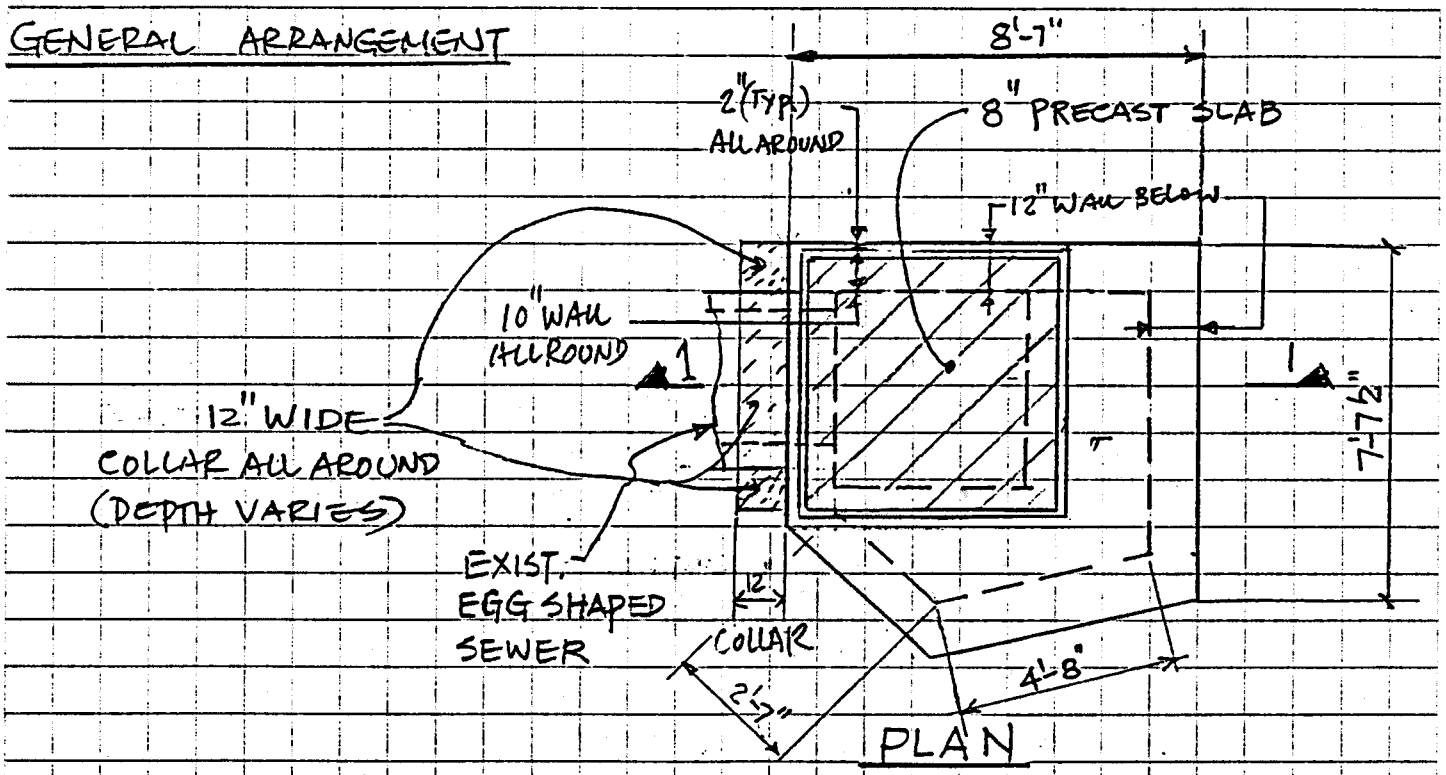
STV/SEELYE STEVENSON VALUE & KNECHT. CONSULTING ENGINEERS

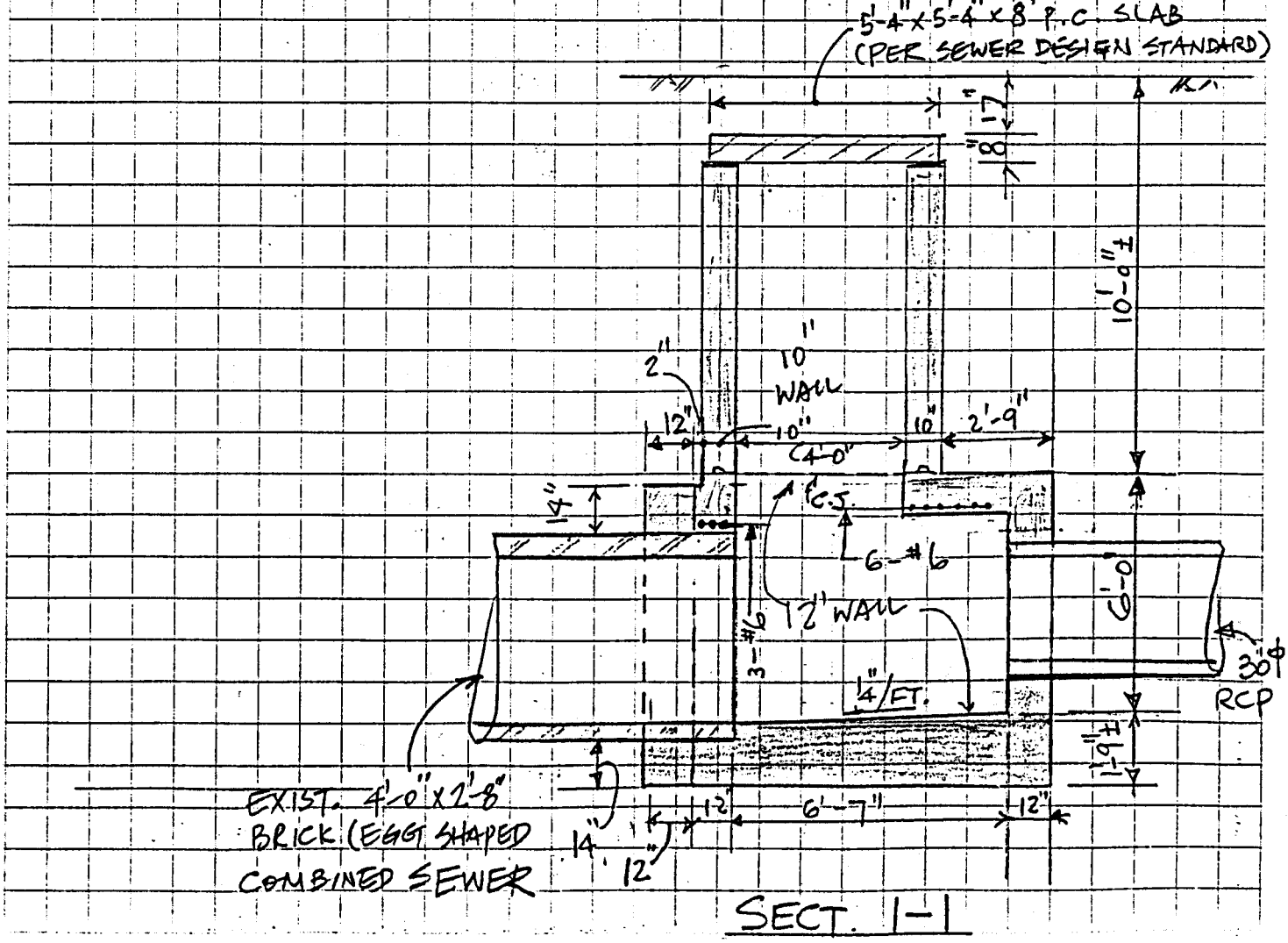
JOB ANTRAK-NORTH ACCESS CONN. NOTES BY C. LEUNG DATE 4/9/85. PAGE NO. 1

SEWER CHAMBER CHECKED BY DATE

GENERAL ARRANGEMENT



PLAN



SECT. 1-1

LOWER WALL DESIGN (12" THICK)

Data Max depth of Wall 16'±
L.L. SURCHARGE 1500 PSF
Ka (Pressure at Rest) = 0.5
Water table at 10'± below GRADE

DESIGN Wall Span VERTICALLY (6'-0"). PROVIDE ADD'L BARS
USE LATERAL PRESSURE at 14' below grade for design

1) Earth Pressure : $10 \times 125 \times 0.5 + (14-10) \times (12.5-62.5) \times 0.5 = 750$ PSF (above W.T.)

2) Water Pressure $(14-10) \times 62.5 = 250$

3) Surcharge pressure $= 1500 \times 0.5$ = 750

1,750 PSF.

$BM = \pm \frac{1}{10} \times 1,750 \times 6.0^2 = 6,300^{1\#}/FT. = 6.3^{1K}/FT.$

$As = \frac{6.3 \times 12}{20 \times .85 \times (12-2.5)} = 0.468^{\square"}/FT.$

USE #5@8" (0.47) E.W.
E.F.

No. REINF REQ'D FOR 10" WALL.

