

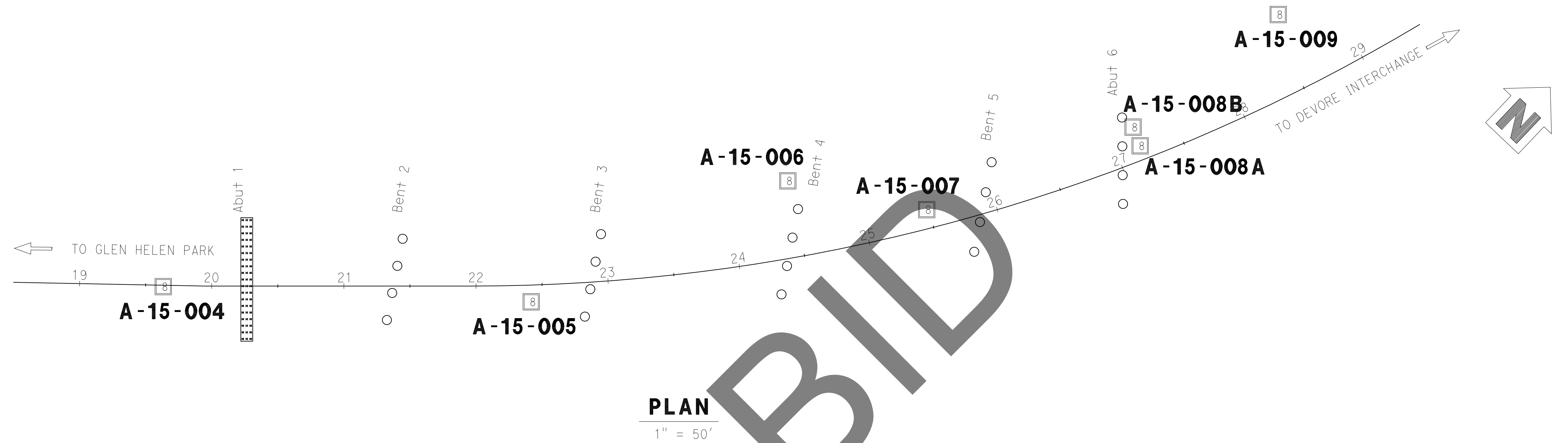
BENCHMARK:

Vertical Datum is NAVD-88 (NGS NAVD88), based on NGS benchmark EV3236 (2.5" BD marked "703 11RESET" Elev = 1837.16) and EV1453 (3.5" BD marked "L40 RESET" Elev = 2349.14) both part of the June 1991 adjustment.

Units: US Survey Feet

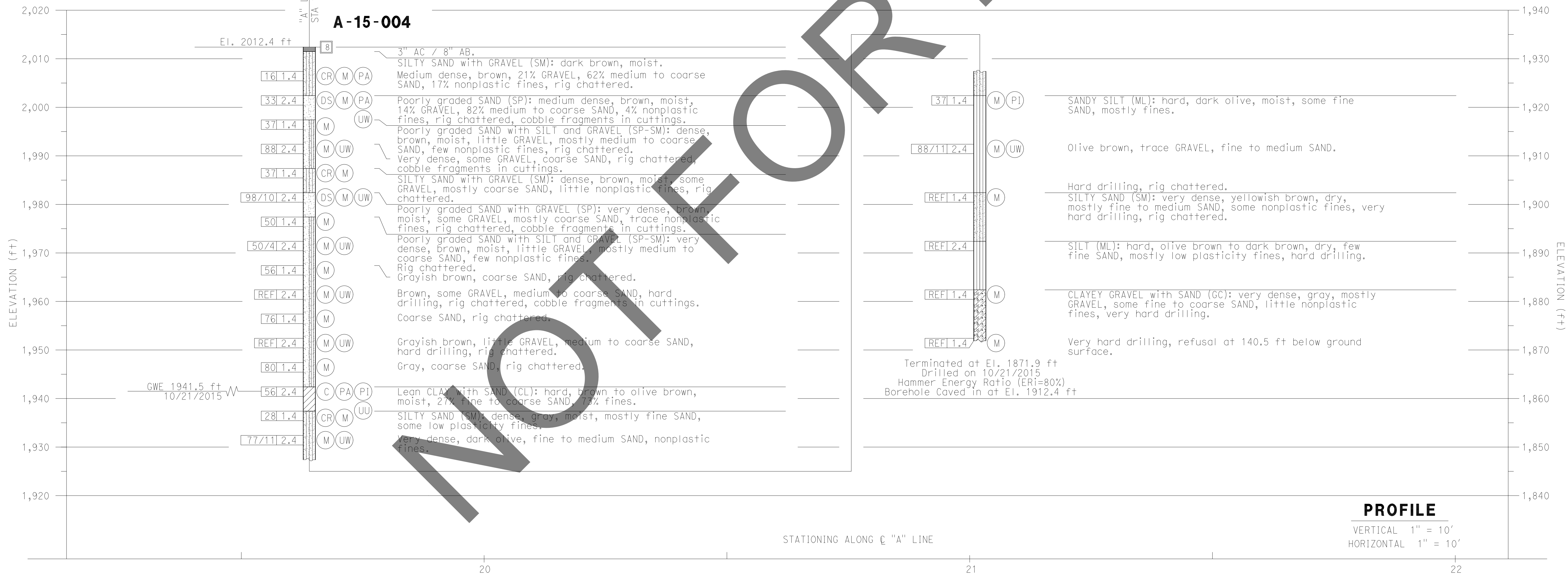
NOTES:

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- An automatic trip hammer system consisting of a hammer weight of 140 lbs falling a distance of 30" drop was used to advance the California Modified sampler.
- For Soil Legend, see (A10F) and (A10G).
- Boring A-15-006 was relocated 4 times due to refusal caused by buried boulders at shallow depths.
- Boring A-15-008 was relocated 4 times due to refusal caused by buried boulders at shallow depths.
- Cobbles and boulders up to 3 feet in diameter were observed at the existing ground surface during the recent field investigation. These oversized materials are also anticipated to be buried below the existing ground surface.



PLAN

1" = 50'



PROFILE

VERTICAL 1" = 10'
HORIZONTAL 1" = 10'

MARK	REV	RELEASE	DATE	DATE

FILE NO. L FILE

FILE NO. UR_FILE

<p>PLANS PREPARED BY:</p> <p>Earth Mechanics, Inc. Geotechnical & Earthquake Engineering 17800 NEWHOPE STREET, SUITE B, FOUNTAIN VALLEY, CA P. 714-751-3826</p>	<p>REGISTERED PROFESSIONAL ENGINEER</p> <p>NO CHANGES</p>		<p>THOMAS BUSTAMONTE, P.E. SUPERVISING ENGINEER</p>	<p>SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS</p>		<p>GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH LOG OF TEST BORINGS (1 OF 7)</p>
	<p>FIELD CHANGES</p>			<p>DESIGNED BY: PR</p> <p>DRAWN BY: PR</p> <p>CHECKED BY: AT</p>	<p>RECOMMENDED BY: 8/15/24</p> <p>APPROVED BY: 8/15/24</p>	

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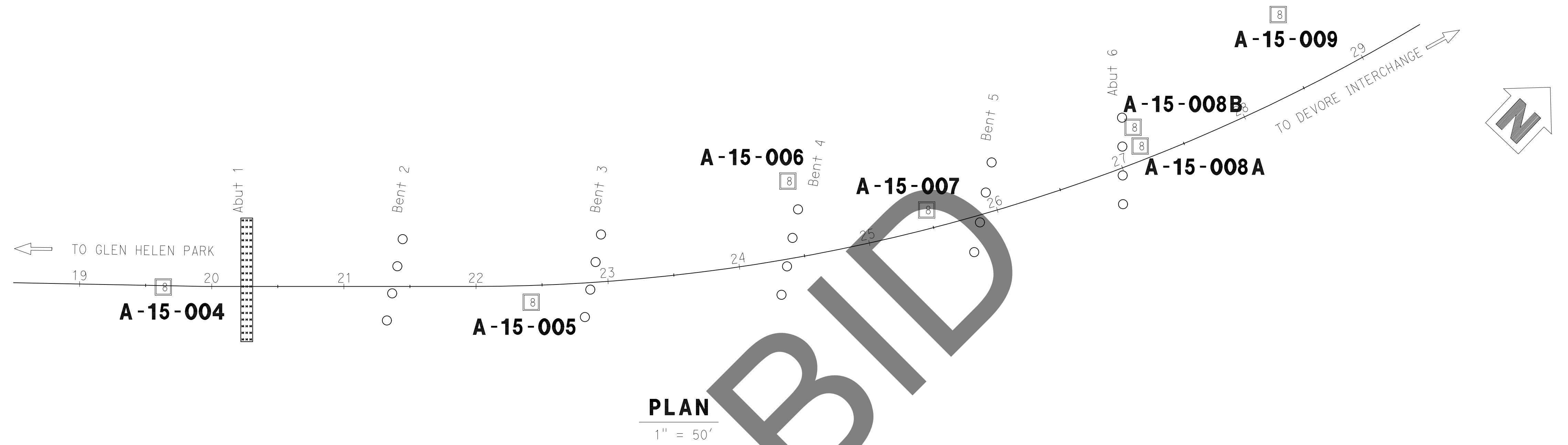
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- (4) For Soil Legend, see (A10F) and (A10G).
- (5) Boring A-15-006 was relocated 4 times due to refusal caused by buried boulders at shallow depths.
- (6) Boring A-15-008 was relocated 4 times due to refusal caused by buried boulders at shallow depths.
- (7) Cobbles and boulders up to 3 feet in diameter were observed at the existing ground surface during the recent field investigation. These oversized materials are also anticipated to be buried below the existing ground surface.



MARK	REV#	RELEASED	DATE	APPR.	DATE

FILE NO. L FILE

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PLANS PREPARED BY: Earth Mechanics, Inc. Geotechnical & Earthquake Engineering 17800 NEWHOPE STREET, SUITE B, FOUNTAIN VALLEY, CA P. 714-751-3826	FIELD CHANGES MARK CHANGES NO CHANGES RESIDENT ENGINEER DATE		 REGISTERED GEOTECHNICAL ENGINEER 7/29/24	SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS DESIGNED BY: PR DRAWN BY: PR CHECKED BY: AT RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24		GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH LOG OF TEST BORINGS (2 OF 7)		
	APPROVED BY: THOMAS BUSTAMONTE, P.E. SUPERVISING ENGINEER 8/15/24			APPROVED BY: DEBRA L. MCNEIL, P.E. DEPUTY DIRECTOR 8/15/24		J.L. REF. 11334	W.O. NO. H14646	DRAWING NO. S-35

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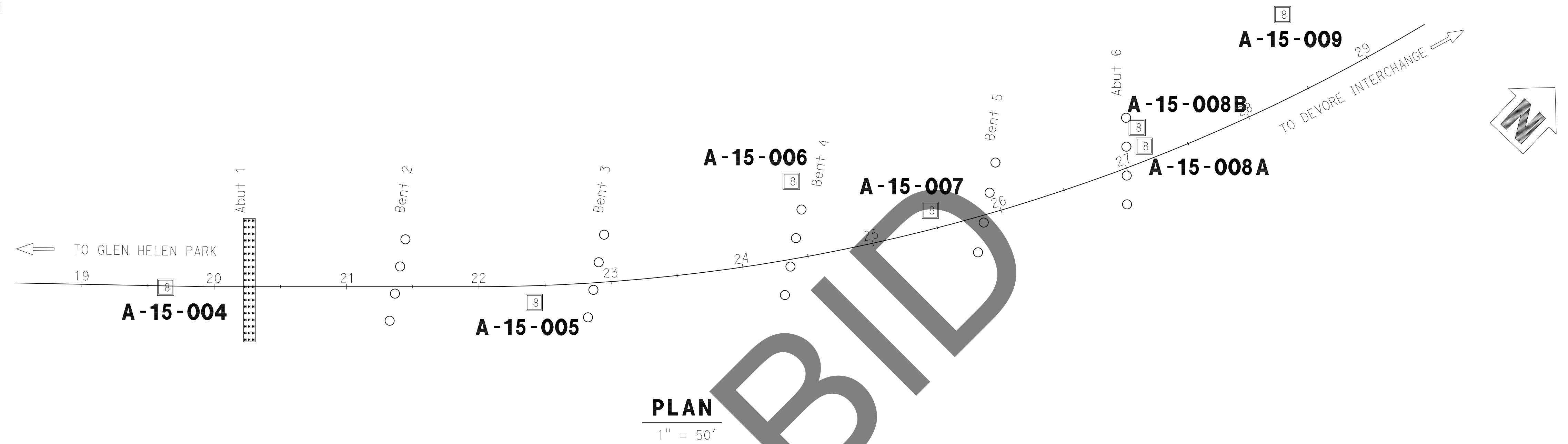
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- (5) Boring A-15-006 was relocated 4 times due to refusal caused by buried boulders at shallow depths.
- (6) Boring A-15-008 was relocated 4 times due to refusal caused by buried boulders at shallow depths.
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MARK	REVISIONS	DATE
MARK	REVISIONS	DATE
MARK	REVISIONS	DATE

FILE NO. L FILE

FILE NO. UR_FILE

PLANS PREPARED BY: Earth Mechanics, Inc. Geotechnical & Earthquake Engineering 17800 NEWHOPE STREET, SUITE B, FOUNTAIN VALLEY, CA P. 714-751-3826	FIELD CHANGES MARK CHANGES NO CHANGES RESIDENT ENGINEER DATE	 REGISTERED GEOTECHNICAL ENGINEER 7/29/24	SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS		GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH LOG OF TEST BORINGS (3 OF 7)
			DESIGNED BY: PR DRAWN BY: PR CHECKED BY: AT RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24 DATE	APPROVED BY: THOMAS BUSTAMONTE, P.E. SUPERVISING ENGINEER 8/15/24 DATE DEPUTY DIRECTOR	

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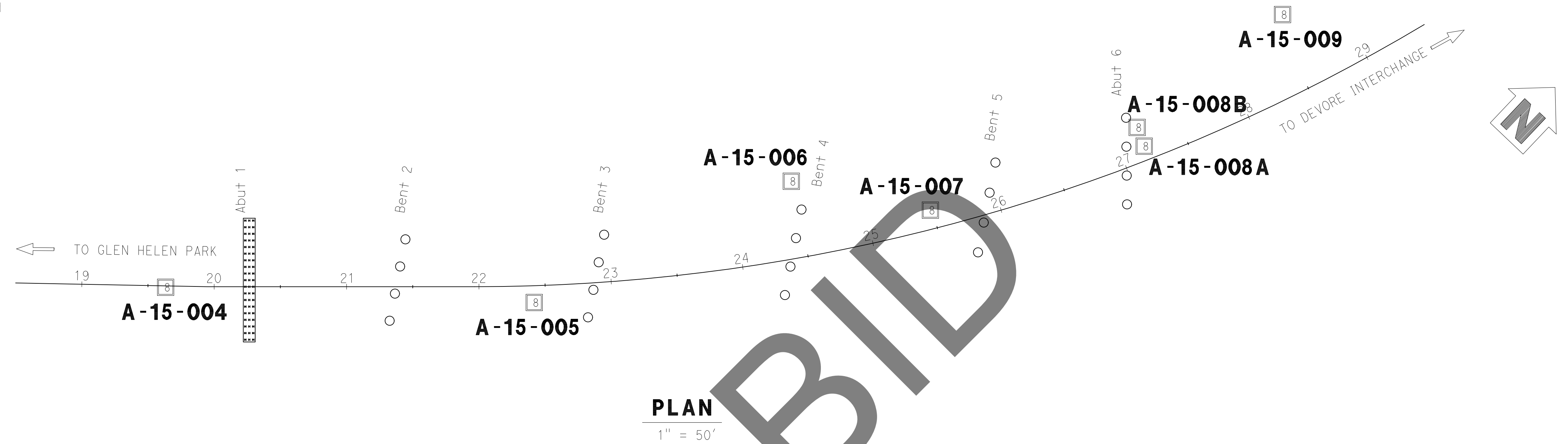
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- (4) For Soil Legend, see (A10F) and (A10G).
- (5) Boring A-15-006 was relocated 4 times due to refusal caused by buried boulders at shallow depths.
- (6) Boring A-15-008 was relocated 4 times due to refusal caused by buried boulders at shallow depths.
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PLAN
1" = 50'



