

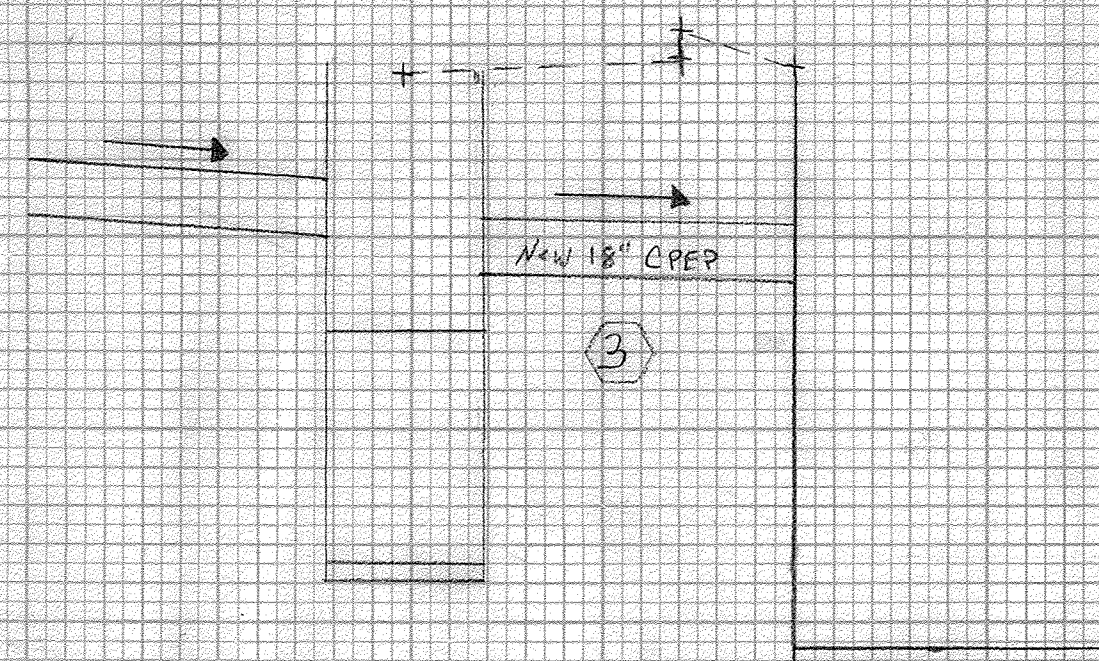
DS #3

EXISTING DI @ STA 20+42.6

204.20 Trench Excavation of Earth
 $(5') (5.8 + 6.25 + 6.25) (3.75) = 183 \text{ FC}^3$
 $\frac{183 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 6.78 \text{ YD}^3$
 $(8') ((5.8 + 6.25 + 6.25) (3.75) (5)) = 16.5 \text{ FC}^3$
 $\frac{16.5 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 6.1 \text{ YD}^3$
 $6.78 \text{ YD}^3 + 6.1 \text{ YD}^3 = 12.88 \text{ YD}^3$ Calc. by RPD

204.30 Granular Backfill For Structures
 $(8') (3.75) (1.25) = 37.5 \text{ FC}^3$
 $\frac{37.5 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 1.39 \text{ YD}^3$
 $\frac{\pi (8')^2}{2} = 100.48 \text{ FC}^2$
 $\frac{\pi (8')^2}{2} (8') = 97.3 \text{ FC}^3$
 $\frac{97.3 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 3.6 \text{ YD}^3$
 $1.39 \text{ YD}^3 + 3.6 \text{ YD}^3 = 5.0 \text{ YD}^3$ Calc. by RPD

