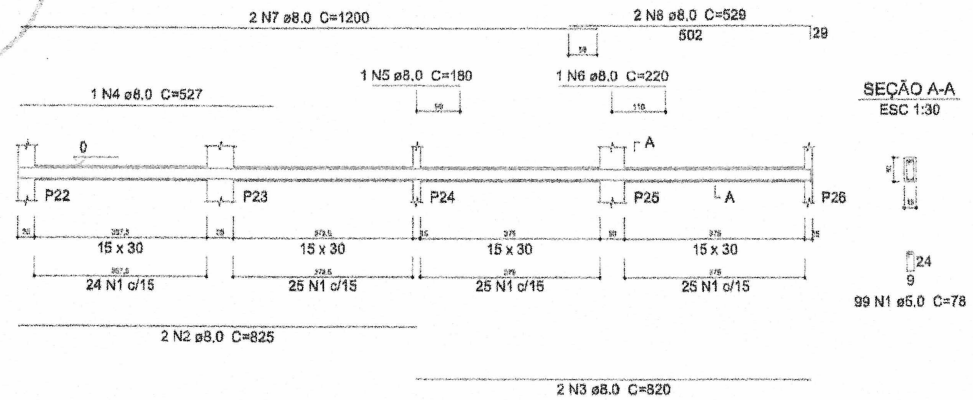
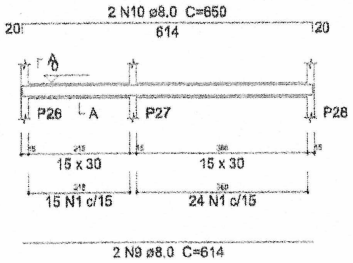
V8
ESC 1:50



SEÇÃO A-A
ESC 1:30

V9
ESC 1:50



SEÇÃO A-A
ESC 1:30

Relação do aço

V8 V9 V10
V11 V12 V13
V16 V18

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	362	78	28236
CA50	2	8.0	2	825	1650
	3	8.0	2	820	1640
	4	8.0	1	527	527
	5	8.0	1	180	180
	6	8.0	1	220	220
	7	8.0	2	1200	2400
	8	8.0	2	529	1058
	9	8.0	4	614	2456
	10	8.0	4	650	2600
	11	8.0	4	824	3296
	12	8.0	1	230	230
	13	8.0	2	873	1746
	14	8.0	2	724	1448
	15	8.0	1	170	170
	16	8.0	1	117	117
	17	8.0	2	746	1492
	18	8.0	2	257	514
	19	8.0	2	279	558
	20	8.0	1	116	116
	21	8.0	1	195	195
	22	8.0	2	870	1740
	23	8.0	2	384	768
	24	8.0	2	420	840

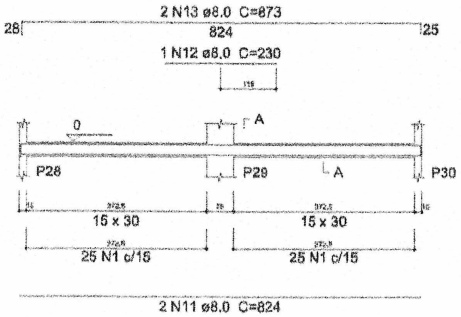
Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	8.0	259.7	102.4
CA60	5.0	282.4	43.5

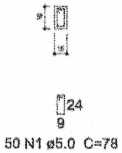
PESO TOTAL (kg)	
CA50	102.4
CA60	43.5

Volume de concreto (C-25) = 2.66 m³
Área de forma = 44.36 m²

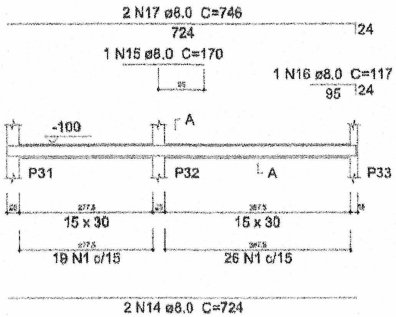
V10
ESC 1:50



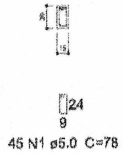
SEÇÃO A-A
ESC 1:30



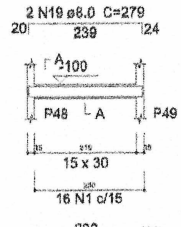
V11
ESC 1:50



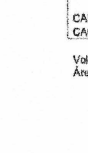
SEÇÃO A-A
ESC 1:30



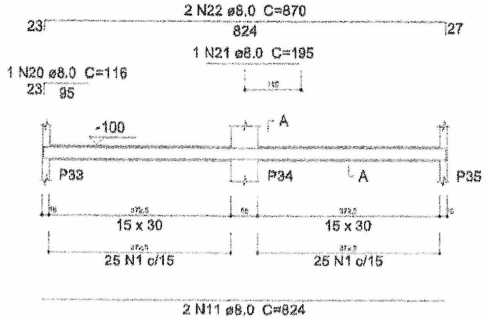
V18
ESC 1:50



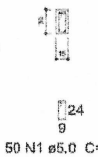
SEÇÃO A-A
ESC 1:30



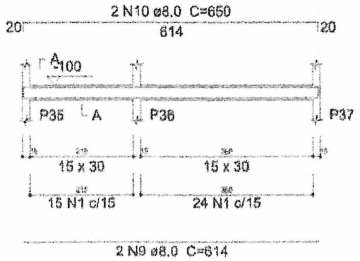
V12
ESC 1:50



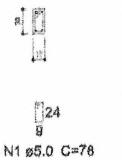
SEÇÃO A-A
ESC 1:30



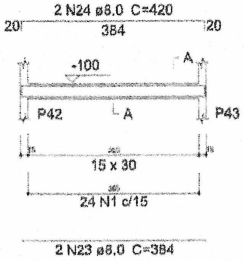
V13
ESC 1:50



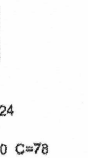
SEÇÃO A-A
ESC 1:30



V16
ESC 1:50



SEÇÃO A-A
ESC 1:30



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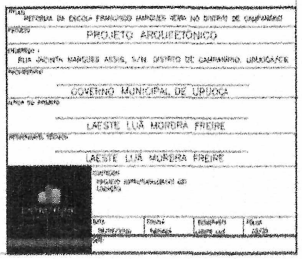
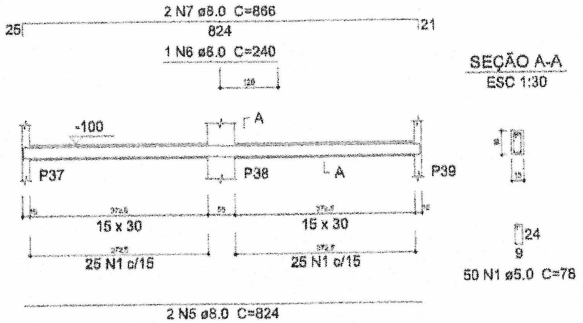


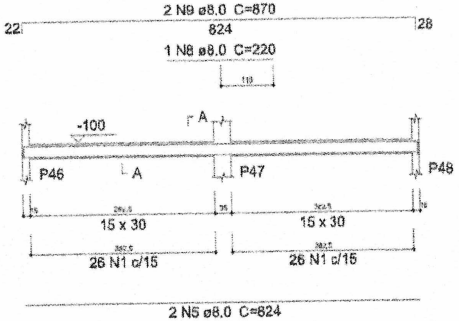
PROTOCOLO
Fls. 197
Fls. 263
COMISSÃO PERMANENTE DE LICITAÇÃO DE URUOCA-CE

V14
ESC 1:50



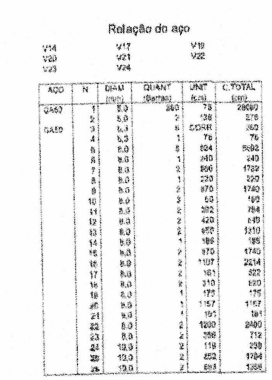
SEÇÃO A-A
ESC 1:30

V17
ESC 1:50



SEÇÃO A-A
ESC 1:30

V21
ESC 1:50



SEÇÃO A-A
ESC 1:30

Relação do aço

V14 V17 V19
V20 V21 V22
V23 V24

AÇO	N	DIAM (mm)	QUANT (barras)	UNIT (cm)	C.TOTAL (cm)
CA50	1	8.0	260	78	20280
	2	5.0	2	138	276
CA60	3	6.3	6	CORR	360
	4	6.3	1	76	76
	5	8.0	6	824	5088
	6	8.0	1	240	240
	7	8.0	2	890	1780
	8	8.0	1	220	220
	9	8.0	2	870	1740
	10	8.0	3	50	150
	11	8.0	2	392	784
	12	8.0	2	420	840
	13	8.0	2	855	1710
	14	8.0	1	185	185
	15	8.0	2	870	1740
	16	8.0	2	1107	2214
	17	8.0	2	161	322
	18	8.0	2	310	620
	19	8.0	1	175	175
	20	8.0	1	1157	1157
	21	8.0	1	161	161
	22	8.0	2	1200	2400
	23	8.0	2	356	712
	24	10.0	2	119	238
	25	10.0	2	452	1904
	26	10.0	2	683	1366

