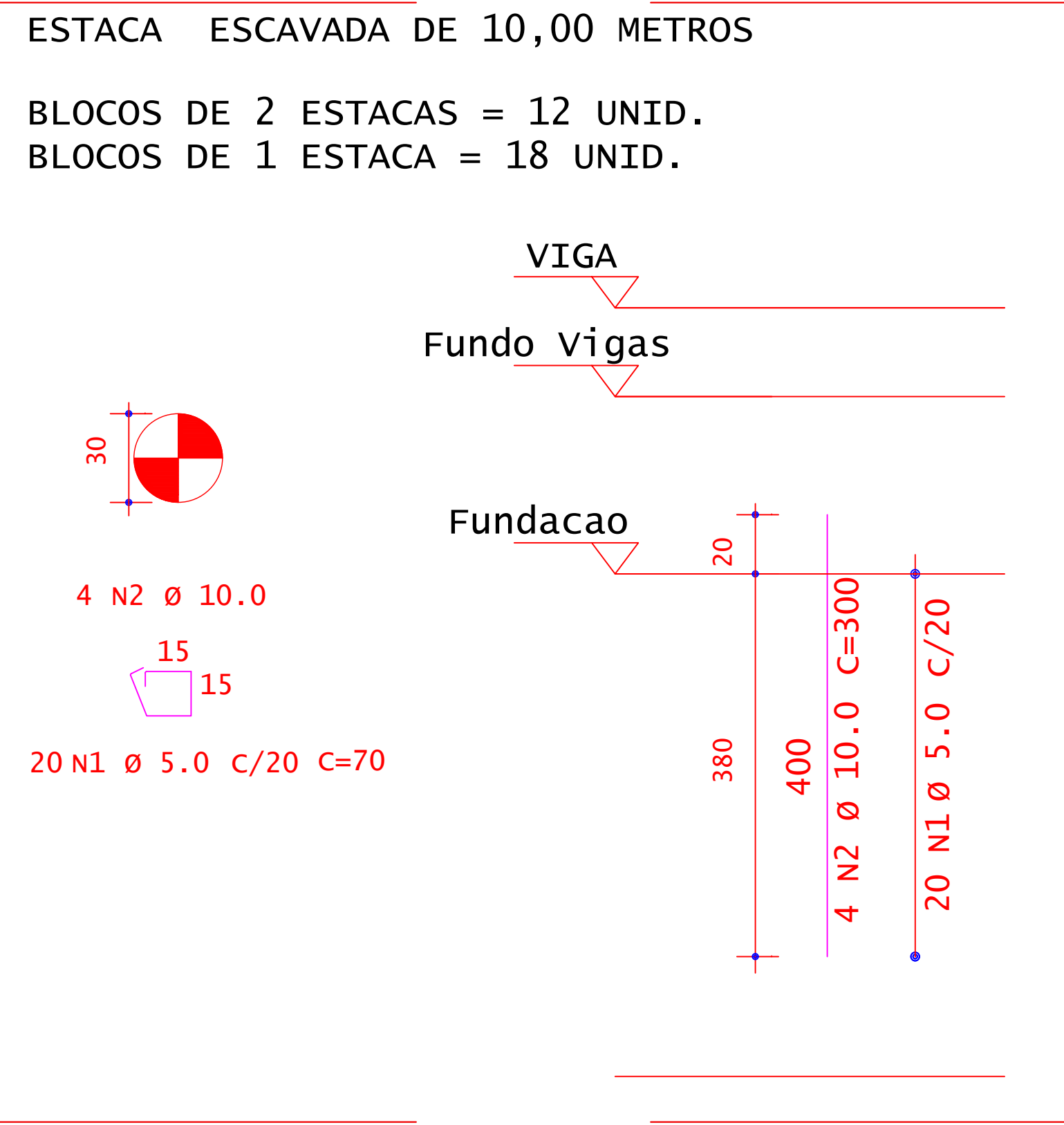


PLANTA DE LOCAÇÃO DAS ESTACAS  
ESCALA: 1/50



DETALHES DAS ESTACAS (TÉRREO)

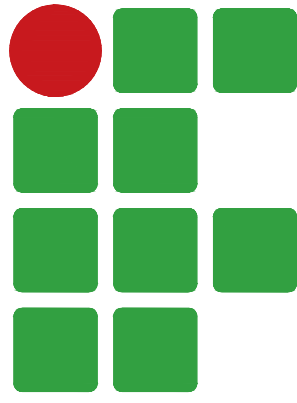
ESCALA 1/25

BLOCOS ESCAVADAS			
Simologia	Ø (m)	Prof (m)	Quantidade
	0.30	10.00	42
			Profundidade total (m)
			420.00

VOLUME DE CONCRETO - ESTACAS Fck 25MPa + 5% = 31,17 M³

ACO	POS	BET (m)	QUANT	COMPRIMENTO (m)	UNIT (kg)	TOTAL (kg)
ESTACAS (X42)						
60A	1	5.0	440	20	2880	
50A	2	10.0	140	400	37200	

RESUMO DE AÇO			
ACO	BET (m)	COMPR	PESO C/100 (kg)
60A	5	540	99.60
50A	10	672	116.10
Peso Total	55	600	215.70 kg
Peso Total	55A		456.10 kg



**INSTITUTO FEDERAL**  
Sul de Minas Gerais  
Campus Carmo de Minas

**PROJETO**

OBRA: BIBLIOTECA  
LOCAL: CAMPUS CARMO DE MINAS  
TIPO: ESTRUTURA - LOCAÇÃO DAS ESTACAS

PROPRIETÁRIO: IFSULDEMINAS  
REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA: ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N, BAIRRO CHACRINHA, CARMO DE MINAS - MG

RESPONSÁVEL TÉCNICO: ENGº CIVIL PAULO ROBERTO DE OLIVEIRA  
CREA - MG 29.948/D - MAT. SIAPE 2056537  
  
ENGº CIVIL LEANDRO DE OLIVEIRA  
CREA - MG 202.445/D - MAT. SIAPE 1964467

QUADRO RESUMO DE ÁREAS:  
TERRENO = 104.867,00 m²  
CONSTRUIR = 608,52 m²

CARIMBOS:

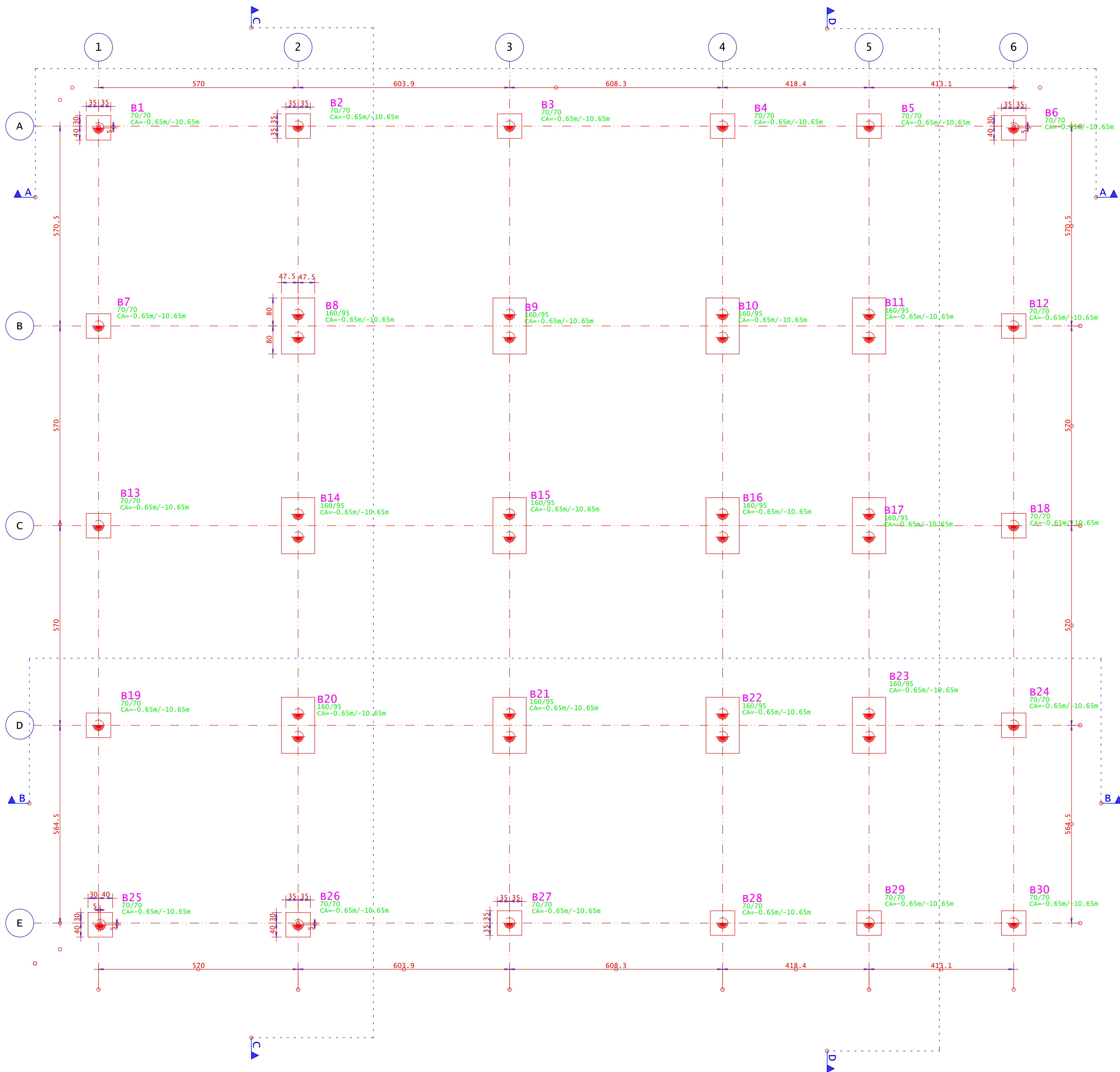
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REVISÃO: 01

ESCALAS: INDICADAS

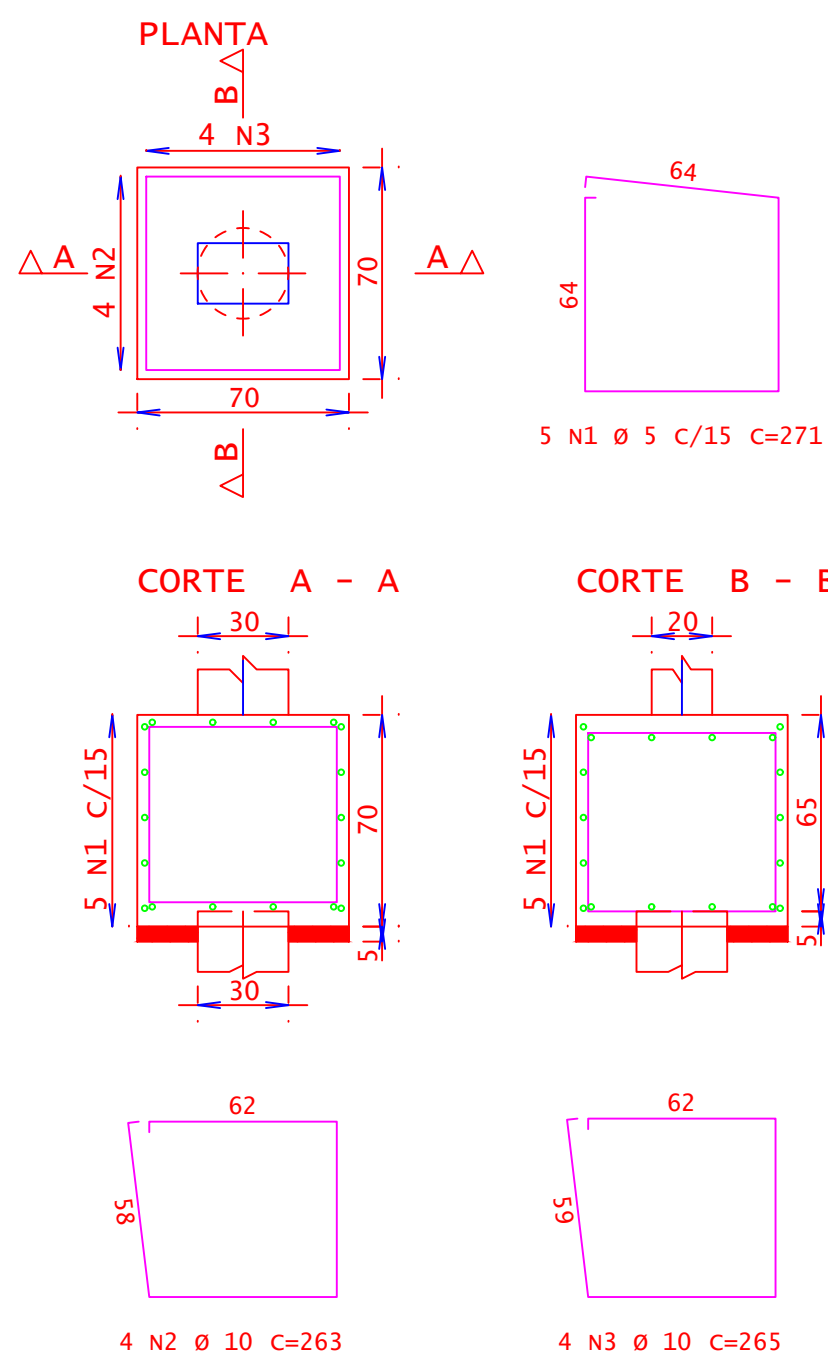
UNIDADE: INDICADAS

FOLHA: 01/13

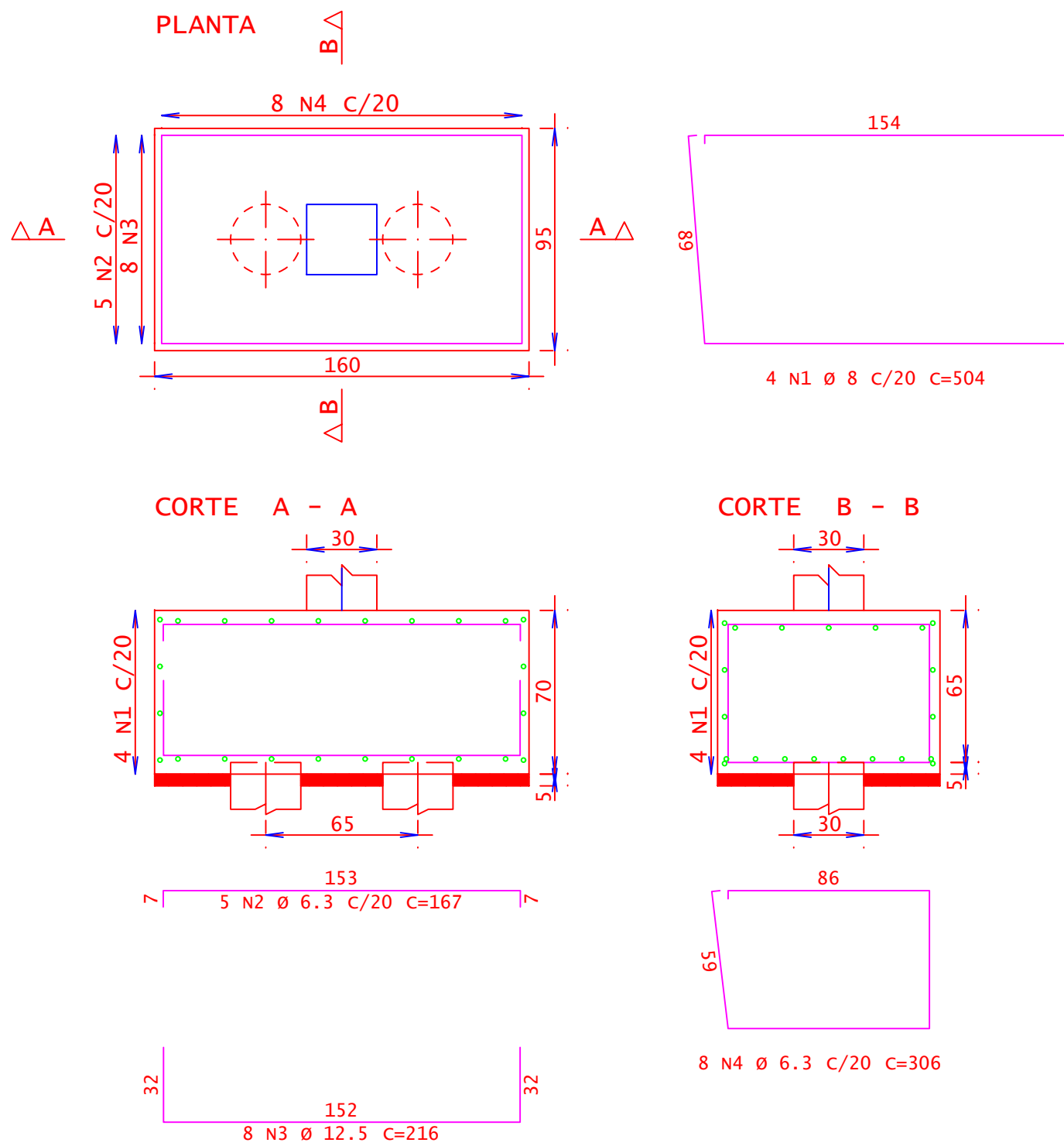


PLANTA DE LOCAÇÃO DOS BLOCOS  
ESCALA: 1/50

B1=B2=B3=B4=B5=B6=B7=B12=B13=B18=B19=  
B24=B25=B26=B27=B28=B29=B30 (18x)  
(ESCALA 1:25)



B8=B9=B10=B11=B14=B15=B16=B17=B20=B21=B22=B23 (12x)  
(ESCALA 1:25)



