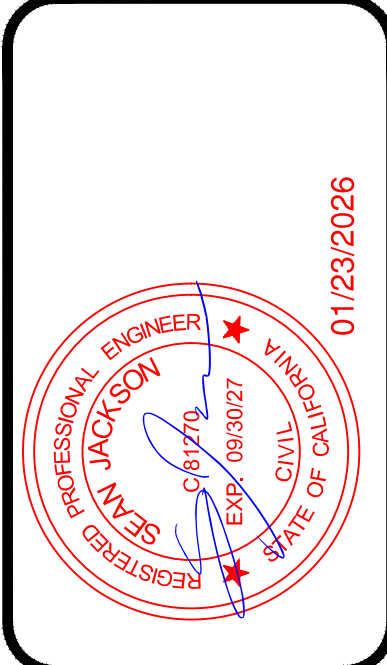


General Notes

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 1250 EAST AVE #10
 JACKSON ENGINEERING, INC.
 CHICO, CA 95926
 (530) 715-1184

No.	Revision/Issue	Date
1	PLAN CHECK	1/13/26

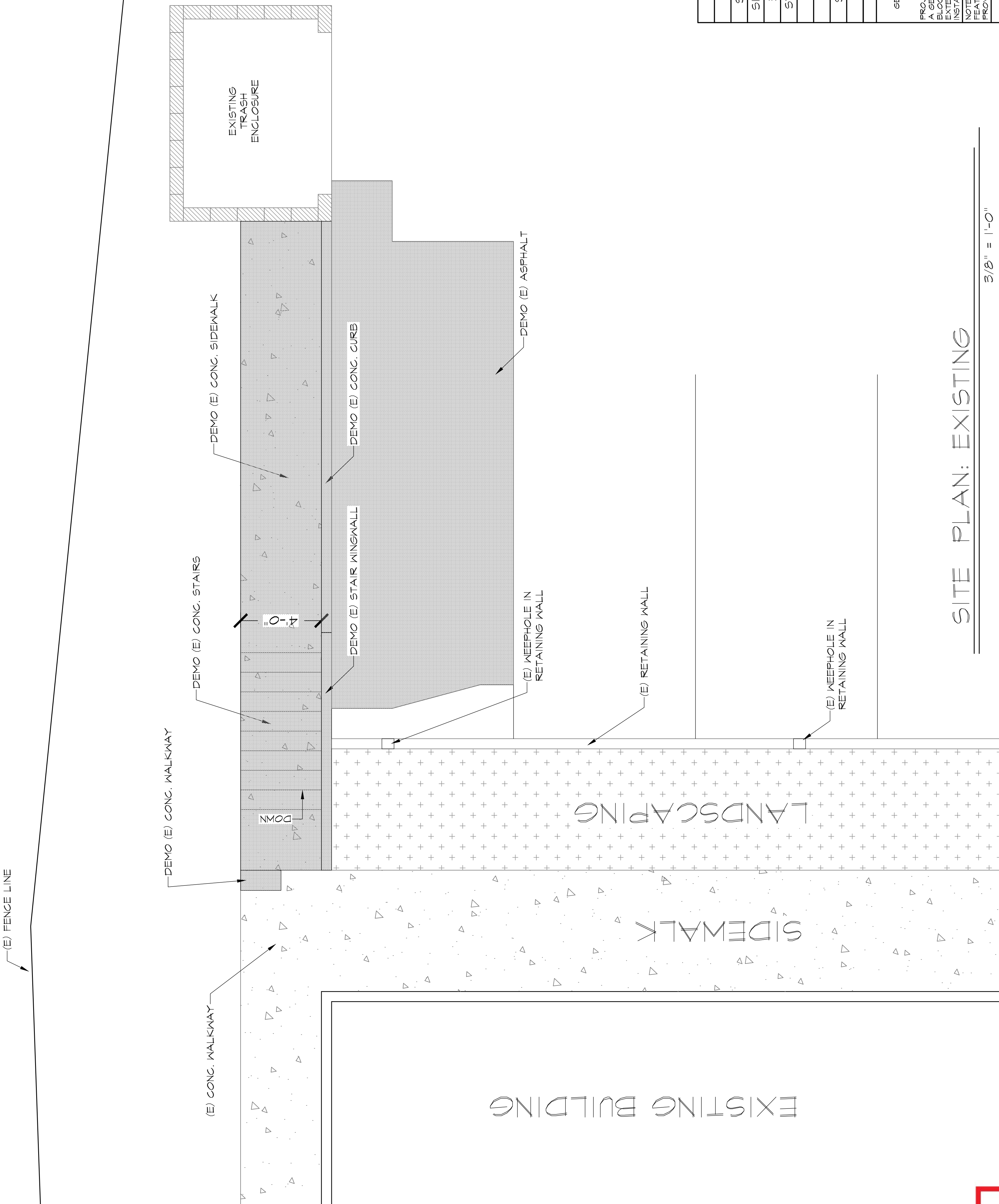


GENERATOR PAD
 988 MCCOURTNEY RD
 GRASS VALLEY, CA

Project	25-172	Sheet	A1
Date	01/22/26		
Scale	A5 NOTED		

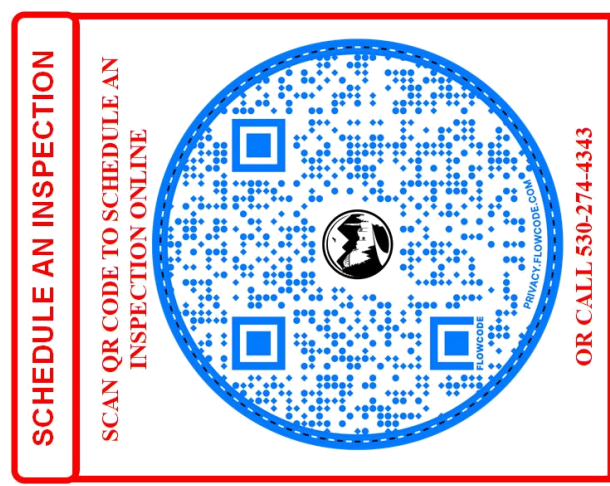
PROJECT OWNER:
 NEVADA COUNTY
 988 MCCOURTNEY RD.
 GRASS VALLEY, CA

SHEET INDEX:	
SITE PLAN EXISTING	A1
SITE PLAN PROPOSED	A2
BLOCK WALL PLAN	A3
STRUCTURAL DETAILS	A4
DROP INLET PLAN	A5
GRATE FRAME	I-2
STRUCTURAL NOTES	SI
CODE ANALYSIS	
GENERAL PLAN ZONING:	AFN: 024-210-004
PARCEL SIZE:	1.91 ACRES
PROJECT SCOPE: CONVERT 1 PARKING SPACE TO A GENERATOR EQUIPMENT PAD. INSTALL A CMU BLOCK WALL, RELOCATE CONCRETE STAIRS, INSTALL A NEW DROP INLET, AND LANDSCAPE RETAINING.	
NOTE: SITE SURVEY WAS NOT CONDUCTED. FEATURES LOCATED PER OWNER AND/OR COUNTY PROVIDED PLANS.	
DESIGN CODES	2022 CBC



SITE PLAN: EXISTING

3/8" = 1'-0"

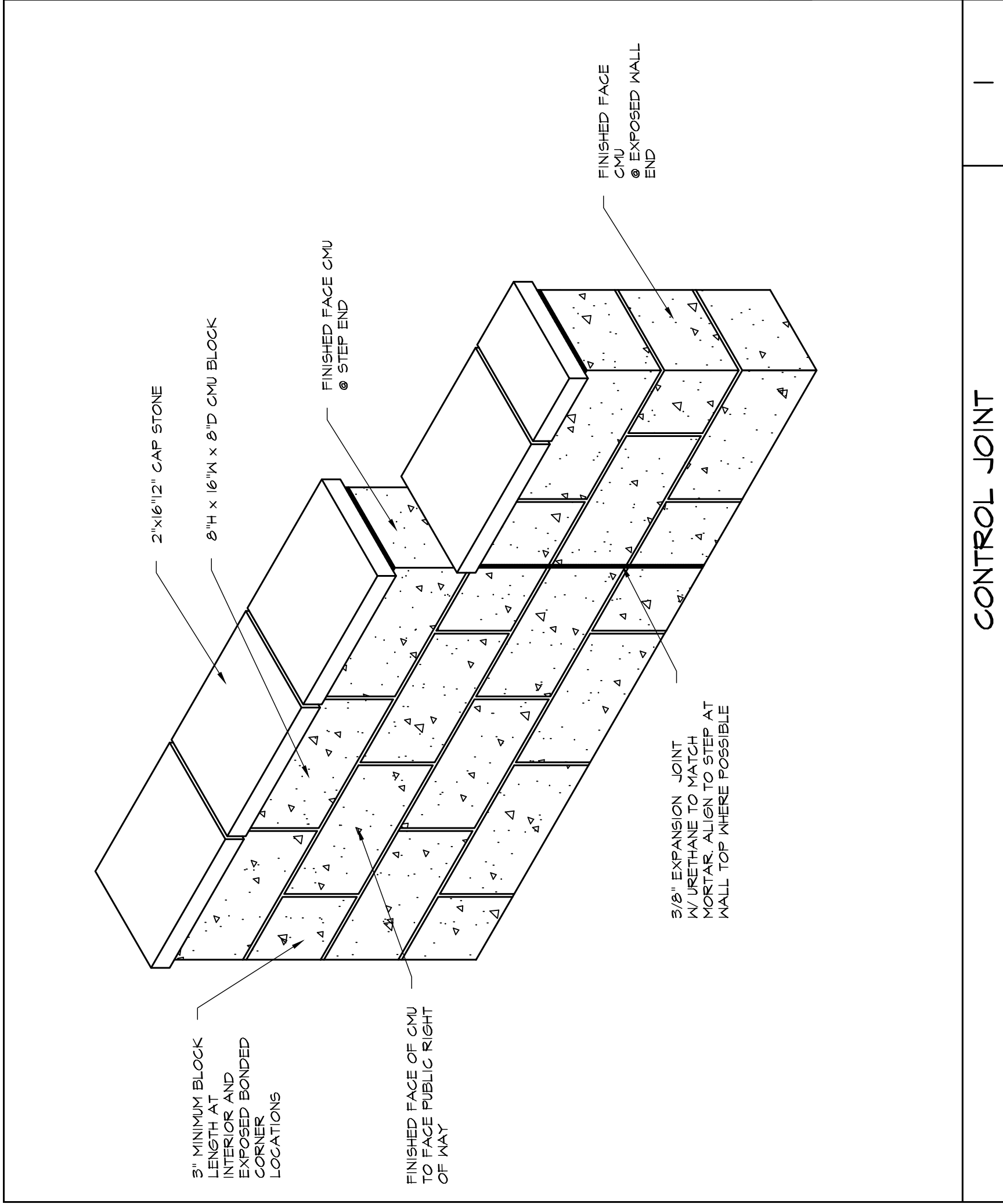


REVIEWED FOR CODE COMPLIANCE
 PERMIT #: 23BLD-0063
 BY: *[Signature]*

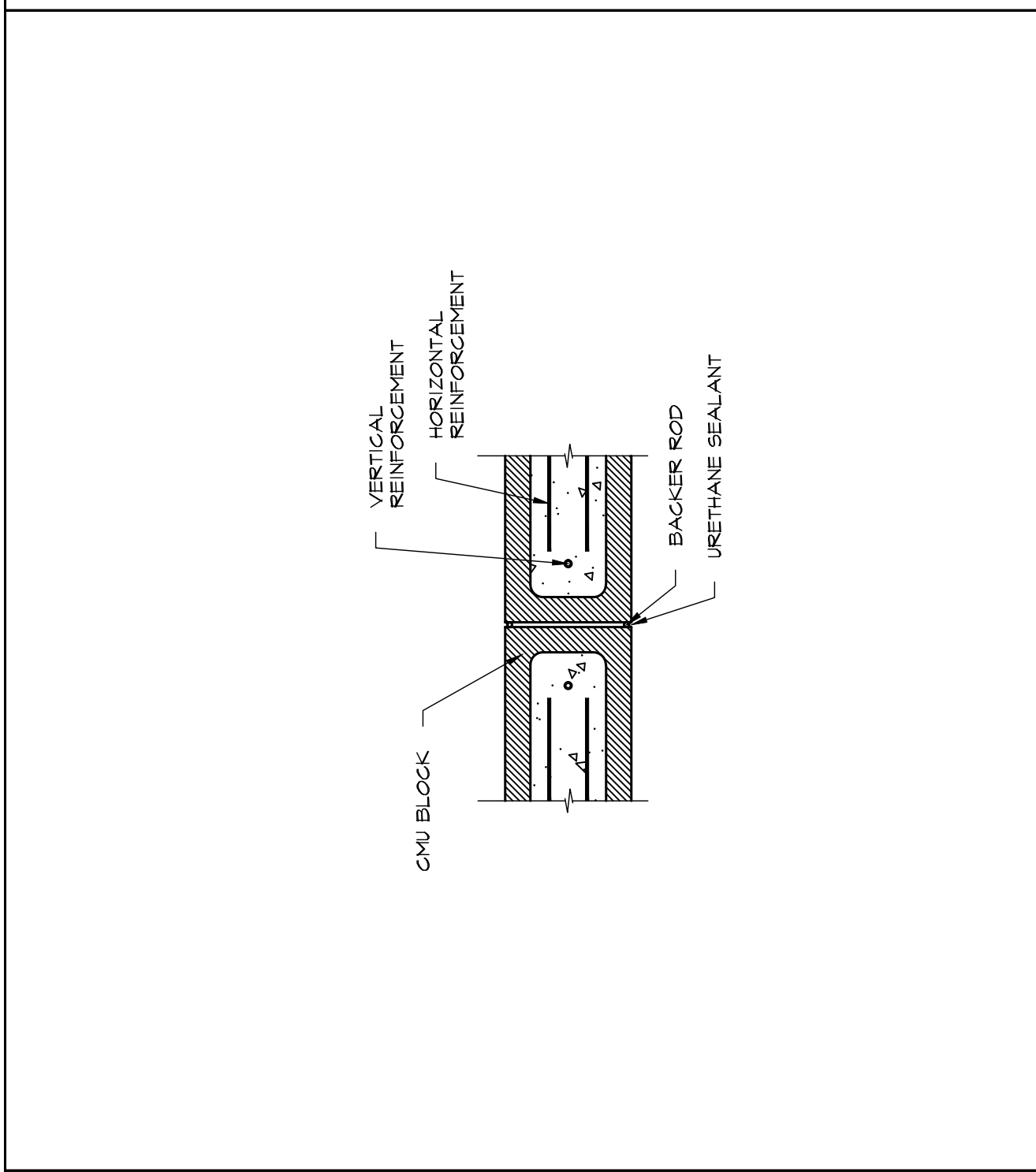
PLANS REVIEWED SUBJECT TO FIELD INSPECTION

REQUIRED AT FINAL INSPECTION:
 1. Approved plans and permit card.
 2. Manufacturer's installation instructions/manuals.
 3. Ladder(s) in place and secured to provide access to roof and attic space.
 4. Installer on site with tools to provide access, all applicable panels, boxes & equipment shall be open and accessible.

