# PROJETO DE PAVIMENTAÇÃO

## -- Seção Tipo de Pavimentação

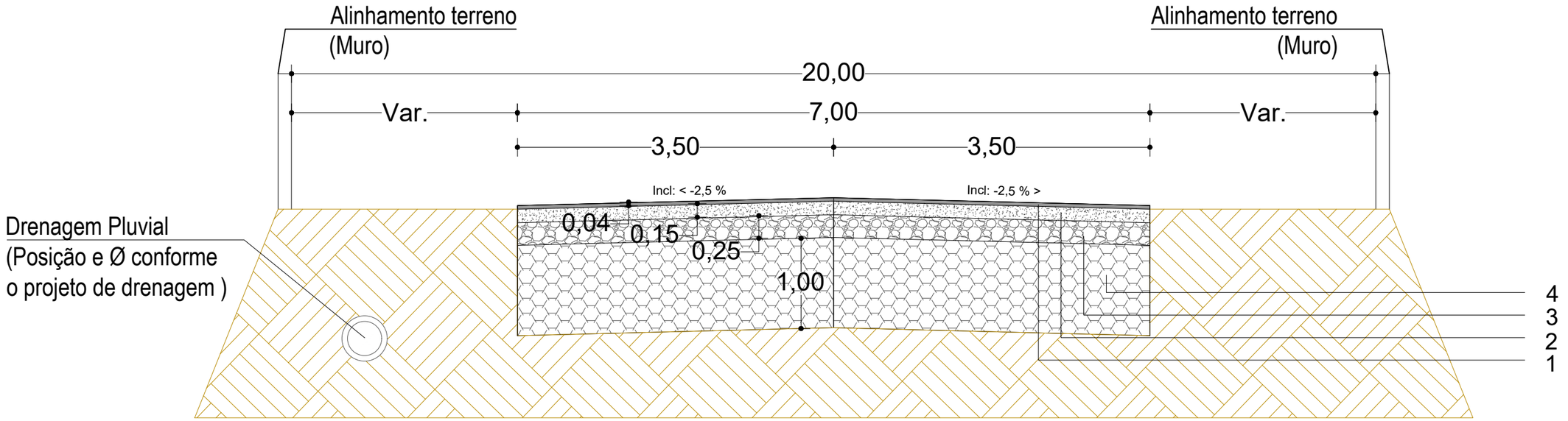
BRUNO FRIGO PASINI:07322368940

Assinado de forma digital por BRUNO FRIGO PASINI:07322368940
Dados: 2026.11.08 19:22:56 -03'00'

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

# SEÇÃO TIPO DE PAVIMENTAÇÃO

EST. 0+0,000 = PP Á 10+0,000 m.




| LEGENDA | | | DIMENSÕES | |
|---|---|---|---|---|
| | | | LARGURA (m) | ESPESSURA (m) |
| 01 | REVESTIMENTO PISTA | CONCRETO ASFALTICO USINADO A QUENTE (CAUQ) | 7,00 | 0,04 |
| - | PINTURA DE LIGAÇÃO | RR-1C | 7,00 | 0,8 L/m² |
| - | IMPRIMAÇÃO | EAI | 7,00 | 1,2 L/m² |
| 02 | BASE | BRITA GRADUADA | 7,00 | 0,15 |
| 03 | SUB-BASE | MACADAME | 7,00 | 0,25 |
| 04 | REFORÇO (CBR ≥ 12%) | MATERIAL DE JAZIDA - AREIA | 7,00 | 1,00 |


IDEALIZE
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CREA/SC - 169873-0

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9


Prancha: 1 / 3

Obra
RUA BERNADETTA HERDT WARMLING

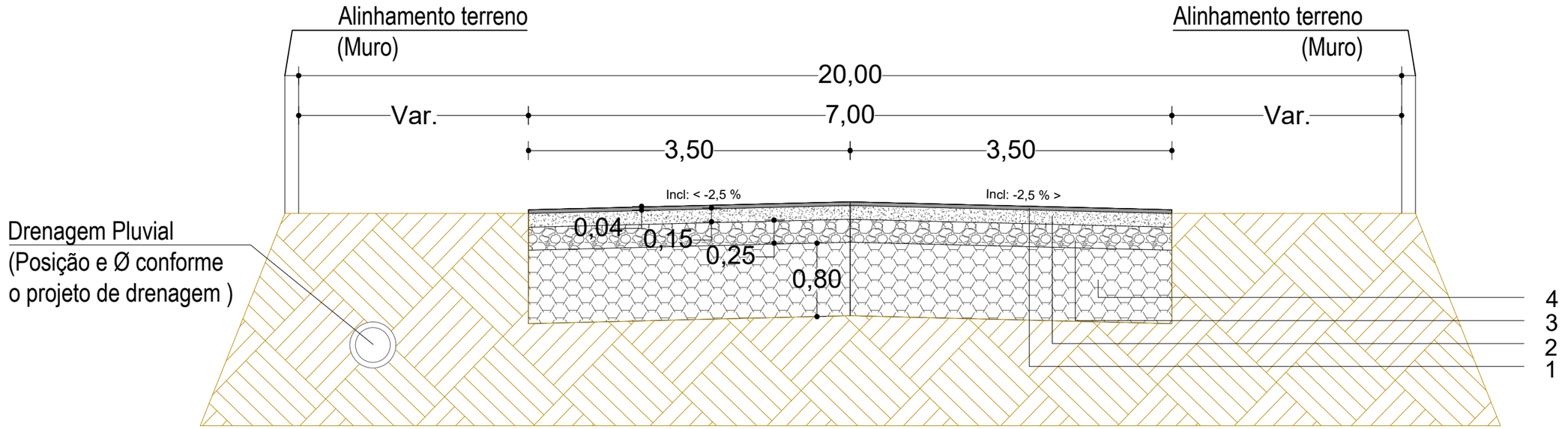
Conteúdo
SEÇÃO TIPO DE PAVIMENTAÇÃO

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

# SEÇÃO TIPO DE PAVIMENTAÇÃO

EST. 10+0,000 = PP Á 27+0,000 m.
EST. 32+0,000 = PP Á 39+0,000 m.




| LEGENDA | | | DIMENSÕES | |
|---|---|---|---|---|
| | | | LARGURA (m) | ESPESSURA (m) |
| 01 | REVESTIMENTO PISTA | CONCRETO ASFALTICO USINADO A QUENTE (CAUQ) | 7,00 | 0,04 |
| - | PINTURA DE LIGAÇÃO | RR-1C | 7,00 | 0,8 L/m² |
| - | IMPRIMAÇÃO | EAI | 7,00 | 1,2 L/m² |
| 02 | BASE | BRITA GRADUADA | 7,00 | 0,15 |
| 03 | SUB-BASE | MACADAME | 7,00 | 0,25 |
| 04 | REFORÇO (CBR ≥ 12%) | MATERIAL DE JAZIDA - AREIA | 7,00 | 0,80 |

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CREA/SC - 169873-0

FORQUILHINHA

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ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha: 2 / 3

Obra
RUA BERNADETTA HERDT WARMLING

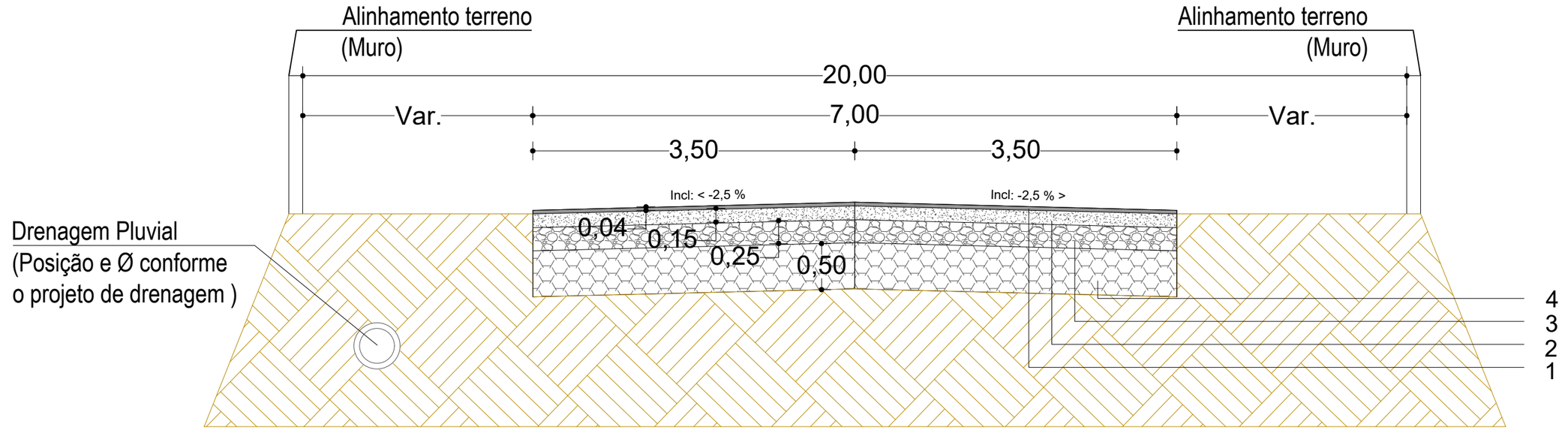
Conteúdo
SEÇÃO TIPO DE PAVIMENTAÇÃO

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

# SEÇÃO TIPO DE PAVIMENTAÇÃO

EST. 27+0,000 = PP Á 32+0,000 m.




| LEGENDA | | | DIMENSÕES | |
|---|---|---|---|---|
| | | | LARGURA (m) | ESPESSURA (m) |
| 01 | REVESTIMENTO PISTA | CONCRETO ASFALTICO USINADO A QUENTE (CAUQ) | 7,00 | 0,04 |
| - | PINTURA DE LIGAÇÃO | RR-1C | 7,00 | 0,8 L/m² |
| - | IMPRIMAÇÃO | EAI | 7,00 | 1,2 L/m² |
| 02 | BASE | BRITA GRADUADA | 7,00 | 0,15 |
| 03 | SUB-BASE | MACADAME | 7,00 | 0,25 |
| 04 | REFORÇO (CBR ≥ 12%) | MATERIAL DE JAZIDA - AREIA | 7,00 | 0,50 |

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ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha: 3 / 3

Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
SEÇÃO TIPO DE PAVIMENTAÇÃO

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

# PROJETO DE TERRAPLENAGEM

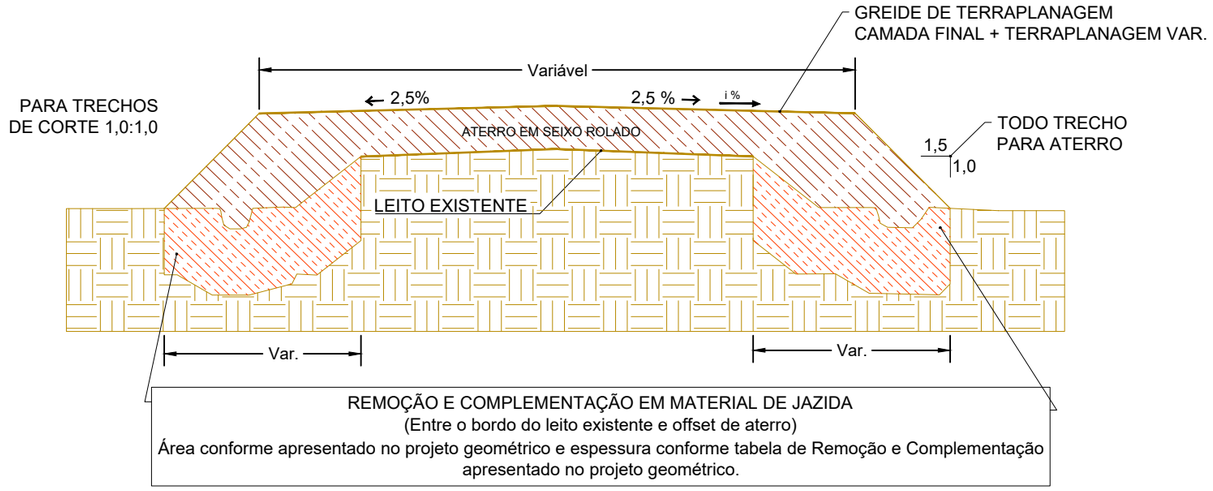
-- Seções Tipo

-- Seções de projeto

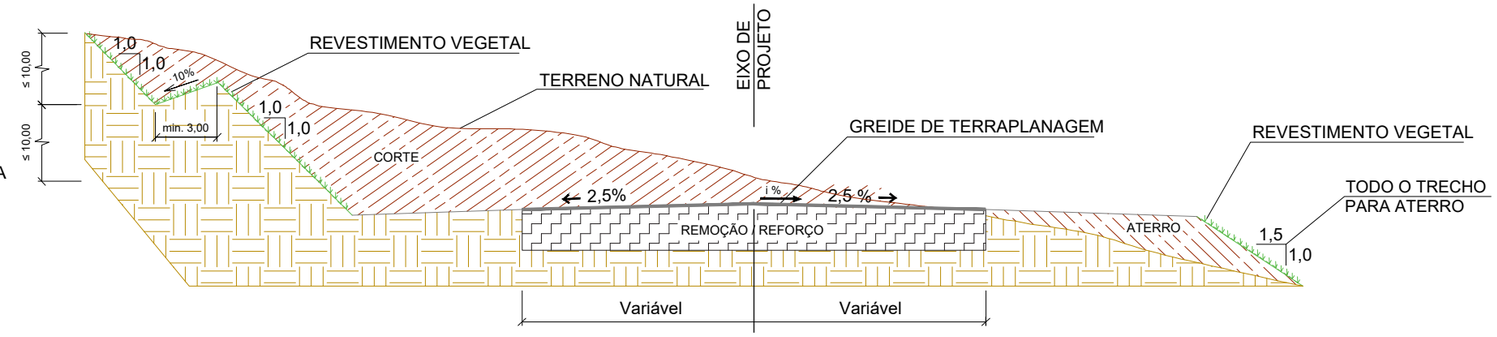
IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

# SEÇÕES TIPO DE TERRAPLENAGEM

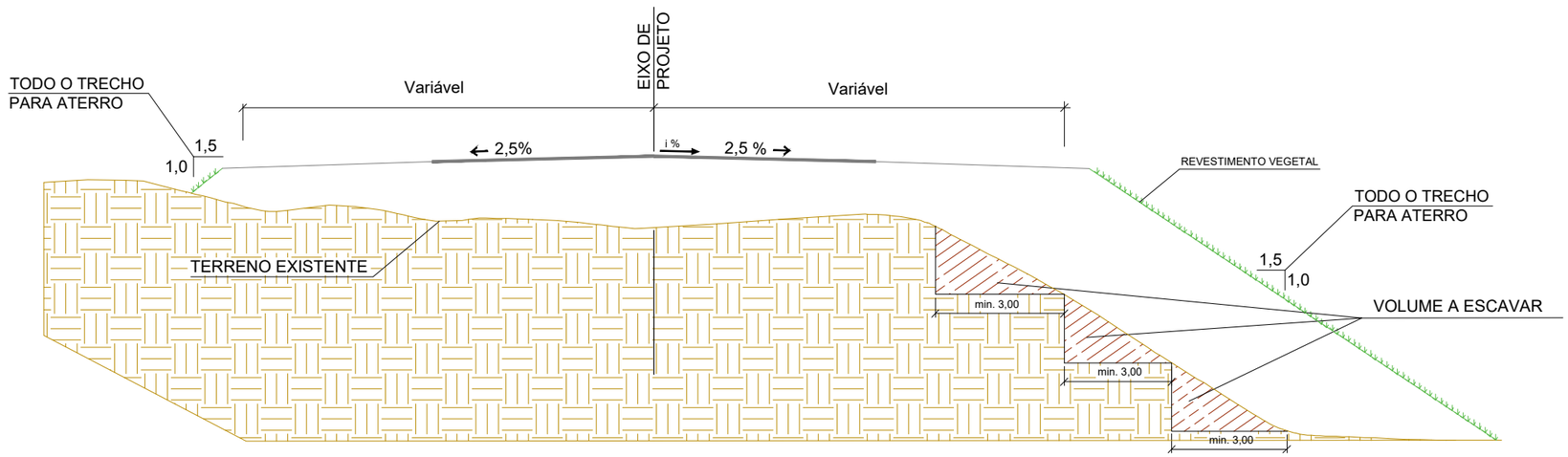
SEÇÃO DE ALARGAMENTO
DE PISTA EXISTENTE
COM REFORÇO NOS BORDOS




SEÇÃO EM SOLO
REMOÇÃO E REFORÇO
TOTAL DA PLATAFORMA
(SEÇÃO MISTA)




ALARGAMENTO DE ATERRO
(BANQUETEAMENTO)




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CREA/SC - 169873-0

FORQUILHINHA

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BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
1 / 1

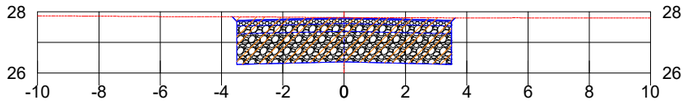
Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
SEÇÕES TIPO DE TERRAPLANAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

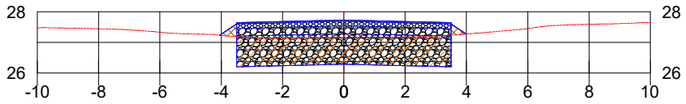
A3 (297mm X 420mm)

0+0.00



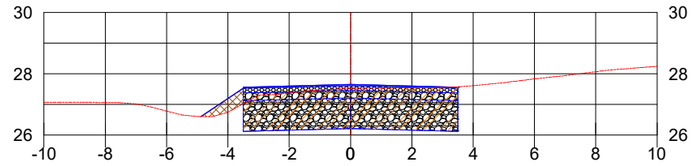

CT: 27.81
CPP: 27.81
CPT: 26.37

4+0.00



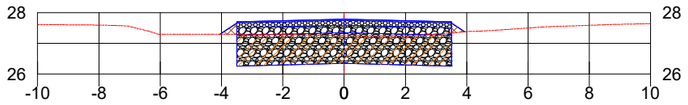

CT: 27.16
CPP: 27.73
CPT: 26.29

8+0.00



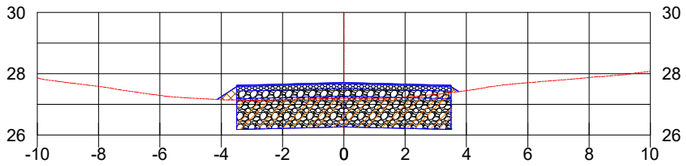

CT: 27.52
CPP: 27.65
CPT: 26.21

1+0.00



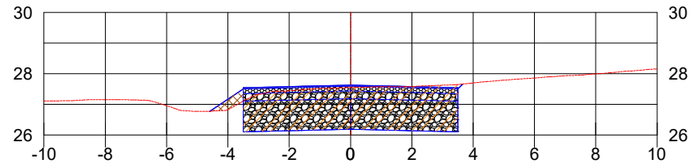

CT: 27.25
CPP: 27.79
CPT: 26.35

5+0.00



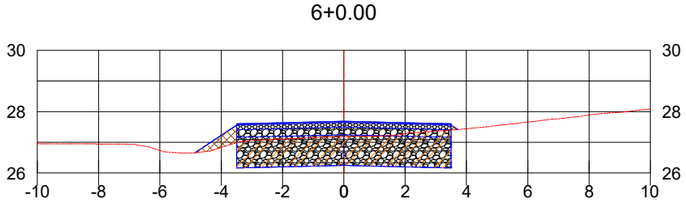

CT: 27.19
CPP: 27.71
CPT: 26.27

9+0.00



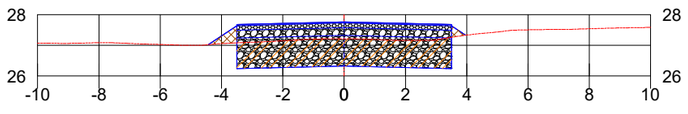

CT: 27.55
CPP: 27.63
CPT: 26.19

6+0.00



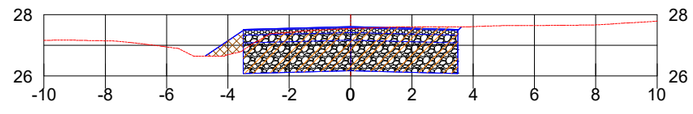

CT: 27.19
CPP: 27.69
CPT: 26.25

2+0.00



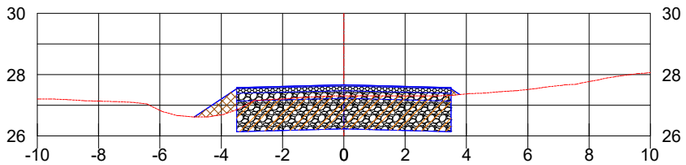

CT: 27.21
CPP: 27.77
CPT: 26.33

10+0.00



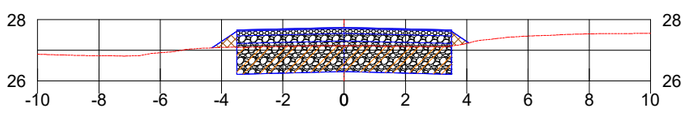

CT: 27.55
CPP: 27.61
CPT: 26.17

7+0.00



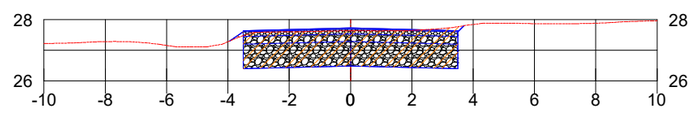

CT: 27.31
CPP: 27.67
CPT: 26.23

3+0.00




CT: 27.15
CPP: 27.75
CPT: 26.31

11+0.00




CT: 27.64
CPP: 27.73
CPT: 26.49

Esc: 1/200

IDEALIZE
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FORQUILHINHA

Autor do projeto:
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ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
1 / 4

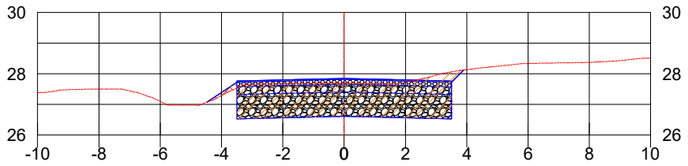
Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
SEÇÕES DE TERRAPLANAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

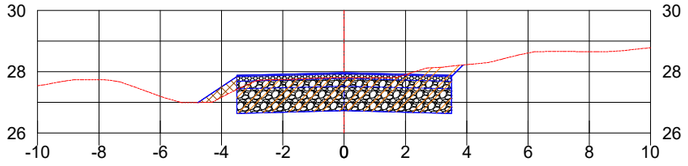
A3 (297mm X 420mm)

