203.13 Common Excavation

200+09
6'x2' = 12Ft²

200+25
½bh (.5)(6)(13) = 39
½bh (.5)(6)(13) = 39
(6.0)(6.0) = 36Ft²
39+39+36 = 114Ft²

200+38
½bh (.5)(4)(8) = 16
½bh (.5)(4)(8) = 16
(4)(6) = 24
24+16+16 = 56Ft²

200+45
½bh (.5)(4.75)(8.5) = 20.19
½bh (.5)(4.75)(8.5) = 20.19
(4.75)(6) = 28.5Ft²
20.19+20.19+28.5 = 68.88

200+53
½bh (.5)(8.75)(16) = 70
½bh (.5)(7)(14) = 49
(7.9)(6) = 47.4
70+49+47.4 = 166.4

200+77
½bh (.5)(7)(14) = 49
½bh (.5)(7)(14) = 49
(7)(6) = 42
49+49+42 = 140Ft²

STA 200+09 To STA 200+25
$\frac{(12+114)}{2}(16) = 1008\ Ft^3$
$\frac{1008\ Ft^3}{27Ft^3/YD^3} = 37.33\ YD^3$

STA 200+25 To STA 200+38
$\frac{(114+56)}{2}(13) = 1105$
$\frac{1105\ Ft^3}{27Ft^3/YD^3} = 40.93\ YD^3$

STA 200+38 To STA 200+45
$\frac{(56+68.88)}{2}(7) = 437.08$
$\frac{437.08\ Ft^3}{27Ft^3/YD^3} = 16.19\ YD^3$

STA 200+45 To STA 200+53
$\frac{68.88+166.4}{2}(7) = 823.48\ Ft^3$
$\frac{823.48\ Ft^3}{27Ft^3/YD^3} = 30.50\ YD^3$

STA 200+53 To STA 200+77
$\frac{166.4+140.0}{2}(24) = 3676.8\ Ft^3$
$\frac{3676.8\ Ft^3}{27Ft^3/YD^3} = 136.18\ YD^3$

$37.33YD^3 + 40.93YD^3 + 16.19YD^3 + 30.50YD^3 + 136.18YD^3 = 261.13\ YD^3$

STA 200+09

Stone Fill, Type II
63.75+15.11+10.07+19.09+15.54 = 123.56 Calc By RPD

NEW HEADWALL STA 0+31 ON SHEET #2
= DITCH -0.009 SEE LAYOUT
DRAINAGE

200+09 = DUTT ?
200+25
$\frac{12+52.24}{2} \times 16 = 513.92\ CF$
$513.92 \div 27 = 19.03\ CY$
WRS 6-11-10

0+19
Type II Stone Ditch
6'x2' = 12Ft²
$12Ft^2 + 407.44Ft^2 (16') = 419.55\ Ft^2$
$\frac{419.55\ Ft^3}{27Ft^3/YD^3} = 15.54\ YD^3$

0+58
STA 200+25

0+45
STA 200+38

0+38
200+45

Type II Stone Ditch
$a^2+b^2=c^2$
$4.5+5.5^2 = 50.5$
$\sqrt{50.5} = 7.11$
$7.11+6.0+7.11 = 20.22$
$20.22\ (2) = 40.44\ Ft^2$
$\frac{40.44+38.84}{2}(13) = 515.32$
$\frac{515.32\ Ft^3}{27Ft^3/YD^3} = 19.09\ YD^3$

Type II Stone Ditch
$a^2+b^2=c^2$
$3^2+6^2 = 45$
$\sqrt{45} = 6.71$
$6.71+6.0+6.71 = 19.42$
$19.42\ (2) = 38.84$
$\frac{38.84+38.84}{2}(7) = 271.88$
$\frac{271.88\ Ft^3}{27Ft^3/YD^3} = 10.07\ YD^3$
WRS 6-11-10

Type II Stone Ditch
$a^2+b^2=c^2$
$3^2+6^2 = 45$
$\sqrt{45} = 6.71$
$6.71+6.0+6.71 = 19.42$
$19.42\ (2) = 38.84\ Ft^2$
$38.84+38.84\ (7) = 271.88$
$\frac{40.81\ Ft^3}{27Ft^3/YD^3} = 15.11\ YD^3$
WRS 6-11-10

$9^2+4.5^2 = 101.25$
$\sqrt{101.25} = 10.06$
$10.06+6+10.06 = 26.12$
$26.12 \times 2 = 52.24\ Ft^2$
$\frac{52.24+38.84}{2} \times 13 = 592.02\ Ft^3$
$592.02/27 = 21.93\ CY$
WRS 6-11-10

Stone ditch From Headwall @ STA 200+77 To CB @ STA 200+53

0+30
200+53

0+00
200+77

Type II Stone Ditch
$a^2+b^2=c^2$
$7.75+4.5^2 = 270.31$
$\sqrt{270.31} = 16.44$
$16.44+6.00+16.44 = 38.88$
$38.88\ (2') = 77.76\ Ft^2$

INV. @ Grate 345.00
$a^2+b^2=c^2$
$7.75+4.5^2 = 270.31$
$\sqrt{270.31} = 16.44$
$\frac{77.76\ Ft^2 + 65.68Ft^2}{2}(24) = 1721.28\ Ft^3$
$\frac{172.28\ Ft^3}{27Ft^3/YD^3} = 63.75\ YD^3$
127.50 YD
WRS 6-11-10

Type II Stone Ditch
$a^2+b^2=c^2$
$6^2+12.5^2 = 192.25$
$\sqrt{192.25} = 13.87$
$13.87+6.0+12.97 = 32.84$
$32.84\ (2') = 65.68\ Ft^2$

INV. @ Headwall 346.00
$a^2+b^2=c^2$
$6^2+11.5^2 = 168.25$
$\sqrt{168.25} = 12.97$



SHEET 1A