DRAINAGE SYSTEM # 10

10+940, 7.2m LT ~ 10+940, 10.5m RT

204.20 TRENCH EXCAVATION OF EARTH

CATCH BASIN		(BASIN 1.5m)		PIPE		H.W.	
-8.45	183.813			-5.95	183.724	9.2	183.00
-7.5	183.50	-8.45	183.813	9.2	183.595	11.0	183.00
-6.9	183.50	-8.45	183.450	9.2	184.568	11.0	183.778
-6.45	183.45	-6.45	183.450	8.4	184.88	10.5	184.06
-5.95	183.65	-6.9	183.50	8.4	185.261	9.2	184.568
-5.35	184.973	-7.5	183.50	8.4	184.701	8.2	183.00
-5.2	185.00	-8.45	183.813	8	184.892		
-7.5	185.00			-5.95	184.973	A_1 = 2.168 sm	
-8.45	183.373			-5.95	183.724		
-8.45	183.813						

A_2 = 0.237 sm

Vol = 0.237 x 2.5m = 0.593 cm x 1.5 = 0.889 cm

A_3 = 18.595 sm

Vol = 18.595 sm x 1.75m = 32.541 cm

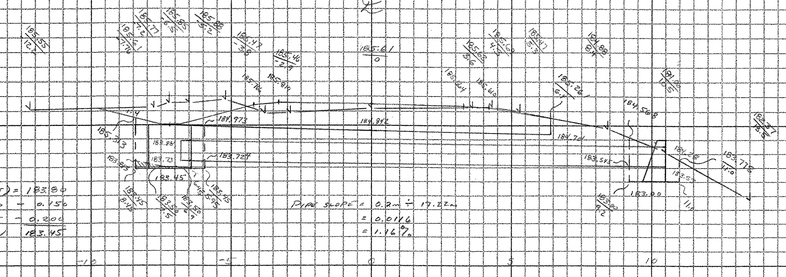
A_1 = 3.769 sm

Vol$_1$ = 3.769 sm x 2.5m = 9.423 cm

Vol$_4$ = 2.168 sm x 2.4m = 5.203 cm

TOTAL = 49.766 cm

Excl. for STONE PAD = 0.3m x 1.9m x 3.0m = 1.71 cm



DH (OUT) = 183.80
Sump - 0.150
Base - 0.200
ELEV 183.45

PIPE SLOPE = 0.2 ÷ 17.22m = 0.0116 = 1.16%

VG = 185.737

10+940

NEW 1200m x 600 mm CRP w/ PRECAST CATCH BASIN
17.22m

601.2620 600 mm CRP (SL)

17.22 m

604.20 PRECAST REIN CONC. CATCH BASIN

1 EA.

501.25 CONCRETE, CLASS B

(PER STANDARD D-2m) 5.0 cm

507.15 REINFORCING STEEL #5

4 @ 0.9m = 36m x 1.555 kg/m = 56 kg

613.10 STONE FILL TYPE I

Em. BY C. GREENWOOD

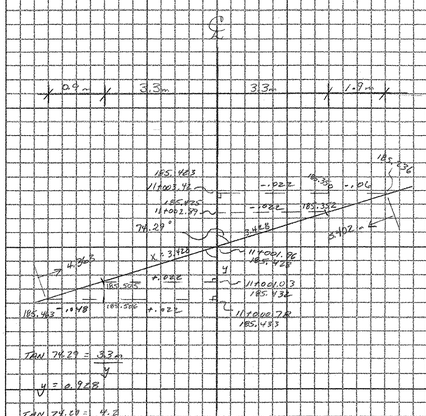
0.3m x 3.4m x 3.0m = 3.16 cm (OUTLET) STONE PAD