12+0.00



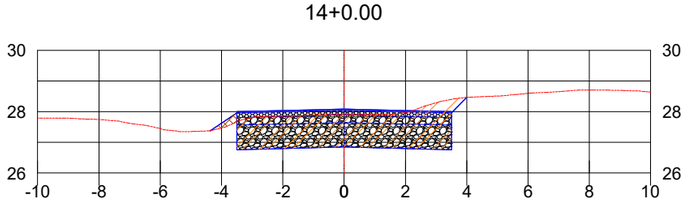

CT: 27.68
CPP: 27.85
CPT: 26.61

13+0.00



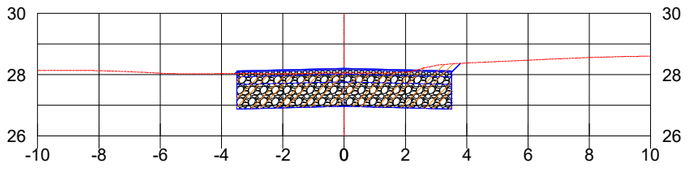

CT: 27.80
CPP: 27.97
CPT: 26.73

14+0.00



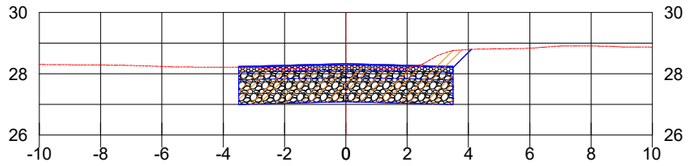

CT: 27.91
CPP: 28.09
CPT: 26.85

15+0.00



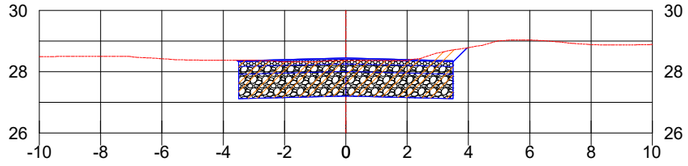

CT: 28.06
CPP: 28.21
CPT: 26.97

16+0.00



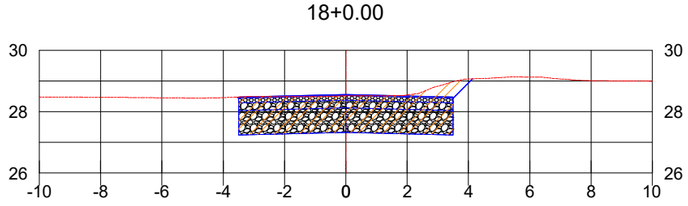

CT: 28.21
CPP: 28.32
CPT: 27.08

17+0.00



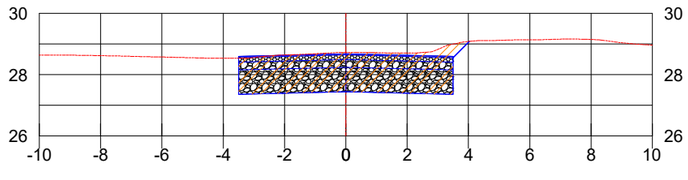

CT: 28.36
CPP: 28.44
CPT: 27.20

18+0.00



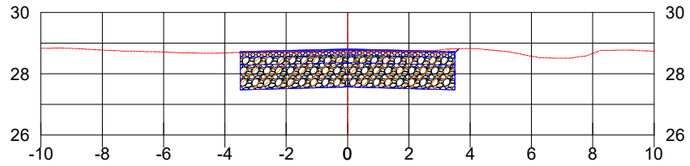

CT: 28.52
CPP: 28.56
CPT: 27.32

19+0.00



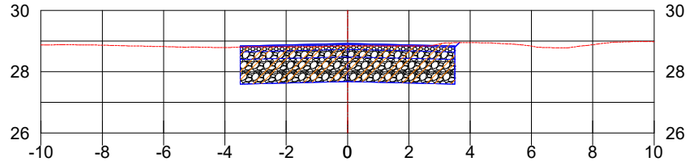

CT: 28.73
CPP: 28.68
CPT: 27.44

20+0.00



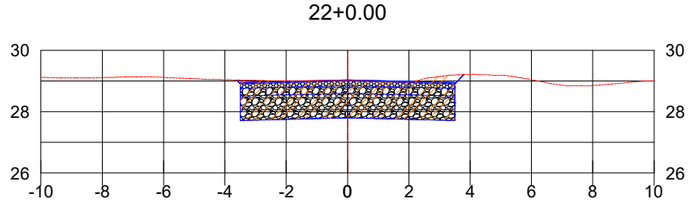

CT: 28.72
CPP: 28.80
CPT: 27.56

21+0.00



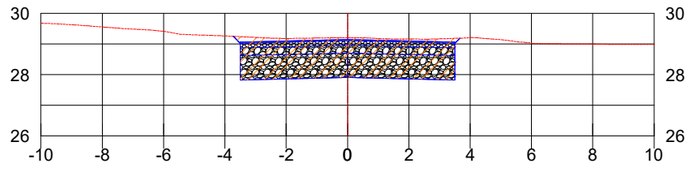

CT: 28.84
CPP: 28.92
CPT: 27.68

22+0.00




CT: 29.01
CPP: 29.04
CPT: 27.80

23+0.00




CT: 29.20
CPP: 29.15
CPT: 27.91

Esc: 1/200

IDEALIZE
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CREA/SC - 169873-0

FORQUILHINHA

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ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
2 / 4

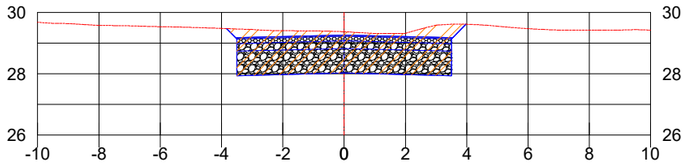
Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
SEÇÕES DE TERRAPLANAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

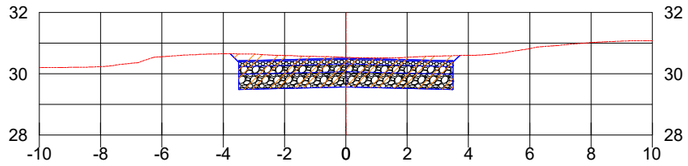
A3 (297mm X 420mm)

24+0.00



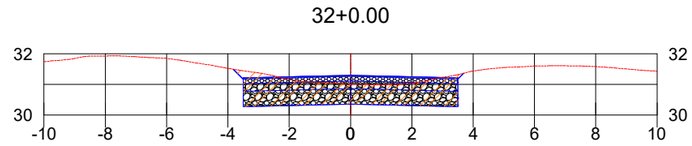

CT: 29.37
CPP: 29.26
CPT: 28.02

28+0.00



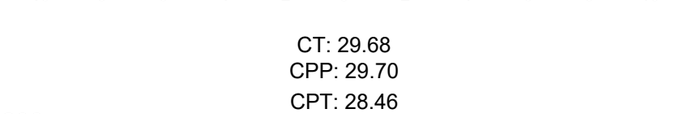

CT: 30.53
CPP: 30.51
CPT: 29.57

32+0.00



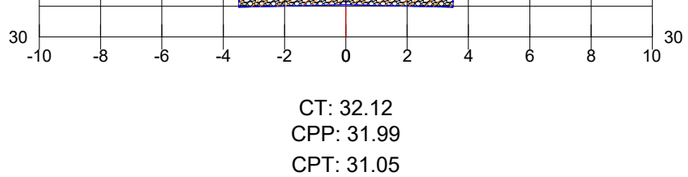

CT: 31.01
CPP: 31.30
CPT: 30.36

25+0.00



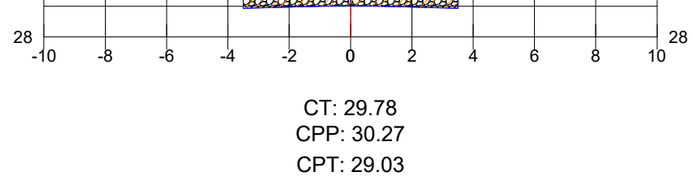

CT: 29.39
CPP: 29.37
CPT: 28.13

29+0.00



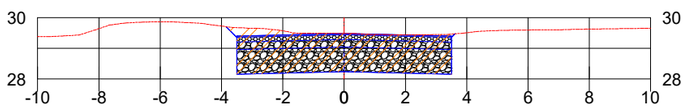

CT: 31.72
CPP: 31.55
CPT: 30.61

33+0.00



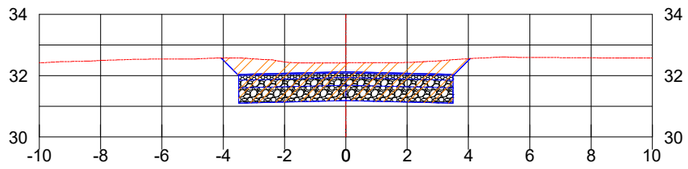

CT: 30.07
CPP: 30.61
CPT: 29.37

26+0.00



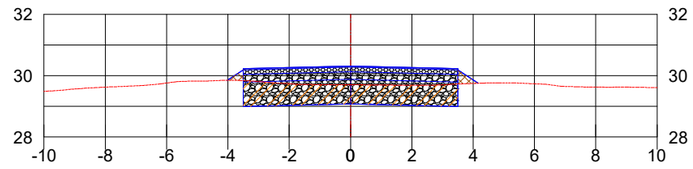

CT: 29.49
CPP: 29.48
CPT: 28.24

30+0.00



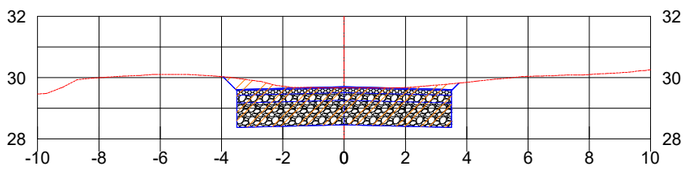

CT: 32.42
CPP: 32.13
CPT: 31.19

34+0.00



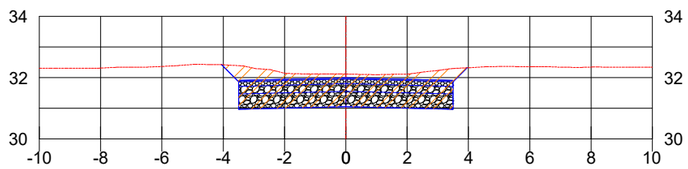

CT: 29.70
CPP: 30.32
CPT: 29.08

27+0.00



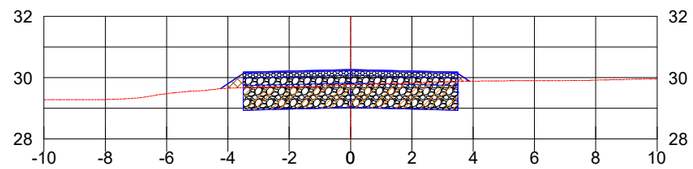

CT: 29.68
CPP: 29.70
CPT: 28.46

31+0.00




CT: 32.12
CPP: 31.99
CPT: 31.05

35+0.00




CT: 29.78
CPP: 30.27
CPT: 29.03

Esc: 1/200

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
3 / 4

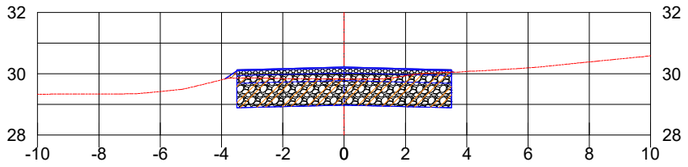
Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
SEÇÕES DE TERRAPLANAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

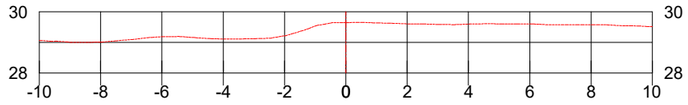
A3 (297mm X 420mm)

36+0.00



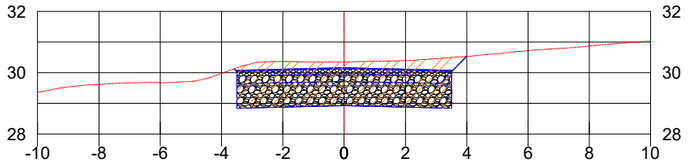

CT: 29.83
CPP: 30.21
CPT: 28.97

39+11.20



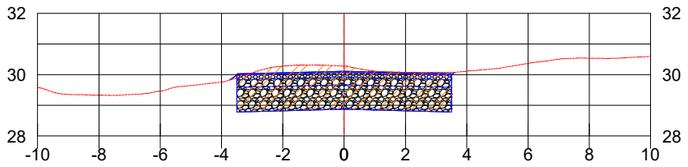

CT: 29.64
CPP:
CPT:

37+0.00



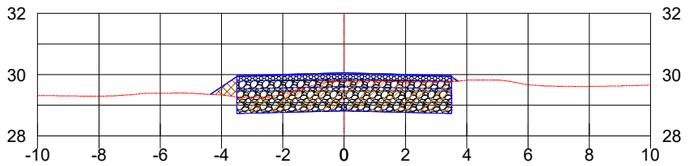

CT: 30.35
CPP: 30.16
CPT: 28.92

38+0.00




CT: 30.28
CPP: 30.11
CPT: 28.87

39+0.00




CT: 29.79
CPP: 30.06
CPT: 28.82

Esc: 1/200

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
4 / 4

Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
SEÇÕES DE TERRAPLANAGEM

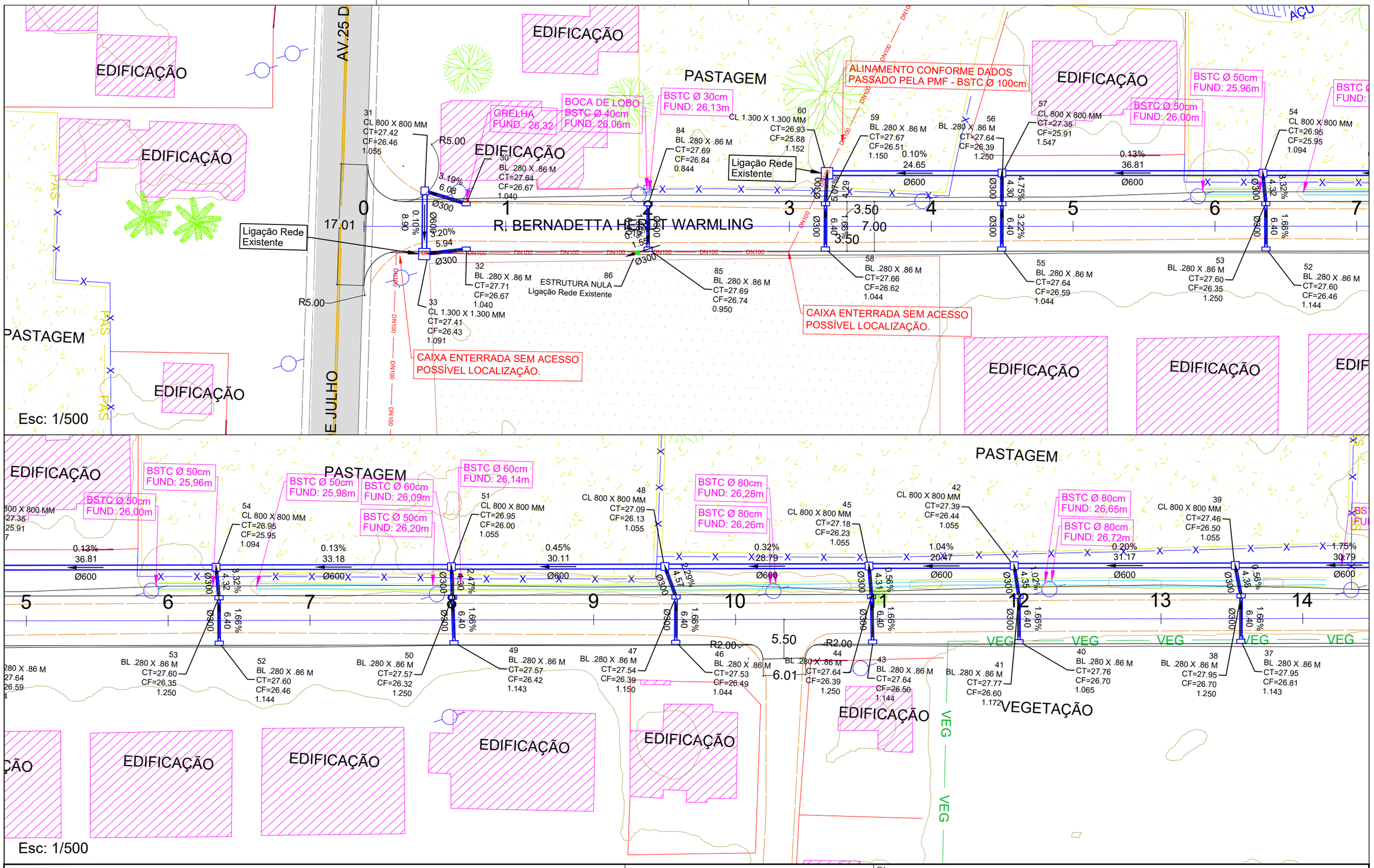
Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

# PROJETO DE DRENAGEM

## -- Planta e Detalhes

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
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IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

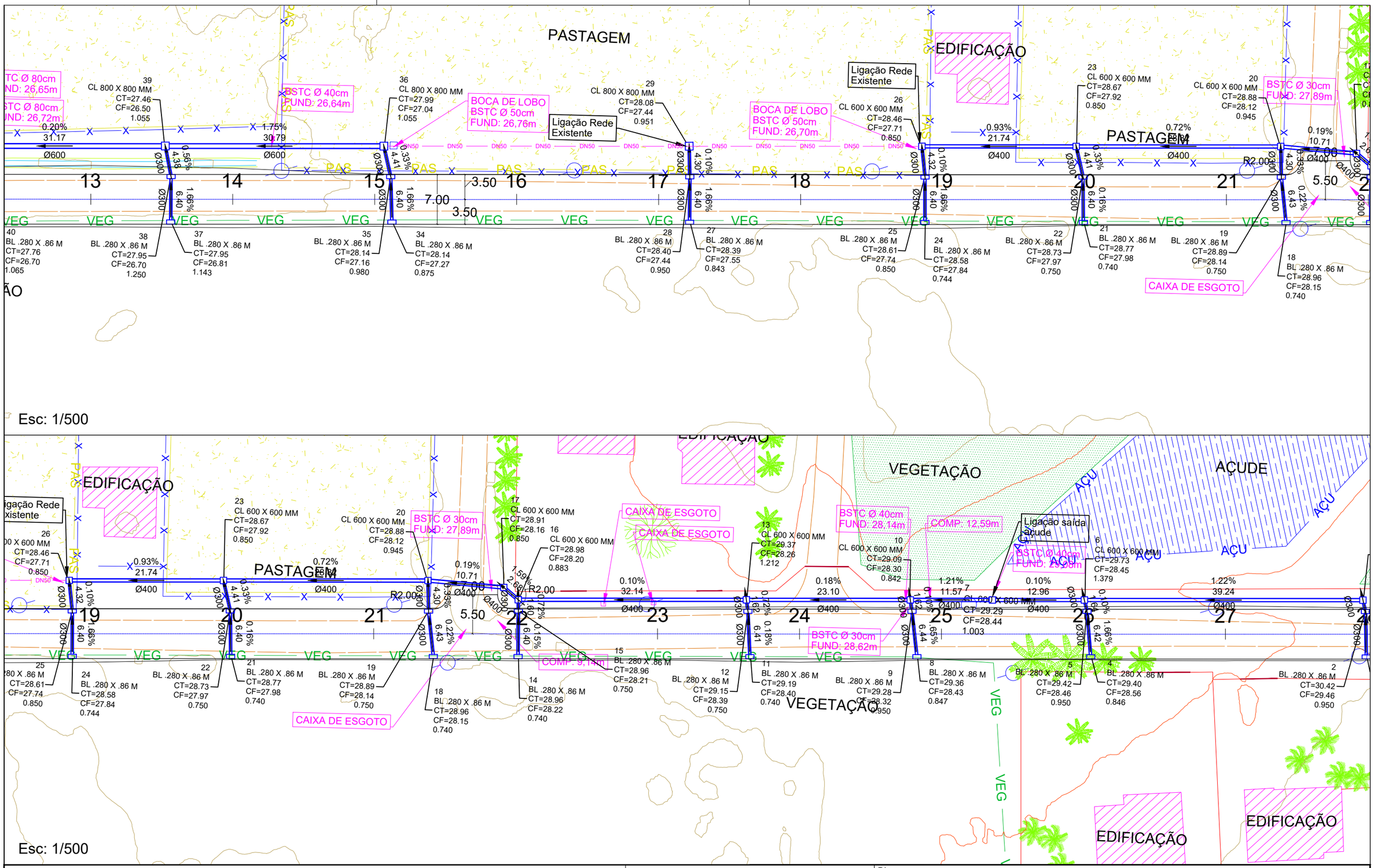
Prancha:
1 / 3

Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
PROJETO DE DRENAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)




IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

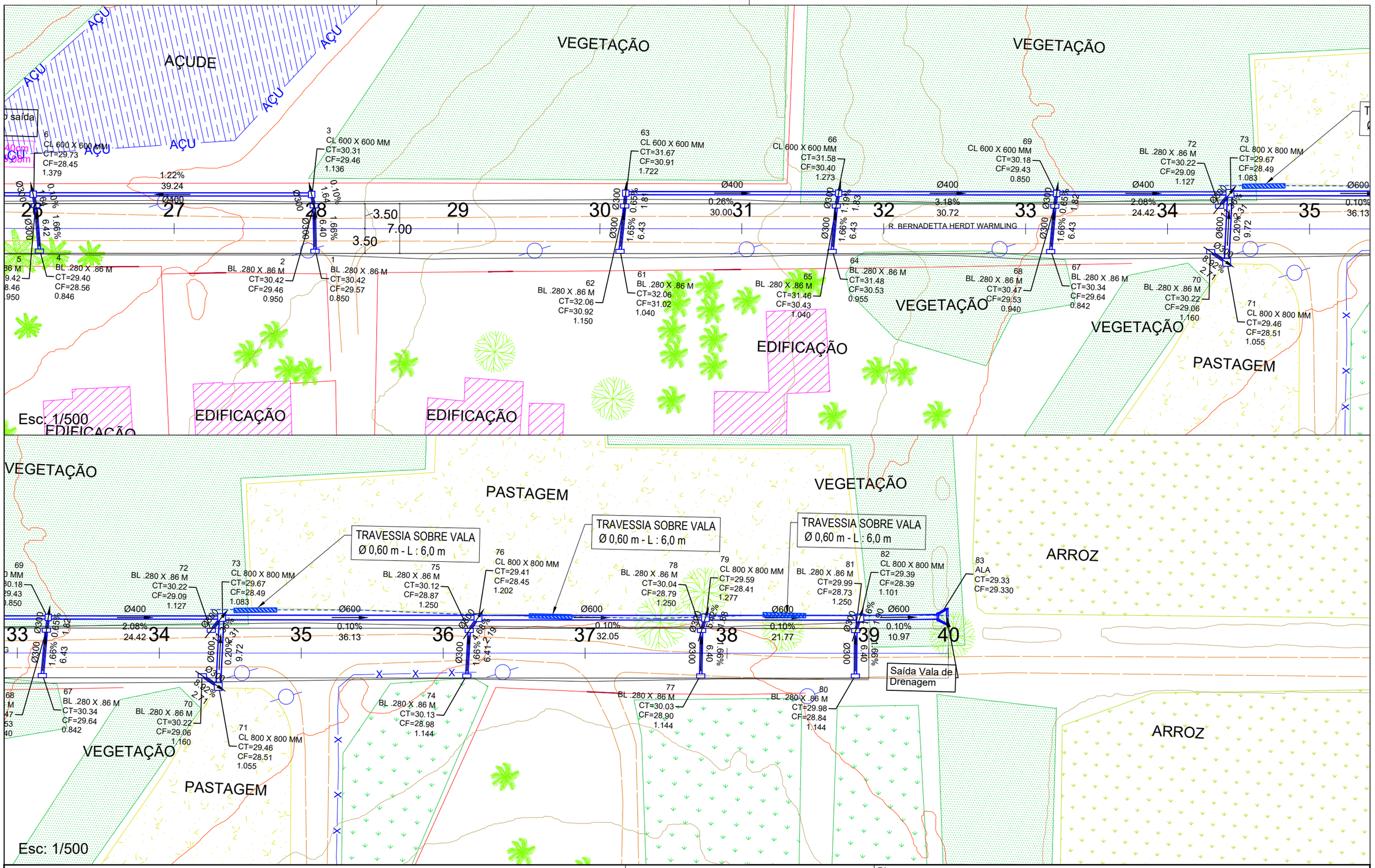
Prancha:
2 / 3

Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
PROJETO DE DRENAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)




IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
3 / 3

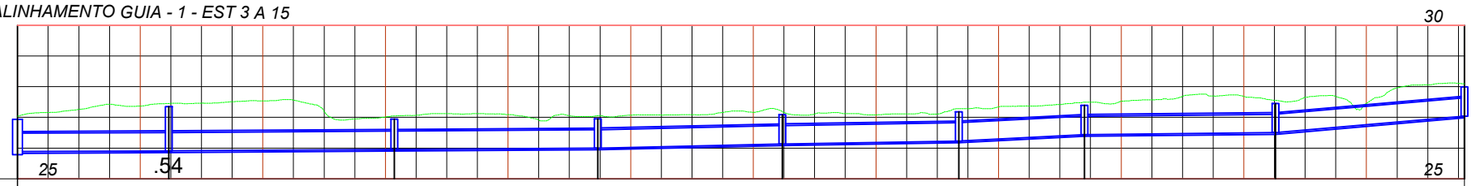
Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
PROJETO DE DRENAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