8" PRECAST CONC. ROOF PER "SEWER DESIGN STANDARDS" P.16.

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JOB AMTRAK - NORTH ACCESS TUNNEL SEWER CHAMBER NOTES BY C. LEUNG DATE 4/9/85 PAGE NO. 3

CHECKED BY DATE

DESIGN OF INVERT MIN. THICKNESS 14" at END (Span 7.58' & 6.63')

Load From Roof (L.L.) 1500 PSF.

Earth + Cover 290

WALLS. $= \frac{150^{\#} \times 16' H (7.58+6.62) \times 2}{(8.58 \times 7.62)} \times \frac{1}{12"}$ (AREA OF INVERT) 1040

2,830 PSF.

Max. B.M. $= \frac{1}{8} \times 2.83 \times 7.58^2 = 20.32^{IK}$.

$A_s = \frac{20.32 \times 12}{20 \times .85 (14-2.5)} = 1.247^{in^2}/FT.$

USE #7@6" (Top) E.W. (1.2)
#6@12" (Btm) E.W.

Check SHEAR

$V = 2,830 \times \frac{1}{2} \times 6.58$ (clear span) $= 9310^{\#}$

V at 'd' From supp. $= 9,310 - 1' \times 2830 = 6,480^{\#}/FT.$

$v_c = \frac{6480}{12 \times (14-2.5)} = 47 psi < 65 psi$ OK

Check BOND

$u = \frac{V}{\Sigma o j d} = \frac{9310}{(2 \times 2.75) \times .85 \times 115} = 173 psi < \frac{3.4\sqrt{f_c'}}{D} = 212 psi.$

$\Sigma o = 2 - \#7$

OK