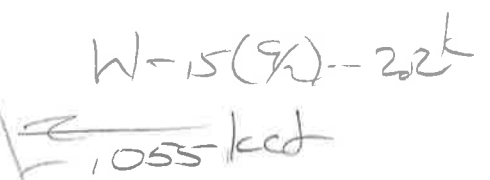
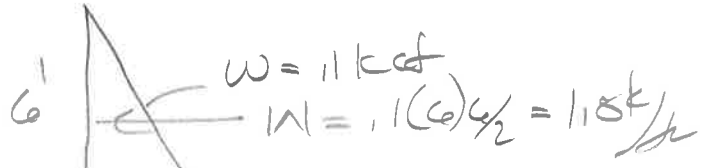
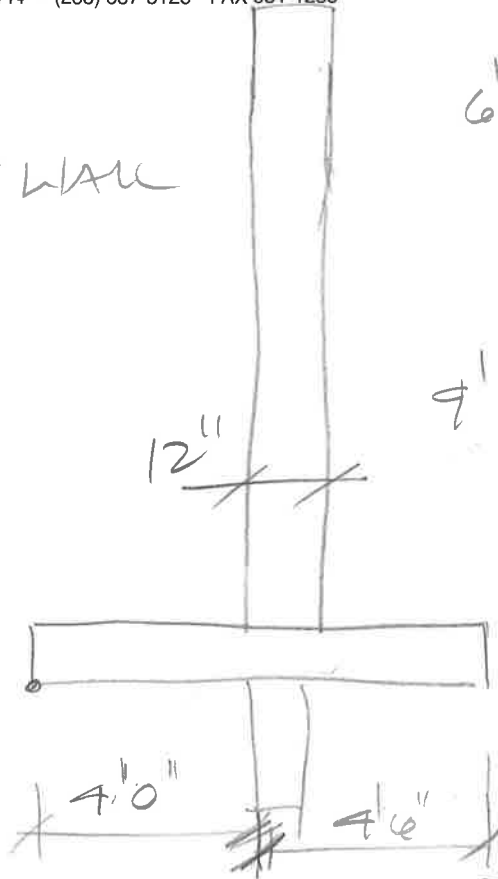


