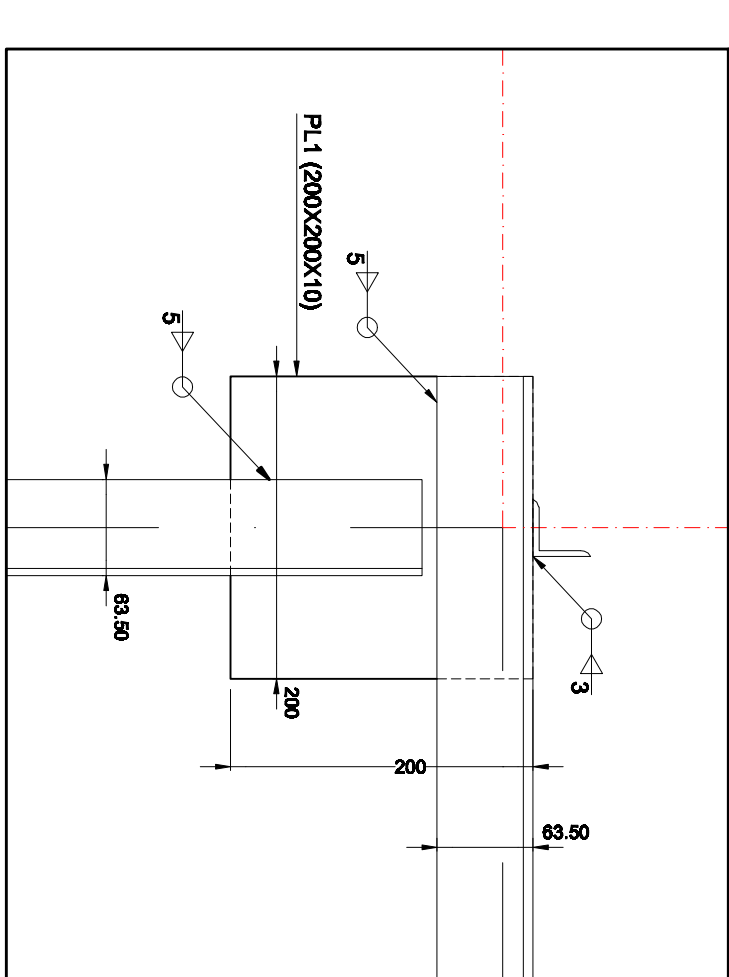
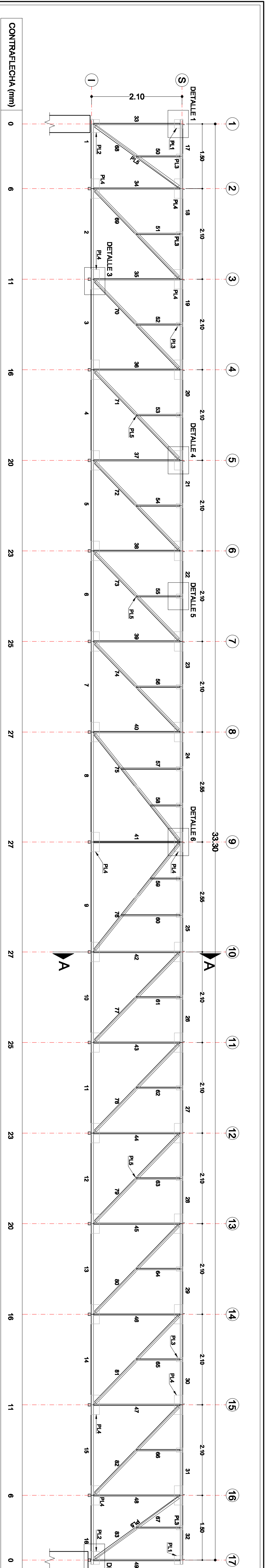
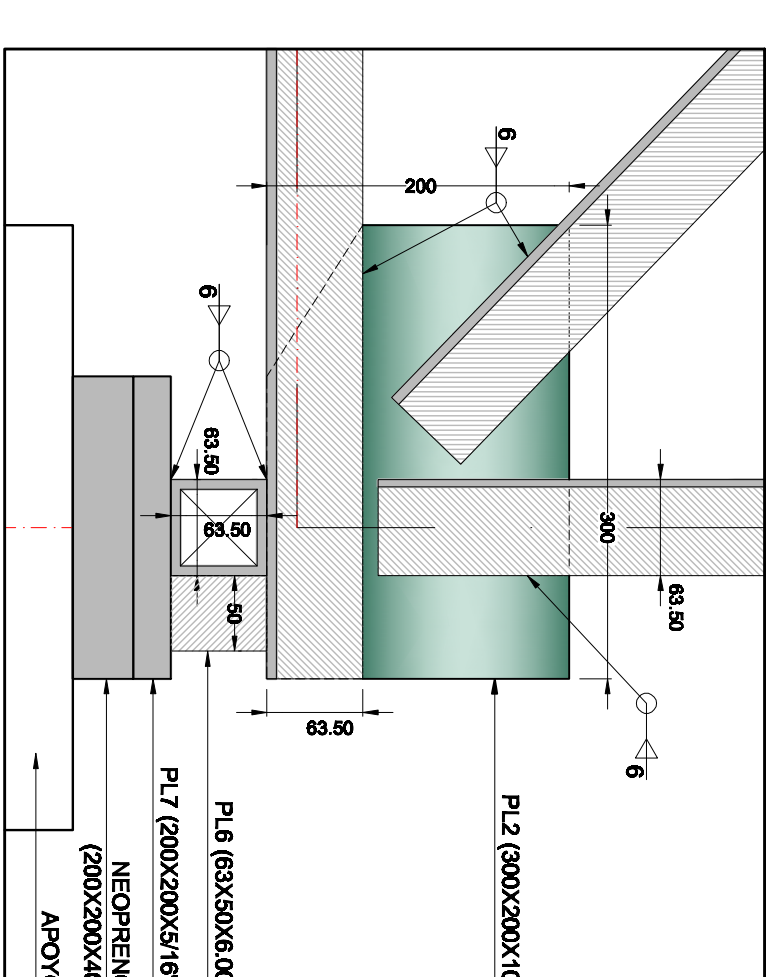