PROFILE
VERTICAL 1" = 10'
HORIZONTAL 1" = 10'

MARK	REV#	RELEASE/DATE	REVISIONS	APPR.	DATE

FILE NO. LL FILE

FILE NO. UR_FILE

PLANS PREPARED BY: Earth Mechanics, Inc. Geotechnical & Earthquake Engineering 17800 NEWHOPE STREET, SUITE B, FOUNTAIN VALLEY, CA P. 714-751-3826	FIELD CHANGES MARK CHANGES NO CHANGES RESIDENT ENGINEER DATE		 Thomas Bustamante REGISTERED GEOTECHNICAL ENGINEER 7/29/24	SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS		GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH LOG OF TEST BORINGS (4 OF 7)
	DESIGNED BY: PR DRAWN BY: PR CHECKED BY: AT RECOMMENDED BY: <i>Chris Nguyen</i> CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24	APPROVED BY: <i>Thomas Bustamante</i> THOMAS BUSTAMANTE, P.E. SUPERVISING ENGINEER 8/15/24		J.L. REF. 11334 W.O. NO. H14646 DRAWING NO. S-37 SHT. NO. 82 TOT. SHTS. 102		

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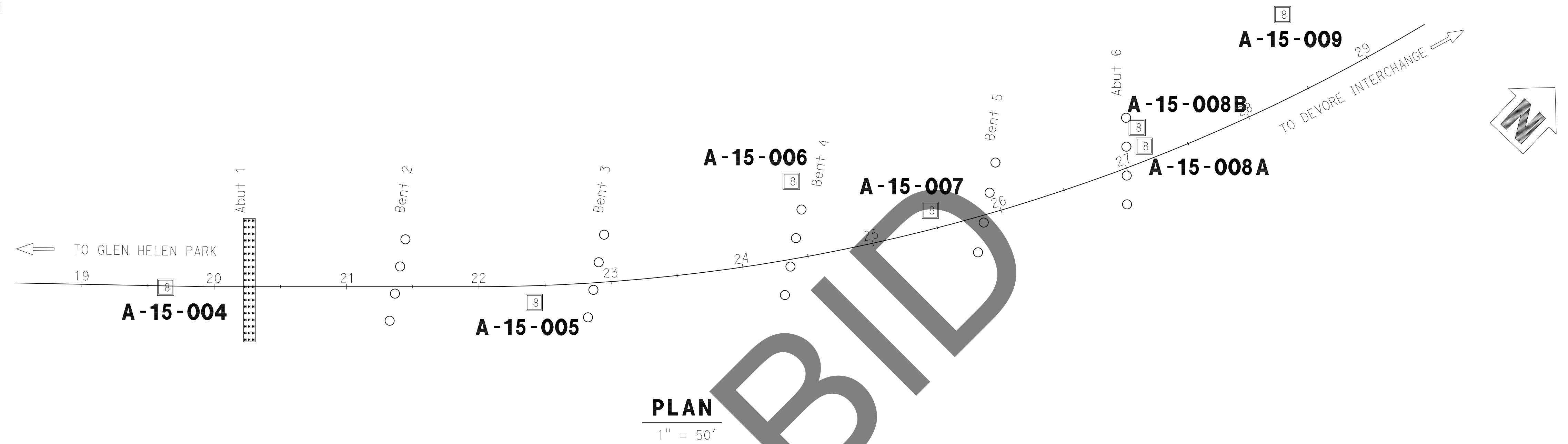
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PLAN
1" = 50'



PROFILE
VERTICAL 1" = 10'
HORIZONTAL 1" = 10'

MARK	REV	RELEASE	DATE	DATE

FILE NO. LL FILE

FILE NO. UR FILE

PLANS PREPARED BY: Earth Mechanics, Inc. Geotechnical & Earthquake Engineering 17800 NEWHOPE STREET, SUITE B, FOUNTAIN VALLEY, CA P. 714-751-3826	FIELD CHANGES MARK CHANGES NO CHANGES RESIDENT ENGINEER DATE		 REGISTERED GEOTECHNICAL ENGINEER 7/29/24	SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS		GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH LOG OF TEST BORINGS (5 OF 7)
	DESIGNED BY: PR DRAWN BY: PR CHECKED BY: AT RECOMMENDED BY: CHRIS NGUYEN, P.E., ENGINEERING MANAGER, 8/15/24 DATE	APPROVED BY: THOMAS BUSTAMONTE, P.E., SUPERVISING ENGINEER, 8/15/24 DATE		APPROVED BY: MERVAL N. CARRILL, P.E., DEPUTY DIRECTOR, 8/15/24 DATE	J.L. REF. 11334 W.O. NO. H14646 DRAWING NO. S-38 SHT. NO. 83 TOT. SHTS. 102	

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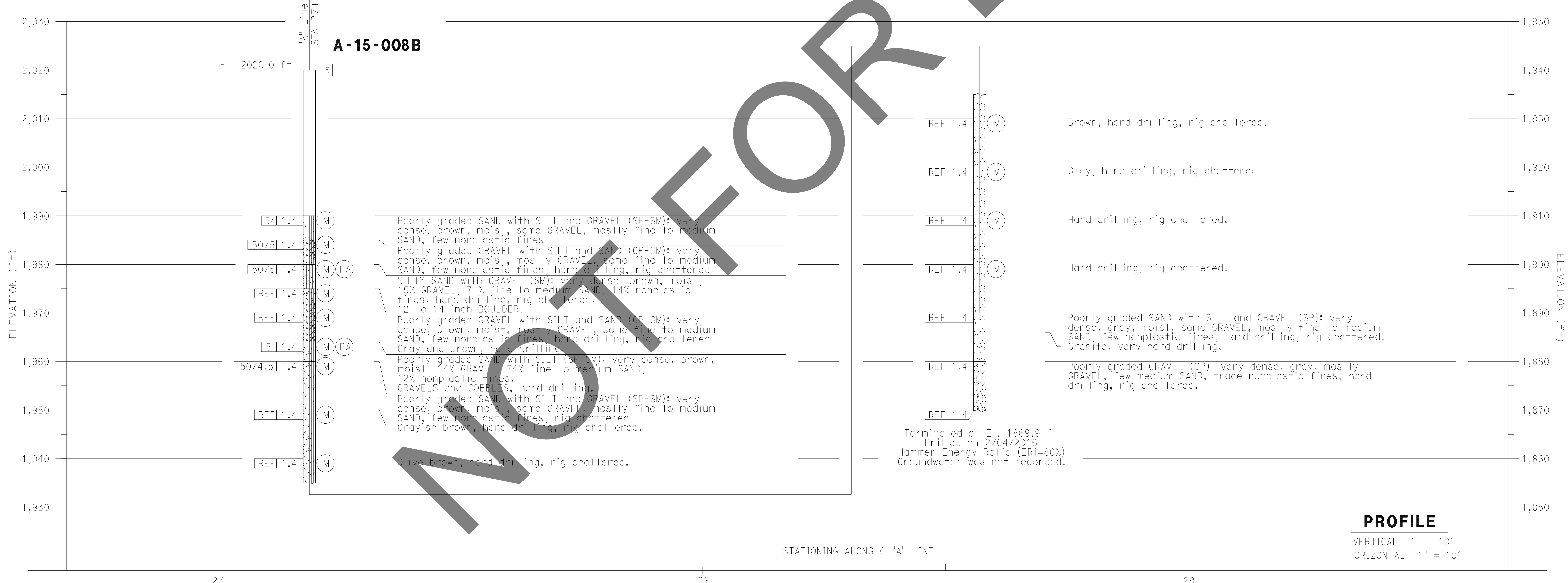
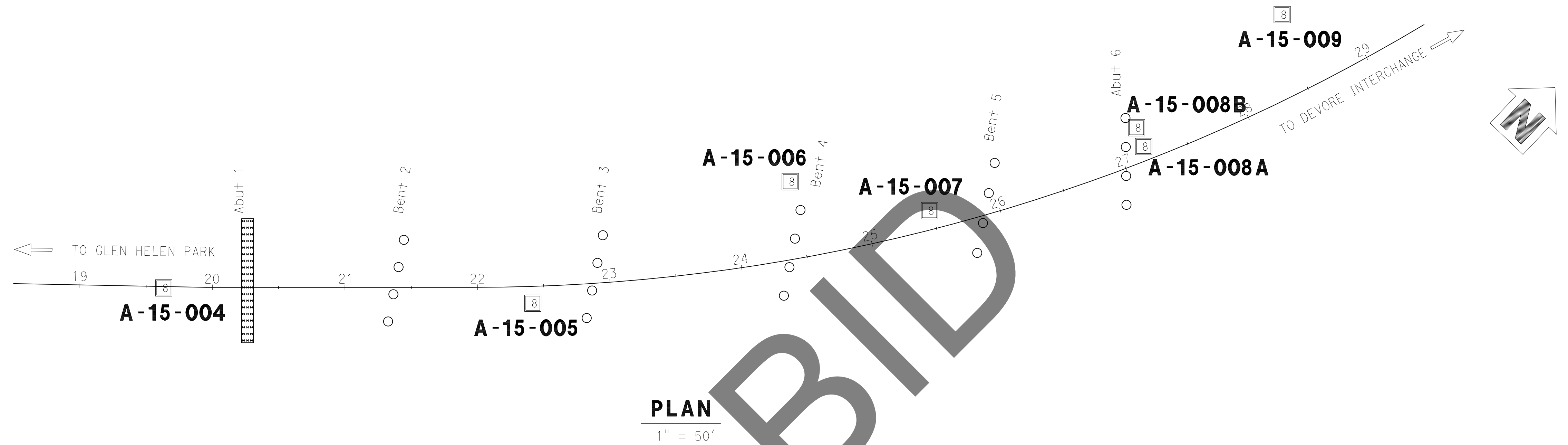
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			DESIGNED BY: PR DRAWN BY: PR CHECKED BY: AT RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER APPROVED BY: THOMAS BUSTAMONTE, P.E. SUPERVISING ENGINEER	DATE: 8/15/24	DATE: 8/15/24	J.L. REF. 11334 W.O. NO. H14646 DRAWING NO. S-39 SHT. NO. 84 TOT. SHTS. 102	

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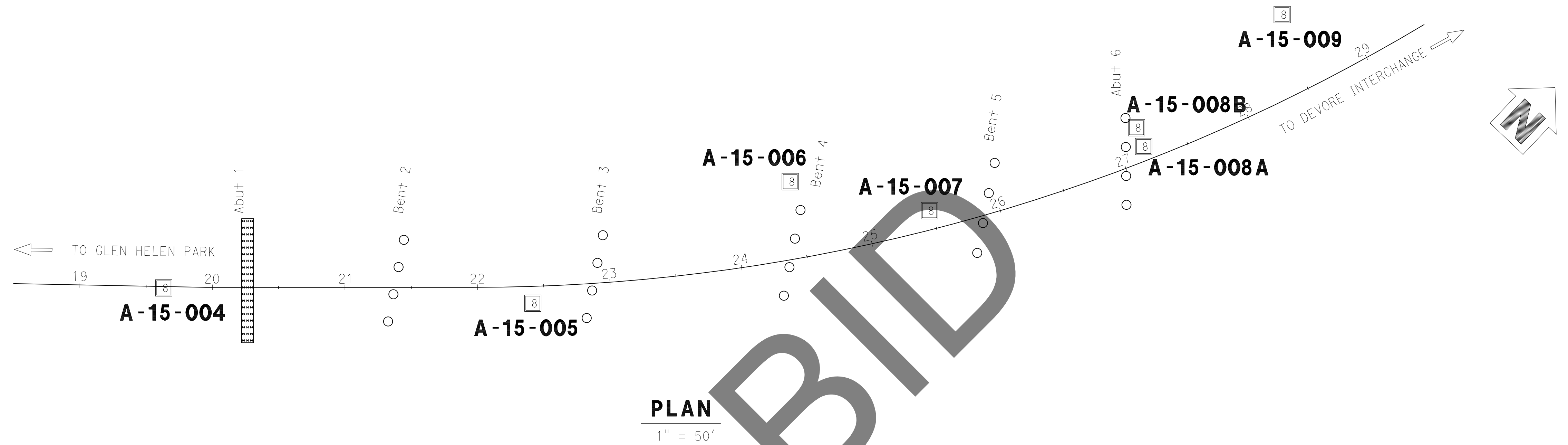
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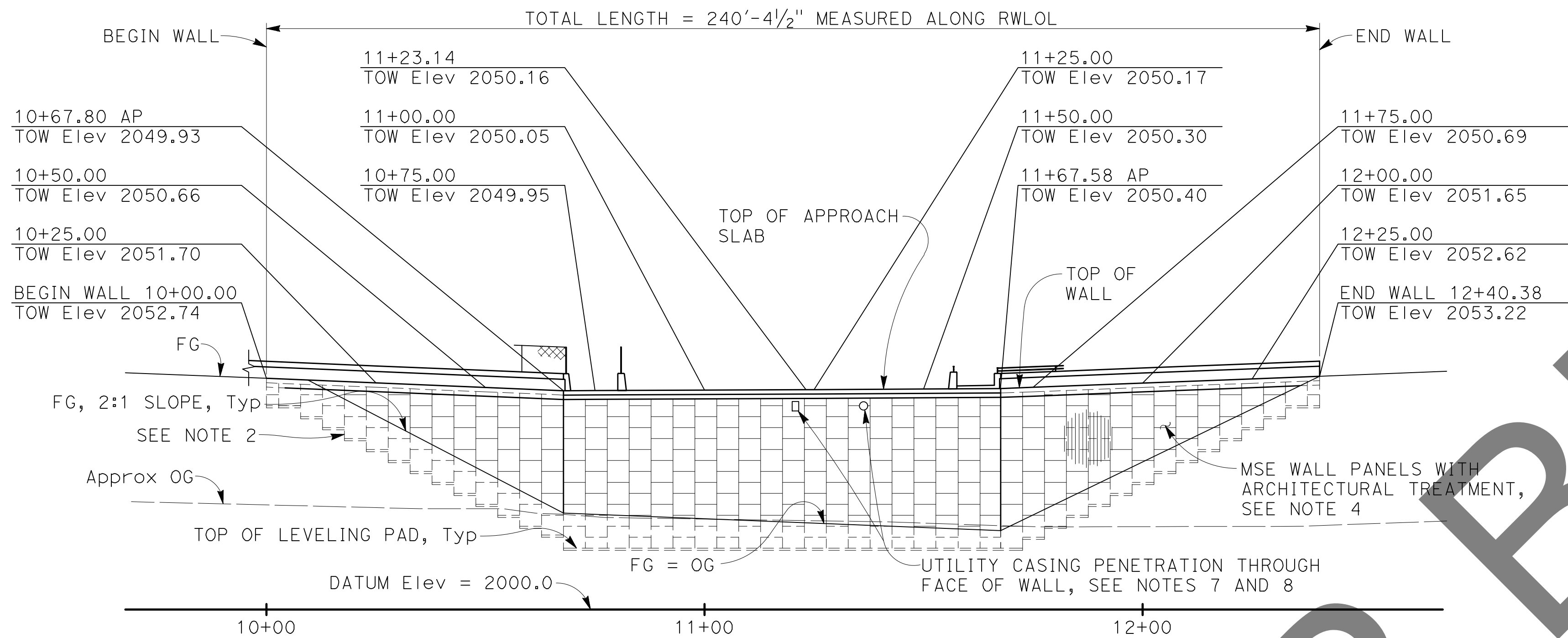
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	DESIGNED BY: PR DRAWN BY: PR CHECKED BY: AT RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER DATE: 8/15/24	APPROVED BY: THOMAS BUSTAMANTE, P.E. SUPERVISING ENGINEER DATE: 8/15/24	APPROVED BY: MERVAL N. CARRILL, P.E. DEPUTY DIRECTOR DATE: 8/15/24	J.L. REF. 11334 W.O. NO. H14646 DRAWING NO. S-40 SHT. NO. 85 TOT. SHTS. 102