*PERFIL LONGITUDINAL DO ALINHAMENTO GUIA - 1 - EST 3 A 15*




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TERRENO SUP_DRE_RBERNADETTA | 27.034 | 27.160 | 27.261 | 27.425 | 27.366 | 27.457 | 27.464 | 27.510 | 27.539 |
| | 27.561 | 27.201 | 26.946 | 27.013 | 27.069 | 27.122 | 27.125 | 27.093 | 26.914 |
| | 27.053 | 27.054 | 27.068 | 27.076 | 27.086 | 27.161 | 27.165 | 27.158 | 27.111 |
| | 27.119 | 27.082 | 27.111 | 27.109 | 27.286 | 27.342 | 27.369 | 27.421 | 27.497 |
| | 27.525 | 27.573 | 27.684 | 27.697 | 27.684 | 27.556 | 27.656 | 27.686 | 27.458 |
| | 27.961 | 28.060 | 28.109 | 28.093 | | | | | |
| ESTACA | 3+5.3 | -7.5 | | 4+10.0 | -7.5 | | 6+6.8 | -7.5 | |
| | 7+19.9 | -7.5 | | 9+10.1 | -7.5 | | 10+18.8 | -7.5 | |
| | 11+19.3 | -7.5 | | 13+10.5 | -7.5 | | 15+1.3 | -7.5 | |
| PROJETO | 27.034 | | 27.453 | | 27.047 | | 27.052 | | 27.188 |
| | 27.280 | | 27.494 | | 27.556 | | 28.093 | | |
| GERATRIZ INF. | 25.882 | | 25.907 | | 25.954 | | 25.997 | | 26.133 |
| | 26.225 | | 26.439 | | 26.501 | | 27.038 | | |
| ALTURA | 1.15 | | 1.55 | | 1.09 | | 1.06 | | 1.06 |
| | 1.06 | | 1.06 | | 1.06 | | 1.06 | | |
| COMPRIMENTO | 24.65 | | 36.81 | | 33.18 | | 30.11 | | 28.79 |
| | 20.47 | | 31.17 | | 30.79 | | | | |
| DECLIVIDADE | 0.10% | | 0.13% | | 0.13% | | 0.45% | | 0.32% |
| | 1.04% | | 0.20% | | 1.75% | | | | |
| DIÂMETRO | 600 | | 600 | | 600 | | 600 | | 600 |
| | 600 | | 600 | | 600 | | | | |
| | CL-60 | | CL-57 | | CL-54 | | CL-51 | | CL-48 |
| | CL-45 | | CL-42 | | CL-39 | | CL-36 | | |

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
1 / 3

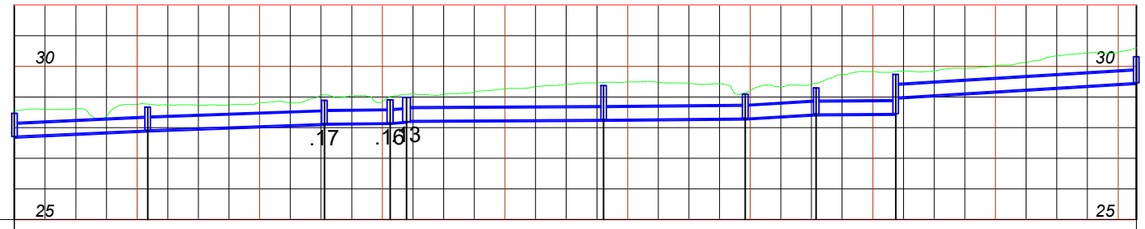
Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
PERFIL LONGITUDINAL

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

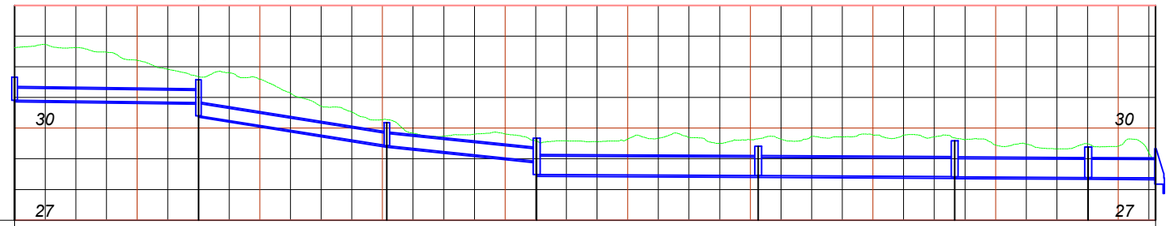
A3 (297mm X 420mm)

*PERFIL LONGITUDINAL DO ALINHAMENTO GUIA - 2 - EST 19 A 28*




| | | |

*PERFIL LONGITUDINAL DO ALINHAMENTO GUIA - 3 - EST 30 A 40*




| | | |

## Planilha de cálculo: REDE 01 - BERNADETTA

| Segmento | Nome | Tipo de estrutura à montante | Seção do tubo | Declividade do tubo | Extensão | Largura do fundo da vala | Cota de topo da estrutura de montante | Cota do fundo da estrutura à montante | Cota de topo da estrutura de jusante | Cota do fundo da estrutura de jusante | Cota da geratriz interna inferior do tubo à montante | Cota da geratriz interna inferior do tubo à jusante | Profundidade da geratriz de montante do tubo | Profundidade da geratriz de jusante do tubo | Profundidade da estrutura de montante | Altura do corpo da estrutura, sem o cone ou pescoço | Altura da estrutura de jusante | Cobrimento máximo acima do tubo | Cobrimento mínimo acima do tubo | Cota de terreno à montante | Cota de terreno à jusante | X | Y | Escavação manual | Escavação mecânica |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 61->62 | 61 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.65 % | 6.433 m | 1.000 m | 32.058 m | 31.024 m | 32.060 m | 30.917 m | 31.024 m | 30.917 m | 1.040 m | 1.150 m | 1.035 m | 1.035 m | 1.143 m | 0.835 m | 0.700 m | 32.064 m | 32.067 m | 649,288.042 m | 6,820,200.791 m | 0.327 m³ | 10.733 m³ |
| 62->63 | 62 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.65 % | 1.806 m | 1.000 m | 32.060 m | 30.917 m | 31.665 m | 30.905 m | 30.917 m | 30.905 m | 1.150 m | 1.722 m | 1.143 m | 1.143 m | 0.760 m | 1.382 m | 0.765 m | 32.067 m | 32.627 m | 649,288.396 m | 6,820,207.215 m | 0.092 m³ | 4.112 m³ |
| 63->66 | 63 | CL 600 x 600 mm | BSTC 400 x 50 mm | 0.26 % | 30.004 m | 1.000 m | 31.665 m | 30.905 m | 31.578 m | 30.405 m | 30.905 m | 30.828 m | 1.722 m | 0.850 m | 0.760 m | 0.760 m | 1.173 m | 1.387 m | 0.400 m | 32.627 m | 31.678 m | 649,288.454 m | 6,820,209.020 m | 1.525 m³ | 70.761 m³ |
| 64->65 | 64 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.426 m | 1.000 m | 31.483 m | 30.533 m | 31.463 m | 30.427 m | 30.533 m | 30.427 m | 0.955 m | 1.040 m | 0.950 m | 0.950 m | 1.036 m | 0.737 m | 0.615 m | 31.488 m | 31.467 m | 649,317.898 m | 6,820,202.190 m | 0.327 m³ | 9.605 m³ |
| 65->66 | 65 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.19 % | 1.831 m | 1.000 m | 31.463 m | 30.427 m | 31.578 m | 30.405 m | 30.427 m | 30.405 m | 1.040 m | 1.273 m | 1.036 m | 1.036 m | 1.173 m | 0.971 m | 0.654 m | 31.467 m | 31.678 m | 649,318.175 m | 6,820,208.610 m | 0.093 m³ | 3.160 m³ |
| 66->69 | 66 | CL 600 x 600 mm | BSTC 400 x 50 mm | 3.18 % | 30.722 m | 1.000 m | 31.578 m | 30.405 m | 30.177 m | 29.427 m | 30.405 m | 29.427 m | 1.273 m | 0.850 m | 1.173 m | 1.173 m | 0.750 m | 1.117 m | 0.312 m | 31.678 m | 30.277 m | 649,318.425 m | 6,820,210.424 m | 1.562 m³ | 55.541 m³ |
| 67->68 | 67 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.426 m | 1.000 m | 30.341 m | 29.635 m | 30.474 m | 29.529 m | 29.635 m | 29.529 m | 0.842 m | 0.940 m | 0.706 m | 0.706 m | 0.945 m | 0.631 m | 0.502 m | 30.477 m | 30.469 m | 649,348.661 m | 6,820,203.631 m | 0.327 m³ | 8.430 m³ |
| 68->69 | 68 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.65 % | 1.819 m | 1.000 m | 30.474 m | 29.529 m | 30.177 m | 29.427 m | 29.529 m | 29.517 m | 0.940 m | 0.760 m | 0.945 m | 0.945 m | 0.750 m | 0.600 m | 0.322 m | 30.469 m | 30.277 m | 649,348.936 m | 6,820,210.051 m | 0.092 m³ | 2.155 m³ |
| 69->73 | 69 | CL 600 x 600 mm | BSTC 400 x 50 mm | 2.08 % | 24.425 m | 1.000 m | 30.177 m | 29.427 m | 29.670 m | 28.486 m | 29.427 m | 28.920 m | 0.850 m | 0.650 m | 0.750 m | 0.750 m | 1.183 m | 0.403 m | -0.004 m | 30.277 m | 29.570 m | 649,349.114 m | 6,820,211.862 m | 1.242 m³ | 21.455 m³ |
| 70->71 | 70 | BL 280 x 860 mm | BSTC 300 x 40 mm | 8.92 % | 2.708 m | 1.000 m | 30.216 m | 29.063 m | 29.461 m | 28.506 m | 29.063 m | 28.821 m | 1.160 m | 0.740 m | 1.154 m | 1.154 m | 0.955 m | 0.859 m | 0.332 m | 30.222 m | 29.561 m | 649,371.181 m | 6,820,204.686 m | 0.138 m³ | 3.524 m³ |
| 71->73 | 71 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.20 % | 9.724 m | 1.000 m | 29.461 m | 28.506 m | 29.670 m | 28.486 m | 28.506 m | 28.486 m | 1.055 m | 1.083 m | 0.955 m | 0.955 m | 1.183 m | 1.145 m | 0.400 m | 29.561 m | 29.570 m | 649,373.496 m | 6,820,203.280 m | 0.494 m³ | 26.161 m³ |
| 72->73 | 72 | BL 280 x 860 mm | BSTC 300 x 40 mm | 11.36 % | 2.315 m | 1.000 m | 30.217 m | 29.092 m | 29.670 m | 28.486 m | 29.092 m | 28.830 m | 1.127 m | 0.740 m | 1.125 m | 1.125 m | 1.183 m | 0.822 m | 0.400 m | 30.219 m | 29.570 m | 649,372.142 m | 6,820,211.138 m | 0.118 m³ | 2.983 m³ |
| 73->76 | 73 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.10 % | 36.133 m | 1.000 m | 29.670 m | 28.486 m | 29.413 m | 28.450 m | 28.486 m | 28.450 m | 1.083 m | 1.202 m | 1.183 m | 1.183 m | 0.963 m | 0.722 m | 0.376 m | 29.570 m | 29.652 m | 649,373.512 m | 6,820,213.005 m | 1.837 m³ | 63.812 m³ |
| 74->75 | 74 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.409 m | 1.000 m | 30.126 m | 28.981 m | 30.124 m | 28.875 m | 28.981 m | 28.875 m | 1.144 m | 1.250 m | 1.145 m | 1.145 m | 1.249 m | 0.937 m | 0.804 m | 30.126 m | 30.125 m | 649,408.412 m | 6,820,206.431 m | 0.326 m³ | 11.902 m³ |
| 75->76 | 75 | BL 280 x 860 mm | BSTC 300 x 40 mm | 4.68 % | 2.186 m | 1.000 m | 30.124 m | 28.875 m | 29.413 m | 28.450 m | 28.875 m | 28.773 m | 1.250 m | 0.880 m | 1.249 m | 1.249 m | 0.963 m | 0.919 m | 0.540 m | 30.125 m | 29.652 m | 649,408.451 m | 6,820,212.840 m | 0.111 m³ | 3.396 m³ |
| 76->79 | 76 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.10 % | 32.046 m | 1.000 m | 29.413 m | 28.450 m | 29.585 m | 28.408 m | 28.450 m | 28.418 m | 1.202 m | 1.267 m | 0.963 m | 0.963 m | 1.177 m | 0.722 m | 0.471 m | 29.652 m | 29.685 m | 649,409.605 m | 6,820,214.696 m | 1.629 m³ | 64.487 m³ |
| 77->78 | 77 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.401 m | 1.000 m | 30.034 m | 28.896 m | 30.037 m | 28.790 m | 28.896 m | 28.790 m | 1.144 m | 1.250 m | 1.137 m | 1.137 m | 1.247 m | 0.937 m | 0.804 m | 30.040 m | 30.040 m | 649,441.328 m | 6,820,207.973 m | 0.325 m³ | 11.885 m³ |
| 78->79 | 78 | BL 280 x 860 mm | BSTC 300 x 40 mm | 5.42 % | 1.880 m | 1.000 m | 30.037 m | 28.790 m | 29.585 m | 28.408 m | 28.790 m | 28.688 m | 1.250 m | 0.997 m | 1.247 m | 1.247 m | 1.177 m | 0.919 m | 0.657 m | 30.040 m | 29.685 m | 649,441.158 m | 6,820,214.372 m | 0.096 m³ | 3.114 m³ |
| 79->82 | 79 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.10 % | 21.768 m | 1.000 m | 29.585 m | 28.408 m | 29.388 m | 28.386 m | 28.408 m | 28.386 m | 1.277 m | 1.101 m | 1.177 m | 1.177 m | 1.001 m | 0.622 m | 0.276 m | 29.685 m | 29.488 m | 649,441.616 m | 6,820,216.195 m | 1.107 m³ | 34.744 m³ |
| 80->81 | 80 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 29.981 m | 28.840 m | 29.988 m | 28.734 m | 28.840 m | 28.734 m | 1.144 m | 1.250 m | 1.141 m | 1.141 m | 1.254 m | 0.937 m | 0.804 m | 29.984 m | 29.984 m | 649,463.113 m | 6,820,208.993 m | 0.325 m³ | 11.881 m³ |
| 81->82 | 81 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.16 % | 1.895 m | 1.000 m | 29.988 m | 28.734 m | 29.388 m | 28.386 m | 28.734 m | 28.712 m | 1.250 m | 0.776 m | 1.254 m | 1.254 m | 1.001 m | 0.910 m | 0.290 m | 29.984 m | 29.488 m | 649,462.852 m | 6,820,215.388 m | 0.096 m³ | 2.775 m³ |
| 82->83 | 82 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.10 % | 10.974 m | 1.000 m | 29.388 m | 28.386 m | 29.330 m | 28.372 m | 28.386 m | 28.375 m | 1.101 m | 0.609 m | 1.001 m | 1.001 m | 0.958 m | 0.616 m | -0.047 m | 29.488 m | 28.984 m | 649,463.360 m | 6,820,217.214 m | 0.558 m³ | 16.792 m³ |
| 83-> | 83 | BBT_1989 1 x 600 x 0 ° | | | | | 29.330 m | 28.372 m | | | | | | | 0.958 m | 0.000 m | | | | | | 649,474.315 m | 6,820,217.863 m | | |
| 1->2 | 1 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.401 m | 1.000 m | 30.415 m | 29.570 m | 30.423 m | 29.464 m | 29.570 m | 29.464 m | 0.850 m | 0.950 m | 0.845 m | 0.845 m | 0.959 m | 0.640 m | 0.510 m | 30.420 m | 30.414 m | 649,245.107 m | 6,820,198.780 m | 0.325 m³ | 8.497 m³ |
| 2->3 | 2 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.10 % | 1.640 m | 1.000 m | 30.423 m | 29.464 m | 30.312 m | 29.462 m | 29.464 m | 29.462 m | 0.950 m | 1.136 m | 0.959 m | 0.959 m | 0.850 m | 0.825 m | 0.559 m | 30.414 m | 30.598 m | 649,244.692 m | 6,820,205.167 m | 0.083 m³ | 2.475 m³ |
| 3->6 | 3 | CL 600 x 600 mm | BSTC 400 x 50 mm | 1.22 % | 39.242 m | 1.000 m | 30.312 m | 29.462 m | 29.733 m | 28.454 m | 29.462 m | 28.983 m | 1.136 m | 0.850 m | 0.850 m | 0.850 m | 1.279 m | 0.686 m | 0.328 m | 30.598 m | 29.833 m | 649,244.256 m | 6,820,206.749 m | 1.995 m³ | 51.302 m³ |
| 4->5 | 4 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.421 m | 1.000 m | 29.402 m | 28.562 m | 29.418 m | 28.456 m | 28.562 m | 28.456 m | 0.846 m | 0.950 m | 0.839 m | 0.839 m | 0.962 m | 0.638 m | 0.506 m | 29.409 m | 29.406 m | 649,206.324 m | 6,820,196.963 m | 0.326 m³ | 8.503 m³ |
| 5->6 | 5 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.10 % | 1.642 m | 1.000 m | 29.418 m | 28.456 m | 29.733 m | 28.454 m | 28.456 m | 28.454 m | 0.950 m | 1.379 m | 0.962 m | 0.962 m | 1.279 m | 1.039 m | 0.563 m | 29.406 m | 29.833 m | 649,205.502 m | 6,820,203.331 m | 0.083 m³ | 2.845 m³ |
| 6->7 | 6 | CL 600 x 600 mm | BSTC 400 x 50 mm | 0.10 % | 12.962 m | 1.000 m | 29.733 m | 28.454 m | 29.291 m | 28.441 m | 28.454 m | 28.441 m | 1.379 m | 1.003 m | 1.279 m | 1.279 m | 0.850 m | 0.934 m | 0.553 m | 29.833 m | 29.444 m | 649,205.057 m | 6,820,204.912 m | 0.659 m³ | 25.539 m³ |
| 7->10 | 7 | CL 600 x 600 mm | BSTC 400 x 50 mm | 1.21 % | 11.569 m | 1.000 m | 29.291 m | 28.441 m | 29.091 m | 28.301 m | 28.441 m | 28.301 m | 1.003 m | 0.842 m | 0.850 m | 0.850 m | 0.790 m | 0.610 m | 0.392 m | 29.444 m | 29.143 m | 649,192.110 m | 6,820,204.306 m | 0.588 m³ | 17.159 m³ |
| 8->9 | 8 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.65 % | 6.437 m | 1.000 m | 29.358 m | 28.425 m | 29.276 m | 28.319 m | 28.425 m | 28.319 m | 0.847 m | 0.950 m | 0.933 m | 0.933 m | 0.957 m | 0.639 m | 0.507 m | 29.272 m | 29.269 m | 649,181.855 m | 6,820,195.816 m | 0.327 m³ | 8.529 m³ |
| 9->10 | 9 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.10 % | 1.617 m | 1.000 m | 29.276 m | 28.319 m | 29.091 m | 28.301 m | 28.319 m | 28.317 m | 0.950 m | 0.826 m | 0.957 m | 0.957 m | 0.790 m | 0.766 m | 0.485 m | 29.269 m | 29.143 m | 649,180.864 m | 6,820,202.177 m | 0.082 m³ | 2.025 m³ |
| 10->13 | 10 | CL 600 x 600 mm | BSTC 400 x 50 mm | 0.18 % | 23.103 m | 1.000 m | 29.091 m | 28.301 m | 29.372 m | 28.260 m | 28.301 m | 28.260 m | 0.842 m | 1.212 m | 0.790 m | 0.790 m | 1.112 m | 0.782 m | 0.336 m | 29.143 m | 29.472 m | 649,180.553 m | 6,820,203.764 m | 1.174 m³ | 40.040 m³ |
| 11->12 | 11 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.18 % | 6.406 m | 1.000 m | 29.188 m | 28.401 m | 29.147 m | 28.390 m | 28.401 m | 28.390 m | 0.740 m | 0.750 m | 0.786 m | 0.786 m | 0.757 m | 0.485 m | 0.400 m | 29.141 m | 29.140 m | 649,158.351 m | 6,820,194.715 m | 0.326 m³ | 6.878 m³ |
| 12->13 | 12 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.72 % | 1.616 m | 1.000 m | 29.147 m | 28.390 m | 29.372 m | 28.260 m | 28.390 m | 28.378 m | 0.750 m | 1.094 m | 0.757 m | 0.757 m | 1.112 m | 0.754 m | 0.365 m | 29.140 m | 29.472 m | 649,157.778 m | 6,820,201.095 m | 0.082 m³ | 2.122 m³ |
| 13->16 | 13 | CL 600 x 600 mm | BSTC 400 x 50 mm | 0.10 % | 32.141 m | 1.000 m | 29.372 m | 28.260 m | 28.978 m | 28.198 m | 28.260 m | 28.228 m | 1.212 m | 0.854 m | 1.112 m | 1.112 m | 0.780 m | 0.762 m | 0.368 m | 29.472 m | 29.082 m | 649,157.476 m | 6,820,202.683 m | 1.634 m³ | 47.673 m³ |
| 14->15 | 14 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.15 % | 6.400 m | 1.000 m | 28.957 m | 28.220 m | 28.961 m | 28.210 m | 28.220 m | 28.210 m | 0.740 m | 0.750 m | 0.737 m | 0.737 m | 0.751 m | 0.485 m | 0.400 m | 28.960 m | 28.960 m | 649,125.725 m | 6,820,193.187 m | 0.325 m³ | 6.871 m³ |
| 15->16 | 15 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.73 % | 1.600 m | 1.000 m | 28.961 m | 28.210 m | 28.978 m | 28.198 m | 28.210 m | 28.198 m | 0.750 m | 0.883 m | 0.751 m | 0.751 m | 0.780 m | 0.543 m | 0.365 m | 28.960 m | 29.082 m | 649,125.471 m | 6,820,199.582 m | 0.081 m³ | 1.803 m³ |
| 16->17 | 16 | CL 600 x 600 mm | BSTC 400 x 50 mm | 1.59 % | 2.676 m | 1.000 m | 28.978 m | 28.198 m | 28.906 m | 28.156 m | 28.198 m | 28.156 m | 0.883 m | 0.850 m | 0.780 m | 0.780 m | 0.750 m | 0.439 m | 0.400 m | 29.082 m | 29.006 m | 649,125.370 m | 6,820,201.179 m | 0.136 m³ | 3.328 m³ |
| 17->20 | 17 | CL 600 x 600 mm | BSTC 400 x 50 mm | 0.19 % | 10.713 m | 1.000 m | 28.906 m | 28.156 m | 28.885 m | 28.123 m | 28.156 m | 28.135 m | 0.850 m | 0.933 m | 0.750 m | 0.750 m | 0.762 m | 0.483 m | 0.214 m | 29.006 m | 29.068 m | 649,123.249 m | 6,820,202.810 m | 0.545 m³ | 12.740 m³ |
| 18->19 | 18 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.22 % | 6.435 m | 1.000 m | 28.958 m | 28.152 m | 28.887 m | 28.138 m | 28.152 m | 28.138 m | 0.740 m | 0.750 m | 0.806 m | 0.806 m | 0.749 m | 0.485 m | 0.400 m | 28.892 m | 28.888 m | 649,113.797 m | 6,820,192.628 m | 0.327 m³ | 6.909 m³ |
| 19->20 | 19 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.33 % | 4.301 m | 1.000 m | 28.887 m | 28.138 m | 28.885 m | 28.123 m | 28.138 m | 28.123 m | 0.750 m | 0.945 m | 0.749 m | 0.749 m | 0.762 m | 0.605 m | 0.364 m | 28.888 m | 29.068 m | 649,112.832 m | 6,820,198.990 m | 0.219 m³ | 5.160 m³ |
| 20->23 | 20 | CL 600 x 600 mm | BSTC 400 x 50 mm | 0.72 % | 28.819 m | 1.000 m | 28.885 m | 28.123 m | 28.667 m | 27.917 m | 28.123 m | 27.917 m | 0.945 m | 0.850 m | 0.762 m | 0.762 m | 0.750 m | 0.496 m | 0.260 m | 29.068 m | 28.767 m | 649,112.546 m | 6,820,203.281 m | 1.465 m³ | 31.120 m³ |
| 21->22 | 21 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.16 % | 6.400 m | 1.000 m | 28.768 m | 27.981 m | 28.725 m | 27.971 m | 27.981 m | 27.971 m | 0.740 m | 0.750 m | 0.787 m | 0.787 m | 0.754 m | 0.485 m | 0.400 m | 28.721 m | 28.721 m | 649,085.269 m | 6,820,191.291 m | 0.325 m³ | 6.872 m³ |
| 22->23 | 22 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.33 % | 4.408 m | 1.000 m | 28.725 m | 27.971 m | 28.667 m | 27.917 m | 27.971 m | 27.957 m | 0.750 m | 0.810 m | 0.754 m | 0.754 m | 0.750 m | 0.470 m | 0.363 m | 28.721 m | 28.767 m | 649,084.928 m | 6,820,197.682 m | 0.224 m³ | 4.503 m³ |
| 23->26 | 23 | CL 600 x 600 mm | BSTC 400 x 50 mm | 0.93 % | 21.739 m | 1.000 m | 28.667 m | 27.917 m | 28.464 m | 27.714 m | 27.917 m | 27.714 m | 0.850 m | 0.850 m | 0.750 m | 0.750 m | 0.750 m | 0.432 m | -0.022 m | 28.767 m | 28.564 m | 649,083.758 m | 6,820,201.932 m | 1.105 m³ | 23.848 m³ |
| 24->25 | 24 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 28.585 m | 27.845 m | 28.608 m | 27.738 m | 27.845 m | 27.738 m | 0.744 m | 0.850 m | 0.740 m | 0.740 m | 0.870 m | 0.537 m | 0.404 m | 28.588 m | 28.588 m | 649,062.972 m | 6,820,190.247 m | 0.325 m³ | 7.403 m³ |
| 25->26 | 25 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.10 % | 4.323 m | 1.000 m | 28.608 m | 27.738 m | 28.464 m | 27.714 m | 27.738 m | 27.734 m | 0.850 m | 0.830 m | 0.870 m | 0.870 m | 0.750 m | 0.510 m | 0.446 m | 28.588 m | 28.564 m | 649,062.685 m | 6,820,196.640 m | 0.220 m³ | 4.892 m³ |
| 26-> | 26 | CL 600 x 600 mm | | | | | 28.464 m | 27.714 m | | | | | | | 0.750 m | 0.750 m | | | | | | 649,062.044 m | 6,820,200.915 m | | |
| 27->28 | 27 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 28.387 m | 27.547 m | 28.400 m | 27.441 m | 27.547 m | 27.441 m | 0.843 m | 0.950 m | 0.840 m | 0.840 m | 0.959 m | 0.637 m | 0.503 m | 28.390 m | 28.391 m | 649,029.848 m | 6,820,188.695 m | 0.325 m³ | 8.458 m³ |
| 28->29 | 28 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.10 % | 4.301 m | 1.000 m | 28.400 m | 27.441 m | 28.076 m | 27.436 m | 27.441 m | 27.436 m | 0.950 m | 0.951 m | 0.959 m | 0.959 m | 0.640 m | 0.613 m | 0.500 m | 28.391 m | 28.387 m | 649,029.582 m | 6,820,195.089 m | 0.219 m³ | 5.427 m³ |
| 29-> | 29 | CL 800 x 800 mm | | | | | 28.076 m | 27.436 m | | | | | | | 0.640 m | 0.640 m | | | | | | 649,029.285 m | 6,820,199.380 m | | |
| 30->31 | 30 | BL 280 x 860 mm | BSTC 300 x 40 mm | 3.19 % | 6.084 m | 1.000 m | 27.635 m | 26.672 m | 27.418 m | 26.463 m | 26.672 m | 26.478 m | 1.040 m | 1.040 m | 0.964 m | 0.964 m | 0.955 m | 0.744 m | 0.459 m | 27.712 m | 27.518 m | 648,699.944 m | 6,820,179.646 m | 0.309 m³ | 8.470 m³ |
| 31->33 | 31 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.10 % | 8.897 m | 1.000 m | 27.418 m | 26.463 m | 27.409 m | 26.431 m | 26.463 m | 26.454 m | 1.055 m | 1.068 m | 0.955 m | 0.955 m | 0.978 m | 0.685 m | 0.386 m | 27.518 m | 27.521 m | 648,694.054 m | 6,820,181.171 m | 0.452 m³ | 17.138 m³ |
| 32->33 | 32 | BL 280 x 860 mm | BSTC 300 x 40 mm | 3.20 % | 5.939 m | 1.000 m | 27.712 m | 26.672 m | 27.409 m | 26.431 m | 26.672 m | 26.481 m | 1.040 m | 1.040 m | 1.041 m | 1.041 m | 0.978 m | 0.802 m | 0.644 m | 27.712 m | 27.521 m | 648,700.256 m | 6,820,173.254 m | 0.302 m³ | 9.045 m³ |
| 33-> | 33 | CL 1.300 x 1.300 mm | | | | | 27.409 m | 26.431 m | | | | | | | 0.978 m | 0.978 m | | | | | | 648,694.397 m | 6,820,172.280 m | | |

