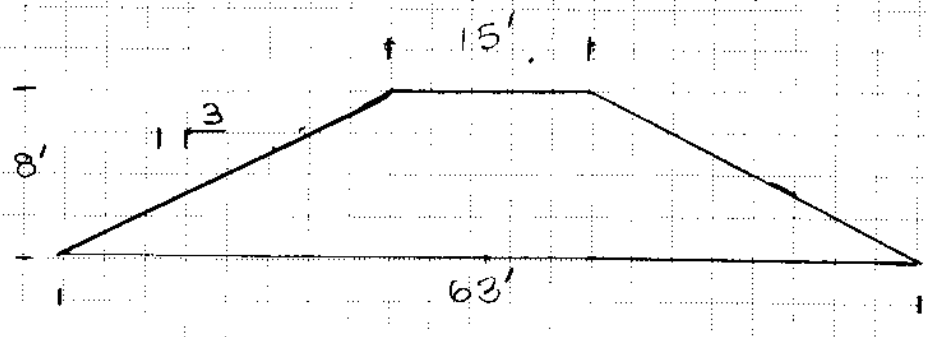
COMPUTATION SHEET

PROJECT	Milwaukee DMMP	DATE	7/26/07
SUBJECT		PAGE	1 OF 2
ITEM		PAGE	OF
COMPUTED BY	KJW	CHECKED BY	REF



Armour stone 160 lbs/cf
clay 100 lbs/cf
cerrient 94 lbs/cf
berm lengh 4463 lf

east side lengh 980'
north side lengh 1075'
Surface area
top of berms 125,550 sf

Geotextile
under armour stone
$(24')^2 + (8')^2 = 640 ft^2$ $\sqrt{640} = 25.30 ft$

$25.30' \times (980 + 1075) = 51991 sf$
under road and radius 125,550 sf

total geotextile = 177,541 sf ÷ 9 = 19727 sy

Armour stone

$51991 sf \times 2.5 ft = 129978 cf \times \frac{160\#}{cf} \times \frac{1 ton}{2000\#} = 10398 ton$

crushed aggregate

$125550 sf \times 1' = 125550 cf \div 27 = 4650 cy$

Cement

$63' \times 1.0' \times 4463 = 281169 cf \times \frac{100 lbs}{cf} = 28116900 lbs$

$28116900 lbs \times 0.05 = 1405845 lbs \times \frac{1 ton}{2000 lbs} = 703 tons$

COMPUTATION SHEET

PROJECT	Milwaukee DMMP	DATE	7/26/07
SUBJECT		PAGE	2 OF 2
ITEM		PAGE	OF
COMPUTED BY	KJW	CHECKED BY	REF

Steel Sheet Pile

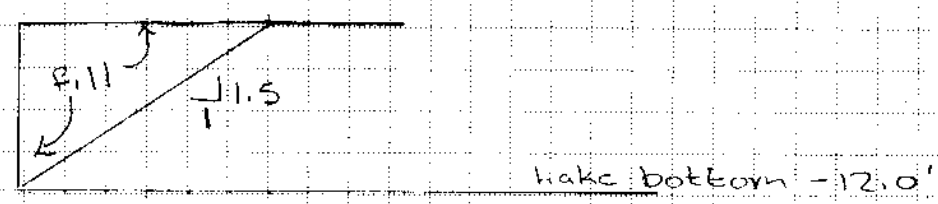
150 lf × 60' deep = 9000 sf × $\frac{24.2 \text{ lb}}{\text{sf}}$ × $\frac{1 \text{ ton}}{2000 \text{ lbs}}$ = 109 tons

PZC13 $\frac{24.2 \text{ lbs}}{\text{ft}^2}$

timber piles for mooring dolphins

37 piles/dolphin × 2 = 74 piles × 60' lengh = 4440 lf

riprap



$\frac{12' \times 18'}{2}$ = 108 sf × 50' = 5400 cf

5400 cf × $\frac{85 \text{ lbs}}{\text{cf}}$ = 459000 lbs × $\frac{1 \text{ ton}}{2000 \text{ lbs}}$ = 230 tons

Quantities

Geotextile 20,000 sy

armour stone 10,500 ton

crushed aggregate 5000 cy

cement 562 tons

SSP 109 tons

timber piles 4440 lf

riprap 230 tons

Triangle Volume

Triangle Volume Report

Original Surface: 10'
Design Surface: berms

Mode: Entire Surface
Cut Factor: 1.0
Fill Factor: 1.0

Cut: 0.0 cu ft
Fill: 1899807.5 cu ft
Net: -1899807.5 cu ft

Cut: 0.0 cu yd
Fill: 70363.2 cu yd
Net: -70363.2 cu yd

Triangle Volume

Triangle Volume Report

Original Surface: cdf7
Design Surface: fill w/1% Slope

Mode: Entire Surface
Cut Factor: 1.0
Fill Factor: 1.0

Cut: 24205.6 cu ft
Fill: 13254109.3 cu ft
Net: -13229903.7 cu ft

Cut: 896.5 cu yd
Fill: 490892.9 cu yd
Net: -489996.4 cu yd