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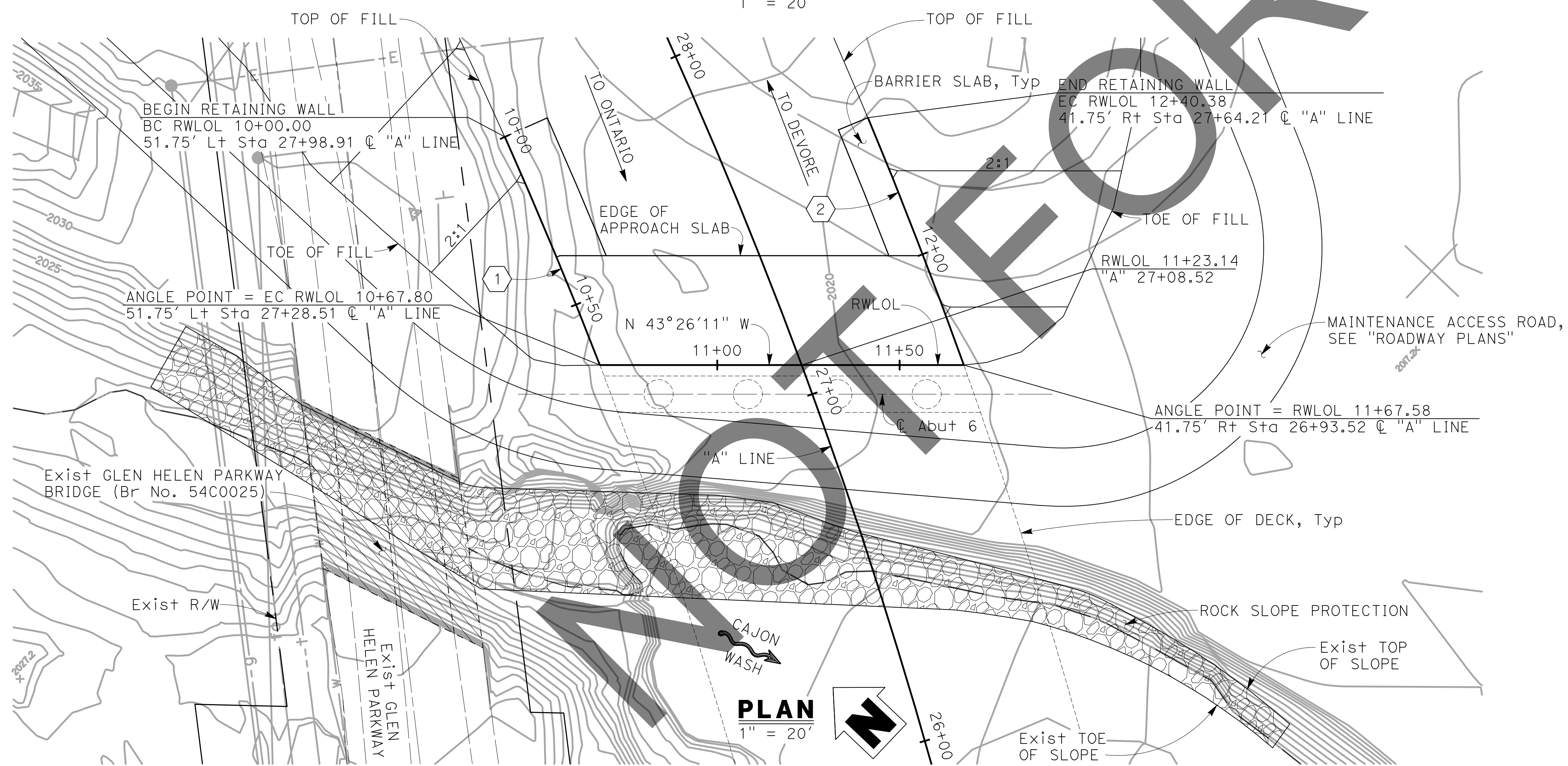


DEVELOPED ELEVATION
1" = 20'

- NOTES:
1. For MSE wall details, see "MSE RETAINING WALL DETAILS" sheets.
 2. For top of leveling pad elevations and welded wire mat soil reinforcement schedule, see "MSE RETAINING WALL STRUCTURE PLAN" sheets.
 3. For structure approach slab details, see "STRUCTURE APPROACH" sheets.
 4. For architectural treatment details, see "MSE RETAINING WALL DETAILS No. 5" sheet.
 5. For FG and OG elevations, see "ROADWAY PLANS".
 6. For General Notes, see "MSE RETAINING WALL GENERAL NOTES" sheet.
 7. For Wall penetration details, see "MSE RETAINING WALL DETAILS No. 5" sheet.
 8. For locations of utility casings, see BRIDGE PLANS.

- LEGEND:
- ▨ Indicates Bridge Removal
 - Indicates Existing Structure

CURVE ALIGNMENT DATA				
No.	R	Δ	TANGENT	LENGTH
①	1348.25'	02°52'53"	33.91'	67.80'
②	1441.75'	02°49'18"	35.51'	72.80'



PLAN
1" = 20'

MARK	REVISIONS	DATE

FILE NO. 382400 050

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

PLANS PREPARED BY:
BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS
500 S. Main Street, Suite 1200
Orange, California 92668
714-550-4665

REGISTERED PROFESSIONAL ENGINEER
MICHAEL A. THOMAS
No. 54676
Exp. 9/30/24
STRUCTURAL
STATE OF CALIFORNIA

7/29/24
REGISTERED STRUCTURAL ENGINEER

MARK	CHANGES	RESIDENT ENGINEER	DATE

FIELD CHANGES

100% SUBMISSION

SAN BERNARDINO COUNTY
DEPARTMENT OF PUBLIC WORKS

GLEN HELEN PARKWAY BRIDGE
OVER CAJON WASH
MSE RETAINING WALL LAYOUT

DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24 DATE
APPROVED BY: Thomas Bustamonte SUPERVISING ENGINEER 8/15/24 DATE			APPROVED BY: MERVA NICKERHILL, P.E. DEPUTY DIRECTOR 8/15/24 DATE

J.L. REF.	W.O. NO.	DRAWING NO.	SHT. NO.	TOT. SHTS.
11334	H14646	S-100	86	102

GENERAL NOTES LOAD & RESISTANCE FACTOR DESIGN

DESIGN: AASHTO LRFD Bridge Design Specifications, 6th Edition with California Amendments

LIVE LOAD: Surcharge = 240 lb/ft²

SOIL PARAMETERS:
 Internal design $V = 34^\circ, \gamma = 120 \text{ lb/ft}^3$
 External design $V(\text{Retained Backfill}) = 30^\circ, \gamma = 120 \text{ lb/ft}^3$
 $V(\text{Foundation}) = 30^\circ$
 $K_h = 0.371$

PRECAST CONCRETE PANELS:
 $f'_c = 4,000 \text{ psi}$ (Concrete compressive strength at 28 days)
 $f_y = 60,000 \text{ psi}$ (Yield strength of reinforcement)

SOIL REINFORCEMENT:
 Welded wire mats: $f_y = 65,000 \text{ psi}$ (Yield strength)
 Coupler: $f_y = 36,000 \text{ psi}$ (Yield strength)
 Corrosion rate = 1.1 mils/year

REINFORCED CONCRETE:
 $f'_c = 3,600 \text{ psi}$, except as noted
 (Concrete compressive strength at 28 days)
 $f_y = 60,000 \text{ psi}$ (Yield strength of reinforcement)

All reinforcement in barrier slab and wall coping shall be epoxy coated prefabricated reinforcement with purple coating.

LOAD COMBINATIONS AND LIMIT STATES:
 Service I $Q = 1.00DC + 1.00EV + 1.00EH + 1.00LS$
 Strength I $Q = aDC + pEV + nEH + 1.75LS$
 Extreme I $Q = 1.00DC + 1.00EV + 1.00EH + 1.00EQD + 1.00EQE$
 Extreme II $Q = 1.00DC + 1.00EV + 1.00EH + 1.00CT$

OVER-EXCAVATION:
 The existing soils below the mse wall base shall be over-excavated 2 Ft below the wall base and re-compacted to 95% relative compaction. The lateral extent of the scarification should be at least 2 Ft beyond the edges of the MSE wall base width. Where mse walls will be embedded in import fill material, the upper 2 Ft of import fill below the wall base should be select fill material. The limits of the select fill material below the MSE wall base should extend laterally from 2 Ft beyond the edges of the base and down at 45-degree imaginary plane for a depth of 2 Ft. The select fill material should be compacted to at least 95% relative compaction determined using CT 216. Also see "MSE OVER-EXCAVATION PAY LIMITS" and Retaining Wall Elevations.

CALTRANS 2023 STANDARD PLANS

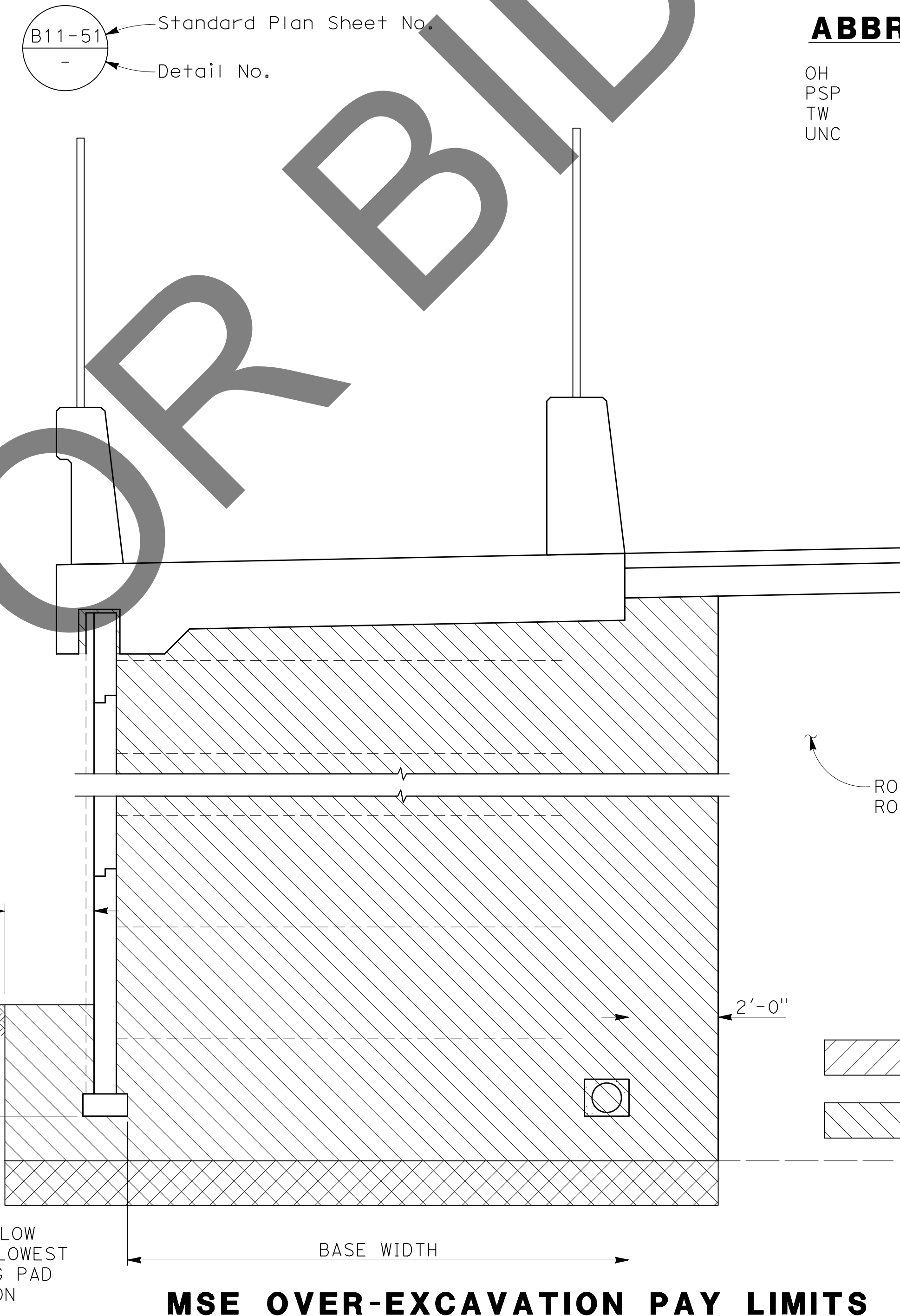
A3A	ABBREVIATIONS (SHEET 1 OF 3)
A3B	ABBREVIATIONS (SHEET 2 OF 3)
A3C	ABBREVIATIONS (SHEET 3 OF 3)
A10A	LEGEND - LINES AND SYMBOLS (SHEET 1 OF 5)
A10B	LEGEND - LINES AND SYMBOLS (SHEET 2 OF 5)
A10C	LEGEND - LINES AND SYMBOLS (SHEET 3 OF 5)
A10D	LEGEND - LINES AND SYMBOLS (SHEET 4 OF 5)
A10E	LEGEND - LINES AND SYMBOLS (SHEET 5 OF 5)
A10F	LEGEND - SOIL (SHEET 1 OF 2)
A10G	LEGEND - SOIL (SHEET 2 OF 2)
B11-51	TUBULAR HAND RAILING
B11-52	CHAIN LINK RAILING TYPE 7
B11-58	CONCRETE BARRIER - TYPE 732SW (SHEET 1 OF 2)
B11-59	CONCRETE BARRIER - TYPE 732SW (SHEET 2 OF 2)
B11-81	CONCRETE BARRIER - TYPE 842 DETAILS No. 1
B11-82	CONCRETE BARRIER - TYPE 842 DETAILS No. 2
D102	UNDERDRAINS
RSP	
RSP	

RETAINING WALL DRAWING INDEX

Sheet No.	Title
S-100	MSE RETAINING WALL LAYOUT
S-101	MSE RETAINING WALL GENERAL NOTES
S-102	MSE RETAINING WALL STRUCTURE PLAN No. 1
S-103	MSE RETAINING WALL STRUCTURE PLAN No. 2
S-104	MSE RETAINING WALL TYPICAL SECTIONS
S-105	MSE RETAINING WALL DETAILS No. 1
S-106	MSE RETAINING WALL DETAILS No. 2
S-107	MSE RETAINING WALL DETAILS No. 3
S-108	MSE RETAINING WALL DETAILS No. 4
S-109	MSE RETAINING WALL DETAILS No. 5
S-110	MSE RETAINING WALL DETAILS No. 6

