



PLANT SYSTEMS GROUP - SALT LAKE CITY, UTAH

CALCULATION COVER SHEET

JOB NUMBER	CLIENT	PROJECT	CALC. NUMBER
11021	CC&V	High Grade Ore	C-007b

TITLE/SUBJECT:

Flotation Support Concrete

STATEMENT OF PROBLEM:

Design Foundations for regrind mill, agitator maintenance platform and flotation sumps.

P.E. SEAL



SOURCES OF DATA, FORMULA & REFERENCES:

GA from Vendors
Site Specific Design Criteria (Excel Spread Sheet)
ASCE /SEI 7-10 Minimum Design Loads for Buildings and Other Structure
ACI 318-08
ENERCALC Version 6
AutoDesk Robot Structural Analysis Professional 2012

CONCLUSIONS & RECOMMENDATIONS:

See details in report

A	May-12	Ready for Check	ECS	WC		
0	Jul-12	Issued for Permit	ECS	WC		
REV	DATE	DESCRIPTION/STATUS	CALC BY	CHKD BY	DWG./SPECS REVISED	QA REVIEW



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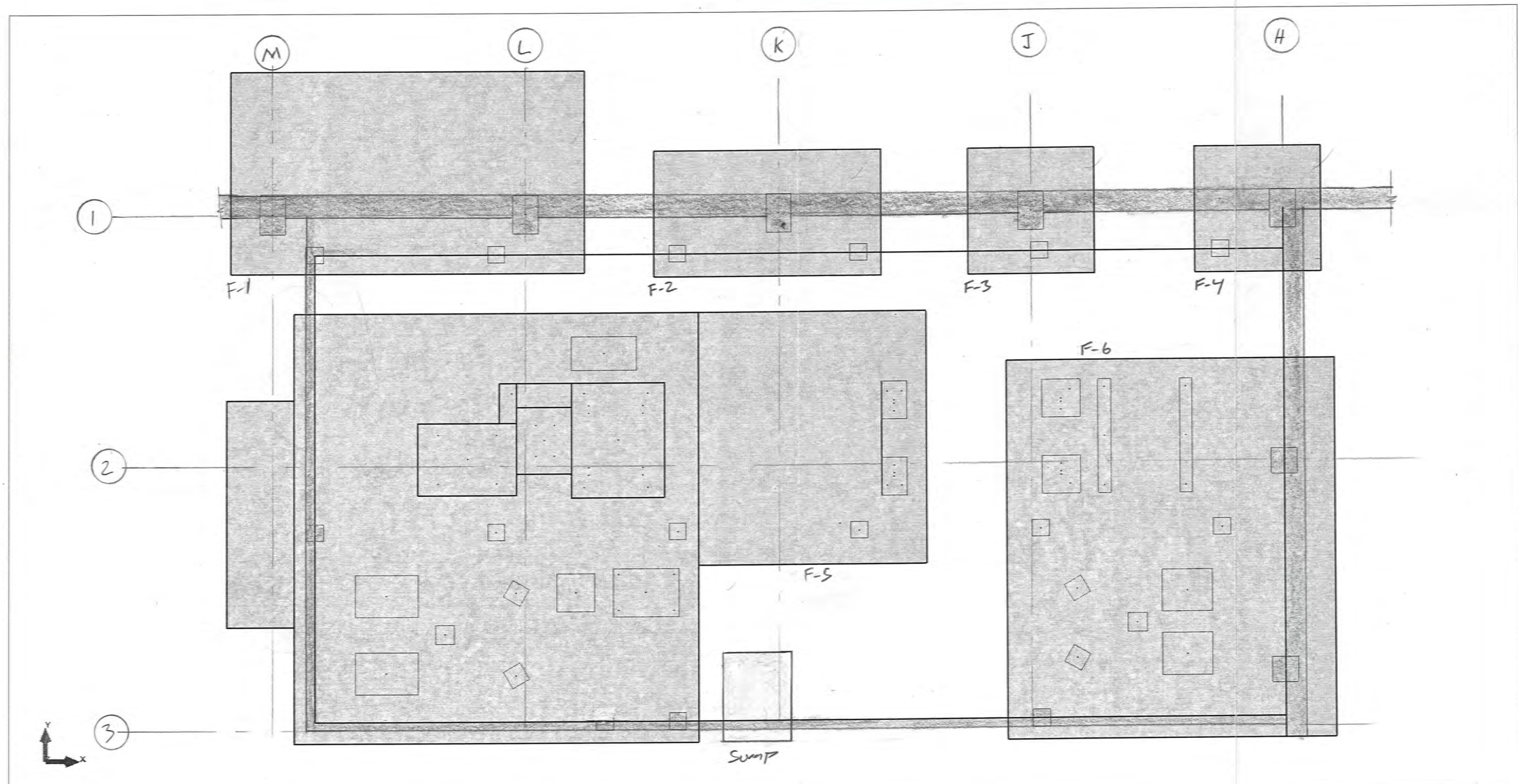
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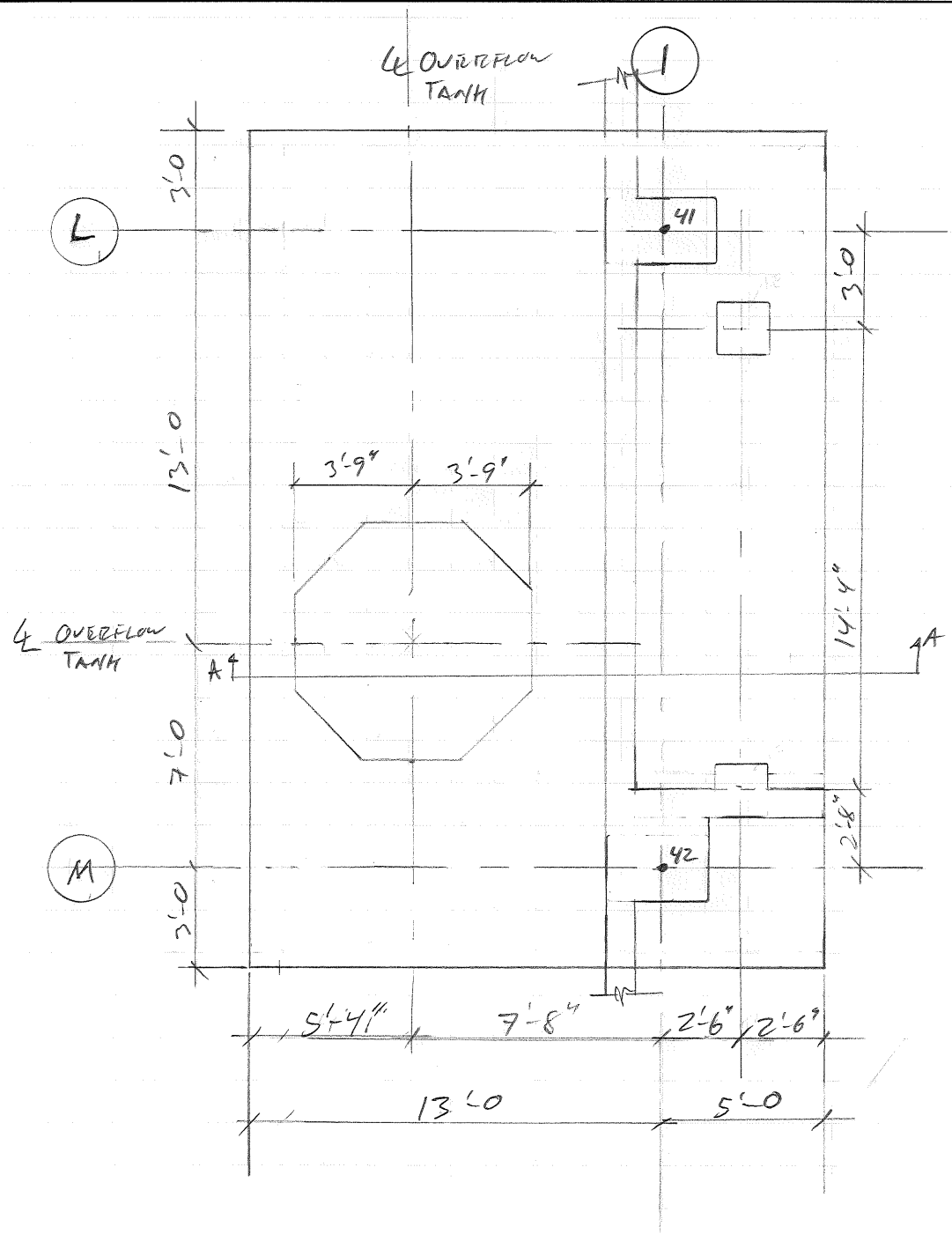
REGRIND FOUNDATIONS





PROJECT
CC & V HIGH GRADE ORE
SUBJECT
FOUNDATIONS F-1
REBUILT FOUNDATIONS

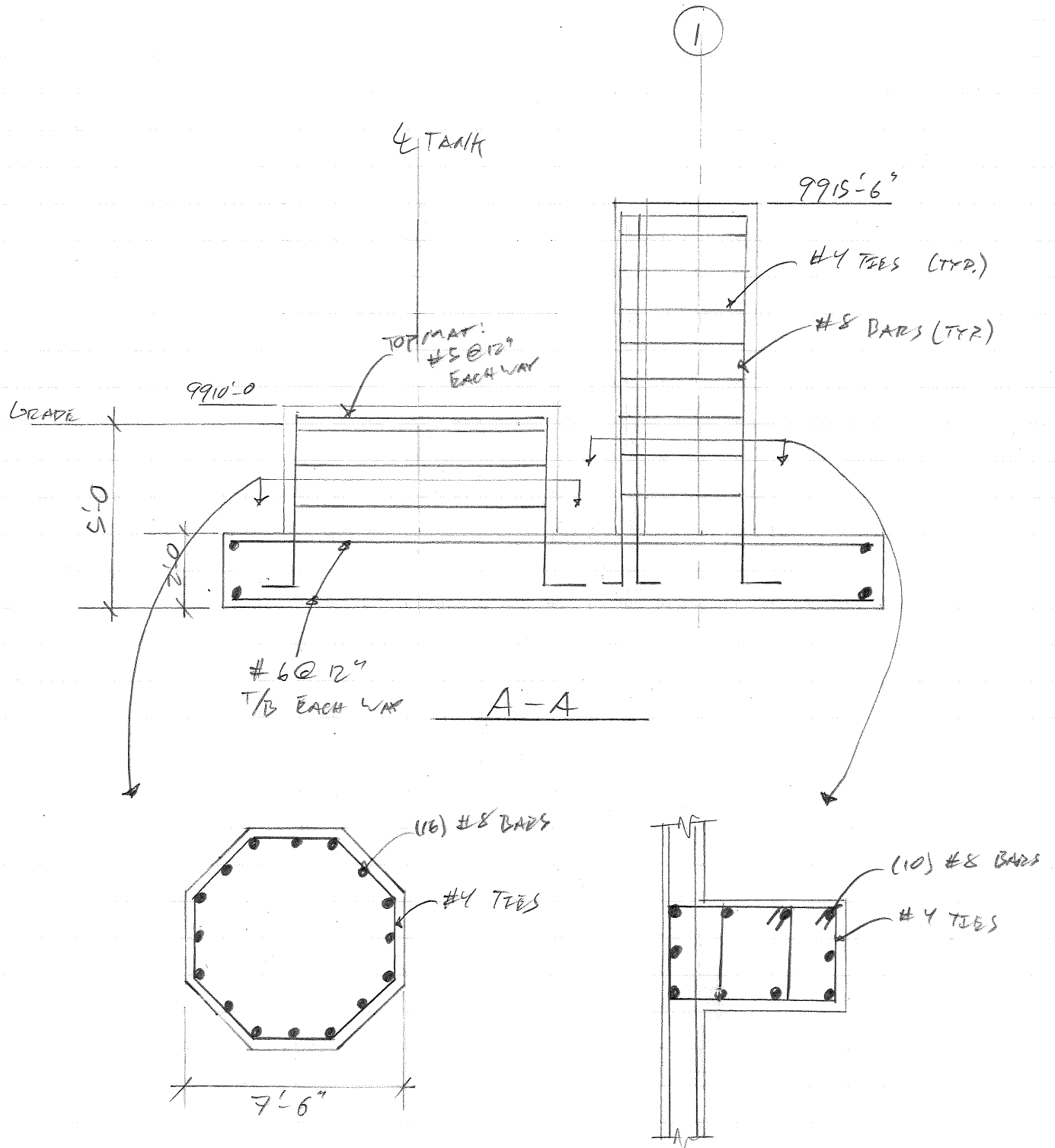
PROJ NO.	11021	
CALC NO.	C-07	
BY	DATE	
CHK	DATE	
SHEET	OF	REV





PROJECT
CCIV HIGH GRADE OCE
SUBJECT
FOUNDATION F-1

PROJ NO.	11021	
CALC NO.	C-007	
BY	DATE	
CHK	DATE	
SHEET	OF	REV



	PROJECT	CC&V	PROJ NO.	11021
		HIGH GRADE ORE	CALC NO.	C-007
	SCOPE	REGRIND MILL	BY ECS	DATE 14-May-12
		FOUNDATION F-1	CHK	DATE
		STABILITY CHECK	SHEET	OF REV

Foundation Properties

$L_x =$	18	ft	Foundation Length - X
$L_y =$	26	ft	Foundation Length - Y
$t =$	2	ft	Foundation Thickness
$H =$	5	ft	Depth Below Grade
$\gamma_{\text{soil}} =$	120	pcf	Soil Weight
$\gamma_{\text{concrete}} =$	150	pcf	Concrete Weight
C.G (x)	50.0	ft	Foundation Center of Gravity - X
C.G (y)	205.0	ft	Foundation Center of Gravity - Y
C.G (z)	9906.0	ft	Foundation Center of Gravity - Z
$\mu =$	0.4		Friction Coefficient
$k_p =$	3.69		Passive Pressure Coefficient

Loads:

		Location					
Coordi nates	X (ft)	node 41	node 42	Tank	Regrind 1	Regrind 2	Mat
	Y (ft)	60.0	40.0	47.0	57.0	42.7	50.0
	Z (ft)	200.0	200.0	207.7	197.5	197.5	205.0
		9915.5	9915.5	9910.0	9914.8	9914.8	9906.0
Dead	F _z (kip)	52.76 ^{53.9}	48.27 ⁴⁸	20	16	16.6	140.4
	F _x (kip)	-3.34	1.95 ^{1.74}	0	0.9	0	0
	M _y (kip*ft)	0	0	0	0	0	0
	F _y (kip)	-0.58	-0.47	0	0	0	0
	M _x (kip*ft)	0	0	0	0	0	0
Soil	F _z (kip)	0	0	0	0	0	168.5
	F _x (kip)	0	0	0	0	0	0
	M _y (kip*ft)	0	0	0	0	0	0
	F _y (kip)	0	0	0	0	0	0
	M _x (kip*ft)	0	0	0	0	0	0
Live	F _z (kip)	15.32 ^{11.48}	5.33 ^{7.23}	22	58.7	49.2	46.8
	F _x (kip)	-2.02 ^{-1.57}	-0.84 ^{-0.32}	0	4.3	0	0
	M _y (kip*ft)	0	0	0	0	0	0
	F _y (kip)	-0.24	-0.23	0	0	0	0
	M _x (kip*ft)	0	0	0	0	0	0
Snow	F _z (kip)	28.25 ^{28.67}	24.63 ^{24.12}	0	0	0	0
	F _x (kip)	-2.13 ^{-2.21}	0.8 ^{0.73}	0	0	0	0
	M _y (kip*ft)	0	0	0	0	0	0
	F _y (kip)	-1.07	-0.85	0	0	0	0
	M _x (kip*ft)	0	0	0	0	0	0
Wind X	F _z (kip)	64.64 ^{65.50}	-98.83 ^{-97.61}	0	0	0	0
	F _x (kip)	-9.95 ^{-10.31}	-11.88 ^{-11.99}	0	0	0	0
	M _y (kip*ft)	0	0	0	0	0	0
	F _y (kip)	-11.53 ^{-11.66}	11.78 ^{-11.78}	0	0	0	0
	M _x (kip*ft)	0	0	0	0	0	0
Wind Y	F _z (kip)	-27.37 ^{-32.47}	15.26 ^{19.53}	0	0	0	0
	F _x (kip)	-3.43 ^{-3.87}	2.9 ^{3.54}	0	0	0	0
	M _y (kip*ft)	0	0	0	0	0	0
	F _y (kip)	-9.41 ^{-10.87}	10.79	0	0	0	0
	M _x (kip*ft)	0	0	0	0	0	0
Ex	F _z (kip)	33.69 ^{34.26}	33.48 ^{34.05}	0	0.9	0.2	0
	F _x (kip)	5.41 ^{-5.61}	5.32 ^{5.42}	1.5	0.7	0	0
	M _y (kip*ft)	0	0	4.893	0	0	0
	F _y (kip)	0 ^{0.11}	0 ^{0.12}	0	0	0	0
	M _x (kip*ft)	0	0	0	0	0	0
Ey	F _z (kip)	0.03 ^{-0.11}	0.91 ^{-1.18}	0	0.4	0.2 ^{0.4}	0
	F _x (kip)	0.2 ^{0.28}	0.26 ^{-0.21}	0	0	0	0
	M _y (kip*ft)	0	0	0	0	0	0
	F _y (kip)	0.51	0.51 ^{-0.51}	1.5	0	0	0
	M _x (kip*ft)	0	0	4.893	0	0	0

Loads needed
update but
doesn't affect
mat foundation.

Resultant Forces @ Foundation C.G.

Load Combination	F _z (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
Dead	294.0	-0.5	19.4	-1.1	686.3
Soil	168.5	0.0	52.9	0.0	0.0
Live	197.4	1.4	-73.7	-0.5	849.3
Snow	52.9	-1.3	-48.8	-1.9	246.2
Wind X	-34.2	-21.8	-1842.1	0.3	-168.6
Wind Y	-12.1	-0.5	421.3	1.4	-47.4
Ex	68.3	12.9	112.0	0.0	344.1
Ey	1.5	0.5	11.8	2.5	29.8

Resultant Combinations @ Foundation C.G.

Load Combination	F _z (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
D+H+L	659.9	1.0	-1.4	-1.5	1535.6
D+H+S	515.4	-1.8	23.5	-3.0	932.4
D+H+0.75(L+S)	650.2	-0.4	-19.6	-2.8	1507.9
D+H+W _x	428.3	-22.3	-1769.8	-0.8	517.7
D+H+W _y	450.4	-1.0	493.6	0.3	638.8
D+H+0.7E _x	510.3	8.6	150.7	-1.1	927.1
D+H+0.7E _y	463.6	-0.2	80.6	0.7	707.1
D+H+0.75(L+S+W _x)	624.5	-16.8	-1401.1	-2.7	1381.4
D+H+0.75(L+S+W _y)	641.1	-0.8	296.4	-1.8	1472.3
D+H+0.75(L+S+0.7E _x)	686.0	6.4	39.2	-2.8	1688.5
D+H+0.75(L+S+0.7E _y)	651.0	-0.2	-13.4	-1.5	1523.5
0.6D+H+W _x	310.7	-22.1	-1777.5	-0.4	243.2
0.6D+H+W _y	332.8	-0.8	485.8	0.7	364.3
0.6D+H+0.7E _x	392.7	8.8	143.0	-0.6	652.6
0.6D+H+0.7E _y	346.0	0.0	72.8	1.1	432.6

Results:

Load Combination	Sliding Resistance		Sliding Ratio	
	F_x (kip)	F_y (kip)	X	Y
D+H+L	310.0	295.8	326.3	194.6
D+H+S	252.2	238.0	138.6	80.1
D+H+0.75(L+S)	306.1	292.0	751.2	102.7
D+H+W _x	217.4	203.2	9.7	254.0
D+H+W _y	226.2	212.0	221.8	642.6
D+H+0.7E _x	250.2	236.0	29.2	224.8
D+H+0.7E _y	231.5	217.3	1377.9	304.4
D+H+0.75(L+S+W _x)	295.9	281.7	17.6	106.1
D+H+0.75(L+S+W _y)	302.5	288.3	375.8	159.5
D+H+0.75(L+S+0.7E _x)	320.5	306.3	50.2	107.8
D+H+0.75(L+S+0.7E _y)	306.4	292.3	1846.1	192.4
0.6D+H+W _x	170.3	156.2	7.7	411.0
0.6D+H+W _y	179.2	165.0	217.4	220.0
0.6D+H+0.7E _x	203.1	189.0	23.2	299.9
0.6D+H+0.7E _y	184.4	170.3	6587.2	150.2

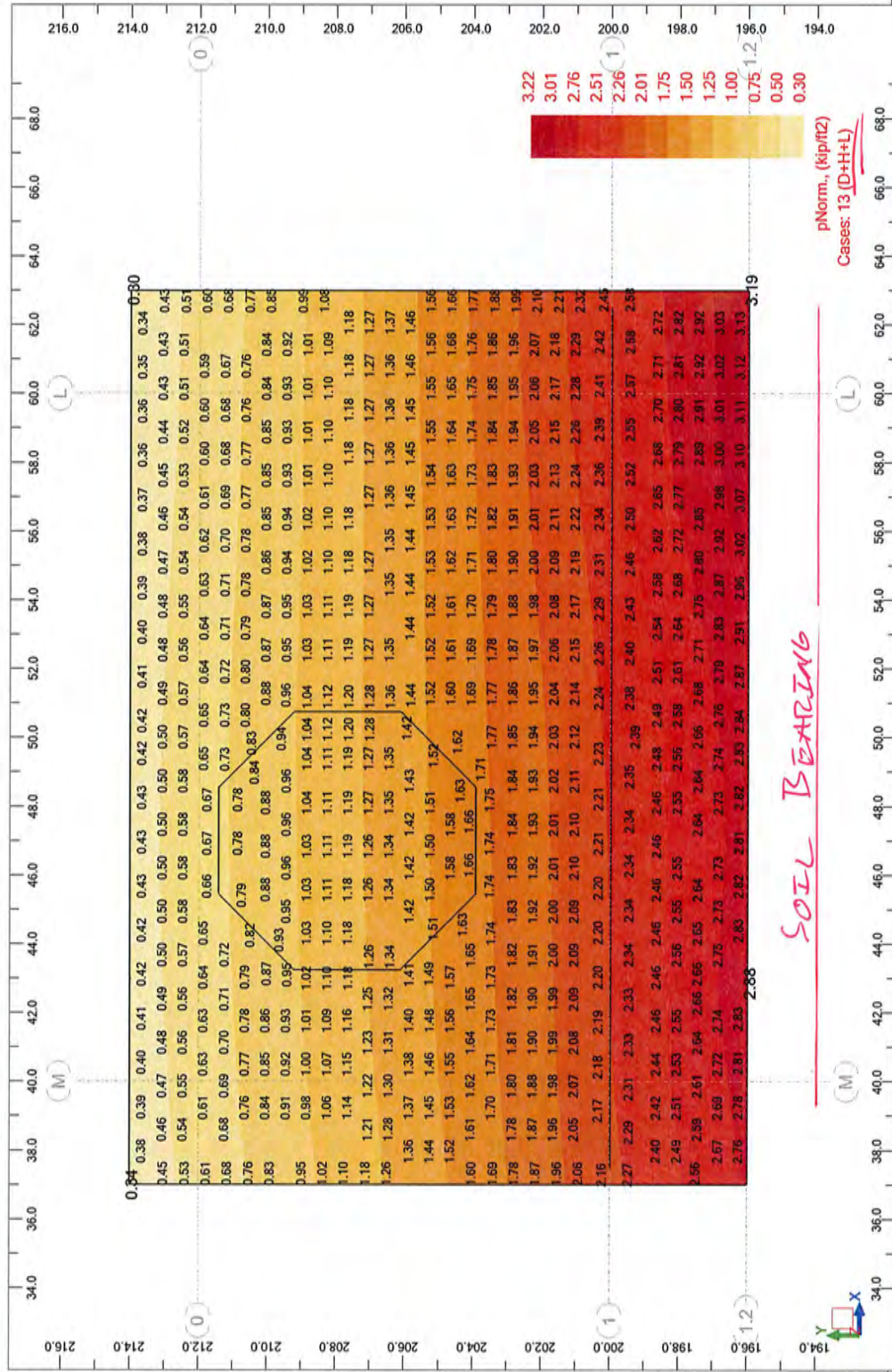
Load Combination	Overturning Resistance		Overturning Ratio	
	M_x (kip)	M_y (kip)	X	Y
D+H+L	8578.2	5938.7	5.6	4300.3
D+H+S	6700.1	4638.5	7.2	197.4
D+H+0.75(L+S)	8452.4	5851.6	5.6	298.9
D+H+W _x	5568.2	3854.9	10.8	2.2
D+H+W _y	5855.2	4053.6	9.2	8.2
D+H+0.7E _x	6633.9	4592.7	7.2	30.5
D+H+0.7E _y	6026.6	4172.3	8.5	51.8
D+H+0.75(L+S+W _x)	8119.0	5620.9	5.9	4.0
D+H+0.75(L+S+W _y)	8334.3	5769.9	5.7	19.5
D+H+0.75(L+S+0.7E _x)	8918.3	6174.2	5.3	157.4
D+H+0.75(L+S+0.7E _y)	8462.9	5858.9	5.6	438.3
0.6D+H+W _x	4039.2	2796.4	16.6	1.6
0.6D+H+W _y	4326.2	2995.1	11.9	6.2
0.6D+H+0.7E _x	5104.9	3534.2	7.8	24.7
0.6D+H+0.7E _y	4497.7	3113.8	10.4	42.8



7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: Ed Summners
Calc No.: C-007 Job.:11021
Project: F-1 Rev. 0
Client: CC&V

View - pNorm. (kip/ft2) Cases: 13 (D+H+L)

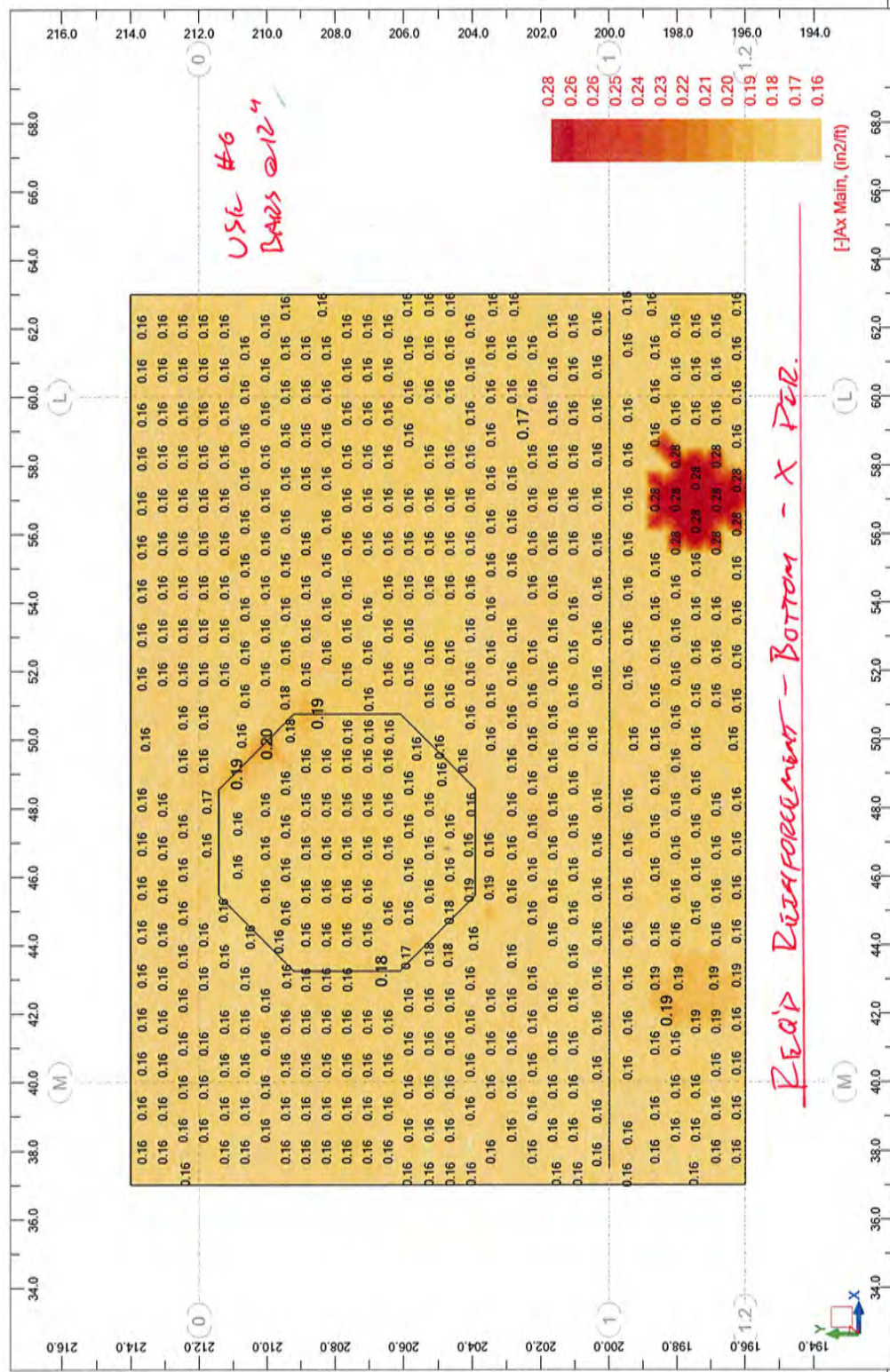


Date : 14/05/12
File: F-1 Rev.0.rtd



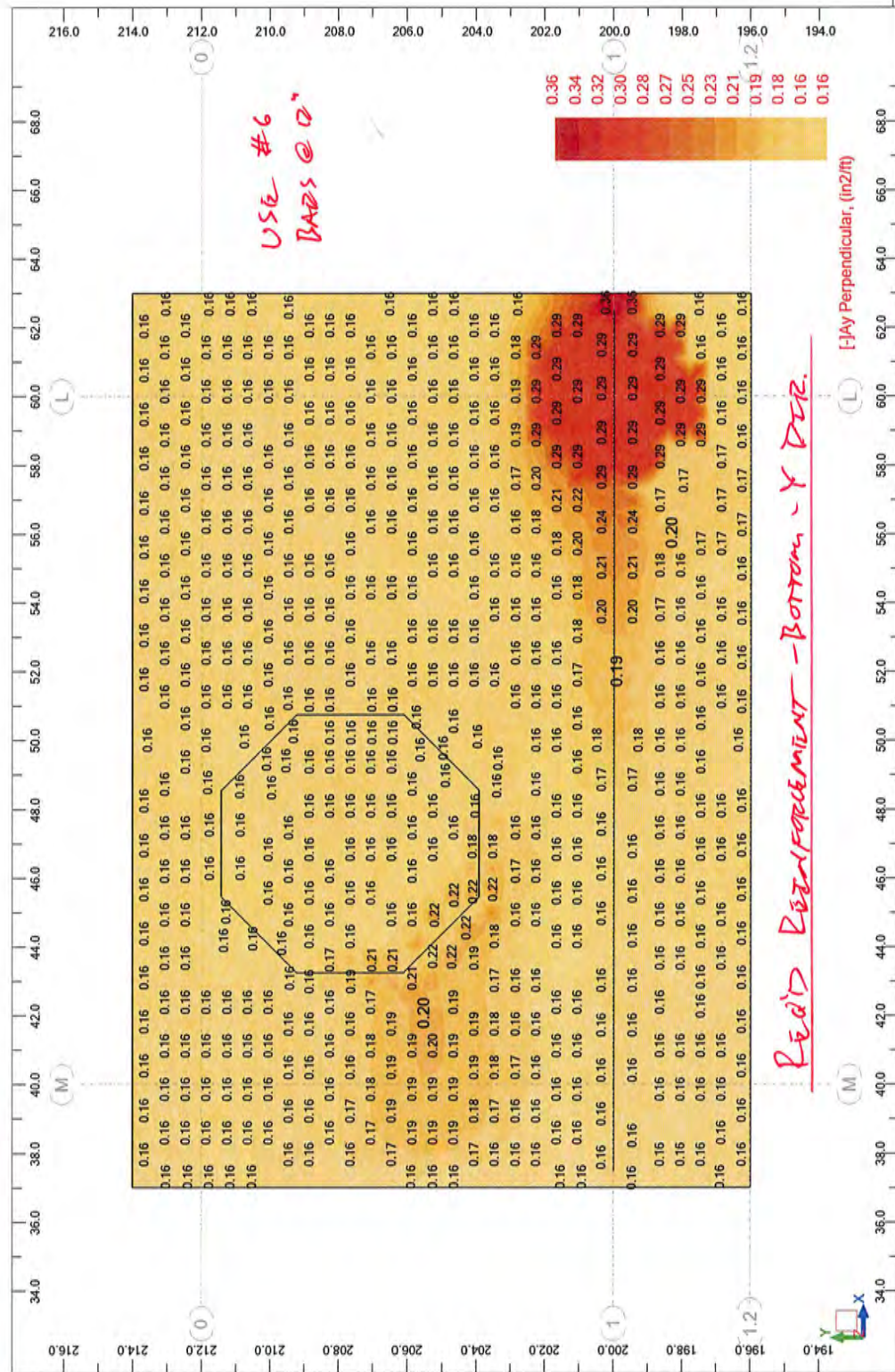
7158 S. FLSmidth Drive
Midvale, UT 84047-5559

View - [-]Ax Main (in2/ft)

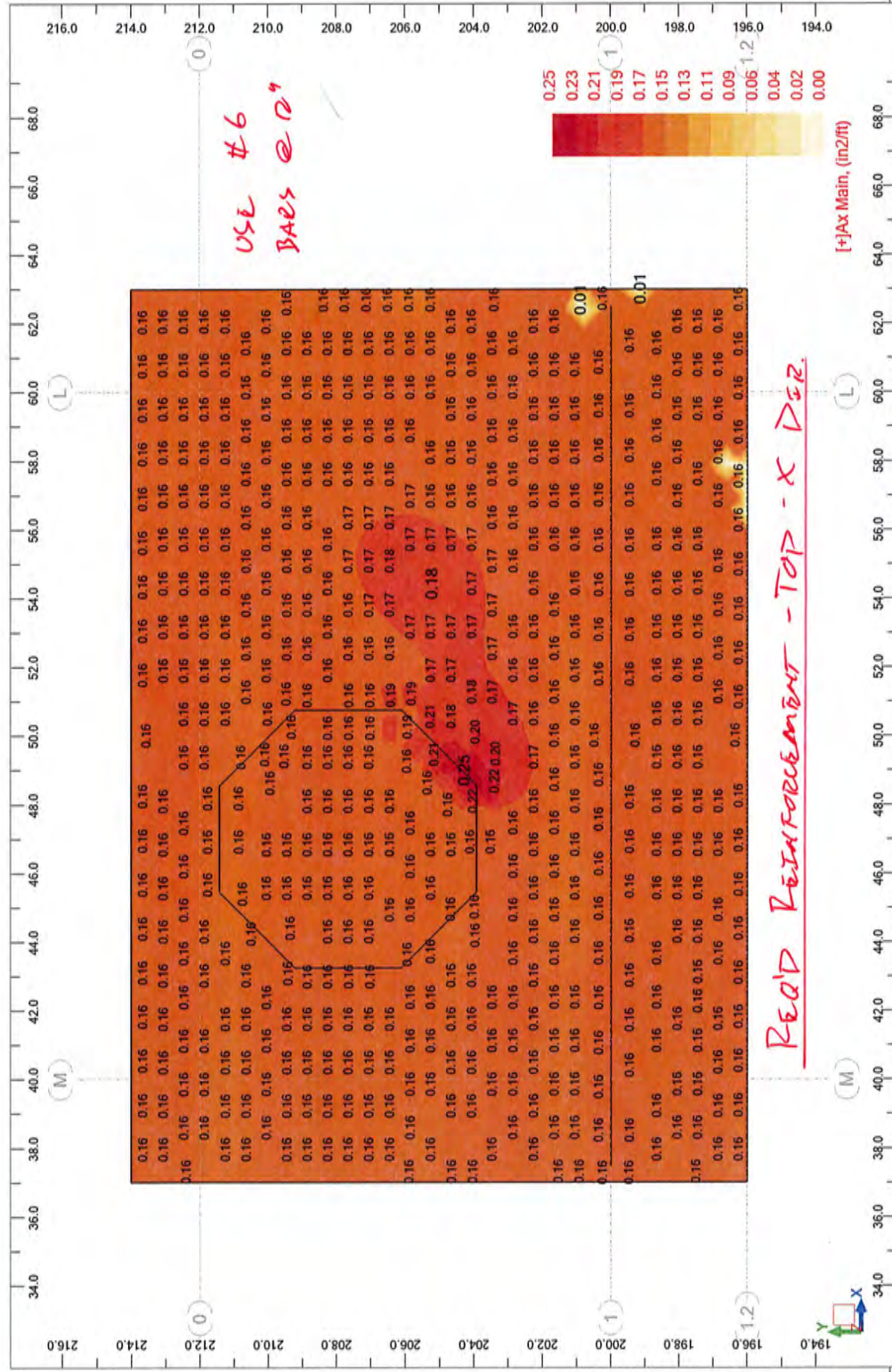


Real's Displacement - Bottom - X Per.

View - [-]Ay Perpendicular (in2/ft)



View - [x]Ax Main (in2/ft)



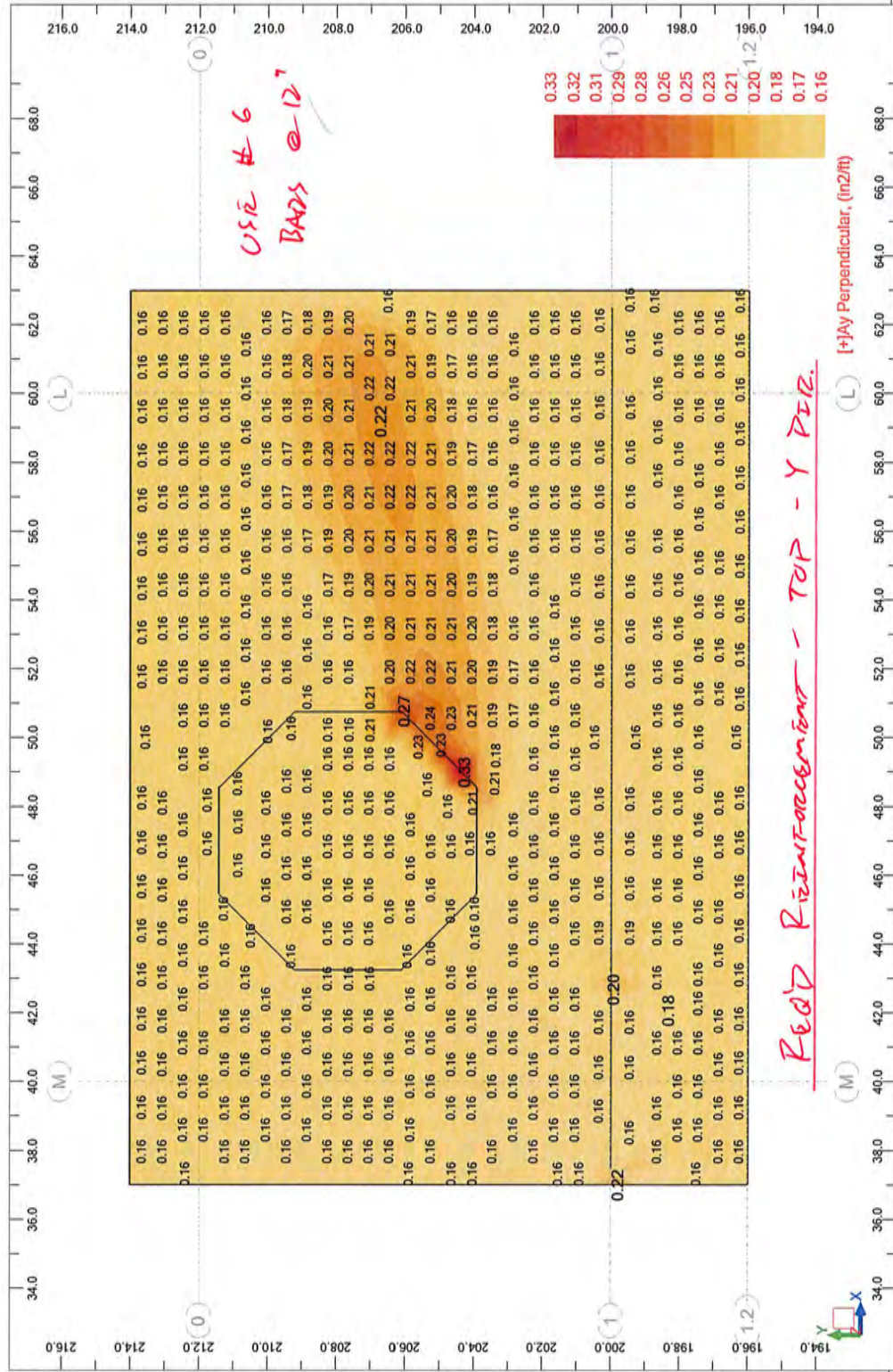
Red'd Reinforcement - TOP - X DER.



7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: Ed Summners
Calc No.: C-007 Job.: 11021
Project: F-1 Rev. 0
Client: CC&V

View - [x]Ay Perpendicular (in2/ft)



Date : 14/05/12
File: F-1 Rev.0.rtd

Process Building Foundation Check - F-6 (Purple-1)

Node 37

Type	Axial (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
Dead	46.4	-1.7	0	1.07	0
Live	28.93	-4.18	0	-1.15	0
Snow	36.46	-1.05	0	1.66	0
Wind X	114.5	24.75	0	3.28	0
Wind Y	-5.62	7.33	0	4.66	0
Ex	37.88	8.07	0	0.11	0
Ey	4.14	0.1	0	1.64	0

Node 38

Type	Axial (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
Dead	42.8	1.65	0	0.72	0
Live	54.49	-1.26	0	0.81	0
Snow	30.32	1.54	0	1.27	0
Wind X	-132.51	-22.82	0	7.9	0
Wind Y	30.19	5.48	0	6.74	0
Ex	37.64	7.66	0	0.02	0
Ey	0.69	0.23	0	0.49	0

Process Building Foundation Check - F-7 (Purple-2)

Node 39

Type	Axial (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
Dead	43.51	0.25	0	-1.07	0
Live	66.03	0.05	0	-7.32	0
Snow	13.51	0.45	0	0.02	0
Wind X	-18.65	-10.64	0	1.67	0
Wind Y	220.6	11.76	0	32.22	0
Ex	0.53	0.59	0	0.17	0
Ey	47.81	0.02	0	6.25	0

Node 40

Type	Axial (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
Dead	49.41	0.37	0	3.01	0
Live	-65.43	0.11	0	-7.24	0
Snow	19.36	0.68	0	1.57	0
Wind X	18.58	9.01	0	3.32	0
Wind Y	-264.12	11.11	0	-31.93	0
Ex	0.18	0.57	0	0.16	0
Ey	49.48	0.02	0	6.24	0

Process Building Foundation Check - F-8

REGRAD FDN
F-1

Node 41

Type	Axial (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
Dead	52.76	-3.34	0	-0.58	0
Live	15.32	-2.02	0	-0.24	0
Snow	28.25	-2.13	0	-1.07	0
Wind X	64.64	9.95	0	-11.53	0
Wind Y	-28.37	-3.43	0	-9.41	0
Ex	33.69	5.41	0	0.01	0
Ey	0.03	0.2	0	0.51	0

Node 42

Type	Axial (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
Dead	48.27	1.95	0	-0.47	0
Live	5.33	-0.84	0	-0.23	0
Snow	24.63	0.8	0	-0.85	0
Wind X	-98.83	-11.88	0	-11.78	0
Wind Y	15.26	2.9	0	10.79	0
Ex	33.48	5.32	0	0.02	0
Ey	0.91	0.26	0	0.51	0

TAIL 6'-6" ϕ
6'-0" H204

Seismic Design of Steel Circular Tanks

per ACI 350.3, ASCE 7-05

Tank Properties:

$$D := 6.5 \text{ ft}$$

Tank Diameter

$$H := 8 \text{ ft}$$

Height of Tank

Seismic Properties:

$$S_a := .213$$

Spectral Acceleration (% of g)

$$I := 1.0$$

Importance Factor

$$R := 3$$

Response Factor

$$u_v := 0.043$$

Vertical Acceleration (% of g)

Material Properties:

$$W_L := 22000 \text{ lbf}$$

$$\approx 650 \text{ PSF}$$

Weight of Material

$$W_w := 2000 \text{ lbf}$$

$$\approx 100 \text{ PLF}$$

Weight of Tank

$$W_r := 0 \text{ lbf}$$

Weight of Roof

$$W_i := \frac{\tanh\left(0.866 \cdot \frac{D}{H}\right) \cdot W_L}{0.866 \cdot \left(\frac{D}{H}\right)} = 18.968 \cdot \text{kip}$$

Weight of Impulsive Material

$$W_c := 0.230 \cdot \left(\frac{D}{H}\right) \cdot \tanh\left(3.68 \cdot \frac{H}{D}\right) \cdot W_L = 4.11 \cdot \text{kip}$$

Weight of Convective Material

Force Center of Gravity:

$$h_w := \frac{H}{2} = 4 \cdot \text{ft}$$

Wall Center of Gravity

$$h_r := H = 8 \cdot \text{ft}$$

Roof Center of Gravity

$$h_i := 0.375 \cdot H = 3 \cdot \text{ft}$$

Impulsive Center of Gravity

$$h_c := \left[1 - \frac{\cosh\left(3.68 \cdot \frac{H}{D}\right) - 1}{3.68 \cdot \left(\frac{H}{D}\right) \cdot \sinh\left(3.68 \cdot \frac{H}{D}\right)} \right] \cdot H = 6.271 \cdot \text{ft}$$

Convective Center of Gravity

Vertical Forces:

$$P_v := u_v \cdot W_w = 0.086 \cdot \text{kip}$$

Force due to Wall

$$P_r := u_r \cdot W_r = 0 \cdot \text{kip}$$

Force due to Roof

$$q_h := \gamma \cdot H = 0.021 \frac{\text{s}^2 \cdot \text{in}^2}{\text{lb}} \cdot \text{ksf}$$

Liquid Pressure

$$Q_h := q_h \cdot \left(\frac{D}{2} \right) = 67.169 \frac{\text{s}^2 \cdot \text{in}^2}{\text{lb}} \cdot \text{plf}$$

Liquid Force per ft of Wall

Shear Forces:

$$\varepsilon := \min \left[0.0151 \left(\frac{D}{H} \right)^2 - 0.1908 \cdot \left(\frac{D}{H} \right) + 1.021, 1 \right] = 0.876$$

Effective Mass Coefficient

$$P_w := \frac{S_a \cdot I \cdot \varepsilon \cdot W_w}{R} = 0.124 \cdot \text{kip}$$

Base Shear due to Wall

$$P_r := \frac{(S_a) \cdot I \cdot \varepsilon \cdot W_r}{R} = 0 \cdot \text{kip}$$

Base Shear due to Roof

$$P_i := \frac{S_a \cdot I \cdot W_i}{R} = 1.347 \cdot \text{kip}$$

Base Shear due to
Impulsive Weight

$$P_c := \frac{S_a \cdot I \cdot W_c}{R} = 0.292 \cdot \text{kip}$$

Base Shear due to
Convective Weight

$$V_w := \sqrt{(P_i + P_w + P_r)^2 + P_c^2} = 1.5 \cdot \text{kip} \approx 75 \text{ PLF}$$

Total Base Shear

Overtaking Forces:

$$M_w := P_w \cdot h_w = 0.498 \cdot \text{kip} \cdot \text{ft}$$

Overtaking Moment due to Wall

$$M_r := P_r \cdot h_r = 0 \cdot \text{kip} \cdot \text{ft}$$

Overtaking Moment due to Wall

$$M_i := P_i \cdot h_i = 4.04 \cdot \text{kip} \cdot \text{ft}$$

Overtaking Moment due
to Impulsive Force

$$M_c := P_c \cdot h_c = 1.83 \cdot \text{kip} \cdot \text{ft}$$

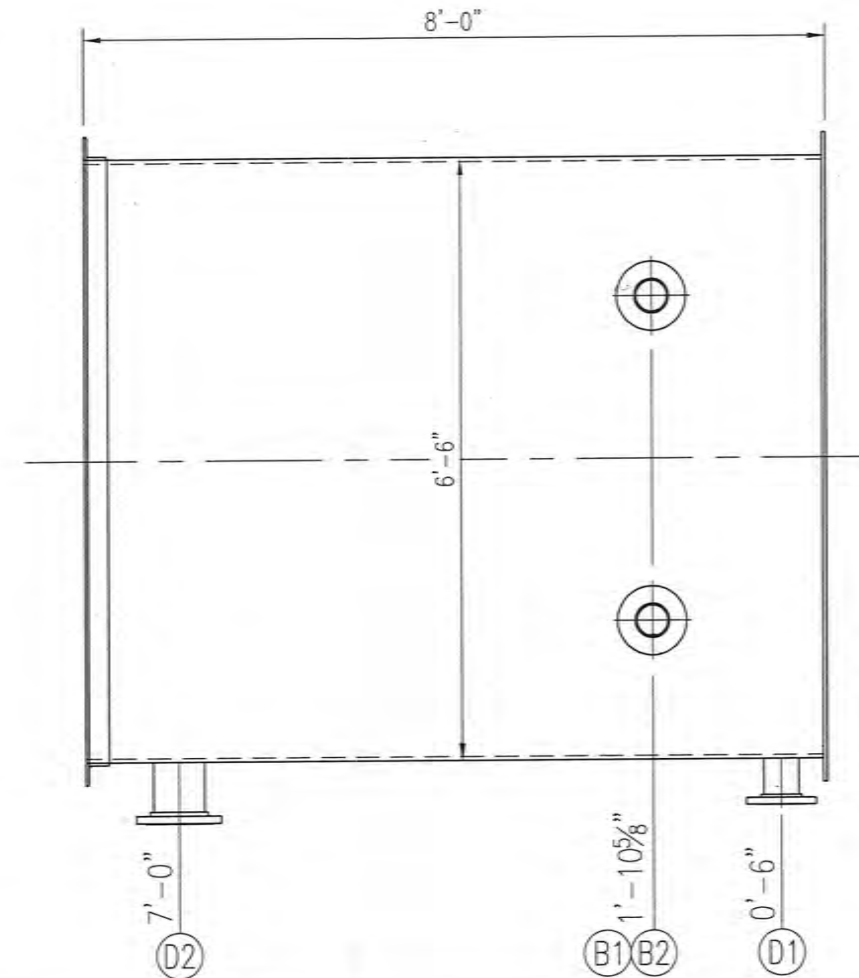
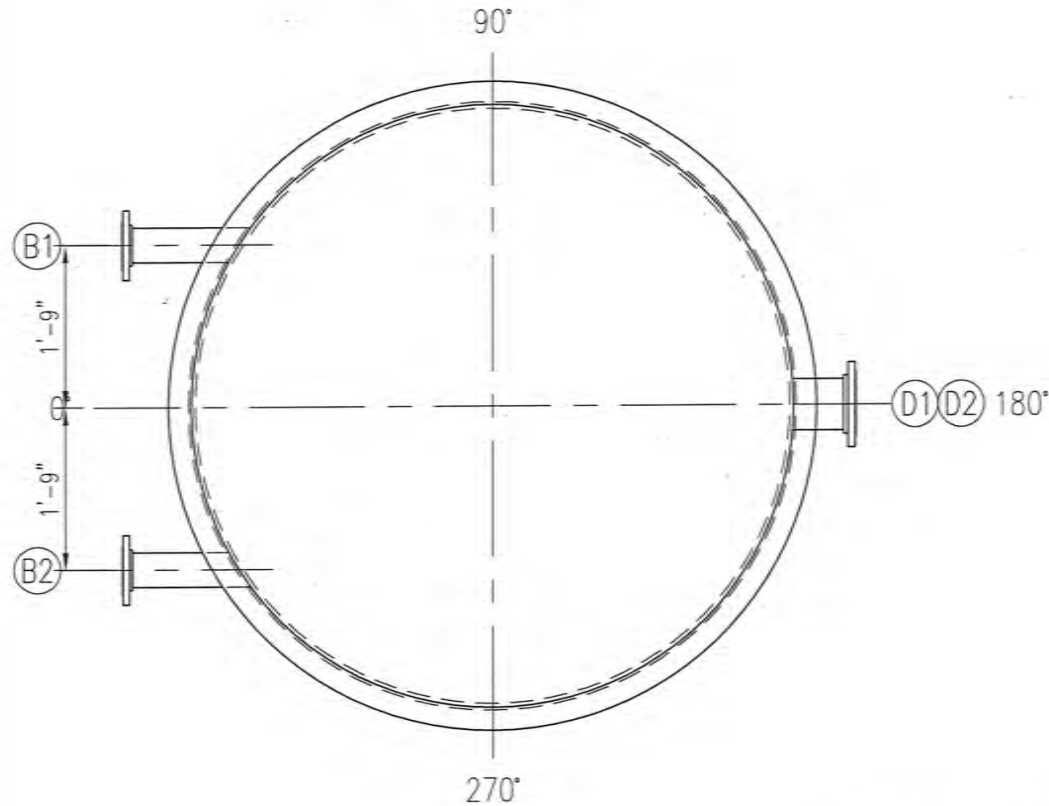
Overtaking Moment due
to Convective Force

$$M := \sqrt{(M_i + M_w + M_r)^2 + M_c^2} = 4.893 \cdot \text{kip} \cdot \text{ft}$$

Total Overtaking Moment

$$\bar{x} = D - D_{fr} = 6' - 6" (1 - \frac{1}{6}) = 4' - 5 \frac{1}{2}"$$

$$F = \pm \frac{M}{\bar{x}} (\approx D) = \pm 54 \text{ PLF}$$



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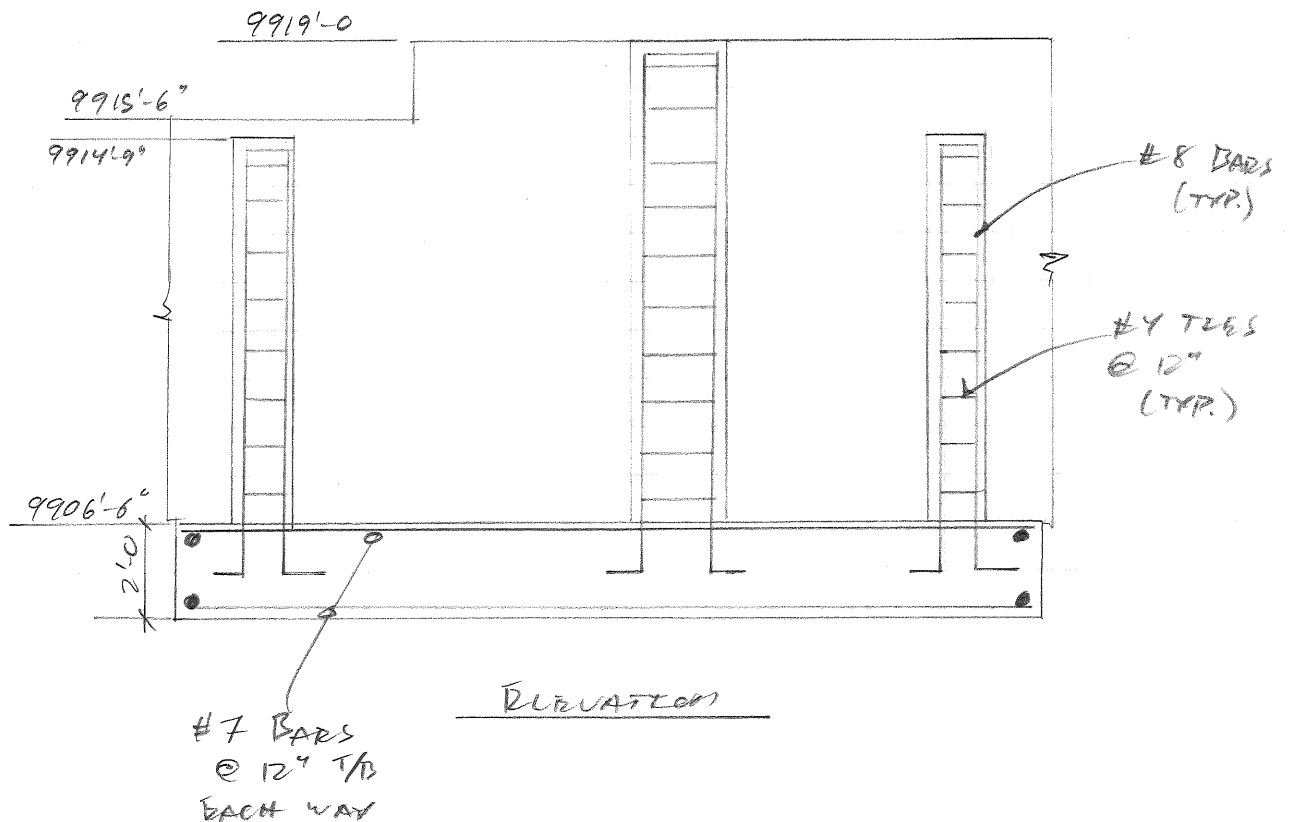
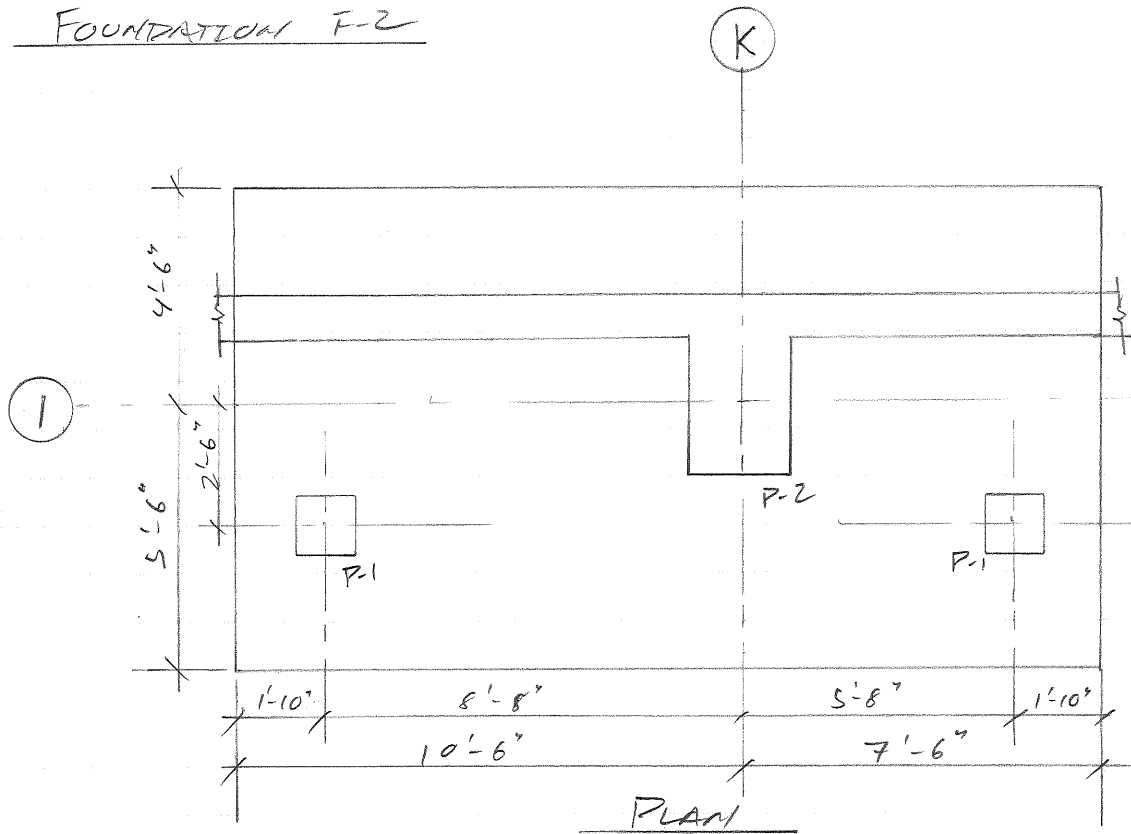
							MATERIALS			DESIGN DATA						GENERAL NOTES					
							SHELL			ZONE		DESIGN		OPERATING		1. BOLT HOLES TO STRADDLE NORMAL VESSEL CENTERLINES. 2. ALL NOZZLES TO BE FLUSH WITH THE INSIDE OF THE VESSEL. 3. VENDOR TO PROVIDE INSULATION CLIPS OR RINGS. 4. VENDOR TO PROVIDE LIFTING LUGS.					
							HEADS			SHELL SIDE											
							CLAD OR LINING			TOP HEAD											
							SUPPORTS			BOTTOM HEAD											
							NOZZLES		FLANGE:		NECK:						FLSMIDTH PLANT SYSTEMS GROUP - SALT LAKE CITY, UTAH HIGH GRADE MILL CONCENTRATE THICK. OVERFLOW TANK PLAN AND ELEVATION DATE 3-28-2012P. O. No. DRAWN BY JLBFABRICATOR PROCESSMECHANICALDWG NO. 11021-M-13-24 APP'D REVDATEDESCRIPTIONBYCHKAPP				
							MANHOLES/ HANDHOLES		FLANGE:		NECK:		WIND:		SEISMIC:						
									COVER:				MIN. DESIGN METAL TEMP								
							GASKETS		NOZZLE:		MANHOLE:		SPECIAL SERVICE								
							BOLTING		INT:		EXT:		MAWP (INT) AT DESIGN TEMP. & CORR.		Psig LIMITED BY						
							NUTS		INT:		EXT:		MAWP (EXT) AT DESIGN TEMP. & CORR.		Psig LIMITED BY						
							INTERNALS		PIPE:		PLATE:		MAWP (NEW & COLD)		Psig LIMITED BY						
									STRUCT:				HYDROSTATIC TEST		Psig						
							EXTERNALS		PLATE:		STRUCT:		CORROSION ALLOWANCE		SHELL & HEADS					NOZZLES	
													FIXED INTERNALS		REMOVABLE INTERNALS						
							TRAYS						RADIOGRAPHING								
							TRAY SUPPORT RINGS						JOINT EFFICIENCY								
							REINFORCING PADS						POST WELD HEAT TREATMENT								
													ALLOW STRESS @ DESIGN TEMP		Psi @ NEW & COLD					Psi	
													CODE:							CODE STAMPING:	
													INSPECTION BY								
													PAINTING								
													INSULATION								
													ESTIMATED		TOTAL WEIGHTS		MAX. MOMENTS AT BASE				
													OPERATING		22,000 #		5000 ft.-#				
													TEST								
													EMPTY		2000 #						
													ERECTOR								



PROJECT
CL&V HIGH GRADE ORR
SUBJECT
REGREIND FOUNDATION
F-2

PROJ NO.	11021
CALC NO.	C-007
BY	EC5
DATE	5-14-12
CHK	DATE
SHEET	OF
REV	

FOUNDATION F-2





PROJECT

CC/V HIGH GRADE ORTE

SUBJECT

REBRIED FOUNDATION

F-2

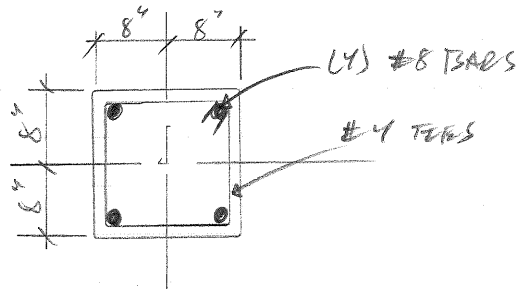
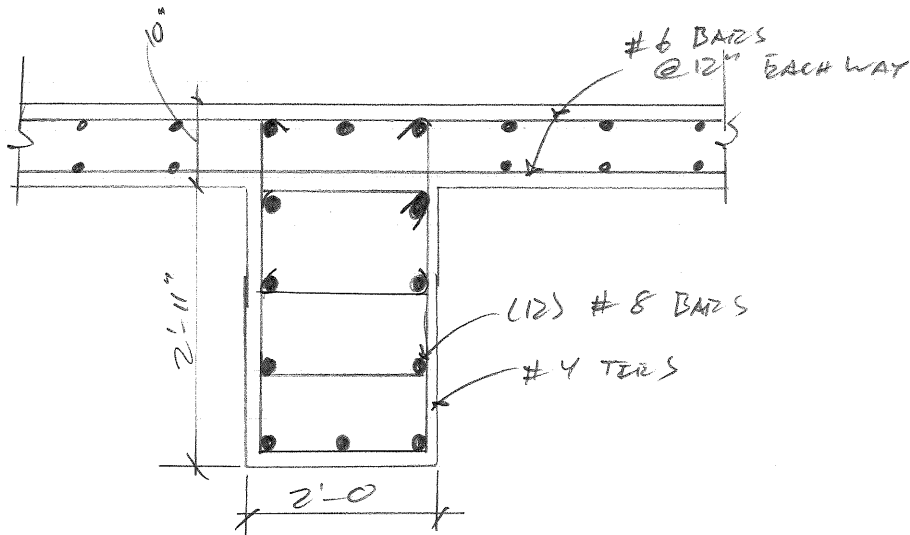
PROJ NO. 11021

CALC NO. C-007

BY ELS DATE 5-14-12

CHK DATE

SHEET OF REV

FOUNDATION F-2PEDESTAL P-1PEDESTAL P-2

	PROJECT	CC&V	PROJ NO.	11021
		HIGH GRADE ORE	CALC NO.	C-007
	SCOPE	REGRIND MILL	BY ECS	DATE 14-May-12
		FOUNDATION F-2	CHK	DATE
		STABILITY CHECK	SHEET	OF REV

Foundation Properties

$L_x =$	18	ft	Foundation Length - X
$L_y =$	10	ft	Foundation Length - Y
$t =$	2	ft	Foundation Thickness
$H =$	5	ft	Depth Below Grade
$\gamma_{soil} =$	120	pcf	Soil Weight
$\gamma_{concrete} =$	150	pcf	Concrete Weight
C.G (x)	78.5	ft	Foundation Center of Gravity - X
C.G (y)	200.5	ft	Foundation Center of Gravity - Y
C.G (z)	9906.5	ft	Foundation Center of Gravity - Z
$\mu =$	0.4		Friction Coefficient
$k_p =$	3.69		Passive Pressure Coefficient

Loads:

		Location			
Coordi nates		node 4	1-C	1-D	Mat
	X (ft)	80.0	85.7	71.3	78.5
	Y (ft)	200.0	197.5	197.5	200.5
	Z (ft)	9915.5	9914.8	9914.8	9906.5
Dead	F _z (kip)	46.39	10.6	10.6	54.0
	F _x (kip)	0.0	0	0	0
	M _y (kip*ft)	0	0	0	0
	F _y (kip)	0.67	0	0	0
	M _x (kip*ft)	0	0	0	0
Soil	F _z (kip)	0	0	0	64.8
	F _x (kip)	0	0	0	0
	M _y (kip*ft)	0	0	0	0
	F _y (kip)	0	0	0	0
	M _x (kip*ft)	0	0	0	0
Live	F _z (kip)	43.37	45.9	45.9	18
	F _x (kip)	0	0.2	0.2	0
	M _y (kip*ft)	0	0	0	0
	F _y (kip)	0.58	0.2	0.2	0
	M _x (kip*ft)	0	0	0	0
Snow	F _z (kip)	30.38	0	0	0
	F _x (kip)	0	0	0	0
	M _y (kip*ft)	0	0	0	0
	F _y (kip)	1.22	0	0	0
	M _x (kip*ft)	0	0	0	0
Wind X	F _z (kip)	-16.18 -13.65	0	0	0
	F _x (kip)	10.5	0	0	0
	M _y (kip*ft)	0	0	0	0
	F _y (kip)	0	0	0	0
	M _x (kip*ft)	0	0	0	0
Wind Y	F _z (kip)	14.27 -9.41	0	0	0
	F _x (kip)	8.77 -10.52	0	0	0
	M _y (kip*ft)	0	0	0	0
	F _y (kip)	0	0	0	0
	M _x (kip*ft)	0	0	0	0
Ex	F _z (kip)	0	0	0	0
	F _x (kip)	0	0	0	0
	M _y (kip*ft)	0	0	0	0
	F _y (kip)	0	0	0	0
	M _x (kip*ft)	0	0	0	0
Ey	F _z (kip)	0	0	0	0
	F _x (kip)	0	0	0	0
	M _y (kip*ft)	0	0	0	0
	F _y (kip)	0	0	0	0
	M _x (kip*ft)	0	0	0	0

Resultant Forces @ Foundation C.G.