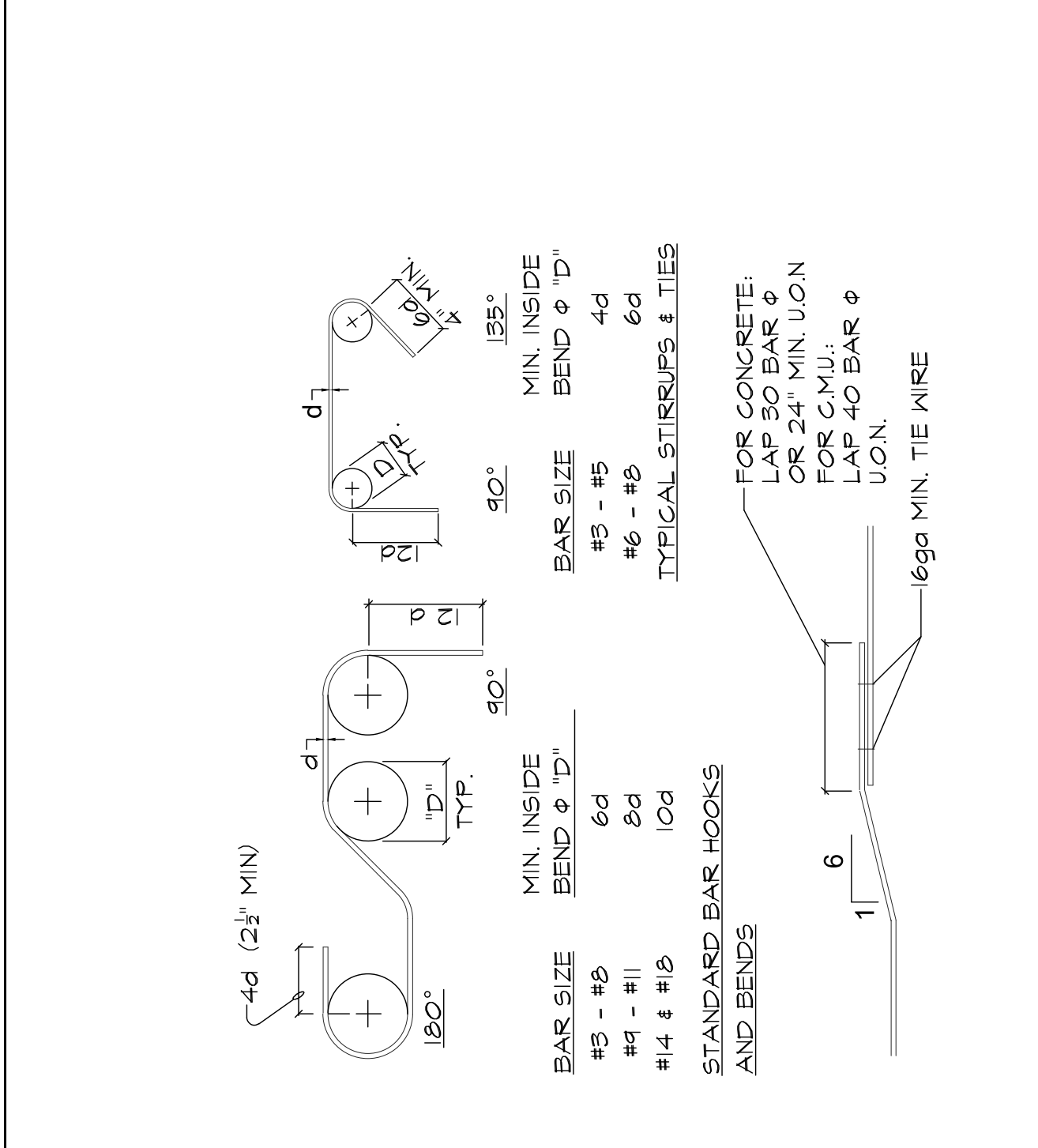
Plans shall reflect the scope of the project. Any changes or deviations must be submitted and reviewed by the Building Department prior to inspection.



CONTROL JOINT



CONTROL JOINT



TYPICAL HOOKS & BENDS

MASONRY NOTES:

1. FURNISH HOLLOW CORE CMU'S MEETING ASTM C90, NORMAL DENSITY, REQUIREMENTS.
2. DO NOT USE CMU'S WITH FINISHED FACES CONTAINING CHIPS LARGER THAN 1" IN ANY DIRECTION.
3. DO NOT USE CMU'S WITH FINISHED FACES HAVING CRACKS WIDER THAN 0.02 INCHES AND LONGER THAN 25% OF THE NOMINAL HEIGHT OF THE CMU.
4. ALL EXPOSED SURFACES OF THE CMU TO BE SPLIT FACE FINISHED.
5. CMU'S TO BE TAN IN COLOR, OR AS APPROVED BY OWNER.
6. 5" MINIMUM BLOCK SEGMENT AT INTERIOR OF BONDED CORNER.

MORTAR:

1. FURNISH TYPE S MORTAR MEETING ASTM C270.
2. REMOVE MORTAR EXTENDING BEYOND 1/2" INTO GROUT SPACE.
3. STANDARD MORTAR JOINT THICKNESS, 3/8".
4. MORTAR COLOR TO MATCH CMU AND PER OWNER.

GROUT:

1. FURNISH GROUT MEETING ASTM C476 REQUIREMENTS.
2. GROUT STRENGTH, 2500 PSI MIN. 28 DAY COMPRESSIVE STRENGTH.
3. ALL BLOCK CELLS TO BE FULLY GROUTED.

EXPANSION JOINTS

1. CONTROL JOINT MAX SPACING 25 FEET.
2. MAXIMUM CONTROL JOINT DISTANCE FROM BONDED CORNER 10 FEET.
3. CONTROL JOINT TO CORRELATE WITH WALL STEPS WHERE PRACTICAL.
4. CONTROL JOINTS TO BE CONTINUOUS VERTICAL WITHOUT OFF-SET.
5. CONTROL JOINT WIDTH EQUAL TO STANDARD MORTAR JOINT SPACE.

SOUND WALL INSTALLATION SCHEDULE

MALL	8'-0"
MALL HEIGHT	8'-0"
MALL THICKNESS	8"
VERT. BAR	#4 @ 48" O.C.
HORIZ. BAR	#4 @ 48" O.C.
E - VERT. BAR	CENTER
F - VERT. BAR	3'-7 1/2"
TOP BARS	(2) - #4
MALL CAP	2" THK
FOUNDATION	
N - FOOTING WIDTH	3'-4"
FT - FOOTING THICKNESS	18"
FD - FOOTING DEPTH	24"
A - TOE LENGTH	3'-1"
B - HEEL LENGTH	0'-8"
FTG. REINFORCEMENT	
LONG BARS	#5 @ 18" O.C. T & B
TRANS BARS	#5 @ 18" O.C. T & B

- CONCRETE FOOTING:**
1. CONCRETE STRENGTH = 2500 PSI
 2. #4 REBAR STRENGTH = 40,000 PSI
 3. #5 REBAR STRENGTH = 40,000 PSI
 4. #6 REBAR STRENGTH = 40,000 PSI

CANTILEVERED CMU BLOCK WALL
INSTALLED IN SOIL

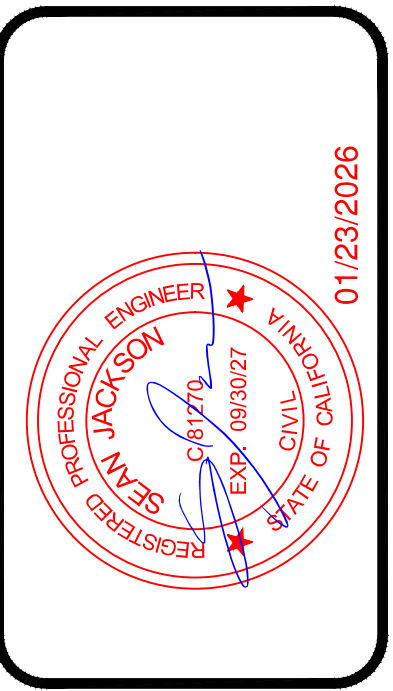
NTS

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No.	Revision/Issue	Date
1	PLAN CHECK	1/13/26

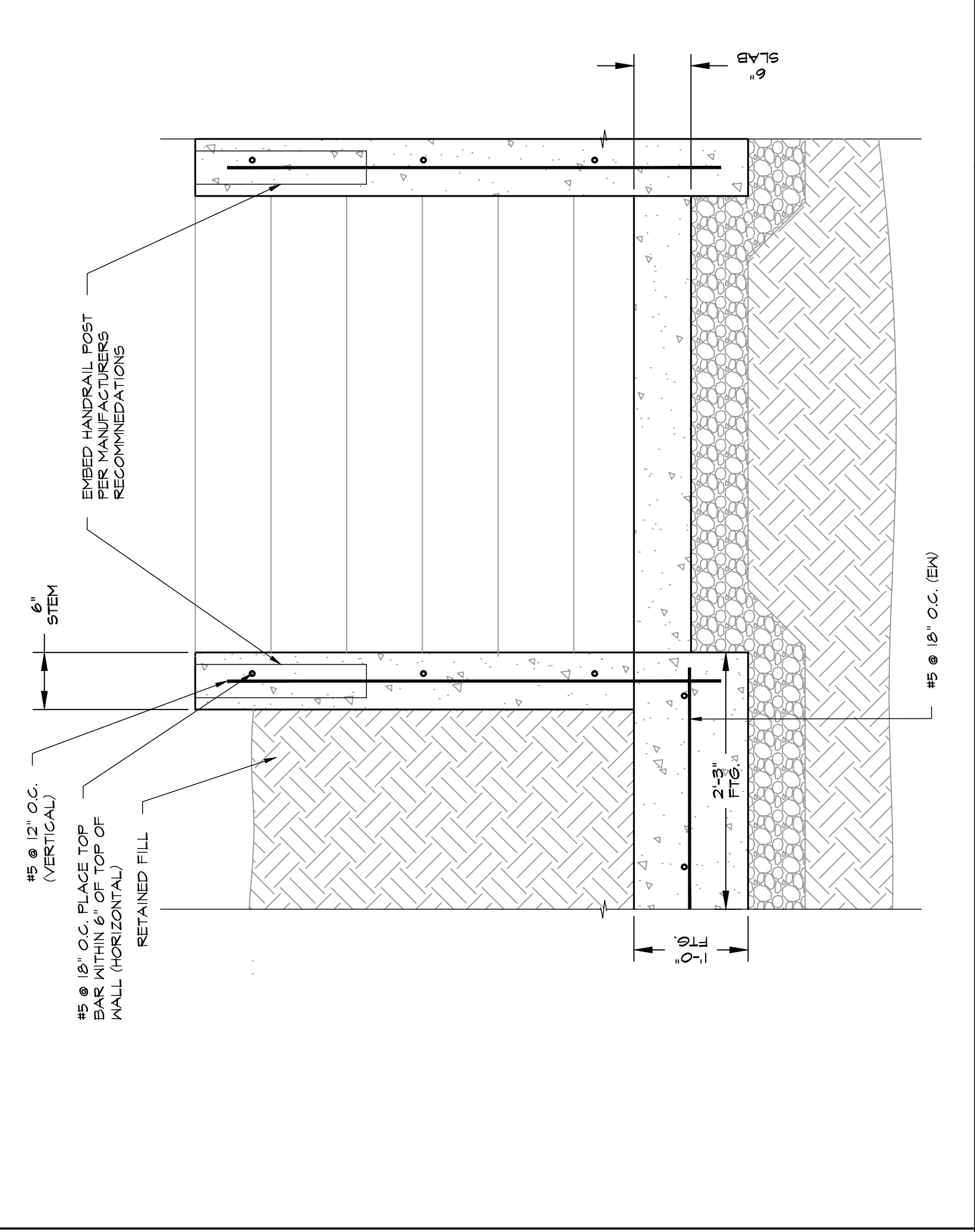


GENERATOR PAD
988 McCOURTNEY RD
GRASS VALLEY, CA

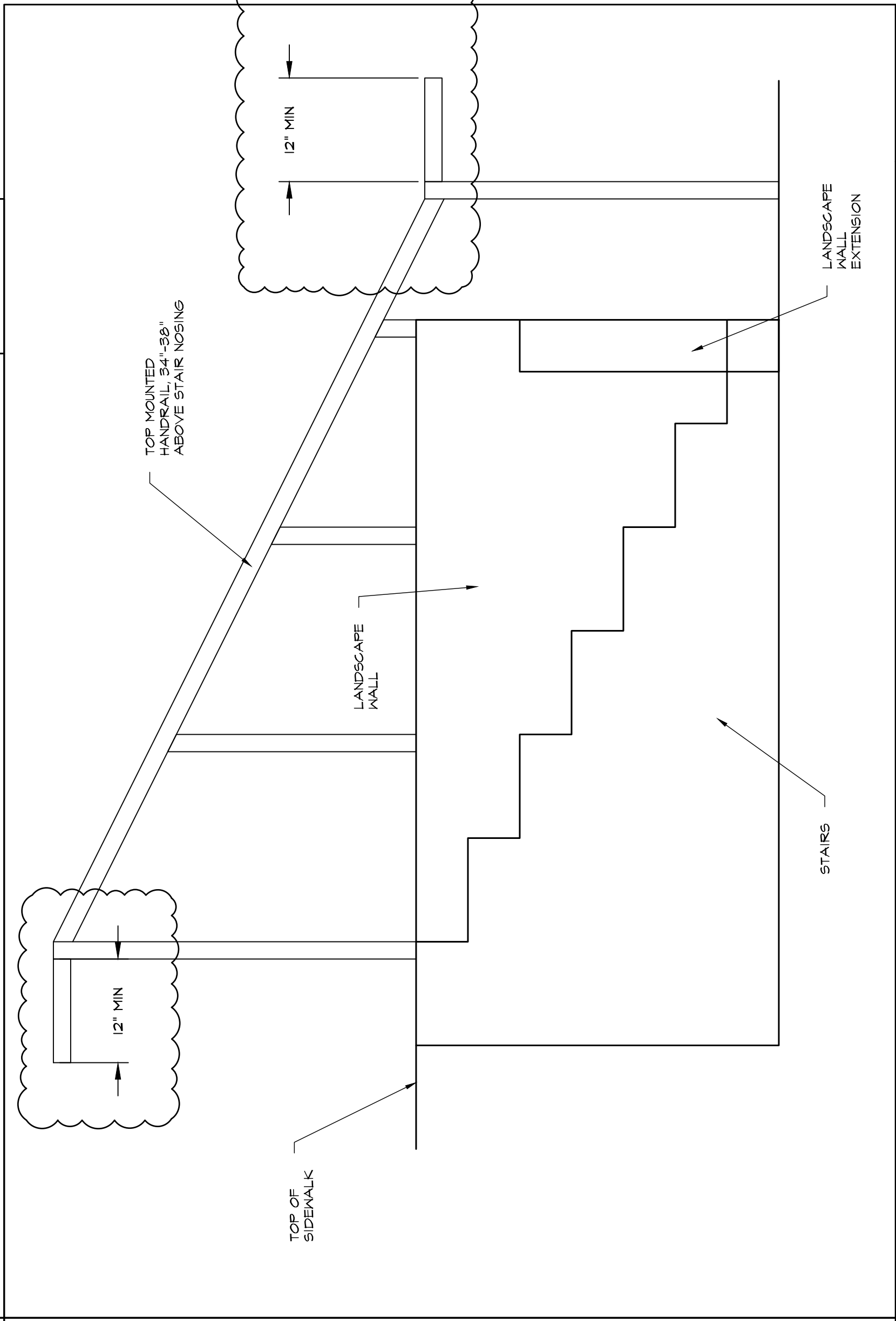
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Date	01/22/26	Scale	AS NOTED