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
NOTAS DE SERVIÇO DE DRENAGEM

Prancha:
1 / 3

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

Planilha de cálculo: REDE 01 - BERNADETTA

| Segmento | Nome | Tipo de estrutura à montante | Seção do tubo | Declividade do tubo | Extensão | Largura do fundo da vala | Cota de topo da estrutura de montante | Cota do fundo da estrutura à montante | Cota de topo da estrutura de jusante | Cota do fundo da estrutura de jusante | Cota da geratriz interna inferior do tubo à montante | Cota da geratriz interna inferior do tubo à jusante | Profundidade da geratriz de montante do tubo | Profundidade da geratriz de jusante do tubo | Profundidade da estrutura de montante | Altura do corpo da estrutura, sem o cone ou pescoço | Altura da estrutura de jusante | Cobrimento máximo acima do tubo | Cobrimento mínimo acima do tubo | Cota de terreno à montante | Cota de terreno à jusante | X | Y | Escavação manual | Escavação mecânica |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 84->85 | 84 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 27.686 m | 26.843 m | 27.686 m | 26.736 m | 26.843 m | 26.736 m | 0.844 m | 0.950 m | 0.843 m | 0.843 m | 0.950 m | 0.637 m | 0.504 m | 27.686 m | 27.686 m | 648,725.598 m | 6,820,180.848 m | 0.325 m³ | 8.459 m³ |
| 85->86 | 85 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.75 % | 1.549 m | 1.000 m | 27.686 m | 26.736 m | 27.084 m | 27.084 m | 26.736 m | 26.725 m | 0.950 m | 0.790 m | 0.950 m | 0.950 m | 0.000 m | 0.610 m | 0.450 m | 27.686 m | 27.515 m | 648,725.886 m | 6,820,174.454 m | 0.079 m³ | 1.830 m³ |
| 86-> | 86 | Structure Null | | | | | 27.084 m | 27.084 m | | | | | | | 0.000 m | 0.000 m | | | | | | 648,724.441 m | 6,820,173.897 m | | |
| 34->35 | 34 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.402 m | 1.000 m | 28.137 m | 27.266 m | 28.145 m | 27.159 m | 27.266 m | 27.159 m | 0.875 m | 0.980 m | 0.871 m | 0.871 m | 0.986 m | 0.667 m | 0.535 m | 28.140 m | 28.139 m | 648,987.956 m | 6,820,186.732 m | 0.325 m³ | 8.792 m³ |
| 35->36 | 35 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.33 % | 4.409 m | 1.000 m | 28.145 m | 27.159 m | 27.993 m | 27.038 m | 27.159 m | 27.145 m | 0.980 m | 0.949 m | 0.986 m | 0.986 m | 0.955 m | 0.640 m | 0.539 m | 28.139 m | 28.093 m | 648,987.486 m | 6,820,193.117 m | 0.224 m³ | 5.734 m³ |
| 36->39 | 36 | CL 800 x 800 mm | BSTC 600 x 55 mm | 1.75 % | 30.790 m | 1.000 m | 27.993 m | 27.038 m | 27.456 m | 26.501 m | 27.038 m | 26.501 m | 1.055 m | 1.055 m | 0.955 m | 0.955 m | 0.955 m | 0.510 m | -0.156 m | 28.093 m | 27.556 m | 648,986.312 m | 6,820,197.367 m | 1.565 m³ | 45.351 m³ |
| 37->38 | 37 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 27.947 m | 26.811 m | 27.947 m | 26.704 m | 26.811 m | 26.704 m | 1.143 m | 1.250 m | 1.136 m | 1.136 m | 1.243 m | 0.937 m | 0.803 m | 27.954 m | 27.954 m | 648,956.820 m | 6,820,185.274 m | 0.325 m³ | 11.879 m³ |
| 38->39 | 38 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.56 % | 4.376 m | 1.000 m | 27.947 m | 26.704 m | 27.456 m | 26.501 m | 26.704 m | 26.680 m | 1.250 m | 0.875 m | 1.243 m | 1.243 m | 0.955 m | 0.910 m | -0.042 m | 27.954 m | 27.556 m | 648,956.570 m | 6,820,191.669 m | 0.222 m³ | 5.422 m³ |
| 39->42 | 39 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.20 % | 31.170 m | 1.000 m | 27.456 m | 26.501 m | 27.394 m | 26.439 m | 26.501 m | 26.439 m | 1.055 m | 1.055 m | 0.955 m | 0.955 m | 0.955 m | 0.623 m | 0.333 m | 27.556 m | 27.494 m | 648,955.556 m | 6,820,195.926 m | 1.584 m³ | 52.465 m³ |
| 40->41 | 40 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 27.762 m | 26.702 m | 27.770 m | 26.596 m | 26.702 m | 26.596 m | 1.065 m | 1.172 m | 1.060 m | 1.060 m | 1.175 m | 0.859 m | 0.725 m | 27.768 m | 27.768 m | 648,925.573 m | 6,820,183.810 m | 0.325 m³ | 10.952 m³ |
| 41->42 | 41 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.02 % | 4.350 m | 1.000 m | 27.770 m | 26.596 m | 27.394 m | 26.439 m | 26.596 m | 26.551 m | 1.172 m | 0.943 m | 1.175 m | 1.175 m | 0.955 m | 0.832 m | 0.071 m | 27.768 m | 27.494 m | 648,925.279 m | 6,820,190.203 m | 0.221 m³ | 4.598 m³ |
| 42->45 | 42 | CL 800 x 800 mm | BSTC 600 x 55 mm | 1.04 % | 20.475 m | 1.000 m | 27.394 m | 26.439 m | 27.180 m | 26.225 m | 26.439 m | 26.225 m | 1.055 m | 1.055 m | 0.955 m | 0.955 m | 0.955 m | 0.405 m | 0.346 m | 27.494 m | 27.280 m | 648,924.420 m | 6,820,194.467 m | 1.041 m³ | 30.793 m³ |
| 43->44 | 43 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.401 m | 1.000 m | 27.641 m | 26.500 m | 27.644 m | 26.394 m | 26.500 m | 26.394 m | 1.144 m | 1.250 m | 1.141 m | 1.141 m | 1.250 m | 0.937 m | 0.804 m | 27.644 m | 27.644 m | 648,904.951 m | 6,820,182.844 m | 0.325 m³ | 11.887 m³ |
| 44->45 | 44 | BL 280 x 860 mm | BSTC 300 x 40 mm | 0.56 % | 4.314 m | 1.000 m | 27.644 m | 26.394 m | 27.180 m | 26.225 m | 26.394 m | 26.369 m | 1.250 m | 0.911 m | 1.250 m | 1.250 m | 0.955 m | 0.910 m | 0.373 m | 27.644 m | 27.280 m | 648,904.521 m | 6,820,189.230 m | 0.219 m³ | 5.458 m³ |
| 45->48 | 45 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.32 % | 28.786 m | 1.000 m | 27.180 m | 26.225 m | 27.088 m | 26.133 m | 26.225 m | 26.133 m | 1.055 m | 1.055 m | 0.955 m | 0.955 m | 0.955 m | 0.401 m | 0.231 m | 27.280 m | 27.188 m | 648,903.967 m | 6,820,193.509 m | 1.463 m³ | 39.063 m³ |
| 46->47 | 46 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 27.531 m | 26.494 m | 27.539 m | 26.387 m | 26.494 m | 26.387 m | 1.044 m | 1.150 m | 1.037 m | 1.037 m | 1.152 m | 0.837 m | 0.704 m | 27.537 m | 27.537 m | 648,877.221 m | 6,820,181.544 m | 0.325 m³ | 10.698 m³ |
| 47->48 | 47 | BL 280 x 860 mm | BSTC 300 x 40 mm | 2.29 % | 4.575 m | 1.000 m | 27.539 m | 26.387 m | 27.088 m | 26.133 m | 26.387 m | 26.283 m | 1.150 m | 0.906 m | 1.152 m | 1.152 m | 0.955 m | 0.810 m | 0.007 m | 27.537 m | 27.188 m | 648,876.975 m | 6,820,187.940 m | 0.233 m³ | 4.968 m³ |
| 48->51 | 48 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.45 % | 30.109 m | 1.000 m | 27.088 m | 26.133 m | 26.952 m | 25.997 m | 26.133 m | 25.997 m | 1.055 m | 1.055 m | 0.955 m | 0.955 m | 0.955 m | 0.512 m | 0.348 m | 27.188 m | 27.052 m | 648,875.213 m | 6,820,192.162 m | 1.531 m³ | 46.378 m³ |
| 49->50 | 49 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.403 m | 1.000 m | 27.566 m | 26.425 m | 27.572 m | 26.318 m | 26.425 m | 26.318 m | 1.143 m | 1.250 m | 1.142 m | 1.142 m | 1.254 m | 0.937 m | 0.803 m | 27.568 m | 27.568 m | 648,845.993 m | 6,820,180.081 m | 0.325 m³ | 11.885 m³ |
| 50->51 | 50 | BL 280 x 860 mm | BSTC 300 x 40 mm | 2.48 % | 4.303 m | 1.000 m | 27.572 m | 26.318 m | 26.952 m | 25.997 m | 26.318 m | 26.212 m | 1.250 m | 0.840 m | 1.254 m | 1.254 m | 0.955 m | 0.910 m | -0.017 m | 27.568 m | 27.052 m | 648,845.498 m | 6,820,186.465 m | 0.219 m³ | 4.271 m³ |
| 51->54 | 51 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.13 % | 33.176 m | 1.000 m | 26.952 m | 25.997 m | 26.947 m | 25.954 m | 25.997 m | 25.954 m | 1.055 m | 1.094 m | 0.955 m | 0.955 m | 0.994 m | 0.506 m | 0.240 m | 27.052 m | 27.047 m | 648,845.136 m | 6,820,190.753 m | 1.686 m³ | 53.485 m³ |
| 52->53 | 52 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 27.598 m | 26.457 m | 27.602 m | 26.351 m | 26.457 m | 26.351 m | 1.144 m | 1.250 m | 1.140 m | 1.140 m | 1.252 m | 0.937 m | 0.804 m | 27.601 m | 27.601 m | 648,812.920 m | 6,820,178.532 m | 0.325 m³ | 11.880 m³ |
| 53->54 | 53 | BL 280 x 860 mm | BSTC 300 x 40 mm | 3.32 % | 4.319 m | 1.000 m | 27.602 m | 26.351 m | 26.947 m | 25.954 m | 26.351 m | 26.207 m | 1.250 m | 0.840 m | 1.252 m | 1.252 m | 0.994 m | 0.913 m | 0.011 m | 27.601 m | 27.047 m | 648,812.600 m | 6,820,184.924 m | 0.220 m³ | 5.261 m³ |
| 54->57 | 54 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.13 % | 36.811 m | 1.000 m | 26.947 m | 25.954 m | 27.353 m | 25.907 m | 25.954 m | 25.907 m | 1.094 m | 1.547 m | 0.994 m | 0.994 m | 1.447 m | 0.996 m | 0.311 m | 27.047 m | 27.453 m | 648,811.997 m | 6,820,189.200 m | 1.871 m³ | 82.339 m³ |
| 55->56 | 55 | BL 280 x 860 mm | BSTC 300 x 40 mm | 3.23 % | 6.400 m | 1.000 m | 27.637 m | 26.594 m | 27.642 m | 26.387 m | 26.594 m | 26.387 m | 1.044 m | 1.250 m | 1.043 m | 1.043 m | 1.255 m | 0.910 m | 0.704 m | 27.637 m | 27.637 m | 648,775.700 m | 6,820,176.788 m | 0.325 m³ | 11.290 m³ |
| 56->57 | 56 | BL 280 x 860 mm | BSTC 300 x 40 mm | 4.75 % | 4.300 m | 1.000 m | 27.642 m | 26.387 m | 27.353 m | 25.907 m | 26.387 m | 26.183 m | 1.250 m | 1.270 m | 1.255 m | 1.255 m | 1.447 m | 0.930 m | 0.447 m | 27.637 m | 27.453 m | 648,775.426 m | 6,820,183.182 m | 0.219 m³ | 6.815 m³ |
| 57->60 | 57 | CL 800 x 800 mm | BSTC 600 x 55 mm | 0.10 % | 24.653 m | 1.000 m | 27.353 m | 25.907 m | 26.934 m | 25.882 m | 25.907 m | 25.882 m | 1.547 m | 1.152 m | 1.447 m | 1.447 m | 1.052 m | 0.892 m | 0.497 m | 27.453 m | 27.034 m | 648,775.227 m | 6,820,187.478 m | 1.253 m³ | 54.428 m³ |
| 58->59 | 58 | BL 280 x 860 mm | BSTC 300 x 40 mm | 1.66 % | 6.400 m | 1.000 m | 27.656 m | 26.618 m | 27.666 m | 26.512 m | 26.618 m | 26.512 m | 1.044 m | 1.150 m | 1.038 m | 1.038 m | 1.154 m | 0.837 m | 0.704 m | 27.662 m | 27.662 m | 648,750.861 m | 6,820,175.624 m | 0.325 m³ | 10.697 m³ |
| 59->60 | 59 | BL 280 x 860 mm | BSTC 300 x 40 mm | 5.07 % | 4.293 m | 1.000 m | 27.666 m | 26.512 m | 26.934 m | 25.882 m | 26.512 m | 26.294 m | 1.150 m | 0.740 m | 1.154 m | 1.154 m | 1.052 m | 0.818 m | 0.319 m | 27.662 m | 27.034 m | 648,750.583 m | 6,820,182.018 m | 0.218 m³ | 5.003 m³ |
| 60-> | 60 | CL 1.300 x 1.300 mm | | | | | 26.934 m | 25.882 m | | | | | | | 1.052 m | 1.052 m | | | | | | 648,750.601 m | 6,820,186.312 m | | |

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
2 / 3

Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
NOTAS DE SERVIÇO DE DRENAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

## VALA LONGITUDINAL NOVA ESCAVAÇÃO (ARROZAL)

### RUA BERNADETTA HERDT WARMLING EST 0+0,00 À 39+0,00

| LADO ESQUERDO | | | | | | | | | | LADO DIREITO | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EST [00+00,00] | | | | | | | EXTENSÃO | SEÇÃO | ESCAV. | EST [00+00,00] | | | | | | | EXTENSÃO | SEÇÃO | ESCAV. |
| Início | | | Fim | | | Comple. | [m] | [TIPO] | [m³] | Início | | | Fim | | | Comple. | [m] | [TIPO] | [m³] |
| 34 | + | 7,25 | 34 | + | 10,75 | | 3,50 | 1 | 3,15 | | | | | | | | | | |
| 34 | + | 16,75 | 36 | + | 12,00 | | 35,25 | 1 | 31,73 | | | | | | | | | | |
| 36 | + | 18,00 | 38 | + | 5,00 | | 27,00 | 1 | 24,30 | | | | | | | | | | |
| 38 | + | 11,00 | 40 | + | 0,00 | | 29,00 | 1 | 26,10 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| COMPRIMENTO TOTAL VALAS (m) | | | | | | | | | 94,75 | Vala Conforme detalhe de Projeto: A.seção TIPO 1: 0,90 m² - A.seção TIPO 2: 1,72 m² | | | | | | | | | |
| VOLUME TOTAL DE ESCAVAÇÃO (m³) | | | | | | | | | 85,28 | | | | | | | | | | |

## TRAVESSIAS ACESSO SECUNDÁRIO

### RUA BERNADETTA HERDT WARMLING EST 0+0,00 À 39+0,00

| EST | TIPO | Ø EXISTENTE | EXTENSÃO EXISTENTE | BSTC Ø PROJETADO | EXTENSÃO PROJETADA |
|---|---|---|---|---|---|
| [-] | [LD/LE] | [Cm] | [m] | [Cm] | [m] |
| 34+13,75 | LE | 0,00 | 0,00 | 60 | 6 |
| 36+15,00 | LE | 0,00 | 0,00 | 60 | 6 |
| 38+8,00 | LE | 0,00 | 0,00 | 60 | 6 |
| | | | | | |

## TRAVESSIAS ACESSO SECUNDÁRIO

| Ø | EXTENSÃO REMOÇÃO | Ø PROJETADO | EXTENSÃO PROJETADA | ESCAVAÇÃO TRAVESSIAS | REATERRO TRAVESSIAS |
|---|---|---|---|---|---|
| [Cm] | [m] | [Cm] | [m] | (m³) | (m³) |
| 20 | 0 | 20 | 0 | 0 | 0 |
| 30 | 0 | 30 | 0 | 0 | 0 |
| 40 | 0 | 40 | 0 | 0 | 0 |
| 50 | 0 | 50 | 0 | 0 | 0 |
| 60 | 0 | 60 | 18 | 16,2 | 9,72 |
| 80 | 0 | 80 | 0 | 0 | 0 |
| | | | ESCAVAÇÃO TRAVESSIAS | | REATERRO TRAVESSIAS |
| | | | TOTAL | 16,2 | 9,72 |

## Resumo: REDE 01 - BERNADETTA

| Item | Quantidade | Unidade |
|---|---|---|
| Escavação | | |
| Escavação mecânica | 1,393.061 m³ | m³ |
| Escavação manual | 44.659 m³ | m³ |
| Recobrimento manual | 371.489 m³ | m³ |
| Recobrimento mecânico | 799.265 m³ | m³ |
| | | |
| Estruturas | | |
| Caixa_de_Captacao | | |
| BL TIPO GRELHA - 280 x 860 mm | 54 | und |
| BL TIPO 3 1.000 m <= h < 1.500 m | 28 | und |
| BL TIPO 02 0.000 m <= h < 1.000 m | 26 | und |
| Caixa_ligacao | | |
| CL 600 x 600 mm | 13 | und |
| CL TIPO 01 0.000 m <= h < 1.000 m | 10 | und |
| CL TIPO 02 1.000 m <= h < 1.500 m | 3 | und |
| CL 800 x 800 mm | 15 | und |
| CL TIPO 04 0.000 m <= h < 1.000 m | 11 | und |
| CL TIPO 05 1.000 m <= h < 1.500 m | 4 | und |
| CL 1.300 x 1.300 mm | 2 | und |
| CL TIPO 07 0.000 m <= h < 1.000 m | 1 | und |
| CL TIPO 08 1.000 m <= h < 1.500 m | 1 | und |
| Boca de bueiro tubular | | |
| BBT_ 1 x 600 x 0 º | 1 | und |
| Geral | 1 | und |
| Estrutura nula | | |
| Structure Null - REPRESENTAÇÃO DE LIGAÇÃO | 1 | und |
| 0.000 m <= h < 1.000 m | 1 | und |
| Tubos | | |
| BSTC | | |
| BSTC 300 x 40 mm | 255.000 m | m |
| BSTC 400 x 50 mm | 268.000 m | m |
| BSTC 600 x 55 mm | 356.000 m | m |

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Obra
RUA BERNADETTA HERDT WARMLING

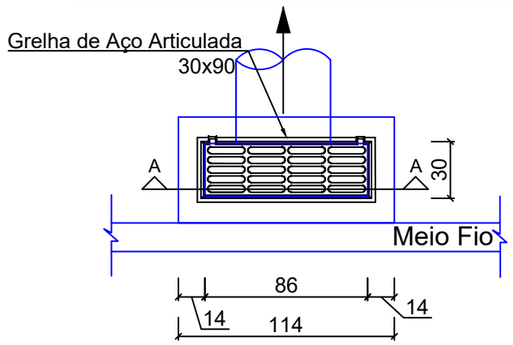
Conteúdo
NOTAS DE SERVIÇO DE DRENAGEM

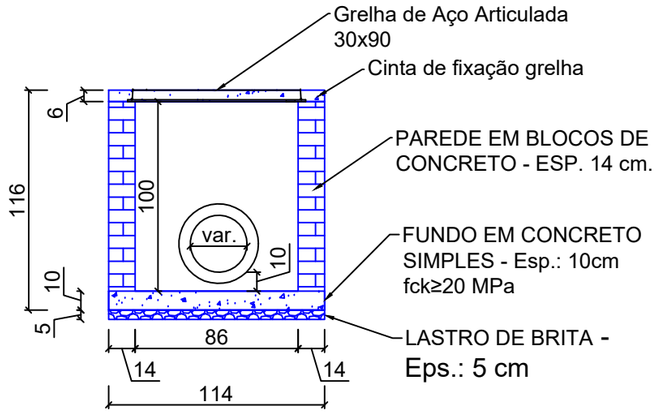
Prancha:
3 / 3

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

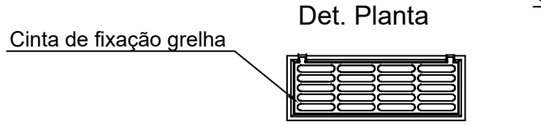
A3 (297mm X 420mm)

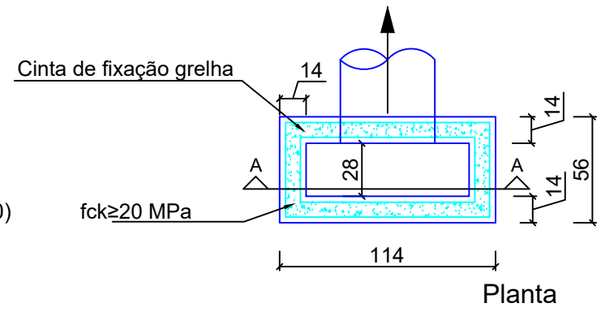
## BOCA DE LOBO COM GRELHA ARTICULADA (TIPO 2) - ALTURA : 1,16 m.




