

O
F. 331.9
P26
III



CONSEJO FEDERAL DE INVERSIONES

PROVINCIA DE CHUBUT

RADA TILLY

PLANTA DE TRATAMIENTO DE DESAGUES CLOACALES
ANTEPROYECTO DEFINITIVO

O/F. 331.9
P26
III

INFORME FINAL
ESTR.HORM. EDIF.-PL. DOBLADO HIERROS-PLANOS ENCOFR. Y ARMAD.
ING. RAUL H. A. PORTAS ESQUIVEL

RAUL H. A. PORTAS ESQUIVEL

INGENIERO CIVIL

BOLIVAR 553 - A°, G - 34 - 9593

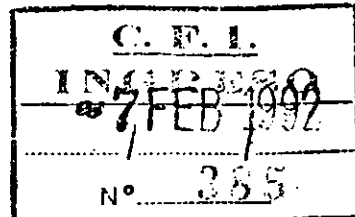
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RECIBO 0004 - 000
CAJA PROF. 159.012

Buenos Aires, Febrero 7. de 1992.-

Sr. Secretario General del
Consejo Federal de Inversiones
Sr. Juan José Ciacara

S / D

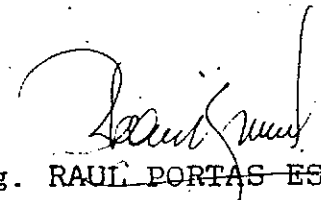


De mi mayor consideración:

Por la presente tengo el agrado de comunicarle que en cumplimiento del Contrato firmado con fecha 8 de Octubre de 1991 - ANTEPROYECTO DEFINITIVO DE LA PLANTA DE TRATAMIENTO DE EFLUENTES CLOCALES PARA RADA TILLY - DISEÑO ESTRUCTURAL -, en el día de la fecha hacemos entrega de cuatro ejemplares del Informe Final. El mismo contiene la siguiente documentación:

- Memoria de cálculo de las estructuras de hormigón correspondientes a la Casa del Encargado, y galería entre Taller y Laboratorio.
- Planillas de doblado de hierros de todas las estructuras (las calculadas en este Informe, y las realizadas en los dos Informes anteriores)
- Planos de Encofrado y Armadura de la totalidad de las estructuras calculadas.

Sin otro particular, saludo a Ud. muy atentamente


Ing. RAUL PORTAS ESQUIVEL

ADJ.: Lo indicado

RAUL PORTAS ESQUIVEL

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ARAOZ 2379 - 4º A - 71-6258

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Fecha:.....

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PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES

RADA TILLY

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PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES

RADA TILLY

CAPITULO IX

CALCULO ESTRUCTURAS DE HORMIGON EN EDIFICIOS

IX.01.- ALCANCE

El presente capitulo trata del calculo de los elementos estructurales de hormigon constitutivos de la cubierta existente entre los edificios de Laboratorio y Taller; y la parte correspondiente de la vivienda del Encargado.

IX.02.- CARGAS ACTUANTES

Ambas estructuras conforman azoteas inaccesibles. El correspondiente analisis de cargas sera:

$$P. \text{ Pr. losa (estim. 10 cm) } = 0.10 \times 2.4 \text{ t/m}^3 = 0.24 \text{ t/m}^2$$

$$P. \text{ Pr. contr. (prom. 15 cm) } = 0.15 \times 1.4 = 0.21 \text{ "}$$

$$\text{Alis. cem. y membr. imperm.} = 0.05 \text{ "}$$

$$\text{Total peso propio } g = 0.50 \text{ t/m}^2$$

Para la carga variable se adopta

$$\text{Sobrecarga } p = 0.10 \text{ t/m}^2$$

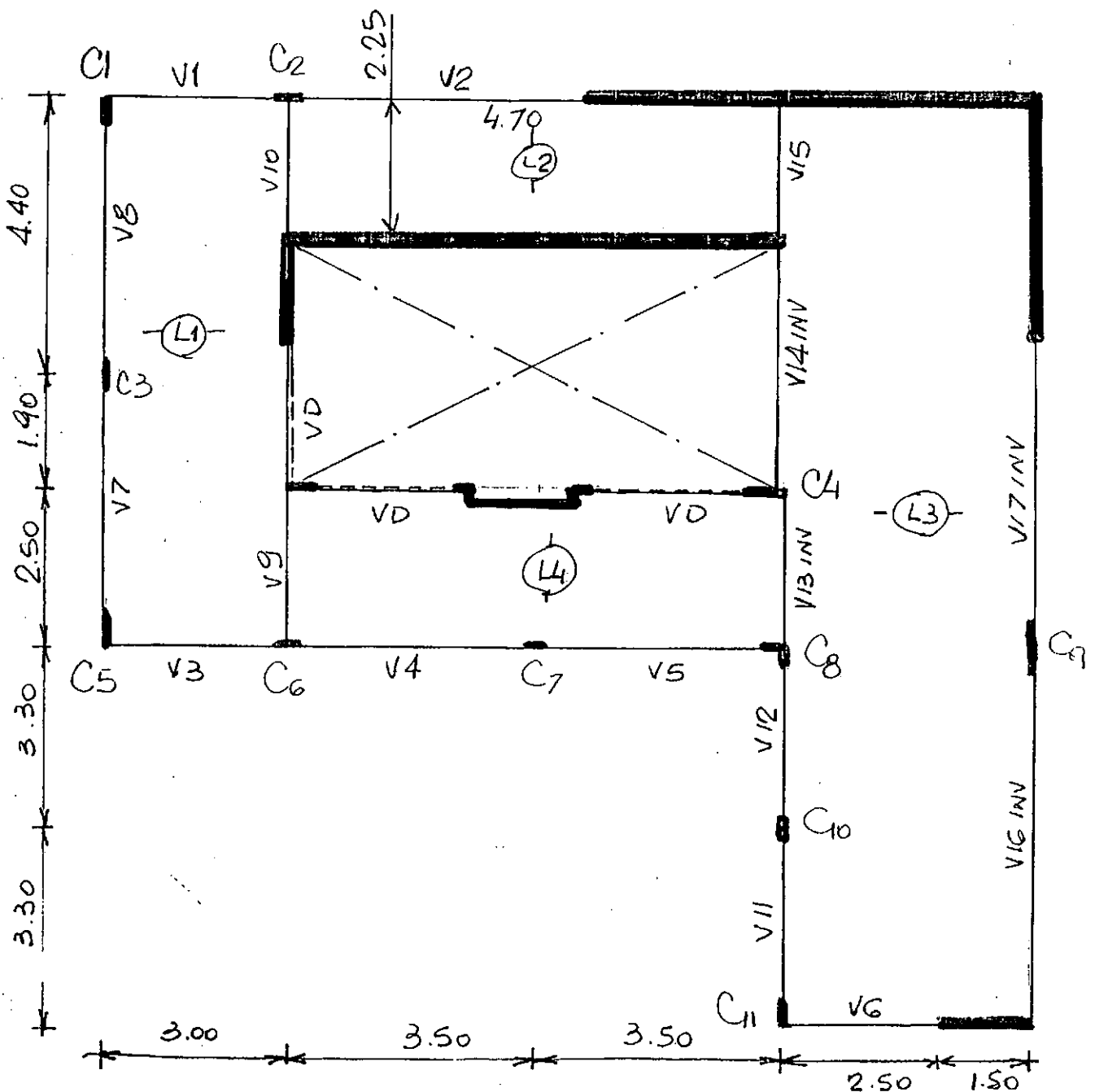
IX.03.- CARACTERISTICAS Y DIMENSIONADO

Se realiza a traves de un programa de computacion, cuya entrada y salida de datos se adjuntan al final de la Memoria.

IX.03.01 - CASA DEL ENCARGADO

Esta conformada por cuatro losas armadas en una direccion, sustentadas por una combinacion de muros portantes y vigas, algunas de ellas invertidas por razones arquitectonicas.

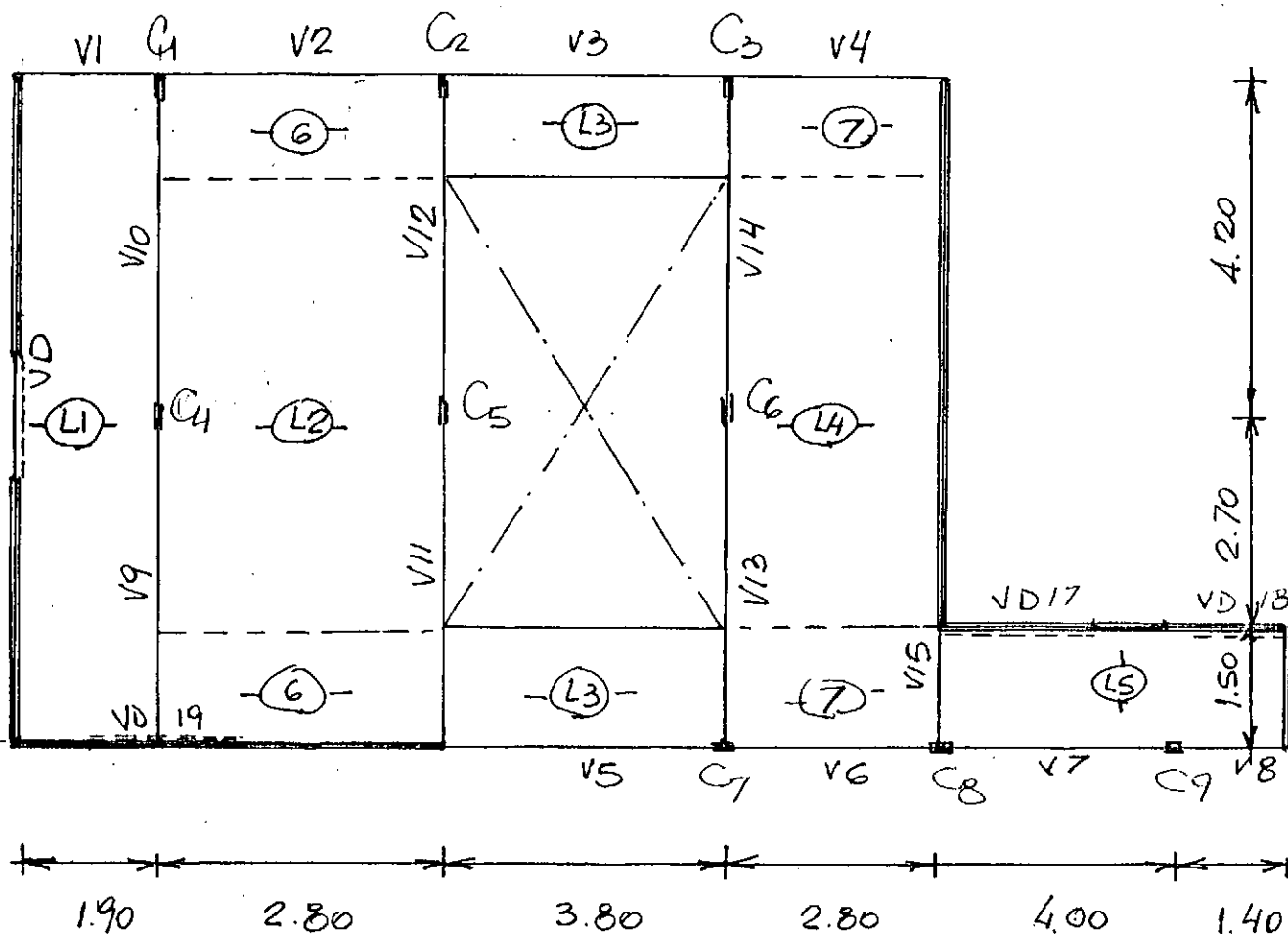
- Esquema geometrico



IX.03.02 - CUBIERTA ENTRE LABORATORIO Y TALLER 03.02

Esta conformada por una serie de losas armadas en una direccion, sustentadas en sus extremos por los muros portantes de los edificios, y en sus tramos interiores por vigas continuas apoyadas sobre pilares de mamposteria, segun se ve a continuacion.

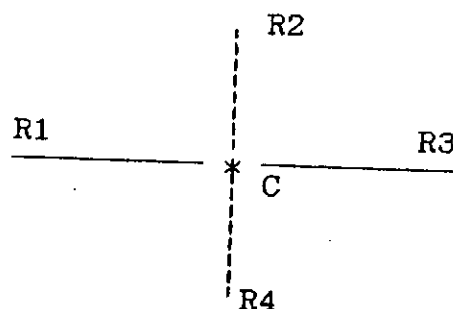
- Esquema Geometrico



IX.04.- CALCULO DE COLUMNAS

Dado que el apoyo de las vigas se materializa en todos los casos a traves de un pilar de mamposteria, se verificara la tension de trabajo de la misma, verificando que en ningun caso supere un valor maximo adoptado de 8 kgr/cm2. Se determinan las cargas actuantes en cada caso por medio de la siguiente tabla:

Esquema de vigas:



IX.04.01- Casa Encargado

COL.	R1	R2	R3	R4	TOT.NIV	LARGO	ANCHO	SIGMA
1			0.3	1.7	2	55	25	1.45
2	0.6		2.2	1.1	3.9	55	25	2.84
3		2.8		2.8	5.6	55	25	4.07
4		2.6		1.6	4.2	55	25	3.05
5		1.7	0.3		2	55	25	1.45
6	0.3	1.3	1.3		2.9	55	25	2.11
7	1.8		1.9		3.7	55	25	2.69
8	1.2	1.6		1.6	4.4	55	25	3.20
9		4.7		5.1	9.8	55	25	7.13
10		2.7		2.7	5.4	55	25	3.93
11		1.6	0.1		1.7	55	25	1.24

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IX.04.02 - Laboratorio - Taller

COL.	R1	R2	R3	R4	TOT.NIV	LARGO	ANCHO	SIGMA
1	0.1		0.1	3	3.2	25	25	5.12
2	0.2		0.2	2.4	2.8	25	25	4.48
3	0.2		0.2	2.4	2.8	25	25	4.48
4		5		5	10	40	40	6.25
5		3		2.9	5.9	40	40	3.69
6		2.9		3	5.9	40	40	3.69
7	0.3	2.8	0.2		3.3	25	25	5.28
8	0.3	0.6	1.1		2	25	25	3.20
9	1.1		0.9		2	25	25	3.20

IX.05 PLANILLAS DE ENTRADA Y SALIDA DE DATOS DE COMPUTADORA

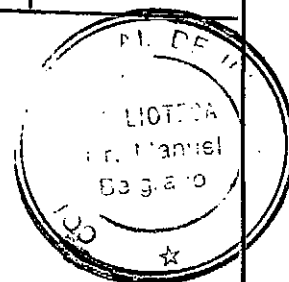
Tal como se indico en la Memoria, se adjuntan a continuacion las planillas de calculo de losas y vigas, precedidas cada una de ellas por el resumen de sus correspondientes denominaciones y simbolos.-

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PLANTA TRAT. DES. RADA TILLY

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RADA TILLY - CALCULO LOSAS

RESOLUCION DE LOSAS

OBRA: TILLY

RES. CARACTERISTICAS

PLANTA: CASA ENC

V₁ 2

HORMIGON = 170 kg/cm²

1 1 1 1

ACERO = 4200 kg/cm²

1 1 1 3

1 1 1 1 -> X

4

LUCES (L_X, L_Y): m ESPESOR (d): cm CARGA (q): t/m² REACCIONES (r₁, r₂, r₃, r₄): t/m

MOMENTOS FLEXORES (M_{XA1}, M_X, M_{XA3}, M_{YA2}, M_Y, M_{YA4}): t/m

ARMADURAS (A_{SX}, A_{SY}): cm²/m

DIAMETRO (D₁): mm SEPARACION (S): cm SEPARACION BARRAS DOBLADAS (SD): cm

TIPOS DE LOSA

T		BORDE 1	BORDE 2	BORDE 3	BORDE 4
0	ARMADA EN 2 DIRECCIONES	ARTICULADO	ARTICULADO	ARTICULADO	ARTICULADO
1	ARMADA EN 2 DIRECCIONES	EMPOTRADO	ARTICULADO	ARTICULADO	ARTICULADO
2	ARMADA EN 2 DIRECCIONES	ARTICULADO	ARTICULADO	EMPOTRADO	ARTICULADO
3	ARMADA EN 2 DIRECCIONES	ARTICULADO	EMPOTRADO	ARTICULADO	ARTICULADO
4	ARMADA EN 2 DIRECCIONES	ARTICULADO	ARTICULADO	ARTICULADO	EMPOTRADO
5	ARMADA EN 2 DIRECCIONES	EMPOTRADO	EMPOTRADO	ARTICULADO	ARTICULADO
6	ARMADA EN 2 DIRECCIONES	ARTICULADO	EMPOTRADO	EMPOTRADO	ARTICULADO
7	ARMADA EN 2 DIRECCIONES	EMPOTRADO	ARTICULADO	ARTICULADO	EMPOTRADO
8	ARMADA EN 2 DIRECCIONES	ARTICULADO	ARTICULADO	EMPOTRADO	EMPOTRADO
9	ARMADA EN 2 DIRECCIONES	EMPOTRADO	ARTICULADO	EMPOTRADO	ARTICULADO
10	ARMADA EN 2 DIRECCIONES	ARTICULADO	EMPOTRADO	ARTICULADO	EMPOTRADO
11	ARMADA EN 2 DIRECCIONES	EMPOTRADO	EMPOTRADO	ARTICULADO	EMPOTRADO
12	ARMADA EN 2 DIRECCIONES	ARTICULADO	EMPOTRADO	EMPOTRADO	EMPOTRADO
13	ARMADA EN 2 DIRECCIONES	EMPOTRADO	EMPOTRADO	EMPOTRADO	ARTICULADO
14	ARMADA EN 2 DIRECCIONES	EMPOTRADO	ARTICULADO	EMPOTRADO	EMPOTRADO
15	ARMADA EN 2 DIRECCIONES	EMPOTRADO	EMPOTRADO	EMPOTRADO	EMPOTRADO
16	ARMADA EN DIRECCION X	ARTICULADO	ARTICULADO	ARTICULADO	ARTICULADO
17	ARMADA EN DIRECCION Y	ARTICULADO	ARTICULADO	ARTICULADO	ARTICULADO
18	ARMADA EN DIRECCION X	ARTICULADO	ARTICULADO	EMPOTRADO	ARTICULADO
19	ARMADA EN DIRECCION X	EMPOTRADO	ARTICULADO	ARTICULADO	ARTICULADO
20	ARMADA EN DIRECCION Y	ARTICULADO	EMPOTRADO	ARTICULADO	ARTICULADO
21	ARMADA EN DIRECCION Y	ARTICULADO	ARTICULADO	ARTICULADO	EMPOTRADO
22	ARMADA EN DIRECCION X	EMPOTRADO	ARTICULADO	EMPOTRADO	ARTICULADO
23	ARMADA EN DIRECCION Y	ARTICULADO	EMPOTRADO	ARTICULADO	EMPOTRADO
24	LOSA EN VOLADIZO	EMPOTRADO	LIBRE	LIBRE	LIBRE
25	LOSA EN VOLADIZO	LIBRE	LIBRE	EMPOTRADO	LIBRE
26	LOSA EN VOLADIZO	LIBRE	EMPOTRADO	LIBRE	LIBRE
27	LOSA EN VOLADIZO	LIBRE	LIBRE	LIBRE	EMPOTRADO

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PLANTA TRAT.DES.RADA TILLY

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LOSAS

OBRA: TILLY PLANTA: CASAENC HORMIGON= 170 kg/cm2 ACERO= 4200 kg/cm2

POS	LX	LY	T	d	q	r1	r2	r3	r4	MX1	MX	MXA3	MYA2	MY	MYA4	ASX	DI	S	SD	ASY	DI	S	SD
1	3.00	8.80	16	10	0.60	0.90	0.00	0.90	0.00	+0.00	0.68	+0.00	+0.00	0.00	+0.00	3.87	0	12	24	0.77	6	25	50
2	7.00	2.30	17	10	0.60	0.00	0.69	0.00	0.69	+0.00	0.00	+0.00	+0.00	0.40	+0.00	0.44	6	25	50	2.20	6	12	24
3	4.00	15.50	16	10	0.60	1.20	0.00	1.20	0.00	+0.00	1.20	+0.00	+0.00	0.00	+0.00	7.34	10	11	22	1.47	6	20	40
4	7.00	2.50	17	10	0.60	0.00	0.75	0.00	0.75	+0.00	0.00	+0.00	+0.00	0.47	+0.00	0.52	6	25	50	2.62	6	11	22

OBRA: TILLY PLANTA: LABOTALL HORMIGON= 170 kg/cm2 ACERO= 4200 kg/cm2

POS	LX	LY	T	d	q	r1	r2	r3	r4	MX1	MX	MXA3	MYA2	MY	MYA4	ASX	DI	S	SD	ASY	DI	S	SD
1	1.90	8.40	18	10	0.60	0.43	0.00	0.71	0.00	+0.00	0.15	-0.43	+0.00	0.00	+0.00	0.82	6	16	32	0.16	6	25	50
2	2.80	8.40	19	10	0.60	1.05	0.00	0.63	0.00	-0.43	0.33	+0.00	+0.00	0.00	+0.00	1.81	6	16	32	0.36	6	25	50
3	3.80	1.00	22	10	0.60	1.14	0.00	1.14	0.00	-0.65	0.36	-0.65	+0.00	0.00	+0.00	2.01	6	14	28	0.40	6	25	50
4	2.80	8.40	16	10	0.60	0.84	0.00	0.84	0.00	+0.00	0.59	+0.00	+0.00	0.00	+0.00	3.33	8	14	28	0.67	6	25	50
5	5.40	1.50	17	10	0.60	0.00	0.45	0.00	0.45	+0.00	0.00	+0.00	+0.00	0.17	+0.00	0.18	6	25	50	0.91	6	16	32
6	2.80	1.50	18	10	0.60	0.63	0.00	1.05	0.00	+0.00	0.33	-0.65	+0.00	0.00	+0.00	1.81	6	16	32	0.36	6	25	50
7	2.80	1.00	19	10	0.60	1.05	0.00	0.63	0.00	-0.65	0.33	+0.00	+0.00	0.00	+0.00	1.81	6	16	32	0.36	6	25	50

ARMADURA ADICIONAL APOYO LOSAS: 1 - 2 ** DIAM.= 6 SEP.= 50 **

ARMADURA ADICIONAL APOYO LOSAS: 3 - 6 ** DIAM.= 6 SEP.= 14 **

ARMADURA ADICIONAL APOYO LOSAS: 3 - 7 ** DIAM.= 6 SEP.= 14 **

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RADA TILLY - CALCULO VIGAS

RESOLUCION DE VIGAS

OBRA: TILLY

RES. CARACTERISTICAS

PLANTA: CASAENC

HORMIGON: 170 kg/cm²

ACERO: 4200 kg/cm²

L: LUZ DE CALCULO (m)

F: FORMA DE LA SECCION (T, L, I,)

bo: ANCHO (cm)

bm: ANCHO COLABORANTE (cm)

do: ALTURA TOTAL (cm)

h: ALTURA UTIL (cm)

qi: ORDENADA DE CARGA DISTRIBUIDA (t/m)

xi: COORDENADA DE qi MEDIDA DESDE EL APOYO IZQUIERDO (m)

Pi: CARGA CONCENTRADA (t)

xi: COORDENADA DE Pi MEDIDA DESDE EL APOYO IZQUIERDO (m)

Mai: MOMENTO FLEXOR EN EL APOYO IZQUIERDO (tm)

Mad: MOMENTO FLEXOR EN EL APOYO DERECHO (tm)

Mt: MOMENTO FLEXOR EN EL TRAMO (tm)

Qi: CORTE EN APOYO IZQUIERDO (t)

Ti: TAU IZD. (kg/cm²)

Qd: CORTE EN APOYO DERECHO (t)

Td: TAU DER. (kg/cm²)

As: ARMADURA INFERIOR NECESARIA EN TRAMO (cm²)

Asl: ARMADURA DE PERCHAS (cm²)

DI: DIAMETRO (mm) DE LAS ARMADURAS DE TRAMO

C: CANTIDAD TOTAL DE BARRAS

COOBL: NUMERO DE BARRAS DOBLADAS

ESTRIBOS

DI: DIAMETRO ESTRIBO (mm)

SEP: SEPARACION ESTRIBOS (cm)

RA: NUMERO DE RAMAS

ARMADURA APOYO IZQUIERDO

ARMADURA APOYO DERECHO

AsI: ARMADURA TOTAL NECESARIA (cm²)

AsD: ARMADURA TOTAL NECESARIA (cm²)

DI: DIAMETRO (mm) DE ARMADURA ADICIONAL SUPERIOR

Cad: CANTIDAD ADICIONAL

TIPO DE VIGA

T

1: MENSULA EMPOTRADA EN APOYO IZQUIERDO

2: MENSULA EMPOTRADA EN APOYO DERECHO

3: VIGA SIMPLEMENTE APOYADA

4: VIGA ARTICULADA - EMPOTRADA

5: VIGA EMPOTRADA - ARTICULADA

6: VIGA EMPOTRADA - EMPOTRADA

7: VIGA CONTINUA

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V I G A S

BRA:TILLY

PLANTA:CASAENC HORMIGON: 170 kg/cm2 ACERO: 4200 kg/cm2
DIMENSIONES SOLICITACIONES ARMADURAS

POS	L	F	bo	do	Di	Qd	MAi	Mt	As	C	DI	COOBL	Asl	C	DI	ESTRIBOS		APOYO IZQ			APOYO DER			
																DI	SEP	RA	Asl	Cad	DI	AsD	Cad	DI
12	3.30	L	15	25	+2.7	-1.6	-1.8	1.0	2.1	2	12	0	1.0	2	8	8	20	2	0.0	0	0	0.0	0	0
		7	90	22	+9.6	-5.7	+0.0																	
13	2.50	I	20	25	+1.6	-1.6	+0.0	1.0	2.1	2	12	0	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	0	22	+4.3	-4.3	+0.0																	
14	4.00	I	20	35	+2.6	-2.6	+0.0	2.6	3.8	4	12	2	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	0	32	+4.8	-4.8	+0.0																	
15	2.25	T	12	25	+1.5	-1.5	+0.0	0.8	2.0	2	12	0	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	135	22	+6.5	-6.5	+0.0																	
16	6.50	I	25	40	+3.3	-5.1	+0.0	4.2	5.3	5	12	2	0.6	2	6	6	20	2	0.0	0	0	7.8	4	12
		7	0	37	+4.2	-6.5	-6.0																	
17	5.50	I	25	40	+4.7	-2.5	-6.0	2.8	3.4	3	12	1	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		7	0	37	+5.9	-3.2	+0.0																	
18	2.40	I	12	35	+1.9	-1.9	+0.0	1.2	1.6	2	12	0	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	0	32	+5.9	-5.9	+0.0																	
19	2.40	I	15	35	+1.6	-1.6	+0.0	0.9	1.3	2	12	0	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	0	32	+3.8	-3.8	+0.0																	

BSERVACIONES VIGA 17 :VIGA INVERTIDA - IDEN V16 - V14 - V

BSERVACIONES VIGA 18 :VIGA DINTEL

BSERVACIONES VIGA 19 :VIGA DINTEL - IDEN VD 20

ARAOZ 2379 - 4° A - 71-6258
CAP. FED.

PLANTA TRAT. DES. RADA TILLY.

ESTRUCT.....HORM.....ZONA.....EDIFIC.....

Fecha: 1-92

Hoja: de:
116 119

[illegible]

[illegible]

[illegible]

V I G A S

OBRA: TILLY

PLANTA: LABOTALL

HORMIGON: 170 kg/cm2

ACERO: 4200 kg/cm2

DIMENSIONES

SOLICITACIONES

ARMADURAS

POS	L	F	bo	do	Di	Qd	MAi	Mt	As	C	DI	CDOBL	Asl	C	DI	ESTRIBOS			APOYO IZQ			APOYO DER		
																DI	SEP	RA	Asl	Cad	DI	AsD	Cad	DI
12	4.20	L	15	35	+2.9	-2.4	-2.6	1.5	2.1	3	12	1	0.5	2	6	6	20	2	0.0	0	0	0.0	0	0
		7	90	32	+7.0	-6.0	+0.0																	
13	4.20	L	15	35	+2.8	-3.0	+0.0	1.9	2.7	3	12	1	0.6	2	6	6	20	2	0.0	0	0	4.0	2	12
		7	90	32	+6.9	-7.4	-2.6																	
14	4.20	L	15	35	+2.9	-2.4	-2.6	1.5	2.1	3	12	1	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		7	90	32	+7.0	-6.0	+0.0																	
15	1.50	T	15	35	+0.6	-0.6	+0.0	0.2	0.3	2	12	0	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	76	32	+1.5	-1.5	+0.0																	
16	2.40	L	15	35	+0.6	-0.6	+0.0	0.4	0.5	2	12	0	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	64	32	+1.5	-1.5	+0.0																	
17	2.80	L	15	35	+0.8	-0.8	+0.0	0.5	0.7	2	12	0	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	72	32	+1.9	-1.9	+0.0																	
18	1.50	L	15	35	+0.4	-0.5	+0.0	0.1	0.2	2	12	0	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	49	32	+1.0	-1.3	+0.0																	
19	2.20	L	15	35	+1.7	-1.5	+0.0	1.7	2.3	3	12	1	0.6	2	6	6	20	2	0.0	0	0	0.0	0	0
		3	58	32	+4.3	-3.6	+0.0																	

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OBSERVACIONES VIGA 17 :VIGA DINTEL

OBSERVACIONES VIGA 18 :VIGA DINTEL

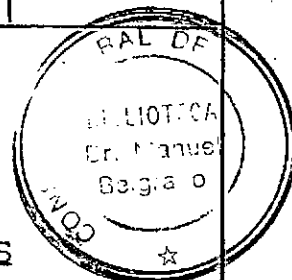
OBSERVACIONES VIGA 19 :VIGA DINTEL

RAUL PORTAS ESQUIVEL
INGENIERO CIVIL

ARAOZ 2379 - 4º A - 71-6258
CAP. FED.

Fecha:.....

Hoja:..... de:.....



PLANTA DE TRATAMIENTO DE EFLUENTES CLOCALES

RADA TILLY

BIBLIOGRAFIA

- Reglamento CIRSOC 201 y Anexos - Proyecto, Calculo y Ejecucion de Estructuras de Hormigon Armado y Pretensado.-
- CUADERNO 220, IRAM - Comision Alemana para el Estudio del Hormigon Armado - Dimensionado de estructuras de hormigon y hormigon armado.-

RAUL PORTAS ESQUIVEL

INGENIERO CIVIL

ARAOZ 2379 - 4º A - 71-6258

CAP. FED.

Fecha:.....

Hoja:..... de:.....

PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES

RADA TILLY

CAPITULO X

PLANILLAS DE DOBLADO DE HIERROS

PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-01

PLANILLA N°

PH-01

PAG 1 DE 3

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
		<u>DESARENADOR</u>				
1	6			20	1,40	28,00
2	6			16	1,65	26,40
3	6			68	1,40	95,20
4	8			2	2,20	4,40
5	8			2	2,30	4,60
6	8			22	2,75	60,50
7	8			30	2,85	85,50
8	6			36	1,65	59,40
9		No existe.				
10	6			24	7,80	187,20
11	6			4	9,65	2,60
12	6			8	1,15	9,20
13	8			27	Global	142,00
14	8			27	1,45	39,15
15	6			16	5,30	84,80
16	8			54	Global	124,00
17	6			28	Global	94,00
18	6			2	5,60	11,20
19	6			68	9,55	37,40

EJECUTO

NOTAS

REVISO

FECHA

Calidad del acero $\sigma_{yk} \geq 4200 \text{ kg/cm}^2$ TPO.III DN.

PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-01

PLANILLA N°

PH-01

PAG 2 DE 3

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
20	8			35	2.70	94.50
21	8			17	2.60	44.20
22	6			8	1.50	12.00
23	6			8	1.25	10.00
24	6			10	2.55	25.50
25	6			3	1.40	4.20
26	6			4	1.70	6.80
27	6			18	1.25	22.50
28	6			28	1.25	35.00
29	6			24	2.55	61.20
30	8			4	2.20	8.80
31	8			4	2.10	8.40
32	6			6	1.65	9.90
33	8			6	3.55	21.30
34	6			6	1.40	8.40
35	6			8	1.45	11.60
36	8			6	1.55	9.30
37	8			14	1.45	20.30
38	6			140	0.25	35.00

EJECUTO

NO TAS

REVISO

FECHA

CORRESPONDE A FLANO N° H-01

PH - 01

PAG 3 DE 3

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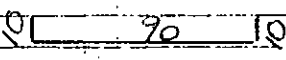

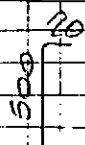
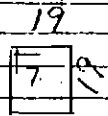
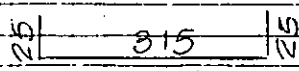
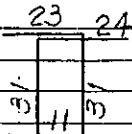
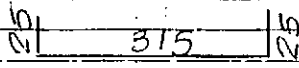
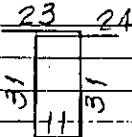
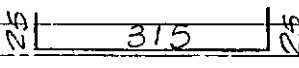
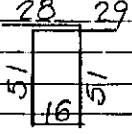
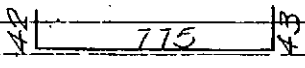
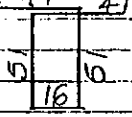
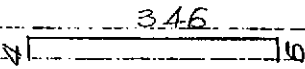
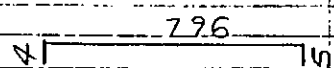
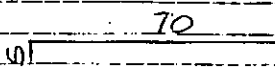
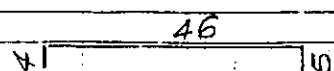
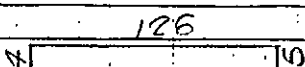
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-02

PLANILLA N°

PH-02

PAG 1 DE 2

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL.	TOTAL
		<u>PASARELA CELDA AIREADA</u>				
1	10		5+5	50	1,10	55,00
2	12		4	20	1,00	29,00
3	12		4	20	5,20	104,00
4	6		38	190	9,90	171,00
5	12		3	6	3,65	21,90
6	6		14	28	1,20	33,60
7	12		2	3,65	7,30	
8	6		14	1,20	16,80	
9	12		3	3,65	10,95	
10	6		14	1,75	24,50	
11	16		4	8,60	34,40	
12	6		38	2,00	76,00	
13	6		4	16	3,55	56,80
14	6		6	8,05	48,30	
15	6		4	9,75	39,00	
16	6		54	0,55	29,70	
17	6		50	1,35	67,50	

EJECUTO

NOTAS

REVISO

Calidad del acero D402 4200 kg/cm² T.I.P.O.M. D.N.

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CORRESPONDE A FLANO N° H - 02

PH-02

PAG 2 DE 2

EJECUTO	NO TAS
REVISO	
FECHA	

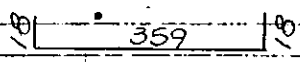
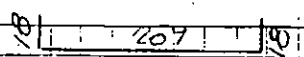
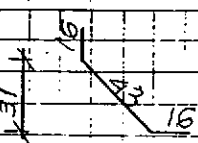
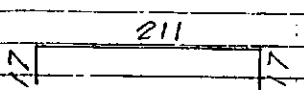
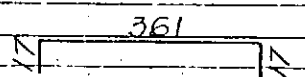
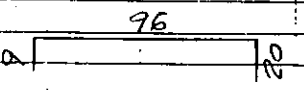
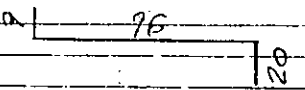
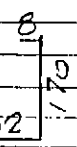
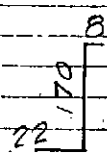
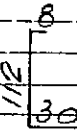
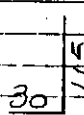
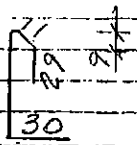
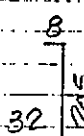
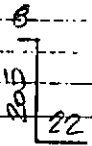
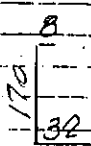
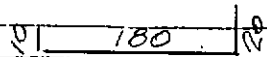
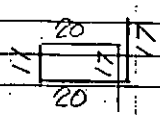
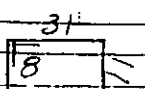
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-03

PLANILLA N°

PH-03

PAG 1 DE 3

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL.	TOTAL
		<u>CAMARA PARTIDORA N° 1</u>				
1	6			32	3,95	126,40
2	6			52	2,45	127,40
3	6			80	2,75	60,00
4	6			77	2,45	188,65
5	6			44	3,95	173,80
6	6			8	1,25	10,00
7	6			4	1,25	5,00
8	8			50	2,10	105,00
9	8			46	2,00	92,00
10	8			20	1,50	30,00
11	8			10	1,45	14,50
12	8			10	1,95	19,50
13	8			42	2,45	102,90
14	8			26	2,35	61,10
15	8			12	2,10	25,20
16	6			22	2,10	46,20
17	6			8	0,85	6,80
18	6			4	1,00	4,00

EJECUTO

NC TAS

REVISO

calidad del acero $f_{yk} = 4200 \text{ kg/cm}^2$ TIPO III DN.

FECHA

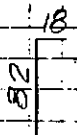
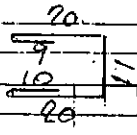
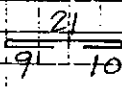
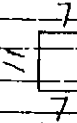
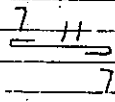


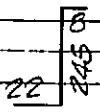
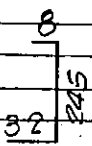

PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-03

PLANILLA N°

PH-03

PAG 2 CE 3

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
19	8			16	1,00	16,00
20	6			10	9,70	7,00
21	6			10	9,40	4,00
22	6			10	9,25	2,50
23	6			90	9,25	22,50
24						
25						
26						
27		No existen				
28						
29						
30						
CAMARA DE REUNION						
31	6	Variable		28	Global	45,00
32	6	 $\phi_{int} = 424$		18	4,20	75,60
33	6	 $\phi_{ext} = 490$		18	4,90	88,20
34	8			30	2,75	82,50
35	8			30	2,85	85,50
36	6			40	9,25	10,00

EJECUTO

NC TAS

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FECHA

CORRESPONDE A FLANO N° H - 03

PH - 03

PAG 3 DE 3

EJECUTO	NO TAS
REVISO	
FECHA	

PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-04

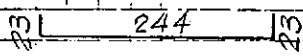
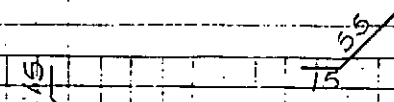
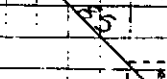
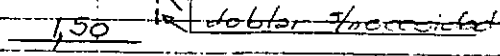
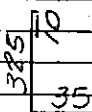

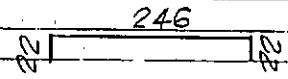
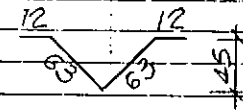
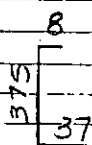
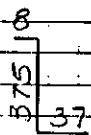
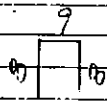
PLANILLA N°

PH-04

PAG 1

DE

3

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
		CAMARA PARTIDORA N° 2				
1	6			72	2,90	208,80
2	6			28	9,70	19,60
3	6			28	1,00	28,00
4	6			184	1,50	276,00
5	8			56	3,70	207,20
6	6			150	9,25	37,50
7	6			200	2,90	580,00
8	6			100	1,50	150,00
9	8			68	4,20	285,60
10	8			64	4,20	268,80
11	6			28	9,25	7,00
12						
13						
14						
15						
16						
17						
18						
19						

No existen

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NOTAS

REVISO

Calidad del acero $\sigma_{R2} \geq 4200 \text{ kg/cm}^2$ Tipo III DN.