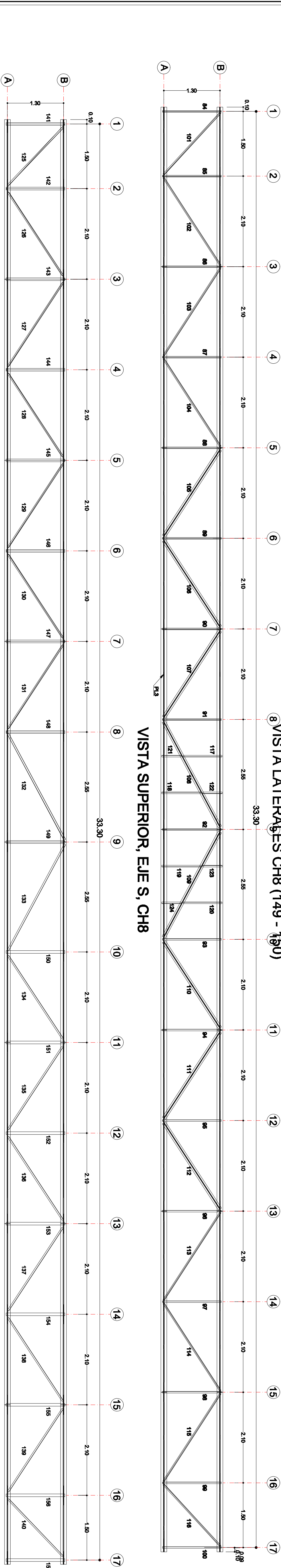
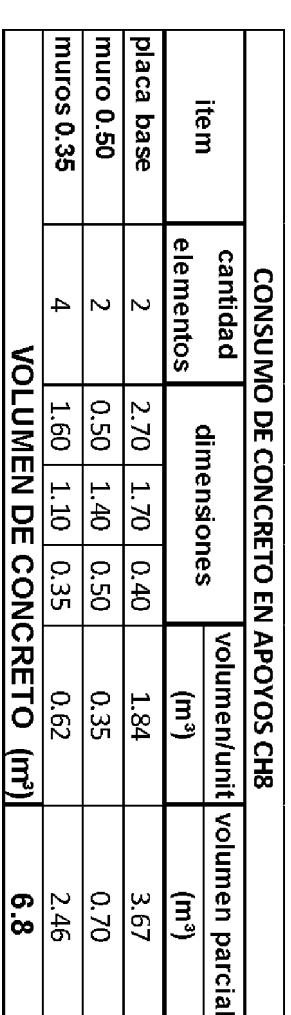