Load Combination	F _z (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
Dead	121.6	0.0	-69.5	0.7	92.8
Soil	64.8	0.0	30.4	0.0	0.0
Live	153.2	0.4	-61.8	1.0	305.6
Snow	30.4	0.0	-45.6	1.2	26.2
Wind X	-16.2	10.5	118.8	0.0	-8.1
Wind Y	14.3	8.8	57.5	0.0	7.1
Ex	0.0	0.0	0.0	0.0	0.0
Ey	0.0	0.0	0.0	0.0	0.0

Resultant Combinations @ Foundation C.G.

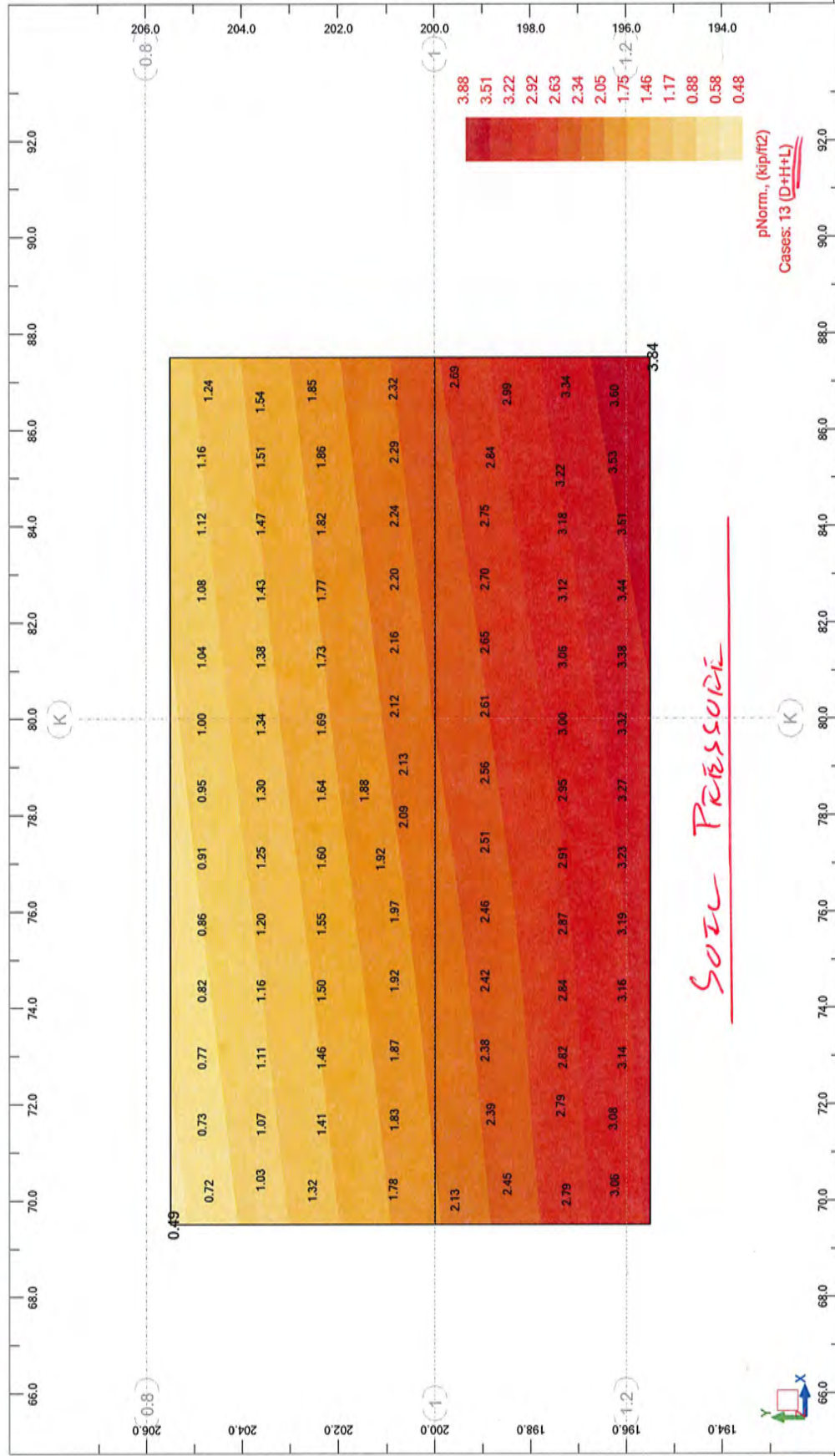
Load Combination	F _z (kip)	F _x (kip)	M _y (kip*ft)	F _y (kip)	M _x (kip*ft)
D+H+L	339.6	0.4	-100.9	1.7	398.4
D+H+S	216.8	0.0	-84.7	1.9	119.0
D+H+0.75(L+S)	324.1	0.3	-119.6	2.3	341.7
D+H+W _x	170.2	10.5	79.7	0.7	84.7
D+H+W _y	200.7	8.8	18.4	0.7	100.0
D+H+0.7E _x	186.4	0.0	-39.1	0.7	92.8
D+H+0.7E _y	186.4	0.0	-39.1	0.7	92.8
D+H+0.75(L+S+W _x)	311.9	8.2	-30.5	2.3	335.6
D+H+0.75(L+S+W _y)	334.8	6.9	-76.5	2.3	347.0
D+H+0.75(L+S+0.7E _x)	324.1	0.3	-119.6	2.3	341.7
D+H+0.75(L+S+0.7E _y)	324.1	0.3	-119.6	2.3	341.7
0.6D+H+W _x	121.6	10.5	107.5	0.4	47.6
0.6D+H+W _y	152.0	8.8	46.2	0.4	62.8
0.6D+H+0.7E _x	137.8	0.0	-11.3	0.4	55.7
0.6D+H+0.7E _y	137.8	0.0	-11.3	0.4	55.7

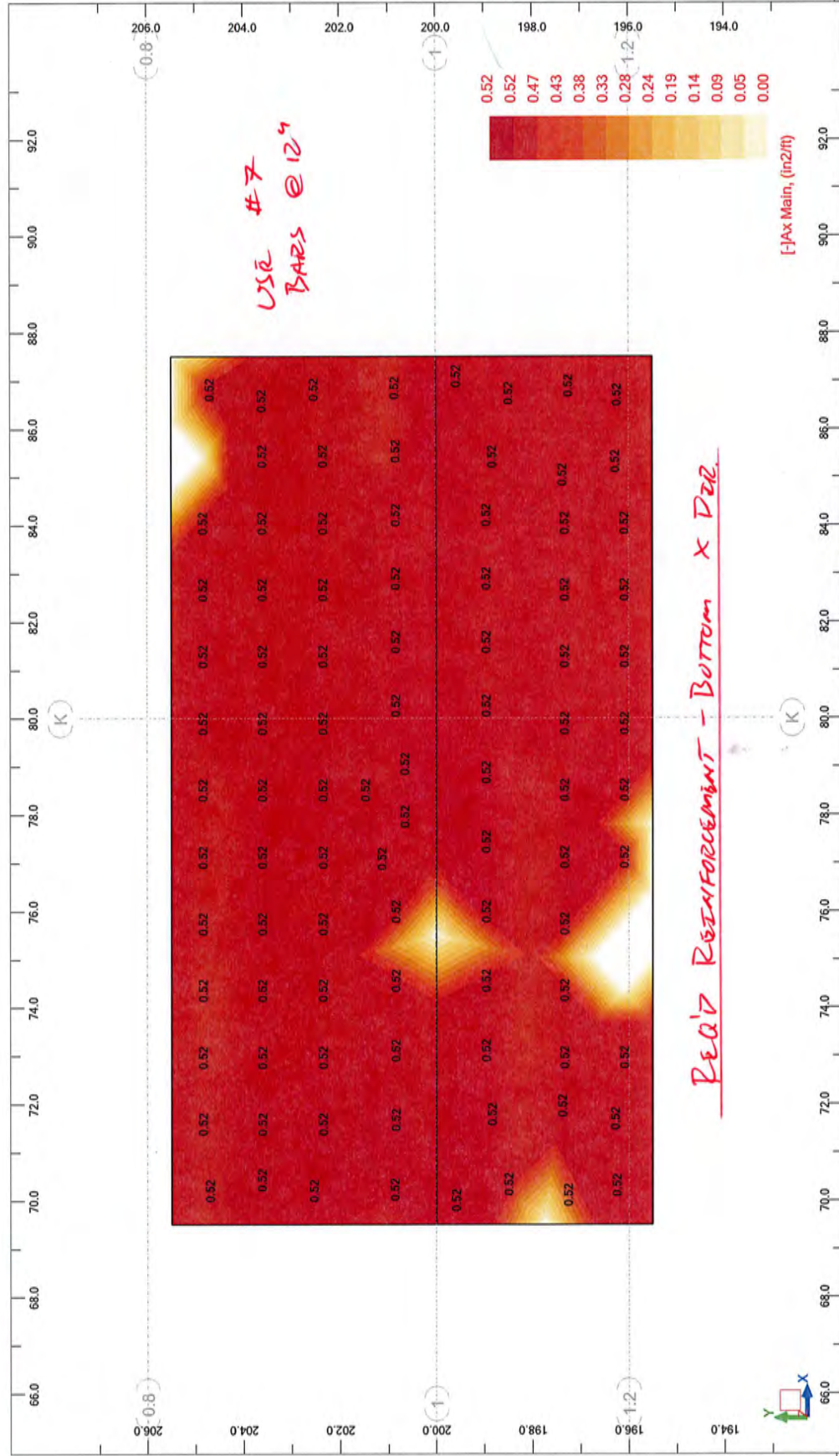
Results:

Load Combination	Sliding Resistance		Sliding Ratio	
	F_x (kip)	F_y (kip)	X	Y
D+H+L	153.5	167.7	374.5	101.6
D+H+S	104.4	118.6	10442.0	62.7
D+H+0.75(L+S)	147.3	161.5	475.3	69.6
D+H+W _x	85.8	100.0	8.2	149.2
D+H+W _y	98.0	112.1	11.2	167.4
D+H+0.7E _x	92.3	106.4	9226.8	158.9
D+H+0.7E _y	92.3	106.4	9226.8	158.9
D+H+0.75(L+S+W _x)	142.5	156.6	17.4	67.5
D+H+0.75(L+S+W _y)	151.6	165.8	22.0	71.5
D+H+0.75(L+S+0.7E _x)	147.3	161.5	475.3	69.6
D+H+0.75(L+S+0.7E _y)	147.3	161.5	475.3	69.6
0.6D+H+W _x	66.3	80.5	6.3	200.3
0.6D+H+W _y	78.5	92.7	8.9	230.6
0.6D+H+0.7E _x	72.8	87.0	12135.6	216.4
0.6D+H+0.7E _y	72.8	87.0	12135.6	216.4

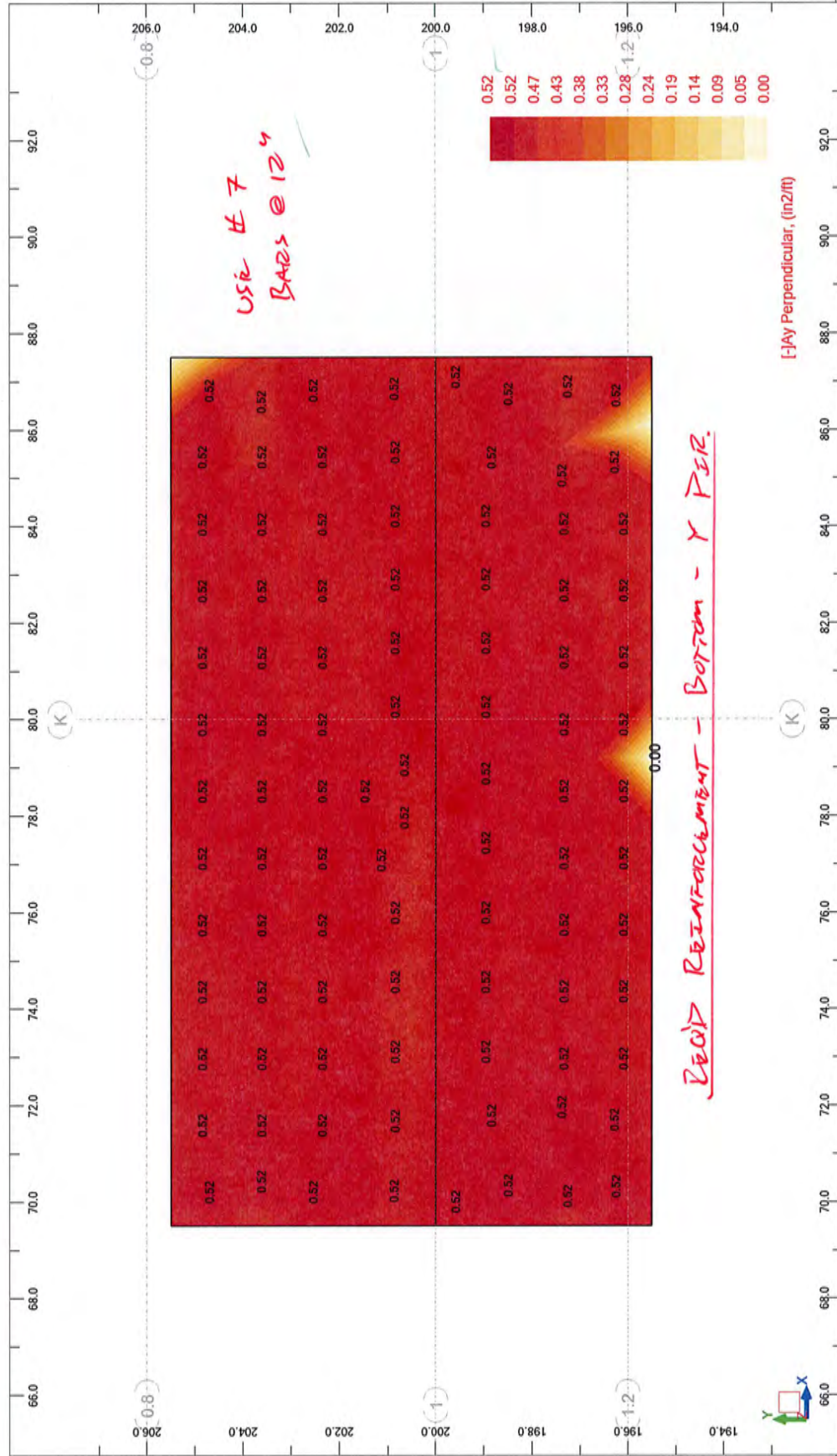
Load Combination	Overturning Resistance		Overturning Ratio	
	M_x (kip)	M_y (kip)	X	Y
D+H+L	1697.8	3056.0	4.3	30.3
D+H+S	1083.9	1950.9	9.1	23.0
D+H+0.75(L+S)	1620.3	2916.5	4.7	24.4
D+H+W _x	851.1	1531.9	10.0	19.2
D+H+W _y	1003.3	1805.9	10.0	98.1
D+H+0.7E _x	932.0	1677.5	10.0	42.9
D+H+0.7E _y	932.0	1677.5	10.0	42.9
D+H+0.75(L+S+W _x)	1559.6	2807.3	4.6	91.9
D+H+0.75(L+S+W _y)	1673.8	3012.8	4.8	39.4
D+H+0.75(L+S+0.7E _x)	1620.3	2916.5	4.7	24.4
D+H+0.75(L+S+0.7E _y)	1620.3	2916.5	4.7	24.4
0.6D+H+W _x	607.9	1094.2	12.8	10.2
0.6D+H+W _y	760.1	1368.2	12.1	29.6
0.6D+H+0.7E _x	688.8	1239.8	12.4	109.6
0.6D+H+0.7E _y	688.8	1239.8	12.4	109.6

View - pNorm. (kip/ft2) Cases: 13 (D+H+L)



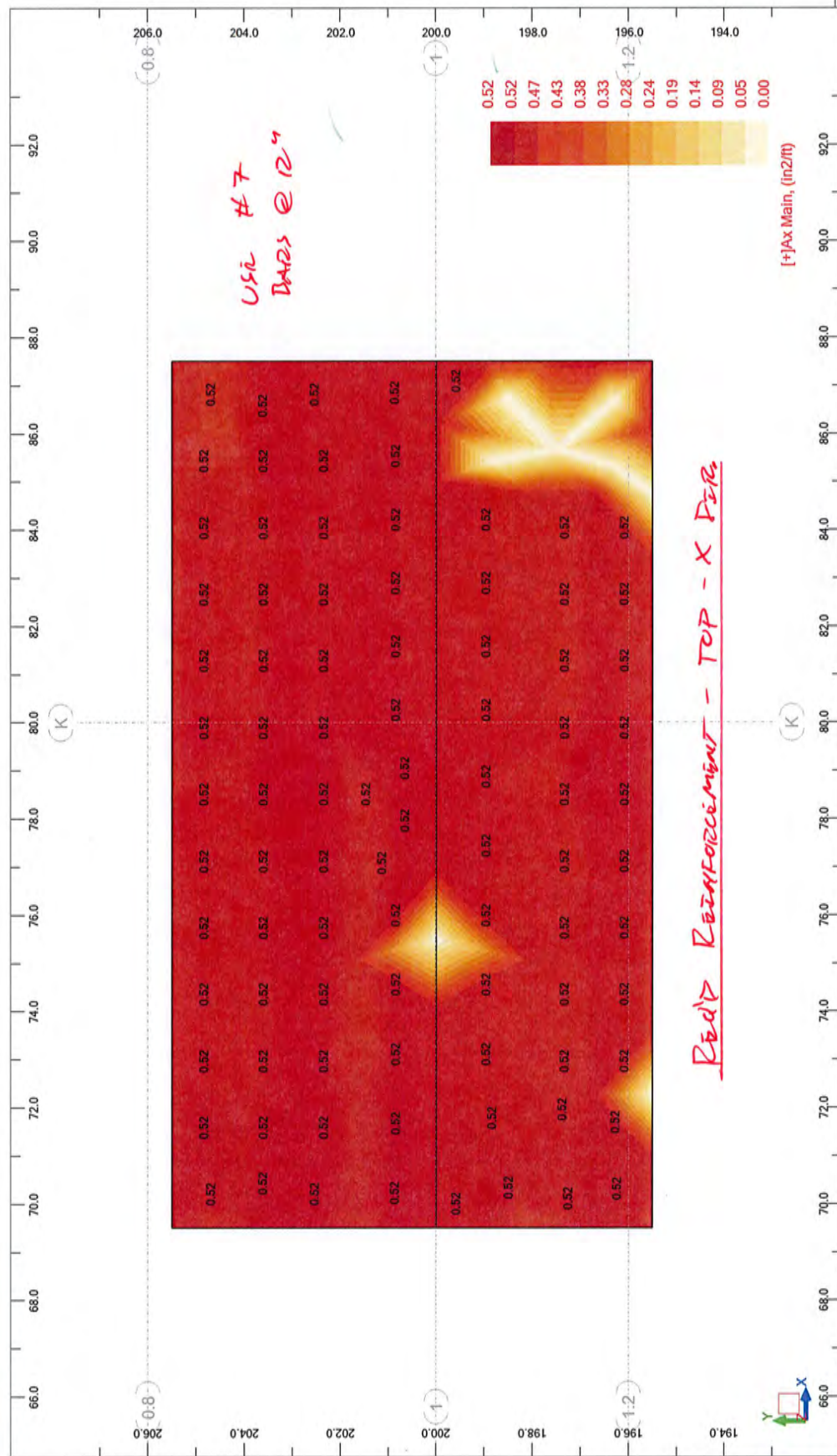


View - [-]Ay Perpendicular (in2/ft)



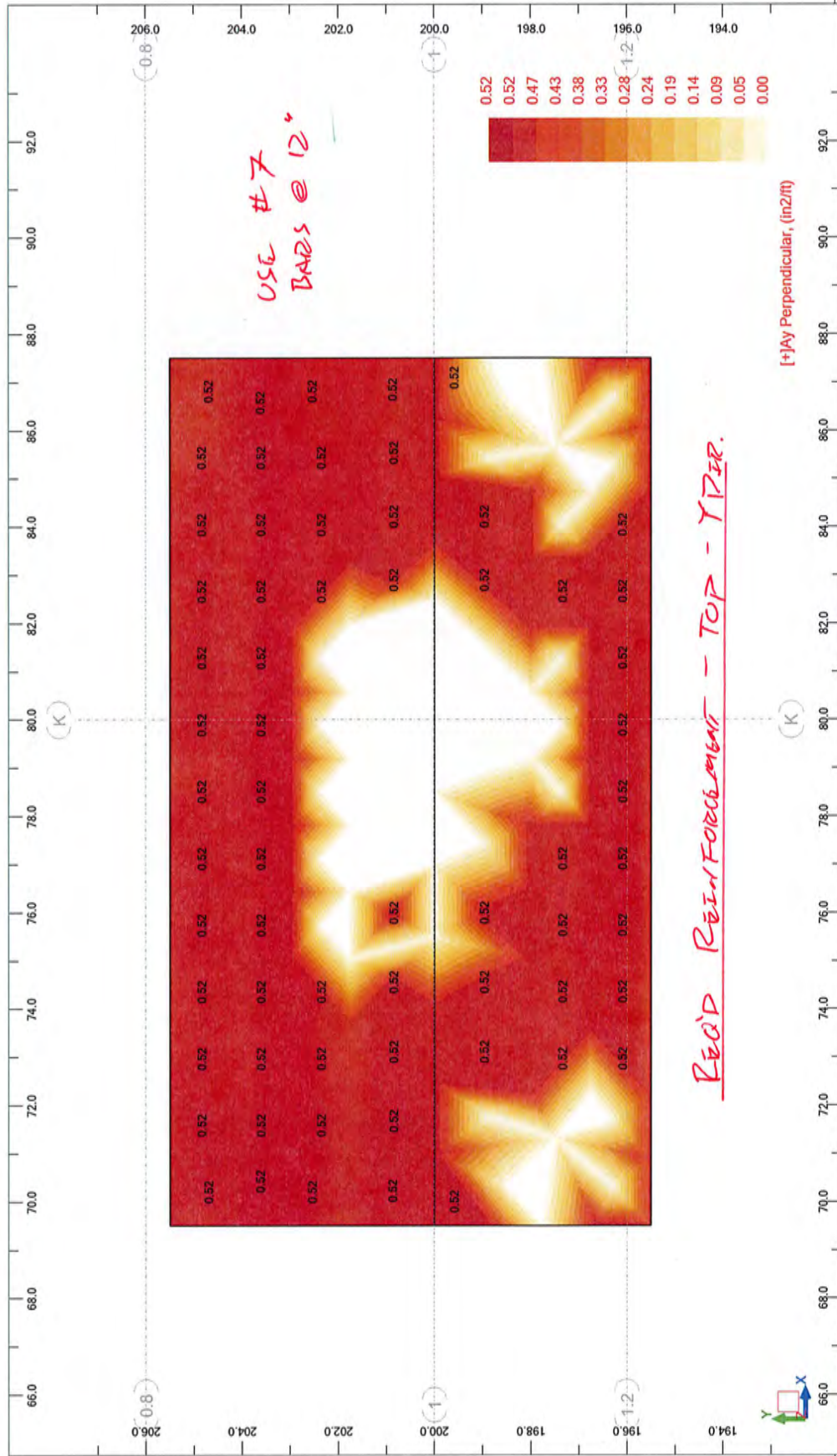
Engineer: **Ed Summers**
Calc No.: **C-007 Job.:11021**
Project: **F-2 Rev.0**
Client: **CC&V**

7158 S. FLSmidth Drive
Midvale, UT 84047-5559

View - [+]**Ax Main (in2/ft)**Page : 1
Robot 2012 © AutoDesk

Date : 14/05/12
File: F-2 Rev.0.rtd

View - [Y]Ay Perpendicular (in2/ft)



Proj. No.: 11021

Engr: ECS

Date: 5/14/2012

Checker:

Date:

POS/TOG EL. 112.00'

14 # 4
Ties @
12 "
o.c.

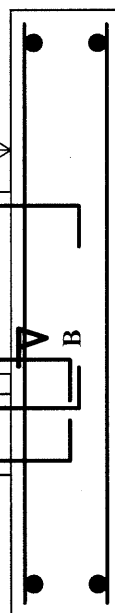
POS/TOG EL. 101.00'

4 # 4
Ties

V A

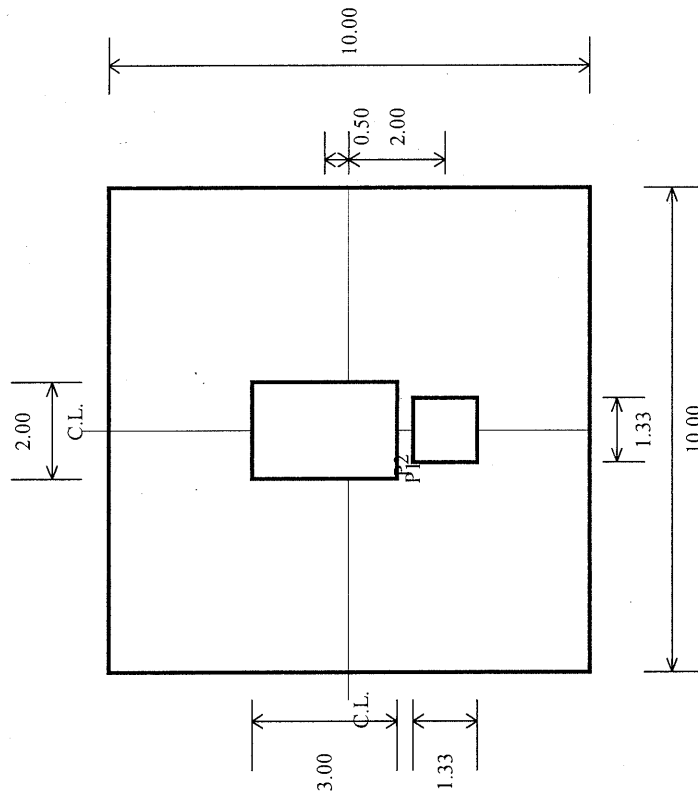
GR. EL. 100.00'

2.00'

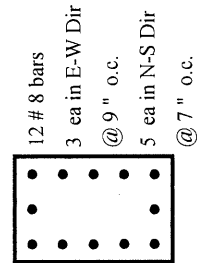


2.00'

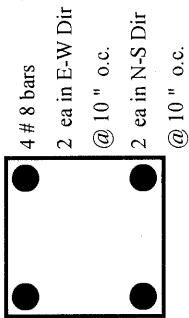
ELEVATION LOOKING WEST



PLAN (1 REQD.) (All dimensions in ft)



SECTION A-A



SECTION B-B

MATERIAL QUANTITIES

CONCRETE	10.7 (CY) GROUT 0.466 (CF)
FORMWORK	236.0 (SF) ANCH 0.0 (LB)
REINF. STEEL	1456.8 (LB)
EXCAVATION	49.8 (CY) ABOVE GRADE FINISH 125.3 (SF)

FOUNDATION PLAN & ELEV FOR

F-3

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-3		Time	4:01:35 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Regrind Area Concrete\			
Filename:	Regrind Foundations\F-3.mcs			

DETAIL REPORT FOR F-3**PROJECT INFORMATION**

Project Name: CC&V High Grade Mill
Project Number: 11021
Client: CC&V
Project Location: Victor CO
Foundation Description: FOUNDATION

DESIGN CODE ACI 318 - 2008 **INPUT UNITS** English **OUTPUT UNITS** English

CONCRETE PARAMETERS:

Compressive Strength (psi) 4000
 Unit Weight (pcf) 150
 Pier Concrete Cover - E-W Dir (in) 2
 Pier Concrete Cover - N-S Dir (in) 2
 Footing Side Concrete Cover - E-W Dir (in) 3
 Footing Side Concrete Cover - N-S Dir (in) 3
 Footing Top Concrete Cover (in) 2
 Footing Bottom Concrete Cover - X Dir (in) 3

REINFORCING STEEL PARAMETERS:

Yield Strength (ksi) 60
 Unit Weight (pcf) 490
 Modulus of Elasticity (ksi) 29000
 Pier Min Rebar Spacing (in) 3
 Footing Min Rebar Spacing (in) 6
 Footing Max Rebar Spacing (in) 18

SOIL PARAMETERS:

Unit Weight (pcf) 120
 Allowable Net Bearing Capacity (psf) 4000
 Bearing Capacity Method Linear Soil Pressure
 Soil Type Granular
 Passive Pressure Coefficient Kp 3.69
 Soil To Concrete Friction f 0.5
 Allowable Increase in Soil Pressure due to Short Term Loads (%)
 Wind 33.33 Earthquake 33.33 Test 20
 Erection Stability Ratio 1.5
 Operation Stability Ratio 1.5
 Test Stability Ratio 1.5
 Safety Factor against Lateral Forces 1.5

REBAR PARAMETERS:

Max Long Bar Size 10
 Min Long Bar Size 7
 Max Tie Bar Size 4
 Min Tie Bar Size 3
 Max Ftg Bar Size 18
 Temp & Shrinkage Steel Ratio 0.0018

MINIMUM FOUNDATION CRITERIA:

Depth of Footing Below Grade (ft) 4
 Minimum Soil Cover (ft) 0
 Grade Elevation (ft) 100

BUOYANCY CRITERIA:

Consider Buoyancy: No
 Consider soil for buoyancy: No
 Water table below grade (ft) 0

Dimensional Solutions FOUNDATION3D

Version 5.8.2

Date 5/14/2012

Foundation Name

F-3

Time

4:01:35 PM

Designed By:

FLSmith Salt Lake City

Engineer

ECS

Checker

P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Regrind Area Concrete\

Filename:

Regrind Foundations\F-3.mcs

DETAIL REPORT FOR F-3**APPLIED LOADS****P1**

Load Case	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	46.39	-0.01	0.00	-0.67	0.00
2 - Live	43.37	0.00	0.00	-0.58	0.00
3 - Snow	30.38	0.00	0.00	-1.22	0.00
4 - Wind X	-16.18	0.03	0.00	-10.50	0.00
5 - Wind Y	-14.27	0.04	0.00	-8.77	0.00
6 - Earthquake X	0.17	0.03	0.00	0.01	0.00
7 - Earthquake Y	-0.31	0.00	0.00	-0.39	0.00

P2

Load Case	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	12.60	0.90	0.00	0.00	0.00
2 - Live	54.40	-4.50	0.00	0.00	0.00
3 - Snow	0.00	0.00	0.00	0.00	0.00
4 - Wind X	0.00	0.00	0.00	0.00	0.00
5 - Wind Y	0.00	0.00	0.00	0.00	0.00
6 - Earthquake X	0.70	0.70	0.00	0.00	0.00
7 - Earthquake Y	0.40	0.00	0.00	0.00	0.00

UNFACTORED (ALLOWABLE) LOAD COMBINATIONS**P1**

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	46.39	-0.01	0.00	-0.67	0.00
2 - Dead + Live	89.76	-0.01	0.00	-1.25	0.00
3 - Dead + Snow	76.77	-0.01	0.00	-1.89	0.00
4 - Dead + 0.75Live + 0.75Snow	101.70	-0.01	0.00	-2.02	0.00
5 - Dead + Wind X	30.21	0.02	0.00	-11.17	0.00
6 - Dead + Wind Y	32.12	0.03	0.00	-9.44	0.00
7 - Dead + 0.7Earthquake X	46.51	0.01	0.00	-0.66	0.00
8 - Dead + 0.7Earthquake Y	46.17	-0.01	0.00	-0.94	0.00
9 - 0.6Dead + Wind X	11.65	0.02	0.00	-10.90	0.00
10 - 0.6Dead + Wind Y	13.56	0.03	0.00	-9.17	0.00
11 - 0.6Dead + 0.7Earthquake X	27.95	0.02	0.00	-0.40	0.00
12 - 0.6Dead + 0.7Earthquake Y	27.62	-0.01	0.00	-0.68	0.00

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-3		Time	4:01:35 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Regrind Area Concrete\			
	Regrind Foundations\F-3.mcs			

DETAIL REPORT FOR F-3**P2**

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	12.60	0.90	0.00	0.00	0.00
2 - Dead + Live	67.00	5.40	0.00	0.00	0.00
3 - Dead + Snow	12.60	0.90	0.00	0.00	0.00
4 - Dead + 0.75Live + 0.75Snow	53.40	4.28	0.00	0.00	0.00
5 - Dead + Wind X	12.60	0.90	0.00	0.00	0.00
6 - Dead + Wind Y	12.60	0.90	0.00	0.00	0.00
7 - Dead + 0.7Earthquake X	13.09	1.39	0.00	0.00	0.00
8 - Dead + 0.7Earthquake Y	12.88	0.90	0.00	0.00	0.00
9 - 0.6Dead + Wind X	7.56	0.54	0.00	0.00	0.00
10 - 0.6Dead + Wind Y	7.56	0.54	0.00	0.00	0.00
11 - 0.6Dead + 0.7Earthquake X	8.05	1.03	0.00	0.00	0.00
12 - 0.6Dead + 0.7Earthquake Y	7.84	0.54	0.00	0.00	0.00

FACTORED (ULTIMATE) LOAD COMBINATIONS**P1**

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - 1.4Dead	64.95	-0.01	0.00	-0.94	0.00
2 - 1.2Dead + 1.6Live + 0.5Snow	140.25	-0.01	0.00	-2.34	0.00
3 - 1.2Dead + Live + 1.6Snow	147.65	-0.01	0.00	-3.34	0.00
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	88.34	0.04	0.00	-18.79	0.00
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	91.40	0.05	0.00	-16.03	0.00
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	105.28	0.02	0.00	-1.62	0.00
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	104.80	-0.01	0.00	-2.02	0.00
8 - 0.9Dead + 1.6Wind X	15.86	0.04	0.00	-17.40	0.00
9 - 0.9Dead + 1.6Wind Y	18.92	0.06	0.00	-14.64	0.00
10 - 0.9Dead + Earthquake X	41.92	0.02	0.00	-0.59	0.00
11 - 0.9Dead + Earthquake Y	41.44	-0.01	0.00	-0.99	0.00

P2

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - 1.4Dead	17.64	1.26	0.00	0.00	0.00
2 - 1.2Dead + 1.6Live + 0.5Snow	102.16	8.28	0.00	0.00	0.00
3 - 1.2Dead + Live + 1.6Snow	69.52	5.58	0.00	0.00	0.00
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	69.52	5.58	0.00	0.00	0.00
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	69.52	5.58	0.00	0.00	0.00
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	70.22	6.28	0.00	0.00	0.00
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	69.92	5.58	0.00	0.00	0.00
8 - 0.9Dead + 1.6Wind X	11.34	0.81	0.00	0.00	0.00
9 - 0.9Dead + 1.6Wind Y	11.34	0.81	0.00	0.00	0.00
10 - 0.9Dead + Earthquake X	12.04	1.51	0.00	0.00	0.00
11 - 0.9Dead + Earthquake Y	11.74	0.81	0.00	0.00	0.00

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-3		Time	4:01:35 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Regrind Area Concrete\Regrind Foundations\F-3.mcs			

DETAIL REPORT FOR F-3**BEARING CAPACITY - LINEAR SOIL PRESSURE METHOD**

Load Comb	Max Pressure (ksf)	All Pressure (ksf)	Ecc N/S Dir (ft)	Ecc E/W Dir (ft)	Moment N/S axis (kip-ft)	Moment E/W axis (kip-ft)	Rem
1 - Dead	1.32	4.48	0.06	0.03	4.34	8.02	
2 - Dead + Live	3.01	4.48	0.47	0.12	26.84	104.41	
3 - Dead + Snow	1.65	4.48	0.08	0.03	4.34	12.35	
4 - Dead + 0.75Live + 0.75Snow	2.83	4.48	0.38	0.10	21.22	83.56	
5 - Dead + Wind X	2.22	5.81	1.70	0.04	4.82	184.11	
6 - Dead + Wind Y	2.07	5.81	1.41	0.05	4.98	155.47	
7 - Dead + 0.7Earthquake X	1.35	5.81	0.07	0.06	7.13	8.83	
8 - Dead + 0.7Earthquake Y	1.35	5.81	0.10	0.03	4.34	13.05	
9 - 0.6Dead + Wind X	2.08	5.81	3.09	0.05	3.08	180.90	
10 - 0.6Dead + Wind Y	1.65	5.81	2.52	0.05	3.24	152.27	
11 - 0.6Dead + 0.7Earthquake X	0.82	5.81	0.07	0.07	5.39	5.62	
12 - 0.6Dead + 0.7Earthquake Y	0.82	5.81	0.13	0.03	2.60	9.85	

STABILITY RATIO / SLIDING SAFETY FACTOR

Load Comb	S.R. N/S Dir	S.R. E/W Dir	All S.R.	Sliding FS - N/S	Sliding FS - E/W	All FS	Remarks
1 - Dead	58.34	100.00	1.50	100.00	99.81	1.50	
2 - Dead + Live	51.36	41.17	1.50	100.00	25.55	1.50	
3 - Dead + Snow	26.21	100.00	1.50	55.04	100.00	1.50	
4 - Dead + 0.75Live + 0.75Snow	32.55	51.62	1.50	67.76	32.09	1.50	
5 - Dead + Wind X	3.00	100.00	1.50	7.23	87.76	1.50	
6 - Dead + Wind Y	3.62	100.00	1.50	8.65	87.84	1.50	
7 - Dead + 0.7Earthquake X	59.16	87.80	1.50	100.00	63.62	1.50	
8 - Dead + 0.7Earthquake Y	41.43	100.00	1.50	94.23	99.84	1.50	
9 - 0.6Dead + Wind X	1.64	94.90	1.50	5.12	99.00	1.50	
10 - 0.6Dead + Wind Y	2.02	93.16	1.50	6.19	98.94	1.50	
11 - 0.6Dead + 0.7Earthquake X	59.71	69.87	1.50	100.00	61.46	1.50	
12 - 0.6Dead + 0.7Earthquake Y	34.71	100.00	1.50	94.75	100.00	1.50	

FOOTING DESIGN INFORMATION

E-W Dim (ft)	10.00
N-S Dim (ft)	10.00
Thickness (ft)	2.00

Top Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
11. 0.9Dead + Earthquake Y	10	7	12	0.6	0	0	E-W
8. 0.9Dead + 1.6Wind X	10	7	12	0.6	0.03	-2.11	N-S

Bottom Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
2. 1.2Dead + 1.6Live + 0.5Snow	10	7	12	0.6	0.52	25.94	E-W
4. 1.2Dead + Live + 0.5Snow + 1.6Wind X	10	7	12	0.6	0.52	20.59	N-S

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-3		Time	4:01:35 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\IC-007 Regrind Area Concrete\Regrind Foundations\F-3.mcs			

DETAIL REPORT FOR F-3**PUNCHING SHEAR****P1**

Control Comb	Net Ult Load (kips)	Punch. Stress (psi)	All Stress (psi)	Rem
3. 1.2Dead + Live + 1.6Snow	122.67	30.67	189.74	

P2

Control Comb	Net Ult Load (kips)	Punch. Stress (psi)	All Stress (psi)	Rem
2. 1.2Dead + 1.6Live + 0.5Snow	79.60	27.67	189.74	

MAXIMUM SHEAR - E-W DIRECTION

Load Comb	Left Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	7.33	-27.75	11.56	94.87	
2 - 1.2Dead + 1.6Live + 0.5Snow	7.33	-73.81	30.75	94.87	
3 - 1.2Dead + Live + 1.6Snow	7.33	-65.49	27.29	94.87	
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	7.33	-49.75	20.73	94.87	
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	7.33	-50.60	21.08	94.87	
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	7.33	-54.84	22.85	94.87	
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	7.33	-54.16	22.57	94.87	
8 - 0.9Dead + 1.6Wind X	7.33	-11.02	4.59	94.87	
9 - 0.9Dead + 1.6Wind Y	7.33	-11.87	4.95	94.87	
10 - 0.9Dead + Earthquake X	7.33	-18.54	7.73	94.87	
11 - 0.9Dead + Earthquake Y	7.33	-17.87	7.44	94.87	

MAXIMUM SHEAR - N-S DIRECTION

Load Comb	Bottom Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	5.33	36.95	15.40	94.87	
2 - 1.2Dead + 1.6Live + 0.5Snow	2.33	78.13	32.56	94.87	
3 - 1.2Dead + Live + 1.6Snow	5.33	70.75	29.48	94.87	
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	2.33	82.44	34.35	94.87	
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	2.33	78.23	32.60	94.87	
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	2.33	56.30	23.46	94.87	
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	2.33	56.76	23.65	94.87	
8 - 0.9Dead + 1.6Wind X	2.33	51.23	21.34	94.87	
9 - 0.9Dead + 1.6Wind Y	5.33	47.89	19.95	94.87	
10 - 0.9Dead + Earthquake X	5.33	23.69	9.87	94.87	
11 - 0.9Dead + Earthquake Y	5.33	24.48	10.20	94.87	

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-3		Time	4:01:35 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Regrind Area Concrete\			
Filename:	Regrind Foundations\F-3.mcs			

DETAIL REPORT FOR F-3**PIER/BASE PLATE DESIGN INFORMATION**

	P1	P2
E-W Dim (ft)	2.00	1.33
N-S Dim (ft)	3.00	1.33
Height above grade (ft)	12.00	1.00
E-W Offset (ft)	0.00	0.00
N-S Offset (ft)	0.50	-2.00
Requested Reinf. Ratio	0.0050	0.0050
Provided Reinf. Ratio	0.0109	0.0123
Long Bar Size	8	8
Bars in E-W Dir	3	2
Bars in N-S Dir	5	2
Total Long Bars	12	4
Tie Bar Size	4	4
Total No. of Ties	15	4
Major Tie Spacing (in)	12	12

PIER ULTIMATE LOAD CAPACITIES**P1**

Load Comb	Axial Load (kips)	Axial Capa. (kips)	Mom N-S (kip ft)	Mom N-S Capa (kip ft)	Mom E-W (kip ft)	Mom E-W Capa (kip ft)	Rem
1 - 1.4Dead	82.59	1804.95	9.42	0.00	13.34	0.00	Cap Exc.
2 - 1.2Dead + 1.6Live + 0.5Snow	155.37	1789.49	18.39	212.77	33.85	388.41	
3 - 1.2Dead + Live + 1.6Snow	162.77	1691.35	19.34	196.16	48.30	498.53	
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	103.46	285.92	11.93	32.94	268.61	742.06	
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	106.52	369.96	12.30	42.73	229.20	796.09	
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	120.40	1804.95	14.00	215.71	23.21	343.87	
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	119.92	1762.19	13.94	205.12	28.95	424.29	
8 - 0.9Dead + 1.6Wind X	27.20	72.10	3.02	8.01	244.77	648.86	
9 - 0.9Dead + 1.6Wind Y	30.26	99.03	3.37	11.02	205.97	674.19	
10 - 0.9Dead + Earthquake X	53.26	1804.95	6.00	212.29	8.39	290.54	
11 - 0.9Dead + Earthquake Y	52.78	1762.65	5.94	183.47	14.04	443.22	

P2

Load Comb	Axial Load (kips)	Axial Capa. (kips)	Mom N-S (kip ft)	Mom N-S Capa (kip ft)	Mom E-W (kip ft)	Mom E-W Capa (kip ft)	Rem
1 - 1.4Dead	18.75	451.70	3.78	86.44	1.69	36.69	
2 - 1.2Dead + 1.6Live + 0.5Snow	103.12	421.63	24.84	95.19	9.28	35.90	
3 - 1.2Dead + Live + 1.6Snow	70.48	424.21	16.74	94.48	6.34	36.00	
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	70.48	424.21	16.74	94.48	6.34	36.00	
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	70.48	424.21	16.74	94.48	6.34	36.00	
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	71.18	389.87	18.84	102.87	6.41	35.07	
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	70.88	425.24	16.74	94.19	6.38	36.04	
8 - 0.9Dead + 1.6Wind X	12.06	451.70	2.43	86.44	1.09	36.69	
9 - 0.9Dead + 1.6Wind Y	12.06	451.70	2.43	86.44	1.09	36.69	
10 - 0.9Dead + Earthquake X	12.76	327.51	4.53	115.84	1.15	29.45	
11 - 0.9Dead + Earthquake Y	12.46	456.47	2.43	84.98	1.12	36.70	

Dimensional Solutions FOUNDATION3D

Version 5.8.2

Date 5/14/2012

Foundation Name

F-3

Time

4:01:35 PM

Designed By:

FLSmith Salt Lake City

Engineer

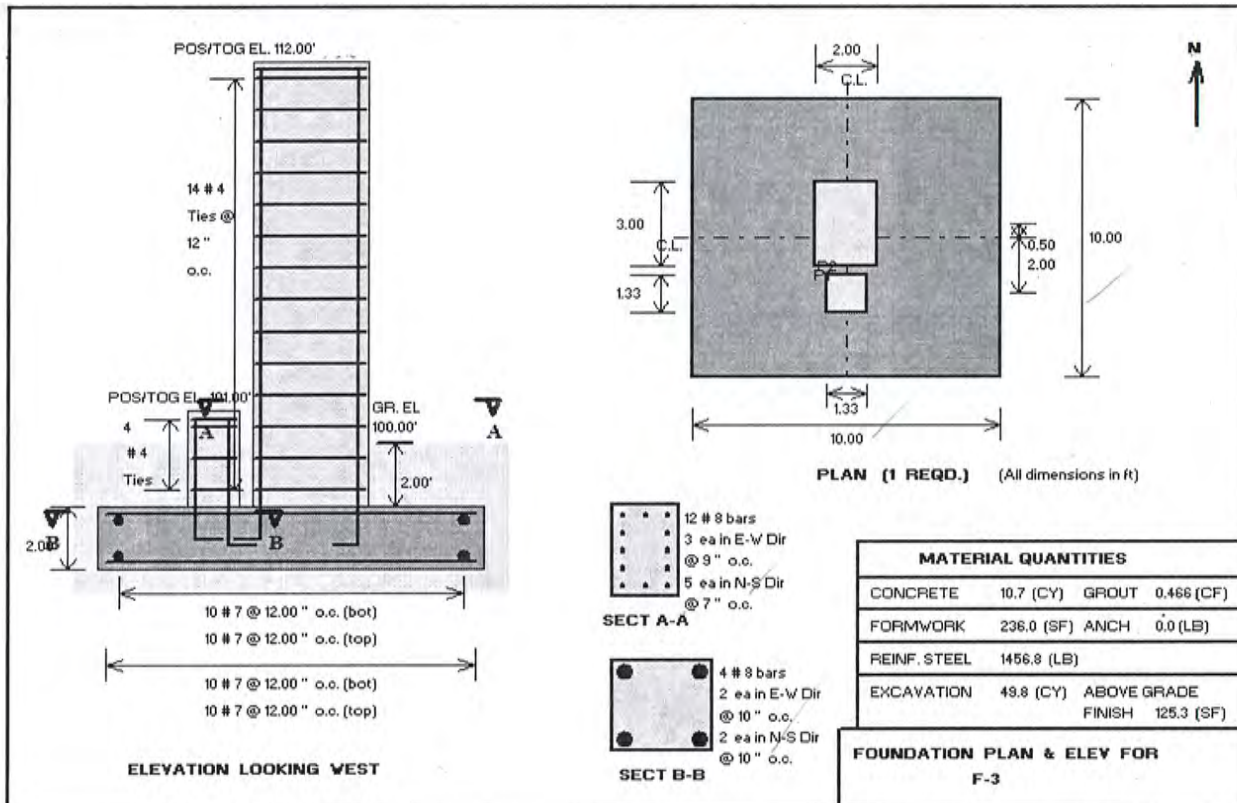
ECS

Checker

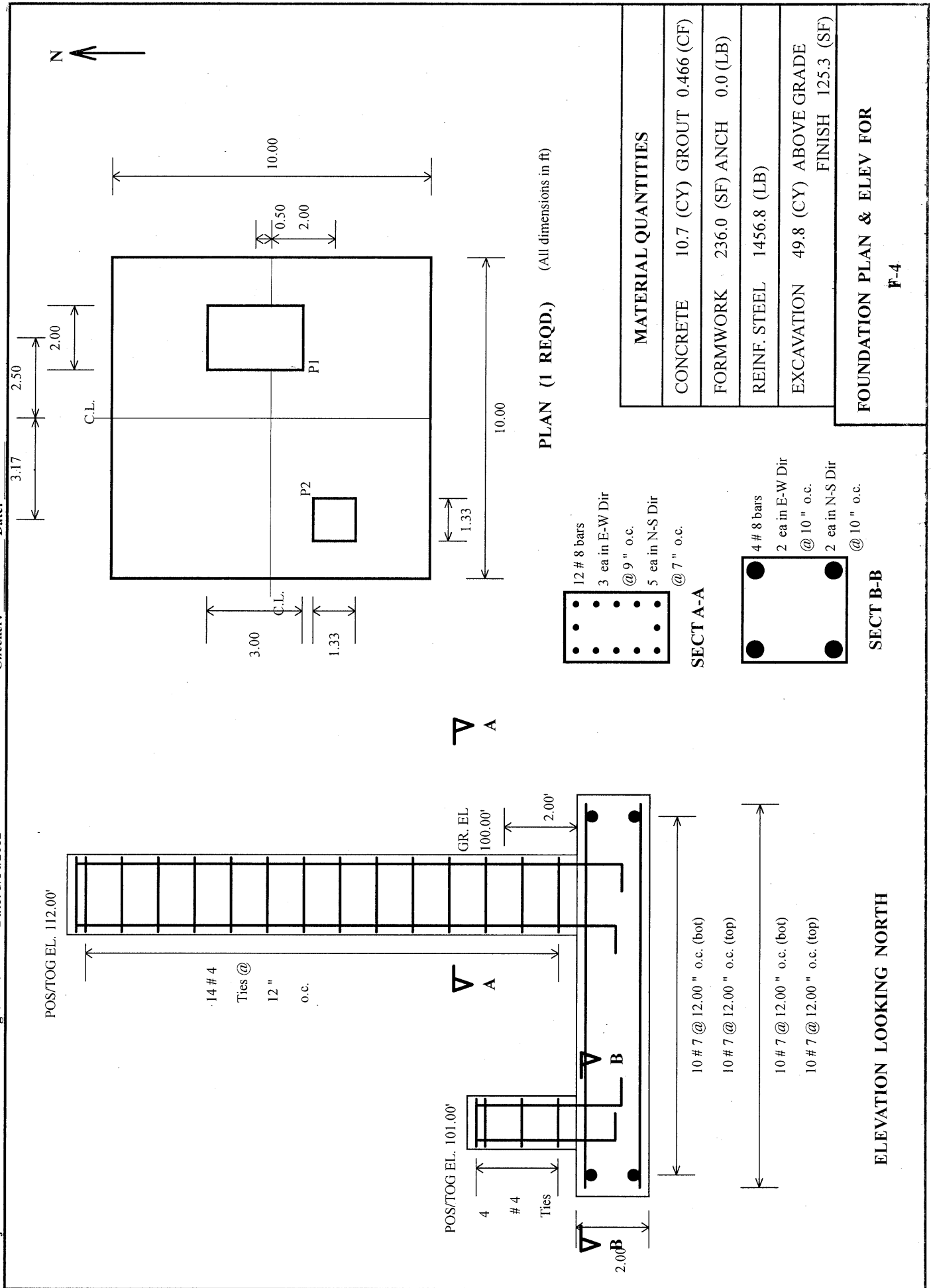
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Filename:

Regrind Foundations\F-3.mcs

DETAIL REPORT FOR F-3

Proj. No.: 11021 Engr: ECS Date: 5/14/2012 Checker: Date:



Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-4		Time	3:59:22 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
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Filename:	Re grind Foundations\F-4.mcs			

DETAIL REPORT FOR F-4**PROJECT INFORMATION**

Project Name: CC&V High Grade Mill
Project Number: 11021
Client: CC&V
Project Location: Victor CO
Foundation Description: FOUNDATION

DESIGN CODE ACI 318 - 2008 **INPUT UNITS** English **OUTPUT UNITS** English

CONCRETE PARAMETERS:

Compressive Strength (psi) 4000
 Unit Weight (pcf) 150
 Pier Concrete Cover - E-W Dir (in) 2
 Pier Concrete Cover - N-S Dir (in) 2
 Footing Side Concrete Cover - E-W Dir (in) 3
 Footing Side Concrete Cover - N-S Dir (in) 3
 Footing Top Concrete Cover (in) 2
 Footing Bottom Concrete Cover - X Dir (in) 3

SOIL PARAMETERS:

Unit Weight (pcf) 120
 Allowable Net Bearing Capacity (psf) 4000
 Bearing Capacity Method Linear Soil Pressure
 Soil Type Granular
 Passive Pressure Coefficient Kp 3.69
 Soil To Concrete Friction f 0.5
 Allowable Increase in Soil Pressure due to Short Term Loads (%)
 Wind 33.33 Earthquake 33.33 Test 20
 Erection Stability Ratio 1.5
 Operation Stability Ratio 1.5
 Test Stability Ratio 1.5
 Safety Factor against Lateral Forces 1.5

MINIMUM FOUNDATION CRITERIA:

Depth of Footing Below Grade (ft) 4
 Minimum Soil Cover (ft) 0
 Grade Elevation (ft) 100

REINFORCING STEEL PARAMETERS:

Yield Strength (ksi) 60
 Unit Weight (pcf) 490
 Modulus of Elasticity (ksi) 29000
 Pier Min Rebar Spacing (in) 3
 Footing Min Rebar Spacing (in) 6
 Footing Max Rebar Spacing (in) 18

REBAR PARAMETERS:

Max Long Bar Size 10
 Min Long Bar Size 7
 Max Tie Bar Size 4
 Min Tie Bar Size 3
 Max Ftg Bar Size 18
 Temp & Shrinkage Steel Ratio 0.0018

BUOYANCY CRITERIA:

Consider Buoyancy: No
 Consider soil for buoyancy: No
 Water table below grade (ft) 0

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-4		Time	3:59:22 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Re grind Area Concrete\Re grind Foundations\F-4.mcs			

DETAIL REPORT FOR F-4APPLIED LOADSP1

Load Case	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	40.10	-0.01	0.00	-0.82	0.00
2 - Live	19.99	-0.01	0.00	-0.52	0.00
3 - Snow	26.13	-0.01	0.00	-1.48	0.00
4 - Wind X	-13.11	0.07	0.00	-8.77	0.00
5 - Wind Y	-11.03	-0.08	0.00	-7.69	0.00
6 - Earthquake X	0.07	0.07	0.00	0.01	0.00
7 - Earthquake Y	-0.17	0.00	0.00	-0.40	0.00

P2

Load Case	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	12.60	0.90	0.00	0.00	0.00
2 - Live	54.40	4.50	0.00	0.00	0.00
3 - Snow	0.00	0.00	0.00	0.00	0.00
4 - Wind X	0.00	0.00	0.00	0.00	0.00
5 - Wind Y	0.00	0.00	0.00	0.00	0.00
6 - Earthquake X	0.70	0.70	0.00	0.00	0.00
7 - Earthquake Y	0.40	0.00	0.00	0.00	0.00

UNFACTORED (ALLOWABLE) LOAD COMBINATIONSP1

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	40.10	-0.01	0.00	-0.82	0.00
2 - Dead + Live	60.09	-0.02	0.00	-1.34	0.00
3 - Dead + Snow	66.23	-0.02	0.00	-2.30	0.00
4 - Dead + 0.75Live + 0.75Snow	74.69	-0.03	0.00	-2.32	0.00
5 - Dead + Wind X	26.99	0.06	0.00	-9.59	0.00
6 - Dead + Wind Y	29.07	-0.09	0.00	-8.51	0.00
7 - Dead + 0.7Earthquake X	40.15	0.04	0.00	-0.81	0.00
8 - Dead + 0.7Earthquake Y	39.98	-0.01	0.00	-1.10	0.00
9 - 0.6Dead + Wind X	10.95	0.06	0.00	-9.26	0.00
10 - 0.6Dead + Wind Y	13.03	-0.09	0.00	-8.18	0.00
11 - 0.6Dead + 0.7Earthquake X	24.11	0.04	0.00	-0.49	0.00
12 - 0.6Dead + 0.7Earthquake Y	23.94	-0.01	0.00	-0.77	0.00

Dimensional Solutions FOUNDATION3D

Version 5.8.2

Date 5/14/2012

Foundation Name

F-4

Time

3:59:22 PM

Designed By:

FLSmith Salt Lake City

Engineer

ECS

Checker

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Filename:

Regrind Foundations\F-4.mcs

DETAIL REPORT FOR F-4

P2

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	12.60	0.90	0.00	0.00	0.00
2 - Dead + Live	67.00	5.40	0.00	0.00	0.00
3 - Dead + Snow	12.60	0.90	0.00	0.00	0.00
4 - Dead + 0.75Live + 0.75Snow	53.40	4.28	0.00	0.00	0.00
5 - Dead + Wind X	12.60	0.90	0.00	0.00	0.00
6 - Dead + Wind Y	12.60	0.90	0.00	0.00	0.00
7 - Dead + 0.7Earthquake X	13.09	1.39	0.00	0.00	0.00
8 - Dead + 0.7Earthquake Y	12.88	0.90	0.00	0.00	0.00
9 - 0.6Dead + Wind X	7.56	0.54	0.00	0.00	0.00
10 - 0.6Dead + Wind Y	7.56	0.54	0.00	0.00	0.00
11 - 0.6Dead + 0.7Earthquake X	8.05	1.03	0.00	0.00	0.00
12 - 0.6Dead + 0.7Earthquake Y	7.84	0.54	0.00	0.00	0.00

FACTORED (ULTIMATE) LOAD COMBINATIONS

P1

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - 1.4Dead	56.14	-0.01	0.00	-1.15	0.00
2 - 1.2Dead + 1.6Live + 0.5Snow	93.17	-0.03	0.00	-2.56	0.00
3 - 1.2Dead + Live + 1.6Snow	109.92	-0.04	0.00	-3.87	0.00
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	60.20	0.09	0.00	-16.28	0.00
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	63.53	-0.16	0.00	-14.55	0.00
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	73.41	0.05	0.00	-1.79	0.00
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	73.17	-0.02	0.00	-2.20	0.00
8 - 0.9Dead + 1.6Wind X	15.11	0.10	0.00	-14.77	0.00
9 - 0.9Dead + 1.6Wind Y	18.44	-0.14	0.00	-13.04	0.00
10 - 0.9Dead + Earthquake X	36.16	0.06	0.00	-0.73	0.00
11 - 0.9Dead + Earthquake Y	35.92	-0.01	0.00	-1.14	0.00

P2

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - 1.4Dead	17.64	1.26	0.00	0.00	0.00
2 - 1.2Dead + 1.6Live + 0.5Snow	102.16	8.28	0.00	0.00	0.00
3 - 1.2Dead + Live + 1.6Snow	69.52	5.58	0.00	0.00	0.00
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	69.52	5.58	0.00	0.00	0.00
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	69.52	5.58	0.00	0.00	0.00
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	70.22	6.28	0.00	0.00	0.00
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	69.92	5.58	0.00	0.00	0.00
8 - 0.9Dead + 1.6Wind X	11.34	0.81	0.00	0.00	0.00
9 - 0.9Dead + 1.6Wind Y	11.34	0.81	0.00	0.00	0.00
10 - 0.9Dead + Earthquake X	12.04	1.51	0.00	0.00	0.00
11 - 0.9Dead + Earthquake Y	11.74	0.81	0.00	0.00	0.00

