -1016.27      -10.91        0.00          0.00
 16%  -1014.09      -10.91        0.00          0.00
 33%  -1011.91      -10.91        0.00          0.00
 50%  -1009.72      -10.91        0.00          0.00
 66%  -1007.54      -10.91        0.00          0.00
 83%  -1005.36      -10.91        0.00          0.00
100%  -1003.18      -10.91        0.00          0.00
       Axial: 0.00         [Ton]     Tor: 0.00 [Ton*M]
-------------------------------------------------------
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Hormigonado de losa en Fase II a todo

D A T O S

N U D O S

Nudo	X [M]	Y [M]	Z [M]	Piso
1	0	0	0	0
2	25.2	0	0	0
3	1.575	0	0	0
4	3.15	0	0	0
5	4.725	0	0	0
6	6.3	0	0	0
7	7.875	0	0	0
8	9.45	0	0	0
9	11.025	0	0	0
10	12.6	0	0	0
11	14.175	0	0	0
12	15.75	0	0	0
13	17.325	0	0	0
14	18.9	0	0	0
15	20.475	0	0	0
16	22.05	0	0	0
17	23.625	0	0	0
18	33.5	0	0	0
19	26.86	0	0	0
20	28.52	0	0	0
21	30.18	0	0	0
22	31.84	0	0	0
23	41.8	0	0	0
24	35.16	0	0	0
25	36.82	0	0	0
26	38.48	0	0	0
27	40.14	0	0	0
28	70.2	0	0	0
29	43.3778	0	0	0
30	44.9556	0	0	0
31	46.5333	0	0	0
32	48.1111	0	0	0
33	49.6889	0	0	0
34	51.2667	0	0	0
35	52.8444	0	0	0
36	54.4222	0	0	0
37	56	0	0	0
38	57.5778	0	0	0
39	59.1556	0	0	0
40	60.7333	0	0	0
41	62.3111	0	0	0
42	63.8889	0	0	0
43	65.4667	0	0	0
44	67.0444	0	0	0
45	68.6222	0	0	0
46	78.5	0	0	0
47	71.86	0	0	0
48	73.52	0	0	0
49	75.18	0	0	0
50	76.84	0	0	0
51	86.8	0	0	0
52	80.16	0	0	0
53	81.82	0	0	0
54	83.48	0	0	0
55	85.14	0	0	0
56	115.2	0	0	0
57	88.3778	0	0	0
58	89.9556	0	0	0
59	91.5333	0	0	0
60	93.1111	0	0	0
61	94.6889	0	0	0
62	96.2667	0	0	0
63	97.8444	0	0	0
64	99.4222	0	0	0
65	101	0	0	0
66	102.578	0	0	0
67	104.156	0	0	0
68	105.733	0	0	0
69	107.311	0	0	0
70	108.889	0	0	0
71	110.467	0	0	0
72	112.044	0	0	0
73	113.622	0	0	0
74	123.5	0	0	0
75	116.86	0	0	0
76	118.52	0	0	0
77	120.18	0	0	0
78	121.84	0	0	0
79	131.8	0	0	0
80	125.16	0	0	0
81	126.82	0	0	0
82	128.48	0	0	0
83	130.14	0	0	0
84	160.2	0	0	0
85	133.378	0	0	0
86	134.956	0	0	0
87	136.533	0	0	0
88	138.111	0	0	0

89	139.689	0	0	0
90	141.267	0	0	0
91	142.844	0	0	0
92	144.422	0	0	0
93	146	0	0	0
94	147.578	0	0	0
95	149.156	0	0	0
96	150.733	0	0	0
97	152.311	0	0	0
98	153.889	0	0	0
99	155.467	0	0	0
100	157.044	0	0	0
101	158.622	0	0	0
102	168.5	0	0	0
103	161.86	0	0	0
104	163.52	0	0	0
105	165.18	0	0	0
106	166.84	0	0	0
107	176.8	0	0	0
108	170.16	0	0	0
109	171.82	0	0	0
110	173.48	0	0	0
111	175.14	0	0	0
112	202	0	0	0
113	178.375	0	0	0
114	179.95	0	0	0
115	181.525	0	0	0
116	183.1	0	0	0
117	184.675	0	0	0
118	186.25	0	0	0
119	187.825	0	0	0
120	189.4	0	0	0
121	190.975	0	0	0
122	192.55	0	0	0
123	194.125	0	0	0
124	195.7	0	0	0
125	197.275	0	0	0
126	198.85	0	0	0
127	200.425	0	0	0
128	26.4	0	0	0
129	71.4	0	0	0
130	175.6	0	0	0
131	130.6	0	0	0

R E S T R I C C I O N E S

Nudo	TX	TY	TZ	RX	RY	RZ
1	0	1	0	0	0	0
18	0	1	0	0	0	0
46	0	1	0	0	0	0
74	0	1	0	0	0	0
102	0	1	0	0	0	0
112	0	1	0	0	0	0

V I G A S

Viga	NJ	NK	Descripcion	Sección	Material
1	1	3		CADOS 220SF	H 500x5000
2	3	4		CADOS 220SF	H 500x5000
3	4	5		CADOS 220SF	H 500x5000
4	5	6		CADOS 220SF	H 500x5000
5	6	7		CADOS 220SF	H 500x5000
6	7	8		CADOS 220SF	H 500x5000
7	8	9		CADOS 220SF	H 500x5000
8	9	10		CADOS 220SF	H 500x5000
9	10	11		CADOS 220SF	H 500x5000
10	11	12		CADOS 220SF	H 500x5000
11	12	13		CADOS 220SF	H 500x5000
12	13	14		CADOS 220SF	H 500x5000
13	14	15		CADOS 220SF	H 500x5000
14	15	16		CADOS 220SF	H 500x5000
15	16	17		CADOS 220SF	H 500x5000
16	17	2		CADOS 220SF	H 500x5000
17	2	128		CADOS 229SF	H 500x5000
18	19	20		CADOS 247SF	H 500x5000
19	20	21		CADOS 265SF	H 500x5000
20	21	22		CADOS 284SF	H 500x5000
21	22	18		CADOS 300SF	H 500x5000
22	18	24		CADOS 300SF	H 500x5000
23	24	25		CADOS 284SF	H 500x5000
24	25	26		CADOS 265SF	H 500x5000
25	26	27		CADOS 247SF	H 500x5000
26	27	23		CADOS 229SF	H 500x5000
27	23	29		CADOS 220SF	H 500x5000
28	29	30		CADOS 220SF	H 500x5000
29	30	31		CADOS 220SF	H 500x5000
30	31	32		CADOS 220SF	H 500x5000
31	32	33		CADOS 220SF	H 500x5000
32	33	34		CADOS 220SF	H 500x5000
33	34	35		CADOS 220SF	H 500x5000
34	35	36		CADOS 220SF	H 500x5000
35	36	37		CADOS 220SF	H 500x5000
36	37	38		CADOS 220SF	H 500x5000
37	38	39		CADOS 220SF	H 500x5000
38	39	40		CADOS 220SF	H 500x5000
39	40	41		CADOS 220SF	H 500x5000
40	41	42		CADOS 220SF	H 500x5000
41	42	43		CADOS 220SF	H 500x5000
42	43	44		CADOS 220SF	H 500x5000
43	44	45		CADOS 220SF	H 500x5000
44	45	28		CADOS 220SF	H 500x5000
45	28	129		CADOS 229SF	H 500x5000
46	47	48		CADOS 247SF	H 500x5000
47	48	49		CADOS 265SF	H 500x5000
48	49	50		CADOS 284SF	H 500x5000
49	50	46		CADOS 300SF	H 500x5000
50	46	52		CADOS 300SF	H 500x5000
51	52	53		CADOS 284SF	H 500x5000
52	53	54		CADOS 265SF	H 500x5000
53	54	55		CADOS 247SF	H 500x5000
54	55	51		CADOS 229SF	H 500x5000
55	51	57		CADOS 220SF	H 500x5000
56	57	58		CADOS 220SF	H 500x5000
57	58	59		CADOS 220SF	H 500x5000
58	59	60		CADOS 220SF	H 500x5000
59	60	61		CADOS 220SF	H 500x5000
60	61	62		CADOS 220SF	H 500x5000
61	62	63		CADOS 220SF	H 500x5000
62	63	64		CADOS 220SF	H 500x5000
63	64	65		CADOS 220SF	H 500x5000
64	65	66		CADOS 220SF	H 500x5000
65	66	67		CADOS 220SF	H 500x5000
66	67	68		CADOS 220SF	H 500x5000
67	68	69		CADOS 220SF	H 500x5000
68	69	70		CADOS 220SF	H 500x5000
69	70	71		CADOS 220SF	H 500x5000
70	71	72		CADOS 220SF	H 500x5000
71	72	73		CADOS 220SF	H 500x5000
72	73	56		CADOS 220SF	H 500x5000
73	56	75		CADOS 229SF	H 500x5000
74	75	76		CADOS 247SF	H 500x5000
75	76	77		CADOS 265SF	H 500x5000
76	77	78		CADOS 284SF	H 500x5000
77	78	74		CADOS 300SF	H 500x5000
78	74	80		CADOS 300SF	H 500x5000
79	80	81		CADOS 284SF	H 500x5000
80	81	82		CADOS 265SF	H 500x5000
81	82	83		CADOS 247SF	H 500x5000
82	83	131		CADOS 229SF	H 500x5000
83	79	85		CADOS 220SF	H 500x5000
84	85	86		CADOS 220SF	H 500x5000
85	86	87		CADOS 220SF	H 500x5000
86	87	88		CADOS 220SF	H 500x5000
87	88	89		CADOS 220SF	H 500x5000
88	89	90		CADOS 220SF	H 500x5000
89	90	91		CADOS 220SF	H 500x5000
90	91	92		CADOS 220SF	H 500x5000
91	92	93		CADOS 220SF	H 500x5000
92	93	94		CADOS 220SF	H 500x5000
93	94	95		CADOS 220SF	H 500x5000

94	95	96	CADOS 220SF	H 500x5000
95	96	97	CADOS 220SF	H 500x5000
96	97	98	CADOS 220SF	H 500x5000
97	98	99	CADOS 220SF	H 500x5000
98	99	100	CADOS 220SF	H 500x5000
99	100	101	CADOS 220SF	H 500x5000
100	101	84	CADOS 220SF	H 500x5000
101	84	103	CADOS 229SF	H 500x5000
102	103	104	CADOS 247SF	H 500x5000
103	104	105	CADOS 265SF	H 500x5000
104	105	106	CADOS 284SF	H 500x5000
105	106	102	CADOS 300SF	H 500x5000
106	102	108	CADOS 300SF	H 500x5000
107	108	109	CADOS 284SF	H 500x5000
108	109	110	CADOS 265SF	H 500x5000
109	110	111	CADOS 247SF	H 500x5000
110	111	130	CADOS 229SF	H 500x5000
111	107	113	CADOS 220SF	H 500x5000
112	113	114	CADOS 220SF	H 500x5000
113	114	115	CADOS 220SF	H 500x5000
114	115	116	CADOS 220SF	H 500x5000
115	116	117	CADOS 220SF	H 500x5000
116	117	118	CADOS 220SF	H 500x5000
117	118	119	CADOS 220SF	H 500x5000
118	119	120	CADOS 220SF	H 500x5000
119	120	121	CADOS 220SF	H 500x5000
120	121	122	CADOS 220SF	H 500x5000
121	122	123	CADOS 220SF	H 500x5000
122	123	124	CADOS 220SF	H 500x5000
123	124	125	CADOS 220SF	H 500x5000
124	125	126	CADOS 220SF	H 500x5000
125	126	127	CADOS 220SF	H 500x5000
126	127	112	CADOS 220SF	H 500x5000
127	128	19	CADOS 229SF	H 500x5000
128	129	47	CADOS 229SF	H 500x5000
129	130	107	CADOS 229SF	H 500x5000
130	131	79	CADOS 229SF	H 500x5000

FUERZA DISTRIBUIDA SOBRE VIGAS

Estado	Viga	Dir.	Valor [Ton/M]
f2	1	Y	-1.11
	2	Y	-1.11
	3	Y	-1.11
	4	Y	-1.11
	5	Y	-1.11
	6	Y	-1.11
	7	Y	-1.11
	8	Y	-1.11
	9	Y	-1.11
	10	Y	-1.11
	11	Y	-1.11
	12	Y	-1.11
	13	Y	-1.11
	14	Y	-1.11
	15	Y	-1.11
	16	Y	-1.11
	17	Y	-1.11
	18	Y	-1.11
	19	Y	-1.11
	20	Y	-1.11
	21	Y	-1.11
	22	Y	-1.11
	23	Y	-1.11
	24	Y	-1.11
	25	Y	-1.11
	26	Y	-1.11
	27	Y	-1.11
	28	Y	-1.11
	29	Y	-1.11
	30	Y	-1.11
	31	Y	-1.11
	32	Y	-1.11
	33	Y	-1.11
	34	Y	-1.11
	35	Y	-1.11
	36	Y	-1.11
	37	Y	-1.11
	38	Y	-1.11
	39	Y	-1.11
	40	Y	-1.11
	41	Y	-1.11
	42	Y	-1.11
	43	Y	-1.11
	44	Y	-1.11
	45	Y	-1.11
	46	Y	-1.11
	47	Y	-1.11
	48	Y	-1.11
	49	Y	-1.11
	50	Y	-1.11
	51	Y	-1.11
	52	Y	-1.11
	53	Y	-1.11
	54	Y	-1.11
	55	Y	-1.11
	56	Y	-1.11
	57	Y	-1.11
	58	Y	-1.11
	59	Y	-1.11
	60	Y	-1.11
	61	Y	-1.11
	62	Y	-1.11
	63	Y	-1.11
	64	Y	-1.11
	65	Y	-1.11
	66	Y	-1.11
	67	Y	-1.11
	68	Y	-1.11
	69	Y	-1.11
	70	Y	-1.11
	71	Y	-1.11
	72	Y	-1.11
	73	Y	-1.11
	74	Y	-1.11
	75	Y	-1.11
	76	Y	-1.11
	77	Y	-1.11
	78	Y	-1.11
	79	Y	-1.11
	80	Y	-1.11
	81	Y	-1.11
	82	Y	-1.11
	83	Y	-1.11
	84	Y	-1.11
	85	Y	-1.11
	86	Y	-1.11
	87	Y	-1.11
	88	Y	-1.11
	89	Y	-1.11
	90	Y	-1.11
	91	Y	-1.11
	92	Y	-1.11
	93	Y	-1.11
	94	Y	-1.11
	95	Y	-1.11
	96	Y	-1.11
	97	Y	-1.11
	98	Y	-1.11
	99	Y	-1.11
	100	Y	-1.11
	101	Y	-1.11
	102	Y	-1.11
	103	Y	-1.11
	104	Y	-1.11
	105	Y	-1.11
	106	Y	-1.11
	107	Y	-1.11
	108	Y	-1.11
	109	Y	-1.11
	110	Y	-1.11
	111	Y	-1.11

112	Y	-1.11
113	Y	-1.11
114	Y	-1.11
115	Y	-1.11
116	Y	-1.11
117	Y	-1.11
118	Y	-1.11
119	Y	-1.11
120	Y	-1.11
121	Y	-1.11
122	Y	-1.11
123	Y	-1.11
124	Y	-1.11
125	Y	-1.11
126	Y	-1.11
127	Y	-1.11
128	Y	-1.11
129	Y	-1.11
130	Y	-1.11

E S T A D O S D E C A R G A

Estado	Descripción	Comb.	MultX	MultY	MultZ
f2	FASE 2 A TODO	0	0	0	0

R E S U L T A D O S D E L A N A L I S I S

R E A C C I O N E S

Nudo	FUERZAS [Ton] FX	FY	FZ	MOMENTOS [Ton*M] MX	MY	MZ
Estado f2=FASE 2 A TODO						
1	0.00000	12.81693	0.00000	0.00000	0.00000	0.00000
18	0.00000	49.07643	0.00000	0.00000	0.00000	0.00000
46	0.00000	50.21664	0.00000	0.00000	0.00000	0.00000
74	0.00000	50.21664	0.00000	0.00000	0.00000	0.00000
102	0.00000	49.07643	0.00000	0.00000	0.00000	0.00000
112	0.00000	12.81693	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	224.22000	0.00000	0.00000	0.00000	0.00000

V I G A S

E S F U E R Z O S

	M33 [Ton*M]	V2 [Ton]	M22 [Ton*M]	V3 [Ton]
Viga 1				
Estado f2=FASE 2 A TODO				
0%	0.00	-12.82	0.00	0.00
16%	3.33	-12.53	0.00	0.00
33%	6.58	-12.23	0.00	0.00
50%	9.75	-11.94	0.00	0.00
66%	12.85	-11.65	0.00	0.00
83%	15.87	-11.36	0.00	0.00
100%	18.81	-11.07	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 2				
Estado f2=FASE 2 A TODO				
0%	18.81	-11.07	0.00	0.00
16%	21.68	-10.78	0.00	0.00
33%	24.47	-10.49	0.00	0.00
50%	27.18	-10.19	0.00	0.00
66%	29.82	-9.90	0.00	0.00
83%	32.38	-9.61	0.00	0.00
100%	34.87	-9.32	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 3				
Estado f2=FASE 2 A TODO				
0%	34.87	-9.32	0.00	0.00
16%	37.27	-9.03	0.00	0.00
33%	39.61	-8.74	0.00	0.00
50%	41.86	-8.45	0.00	0.00
66%	44.04	-8.15	0.00	0.00
83%	46.14	-7.86	0.00	0.00
100%	48.17	-7.57	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 4				
Estado f2=FASE 2 A TODO				
0%	48.17	-7.57	0.00	0.00
16%	50.12	-7.28	0.00	0.00
33%	51.99	-6.99	0.00	0.00
50%	53.79	-6.70	0.00	0.00
66%	55.51	-6.41	0.00	0.00
83%	57.15	-6.12	0.00	0.00
100%	58.72	-5.82	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 5				
Estado f2=FASE 2 A TODO				
0%	58.72	-5.82	0.00	0.00
16%	60.21	-5.53	0.00	0.00
33%	61.62	-5.24	0.00	0.00
50%	62.96	-4.95	0.00	0.00
66%	64.22	-4.66	0.00	0.00
83%	65.41	-4.37	0.00	0.00
100%	66.51	-4.08	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 6				
Estado f2=FASE 2 A TODO				
0%	66.51	-4.08	0.00	0.00
16%	67.55	-3.78	0.00	0.00
33%	68.50	-3.49	0.00	0.00
50%	69.38	-3.20	0.00	0.00
66%	70.18	-2.91	0.00	0.00
83%	70.91	-2.62	0.00	0.00
100%	71.56	-2.33	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 7				
Estado f2=FASE 2 A TODO				
0%	71.56	-2.33	0.00	0.00
16%	72.13	-2.04	0.00	0.00
33%	72.63	-1.74	0.00	0.00
50%	73.05	-1.45	0.00	0.00
66%	73.39	-1.16	0.00	0.00
83%	73.66	-0.87	0.00	0.00
100%	73.85	-0.58	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 8				
Estado f2=FASE 2 A TODO				
0%	73.85	-0.58	0.00	0.00
16%	73.96	-0.29	0.00	0.00
33%	74.00	0.00	0.00	0.00
50%	73.96	0.29	0.00	0.00
66%	73.84	0.59	0.00	0.00
83%	73.65	0.88	0.00	0.00
100%	73.38	1.17	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 9				
Estado f2=FASE 2 A TODO				
0%	73.38	1.17	0.00	0.00
16%	73.04	1.46	0.00	0.00
33%	72.61	1.75	0.00	0.00
50%	72.12	2.04	0.00	0.00
66%	71.54	2.33	0.00	0.00
83%	70.89	2.63	0.00	0.00
100%	70.16	2.92	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 10				
Estado f2=FASE 2 A TODO				
0%	70.16	2.92	0.00	0.00
16%	69.36	3.21	0.00	0.00
33%	68.48	3.50	0.00	0.00
50%	67.52	3.79	0.00	0.00
66%	66.49	4.08	0.00	0.00
83%	65.38	4.37	0.00	0.00
100%	64.19	4.67	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 11				
Estado f2=FASE 2 A TODO				
0%	64.19	4.67	0.00	0.00
16%	62.93	4.96	0.00	0.00
33%	61.59	5.25	0.00	0.00
50%	60.17	5.54	0.00	0.00
66%	58.68	5.83	0.00	0.00
83%	57.11	6.12	0.00	0.00
100%	55.47	6.41	0.00	0.00
	Axial: 0.00 [Ton]		Tor: 0.00 [Ton*M]	
Viga 12				
Estado f2=FASE 2 A TODO				
0%	55.47	6.41	0.00	0.00
16%	53.75	6.71	0.00	0.00
33%	51.95	7.00	0.00	0.00

```
 50%  50.07        7.29         0.00         0.00
 66%  48.12        7.58         0.00         0.00
 83%  46.09        7.87         0.00         0.00
100%  43.99        8.16         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 13
Estado f2=FASE 2 A TODO
  0%  43.99        8.16         0.00         0.00
 16%  41.81        8.45         0.00         0.00
 33%  39.55        8.74         0.00         0.00
 50%  37.22        9.04         0.00         0.00
 66%  34.81        9.33         0.00         0.00
 83%  32.32        9.62         0.00         0.00
100%  29.76        9.91         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 14
Estado f2=FASE 2 A TODO
  0%  29.76        9.91         0.00         0.00
 16%  27.12       10.20         0.00         0.00
 33%  24.40       10.49         0.00         0.00
 50%  21.61       10.78         0.00         0.00
 66%  18.74       11.08         0.00         0.00
 83%  15.79       11.37         0.00         0.00
100%  12.77       11.66         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 15
Estado f2=FASE 2 A TODO
  0%  12.77       11.66         0.00         0.00
 16%  9.67        11.95         0.00         0.00
 33%  6.50        12.24         0.00         0.00
 50%  3.25        12.53         0.00         0.00
 66%  -0.08       12.82         0.00         0.00
 83%  -3.49       13.12         0.00         0.00
100%  -6.97       13.41         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 16
Estado f2=FASE 2 A TODO
  0%  -6.97        13.41         0.00         0.00
 16%  -10.53       13.70         0.00         0.00
 33%  -14.16       13.99         0.00         0.00
 50%  -17.87       14.28         0.00         0.00
 66%  -21.66       14.57         0.00         0.00
 83%  -25.52       14.86         0.00         0.00
100%  -29.46       15.16         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 17
Estado f2=FASE 2 A TODO
  0%  -29.46       15.16         0.00         0.00
 16%  -32.51       15.38         0.00         0.00
 33%  -35.61       15.60         0.00         0.00
 50%  -38.75       15.82         0.00         0.00
 66%  -41.94       16.04         0.00         0.00
 83%  -45.17       16.27         0.00         0.00
100%  -48.45       16.49         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 18
Estado f2=FASE 2 A TODO
  0%  -56.15       17.00         0.00         0.00
 16%  -60.89       17.30         0.00         0.00
 33%  -65.72       17.61         0.00         0.00
 50%  -70.64       17.92         0.00         0.00
 66%  -75.64       18.23         0.00         0.00
 83%  -80.72       18.53         0.00         0.00
100%  -85.89       18.84         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 19
Estado f2=FASE 2 A TODO
  0%  -85.89       18.84         0.00         0.00
 16%  -91.15       19.15         0.00         0.00
 33%  -96.49       19.45         0.00         0.00
 50%  -101.91      19.76         0.00         0.00
 66%  -107.42      20.07         0.00         0.00
 83%  -113.02      20.38         0.00         0.00
100%  -118.70      20.68         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 20
Estado f2=FASE 2 A TODO
  0%  -118.70      20.68         0.00         0.00
 16%  -124.46      20.99         0.00         0.00
 33%  -130.31      21.30         0.00         0.00
 50%  -136.25      21.60         0.00         0.00
 66%  -142.27      21.91         0.00         0.00
 83%  -148.37      22.22         0.00         0.00
100%  -154.56      22.53         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 21
Estado f2=FASE 2 A TODO
  0%  -154.56      22.53         0.00         0.00
 16%  -160.83      22.83         0.00         0.00
 33%  -167.19      23.14         0.00         0.00
 50%  -173.64      23.45         0.00         0.00
 66%  -180.17      23.75         0.00         0.00
 83%  -186.78      24.06         0.00         0.00
100%  -193.48      24.37         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 22
Estado f2=FASE 2 A TODO
  0%  -193.48      -24.71        0.00         0.00
 16%  -186.69      -24.40        0.00         0.00
 33%  -179.98      -24.09        0.00         0.00
 50%  -173.36      -23.79        0.00         0.00
 66%  -166.82      -23.48        0.00         0.00
 83%  -160.36      -23.17        0.00         0.00
100%  -154.00      -22.87        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 23
Estado f2=FASE 2 A TODO
  0%  -154.00      -22.87        0.00         0.00
 16%  -147.71      -22.56        0.00         0.00
 33%  -141.51      -22.25        0.00         0.00
 50%  -135.40      -21.94        0.00         0.00
 66%  -129.37      -21.64        0.00         0.00
 83%  -123.43      -21.33        0.00         0.00
100%  -117.57      -21.02        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 24
Estado f2=FASE 2 A TODO
  0%  -117.57      -21.02        0.00         0.00
 16%  -111.79      -20.72        0.00         0.00
 33%  -106.10      -20.41        0.00         0.00
 50%  -100.50      -20.10        0.00         0.00
 66%  -94.98       -19.79        0.00         0.00
 83%  -89.55       -19.49        0.00         0.00
100%  -84.20       -19.18        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 25
Estado f2=FASE 2 A TODO
  0%  -84.20       -19.18        0.00         0.00
 16%  -78.93       -18.87        0.00         0.00
 33%  -73.75       -18.57        0.00         0.00
 50%  -68.66       -18.26        0.00         0.00
 66%  -63.65       -17.95        0.00         0.00
 83%  -58.73       -17.65        0.00         0.00
100%  -53.89       -17.34        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 26
Estado f2=FASE 2 A TODO
  0%  -53.89       -17.34        0.00         0.00
 16%  -49.13       -17.03        0.00         0.00
 33%  -44.46       -16.72        0.00         0.00
```

```
 50%  -39.88        -16.42        0.00          0.00
 66%  -35.38        -16.11        0.00          0.00
 83%  -30.97        -15.80        0.00          0.00
100%  -26.64        -15.50        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 27
Estado f2=FASE 2 A TODO
  0%  -26.64        -15.50        0.00          0.00
 16%  -22.60        -15.20        0.00          0.00
 33%  -18.64        -14.91        0.00          0.00
 50%  -14.76        -14.62        0.00          0.00
 66%  -10.95        -14.33        0.00          0.00
 83%  -7.22         -14.04        0.00          0.00
100%  -3.57         -13.74        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 28
Estado f2=FASE 2 A TODO
  0%  -3.57         -13.74        0.00          0.00
 16%  0.01          -13.45        0.00          0.00
 33%  3.51          -13.16        0.00          0.00
 50%  6.93          -12.87        0.00          0.00
 66%  10.27         -12.58        0.00          0.00
 83%  13.54         -12.28        0.00          0.00
100%  16.73         -11.99        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 29
Estado f2=FASE 2 A TODO
  0%  16.73         -11.99        0.00          0.00
 16%  19.85         -11.70        0.00          0.00
 33%  22.89         -11.41        0.00          0.00
 50%  25.85         -11.12        0.00          0.00
 66%  28.73         -10.83        0.00          0.00
 83%  31.54         -10.53        0.00          0.00
100%  34.27         -10.24        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 30
Estado f2=FASE 2 A TODO
  0%  34.27         -10.24        0.00          0.00
 16%  36.93         -9.95         0.00          0.00
 33%  39.51         -9.66         0.00          0.00
 50%  42.01         -9.37         0.00          0.00
 66%  44.43         -9.07         0.00          0.00
 83%  46.78         -8.78         0.00          0.00
100%  49.05         -8.49         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 31
Estado f2=FASE 2 A TODO
  0%  49.05         -8.49         0.00          0.00
 16%  51.25         -8.20         0.00          0.00
 33%  53.36         -7.91         0.00          0.00
 50%  55.40         -7.61         0.00          0.00
 66%  57.37         -7.32         0.00          0.00
 83%  59.25         -7.03         0.00          0.00
100%  61.06         -6.74         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 32
Estado f2=FASE 2 A TODO
  0%  61.06         -6.74         0.00          0.00
 16%  62.80         -6.45         0.00          0.00
 33%  64.46         -6.15         0.00          0.00
 50%  66.04         -5.86         0.00          0.00
 66%  67.54         -5.57         0.00          0.00
 83%  68.97         -5.28         0.00          0.00
100%  70.32         -4.99         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 33
Estado f2=FASE 2 A TODO
  0%  70.32         -4.99         0.00          0.00
 16%  71.59         -4.70         0.00          0.00
 33%  72.78         -4.40         0.00          0.00
 50%  73.90         -4.11         0.00          0.00
 66%  74.95         -3.82         0.00          0.00
 83%  75.91         -3.53         0.00          0.00
100%  76.80         -3.24         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 34
Estado f2=FASE 2 A TODO
  0%  76.80         -3.24         0.00          0.00
 16%  77.62         -2.94         0.00          0.00
 33%  78.35         -2.65         0.00          0.00
 50%  79.01         -2.36         0.00          0.00
 66%  79.59         -2.07         0.00          0.00
 83%  80.10         -1.78         0.00          0.00
100%  80.53         -1.48         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 35
Estado f2=FASE 2 A TODO
  0%  80.53         -1.48         0.00          0.00
 16%  80.88         -1.19         0.00          0.00
 33%  81.15         -0.90         0.00          0.00
 50%  81.35         -0.61         0.00          0.00
 66%  81.47         -0.32         0.00          0.00
 83%  81.52         -0.03         0.00          0.00
100%  81.49         0.27          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 36
Estado f2=FASE 2 A TODO
  0%  81.49         0.27          0.00          0.00
 16%  81.38         0.56          0.00          0.00
 33%  81.19         0.85          0.00          0.00
 50%  80.93         1.14          0.00          0.00
 66%  80.59         1.43          0.00          0.00
 83%  80.18         1.73          0.00          0.00
100%  79.69         2.02          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 37
Estado f2=FASE 2 A TODO
  0%  79.69         2.02          0.00          0.00
 16%  79.12         2.31          0.00          0.00
 33%  78.47         2.60          0.00          0.00
 50%  77.75         2.89          0.00          0.00
 66%  76.95         3.19          0.00          0.00
 83%  76.07         3.48          0.00          0.00
100%  75.12         3.77          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 38
Estado f2=FASE 2 A TODO
  0%  75.12         3.77          0.00          0.00
 16%  74.09         4.06          0.00          0.00
 33%  72.98         4.35          0.00          0.00
 50%  71.80         4.64          0.00          0.00
 66%  70.54         4.94          0.00          0.00
 83%  69.20         5.23          0.00          0.00
100%  67.79         5.52          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 39
Estado f2=FASE 2 A TODO
  0%  67.79         5.52          0.00          0.00
 16%  66.30         5.81          0.00          0.00
 33%  64.73         6.10          0.00          0.00
 50%  63.09         6.40          0.00          0.00
 66%  61.37         6.69          0.00          0.00
 83%  59.57         6.98          0.00          0.00
100%  57.70         7.27          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 40
Estado f2=FASE 2 A TODO
  0%  57.70         7.27          0.00          0.00
 16%  55.75         7.56          0.00          0.00
 33%  53.72         7.86          0.00          0.00
```

```
 50%  51.62         8.15          0.00          0.00
 66%  49.44         8.44          0.00          0.00
 83%  47.18         8.73          0.00          0.00
100%  44.84         9.02          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 41
Estado f2=FASE 2 A TODO
  0%  44.84         9.02          0.00          0.00
 16%  42.43         9.32          0.00          0.00
 33%  39.94         9.61          0.00          0.00
 50%  37.38         9.90          0.00          0.00
 66%  34.74         10.19         0.00          0.00
 83%  32.02         10.48         0.00          0.00
100%  29.23         10.77         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 42
Estado f2=FASE 2 A TODO
  0%  29.23         10.77         0.00          0.00
 16%  26.35         11.07         0.00          0.00
 33%  23.41         11.36         0.00          0.00
 50%  20.38         11.65         0.00          0.00
 66%  17.28         11.94         0.00          0.00
 83%  14.10         12.23         0.00          0.00
100%  10.84         12.53         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 43
Estado f2=FASE 2 A TODO
  0%  10.84         12.53         0.00          0.00
 16%  7.51          12.82         0.00          0.00
 33%  4.10          13.11         0.00          0.00
 50%  0.62          13.40         0.00          0.00
 66%  -2.95         13.69         0.00          0.00
 83%  -6.58         13.99         0.00          0.00
100%  -10.30        14.28         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 44
Estado f2=FASE 2 A TODO
  0%  -10.30        14.28         0.00          0.00
 16%  -14.09        14.57         0.00          0.00
 33%  -17.96        14.86         0.00          0.00
 50%  -21.91        15.15         0.00          0.00
 66%  -25.93        15.44         0.00          0.00
 83%  -30.03        15.74         0.00          0.00
100%  -34.21        16.03         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 45
Estado f2=FASE 2 A TODO
  0%  -34.21        16.03         0.00          0.00
 16%  -37.44        16.25         0.00          0.00
 33%  -40.71        16.47         0.00          0.00
 50%  -44.03        16.69         0.00          0.00
 66%  -47.39        16.92         0.00          0.00
 83%  -50.79        17.14         0.00          0.00
100%  -54.24        17.36         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 46
Estado f2=FASE 2 A TODO
  0%  -62.35        17.87         0.00          0.00
 16%  -67.33        18.18         0.00          0.00
 33%  -72.40        18.49         0.00          0.00
 50%  -77.56        18.79         0.00          0.00
 66%  -82.80        19.10         0.00          0.00
 83%  -88.13        19.41         0.00          0.00
100%  -93.54        19.71         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 47
Estado f2=FASE 2 A TODO
  0%  -93.54        19.71         0.00          0.00
 16%  -99.04        20.02         0.00          0.00
 33%  -104.62       20.33         0.00          0.00
 50%  -110.29       20.64         0.00          0.00
 66%  -116.04       20.94         0.00          0.00
 83%  -121.87       21.25         0.00          0.00
100%  -127.80       21.56         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 48
Estado f2=FASE 2 A TODO
  0%  -127.80       21.56         0.00          0.00
 16%  -133.80       21.86         0.00          0.00
 33%  -139.89       22.17         0.00          0.00
 50%  -146.07       22.48         0.00          0.00
 66%  -152.33       22.78         0.00          0.00
 83%  -158.68       23.09         0.00          0.00
100%  -165.11       23.40         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 49
Estado f2=FASE 2 A TODO
  0%  -165.11       23.40         0.00          0.00
 16%  -171.63       23.71         0.00          0.00
 33%  -178.23       24.01         0.00          0.00
 50%  -184.91       24.32         0.00          0.00
 66%  -191.68       24.63         0.00          0.00
 83%  -198.54       24.93         0.00          0.00
100%  -205.48       25.24         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 50
Estado f2=FASE 2 A TODO
  0%  -205.48       -24.97        0.00          0.00
 16%  -198.61       -24.67        0.00          0.00
 33%  -191.83       -24.36        0.00          0.00
 50%  -185.13       -24.05        0.00          0.00
 66%  -178.52       -23.75        0.00          0.00
 83%  -171.99       -23.44        0.00          0.00
100%  -165.55       -23.13        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 51
Estado f2=FASE 2 A TODO
  0%  -165.55       -23.13        0.00          0.00
 16%  -159.19       -22.83        0.00          0.00
 33%  -152.92       -22.52        0.00          0.00
 50%  -146.73       -22.21        0.00          0.00
 66%  -140.63       -21.90        0.00          0.00
 83%  -134.61       -21.60        0.00          0.00
100%  -128.68       -21.29        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 52
Estado f2=FASE 2 A TODO
  0%  -128.68       -21.29        0.00          0.00
 16%  -122.83       -20.98        0.00          0.00
 33%  -117.07       -20.68        0.00          0.00
 50%  -111.39       -20.37        0.00          0.00
 66%  -105.80       -20.06        0.00          0.00
 83%  -100.29       -19.75        0.00          0.00
100%  -94.87        -19.45        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 53
Estado f2=FASE 2 A TODO
  0%  -94.87        -19.45        0.00          0.00
 16%  -89.53        -19.14        0.00          0.00
 33%  -84.28        -18.83        0.00          0.00
 50%  -79.11        -18.53        0.00          0.00
 66%  -74.03        -18.22        0.00          0.00
 83%  -69.03        -17.91        0.00          0.00
100%  -64.12        -17.60        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 54
Estado f2=FASE 2 A TODO
  0%  -64.12        -17.60        0.00          0.00
 16%  -59.29        -17.30        0.00          0.00
 33%  -54.55        -16.99        0.00          0.00
```

```
 50%  -49.89        -16.68        0.00          0.00
 66%  -45.31        -16.38        0.00          0.00
 83%  -40.83        -16.07        0.00          0.00
100%  -36.42        -15.76        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 55
Estado f2=FASE 2 A TODO
  0%  -36.42        -15.76        0.00          0.00
 16%  -32.32        -15.47        0.00          0.00
 33%  -28.29        -15.18        0.00          0.00
 50%  -24.33        -14.89        0.00          0.00
 66%  -20.46        -14.59        0.00          0.00
 83%  -16.66        -14.30        0.00          0.00
100%  -12.93        -14.01        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 56
Estado f2=FASE 2 A TODO
  0%  -12.93        -14.01        0.00          0.00
 16%  -9.29         -13.72        0.00          0.00
 33%  -5.72         -13.43        0.00          0.00
 50%  -2.23         -13.13        0.00          0.00
 66%  1.19          -12.84        0.00          0.00
 83%  4.53          -12.55        0.00          0.00
100%  7.79          -12.26        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 57
Estado f2=FASE 2 A TODO
  0%  7.79          -12.26        0.00          0.00
 16%  10.97         -11.97        0.00          0.00
 33%  14.08         -11.68        0.00          0.00
 50%  17.12         -11.38        0.00          0.00
 66%  20.07         -11.09        0.00          0.00
 83%  22.95         -10.80        0.00          0.00
100%  25.75         -10.51        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 58
Estado f2=FASE 2 A TODO
  0%  25.75         -10.51        0.00          0.00
 16%  28.48         -10.22        0.00          0.00
 33%  31.12         -9.92         0.00          0.00
 50%  33.69         -9.63         0.00          0.00
 66%  36.19         -9.34         0.00          0.00
 83%  38.61         -9.05         0.00          0.00
100%  40.95         -8.76         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 59
Estado f2=FASE 2 A TODO
  0%  40.95         -8.76         0.00          0.00
 16%  43.21         -8.46         0.00          0.00
 33%  45.40         -8.17         0.00          0.00
 50%  47.51         -7.88         0.00          0.00
 66%  49.54         -7.59         0.00          0.00
 83%  51.50         -7.30         0.00          0.00
100%  53.38         -7.01         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 60
Estado f2=FASE 2 A TODO
  0%  53.38         -7.01         0.00          0.00
 16%  55.19         -6.71         0.00          0.00
 33%  56.91         -6.42         0.00          0.00
 50%  58.56         -6.13         0.00          0.00
 66%  60.14         -5.84         0.00          0.00
 83%  61.63         -5.55         0.00          0.00
100%  63.05         -5.25         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 61
Estado f2=FASE 2 A TODO
  0%  63.05         -5.25         0.00          0.00
 16%  64.40         -4.96         0.00          0.00
 33%  65.66         -4.67         0.00          0.00
 50%  66.85         -4.38         0.00          0.00
 66%  67.97         -4.09         0.00          0.00
 83%  69.00         -3.79         0.00          0.00
100%  69.96         -3.50         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 62
Estado f2=FASE 2 A TODO
  0%  69.96         -3.50         0.00          0.00
 16%  70.84         -3.21         0.00          0.00
 33%  71.65         -2.92         0.00          0.00
 50%  72.38         -2.63         0.00          0.00
 66%  73.03         -2.34         0.00          0.00
 83%  73.61         -2.04         0.00          0.00
100%  74.11         -1.75         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 63
Estado f2=FASE 2 A TODO
  0%  74.11         -1.75         0.00          0.00
 16%  74.53         -1.46         0.00          0.00
 33%  74.87         -1.17         0.00          0.00
 50%  75.14         -0.88         0.00          0.00
 66%  75.33         -0.58         0.00          0.00
 83%  75.45         -0.29         0.00          0.00
100%  75.49         0.00          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 64
Estado f2=FASE 2 A TODO
  0%  75.49         0.00          0.00          0.00
 16%  75.45         0.29          0.00          0.00
 33%  75.33         0.58          0.00          0.00
 50%  75.14         0.88          0.00          0.00
 66%  74.87         1.17          0.00          0.00
 83%  74.53         1.46          0.00          0.00
100%  74.11         1.75          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 65
Estado f2=FASE 2 A TODO
  0%  74.11         1.75          0.00          0.00
 16%  73.61         2.04          0.00          0.00
 33%  73.03         2.34          0.00          0.00
 50%  72.38         2.63          0.00          0.00
 66%  71.65         2.92          0.00          0.00
 83%  70.84         3.21          0.00          0.00
100%  69.96         3.50          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 66
Estado f2=FASE 2 A TODO
  0%  69.96         3.50          0.00          0.00
 16%  69.00         3.79          0.00          0.00
 33%  67.97         4.09          0.00          0.00
 50%  66.85         4.38          0.00          0.00
 66%  65.66         4.67          0.00          0.00
 83%  64.40         4.96          0.00          0.00
100%  63.05         5.25          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 67
Estado f2=FASE 2 A TODO
  0%  63.05         5.25          0.00          0.00
 16%  61.63         5.55          0.00          0.00
 33%  60.14         5.84          0.00          0.00
 50%  58.56         6.13          0.00          0.00
 66%  56.91         6.42          0.00          0.00
 83%  55.19         6.71          0.00          0.00
100%  53.38         7.01          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 68
Estado f2=FASE 2 A TODO
  0%  53.38         7.01          0.00          0.00
 16%  51.50         7.30          0.00          0.00
 33%  49.54         7.59          0.00          0.00
```

```
 50%  47.51        7.88         0.00         0.00
 66%  45.40        8.17         0.00         0.00
 83%  43.21        8.46         0.00         0.00
100%  40.95        8.76         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 69
Estado f2=FASE 2 A TODO
  0%  40.95        8.76         0.00         0.00
 16%  38.61        9.05         0.00         0.00
 33%  36.19        9.34         0.00         0.00
 50%  33.69        9.63         0.00         0.00
 66%  31.12        9.92         0.00         0.00
 83%  28.48       10.22         0.00         0.00
100%  25.75       10.51         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 70
Estado f2=FASE 2 A TODO
  0%  25.75       10.51         0.00         0.00
 16%  22.95       10.80         0.00         0.00
 33%  20.07       11.09         0.00         0.00
 50%  17.12       11.38         0.00         0.00
 66%  14.08       11.68         0.00         0.00
 83%  10.97       11.97         0.00         0.00
100%   7.79       12.26         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 71
Estado f2=FASE 2 A TODO
  0%   7.79       12.26         0.00         0.00
 16%   4.53       12.55         0.00         0.00
 33%   1.19       12.84         0.00         0.00
 50%  -2.23       13.14         0.00         0.00
 66%  -5.72       13.43         0.00         0.00
 83%  -9.29       13.72         0.00         0.00
100%  -12.93       14.01         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 72
Estado f2=FASE 2 A TODO
  0%  -12.93       14.01         0.00         0.00
 16%  -16.66       14.30         0.00         0.00
 33%  -20.46       14.59         0.00         0.00
 50%  -24.33       14.89         0.00         0.00
 66%  -28.29       15.18         0.00         0.00
 83%  -32.32       15.47         0.00         0.00
100%  -36.42       15.76         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 73
Estado f2=FASE 2 A TODO
  0%  -36.42       15.76         0.00         0.00
 16%  -40.83       16.07         0.00         0.00
 33%  -45.31       16.38         0.00         0.00
 50%  -49.89       16.68         0.00         0.00
 66%  -54.55       16.99         0.00         0.00
 83%  -59.29       17.30         0.00         0.00
100%  -64.12       17.60         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 74
Estado f2=FASE 2 A TODO
  0%  -64.12       17.60         0.00         0.00
 16%  -69.03       17.91         0.00         0.00
 33%  -74.03       18.22         0.00         0.00
 50%  -79.11       18.53         0.00         0.00
 66%  -84.28       18.83         0.00         0.00
 83%  -89.53       19.14         0.00         0.00
100%  -94.87       19.45         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 75
Estado f2=FASE 2 A TODO
  0%  -94.87       19.45         0.00         0.00
 16%  -100.29       19.75         0.00         0.00
 33%  -105.80       20.06         0.00         0.00
 50%  -111.39       20.37         0.00         0.00
 66%  -117.07       20.68         0.00         0.00
 83%  -122.83       20.98         0.00         0.00
100%  -128.68       21.29         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 76
Estado f2=FASE 2 A TODO
  0%  -128.68       21.29         0.00         0.00
 16%  -134.61       21.60         0.00         0.00
 33%  -140.63       21.90         0.00         0.00
 50%  -146.73       22.21         0.00         0.00
 66%  -152.92       22.52         0.00         0.00
 83%  -159.19       22.83         0.00         0.00
100%  -165.55       23.13         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 77
Estado f2=FASE 2 A TODO
  0%  -165.55       23.13         0.00         0.00
 16%  -171.99       23.44         0.00         0.00
 33%  -178.52       23.75         0.00         0.00
 50%  -185.13       24.05         0.00         0.00
 66%  -191.83       24.36         0.00         0.00
 83%  -198.61       24.67         0.00         0.00
100%  -205.48       24.97         0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 78
Estado f2=FASE 2 A TODO
  0%  -205.48       -25.24        0.00         0.00
 16%  -198.54       -24.93        0.00         0.00
 33%  -191.68       -24.63        0.00         0.00
 50%  -184.91       -24.32        0.00         0.00
 66%  -178.23       -24.01        0.00         0.00
 83%  -171.63       -23.71        0.00         0.00
100%  -165.11       -23.40        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 79
Estado f2=FASE 2 A TODO
  0%  -165.11       -23.40        0.00         0.00
 16%  -158.68       -23.09        0.00         0.00
 33%  -152.33       -22.78        0.00         0.00
 50%  -146.07       -22.48        0.00         0.00
 66%  -139.89       -22.17        0.00         0.00
 83%  -133.80       -21.86        0.00         0.00
100%  -127.80       -21.56        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 80
Estado f2=FASE 2 A TODO
  0%  -127.80       -21.56        0.00         0.00
 16%  -121.87       -21.25        0.00         0.00
 33%  -116.04       -20.94        0.00         0.00
 50%  -110.29       -20.64        0.00         0.00
 66%  -104.62       -20.33        0.00         0.00
 83%  -99.04        -20.02        0.00         0.00
100%  -93.54        -19.71        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 81
Estado f2=FASE 2 A TODO
  0%  -93.54        -19.71        0.00         0.00
 16%  -88.13        -19.41        0.00         0.00
 33%  -82.80        -19.10        0.00         0.00
 50%  -77.56        -18.79        0.00         0.00
 66%  -72.40        -18.49        0.00         0.00
 83%  -67.33        -18.18        0.00         0.00
100%  -62.35        -17.87        0.00         0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 82
Estado f2=FASE 2 A TODO
  0%  -62.35        -17.87        0.00         0.00
 16%  -60.98        -17.79        0.00         0.00
 33%  -59.62        -17.70        0.00         0.00
```

```
 50%  -58.26        -17.62        0.00          0.00
 66%  -56.92        -17.53        0.00          0.00
 83%  -55.58        -17.45        0.00          0.00
100%  -54.24        -17.36        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 83
Estado f2=FASE 2 A TODO
  0%  -34.21        -16.03        0.00          0.00
 16%  -30.03        -15.74        0.00          0.00
 33%  -25.93        -15.44        0.00          0.00
 50%  -21.91        -15.15        0.00          0.00
 66%  -17.96        -14.86        0.00          0.00
 83%  -14.09        -14.57        0.00          0.00
100%  -10.30        -14.28        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 84
Estado f2=FASE 2 A TODO
  0%  -10.30        -14.28        0.00          0.00
 16%  -6.58         -13.99        0.00          0.00
 33%  -2.95         -13.69        0.00          0.00
 50%  0.62          -13.40        0.00          0.00
 66%  4.10          -13.11        0.00          0.00
 83%  7.51          -12.82        0.00          0.00
100%  10.84         -12.53        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 85
Estado f2=FASE 2 A TODO
  0%  10.84         -12.53        0.00          0.00
 16%  14.10         -12.23        0.00          0.00
 33%  17.28         -11.94        0.00          0.00
 50%  20.38         -11.65        0.00          0.00
 66%  23.41         -11.36        0.00          0.00
 83%  26.35         -11.07        0.00          0.00
100%  29.23         -10.77        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 86
Estado f2=FASE 2 A TODO
  0%  29.23         -10.77        0.00          0.00
 16%  32.02         -10.48        0.00          0.00
 33%  34.74         -10.19        0.00          0.00
 50%  37.38         -9.90         0.00          0.00
 66%  39.94         -9.61         0.00          0.00
 83%  42.43         -9.32         0.00          0.00
100%  44.84         -9.02         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 87
Estado f2=FASE 2 A TODO
  0%  44.84         -9.02         0.00          0.00
 16%  47.18         -8.73         0.00          0.00
 33%  49.44         -8.44         0.00          0.00
 50%  51.62         -8.15         0.00          0.00
 66%  53.72         -7.86         0.00          0.00
 83%  55.75         -7.56         0.00          0.00
100%  57.70         -7.27         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 88
Estado f2=FASE 2 A TODO
  0%  57.70         -7.27         0.00          0.00
 16%  59.57         -6.98         0.00          0.00
 33%  61.37         -6.69         0.00          0.00
 50%  63.09         -6.40         0.00          0.00
 66%  64.73         -6.10         0.00          0.00
 83%  66.30         -5.81         0.00          0.00
100%  67.79         -5.52         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 89
Estado f2=FASE 2 A TODO
  0%  67.79         -5.52         0.00          0.00
 16%  69.20         -5.23         0.00          0.00
 33%  70.54         -4.94         0.00          0.00
 50%  71.80         -4.64         0.00          0.00
 66%  72.98         -4.35         0.00          0.00
 83%  74.09         -4.06         0.00          0.00
100%  75.12         -3.77         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 90
Estado f2=FASE 2 A TODO
  0%  75.12         -3.77         0.00          0.00
 16%  76.07         -3.48         0.00          0.00
 33%  76.95         -3.19         0.00          0.00
 50%  77.75         -2.89         0.00          0.00
 66%  78.47         -2.60         0.00          0.00
 83%  79.12         -2.31         0.00          0.00
100%  79.69         -2.02         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 91
Estado f2=FASE 2 A TODO
  0%  79.69         -2.02         0.00          0.00
 16%  80.18         -1.73         0.00          0.00
 33%  80.59         -1.43         0.00          0.00
 50%  80.93         -1.14         0.00          0.00
 66%  81.19         -0.85         0.00          0.00
 83%  81.38         -0.56         0.00          0.00
100%  81.49         -0.27         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 92
Estado f2=FASE 2 A TODO
  0%  81.49         -0.27         0.00          0.00
 16%  81.52         0.03          0.00          0.00
 33%  81.47         0.32          0.00          0.00
 50%  81.35         0.61          0.00          0.00
 66%  81.15         0.90          0.00          0.00
 83%  80.88         1.19          0.00          0.00
100%  80.53         1.48          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 93
Estado f2=FASE 2 A TODO
  0%  80.53         1.48          0.00          0.00
 16%  80.10         1.78          0.00          0.00
 33%  79.59         2.07          0.00          0.00
 50%  79.01         2.36          0.00          0.00
 66%  78.35         2.65          0.00          0.00
 83%  77.62         2.94          0.00          0.00
100%  76.80         3.24          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 94
Estado f2=FASE 2 A TODO
  0%  76.80         3.24          0.00          0.00
 16%  75.91         3.53          0.00          0.00
 33%  74.95         3.82          0.00          0.00
 50%  73.90         4.11          0.00          0.00
 66%  72.78         4.40          0.00          0.00
 83%  71.59         4.70          0.00          0.00
100%  70.32         4.99          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 95
Estado f2=FASE 2 A TODO
  0%  70.32         4.99          0.00          0.00
 16%  68.97         5.28          0.00          0.00
 33%  67.54         5.57          0.00          0.00
 50%  66.04         5.86          0.00          0.00
 66%  64.46         6.15          0.00          0.00
 83%  62.80         6.45          0.00          0.00
100%  61.06         6.74          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 96
Estado f2=FASE 2 A TODO
  0%  61.06         6.74          0.00          0.00
 16%  59.25         7.03          0.00          0.00
 33%  57.37         7.32          0.00          0.00
```

```
 50%  55.40         7.61          0.00          0.00
 66%  53.36         7.91          0.00          0.00
 83%  51.25         8.20          0.00          0.00
100%  49.05         8.49          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 97
Estado f2=FASE 2 A TODO
  0%  49.05         8.49          0.00          0.00
 16%  46.78         8.78          0.00          0.00
 33%  44.43         9.07          0.00          0.00
 50%  42.01         9.37          0.00          0.00
 66%  39.51         9.66          0.00          0.00
 83%  36.93         9.95          0.00          0.00
100%  34.27         10.24         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 98
Estado f2=FASE 2 A TODO
  0%  34.27         10.24         0.00          0.00
 16%  31.54         10.53         0.00          0.00
 33%  28.73         10.83         0.00          0.00
 50%  25.85         11.12         0.00          0.00
 66%  22.89         11.41         0.00          0.00
 83%  19.85         11.70         0.00          0.00
100%  16.73         11.99         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 99
Estado f2=FASE 2 A TODO
  0%  16.73         11.99         0.00          0.00
 16%  13.54         12.28         0.00          0.00
 33%  10.27         12.58         0.00          0.00
 50%  6.93          12.87         0.00          0.00
 66%  3.51          13.16         0.00          0.00
 83%  0.01          13.45         0.00          0.00
100%  -3.57         13.74         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 100
Estado f2=FASE 2 A TODO
  0%  -3.57         13.74         0.00          0.00
 16%  -7.22         14.04         0.00          0.00
 33%  -10.95        14.33         0.00          0.00
 50%  -14.76        14.62         0.00          0.00
 66%  -18.64        14.91         0.00          0.00
 83%  -22.60        15.20         0.00          0.00
100%  -26.64        15.50         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 101
Estado f2=FASE 2 A TODO
  0%  -26.64        15.50         0.00          0.00
 16%  -30.97        15.80         0.00          0.00
 33%  -35.38        16.11         0.00          0.00
 50%  -39.88        16.42         0.00          0.00
 66%  -44.46        16.72         0.00          0.00
 83%  -49.13        17.03         0.00          0.00
100%  -53.89        17.34         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 102
Estado f2=FASE 2 A TODO
  0%  -53.89        17.34         0.00          0.00
 16%  -58.73        17.65         0.00          0.00
 33%  -63.65        17.95         0.00          0.00
 50%  -68.66        18.26         0.00          0.00
 66%  -73.75        18.57         0.00          0.00
 83%  -78.93        18.87         0.00          0.00
100%  -84.20        19.18         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 103
Estado f2=FASE 2 A TODO
  0%  -84.20        19.18         0.00          0.00
 16%  -89.55        19.49         0.00          0.00
 33%  -94.98        19.79         0.00          0.00
 50%  -100.50       20.10         0.00          0.00
 66%  -106.10       20.41         0.00          0.00
 83%  -111.79       20.72         0.00          0.00
100%  -117.57       21.02         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 104
Estado f2=FASE 2 A TODO
  0%  -117.57       21.02         0.00          0.00
 16%  -123.43       21.33         0.00          0.00
 33%  -129.37       21.64         0.00          0.00
 50%  -135.40       21.94         0.00          0.00
 66%  -141.51       22.25         0.00          0.00
 83%  -147.71       22.56         0.00          0.00
100%  -154.00       22.87         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 105
Estado f2=FASE 2 A TODO
  0%  -154.00       22.87         0.00          0.00
 16%  -160.36       23.17         0.00          0.00
 33%  -166.82       23.48         0.00          0.00
 50%  -173.36       23.79         0.00          0.00
 66%  -179.98       24.09         0.00          0.00
 83%  -186.69       24.40         0.00          0.00
100%  -193.48       24.71         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 106
Estado f2=FASE 2 A TODO
  0%  -193.48       -24.37        0.00          0.00
 16%  -186.78       -24.06        0.00          0.00
 33%  -180.17       -23.75        0.00          0.00
 50%  -173.64       -23.45        0.00          0.00
 66%  -167.19       -23.14        0.00          0.00
 83%  -160.83       -22.83        0.00          0.00
100%  -154.56       -22.53        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 107
Estado f2=FASE 2 A TODO
  0%  -154.56       -22.53        0.00          0.00
 16%  -148.37       -22.22        0.00          0.00
 33%  -142.27       -21.91        0.00          0.00
 50%  -136.25       -21.60        0.00          0.00
 66%  -130.31       -21.30        0.00          0.00
 83%  -124.46       -20.99        0.00          0.00
100%  -118.70       -20.68        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 108
Estado f2=FASE 2 A TODO
  0%  -118.70       -20.68        0.00          0.00
 16%  -113.02       -20.38        0.00          0.00
 33%  -107.42       -20.07        0.00          0.00
 50%  -101.91       -19.76        0.00          0.00
 66%  -96.49        -19.45        0.00          0.00
 83%  -91.15        -19.15        0.00          0.00
100%  -85.89        -18.84        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 109
Estado f2=FASE 2 A TODO
  0%  -85.89        -18.84        0.00          0.00
 16%  -80.72        -18.53        0.00          0.00
 33%  -75.64        -18.23        0.00          0.00
 50%  -70.64        -17.92        0.00          0.00
 66%  -65.72        -17.61        0.00          0.00
 83%  -60.89        -17.30        0.00          0.00
100%  -56.15        -17.00        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 110
Estado f2=FASE 2 A TODO
  0%  -56.15        -17.00        0.00          0.00
 16%  -54.85        -16.91        0.00          0.00
 33%  -53.55        -16.83        0.00          0.00
```

```
 50%  -52.27        -16.74        0.00          0.00
 66%  -50.99        -16.66        0.00          0.00
 83%  -49.71        -16.57        0.00          0.00
100%  -48.45        -16.49        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 111
Estado f2=FASE 2 A TODO
  0%  -29.46        -15.16        0.00          0.00
 16%  -25.52        -14.86        0.00          0.00
 33%  -21.66        -14.57        0.00          0.00
 50%  -17.87        -14.28        0.00          0.00
 66%  -14.16        -13.99        0.00          0.00
 83%  -10.53        -13.70        0.00          0.00
100%  -6.97         -13.41        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 112
Estado f2=FASE 2 A TODO
  0%  -6.97         -13.41        0.00          0.00
 16%  -3.49         -13.12        0.00          0.00
 33%  -0.08         -12.82        0.00          0.00
 50%  3.25          -12.53        0.00          0.00
 66%  6.50          -12.24        0.00          0.00
 83%  9.67          -11.95        0.00          0.00
100%  12.77         -11.66        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 113
Estado f2=FASE 2 A TODO
  0%  12.77         -11.66        0.00          0.00
 16%  15.79         -11.37        0.00          0.00
 33%  18.74         -11.08        0.00          0.00
 50%  21.61         -10.78        0.00          0.00
 66%  24.40         -10.49        0.00          0.00
 83%  27.12         -10.20        0.00          0.00
100%  29.76         -9.91         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 114
Estado f2=FASE 2 A TODO
  0%  29.76         -9.91         0.00          0.00
 16%  32.32         -9.62         0.00          0.00
 33%  34.81         -9.33         0.00          0.00
 50%  37.22         -9.04         0.00          0.00
 66%  39.55         -8.74         0.00          0.00
 83%  41.81         -8.45         0.00          0.00
100%  43.99         -8.16         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 115
Estado f2=FASE 2 A TODO
  0%  43.99         -8.16         0.00          0.00
 16%  46.09         -7.87         0.00          0.00
 33%  48.12         -7.58         0.00          0.00
 50%  50.07         -7.29         0.00          0.00
 66%  51.95         -7.00         0.00          0.00
 83%  53.75         -6.71         0.00          0.00
100%  55.47         -6.41         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 116
Estado f2=FASE 2 A TODO
  0%  55.47         -6.41         0.00          0.00
 16%  57.11         -6.12         0.00          0.00
 33%  58.68         -5.83         0.00          0.00
 50%  60.17         -5.54         0.00          0.00
 66%  61.59         -5.25         0.00          0.00
 83%  62.93         -4.96         0.00          0.00
100%  64.19         -4.67         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 117
Estado f2=FASE 2 A TODO
  0%  64.19         -4.67         0.00          0.00
 16%  65.38         -4.37         0.00          0.00
 33%  66.49         -4.08         0.00          0.00
 50%  67.52         -3.79         0.00          0.00
 66%  68.48         -3.50         0.00          0.00
 83%  69.36         -3.21         0.00          0.00
100%  70.16         -2.92         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 118
Estado f2=FASE 2 A TODO
  0%  70.16         -2.92         0.00          0.00
 16%  70.89         -2.63         0.00          0.00
 33%  71.54         -2.33         0.00          0.00
 50%  72.12         -2.04         0.00          0.00
 66%  72.61         -1.75         0.00          0.00
 83%  73.04         -1.46         0.00          0.00
100%  73.38         -1.17         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 119
Estado f2=FASE 2 A TODO
  0%  73.38         -1.17         0.00          0.00
 16%  73.65         -0.88         0.00          0.00
 33%  73.84         -0.59         0.00          0.00
 50%  73.96         -0.29         0.00          0.00
 66%  74.00         -0.00         0.00          0.00
 83%  73.96         0.29          0.00          0.00
100%  73.85         0.58          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 120
Estado f2=FASE 2 A TODO
  0%  73.85         0.58          0.00          0.00
 16%  73.66         0.87          0.00          0.00
 33%  73.39         1.16          0.00          0.00
 50%  73.05         1.45          0.00          0.00
 66%  72.63         1.74          0.00          0.00
 83%  72.13         2.04          0.00          0.00
100%  71.56         2.33          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 121
Estado f2=FASE 2 A TODO
  0%  71.56         2.33          0.00          0.00
 16%  70.91         2.62          0.00          0.00
 33%  70.18         2.91          0.00          0.00
 50%  69.38         3.20          0.00          0.00
 66%  68.50         3.49          0.00          0.00
 83%  67.55         3.78          0.00          0.00
100%  66.51         4.08          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 122
Estado f2=FASE 2 A TODO
  0%  66.51         4.08          0.00          0.00
 16%  65.41         4.37          0.00          0.00
 33%  64.22         4.66          0.00          0.00
 50%  62.96         4.95          0.00          0.00
 66%  61.62         5.24          0.00          0.00
 83%  60.21         5.53          0.00          0.00
100%  58.72         5.82          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 123
Estado f2=FASE 2 A TODO
  0%  58.72         5.82          0.00          0.00
 16%  57.15         6.12          0.00          0.00
 33%  55.51         6.41          0.00          0.00
 50%  53.79         6.70          0.00          0.00
 66%  51.99         6.99          0.00          0.00
 83%  50.12         7.28          0.00          0.00
100%  48.17         7.57          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 124
Estado f2=FASE 2 A TODO
  0%  48.17         7.57          0.00          0.00
 16%  46.14         7.86          0.00          0.00
 33%  44.04         8.15          0.00          0.00
```

```
 50%  41.86         8.45          0.00          0.00
 66%  39.61         8.74          0.00          0.00
 83%  37.27         9.03          0.00          0.00
100%  34.87         9.32          0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 125
Estado f2=FASE 2 A TODO
  0%  34.87         9.32          0.00          0.00
 16%  32.38         9.61          0.00          0.00
 33%  29.82         9.90          0.00          0.00
 50%  27.18         10.19         0.00          0.00
 66%  24.47         10.49         0.00          0.00
 83%  21.68         10.78         0.00          0.00
100%  18.81         11.07         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 126
Estado f2=FASE 2 A TODO
  0%  18.81         11.07         0.00          0.00
 16%  15.87         11.36         0.00          0.00
 33%  12.85         11.65         0.00          0.00
 50%  9.75          11.94         0.00          0.00
 66%  6.58          12.23         0.00          0.00
 83%  3.33          12.53         0.00          0.00
100%  0.00          12.82         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 127
Estado f2=FASE 2 A TODO
  0%  -48.45        16.49         0.00          0.00
 16%  -49.71        16.57         0.00          0.00
 33%  -50.99        16.66         0.00          0.00
 50%  -52.27        16.74         0.00          0.00
 66%  -53.55        16.83         0.00          0.00
 83%  -54.85        16.91         0.00          0.00
100%  -56.15        17.00         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 128
Estado f2=FASE 2 A TODO
  0%  -54.24        17.36         0.00          0.00
 16%  -55.58        17.45         0.00          0.00
 33%  -56.92        17.53         0.00          0.00
 50%  -58.26        17.62         0.00          0.00
 66%  -59.62        17.70         0.00          0.00
 83%  -60.98        17.79         0.00          0.00
100%  -62.35        17.87         0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 129
Estado f2=FASE 2 A TODO
  0%  -48.45        -16.49        0.00          0.00
 16%  -45.17        -16.27        0.00          0.00
 33%  -41.94        -16.04        0.00          0.00
 50%  -38.75        -15.82        0.00          0.00
 66%  -35.61        -15.60        0.00          0.00
 83%  -32.51        -15.38        0.00          0.00
100%  -29.46        -15.16        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
Viga 130
Estado f2=FASE 2 A TODO
  0%  -54.24        -17.36        0.00          0.00
 16%  -50.79        -17.14        0.00          0.00
 33%  -47.39        -16.92        0.00          0.00
 50%  -44.03        -16.69        0.00          0.00
 66%  -40.71        -16.47        0.00          0.00
 83%  -37.44        -16.25        0.00          0.00
100%  -34.21        -16.03        0.00          0.00
       Axial: 0.00        [Ton]     Tor: 0.00 [Ton*M]
-----------------------------------------------------
```

13. Listados de los modelos de cálculo (Emparrillado final)

Datos de la estructura

Luz de cálculo (m)	:	202.000
Ancho (m)	:	14.000
Esviaje (g)	:	100.000
Dist. Eje Viga borde a ext. tablero (m)	:	5.070
Ancho de las aceras (m)	:	1.750
Dist. Eje Barrera a ext. tablero (m)	:	0.000
Espesor de la losa (m)	:	0.280
Nº de vías	:	2.000
Ancho de la vía (m)	:	1.435
Ripado (m)	:	0.383

Datos de las vigas

Viga	Tipo	Canto (m)	Area (m²)	Peso (t/m)	Va (m)	Inercia (m4)	Intereje (m)
1	C220-300(LLO)						
2	C220-300(LLO)						

Acciones sobre la estructura

Peso balasto (t/m²)	:	1.400
Peso de las aceras (t/m²)	:	0.000
Peso Barrera (t/m)	:	1.000
Peso total ejes tren (t)	:	100.000
Sobrecarga uniforme (t/m)	:	8.000
Sobrecarga en aceras (t/m²)	:	0.500
Coeficiente de clasificación	:	1.210
Coeficiente de impacto	:	1.010
Dif. Temperatura (S.C. Térmica)	:	10.000

Datos del Emparrillado

Datos de Nudos

Nudo	X (m)	Y (m)
1	0.000	0.000
2	-0.000	3.270
3	-0.000	5.070
4	-0.000	5.325
5	-0.000	6.870
6	-0.000	7.130
7	-0.000	8.675
8	-0.000	8.930
9	-0.000	10.730
10	-0.000	14.000
11	1.575	0.000
12	1.575	3.270
13	1.575	6.870
14	1.575	7.130
15	1.575	10.730
16	1.575	14.000
17	3.150	0.000
18	3.150	3.270
19	3.150	6.870
20	3.150	7.130
21	3.150	10.730
22	3.150	14.000
23	4.725	0.000
24	4.725	3.270
25	4.725	6.870
26	4.725	7.130
27	4.725	10.730
28	4.725	14.000
29	6.300	0.000
30	6.300	3.270
31	6.300	6.870
32	6.300	7.130
33	6.300	10.730
34	6.300	14.000
35	7.875	0.000
36	7.875	3.270
37	7.875	6.870
38	7.875	7.130
39	7.875	10.730
40	7.875	14.000
41	9.450	0.000
42	9.450	3.270
43	9.450	6.870
44	9.450	7.130
45	9.450	10.730
46	9.450	14.000
47	11.025	0.000
48	11.025	3.270
49	11.025	6.870
50	11.025	7.130
51	11.025	10.730
52	11.025	14.000
53	12.600	0.000
54	12.600	3.270
55	12.600	6.870
56	12.600	7.130
57	12.600	10.730
58	12.600	14.000
59	14.175	0.000
60	14.175	3.270
61	14.175	6.870
62	14.175	7.130
63	14.175	10.730
64	14.175	14.000
65	15.750	0.000
66	15.750	3.270
67	15.750	6.870
68	15.750	7.130
69	15.750	10.730
70	15.750	14.000
71	17.325	0.000
72	17.325	3.270
73	17.325	6.870

74	17.325	7.130
75	17.325	10.730
76	17.325	14.000
77	18.900	0.000
78	18.900	3.270
79	18.900	6.870
80	18.900	7.130
81	18.900	10.730
82	18.900	14.000
83	20.475	0.000
84	20.475	3.270
85	20.475	6.870
86	20.475	7.130
87	20.475	10.730
88	20.475	14.000
89	22.050	0.000
90	22.050	3.270
91	22.050	6.870
92	22.050	7.130
93	22.050	10.730
94	22.050	14.000
95	23.625	0.000
96	23.625	3.270
97	23.625	6.870
98	23.625	7.130
99	23.625	10.730
100	23.625	14.000
101	25.200	0.000
102	25.200	3.270
103	25.200	6.870
104	25.200	7.130
105	25.200	10.730
106	25.200	14.000
107	26.860	0.000
108	26.860	3.270
109	26.860	6.870
110	26.860	7.130
111	26.860	10.730
112	26.860	14.000
113	28.520	0.000
114	28.520	3.270
115	28.520	6.870
116	28.520	7.130
117	28.520	10.730
118	28.520	14.000
119	30.180	0.000
120	30.180	3.270
121	30.180	6.870
122	30.180	7.130
123	30.180	10.730
124	30.180	14.000
125	31.840	0.000
126	31.840	3.270
127	31.840	6.870
128	31.840	7.130
129	31.840	10.730
130	31.840	14.000
131	33.500	0.000
132	33.500	3.270
133	33.500	5.400
134	33.500	6.870
135	33.500	7.130
136	33.500	8.600
137	33.500	10.730
138	33.500	14.000
139	35.160	0.000
140	35.160	3.270
141	35.160	6.870
142	35.160	7.130
143	35.160	10.730
144	35.160	14.000
145	36.820	0.000
146	36.820	3.270
147	36.820	6.870
148	36.820	7.130
149	36.820	10.730

150	36.820	14.000
151	38.480	0.000
152	38.480	3.270
153	38.480	6.870
154	38.480	7.130
155	38.480	10.730
156	38.480	14.000
157	40.140	0.000
158	40.140	3.270
159	40.140	6.870
160	40.140	7.130
161	40.140	10.730
162	40.140	14.000
163	41.800	0.000
164	41.800	3.270
165	41.800	6.870
166	41.800	7.130
167	41.800	10.730
168	41.800	14.000
169	43.378	0.000
170	43.378	3.270
171	43.378	6.870
172	43.378	7.130
173	43.378	10.730
174	43.378	14.000
175	44.956	0.000
176	44.956	3.270
177	44.956	6.870
178	44.956	7.130
179	44.956	10.730
180	44.956	14.000
181	46.533	0.000
182	46.533	3.270
183	46.533	6.870
184	46.533	7.130
185	46.533	10.730
186	46.533	14.000
187	48.111	0.000
188	48.111	3.270
189	48.111	6.870
190	48.111	7.130
191	48.111	10.730
192	48.111	14.000
193	49.689	0.000
194	49.689	3.270
195	49.689	6.870
196	49.689	7.130
197	49.689	10.730
198	49.689	14.000
199	51.267	0.000
200	51.267	3.270
201	51.267	6.870
202	51.267	7.130
203	51.267	10.730
204	51.267	14.000
205	52.844	0.000
206	52.844	3.270
207	52.844	6.870
208	52.844	7.130
209	52.844	10.730
210	52.844	14.000
211	54.422	0.000
212	54.422	3.270
213	54.422	6.870
214	54.422	7.130
215	54.422	10.730
216	54.422	14.000
217	56.000	0.000
218	56.000	3.270
219	56.000	6.870
220	56.000	7.130
221	56.000	10.730
222	56.000	14.000
223	57.578	0.000
224	57.578	3.270
225	57.578	6.870

226	57.578	7.130
227	57.578	10.730
228	57.578	14.000
229	59.156	0.000
230	59.156	3.270
231	59.156	6.870
232	59.156	7.130
233	59.156	10.730
234	59.156	14.000
235	60.733	0.000
236	60.733	3.270
237	60.733	6.870
238	60.733	7.130
239	60.733	10.730
240	60.733	14.000
241	62.311	0.000
242	62.311	3.270
243	62.311	6.870
244	62.311	7.130
245	62.311	10.730
246	62.311	14.000
247	63.889	0.000
248	63.889	3.270
249	63.889	6.870
250	63.889	7.130
251	63.889	10.730
252	63.889	14.000
253	65.467	0.000
254	65.467	3.270
255	65.467	6.870
256	65.467	7.130
257	65.467	10.730
258	65.467	14.000
259	67.044	0.000
260	67.044	3.270
261	67.044	6.870
262	67.044	7.130
263	67.044	10.730
264	67.044	14.000
265	68.622	0.000
266	68.622	3.270
267	68.622	6.870
268	68.622	7.130
269	68.622	10.730
270	68.622	14.000
271	70.200	0.000
272	70.200	3.270
273	70.200	6.870
274	70.200	7.130
275	70.200	10.730
276	70.200	14.000
277	71.860	0.000
278	71.860	3.270
279	71.860	6.870
280	71.860	7.130
281	71.860	10.730
282	71.860	14.000
283	73.520	0.000
284	73.520	3.270
285	73.520	6.870
286	73.520	7.130
287	73.520	10.730
288	73.520	14.000
289	75.180	0.000
290	75.180	3.270
291	75.180	6.870
292	75.180	7.130
293	75.180	10.730
294	75.180	14.000
295	76.840	0.000
296	76.840	3.270
297	76.840	6.870
298	76.840	7.130
299	76.840	10.730
300	76.840	14.000
301	78.500	0.000

302	78.500	3.270
303	78.500	5.400
304	78.500	6.870
305	78.500	7.130
306	78.500	8.600
307	78.500	10.730
308	78.500	14.000
309	80.160	0.000
310	80.160	3.270
311	80.160	6.870
312	80.160	7.130
313	80.160	10.730
314	80.160	14.000
315	81.820	0.000
316	81.820	3.270
317	81.820	6.870
318	81.820	7.130
319	81.820	10.730
320	81.820	14.000
321	83.480	0.000
322	83.480	3.270
323	83.480	6.870
324	83.480	7.130
325	83.480	10.730
326	83.480	14.000
327	85.140	0.000
328	85.140	3.270
329	85.140	6.870
330	85.140	7.130
331	85.140	10.730
332	85.140	14.000
333	86.800	0.000
334	86.800	3.270
335	86.800	6.870
336	86.800	7.130
337	86.800	10.730
338	86.800	14.000
339	88.378	0.000
340	88.378	3.270
341	88.378	6.870
342	88.378	7.130
343	88.378	10.730
344	88.378	14.000
345	89.956	0.000
346	89.956	3.270
347	89.956	6.870
348	89.956	7.130
349	89.956	10.730
350	89.956	14.000
351	91.533	0.000
352	91.533	3.270
353	91.533	6.870
354	91.533	7.130
355	91.533	10.730
356	91.533	14.000
357	93.111	0.000
358	93.111	3.270
359	93.111	6.870
360	93.111	7.130
361	93.111	10.730
362	93.111	14.000
363	94.689	0.000
364	94.689	3.270
365	94.689	6.870
366	94.689	7.130
367	94.689	10.730
368	94.689	14.000
369	96.267	0.000
370	96.267	3.270
371	96.267	6.870
372	96.267	7.130
373	96.267	10.730
374	96.267	14.000
375	97.844	0.000
376	97.844	3.270
377	97.844	6.870

378	97.844	7.130
379	97.844	10.730
380	97.844	14.000
381	99.422	0.000
382	99.422	3.270
383	99.422	6.870
384	99.422	7.130
385	99.422	10.730
386	99.422	14.000
387	101.000	0.000
388	101.000	3.270
389	101.000	6.870
390	101.000	7.130
391	101.000	10.730
392	101.000	14.000
393	102.578	0.000
394	102.578	3.270
395	102.578	6.870
396	102.578	7.130
397	102.578	10.730
398	102.578	14.000
399	104.156	0.000
400	104.156	3.270
401	104.156	6.870
402	104.156	7.130
403	104.156	10.730
404	104.156	14.000
405	105.733	0.000
406	105.733	3.270
407	105.733	6.870
408	105.733	7.130
409	105.733	10.730
410	105.733	14.000
411	107.311	0.000
412	107.311	3.270
413	107.311	6.870
414	107.311	7.130
415	107.311	10.730
416	107.311	14.000
417	108.889	0.000
418	108.889	3.270
419	108.889	6.870
420	108.889	7.130
421	108.889	10.730
422	108.889	14.000
423	110.467	0.000
424	110.467	3.270
425	110.467	6.870
426	110.467	7.130
427	110.467	10.730
428	110.467	14.000
429	112.044	0.000
430	112.044	3.270
431	112.044	6.870
432	112.044	7.130
433	112.044	10.730
434	112.044	14.000
435	113.622	0.000
436	113.622	3.270
437	113.622	6.870
438	113.622	7.130
439	113.622	10.730
440	113.622	14.000
441	115.200	0.000
442	115.200	3.270
443	115.200	6.870
444	115.200	7.130
445	115.200	10.730
446	115.200	14.000
447	116.860	0.000
448	116.860	3.270
449	116.860	6.870
450	116.860	7.130
451	116.860	10.730
452	116.860	14.000
453	118.520	0.000

