

### - ESCAVAÇÃO

$$(129,93\text{m}^2 + 178,28\text{m}^2) / 2 \times 0,94\text{m} = 144,86\text{m}^3$$

$$(1.325,60\text{m}^2 + 2.426,84\text{m}^2) / 2 \times 6,25\text{m} = 11.726,37\text{m}^3$$

$$59,62\text{m}^2 \times 65,30\text{m} = 3.893,19\text{m}^3$$

$$(196,81\text{m}^2 + 415,80\text{m}^2) / 2 \times 3,40\text{m} = 1.041,44\text{m}^3$$

$$16.806\text{m}^3$$

### - ATERRO

$$11.871\text{m}^3 - ((1.039,40\text{m}^2 \times 4,85\text{m}) + (102,95\text{m}^2 \times 6,25\text{m})) = 6.186,47\text{m}^3$$

$$1.041,44\text{m}^3 - (159,66\text{m}^2 \times 1,75\text{m}) = 762\text{m}^3$$

$$6.948\text{m}^3$$

### - CONCRETO

$$43,50\text{m} \times 4,00\text{m} \times 0,25\text{m} = 43,50\text{m}^3$$

$$110\text{m} \times 42,90\text{m} \times 0,25\text{m} \times 2 = 23,60\text{m}^3$$

$$32,55\text{m} \times 4,00\text{m} \times 0,25\text{m} = 32,55\text{m}^3$$

$$3,00\text{m} \times 42,90\text{m} \times 0,25\text{m} \times 2 = 64,35\text{m}^3$$

$$25,00\text{m} \times 4,00\text{m} \times 0,25\text{m} = 25,00\text{m}^3$$

$$16,30\text{m} \times 1,10\text{m} \times 0,25\text{m} = 4,50\text{m}^3$$

$$11,05\text{m} \times 4,00\text{m} \times 0,25\text{m} = 11,05\text{m}^3$$

$$31,20\text{m}^2 \times 0,25\text{m} \times 2 = 15,60\text{m}^3$$

$$14,20\text{m} \times 6,30\text{m} \times 0,25\text{m} = 24,50\text{m}^3$$

$$959\text{m}^3$$

$$14,20\text{m} \times 8,70\text{m} \times 0,25\text{m} = 30,89\text{m}^3$$

$$4,36\text{m} \times 6,30\text{m} \times 0,25\text{m} \times 2 = 15\text{m}^3$$

$$2,10\text{m} \times 6,15\text{m} \times 0,25\text{m} \times 2 = 6,40\text{m}^3$$

$$14,20\text{m} \times 6,15\text{m} \times 0,25\text{m} = 24,83\text{m}^3$$

$$4,50\text{m} \times 1,75\text{m} \times 0,25\text{m} \times 2 = 3,94\text{m}^3$$

$$3,00\text{m} \times 1,75\text{m} \times 0,25\text{m} \times 2 = 2,62\text{m}^3$$

$$1.016,20\text{m}^2 \times 0,25\text{m} = 254\text{m}^3$$

$$1.016,20\text{m}^2 \times 0,35\text{m} = 355,70\text{m}^3$$

$$70\text{m}^2 \times 0,25\text{m} = 17,50\text{m}^3$$

- AÇO CA-50 > 12,5mm

$$959m^3 \times 90kg/m^3 = 86.310kg \times 80\% = \boxed{69.048kg}$$

- AÇO CA-50 < 12,5mm

$$86.310kg - 69.048kg = \boxed{17.262kg}$$

- FORMA

$$(43m + 25m + 38,30m + 13,95m + 4,70m + 14,05m) \times 4,00m = 544m^2$$

$$(43,50m + 25,50m + 14,30m + 32,55m) \times 4,60m = 546,70m^2$$

$$(13,70m + 4,40m + 4,40m) \times 6,70m = 150,75m^2$$

$$13,70m \times 8,70m = 119,20m^2$$

$$13,70m \times 6,15m \times 2 = 168,50m^2$$

$$2,10m \times 6,15m \times 2 = 25,80m^2$$

$$2,60m \times 6,50m \times 2 = 33,80m^2$$

$$14,20m \times 6,50m = 92,30m^2$$

$$1,10m \times 42,90m \times 2 = 94,40m^2$$

$$4,60m \times 42,90m \times 2 = 137,30m^2$$

$$2,50m \times 42,90m = 107,25m^2$$

$$16,80m \times 1,10m = 18m^2$$

$$14,40m \times 1,60m = 23m^2$$

$$31,20m^2 + 1.074,86m^2 = 1.106m^2$$

$$\boxed{3.168m^2}$$

- LASTRO

$$1.046,20m^2 \times 0,40m = 101,60m^3$$

$$70m^2 \times 0,40m = 7m^3$$

$$31,20m^2 \times 0,40m = 3m^3$$

$$3,00m \times 42,90m \times 0,40m = 13m^3$$

$$\boxed{125m^3}$$

# - CIMENTAMENTO

$$1. 016,20 m^2 \times 4,00 m = 4.064,8 m^3$$

$$60 m^2 \times 6,15 m = 369 m^3$$

$$27,60 m^2 \times 1,10 m = 30,40 m^3$$

$$2,50 m \times 4,40 m \times 42,90 m = 4.582 m^3$$

$$4.582 m^3$$

# - GRAMA

$$2066 m^2$$

# - PASSEIO

$$216 m^2 \times 0,075 m = 16 m^3$$

# - FECHAMENTO DO RESERVATÓRIO

$$216 m$$

$$216 \times 2,5 = 540 m^2$$

REV. 2

# - BINDER

$$473 m^2 \times 0,07 m = 33 m^3 \times 1,8 = 59,6 \rightarrow 60 T$$

REV. 1

# - IMPRIMAÇÃO

$$473 m^2$$

# - CAPA DE ROLAMENTO

$$473 m^2 \times 0,05 m = 24 m^3 \times 1,8 = 42,6 \rightarrow 43 T$$

REV. 1

# - BRITA

$$473 m^2 \times 0,12 m = 57 m^3$$

# - CONCRETO ASPÁLTICO CARGA

$$473 m^2 \times 0,05 m = 24 m^3$$

# - CARGA BINDER

$$473 m^2 \times 0,07 m = 33 m^3$$

- SARJETA

181m

- GUIA TIPO PMSP

181m

- TRANSP. CONCRETO SARJETA

$$181m \times 0,45m \times 0,45m = 12m^3 \times 15km = 180m^3 \times km$$

- BASE DE RACHÃO

REV. 1

$$43,50 \times 25,50 \times 0,30 = 333m^3$$

- GRADEAMENTO

$$REFENÇA \rightarrow 1,4 \times 4 \times 6 = 36,6m^2 \times 140kg = 4.704.kg$$

$$PISO \rightarrow 2,12 \times 1,52 \times 6 = 19,33$$

$$1,32 \times 0,92 \times 1 = 1,21 = 67,04 \times 80kg = 5.361.kg$$

$$PÓRTICO \rightarrow 0,42 \times 1,47 \times 6 = 3,70$$

$$2,12 \times 0,98 \times 14 = 29,09$$

$$L \rightarrow 8115kg$$

$$4,12 \times 3,32 \times 1 = 13,68$$

$$\Sigma = 18.180.kg$$

REV. 2

TAPUME DE RECHAMTO

$$220 \times 2,5 = 550m^2$$

REV. 1

ESGOTAMENTO

$$10 MESES \times 30DIAS \times 10h = 3000h$$