Resumo do aço

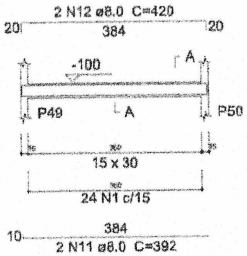
AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	5.0	4.4	1.1
	8.0	233.5	92.1
	10.0	32.1	19.4
CA60	6.0	285.6	43.7

PESO TOTAL (kg)

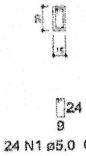
CA50	113.5
CA60	43.7

Volume em concreto (C-25) = 2.69 m³
Área de forma = 44.67 m²

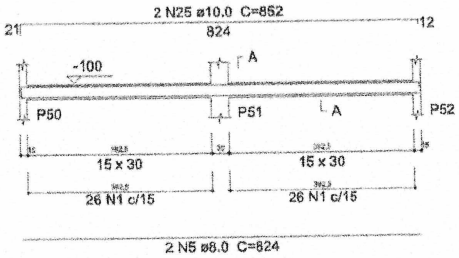
V19
ESC 1:50



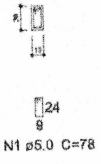
SEÇÃO A-A
ESC 1:30



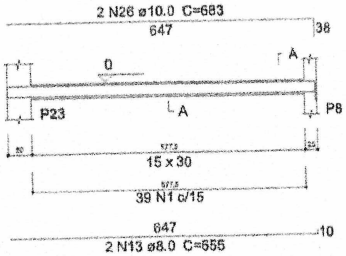
V20
ESC 1:50



SEÇÃO A-A
ESC 1:30

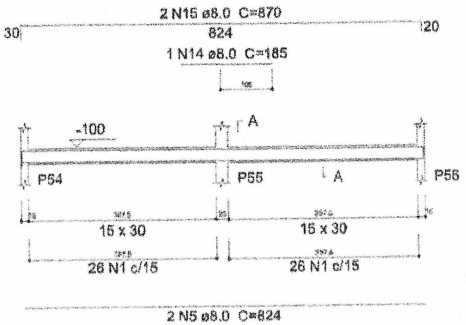


V24
ESC 1:50

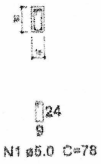


SEÇÃO A-A
ESC 1:30

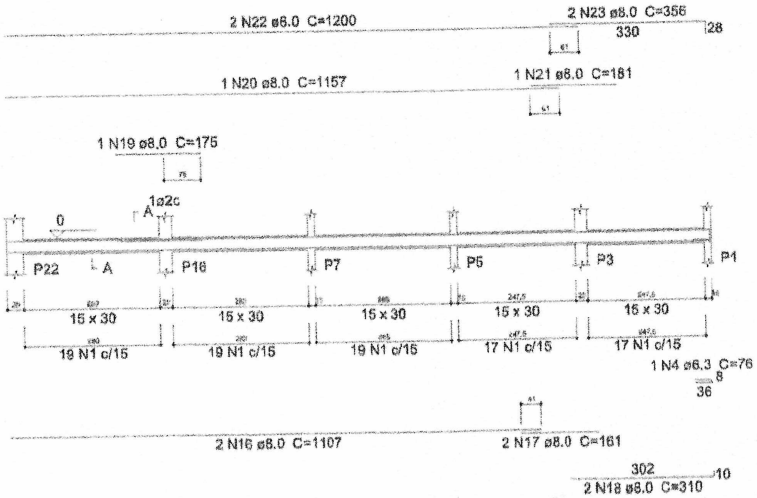
V22
ESC 1:50



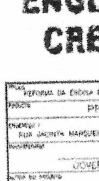
SEÇÃO A-A
ESC 1:30



V23
ESC 1:50



SEÇÃO A-A
ESC 1:30



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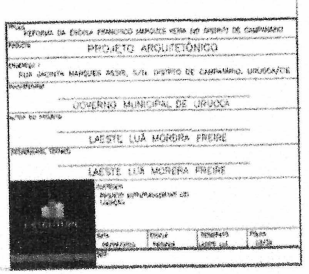
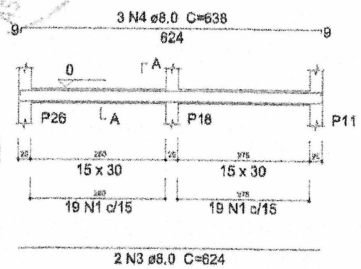
CREA-CE 322353

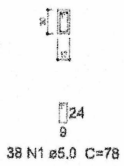


PROTOCOLO
COMISSÃO PERMANENTE DE LICITAÇÃO DE URUBUCAÇÊ
Fls. 262

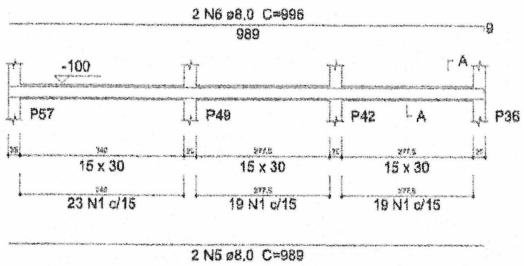
V32
ESC 1:50



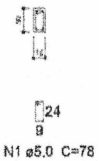
SEÇÃO A-A
ESC 1:30



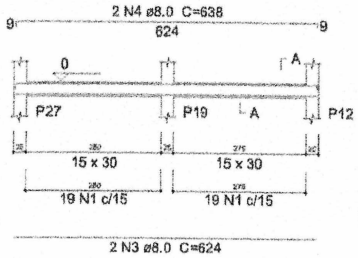
V33
ESC 1:50



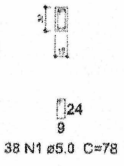
SEÇÃO A-A
ESC 1:30



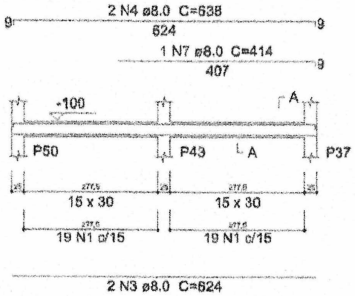
V34
ESC 1:50



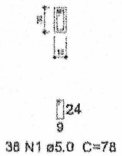
SEÇÃO A-A
ESC 1:30



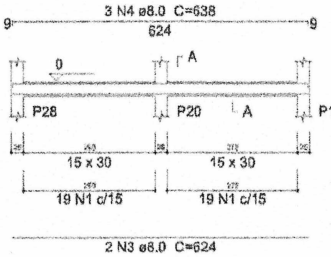
V35
ESC 1:50



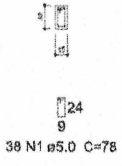
SEÇÃO A-A
ESC 1:30



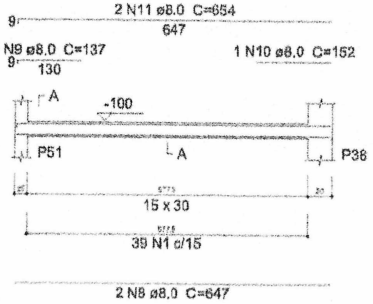
V36
ESC 1:50



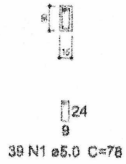
SEÇÃO A-A
ESC 1:30



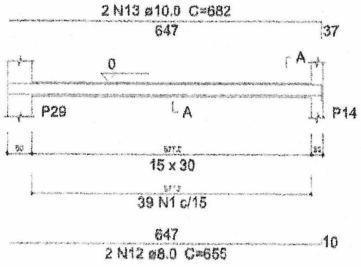
V37
ESC 1:50



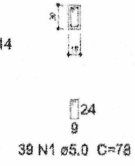
SEÇÃO A-A
ESC 1:30



V38
ESC 1:50

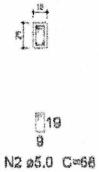


SEÇÃO A-A
ESC 1:30



P12=P15

FUNDAÇÕES - L1
ESC 1:25



Relação do aço

2xP12 V32 V33
V34 V35 V36
V37 V38

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	291	78	22698
	2	5.0	22	68	1496
CA50	3	8.0	8	624	4992
	4	8.0	10	638	6380
	5	8.0	2	989	1978
	6	8.0	2	996	1992
	7	8.0	1	414	414
	8	8.0	2	647	1294
	9	8.0	1	137	137
	10	8.0	1	152	152
	11	8.0	2	654	1308
	12	8.0	2	655	1310
	13	10.0	2	682	1364
	14	10.0	8	VAR	VAR