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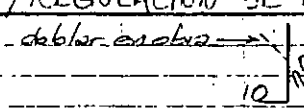
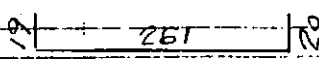
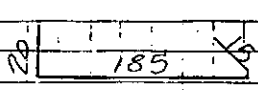
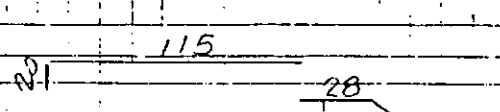
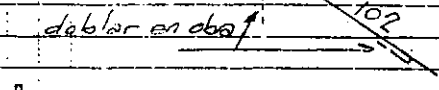

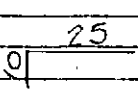
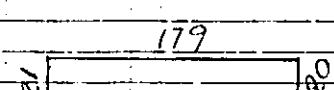
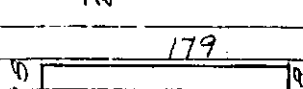
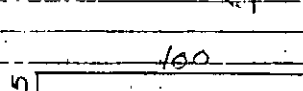
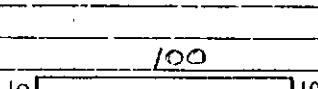
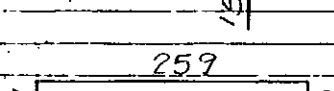
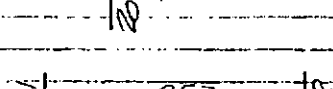
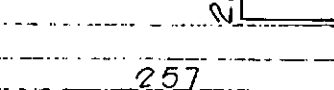
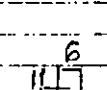




PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-04

PLANILLA N°

PH-04

PAG 2 DE 3

POS	Ø	FORMA CAMARA P/REGULACION DE NIVEL	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
20	6			15	9,30	4,50
21	6			28	3,00	84,00
22	6			19	2,20	41,80
23	6			15	1,35	20,25
24	6			15	1,30	19,50
25	6			14	9,80	11,20
26	6			14	9,35	4,90
27	6			18	2,20	39,60
28	6			14	2,15	30,10
29	6			4	1,15	4,60
30	6			2	1,30	2,60
31	6			30	3,00	90,00
32	8			3	3,00	9,00
33	6			3	2,85	8,55
34	6			14	9,85	11,90
35	8			15	2,10	31,50
36	8			29	1,85	53,65
37	8			25	1,60	40,00
38	8			14	1,75	24,50

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PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-04

PLANILLA N°

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PAG 3 DE 3

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
39	8			14	1,65	23,10
40	6			4	2,35	9,40
41	6			32	0,50	16,00
42	6			4	3,15	12,60
43	6			18	0,40	7,20
44	6			12	0,50	6,00
45	6			12	0,65	7,80
46	8			12	1,35	16,20
47	6			6	1,10	6,60
48	6			6	0,80	4,80
49	6			30	0,25	7,50
50	6			4	1,20	4,80
51	6			5	1,00	5,00
52	6			2	0,95	1,90
53	6			4	Global	3,50
RESUMEN.						
6		1773,50 m x 0,222 Kg/m = 394,00 Kg				
8		957,55 m x 0,395 Kg/m = 379,00 Kg				
		Total = 773,00 Kg				

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PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-07

PLANILLA N°

PH-07

PAG

DE

4

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
SEDIMENTADORES SECUNDARIOS						
1	8			24.7	4.10	271.70
2	6			4	Global	135.00
3	6			4	Global	17.00
4	6			6	4.35	26.10
5	6			6	4.25	25.50
6	8			15	Global	583.00
7	6			14	Global	538.00
8	8			15	Global	568.00
9	6			17	Global	637.00
10	6			186	0.65	122.90
11	10			165	5.00	825.00
12	10			165	5.00	825.00
13	10			21	6.15	129.15
14	10			21	6.15	129.15
15	6			600	0.30	180.00

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NOTAS

REVISO

Calidad del acero $\sigma_{ot} \geq 4200 \text{ kg/cm}^2$. N° 03 DN.

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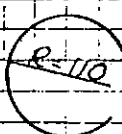
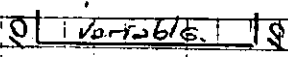
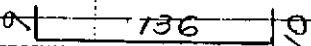
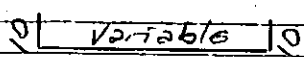
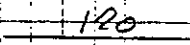
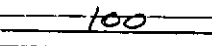
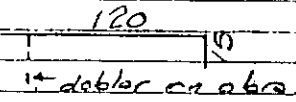
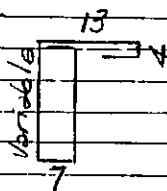
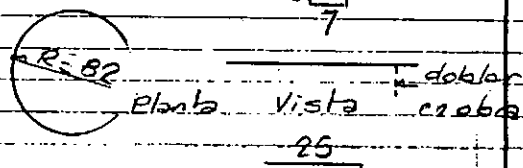
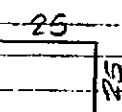
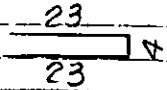
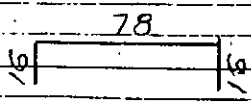
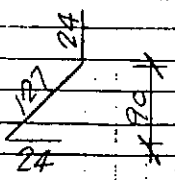
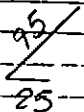
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-07

PLANILLA N°

PH-07

PAG 3 DE 4

POS	Ø	FORMA	CANT		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
31	8			1	6,00	6,00
32	8			13	Global	28,00
33	8			7	1,55	10,85
34	8			14	Global	35,00
35	8			4	1,20	4,80
36	8			4	1,00	4,00
37	6			4	1,35	5,40
38	6			10	Global	11,00
39	6			2	3,00	6,00
40	6			30	0,50	15,00
41	6			20	0,50	10,00
42	6			3	1,10	3,30
43	8			8	1,75	14,00
44	8			16	1,20	19,20

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PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-07

PLANILLA N°

PH-07

PAG 4 DE 4

POS	Ø	FORMA	CANT.		LONGITUD (m)		
			UNIT.	TOTAL	PARCIAL	TOTAL	
45	8			5	Global	17,00	
46	8			1	1,30	1,30	
47	10			8	4,80	38,40	
48	10			4	4,80	19,20	
49	6			27	1,70	45,90	
50	6			27	1,00	27,00	
51	12			4	12	1,20	14,40
52	6			4	12	0,65	7,80
53	8			2	1,70	3,40	
54	8			4	0,65	2,60	
RESUMEN							
6	5062,70 m x 0,222 Kg/m = 1124,00 Kg						
8	1568,85 m x 0,375 Kg/m = 620,00 Kg						
10	1955,90 m x 0,617 Kg/m = 1207,00 Kg						
12	14,40 m x 0,888 Kg/m = 13,00 Kg						
Total = 2964,00 Kg							

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PLANILLA DE HIERROS

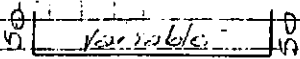
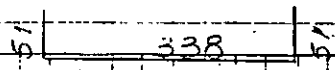
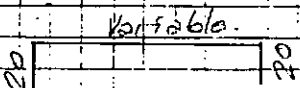
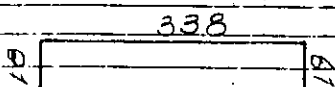
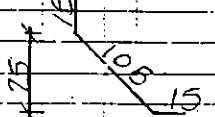
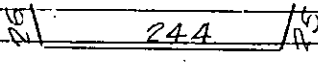
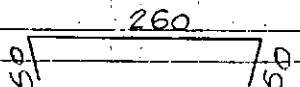
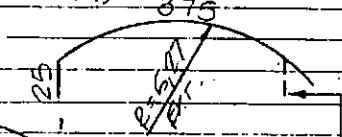
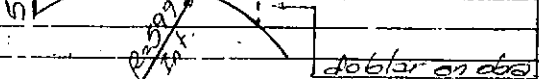
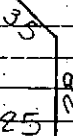
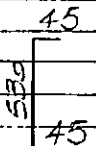
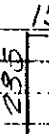
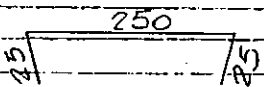
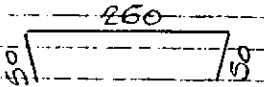
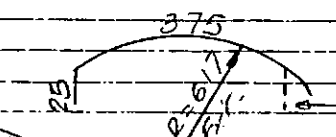
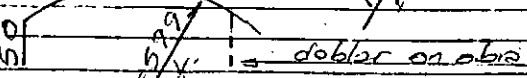


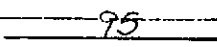
CORRESPONDE A PLANO N° H-08

PLANILLA N°

PH-08

PAG 1 DE 2

BIBLIOTECA
r. Manuel
Belgrano

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
CAMARA BOMBEO DE BARROS						
1	10		14	28	Global	95,00
2	10		8	16	4,40	75,40
3	10		14	28	Global	78,00
4	10		8	16	3,75	69,00
5	8		44	88	1,35	118,80
6	10		44	88	2,95	239,60
7	10		44	88	3,60	316,80
8	10		44	88	4,00	352,00
9	10		44	88	4,50	396,00
10	12		48	96	3,40	326,40
11	10		60	120	6,20	744,00
12	10		52	104	3,00	312,00
13	10		30	60	3,00	180,00
14	10		30	60	3,60	216,00
15	10		30	60	4,00	240,00
16	10		30	60	4,50	270,00
17	6		90	180	9,40	12,00
18	6		84	168	9,30	59,40
19	8		16	152	9,95	144,40

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Calidad del acero $\sigma_k \geq 4200 \text{ Kg/cm}^2$ Tipo III DN.

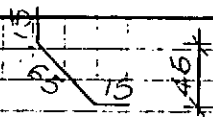
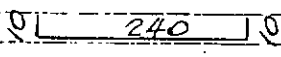
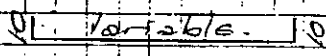
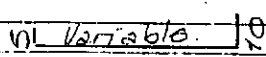
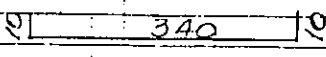
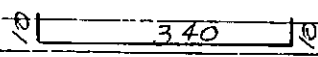
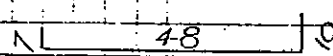
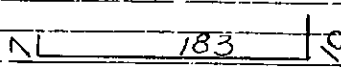
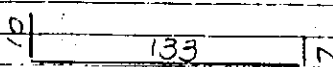
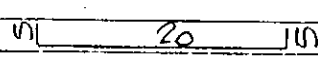

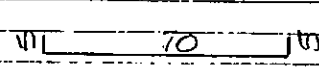
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-08

PLANILLA N°

PH-08

PAG 2 DE 2

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
10	8		52	104	0,95	98,80
21	6		2	4	2,60	10,40
22	10		16	32	Global	83,00
23	6		14	28	Global	21,00
24	6		3	6	3,60	21,60
25	10		2	4	3,60	14,40
26	6		10	20	0,65	13,00
27	10		2	4	2,00	8,00
28	10		2	4	1,50	6,00
29	6		1	2	0,30	0,60
30	6		3	6	1,25	7,50
31	6		1	2	0,80	1,60
RESUMEN.						
6	$198,10 \text{ m} \times 0,222 \text{ kg/m} = 44,00 \text{ kg}$					
8	$362,00 \text{ m} \times 0,375 \text{ kg/m} = 143,00 \text{ kg}$					
10	$4027,60 \text{ m} \times 0,517 \text{ kg/m} = 2485,00 \text{ kg}$					
Total =			2672,00 kg			

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PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-10

PLANILLA N°

PH-10

PAG 1 DE 4

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
CONCENTRADORES						
1	8	AL 92 1a	118	236	1,10	259,60
2	6	+ variable	6	12	Global	220,00
3	6	+ ext. = 5,76	27	54	Global	1010,00
4	6	+ int 5,54	28	56	Global	1010,00
5	6		4	8	1,15	9,20
6	6		4	8	1,10	8,80
7	10		24	48	4,95	237,60
8	10		156	312	4,55	1419,60
9	6		90	180	0,40	72,00
10	6		90	180	0,45	81,00
11	6		115	230	0,75	86,25
12	6		115	230	1,10	126,50
13	6	+ variable	6	12	Global	240,00
14	6		32	64	1,80	115,20
15	6	AL 35 285 1a	6	12	3,30	39,60

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Calidad del acero $\sigma_{Rk} = 200 \text{ kg/cm}^2$ Tipo III. DN.

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PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-10

PLANILLA N°

PH-10

PAG 2 DE 4

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
16	10		4	8	1,15	9,20
17	12		3	12	6,10	73,20
18	6		2	8	6,00	48,00
19	6		27	108	1,10	118,80
20	6		250	500	9,25	125,00
21	6		2	4	3,90	15,60
22	6		10	20	Global	44,00
23	6		10	20	Global	26,00
24	8		8	16	9,80	12,80
25	6		2	4	1,15	4,60
26	6		15	30	2,50	75,00
27	6		60	120	1,90	228,00
28	6		90	180	1,40	252,00
29	6		15	30	2,85	85,50
30	6		24	48	Global	189,00
31	8		7	14	Global	80,00
32	8		6	12	5,30	63,60
33	8		1	2	5,90	11,80

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PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-10

PLANILLA N°

PH-10

PAG 3 DE 4

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
34	6		7	14	Global	20,00
35	6		7	14	1,25	17,50
36	9		15	30	2,40	72,00
37	8		8	16	2,70	43,20
38	6		95	190	1,25	237,50
39	6		6	12	Global	17,00
40	6		20	40	Global	160,00
41	6		4	8	Global	24,00
42	6		6	12	Global	16,00
43	6		20	40	Global	132,00
44	6		4	8	Global	19,00
45	8		14	28	4,30	120,40
46	8		4	8	Global	33,00
47	5		14	28	1,25	35,00
48	5		4	8	Global	22,00
49	6		20	40	9,70	28,00
50	8		2	4	1,45	5,80
51	8		2	4	1,80	7,20
52	8		32	64	1,90	121,60

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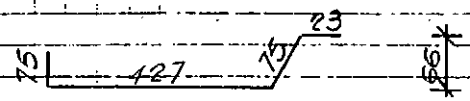
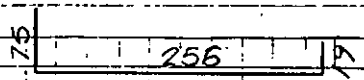
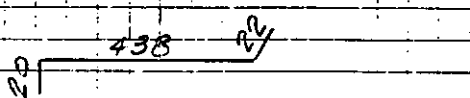
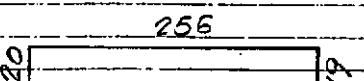
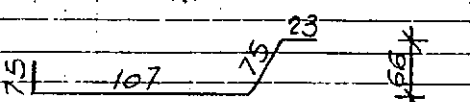
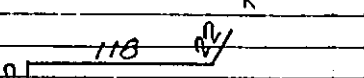
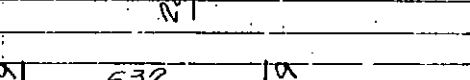
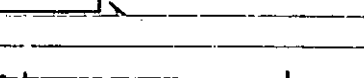
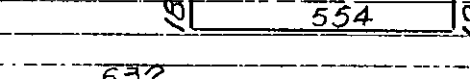
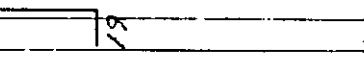
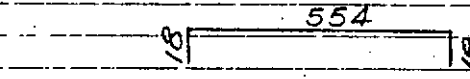


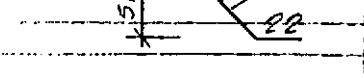
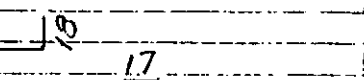
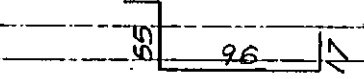
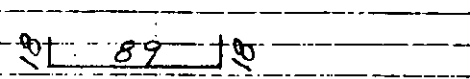
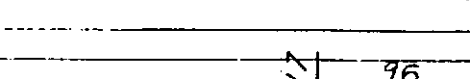
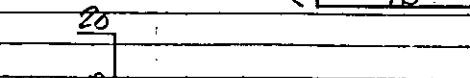
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-12

PLANILLA N°

PH-12

PAG 1 DE 6

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
		CAMARA DE CLORACION				
1	10			31	600	186,00
2	10			2	3,50	7,00
3	10			31	4,80	148,80
4	10			2	2,95	5,90
5	10			2	2,80	5,60
6	10			2	1,60	3,20
7	6			24	6,70	160,80
8	6			3	5,90	17,70
9	6			26	6,70	174,20
10	6			3	5,90	17,70
11	8			16	1,50	24,00
12	10			29	1,15	33,35
13	8			7	1,80	12,60
14	8			7	1,85	12,95
15	8			7	1,25	8,75
16	8			7	1,30	9,10
17	8			7	0,95	6,65
18	10			4	8	Global 13,00
19	10			8	16	Global 36,00

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Calidad del acero $\sigma_{el} = 4200 \text{ kg/cm}^2$. Tipo III D.N.

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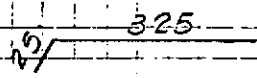
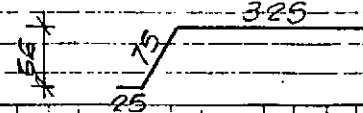
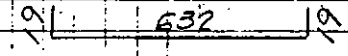
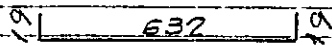
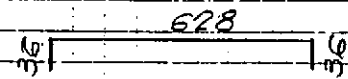
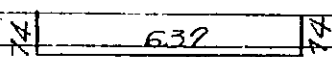
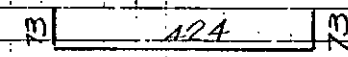
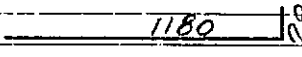
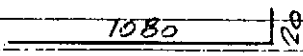
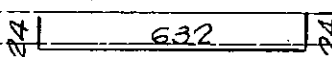
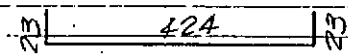
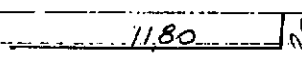
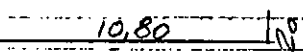
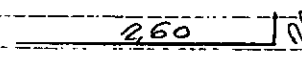
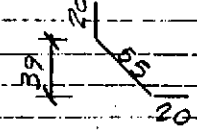
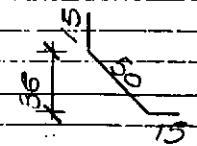
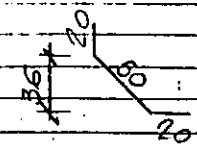
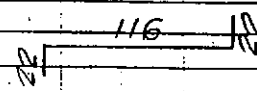
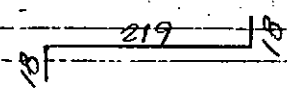
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H - 12

PLANILLA N°

PH - 12

PAG 2 DE 6

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
20	10			29	3,50	101,50
21	10			29	4,25	123,25
22	6			16	6,70	107,20
23	6			14	6,70	93,80
24	16			6	7,00	42,00
25	10			53	7,80	413,40
26	10			6	5,70	34,20
27	6			28	12,00	336,00
28	6			12	11,00	132,00
29	10			53	6,80	360,40
30	10			6	4,70	28,20
31	6			28	12,00	336,00
32	6			12	11,00	132,00
33	10			2	2,80	5,60
34	8			135	2,95	128,25
35	6			38	2,80	30,40
36	8			185	2,90	166,50
37	8			24	1,60	38,40
38	6			10	2,55	25,50

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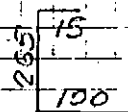
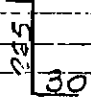
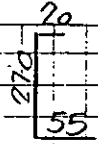
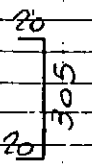
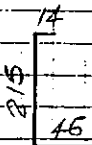
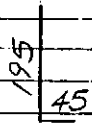
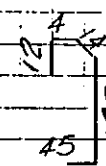
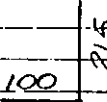
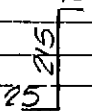
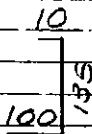
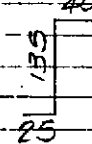
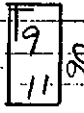
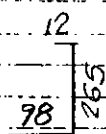
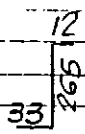
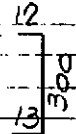
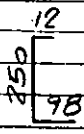
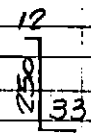
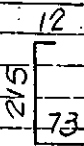
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-12

PLANILLA N°

PH-12

PAG 3 DE 6

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
39	10			33	3,80	125,40
40	10			33	3,10	102,30
41	12			54	3,45	186,30
42	12			12	3,45	41,40
43	10			40	2,75	110,00
44	10			9	2,40	21,60
45	10			9	2,60	23,40
46	8			44	3,25	143,00
47	8			44	2,50	110,00
48	8			12	2,45	29,40
49	8			12	2,00	24,00
50	8			12	2,20	26,40
51		No existe.				
52	10			33	3,75	123,75
53	10			33	3,10	102,30
54	10			8	3,25	26,00
55	10			3	3,60	10,80
56	10			3	2,95	8,85
57	10			133	3,00	399,00

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PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H - 12

PLANILLA N°

PH - 12

PAG 4 DE 6

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
58	10			133	2,60	345,80
59	8			251	2,60	652,60
60	8			5	2,50	12,50
61	8			7	2,25	15,75
62	8			8	2,10	16,80
63	6			79	6,80	537,20
64	6			3	4,70	14,10
65	6			1	2,70	2,70
66	6			12	4,70	56,40
67	6			16	2,65	42,40
68	6			10	1,80	18,00
69	6			32	12,00	384,00
				32	7,15	228,80
70	6			14	12,00	168,00
				14	6,10	85,40
71	6			2	12,00	24,00
				2	6,10	12,20
72	6			45	10,05	452,25
73	6			7	10,05	70,35
74	6			15	9,95	14,25
75	6			5	9,95	4,75

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REVISO	
FECHA	

PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H - 12

PLANILLA N°

PH - 12

PAG 5 DE 6

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
76	8			2	2,60	5,20
77	16			2	2,40	4,80
78		No existe.				
79	6			58	0,30	17,40
80	6			58	0,35	20,30
81	6			330	0,30	99,00
82	6			200	0,25	50,00
83	6			20	Global	46,00
84	12			2	Global	5,00
85	6			14	Global	32,00
86	6			9	2,50	22,50
87	6			12	0,75	9,00
88	6			19	0,80	15,20
89	6			48	0,75	36,00
90	6			15	0,70	10,50
91	6			18	0,70	12,60
92	10			6	4,25	25,50
93	6			6	1,00	6,00
94	6			6	0,85	5,10

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PLANILLA DE HIERROS.

CORRESPONDE A PLANO N° H - 12

PLANILLA N°

PH - 12

PAG 6 DE 6



POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
95	12		4	16	1,00	16,00
96	12		4	16	2,40	38,40
97	6		13	52	9,80	41,60
98	16		2	4	6,90	27,60
99	16		1	2	7,20	14,40
100	16		1	2	7,20	14,40
101	6		2	4	6,50	26,00
102	8		2	4	6,70	26,80
103	6		30	60	1,60	96,00
104	10		33	3,55	117,15	
105	10		32	3,60	115,20	
106	6		15	6,50	97,50	
<u>RESUMEN.</u>						
6	$4302,82 \text{ m} \times 0,222 \text{ kg/m} = 955,00 \text{ kg}$					
8	$1467,65 \text{ m} \times 0,375 \text{ kg/m} = 551,00 \text{ kg}$					
10	$3162,45 \text{ m} \times 0,617 \text{ kg/m} = 1951,00 \text{ kg}$					
12	$287,10 \text{ m} \times 0,833 \text{ kg/m} = 239,00 \text{ kg}$					
16	$103,20 \text{ m} \times 1,578 \text{ kg/m} = 163,00 \text{ kg}$					
	<u>Total = 3905,00 kg</u>					

EJECUTO

NO TAS

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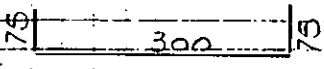
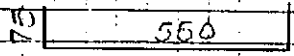
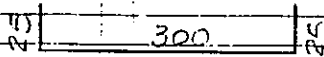
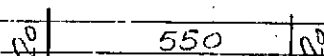
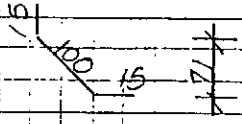
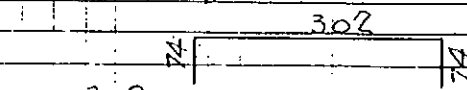
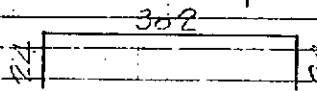
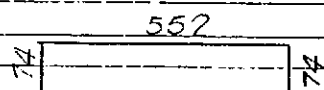
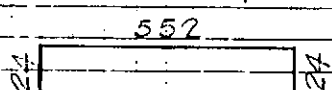
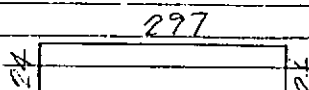
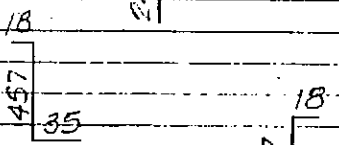
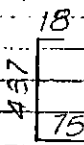
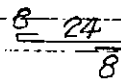
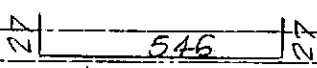
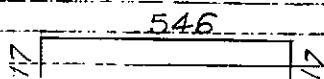
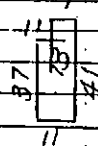
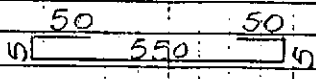
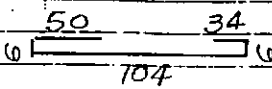
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H - 13

PLANILLA N°

PH - 13

PAG 1 DE 3

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
		<u>ESTACION ELEVADORA</u> <u>ENTRADA A PLANTA</u>				
1	10			37	4,50	166,50
2	6			20	7,00	140,00
3	10			37	3,50	129,50
4	6			20	5,90	118,00
5	8			90	1,30	117,00
6	10			42	4,50	187,00
7	10			42	3,50	147,00
8	10			44	7,00	308,00
9	10			44	6,00	264,00
10	10			4	3,45	13,80
11	10			76	5,10	387,60
12	10			84	5,50	462,00
13	6			250	2,40	100,00
14	12		2	4	6,00	24,00
15	6		3	6	5,80	34,80
16	6		26	52	1,20	62,40
17	6		6	6,60	39,60	
18	6		34	2,00	68,00	

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Calidad del acero $\sigma_{R} = 1200 \text{ kg/cm}^2$ TIPO III DN.

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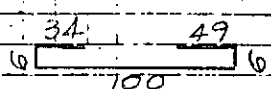
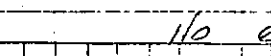
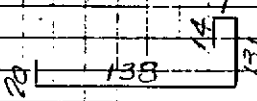
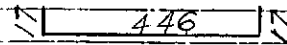
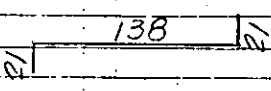
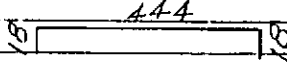
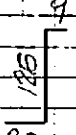
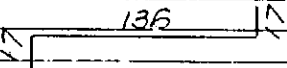
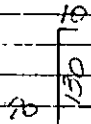
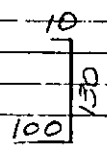
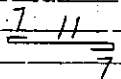
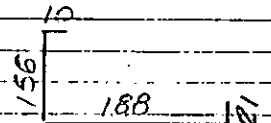
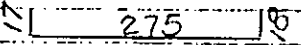
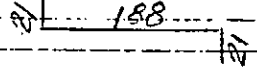
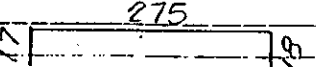
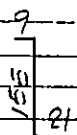
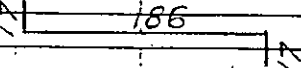
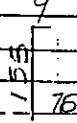
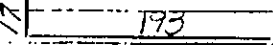
PLANILLA DE HIERROS.

CORRESPONDE A PLANO N° H - 13

PLANILLA N°

PH - 13

PAG 2 DE 3

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
19	6			34	1,95	66,30
20						
21	8			31	3,10	96,10
22	6			16	4,80	76,80
23	8			31	1,80	55,80
24	6			17	4,80	81,60
25	8			27	1,55	41,85
26	6			32	1,70	54,40
27	8			14	1,60	22,40
28	8			14	2,40	33,60
29	6			62	0,25	15,50
30	8			20	3,75	75,00
31	6			22	3,10	68,20
32	8			20	2,30	46,00
33	6			20	3,10	62,00
34	8			36	1,85	66,60
35	6			20	2,20	44,00
36	8			20	2,40	48,00
37	6			20	2,10	42,00

EJECUTO

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CORRESPONDE A FOLIO N° H - 13

PH - 13

PAG 3 CE 3

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FECHA

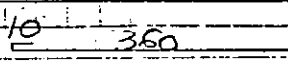
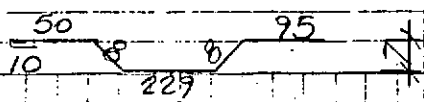
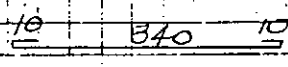
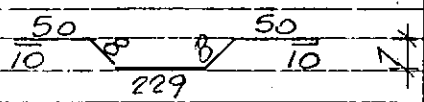
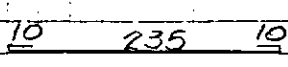
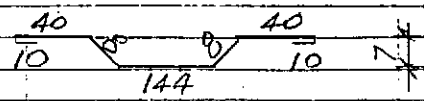
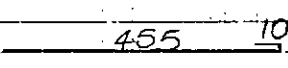
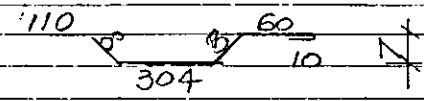
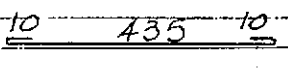
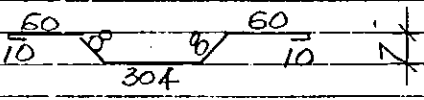
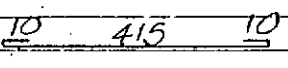
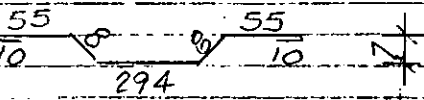
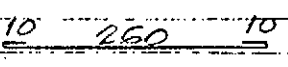
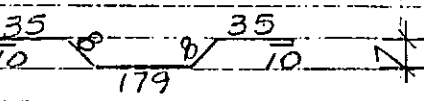
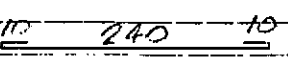
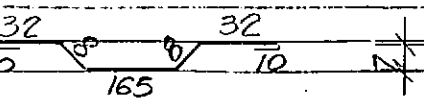
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H - 14

PLANILLA N°

PH - 14.

PAG 1 DE 9

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT	TOTAL	PARCIAL	TOTAL
		<u>CASA DE ENCARGADO</u>				
1	8			20	3,70	74,00
2	8			20	4,00	80,00
3	8			16	3,60	57,60
4	8			16	3,65	58,40
5	6			30	2,55	76,50
6	6			30	2,60	78,00
7	10			11	4,65	51,15
8	10			11	5,00	55,00
9	10			29	4,55	131,95
10	10			29	4,60	133,40
11	10			28	4,35	121,80
12	10			28	4,40	123,20
13	6			28	2,80	78,40
14	6			28	2,85	79,80
15	6			5	2,60	13,00
16	6			5	2,65	13,25
17	6	Repartición corte en obra			Global	500,00
18		No existe.				
19		No existe.				

EJECUTO

NOTAS

REVISO.

calidad del acero $f_{cd} = 4200 \text{ kg/cm}^2$, TIPO III DN.

FECHA

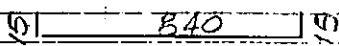
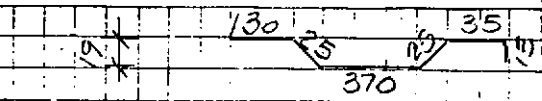
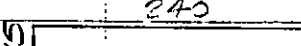
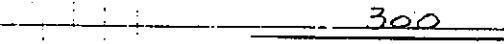
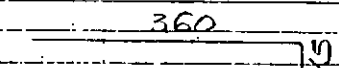
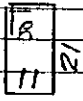
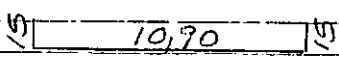
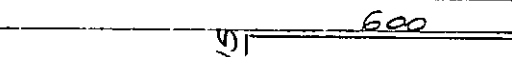
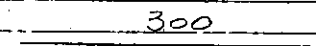
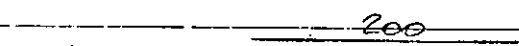
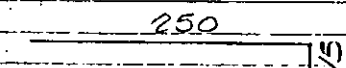

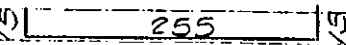
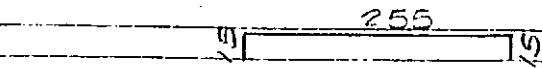

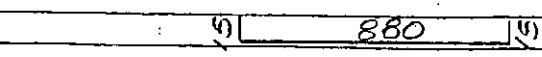
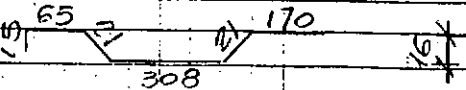
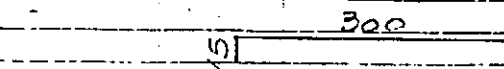
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-14

PLANILLA N°

PH-14

PAG 2 DE 9

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
20		No existe				
21	12			2	8,70	17,40
22	12			1	6,00	6,00
23	6			2	2,55	5,10
24	12			2	3,00	6,00
25	6			2	3,75	7,50
26	6			42	9,80	33,60
27	12			2	11,20	22,40
28	6			2	6,15	12,30
29	12		1+2	3	3,00	9,00
30	12			1	2,00	2,00
31	6			2	2,65	5,30
32	6			55	9,80	44,00
33	12			2	2,85	5,70
34	6			2	2,85	5,70
35	6			13	9,80	10,40
36	12			2	9,10	18,20
37	12		1+1	2	6,00	12,00
38	6		2+2	4	3,15	12,60

EJECUTO

NOTAS

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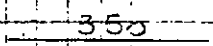
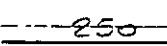

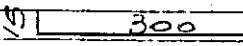
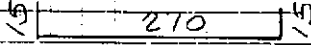
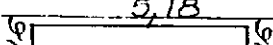


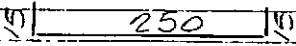
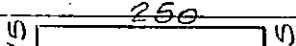

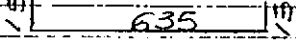
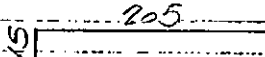
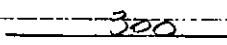
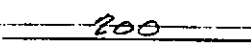
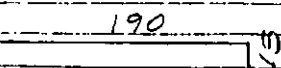
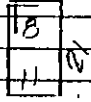
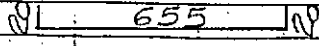
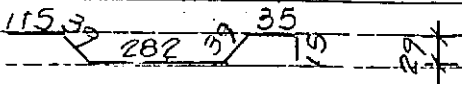
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-14

PLANILLA N°

PH-14

PAG 3 DE 9.

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
39	12			2	3,50	7,00
40	12			2	2,50	5,00
41	6			45	9,80	36,00
42	12			2	3,15	6,30
43	12			2	3,00	6,00
44	6			2	5,50	11,00
45	6			13	9,80	10,40
46	6			14	1,00	14,00
47	12			2	2,80	5,60
48	6			2	2,80	5,60
49	6			13	9,80	10,40
50	12			2	6,65	13,30
51	6			2	2,20	4,40
52	12			2	3,00	6,00
53	12			2	2,00	4,00
54	6			2	2,05	4,10
55	8			32	9,80	25,60
56	12			2	6,95	13,90
57	12			1	5,25	5,25

EJECUTO

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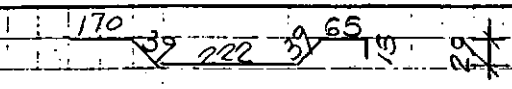
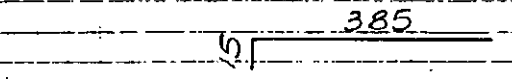
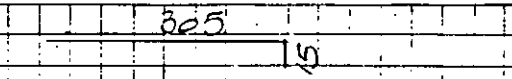
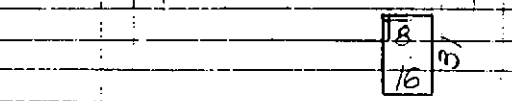
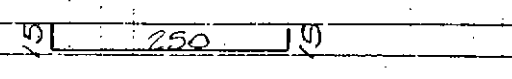
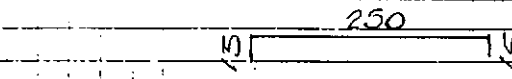
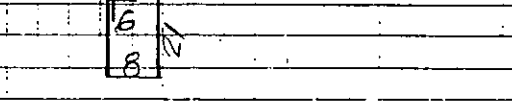
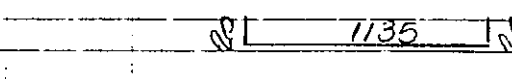
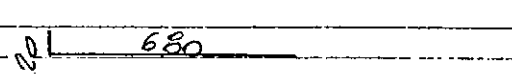
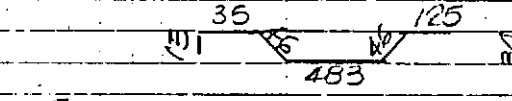
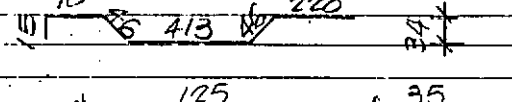
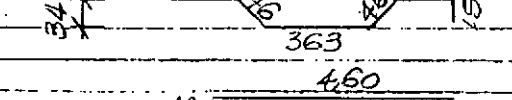
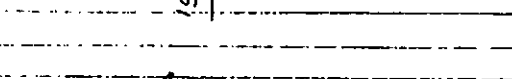
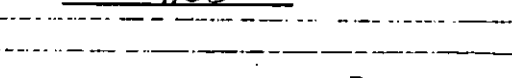
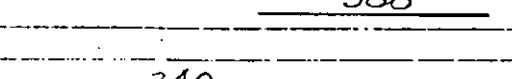
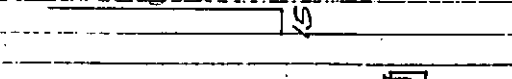
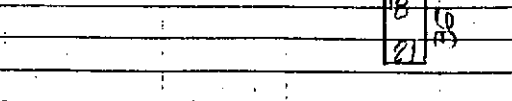
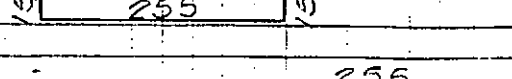
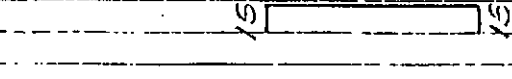
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-14

PLANILLA N°

PH-14

PAG 4 DE 9

POS	Ø	FORMA	CANT		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
58	12			1	5,50	5,50
59	8			2	4,00	8,00
60	6			2	3,20	6,40
61	6			33	1,10	36,30
62	12			2	2,80	5,60
63	6			2	2,80	5,60
64	6			13	9,70	9,10
65	12			2	11,75	23,50
66	12			1	7,00	7,00
67	12			1	7,50	7,50
68	12			1	8,10	8,10
69	12			1	6,30	6,30
70	6			2	4,75	9,50
71	12			2	4,00	8,00
72	12			2	3,00	6,00
73	6			2	3,55	7,10
74	6			57	1,30	74,10
75	12			2	4	2,85
76	6			2	4	2,85

EJECUTO

REVISO

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CORRESPONDE A FLANO N° H-14

PH-14

PAG	5	CE	9
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FECHA	

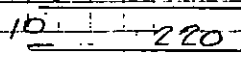
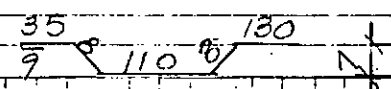
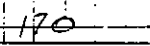
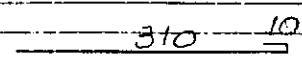
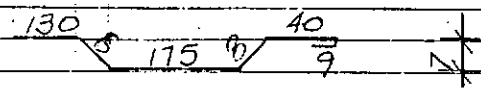
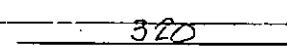
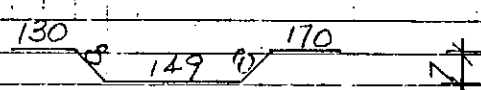
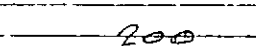
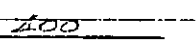
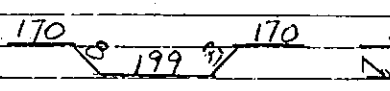
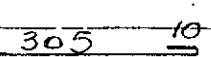
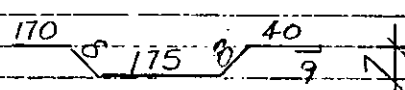
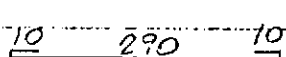
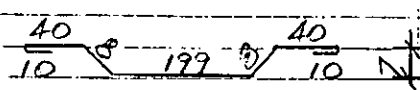
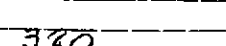
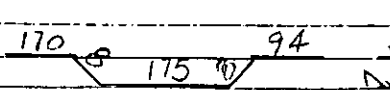
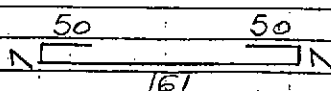
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-14

PLANILLA N°

PH-14

PAG 6 DE 9

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
		LABORATORIO Y TALLER				
101	6			27	2,30	62,10
102	6			27	3,00	81,00
103	6			27	1,70	45,90
104	6			18	3,20	57,60
105	6			17	3,70	62,90
106	6		4+5	9	3,20	28,80
107	6		4+5	9	4,65	41,85
108	6			36	2,00	72,00
109	6		5+6	11	4,00	44,00
110	6		4+5	9	5,55	49,95
111	6			4	3,15	12,60
112	6			5	4,10	20,50
113	8			20	3,10	62,00
114	8			20	3,15	63,00
115	6			5	3,20	16,00
116	6			6	4,55	27,30
117	6			37	2,75	101,75
118	6	Replicación Corbata			Global	470,00
119		No existe.				