454	118.520	3.270
455	118.520	6.870
456	118.520	7.130
457	118.520	10.730
458	118.520	14.000
459	120.180	0.000
460	120.180	3.270
461	120.180	6.870
462	120.180	7.130
463	120.180	10.730
464	120.180	14.000
465	121.840	0.000
466	121.840	3.270
467	121.840	6.870
468	121.840	7.130
469	121.840	10.730
470	121.840	14.000
471	123.500	0.000
472	123.500	3.270
473	123.500	5.400
474	123.500	6.870
475	123.500	7.130
476	123.500	8.600
477	123.500	10.730
478	123.500	14.000
479	125.160	0.000
480	125.160	3.270
481	125.160	6.870
482	125.160	7.130
483	125.160	10.730
484	125.160	14.000
485	126.820	0.000
486	126.820	3.270
487	126.820	6.870
488	126.820	7.130
489	126.820	10.730
490	126.820	14.000
491	128.480	0.000
492	128.480	3.270
493	128.480	6.870
494	128.480	7.130
495	128.480	10.730
496	128.480	14.000
497	130.140	0.000
498	130.140	3.270
499	130.140	6.870
500	130.140	7.130
501	130.140	10.730
502	130.140	14.000
503	131.800	0.000
504	131.800	3.270
505	131.800	6.870
506	131.800	7.130
507	131.800	10.730
508	131.800	14.000
509	133.378	0.000
510	133.378	3.270
511	133.378	6.870
512	133.378	7.130
513	133.378	10.730
514	133.378	14.000
515	134.956	0.000
516	134.956	3.270
517	134.956	6.870
518	134.956	7.130
519	134.956	10.730
520	134.956	14.000
521	136.533	0.000
522	136.533	3.270
523	136.533	6.870
524	136.533	7.130
525	136.533	10.730
526	136.533	14.000
527	138.111	0.000
528	138.111	3.270
529	138.111	6.870

530	138.111	7.130
531	138.111	10.730
532	138.111	14.000
533	139.689	0.000
534	139.689	3.270
535	139.689	6.870
536	139.689	7.130
537	139.689	10.730
538	139.689	14.000
539	141.267	0.000
540	141.267	3.270
541	141.267	6.870
542	141.267	7.130
543	141.267	10.730
544	141.267	14.000
545	142.844	0.000
546	142.844	3.270
547	142.844	6.870
548	142.844	7.130
549	142.844	10.730
550	142.844	14.000
551	144.422	0.000
552	144.422	3.270
553	144.422	6.870
554	144.422	7.130
555	144.422	10.730
556	144.422	14.000
557	146.000	0.000
558	146.000	3.270
559	146.000	6.870
560	146.000	7.130
561	146.000	10.730
562	146.000	14.000
563	147.578	0.000
564	147.578	3.270
565	147.578	6.870
566	147.578	7.130
567	147.578	10.730
568	147.578	14.000
569	149.156	0.000
570	149.156	3.270
571	149.156	6.870
572	149.156	7.130
573	149.156	10.730
574	149.156	14.000
575	150.733	0.000
576	150.733	3.270
577	150.733	6.870
578	150.733	7.130
579	150.733	10.730
580	150.733	14.000
581	152.311	0.000
582	152.311	3.270
583	152.311	6.870
584	152.311	7.130
585	152.311	10.730
586	152.311	14.000
587	153.889	0.000
588	153.889	3.270
589	153.889	6.870
590	153.889	7.130
591	153.889	10.730
592	153.889	14.000
593	155.467	0.000
594	155.467	3.270
595	155.467	6.870
596	155.467	7.130
597	155.467	10.730
598	155.467	14.000
599	157.044	0.000
600	157.044	3.270
601	157.044	6.870
602	157.044	7.130
603	157.044	10.730
604	157.044	14.000
605	158.622	0.000

606	158.622	3.270
607	158.622	6.870
608	158.622	7.130
609	158.622	10.730
610	158.622	14.000
611	160.200	0.000
612	160.200	3.270
613	160.200	6.870
614	160.200	7.130
615	160.200	10.730
616	160.200	14.000
617	161.860	0.000
618	161.860	3.270
619	161.860	6.870
620	161.860	7.130
621	161.860	10.730
622	161.860	14.000
623	163.520	0.000
624	163.520	3.270
625	163.520	6.870
626	163.520	7.130
627	163.520	10.730
628	163.520	14.000
629	165.180	0.000
630	165.180	3.270
631	165.180	6.870
632	165.180	7.130
633	165.180	10.730
634	165.180	14.000
635	166.840	0.000
636	166.840	3.270
637	166.840	6.870
638	166.840	7.130
639	166.840	10.730
640	166.840	14.000
641	168.500	0.000
642	168.500	3.270
643	168.500	5.400
644	168.500	6.870
645	168.500	7.130
646	168.500	8.600
647	168.500	10.730
648	168.500	14.000
649	170.160	0.000
650	170.160	3.270
651	170.160	6.870
652	170.160	7.130
653	170.160	10.730
654	170.160	14.000
655	171.820	0.000
656	171.820	3.270
657	171.820	6.870
658	171.820	7.130
659	171.820	10.730
660	171.820	14.000
661	173.480	0.000
662	173.480	3.270
663	173.480	6.870
664	173.480	7.130
665	173.480	10.730
666	173.480	14.000
667	175.140	0.000
668	175.140	3.270
669	175.140	6.870
670	175.140	7.130
671	175.140	10.730
672	175.140	14.000
673	176.800	0.000
674	176.800	3.270
675	176.800	6.870
676	176.800	7.130
677	176.800	10.730
678	176.800	14.000
679	178.375	0.000
680	178.375	3.270
681	178.375	6.870

682	178.375	7.130
683	178.375	10.730
684	178.375	14.000
685	179.950	0.000
686	179.950	3.270
687	179.950	6.870
688	179.950	7.130
689	179.950	10.730
690	179.950	14.000
691	181.525	0.000
692	181.525	3.270
693	181.525	6.870
694	181.525	7.130
695	181.525	10.730
696	181.525	14.000
697	183.100	0.000
698	183.100	3.270
699	183.100	6.870
700	183.100	7.130
701	183.100	10.730
702	183.100	14.000
703	184.675	0.000
704	184.675	3.270
705	184.675	6.870
706	184.675	7.130
707	184.675	10.730
708	184.675	14.000
709	186.250	0.000
710	186.250	3.270
711	186.250	6.870
712	186.250	7.130
713	186.250	10.730
714	186.250	14.000
715	187.825	0.000
716	187.825	3.270
717	187.825	6.870
718	187.825	7.130
719	187.825	10.730
720	187.825	14.000
721	189.400	0.000
722	189.400	3.270
723	189.400	6.870
724	189.400	7.130
725	189.400	10.730
726	189.400	14.000
727	190.975	0.000
728	190.975	3.270
729	190.975	6.870
730	190.975	7.130
731	190.975	10.730
732	190.975	14.000
733	192.550	0.000
734	192.550	3.270
735	192.550	6.870
736	192.550	7.130
737	192.550	10.730
738	192.550	14.000
739	194.125	0.000
740	194.125	3.270
741	194.125	6.870
742	194.125	7.130
743	194.125	10.730
744	194.125	14.000
745	195.700	0.000
746	195.700	3.270
747	195.700	6.870
748	195.700	7.130
749	195.700	10.730
750	195.700	14.000
751	197.275	0.000
752	197.275	3.270
753	197.275	6.870
754	197.275	7.130
755	197.275	10.730
756	197.275	14.000
757	198.850	0.000

758	198.850	3.270
759	198.850	6.870
760	198.850	7.130
761	198.850	10.730
762	198.850	14.000
763	200.425	0.000
764	200.425	3.270
765	200.425	6.870
766	200.425	7.130
767	200.425	10.730
768	200.425	14.000
769	202.000	0.000
770	202.000	3.270
771	202.000	5.070
772	202.000	5.325
773	202.000	6.870
774	202.000	7.130
775	202.000	8.675
776	202.000	8.930
777	202.000	10.730
778	202.000	14.000

Datos de Barras

Barra	Nudo I	Nudo J	Ancho (m)	Iflex (m4)	Jtor (m4)	Area(m2)
1	1	11	1.635	0.002478	0.008623	0.379351
2	11	17	1.635	0.002478	0.008623	0.379351
3	17	23	1.635	0.002478	0.008623	0.379351
4	23	29	1.635	0.002478	0.008623	0.379351
5	29	35	1.635	0.002478	0.008623	0.379351
6	35	41	1.635	0.002478	0.008623	0.379351
7	41	47	1.635	0.002478	0.008623	0.379351
8	47	53	1.635	0.002478	0.008623	0.379351
9	53	59	1.635	0.002478	0.008623	0.379351
10	59	65	1.635	0.002478	0.008623	0.379351
11	65	71	1.635	0.002478	0.008623	0.379351
12	71	77	1.635	0.002478	0.008623	0.379351
13	77	83	1.635	0.002478	0.008623	0.379351
14	83	89	1.635	0.002478	0.008623	0.379351
15	89	95	1.635	0.002478	0.008623	0.379351
16	95	101	1.635	0.002478	0.008623	0.379351
17	101	107	1.635	0.002478	0.008623	0.379351
18	107	113	1.635	0.002478	0.008623	0.379351
19	113	119	1.635	0.002478	0.008623	0.379351
20	119	125	1.635	0.002478	0.008623	0.379351
21	125	131	1.635	0.002478	0.008623	0.379351
22	131	139	1.635	0.002478	0.008623	0.379351
23	139	145	1.635	0.002478	0.008623	0.379351
24	145	151	1.635	0.002478	0.008623	0.379351
25	151	157	1.635	0.002478	0.008623	0.379351
26	157	163	1.635	0.002478	0.008623	0.379351
27	163	169	1.635	0.002478	0.008623	0.379351
28	169	175	1.635	0.002478	0.008623	0.379351
29	175	181	1.635	0.002478	0.008623	0.379351
30	181	187	1.635	0.002478	0.008623	0.379351
31	187	193	1.635	0.002478	0.008623	0.379351
32	193	199	1.635	0.002478	0.008623	0.379351
33	199	205	1.635	0.002478	0.008623	0.379351
34	205	211	1.635	0.002478	0.008623	0.379351
35	211	217	1.635	0.002478	0.008623	0.379351
36	217	223	1.635	0.002478	0.008623	0.379351
37	223	229	1.635	0.002478	0.008623	0.379351
38	229	235	1.635	0.002478	0.008623	0.379351
39	235	241	1.635	0.002478	0.008623	0.379351
40	241	247	1.635	0.002478	0.008623	0.379351
41	247	253	1.635	0.002478	0.008623	0.379351
42	253	259	1.635	0.002478	0.008623	0.379351
43	259	265	1.635	0.002478	0.008623	0.379351
44	265	271	1.635	0.002478	0.008623	0.379351
45	271	277	1.635	0.002478	0.008623	0.379351
46	277	283	1.635	0.002478	0.008623	0.379351
47	283	289	1.635	0.002478	0.008623	0.379351
48	289	295	1.635	0.002478	0.008623	0.379351
49	295	301	1.635	0.002478	0.008623	0.379351
50	301	309	1.635	0.002478	0.008623	0.379351
51	309	315	1.635	0.002478	0.008623	0.379351
52	315	321	1.635	0.002478	0.008623	0.379351
53	321	327	1.635	0.002478	0.008623	0.379351

54	327	333	1.635	0.002478	0.008623	0.379351
55	333	339	1.635	0.002478	0.008623	0.379351
56	339	345	1.635	0.002478	0.008623	0.379351
57	345	351	1.635	0.002478	0.008623	0.379351
58	351	357	1.635	0.002478	0.008623	0.379351
59	357	363	1.635	0.002478	0.008623	0.379351
60	363	369	1.635	0.002478	0.008623	0.379351
61	369	375	1.635	0.002478	0.008623	0.379351
62	375	381	1.635	0.002478	0.008623	0.379351
63	381	387	1.635	0.002478	0.008623	0.379351
64	387	393	1.635	0.002478	0.008623	0.379351
65	393	399	1.635	0.002478	0.008623	0.379351
66	399	405	1.635	0.002478	0.008623	0.379351
67	405	411	1.635	0.002478	0.008623	0.379351
68	411	417	1.635	0.002478	0.008623	0.379351
69	417	423	1.635	0.002478	0.008623	0.379351
70	423	429	1.635	0.002478	0.008623	0.379351
71	429	435	1.635	0.002478	0.008623	0.379351
72	435	441	1.635	0.002478	0.008623	0.379351
73	441	447	1.635	0.002478	0.008623	0.379351
74	447	453	1.635	0.002478	0.008623	0.379351
75	453	459	1.635	0.002478	0.008623	0.379351
76	459	465	1.635	0.002478	0.008623	0.379351
77	465	471	1.635	0.002478	0.008623	0.379351
78	471	479	1.635	0.002478	0.008623	0.379351
79	479	485	1.635	0.002478	0.008623	0.379351
80	485	491	1.635	0.002478	0.008623	0.379351
81	491	497	1.635	0.002478	0.008623	0.379351
82	497	503	1.635	0.002478	0.008623	0.379351
83	503	509	1.635	0.002478	0.008623	0.379351
84	509	515	1.635	0.002478	0.008623	0.379351
85	515	521	1.635	0.002478	0.008623	0.379351
86	521	527	1.635	0.002478	0.008623	0.379351
87	527	533	1.635	0.002478	0.008623	0.379351
88	533	539	1.635	0.002478	0.008623	0.379351
89	539	545	1.635	0.002478	0.008623	0.379351
90	545	551	1.635	0.002478	0.008623	0.379351
91	551	557	1.635	0.002478	0.008623	0.379351
92	557	563	1.635	0.002478	0.008623	0.379351
93	563	569	1.635	0.002478	0.008623	0.379351
94	569	575	1.635	0.002478	0.008623	0.379351
95	575	581	1.635	0.002478	0.008623	0.379351
96	581	587	1.635	0.002478	0.008623	0.379351
97	587	593	1.635	0.002478	0.008623	0.379351
98	593	599	1.635	0.002478	0.008623	0.379351
99	599	605	1.635	0.002478	0.008623	0.379351
100	605	611	1.635	0.002478	0.008623	0.379351
101	611	617	1.635	0.002478	0.008623	0.379351
102	617	623	1.635	0.002478	0.008623	0.379351
103	623	629	1.635	0.002478	0.008623	0.379351
104	629	635	1.635	0.002478	0.008623	0.379351
105	635	641	1.635	0.002478	0.008623	0.379351
106	641	649	1.635	0.002478	0.008623	0.379351
107	649	655	1.635	0.002478	0.008623	0.379351
108	655	661	1.635	0.002478	0.008623	0.379351
109	661	667	1.635	0.002478	0.008623	0.379351
110	667	673	1.635	0.002478	0.008623	0.379351
111	673	679	1.635	0.002478	0.008623	0.379351
112	679	685	1.635	0.002478	0.008623	0.379351
113	685	691	1.635	0.002478	0.008623	0.379351
114	691	697	1.635	0.002478	0.008623	0.379351
115	697	703	1.635	0.002478	0.008623	0.379351
116	703	709	1.635	0.002478	0.008623	0.379351
117	709	715	1.635	0.002478	0.008623	0.379351
118	715	721	1.635	0.002478	0.008623	0.379351
119	721	727	1.635	0.002478	0.008623	0.379351
120	727	733	1.635	0.002478	0.008623	0.379351
121	733	739	1.635	0.002478	0.008623	0.379351
122	739	745	1.635	0.002478	0.008623	0.379351
123	745	751	1.635	0.002478	0.008623	0.379351
124	751	757	1.635	0.002478	0.008623	0.379351
125	757	763	1.635	0.002478	0.008623	0.379351
126	763	769	1.635	0.002478	0.008623	0.379351
127	2	12	3.435	2.125405	1.102212	1.747757
128	12	18	3.435	2.125405	1.102212	1.747757
129	18	24	3.435	2.125405	1.102212	1.747757

130	24	30	3.435	2.125405	1.102212	1.747757
131	30	36	3.435	2.125405	1.102212	1.747757
132	36	42	3.435	2.125405	1.102212	1.747757
133	42	48	3.435	2.125405	1.102212	1.747757
134	48	54	3.435	2.125405	1.102212	1.747757
135	54	60	3.435	2.125405	1.102212	1.747757
136	60	66	3.435	2.125405	1.102212	1.747757
137	66	72	3.435	2.125405	1.102212	1.747757
138	72	78	3.435	2.125405	1.102212	1.747757
139	78	84	3.435	2.125405	1.102212	1.747757
140	84	90	3.435	2.125405	1.102212	1.747757
141	90	96	3.435	2.125405	1.102212	1.747757
142	96	102	3.435	2.125405	1.102212	1.747757
143	102	108	3.435	2.345000	1.174532	1.785073
144	108	114	3.435	2.795930	1.322178	1.859706
145	114	120	3.435	3.262546	1.473052	1.934339
146	120	126	3.435	3.744880	1.626231	2.008972
147	126	132	3.435	4.191229	1.764947	2.075962
148	132	140	3.435	4.191229	1.764947	2.075962
149	140	146	3.435	3.744880	1.626231	2.008972
150	146	152	3.435	3.262546	1.473052	1.934339
151	152	158	3.435	2.795930	1.322178	1.859706
152	158	164	3.435	2.345000	1.174532	1.785073
153	164	170	3.435	2.125405	1.102212	1.747757
154	170	176	3.435	2.125405	1.102212	1.747757
155	176	182	3.435	2.125405	1.102212	1.747757
156	182	188	3.435	2.125405	1.102212	1.747757
157	188	194	3.435	2.125405	1.102212	1.747757
158	194	200	3.435	2.125405	1.102212	1.747757
159	200	206	3.435	2.125405	1.102212	1.747757
160	206	212	3.435	2.125405	1.102212	1.747757
161	212	218	3.435	2.125405	1.102212	1.747757
162	218	224	3.435	2.125405	1.102212	1.747757
163	224	230	3.435	2.125405	1.102212	1.747757
164	230	236	3.435	2.125405	1.102212	1.747757
165	236	242	3.435	2.125405	1.102212	1.747757
166	242	248	3.435	2.125405	1.102212	1.747757
167	248	254	3.435	2.125405	1.102212	1.747757
168	254	260	3.435	2.125405	1.102212	1.747757
169	260	266	3.435	2.125405	1.102212	1.747757
170	266	272	3.435	2.125405	1.102212	1.747757
171	272	278	3.435	2.345000	1.174532	1.785073
172	278	284	3.435	2.795930	1.322178	1.859706
173	284	290	3.435	3.262546	1.473052	1.934339
174	290	296	3.435	3.744880	1.626231	2.008972
175	296	302	3.435	4.191229	1.764947	2.075962
176	302	310	3.435	4.191229	1.764947	2.075962
177	310	316	3.435	3.744880	1.626231	2.008972
178	316	322	3.435	3.262546	1.473052	1.934339
179	322	328	3.435	2.795930	1.322178	1.859706
180	328	334	3.435	2.345000	1.174532	1.785073
181	334	340	3.435	2.125405	1.102212	1.747757
182	340	346	3.435	2.125405	1.102212	1.747757
183	346	352	3.435	2.125405	1.102212	1.747757
184	352	358	3.435	2.125405	1.102212	1.747757
185	358	364	3.435	2.125405	1.102212	1.747757
186	364	370	3.435	2.125405	1.102212	1.747757
187	370	376	3.435	2.125405	1.102212	1.747757
188	376	382	3.435	2.125405	1.102212	1.747757
189	382	388	3.435	2.125405	1.102212	1.747757
190	388	394	3.435	2.125405	1.102212	1.747757
191	394	400	3.435	2.125405	1.102212	1.747757
192	400	406	3.435	2.125405	1.102212	1.747757
193	406	412	3.435	2.125405	1.102212	1.747757
194	412	418	3.435	2.125405	1.102212	1.747757
195	418	424	3.435	2.125405	1.102212	1.747757
196	424	430	3.435	2.125405	1.102212	1.747757
197	430	436	3.435	2.125405	1.102212	1.747757
198	436	442	3.435	2.125405	1.102212	1.747757
199	442	448	3.435	2.345000	1.174532	1.785073
200	448	454	3.435	2.795930	1.322178	1.859706
201	454	460	3.435	3.262546	1.473052	1.934339
202	460	466	3.435	3.744880	1.626231	2.008972
203	466	472	3.435	4.191229	1.764947	2.075962
204	472	480	3.435	4.191229	1.764947	2.075962
205	480	486	3.435	3.744880	1.626231	2.008972

206	486	492	3.435	3.262546	1.473052	1.934339
207	492	498	3.435	2.795930	1.322178	1.859706
208	498	504	3.435	2.345000	1.174532	1.785073
209	504	510	3.435	2.125405	1.102212	1.747757
210	510	516	3.435	2.125405	1.102212	1.747757
211	516	522	3.435	2.125405	1.102212	1.747757
212	522	528	3.435	2.125405	1.102212	1.747757
213	528	534	3.435	2.125405	1.102212	1.747757
214	534	540	3.435	2.125405	1.102212	1.747757
215	540	546	3.435	2.125405	1.102212	1.747757
216	546	552	3.435	2.125405	1.102212	1.747757
217	552	558	3.435	2.125405	1.102212	1.747757
218	558	564	3.435	2.125405	1.102212	1.747757
219	564	570	3.435	2.125405	1.102212	1.747757
220	570	576	3.435	2.125405	1.102212	1.747757
221	576	582	3.435	2.125405	1.102212	1.747757
222	582	588	3.435	2.125405	1.102212	1.747757
223	588	594	3.435	2.125405	1.102212	1.747757
224	594	600	3.435	2.125405	1.102212	1.747757
225	600	606	3.435	2.125405	1.102212	1.747757
226	606	612	3.435	2.125405	1.102212	1.747757
227	612	618	3.435	2.345000	1.174532	1.785073
228	618	624	3.435	2.795930	1.322178	1.859706
229	624	630	3.435	3.262546	1.473052	1.934339
230	630	636	3.435	3.744880	1.626231	2.008972
231	636	642	3.435	4.191229	1.764947	2.075962
232	642	650	3.435	4.191229	1.764947	2.075962
233	650	656	3.435	3.744880	1.626231	2.008972
234	656	662	3.435	3.262546	1.473052	1.934339
235	662	668	3.435	2.795930	1.322178	1.859706
236	668	674	3.435	2.345000	1.174532	1.785073
237	674	680	3.435	2.125405	1.102212	1.747757
238	680	686	3.435	2.125405	1.102212	1.747757
239	686	692	3.435	2.125405	1.102212	1.747757
240	692	698	3.435	2.125405	1.102212	1.747757
241	698	704	3.435	2.125405	1.102212	1.747757
242	704	710	3.435	2.125405	1.102212	1.747757
243	710	716	3.435	2.125405	1.102212	1.747757
244	716	722	3.435	2.125405	1.102212	1.747757
245	722	728	3.435	2.125405	1.102212	1.747757
246	728	734	3.435	2.125405	1.102212	1.747757
247	734	740	3.435	2.125405	1.102212	1.747757
248	740	746	3.435	2.125405	1.102212	1.747757
249	746	752	3.435	2.125405	1.102212	1.747757
250	752	758	3.435	2.125405	1.102212	1.747757
251	758	764	3.435	2.125405	1.102212	1.747757
252	764	770	3.435	2.125405	1.102212	1.747757
253	5	13	1.930	0.961104	0.058011	1.398568
254	13	19	1.930	0.961104	0.058011	1.398568
255	19	25	1.930	0.961104	0.058011	1.398568
256	25	31	1.930	0.961104	0.058011	1.398568
257	31	37	1.930	0.961104	0.058011	1.398568
258	37	43	1.930	0.961104	0.058011	1.398568
259	43	49	1.930	0.961104	0.058011	1.398568
260	49	55	1.930	0.961104	0.058011	1.398568
261	55	61	1.930	0.961104	0.058011	1.398568
262	61	67	1.930	0.961104	0.058011	1.398568
263	67	73	1.930	0.961104	0.058011	1.398568
264	73	79	1.930	0.961104	0.058011	1.398568
265	79	85	1.930	0.961104	0.058011	1.398568
266	85	91	1.930	0.961104	0.058011	1.398568
267	91	97	1.930	0.961104	0.058011	1.398568
268	97	103	1.930	0.961104	0.058011	1.398568
269	103	109	1.930	1.062371	0.061817	1.435885
270	109	115	1.930	1.268694	0.069588	1.510517
271	115	121	1.930	1.480051	0.077529	1.585150
272	121	127	1.930	1.696423	0.085591	1.659783
273	127	134	1.930	1.894894	0.092892	1.726773
274	134	141	1.930	1.894894	0.092892	1.726773
275	141	147	1.930	1.696423	0.085591	1.659783
276	147	153	1.930	1.480051	0.077529	1.585150
277	153	159	1.930	1.268694	0.069588	1.510517
278	159	165	1.930	1.062371	0.061817	1.435885
279	165	171	1.930	0.961104	0.058011	1.398568
280	171	177	1.930	0.961104	0.058011	1.398568
281	177	183	1.930	0.961104	0.058011	1.398568

282	183	189	1.930	0.961104	0.058011	1.398568
283	189	195	1.930	0.961104	0.058011	1.398568
284	195	201	1.930	0.961104	0.058011	1.398568
285	201	207	1.930	0.961104	0.058011	1.398568
286	207	213	1.930	0.961104	0.058011	1.398568
287	213	219	1.930	0.961104	0.058011	1.398568
288	219	225	1.930	0.961104	0.058011	1.398568
289	225	231	1.930	0.961104	0.058011	1.398568
290	231	237	1.930	0.961104	0.058011	1.398568
291	237	243	1.930	0.961104	0.058011	1.398568
292	243	249	1.930	0.961104	0.058011	1.398568
293	249	255	1.930	0.961104	0.058011	1.398568
294	255	261	1.930	0.961104	0.058011	1.398568
295	261	267	1.930	0.961104	0.058011	1.398568
296	267	273	1.930	0.961104	0.058011	1.398568
297	273	279	1.930	1.062371	0.061817	1.435885
298	279	285	1.930	1.268694	0.069588	1.510517
299	285	291	1.930	1.480051	0.077529	1.585150
300	291	297	1.930	1.696423	0.085591	1.659783
301	297	304	1.930	1.894894	0.092892	1.726773
302	304	311	1.930	1.894894	0.092892	1.726773
303	311	317	1.930	1.696423	0.085591	1.659783
304	317	323	1.930	1.480051	0.077529	1.585150
305	323	329	1.930	1.268694	0.069588	1.510517
306	329	335	1.930	1.062371	0.061817	1.435885
307	335	341	1.930	0.961104	0.058011	1.398568
308	341	347	1.930	0.961104	0.058011	1.398568
309	347	353	1.930	0.961104	0.058011	1.398568
310	353	359	1.930	0.961104	0.058011	1.398568
311	359	365	1.930	0.961104	0.058011	1.398568
312	365	371	1.930	0.961104	0.058011	1.398568
313	371	377	1.930	0.961104	0.058011	1.398568
314	377	383	1.930	0.961104	0.058011	1.398568
315	383	389	1.930	0.961104	0.058011	1.398568
316	389	395	1.930	0.961104	0.058011	1.398568
317	395	401	1.930	0.961104	0.058011	1.398568
318	401	407	1.930	0.961104	0.058011	1.398568
319	407	413	1.930	0.961104	0.058011	1.398568
320	413	419	1.930	0.961104	0.058011	1.398568
321	419	425	1.930	0.961104	0.058011	1.398568
322	425	431	1.930	0.961104	0.058011	1.398568
323	431	437	1.930	0.961104	0.058011	1.398568
324	437	443	1.930	0.961104	0.058011	1.398568
325	443	449	1.930	1.062371	0.061817	1.435885
326	449	455	1.930	1.268694	0.069588	1.510517
327	455	461	1.930	1.480051	0.077529	1.585150
328	461	467	1.930	1.696423	0.085591	1.659783
329	467	474	1.930	1.894894	0.092892	1.726773
330	474	481	1.930	1.894894	0.092892	1.726773
331	481	487	1.930	1.696423	0.085591	1.659783
332	487	493	1.930	1.480051	0.077529	1.585150
333	493	499	1.930	1.268694	0.069588	1.510517
334	499	505	1.930	1.062371	0.061817	1.435885
335	505	511	1.930	0.961104	0.058011	1.398568
336	511	517	1.930	0.961104	0.058011	1.398568
337	517	523	1.930	0.961104	0.058011	1.398568
338	523	529	1.930	0.961104	0.058011	1.398568
339	529	535	1.930	0.961104	0.058011	1.398568
340	535	541	1.930	0.961104	0.058011	1.398568
341	541	547	1.930	0.961104	0.058011	1.398568
342	547	553	1.930	0.961104	0.058011	1.398568
343	553	559	1.930	0.961104	0.058011	1.398568
344	559	565	1.930	0.961104	0.058011	1.398568
345	565	571	1.930	0.961104	0.058011	1.398568
346	571	577	1.930	0.961104	0.058011	1.398568
347	577	583	1.930	0.961104	0.058011	1.398568
348	583	589	1.930	0.961104	0.058011	1.398568
349	589	595	1.930	0.961104	0.058011	1.398568
350	595	601	1.930	0.961104	0.058011	1.398568
351	601	607	1.930	0.961104	0.058011	1.398568
352	607	613	1.930	0.961104	0.058011	1.398568
353	613	619	1.930	1.062371	0.061817	1.435885
354	619	625	1.930	1.268694	0.069588	1.510517
355	625	631	1.930	1.480051	0.077529	1.585150
356	631	637	1.930	1.696423	0.085591	1.659783
357	637	644	1.930	1.894894	0.092892	1.726773

358	644	651	1.930	1.894894	0.092892	1.726773
359	651	657	1.930	1.696423	0.085591	1.659783
360	657	663	1.930	1.480051	0.077529	1.585150
361	663	669	1.930	1.268694	0.069588	1.510517
362	669	675	1.930	1.062371	0.061817	1.435885
363	675	681	1.930	0.961104	0.058011	1.398568
364	681	687	1.930	0.961104	0.058011	1.398568
365	687	693	1.930	0.961104	0.058011	1.398568
366	693	699	1.930	0.961104	0.058011	1.398568
367	699	705	1.930	0.961104	0.058011	1.398568
368	705	711	1.930	0.961104	0.058011	1.398568
369	711	717	1.930	0.961104	0.058011	1.398568
370	717	723	1.930	0.961104	0.058011	1.398568
371	723	729	1.930	0.961104	0.058011	1.398568
372	729	735	1.930	0.961104	0.058011	1.398568
373	735	741	1.930	0.961104	0.058011	1.398568
374	741	747	1.930	0.961104	0.058011	1.398568
375	747	753	1.930	0.961104	0.058011	1.398568
376	753	759	1.930	0.961104	0.058011	1.398568
377	759	765	1.930	0.961104	0.058011	1.398568
378	765	773	1.930	0.961104	0.058011	1.398568
379	6	14	1.930	0.961104	0.058011	1.398568
380	14	20	1.930	0.961104	0.058011	1.398568
381	20	26	1.930	0.961104	0.058011	1.398568
382	26	32	1.930	0.961104	0.058011	1.398568
383	32	38	1.930	0.961104	0.058011	1.398568
384	38	44	1.930	0.961104	0.058011	1.398568
385	44	50	1.930	0.961104	0.058011	1.398568
386	50	56	1.930	0.961104	0.058011	1.398568
387	56	62	1.930	0.961104	0.058011	1.398568
388	62	68	1.930	0.961104	0.058011	1.398568
389	68	74	1.930	0.961104	0.058011	1.398568
390	74	80	1.930	0.961104	0.058011	1.398568
391	80	86	1.930	0.961104	0.058011	1.398568
392	86	92	1.930	0.961104	0.058011	1.398568
393	92	98	1.930	0.961104	0.058011	1.398568
394	98	104	1.930	0.961104	0.058011	1.398568
395	104	110	1.930	1.062371	0.061817	1.435885
396	110	116	1.930	1.268694	0.069588	1.510517
397	116	122	1.930	1.480051	0.077529	1.585150
398	122	128	1.930	1.696423	0.085591	1.659783
399	128	135	1.930	1.894894	0.092892	1.726773
400	135	142	1.930	1.894894	0.092892	1.726773
401	142	148	1.930	1.696423	0.085591	1.659783
402	148	154	1.930	1.480051	0.077529	1.585150
403	154	160	1.930	1.268694	0.069588	1.510517
404	160	166	1.930	1.062371	0.061817	1.435885
405	166	172	1.930	0.961104	0.058011	1.398568
406	172	178	1.930	0.961104	0.058011	1.398568
407	178	184	1.930	0.961104	0.058011	1.398568
408	184	190	1.930	0.961104	0.058011	1.398568
409	190	196	1.930	0.961104	0.058011	1.398568
410	196	202	1.930	0.961104	0.058011	1.398568
411	202	208	1.930	0.961104	0.058011	1.398568
412	208	214	1.930	0.961104	0.058011	1.398568
413	214	220	1.930	0.961104	0.058011	1.398568
414	220	226	1.930	0.961104	0.058011	1.398568
415	226	232	1.930	0.961104	0.058011	1.398568
416	232	238	1.930	0.961104	0.058011	1.398568
417	238	244	1.930	0.961104	0.058011	1.398568
418	244	250	1.930	0.961104	0.058011	1.398568
419	250	256	1.930	0.961104	0.058011	1.398568
420	256	262	1.930	0.961104	0.058011	1.398568
421	262	268	1.930	0.961104	0.058011	1.398568
422	268	274	1.930	0.961104	0.058011	1.398568
423	274	280	1.930	1.062371	0.061817	1.435885
424	280	286	1.930	1.268694	0.069588	1.510517
425	286	292	1.930	1.480051	0.077529	1.585150
426	292	298	1.930	1.696423	0.085591	1.659783
427	298	305	1.930	1.894894	0.092892	1.726773
428	305	312	1.930	1.894894	0.092892	1.726773
429	312	318	1.930	1.696423	0.085591	1.659783
430	318	324	1.930	1.480051	0.077529	1.585150
431	324	330	1.930	1.268694	0.069588	1.510517
432	330	336	1.930	1.062371	0.061817	1.435885
433	336	342	1.930	0.961104	0.058011	1.398568

434	342	348	1.930	0.961104	0.058011	1.398568
435	348	354	1.930	0.961104	0.058011	1.398568
436	354	360	1.930	0.961104	0.058011	1.398568
437	360	366	1.930	0.961104	0.058011	1.398568
438	366	372	1.930	0.961104	0.058011	1.398568
439	372	378	1.930	0.961104	0.058011	1.398568
440	378	384	1.930	0.961104	0.058011	1.398568
441	384	390	1.930	0.961104	0.058011	1.398568
442	390	396	1.930	0.961104	0.058011	1.398568
443	396	402	1.930	0.961104	0.058011	1.398568
444	402	408	1.930	0.961104	0.058011	1.398568
445	408	414	1.930	0.961104	0.058011	1.398568
446	414	420	1.930	0.961104	0.058011	1.398568
447	420	426	1.930	0.961104	0.058011	1.398568
448	426	432	1.930	0.961104	0.058011	1.398568
449	432	438	1.930	0.961104	0.058011	1.398568
450	438	444	1.930	0.961104	0.058011	1.398568
451	444	450	1.930	1.062371	0.061817	1.435885
452	450	456	1.930	1.268694	0.069588	1.510517
453	456	462	1.930	1.480051	0.077529	1.585150
454	462	468	1.930	1.696423	0.085591	1.659783
455	468	475	1.930	1.894894	0.092892	1.726773
456	475	482	1.930	1.894894	0.092892	1.726773
457	482	488	1.930	1.696423	0.085591	1.659783
458	488	494	1.930	1.480051	0.077529	1.585150
459	494	500	1.930	1.268694	0.069588	1.510517
460	500	506	1.930	1.062371	0.061817	1.435885
461	506	512	1.930	0.961104	0.058011	1.398568
462	512	518	1.930	0.961104	0.058011	1.398568
463	518	524	1.930	0.961104	0.058011	1.398568
464	524	530	1.930	0.961104	0.058011	1.398568
465	530	536	1.930	0.961104	0.058011	1.398568
466	536	542	1.930	0.961104	0.058011	1.398568
467	542	548	1.930	0.961104	0.058011	1.398568
468	548	554	1.930	0.961104	0.058011	1.398568
469	554	560	1.930	0.961104	0.058011	1.398568
470	560	566	1.930	0.961104	0.058011	1.398568
471	566	572	1.930	0.961104	0.058011	1.398568
472	572	578	1.930	0.961104	0.058011	1.398568
473	578	584	1.930	0.961104	0.058011	1.398568
474	584	590	1.930	0.961104	0.058011	1.398568
475	590	596	1.930	0.961104	0.058011	1.398568
476	596	602	1.930	0.961104	0.058011	1.398568
477	602	608	1.930	0.961104	0.058011	1.398568
478	608	614	1.930	0.961104	0.058011	1.398568
479	614	620	1.930	1.062371	0.061817	1.435885
480	620	626	1.930	1.268694	0.069588	1.510517
481	626	632	1.930	1.480051	0.077529	1.585150
482	632	638	1.930	1.696423	0.085591	1.659783
483	638	645	1.930	1.894894	0.092892	1.726773
484	645	652	1.930	1.894894	0.092892	1.726773
485	652	658	1.930	1.696423	0.085591	1.659783
486	658	664	1.930	1.480051	0.077529	1.585150
487	664	670	1.930	1.268694	0.069588	1.510517
488	670	676	1.930	1.062371	0.061817	1.435885
489	676	682	1.930	0.961104	0.058011	1.398568
490	682	688	1.930	0.961104	0.058011	1.398568
491	688	694	1.930	0.961104	0.058011	1.398568
492	694	700	1.930	0.961104	0.058011	1.398568
493	700	706	1.930	0.961104	0.058011	1.398568
494	706	712	1.930	0.961104	0.058011	1.398568
495	712	718	1.930	0.961104	0.058011	1.398568
496	718	724	1.930	0.961104	0.058011	1.398568
497	724	730	1.930	0.961104	0.058011	1.398568
498	730	736	1.930	0.961104	0.058011	1.398568
499	736	742	1.930	0.961104	0.058011	1.398568
500	742	748	1.930	0.961104	0.058011	1.398568
501	748	754	1.930	0.961104	0.058011	1.398568
502	754	760	1.930	0.961104	0.058011	1.398568
503	760	766	1.930	0.961104	0.058011	1.398568
504	766	774	1.930	0.961104	0.058011	1.398568
505	9	15	3.435	2.125405	1.102212	1.747757
506	15	21	3.435	2.125405	1.102212	1.747757
507	21	27	3.435	2.125405	1.102212	1.747757
508	27	33	3.435	2.125405	1.102212	1.747757
509	33	39	3.435	2.125405	1.102212	1.747757

510	39	45	3.435	2.125405	1.102212	1.747757
511	45	51	3.435	2.125405	1.102212	1.747757
512	51	57	3.435	2.125405	1.102212	1.747757
513	57	63	3.435	2.125405	1.102212	1.747757
514	63	69	3.435	2.125405	1.102212	1.747757
515	69	75	3.435	2.125405	1.102212	1.747757
516	75	81	3.435	2.125405	1.102212	1.747757
517	81	87	3.435	2.125405	1.102212	1.747757
518	87	93	3.435	2.125405	1.102212	1.747757
519	93	99	3.435	2.125405	1.102212	1.747757
520	99	105	3.435	2.125405	1.102212	1.747757
521	105	111	3.435	2.345000	1.174532	1.785073
522	111	117	3.435	2.795930	1.322178	1.859706
523	117	123	3.435	3.262546	1.473052	1.934339
524	123	129	3.435	3.744880	1.626231	2.008972
525	129	137	3.435	4.191229	1.764947	2.075962
526	137	143	3.435	4.191229	1.764947	2.075962
527	143	149	3.435	3.744880	1.626231	2.008972
528	149	155	3.435	3.262546	1.473052	1.934339
529	155	161	3.435	2.795930	1.322178	1.859706
530	161	167	3.435	2.345000	1.174532	1.785073
531	167	173	3.435	2.125405	1.102212	1.747757
532	173	179	3.435	2.125405	1.102212	1.747757
533	179	185	3.435	2.125405	1.102212	1.747757
534	185	191	3.435	2.125405	1.102212	1.747757
535	191	197	3.435	2.125405	1.102212	1.747757
536	197	203	3.435	2.125405	1.102212	1.747757
537	203	209	3.435	2.125405	1.102212	1.747757
538	209	215	3.435	2.125405	1.102212	1.747757
539	215	221	3.435	2.125405	1.102212	1.747757
540	221	227	3.435	2.125405	1.102212	1.747757
541	227	233	3.435	2.125405	1.102212	1.747757
542	233	239	3.435	2.125405	1.102212	1.747757
543	239	245	3.435	2.125405	1.102212	1.747757
544	245	251	3.435	2.125405	1.102212	1.747757
545	251	257	3.435	2.125405	1.102212	1.747757
546	257	263	3.435	2.125405	1.102212	1.747757
547	263	269	3.435	2.125405	1.102212	1.747757
548	269	275	3.435	2.125405	1.102212	1.747757
549	275	281	3.435	2.345000	1.174532	1.785073
550	281	287	3.435	2.795930	1.322178	1.859706
551	287	293	3.435	3.262546	1.473052	1.934339
552	293	299	3.435	3.744880	1.626231	2.008972
553	299	307	3.435	4.191229	1.764947	2.075962
554	307	313	3.435	4.191229	1.764947	2.075962
555	313	319	3.435	3.744880	1.626231	2.008972
556	319	325	3.435	3.262546	1.473052	1.934339
557	325	331	3.435	2.795930	1.322178	1.859706
558	331	337	3.435	2.345000	1.174532	1.785073
559	337	343	3.435	2.125405	1.102212	1.747757
560	343	349	3.435	2.125405	1.102212	1.747757
561	349	355	3.435	2.125405	1.102212	1.747757
562	355	361	3.435	2.125405	1.102212	1.747757
563	361	367	3.435	2.125405	1.102212	1.747757
564	367	373	3.435	2.125405	1.102212	1.747757
565	373	379	3.435	2.125405	1.102212	1.747757
566	379	385	3.435	2.125405	1.102212	1.747757
567	385	391	3.435	2.125405	1.102212	1.747757
568	391	397	3.435	2.125405	1.102212	1.747757
569	397	403	3.435	2.125405	1.102212	1.747757
570	403	409	3.435	2.125405	1.102212	1.747757
571	409	415	3.435	2.125405	1.102212	1.747757
572	415	421	3.435	2.125405	1.102212	1.747757
573	421	427	3.435	2.125405	1.102212	1.747757
574	427	433	3.435	2.125405	1.102212	1.747757
575	433	439	3.435	2.125405	1.102212	1.747757
576	439	445	3.435	2.125405	1.102212	1.747757
577	445	451	3.435	2.345000	1.174532	1.785073
578	451	457	3.435	2.795930	1.322178	1.859706
579	457	463	3.435	3.262546	1.473052	1.934339
580	463	469	3.435	3.744880	1.626231	2.008972
581	469	477	3.435	4.191229	1.764947	2.075962
582	477	483	3.435	4.191229	1.764947	2.075962
583	483	489	3.435	3.744880	1.626231	2.008972
584	489	495	3.435	3.262546	1.473052	1.934339
585	495	501	3.435	2.795930	1.322178	1.859706

586	501	507	3.435	2.345000	1.174532	1.785073
587	507	513	3.435	2.125405	1.102212	1.747757
588	513	519	3.435	2.125405	1.102212	1.747757
589	519	525	3.435	2.125405	1.102212	1.747757
590	525	531	3.435	2.125405	1.102212	1.747757
591	531	537	3.435	2.125405	1.102212	1.747757
592	537	543	3.435	2.125405	1.102212	1.747757
593	543	549	3.435	2.125405	1.102212	1.747757
594	549	555	3.435	2.125405	1.102212	1.747757
595	555	561	3.435	2.125405	1.102212	1.747757
596	561	567	3.435	2.125405	1.102212	1.747757
597	567	573	3.435	2.125405	1.102212	1.747757
598	573	579	3.435	2.125405	1.102212	1.747757
599	579	585	3.435	2.125405	1.102212	1.747757
600	585	591	3.435	2.125405	1.102212	1.747757
601	591	597	3.435	2.125405	1.102212	1.747757
602	597	603	3.435	2.125405	1.102212	1.747757
603	603	609	3.435	2.125405	1.102212	1.747757
604	609	615	3.435	2.125405	1.102212	1.747757
605	615	621	3.435	2.345000	1.174532	1.785073
606	621	627	3.435	2.795930	1.322178	1.859706
607	627	633	3.435	3.262546	1.473052	1.934339
608	633	639	3.435	3.744880	1.626231	2.008972
609	639	647	3.435	4.191229	1.764947	2.075962
610	647	653	3.435	4.191229	1.764947	2.075962
611	653	659	3.435	3.744880	1.626231	2.008972
612	659	665	3.435	3.262546	1.473052	1.934339
613	665	671	3.435	2.795930	1.322178	1.859706
614	671	677	3.435	2.345000	1.174532	1.785073
615	677	683	3.435	2.125405	1.102212	1.747757
616	683	689	3.435	2.125405	1.102212	1.747757
617	689	695	3.435	2.125405	1.102212	1.747757
618	695	701	3.435	2.125405	1.102212	1.747757
619	701	707	3.435	2.125405	1.102212	1.747757
620	707	713	3.435	2.125405	1.102212	1.747757
621	713	719	3.435	2.125405	1.102212	1.747757
622	719	725	3.435	2.125405	1.102212	1.747757
623	725	731	3.435	2.125405	1.102212	1.747757
624	731	737	3.435	2.125405	1.102212	1.747757
625	737	743	3.435	2.125405	1.102212	1.747757
626	743	749	3.435	2.125405	1.102212	1.747757
627	749	755	3.435	2.125405	1.102212	1.747757
628	755	761	3.435	2.125405	1.102212	1.747757
629	761	767	3.435	2.125405	1.102212	1.747757
630	767	777	3.435	2.125405	1.102212	1.747757
631	10	16	1.635	0.002478	0.008623	0.379351
632	16	22	1.635	0.002478	0.008623	0.379351
633	22	28	1.635	0.002478	0.008623	0.379351
634	28	34	1.635	0.002478	0.008623	0.379351
635	34	40	1.635	0.002478	0.008623	0.379351
636	40	46	1.635	0.002478	0.008623	0.379351
637	46	52	1.635	0.002478	0.008623	0.379351
638	52	58	1.635	0.002478	0.008623	0.379351
639	58	64	1.635	0.002478	0.008623	0.379351
640	64	70	1.635	0.002478	0.008623	0.379351
641	70	76	1.635	0.002478	0.008623	0.379351
642	76	82	1.635	0.002478	0.008623	0.379351
643	82	88	1.635	0.002478	0.008623	0.379351
644	88	94	1.635	0.002478	0.008623	0.379351
645	94	100	1.635	0.002478	0.008623	0.379351
646	100	106	1.635	0.002478	0.008623	0.379351
647	106	112	1.635	0.002478	0.008623	0.379351
648	112	118	1.635	0.002478	0.008623	0.379351
649	118	124	1.635	0.002478	0.008623	0.379351
650	124	130	1.635	0.002478	0.008623	0.379351
651	130	138	1.635	0.002478	0.008623	0.379351
652	138	144	1.635	0.002478	0.008623	0.379351
653	144	150	1.635	0.002478	0.008623	0.379351
654	150	156	1.635	0.002478	0.008623	0.379351
655	156	162	1.635	0.002478	0.008623	0.379351
656	162	168	1.635	0.002478	0.008623	0.379351
657	168	174	1.635	0.002478	0.008623	0.379351
658	174	180	1.635	0.002478	0.008623	0.379351
659	180	186	1.635	0.002478	0.008623	0.379351
660	186	192	1.635	0.002478	0.008623	0.379351
661	192	198	1.635	0.002478	0.008623	0.379351

662	198	204	1.635	0.002478	0.008623	0.379351
663	204	210	1.635	0.002478	0.008623	0.379351
664	210	216	1.635	0.002478	0.008623	0.379351
665	216	222	1.635	0.002478	0.008623	0.379351
666	222	228	1.635	0.002478	0.008623	0.379351
667	228	234	1.635	0.002478	0.008623	0.379351
668	234	240	1.635	0.002478	0.008623	0.379351
669	240	246	1.635	0.002478	0.008623	0.379351
670	246	252	1.635	0.002478	0.008623	0.379351
671	252	258	1.635	0.002478	0.008623	0.379351
672	258	264	1.635	0.002478	0.008623	0.379351
673	264	270	1.635	0.002478	0.008623	0.379351
674	270	276	1.635	0.002478	0.008623	0.379351
675	276	282	1.635	0.002478	0.008623	0.379351
676	282	288	1.635	0.002478	0.008623	0.379351
677	288	294	1.635	0.002478	0.008623	0.379351
678	294	300	1.635	0.002478	0.008623	0.379351
679	300	308	1.635	0.002478	0.008623	0.379351
680	308	314	1.635	0.002478	0.008623	0.379351
681	314	320	1.635	0.002478	0.008623	0.379351
682	320	326	1.635	0.002478	0.008623	0.379351
683	326	332	1.635	0.002478	0.008623	0.379351
684	332	338	1.635	0.002478	0.008623	0.379351
685	338	344	1.635	0.002478	0.008623	0.379351
686	344	350	1.635	0.002478	0.008623	0.379351
687	350	356	1.635	0.002478	0.008623	0.379351
688	356	362	1.635	0.002478	0.008623	0.379351
689	362	368	1.635	0.002478	0.008623	0.379351
690	368	374	1.635	0.002478	0.008623	0.379351
691	374	380	1.635	0.002478	0.008623	0.379351
692	380	386	1.635	0.002478	0.008623	0.379351
693	386	392	1.635	0.002478	0.008623	0.379351
694	392	398	1.635	0.002478	0.008623	0.379351
695	398	404	1.635	0.002478	0.008623	0.379351
696	404	410	1.635	0.002478	0.008623	0.379351
697	410	416	1.635	0.002478	0.008623	0.379351
698	416	422	1.635	0.002478	0.008623	0.379351
699	422	428	1.635	0.002478	0.008623	0.379351
700	428	434	1.635	0.002478	0.008623	0.379351
701	434	440	1.635	0.002478	0.008623	0.379351
702	440	446	1.635	0.002478	0.008623	0.379351
703	446	452	1.635	0.002478	0.008623	0.379351
704	452	458	1.635	0.002478	0.008623	0.379351
705	458	464	1.635	0.002478	0.008623	0.379351
706	464	470	1.635	0.002478	0.008623	0.379351
707	470	478	1.635	0.002478	0.008623	0.379351
708	478	484	1.635	0.002478	0.008623	0.379351
709	484	490	1.635	0.002478	0.008623	0.379351
710	490	496	1.635	0.002478	0.008623	0.379351
711	496	502	1.635	0.002478	0.008623	0.379351
712	502	508	1.635	0.002478	0.008623	0.379351
713	508	514	1.635	0.002478	0.008623	0.379351
714	514	520	1.635	0.002478	0.008623	0.379351
715	520	526	1.635	0.002478	0.008623	0.379351
716	526	532	1.635	0.002478	0.008623	0.379351
717	532	538	1.635	0.002478	0.008623	0.379351
718	538	544	1.635	0.002478	0.008623	0.379351
719	544	550	1.635	0.002478	0.008623	0.379351
720	550	556	1.635	0.002478	0.008623	0.379351
721	556	562	1.635	0.002478	0.008623	0.379351
722	562	568	1.635	0.002478	0.008623	0.379351
723	568	574	1.635	0.002478	0.008623	0.379351
724	574	580	1.635	0.002478	0.008623	0.379351
725	580	586	1.635	0.002478	0.008623	0.379351
726	586	592	1.635	0.002478	0.008623	0.379351
727	592	598	1.635	0.002478	0.008623	0.379351
728	598	604	1.635	0.002478	0.008623	0.379351
729	604	610	1.635	0.002478	0.008623	0.379351
730	610	616	1.635	0.002478	0.008623	0.379351
731	616	622	1.635	0.002478	0.008623	0.379351
732	622	628	1.635	0.002478	0.008623	0.379351
733	628	634	1.635	0.002478	0.008623	0.379351
734	634	640	1.635	0.002478	0.008623	0.379351
735	640	648	1.635	0.002478	0.008623	0.379351
736	648	654	1.635	0.002478	0.008623	0.379351
737	654	660	1.635	0.002478	0.008623	0.379351

738	660	666	1.635	0.002478	0.008623	0.379351
739	666	672	1.635	0.002478	0.008623	0.379351
740	672	678	1.635	0.002478	0.008623	0.379351
741	678	684	1.635	0.002478	0.008623	0.379351
742	684	690	1.635	0.002478	0.008623	0.379351
743	690	696	1.635	0.002478	0.008623	0.379351
744	696	702	1.635	0.002478	0.008623	0.379351
745	702	708	1.635	0.002478	0.008623	0.379351
746	708	714	1.635	0.002478	0.008623	0.379351
747	714	720	1.635	0.002478	0.008623	0.379351
748	720	726	1.635	0.002478	0.008623	0.379351
749	726	732	1.635	0.002478	0.008623	0.379351
750	732	738	1.635	0.002478	0.008623	0.379351
751	738	744	1.635	0.002478	0.008623	0.379351
752	744	750	1.635	0.002478	0.008623	0.379351
753	750	756	1.635	0.002478	0.008623	0.379351
754	756	762	1.635	0.002478	0.008623	0.379351
755	762	768	1.635	0.002478	0.008623	0.379351
756	768	778	1.635	0.002478	0.008623	0.379351
757	1	2	0.788	0.001194	0.002387	0.182715
758	2	3	0.788	0.699430	0.410641	0.999465
759	3	4	0.788	0.699430	0.410641	0.999465
760	4	5	0.788	0.699430	0.410641	0.999465
761	5	6	0.788	0.001194	0.002387	0.182715
762	6	7	0.788	0.699430	0.410641	0.999465
763	7	8	0.788	0.699430	0.410641	0.999465
764	8	9	0.788	0.699430	0.410641	0.999465
765	9	10	0.788	0.001194	0.002387	0.182715
766	11	12	1.575	0.002387	0.004775	0.365430
767	12	13	1.575	1.026068	0.821282	0.837930
768	13	14	1.575	0.002387	0.004775	0.365430
769	14	15	1.575	1.026068	0.821282	0.837930
770	15	16	1.575	0.002387	0.004775	0.365430
771	17	18	1.575	0.002387	0.004775	0.365430
772	18	19	1.575	1.026068	0.821282	0.837930
773	19	20	1.575	0.002387	0.004775	0.365430
774	20	21	1.575	1.026068	0.821282	0.837930
775	21	22	1.575	0.002387	0.004775	0.365430
776	23	24	1.575	0.002387	0.004775	0.365430
777	24	25	1.575	1.026068	0.821282	0.837930
778	25	26	1.575	0.002387	0.004775	0.365430
779	26	27	1.575	1.026068	0.821282	0.837930
780	27	28	1.575	0.002387	0.004775	0.365430
781	29	30	1.575	0.002387	0.004775	0.365430
782	30	31	1.575	1.026068	0.821282	0.837930
783	31	32	1.575	0.002387	0.004775	0.365430
784	32	33	1.575	1.026068	0.821282	0.837930
785	33	34	1.575	0.002387	0.004775	0.365430
786	35	36	1.575	0.002387	0.004775	0.365430
787	36	37	1.575	1.026068	0.821282	0.837930
788	37	38	1.575	0.002387	0.004775	0.365430
789	38	39	1.575	1.026068	0.821282	0.837930
790	39	40	1.575	0.002387	0.004775	0.365430
791	41	42	1.575	0.002387	0.004775	0.365430
792	42	43	1.575	1.026068	0.821282	0.837930
793	43	44	1.575	0.002387	0.004775	0.365430
794	44	45	1.575	1.026068	0.821282	0.837930
795	45	46	1.575	0.002387	0.004775	0.365430
796	47	48	1.575	0.002387	0.004775	0.365430
797	48	49	1.575	1.026068	0.821282	0.837930
798	49	50	1.575	0.002387	0.004775	0.365430
799	50	51	1.575	1.026068	0.821282	0.837930
800	51	52	1.575	0.002387	0.004775	0.365430
801	53	54	1.575	0.002387	0.004775	0.365430
802	54	55	1.575	1.026068	0.821282	0.837930
803	55	56	1.575	0.002387	0.004775	0.365430
804	56	57	1.575	1.026068	0.821282	0.837930
805	57	58	1.575	0.002387	0.004775	0.365430
806	59	60	1.575	0.002387	0.004775	0.365430
807	60	61	1.575	1.026068	0.821282	0.837930
808	61	62	1.575	0.002387	0.004775	0.365430
809	62	63	1.575	1.026068	0.821282	0.837930
810	63	64	1.575	0.002387	0.004775	0.365430
811	65	66	1.575	0.002387	0.004775	0.365430
812	66	67	1.575	1.026068	0.821282	0.837930
813	67	68	1.575	0.002387	0.004775	0.365430

814	68	69	1.575	1.026068	0.821282	0.837930
815	69	70	1.575	0.002387	0.004775	0.365430
816	71	72	1.575	0.002387	0.004775	0.365430
817	72	73	1.575	1.026068	0.821282	0.837930
818	73	74	1.575	0.002387	0.004775	0.365430
819	74	75	1.575	1.026068	0.821282	0.837930
820	75	76	1.575	0.002387	0.004775	0.365430
821	77	78	1.575	0.002387	0.004775	0.365430
822	78	79	1.575	1.026068	0.821282	0.837930
823	79	80	1.575	0.002387	0.004775	0.365430
824	80	81	1.575	1.026068	0.821282	0.837930
825	81	82	1.575	0.002387	0.004775	0.365430
826	83	84	1.575	0.002387	0.004775	0.365430
827	84	85	1.575	1.026068	0.821282	0.837930
828	85	86	1.575	0.002387	0.004775	0.365430
829	86	87	1.575	1.026068	0.821282	0.837930
830	87	88	1.575	0.002387	0.004775	0.365430
831	89	90	1.575	0.002387	0.004775	0.365430
832	90	91	1.575	1.026068	0.821282	0.837930
833	91	92	1.575	0.002387	0.004775	0.365430
834	92	93	1.575	1.026068	0.821282	0.837930
835	93	94	1.575	0.002387	0.004775	0.365430
836	95	96	1.575	0.002387	0.004775	0.365430
837	96	97	1.575	1.026068	0.821282	0.837930
838	97	98	1.575	0.002387	0.004775	0.365430
839	98	99	1.575	1.026068	0.821282	0.837930
840	99	100	1.575	0.002387	0.004775	0.365430
841	101	102	1.617	0.002452	0.004904	0.375291
842	102	103	1.617	1.053756	0.843443	0.860541
843	103	104	1.617	0.002452	0.004904	0.375291
844	104	105	1.617	1.053756	0.843443	0.860541
845	105	106	1.617	0.002452	0.004904	0.375291
846	107	108	1.660	0.002516	0.005033	0.385152
847	108	109	1.660	1.279217	0.908087	0.902026
848	109	110	1.660	0.002516	0.005033	0.385152
849	110	111	1.660	1.279217	0.908087	0.902026
850	111	112	1.660	0.002516	0.005033	0.385152
851	113	114	1.660	0.002516	0.005033	0.385152
852	114	115	1.660	1.495725	0.947266	0.920900
853	115	116	1.660	0.002516	0.005033	0.385152
854	116	117	1.660	1.495725	0.947266	0.920900
855	117	118	1.660	0.002516	0.005033	0.385152
856	119	120	1.660	0.002516	0.005033	0.385152
857	120	121	1.660	1.731284	0.983183	0.939774
858	121	122	1.660	0.002516	0.005033	0.385152
859	122	123	1.660	1.731284	0.983183	0.939774
860	123	124	1.660	0.002516	0.005033	0.385152
861	125	126	1.660	0.002516	0.005033	0.385152
862	126	127	1.660	1.986184	1.015885	0.958648
863	127	128	1.660	0.002516	0.005033	0.385152
864	128	129	1.660	1.986184	1.015885	0.958648
865	129	130	1.660	0.002516	0.005033	0.385152
866	131	132	1.660	0.002516	0.005033	0.385152
867	132	133	1.660	2.092964	1.028004	0.966152
868	133	134	1.660	2.092964	1.028004	0.966152
869	134	135	1.660	0.002516	0.005033	0.385152
870	135	136	1.660	2.092964	1.028004	0.966152
871	136	137	1.660	2.092964	1.028004	0.966152
872	137	138	1.660	0.002516	0.005033	0.385152
873	139	140	1.660	0.002516	0.005033	0.385152
874	140	141	1.660	1.986184	1.015885	0.958648
875	141	142	1.660	0.002516	0.005033	0.385152
876	142	143	1.660	1.986184	1.015885	0.958648
877	143	144	1.660	0.002516	0.005033	0.385152
878	145	146	1.660	0.002516	0.005033	0.385152
879	146	147	1.660	1.731284	0.983183	0.939774
880	147	148	1.660	0.002516	0.005033	0.385152
881	148	149	1.660	1.731284	0.983183	0.939774
882	149	150	1.660	0.002516	0.005033	0.385152
883	151	152	1.660	0.002516	0.005033	0.385152
884	152	153	1.660	1.495725	0.947266	0.920900
885	153	154	1.660	0.002516	0.005033	0.385152
886	154	155	1.660	1.495725	0.947266	0.920900
887	155	156	1.660	0.002516	0.005033	0.385152
888	157	158	1.660	0.002516	0.005033	0.385152
889	158	159	1.660	1.279217	0.908087	0.902026

890	159	160	1.660	0.002516	0.005033	0.385152
891	160	161	1.660	1.279217	0.908087	0.902026
892	161	162	1.660	0.002516	0.005033	0.385152
893	163	164	1.619	0.002454	0.004908	0.375613
894	164	165	1.619	1.054661	0.844167	0.861280
895	165	166	1.619	0.002454	0.004908	0.375613
896	166	167	1.619	1.054661	0.844167	0.861280
897	167	168	1.619	0.002454	0.004908	0.375613
898	169	170	1.578	0.002392	0.004783	0.366075
899	170	171	1.578	1.027878	0.822730	0.839408
900	171	172	1.578	0.002392	0.004783	0.366075
901	172	173	1.578	1.027878	0.822730	0.839408
902	173	174	1.578	0.002392	0.004783	0.366075
903	175	176	1.578	0.002392	0.004783	0.366075
904	176	177	1.578	1.027878	0.822730	0.839408
905	177	178	1.578	0.002392	0.004783	0.366075
906	178	179	1.578	1.027878	0.822730	0.839408
907	179	180	1.578	0.002392	0.004783	0.366075
908	181	182	1.578	0.002392	0.004783	0.366075
909	182	183	1.578	1.027878	0.822730	0.839408
910	183	184	1.578	0.002392	0.004783	0.366075
911	184	185	1.578	1.027878	0.822730	0.839408
912	185	186	1.578	0.002392	0.004783	0.366075
913	187	188	1.578	0.002392	0.004783	0.366075
914	188	189	1.578	1.027878	0.822730	0.839408
915	189	190	1.578	0.002392	0.004783	0.366075
916	190	191	1.578	1.027878	0.822730	0.839408
917	191	192	1.578	0.002392	0.004783	0.366075
918	193	194	1.578	0.002392	0.004783	0.366075
919	194	195	1.578	1.027878	0.822730	0.839408
920	195	196	1.578	0.002392	0.004783	0.366075
921	196	197	1.578	1.027878	0.822730	0.839408
922	197	198	1.578	0.002392	0.004783	0.366075
923	199	200	1.578	0.002392	0.004783	0.366075
924	200	201	1.578	1.027878	0.822730	0.839408
925	201	202	1.578	0.002392	0.004783	0.366075
926	202	203	1.578	1.027878	0.822730	0.839408
927	203	204	1.578	0.002392	0.004783	0.366075
928	205	206	1.578	0.002392	0.004783	0.366075
929	206	207	1.578	1.027878	0.822730	0.839408
930	207	208	1.578	0.002392	0.004783	0.366075
931	208	209	1.578	1.027878	0.822730	0.839408
932	209	210	1.578	0.002392	0.004783	0.366075
933	211	212	1.578	0.002392	0.004783	0.366075
934	212	213	1.578	1.027878	0.822730	0.839408
935	213	214	1.578	0.002392	0.004783	0.366075
936	214	215	1.578	1.027878	0.822730	0.839408
937	215	216	1.578	0.002392	0.004783	0.366075
938	217	218	1.578	0.002392	0.004783	0.366075
939	218	219	1.578	1.027878	0.822730	0.839408
940	219	220	1.578	0.002392	0.004783	0.366075
941	220	221	1.578	1.027878	0.822730	0.839408
942	221	222	1.578	0.002392	0.004783	0.366075
943	223	224	1.578	0.002392	0.004783	0.366075
944	224	225	1.578	1.027878	0.822730	0.839408
945	225	226	1.578	0.002392	0.004783	0.366075
946	226	227	1.578	1.027878	0.822730	0.839408
947	227	228	1.578	0.002392	0.004783	0.366075
948	229	230	1.578	0.002392	0.004783	0.366075
949	230	231	1.578	1.027878	0.822730	0.839408
950	231	232	1.578	0.002392	0.004783	0.366075
951	232	233	1.578	1.027878	0.822730	0.839408
952	233	234	1.578	0.002392	0.004783	0.366075
953	235	236	1.578	0.002392	0.004783	0.366075
954	236	237	1.578	1.027878	0.822730	0.839408
955	237	238	1.578	0.002392	0.004783	0.366075
956	238	239	1.578	1.027878	0.822730	0.839408
957	239	240	1.578	0.002392	0.004783	0.366075
958	241	242	1.578	0.002392	0.004783	0.366075
959	242	243	1.578	1.027878	0.822730	0.839408
960	243	244	1.578	0.002392	0.004783	0.366075
961	244	245	1.578	1.027878	0.822730	0.839408
962	245	246	1.578	0.002392	0.004783	0.366075
963	247	248	1.578	0.002392	0.004783	0.366075
964	248	249	1.578	1.027878	0.822730	0.839408
965	249	250	1.578	0.002392	0.004783	0.366075

966	250	251	1.578	1.027878	0.822730	0.839408
967	251	252	1.578	0.002392	0.004783	0.366075
968	253	254	1.578	0.002392	0.004783	0.366075
969	254	255	1.578	1.027878	0.822730	0.839408
970	255	256	1.578	0.002392	0.004783	0.366075
971	256	257	1.578	1.027878	0.822730	0.839408
972	257	258	1.578	0.002392	0.004783	0.366075
973	259	260	1.578	0.002392	0.004783	0.366075
974	260	261	1.578	1.027878	0.822730	0.839408
975	261	262	1.578	0.002392	0.004783	0.366075
976	262	263	1.578	1.027878	0.822730	0.839408
977	263	264	1.578	0.002392	0.004783	0.366075
978	265	266	1.578	0.002392	0.004783	0.366075
979	266	267	1.578	1.027878	0.822730	0.839408
980	267	268	1.578	0.002392	0.004783	0.366075
981	268	269	1.578	1.027878	0.822730	0.839408
982	269	270	1.578	0.002392	0.004783	0.366075
983	271	272	1.619	0.002454	0.004908	0.375613
984	272	273	1.619	1.054661	0.844167	0.861280
985	273	274	1.619	0.002454	0.004908	0.375613
986	274	275	1.619	1.054661	0.844167	0.861280
987	275	276	1.619	0.002454	0.004908	0.375613
988	277	278	1.660	0.002516	0.005033	0.385152
989	278	279	1.660	1.279217	0.908087	0.902026
990	279	280	1.660	0.002516	0.005033	0.385152
991	280	281	1.660	1.279217	0.908087	0.902026
992	281	282	1.660	0.002516	0.005033	0.385152
993	283	284	1.660	0.002516	0.005033	0.385152
994	284	285	1.660	1.495725	0.947266	0.920900
995	285	286	1.660	0.002516	0.005033	0.385152
996	286	287	1.660	1.495725	0.947266	0.920900
997	287	288	1.660	0.002516	0.005033	0.385152
998	289	290	1.660	0.002516	0.005033	0.385152
999	290	291	1.660	1.731284	0.983183	0.939774
1000	291	292	1.660	0.002516	0.005033	0.385152
1001	292	293	1.660	1.731284	0.983183	0.939774
1002	293	294	1.660	0.002516	0.005033	0.385152
1003	295	296	1.660	0.002516	0.005033	0.385152
1004	296	297	1.660	1.986184	1.015885	0.958648
1005	297	298	1.660	0.002516	0.005033	0.385152
1006	298	299	1.660	1.986184	1.015885	0.958648
1007	299	300	1.660	0.002516	0.005033	0.385152
1008	301	302	1.660	0.002516	0.005033	0.385152
1009	302	303	1.660	2.092964	1.028004	0.966152
1010	303	304	1.660	2.092964	1.028004	0.966152
1011	304	305	1.660	0.002516	0.005033	0.385152
1012	305	306	1.660	2.092964	1.028004	0.966152
1013	306	307	1.660	2.092964	1.028004	0.966152
1014	307	308	1.660	0.002516	0.005033	0.385152
1015	309	310	1.660	0.002516	0.005033	0.385152
1016	310	311	1.660	1.986184	1.015885	0.958648
1017	311	312	1.660	0.002516	0.005033	0.385152
1018	312	313	1.660	1.986184	1.015885	0.958648
1019	313	314	1.660	0.002516	0.005033	0.385152
1020	315	316	1.660	0.002516	0.005033	0.385152
1021	316	317	1.660	1.731284	0.983183	0.939774
1022	317	318	1.660	0.002516	0.005033	0.385152
1023	318	319	1.660	1.731284	0.983183	0.939774
1024	319	320	1.660	0.002516	0.005033	0.385152
1025	321	322	1.660	0.002516	0.005033	0.385152
1026	322	323	1.660	1.495725	0.947266	0.920900
1027	323	324	1.660	0.002516	0.005033	0.385152
1028	324	325	1.660	1.495725	0.947266	0.920900
1029	325	326	1.660	0.002516	0.005033	0.385152
1030	327	328	1.660	0.002516	0.005033	0.385152
1031	328	329	1.660	1.279217	0.908087	0.902026
1032	329	330	1.660	0.002516	0.005033	0.385152
1033	330	331	1.660	1.279217	0.908087	0.902026
1034	331	332	1.660	0.002516	0.005033	0.385152
1035	333	334	1.619	0.002454	0.004908	0.375613
1036	334	335	1.619	1.054661	0.844167	0.861280
1037	335	336	1.619	0.002454	0.004908	0.375613
1038	336	337	1.619	1.054661	0.844167	0.861280
1039	337	338	1.619	0.002454	0.004908	0.375613
1040	339	340	1.578	0.002392	0.004783	0.366075
1041	340	341	1.578	1.027878	0.822730	0.839408

1042	341	342	1.578	0.002392	0.004783	0.366075
1043	342	343	1.578	1.027878	0.822730	0.839408
1044	343	344	1.578	0.002392	0.004783	0.366075
1045	345	346	1.578	0.002392	0.004783	0.366075
1046	346	347	1.578	1.027878	0.822730	0.839408
1047	347	348	1.578	0.002392	0.004783	0.366075
1048	348	349	1.578	1.027878	0.822730	0.839408
1049	349	350	1.578	0.002392	0.004783	0.366075
1050	351	352	1.578	0.002392	0.004783	0.366075
1051	352	353	1.578	1.027878	0.822730	0.839408
1052	353	354	1.578	0.002392	0.004783	0.366075
1053	354	355	1.578	1.027878	0.822730	0.839408
1054	355	356	1.578	0.002392	0.004783	0.366075
1055	357	358	1.578	0.002392	0.004783	0.366075
1056	358	359	1.578	1.027878	0.822730	0.839408
1057	359	360	1.578	0.002392	0.004783	0.366075
1058	360	361	1.578	1.027878	0.822730	0.839408
1059	361	362	1.578	0.002392	0.004783	0.366075
1060	363	364	1.578	0.002392	0.004783	0.366075
1061	364	365	1.578	1.027878	0.822730	0.839408
1062	365	366	1.578	0.002392	0.004783	0.366075
1063	366	367	1.578	1.027878	0.822730	0.839408
1064	367	368	1.578	0.002392	0.004783	0.366075
1065	369	370	1.578	0.002392	0.004783	0.366075
1066	370	371	1.578	1.027878	0.822730	0.839408
1067	371	372	1.578	0.002392	0.004783	0.366075
1068	372	373	1.578	1.027878	0.822730	0.839408
1069	373	374	1.578	0.002392	0.004783	0.366075
1070	375	376	1.578	0.002392	0.004783	0.366075
1071	376	377	1.578	1.027878	0.822730	0.839408
1072	377	378	1.578	0.002392	0.004783	0.366075
1073	378	379	1.578	1.027878	0.822730	0.839408
1074	379	380	1.578	0.002392	0.004783	0.366075
1075	381	382	1.578	0.002392	0.004783	0.366075
1076	382	383	1.578	1.027878	0.822730	0.839408
1077	383	384	1.578	0.002392	0.004783	0.366075
1078	384	385	1.578	1.027878	0.822730	0.839408
1079	385	386	1.578	0.002392	0.004783	0.366075
1080	387	388	1.578	0.002392	0.004783	0.366075
1081	388	389	1.578	1.027878	0.822730	0.839408
1082	389	390	1.578	0.002392	0.004783	0.366075
1083	390	391	1.578	1.027878	0.822730	0.839408
1084	391	392	1.578	0.002392	0.004783	0.366075
1085	393	394	1.578	0.002392	0.004783	0.366075
1086	394	395	1.578	1.027878	0.822730	0.839408
1087	395	396	1.578	0.002392	0.004783	0.366075
1088	396	397	1.578	1.027878	0.822730	0.839408
1089	397	398	1.578	0.002392	0.004783	0.366075
1090	399	400	1.578	0.002392	0.004783	0.366075
1091	400	401	1.578	1.027878	0.822730	0.839408
1092	401	402	1.578	0.002392	0.004783	0.366075
1093	402	403	1.578	1.027878	0.822730	0.839408
1094	403	404	1.578	0.002392	0.004783	0.366075
1095	405	406	1.578	0.002392	0.004783	0.366075
1096	406	407	1.578	1.027878	0.822730	0.839408
1097	407	408	1.578	0.002392	0.004783	0.366075
1098	408	409	1.578	1.027878	0.822730	0.839408
1099	409	410	1.578	0.002392	0.004783	0.366075
1100	411	412	1.578	0.002392	0.004783	0.366075
1101	412	413	1.578	1.027878	0.822730	0.839408
1102	413	414	1.578	0.002392	0.004783	0.366075
1103	414	415	1.578	1.027878	0.822730	0.839408
1104	415	416	1.578	0.002392	0.004783	0.366075
1105	417	418	1.578	0.002392	0.004783	0.366075
1106	418	419	1.578	1.027878	0.822730	0.839408
1107	419	420	1.578	0.002392	0.004783	0.366075
1108	420	421	1.578	1.027878	0.822730	0.839408
1109	421	422	1.578	0.002392	0.004783	0.366075
1110	423	424	1.578	0.002392	0.004783	0.366075
1111	424	425	1.578	1.027878	0.822730	0.839408
1112	425	426	1.578	0.002392	0.004783	0.366075
1113	426	427	1.578	1.027878	0.822730	0.839408
1114	427	428	1.578	0.002392	0.004783	0.366075
1115	429	430	1.578	0.002392	0.004783	0.366075
1116	430	431	1.578	1.027878	0.822730	0.839408
1117	431	432	1.578	0.002392	0.004783	0.366075