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	8.0	199.6	78.7
	10.0	26.2	16.1
CA60	5.0	242	37.3

PESO TOTAL (kg)	
CA50	94.8
CA60	37.3

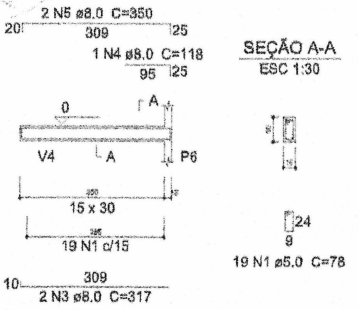
Volume de concreto (C-25) = 2,24 m³
Área de forma = 37,75 m²

LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353

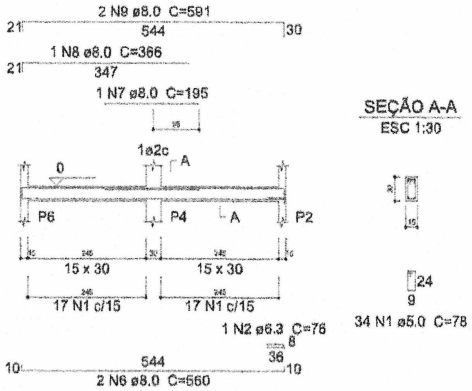
OBRA: REFORMA DA ESCOLA FRANCISCO MARQUES VIEIRA NO DISTRITO DE CAMPANÁRIO
PROJETO: PROJETO ARQUITETÔNICO
ENDEREÇO: RUA DEPUTA MARQUES ASSIS, S/N, DISTRITO DE CAMPANÁRIO, URUBUCA/CE
PROPRIETÁRIO: GOVERNO MUNICIPAL DE URUBUCA
AUTOR DO PROJETO: LAESTE LUÁ MORAIS FREIRE
RESPONSÁVEL TÉCNICO: LAESTE LUÁ MOREIRA FREIRE
DESENHO: PROJETO ESTRUTURAL DA COBERTURA
DATA: 08/04/2013 | ESCALA: 1/50 | RESPONSÁVEL: LAESTE LUÁ | FOLHA: 20/20

COMISSÃO PERMANENTE DE LICITAÇÃO DE UBUDOCA-CE
PROTOCOLO
Fls. 163

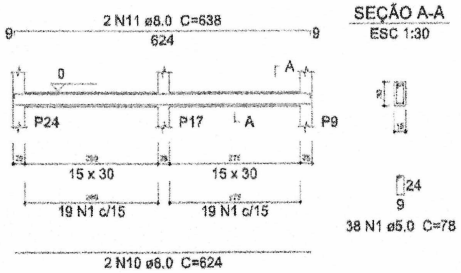
V25
ESC 1:50



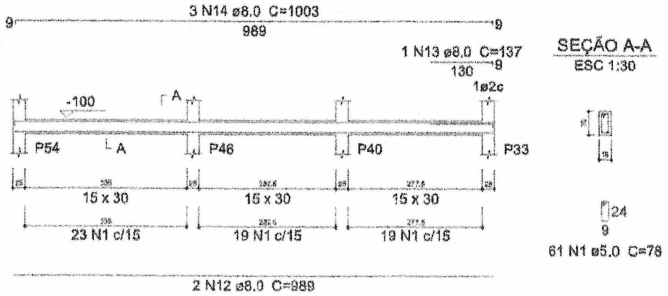
V26
ESC 1:50



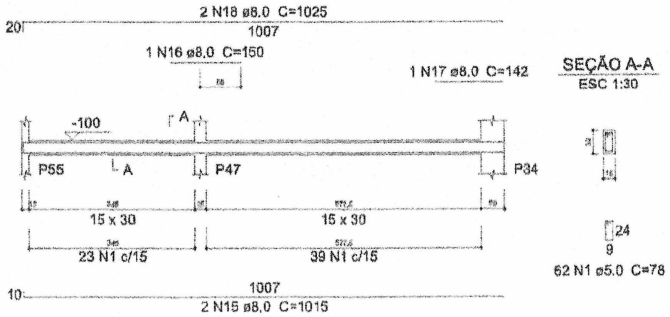
V28
ESC 1:50



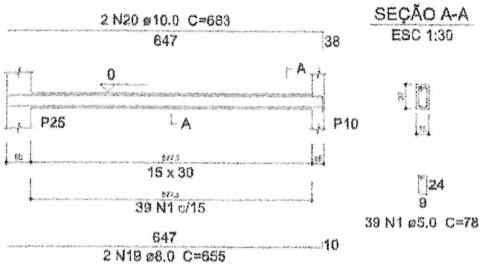
V27
ESC 1:50



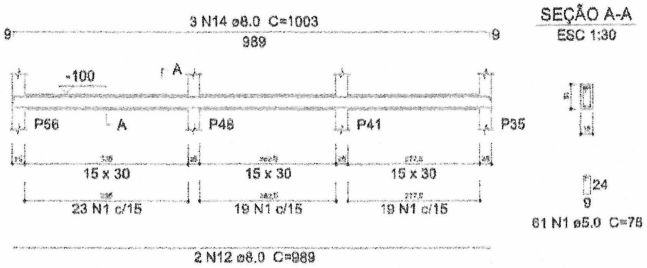
V29
ESC 1:50



V30
ESC 1:50



V31
ESC 1:50



Relação do aço

V25 V26 V27
V28 V29 V30
V31

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	314	78	24492
CA50	2	6.3	1	76	76
	3	8.0	2	317	634
	4	8.0	1	118	118
	5	8.0	2	350	700
	6	8.0	2	560	1120
	7	8.0	1	195	195
	8	8.0	1	366	366
	9	8.0	2	591	1182
	10	8.0	2	624	1248
	11	8.0	2	638	1276
	12	8.0	4	989	3956
	13	8.0	1	137	137
	14	8.0	6	1003	6018
	15	8.0	2	1015	2030
	16	8.0	1	150	150
	17	8.0	1	142	142
	18	8.0	2	1025	2050
	19	8.0	2	655	1310
	20	10.0	2	683	1366

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6.3	0.8	0.2
	8.0	226.4	89.3
	10.0	13.7	8.4
CA60	5.0	245	37.8

PESO TOTAL (kg)	
CA50	97.9
CA60	37.8

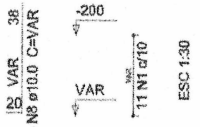
Volume de concreto (C-25) = 2,32 m³
Área de forma = 38,83 m²

LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353

OBRA: REFORMA DA ESCOLA FRANCISCO MARQUES VIEIRA NO DISTRITO DE CAMPINARIO
PROJETO: PROJETO ARQUITETÔNICO
ENDEREÇO: RUA JACINTA MARQUES ANDRÉ, S/N, DISTRITO DE CAMPINARIO, UBUDOCA/CE
PROPRIETÁRIO: GOVERNO MUNICIPAL DE UBUDOCA
RESPONSÁVEL TÉCNICO: LAESTE LUÍS MOREIRA FREIRE
DESENHISTA: LAESTE LUÍS MOREIRA FREIRE
DESENHO: PLANTA ESTRUTURAL DE 25 LOCAÇÃO
ESCALA: 1:50
DATA: 10/08/2010
RESPONSÁVEL: LAESTE LUÍS MOREIRA FREIRE
PRANCHA: 08

P49=P52=P57

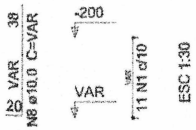
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P53

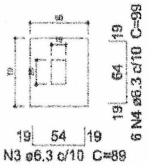
FUNDAÇÕES - L1
ESC 1:25



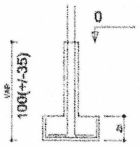
11 N1 ø5.0 C=68

S12=S15=S49=S52=S53=S57

PLANTA
ESC 1:25



CORTE
ESC 1:25



Solo compactado sobre a sapata
peso especifico > 1600,00 kgf/m³

Relação do aço

P31	P36	P39
P44	3xP49	P53
6xS15	V39	V40

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	88	68	5984
	2	5.0	76	78	5928
CA50	3	6.3	42	89	3738
	4	6.3	36	99	3564
	5	8.0	4	624	2496
	6	8.0	1	414	414
	7	8.0	5	638	3190
	8	10.0	46	VAR	VAR