SOIL FILL NOTES

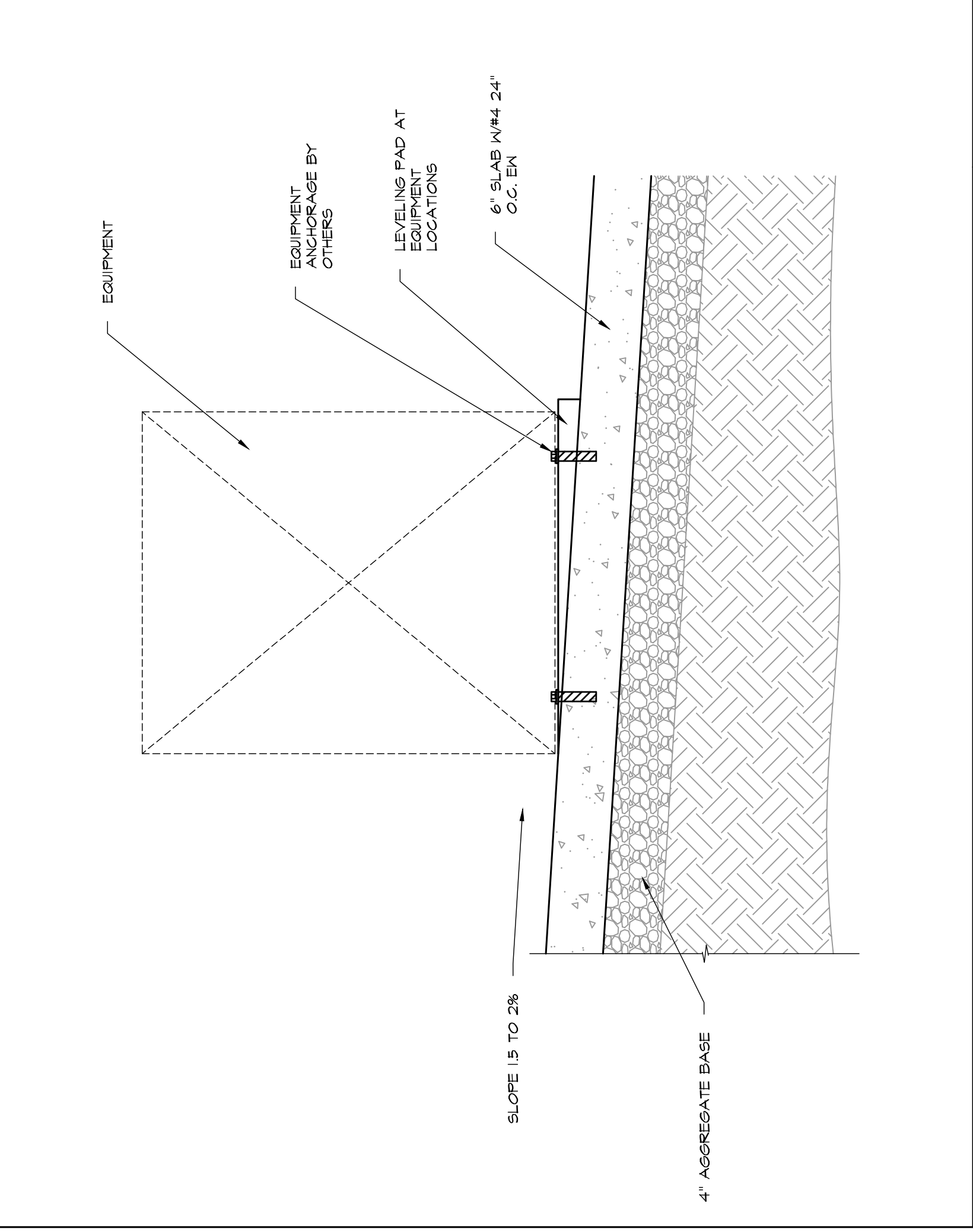
- SOIL USED FOR FILL SHOULD CONSIST OF UNCONTAMINATED, PREDOMINANTLY GRANULAR, NON-EXPANSIVE, NATIVE SOIL OR APPROVED IMPORT SOIL. IF ENCOUNTERED, ROCK USED IN FILL SHOULD BE BROKEN INTO PIECES NO LARGER THAN 8 INCHES IN DIAMETER. ROCKS LARGER THAN 8 INCHES ARE CONSIDERED OVERSIZED MATERIAL AND SHOULD BE STOCKPILED FOR OFFHAUL OR LATER USE IN LANDSCAPE AREAS AND DRAINAGE CHANNELS. IF APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER, OVERSIZED ROCK MAY BE PLACED AT OR NEAR THE BOTTOM OF DEEP FILLS. OVERSIZED ROCK MUST BE PLACED IN WINDROWS TO AVOID NESTING AND TO FACILITATE THE PLACEMENT OF COMPACTED FILL. NO OVERSIZED ROCK SHOULD BE PLACED IN THE UPPER 3 FEET OF ANY STRUCTURAL FILL. THE PROJECT GEOTECHNICAL ENGINEER SHOULD APPROVE THE USE OF OVERSIZED ROCK PRIOR TO CONSTRUCTING FILL.
- IMPORT SOIL SHOULD BE PREDOMINANTLY GRANULAR, NON-EXPANSIVE AND FREE OF DELETERIOUS MATERIAL. IMPORT MATERIAL THAT IS PROPOSED FOR USE ON-SITE SHOULD BE SUBMITTED TO GEOTECHNICAL ENGINEER FOR APPROVAL AND POSSIBLE LABORATORY TESTING AT LEAST 72 HOURS PRIOR TO TRANSPORT TO THE SITE.
- COHESIVE, PREDOMINANTLY FINE GRAINED, OR POTENTIALLY EXPANSIVE SOIL ENCOUNTERED DURING GRADING SHOULD BE STOCKPILED FOR REMOVAL, MIXED AS DIRECTED BY GEOTECHNICAL ENGINEER, OR USED IN LANDSCAPE AREAS. AS AN OPTION, COHESIVE FINE GRAINED, OR POTENTIALLY EXPANSIVE SOIL CAN OFTEN BE PLACED IN THE DEEPER PORTIONS OF PROPOSED FILL (E.G. DEPTHS GREATER THAN 3 FEET BELOW SUBGRADE IN BUILDING FOOTPRINTS). HOWEVER, THIS OPTION WOULD HAVE TO BE EVALUATED ON A CASE-BY-CASE BASIS WITH CONSIDERATION OF THE FILL DEPTH AND PROPOSED LOADING.
- SOIL USED TO CONSTRUCT FILL SHOULD BE UNIFORMLY MOISTURE CONDITIONED TO WITHIN APPROXIMATELY 5 PERCENTAGE POINTS OF THE ASTM D1557 OPTIMUM MOISTURE CONTENT. NET SOIL MAY NEED TO BE AIR DRIED OR MIXED WITH DRIER MATERIAL TO FACILITATE PLACEMENT AND COMPACTION PARTICULARLY DURING OR FOLLOWING THE WET SEASON.
- FILL SHOULD BE CONSTRUCTED BY PLACING UNIFORMLY MOISTURE CONDITIONED SOIL IN MAXIMUM 8-INCH-THICK LOOSE, HORIZONTAL LIFTS (LAYERS) PRIOR TO COMPACTING.
- ALL FILL SHOULD BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 90 PERCENT OF THE ASTM D1557 MAXIMUM DRY DENSITY. THE UPPER 12 INCHES OF FILL IN PAVED AREAS, BENEATH PROPOSED SLABS-ON-GRADE, AND WITHIN THE PROPOSED BUILDING FOOTPRINT SHOULD BE COMPACTED TO A MINIMUM OF 95 PERCENT RELATIVE COMPACTION.
- THE MOISTURE CONTENT DENSITY AND RELATIVE PERCENT COMPACTION OF FILL SHOULD BE CONFIRMED BY A REPRESENTATIVE OF COMPACTION TESTING COMPANY DURING CONSTRUCTION.



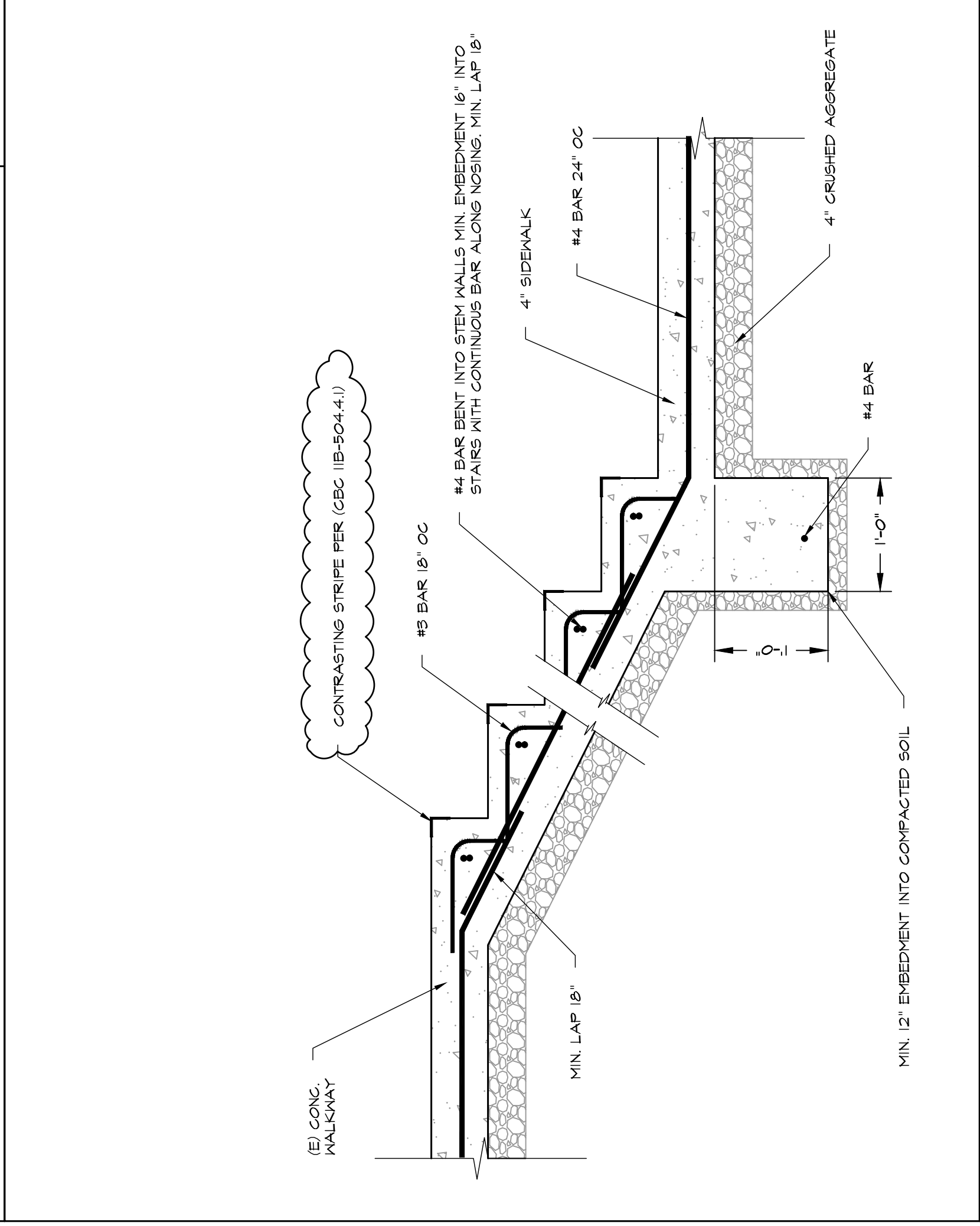
RETAINING WALL @ STAIRS 2



STAIRS 4



EQUIPMENT SECTION 1



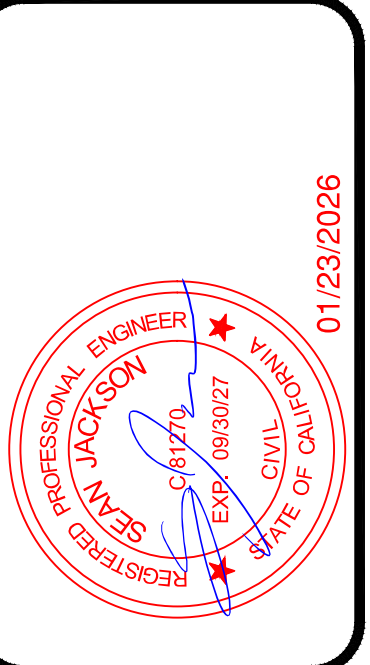
STAIRS 3

- STAR WAY REQUIREMENTS PER IBC 1014.1
- MINIMUM GUARDRAIL HEIGHT OF 42"
 - MAXIMUM GUARDRAIL HIGH OPENING OF 4" SPHERE
 - MAXIMUM GUARDRAIL LOW OPENING OF 4" SPHERE
 - MAXIMUM BOTTOM GUARDRAIL GAP OF 6" SPHERE
 - HANDRAIL DIAMETER BETWEEN 1.25"-2"
 - HANDRAIL ARE REQUIRED ON BOTH SIDES OF COMMERCIAL STAIRS
- VERTICAL HEIGHT OF HANDRAIL BETWEEN 34"-38"
- HANDRAIL TOP HORIZONTAL EXTENSION OF 12"
 - DEPTH OF ONE TREAD BEYOND THE BOTTOM RISER
 - RISER HEIGHT BETWEEN 4"-7"
 - MINIMUM PROJECTED TREAD DEPTH OF 11"