ABBREVIATIONS

OH	Opposite Hand
PSP	Perforated Steel Pipe
TW	Top of wall
UNC	Unified Coarse Threads



MSE OVER-EXCAVATION PAY LIMITS

100% SUBMISSION

PLANS PREPARED BY: BIGGS CARDOSA ASSOCIATES INC STRUCTURAL ENGINEERS 500 S. Main Street, Suite 1200 Orange, California 92668 714-550-4665	REGISTERED PROFESSIONAL ENGINEER No. 54676 Exp. 9/30/24 STATE OF CALIFORNIA	SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS		GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH MSE RETAINING WALL GENERAL NOTES			
		DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: Chris Nguyen, P.E. ENGINEERING MANAGER	DATE: 8/15/24	
		APPROVED BY: Thomas Bustamonte, P.E. SUPERVISING ENGINEER		DATE: 8/15/24	APPROVED BY: Mervat Nizar Khalil, P.E. DEPUTY DIRECTOR		DATE: 8/15/24
FIELD CHANGES MARK CHANGES NO CHANGES RESIDENT ENGINEER DATE		J.L. REF. 11334 W.O. NO. H14646 DRAWING NO. S-101 SHT. NO. 87 TOT. SHTS. 102					

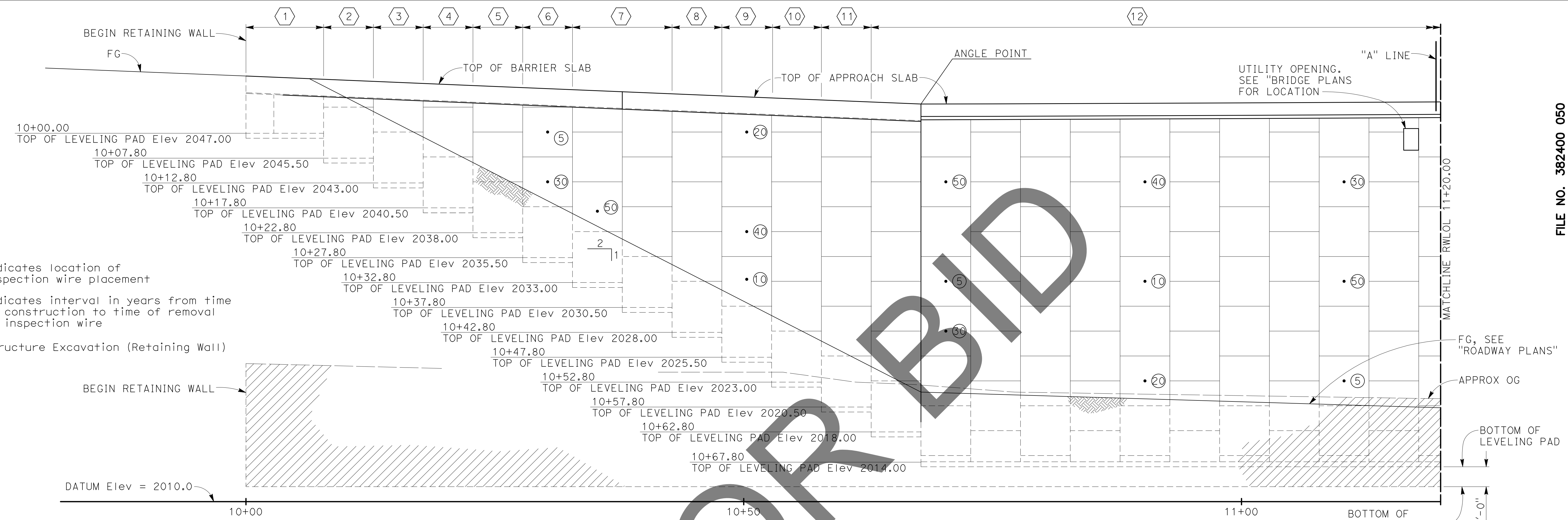
FILE NO. 382400 050

NOTE:
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MARK	REVISIONS	DATE

MARK	REVISIONS	DATE

FILE NO. 382400 050



RETAINING WALL LEFT ELEVATION
1" = 5'

WELDED WIRE MAT SOIL REINFORCEMENT SCHEDULE

	1	2	3	4	5	6
MAXIMUM WALL DESIGN HEIGHT, H	H ≤ 6'-8"	H ≤ 9'-2"	H ≤ 11'-8"	H ≤ 14'-2"	H ≤ 16'-8"	H ≤ 19'-2"
WALL LENGTH	7'-9 5/8"	7'-9 5/8"	5'-0"	5'-0"	5'-0"	5'-0"
BASE WIDTH, BW (LENGTH OF SOIL REINFORCEMENT, L)	BW = 9'-6" (8'-0")	BW = 10'-6" (9'-0")	BW = 11'-0" (9'-6")	BW = 13'-0" (11'-6")	BW = 14'-0" (12'-6")	BW = 15'-6" (14'-0")
	Top 4-W15xW15 @ 6 Bot 4-W15xW15 @ 6	Top 4-W15xW15 @ 6 1 OF 4-W15xW15 @ 6 Bot 4-W15xW15 @ 6	Top 4-W15xW15 @ 6 2 OF 4-W15xW15 @ 6 Bot 4-W20xW15 @ 9	Top 4-W15xW15 @ 6 3 OF 4-W15xW15 @ 6 Bot 4-W20xW15 @ 9	Top 4-W15xW15 @ 6 3 OF 4-W15xW15 @ 6 1 OF 4-W20xW15 @ 9 Bot 4-W20xW15 @ 9	Top 4-W15xW15 @ 6 4 OF 4 W15xW15 @ 6 1 OF 4 W20xW15 @ 9 Bot 4-W20xW15 @ 9
	7	8	9	10	11	12
MAXIMUM WALL DESIGN HEIGHT, H	H ≤ 21'-8"	H ≤ 24'-2"	H ≤ 26'-8"	H ≤ 29'-2"	H ≤ 31'-8"	H ≤ 36'-8"
WALL LENGTH	5'-0"	10'-0"	5'-0"	5'-0"	5'-0"	109'-9 1/4"
BASE WIDTH, BW (LENGTH OF SOIL REINFORCEMENT, L)	BW = 17'-6" (16'-0")	BW = 21'-6" (20'-0")	BW = 24'-0" (22'-6")	BW = 25'-6" (24'-0")	BW = 27'-0" (25'-6")	BW = 32'-0" (30'-6")
	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 2 OF 4-W20xW15 @ 24 Bot 4-W20xW15 @ 24	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 3 OF 4-W20xW15 @ 24 Bot 4-W20xW15 @ 24	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 4 OF 4-W20xW15 @ 24 1 OF 6-W25xW15 @ 24 Bot 6-W25xW15 @ 24	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 3 OF 4-W20xW15 @ 24 2 OF 6-W25xW15 @ 24 Bot 6-W25xW15 @ 24	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 4 OF 4-W20xW15 @ 24 2 OF 6-W25xW15 @ 30 Bot 6-W25xW15 @ 30	Top 4-W20xW15 @ 9 4 OF 4-W15xW15 @ 18 4 OF 4-W20xW15 @ 24 4 OF 6-W25xW15 @ 30 Bot 6-W25xW15 @ 30

NOTES:
 1. For longitudinal wire spacing and orientation see "MSE RETAINING WALL DETAILS No. 2" sheet.
 2. Example Configuration: 3 of 4-W20xW15 @ 24
 3 of = 3 levels of reinforcement mats with
 4-W20x = 4 longitudinal wires W20 sized by
 W15 @ 24 = W15 sized transverse wires at 24-inch spacing

MARK	REVISIONS	DATE

FILE NO. 382400 050

NOTE:
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PLANS PREPARED BY:
BIGGS CARDOSA ASSOCIATES INC
 STRUCTURAL ENGINEERS
 500 S. Main Street, Suite 1200
 Orange, California 92668
 714-550-4665



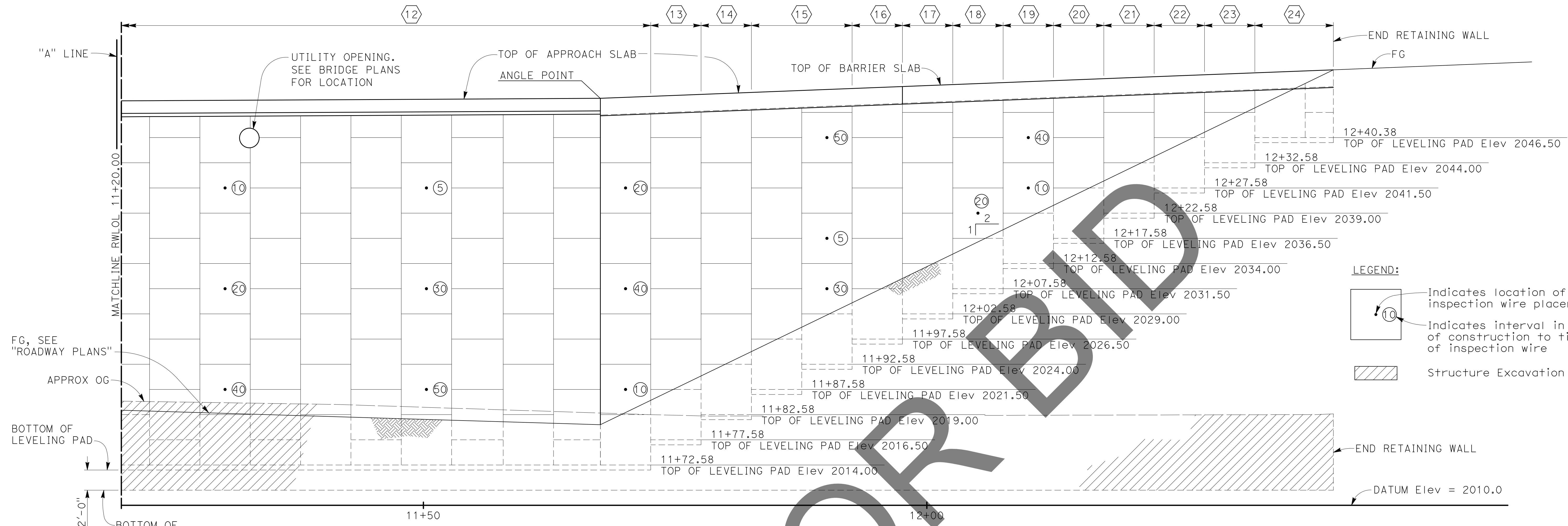
MARK	CHANGES	RESIDENT ENGINEER	DATE

FIELD CHANGES

SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS			
DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24
APPROVED BY: Thomas Bustamonte SUPERVISING ENGINEER 8/15/24		APPROVED BY: CHRIS NGUYEN, P.E. DEPUTY DIRECTOR 8/15/24	

GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH MSE RETAINING WALL STRUCTURE PLAN No. 1			
J.L. REF. 11334	W.O. NO. H14646	DRAWING NO. S-102	SHT. NO. TOT. SHTS. 88 102

100% SUBMISSION



RETAINING WALL RIGHT ELEVATION

WELDED WIRE MAT SOIL REINFORCEMENT SCHEDULE						
	13	14	15	16	17	18
MAXIMUM WALL DESIGN HEIGHT, H	H ≤ 34'-2"	H ≤ 31'-8"	H ≤ 29'-2"	H ≤ 26'-8"	H ≤ 24'-2"	H ≤ 21'-8"
WALL LENGTH	5'-0"	5'-0"	10'-0"	5'-0"	5'-0"	5'-0"
BASE WIDTH, BW (LENGTH OF SOIL REINFORCEMENT, L)	BW = 29'-6" (28'-0")	BW = 27'-6" (26'-0")	BW = 25'-6" (24'-0")	BW = 24'-0" (22'-6")	BW = 21'-6" (20'-0")	BW = 17'-6" (16'-0")
	Top 4-W20xW15 @ 9 4 OF 4-W15xW15 @ 18 4 OF 4-W20xW15 @ 24 3 OF 6-W25xW15 @ 30 Bot 6-W25xW15 @ 30	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 4 OF 4-W20xW15 @ 24 2 OF 6-W25xW15 @ 30 Bot 6-W25xW15 @ 30	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 3 OF 4-W20xW15 @ 24 2 OF 6-W25xW15 @ 24 Bot 6-W25xW15 @ 24	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 3 OF 4-W20xW15 @ 24 1 OF 6-W25xW15 @ 24 Bot 6-W25xW15 @ 24	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 3 OF 4-W20xW15 @ 24 Bot 4-W20xW15 @ 24	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 18 2 OF 4-W20xW15 @ 24 Bot 4-W20xW15 @ 24
	19	20	21	22	23	24
MAXIMUM WALL DESIGN HEIGHT, H	H ≤ 19'-2"	H ≤ 16'-8"	H ≤ 14'-2"	H ≤ 11'-8"	H ≤ 9'-2"	H ≤ 6'-8"
WALL LENGTH	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	7'-9 5/8"
BASE WIDTH, BW (LENGTH OF SOIL REINFORCEMENT, L)	BW = 15'-6" (14'-0")	BW = 14'-0" (12'-6")	BW = 12'-6" (11'-0")	BW = 11'-0" (9'-6")	BW = 10'-6" (9'-0")	BW = 9'-6" (8'-0")
	Top 4-W15xW15 @ 6 4 OF 4-W15xW15 @ 6 1 OF 4-W20xW15 @ 9 Bot 4-W20xW15 @ 9	Top 4-W15xW15 @ 6 3 OF 4-W15xW15 @ 6 1 OF 4-W20xW15 @ 9 Bot 4-W20xW15 @ 9	Top 4-W15xW15 @ 6 3 OF 4-W15xW15 @ 6 Bot 4-W20xW15 @ 9	Top 4-W15xW15 @ 6 2 OF 4-W15xW15 @ 6 Bot 4-W20xW15 @ 9	Top 4-W15xW15 @ 6 1 OF 4-W15xW15 @ 6 Bot 4-W15xW15 @ 6	Top 4-W15xW15 @ 6 Bot 4-W15xW15 @ 6

NOTES:
 1. For longitudinal wire spacing and orientation see "MSE RETAINING WALL DETAILS No. 2" sheet.
 2. Example Configuration: 3 of 4-W20xW15 @ 24
 3 of = 3 levels of reinforcement mats with
 4-W20x = 4 longitudinal wires W20 sized by
 W15 @ 24 = W15 sized transverse wires at 24-inch spacing

FILE NO. 382400 050

NOTE:
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PLANS PREPARED BY:
BIGGS CARDOSA ASSOCIATES INC
 STRUCTURAL ENGINEERS
 500 S. Main Street, Suite 1200
 Orange, California 92668
 714-550-4665