PROJECT: BOYLE		SHEET NO. 1
BY: CVA	DATE: 11/20/18	JOB NO. 1747

12181 C Street S. • TACOMA, WA 98444 • (253) 537-8128 • FAX 531-1285

100 psf
LOAD ON
RETAINMENT WALL



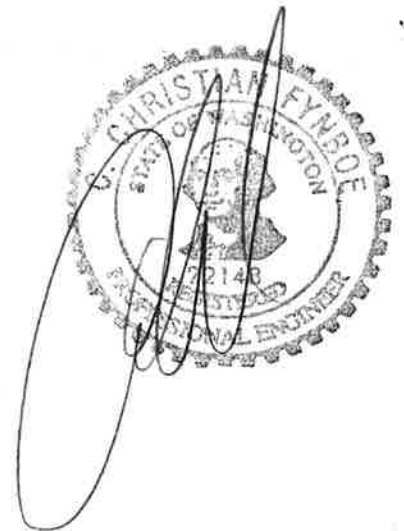
$$W = 1,055(9) = 0.5k$$

$$M_0 = 1.6 [2.2(3) + 1.8(11)] 12 = 507k''$$

$$P_0 = \frac{507}{1.9(12)(10.25)} = 1.97ks'$$

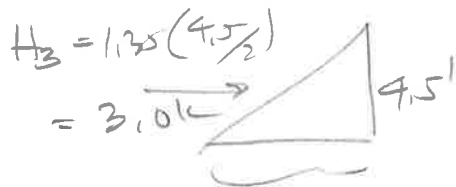
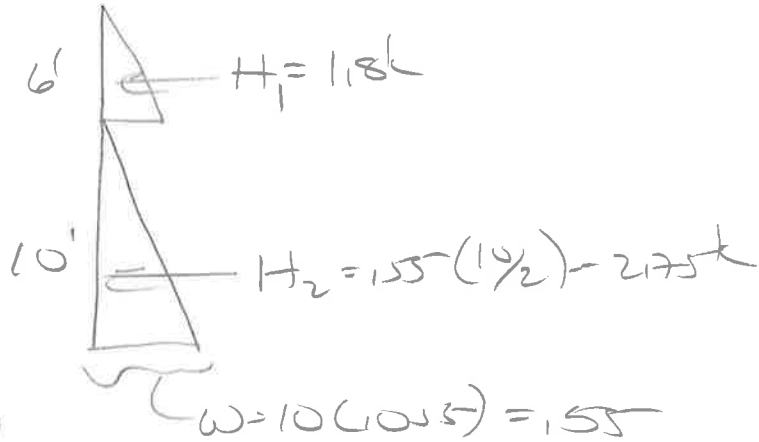
$$A_s = 0.009(10.25) 12 = 1.11in^2/k$$

#7 @ 6" k



PROJECT:			SHEET NO.
BY:	DATE:	JOB NO.	2
		17147	

GT



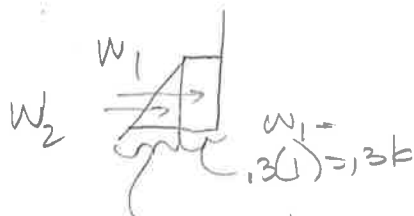
$$13(4.5) = 1135$$

$$\downarrow H1 = \frac{115(1)(12+7.5)}{2.9} + \frac{112(3.5)9}{3.78} = 6.7k$$

$$F_{SSUDITTE} = \frac{3 + 6.7(14)}{1.5 + 2.75} = 1.25 \text{ OK}$$

$$F_{SOT} = \frac{2.9(4.5) + 3.78(6.75)}{1.5(12) + 2.75(3.33)} = 1.25 \text{ OK}$$

KEY



$$W1 = 13(2.5) = 175k$$

$$W2 = 16(2.5) = 175k$$

$$M = 175(11.25) + 175(11.6) = 2776k'$$

$$W2 = 13(2) = 16k$$

$$R_u = \frac{2776(12)1.6}{19(12)(6)^2} = 1.19 \text{ (CL)}$$

$$P = 100333(12)6 = 129k \text{ } \#5 @ 12''$$

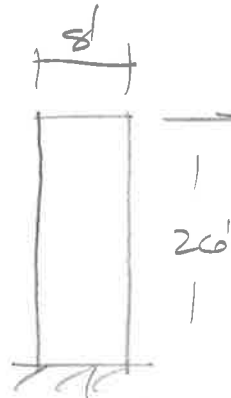
PROJECT:		SHEET NO.
BY:	DATE:	JOB NO. 17197
		3

12181 C Street S. • TACOMA, WA 98444 • (253) 537-8128 • FAX 531-1285

$h = 26'$

WT GARAGE = $(.015 + .015 + .015) 11(22)$
 $= 10.9k$

WT OF SLAB = $(10/12) 16(26/2) .15 = 26k$



$V = \frac{.94}{5} W = 1.19W$
 $= 1.19(26 + 10.9)$
 $= 70k (USD)$

$2 A_c \sqrt{f_c} = 21,912.2 \text{ ACI}$
 $2(10)96 \sqrt{3000} = 105k$

SINGLE CURTAIN OF REBAR - OK
 #5 @ 10" - OK

$V_H = A_c (\alpha_c \sqrt{f_c} + \rho_n f_y)$ 21,912.2 ACI

$V_H = 10(96) \left(2 \sqrt{3000} + \underbrace{\frac{.23(120)}{10(96)}}_{.23} (60) \right) = 127k$ OK