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-4		Time	3:59:22 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Re grind Area Concrete\Re grind Foundations\F-4.mcs			

DETAIL REPORT FOR F-4**BEARING CAPACITY - LINEAR SOIL PRESSURE METHOD**

Load Comb	Max Pressure (ksf)	All Pressure (ksf)	Ecc N/S Dir (ft)	Ecc E/W Dir (ft)	Moment N/S axis (kip-ft)	Moment E/W axis (kip-ft)	Rem
1 - Dead	1.83	4.48	0.11	0.79	93.66	13.56	
2 - Dead + Live	2.69	4.48	0.63	0.03	6.30	120.69	
3 - Dead + Snow	2.54	4.48	0.17	1.10	158.83	24.18	
4 - Dead + 0.75Live + 0.75Snow	2.95	4.48	0.53	0.35	67.56	101.87	
5 - Dead + Wind X	2.40	5.81	1.53	0.59	62.01	160.44	
6 - Dead + Wind Y	2.32	5.81	1.33	0.60	64.81	142.12	
7 - Dead + 0.7Earthquake X	1.85	5.81	0.12	0.80	95.47	14.41	
8 - Dead + 0.7Earthquake Y	1.85	5.81	0.16	0.78	92.48	18.66	
9 - 0.6Dead + Wind X	1.89	5.81	2.68	0.42	24.54	155.01	
10 - 0.6Dead + Wind Y	1.68	5.81	2.28	0.46	27.34	136.69	
11 - 0.6Dead + 0.7Earthquake X	1.12	5.81	0.13	0.81	58.00	8.98	
12 - 0.6Dead + 0.7Earthquake Y	1.12	5.81	0.19	0.77	55.01	13.24	

STABILITY RATIO / SLIDING SAFETY FACTOR

Load Comb	S.R. N/S Dir	S.R. E/W Dir	All S.R.	Sliding FS - N/S	Sliding FS - E/W	All FS	Remarks
1 - Dead	45.03	100.00	1.50	100.00	96.27	1.50	
2 - Dead + Live	40.30	36.99	1.50	91.70	22.84	1.50	
3 - Dead + Snow	19.96	100.00	1.50	42.93	100.00	1.50	
4 - Dead + 0.75Live + 0.75Snow	24.34	43.24	1.50	53.18	29.03	1.50	
5 - Dead + Wind X	3.38	86.32	1.50	8.25	82.43	1.50	
6 - Dead + Wind Y	3.89	100.00	1.50	9.42	98.97	1.50	
7 - Dead + 0.7Earthquake X	45.56	67.10	1.50	100.00	60.15	1.50	
8 - Dead + 0.7Earthquake Y	33.58	100.00	1.50	77.97	96.36	1.50	
9 - 0.6Dead + Wind X	1.91	72.42	1.50	5.99	91.86	1.50	
10 - 0.6Dead + Wind Y	2.24	100.00	1.50	6.91	100.00	1.50	
11 - 0.6Dead + 0.7Earthquake X	45.91	52.51	1.50	100.00	58.07	1.50	
12 - 0.6Dead + 0.7Earthquake Y	28.72	100.00	1.50	80.46	100.00	1.50	

FOOTING DESIGN INFORMATION

E-W Dim (ft)	10.00
N-S Dim (ft)	10.00
Thickness (ft)	2.00

Top Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
2. 1.2Dead + 1.6Live + 0.5Snow	10	7	12	0.6	0.02	-1.4	E-W
8. 0.9Dead + 1.6Wind X	10	7	12	0.6	0.03	-2.11	N-S

Bottom Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
2. 1.2Dead + 1.6Live + 0.5Snow	10	7	12	0.6	0.52	4.11	E-W
4. 1.2Dead + Live + 0.5Snow + 1.6Wind X	10	7	12	0.6	0.52	17.43	N-S

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-4		Time	3:59:22 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Regrind Area Concrete\			
	Regrind Foundations\F-4.mcs			

DETAIL REPORT FOR F-4**PUNCHING SHEAR****P1**

Control Comb	Net Ult Load (kips)	Punch. Stress (psi)	All Stress (psi)	Rem
3. 1.2Dead + Live + 1.6Snow	91.68	22.92	189.74	

P2

Control Comb	Net Ult Load (kips)	Punch. Stress (psi)	All Stress (psi)	Rem
2. 1.2Dead + 1.6Live + 0.5Snow	83.31	28.96	189.74	

MAXIMUM SHEAR - E-W DIRECTION

Load Comb	Left Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	8.50	-23.91	9.96	94.87	
2 - 1.2Dead + 1.6Live + 0.5Snow	8.50	-30.57	12.74	94.87	
3 - 1.2Dead + Live + 1.6Snow	8.50	-38.25	15.94	94.87	
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	8.50	-21.44	8.93	94.87	
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	8.50	-22.28	9.28	94.87	
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	8.50	-26.10	10.88	94.87	
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	8.50	-25.69	10.71	94.87	
8 - 0.9Dead + 1.6Wind X	8.50	-8.35	3.48	94.87	
9 - 0.9Dead + 1.6Wind Y	8.50	-9.19	3.83	94.87	
10 - 0.9Dead + Earthquake X	8.50	-15.69	6.54	94.87	
11 - 0.9Dead + Earthquake Y	8.50	-15.28	6.37	94.87	

MAXIMUM SHEAR - N-S DIRECTION

Load Comb	Bottom Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	5.33	33.42	13.92	94.87	
2 - 1.2Dead + 1.6Live + 0.5Snow	2.33	70.04	29.18	94.87	
3 - 1.2Dead + Live + 1.6Snow	2.33	60.69	25.29	94.87	
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	2.33	73.09	30.46	94.87	
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	2.33	70.69	29.45	94.87	
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	2.33	50.87	21.19	94.87	
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	2.33	51.39	21.41	94.87	
8 - 0.9Dead + 1.6Wind X	5.33	46.27	19.28	94.87	
9 - 0.9Dead + 1.6Wind Y	5.33	43.61	18.17	94.87	
10 - 0.9Dead + Earthquake X	5.33	21.37	8.91	94.87	
11 - 0.9Dead + Earthquake Y	5.33	22.29	9.29	94.87	

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	5/14/2012
Foundation Name	F-4		Time	3:59:22 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\1C-007 Regrind Area Concrete\			
Filename:	Regrind Foundations\F-4.mcs			

DETAIL REPORT FOR F-4**PIER/BASE PLATE DESIGN INFORMATION**

	P1	P2
E-W Dim (ft)	2.00	1.33
N-S Dim (ft)	3.00	1.33
Height above grade (ft)	12.00	1.00
E-W Offset (ft)	2.50	-3.17
N-S Offset (ft)	0.50	-2.00
Requested Reinf. Ratio	0.0050	0.0050
Provided Reinf. Ratio	0.0109	0.0123
Long Bar Size	8	8
Bars in E-W Dir	3	2
Bars in N-S Dir	5	2
Total Long Bars	12	4
Tie Bar Size	4	4
Total No. of Ties	15	4
Major Tie Spacing (in)	12	12

PIER ULTIMATE LOAD CAPACITIES

	P1						
Load	Axial	Axial	Mom N-S	Mom N-S	Mom E-W	Mom E-W	Rem
Comb	Load	Capa.		Capa		Capa	
	(kips)	(kips)	(kip ft)	(kip ft)	(kip ft)	(kip ft)	
1 - 1.4Dead	73.78	1793.20	8.38	204.24	16.30	393.32	
2 - 1.2Dead + 1.6Live + 0.5Snow	108.29	1635.29	12.52	189.06	36.57	551.75	
3 - 1.2Dead + Live + 1.6Snow	125.04	1492.56	14.58	174.20	55.60	662.46	
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	75.32	267.44	8.56	28.40	231.20	824.63	
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	78.65	281.08	8.96	31.97	206.81	738.81	
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	88.53	1714.85	10.13	189.53	25.50	483.07	
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	88.29	1613.01	10.10	185.26	31.34	572.53	
8 - 0.9Dead + 1.6Wind X	26.45	84.10	2.94	9.35	207.70	660.39	
9 - 0.9Dead + 1.6Wind Y	29.78	111.21	3.31	12.38	183.53	685.41	
10 - 0.9Dead + Earthquake X	47.50	1800.50	5.33	203.07	10.28	386.72	
11 - 0.9Dead + Earthquake Y	47.26	1636.02	5.30	183.77	16.07	555.39	

	P2						
Load	Axial	Axial	Mom N-S	Mom N-S	Mom E-W	Mom E-W	Rem
Comb	Load	Capa.		Capa		Capa	
	(kips)	(kips)	(kip ft)	(kip ft)	(kip ft)	(kip ft)	
1 - 1.4Dead	18.75	451.70	3.78	86.44	1.69	36.69	
2 - 1.2Dead + 1.6Live + 0.5Snow	103.12	421.63	24.84	95.19	9.28	35.90	
3 - 1.2Dead + Live + 1.6Snow	70.48	424.21	16.74	94.48	6.34	36.00	
4 - 1.2Dead + Live + 0.5Snow + 1.6Wind X	70.48	424.21	16.74	94.48	6.34	36.00	
5 - 1.2Dead + Live + 0.5Snow + 1.6Wind Y	70.48	424.21	16.74	94.48	6.34	36.00	
6 - 1.2Dead + Live + 0.2Snow + Earthquake X	71.18	389.87	18.84	102.87	6.41	35.07	
7 - 1.2Dead + Live + 0.2Snow + Earthquake Y	70.88	425.24	16.74	94.19	6.38	36.04	
8 - 0.9Dead + 1.6Wind X	12.06	451.70	2.43	86.44	1.09	36.69	
9 - 0.9Dead + 1.6Wind Y	12.06	451.70	2.43	86.44	1.09	36.69	
10 - 0.9Dead + Earthquake X	12.76	327.51	4.53	115.84	1.15	29.45	
11 - 0.9Dead + Earthquake Y	12.46	456.47	2.43	84.98	1.12	36.70	

Dimensional Solutions FOUNDATION3D

Version 5.8.2

Date 5/14/2012

Foundation Name

F-4

Time 3:59:22 PM

Designed By:

FLSmith Salt Lake City

Engineer

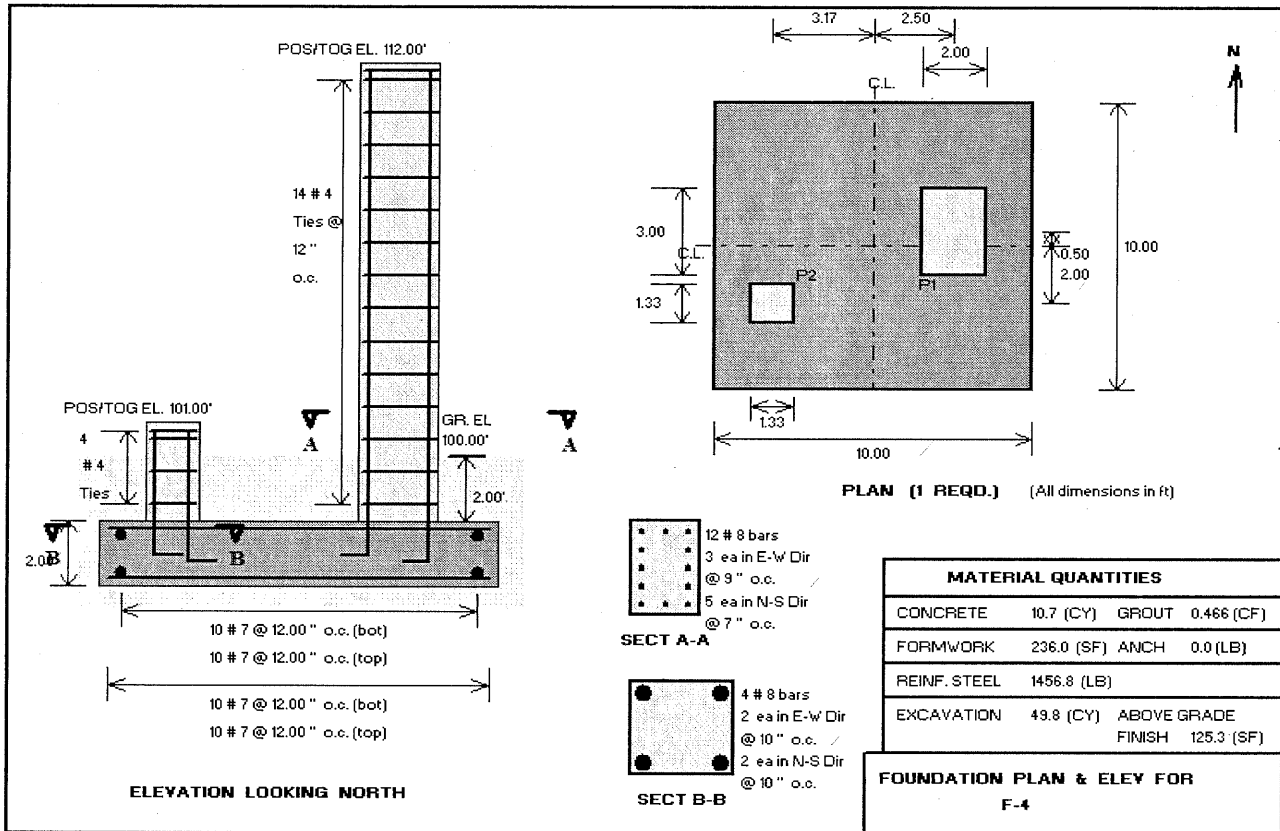
ECS

Checker

P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\1C-007 Regrind Area Concrete\

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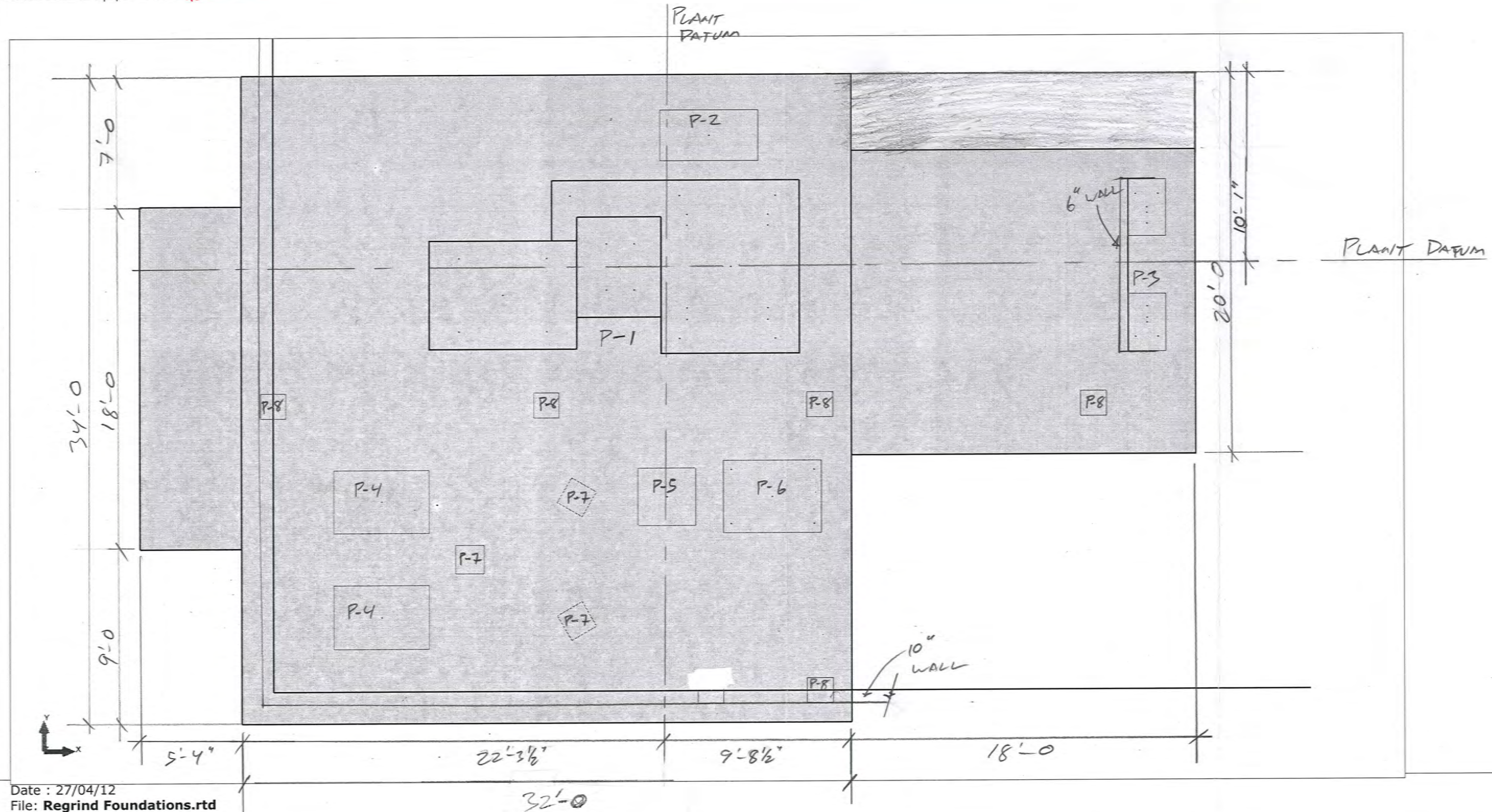
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DETAIL REPORT FOR F-4

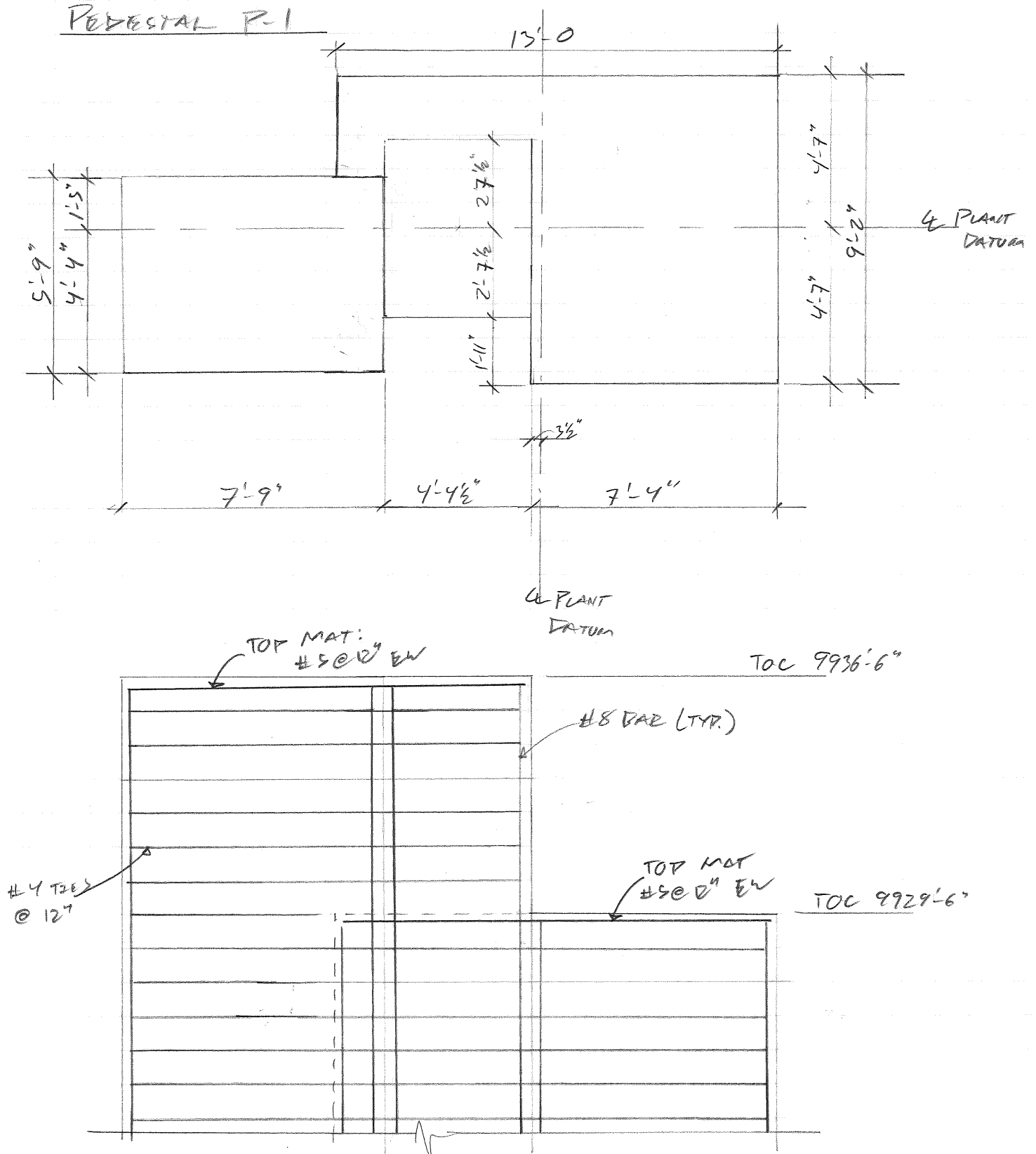
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Scale: 1 inch on a paper = 5.33 ft $\frac{3}{16}'' = 1'-0''$

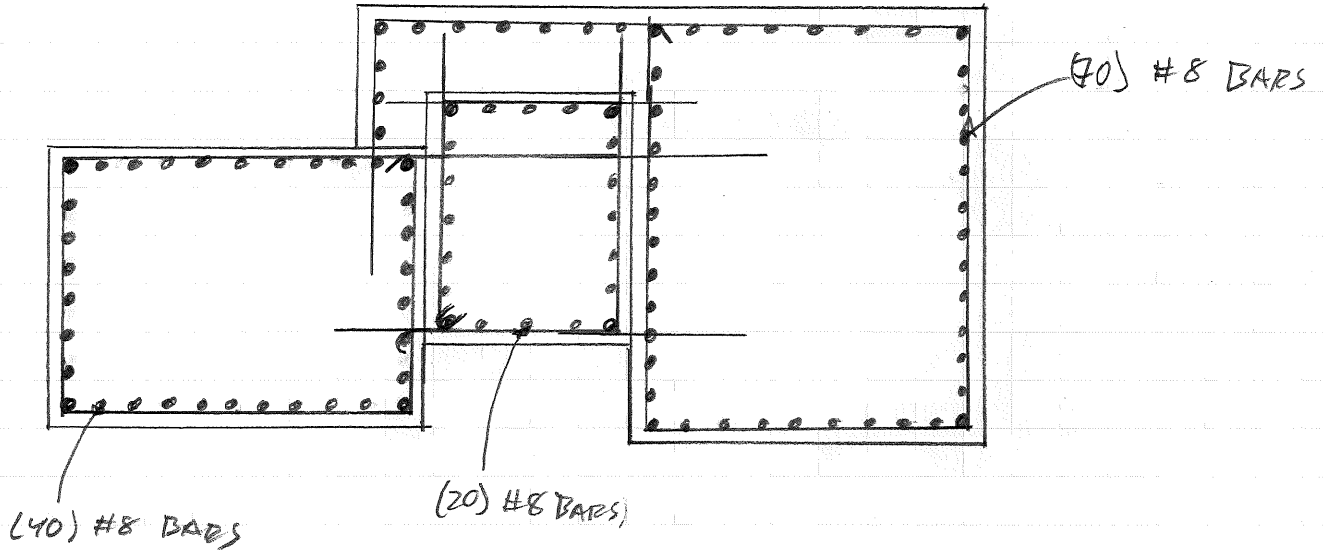
ISOMILL MAT FOUNDATION F-5



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	SUBJECT	RELOADED FOUNDATION F-5	CALC NO.	C-007
			BY	ELS
			DATE	4-30-12
			CHK	DATE
			SHEET	OF
				REV



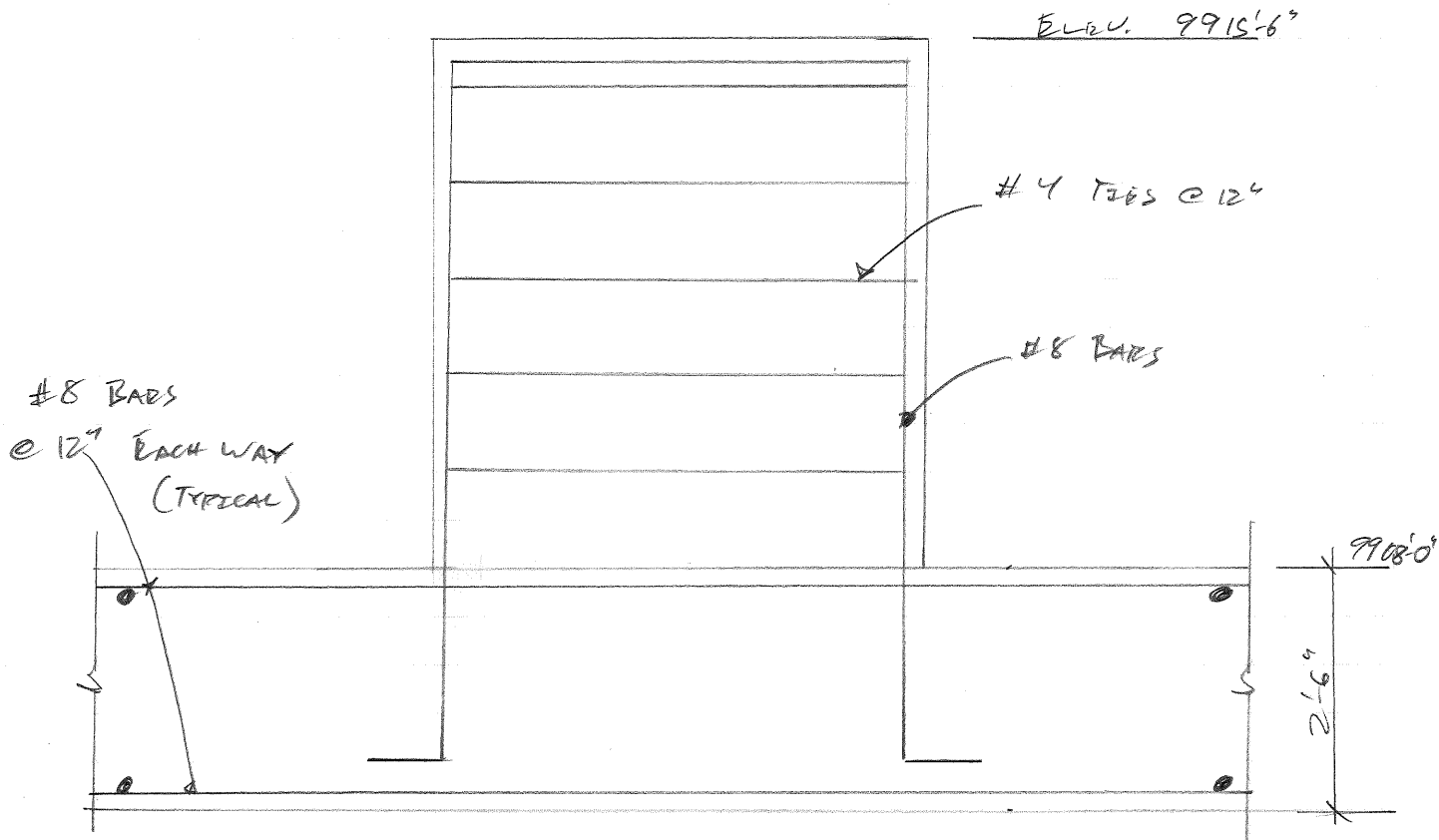
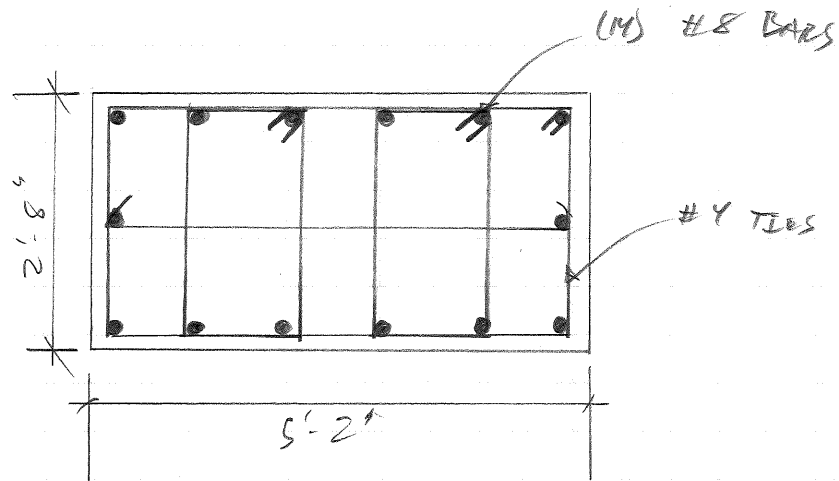
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	SUBJECT	PEDESTAL P-1 DETAIL		CALC NO.	C-007
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				DATE	4-30-12
				CHK	DATE
				SHEET	OF
					REV



PEDESTAL P-1 DETAIL

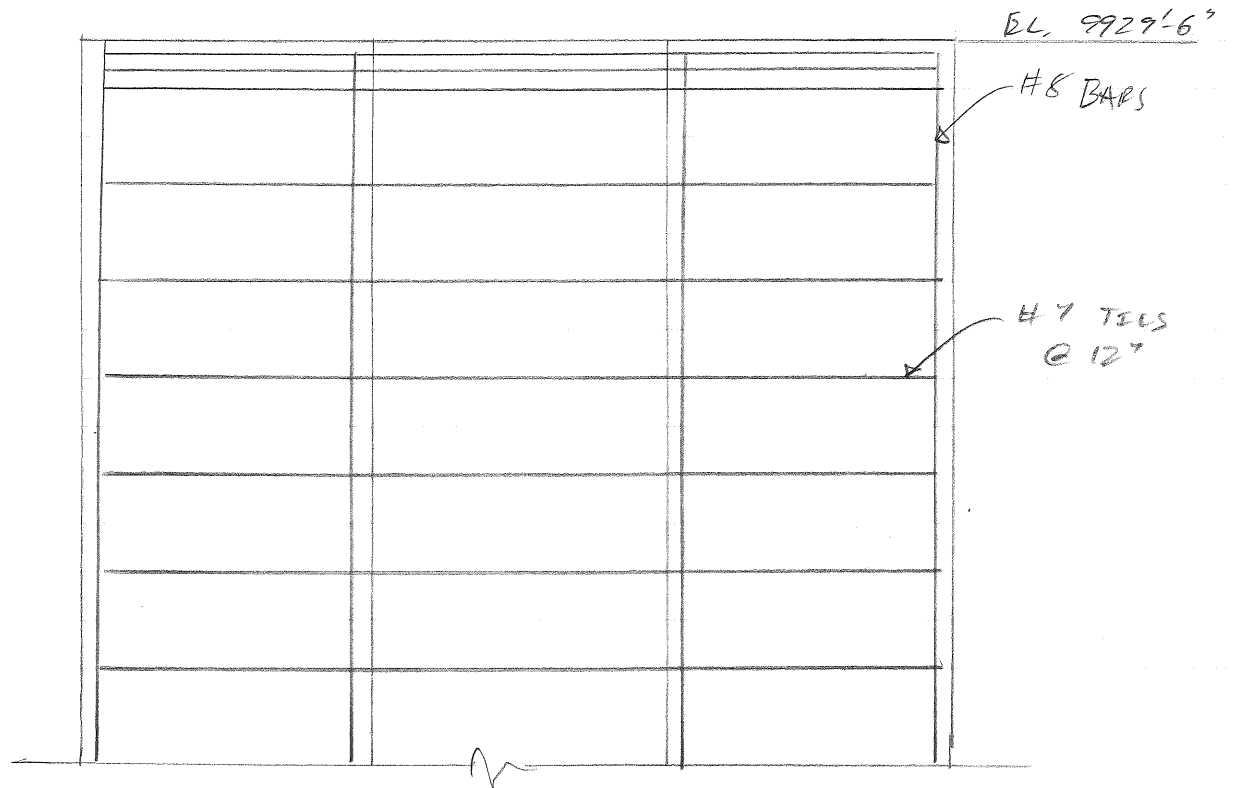
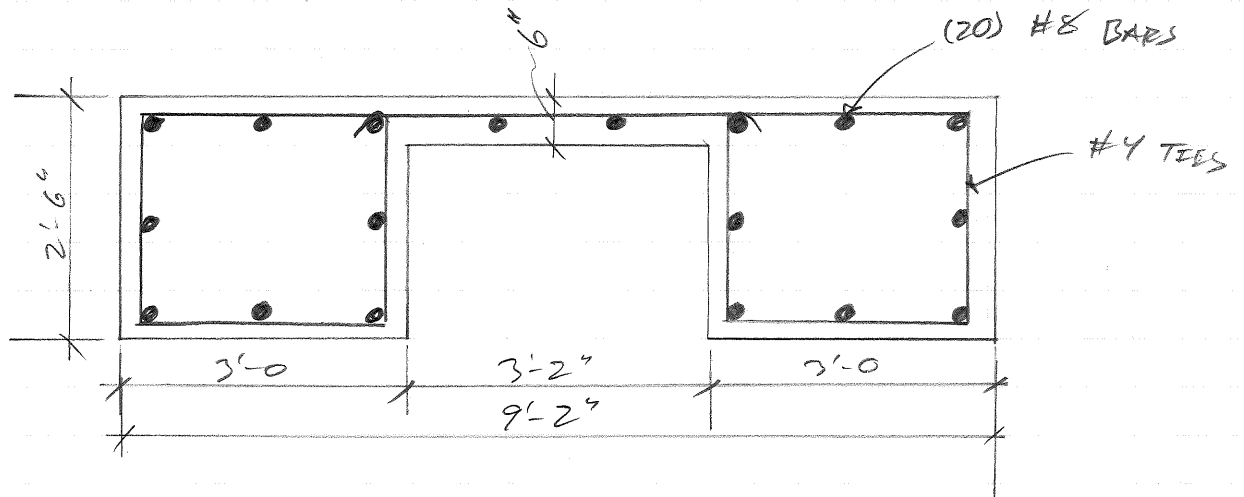
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			CHK	DATE
			SHEET	OF
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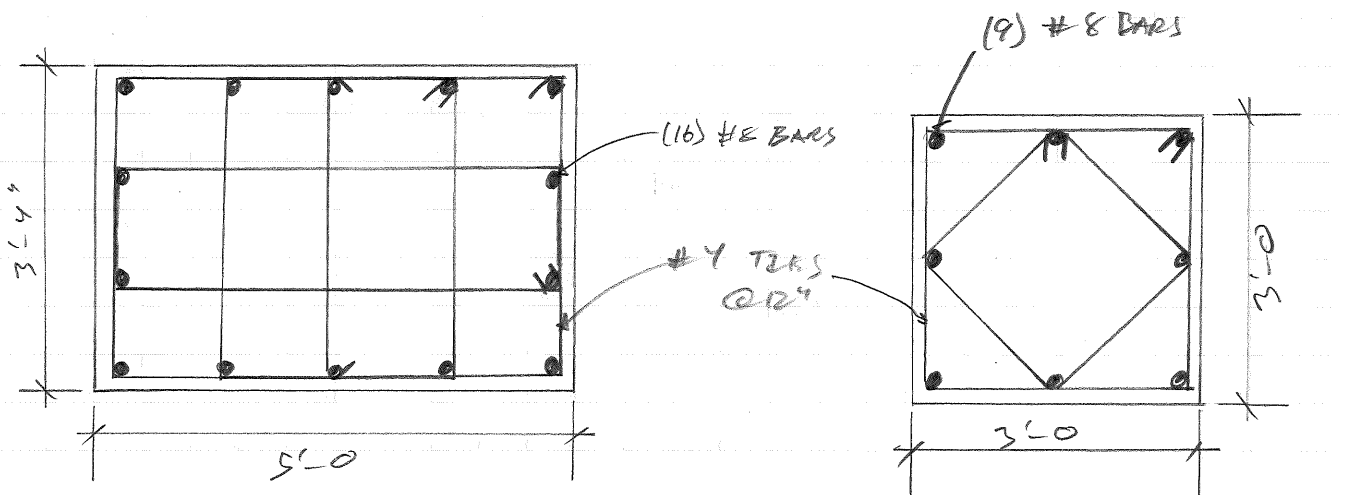
PEDESTAL P-2



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	SUBJECT	REPAIR FOUNDATION	CALC NO.	C-007
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			CHK	DATE
			SHEET	OF REV

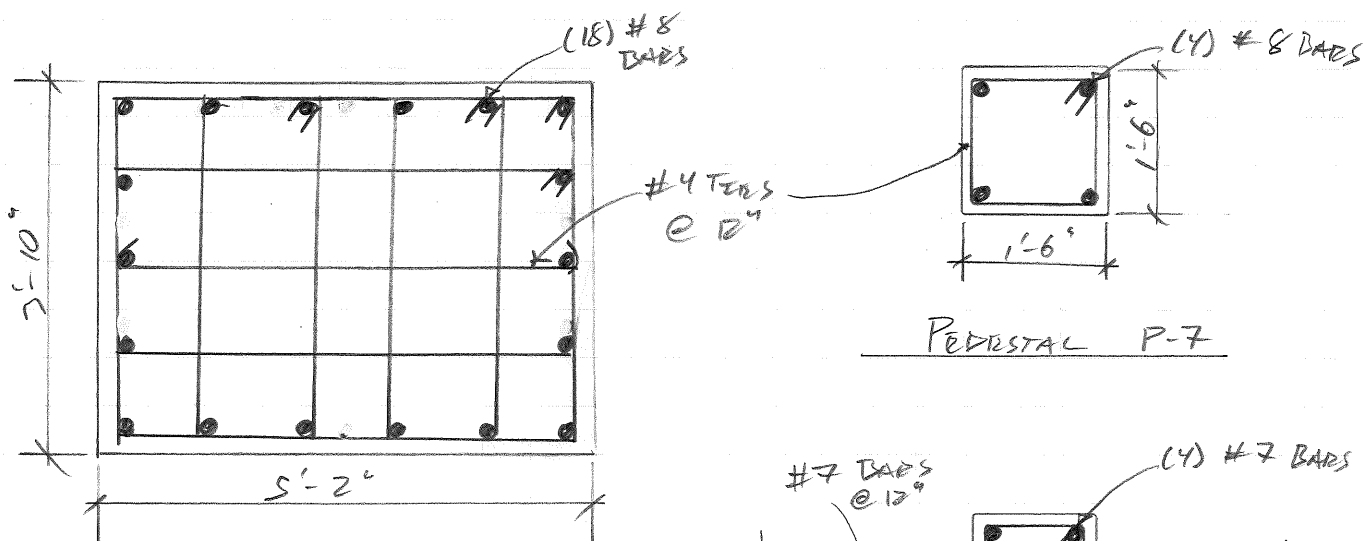
PEDESTAL P-3





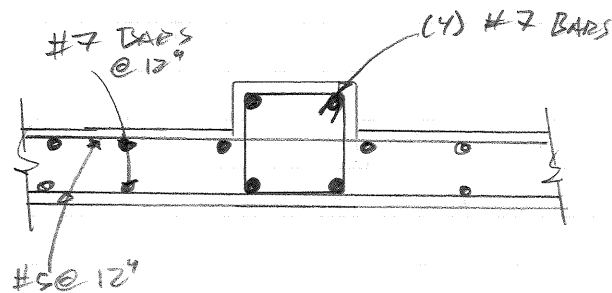
PEDestal P-4

PEDestal P-5



PEDestal P-6

PEDestal P-7



PEDestal P-8

FLSMIDTH	PROJECT	CC&V HIGH GRADE ORE	PROJ NO.	11021
			CALC NO.	C-007
	SCOPE	REGRIND MILL	BY ECS	DATE #####
		FOUNDATION LOADING	CHK	DATE
			SHEET	OF REV

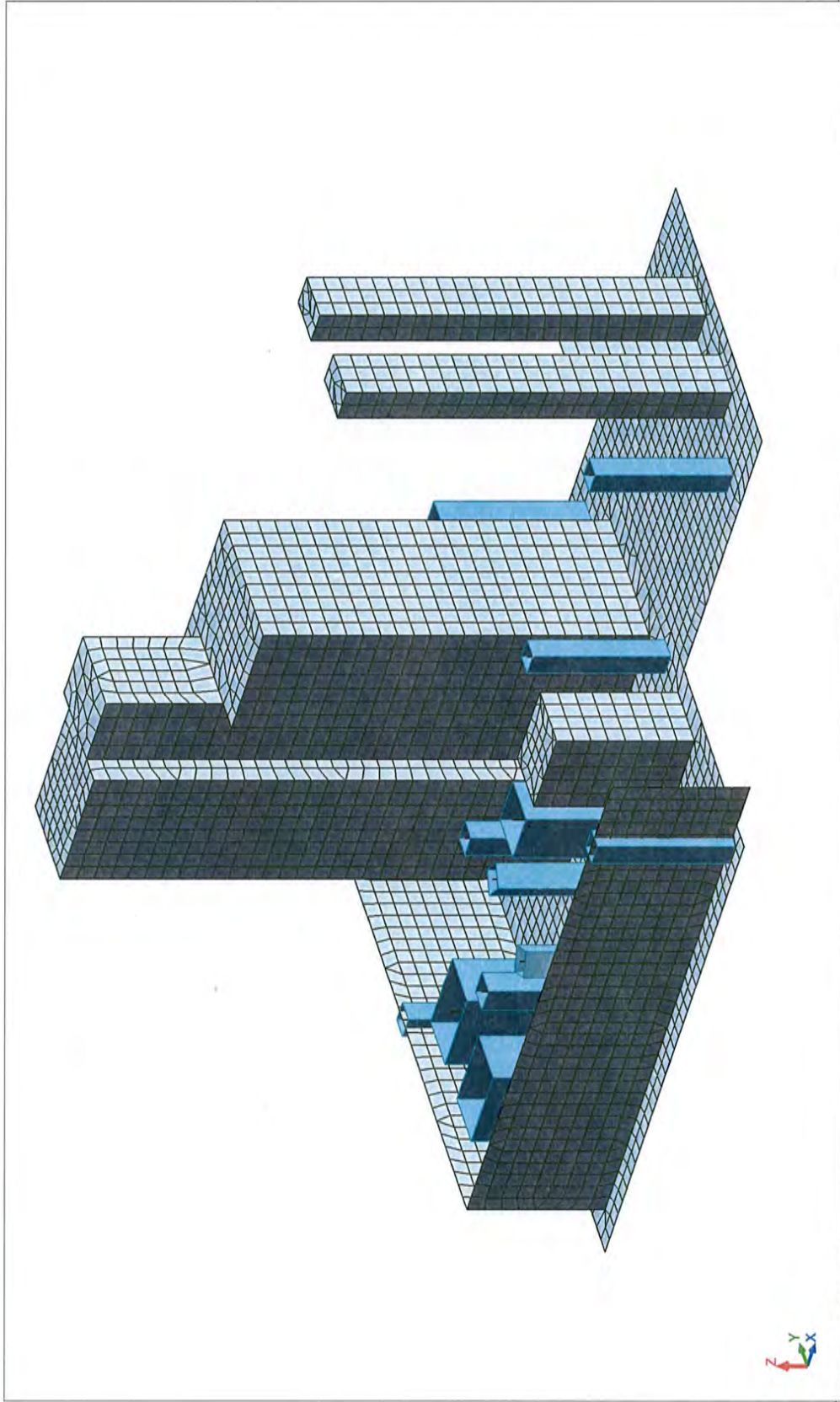
Isomill Weight

Location	Operating (kip)	Max (kip)
Motor	27	151.16
Gearbox	8	66.4
Mill Shaft 1-4	242.5	409.65
Mill Shaft 5	104.76	140.78
Mill Shaft 6	102.26	104.38
Sum	484.52	872.37

Concrete Weight

Location	No.	X (ft)	Y (ft)	Z (ft)	Weight (kip)
Mat1	1	32.00	34.00	2.50	408.0
Mat2	1	18.00	20.00	2.50	135.0
Mat3	1	5.33	18.00	2.50	36.0
Platform Column	6	1.33	1.33	8.25	13.1
Walls	1	70.00	0.83	8.25	72.2
Motor	1	7.75	5.75	30.00	200.5
Gearbox	1	4.39	6.23	30.00	123.1
Mill Shaft 1-4 (1)	1	7.31	9.11	23.00	229.7
Mill Shaft 1-4 (2)	1	5.72	1.19	23.00	23.5
Mill Shaft 1-4 (3)	1	1.22	1.33	23.00	5.6
Mill Shaft 5/6 (1)	2	2.00	3.00	23.00	41.4
Mill Shaft 5/6 (2)	1	0.50	24.75	23.00	42.7
BO	1	2.16	2.67	9.00	7.8
DP	2	5.00	3.33	8.25	41.2
DPB	3	1.50	1.50	8.25	8.4
IFP	1	3.00	3.00	8.25	11.1
IWT	1	5.17	3.83	8.25	24.5
Sum					1424

$$\text{Foundation Weight/Isomill Operating Load} = 2.94$$

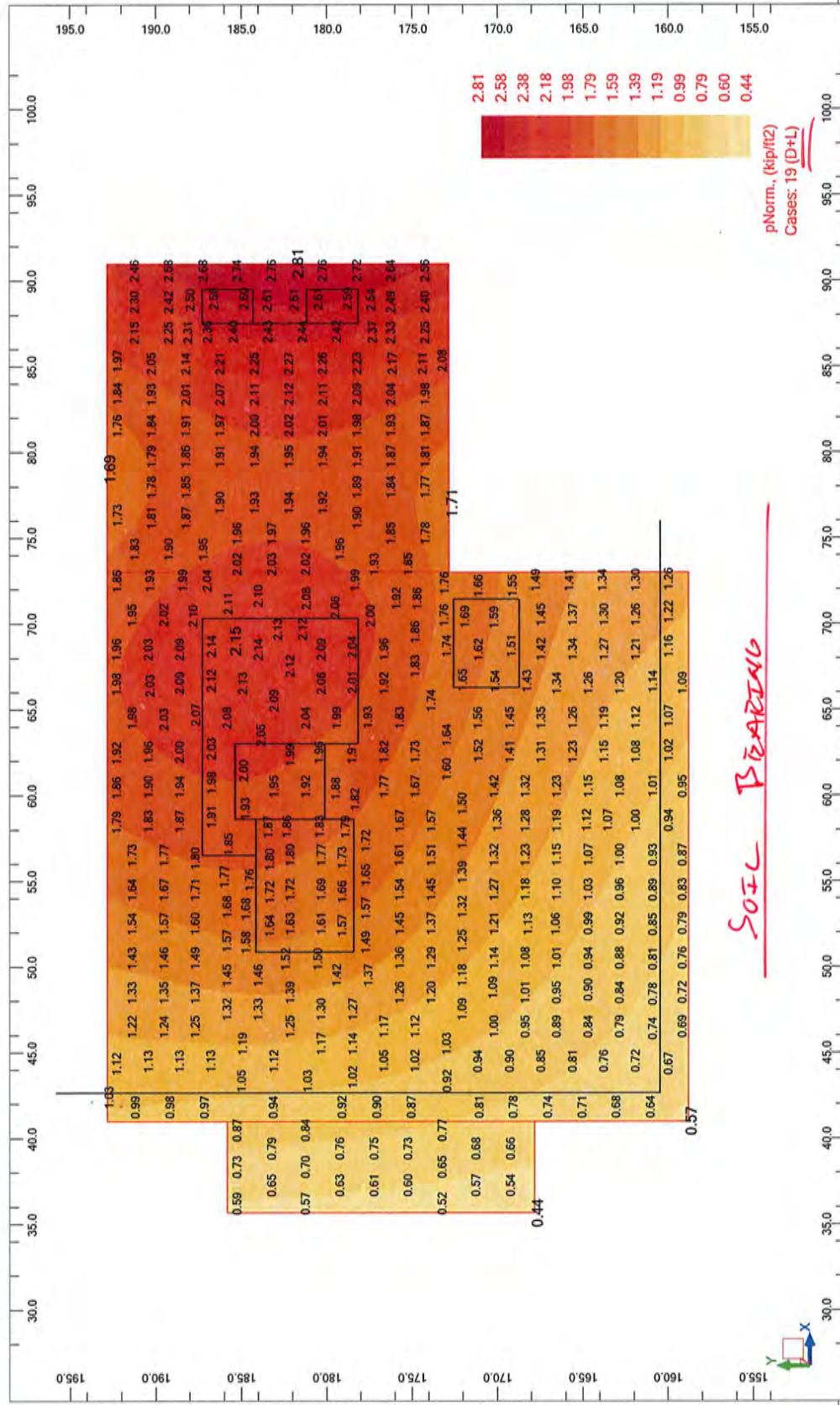




7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: Ed Summers
Calc No.: C-007 Job.:11021
Project: Isomill Mat -F-5 Foundation Rev.1
Client: CC&V

View - pNorm. (kip/ft²) Cases: 19 (D+L)



Date : 14/05/12

File: Isomill Mat -F-5 Foundation Rev.1.rtd

Page : 1

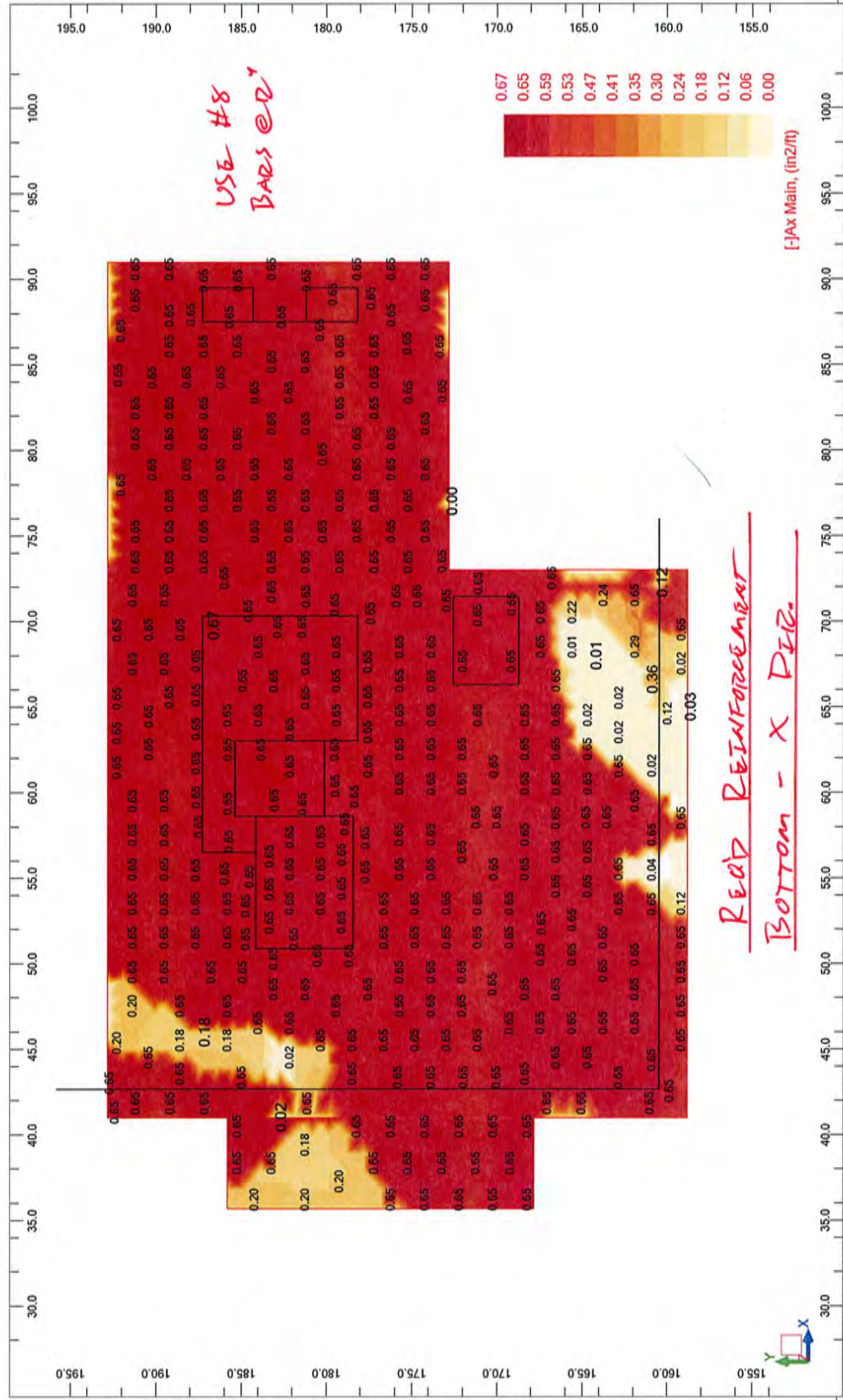
Robot 2012 © AutoDesk



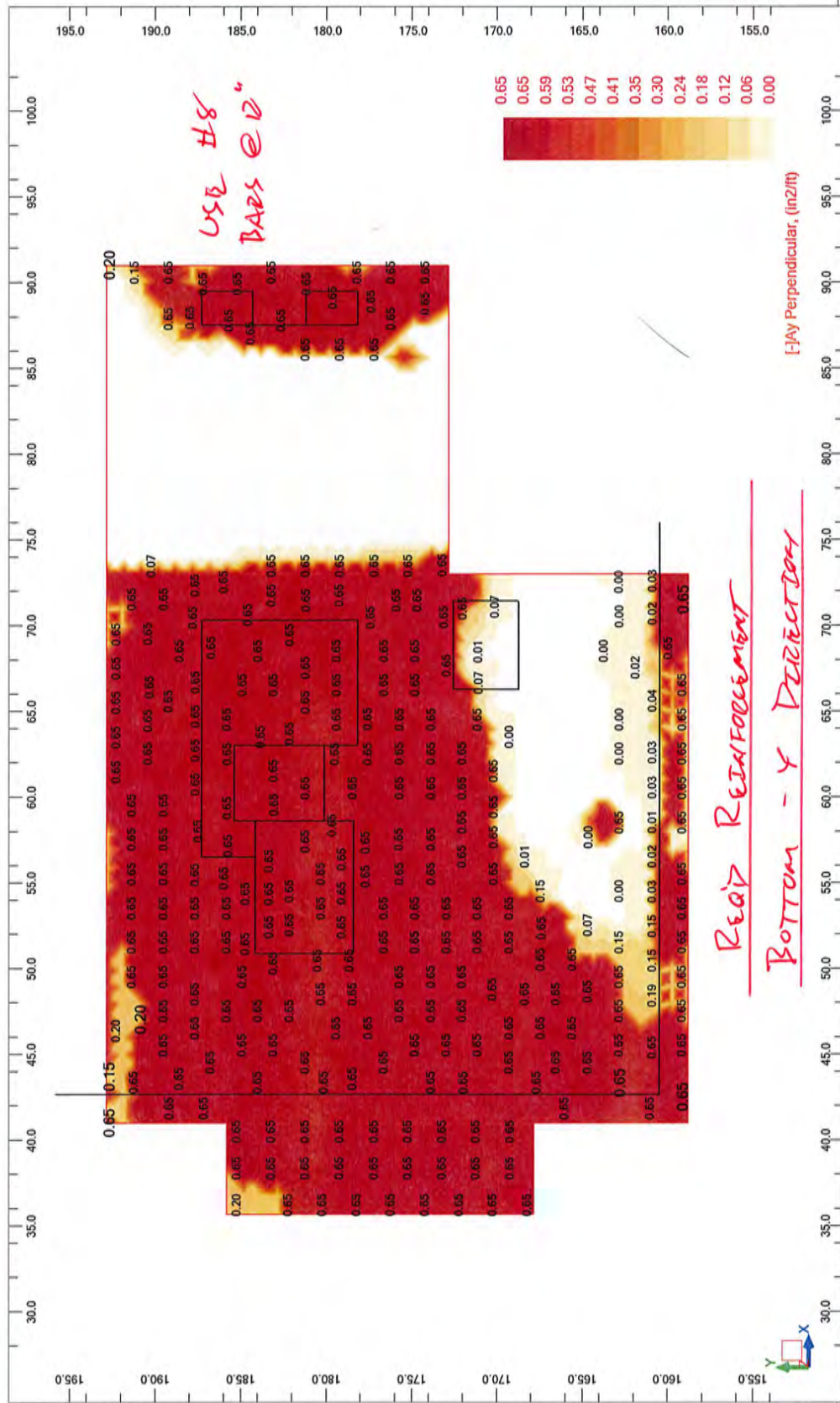
7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: Ed Summers
Calc No.: C-007 Job.: 11021
Project: Isomill Mat -F-5 Foundation Rev.1
Client: CC&V

View - [-]Ax Main (in2/ft)

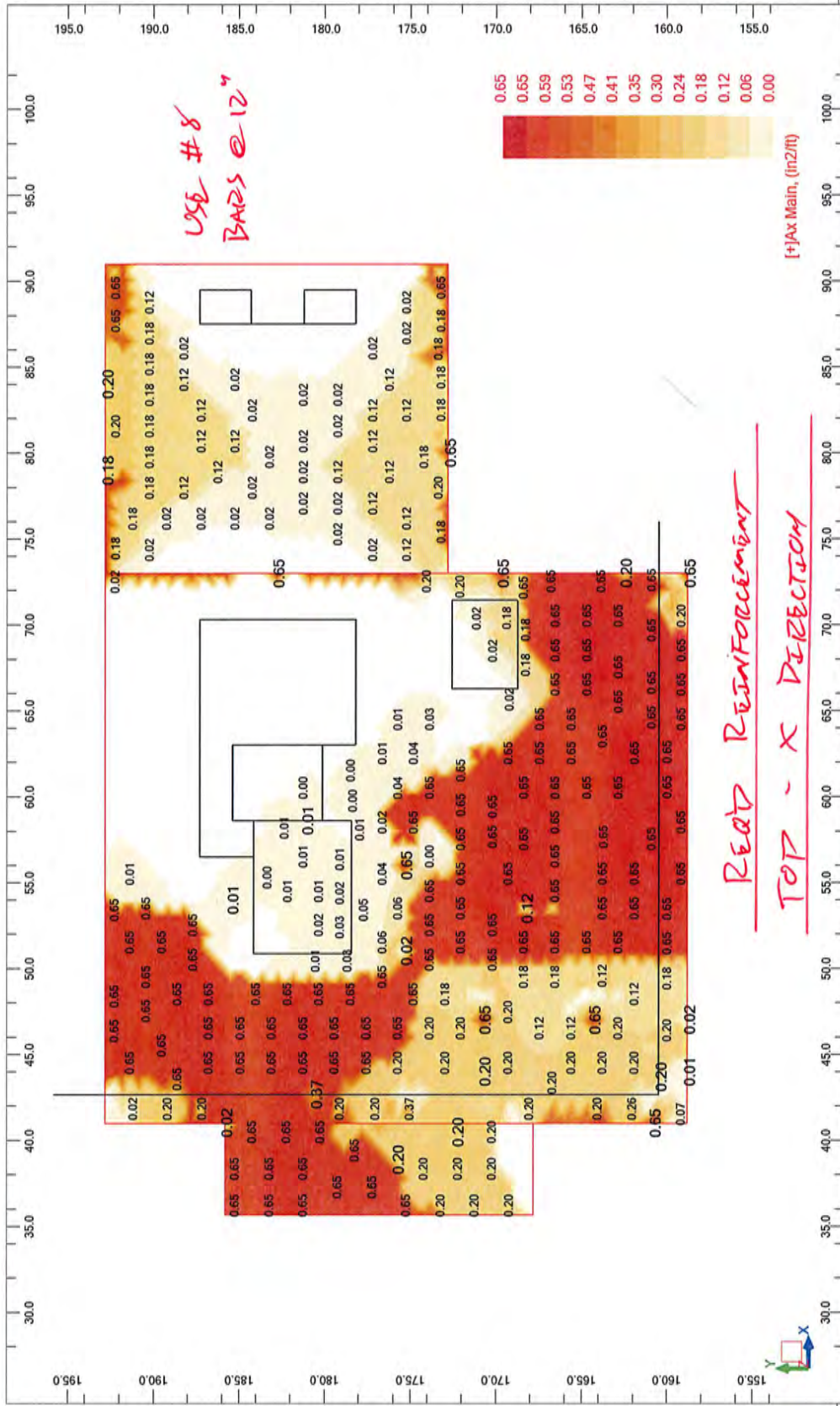


View - [-]Ay Perpendicular (in2/ft)



*Reinforcement
Bottom - Y Direction*

View - [x]Ax Main (in2/ft)



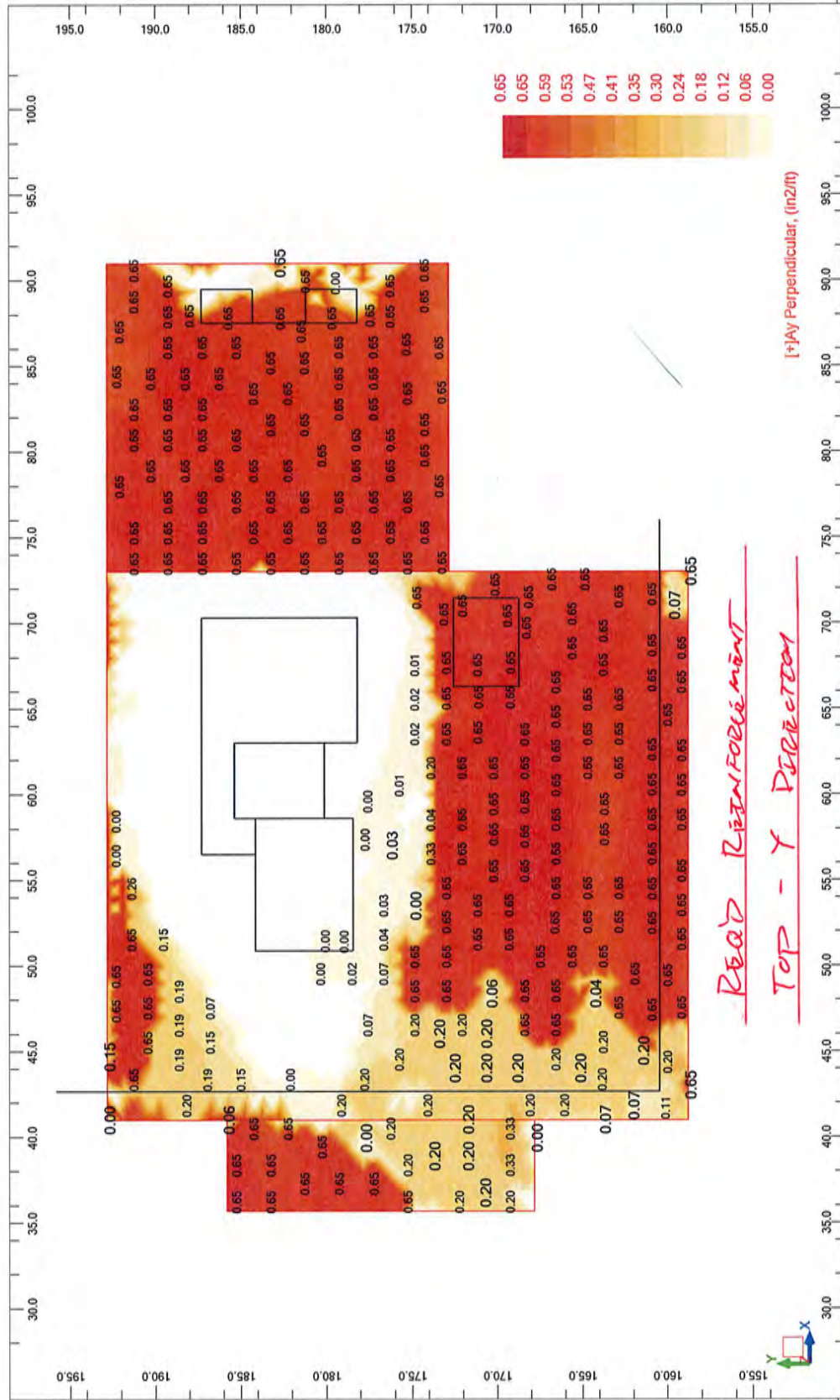
REINFORCEMENT
TOP - X DIRECTION



7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: Ed Summers
Calc No.: C-007 Job.: 11021
Project: Isomill Mat -F-5 Foundation Rev.1
Client: CC&V

