



MEMÓRIA DE CÁLCULO

**IMPLANTAÇÃO DE INFRAESTRUTURA URBANA - PAVIMENTAÇÃO, CALÇADA,
MEIO-FIO E DRENAGEM - BOA ESPERANÇA -ES**

JUNHO DE 2022



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**OBRA: IMPLANTAÇÃO DE INFRAESTRUTURA URBANA –
PAVIMENTAÇÃO, CALÇADA, MEIO-FIO E DRENAGEM.
LOCAL: DIVERSOS – BOA ESPERANÇA – ES**

1 –SERVIÇOS PRELIMINARES

1.1 PLACA DE OBRA

A= 2,00m x 4,00m

A= 8m²

TOTAL = 8m²

1.2 REGULARIZAÇÃO

A= ITEM 2.4 Pavimentação

A= 27.201,63m²

TOTAL = 27.201,63m²

2 –DRENAGEM

2.1 CORPO BSTC DIÂMETRO 0,40 M C.S. PB

RUA FAUSTINA MONTI:

5,91+12,92+8,71+2,83+2,92+2,12+3,91+8,19+6,65+5,95+2,81+2,38+5,09+1,29+3,55+2,79+
4,58+1,83+5,79+2,59+2,9+5,72+4,25+2,25+5,96+5,14+5,17+5,83+3,27+2,98+3,12+3,62+1,97
+4,26+3,34+2,65+4,57+3,97+3,54+3,23= 170,55m

RUA SÃO MIGUEL:

3,53+4,61+39,9+4,59+4,3+60+4,59+4,3+60,01+4,59+4,3+50,92+6,14+4,3+21,99= 278,07m

RUA DIOMEDES COSTA:

7,94+3,15+8,51+4,04+2,43+4,84+2,60+6,07+3,63+5,12+7,57=55,90m

RUA VEREADOR JOÃO FARIA:

3,61+4,77+6,18+6,31+4,2+2,65+4,36+9,07+6,37+7,27+5,01+2,13+2,76+1,17+7,11+3,49= 76,46m

RUA ARMANDO FRANCISCO FURLAN 1 e 2:

2,55+2,34+2,55+2,34+2,55+2,34+2,55+2,34+2,55+2,34+5,86+8,36= 38,67m

TOTAL = 619,65m

2.2 BERÇO EM BRITA PARA BSTC 400mm

RUA FAUSTINA MONTI:

5,91+12,92+8,71+2,83+2,92+2,12+3,91+8,19+6,65+5,95+2,81+2,38+5,09+1,29+3,55+2,79+
4,58+1,83+5,79+2,59+2,9+5,72+4,25+2,25+5,96+5,14+5,17+5,83+3,27+2,98+3,12+3,62+1,97
+4,26+3,34+2,65+4,57+3,97+3,54+3,23= 170,55m

RUA SÃO MIGUEL:

3,53+4,61+39,9+4,59+4,3+60+4,59+4,3+60,01+4,59+4,3+50,92+6,14+4,3+21,99= 278,07m

RUA DIOMEDES COSTA: 55,22m

7,94+3,15+8,51+4,04+2,43+4,84+2,6+6,07+3,63+5,12+7,57=55,90m



RUA VEREADOR JOÃO FARIA:

$3,61+4,77+6,18+6,31+4,2+2,65+4,36+9,07+6,37+7,27+5,01+2,13+2,76+1,17+7,11+3,49= 76,46\text{m}$

RUA ARMANDO FRANCISCO FURLAN 1 e 2:

$2,55+2,34+2,55+2,34+2,55+2,34+2,55+2,34+2,55+2,34+5,86+8,36= 38,67\text{m}$

TOTAL = 619,65m

2.3 CORPO BSTC DIÂMETRO 0,60 M C.S. PB

RUA FAUSTINA MONTI:

$51,49+40,27+19,48+17,38+36,92+12,48+49,96+46,3+5+5+40,59+49,86+50,14+52,53+8,93+6,3,97+5,83+50,02+43,48+50+49,98+20,83= 770,44\text{m}$

RUA ARMANDO FRANCISCO FURLAN 1 e 2:

$58,95+60,05+15,51+64,45+57,2= 256,16\text{m}$

TOTAL = 1.026,60m

2.4 BERÇO EM BRITA PARA BSTC 600mm

RUA FAUSTINA MONTI:

$51,49+40,27+19,48+17,38+36,92+12,48+49,96+46,3+5+5+40,59+49,86+50,14+52,53+8,93+6,3,97+5,83+50,02+43,48+50+49,98+20,83= 770,44\text{m}$