1118	432	433	1.578	1.027878	0.822730	0.839408
1119	433	434	1.578	0.002392	0.004783	0.366075
1120	435	436	1.578	0.002392	0.004783	0.366075
1121	436	437	1.578	1.027878	0.822730	0.839408
1122	437	438	1.578	0.002392	0.004783	0.366075
1123	438	439	1.578	1.027878	0.822730	0.839408
1124	439	440	1.578	0.002392	0.004783	0.366075
1125	441	442	1.619	0.002454	0.004908	0.375613
1126	442	443	1.619	1.054661	0.844167	0.861280
1127	443	444	1.619	0.002454	0.004908	0.375613
1128	444	445	1.619	1.054661	0.844167	0.861280
1129	445	446	1.619	0.002454	0.004908	0.375613
1130	447	448	1.660	0.002516	0.005033	0.385152
1131	448	449	1.660	1.279217	0.908087	0.902026
1132	449	450	1.660	0.002516	0.005033	0.385152
1133	450	451	1.660	1.279217	0.908087	0.902026
1134	451	452	1.660	0.002516	0.005033	0.385152
1135	453	454	1.660	0.002516	0.005033	0.385152
1136	454	455	1.660	1.495725	0.947266	0.920900
1137	455	456	1.660	0.002516	0.005033	0.385152
1138	456	457	1.660	1.495725	0.947266	0.920900
1139	457	458	1.660	0.002516	0.005033	0.385152
1140	459	460	1.660	0.002516	0.005033	0.385152
1141	460	461	1.660	1.731284	0.983183	0.939774
1142	461	462	1.660	0.002516	0.005033	0.385152
1143	462	463	1.660	1.731284	0.983183	0.939774
1144	463	464	1.660	0.002516	0.005033	0.385152
1145	465	466	1.660	0.002516	0.005033	0.385152
1146	466	467	1.660	1.986184	1.015885	0.958648
1147	467	468	1.660	0.002516	0.005033	0.385152
1148	468	469	1.660	1.986184	1.015885	0.958648
1149	469	470	1.660	0.002516	0.005033	0.385152
1150	471	472	1.660	0.002516	0.005033	0.385152
1151	472	473	1.660	2.092964	1.028004	0.966152
1152	473	474	1.660	2.092964	1.028004	0.966152
1153	474	475	1.660	0.002516	0.005033	0.385152
1154	475	476	1.660	2.092964	1.028004	0.966152
1155	476	477	1.660	2.092964	1.028004	0.966152
1156	477	478	1.660	0.002516	0.005033	0.385152
1157	479	480	1.660	0.002516	0.005033	0.385152
1158	480	481	1.660	1.986184	1.015885	0.958648
1159	481	482	1.660	0.002516	0.005033	0.385152
1160	482	483	1.660	1.986184	1.015885	0.958648
1161	483	484	1.660	0.002516	0.005033	0.385152
1162	485	486	1.660	0.002516	0.005033	0.385152
1163	486	487	1.660	1.731284	0.983183	0.939774
1164	487	488	1.660	0.002516	0.005033	0.385152
1165	488	489	1.660	1.731284	0.983183	0.939774
1166	489	490	1.660	0.002516	0.005033	0.385152
1167	491	492	1.660	0.002516	0.005033	0.385152
1168	492	493	1.660	1.495725	0.947266	0.920900
1169	493	494	1.660	0.002516	0.005033	0.385152
1170	494	495	1.660	1.495725	0.947266	0.920900
1171	495	496	1.660	0.002516	0.005033	0.385152
1172	497	498	1.660	0.002516	0.005033	0.385152
1173	498	499	1.660	1.279217	0.908087	0.902026
1174	499	500	1.660	0.002516	0.005033	0.385152
1175	500	501	1.660	1.279217	0.908087	0.902026
1176	501	502	1.660	0.002516	0.005033	0.385152
1177	503	504	1.619	0.002454	0.004908	0.375613
1178	504	505	1.619	1.054661	0.844167	0.861280
1179	505	506	1.619	0.002454	0.004908	0.375613
1180	506	507	1.619	1.054661	0.844167	0.861280
1181	507	508	1.619	0.002454	0.004908	0.375613
1182	509	510	1.578	0.002392	0.004783	0.366075
1183	510	511	1.578	1.027878	0.822730	0.839408
1184	511	512	1.578	0.002392	0.004783	0.366075
1185	512	513	1.578	1.027878	0.822730	0.839408
1186	513	514	1.578	0.002392	0.004783	0.366075
1187	515	516	1.578	0.002392	0.004783	0.366075
1188	516	517	1.578	1.027878	0.822730	0.839408
1189	517	518	1.578	0.002392	0.004783	0.366075
1190	518	519	1.578	1.027878	0.822730	0.839408
1191	519	520	1.578	0.002392	0.004783	0.366075
1192	521	522	1.578	0.002392	0.004783	0.366075
1193	522	523	1.578	1.027878	0.822730	0.839408

1194	523	524	1.578	0.002392	0.004783	0.366075
1195	524	525	1.578	1.027878	0.822730	0.839408
1196	525	526	1.578	0.002392	0.004783	0.366075
1197	527	528	1.578	0.002392	0.004783	0.366075
1198	528	529	1.578	1.027878	0.822730	0.839408
1199	529	530	1.578	0.002392	0.004783	0.366075
1200	530	531	1.578	1.027878	0.822730	0.839408
1201	531	532	1.578	0.002392	0.004783	0.366075
1202	533	534	1.578	0.002392	0.004783	0.366075
1203	534	535	1.578	1.027878	0.822730	0.839408
1204	535	536	1.578	0.002392	0.004783	0.366075
1205	536	537	1.578	1.027878	0.822730	0.839408
1206	537	538	1.578	0.002392	0.004783	0.366075
1207	539	540	1.578	0.002392	0.004783	0.366075
1208	540	541	1.578	1.027878	0.822730	0.839408
1209	541	542	1.578	0.002392	0.004783	0.366075
1210	542	543	1.578	1.027878	0.822730	0.839408
1211	543	544	1.578	0.002392	0.004783	0.366075
1212	545	546	1.578	0.002392	0.004783	0.366075
1213	546	547	1.578	1.027878	0.822730	0.839408
1214	547	548	1.578	0.002392	0.004783	0.366075
1215	548	549	1.578	1.027878	0.822730	0.839408
1216	549	550	1.578	0.002392	0.004783	0.366075
1217	551	552	1.578	0.002392	0.004783	0.366075
1218	552	553	1.578	1.027878	0.822730	0.839408
1219	553	554	1.578	0.002392	0.004783	0.366075
1220	554	555	1.578	1.027878	0.822730	0.839408
1221	555	556	1.578	0.002392	0.004783	0.366075
1222	557	558	1.578	0.002392	0.004783	0.366075
1223	558	559	1.578	1.027878	0.822730	0.839408
1224	559	560	1.578	0.002392	0.004783	0.366075
1225	560	561	1.578	1.027878	0.822730	0.839408
1226	561	562	1.578	0.002392	0.004783	0.366075
1227	563	564	1.578	0.002392	0.004783	0.366075
1228	564	565	1.578	1.027878	0.822730	0.839408
1229	565	566	1.578	0.002392	0.004783	0.366075
1230	566	567	1.578	1.027878	0.822730	0.839408
1231	567	568	1.578	0.002392	0.004783	0.366075
1232	569	570	1.578	0.002392	0.004783	0.366075
1233	570	571	1.578	1.027878	0.822730	0.839408
1234	571	572	1.578	0.002392	0.004783	0.366075
1235	572	573	1.578	1.027878	0.822730	0.839408
1236	573	574	1.578	0.002392	0.004783	0.366075
1237	575	576	1.578	0.002392	0.004783	0.366075
1238	576	577	1.578	1.027878	0.822730	0.839408
1239	577	578	1.578	0.002392	0.004783	0.366075
1240	578	579	1.578	1.027878	0.822730	0.839408
1241	579	580	1.578	0.002392	0.004783	0.366075
1242	581	582	1.578	0.002392	0.004783	0.366075
1243	582	583	1.578	1.027878	0.822730	0.839408
1244	583	584	1.578	0.002392	0.004783	0.366075
1245	584	585	1.578	1.027878	0.822730	0.839408
1246	585	586	1.578	0.002392	0.004783	0.366075
1247	587	588	1.578	0.002392	0.004783	0.366075
1248	588	589	1.578	1.027878	0.822730	0.839408
1249	589	590	1.578	0.002392	0.004783	0.366075
1250	590	591	1.578	1.027878	0.822730	0.839408
1251	591	592	1.578	0.002392	0.004783	0.366075
1252	593	594	1.578	0.002392	0.004783	0.366075
1253	594	595	1.578	1.027878	0.822730	0.839408
1254	595	596	1.578	0.002392	0.004783	0.366075
1255	596	597	1.578	1.027878	0.822730	0.839408
1256	597	598	1.578	0.002392	0.004783	0.366075
1257	599	600	1.578	0.002392	0.004783	0.366075
1258	600	601	1.578	1.027878	0.822730	0.839408
1259	601	602	1.578	0.002392	0.004783	0.366075
1260	602	603	1.578	1.027878	0.822730	0.839408
1261	603	604	1.578	0.002392	0.004783	0.366075
1262	605	606	1.578	0.002392	0.004783	0.366075
1263	606	607	1.578	1.027878	0.822730	0.839408
1264	607	608	1.578	0.002392	0.004783	0.366075
1265	608	609	1.578	1.027878	0.822730	0.839408
1266	609	610	1.578	0.002392	0.004783	0.366075
1267	611	612	1.619	0.002454	0.004908	0.375613
1268	612	613	1.619	1.054661	0.844167	0.861280
1269	613	614	1.619	0.002454	0.004908	0.375613

1270	614	615	1.619	1.054661	0.844167	0.861280
1271	615	616	1.619	0.002454	0.004908	0.375613
1272	617	618	1.660	0.002516	0.005033	0.385152
1273	618	619	1.660	1.279217	0.908087	0.902026
1274	619	620	1.660	0.002516	0.005033	0.385152
1275	620	621	1.660	1.279217	0.908087	0.902026
1276	621	622	1.660	0.002516	0.005033	0.385152
1277	623	624	1.660	0.002516	0.005033	0.385152
1278	624	625	1.660	1.495725	0.947266	0.920900
1279	625	626	1.660	0.002516	0.005033	0.385152
1280	626	627	1.660	1.495725	0.947266	0.920900
1281	627	628	1.660	0.002516	0.005033	0.385152
1282	629	630	1.660	0.002516	0.005033	0.385152
1283	630	631	1.660	1.731284	0.983183	0.939774
1284	631	632	1.660	0.002516	0.005033	0.385152
1285	632	633	1.660	1.731284	0.983183	0.939774
1286	633	634	1.660	0.002516	0.005033	0.385152
1287	635	636	1.660	0.002516	0.005033	0.385152
1288	636	637	1.660	1.986184	1.015885	0.958648
1289	637	638	1.660	0.002516	0.005033	0.385152
1290	638	639	1.660	1.986184	1.015885	0.958648
1291	639	640	1.660	0.002516	0.005033	0.385152
1292	641	642	1.660	0.002516	0.005033	0.385152
1293	642	643	1.660	2.092964	1.028004	0.966152
1294	643	644	1.660	2.092964	1.028004	0.966152
1295	644	645	1.660	0.002516	0.005033	0.385152
1296	645	646	1.660	2.092964	1.028004	0.966152
1297	646	647	1.660	2.092964	1.028004	0.966152
1298	647	648	1.660	0.002516	0.005033	0.385152
1299	649	650	1.660	0.002516	0.005033	0.385152
1300	650	651	1.660	1.986184	1.015885	0.958648
1301	651	652	1.660	0.002516	0.005033	0.385152
1302	652	653	1.660	1.986184	1.015885	0.958648
1303	653	654	1.660	0.002516	0.005033	0.385152
1304	655	656	1.660	0.002516	0.005033	0.385152
1305	656	657	1.660	1.731284	0.983183	0.939774
1306	657	658	1.660	0.002516	0.005033	0.385152
1307	658	659	1.660	1.731284	0.983183	0.939774
1308	659	660	1.660	0.002516	0.005033	0.385152
1309	661	662	1.660	0.002516	0.005033	0.385152
1310	662	663	1.660	1.495725	0.947266	0.920900
1311	663	664	1.660	0.002516	0.005033	0.385152
1312	664	665	1.660	1.495725	0.947266	0.920900
1313	665	666	1.660	0.002516	0.005033	0.385152
1314	667	668	1.660	0.002516	0.005033	0.385152
1315	668	669	1.660	1.279217	0.908087	0.902026
1316	669	670	1.660	0.002516	0.005033	0.385152
1317	670	671	1.660	1.279217	0.908087	0.902026
1318	671	672	1.660	0.002516	0.005033	0.385152
1319	673	674	1.617	0.002452	0.004904	0.375291
1320	674	675	1.617	1.053756	0.843443	0.860541
1321	675	676	1.617	0.002452	0.004904	0.375291
1322	676	677	1.617	1.053756	0.843443	0.860541
1323	677	678	1.617	0.002452	0.004904	0.375291
1324	679	680	1.575	0.002387	0.004775	0.365430
1325	680	681	1.575	1.026068	0.821282	0.837930
1326	681	682	1.575	0.002387	0.004775	0.365430
1327	682	683	1.575	1.026068	0.821282	0.837930
1328	683	684	1.575	0.002387	0.004775	0.365430
1329	685	686	1.575	0.002387	0.004775	0.365430
1330	686	687	1.575	1.026068	0.821282	0.837930
1331	687	688	1.575	0.002387	0.004775	0.365430
1332	688	689	1.575	1.026068	0.821282	0.837930
1333	689	690	1.575	0.002387	0.004775	0.365430
1334	691	692	1.575	0.002387	0.004775	0.365430
1335	692	693	1.575	1.026068	0.821282	0.837930
1336	693	694	1.575	0.002387	0.004775	0.365430
1337	694	695	1.575	1.026068	0.821282	0.837930
1338	695	696	1.575	0.002387	0.004775	0.365430
1339	697	698	1.575	0.002387	0.004775	0.365430
1340	698	699	1.575	1.026068	0.821282	0.837930
1341	699	700	1.575	0.002387	0.004775	0.365430
1342	700	701	1.575	1.026068	0.821282	0.837930
1343	701	702	1.575	0.002387	0.004775	0.365430
1344	703	704	1.575	0.002387	0.004775	0.365430
1345	704	705	1.575	1.026068	0.821282	0.837930

1346	705	706	1.575	0.002387	0.004775	0.365430
1347	706	707	1.575	1.026068	0.821282	0.837930
1348	707	708	1.575	0.002387	0.004775	0.365430
1349	709	710	1.575	0.002387	0.004775	0.365430
1350	710	711	1.575	1.026068	0.821282	0.837930
1351	711	712	1.575	0.002387	0.004775	0.365430
1352	712	713	1.575	1.026068	0.821282	0.837930
1353	713	714	1.575	0.002387	0.004775	0.365430
1354	715	716	1.575	0.002387	0.004775	0.365430
1355	716	717	1.575	1.026068	0.821282	0.837930
1356	717	718	1.575	0.002387	0.004775	0.365430
1357	718	719	1.575	1.026068	0.821282	0.837930
1358	719	720	1.575	0.002387	0.004775	0.365430
1359	721	722	1.575	0.002387	0.004775	0.365430
1360	722	723	1.575	1.026068	0.821282	0.837930
1361	723	724	1.575	0.002387	0.004775	0.365430
1362	724	725	1.575	1.026068	0.821282	0.837930
1363	725	726	1.575	0.002387	0.004775	0.365430
1364	727	728	1.575	0.002387	0.004775	0.365430
1365	728	729	1.575	1.026068	0.821282	0.837930
1366	729	730	1.575	0.002387	0.004775	0.365430
1367	730	731	1.575	1.026068	0.821282	0.837930
1368	731	732	1.575	0.002387	0.004775	0.365430
1369	733	734	1.575	0.002387	0.004775	0.365430
1370	734	735	1.575	1.026068	0.821282	0.837930
1371	735	736	1.575	0.002387	0.004775	0.365430
1372	736	737	1.575	1.026068	0.821282	0.837930
1373	737	738	1.575	0.002387	0.004775	0.365430
1374	739	740	1.575	0.002387	0.004775	0.365430
1375	740	741	1.575	1.026068	0.821282	0.837930
1376	741	742	1.575	0.002387	0.004775	0.365430
1377	742	743	1.575	1.026068	0.821282	0.837930
1378	743	744	1.575	0.002387	0.004775	0.365430
1379	745	746	1.575	0.002387	0.004775	0.365430
1380	746	747	1.575	1.026068	0.821282	0.837930
1381	747	748	1.575	0.002387	0.004775	0.365430
1382	748	749	1.575	1.026068	0.821282	0.837930
1383	749	750	1.575	0.002387	0.004775	0.365430
1384	751	752	1.575	0.002387	0.004775	0.365430
1385	752	753	1.575	1.026068	0.821282	0.837930
1386	753	754	1.575	0.002387	0.004775	0.365430
1387	754	755	1.575	1.026068	0.821282	0.837930
1388	755	756	1.575	0.002387	0.004775	0.365430
1389	757	758	1.575	0.002387	0.004775	0.365430
1390	758	759	1.575	1.026068	0.821282	0.837930
1391	759	760	1.575	0.002387	0.004775	0.365430
1392	760	761	1.575	1.026068	0.821282	0.837930
1393	761	762	1.575	0.002387	0.004775	0.365430
1394	763	764	1.575	0.002387	0.004775	0.365430
1395	764	765	1.575	1.026068	0.821282	0.837930
1396	765	766	1.575	0.002387	0.004775	0.365430
1397	766	767	1.575	1.026068	0.821282	0.837930
1398	767	768	1.575	0.002387	0.004775	0.365430
1399	769	770	0.787	0.001194	0.002387	0.182715
1400	770	771	0.787	0.699430	0.410641	0.999465
1401	771	772	0.787	0.699430	0.410641	0.999465
1402	772	773	0.787	0.699430	0.410641	0.999465
1403	773	774	0.787	0.001194	0.002387	0.182715
1404	774	775	0.787	0.699430	0.410641	0.999465
1405	775	776	0.787	0.699430	0.410641	0.999465
1406	776	777	0.787	0.699430	0.410641	0.999465
1407	777	778	0.787	0.001194	0.002387	0.182715

Datos de Tramos de Vigas

Tramo	Viga	Ancho (m)	Canto (m)	Area (m)	Va (m)	Vb (m)	Inercia (m4)	JTor (m4)
1	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
2	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
3	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
4	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
5	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
6	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
7	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
8	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
9	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
10	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
11	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893

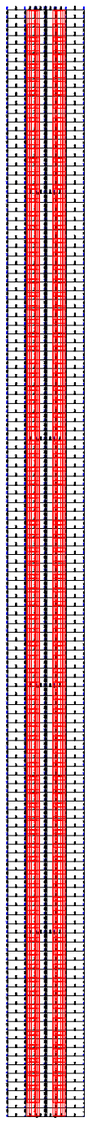
12	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
13	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
14	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
15	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
16	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
17	1	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
18	1	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
19	1	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
20	1	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
21	1	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
22	1	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
23	1	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
24	1	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
25	1	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
26	1	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
27	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
28	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
29	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
30	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
31	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
32	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
33	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
34	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
35	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
36	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
37	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
38	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
39	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
40	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
41	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
42	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
43	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
44	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
45	1	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
46	1	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
47	1	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
48	1	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
49	1	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
50	1	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
51	1	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
52	1	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
53	1	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
54	1	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
55	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
56	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
57	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
58	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
59	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
60	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
61	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
62	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
63	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
64	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
65	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
66	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
67	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
68	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
69	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
70	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
71	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
72	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
73	1	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
74	1	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
75	1	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
76	1	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
77	1	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
78	1	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
79	1	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
80	1	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
81	1	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
82	1	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
83	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
84	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
85	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
86	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
87	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893

88	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
89	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
90	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
91	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
92	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
93	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
94	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
95	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
96	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
97	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
98	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
99	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
100	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
101	1	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
102	1	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
103	1	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
104	1	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
105	1	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
106	1	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
107	1	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
108	1	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
109	1	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
110	1	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
111	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
112	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
113	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
114	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
115	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
116	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
117	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
118	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
119	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
120	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
121	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
122	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
123	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
124	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
125	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
126	1	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
127	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
128	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
129	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
130	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
131	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
132	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
133	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
134	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
135	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
136	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
137	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
138	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
139	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
140	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
141	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
142	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
143	2	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
144	2	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
145	2	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
146	2	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
147	2	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
148	2	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
149	2	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
150	2	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
151	2	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
152	2	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
153	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
154	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
155	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
156	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
157	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
158	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
159	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
160	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
161	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
162	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
163	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893

164	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
165	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
166	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
167	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
168	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
169	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
170	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
171	2	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
172	2	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
173	2	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
174	2	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
175	2	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
176	2	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
177	2	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
178	2	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
179	2	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
180	2	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
181	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
182	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
183	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
184	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
185	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
186	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
187	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
188	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
189	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
190	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
191	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
192	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
193	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
194	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
195	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
196	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
197	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
198	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
199	2	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
200	2	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
201	2	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
202	2	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
203	2	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
204	2	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
205	2	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
206	2	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
207	2	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
208	2	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
209	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
210	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
211	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
212	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
213	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
214	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
215	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
216	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
217	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
218	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
219	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
220	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
221	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
222	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
223	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
224	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
225	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
226	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
227	2	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
228	2	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
229	2	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
230	2	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
231	2	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
232	2	7.000	3.315	4.1821	1.0741	1.9609	6.492705	7.431357
233	2	7.000	3.152	4.0481	1.0014	1.8703	5.800848	6.847287
234	2	7.000	2.970	3.8988	0.9209	1.7689	5.053446	6.202322
235	2	7.000	2.788	3.7496	0.8410	1.6669	4.330652	5.567066
236	2	7.000	2.606	3.6003	0.7617	1.5643	3.632411	4.945397
237	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
238	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
239	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893

240	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
241	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
242	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
243	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
244	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
245	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
246	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
247	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
248	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
249	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
250	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
251	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893
252	2	7.000	2.515	3.5257	0.7223	1.5127	3.292478	4.640893

CROQUIS DEL EMPARRILLADO



Envolvente de Esfuerzos

Esfuerzos Cortantes en t

Viga	Tramo	Carga Perman.	S.C. Máximo	S.C. Mínimo	Carro Máximo	Carro Mínimo	Carga Térmica	Acc. Reológ.	Total Máximo	Total Mínimo
1	1	-95.32	16.26	-23.96	82.12	-225.54	-33.17	-14.60	3.06	-392.59
-	-	-95.32	16.26	-23.96	82.12	-225.54	-33.17	-14.60	3.06	-392.59
1	2	-97.12	21.14	-27.16	119.35	-252.32	-46.21	-14.60	43.38	-437.41
-	-	-97.12	21.14	-27.16	119.35	-252.32	-46.21	-14.60	43.38	-437.41
1	3	-89.90	22.22	-26.01	130.71	-241.40	-34.46	-14.60	63.03	-406.37
-	-	-89.90	22.22	-26.01	130.71	-241.40	-34.46	-14.60	63.03	-406.37
1	4	-73.81	20.51	-23.26	124.07	-213.66	-23.51	-14.60	70.77	-348.84
-	-	-73.81	20.51	-23.26	124.07	-213.66	-23.51	-14.60	70.77	-348.84
1	5	-54.76	17.99	-20.03	111.69	-191.17	-25.30	-14.60	74.91	-305.87
-	-	-54.76	17.99	-20.03	111.69	-191.17	-25.30	-14.60	74.91	-305.87
1	6	-35.29	15.18	-16.56	94.58	-155.18	-28.27	-14.60	74.47	-249.90
-	-	-35.29	15.18	-16.56	94.58	-155.18	-28.27	-14.60	74.47	-249.90
1	7	-16.17	12.26	-12.92	79.69	-122.76	-29.34	-14.60	75.78	-195.79
-	-	-16.17	12.26	-12.92	79.69	-122.76	-29.34	-14.60	75.78	-195.79
1	8	2.50	9.29	-9.16	86.47	-100.54	-29.57	-14.60	98.27	-151.36
-	-	2.50	9.29	-9.16	86.47	-100.54	-29.57	-14.60	98.27	-151.36
1	9	20.87	6.28	-5.32	94.67	-68.07	-29.53	-14.60	121.82	-96.65
-	-	20.87	6.28	-5.32	94.67	-68.07	-29.53	-14.60	121.82	-96.65
1	10	39.07	6.91	-4.08	108.34	-53.93	-29.45	-14.60	154.32	-62.99
-	-	39.07	6.91	-4.08	108.34	-53.93	-29.45	-14.60	154.32	-62.99
1	11	57.20	9.36	-6.36	139.45	-55.08	-29.40	-14.60	206.01	-48.23
-	-	57.20	9.36	-6.36	139.45	-55.08	-29.40	-14.60	206.01	-48.23
1	12	75.35	11.85	-8.31	168.54	-56.33	-29.35	-14.60	255.74	-33.24
-	-	75.35	11.85	-8.31	168.54	-56.33	-29.35	-14.60	255.74	-33.24
1	13	93.60	14.39	-9.81	194.02	-62.95	-29.15	-14.60	302.01	-22.92
-	-	93.60	14.39	-9.81	194.02	-62.95	-29.15	-14.60	302.01	-22.92
1	14	112.07	16.99	-11.14	225.45	-70.60	-28.53	-14.60	354.51	-12.80
-	-	112.07	16.99	-11.14	225.45	-70.60	-28.53	-14.60	354.51	-12.80
1	15	130.92	19.60	-13.09	251.01	-76.21	-27.02	-14.60	401.53	0.01
-	-	130.92	19.60	-13.09	251.01	-76.21	-27.02	-14.60	401.53	0.01
1	16	150.25	22.10	-15.33	282.49	-83.27	-24.18	-14.60	454.84	12.88
-	-	150.25	22.10	-15.33	282.49	-83.27	-24.18	-14.60	454.84	12.88
1	17	170.26	25.80	-18.64	306.37	-91.13	-21.66	-14.60	502.43	24.23
-	-	170.26	25.80	-18.64	306.37	-91.13	-21.66	-14.60	502.43	24.23
1	18	188.53	31.53	-23.45	329.27	-120.20	-24.39	-14.60	549.33	5.90
-	-	188.53	31.53	-23.45	329.27	-120.20	-24.39	-14.60	549.33	5.90
1	19	197.72	38.29	-28.27	348.81	-146.61	-25.38	-14.60	584.82	-17.13
-	-	197.72	38.29	-28.27	348.81	-146.61	-25.38	-14.60	584.82	-17.13
1	20	184.58	46.13	-31.82	366.11	-156.52	-25.19	-14.60	596.82	-43.55
-	-	184.58	46.13	-31.82	366.11	-156.52	-25.19	-14.60	596.82	-43.55
1	21	214.86	56.62	-34.45	464.49	-147.52	-24.12	-14.60	735.98	-5.83
-	-	214.86	56.62	-34.45	464.49	-147.52	-24.12	-14.60	735.98	-5.83
1	22	-216.53	41.92	-63.90	199.11	-511.57	13.54	-0.61	38.04	-792.59
-	-	-216.53	41.92	-63.90	199.11	-511.57	13.54	-0.61	38.04	-792.59
1	23	-188.25	39.01	-53.15	200.04	-410.76	14.61	-0.61	65.41	-652.77
-	-	-188.25	39.01	-53.15	200.04	-410.76	14.61	-0.61	65.41	-652.77
1	24	-201.39	35.64	-45.55	190.86	-391.12	14.80	-0.61	39.91	-638.68
-	-	-201.39	35.64	-45.55	190.86	-391.12	14.80	-0.61	39.91	-638.68
1	25	-192.21	31.12	-39.15	165.98	-374.13	13.83	-0.61	18.72	-606.09
-	-	-192.21	31.12	-39.15	165.98	-374.13	13.83	-0.61	18.72	-606.09
1	26	-173.94	26.53	-33.60	139.89	-350.51	11.11	-0.61	3.59	-558.65
-	-	-173.94	26.53	-33.60	139.89	-350.51	11.11	-0.61	3.59	-558.65
1	27	-153.91	23.87	-30.73	127.62	-326.85	7.66	-0.61	5.23	-512.10
-	-	-153.91	23.87	-30.73	127.62	-326.85	7.66	-0.61	5.23	-512.10
1	28	-134.54	21.69	-27.86	122.00	-298.22	4.80	-0.61	13.95	-461.23
-	-	-134.54	21.69	-27.86	122.00	-298.22	4.80	-0.61	13.95	-461.23
1	29	-115.65	19.96	-25.38	116.95	-271.76	5.15	-0.61	26.41	-413.41
-	-	-115.65	19.96	-25.38	116.95	-271.76	5.15	-0.61	26.41	-413.41
1	30	-97.14	18.45	-23.08	110.02	-241.44	5.77	-0.61	37.09	-362.27
-	-	-97.14	18.45	-23.08	110.02	-241.44	5.77	-0.61	37.09	-362.27
1	31	-78.86	17.05	-20.86	99.65	-218.34	5.94	-0.61	43.79	-318.66
-	-	-78.86	17.05	-20.86	99.65	-218.34	5.94	-0.61	43.79	-318.66
1	32	-60.68	15.17	-18.12	92.66	-188.80	5.94	-0.61	53.09	-268.20
-	-	-60.68	15.17	-18.12	92.66	-188.80	5.94	-0.61	53.09	-268.20
1	33	-42.53	12.91	-14.99	86.52	-158.92	5.89	-0.61	62.79	-217.05
-	-	-42.53	12.91	-14.99	86.52	-158.92	5.89	-0.61	62.79	-217.05
1	34	-24.41	10.38	-11.60	90.23	-138.75	5.85	-0.61	82.06	-175.36
-	-	-24.41	10.38	-11.60	90.23	-138.75	5.85	-0.61	82.06	-175.36
1	35	-6.28	7.68	-8.04	97.72	-106.79	5.82	-0.61	104.94	-121.71
-	-	-6.28	7.68	-8.04	97.72	-106.79	5.82	-0.61	104.94	-121.71
1	36	11.85	7.61	-7.10	103.06	-85.62	5.79	-0.61	128.31	-81.47

-	-	11.85	7.61	-7.10	103.06	-85.62	5.79	-0.61	128.31	-81.47
1	37	29.98	11.16	-9.79	132.74	-87.70	5.76	-0.61	179.64	-68.11
-	-	29.98	11.16	-9.79	132.74	-87.70	5.76	-0.61	179.64	-68.11
1	38	48.11	14.54	-12.30	162.88	-86.27	5.72	-0.61	231.24	-51.07
-	-	48.11	14.54	-12.30	162.88	-86.27	5.72	-0.61	231.24	-51.07
1	39	66.25	17.66	-14.56	184.95	-94.67	5.68	-0.61	274.53	-43.58
-	-	66.25	17.66	-14.56	184.95	-94.67	5.68	-0.61	274.53	-43.58
1	40	84.43	20.42	-16.45	215.10	-100.37	5.68	-0.61	325.62	-32.99
-	-	84.43	20.42	-16.45	215.10	-100.37	5.68	-0.61	325.62	-32.99
1	41	102.72	22.84	-18.02	242.26	-106.34	5.86	-0.61	373.69	-22.24
-	-	102.72	22.84	-18.02	242.26	-106.34	5.86	-0.61	373.69	-22.24
1	42	121.24	25.31	-19.65	268.53	-115.88	6.50	-0.61	421.59	-14.90
-	-	121.24	25.31	-19.65	268.53	-115.88	6.50	-0.61	421.59	-14.90
1	43	140.14	27.91	-21.49	299.27	-120.61	8.07	-0.61	475.39	-2.57
-	-	140.14	27.91	-21.49	299.27	-120.61	8.07	-0.61	475.39	-2.57
1	44	159.53	30.86	-23.80	325.28	-125.63	11.00	-0.61	526.68	9.50
-	-	159.53	30.86	-23.80	325.28	-125.63	11.00	-0.61	526.68	9.50
1	45	179.59	34.54	-26.95	348.30	-137.82	14.55	-0.61	576.97	14.20
-	-	179.59	34.54	-26.95	348.30	-137.82	14.55	-0.61	576.97	14.20
1	46	197.84	40.69	-32.20	378.52	-167.25	17.20	-0.61	634.24	-2.22
-	-	197.84	40.69	-32.20	378.52	-167.25	17.20	-0.61	634.24	-2.22
1	47	206.80	47.94	-37.52	389.96	-195.48	17.39	-0.61	662.09	-26.80
-	-	206.80	47.94	-37.52	389.96	-195.48	17.39	-0.61	662.09	-26.80
1	48	192.91	56.13	-41.39	421.75	-207.16	14.63	-0.61	685.42	-56.25
-	-	192.91	56.13	-41.39	421.75	-207.16	14.63	-0.61	685.42	-56.25
1	49	221.54	67.07	-44.28	523.61	-205.66	8.28	-0.61	820.49	-29.02
-	-	221.54	67.07	-44.28	523.61	-205.66	8.28	-0.61	820.49	-29.02
1	50	-220.27	45.01	-67.72	211.78	-527.20	2.48	-0.00	38.99	-815.20
-	-	-220.27	45.01	-67.72	211.78	-527.20	2.48	-0.00	38.99	-815.20
1	51	-190.12	42.37	-57.04	213.28	-426.24	8.83	-0.00	74.36	-673.41
-	-	-190.12	42.37	-57.04	213.28	-426.24	8.83	-0.00	74.36	-673.41
1	52	-204.02	38.48	-48.83	200.67	-401.99	11.60	-0.00	46.73	-654.84
-	-	-204.02	38.48	-48.83	200.67	-401.99	11.60	-0.00	46.73	-654.84
1	53	-195.05	33.01	-41.44	172.10	-384.24	11.40	-0.00	21.46	-620.73
-	-	-195.05	33.01	-41.44	172.10	-384.24	11.40	-0.00	21.46	-620.73
1	54	-176.80	27.63	-35.15	142.85	-354.40	8.75	-0.00	2.43	-566.34
-	-	-176.80	27.63	-35.15	142.85	-354.40	8.75	-0.00	2.43	-566.34
1	55	-156.74	24.46	-31.45	130.20	-337.66	5.20	-0.00	3.11	-525.86
-	-	-156.74	24.46	-31.45	130.20	-337.66	5.20	-0.00	3.11	-525.86
1	56	-137.36	22.12	-28.47	125.22	-305.10	2.27	-0.00	12.25	-470.93
-	-	-137.36	22.12	-28.47	125.22	-305.10	2.27	-0.00	12.25	-470.93
1	57	-118.45	20.29	-25.88	119.93	-278.02	0.70	-0.00	22.47	-422.36
-	-	-118.45	20.29	-25.88	119.93	-278.02	0.70	-0.00	22.47	-422.36
1	58	-99.94	18.69	-23.45	109.51	-251.11	0.05	-0.00	28.32	-374.49
-	-	-99.94	18.69	-23.45	109.51	-251.11	0.05	-0.00	28.32	-374.49
1	59	-81.64	17.18	-21.08	101.47	-220.76	0.13	-0.00	37.14	-323.49
-	-	-81.64	17.18	-21.08	101.47	-220.76	0.13	-0.00	37.14	-323.49
1	60	-63.46	15.30	-18.33	93.72	-198.15	0.13	-0.00	45.68	-279.94
-	-	-63.46	15.30	-18.33	93.72	-198.15	0.13	-0.00	45.68	-279.94
1	61	-45.32	13.04	-15.20	95.26	-168.32	0.09	-0.00	63.06	-228.85
-	-	-45.32	13.04	-15.20	95.26	-168.32	0.09	-0.00	63.06	-228.85
1	62	-27.19	10.51	-11.82	92.50	-138.54	-0.04	-0.00	75.82	-177.60
-	-	-27.19	10.51	-11.82	92.50	-138.54	-0.04	-0.00	75.82	-177.60
1	63	-9.06	7.81	-8.25	98.34	-118.33	-0.01	-0.00	97.08	-135.65
-	-	-9.06	7.81	-8.25	98.34	-118.33	-0.01	-0.00	97.08	-135.65
1	64	9.06	8.24	-7.82	118.39	-98.28	0.01	-0.00	135.71	-97.04
-	-	9.06	8.24	-7.82	118.39	-98.28	0.01	-0.00	135.71	-97.04
1	65	27.19	11.81	-10.53	138.61	-92.44	0.04	-0.00	177.66	-75.77
-	-	27.19	11.81	-10.53	138.61	-92.44	0.04	-0.00	177.66	-75.77
1	66	45.32	15.20	-13.06	168.39	-95.20	-0.09	-0.00	228.91	-63.02
-	-	45.32	15.20	-13.06	168.39	-95.20	-0.09	-0.00	228.91	-63.02
1	67	63.46	18.33	-15.32	198.22	-94.10	-0.13	-0.00	280.02	-46.09
-	-	63.46	18.33	-15.32	198.22	-94.10	-0.13	-0.00	280.02	-46.09
1	68	81.64	21.09	-17.22	220.84	-101.87	-0.13	-0.00	323.58	-37.57
-	-	81.64	21.09	-17.22	220.84	-101.87	-0.13	-0.00	323.58	-37.57
1	69	99.94	23.49	-18.76	251.20	-109.90	-0.05	-0.00	374.62	-28.78
-	-	99.94	23.49	-18.76	251.20	-109.90	-0.05	-0.00	374.62	-28.78
1	70	118.45	25.92	-20.36	278.12	-119.85	-0.70	-0.00	422.50	-22.45
-	-	118.45	25.92	-20.36	278.12	-119.85	-0.70	-0.00	422.50	-22.45
1	71	137.36	28.51	-22.19	305.22	-125.13	-2.27	-0.00	471.09	-12.23
-	-	137.36	28.51	-22.19	305.22	-125.13	-2.27	-0.00	471.09	-12.23
1	72	156.74	31.45	-24.49	337.82	-130.15	-5.20	-0.00	526.02	-3.09
-	-	156.74	31.45	-24.49	337.82	-130.15	-5.20	-0.00	526.02	-3.09
1	73	176.80	35.09	-27.60	354.60	-142.78	-8.75	-0.00	566.49	-2.33
-	-	176.80	35.09	-27.60	354.60	-142.78	-8.75	-0.00	566.49	-2.33
1	74	195.05	41.30	-32.88	384.50	-171.92	-11.40	-0.00	620.85	-21.16

-	-	195.05	41.30	-32.88	384.50	-171.92	-11.40	-0.00	620.85	-21.16
1	75	204.02	48.58	-38.20	402.30	-200.15	-11.60	-0.00	654.90	-45.93
-	-	204.02	48.58	-38.20	402.30	-200.15	-11.60	-0.00	654.90	-45.93
1	76	190.12	56.93	-42.16	426.29	-212.24	-8.83	-0.00	673.34	-73.11
-	-	190.12	56.93	-42.16	426.29	-212.24	-8.83	-0.00	673.34	-73.11
1	77	220.27	68.04	-45.22	529.60	-211.45	-2.48	-0.00	817.92	-38.87
-	-	220.27	68.04	-45.22	529.60	-211.45	-2.48	-0.00	817.92	-38.87
1	78	-221.54	43.82	-66.42	205.97	-526.85	-8.28	0.61	28.86	-823.08
-	-	-221.54	43.82	-66.42	205.97	-526.85	-8.28	0.61	28.86	-823.08
1	79	-192.91	40.91	-55.48	207.16	-423.05	-14.63	0.61	55.77	-686.07
-	-	-192.91	40.91	-55.48	207.16	-423.05	-14.63	0.61	55.77	-686.07
1	80	-206.80	37.06	-47.31	195.28	-388.57	-17.39	0.61	26.15	-660.08
-	-	-206.80	37.06	-47.31	195.28	-388.57	-17.39	0.61	26.15	-660.08
1	81	-197.84	31.81	-40.15	166.92	-377.60	-17.20	0.61	1.50	-632.79
-	-	-197.84	31.81	-40.15	166.92	-377.60	-17.20	0.61	1.50	-632.79
1	82	-179.59	26.67	-34.05	137.42	-348.13	-14.55	0.61	-14.90	-576.32
-	-	-179.59	26.67	-34.05	137.42	-348.13	-14.55	0.61	-14.90	-576.32
1	83	-159.53	23.64	-30.81	125.17	-324.71	-11.00	0.61	-10.12	-526.06
-	-	-159.53	23.64	-30.81	125.17	-324.71	-11.00	0.61	-10.12	-526.06
1	84	-140.14	21.44	-27.92	120.16	-299.37	-8.07	0.61	2.06	-475.51
-	-	-140.14	21.44	-27.92	120.16	-299.37	-8.07	0.61	2.06	-475.51
1	85	-121.24	19.70	-25.45	115.40	-269.04	-6.50	0.61	14.47	-422.23
-	-	-121.24	19.70	-25.45	115.40	-269.04	-6.50	0.61	14.47	-422.23
1	86	-102.72	18.18	-23.13	106.43	-242.97	-5.86	0.61	22.49	-374.69
-	-	-102.72	18.18	-23.13	106.43	-242.97	-5.86	0.61	22.49	-374.69
1	87	-84.43	16.68	-20.80	100.46	-215.90	-5.68	0.61	33.32	-326.81
-	-	-84.43	16.68	-20.80	100.46	-215.90	-5.68	0.61	33.32	-326.81
1	88	-66.25	14.85	-18.11	94.21	-185.80	-5.68	0.61	43.41	-275.83
-	-	-66.25	14.85	-18.11	94.21	-185.80	-5.68	0.61	43.41	-275.83
1	89	-48.11	12.63	-15.03	85.81	-163.75	-5.72	0.61	50.93	-232.61
-	-	-48.11	12.63	-15.03	85.81	-163.75	-5.72	0.61	50.93	-232.61
1	90	-29.98	10.14	-11.68	86.85	-133.62	-5.76	0.61	67.61	-181.04
-	-	-29.98	10.14	-11.68	86.85	-133.62	-5.76	0.61	67.61	-181.04
1	91	-11.85	7.47	-8.14	84.77	-103.94	-5.79	0.61	80.99	-129.73
-	-	-11.85	7.47	-8.14	84.77	-103.94	-5.79	0.61	80.99	-129.73
1	92	6.28	7.49	-7.30	105.15	-97.80	-5.82	0.61	119.52	-104.65
-	-	6.28	7.49	-7.30	105.15	-97.80	-5.82	0.61	119.52	-104.65
1	93	24.41	11.07	-10.02	137.11	-90.32	-5.85	0.61	173.19	-81.78

-	-	24.41	11.07	-10.02	137.11	-90.32	-5.85	0.61	173.19	-81.78
1	94	42.53	14.48	-12.57	157.29	-86.57	-5.89	0.61	214.91	-62.49
-	-	42.53	14.48	-12.57	157.29	-86.57	-5.89	0.61	214.91	-62.49
1	95	60.68	17.65	-14.87	187.19	-91.84	-5.94	0.61	266.12	-51.97
-	-	60.68	17.65	-14.87	187.19	-91.84	-5.94	0.61	266.12	-51.97
1	96	78.86	20.46	-16.81	216.76	-98.99	-5.94	0.61	316.69	-42.88
-	-	78.86	20.46	-16.81	216.76	-98.99	-5.94	0.61	316.69	-42.88
1	97	97.14	22.78	-18.28	239.95	-110.10	-5.77	0.61	360.48	-37.00
-	-	97.14	22.78	-18.28	239.95	-110.10	-5.77	0.61	360.48	-37.00
1	98	115.65	25.22	-19.88	270.47	-117.03	-5.15	0.61	411.95	-26.41
-	-	115.65	25.22	-19.88	270.47	-117.03	-5.15	0.61	411.95	-26.41
1	99	134.54	27.82	-21.71	297.31	-122.08	-4.80	0.61	460.28	-14.05
-	-	134.54	27.82	-21.71	297.31	-122.08	-4.80	0.61	460.28	-14.05
1	100	153.91	30.74	-23.99	326.58	-127.64	-7.66	0.61	511.84	-5.37
-	-	153.91	30.74	-23.99	326.58	-127.64	-7.66	0.61	511.84	-5.37
1	101	173.94	34.05	-26.77	349.81	-139.66	-11.11	0.61	558.41	-3.60
-	-	173.94	34.05	-26.77	349.81	-139.66	-11.11	0.61	558.41	-3.60
1	102	192.21	39.69	-31.50	374.16	-165.43	-13.83	0.61	606.66	-18.55
-	-	192.21	39.69	-31.50	374.16	-165.43	-13.83	0.61	606.66	-18.55
1	103	201.39	46.27	-36.20	391.66	-190.07	-14.80	0.61	639.93	-39.67
-	-	201.39	46.27	-36.20	391.66	-190.07	-14.80	0.61	639.93	-39.67
1	104	188.25	53.90	-39.64	409.60	-200.13	-14.61	0.61	652.36	-66.12
-	-	188.25	53.90	-39.64	409.60	-200.13	-14.61	0.61	652.36	-66.12
1	105	216.53	64.47	-42.46	509.10	-199.21	-13.54	0.61	790.71	-38.68
-	-	216.53	64.47	-42.46	509.10	-199.21	-13.54	0.61	790.71	-38.68
1	106	-214.86	33.12	-54.64	144.02	-454.79	24.12	14.60	0.99	-724.28
-	-	-214.86	33.12	-54.64	144.02	-454.79	24.12	14.60	0.99	-724.28
1	107	-184.58	30.91	-44.71	153.33	-357.98	25.19	14.60	39.45	-587.28
-	-	-184.58	30.91	-44.71	153.33	-357.98	25.19	14.60	39.45	-587.28
1	108	-197.72	27.58	-37.26	143.90	-338.86	25.38	14.60	13.74	-573.84
-	-	-197.72	27.58	-37.26	143.90	-338.86	25.38	14.60	13.74	-573.84
1	109	-188.53	22.97	-30.82	118.19	-319.57	24.39	14.60	-8.38	-538.92
-	-	-188.53	22.97	-30.82	118.19	-319.57	24.39	14.60	-8.38	-538.92
1	110	-170.26	18.42	-25.33	89.82	-305.54	21.66	14.60	-25.76	-501.13
-	-	-170.26	18.42	-25.33	89.82	-305.54	21.66	14.60	-25.76	-501.13
1	111	-150.25	14.87	-22.21	81.94	-281.61	24.18	14.60	-14.66	-454.07
-	-	-150.25	14.87	-22.21	81.94	-281.61	24.18	14.60	-14.66	-454.07
1	112	-130.92	12.86	-19.65	75.36	-251.12	27.02	14.60	-1.09	-401.69

-	-	-130.92	12.86	-19.65	75.36	-251.12	27.02	14.60	-1.09	-401.69
1	113	-112.07	11.14	-16.99	70.34	-225.67	28.53	14.60	12.54	-354.73
-	-	-112.07	11.14	-16.99	70.34	-225.67	28.53	14.60	12.54	-354.73
1	114	-93.60	9.75	-14.37	62.94	-194.25	29.15	14.60	22.84	-302.22
-	-	-93.60	9.75	-14.37	62.94	-194.25	29.15	14.60	22.84	-302.22
1	115	-75.35	8.16	-11.82	56.32	-168.77	29.35	14.60	33.08	-255.94
-	-	-75.35	8.16	-11.82	56.32	-168.77	29.35	14.60	33.08	-255.94
1	116	-57.20	6.15	-9.33	53.11	-139.69	29.40	14.60	46.05	-206.23
-	-	-57.20	6.15	-9.33	53.11	-139.69	29.40	14.60	46.05	-206.23
1	117	-39.07	3.83	-6.89	51.99	-108.58	29.45	14.60	60.79	-154.55
-	-	-39.07	3.83	-6.89	51.99	-108.58	29.45	14.60	60.79	-154.55
1	118	-20.87	5.04	-6.10	66.14	-94.91	29.53	14.60	94.43	-121.89
-	-	-20.87	5.04	-6.10	66.14	-94.91	29.53	14.60	94.43	-121.89
1	119	-2.50	8.85	-9.09	98.62	-86.72	29.57	14.60	149.14	-98.31
-	-	-2.50	8.85	-9.09	98.62	-86.72	29.57	14.60	149.14	-98.31
1	120	16.17	12.60	-12.04	120.84	-79.94	29.34	14.60	193.55	-75.81
-	-	16.17	12.60	-12.04	120.84	-79.94	29.34	14.60	193.55	-75.81
1	121	35.29	16.24	-14.95	153.25	-93.26	28.27	14.60	247.65	-72.92
-	-	35.29	16.24	-14.95	153.25	-93.26	28.27	14.60	247.65	-72.92
1	122	54.76	19.70	-17.75	189.23	-110.48	25.30	14.60	303.60	-73.46
-	-	54.76	19.70	-17.75	189.23	-110.48	25.30	14.60	303.60	-73.46
1	123	73.81	22.92	-20.26	211.71	-122.83	23.51	14.60	346.55	-69.28
-	-	73.81	22.92	-20.26	211.71	-122.83	23.51	14.60	346.55	-69.28
1	124	89.90	25.67	-21.97	239.48	-129.50	34.46	14.60	404.11	-61.57
-	-	89.90	25.67	-21.97	239.48	-129.50	34.46	14.60	404.11	-61.57
1	125	97.12	26.84	-20.94	250.52	-118.36	46.21	14.60	435.29	-42.18
-	-	97.12	26.84	-20.94	250.52	-118.36	46.21	14.60	435.29	-42.18
1	126	95.32	23.73	-16.18	224.07	-81.94	33.17	14.60	390.88	-2.80
-	-	95.32	23.73	-16.18	224.07	-81.94	33.17	14.60	390.88	-2.80
2	127	-95.32	16.26	-23.96	82.12	-225.45	-33.17	-14.60	3.06	-392.50
-	-	-95.32	16.26	-23.96	82.12	-225.45	-33.17	-14.60	3.06	-392.50
2	128	-97.12	21.14	-27.16	119.35	-252.32	-46.21	-14.60	43.38	-437.41
-	-	-97.12	21.14	-27.16	119.35	-252.32	-46.21	-14.60	43.38	-437.41
2	129	-89.90	22.22	-26.01	130.71	-241.43	-34.46	-14.60	63.03	-406.40
-	-	-89.90	22.22	-26.01	130.71	-241.43	-34.46	-14.60	63.03	-406.40
2	130	-73.81	20.51	-23.26	124.07	-213.69	-23.51	-14.60	70.77	-348.86
-	-	-73.81	20.51	-23.26	124.07	-213.69	-23.51	-14.60	70.77	-348.86
2	131	-54.76	17.99	-20.03	111.69	-191.20	-25.30	-14.60	74.91	-305.90
-	-	-54.76	17.99	-20.03	111.69	-191.20	-25.30	-14.60	74.91	-305.90
2	132	-35.29	15.18	-16.56	94.59	-155.20	-28.27	-14.60	74.48	-249.92
-	-	-35.29	15.18	-16.56	94.59	-155.20	-28.27	-14.60	74.48	-249.92
2	133	-16.17	12.26	-12.92	79.66	-122.78	-29.34	-14.60	75.75	-195.81
-	-	-16.17	12.26	-12.92	79.66	-122.78	-29.34	-14.60	75.75	-195.81
2	134	2.50	9.29	-9.16	86.45	-100.56	-29.57	-14.60	98.24	-151.38
-	-	2.50	9.29	-9.16	86.45	-100.56	-29.57	-14.60	98.24	-151.38
2	135	20.87	6.28	-5.32	94.64	-68.09	-29.53	-14.60	121.80	-96.66
-	-	20.87	6.28	-5.32	94.64	-68.09	-29.53	-14.60	121.80	-96.66
2	136	39.07	6.91	-4.08	108.32	-53.95	-29.45	-14.60	154.30	-63.00
-	-	39.07	6.91	-4.08	108.32	-53.95	-29.45	-14.60	154.30	-63.00
2	137	57.20	9.36	-6.36	139.43	-55.09	-29.40	-14.60	205.99	-48.25
-	-	57.20	9.36	-6.36	139.43	-55.09	-29.40	-14.60	205.99	-48.25
2	138	75.35	11.85	-8.31	168.51	-56.33	-29.35	-14.60	255.71	-33.24
-	-	75.35	11.85	-8.31	168.51	-56.33	-29.35	-14.60	255.71	-33.24
2	139	93.60	14.39	-9.81	194.00	-62.94	-29.15	-14.60	301.99	-22.91
-	-	93.60	14.39	-9.81	194.00	-62.94	-29.15	-14.60	301.99	-22.91
2	140	112.07	16.99	-11.14	225.43	-70.59	-28.53	-14.60	354.49	-12.79
-	-	112.07	16.99	-11.14	225.43	-70.59	-28.53	-14.60	354.49	-12.79
2	141	130.92	19.60	-13.09	250.98	-76.21	-27.02	-14.60	401.51	0.01
-	-	130.92	19.60	-13.09	250.98	-76.21	-27.02	-14.60	401.51	0.01
2	142	150.25	22.10	-15.33	282.46	-83.26	-24.18	-14.60	454.81	12.88
-	-	150.25	22.10	-15.33	282.46	-83.26	-24.18	-14.60	454.81	12.88
2	143	170.26	25.80	-18.64	306.35	-91.13	-21.66	-14.60	502.40	24.23
-	-	170.26	25.80	-18.64	306.35	-91.13	-21.66	-14.60	502.40	24.23
2	144	188.53	31.53	-23.45	329.25	-120.20	-24.39	-14.60	549.30	5.90
-	-	188.53	31.53	-23.45	329.25	-120.20	-24.39	-14.60	549.30	5.90
2	145	197.72	38.29	-28.27	348.79	-146.61	-25.38	-14.60	584.79	-17.13
-	-	197.72	38.29	-28.27	348.79	-146.61	-25.38	-14.60	584.79	-17.13
2	146	184.58	46.13	-31.82	366.11	-156.52	-25.19	-14.60	596.82	-43.55
-	-	184.58	46.13	-31.82	366.11	-156.52	-25.19	-14.60	596.82	-43.55
2	147	214.86	56.62	-34.45	464.49	-147.50	-24.12	-14.60	735.98	-5.81
-	-	214.86	56.62	-34.45	464.49	-147.50	-24.12	-14.60	735.98	-5.81
2	148	-216.53	41.92	-63.90	199.11	-511.57	13.54	-0.61	38.04	-792.59
-	-	-216.53	41.92	-63.90	199.11	-511.57	13.54	-0.61	38.04	-792.59
2	149	-188.25	39.01	-53.15	200.04	-410.76	14.61	-0.61	65.41	-652.77
-	-	-188.25	39.01	-53.15	200.04	-410.76	14.61	-0.61	65.41	-652.77
2	150	-201.39	35.64	-45.55	190.86	-391.05	14.80	-0.61	39.91	-638.60

-	-	-201.39	35.64	-45.55	190.86	-391.05	14.80	-0.61	39.91	-638.60
2	151	-192.21	31.12	-39.15	165.98	-374.05	13.83	-0.61	18.72	-606.01
-	-	-192.21	31.12	-39.15	165.98	-374.05	13.83	-0.61	18.72	-606.01
2	152	-173.94	26.53	-33.60	139.89	-350.43	11.11	-0.61	3.59	-558.57
-	-	-173.94	26.53	-33.60	139.89	-350.43	11.11	-0.61	3.59	-558.57
2	153	-153.91	23.87	-30.73	127.62	-326.78	7.66	-0.61	5.23	-512.02
-	-	-153.91	23.87	-30.73	127.62	-326.78	7.66	-0.61	5.23	-512.02
2	154	-134.54	21.69	-27.86	122.00	-298.14	4.80	-0.61	13.95	-461.15
-	-	-134.54	21.69	-27.86	122.00	-298.14	4.80	-0.61	13.95	-461.15
2	155	-115.65	19.96	-25.38	116.95	-271.69	5.15	-0.61	26.41	-413.33
-	-	-115.65	19.96	-25.38	116.95	-271.69	5.15	-0.61	26.41	-413.33
2	156	-97.14	18.45	-23.08	110.02	-241.36	5.77	-0.61	37.09	-362.19
-	-	-97.14	18.45	-23.08	110.02	-241.36	5.77	-0.61	37.09	-362.19
2	157	-78.86	17.05	-20.86	99.63	-218.26	5.94	-0.61	43.77	-318.58
-	-	-78.86	17.05	-20.86	99.63	-218.26	5.94	-0.61	43.77	-318.58
2	158	-60.68	15.17	-18.12	92.64	-188.73	5.94	-0.61	53.07	-268.12
-	-	-60.68	15.17	-18.12	92.64	-188.73	5.94	-0.61	53.07	-268.12
2	159	-42.53	12.91	-14.99	86.52	-158.84	5.89	-0.61	62.79	-216.97
-	-	-42.53	12.91	-14.99	86.52	-158.84	5.89	-0.61	62.79	-216.97
2	160	-24.41	10.38	-11.60	90.27	-138.67	5.85	-0.61	82.10	-175.29
-	-	-24.41	10.38	-11.60	90.27	-138.67	5.85	-0.61	82.10	-175.29
2	161	-6.28	7.68	-8.04	97.76	-106.71	5.82	-0.61	104.98	-121.63
-	-	-6.28	7.68	-8.04	97.76	-106.71	5.82	-0.61	104.98	-121.63
2	162	11.85	7.61	-7.10	103.11	-85.54	5.79	-0.61	128.36	-81.39
-	-	11.85	7.61	-7.10	103.11	-85.54	5.79	-0.61	128.36	-81.39
2	163	29.98	11.16	-9.79	132.78	-87.62	5.76	-0.61	179.68	-68.03
-	-	29.98	11.16	-9.79	132.78	-87.62	5.76	-0.61	179.68	-68.03
2	164	48.11	14.54	-12.30	162.92	-86.27	5.72	-0.61	231.29	-51.07
-	-	48.11	14.54	-12.30	162.92	-86.27	5.72	-0.61	231.29	-51.07
2	165	66.25	17.66	-14.56	184.99	-94.67	5.68	-0.61	274.58	-43.58
-	-	66.25	17.66	-14.56	184.99	-94.67	5.68	-0.61	274.58	-43.58
2	166	84.43	20.42	-16.45	215.14	-100.39	5.68	-0.61	325.67	-33.01
-	-	84.43	20.42	-16.45	215.14	-100.39	5.68	-0.61	325.67	-33.01
2	167	102.72	22.84	-18.02	242.31	-106.36	5.86	-0.61	373.73	-22.26
-	-	102.72	22.84	-18.02	242.31	-106.36	5.86	-0.61	373.73	-22.26
2	168	121.24	25.31	-19.65	268.58	-115.88	6.50	-0.61	421.63	-14.90
-	-	121.24	25.31	-19.65	268.58	-115.88	6.50	-0.61	421.63	-14.90
2	169	140.14	27.91	-21.49	299.32	-120.61	8.07	-0.61	475.45	-2.57

-	-	140.14	27.91	-21.49	299.32	-120.61	8.07	-0.61	475.45	-2.57
2	170	159.53	30.86	-23.80	325.34	-125.63	11.00	-0.61	526.74	9.50
-	-	159.53	30.86	-23.80	325.34	-125.63	11.00	-0.61	526.74	9.50
2	171	179.59	34.54	-26.95	348.37	-137.82	14.55	-0.61	577.04	14.20
-	-	179.59	34.54	-26.95	348.37	-137.82	14.55	-0.61	577.04	14.20
2	172	197.84	40.69	-32.20	378.58	-167.25	17.20	-0.61	634.31	-2.22
-	-	197.84	40.69	-32.20	378.58	-167.25	17.20	-0.61	634.31	-2.22
2	173	206.80	47.94	-37.52	389.99	-195.48	17.39	-0.61	662.12	-26.80
-	-	206.80	47.94	-37.52	389.99	-195.48	17.39	-0.61	662.12	-26.80
2	174	192.91	56.13	-41.39	421.75	-207.16	14.63	-0.61	685.42	-56.25
-	-	192.91	56.13	-41.39	421.75	-207.16	14.63	-0.61	685.42	-56.25
2	175	221.54	67.07	-44.28	523.61	-205.66	8.28	-0.61	820.49	-29.02
-	-	221.54	67.07	-44.28	523.61	-205.66	8.28	-0.61	820.49	-29.02
2	176	-220.27	45.01	-67.72	211.78	-527.20	2.48	-0.00	38.99	-815.20
-	-	-220.27	45.01	-67.72	211.78	-527.20	2.48	-0.00	38.99	-815.20
2	177	-190.12	42.37	-57.04	213.28	-426.24	8.83	-0.00	74.36	-673.41
-	-	-190.12	42.37	-57.04	213.28	-426.24	8.83	-0.00	74.36	-673.41
2	178	-204.02	38.48	-48.83	200.67	-402.12	11.60	-0.00	46.73	-654.97
-	-	-204.02	38.48	-48.83	200.67	-402.12	11.60	-0.00	46.73	-654.97
2	179	-195.05	33.01	-41.44	172.10	-384.40	11.40	-0.00	21.46	-620.89
-	-	-195.05	33.01	-41.44	172.10	-384.40	11.40	-0.00	21.46	-620.89
2	180	-176.80	27.63	-35.15	142.85	-354.56	8.75	-0.00	2.43	-566.50
-	-	-176.80	27.63	-35.15	142.85	-354.56	8.75	-0.00	2.43	-566.50
2	181	-156.74	24.46	-31.45	130.20	-337.82	5.20	-0.00	3.11	-526.02
-	-	-156.74	24.46	-31.45	130.20	-337.82	5.20	-0.00	3.11	-526.02
2	182	-137.36	22.12	-28.47	125.22	-305.25	2.27	-0.00	12.25	-471.08
-	-	-137.36	22.12	-28.47	125.22	-305.25	2.27	-0.00	12.25	-471.08
2	183	-118.45	20.29	-25.88	119.93	-278.17	0.70	-0.00	22.47	-422.50
-	-	-118.45	20.29	-25.88	119.93	-278.17	0.70	-0.00	22.47	-422.50
2	184	-99.94	18.69	-23.45	109.66	-251.25	0.05	-0.00	28.47	-374.64
-	-	-99.94	18.69	-23.45	109.66	-251.25	0.05	-0.00	28.47	-374.64
2	185	-81.64	17.18	-21.08	101.62	-220.90	0.13	-0.00	37.29	-323.63
-	-	-81.64	17.18	-21.08	101.62	-220.90	0.13	-0.00	37.29	-323.63
2	186	-63.46	15.30	-18.33	93.87	-198.29	0.13	-0.00	45.84	-280.09
-	-	-63.46	15.30	-18.33	93.87	-198.29	0.13	-0.00	45.84	-280.09
2	187	-45.32	13.04	-15.20	95.06	-168.46	0.09	-0.00	62.86	-228.99
-	-	-45.32	13.04	-15.20	95.06	-168.46	0.09	-0.00	62.86	-228.99
2	188	-27.19	10.51	-11.82	92.29	-138.68	-0.04	-0.00	75.61	-177.74

-	-	-27.19	10.51	-11.82	92.29	-138.68	-0.04	-0.00	75.61	-177.74
2	189	-9.06	7.81	-8.25	98.14	-118.47	-0.01	-0.00	96.88	-135.80
-	-	-9.06	7.81	-8.25	98.14	-118.47	-0.01	-0.00	96.88	-135.80
2	190	9.06	8.24	-7.82	118.19	-98.42	0.01	-0.00	135.50	-97.18
-	-	9.06	8.24	-7.82	118.19	-98.42	0.01	-0.00	135.50	-97.18
2	191	27.19	11.81	-10.53	138.40	-92.58	0.04	-0.00	177.45	-75.91
-	-	27.19	11.81	-10.53	138.40	-92.58	0.04	-0.00	177.45	-75.91
2	192	45.32	15.20	-13.06	168.18	-95.34	-0.09	-0.00	228.71	-63.17
-	-	45.32	15.20	-13.06	168.18	-95.34	-0.09	-0.00	228.71	-63.17
2	193	63.46	18.33	-15.32	198.02	-94.04	-0.13	-0.00	279.82	-46.03
-	-	63.46	18.33	-15.32	198.02	-94.04	-0.13	-0.00	279.82	-46.03
2	194	81.64	21.09	-17.22	220.64	-101.82	-0.13	-0.00	323.38	-37.52
-	-	81.64	21.09	-17.22	220.64	-101.82	-0.13	-0.00	323.38	-37.52
2	195	99.94	23.49	-18.76	251.00	-109.85	-0.05	-0.00	374.42	-28.73
-	-	99.94	23.49	-18.76	251.00	-109.85	-0.05	-0.00	374.42	-28.73
2	196	118.45	25.92	-20.36	277.93	-119.85	-0.70	-0.00	422.30	-22.45
-	-	118.45	25.92	-20.36	277.93	-119.85	-0.70	-0.00	422.30	-22.45
2	197	137.36	28.51	-22.19	305.03	-125.13	-2.27	-0.00	470.90	-12.23
-	-	137.36	28.51	-22.19	305.03	-125.13	-2.27	-0.00	470.90	-12.23
2	198	156.74	31.45	-24.49	337.63	-130.15	-5.20	-0.00	525.83	-3.09
-	-	156.74	31.45	-24.49	337.63	-130.15	-5.20	-0.00	525.83	-3.09
2	199	176.80	35.09	-27.60	354.42	-142.78	-8.75	-0.00	566.31	-2.33
-	-	176.80	35.09	-27.60	354.42	-142.78	-8.75	-0.00	566.31	-2.33
2	200	195.05	41.30	-32.88	384.34	-171.92	-11.40	-0.00	620.69	-21.16
-	-	195.05	41.30	-32.88	384.34	-171.92	-11.40	-0.00	620.69	-21.16
2	201	204.02	48.58	-38.20	402.18	-200.15	-11.60	-0.00	654.78	-45.93
-	-	204.02	48.58	-38.20	402.18	-200.15	-11.60	-0.00	654.78	-45.93
2	202	190.12	56.93	-42.16	426.29	-212.24	-8.83	-0.00	673.34	-73.11
-	-	190.12	56.93	-42.16	426.29	-212.24	-8.83	-0.00	673.34	-73.11
2	203	220.27	68.04	-45.22	529.60	-211.45	-2.48	-0.00	817.92	-38.87
-	-	220.27	68.04	-45.22	529.60	-211.45	-2.48	-0.00	817.92	-38.87
2	204	-221.54	43.82	-66.42	205.97	-526.85	-8.28	0.61	28.86	-823.08
-	-	-221.54	43.82	-66.42	205.97	-526.85	-8.28	0.61	28.86	-823.08
2	205	-192.91	40.91	-55.48	207.16	-423.05	-14.63	0.61	55.77	-686.07
-	-	-192.91	40.91	-55.48	207.16	-423.05	-14.63	0.61	55.77	-686.07
2	206	-206.80	37.06	-47.31	195.28	-388.22	-17.39	0.61	26.15	-659.73
-	-	-206.80	37.06	-47.31	195.28	-388.22	-17.39	0.61	26.15	-659.73
2	207	-197.84	31.81	-40.15	166.92	-377.23	-17.20	0.61	1.50	-632.43
-	-	-197.84	31.81	-40.15	166.92	-377.23	-17.20	0.61	1.50	-632.43
2	208	-179.59	26.67	-34.05	137.42	-347.77	-14.55	0.61	-14.90	-575.95
-	-	-179.59	26.67	-34.05	137.42	-347.77	-14.55	0.61	-14.90	-575.95
2	209	-159.53	23.64	-30.81	125.17	-324.35	-11.00	0.61	-10.12	-525.70
-	-	-159.53	23.64	-30.81	125.17	-324.35	-11.00	0.61	-10.12	-525.70
2	210	-140.14	21.44	-27.92	120.16	-299.00	-8.07	0.61	2.06	-475.14
-	-	-140.14	21.44	-27.92	120.16	-299.00	-8.07	0.61	2.06	-475.14
2	211	-121.24	19.70	-25.45	115.40	-268.66	-6.50	0.61	14.47	-421.85
-	-	-121.24	19.70	-25.45	115.40	-268.66	-6.50	0.61	14.47	-421.85
2	212	-102.72	18.18	-23.13	106.01	-242.59	-5.86	0.61	22.08	-374.31
-	-	-102.72	18.18	-23.13	106.01	-242.59	-5.86	0.61	22.08	-374.31
2	213	-84.43	16.68	-20.80	100.05	-215.52	-5.68	0.61	32.90	-326.43
-	-	-84.43	16.68	-20.80	100.05	-215.52	-5.68	0.61	32.90	-326.43
2	214	-66.25	14.85	-18.11	94.21	-185.41	-5.68	0.61	43.41	-275.45
-	-	-66.25	14.85	-18.11	94.21	-185.41	-5.68	0.61	43.41	-275.45
2	215	-48.11	12.63	-15.03	85.81	-163.36	-5.72	0.61	50.93	-232.23
-	-	-48.11	12.63	-15.03	85.81	-163.36	-5.72	0.61	50.93	-232.23
2	216	-29.98	10.14	-11.68	87.21	-133.24	-5.76	0.61	67.98	-180.66
-	-	-29.98	10.14	-11.68	87.21	-133.24	-5.76	0.61	67.98	-180.66
2	217	-11.85	7.47	-8.14	85.13	-103.57	-5.79	0.61	81.35	-129.35
-	-	-11.85	7.47	-8.14	85.13	-103.57	-5.79	0.61	81.35	-129.35
2	218	6.28	7.49	-7.30	105.51	-97.44	-5.82	0.61	119.88	-104.28
-	-	6.28	7.49	-7.30	105.51	-97.44	-5.82	0.61	119.88	-104.28
2	219	24.41	11.07	-10.02	137.47	-89.96	-5.85	0.61	173.55	-81.42
-	-	24.41	11.07	-10.02	137.47	-89.96	-5.85	0.61	173.55	-81.42
2	220	42.53	14.48	-12.57	157.64	-86.57	-5.89	0.61	215.27	-62.49
-	-	42.53	14.48	-12.57	157.64	-86.57	-5.89	0.61	215.27	-62.49
2	221	60.68	17.65	-14.87	187.54	-92.71	-5.94	0.61	266.47	-52.84
-	-	60.68	17.65	-14.87	187.54	-92.71	-5.94	0.61	266.47	-52.84
2	222	78.86	20.46	-16.81	217.11	-99.71	-5.94	0.61	317.04	-43.61
-	-	78.86	20.46	-16.81	217.11	-99.71	-5.94	0.61	317.04	-43.61
2	223	97.14	22.78	-18.28	240.29	-110.10	-5.77	0.61	360.82	-37.00
-	-	97.14	22.78	-18.28	240.29	-110.10	-5.77	0.61	360.82	-37.00
2	224	115.65	25.22	-19.88	270.79	-117.03	-5.15	0.61	412.27	-26.41
-	-	115.65	25.22	-19.88	270.79	-117.03	-5.15	0.61	412.27	-26.41
2	225	134.54	27.82	-21.71	297.28	-122.08	-4.80	0.61	460.25	-14.05
-	-	134.54	27.82	-21.71	297.28	-122.08	-4.80	0.61	460.25	-14.05
2	226	153.91	30.74	-23.99	325.78	-127.64	-7.66	0.61	511.04	-5.37

-	-	153.91	30.74	-23.99	325.78	-127.64	-7.66	0.61	511.04	-5.37
2	227	173.94	34.05	-26.77	349.36	-139.66	-11.11	0.61	557.95	-3.60
-	-	173.94	34.05	-26.77	349.36	-139.66	-11.11	0.61	557.95	-3.60
2	228	192.21	39.69	-31.50	372.88	-165.43	-13.83	0.61	605.38	-18.55
-	-	192.21	39.69	-31.50	372.88	-165.43	-13.83	0.61	605.38	-18.55
2	229	201.39	46.27	-36.20	389.88	-190.07	-14.80	0.61	638.15	-39.67
-	-	201.39	46.27	-36.20	389.88	-190.07	-14.80	0.61	638.15	-39.67
2	230	188.25	53.90	-39.64	409.60	-200.13	-14.61	0.61	652.36	-66.12
-	-	188.25	53.90	-39.64	409.60	-200.13	-14.61	0.61	652.36	-66.12
2	231	216.53	64.47	-42.46	509.10	-199.21	-13.54	0.61	790.71	-38.68
-	-	216.53	64.47	-42.46	509.10	-199.21	-13.54	0.61	790.71	-38.68
2	232	-214.86	33.12	-54.64	144.02	-454.79	24.12	14.60	0.99	-724.28
-	-	-214.86	33.12	-54.64	144.02	-454.79	24.12	14.60	0.99	-724.28
2	233	-184.58	30.91	-44.71	153.33	-357.98	25.19	14.60	39.45	-587.28
-	-	-184.58	30.91	-44.71	153.33	-357.98	25.19	14.60	39.45	-587.28
2	234	-197.72	27.58	-37.26	143.90	-340.59	25.38	14.60	13.74	-575.58
-	-	-197.72	27.58	-37.26	143.90	-340.59	25.38	14.60	13.74	-575.58
2	235	-188.53	22.97	-30.82	118.19	-320.72	24.39	14.60	-8.38	-540.07
-	-	-188.53	22.97	-30.82	118.19	-320.72	24.39	14.60	-8.38	-540.07
2	236	-170.26	18.42	-25.33	89.82	-305.87	21.66	14.60	-25.76	-501.45
-	-	-170.26	18.42	-25.33	89.82	-305.87	21.66	14.60	-25.76	-501.45
2	237	-150.25	14.87	-22.21	80.61	-282.28	24.18	14.60	-16.00	-454.74
-	-	-150.25	14.87	-22.21	80.61	-282.28	24.18	14.60	-16.00	-454.74
2	238	-130.92	12.86	-19.65	74.51	-250.80	27.02	14.60	-1.94	-401.38
-	-	-130.92	12.86	-19.65	74.51	-250.80	27.02	14.60	-1.94	-401.38
2	239	-112.07	11.14	-16.99	69.61	-225.26	28.53	14.60	11.81	-354.32
-	-	-112.07	11.14	-16.99	69.61	-225.26	28.53	14.60	11.81	-354.32
2	240	-93.60	9.75	-14.37	62.12	-193.82	29.15	14.60	22.02	-301.79
-	-	-93.60	9.75	-14.37	62.12	-193.82	29.15	14.60	22.02	-301.79
2	241	-75.35	8.16	-11.82	55.34	-168.33	29.35	14.60	32.10	-255.50
-	-	-75.35	8.16	-11.82	55.34	-168.33	29.35	14.60	32.10	-255.50
2	242	-57.20	6.15	-9.33	53.48	-139.25	29.40	14.60	46.42	-205.78
-	-	-57.20	6.15	-9.33	53.48	-139.25	29.40	14.60	46.42	-205.78
2	243	-39.07	3.83	-6.89	52.38	-108.14	29.45	14.60	61.18	-154.10
-	-	-39.07	3.83	-6.89	52.38	-108.14	29.45	14.60	61.18	-154.10
2	244	-20.87	5.04	-6.10	66.55	-94.46	29.53	14.60	94.84	-121.44
-	-	-20.87	5.04	-6.10	66.55	-94.46	29.53	14.60	94.84	-121.44
2	245	-2.50	8.85	-9.09	99.04	-86.27	29.57	14.60	149.56	-97.85
-	-	-2.50	8.85	-9.09	99.04	-86.27	29.57	14.60	149.56	-97.85
2	246	16.17	12.60	-12.04	121.28	-79.48	29.34	14.60	194.00	-75.35
-	-	16.17	12.60	-12.04	121.28	-79.48	29.34	14.60	194.00	-75.35
2	247	35.29	16.24	-14.95	153.71	-93.79	28.27	14.60	248.11	-73.45
-	-	35.29	16.24	-14.95	153.71	-93.79	28.27	14.60	248.11	-73.45
2	248	54.76	19.70	-17.75	189.71	-110.48	25.30	14.60	304.07	-73.46
-	-	54.76	19.70	-17.75	189.71	-110.48	25.30	14.60	304.07	-73.46
2	249	73.81	22.92	-20.26	212.20	-122.83	23.51	14.60	347.04	-69.28
-	-	73.81	22.92	-20.26	212.20	-122.83	23.51	14.60	347.04	-69.28
2	250	89.90	25.67	-21.97	239.96	-129.50	34.46	14.60	404.59	-61.57
-	-	89.90	25.67	-21.97	239.96	-129.50	34.46	14.60	404.59	-61.57
2	251	97.12	26.84	-20.94	250.88	-118.36	46.21	14.60	435.66	-42.18
-	-	97.12	26.84	-20.94	250.88	-118.36	46.21	14.60	435.66	-42.18
2	252	95.32	23.73	-16.18	224.01	-81.94	33.17	14.60	390.82	-2.80
-	-	95.32	23.73	-16.18	224.01	-81.94	33.17	14.60	390.82	-2.80

Momentos flectores en t.m

Viga	Tramo	Carga Perman.	S.C. Máximo	S.C. Mínimo	Carro Máximo	Carro Mínimo	Carga Térmica	Acc. Reológ.	Total Máximo	Total Mínimo
1	1	0.00	0.11	-0.11	0.74	-0.74	-0.00	0.00	0.86	-0.86
-	-	141.70	35.54	-20.57	351.09	-95.76	33.38	22.99	584.70	25.37
1	2	141.70	20.86	-5.89	310.73	-78.87	33.38	22.99	529.66	56.94
-	-	262.69	43.11	-15.34	627.88	-156.82	66.76	45.98	1046.42	90.52
1	3	262.69	39.10	-11.32	588.86	-155.95	66.76	45.98	1003.39	95.41
-	-	362.96	55.39	-16.99	863.94	-233.86	100.15	68.97	1451.41	112.11
1	4	362.96	55.39	-16.99	833.39	-232.92	100.15	68.97	1420.86	113.05
-	-	442.52	69.52	-22.65	1071.54	-310.77	133.53	91.96	1809.06	109.10
1	5	442.52	69.52	-22.65	1040.87	-309.82	133.53	91.96	1778.40	110.05
-	-	501.36	81.47	-28.31	1246.45	-387.67	166.91	114.95	2111.14	85.38
1	6	501.36	81.47	-28.31	1218.56	-386.69	166.91	114.95	2083.25	86.37
-	-	539.50	91.25	-33.97	1389.16	-464.63	200.29	137.94	2358.14	40.89
1	7	539.50	91.25	-33.97	1367.54	-463.49	200.29	137.94	2336.52	42.03
-	-	556.92	98.86	-39.64	1481.93	-541.64	233.67	160.93	2532.32	-24.36
1	8	556.92	98.86	-39.64	1472.75	-540.23	233.67	160.93	2523.14	-22.95
-	-	553.62	104.30	-45.30	1554.73	-618.70	267.05	183.93	2663.63	-110.38
1	9	553.62	104.30	-45.30	1545.67	-616.87	267.05	183.93	2654.58	-108.54
-	-	529.62	107.57	-50.96	1596.05	-695.83	300.44	206.92	2740.59	-217.17
1	10	529.62	107.57	-50.96	1592.37	-693.38	300.44	206.92	2736.91	-214.72
-	-	484.90	108.67	-56.62	1602.44	-773.04	333.82	229.91	2759.73	-344.76