MARK	CHANGES	RESIDENT ENGINEER	DATE
	NO CHANGES		

FIELD CHANGES

SAN BERNARDINO COUNTY
 DEPARTMENT OF PUBLIC WORKS

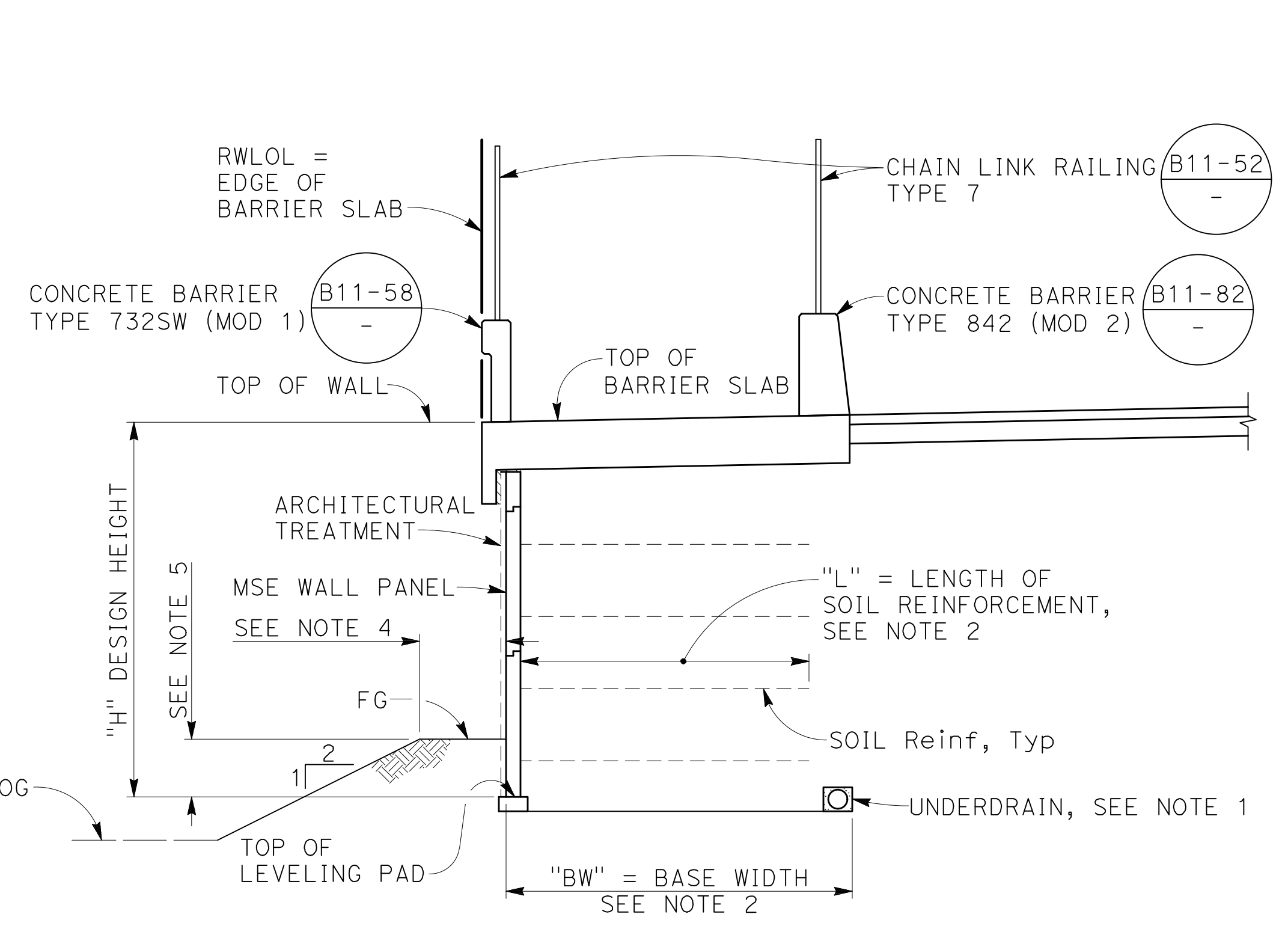
DESIGNED BY: GOD DRAWN BY: SMH CHECKED BY: SEM RECOMMENDED BY: CHRIS NGUYEN P.E. ENGINEERING MANAGER 8/15/24 DATE

APPROVED BY: Thomas Bustamante 8/15/24 DATE SUPERVISING ENGINEER DEPUTY DIRECTOR

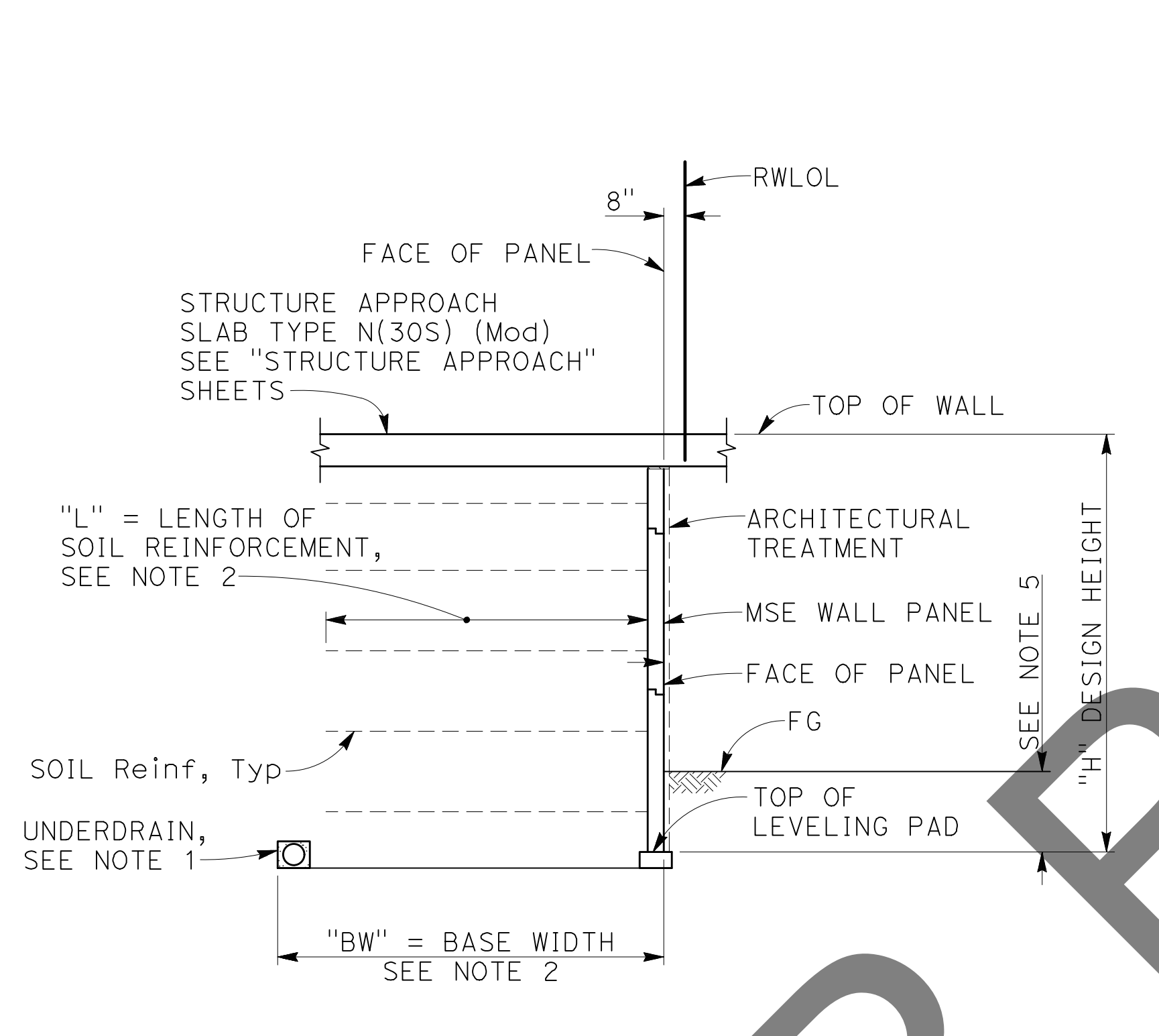
GLEN HELEN PARKWAY BRIDGE
 OVER CAJON WASH
 MSE RETAINING WALL STRUCTURE PLAN
 No. 2

J.L. REF. 11334 W.O. NO. H14646 DRAWING NO. S-103 SHT. NO. 89 TOT. SHTS. 102

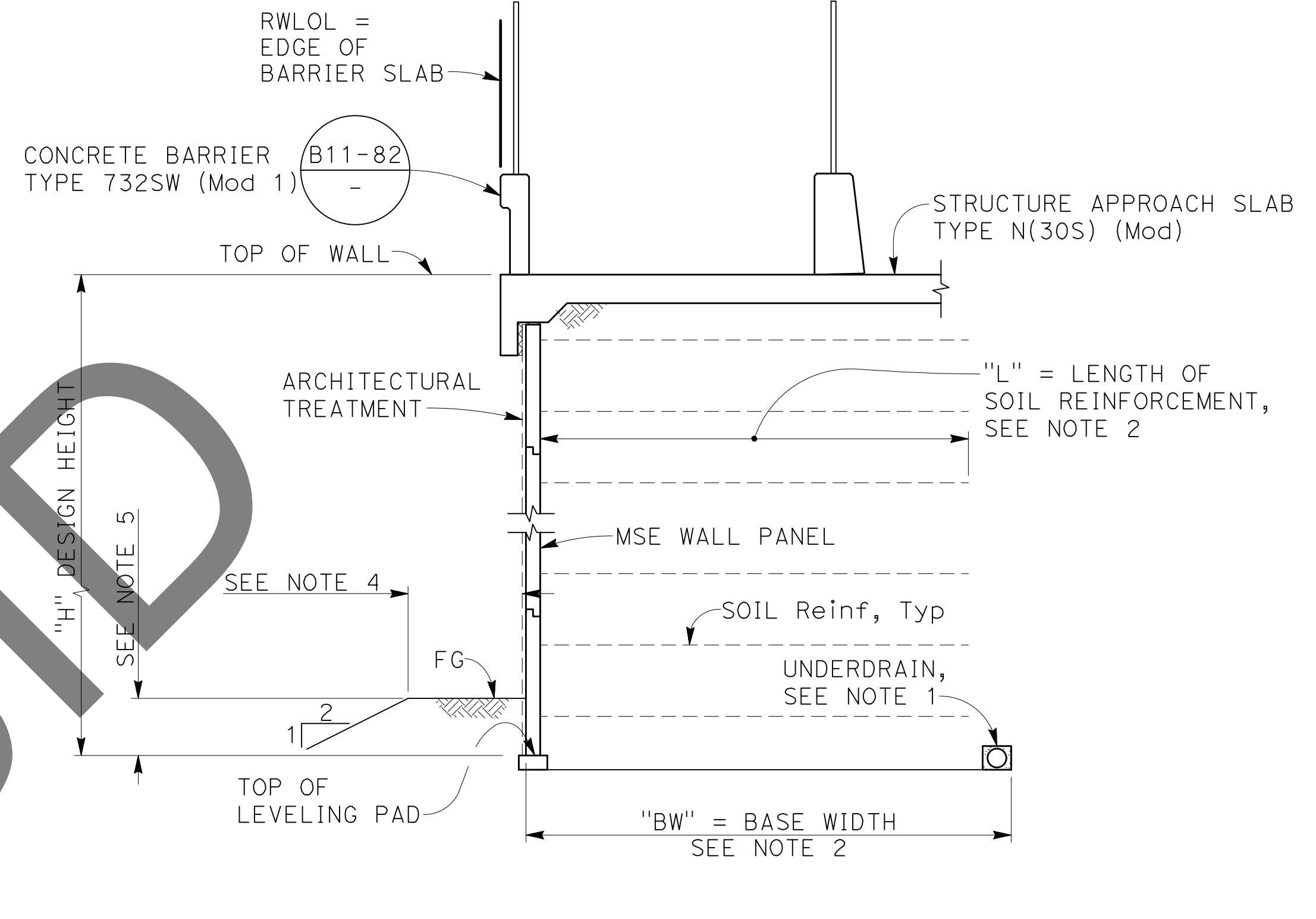
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TYPICAL SECTION AT BARRIER SLAB
1/4" = 1'-0"



TYPICAL SECTION AT ABUTMENT 6
1/4" = 1'-0"



TYPICAL SECTION AT APPROACH SLAB
1/4" = 1'-0"

- NOTES:
1. Locate underdrain behind bottom level of welded wire mat wherever possible, or at elevation needed to drain, as shown on "MSE RETAINING WALL DETAILS No. 4" sheet.
 2. For base width and length of soil reinforcement, see "RETAINING WALL STRUCTURE PLAN" sheets.
 3. For modified barrier details, see "MISCELLANEOUS DETAILS" sheet.
 4. Berm shall be 4'-0" min or 0.1 "H", whichever is greater.
 5. Leveling pad shall be embedded 2'-0" feet min or 0.1 "H", whichever is greater.
 6. Beginning of wall shown, end similar.