649.31 GEO. UNDER STONE FILL

3.4m x 3.0m = 7.2 sm

DRAINAGE SYSTEM # 11

11+000, 7.0m LT ~ 11+004, 7.2m RT

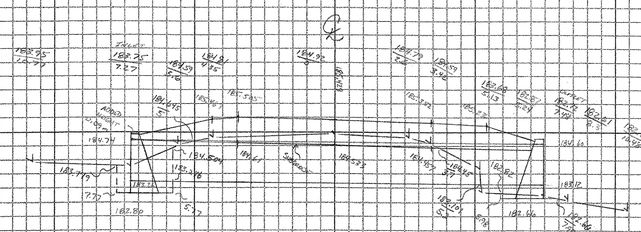


TAN 74.29 = 3.3m / y
y = 0.948

TAN 74.29 = 4.2 / y_1
y_1 = 1.181 m

SIN 74.29 = 3.3 / x
x = 3.428

SIN 74.29 = 4.2 / x_1
x = 4.363 m



INV (IN) 183.40

INV (OUT) = 183.26

FINE SLOPE = 0.142 = 14.63m = 0.0096 = 0.957%

11+007.96

NEW 7.0m x 1200m RCP w/ CONC. HEADWALL @ INLET/OUTLET
14.63m

204.20 TRENCH EXCAVATION OF EARTH

HEADWALL		PIPE		HEADWALL	
-7.77	182.80	-5.77	183.246	5.98	182.66
-5.77	182.80	5.2	183.701	7.98	182.66
-5.77	184.504	5.13	183.68	7.98	182.72
-7.67	183.75	3.7	184.45	5.98	182.82
-7.77	183.77	3.428	184.457	5.98	182.66
-7.77	182.80	0	184.583		
		-3.428	184.610	A_2 = 0.180 sm	
A_1 = 2.773 sm		+5.70	184.645		
		-5.6	184.590	Vol$_3$ = 0.180 x 4.8m = 0.864 cm	
Vol$_1$ = 2.773 sm (4.8m) = 11.870 cm		5.77	184.504		
		-5.77	183.246		

A_2 = 14.346 sm

Vol$_2$ = 14.346 sm x 2.4m = 55.004 cm

Excl. for stone PADS = 0.6m x 1.2m x 4.0m = 4.56 cm; 0.45m x 2.5m x 4.9m = 5.51 cm; 10.07 cm

TOTAL = 57.808 cm

601.0855 1200 mm RCP CLASS III

14.63 m

501.35 CONCRETE, CLASS B

Em. BY C. GREENWOOD

INLET: STANDARD D-2m 5.90 cm; EXTRA 0.09m x 0.3m x 4.8m 0.13; 6.07 cm

OUTLET: STANDARD D-2m 5.90 cm; EXTRA 0.04m x 0.3m x 4.8m = 0.06 cm; 5.96 cm

507.15 REIN STEEL

4 Bars @ 4.5m = 18m x 1.553 kg/m = 28 kg INLET

4 Bars @ 4.5m = 18m x 1.553 kg/m = 28 kg OUTLET

613.11 STONE FILL, TYPE II

Em. BY C. GREENWOOD

OUTLET: 0.6m x 4.0m x 7.0m = 16.8 cm; 0.6m x 3.5m x 5.5m = 11.55 cm; 28.35 cm

INLET: 0.6m x 2.4m x 4.0m = 5.76 cm; 0.45m x 2.5m x 4.9m = 5.51 cm; 11.27 cm

649.31 GEO. UNDER STONE

INLET: 2.4m x 8.9m = 21.36 sm

OUTLET: 4.0m x 7.0m = 28.0 sm

21/9/05

CROSS SECTION SHEET

VAOT Metric

PROJECT NAME: GRAFTON - ROCKINGHAM
PROJECT NUMBER: STP 0126 (4) S C/2

FILE NAME:
PROJECT LEADER:
DESIGNED BY:
const: g:/common/cadd/m-xsection.dgn

PLOT DATE: 07-JUN-2000 13:
DRAWN BY: C. GREENWOOD
CHECKED BY: D. BREEN
SHEET 9 OF 23

130PA,N