### Corte A-A

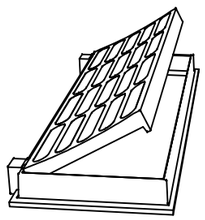


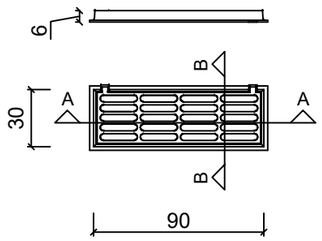

Planta

## DETALHE GRELHA ARTICULADA

VISTAS:

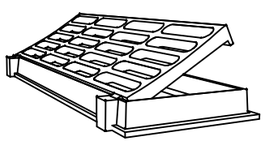


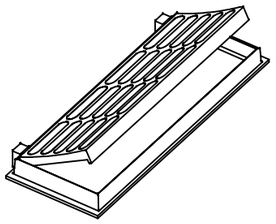
CORTE A-A

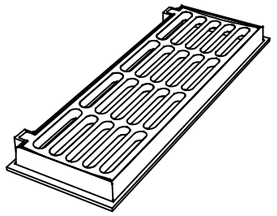



CORTE B-B



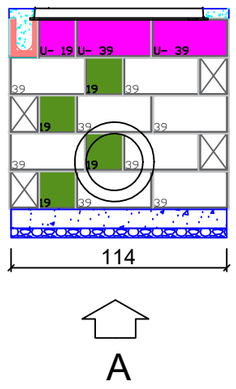


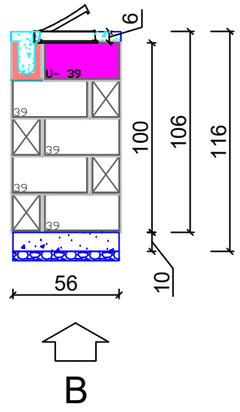


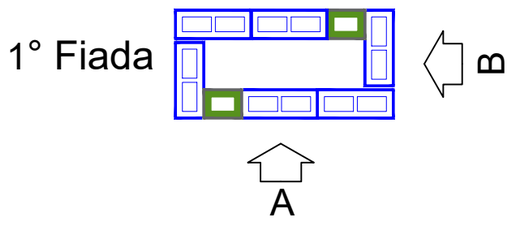


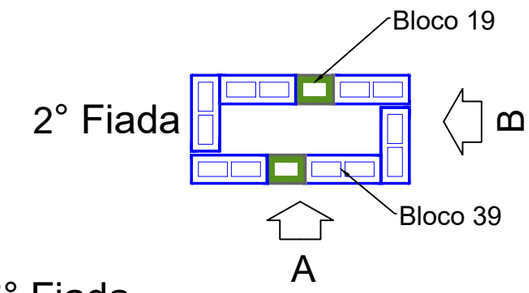
1 Obs: Grupo de Resistência CL 300 / 400

## DETALHE MODULAÇÃO BOCA DE LOBO COM GRELHA ARTICULADA - ALTURA : 1,16 m.

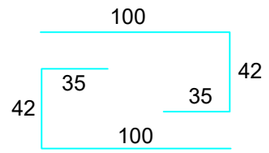


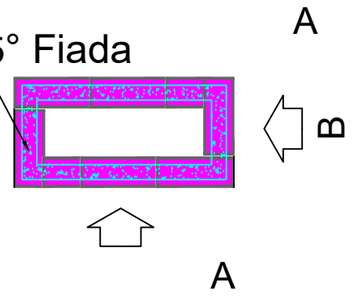




Detalhe Armação Cinta




2 N2 ø10.0 C=172




RELAÇÃO DO AÇO CAIXA - h≤1,20 m

| ELEMENTO | AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|---|
| VIGOTAS | CA50 | 2 | 10.0 | 2 | 172 | 344 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | QUANT + 5% (Barras) | UNIT | PESO + 5% (kg) |
|---|---|---|---|---|---|
| CA50 | 10.0 | 3.4 | 1 | 12 m | 2.2 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 2.2 |

PARA ALTURA = 1,16m

Volume de concreto (C-20) = 0.13 m³

Área de forma = 0,57 m²

Área de Alvenaria em Blocos = 2,84 m²

Lastro de brita = 0.03 m³

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha: 1 / 9

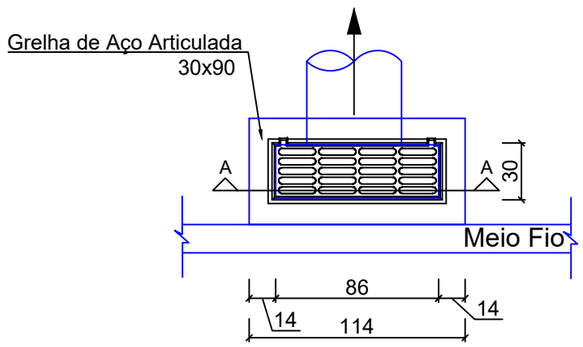
Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
DETALHES DE DRENAGEM

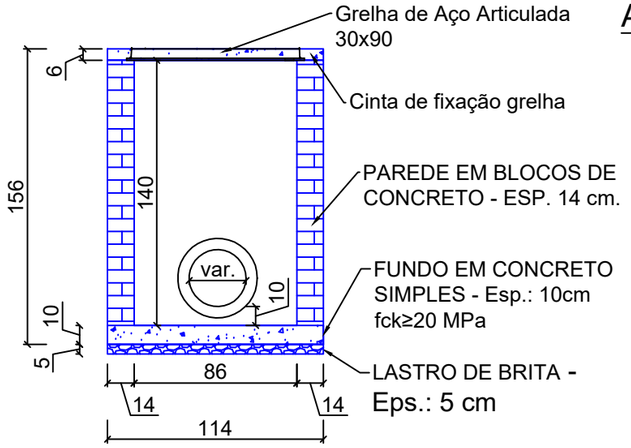
Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

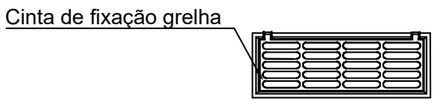
# BOCA DE LOBO COM GRELHA ARTICULADA (TIPO 3) - ALTURA : 1,56 m.



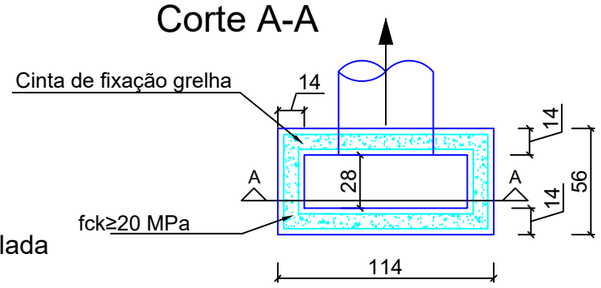

Det. Planta




Corte A-A



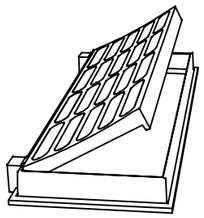

Det. Grelha Articulada

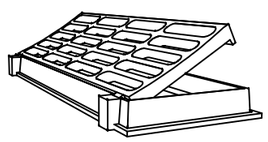



Planta

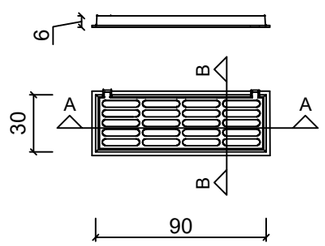
## DETALHE GRELHA ARTICULADA

VISTAS:



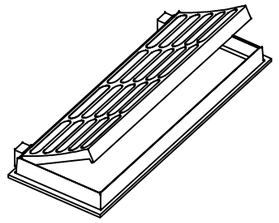


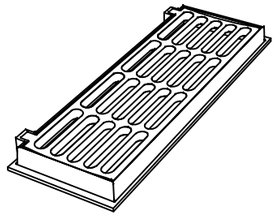
CORTE A-A



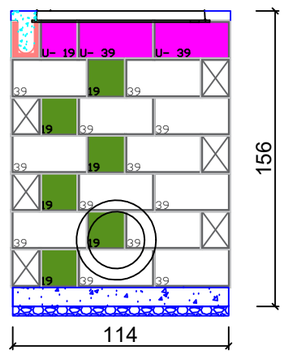

CORTE B-B

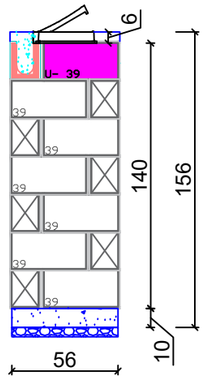


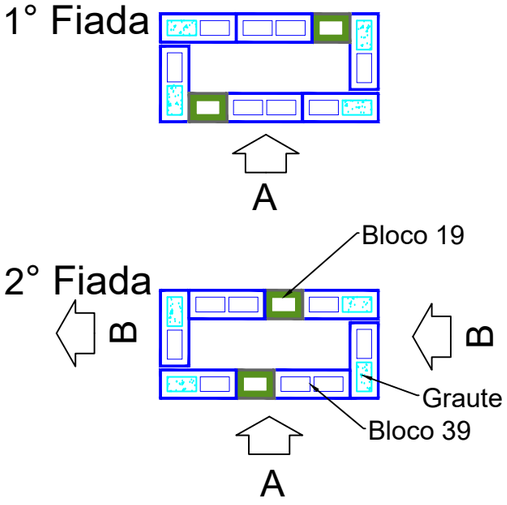


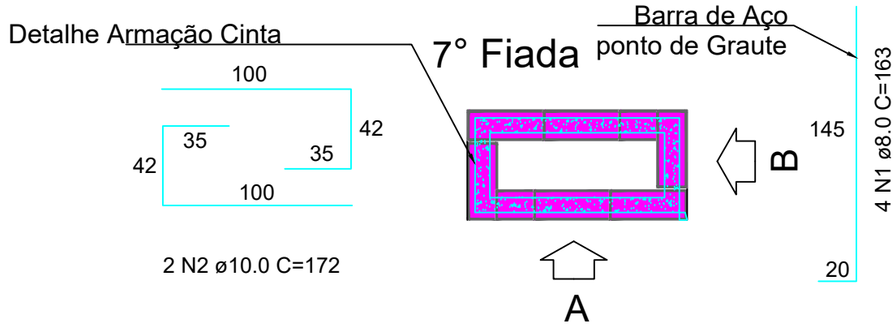


# DETALHE MODULAÇÃO BOCA DE LOBO COM GRELHA ARTICULADA - ALTURA : 1,56 m.




RELAÇÃO DO AÇO Caixa - h>1,20m

| ELEMENTO | AÇO | N | DIAM (mm) | QUANT | C.UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|---|
| VIGOTAS | CA50 | 1 | 8.0 | 4 | 163 | 652 |
| | CA50 | 2 | 10.0 | 2 | 172 | 344 |

RESUMO DO AÇO

| AÇO | DIAM (mm) | C.TOTAL (m) | QUANT + 5% (Barras) | UNIT | PESO + 5% (kg) |
|---|---|---|---|---|---|
| CA50 | 8.0 | 6.5 | 1 | 12 m | 2.7 |
| | 10.0 | 3.4 | 1 | 12 m | 2.2 |

| PESO TOTAL (kg) | |
|---|---|
| CA50 | 4.9 |

PARA ALTURA = 1,16m

Volume de concreto (C-20) = 0.20 m³

Área de forma = 0,57 m²

Área de Alvenaria em Blocos = 3,98 m²

Lastro de brita = 0.03 m³

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha: 2 / 9

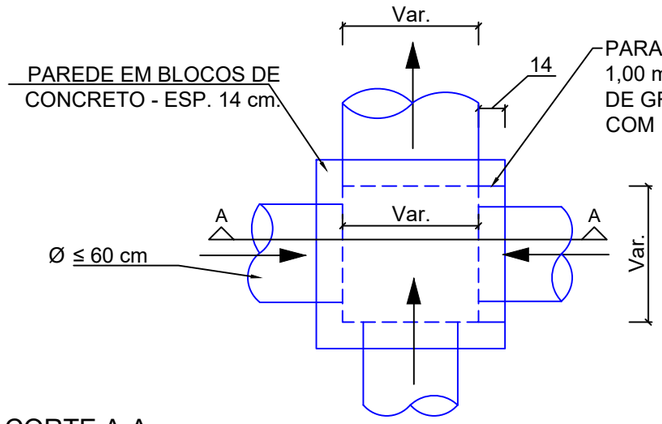
Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
DETALHES DE DRENAGEM

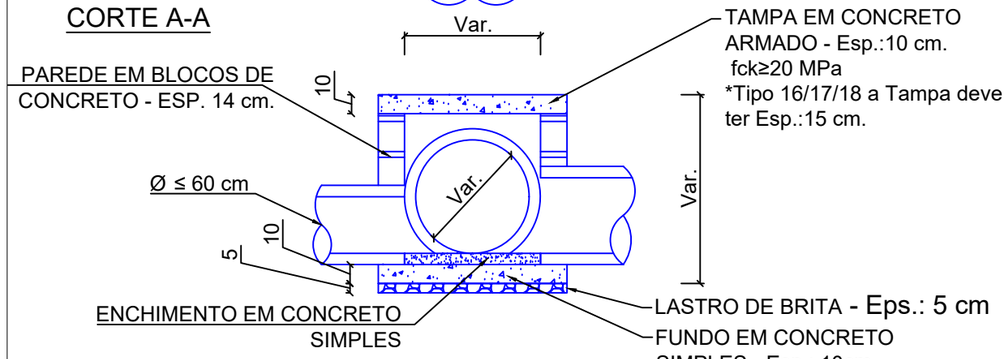
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A3 (297mm X 420mm)

# DETALHE CAIXA LIGAÇÃO



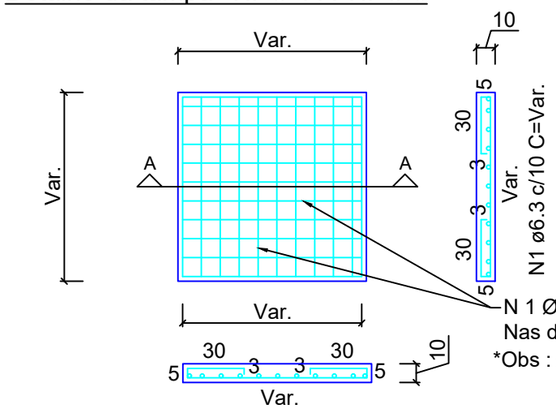

## CORTE A-A




OBS:

1. CAIXA PARA TUBOS Ø Conforme Tabela.
2. O VOLUME DE CONCRETO FOI CALCULADO PELA MÉDIA DO DIÂMETRO EXTERNO DOS TUBOS.
3. FOI ACRESCENTADO UMA PERDA DE 5% NO VOLUME DE CONCRETO.
4. PARA ALTURAS ACIMA DE 1,00 m DEVE-SE EFETUAR CINTA DE AMARRAÇÃO COM 1 Ø10.0mm, E NO MÍNIMO 1 PONTO DE GRAUT EM CADA CANTO DA ALVENARIA COM 1Ø10.00mm.

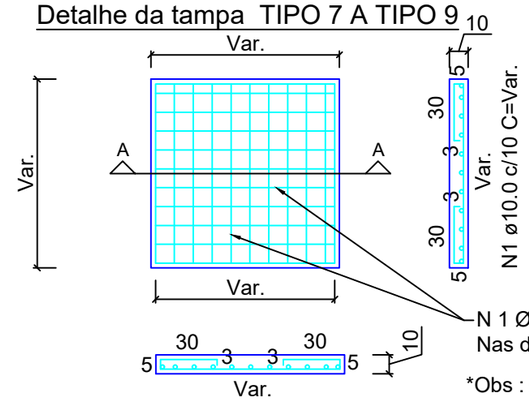
## Detalhe da tampa TIPO 1 A TIPO 6




N1 ø6.3 c/10 C=Var.

*Obs : Ø dasArmaduras Seguir Tabela.

## Detalhe da tampa TIPO 7 A TIPO 9




N1 ø10.0 c/10 C=Var.

*Obs : Ø dasArmaduras Seguir Tabela.

| MOD. | Ø | Larg.xComp.xAlt.(m) *medidas internas | Volume de Concreto (m³) | Área de Forma (m²) | Área de Alvenaria em blocos (m²) | Aço Tampa (Kg) | Aço Cinta (Kg) | Aço Graut (Kg) | Lastro de Brita (m³) |
|---|---|---|---|---|---|---|---|---|---|
| TIPO 1 | Ø ≤50 | 0,60x0,60x1,00 | 0,15 | 1,34 | 2,11 | CA50 6.3 - 6.6 kg | - | - | 0,03 |
| TIPO 2 | Ø ≤50 | 0,60x0,60x1,50 | 0,27 | 1,34 | 3,43 | CA50 6.3 - 6.6 kg | CA50 10 - 3.9 kg | CA50 10 - 4.4 kg | 0,03 |
| TIPO 3 | Ø ≤50 | 0,60x0,60x2,00 | 0,30 | 1,34 | 4,75 | CA50 6.3 - 6.6 kg | CA50 10 - 3.9 kg | CA50 10 - 5.6kg | 0,03 |
| TIPO 4 | Ø ≤60 | 0,80x0,80x1,00 | 0,24 | 1,89 | 2,75 | CA50 6.3 - 9.2 kg | - | - | 0,05 |
| TIPO 5 | Ø ≤60 | 0,80x0,80x1,50 | 0,38 | 1,89 | 4,47 | CA50 6.3 - 9.2 kg | CA50 10 - 3.9 kg | CA50 10 - 4.4 kg | 0,05 |
| TIPO 6 | Ø ≤60 | 0,80x0,80x2,00 | 0,41 | 1,89 | 6,19 | CA50 6.3 - 9.2 kg | CA50 10 - 3.9 kg | CA50 10 - 5.6kg | 0,05 |
| TIPO 7 | Ø ≤100 | 1,30x1,30x1,00 | 0,67 | 3,62 | 4,35 | CA50 10 - 42.9 kg | CA50 10 - 3.9 kg | - | 0,11 |
| TIPO 8 | Ø ≤100 | 1,30x1,30x1,50 | 0,74 | 3,62 | 7,07 | CA50 10 - 42.9 kg | CA50 10 - 3.9 kg | CA50 10 - 4.4 kg | 0,11 |
| TIPO 9 | Ø ≤100 | 1,30x1,30x2,00 | 0,76 | 3,62 | 9,79 | CA50 10 - 42.9 kg | CA50 10 - 3.9 kg | CA50 10 - 5.6kg | 0,11 |


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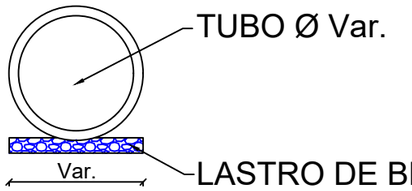

Conteúdo
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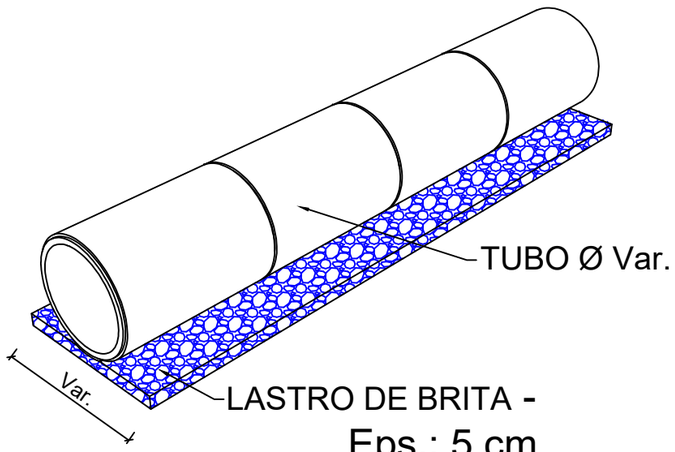
Prancha:
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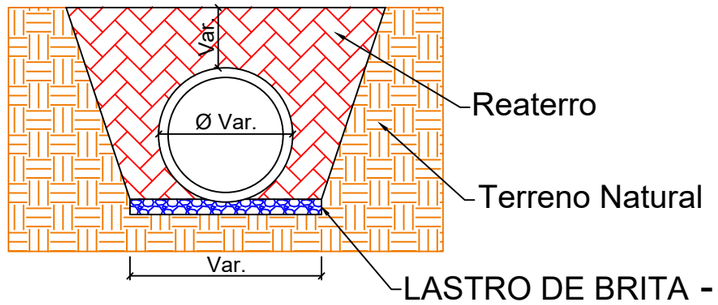
A3 (297mm X 420mm)

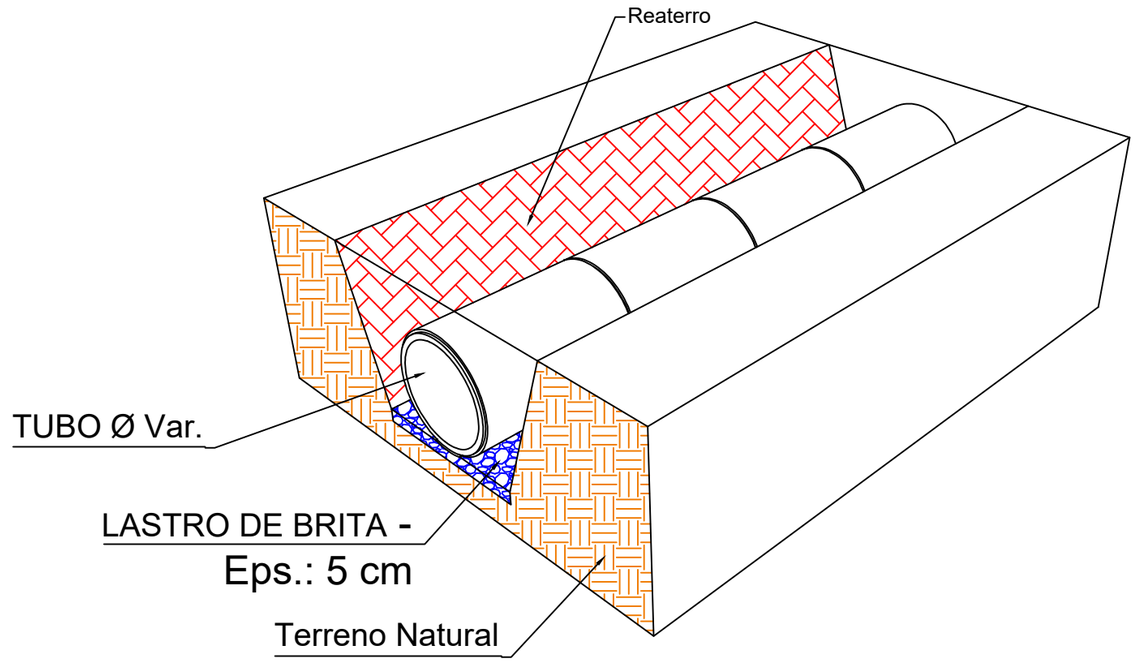
## ASSENTAMENTO DE TUBO EM REDE/TRAVESSIA SOBRE BERÇO DE BRITA