EJECUTO

NOTAS

REVISO

FECHA

PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-14

PLANILLA N°

PH-14

PAG 7 DE 9

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
120		No existe				
121	12			2	11,85	23,70
122	6			2	11,80	23,60
123	12		3x1	3	2,50	7,50
124	6			58	9,80	46,40
125	12			2	11,45	22,90
126	12			2	2,00	4,00
127	6			2	12,00	24,00
128	12			1	6,00	6,00
129	8			2	3,00	6,00
130	6			63	9,80	50,40
131	12			2	9,00	18,00
132	12			1	5,40	5,40
133	12			1	6,10	6,10
134	12			1	5,25	5,25
135	12			1	5,95	5,95
136	6			2	3,35	6,70
137	12			2	3,00	6,00
138	12			1	2,00	2,00

EJECUTO

NO TAS

REVISO

FECHA

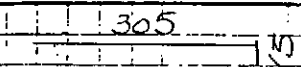

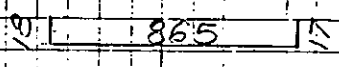
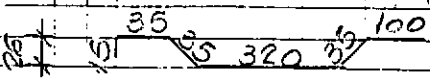
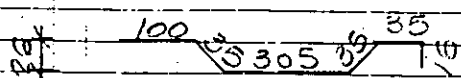
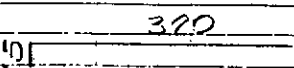
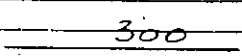
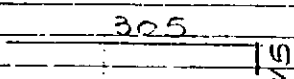

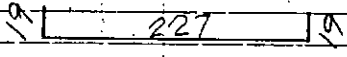
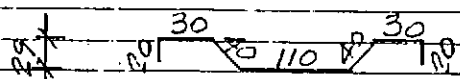
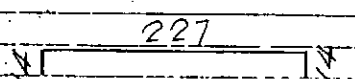
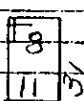
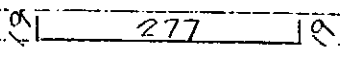
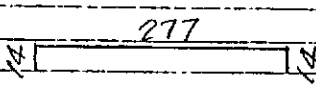
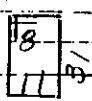
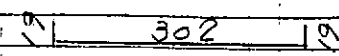
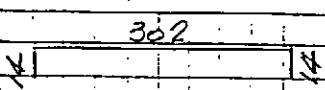
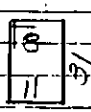
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-14

PLANILLA N°

PH-14

PAG 8 DE 9

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
139	6			2	3,20	6,40
140	6		2+21	41	1,00	41,00
141	12		2	4	9,00	36,00
142	12		1	2	5,40	10,80
143	12		1	2	5,25	10,50
144	6		2	4	3,35	13,40
145	12		2	4	3,00	12,00
146	6		2	4	3,20	12,80
147	6		2+21	82	1,00	82,00
148	12		2	2	2,65	5,30
149	12		1	2	2,90	2,90
150	6		2	2	2,55	5,10
151	6		16	16	1,00	16,00
152	12		2	2	3,15	6,30
153	6		2	2	3,05	6,10
154	6		14	14	1,00	14,00
155	12		2	2	3,40	6,80
156	6		2	2	3,30	6,60
157	6		16	16	1,00	16,00

EJECUTO

REVISO

FECHA

NOTAS

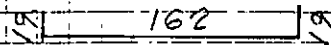
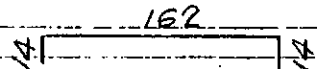
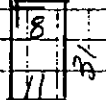
PLANILLA DE HIERROS

CORRESPONDE A PLANO N° H-14

PLANILLA N°

PH-14

PAG 9 DE 9

POS	Ø	FORMA	CANT.		LONGITUD (m)	
			UNIT.	TOTAL	PARCIAL	TOTAL
158	12			2	2,00	4,00
159	6			2	1,90	3,80
160	6			9	1,00	9,00
<p><u>NOTA:</u></p> <p>Las dimensiones se verificarán en obra en función de la mano de obra realmente construida.</p>						
<p><u>RESUMEN</u></p> <p>6 2834,40 m x 0,222 Kg/m = 629,00 Kg</p> <p>8 434,50 m x 0,395 Kg/m = 172,00 Kg</p> <p>10 616,50 m x 0,617 Kg/m = 380,00 Kg</p> <p>12 467,50 m x 0,858 Kg/m = 415,00 Kg</p> <p>Total = 1596,00 Kg</p>						

EJECUTO

NO TAS

REVISO

FECHA

RAUL PORTAS ESQUIVEL

INGENIERO CIVIL

ARAOZ 2379 - 4º A - 71-8258

CAP. FED.

Fecha:

Hoja: de:

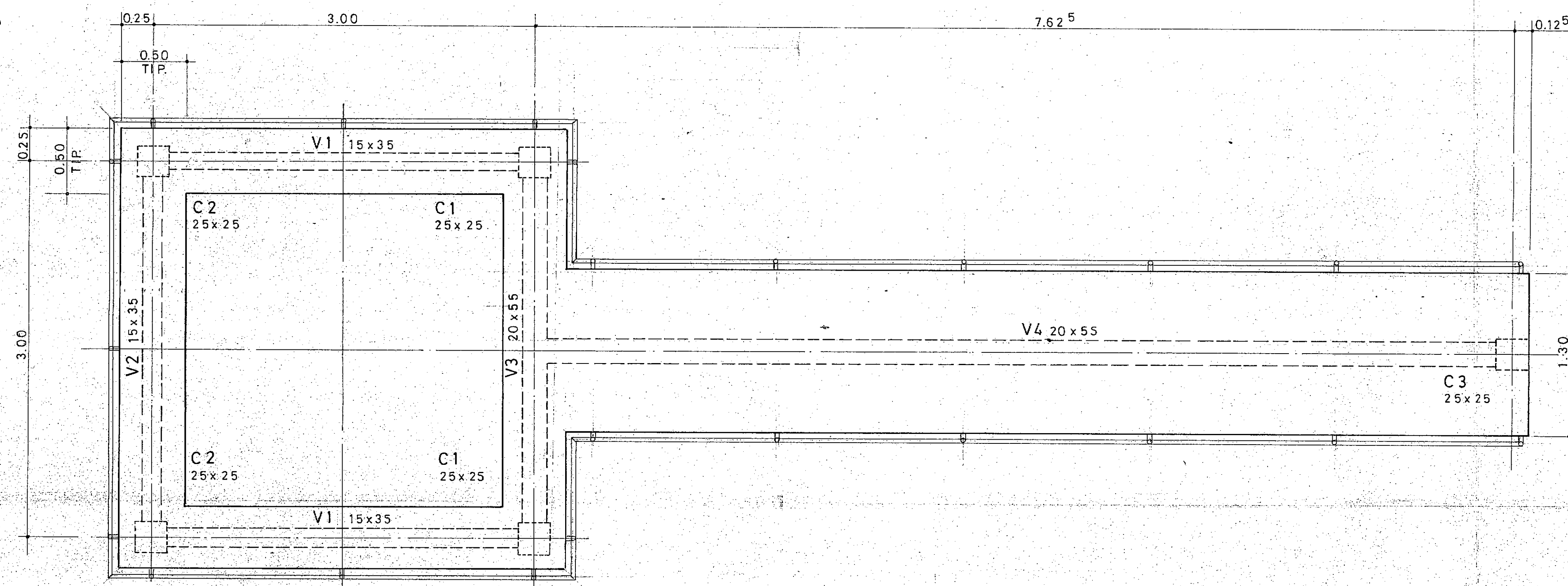
PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES

RADA TILLY

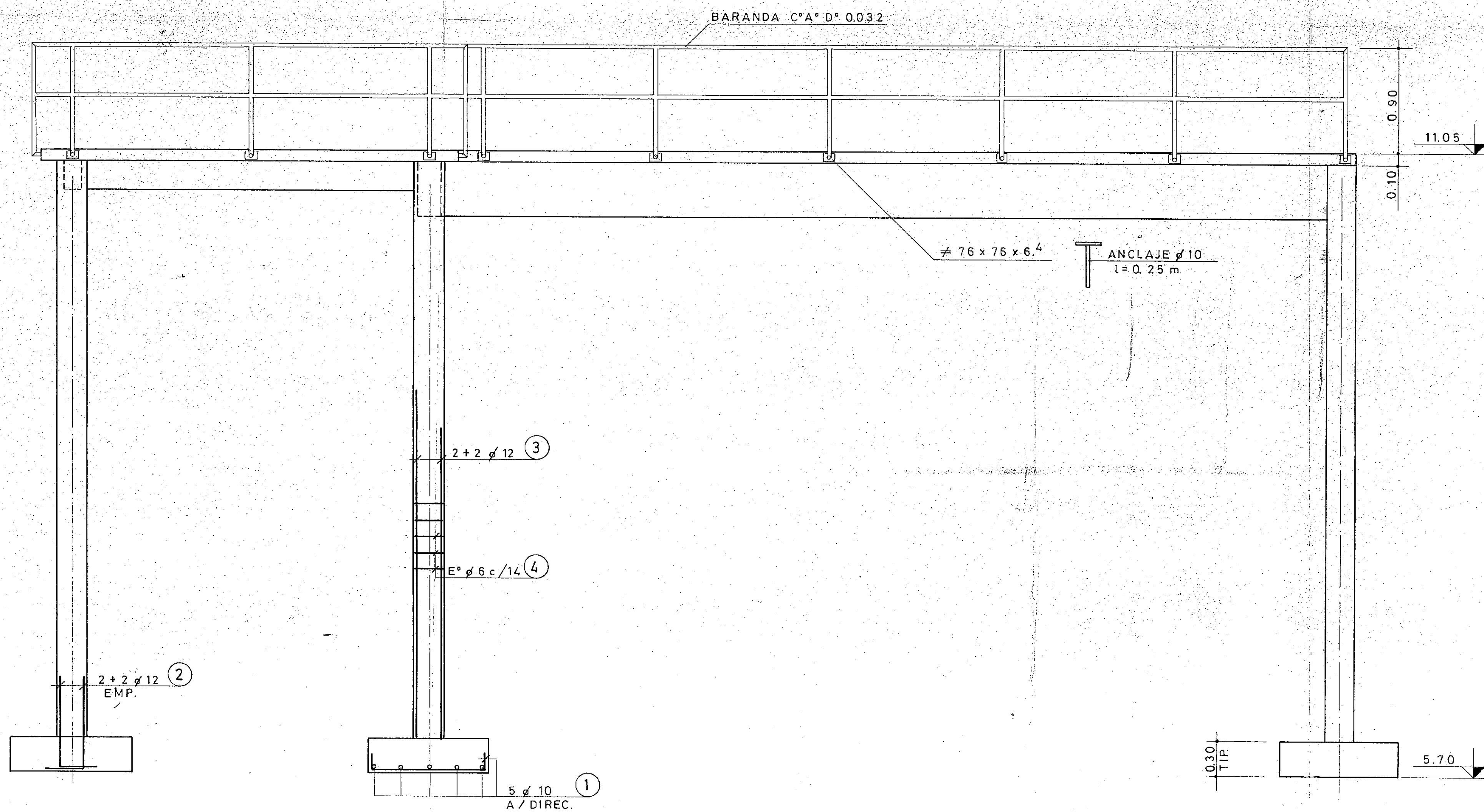
CAPITULO XI

PLANOS DE ENCOFRADO Y ARMADURA

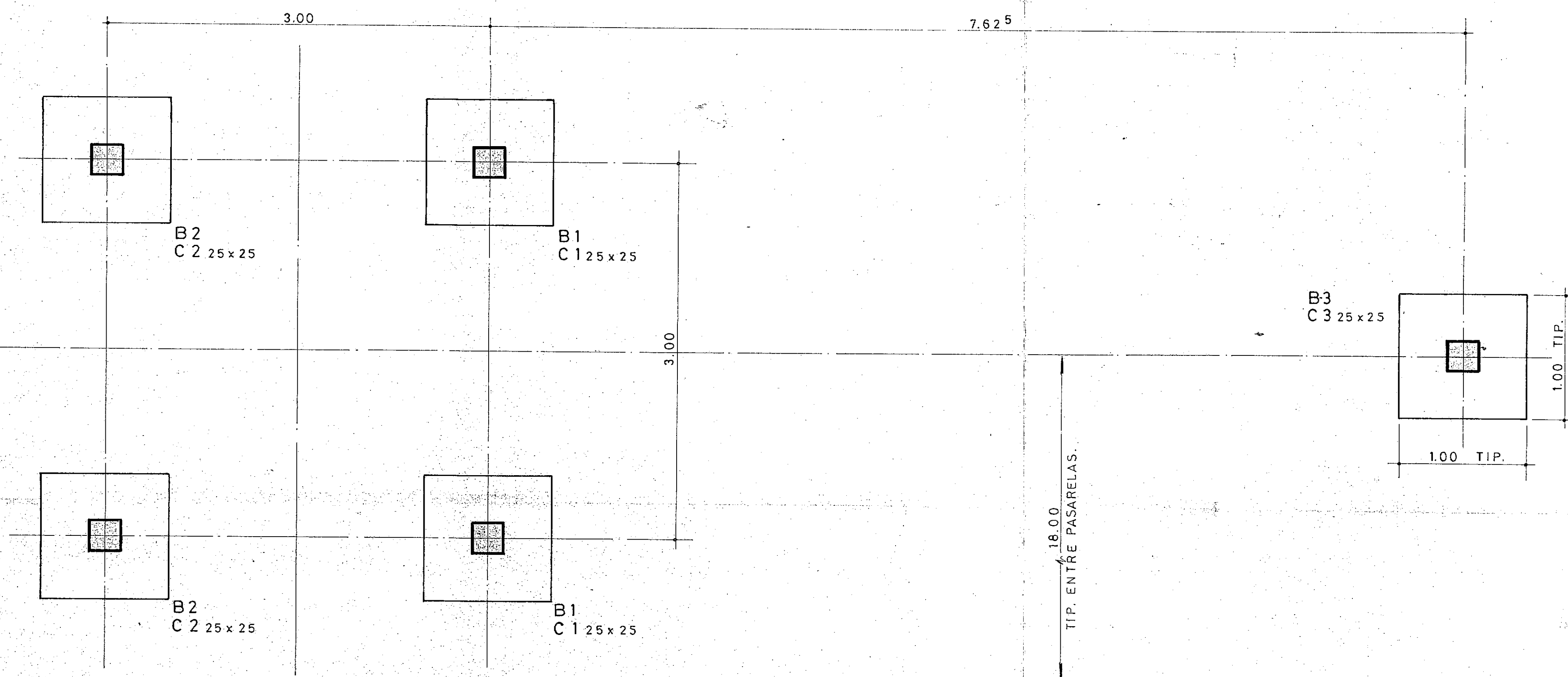
PLANTA SUPERIOR CANT. 4.



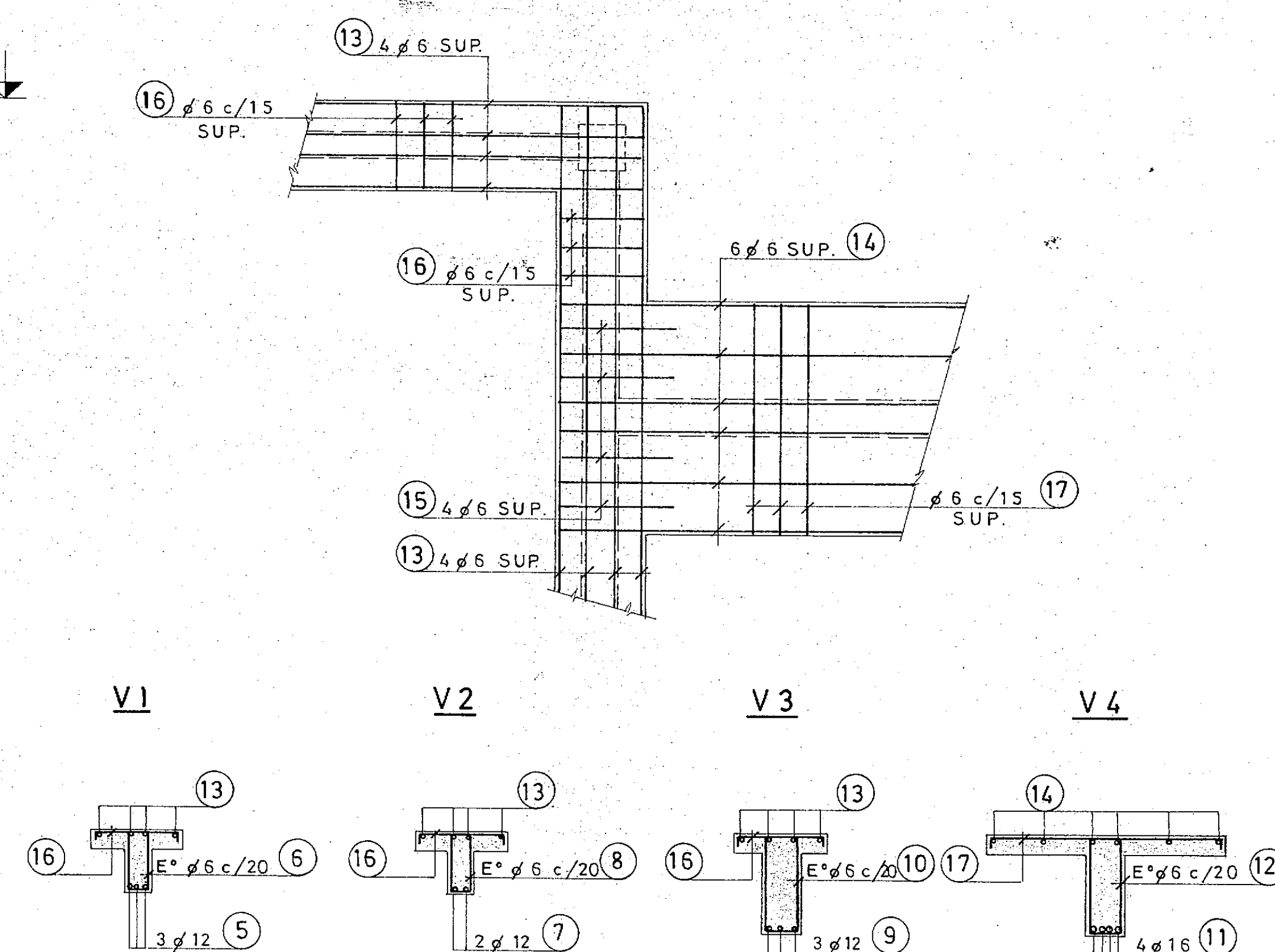
VISTA LONGITUDINAL



PLANTA DE FUNDACIONES



ARMADURA DE LOSAS



NOTAS

CALIDAD DEL HORMIGON: $\gamma_{bk} = 210 \text{ Kg/cm}^2$
 II II ACERO : $\gamma_{ek} = 4200$ II TIPO III DN
 RECUBRIMIENTO MINIMO : BASES : 5,0 cm
 COLUMNAS: 3,0 cm
 VIGAS : 2,0 cm
 LOSAS : 2,0 cm

PROVINCIA DE CHUBUT

RADA TILLY
 PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES
 ANTEPROYECTO DEFINITIVO