1	11	484.90	108.67	-56.62	1605.85	-769.71	333.82	229.91	2763.14	-341.43
-	-	419.46	107.60	-62.29	1573.13	-850.37	367.20	252.90	2720.29	-493.19
1	12	419.46	107.60	-62.29	1581.27	-846.93	367.20	252.90	2728.43	-489.75
-	-	333.32	104.36	-67.95	1514.00	-927.86	400.58	275.89	2628.15	-662.49
1	13	333.32	104.36	-67.95	1527.82	-925.09	400.58	275.89	2641.97	-659.71
-	-	226.46	98.95	-73.61	1428.31	-1005.58	433.96	298.88	2486.56	-852.73
1	14	226.46	98.95	-73.61	1447.99	-1003.74	433.96	298.88	2506.24	-850.90
-	-	98.89	91.37	-79.27	1309.77	-1083.63	467.34	321.87	2289.23	-1064.02
1	15	98.89	91.37	-79.27	1328.54	-1083.10	467.34	321.87	2308.00	-1063.49
-	-	-49.40	81.61	-84.94	1160.16	-1162.14	500.73	344.86	2037.95	-1296.47
1	16	-49.40	81.61	-84.94	1189.00	-1163.47	500.73	344.86	2066.80	-1297.81
-	-	-218.40	69.69	-90.60	981.88	-1241.36	534.11	367.85	1735.12	-1550.35
1	17	-218.40	69.69	-90.60	1012.23	-1245.53	534.11	367.85	1765.48	-1554.53
-	-	-418.94	60.86	-102.65	764.72	-1325.86	569.29	392.08	1368.02	-1847.45
1	18	-418.94	56.74	-98.53	796.35	-1334.16	569.29	392.08	1395.52	-1851.63
-	-	-642.49	56.78	-121.86	624.77	-1526.00	604.47	416.31	1059.84	-2290.35
1	19	-642.49	45.29	-110.38	607.01	-1473.33	604.47	416.31	1030.60	-2226.20
-	-	-889.05	50.28	-141.08	513.65	-1770.19	639.66	440.55	755.09	-2800.32
1	20	-889.05	41.55	-132.34	539.00	-1756.11	639.66	440.55	771.70	-2777.50
-	-	-1158.61	48.21	-167.12	485.04	-2092.34	674.84	464.78	514.25	-3418.08
1	21	-1158.61	37.14	-156.05	485.15	-2065.36	674.84	464.78	503.29	-3380.03
-	-	-1451.19	51.91	-201.35	499.70	-2499.21	710.02	489.01	299.45	-4151.75
1	22	-1451.19	44.60	-194.04	502.19	-2520.30	710.02	489.01	294.63	-4165.53
-	-	-1154.18	32.31	-151.67	423.86	-1964.07	703.02	490.01	495.03	-3269.93
1	23	-1154.18	35.35	-154.71	427.86	-2021.67	703.02	490.01	502.07	-3330.56
-	-	-880.18	33.20	-124.88	420.25	-1581.37	696.02	491.02	760.31	-2586.43
1	24	-880.18	32.95	-124.63	395.16	-1622.76	696.02	491.02	734.97	-2627.57
-	-	-629.19	31.46	-97.87	428.51	-1260.07	689.02	492.03	1011.82	-1987.14
1	25	-629.19	37.20	-103.61	428.17	-1294.61	689.02	492.03	1017.21	-2027.42
-	-	-401.21	29.53	-73.10	450.82	-944.39	682.02	493.03	1254.19	-1418.70
1	26	-401.21	39.20	-82.76	451.51	-985.66	682.02	493.03	1264.55	-1469.64
-	-	-196.24	37.70	-60.82	573.80	-768.91	675.02	494.04	1584.31	-1025.97
1	27	-196.24	38.74	-61.86	531.94	-766.91	675.02	494.04	1543.49	-1025.01
-	-	-22.75	44.72	-49.53	754.04	-696.33	668.37	494.99	1939.37	-768.62
1	28	-22.75	44.46	-49.28	717.98	-696.51	668.37	494.99	1903.05	-768.54
-	-	129.95	56.82	-45.50	927.13	-642.40	661.71	495.95	2271.57	-557.95
1	29	129.95	57.65	-46.33	898.00	-643.32	661.71	495.95	2243.27	-559.70
-	-	261.87	72.30	-47.02	1143.35	-655.12	655.06	496.91	2629.48	-440.27
1	30	261.87	72.50	-47.22	1110.20	-652.95	655.06	496.91	2596.53	-438.30
-	-	373.00	86.19	-49.13	1320.87	-668.84	648.40	497.86	2926.33	-344.97
1	31	373.00	86.19	-49.13	1295.34	-667.35	648.40	497.86	2900.80	-343.48
-	-	463.35	97.96	-51.31	1474.43	-682.94	641.75	498.82	3176.30	-270.90
1	32	463.35	97.96	-51.31	1454.54	-681.93	641.75	498.82	3156.41	-269.89
-	-	532.90	107.55	-53.48	1605.12	-694.47	635.09	499.78	3380.45	-215.05
1	33	532.90	107.55	-53.48	1587.64	-696.65	635.09	499.78	3362.97	-217.22
-	-	581.68	114.97	-55.65	1694.01	-709.85	628.44	500.73	3519.83	-183.82
1	34	581.68	114.97	-55.65	1685.25	-711.46	628.44	500.73	3511.06	-185.44
-	-	609.66	120.20	-57.83	1756.71	-725.08	621.79	501.69	3610.05	-173.25
1	35	609.66	120.20	-57.83	1751.51	-726.37	621.79	501.69	3604.85	-174.53
-	-	616.86	123.26	-60.00	1796.47	-757.78	615.13	502.64	3654.37	-200.92
1	36	616.86	123.26	-60.00	1796.44	-756.68	615.13	502.64	3654.34	-199.82
-	-	603.27	124.14	-62.17	1801.15	-794.13	608.48	503.60	3640.65	-253.02
1	37	603.27	124.14	-62.17	1808.43	-792.85	608.48	503.60	3647.92	-251.75
-	-	568.90	122.85	-64.35	1770.99	-830.55	601.82	504.56	3569.12	-326.00
1	38	568.90	122.85	-64.35	1783.07	-828.90	601.82	504.56	3581.20	-324.35
-	-	513.74	119.37	-66.52	1717.24	-867.07	595.17	505.51	3451.04	-419.85
1	39	513.74	119.37	-66.52	1732.50	-864.79	595.17	505.51	3466.30	-417.56
-	-	437.80	113.72	-68.69	1634.52	-903.70	588.52	506.47	3281.02	-534.60
1	40	437.80	113.72	-68.69	1658.67	-903.61	588.52	506.47	3305.17	-534.51
-	-	341.06	105.89	-70.87	1518.26	-940.49	581.86	507.42	3054.50	-670.29
1	41	341.06	105.89	-70.87	1543.75	-940.99	581.86	507.42	3079.98	-670.79
-	-	223.55	96.06	-73.23	1371.38	-977.48	575.21	508.38	2774.58	-827.16
1	42	223.55	95.88	-73.04	1405.49	-978.81	575.21	508.38	2808.50	-828.30
-	-	85.24	84.48	-76.00	1202.36	-1016.14	568.55	509.34	2449.97	-1006.90
1	43	85.24	83.97	-75.49	1238.94	-1017.24	568.55	509.34	2486.04	-1007.49
-	-	-73.85	72.11	-80.18	1024.62	-1076.05	561.90	510.29	2095.07	-1230.08
1	44	-73.85	71.32	-79.38	1056.17	-1075.14	561.90	510.29	2125.83	-1228.37
-	-	-253.73	61.35	-88.13	833.37	-1155.20	555.24	511.25	1707.48	-1497.06
1	45	-253.73	62.22	-89.00	875.64	-1157.98	555.24	511.25	1750.63	-1500.71
-	-	-465.42	61.44	-110.26	713.63	-1350.67	548.24	512.26	1370.15	-1926.35
1	46	-465.42	52.63	-101.46	698.98	-1295.27	548.24	512.26	1346.69	-1862.15
-	-	-700.12	58.88	-132.16	643.11	-1623.32	541.24	513.26	1056.37	-2455.60
1	47	-700.12	48.81	-122.09	656.30	-1593.96	541.24	513.26	1059.49	-2416.17
-	-	-957.83	54.23	-154.38	601.77	-1947.87	534.24	514.27	746.67	-3060.08
1	48	-957.83	49.78	-149.93	624.07	-1920.84	534.24	514.27	764.53	-3028.60
-	-	-1238.55	54.96	-184.39	612.46	-2323.86	527.24	515.27	471.39	-3746.80

1	49	-1238.55	48.12	-177.55	608.10	-2280.12	527.24	515.27	460.18	-3696.21
-	-	-1542.27	61.42	-222.54	664.98	-2807.88	520.24	516.28	220.65	-4572.69
1	50	-1542.27	60.13	-221.25	666.07	-2807.50	520.24	516.28	220.45	-4571.03
-	-	-1241.91	47.14	-176.75	585.80	-2265.49	520.24	516.28	427.56	-3684.14
1	51	-1241.91	52.81	-182.42	591.48	-2311.94	520.24	516.28	438.91	-3736.27
-	-	-964.55	47.63	-148.15	587.56	-1895.52	520.24	516.28	707.16	-3008.21
1	52	-964.55	50.92	-151.44	561.28	-1921.69	520.24	516.28	684.17	-3037.68
-	-	-710.20	45.49	-119.32	610.45	-1559.68	520.24	516.28	982.27	-2389.20
1	53	-710.20	54.68	-128.51	594.99	-1588.08	520.24	516.28	975.99	-2426.79
-	-	-478.86	47.40	-96.96	637.24	-1245.46	520.24	516.28	1242.30	-1821.27
1	54	-478.86	56.29	-105.84	651.69	-1298.71	520.24	516.28	1265.63	-1883.41
-	-	-270.53	56.11	-83.80	795.06	-1094.71	520.24	516.28	1617.16	-1449.04
1	55	-270.53	55.33	-83.03	759.74	-1091.98	520.24	516.28	1581.06	-1445.53
-	-	-93.84	64.01	-73.16	973.19	-1007.10	520.24	516.28	1979.88	-1174.10
1	56	-93.84	64.63	-73.78	938.61	-1008.10	520.24	516.28	1945.92	-1175.73
-	-	62.05	77.20	-69.98	1156.83	-957.88	520.24	516.28	2332.61	-965.81
1	57	62.05	77.64	-70.42	1120.42	-955.95	520.24	516.28	2296.63	-964.32
-	-	197.16	91.05	-69.64	1345.55	-943.86	520.24	516.28	2670.29	-816.34
1	58	197.16	91.22	-69.81	1316.80	-941.66	520.24	516.28	2641.70	-814.31
-	-	311.49	103.00	-69.59	1512.01	-930.45	520.24	516.28	2963.02	-688.55
1	59	311.49	103.00	-69.59	1483.53	-929.08	520.24	516.28	2934.54	-687.18
-	-	405.03	112.77	-69.53	1637.73	-917.48	520.24	516.28	3192.05	-581.98
1	60	405.03	112.77	-69.53	1617.44	-916.71	520.24	516.28	3171.76	-581.21
-	-	477.78	120.37	-69.47	1739.79	-900.43	520.24	516.28	3374.46	-492.12
1	61	477.78	120.37	-69.47	1724.06	-904.49	520.24	516.28	3358.73	-496.18
-	-	529.75	125.79	-69.41	1817.87	-888.72	520.24	516.28	3509.92	-428.38
1	62	529.75	125.79	-69.41	1805.55	-892.40	520.24	516.28	3497.61	-432.06
-	-	560.93	129.03	-69.35	1856.02	-876.84	520.24	516.28	3582.49	-385.27
1	63	560.93	129.03	-69.35	1850.91	-880.40	520.24	516.28	3577.38	-388.83
-	-	571.32	130.09	-69.29	1864.52	-876.05	520.24	516.28	3602.44	-374.02
1	64	571.32	130.09	-69.29	1864.53	-876.05	520.24	516.28	3602.45	-374.02
-	-	560.93	128.97	-69.24	1850.26	-879.92	520.24	516.28	3576.67	-388.23
1	65	560.93	128.97	-69.24	1855.38	-875.83	520.24	516.28	3581.79	-384.14
-	-	529.75	125.67	-69.18	1804.26	-891.28	520.24	516.28	3496.20	-430.71
1	66	529.75	125.67	-69.18	1816.59	-886.51	520.24	516.28	3508.52	-425.94
-	-	477.78	120.20	-69.12	1722.12	-902.75	520.24	516.28	3356.62	-494.09
1	67	477.78	120.20	-69.12	1737.86	-897.00	520.24	516.28	3372.36	-488.34
-	-	405.03	112.55	-69.06	1614.86	-914.34	520.24	516.28	3168.95	-578.37
1	68	405.03	112.55	-69.06	1635.15	-914.85	520.24	516.28	3189.25	-578.88
-	-	311.49	102.72	-69.00	1480.29	-926.09	520.24	516.28	2931.02	-683.60
1	69	311.49	102.72	-69.00	1508.79	-927.23	520.24	516.28	2959.51	-684.74
-	-	197.16	90.88	-69.11	1312.92	-938.06	520.24	516.28	2637.48	-810.01
1	70	197.16	90.71	-68.94	1341.68	-940.07	520.24	516.28	2666.07	-811.85
-	-	62.05	77.27	-69.64	1115.89	-951.75	520.24	516.28	2291.74	-959.33
1	71	62.05	76.80	-69.17	1152.31	-953.57	520.24	516.28	2327.69	-960.68
-	-	-93.84	64.25	-72.93	933.68	-1003.57	520.24	516.28	1940.61	-1170.34
1	72	-93.84	63.60	-72.28	968.40	-1002.68	520.24	516.28	1974.68	-1168.80
-	-	-270.53	54.95	-82.11	754.80	-1087.56	520.24	516.28	1575.74	-1440.19
1	73	-270.53	55.73	-82.89	790.26	-1090.51	520.24	516.28	1611.98	-1443.92
-	-	-478.86	55.94	-104.90	646.73	-1294.44	520.24	516.28	1260.33	-1878.20
1	74	-478.86	47.05	-96.01	632.41	-1241.57	520.24	516.28	1237.13	-1816.44
-	-	-710.20	54.36	-127.53	589.01	-1584.06	520.24	516.28	969.69	-2421.79
1	75	-710.20	45.18	-118.35	605.60	-1556.18	520.24	516.28	977.10	-2384.72
-	-	-964.55	50.64	-150.43	556.27	-1918.10	520.24	516.28	678.88	-3033.08
1	76	-964.55	47.35	-147.14	582.68	-1892.41	520.24	516.28	702.00	-3004.10
-	-	-1241.91	52.56	-181.38	586.43	-2309.10	520.24	516.28	433.60	-3732.39
1	77	-1241.91	46.89	-175.71	580.88	-2262.73	520.24	516.28	422.38	-3680.35
-	-	-1542.27	60.35	-220.62	660.96	-2806.05	520.24	516.28	215.55	-4568.95
1	78	-1542.27	60.88	-221.15	659.91	-2808.82	520.24	516.28	215.03	-4572.24
-	-	-1238.55	48.20	-177.53	605.05	-2280.02	527.24	515.27	457.22	-3696.10
1	79	-1238.55	54.30	-183.62	608.55	-2327.46	527.24	515.27	466.81	-3749.63
-	-	-957.83	49.87	-150.68	621.44	-1923.94	534.24	514.27	761.99	-3032.45
1	80	-957.83	53.48	-154.28	598.72	-1954.29	534.24	514.27	742.89	-3066.40
-	-	-700.12	48.92	-123.60	654.53	-1600.53	541.24	513.26	1057.83	-2424.25
1	81	-700.12	58.22	-132.91	641.14	-1632.86	541.24	513.26	1053.75	-2465.88
-	-	-465.42	50.82	-101.80	698.15	-1305.10	548.24	512.26	1344.05	-1872.33
1	82	-465.42	60.89	-111.87	701.91	-1352.43	548.24	512.26	1357.88	-1929.71
-	-	-253.73	59.80	-89.49	864.82	-1159.63	555.24	511.25	1737.39	-1502.84
1	83	-253.73	60.91	-90.60	821.44	-1156.85	555.24	511.25	1695.12	-1501.18
-	-	-73.85	68.96	-79.52	1045.26	-1076.69	561.90	510.29	2112.55	-1230.06
1	84	-73.85	69.75	-80.31	1014.23	-1077.60	561.90	510.29	2082.32	-1231.76
-	-	85.24	81.95	-75.57	1229.27	-1018.11	568.55	509.34	2474.35	-1008.44
1	85	85.24	82.46	-76.08	1193.52	-1017.11	568.55	509.34	2439.11	-1007.95
-	-	223.55	94.16	-73.01	1396.79	-978.53	575.21	508.38	2798.09	-828.00
1	86	223.55	94.35	-73.20	1363.78	-977.30	575.21	508.38	2765.26	-826.96
-	-	341.06	104.47	-70.74	1536.19	-939.57	581.86	507.42	3071.02	-669.24

1	87	341.06	104.47	-70.74	1512.04	-939.17	581.86	507.42	3046.87	-668.84
-	-	437.80	112.61	-68.46	1652.40	-901.04	588.52	506.47	3297.79	-531.71
1	88	437.80	112.61	-68.46	1629.78	-901.24	588.52	506.47	3275.17	-531.91
-	-	513.74	118.57	-66.19	1727.61	-863.13	595.17	505.51	3460.60	-415.57
1	89	513.74	118.57	-66.19	1714.02	-863.46	595.17	505.51	3447.01	-415.91
-	-	568.90	122.34	-63.92	1779.65	-826.68	601.82	504.56	3577.27	-321.70
1	90	568.90	122.34	-63.92	1769.33	-825.80	601.82	504.56	3566.95	-320.81
-	-	603.27	123.94	-61.64	1806.52	-790.07	608.48	503.60	3645.82	-248.44
1	91	603.27	123.94	-61.64	1801.06	-788.23	608.48	503.60	3640.36	-246.59
-	-	616.86	123.37	-59.37	1796.08	-753.34	615.13	502.64	3654.09	-195.84
1	92	616.86	123.37	-59.37	1797.95	-750.74	615.13	502.64	3655.95	-193.24
-	-	609.66	120.61	-57.09	1752.73	-718.07	621.79	501.69	3606.47	-165.50
1	93	609.66	120.61	-57.09	1759.74	-720.87	621.79	501.69	3613.48	-168.30
-	-	581.68	115.67	-54.82	1688.04	-702.02	628.44	500.73	3514.56	-175.16
1	94	581.68	115.67	-54.82	1698.56	-705.10	628.44	500.73	3525.08	-178.24
-	-	532.90	108.56	-52.54	1591.98	-686.06	635.09	499.78	3368.32	-205.69
1	95	532.90	108.56	-52.54	1611.14	-689.20	635.09	499.78	3387.47	-208.84
-	-	463.35	99.27	-50.27	1460.41	-670.19	641.75	498.82	3163.60	-257.12
1	96	463.35	99.27	-50.27	1481.82	-671.27	641.75	498.82	3185.01	-258.19
-	-	373.00	87.80	-47.99	1302.69	-654.46	648.40	497.86	2909.75	-329.45
1	97	373.00	87.80	-47.99	1329.55	-656.00	648.40	497.86	2936.62	-330.99
-	-	261.87	74.43	-46.00	1118.93	-638.89	655.06	496.91	2607.19	-423.02
1	98	261.87	74.23	-45.79	1153.16	-641.11	655.06	496.91	2641.22	-425.03
-	-	129.95	59.89	-45.00	907.99	-628.13	661.71	495.95	2255.50	-543.19
1	99	129.95	59.05	-44.16	937.93	-627.20	661.71	495.95	2284.59	-541.41
-	-	-22.75	47.03	-47.87	729.10	-680.30	668.37	494.99	1916.73	-750.92
1	100	-22.75	46.83	-47.68	765.77	-680.07	668.37	494.99	1953.21	-750.50
-	-	-196.24	39.34	-58.09	543.77	-749.72	675.02	494.04	1555.92	-1004.05
1	101	-196.24	40.27	-59.02	584.61	-751.59	675.02	494.04	1597.70	-1006.86
-	-	-401.21	39.84	-79.78	462.22	-967.42	682.02	493.03	1275.90	-1448.41
1	102	-401.21	31.43	-71.37	451.11	-918.18	682.02	493.03	1256.37	-1390.77
-	-	-629.19	37.88	-101.42	428.57	-1267.96	689.02	492.03	1018.30	-1998.58
1	103	-629.19	31.49	-95.04	428.91	-1236.00	689.02	492.03	1012.26	-1960.23
-	-	-880.18	33.65	-123.21	395.67	-1598.21	696.02	491.02	736.18	-2601.60
1	104	-880.18	33.25	-122.81	420.76	-1559.52	696.02	491.02	760.87	-2562.51
-	-	-1154.18	35.55	-153.53	428.47	-1999.15	703.02	490.01	502.88	-3306.87
1	105	-1154.18	32.37	-150.36	424.47	-1944.36	703.02	490.01	495.70	-3248.90
-	-	-1451.19	44.30	-193.12	502.92	-2499.49	710.02	489.01	295.05	-4143.80

1	106	-1451.19	50.85	-199.68	500.42	-2479.64	710.02	489.01	299.12	-4130.51
-	-	-1158.61	37.49	-156.70	491.73	-2064.30	674.84	464.78	510.23	-3379.62
1	107	-1158.61	47.45	-166.66	486.93	-2086.19	674.84	464.78	515.39	-3411.46
-	-	-889.05	41.16	-133.17	540.04	-1761.40	639.66	440.55	772.36	-2783.61
1	108	-889.05	50.39	-142.39	515.97	-1776.29	639.66	440.55	757.52	-2807.73
-	-	-642.49	44.18	-111.40	596.51	-1478.78	604.47	416.31	1018.99	-2232.67
1	109	-642.49	55.89	-123.11	615.37	-1532.07	604.47	416.31	1049.57	-2297.66
-	-	-418.94	54.87	-99.70	774.37	-1339.68	569.29	392.08	1371.67	-1858.31
1	110	-418.94	58.99	-103.82	743.41	-1331.76	569.29	392.08	1344.84	-1854.52
-	-	-218.40	66.83	-91.70	978.79	-1250.99	534.11	367.85	1729.18	-1561.08
1	111	-218.40	66.83	-91.70	949.09	-1247.01	534.11	367.85	1699.48	-1557.10
-	-	-49.40	78.94	-85.96	1157.70	-1168.78	500.73	344.86	2032.82	-1304.15
1	112	-49.40	78.94	-85.96	1129.51	-1167.51	500.73	344.86	2004.63	-1302.88
-	-	98.89	88.87	-80.23	1299.79	-1088.19	467.34	321.87	2276.75	-1069.54
1	113	98.89	88.87	-80.23	1281.26	-1088.70	467.34	321.87	2258.22	-1070.04
-	-	226.46	96.63	-74.50	1421.60	-1008.57	433.96	298.88	2477.52	-856.61
1	114	226.46	96.63	-74.50	1401.91	-1010.32	433.96	298.88	2457.83	-858.36
-	-	333.32	102.22	-68.77	1503.66	-929.61	400.58	275.89	2615.66	-665.06
1	115	333.32	102.22	-68.77	1489.68	-932.25	400.58	275.89	2601.69	-667.70
-	-	419.46	105.64	-63.04	1559.26	-851.12	367.20	252.90	2704.46	-494.70
1	116	419.46	105.64	-63.04	1550.86	-854.40	367.20	252.90	2696.06	-497.97
-	-	484.90	106.89	-57.31	1585.94	-767.32	333.82	229.91	2741.45	-339.73
1	117	484.90	106.89	-57.31	1582.21	-776.70	333.82	229.91	2737.72	-349.12
-	-	529.62	105.97	-51.58	1574.53	-691.24	300.44	206.92	2717.47	-213.20
1	118	529.62	105.97	-51.58	1577.84	-699.12	300.44	206.92	2720.78	-221.08
-	-	553.62	102.87	-45.85	1529.87	-614.97	267.05	183.93	2637.35	-107.20
1	119	553.62	102.87	-45.85	1538.53	-621.62	267.05	183.93	2646.01	-113.84
-	-	556.92	97.61	-40.12	1458.98	-538.58	233.67	160.93	2508.11	-21.78
1	120	556.92	97.61	-40.12	1467.74	-544.18	233.67	160.93	2516.87	-27.38
-	-	539.50	90.18	-34.39	1355.78	-462.08	200.29	137.94	2323.69	43.03
1	121	539.50	90.18	-34.39	1376.95	-466.79	200.29	137.94	2344.86	38.32
-	-	501.36	80.58	-28.65	1208.80	-385.52	166.91	114.95	2072.60	87.19
1	122	501.36	80.58	-28.65	1236.24	-389.45	166.91	114.95	2100.04	83.26
-	-	442.52	68.80	-22.92	1033.12	-308.89	133.53	91.96	1769.92	110.70
1	123	442.52	68.80	-22.92	1063.31	-312.16	133.53	91.96	1800.12	107.43
-	-	362.96	54.86	-17.19	827.62	-232.23	100.15	68.97	1414.56	113.53
1	124	362.96	54.86	-17.19	857.70	-234.87	100.15	68.97	1444.64	110.89
-	-	262.69	38.74	-11.46	585.07	-155.50	66.76	45.98	999.25	95.72

1	125	262.69	42.72	-15.44	623.64	-157.46	66.76	45.98	1041.79	89.79
-	-	141.70	20.63	-5.90	308.74	-78.66	33.38	22.99	527.44	57.14
1	126	141.70	35.19	-20.46	348.78	-95.57	33.38	22.99	582.04	25.67
-	-	-0.00	0.11	-0.11	0.74	-0.74	0.00	0.00	0.85	-0.85
2	127	-0.00	0.11	-0.11	0.74	-0.74	0.00	0.00	0.86	-0.86
-	-	141.70	35.54	-20.57	351.05	-95.76	33.38	22.99	584.66	25.37
2	128	141.70	20.86	-5.89	310.73	-78.90	33.38	22.99	529.66	56.92
-	-	262.69	43.11	-15.34	627.90	-156.77	66.76	45.98	1046.44	90.58
2	129	262.69	39.10	-11.32	588.89	-156.01	66.76	45.98	1003.42	95.35
-	-	362.96	55.39	-16.99	863.99	-233.78	100.15	68.97	1451.46	112.19
2	130	362.96	55.39	-16.99	833.44	-233.00	100.15	68.97	1420.91	112.97
-	-	442.52	69.52	-22.65	1071.60	-310.66	133.53	91.96	1809.13	109.21
2	131	442.52	69.52	-22.65	1040.94	-309.93	133.53	91.96	1778.46	109.94
-	-	501.36	81.47	-28.31	1246.53	-387.53	166.91	114.95	2111.23	85.52
2	132	501.36	81.47	-28.31	1218.64	-386.82	166.91	114.95	2083.33	86.23
-	-	539.50	91.25	-33.97	1389.26	-464.47	200.29	137.94	2358.24	41.05
2	133	539.50	91.25	-33.97	1367.64	-463.66	200.29	137.94	2336.62	41.87
-	-	556.92	98.86	-39.64	1482.05	-541.45	233.67	160.93	2532.44	-24.17
2	134	556.92	98.86	-39.64	1472.87	-540.42	233.67	160.93	2523.25	-23.14
-	-	553.62	104.30	-45.30	1554.87	-618.48	267.05	183.93	2663.77	-110.16
2	135	553.62	104.30	-45.30	1545.80	-617.08	267.05	183.93	2654.71	-108.76
-	-	529.62	107.57	-50.96	1596.21	-695.58	300.44	206.92	2740.75	-216.92
2	136	529.62	107.57	-50.96	1592.52	-693.62	300.44	206.92	2737.06	-214.97
-	-	484.90	108.67	-56.62	1602.61	-772.76	333.82	229.91	2759.91	-344.49
2	137	484.90	108.67	-56.62	1606.02	-769.98	333.82	229.91	2763.31	-341.70
-	-	419.46	107.60	-62.29	1573.32	-850.07	367.20	252.90	2720.48	-492.89
2	138	419.46	107.60	-62.29	1581.46	-846.63	367.20	252.90	2728.62	-489.45
-	-	333.32	104.36	-67.95	1514.21	-927.53	400.58	275.89	2628.35	-662.16
2	139	333.32	104.36	-67.95	1528.03	-924.76	400.58	275.89	2642.17	-659.39
-	-	226.46	98.95	-73.61	1428.53	-1005.23	433.96	298.88	2486.78	-852.38
2	140	226.46	98.95	-73.61	1448.21	-1003.39	433.96	298.88	2506.46	-850.54
-	-	98.89	91.37	-79.27	1310.01	-1083.25	467.34	321.87	2289.47	-1063.63
2	141	98.89	91.37	-79.27	1328.77	-1082.72	467.34	321.87	2308.24	-1063.11
-	-	-49.40	81.61	-84.94	1160.41	-1161.73	500.73	344.86	2038.21	-1296.06
2	142	-49.40	81.61	-84.94	1189.26	-1163.06	500.73	344.86	2067.05	-1297.40
-	-	-218.40	69.69	-90.60	982.15	-1240.92	534.11	367.85	1735.40	-1549.91
2	143	-218.40	69.69	-90.60	1012.50	-1245.09	534.11	367.85	1765.75	-1554.09
-	-	-418.94	60.86	-102.65	765.01	-1325.39	569.29	392.08	1368.31	-1846.98
2	144	-418.94	56.74	-98.53	796.64	-1333.69	569.29	392.08	1395.81	-1851.16
-	-	-642.49	56.78	-121.86	625.08	-1525.50	604.47	416.31	1060.15	-2289.85
2	145	-642.49	45.29	-110.38	607.31	-1472.83	604.47	416.31	1030.91	-2225.70
-	-	-889.05	50.28	-141.08	513.97	-1769.66	639.66	440.55	755.41	-2799.79
2	146	-889.05	41.55	-132.34	539.33	-1755.58	639.66	440.55	772.03	-2776.97
-	-	-1158.61	48.21	-167.12	485.38	-2091.78	674.84	464.78	514.59	-3417.52
2	147	-1158.61	37.14	-156.05	485.49	-2064.80	674.84	464.78	503.64	-3379.46
-	-	-1451.19	51.91	-201.35	500.06	-2498.61	710.02	489.01	299.81	-4151.16
2	148	-1451.19	44.60	-194.04	502.55	-2519.70	710.02	489.01	294.99	-4164.93
-	-	-1154.18	32.31	-151.67	424.17	-1963.58	703.02	490.01	495.34	-3269.43
2	149	-1154.18	35.35	-154.71	428.17	-2021.16	703.02	490.01	502.37	-3330.05
-	-	-880.18	33.20	-124.88	420.51	-1580.96	696.02	491.02	760.57	-2586.02
2	150	-880.18	32.95	-124.63	395.41	-1622.34	696.02	491.02	735.22	-2627.15
-	-	-629.19	31.46	-97.87	428.51	-1259.75	689.02	492.03	1011.82	-1986.82
2	151	-629.19	37.20	-103.61	428.37	-1294.28	689.02	492.03	1017.41	-2027.09
-	-	-401.21	29.53	-73.10	450.96	-944.16	682.02	493.03	1254.33	-1418.47
2	152	-401.21	39.20	-82.76	451.65	-985.42	682.02	493.03	1264.69	-1469.39
-	-	-196.24	37.70	-60.82	573.89	-768.76	675.02	494.04	1584.41	-1025.83
2	153	-196.24	38.74	-61.86	532.03	-766.75	675.02	494.04	1543.58	-1024.85
-	-	-22.75	44.72	-49.53	754.09	-696.27	668.37	494.99	1939.41	-768.56
2	154	-22.75	44.46	-49.28	718.02	-696.43	668.37	494.99	1903.09	-768.46
-	-	129.95	56.82	-45.50	927.12	-642.42	661.71	495.95	2271.55	-557.96
2	155	129.95	57.65	-46.33	898.00	-643.33	661.71	495.95	2243.26	-559.71
-	-	261.87	72.30	-47.02	1143.24	-655.18	655.06	496.91	2629.38	-440.33
2	156	261.87	72.50	-47.22	1110.11	-653.01	655.06	496.91	2596.44	-438.36
-	-	373.00	86.19	-49.13	1320.69	-668.95	648.40	497.86	2926.14	-345.08
2	157	373.00	86.19	-49.13	1295.17	-667.46	648.40	497.86	2900.62	-343.59
-	-	463.35	97.96	-51.31	1474.16	-683.10	641.75	498.82	3176.03	-271.06
2	158	463.35	97.96	-51.31	1454.29	-682.09	641.75	498.82	3156.16	-270.06
-	-	532.90	107.55	-53.48	1604.77	-694.26	635.09	499.78	3380.10	-214.83
2	159	532.90	107.55	-53.48	1587.30	-696.86	635.09	499.78	3362.63	-217.43
-	-	581.68	114.97	-55.65	1693.58	-709.58	628.44	500.73	3519.39	-183.56
2	160	581.68	114.97	-55.65	1684.83	-711.73	628.44	500.73	3510.64	-185.70
-	-	609.66	120.20	-57.83	1756.20	-724.77	621.79	501.69	3609.54	-172.93
2	161	609.66	120.20	-57.83	1751.01	-726.68	621.79	501.69	3604.35	-174.85
-	-	616.86	123.26	-60.00	1795.87	-758.15	615.13	502.64	3653.78	-201.29
2	162	616.86	123.26	-60.00	1795.85	-756.32	615.13	502.64	3653.75	-199.45
-	-	603.27	124.14	-62.17	1800.48	-794.54	608.48	503.60	3639.97	-253.44

2	163	603.27	124.14	-62.17	1807.76	-792.44	608.48	503.60	3647.26	-251.34
-	-	568.90	122.85	-64.35	1770.23	-831.02	601.82	504.56	3568.36	-326.46
2	164	568.90	122.85	-64.35	1782.32	-828.43	601.82	504.56	3580.45	-323.88
-	-	513.74	119.37	-66.52	1716.40	-867.59	595.17	505.51	3450.20	-420.37
2	165	513.74	119.37	-66.52	1731.67	-864.27	595.17	505.51	3465.47	-417.04
-	-	437.80	113.72	-68.69	1633.60	-904.27	588.52	506.47	3280.10	-535.17
2	166	437.80	113.72	-68.69	1657.76	-904.18	588.52	506.47	3304.26	-535.08
-	-	341.06	105.89	-70.87	1517.26	-941.11	581.86	507.42	3053.49	-670.91
2	167	341.06	105.89	-70.87	1542.75	-941.61	581.86	507.42	3078.99	-671.41
-	-	223.55	96.06	-73.23	1370.29	-978.15	575.21	508.38	2773.49	-827.83
2	168	223.55	95.88	-73.04	1404.41	-979.48	575.21	508.38	2807.42	-828.97
-	-	85.24	84.48	-76.00	1201.19	-1016.86	568.55	509.34	2448.80	-1007.63
2	169	85.24	83.97	-75.49	1237.78	-1017.96	568.55	509.34	2484.88	-1008.21
-	-	-73.85	72.11	-80.18	1023.36	-1076.82	561.90	510.29	2093.82	-1230.85
2	170	-73.85	71.32	-79.38	1054.93	-1075.92	561.90	510.29	2124.59	-1229.15
-	-	-253.73	61.35	-88.13	832.04	-1156.03	555.24	511.25	1706.15	-1497.88
2	171	-253.73	62.22	-89.00	874.32	-1158.80	555.24	511.25	1749.30	-1501.53
-	-	-465.42	61.44	-110.26	712.22	-1351.54	548.24	512.26	1368.73	-1927.23
2	172	-465.42	52.63	-101.46	697.56	-1296.15	548.24	512.26	1345.27	-1863.02
-	-	-700.12	58.88	-132.16	641.62	-1624.25	541.24	513.26	1054.89	-2456.53
2	173	-700.12	48.81	-122.09	654.76	-1594.89	541.24	513.26	1057.95	-2417.09
-	-	-957.83	54.23	-154.38	600.23	-1948.85	534.24	514.27	745.14	-3061.06
2	174	-957.83	49.78	-149.93	622.37	-1921.82	534.24	514.27	762.83	-3029.57
-	-	-1238.55	54.96	-184.39	610.92	-2324.90	527.24	515.27	469.85	-3747.83
2	175	-1238.55	48.12	-177.55	606.46	-2281.45	527.24	515.27	458.55	-3697.54
-	-	-1542.27	61.42	-222.54	663.26	-2808.68	520.24	516.28	218.93	-4573.49
2	176	-1542.27	60.13	-221.25	664.38	-2808.29	520.24	516.28	218.76	-4571.82
-	-	-1241.91	47.14	-176.75	584.32	-2266.71	520.24	516.28	426.08	-3685.37
2	177	-1241.91	52.81	-182.42	590.05	-2312.74	520.24	516.28	437.48	-3737.07
-	-	-964.55	47.63	-148.15	586.34	-1896.41	520.24	516.28	705.95	-3009.10
2	178	-964.55	50.92	-151.44	560.12	-1922.40	520.24	516.28	683.01	-3038.38
-	-	-710.20	45.49	-119.32	609.51	-1560.32	520.24	516.28	981.32	-2389.84
2	179	-710.20	54.68	-128.51	594.99	-1588.64	520.24	516.28	975.99	-2427.35
-	-	-478.86	47.40	-96.96	636.56	-1245.89	520.24	516.28	1241.62	-1821.71
2	180	-478.86	56.29	-105.84	651.06	-1299.12	520.24	516.28	1265.01	-1883.82
-	-	-270.53	56.11	-83.80	794.66	-1094.96	520.24	516.28	1616.75	-1449.29
2	181	-270.53	55.33	-83.03	759.38	-1092.22	520.24	516.28	1580.71	-1445.78
-	-	-93.84	64.01	-73.16	973.04	-1007.18	520.24	516.28	1979.72	-1174.19

2	182	-93.84	64.63	-73.78	938.51	-1008.19	520.24	516.28	1945.82	-1175.81
-	-	62.05	77.20	-69.98	1156.91	-957.77	520.24	516.28	2332.68	-965.70
2	183	62.05	77.64	-70.42	1120.50	-955.80	520.24	516.28	2296.72	-964.16
-	-	197.16	91.05	-69.64	1345.79	-943.49	520.24	516.28	2670.52	-815.97
2	184	197.16	91.22	-69.81	1317.04	-941.25	520.24	516.28	2641.95	-813.90
-	-	311.49	103.00	-69.59	1512.41	-929.82	520.24	516.28	2963.42	-687.92
2	185	311.49	103.00	-69.59	1483.93	-928.41	520.24	516.28	2934.94	-686.51
-	-	405.03	112.77	-69.53	1638.28	-916.59	520.24	516.28	3192.61	-581.09
2	186	405.03	112.77	-69.53	1618.01	-915.78	520.24	516.28	3172.33	-580.28
-	-	477.78	120.37	-69.47	1740.50	-901.62	520.24	516.28	3375.17	-493.31
2	187	477.78	120.37	-69.47	1724.79	-903.31	520.24	516.28	3359.46	-494.99
-	-	529.75	125.79	-69.41	1818.75	-890.17	520.24	516.28	3510.80	-429.83
2	188	529.75	125.79	-69.41	1806.44	-890.95	520.24	516.28	3498.50	-430.62
-	-	560.93	129.03	-69.35	1857.06	-878.55	520.24	516.28	3583.53	-386.98
2	189	560.93	129.03	-69.35	1851.96	-878.70	520.24	516.28	3578.43	-387.13
-	-	571.32	130.09	-69.29	1865.72	-876.05	520.24	516.28	3603.64	-374.02
2	190	571.32	130.09	-69.29	1865.74	-876.05	520.24	516.28	3603.66	-374.02
-	-	560.93	128.97	-69.24	1851.62	-877.74	520.24	516.28	3578.03	-386.05
2	191	560.93	128.97	-69.24	1856.75	-878.03	520.24	516.28	3583.16	-386.34
-	-	529.75	125.67	-69.18	1805.78	-888.84	520.24	516.28	3497.72	-428.27
2	192	529.75	125.67	-69.18	1818.12	-888.98	520.24	516.28	3510.06	-428.41
-	-	477.78	120.20	-69.12	1723.80	-900.05	520.24	516.28	3358.30	-491.39
2	193	477.78	120.20	-69.12	1739.55	-899.74	520.24	516.28	3374.05	-491.08
-	-	405.03	112.55	-69.06	1616.70	-911.38	520.24	516.28	3170.79	-575.42
2	194	405.03	112.55	-69.06	1637.00	-911.87	520.24	516.28	3191.10	-575.91
-	-	311.49	102.72	-69.00	1482.29	-922.88	520.24	516.28	2933.02	-680.40
2	195	311.49	102.72	-69.00	1510.80	-924.01	520.24	516.28	2961.52	-681.52
-	-	197.16	90.88	-69.11	1315.08	-934.60	520.24	516.28	2639.64	-806.55
2	196	197.16	90.71	-68.94	1343.85	-936.62	520.24	516.28	2668.24	-808.40
-	-	62.05	77.27	-69.64	1118.21	-948.05	520.24	516.28	2294.05	-955.63
2	197	62.05	76.80	-69.17	1154.63	-949.88	520.24	516.28	2330.01	-956.99
-	-	-93.84	64.25	-72.93	936.16	-999.64	520.24	516.28	1943.09	-1166.41
2	198	-93.84	63.60	-72.28	970.86	-998.77	520.24	516.28	1977.14	-1164.89
-	-	-270.53	54.95	-82.11	757.44	-1083.39	520.24	516.28	1578.38	-1436.03
2	199	-270.53	55.73	-82.89	792.87	-1086.41	520.24	516.28	1614.59	-1439.82
-	-	-478.86	55.94	-104.90	649.53	-1290.05	520.24	516.28	1263.12	-1873.80
2	200	-478.86	47.05	-96.01	635.17	-1237.29	520.24	516.28	1239.88	-1812.16
-	-	-710.20	54.36	-127.53	589.01	-1579.45	520.24	516.28	969.69	-2417.18

2	201	-710.20	45.18	-118.35	608.50	-1551.76	520.24	516.28	980.00	-2380.30
-	-	-964.55	50.64	-150.43	559.38	-1913.31	520.24	516.28	681.98	-3028.29
2	202	-964.55	47.35	-147.14	585.70	-1887.89	520.24	516.28	705.02	-2999.58
-	-	-1241.91	52.56	-181.38	589.67	-2304.19	520.24	516.28	436.84	-3727.48
2	203	-1241.91	46.89	-175.71	584.03	-2258.14	520.24	516.28	425.53	-3675.76
-	-	-1542.27	60.35	-220.62	664.31	-2801.13	520.24	516.28	218.90	-4564.02
2	204	-1542.27	60.88	-221.15	663.09	-2804.56	520.24	516.28	218.21	-4567.98
-	-	-1238.55	48.20	-177.53	607.98	-2275.46	527.24	515.27	460.14	-3691.54
2	205	-1238.55	54.30	-183.62	611.24	-2323.88	527.24	515.27	469.50	-3746.05
-	-	-957.83	49.87	-150.68	623.84	-1920.16	534.24	514.27	764.40	-3028.66
2	206	-957.83	53.48	-154.28	600.90	-1951.46	534.24	514.27	745.06	-3063.57
-	-	-700.12	48.92	-123.60	656.41	-1597.55	541.24	513.26	1059.71	-2421.27
2	207	-700.12	58.22	-132.91	642.79	-1630.81	541.24	513.26	1055.40	-2463.84
-	-	-465.42	50.82	-101.80	699.50	-1302.95	548.24	512.26	1345.41	-1870.17
2	208	-465.42	60.89	-111.87	703.05	-1351.18	548.24	512.26	1359.02	-1928.47
-	-	-253.73	59.80	-89.49	865.64	-1158.30	555.24	511.25	1738.21	-1501.52
2	209	-253.73	60.91	-90.60	822.05	-1156.42	555.24	511.25	1695.73	-1500.75
-	-	-73.85	68.96	-79.52	1045.57	-1076.16	561.90	510.29	2112.87	-1229.53
2	210	-73.85	69.75	-80.31	1013.95	-1077.60	561.90	510.29	2082.04	-1231.76
-	-	85.24	81.95	-75.57	1229.00	-1018.30	568.55	509.34	2474.08	-1008.62
2	211	85.24	82.46	-76.08	1192.31	-1017.52	568.55	509.34	2437.91	-1008.36
-	-	223.55	94.16	-73.01	1395.71	-979.22	575.21	508.38	2797.01	-828.69
2	212	223.55	94.35	-73.20	1361.74	-978.22	575.21	508.38	2763.22	-827.88
-	-	341.06	104.47	-70.74	1534.29	-940.77	581.86	507.42	3069.11	-670.45
2	213	341.06	104.47	-70.74	1509.17	-940.60	581.86	507.42	3043.99	-670.28
-	-	437.80	112.61	-68.46	1649.66	-902.76	588.52	506.47	3295.05	-533.43
2	214	437.80	112.61	-68.46	1626.07	-903.19	588.52	506.47	3271.46	-533.86
-	-	513.74	118.57	-66.19	1724.05	-860.66	595.17	505.51	3457.03	-413.11
2	215	513.74	118.57	-66.19	1709.48	-865.92	595.17	505.51	3442.47	-418.37
-	-	568.90	122.34	-63.92	1775.24	-823.69	601.82	504.56	3572.87	-318.70
2	216	568.90	122.34	-63.92	1763.96	-828.77	601.82	504.56	3561.59	-323.79
-	-	603.27	123.94	-61.64	1801.28	-786.55	608.48	503.60	3640.58	-244.92
2	217	603.27	123.94	-61.64	1794.89	-791.71	608.48	503.60	3634.18	-250.08
-	-	616.86	123.37	-59.37	1790.02	-749.29	615.13	502.64	3648.02	-191.80
2	218	616.86	123.37	-59.37	1790.98	-754.73	615.13	502.64	3648.98	-197.23
-	-	609.66	120.61	-57.09	1745.85	-722.36	621.79	501.69	3599.59	-169.79
2	219	609.66	120.61	-57.09	1752.01	-716.51	621.79	501.69	3605.75	-163.93
-	-	581.68	115.67	-54.82	1680.36	-706.81	628.44	500.73	3506.88	-179.95

2	220	581.68	115.67	-54.82	1690.10	-700.19	628.44	500.73	3516.62	-173.33
-	-	532.90	108.56	-52.54	1583.53	-691.35	635.09	499.78	3359.87	-210.99
2	221	532.90	108.56	-52.54	1602.01	-683.74	635.09	499.78	3378.35	-203.38
-	-	463.35	99.27	-50.27	1451.23	-675.99	641.75	498.82	3154.41	-262.91
2	222	463.35	99.27	-50.27	1472.11	-677.22	641.75	498.82	3175.29	-264.14
-	-	373.00	87.80	-47.99	1292.83	-660.74	648.40	497.86	2899.89	-335.73
2	223	373.00	87.80	-47.99	1319.35	-662.40	648.40	497.86	2926.42	-337.39
-	-	261.87	74.43	-46.00	1108.48	-645.65	655.06	496.91	2596.74	-429.78
2	224	261.87	74.23	-45.79	1142.61	-647.92	655.06	496.91	2630.67	-431.84
-	-	129.95	59.89	-45.00	897.11	-635.34	661.71	495.95	2244.61	-550.40
2	225	129.95	59.05	-44.16	927.17	-634.39	661.71	495.95	2273.83	-548.60
-	-	-22.75	47.03	-47.87	718.02	-687.94	668.37	494.99	1905.65	-758.56
2	226	-22.75	46.83	-47.68	754.99	-687.59	668.37	494.99	1942.43	-758.02
-	-	-196.24	39.34	-58.09	532.97	-757.75	675.02	494.04	1545.12	-1012.08
2	227	-196.24	40.27	-59.02	575.72	-759.35	675.02	494.04	1588.80	-1014.61
-	-	-401.21	39.84	-79.78	453.52	-975.81	682.02	493.03	1267.19	-1456.80
2	228	-401.21	31.43	-71.37	446.01	-926.06	682.02	493.03	1251.27	-1398.64
-	-	-629.19	37.88	-101.42	423.83	-1276.62	689.02	492.03	1013.56	-2007.24
2	229	-629.19	31.49	-95.04	428.91	-1243.85	689.02	492.03	1012.26	-1968.08
-	-	-880.18	33.65	-123.21	395.01	-1606.97	696.02	491.02	735.52	-2610.36
2	230	-880.18	33.25	-122.81	423.48	-1566.34	696.02	491.02	763.59	-2569.33
-	-	-1154.18	35.55	-153.53	431.85	-2007.73	703.02	490.01	506.26	-3315.45
2	231	-1154.18	32.37	-150.36	424.47	-1943.74	703.02	490.01	495.70	-3248.28
-	-	-1451.19	44.30	-193.12	502.92	-2500.25	710.02	489.01	295.05	-4144.56
2	232	-1451.19	50.85	-199.68	500.42	-2474.45	710.02	489.01	299.12	-4125.31
-	-	-1158.61	37.49	-156.70	491.73	-2060.49	674.84	464.78	510.23	-3375.81
2	233	-1158.61	47.45	-166.66	485.62	-2075.41	674.84	464.78	514.07	-3400.68
-	-	-889.05	41.16	-133.17	538.58	-1751.61	639.66	440.55	770.90	-2773.82
2	234	-889.05	50.39	-142.39	518.58	-1765.43	639.66	440.55	760.12	-2796.87
-	-	-642.49	44.18	-111.40	599.36	-1468.93	604.47	416.31	1021.84	-2222.81
2	235	-642.49	55.89	-123.11	621.93	-1521.42	604.47	416.31	1056.13	-2287.02
-	-	-418.94	54.87	-99.70	781.34	-1329.91	569.29	392.08	1378.64	-1848.55
2	236	-418.94	58.99	-103.82	753.81	-1321.49	569.29	392.08	1355.23	-1844.26
-	-	-218.40	66.83	-91.70	989.41	-1241.46	534.11	367.85	1739.81	-1551.55
2	237	-218.40	66.83	-91.70	961.44	-1237.23	534.11	367.85	1711.83	-1547.32
-	-	-49.40	78.94	-85.96	1170.08	-1159.60	500.73	344.86	2045.20	-1294.96
2	238	-49.40	78.94	-85.96	1142.00	-1158.25	500.73	344.86	2017.12	-1293.61
-	-	98.89	88.87	-80.23	1312.01	-1079.45	467.34	321.87	2288.98	-1060.80

2	239	98.89	88.87	-80.23	1293.42	-1079.99	467.34	321.87	2270.39	-1061.33
-	-	226.46	96.63	-74.50	1433.49	-1000.32	433.96	298.88	2489.42	-848.37
2	240	226.46	96.63	-74.50	1413.49	-1002.19	433.96	298.88	2469.41	-850.23
-	-	333.32	102.22	-68.77	1515.06	-921.91	400.58	275.89	2627.06	-657.36
2	241	333.32	102.22	-68.77	1500.53	-924.72	400.58	275.89	2612.54	-660.18
-	-	419.46	105.64	-63.04	1570.03	-844.00	367.20	252.90	2715.23	-487.57
2	242	419.46	105.64	-63.04	1560.89	-847.49	367.20	252.90	2706.09	-491.06
-	-	484.90	106.89	-57.31	1595.98	-773.79	333.82	229.91	2751.49	-346.20
2	243	484.90	106.89	-57.31	1591.36	-770.42	333.82	229.91	2746.87	-342.83
-	-	529.62	105.97	-51.58	1583.76	-697.02	300.44	206.92	2726.69	-218.98
2	244	529.62	105.97	-51.58	1586.07	-693.47	300.44	206.92	2729.01	-215.43
-	-	553.62	102.87	-45.85	1538.23	-620.08	267.05	183.93	2645.70	-112.31
2	245	553.62	102.87	-45.85	1545.81	-616.61	267.05	183.93	2653.28	-108.83
-	-	556.92	97.61	-40.12	1466.42	-543.02	233.67	160.93	2515.56	-26.22
2	246	556.92	97.61	-40.12	1474.04	-539.82	233.67	160.93	2523.18	-23.02
-	-	539.50	90.18	-34.39	1362.28	-465.86	200.29	137.94	2330.19	39.25
2	247	539.50	90.18	-34.39	1382.27	-463.07	200.29	137.94	2350.18	42.04
-	-	501.36	80.58	-28.65	1214.33	-388.64	166.91	114.95	2078.13	84.07
2	248	501.36	80.58	-28.65	1240.55	-386.38	166.91	114.95	2104.35	86.33
-	-	442.52	68.80	-22.92	1037.66	-311.36	133.53	91.96	1774.47	108.23
2	249	442.52	68.80	-22.92	1066.61	-309.74	133.53	91.96	1803.42	109.85
-	-	362.96	54.86	-17.19	831.17	-234.05	100.15	68.97	1418.10	111.72
2	250	362.96	54.86	-17.19	859.99	-233.10	100.15	68.97	1446.92	112.66
-	-	262.69	38.74	-11.46	587.60	-156.68	66.76	45.98	1001.77	94.55
2	251	262.69	42.72	-15.44	624.93	-156.33	66.76	45.98	1043.08	90.91
-	-	141.70	20.63	-5.90	308.74	-79.19	33.38	22.99	527.44	56.61
2	252	141.70	35.19	-20.46	348.86	-95.57	33.38	22.99	582.12	25.67
-	-	0.00	0.11	-0.11	0.74	-0.74	-0.00	0.00	0.85	-0.85

Envolvente de Reacciones

Nudo	Carga	S.C.	S.C.	Carro	Carro	Carga	Acc.	Total	Total
	Perman.	Máxima	Mínima	Máxima	Mínima	Térmica	Reológica	Máxima	Mínima
4	96.543	31.083	-20.888	271.335	-110.048	21.195	7.299	427.456	-34.393
7	96.543	31.083	-20.888	271.346	-110.048	21.195	7.299	427.466	-34.393
133	369.032	92.686	-54.718	688.701	-202.242	-25.412	-6.996	1150.419	79.664
136	369.032	92.686	-54.718	688.621	-202.242	-25.412	-6.996	1150.340	79.664
303	377.774	99.785	-60.989	722.564	-234.492	4.217	-0.303	1204.341	81.991
306	377.774	99.785	-60.989	722.689	-234.492	4.217	-0.303	1204.466	81.991
473	377.774	100.293	-61.260	733.764	-236.444	4.217	-0.303	1216.049	79.767
476	377.774	100.293	-61.260	733.764	-236.444	4.217	-0.303	1216.049	79.767
643	369.032	90.788	-53.645	679.357	-200.198	-25.412	-6.996	1139.177	82.782
646	369.032	90.788	-53.645	679.357	-200.198	-25.412	-6.996	1139.178	82.782
772	96.543	30.792	-20.754	269.589	-109.564	21.195	7.299	425.418	-33.774
775	96.543	30.792	-20.754	269.589	-109.564	21.195	7.299	425.418	-33.774

A continuación se adjuntan los cálculos correspondientes a la Losa entre los PP.KK. 400+229 y 400+399.

4.2. CÁLCULO

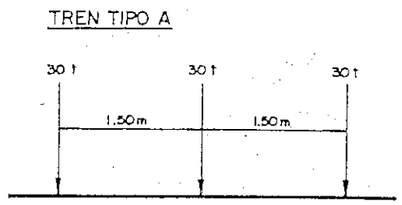
La losa se estudia mediante un modelo de elementos finitos tipo Shell4T representativo de los diferentes módulos que la forman. El programa de cálculo utilizado para ello es el programa "CosmosM", que determina los esfuerzos actuantes para los diferentes estados de carga.

Se han utilizado como trenes de carga tanto el Modelo de Carga 71 del EC 1.3., como el Tren tipo A de la IPF-75. Como muestran los resultados posteriores el tren tipo A es más desfavorable que el de Eurocódigo, por lo que se ha realizado un número mayor de hipótesis de carga con este tren.

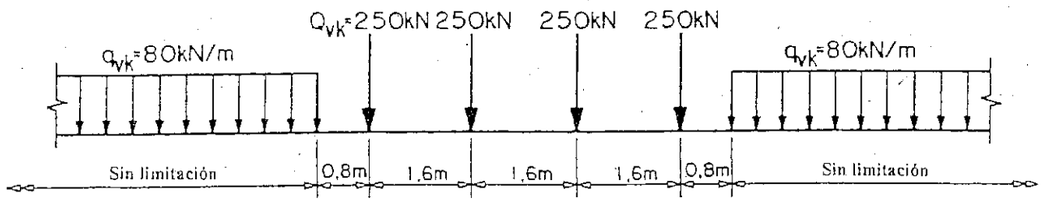
Se realizaron dos cálculos, uno con un coeficiente de balasto constante en toda la losa, de valor 10.000 kN/cm^3, y otro considerando un coeficiente diez veces mayor el tercio central de la losa, teniendo así en cuenta el diferente grado de compactación que puede tener el terreno.

A continuación se muestran los resultados obtenidos, así como las características de los modelos utilizados.

TRENES DE CARGA



TREN TIPO A (IPF-75)



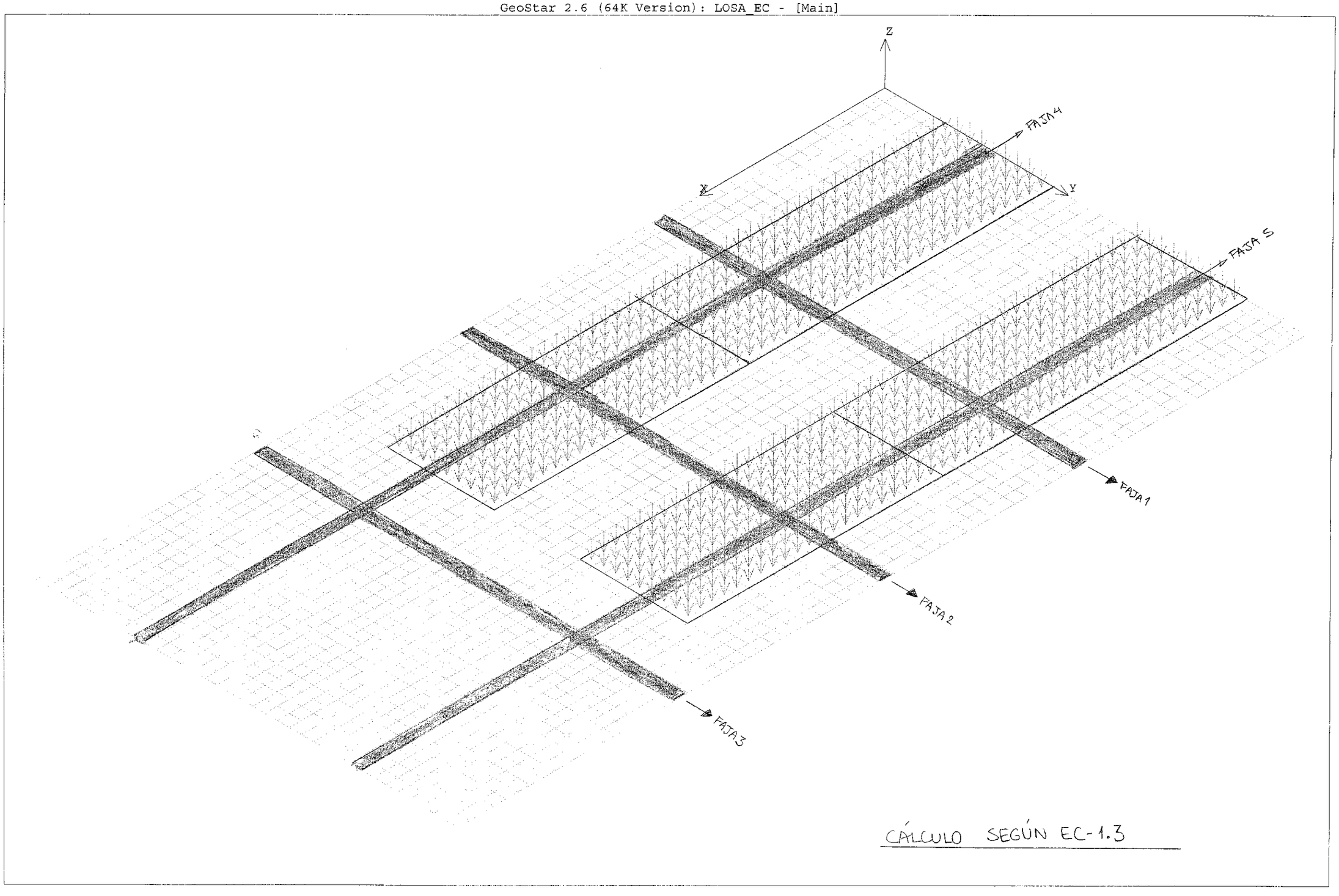
MODELO DE CARGA 71 (EC1.3)

TRAMO: RÍO LLOBREGAT - COSTA BLANCA

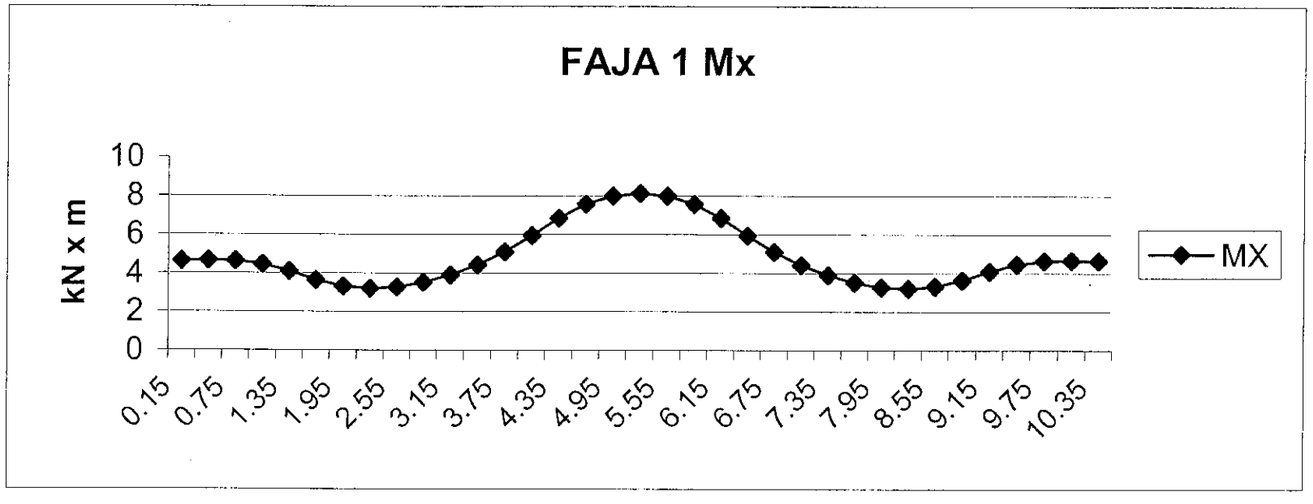
ACONDICIONAMIENTO DE LAS ESTRUCTURAS DEL CRUCE CON N-II Y BV-1201

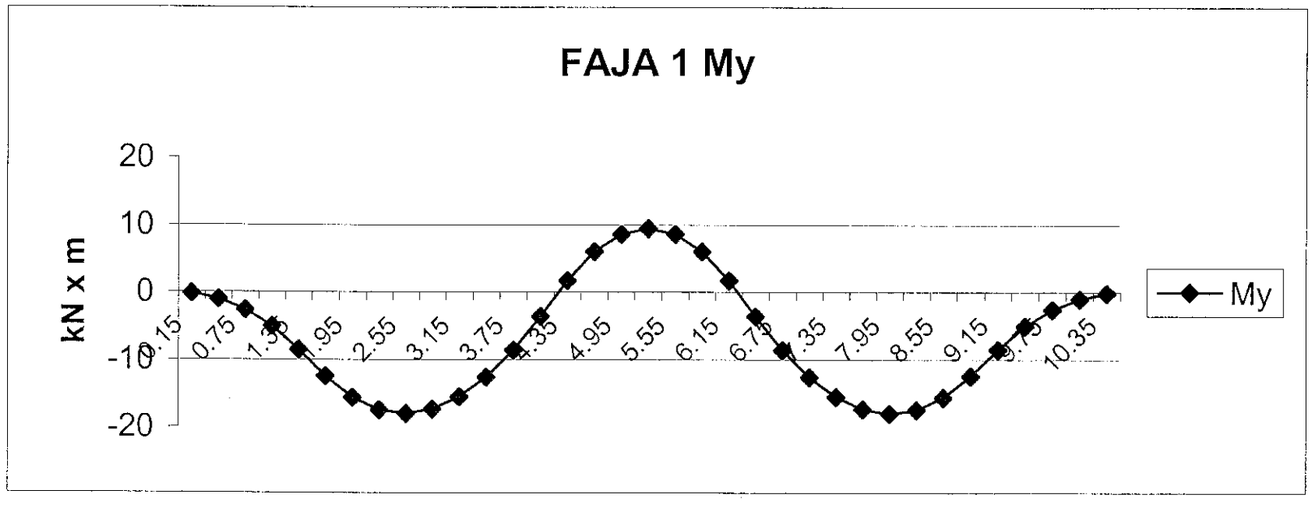
4.2.1. CÁLCULO 1

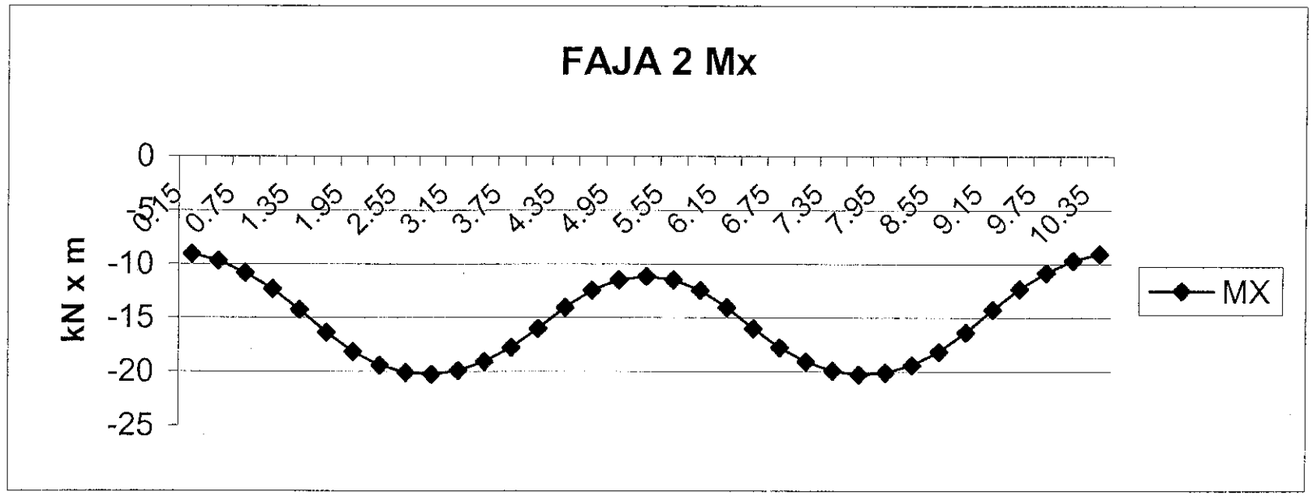
GeoStar 2.6 (64K Version): LOSA_EC - [Main]

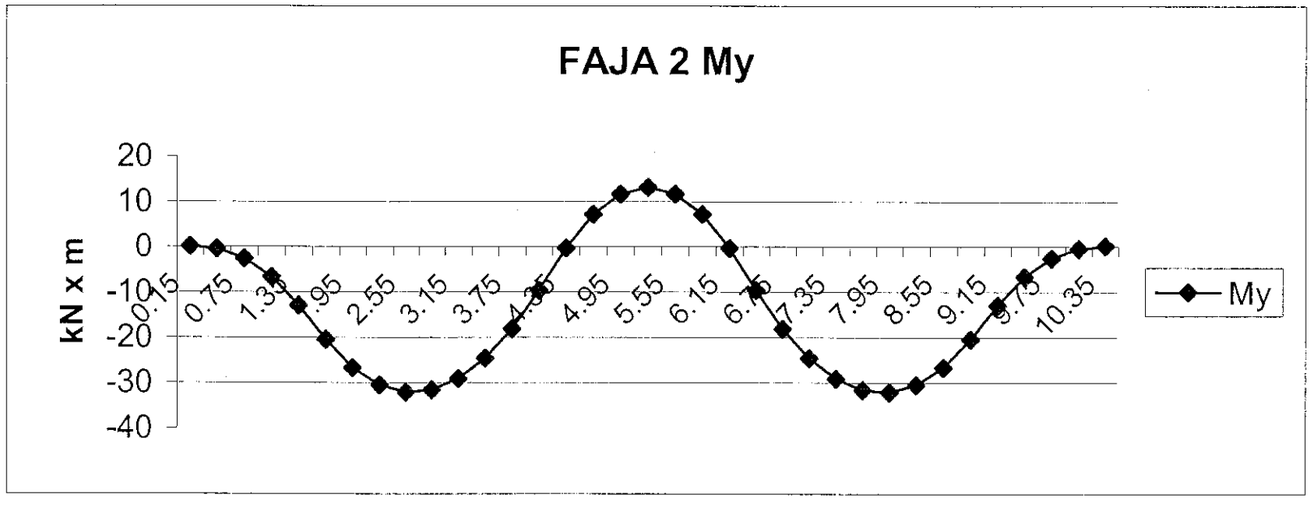


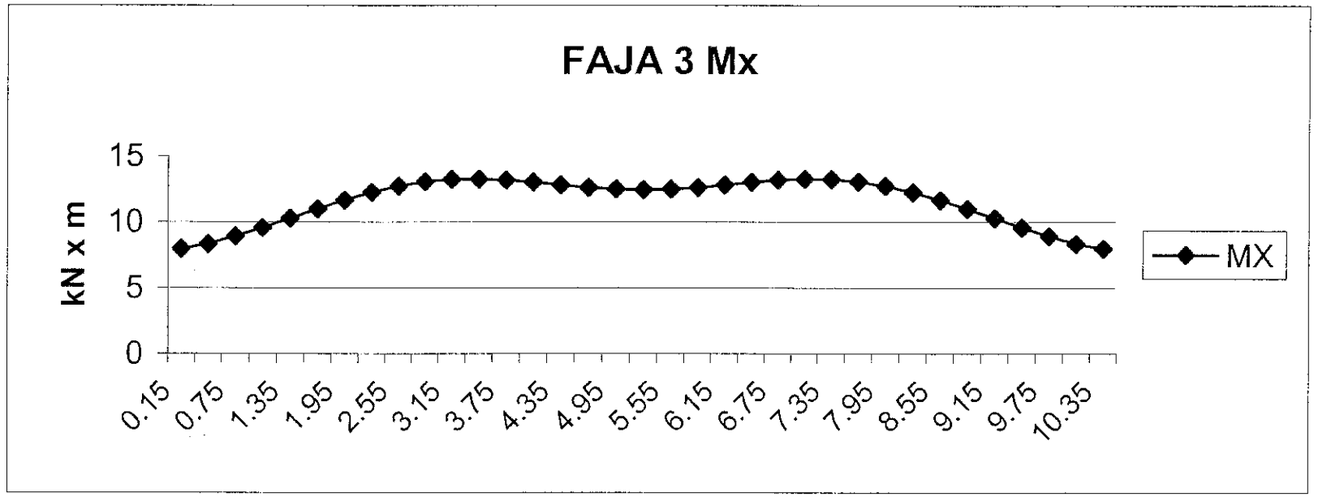
CÁLCULO SEGÚN EC-1.3

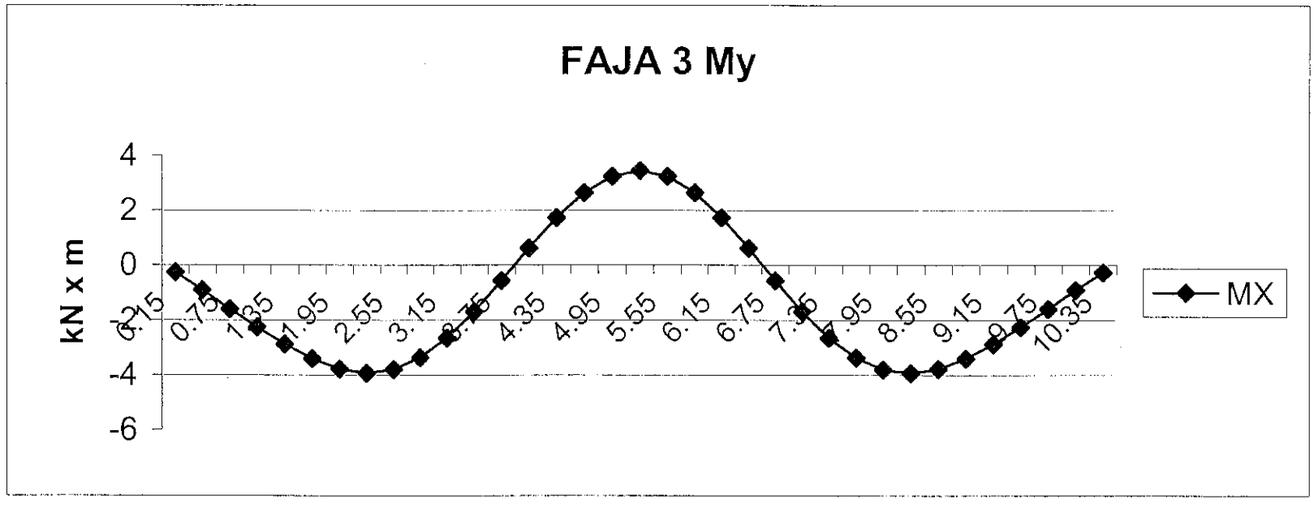

FAJA 1 Mx
kN x m
10
8
6
4
2
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
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9.75
10.35
MX

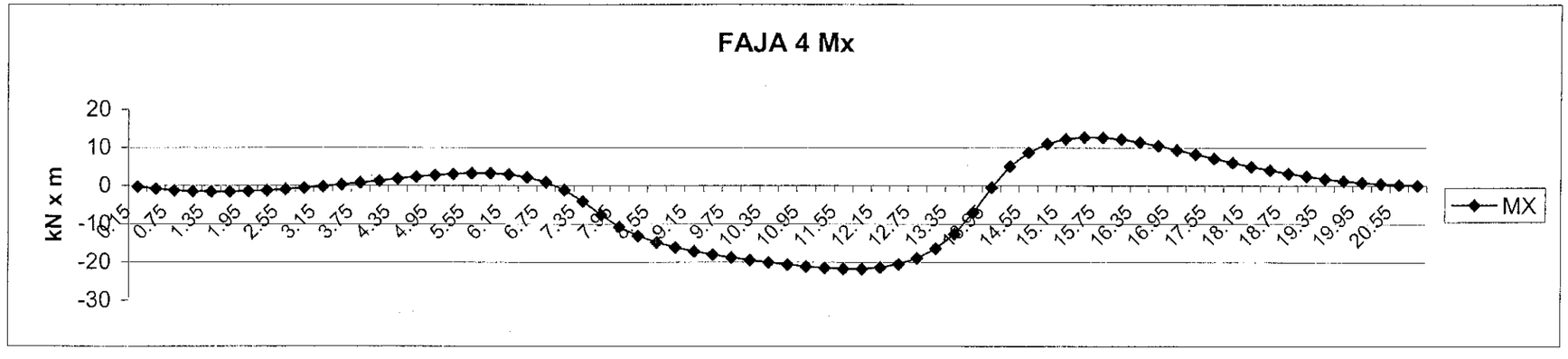

FAJA 1 My
kN x m
20
10
0
-10
-20
0.15
0.75
2.55
3.15
3.75
4.95
5.55
6.15
7.95
8.55
9.15
10.35
My

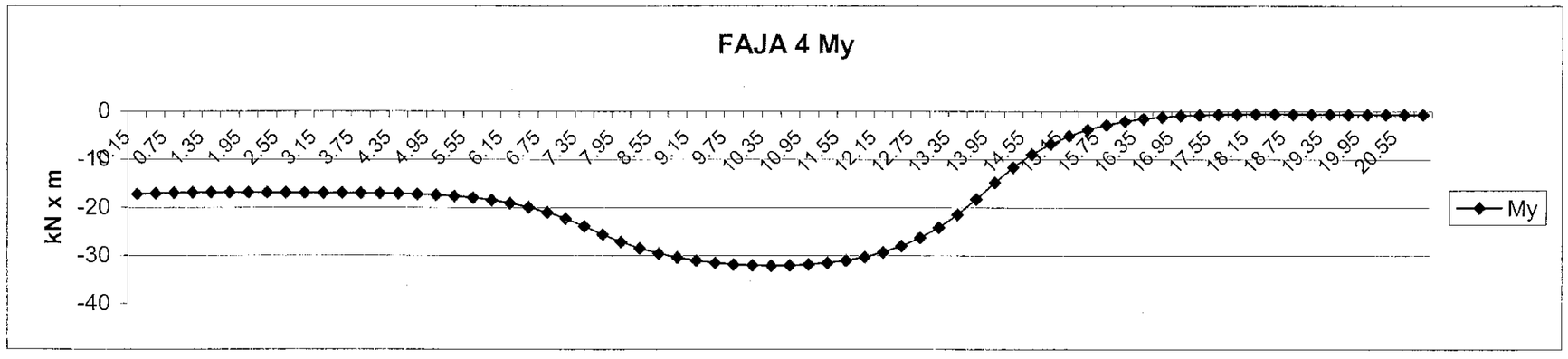

FAJA 2 Mx
kN x m
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-10
-15
-20
-25
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
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9.75
10.35
MX

