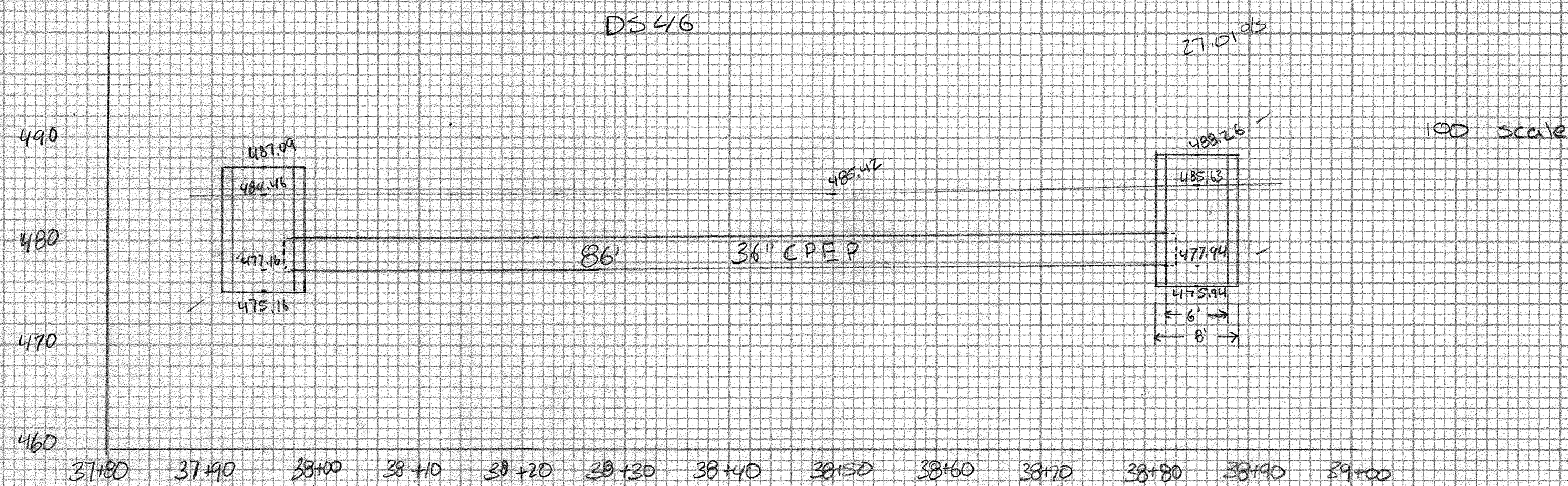


DATE	BY
FINAL SURVEY	
NOTE BOOK	
NO.	

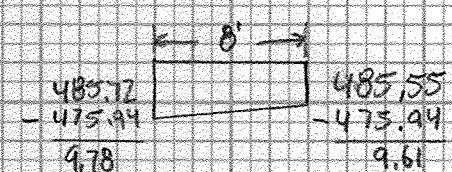
DATE	BY
ORIGINAL SURVEY	
NOTE BOOK	
NO.	



Trench Excavation for CB 46

Trench Excavation for pipe

Granular Backfill



$$\frac{(\pi \times 42) \times (4.78 + 4.44) \times 1.5}{2} = 353.99$$

$$\frac{(\pi \times 42) \times 5}{2} = 251.33$$

$$\frac{605.32 \text{ ft}^3}{27} = 22.42 \text{ cy}$$

$$\frac{5.5 \times 5}{2} = 27.50$$

$$\frac{5.5 \times 2.69 \times 1.5}{2} = 22.19$$

$$\frac{49.69}{2} = 24.845$$

$$\frac{5.5 \times 5}{2} = 27.50$$

$$\frac{5.5 \times 2.69 \times 1.5}{2} = 22.19$$

$$\frac{46.48}{2} = 23.24$$

$$\frac{(49.69 + 46.48) \times 82}{2} = 3942.97 \text{ ft}^3 / 27 = 146.04 \text{ cy} = 22.42 \text{ cy} = 168.46 \text{ cy Total Trench}$$