PASARELA CELDA AIREADA ENCOFRADO Y ARMADURA

CONSEJO FEDERAL DE INVERSIONES

GERENCIA DE ESTUDIOS Y PROYECTOS

APROBACION C.F.T. PROVINCIA

ing. RAUL PORTAS ESQUIVEL

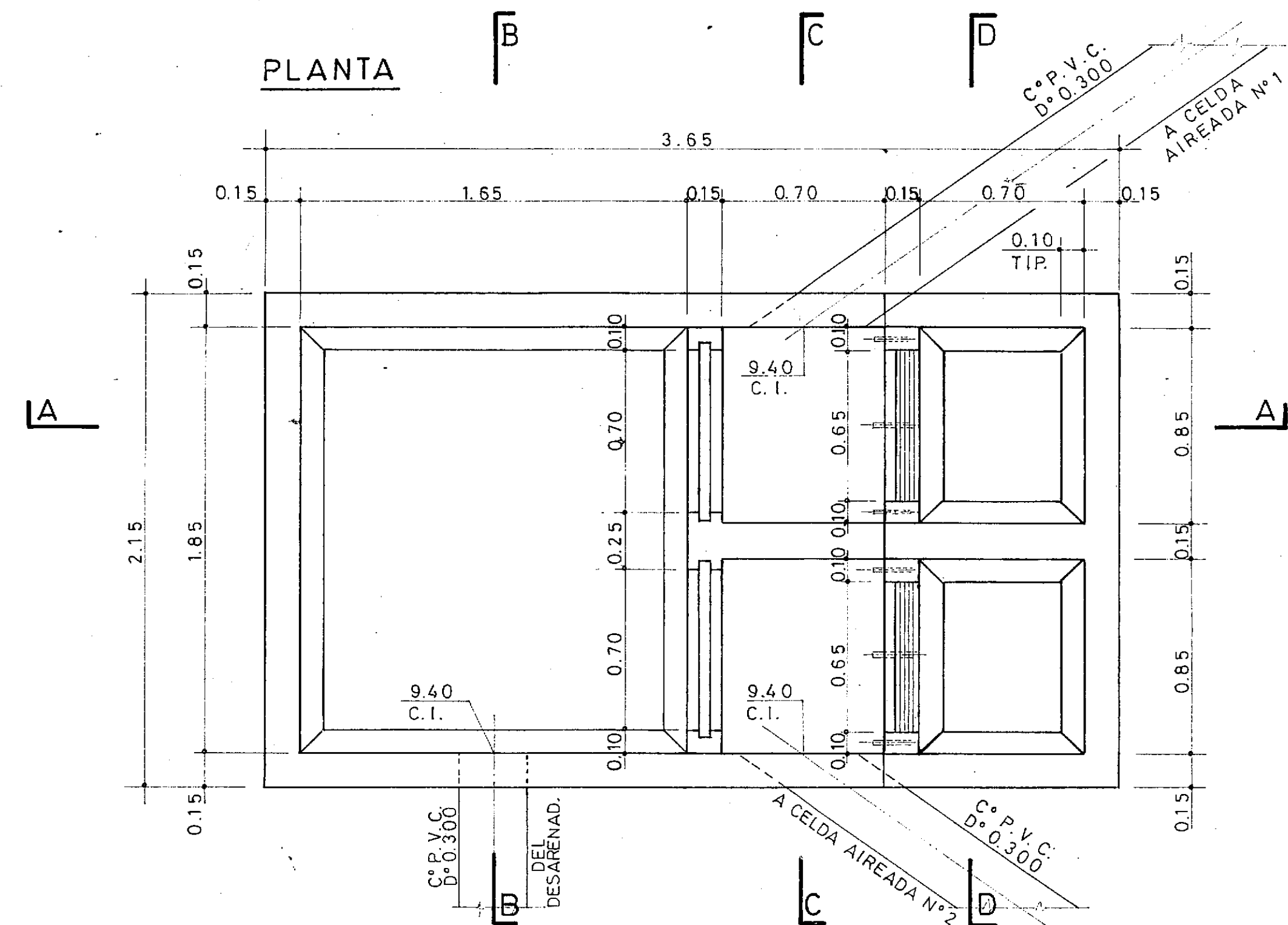
ESCALAS

1:25

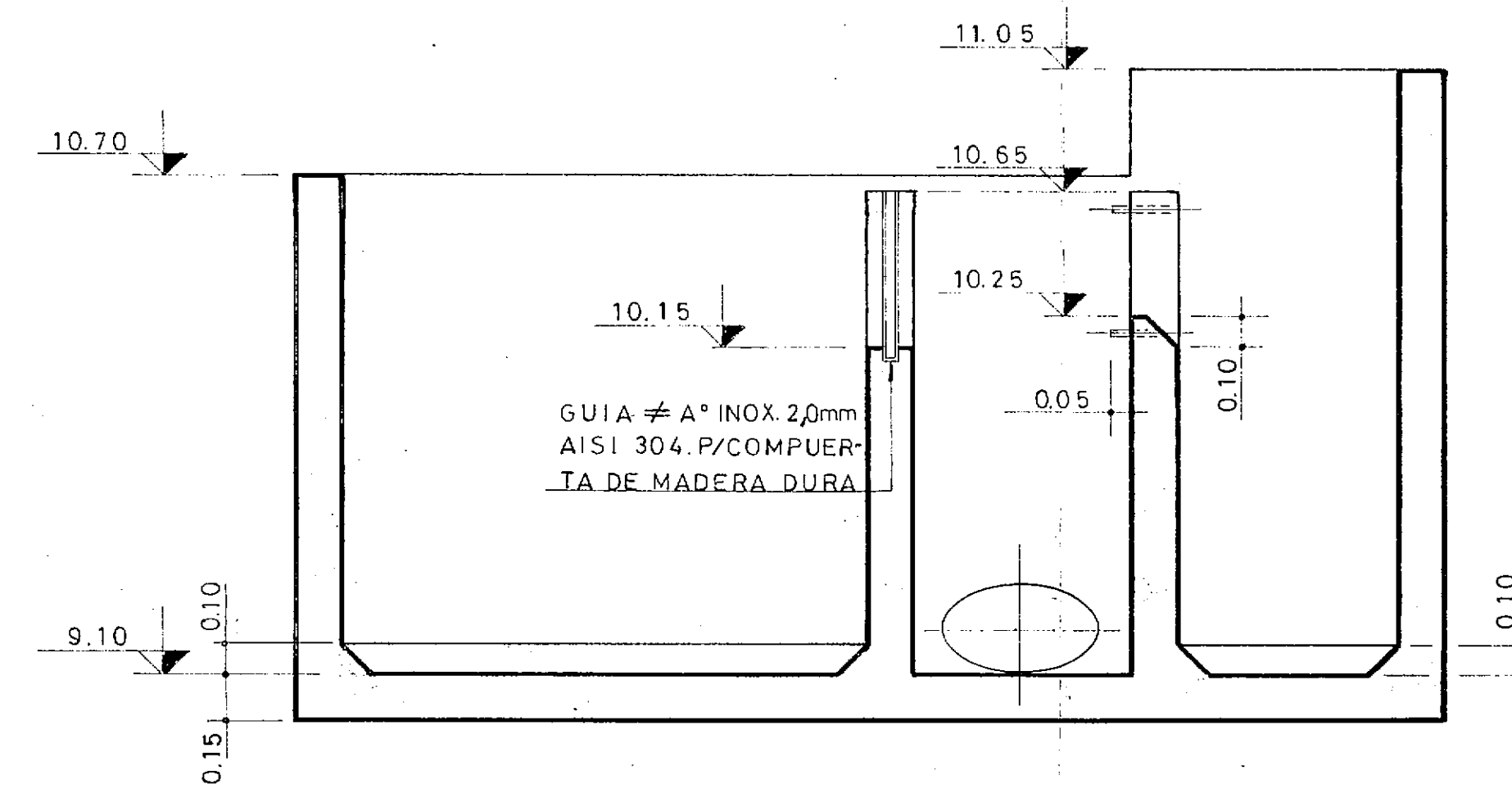
PLANO N°

H-02

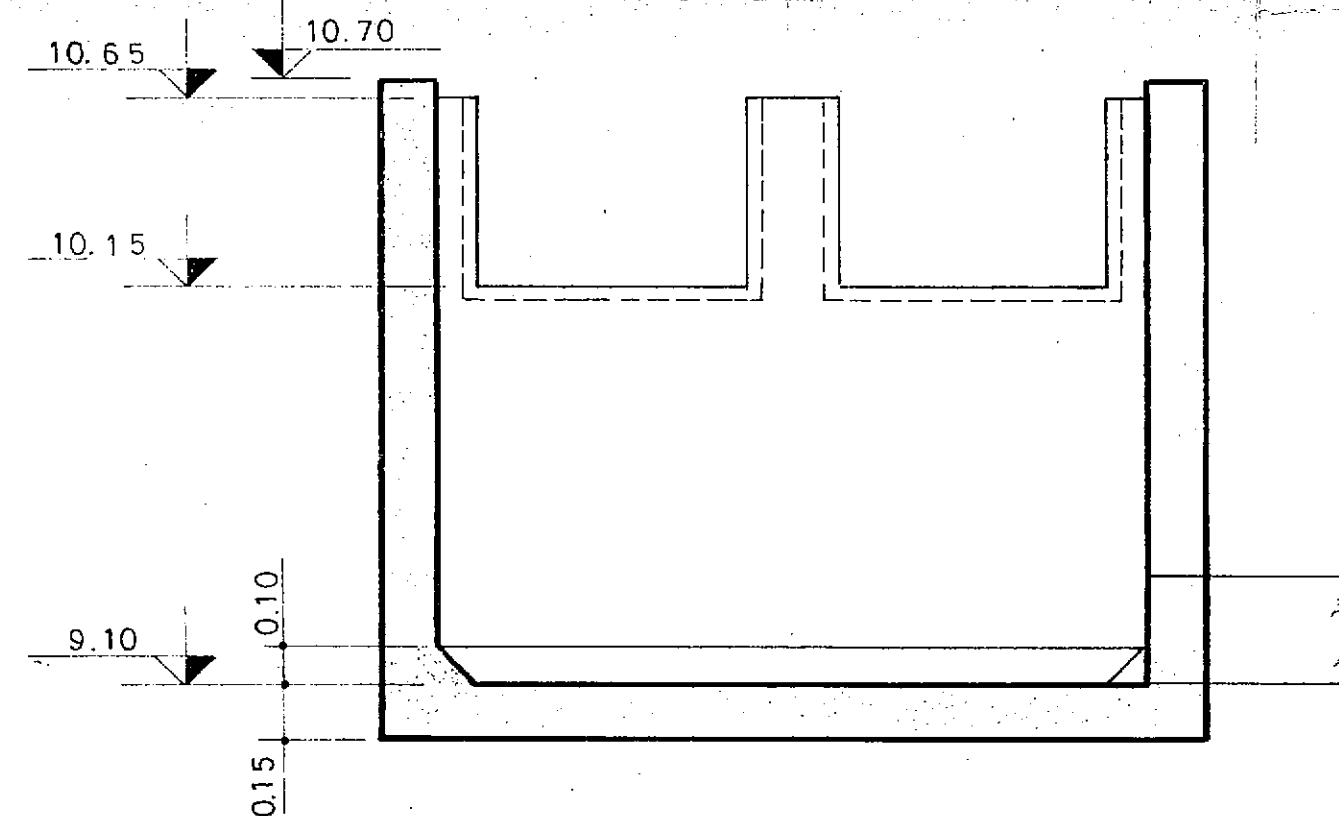
CAMARA PARTIDORA N° 1



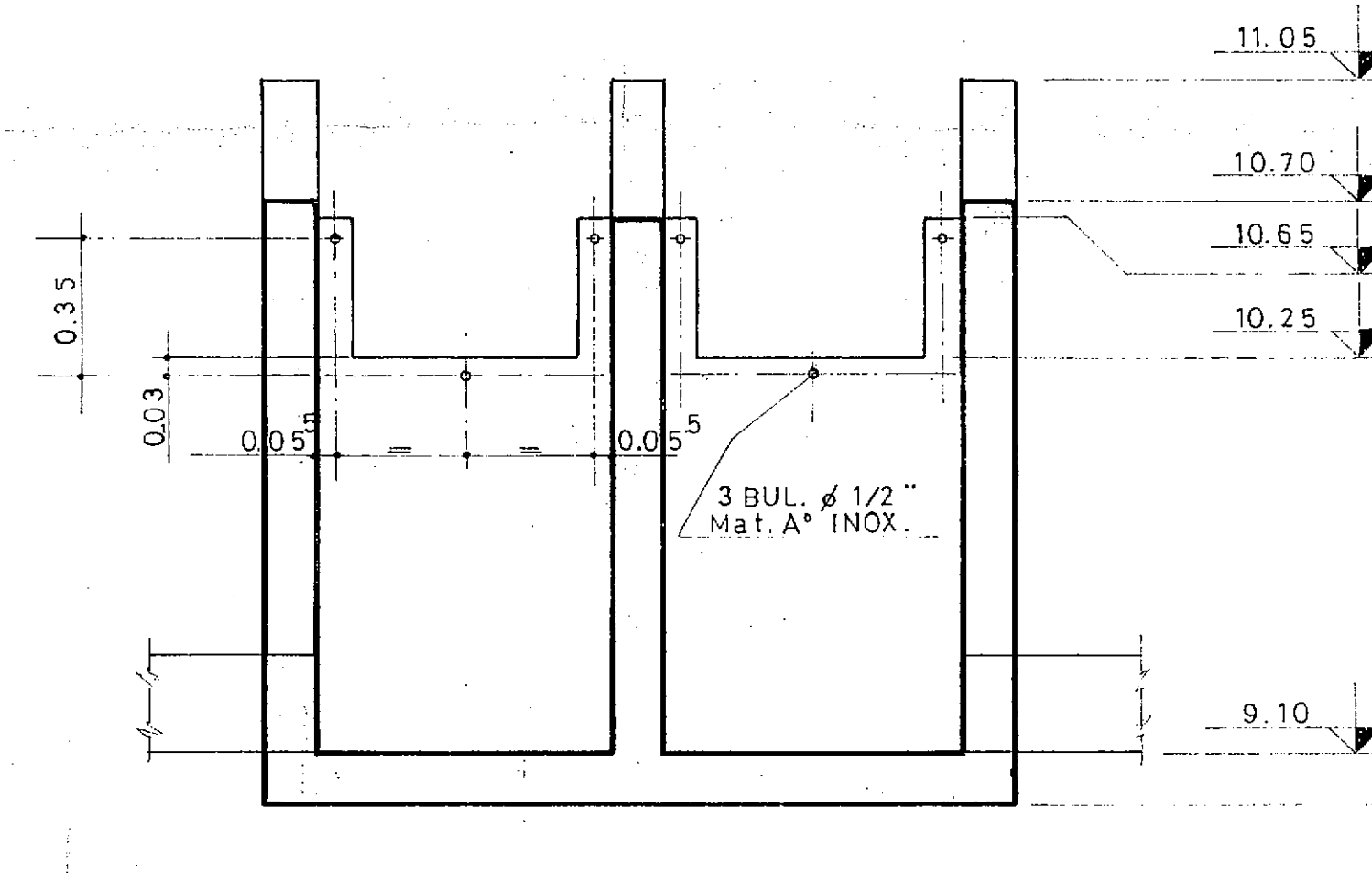
CORTE A-A



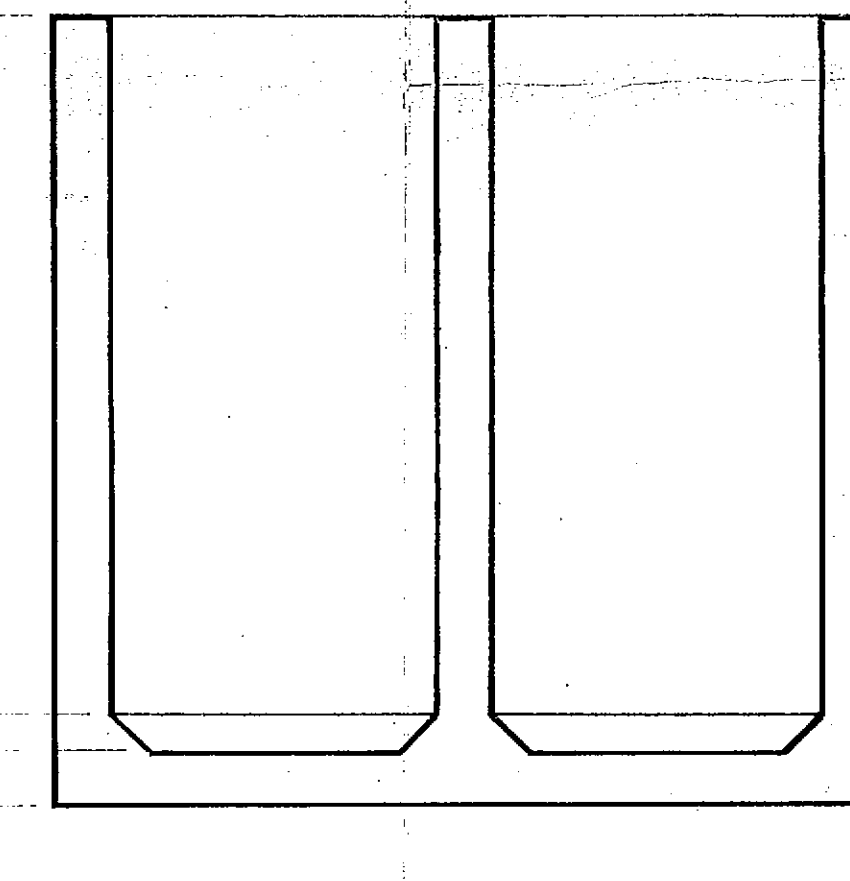
CORTE B-B



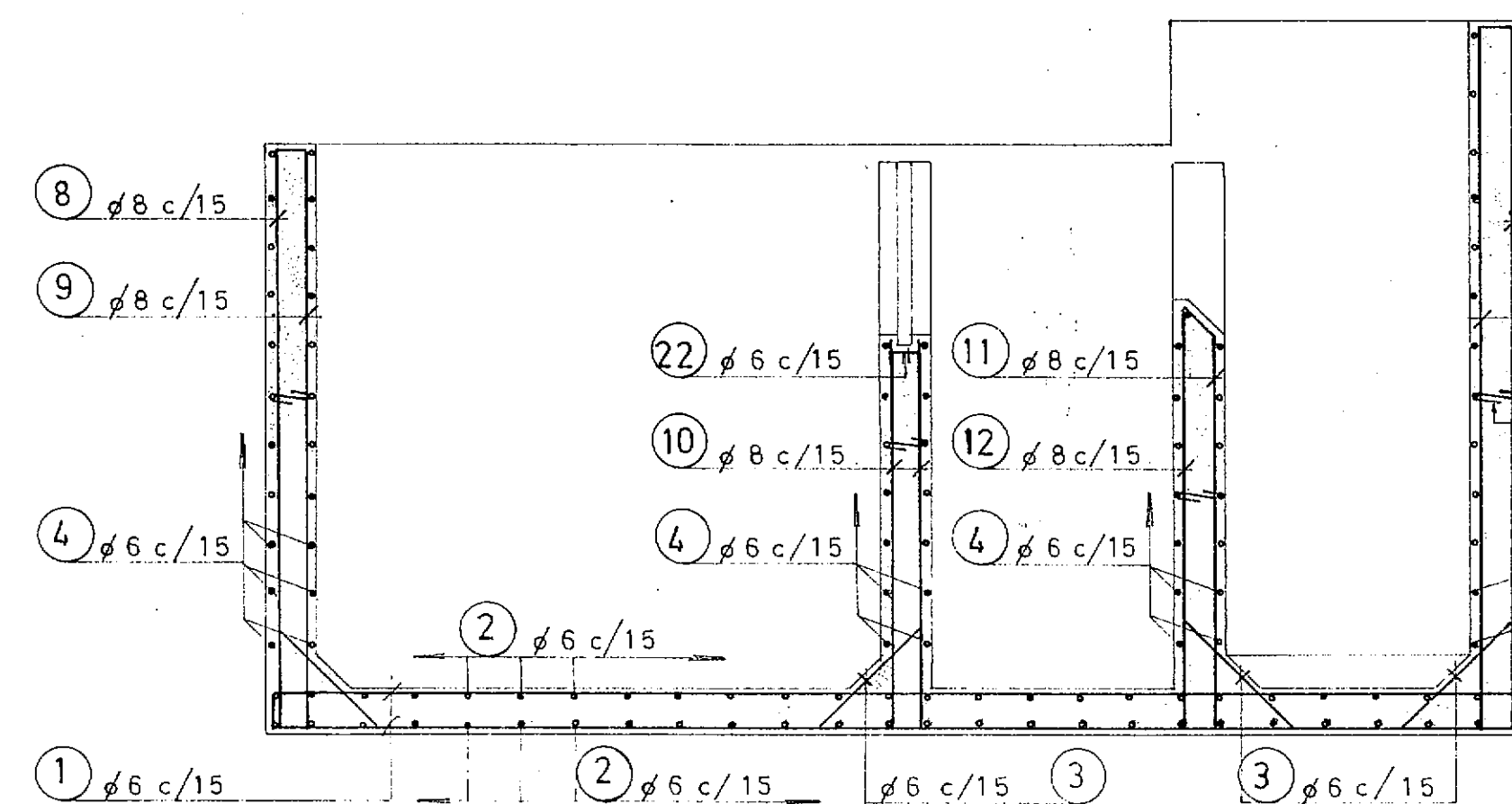
CORTE C-C



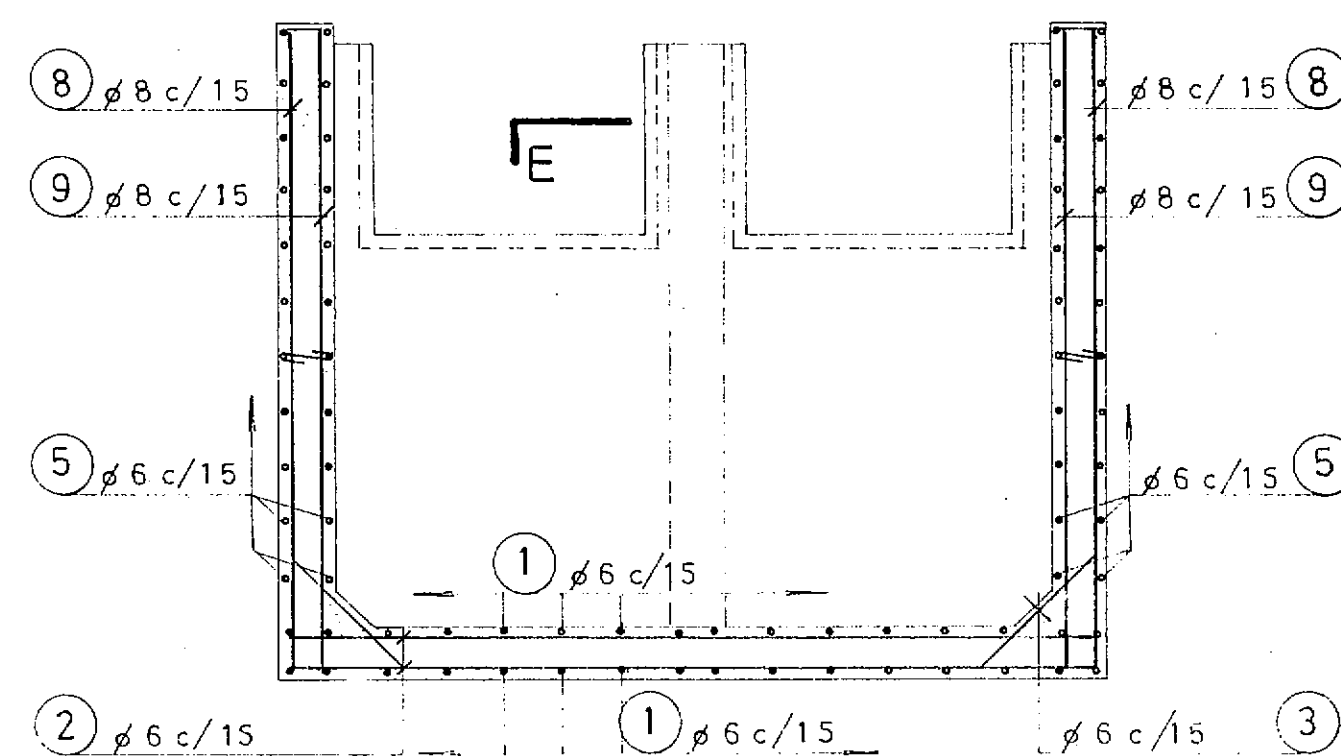
CORTE D-D



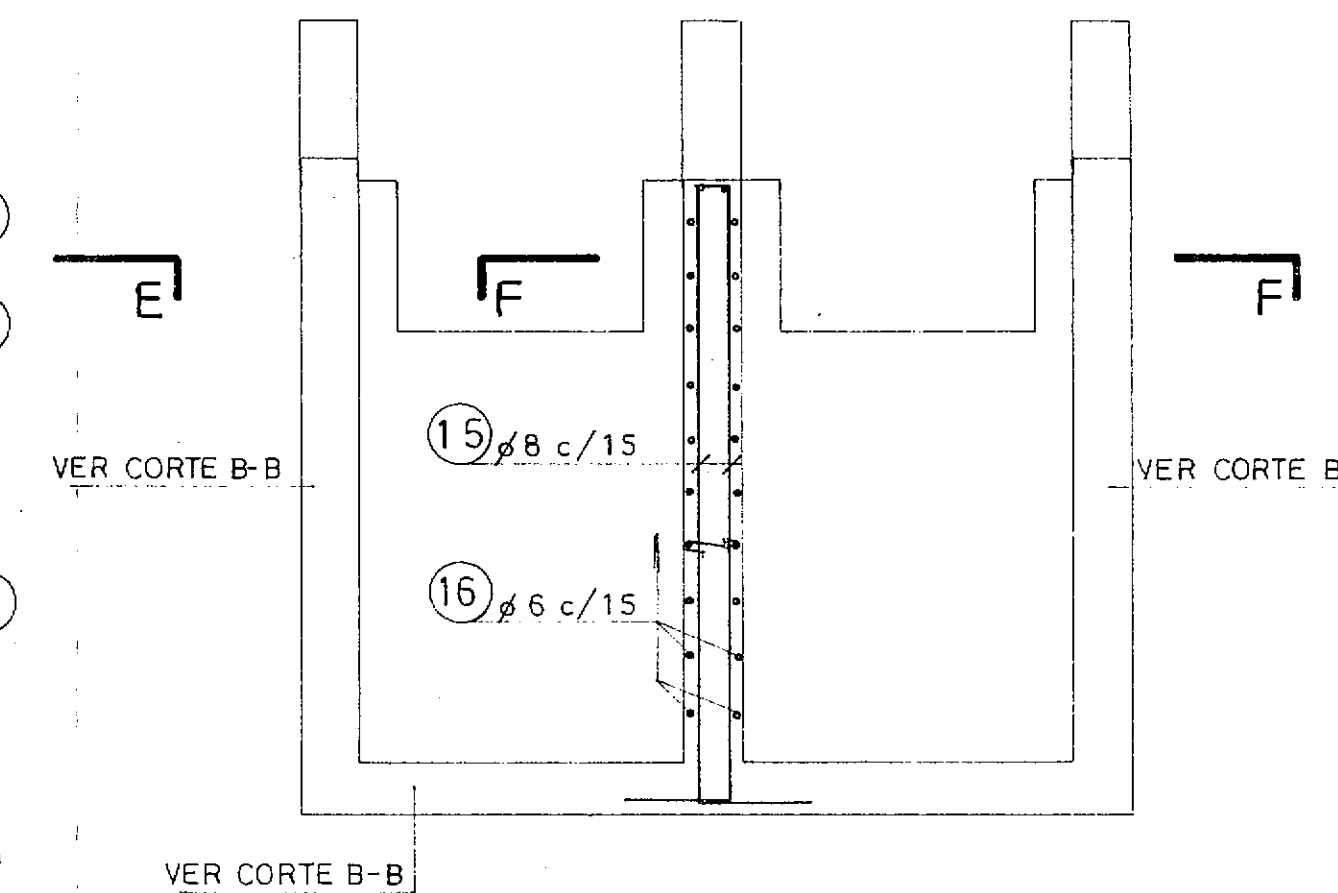
CORTE A-A



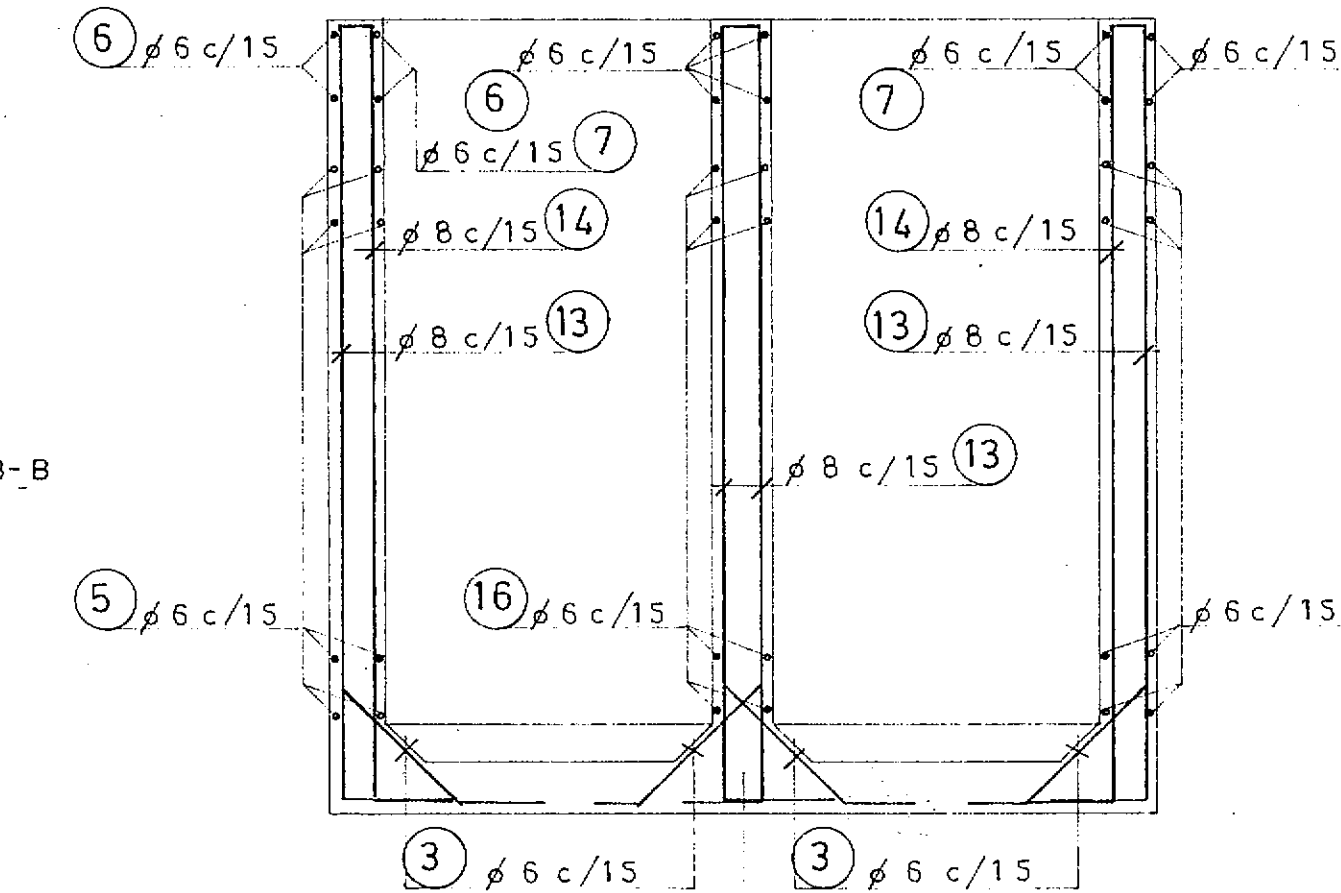
CORTE B-B



CORTE C-C

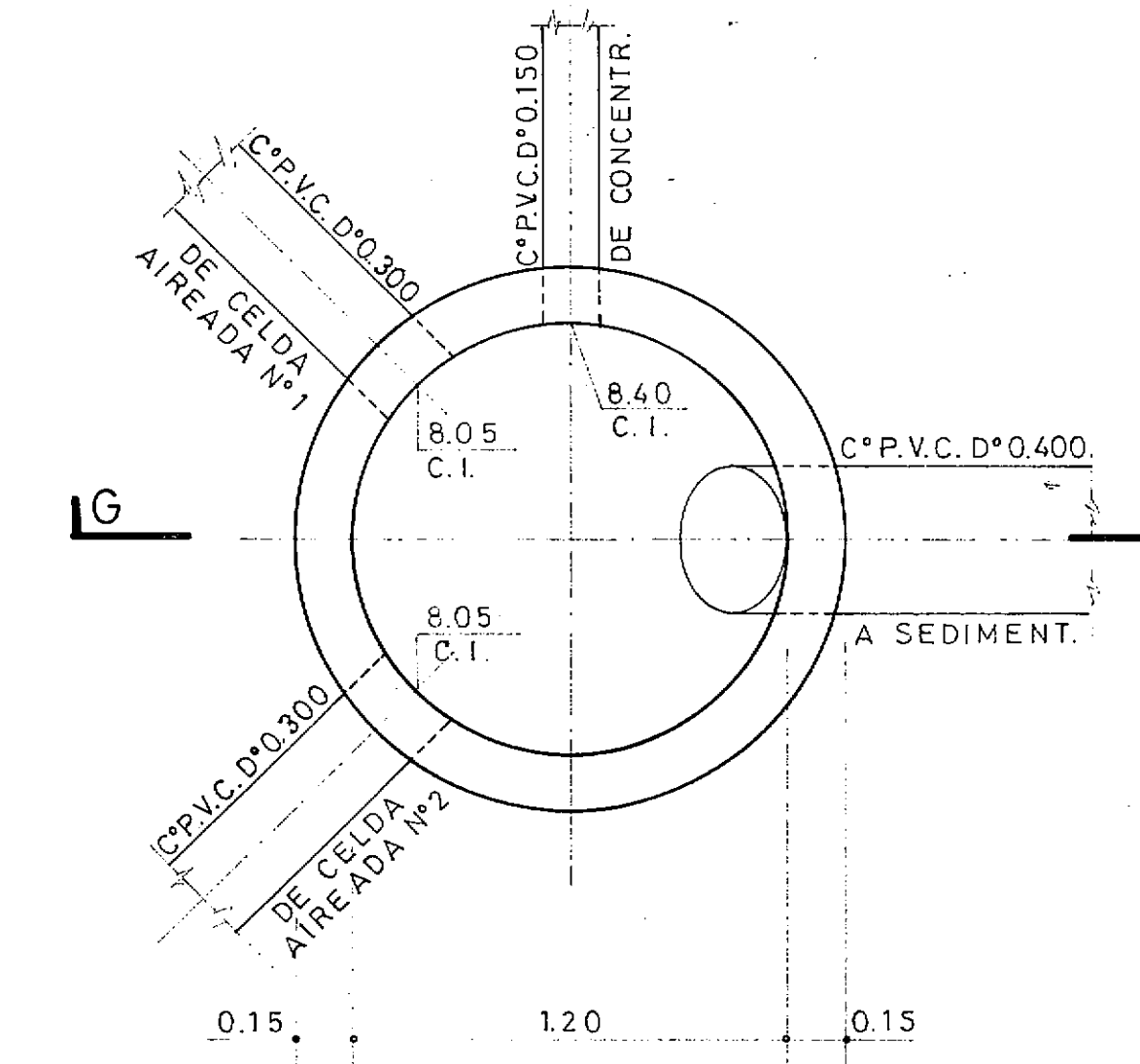


CORTE D-D

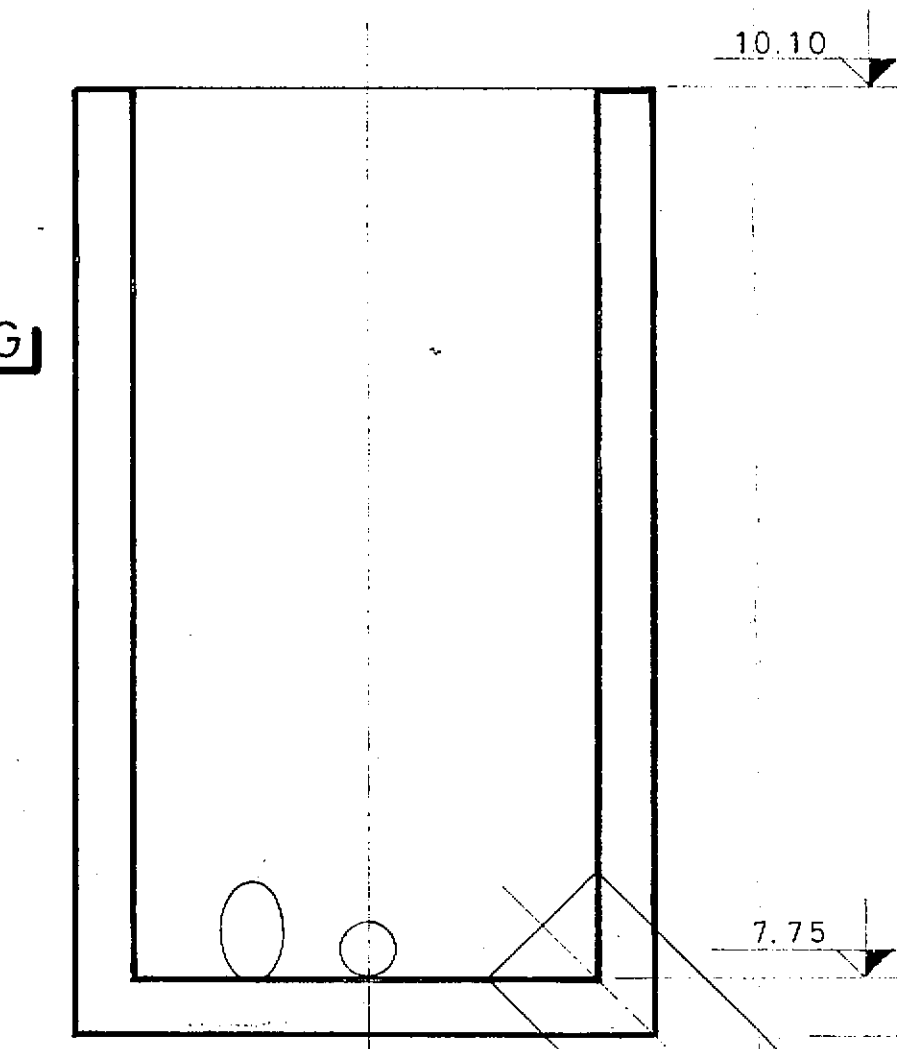


CAMARA DE REUNION

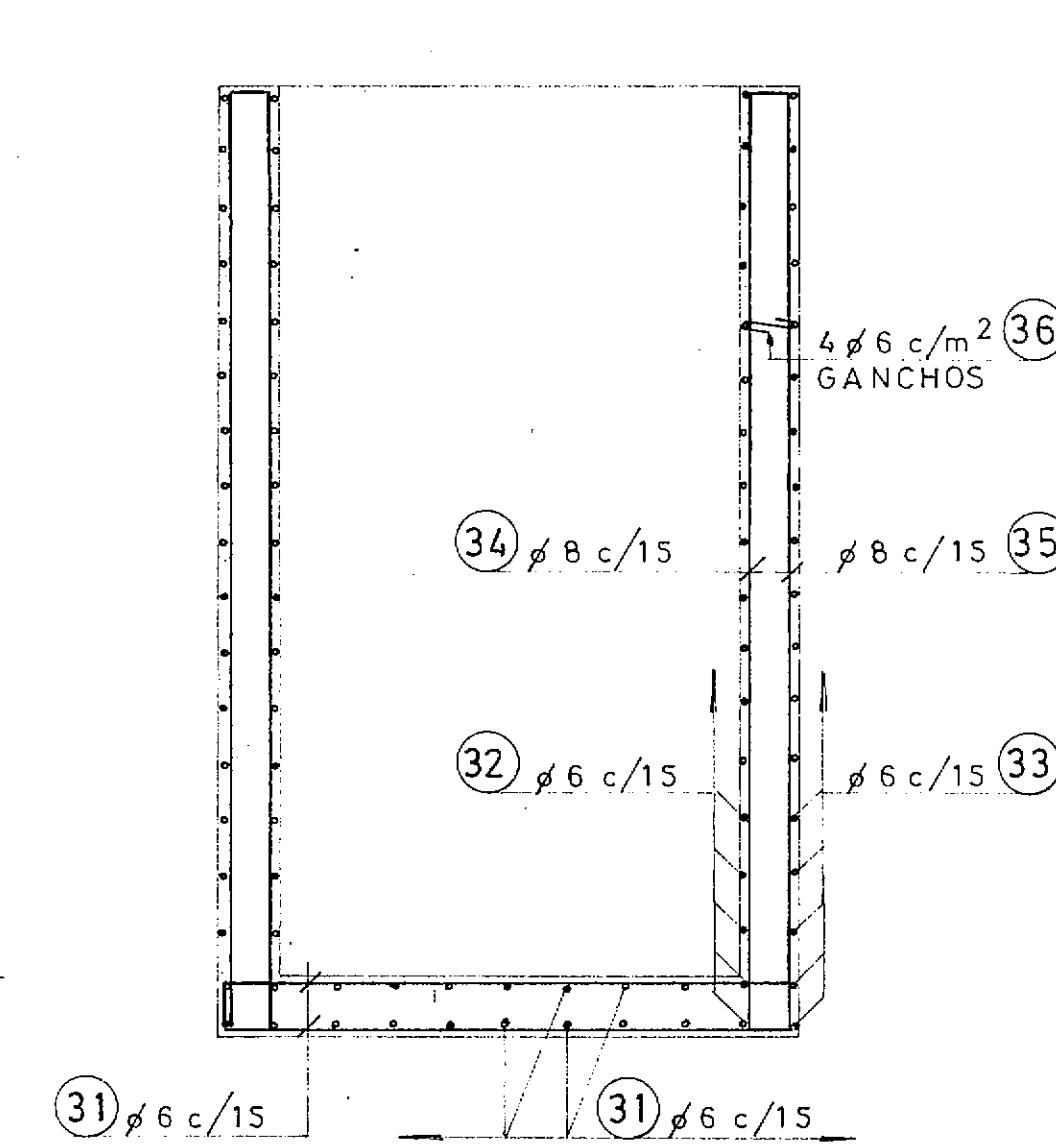
PLANTA



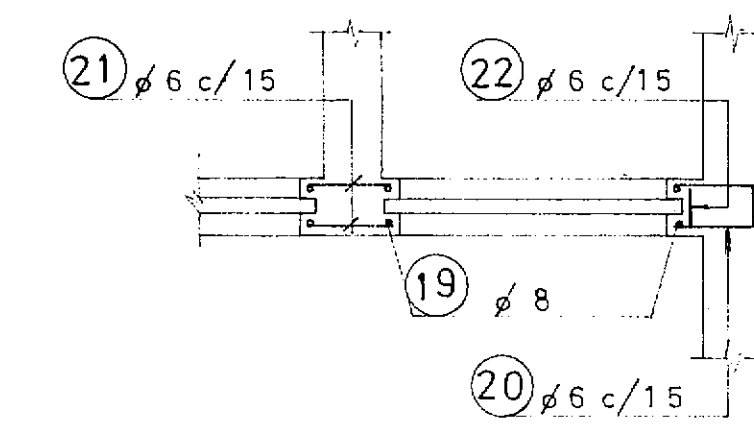
CORTE G-G



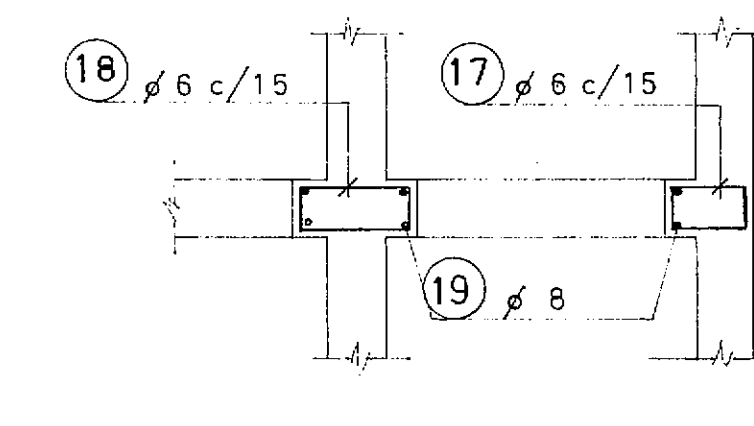
CORTE G-G



CORTE E-E



CORTE F-F



NOTAS

CALIDAD DEL HORMIGON: $\gamma_{bk} = 210 \text{ Kg/cm}^2$
 II II ACERO : $\gamma_{ek} = 4200$ II TIPO III DN
 RECUBRIMIENTO MINIMO : 2,0 cm
 LA CAMARA PARTIDORA N°1 SE FUNDARA SOBRE RELLENO COMPACTADO S/ESPECIFICACION

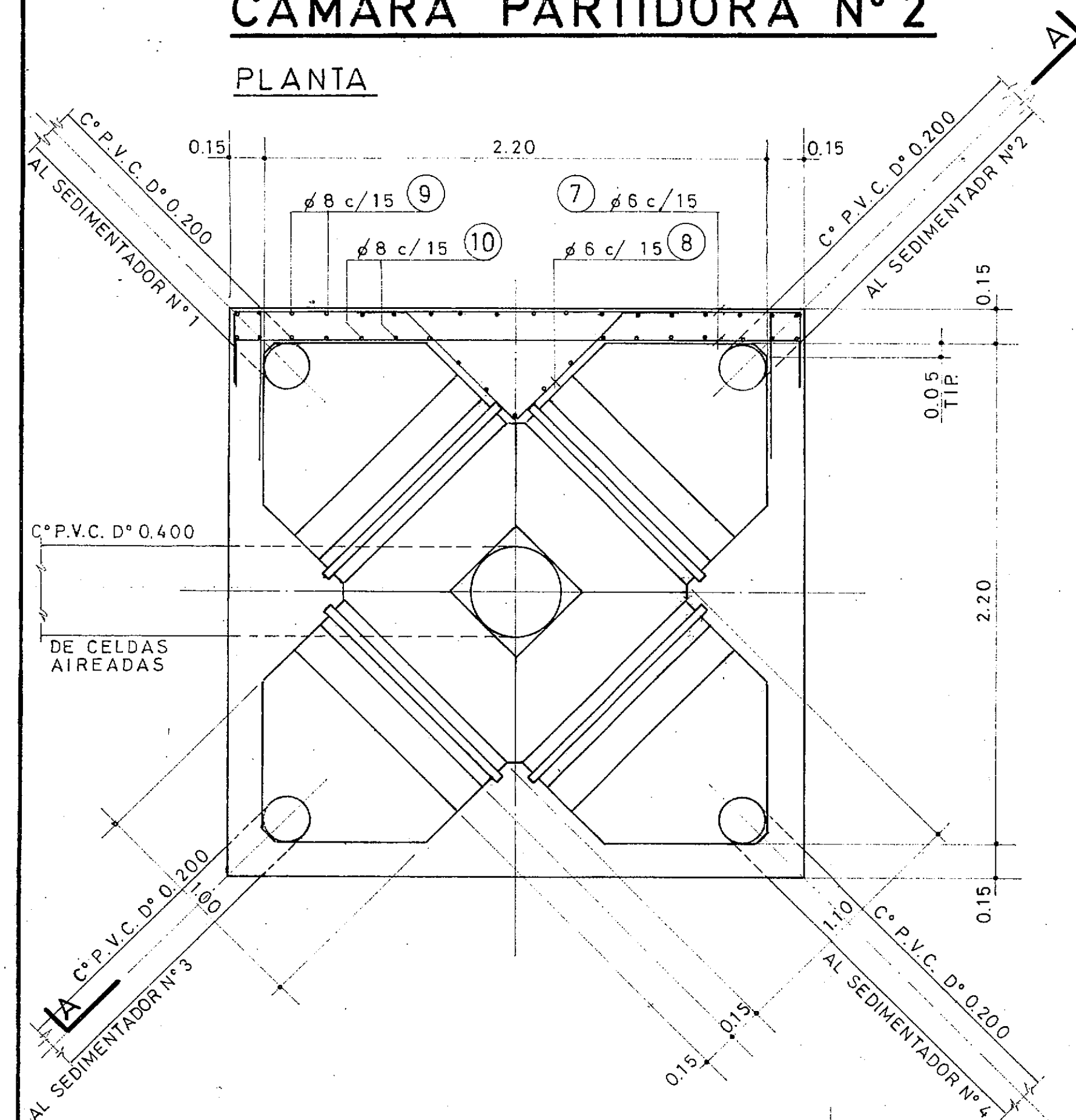
PROVINCIA DE CHUBUT

RADA TILLY PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES ANTEPROYECTO DEFINITIVO

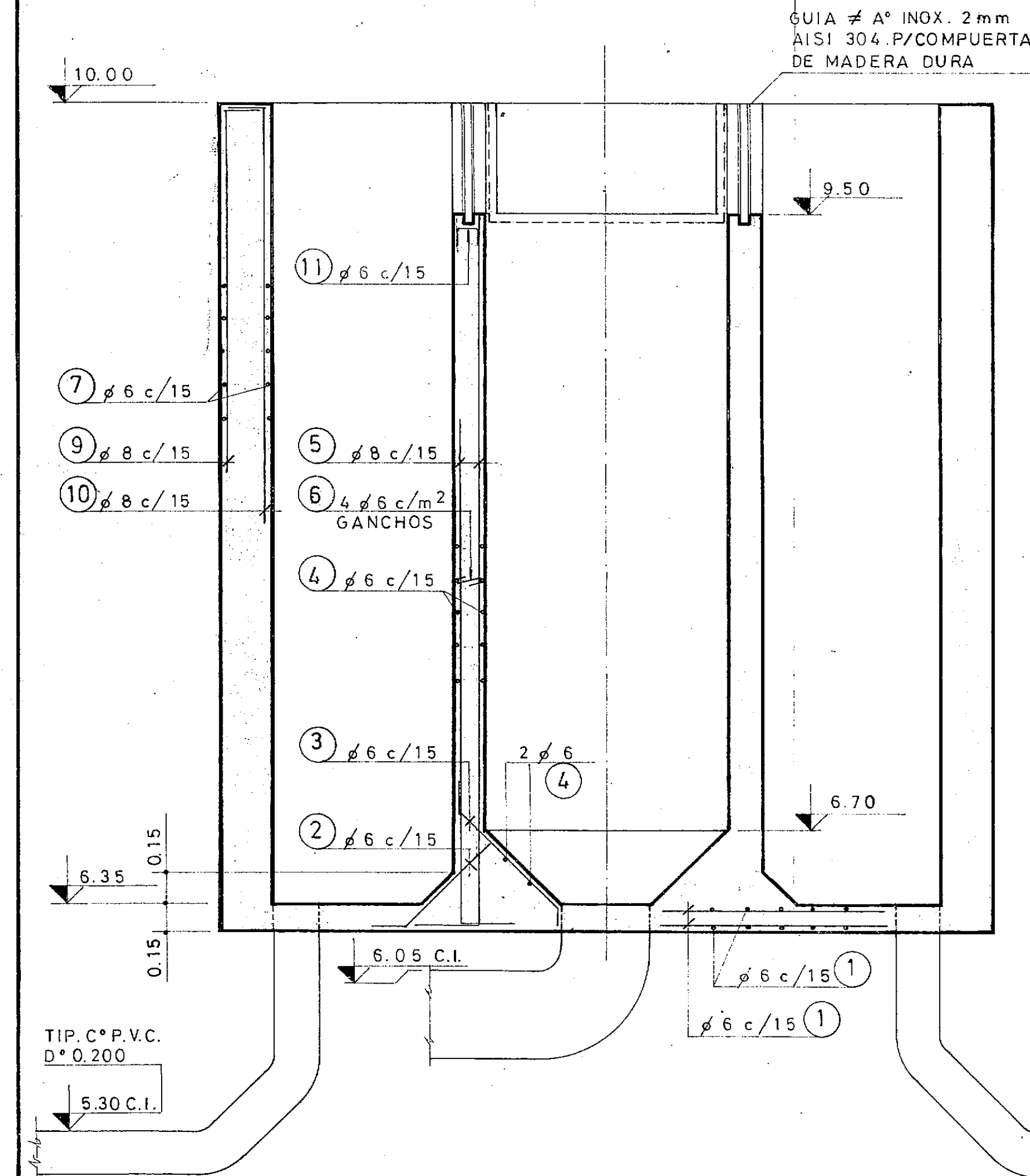
CAMARAS PARTIDORA N°1 Y DE REUNION ENC. Y ARM.
 CONSEJO FEDERAL DE INVERSIONES
 GERENCIA DE ESTUDIOS Y PROYECTOS
 APROBACION: C.F.T. PROVINCIA
 ing. RAUL PORTAS ESQUIVEL
 ESCALAS: 1:20
 PLANO N°: H-03