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1	PLAN CHECK	1/13/26



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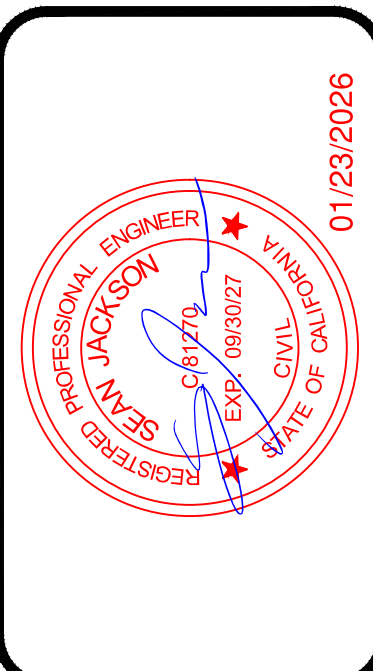
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Date	01/22/26	Scale	AS NOTED

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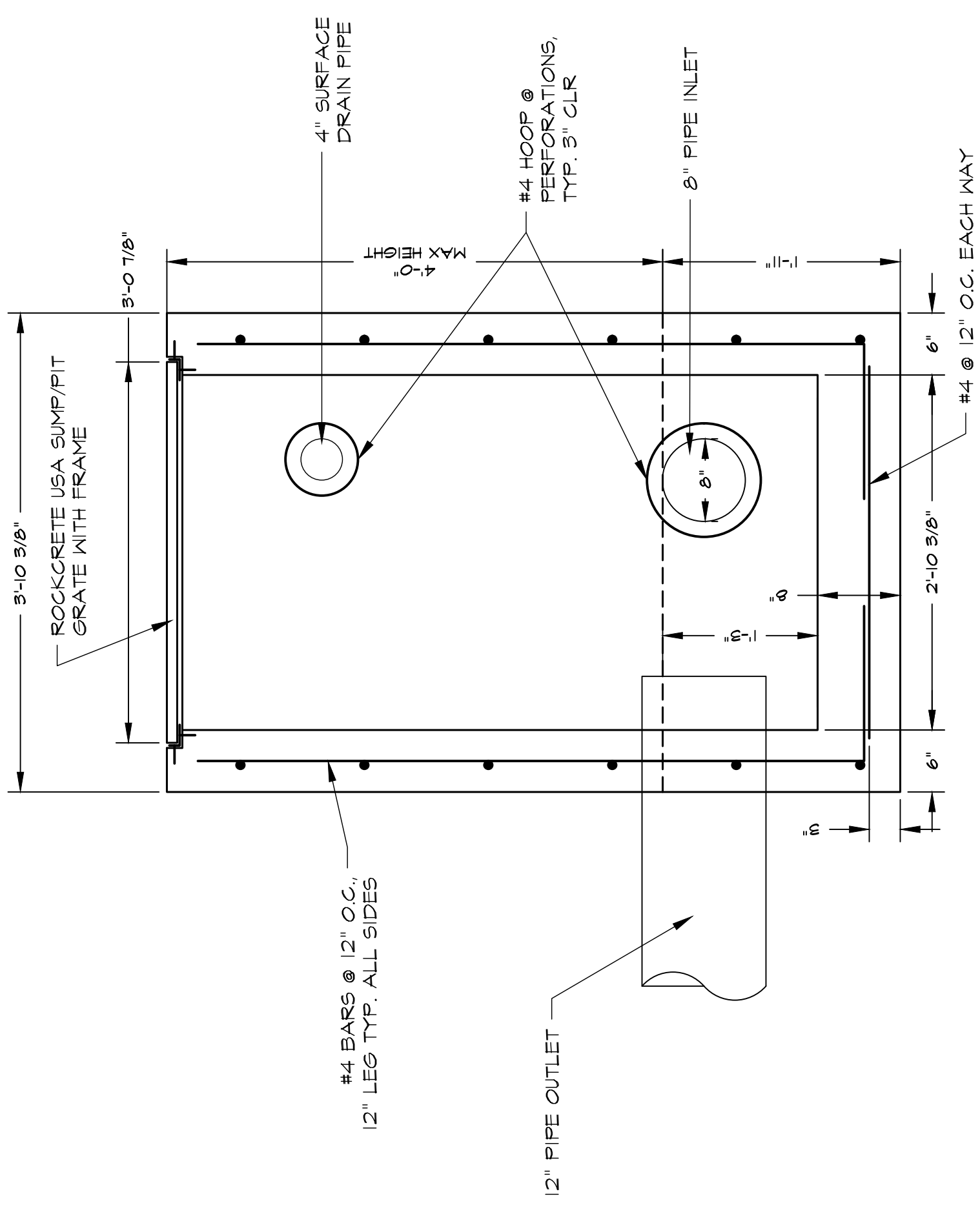
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 1250 EAST AVE #10
 CHICO, CA 95926
 (530) 715-1124

No.	Revision/Issue	Date
1	PLAN CHECK	1/13/26

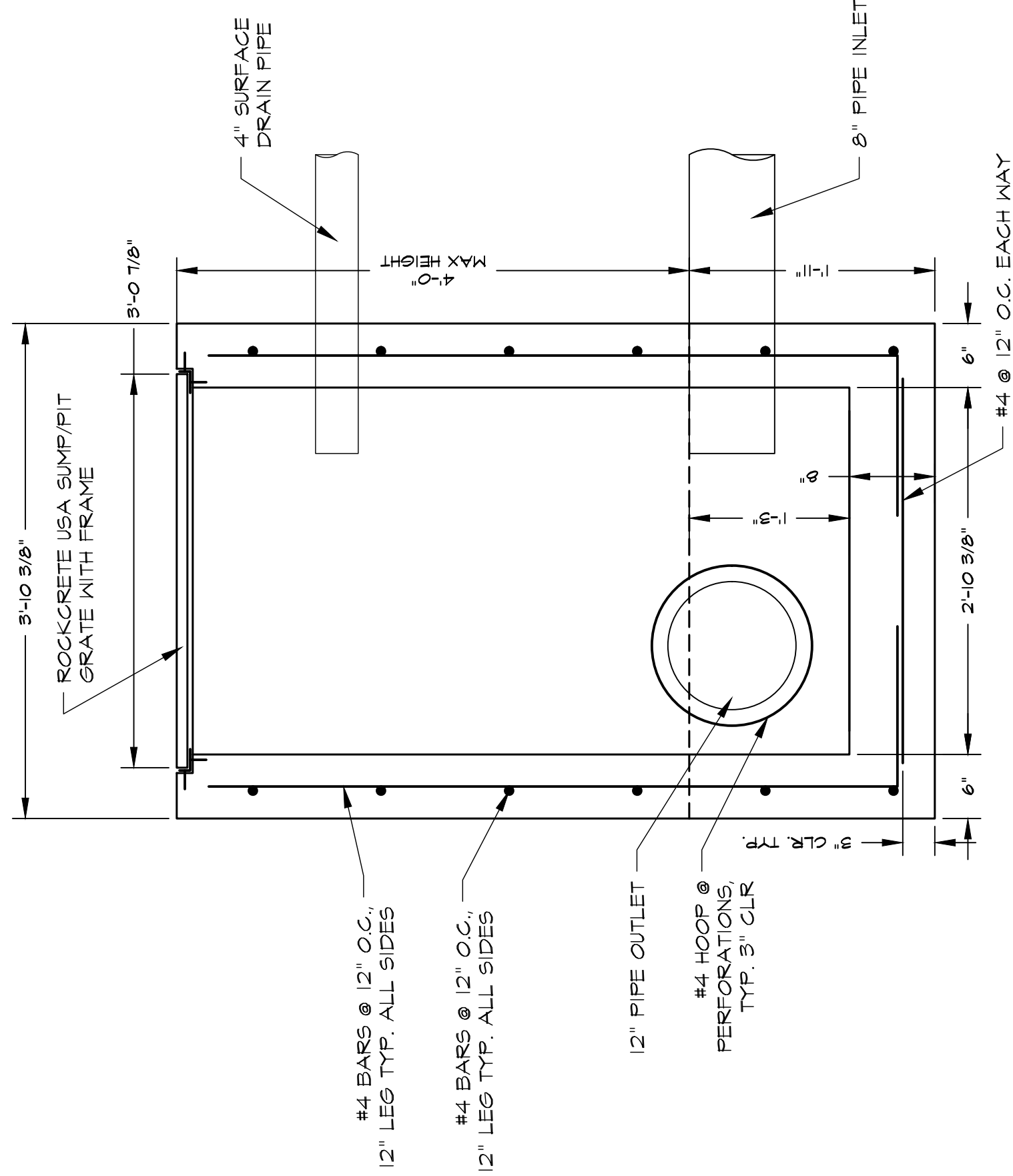


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 GRASS VALLEY, CA

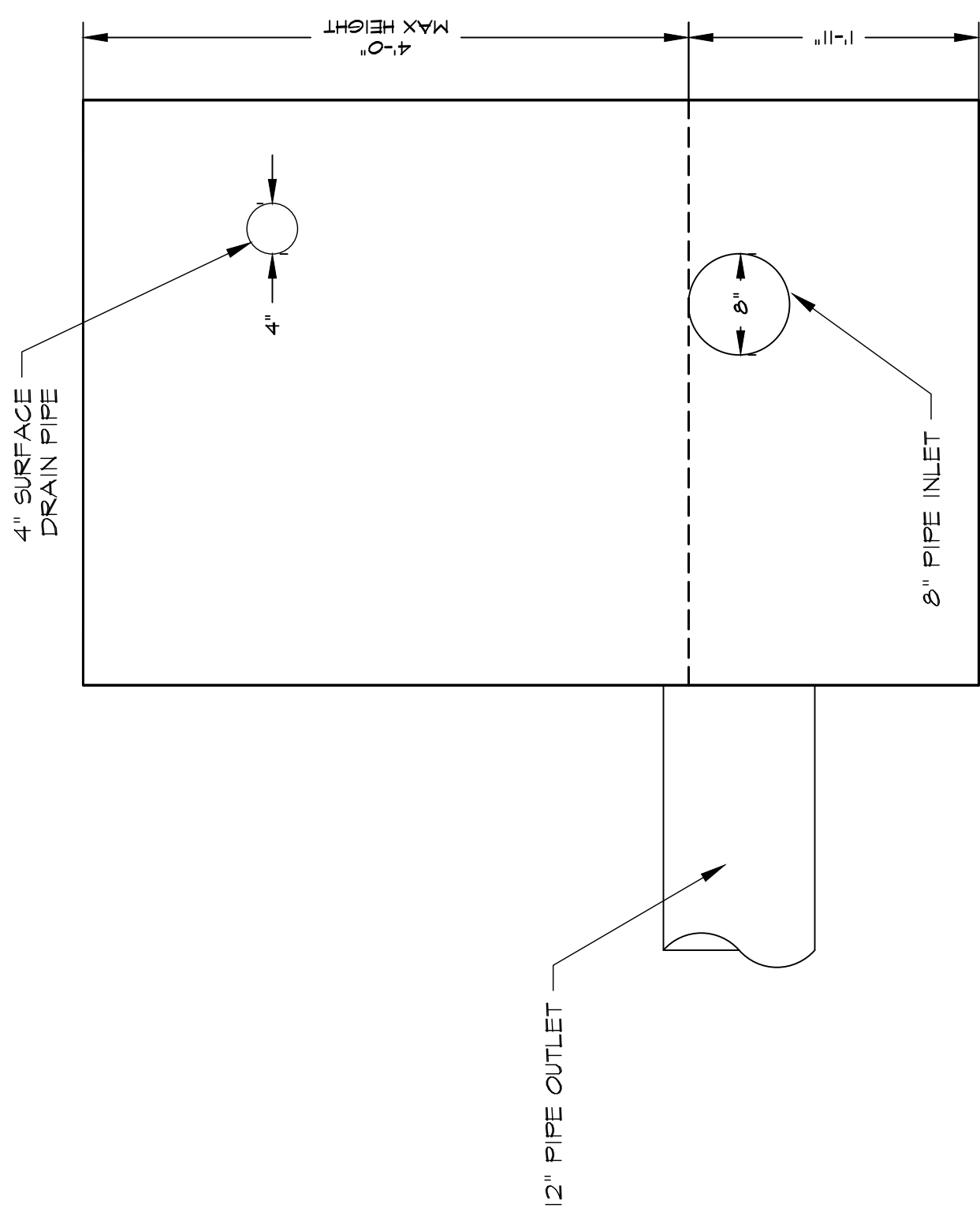
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Date	01/22/26	Scale	A5 NOTED