NOT FOR BIDD

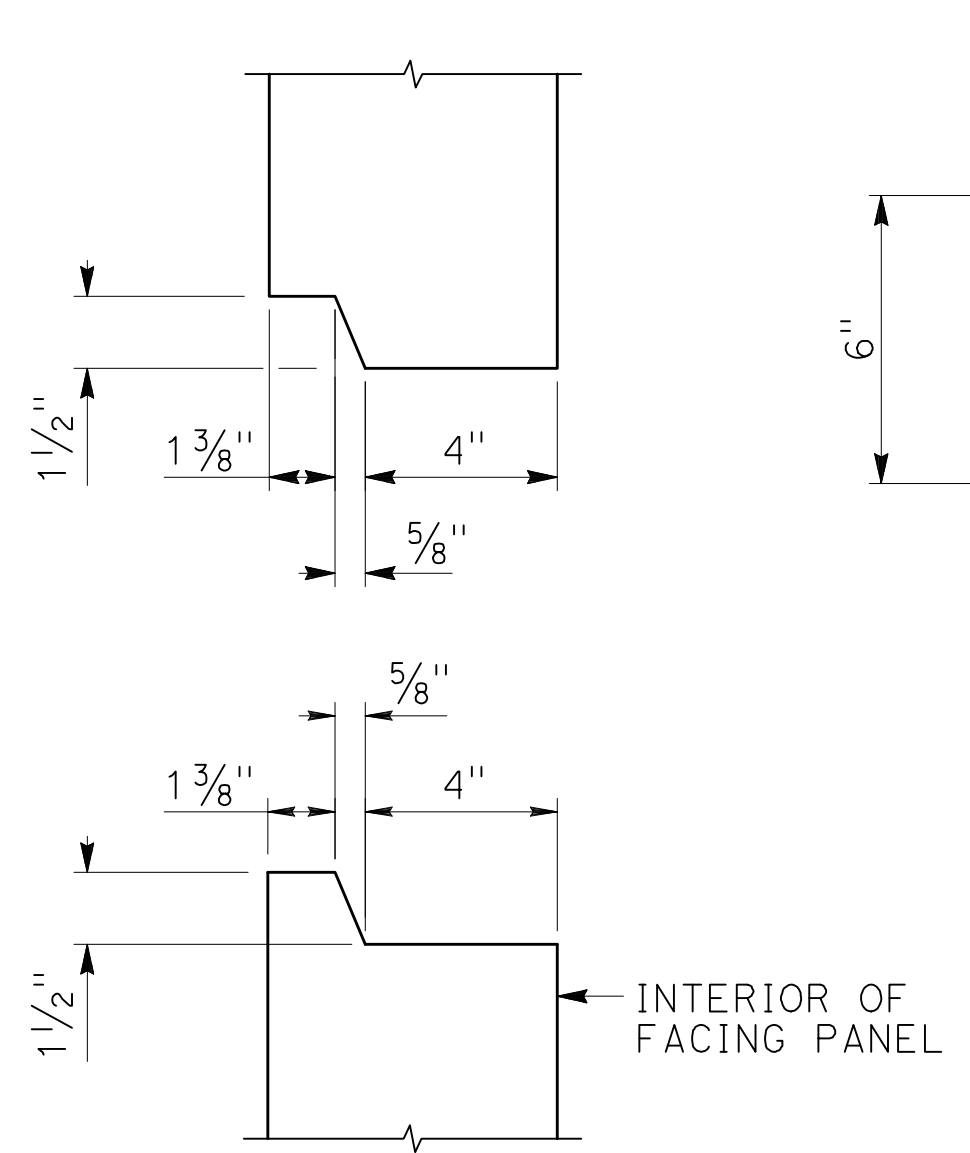
MARK	REVISIONS	DATE

MARK	REVISIONS	DATE

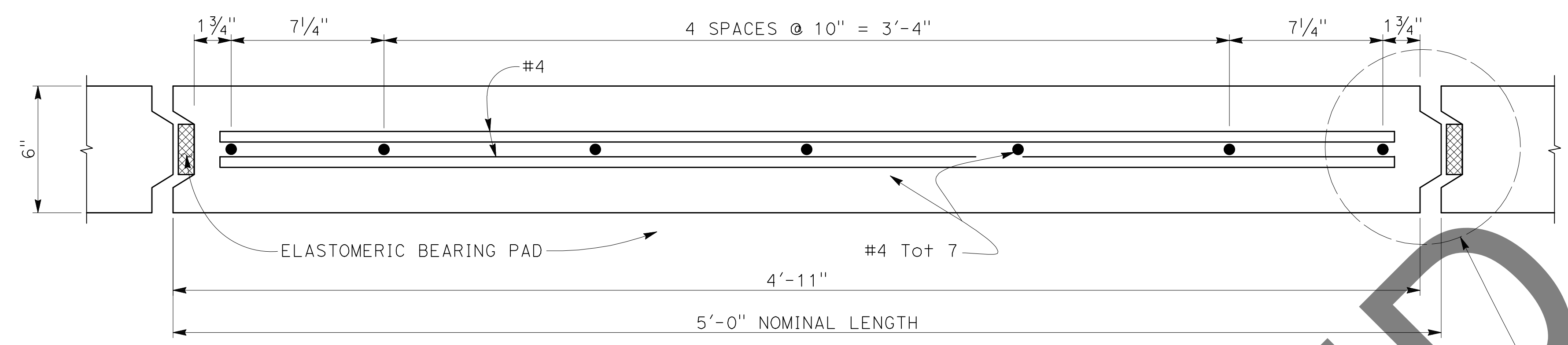
FILE NO. 382400 050

NOTE:
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PLANS PREPARED BY: BIGGS CARDOSA ASSOCIATES INC STRUCTURAL ENGINEERS 500 S. Main Street, Suite 1200 Orange, California 92668 714-550-4665		REGISTERED PROFESSIONAL ENGINEER MICHAEL A. THOMAS No. 54676 Exp. 9/30/24 REGISTERED STRUCTURAL ENGINEER STATE OF CALIFORNIA		SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS		GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH MSE RETAINING WALL TYPICAL SECTIONS	
DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER	DATE: 8/15/24	APPROVED BY: Thomas Bustamonte SUPERVISING ENGINEER	DATE: 8/15/24	DATE: 8/15/24
FIELD CHANGES MARK CHANGES NO CHANGES RESIDENT ENGINEER DATE		J.L. REF. 11334	W.O. NO. H14646	DRAWING NO. S-104	SHT. NO. 90	TOT. SHTS. 102	100% SUBMISSION

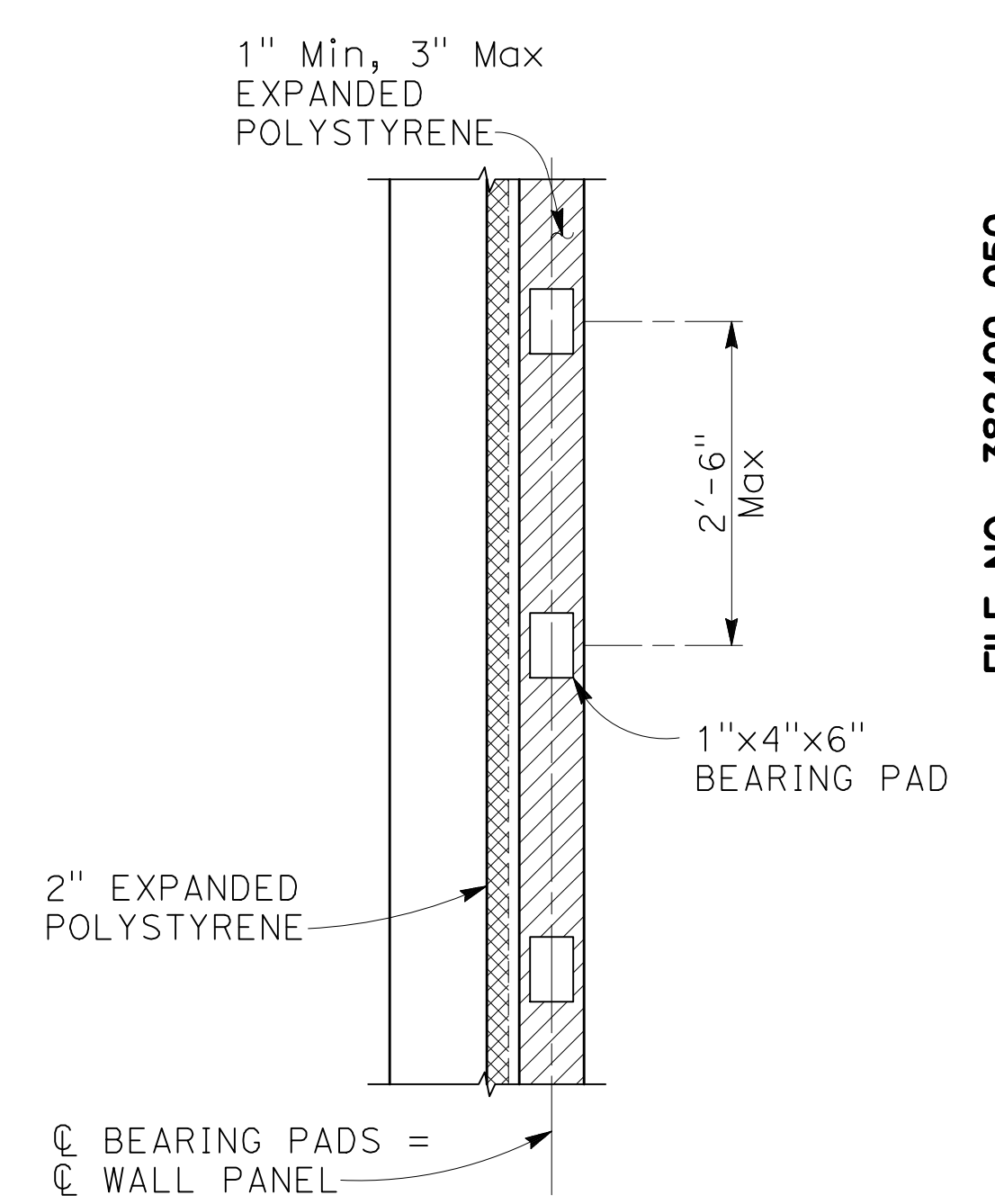


HORIZONTAL JOINT DETAIL
3" = 1'-0"

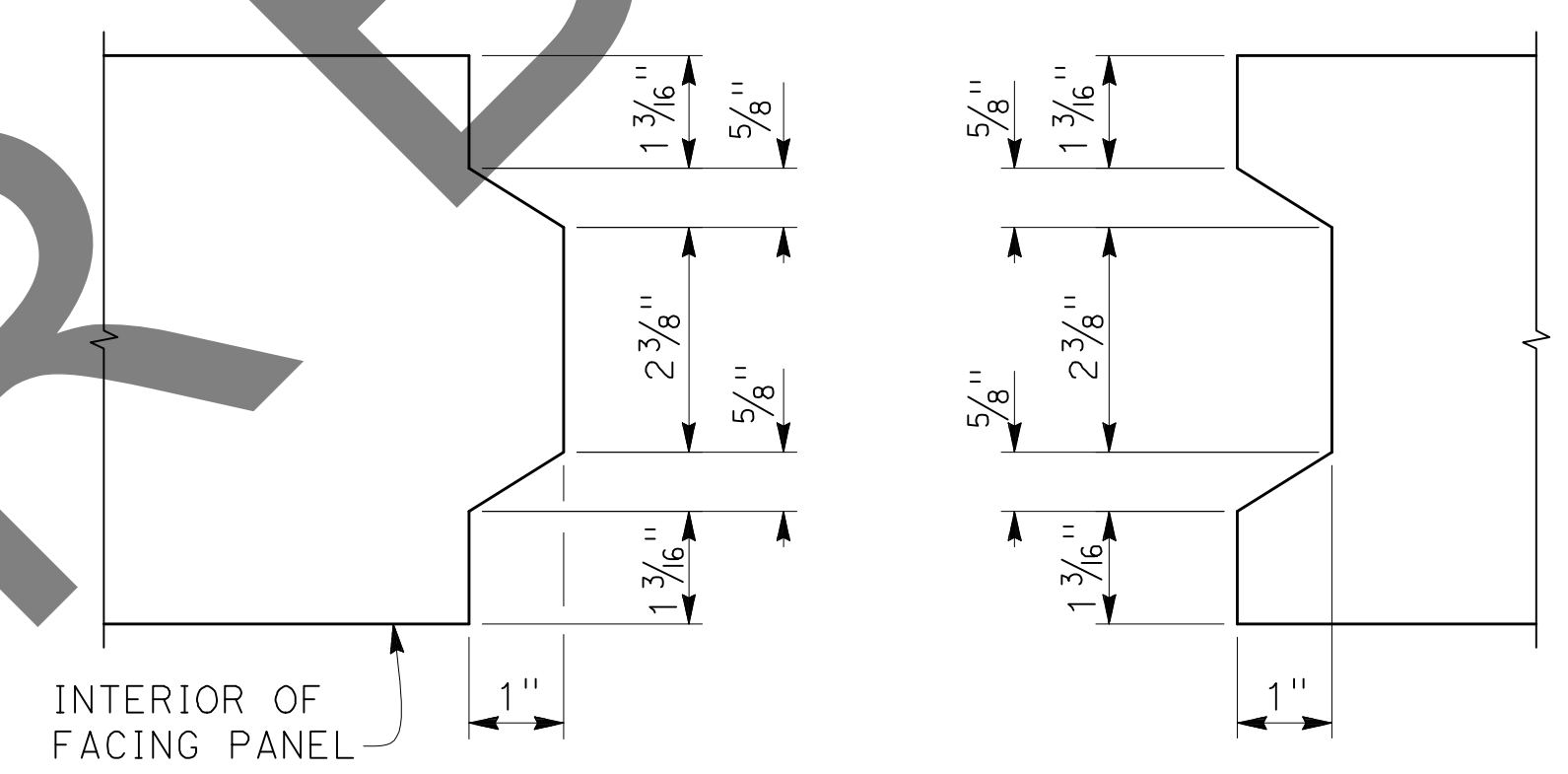


PLAN - FACING PANEL
3" = 1'-0"

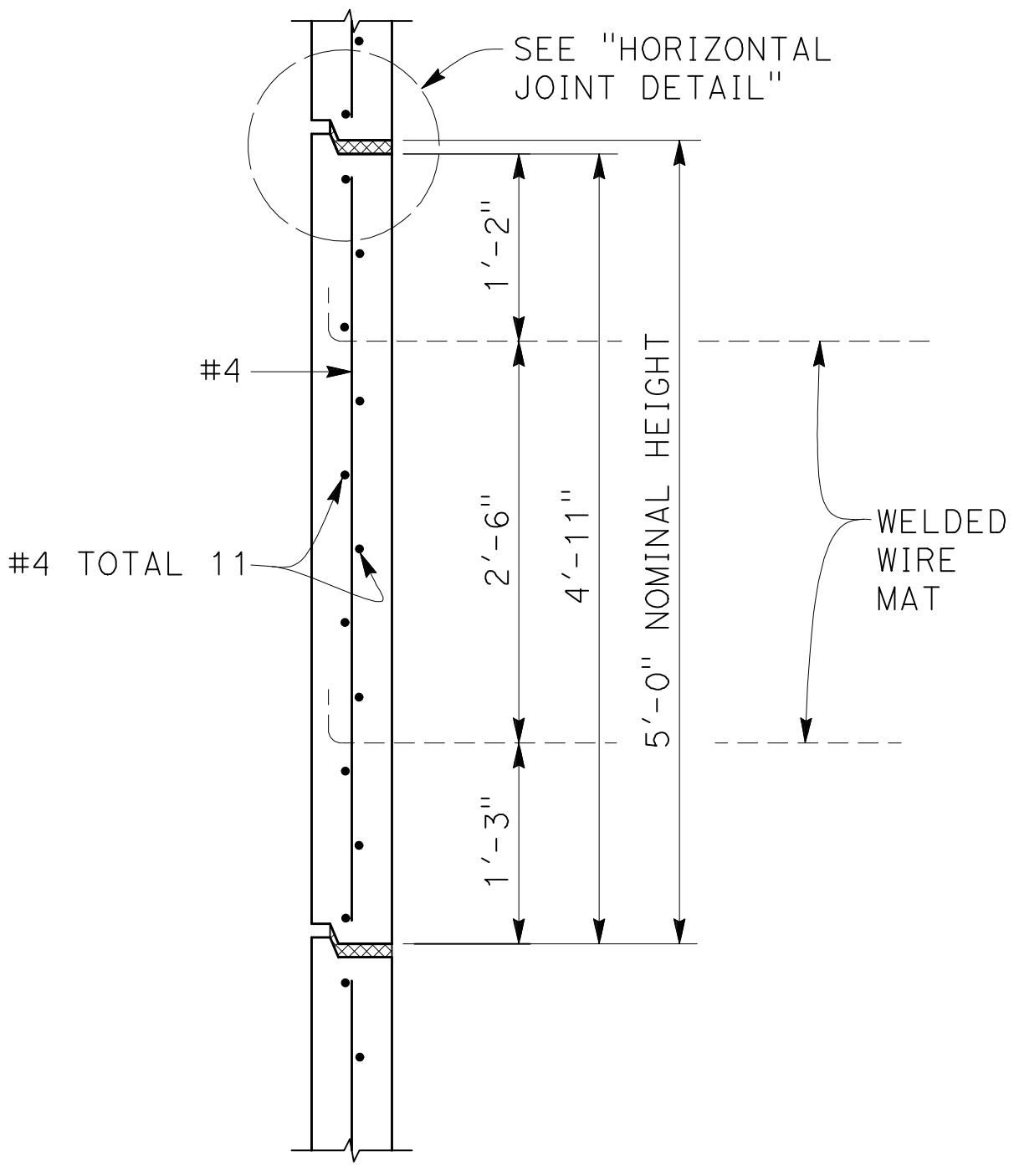
- NOTES:
1. Architectural treatment not shown.
 2. Place reinforced elastomeric bearing pads in all of the panel joints between the panels. Place one in each vertical joint where the horizontal joints intersect. Place two per panel in each horizontal joint:
 $\frac{3}{4}$ " x $2\frac{3}{8}$ " x 6" for vertical joints
 $\frac{3}{4}$ " x 4" x 6" for horizontal joints
 3. Bond a strip of filter fabric, 1'-0" wide, over the full length of all panel joints, see "PART ELEVATION" on "MSE RETAINING WALL DETAILS No. 2" sheet.
 4. Top layer of welded wire mats attached parallel to top of panel when top of wall is angled or curved except at acute corners of MSE Wall. See "PLAN VIEW AT ACUTE CORNER" on "MSE RETAINING WALL DETAILS No. 5" sheet.
 5. Eliminate mid level mat when closer than 6" to top mat, continue variable dimension between remaining mats.