DETALHAMENTO DOS BLOCOS  
ESCALA: 1/25

ACO	POS	BIT	QUANT	COMPRIMENTO	UNIT	TOTAL
(cm)		(mm)		(cm)		(cm)
B1=B2=B3=B4=B5=B6=B7=B12=B13=B18=B19=B24=B25=B26=B27=B28=B29=B30 (X18)						
60A	1	5	90	271	24390	
50A	2	10	72	263	18936	
50A	3	10	72	265	19080	
B8=B9=B10=B11=B14=B15=B16=B17=B20=B21=B22=B23 (X12)						
50A	1	8	48	504	24192	
50A	2	6.3	60	167	10070	
50A	3	12.5	96	216	20736	
50A	4	6.3	96	306	29376	

RESUMO DE AÇO				
ACO	BIT	COMPR	PESO	PESO C/10%
(mm)	(m)	(kg)	(kg)	(kg)
60A	5	244	38	42
50A	6.3	394	97	106
50A	8	242	96	106
50A	10	300	215	236
50A	12.5	207	200	220
PESO TOTAL			604 =	42 kg
PESO TOTAL			50A =	690 kg

VOLUME CONCRETO - FCK 30 Mpa = 19,84 M³  
VOLUME CONCRETO MAGRO = 1,50 M³  
AREA DE FORMA (2 X UTIL.) = 39,05 M²

INSTITUTO FEDERAL

Sul de Minas Gerais

Campus Carmo de Minas

PROJETO

OBRA: BIBLIOTECA

LOCAL: CAMPUS CARMO DE MINAS

TIPO: ESTRUTURA - LOCAÇÃO DOS BLOCOS

PROPRIETÁRIO: IFSULDEMINAS

REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA: ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N, BAIRRO CHACRINHA, CARMO DE MINAS / MG

RESPONSÁVEL TÉCNICO:

ENGº CIVIL PAULO ROBERTO DE OLIVEIRA  
CREA - MG 29.949/D - MAT. SIAPE 2006657

ENGº CIVIL LEANDRO DE OLIVEIRA  
CREA - MG 202.445/D - MAT. SIAPE 1964467

QUADRO RESUMO DE ÁREAS:

TERRENO = 104.867,00 m²

CONSTRUIR = 608,52 m²

CARIMBOS:

DATA: 06/05/2024

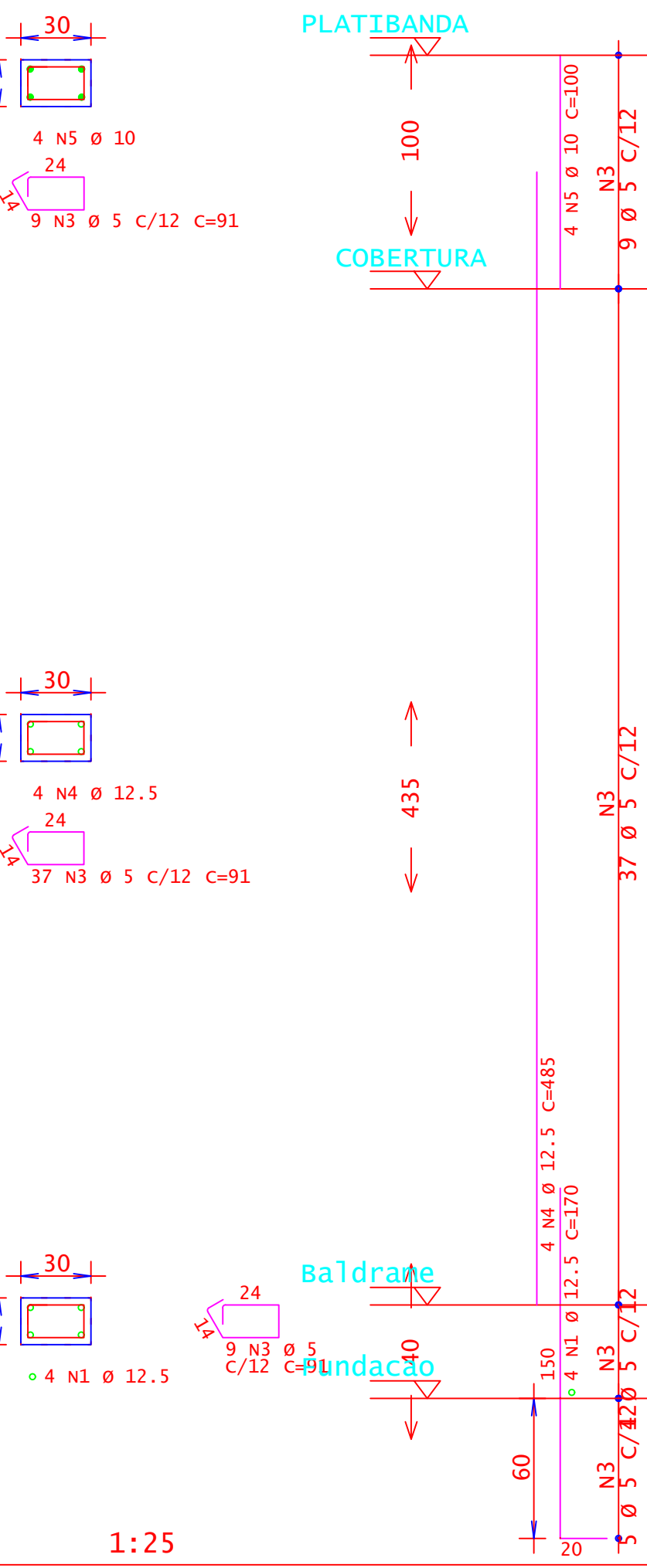
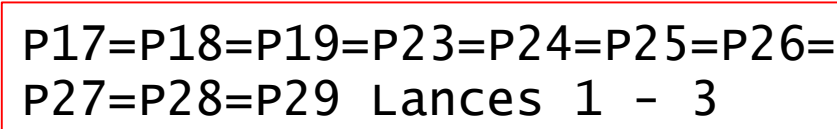
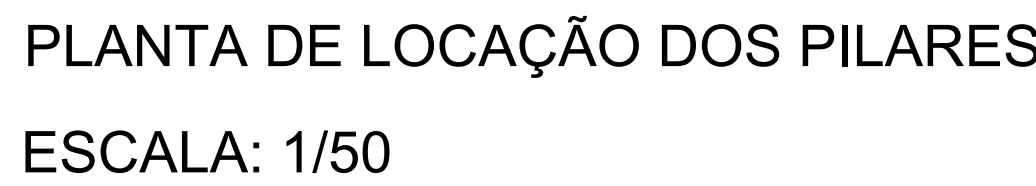
REVISÃO: 01

ESCALAS: INDICADAS

UNIDADE: INDICADAS

FOLHA: 02/13



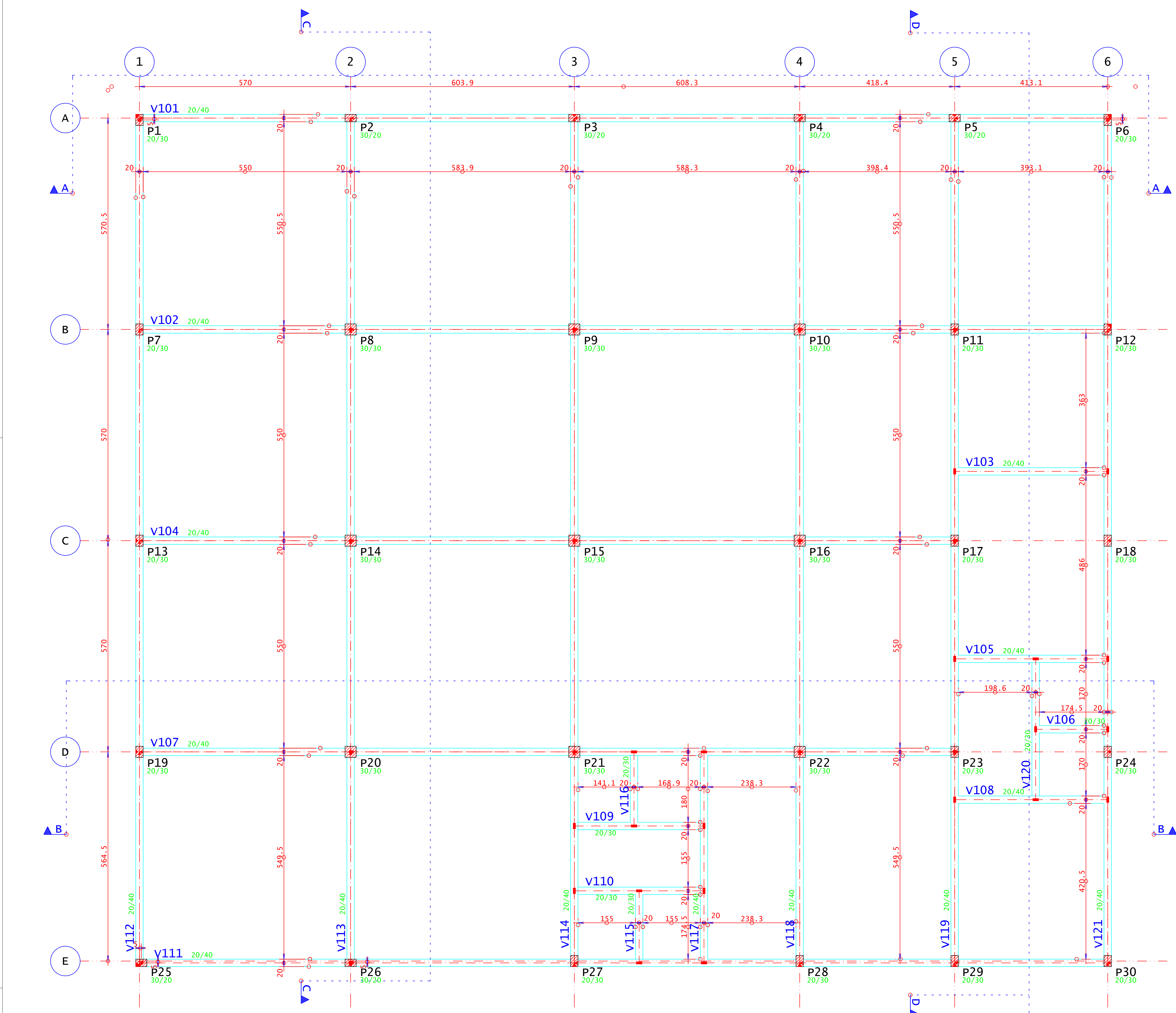


OBS: PILARES NO CONTO RNO DA BIBLIOTECA SERÃO CONCRETADOS PARA FECHAMENTO DA PLATIBANDA. OS PILARES CENTRAIS NÃO SERÃO CONCRETADOS, DEIXANDO AS ARMAÇÕES DE TRANSPASSES PARA UMA FUTURA EXPANSÃO PARA OUTRO PAVIMENTO.