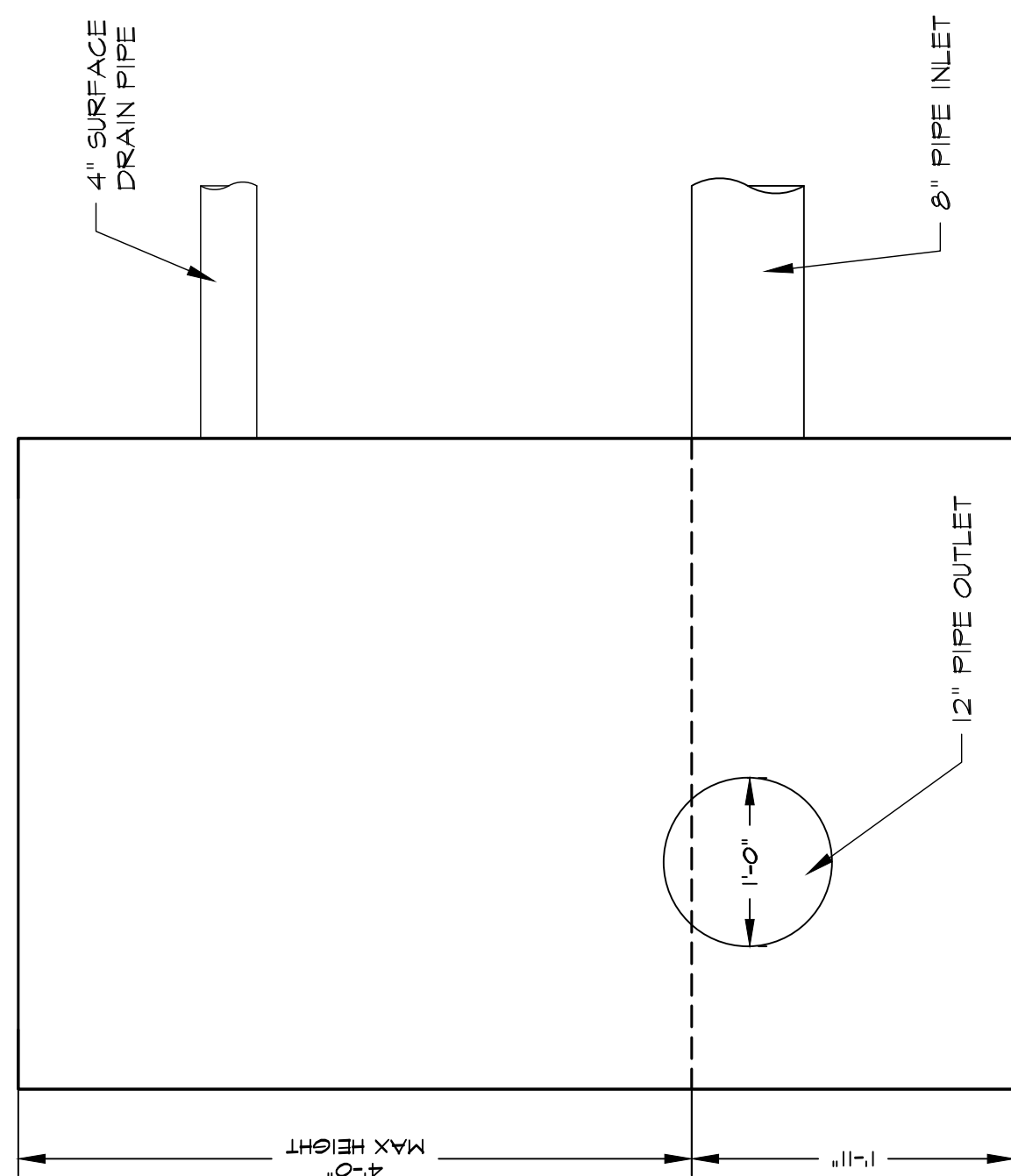
SECTION 1 - SOUTH



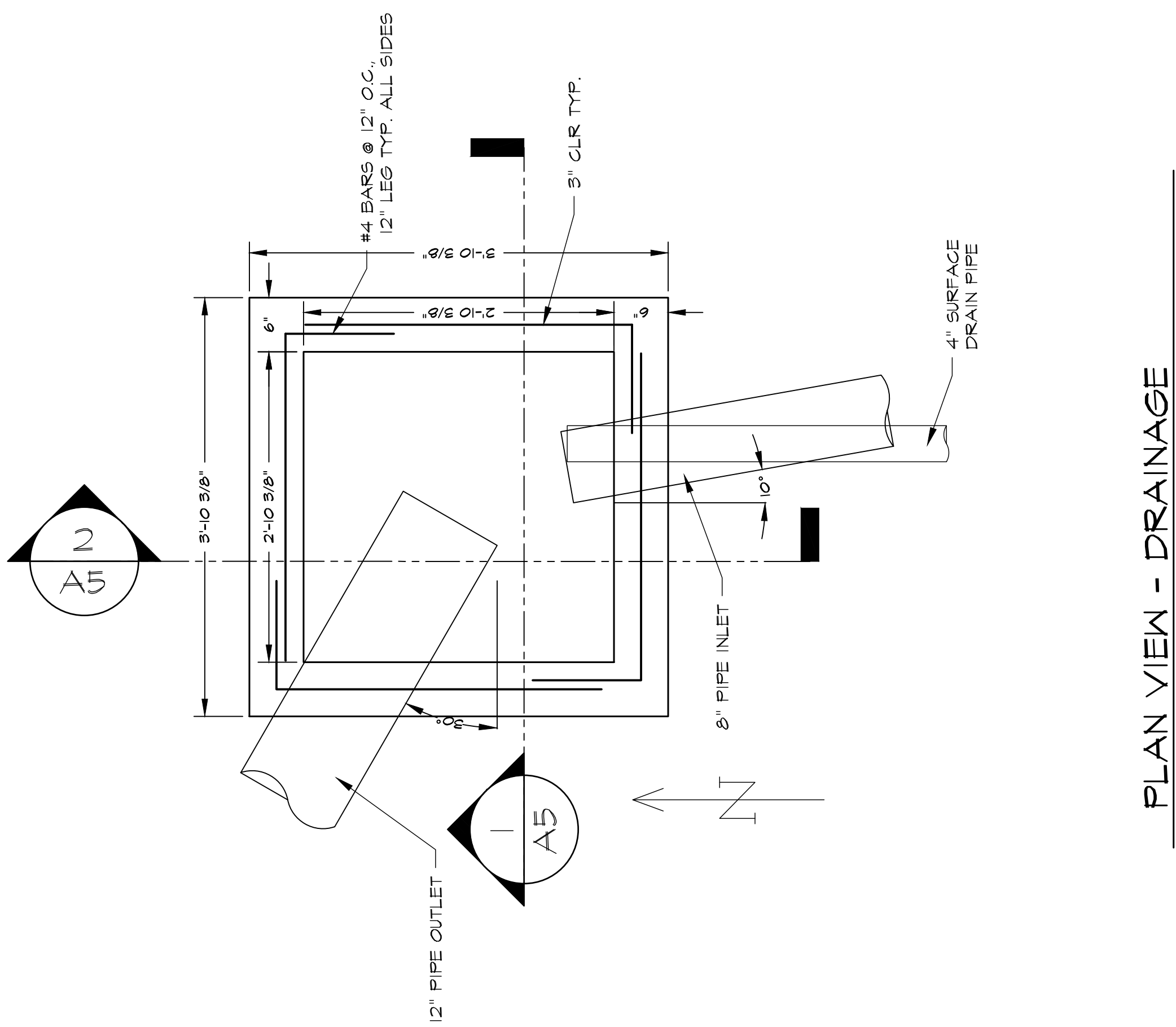
SECTION 2 - EAST



ELEVATION - SOUTH

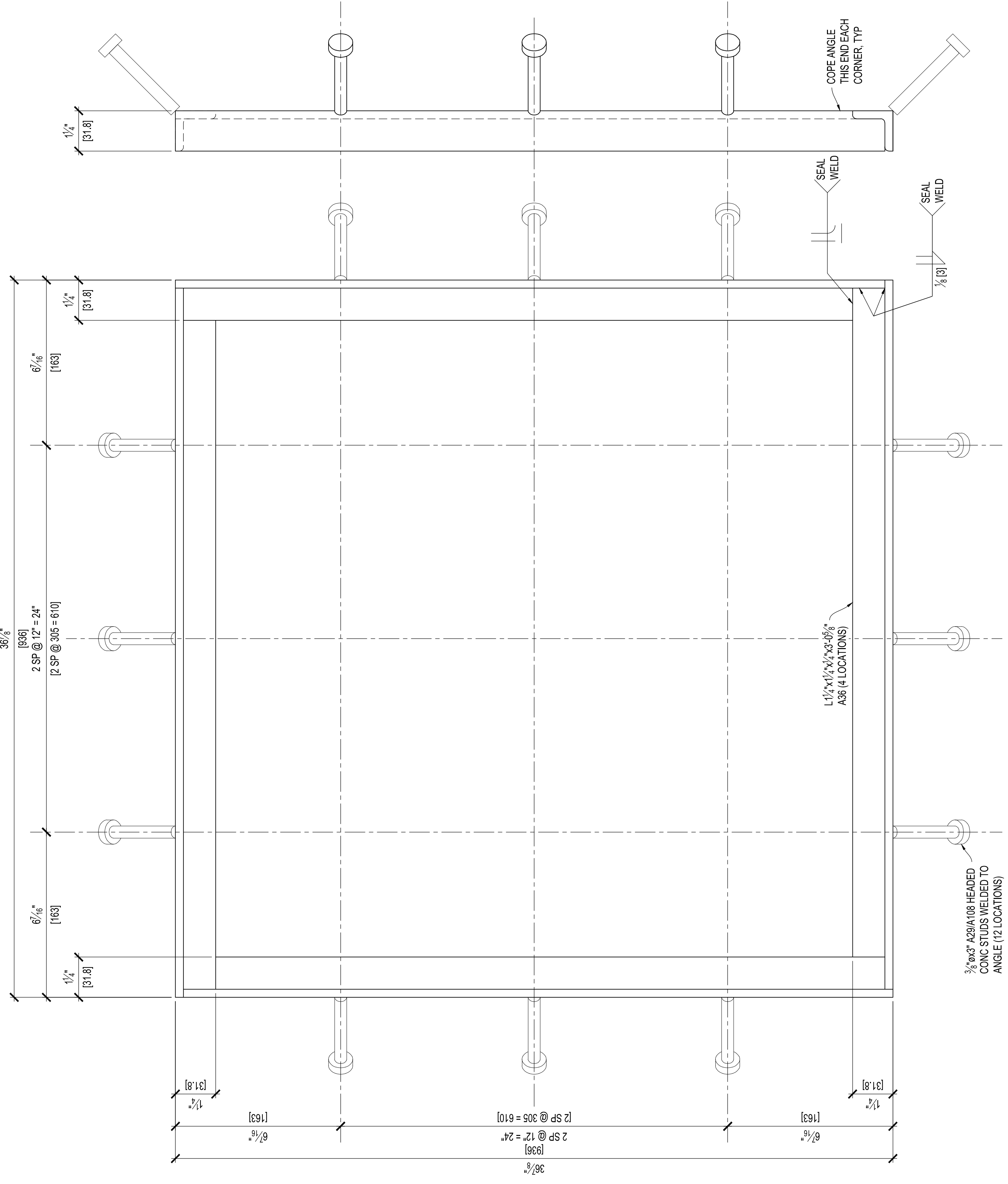


ELEVATION - EAST



PLAN VIEW - DRAINAGE

QTY	MARK	DESCRIPTION	FT	IN	WT	SPECIFICATION	REMARKS
ONE		EMBED FRAME					
4		L 1 1/4 x 1 1/4 x 1/4	3	0.58	6	ASTM A36	
12		3/8" HEADED CONC STUD	0	3	0.2	ASTM A29/A108	



US customary and metric dimension are shown for approval purposes only. Actual dimensions may vary per manufacturer.
 Allowed loading to be verified by a professional engineer for intended use (not by Rockcrete USA).

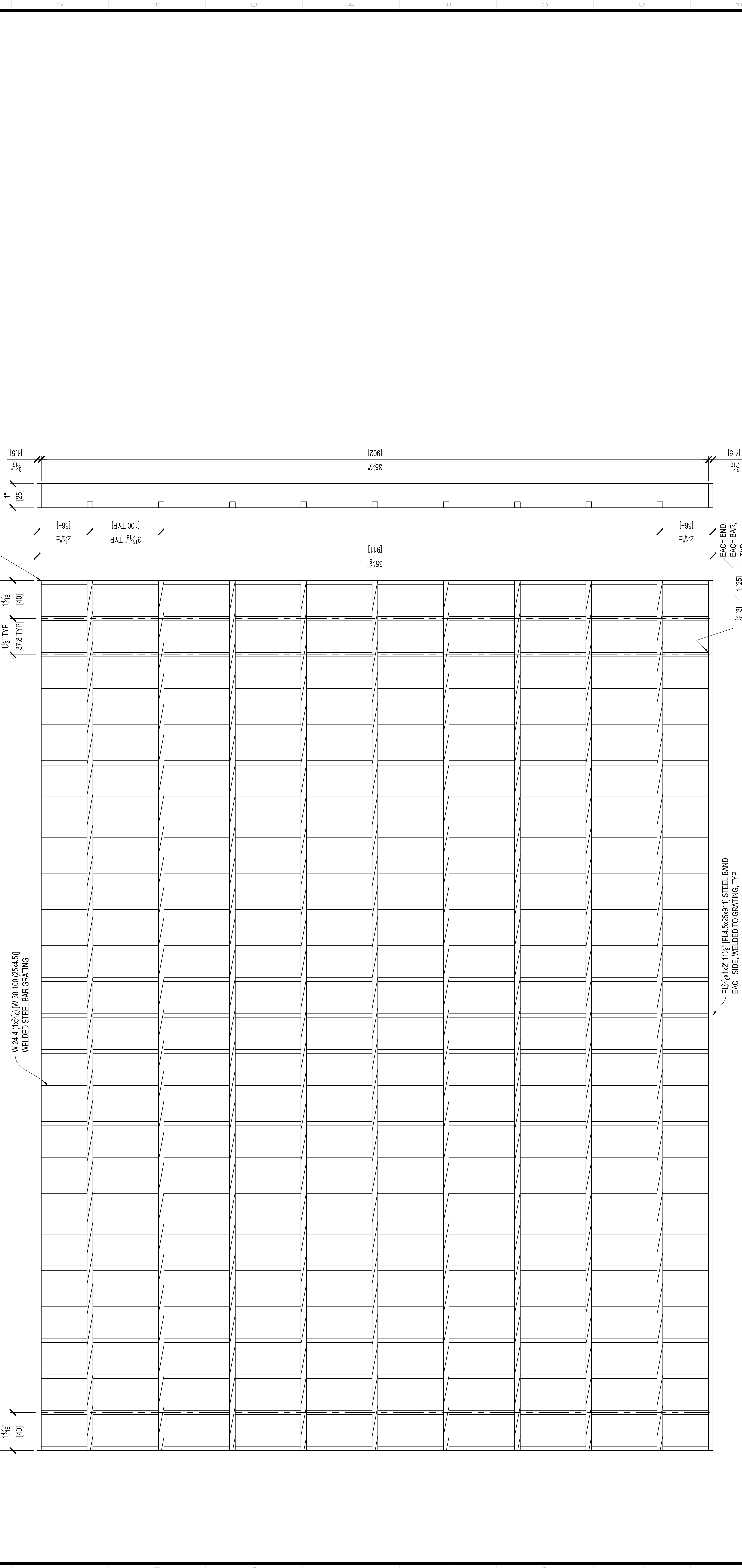
FDS PROJECT NO: RUSA		DESIGNED: HL	36" X 36" X 1 1/4" ANGLE IRON
FILE NAME: RUSA-01-PCWFR-3636-1.00		DRAWN: JMFVI	EMBED FRAME
CLIENT PROJECT NO: 00000		CHECKED:	GALVANIZED
ORIGINAL DRAWING SIZE: 34"x22"		APPROVED:	
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MARK	DATE	BY	DESCRIPTION
	12/2/2024	JMFVI	SUBMITTED FOR REVIEW

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SUMP / PIT GRATE WITH FRAME

3870 PEACHTREE INDUSTRIAL BLVD
SUITE 340 - 322
DULUTH, GEORGIA 30096
Ph: (404) 543-0446 | Fax: (770) 686-2707
Toll Free: (877) 999-1175
www.rockcreteusa.com
sales@rockcreteusa.com

QTY	MARK	DESCRIPTION	FT	IN	WT	SPECIFICATION	REMARKS
ONE		BAR GRATE					
1		W24x4 (1x3/16) GRATING (6.0PSF)	2	11 1/2	53		25 BARS, 35 7/8" WIDE
2		PL 3/16 x 1	2	11 7/8	2	ASTM A36	



US customary and metric dimension are shown for approval purposes only. Actual dimensions may vary per manufacturer.
 Allowed loading to be verified by a professional engineer for intended use (not by Rockcrete USA).

