

D.I. REMOVE TAKEN FROM CROSS SECTIONS
 PAY AS T.R. 4'x4'x6' = $\frac{96}{27} = 3.56 \text{ cy}$ 1/25/08
CPH

DR#7
 PIPE TRENCH EARTH 45'
 $A_1 = (0.8' \times 0.6') \times 1.9' \times 3.6' = 4.79 \text{ ft}^3$
 $A_2 = (2.9' \times 2.1') \times 2.5' \times 3.6' = 26.55 \text{ ft}^3$
 $A_3 = 2.9' \times 2.6' \times 2.6' = 36.50 \text{ ft}^3$
 $A_4 = (4.5' \times 4.7') \times 5.5' \times 3.6' = 91.08 \text{ ft}^3$
 $A_5 = (3.7' \times 4.5') \times 3' \times 3.6' = 44.28 \text{ ft}^3$
 TOTAL T.E. = $203.2 \text{ ft}^3 / 27 = 7.53 \text{ cy}$
 PIPE USED: 18" (18" CPEP)
 GRANULAR BACKFILL
 $14.9' \times 3.6' \times 0.8' = 42.91 \text{ ft}^3$
 $- \pi (0.8 \text{ ft})^2 \times 14.9' = -14.98 \text{ ft}^3$
 $\frac{27.93 \text{ ft}^3}{27} = 1.03 \text{ cy}$

DR#8 (8.11x07)
 PIPE TRENCH EARTH 45'
 $A_1 = (2.5' \times 1.6') \times 2.8' \times (1.6' + 1.1') = 23.48 \text{ ft}^3$
 $A_2 = (2.5' \times 2.1') \times 2.19' \times 3.6' = 41.01 \text{ ft}^3$
 $\frac{64.49 \text{ ft}^3}{27} = 2.39 \text{ cy}$

STRUCTURE TRENCH EARTH 45' (6" UNDER FOR GRANULAR)
 $A_3 = (3.7' \times 3.6') \times \pi (3.45 \text{ ft})^2 = 134.61 \text{ ft}^3 / 27 = 4.99 \text{ cy}$
 F.M. T.B.G. 08/106 4'x4'x5'

Removal of EXIST. 12" DI
 $3.1' \times 2.5' \times (2.5' \times 2) = 36.58 \text{ ft}^3 / 27 = 1.35 \text{ cy}$
 T.R. 4'x4'x4' = $24 \text{ ft}^3 / 27 = 0.89 \text{ cy}$
 SOLID ROCK EXC. = $3.6' \times 4.5' \times 4' = 58 \text{ ft}^3 / 27 = 2.15 \text{ cy}$
 GRANULAR BACKFILL FOR PIPE
 $5.6' \times 3.6' \times 0.8' - (\pi (0.8 \text{ ft})^2 \times 5.6') = 14.98 \text{ ft}^3 / 27 = 0.55 \text{ cy}$
 GRANULAR BACKFILL FOR STRUCT.
 $\pi (3.45 \text{ ft})^2 \times 0.5' = 18.70 \text{ ft}^3 / 27 = 0.69 \text{ cy}$

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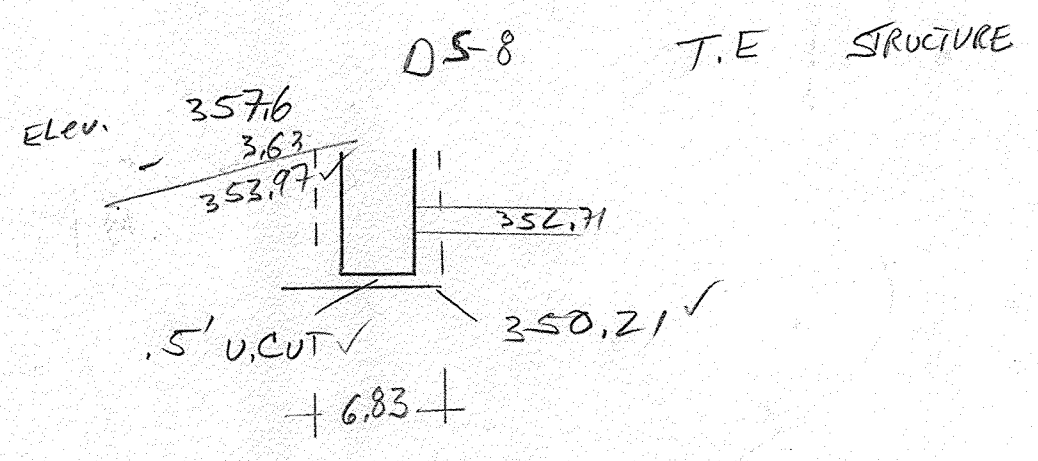
DR#9
 PIPE TRENCH EARTH 45'
 $A_1 = (3.8' \times 5') \times 1.7' \times 3.6' = 26.93 \text{ ft}^3$
 $A_2 = (5' \times 4') \times 2.1' \times 3.6' = 34.02 \text{ ft}^3$
 $A_3 = 4.5' \times 2.8' \times 3.5' \times 3.6' = 52.29 \text{ ft}^3$
 PIPE TRENCH > 5'
 $A_4 = [11.5' \times (2.2' + 1.5') \times 3.6'] \times 1.5' = 44.55 \text{ ft}^3$
 TOTAL PIPE T.E. = $138.23 \text{ ft}^3 / 27 = 4.75 \text{ cy}$

STRUCT. T.E. < 5'
 $(5' \times \pi (3.45 \text{ ft})^2) = 186.36 \text{ ft}^3$
 STRUCT. T.E. > 5' $(\pi (3.45 \text{ ft})^2 \times 11') = 44.87 \text{ ft}^3$
 TOTAL T.E. = $231.23 \text{ ft}^3 / 27 = 8.59 \text{ cy}$

GRANULAR BACKFILL
 $3.1' \times 3.6' \times 0.8' = 26.21 \text{ ft}^3$
 $- \pi (0.8 \text{ ft})^2 \times 3.1' = 9.15 \text{ ft}^3$
 $= 17.06 \text{ ft}^3 / 27 = 0.63 \text{ cy}$
 18" PIPE USED = 11.5' CPEP
 12'

T.E. 8.59 cy
 - 3.56 cy
 T.E. 5.03 cy
 SROU.T.
 T.E. PIPE 4.75 cy
 9.78 cy 1/25/08
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LEGEND:
 F.G. FINISHED GRADE
 P.G. PROFILE GRADE



$3.76' / (\pi \times 3.42')^2 = 138.10 / 27 = 5.11$
~~2.07 cy~~
~~1.36 cy~~
~~0.81 cy~~
 TOTAL T.E. = 20.35 cy

CPH
 1/25/08
 T.B.G. 1/25/08
 CPH 1/25/08

U.S. ROUTE 5 HARTFORD AVENUE

PROJECT NAME: HARTFORD	
PROJECT NUMBER: RS 0113(40)	
FILE NAME: ****FILENAME***	PLOT DATE: 12-JUN-2007
PROJECT LEADER: KEN UPMAL	DRAWN BY: E. ATKINS
DESIGNED BY: K. ISHIKURA	CHECKED BY: K. ISHIKURA
E. ATKINS	SHEET 192 OF 239

SHEET #5