RUA ARMANDO FRANCISCO FURLAN 1 e 2:

$58,95+60,05+15,51+64,45+57,2= 256,16\text{m}$

TOTAL = 1.026,60m

2.5 CORPO BSTC DIÂMETRO 0,80 M C.A-1 PB

RUA DIOMEDES COSTA:

$57,78+52,13+63,36+11,23+42,03+9,7= 236,23\text{m}$

RUA VEREADOR JOÃO FARIA:

$5,84+74,54+68,01+41,97+67,45+20,73+42,65+31,53= 352,72\text{m}$

TOTAL = 588,95m

2.6 BERÇO EM BRITA PARA BSTC 800mm

RUA DIOMEDES COSTA:

$57,78+52,13+63,36+11,23+42,03+9,7= 236,23\text{m}$

RUA VEREADOR JOÃO FARIA:

$5,84+74,54+68,01+41,97+67,45+20,73+42,65+31,53= 352,72\text{m}$

TOTAL = 588,95m

2.7 CAIXA RALO

RUA FAUSTINA MONTI: 39und

RUA SÃO MIGUEL: 10und

RUA DIOMEDES COSTA:11und

RUA VEREADOR JOÃO FARIA: 16und

RUA ARMANDO FRANCISCO FURLAN 1 e 2: 12und

TOTAL = 88und



2.8 POÇO DE VISITA PARA BSTC DIÂM. 0,60 m

RUA FAUSTINA MONTI: 22und

RUA SÃO MIGUEL: 5und

RUA ARMANDO FRANCISCO FURLAN1 E 2: 6und

TOTAL = 33und

2.9 POÇO DE VISITA PARA BSTC DIÂM. 0,80 m

RUA DIOMEDES COSTA: 6und

RUA VEREADOR JOÃO FARIA: 8und

TOTAL = 14und

3 –PAVIMENTAÇÃO, CALÇADA E MEIO FIO.

3.1 MEIO-FIO

RUA FAUSTINA MONTI

$(22,30+28,95+51,98+1,89+1,39+1,26+1,14+1,34+90,89+4,06+38,23+210,86+1,99+1,83+1,00+2,37+82,95+60,53+37,74+28,28) + (5,48+4,87+23,81+11,83+2,34+1,99+5,67+6,04+2,22+4,69+25,43+2,29+1,47+4,76+7,70+5,18+89,44+44,67+146,16+1,40+2,29+4,42+3,84+1,79+1,32+75,16+71,63+61,22+36,99+26,92) + (12,85+12,05+6,99+8,00+7,51+7,54+7,50+7,47+7,52+7,57+7,45)= 1446,45m$

RUA SÃO MIGUEL

$(4,99+198,77+4,37)+(5,23+55,72+50,07+49,69+64,61+2,77+2,25)+(7,63+7,40+7,47)= 460,97m$

RUA DIOMEDES COSTA

$(1,97+1,18+52,81+2,55+2,58+1,39+4,46+97,97+9,61+3,34+3,36)+(1,11+1,90+49,37+1,01+1,81+3,39+44,89+3,06+1,48+1,89+1,14+1,12+56,56+1,99+2,26+0,89+2,66+1,55+7,11) + (9,14+9,00+8,28+9,78)= 402,61m$

RUA VEREADOR JOÃO FARIA

$(1,93+4,41+3,34+2,90+32,90+29,09+5,80+5,27+9,99+31,37+10,97+4,55+3,25+3,52+5,83+2,55+3,69+2,05+21,93+2,18+2,03+1,89+2,32+2,55+4,15+22,63+29,14+1,60+1,38+1,56+3,75+2,31+13,85+7,08+10,13+21,50+2,74+3,13)+(4,36+6,10+60,33+9,09+6,90+38,19+7,35+10,19+43,26+5,34+4,05+3,31+0,92+6,84+1,42+4,86+43,35+3,99+7,55+2,47+3,21+50,72+1,35+5,92) + (7,99+6,77+6,24+6,37+10,95)= 690,65m$

RUA DA IGUALDADE

$(95,09+41,42+11,32+101,12+26,10+45,54+2,78+8,20+35,54+8,99)+(22,00+6,00+5,20+38,96+3,96+19,75+2,03+76,95+26,36+79,12+22,14+17,16) + (6,80+5,00+5,18+5,42)= 718,13m$