Resumo do aço

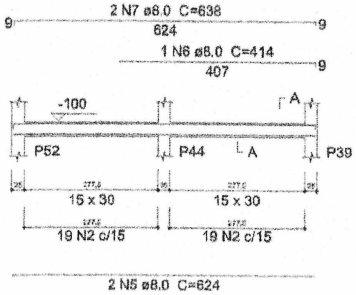
AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6.3	73.1	17.9
	8.0	61	24.1
	10.0	71.8	44.2
CA60	5.0	119.2	18.4

PESO TOTAL (kg)	
CA50	86.2
CA60	18.4

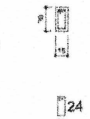
Volume de concreto (C-25) = 0,87 m³
Volume de concreto (C-20) = 0,63 m³
Área de forma = 19,75 m²

V39

ESC 1:50



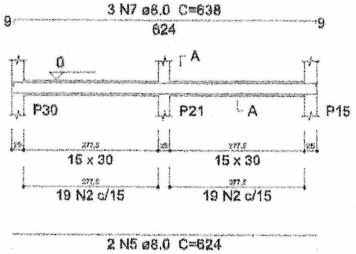
SEÇÃO A-A
ESC 1:30



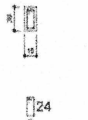
38 N2 ø5.0 C=78

V40

ESC 1:50



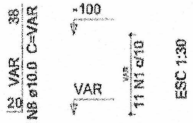
SEÇÃO A-A
ESC 1:30



38 N2 ø5.0 C=78

P31

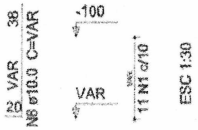
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P36

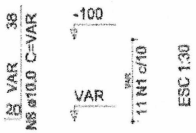
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P39

FUNDAÇÕES - L1
ESC 1:25



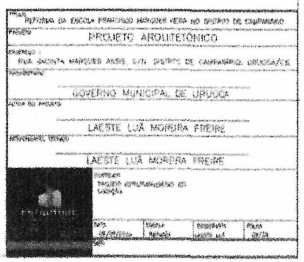
11 N1 ø5.0 C=68

P44

FUNDAÇÕES - L1
ESC 1:25

11 N1 ø5.0 C=68

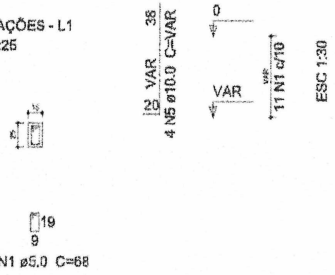
LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353



COMISSÃO PERMANENTE DE LICITAÇÃO DE URUOCA-CE
FLS. 264

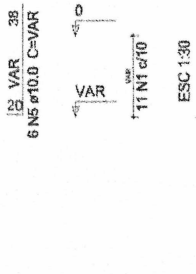
P16

FUNDAÇÕES - L1
ESC 1:25



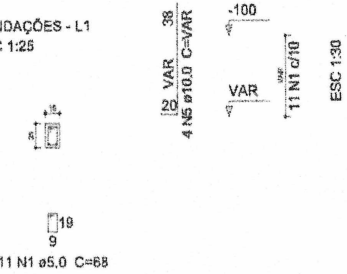
P26

FUNDAÇÕES - L1
ESC 1:25



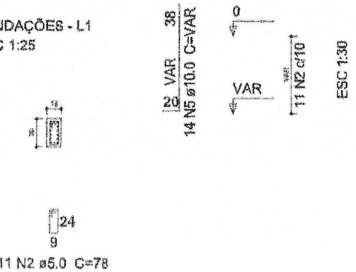
P35

FUNDAÇÕES - L1
ESC 1:25



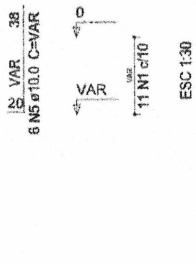
P5

FUNDAÇÕES - L1
ESC 1:25



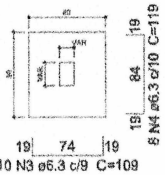
P7

FUNDAÇÕES - L1
ESC 1:25

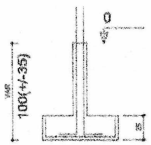


S5=S7=S16=S26=S35

PLANTA
ESC 1:25



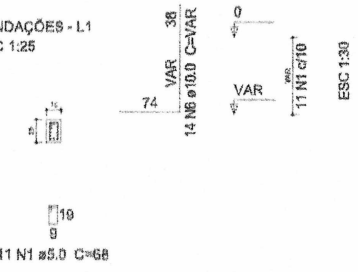
CORTE
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

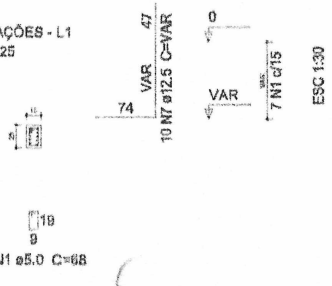
P1

FUNDAÇÕES - L1
ESC 1:25



P2

FUNDAÇÕES - L1
ESC 1:25



Relação do aço

P1 P2 P5
P7 P16 P26
P35 5xS16

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	62	68	4216
	2	5.0	11	78	858
CA50	3	6.3	50	109	5450
	4	6.3	40	119	4760
	5	10.0	34	VAR	VAR
	6	10.0	14	VAR	VAR
	7	12.5	10	VAR	VAR

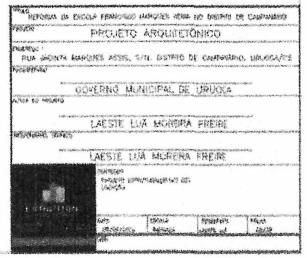
Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6.3	102.1	25
	10.0	82.5	50.9
	12.5	21.8	21
CA60	5.0	50.8	7.8

PESO TOTAL (kg)	
CA50	96.8
CA60	7.8

Volume de concreto (C-25) = 0.27 m³
Volume de concreto (C-20) = 0.9 m³
Área de forma = 9.95 m²

LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353

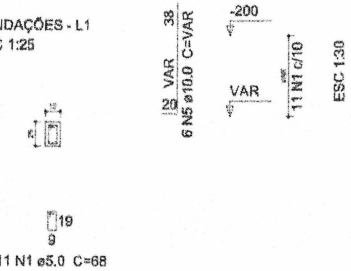


PROTOCOLO
COMISSÃO PERMANENTE DE LICITAÇÃO DE URUOCA-CE.

PROTOCOLO
202
COMISSÃO PERMANENTE DE LICITAÇÃO DE URUOCA-CE.
Fls. 266

P54=P56

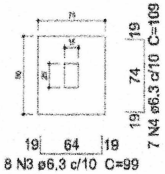
FUNDAÇÕES - L1
ESC 1:25

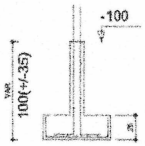


S31=S36=S39=S44=S54=S56

PLANTA
ESC 1:25

CORTE
ESC 1:25

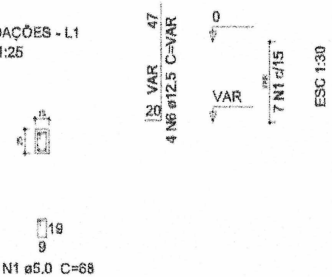




Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

P11

FUNDAÇÕES - L1
ESC 1:25



Relação do aço

P3	P4	P11
3xP13	2xP19	P27
P41	2xP54	6xS36

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	113	68	7684
	2	5.0	7	78	546
CA50	3	6.3	48	99	4752
	4	6.3	42	109	4578
	5	10.0	46	VAR	VAR
	6	12.5	26	VAR	VAR

Resumo do aço

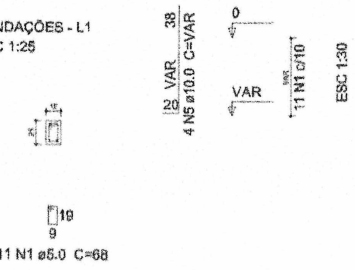
AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6.3	93.3	22.8
	10.0	71.8	44.2
	12.5	42.7	41.1
CA60	5.0	82.3	12.7

PESO TOTAL (kg)	
CA50	108.2
CA60	12.7

Volume de concreto (C-25) = 0.46 m³
Volume de concreto (C-20) = 0.84 m³
Área de forma = 14.2 m²