DETALLE 1  
VISTA LATERAL DE NODO  
SUPERIOR EN APOYOS DE CH8  
ESC 1:5

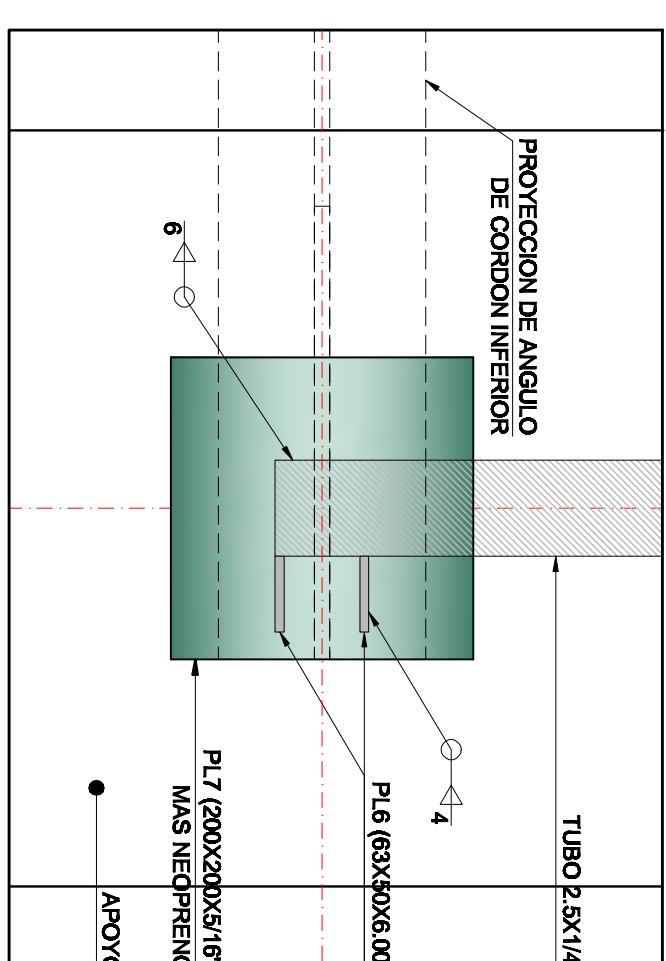