RUA ARMANDO FRANCISCO FURLAN 1

$(1,80+135,24)= 137,04m$

RUA ARMANDO FRANCISCO FURLAN 2

$(0,93+2,04+107,43+4,22) + (112,86+4,57)= 232,05m$

RUA EDINALDO BARROS

$(2,14+2,39+46,67+1,48+2,87+3,03+1,47+33,69+2,14+2,21)+(2,62+3,02+45,91+1,10+3,18+2,83+1,16+32,70+2,18+1,45)= 194,24m$



RUA DR. PEDRO HERKENHOFF

$(1,86+8,70+9,30+39,61+2,03) + (1,30+0,99+46,25+3,39+4,28+7,75) = 125,46m$

RUA CARMITA M. BARROS

$(1,18+13,75+28,08+50,55+78,28+2,76+1,00+0,79+2,76+55,02+4,58) + (172,86+0,83+1,83+2,21+2,30 + 58,47 + 2,30) = 479,55m$

RUA ILMO COVRE

$(4,45+163,90) + (3,41+79,78+3,12+4,87+64,52+1,73+2,41) = 328,19m$

RUA HENRIQUE LORENZONI

$(3,98+67,15+1,95) + (3,35+67,31+0,90+1,41) = 146,05m$

RUA ANACLETO GAVA

$(4,20+68,47+0,60+1,91+2,06+1,62+67,93+1,17+1,59) + (1,16+2,96+67,34+3,32+3,29+66,79+3,87) = 298,28m$

RUA ORESTE BELIQUE

$(3,08+67,05+1,41+2,22+1,72+1,85+67,10+2,01+1,17) + (3,48+65,48+4,20+4,00+66,16+3,25) = 294,18m$

RUA SERGIPE

$(4,52+25,30+1,98+2,15+1,52+1,52+48,44+0,78+0,94+1,03+4,27+49,11+2,92+3,49+48,14+2,49) + (3,45+82,97+0,60+1,59+3,20+49,71+1,48+1,41+1,66+1,58+0,67+1,01+48,84+0,88+1,66) = 399,31m$

RUA MINAS GERAIS

$(2,73+0,80+29,85+4,29) + (4,03+28,17+2,89) = 72,76m$

RUA PROJETADA

$(1,97+146,51+2,01) + (3,09+132,92+13,71) = 300,21m$

RUA MARIA DE SOUZA LIVRAMENTO

$(10,36+119,95) + (4,00+107,98+1,14+0,93+1,76) = 246,12m$

TOTAL = 6.972,25m

3.2 PAVIMENTAÇÃO (VIDE PROJETO)

RUA FAUSTINA MONTI: 6186,95m²

RUA SÃO MIGUEL: 1712,72m²

RUA DIOMEDES COSTA: 2055,67m²

RUA VEREADOR JOÃO FARIA: 2947,93m²

RUA DA IGUALDADE: 2305,14m²

RUA ARMANDO FRANCISCO FURLAN 1: 1535,49m²

RUA ARMANDO FRANCISCO FURLAN 2: 715,84m²

RUA EDINALDO BARROS: 696,48m²

RUA DR. PEDRO HERKENHOFF: 636,64m²

RUA CARMITA M. BARROS: 1657,67m²

RUA ILMO COVRE: 1161,50m²

RUA HENRIQUE LORENZONI: 356,92m²



RUA ANACLETO GAVA: 1087,45m²
RUA ORESTE BELIQUE: 976,27m²
RUA SERGIPE: 1180,97m²
RUA MINAS GERAIS: 220,59m²
RUA PROJETADA: 970,67m²
RUA MARIA DE SOUZA LIVRAMENTO: 796,73m²
TOTAL = 27.201,63m²

3.3 CALÇADA

RUA FAUSTINA MONTI

$(22,30+28,95+51,98+1,89+1,39+1,26+1,14+1,34+90,89+4,06+38,23+210,86+1,99+1,83+1,00+2,37+82,95+60,53+37,74+28,28) + (5,48+4,87+23,81+11,83+2,34+1,99+5,67+6,04+2,22+4,69+25,43+2,29+1,47+4,76+7,70+5,18+89,44+44,67+146,16+1,40+2,29+4,42+3,84+1,79+1,32+75,16+71,63+61,22+36,99+26,92) = 1354,00m \times 1,40m = 1895,60m^2$

RUA SÃO MIGUEL

$(4,99+198,77+4,37)+(5,23+55,72+50,07+49,69+64,61+2,77+2,25) = 438,47m \times 1,40m = 613,86m^2$