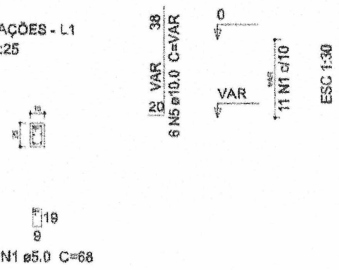
P13=P17=P21

FUNDAÇÕES - L1
ESC 1:25



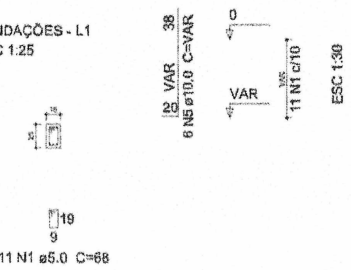
P19=P30

FUNDAÇÕES - L1
ESC 1:25



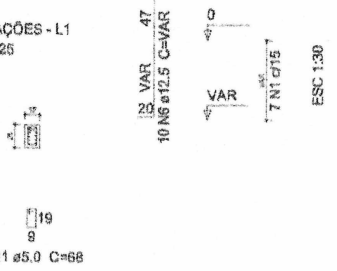
P27

FUNDAÇÕES - L1
ESC 1:25



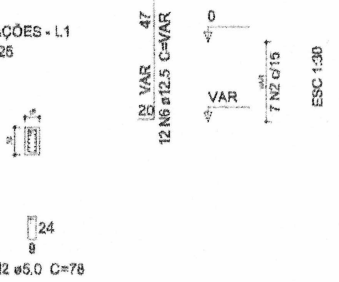
P3

FUNDAÇÕES - L1
ESC 1:25



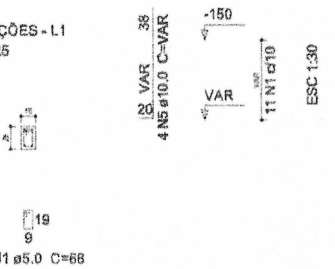
P4

FUNDAÇÕES - L1
ESC 1:25



P41

FUNDAÇÕES - L1
ESC 1:25



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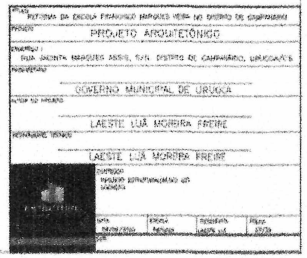
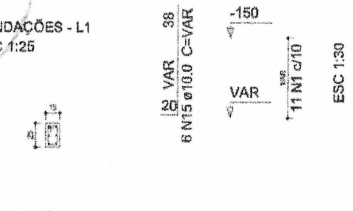
ENGENHEIRO CIVIL
CREA-CE 322353



PROTOCOLO
Fls. 203
COMISSÃO PERMANENTE DE LICITAÇÃO DE URUOCA-CE.
Fls. 161

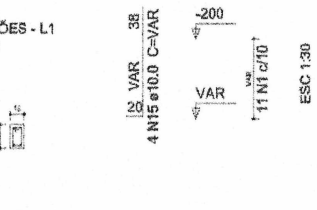
P42

FUNDAÇÕES - L1
ESC 1:25



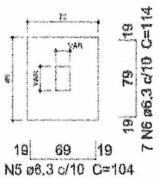
P55

FUNDAÇÕES - L1
ESC 1:25

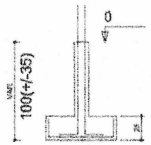


S3=S4=S11=S13=S17=S19=S21=S27=S30=S41 =S42=S55

PLANTA
ESC 1:25



CORTE
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

Relação do aço

P42	P50	P55
2xS1	12xS13	9xS22
S50	V41	

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5,0	43	68	2924
	2	5,0	2	233	466
	3	5,0	2	229	458
	4	5,0	76	78	5928
CA50	5	6,3	96	104	9984
	6	6,3	84	114	9576
	7	6,3	10	109	1090
	8	6,3	188	119	22372
	9	8,0	1	274	274
	10	8,0	2	540	1098
	11	8,0	2	159	318
	12	8,0	2	184	368
	13	8,0	24	108	2592
	14	8,0	18	123	2214
	15	10,0	10	VAR	VAR
	16	10,0	2	640	1280
	17	10,0	2	185	370
	18	10,0	2	265	530
	19	10,0	4	VAR	VAR
	20	12,5	1	270	270
	21	12,5	2	380	760

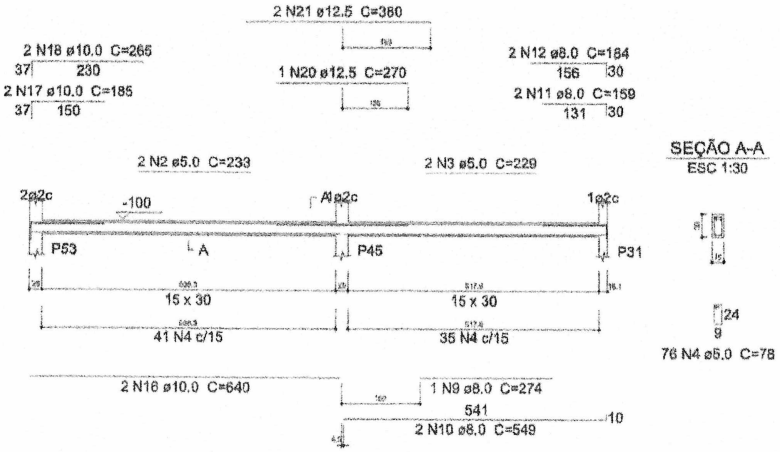
Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6,3	430,3	105,3
	8,0	68,7	27,1
	10,0	47,7	29,4
	12,5	10,3	0,0
CA60	5,0	97,8	15,1
PESO TOTAL (kg)			
CA50	171,7		
CA60	15,1		

Volume de concreto (C-25) = 0,69 m³
Volume de concreto (C-20) = 4,42 m³
Área de forma = 32,63 m²

V41

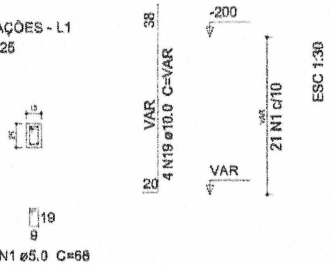
ESC 1:50



SEÇÃO A-A
ESC 1:30

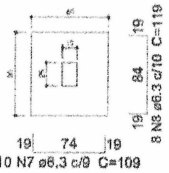
P50

FUNDAÇÕES - L1
ESC 1:25

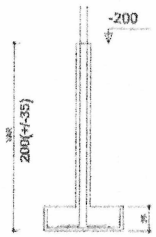


S50

PLANTA
ESC 1:25



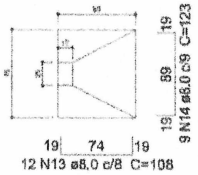
CORTE
ESC 1:25



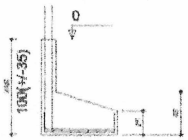
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

S1=S2

PLANTA
ESC 1:25



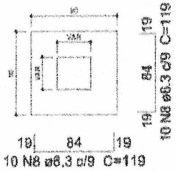
CORTE
ESC 1:25



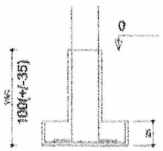
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

S9=S18=S20=S22=S24=S32=S37=S40=S43

PLANTA
ESC 1:25



CORTE
ESC 1:25



Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

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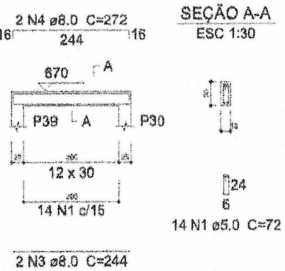
ENGENHEIRO CIVIL
CREA-CE 322353

REFORMA DA ESCOLA FRANCISCO MARQUES VIANA NO BAIRRO DE CARNAUBAL
PROJETO ARQUITETONICO
RUA JACINTA MARQUES MOURA, S/N, BAIRRO DE CARNAUBAL, URUOCA/CE
GOVERNO MUNICIPAL DE URUOCA
LAESTE LUÍS MOREIRA FREIRE
LAESTE LUÍS MOREIRA FREIRE

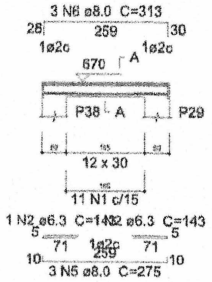
Planta de vigotas pré-moldadas
escala 1:75