36" x 36" x 1" GRATE GALVANIZED	
DESIGNED: HL DRAWN: JMFVI CHECKED: APPROVED:	FDS PROJECT NO: RUSA FILE NAME: RUSA-02-PCWFR-3636-1.00 CLIENT PROJECT NO: 00000 ORIGINAL DRAWING SIZE: 34"x22"
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SUMP / PIT GRATE WITH FRAME	

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H- CONCRETE

1. MINIMUM 28 DAY COMPRESSIVE STRENGTH: 2500 PSI
2. AIR ENTRAINMENT: BETWEEN 4 AND 7%
3. CEMENT SHALL CONFORM TO ASTM C-150 TYPE 2.
4. CONCRETE AGGREGATES TO CONFORM TO ASTM C-33
5. MAX 4" SLUMP
6. CONCRETE MIX DESIGN SHALL BE PREPARED BY AN N.R.M.C.A. CERTIFIED PLANT AND APPROVED BY THE ENGINEER OF RECORD.
7. CONSOLIDATE CONCRETE PLACED IN FORMS BY MECHANICAL VIBRATING EQUIPMENT SUPPLEMENTED BY HAND SPADING, RODDING, OR TAMPING. USE EQUIPMENT & PROCEDURES FOR CONSOLIDATION OF CONCRETE IN ACCORDANCE WITH THE RECOMMENDED PRACTICES OF ACI-309 TO SUIT THE TYPE OF CONCRETE AND PROJECT CONDITIONS
8. CONCRETE FINISHES PER OWNER
9. EXPOSED CONCRETE EDGES TO BE CHAMFERED 3/4" X 3/4" (U.N.O.)
10. CONCRETE FOUNDATIONS SHALL BE BUILT ON UNDISTURBED SOIL, COMPACTED FILL MATERIAL OR CLSM. COMPACTED FILL MATERIAL SHALL BE PLACED IN ACCORDANCE WITH EXCAVATION AND EMBANKMENT REQUIREMENTS.

I- REINFORCING STEEL

1. REINFORCEMENT STEEL SHALL CONFORM TO ASTM A615 GRADE 60 FOR #5 OR LARGER, & ASTM A615 GRADE 40 FOR #4 & SMALLER EXCEPT WELDED REINFORCING STEEL SHALL BE TO ASTM A706 U.O.N.
2. REINFORCEMENT CONTRACTOR SHALL PROVIDE REBAR SHOP DRAWINGS TO E.O.R.
3. ALL PREHEATING & WELDING OF REINFORCING BARS SHALL BE DONE IN ACCORDANCE WITH AWS-D11-LATEST.
4. REINFORCING STEEL SHALL BE FABRICATED ACCORDING TO THE "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION"
5. DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF MAIN BARS AND DENOTES CLEAR COVERAGE.
- CONCRETE COVERAGE SHALL BE AS FOLLOWS (U.O.N.):
- 5.1. CONCRETE DIRECTLY AGAINST GROUND (EXCEPT SLABS) 3"
- 5.2. CONCRETE EXPOSED TO GROUND BUT PLACED IN FORMS 2"
- 5.3. BEAMS (TOP BARS) 1-1/2"
- 5.4. BEAMS (ALL OTHER MAIN REINFORCING) 2"
- 5.5. SLABS (IN FORMS) 3/4"
- 5.6. SLABS (ON GROUND) 2"
6. INSTALL REINFORCING STEEL PER CONCRETE REINFORCING STEEL INSTITUTE (CRSI) HANDBOOK
7. #6 TYPICAL LAP LENGTH 12" (U.N.O)
8. #6 TYPICAL LAP LENGTH 36" (U.N.O)

J- STRUCTURAL EXCAVATION AND BACKFILL

1. FOLLOW OSHA SAFETY REGULATIONS 29 CFR, PART 1926, SUBPART P EXCAVATIONS FOR SLOPING THE SIDES OF EXCAVATIONS, USING SHORING AND BRACING AND OTHER SAFETY FEATURES.
2. CLEAR THE AREA OF VEGETATION AND OBSTRUCTIONS ACCORDING TO THE EXCAVATION AND EMBANKMENT SECTION.
3. EXCAVATION NEAR FOUNDATIONS FOR ANY PURPOSE SHALL NOT REDUCE LATERAL SUPPORT FROM ANY FOUNDATION OR ADJACENT FOUNDATION WITHOUT 4. FIRST UNDERPINNING OR PROTECTING THE FOUNDATION AGAINST DETRIMENTAL LATERAL OR VERTICAL MOVEMENT, OR BOTH.
4. PREPARE FOUNDATIONS AS FOLLOWS:
- 4.1. FOOTINGS PLACED ON BEDROCK- EXCAVATE TO THE SPECIFIED ELEVATION OR DEPTH. CLEAN THE FOUNDATION OF DELETERIOUS MATERIAL. CLEAN AND GROUT SEAMS AND CREVICES. PLACE FOUNDATION FILL TO PROVIDE A LEVEL BEARING PAD FOR FOOTINGS.
- 4.2. FOOTINGS PLACED ON AN EXCAVATED SURFACE OTHER THAN BEDROCK- EXCAVATE MATERIAL TO FOUNDATION GRADE AND COMPACT THE FOUNDATION BEFORE FOOTING IS PLACED.
- 4.3. FOOTINGS KEVED INTO UNDISTURBED MATERIAL- EXCAVATE THE FOUNDATION TO THE LIMITS OF THE FOOTING AND COMPACT THE FOUNDATION. WHERE MATERIAL DOES NOT STAND VERTICALLY, FILL THE SPACE BETWEEN THE LIMITS OF THE FOOTING AND THE UNDISTURBED MATERIAL WITH CONCRETE. FILL ONLY TO THE TOP OF THE EXCAVATION IF THE EXCAVATION IS BELOW THE TOP OF THE FOOTING.
- 4.4. UNSTABLE MATERIAL BELOW FOOTING ELEVATION- EXCAVATE UNSTABLE MATERIAL BELOW FOUNDATION GRADE AND BACKFILL WITH FOUNDATION FILL. PLACE FOUNDATION FILL IN HORIZONTAL LAYERS THAT DO NOT EXCEED 6" (150 MM) IN COMPACTED THICKNESS. COMPACT EACH LAYER ACCORDING TO SUBSECTION 6.
5. PLACE STRUCTURAL BACKFILL IN HORIZONTAL LAYERS THAT DO NOT EXCEED 6" (150 MM) IN COMPACTED THICKNESS. COMPACT EACH LAYER ACCORDING TO SUBSECTION 6.
- 5.1. PLACE STRUCTURAL BACKFILL LAYERS EVENLY ON ALL SIDES OF THE STRUCTURE AS APPROPRIATE. EXTEND EACH LAYER TO THE LIMITS OF THE EXCAVATION OR TO NATURAL GROUND.
- 5.2. DO NOT PLACE STRUCTURAL BACKFILL AGAINST CONCRETE UNTIL 80% OF THE DESIGN STRENGTH IS ACHIEVED.
6. COMPACTING. DETERMINE OPTIMUM MOISTURE CONTENT & MAXIMUM DRY DENSITY ACCORDING TO AASHTO T 99, METHOD C. ADJUST THE MOISTURE CONTENT OF THE BACKFILL MATERIAL TO A MOISTURE CONTENT SUITABLE FOR COMPACTION. COMPACT MATERIAL PLACED IN ALL LAYERS TO AT LEAST 95% OF THE MAXIMUM DENSITY. DETERMINE THE IN-PLACE DENSITY & MOISTURE CONTENT ACCORDING TO AASHTO T 310 OR OTHER APPROVED TEST PROCEDURES. DO NOT APPLY DENSITY REQUIREMENTS AS MEASURED BY AASHTO T 310 TO MATERIAL INCAPABLE OF BEING TESTED OR COMPACTED TO MAXIMUM VALUES DETERMINED BY AASHTO T 99. FOR THESE MATERIALS, FILL THE VOIDS AROUND THE ROCK AROUND THE ROCK IN EACH LAYER WITH EARTH OR OTHER FINE MATERIAL. COMPACT EACH LAYER UNTIL THERE IS NO VISIBLE EVIDENCE OF FURTHER CONSOLIDATION.
1. FURNISH SOILS MEETING GW, GP, SW, OR SP PER THE U.S.C.S. WITH A MAXIMUM PARTICLE SIZE OF 3 INCHES.

ABBREVIATIONS AND ACRONYMS
UNLESS OTHERWISE NOTED- U.O.N.
ENGINEER OF RECORD- E.O.R.
NATIONAL READY MIXED CONCRETE ASSOCIATION- N.R.M.C.A.
CONTROLLED LOW STRENGTH MATERIAL- CLSM
UNITED SOIL CLASSIFICATION SYSTEM- U.S.C.S.

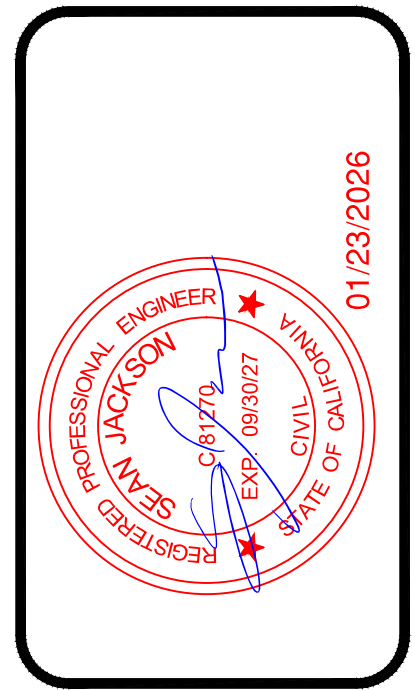
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CHICO, CA 95926
(530) 715-7184

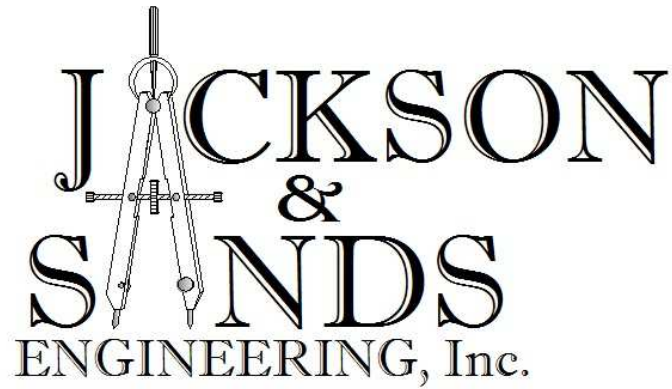


No.	Revision/Issue	Date
1	PLAN CHECK	1/13/26



GENERATOR PAD
988 MCCOURTNEY RD
GRASS VALLEY, CA

Project	25-172	Sheet	51
Date	01/22/26		
Scale	AS NOTED		



STRUCTURAL ANALYSIS

**For:
CMU Block Wall
988 McCourtney Road
Grass Valley, CA**

Project # 25-172

December 8, 2025

(INITIAL SUBMITTAL)

JACKSON & SANDS ENGINEERING INC.
1250 East Ave #10
Chico, CA 95926
info@jacksonandsandsengineering.com



Prepared by:

JACKSON & SANDS ENGINEERING INC.

Assistant Engineer:

Alondra Rubio-Cruz, E.I.T.

Senior Engineer:

Sean Jackson, P.E.



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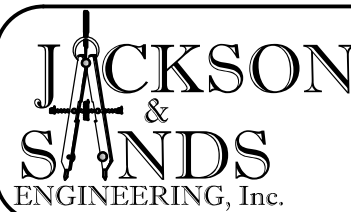
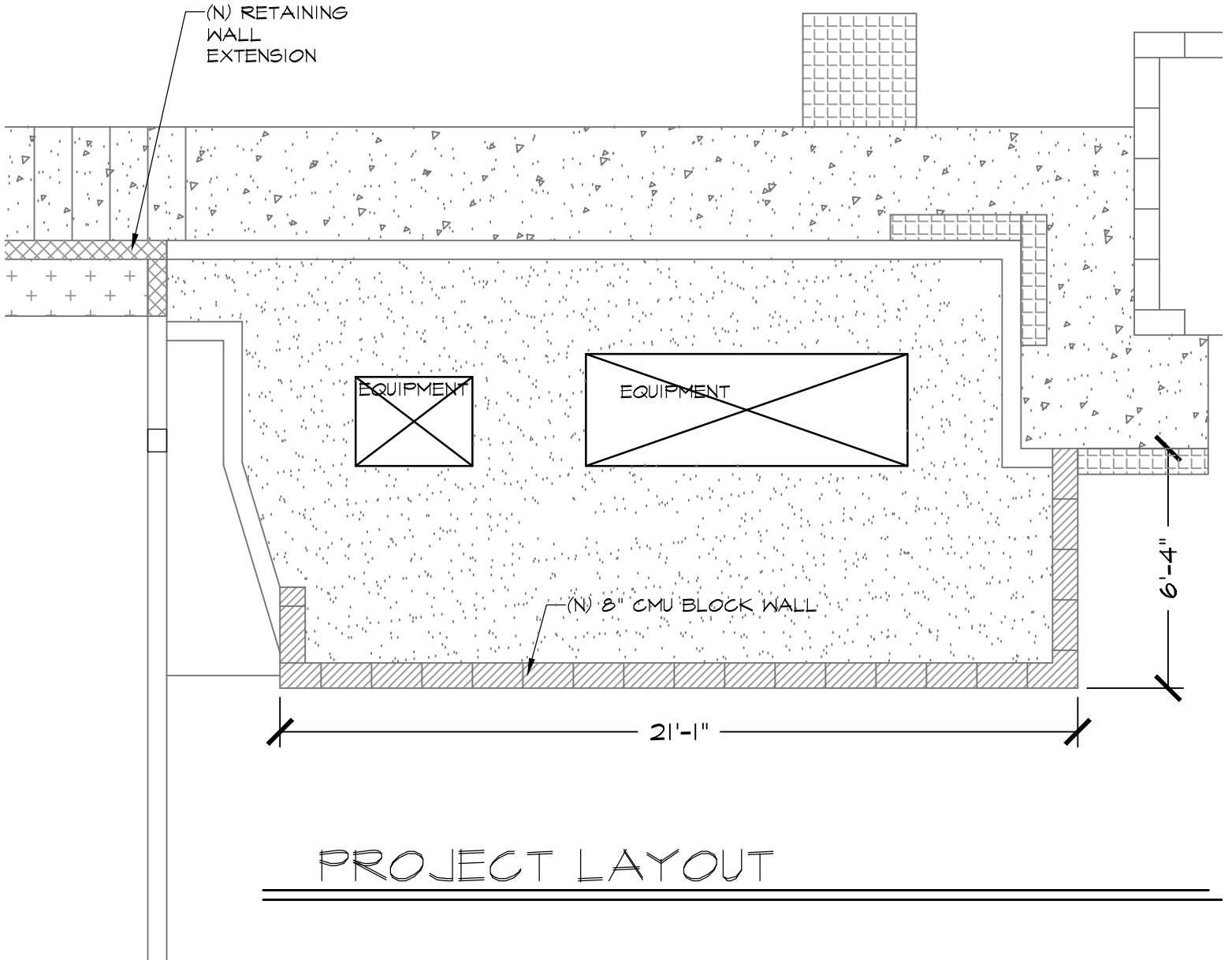
12/11/2025

Scope of Work

The scope of work for this project is the design and construction of a nominal 8' tall CMU soundwall. The soundwall is to be built upon a reinforced concrete foundation. Analysis of the of the structure was performed per the applicable chapters of the A.S.C.E. 7-16 for the forces of wind and seismic. Design of the structural components was performed to meet the standards as set forth per ACI-318 and TMS 402-16.

Design

The design of the foundation was performed using the default values for soil bearing and passive resistance per CBC Table 1806.2. The preparation of subgrade soils below the foundation will not change the footing design.