$$\frac{1.75 \times 5.5}{2} = 9.63$$

$$\frac{1.75^2 \times \pi}{2} = 4.81$$

$$\frac{4.81}{4.82} = 1.0$$

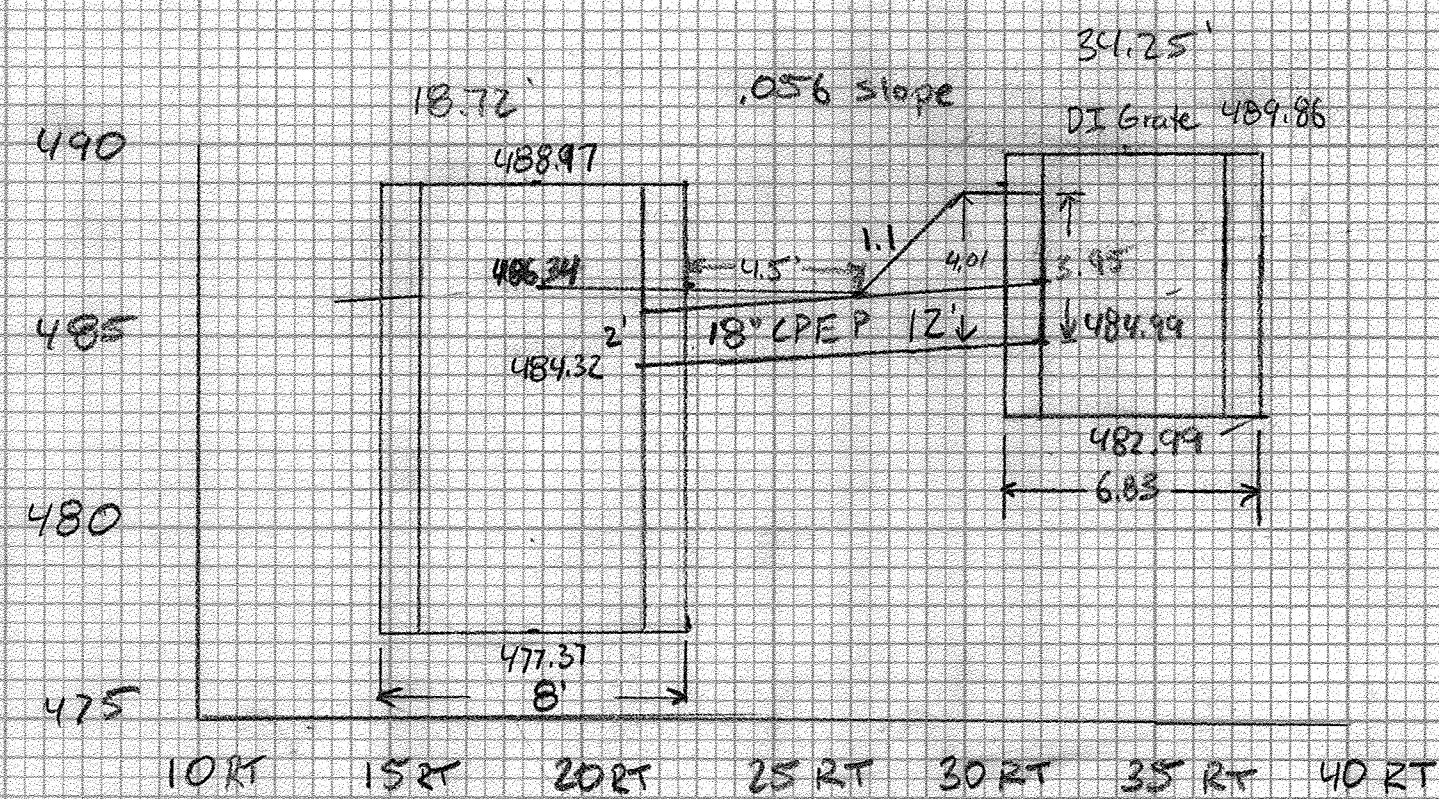
$$4.82 \times 84 = 404.88 / 27 = 15.00 \text{ cy}$$