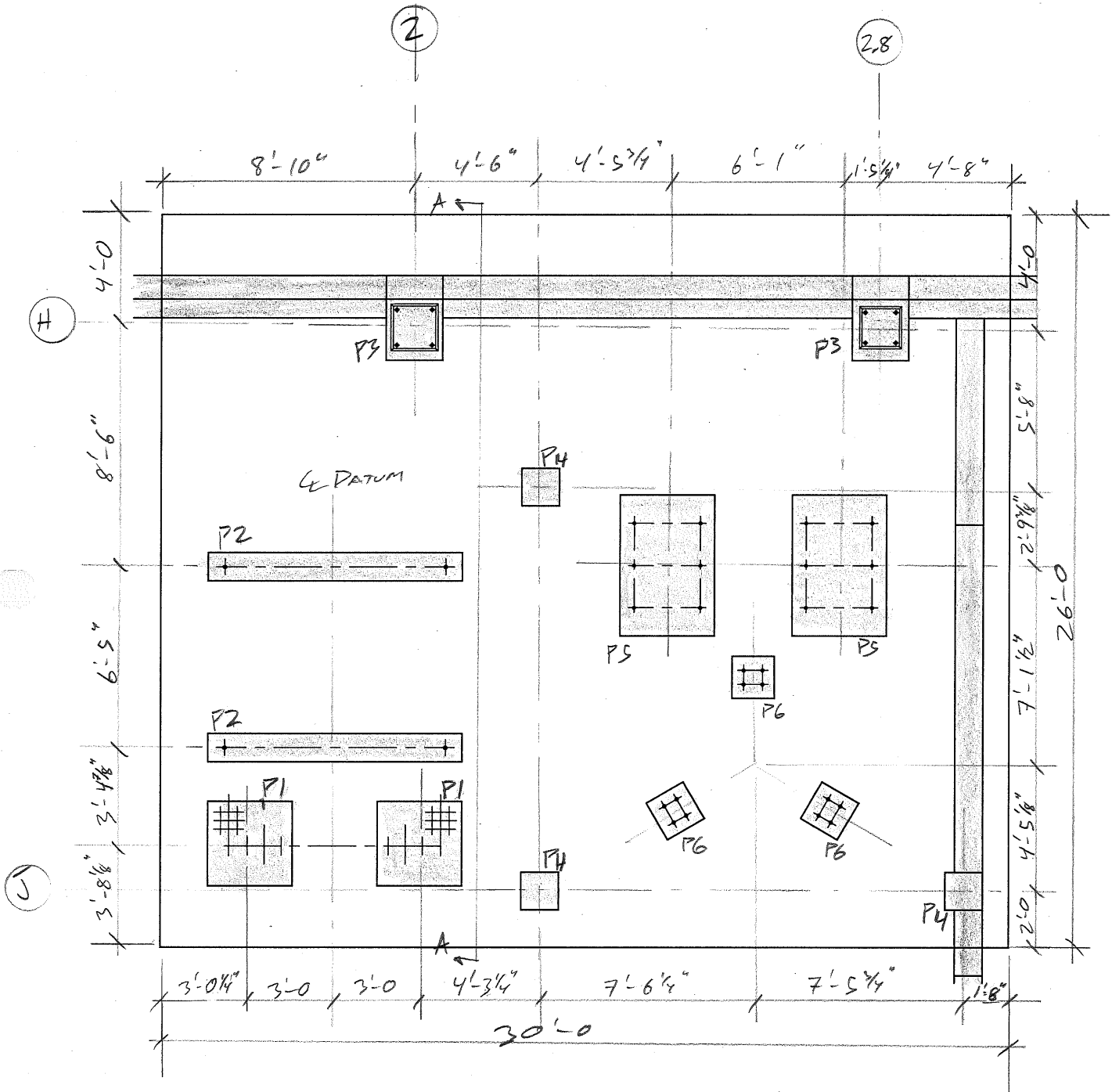
View - [Y]Ay Perpendicular (in2/ft)



Date : 14/05/12
File: Isomill Mat -F-5 Foundation Rev.1.rtd

Page : 1
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CC+V HIGH GRADE MILL	PROJ No. 11021
REBRIAD FOUNDATIONS	CALC No. C-007
	BY ELS DATE 5-10-12



PLAN - ISOMILL MAT - F-6

$$3/16" = 1'-0"$$



PROJECT

CCIV HIGH GRADE OVER

SUBJECT

ISOMALL MAT - F-6

REINFORCED FOUNDATIONS

PROJ NO. 11021

CALC NO. C-009

BY EJS

DATE 5-1-12

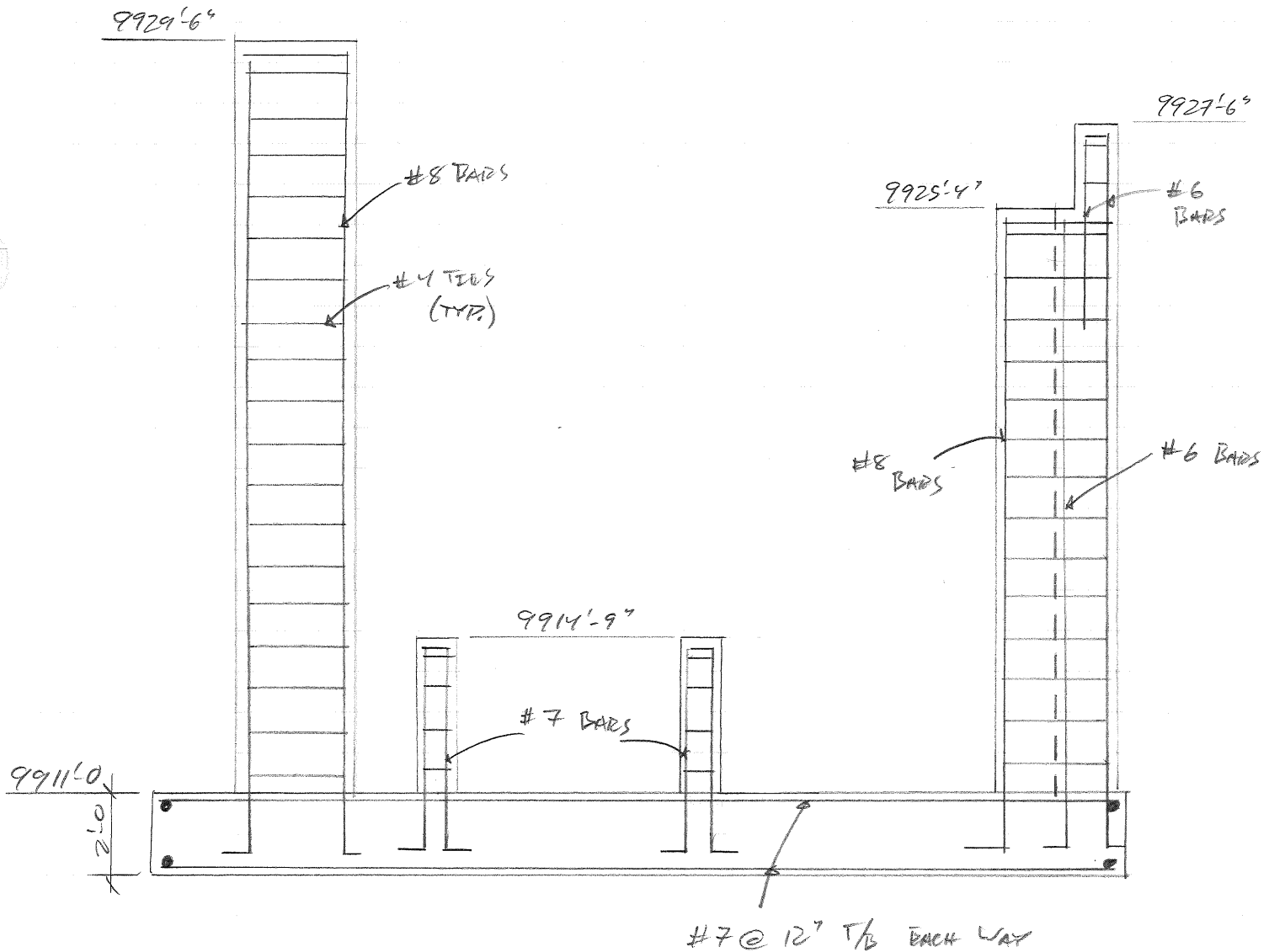
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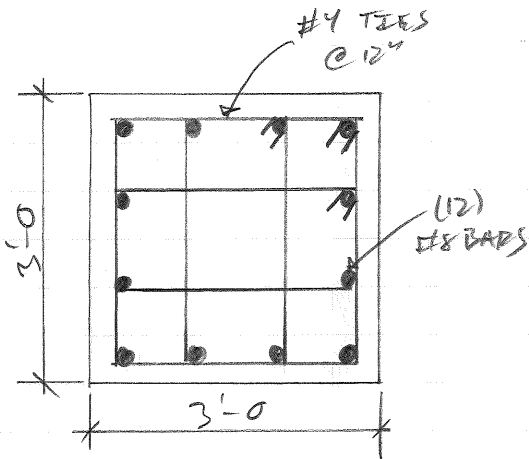
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SHEET

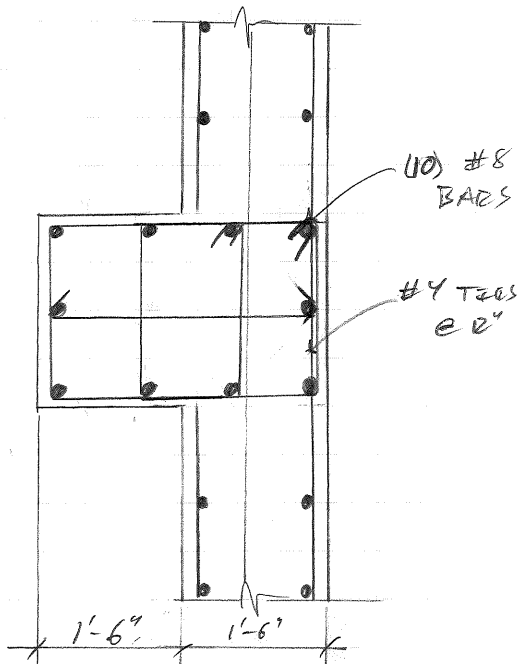
OF

REV

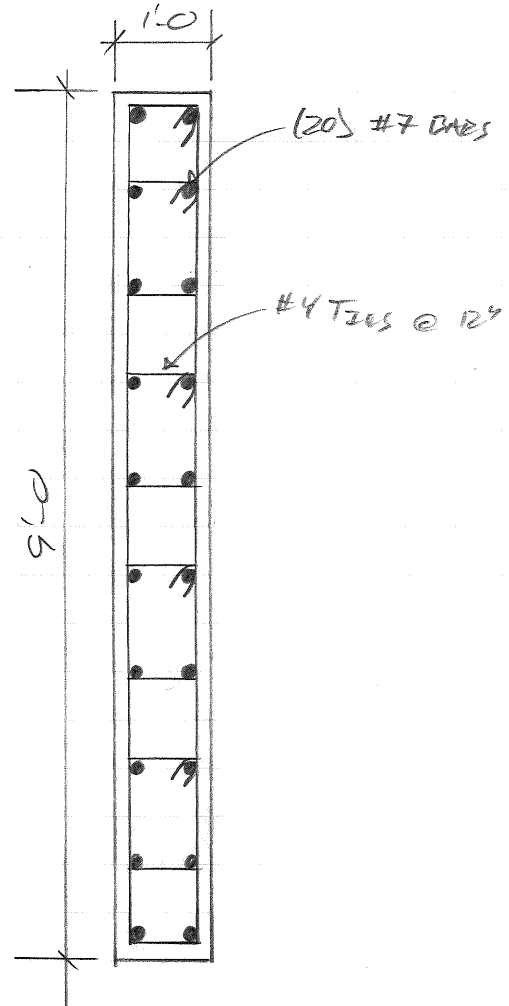




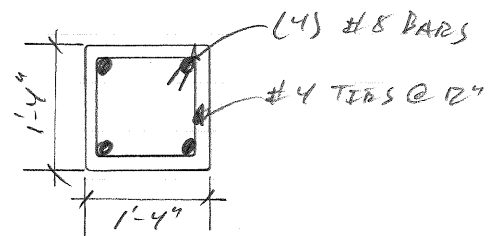
PEDestal P-1



PEDestal P-3



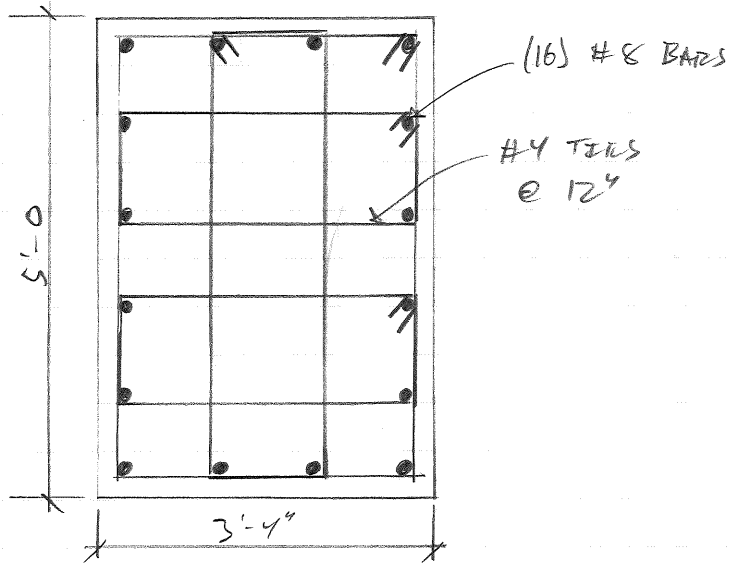
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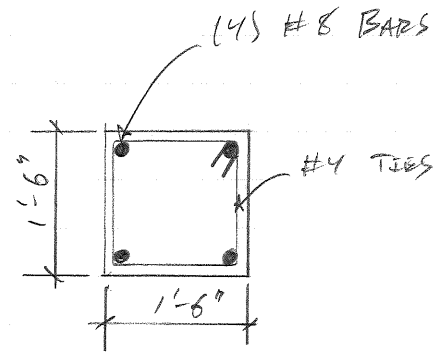
PEDestal P-4



PROJECT CC&V HIGH GRADE ORE	PROJ NO. 11021	
	CALC NO. C-007	
SUBJECT ISOMILL MAT - F-6 FDN REGRIND FOUNDATIONS	BY ECS	DATE 5-10-12
	CHK	DATE
	SHEET	OF REV

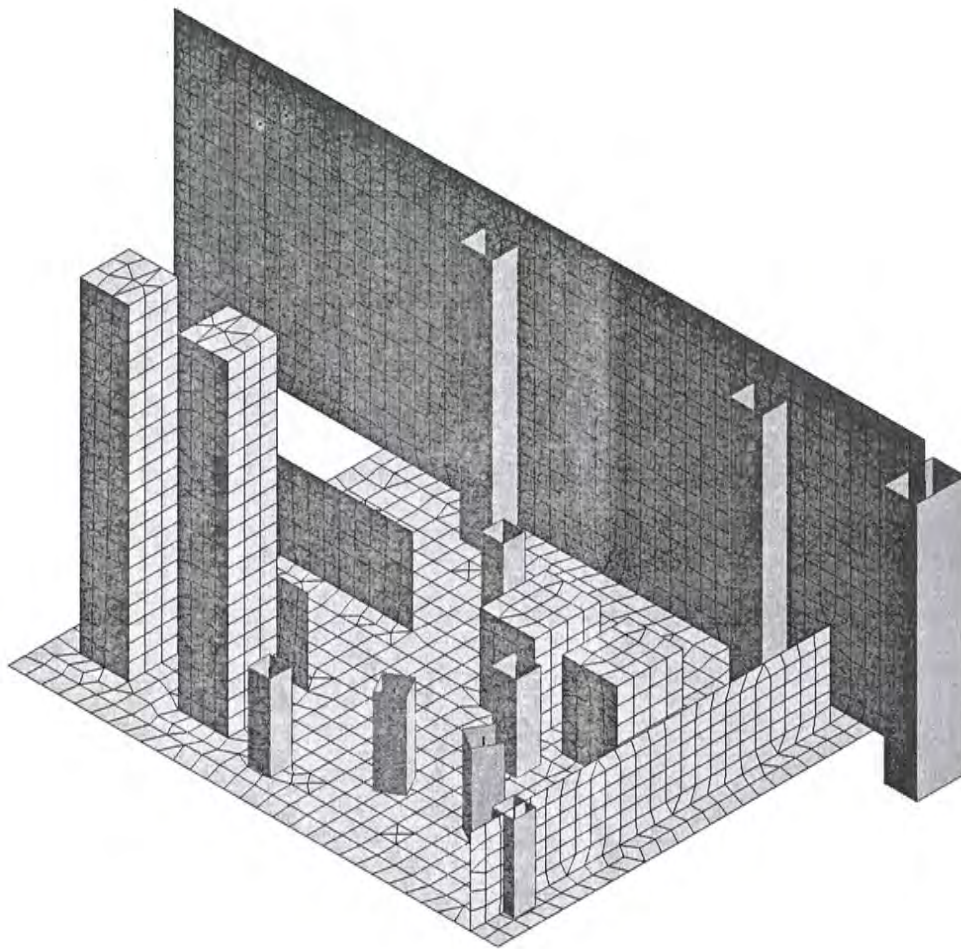


PEDestal P-5

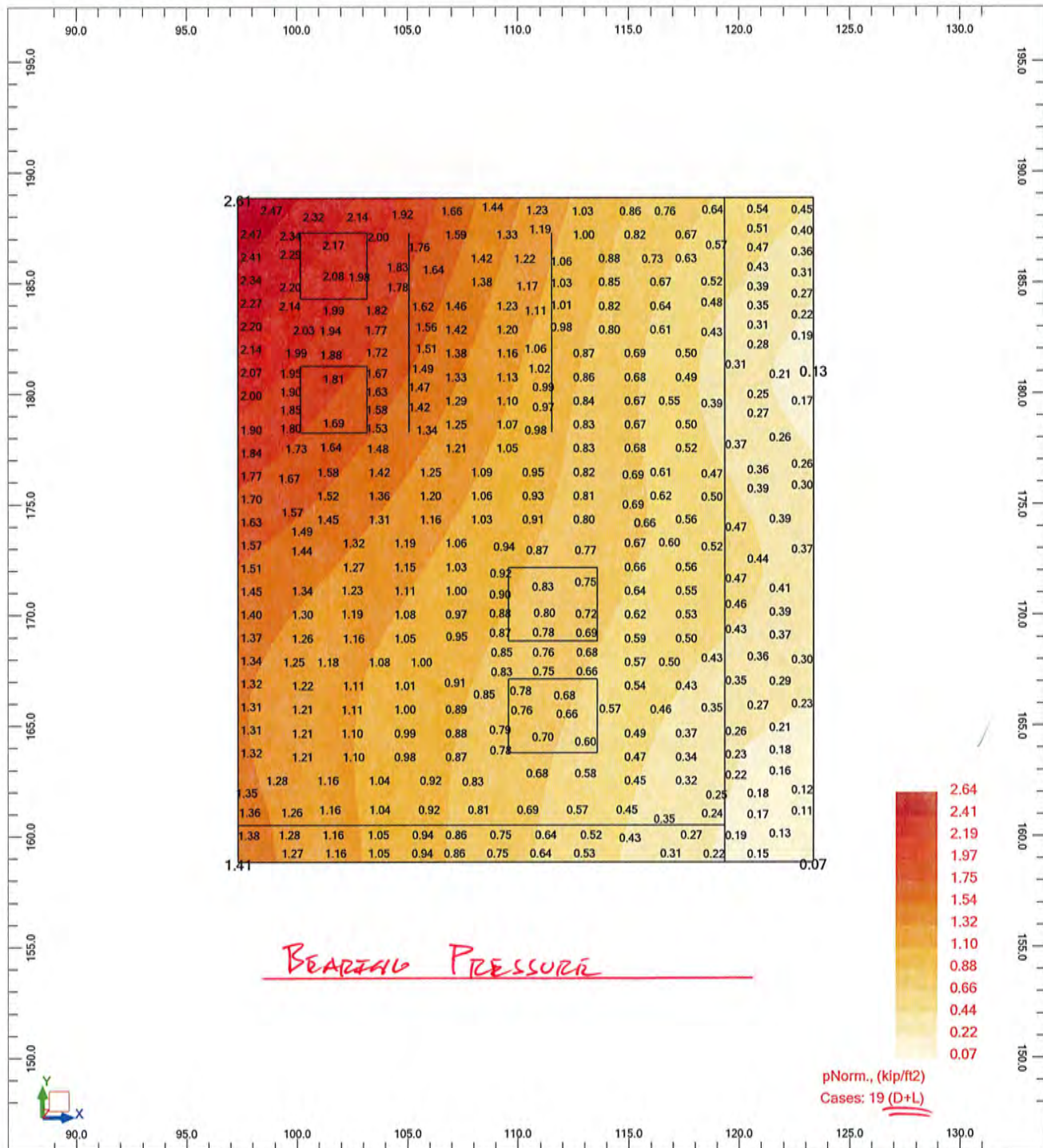


PEDestal P-6

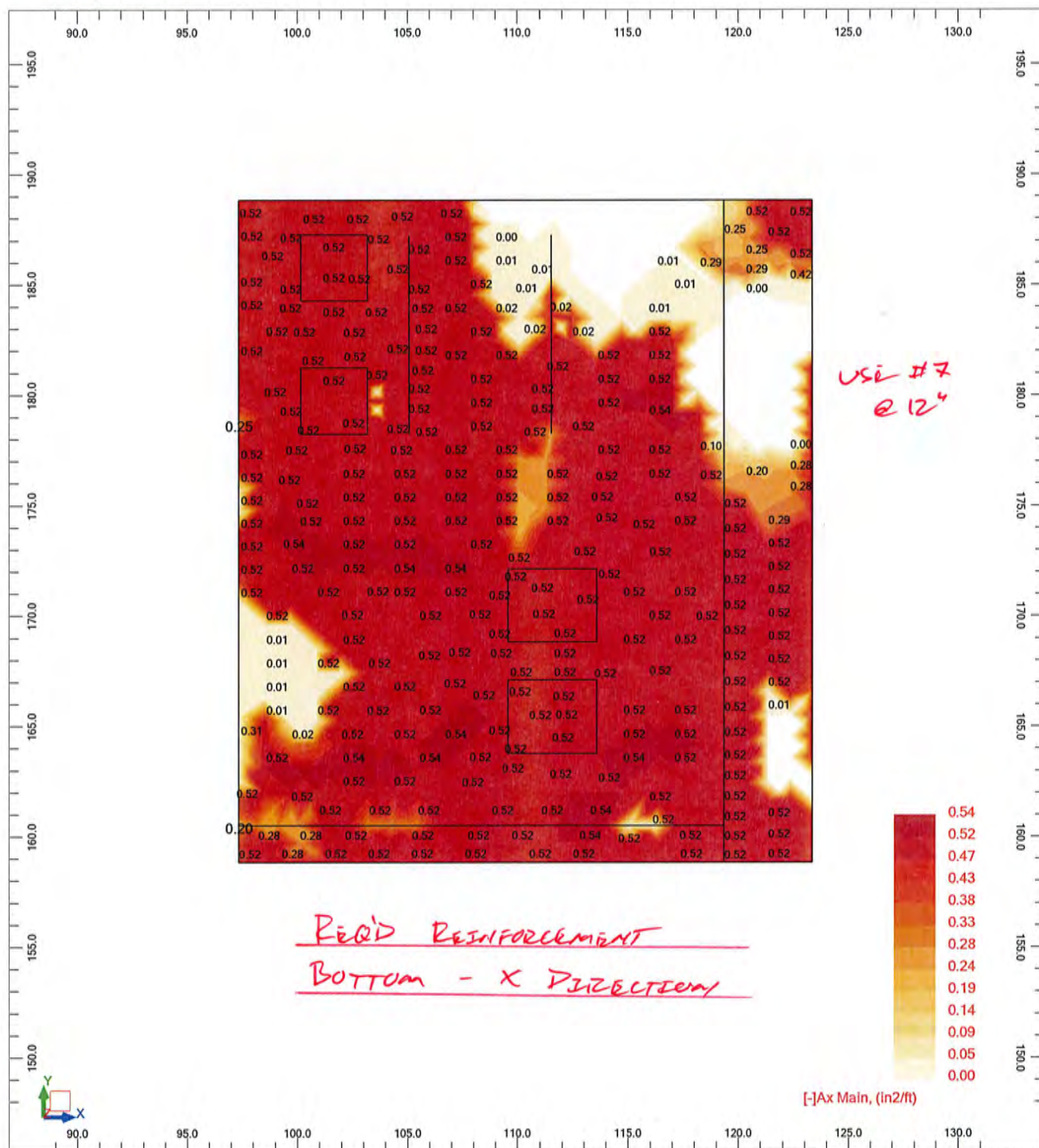
View - Cases: 17 (D)

FOUNDATION F-6

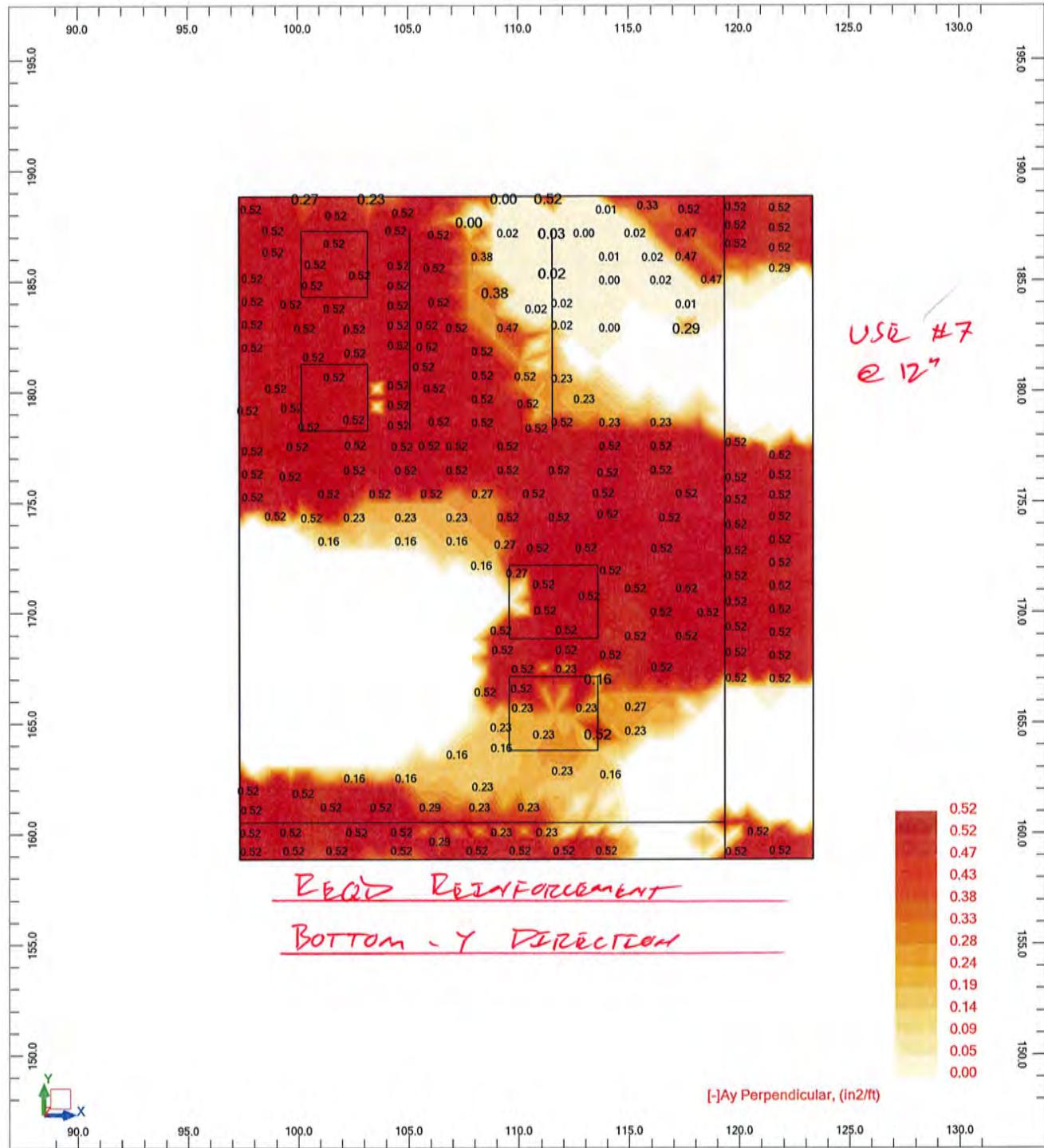
View - pNorm. (kip/ft2) Cases: 19 (D+L)



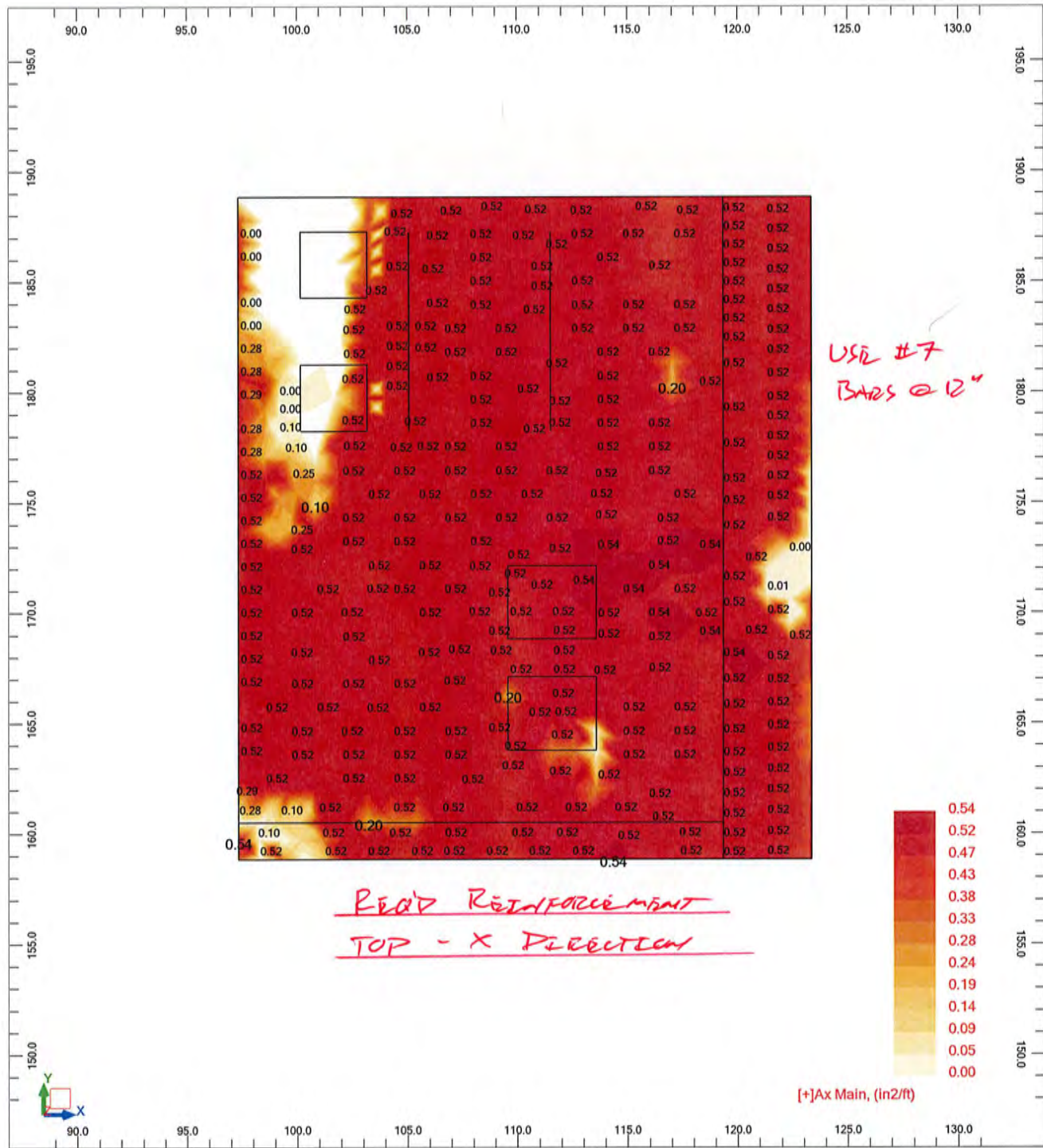
View - [-]Ax Main (in2/ft)



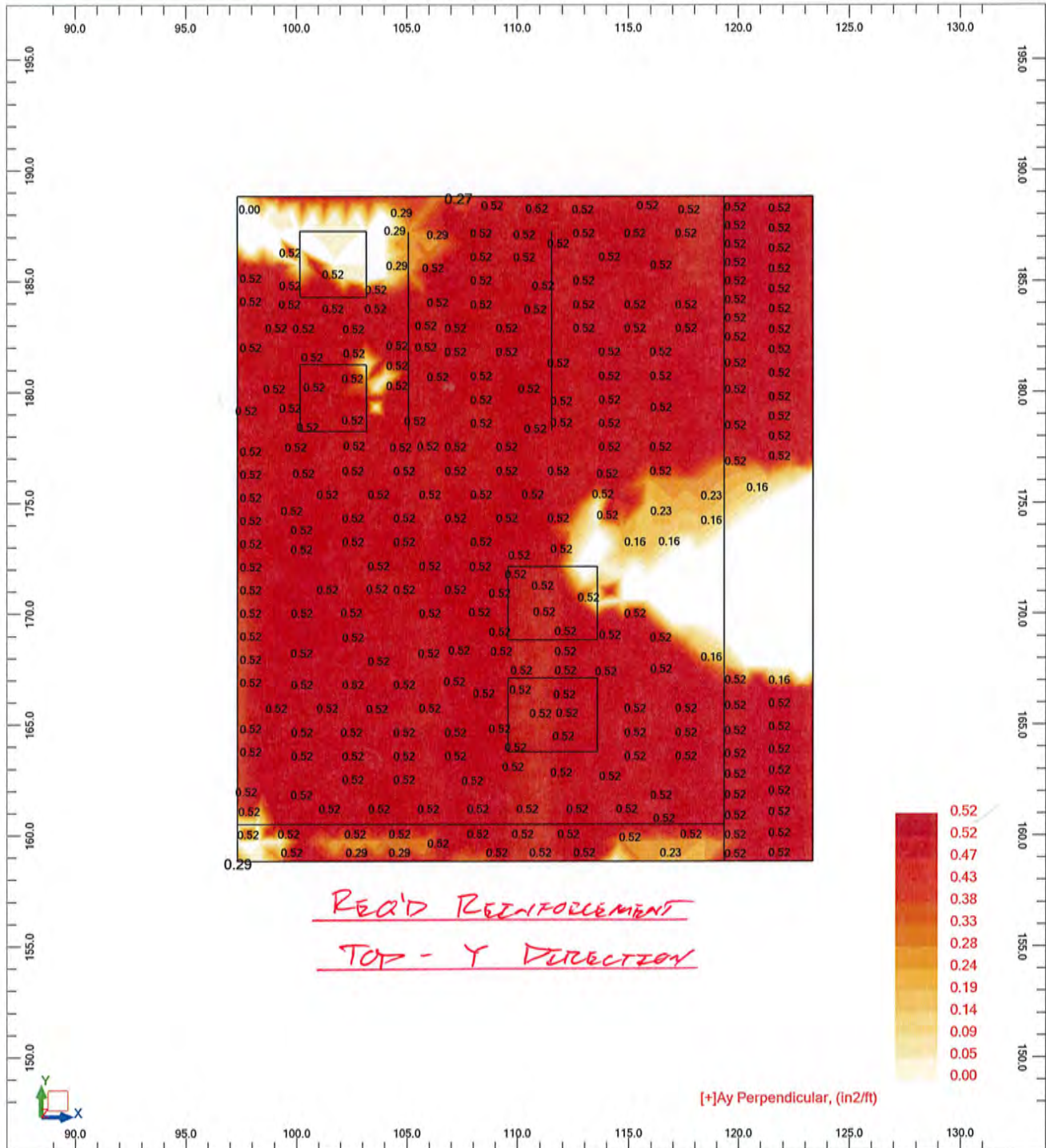
View - [-]Ay Perpendicular (in2/ft)

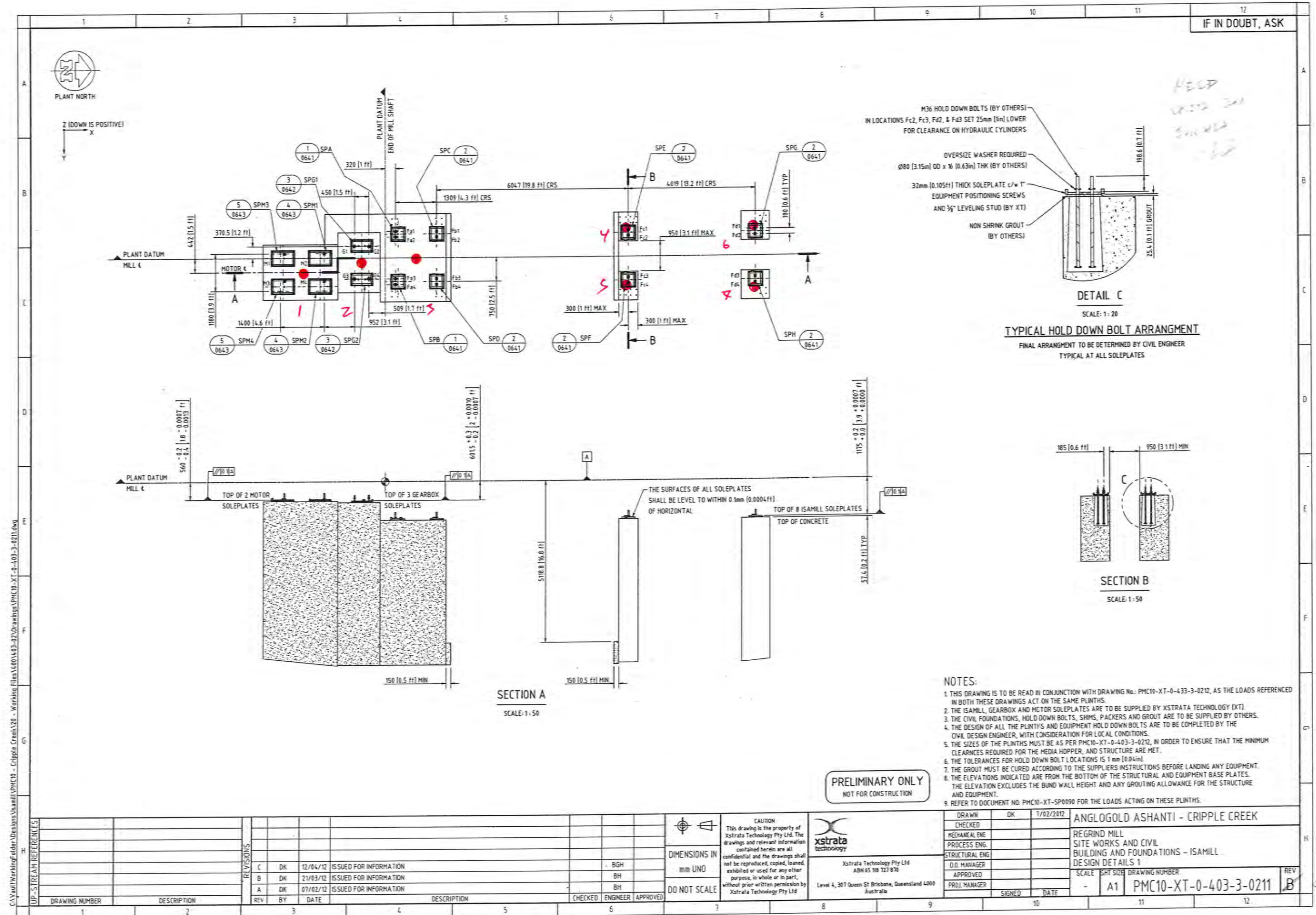


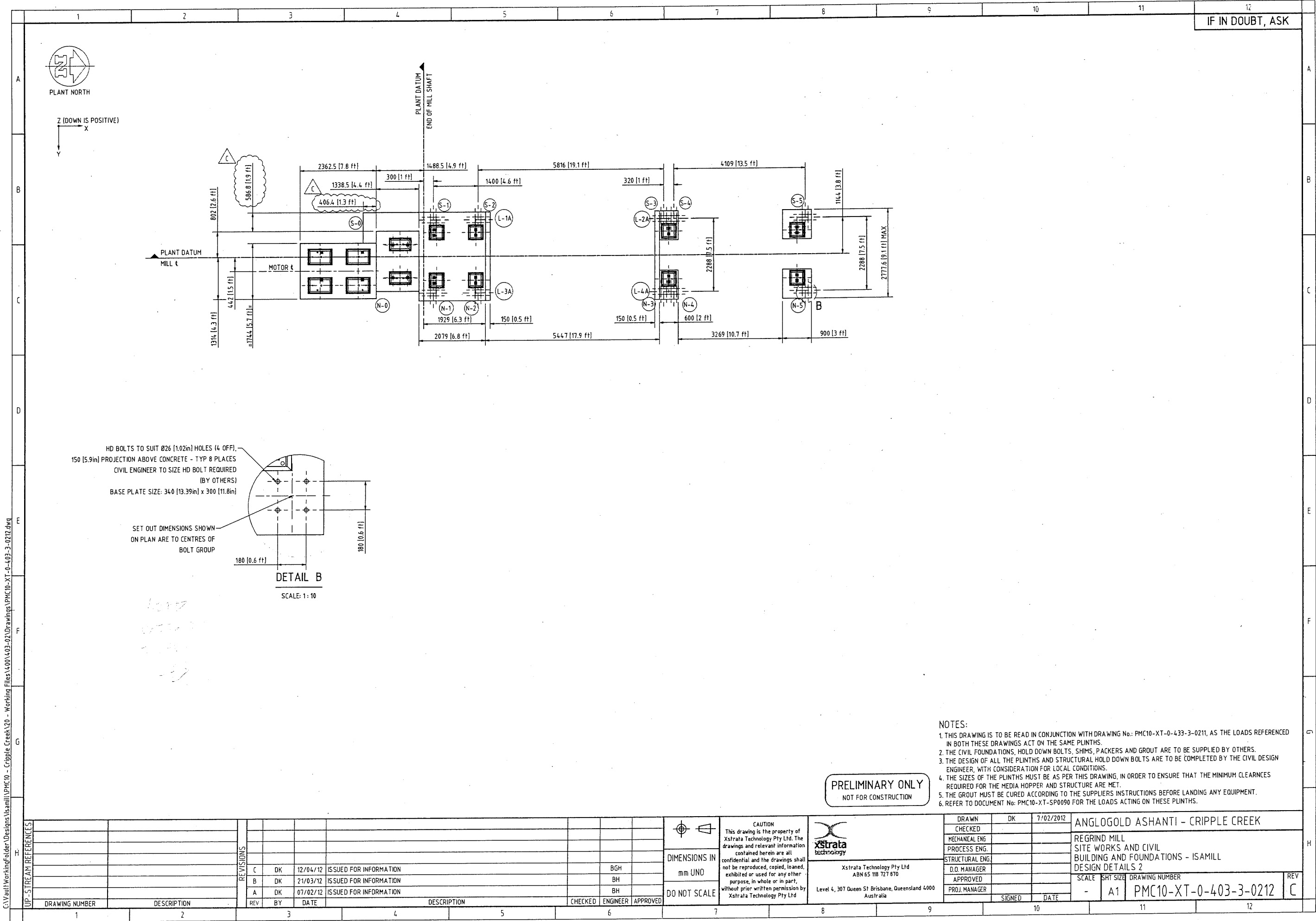
View - [x]Ax Main (in2/ft)



View - [+Ay Perpendicular (in2/ft)

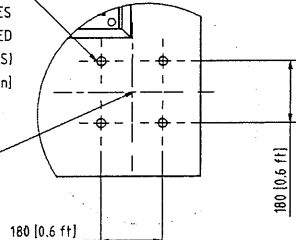






HD BOLTS TO SUIT Ø26 (1.02in) HOLES (4 OFF).
150 (5.9in) PROJECTION ABOVE CONCRETE - TYP 8 PLACES
CIVIL ENGINEER TO SIZE HD BOLT REQUIRED
(BY OTHERS)
BASE PLATE SIZE: 340 (13.39in) x 300 (11.8in)

SET OUT DIMENSIONS SHOWN
ON PLAN ARE TO CENTRES OF
BOLT GROUP



DETAIL B

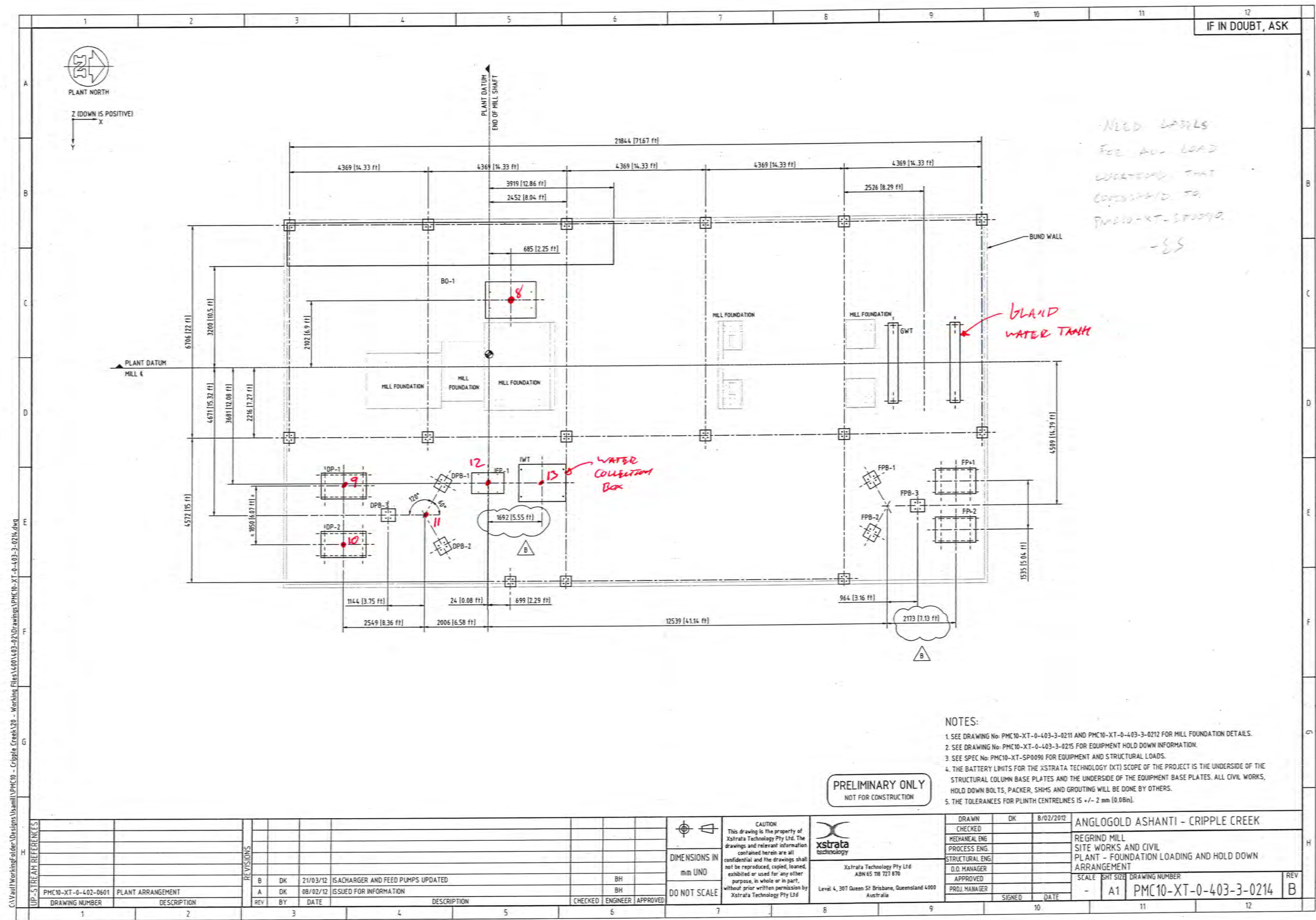
SCALE: 1:10

- NOTES:
- 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING No.: PMC10-XT-0-433-3-0211, AS THE LOADS REFERENCED IN BOTH THESE DRAWINGS ACT ON THE SAME PLINTHS.
 - 2. THE CIVIL FOUNDATIONS, HOLD DOWN BOLTS, SHIMS, PACKERS AND GROUT ARE TO BE SUPPLIED BY OTHERS.
 - 3. THE DESIGN OF ALL THE PLINTHS AND STRUCTURAL HOLD DOWN BOLTS ARE TO BE COMPLETED BY THE CIVIL DESIGN ENGINEER, WITH CONSIDERATION FOR LOCAL CONDITIONS.
 - 4. THE SIZES OF THE PLINTHS MUST BE AS PER THIS DRAWING, IN ORDER TO ENSURE THAT THE MINIMUM CLEARANCES REQUIRED FOR THE MEDIA HOPPER AND STRUCTURE ARE MET.
 - 5. THE GROUT MUST BE CURED ACCORDING TO THE SUPPLIERS INSTRUCTIONS BEFORE LANDING ANY EQUIPMENT.
 - 6. REFER TO DOCUMENT No: PMC10-XT-SP0090 FOR THE LOADS ACTING ON THESE PLINTHS.

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

C:\Vault\WorkingFolder\Drawings\Nsam\PMC10 - Cripple Creek\20 - Working Files\400\403-02\Drawings\PMC10-XT-0-403-3-0212.dwg

UP-STREAM REFERENCES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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NEED LABELS
FOR ALL LOADS
COORDINATE TO
PM10-XT-SP0090
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BLAND
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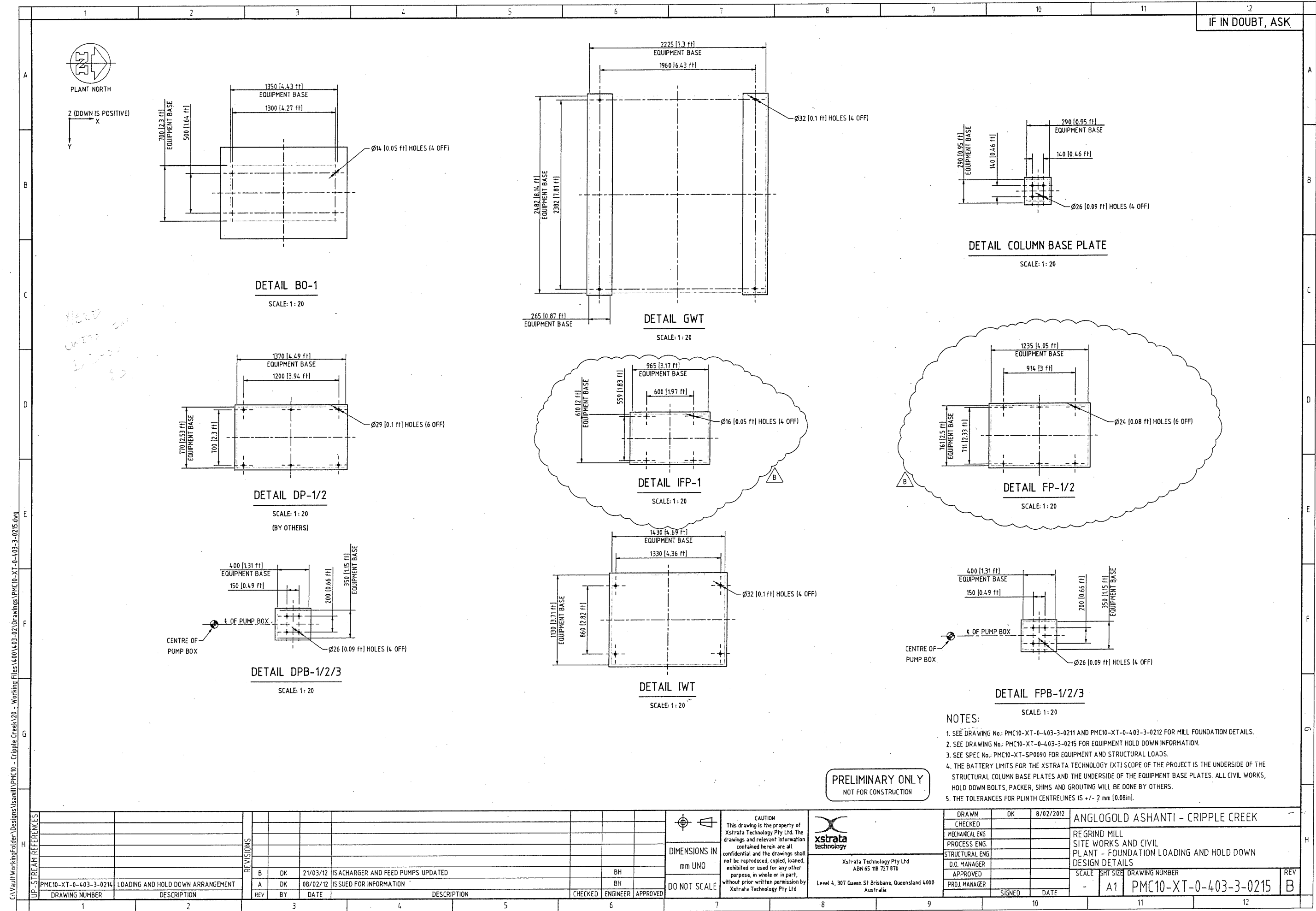
WATER
COLLECTION
BOX

- NOTES:
- SEE DRAWING No: PMC10-XT-0-403-3-0211 AND PMC10-XT-0-403-3-0212 FOR MILL FOUNDATION DETAILS.
 - SEE DRAWING No: PMC10-XT-0-403-3-0215 FOR EQUIPMENT HOLD DOWN INFORMATION.
 - SEE SPEC No: PMC10-XT-SP0090 FOR EQUIPMENT AND STRUCTURAL LOADS.
 - THE BATTERY LIMITS FOR THE XSTRATA TECHNOLOGY (XT) SCOPE OF THE PROJECT IS THE UNDERSIDE OF THE STRUCTURAL COLUMN BASE PLATES AND THE UNDERSIDE OF THE EQUIPMENT BASE PLATES. ALL CIVIL WORKS, HOLD DOWN BOLTS, PACKER, SHIMS AND GROUTING WILL BE DONE BY OTHERS.
 - THE TOLERANCES FOR PLINTH CENTRELINES IS +/- 2 mm (0.08in).

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

C:\Vault\WorkingFolder\Designs\Nasim\PMC10 - Cripple Creek\20 - Working Files\400\403-02\Drawings\PMC10-XT-0-403-3-0214.dwg

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CC&V High Grade Mill Project - Regrind Mill Plant

M3000 Regrind Mill
Equipment and Structural Loads



Doc No. :	PMC10-XT-SP0090
Date :	17/04/2012
Name :	CC&V High Grade Mill Project - Regrind Plant Equipment and Structural Loads
Revision :	A - Preliminary
Client Doc No. :	
Order No.:	PR-11-400

REGRIND MILL PLANT													
LOAD LOCATION	DEAD LOAD Media Hopper and Regrind Mill Fully Loaded - Mill Not Operating (kN)					OPERATING LOAD Mill Operating Under Normal Conditions with Full Media Hopper (kN)				MAXIMUM OPERATING LOAD Mill Starting Up Fully Loaded and With a Full Media Hopper (kN)			
	X	Y	Z (up)	Z (down)		X	Y	Z (up)	Z (down)	X	Y	Z (up)	Z (down)
REGRIND MILL LOADS ON MILL PLINTHS- Applied at the points shown in drawing no.: PMC10-XT-0-403-3-0211													
1	Fa1	0.0	0.0	-29.9	1.1	0.0	0.0	TBD	TBD	0.0	0.0	-58.5	1.1
2	Fa2	0.0	0.0	-29.9	1.1	0.0	0.0	TBD	TBD	0.0	0.0	-58.5	1.1
3	Fa3	0.0	0.0	-29.9	1.1	0.0	0.0	TBD	TBD	0.0	0.0	-58.5	29.7
4	Fa4	0.0	0.0	-29.9	1.1	0.0	0.0	TBD	TBD	0.0	0.0	-58.5	29.7
5	Fb1	0.0	0.0	0.0	291.6	0.0	0.0	TBD	TBD	0.0	0.0	-57.3	302.5
6	Fb2	0.0	0.0	0.0	291.6	0.0	0.0	TBD	TBD	0.0	0.0	-57.3	302.5
7	Fb3	0.0	0.0	0.0	291.6	0.0	0.0	TBD	TBD	0.0	0.0	0.0	359.8
8	Fb4	0.0	0.0	0.0	291.6	0.0	0.0	TBD	TBD	0.0	0.0	0.0	359.8
9	Fc1	0.0	0.0	0.0	223.0	0.0	0.0	TBD	TBD	0.0	0.0	0.0	223.0
10	Fc2	0.0	0.0	0.0	223.0	0.0	0.0	TBD	TBD	0.0	0.0	0.0	223.0
11	Fc3	0.0	0.0	0.0	223.0	0.0	0.0	TBD	TBD	0.0	0.0	0.0	223.0
12	Fc4	0.0	0.0	0.0	223.0	0.0	0.0	TBD	TBD	0.0	0.0	0.0	223.0
13	Fd1	0.0	0.0	0.0	17.8	0.0	0.0	TBD	TBD	0.0	0.0	0.0	17.8
14	Fd2	0.0	0.0	0.0	17.8	0.0	0.0	TBD	TBD	0.0	0.0	0.0	17.8
15	Fd3	0.0	0.0	0.0	17.8	0.0	0.0	TBD	TBD	0.0	0.0	0.0	17.8
16	Fd4	0.0	0.0	0.0	17.8	0.0	0.0	TBD	TBD	0.0	0.0	0.0	17.8

- REGRIND MILL LOAD NOTES:
1. The table above shows the total loads acting on the plinth during the conditons stated in the column title.
 2. The loads given in the table above are unfactored loads.

LOAD LOCATION	DEAD LOAD Motor and Gearbox Filled With Oil - Not Operating (kN)					OPERATING LOAD Motor at Gearbox Operating at Rated Torque (kN)				MAXIMUM OPERATING LOAD Motor and Gearbox Operating at Maximum Torque (kN)			
	X	Y	Z (up)	Z (down)		X	Y	Z (up)	Z (down)	X	Y	Z (up)	Z (down)
EQUIPMENT LOADS ON MILL PLINTHS- Applied at the points shown in drawing no.: PMC10-XT-0-403-3-0211													
17	G1	0.0	0.0	0.0	9.0	0.0	0.0	TBD	TBD	0.0	0.0	57.0	73.8
18	G2	0.0	0.0	0.0	9.0	0.0	0.0	TBD	TBD	0.0	0.0	57.0	73.8
19	G3	0.0	0.0	0.0	9.0	0.0	0.0	TBD	TBD	0.0	0.0	57.0	73.8
20	G4	0.0	0.0	0.0	9.0	0.0	0.0	TBD	TBD	0.0	0.0	57.0	73.8
21	M1	0.0	0.0	0.0	30.0	0.0	0.0	TBD	TBD	0.0	0.0	-58.4	168.1
22	M2	0.0	0.0	0.0	30.0	0.0	0.0	TBD	TBD	0.0	0.0	-58.4	168.1
23	M3	0.0	0.0	0.0	30.0	0.0	0.0	TBD	TBD	0.0	0.0	-58.4	168.1
24	M4	0.0	0.0	0.0	30.0	0.0	0.0	TBD	TBD	0.0	0.0	-58.4	168.1

- EQUIPMENT LOAD NOTES:
1. The table above shows the total loads acting on the plinth during the conditons stated in the column title.
 2. The loads given in the table above are unfactored loads.

Location	Max Oper.		Live (kN) (Max Oper - Dead)
	Dead (kN)	(kN)	
Fa1	29.9	58.5	28.6
Fa2	29.9	58.5	28.6
Fa3	29.9	58.5	28.6
Fa4	29.9	58.5	28.6
Fb1	-291.6	-302.5	-10.9
Fb2	-291.6	-302.5	-10.9
Fb3	-291.6	-359.8	-68.2
Fb4	-291.6	-359.8	-68.2
Fc1	-223.0	-223.0	0.0
Fc2	-223.0	-223.0	0.0
Fc3	-223.0	-223.0	0.0
Fc4	-223.0	-223.0	0.0
G1	9.0	73.8	64.8
G2	9.0	73.8	64.8
G3	9.0	73.8	64.8
G4	9.0	73.8	64.8
M1	30.0	168.1	138.1
M2	30.0	168.1	138.1
M3	30.0	168.1	138.1
M4	30.0	168.1	138.1

LOAD LOCATION	DEAD LOAD (kN)			LIVE LOAD (kN)		
	X	Y	Z	X	Y	Z
STRUCTURAL LOADS ON MILL PLINTHS - Applied at the points shown in drawing no.: PMC10-XT-0-403-3-0212						
25	S-0	TBA	TBA	TBA	TBA	TBA
26	S-1	TBA	TBA	TBA	TBA	TBA
27	S-2	TBA	TBA	TBA	TBA	TBA
28	S-3	TBA	TBA	TBA	TBA	TBA
29	S-4	TBA	TBA	TBA	TBA	TBA
30	S-5	TBA	TBA	TBA	TBA	TBA
31	N-0	TBA	TBA	TBA	TBA	TBA
32	N-1	TBA	TBA	TBA	TBA	TBA
33	N-2	TBA	TBA	TBA	TBA	TBA
34	N-3	TBA	TBA	TBA	TBA	TBA
35	N-4	TBA	TBA	TBA	TBA	TBA
36	N-5	TBA	TBA	TBA	TBA	TBA
37	L-1A	TBA	TBA	TBA	TBA	TBA
38	L-2A	TBA	TBA	TBA	TBA	TBA
39	L-3A	TBA	TBA	TBA	TBA	TBA
40	L-4A	TBA	TBA	TBA	TBA	TBA

STRUCTURAL LOAD NOTES:

1. The table above shows the values of the component of each of the main loads. Therefore these components need to be added to get the total load being applied.

LOAD LOCATION	DEAD LOAD (kN)			LIVE LOAD (kN)		
	X	Y	Z	X	Y	Z
STRUCTURAL LOADS FROM COLUMNS - Applied at the points shown in drawing no.: PMC10-XT-0-403-3-0214						
41	A-1	TBA	TBA	TBA	TBA	TBA
42	A-2	TBA	TBA	TBA	TBA	TBA
43	B-1	TBA	TBA	TBA	TBA	TBA
44	B-2	TBA	TBA	TBA	TBA	TBA
45	B-3	TBA	TBA	TBA	TBA	TBA
46	C-1	TBA	TBA	TBA	TBA	TBA
47	C-2	TBA	TBA	TBA	TBA	TBA
48	D-1	TBA	TBA	TBA	TBA	TBA
49	D-2	TBA	TBA	TBA	TBA	TBA
50	D-3	TBA	TBA	TBA	TBA	TBA
51	E-1	TBA	TBA	TBA	TBA	TBA
52	E-2	TBA	TBA	TBA	TBA	TBA
53	F-1	TBA	TBA	TBA	TBA	TBA
54	F-2	TBA	TBA	TBA	TBA	TBA

STRUCTURAL LOAD NOTES:

1. The table above shows the values of the component of each of the main loads. Therefore these components need to be added to get the total load being applied.