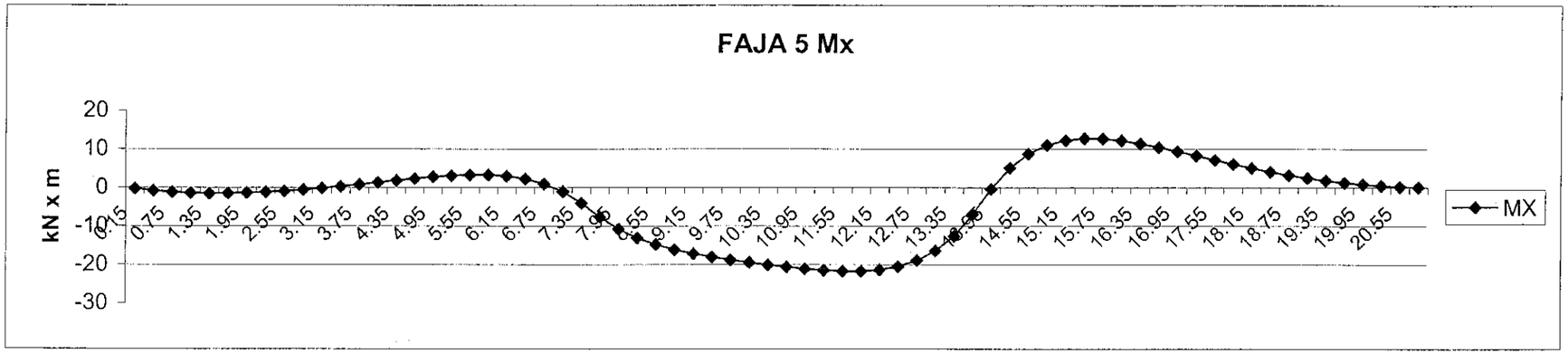

FAJA 2 My
kN x m
20
10
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
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8.55
9.15
9.75
10.35
My

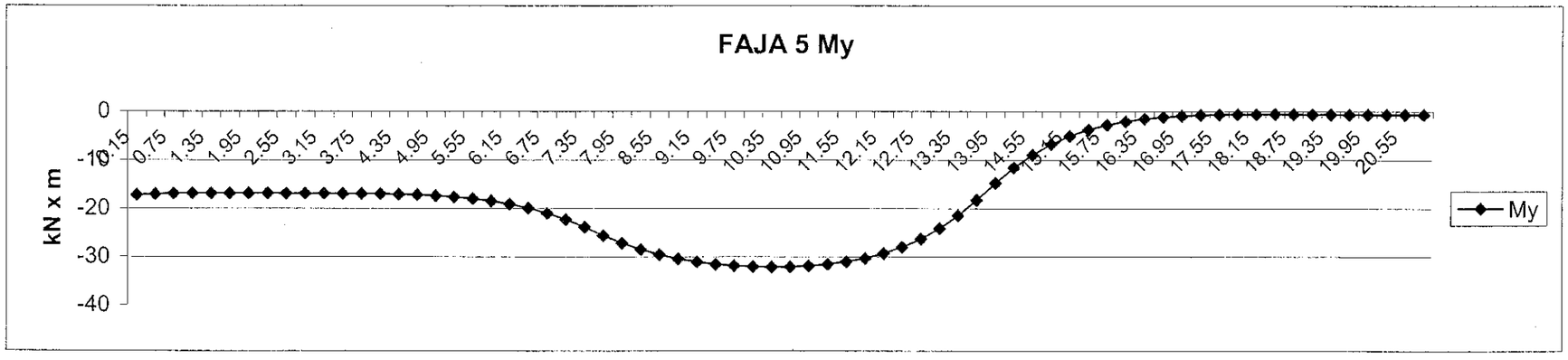

FAJA 3 Mx
kN x m
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 3 My
kN x m
4
2
0
-2
-4
-6
0.15
0.75
1.35
1.95
2.55
3.15
3.75
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6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

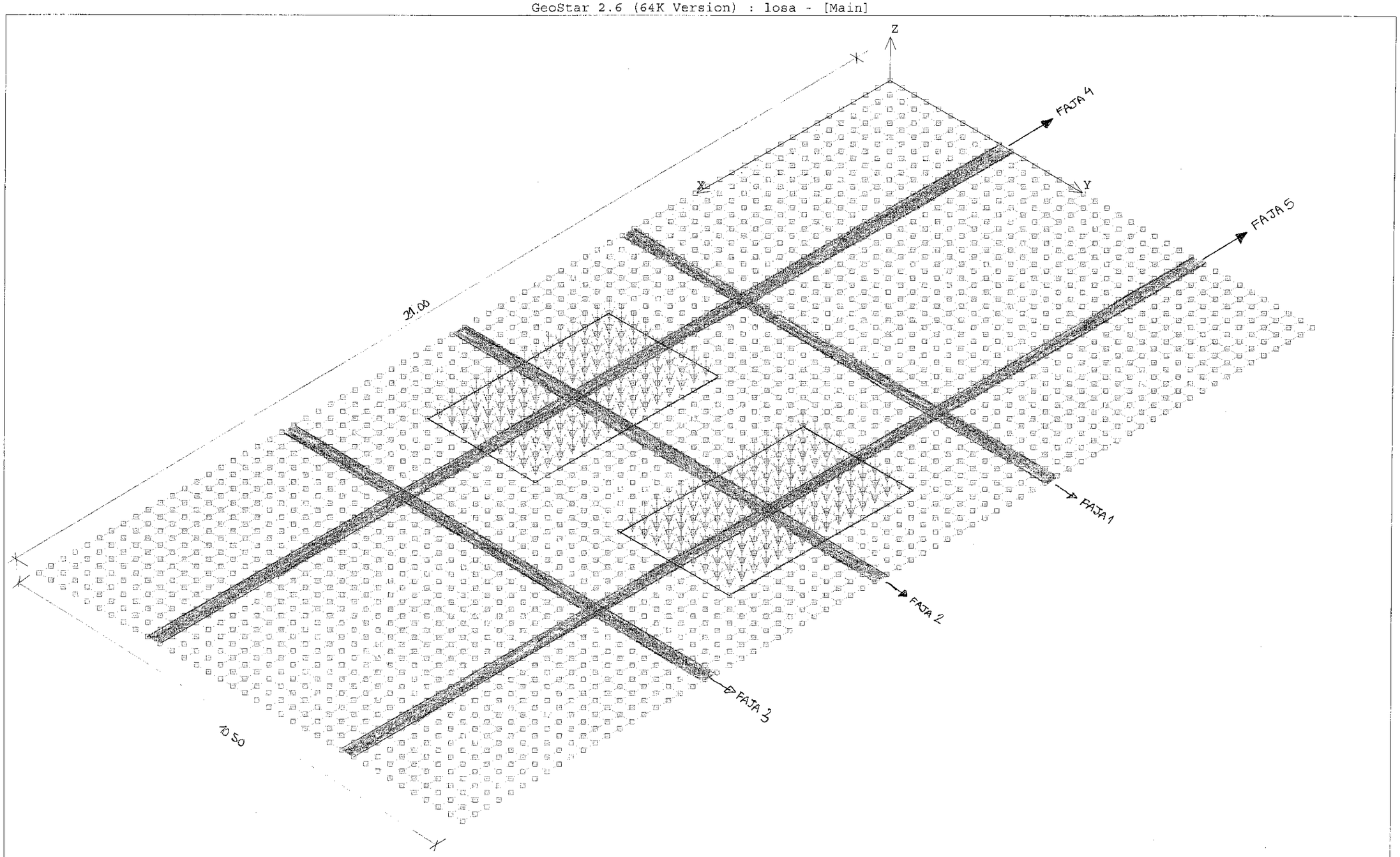

FAJA 4 Mx
kN x m
20
10
0
-10
-20
-30
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX


FAJA 4 My
kN x m
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
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12.75
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My

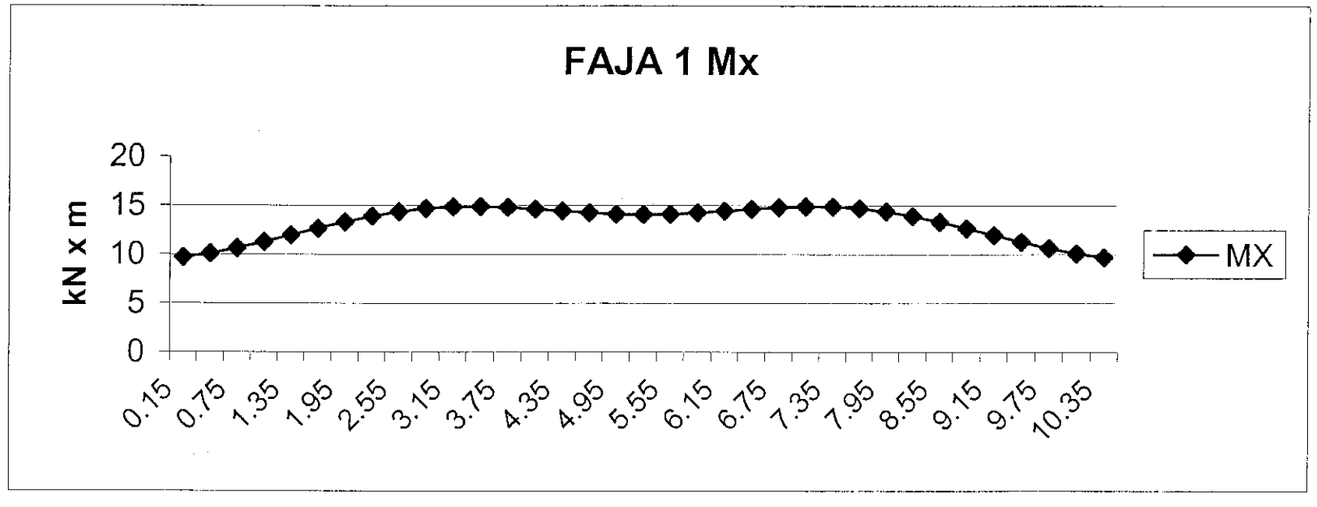

FAJA 5 Mx
kN x m
20
10
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-10
-20
-30
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
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9.15
9.75
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10.95
11.55
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13.35
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MX

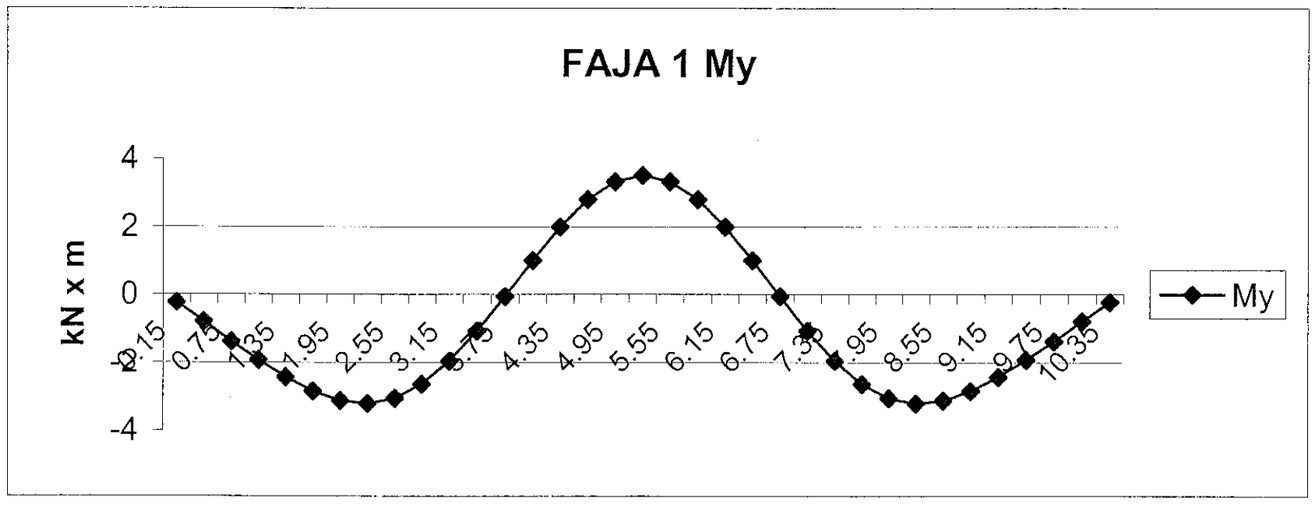

FAJA 5 My
kN x m
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
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9.15
9.75
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11.55
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13.35
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20.55
My

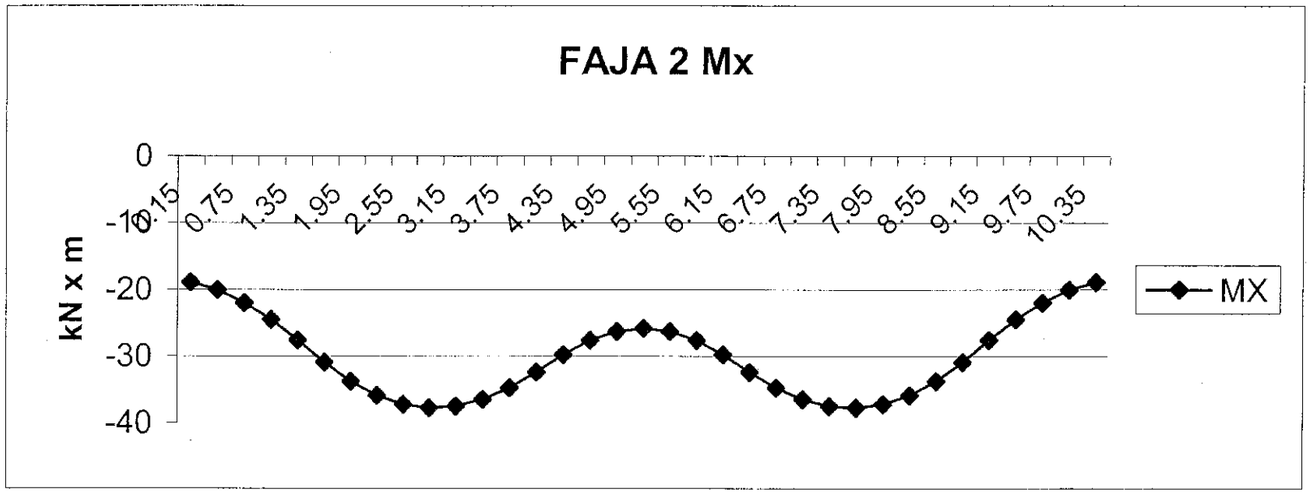
GeoStar 2.6 (64K Version) : losa - [Main]

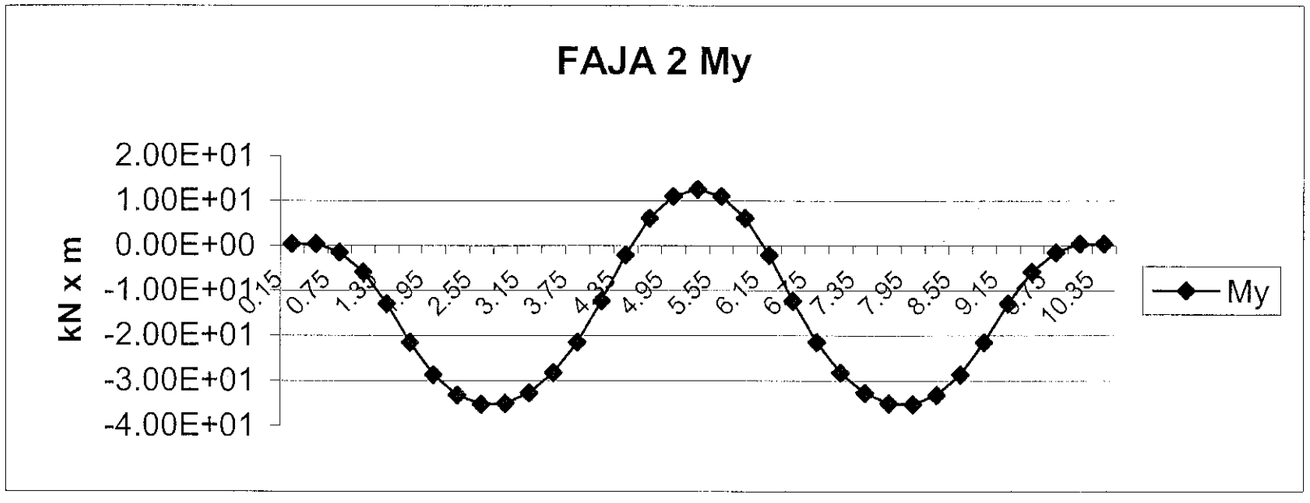


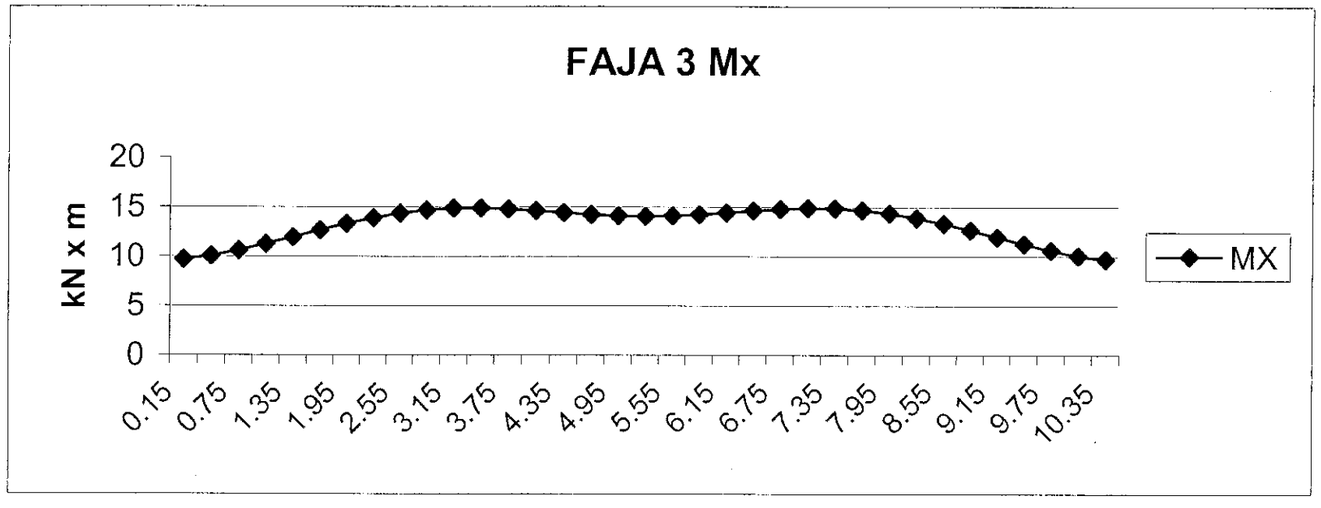
HIPÓTESIS DE CARGA Nº 1 (IPF-75)

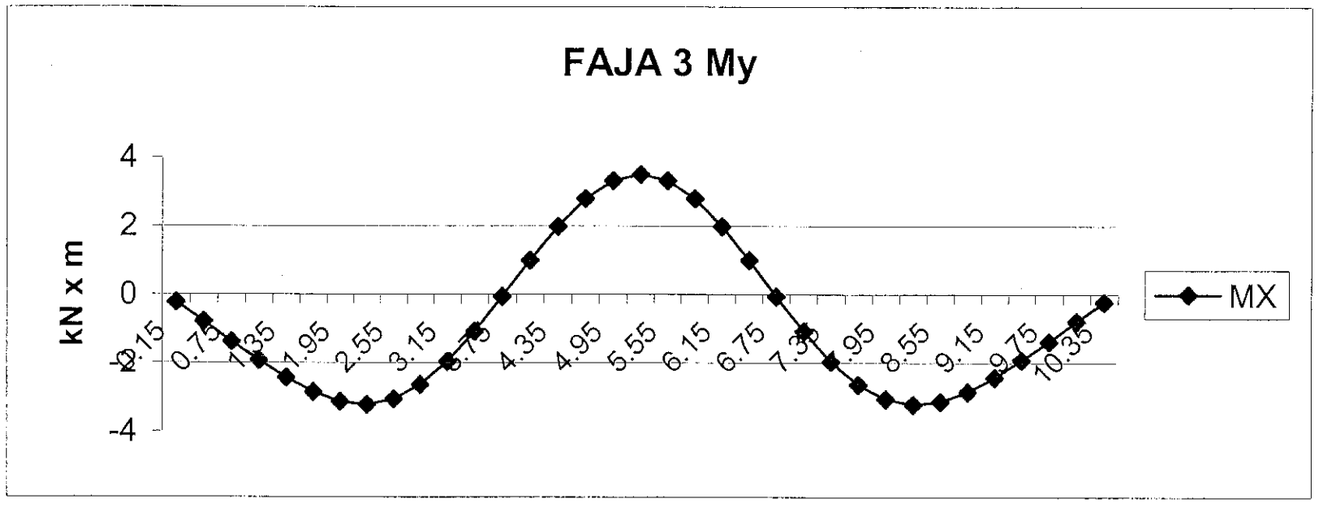

FAJA 1 Mx
kN x m
20
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

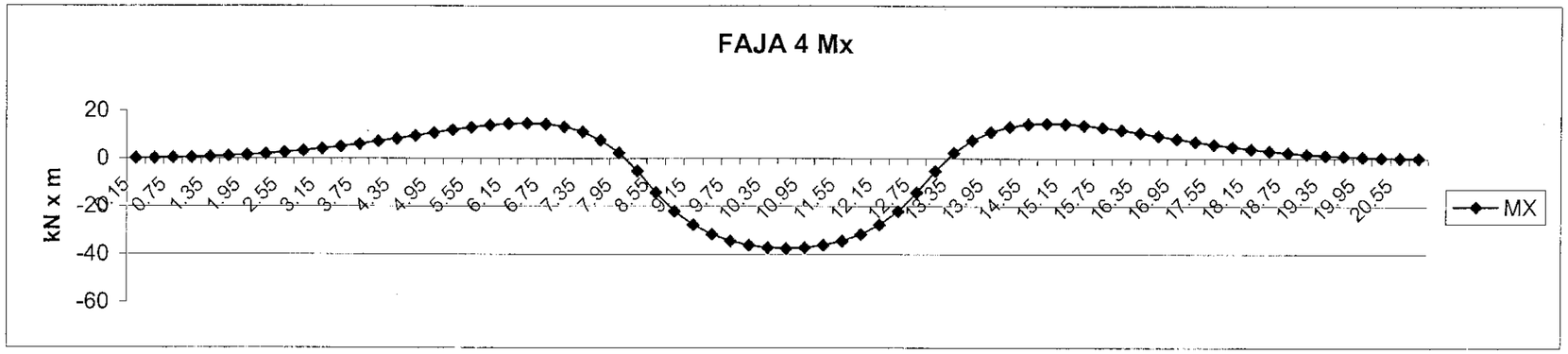

FAJA 1 My
kN x m
4
2
0
-4
0.15
0.75
1.35
1.95
2.55
3.15
4.35
4.95
5.55
6.15
6.75
8.55
9.15
9.75
10.35
My

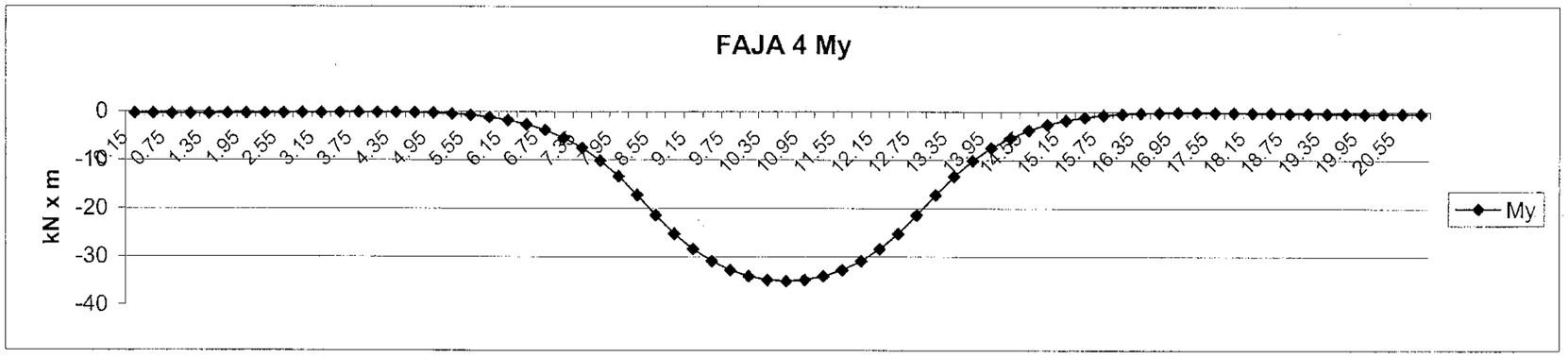

FAJA 2 Mx
kN x m
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

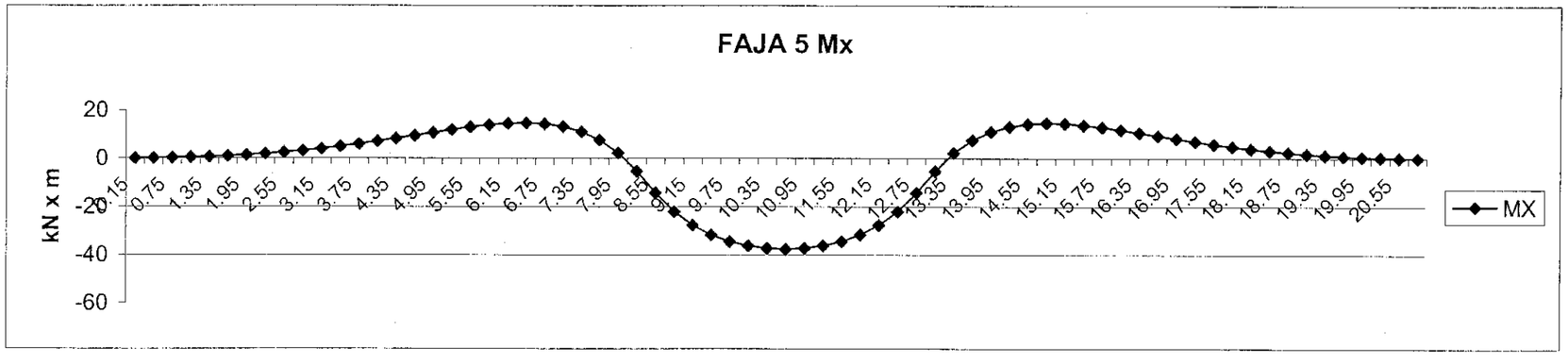

FAJA 2 My
kN x m
2.00E+01
1.00E+01
0.00E+00
-1.00E+01
-2.00E+01
-3.00E+01
-4.00E+01
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

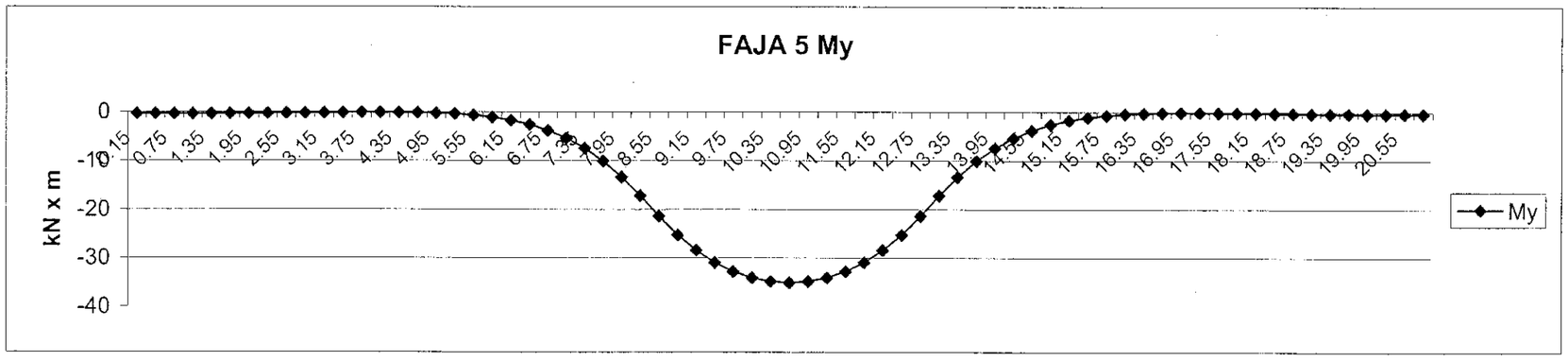

FAJA 3 Mx
kN x m
20
15
10
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0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

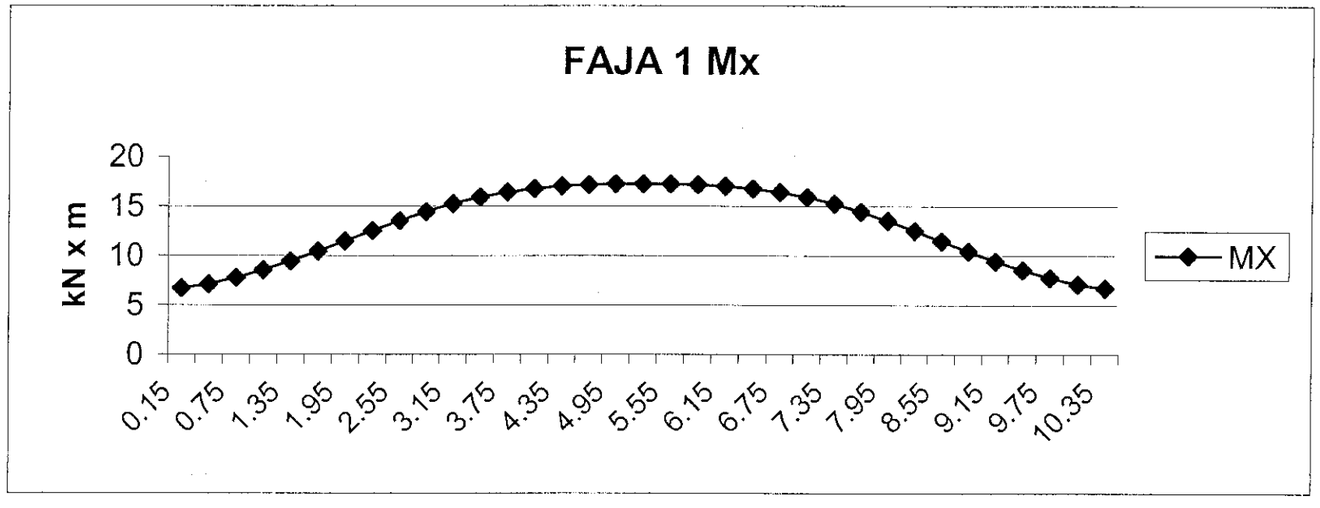

FAJA 3 My
kN x m
4
2
0
-2
-4
0.15
0.75
1.35
1.95
2.55
3.15
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4.35
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5.55
6.15
6.75
7.35
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8.55
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9.75
10.35
MX

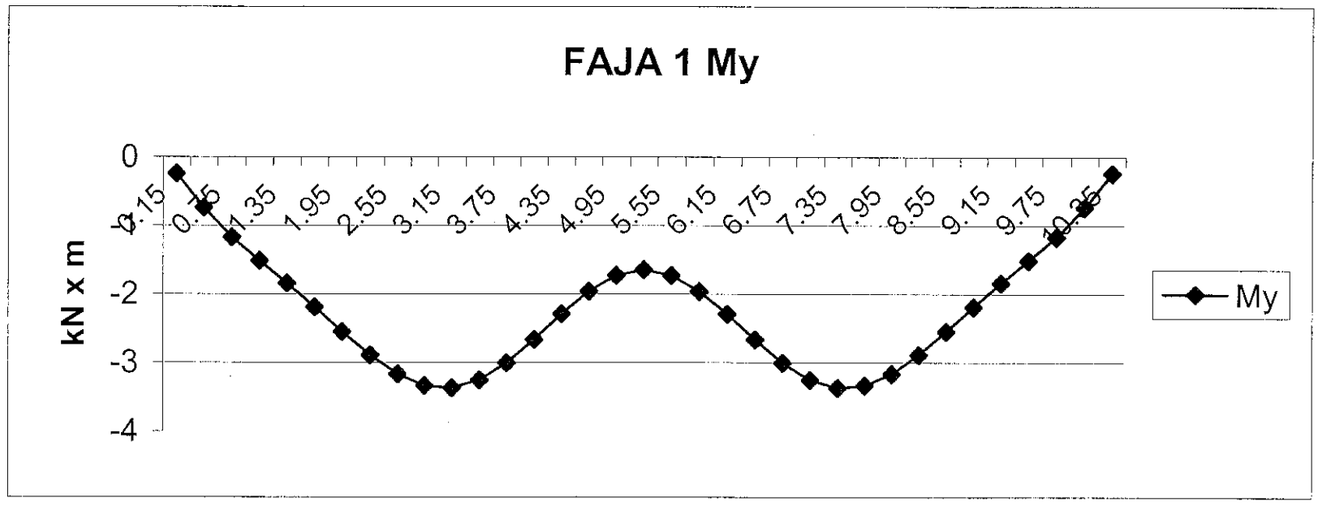

FAJA 4 Mx
kN x m
20
0
-20
-40
-60
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
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6.15
6.75
7.35
7.95
8.55
9.15
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10.35
10.95
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MX

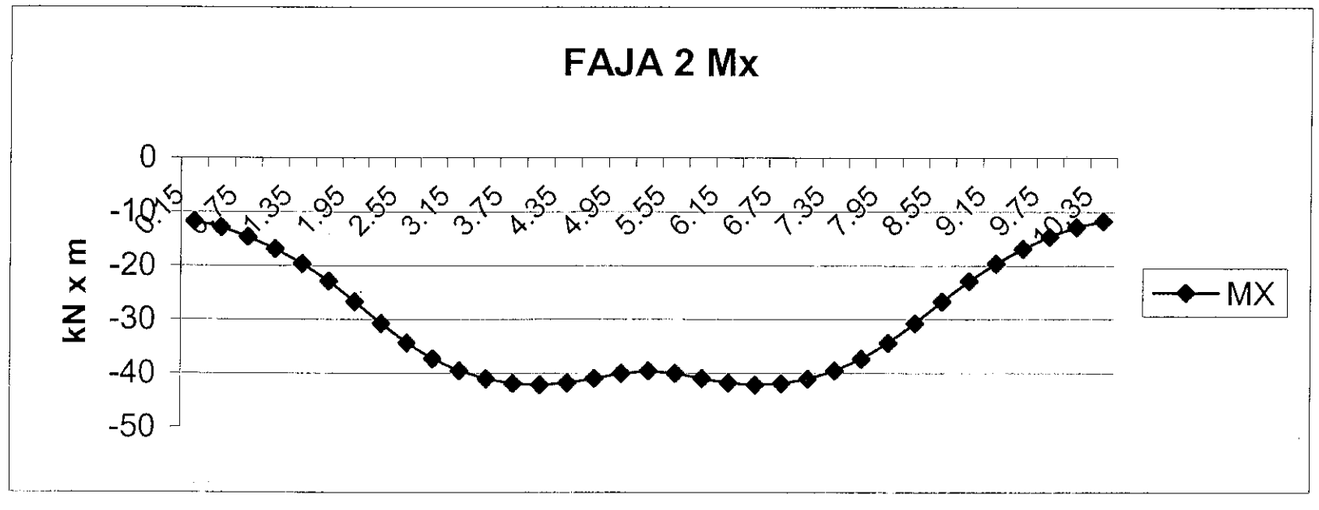

FAJA 4 My
kN x m
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
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6.75
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7.95
8.55
9.15
9.75
10.35
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11.55
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12.75
13.35
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16.95
17.55
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18.75
19.35
19.95
20.55
My

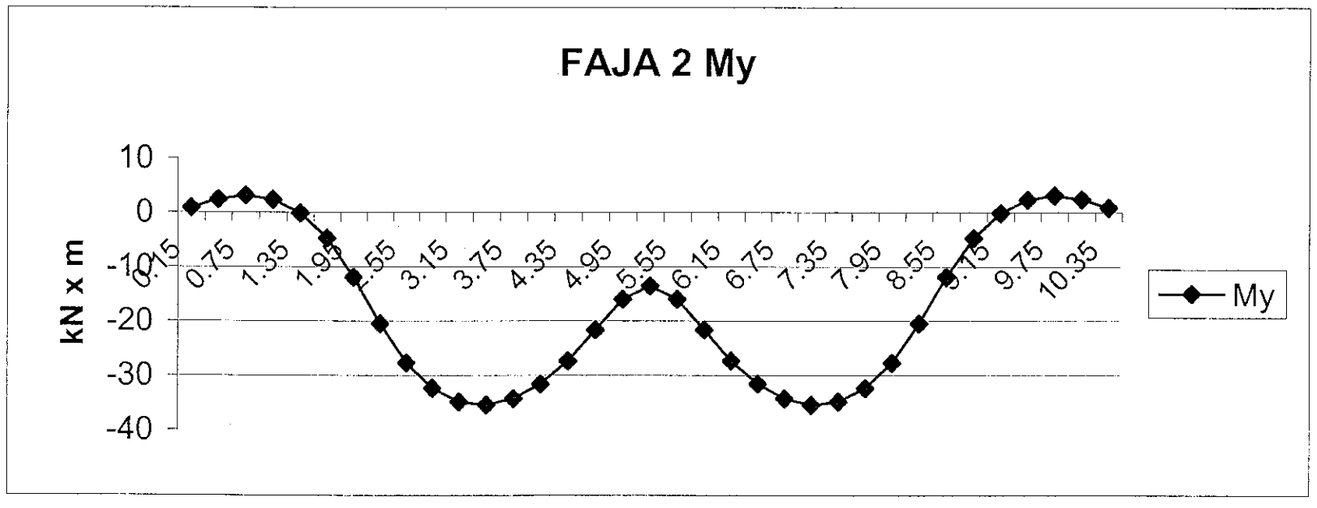

FAJA 5 Mx
kN x m
20
0
-20
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0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
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8.55
9.15
9.75
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11.55
12.15
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13.35
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MX

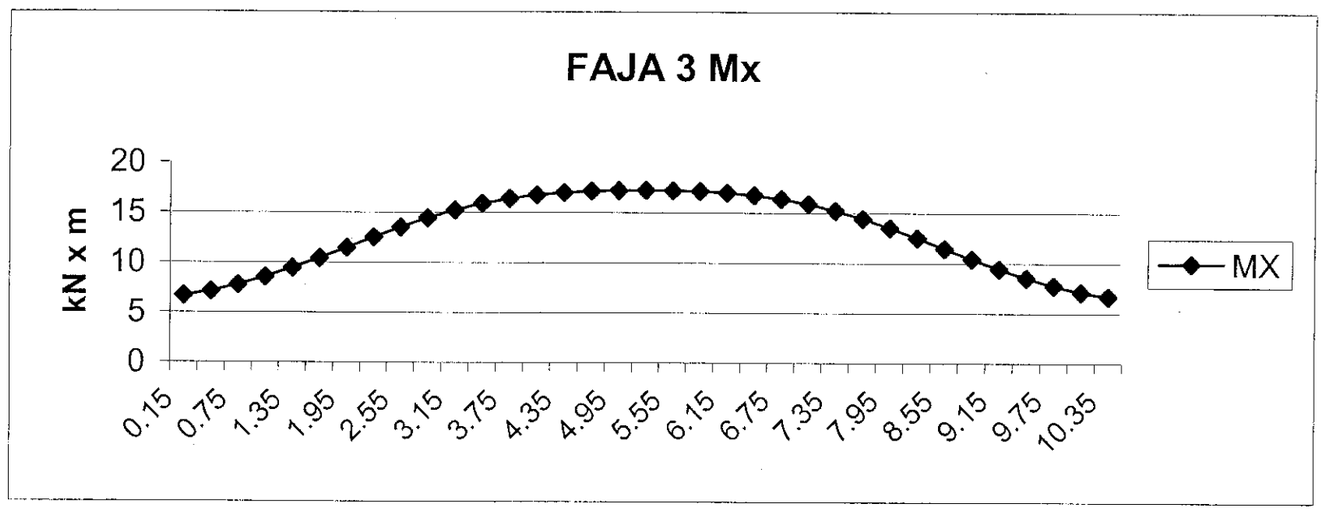

FAJA 5 My
kN x m
0
-10
-20
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-40
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0.75
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1.95
2.55
3.15
3.75
4.35
4.95
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7.35
7.95
8.55
9.15
9.75
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11.55
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16.95
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18.75
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19.95
20.55
My

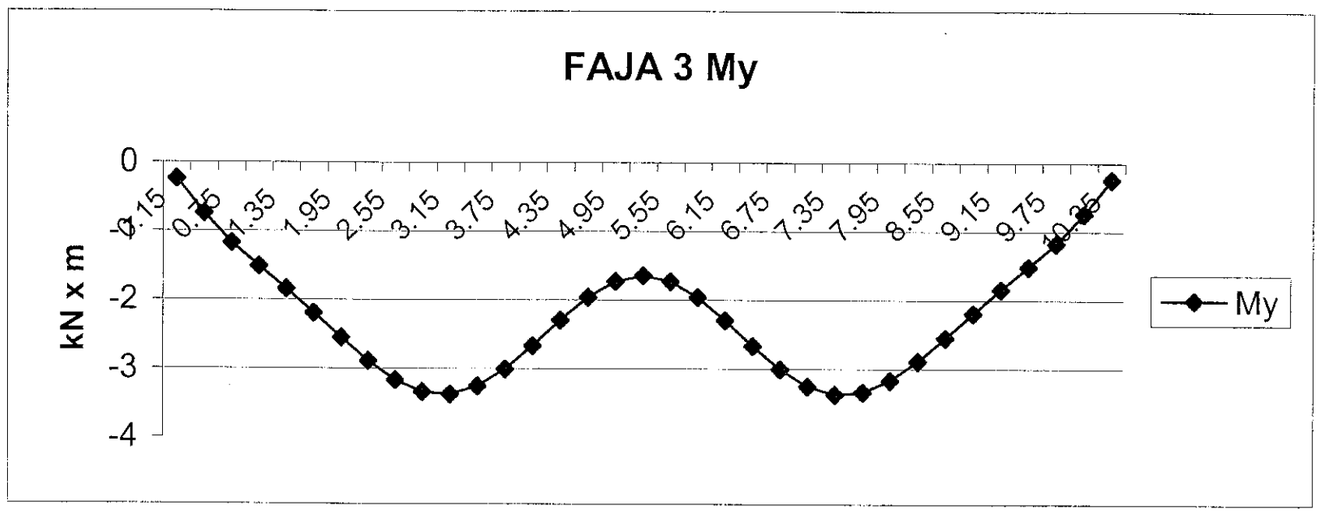

FAJA 1 Mx
kN x m
20
15
10
5
0
0.15
0.75
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2.55
3.15
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10.35
MX

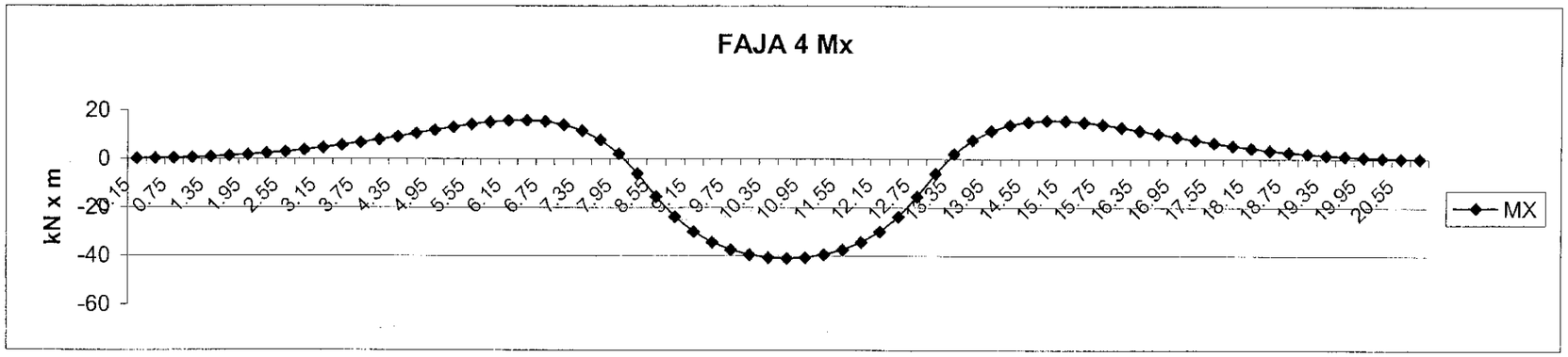

FAJA 1 My
kN x m
0
-1
-2
-3
-4
0.15
0.75
1.35
1.95
2.55
3.15
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5.55
6.15
6.75
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8.55
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9.75
10.35
My

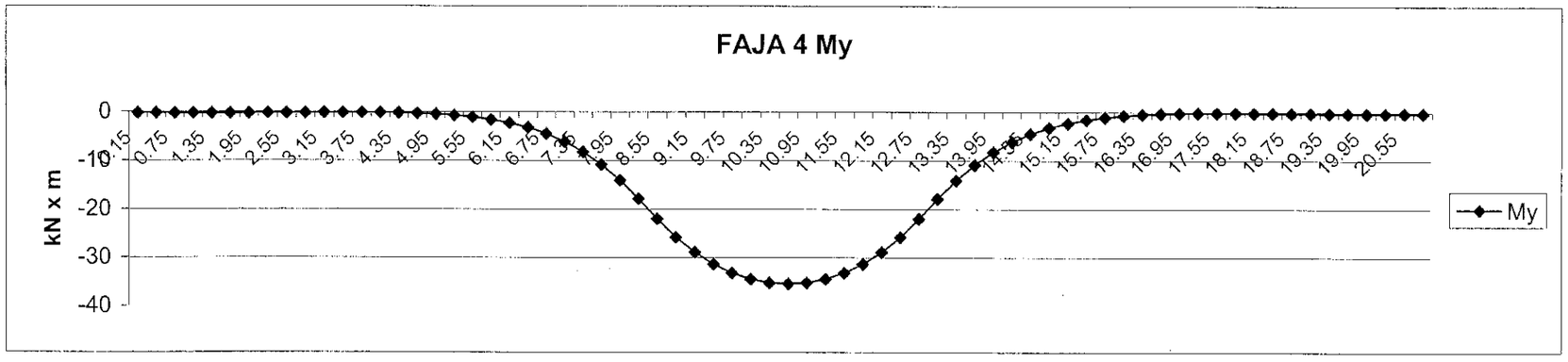

FAJA 2 Mx
kN x m
0
-10
-20
-30
-40
-50
0.15
0.75
1.35
1.95
2.55
3.15
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6.15
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MX

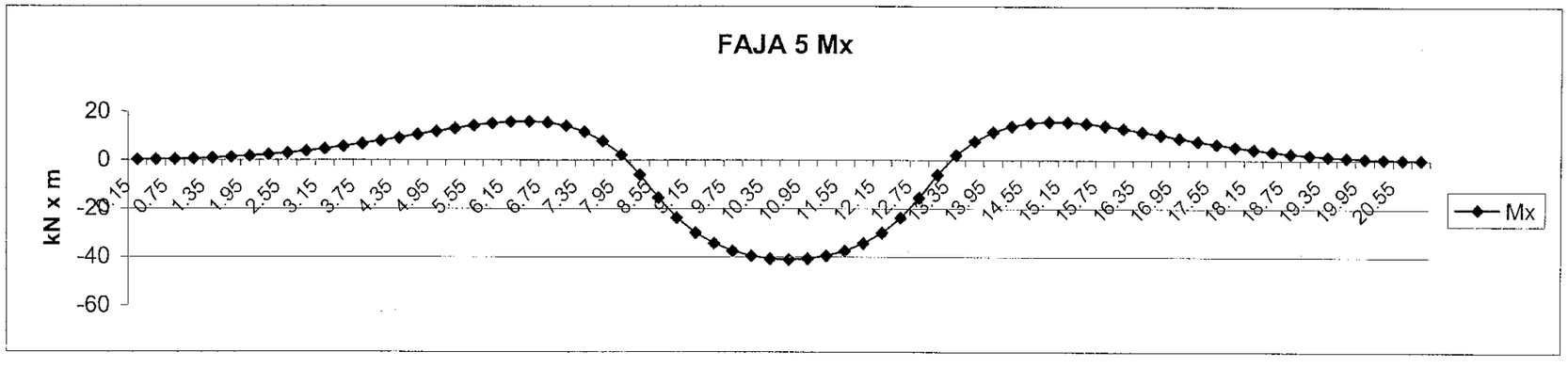

FAJA 2 My
kN x m
10
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-20
-30
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0.75
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3.15
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My

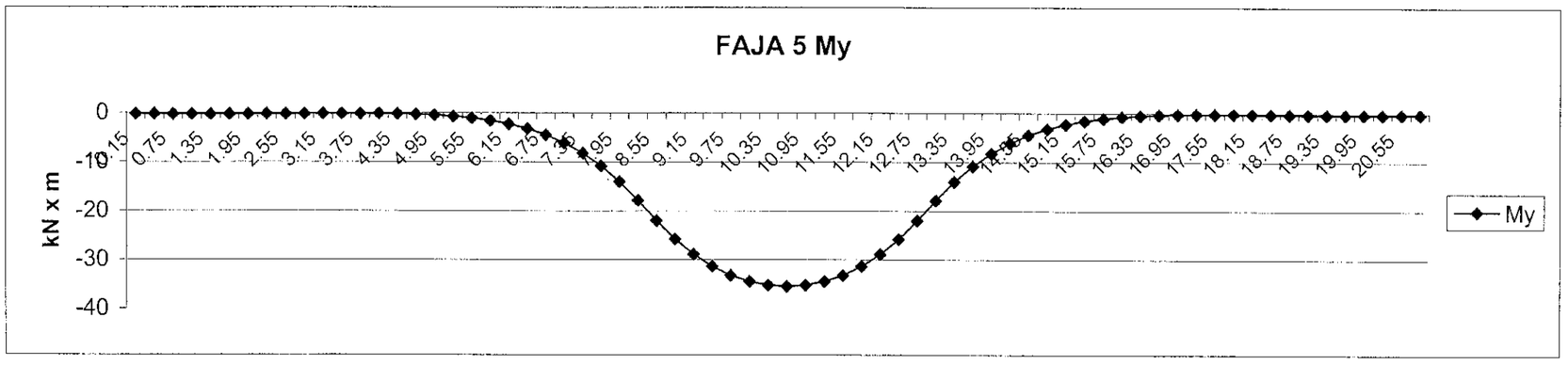

FAJA 3 Mx
kN x m
20
15
10
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0
0.15
0.75
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3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 3 My
kN x m
0
-1
-2
-3
-4
0.15
0.75
1.35
1.95
2.55
3.15
3.75
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5.55
6.15
6.75
7.35
7.95
8.55
9.15
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10.35
My

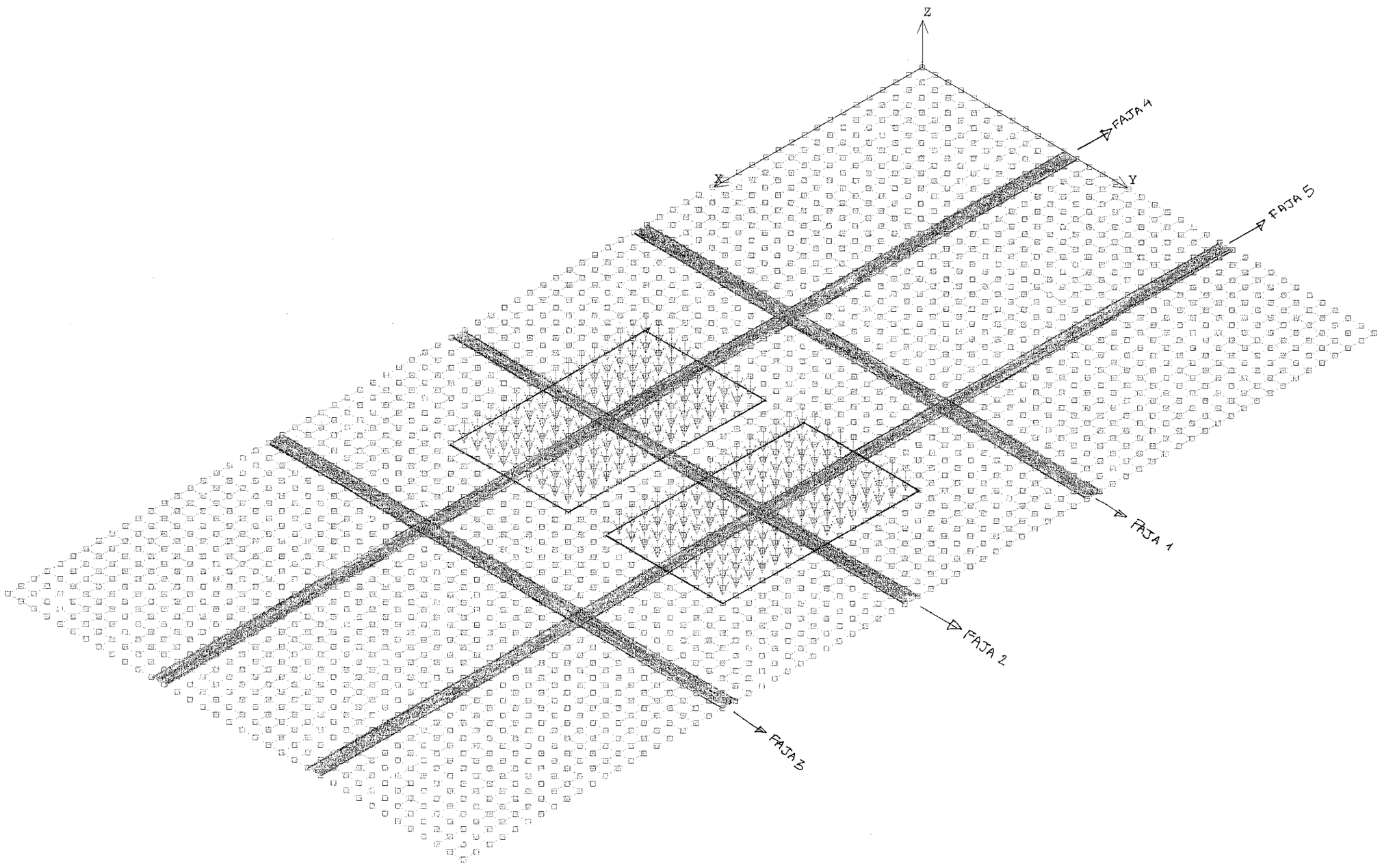

FAJA 4 Mx
kN x m
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15.15
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18.15
18.75
19.35
19.95
20.55
MX


FAJA 4 My
kN x m
0
-10
-20
-30
-40
0.15
0.75
1.35
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18.75
19.35
19.95
20.55
My

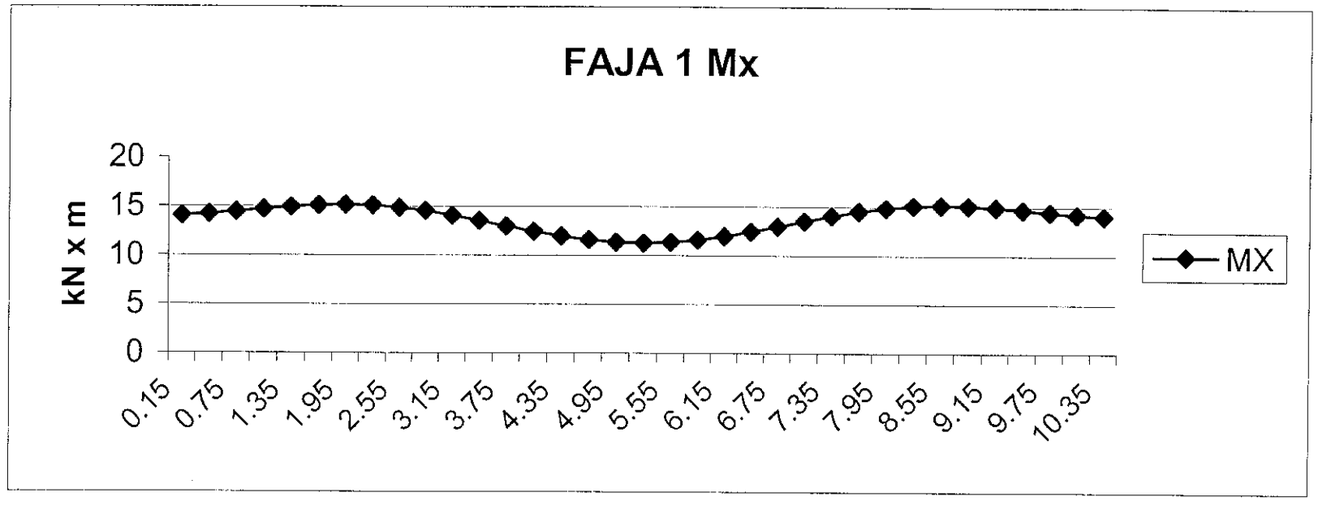

FAJA 5 Mx
kN x m
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13.35
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18.15
18.75
19.35
19.95
20.55
Mx

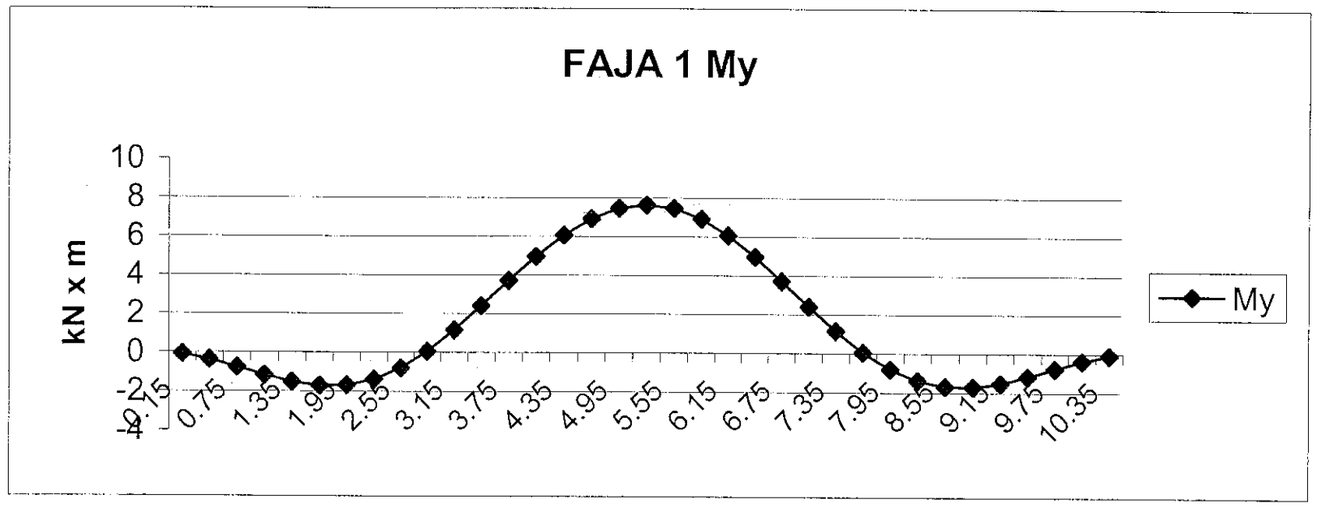

FAJA 5 My
kN x m
0
-10
-20
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0.15
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1.35
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19.95
20.55
My

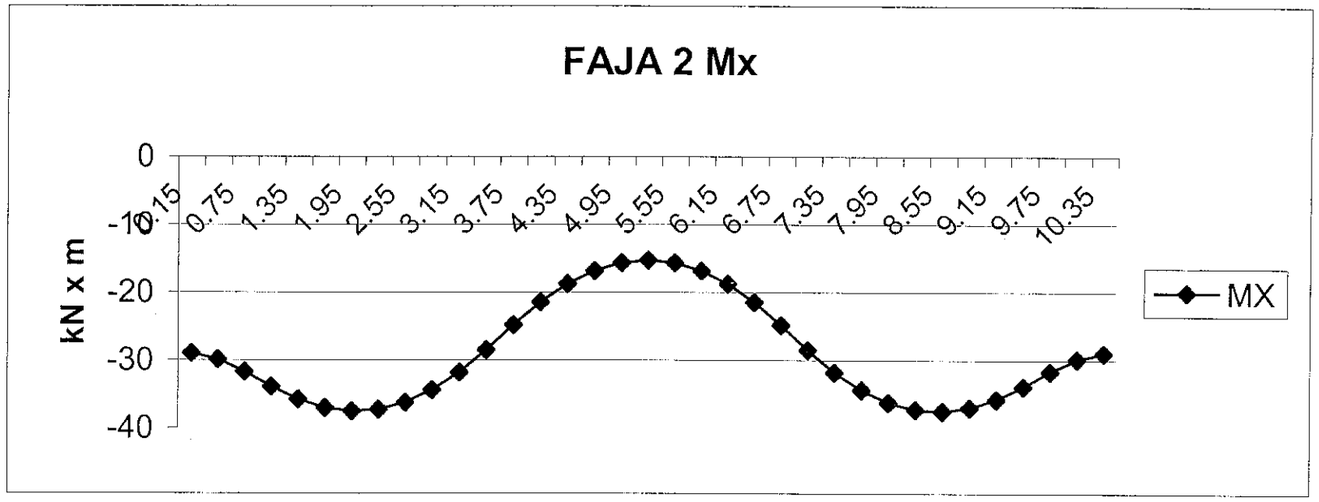
GeoStar 2.6 (64K Version) : losa - [Main]

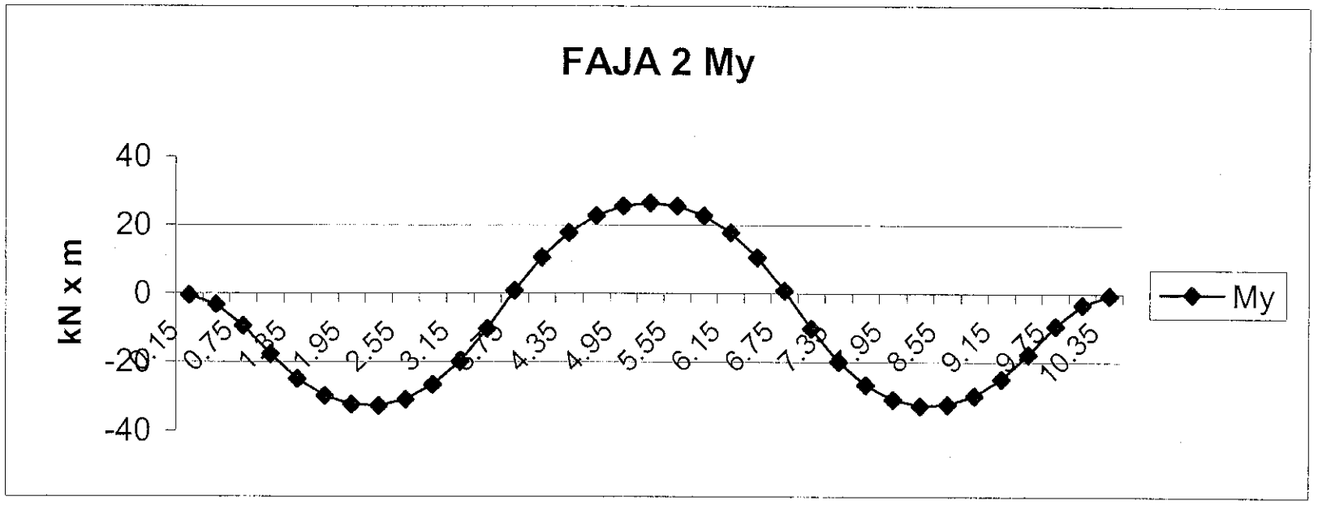


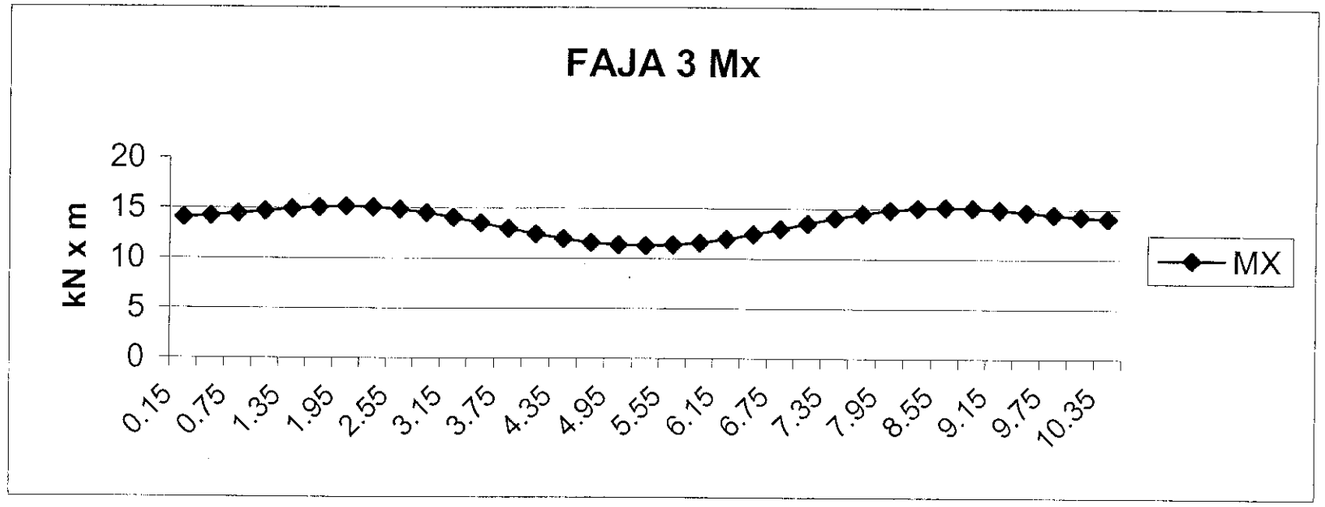
HIPÓTESIS DE CARGA Nº 2 (IPF-75)

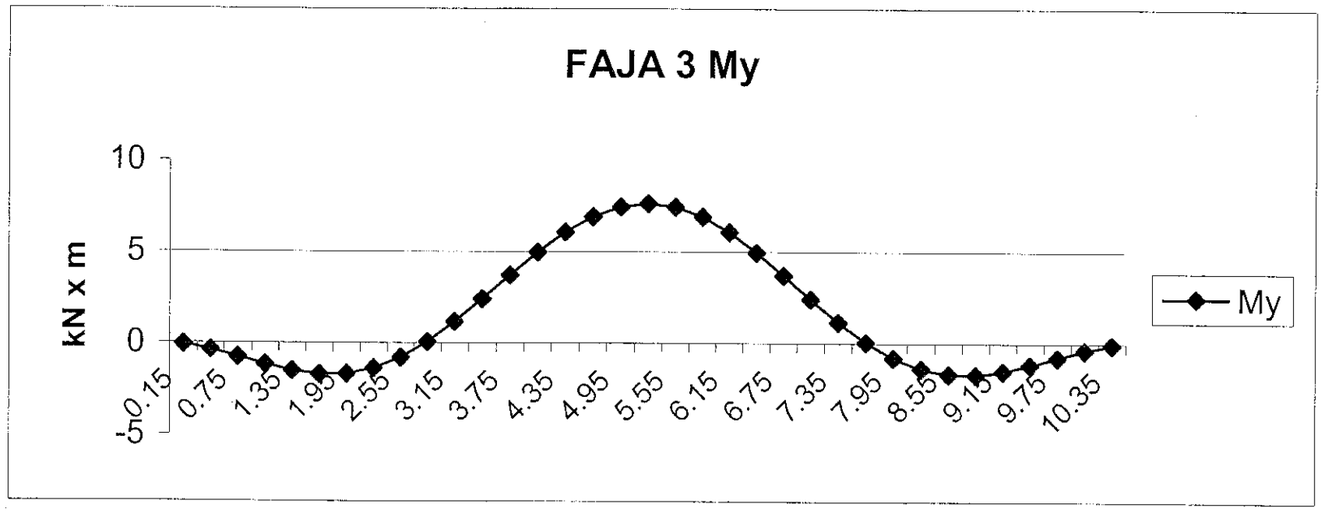

FAJA 1 Mx
kN x m
20
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

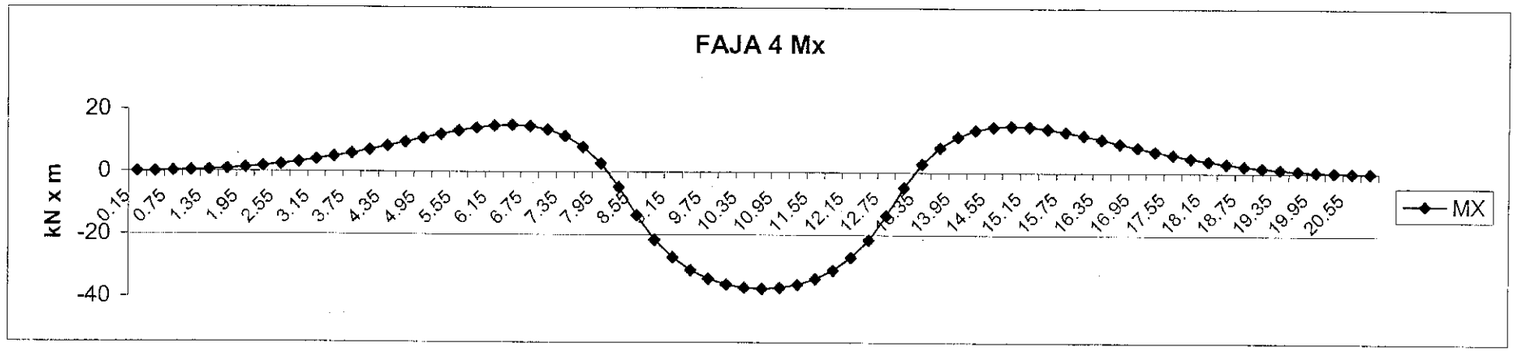

FAJA 1 My
kN x m
10
8
6
4
2
0
-2
-4
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

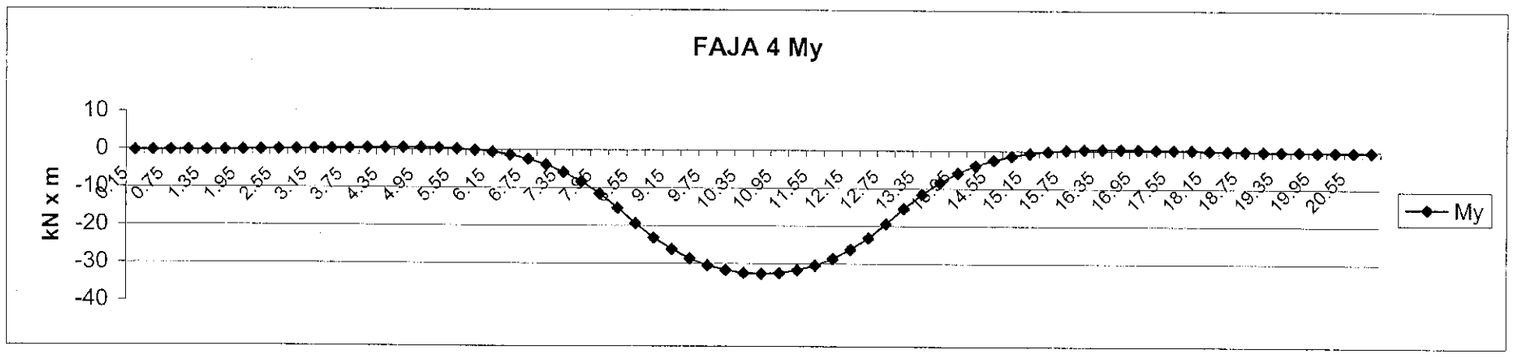

FAJA 2 Mx
kN x m
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

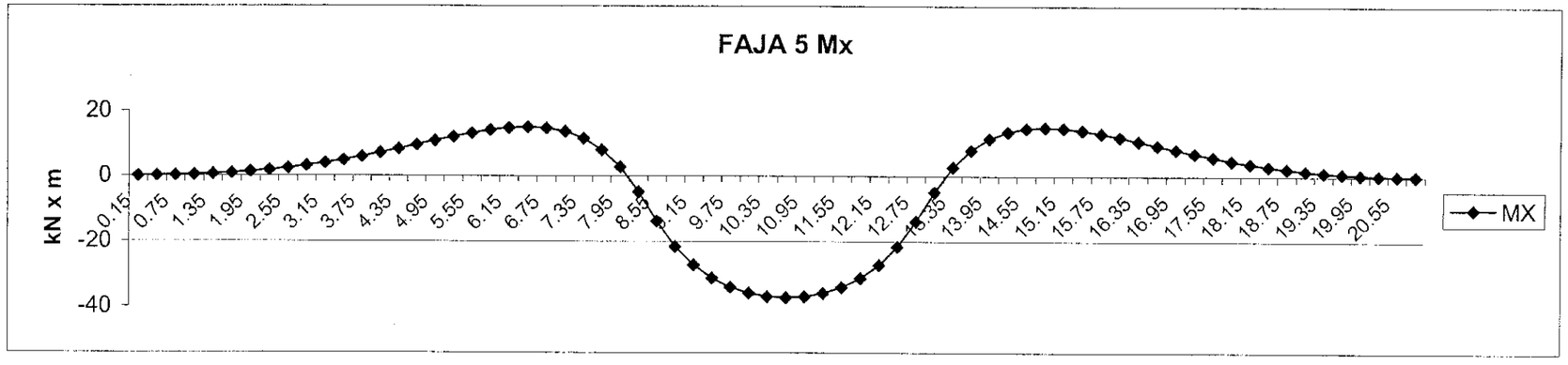

FAJA 2 My
kN x m
40
20
0
-20
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

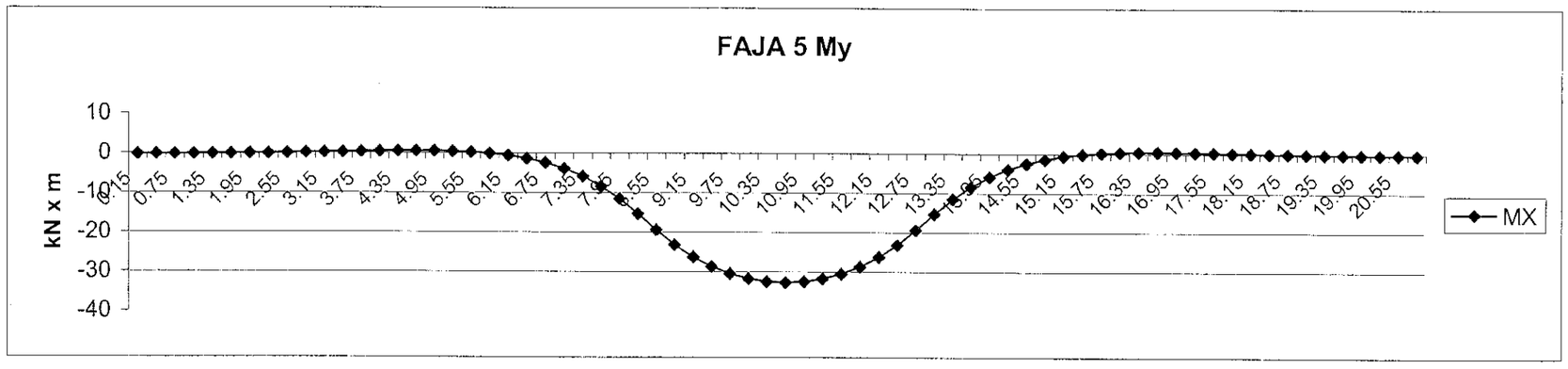

FAJA 3 Mx
kN x m
20
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

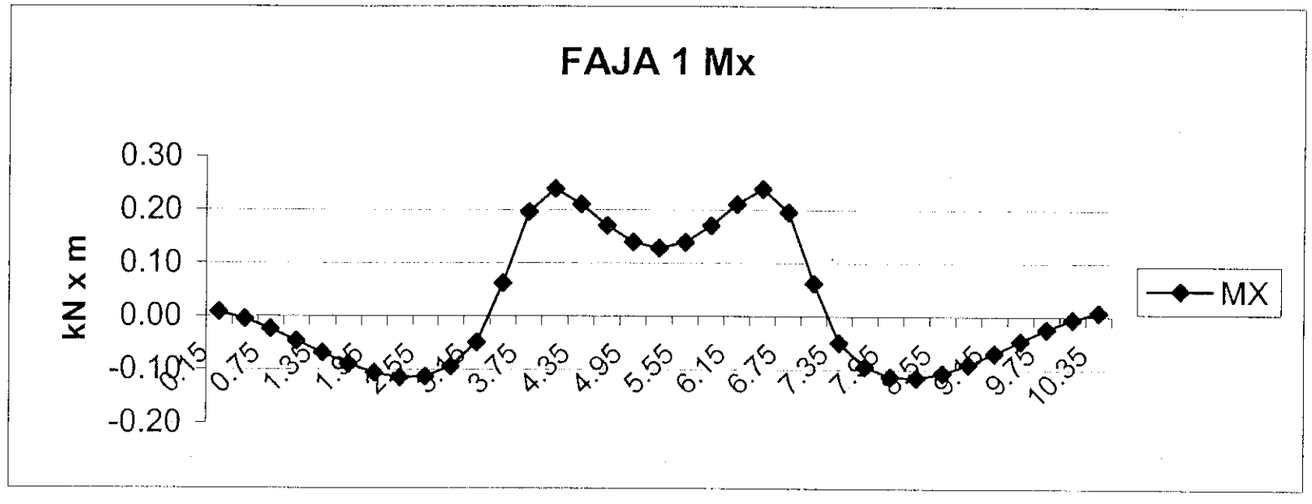

FAJA 3 My
kN x m
10
5
0
-5
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

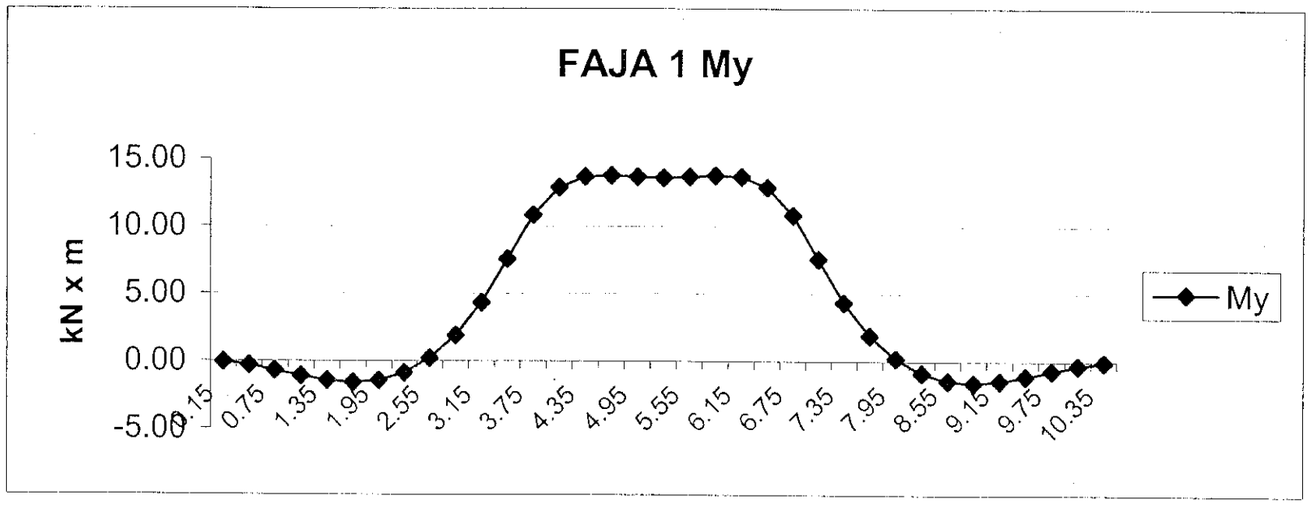

FAJA 4 Mx
kN x m
20
0
-20
-40
-0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX

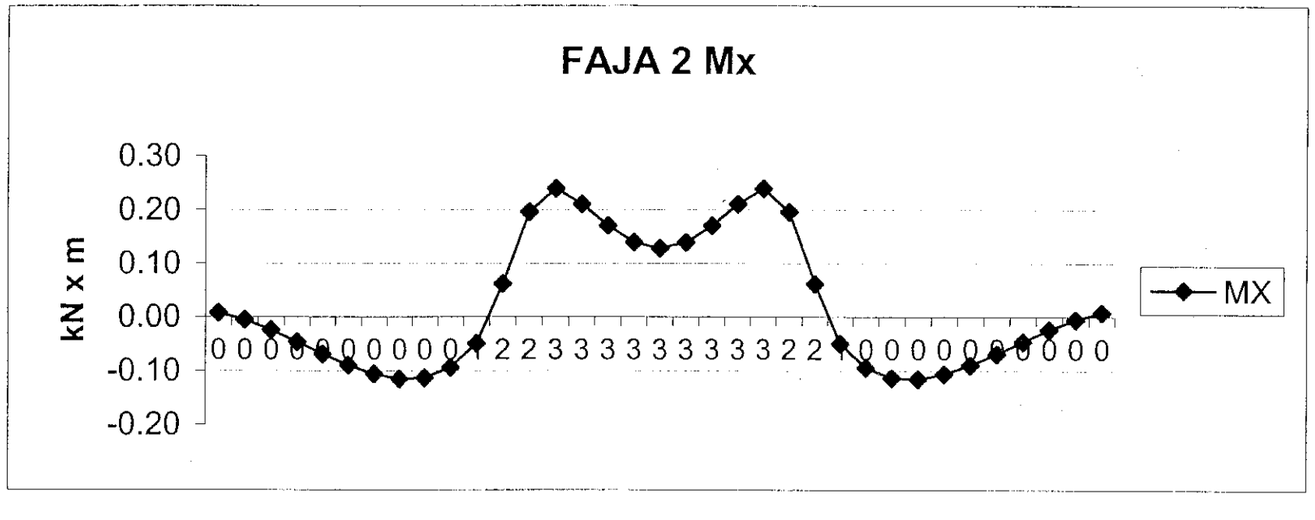

FAJA 4 My
kN x m
10
0
-10
-20
-30
-40
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
9.15
9.75
10.35
10.95
11.55
12.15
12.75
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
My

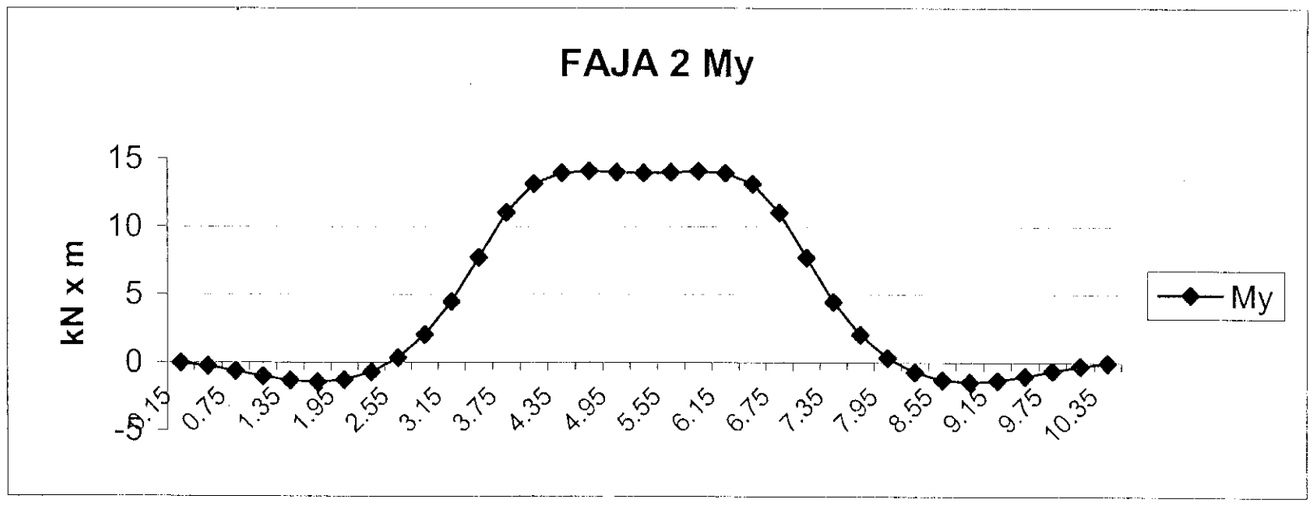

FAJA 5 Mx
kN x m
20
0
-20
-40
-0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX


FAJA 5 My
kN x m
10
0
-10
-20
-30
-40
-0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX

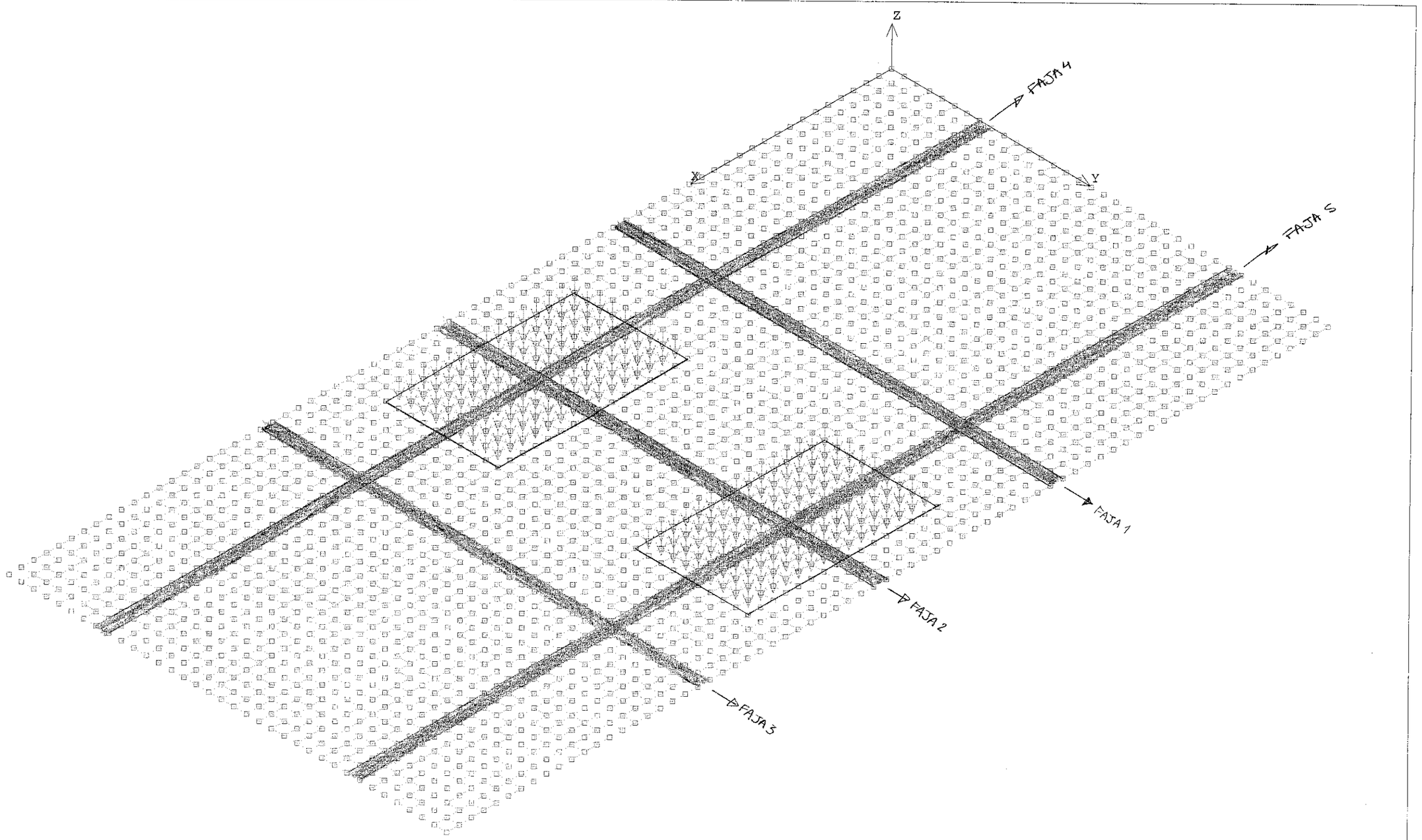

FAJA 1 Mx
kN x m
0.30
0.20
0.10
0.00
-0.10
-0.20
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 1 My
kN x m
15.00
10.00
5.00
0.00
-5.00
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

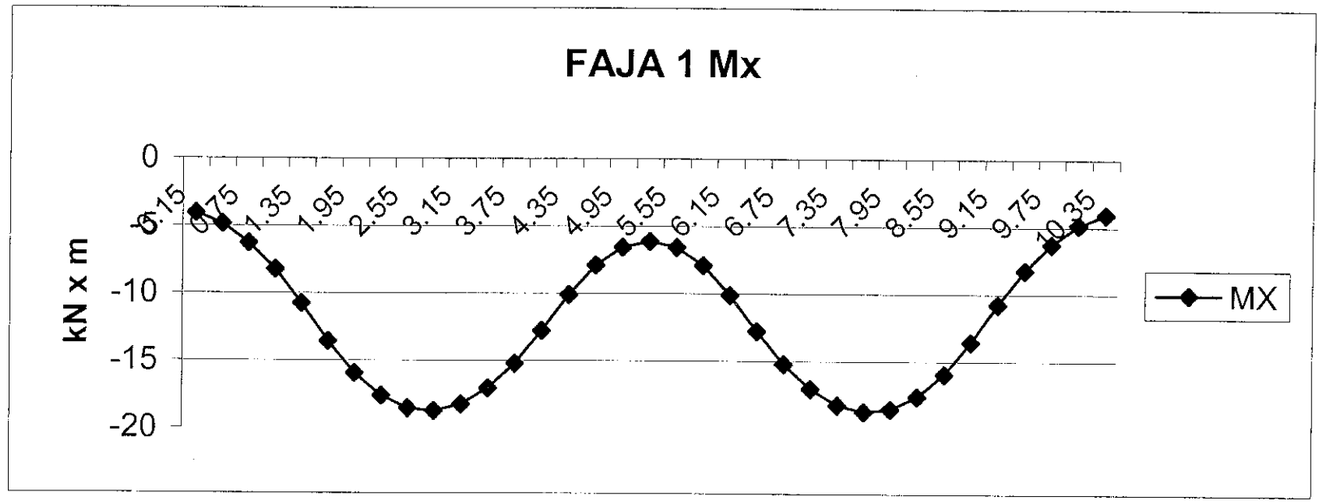

FAJA 2 Mx
kN x m
0.30
0.20
0.10
0.00
-0.10
-0.20
0 0 0 0 0 0 0 0 0 0 0 1 2 2 3 3 3 3 3 3 3 3 3 2 2 1 0 0 0 0 0 0 0 0 0 0 0
MX

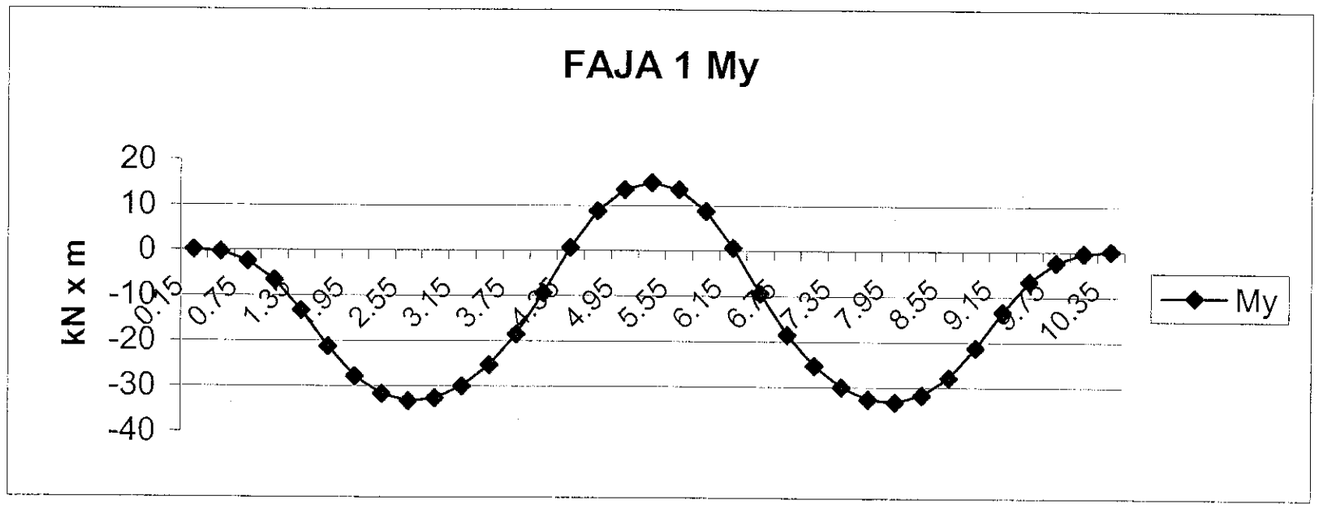

FAJA 2 My
kN x m
15
10
5
0
-5
-0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

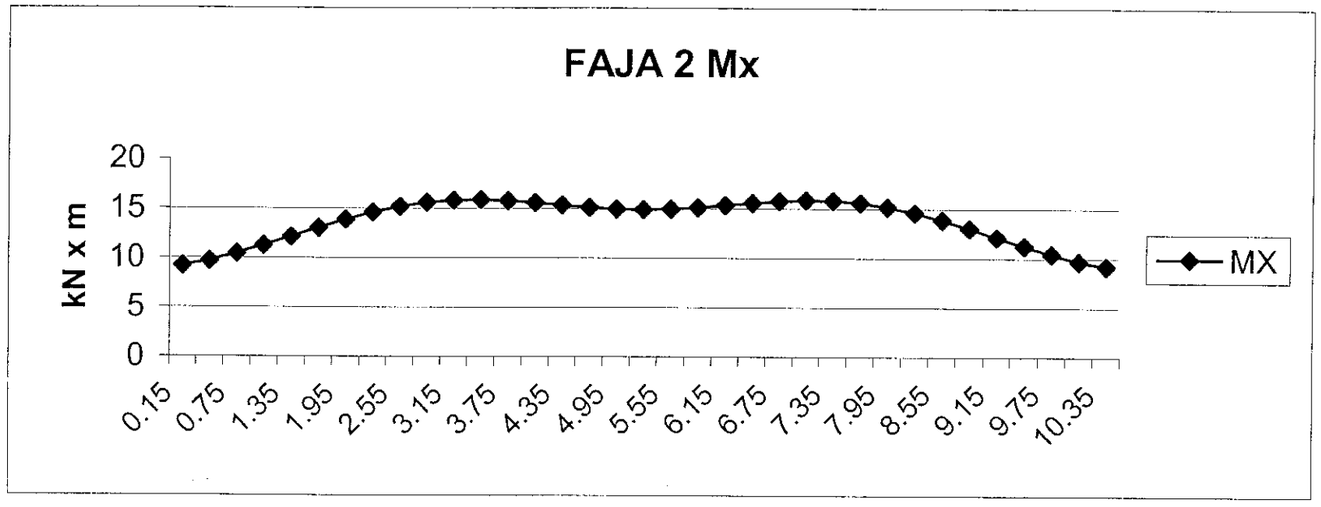
GeoStar 2.6 (64K Version) : losa - [Main]

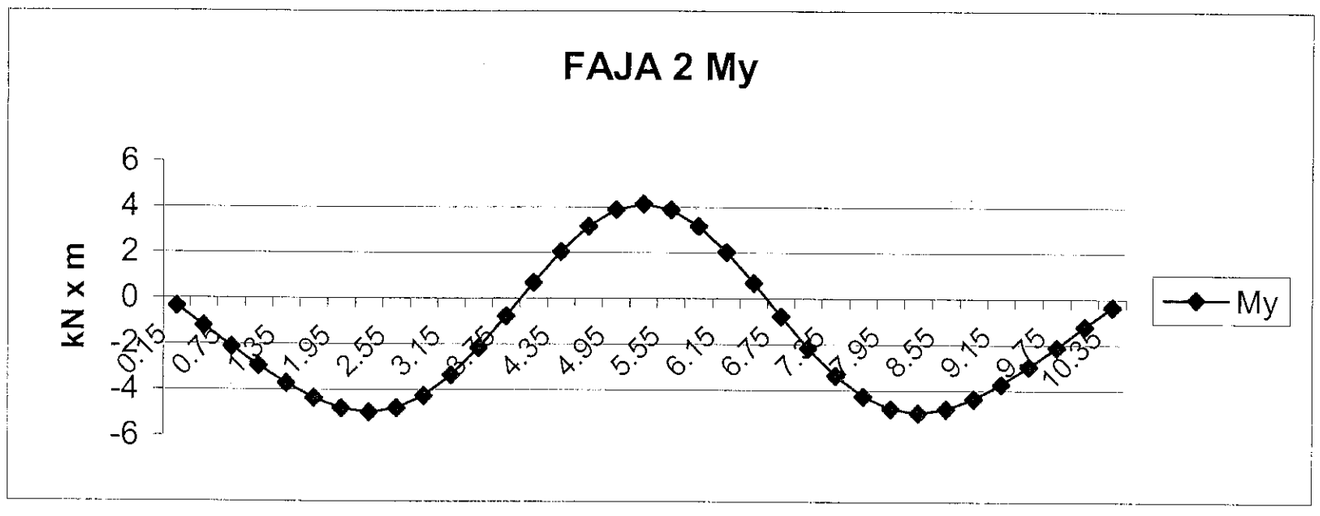


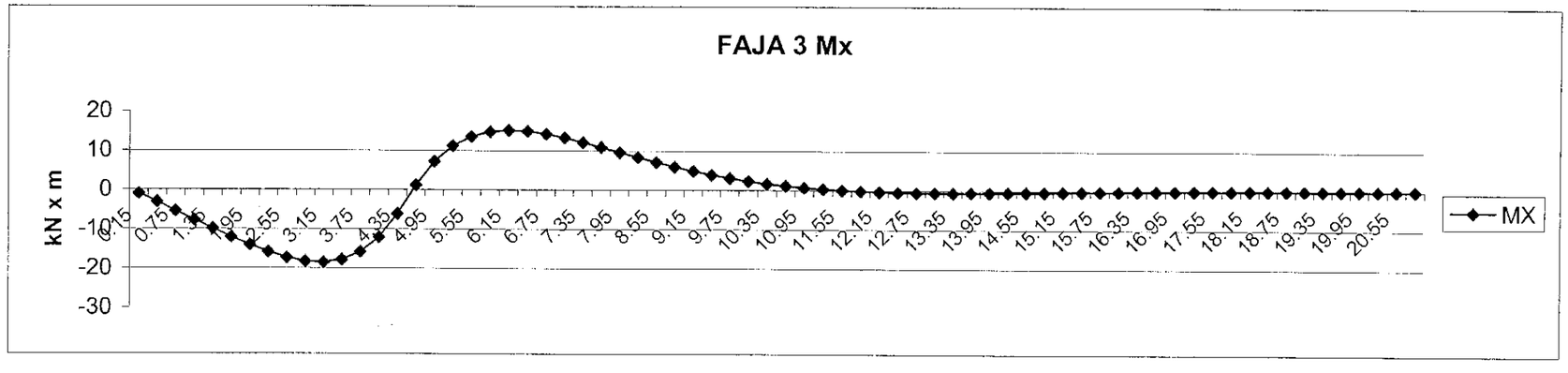
HIPÓTESIS DE CARGA Nº 3 (IPF-75)

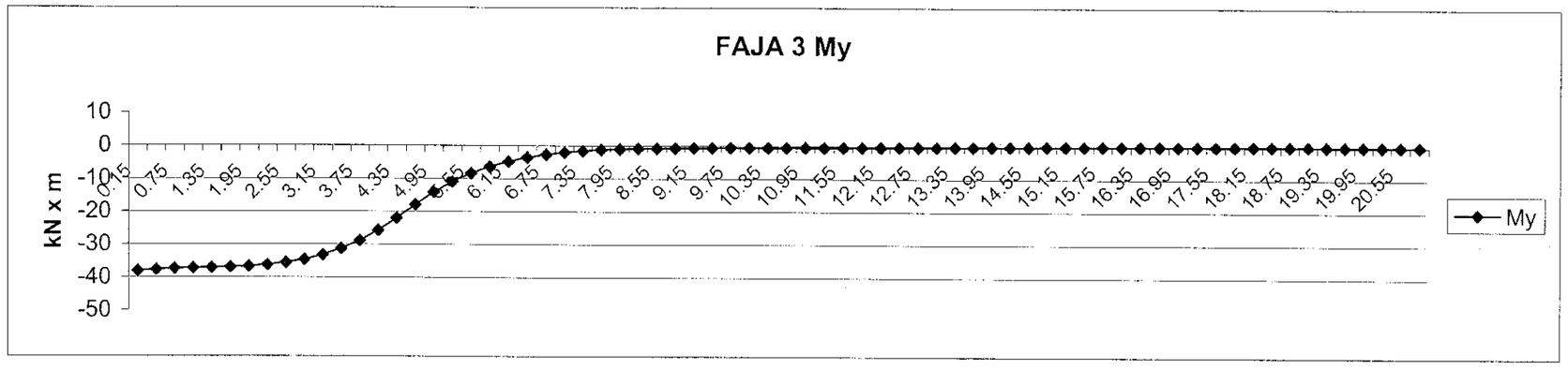

FAJA 1 Mx
kN x m
0
-10
-15
-20
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

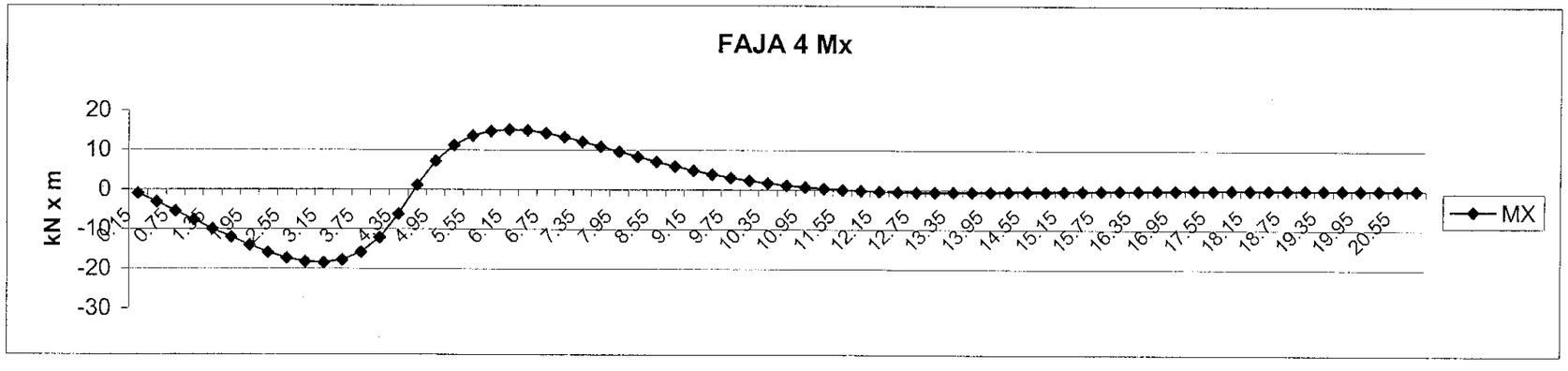

FAJA 1 My
kN x m
20
10
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

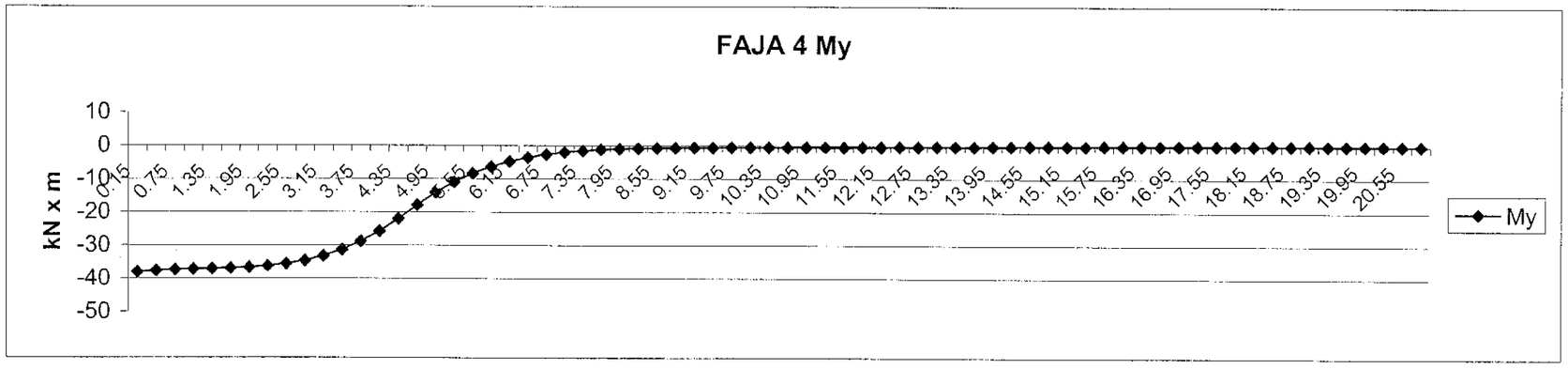

FAJA 2 Mx
kN x m
20
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 2 My
kN x m
6
4
2
0
-2
-4
-6
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

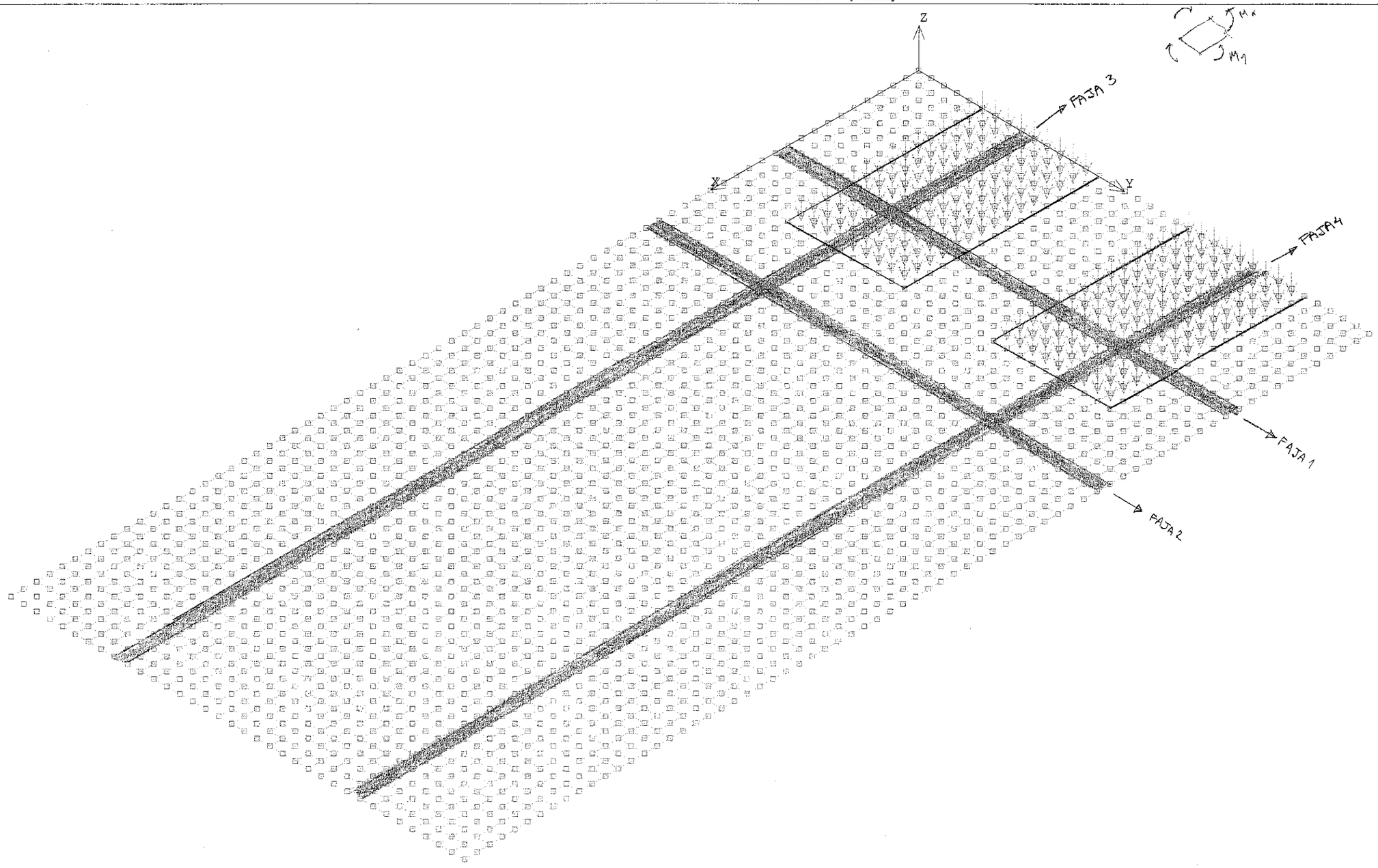

FAJA 3 Mx
kN x m
20
10
0
-10
-20
-30
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX


FAJA 3 My
kN x m
10
0
-10
-20
-30
-40
-50
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
My

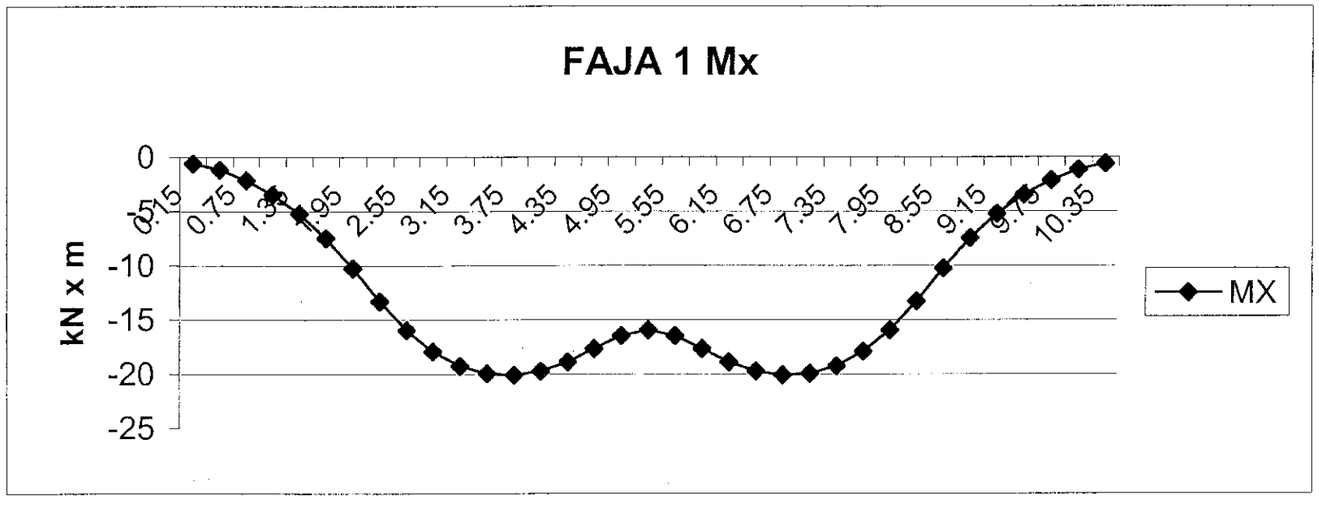

FAJA 4 Mx
kN x m
20
10
0
-10
-20
-30
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
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15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX

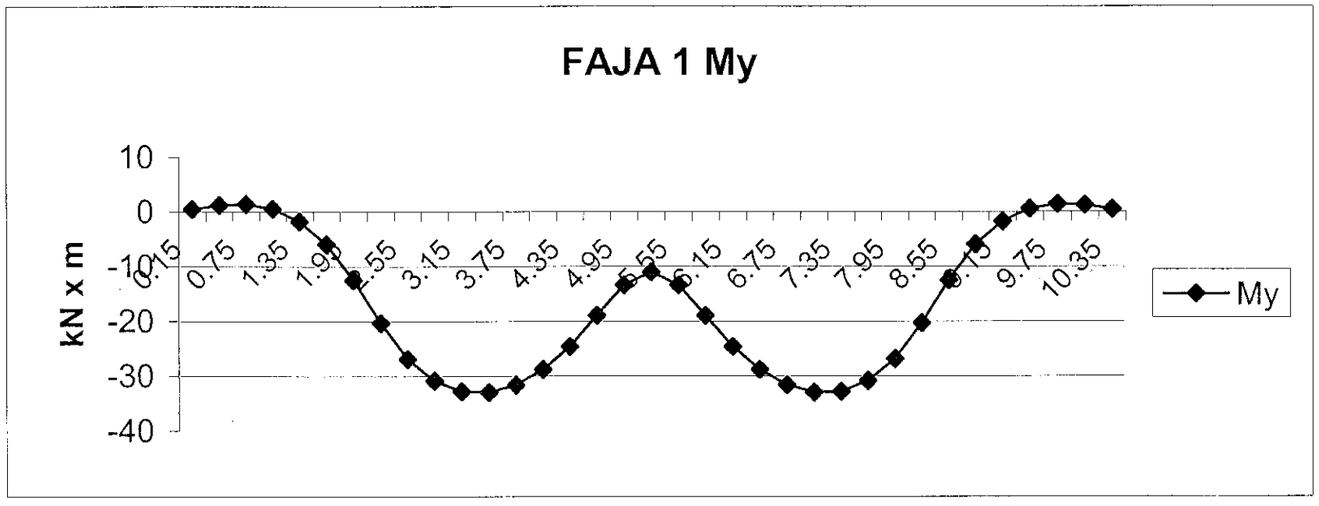

FAJA 4 My
kN x m
10
0
-10
-20
-30
-40
-50
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
My

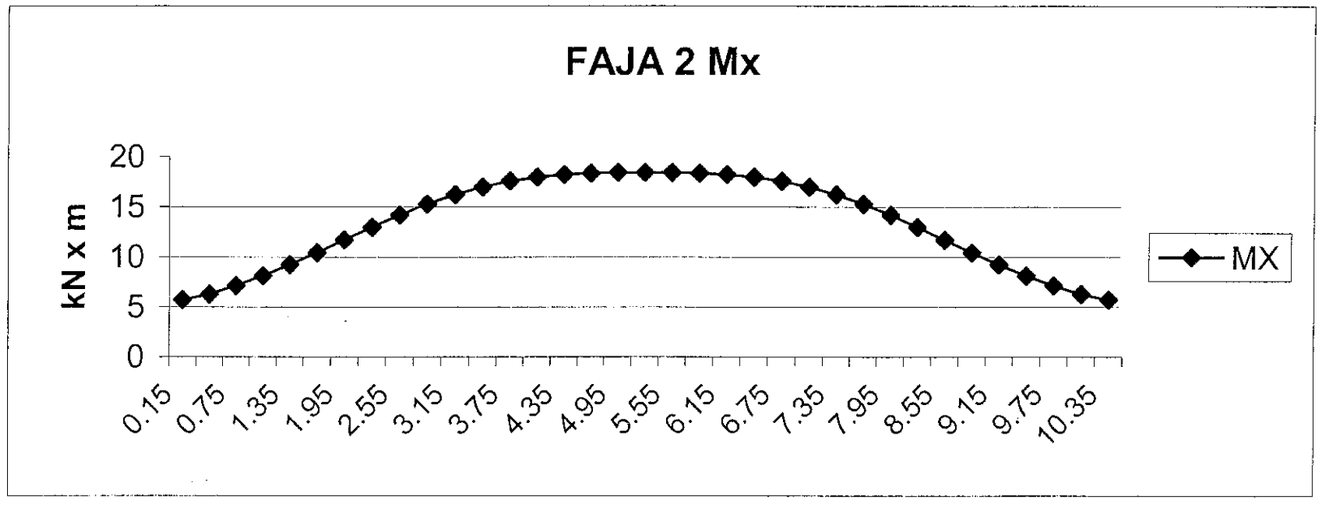
GeoStar 2.6 (64K Version): LOSA - [Main]

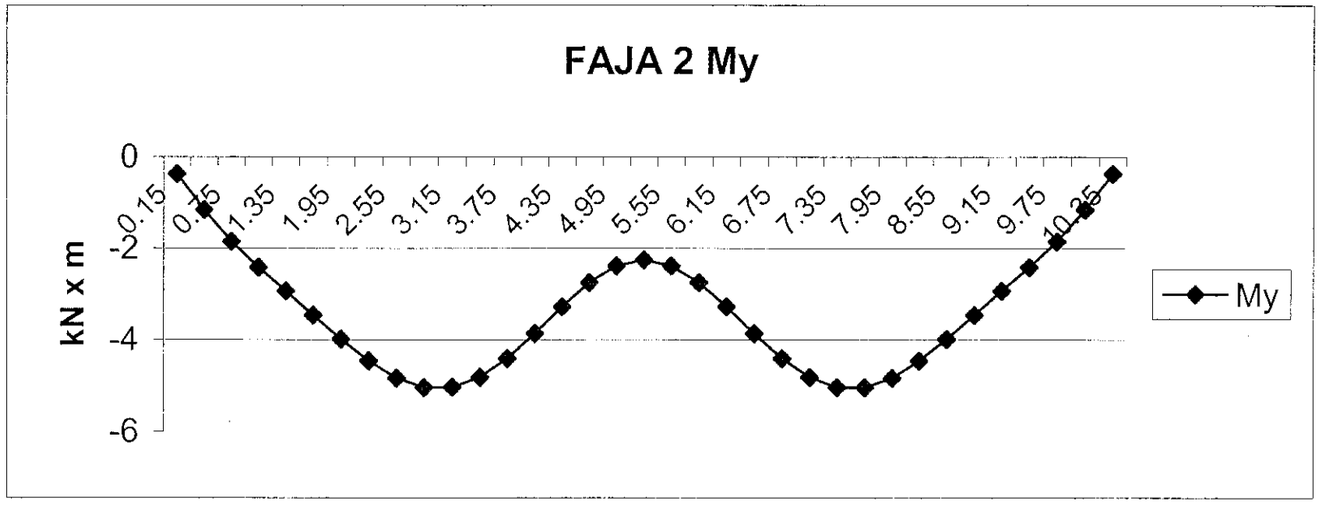


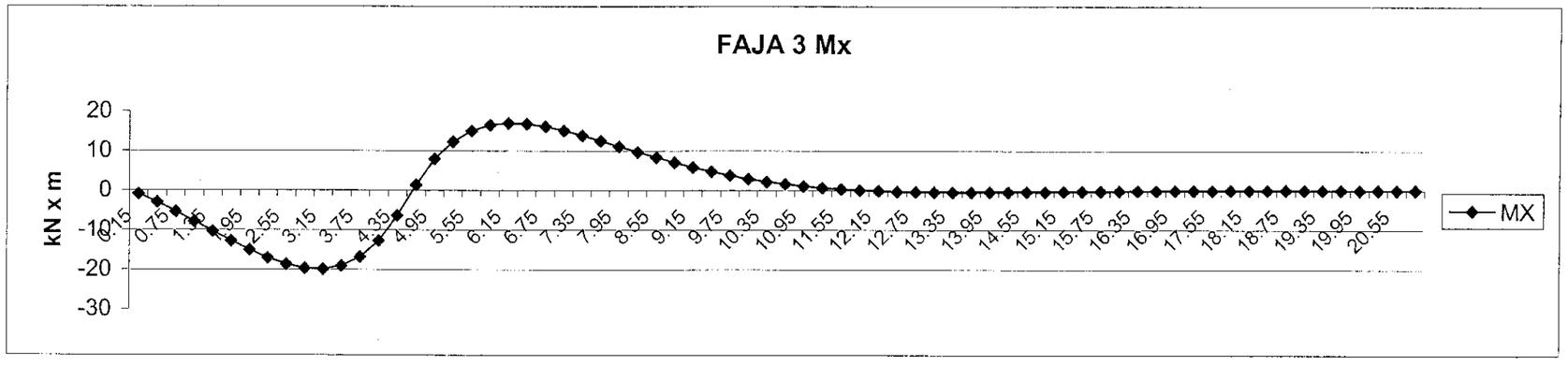
HIPÓTESIS DE CARGA Nº 4 (IPF-75)

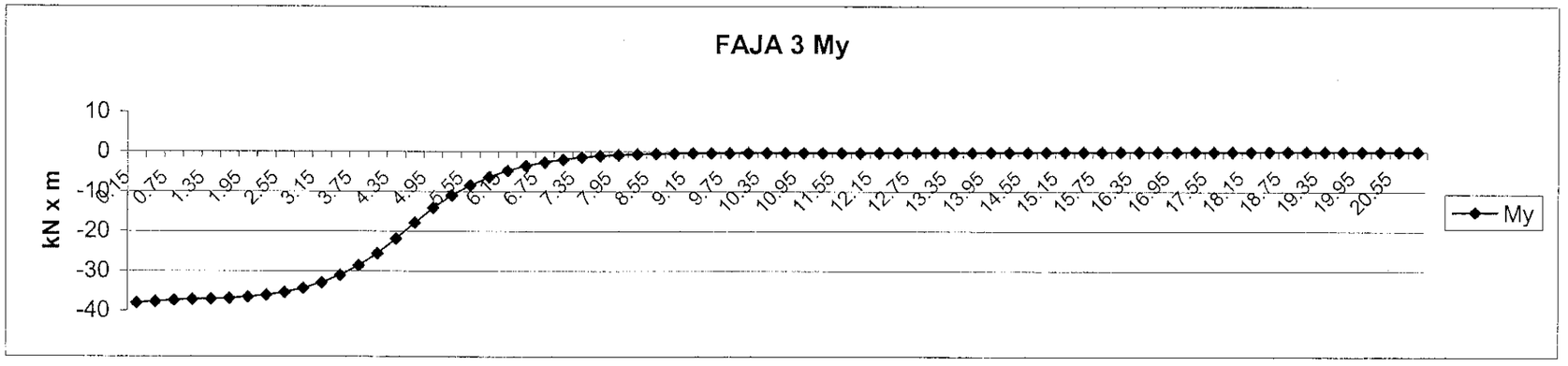

FAJA 1 Mx
kN x m
0
-10
-15
-20
-25
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

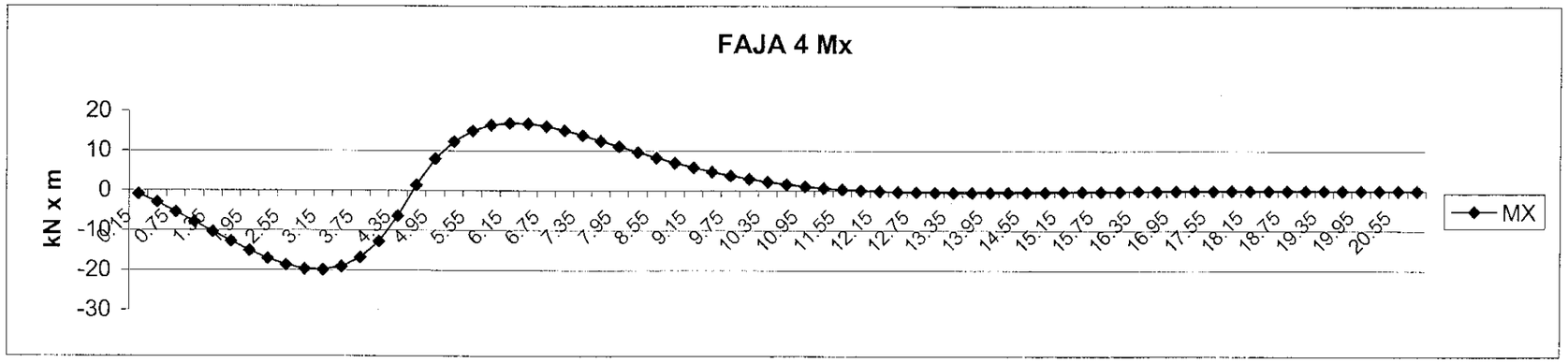

FAJA 1 My
kN x m
10
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

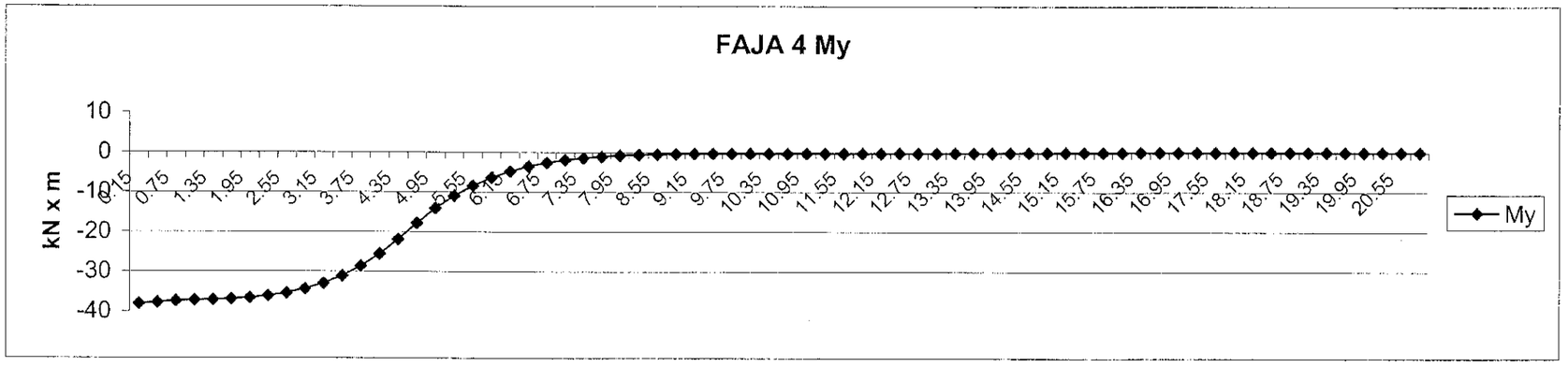

FAJA 2 Mx
kN x m
20
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 2 My
kN x m
0
-2
-4
-6
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

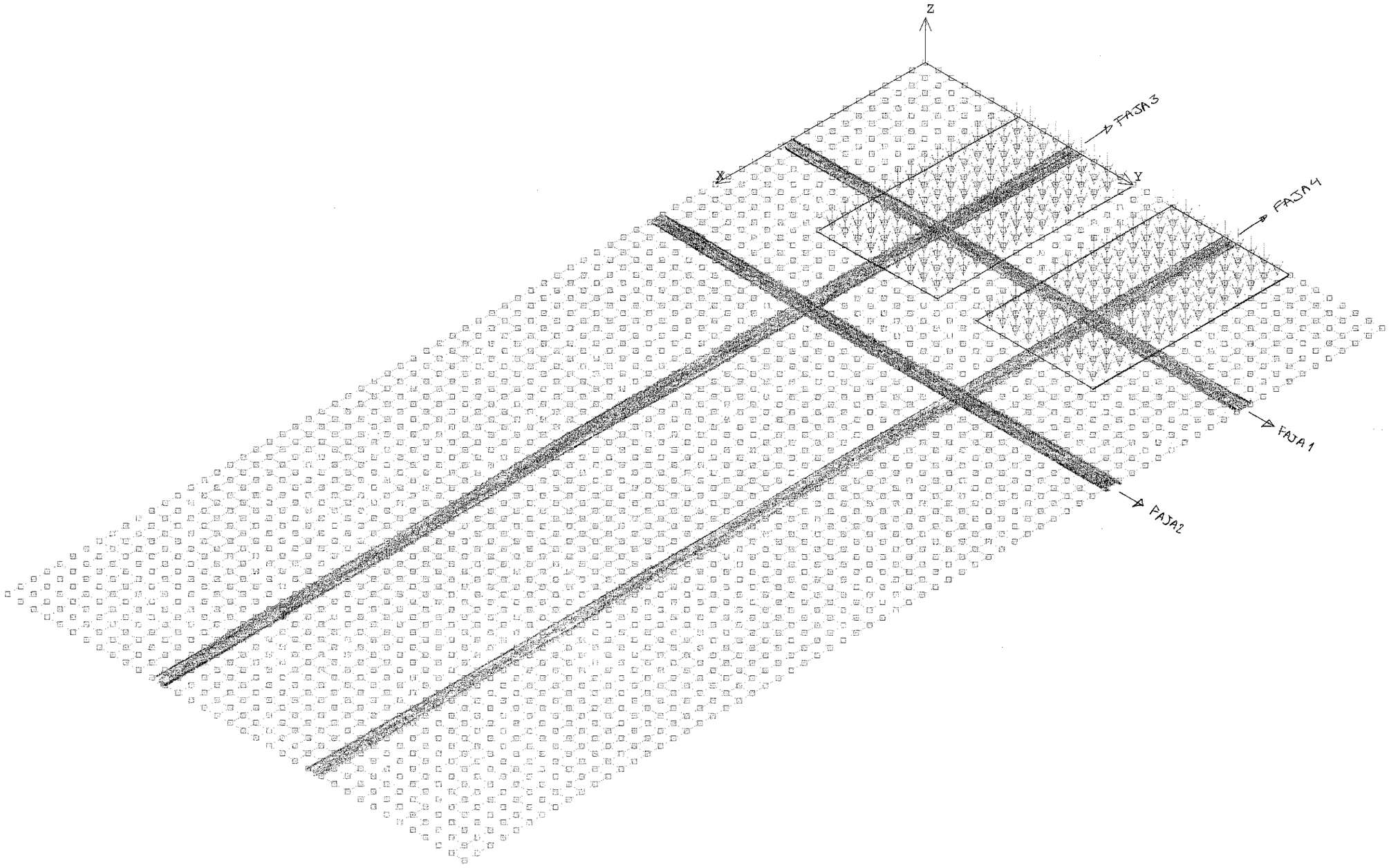

FAJA 3 Mx
kN x m
20
10
0
-10
-20
-30
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX


FAJA 3 My
kN x m
10
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
My

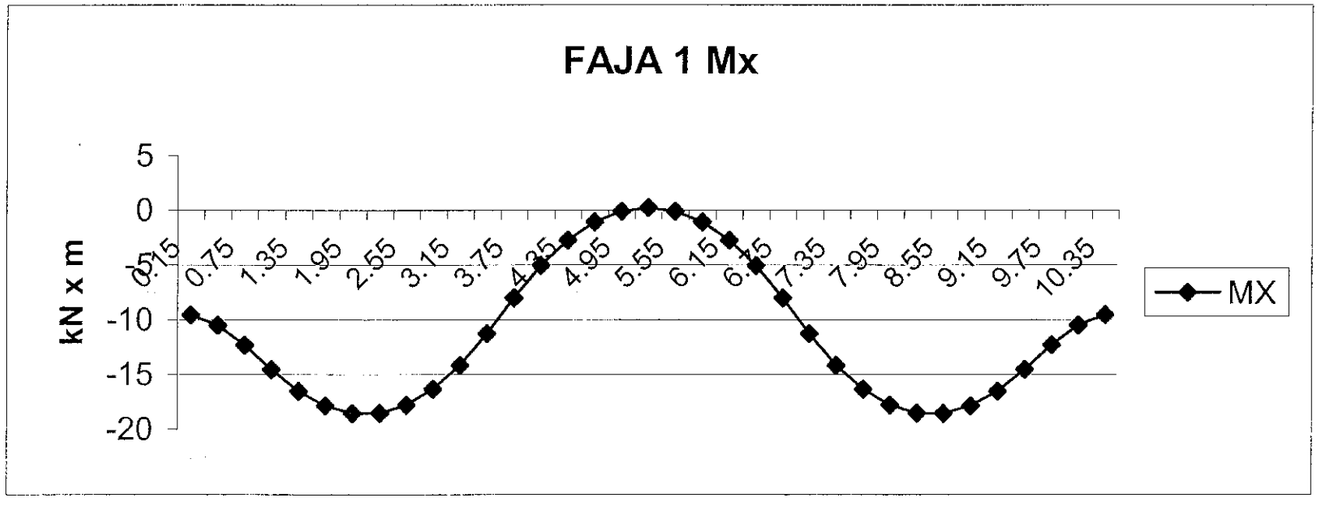

FAJA 4 Mx
kN x m
20
10
0
-10
-20
-30
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX

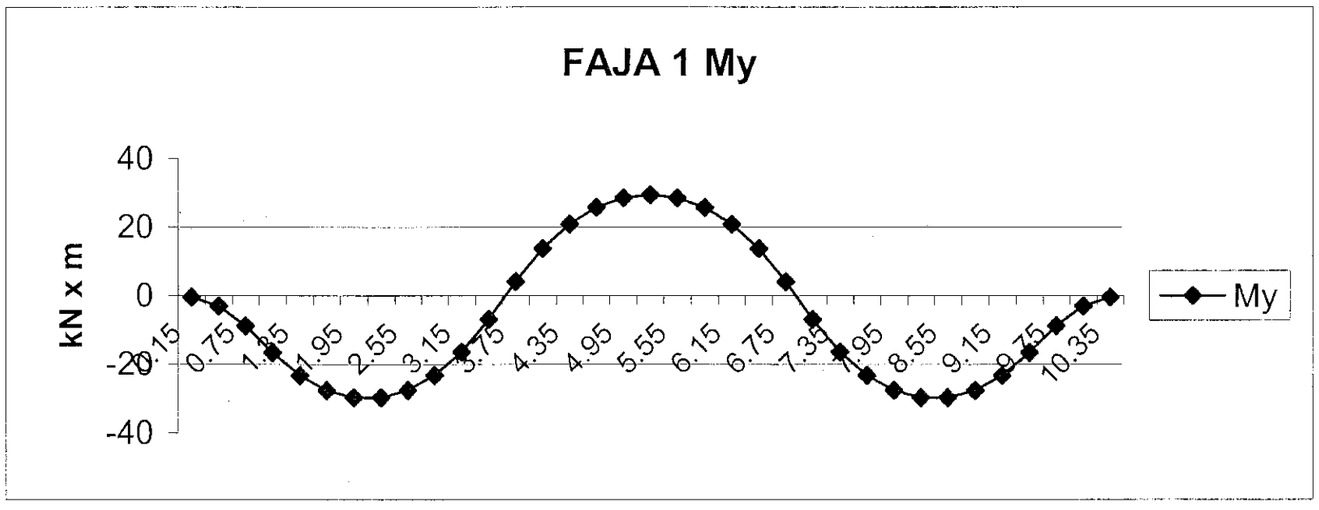

FAJA 4 My
kN x m
10
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
My

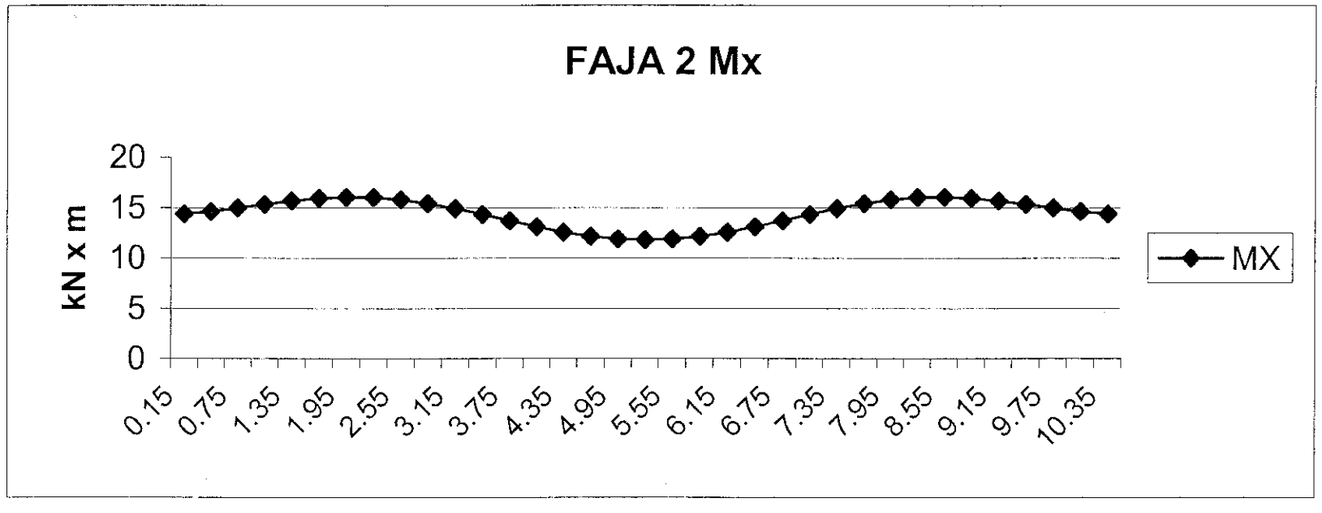
GeoStar 2.6 (64K Version): LOSA - [Main]

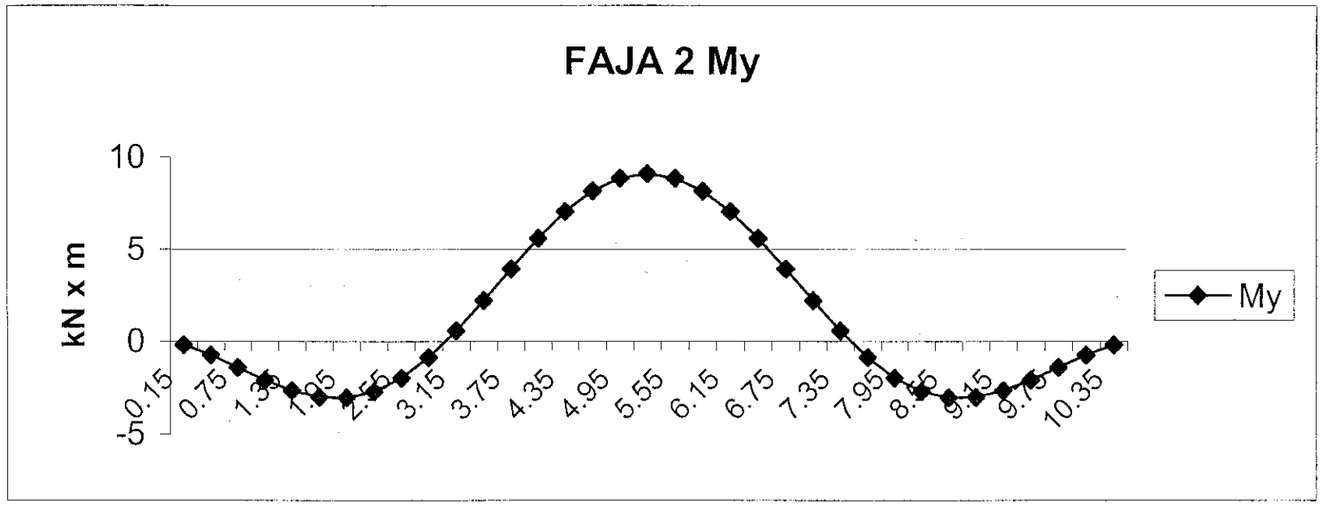


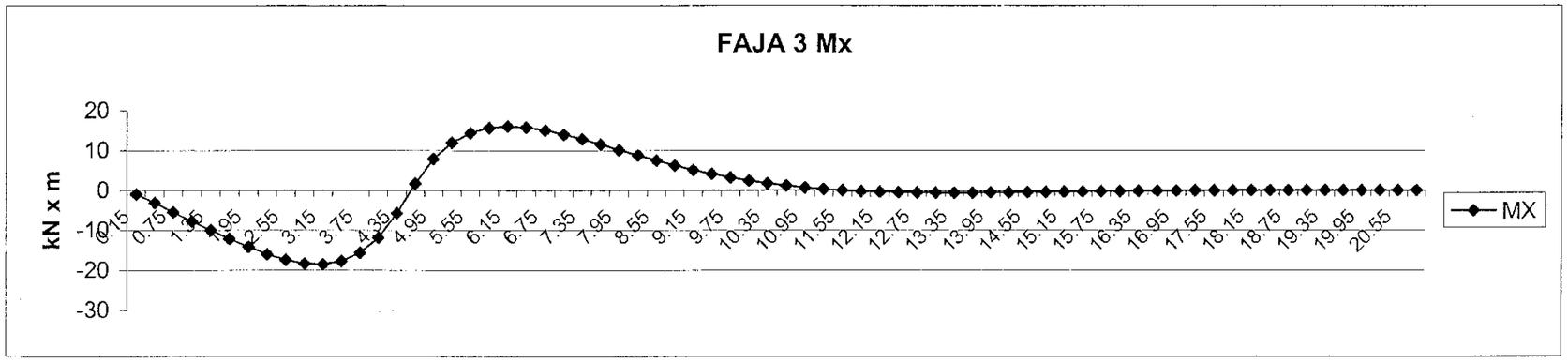
HIPÓTESIS DE CARGA Nº 5 (IPF-75)

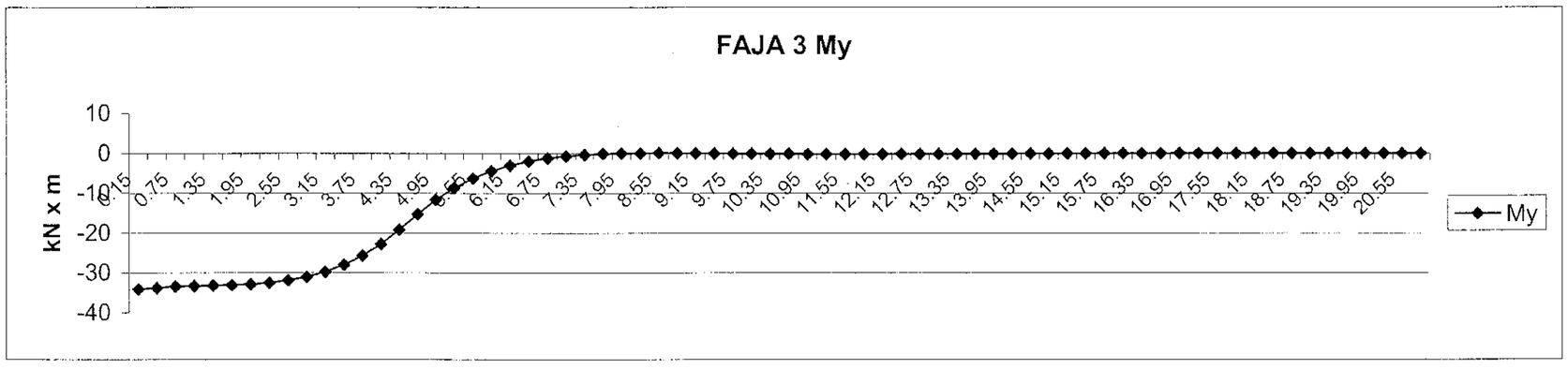

FAJA 1 Mx
kN x m
5
0
-10
-15
-20
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 1 My
kN x m
40
20
0
-20
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

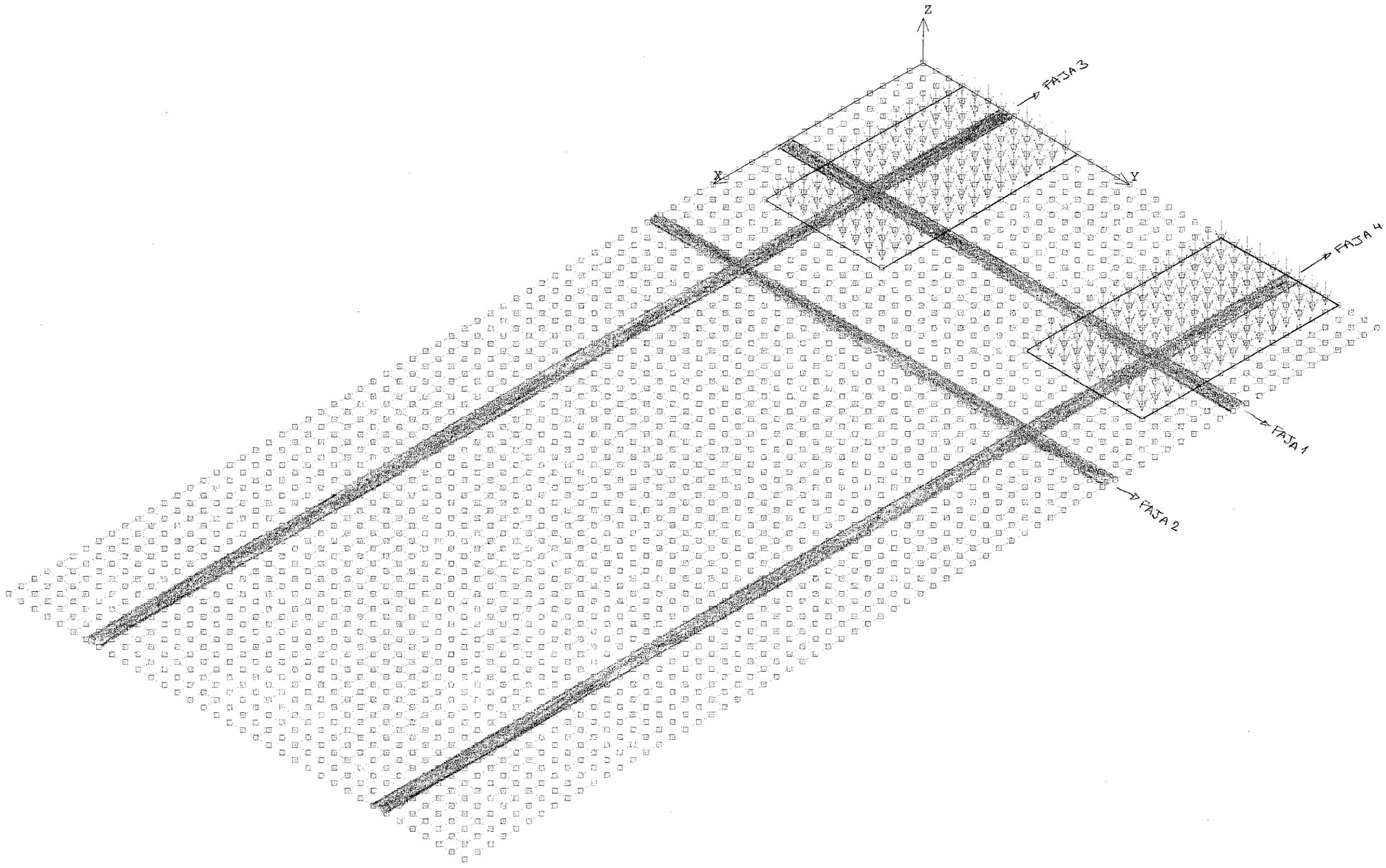

FAJA 2 Mx
kN x m
20
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 2 My
kN x m
10
5
0
-5
0.15
0.75
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
10.35
My

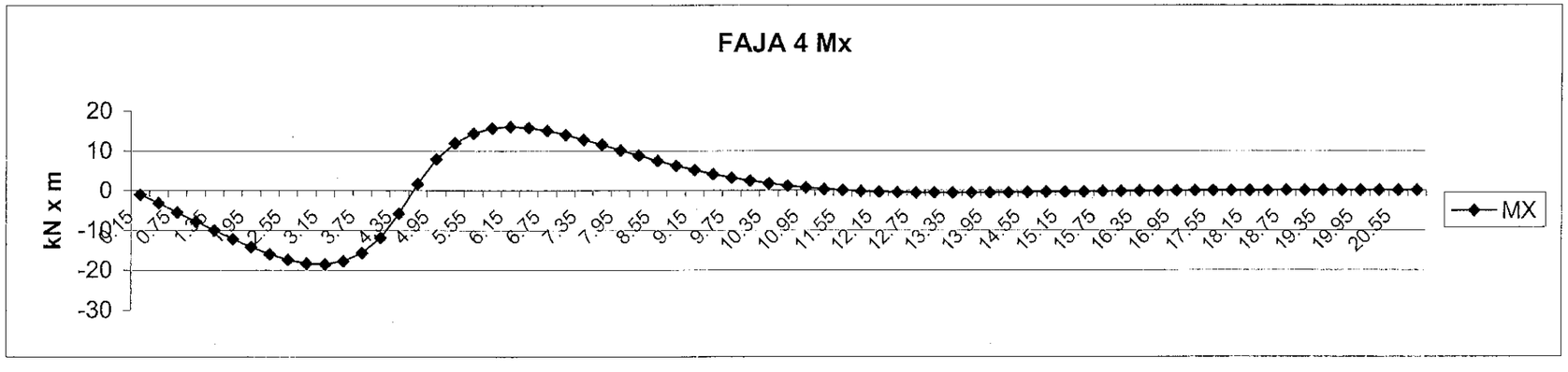

FAJA 3 Mx
kN x m
20
10
0
-10
-20
-30
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX

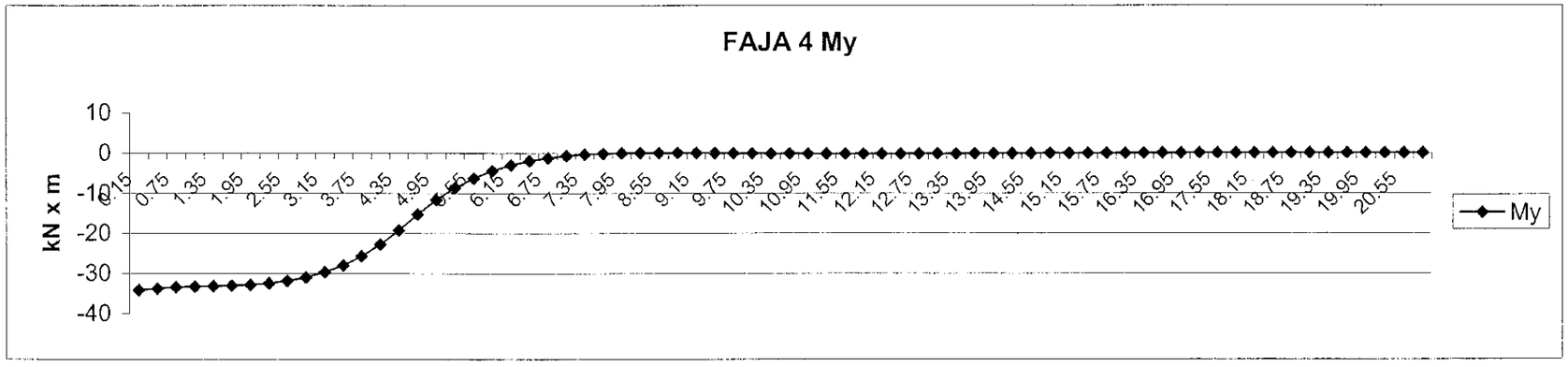

FAJA 3 My
kN x m
10
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
My

GeoStar 2.6 (64K Version): LOSA - [Main]



HIPÓTESIS DE CARGA Nº 6 (IPF-75)


FAJA 4 Mx
kN x m
20
10
0
-10
-20
-30
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX


FAJA 4 My
kN x m
10
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
My

4.2.2. CÁLCULO 2

ACCIONES PERMANENTES - PESO PROPIO Y CARGAS MUERTAS

CARGA MUERTA

PESO PROPIO $\quad \gamma_{H°A°} = 25\ KN/m^3$

BALASTO $\quad q_0 = 0{,}60\ m \times 10{,}10\ m \times 18\ KN/m^3 = 109\ KN/m$

$q_S = 1{,}30 \cdot q_0 = \underline{142\ KN/m}$ (Caract. superior)

$q_i = 0{,}70 \cdot q_0 = \underline{76\ KN/m}$ (Caract. Inferior)

CARRILES Y TRAVIESAS

$q_{Travieses} = 5{,}2\ KN/m$

$q_{Carriles} = 1{,}2\ KN/m$

$q_{Trav+carr.} = 2 \cdot (5{,}2 + 1{,}2)\ KN/m = \underline{13\ KN/m}$

CONDUCTOS, CABLES Y PASEOS

$q_{cond+cables} = 3{,}0\ KN/m$

$q_{sobr.\ paseos} = 5{,}0\ KN/m^2$

$q_{cond+cables+paseos} = 2 \cdot (3{,}0 + 5{,}0 \times 1{,}45)\ KN/m = \underline{21\ KN/m}$