RCD 8/27/07

CPH 12/07/07

DS 53

50 scale



Trench exc. for CB 53

Trench for Pipe

$$\frac{(2 \times 1.75) \times 4.5 \times 3.75}{2} = 31.64$$

$$3.98 \times 1 \times 3.75 = 14.93$$

$$\frac{(4.01 + 1.75) \times 3 \times 3.75}{2} = 32.40$$

$$\frac{78.97}{27} = 2.92 \text{ cy} + 10.62 \text{ cy} = 13.54 \text{ cy Total Trench}$$

Granular Backfill

$$\frac{.88 \times 3.75}{2} = 3.3$$

$$\frac{.88^2 \times \pi}{2} = 1.22$$

$$\frac{1.22}{2.08} = 0.58$$

$$2.08 \times 10.17 = 21.15 / 27 = .78 \text{ cy}$$

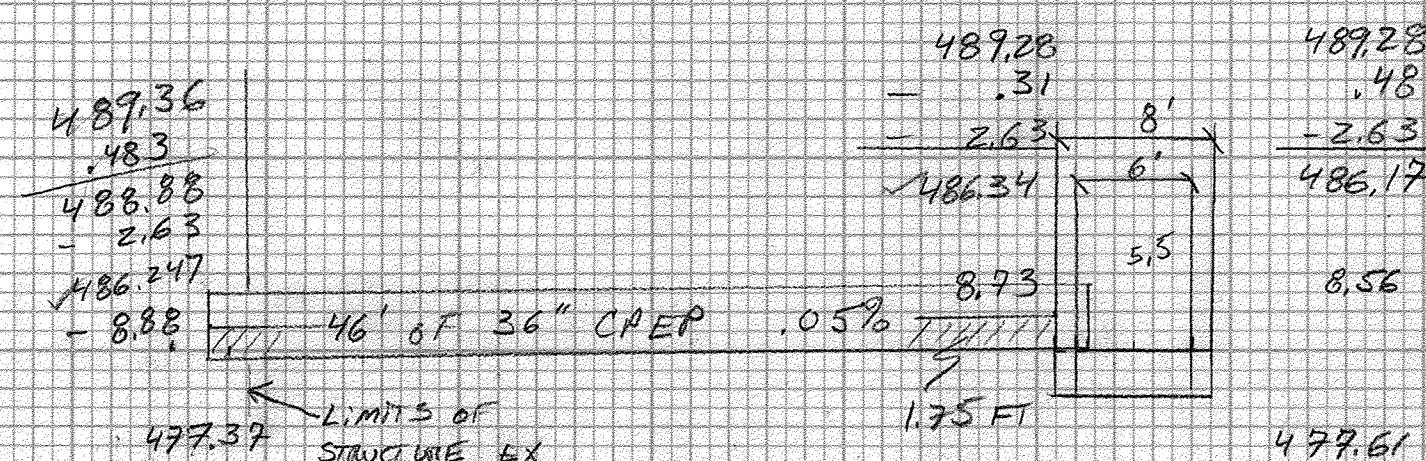
RCD

8/28/07

CPH 12/10/07

DS 56

STA 44+00.0 RT ~ STA 43+50 RT
NEW 36" X 46" CPEP (SL)



T.E. STRUCTURE

$$\frac{(\pi \times 42) \times (8.73 + 8.56) \times 1.5}{2} = 434.32 = 16.08 \text{ cy}$$

$$\frac{.5 \times (3.645) \times \pi \times 4^2}{27} = 9.56 = 3.39 \text{ cy}$$

$$\frac{19.47 \text{ cy}}{27} = 0.72 \text{ cy}$$

T.E. 36" CPEP

$$42' \times 5.5 \times \frac{(8.88 + 8.73)}{2} = 2044.35 = 75.72 \text{ cy}$$

$$\frac{1}{2} \times (.5) \times 42' \times 5.5 \times 3.85 = 444.625 = 16.47 \text{ cy}$$

$$\frac{92.19 \text{ cy}}{27} = 3.41 \text{ cy}$$

Granular Backfill



$$\frac{1.75 \text{ ft} \times 5.5 \times 42'}{27} = 404.25 = 14.97 \text{ cy}$$

$$\frac{3.14 \times 1.75^2}{2} = 4.80 \times 42 = 201.24 = 7.48 \text{ cy}$$

$$\frac{22.45 \text{ cy}}{27} = 0.83 \text{ cy}$$