## ASSENTAMENTO DE TUBO DE CONCRETO EM REDE / TRAVESSIA ACESSO SECUNDÁRIO




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Prancha:
4 / 9

Obra
RUA BERNADETTA HERDT WARMLING

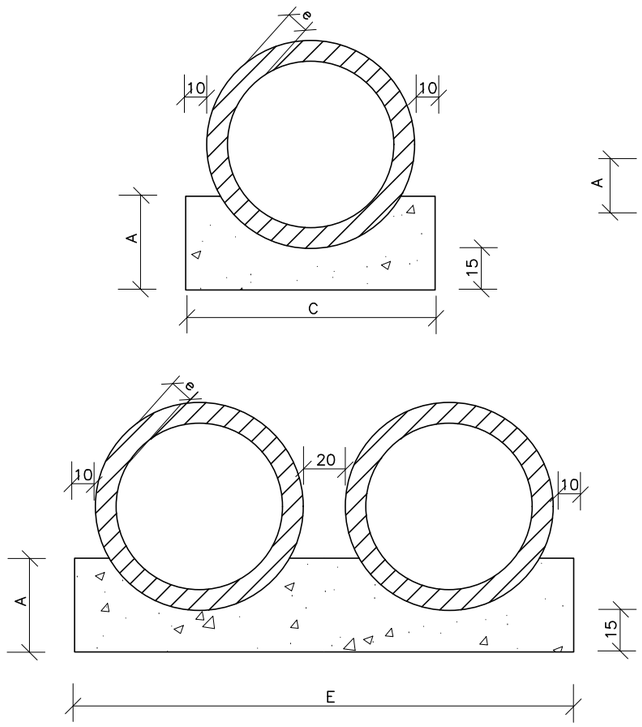
Conteúdo
DETALHES DE DRENAGEM

Local
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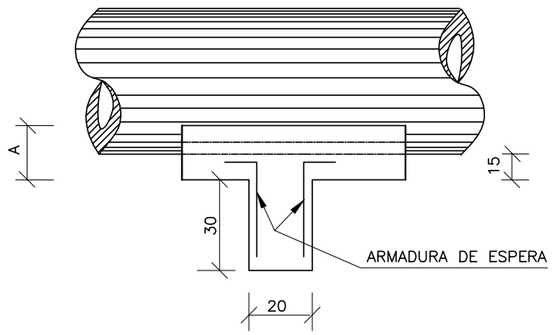
A3 (297mm X 420mm)

# BERÇOS PARA ASSENTAMENTOS DE BUEIROS

## BERÇOS




## VISTA LATERAL




| QUADRO DE DIMENSÕES (cm) | | | | | |
|---|---|---|---|---|---|
| DIÂMETRO | A | C | E | F | e |
| 40 | 25 | 72 | – | – | 6 |
| 60 | 30 | 96 | – | – | 8 |
| 80 | 35 | 120 | 240 | – | 10 |
| 100 | 40 | 144 | 288 | 432 | 12 |
| 120 | 45 | 166 | 332 | 498 | 13 |
| 150 | 50 | 198 | 396 | 594 | 14 |

| QUANTIDADES UNITÁRIAS DOS DENTES | | | | | | |
|---|---|---|---|---|---|---|
| DIÂMETRO (cm) | SIMPLES | | DUPLO | | TRIPLO | |
| | CONCRETO ($m^3$) | ARMADURA (kg) | CONCRETO ($m^3$) | ARMADURA (kg) | CONCRETO ($m^3$) | ARMADURA (kg) |
| 40 | 0,029 | 0,500 | – | – | – | – |
| 60 | 0,038 | 0,500 | – | – | – | – |
| 80 | 0,048 | 0,750 | 0,096 | 1,250 | – | – |
| 100 | 0,058 | 0,750 | 0,115 | 1,500 | 0,173 | 2,250 |
| 120 | 0,066 | 1,000 | 0,133 | 1,750 | 0,199 | 2,500 |
| 150 | 0,079 | 1,000 | 0,158 | 2,000 | 0,238 | 3,000 |

| QUANTIDADES POR METRO LINEAR DE BERÇO | | | | | | |
|---|---|---|---|---|---|---|
| DIÂMETRO (m) | SIMPLES | | DUPLO | | TRIPLO | |
| | CONCRETO ($m^3$) | FORMA ($m^2$) | CONCRETO ($m^3$) | FORMA ($m^2$) | CONCRETO ($m^3$) | FORMA ($m^2$) |
| 40 | 0,151 | 0,50 | – | – | – | – |
| 60 | 0,225 | 0,60 | – | – | – | – |
| 80 | 0,308 | 0,70 | 0,616 | 0,70 | – | – |
| 100 | 0,402 | 0,80 | 0,804 | 0,80 | 1,206 | 0,80 |
| 120 | 0,499 | 0,90 | 0,998 | 0,90 | 1,498 | 0,90 |
| 150 | 0,644 | 1,00 | 1,288 | 1,00 | 1,933 | 1,00 |

NOTAS:

1 – Dimensões em cm.

2 – Os dentes deverão ser construidos em todos os bueiros cuja declividade de instalação for superior a 4% e ser espaçados de cinco em cinco metros na projeção horizontal;

3 – Nos dentes serão colocadas armaduras de espera: 2 ferros de 6,3mm a cada 50 com comprimento de 50;

4 – Utilizar nos berços concreto ciclópico fck > 15MPa;

6 – No caso de colocação de tubo em valas, poderá ser executado o berço de material granular adequado, adotando–se a espessura mínima de 15 cm, dimensionando–se os tubos em função da carga e das condições de apoio, de acordo com as normas existentes.

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Prancha: 5 / 9

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A3 (297mm X 420mm)

# TUBOS DE CONCRETO ARMADO

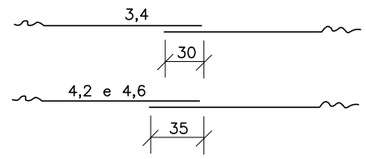
## TABELA DE ARMADURAS (POR METRO DE TUBO)

| TUBOS TIPO CA–1 (ABNT) | | | | | | | TUBOS TIPO CA–2 (ABNT) | | | | | | | TUBOS TIPO CA–3 (ABNT) | | | | | | | TUBOS TIPO CA–4 (ABNT) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FORMAS | | ARMADURAS (CA–60B) | | | | | FORMAS | | ARMADURAS (CA–60B) | | | | | FORMAS | | ARMADURAS (CA–60B) | | | | | FORMAS | | ARMADURAS (CA–60B) | | | | |
| DI(cm) | e(cm) | N | Ø | ESP. | Q. | COMP. | DI(cm) | e(cm) | N | Ø | ESP. | Q. | COMP. | DI(cm) | e(cm) | N | Ø | ESP. | Q. | COMP. | DI(cm) | e(cm) | N | Ø | ESP. | Q. | COMP. |
| 60 | 8 | 1 | 3,4 | 15 | 14 | corr. | 60 | 8 | 1 | 3,4 | 15 | 14 | corr. | 60 | 8 | 3 | 3,4 | 15 | 29 | corr. | 60 | 8 | 3 | 3,4 | 15 | 29 | corr. |
| | | 2 | 4,6 | 10 | 10 | 240 | | | 2 | 5,0 | 9 | 11 | 240 | | | 4 | 5,0 | 10 | 10 | 260 | | | 4 | 6,0 | 10 | 10 | 260 |
| | | | | | | | | | | | | | | | | 5 | 5,0 | 10 | 10 | 240 | | | 5 | 6,0 | 10 | 10 | 240 |
| 80 | 10 | 1 | 3,4 | 15 | 18 | corr. | 80 | 10 | 1 | 4,2 | 20 | 14 | corr. | 80 | 10 | 3 | 4,2 | 20 | 28 | corr. | 80 | 10 | 3 | 4,2 | 20 | 28 | corr. |
| | | 2 | 5,0 | 10 | 10 | 315 | | | 2 | 6,0 | 9 | 11 | 315 | | | 4 | 6,0 | 10 | 10 | 335 | | | 4 | 7,0 | 11 | 9 | 335 |
| | | | | | | | | | | | | | | | | 5 | 6,0 | 10 | 10 | 305 | | | 5 | 7,0 | 11 | 9 | 305 |
| 100 | 12 | 3 | 3,4 | 15 | 46 | corr. | 100 | 12 | 3 | 4,2 | 20 | 35 | corr. | 100 | 12 | 3 | 4,2 | 20 | 35 | corr. | 100 | 12 | 3 | 4,6 | 20 | 35 | corr. |
| | | 4 | 4,6 | 10 | 10 | 405 | | | 4 | 6,0 | 12 | 8 | 405 | | | 4 | 6,0 | 9 | 11 | 405 | | | 4 | 7,0 | 9 | 11 | 405 |
| | | 5 | 4,6 | 10 | 10 | 365 | | | 5 | 6,0 | 12 | 8 | 365 | | | 5 | 6,0 | 9 | 11 | 365 | | | 5 | 7,0 | 9 | 11 | 365 |
| 120 | 13 | 3 | 3,4 | 15 | 56 | corr. | 120 | 13 | 3 | 4,2 | 20 | 42 | corr. | 120 | 13 | 3 | 4,6 | 20 | 42 | corr. | 120 | 13 | 3 | 4,6 | 20 | 42 | corr. |
| | | 4 | 5,0 | 10 | 10 | 475 | | | 4 | 6,0 | 9 | 11 | 475 | | | 4 | 7,0 | 9 | 11 | 475 | | | 4 | 8,0 | 9 | 11 | 475 |
| | | 5 | 5,0 | 10 | 10 | 425 | | | 5 | 6,0 | 9 | 11 | 425 | | | 5 | 7,0 | 9 | 11 | 425 | | | 5 | 8,0 | 9 | 11 | 425 |
| 150 | 14 | 3 | 4,2 | 20 | 51 | corr. | 150 | 14 | 3 | 4,6 | 20 | 51 | corr. | 150 | 14 | 3 | 4,6 | 20 | 51 | corr. | 150 | 14 | 3 | 4,6 | 20 | 51 | corr. |
| | | 4 | 6,0 | 10 | 10 | 580 | | | 4 | 7,0 | 9 | 11 | 580 | | | 4 | 8,0 | 8 | 12 | 580 | | | 4 | 8,0 | 6 | 16 | 580 |
| | | 5 | 6,0 | 10 | 10 | 520 | | | 5 | 7,0 | 9 | 11 | 520 | | | 5 | 8,0 | 8 | 12 | 520 | | | 5 | 8,0 | 6 | 16 | 520 |

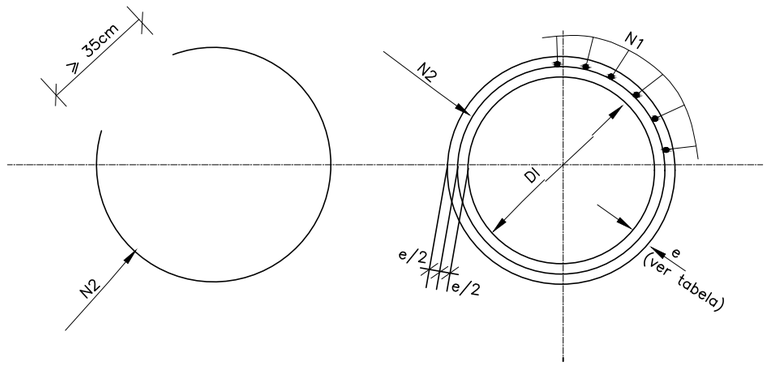
fck ⩾ 15 MPa
AÇO CA–60B

### DET. DE EMENDA

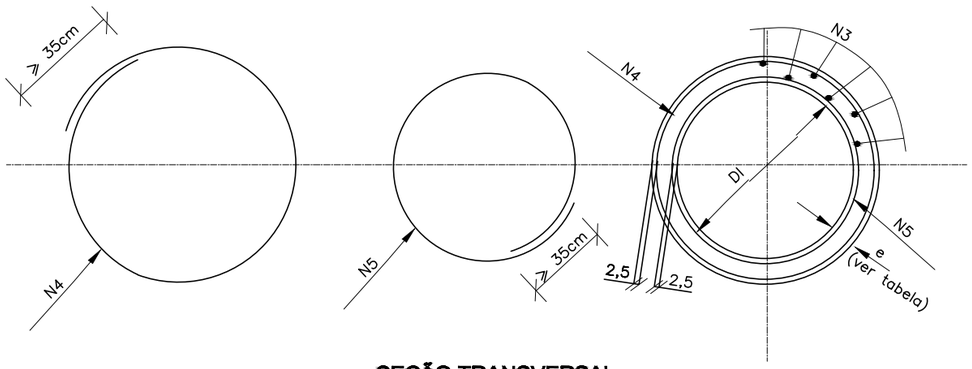
(EMENDAR EM POSIÇÕES DIFERENTES)




| CA–1(ALTURA DE ATERRO)1,0 à ⩽ 3,5m | | | | | | | CA–2(ALTURA DE ATERRO) ⩽ 5,0m | | | | | | | CA–3(ALTURA DE ATERRO) ⩽ 7,0m | | | | | | | CA–4(ALTURA DE ATERRO) ⩽ 8,5m | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RESUMO DE AÇO | | | | | | | RESUMO DE AÇO | | | | | | | RESUMO DE AÇO | | | | | | | RESUMO DE AÇO | | | | | | |
| BITOLA | | 60 | 80 | 100 | 120 | 150 | BITOLA | | 60 | 80 | 100 | 120 | 150 | BITOLA | | 60 | 80 | 100 | 120 | 150 | BITOLA | | 60 | 80 | 100 | 120 | 150 |
| Ø | kg/m | PESO(kg) | PESO(kg) | PESO(kg) | PESO(kg) | PESO(kg) | Ø | kg/m | PESO(kg) | PESO(kg) | PESO(kg) | PESO(kg) | PESO(kg) | Ø | kg/m | PESO(kg) | PESO(kg) | PESO(kg) | PESO(kg) | PESO(kg) | Ø | kg/m | PESO(kg) | PESO(kg) | PESO(kg) | PESO(kg) | PESO(kg) |
| 3,4 | 0,071 | 1 | 1 | 4 | 4 | – | 3,4 | 0,071 | 1 | – | – | – | – | 3,4 | 0,071 | 2 | – | – | – | – | 3,4 | 0,071 | 2 | – | – | – | – |
| 4,2 | 0,109 | – | – | – | – | 6 | 4,2 | 0,109 | – | 2 | 4 | 5 | – | 4,2 | 0,109 | – | 3 | 4 | – | – | 4,2 | 0,109 | – | 3 | – | – | – |
| 4,6 | 0,130 | 3 | – | 10 | – | – | 4,6 | 0,130 | – | – | – | – | 7 | 4,6 | 0,130 | – | – | – | 6 | 7 | 4,6 | 0,130 | – | – | 5 | 6 | 7 |
| 5,0 | 0,154 | – | 5 | – | 14 | – | 5,0 | 0,154 | 4 | – | – | – | – | 5,0 | 0,154 | 8 | – | – | – | – | 6,0 | 0,222 | 11 | – | – | – | – |
| 6,0 | 0,222 | – | – | – | – | 24 | 6,0 | 0,222 | – | 8 | 14 | 22 | – | 6,0 | 0,222 | – | 14 | 19 | – | – | 7,0 | 0,302 | – | 17 | 26 | – | – |
| | | | | | | | 7,0 | 0,302 | – | – | – | – | 37 | 7,0 | 0,302 | – | – | – | 30 | – | 8,0 | 0,393 | – | – | – | 39 | 69 |
| | | | | | | | | | | | | | | 8,0 | 0,393 | – | – | – | – | 52 | | | | | | | |
| TOTAIS | | 4 | 6 | 14 | 18 | 30 | TOTAIS | | 5 | 10 | 18 | 27 | 44 | TOTAIS | | 10 | 17 | 23 | 36 | 59 | TOTAIS | | 13 | 20 | 31 | 45 | 76 |




SEÇÃO TRANSVERSAL




SEÇÃO TRANSVERSAL

NOTAS:

1 – Dimensões em cm;

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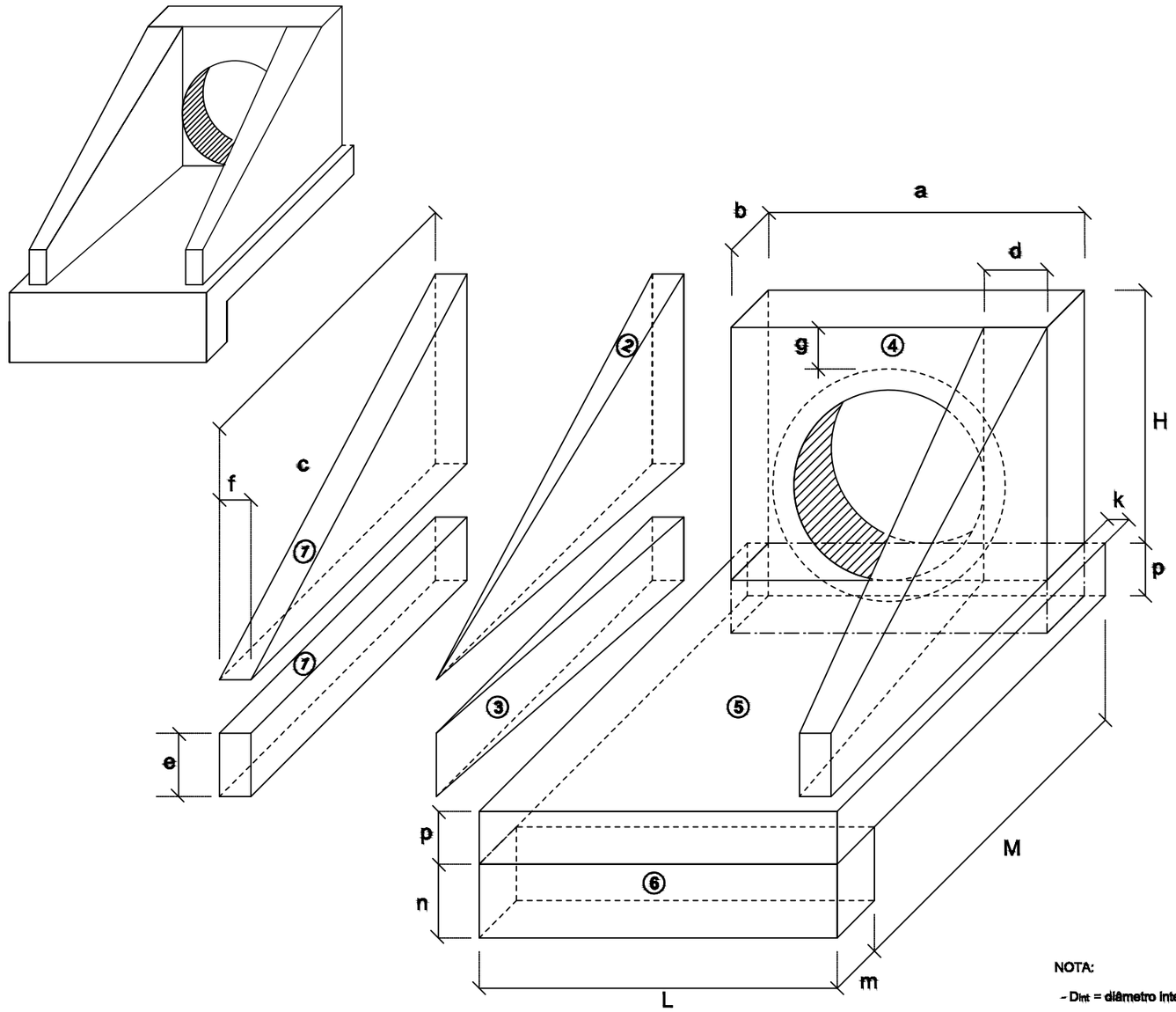
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A3 (297mm X 420mm)

# BUEIRO SIMPLES TUBULAR DE CONCRETO
# BOCAS NORMAIS E ESCONSAS (I)




## 1-VOLUMES

**a) ALAS**

① PRISMAS : $V = c\,f\,(h + e)$

② PIRÂMIDES : $V = 2/3\,c\,[(d - f)\,(h - e)]$

③ CUNHAS : $V = c\,e\,(d - f)$

**b) TESTA**

④ TESTA : $V = b\left[a\,(h+p) - \frac{D^2_{ext}}{4}\right]$

**c) CALÇADA**

⑤ CALÇADA : $V = p\,c\,L + [L\,(b+k) - a\,b]$

⑥ DENTE : $V = L\,m\,n$

## 2-ÁREA DAS FORMAS

**a) ALAS**

Partes Laterais : $A = (h + e)\,(c + \sqrt{c^2 + (d - f)^2})$

Extremidades : $A = 2\,e\,f$

**b) TESTA**

Parte Posterior : $A = \frac{1}{\cos e}\left(a\,h - \frac{\pi D^2_{int}}{4}\right)$

Parte Anterior : $A = \frac{1}{\cos e}\left(D_{int}\,h - \frac{\pi D^2_{int}}{4}\right)$

Partes Laterais : $A = 2\,b\,h$

NOTA:

- $D_{int}$ = diâmetro interno e $D_{ext}$ = diâmetro externo

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Prancha: 7 / 9

Obra
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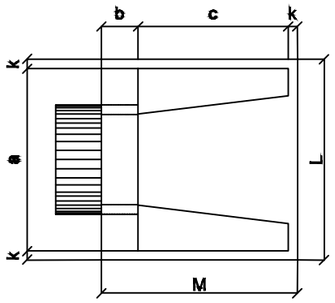
Conteúdo
DETALHES DE DRENAGEM

Local
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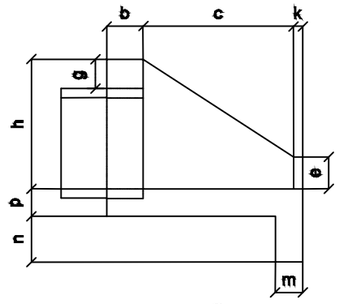
A3 (297mm X 420mm)