SEE INSP DAILY
 09/17/07 TBC

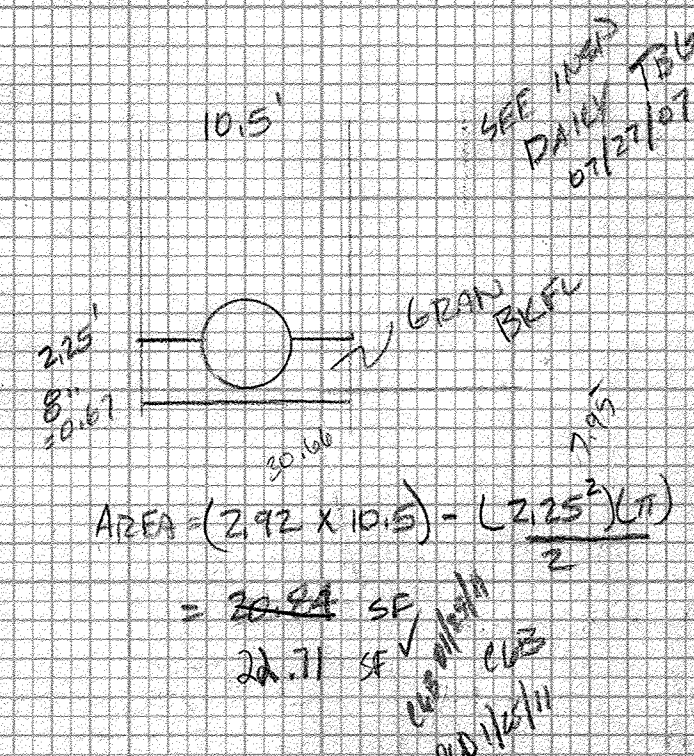


DR #1
 204.20 Trench Excavation of Earth
 DS#1 to center of existing pipe (8')
 $38' \times 4.1' \times 6.8' = 1061.00 \text{ FC}^3$
 $1061.00 \text{ FC}^3 - (106.05') (3.8) = 1061.00 \text{ FC}^3 - 403.38 \text{ FC}^3 = 657.62 \text{ FC}^3$
 $\frac{657.62 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 24.35 \text{ YD}^3$ Calc. by RPD

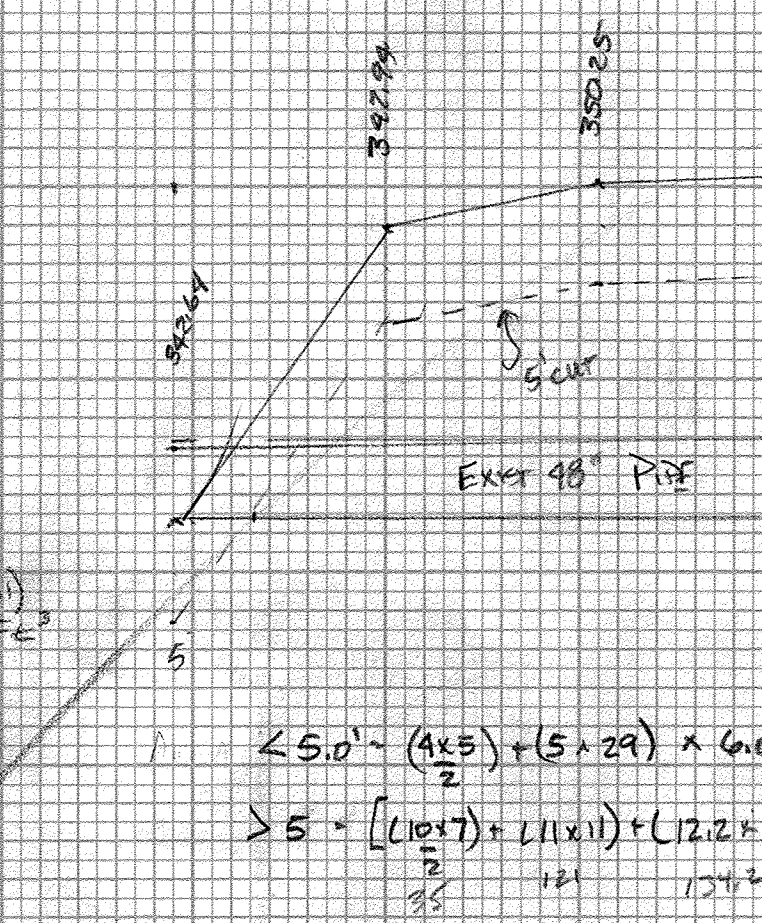
204.25 Structure Excavation
 CB 1
 $(13.5') (8') = 108 \text{ FC}^2$
 $(13.5') (8') (4.5') = 486 \text{ FC}^3$
 $\frac{486 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 18 \text{ YD}^3$
 From DS#1 to River Bank (Under Sandfill)
 Area 1 $(9.75 + 12.5) (5.0) (4.6) = 267.38 \text{ FC}^3$
 $\frac{267.38 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 9.90 \text{ YD}^3$
 Area 2 $(4') (8') (4.6) = 147.2 \text{ FC}^3$
 $\frac{147.2 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 5.45 \text{ YD}^3$
 Area 3 $(1.9') (4.5') (4.6) = 39.87 \text{ FC}^3$
 $\frac{39.87 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 1.48 \text{ YD}^3$
 Area 4 $\frac{1}{2} \pi (4')^2 = 25.13 \text{ FC}^2$
 $(5') (1.9') (4.5') (4.6) = 404.23 \text{ FC}^3$
 $\frac{404.23 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 14.97 \text{ YD}^3$ Calc. by RPD