CAMARA PARTIDORA N° 2

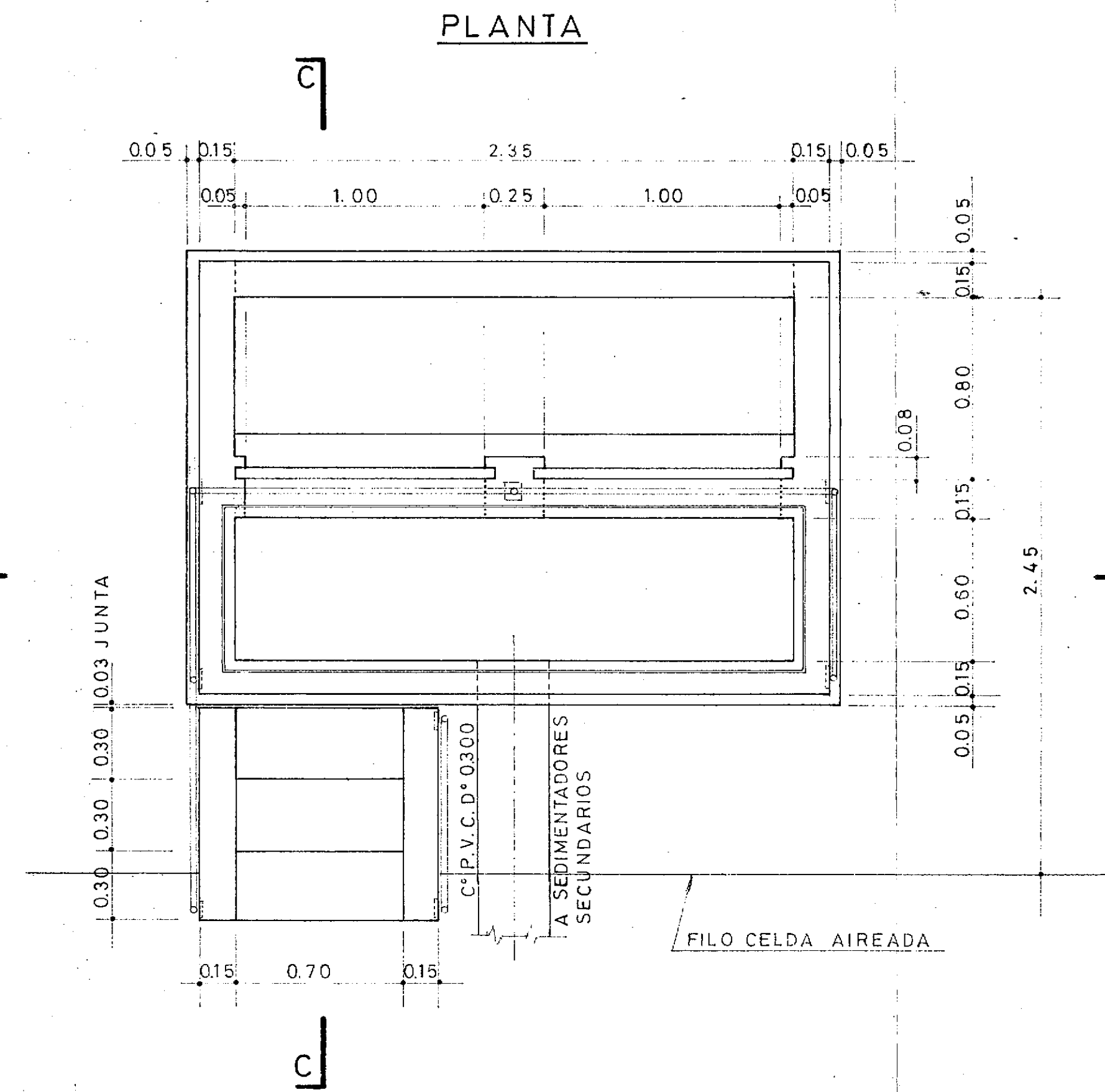
PLANTA



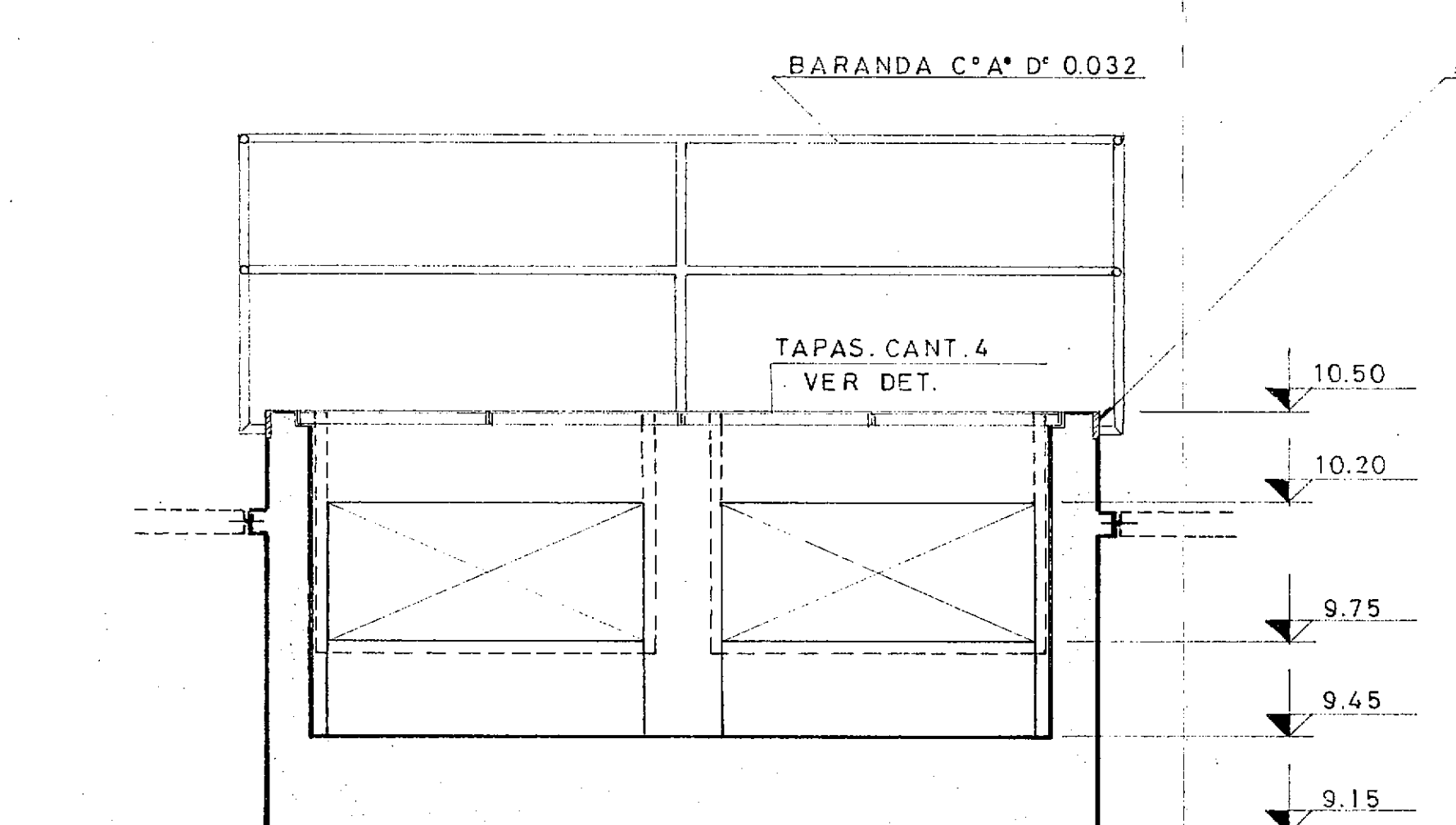
CORTE A-A



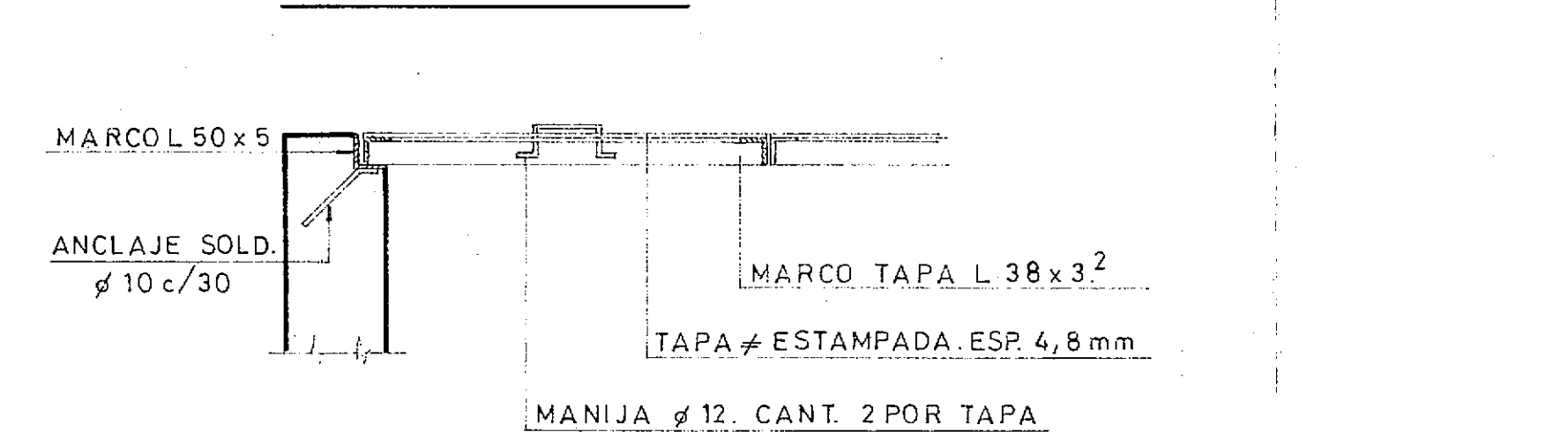
PLANTA



CORTE B-B

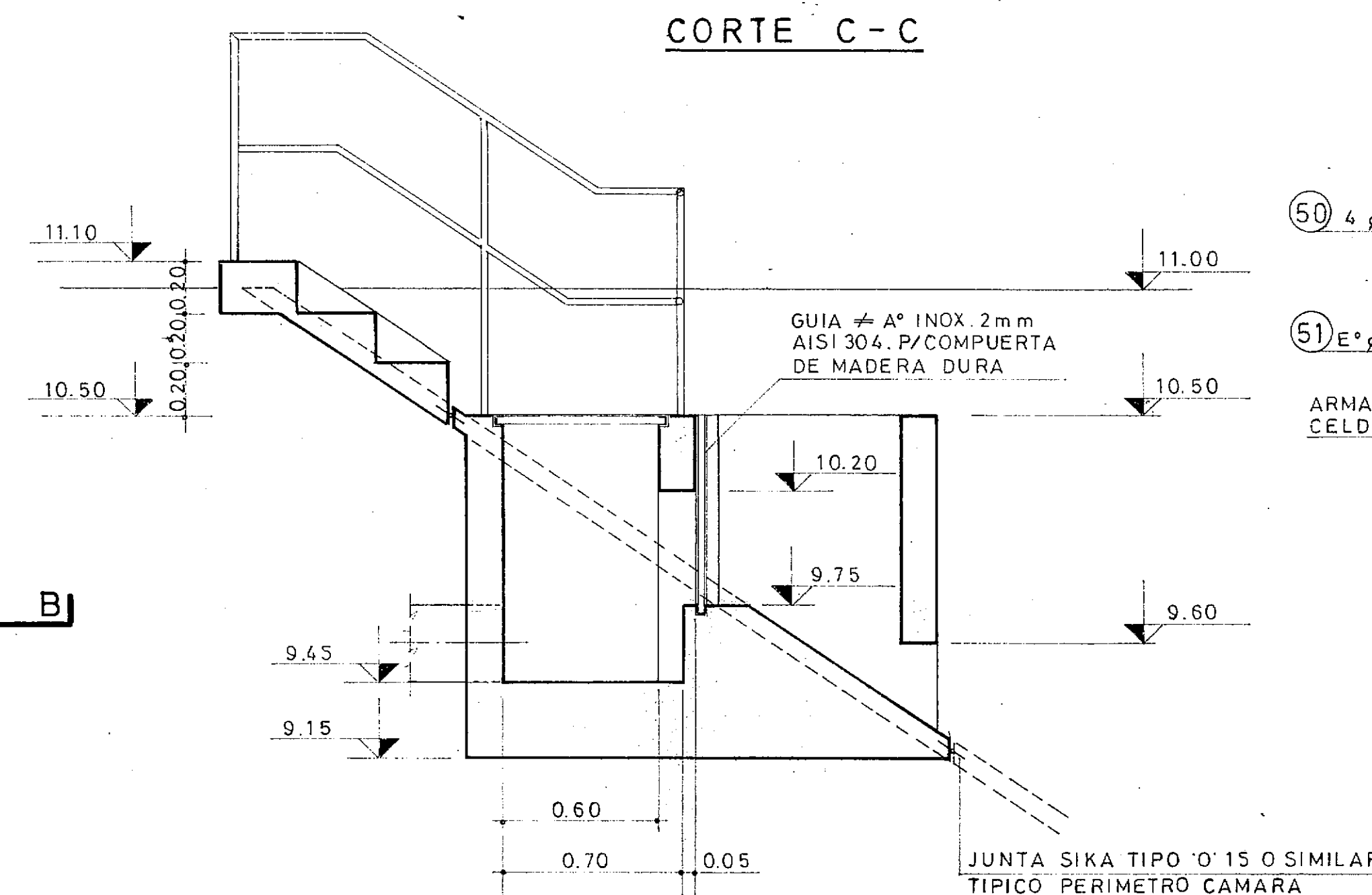


DETALLE TAPA ESC. 1:10

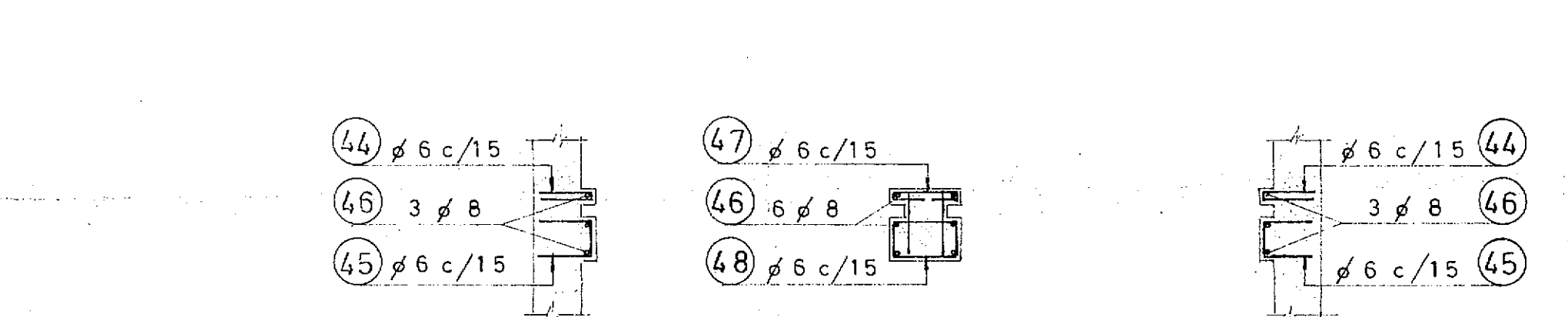


CAMARA PARA REGULACION NIVEL

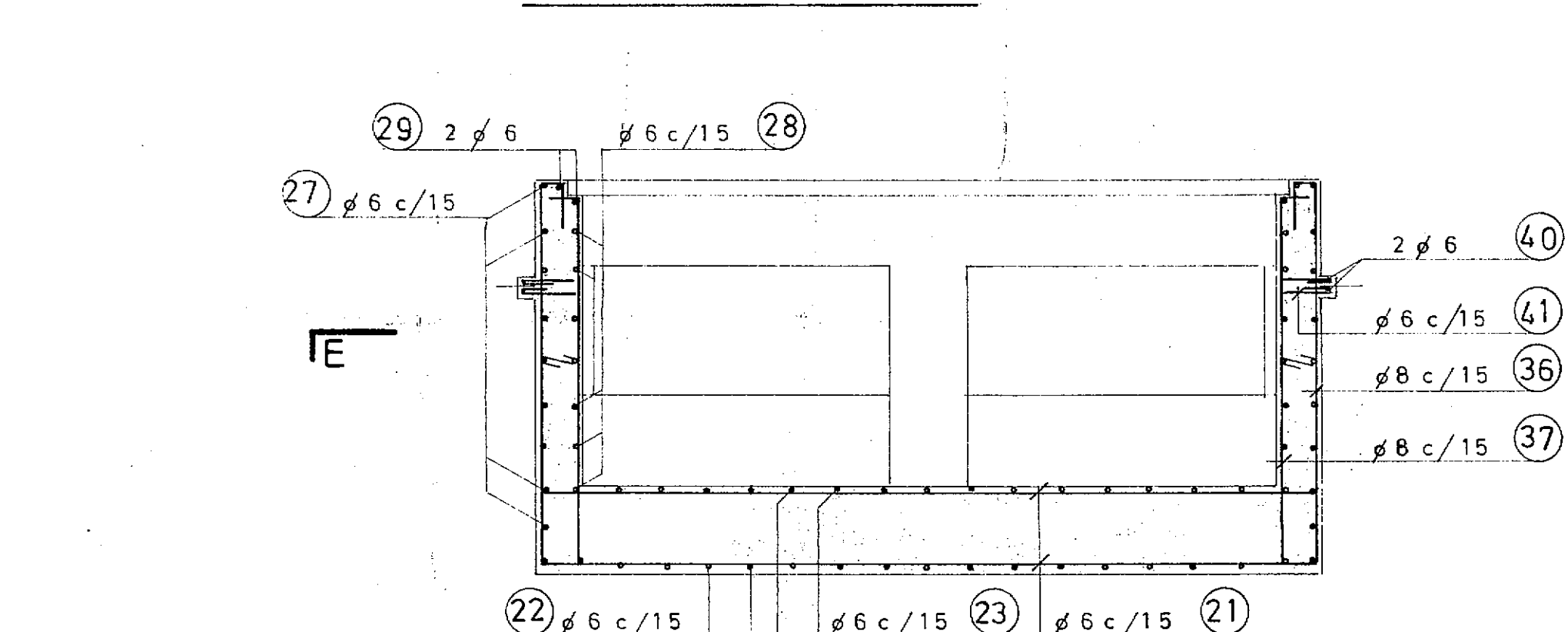
CORTE C-C



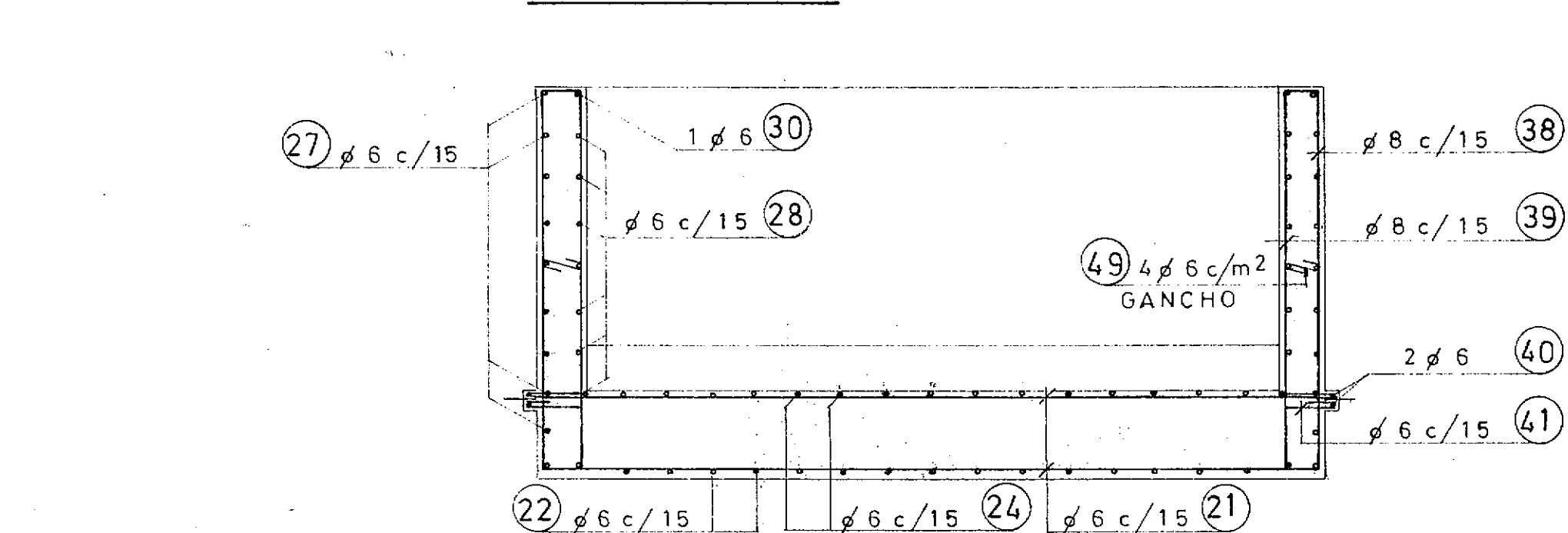
CORTE E-E



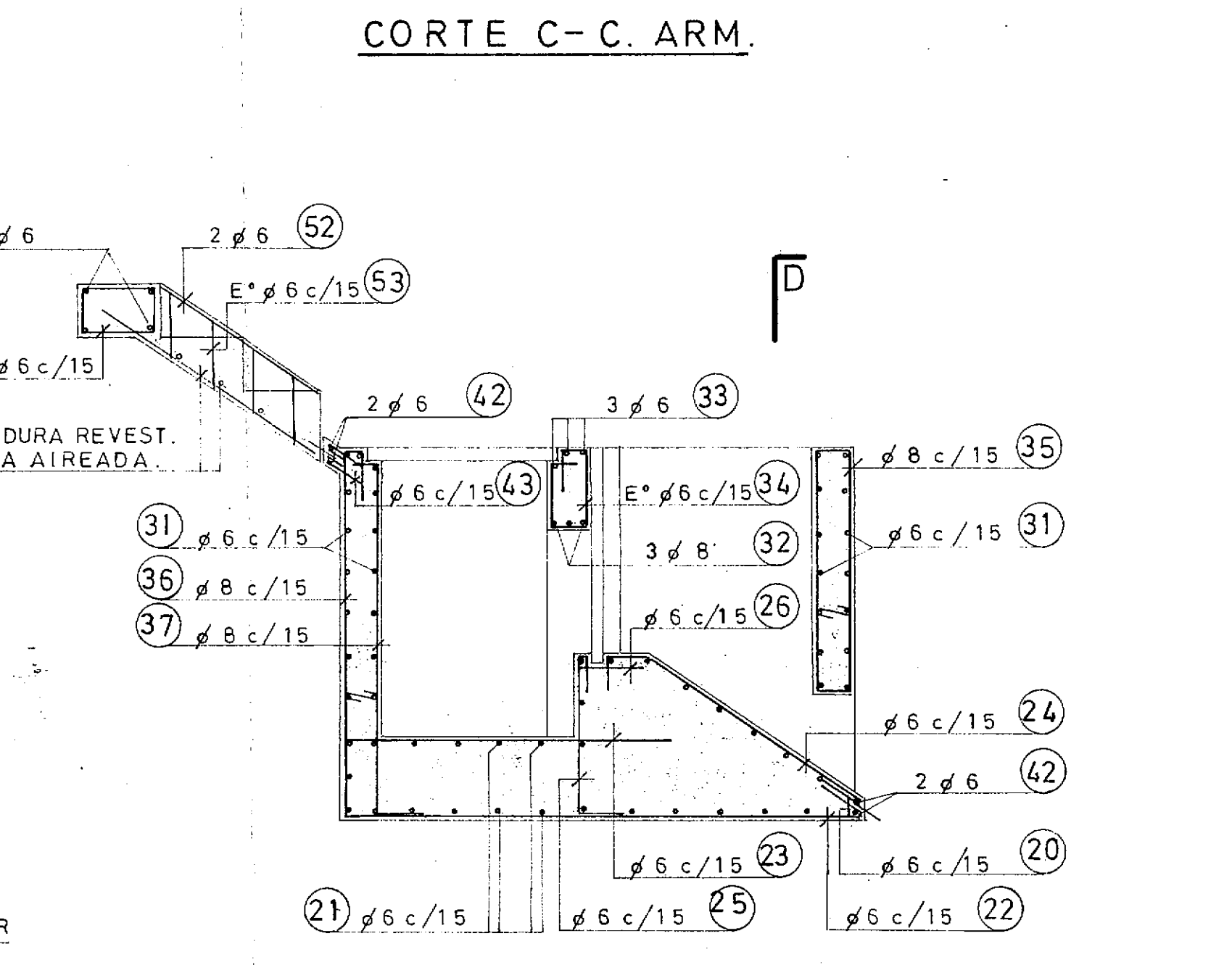
CORTE B-B. ARM.



CORTE D-D



CORTE C-C. ARM.



NOTAS

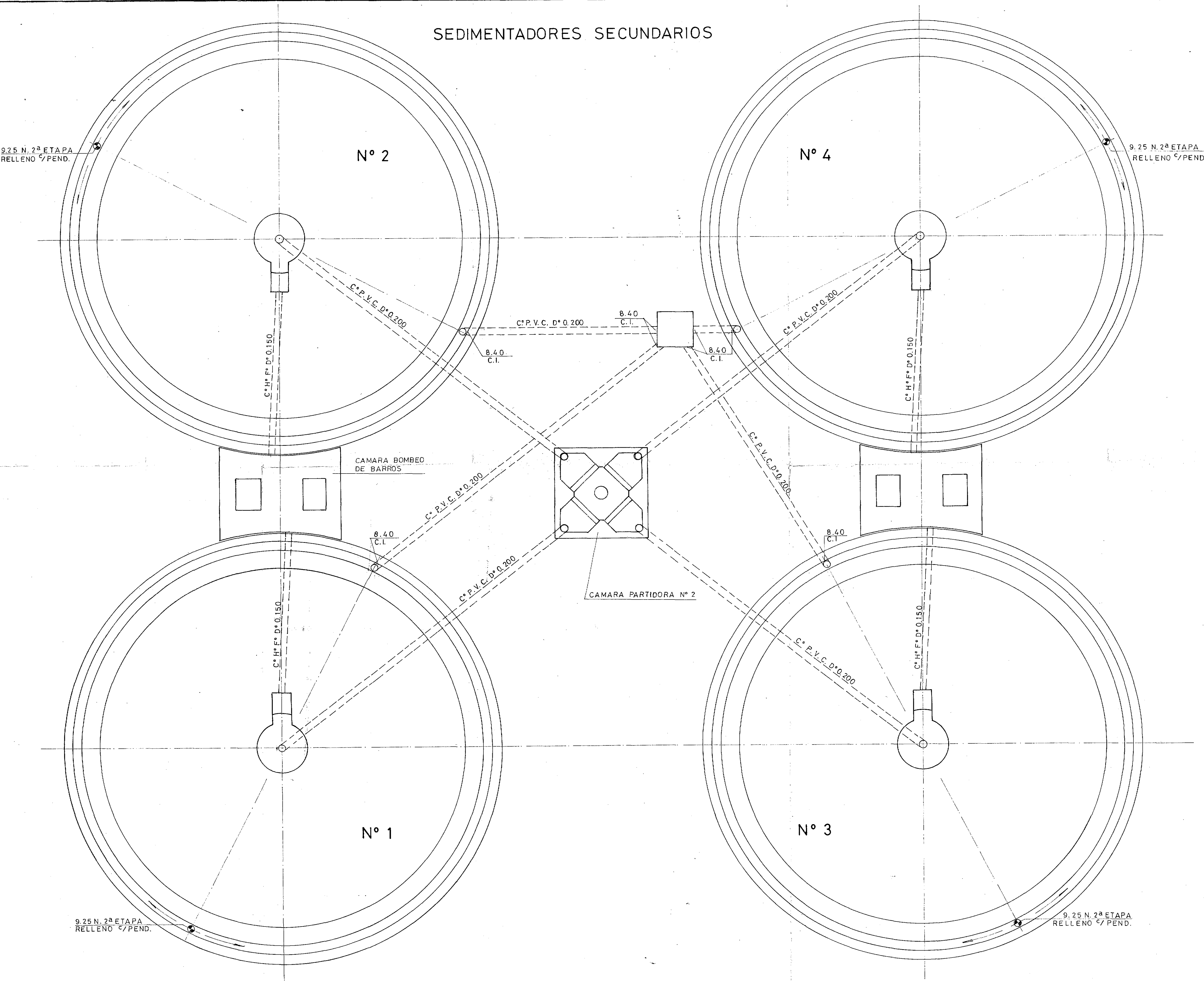
CALIDAD DEL HORMIGON : $\nabla_{bk} = 210 \text{ Kg/cm}^2$
 II II ACERO : $\nabla_{ek} = 4200$ II TIPO III DN
 RECUBRIMIENTO MINIMO : 2,0 cm
 LA CAMARA PARA REGULACION DE NIVEL SE FUNDARA SOBRE RELLENO COMPACTADO SEGUN ESPECIFICACION

PROVINCIA DE CHUBUT

RADA TILLY
 PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES
 ANTEPROYECTO DEFINITIVO

CAMARA PARTIDORA N° 2
 CAMARA PARA REGULACION NIVEL ENCOFRADO Y ARMADURA
 CONSEJO FEDERAL DE INVERSIONES
 GERENCIA DE ESTUDIOS Y PROYECTOS
 APROBACION : C.F.I. PROVINCIA :
 Ing. RAUL PORTAS ESQUIVEL

SEDIMENTADORES SECUNDARIOS



NOTAS

CALIDAD DEL HORMIGON: $\nabla_{bk} = 210 \text{ Kg/cm}^2$
" " ACERO : $\nabla_{ek} = 4200$ " TIPO III DN

PROVINCIA DE CHUBUT

RADA TILLY
PLANTA DE TRATAMIENTO DE EFLUENTES CLOCALES
ANTEPROYECTO DEFINITIVO

SEDIMENTADORES SECUNDARIOS. PLANTA GENERAL.

CONSEJO FEDERAL DE INVERSIONES

GERENCIA DE ESTUDIOS Y PROYECTOS

APROBACION

C. E. I.

PROVINCIA

Ing. RAUL PORTAS ESQUIVEL

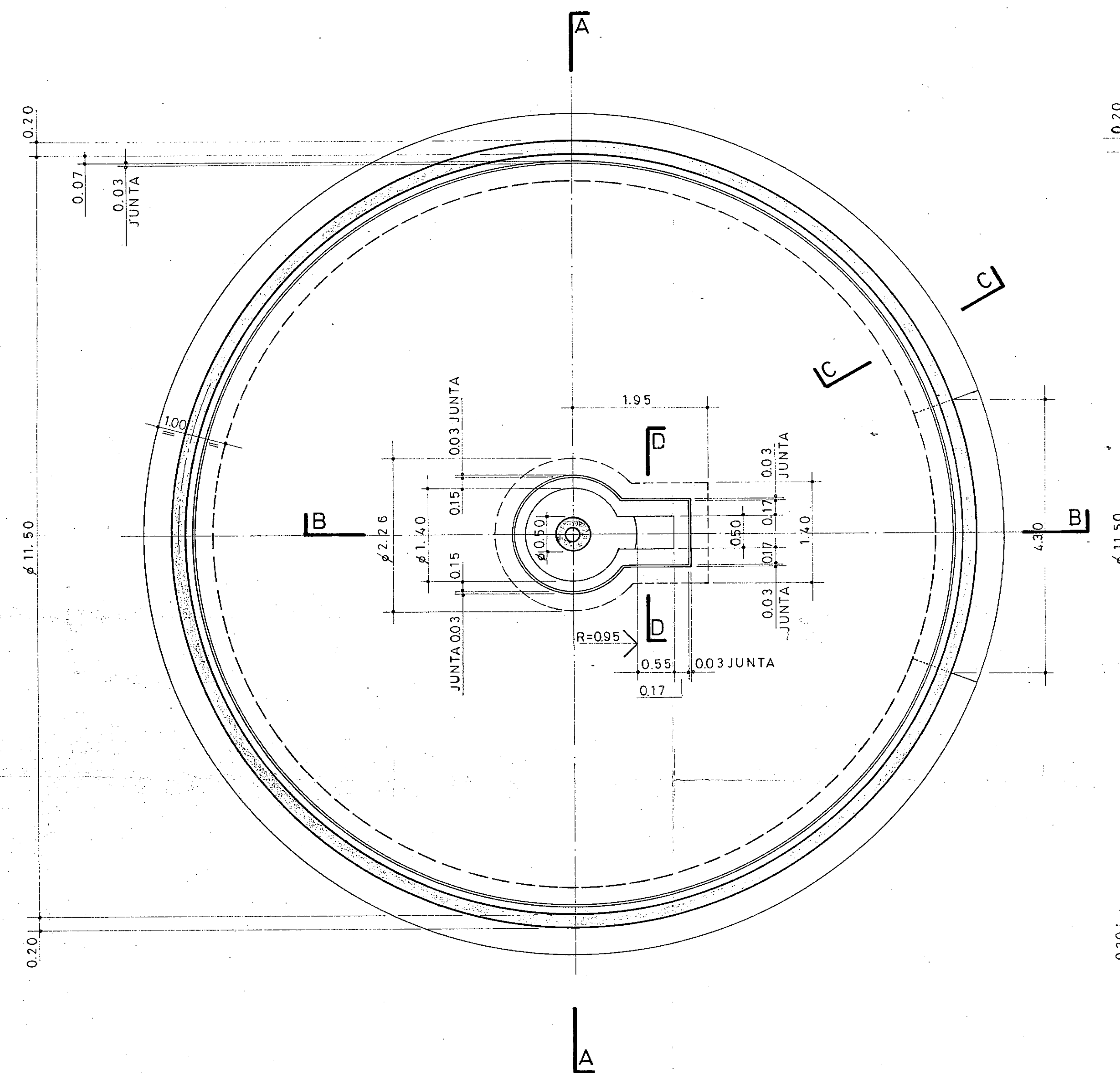
ESCALAS

1:50

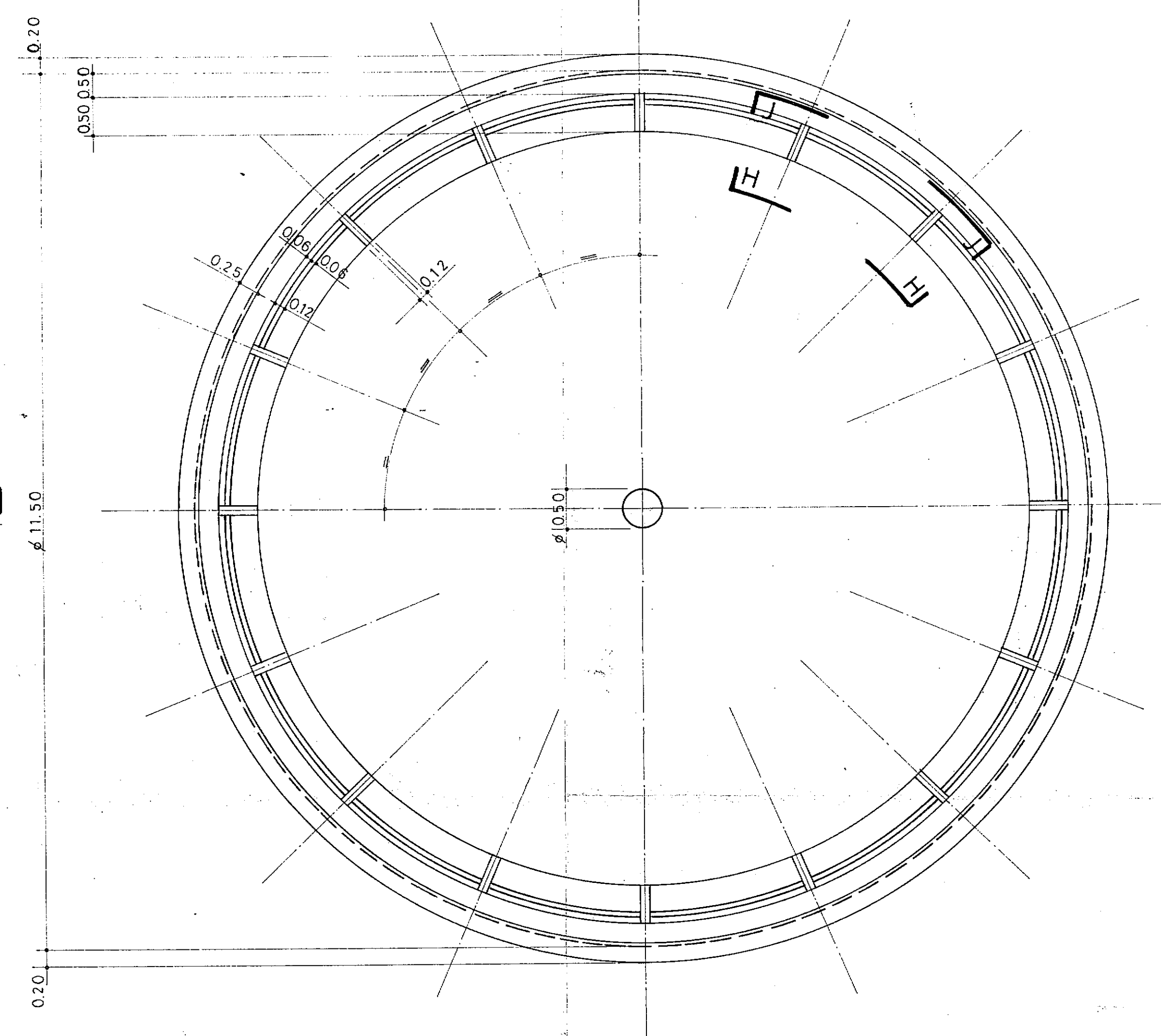
PLANO N°

H-05

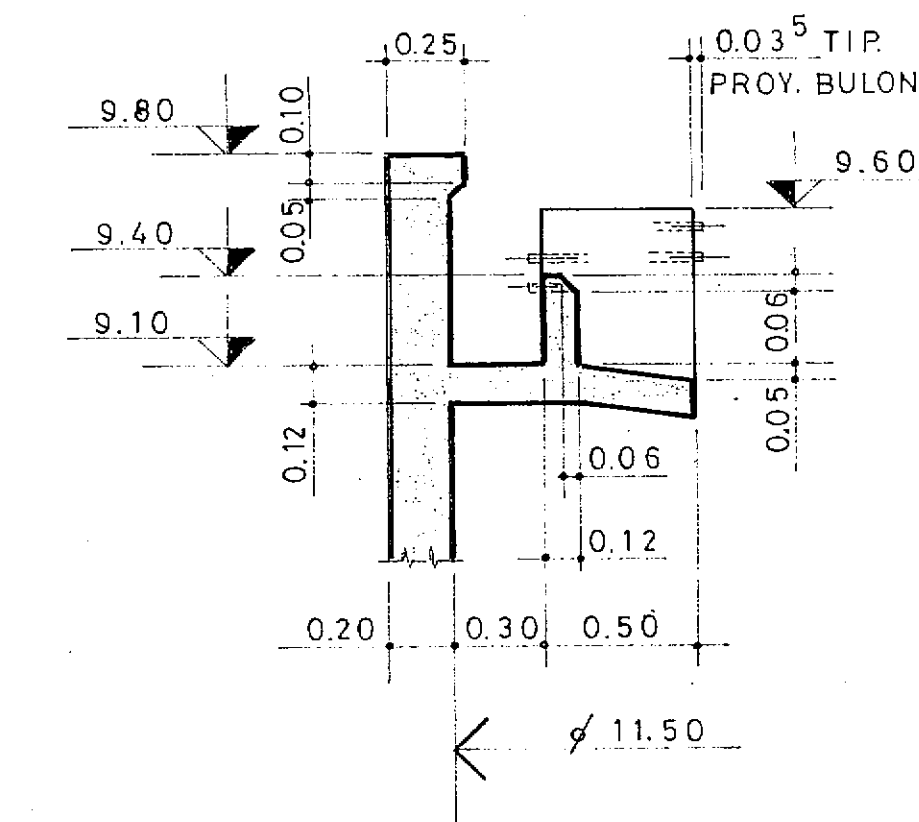
PLANTA INFERIOR



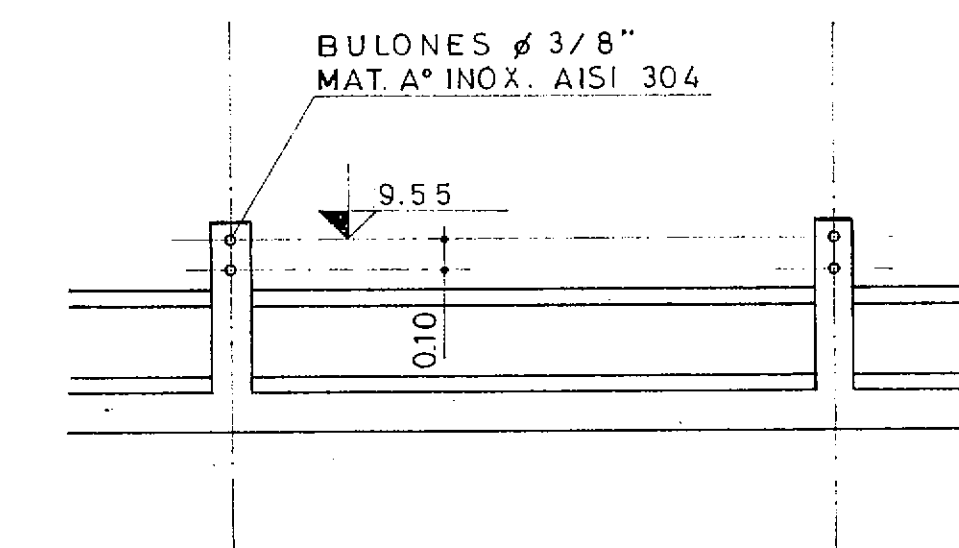
PLANTA SUPERIOR



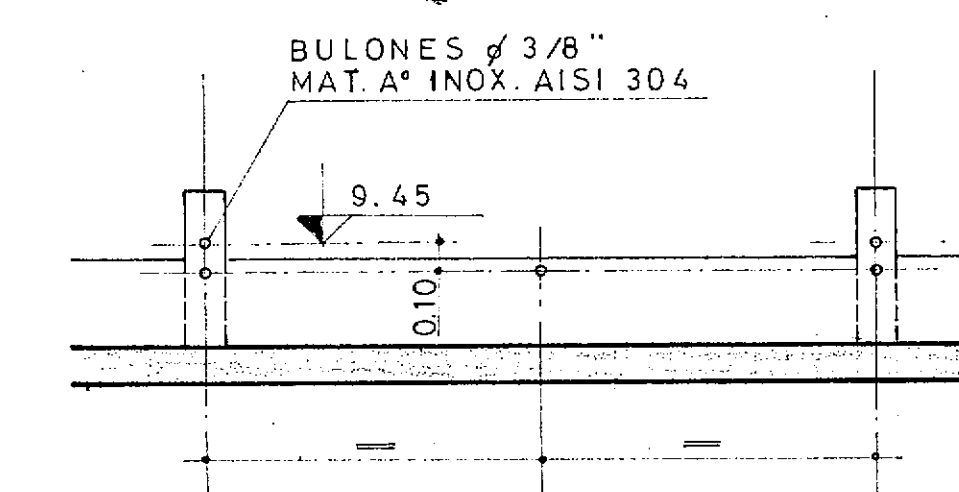
DETALLE 'G'