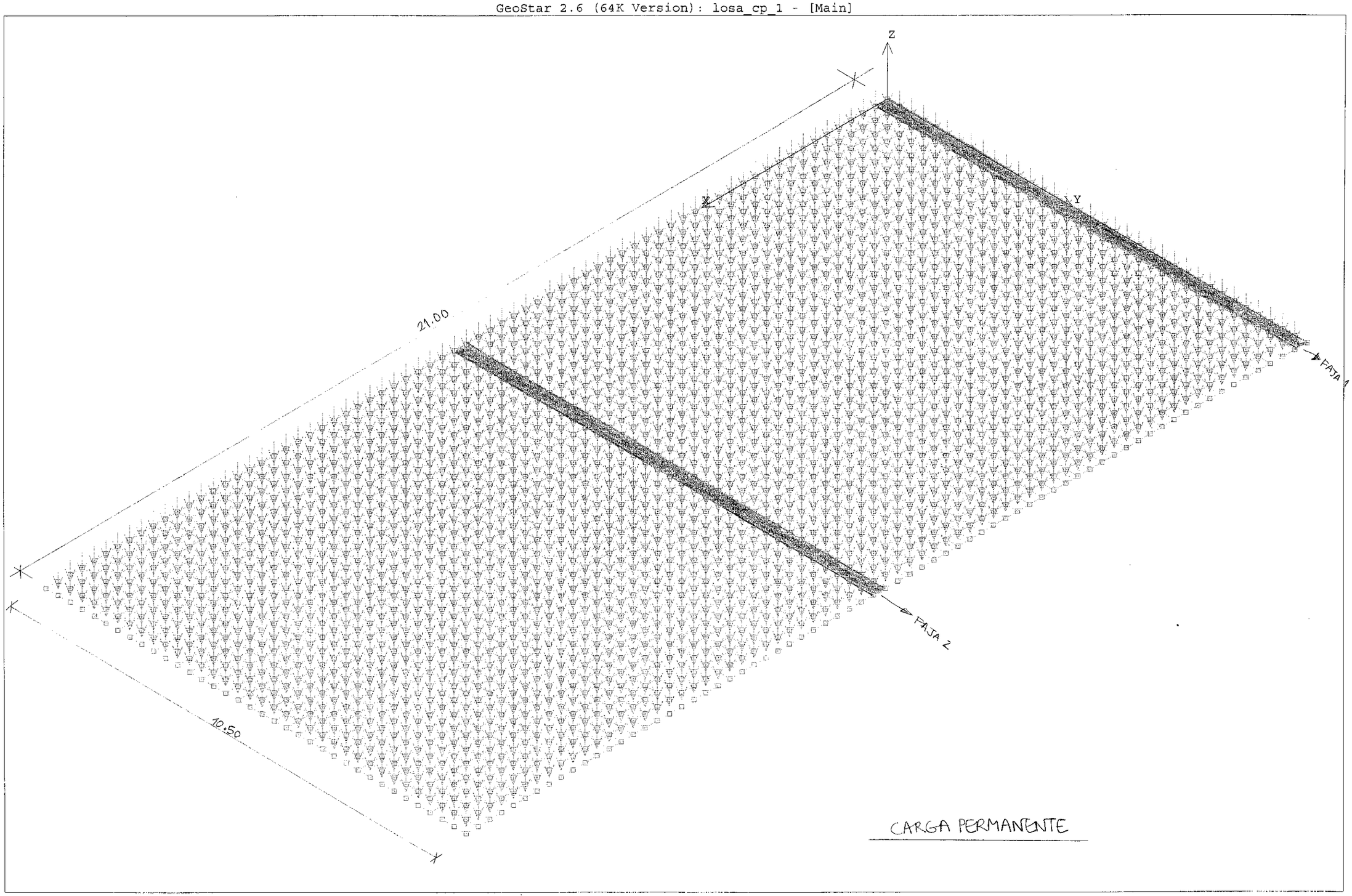
GUARDABALASTO

$q_{Guard} = 2 \times 0{,}2 \times 0{,}5 \times 25 = 5{,}0\ KN/m$

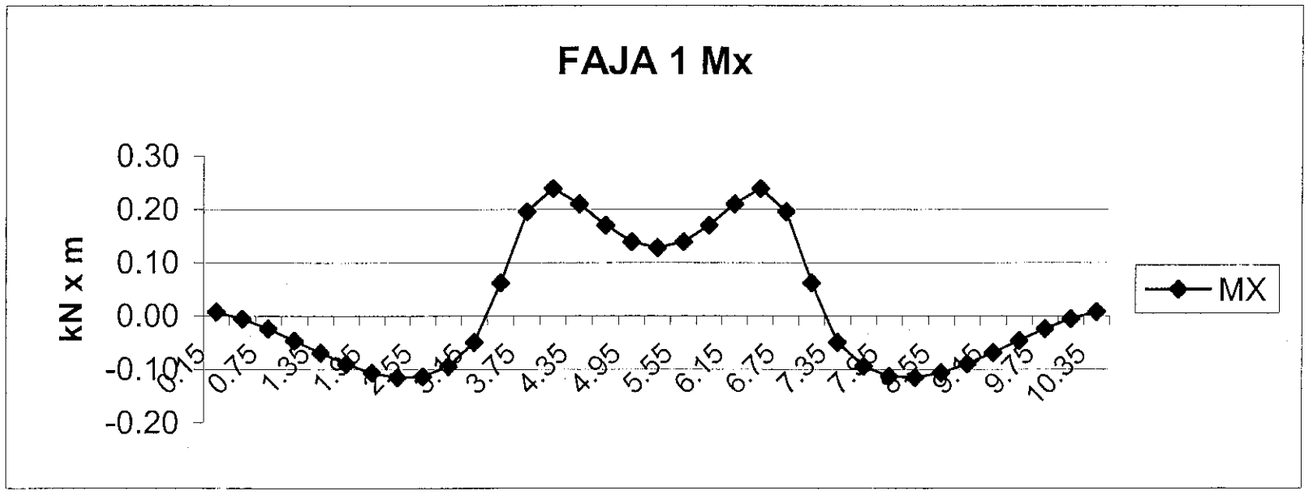
$q_{max} = q_S + \underbrace{13\ KN/m}_{Trav.+carr.} + \underbrace{5\ KN/m}_{Guardab.} = 160\ KN/m$

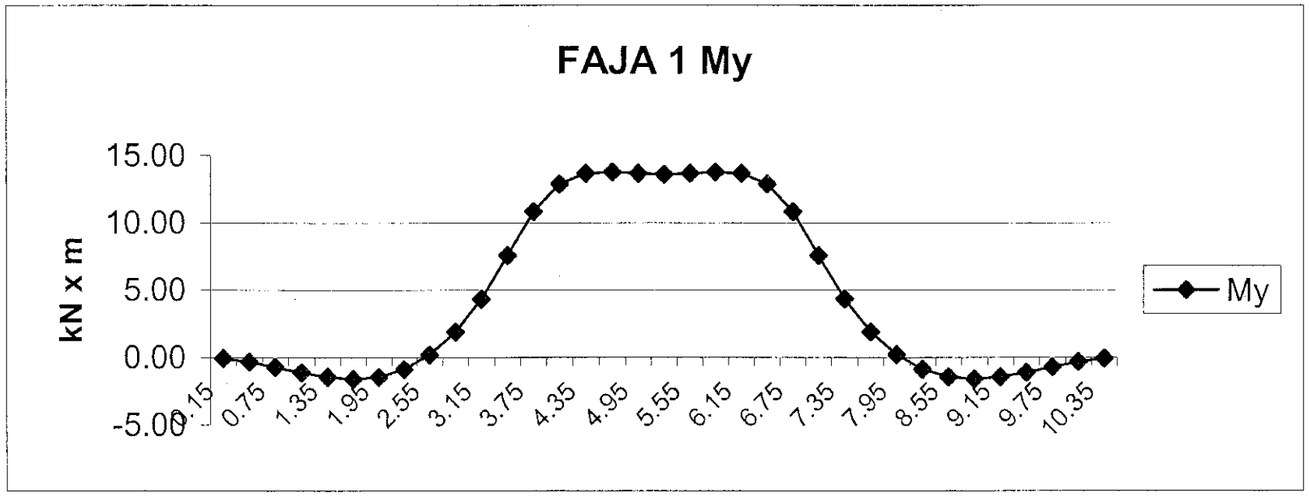
$q_{min} = q_i + 13\ KN/m + 5\ KN/m = 94\ KN/m$

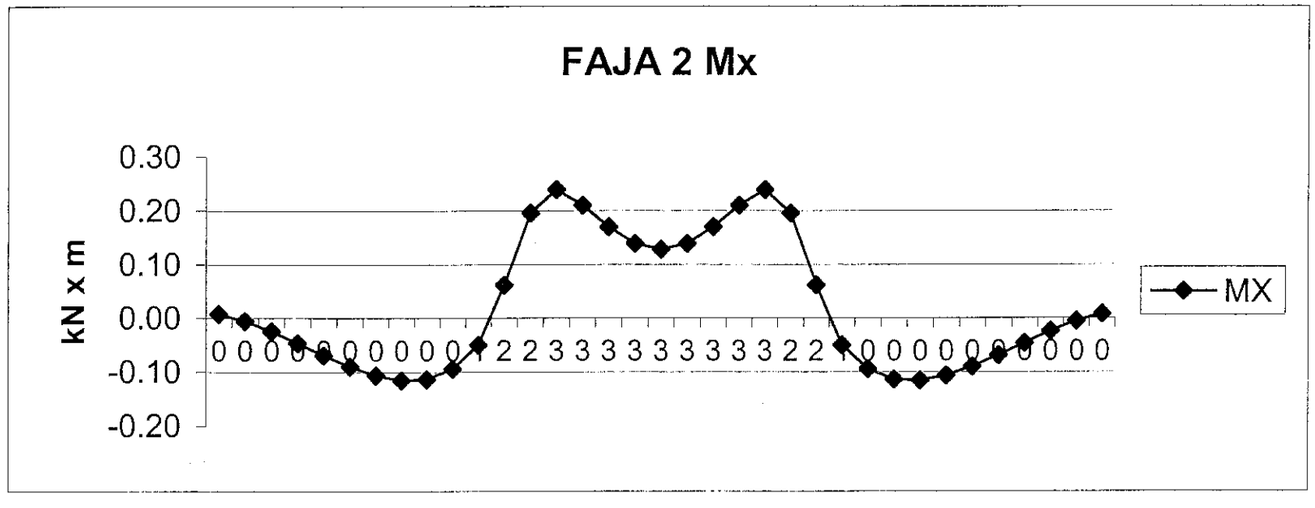
GeoStar 2.6 (64K Version): losa_cp_1 - [Main]

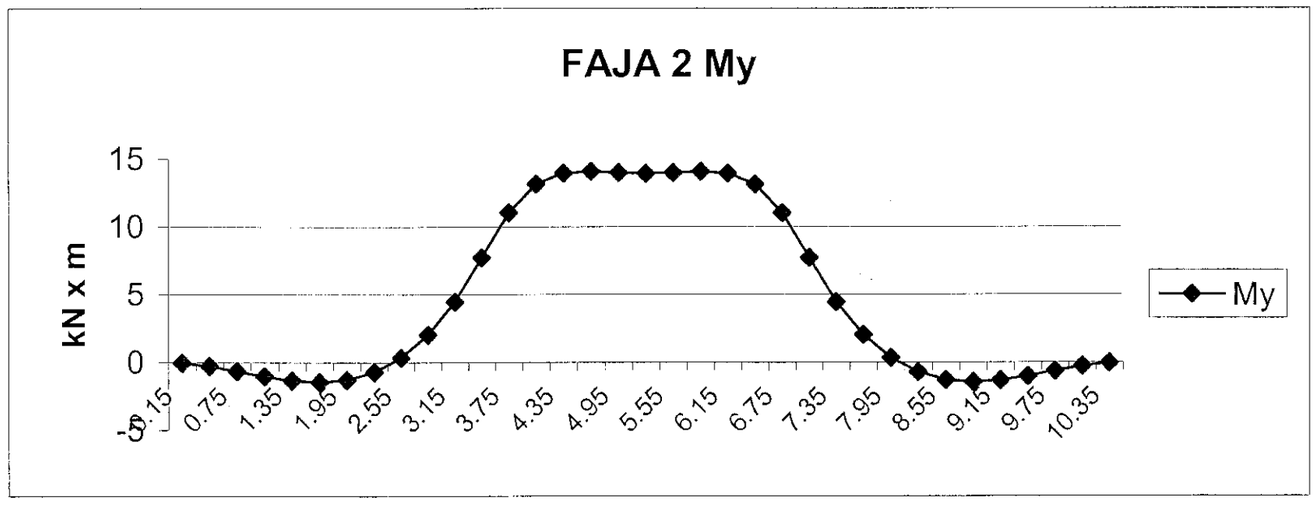


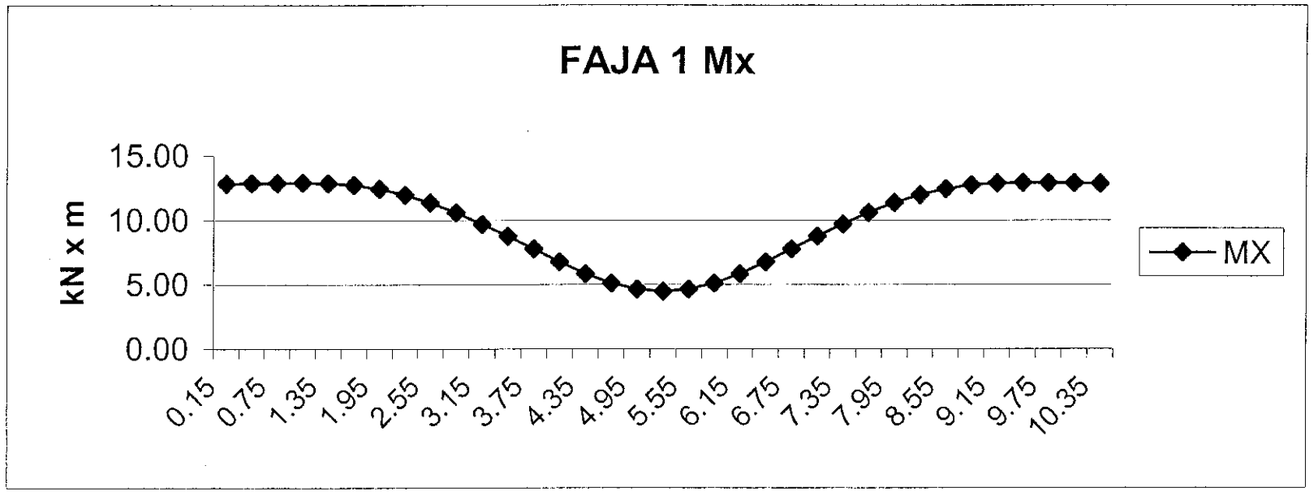
CARGA PERMANENTE

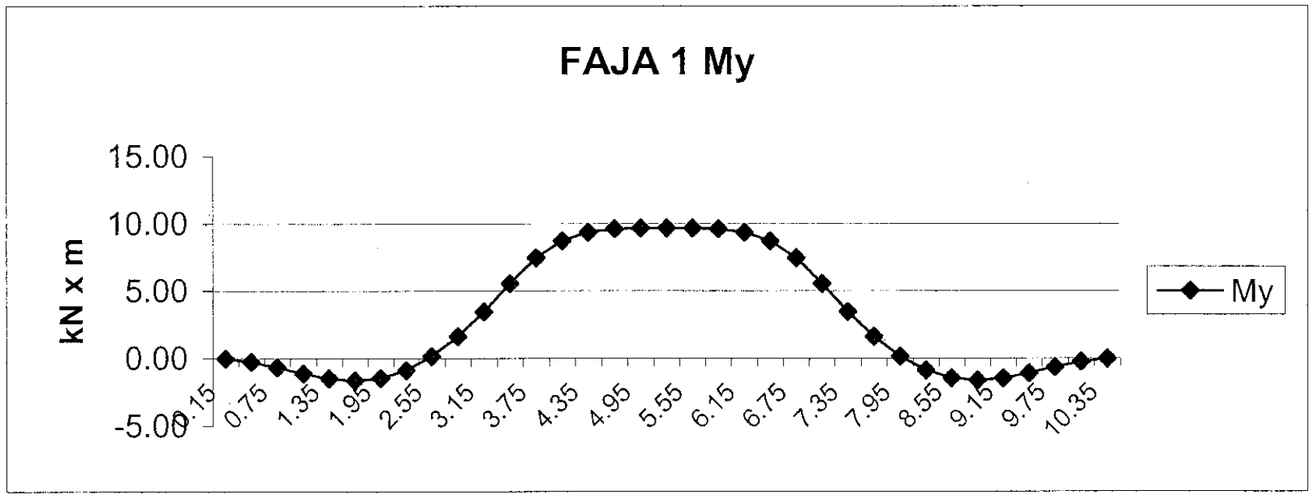

FAJA 1 Mx
kN x m
0.30
0.20
0.10
0.00
-0.10
-0.20
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 1 My
kN x m
15.00
10.00
5.00
0.00
-5.00
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

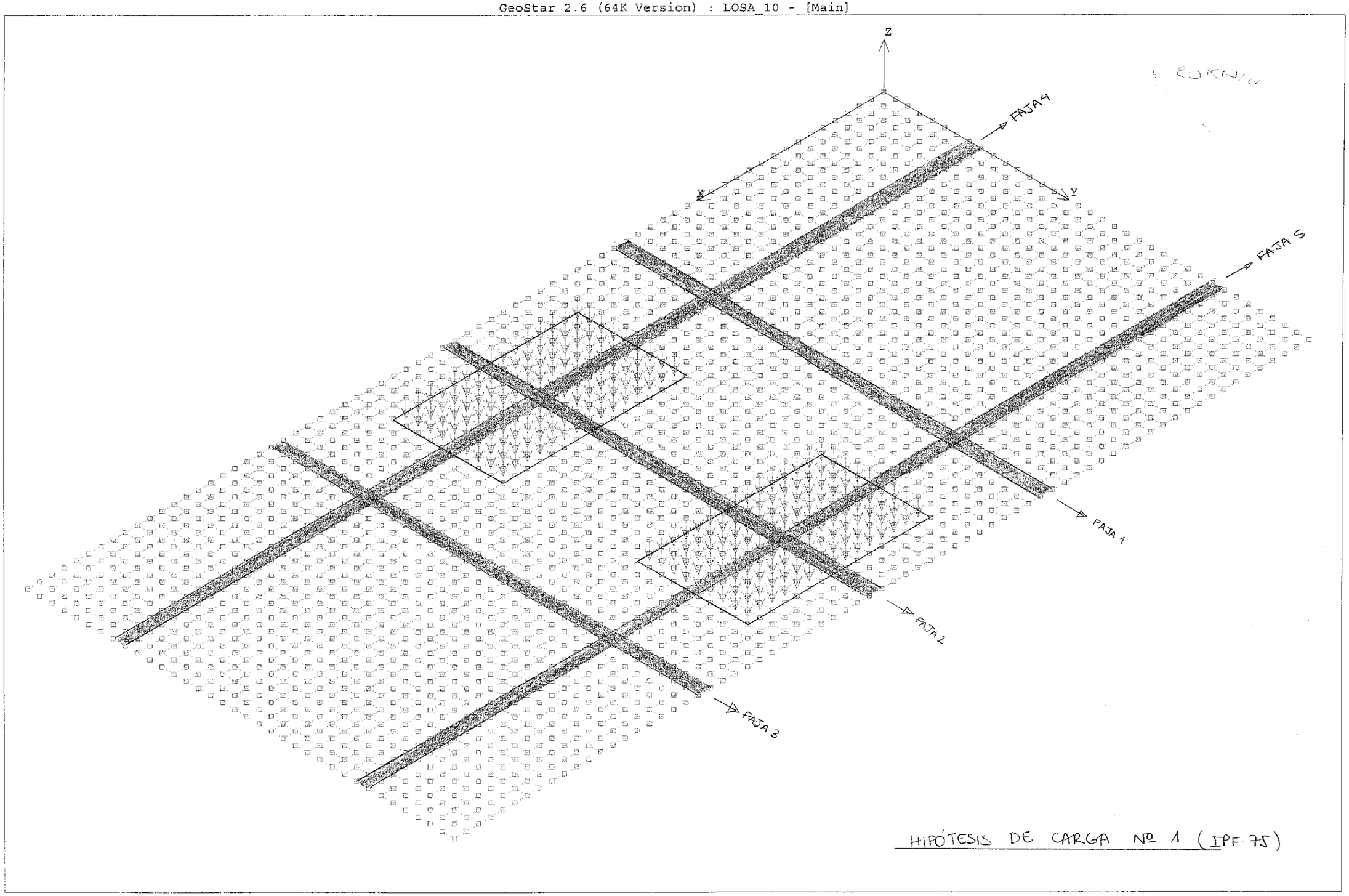

FAJA 2 Mx
kN x m
0.30
0.20
0.10
0.00
-0.10
-0.20
0 0 0 0 0 0 0 0 0 0 0 1 2 2 3 3 3 3 3 3 3 3 3 2 2 1 0 0 0 0 0 0 0 0 0 0
MX


FAJA 2 My
kN x m
15
10
5
0
-5
-0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

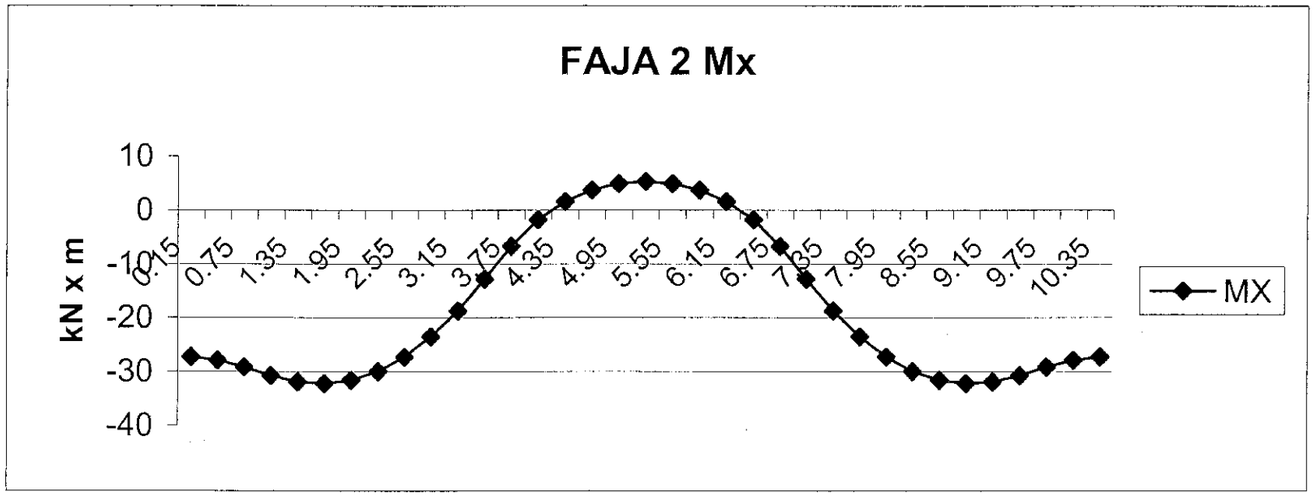

FAJA 1 Mx
kN x m
15.00
10.00
5.00
0.00
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

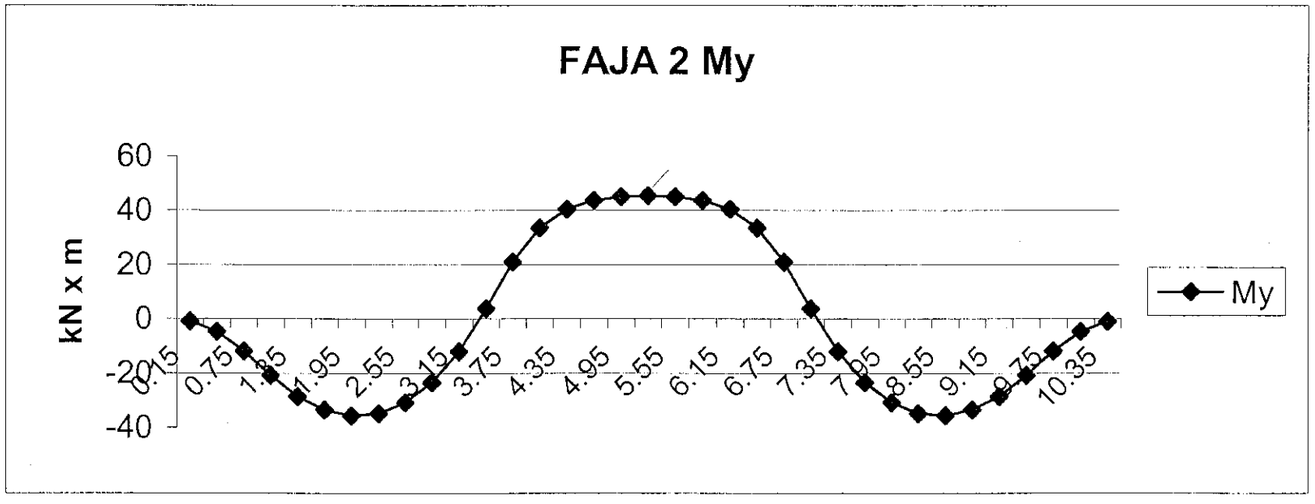

FAJA 1 My
kN x m
15.00
10.00
5.00
0.00
-5.00
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

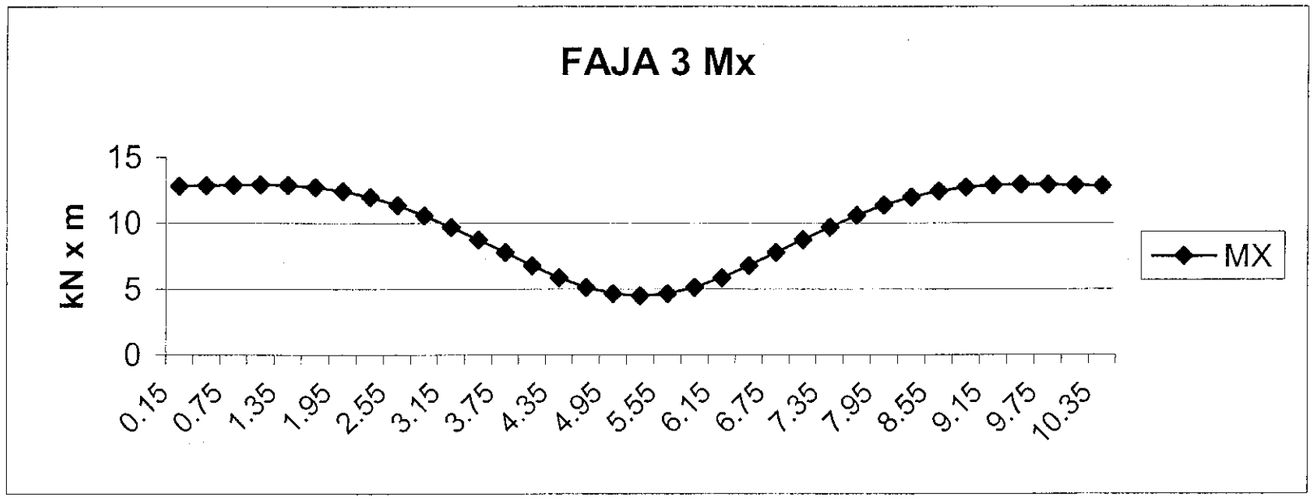
GeoStar 2.6 (64K Version) : LOSA_10 - [Main]

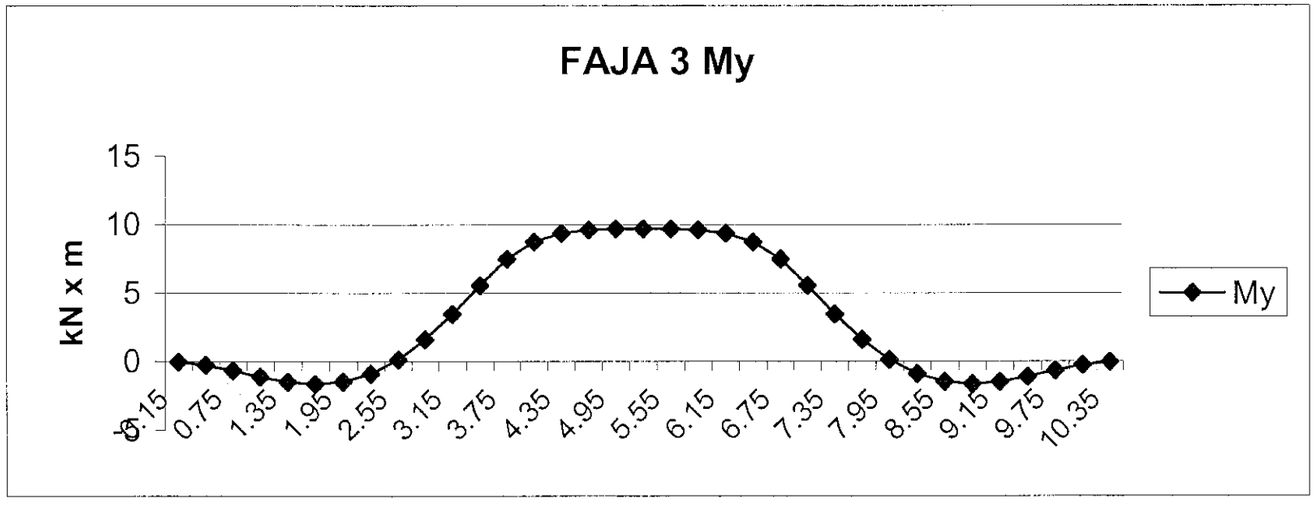


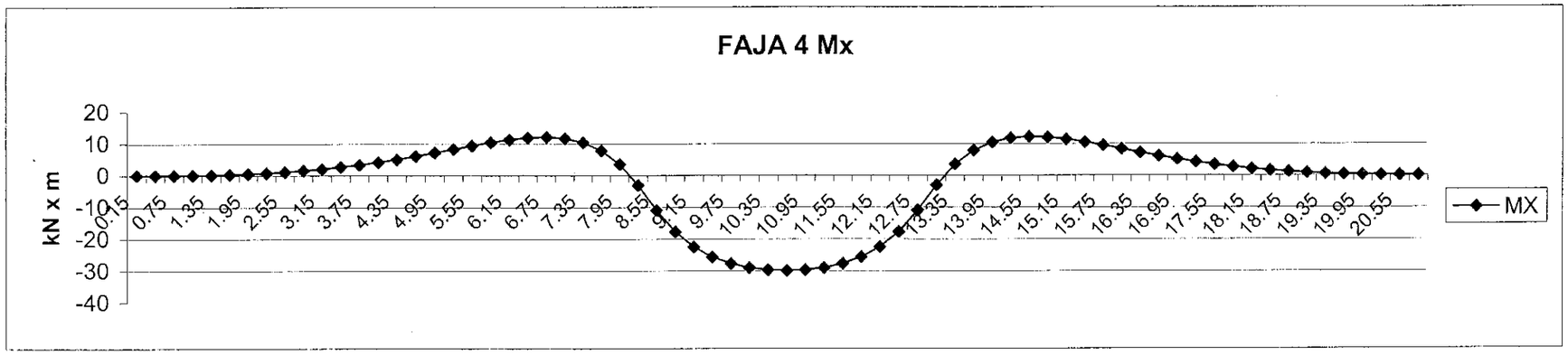
HIPÓTESIS DE CARGA Nº 1 (IPF-75)

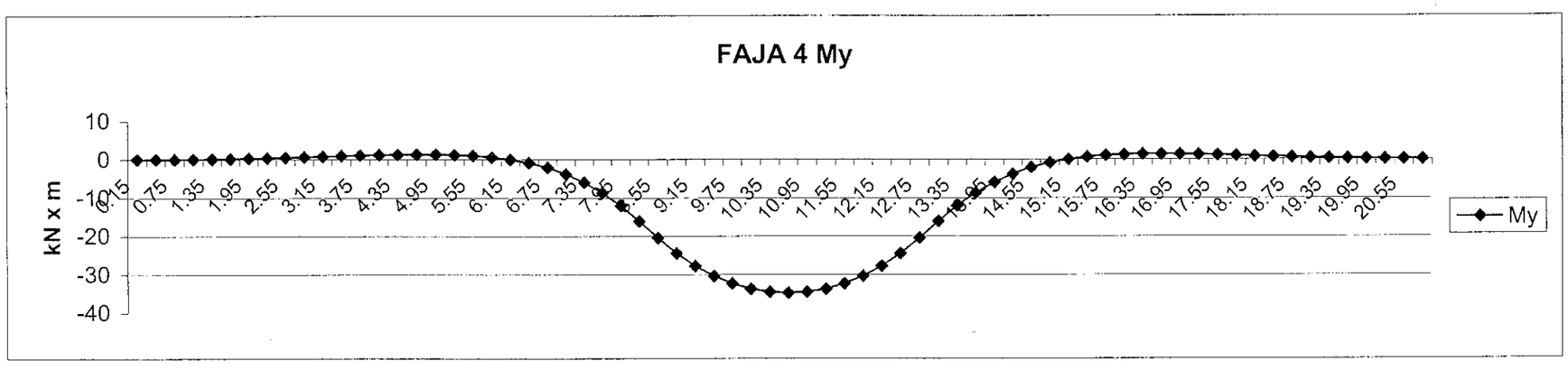

FAJA 2 Mx
kN x m
10
0
-10
-20
-30
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX

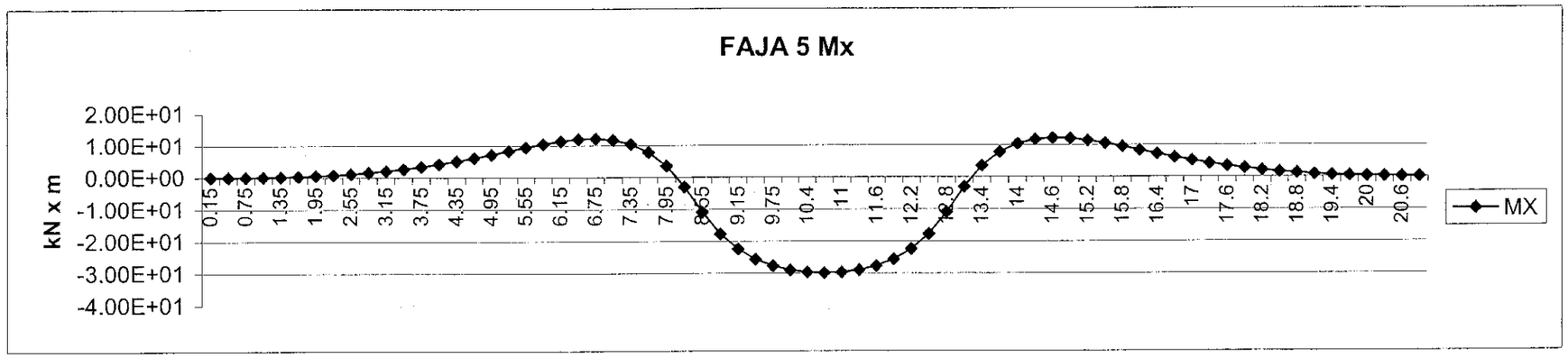

FAJA 2 My
kN x m
60
40
20
0
-20
-40
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

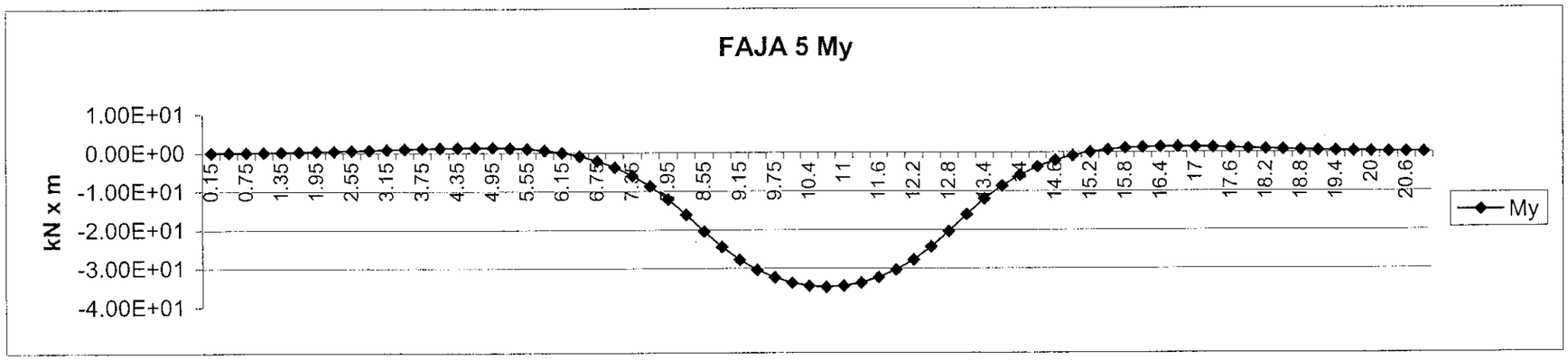

FAJA 3 Mx
kN x m
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
MX


FAJA 3 My
kN x m
15
10
5
0
0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
My

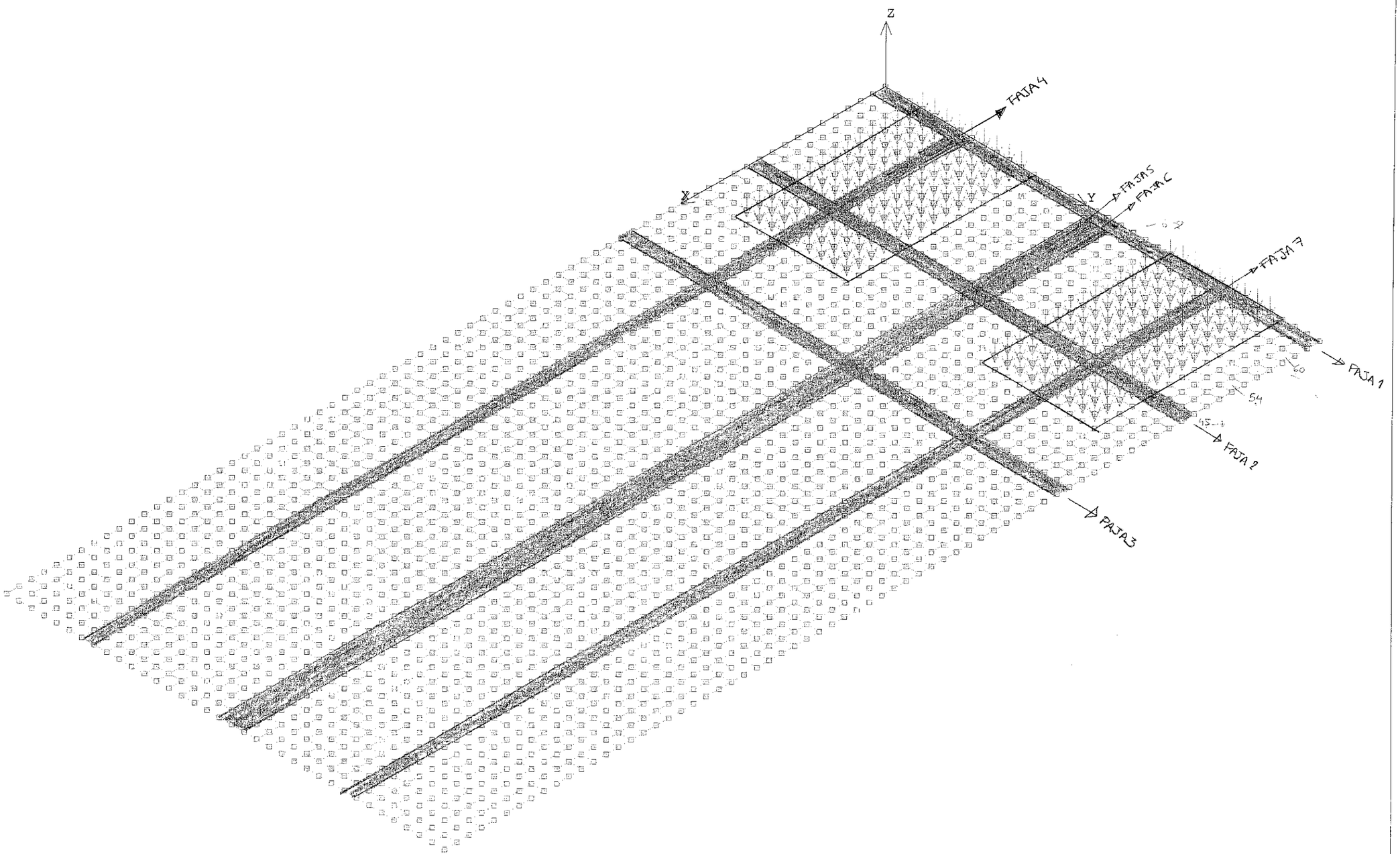

FAJA 4 Mx
kN x m
20
10
0
-10
-20
-30
-40
-0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
7.35
7.95
8.55
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
13.95
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
MX


FAJA 4 My
kN x m
10
0
-10
-20
-30
-40
-0.15
0.75
1.35
1.95
2.55
3.15
3.75
4.35
4.95
5.55
6.15
6.75
9.15
9.75
10.35
10.95
11.55
12.15
12.75
13.35
14.55
15.15
15.75
16.35
16.95
17.55
18.15
18.75
19.35
19.95
20.55
My

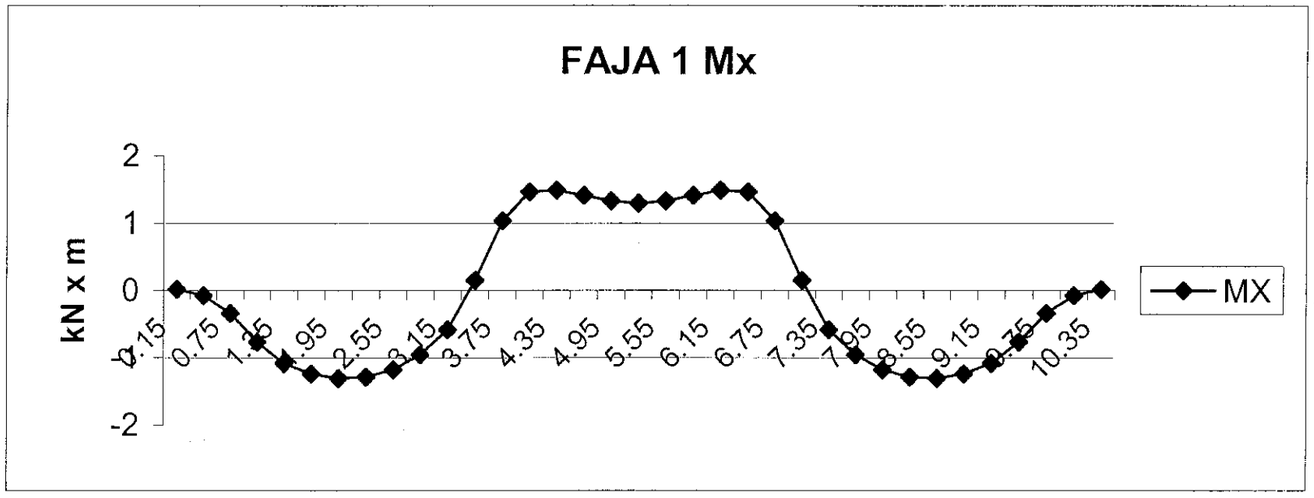

FAJA 5 Mx
kN x m
2.00E+01
1.00E+01
0.00E+00
-1.00E+01
-2.00E+01
-3.00E+01
-4.00E+01
0.15
0.75
1.35
1.95
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17
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19.4
20
20.6
MX

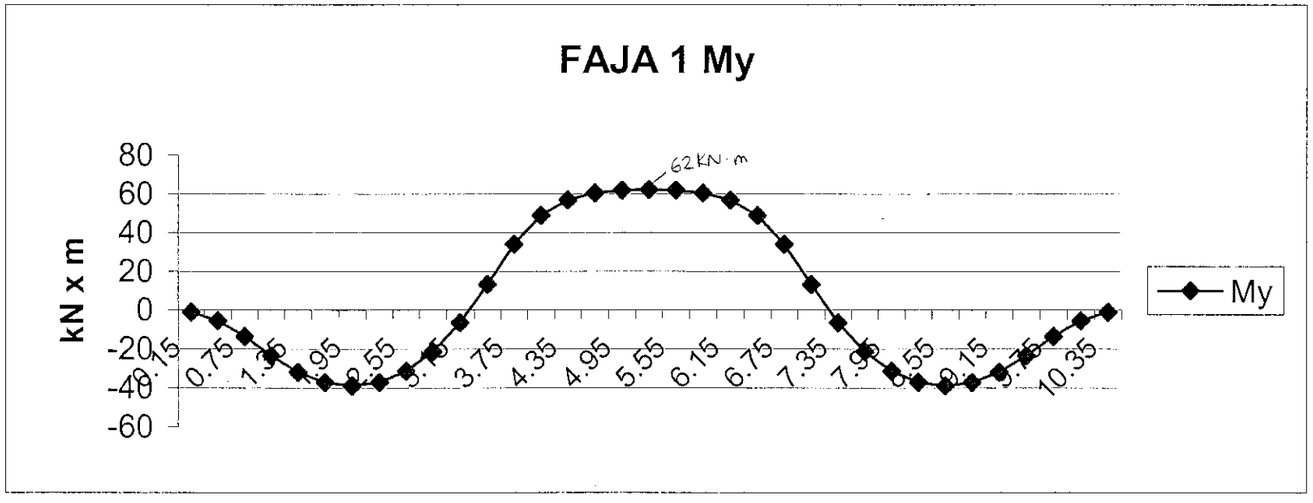

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0.00E+00
-1.00E+01
-2.00E+01
-3.00E+01
-4.00E+01
0.15
0.75
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7.35
7.95
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9.75
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20.6
My

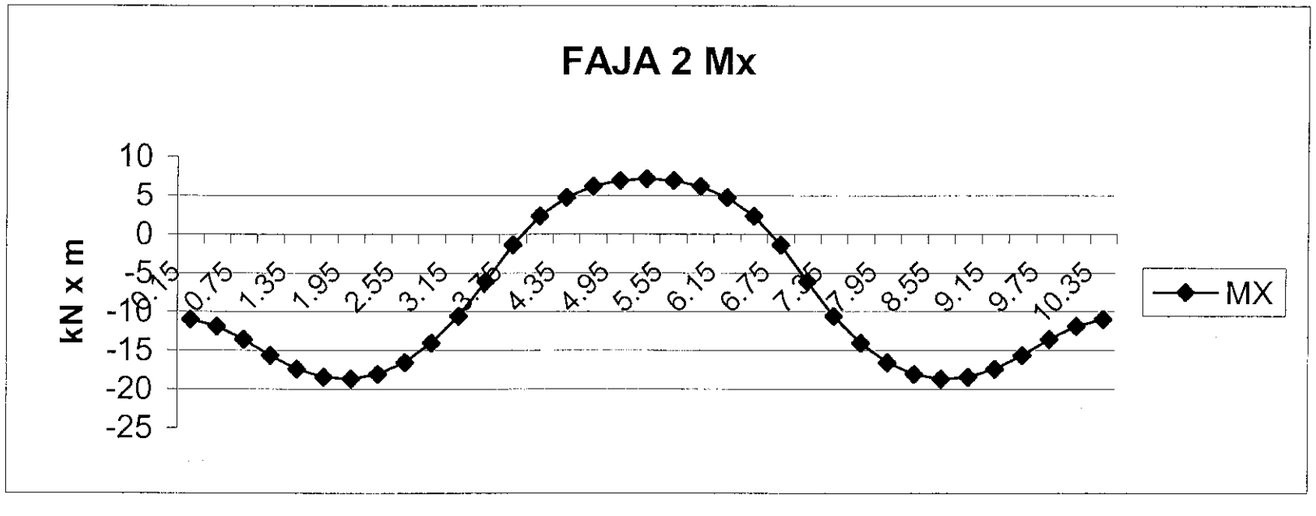
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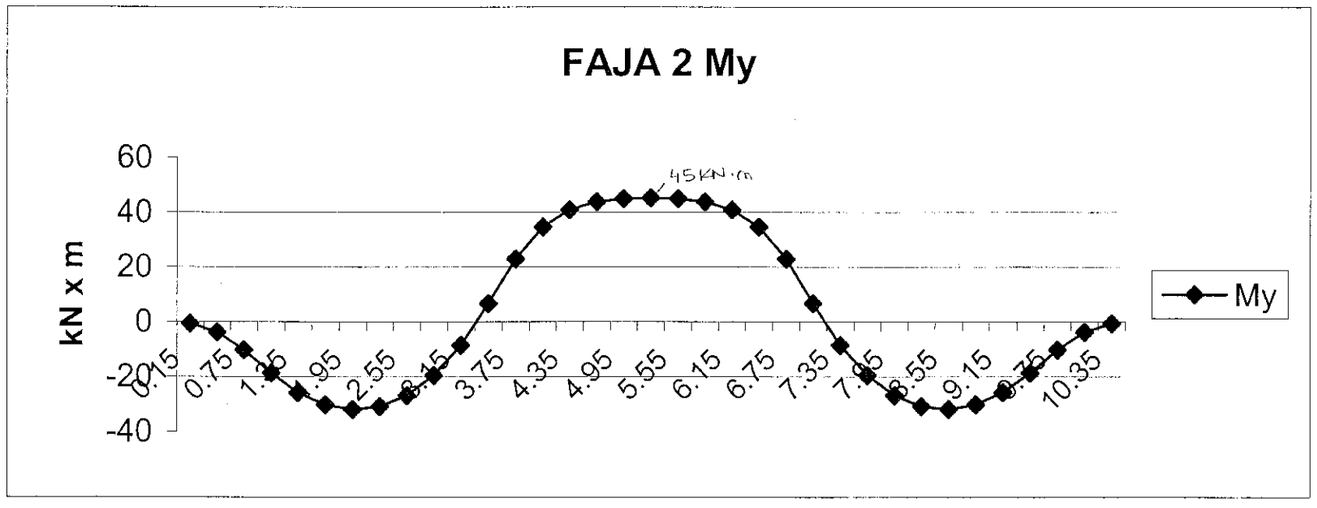


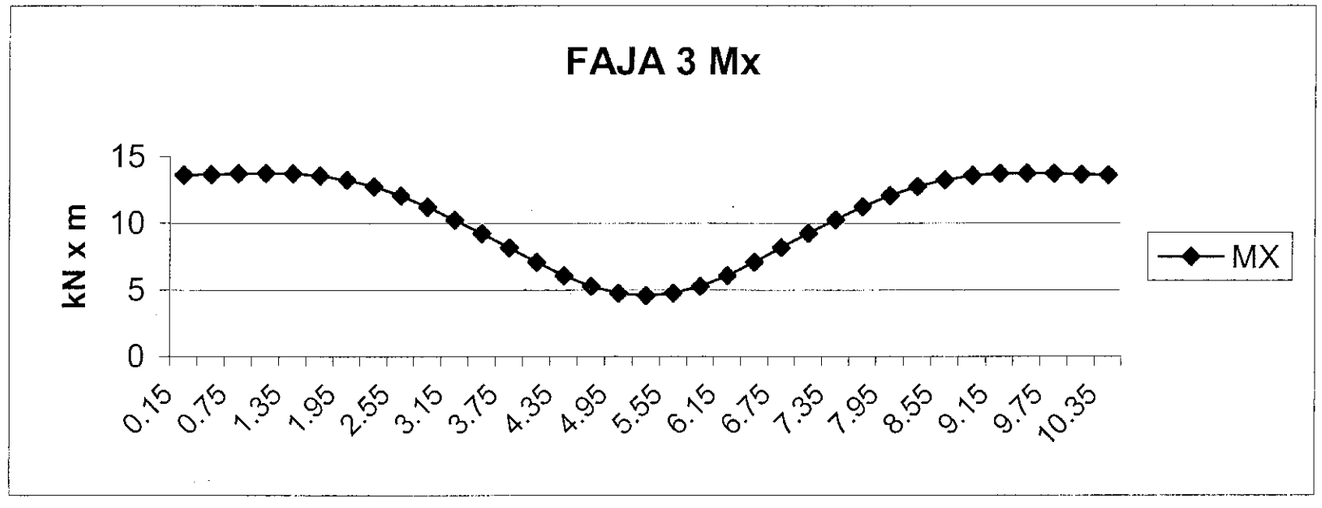
HIPÓTESIS DE CARGA Nº 2

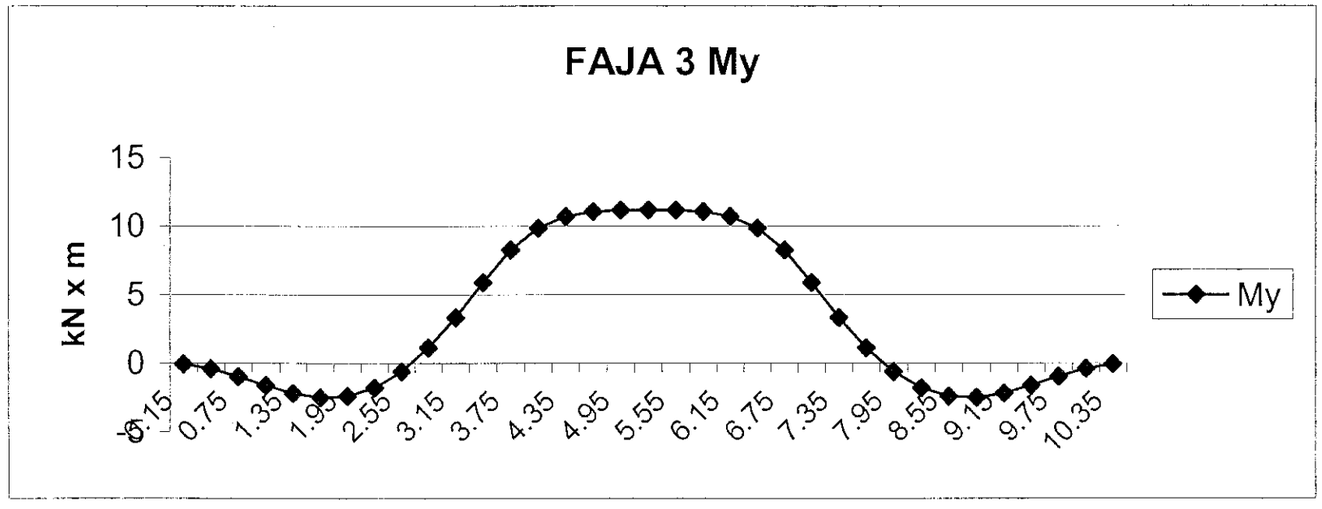

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MX

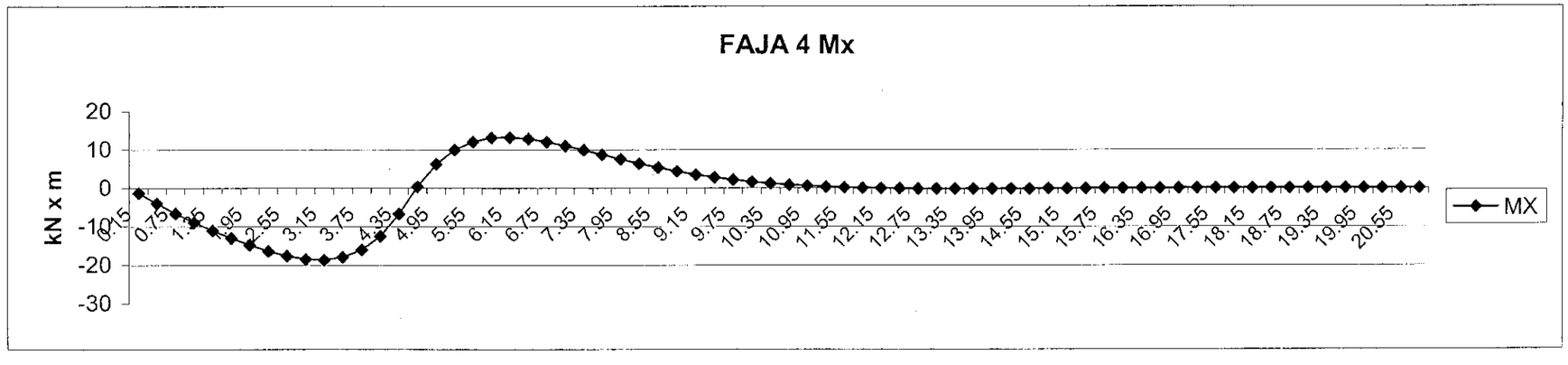

FAJA 1 My
kN x m
80
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62 KN · m
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My

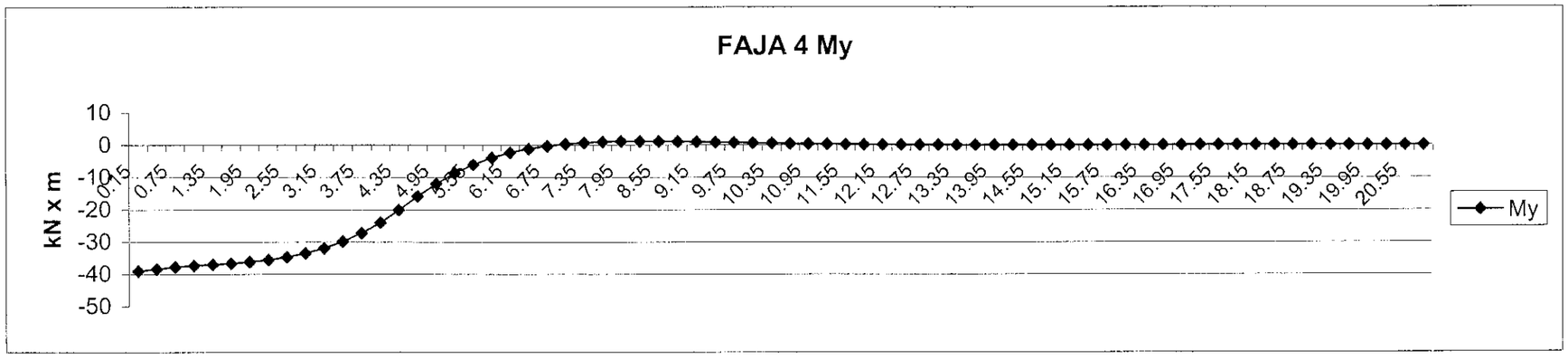

FAJA 2 Mx
kN x m
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MX

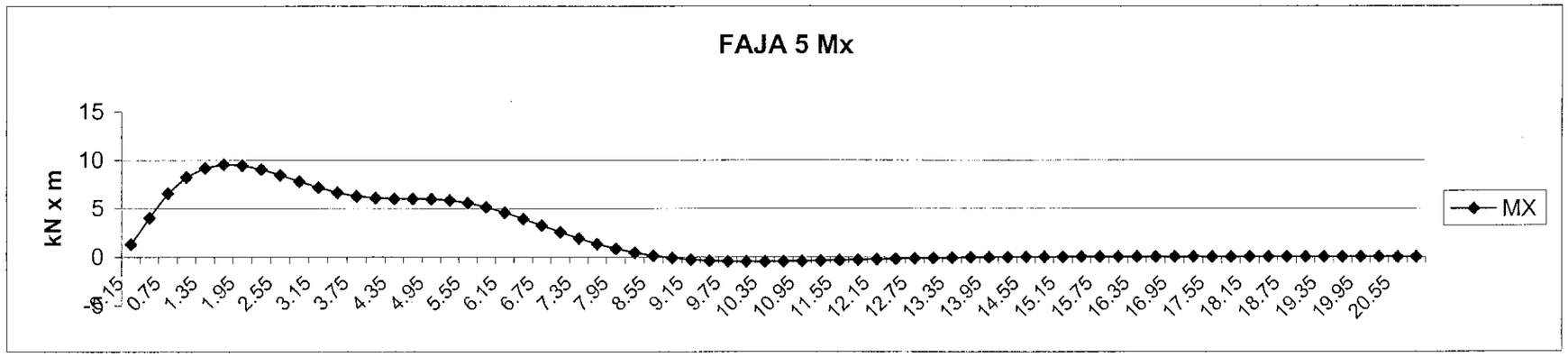

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kN x m
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My

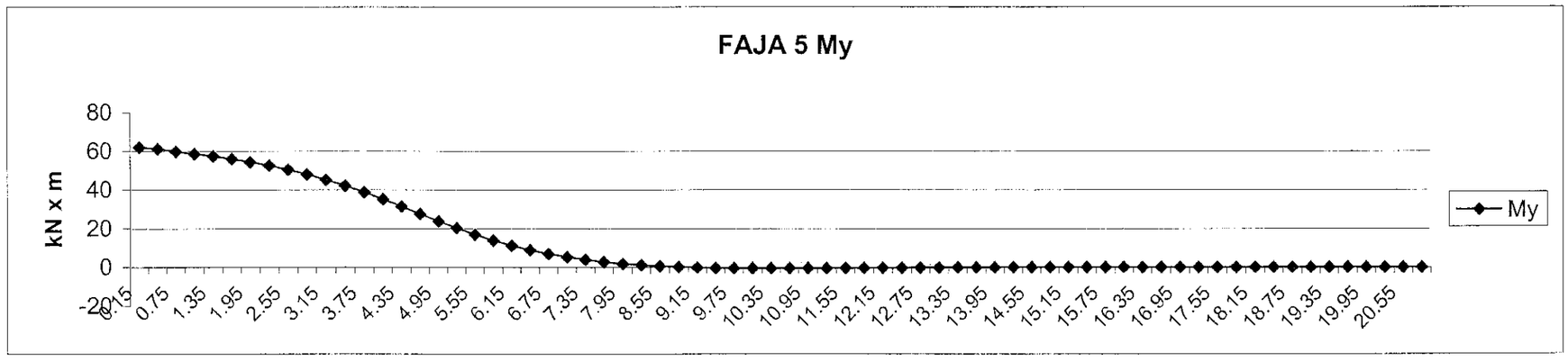

FAJA 3 Mx
kN x m
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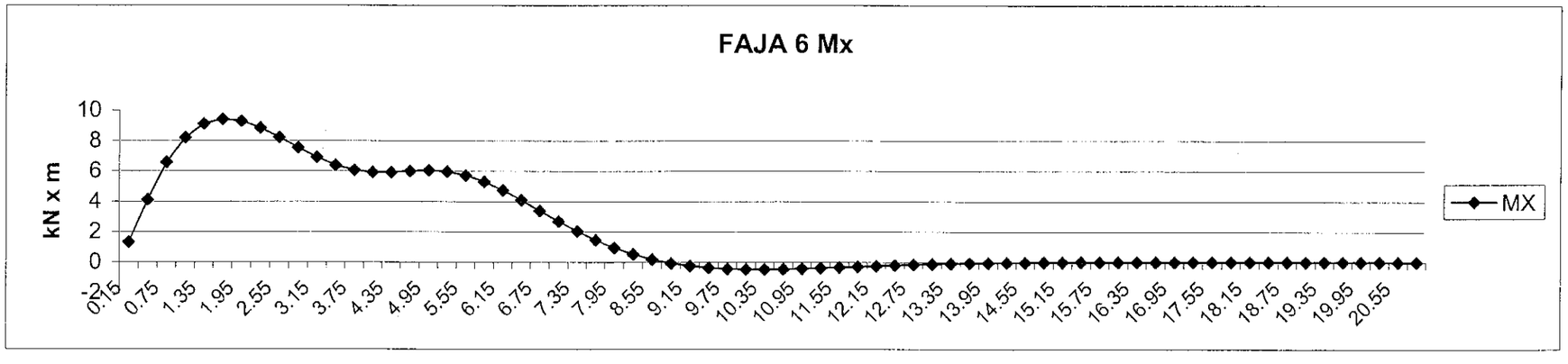

FAJA 3 My
kN x m
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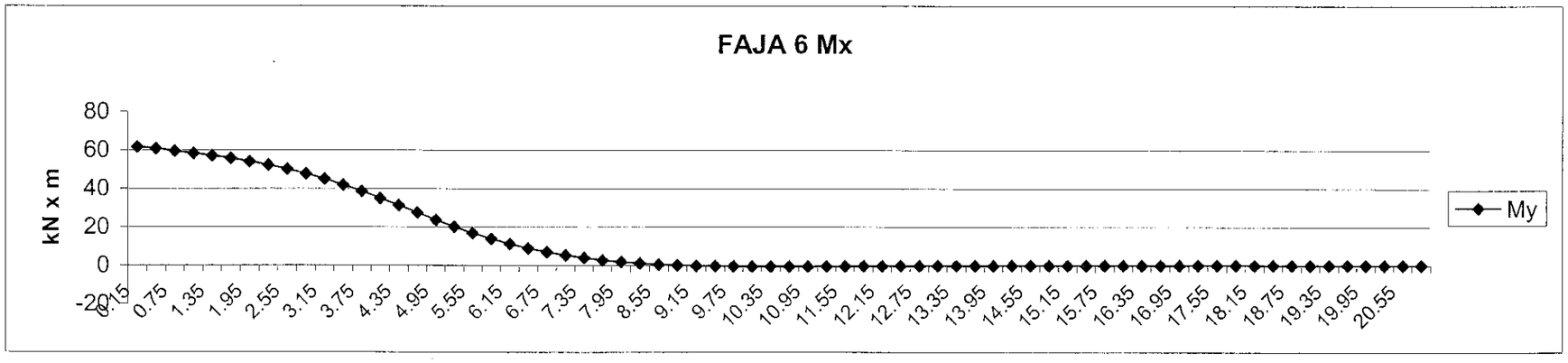

FAJA 4 Mx
kN x m
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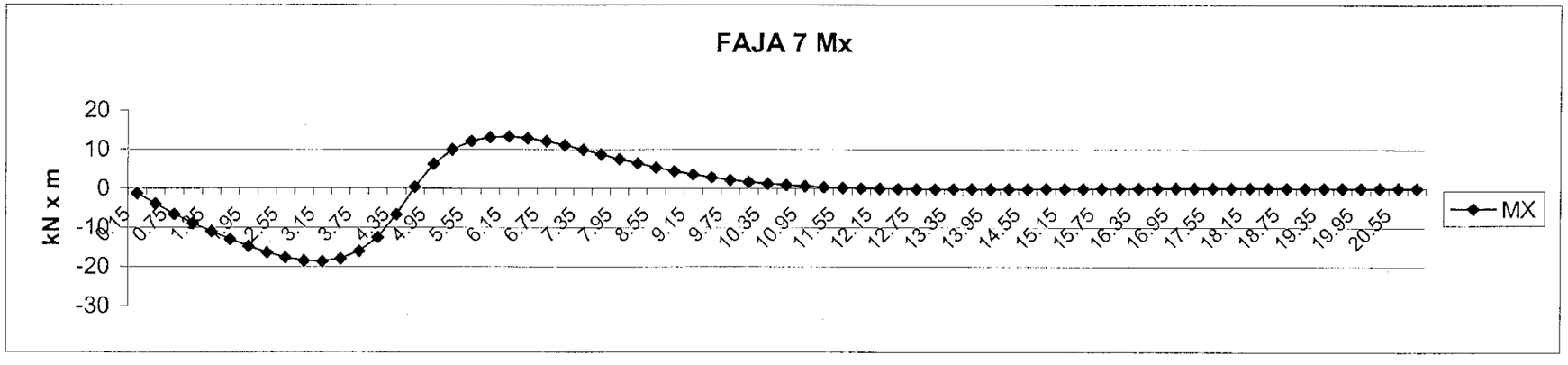

FAJA 4 My
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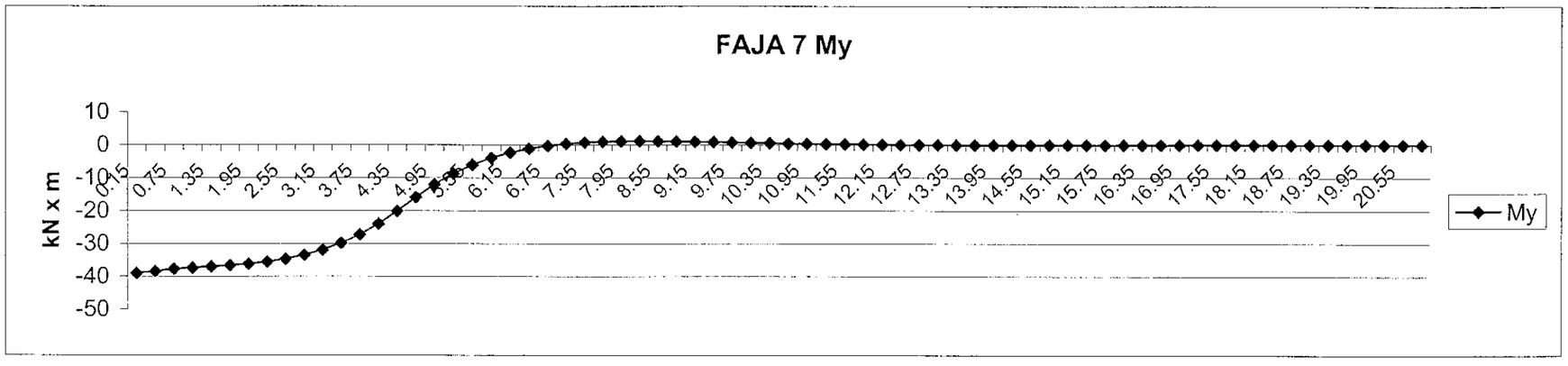

FAJA 5 Mx
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FAJA 5 My
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My


FAJA 6 Mx
kN x m
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FAJA 6 Mx
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My


FAJA 7 Mx
kN x m
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MX


FAJA 7 My
kN x m
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My

5. Proceso Constructivo

5. PROCESO CONSTRUCTIVO

Viaducto del Llobregat

La primera fase consiste en la formación de una península de trabajo en el Río Llobregat a fin de poder realizar la totalidad de los trabajos.

Tras realizar la península, se procede a realizar las perforaciones con pilotadoras usando lodos bentoníticos que garanticen la estabilidad de las paredes. Tras alcanzar la profundidad requerida (mínimo de 7 m de empotramiento en el mioceno), se colocan las armaduras y se procede a hormigonar.

Tras la ejecución de los pilotes, prosigue el vaciado de los recintos de las futuras cimentaciones de pilas y estribos. Para ello se hincan tablestacas metálicas, permitiendo así el vaciado del interior. Después se realiza el saneado de los pilotes, y tras la ejecución de una capa de limpieza, se inicia el montaje del armado del encepado, siendo posteriormente hormigonado y dejando embebidas las vainas para la inserción de las pilas prefabricas. En el caso de los estribos se dejan las esperas de arranque de los muros de los mismos.

A continuación se colocan las pilas prefabricadas por un lado, y por otro se ferrallan y encofran los alzados de ambos estribo, previamente a su hormigonado. Entonces se colocan los diferentes aparatos de apoyo (tipo POT), siendo nivelados.

Una vez dispuestos los POT, previo anclaje de torretas metálicas de soporte provisional de las vigas “martillo”, se colocan las vigas prefabricadas, siguiendo el siguiente orden: primero los martillos (vigas de canto variable apoyadas sobre pilas) y seguidamente las vigas entre martillo y estribo del primer vano. Posteriormente, con la misma filosofía, se colocan las vigas martillo de la siguiente pila y a continuación las vigas entre martillos; y así sucesivamente.

Después de la colocación de las vigas prefabricadas, se ejecutan las diversas uniones entre vigas. Luego, a fin de ejecutar la losa de compresión, se disponen las prelosas que servirán de encofrado, las cuales tras montar la armadura activa y pasiva y ser hormigonadas en las zonas de apoyo de pilas, son postesadas.

A continuación se hormigona el resto de tablero pendiente, para finalmente realizar las tareas de acabados, ejecución del muro guardabalasto, imposta y barandilla; así como la colocación de la canaleta y anclajes para la catenaria.

Losa entre los PP.KK. 400+229 y 400+399

Primero se realiza la excavación hasta la cota necesaria, sobre la cual se echa una capa de hormigón de limpieza. A continuación, en módulos de 19 m se procede a encofrar y montar la armadura, la cual se deja pasante en el sentido longitudinal (eje de la L.A.V.). Posteriormente, se realiza la operación de hormigonado.

6. Control de calidad (Empresa Constructora y Asistencia Técnica)

6.1. Control de calidad (Empresa Constructora)

6. CONTROL DE CALIDAD

6.1 CONTROL DE CALIDAD (Empresa Constructora)

A continuación se adjuntan los resultados de los ensayos realizados por el contratista.

6.1.1. Estructuras “in situ” y pequeñas obras de fábrica

TOMA DE MUESTRAS Y ENSAYO A COMPRESION DE PROBETAS DE HORMIGON

s/UNE 83-300-84 UNE 83-301-91 UNE 83-303-84 UNE 83-304-84 UNE 83-313-90

IDENTIFICACIÓN DE LA MUESTRA									Datos de la muestra						R. Media 28 días N/mm2	R. 90 días N/mm2	r	Kn	Fest
Fecha	Estructura	Denominación	Elemento	Denominación	Subelemento	Denominación	Parte	Denominación	Tipo de hormigón										
6-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	PILOTES	PILOTE 1			HA	25	F	20	IIa		36,3	42,2	0,18	0,94	29,05
5-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	PILOTES	PILOTE 2			HA	25	F	20	IIa		30,9	39,7			
1-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	PILOTES	PILOTE 3			HA	25	F	20	IIa		34,0	35,2			
8-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	PILOTES	PILOTE 4			HA	25	F	20	IIa		37,1	39,0			
13-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	PILOTES	PILOTE 1			HA	25	F	20	IIa		40,0	48,0	0,43	0,90	25,29
2-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	PILOTES	PILOTE 2			HA	25	F	20	IIa		36,9	41,9			
12-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	PILOTES	PILOTE 3			HA	25	F	20	IIa		44,1	46,2			
1-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	PILOTES	PILOTE 4			HA	25	F	20	IIa		28,1	30,2			
6-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	PILOTES	PILOTE 1			HA	25	F	20	IIa		33,5	36,9	0,18	0,90	27,00
30-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	PILOTES	PILOTE 2			HA	25	F	20	IIa		31,4	35,7			
3-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	PILOTES	PILOTE 3			HA	25	F	20	IIa		30,0	32,3			
21-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	PILOTES	PILOTE 4			HA	25	F	20	IIa		36,0	39,4			
15-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	PILOTES	PILOTE 1			HA	25	F	20	IIa		37,1	43,0	0,10	0,90	30,11
19-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	PILOTES	PILOTE 2			HA	25	F	20	IIa		34,0	43,7			
20-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	PILOTES	PILOTE 3			HA	25	F	20	IIa		35,4	41,4			
15-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	PILOTES	PILOTE 4			HA	25	F	20	IIa		33,5	34,9			
9-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	PILOTES	PILOTE 1			HA	25	F	20	IIa		41,5	46,8	0,41	0,96	29,13
9-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	PILOTES	PILOTE 1			HA	25	F	20	IIa		34,2	39,8			
6-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	PILOTES	PILOTE 2			HA	25	F	21	IIa		27,1	28,4			
6-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	PILOTES	PILOTE 2			HA	25	F	20	IIa		37,2	38,8			
7-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	PILOTES	PILOTE 3			HA	25	F	21	IIa		34,9	36,2			
7-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	PILOTES	PILOTE 3			HA	25	F	20	IIa		35,3	44,3			
13-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	PILOTES	PILOTE 4			HA	25	F	20	IIa		38,4	45,7			
13-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	PILOTES	PILOTE 4			HA	25	F	20	IIa		34,8	41,8			

TOMA DE MUESTRAS Y ENSAYO A COMPRESION DE PROBETAS DE HORMIGON

s/UNE 83-300-84 UNE 83-301-91 UNE 83-303-84 UNE 83-304-84 UNE 83-313-90

IDENTIFICACIÓN DE LA MUESTRA									Datos de la muestra						R. Media 28 días N/mm2	R. 90 días N/mm2	r	Kn	Fest
Fecha	Estructura	Denominación	Elemento	Denominación	Subelemento	Denominación	Parte	Denominación	Tipo de hormigón										
11-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	PILOTES	PILOTE 1			HA	25	F	20	IIa		34,5	36,1	0,16	0,96	28,90
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	PILOTES	PILOTE 2			HA	25	F	20	IIa		35,0	42,6			
6-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	PILOTES	PILOTE 3			HA	25	F	20	IIa		31,3	35,0			
27-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	PILOTES	PILOTE 4			HA	25	F	20	IIa		30,2	32,0			
7-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	PILOTES	PILOTE 5			HA	25	F	20	IIa		29,8	31,8			
5-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	PILOTES	PILOTE 6			HA	25	F	20	IIa		33,2	40,0			
29-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	PILOTES	PILOTE 7			HA	25	F	20	IIa		31,9	36,9			
20-9-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	PILOTES	PILOTE 8			HA	25	F	20	IIa		34,4	37,3			
22-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	ZAPATA				HA	25	B	20	IIa		35,9	37,3	0,24	0,94	30,25
22-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	ZAPATA				HA	25	B	20	IIa		40,5	41,3			
22-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	ZAPATA				HA	25	B	20	IIa		34,6	36,0			
22-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	ZAPATA				HA	25	B	20	IIa		39,7	40,8			
22-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	ZAPATA				HA	25	B	20	IIa		37,1	39,3			
22-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1	ZAPATA				HA	25	B	20	IIa		31,6	39,8			
1-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	ZAPATA				HA	25	B	20	IIa		40,6	41,6	0,31	0,94	27,59
1-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	ZAPATA				HA	25	B	20	IIa		40,1	41,2			
1-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	ZAPATA				HA	25	B	20	IIa		40,0	42,8			
1-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	ZAPATA				HA	25	B	20	IIa		29,4	34,4			
1-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	ZAPATA				HA	25	B	20	IIa		35,2	40,6			
1-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2	ZAPATA				HA	25	B	20	IIa		32,7	36,5			
7-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	ZAPATA				HA	25	B	20	IIa		38,3	42,8	0,10	0,94	35,30
7-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	ZAPATA				HA	25	B	20	IIa		36,3	43,4			
7-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	ZAPATA				HA	25	B	20	IIa		37,7	39,1			
7-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	ZAPATA				HA	25	B	20	IIa		35,3	37,6			
7-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	ZAPATA				HA	25	B	20	IIa		38,9	42,6			
7-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3	ZAPATA				HA	25	B	20	IIa		36,3	41,7			

TOMA DE MUESTRAS Y ENSAYO A COMPRESION DE PROBETAS DE HORMIGON

s/UNE 83-300-84 UNE 83-301-91 UNE 83-303-84 UNE 83-304-84 UNE 83-313-90

IDENTIFICACIÓN DE LA MUESTRA									Datos de la muestra						R. Media 28 días N/mm2	R. 90 días N/mm2	r	Kn	Fest
Fecha	Estructura	Denominación	Elemento	Denominación	Subelemento	Denominación	Parte	Denominación	Tipo de hormigón										
3-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	ZAPATA				HA	25	B	20	IIa		27,4	29,5	0,18	0,96	25,60
3-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	ZAPATA				HA	25	B	20	IIa		29,3	33,8			
3-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	ZAPATA				HA	25	B	20	IIa		27,3	29,6			
3-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	ZAPATA				HA	25	B	20	IIa		27,6	30,6			
3-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	ZAPATA				HA	25	B	20	IIa		30,9	33,7			
3-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4	ZAPATA				HA	25	B	20	IIa		25,7	30,4			
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ZAPATA				HA	25	B	20	IIa		29,3	33,2	0,14	0,97	27,50
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ZAPATA				HA	25	B	20	IIa		27,6	28,9			
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ZAPATA				HA	25	B	20	IIa		30,4	32,0			
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ZAPATA				HA	25	B	20	IIa		29,3	35,5			
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ZAPATA				HA	25	B	20	IIa		31,8	32,3			
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ZAPATA				HA	25	B	20	IIa		30,6	36,2			
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ZAPATA				HA	25	B	20	IIa		28,4	33,1			
10-10-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ZAPATA				HA	25	B	20	IIa		31,3	38,8			
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		36,3		0,15	0,97	33,47
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		34,3				
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		35,6				
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		34,8				
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		39,9				
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		36,5				
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		38,9				
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		37,4				
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		36,6		0,02	0,90	32,13
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ZAPATA				HA	25	B	20	IIa		35,7				

TOMA DE MUESTRAS Y ENSAYO A COMPRESION DE PROBETAS DE HORMIGON

s/UNE 83-300-84 UNE 83-301-91 UNE 83-303-84 UNE 83-304-84 UNE 83-313-90

IDENTIFICACIÓN DE LA MUESTRA									Datos de la muestra						R. Media 28 días N/mm2	R. 90 días N/mm2	r	Kn	Fest
Fecha	Estructura	Denominación	Elemento	Denominación	Subelemento	Denominación	Parte	Denominación	Tipo de hormigón										
29-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ALZADO	1a fase			HA	25	B	20	IIa		37,8	39,6	0,20	0,94	31,26
29-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ALZADO	1a fase			HA	25	B	20	IIa		36,9	38,1			
29-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ALZADO	1a fase			HA	25	B	20	IIa		33,3	34,5			
7-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 1	ALZADO	2a fase			HA	25	B	20	IIa		40,8	44,0			
25-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ALZADO	1a fase			HA	25	B	20	IIa		27,8		0,18	0,96	26,50
25-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ALZADO	1a fase			HA	25	B	20	IIa		31,7	36,1			
25-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ALZADO	1a fase			HA	25	B	20	IIa		33,1	35,8			
25-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ALZADO	1a fase			HA	25	B	20	IIa		29,4	35,1			
3-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ALZADO	2a fase			HA	25	B	20	IIa		27,6				
3-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	ESTRIBO	ESTRIBO 2	ALZADO	2a fase			HA	25	B	20	IIa		32,0	35,7			
10-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1					HA	50	F	12	IIa		90,7	95,7	0,26	0,97	76,00
10-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1					HA	50	F	12	IIa		83,8	85,6			
10-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 1					HA	50	F	12	IIa		95,5	97,0			
13-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2					HA	50	F	12	IIa		94,7	101,0			
13-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2					HA	50	F	12	IIa		84,0	85,0			
13-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 2					HA	50	F	12	IIa		83,3	94,8			
18-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3					HA	50	F	12	IIa		73,0	74,4			
18-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3					HA	50	F	12	IIa		87,8	90,0			
18-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 3					HA	50	F	12	IIa		78,9	80,3	0,11	0,94	74,12
20-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4					HA	50	F	12	IIa		83,5	85,5			
20-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4					HA	50	F	12	IIa		88,0	91,3			
20-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	PILA	PILA 4					HA	50	F	12	IIa		84,1	85,5			

TOMA DE MUESTRAS Y ENSAYO A COMPRESION DE PROBETAS DE HORMIGON

s/UNE 83-300-84 UNE 83-301-91 UNE 83-303-84 UNE 83-304-84 UNE 83-313-90

IDENTIFICACIÓN DE LA MUESTRA									Datos de la muestra						R. Media 28 días N/mm2	R. 90 días N/mm2	r	Kn	Fest
Fecha	Estructura	Denominación	Elemento	Denominación	Subelemento	Denominación	Parte	Denominación	Tipo de hormigón										
24-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		82,8	89,4			
24-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		70,4	81,1			
24-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		78,2	93,8			
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		80,0	84,9	0,16	0,96	69,25
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		81,0	84,8			
30-11-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		77,1				
19-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		79,4	84,9			
19-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		73,0	78,7			
19-12-05	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		84,4	86,5			
26-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		87,4		0,29	0,97	70,81
26-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		93,5				
26-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		97,1				
26-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		98,0				
6-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		82,1				
6-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		96,7		0,17	0,92	75,53
6-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	MARTILLO					HP	50	F	12	IIa		83,8				
26-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		87,4	90,5			
26-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		93,5	95,7			
26-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		97,1	101,2			
26-1-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		98,0	101,0	0,24	0,97	76,20
3-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		76,7	77,9			
3-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		83,4	85,5			
3-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		83,9	85,0			

TOMA DE MUESTRAS Y ENSAYO A COMPRESION DE PROBETAS DE HORMIGON

s/UNE 83-300-84 UNE 83-301-91 UNE 83-303-84 UNE 83-304-84 UNE 83-313-90

IDENTIFICACIÓN DE LA MUESTRA									Datos de la muestra						R. Media 28 días N/mm2	R. 90 días N/mm2	r	Kn	Fest
Fecha	Estructura	Denominación	Elemento	Denominación	Subelemento	Denominación	Parte	Denominación	Tipo de hormigón										
7-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		79,7		0,15	0,96	69,35
7-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		81,8				
7-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		79,9				
10-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		77,6	79,2			
10-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		70,3	73,6			
10-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		78,5	79,9			
13-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		88,4	90,6	0,32	0,96	62,06
13-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		75,0	90,4			
13-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		80,9	83,2			
20-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		68,6	74,4			
20-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		64,7	80,8			
20-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		73,7	78,4			
22-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		70,8	83,6	0,22	0,96	67,92
22-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		83,5	88,3			
22-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		71,8	79,2			
23-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		82,6	87,0			
23-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		74,8	78,7			
23-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		87,9	91,3			
27-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		86,5	90,6	0,16	0,96	70,94
27-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		74,7	80,4			
27-2-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		85,6	89,7			
1-3-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		79,6	89,9			
1-3-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		85,6	89,7			
1-3-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		73,9	89,9			
6-3-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		85,4	94,1	0,09	0,92	71,67
6-3-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		79,9	96,7			
6-3-06	VIADUCTO	VIADUCTO DEL LLOBREGAT	TABLERO	VIGA ADOSADA					HP	50	F	12	IIa		77,9	96,0			

Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1425	360	1023333	09/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	06/09/2005	LABORANTE:	Julián Módenes
HORA TOMA:	19:40	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	19:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:		COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	62%
TIEMPO:	Soleado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	507872
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 620
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 19:04
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 19:30
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 20:34

MUESTRA:	ALBARAN Nº
H .2005/17420	135785

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
20.0	20.0	20 cm

RECOGIDA DE PROBETAS

FECHA: 07/09/2005 HORA: 16:30
TEMP.AMB. 25.5 °C HUM. RELAT.: 89%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	13/09/2005	7	27.4	27.4
2	04/10/2005	28	35.9	36.2
3	04/10/2005	28	36.6	
4	05/12/2005	90	42.2	42.2

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILA 1 PILOTE 1

OBSERVACIONES

Vº Bº DIRECTOR,

P.A.