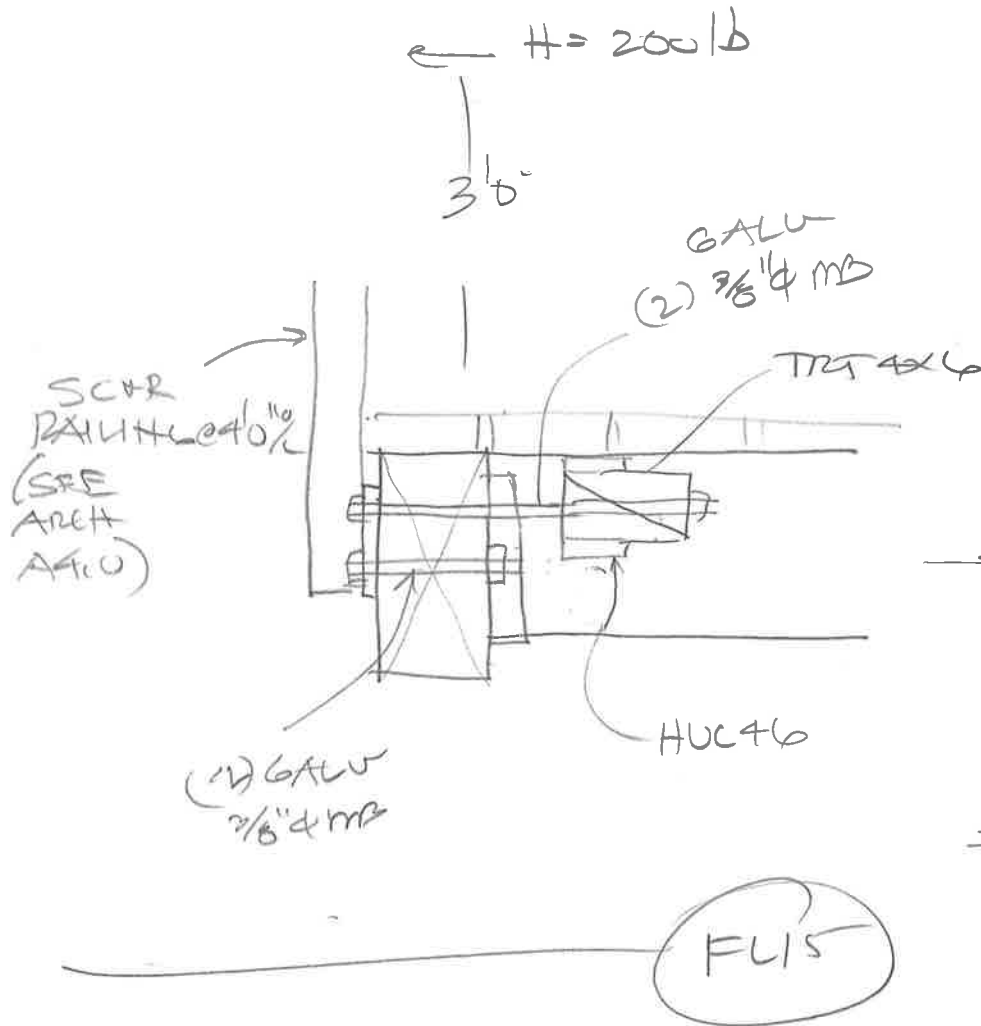
$M_U = 7(26)12 = 2184k'$

$R_U = \frac{2184}{.9(10)(96)^2} = 1.029 \text{ ksi}$

$A_s = \frac{29}{250} (10033)(1.15) 10(96) = .66 \text{ in}^2$
 #6 @ 9" UERT - OK