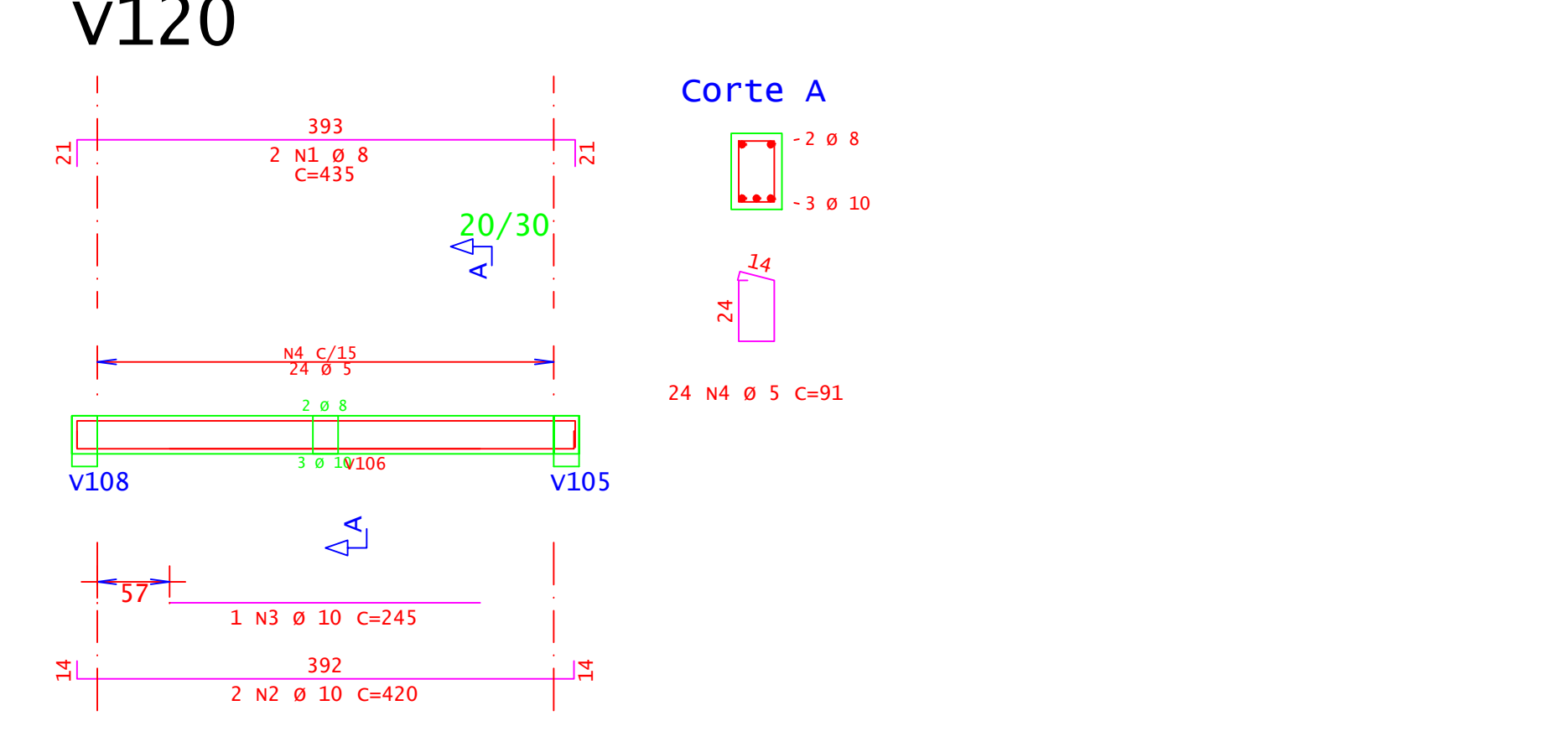
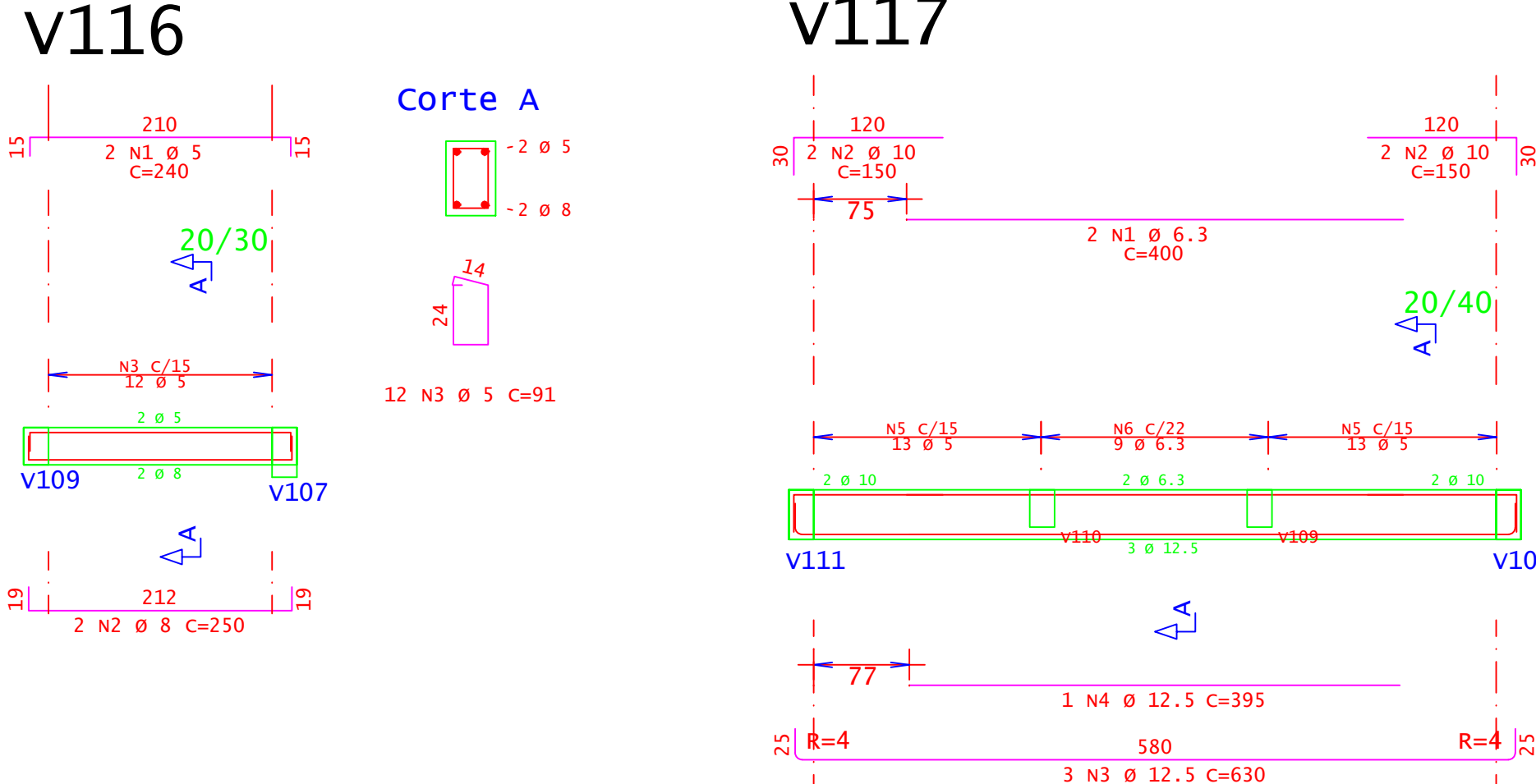
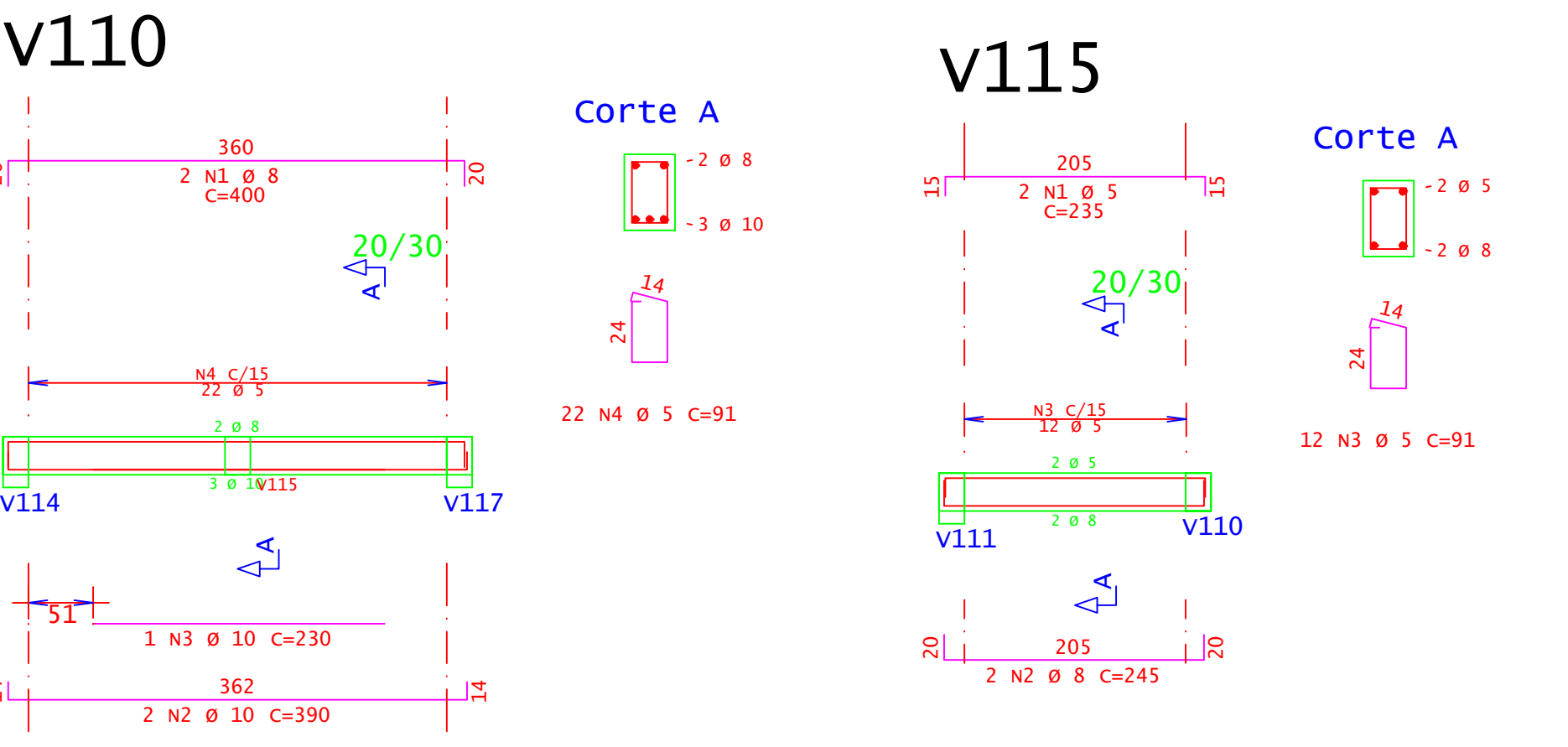
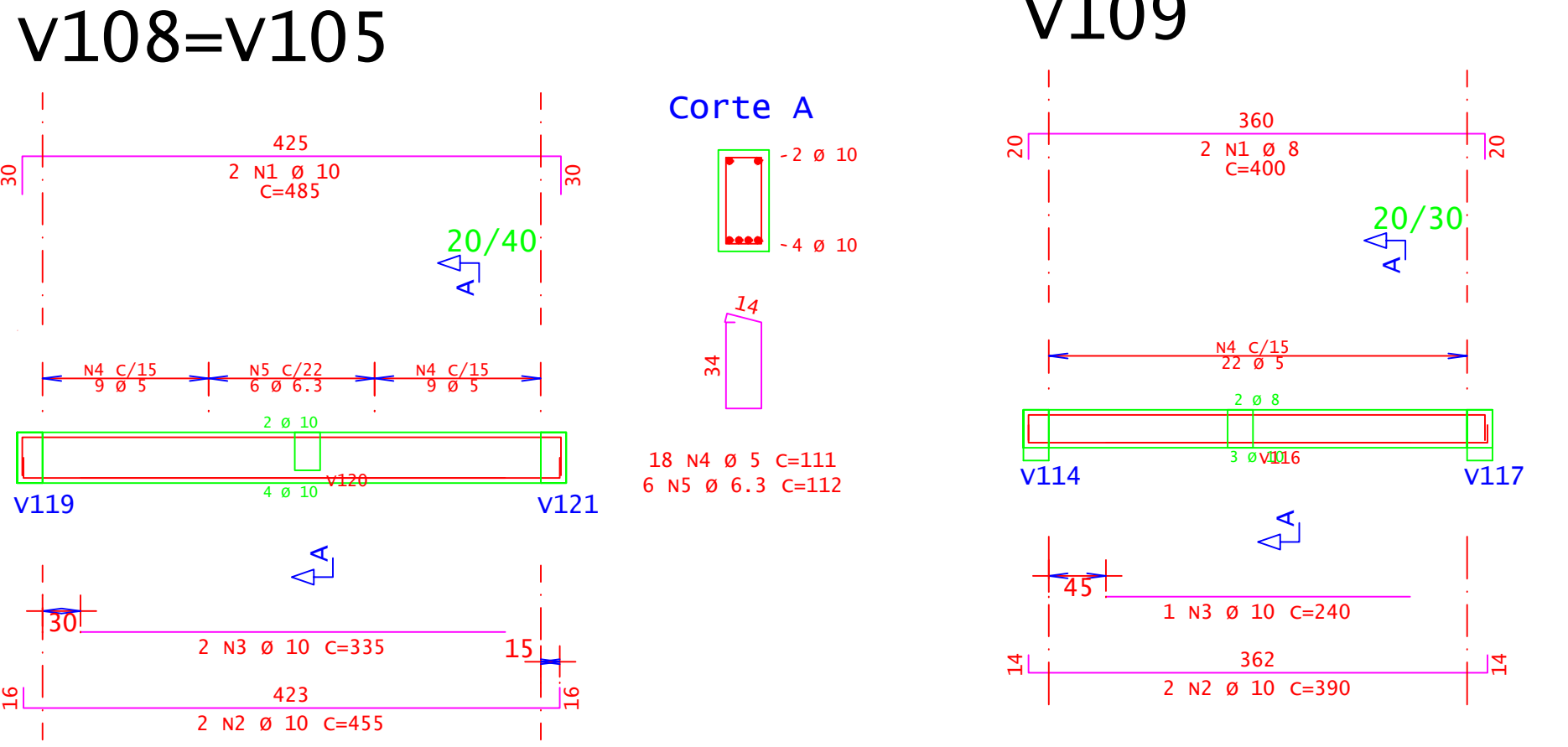
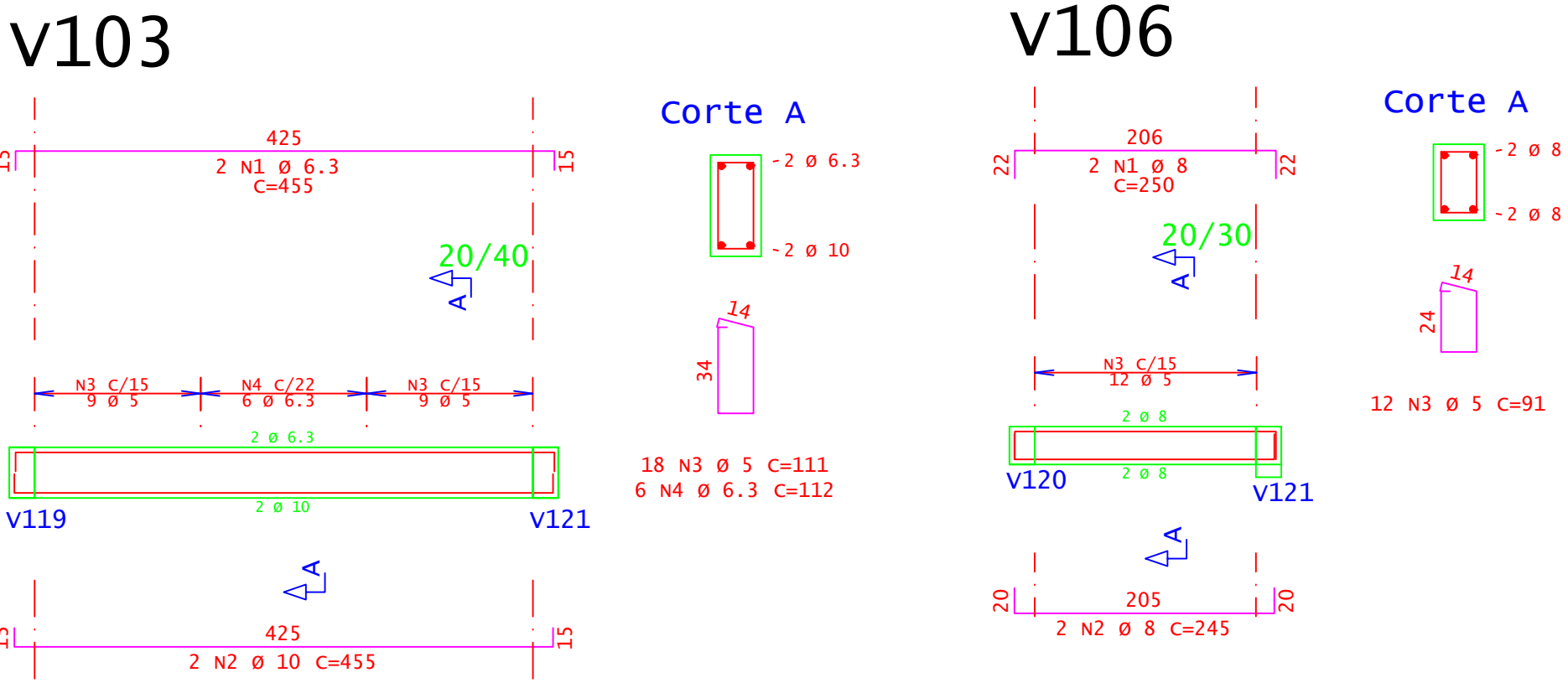
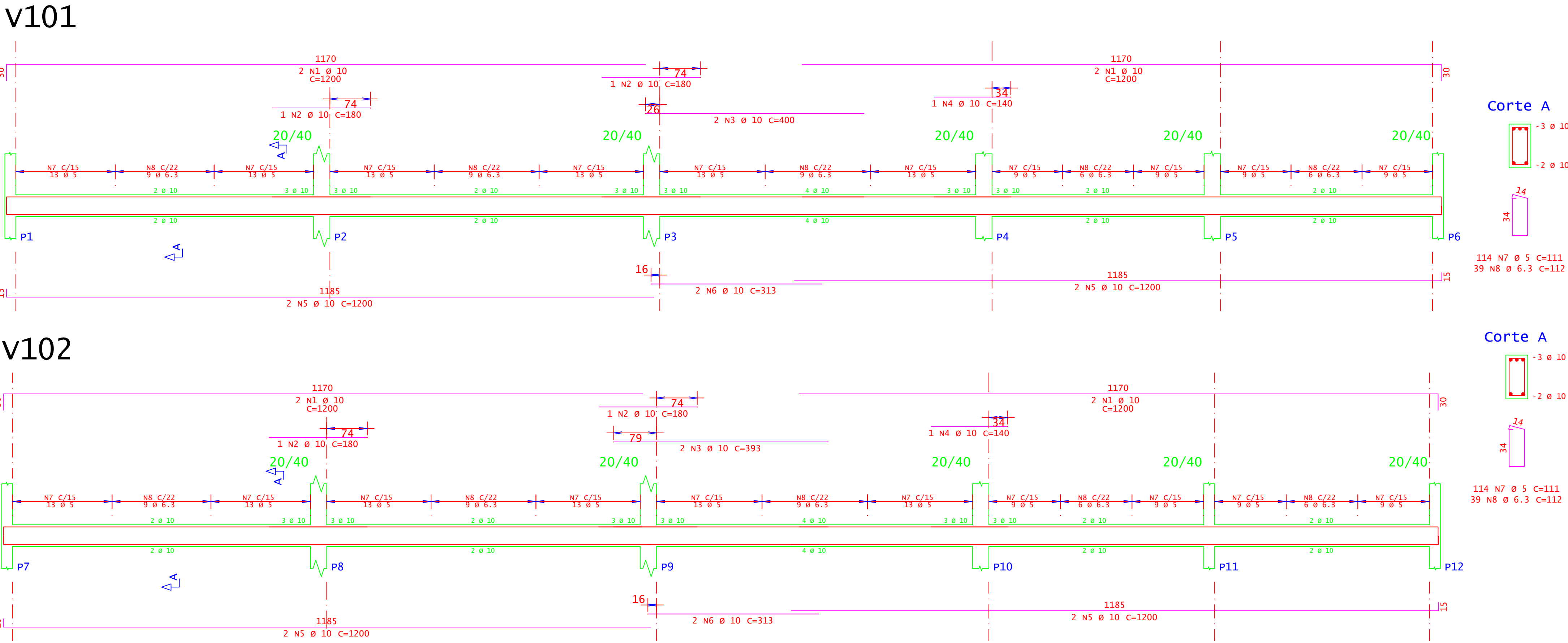
**Observações:**

- 1 - Os valores apresentados referem-se às reações nos apoios
- 2 - Esforços com valores característicos
- 3 - Forças em tf
- 4 - Momentos em tfm
- 5 - Sistema de coordenadas GLOBAL
- 6 - A força X positiva empurra o apoio da esquerda para a direita
- 7 - O momento X positivo gira o apoio em torno do eixo X no sentido horário
- 8 - A força Y positiva empurra em planta o apoio de baixo para cima
- 9 - O momento Y positivo gira o apoio em torno do eixo Y no sentido horário
- 10 - A força Z positiva empurra o apoio de cima para baixo
- 11 - O momento Z positivo gira o apoio em torno do eixo Z no sentido horário

DATA:	REVISÃO:	ESCALAS:	UNIDADE:	FOLHA:
06/05/2024	01	INDICADAS	INDICADAS	03/13



PLANTA DE FORMA - VIGAS BALDRAMES  
ESCALA: 1/50



AÇO	POS	BIT (mm)	QUANT	COMPRIMENTO	
				UNIT (cm)	TOTAL (cm)
V101	50A	1	10	4	1260
	50A	2	10	2	180
	50A	3	10	2	400
	50A	4	10	1	140
	50A	5	10	4	2700
	50A	6	10	2	312
V102	50A	1	10	4	1260
	50A	2	10	2	180
	50A	3	10	2	400
	50A	4	10	1	140
	50A	5	10	4	2700
	50A	6	10	2	312
V103	50A	1	6.3	2	455
	50A	2	10	2	455
	50A	3	10	1	111
	50A	4	6.3	6	112
	50A	5	10	2	250
	50A	6	6.3	39	91
V106	50A	1	8	2	240
	50A	2	10	2	390
	50A	3	10	1	240
	50A	4	6.3	3	91
	50A	5	10	2	245
	50A	6	6.3	12	91
V108=V105	50A	1	10	4	485
	50A	2	10	4	455
	50A	3	10	4	335
	50A	4	5	36	111
	50A	5	6.3	12	132
	50A	6	6.3	9	112
V109	50A	1	8	2	400
	50A	2	10	2	390
	50A	3	10	1	240
	50A	4	5	22	91
	50A	5	10	2	245
	50A	6	6.3	12	91
V110	50A	1	8	2	400
	50A	2	10	2	390
	50A	3	10	1	240
	50A	4	5	22	91
	50A	5	10	2	245
	50A	6	6.3	12	91
V115	50A	1	5	2	235
	50A	2	8	2	245
	50A	3	5	12	91
	50A	4	5	12	91
	50A	5	5	26	111
	50A	6	6.3	9	112
V116	50A	1	5	2	235
	50A	2	8	2	245
	50A	3	5	12	91
	50A	4	5	12	91
	50A	5	5	26	111
	50A	6	6.3	9	112
V117	50A	1	8	2	400
	50A	2	10	2	390
	50A	3	10	1	240
	50A	4	5	22	91
	50A	5	10	2	245
	50A	6	6.3	12	91
V120	50A	1	8	2	400
	50A	2	10	2	390
	50A	3	10	1	240
	50A	4	5	22	91
	50A	5	10	2	245
	50A	6	6.3	12	91