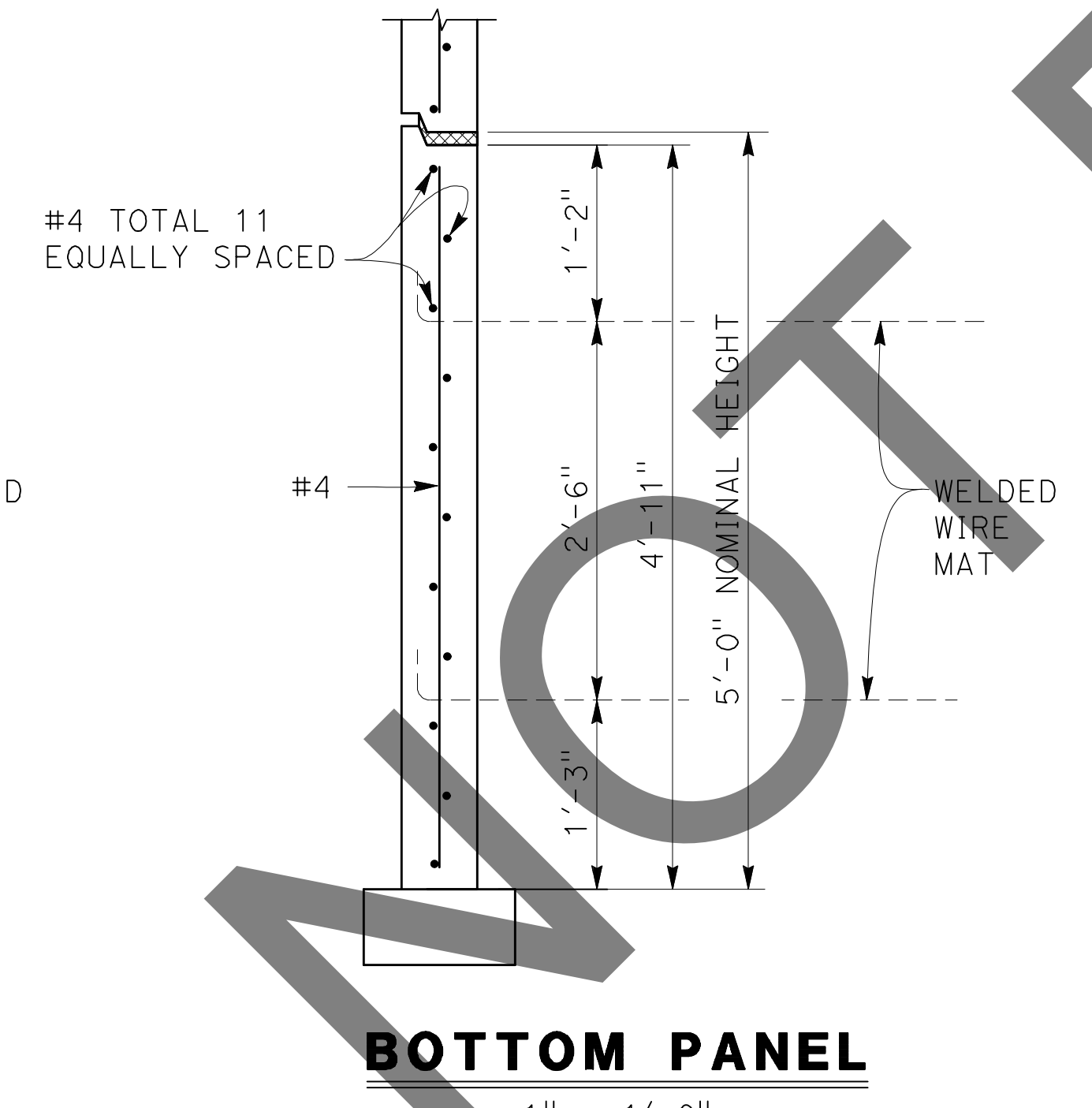
SECTION A
3/4" = 1'-0" S105



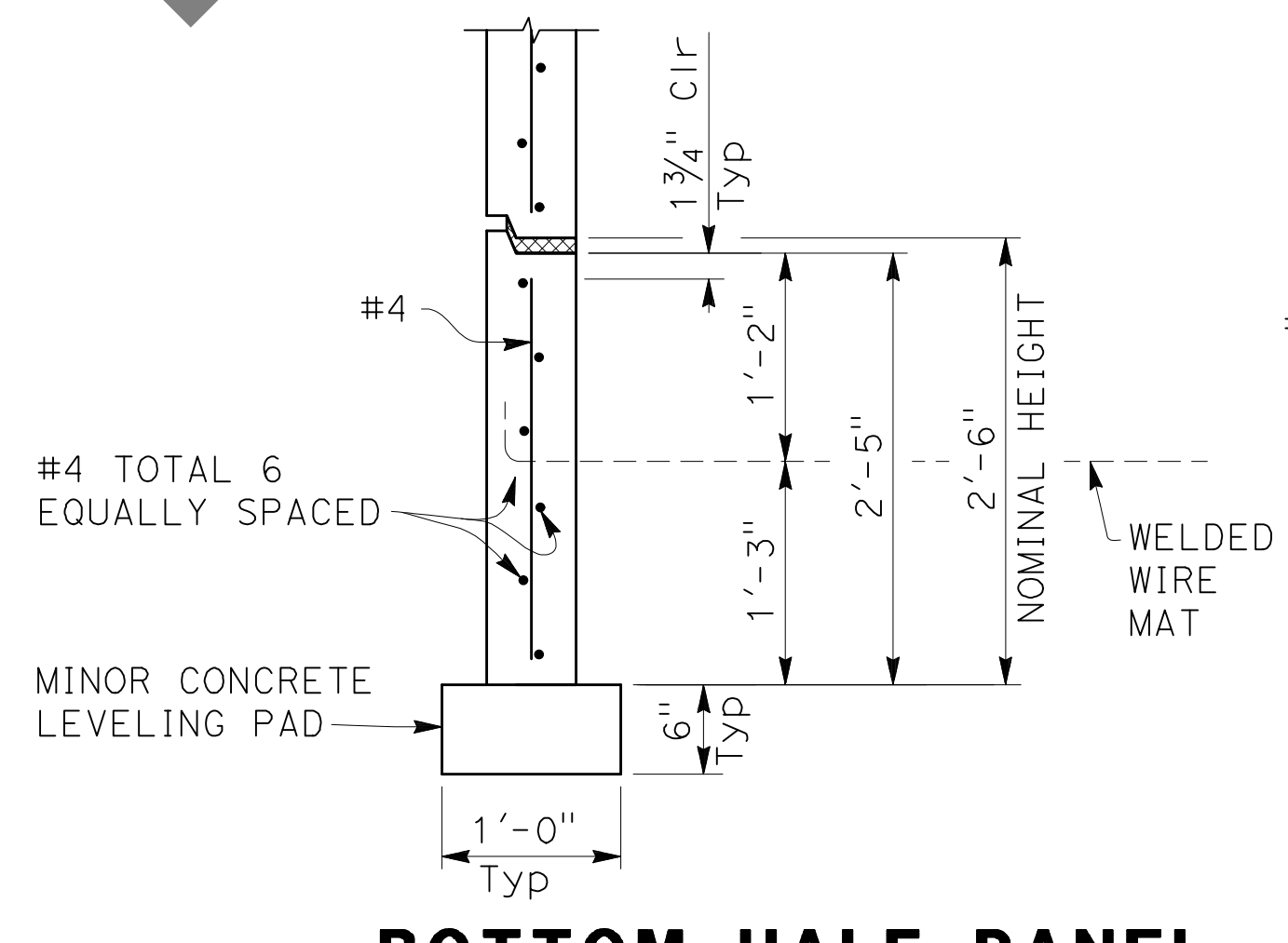
VERTICAL JOINT DETAIL
6" = 1'-0"



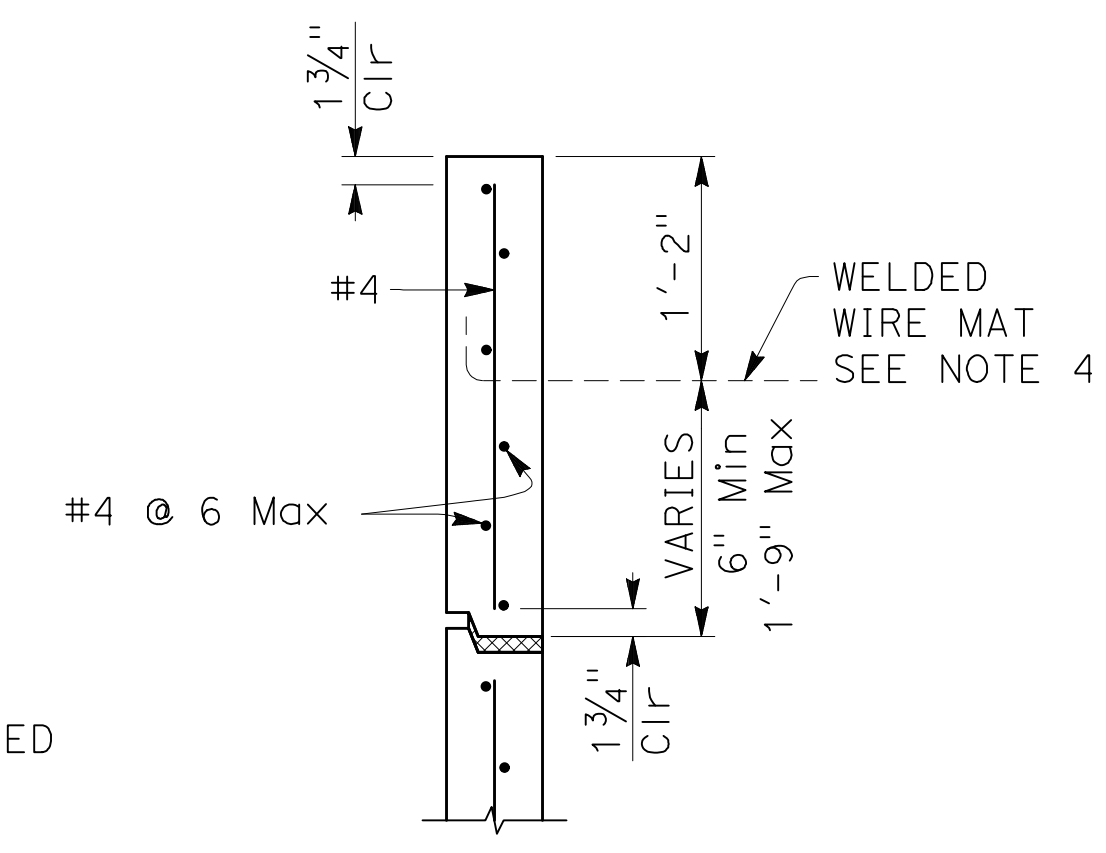
INTERMEDIATE PANEL
1" = 1'-0"



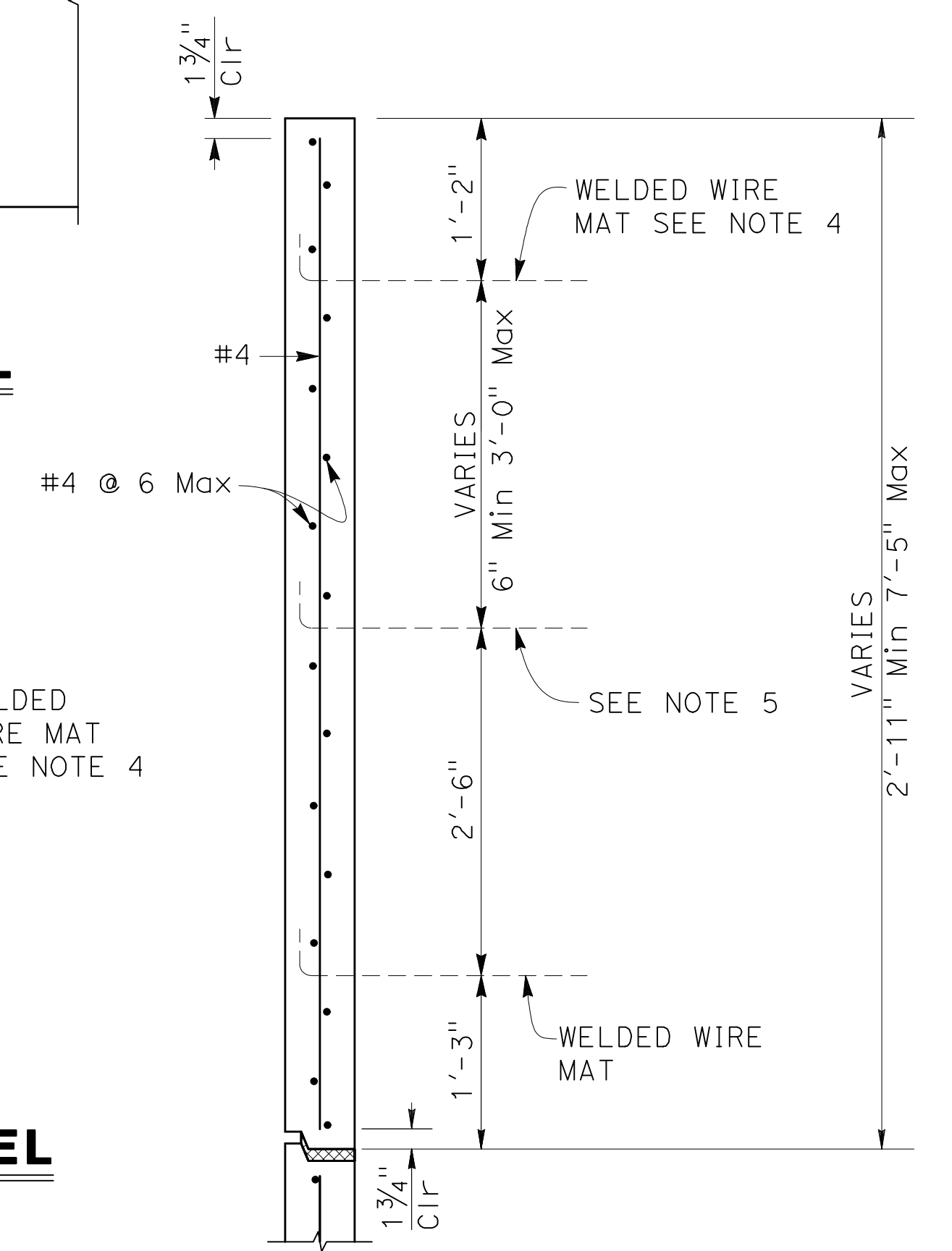
BOTTOM PANEL
1" = 1'-0"



BOTTOM HALF PANEL
1" = 1'-0"



TOP HALF PANEL
1" = 1'-0"



TOP PANEL WITH MULTIPLE MATS
1" = 1'-0"

MARK	REVISIONS	APPR.	DATE

FILE NO. 382400 050

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PLANS PREPARED BY:
BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS
500 S. Main Street, Suite 1200
Orange, California 92668
714-550-4665

REGISTERED PROFESSIONAL ENGINEER
MICHAEL A. TRONARI
No. 54676
Exp. 9/30/24
REGISTERED STRUCTURAL ENGINEER
STATE OF CALIFORNIA