1250 EAST AVE. #10
CHICO, CA 95926
Phone: (530) 715-7184

CMU BLOCK WALL
988 McCOURTNEY ROAD
GRASS VALLEY, CA

JOB # 25-172

Design Loads / Criteria

Job#: 25-172

Gravity Loads: Per ASCE 7-16	SEISMIC	
Soundwall Dead Loads	ASCE 7-16	
Slope= Vertical	EQUIVALENT LATERAL	
90 Degrees	FORCE PROCEEDURE	
Normal wt. CMU	Design Category: D	
Grout Density 140 pcf	Site Class: C	
Total Wall Weight= 93.2 psf	I =	II
	Ss =	0.544
	S1 =	0.232
	SMS =	0.742
	SM1 =	Null
	SDS =	0.495
	SD1 =	Null
	TL =	12
	SNOW LOAD	
	Sloped Roof	0.0 PSF
	Seismic =	0 PSF
	WIND	
	MAIN WIND FORCE RESISTING SYSTEM, ALL HEIGHTS METHOD ASCE 7-16 CHAPTERS 26 & 27	
	WIND SPEED =	95 MPH
	EXPOSURE =	C
	ENCLOSURE =	OPEN
	SOIL	
	SITE CLASS: C	
	BEARING =	1500 PSF
	PASSIVE =	100 PSF
	COHESSION=	130 PSF

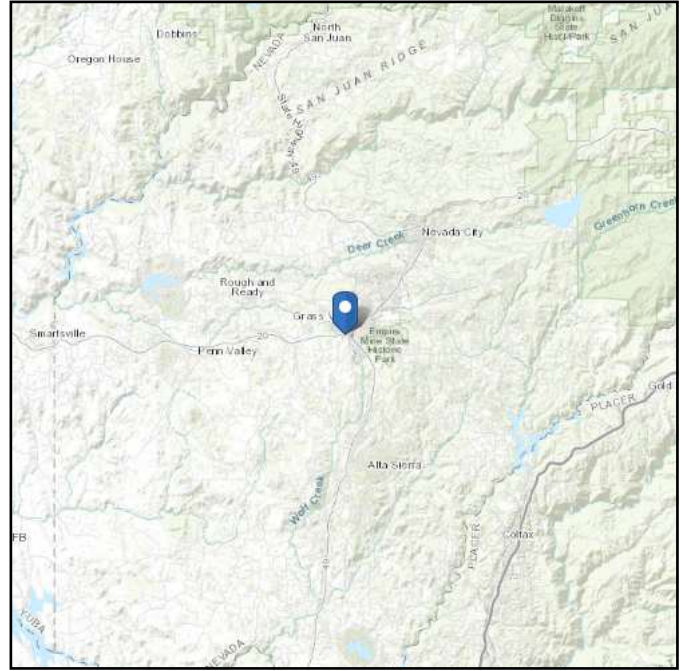
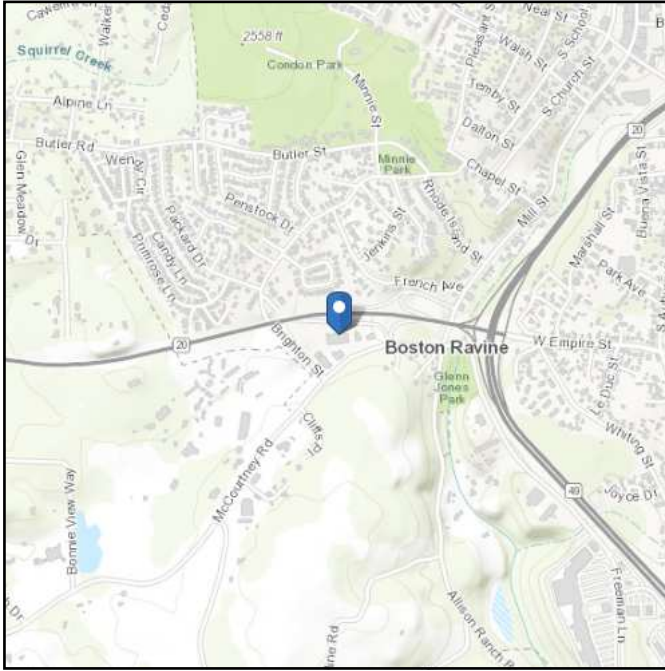


ASCE Hazards Report

Address:
988 McCourtney Rd
Grass Valley, California
95949

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Latitude: 39.209489
Longitude: -121.073547
Elevation: 2424.9891120976804 ft (NAVD 88)



Wind

Results:

Wind Speed	95 Vmph
10-year MRI	66 Vmph
25-year MRI	72 Vmph
50-year MRI	76 Vmph
100-year MRI	81 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Nov 25 2025

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.



Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.544	S_{D1} :	N/A
S_1 :	0.232	T_L :	12
F_a :	1.365	PGA :	0.236
F_v :	N/A	PGA _M :	0.322
S_{MS} :	0.742	F_{PGA} :	1.364
S_{M1} :	N/A	I_e :	1
S_{DS} :	0.495	C_v :	1.062

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Tue Nov 25 2025

Date Source: [USGS Seismic Design Maps](#)

Masonry Slender Wall

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: ECO 8' Tall Sound Wall

Code References

Calculations per TMS 402-16, IBC 2021
 Load Combinations Used : IBC 2021

General Information

Calculations per TMS 402-16, IBC 2021

Construction Type : Grouted Hollow Concrete Masonry

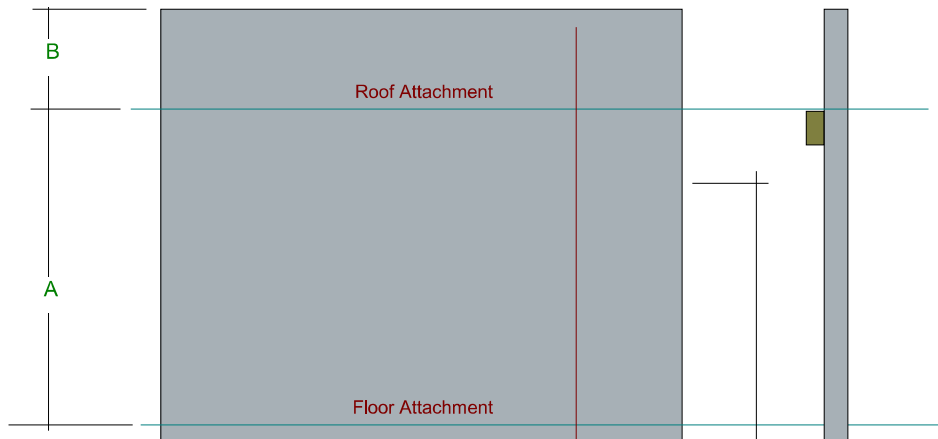
F'm	=	1.50 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625 in	Min Allow Out-of-plane Defl Ra	=	0.0
Fr - Rupture	=	61.0 psi	Rebar "d" distance	3.750 in	Minimum Vertical Steel %	=	0.0020
Em = f'm *	=	900.0	Lower Level Rebar . . .				
Max % of ρ bal.	=	0.007117	Bar Size	# 4			
Grout Density	=	140 pcf	Bar Spacing	48 in			
Block Weight	=	Normal Weight					
Wall Weight	=	86.0 psf					

Wall is Solid Grouted

One-Story Wall Dimensions

A Clear Height	=	8 ft
B Parapet height	=	0.5 ft

Wall Support Condition Top Free, Bottom Fix



Lateral Loads

Wind Loads :
 Full area WIND load = 16.0 psf

Seismic Loads :
 Wall Weight Seismic Load Input Method : ASCE seismic factors entered

SDS Value per ASCE 12.11.1 $S_{DS} * I = 0.495$
 $F_p = \text{Wall Wt.} * 0.1980 = 17.028 \text{ psf}$

Masonry Slender Wall

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: ECO 8' Tall Sound Wall

DESIGN SUMMARY

Results reported for "Strip Width" of 12.0 in

Governing Load Combination . . .	Actual Values . . .	Allowable Values . . .
PASS Moment Capacity Check +0.90D+E	Maximum Bending Stress Ratio 0.6516 Max Mu -0.6159 k-ft	Phi * Mn 0.9452 k-ft
PASS Service Deflection Check E Only	Actual Defl. Ratio L/ 5,305 Max. Deflection 0.03619 in	Allowable Defl. Ratio 150.0 /2 for Cantilever
PASS Axial Load Check +1.20D+E	Max Pu / Ag 9.581 psi Location 0.1333 ft	Max. Allow. Defl. 1.280 in 0.2 * f'm 300.0 psi
PASS Reinforcing Limit Check	Actual n̄ 0.001075	Max Allow n̄ 0.006772
Maximum Reactions for Load Combination...		
	Top Horizontal 0.0	0.0 k
	Base Horizontal E Only	144.738 k
	Vertical Reaction +D+0.5250E	0.7310 k

Design Maximum Combinations - Moments

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load			Moment Values				0.6 * rho bal	
	Pu k	0.2*f'm*b*t k	Mcr k-ft	Mu k-ft	Phi	Phi Mn k-ft	As in^2	As Ratio	Bar 'd'
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.00
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.00
+1.20D+0.50W at 0.00 to 0.27	0.877	27.468	0.59	0.29	0.90	1.00	0.050	0.0011	0.0068
+1.20D+W at 0.00 to 0.27	0.877	27.468	0.59	0.58	0.90	1.00	0.050	0.0011	0.0068
+1.20D+E at 0.00 to 0.27	0.877	27.468	0.59	0.62	0.90	1.00	0.050	0.0011	0.0068
+0.90D+W at 0.00 to 0.27	0.658	27.468	0.59	0.58	0.90	0.95	0.050	0.0011	0.0069
+0.90D+E at 0.00 to 0.27	0.658	27.468	0.59	0.62	0.90	0.95	0.050	0.0011	0.0069

Design Maximum Combinations - Deflections

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load	Moment Values		I gross in^4	Stiffness		Deflections	
	Pu k	Mcr k-ft	Mactual k-ft		I cracked in^4	I effective in^4	Deflection in	Defl. Ratio
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+D+0.60W at 7.73 to 8.00	0.066	0.59	0.00	443.30	12.41	443.300	0.016	11,773.8
+D+0.70E at 7.73 to 8.00	0.066	0.59	0.00	443.30	12.41	443.300	0.020	9,482.6
+D+0.450W at 7.73 to 8.00	0.066	0.59	0.00	443.30	12.41	443.300	0.012	15,698.4
+D+0.5250E at 7.73 to 8.00	0.066	0.59	0.00	443.30	12.41	443.300	0.015	12,643.4
+0.60D+0.60W at 7.73 to 8.00	0.040	0.59	0.00	443.30	12.31	443.300	0.016	11,779.4
+0.60D+0.70E at 7.73 to 8.00	0.040	0.59	0.00	443.30	12.31	443.300	0.020	9,487.1
W Only at 7.73 to 8.00	0.000	0.59	0.00	443.30	12.18	443.300	0.027	7,072.7
E Only at 7.73 to 8.00	0.000	0.59	0.00	443.30	12.18	443.300	0.036	5,304.7

Reactions - Vertical & Horizontal

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
D Only	0.0 k	0.00 k	0.731 k
+D+0.60W	0.1 k	0.00 k	0.731 k
+D+0.70E	0.1 k	0.00 k	0.731 k
+D+0.450W	0.1 k	0.00 k	0.731 k
+D+0.5250E	0.1 k	0.00 k	0.731 k
+0.60D+0.60W	0.1 k	0.00 k	0.439 k
+0.60D+0.70E	0.1 k	0.00 k	0.439 k
W Only	0.1 k	0.00 k	0.000 k

Project Title:
Engineer:
Project ID:
Project Descr:

8

ENERCALC Cloud Project ID: 274597

Masonry Slender Wall

Project File: 25-172 brighton greens_012341.EC6

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: ECO 8' Tall Sound Wall

E Only

0.1 k

0.00 k

0.000 k

Wall Footing

Project File: 25-172 brighton greens_012341.EC6

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: Sound wall foundation for 8' tall CMU Fully Grouted (Default soils)

Code References

Calculations per ACI 318-19, IBC 2021
 Load Combinations Used : IBC 2021

General Information

Material Properties

fc : Concrete 28 day strength	=	2.50 ksi
fy : Rebar Yield	=	40.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	1.50 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	100.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	0.0018
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
AutoCalc Footing Weight as DL :	=	Yes

Increases based on footing Depth

Reference Depth below Surface	=	2.0 ft
Allow. Pressure Increase per foot of depth when base footing is below	=	ksf ft

Increases based on footing Width

Allow. Pressure Increase per foot of width when footing is wider than	=	ksf ft
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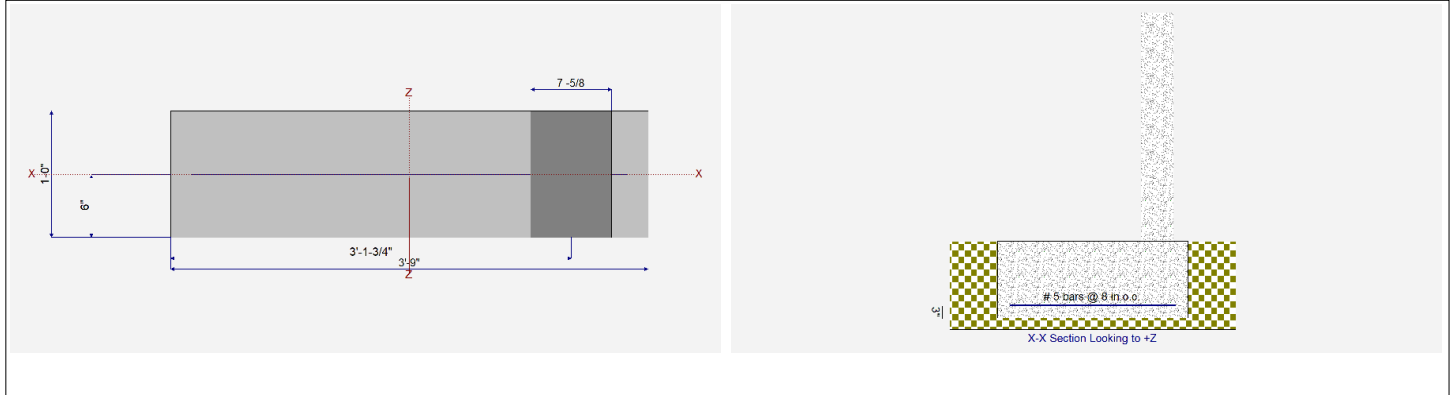
Adjusted Allowable Bearing Pressure = 0.0 ksf

Dimensions

Footing Width	=	3.750 ft
Wall Thickness	=	7.625 in
Wall center offset from center of footing	=	15.25 in

Reinforcing

Footing Thickness	=	18.0 in	Bars along X-X Axis	=	
Rebar Centerline to Edge of Concrete... at Bottom of footing =	=	3.0 in	Bar spacing	=	8.00
			Reinforcing Bar Size	=	# 5