PROJECT:			SHEET NO.
BY:	DATE:	JOB NO. 1747	4

12181 C Street S. • TACOMA, WA 98444 • (253) 537-8128 • FAX 531-1285



$$\rightarrow T = \frac{12(30)}{5.1} = 1.4k$$

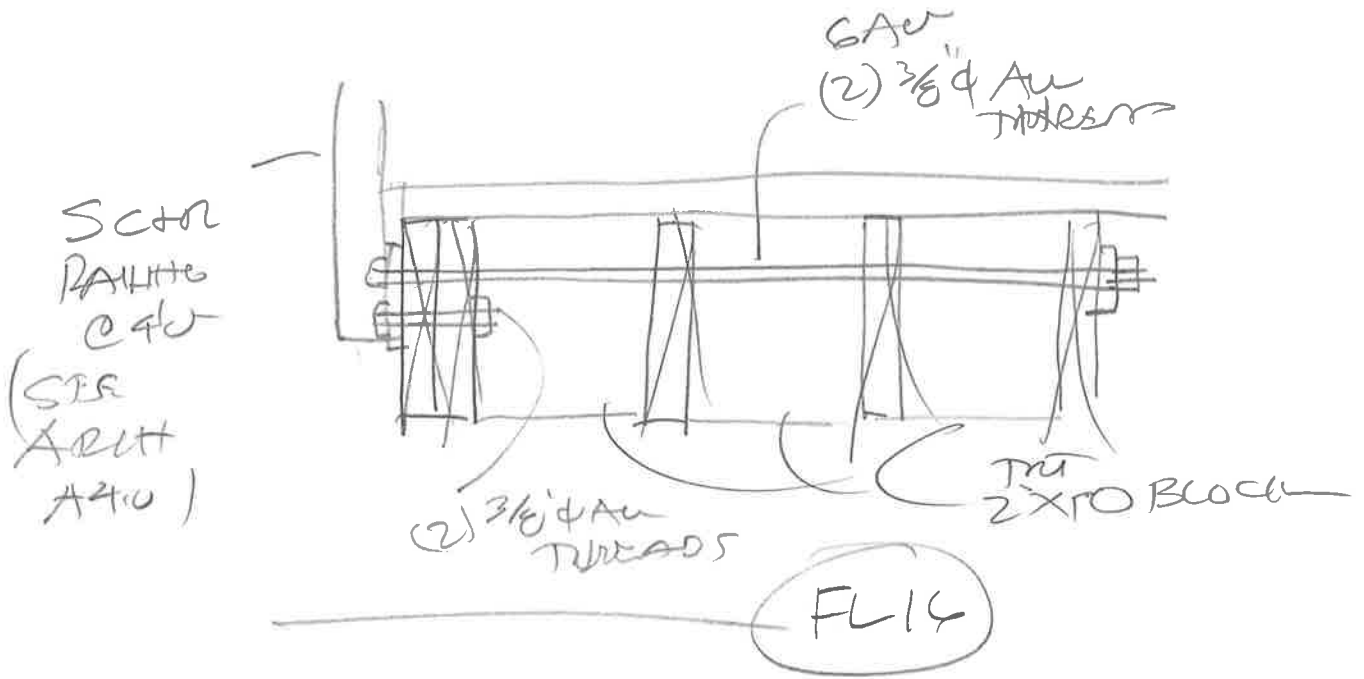