LOAD LOCATION	DEAD LOAD (kN)			LIVE LOAD (kN)		
	X	Y	Z	X	Y	Z
STAIR LOADS - Applied at the points shown in drawing no.: PMC10-XT-0-403-3-0214						
55	SW-1	TBA	TBA	TBA	TBA	TBA
56	SW-2	TBA	TBA	TBA	TBA	TBA
57	SW-3	TBA	TBA	TBA	TBA	TBA
58	SW-4	TBA	TBA	TBA	TBA	TBA
59	SW-5	TBA	TBA	TBA	TBA	TBA
60	SW-6	TBA	TBA	TBA	TBA	TBA

STAIR LOAD NOTES:

1. The table above shows the values of the component of each of the main loads. Therefore these components need to be added to get the total load being applied.

NEED
LOADS
-ES

LOAD LOCATION		DEAD LOAD (kN)			LIVE LOAD (kN)		
		X	Y	Z	X	Y	Z
	TANK LOADS - Applied at the points shown in drawing no.: PMC10-XT-0-403-3-0214						
61	FPB-1 ³	0.0	0.0	21.6	0.0	0.0	426.7
62	FPB-2 ³	0.0	0.0	21.6	0.0	0.0	426.7
63	FPB-3 ³	0.0	0.0	21.6	0.0	0.0	426.7
64	DPB-1	0.0	0.0	21.6	0.0	0.0	426.7
65	DPB-2	0.0	0.0	21.6	0.0	0.0	426.7
66	DPB-3	0.0	0.0	21.6	0.0	0.0	426.7
67	GWT-1	0.0	0.0	1.5	0.0	0.0	5.0
68	GWT-2	0.0	0.0	1.5	0.0	0.0	5.0
69	GWT-3	0.0	0.0	9.7	0.0	0.0	31.7
70	GWT-4	0.0	0.0	9.7	0.0	0.0	31.7
71	GWT-5	0.0	0.0	1.5	0.0	0.0	5.0
72	GWT-6	0.0	0.0	1.5	0.0	0.0	5.0
73	IWT-1	0.0	0.0	2.4	0.0	0.0	9.8
74	IWT-2	0.0	0.0	2.4	0.0	0.0	9.8
75	IWT-3	0.0	0.0	2.4	0.0	0.0	9.8
76	IWT-4	0.0	0.0	2.4	0.0	0.0	9.8

TANK LOAD NOTES:

1. The table above shows the values of the component of each of the main loads. Therefore these components need to be added to get the total load being applied.
2. The loads given in the table above are unfactored loads.
3. The Feed Pump Box is a 3.5m3 capacity and the preliminary loads are approximated as the same as the Discharge Pump Box which is a 6m3 capacity for which we have previous loading information

LOAD LOCATION		DEAD LOAD (kN)			LIVE LOAD (kN)		
		X	Y	Z	X	Y	Z
	PUMP LOADS - Applied at the points shown in drawing no.: PMC10-XT-0-403-3-0214						
77.	FP-1/2 - A (x2) ³	0.0	0.0	1.2	0.9	0.2	13.4
78	FP-1/2 - B (x2) ³	0.0	0.0	1.2	0.9	0.2	13.4
79	DP-1/2	By Others	By Others	By Others	By Others	By Others	By Others
80	IFP ³	0.0	0.0	0.9	2.3	0.0	3.2

PUMP LOAD NOTES:

1. The table above shows the values of the component of each of the main loads applied at the bolt holes. Therefore these components need to be added to get the total load being applied.
2. The loads given in the table above are unfactored loads.
3. Loading to be verified with certified Vendor drawings

LOAD LOCATION		DEAD LOAD (kN)			LIVE LOAD (kN)		
		X	Y	Z	X	Y	Z
OIL LUBRICATION SYSTEM LOADS - Applied at the points shown in drawing no.: PMC10-XT-0-403-3-0214							
81	BO-1	0.0	0.0	0.5	0.0	0.0	1.8

EQUIPMENT LOAD NOTES:

1. The table above shows the values of the component of each of the main loads applied at the bolt holes. Therefore these components need to be added to get the total load being applied.
2. The loads given in the table above are unfactored loads.

LOAD LOCATION		DEAD LOAD (kN)			LIVE LOAD (kN)		
		X.	Y	Z	X	Y	Z
	PLATFORM LOADS - Applied at the points shown in drawing no.: PMC10-XT-0-404-4-0201						
82	Trash Screen	0.0	0.0	6.0	0.0	0.0	18.8
83	Dewater Screen	0.0	0.0	6.0	0.0	0.0	18.8
84	LRS	0.0	0.0	12.8	0.0	0.0	42.2

EQUIPMENT LOAD NOTES:

1. The table above shows the total component weight
2. The loads given in the table above are unfactored loads.



XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT STEELWORK

DRAWING LIST	
DRAWING #	DRAWING DESCRIPTION
11-VA-0131-S-001	CIVIL LOADING
11-VA-0131-S-100	GENERAL NOTES
11-VA-0131-S-101	BASE PLATES AND SUPPORTS, PLAN AND DETAILS
11-VA-0131-S-102	STEEL PLAN @ EL. 9915'-9"
11-VA-0131-S-103	STEEL PLAN @ EL. 9926'-11 3/4"
11-VA-0131-S-104	STEEL PLAN @ EL. 9932'-1" & EL. 9943'-4"
11-VA-0131-S-105	PLATFORM ELEVATIONS - SHEET 1
11-VA-0131-S-106	PLATFORM ELEVATIONS - SHEET 2
11-VA-0131-S-107	PLATFORM ELEVATIONS - SHEET 3
11-VA-0131-S-108	STAIR DETAILS
11-VA-0131-S-109	DETAILS SHEET 1
11-VA-0131-S-110	DETAILS SHEET 2

	Drawing NO.	TITLE	
	PMC10-AE-0-000-3-0001	11-VA-0131-S-000	PAGE

(K4)

From Plinths		X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
S	1	0.0	0.0	-1.6	0.0	0.0	-8.8	0.4	0.0	0.0	0.0	0.0	0.0
S	2	0.0	0.0	-2.9	0.0	0.0	-75.3	0.2	0.0	0.2	0.0	0.4	0.2
S	4	0.0	0.0	-3.8	0.0	0.4	-81.8	0.2	0.0	0.2	0.0	0.4	0.2
S	4	0.0	0.0	0.7	0.0	0.0	16.6	0.2	0.0	0.0	0.0	0.2	0.0
S	5	0.0	-0.2	-2.9	0.2	-0.9	-67.9	0.7	0.2	0.2	0.2	0.7	0.2
N	1	0.2	-0.2	-0.2	0.7	0.7	-6.3	2.0	0.7	0.0	0.7	0.9	0.0
N	2	0.9	4.9	-2.5	0.2	-2.0	-34.4	3.6	1.1	0.0	1.1	1.1	0.0
N	3	-0.4	0.7	-2.7	0.2	-0.4	-37.8	3.4	0.7	0.2	0.7	0.4	0.2
N	4	-0.2	-0.4	0.7	0.0	0.0	9.0	2.2	1.1	0.0	1.1	0.7	0.0
N	5	-0.2	-0.4	-2.0	-0.9	-1.8	-36.6	3.1	0.9	0.0	0.9	1.6	0.0
A	0	0.0	0.0	-4.5	0.2	0.0	-44.3	1.1	0.2	0.2	0.2	1.6	0.2
A	1	0.0	0.0	0.0	0.0	0.0	-0.7	0.2	0.0	0.0	0.0	0.2	0.0

[illegible]

NOTES:
X IS NORTH-SOUTH DIRECTION
Y IS EAST-WEST DIRECTION
POSITIVE Z MEANS SUPPORT IS IN TENSION

ALL LOADS ARE IN KN
ALL LOADS ARE UNFACTORED SERVICE LOADS
ALL REACTION MOMENTS ARE 0

P1	12/05/08	ISSUED FOR REVIEW	DR	D
REX	Y1/WM/DC	DESCRIPTION	DR	AF

xstrata

AC ALLNORTH
CONSULTANTS LIMITED
WWW.ALLNORTH.COM

CLIENT PROJECT NO.:	DRAWN BY:	CH	DATE: 12/04/
PROJECT NO.:	11-WA-0131	CHECKED BY:	AH DATE: 12/05/
DRAWING SIZE:	D	DESIGNED BY:	PC DATE: 12/05/
SCALE:	AS NOTED	APPROVED BY:	DI DATE: 12/05/
PROJECT			

XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

TITLE	
CIVIL LOADING	
DOC. NO.:	REV:
11-VA-0131-S-001	P1

GENERAL NOTES:

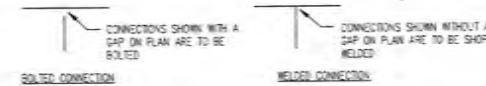
1. SITE GEOTECHNICAL AND CLIMATIC DATA HAS BEEN PROVIDED BY THE CLIENT.
2. THIS STRUCTURE HAS BEEN DESIGNED TO RESIST FORCES DUE TO GRAVITY AND EARTHQUAKE IN ACCORDANCE WITH THE CODE REQUIREMENTS.
3. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING CODES, SPECIFICATIONS AND STANDARDS:
 - ICC (INTERNATIONAL CODE COUNCIL)
 - a) INTERNATIONAL BUILDING CODE (IBC), 2009 EDITION
 - AISI (AMERICAN INSTITUTE OF STEEL CONSTRUCTION)
 - a) AISI 303-05 CODE OF STANDARD PRACTICE FOR STEEL BUILDING AND BRIDGES
 - b) AISI 350-05 SPECIFICATION FOR STRUCTURAL BUILDING
 - AWS (AMERICAN WELDING SOCIETY)
 - a) D11.9/11M-04 STRUCTURAL WELDING CODE-STEEL
 - ASCE (AMERICAN SOCIETY OF CIVIL ENGINEERS)
 - a) 7-25 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
 - ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
 - a) A 36/A 36M-03a STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL
 - b) A 1011/A 1011M-03a STANDARD SPECIFICATION FOR STEEL SHEET AND STRIP
 - c) A 572/A 572M-03a STANDARD SPECIFICATION FOR HIGH-STRENGTH LOW ALLOY COLUMBIUM-VANADIUM STRUCTURAL STEEL
 - d) A 786/A 786M-00 STANDARD SPECIFICATION FOR HOT ROLLED CARBON LOW ALLOY, HIGH STRENGTH LOW ALLOY, AND ALLOY STEEL FLOOR PLATES
 - e) A 992/A 992M-03 STANDARD SPECIFICATION FOR STRUCTURAL SHAPES
 - AISC (AMERICAN IRON & STEEL ENGINEERS)
 - a) TECHNICAL REPORT No. 13, 2003, "GUIDE FOR THE DESIGN AND CONSTRUCTION OF MILL BUILDINGS"
4. SPECIFIED DESIGN LOADS:

LIVE LOAD:	AS SHOWN ON DWGS
IBC SITE CLASS B	
SEISMIC:	$S_a(0.2) = 0.209$
	$S_a(1.0) = 0.0659$
	$PGA = 0.150$

WIND LOAD: IN ACCORDANCE WITH ASCE 7-05 CHAPTER 6 = 130 km/hr
 SNOW LOADS: IN ACCORDANCE WITH ASCE 7-05 CHAPTER 7 = 40 kg/m²
 THERMAL LOADS: DIFFERENTIAL TEMPERATURE OF ±20°C
5. BRACE THE STRUCTURE UNTIL ALL STRUCTURAL COMPONENTS ARE COMPLETED AND INSTALLED.
6. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION" BY ALLNORTH.

STRUCTURAL STEEL:

1. GENERAL:
 - a) FABRICATION, ERECTION AND DETAILING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH AISI REQUIREMENTS FOR STEEL CONSTRUCTION.
 - b) WELDING TO COMPLY WITH AWS D11.9 CODE. ELECTRODES TO BE E70 LOW HYDROGEN TYPE UNLESS APPROVED OTHERWISE. REMOVE ALL PAINT 2" (50mm) BACK FROM AREAS TO BE WELDED.
 - c) ALL CONNECTION FORCES SHALL PASS THRU COMMON WORK POINT WHICH SHALL BE THE INTERSECTION OF THE PRINCIPAL AXES OF THE CONNECTED MEMBERS U.N.O.
 - d) ALL LOADS SHOWN ARE FACTORED LOADS. LOADS ARE GIVEN IN KILONEWTONS (kN).
 - e) BRACING AND PASS-THROUGH FORCES GIVEN ON THE DRAWINGS ARE FACTORED APPROPRIATELY FOR THE GOVERNING LATERAL LOAD CASE T-TENSION & C-COMPRESSION.
 - f) DETAILER TO SUBMIT 1 SET OF SHOP DRAWINGS TO ALLNORTH FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS TO SHOW ALL DETAILS AND MATERIAL SPECIFICATIONS.
 - g) STRUCTURAL STEEL SHOWN ON SINGLE LINE PLAN DRAWINGS ARE TO BE AS FOLLOWS U.N.O.



PRODUCTS:

- a) ALL W SHAPES TO BE A572 GRADE 50 STRUCTURAL STEEL, ALL OTHER STEEL SHAPES AND PLATES TO BE ASTM A36 STEEL.
 - b) ANCHOR BOLTS TO ASTM A307. **FISSEY 36?**
 - c) STRUCTURAL STEEL BOLTS TO BE A325 HEAVY HEX MIN. 3/4" (19mm) DIAMETER AND SHALL BE BEARING BOLTS WITH THREADS EXCLUDED FROM THE SHEAR PLANE. PROVIDE HOT DIP GALVANIZED BOLTS ONLY IF EXPOSED TO WEATHER.
 - d) ALL GRATING SHALL BE SERRATED, AND HAVE BEARING BARS 30mm DEEP x 5mm (1/4 x 3/16) THICK AT 30mm SPACING. ATTACH GRATING AS PER BELDETEL STANDARDS.
 - e) ALL HANDRAIL TUBING TO CONFORM TO ASTM A53 GRADE SCH 40.
2. EXCISION:
 - a) SHOP CONNECTIONS TO BE WELDED, FIELD CONNECTIONS TO BE BOLTED AS PER FLSMITH STANDARDS.
 - b) CONNECT ALL BRACING USING 3/8" (9.5mm) MIN. THICK GUSSET PLATES. CONNECT BRACING FOR THE FACTORED LOADS SHOWN ON THE DRAWINGS WHERE APPLICABLE. USE MIN. 2 BOLT SHEAR CONNECTION FOR ANGLES AND MIN. 4 BOLT SHEAR CONNECTION FOR WT AND HSS.
 - c) MINIMUM 2 BOLTS PER CONNECTION.
 - d) ALL PIPE AND HSS OPEN ENDS TO HAVE MIN. 3/8" (9.5mm) CAP PLATE.
 - e) MINIMUM WELDS FOR CONNECTIONS SHALL BE 1/4" (6mm) AND WHERE EXPOSED IN FINISHED BUILDINGS WELD SHALL BE GRIND SMOOTH.
 - f) THE STRUCTURAL STEEL FABRICATOR IS RESPONSIBLE FOR DETAIL, SUPPLY, CRECTION AND MAINTENANCE OF ALL NECESSARY TEMPORARY BRACING TO SUPPLY TEMPORARY STABILITY TO THE STRUCTURAL FRAMING FOR ALL VARIOUS CONDITIONS DURING CONSTRUCTION.
 3. STEEL COATINGS:
 - a) ALL STEEL MEMBERS ARE TO BE PAINTED TO MEET STANDARDS.
 4. SHOP AND FIELD INSPECTIONS:

XSTRATA ARE RESPONSIBLE FOR SHOP INSPECTIONS AND FIELD REVIEWS/INSPECTIONS. A STRUCTURAL ENGINEER MUST PERFORM INSPECTIONS AS REQUIRED TO CONFIRM COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE FOLLOWING DOCUMENTS SHALL BE SUBMITTED TO ALLNORTH:

 - i) COPIES OF REPORTS STATING OBSERVATIONS AND DEFICIENCIES IDENTIFIED DURING INSPECTIONS.
 - ii) A CERTIFIED LETTER FROM A STRUCTURAL ENGINEER STATING THE COMPLETED STRUCTURE HAS BEEN INSPECTED.

REFERENCE DRAWINGS		
DWG. NO.	DRAWING DESCRIPTION / TITLE	REV.
		1

Drawing NO.
PMC10-AE-0-000-3-0003

MAY 5, 2012

FOR REVIEW

P1	12/05/08	ISSUED FOR REVIEW	CH	BY
REV.	YY/MM/DD	DESCRIPTION	DR	APP

xstrata

AC ALLNORTH
 CONSULTANTS LIMITED
 WWW.ALLNORTH.COM

CLIENT PROJECT NO:	DRAWN BY:	CH	DATE:	12/04/11	
PROJECT NO:	CHECKED BY:	AK	DATE:	12/05/11	
DRAWING SIZE:	DESIGNED BY:	PC	DATE:	12/05/11	
SCALE:	AS NOTED	APPROVED BY:	CH	DATE:	12/05/11
PROJECT					

PROJECT
 XSTRATA TECHNOLOGY PTY LTD.
 CRIPPLE CREEK, COLORADO, U.S.A.
 ISAMILL GRINDING PLANT
 STEELWORK

TITLE
 GENERAL NOTES

DWG. NO.: **11-VA-0131-S-100** REV: **P1**

REFERENCE DRAWINGS		
DWG. NO.	DRAWING DESCRIPTION / TITLE	REV.
11-VA-0131-S-101	ISAMILL GRINDING PLANT	1

Drawing NO.	
PMC10-AE-0-000-3-0004	
MA' 5. 2012	
FOR REVIEW	

PI	12/05/08	ISSUED FOR REVIEW	CH	DP
REL	11/04/09	DESCRIPTION	DR	APP

CLIENT

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CLIENT PROJECT NO.	11-VA-0131	DRAWN BY	CH	DATE	12/04/09
PROJECT NO.	11-VA-0131	CHECKED BY	4H	DATE	12/05/09
DRAWING SIZE	3	DESIGNED BY	PC	DATE	12/03/10
SCALE	AS NOTED	APPROVED BY	DP	DATE	12/05/08

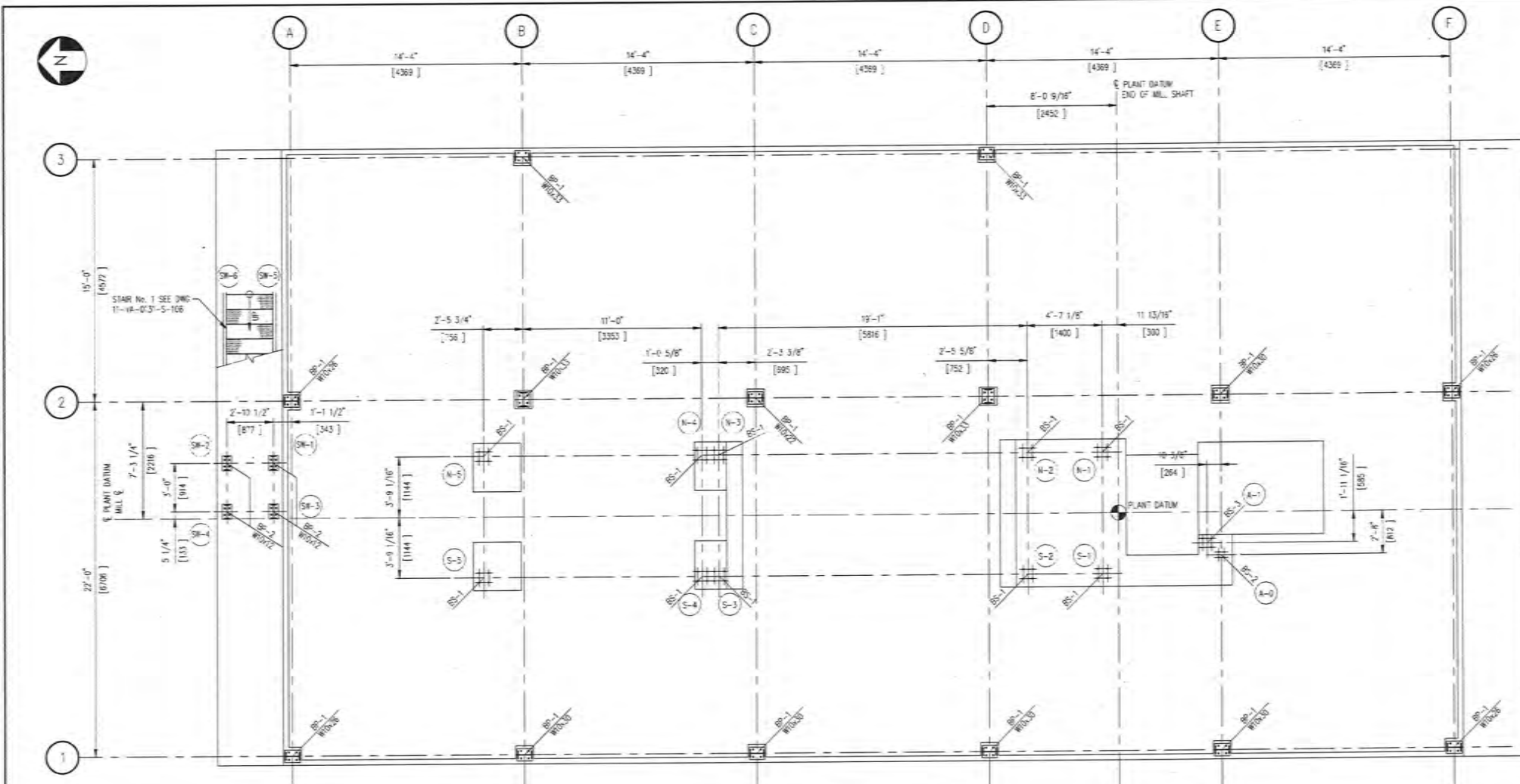
PROJECT

XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

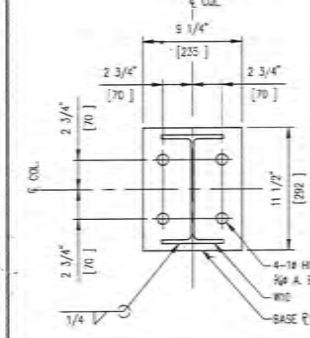
TITLE

BASE PLATES AND SUPPORTS
PLAN AND DETAILS

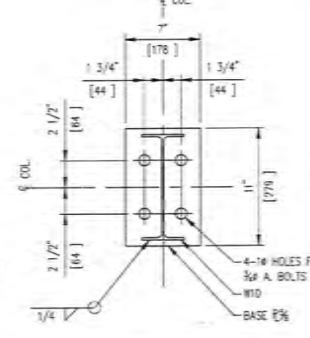
DWG. NO.	11-VA-0131-S-101	REV.	P1
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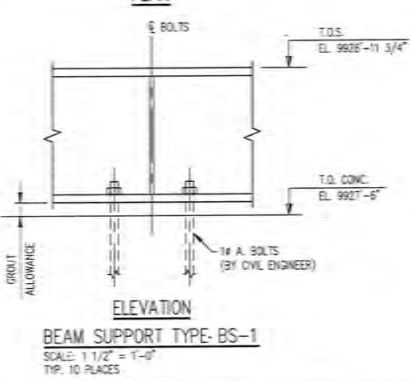
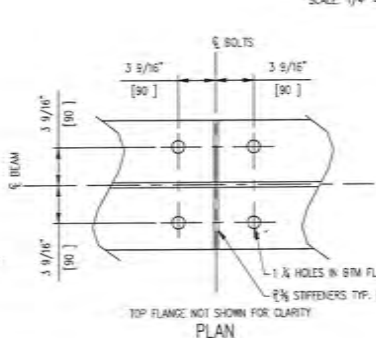
PLAN @ U/S BASE PLATE EL. 9914'-11"
SCALE: 1/4" = 1'-0"



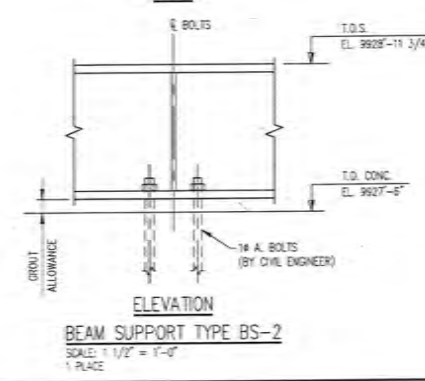
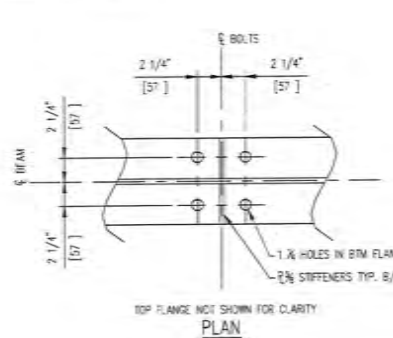
BASE PLATE TYPE BP-1
SCALE: 1 1/2" = 1'-0"
TYP. 14 PLACES



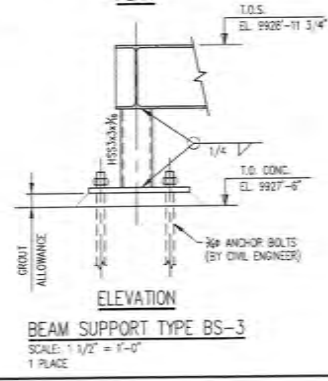
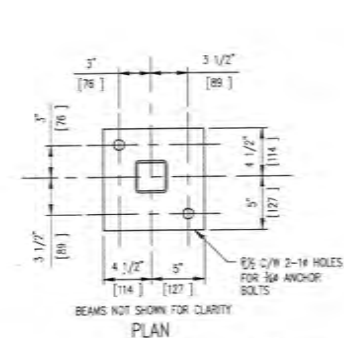
BASE PLATE TYPE BP-2
SCALE: 1 1/2" = 1'-0"
TYP. 4 PLACES



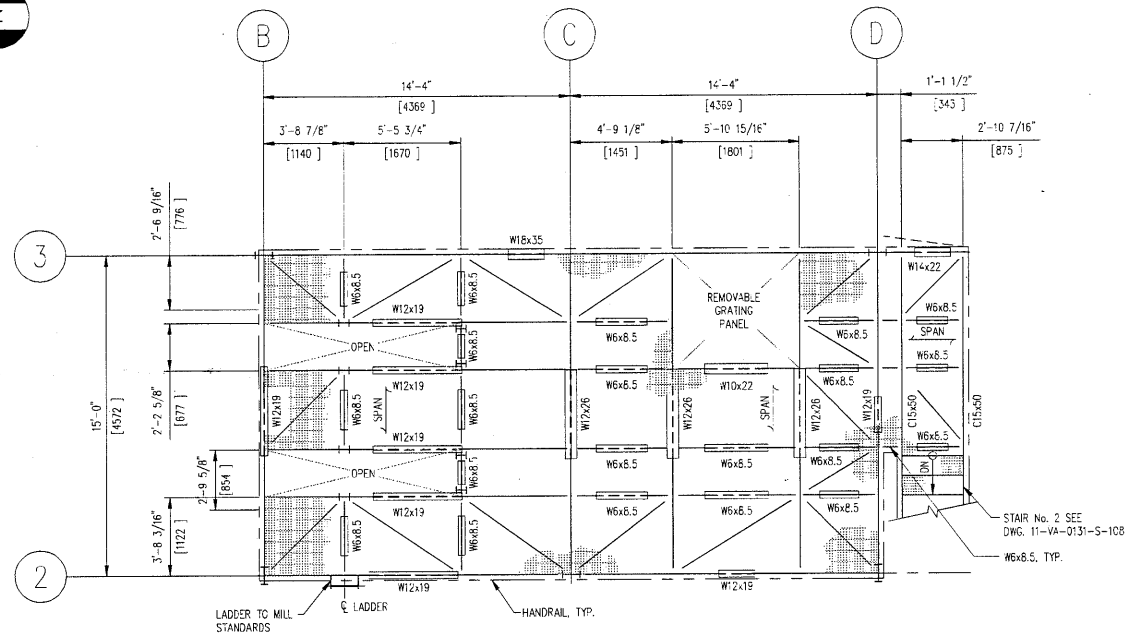
BEAM SUPPORT TYPE BS-1
SCALE: 1 1/2" = 1'-0"
TYP. 10 PLACES



BEAM SUPPORT TYPE BS-2
SCALE: 1 1/2" = 1'-0"
1 PLACE

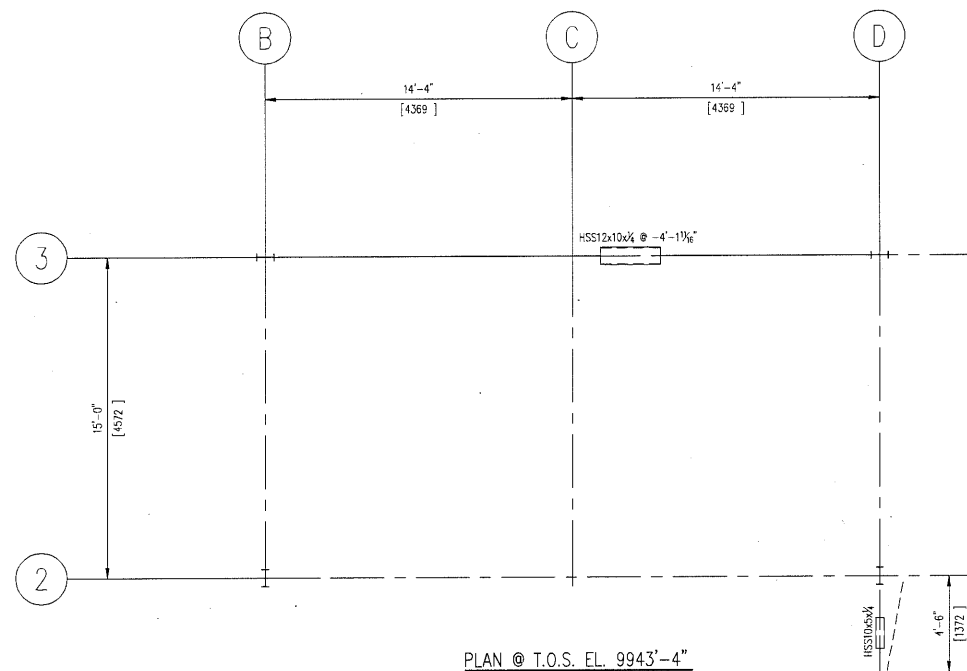


BEAM SUPPORT TYPE BS-3
SCALE: 1 1/2" = 1'-0"
1 PLACE



PLAN @ T.O.S. EL. 9932'-1"
SCALE: 1/4" = 1'-0"

NOTE:
ALL HORIZONTAL DIAGONAL BRACING TO
BE L2½x2½x¼ U.N.O.
ALL HORIZONTAL DIAGONAL BRACING TO
BE 3/8x3/8x¼ U.N.O.



PLAN @ T.O.S. EL. 9943'-4"
SCALE: 1/4" = 1'-0"

REFERENCE DRAWINGS		
DWG. NO.	DRAWING DESCRIPTION / TITLE	REF.
		1

Drawing NO.	
PMC10-AE-0-000-3-0007	

MAY 8, 2012

FOR REVIEW

P1	12/05/08	ISSUED FOR REVIEW	CH	DY
REV	YY/MM/DD	DESCRIPTION	DR	APP

CLIENT

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CLIENT PROJECT NO.	11-VA-0131	DRAWN BY:	CH	DATE:	12/04/01
PROJECT NO.	11-VA-0131	CHECKED BY:	AH	DATE:	12/05/07
DRAWING NO.	D	DESIGNED BY:	PC	DATE:	12/03/15
SCALE:	AS NOTED	APPROVED BY:	DY	DATE:	12/05/08

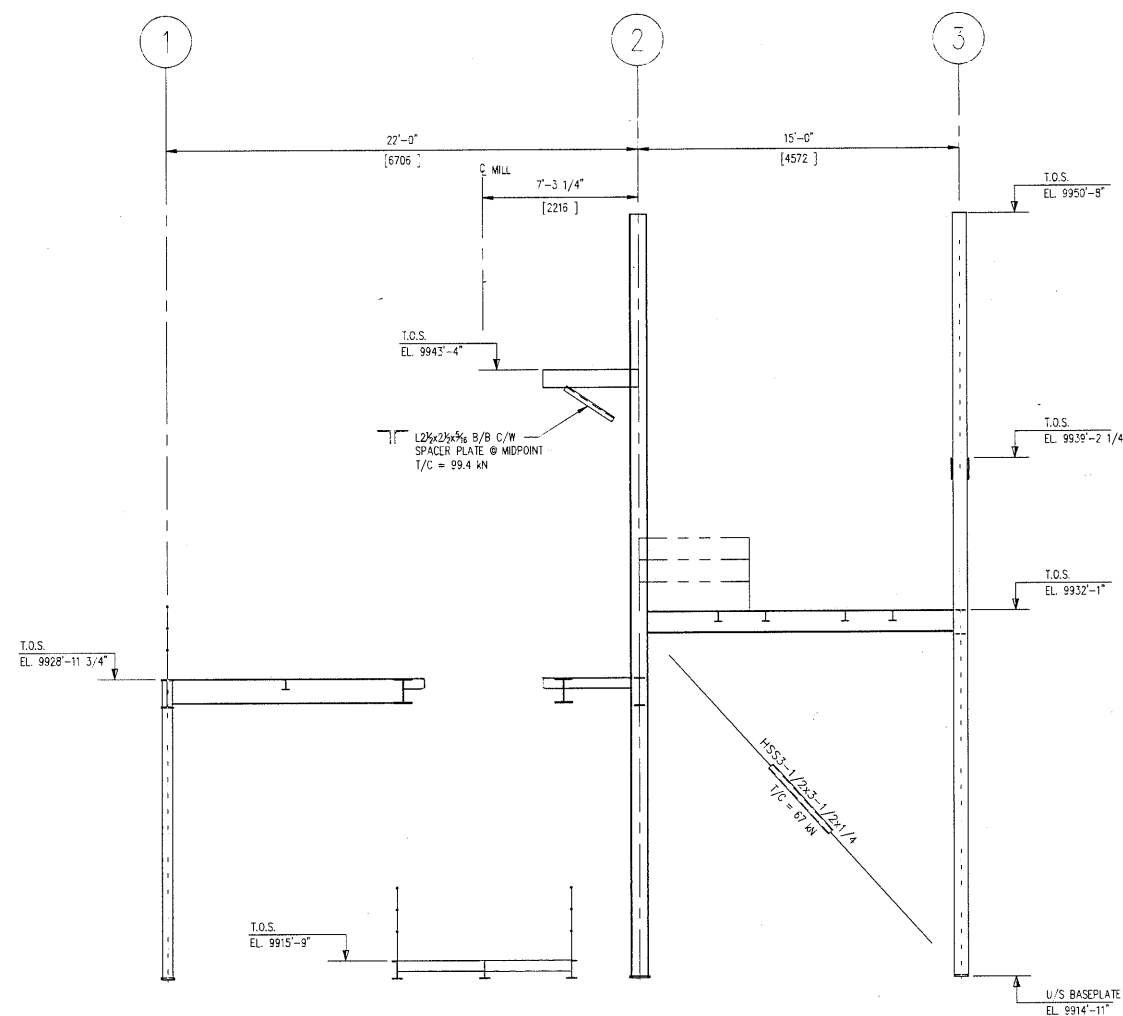
PROJECT

XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

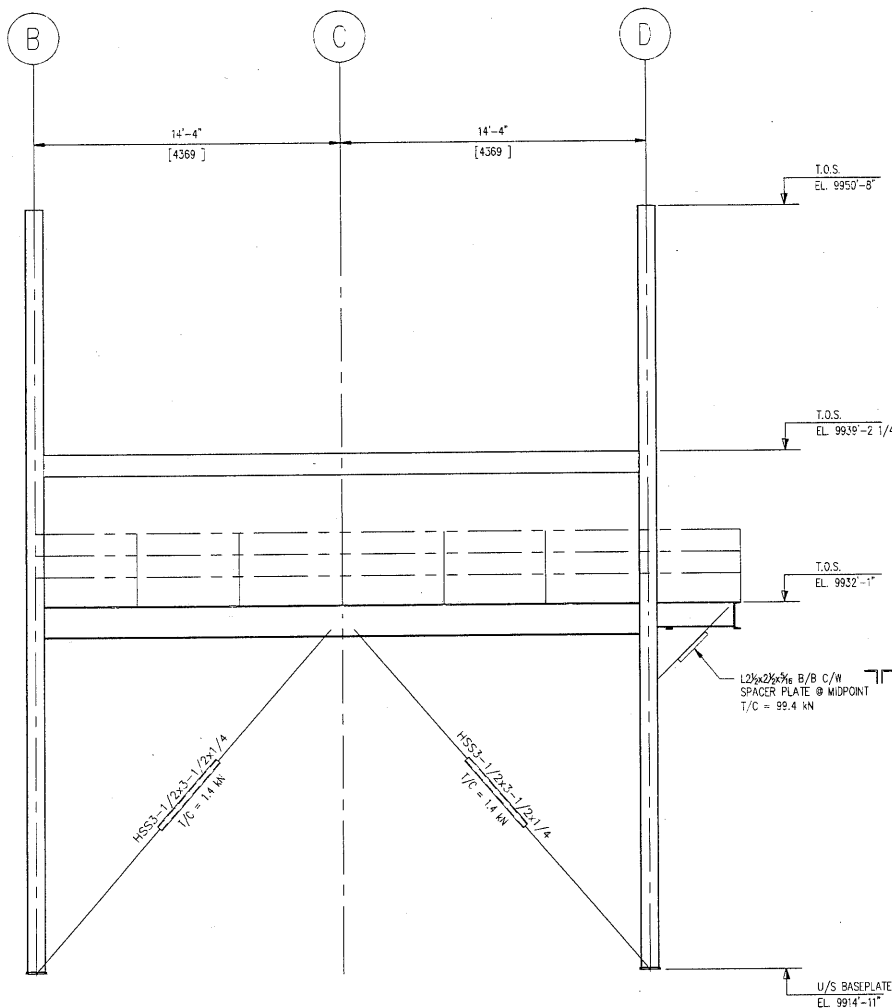
TITLE

STEEL PLAN @ EL. 9932'-1"
& EL. 9943'-4"

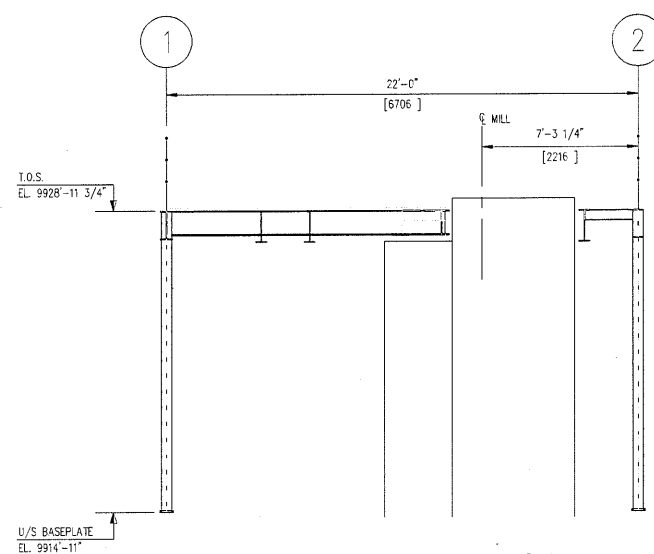
DWG. NO.	11-VA-0131-S-104	REV.	P1
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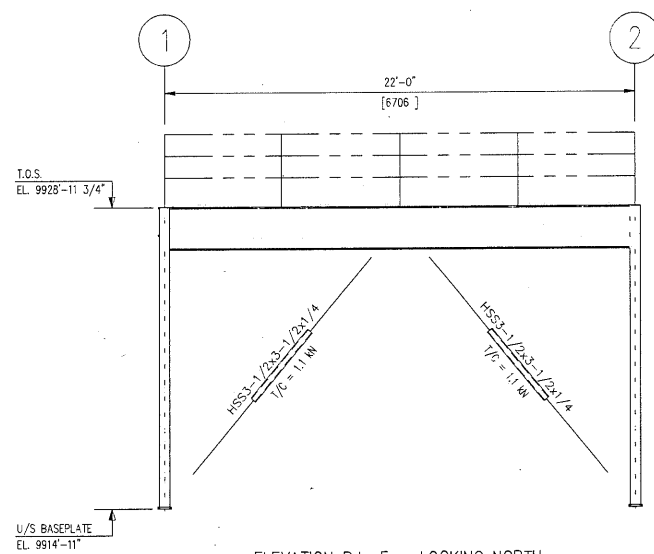
ELEVATION B.L. D - LOOKING NORTH
SCALE: 1/4" = 1'-0"



ELEVATION B.L. 3 - LOOKING EAST
SCALE: 1/4" = 1'-0"



ELEVATION B.L. E - LOOKING NORTH
SCALE: 1/4" = 1'-0"



ELEVATION B.L. F - LOOKING NORTH
SCALE: 1/4" = 1'-0"
ELEVATION B.L. A - LOOKING SOUTH (SIMILAR)
SCALE: 1/4" = 1'-0"

REFERENCE DRAWINGS		
DWG. NO.	DRAWING DESCRIPTION / TITLE	REV.
11-VA-0131-S-106	PLATFORM ELEVATIONS - SHEET 2	P1

Drawing NO.	
PMC10-AE-0-000-3-0009	
MAY 8, 2012	
FOR REVIEW	

P1	12/05/08	ISSUED FOR REVIEW	CH	DY
REV	YY/MM/CC	DESCRIPTION	DR	APP

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CLIENT PROJECT NO.:	11-VA-0131	DRAWN BY:	CH	DATE:	12/04/01
PROJECT NO.:	11-VA-0131	CHECKED BY:	AH	DATE:	12/05/07
DRAWING SIZE:	D	DESIGNED BY:	PC	DATE:	12/03/15
SCALE:	AS NOTED	APPROVED BY:	DY	DATE:	12/05/08

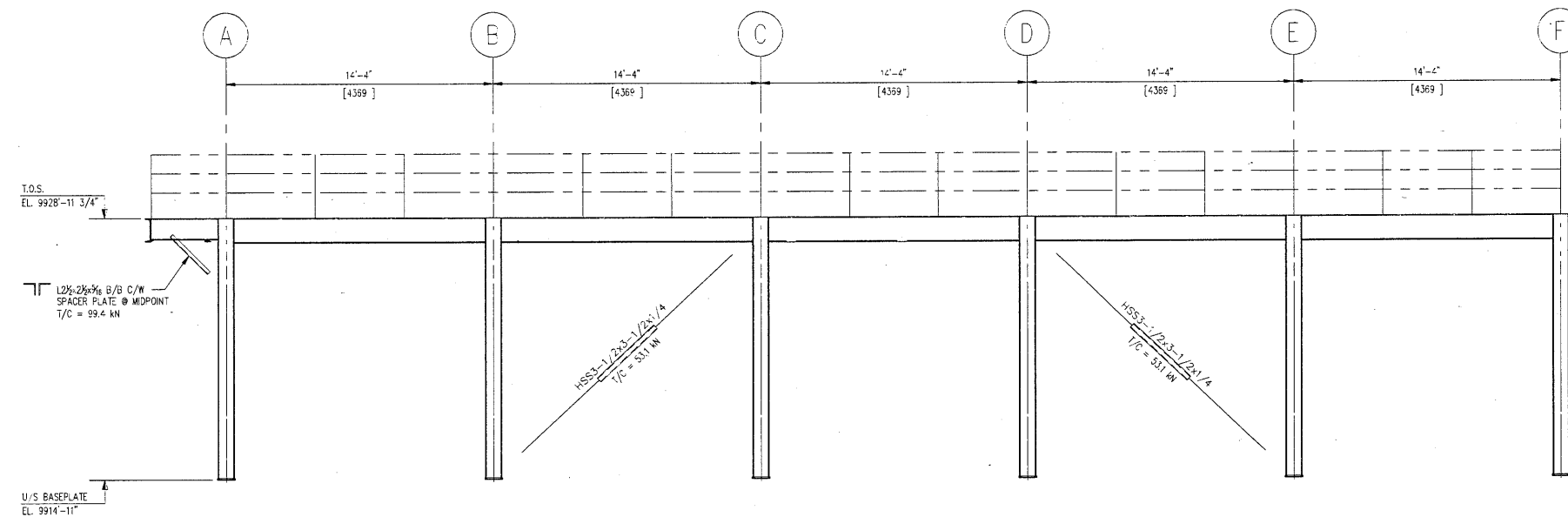
PROJECT

XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

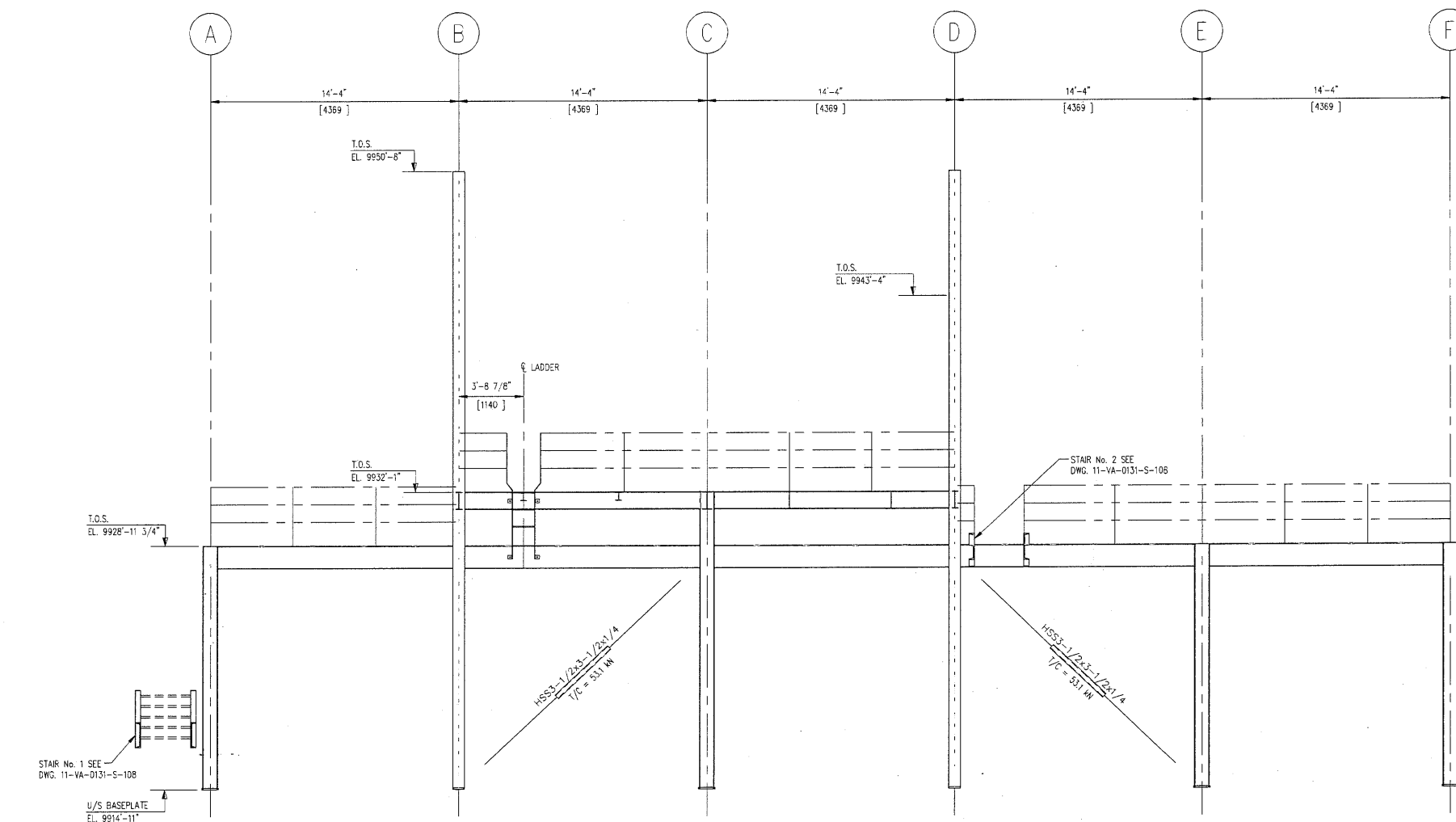
TITLE

PLATFORM ELEVATIONS - SHEET 2

DWG. NO.	REV.
11-VA-0131-S-106	P1



ELEVATION B.L. 1 - LOOKING EAST
SCALE: 1/4" = 1'-0"



ELEVATION B.L. 2 - LOOKING EAST
SCALE: 1/4" = 1'-0"

[illegible]

	Drawing NO.
	PMC10-AE-0-000-3-0010

MAY 6, 2012

FOR REVIEW

P1	12/05/08	ISSUED FOR REVIEW	CH	DY
REV	YY/MM/DD	DESCRIPTION	DR	APP
CLIENT				

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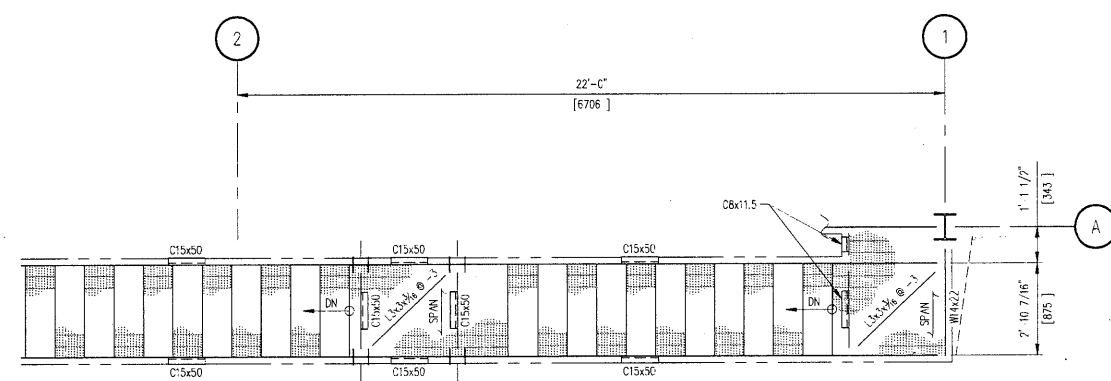
CLIENT PROJECT NO.:		DRAWN BY:	CH	DATE: 12/04/01
PROJECT NO.:	11-VA-0131	CHECKED BY:	AH	DATE: 12/05/07
DRAWING SIZE:	D	DESIGNED BY:	PC	DATE: 12/03/15
SCALE:	AS NOTED	APPROVED BY:	DY	DATE: 12/05/06

XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

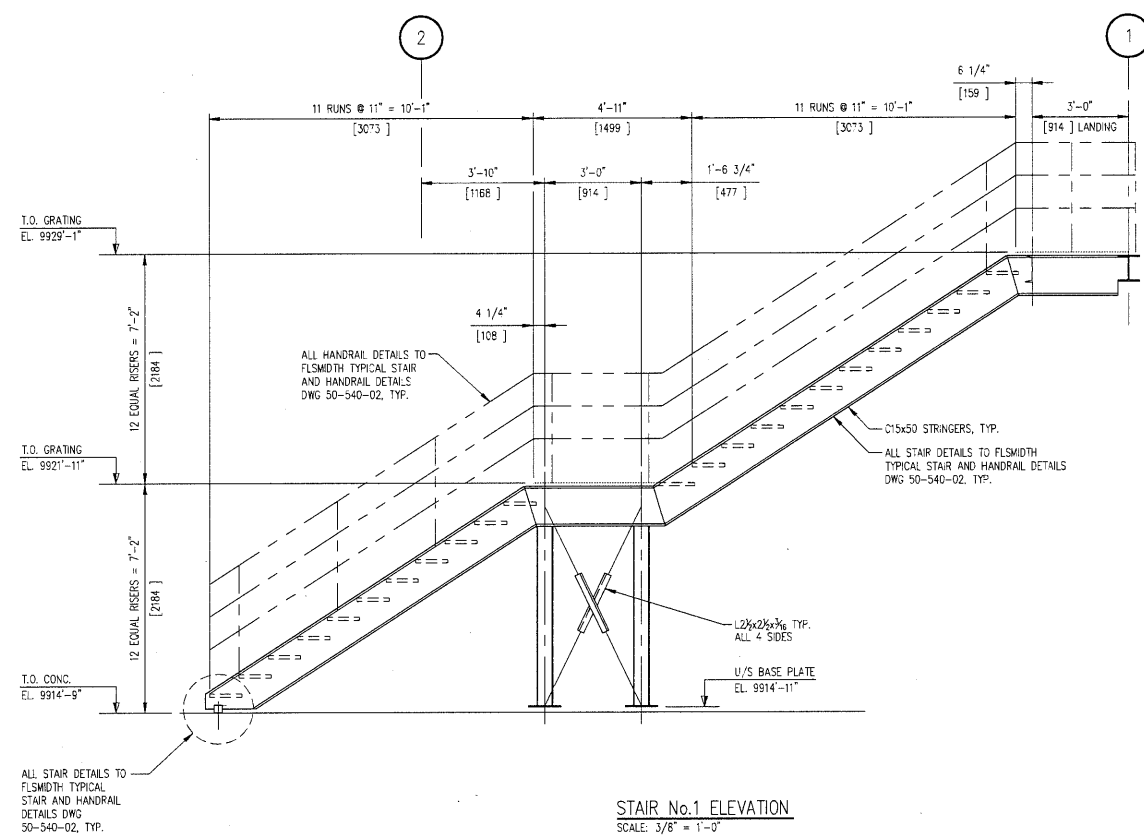
TITLE

PLATFORM ELEVATIONS - SHEET 3

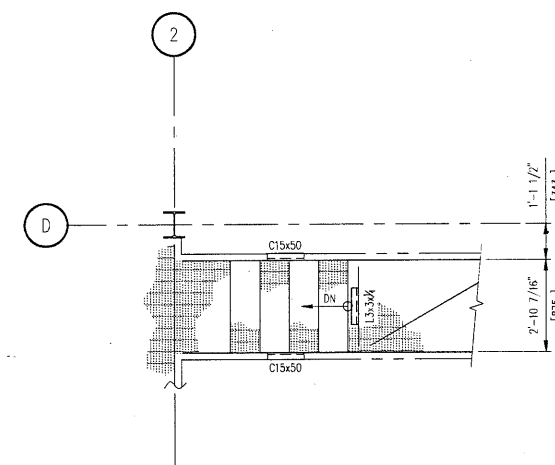
DWG. NO.:	REV:
11-VA-0131-S-107	P1



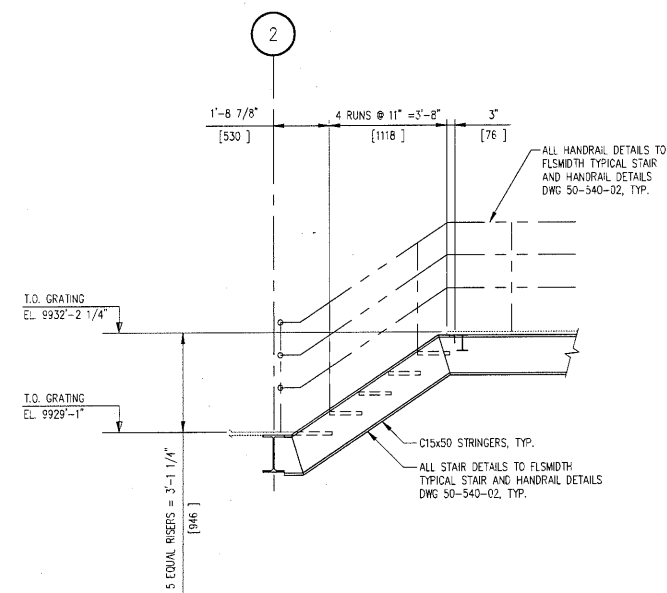
PLAN
SCALE: 3/8" = 1'-0"



STAIR No.1 ELEVATION
SCALE: 3/8" = 1'-0"



PLAN
SCALE: 3/8" = 1'-0"



STAIR No.2 ELEVATION
SCALE: 3/8" = 1'-0"

REFERENCE DRAWINGS		
DWG. NO.	DRAWING DESCRIPTION / TITLE	REV.
11-VA-0131-S-108	STAIR DETAILS	P1

Drawing NO.	
PMC10-AE-0-000-3-0011	
MAY 8, 2012	
FOR REVIEW	

P1	12/05/08	ISSUED FOR REVIEW	CH	DY
REV	YY/MM/05	DESCRIPTION	DR	APP

CLIENT: xstrata

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CLIENT PROJECT NO.:	11-VA-0131	DRAWN BY:	CH	DATE:	12/04/01
PROJECT NO.:	11-VA-0131	CHECKED BY:	AH	DATE:	12/05/07
DRAWING SIZE:	D	DESIGNED BY:	PC	DATE:	12/03/15
SCALE:	AS NOTED	APPROVED BY:	DY	DATE:	12/05/08

PROJECT: XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

TITLE: STAIR DETAILS

DWG. NO.:	11-VA-0131-S-108	REV:	P1
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XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT EQUIPMENT

	Drawing NO.
	PMC10-AE-0-000-3-0012

TITLE	
TITLE PAGE	
DWG. NO.:	11-VA-0131-S-200

$$S_{AS} = 0.2B$$

Support Location	DEAD LOAD			ULTIMATE FLUID LOAD (S.G.=7.5)			SEISMIC LOAD												SERVICE FLUID LOAD (S.G.=1.6)		
							HORIZONTAL						VERTICAL								
							LOAD IN POSITIVE X-DIRECTION			LOAD IN POSITIVE Y-DIRECTION											
	FORCES			FORCES			FORCES			FORCES			FORCES								
X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z				
1	0	0	-33	0	0	-183	10	0	23	0	10	-80	0	0	131	0	0	-32			
2	0	0	-33	0	0	-183	10	0	23	0	10	80	0	0	131	0	0	-32			
3	0	0	-33	0	0	-183	10	0	46	0	10	0	0	0	131	0	0	-32			

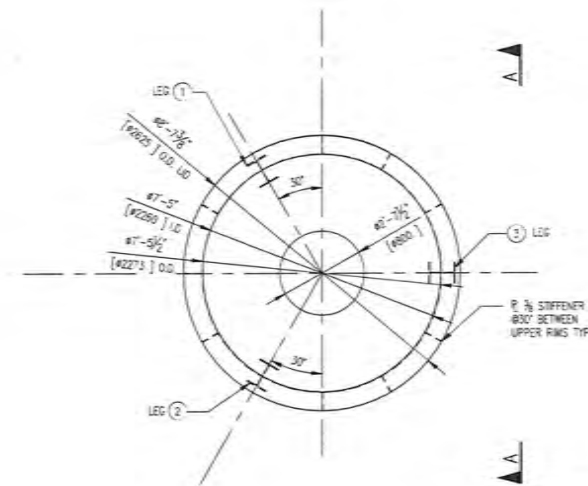
7.4k 41.1k 22k 5.2k 22k 18.0k 29.5k 7.2k
10.3k

IS THIS
CORRECT?

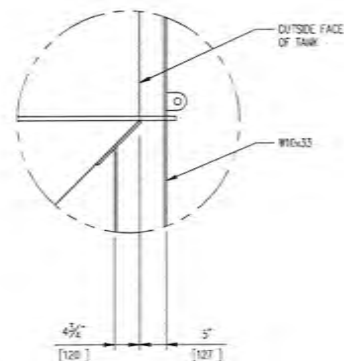
WHY IS THIS SO LARGE?
 $E_w = 0.25 \sigma_{SD}$

NOTES:
X IS NORTH-SOUTH DIRECTION
Y IS EAST-WEST DIRECTION
POSITIVE Z MEANS SUPPORT IS IN TENSION

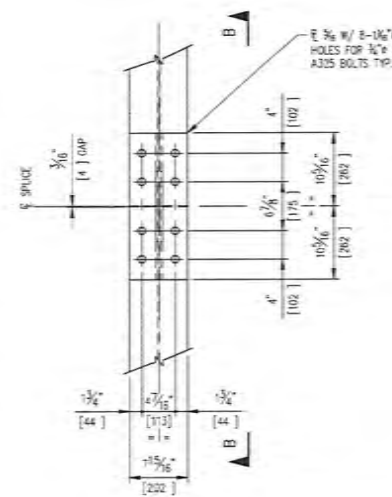
ALL LOADS ARE IN KN
ALL LOADS ARE UNFACTORED SERVICE LOAD
ALL REACTION MOMENTS ARE 0



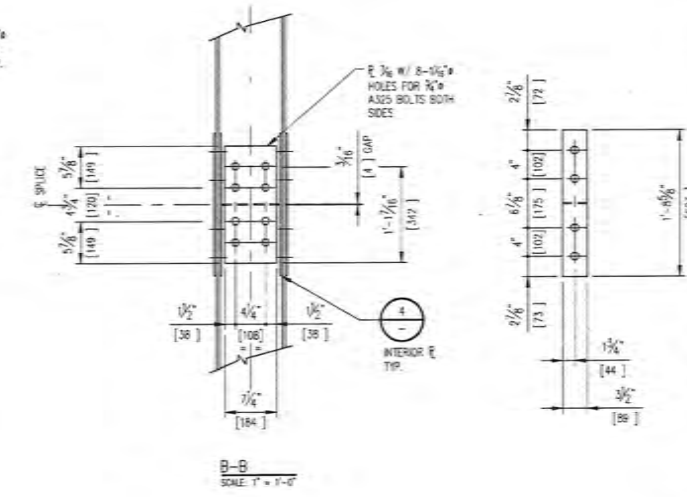
DISCHARGE PUMP BOX PLAN
SCALE: 3/8" = 1'-0"



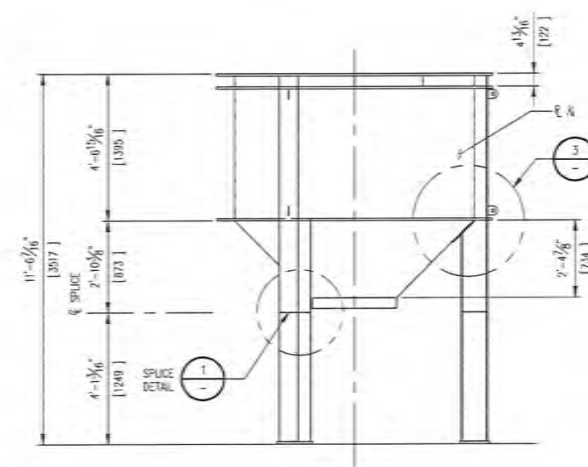
DETAIL
SCALE: 3/4" = 1'-0"



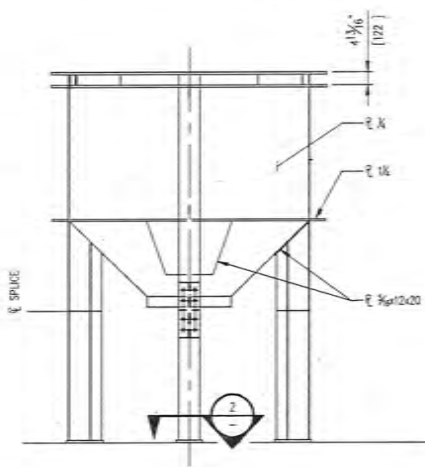
DETAIL 
SCALE: 1" = 1'-0"



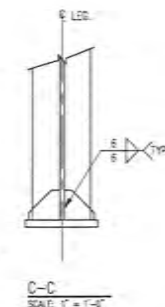
DETAIL 4
SCALE: 1" = 1'-0"
TYP. 4 PER LEG



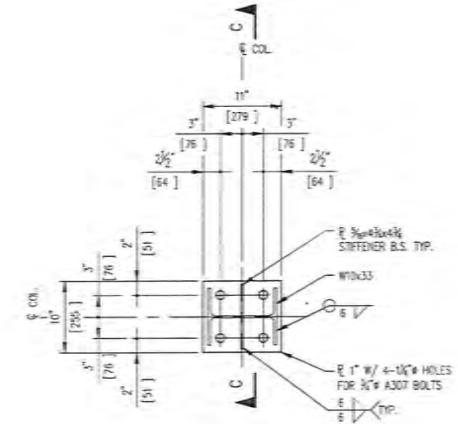
DISCHARGE PUMP BOX ELEVATION
SCALE: 3/8" = 1'-0"



A-A
SCALE: $3/8" = 1'-0"$



C-C
SCALE: 1" = 1'-0"



DETAIL (2)
SCALE 1" = 1'-0"
TYP. 3 PLACES

[illegible]

NOTES

1. REFER TO GENERAL FABRICATION NOTES
PWA-IT-0-000-S-0001 FOR FABRICATION AND ASSEMBLY REQUIREMENTS
2. REFER TO DISCHARGE PUMP BOM TECHNICAL SPECIFICATION PWA-IT-30-000S FOR EQUIPMENT SPECIFIC REQUIREMENTS AND ANY DEVIATIONS FROM THE GENERAL FABRICATION NOTES
3. REFER TO THE VALVE LIST (PWA-IT-EL-00022), SPECIFIC ITEMS LIST (PWA-IT-EL-00033), EQUIPMENT LIST (PWA-IT-EL-00007) AND THE INSTRUMENTATION SCHEDULE (PWA-ME-EL-0001) FOR SPECIFIC DETAILS ON ITEMS
4. EACH ITEM MUST BE MARKED AS PER EQUIPMENT TAG SPECIFICATION PWA-IT-30-000S
5. ALL MATERIAL PLAIN CARBON STEEL UNLESS NOTED OTHERWISE
6. OVERFLOW PIPE TO BE SHORTENED ON SITE IN ORDER TO AVOID SPILLAGE
7. REFER TO DRAWING IT-A-W-010-S-006 FOR LIFTING LUG DETAILS
8. ANCHOR BOLTS SUBJECTED TO TENSION SHALL BE PRESTRESSED 50 TON AT LEAST 5 BOLT DIAMETERS BUT NOT LESS THAN 1" AND EMBEDDED INTO THE BASE PLATE TO ALLOW FOR WELD AND INSPECTION AFTER EARTHQUAKE SHOCKS FOR THE SAME REASON, A MINIMUM OF 3" (OR 3 BOLT DIAMETER THEREAFTER SHALL BE PROVIDED UNDER THE NUTS FOR RET-TO-TENSION

FOR ANCHOR BOLTS NOT SUBJECTED TO TENSION, ONLY CONSIDER THE 3" or 3 BOLT DIAMETER OF THREAD BELOW THE NUT.