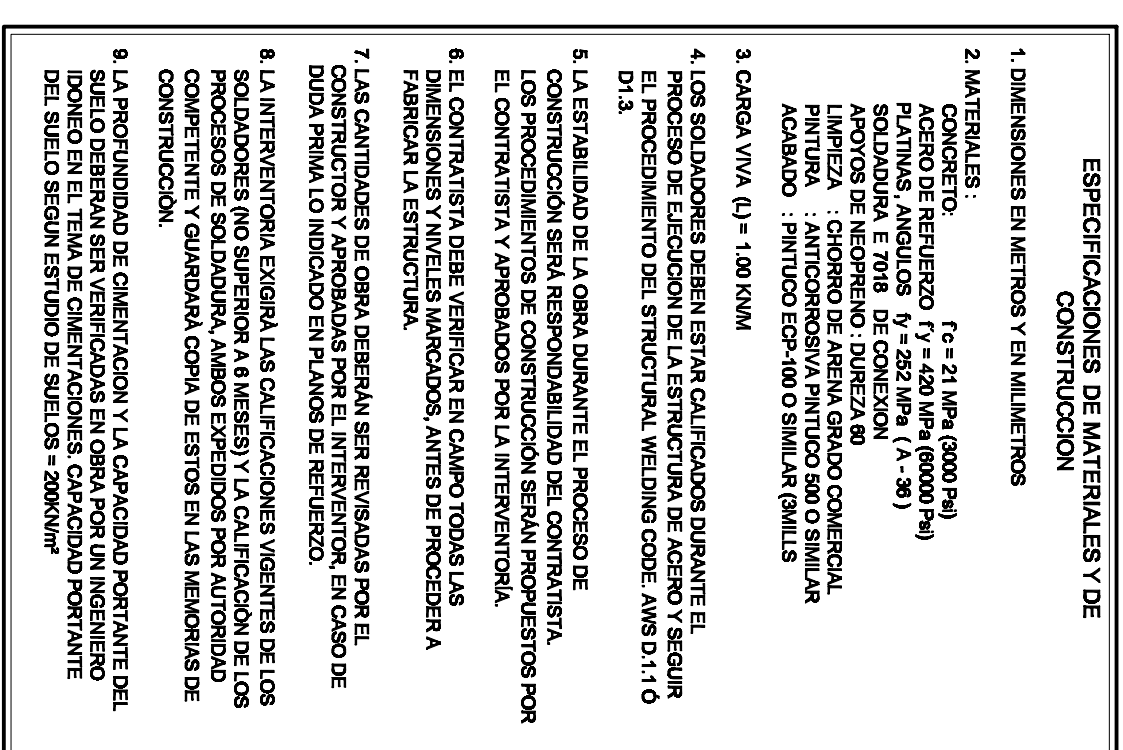
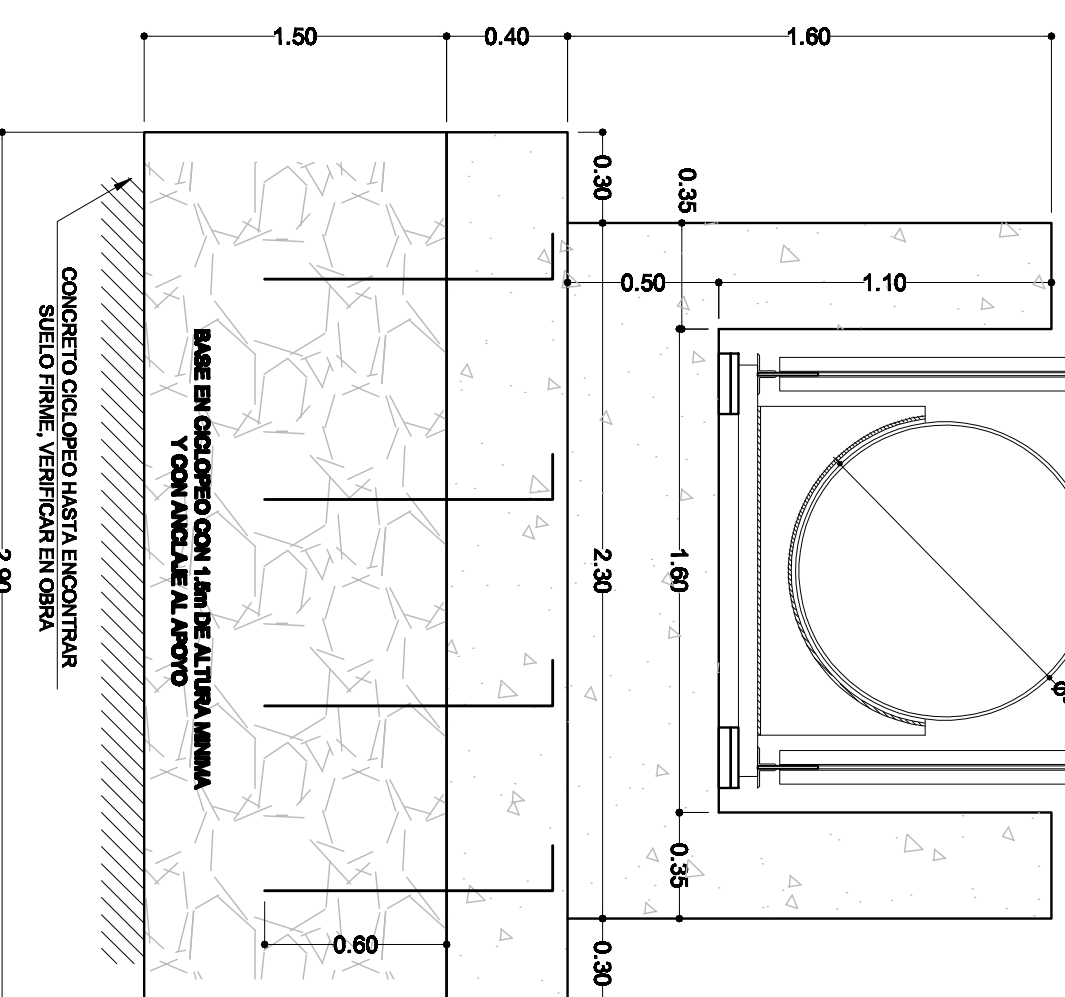
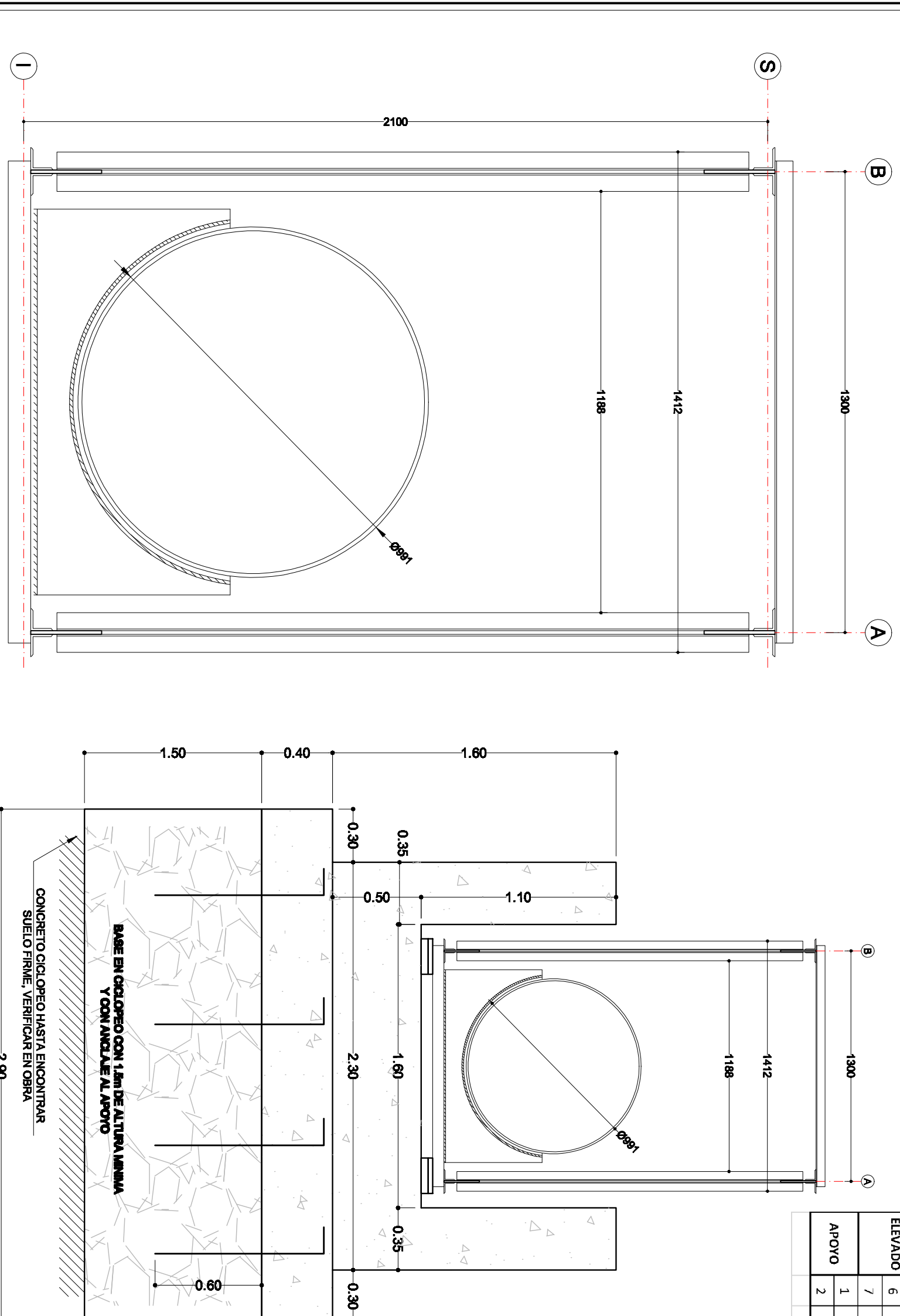