$$l = 16''$$

$$M = \frac{1.4(16)}{4} = 5.6k''$$

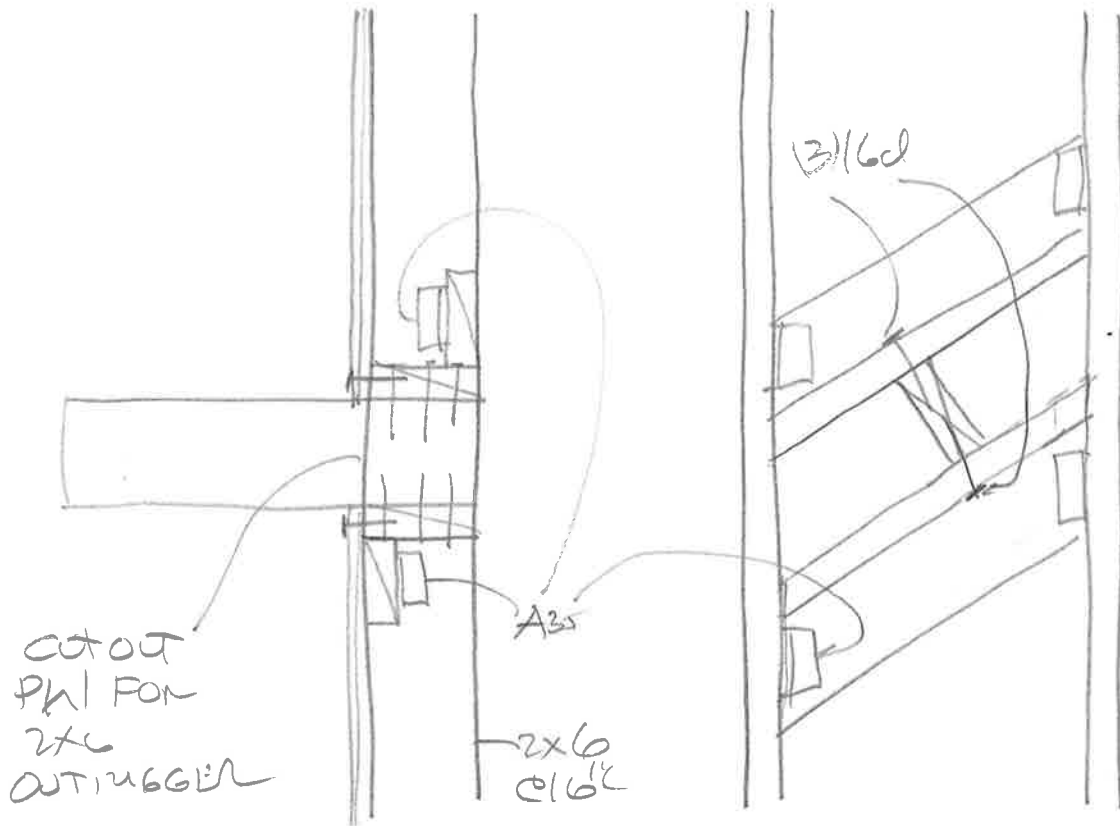
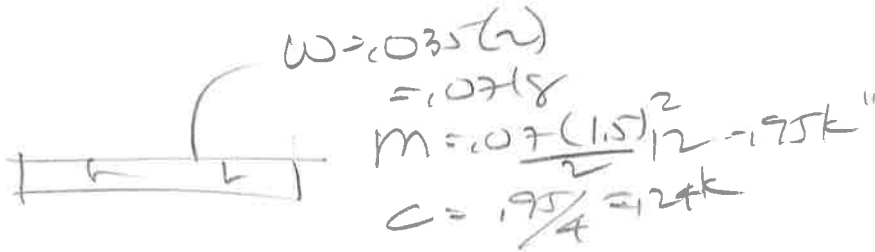
$$S_{REQD} = \frac{5.6}{1.1(11.4)} = 3.2k''$$