RUA DIOMEDES COSTA

$(1,97+1,18+52,81+2,55+2,58+1,39+4,46+97,97+9,61+3,34+3,36)+(1,11+1,90+49,37+1,01+1,81+3,39+44,89+3,06+1,48+1,89+1,14+1,12+56,56+1,99+2,26+0,89+2,66+1,55+7,11) + (9,14+9,00+8,28+9,78) = 366,41m \times 1,40m = 512,97m^2$

RUA VEREADOR JOÃO FARIA

$(1,93+4,41+3,34+2,90+32,90+29,09+5,80+5,27+9,99+31,37+10,97+4,55+3,25+3,52+5,83+2,55+3,69+2,05+21,93+2,18+2,03+1,89+2,32+2,55+4,15+22,63+29,14+1,60+1,38+1,56+3,75+2,31+13,85+7,08+10,13+21,50+2,74+3,13)+(4,36+6,10+60,33+9,09+6,90+38,19+7,35+10,19+43,26+5,34+4,05+3,31+0,92+6,84+1,42+4,86+43,35+3,99+7,55+2,47+3,21+50,72+1,35+5,92) = 652,33m \times 1,40m = 913,26m^2$

RUA DA IGUALDADE

$(95,09+41,42+11,32+101,12+26,10+45,54+2,78+8,20+35,54+8,99)+(22,00+6,00+5,20+38,96+3,96+19,75+2,03+76,95+26,36+79,12+22,14+17,16) = 695,73m \times 1,40m = 974,02m^2$

RUA ARMANDO FRANCISCO FURLAN 1

$(1,80+135,24) = 137,04m \times 1,50m = 205,56m^2$

RUA ARMANDO FRANCISCO FURLAN 2

$(0,93+2,04+107,43+4,22) + (112,86+4,57) = 232,05m \times 1,40m = 324,87m^2$

RUA EDINALDO BARROS

$(2,14+2,39+46,67+1,48+2,87+3,03+1,47+33,69+2,14+2,21)+(2,62+3,02+45,91+1,10+3,18+2,83+1,16+32,70+2,18+1,45) = 194,24m \times 1,20m = 233,09m^2$

RUA DR. PEDRO HERKENHOFF

$(1,86+8,70+9,30+39,61+2,03) + (1,30+0,99+46,25+3,39+4,28+7,75) = 125,46m \times 1,20m = 150,55m^2$



RUA CARMITA M. BARROS

$(1,18+13,75+28,08+50,55+78,28+2,76+1,00+0,79+3,03+55,02+4,58)+(172,86+0,83+1,83+2,21+2,30 + 58,47 +2,30)= 479,55\text{m} \times 1,20\text{m}= 575,46\text{m}^2$

RUA ILMO COVRE

$(4,45+163,90) + (3,41+79,78+3,12+4,87+64,52+1,73+2,41)= 328,19\text{m} \times 1,20\text{m}= 393,83\text{m}^2$

RUA HENRIQUE LORENZONI

$(3,98+67,15+1,95) + (3,35+67,31+0,90+1,41)= 146,05\text{m} \times 1,20\text{m}= 175,26$

RUA ANACLETO GAVA

$(4,20+68,47+0,60+1,91+2,06+1,62+67,93+1,17+1,59)+(1,16+2,96+67,34+3,32+3,29+66,79+3,87)= 298,28\text{m} \times 1,20\text{m}= 357,94\text{m}^2$

RUA ORESTE BELIQUE

$(3,08+67,05+1,41+2,22+1,72+1,85+67,10+2,01+1,17) + (3,48+65,48+4,20+4,00+66,16+3,25)= 294,18\text{m} \times 1,20\text{m}= 353,02\text{m}^2$

RUA SERGIPE

$(4,52+25,30+1,98+2,15+1,52+1,52+48,44+0,78+0,94+1,03+4,27+49,11+2,92+3,49+48,14+2,49)+(3,45+82,97+0,60+1,59+3,20+49,71+1,48+1,41+1,66+1,58+0,67+1,01+48,84+0,88+1,66)= 399,31\text{m} \times 1,20\text{m}= 479,17\text{m}^2$

RUA MINAS GERAIS

$(2,73+0,80+29,85+4,29) +(4,03+28,17+2,89)= 72,76\text{m} \times 1,20\text{m}= 87,31\text{m}^2$

RUA PROJETADA

$(1,97+146,51+2,01) + (3,09+132,92+13,71)= 300,21\text{m} \times 1,20\text{m}= 360,25\text{m}^2$

RUA MARIA DE SOUZA LIVRAMENTO

$(10,36+119,95) + (4,00+107,98+1,14+0,93+1,76)= 246,12\text{m} \times 1,20\text{m}= 295,34\text{m}^2$