RESUMO DE AÇO				
AÇO	BIT (mm)	COMPR (m)	PESO (kg)	PESO C/10% (kg)
60A	5	446	69	76
50A	6.3	135	33	36
50A	8	45	18	20
50A	10	328	202	222
50A	12.5	23	22	24
Peso Total			60A =	76 kg
Peso Total			50A =	302 kg

VOLUME CONCRETO - FCK 30 Mpa = 22,00 M³  
VOLUME CONCRETO MAGRO = 13,33 M³  
AREA DE FORMA (4 X UTIL.) = 68,75 M²

INSTITUTO FEDERAL

Sul de Minas Gerais

Campus Carmo de Minas

PROJETO

OBRA: BIBLIOTECA

LOCAL: CAMPUS CARMO DE MINAS

TIPO: ESTRUTURA - PLANTA DE FORMA E DET. VIGAS BALDRAMES

PROPRIETÁRIO: IFSULDEMINAS

REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA: ALAMEDA MURILO EUGÊNIO RUBIÃO, SIN. BAIRRO CHADRINHA, CARMO DE MINAS / MG

RESPONSÁVEL TÉCNICO: ENGº CIVIL PAULO ROBERTO DE OLIVEIRA CREA - MG 29.949/D - MAT. SIAPE 206657

QUADRO RESUMO DE ÁREAS: TERRENO = 104.867,00 m² CONSTRUIR = 608,52 m²

ENGº CIVIL LEANDRO DE OLIVEIRA CREA - MG 202.445/D - MAT. SIAPE 1964467

CARIMBOS:

DATA: 06/05/2024

REVISÃO: 01

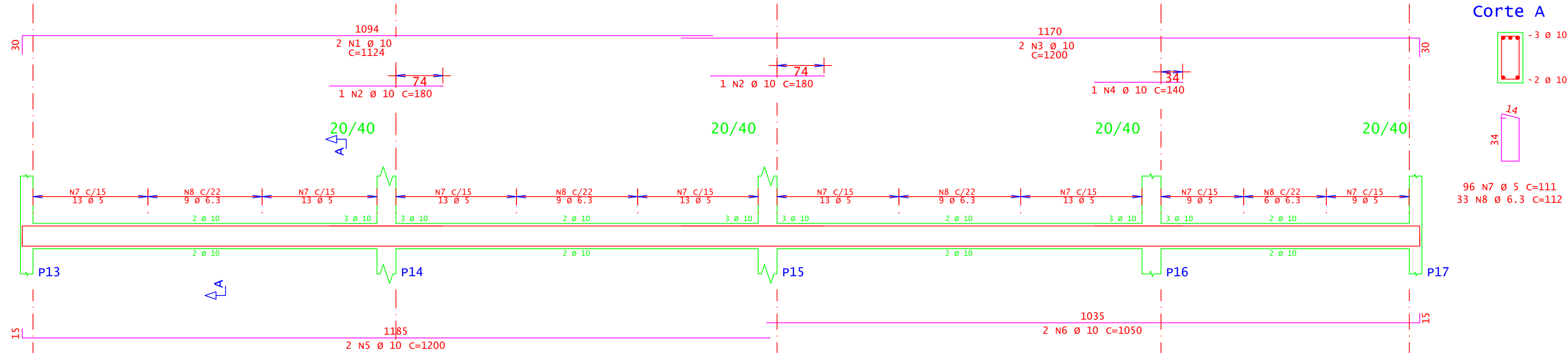
ESCALAS: INDICADAS

UNIDADE: INDICADAS

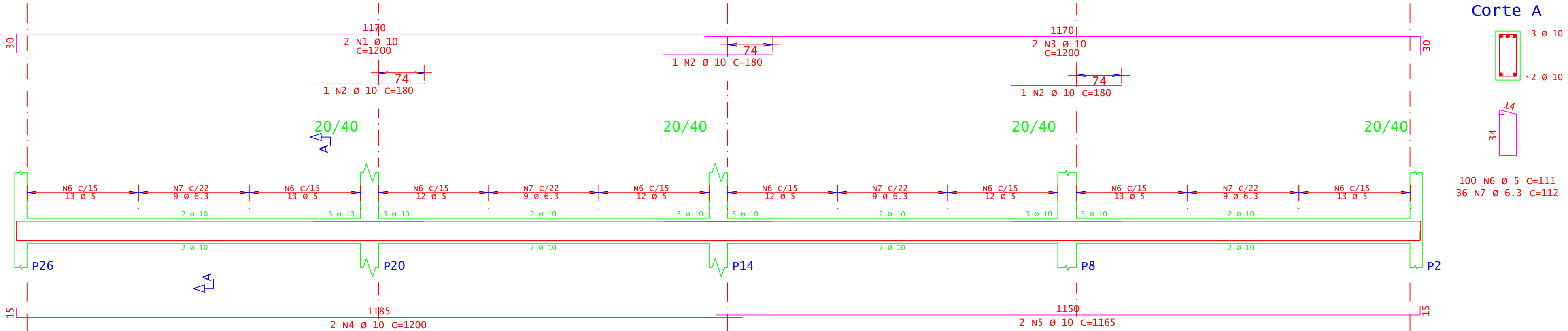
FOLHA: 04/13



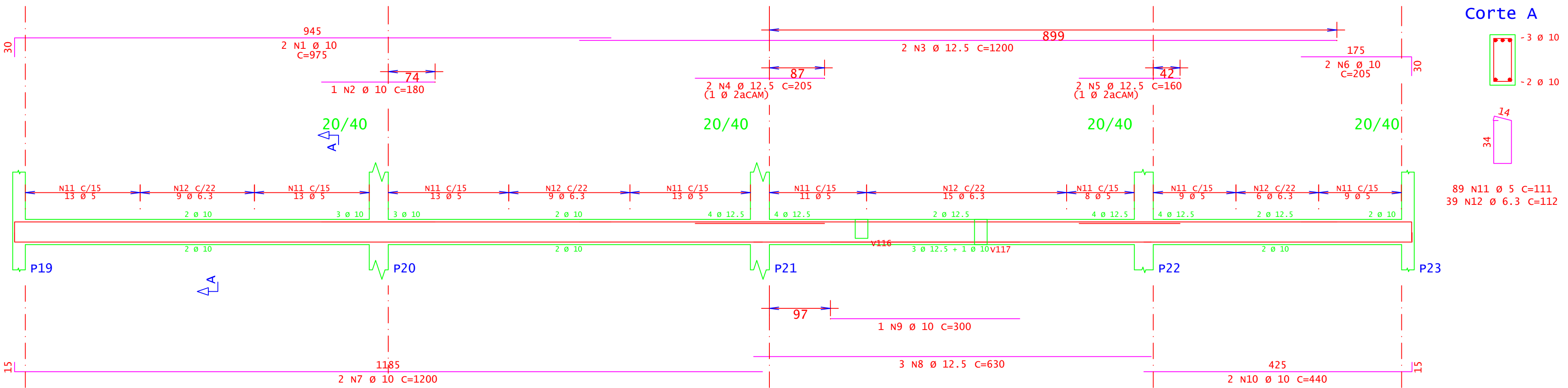
V104



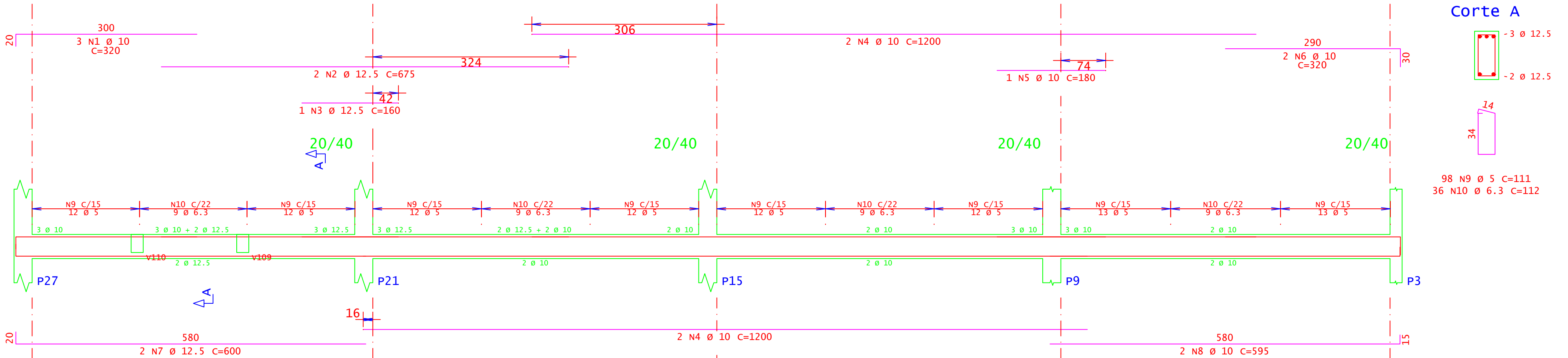
V113



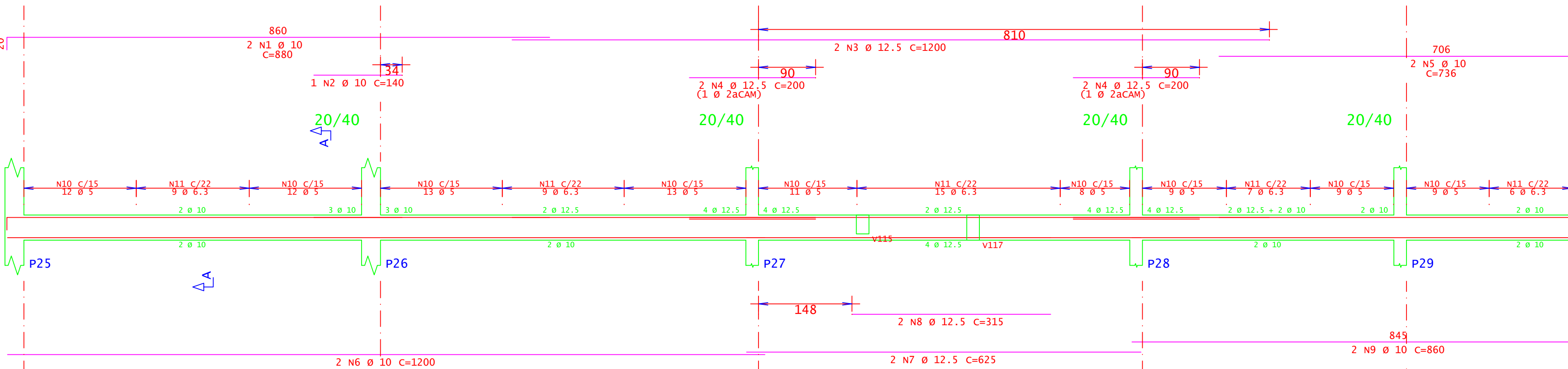
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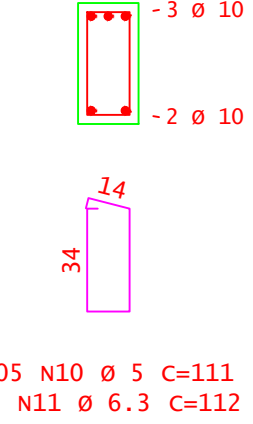
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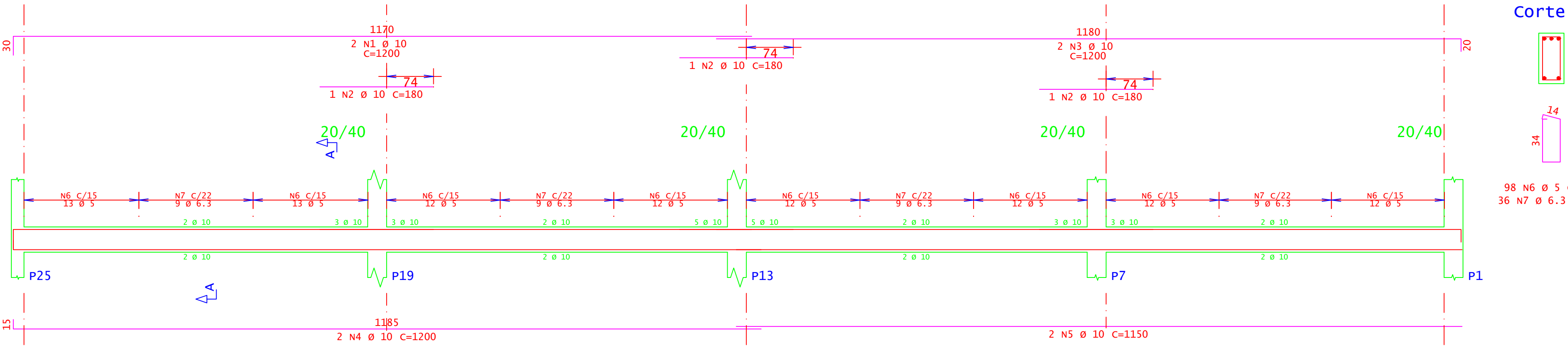
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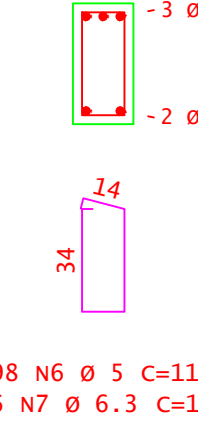
Corte A



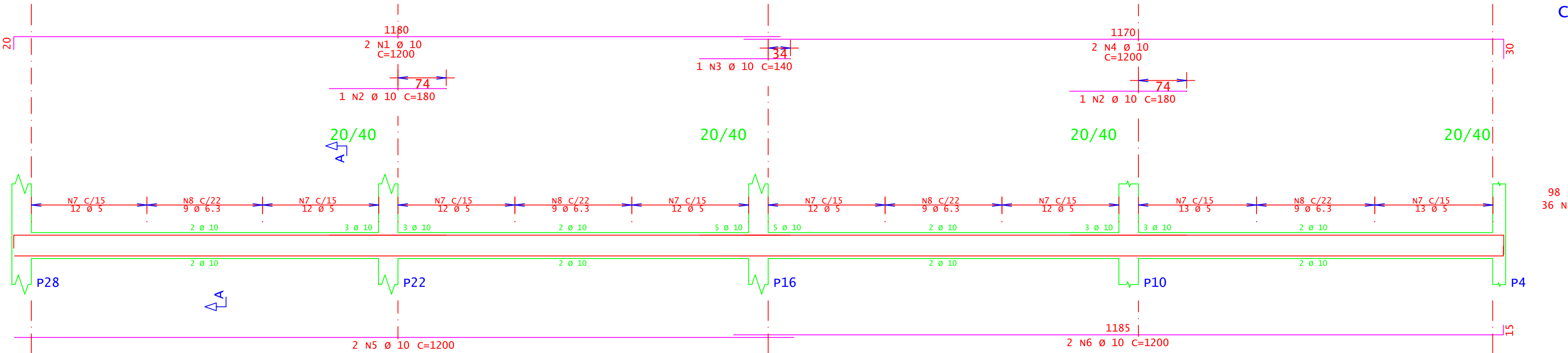
V112



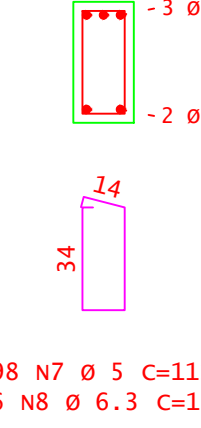
Corte A



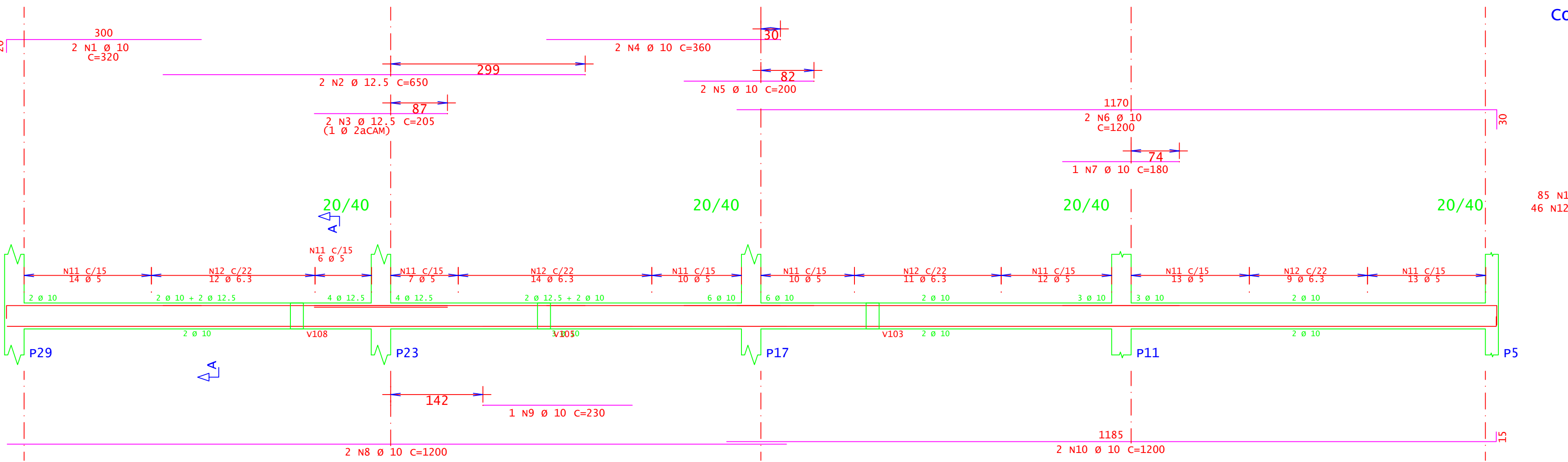
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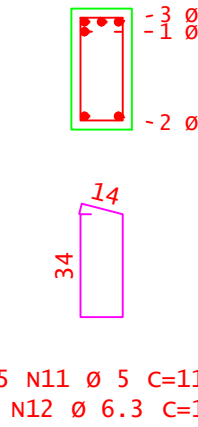
Corte A