V3
ESC 1:50

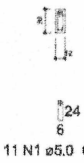


SEÇÃO A-A
ESC 1:30

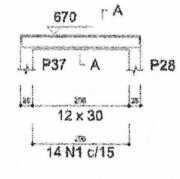
V4
ESC 1:50



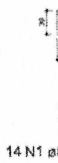
SEÇÃO A-A
ESC 1:30



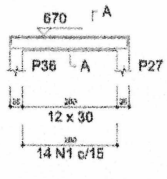
V5
ESC 1:50



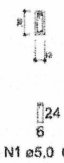
SEÇÃO A-A
ESC 1:30



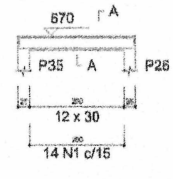
V6
ESC 1:50



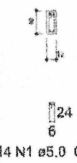
SEÇÃO A-A
ESC 1:30



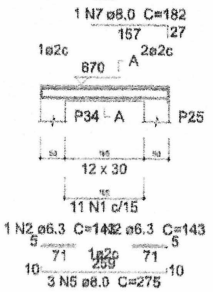
V7
ESC 1:50



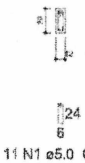
SEÇÃO A-A
ESC 1:30



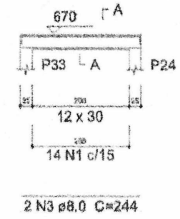
V8
ESC 1:50



SEÇÃO A-A
ESC 1:30

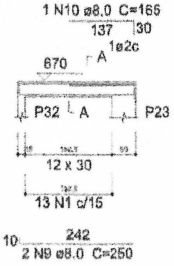


V9
ESC 1:50

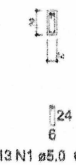


SEÇÃO A-A
ESC 1:30

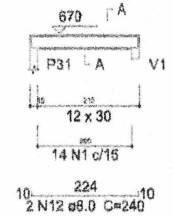
V10
ESC 1:50



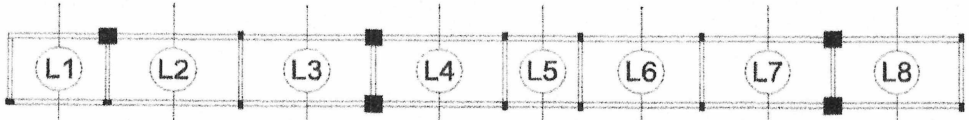
SEÇÃO A-A
ESC 1:30



V11
ESC 1:50



SEÇÃO A-A
ESC 1:30



Armação positiva das lajes do pavimento COBERTA (Eixo Y)
escala 1:75

Relação do aço

V3	V4	V5
V6	V7	V8
V9	V10	V11

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	6,0	119	72	8568
CA50	2	6,3	4	143	572
	3	8,0	10	244	2440
	4	8,0	10	272	2720
	5	8,0	6	275	1650
	6	8,0	3	313	939
	7	8,0	1	182	182
	8	8,0	3	305	915
	9	8,0	2	250	500
	10	8,0	1	165	165
	11	8,0	2	284	568
	12	8,0	2	240	480
	13	8,0	2	252	504

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6,3	5,6	1,4
	8,0	119,7	43,7
CA60	6,0	85,7	13,2
PESO TOTAL (kg)			
CA50	45,1		
CA60	13,2		

Volume de concreto (C-25) = 0,61 m³
Área de forma = 16,25 m²

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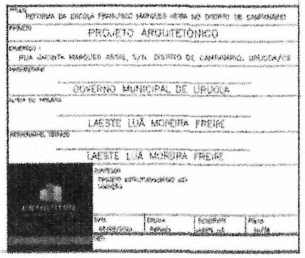
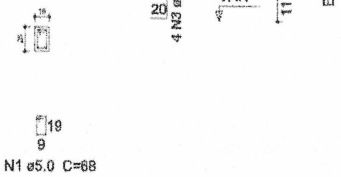


PROTOCOLO
COMISSÃO PERMANENTE DE LICITAÇÃO DE UBUDCA-CE.
FLS. 268

P9=P18

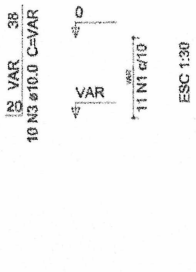
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P20

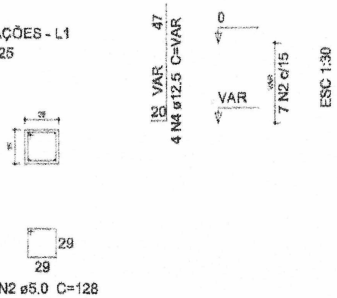
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P22

FUNDAÇÕES - L1
ESC 1:25



7 N2 ø5.0 C=128

Relação do aço

2xP9 P20 P22
P24 P32 P37
P40 P43

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	88	68	5984
	2	5.0	7	128	896
CA50	3	10.0	56	VAR	VAR
	4	12.5	4	VAR	VAR

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	10.0	87.4	53.9
	12.5	6.6	6.3
CA60	5.0	68.8	10.6

PESO TOTAL (kg)	
CA50	60.2
CA60	10.6

Volume de concreto (C-25) = 0.42 m³
Área de forma = 7.8 m²

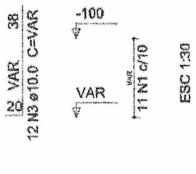
P24

FUNDAÇÕES - L1
ESC 1:25

11 N1 ø5.0 C=68

P32

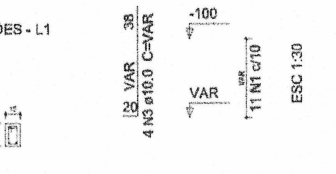
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P37

FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

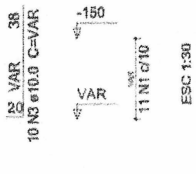
P40

FUNDAÇÕES - L1
ESC 1:25

11 N1 ø5.0 C=68

P43

FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353

PROJETO ARQUITETÔNICO

GOVERNO MUNICIPAL DE URUOCA

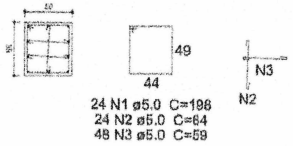
LAESTE LUÍA MOREIRA FREIRE

LAESTE LUÍA MOREIRA FREIRE

P34=P38

COBERTA - L3

ESC 1:25

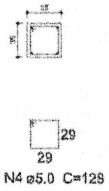


24 N1 ø5.0 C=198
24 N2 ø5.0 C=64
48 N3 ø5.0 C=59

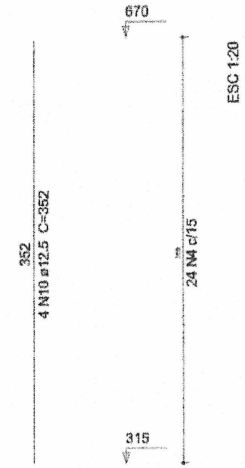
P22

COBERTA - L3

ESC 1:25



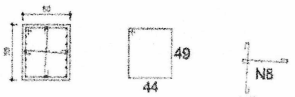
24 N4 ø5.0 C=129



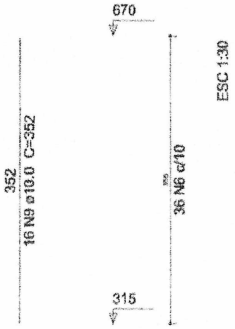
P23=P29

COBERTA - L3

ESC 1:25



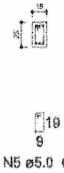
36 N6 ø6.3 C=198
36 N7 ø6.3 C=66
36 N8 ø6.3 C=61



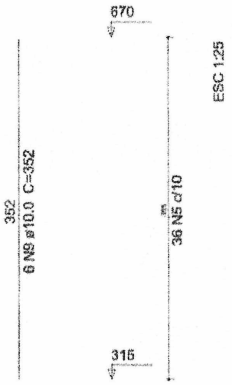
P24=P26=P27

COBERTA - L3

ESC 1:25



36 N5 ø5.0 C=68



Relação do aço

P22 2xP23 3xP24
2xP34

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	48	198	9504
	2	5.0	48	64	3072
	3	5.0	96	59	5664
	4	5.0	24	128	3072
	5	5.0	108	68	7344
CA50	6	6.3	72	198	14256
	7	6.3	72	66	4752
	8	6.3	72	61	4392
	9	10.0	50	352	17600
	10	12.5	24	352	8448

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6.3	234	57,3
	10.0	176	108,5
	12.5	84.5	61,4
CA60	5.0	286.6	44,2

PESO TOTAL (kg)	
CA50	247.2
CA60	44.2

Volume de concreto (C-25) = 4.74 m³
Área de forma = 43.31 m²

LAESTE L.M. FREIRE
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CREA-CE 322353

REFORMA DA ESCOLA FRANCISCO MARQUES VIEIRA NO DISTRITO DE CAMPANÁRIO

PROJETO ARQUITETÔNICO

RUA JACINTA MARQUES ARAÚJO, S/N, DISTRITO DE CAMPANÁRIO, URUÇÚCA/CE

GOVERNO MUNICIPAL DE URUÇÚCA

LAESTE LUÍ MOREIRA FREIRE

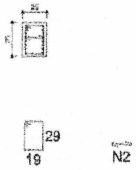
LAESTE LUÍ MOREIRA FREIRE

PREFEITURA MUNICIPAL DE URUÇÚCA

PROTOCOLO
FMAU - PROTOCOLO
Nº 208
COMISSÃO PERMANENTE DE LICITAÇÃO DE URUÇÚCA-CE
FLS. 210

P51

FUNDAÇÕES - L1
ESC 1:25

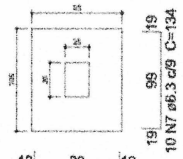


11 N1 ø5.0 C=108
10 N2 ø5.0 C=34

ESC 1:30

S14=S51

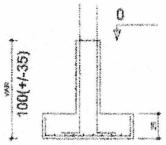
PLANTA
ESC 1:25



13 N6 ø6.3 c/8 C=124

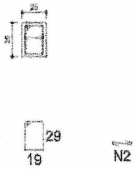
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

