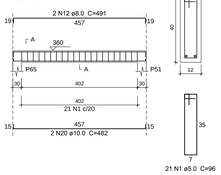
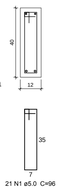
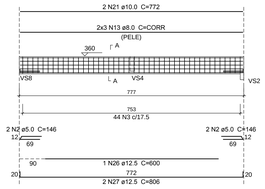
## VS44 (12 x 40)
ESC 1:75



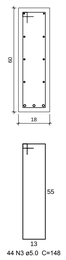

SEÇÃO A-A
ESC 1:12.5



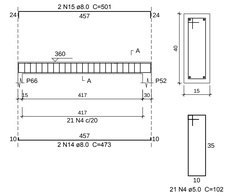

## VS45 (18 x 60)
ESC 1:75



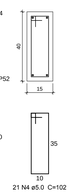

SEÇÃO A-A
ESC 1:12.5



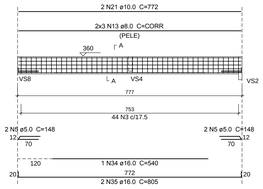

## VS46 (15 x 40)
ESC 1:75



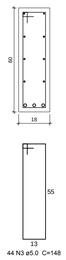

SEÇÃO A-A
ESC 1:12.5



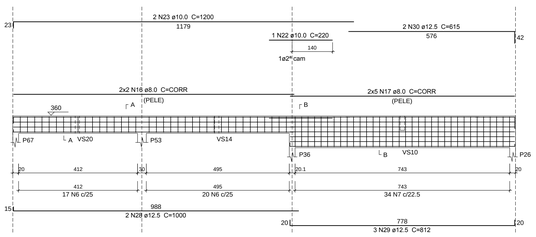

## VS48 (18 x 60)
ESC 1:75



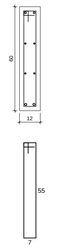

SEÇÃO A-A
ESC 1:12.5



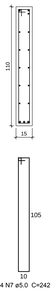

## VS47 (var)
ESC 1:75



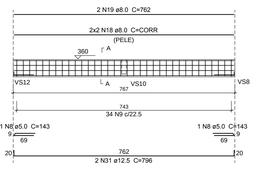

SEÇÃO A-A
ESC 1:12.5



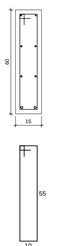

SEÇÃO B-B
ESC 1:20



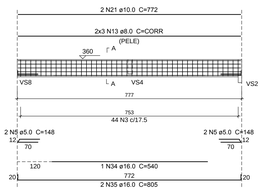

## VS49 (15 x 60)
ESC 1:75



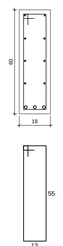

SEÇÃO A-A
ESC 1:12.5



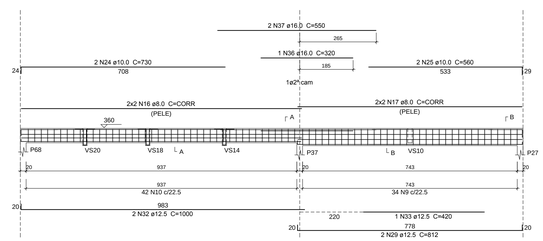

## VS50 (18 x 60)
ESC 1:75



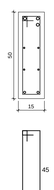

SEÇÃO A-A
ESC 1:12.5



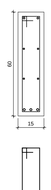

## VS51 (var)
ESC 1:75



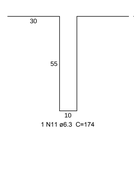

SEÇÃO A-A
ESC 1:12.5



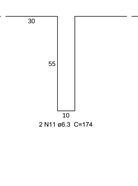

SEÇÃO B-B
ESC 1:12.5



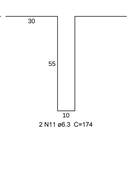

SUSPENSÃO VS20
ESC 1:12.5




SUSPENSÃO VS18
ESC 1:12.5




SUSPENSÃO VS14
ESC 1:12.5




## Relação do aço

VS44 VS45 VS46
VS47 VS48 VS49
VS50 VS51

| AÇO | N | DIAM (mm) | QUANT (Barras) | UNIT (cm) | C.TOTAL (cm) |
|---|---|---|---|---|---|
| CA60 | 1 | 5.0 | 21 | 96 | 2016 |
| | 2 | 5.0 | 4 | 146 | 584 |
| | 3 | 5.0 | 132 | 148 | 19536 |
| | 4 | 5.0 | 21 | 102 | 2142 |
| | 5 | 5.0 | 8 | 148 | 1184 |
| | 6 | 5.0 | 37 | 136 | 5032 |
| | 7 | 5.0 | 34 | 242 | 8228 |
| | 8 | 5.0 | 2 | 143 | 286 |