TOTAL = 8.901,36m²

3.4 LADRILHO

A= IDEM 3.1 MEIO FIO x 0,20m

A= 6972,25 x 0,20m

A=1394,45m²

TOTAL = 1.394,45m²

4 –SINALIZAÇÃO HORIZONTAL E VERTICAL

4.1 SINALIZAÇÃO VERTICAL

RUA FAUSTINA MONTI

A-32b= 4unds

A32b= 2unds

R-19= 3unds

R-1= 3unds

A-22= 2unds



RUA SÃO MIGUEL

A32b= 2unds

R-19= 2unds

R-1= 2unds

RUA DIOMEDES COSTA

R-19= 2unds

RUA VEREADOR JOÃO FARIAS

A32b= 2unds

R-19= 2unds

R-1= 4unds

RUA DA IGUALDADE

R-19= 3unds

A-45= 1unds

A-22= 2unds

RUA ARMANDO F. FURLAN T1

A32b= 2unds

R-19= 2unds

R-1= 2unds

R-6b= 3nds

RUA ARMANDO F. FURLAN T2

A32b= 1unds

R-1= 2unds

RUA EDINALDO BARROS

R-19= 2unds

RUA DR. PEDRO HERKENHOFF

R-19= 2unds

RUA CARMITA MIRANDA BARROS

R-19= 2unds

RUA ILMO COVRE

R-19= 2unds

RUA HENRIQUE LORENZONI

R-19= 2unds

RUA ANACLETO GAVA

A32b= 2unds

R-19= 2unds

R-1= 2unds

R-6b= 2unds



RUA ORESTE BELIQUE

R-19= 2unds

RUA SERGIPE

R-19= 2unds

RUA MINAS GERAIS

R-19= 2und

RUA MARIA DE SOUZA LIVRAMENTO

R-19= 2unds

RUA PROJETADA

R-19= 2unds

MEMORIAL DE CÁLCULO - SINALIZAÇÃO VERTICAL					
NOMENCLATURA		QUANT.	COMPR.	LARG.	ÁREA
PLACA A-32b	FAIXA ELEVADA	4	0,75	0,5	1,50
PLACA A32b	FAIXA PEDESTRE	11	0,5	0,5	2,75
PLACA R-19	VELOCIDADE MÁXIMA	36	RAIO->	0,25	7,07
PLACA A-45	RUA SEM SAÍDA	1	0,5	0,5	0,25
PLACA R-1	PARE	15	0,5	0,5	3,75
PLACA R-6b	ESTACIONAMENTO	5	RAIO->	0,25	0,98
PLACA A-22	PONTE	4	0,5	0,5	1,00
TOTAL (M²)					17,30

4.2 SINALIZAÇÃO HORIZONTAL

RUA FAUSTINA MONTI:

A= Preto: $(12,08 + 7,29)m \times 4,25m + (7,44 \times 7,13)m = 135,37m^2$

A= Branco: $(12,08 + 7,29)m \times 4,25m + (7,44 \times 7,13)m / 2 = 67,68m^2$

A=203,05m²

RUA VEREADOR JOÃO FARIAS

A= Preto: $(6,60 + 8,44)m \times 4,25m = 63,92m^2$

A= Branco: $[(6,60 + 8,44)m \times 4,25m] / 2 = 31,96m^2$

A= 95,86m²

RUA ARMANDO F. FURLAN T1

A= Preto: $7,22m \times 4,25m = 30,69m^2$

A= Branco: $(7,22m \times 4,25m) / 2 = 15,34m^2$

A= 46,03m²

RUA ARMANDO F. FURLAN T2

A= Preto: $5,74m \times 4,25m = 24,40$

A= Branco: $(5,74m \times 4,25m) / 2 = 12,20$

A= 36,60m²



RUA ANACLETO GAVA

A= Preto: $7,20\text{m} \times 4,25\text{m} = 30,60\text{m}^2$

A= Branco: $(7,20\text{m} \times 4,25\text{m}) / 2 = 15,30\text{m}^2$

A= $45,90\text{m}^2$

TOTAL= $427,44\text{m}^2$

5 -CONTENÇÃO

5.1 GUARDA CORPO

A= Lateral esquerda + (lateral direita x2)

Rua Faustina Monti= $(3,32 + 3,36) + (3,19 + 3,35) \times 2 = 19,76\text{m}$

A= $19,76\text{m}$

TOTAL= $19,76\text{m}$

27 DE JUNHO DE 2022

VENÂNCIO GUIMARÃES BRITTO SOUZA

ENGENHEIRO CIVIL

CREA-ES 050215/D