# BUEIRO SIMPLES TUBULAR DE CONCRETO -BOCAS NORMAIS E ESCONSAS (II)

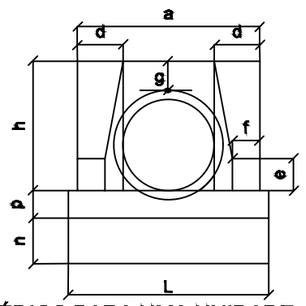
PLANTA NORMAL



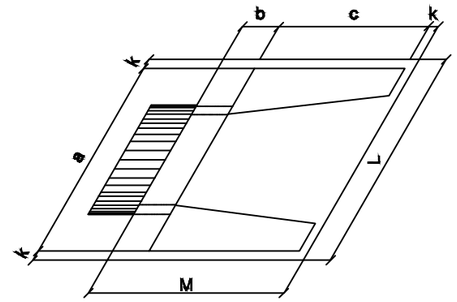

VISTA LATERAL




VISTA FRONTAL




PLANTA ESCONSO




DIMENSÕES E CONSUMOS MÉDIOS PARA UMA UNIDADE

| Esc. | BUEIRO SIMPLES TUBULAR Φ = 40 | | | | | | | | | | | | | formas m2 | con creto m3 | cimento saco 50kg | areia m3 | brita 1 brita 2 m3 | água m3 | madeira m3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | e | f | g | h | k | m | n | p | L | M | | | | | | | |
| 0° | 80 | 20 | 90 | 20 | 15 | 10 | 20 | 66 | 5 | 20 | 20 | 20 | 90 | 115 | 2,29 | 0,423 | 2,072 | 0,288 | 0,313 | 0,068 | 0,057 |
| 5° | 80 | | | 20 | | | | | | | | | 90 | | 2,30 | 0,423 | 2,072 | 0,288 | 0,313 | 0,068 | 0,057 |
| 10° | 81 | | | 20 | | | | | | | | | 91 | | 2,31 | 0,423 | 2,073 | 0,288 | 0,313 | 0,068 | 0,058 |
| 15° | 83 | | | 21 | | | | | | | | | 93 | | 2,33 | 0,423 | 2,074 | 0,288 | 0,313 | 0,068 | 0,058 |
| 20° | 85 | | | 21 | | | | | | | | | 96 | | 2,36 | 0,424 | 2,076 | 0,288 | 0,314 | 0,068 | 0,059 |
| 25° | 88 | | | 22 | | | | | | | | | 99 | | 2,41 | 0,424 | 2,078 | 0,288 | 0,314 | 0,068 | 0,060 |
| 30° | 92 | | | 23 | | | | | | | | | 104 | | 2,47 | 0,425 | 2,081 | 0,289 | 0,314 | 0,068 | 0,062 |
| 35° | 98 | | | 24 | | | | | | | | | 110 | | 2,56 | 0,425 | 2,084 | 0,289 | 0,315 | 0,068 | 0,064 |
| 40° | 104 | | | 26 | | | | | | | | | 117 | | 2,67 | 0,426 | 2,088 | 0,290 | 0,315 | 0,068 | 0,067 |
| 45° | 113 | | | 28 | | | | | | | | | 127 | | 2,84 | 0,427 | 2,092 | 0,290 | 0,316 | 0,068 | 0,071 |

| Esc. | BUEIRO SIMPLES TUBULAR Φ = 60 | | | | | | | | | | | | | formas m2 | con creto m3 | cimento saco 50kg | areia m3 | brita 1 brita 2 m3 | água m3 | madeira m3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | e | f | g | h | k | m | n | p | L | M | | | | | | | |
| 0° | 110 | 20 | 125 | 25 | 25 | 10 | 30 | 88 | 10 | 23 | 33 | 23 | 130 | 155 | 4,17 | 0,932 | 4,567 | 0,634 | 0,690 | 0,149 | 0,104 |
| 5° | 110 | | | 25 | | | | | | | | | 130 | | 4,18 | 0,932 | 4,568 | 0,634 | 0,690 | 0,149 | 0,104 |
| 10° | 112 | | | 25 | | | | | | | | | 132 | | 4,20 | 0,933 | 4,570 | 0,634 | 0,690 | 0,149 | 0,105 |
| 15° | 114 | | | 26 | | | | | | | | | 135 | | 4,24 | 0,933 | 4,573 | 0,635 | 0,691 | 0,149 | 0,106 |
| 20° | 117 | | | 27 | | | | | | | | | 138 | | 4,30 | 0,934 | 4,577 | 0,635 | 0,691 | 0,149 | 0,107 |
| 25° | 121 | | | 28 | | | | | | | | | 143 | | 4,38 | 0,935 | 4,583 | 0,636 | 0,692 | 0,150 | 0,110 |
| 30° | 127 | | | 29 | | | | | | | | | 150 | | 4,49 | 0,937 | 4,589 | 0,637 | 0,693 | 0,150 | 0,112 |
| 35° | 134 | | | 31 | | | | | | | | | 159 | | 4,65 | 0,938 | 4,597 | 0,638 | 0,694 | 0,150 | 0,116 |
| 40° | 144 | | | 33 | | | | | | | | | 170 | | 4,85 | 0,940 | 4,605 | 0,639 | 0,695 | 0,150 | 0,121 |
| 45° | 156 | | | 35 | | | | | | | | | 184 | | 5,14 | 0,942 | 4,615 | 0,640 | 0,697 | 0,151 | 0,129 |

| Esc. | BUEIRO SIMPLES TUBULAR Φ = 80 | | | | | | | | | | | | | formas m2 | con creto m3 | cimento saco 50kg | areia m3 | brita 1 brita 2 m3 | água m3 | madeira m3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | e | f | g | h | k | m | n | p | L | M | | | | | | | |
| 0° | 140 | 25 | 145 | 30 | 35 | 15 | 30 | 120 | 10 | 25 | 35 | 25 | 160 | 180 | 6,83 | 1,619 | 7,932 | 1,101 | 1,198 | 0,259 | 0,171 |
| 5° | 141 | | | 30 | | | | | | | | | 161 | | 6,85 | 1,619 | 7,934 | 1,101 | 1,198 | 0,259 | 0,171 |
| 10° | 142 | | | 30 | | | | | | | | | 162 | | 6,88 | 1,620 | 7,937 | 1,101 | 1,199 | 0,259 | 0,172 |
| 15° | 145 | | | 31 | | | | | | | | | 166 | | 6,95 | 1,621 | 7,942 | 1,102 | 1,199 | 0,259 | 0,174 |
| 20° | 149 | | | 32 | | | | | | | | | 170 | | 7,06 | 1,622 | 7,950 | 1,103 | 1,201 | 0,260 | 0,176 |
| 25° | 154 | | | 33 | | | | | | | | | 177 | | 7,20 | 1,624 | 7,960 | 1,105 | 1,202 | 0,260 | 0,180 |
| 30° | 162 | | | 35 | | | | | | | | | 185 | | 7,39 | 1,627 | 7,971 | 1,106 | 1,204 | 0,260 | 0,185 |
| 35° | 171 | | | 37 | | | | | | | | | 195 | | 7,66 | 1,630 | 7,985 | 1,108 | 1,206 | 0,261 | 0,191 |
| 40° | 183 | | | 39 | | | | | | | | | 209 | | 8,02 | 1,633 | 8,000 | 1,110 | 1,208 | 0,261 | 0,201 |
| 45° | 198 | | | 42 | | | | | | | | | 226 | | 8,52 | 1,636 | 8,017 | 1,113 | 1,211 | 0,262 | 0,213 |

| Esc. | BUEIRO SIMPLES TUBULAR Φ = 100 | | | | | | | | | | | | | formas m2 | con creto m3 | cimento saco 50kg | areia m3 | brita 1 brita 2 m3 | água m3 | madeira m3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | e | f | g | h | k | m | n | p | L | M | | | | | | | |
| 0° | 170 | 30 | 165 | 35 | 50 | 20 | 30 | 142 | 10 | 27 | 37 | 27 | 190 | 205 | 9,68 | 2,514 | 12,318 | 1,709 | 1,860 | 0,402 | 0,242 |
| 5° | 171 | | | 35 | | | | | | | | | 191 | | 9,69 | 2,514 | 12,320 | 1,710 | 1,861 | 0,402 | 0,242 |
| 10° | 173 | | | 36 | | | | | | | | | 193 | | 9,75 | 2,515 | 12,325 | 1,710 | 1,861 | 0,402 | 0,244 |
| 15° | 176 | | | 36 | | | | | | | | | 197 | | 9,85 | 2,517 | 12,334 | 1,712 | 1,863 | 0,403 | 0,246 |
| 20° | 181 | | | 37 | | | | | | | | | 202 | | 9,99 | 2,520 | 12,346 | 1,713 | 1,865 | 0,403 | 0,250 |
| 25° | 188 | | | 39 | | | | | | | | | 210 | | 10,19 | 2,523 | 12,362 | 1,716 | 1,867 | 0,404 | 0,255 |
| 30° | 196 | | | 40 | | | | | | | | | 219 | | 10,47 | 2,527 | 12,381 | 1,718 | 1,870 | 0,404 | 0,262 |
| 35° | 208 | | | 43 | | | | | | | | | 232 | | 10,84 | 2,531 | 12,403 | 1,721 | 1,873 | 0,405 | 0,271 |
| 40° | 222 | | | 46 | | | | | | | | | 248 | | 10,36 | 2,536 | 12,427 | 1,725 | 1,877 | 0,406 | 0,284 |
| 45° | 240 | | | 49 | | | | | | | | | 269 | | 12,07 | 2,542 | 12,455 | 1,728 | 1,881 | 0,407 | 0,302 |

| Esc. | BUEIRO SIMPLES TUBULAR Φ = 120 | | | | | | | | | | | | | formas m2 | con creto m3 | cimento saco 50kg | areia m3 | brita 1 brita 2 m3 | água m3 | madeira m3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | e | f | g | h | k | m | n | p | L | M | | | | | | | |
| 0° | 200 | 40 | 180 | 40 | 60 | 25 | 30 | 163 | 10 | 28 | 38 | 28 | 220 | 230 | 12,61 | 3,638 | 17,825 | 2,474 | 2,692 | 0,582 | 0,315 |
| 5° | 201 | | | 40 | | | | | | | | | 221 | | 12,64 | 3,639 | 17,830 | 2,474 | 2,693 | 0,582 | 0,316 |
| 10° | 203 | | | 41 | | | | | | | | | 223 | | 12,71 | 3,642 | 17,844 | 2,476 | 2,695 | 0,583 | 0,318 |
| 15° | 207 | | | 41 | | | | | | | | | 228 | | 12,84 | 3,646 | 17,866 | 2,479 | 2,698 | 0,583 | 0,321 |
| 20° | 213 | | | 43 | | | | | | | | | 234 | | 13,03 | 3,653 | 17,898 | 2,484 | 2,703 | 0,584 | 0,326 |
| 25° | 221 | | | 44 | | | | | | | | | 243 | | 13,30 | 3,661 | 17,937 | 2,489 | 2,709 | 0,586 | 0,332 |
| 30° | 231 | | | 46 | | | | | | | | | 254 | | 13,67 | 3,671 | 17,986 | 2,496 | 2,716 | 0,587 | 0,342 |
| 35° | 244 | | | 49 | | | | | | | | | 269 | | 14,16 | 3,682 | 18,042 | 2,504 | 2,725 | 0,589 | 0,354 |
| 40° | 261 | | | 52 | | | | | | | | | 287 | | 14,85 | 3,695 | 18,105 | 2,513 | 2,734 | 0,591 | 0,371 |
| 45° | 283 | | | 57 | | | | | | | | | 311 | | 15,79 | 3,709 | 18,176 | 2,522 | 2,745 | 0,593 | 0,395 |

| Esc. | BUEIRO SIMPLES TUBULAR Φ = 150 | | | | | | | | | | | | | formas m2 | con creto m3 | cimento saco 50kg | areia m3 | brita 1 brita 2 m3 | água m3 | madeira m3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | e | f | g | h | k | m | n | p | L | M | | | | | | | |
| 0° | 240 | 50 | 260 | 45 | 75 | 30 | 30 | 194 | 10 | 29 | 39 | 29 | 260 | 320 | 20,39 | 6,487 | 31,784 | 4,411 | 4,800 | 1,038 | 0,510 |
| 5° | 241 | | | 45 | | | | | | | | | 261 | | 20,43 | 6,488 | 31,791 | 4,412 | 4,801 | 1,038 | 0,511 |
| 10° | 244 | | | 46 | | | | | | | | | 264 | | 20,53 | 6,492 | 31,810 | 4,414 | 4,804 | 1,039 | 0,513 |
| 15° | 248 | | | 47 | | | | | | | | | 269 | | 20,71 | 6,499 | 31,843 | 4,419 | 4,809 | 1.040 | 0,518 |
| 20° | 255 | | | 48 | | | | | | | | | 277 | | 20,98 | 6,508 | 31,888 | 4,425 | 4,816 | 1,041 | 0,524 |
| 25° | 265 | | | 50 | | | | | | | | | 287 | | 21,35 | 6,520 | 31,946 | 4,433 | 4,824 | 1,043 | 0,534 |
| 30° | 277 | | | 52 | | | | | | | | | 300 | | 21,86 | 6,534 | 32,015 | 4,443 | 4,835 | 1,045 | 0,547 |
| 35° | 293 | | | 55 | | | | | | | | | 317 | | 22,56 | 6,550 | 32,096 | 4,454 | 4,847 | 1,048 | 0,564 |
| 40° | 313 | | | 59 | | | | | | | | | 339 | | 23,51 | 6,569 | 32,188 | 4,467 | 4,861 | 1,051 | 0,588 |
| 45° | 339 | | | 64 | | | | | | | | | 368 | | 24,84 | 6,590 | 32,290 | 4,481 | 4,876 | 1,054 | 0,621 |

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
8 / 9

Obra
RUA BERNADETTA HERDT WARMLING

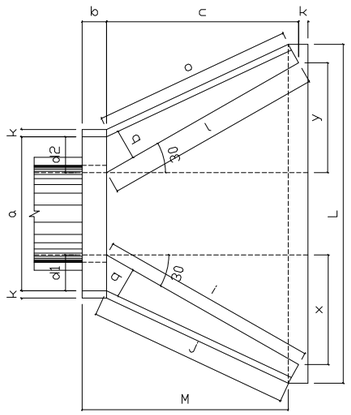
Conteúdo
DETALHES DE DRENAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

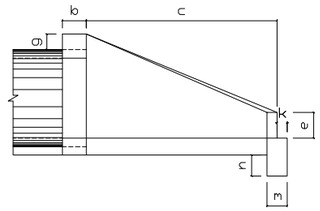
A3 (297mm X 420mm)

# BUEIRO SIMPLES TUBULAR DE CONCRETO - BOCAS NORMAIS E ESCONSAS (III)

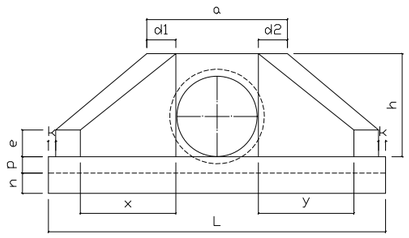
PLANTA NORMAL



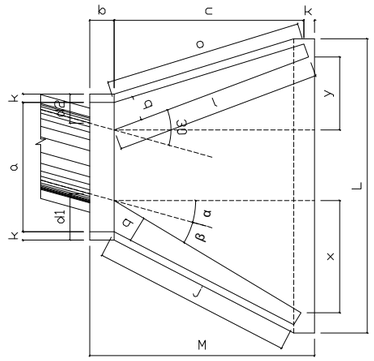

VISTA LATERAL




VISTA FRONTAL




PLANTA ESCONSO




| DIMENSÕES E CONSUMOS MÉDIOS PARA UMA UNIDADE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esc ? | ? | a | b | c | d1 | d2 | e | f | g | h | i | j | k | l | m | n | o | p | q | x | y | L | M | Formas (m?) | Concreto (m?) | Cimento | Areia | Brita 1 Brita 2 | água | Madeira |
| BUEIRO SIMPLES TUBULAR ø 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 30 | 106 | 20 | 125 | 23 | 23 | 15 | 10 | 30 | 98 | 144 | 133 | 10 | 144 | 20 | 20 | 133 | 23 | 20 | 72 | 72 | 242 | 155 | 7,45 | 1,153 | 5,649 | 0,784 | 0,853 | 0,184 | 0,186 |
| 15 | 20 | 111 | | | 28 | 21 | | | | | 177 | 157 | | 129 | | | 124 | | | 125 | 33 | 257 | | 4,82 | 1,218 | 5,967 | 0,828 | 0,901 | 0,195 | 0,121 |
| 30 | 25 | 130 | | | 35 | 26 | | | | | 218 | 190 | | 125 | | | 125 | | | 179 | 0 | 286 | | 8,71 | 1,380 | 6,761 | 0,939 | 1,021 | 0,221 | 0,218 |
| 45 | 20 | 168 | | | 47 | 36 | | | | | 296 | 253 | | 129 | | | 135 | | | 268 | -33 | 353 | | 10,68 | 1,722 | 8,437 | 1,171 | 1,274 | 0,276 | 0,267 |
| BUEIRO SIMPLES TUBULAR ø 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 30 | 138 | 25 | 145 | 29 | 29 | 20 | 15 | 30 | 120 | 167 | 153 | 10 | 167 | 25 | 35 | 153 | 30 | 25 | 84 | 84 | 293 | 180 | 11,17 | 2,140 | 10,485 | 1,456 | 1,583 | 0,342 | 0,279 |
| 15 | 30 | 144 | | | 35 | 26 | | | | | 205 | 180 | | 150 | | | 144 | | | 145 | 39 | 312 | | 11,73 | 2,262 | 11,082 | 1,539 | 1,674 | 0,362 | 0,293 |
| 30 | 25 | 167 | | | 44 | 31 | | | | | 253 | 218 | | 145 | | | 145 | | | 207 | 0 | 243 | | 13,03 | 2,539 | 12,439 | 1,727 | 1,879 | 0,406 | 0,326 |
| 45 | 20 | 216 | | | 59 | 44 | | | | | 343 | 290 | | 150 | | | 157 | | | 311 | -39 | 462 | | 15,97 | 3,188 | 15,619 | 2,168 | 2,359 | 0,510 | 0,399 |
| BUEIRO SIMPLES TUBULAR ø 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 30 | 170 | 30 | 165 | 35 | 35 | 25 | 20 | 30 | 142 | 191 | 174 | 10 | 191 | 30 | 40 | 174 | 37 | 30 | 95 | 95 | 345 | 205 | 15,68 | 3,567 | 17,476 | 2,426 | 2,639 | 0,571 | 0,392 |
| 15 | 30 | 177 | | | 42 | 31 | | | | | 233 | 203 | | 171 | | | 163 | | | 165 | 44 | 366 | | 16,41 | 3,757 | 18,407 | 2,555 | 2,780 | 0,601 | 0,410 |
| 30 | 25 | 203 | | | 52 | 36 | | | | | 288 | 245 | | 165 | | | 165 | | | 236 | 0 | 403 | | 18,19 | 4,205 | 20,602 | 2,860 | 3,111 | 0,673 | 0,455 |
| 45 | 20 | 264 | | | 71 | 52 | | | | | 390 | 326 | | 171 | | | 179 | | | 354 | -44 | 499 | | 20,30 | 5,293 | 25,932 | 3,600 | 3,916 | 0,847 | 0,558 |
| BUEIRO SIMPLES TUBULAR ø 120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 30 | 200 | 40 | 180 | 40 | 40 | 30 | 25 | 30 | 163 | 208 | 188 | 10 | 208 | 40 | 45 | 188 | 43 | 35 | 104 | 104 | 391 | 230 | 20,65 | 5,506 | 26,976 | 3,745 | 4,074 | 0,881 | 0,516 |
| 15 | 30 | 210 | | | 50 | 36 | | | | | 255 | 220 | | 186 | | | 177 | | | 180 | 48 | 414 | | 21,63 | 5,819 | 28,509 | 3,958 | 4,305 | 0,931 | 0,541 |
| 30 | 25 | 243 | | | 61 | 43 | | | | | 314 | 264 | | 180 | | | 180 | | | 257 | 0 | 455 | | 24,00 | 6,536 | 32,022 | 4,446 | 4,836 | 1,046 | 0,600 |
| 45 | 20 | 316 | | | 83 | 63 | | | | | 426 | 351 | | 186 | | | 196 | | | 386 | -48 | 562 | | 29,34 | 8,243 | 40,385 | 5,607 | 6,099 | 1,319 | 0,734 |
| BUEIRO SIMPLES TUBULAR ø 150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 30 | 242 | 50 | 260 | 46 | 46 | 35 | 30 | 30 | 194 | 300 | 277 | 10 | 300 | 40 | 45 | 277 | 52 | 40 | 150 | 150 | 522 | 320 | 32,54 | 10,810 | 52,961 | 7,353 | 7,998 | 1,730 | 0,814 |
| 15 | 30 | 53 | | | 57 | 41 | | | | | 368 | 328 | | 269 | | | 258 | | | 260 | 70 | 555 | | 34,15 | 11,431 | 56,004 | 7,775 | 8,458 | 1,829 | 0,854 |
| 30 | 25 | 293 | | | 70 | 50 | | | | | 453 | 396 | | 260 | | | 260 | | | 371 | 0 | 612 | | 37,95 | 12,868 | 63,004 | 8,753 | 9,521 | 2,059 | 0,949 |
| 45 | 20 | 382 | | | 95 | 75 | | | | | 615 | 530 | | 269 | | | 280 | | | 558 | -70 | 762 | | 46,60 | 16,303 | 79,873 | 11,089 | 12,063 | 2,608 | 1,165 |

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
9 / 9

Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
DETALHES DE DRENAGEM

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

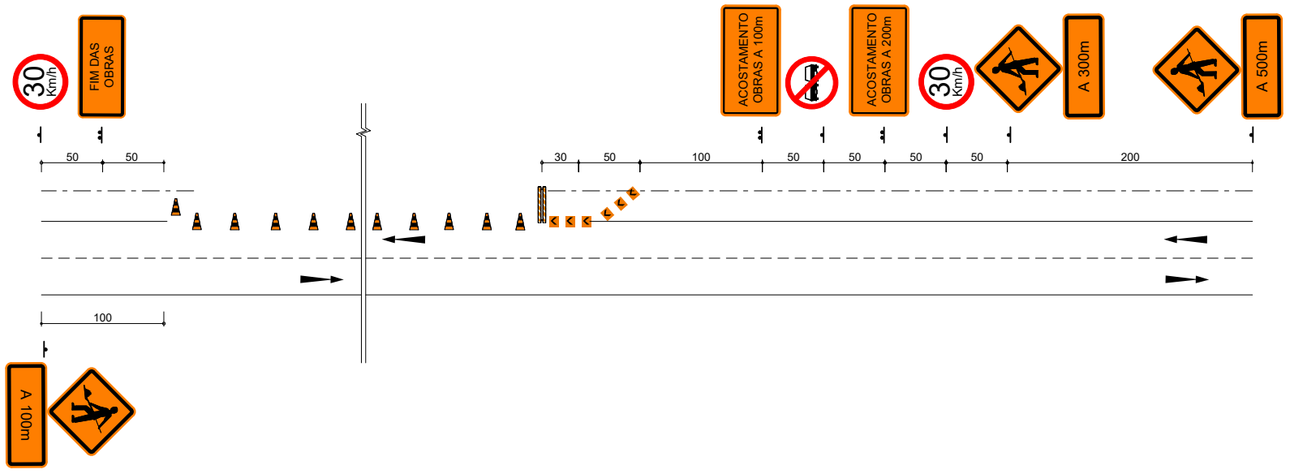
A3 (297mm X 420mm)

# PROJETO DE SINALIZAÇÃO DE OBRAS

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

# PROJETO TIPO 1

SINALIZAÇÃO DE OBRAS
PISTA SIMPLES - 1 FAIXA POR SENTIDO
BLOQUEIO DO ACOSTAMENTO




LEGENDA:

- CONE OU BALIZADOR (PIQUETE)
- BARREIRA
- PLACA
- DELINEADOR

| MATERIAIS PARA SINALIZAÇÃO DE OBRAS |
|---|
| ESPECIFICAÇÕES |
| - TODAS AS PLACAS DE ADVERTÊNCIAS, BALIZADORES, (PIQUETE) E DELINEADORES DEVERÃO SER CONFECCIONADOS COM CHAPA ZINCADA, O REVESTIMENTO DA FACE PRINCIPAL COM PELÍCULA REFLETIVA (TIPO I-A) NA COR LARANJA, E AOUTRA FACE PINTADA EM COR PRETA. AS LETRAS, SETAS, NÚMEROS, TARJAS E SÍMBOLOS COM PELÍCULA (TIPO IV-B) NA COR PRETA. |
| - AS PLACAS DE REGULAMENTAÇÃO SERÃO CONFECCIONADAS NAS CORES PADRÕES (BRANCO, VERMELHO E PRETO), REVESTIDAS COM PELÍCULA REFLETIVA TIPO I-A (BRANCA E VERMELHA), TIPO IV-B (PRETA) E A CHAPA DEVERÁ SER ZINCADA. |
| - OS DISPOSITIVOS LUMINOSOS DEVERÃO TER LÂMPADAS ELÉTRICAS PROTEGIDAS POR CÚPULAS TRANSLUCIDAS (BALDES) NA COR LARANJA. |
| - OS SINAIS PARE - PORTÁTEIS DEVERÃO SER CONFECCIONADOS COM MATERIAL RÍGIDOE PRESO A SUPORTE, QUE DEVERÃO SER TRANSPORTADOS POR UM OPERADOR. |

| |
|---|
| - AS BARREIRAS DEVERÃO SER DE MADEIRA NAS CORES BRANCAS COM BARRAS LARANJA ALTERNADAMENTE E REFLETIVAS (NA COR LARANJA). |
| - AS BANDEIRAS DEVERÃO SER CONFECCIONADAS EM TECIDO OU PLÁSTICO FLEXÍVEL PRESO A SUPORTE RÍGIDO QUE DEVERÃO SER TRANSPORTADOS POR UM OPERADOR. |
| - OS OPERADORES DE SINAL PARE - PORTÁTIL E BANDEIRAS DEVERÃO USAR COLETES NAS CORES LARANJA E BRANCA, CONFECCIONADAS COM MATERIAL REFLETIVO. |
| - OS SUPORTES DAS PLACAS DE ADVERTÊNCIA, REGULAMENTAÇÃO, DELINEADORES E BALIZADORES DEVERÃO SER DE MADEIRA. |
| - AS NORMAS QUE FIXAM OS TIPOS DE CHAPA E PELÍCULAS SÃO, RESPECTIVAMENTE, A NBR 11904E NBR 14644 |

| MATERIAIS PARA SINALIZAÇÃO DE OBRAS | | | |
|---|---|---|---|
| TIPOS (EX.) | DIMENSÕES | TIPOS (EX.) | DIMENSÕES |
| DESVIO À DIREITA A 400m | 1,50 x 1,00m | | 0,33 x 0,40m |
| DESVIO | 1,50 x 0,70m | | 0,75 x 0,15m |
| A 700m | 1,50 x 0,50m | | L - 2,00m<br>h - 1,20m |
| 30 Km/h | Ø - 0,80m | | 0,60 x 0,60m |
| | 0,80 x 0,80m | | h - 0,75m<br>Base - 0,40 x 0,40m |
| PARE (PORTÁTIL) | L - 0,25m | | Ø - 0,30m<br>h - 0,30m |