CORTE H-H

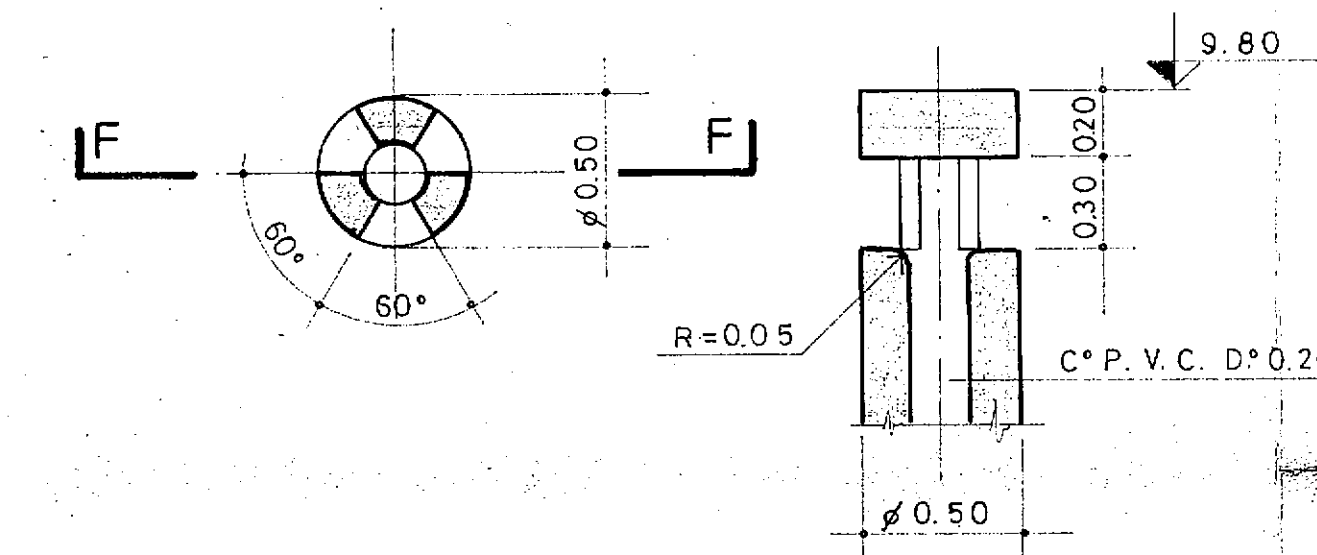


CORTE J-J

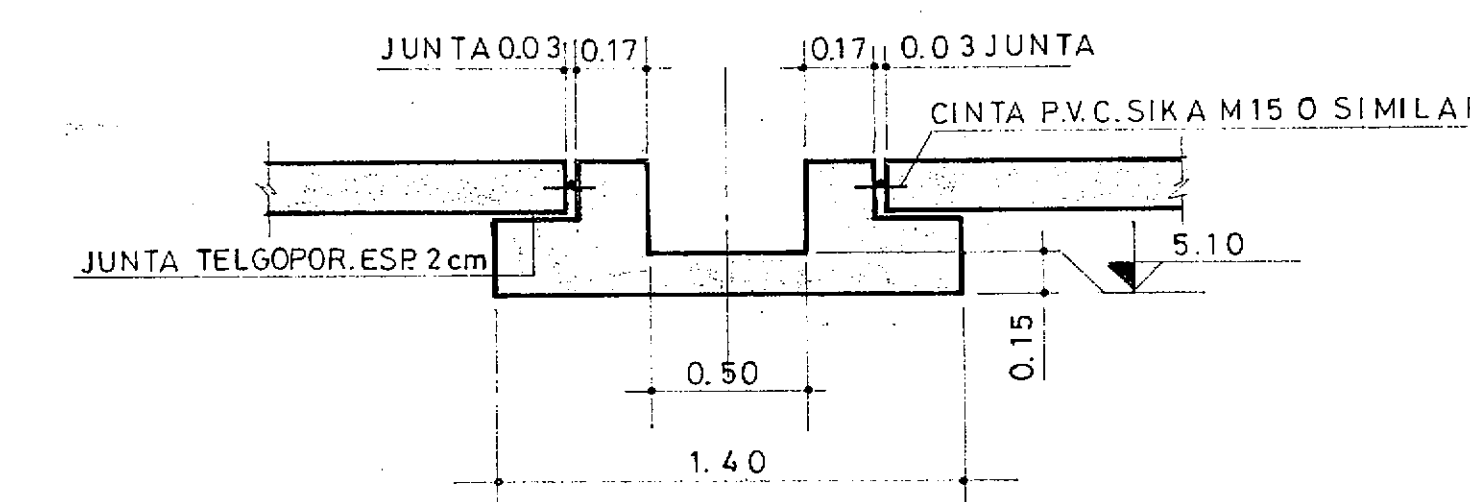


CORTE E-E

CORTE F-F



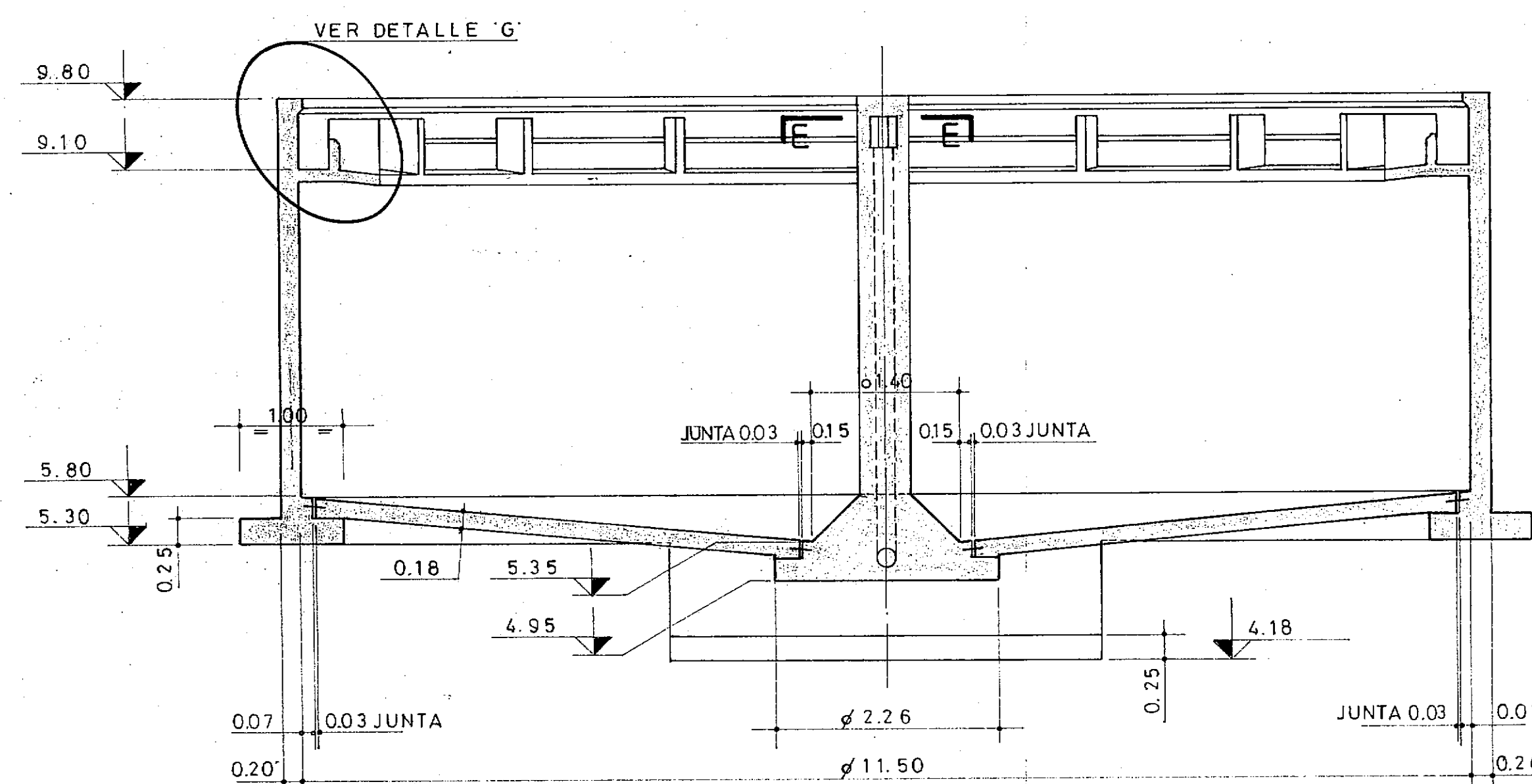
CORTE D-D



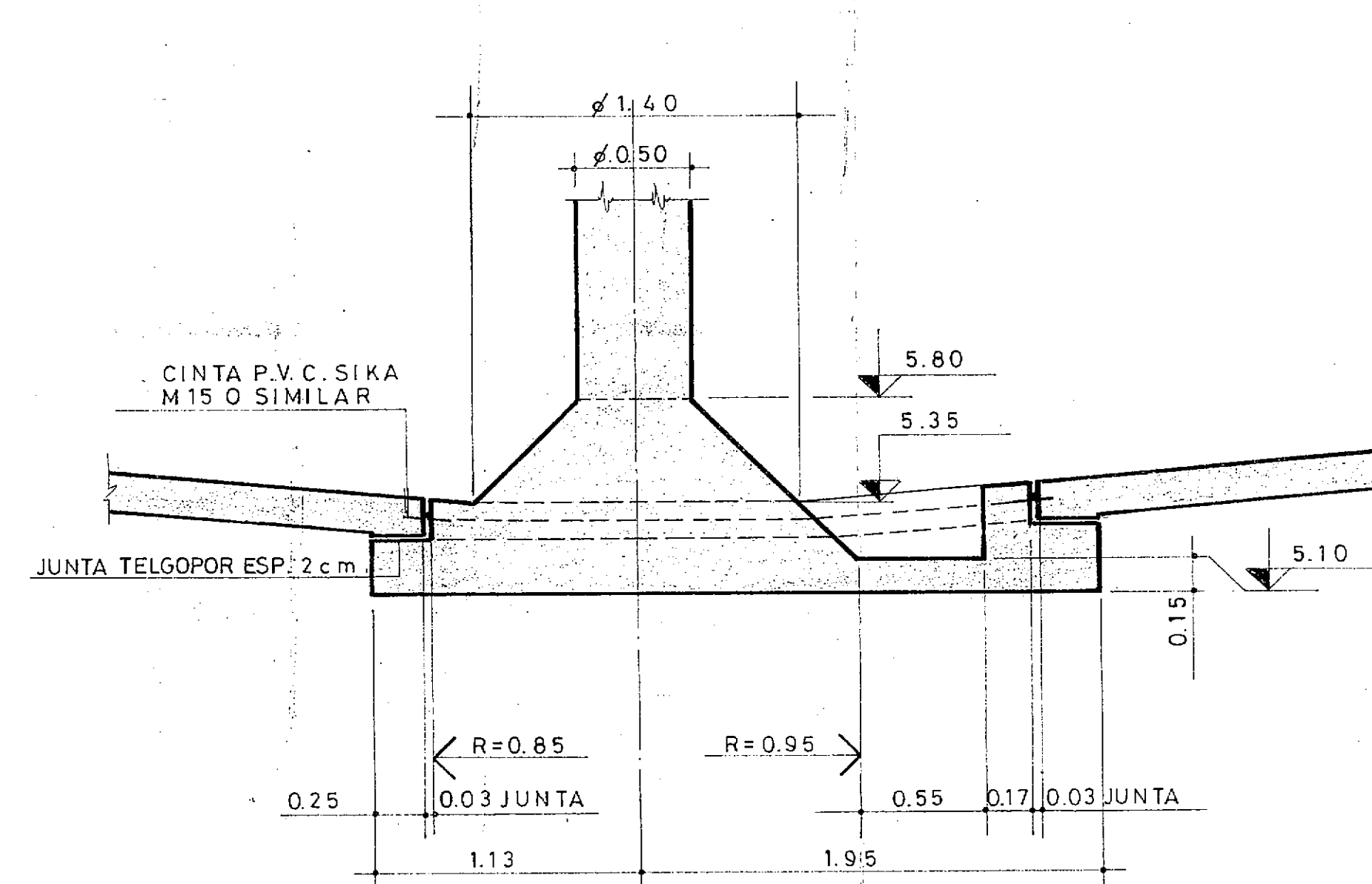
NOTAS

CALIDAD DEL HORMIGON: $\nabla_{bk} = 210 \text{ Kg/cm}^2$
 II II ACERO : $\nabla_{ek} = 4200$ II TIPO III DN
 PARA CAÑERIAS, VER PLANTA GENERAL SEDIMENT. SECUNDARIOS

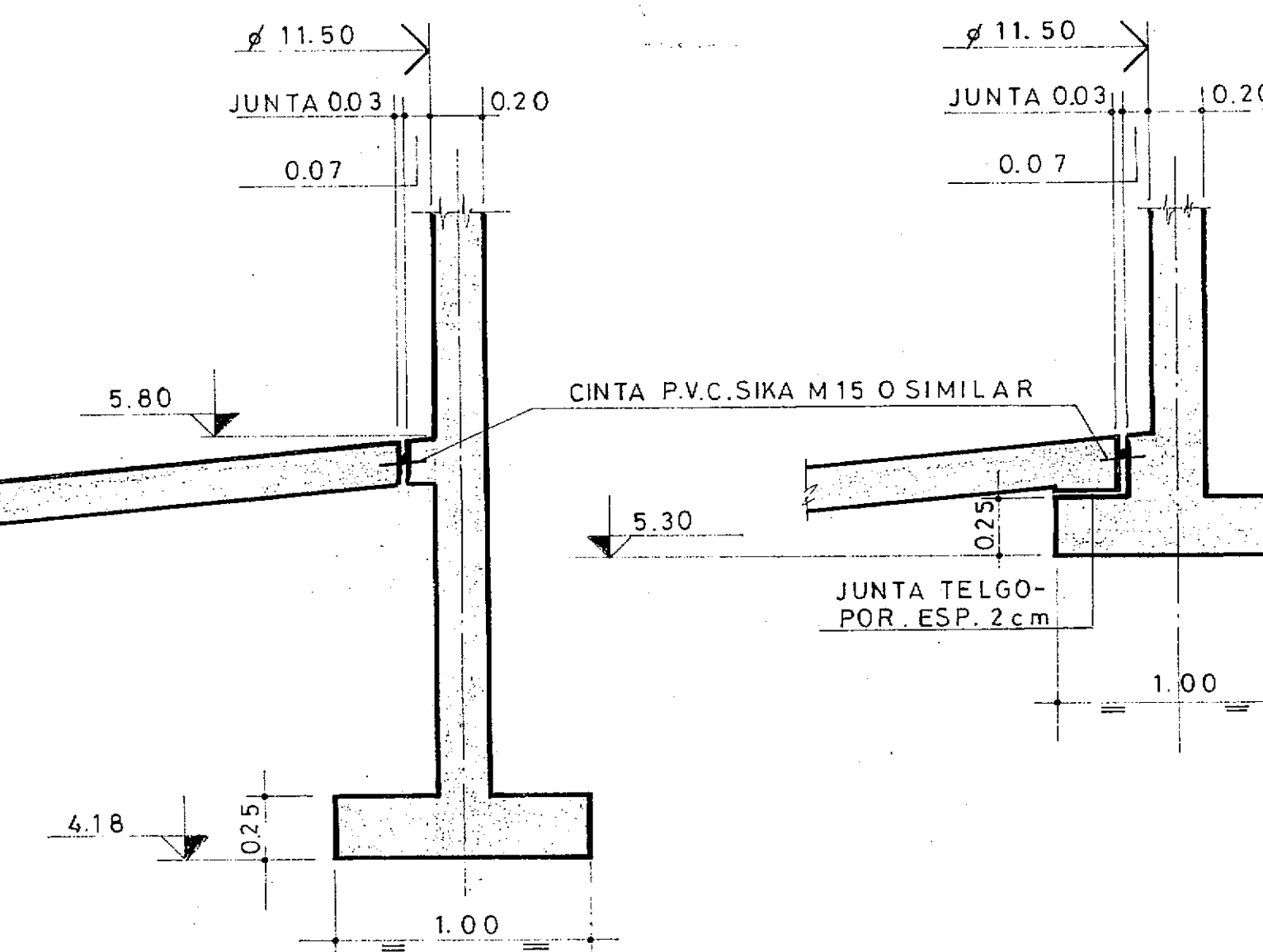
CORTE A-A



CORTE B-B



CORTE C-C



PROVINCIA DE CHUBUT

RADA TILLY
 PLANTA DETRATAMIENTO DE EFLUENTES CLOACALES
 ANTEPROYECTO DEFINITIVO

SEDIMENTADORES SECUNDARIOS. ENCOFRADO

CONSEJO FEDERAL DE INVERSIONES

GERENCIA DE ESTUDIOS Y PROYECTOS

APROBACION

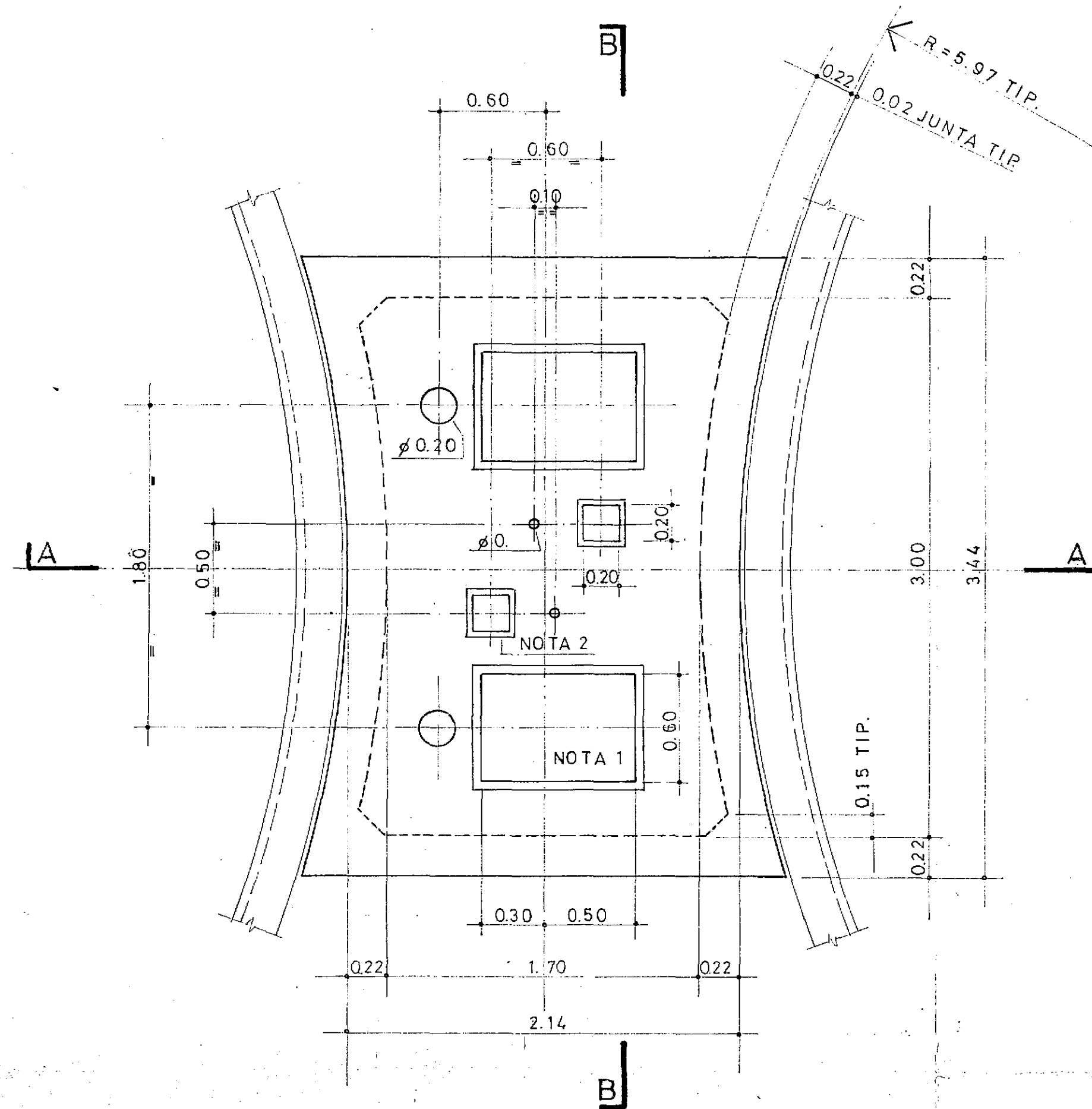
C.F.I.

PROVINCIA

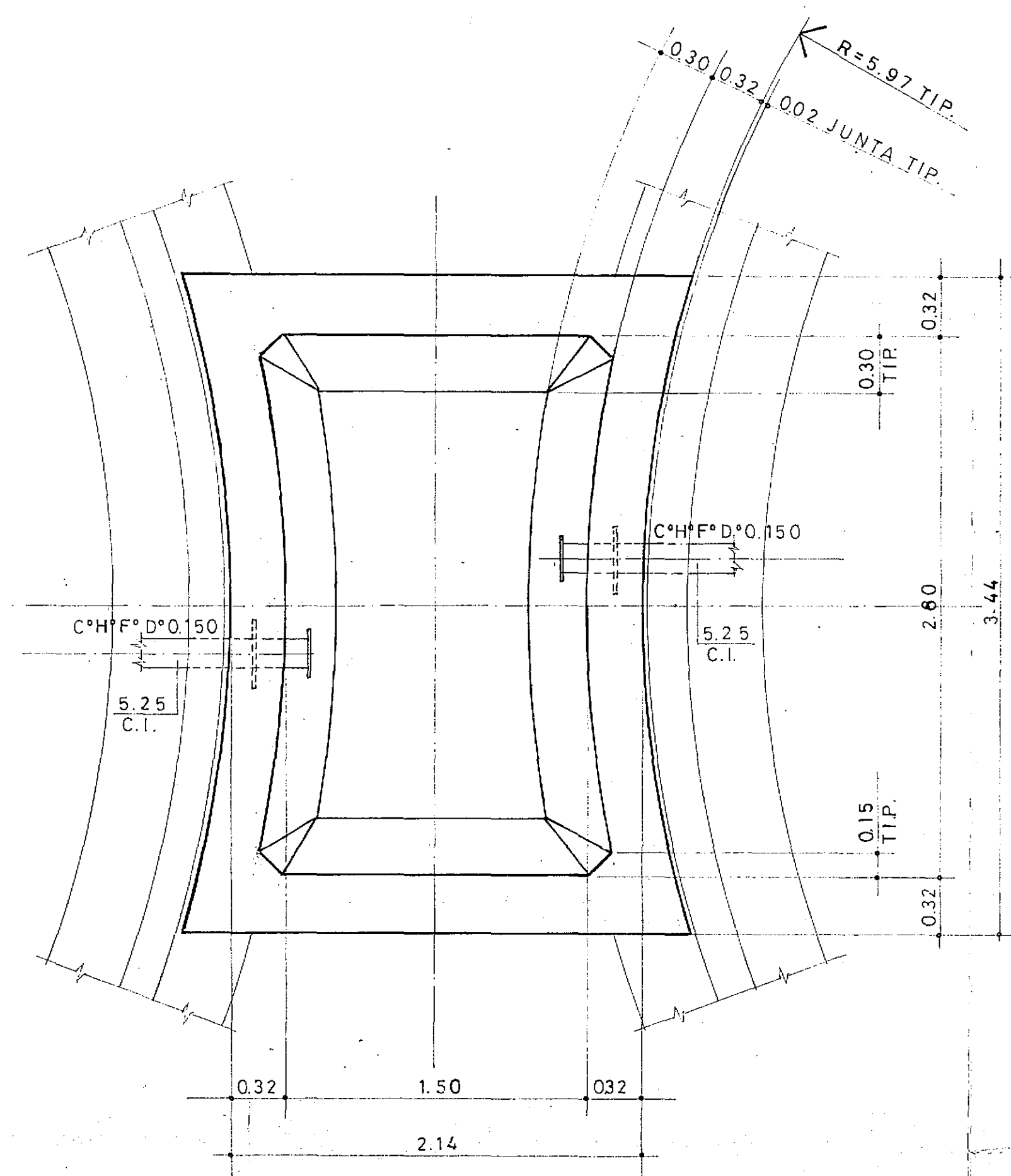
Ing. RAUL PORTAS ESQUIVEL

ESCALAS
 1:50 - 1:25
 PLANO N°
 H-06

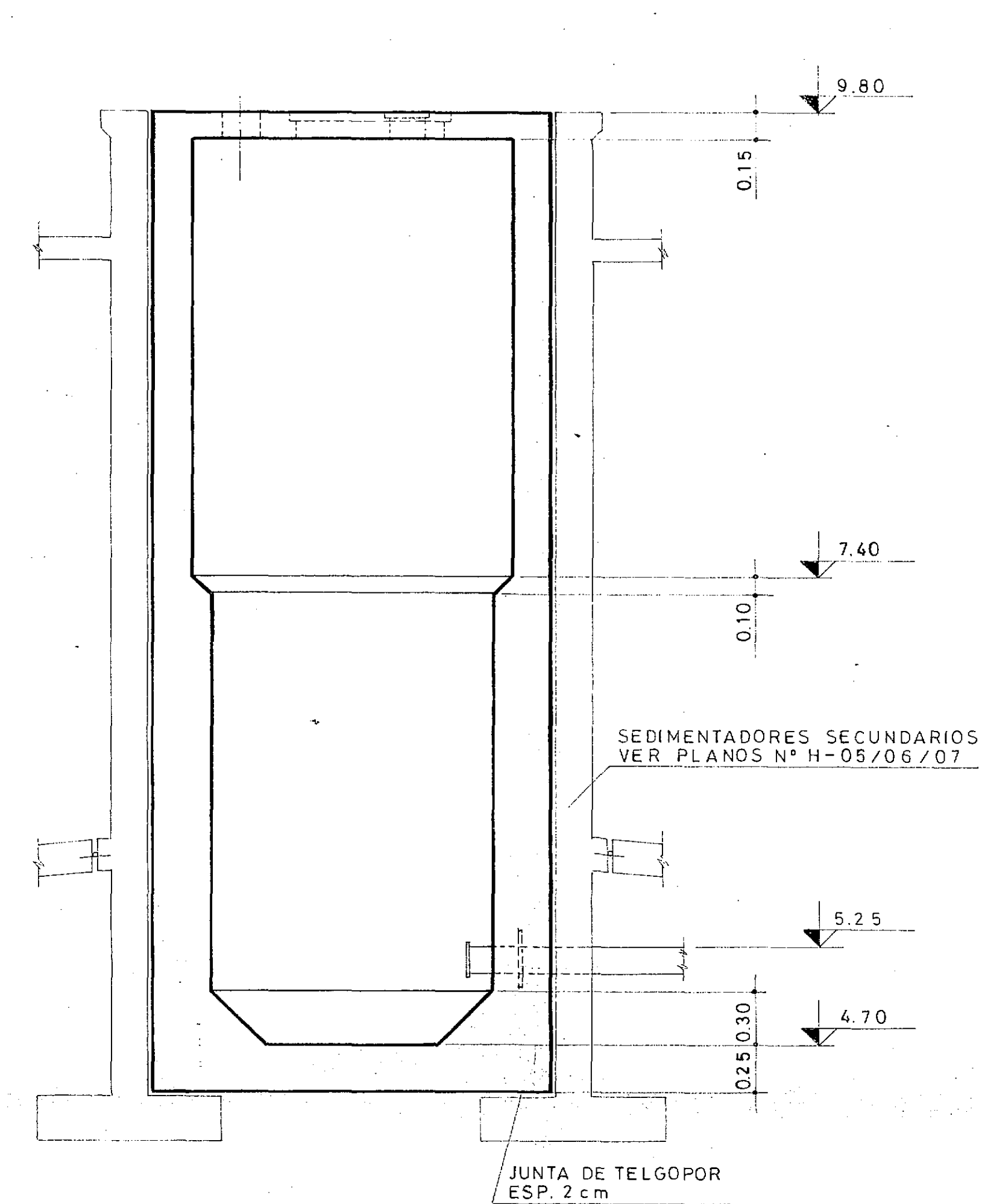
PLANTA SUPERIOR. ENC.



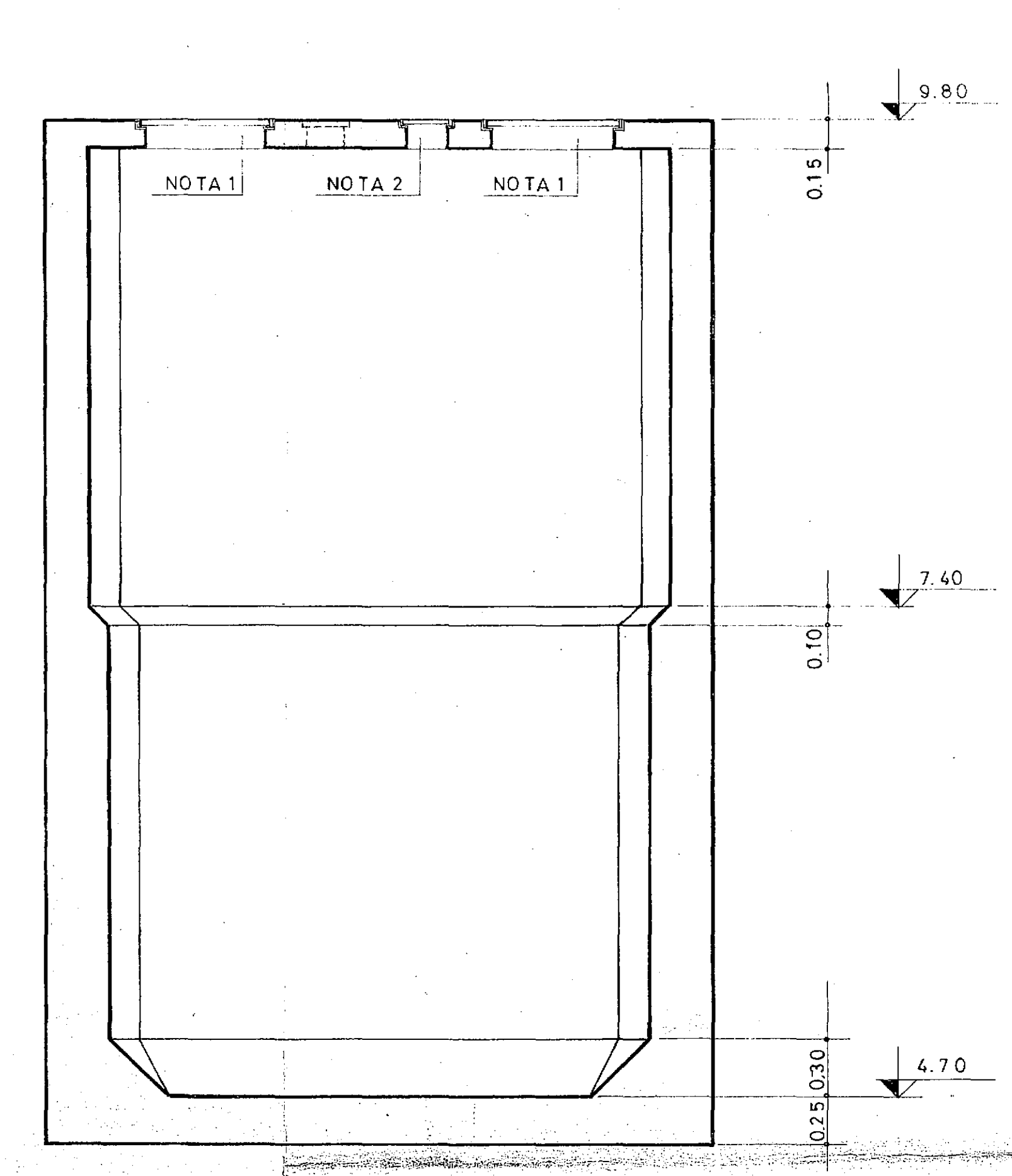
PLANTA INFERIOR. ENC.



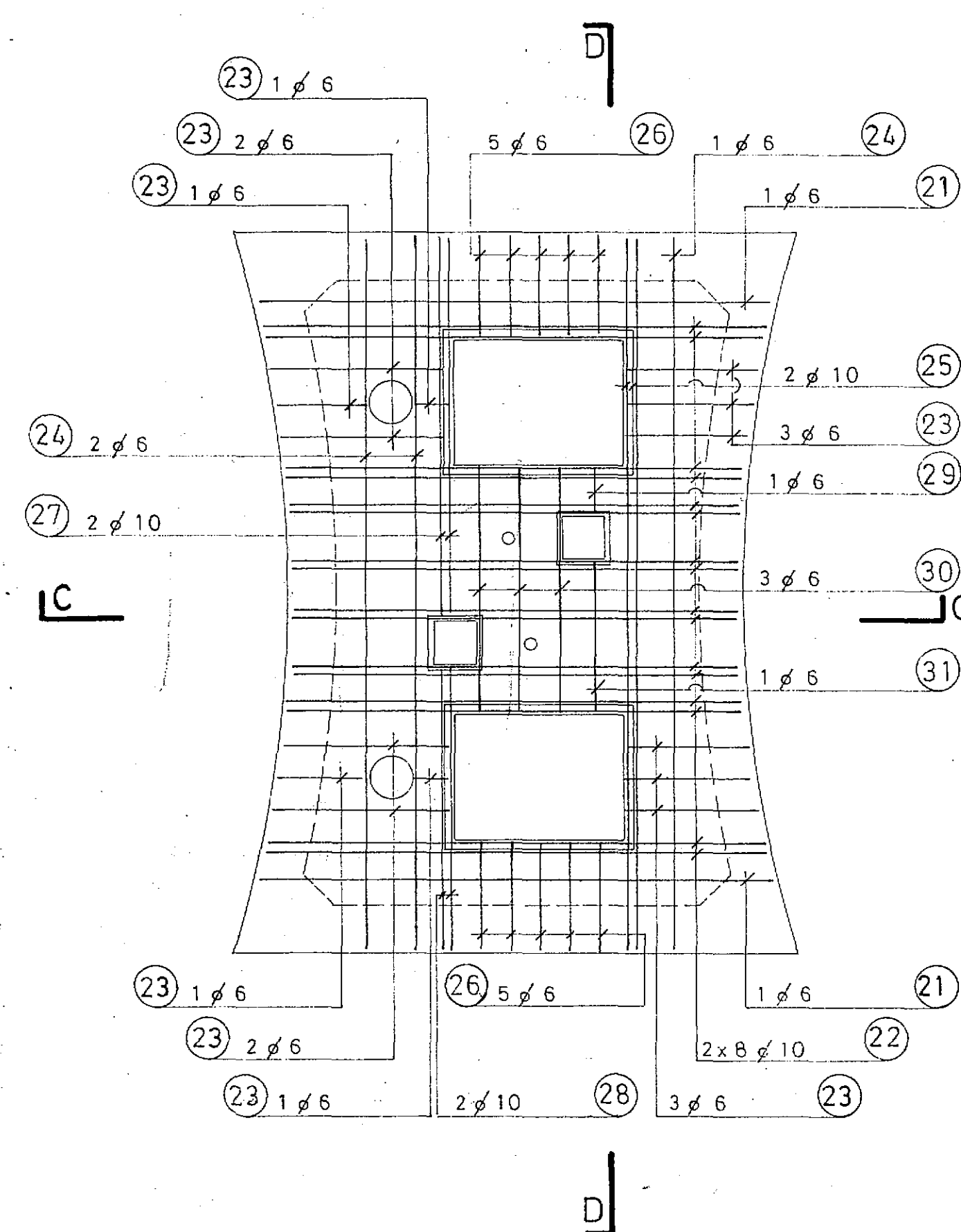
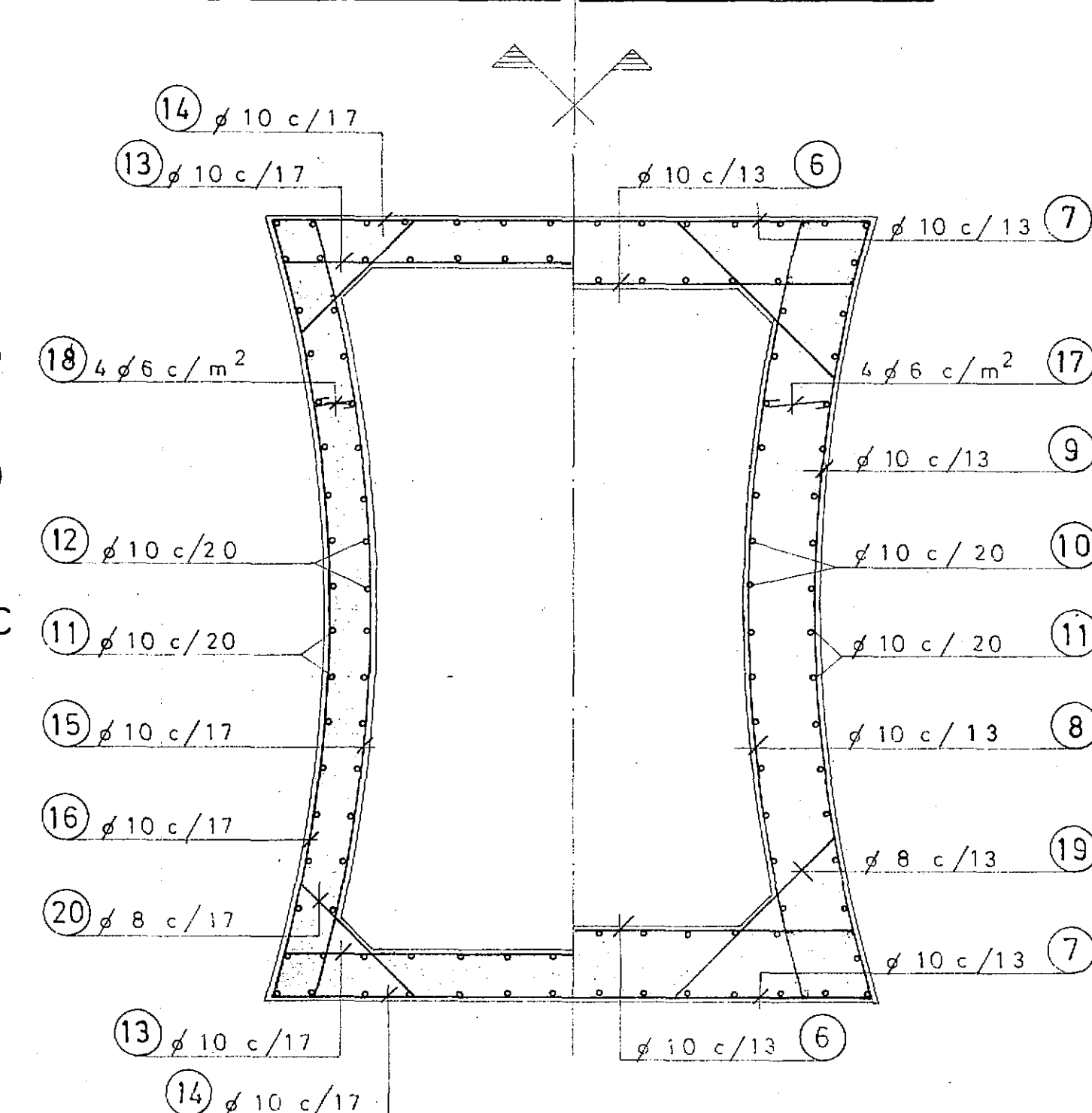
CORTE A-A. ENC.