DETALLE 2  
VISTA LATERAL DE NODO INFERIOR EN  
APOYOS DE CH8 (VER DETALLE 8)  
ESC 1:5

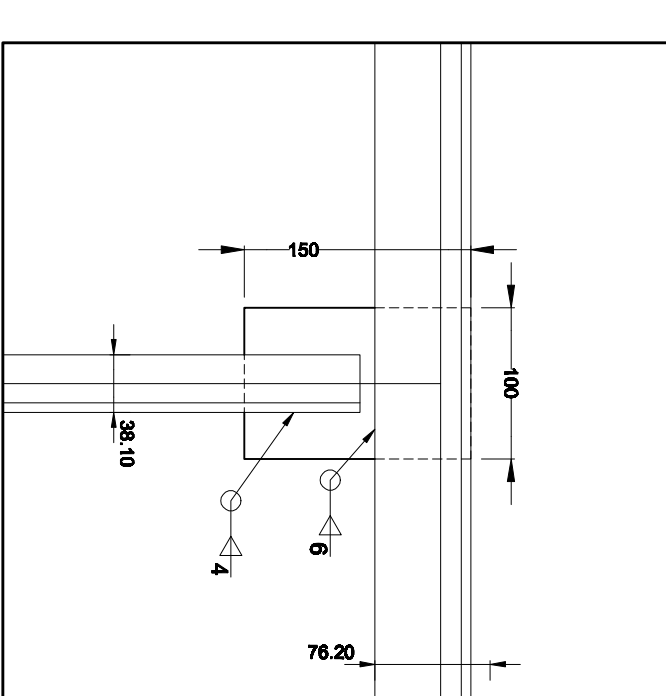


| CAMBIOS DE MATERIALES PARA LA CORDOY DE UNA CERRAJA CORD                              |  |                                                                                       |  |                                                                                       |  |                                                                                       |  |                                                                                       |  |                                                                                       |  |
|---------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|
| FIGURA 4                                                                              |  |                                                                                       |  |                                                                                       |  |                                                                                       |  |                                                                                       |  |                                                                                       |  |
| FORMA                                                                                 |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| ELEMENTO                                                                              |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| FORMA                                                                                 |  |  |  |  |  |  |  |  |  |  |  |
| DIAMETRO OCTAVOS, PULG Ø                                                              |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| Nº DE BARRAS                                                                          |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| Nº ELEMENTOS                                                                          |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| Nº TOTAL DE BARRAS                                                                    |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| A                                                                                     |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| B                                                                                     |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| C                                                                                     |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| LONGITUD PARCIAL (m)                                                                  |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| LONGITUD TOTAL (m)                                                                    |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| PESO TOTAL (Kg)                                                                       |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| ADICION                                                                               |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| REDUCCION                                                                             |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |
| 302.5                                                                                 |  | 1                                                                                     |  | 2                                                                                     |  | 3                                                                                     |  | 4                                                                                     |  | 5                                                                                     |  |