	Drawing NO.
	PMC10-AE-0-000-3-0013

MAY 08, 2012

FOR REVIEW

PI	12/05/08	ISSUED FOR REVIEW	CH	DI
REV	YY/MM/DD	DESCRIPTION	DR	APP

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CLIENT PROJECT NO.:	DRAWN BY: NS	DATE: 12/04/19
PROJECT NO.: 11-WR-0131	CHECKED BY: AH	DATE: 12/04/20
DRAWING SIZE: 0	DESIGNED BY: PC	DATE: 12/04/19
SCALE: AS NOTED	APPROVED BY: DY	DATE: 12/05/08

XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

TITLE
DISCHARGE PUMP BOX PLANS
ELEVATIONS AND SPLICE DETAILS

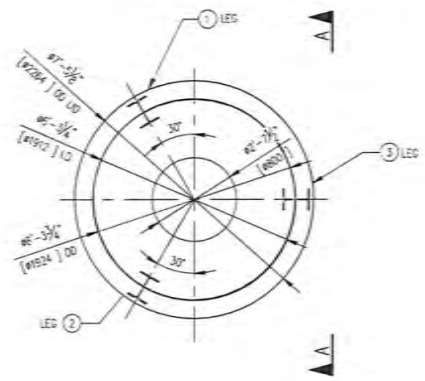
DOC NO:	11-VA-0131-S-201	PAGE:	P1
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Support Location	DEAD LOAD			ULTIMATE FLUID LOAD (S.G.=7.6)			SEISMIC LOAD									SERVICE FLUID LOAD (S.G.=1.6)		
							HORIZONTAL						VERTICAL					
							LOAD IN POSITIVE X-DIRECTION			LOAD IN POSITIVE Y-DIRECTION			LOAD IN POSITIVE Z-DIRECTION					
	FORCES			FORCES			FORCES			FORCES			FORCES			FORCES		
X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
1	0	0	-13	0	0	-117	3	0	7	0	3	-24	0	0	1	0	0	-19
2	0	0	-13	0	0	-117	3	0	7	0	3	24	0	0	1	0	0	-19
3	0	0	-13	0	0	-117	3	0	14	0	3	0	0	0	1	0	0	-19

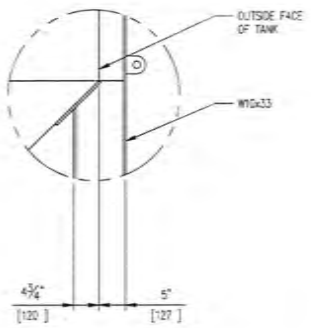
2.9K 263K 0.7H 1.6H 0.7H 5.4H 0.2H 4.3H
2.1H

NOTES:
X IS NORTH-SOUTH DIRECTION
Y IS EAST-WEST DIRECTION
POSITIVE Z MEANS SUPPORT IS IN TENSION

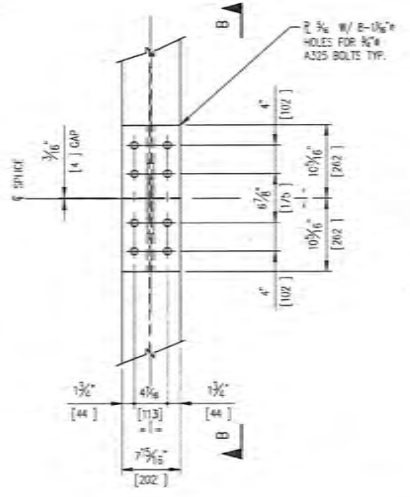
ALL LOADS ARE IN KIP
ALL LOADS ARE UNFACTORED SERVICE LOADS
ALL REACTION MOMENTS ARE 0



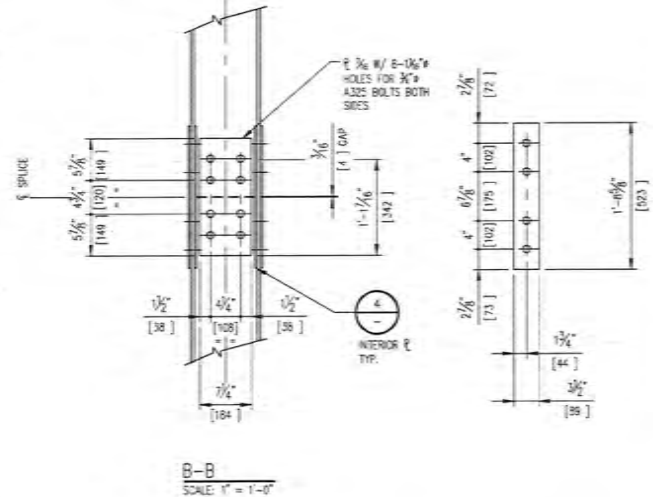
FEED PUMP BOX PLAN
SCALE: 3/8" = 1'-0"



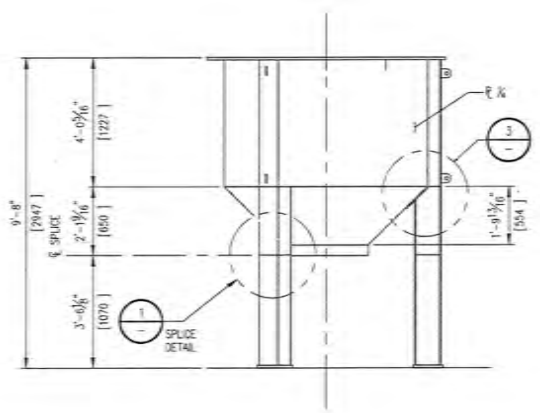
DETAIL 3
SCALE: 3/4" = 1'-0"



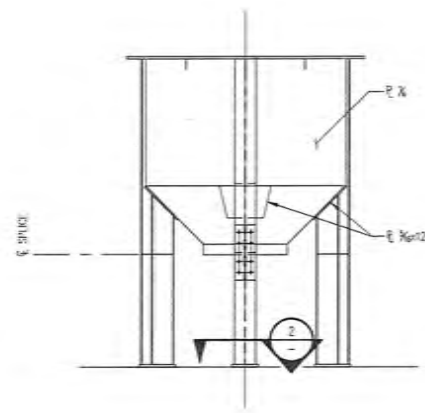
DETAIL 1
SCALE: 1" = 1'-0"



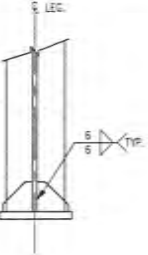
DETAIL 2
SCALE: 1" = 1'-0"



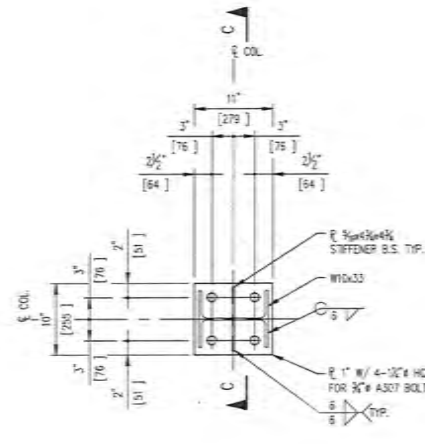
FEED PUMP BOX ELEVATION
SCALE: 3/8" = 1'-0"



A-A
SCALE: 3/8" = 1'-0"



C-C
SCALE: 1" = 1'-0"



DETAIL 4
SCALE: 1" = 1'-0"

REFERENCE DRAWINGS

DWG. NO.	DRAWING DESCRIPTION / TITLE	REV.
11-VA-0131-S-100	GENERAL NOTES	1

NOTES

- REFER TO GENERAL FABRICATION NOTES (PMA-KT-0-000-5-000) FOR FABRICATION AND ASSEMBLY REQUIREMENTS.
- REFER TO FEED PUMP BOX TECHNICAL SPECIFICATION (PMA-KT-0-000-5-000) FOR EQUIPMENT SPECIFIC REQUIREMENTS AND ANY DEVIATIONS FROM THE GENERAL FABRICATION NOTES.
- REFER TO THE VALVE LIST (PMA-KT-0-000-5-000), SPECIAL ITEMS LIST (PMA-KT-0-000-5-000), EQUIPMENT LIST (PMA-KT-0-000-5-000) AND THE INSTRUMENTATION SCHEDULE (PMA-KT-0-000-5-000) FOR SPECIFIC DETAILS ON ITEMS.
- EACH ITEM MUST BE MARKED AS PER EQUIPMENT TAG SPECIFICATION PMA-KT-0-000-5-000.
- ALL MATERIAL PLAIN CARBON STEEL UNLESS NOTED OTHERWISE.
- OVERFLOW PIPE TO BE SHORTENED ON SITE IN ORDER TO SUIT BOND DESIGN.
- QUANTITIES IN BILL OF MATERIALS ARE PER PUMP BOX, 1 OFT REQUIRED.
- REFER TO DRAWING 11-VA-0131-S-206 FOR LIFTING LUG DETAILS.
- ANCHOR BOLTS SUBJECTED TO TENSION SHALL BE ARRANGED SO THAT AT LEAST 8 BOLT DIAMETERS BUT NOT LESS THAN 10" ARE EXPOSED OVER THE BASE PLATE TO ALLOW FOR WELD AND INSPECTION AFTER EARTHQUAKE SHOCKS. FOR THE SAME REASON, A MINIMUM OF 3" OR 3 BOLT DIAMETER THREAD SHALL BE PROVIDED UNDER THE NUTS FOR RE-TIGHTENING.

FOR ANCHOR BOLTS NOT SUBJECTED TO TENSION, ONLY CONSIDER THE 3" OR 3 BOLT DIAMETER OF THREAD BELOW THE NUT.

Drawing NO.

PMC10-AE-0-000-3-0014

MAY 09, 2012

FOR REVIEW

CLIENT PROJECT NO.

11-VA-0131

DESIGNED BY

PC

DATE

12/24/12

SCALE

AS NOTED

APPROVED BY

DT

DATE

12/25/12

PROJECT

XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

TITLE

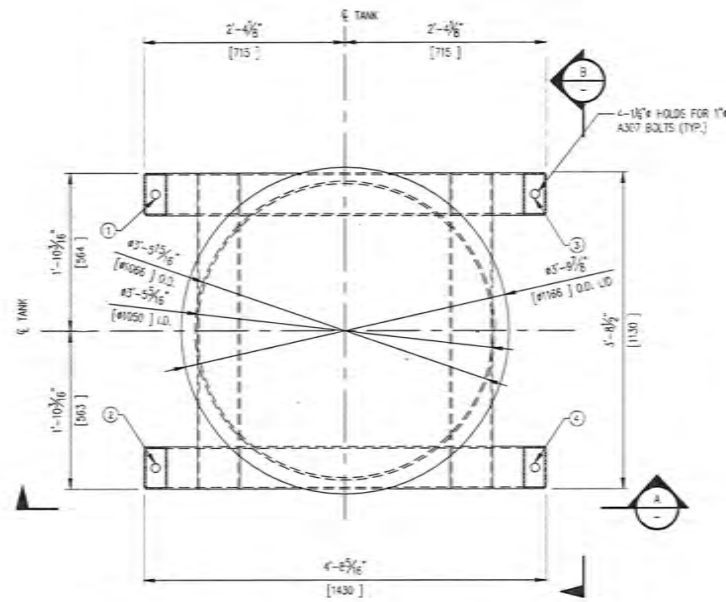
FEED PUMP BOX PLANS,
ELEVATIONS, AND SPLICE DETAILS

DWG. NO.

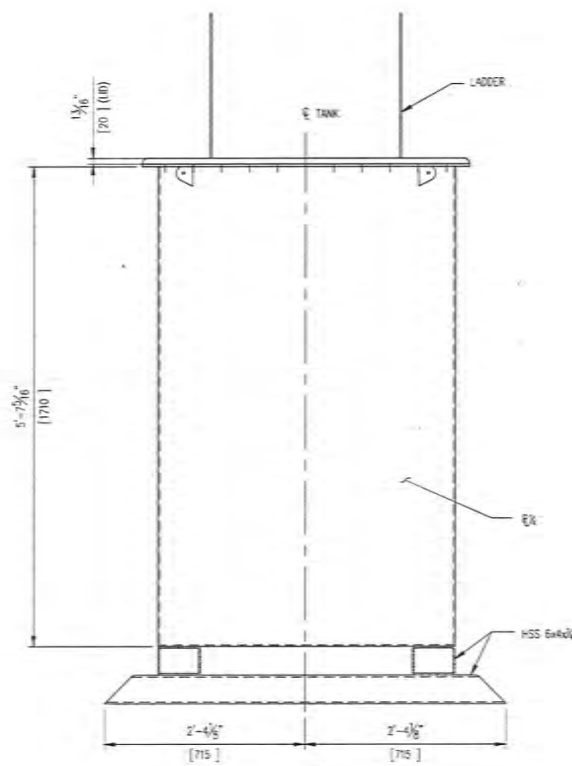
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REV.

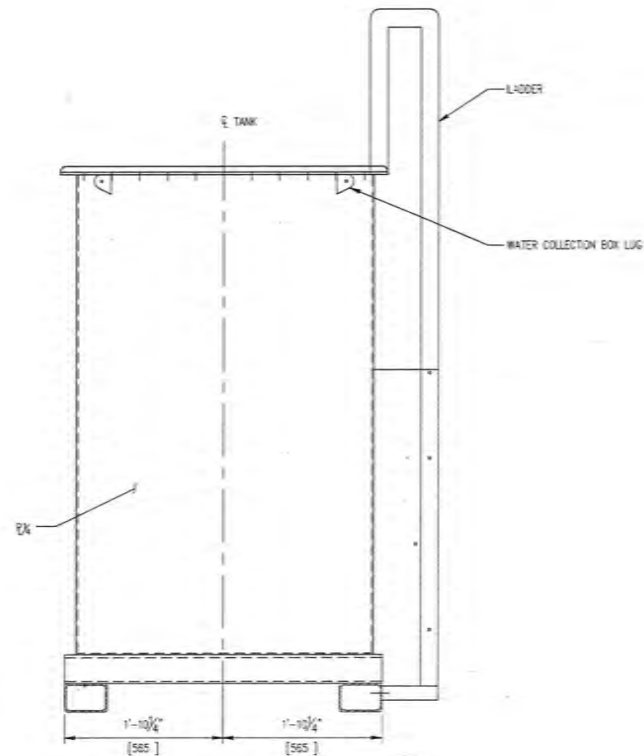
P1



PLAN
SCALE: 1" = 1'-0"



ELEVATION
SCALE: 1" = 1'-0"



ELEVATION
SCALE: 1" = 1'-0"

Support Location	DEAD LOAD			ULTIMATE FLUID LOAD (S.G.=2.65)			SEISMIC LOAD									SERVICE FLUID LOAD (S.G.=1.6)		
							HORIZONTAL						VERTICAL					
	LOAD IN POSITIVE X-DIRECTION FORCES			LOAD IN POSITIVE Y-DIRECTION FORCES			LOAD IN POSITIVE Z-DIRECTION FORCES											
	FORCES			FORCES			FORCES			FORCES			FORCES					
X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	
1	0	0	-3	0	0	-10	1	0	6	0	3	-6	0	0	1	0	0	-2
2	0	0	-3	0	0	-10	1	0	6	0	3	-6	0	0	1	0	0	-2
3	0	0	-3	0	0	-10	1	0	-6	0	3	-6	0	0	1	0	0	-2
4	0	0	-3	0	0	-10	1	0	-6	0	3	-6	0	0	1	0	0	-2

NOTES:

X IS NORTH-SOUTH DIRECTION
Y IS EAST-WEST DIRECTION
POSITIVE Z MEANS SUPPORT IS IN TENSION

ALL LOADS ARE IN KN
ALL LOADS ARE UNFACTORED SERVICE LOADS
ALL REACTION MOMENTS ARE 0



6.7k 2.2k 0.2k 1.3k 0.7k 1.3k 0.2k 0.5k

REFERENCE DRAWINGS		
DWG. NO.	DRAWING DESCRIPTION / TITLE	REV.
11-VA-0131-S-100	GENERAL NOTES	1

- NOTES:
- REFER TO GENERAL FABRICATION NOTES.
 - REFER TO WATER COLLECTION BOX TECHNICAL SPECIFICATION (PMC10-KT-SP002) FOR EQUIPMENT SPECIFIC REQUIREMENTS AND ANY DEVIATIONS FROM THE GENERAL FABRICATION NOTES.
 - REFER TO THE VALVE LIST (PMC10-KT-E-0002 & PMC10-KT-E-0003), SPECIAL ITEM LIST (PMC10-KT-E-0003 & PMC10-KT-E-0003), EQUIPMENT LIST (PMC10-KT-E-0003 & PMC10-KT-E-0003) AND THE INSTRUMENTATION SCHEDULE (PMC10-KT-E-0003) FOR SPECIFIC DETAILS ON ITEMS.
 - EACH ITEM MUST BE MARKED AS PER EQUIPMENT TAG SPECIFICATION (PMC10-KT-SP002).
 - ALL MATERIAL SHALL BE CARBON STEEL UNLESS NOTED OTHERWISE.
 - QUANTITIES INDICATED IN BILL OF MATERIALS ARE PER WATER COLLECTION BOX.
| 7. | REFER TO DRAWING 11-VA-0131-S-206 FOR LIFTING LUG DETAILS. |
 - ANCHOR BOLTS SUBJECTED TO TENSION SHALL BE ARRANGED SO THAT AT LEAST 8 BOLT DIAMETERS BUT NOT LESS THAN 10" ARE EXPOSED OVER THE BASE PLATE TO ALLOW FOR YIELD AND INSPECTION AFTER EARTHQUAKE SHOCKS. FOR THE SAME REASON, A MINIMUM OF 3" OR 3 BOLT DIAMETER THREAD SHALL BE PROVIDED UNDER THE NUTS FOR RE-TIGHTENING.
 - FOR ANCHOR BOLTS NOT SUBJECTED TO TENSION, ONLY CONSIDER THE 3" OR 3 BOLT DIAMETER OF THREAD BELOW THE NUT.

Drawing NO.
PMC10-AE-0-000-3-0015

MAY 08, 2012
FOR REVIEW

PI	12/05/08	ISSUED FOR REVIEW	CH	BY
REV	11/04/00	DESCRIPTION	DR	APP

xstrata

ALLNORTH
CONSULTANTS LIMITED
WWW.ALLNORTH.COM

CLIENT PROJECT NO.	11-VA-0131	DATE	12/04/10
PROJECT NO.	11-VA-0131	CHECKED BY	AN
DRAWING SIZE	3	DESIGNED BY	PC
SCALE	AS NOTED	APPROVED BY	BY

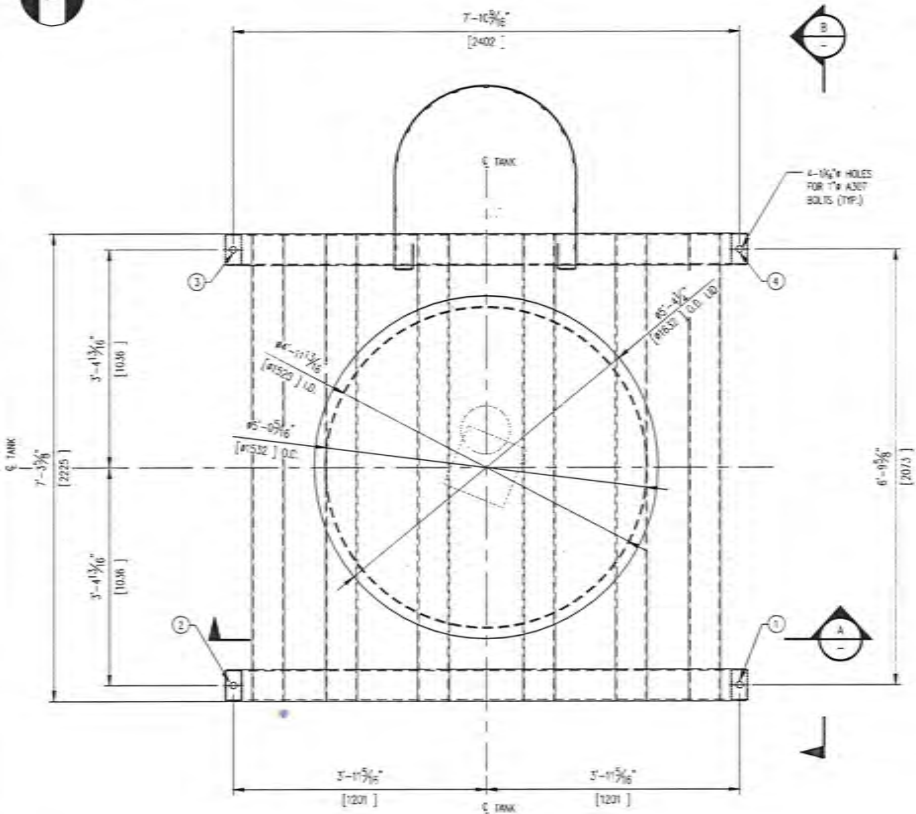
XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

TITLE
WATER COLLECTION BOX
PLAN, ELEVATIONS

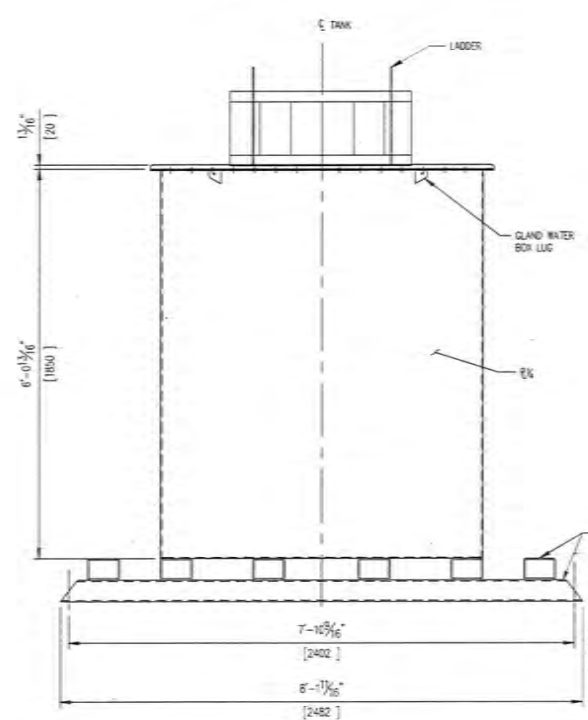
DWG. NO.
11-VA-0131-S-203

REV.
P1

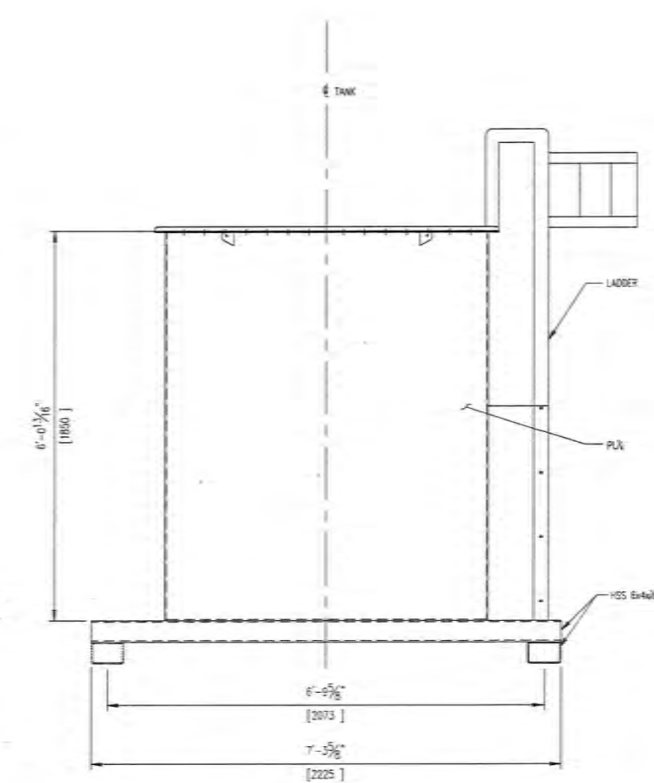
IWT



PLAN
SCALE: 3/4" = 1'-0"



ELEVATION A
SCALE: 3/4" = 1'-0"



ELEVATION B
SCALE: 3/4" = 1'-0"

Support Location	DEAD LOAD			ULTIMATE FLUID LOAD (S.G. = 1.66)			SEISMIC LOAD									SERVICE FLUID LOAD (S.G. = 1.6)		
							HORIZONTAL			VERTICAL								
	FORCES			FORCES			LOAD IN POSITIVE X-DIRECTION FORCES			LOAD IN POSITIVE Y-DIRECTION FORCES			LOAD IN POSITIVE Z-DIRECTION FORCES			FORCES		
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
1	0	0	-8	0	0	-13	4	0	17	0	1	17	0	0	3	0	0	-6
2	0	0	-8	0	0	-13	4	0	-17	0	1	17	0	0	3	0	0	-6
3	0	0	-8	0	0	-13	4	0	-17	0	1	-17	0	0	3	0	0	-6
4	0	0	-8	0	0	-13	4	0	17	0	1	-17	0	0	3	0	0	-6

1.8K 2.9K 0.9K 3.8K 0.2K 7.8K 0.7K 1.3K

NOTES:
X IS NORTH-SOUTH DIRECTION
Y IS EAST-WEST DIRECTION
POSITIVE Z MEANS SUPPORT IS IN TENSION

ALL LOADS ARE IN KIP
ALL LOADS ARE UNFACTORED SERVICE LOADS
ALL REACTION MOMENTS ARE 0

REFERENCE DRAWINGS

DMG NO.	DRAWING DESCRIPTION / TITLE	REV.
11-VA-0131-S-100	GENERAL NOTES	1

NOTES

- REFER TO GENERAL FABRICATION NOTES PWA-KT-0-000-3-0001 FOR FABRICATION AND ASSEMBLY REQUIREMENTS.
- REFER TO GLAND WATER TANK TECHNICAL SPECIFICATION PWCIO-KT-0-0001 FOR EQUIPMENT SPECIFIC REQUIREMENTS AND ANY DEVIATIONS FROM THE GENERAL FABRICATION NOTES.
- REFER TO THE VALVE LIST PWA-KT-0-0001, SPECIAL ITEMS LIST PWCIO-KT-0-0001, EQUIPMENT LIST PWCIO-KT-0-0001 AND THE INSTRUMENTATION SCHEDULE PWCIO-KT-0-0001 FOR SPECIFIC DETAILS ON ITEMS. EACH ITEM MUST BE MARKED AS PER EQUIPMENT TAG SPECIFICATION PWA-KT-0-0001.
- ALL MATERIAL STAINLESS STEEL 304L UNLESS NOTED OTHERWISE.
- QUANTITIES SUPPLIED IN BILL OF MATERIALS ARE PER GLAND WATER TANK.
- REFER TO DRAWING 11-VA-0131-S-206 FOR LIFTING LUG DETAILS.
- ANCHOR BOLTS SUBJECTED TO TENSION SHALL BE ARRANGED SO THAT AT LEAST 6 BOLT DIAMETERS BUT NOT LESS THAN 10" ARE EXPOSED OVER THE BASE PLATE TO ALLOW FOR WELD AND INSPECTION AFTER EARTHQUAKE SHOCKS. FOR THE SAME REASON, A MINIMUM OF 3" OR 3 BOLT DIAMETER THREAD SHALL BE PROVIDED UNDER THE NUTS FOR RE-TIGHTENING.
- FOR ANCHOR BOLTS NOT SUBJECTED TO TENSION, ONLY CONSIDER THE 3" OR 3 BOLT DIAMETER OF THREAD BELOW THE NUT.

Drawing NO.

PMC10-AE-0-000-3-0016

MAY 08, 2012

FOR REVIEW

xstrata

ALLNORTH CONSULTANTS LIMITED

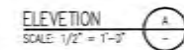
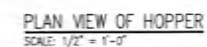
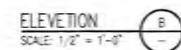
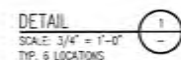
WWW.ALLNORTH.COM

CLIENT PROJECT NO.	11-VA-0131	DRAWN BY:	AS	DATE:	12/04/19
PROJECT NO.	11-VA-0131	CHECKED BY:	AH	DATE:	12/04/20
DRAWING SIZE:	D	DESIGNED BY:	PC	DATE:	12/04/19
SCALE:	AS NOTED	APPROVED BY:	DT	DATE:	12/06/19

XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

11-VA-0131-S-204

P1



1. REFER TO GENERAL FABRICATION NOTES.
PWA-KT-C-0000-6-0000.
2. REFER TO MEDIA HOPPER TECHNICAL SPECIFICATION
PWACIT-KIT-SF0002 FOR EQUIPMENT SPECIFIC REQUIREMENTS
AND ANY DEVIATIONS FROM THE GENERAL FABRICATION
NOTES.
3. REFER TO THE VALUE LIST (PWACIT-KIT-EL0001),
EQUIPMENT LIST (PWACIT-KIT-E0000A), AND
THE INSTRUMENTATION SCHEDULE (PWACIT-MN-EL0001)
FOR SPECIFIC DETAILS ON ITEMS.
4. FOR RUBBER JOINED FLANGED CONNECTIONS, THE BOLTS
SHOULD BE TIGHTENED SO THAT THE CONNECTION IS LEAK
FREE. THE RUBBER THICKNESS IS NOT REDUCED BY
MORE THAN 50%.
5. ALL MATERIAL PAINT CARBON STEEL UNLESS NOTED
OTHERWISE.
6. OVERLAP JOINTS CAN BE USED TO SUE BAND AREA ON SITE.
7. REFER TO DRAWING 11-144-01-30-5-2006 FOR LIFTING LUG
DETAILS.

FOR REVIEW

P1	12/05/08	ISSUED FOR REVIEW	CH	DY
REV	YY/MM/DD	DESCRIPTION	DR	APP
CLIENT				

xstrata

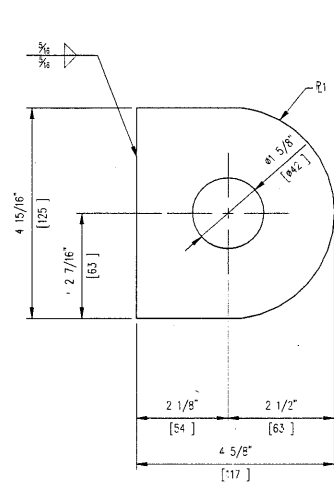


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PROJECT NO.:	11-1A-0131	CHECKED BY:	AH	DATE: 12/04/20
DRAWING SIZE:	D	DESIGNED BY:	PC	DATE: 12/04/19
SCALE:	AS NOTED	APPROVED BY:	BY	DATE: 12/05/19

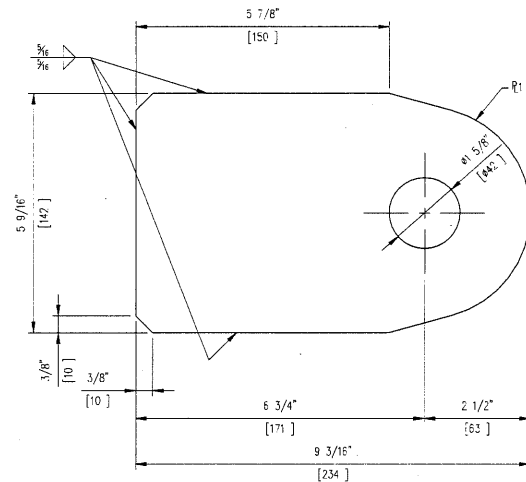
XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

TITLE
MILL MEDIA HOPPER
PLAN, ELEVATIONS

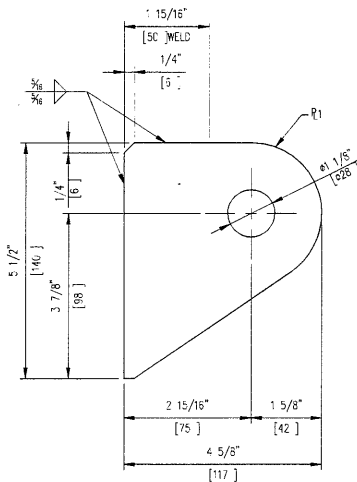
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11-VA-0131-S-205	P1



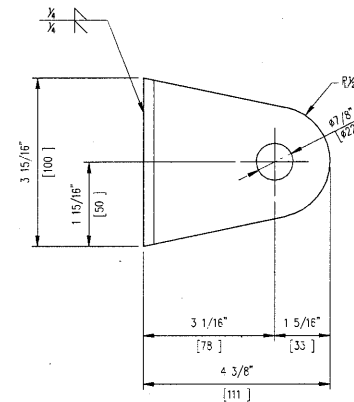
MILL MEDIA HOPPER LUG DETAIL DRAWING
LOWER MAIN BODY LUG (2000Kg/4400 lbs)
SCALE: 6" = 1'-0"



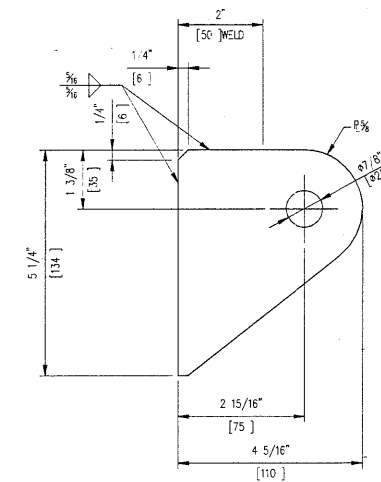
MILL MEDIA HOPPER LUG DETAIL DRAWING
UPPER STIFFENED HOPPER LUG (2000Kg/4400 lbs)
SCALE: 6" = 1'-0"



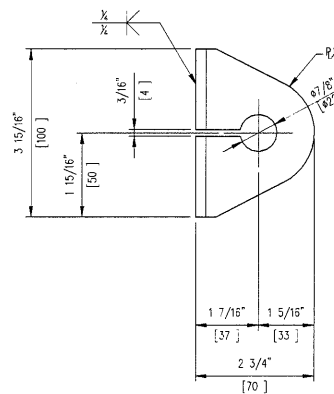
GRAND WATER TANK LUG DETAIL DRAWING
SIDE LIFTING LUG (1000Kg/2200 lbs)
SCALE: 6" = 1'-0"



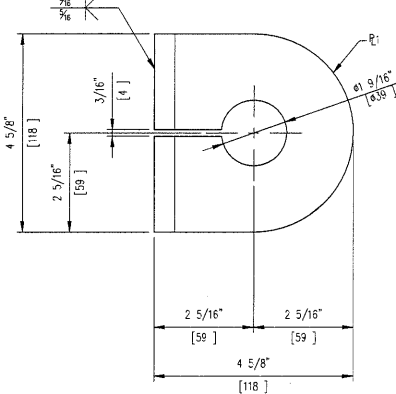
GRAND WATER TANK LUG DETAIL DRAWING
LID LUG (500Kg/1100 lbs)
SCALE: 6" = 1'-0"



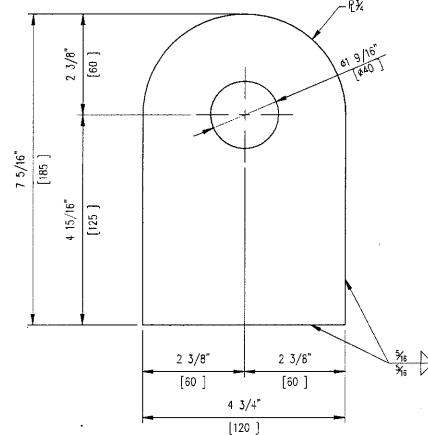
BOX LUG DETAIL DRAWING
SIDE LIFTING LUG (500Kg/1100 lbs)
SCALE: 6" = 1'-0"



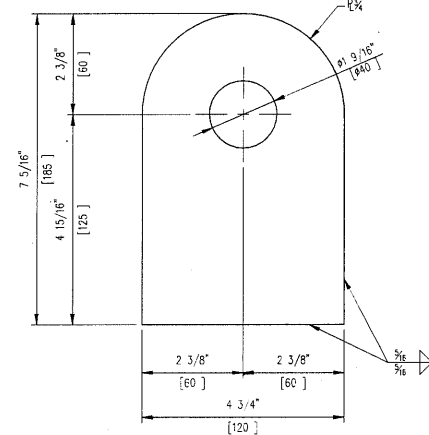
FEED PUMP BOX LUG DETAIL DRAWING
CONE LUG (2000Kg/4400 lbs)
SCALE: 6" = 1'-0"



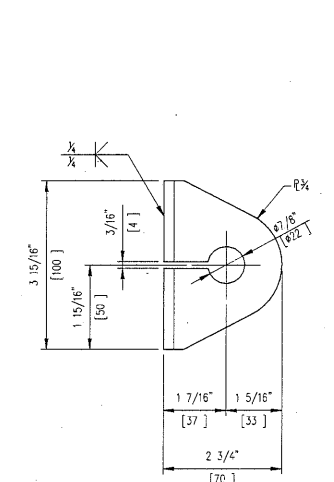
FEED PUMP BOX LUG DETAIL DRAWING
UPPER LEG LUG (2000Kg/4400 lbs)
SCALE: 6" = 1'-0"



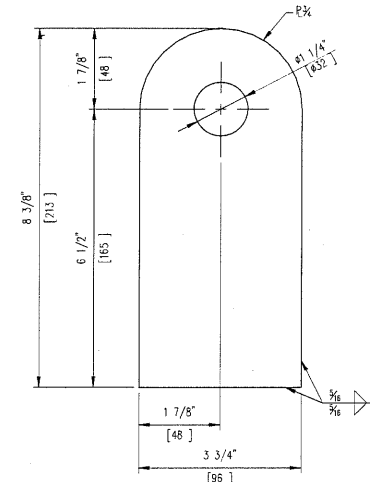
FEED PUMP BOX LUG DETAIL DRAWING
OVERFLOW BOX LUG (1000Kg/2200 lbs)
SCALE: 6" = 1'-0"



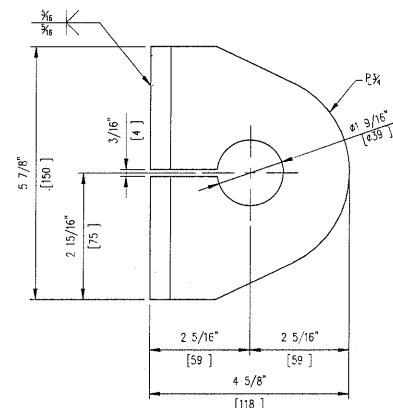
FEED PUMP BOX LUG DETAIL DRAWING
OVERFLOW BOX LUG (1500Kg/3300 lbs)
SCALE: 6" = 1'-0"



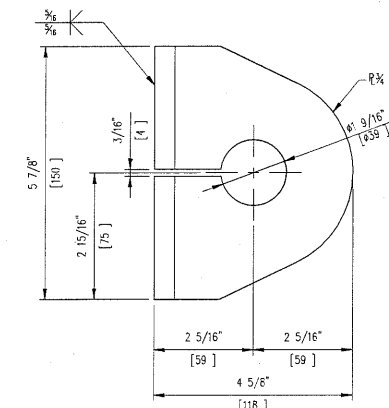
DISCHARGE PUMP BOX LUG DETAIL DRAWING
CONE LUG (2500Kg/5500 lbs)
SCALE: 6" = 1'-0"



DISCHARGE PUMP BOX LUG DETAIL DRAWING
LEG EXTENSION LUG (3000Kg/6600 lbs)
SCALE: 6" = 1'-0"



DISCHARGE PUMP BOX LUG DETAIL DRAWING
UPPER LEG LUG (4000Kg/8800 lbs)
SCALE: 6" = 1'-0"



DISCHARGE PUMP BOX LUG DETAIL DRAWING
LOWER LEG LUG (4000Kg/8800 lbs)
SCALE: 6" = 1'-0"

REFERENCE DRAWINGS		
DWG. NO.	DRAWING DESCRIPTION / TITLE	REV.
		1

Drawing NO.	
PMC10-AE-0-000-3-0018	
MAY 08, 2012	
FOR REVIEW	

P1	12/05/08	ISSUED FOR REVIEW	CH	DY
REV	YY/MM/DD	DESCRIPTION	DR	APP

CLIENT

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ALLNORTH
CONSULTANTS LIMITED
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CLIENT PROJECT NO.: 11-VA-0131
PROJECT NO.: 11-VA-0131
DRAWING SIZE: 0
SCALE: AS NOTED

DRAWN BY: CH
CHECKED BY: AH
DESIGNED BY: PC
APPROVED BY: DY

DATE: 12/04/19
DATE: 12/04/20
DATE: 12/04/19
DATE: 12/05/08

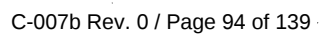
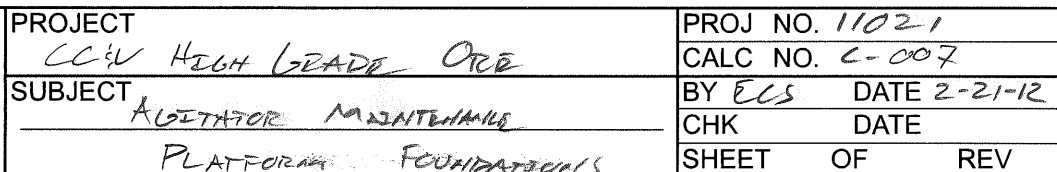
PROJECT

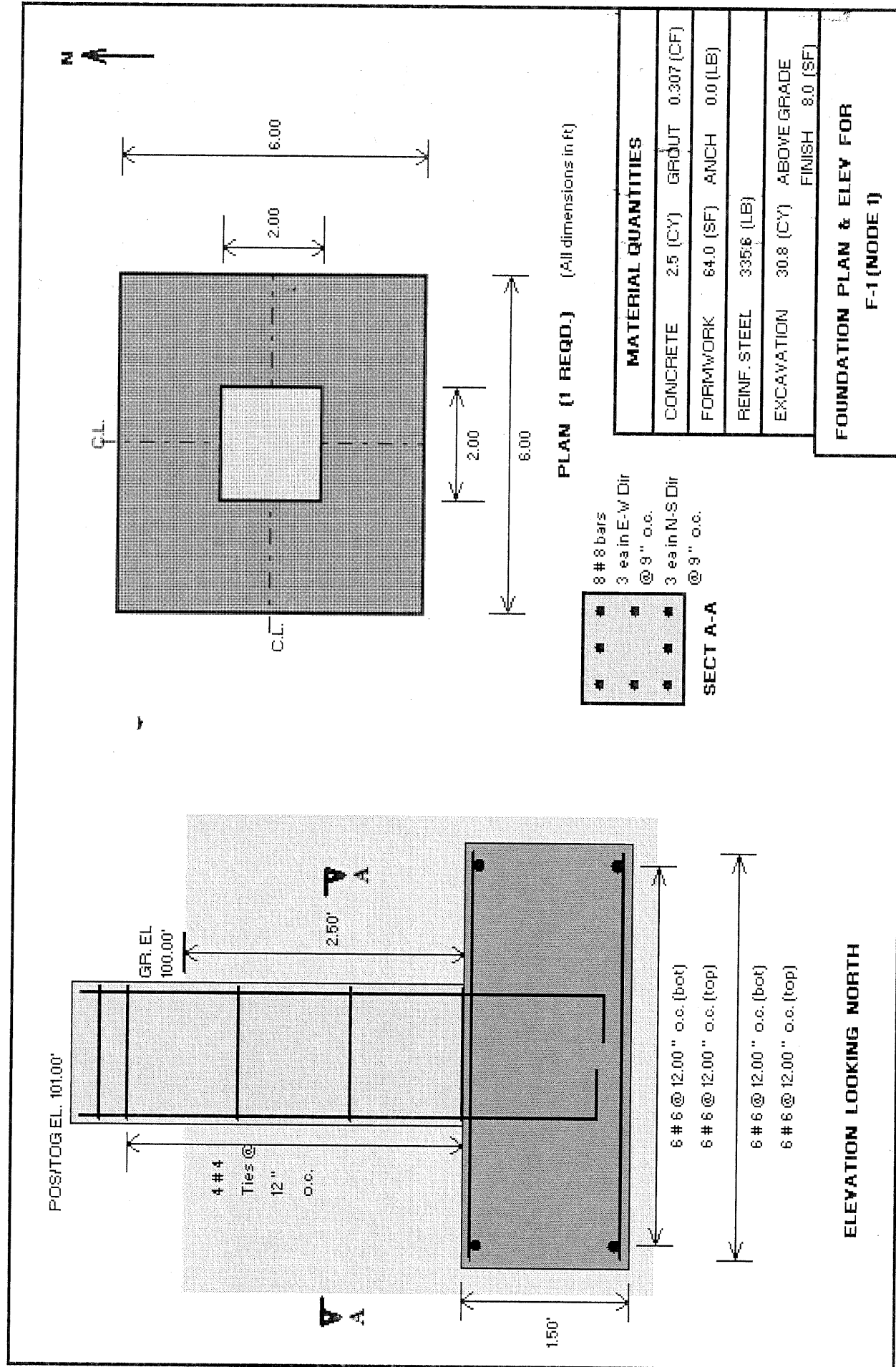
XSTRATA TECHNOLOGY PTY LTD.
CRIPPLE CREEK, COLORADO, U.S.A.
ISAMILL GRINDING PLANT
STEELWORK

TITLE

EQUIPMENT LUG DETAILS
SHEET 1

DWG. NO.: 11-VA-0131-S-206
REV: P1

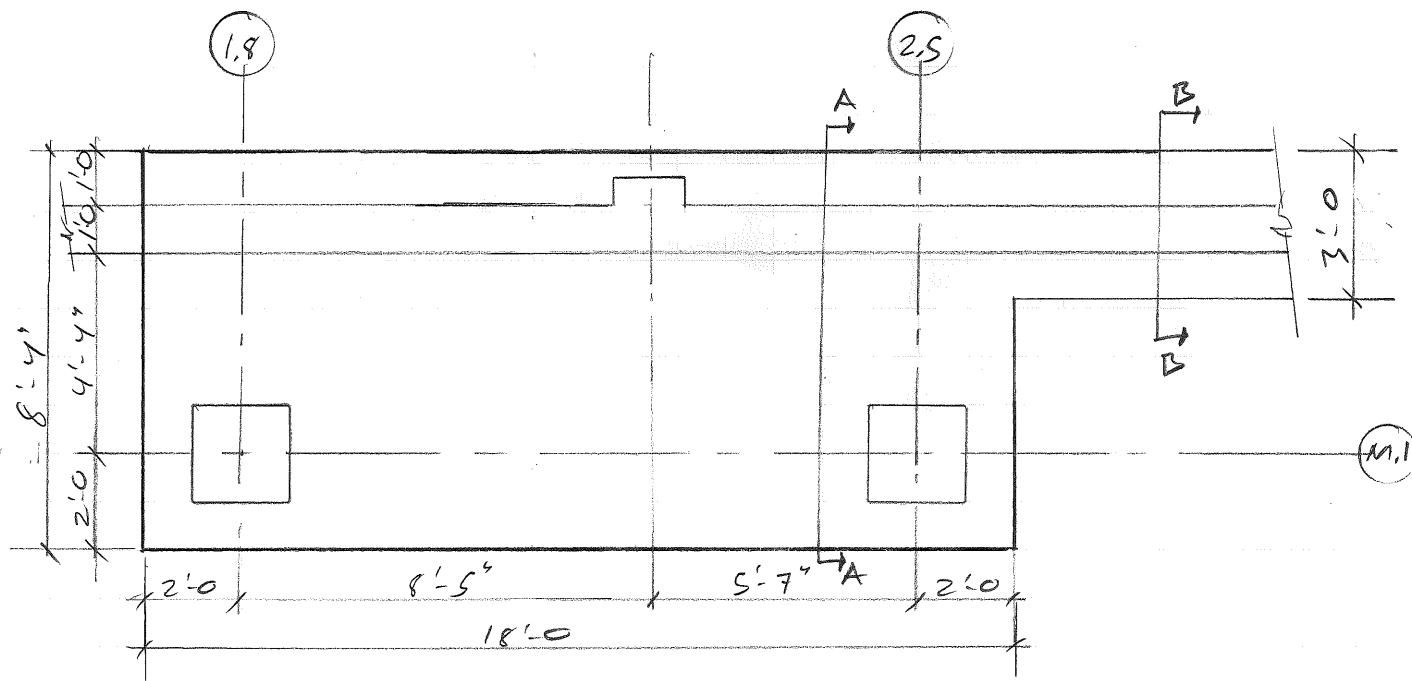




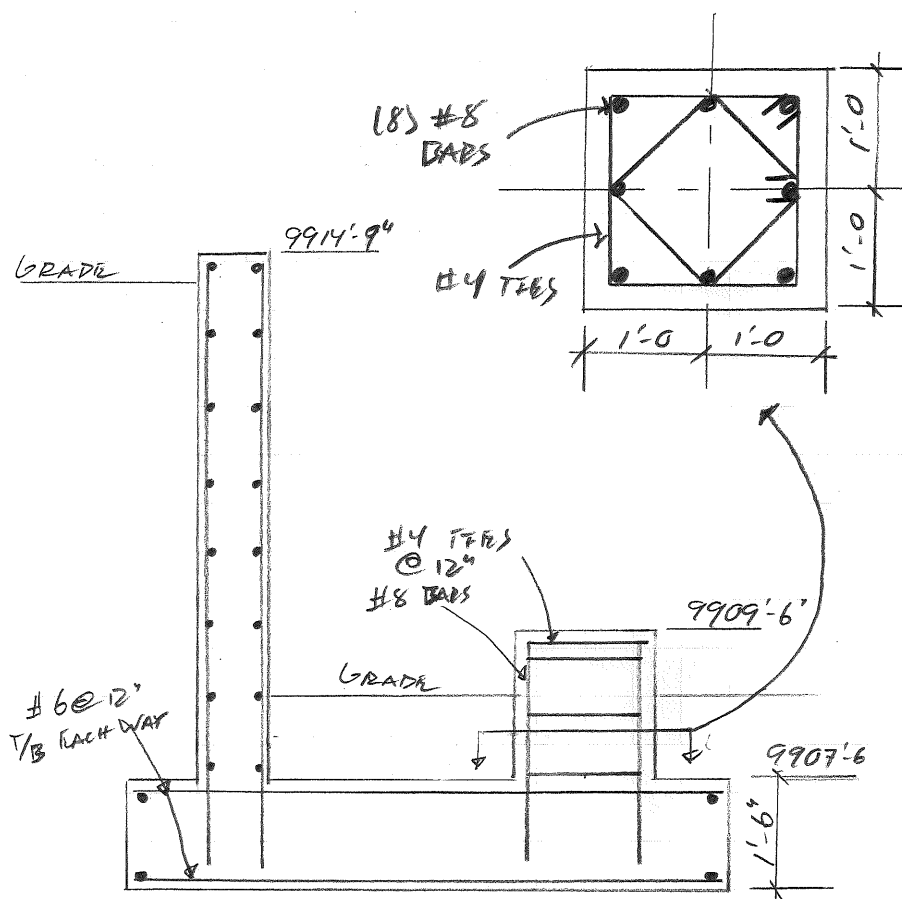


PROJECT
CC&V HELIX GRADE ORE
SUBJECT
AGITATOR MAINTENANCE
PLATFORM FOUNDATION

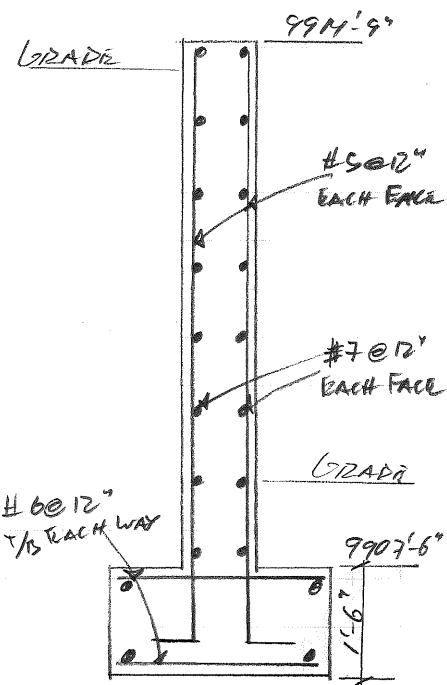
PROJ NO. 11021
CALC NO. C-007
BY ECS DATE 2-22-12
CHK DATE
SHEET OF REV



FOUNDATION F-2



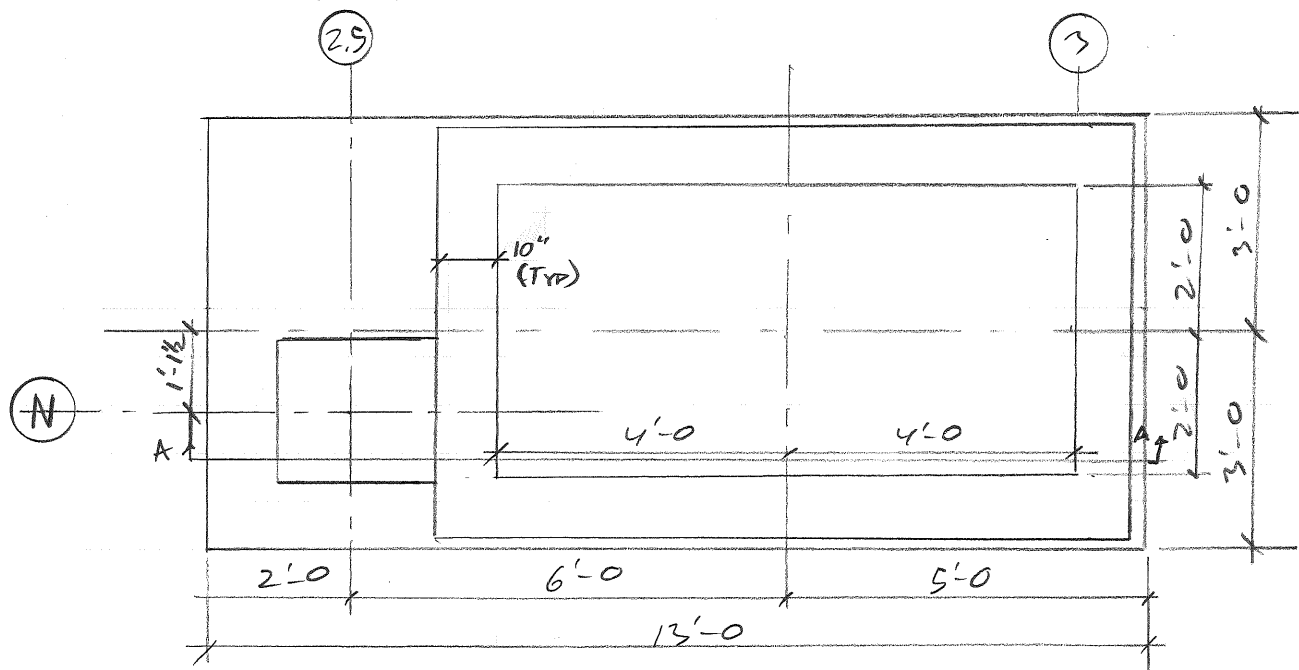
A-A



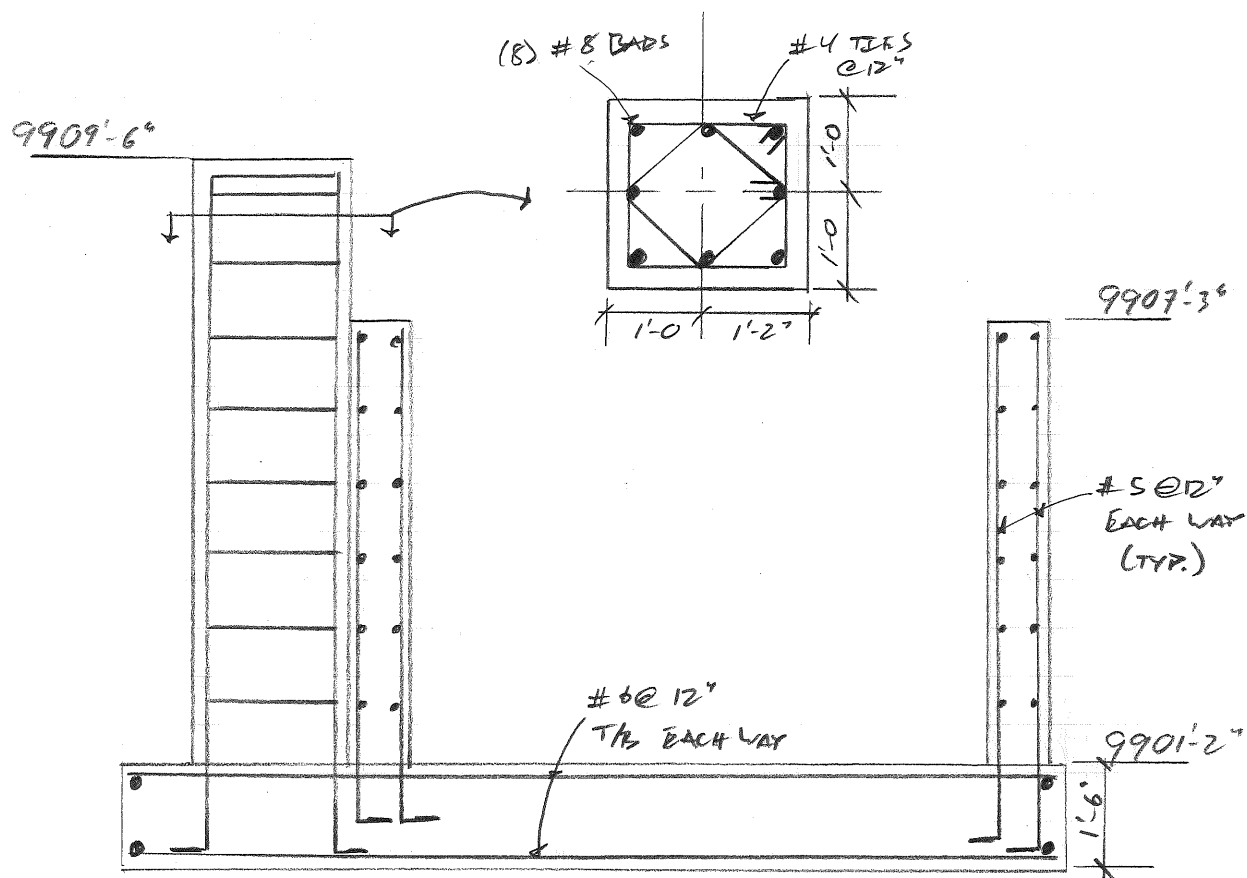
B-B
(TYPICAL)



PROJECT CC&V HIGH GRADE ORE	PROJ NO. 11021	
	CALC NO. C-007	
SUBJECT ALUTATOR MAINTENANCE PLATFORM FOUNDATIONS	BY ELS	DATE 2-22-12
	CHK	DATE
	SHEET	OF REV

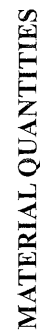


FOUNDATION F-3 PLAN



SECTION A-A

Date:



CONCRETE	1.4 (CY)	GROUT	0.307 (CF)
FORMWORK	52.0 (SF)	ANCH	0.0 (LB)
REINF. STEEL	221.4 (LB)		
EXCAVATION	23.1 (CY)	ABOVE GRADE	
		FINISH	8.0 (SF)

**FOUNDATION PLAN & ELEV FOR
F-4 (NODE 3)**

ELEVATION LOOKING NORTH

FLSMIDTH	PROJECT	CC&V High Grade Ore	PROJ NO.	11021
			CALC NO.	C-007
	SCOPE	Agitator Maintenance	BY ECS	DATE 22-Feb-12
		Platform Foundations	CHK	DATE
			SHEET	OF REV

Reactions from Robot Model

Location	Type	Fx (kip)	Fy (kip)	Fz (kip)
1	Dead	-0.11	0	5.87
1	Live	-0.26	0	25.38
1	Ex	-0.02	0	-0.04
1	E-x	0.02	0	0.04
1	Ey	0	-0.02	0.21
1	E-y	0	0.02	-0.21
2	Dead	-0.59	0.94	3.22
2	Live	-3.34	3.64	8.37
2	Ex	-1.23	-0.06	-0.98
2	E-x	1.23	0.06	0.98
2	Ey	-0.21	-0.2	-0.37
2	E-y	0.21	0.2	0.37
3	Dead	0	0	0.84
3	Live	0	0	1.02
3	Ex	0	0	0
3	E-x	0	0	0
3	Ey	0	0	-0.02
3	E-y	0	0	0.02
4	Dead	-0.03	0.7	6.32
4	Live	-0.1	2.15	18.02
4	Ex	-0.02	-0.02	0.88
4	E-x	0.02	0.02	-0.88
4	Ey	0	-0.97	-0.92
4	E-y	0	0.97	0.92
5	Dead	0.21	0	11.01
5	Live	0.32	0.01	37.24
5	Ex	-0.01	-0.01	-0.28
5	E-x	0.01	0.01	0.28
5	Ey	0	0.07	1.27
5	E-y	0	-0.07	-1.27
6	Dead	0.21	0	20
6	Live	0.32	0.01	50
6	Ex	-1	0	-5
6	E-x	1	0	5
6	Ey	0	-0.5	2
6	E-y	0	0.5	-2