Fabián Velázquez Cabrera

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Fulgencio Dávila Judas

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1422	359	1023333	09/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	05/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	18:20	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	18:35	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	32 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	31.5 °C
HUMEDAD RELATIVA:	32%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	507849
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 1000-CNK
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 17:37
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 17:58
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:07

MUESTRA:	ALBARAN Nº
H .2005/17363	134934

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 06/09/2005 HORA: 18:30
TEMP.AMB. 29 °C HUM. RELAT.: 45%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	12/09/2005	7	29.8	29.8
2	03/10/2005	28	31.2	30.9
3	03/10/2005	28	30.6	
4	05/12/2005	91	39.7	39.7

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILA 1, PILOTE 2

OBSERVACIONES

Vº Bº DIRECTOR,

P.A.

Fabián Velázquez Cabrera

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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1413	356	1023333	01/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	01/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	15:40	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	15:55	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	35 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	34.5 °C
HUMEDAD RELATIVA:	39%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	507831
DESIGNACION:	IIA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	9987-CVX
REL.AGUA/CEMENTO:	0.50	CONSISTENCIA:	Fluida	CARGA (m³):	6	H.SALIDA PLANTA	14:59
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	15:20
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	16:29

MUESTRA:	ALBARAN Nº
H .2005/17160	134920

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	08/09/2005	7	29.5	29.5
2	29/09/2005	28	33.8	33.9
3	29/09/2005	28	34.1	
4	30/11/2005	90	35.2	35.2

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
17.0	17.0	17 cm

RECOGIDA DE PROBETAS

FECHA: 02/09/2005 HORA: 09:15
TEMP.AMB. 28.2 °C HUM. RELAT.: 39%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILOTE Nº 3, PILA 1

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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Fulgencio Dávila Judas

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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1431	365	1023333	12/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	08/09/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	17:10	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	17:25	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	24 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	507892
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	340	MATRICULA:	0405-CGB
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³):	6	H.SALIDA PLANTA	16:33
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	16:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	18:03

MUESTRA:	ALBARAN Nº
H .2005/17556	136183

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	15/09/2005	7	28.4	28.4
2	06/10/2005	28	36.4	37.0
3	06/10/2005	28	37.7	
4	07/12/2005	90	39.0	39.0

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
18.0	18.0	18 cm

RECOGIDA DE PROBETAS

FECHA: 09/09/2005 HORA: 10:30
TEMP.AMB. 21 °C HUM. RELAT.:

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILA 1 PILOTE 4

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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Fulgencio Dávila Judas

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08191 Rubí (Barcelona)
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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1455	371	1023333	13/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	13/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	18:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	19:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	32 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	31.5 °C
HUMEDAD RELATIVA:	89%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	507932
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 6400-DNR
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 10	H.SALIDA PLANTA 18:20
ADITIVO:	SUPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 18:40
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:50

MUESTRA:	ALBARAN Nº
II .2005/17835	136817

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	20/09/2005	7	34.6	34.6
2	11/10/2005	28	39.6	40.0
3	11/10/2005	28	40.4	
4	12/12/2005	90	48.0	48.0

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
19.0	19.0	19 cm

RECOGIDA DE PROBETAS

FECHA: 14/09/2005 HORA: 13:15
TEMP.AMB. 28.5 °C HUM. RELAT.: 72%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:	OBSERVACIONES
PILOTE 1, PILA 2		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1415	358	1023333	05/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	02/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	16:10	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	16:25	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	33 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	32.5 °C
HUMEDAD RELATIVA:	39%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	507844
DESIGNACION:	IIA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 7054-BDD
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 15:25
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 15:50
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 16:55

MUESTRA:	ALBARAN Nº
II .2005/17284	134927

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	09/09/2005	7	31.6	31.6
2	30/09/2005	28	37.4	36.9
3	30/09/2005	28	36.4	
4	01/12/2005	90	41.9	41.9

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
18.0	18.0	18 cm

RECOGIDA DE PROBETAS

FECHA: 05/09/2005 HORA: 18:00
TEMP.AMB. 32.5 °C HUM. RELAT.: 39%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:	OBSERVACIONES
PILOTE 2, PILA 2		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1453	368	1023333	13/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	12/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	18:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	19:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:		COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	33.5 °C
HUMEDAD RELATIVA:	32%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507912
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: B-4432-PJ
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 18:26
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 18:36
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:56

MUESTRA:	ALBARAN Nº
H .2005/17751	136813

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
25.0	25.0	25 cm

RECOGIDA DE PROBETAS

FECHA: 13/09/2005 HORA: 19:15
TEMP.AMB. 25.5 °C HUM. RELAT.: 89%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	19/09/2005	7	33.2	33.2
2	10/10/2005	28	44.6	44.1
3	10/10/2005	28	43.6	
4	12/12/2005	91	46.2	46.2

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
PILOTE 3, PILA 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

Fabián Velázquez Cabrera

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1414	357	1023333	01/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	01/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	19:20	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	19:35	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	37 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	35.2 °C
HUMEDAD RELATIVA:	39%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507836
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 6400-DNR
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 10	H.SALIDA PLANTA 18:49
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 19:10
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 20:19

MUESTRA:	ALBARAN Nº
H .2005/17161	134922

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 02/09/2005 HORA: 09:15
TEMP.AMB. 28.2 °C HUM. RELAT.: 39%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	08/09/2005	7	26.1	26.1
2	29/09/2005	28	27.9	28.1
3	29/09/2005	28	28.3	
4	30/11/2005	90	30.2	30.2

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
PILOTE Nº 4, PILA 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

Fabián Velázquez Cabrera

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1526	384	1023333	05/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	06/10/2005	LABORANTE:	Jimmy Balseca
HORA TOMA:	12:00	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	23 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	
TIEMPO:	Soleado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	508080
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: M-9116-YU
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 11:07
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20		RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 11:25
MARCA:	PLASTIFICANTE	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:37

MUESTRA:	ALBARAN Nº
II .2005/20191	139110

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
18.0	18.0	18 cm

RECOGIDA DE PROBETAS

FECHA: 08/10/2005 HORA: 10:05
TEMP.AMB. 13 °C HUM. RELAT.: 72%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	13/10/2005	7	24.6	24.6
2	03/11/2005	28	34.0	33.5
3	03/11/2005	28	33.0	
4	04/01/2006	90	36.9	36.9

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
PILOTES 1 DE LA PILA 3	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1525	383	1023333	05/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	05/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	18:20	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	18:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	69%
TIEMPO:	Soleado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	508070
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 6400-DNR
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 10	H.SALIDA PLANTA 17:52
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20		RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 18:15
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:22

MUESTRA:	ALBARAN Nº
H .2005/19818	138496

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
15.0	15.0	15 cm

RECOGIDA DE PROBETAS

FECHA: 06/10/2005 HORA: 12:00
TEMP.AMB. 19 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	12/10/2005	7	29.1	29.1
2	02/11/2005	28	37.8	37.3
3	02/11/2005	28	36.7	
4	03/01/2006	90	39.1	39.1

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
PILOTE Nº 1, PILA Nº 3	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1516	380	1023333	02/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35207 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS, FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 CM, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/09/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	10:25	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	10:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	26 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	22 °C
HUMEDAD RELATIVA:	74%
TIEMPO:	Soleado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508043
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 0415-CGB
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 09:25
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 09:40
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 10:55

MUESTRA:	ALBARAN Nº
H .2005/19393	138474

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 03/10/2005 HORA: 15:30
TEMP.AMB. 25 °C HUM. RELAT.: 71%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/10/2005	7	25.5	25.5
2	28/10/2005	28	30.7	31.4
3	28/10/2005	28	31.4	
4	28/10/2005	28	32.0	
5	29/12/2005	90	35.7	35.7

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE : Genérico
PILOTE Nº 2, PILA Nº 3	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1523	381	1023333	05/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	19:50	PORCION DE LA TOMA:	Entre 1/4 y 3/4
FIN TOMA:	20:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	18 °C
HUMEDAD RELATIVA:	73%
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508049
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: B-1774-MN
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): ----	H.SALIDA PLANTA 18:48
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 19:07
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 20:18

MUESTRA:	ALBARAN Nº
H .2005/19539	138484

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
17.0	17.0	17 cm

RECOGIDA DE PROBETAS

FECHA: 04/10/2005 HORA: 17:15
TEMP.AMB. 25 °C HUM. RELAT.: 64%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/10/2005	7	23.7	23.7
2	31/10/2005	28	30.3	30.0
3	31/10/2005	28	29.7	
4	02/01/2006	91	32.3	32.3

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
PILOTE 3 - PILA 3	

OBSERVACIONES

CONTRASTE LABT.EUROCONSULT

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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Fulgencio Dávila Judas

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1472	377	1023333	22/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	21/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	12:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	13:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:		COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	26.8 °C
HUMEDAD RELATIVA:	72%
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	507985
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	340	MATRICULA:	0377-CJK
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³):	6	H.SALIDA PLANTA	12:23
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	12:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	13:53

MUESTRA:	ALBARAN Nº
H .2005/18507	136844

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	28/09/2005	7	29.4	29.4
2	19/10/2005	28	36.5	35.9
3	19/10/2005	28	35.4	
4	20/12/2005	90	39.4	39.4

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
19.0	19.0	19 cm

RECOGIDA DE PROBETAS

FECHA: 23/09/2005 HORA: 14:40
TEMP.AMB. 26 °C HUM. RELAT.: 46%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

PILA 3 PILOTE 4

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1458	372	1023333	16/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	15/09/2005	LABORANTE:	Ramón Consuegra
HORA TOMA:	18:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	19:05	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	28 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	25 °C
HUMEDAD RELATIVA:	58%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	507944
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	340	MATRICULA:	6400-DNR
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³):	8	H.SALIDA PLANTA	17:42
ADITIVO:	SUPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	18:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	19:12

MUESTRA:	ALBARAN Nº
H .2005/18054	136869

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	22/09/2005	7	29.7	29.7
2	13/10/2005	28	36.6	37.0
3	13/10/2005	28	37.5	
4	14/12/2005	90	43.0	43.0

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 16/09/2005 HORA: 18:30
TEMP.AMB. 33 °C HUM. RELAT.: 72%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

PILA 4, PILOTE 1

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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Fulgencio Dávila Judas

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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1466	374	1023333	21/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	19/09/2005	LABORANTE:	Ramón Consuegra
HORA TOMA:	18:25	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	18:35	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	29 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	26 °C
HUMEDAD RELATIVA:	60%
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507961
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 6400-DNR
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 10	H.SALIDA PLANTA 17:52
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 18:16
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:22

MUESTRA:	ALBARAN Nº
H .2005/18343	136885

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 20/09/2005 HORA: 09:20
TEMP.AMB. 20 °C HUM. RELAT.: 60%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	26/09/2005	7	28.3	28.3
2	17/10/2005	28	34.1	34.0
3	17/10/2005	28	33.8	
4	19/12/2005	91	43.7	43.7

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
PILA Nº 4, PILOTE Nº 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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Fulgencio Dávila Judas

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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1468	376	1023333	21/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	20/09/2005	LABORANTE:	RAMON
HORA TOMA:	11:00	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	26 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	23 °C
HUMEDAD RELATIVA:	60%
TIEMPO:	Soleado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507968
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 6400-DWN
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 10	H.SALIDA PLANTA 10:36
ADITIVO:	SUPERFLUIDIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 10:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:05

MUESTRA:	ALBARAN Nº
H .2005/18497	136886

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 21/09/2005 HORA: 12:00
TEMP.AMB. 25 °C HUM. RELAT.: 65%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	27/09/2005	7	30.7	30.7
2	18/10/2005	28	36.0	35.4
3	18/10/2005	28	34.8	
4	19/12/2005	90	41.4	41.4

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
PILAN-4 **PILOTE N-3**	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1457	373	1023333	16/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	15/09/2005	LABORANTE:	Ramón Consuegra
HORA TOMA:	20:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	20:55	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:		COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	18 °C
HUMEDAD RELATIVA:	62%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507945
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 1000-CNK
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 20:13
ADITIVO:	SUPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 20:30
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 21:43

MUESTRA:	ALBARAN Nº
H .2005/18056	136870

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 16/09/2005 HORA: 18:30
TEMP.AMB. 33 °C HUM. RELAT.: 72%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	22/09/2005	7	24.9	24.9
2	13/10/2005	28	32.8	33.5
3	13/10/2005	28	34.1	
4	14/12/2005	90	34.9	34.9

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

PILA 4, PILOTE 4

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1445	366	1023333	13/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	09/09/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	11:10	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507900
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: B-1774-MN
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 10:35
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 10:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:05

MUESTRA:	ALBARAN Nº
H .2005/17628	136185

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
17.0	17.0	17 cm

RECOGIDA DE PROBETAS

FECHA: 12/09/2005 HORA: 17:00
TEMP.AMB. 33.5 °C HUM. RELAT.: 39%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	16/09/2005	7	32.2	32.2
2	07/10/2005	28	41.7	41.5
3	07/10/2005	28	41.3	
4	08/12/2005	90	46.8	46.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

ESTRIBO 1, PILOTE 1

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1446	367	1023333	13/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	09/09/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	11:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	22 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507903
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 9987-CVX
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 10:58
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 11:20
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:28

MUESTRA:	ALBARAN Nº
H .2005/17629	136186

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
18.0	18.0	18 cm

RECOGIDA DE PROBETAS

FECHA: 12/09/2005 HORA: 17:00
TEMP.AMB. 33.5 °C HUM. RELAT.: 39%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	16/09/2005	7	22.3	22.3
2	07/10/2005	28	33.9	34.2
3	07/10/2005	28	34.5	
4	08/12/2005	90	39.8	39.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ESTRIBO 1, PILOTE 1	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1423	361	1023333	09/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	06/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	16:55	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	17:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	30 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	28.5 °C
HUMEDAD RELATIVA:	49%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507867
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: B-5263-KZ
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 16:07
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 16:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 17:37

MUESTRA:	ALBARAN Nº
H .2005/17422	134936

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
20.0	20.0	20 cm

RECOGIDA DE PROBETAS

FECHA: 07/09/2005 HORA: 18:30
TEMP.AMB. 25.5 °C HUM. RELAT.: 89%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	13/09/2005	7	24.3	24.3
2	04/10/2005	28	27.1	27.1
3	04/10/2005	28	27.1	
4	05/12/2005	90	28.4	28.4

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
PILOTE 2, ESTRIBO 1	

OBSERVACIONES

Vº Bº DIRECTOR,

P.A.

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1424	362	1023333	09/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	06/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	17:25	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	17:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	31 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	29.5 °C
HUMEDAD RELATIVA:	45%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507868
DESIGNACION:	HA-25/F/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA:	B-4432-PJ
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA: Fluida	CARGA (m³): 6	H.SALIDA PLANTA	16:41
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	17:15
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	18:11

MUESTRA:	ALBARAN Nº
H .2005/17423	134937

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	13/09/2005	7	31.0	31.0
2	04/10/2005	28	36.8	37.1
3	04/10/2005	28	37.5	
4	05/12/2005	90	38.8	38.8

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
19.0	19.0	19 cm

RECOGIDA DE PROBETAS

FECHA: 07/09/2005 HORA: 18:30
TEMP.AMB. 25.5 °C HUM. RELAT.: 89%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILOTE 2, ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

P.A.

Fabián Velázquez Cabrera

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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1426	363	1023333	12/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	16:30	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	16:45	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	26 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	25.5 °C
HUMEDAD RELATIVA:	89%
TIEMPO:	Lluvioso
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	507881
DESIGNACION:	HA-25/F/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA:	B-5265-KZ
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA: Fluida	CARGA (m³): 6	H.SALIDA PLANTA	16:10
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	16:25
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	17:40

MUESTRA:	ALBARAN Nº
H .2005/17497	134944

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/09/2005	7	29.5	29.5
2	05/10/2005	28	34.3	34.9
3	05/10/2005	28	35.5	
4	06/12/2005	90	36.2	36.2

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 08/09/2005 HORA: 16:50
TEMP.AMB. 21 °C HUM. RELAT.:

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILOTE 3, ESTRIBO 1

OBSERVACIONES

TOMA DE CONTRASTE CON EUROCONSULT

Vº Bº DIRECTOR,

P.A.

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1427	364	1023333	12/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	17:20	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	17:35	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	26 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	25.5 °C
HUMEDAD RELATIVA:	49%
TIEMPO:	Lluvioso
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	507885
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 R	DOSIFICACION (kg/m³):	340	MATRICULA:	M-9118-YU
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³):	6	H.SALIDA PLANTA	16:44
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	17:10
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	18:14

MUESTRA:	ALBARAN Nº
H .2005/17498	134945

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
19.0	19.0	19 cm

RECOGIDA DE PROBETAS

FECHA: 08/09/2005 HORA: 16:50
TEMP.AMB. 21 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/09/2005	7	29.7	29.7
2	05/10/2005	28	34.5	35.3
3	05/10/2005	28	36.0	
4	06/12/2005	90	44.3	44.3

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILOTE 3, ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

P.A.

Fabián Velázquez Cabrera

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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1456	369	1023333	13/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35207 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS, FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 CM, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	13/09/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	12:20	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:35	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	30 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	22 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	507924
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	340	MATRICULA:	6425-BFM
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³):	6	H.SALIDA PLANTA	11:30
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	11:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	13:00

MUESTRA:	ALBARAN Nº
H .2005/17831	136199

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
18.0	18.0	18 cm

RECOGIDA DE PROBETAS

FECHA: 15/09/2005 HORA: 13:15
TEMP.AMB. 28.5 °C HUM. RELAT.: 72%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	20/09/2005	7	33.3	32.8
2	20/09/2005	7	32.4	
3	11/10/2005	28	37.7	38.4
4	11/10/2005	28	39.0	
5	12/12/2005	90	45.7	45.7

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE: **Genérico**

ESTRIBO 1, PILOTE 4

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1454	370	1023333	13/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35207 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS, FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 CM, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	13/09/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	12:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	13:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	30 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	22 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	507926
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 9987-CVX
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 11:44
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20		RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 12:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 13:14

MUESTRA:	ALBARAN Nº
H .2005/17833	136200

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
18.0	18.0	18 cm

RECOGIDA DE PROBETAS

FECHA: 15/09/2005 HORA: 13:15
TEMP.AMB. 28.5 °C HUM. RELAT.: 72%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	20/09/2005	7	32.5	31.9
2	20/09/2005	7	31.2	
3	11/10/2005	28	35.3	34.7
4	11/10/2005	28	34.2	
5	12/12/2005	90	41.8	41.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE: Genérico
ESTRIBO 1, PILOTE 4	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1545	396	1023333	11/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	11/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	11:35	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	22 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	17 °C
HUMEDAD RELATIVA:	74%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	508135
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: 0421-CGB
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 11:05
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20		RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 11:22
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:35

MUESTRA:	ALBARAN Nº
H .2005/20717	138944

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
17.0	17.0	17 cm

RECOGIDA DE PROBETAS

FECHA: 13/10/2005 HORA: 15:30
TEMP.AMB. 15 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	18/10/2005	7	24.1	24.1
2	08/11/2005	28	34.2	34.5
3	08/11/2005	28	34.7	
4	10/01/2006	91	36.1	36.1

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ESTRIBO 2, ~~PILOTE 1 BIS~~ PILOTE 1	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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Fulgencio Dávila Judas

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1536	395	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	18:15	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	18:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	24 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	69%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	508131
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 6400-DMR
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 17:33
ADITIVO:	S-PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 17:38
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:03

MUESTRA:	ALBARAN Nº
H .2005/20607	138937

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
16.0	16.0	16 cm

RECOGIDA DE PROBETAS

FECHA: 13/10/2005 HORA: 16:55
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	30.1	30.1
2	07/11/2005	28	34.5	35.0
3	07/11/2005	28	35.5	
4	09/01/2006	91	42.6	42.6

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ESTRIBO Nº 2, PILOTE Nº 1 y 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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Applus Construcción Técnica, S.A.
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T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1527	385	1023333	05/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	06/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	17:40	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	17:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	24 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	
TIEMPO:	Soleado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	508083
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-42,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: NO CONSTA
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 17:06
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 17:20
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 18:36

MUESTRA:	ALBARAN Nº
H .2005/20193	138923

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
17.0	17.0	17 cm

RECOGIDA DE PROBETAS

FECHA: 08/10/2005 HORA: 10:05
TEMP.AMB. 13 °C HUM. RELAT.: 72%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	13/10/2005	7	25.6	25.6
2	03/11/2005	28	31.5	31.2
3	03/11/2005	28	31.0	
4	04/01/2006	90	35.0	35.0

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILOTE 3, ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1496	378	1023333	30/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	27/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	15:15	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	15:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	26 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	24.8 °C
HUMEDAD RELATIVA:	75%
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508011
DESIGNACION:	HA-25/F/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA:	B-7366-KT
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA: Fluida	CARGA (m³): 6	H.SALIDA PLANTA	14:52
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	15:05
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	16:22

MUESTRA:	ALBARAN Nº
H .2005/18947	137956

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
21.0	21.0	21 cm

RECOGIDA DE PROBETAS

FECHA: 28/09/2005 HORA: 13:15
TEMP.AMB. 22 °C HUM. RELAT.: 72%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	04/10/2005	7	22.4	22.4
2	25/10/2005	28	29.8	30.1
3	25/10/2005	28	30.5	
4	26/12/2005	90	32.0	32.0

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILOTE Nº 4, ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1535	386	1023333	09/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	11:10	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	11:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	23 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	69%
TIEMPO:	Soleado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508091
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA:	1816-CST
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	10:30
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	10:50
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	12:00

MUESTRA:	ALBARAN Nº
H .2005/20427	138926

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
18.0	18.0	18 cm

RECOGIDA DE PROBETAS

FECHA: 08/10/2005 HORA: 10:05
TEMP.AMB. 13 °C HUM. RELAT.: 72%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/10/2005	7	23.0	23.0
2	04/11/2005	28	29.6	29.8
3	04/11/2005	28	30.0	
4	05/01/2006	90	31.8	31.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILOTE Nº 5, ESTRIBO Nº 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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08191 Rubí (Barcelona)
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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1524	382	1023333	05/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	05/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	11:20	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	11:35	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	23 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	18 °C
HUMEDAD RELATIVA:	69%
TIEMPO:	Soleado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508058
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: 6400-DNR
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 10	H.SALIDA PLANTA 10:44
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20		RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 11:10
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:14

MUESTRA:	ALBARAN Nº
H .2005/19816	138492

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
16.0	16.0	16 cm

RECOGIDA DE PROBETAS

FECHA: 06/10/2005 HORA: 12:00
TEMP.AMB. 19 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	12/10/2005	7	28.3	28.3
2	02/11/2005	28	33.4	33.1
3	02/11/2005	28	32.9	
4	03/01/2006	90	40.0	40.0

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
PILOTE Nº 6, ESTRIBO 2	

OBSERVACIONES

TOMA DE CONTRASTE CON EUROCONSULT

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Aplus Construcción Técnica, Rubí

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1502	379	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	29/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	18:15	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	18:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	23.8 °C
HUMEDAD RELATIVA:	72%
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508039
DESIGNACION:	HA-25/F/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA: B-4432-PJ
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA:	Fluida	CARGA (m³): 6	H.SALIDA PLANTA 17:37
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20		RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 17:35
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:07

MUESTRA:	ALBARAN Nº
H .2005/19158	137971

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
17.0	17.0	17 cm

RECOGIDA DE PROBETAS

FECHA: 30/09/2005 HORA: 16:45
TEMP.AMB. 30 °C HUM. RELAT.: 58%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	06/10/2005	7	25.9	25.9
2	27/10/2005	28	32.3	31.9
3	27/10/2005	28	31.5	
4	28/12/2005	90	36.9	36.9

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
ESTRIBO 2 - PILOTE 7	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Aplus Construcción Técnica, Rubí

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1467	375	1023333	21/12/2005

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	20/09/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	18:35	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	18:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	26 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	24.8 °C
HUMEDAD RELATIVA:	82%
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	507979
DESIGNACION:	IIA-25/F/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 340	MATRICULA:	0405-CGB
REL.AGUA/CEMENTO:	0.44	CONSISTENCIA: Fluida	CARGA (m³): 6	H.SALIDA PLANTA	18:11
ADITIVO:	SUPERPLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	18:26
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	19:41

MUESTRA:	ALBARAN Nº
H .2005/18394	136842

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
18.0	18.0	18 cm

RECOGIDA DE PROBETAS

FECHA: 21/09/2005 HORA: 13:00
TEMP.AMB. 23 °C HUM. RELAT.: 82%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	27/09/2005	7	28.9	28.9
2	18/10/2005	28	34.7	34.3
3	18/10/2005	28	34.0	
4	19/12/2005	90	37.3	37.3

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

PILOTE 8 ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, Rubí

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1616	403	1023333	21/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	22/11/2005	LABORANTE:	JORDI LOPEZ
HORA TOMA:	09:30	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:45	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	19 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	6.8 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL II			SU ALBARAN:	511456
DESIGNACION:	IIA-25/B/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA:	6400-DNR
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 10	H.SALIDA PLANTA	09:06
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	09:25
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	10:36

MUESTRA:	ALBARAN Nº
H .2005/24178	142192

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
6.0	6.0	6 cm

RECOGIDA DE PROBETAS

FECHA: 23/11/2005 HORA: 13:40
TEMP.AMB. 9 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	29/11/2005	7	27.8	27.8
2	20/12/2005	28	35.9	35.9
3	20/12/2005	28	35.9	
4	20/02/2006	90	37.3	37.3

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ENCEPADO, PILA 1

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1617	404	1023333	21/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	22/11/2005	LABORANTE:	JORDI LOPEZ
HORA TOMA:	10:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	18 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	7.8 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL II			SU ALBARAN:	508219
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-4432-PS
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 10:26
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 10:40
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 11:56

MUESTRA:	ALBARAN Nº
H .2005/24179	142193

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 23/11/2005 HORA: 13:40
TEMP.AMB. 9 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	29/11/2005	7	30.6	30.6
2	20/12/2005	28	40.4	40.5
3	20/12/2005	28	40.5	
4	20/02/2006	90	41.3	41.3

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ENCEPADO, PILA 1	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
IIA (prob_form) comp2 t5 12/01

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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1618	405	1023333	21/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	22/11/2005	LABORANTE:	JORDI LOPEZ
HORA TOMA:	12:00	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:15	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	18 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11.5 °C
HUMEDAD RELATIVA:	
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL II			SU ALBARAN:	511462
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-4432-PS
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 11:35
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 11:50
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 13:05

MUESTRA:	ALBARAN Nº
H .2005/24182	142194

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 23/11/2005 HORA: 13:40
TEMP.AMB. 9 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	29/11/2005	7	23.2	23.2
2	20/12/2005	28	34.2	34.6
3	20/12/2005	28	34.9	
4	20/02/2006	90	36.0	36.0

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ENCEPADO, PILA 1, CONTRASTE	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Norcontrol Rubí

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1619	406	1023333	21/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	22/11/2005	LABORANTE:	JORDI LOPEZ
HORA TOMA:	12:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	13:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	18 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	12.3 °C
HUMEDAD RELATIVA:	
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL II					SU ALBARAN:	511466
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	B-1775-MN
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	12:07
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	12:30
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	13:37

MUESTRA:	ALBARAN Nº
H .2005/24183	142195

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 23/11/2005 HORA: 13:40
TEMP.AMB. 9 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	29/11/2005	7	28.1	28.1
2	20/12/2005	28	39.9	39.7
3	20/12/2005	28	39.5	
4	20/02/2006	90	40.8	40.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION LOTE:

ENCEPADO, PILA 1, CONTRASTE

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1620	407	1023333	21/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	22/11/2005	LABORANTE:	JORDI LOPEZ
HORA TOMA:	15:00	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	15:15	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	19 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	14.6 °C
HUMEDAD RELATIVA:	
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL II					SU ALBARAN:	511471
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	B-4652-VK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	14:27
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	14:40
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	15:57

MUESTRA:	ALBARAN Nº
H .2005/24188	142196

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 23/11/2005 HORA: 13:40
TEMP.AMB. 9 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	29/11/2005	7	26.0	26.0
2	20/12/2005	28	36.6	37.1
3	20/12/2005	28	37.6	
4	20/02/2006	90	39.3	39.3

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION LOTE:

ENCEPADO, PILA 1, CONTRASTE

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1621	408	1023333	21/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	22/11/2005	LABORANTE:	JORDI LOPEZ
HORA TOMA:	16:15	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	16:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	16 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	10.6 °C
HUMEDAD RELATIVA:	
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL II				SU ALBARAN:	511478	
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	6400-DNR
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	10	H.SALIDA PLANTA	15:50
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	16:10
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	17:20

MUESTRA:	ALBARAN Nº
H .2005/24191	142197

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	29/11/2005	7	28.2	28.2
2	20/12/2005	28	31.2	31.6
3	20/12/2005	28	32.0	
4	20/02/2006	90	39.8	39.8

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 23/11/2005 HORA: 13:40
TEMP.AMB. 9 °C HUM. RELAT.:

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ENCEPADO, PILA 1, CONTRASTE

OBSERVACIONES

V" B" DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1682	430	1023333	02/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	01/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	09:05	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	9 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	8 °C
HUMEDAD RELATIVA:	58%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - TERRASSA				SU ALBARAN:	508276	
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	6630-BVD
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	08:44
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	08:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	10:14

MUESTRA:	ALBARAN Nº
H .2005/25201	144609

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	08/12/2005	7	34.1	34.1
2	29/12/2005	28	40.8	40.5
3	29/12/2005	28	40.3	
4	01/03/2006	90	41.6	41.6

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 02/12/2005 HORA: 12:00
TEMP.AMB. 14 °C HUM. RELAT.: 40%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

encepado
ALZADO PILA 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1677	431	1023333	02/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO
COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42
COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	01/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	09:25	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	9 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	8 °C
HUMEDAD RELATIVA:	48%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA			SU ALBARAN:	511567
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: 0908-DRK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 08:54
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20		RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 09:10
MARCA:	NO CONSTA	ADICION: NO CONSTA			LIMITE EMPLEO: 10:24

MUESTRA:	ALBARAN Nº
H .2005/25202	144610

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
6.0	6.0	6 cm

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	08/12/2005	7	31.2	31.2
2	29/12/2005	28	39.7	40.0
3	29/12/2005	28	40.4	
4	01/03/2006	90	41.2	41.2

RECOGIDA DE PROBETAS

FECHA: 02/12/2005 HORA: 12:00
TEMP.AMB. 14 °C HUM. RELAT.: 40%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION: encepado ALZADO PILA 2

LOTE: -

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1678	432	1023333	02/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO
COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42
COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	01/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	10:25	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	10:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11 °C
HUMEDAD RELATIVA:	45%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA			SU ALBARAN:	51157
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: 6400-DNR
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 10	H.SALIDA PLANTA 09:56
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20		RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 10:20
MARCA:	NO CONSTA	ADICION: NO CONSTA			LIMITE EMPLEO: 11:26

MUESTRA:	ALBARAN Nº
H .2005/25203	144611

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	08/12/2005	7	35.7	35.7
2	29/12/2005	28	40.2	40.0
3	29/12/2005	28	39.7	
4	01/03/2006	90	42.8	42.8

RECOGIDA DE PROBETAS

FECHA: 02/12/2005 HORA: 12:00
TEMP.AMB. 14 °C HUM. RELAT.: 40%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION: encepado ALZADO PILA 2

LOTE: -

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1679	433	1023333	02/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	01/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	10:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11 °C
HUMEDAD RELATIVA:	48%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA			SU ALBARAN:	511574
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-4652-VK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 10:33
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 10:50
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:03

MUESTRA:	ALBARAN Nº
II .2005/25204	144612

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 02/12/2005 HORA: 12:00
TEMP.AMB. 14 °C HUM. RELAT.: 40%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	08/12/2005	7	23.5	23.5
2	29/12/2005	28	29.3	29.4
3	29/12/2005	28	29.4	
4	01/03/2006	90	34.4	34.4

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
encepado ALZADO PILA 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API 06039API05(B) AMC 06040AMC05(B) en Sept 2005

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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1680	434	1023333	02/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	01/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	11:30	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:45	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11 °C
HUMEDAD RELATIVA:	48%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA			SU ALBARAN:	511575
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-3006-UF
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): ----	H.SALIDA PLANTA 11:07
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 11:25
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:37

MUESTRA:	ALBARAN Nº
H .2005/25205	144613

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 02/12/2005 HORA: 12:00
TEMP.AMB. 14 °C HUM. RELAT.: 40%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	08/12/2005	7	30.9	30.9
2	29/12/2005	28	35.5	35.1
3	29/12/2005	28	34.8	
4	01/03/2006	90	40.6	40.6

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
encepado ALZADO PILA 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API 06039API05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1681	435	1023333	02/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	01/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	12:35	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga.
FIN TOMA:	12:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11 °C
HUMEDAD RELATIVA:	48%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA			SU ALBARAN:	508278
DESIGNACION:	IIA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-4652-VK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 12:05
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 12:25
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 13:35

MUESTRA:	ALBARAN Nº.
H .2005/25206	144614

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 02/12/2005 HORA: 12:00
TEMP.AMB. 14 °C HUM. RELAT.: 40%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	08/12/2005	7	26.3	26.3
2	29/12/2005	28	33.0	32.6
3	29/12/2005	28	32.3	
4	01/03/2006	90	36.5	36.5

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:	OBSERVACIONES
encepado ALZADO PILA 2		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1709	436	1023333	09/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	08:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	6 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	5 °C
HUMEDAD RELATIVA:	80%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	508288
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-3006-UK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 8	H.SALIDA PLANTA 08:38
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 08:50
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 10:08

MUESTRA:	ALBARAN Nº
H .2005/25547	144625

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 09/12/2005 HORA: 11:25
TEMP.AMB. 13 °C HUM. RELAT.: 60%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/12/2005	7	31.5	31.5
2	04/01/2006	28	38.7	38.3
3	04/01/2006	28	37.9	
4	07/03/2006	90	42.8	42.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:	OBSERVACIONES
ENCEPADOS, PILA 3		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

IIA (prob_form) comp2_t5_12/01
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1710	437	1023333	09/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	10:40	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	10:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	7 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	6 °C
HUMEDAD RELATIVA:	80%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL II				SU ALBARAN:	511600	
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	6400-DNR
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	10	H.SALIDA PLANTA	10:16
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	10:31
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	11:46

MUESTRA:	ALBARAN Nº
H .2005/25548	144626

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 09/12/2005 HORA: 11:25
TEMP.AMB. 13 °C HUM. RELAT.: 60%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/12/2005	7	29.7	29.7
2	04/01/2006	28	36.0	36.3
3	04/01/2006	28	36.6	
4	07/03/2006	90	43.4	43.4

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ENCEPADOS, PILA 3

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1711	438	1023333	09/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	11:00	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:15	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	8 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	7 °C
HUMEDAD RELATIVA:	80%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL				SU ALBARAN:	511601	
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	B-7845-PS
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	10:26
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	10:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	11:56

MUESTRA:	ALBARAN Nº
H .2005/25549	144627

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 09/12/2005 HORA: 11:25
TEMP.AMB. 13 °C HUM. RELAT.: 60%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/12/2005	7	29.4	29.4
2	04/01/2006	28	37.4	37.7
3	04/01/2006	28	38.0	
4	07/03/2006	90	39.1	39.1

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ENCEPADOS, PILA 3

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
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RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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08191 Rubí (Barcelona)
T 93 588 78 76
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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1712	439	1023333	09/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	11:20	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:35	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	8 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	7 °C
HUMEDAD RELATIVA:	80%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL					SU ALBARAN:	511602
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	6630-BVD
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	10:41
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	10:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	12:11

MUESTRA:	ALBARAN Nº
H .2005/25550	144628

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 09/12/2005 HORA: 11:25
TEMP.AMB. 13 °C HUM. RELAT.: 60%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/12/2005	7	28.7	28.7
2	04/01/2006	28	35.5	35.3
3	04/01/2006	28	35.1	
4	07/03/2006	90	37.6	37.6

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ENCEPADOS, PILA 3	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFll 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGUN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1713	440	1023333	09/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	11:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	9 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	8 °C
HUMEDAD RELATIVA:	80%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL					SU ALBARAN:	511606
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	6400-DNR
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	----	H.SALIDA PLANTA	11:26
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	11:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	12:56

MUESTRA:	ALBARAN Nº
H .2005/25551	144629

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 09/12/2005 HORA: 11:25
TEMP.AMB. 13 °C HUM. RELAT.: 60%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/12/2005	7	27.7	27.7
2	04/01/2006	28	38.5	38.9
3	04/01/2006	28	39.2	
4	07/03/2006	90	42.6	42.6

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ENCEPADOS, PILA 3	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1707	442	1023333	09/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	14:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	15:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11 °C
HUMEDAD RELATIVA:	80%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL II					SU ALBARAN:	511617
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	M-9118-YU
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	14:28
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	14:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	15:58

MUESTRA:	ALBARAN Nº
H .2005/25553	144630

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 09/12/2005 HORA: 11:25
TEMP.AMB. 13 °C HUM. RELAT.: 60%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/12/2005	7	30.4	30.4
2	04/01/2006	28	35.9	36.3
3	04/01/2006	28	36.7	
4	07/03/2006	90	41.7	41.7

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :	OBSERVACIONES
ENCEPADOS, PILA 3		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
IIA (pmb_form) comp2_15_12/01

Applus Norcontrol Rubí

Applus Construcción Técnica, S.A. Registro Mercantil de Barcelona, Tomo 36685, Folio 136, Hoja B103078, Inscripción 22, C.I.F. A-58759812

Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1574	397	1023333	03/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/11/2005	LABORANTE:	Jorge Rufo
HORA TOMA:	11:40	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	22 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	53%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	511419
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	LO-0944-O
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	11:15
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	11:35
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	12:45

MUESTRA:	ALBARAN Nº
H .2005/22273	124209

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 04/11/2005 HORA: 16:35
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/11/2005	7	20.8	20.8
2	01/12/2005	28	27.1	27.4
3	01/12/2005	28	27.7	
4	01/02/2006	90	29.5	29.5

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :	OBSERVACIONES
ENCEPADO PILA 4		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
IIA (pmb_5mm) comp2_15_12/01

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1569	398	1023333	03/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/11/2005	LABORANTE:	Jorge Rufo
HORA TOMA:	12:00	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	23 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	55%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	508185
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-3510-MX
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 11:45
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 11:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 13:15

MUESTRA:	ALBARAN Nº
H .2005/22275	124210

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 04/11/2005 HORA: 16:35
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/11/2005	7	20.1	20.1
2	01/12/2005	28	30.1	29.3
3	01/12/2005	28	28.5	
4	01/02/2006	90	33.8	33.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ENCEPADO PILA 4	

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
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RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1570	399	1023333	03/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/11/2005	LABORANTE:	Jorge Rufo
HORA TOMA:	12:20	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:		COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	55%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	511422
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-4652-VK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 11:51
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 12:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 13:21

MUESTRA:	ALBARAN Nº
H .2005/22282	124211

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 04/11/2005 HORA: 09:15
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/11/2005	7	20.2	20.2
2	01/12/2005	28	27.1	27.3
3	01/12/2005	28	27.5	
4	01/02/2006	90	29.6	29.6

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ENCEPADO PILA 4	

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
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RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1571	400	1023333	03/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/11/2005	LABORANTE:	Jorge Rufo
HORA TOMA:	12:40	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	23 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	55%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	511423
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5	DOSIFICACION (kg/m³):	275	MATRICULA:	0405-CGB
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	12:05
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	12:25
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	13:35

MUESTRA:	ALBARAN Nº
H .2005/22284	124212

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 04/11/2005 HORA: 09:15
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/11/2005	7	19.5	19.5
2	01/12/2005	28	28.2	27.6
3	01/12/2005	28	27.0	
4	01/02/2006	90	30.6	30.6

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
ENCEPADO PILA 4	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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Fulgencio Dávila Judas

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1572	401	1023333	03/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/11/2005	LABORANTE:	Jorge Rufo
HORA TOMA:	13:10	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	13:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	54%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	508187
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	B-3510-MX
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	12:46
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	13:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	14:16

MUESTRA:	ALBARAN Nº
H .2005/22285	124213

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 04/11/2005 HORA: 09:15
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/11/2005	7	23.7	23.7
2	01/12/2005	28	31.0	30.9
3	01/12/2005	28	30.7	
4	01/02/2006	90	33.7	33.7

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
ENCEPADO PILA 4	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1573	402	1023333	03/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/11/2005	LABORANTE:	Jorge Rufo
HORA TOMA:	13:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	14:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	23 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	22 °C
HUMEDAD RELATIVA:	53%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	511427
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA:	M-9118-YU
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	12:51
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	13:10
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	14:21

MUESTRA:	ALBARAN Nº
H .2005/22287	124214

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 04/11/2005 HORA: 09:15
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/11/2005	7	21.0	21.0
2	01/12/2005	28	25.3	25.7
3	01/12/2005	28	26.1	
4	01/02/2006	90	30.4	30.4

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ENCEPADO PILA 4

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
HA (prob_form) comp2 t5 12/01

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1541	387	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	DAVID GUTIÉRREZ
HORA TOMA:	11:05	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	19 °C
HUMEDAD RELATIVA:	48%
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA			SU ALBARAN:	511309
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA:	7054
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	10:36
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	10:55
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	12:06

MUESTRA:	ALBARAN Nº
H .2005/20592	139376

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
12.0	12.0	12 cm

RECOGIDA DE PROBETAS

FECHA: 13/10/2005 HORA: 16:15
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	21.1	21.1
2	07/11/2005	28	29.5	29.3
3	07/11/2005	28	29.1	
4	09/01/2006	91	33.2	33.2

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ESTRIBO 1 DE ZAPATA

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1542	388	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	DAVID GUTIÉRREZ
HORA TOMA:	11:30	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:		COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	19 °C
HUMEDAD RELATIVA:	48%
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA			SU ALBARAN:	511312
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA:	7018
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	11:16
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	11:25
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	12:46

MUESTRA:	ALBARAN Nº
H .2005/20594	139377

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
17.0	17.0	17 cm

RECOGIDA DE PROBETAS

FECHA: 13/10/2005 HORA: 16:15
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	22.5	22.5
2	07/11/2005	28	27.7	27.6
3	07/11/2005	28	27.5	
4	09/01/2006	91	28.9	28.9

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ESTRIBO 1 DE ZAPATA

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API1 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1543	389	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	DAVID GUTIÉRREZ
HORA TOMA:	12:10	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	19 °C
HUMEDAD RELATIVA:	50%
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA			SU ALBARAN:	511315
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA:	4432
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	11:41
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	12:05
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	13:11

MUESTRA:	ALBARAN Nº
H .2005/20595	139378

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
15.0	15.0	15 cm

RECOGIDA DE PROBETAS

FECHA: 13/10/2005 HORA: 16:15
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	25.0	25.0
2	07/11/2005	28	29.7	30.3
3	07/11/2005	28	31.0	
4	09/01/2006	91	32.0	32.0

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ESTRIBO 1 DE ZAPATA91

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API1 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1544	390	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO
COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42
COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	DAVID GUTIÉRREZ
HORA TOMA:	12:30	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:45	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	26 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	48%
TIEMPO:	Nublado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - TERRASSA			SU ALBARAN:	211316
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA:	0421
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	11:58
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	12:25
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	13:28

MUESTRA:	ALBARAN Nº
H .2005/20596	139379

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
12.0	12.0	12 cm

RECOGIDA DE PROBETAS
FECHA: 13/10/2005 HORA: 16:15
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	24.8	24.8
2	07/11/2005	28	29.5	29.3
3	07/11/2005	28	29.0	
4	09/01/2006	91	35.5	35.5

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :
ESTRIBO 1 DE ZAPATA

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1539	392	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO
COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42
COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	14:50	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	15:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	23 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	69%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	511326
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA:	NO CONSTA
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	14:39
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	14:50
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	16:09

MUESTRA:	ALBARAN Nº
H .2005/20601	138940

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS
FECHA: 13/10/2005 HORA: 16:55
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	20.7	20.7
2	07/11/2005	28	30.3	30.6
3	07/11/2005	28	30.9	
4	09/01/2006	91	32.3	32.3

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :
ZAPATA ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1538	391	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	16:10	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	16:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	25 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	22 °C
HUMEDAD RELATIVA:	63%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - TERRASSA					SU ALBARAN:	511332
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	M-9118-YU
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	15:44
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	16:00
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	17:14

MUESTRA:	ALBARAN Nº
H .2005/20599	138939

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 13/10/2005 HORA: 16:55
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	26.0	26.0
2	07/11/2005	28	32.0	31.7
3	07/11/2005	28	31.5	
4	09/01/2006	91	36.2	36.2

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ZAPATA ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabian Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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08191 Rubí (Barcelona)
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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1537	393	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	16:50	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	17:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	24 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	67%
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL					SU ALBARAN:	511332
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³):	275	MATRICULA:	6400-DNR
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	10	H.SALIDA PLANTA	15:55
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	16:15
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	17:25

MUESTRA:	ALBARAN Nº
H .2005/20602	138938

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 13/10/2005 HORA: 16:55
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	25.2	25.2
2	07/11/2005	28	28.7	28.4
3	07/11/2005	28	28.0	
4	09/01/2006	91	33.1	33.1

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ZAPATA ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabian Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1540	394	1023333	10/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	10/10/2005	LABORANTE:	Patricio Cabrera
HORA TOMA:	17:45	PORCION DE LA TOMA:	a 3/4 de la descarga
FIN TOMA:	18:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	23 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	67%
TIEMPO:	Soleado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	511333
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 N/SR	DOSIFICACION (kg/m³): 275	MATRICULA: 9987-CVX
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 17:00
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 17:20
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 18:30

MUESTRA:	ALBARAN Nº
H .2005/20606	138941

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 13/10/2005 HORA: 16:55
TEMP.AMB. 18 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	17/10/2005	7	24.7	24.7
2	07/11/2005	28	30.7	31.3
3	07/11/2005	28	31.9	
4	09/01/2006	91	38.8	38.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
ZAPATA ESTRIBO 1	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1873	511	1023333	02/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/04/2006	LABORANTE:	RUBÉN GARCÍA
HORA TOMA:	09:05	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:15	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	16 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	512166
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: G25
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 08:35
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 08:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 10:05

MUESTRA:	ALBARAN Nº
H .2006/9695	154285

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 04/04/2006 HORA: 11:15
TEMP.AMB. 23 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/04/2006	7	22.1	22.1
2	01/05/2006	28	28.9	28.9
3	01/05/2006	28	28.9	
4	03/07/2006	91		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
LOSA ALETA ESTRIBO 1 Zapata muro 3	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1874	512	1023333	02/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/04/2006	LABORANTE:	RUBÉN GARCÍA
HORA TOMA:	09:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	10:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	19 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	16 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	512169
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: A103
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 8	H.SALIDA PLANTA 09:26
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 09:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 10:56

MUESTRA:	ALBARAN Nº
H .2006/9696	154286

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 04/04/2006 HORA: 11:15
TEMP.AMB. 23 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/04/2006	7	22.8	22.8
2	01/05/2006	28	31.7	32.0
3	01/05/2006	28	32.2	
4	03/07/2006	91		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
LOSA ALETA ESTRIBO 1 zapata muro	

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

Fabián Velázquez Cabrera

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API1 06039API105(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Norcontrol Rubí

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1875	513	1023333	02/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/04/2006	LABORANTE:	RUBÉN GARCÍA
HORA TOMA:	10:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:10	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	19 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	19 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL			SU ALBARAN:	508614
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: 7808-DSP
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 8	H.SALIDA PLANTA 10:35
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 10:50
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 12:05

MUESTRA:	ALBARAN Nº
H .2006/9697	154287

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 04/04/2006 HORA: 11:15
TEMP.AMB. 23 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/04/2006	7	22.9	22.9
2	01/05/2006	28	26.7	26.6
3	01/05/2006	28	26.6	
4	03/07/2006	91		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
LOSA ALETA ESTRIBO 1 zapata muro	

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

Fabián Velázquez Cabrera

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API1 06039API105(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1867	514	1023333	02/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/04/2006	LABORANTE:	RUBÉN GARCÍA
HORA TOMA:	12:50	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	13:05	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	19 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	512180
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: L55
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 12:08
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 12:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 13:38

MUESTRA:	ALBARAN Nº
H .2006/9698	154288

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
10.0	10.0	10 cm

RECOGIDA DE PROBETAS

FECHA: 04/04/2006 HORA: 11:15
TEMP.AMB. 23 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/04/2006	7	17.5	17.5
2	01/05/2006	28	25.2	25.2
3	01/05/2006	28	25.2	
4	03/07/2006	91		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION LOTE:

LOSA ALETA ESTRIBO 1
Zapata muro

OBSERVACIONES

TOMA DE CONTRASTE CON EUROCONSULT

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1876	515	1023333	02/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/04/2006	LABORANTE:	RUBÉN GARCÍA
HORA TOMA:	16:30	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	16:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	19 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	25 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	512191
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: B-4432-PS
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 16:05
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 16:25
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 17:35

MUESTRA:	ALBARAN Nº
H .2006/9699	154289

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 04/04/2006 HORA: 11:15
TEMP.AMB. 23 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/04/2006	7	25.3	25.3
2	01/05/2006	28	33.4	33.4
3	01/05/2006	28	33.4	
4	03/07/2006	91		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION LOTE:

LOSA ALETA ESTRIBO 1
Zapata muro

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1872	516	1023333	02/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/04/2006	LABORANTE:	RUBÉN GARCÍA
HORA TOMA:	18:10	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	18:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	19 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	21 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	512197
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: 4807-BKD
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 17:46
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 18:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:16

MUESTRA:	ALBARAN Nº
H .2006/9700	154290

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 04/04/2006 HORA: 11:15
TEMP.AMB. 23 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/04/2006	7	22.6	22.6
2	01/05/2006	28	28.0	28.2
3	01/05/2006	28	28.4	
4	03/07/2006	91		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION

LOTE :

LOSA ALETA ESTRIBO 1
Zapata muro

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1892	519	1023333	06/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/04/2006	LABORANTE:	KILIAN MARTIN SANS
HORA TOMA:	09:00	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:15	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	15 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	17 °C
HUMEDAD RELATIVA:	40%
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - TERRASSA			SU ALBARAN:	512236
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: A-103
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 8	H.SALIDA PLANTA 08:27
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 08:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 09:57

MUESTRA:	ALBARAN Nº
H .2006/10372	155624

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 10/04/2006 HORA: 10:45
TEMP.AMB. 13 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/04/2006	7	23.2	23.2
2	05/05/2006	28	32.7	32.7
3	05/05/2006	28	32.7	
4	06/07/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION

LOTE :

ZAPATA ALETA ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1506	417	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	09:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:55	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	8 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	508248
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 SR	DOSIFICACION (kg/m³):	275	MATRICULA:	B-9744-TV
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	08:59
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	09:14
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	10:29

MUESTRA:	ALBARAN Nº
H .2005/25134	144459

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
10.0	10.0	10 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	21.7	21.7
2	28/12/2005	28	36.3	36.3
3	28/12/2005	28	36.3	
4	28/02/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

ENCEPADO ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1505	418	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	10:20	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	10:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	9 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL					SU ALBARAN:	511525
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 SR	DOSIFICACION (kg/m³):	275	MATRICULA:	1816-CST
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	----	H.SALIDA PLANTA	09:53
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	10:15
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	11:23

MUESTRA:	ALBARAN Nº
II .2005/25135	144460

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
10.0	10.0	10 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	26.4	26.4
2	28/12/2005	28	34.6	34.3
3	28/12/2005	28	34.0	
4	28/02/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

ENCEPADO ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1507	419	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	11:10	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:25	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	10 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	511529
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 SR	DOSIFICACION (kg/m³): 275	MATRICULA:	B-3006-UF
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 8	H.SALIDA PLANTA	10:44
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	11:05
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	12:14

MUESTRA:	ALBARAN Nº
H .2005/25137	144461

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	32.1	32.1
2	28/12/2005	28	35.3	35.6
3	28/12/2005	28	35.9	
4	28/02/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

ENCEPADO ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API1 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1508	420	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	11:55	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:05	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	13 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508255
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 SR	DOSIFICACION (kg/m³): 275	MATRICULA:	0377-CJK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): ----	H.SALIDA PLANTA	11:31
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	11:50
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	13:01

MUESTRA:	ALBARAN Nº
H .2005/25138	144462

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	29.4	29.4
2	28/12/2005	28	34.6	34.7
3	28/12/2005	28	34.9	
4	28/02/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

ENCEPADO ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1509	421	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	12:35	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:45	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	13 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	11 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	511534
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 SR	DOSIFICACION (kg/m³): 275	MATRICULA:	B-3006-UF
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	12:05
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	12:25
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	13:35

MUESTRA:	ALBARAN Nº
H .2005/25139	144463

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	32.3	32.3
2	28/12/2005	28	40.1	39.9
3	28/12/2005	28	39.7	
4	28/02/2006	90		

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

ENCEPADO ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1510	422	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	13:15	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	13:25	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	14 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	13 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508260
DESIGNACION:	HA-25/B/20/IIa	CEMENTO: I-52,5 SR	DOSIFICACION (kg/m³): 275	MATRICULA:	0377-CJK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA: Blanda	CARGA (m³): 6	H.SALIDA PLANTA	12:48
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm): 20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA:	13:00
MARCA:	NO CONSTA	ADICION: NO CONSTA		LIMITE EMPLEO:	14:18

MUESTRA:	ALBARAN Nº
II .2005/25140	144464

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	30.7	30.7
2	28/12/2005	28	36.7	36.5
3	28/12/2005	28	36.3	
4	28/02/2006	90		

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE :

ENCEPADO ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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Applus Construcción Técnica, Rubí

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1511	423	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	15:40	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	15:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	16 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	13 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508264
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 SR	DOSIFICACION (kg/m³): 275	MATRICULA: 6630-BVP
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 15:14
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 15:25
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 16:44

MUESTRA:	ALBARAN Nº
H .2005/25141	144465

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
6.5	6.5	6 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	33.3	33.3
2	28/12/2005	28	39.6	38.9
3	28/12/2005	28	38.2	
4	28/02/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
ENCEPADO ESTRIBO 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1512	424	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	16:20	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	16:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	16 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	13 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	511549
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-9744-TV
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 15:51
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 16:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 17:21

MUESTRA:	ALBARAN Nº
H .2005/25142	144466

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
6.5	6.5	6 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	26.4	26.4
2	28/12/2005	28	37.0	37.4
3	28/12/2005	28	37.8	
4	28/02/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
ENCEPADO ESTRIBO 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1504	425	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	17:05	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	17:15	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	16 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	13 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508267
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 SR	DOSIFICACION (kg/m³): 275	MATRICULA: B-9744-TV
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 16:38
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 16:54
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 18:08

MUESTRA:	ALBARAN Nº
H .2005/25144	144467

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
14.5	14.5	14 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	30.1	30.1
2	28/12/2005	28	36.8	36.6
3	28/12/2005	28	36.3	
4	28/02/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :	OBSERVACIONES
ENCEPADO ESTRIBO 2		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API 06039API05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, Rubí

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1503	426	1023333	03/01/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	30/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	18:05	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	18:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	14 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	10 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	511555
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-52,5 SR	DOSIFICACION (kg/m³): 275	MATRICULA: 3988-CHL
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 17:36
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 18:00
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 19:06

MUESTRA:	ALBARAN Nº
H .2005/25148	144468

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
6.0	6.0	6 cm

RECOGIDA DE PROBETAS

FECHA: 01/12/2005 HORA: 18:00
TEMP.AMB. 4 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	07/12/2005	7	31.3	31.3
2	28/12/2005	28	35.5	35.7
3	28/12/2005	28	35.9	
4	28/02/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :	OBSERVACIONES
ENCEPADO ESTRIBO 2		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API 06039API05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Construcción Técnica, Rubí

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1658	414	1023333	28/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	29/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	13:30	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	13:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:		COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL II			SU ALBARAN:	511502
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 275	MATRICULA: B-3006-UF
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 8	H.SALIDA PLANTA 12:52
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 13:20
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 14:22

MUESTRA:	ALBARAN Nº
II .2005/24918	144455

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
12.0	12.0	12 cm

RECOGIDA DE PROBETAS

FECHA: 30/11/2005 HORA: 18:30
TEMP.AMB. 9 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	06/12/2005	7	34.7	34.7
2	27/12/2005	28	37.6	37.8
3	27/12/2005	28	38.0	
4	27/02/2006	90	39.6	39.6

Conservación en laboratorio: Camara húmeda (H.R >95%,T 20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

Applus Construcción Técnica, S.A.
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08191 Rubí (Barcelona)
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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1659	415	1023333	28/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	29/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	17:30	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	17:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	16 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	13 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - MARTORELL			SU ALBARAN:	NO CONSTA
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 275	MATRICULA: M-9118-YU
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 17:09
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 17:20
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 18:39

MUESTRA:	ALBARAN Nº
H .2005/24923	144456

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
6.0	6.0	6 cm

RECOGIDA DE PROBETAS

FECHA: 30/11/2005 HORA: 18:30
TEMP.AMB. 9 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	06/12/2005	7	30.0	30.0
2	27/12/2005	28	36.7	36.9
3	27/12/2005	28	37.0	
4	27/02/2006	90	38.1	38.1

Conservación en laboratorio: Camara húmeda (H.R >95%,T 20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1660	416	1023333	28/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	29/11/2005	LABORANTE:	MARIO MELLADO
HORA TOMA:	18:04	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	18:17	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	16 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	13 °C
HUMEDAD RELATIVA:	
TIEMPO:	Nublado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - MARTORELL			SU ALBARAN:	511518
DESIGNACION:	IIA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 275	MATRICULA: 6400-DNR
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 8	H.SALIDA PLANTA 17:21
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 17:45
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 18:51

MUESTRA:	ALBARAN Nº
H .2005/24925	144458

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 30/11/2005 HORA: 18:30
TEMP.AMB. 9 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	06/12/2005	7	27.1	27.1
2	27/12/2005	28	33.0	33.3
3	27/12/2005	28	33.5	
4	27/02/2006	90	34.5	34.5

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION: **ESTRIBO 1**

LOTE:

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039API05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1708	441	1023333	09/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	07/12/2005	LABORANTE:	SERGIO NACARINO
HORA TOMA:	12:35	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	9 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	8 °C
HUMEDAD RELATIVA:	80%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL II			SU ALBARAN:	511609
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 275	MATRICULA: B-4652-UK
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 12:03
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 12:25
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 13:33

MUESTRA:	ALBARAN Nº
H .2005/25552	144631

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.0	7.0	7 cm

RECOGIDA DE PROBETAS

FECHA: 09/12/2005 HORA: 11:25
TEMP.AMB. 13 °C HUM. RELAT.: 60%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	14/12/2005	7	32.3	32.3
2	04/01/2006	28	41.3	40.8
3	04/01/2006	28	40.3	
4	07/03/2006	90	44.0	44.0

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION: **ALZADO ESTRIBO 1, 2ª FASE**

LOTE:

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039API05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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08191 Rubí (Barcelona)
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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1652	458	1023333	24/02/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	25/01/2006	LABORANTE:	Patricio Cabrera
HORA TOMA:	09:15	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:30	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	1 °C
HUMEDAD RELATIVA:	89%
TIEMPO:	Soleado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	508318
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: L55
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 08:39
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 08:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 10:09

MUESTRA:	ALBARAN Nº
II .2006/2070	138008

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
10.0	10.0	10 cm

RECOGIDA DE PROBETAS

FECHA: 26/01/2006 HORA: 11:30
TEMP.AMB. 13 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	01/02/2006	7	17.5	17.5
2	15/02/2006	21	25.4	25.4
3	22/02/2006	28	27.7	27.8
4	22/02/2006	28	27.9	

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Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1** ...se 1

LOCALIZACION	LOTE:
MURO, ALZADO ESTRIBO 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1856	459	1023333	26/04/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	25/01/2006	LABORANTE:	Patricio Cabrera
HORA TOMA:	10:20	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	10:35	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	13 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	12 °C
HUMEDAD RELATIVA:	88%
TIEMPO:	Soleado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	511661
DESIGNACION:	IIA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: JM3
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 10	H.SALIDA PLANTA 09:53
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 10:15
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 11:23

MUESTRA:	ALBARAN Nº
H .2006/2073	138009

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 26/01/2006 HORA: 11:30
TEMP.AMB. 13 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	01/02/2006	7	24.2	24.2
2	22/02/2006	28	31.7	31.7
3	22/02/2006	28	31.7	
4	25/04/2006	90	36.1	36.1

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE:
MURO, ALZADO ESTRIBO 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1854	460	1023333	26/04/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	25/01/2006	LABORANTE:	Patricio Cabrera
HORA TOMA:	12:35	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	12:50	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	13 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	9 °C
HUMEDAD RELATIVA:	87%
TIEMPO:	Soleado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL					SU ALBARAN:	511668
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³):	290	MATRICULA:	L55
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	11:48
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	12:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	13:18

MUESTRA:	ALBARAN Nº
H .2006/2079	138010

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
7.5	7.5	8 cm

RECOGIDA DE PROBETAS

FECHA: 26/01/2006 HORA: 11:30
TEMP.AMB. 13 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	01/02/2006	7	26.5	26.5
2	22/02/2006	28	33.6	33.1
3	22/02/2006	28	32.6	
4	25/04/2006	90	35.8	35.8

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

MURO, ALZADO ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

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ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1855	461	1023333	26/04/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	25/01/2006	LABORANTE:	Patricio Cabrera
HORA TOMA:	16:00	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	16:15	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	15 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	10 °C
HUMEDAD RELATIVA:	75%
TIEMPO:	Soleado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR:	HORMICONSA - EL PAPIOL					SU ALBARAN:	511677
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³):	290	MATRICULA:	A103
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	8	H.SALIDA PLANTA	15:02
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	15:25
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	16:32

MUESTRA:	ALBARAN Nº
H .2006/2080	138012

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 26/01/2006 HORA: 11:30
TEMP.AMB. 13 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	01/02/2006	7	21.2	21.2
2	22/02/2006	28	29.5	29.4
3	22/02/2006	28	29.3	
4	25/04/2006	90	35.1	35.1

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

MURO, ALZADO ESTRIBO 2

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD

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Applus Construcción Técnica, S.A.
Praga 16 - 18, Pol. Ind. Cova Solera
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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1697	467	1023333	06/03/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/02/2006	LABORANTE:	Patricio Cabrera
HORA TOMA:	11:15	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	11:25	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	12 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL II					SU ALBARAN:	508329
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³):	290	MATRICULA:	L-11
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	10:50
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	11:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	12:20

MUESTRA:	ALBARAN Nº
H .2006/3015	138040

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
9.0	9.0	9 cm

RECOGIDA DE PROBETAS

FECHA: 06/02/2006 HORA: 17:30
TEMP.AMB. 12 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/02/2006	7	15.1	15.1
2	17/02/2006	14	23.2	23.2
3	03/03/2006	28	27.6	27.6
4	03/03/2006	28	27.6	

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **Sz CME-150: 30-1400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
2ª FASE ESTRIBO 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API1 06039API105(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1882	466	1023333	05/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

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APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

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C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	03/02/2006	LABORANTE:	Patricio Cabrera
HORA TOMA:	10:15	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	10:25	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	11 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	5 °C
HUMEDAD RELATIVA:	81%
TIEMPO:	Despejado
VIENTO:	Moderado

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL II					SU ALBARAN:	511688
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³):	290	MATRICULA:	A-17
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³):	6	H.SALIDA PLANTA	09:37
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA:	25.0 N/mm²	H. LLEGADA A OBRA:	09:55
MARCA:	NO CONSTA	ADICION:	NO CONSTA			LIMITE EMPLEO:	11:07

MUESTRA:	ALBARAN Nº
H .2006/3007	138039

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 06/02/2006 HORA: 17:30
TEMP.AMB. 12 °C HUM. RELAT.: 48%

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	10/02/2006	7	21.2	21.2
2	03/03/2006	28	31.9	32.0
3	03/03/2006	28	32.1	
4	04/05/2006	90	35.7	35.7

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20° ±2°) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :
2ª FASE ESTRIBO 2	

OBSERVACIONES

Vº Bº DIRECTOR,

Copias enviadas a:
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RESPONSABLE DE AREA

Fabián Velázquez Cabrera

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) API1 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDAD
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Applus Norcontrol, S.L.U.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1997	527	1023333	25/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	26/04/2006	LABORANTE:	CARLOS H. VALENCIA
HORA TOMA:	09:30	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	09:40	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	18 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	20 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	512305
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: 38
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 08:55
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 09:14
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 10:25

MUESTRA:	ALBARAN Nº
H .2006/12048	157244

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 27/04/2006 HORA: 15:50
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	03/05/2006	7	22.3	22.3
2	24/05/2006	28	30.6	30.4
3	24/05/2006	28	30.3	
4	25/07/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250:100-2400 KN** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :	OBSERVACIONES
muro ALETA ESTRIBO 1		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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Applus Norcontrol, S.L.U.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1998	528	1023333	25/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	26/04/2006	LABORANTE:	CARLOS H. VALENCIA
HORA TOMA:	10:35	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	10:45	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	22 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	22 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	512307
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: 50
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 10:03
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 10:30
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 11:33

MUESTRA:	ALBARAN Nº
H .2006/12050	157245

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
6.0	6.0	6 cm

RECOGIDA DE PROBETAS

FECHA: 27/04/2006 HORA: 15:50
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	03/05/2006	7	19.8	19.8
2	24/05/2006	28	27.2	27.5
3	24/05/2006	28	27.8	
4	25/07/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION	LOTE :	OBSERVACIONES
muro ALETA ESTRIBO 1		

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

LABORATORIO ACREDITADO EN LOS ÁMBITOS: EHA 06035EHA05(B) GTC 06041GTC05(B) GTL 06052GTL05(B) VSG 06036VSG05(B) AFC 06037AFC05(B) AFH 06038AFH05(B) APH 06039APH05(B) AMC 06040AMC05(B) en Sept 2005

ESTE INFORME SÓLO AFECTA A LOS MATERIALES SOMETIDOS A ENSAYO SEGÚN LAS NORMAS INDICADAS. LA REPRODUCCIÓN DE ESTE DOCUMENTO SÓLO ESTÁ AUTORIZADA SI SE HACE EN SU TOTALIDA
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Applus Norcontrol, S.L.U.
Praga 16 - 18, Pol. Ind. Cova Solera
08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
1999	529	1023333	25/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	26/04/2006	LABORANTE:	CARLOS H. VALENCIA
HORA TOMA:	14:45	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	15:00	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	20 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	28 °C
HUMEDAD RELATIVA:	
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	512316
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: 46
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 14:29
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 14:37
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 15:59

MUESTRA:	ALBARAN Nº
H .2006/12053	157246

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
8.0	8.0	8 cm

RECOGIDA DE PROBETAS

FECHA: 27/04/2006 HORA: 15:50
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	03/05/2006	7	26.1	26.1
2	24/05/2006	28	29.6	29.8
3	24/05/2006	28	30.0	
4	25/07/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250:100-2400 KN** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

muro
ALETA ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
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RESPONSABLE DE AREA

Fulgencio Dávila Judas

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08191 Rubí (Barcelona)
T 93 588 78 76
F 93 588 64 79

ACTA DE RESULTADOS

ACTA Nº	Nº DE TOMA	EXPEDIENTE	FECHA DE ACTA
2000	530	1023333	25/05/2006

OBRA: 1024657

AVE RIO LLOBREGAT - COSTA BLANCA

DESTINATARIO

COPCISA
A/ATT. SR. JAUME BELLO
APTDO. CORREOS 1319
08755 CASTELLBISBAL

CLIENTE: 42

COPCISA, S.A.
C/ NAVAS DE TOLOSA, Nº 161
TERRASSA
NIF: A08190696

35201 - TOMA DE HORMIGON FRESCO, ASIENTO EN CONO DE ABRAMS,FABRICACION, CURADO Y ROTURA A COMPRESION DE PROBETAS CILINDRICAS DE Ø 15 x 30 cm, SEGUN NORMAS UNE: 83.300 - 301 - 303 - 304 y 313.

ELABORACION Y CONSERVACION EN OBRA (UNE 83.300/84, 83.301/91)

FECHA:	26/04/2006	LABORANTE:	CARLOS H. VALENCIA
HORA TOMA:	17:10	PORCION DE LA TOMA:	entre 1/4 y 3/4 de la descarga
FIN TOMA:	17:20	CONSERVACION EN OBRA:	Intemperie
TEMP.HORMIGON:	22 °C	COMPACTACION	Picado

CONDICIONES AMBIENTALES

TEMP.AMBIENTE:	25 °C
HUMEDAD RELATIVA:	37%
TIEMPO:	Despejado
VIENTO:	Calma

DATOS DEL SUMINISTRO DEL HORMIGÓN

SUMINISTRADOR :	HORMICONSA - EL PAPIOL			SU ALBARAN:	512320
DESIGNACION:	HA-25/B/20/IIa	CEMENTO:	I-42,5 R	DOSIFICACION (kg/m³): 290	MATRICULA: L50
REL.AGUA/CEMENTO:	0.60	CONSISTENCIA:	Blanda	CARGA (m³): 6	H.SALIDA PLANTA 16:43
ADITIVO:	PLASTIFICANTE	TAMAÑO MAX. DEL ARIDO (mm):	20	RESISTENCIA: 25.0 N/mm²	H. LLEGADA A OBRA: 17:05
MARCA:	NO CONSTA	ADICION:	NO CONSTA		LIMITE EMPLEO: 18:13

MUESTRA:	ALBARAN Nº
H .2006/12055	157247

CONSISTENCIA EN CONO DE ABRAMS (UNE 83.313/90)

CONO 1	CONO 2	ASIENTO MEDIO
10.0	10.0	10 cm

RECOGIDA DE PROBETAS

FECHA: 27/04/2006 HORA: 15:50
TEMP.AMB. 20 °C HUM. RELAT.:

ROTURA A COMPRESION (UNE 83.303/84, 83.304/84)

Probeta número	Fecha de ensayo	Edad hormigón (días)	Tensión de rotura (N/mm²)	Tensión media (N/mm²)
1	03/05/2006	7	22.1	22.1
2	24/05/2006	28	27.8	27.6
3	24/05/2006	28	27.3	
4	25/07/2006	90		

Conservación en laboratorio: Camara húmeda (H.R >95%,T.20º ±2º) Rango de calibración de la prensa **CME-250/SDC: 100-2400 KN.** Presición de la prensa s/ISO 7500/1: Clase 1

LOCALIZACION — LOTE:

muro
ALETA ESTRIBO 1

OBSERVACIONES

Vº Bº DIRECTOR,

Fabián Velázquez Cabrera

Copias enviadas a:
COPCISA, S.A.

RESPONSABLE DE AREA

Fulgencio Dávila Judas

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