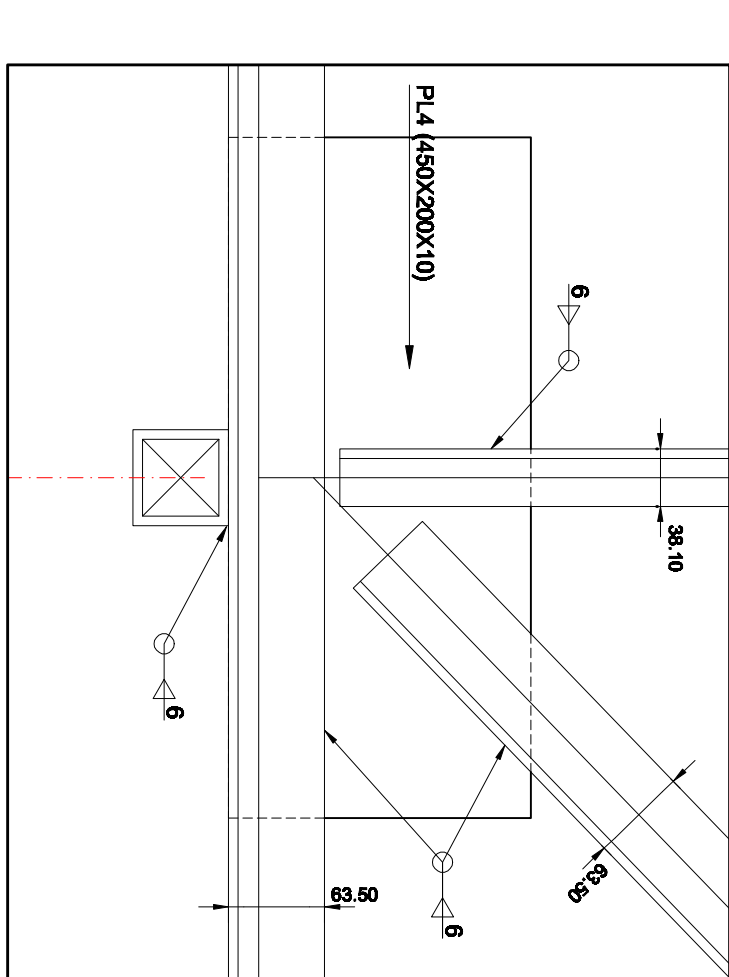
| CUADRO DE ELEMENTOS PARA CH8 |                    |        |  |
|------------------------------|--------------------|--------|--|
| IDENTIF.                     | DESCRIPCION        | FIGURA |  |
| 1 al 3                       | 2.5/1.4"           |        |  |
| 4 al 13, 25 al 26            | 3.5/5.16"          |        |  |
| 14 al 18                     | 2.5/1.4"           |        |  |
| 31, 32                       | 3.5/5.16"          |        |  |
| 19 al 22                     | 3.0/5.16"          |        |  |
| 27 al 30                     | 3.5/5.22"          |        |  |
| 34 al 48                     | 1.5/5.22"          |        |  |
| 50 al 67                     | 1.5/5.22"          |        |  |
| 35, 49, 68 al 83             | 2.5/3.16"          |        |  |
| 84 al 105, 105 al 140        | 1.5/5.22"          |        |  |
| 105 al 112                   | 1.5/5.22"          |        |  |
| 141 al 157                   | 2.5/1.4"           |        |  |
| P.1                          | (300X200X10) (mm)  |        |  |
| P.2                          | (300X200X10) (mm)  |        |  |
| P.3                          | (150X100X10) (mm)  |        |  |
| P.4                          | (450X200X10) (mm)  |        |  |
| P.5                          | (100X63.5X10) (mm) |        |  |