V119



Corte A



ACO	POS	BIT (mm)	QUANT	COMPRIMENTO (cm)	UNIT	TOTAL
V104						
S0A	1	10	2	1124	2248	
S0A	2	10	2	180	360	
S0A	3	10	2	1200	2400	
S0A	4	10	2	140	280	
S0A	5	10	2	1200	2400	
S0A	6	10	2	1050	2100	
S0A	7	10	2	111	222	
S0A	8	6.3	33	112	3696	
V107						
S0A	1	10	2	975	1950	
S0A	2	10	2	180	360	
S0A	3	12.5	2	1200	2400	
S0A	4	12.5	2	205	410	
S0A	5	12.5	2	160	320	
S0A	6	10	2	205	410	
S0A	7	10	2	1200	2400	
S0A	8	12.5	3	630	1890	
S0A	9	10	2	300	600	
S0A	10	10	2	440	880	
S0A	11	10	89	111	9679	
S0A	12	6.3	39	112	4368	
V111						
S0A	1	10	2	880	1760	
S0A	2	10	2	140	280	
S0A	3	12.5	2	1200	2400	
S0A	4	12.5	4	200	800	
S0A	5	10	2	736	1472	
S0A	6	10	2	1200	2400	
S0A	7	12.5	2	675	1350	
S0A	8	12.5	2	315	630	
S0A	9	10	2	860	1720	
S0A	10	5	111	11655	129405	
S0A	11	6.3	46	112	5152	
V112						
S0A	1	10	2	1200	2400	
S0A	2	10	2	180	360	
S0A	3	10	2	1200	2400	
S0A	4	10	2	1200	2400	
S0A	5	10	2	1200	2400	
S0A	6	5	98	111	10878	
S0A	7	6.3	36	112	4032	
V113						
S0A	1	10	2	1200	2400	
S0A	2	10	2	180	360	
S0A	3	10	2	1200	2400	
S0A	4	10	2	1200	2400	
S0A	5	10	2	1165	2330	
S0A	6	5	100	111	11100	
S0A	7	6.3	36	112	4032	
V114						
S0A	1	10	3	320	960	
S0A	2	12.5	2	675	1350	
S0A	3	10	2	160	320	
S0A	4	10	4	1200	4800	
S0A	5	10	2	1200	2400	
S0A	6	10	2	320	640	
S0A	7	12.5	2	600	1200	
S0A	8	10	2	595	1190	
S0A	9	10	98	111	10878	
S0A	10	6.3	36	112	4032	
V118						
S0A	1	10	2	1200	2400	
S0A	2	10	2	180	360	
S0A	3	10	2	140	280	
S0A	4	10	2	1200	2400	
S0A	5	10	2	1200	2400	
S0A	6	10	2	1200	2400	
S0A	7	5	98	111	10878	
S0A	8	6.3	36	112	4032	
V119						
S0A	1	10	2	320	640	
S0A	2	12.5	2	650	1300	
S0A	3	12.5	2	205	410	
S0A	4	10	2	860	1720	
S0A	5	10	2	200	400	
S0A	6	10	2	1200	2400	
S0A	7	10	1	180	180	
S0A	8	10	2	1200	2400	
S0A	9	10	1	230	230	
S0A	10	10	1	1200	1200	
S0A	11	5	85	111	9435	
S0A	12	6.3	46	112	5152	
V121						
S0A	1	10	2	330	660	
S0A	2	10	1	300	300	
S0A	3	12.5	3	665	1995	
S0A	4	10	2	945	1890	
S0A	5	10	2	200	400	
S0A	6	10	2	1200	2400	
S0A	7	10	1	180	180	
S0A	8	10	2	1200	2400	
S0A	9	10	1	230	230	
S0A	10	10	2	1150	2300	
S0A	11	5	83	111	9213	
S0A	12	6.3	46	112	5152	

RESUMO DE AÇO				
ACO	BIT (mm)	COMPR (cm)	PESO (kg)	PESO C/10%
S0A	5	946	146	146
S0A	6.3	396	97	97
S0A	10	802	495	544
S0A	12.5	165	159	75
Peso Total			808	160
Peso Total			808	825

INSTITUTO FEDERAL

Sul de Minas Gerais

Campus Carmo de Minas

PROJETO

OBRA: BIBLIOTECA

LOCAL: CAMPUS CARMO DE MINAS

TIPO: ESTRUTURA - DETALHAMENTO DAS VIGAS BALDRAMES

PROPRIETÁRIO: IFSULDEMINAS

REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA: ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N, BAIRRO CHADRINHA, CARMO DE MINAS / MG

RESPONSÁVEL TÉCNICO: ENGº CIVIL PAULO ROBERTO DE OLIVEIRA CREA - MG 29/949/D - MAT. SIAPE 036657

ENGº CIVIL LEANDRO DE OLIVEIRA CREA - MG 202.445/D - MAT. SIAPE 1964467

CARIMBOS:

TERRENO = 104.867,00 m²

CONSTRUIR = 608,52 m²

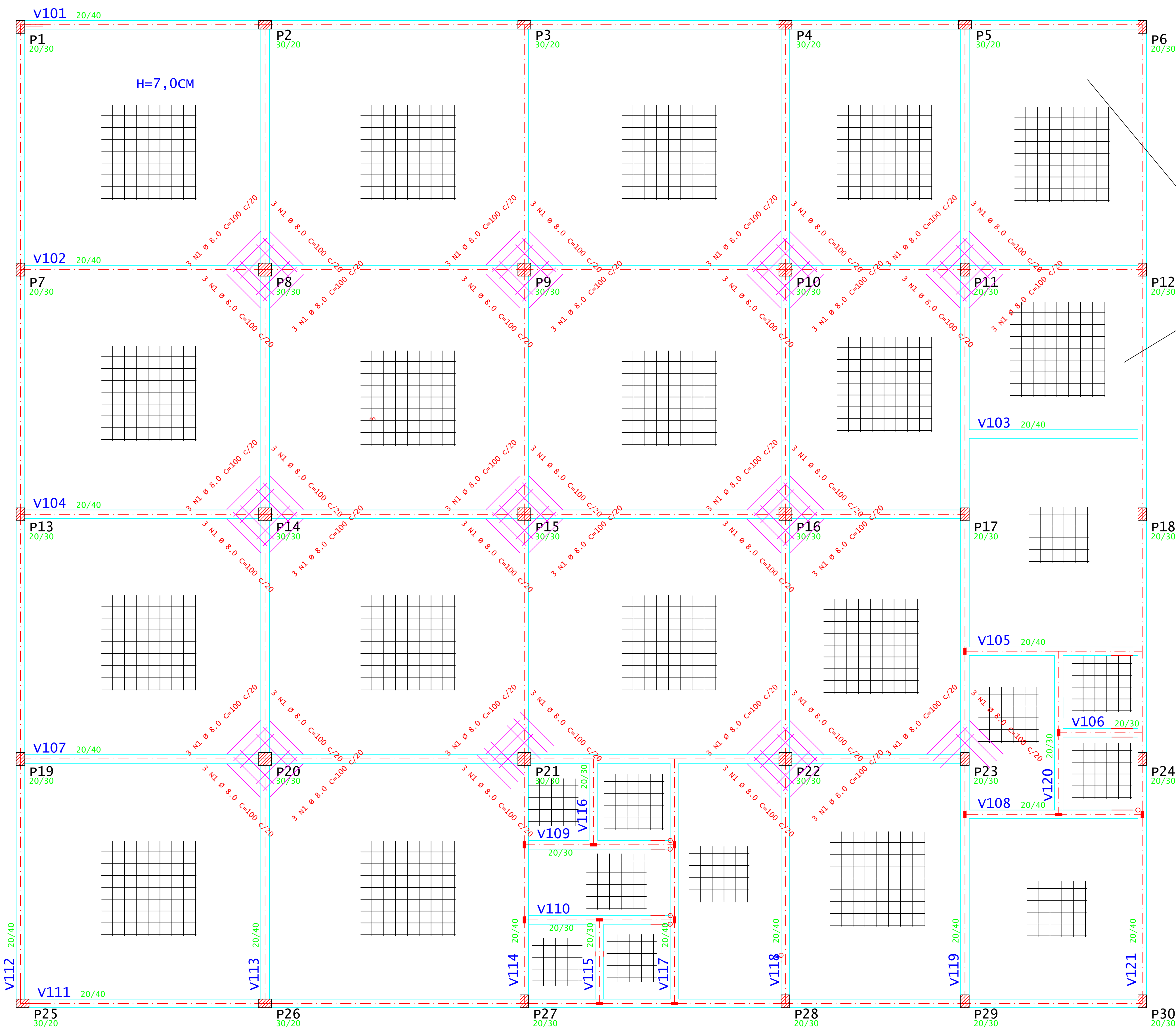
DATA: 06/05/2024

REVISÃO: 01

ESCALAS: INDICADAS

UNIDADE: INDICADAS

FOLHA: 05/13



AÇO	POS	BIT (mm)	QUANT	COMPRIMENTO	
				UNIT (cm)	TOTAL (cm)
Armadura					
	50A	1	8	123	100
					12300

RESUMO DE AÇO				
AÇO	BIT (mm)	COMPR (m)	PESO (kg)	PESO C/10% (kg)
50A	8	123	48	53
Peso Total		50A =	53	kg

VOLUME CONCRETO CONTRAPISO - FCK 20 Mpa (H=7,0CM) = 42,40 M³

CONTRAPISO:  
CONCRETO FCK=20Mpa - H=7,0CM  
ÁREA: 605,75M  
ALTURA: 0,07M  
VOLUME DE CONCRETO: 42,40 M³

ARMADURA DO CONTRAPISO:  
TELA DE AÇO CA-60, SOLDADA TIPO Q-92, DIÂMETRO Ø4,2MM, TRAMA COM DIMENSÃO (150X150)MM  
ÁREA LAJES = 605,75 M²  
ÁREA LAJES + 15% P/ TRANSPASSES = 696,61 M²

LONA PLÁSTICA - 150 MICRA = 696,61 M²

PLANTA DO CONTRAPISO - TÉRREO  
ESCALA: 1/50

INSTITUTO FEDERAL

Sul de Minas Gerais

Campus Carmo de Minas

PROJETO

OBRA: BIBLIOTECA

LOCAL: CAMPUS CARMO DE MINAS

TIPO: ESTRUTURA - CONTRAPISO EM CONCRETO ARMADO

PROPRIETÁRIO: IFSULDEMINAS

REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA: ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N, BAIRRO CHACRINHA, CARMO DE MINAS / MG

RESPONSÁVEL TÉCNICO: ENGº CIVIL PAULO ROBERTO DE OLIVEIRA CREA - MG 29.949/D - MAT. SIAPE 2056557

QUADRO RESUMO DE ÁREAS: TERRENO = 104.867,00 m²  
CONSTRUIR = 608,52 m²

ENGº CIVIL LEANDRO DE OLIVEIRA CREA - MG 202.445/D - MAT. SIAPE 1964467

CARIMBOS:

DATA: 06/05/2024

REVISÃO: 01

ESCALAS: INDICADAS

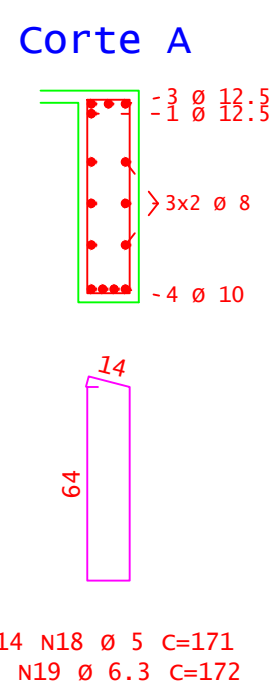
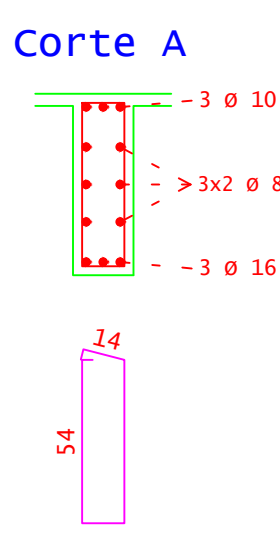
UNIDADE: INDICADAS

FOLHA: 06/13





Technical drawing of a bridge deck cross-section showing reinforcement details. The drawing includes a top view of the deck with reinforcement bars (N1, N2, N3, N4, N5, N6, N7, N8, N9, N10, N11, N12, N13, N14, N15, N16, N17, N18, N19, N20, N21, N22) and their respective dimensions and spacing. The deck is divided into sections with different reinforcement layouts. The deck has a central section and side sections. The central section has a width of 20.70m and a height of 2.4m. The side sections have a width of 2.4m and a height of 2.4m. The drawing includes a scale bar and a north arrow.

[illegible]

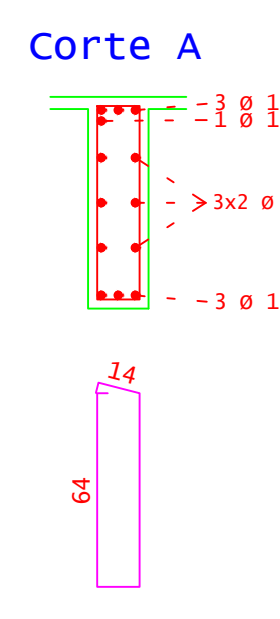
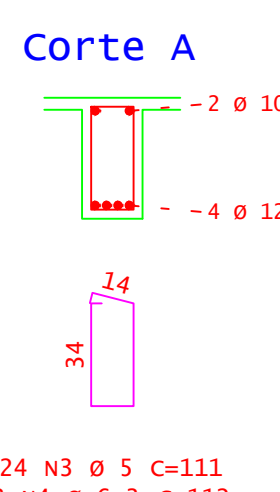
**Corte A-A**

Top view dimensions:  
 Total width: 422  
 Distance from edge to centerline:  $2 \times N1 \varnothing 10$   
 Center-to-center distance:  $C=490$   
 Flange thickness: 20/40

Side view dimensions:  
 Total height: 24  
 Distance from edge to centerline:  $2 \times N1 \varnothing 10$   
 Center-to-center distance:  $C=490$   
 Web thickness: 12

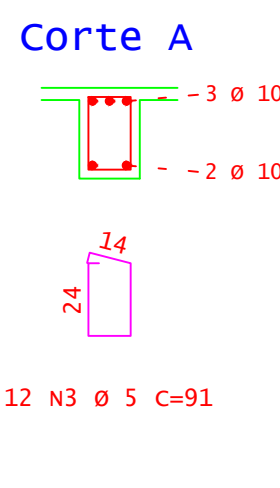
Bottom view dimensions:  
 Total width: 422  
 Distance from edge to centerline:  $2 \times N2 \varnothing 12.5$   
 Center-to-center distance:  $C=465$

Component specifications:  
 24 N3  $\varnothing 5$  C=111  
 3 N4  $\varnothing 6.3$  C=112



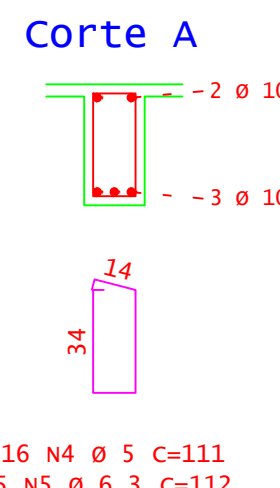
The diagram shows a rectangular building footprint with various dimensions and annotations:

- Top edge:** Labeled "206". Below it, there are three small circles representing columns, labeled "3 N1 Ø 10" and "C=250".
- Right side:** Labeled "22".
- Bottom right corner:** Labeled "V221".
- Bottom edge:** Labeled "205".
- Left side:** Labeled "22".
- Bottom left corner:** Labeled "V220".
- Internal dimensions:** A horizontal dimension line across the middle is labeled "N3 C/15" and "12 Ø 5". Below it, another horizontal dimension line is labeled "1 Ø 10".
- Annotations:** There are two blue arrows pointing upwards, one near the top center and one near the bottom center. The number "20/30" is written in green near the top arrow.
- Other labels:** To the right of the main rectangle, there is a vertical dimension line labeled "24" and a label "12 N3 Ø".

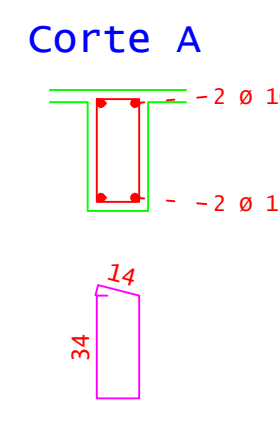


Technical drawing of a mechanical part with dimensions and tolerances:

- Top View:**
  - Overall width: 360
  - Overall height: 30
  - Top edge features: 2 N3 0.10 C=420
  - Right side features: 20/40, A
- Front View:**
  - Overall height: 35
  - Top edge features: M3 C/15, N5 C/22, N4 C/15
  - Dimensions: 8 0.3, 10 0.6, 3 0.15
  - Internal features: 2 Ø 10, Ø 14, 3 Ø 10
  - Bottom edge features: 1 N3 0.10 C=260
  - Right side features: 360, 2 N2 0.10 C=390
- Left View:**
  - Overall width: 21
  - Overall height: 30
  - Top edge features: 2 N3 0.15 C=420
  - Right side features: 20/40, A

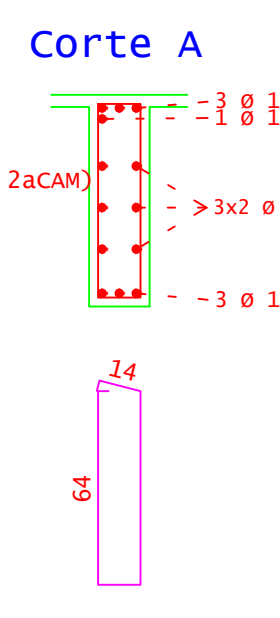
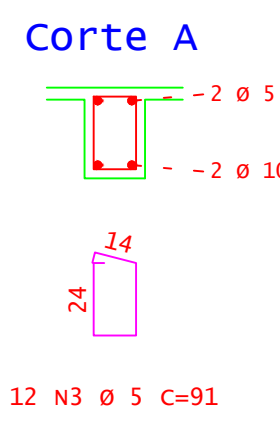


The technical drawing illustrates the reinforcement layout for a beam cross-section. The overall width is 360 mm, and the effective depth is 420 mm. The top reinforcement consists of two N1 bars with a diameter of 10 mm, spaced at 180 mm center-to-center. The bottom reinforcement includes three N3 bars with a diameter of 15 mm, spaced at 120 mm center-to-center, and one N4 bar with a diameter of 22 mm, positioned centrally. The drawing also shows stirrups with a diameter of 8 mm and a spacing of 150 mm. Section cut symbols A-A are indicated.