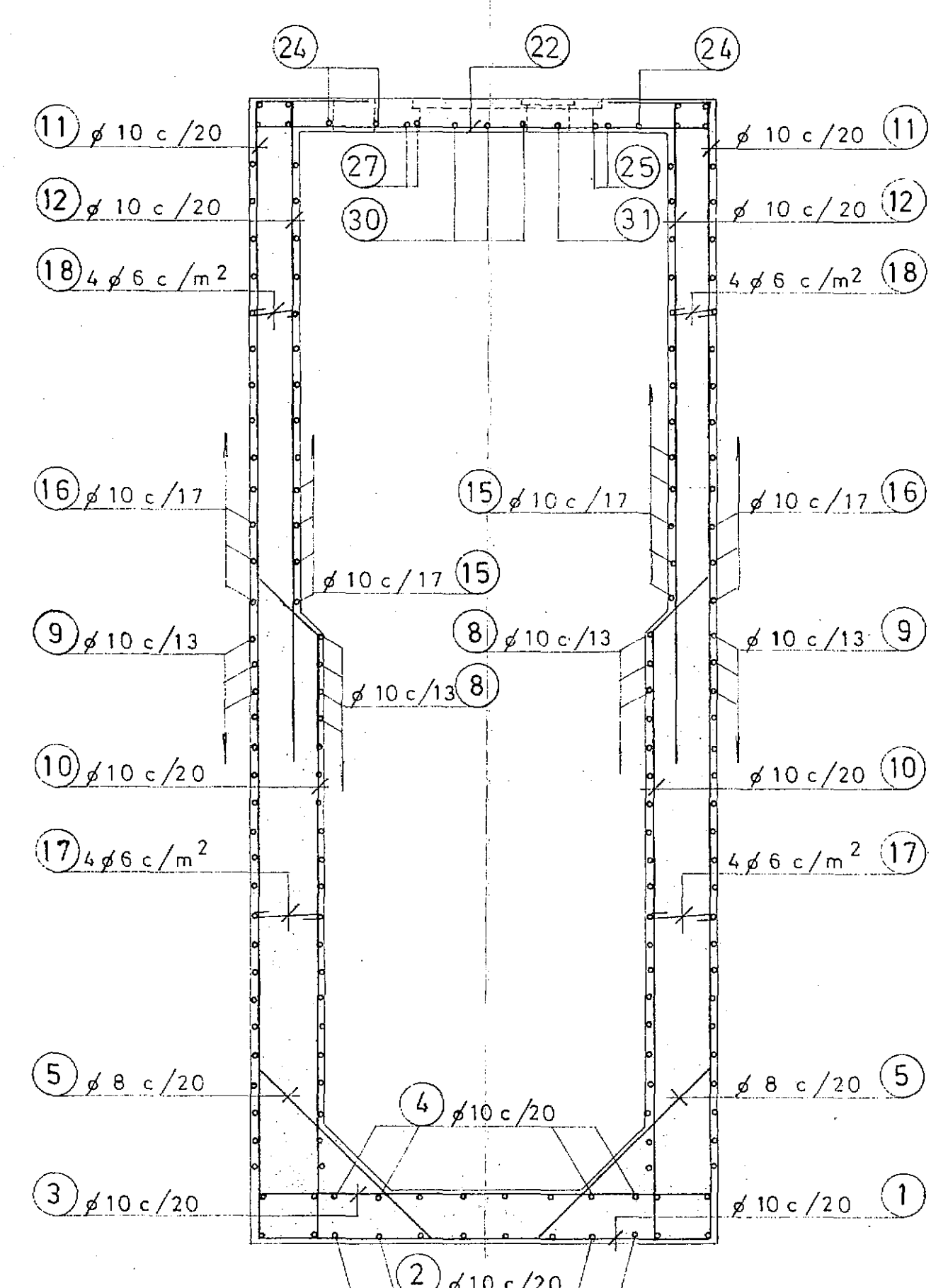
CORTE B-B. ENC.



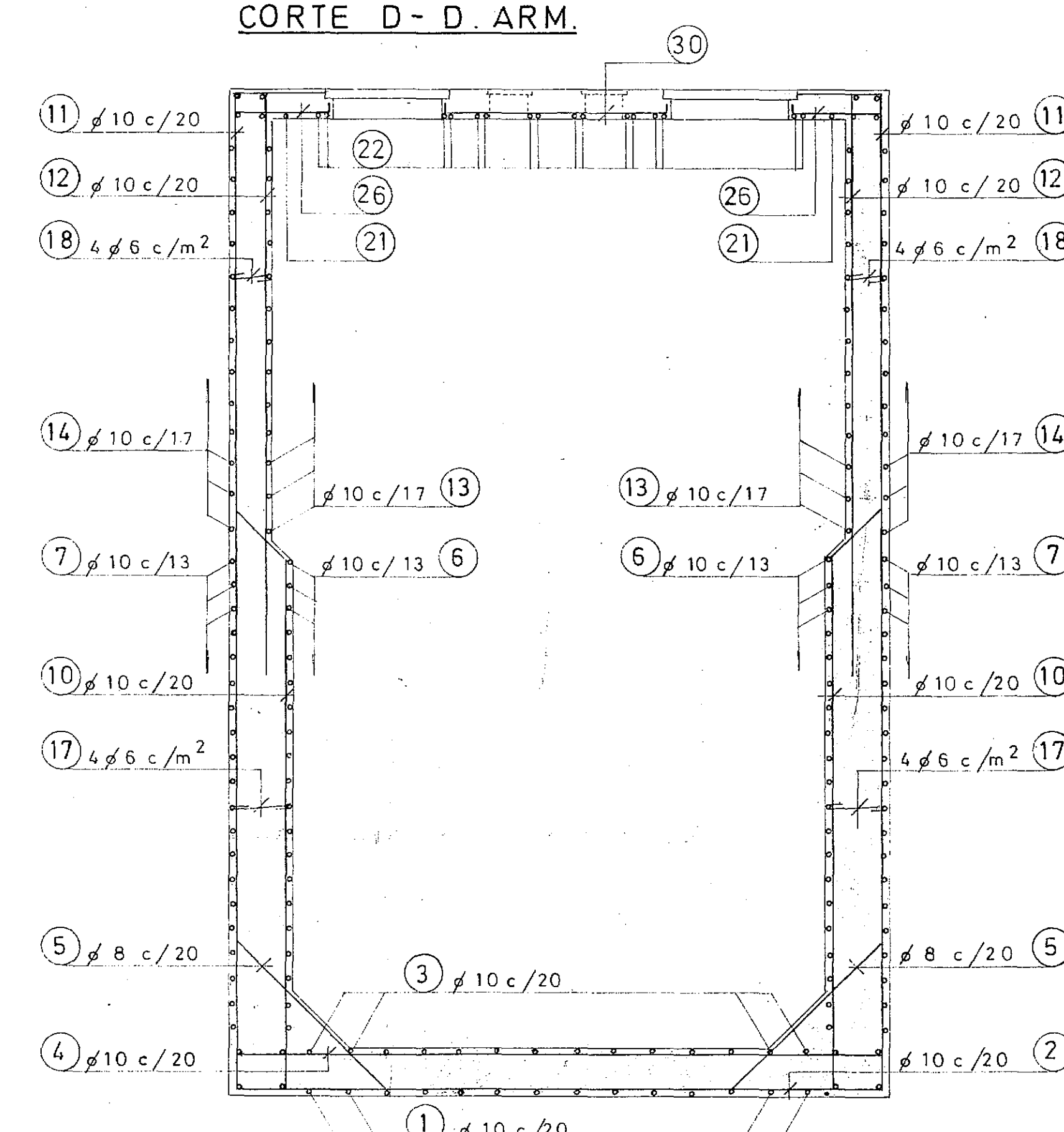
PLANTA SUP. ARM.

ARM. TABIQUES
SEMIPLANTA SUP SEMIPLANTA INF.

CORTE C-C. ARM.



CORTE D-D. ARM.



NOTAS

CALIDAD DEL HORMIGON: $f_{bk} = 210 \text{ Kg/cm}^2$
 II II ACERO : $f_{bk} = 4200$ II TIPO III DN

RECUBRIMIENTO MINIMO : 2,0 cm

NOTA 1: MARCO L 50 x 5, CON ANCLAJES $\phi 10 \text{ c/25}$
 TAPA CHAPA ESTAMPADA ESP. 4.8 mm CON MARCO L 38 x 3.2
 Y DOS ASAS PARA IZAJE.

NOTA 2: MARCO L 38 x 3.2 CON ANCLAJES $\phi 10 \text{ c/20}$
 TAPA CHAPA ESTAMPADA ESP. 4.8 mm CON MARCO L 25 x 2.5
 Y UNA ASA PARA IZAJE.

PROVINCIA DE CHUBUT

RADA TILLY
 PLANTA DE TRATAMIENTO DE EFLUENTES CLOCALES
 ANTEPROYECTO DEFINITIVO

CAMARA BOMBEO DE BARROS. ENC. Y ARM.

CONSEJO FEDERAL DE INVERSIONES

GERENCIA DE ESTUDIOS Y PROYECTOS

APROBACION

C.F.I.

PROVINCIA

Ing. RAUL PORTAS ESQUIVEL

ESCALAS

1:25

PLANO N°

H-08

CORTE A - A

BARANDA. C°A° D° 0.032

10.70
10.30
10.10
9.85
9.00

0.10
0.12

ESCALERA MARINERA

0.03
0.03
0.03
0.03

8 BULONES $\varnothing 3/8"$
MAT. A° INOX. AISI 304

0.20 0.12

$\varnothing 4.56$

0.12 0.20

$\varnothing 5.50$
 $\varnothing 5.30$
 $\varnothing 0.90$
 $\varnothing 0.70$
 $\varnothing 0.30$

0.07
0.03 JUNTA

CINTA P.V.C. SIKA
M.15 O SIMILAR

6.70
6.20

0.25
0.15
6.20
0.15

1.00

$\varnothing 1.20$

C°H°F° D° 0.150

JUNTA TELGO POR ESP. 2cm

VISTA B-B

76x76x6.4

ANCLAJE $\phi 10$ $l=0.25$

10.70

10.30

9.00

VISTA G - G

6.20

HUECO EN BASE
PARA PASAJE CAÑO

PLANTA SUPERIOR

Ø 5.50
Ø 4.56

NIVEL SUP. RELLENO
VARIA DE 9.95 A 9.85

V1 15x40
V1 15x40

L1 10

R = 3.92

C° P.V.C. D. 0.150

8.50 C.I.
8.50 C.I.

0.70

0.15 T.T.P.

FUNDAR SOBRE RELLENO
COMPACTADO S/ESPECIFICACION

CORTE C-C

CORTE F-F

10.60

0.04 0.31 0.31 0.04

10.55

10.175

0.25

10.25

3 BUL. Ø 3/8"
MAT. A° INOX.
AISI 304

0.5 0.40 0.15

0.10

9.10

0.15

PLANTA INTERIOR

1.00

0.15

0.30

0.70

0.90

1.20

JUNTA 0.03

0.07

0.15

5.50

NOTAS

CALIDAD DEL HORMIGON: $v'_{bk} = 210 \text{ Kg/cm}^2$

8.45

8.30

C.T.

N.H.A.

II II ACERO : $\bar{v}_{ek} = 4200$. II TIPO III DN

- 09

Technical drawing of a square frame structure, likely a window or door frame, showing dimensions and callouts. The drawing includes the following callouts and dimensions:

- Top-left corner: (36) $\varnothing 8 \text{ c} / 15$
- Top-right corner: $\varnothing 8 \text{ c} / 15$ (36)
- Left side, top section: (40) $\varnothing 6 \text{ c} / 15$
- Right side, top section: $\varnothing 6 \text{ c} / 15$ (42)
- Left side, middle section: (32)
- Right side, middle section: (32)
- Left side, bottom section: (39) $\varnothing 6 \text{ c} / 15$
- Right side, bottom section: $\varnothing 6 \text{ c} / 15$ (42)
- Bottom-left corner: (34) $\varnothing 6 \text{ c} / 15$
- Bottom-right corner: $\varnothing 6 \text{ c} / 15$ (35)
- Bottom-left corner: (31) $\varnothing 8 \text{ c} / 15$
- Bottom-right corner: $\varnothing 8 \text{ c} / 15$ (32)

Technical drawing of a circular structure, likely a cross-section of a dome or a similar architectural element. The drawing shows a central cross-like structure within the circle. Key features and labels include:

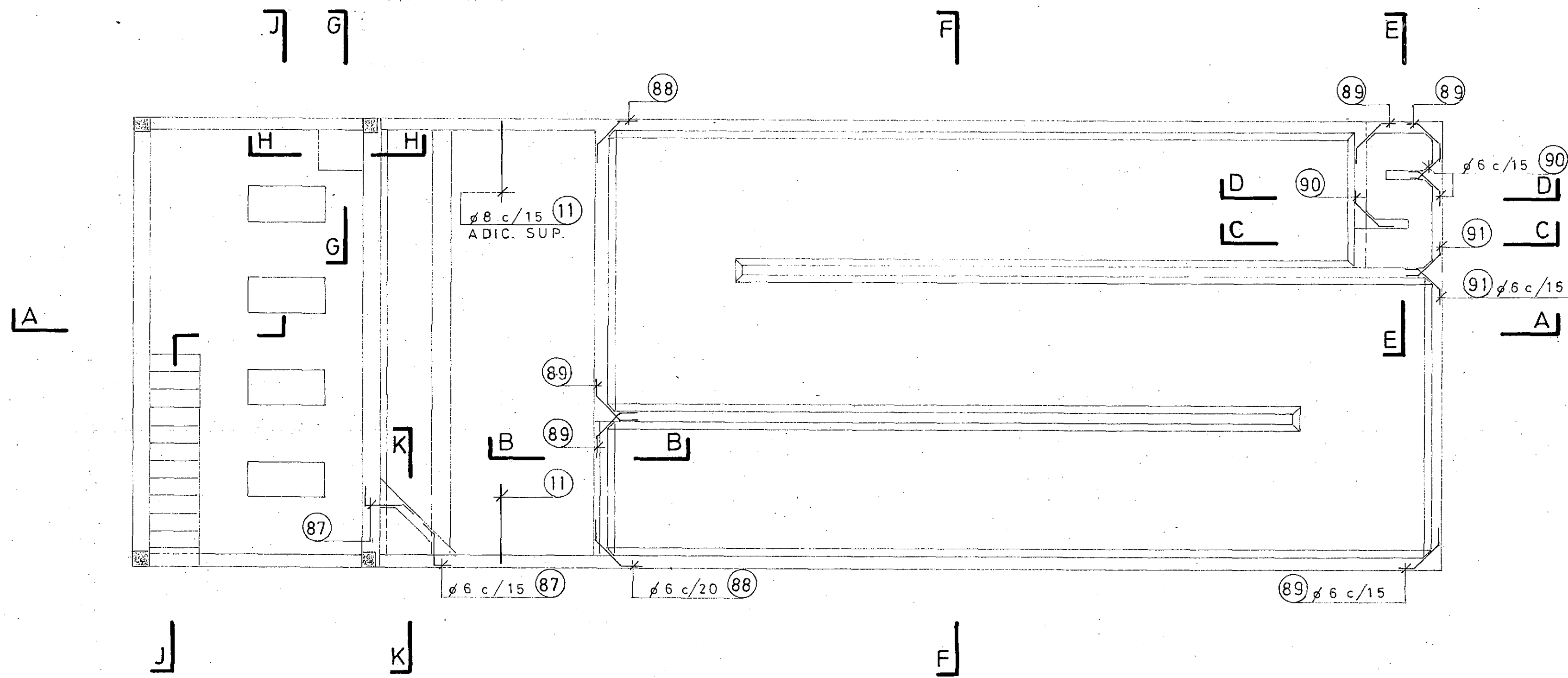
- Dimensions:**
 - 14: $\phi 6 \text{ c} / 15$
 - 15: $\phi 6 \text{ c} / 25$
 - 16: $2 \phi 10$
- Labels:**
 - A: Points to the left edge of the circle.
 - B: Points to the bottom-left corner of the circle.
 - C: Points to the bottom-right corner of the circle.
 - D: Points to the bottom edge of the circle.
 - E: Points to the bottom edge of the circle.
 - F: Points to the bottom edge of the circle.
- Structural Details:**
 - A central cross-like structure with a vertical line and a horizontal line intersecting at the center.
 - A dashed line representing a horizontal section or boundary.
 - A small rectangular structure at the bottom center, possibly a base or a support.

Technical drawing of a circular mechanical part, likely a flange or end view of a shaft. The drawing shows concentric circles representing different diameters. Key features include:

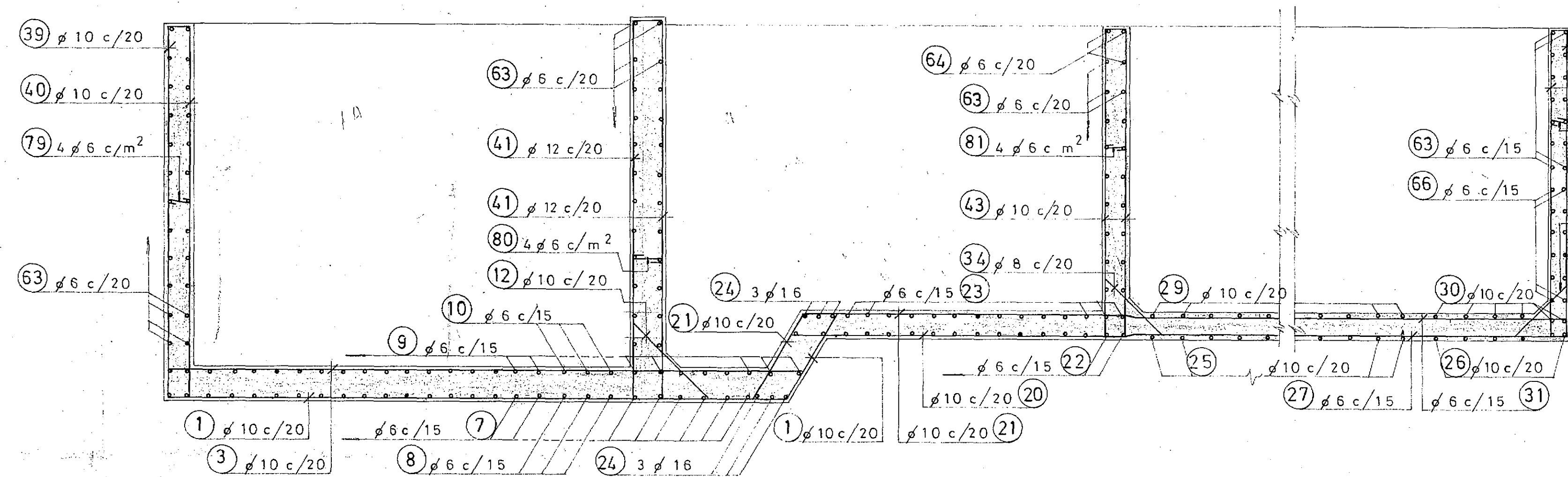
- Central hole with diameter 6 c .
- Large outer diameter 20 a/c labeled (30).
- A section line indicating a cross-section.
- A detailed view of a fillet or transition region showing:
 - Fillet with radius $15 \text{ r } 6 \text{ SUP}$.
 - Fillet with radius $15 \text{ r } 6 \text{ INF}$.
 - Fillet with radius $30 \text{ r } 6 \text{ a/c}$ labeled (27).
 - Fillet with radius $45 \text{ r } 6 \text{ a/c}$ labeled (28).
- Other labels include (29) and (26) near the fillet details.

CALIDAD DEL HORMIGON: $f_{bk} = 210 \text{ Kg/cm}^2$
 II II ACERO : $f_{ek} = 4200$ II TIPO III DN
 RECUBRIMIENTO MINIMO : 2,0 cm

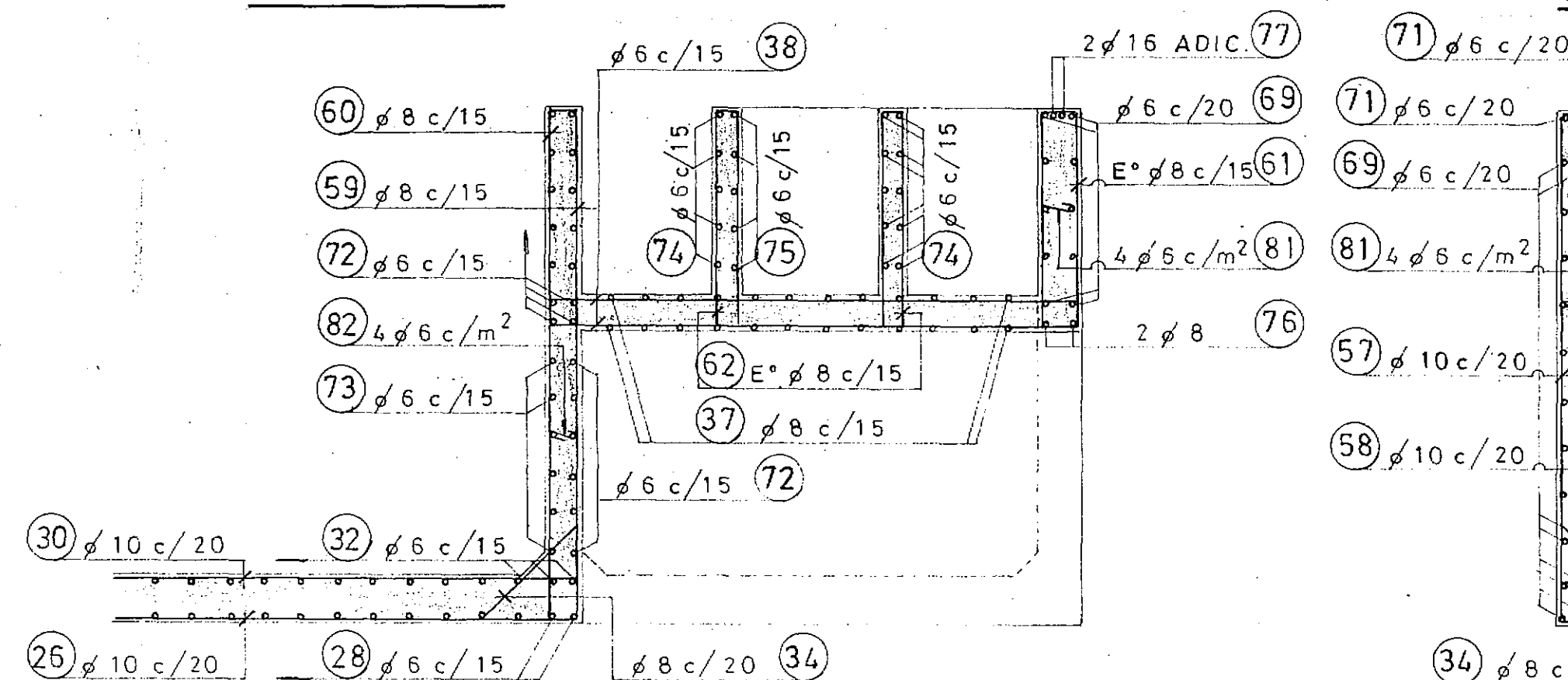
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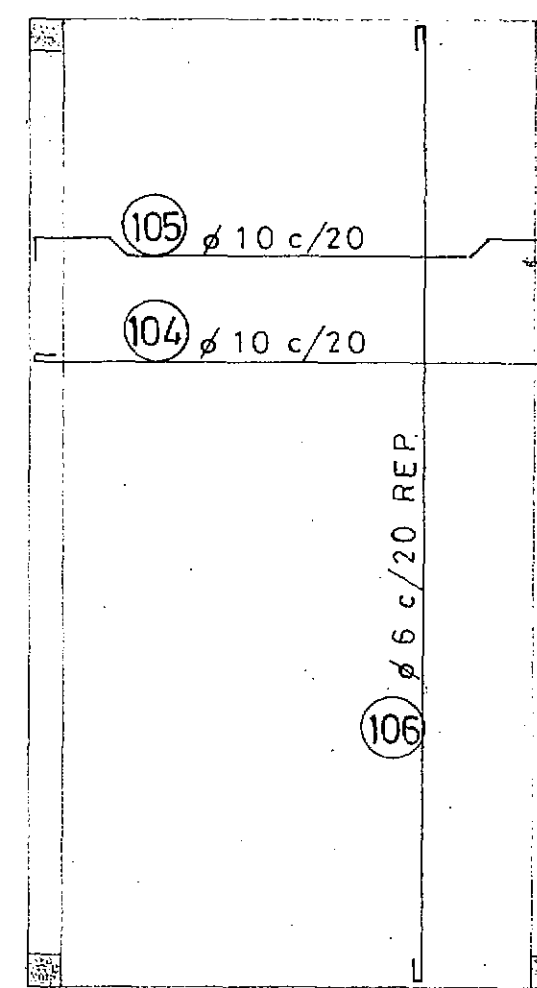
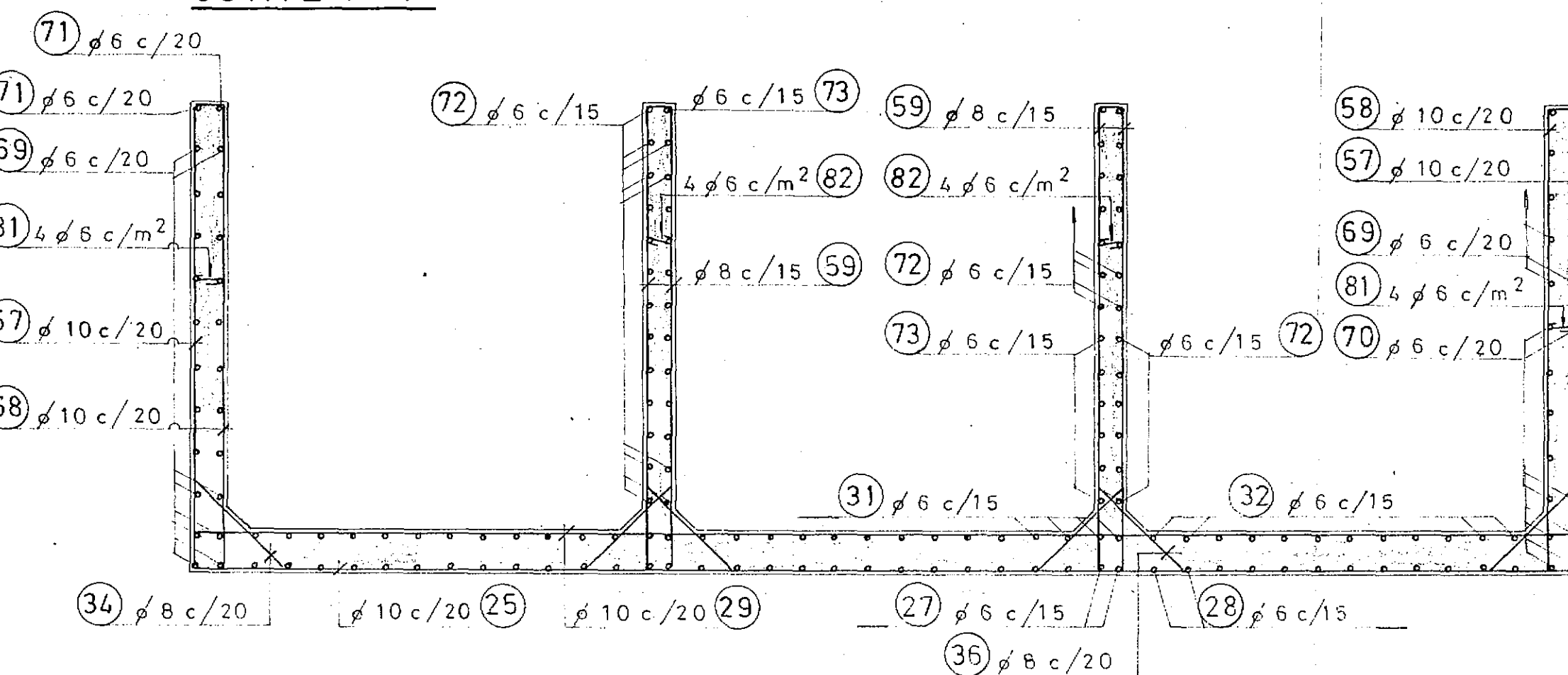
CORTE A-A



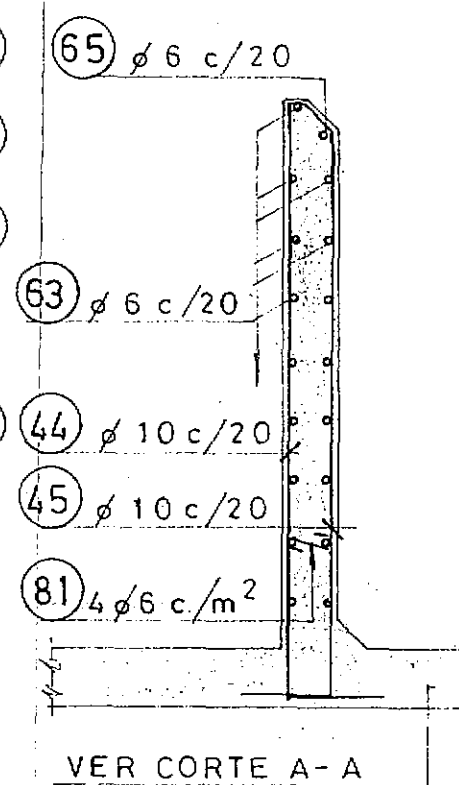
CORTE E-E



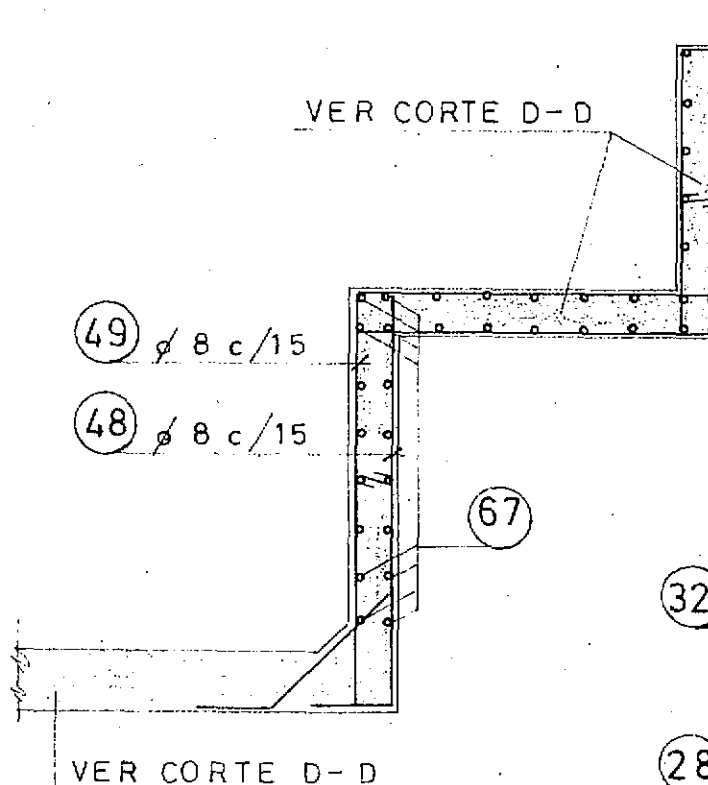
CORTE F-F



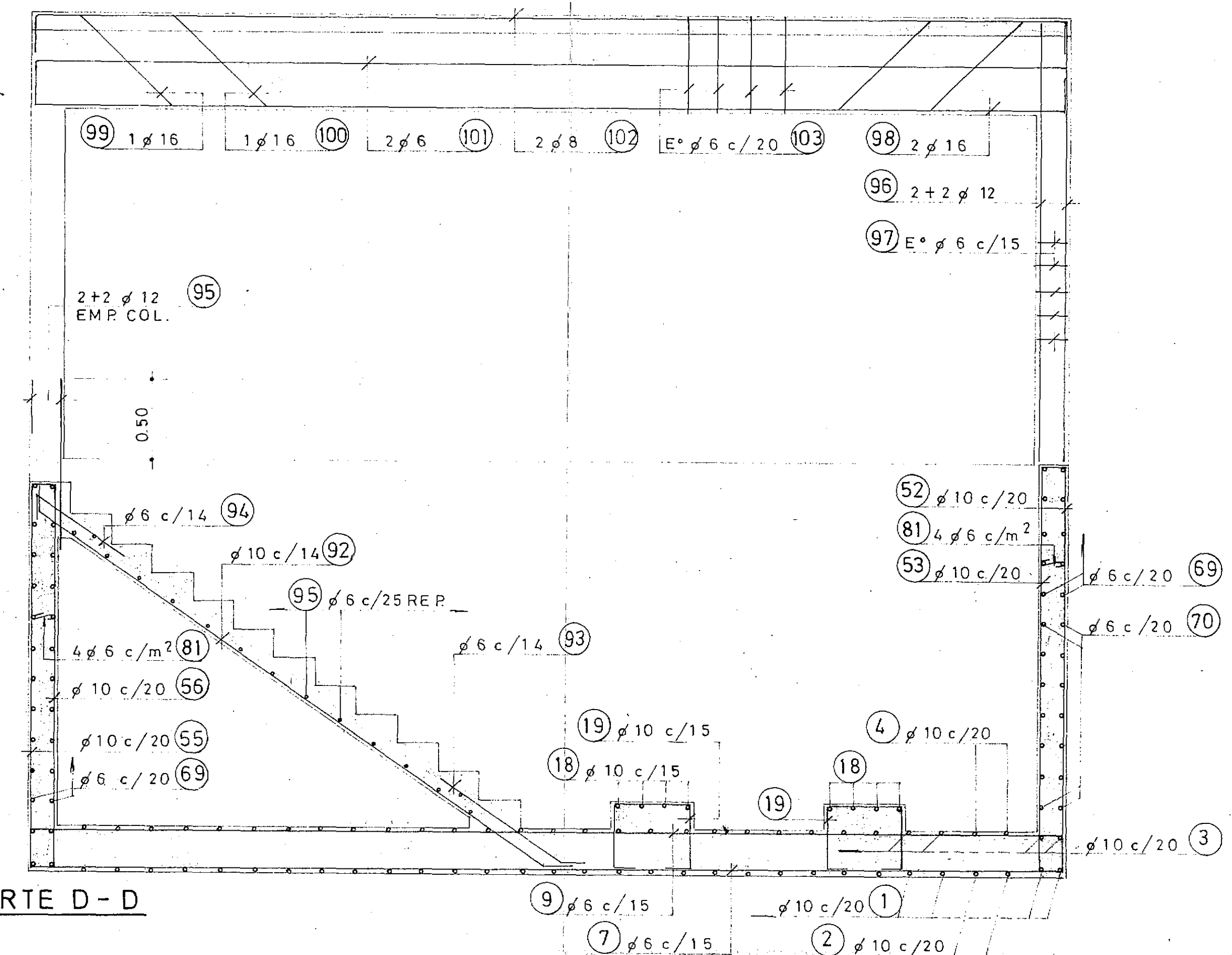
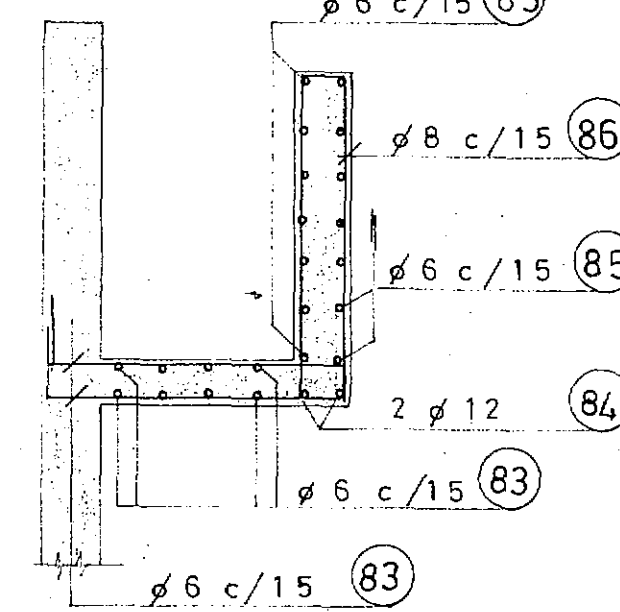
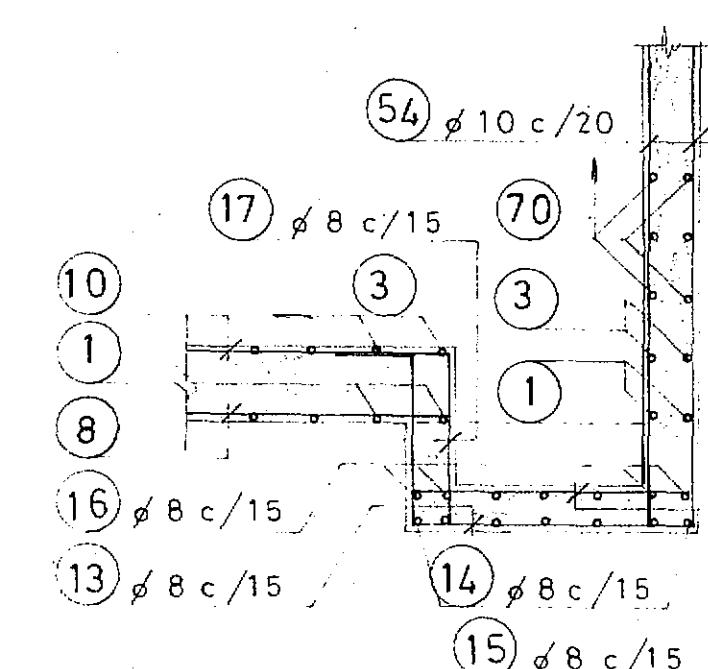
CORTE B-B



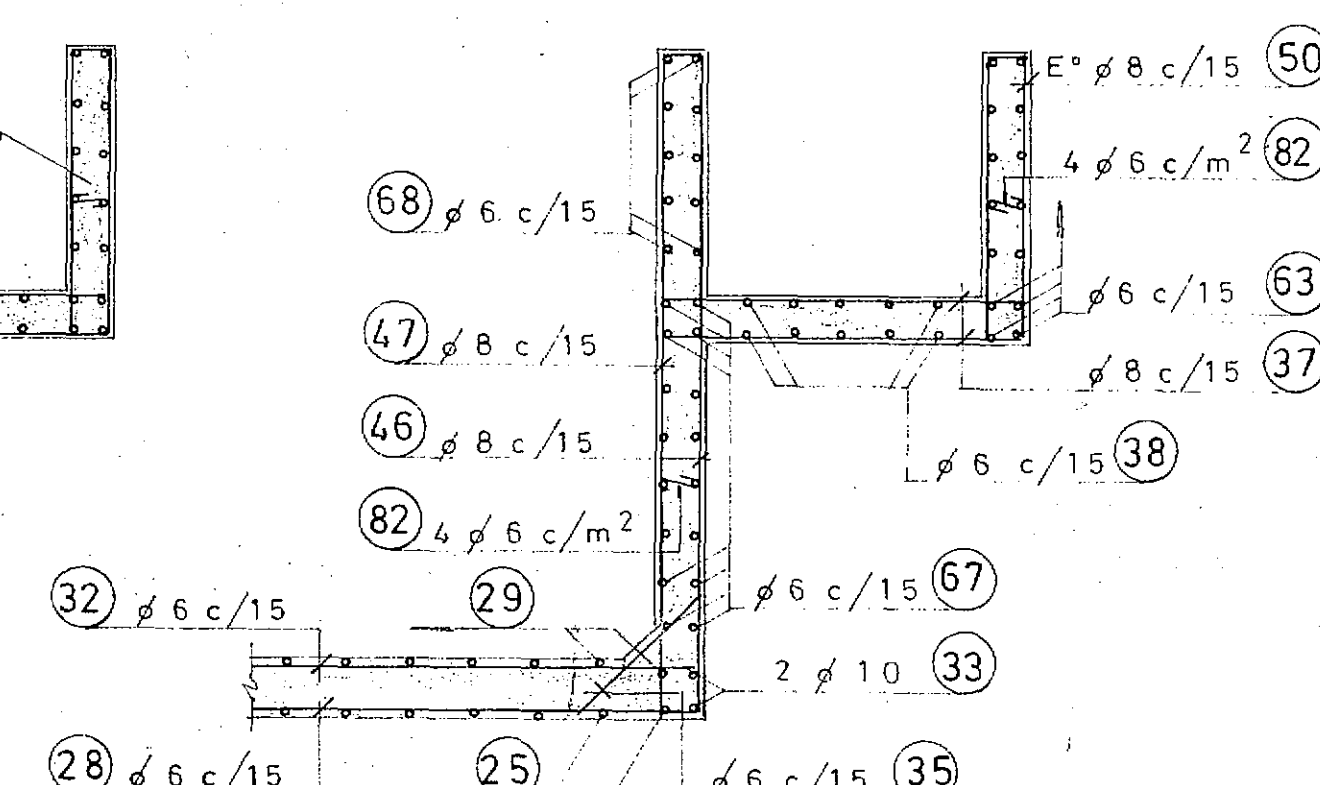
CORTE C-C



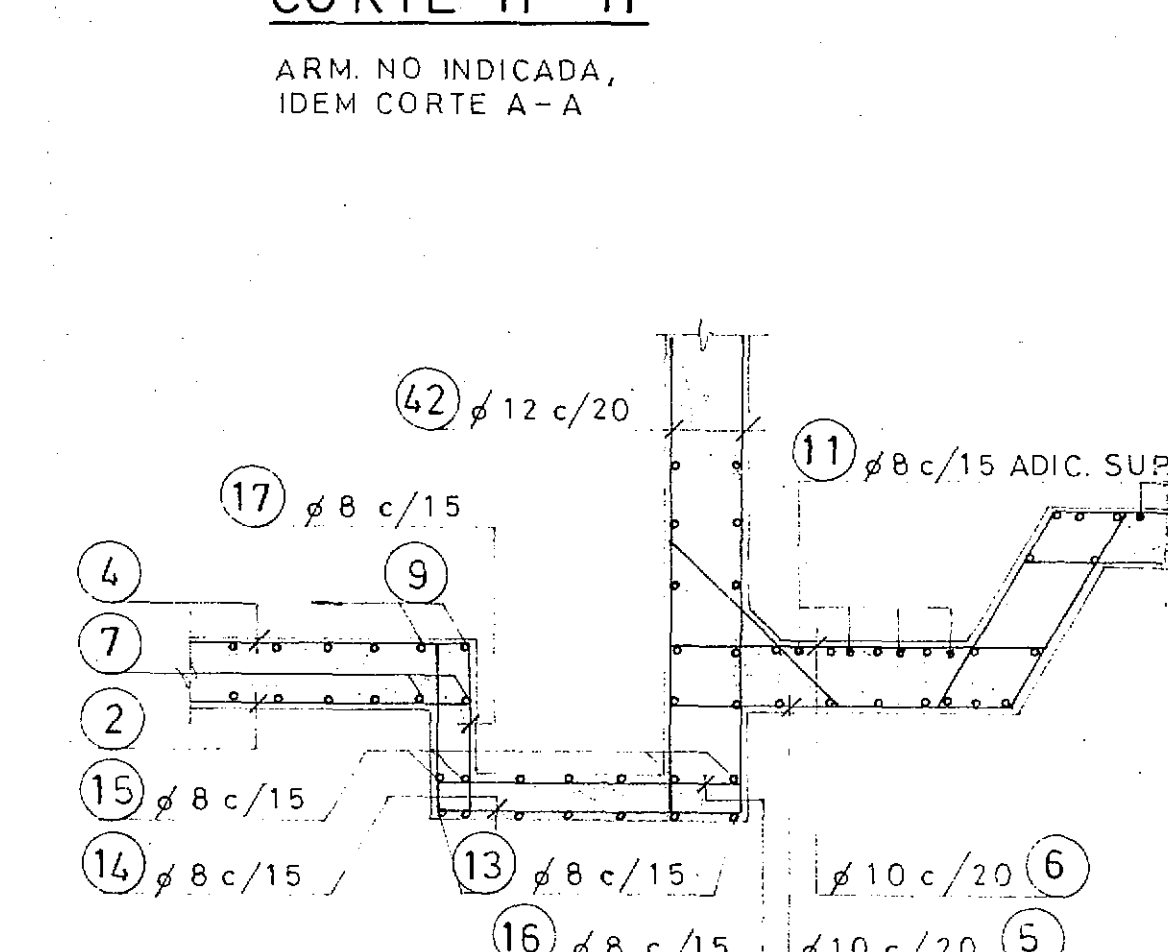
CORTE G-G



CORTE D-D



CORTE H-H



NOTAS

CALIDAD DEL HORMIGÓN: $f_{ck} = 210 \text{ Kg/cm}^2$
 II II ACERO : $f_{ek} = 4200$ II TIPO III DN
 RECUBRIMIENTO MINIMO : 2,0 cm

PROVINCIA DE CHUBUT

RADA TILLY
 PLANTA DE TRATAMIENTO DE EFLUENTES CLOCALES
 ANTEPROYECTO DEFINITIVO

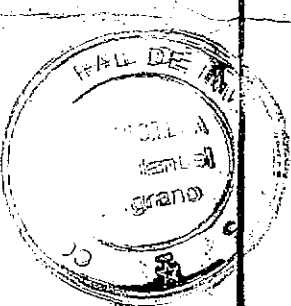
CAMARA DE CLORACION. ARMADURA.