F-1

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	2/21/2012
Foundation Name	F-1 (node 1)		Time	2:12:43 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Re grind Area Concrete\Agitator Maintenance Platform\F-1.mcs			

DETAIL REPORT FOR F-1 (node 1)**PROJECT INFORMATION**

Project Name: CC&V High Grade Mill
Project Number: 11021
Client: CC&V
Project Location: Victor CO
Foundation Description: FOUNDATION

DESIGN CODE ACI 318 - 2008 **INPUT UNITS** English **OUTPUT UNITS** English

CONCRETE PARAMETERS:

Compressive Strength (psi) 4000
 Unit Weight (pcf) 150
 Pier Concrete Cover - E-W Dir (in) 2
 Pier Concrete Cover - N-S Dir (in) 2
 Footing Side Concrete Cover - E-W Dir (in) 3
 Footing Side Concrete Cover - N-S Dir (in) 3
 Footing Top Concrete Cover (in) 2
 Footing Bottom Concrete Cover - X Dir (in) 3

SOIL PARAMETERS:

Unit Weight (pcf) 120
 Allowable Net Bearing Capacity (psf) 4000
 Bearing Capacity Method Linear Soil Pressure
 Soil Type Granular
 Passive Pressure Coefficient Kp 3.69
 Soil To Concrete Friction f 0.5
 Allowable Increase in Soil Pressure due to Short Term Loads (%)
 Wind 33.33 Earthquake 33.33 Test 20
 Erection Stability Ratio 1.5
 Operation Stability Ratio 1.5
 Test Stability Ratio 1.5
 Safety Factor against Lateral Forces 1.5

MINIMUM FOUNDATION CRITERIA:

Depth of Footing Below Grade (ft) 4
 Minimum Soil Cover (ft) 0
 Grade Elevation (ft) 100

REINFORCING STEEL PARAMETERS:

Yield Strength (ksi) 60
 Unit Weight (pcf) 490
 Modulus of Elasticity (ksi) 29000
 Pier Min Rebar Spacing (in) 3
 Footing Min Rebar Spacing (in) 6
 Footing Max Rebar Spacing (in) 18

REBAR PARAMETERS:

Max Long Bar Size 10
 Min Long Bar Size 7
 Max Tie Bar Size 4
 Min Tie Bar Size 3
 Max Ftg Bar Size 18
 Temp & Shrinkage Steel Ratio 0.0018

BUOYANCY CRITERIA:

Consider Buoyancy: No
 Consider soil for buoyancy: No
 Water table below grade (ft) 0

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	2/21/2012
Foundation Name	F-1 (node 1)		Time	2:12:43 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_StructC-007 Regrind Area Concrete\Agitator Maintenance Platform\F-1.mcs			

DETAIL REPORT FOR F-1 (node 1)**APPLIED LOADS**

Load Case	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	5.87	-0.11	0.00	0.00	0.00
2 - Live	25.38	-0.26	0.00	0.00	0.00
3 - Earthquake X	0.04	0.02	0.00	0.00	0.00
4 - Earthquake Y	0.21	0.00	0.00	0.02	0.00

UNFACTORED (ALLOWABLE) LOAD COMBINATIONS

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	5.87	-0.11	0.00	0.00	0.00
2 - Dead + Live	31.25	-0.37	0.00	0.00	0.00
3 - Dead + 0.7Earthquake X	5.90	-0.10	0.00	0.00	0.00
4 - Dead + 0.7Earthquake Y	6.02	-0.11	0.00	0.01	0.00
5 - 0.6Dead + 0.7Earthquake X	3.55	-0.05	0.00	0.00	0.00
6 - 0.6Dead + 0.7Earthquake Y	3.67	-0.07	0.00	0.01	0.00

FACTORED (ULTIMATE) LOAD COMBINATIONS

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - 1.4Dead	8.22	-0.15	0.00	0.00	0.00
2 - 1.2Dead + 1.6Live	47.65	-0.55	0.00	0.00	0.00
3 - 1.2Dead + Live + Earthquake X	32.46	-0.37	0.00	0.00	0.00
4 - 1.2Dead + Live + Earthquake Y	32.63	-0.39	0.00	0.02	0.00
5 - 0.9Dead + Earthquake X	5.32	-0.08	0.00	0.00	0.00
6 - 0.9Dead + Earthquake Y	5.49	-0.10	0.00	0.02	0.00

BEARING CAPACITY - LINEAR SOIL PRESSURE METHOD

Load Comb	Max Pressure (ksf)	All Pressure (ksf)	Ecc N/S Dir (ft)	Ecc E/W Dir (ft)	Moment N/S axis (kip-ft)	Moment E/W axis (kip-ft)	Rem
1 - Dead	0.73	4.48	0.00	0.02	0.55	0.00	
2 - Dead + Live	1.47	4.48	0.00	0.04	1.85	0.00	
3 - Dead + 0.7Earthquake X	0.73	5.81	0.00	0.02	0.48	0.00	
4 - Dead + 0.7Earthquake Y	0.73	5.81	0.00	0.02	0.55	0.07	
5 - 0.6Dead + 0.7Earthquake X	0.44	5.81	0.00	0.02	0.26	0.00	
6 - 0.6Dead + 0.7Earthquake Y	0.44	5.81	0.00	0.02	0.33	0.07	

STABILITY RATIO / SLIDING SAFETY FACTOR

Load Comb	S.R. N/S Dir	S.R. E/W Dir	All S.R.	Sliding FS - N/S	Sliding FS - E/W	All FS	Remarks
1 - Dead	100.00	100.00	1.50	100.00	100.00	1.50	
2 - Dead + Live	100.00	82.78	1.50	100.00	100.00	1.50	
3 - Dead + 0.7Earthquake X	100.00	100.00	1.50	100.00	100.00	1.50	
4 - Dead + 0.7Earthquake Y	100.00	100.00	1.50	100.00	100.00	1.50	
5 - 0.6Dead + 0.7Earthquake X	100.00	100.00	1.50	100.00	100.00	1.50	
6 - 0.6Dead + 0.7Earthquake Y	100.00	100.00	1.50	100.00	100.00	1.50	

Dimensional Solutions FOUNDATION3D	Version 5.8.2	Date 2/21/2012
Foundation Name F-1 (node 1)		Time 2:12:43 PM
Designed By: FLSmidth Salt Lake City	Engineer ECS	Checker
Filename: P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Regrind Area Concrete\Agitator Maintenance Platform\F-1.mcs		

DETAIL REPORT FOR F-1 (node 1)**FOOTING DESIGN INFORMATION**

E-W Dim (ft) 6.00
 N-S Dim (ft) 6.00
 Thickness (ft) 1.50

Top Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
0.9Dead + Earthquake Y	6	6	12	0.44	0	0	E-W
0.9Dead + Earthquake Y	6	6	12	0.44	0	0	N-S

Bottom Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
1.2Dead + 1.6Live	6	6	12	0.44	0.39	2.91	E-W
1.2Dead + 1.6Live	6	6	12	0.44	0.39	2.79	N-S

PUNCHING SHEAR

Control Comb	Net Ult Load (kips)	Punch. Stress (psi)	All Stress (psi)	Rem
1.2Dead + 1.6Live	35.16	16.52	189.74	

MAXIMUM SHEAR - E-W DIRECTION

Load Comb	Left Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	0.83	1.64	1.63	94.87	
2 - 1.2Dead + 1.6Live	0.83	7.30	7.24	94.87	
3 - 1.2Dead + Live + Earthquake X	0.83	5.08	5.04	94.87	
4 - 1.2Dead + Live + Earthquake Y	0.83	5.12	5.08	94.87	
5 - 0.9Dead + Earthquake X	0.83	1.05	1.04	94.87	
6 - 0.9Dead + Earthquake Y	0.83	1.09	1.08	94.87	

MAXIMUM SHEAR - N-S DIRECTION

Load Comb	Bottom Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	5.17	-1.55	1.54	94.87	
2 - 1.2Dead + 1.6Live	5.17	-6.97	6.91	94.87	
3 - 1.2Dead + Live + Earthquake X	0.83	4.86	4.82	94.87	
4 - 1.2Dead + Live + Earthquake Y	5.17	-4.89	4.86	94.87	
5 - 0.9Dead + Earthquake X	5.17	-1.00	0.99	94.87	
6 - 0.9Dead + Earthquake Y	5.17	-1.04	1.03	94.87	

Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	2/21/2012
Foundation Name	F-1 (node 1)		Time	2:12:43 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Regrind Area Concrete\Agitator Maintenance Platform\F-1.mcs			

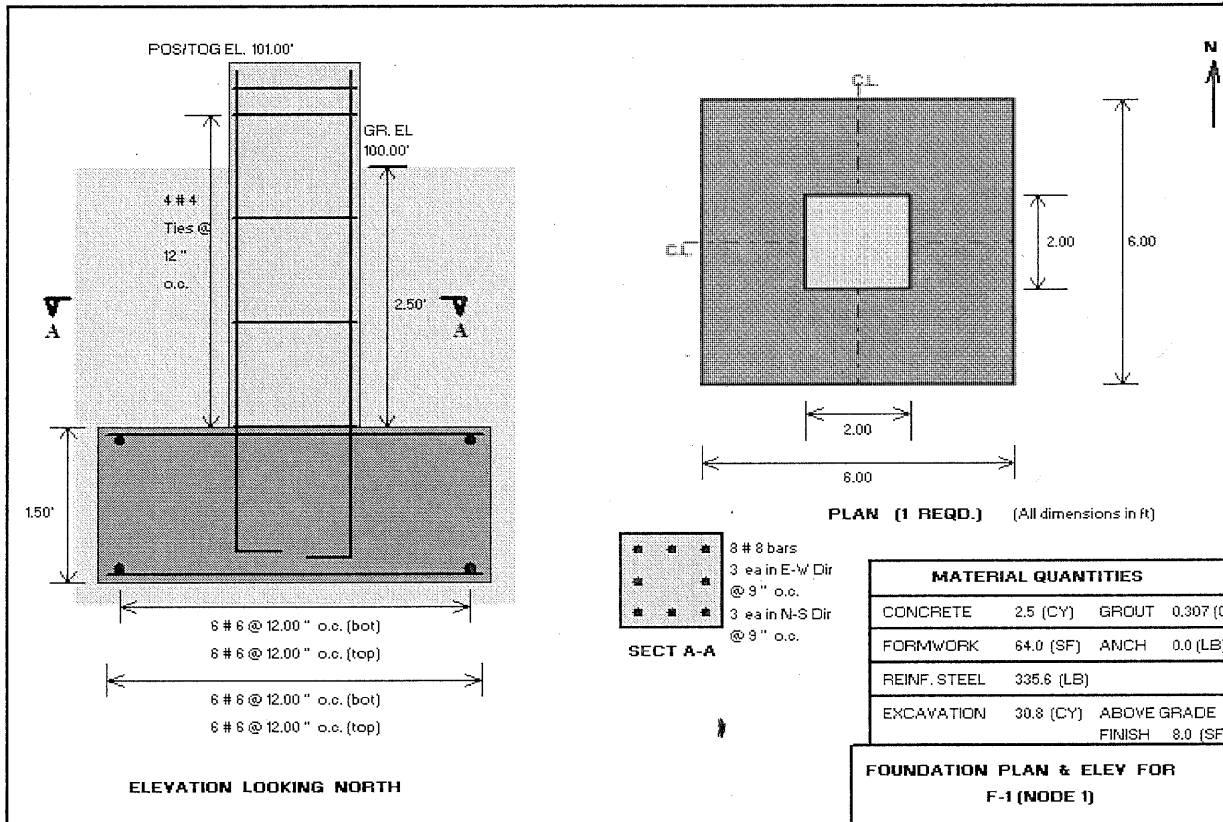
DETAIL REPORT FOR F-1 (node 1)**PIER/BASE PLATE DESIGN INFORMATION**

E-W Dim (ft)	2.00
N-S Dim (ft)	2.00
Height above grade (ft)	1.00
E-W Offset (ft)	0.00
N-S Offset (ft)	0.00
Requested Reinf. Ratio	0.0050
Provided Reinf. Ratio	0.0109
Long Bar Size	8
Bars in E-W Dir	3
Bars in N-S Dir	3
Total Long Bars	8
Tie Bar Size	4
Total No. of Ties	5
Major Tie Spacing (in)	12

PIER ULTIMATE LOAD CAPACITIES

Load	Axial	Axial	Mom N-S	Mom N-S	Mom E-W	Mom E-W	Rem
Comb	Load	Capa.		Capa		Capa	
	(kips)	(kips)	(kip ft)	(kip ft)	(kip ft)	(kip ft)	
1 - 1.4Dead	11.16	1203.30	1.23	132.38	1.23	132.38	
2 - 1.2Dead + 1.6Live	50.17	1203.30	5.52	132.38	5.52	132.38	
3 - 1.2Dead + Live + Earthquake X	34.98	1203.30	3.85	132.38	3.85	132.38	
4 - 1.2Dead + Live + Earthquake Y	35.15	1203.30	3.87	132.38	3.87	132.38	
5 - 0.9Dead + Earthquake X	7.21	1203.30	0.79	132.38	0.79	132.38	
6 - 0.9Dead + Earthquake Y	7.38	1203.30	0.81	132.38	0.81	132.38	

Dimensional Solutions FOUNDATION3D	Version 5.8.2	Date 2/21/2012
Foundation Name F-1 (node 1)	Engineer ECS	Time 2:12:43 PM
Designed By: FLSmith Salt Lake City	Checker	
P:\11021\116 - Calculations\116.d - Arch_Civil_Struct\C-007 Regrind Area Concrete\		
Filename: Agitator Maintenance Platform\F-1.mcs		

DETAIL REPORT FOR F-1 (node 1)

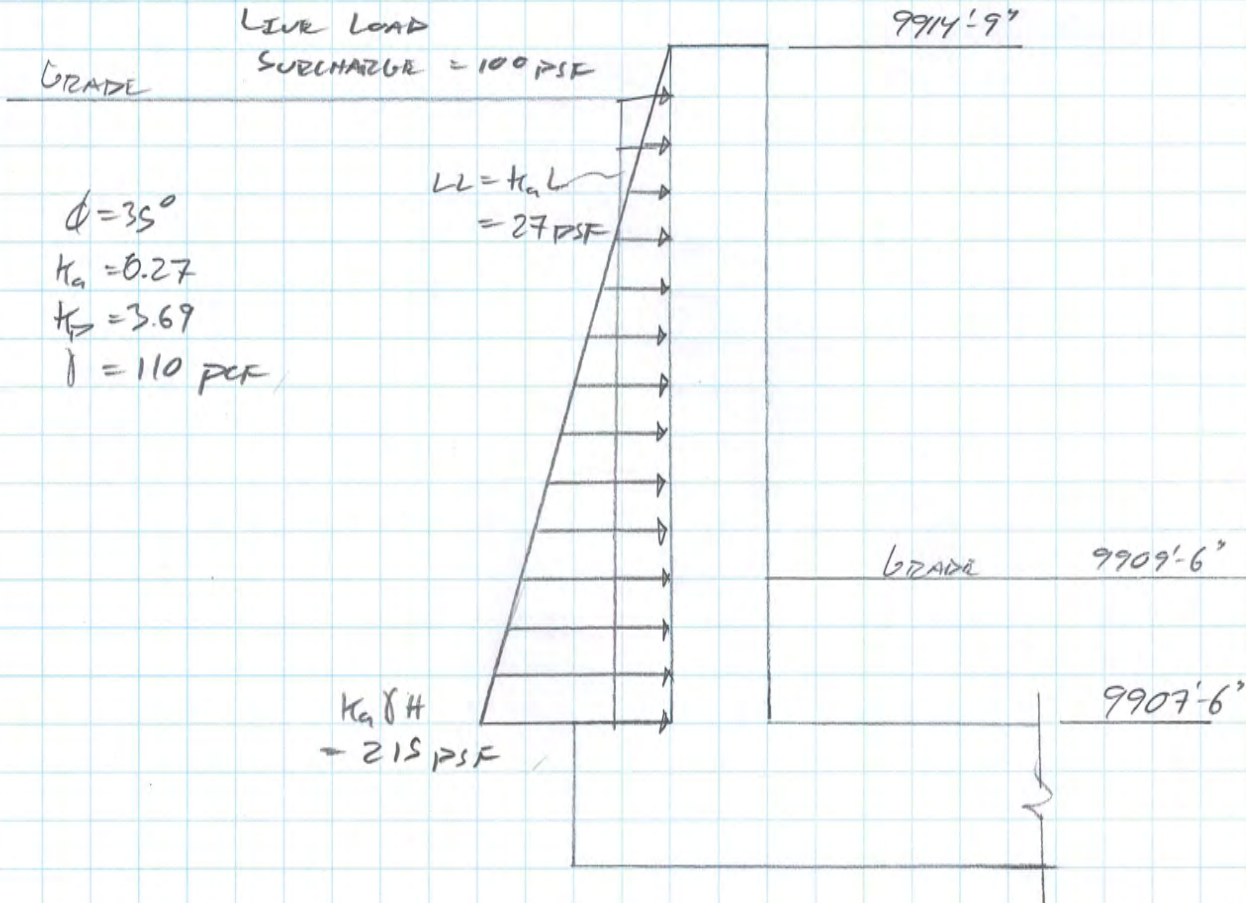


PROJECT
CC&V HIGH GRADE ORE
SUBJECT
AUXILIARY MAINTENANCE
PLATFORM FOUNDATIONS

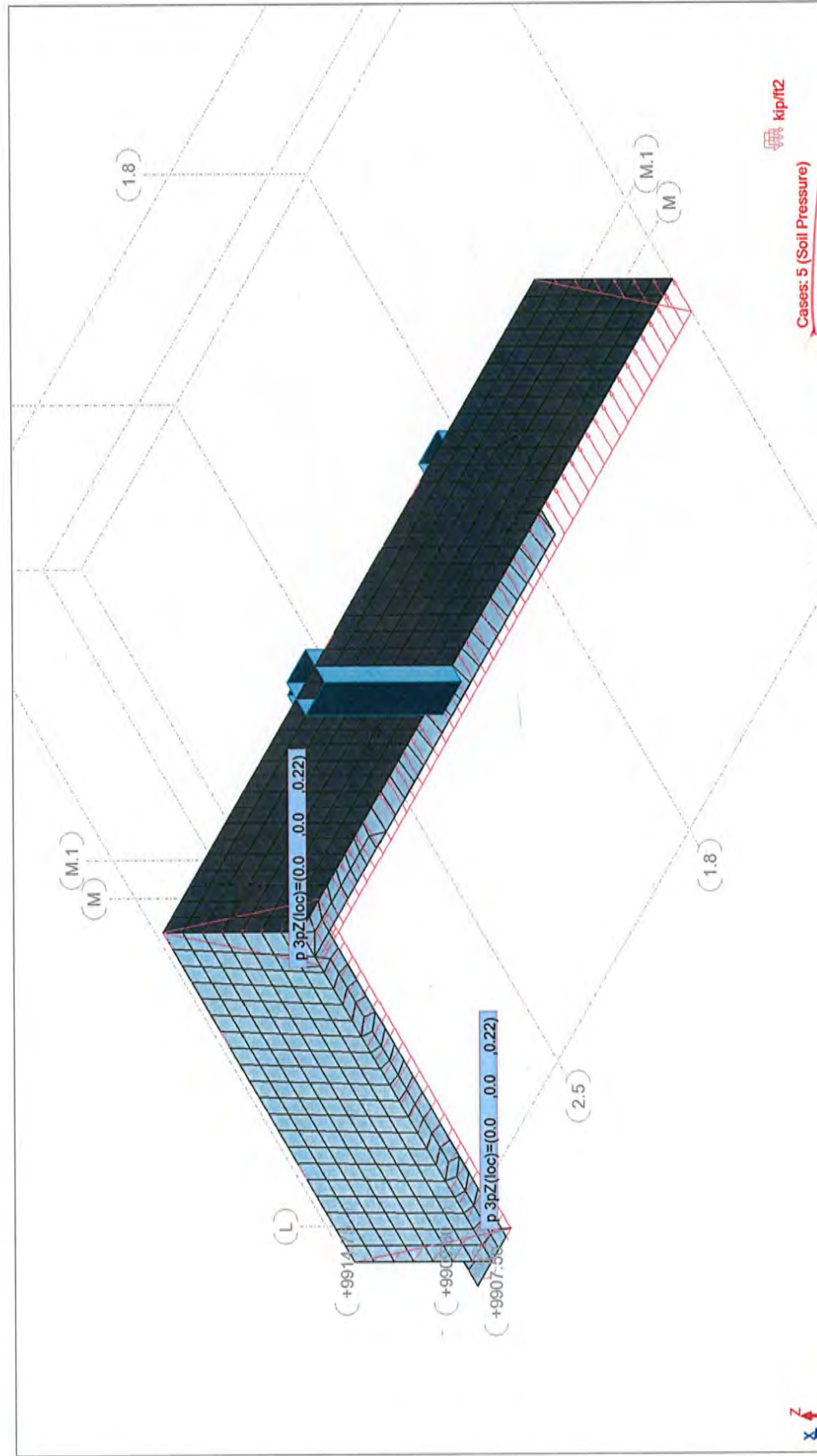
PROJ NO. 11021
CALC NO. C-007
BY ECS DATE 2-22-12
CHK DATE
SHEET OF REV

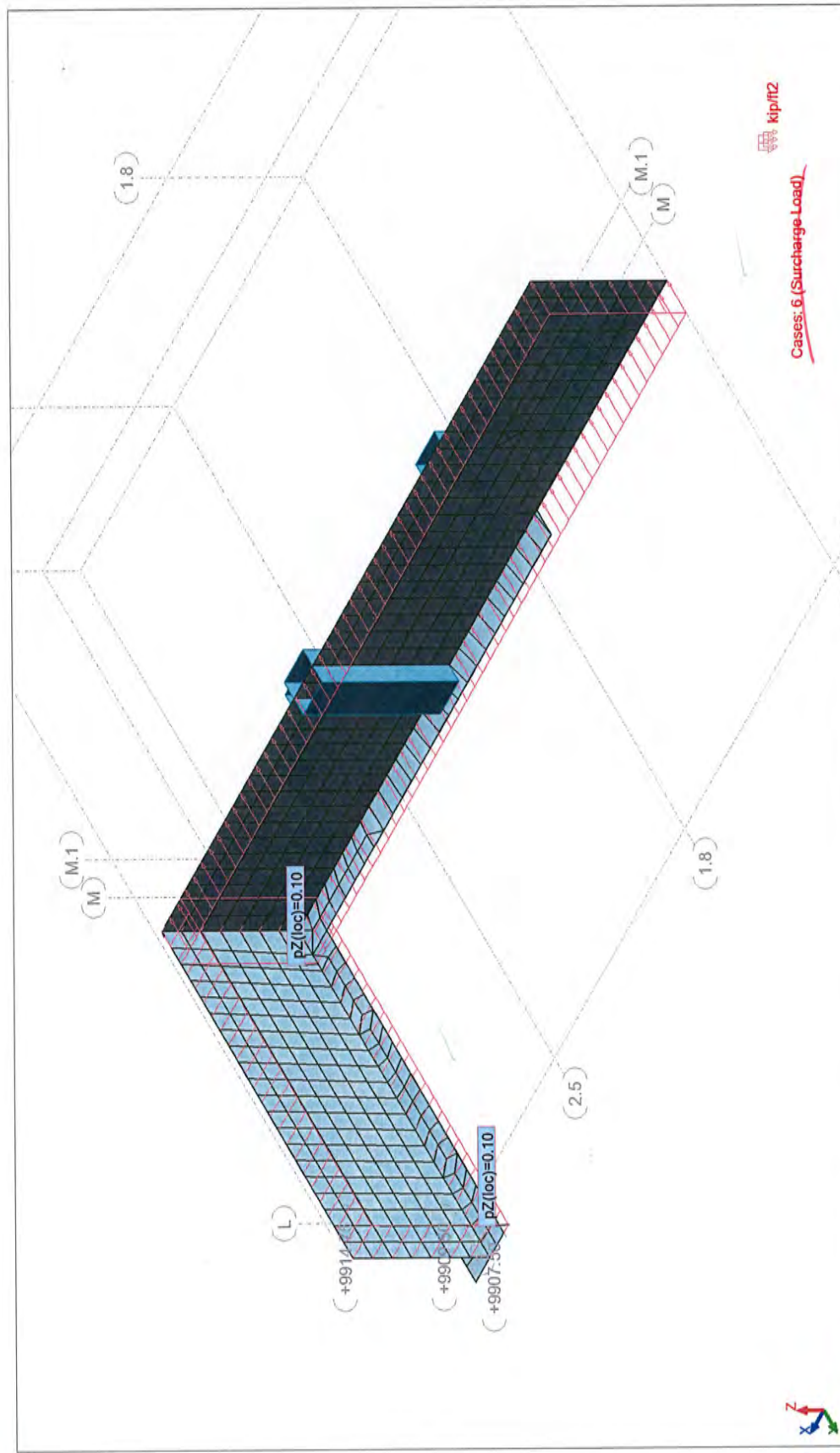
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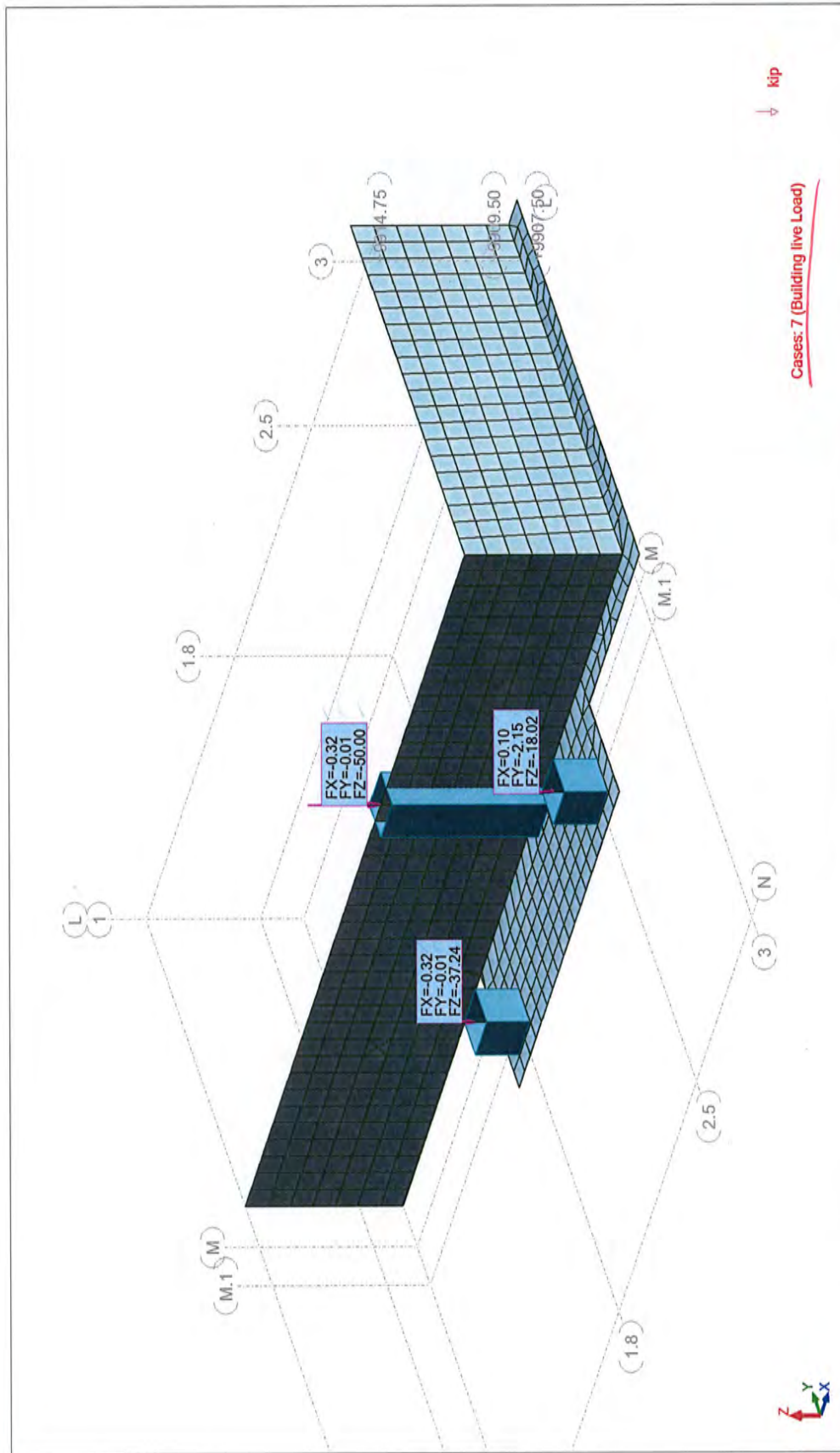
F-2



View -







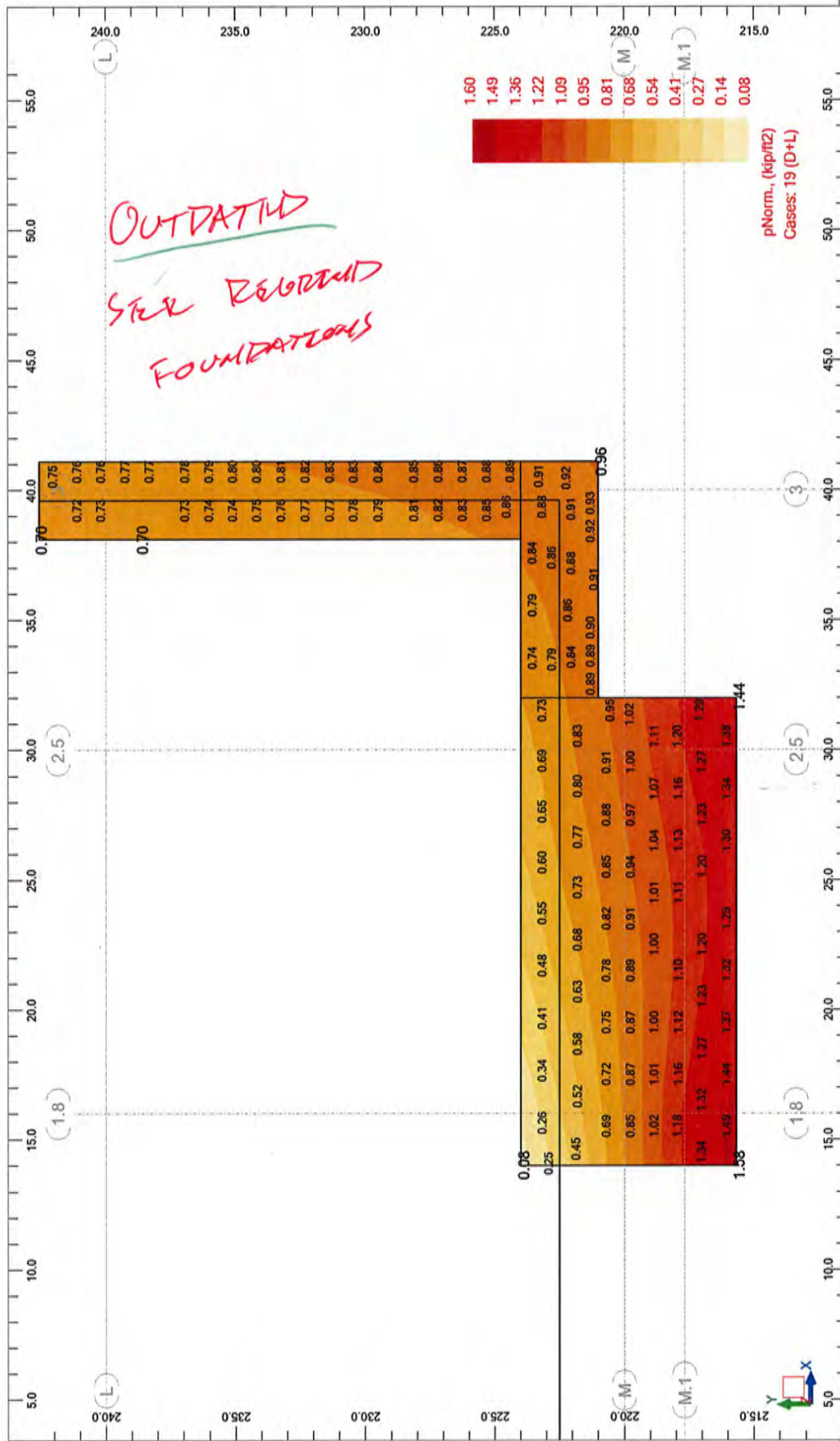


7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: Ed Summers
Calc No.: C-004 Job.: 11021
Project: Foundation F-2
Client: CC&V

View - pNorm. (kip/ft²) Cases: 19 (D+L)

Soil Pressure



Date : 22/02/12

File: Foundation F-2.rtd

Page : 1

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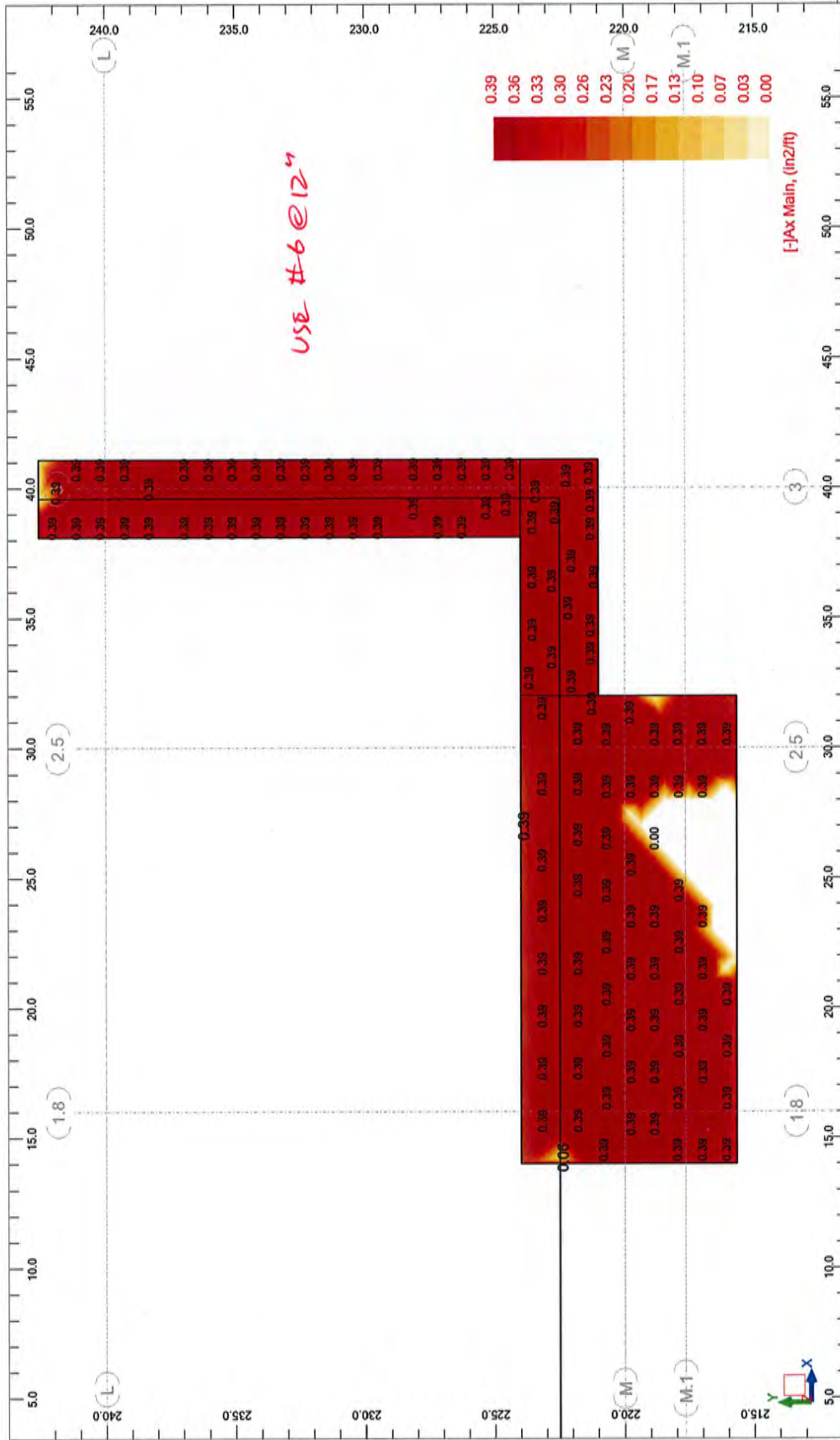


7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: Ed Summers
Calc No.: C-004 Job.:11021
Project: Foundation F-2
Client: CC&V

View - [-]Ax Main (in2/ft)

REQ'D REINFORCEMENT - X - BOTTOM

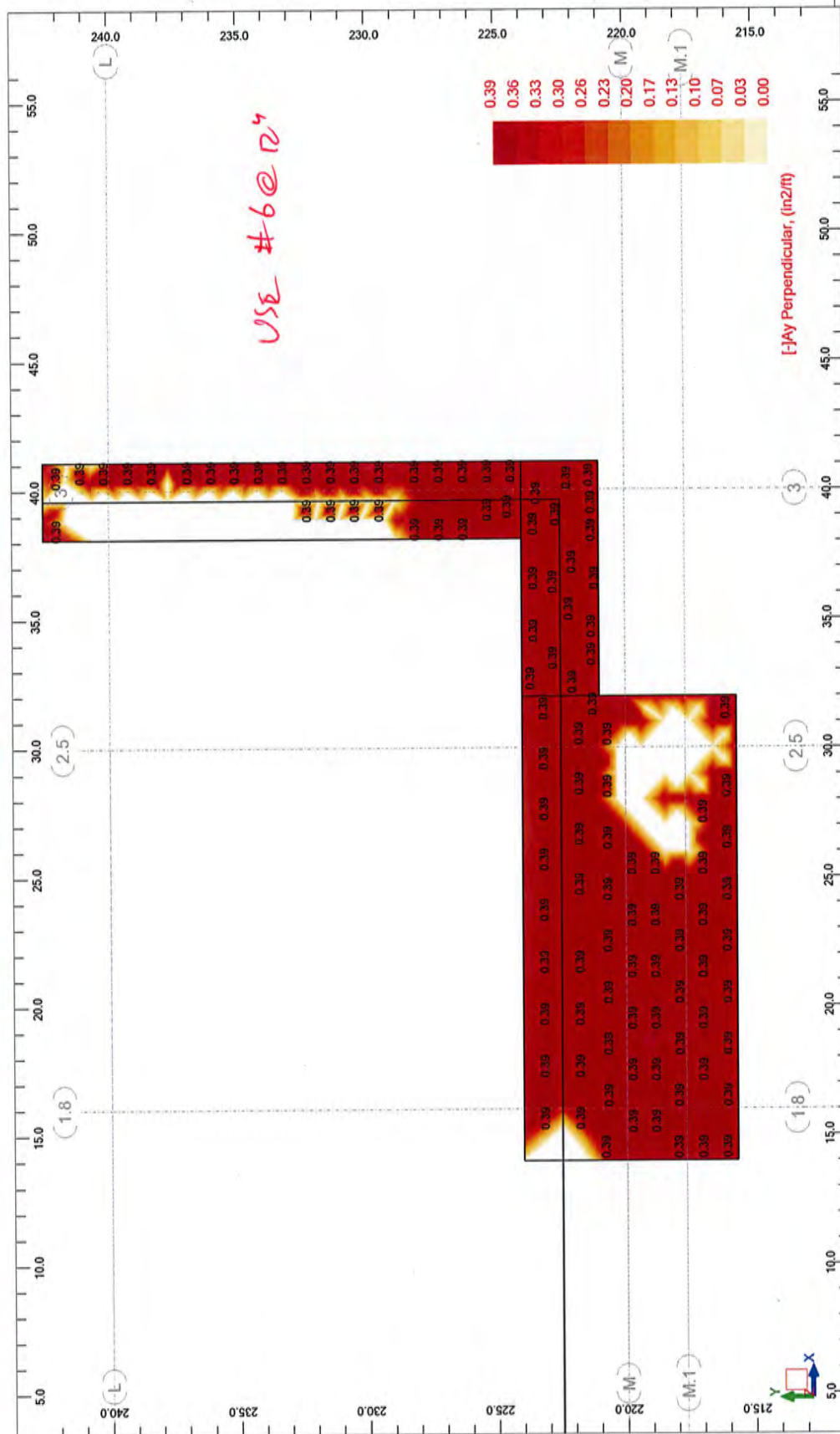




7158 S. FLSmidth Drive
Midvale, UT 84047-5559

View - [-]Ay Perpendicular (in2/ft)

Read Reinforcement - Y - Bottom



Date : 22/02/12

File: Foundation F-2.rtd

Page : 1

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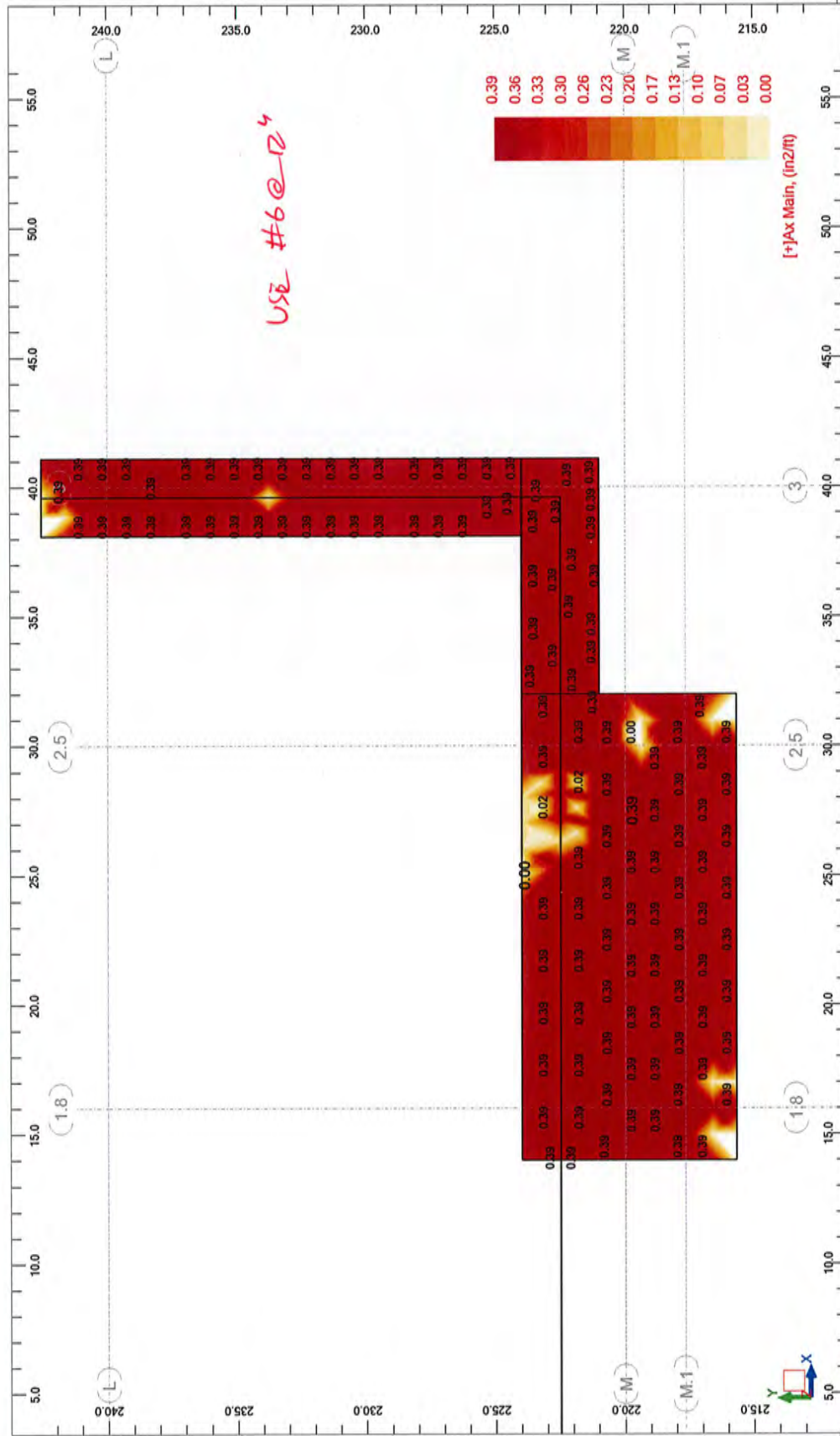


7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: Ed Summers
Calc No.: C-004 Job.:11021
Project: Foundation F-2
Client: CC&V

View - [x]Ax Main (in2/ft)

REQ'D REINFORCEMENT - X - TOP



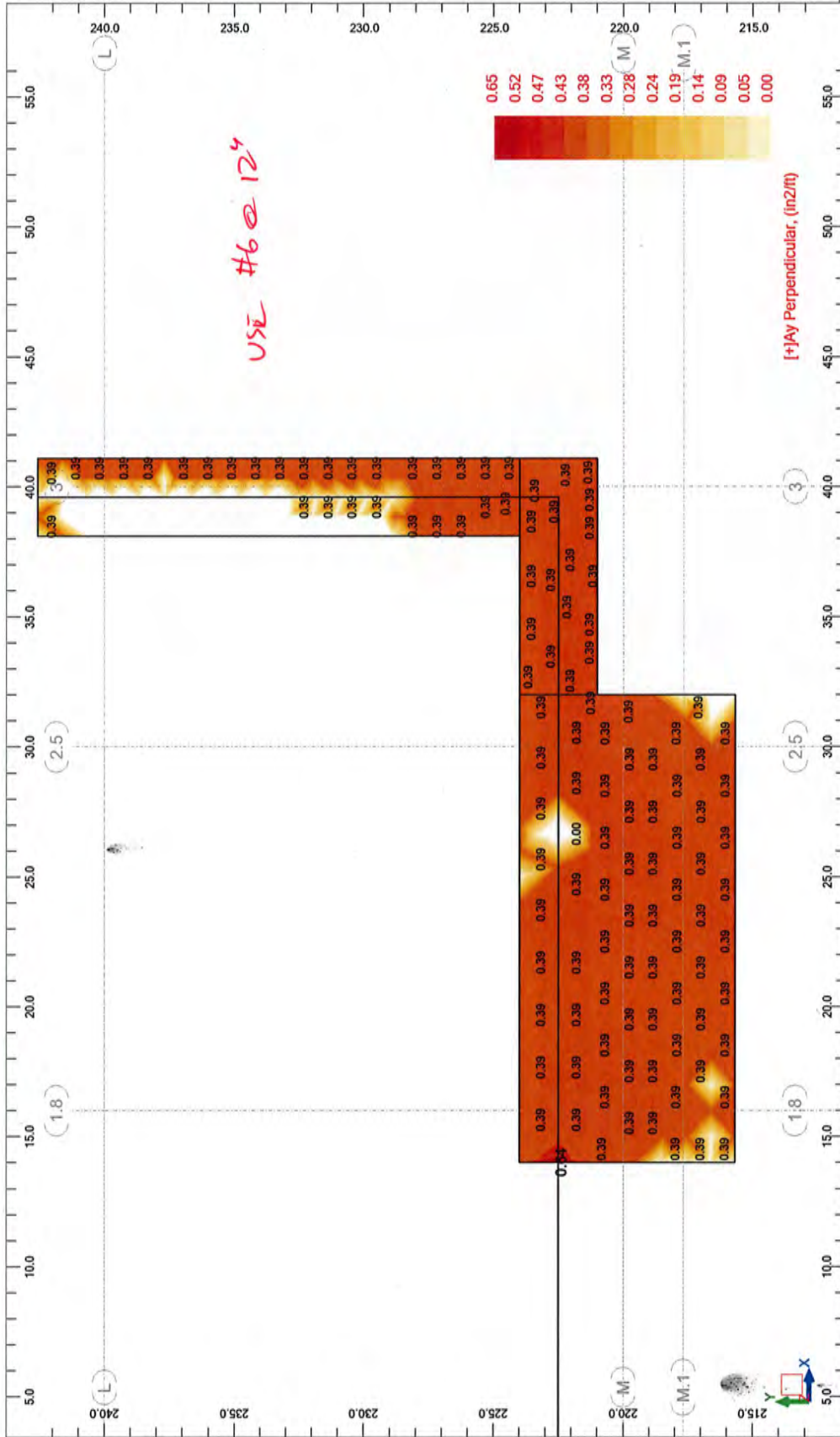


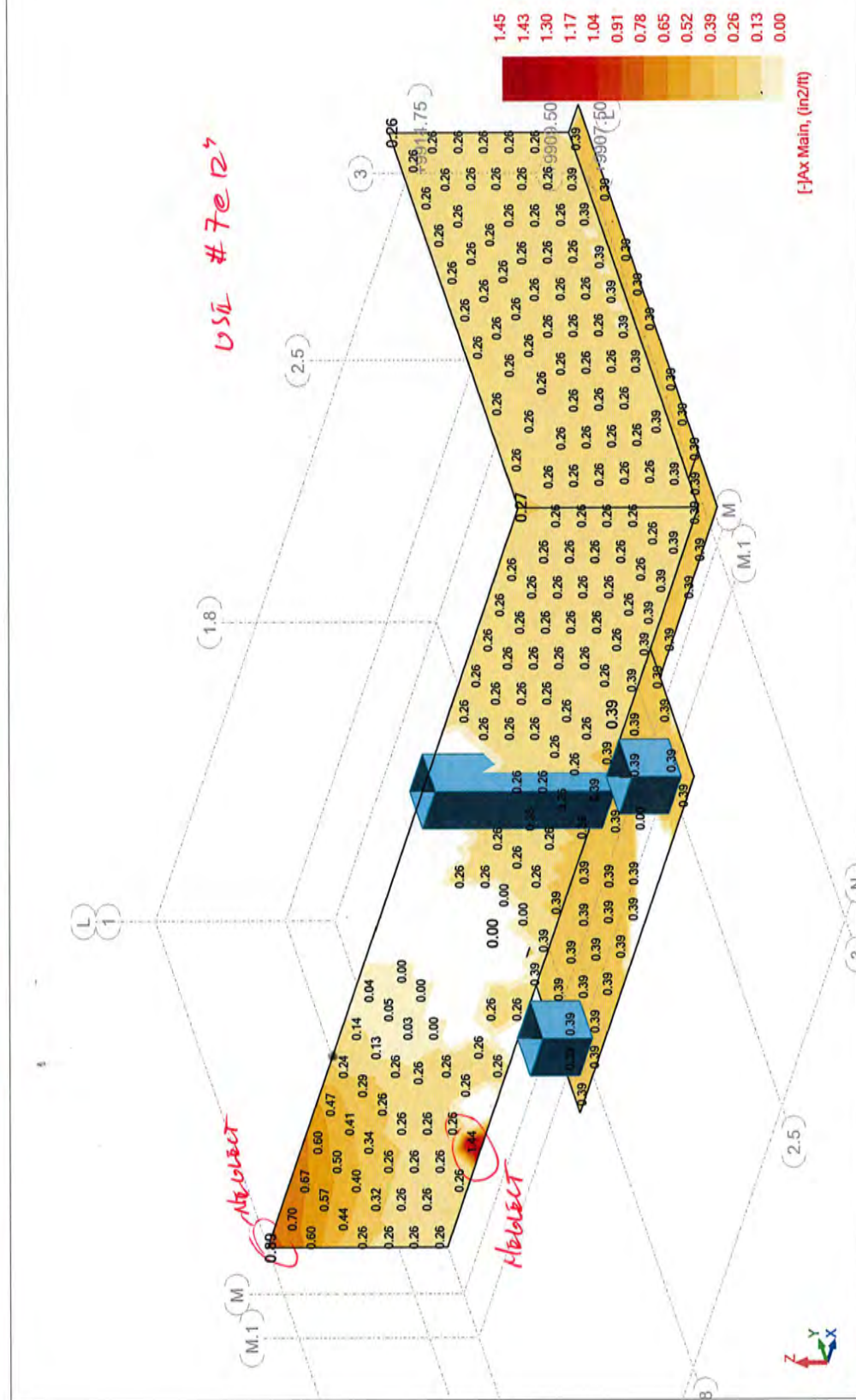
7158 S. FLSmidth Drive
Midvale, UT 84047-5559

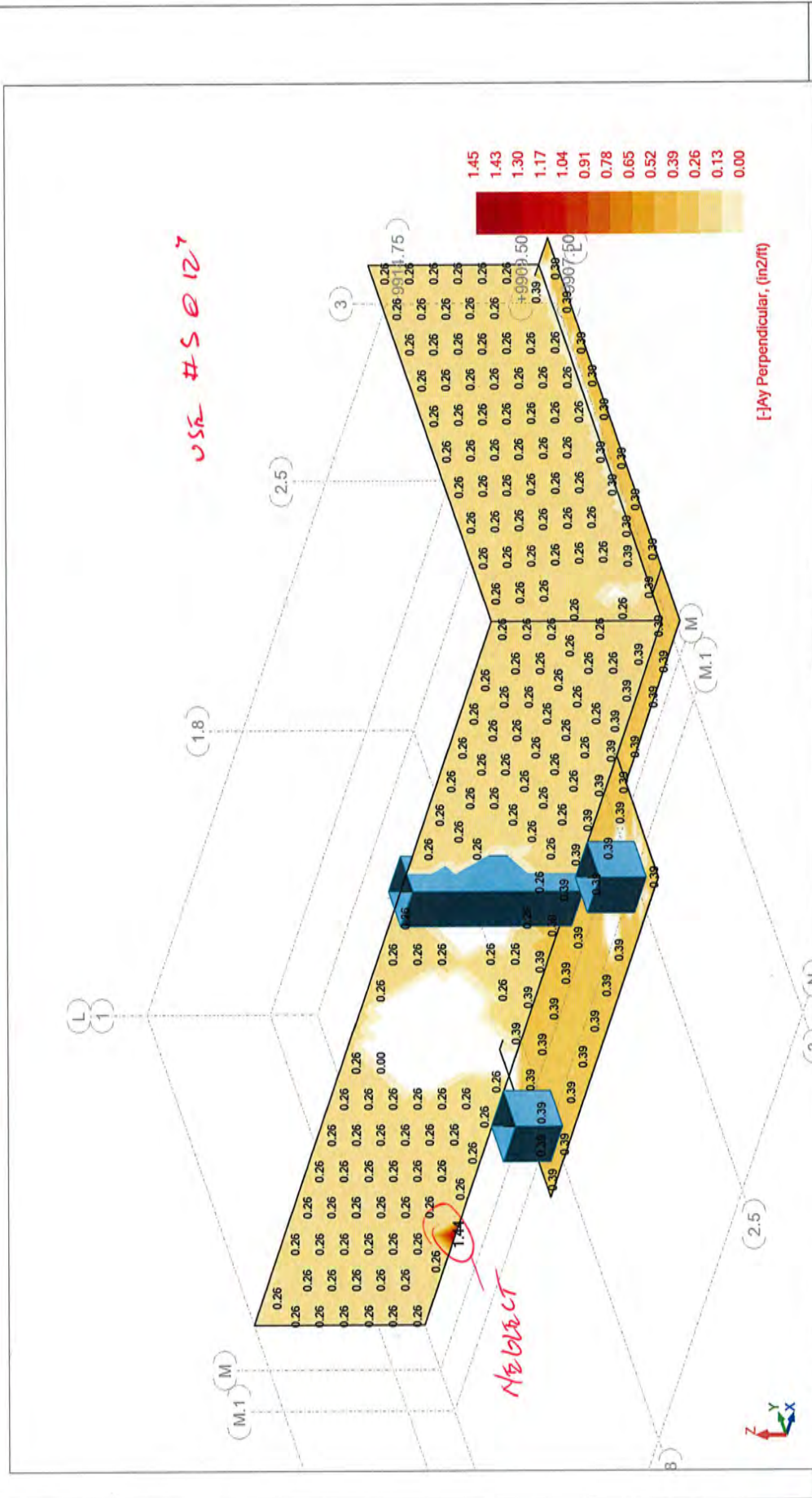
Engineer: Ed Summers
Calc No.: C-004 Job.:11021
Project: Foundation F-2
Client: CC&V

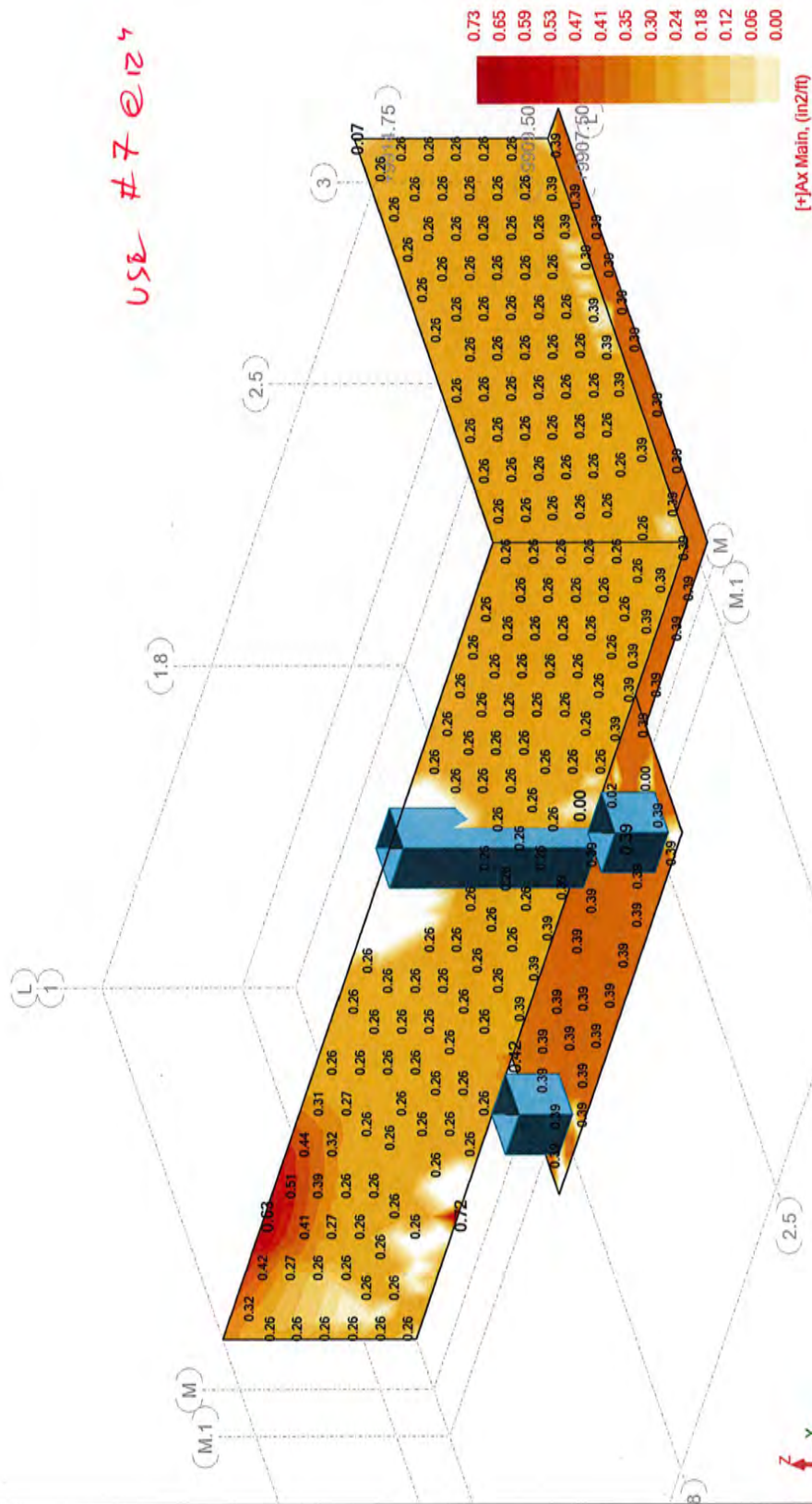
View - [x]Ay Perpendicular (in2/ft)