Applied Loads

	D	Lr	L	S	W	E	H
P : Column Load	=	0.731					k
OB : Overburden	=						ksf
V-x	=				0.1447	0.1447	k
M-zz	=				0.620	0.620	k-ft
Vx applied	=						12.0 in above top of footing

Wall Footing

Project File: 25-172 brighton greens_012341.EC6

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: Sound wall foundation for 8' tall CMU Fully Grouted (Default soils)

DESIGN SUMMARY

Design OK

Factor of Safety	Item	Applied	Capacity	Governing Load Combination	
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift

Utilization Ratio	Item	Applied	Capacity	Governing Load Combination	
PASS	0.0	Soil Bearing	0.0 ksf	0.0 ksf	0.0
PASS	0.0	Z Flexure (+X)	0.0 k-ft	0.0 k-ft	No Moment
PASS	0.0	Z Flexure (-X)	0.0 k-ft	0.0 k-ft	No Moment
PASS	N/A	1-way Shear (+X)	N/A psi	0.0 psi	N/A
PASS	N/A	1-way Shear (-X)	N/A psi	0.0 psi	N/A

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Actual Soil Bearing Stress		Actual / Allowable Ratio
			-X	+X	

Overturning Stability

Units : k-ft

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
-------------------------------------	--------------------	------------------	-----------------	--------

Footing Has NO Overturning

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Sliding SafetyRatio	Status
--	---------------	-----------------	---------------------	--------

Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
---------------------------------	------------	--------------	-------------------------	------------------	------------------	-------------------	----------------	--------

One Way Shear

Units : k

Load Combination...	vu @ -X	vu @ +X	vu:Max	Φ vn	vu / Φ vn	Status
---------------------	---------	---------	--------	------	-----------	--------

Cantilevered Retaining Wall

Project File: 25-172 brighton greens_012341.EC6

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: New Stair Retaining Wall

Code Reference:

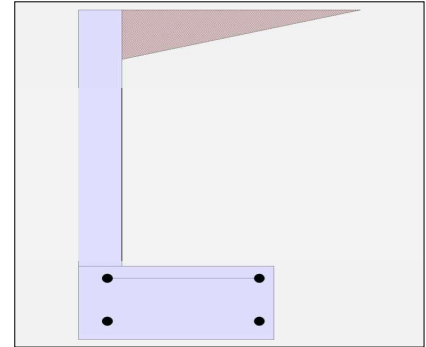
Calculations per IBC 2021, ACI 318-19, TMS 402-16

Criteria

Retained Height	=	3.50 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	0.00
Height of Soil over Toe	=	6.00 in
Water table above bottom of footing	=	0.0 ft

Soil Data

Allow Soil Bearing	=	1,500.0 psf
Equivalent Fluid Pressure Method		
Active Heel Pressure	=	35.0 psf/ft
	=	
Passive Pressure	=	100.0 psf/ft
Soil Density, Heel	=	110.00 pcf
Soil Density, Toe	=	110.00 pcf
Footing Soil Friction	=	0.400
Soil height to ignore for passive pressure	=	12.00 in



Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	0.0
Used for Sliding & Overturning		

Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

Lateral Load Applied to Stem

Lateral Load	=	0.0 #/ft
...Height to Top	=	0.00 ft
...Height to Bottom	=	0.00 ft
Load Type	=	Wind (W) (Service Level)
Wind on Exposed Stem	=	0.0 psf (Strength Level)

Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type	=	Line Load
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Cantilevered Retaining Wall

Project File: 25-172 brighton greens_012341.EC6

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: New Stair Retaining Wall

Design Summary

Wall Stability Ratios

Overturning	=	2.58	OK
Sliding	=	1.61	OK
Global Stability	=	3.20	
Total Bearing Load	=	1,430	lbs
...resultant ecc.	=	5.58	in
Eccentricity outside middle third			
Soil Pressure @ Toe	=	1,287	psf OK
Soil Pressure @ Heel	=	0	psf OK
Allowable	=	1,500	psf
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	1,802	psf
ACI Factored @ Heel	=	0	psf
Footing Shear @ Toe	=	0.0	psi OK
Footing Shear @ Heel	=	1.1	psi OK
Allowable	=	75.0	psi

Sliding Calcs

Lateral Sliding Force	=	354.4	lbs
-----------------------	---	-------	-----

Vertical component of active lateral soil pressure
 IS NOT considered in the calculation of soil
 bearing pressures.

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.600
Seismic, E	1.000

Stem Construction

Design Height Above Ftg	ft =	Stem OK	0.00
Wall Material Above "Ht"	=	Concrete	
Design Method	=	SD	SD SD
Thickness	=	6.00	
Rebar Size	=	# 5	
Rebar Spacing	=	12.00	
Rebar Placed at	=	Center	

Design Data

fb/FB + fa/Fa	=	0.108
---------------	---	-------

Total Force @ Section

Service Level	lbs =	
Strength Level	lbs =	343.0

Moment....Actual

Service Level	ft-# =	
Strength Level	ft-# =	400.2

Moment.....Allowable	=	3,674.7
----------------------	---	---------

Shear.....Actual

Service Level	psi =	
Strength Level	psi =	9.5

Shear.....Allowable	psi =	61.5
---------------------	-------	------

Anet (Masonry)	in2 =	
----------------	-------	--

Wall Weight	psf =	75.0
-------------	-------	------

Rebar Depth 'd'	in =	3.00
-----------------	------	------

Masonry Data

f'm	psi =	
Fs	psi =	
Solid Grouting	=	
Modular Ratio 'n'	=	
Equiv. Solid Thick.	=	
Masonry Block Type	=	
Masonry Design Method	=	ASD

Concrete Data

f'c	psi =	2,500.0
Fy	psi =	60,000.0

Summary of Sliding Forces

	<u>FS = 1.0</u>	<u>FS = 1.5</u>
Lateral Force @ Base of Footing	354.38 lbs	531.56 lbs
less 100% Passive Force	- 62.50 lbs	- 62.50 lbs
less 100% Friction Force	- 509.50 lbs	- 509.50 lbs
Added Resisting Force Required	0.0 lbs	
Added Resisting Force Required for 1.5 Factor of Safety		0.00 lbs

Sliding Factor of Safety = 1.614: 1.00

Cantilevered Retaining Wall

Project File: 25-172 brighton greens_012341.EC6

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: New Stair Retaining Wall

Concrete Stem Rebar Area Details

Bottom Stem	<u>Vertical Reinforcing</u>	<u>Horizontal Reinforcing</u>	
As (based on applied moment) :	0.0332 in2/ft		
0.0018bh : 0.0018(12)(6) :	0.1296 in2/ft	Horizontal Reinforcing Options :	
	=====	<u>One layer of :</u> <u>Two layers of :</u>	
Required Area :	0.1296 in2/ft	#4@ 18.52 in	#4@ 37.04 in
Provided Area :	0.31 in2/ft	#5@ 28.70 in	#5@ 57.41 in
Maximum Area :	0.4064 in2/ft	#6@ 40.74 in	#6@ 81.48 in

Footing Data

Toe Width	=	0.00 ft
Heel Width	=	2.25
Total Footing Width	=	2.25
Footing Thickness	=	12.00 in
f'c =	2,500 psi	Fy = 60,000 psi
Footing Concrete Density	=	150.00 pcf
Min. As %	=	0.0018
Cover @ Top	2.00	@ Btm.= 3.00 in

Footing Design Results

		<u>Toe</u>	<u>Heel</u>	
Factored Pressure	=	1,802	0	psf
Mu' : Upward	=	0	491	ft-#
Mu' : Downward	=	0	983	ft-#
Mu: Design	=	0	492	ft-#
φ Mn	=	OK - Flush	10,944	
Actual 1-Way Shear	=	0.00	1.12	psi
Allow 1-Way Shear	=	43.14	39.19	psi
Toe Reinforcing	=	Flush toe condition. No reinforcing required.		
Heel Reinforcing	=	# 5 @ 14.35 in		
Key Reinforcing	=	None Spec'd		
Footing Torsion, Tu	=		0.00	ft-lbs
Footing Allow. Torsion, φ Tn	=		0.00	ft-lbs

If torsion exceeds allowable, provide supplemental design for footing torsion.

Other Acceptable Sizes & Spacings

Toe: Flush toe condition. No reinforcing required.

Heel: #4@ 9.25 in, #5@ 14.35 in, #6@ 18 in, #7@ 18 in, #8@ 18 in, #9@ 18 in, #10@ 18 in

Key: No key defined

Min footing T&S reinf Area	0.58	in2
Min footing T&S reinf Area per foot	0.26	in2 /ft

If one layer of horizontal bars:

- #4@ 9.26 in
- #5@ 14.35 in
- #6@ 20.37 in

If two layers of horizontal bars:

- #4@ 18.52 in
- #5@ 28.70 in
- #6@ 40.74 in

Cantilevered Retaining Wall

Project File: 25-172 brighton greens_012341.EC6

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

(c) ENERCALC, LLC 1982-2025

DESCRIPTION: New Stair Retaining Wall

Summary of Overturning & Resisting Forces & Moments

ItemOVERTURNING.....			RESISTING.....		
	Force lbs	Distance ft	Moment ft-#		Force lbs	Distance ft	Moment ft-#
HL Act Pres (ab water tbl)	354.4	1.50	531.6	Soil Over HL (ab. water tbl)	673.8	1.38	926.4
HL Act Pres (be water tbl)				Soil Over HL (bel. water tbl)		1.38	926.4
Hydrostatic Force				Water Table			
Buoyant Force =				Sloped Soil Over Heel =			
Surcharge over Heel =				Surcharge Over Heel =			
Surcharge Over Toe =				Adjacent Footing Load =			
Adjacent Footing Load =				Axial Dead Load on Stem =			
Added Lateral Load =				* Axial Live Load on Stem =			
Load @ Stem Above Soil =				Soil Over Toe =			
				Surcharge Over Toe =			
				Stem Weight(s) =	262.5	0.25	65.6
				Earth @ Stem Transitions =			
Total	= 354.4	O.T.M.	= 531.6	Footing Weight =	337.5	1.13	379.7
				Key Weight =			
				Vert. Component =			
Resisting/Overturning Ratio		=	2.58	Total =	1,273.8 lbs	R.M.=	1,371.7
Vertical Loads used for Soil Pressure =		1,430.2 lbs		* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.			

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Sliding Resistance.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Overturning Resistance.

Tilt

Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus 250.0 pci
 Horizontal Defl @ Top of Wall (approximate only) 0.056 in

The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.

Cantilevered Retaining Wall

Project File: 25-172 brighton greens_012341.EC6

LIC# : KW-06012341, Build:20.25.07.09

Jackson & Sands Engineering

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DESCRIPTION: New Stair Retaining Wall

Rebar Lap & Embedment Lengths Information

Stem Design Segment: Bottom

Stem Design Height: 0.00 ft above top of footing

Lap Splice length for #5 bar specified in this stem design segment (25.4.2.4a) = 23.40 in

Development length for #5 bar specified in this stem design segment = 18.00 in

Hooked embedment length into footing for #5 bar specified in this stem design segment = 8.27 in

As Provided = 0.3100 in²/ft

As Required = 0.1296 in²/ft

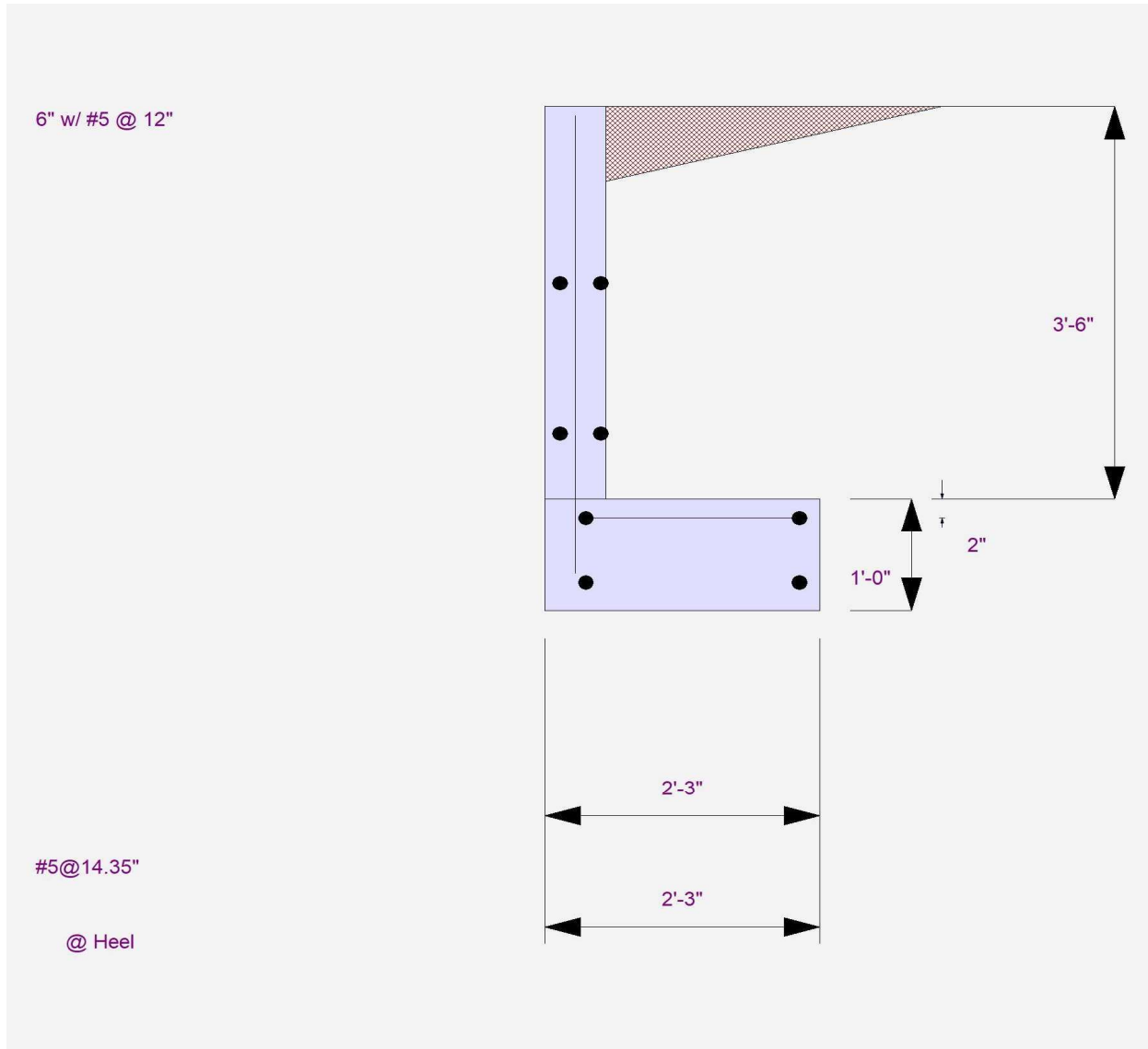
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