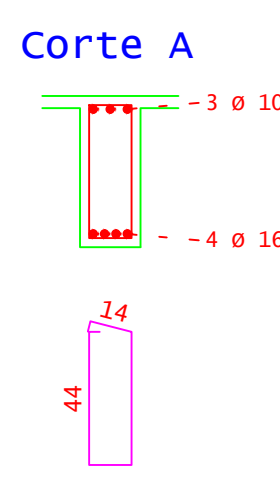
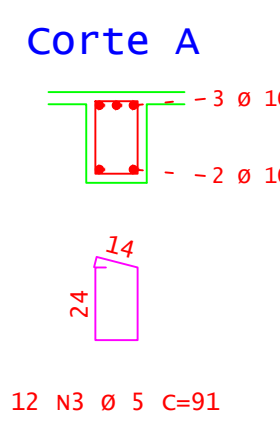


Technical drawing of a rectangular plate with dimensions and annotations:

- Top View:**
  - Overall width: 205
  - Inner width:  $2 \text{ N1 } \emptyset 5 \text{ C}=235$
  - Height: 20/30
  - Inner height:  $\text{N1 } \emptyset 15$
  - Inner width (bottom):  $2 \text{ N2 } \emptyset 10 \text{ C}=235$
  - Bottom width: 205
- Side View (Corte A):**
  - Overall height: 24
  - Inner height:  $2 \text{ N3 } \emptyset 5 \text{ C}=91$
- Annotations:**
  - Section line A-A is indicated.
  - Dimensions are given in millimeters (mm).

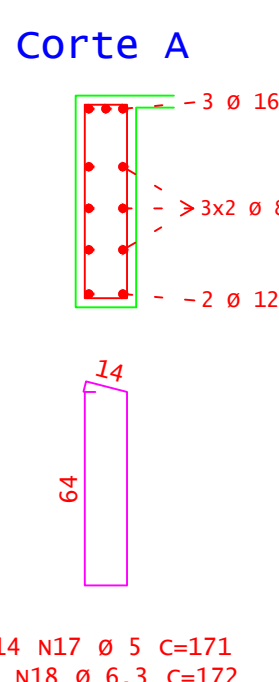
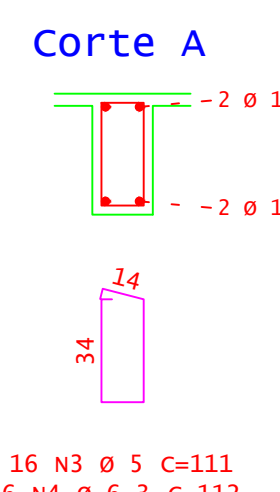



Technical drawing of a reinforced concrete slab (V209) showing dimensions and reinforcement details. The drawing includes a plan view of the slab with dimensions 212 x 212 cm, 3 N1 Ø 10, and C=255. It also shows a cross-section view (Corte A) with dimensions 20/30, 12 N3 Ø 5, and C=12. The drawing is labeled 'V209' and 'V207'.



VOLUME CONCRETO - FCK 30 Mpa - VIGAS = 39,90M³  
VOLUME CONCRETO - FCK 30 Mpa - LAJES = 44,93 M³  
ÁREA DE FORMA = 355,40 M²

Technical drawing of a reinforced concrete slab (L.01) showing reinforcement details for various spans and supports. The drawing includes dimensions, reinforcement bar specifications (e.g., 2 N4 Ø 12.5 C=700), and section markers (P25, P26, P27, P28, P29, P30).

[illegible]

<div><div><div>INSTITUTO FEDERAL</div><div>Sul de Minas Gerais</div><div>Campus Carmo de Minas</div></div></div>			
PROJETO	OBRA: BIBLIOTECA		
	LOCAL: CAMPUS CARMO DE MINAS		
	TIPO: ESTRUTURA - DETALHAMENTO VIGAS COBERTURA		
PROPRIETÁRIO: IFSULDEMINAS REITOR CLEBER ÁVILA BARBOSA		ENDEREÇO OBRA: ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N, BAIRRO CHACRINHA CARMO DE MINAS / MG	
RESPONSÁVEL TÉCNICO:  ENGº CIVIL PAULO ROBERTO DE OLIVEIRA CREA - MG 29.949/D - MAT. SIAPE 2056557		QUADRO RESUMO DE ÁREAS:  TERRENO = 104.867,00 m²  CONSTRUIR = 608,52 m²	
ENGº CIVIL LEANDRO DE OLIVEIRA CREA - MG 202.445/D - MAT. SIAPE 1964467			
CARIMBOS:			
DATA: 06/05/2024	REVISÃO: 01	ESCALAS: INDICADAS	INDICAÇÃO: INDICADAS
FOLHA: 08/13			



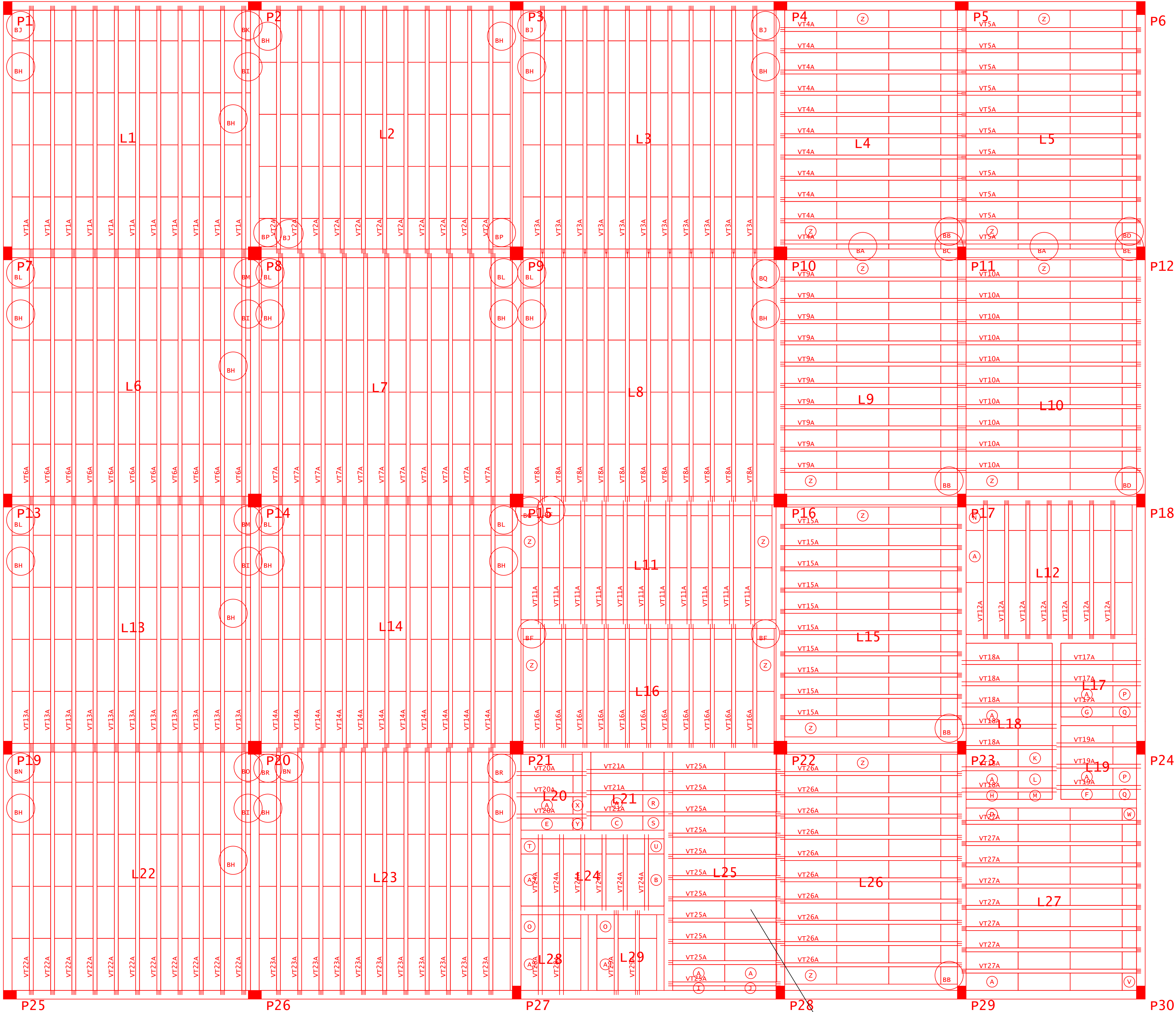
[illegible]

RESUMO DE AÇO				
AÇO	BIT (mm)	COMPR (m)	PESO (kg)	PESO C/10%
60A	5	1005	155	170
50A	6,3	330	81	89
50A	8	848	335	369
50A	10	448	276	303
50A	12,5	281	270	297
50A	16	73	115	126
Peso Total		60A =		170 kg
Peso Total		50A =		1184 kg

09/13



Terreo - Armadura positiva principal

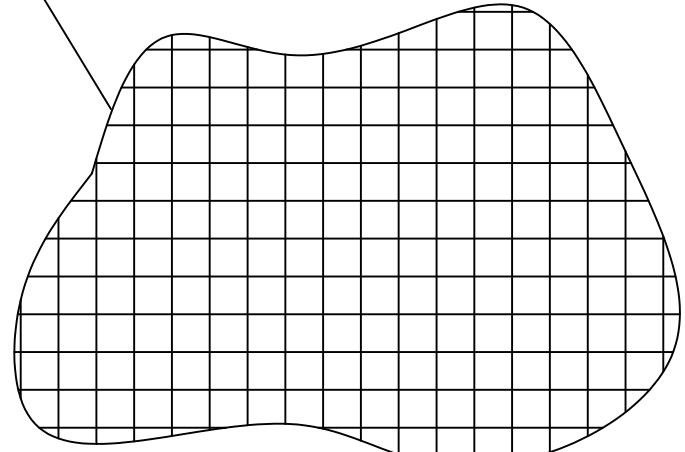


PLANTA DE FORMA - MONTAGEM DAS TRELIÇAS E ENCHIMENTOS

ESCALA: 1/50

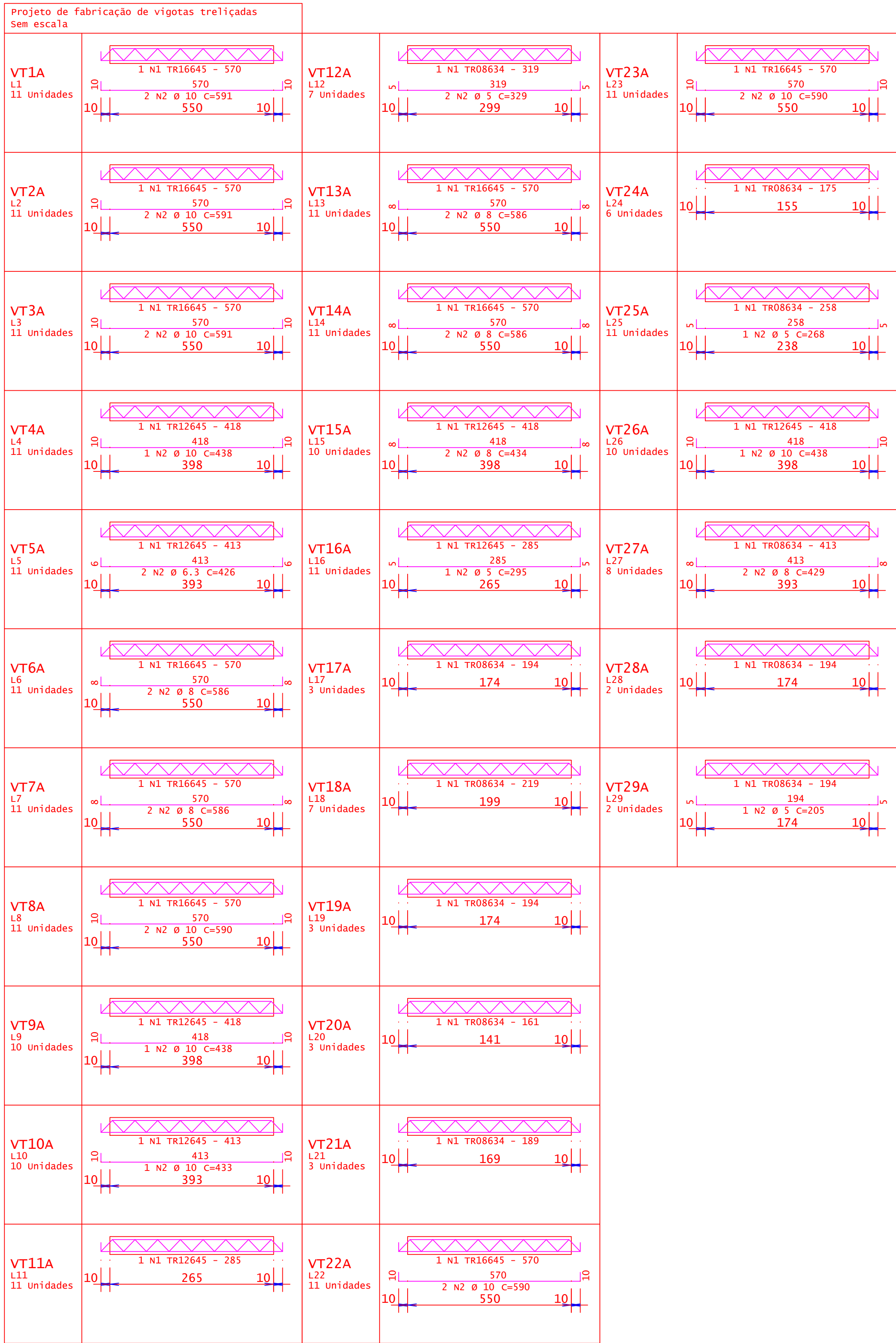
Tabela de Vigotas Trelçadas																		
Dados			Vãos / Apóios				Armação Trelçada				Armadura Adicional (1)				Armadura Adicional (2)			
Laje	Vigota	No	Laje	L1	L2	L3	L4	Trelça	Unite	Total	No	Ø	Unite	Total	No	Ø	Unite	Total
cm	cm		cm	cm	cm	cm	cm	cm	cm	cm	mm	mm	cm	cm	mm	mm	cm	cm
L1	VT1A	11	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L2	VT2A	11	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L3	VT3A	11	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L4	VT4A	11	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L5	VT5A	11	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L6	VT6A	11	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L7	VT7A	11	10	550	10	570	TR16645	570	6270	2	8,0	8	8	586	13892			
L8	VT8A	11	10	550	10	570	TR16645	570	6270	2	10,0	10	10	590	12980			
L9	VT9A	10	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L10	VT10A	10	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L11	VT11A	11	10	265	10	285	TR12645	285	3135	2	5,0	5	5	379	4631			
L12	VT12A	7	9	299	9	319	TR08634	319	2231	1	5,0	5	5	329	4666			
L13	VT13A	11	10	550	10	570	TR16645	570	6270	2	8,0	8	8	586	13892			
L14	VT14A	11	10	550	10	570	TR16645	570	6270	2	10,0	10	10	590	12980			
L15	VT15A	10	10	550	10	570	TR16645	570	6275	2	10,0	10	10	590	12991			
L16	VT16A	11	10	398	10	418	TR12645	418	4184	2	8,0	8	8	434	8687			
L17	VT17A	11	10	398	10	418	TR12645	418	4184	2	10,0	10	10	590	12980			
L18	VT18A	11	10	265	10	285	TR12645	285	3135	2	5,0	5	5	379	3245			
L19	VT19A	3	10	174	10	194	TR08634	194	583									
L20	VT20A	7	9	199	9	219	TR08634	219	1303									
L21	VT21A	3	10	174	10	194	TR08634	194	584									
L22	VT22A	3	10	141	10	161	TR08634	161	483									
L23	VT23A	6	10	155	10	175	TR08634	175	567									
L24	VT24A	11	10	550	10	570	TR16645	570	6265	2	10,0	10	10	590	12969			
L25	VT25A	11	10	550	10	570	TR16645	570	6265	2	10,0	10	10	590	12969			
L26	VT26A	6	10	155	10	175	TR08634	175	1059									
L27	VT27A	11	10	238	10	258	TR08634	258	2882	1	5,0	5	5	268	2932			
L28	VT28A	10	10	393	10	413	TR08634	413	4332	2	8,0	8	8	429	6884			
L29	VT29A	8	10	393	10	413	TR08634	413	3305	2	8,0	8	8	429	6866			
L30	VT30A	2	10	174	10	194	TR08634	194	583									
L31	VT31A	2	10	174	10	194	TR08634	194	889	1	5,0	5	5	204	4099			