CORTE
ESC 1:25



P8=P10

FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=108
10 N2 ø5.0 C=34

ESC 1:30

Relação do aço

2xP8
P51
S47

P23
2xS8

P47
2xS14

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	44	108	4752
	2	5.0	40	34	1360
	3	5.0	11	198	2178
	4	5.0	10	64	640
	5	5.0	10	59	590
CA50	6	6.3	26	124	3224
	7	6.3	20	134	2680
	8	6.3	26	129	3354
	9	8.0	22	118	2596
	10	8.0	14	128	1792
	11	8.0	12	138	1656
	12	10.0	70	VAR	VAR

Resumo do aço

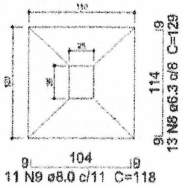
AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6.3	92.6	22.7
	8.0	60.5	23.8
	10.0	109.2	67.3
CA60	5.0	95.2	14.7

PESO TOTAL (kg)	
CA50	113.8
CA60	14.7

Volume de concreto (C-25) = 0.63 m³
Volume de concreto (C-20) = 1.44 m³
Área de forma = 11.03 m²

S8=S10

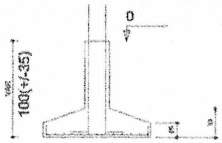
PLANTA
ESC 1:25



11 N9 ø8.0 c/11 C=118

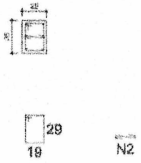
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

CORTE
ESC 1:25



P47

FUNDAÇÕES - L1
ESC 1:25

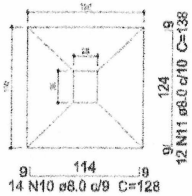


11 N1 ø5.0 C=108
10 N2 ø5.0 C=34

ESC 1:30

S47

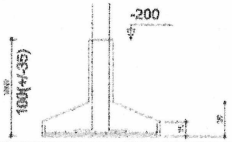
PLANTA
ESC 1:25



14 N10 ø8.0 c/9 C=128

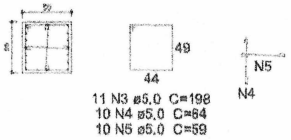
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

CORTE
ESC 1:25



P23

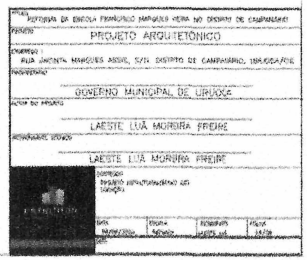
FUNDAÇÕES - L1
ESC 1:25



11 N3 ø5.0 C=198
10 N4 ø5.0 C=64
10 N5 ø5.0 C=59

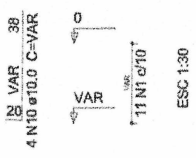
ESC 1:30

LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353



P28

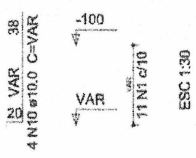
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P33

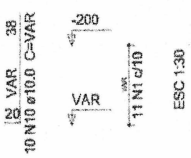
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P45

FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

Relação do aço

P6	P14	P28
P33	P45	P46
P48	5xS28	S48

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	51	68	3468
	2	5.0	11	78	858
	3	5.0	10	24	240
	4	5.0	11	108	1188
	5	5.0	10	34	340
CA50	6	6.3	60	119	7140
	7	6.3	50	129	6450
	8	6.3	13	104	1352
	9	6.3	10	114	1140
	10	10.0	56	VAR	VAR
	11	12.5	4	VAR	VAR

Resumo do aço

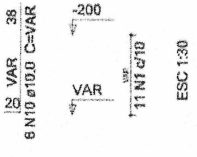
AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6.3	160.9	39.4
	10.0	87.4	53.9
	12.5	6.6	6.3
CA60	5.0	61	9.4

PESO TOTAL (kg)	
CA50	99.5
CA60	9.4

Volume de concreto (C-25) = 0,32 m³
Volume de concreto (C-20) = 1,34 m³
Área de forma = 11,46 m²

P46

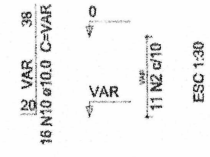
FUNDAÇÕES - L1
ESC 1:25



11 N1 ø5.0 C=68

P6

FUNDAÇÕES - L1
ESC 1:25

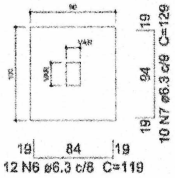


N3

11 N2 ø5.0 C=78
10 N3 ø5.0 C=24

S6=S28=S33=S45=S46

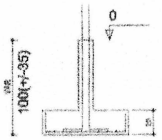
PLANTA
ESC 1:25



12 N6 ø6.3 c/8 C=119

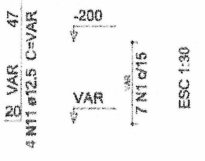
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

CORTE
ESC 1:25



P48

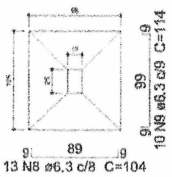
FUNDAÇÕES - L1
ESC 1:25



7 N1 ø5.0 C=68

S48

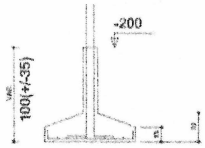
PLANTA
ESC 1:25



13 N8 ø6.3 c/8 C=104

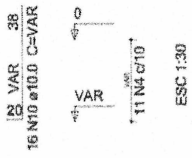
Solo compactado sobre a sapata
peso específico > 1600.00 kgf/m³

CORTE
ESC 1:25



P14

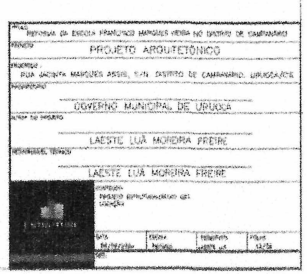
FUNDAÇÕES - L1
ESC 1:25



N5

11 N4 ø5.0 C=108
10 N5 ø5.0 C=34

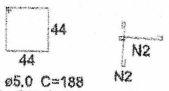
LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353



PROTOCOLO
COMISSÃO PERMANENTE DE LICITAÇÃO DE URUOCA-CE.
Nº 878

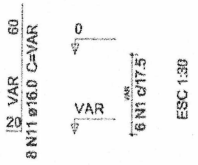
P25

FUNDAÇÕES - L1
ESC 1:25



6 N1 ø5.0 C=188
6 N2 ø5.0 C=59

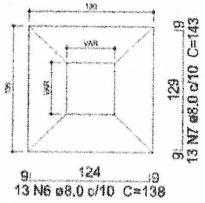
6 N2 ø5.0 C=59



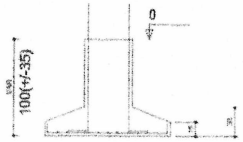
S23=S25=S34=S38

PLANTA
ESC 1:25

CORTE
ESC 1:25



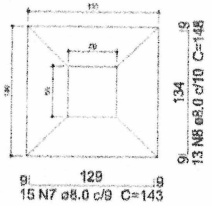
Solo compactado sobre a sapata
peso especifico > 1600.00 kgf/m³



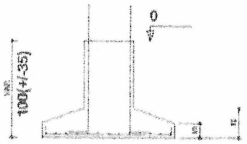
S29

PLANTA
ESC 1:25

CORTE
ESC 1:25

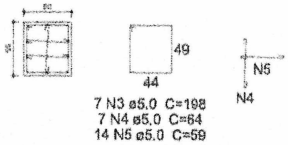


Solo compactado sobre a sapata
peso especifico > 1600.00 kgf/m³

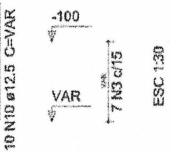


P34=P38

FUNDAÇÕES - L1
ESC 1:25

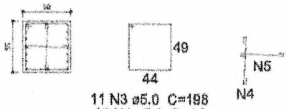


7 N3 ø5.0 C=198
7 N4 ø5.0 C=64
14 N5 ø5.0 C=59



P29

FUNDAÇÕES - L1
ESC 1:25



11 N3 ø5.0 C=198
10 N4 ø5.0 C=64
10 N5 ø5.0 C=59

Relação do aço

P25 P29 2xP34
4xS23 S29

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA60	1	5.0	6	188	1128
	2	5.0	12	59	708
	3	5.0	25	198	4950
	4	5.0	24	64	1536
	5	5.0	38	59	2242
CA50	6	8.0	52	138	7176
	7	8.0	67	143	9581
	8	8.0	13	148	1924
	9	10.0	16	VAR	VAR
	10	12.5	20	VAR	VAR
	11	16.0	8	VAR	VAR