TR4x4c

PROJECT:			SHEET NO.
BY:	DATE:	JOB NO.	5
		17147	



PROJECT:			SHEET NO.
BY:	DATE:	JOB NO.	4
		1747	



PROJECT:			SHEET NO. 7
BY:	DATE:	JOB NO. 17147	

CALC ON UPLIFT SHAWN

$$U = 131 \text{ lb} \text{ (FROM ORIG. CALCS)}$$

$$\text{UPLIFT} = 131(20) = 6.2 \text{ k}$$

USE HD08

PROJECT:			SHEET NO.
BY:	DATE:	JOB NO. 17147	8

12181 C Street S. • TACOMA, WA 98444 • (253) 537-8128 • FAX 531-1285

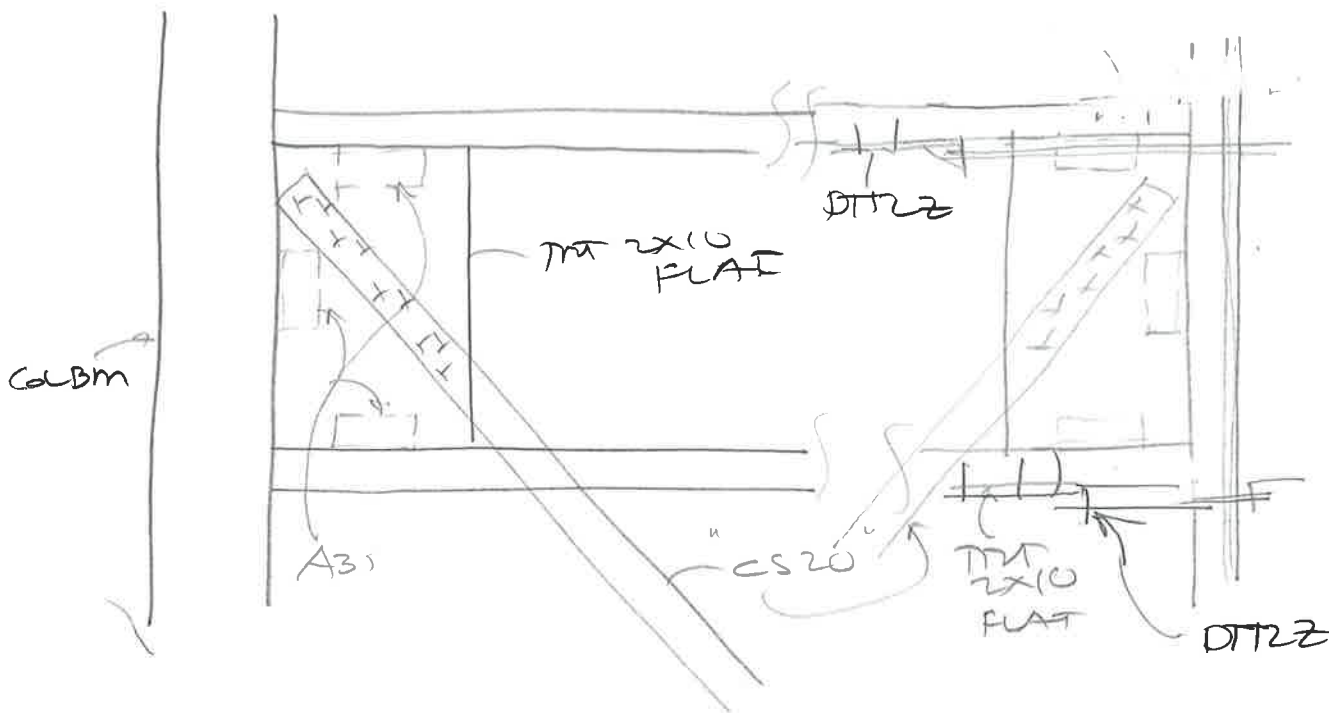
$$V = .94 / 4 (14) W = .17W$$

$$V = .17 (2.7) = .46k$$

$$W = .005 (33) (6 + .78 (1.5) 5 (3))$$

$$= 1.99k$$

$$= 2.7k$$



PLAN

~~FL16~~

S3.3

FL17

PROJECT:			SHEET NO. 9