$47.52 + 9.90 + 19.08 + 4.57 + 14.97 = 106.04 \text{ YD}^3$
 204.30 Granular Backfill For Structures
 Under 54" PCCSP
 $(2.75') (6.5') (4.6) = 822.25 \text{ FC}^3$
 $\frac{822.25 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 30.45 \text{ YD}^3$
 $\frac{456.45 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 16.91 \text{ YD}^3$ Calc. by RPD

204.25 Structure Excavation
 From DS#1 to River Bank (Under Sandfill)
 Area 1 (Area of New Pipe)
 $(35' - 4') \times 5.5' = 207.25 \text{ FC}^2$
 $(207.25 \text{ FC}^2) (4.6') = 953.75 \text{ FC}^3$
 Area 2 (Area Above Pipe)
 $(32' - 2') \times 5.0' = 150 \text{ FC}^2$
 $(150 \text{ FC}^2) (4.6') = 690 \text{ FC}^3$
 Area 3
 $(21' - 3') \times 3.0' = 54 \text{ FC}^2$
 $(54 \text{ FC}^2) (4.6') = 248.4 \text{ FC}^3$
 TOTAL = $953.75 + 690 + 248.4 = 1892.15 \text{ FC}^3$
 $\frac{1892.15 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 69.9 \text{ YD}^3$
 204.30 Granular Backfill For Structures
 6" Below Pipe to 6" Above Top of Pipe
 $(6.6') (4.1') (1.5') = 39.93 \text{ FC}^3$
 $\frac{39.93 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 1.48 \text{ YD}^3$
 Under DS (1' Depth)
 $\pi (4')^2 = 50.27 \text{ FC}^2$
 $(50.27 \text{ FC}^2) (1') = 50.27 \text{ FC}^3$
 $\frac{50.27 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 1.86 \text{ YD}^3$
 TOTAL GRANULAR BACKFILL = $1.48 + 1.86 = 3.34 \text{ YD}^3$



EXISTING PIPE LENGTH = 38' SEE LAYOUT



DR #2
 204.20 Trench Excavation of Earth
 STA 20+13.52 to STA 20+46.82 (DS@STA 20+41.32) 204.20
 Area of Structure
 $\pi (4.5')^2 = 63.62 \text{ FC}^2$
 Area of Structure Plus 1' around
 $\pi (5.5')^2 = 95.03 \text{ FC}^2$
 $95.03 \text{ FC}^2 (13.3') = 1264.82 \text{ FC}^3$
 $\frac{1264.82 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 46.84 \text{ YD}^3$
 $46.84 \text{ YD}^3 - 54.66 \text{ YD}^3 = -7.82 \text{ YD}^3$
 $500.33 \text{ FC}^3 = 18.53 \text{ YD}^3$
 STA 20+41.32 to STA 20+43.52 (48" Pipe)
 $(7.2') (12.75 + 13.5) (6.1) (52.82) = 3651.62 \text{ FC}^3$
 $\frac{3651.62 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 135.25 \text{ YD}^3$
 $(7.2') (12.75 + 13.5) (6.1) (52.82) = 3651.62 \text{ FC}^3$
 $\frac{3651.62 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 135.25 \text{ YD}^3$
 $1020.31 \text{ FC}^3 = 37.79 \text{ YD}^3$
 $54.66 \text{ YD}^3 + 18.53 \text{ YD}^3 + 135.25 \text{ YD}^3 + 37.79 \text{ YD}^3 = 246.23 \text{ YD}^3$ Calc. by RPD