CONSEJO FEDERAL DE INVERSIONES

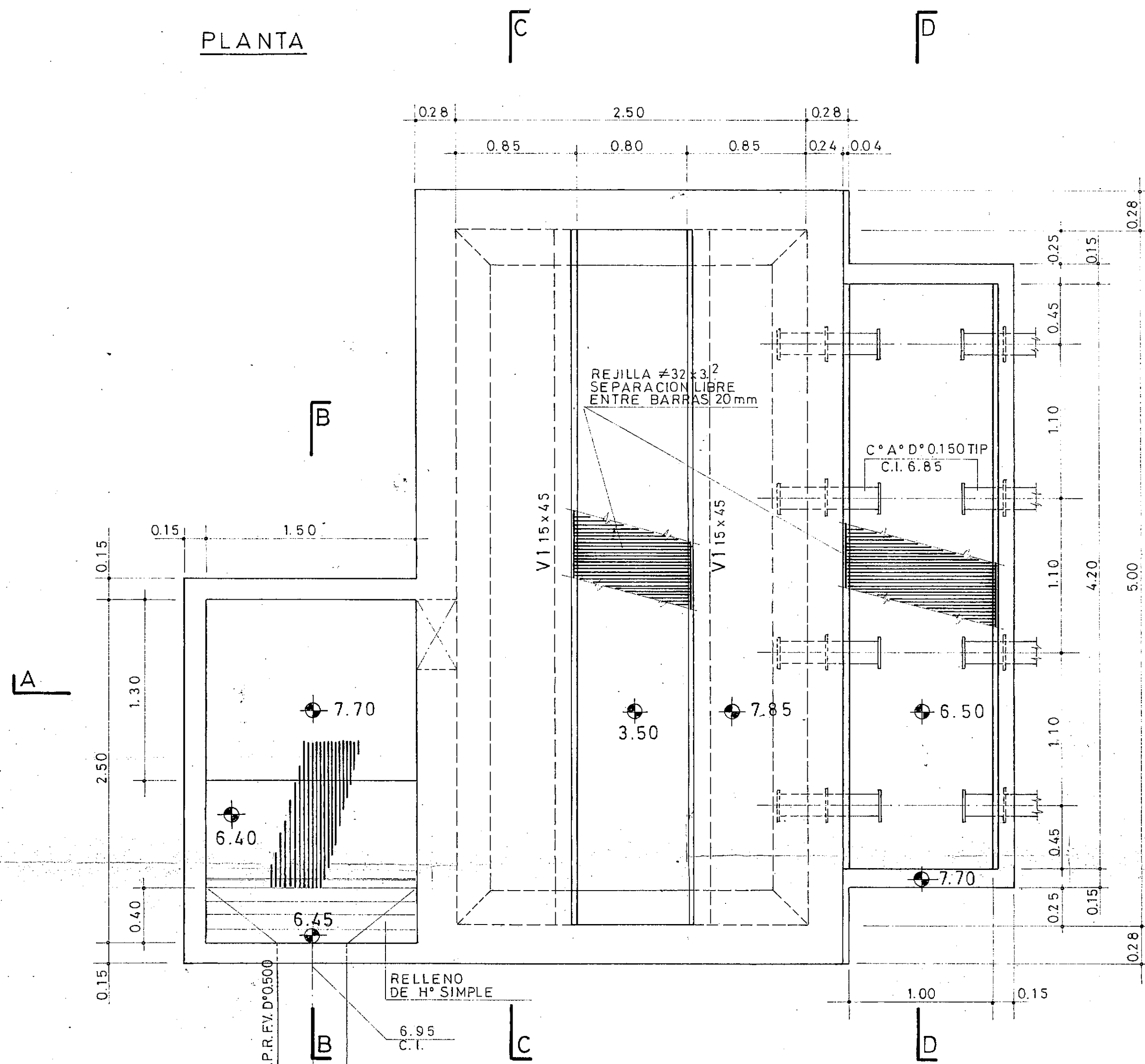
GERENCIA DE ESTUDIOS Y PROYECTOS

APROBACIÓN C.F.T. PROVINCIA

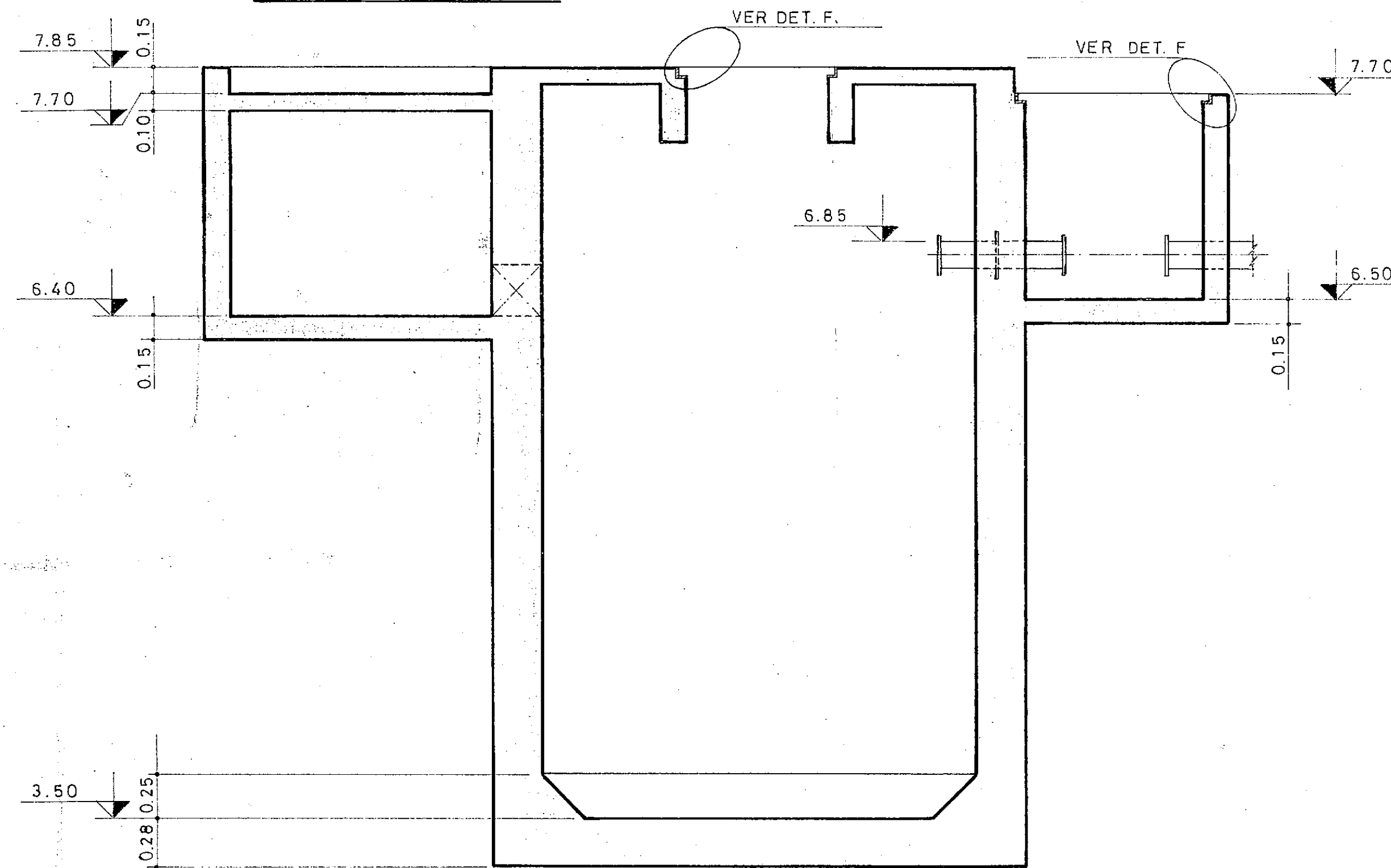
Ing. RAUL PORTAS ESQUIVEL



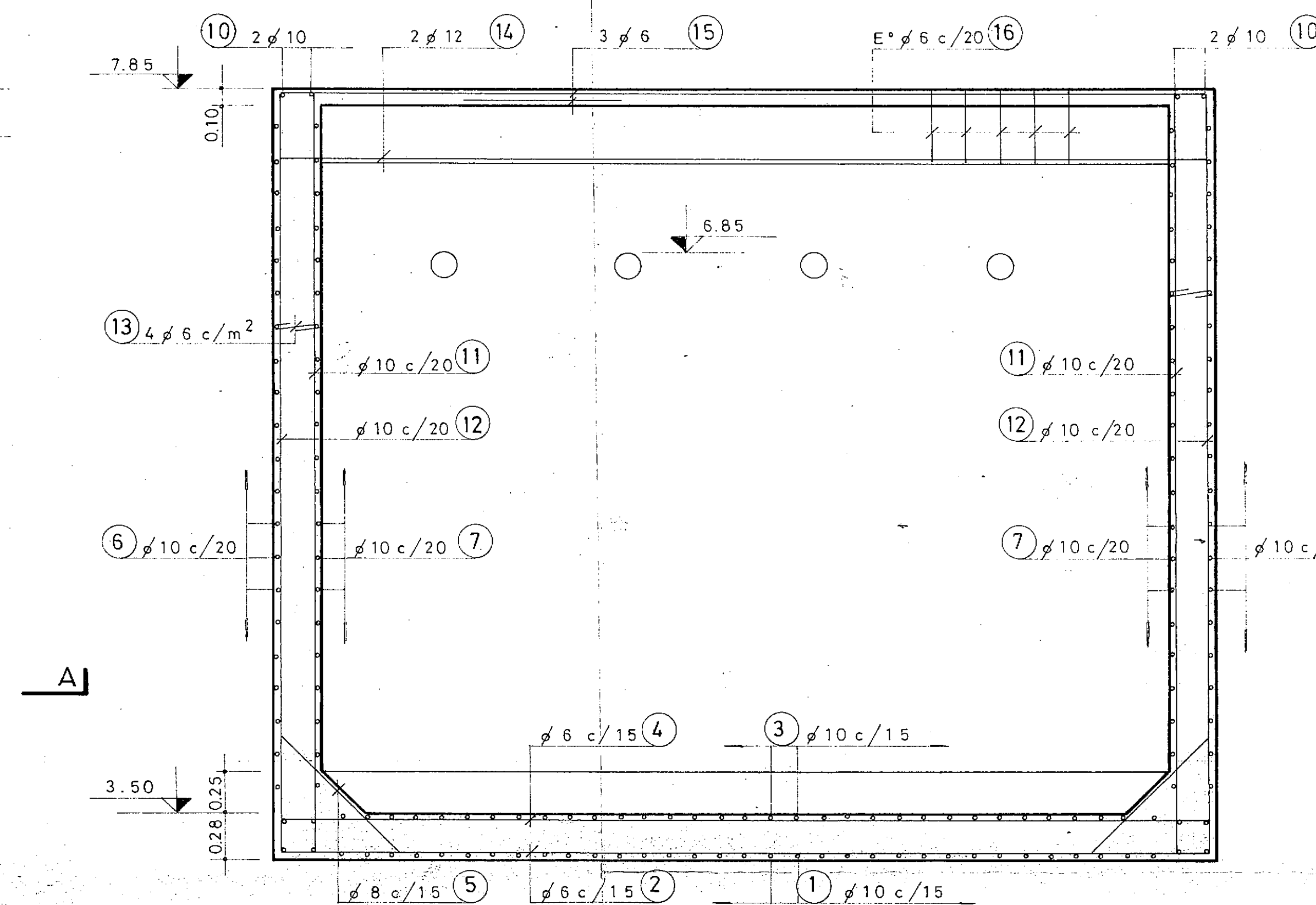
PLANTA



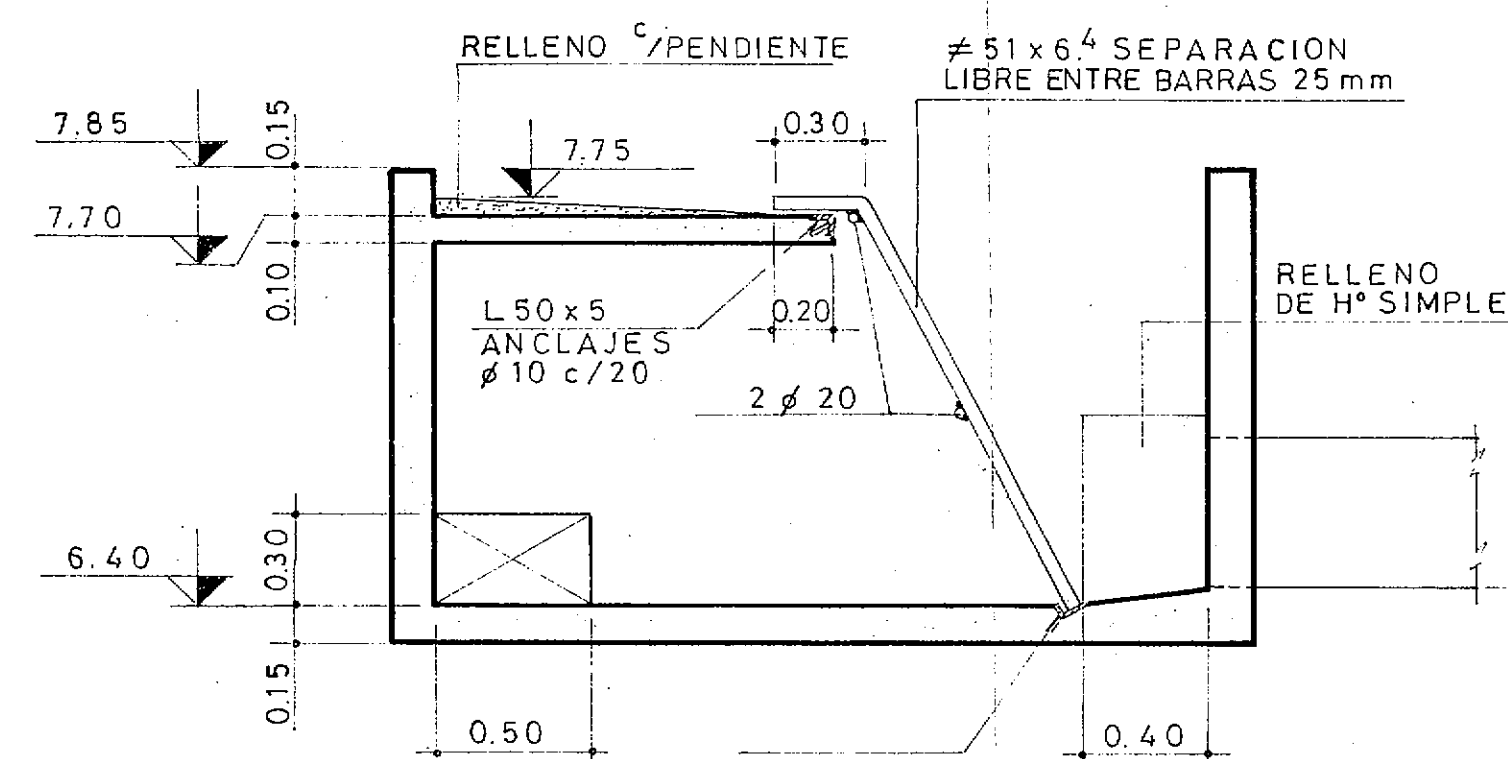
CORTE A-A. ENC.



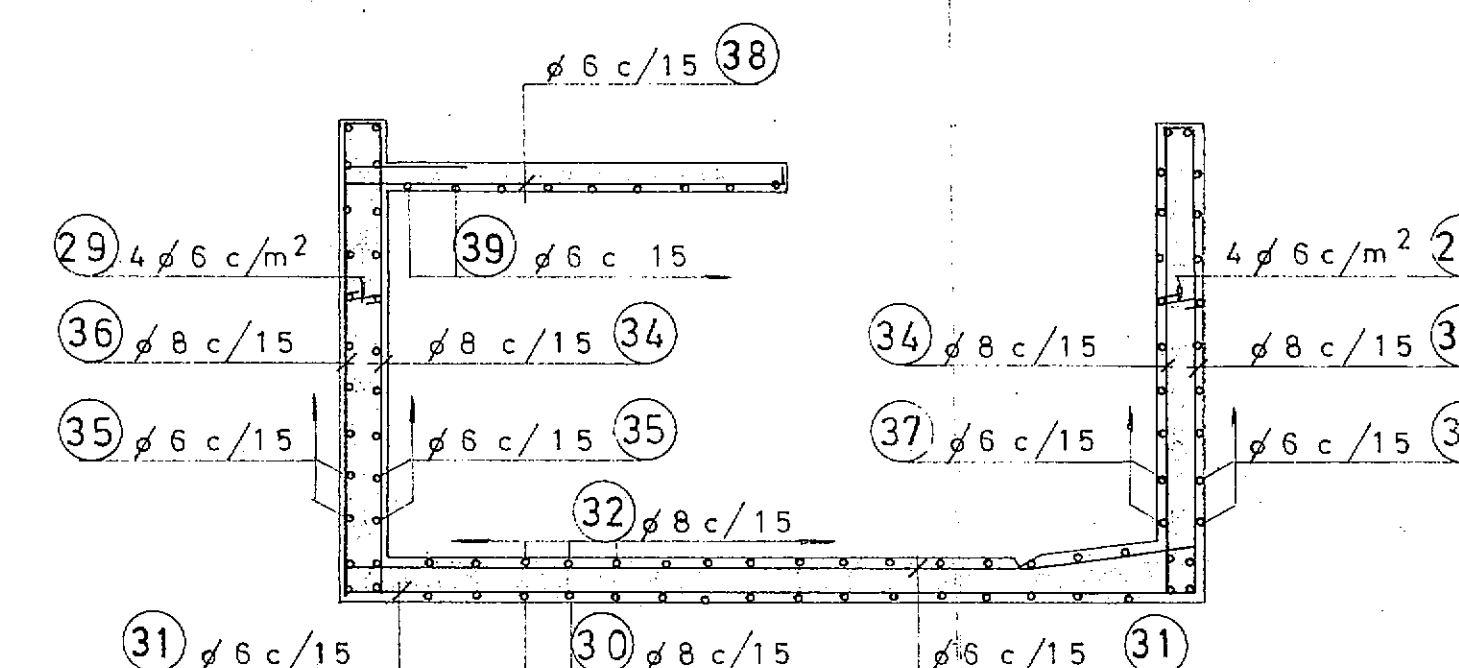
CORTE C-C. ENC. Y ARM.



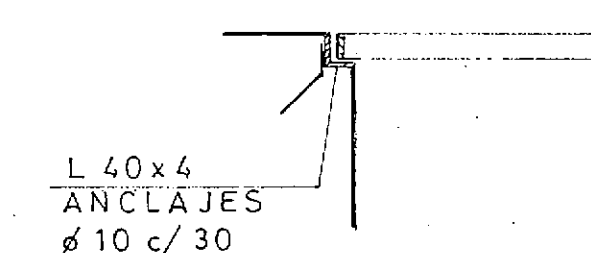
CORTE B-B. ENC.



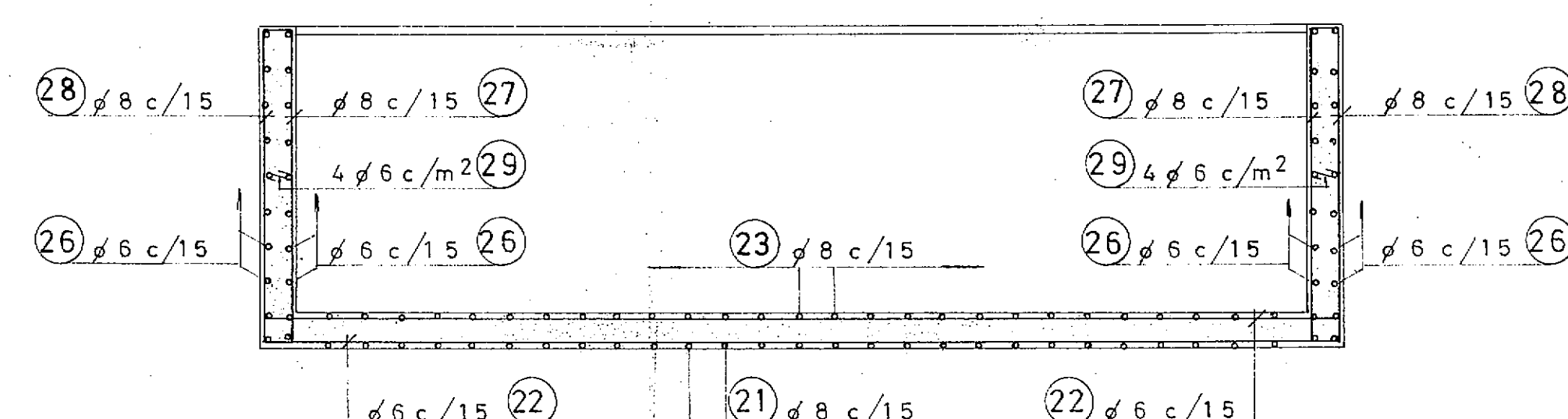
CORTE B-B. ARM.



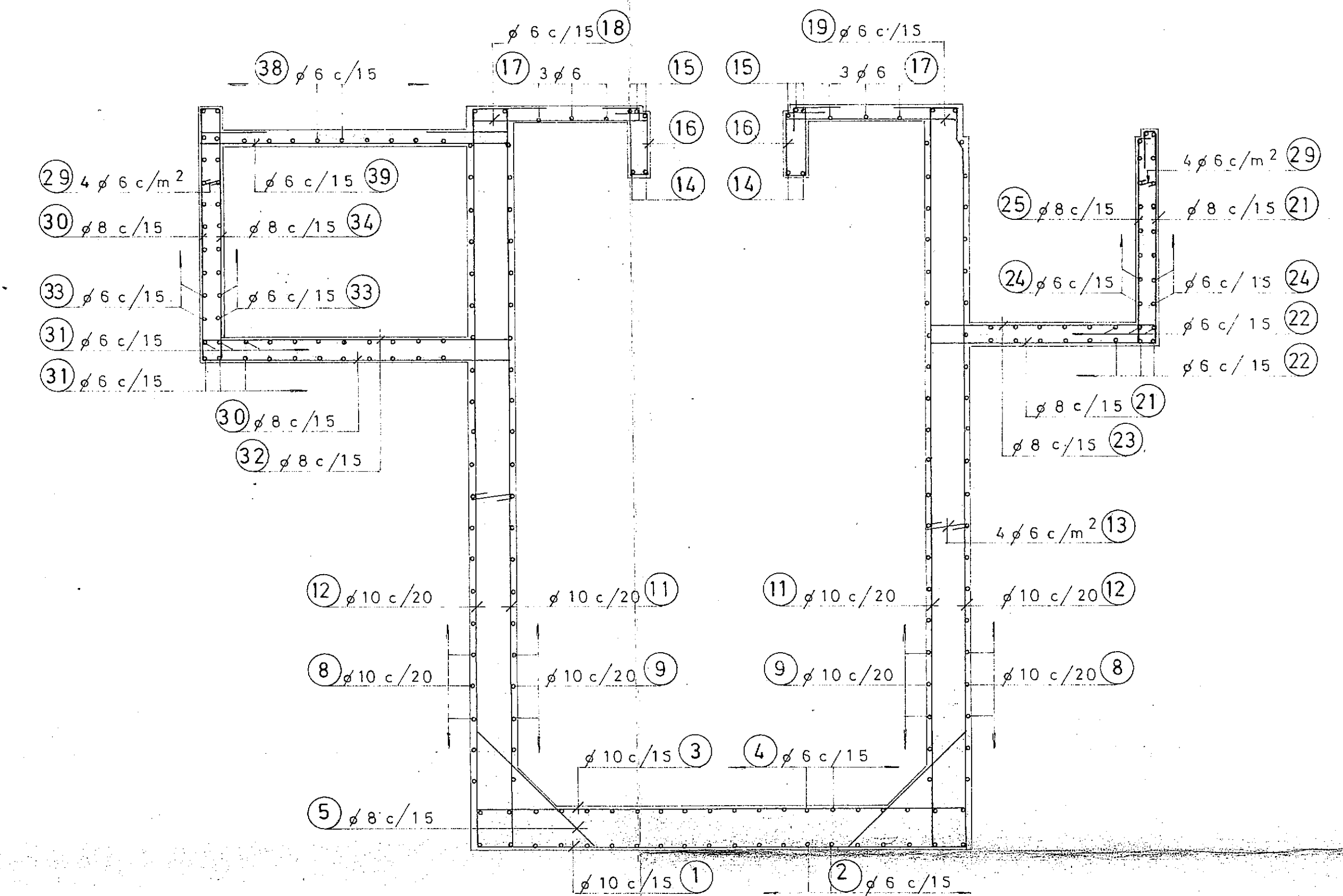
DETALLE F



CORTE D-D. ARM.



CORTE A-A. ARM.



NOTAS

CALIDAD DEL HORMIGON: $\gamma_{bk} = 210 \text{ Kg/cm}^2$
 II II ACERO: $\gamma_{bk} = 4200$ II TIPO III DN
 RECUBRIMIENTO MINIMO: 2,0 cm
 DESVIAR O CORTAR Y DOBLAR LA ARMADURA EN EL CRUCE
 CON LOS AGUJEROS.

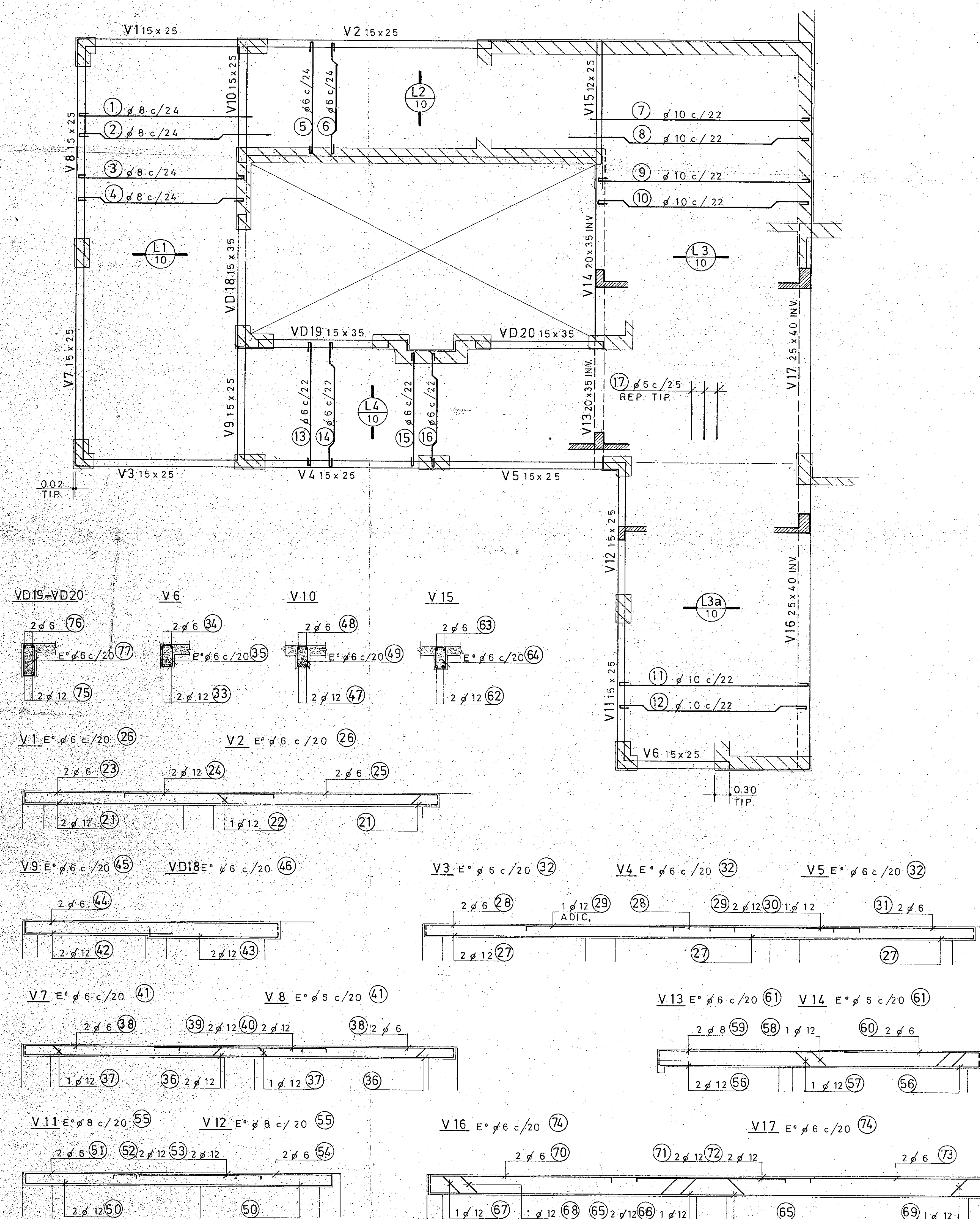
PROVINCIA DE CHUBUT

RADA TILLY
 PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES
 ANTEPROYECTO DEFINITIVO

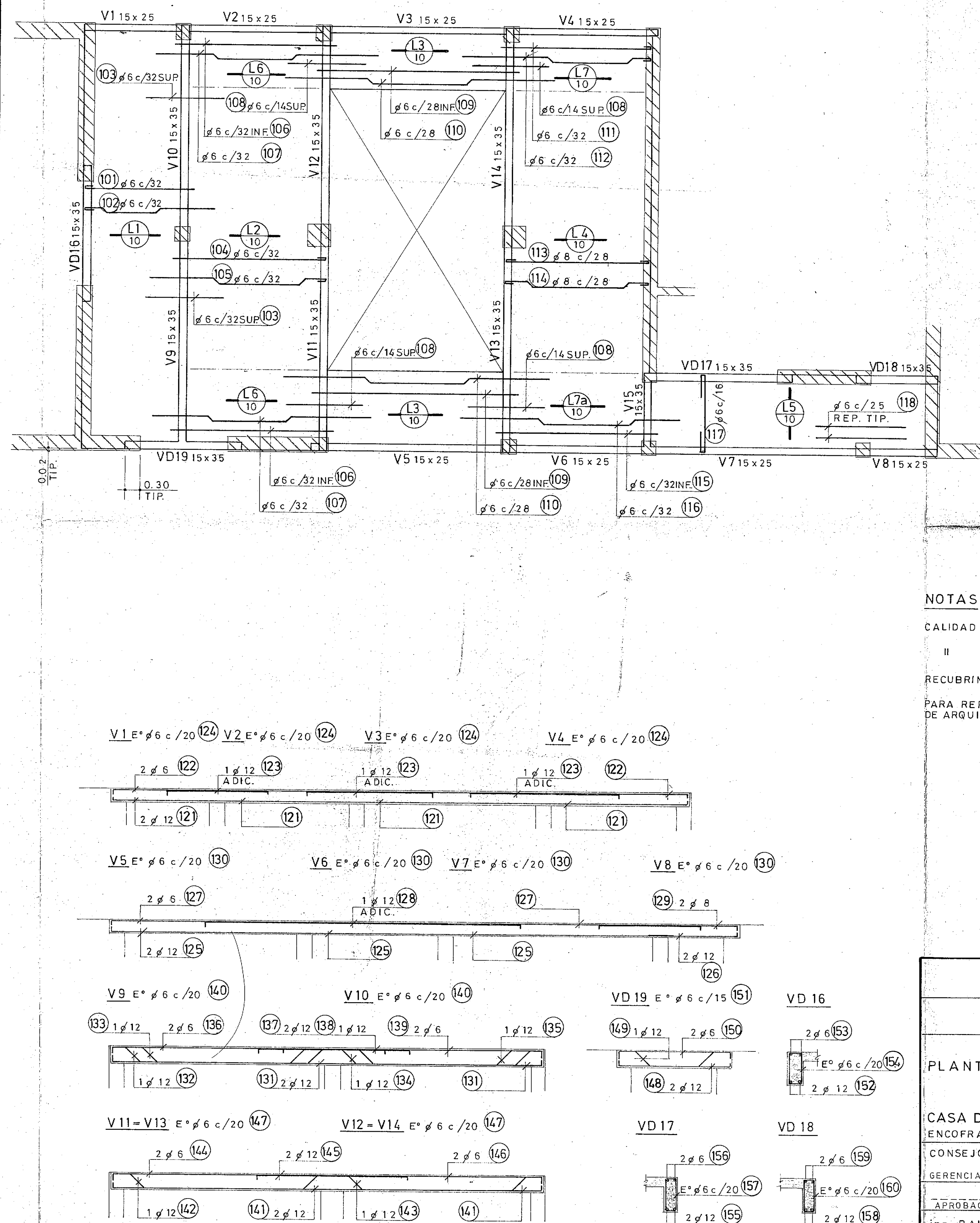
ESTACION ELEVADORA DE ENTRADA A PLANTA ENC. Y ARM.

CONSEJO FEDERAL DE INVERSIONES	ESCALAS 1:25
GERENCIA DE ESTUDIOS Y PROYECTOS	PLANO N° H-13
APROBACION: C.F.T. PROVINCIA	
ing. RAUL PORTAS ESQUIVEL	

CASA DE ENCARGADO



LABORATORIO Y TALLER



NOTAS

CALIDAD DEL HORMIGON: $f'_{ck} = 170 \text{ Kg/cm}^2$

II ACERO : $f_{ek} = 4200$ II TIPO III DN

RECUBRIMIENTO MINIMO : 2,0 cm EN VIGAS, 1,5 cm EN LOSAS

PARA REPLANTEO APOYOS DE MAMPOSTERIA, VER PLANOS DE ARQUITECTURA CORRESPONDIENTES.

PROVINCIA DE CHUBUT

RADA TILLY
PLANTA DE TRATAMIENTO DE EFLUENTES CLOACALES
ANTEPROYECTO DEFINITIVO

CASA DE ENCARGADO - LABORATORIO Y TALLER.
ENCOFRADO Y ARMADURA.

CONSEJO FEDERAL DE INVERSIONES

GERENCIA DE ESTUDIOS Y PROYECTOS

APROBACION: C.F.T.

PROVINCIA

Ing. RAUL PORTAS ESQUIVEL

ESCALAS
1:50
PLANO N°
H-14