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
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ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
1 / 2

Obra
RUA BERNADETTA HERDT WARMLING

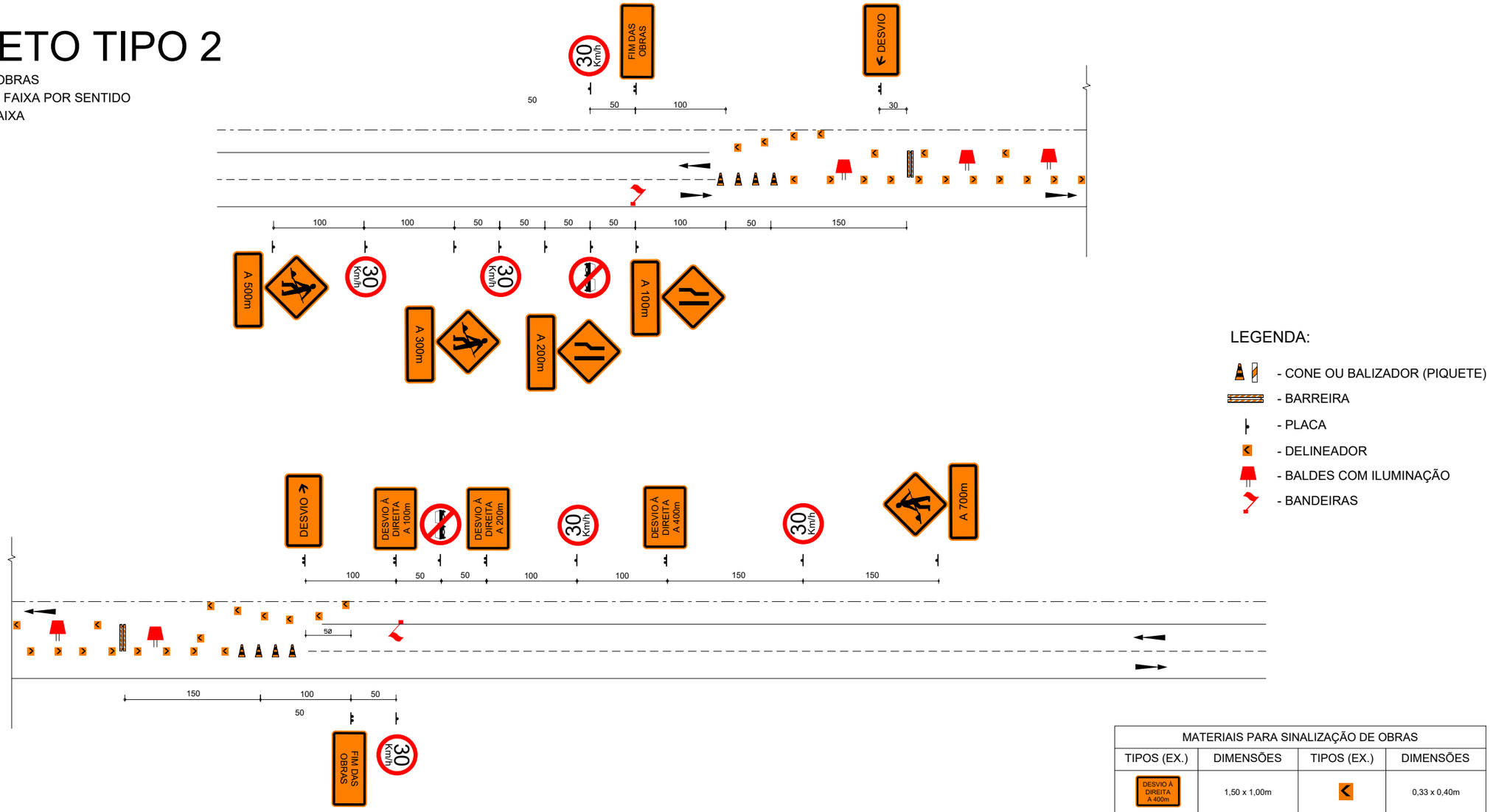
Conteúdo
SINALIZAÇÃO DE OBRAS

Local
RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

# PROJETO TIPO 2

SINALIZAÇÃO DE OBRAS
PISTA SIMPLES - 1 FAIXA POR SENTIDO
BLOQUEIO DE 1 FAIXA




LEGENDA:

- CONE OU BALIZADOR (PIQUETE)
- BARREIRA
- PLACA
- DELINEADOR
- BALDES COM ILUMINAÇÃO
- BANDEIRAS

| MATERIAIS PARA SINALIZAÇÃO DE OBRAS | |
|---|---|
| ESPECIFICAÇÕES | |
| - TODAS AS PLACAS DE ADVERTÊNCIAS, BALIZADORES, (PIQUETE) E DELINEADORES DEVERÃO SER CONFECCIONADOS COM CHAPA ZINCADA, O REVESTIMENTO DA FACE PRINCIPAL COM PELÍCULA REFLETIVA (TIPO I-A) NA COR LARANJA, E AOUTRA FACE PINTADA EM COR PRETA. AS LETRAS, SETAS, NÚMEROS, TARJAS E SÍMBOLOS COM PELÍCULA (TIPO IV-B) NA COR PRETA. | |
| - AS PLACAS DE REGULAMENTAÇÃO SERÃO CONFECCIONADAS NAS CORES PADRÕES (BRANCO, VERMELHO E PRETO), REVESTIDAS COM PELÍCULA REFLETIVA TIPO I-A (BRANCA E VERMELHA), TIPO IV-B (PRETA) E A CHAPA DEVERÁ SER ZINCADA. | |
| - OS DISPOSITIVOS LUMINOSOS DEVERÃO TER LÂMPADAS ELÉTRICAS PROTEGIDAS POR CÚPULAS TRANSLUCIDAS (BALDES) NA COR LARANJA. | |
| - OS SINAIS PARE - PORTÁTEIS DEVERÃO SER CONFECCIONADOS COM MATERIAL RÍGIDOE PRESO A SUPORTE, QUE DEVERÃO SER TRANSPORTADOS POR UM OPERADOR. | |

| |
|---|
| - AS BARREIRAS DEVERÃO SER DE MADEIRA NAS CORES BRANCAS COM BARRAS LARANJA ALTERNADAMENTE E REFLETIVAS (NA COR LARANJA). |
| - AS BANDEIRAS DEVERÃO SER CONFECCIONADAS EM TECIDO OU PLÁSTICO FLEXÍVEL PRESO A SUPORTE RÍGIDO QUE DEVERÃO SER TRANSPORTADOS POR UM OPERADOR. |
| - OS OPERADORES DE SINAL PARE - PORTÁTIL E BANDEIRAS DEVERÃO USAR COLETES NAS CORES LARANJA E BRANCA, CONFECCIONADAS COM MATERIAL REFLETIVO. |
| - OS SUPORTES DAS PLACAS DE ADVERTÊNCIA, REGULAMENTAÇÃO, DELINEADORES E BALIZADORES DEVERÃO SER DE MADEIRA. |
| - AS NORMAS QUE FIXAM OS TIPOS DE CHAPA E PELÍCULAS SÃO, RESPECTIVAMENTE, A NBR 11904E NBR 14644 |

| MATERIAIS PARA SINALIZAÇÃO DE OBRAS | | | |
|---|---|---|---|
| TIPOS (EX.) | DIMENSÕES | TIPOS (EX.) | DIMENSÕES |
| DESVIO À DIREITA A 400m | 1,50 x 1,00m | | 0,33 x 0,40m |
| DESVIO | 1,50 x 0,70m | | 0,75 x 0,15m |
| A 700m | 1,50 x 0,50m | | L - 2,00m<br>h - 1,20m |
| 30 Km/h | Ø - 0,80m | | 0,60 x 0,60m |
| | 0,80 x 0,80m | | h - 0,75m<br>Base - 0,40 x 0,40m |
| PARE (PORTÁTIL) | L - 0,25m | | Ø - 0,30m<br>h - 0,30m |

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
CREA/SC - 169873-0

FORQUILHINHA

Autor do projeto:
BRUNO FRIGO PASINI
ENGENHEIRO CIVIL - CREA/SC 137.007-9

Prancha:
2 / 2

Obra
RUA BERNADETTA HERDT WARMLING

Conteúdo
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A3 (297mm X 420mm)

# NOTAS DE SERVIÇO

-- Pavimento acabado

-- Drenagem

IDEALIZE
ARQUITETURA, ENGENHARIA E AGRIMENSURA
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# Nota de Serviço Tabela

COR - RUA BERNADETTA ALI - RUA BERNADETTA 0+0.000 39+11.199

| Lado Esquerdo | | | | | | Eixo | | | | | | Lado Direito | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OFFSET | | | BORDO_PISTA | | | | | | | | | BORDO_PISTA | | | OFFSET | | |
| Afast. (m) | Cota (m) | Incl. (%) | Afast. (m) | Cota (m) | Incl. (%) | Estaca | Pontos Notáveis da Geometria Horizontal | Pontos Notáveis da Geometria Vertical | Cota Projeto | Cota Terreno | Cota Vermelha | Afast. (m) | Cota (m) | Incl. (%) | Afast. (m) | Cota (m) | Incl. (%) |
| -3.655 | 27.834 | 74.26 | -3.500 | 27.718 | -2.50 | 0+0.000 | | | 27.806 | 27.808 | -0.002 | 3.500 | 27.718 | -2.50 | 3.619 | 27.798 | 66.42 |
| -4.046 | 27.294 | -73.99 | -3.500 | 27.699 | -2.50 | 1+0.000 | | | 27.786 | 27.255 | 0.531 | 3.500 | 27.699 | -2.50 | 3.923 | 27.377 | -76.13 |
| -4.422 | 27.025 | -71.01 | -3.500 | 27.679 | -2.50 | 2+0.000 | | | 27.767 | 27.211 | 0.555 | 3.500 | 27.679 | -2.50 | 3.963 | 27.331 | -75.31 |
| -4.310 | 27.079 | -71.60 | -3.500 | 27.659 | -2.50 | 3+0.000 | | | 27.747 | 27.150 | 0.597 | 3.500 | 27.659 | -2.50 | 4.066 | 27.242 | -73.74 |
| -4.053 | 27.231 | -73.90 | -3.500 | 27.640 | -2.50 | 4+0.000 | | | 27.727 | 27.164 | 0.563 | 3.500 | 27.640 | -2.50 | 3.996 | 27.269 | -74.73 |
| -4.132 | 27.158 | -72.99 | -3.500 | 27.620 | -2.50 | 5+0.000 | | | 27.708 | 27.192 | 0.516 | 3.500 | 27.620 | -2.50 | 3.749 | 27.414 | -82.76 |
| -4.852 | 26.659 | -69.62 | -3.500 | 27.600 | -2.50 | 6+0.000 | | | 27.688 | 27.189 | 0.499 | 3.500 | 27.600 | -2.50 | 3.717 | 27.416 | -85.09 |
| -4.877 | 26.622 | -69.57 | -3.500 | 27.581 | -2.50 | 7+0.000 | | | 27.668 | 27.308 | 0.360 | 3.500 | 27.581 | -2.50 | 3.786 | 27.350 | -80.68 |
| -4.877 | 26.603 | -69.57 | -3.500 | 27.561 | -2.50 | 8+0.000 | | | 27.648 | 27.516 | 0.132 | 3.500 | 27.561 | -2.50 | 3.550 | 27.571 | 19.82 |
| -4.594 | 26.772 | -70.32 | -3.500 | 27.541 | -2.50 | 9+0.000 | | | 27.629 | 27.552 | 0.077 | 3.500 | 27.541 | -2.50 | 3.661 | 27.662 | 75.13 |
| -4.749 | 26.649 | -69.87 | -3.500 | 27.522 | -2.50 | 10+0.000 | | | 27.609 | 27.549 | 0.061 | 3.500 | 27.522 | -2.50 | 3.621 | 27.603 | 67.04 |
| -3.951 | 27.300 | -75.54 | -3.500 | 27.641 | -2.50 | 11+0.000 | | | 27.728 | 27.636 | 0.093 | 3.500 | 27.641 | -2.50 | 3.702 | 27.803 | 80.22 |
| -4.480 | 27.067 | -70.75 | -3.500 | 27.760 | -2.50 | 12+0.000 | | | 27.848 | 27.683 | 0.165 | 3.500 | 27.760 | -2.50 | 3.900 | 28.120 | 90.01 |
| -4.766 | 26.996 | -69.83 | -3.500 | 27.880 | -2.50 | 13+0.000 | | | 27.967 | 27.802 | 0.165 | 3.500 | 27.880 | -2.50 | 3.882 | 28.221 | 89.52 |
| -4.376 | 27.375 | -71.23 | -3.500 | 27.999 | -2.50 | 14+0.000 | | | 28.086 | 27.909 | 0.177 | 3.500 | 27.999 | -2.50 | 4.005 | 28.464 | 92.09 |
| -3.567 | 28.034 | -126.43 | -3.500 | 28.118 | -2.50 | 15+0.000 | | | 28.206 | 28.056 | 0.149 | 3.500 | 28.118 | -2.50 | 3.790 | 28.368 | 86.21 |
| -3.514 | 28.211 | -185.51 | -3.500 | 28.237 | -2.50 | 16+0.000 | | | 28.325 | 28.208 | 0.117 | 3.500 | 28.237 | -2.50 | 4.097 | 28.794 | 93.30 |
| -3.553 | 28.370 | 24.33 | -3.500 | 28.357 | -2.50 | 17+0.000 | | | 28.444 | 28.363 | 0.081 | 3.500 | 28.357 | -2.50 | 3.960 | 28.777 | 91.31 |
| -3.539 | 28.475 | -2.16 | -3.500 | 28.476 | -2.50 | 18+0.000 | | | 28.564 | 28.516 | 0.048 | 3.500 | 28.476 | -2.50 | 4.133 | 29.069 | 93.68 |
| -3.528 | 28.537 | -208.82 | -3.500 | 28.595 | -2.50 | 19+0.000 | | | 28.683 | 28.725 | -0.042 | 3.500 | 28.595 | -2.50 | 4.031 | 29.086 | 92.46 |
| -3.521 | 28.695 | -94.21 | -3.500 | 28.715 | -2.50 | 20+0.000 | | | 28.802 | 28.719 | 0.084 | 3.500 | 28.715 | -2.50 | 3.638 | 28.813 | 71.04 |
| -3.507 | 28.801 | -491.25 | -3.500 | 28.834 | -2.50 | 21+0.000 | | | 28.922 | 28.838 | 0.084 | 3.500 | 28.834 | -2.50 | 3.651 | 28.945 | 73.44 |
| -3.622 | 29.032 | 67.21 | -3.500 | 28.950 | -2.50 | 22+0.000 | | | 29.038 | 29.008 | 0.030 | 3.500 | 28.950 | -2.50 | 3.799 | 29.209 | 86.61 |
| -3.729 | 29.251 | 82.57 | -3.500 | 29.062 | -2.50 | 23+0.000 | | | 29.149 | 29.204 | -0.055 | 3.500 | 29.062 | -2.50 | 3.665 | 29.186 | 75.72 |
| -3.838 | 29.470 | 88.15 | -3.500 | 29.173 | -2.50 | 24+0.000 | | | 29.260 | 29.369 | -0.109 | 3.500 | 29.173 | -2.50 | 3.980 | 29.613 | 91.67 |
| -3.668 | 29.412 | 76.15 | -3.500 | 29.284 | -2.50 | 25+0.000 | | | 29.372 | 29.392 | -0.021 | 3.500 | 29.284 | -2.50 | 3.650 | 29.394 | 73.34 |
| -3.851 | 29.706 | 88.59 | -3.500 | 29.396 | -2.50 | 26+0.000 | | BVC | 29.483 | 29.486 | -0.003 | 3.500 | 29.396 | -2.50 | 3.618 | 29.473 | 66.02 |
| -3.953 | 30.028 | 91.16 | -3.500 | 29.616 | -2.50 | 27+0.000 | | EVC | 29.703 | 29.675 | 0.028 | 3.500 | 29.616 | -2.50 | 3.751 | 29.827 | 84.08 |
| -3.771 | 30.651 | 85.23 | -3.500 | 30.420 | -2.50 | 28+0.000 | | BVC | 30.507 | 30.532 | -0.025 | 3.500 | 30.420 | -2.50 | 3.713 | 30.593 | 81.23 |
| -3.950 | 31.873 | 91.11 | -3.500 | 31.463 | -2.50 | 29+0.000 | | | 31.551 | 31.719 | -0.168 | 3.500 | 31.463 | -2.50 | 4.207 | 32.130 | 94.34 |
| -4.076 | 32.577 | 93.06 | -3.500 | 32.040 | -2.50 | 30+0.000 | | | 32.128 | 32.421 | -0.294 | 3.500 | 32.040 | -2.50 | 4.058 | 32.558 | 92.83 |
| -4.055 | 32.422 | 92.79 | -3.500 | 31.907 | -2.50 | 31+0.000 | | EVC | 31.994 | 32.117 | -0.123 | 3.500 | 31.907 | -2.50 | 3.953 | 32.320 | 91.17 |
| -3.821 | 31.492 | 87.53 | -3.500 | 31.212 | -2.50 | 32+0.000 | | BVC | 31.299 | 31.009 | 0.290 | 3.500 | 31.212 | -2.50 | 3.688 | 31.360 | 78.77 |
| -3.655 | 30.378 | -92.45 | -3.500 | 30.521 | -2.50 | 33+0.000 | | | 30.609 | 30.065 | 0.543 | 3.500 | 30.521 | -2.50 | 4.270 | 29.968 | -71.86 |
| -4.015 | 29.847 | -74.43 | -3.500 | 30.231 | -2.50 | 34+0.000 | | EVC | 30.318 | 29.705 | 0.613 | 3.500 | 30.231 | -2.50 | 4.158 | 29.752 | -72.75 |
| -4.247 | 29.641 | -72.02 | -3.500 | 30.179 | -2.50 | 35+0.000 | | | 30.266 | 29.775 | 0.491 | 3.500 | 30.179 | -2.50 | 3.883 | 29.883 | -77.11 |
| -3.893 | 29.825 | -76.85 | -3.500 | 30.127 | -2.50 | 36+0.000 | | | 30.214 | 29.825 | 0.389 | 3.500 | 30.127 | -2.50 | 3.559 | 30.047 | -134.11 |
| -3.590 | 30.125 | 55.69 | -3.500 | 30.075 | -2.50 | 37+0.000 | | | 30.163 | 30.348 | -0.186 | 3.500 | 30.075 | -2.50 | 3.994 | 30.529 | 91.91 |
| -3.741 | 29.823 | -83.26 | -3.500 | 30.023 | -2.50 | 38+0.000 | | | 30.111 | 30.281 | -0.170 | 3.500 | 30.023 | -2.50 | 3.592 | 30.075 | 56.58 |
| -4.365 | 29.355 | -71.29 | -3.500 | 29.971 | -2.50 | 39+0.000 | | | 30.059 | 29.786 | 0.273 | 3.500 | 29.971 | -2.50 | 3.714 | 29.789 | -85.33 |
| -4.365 | 29.326 | -71.29 | -3.500 | 29.942 | -2.50 | 39+11.199 | | | 30.030 | 29.643 | 0.387 | 3.500 | 29.942 | -2.50 | 3.714 | 29.760 | -85.33 |

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Prancha:
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RUA BERNADETTA HERDT WARMLING

Conteúdo
NOTAS DE SERVIÇO

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RUA BERNADETTA HERDT WARMILING, B. CLARISSA - FORQUILHINHA/SC

A3 (297mm X 420mm)

## Relatório de Alinhamento Horizontal por Estaca

Alinhamento: ALI - RUA BERNADETTA

| Estaca | Norte | Este | Cota |
|---|---|---|---|
| 0+0,000 | 6820175,7757272 | 648685,7141787 | 27,8059167 |
| 1+0,000 | 6820176,7117024 | 648705,6922655 | 27,7862357 |
| 2+0,000 | 6820177,6476775 | 648725,6703523 | 27,7665548 |
| 3+0,000 | 6820178,5836526 | 648745,6484390 | 27,7468738 |
| 4+0,000 | 6820179,5196278 | 648765,6265258 | 27,7271928 |
| 5+0,000 | 6820180,4556029 | 648785,6046125 | 27,7075118 |
| 6+0,000 | 6820181,3915780 | 648805,5826993 | 27,6878308 |
| 7+0,000 | 6820182,3275532 | 648825,5607861 | 27,6681499 |
| 8+0,000 | 6820183,2635283 | 648845,5388728 | 27,6484689 |
| 9+0,000 | 6820184,1995035 | 648865,5169596 | 27,6287879 |
| 10+0,000 | 6820185,1354786 | 648885,4950463 | 27,6091069 |
| 11+0,000 | 6820186,0714537 | 648905,4731331 | 27,7283865 |
| 12+0,000 | 6820187,0074289 | 648925,4512199 | 27,8477062 |
| 13+0,000 | 6820187,9434040 | 648945,4293066 | 27,9670259 |
| 14+0,000 | 6820188,8793792 | 648965,4073934 | 28,0863456 |
| 15+0,000 | 6820189,8153543 | 648985,3854801 | 28,2056653 |
| 16+0,000 | 6820190,7513294 | 649005,3635669 | 28,3249850 |
| 17+0,000 | 6820191,6873046 | 649025,3416536 | 28,4443047 |
| 18+0,000 | 6820192,6232797 | 649045,3197404 | 28,5636245 |
| 19+0,000 | 6820193,5592549 | 649065,2978272 | 28,6829442 |
| 20+0,000 | 6820194,4952300 | 649085,2759139 | 28,8022639 |
| 21+0,000 | 6820195,4312051 | 649105,2540007 | 28,9215836 |
| 22+0,000 | 6820196,3671803 | 649125,2320874 | 29,0377761 |
| 23+0,000 | 6820197,3031554 | 649145,2101742 | 29,1490910 |
| 24+0,000 | 6820198,2391306 | 649165,1882610 | 29,2604059 |
| 25+0,000 | 6820199,1751057 | 649185,1663477 | 29,3717208 |
| 26+0,000 | 6820200,1110808 | 649205,1444345 | 29,4830358 |
| 27+0,000 | 6820201,0470560 | 649225,1225212 | 29,7033910 |
| 28+0,000 | 6820201,9830311 | 649245,1006080 | 30,5074056 |
| 29+0,000 | 6820202,9190063 | 649265,0786947 | 31,5508836 |
| 30+0,000 | 6820203,8549814 | 649285,0567815 | 32,1278569 |
| 31+0,000 | 6820204,7909565 | 649305,0348683 | 31,9944268 |
| 32+0,000 | 6820205,7269317 | 649325,0129550 | 31,2990275 |
| 33+0,000 | 6820206,6629068 | 649344,9910418 | 30,6085629 |
| 34+0,000 | 6820207,5988819 | 649364,9691285 | 30,3181770 |
| 35+0,000 | 6820208,5348571 | 649384,9472153 | 30,2663228 |
| 36+0,000 | 6820209,4708322 | 649404,9253021 | 30,2144874 |
| 37+0,000 | 6820210,4068074 | 649424,9033888 | 30,1626520 |
| 38+0,000 | 6820211,3427825 | 649444,8814756 | 30,1108165 |
| 39+0,000 | 6820212,2787576 | 649464,8595623 | 30,0589811 |
| 39+11,199 | 6820212,8028417 | 649476,0459673 | 30,0299567 |

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