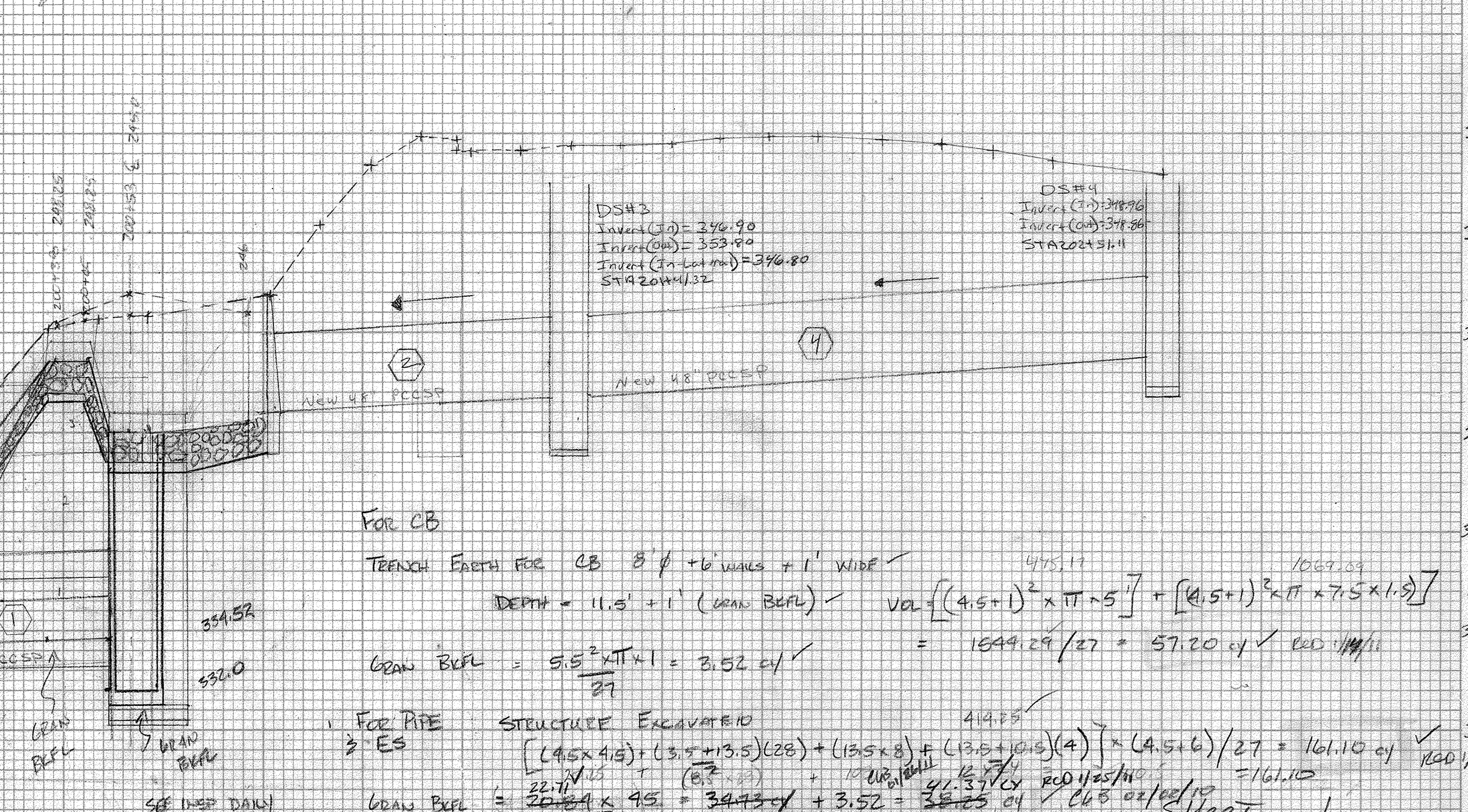
204.30 Granular Backfill For Structures
 $(54.92') (6.1') (2.55') = 31.58 \text{ YD}^3$
 $\frac{31.58 \text{ YD}^3}{27 \text{ FC}^3/\text{YD}^3} = 1.17 \text{ YD}^3$
 $\frac{361.88 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 13.39 \text{ YD}^3$
 $\frac{31.58 \text{ YD}^3}{27 \text{ FC}^3/\text{YD}^3} = 1.17 \text{ YD}^3$
 $13.39 \text{ YD}^3 + 1.17 \text{ YD}^3 = 14.56 \text{ YD}^3$ Calc. by RPD