ARMADURA DE DISTRIBUIÇÃO EM TODAS LAJES  
TELA DE AÇO CA-60, SOLDADA TIPO Q-92, DIÂMETRO Ø4,2MM, TRAMA COM DIMENSÃO (150X150)MM  
ÁREA LAJES = 605,75 M²  
ÁREA LAJES + 15% PT TRANSPPASSES = 696,61 M²



Relação de blocos de enchimento			
Legenda	Qtos	Dimensões	
		Larg (cm)	Compr (cm)
EPS unidirecional H08/40/120			
A	33	40,0	120,0
B	1	36,0	120,0
C	1	33,0	120,0
D	3	28,5	120,0
E	1	28,0	120,0
F	1	23,0	120,0
G	1	23,0	120,0
H	1	17,0	120,0
I	1	10,5	120,0
J	1	10,5	118,3
K	3	40,0	78,6
L	1	40,0	78,6
M	1	17,0	78,6
N	8	40,0	59,0
O	6	40,0	54,5
P	2	23,0	54,5
Q	2	23,0	54,5
R	1	33,0	48,9
S	1	33,0	48,9
T	1	36,0	35,0
U	8	40,0	33,1
V	1	28,5	33,1
W	3	40,0	21,1
X	1	28,0	21,1
EPS unidirecional H12/40/120			
BA	248	40,0	120,0
BB	4	11,5	120,0
BC	44	40,0	36,4
BD	1	11,5	36,4
BE	22	40,0	33,1
BF	1	11,5	33,1
BG	23	40,0	25,0
BH	1	40,0	20,0
EPS unidirecional H16/40/120			
BH	464	40,0	120,0
BI	13	11,0	120,0
BJ	33	40,0	70,5
BK	1	11,0	70,5
BL	57	40,0	70,0
BM	2	11,0	69,5
BN	21	40,0	69,5
BO	2	11,0	69,5
BQ	2	40,0	65,5
BR	2	40,0	65,5
BS	2	40,0	65,5

Estimativa de consumo de blocos			
Fabricante	Inteiros	Cortados	Total
EPS unidirecional H08/40/120	93	40	133
EPS unidirecional H12/40/120	246	48	294
EPS unidirecional H16/40/120	464	125	589



AÇO	POS	BIT (mm)	QUANT	COMPRIMENTO (cm)	TOTAL (cm)
VT1A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT2A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT3A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT4A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT5A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT6A (X11)					
TR16645	1	6,3	11	413	4543
TR16645	2	6,3	11	413	4543
VT7A (X11)					
TR16645	1	8	11	570	6270
TR16645	2	8	11	570	6270
VT8A (X11)					
TR16645	1	8	11	570	6270
TR16645	2	8	11	570	6270
VT9A (X10)					
TR16645	1	10	10	418	4180
TR16645	2	10	10	418	4180
VT10A (X10)					
TR16645	1	10	10	418	4180
TR16645	2	10	10	418	4180
VT11A (X11)					
TR16645	1	10	10	413	4130
TR16645	2	10	10	413	4130
VT12A (X7)					
TR08634	1		11	285	3135
TR08634	2	5	7	319	2233
VT13A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT14A (X11)					
TR16645	1	8	11	570	6270
TR16645	2	8	11	570	6270
VT15A (X10)					
TR16645	1	8	11	570	6270
TR16645	2	8	11	570	6270
VT16A (X10)					
TR16645	1	8	11	570	6270
TR16645	2	8	11	570	6270
VT17A (X11)					
TR16645	1	8	11	570	6270
TR16645	2	8	11	570	6270
VT18A (X7)					
TR08634	1		3	194	582
TR08634	2	5	7	319	2233
VT19A (X3)					
TR08634	1		3	194	582
TR08634	2	5	7	319	2233
VT20A (X3)					
TR08634	1		3	161	483
TR08634	2	5	7	319	2233
VT21A (X3)					
TR08634	1		3	161	483
TR08634	2	5	7	319	2233
VT22A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT23A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT24A (X6)					
TR08634	1		6	175	1050
TR08634	2	5	11	258	2838
VT25A (X11)					
TR16645	1	10	11	570	6270
TR16645	2	10	11	570	6270
VT26A (X10)					
TR16645	1	8	11	570	6270
TR16645	2	8	11	570	6270
VT27A (X8)					
TR08634	1	8	8	413	3304
TR08634	2	8	8	413	3304
VT28A (X2)					
TR08634	1		2	194	388
TR08634	2	5	2	204	408

RESUMO DE AÇO			
AÇO	BIT (mm)	COMPR (m)	PESO (kg)
TR16645		627	598
TR12645		321	286
TR08634		139	87
60A	5	117	17
50A	6,3	94	13
50A	8	671	265
50A	10	918	391
Peso Total	TR16645 =		598 kg
Peso Total	TR12645 =		286 kg
Peso Total	TR08634 =		87 kg
Peso Total	60A =		17 kg
Peso Total	50A =		879 kg

INSTITUTO FEDERAL

Sul de Minas Gerais

Campus Carmo de Minas

PROJETO

OBRA: BIBLIOTECA

LOCAL: CAMPUS CARMO DE MINAS

TIPO: ESTRUTURA - DETALHAMENTO LAJES - COBERTURA

PROPRIETÁRIO: IFSULDEMINAS

REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA: ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N, BARRIO CHACRINHA, CARMO DE MINAS / MG

RESPONSÁVEL TÉCNICO: ENGº CIVIL PAULO ROBERTO DE OLIVEIRA CREA - MG 29.949/D - MAT. SIAPE 0366557

QUADRO RESUMO DE ÁREAS: TERRENO = 104.867,00 m² CONSTRUIR = 606,52 m²

ENGº CIVIL LEANDRO DE OLIVEIRA CREA - MG 202.445/D - MAT. SIAPE 1964467

CARIMBOS:

DATA: 06/05/2024

REVISÃO: 01

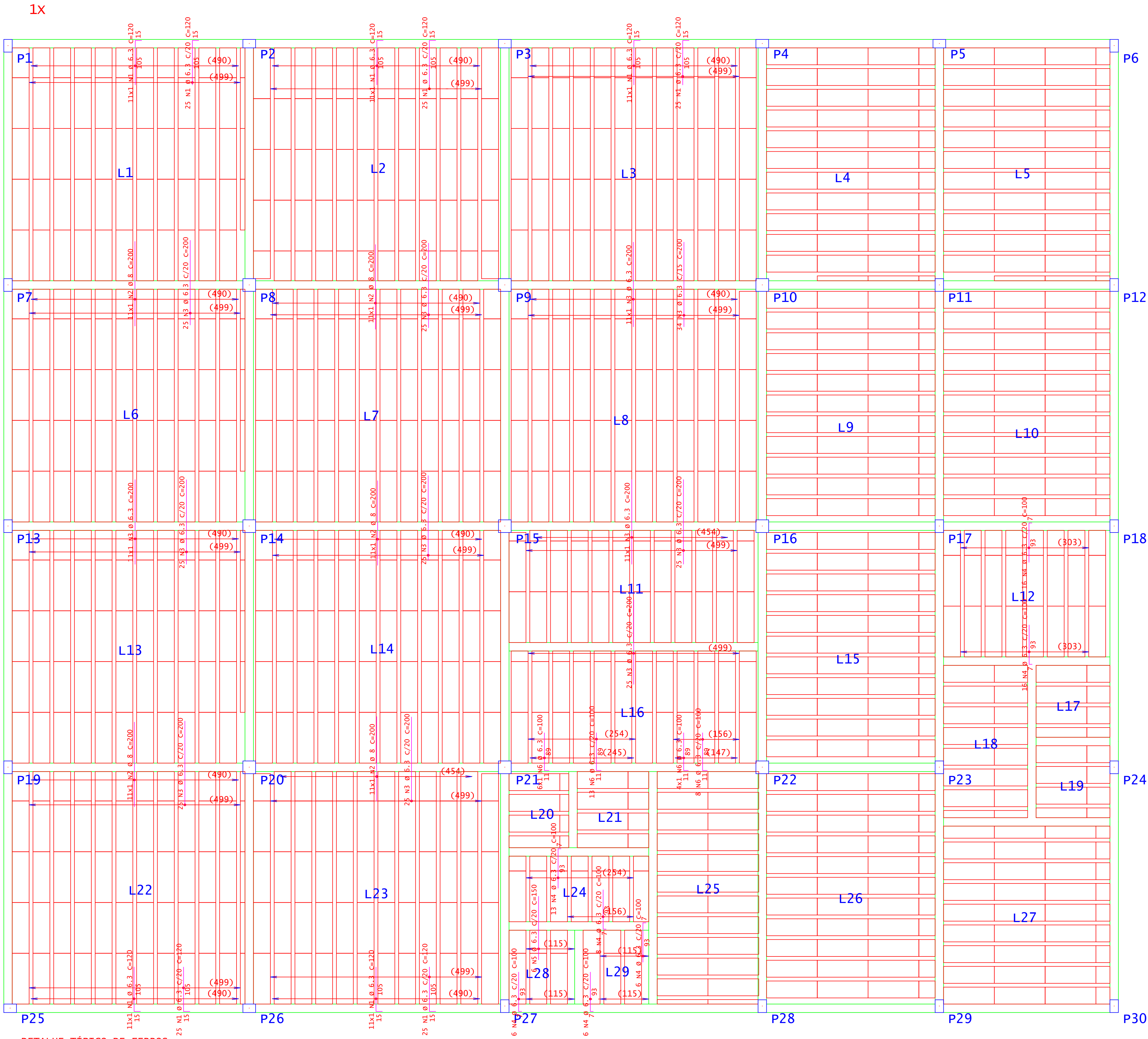
ESCALAS: INDICADAS

UNIDADE: INDICADAS

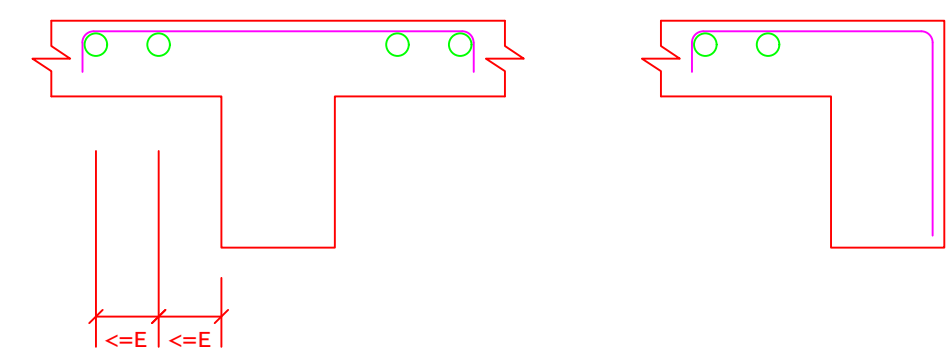
FOLHA: 10/13



Terreo - Armadura negativa secundaria



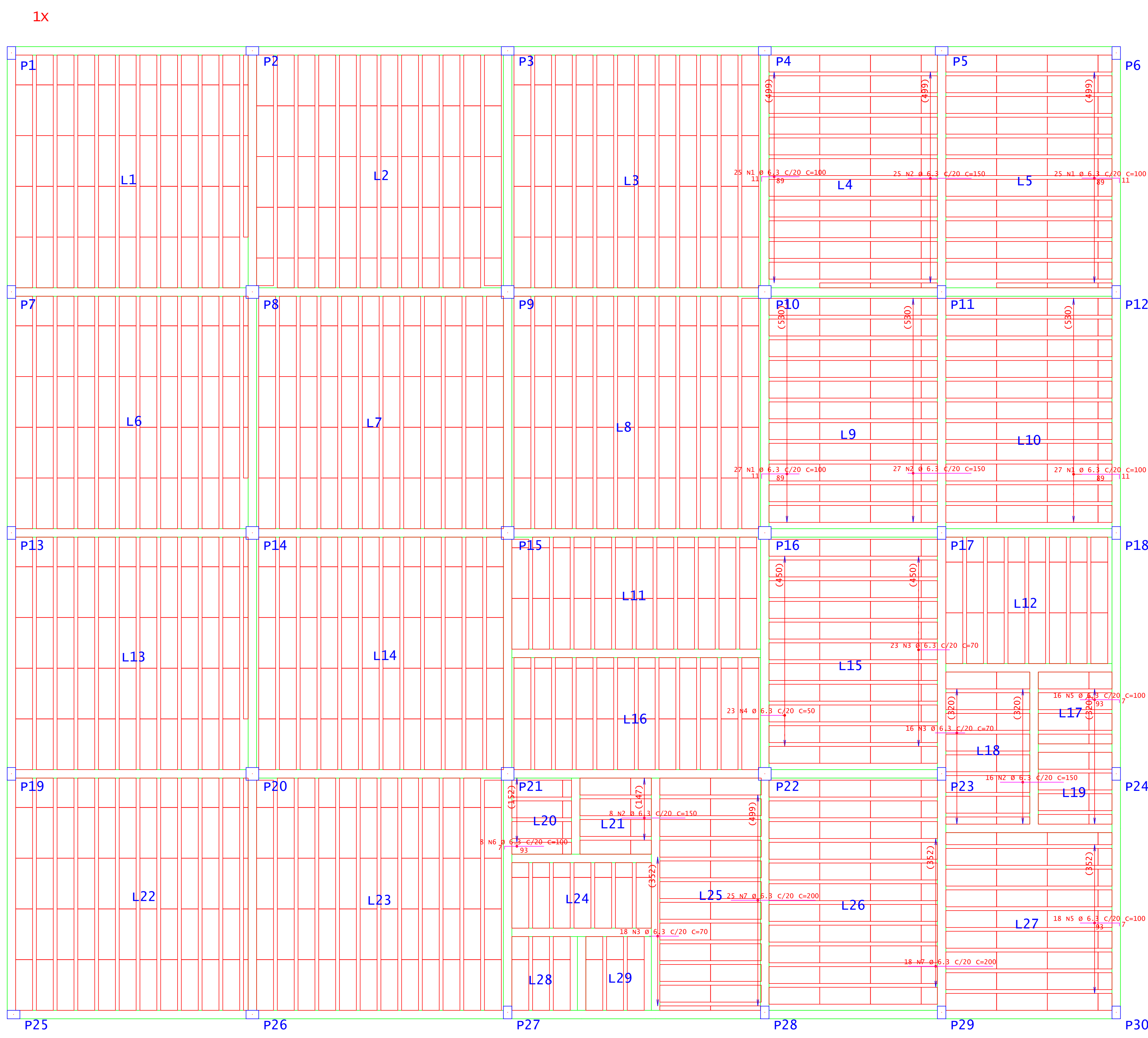
DETALHE TÍPICO DE FERROS DE DISTRIBUIÇÃO DE ARMADURA NEGATIVA



ACO	POS	BIT (mm)	QUANT	COMPRIMENTO UNIT (cm)	TOTAL (cm)
Armadura negativa secundaria					
S0A	1	6.3	180	120	21600
S0A	2	8	55	200	11000
S0A	3	6.3	267	200	53400
S0A	4	6.3	71	100	7100
S0A	5	6.3	6	150	900
S0A	6	6.3	31	100	3100

RESUMO DE AÇO				
ACO	BIT (mm)	COMPR (m)	PESO (kg)	PESO C/10% (kg)
S0A	6.3	861	711	47
S0A	8	110	43	25
Peso Total			S0A =	279 kg

Terreo - Armadura negativa principal



ACO	POS	BIT (mm)	QUANT	COMPRIMENTO UNIT (cm)	TOTAL (cm)
Armadura negativa principal					
S0A	1	6.3	104	100	10400
S0A	2	6.3	75	150	11250
S0A	3	6.3	57	70	3990
S0A	4	6.3	23	50	1150
S0A	5	6.3	34	100	3400
S0A	6	6.3	8	100	800
S0A	7	6.3	43	200	8600

RESUMO DE AÇO				
ACO	BIT (mm)	COMPR (m)	PESO (kg)	PESO C/10% (kg)
S0A	6.3	397	37	106
Peso Total			S0A =	106 kg

INSTITUTO FEDERAL

Sul de Minas Gerais

Campus Carmo de Minas

PROJETO

OBRA: BIBLIOTECA

LOCAL: CAMPUS CARMO DE MINAS

TIPO: ESTRUTURA - DETALHAMENTO LAJES - COBERTURA

PROPRIETÁRIO: IFSULDEMINAS

REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA: ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N, BAIRRO CHACRINHA, CARMO DE MINAS / MG

RESPONSÁVEL TÉCNICO: ENGº CIVIL PAULO ROBERTO DE OLIVEIRA CREA - MG 29.949/D - MAT. SIAPE 2056557

ENGº CIVIL LEANDRO DE OLIVEIRA CREA - MG 202.445/D - MAT. SIAPE 1964467

QUADRO RESUMO DE ÁREAS: TERRENO = 104.867,00 m²

CONSTRUIR = 608,52 m²

CARIMBOS:

DATA: 06/05/2024

REVISÃO: 01

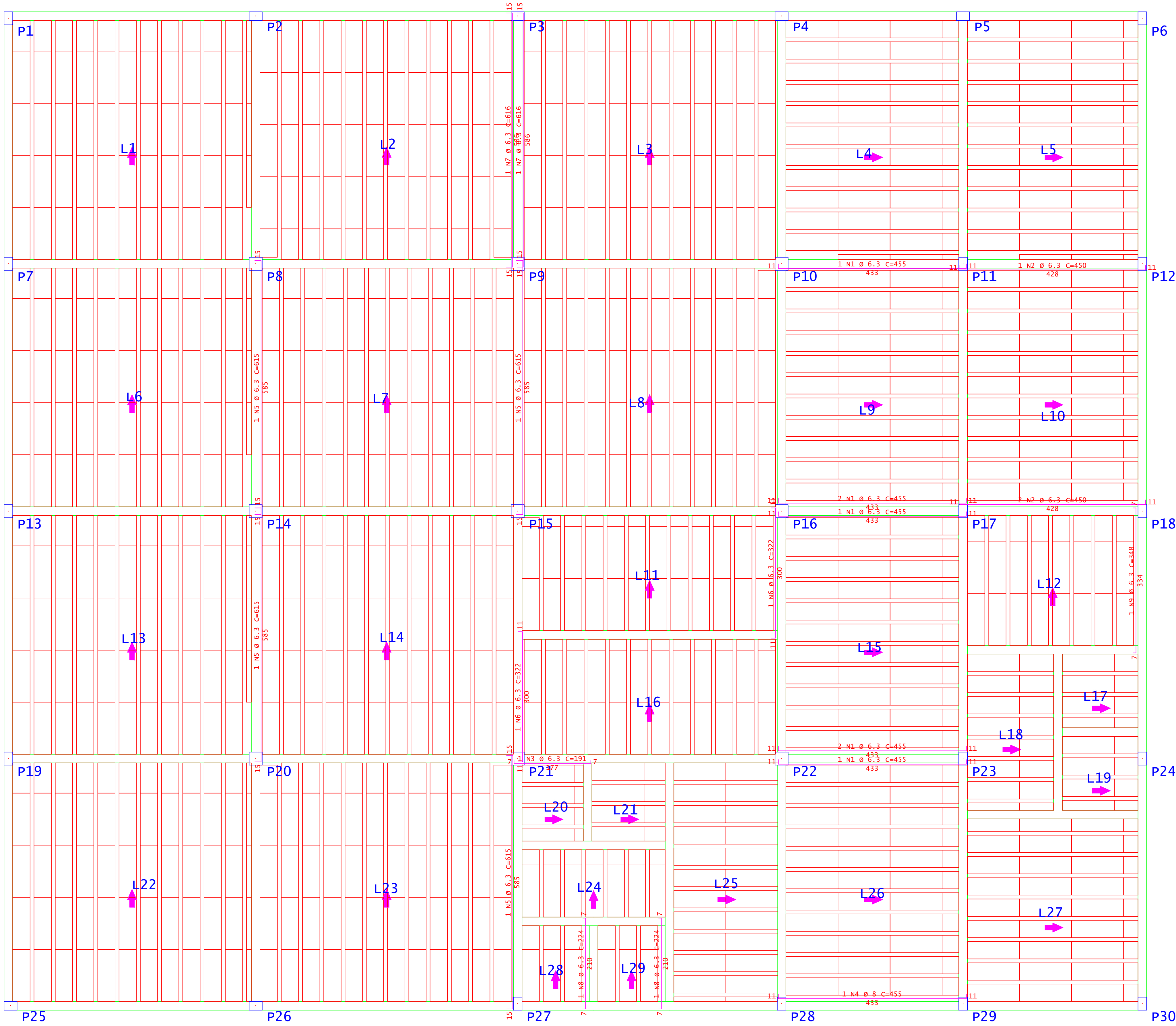
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FOLHA: 11/13

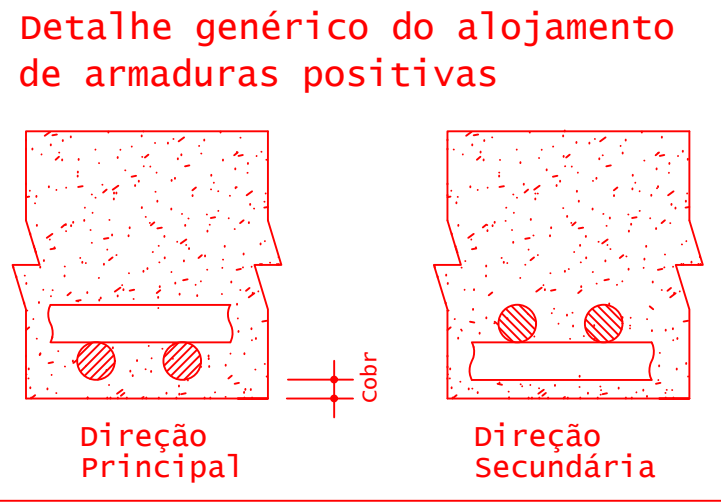
Terreo - Armadura positiva principal

1x



ACO	POS	BIT (mm)	QUANT	COMPRIMENTO	
				UNIT (cm)	TOTAL (cm)
Armadura positiva principal					
S0A	1	6,3	7	455	3185
S0A	2	6,3	3	450	1350
S0A	3	6,3	1	191	191
S0A	4	6,3	1	455	455
S0A	5	6,3	4	615	2460
S0A	6	6,3	2	322	644
S0A	7	6,3	2	616	1232
S0A	8	6,3	2	224	448
S0A	9	6,3	1	348	348

RESUMO DE AÇO				
ACO	BIT (mm)	COMPR (m)	PESO (kg)	PESO C/10% (kg)
S0A	6,3	99	24	25
S0A	8	5	2	2
Peso Total			S0A =	28 kg



**INSTITUTO FEDERAL**  
Sul de Minas Gerais  
Campus Carmo de Minas

PROJETO

OBRA:  
BIBLIOTECA

LOCAL:  
CAMPUS CARMO DE MINAS

TIPO:  
ESTRUTURA - DETALHAMENTO LAJES - COBERTURA

PROPRIETÁRIO: IFSULDEMINAS  
REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA:  
ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N,  
BAIRRO CHACRINHA  
CARMO DE MINAS / MG

RESPONSÁVEL TÉCNICO:  
  
ENGº CIVIL PAULO ROBERTO DE OLIVEIRA  
CREA - MG 29.949/D - MAT. SIAPE 2056557  
  
ENGº CIVIL LEANDRO DE OLIVEIRA  
CREA - MG 202.445/D - MAT. SIAPE 1964467

QUADRO RESUMO DE ÁREAS:  
TERRENO = 104.867,00 m²  
CONSTRUIR = 608,52 m²

CARIMBOS:

DATA:  
06/05/2024

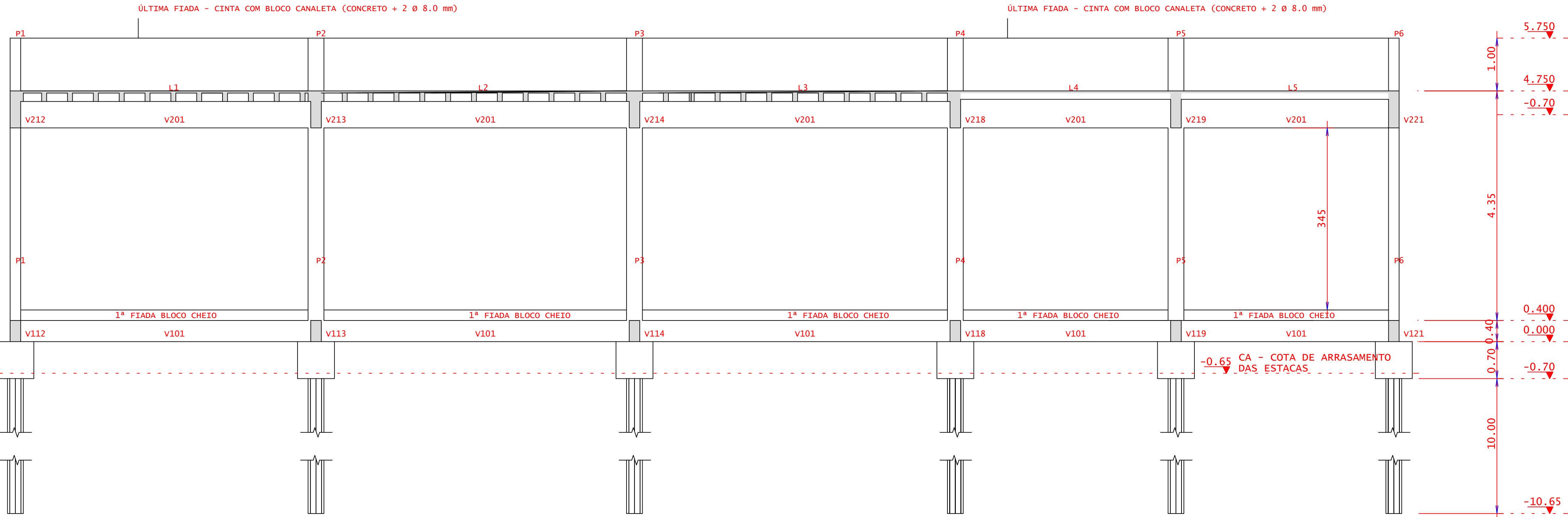
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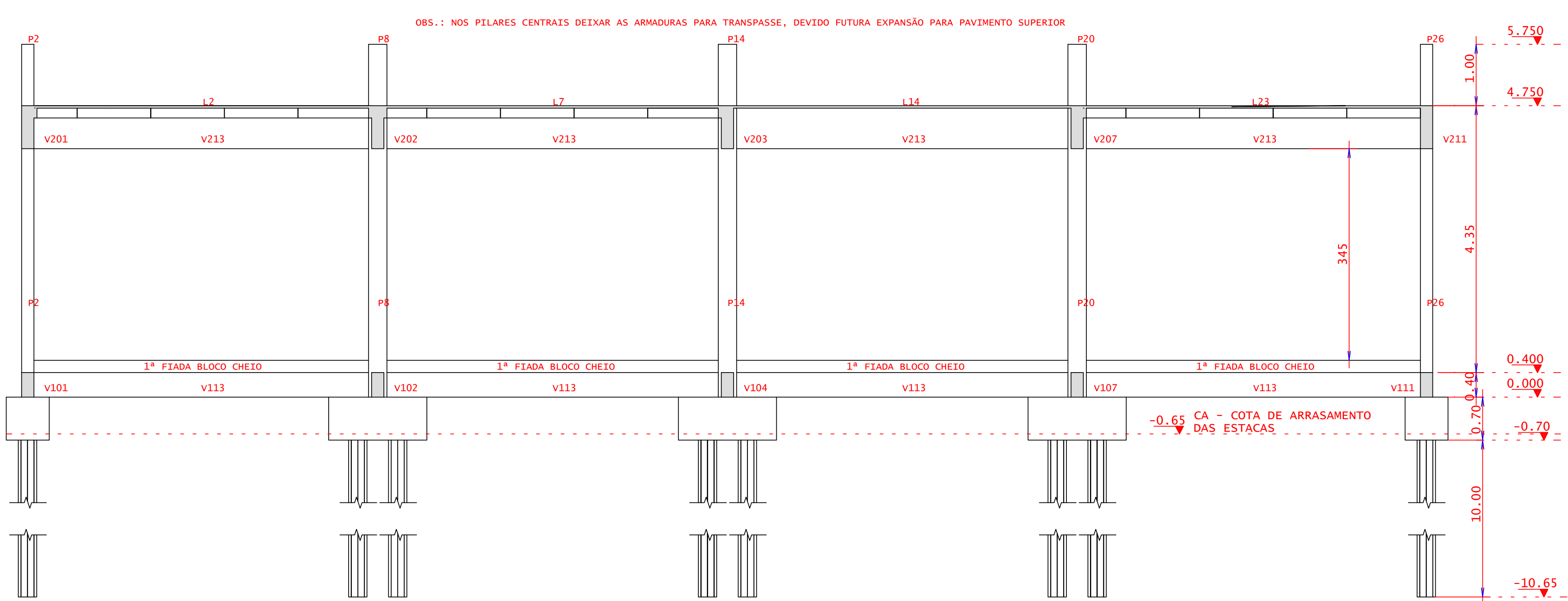
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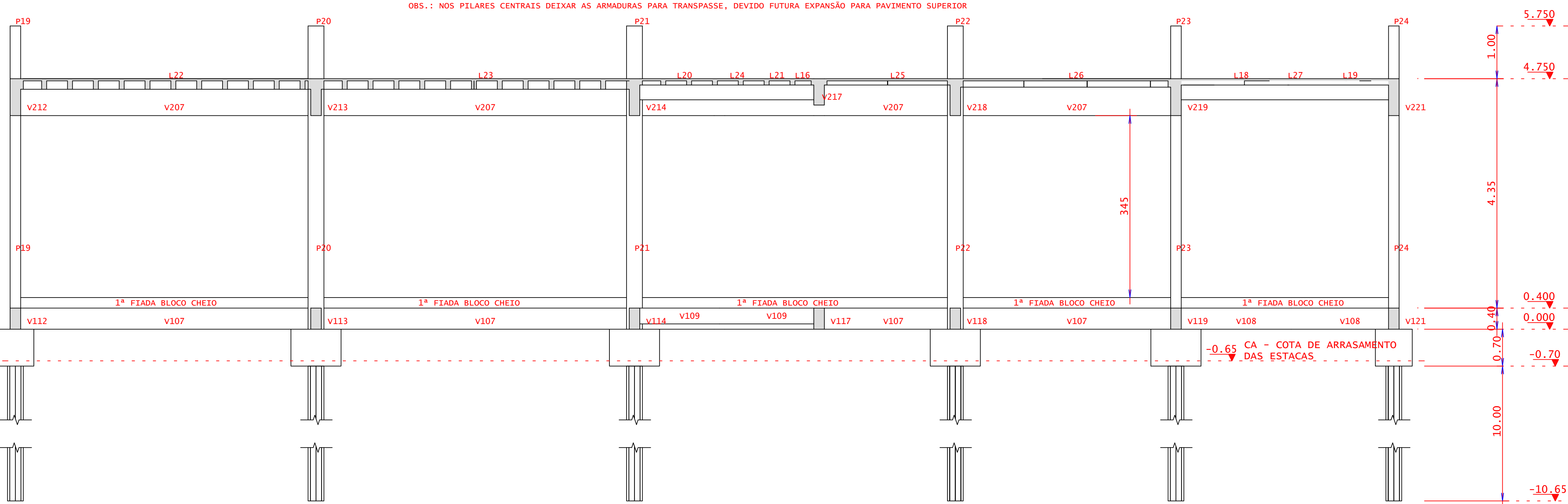




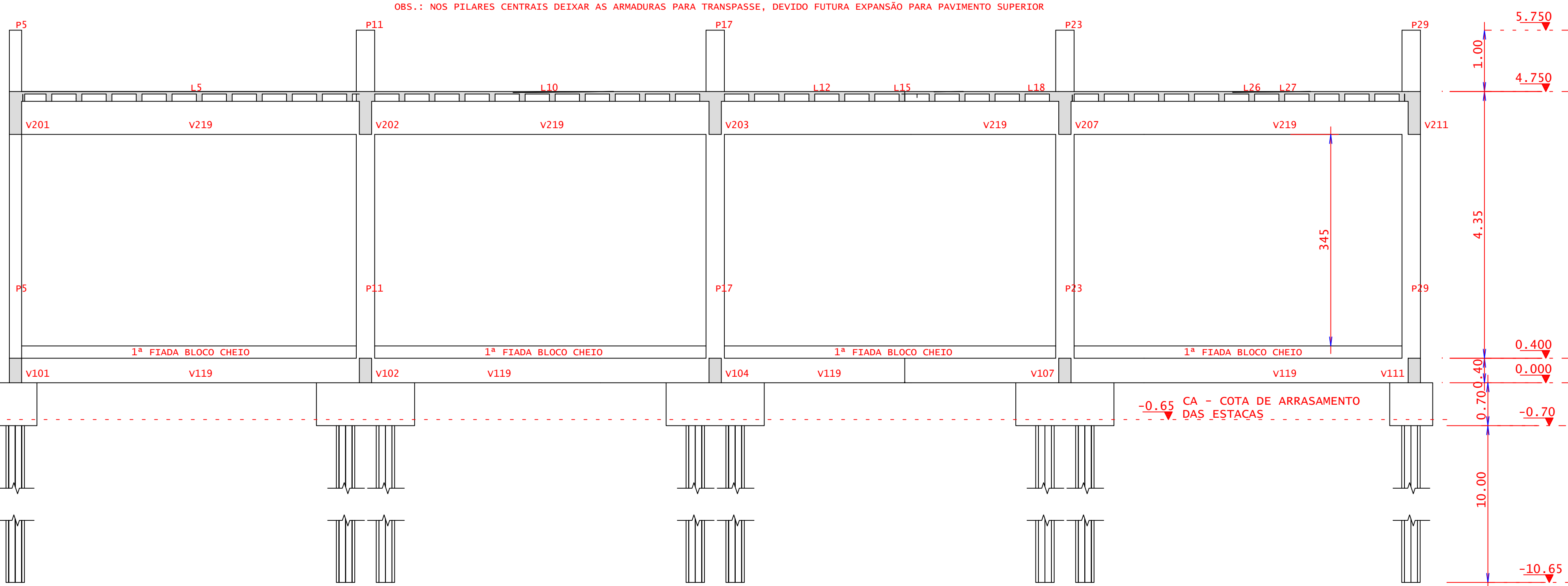
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ESCALA: 1/50



CORTE C-C  
ESCALA: 1/50



CORTE B-B  
ESCALA: 1/50



CORTE D-D  
ESCALA: 1/50

INSTITUTO FEDERAL

Sul de Minas Gerais

Campus Carmo de Minas

PROJETO

OBRA:

BIBLIOTECA

LOCAL:

CAMPUS CARMO DE MINAS

TIPO:

ESTRUTURA - CORTES

PROPRIETÁRIO: IFSULDEMINAS

REITOR CLEBER ÁVILA BARBOSA

ENDEREÇO OBRA:

ALAMEDA MURILO EUGÊNIO RUBIÃO, S/N.

BAIRRO CHACRINHA

CARMO DE MINAS / MG

RESPONSÁVEL TÉCNICO:

ENGº CIVIL PAULO ROBERTO DE OLIVEIRA  
CREA - MG 29.949/D - MAT. SIAPE 2056557

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13/13