BY:	DATE:	JOB NO. 17147	

2x8DF#2



$$W = 0.175(16/12) = 0.23 \text{ kg} \quad R = 25 \text{ k}$$

$$M = 0.23 \frac{(22)^2}{8} \cdot 12 = 16.6 \text{ k}''$$

$$S_{req'd} = \frac{16.6}{1.6(1.14)} = 8.6$$

$$I_{req'd} = \frac{5}{384} \frac{(0.23)(22)^4 (170)}{1.5} = 50.5$$

2x8DF#2 @ 16" \checkmark

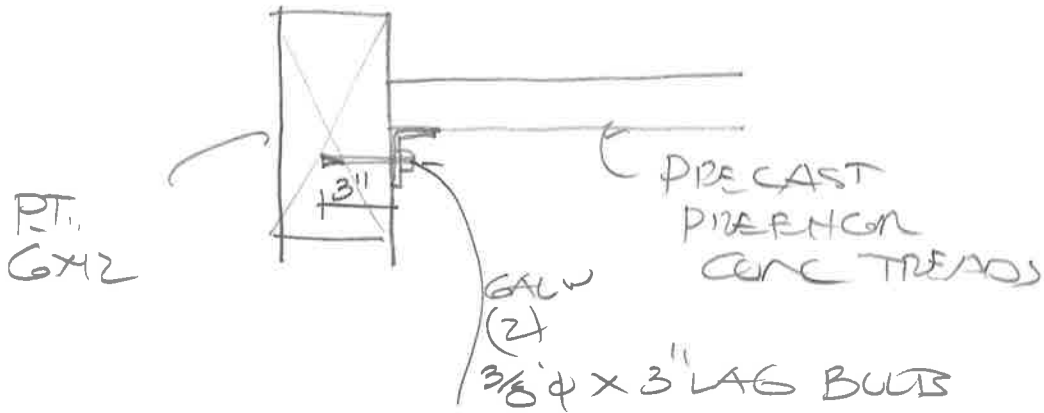
ADD A35C EA 2x6 OUTRIGER

STR $\frac{24}{5312}$

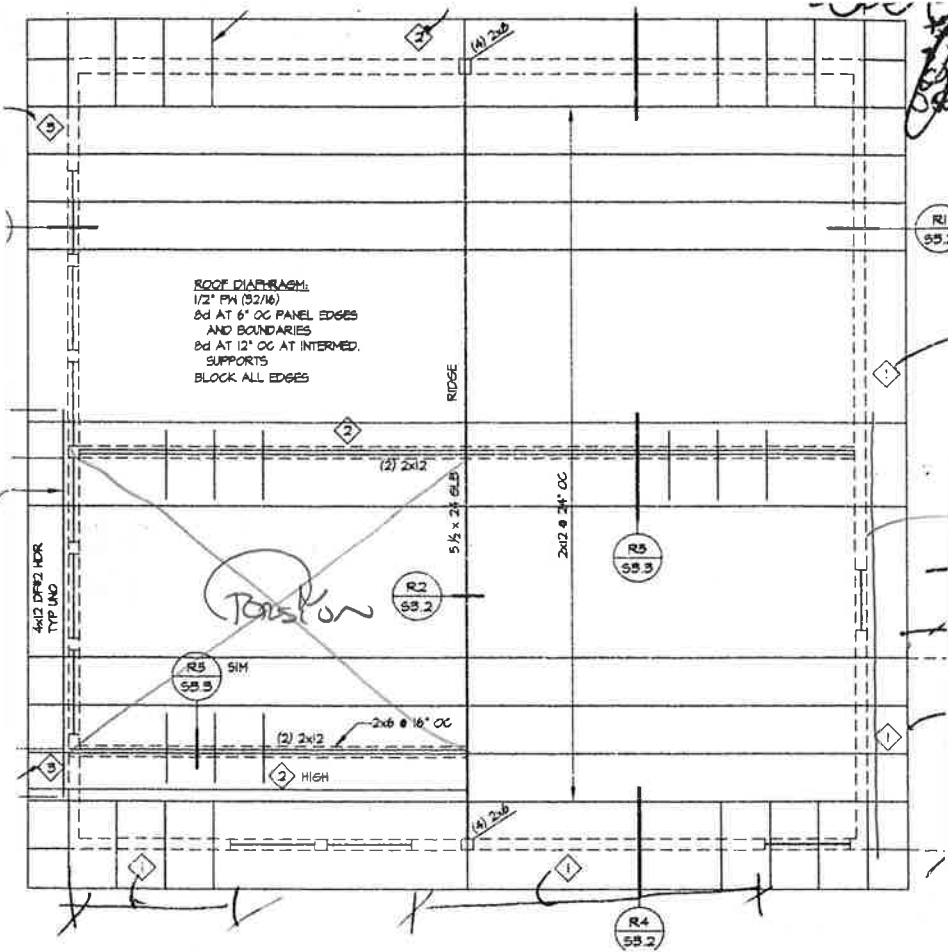
⊕ @ BASE ADD A35C EA STUD
STR HORIZON PLAN

PROJECT:			SHEET NO.
BY:	DATE:	JOB NO. 17147	10

$l = 3'$
 $w = .065 / ft$ $12 = .065 (1.5) = 0.1k$
 CAP $3/8" \phi$ LAGS
 $= 116k (-) = 1,32k$ OK