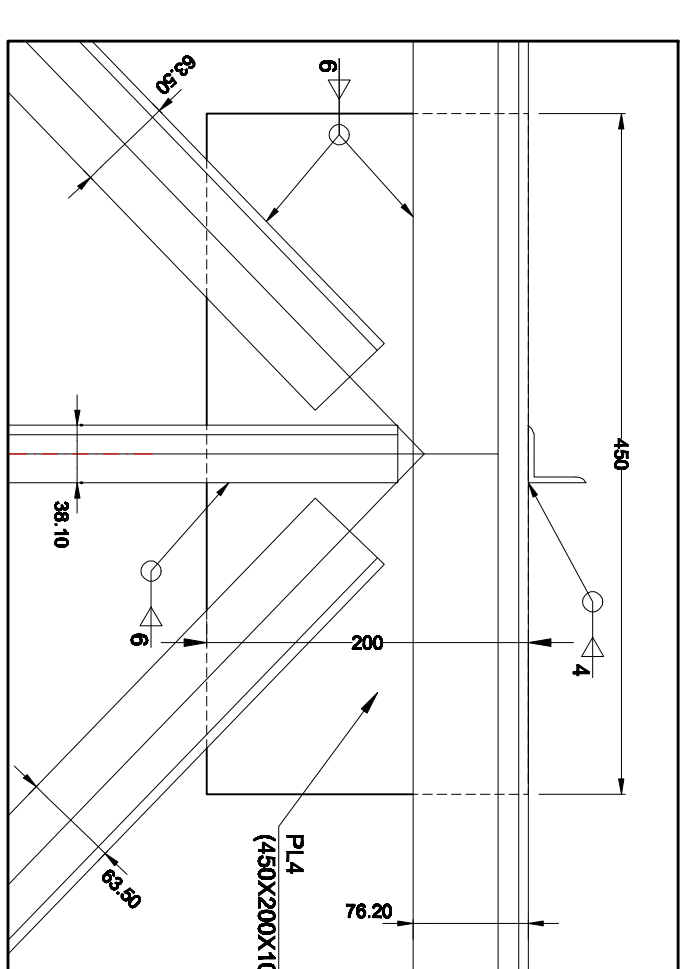
**DETALLE 8**  
**PLATINAS DE RESPALDO SOBRE E**  
**APOYO LIBRE, VISTA SUPERIOR**



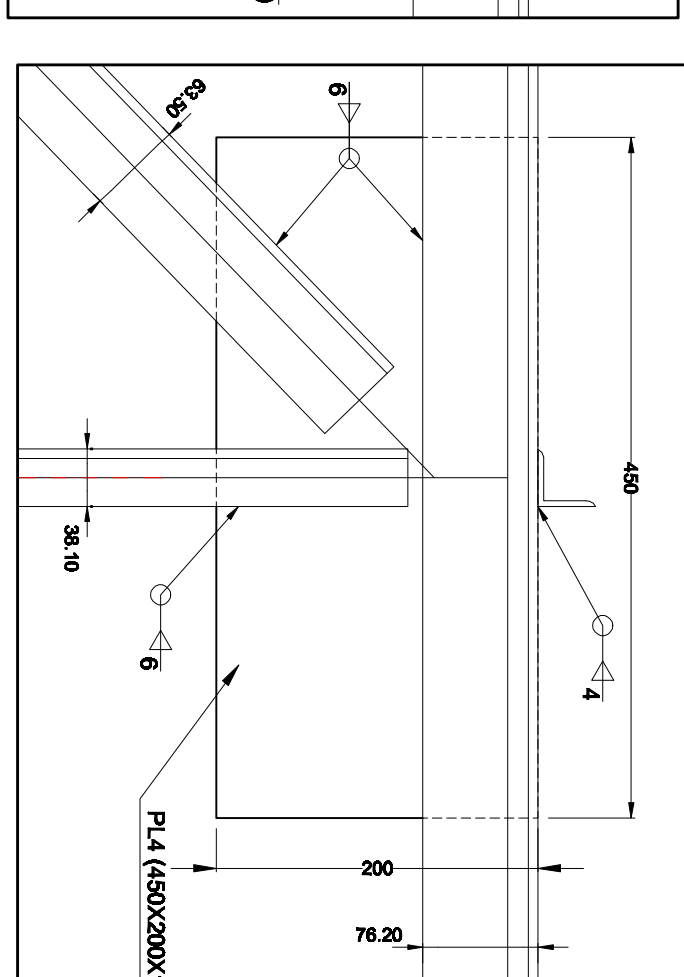
DETALLE 5  
VISTA LATERAL DE NODO CENTRAL  
SUPERIOR DE CH8