SEE SHEET #2

DR #4
 Trench Excavation of Earth
 STA 20+46.82 to STA 20+21.61 (48" PCCSP)
 $(72.79') (12.5 + 12.5 + 9.0) (6.1) = 5038.20 \text{ FC}^3$
 $\frac{5038.20 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 186.58 \text{ YD}^3$
 $(72.79') ((12.5 + 12.5 + 9.0) (5.0) (6.1) (50)) = 11406.06 \text{ FC}^3$
 $\frac{11406.06 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 422.45 \text{ YD}^3$
 STA 20+21.61 to STA 20+16.61 (48" Pipe)
 $(2.7') (8.62 + 7.37) (6.1) = 1316.78 \text{ FC}^3$
 $\frac{1316.78 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 48.77 \text{ YD}^3$
 $(2.7') ((8.62 + 7.37) (5') (6.1) (5)) = 247.05 \text{ FC}^3$
 $\frac{247.05 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 9.15 \text{ YD}^3$
 STA 20+16.61 to STA 20+11.11 (DS#4 48" Pipe)
 $4' + 4.2' + 4.2' = 12.4 \text{ YD}$
 $\pi (4.2')^2 = 22.06 \text{ FC}^2$
 $(22.06 \text{ FC}^2) (11.11') = 244.79 \text{ FC}^3$
 $\frac{244.79 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 9.07 \text{ YD}^3$
 $186.58 + 422.45 + 48.77 + 9.15 + 9.07 = 675.97 \text{ YD}^3$ Calc. by RPD

204.30 Granular Backfill (48" PCCSP)
 $(2.5') (6.1') (10.79') = 1532.32 \text{ FC}^3$
 $\frac{1532.32 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 56.75 \text{ YD}^3$
 $\frac{\pi (10.79')^2}{2} = 181.79 \text{ FC}^2$
 $\frac{\pi (10.79')^2}{2} (10.79') = 671.94 \text{ FC}^3$
 $\frac{671.94 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 24.89 \text{ YD}^3$
 $56.75 \text{ YD}^3 + 24.89 \text{ YD}^3 = 81.64 \text{ YD}^3$ Calc. by RPD

SEE SHEET #2



For CB
 Trench Earth For CB 8' x 6' walls + 1' wide
 DEPTH = 11.5' + 1' (Gran Backfill)
 $VA = [(4.5 + 1)^2 \times \pi \times 5] + [(4.5 + 1)^2 \times \pi \times 7.5 \times 1.5]$
 $= 1549.24 / 27 = 57.20 \text{ YD}^3$ Calc. by RPD
 Gran Backfill = $\frac{5.5^2 \times \pi \times 1}{27} = 3.52 \text{ YD}^3$
 For Pipe Structure Excavation
 $[(4.5 \times 4.5) + (3.5 \times 3.5) (CB)] + (13.5 \times 8) + (13.5 \times 10.6) (4) = 161.10 \text{ YD}^3$
 $\frac{161.10 \text{ YD}^3}{27 \text{ FC}^3/\text{YD}^3} = 5.97 \text{ YD}^3$
 Gran Backfill = $\frac{32.11 \text{ FC}^3}{27 \text{ FC}^3/\text{YD}^3} = 1.19 \text{ YD}^3$
 $5.97 \text{ YD}^3 + 1.19 \text{ YD}^3 = 7.16 \text{ YD}^3$ Calc. by RPD