PROJECT:		SHEET NO.	
BY:	DATE:	JOB NO. 17197	11



$T = 0.0715$
 $= 0.046k$
 small
 ok
 CS18
 STAMP
 $= 0.046k$

"CS18"
 STAMP

$16' (< 20')$
 $V = 0.043(16) = 0.07k$
 $W = 0.075(2.5) = 0.043k$

PORTION DIAPHRAGM FORCES ARE SMALL & RESOLVE THRU TORSION & DISTRIBUTE TO REMAINDER OF ROOF DIAPHRAGM

PROJECT:			SHEET NO.
BY:	DATE:	JOB NO.	13
		1747	

USE (4) COMPRESSION & (4) TENSION MICRO PILES

ETOR

PUNCTURE SHEAR

$$d = 13''$$

$$V_u = \frac{65(1.6)}{1.85 \frac{(13+6)}{2} 3.14(2)(13)} = .157 \text{ ksi}$$

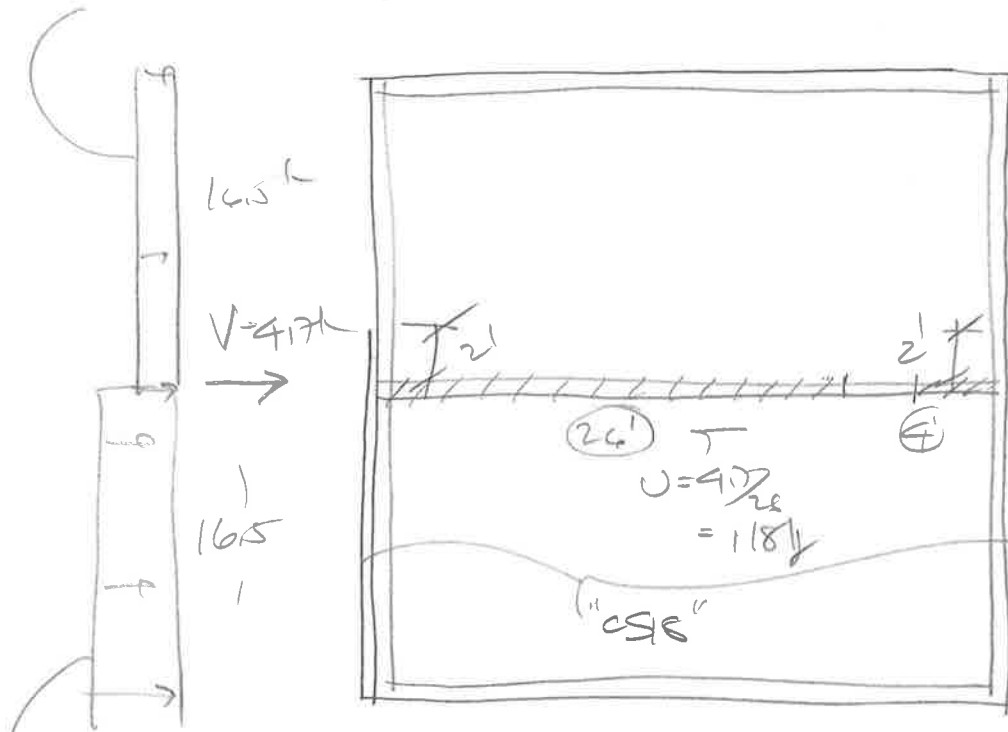
$$V_c = 4 \sqrt{3000} = .219 \text{ ksi}$$

↑
↓
HORIZONTAL
REINFORCEMENT
REQUIRED
FOR PUNCTURE
SHEAR

PROJECT:			SHEET NO.
BY:	DATE:	JOB NO.	14
		17177	

12181 C Street S. • TACOMA, WA 98444 • (253) 537-8128 • FAX 531-1285

$$\omega = .0175(125) = 1.225$$



$$T = \frac{41.7(33)}{33} = 1.2 \text{ k}$$

USE "CS 18"

$$\omega = .0175(41.5 + 5) = 1.34$$

12005 DIAGONAL

PROJECT:			SHEET NO. 15
BY:	DATE:	JOB NO. 17147	

12181 C Street S. • TACOMA, WA 98444 • (253) 537-8128 • FAX 531-1285