| | 9 | 5.0 | 68 | 142 | 9656 |
| | 10 | 5.0 | 42 | 122 | 5124 |
| CA50 | 11 | 6.3 | 5 | 174 | 870 |
| | 12 | 8.0 | 2 | 491 | 982 |
| | 13 | 8.0 | 18 | CORR | 13896 |
| | 14 | 8.0 | 2 | 473 | 946 |
| | 15 | 8.0 | 2 | 501 | 1002 |
| | 16 | 8.0 | 8 | CORR | 7776 |
| | 17 | 8.0 | 14 | CORR | 10892 |
| | 18 | 8.0 | 4 | CORR | 3048 |
| | 19 | 8.0 | 2 | 762 | 1524 |
| | 20 | 10.0 | 2 | 482 | 964 |
| | 21 | 10.0 | 6 | 772 | 4632 |
| | 22 | 10.0 | 1 | 220 | 220 |
| | 23 | 10.0 | 2 | 1200 | 2400 |
| | 24 | 10.0 | 2 | 730 | 1460 |
| | 25 | 10.0 | 2 | 560 | 1120 |
| | 26 | 12.5 | 1 | 600 | 600 |
| | 27 | 12.5 | 2 | 806 | 1612 |
| | 28 | 12.5 | 2 | 1000 | 2000 |
| | 29 | 12.5 | 5 | 812 | 4060 |
| | 30 | 12.5 | 2 | 615 | 1230 |
| | 31 | 12.5 | 2 | 796 | 1592 |
| | 32 | 12.5 | 2 | 1000 | 2000 |
| | 33 | 12.5 | 1 | 420 | 420 |
| | 34 | 16.0 | 2 | 540 | 1080 |
| | 35 | 16.0 | 4 | 805 | 3220 |
| | 36 | 16.0 | 1 | 320 | 320 |
| | 37 | 16.0 | 2 | 550 | 1100 |

## Resumo do aço

| AÇO | DIAM (mm) | C.TOTAL (m) | PESO + 10 % (kg) |
|---|---|---|---|
| CA50 | 6.3 | 8.7 | 2.3 |
| | 8.0 | 400.7 | 173.9 |
| | 10.0 | 108 | 73.2 |
| | 12.5 | 135.2 | 143.2 |
| | 16.0 | 57.2 | 99.3 |
| CA60 | 5.0 | 537.9 | 91.2 |
| PESO TOTAL (kg) | | | |
| CA50 | 492 | | |
| CA60 | 91.2 | | |

Volume de concreto (C-30) = 7.1 m³
Área de forma = 103.65 m²

**Cliente:**
COMPANHIA DOCAS DO RIO DE JANEIRO
Superintendência do Porto do Rio de Janeiro

**Executado por:**
Tostes & Medeiros Engenharia Ltda.

**Título:**
PROJETO ESTRUTURAL PARA CENTRAL DE RESÍDUOS
ARMAÇÃO 05/05 VIGAS SUPERIORES

**Local:** Porto do Rio de Janeiro

**Setor:**

| Data de Execução: | Obra: | Desenho nº: | Folha: |
|---|---|---|---|
| AGOSTO 2013 | | | 17/17 |
| **Emissão:** | **Desenhista:** ALVANTER | **Resp. Técnico:** | **Verificação:** |

ESCALA GRÁFICA
0 10 20 40 60 80 100m