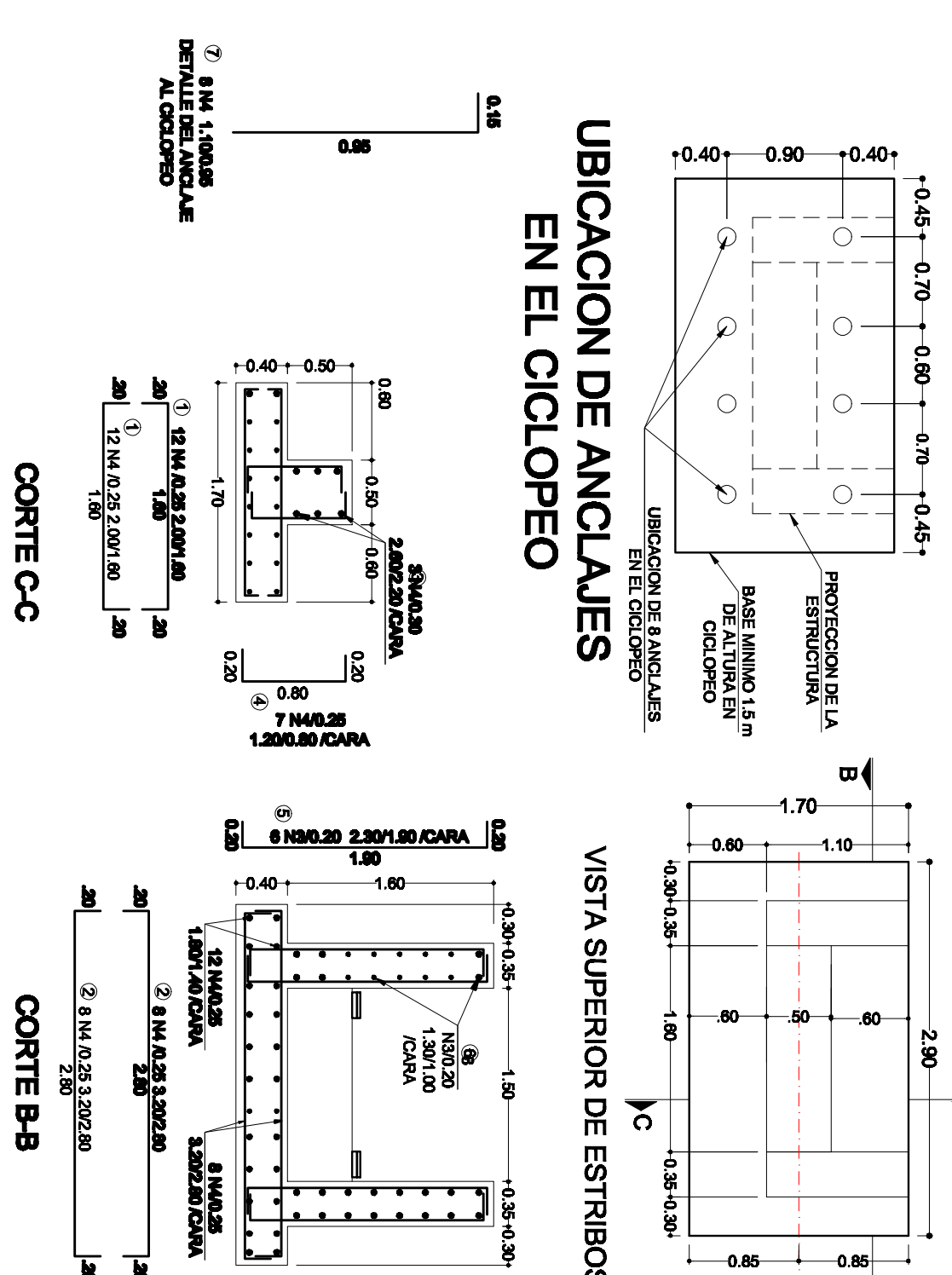
**DETALLE 3**  
**VISTA LATERAL DE NODO CENTRAL**  
**INFERIOR DE CH8**  
**ESC 1:5**



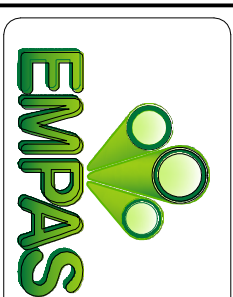
**DETALLE 6**  
**VISTA LATERAL DE NODO CENTRAL**  
**SUPERIOR DE CH8**  
**ESC 1:5**



**DETALLE 4**  
**VISTA LATERAL DE NODO CENTRAL**  
**INFERIOR DE CH8**  
**ESC 1:5**



COM RTE-C-C DETALLES DE ESTRIBOS



EMPRESA PUBLICA DE ALCANTARILLADO  
DE SANTANDER S.A. E.S.P.

MAURICIO ALBERTO SANTOS REYES  
INGENIERO CIVIL

REVISO:  
ING. GLADYS E. RUED.

|        |   |          |
|--------|---|----------|
| DIBUJO | : | L.F.A.A. |
| DISEÑO | : | L.C.C.   |
| FECHA  | : | Abril de |
| ESCALA | : | 1:5      |

APROBADO

ING. LUDWING URIBE GARCIA

| REVISIONES |       |          |
|------------|-------|----------|
| REFERENCIA | FECHA | RESPONS. |
|            |       |          |
|            |       |          |
|            |       |          |

CONSULTORIA PARA EL DISEÑO DEL SISTEMA  
SANITARIO MENSUL – ARANZOQUE  
CONTRATO DE CONSULTORIA N° 000288 DE 2008

CASO A DESNIVEL P(MEN)R149 – P(MEN)R150, FLORIDABLANCA  
DESPIECE ESTRUCTURAL DE CERCHA  
DETALLES DE CONEXIONES  
ESPECIFICACIONES DE MATERIALES Y DE CONSTRUCCION

|                     |    |
|---------------------|----|
| PLANO:              | 15 |
| SON:                | 18 |
| EMPAS-288-08-ESP-15 |    |