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	8.0	186.9	73.7
	10.0	25	15.4
	12.5	32.8	31.6
	16.0	14.1	22.2
CA60	5.0	105.7	16.3

PESO TOTAL (kg)	
CA50	142.9
CA60	16.3

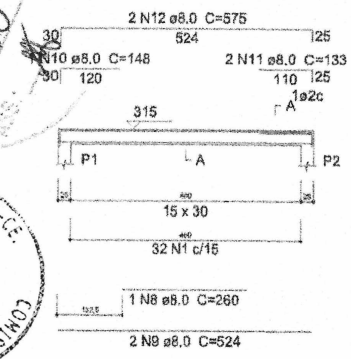
Volume de concreto (C-25) = 1.07 m³
Volume de concreto (C-20) = 2.03 m³
Área de forma = 12.3 m²

COMISSÃO PERMANENTE DE LICITAÇÃO DE URUOCA-CE
Fls. 273

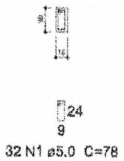
LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353

PLAN: REFORMA DA ESCOLA FRANCISCO MARQUES VIEIRA NO DISTRITO DE CAMPANARIO
PROJETO: PROJETO ARQUITETÔNICO
ENDEREÇO: RUA JACINTA MARQUES AGUIR, S/N, DISTRITO DE CAMPANÁRIO, URUOCA/CE
PROPRIETÁRIO: GOVERNO MUNICIPAL DE URUOCA
AUTOR DO PROJETO: LAESTE LUÍA MOREIRA FREIRE
RESPONSÁVEL TÉCNICO: LAESTE LUÍA MOREIRA FREIRE
ESCALA: 1:25
DATA: 10/2018

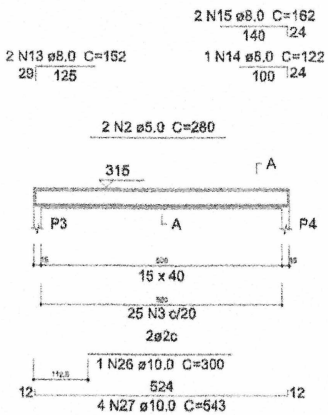
V1
ESC 1:50



SEÇÃO A-A
ESC 1:30

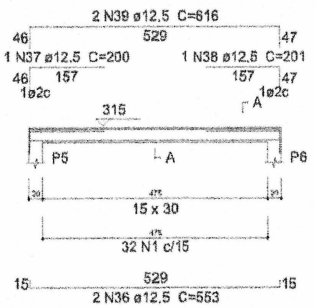


V2
ESC 1:50

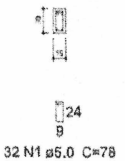


SEÇÃO A-A
ESC 1:30

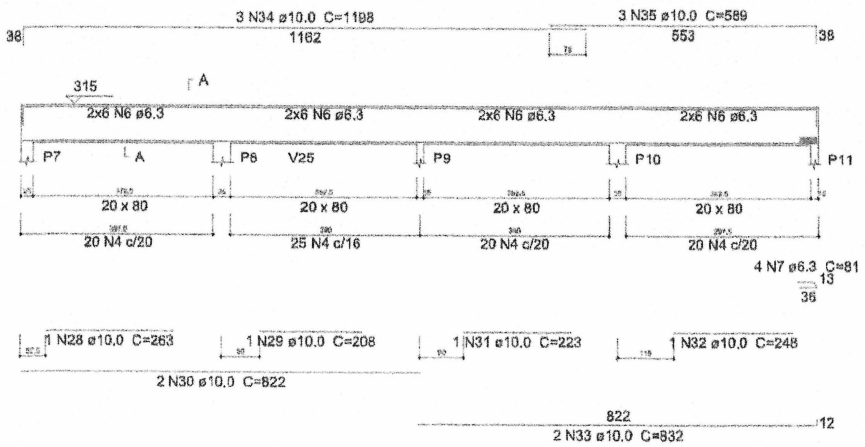
V3
ESC 1:50



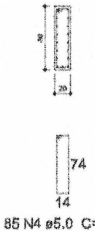
SEÇÃO A-A
ESC 1:30



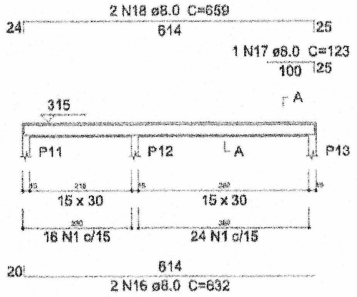
V4
ESC 1:50



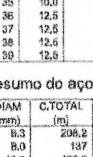
SEÇÃO A-A
ESC 1:30



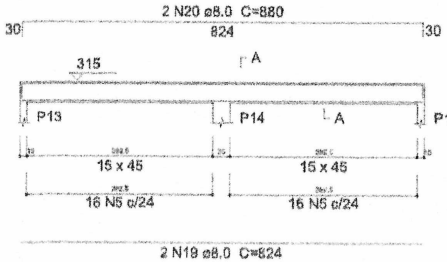
V5
ESC 1:50



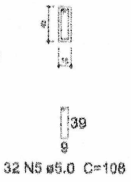
SEÇÃO A-A
ESC 1:30



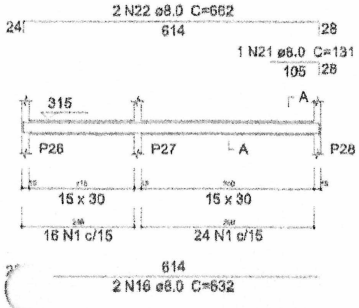
V6
ESC 1:50



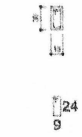
SEÇÃO A-A
ESC 1:30



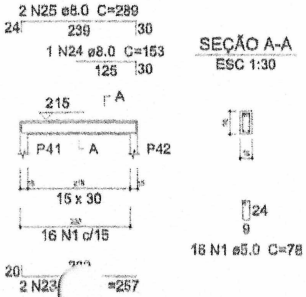
V9
ESC 1:50



SEÇÃO A-A
ESC 1:30



V15
ESC 1:50



SEÇÃO A-A
ESC 1:30

Relação do aço

V1 V2 V3
V4 V5 V6
V9 V15

AÇO	N	DIAM (mm)	QUANT (Barras)	UNIT (cm)	C.TOTAL (cm)
CA50	1	5,0	160	78	12480
	2	5,0	2	280	560
	3	5,0	25	98	2450
	4	5,0	85	188	15980
	5	5,0	32	108	3456
CA50	6	6,3	49	CORR	20496
	7	6,3	4	81	324
	8	8,0	1	260	260
	9	8,0	2	524	1048
	10	8,0	1	148	148
	11	8,0	2	133	266
	12	8,0	2	575	1150
	13	8,0	2	152	304
	14	8,0	1	122	122
	15	8,0	2	162	324
	16	8,0	4	632	2528
	17	8,0	1	123	123
	18	8,0	2	659	1318
	19	8,0	2	824	1648
	20	8,0	2	880	1760
	21	8,0	1	131	131
	22	8,0	2	662	1324
	23	8,0	2	257	514
	24	8,0	1	153	153
	25	8,0	2	289	578
	26	10,0	1	300	300
	27	10,0	4	543	2172
	28	10,0	1	263	263
	29	10,0	1	208	208
	30	10,0	2	822	1644
	31	10,0	1	223	223
	32	10,0	1	248	248
	33	10,0	2	832	1664
	34	10,0	3	1198	3594
	35	10,0	3	589	1767
	36	12,5	2	553	1106
	37	12,5	1	200	200
	38	12,5	1	201	201
	39	12,5	2	616	1232

Resumo do aço

AÇO	DIAM (mm)	C.TOTAL (m)	PESO (kg)
CA50	6,3	208,2	80,9
	8,0	137	54,1
	10,0	120,9	74,5
	12,5	27,4	26,4
CA60	5,0	349,3	53,8

PESO TOTAL (kg)	
CA50	205,9
CA60	53,8

Volume de concreto (C-25) = 4,66 m³
Área de forma = 62,48 m²

LAESTE L.M. FREIRE
ENGENHEIRO CIVIL
CREA-CE 322353

PROJETO ARQUITETÔNICO

GOVERNO MUNICIPAL DE URUOCA

LAESTE LUÍA MOREIRA FREIRE

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COMISSÃO PERMANENTE DE LICITAÇÃO DE URUOCA-CE