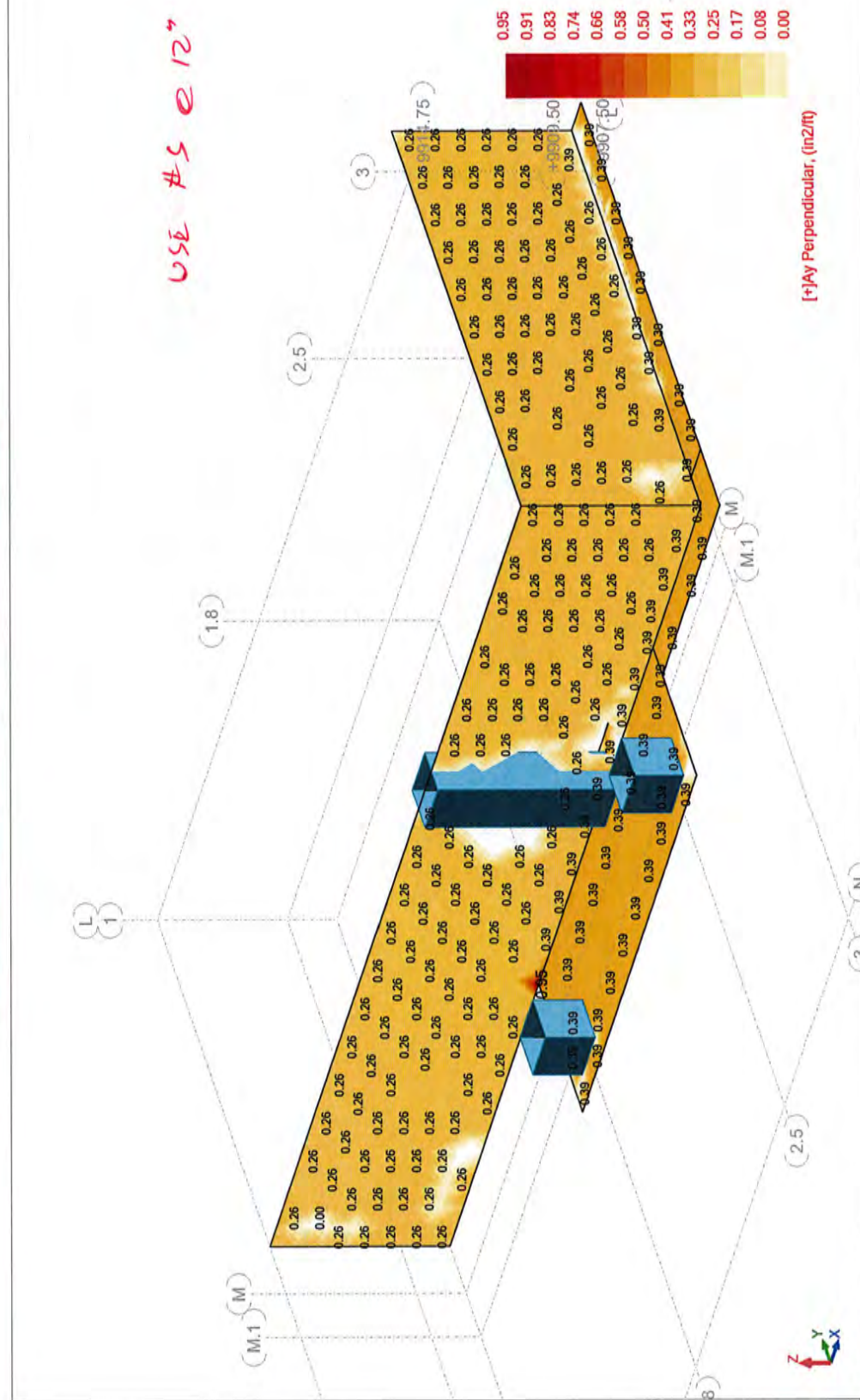
Reinforcement - Y - TOP













PROJECT

CC&V HIGH GRADE ORE

SUBJECT

AGITATOR MAINTENANCE
PLATFORM FOUNDATIONS

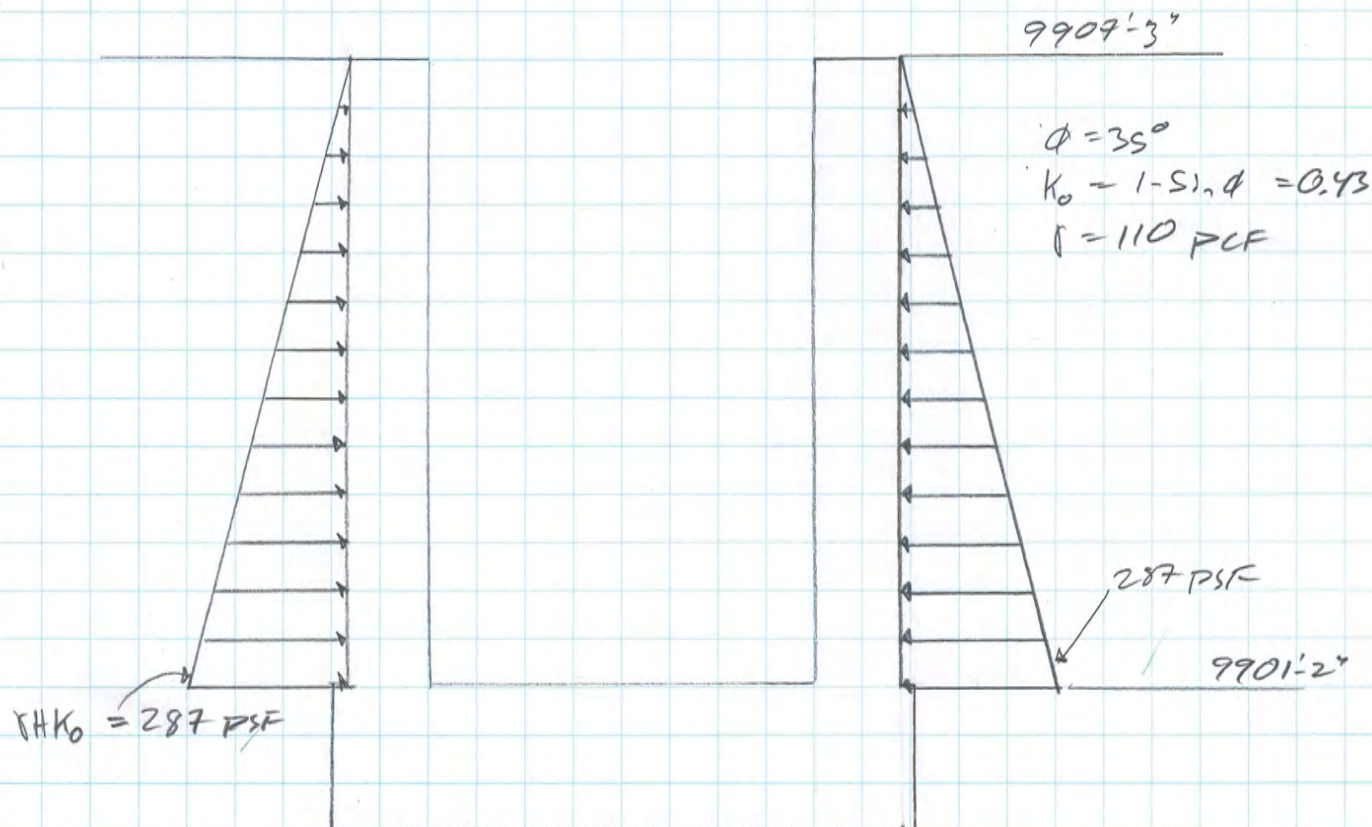
PROJ NO. 11021

CALC NO. C-007

BY ECS DATE 2-22-12

CHK DATE

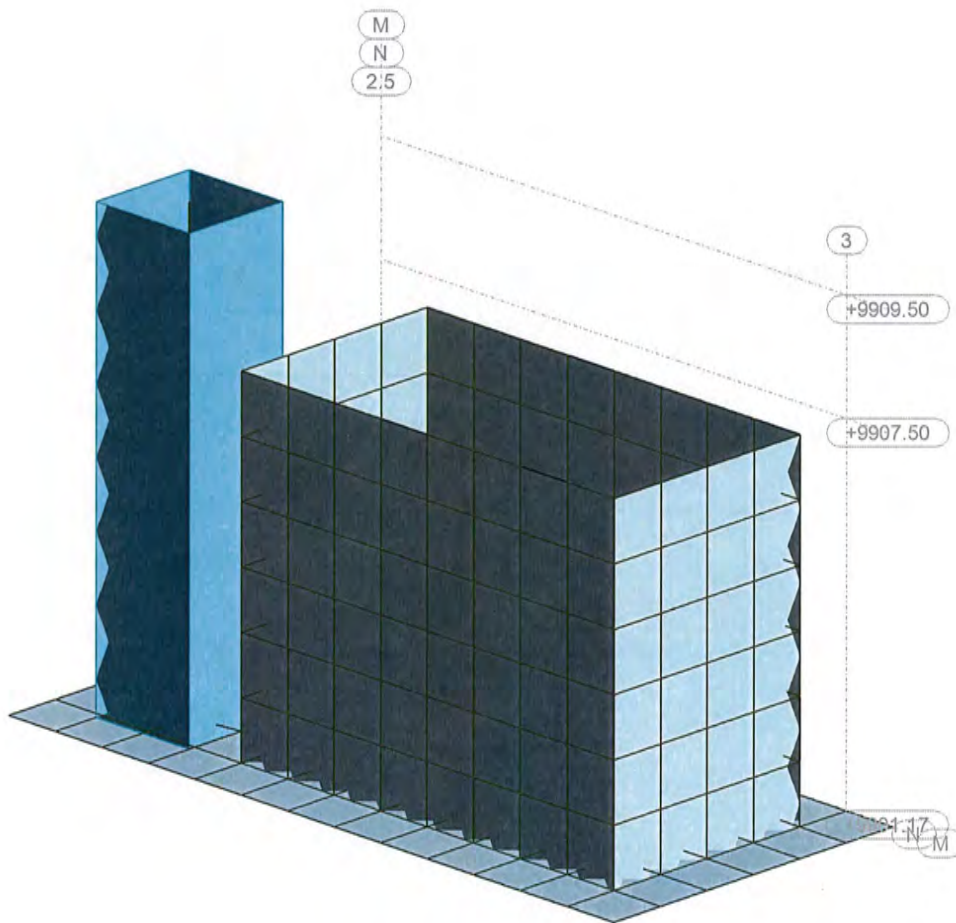
SHEET OF REV

F-3SWAMP DESIGNSURCHARGE:

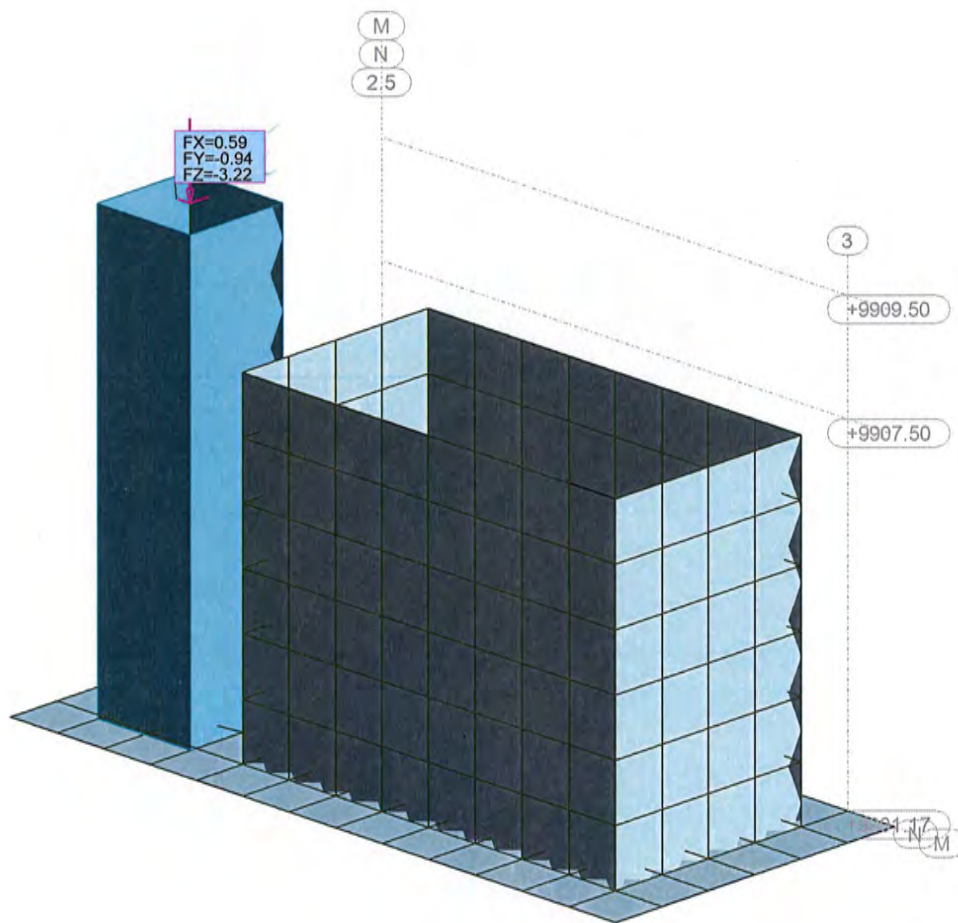
USE 100 PSF

LATERAL PRESSURE = $100 K_0 = \underline{43 \text{ PSF}}$

View - Cases: 19 (D+L)



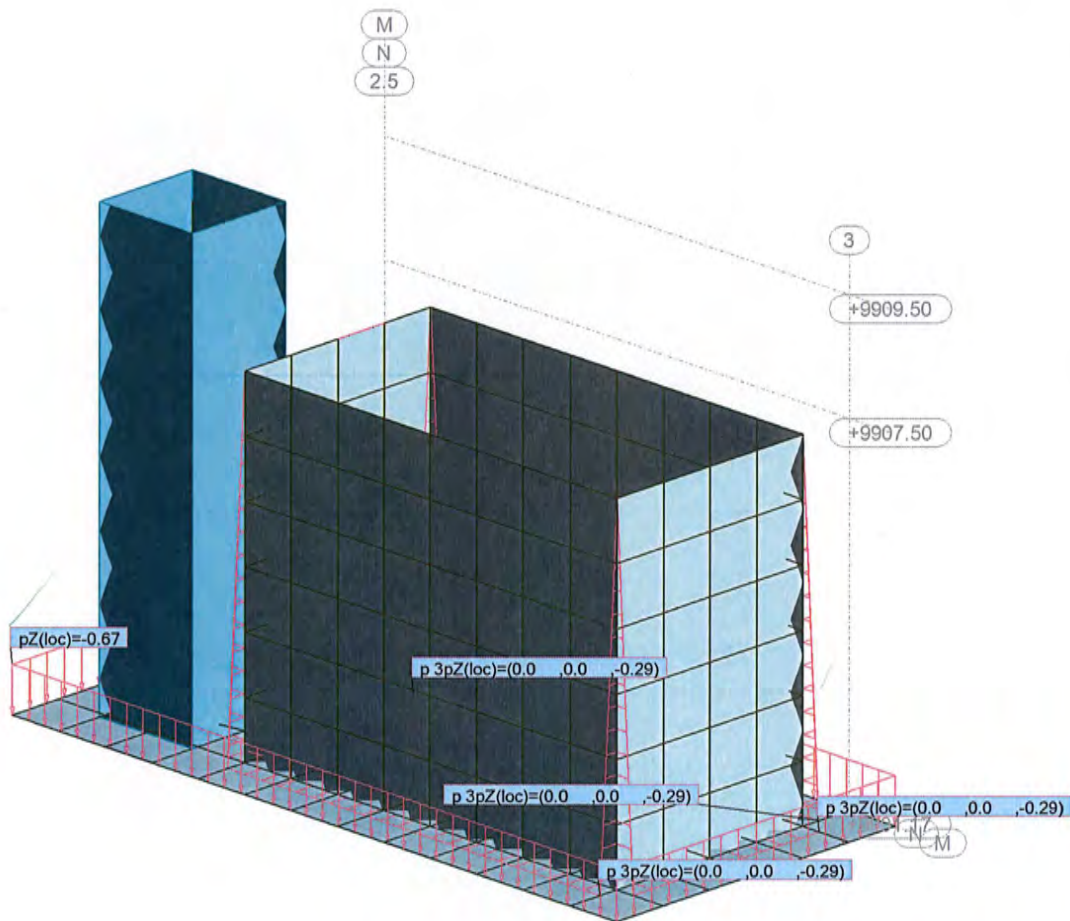
View -



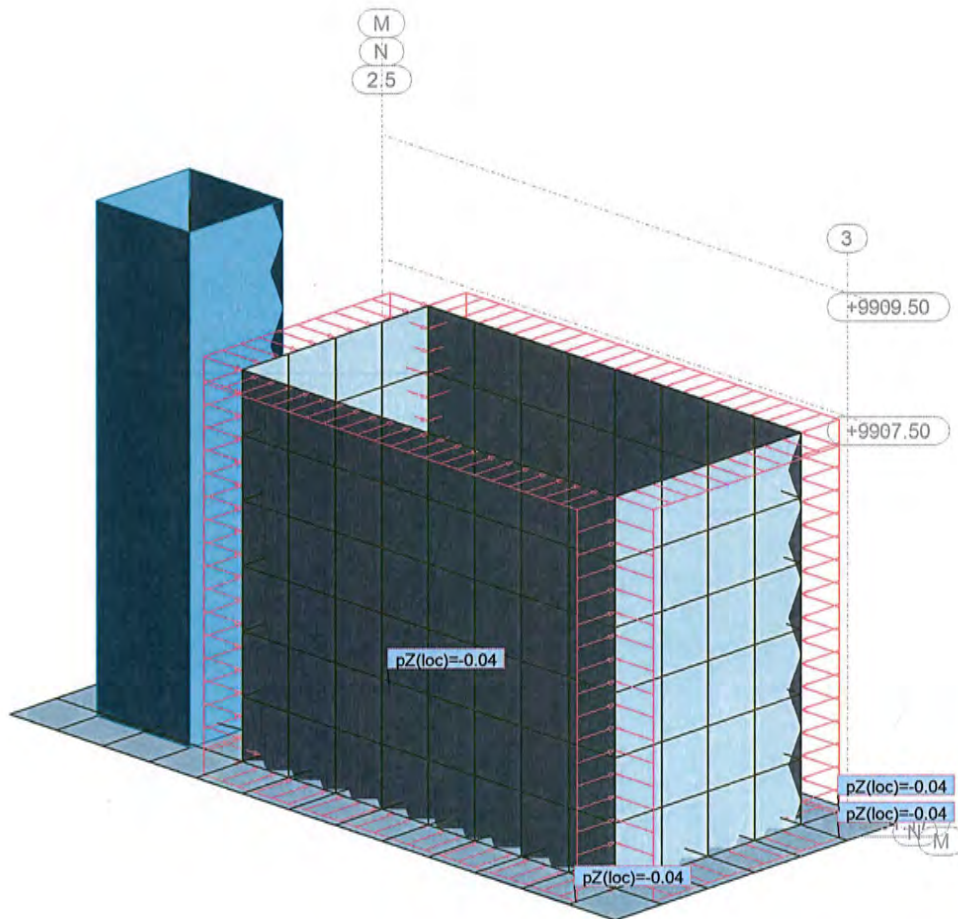
Cases: 2 (Building Dead Load)

↓ kip

View -



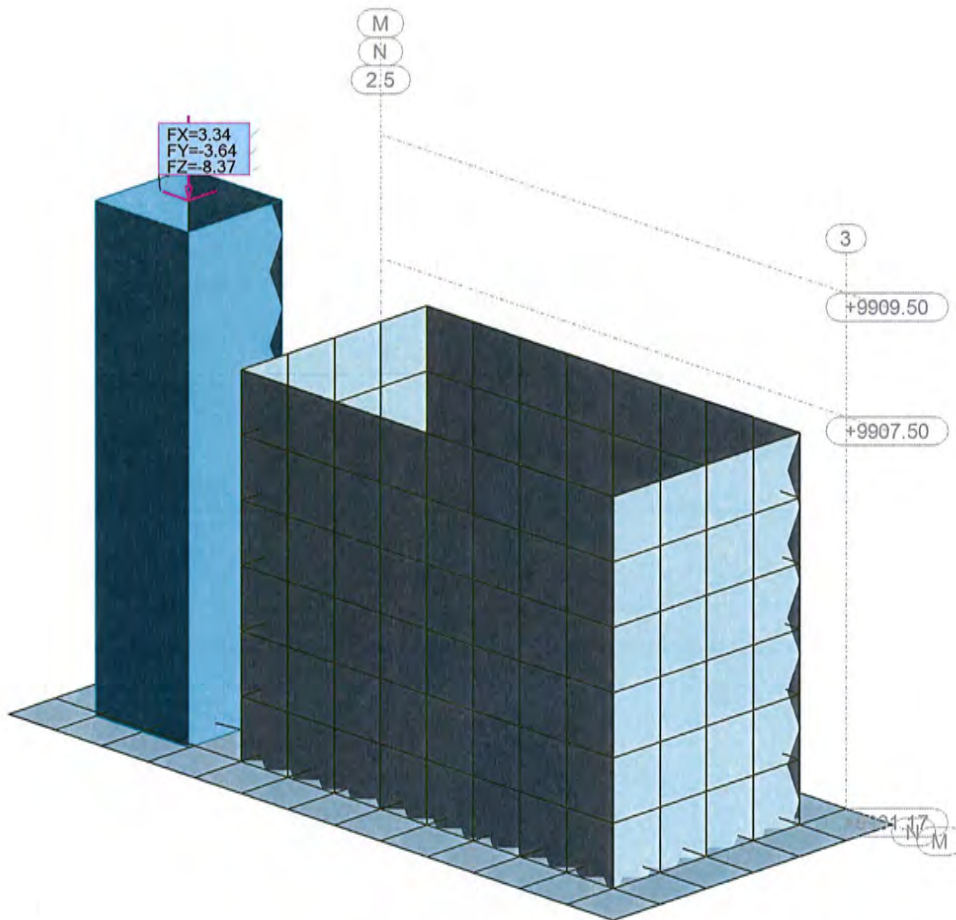
View -



Cases: 6 (Surcharge Load)

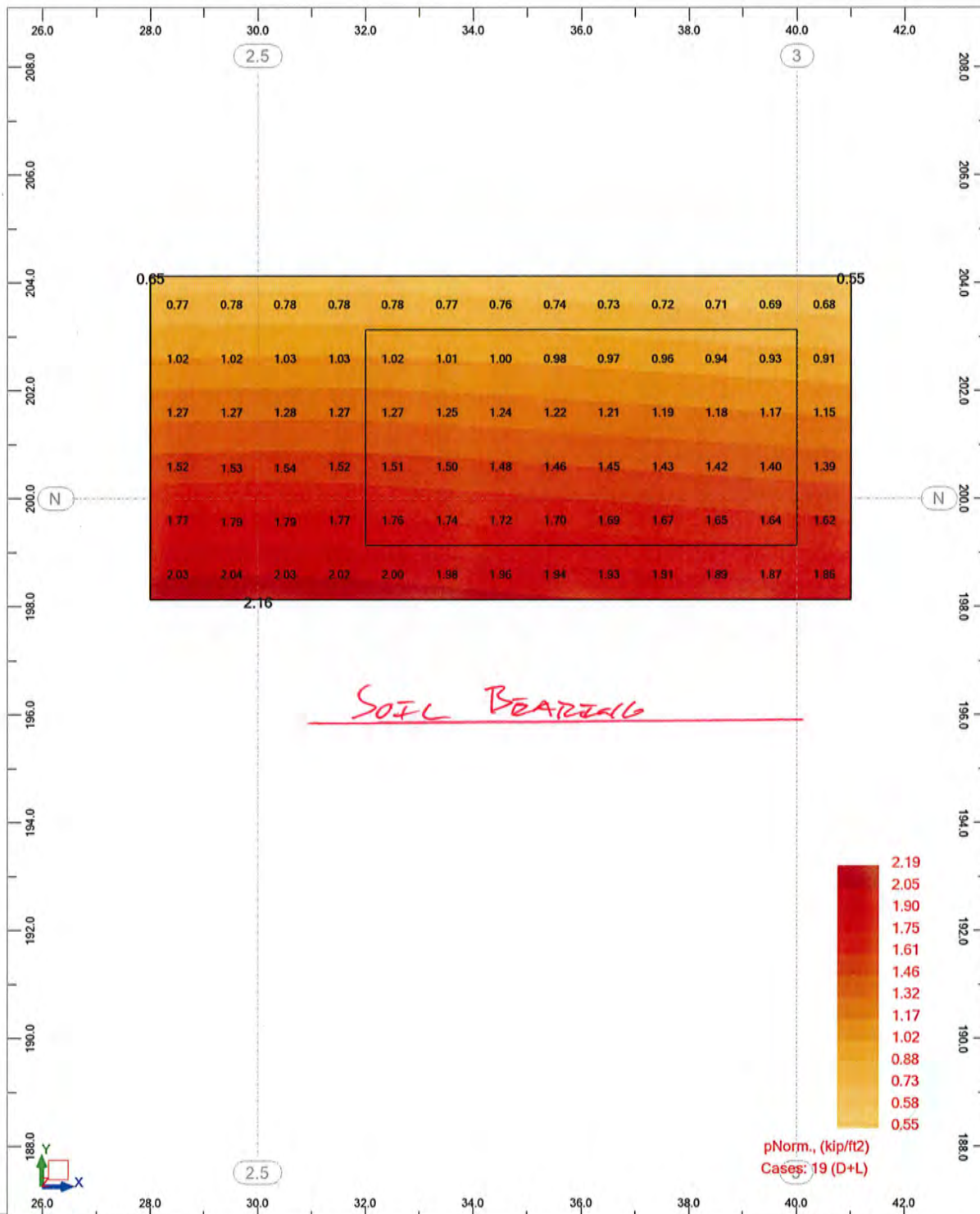
kip/ft2

View -



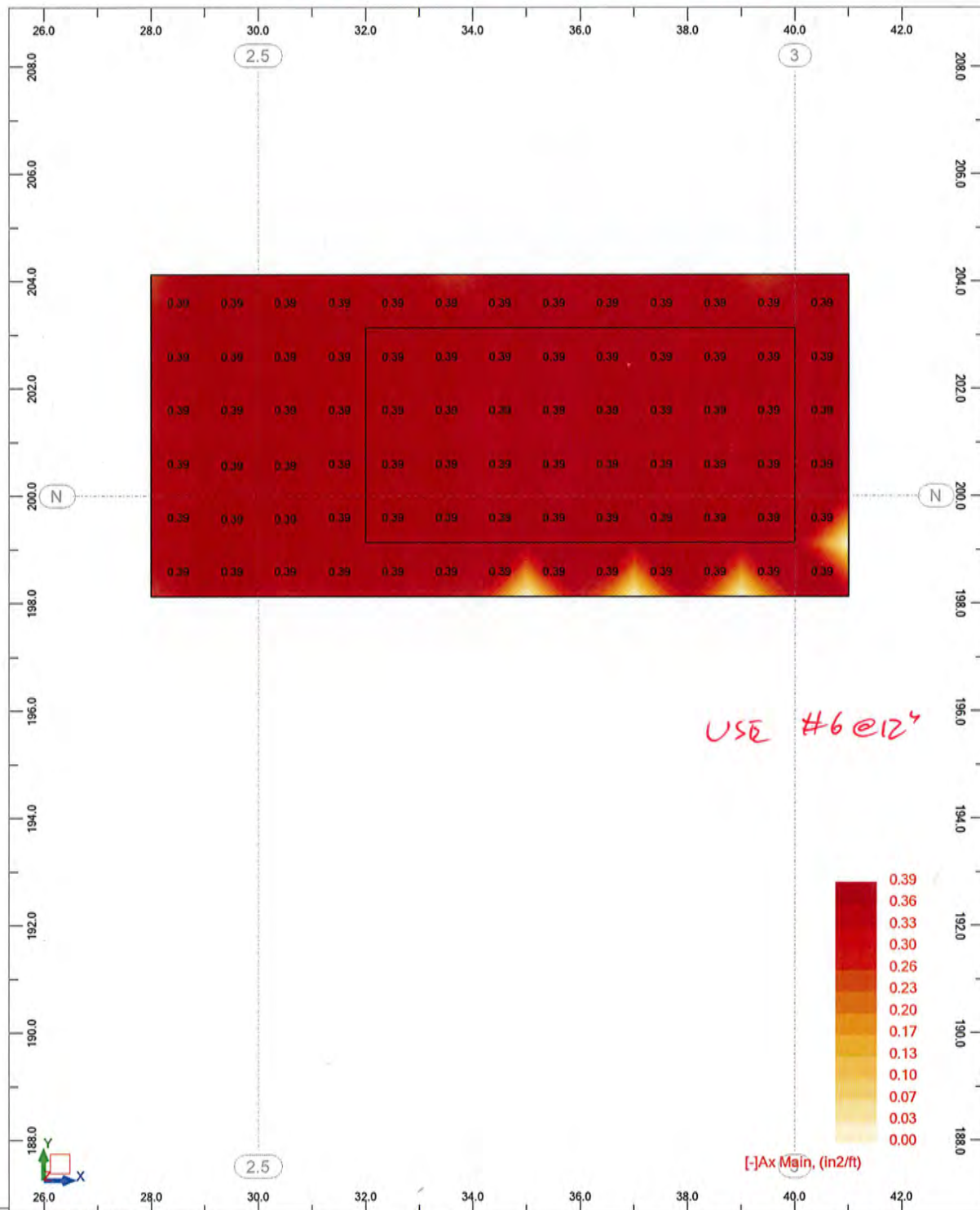
Cases: 7 (Building live Load)

View - pNorm. (kip/ft2) Cases: 19 (D+L)



View - [-]Ax Main (in2/ft)

REQ'D REINFORCEMENT - X - BOTTOM



USE #6 @ 12"

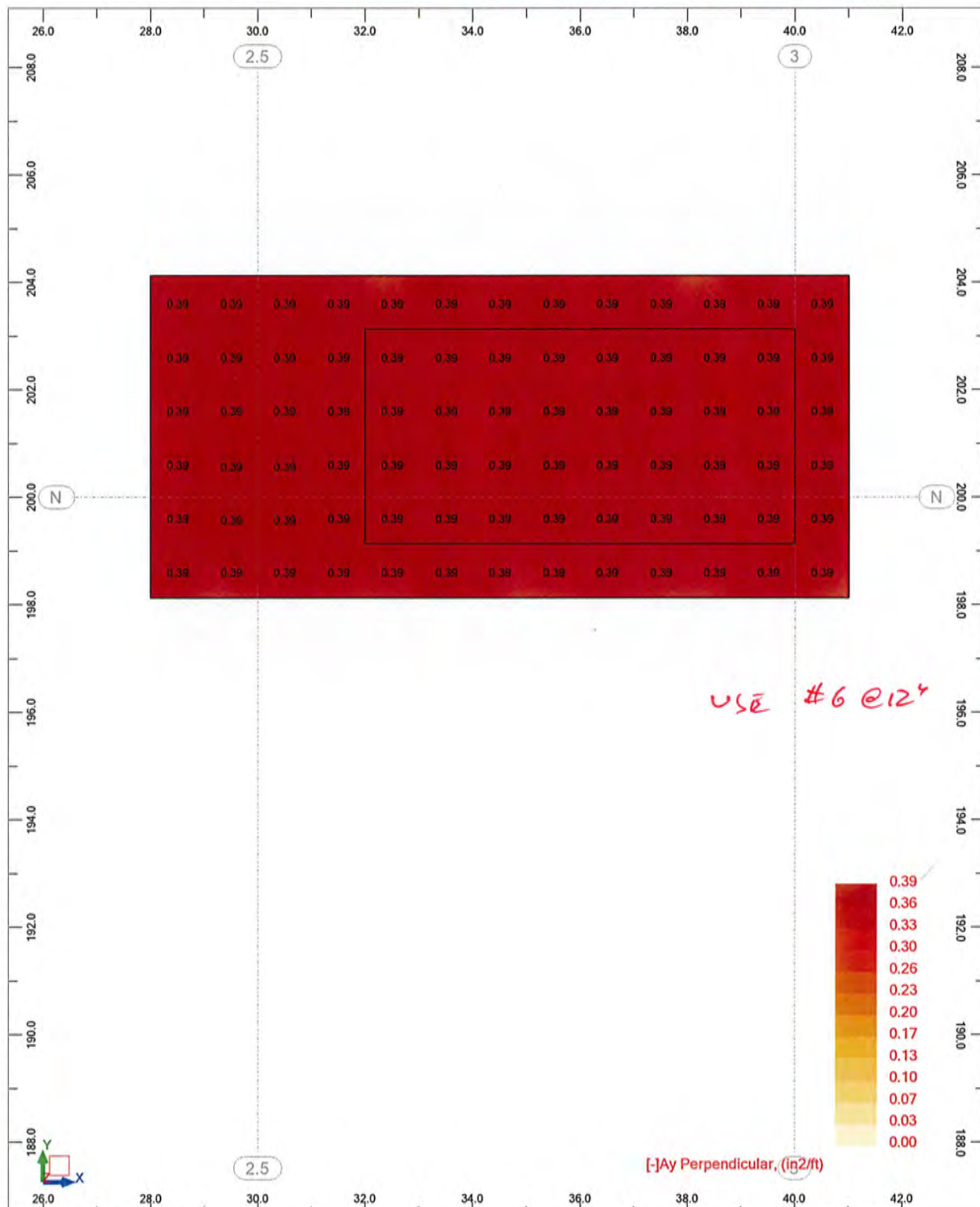
[-]Ax Main, (in2/ft)

7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: **Ed Summers**
Calc No.: **C-004** Job.: **11021**
Project: **Foundation F-3**
Client: **CC&V**

View - [-]Ay Perpendicular (in2/ft)

REQ'D REINFORCEMENT - Y-BOTTOM

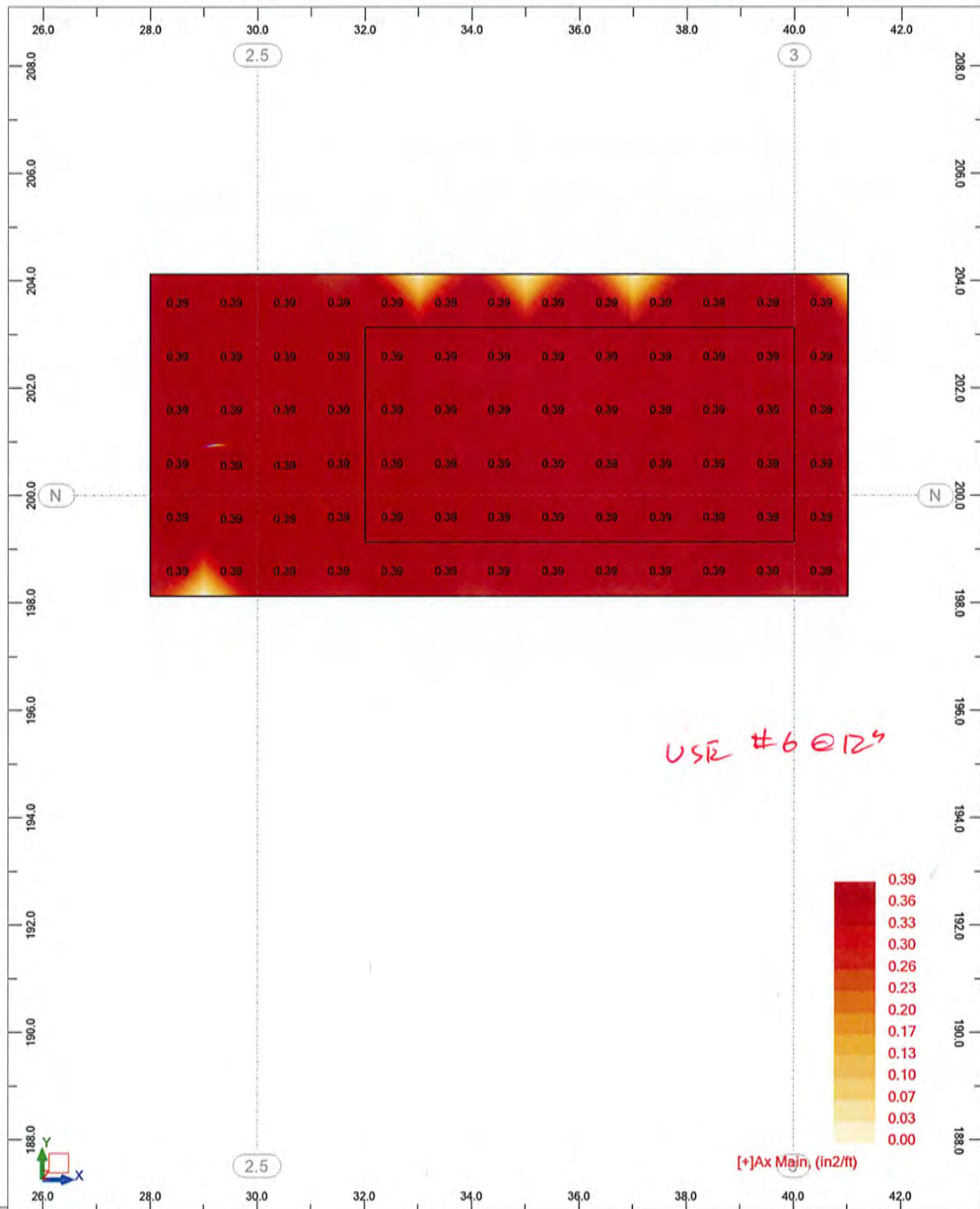


Date : 22/02/12
File: **Foundation F-3.rtd**

Page : **1**
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View - [x]Ax Main (in2/ft)

REQ'D REINFORCEMENT - X - TOP

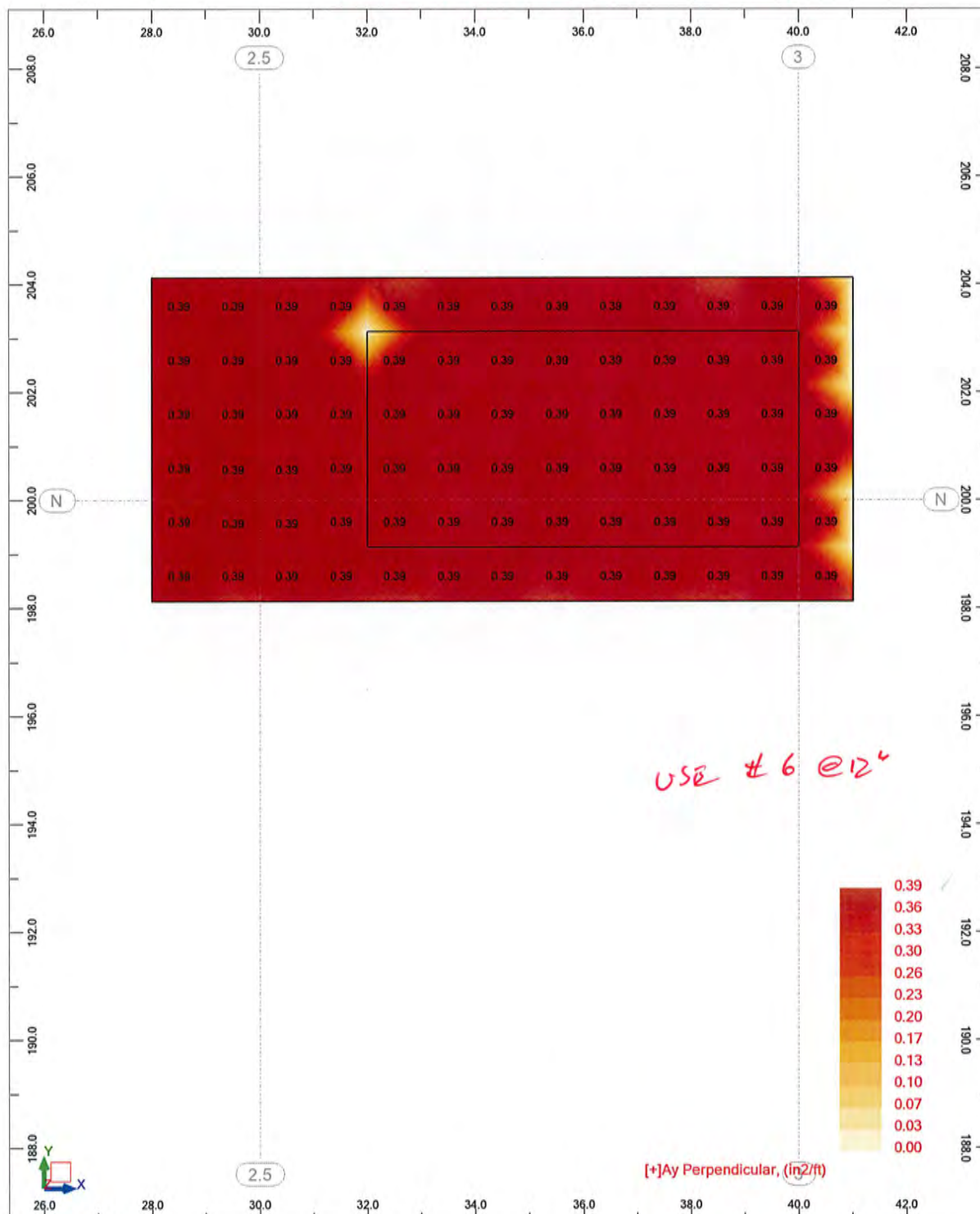


7158 S. FLSmidth Drive
Midvale, UT 84047-5559

Engineer: **Ed Summers**
Calc No.: **C-004** Job.: **11021**
Project: **Foundation F-3**
Client: **CC&V**

View - [+]Ay Perpendicular (in2/ft)

REQ'D REINFORCEMENT - Y - TOP

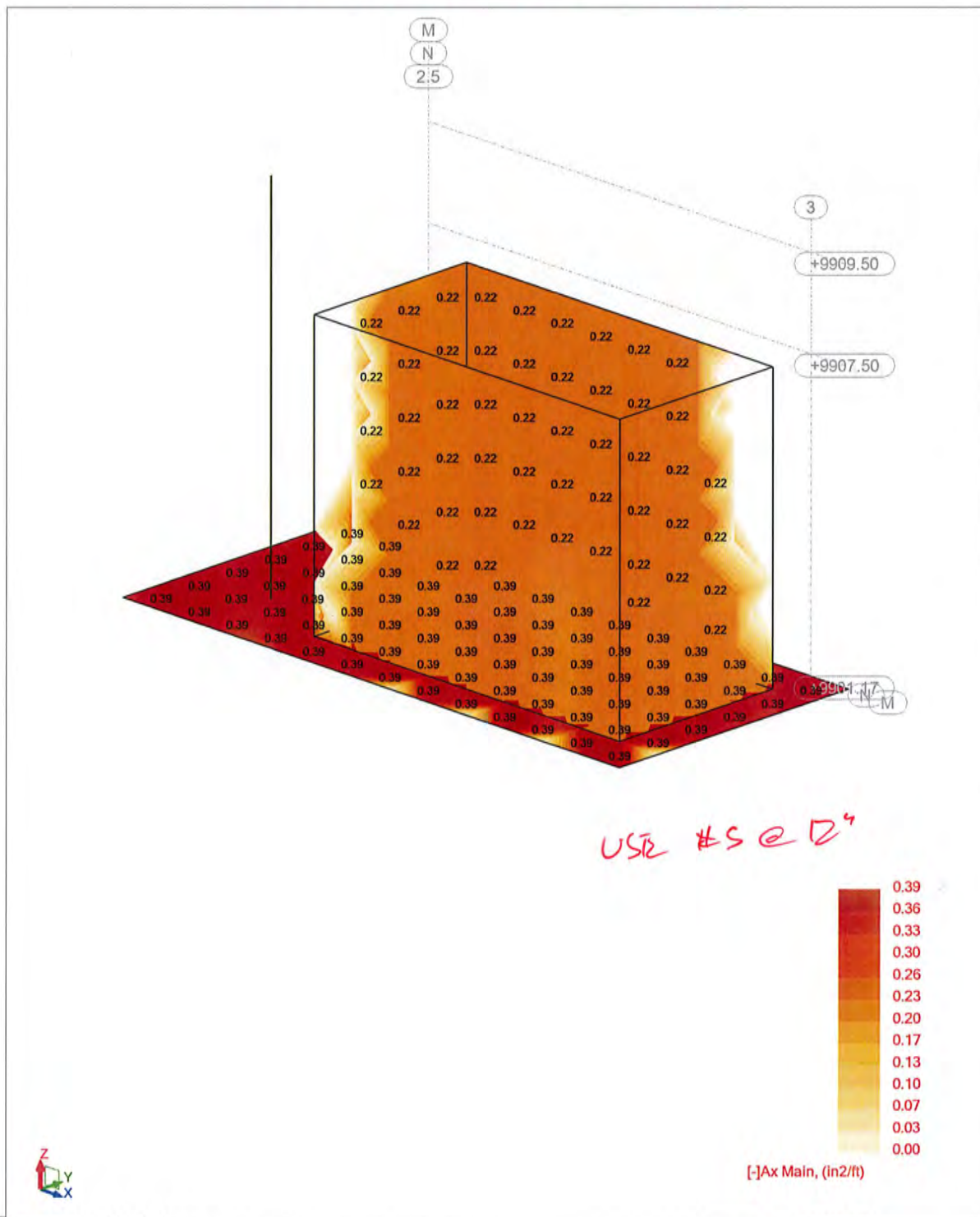


Date : 22/02/12
File: **Foundation F-3.rtd**

Page : **1**
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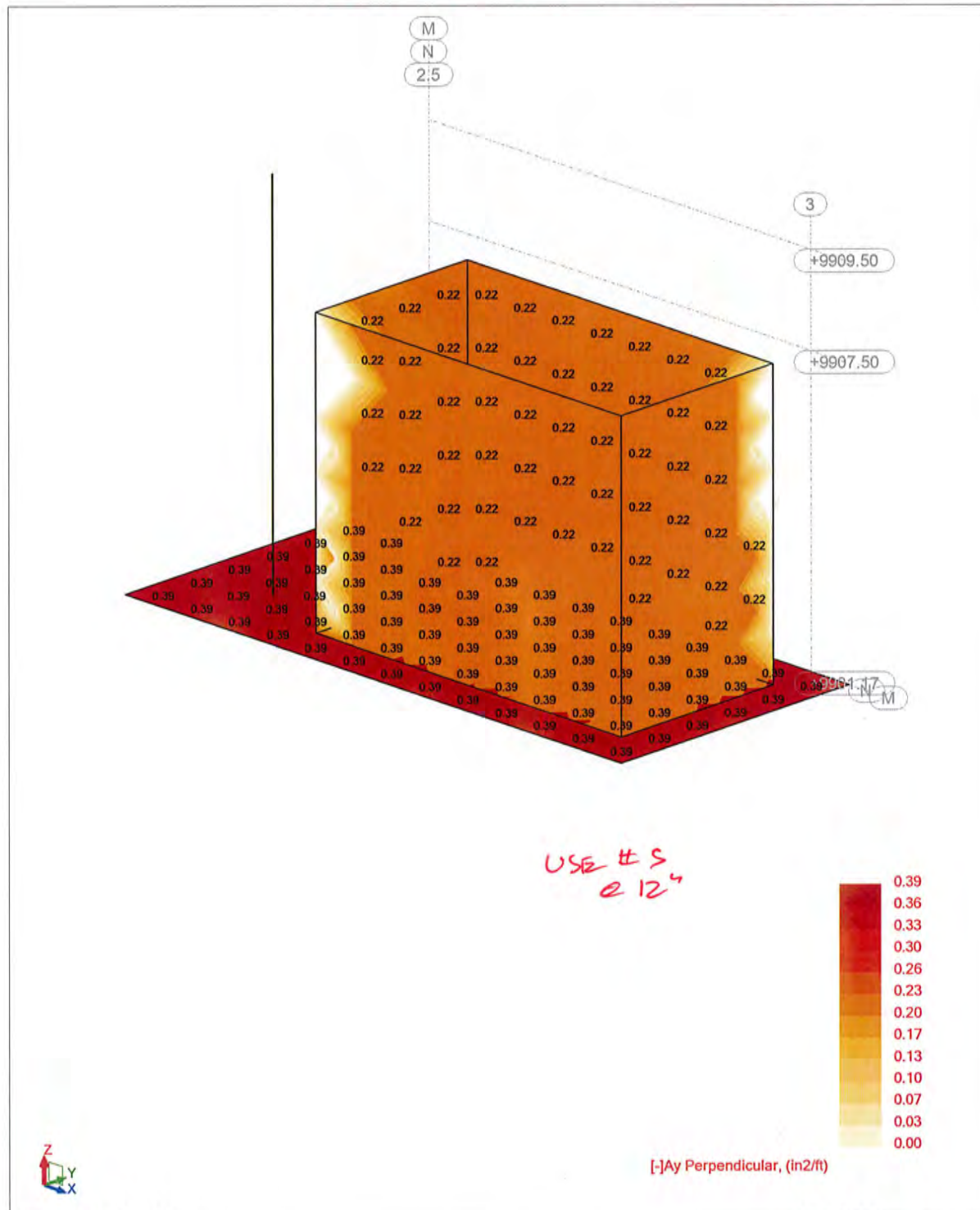
View - [-]Ax Main (in2/ft)

REQ'D REINFORCEMENT - X - INSIDE



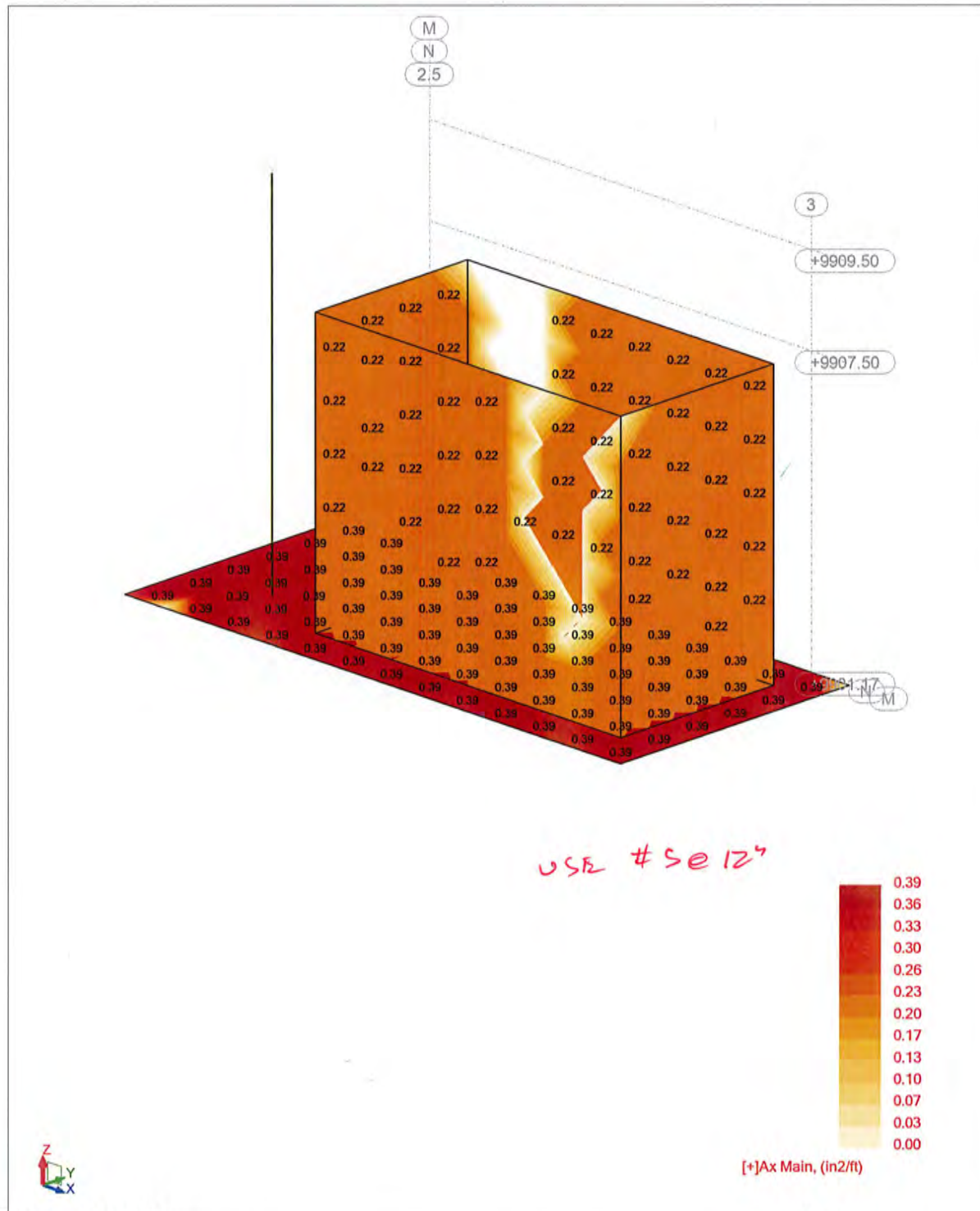
View - [-]Ay Perpendicular (in2/ft)

READ REINFORCEMENT - Y - INSIDE



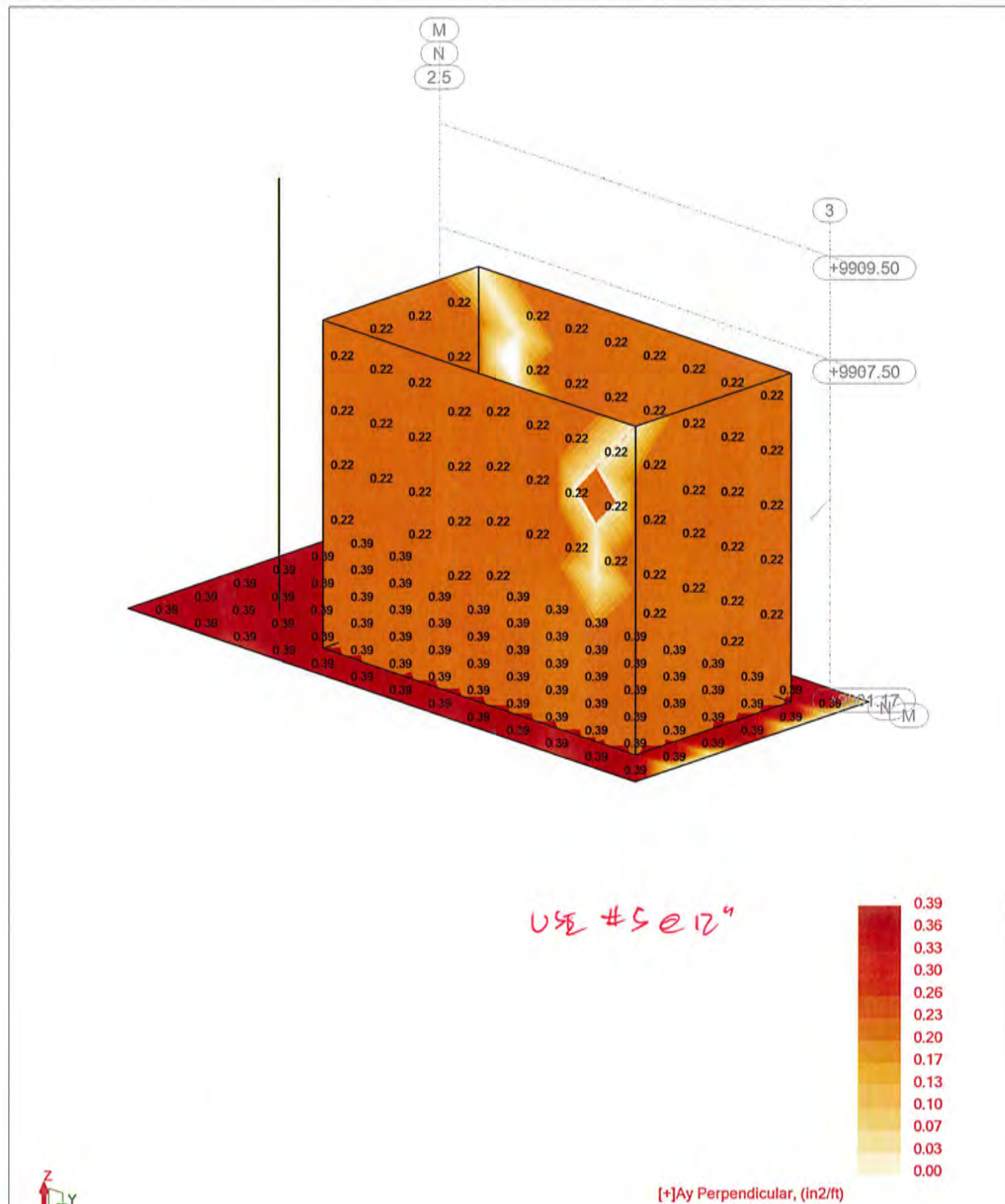
View - [+]Ax Main (in2/ft)

REQ'D REINFORCEMENT - X - OUTSIDE



View - [+]Ay Perpendicular (in2/ft)

REQ'D REINFORCEMENT - Y- DIRECTION



Dimensional Solutions FOUNDATION3D	Version	5.8.2	Date	2/21/2012
Foundation Name	F-4 (node 3)		Time	2:11:06 PM
Designed By:	FLSmith Salt Lake City	Engineer	ECS	Checker
Filename:	P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\C-007 Re grind Area Concrete\Agitator Maintenance Platform\F-4.mcs			

DETAIL REPORT FOR F-4 (node 3)**PROJECT INFORMATION**

Project Name: CC&V High Grade Mill
Project Number: 11021
Client: CC&V
Project Location: Victor CO
Foundation Description: FOUNDATION

DESIGN CODE ACI 318 - 2008 **INPUT UNITS** English **OUTPUT UNITS** English

CONCRETE PARAMETERS:

Compressive Strength (psi) 4000
 Unit Weight (pcf) 150
 Pier Concrete Cover - E-W Dir (in) 2
 Pier Concrete Cover - N-S Dir (in) 2
 Footing Side Concrete Cover - E-W Dir (in) 3
 Footing Side Concrete Cover - N-S Dir (in) 3
 Footing Top Concrete Cover (in) 2
 Footing Bottom Concrete Cover - X Dir (in) 3

SOIL PARAMETERS:

Unit Weight (pcf) 120
 Allowable Net Bearing Capacity (psf) 4000
 Bearing Capacity Method Linear Soil Pressure
 Soil Type Granular
 Passive Pressure Coefficient Kp 3.69
 Soil To Concrete Friction f 0.5
 Allowable Increase in Soil Pressure due to Short Term Loads (%)
 Wind 33.33 Earthquake 33.33 Test 20
 Erection Stability Ratio 1.5
 Operation Stability Ratio 1.5
 Test Stability Ratio 1.5
 Safety Factor against Lateral Forces 1.5

MINIMUM FOUNDATION CRITERIA:

Depth of Footing Below Grade (ft) 4
 Minimum Soil Cover (ft) 0
 Grade Elevation (ft) 100

REINFORCING STEEL PARAMETERS:

Yield Strength (ksi) 60
 Unit Weight (pcf) 490
 Modulus of Elasticity (ksi) 29000
 Pier Min Rebar Spacing (in) 3
 Footing Min Rebar Spacing (in) 6
 Footing Max Rebar Spacing (in) 18

REBAR PARAMETERS:

Max Long Bar Size 10
 Min Long Bar Size 7
 Max Tie Bar Size 4
 Min Tie Bar Size 3
 Max Ftg Bar Size 18
 Temp & Shrinkage Steel Ratio 0.0018

BUOYANCY CRITERIA:

Consider Buoyancy: No
 Consider soil for buoyancy: No
 Water table below grade (ft) 0

Dimensional Solutions FOUNDATION3D	Version 5.8.2	Date 2/21/2012
Foundation Name F-4 (node 3)		Time 2:11:06 PM
Designed By: FLSmith Salt Lake City	Engineer ECS	Checker
Filename: P:\11021\116 - Calculations\116.d - Arch_Civil_Struc\1C-007 Regrind Area Concrete\Agitator Maintenance Platform\F-4.mcs		

DETAIL REPORT FOR F-4 (node 3)**APPLIED LOADS**

Load Case	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	6.32	-0.03	0.00	0.70	0.00
2 - Live	18.02	-0.10	0.00	2.15	0.00
3 - Earthquake X	0.88	0.02	0.00	0.02	0.00
4 - Earthquake Y	0.92	0.00	0.00	0.97	0.00

UNFACTORED (ALLOWABLE) LOAD COMBINATIONS

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - Dead	6.32	-0.03	0.00	0.70	0.00
2 - Dead + Live	24.34	-0.13	0.00	2.85	0.00
3 - Dead + 0.7Earthquake X	6.94	-0.02	0.00	0.71	0.00
4 - Dead + 0.7Earthquake Y	6.96	-0.03	0.00	1.38	0.00
5 - 0.6Dead + 0.7Earthquake X	4.41	0.00	0.00	0.43	0.00
6 - 0.6Dead + 0.7Earthquake Y	4.44	-0.02	0.00	1.10	0.00

FACTORED (ULTIMATE) LOAD COMBINATIONS

Load Comb	Axial (kips)	Shear E-W (kips)	Mom N-S (kip ft)	Shear N-S (kips)	Mom E-W (kip ft)
1 - 1.4Dead	8.85	-0.04	0.00	0.98	0.00
2 - 1.2Dead + 1.6Live	36.42	-0.20	0.00	4.28	0.00
3 - 1.2Dead + Live + Earthquake X	26.48	-0.12	0.00	3.01	0.00
4 - 1.2Dead + Live + Earthquake Y	26.52	-0.14	0.00	3.96	0.00
5 - 0.9Dead + Earthquake X	6.57	-0.01	0.00	0.65	0.00
6 - 0.9Dead + Earthquake Y	6.61	-0.03	0.00	1.60	0.00

BEARING CAPACITY - LINEAR SOIL PRESSURE METHOD

Load Comb	Max Pressure (ksf)	All Pressure (ksf)	Ecc N/S Dir (ft)	Ecc E/W Dir (ft)	Moment N/S axis (kip-ft)	Moment E/W axis (kip-ft)	Rem
1 - Dead	1.32	4.48	0.22	0.01	0.15	3.50	
2 - Dead + Live	3.50	4.48	0.42	0.02	0.65	14.25	
3 - Dead + 0.7Earthquake X	1.36	5.81	0.22	0.00	0.08	3.57	
4 - Dead + 0.7Earthquake Y	1.68	5.81	0.42	0.01	0.15	6.90	
5 - 0.6Dead + 0.7Earthquake X	0.83	5.81	0.22	0.00	0.02	2.17	
6 - 0.6Dead + 0.7Earthquake Y	1.15	5.81	0.55	0.01	0.09	5.50	

STABILITY RATIO / SLIDING SAFETY FACTOR

Load Comb	S.R. N/S Dir	S.R. E/W Dir	All S.R.	Sliding FS - N/S	Sliding FS - E/W	All FS	Remarks
1 - Dead	8.93	100.00	1.50	23.49	100.00	1.50	
2 - Dead + Live	4.72	100.00	1.50	8.93	100.00	1.50	
3 - Dead + 0.7Earthquake X	9.10	100.00	1.50	23.46	100.00	1.50	
4 - Dead + 0.7Earthquake Y	4.72	100.00	1.50	12.16	100.00	1.50	
5 - 0.6Dead + 0.7Earthquake X	9.21	100.00	1.50	31.40	100.00	1.50	
6 - 0.6Dead + 0.7Earthquake Y	3.65	100.00	1.50	12.41	100.00	1.50	

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DETAIL REPORT FOR F-4 (node 3)

FOOTING DESIGN INFORMATION

E-W Dim (ft)	4.00
N-S Dim (ft)	4.00
Thickness (ft)	1.50

Top Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
6. 0.9Dead + Earthquake Y	4	6	12	0.44	0	0	E-W
6. 0.9Dead + Earthquake Y	4	6	12	0.44	0	-0.05	N-S

Bottom Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
2. 1.2Dead + 1.6Live	4	6	12	0.44	0.39	1.26	E-W
2. 1.2Dead + 1.6Live	4	6	12	0.44	0.39	2.05	N-S

PUNCHING SHEAR

Control Comb	Net Ult Load (kips)	Punch. Stress (psi)	All Stress (psi)	Rem
2. 1.2Dead + 1.6Live	14.00	6.58	189.74	

MAXIMUM SHEAR - E-W DIRECTION

Load Comb	Left Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	1.00	3.01	4.47	94.87	
2 - 1.2Dead + 1.6Live	1.00	10.01	14.90	94.87	
3 - 1.2Dead + Live + Earthquake X	1.00	7.41	11.03	94.87	
4 - 1.2Dead + Live + Earthquake Y	1.00	7.45	11.09	94.87	
5 - 0.9Dead + Earthquake X	1.00	2.12	3.16	94.87	
6 - 0.9Dead + Earthquake Y	1.00	2.16	3.22	94.87	

MAXIMUM SHEAR - N-S DIRECTION

Load Comb	Bottom Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	3.00	-4.33	6.44	94.87	
2 - 1.2Dead + 1.6Live	3.00	-15.75	23.44	94.87	
3 - 1.2Dead + Live + Earthquake X	3.00	-11.48	17.09	94.87	
4 - 1.2Dead + Live + Earthquake Y	3.00	-12.83	19.09	94.87	
5 - 0.9Dead + Earthquake X	3.00	-3.03	4.51	94.87	
6 - 0.9Dead + Earthquake Y	3.00	-4.38	6.51	94.87	

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DETAIL REPORT FOR F-4 (node 3)**PIER/BASE PLATE DESIGN INFORMATION**

E-W Dim (ft)	2.00
N-S Dim (ft)	2.00
Height above grade (ft)	1.00
E-W Offset (ft)	0.00
N-S Offset (ft)	0.00
Requested Reinf. Ratio	0.0050
Provided Reinf. Ratio	0.0109
Long Bar Size	8
Bars in E-W Dir	3
Bars in N-S Dir	3
Total Long Bars	8
Tie Bar Size	4
Total No. of Ties	5
Major Tie Spacing (in)	12

PIER ULTIMATE LOAD CAPACITIES

Load Comb	Axial Load (kips)	Axial Capa. (kips)	Mom N-S (kip ft)	Mom N-S Capa (kip ft)	Mom E-W (kip ft)	Mom E-W Capa (kip ft)	Rem
1 - 1.4Dead	11.79	1036.11	1.30	98.44	3.43	287.88	
2 - 1.2Dead + 1.6Live	38.94	894.52	4.28	98.57	14.98	342.16	
3 - 1.2Dead + Live + Earthquake X	29.00	922.22	3.19	101.35	10.54	333.99	
4 - 1.2Dead + Live + Earthquake Y	29.04	790.63	3.19	86.92	13.86	375.79	
5 - 0.9Dead + Earthquake X	8.46	1038.28	0.93	114.51	2.27	279.02	
6 - 0.9Dead + Earthquake Y	8.50	626.34	0.93	68.86	5.60	410.18	

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DETAIL REPORT FOR F-4 (node 3)