7/29/24

REGISTERED STRUCTURAL ENGINEER

SAN BERNARDINO COUNTY
DEPARTMENT OF PUBLIC WORKS

DESIGNED BY: GOD
DRAWN BY: SMH
CHECKED BY: SEM
RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER
8/15/24

APPROVED BY: Thomas Bustamonte, P.E. SUPERVISING ENGINEER
8/15/24

APPROVED BY: Mervat Nizar Khalil, P.E. DEPUTY DIRECTOR
8/15/24

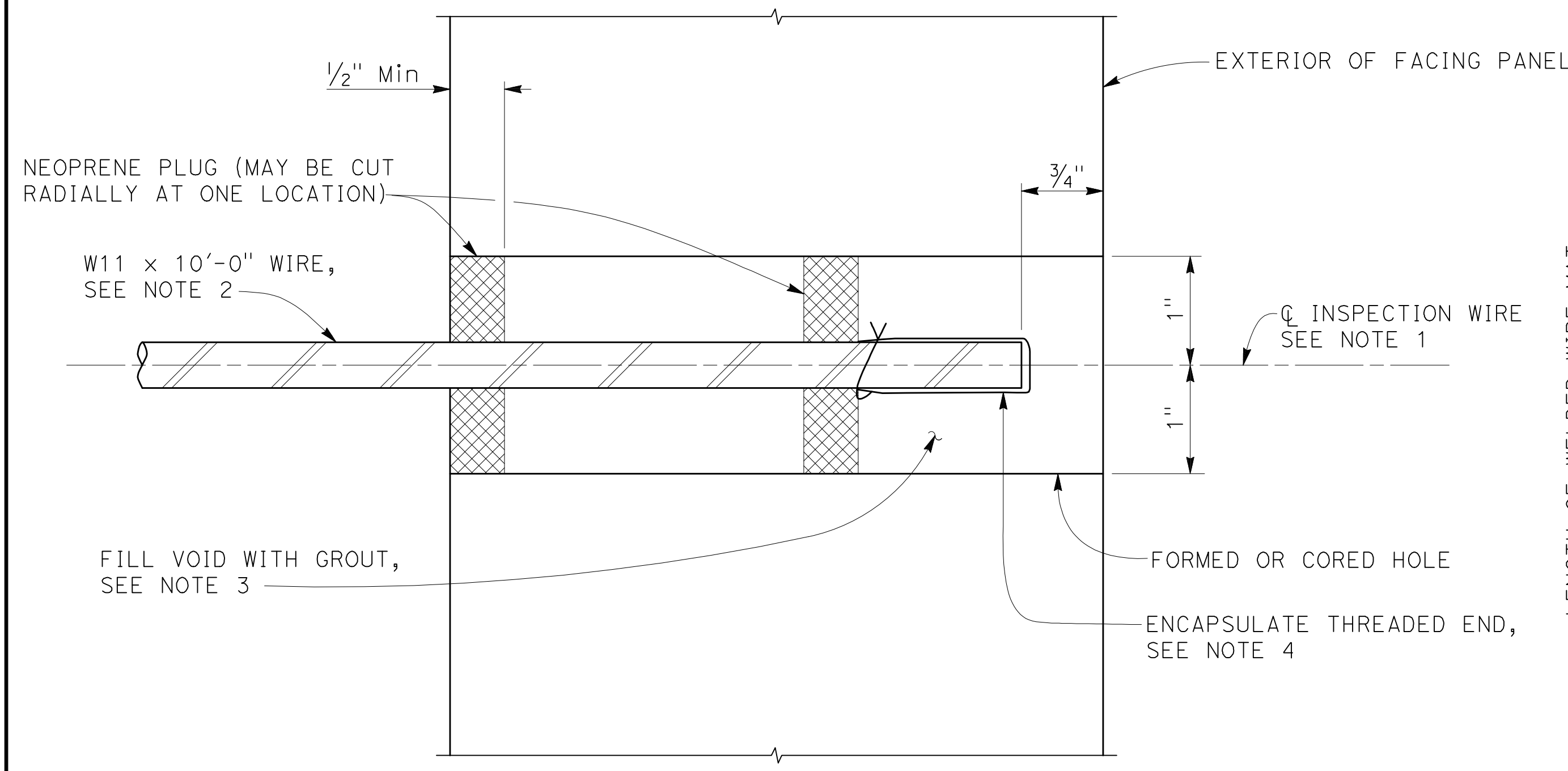
GLEN HELEN PARKWAY BRIDGE
OVER CAJON WASH
MSE RETAINING WALL DETAILS No. 1

J.L. REF. 11334
W.O. NO. H14646
DRAWING NO. S-105
SHT. NO. 91
TOT. SHTS. 102

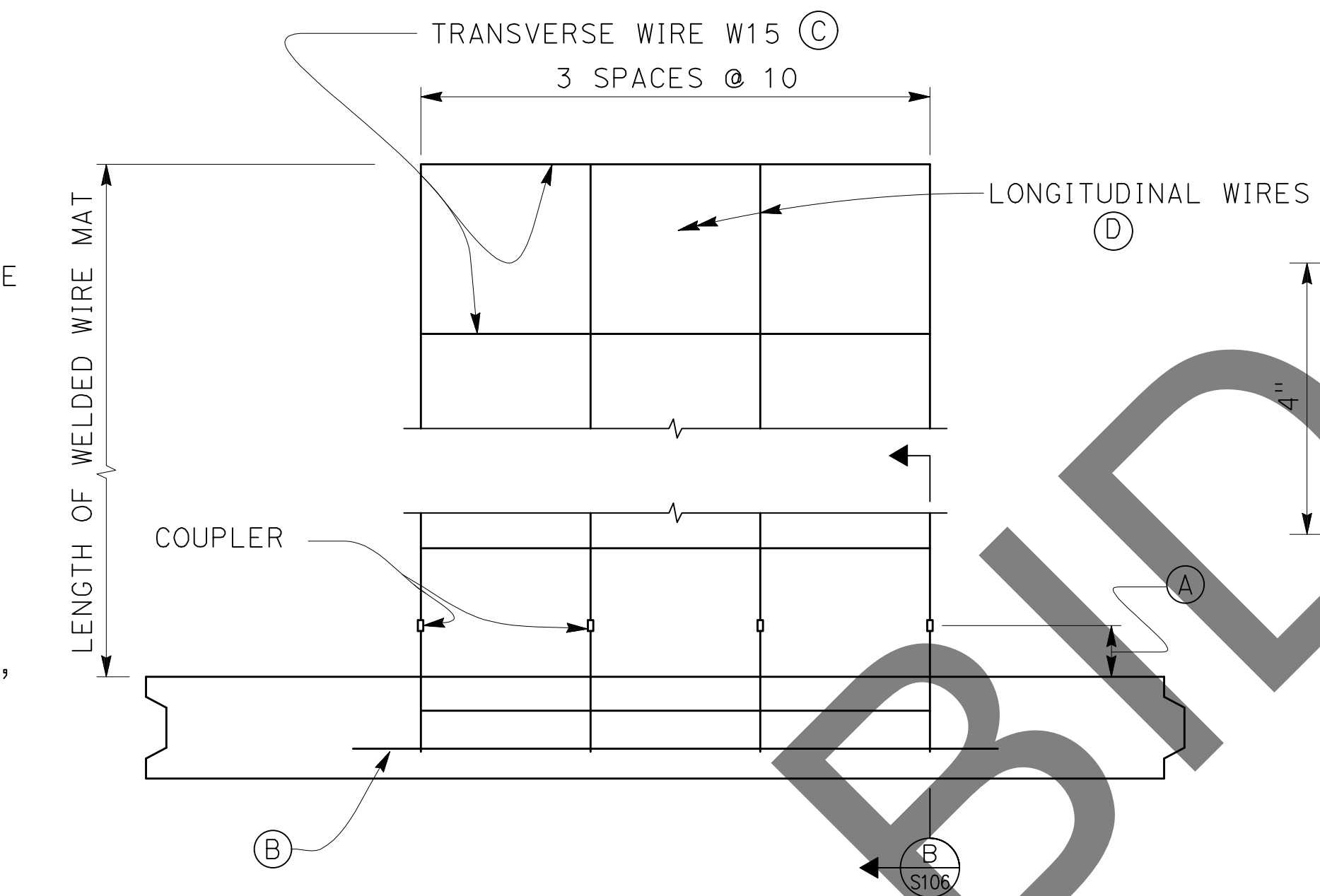


FIELD CHANGES

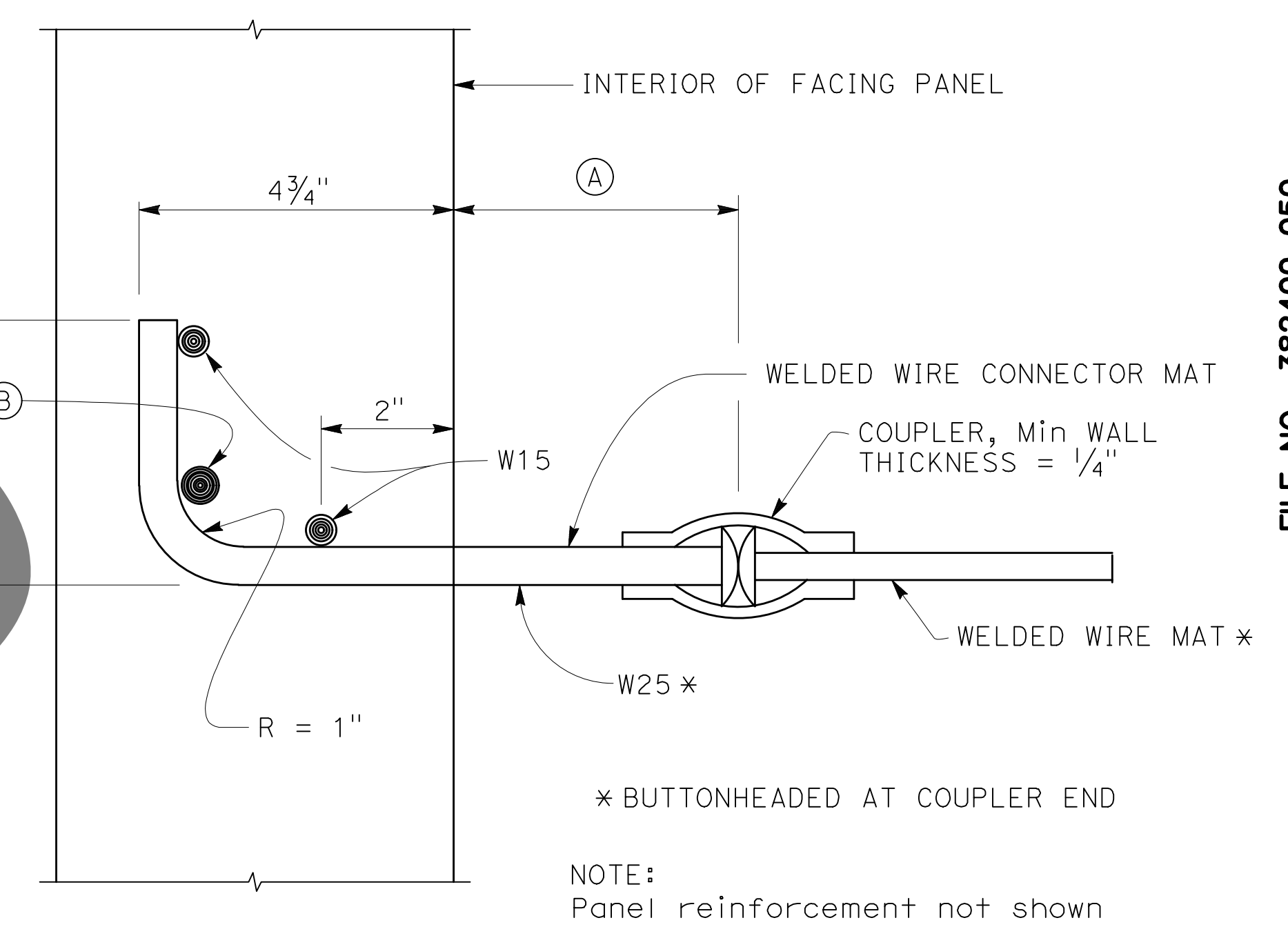
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SECTION THRU INSPECTION WIRE
NO SCALE



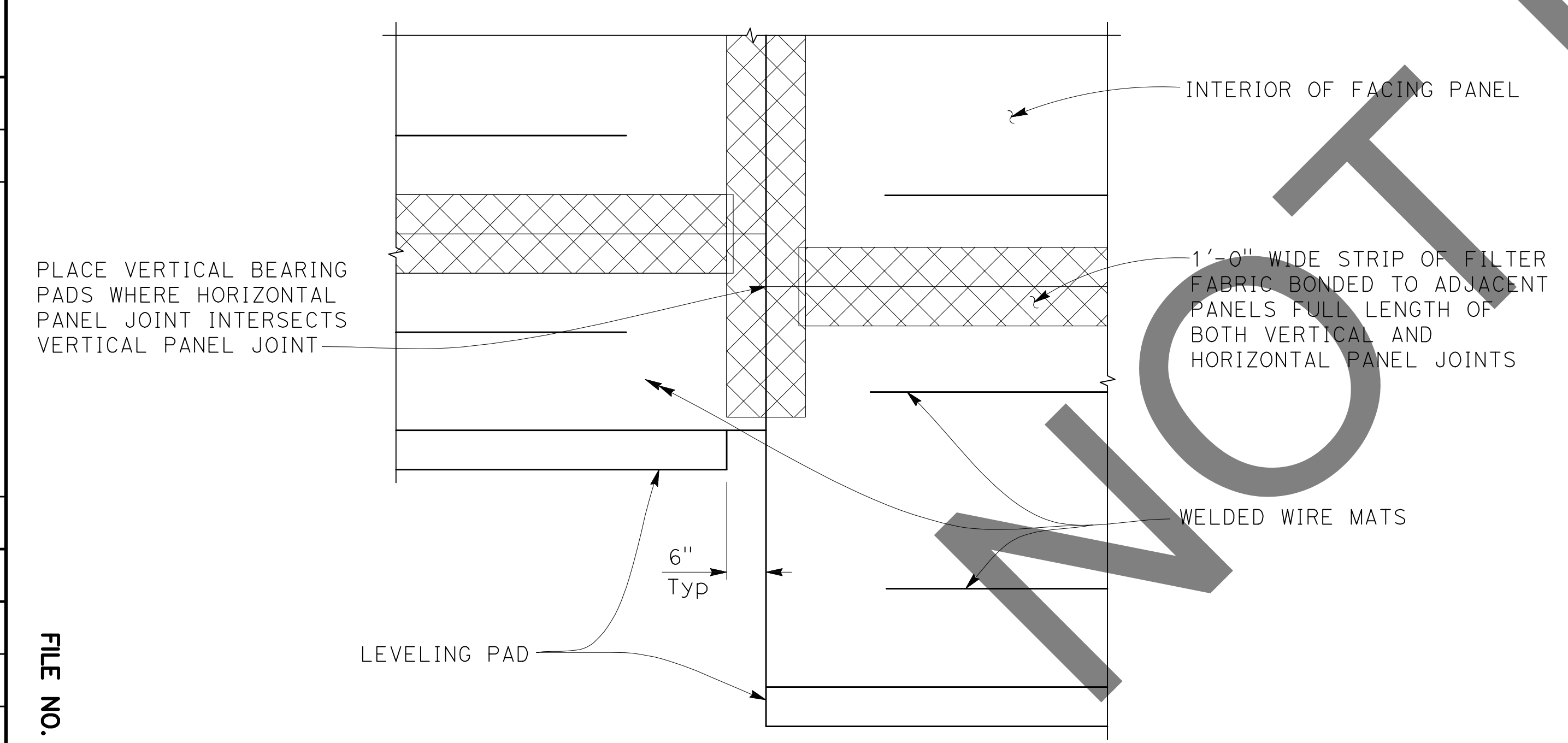
PLAN OF PANEL WITH FOUR WIRE MAT
1 1/2" = 1'-0"



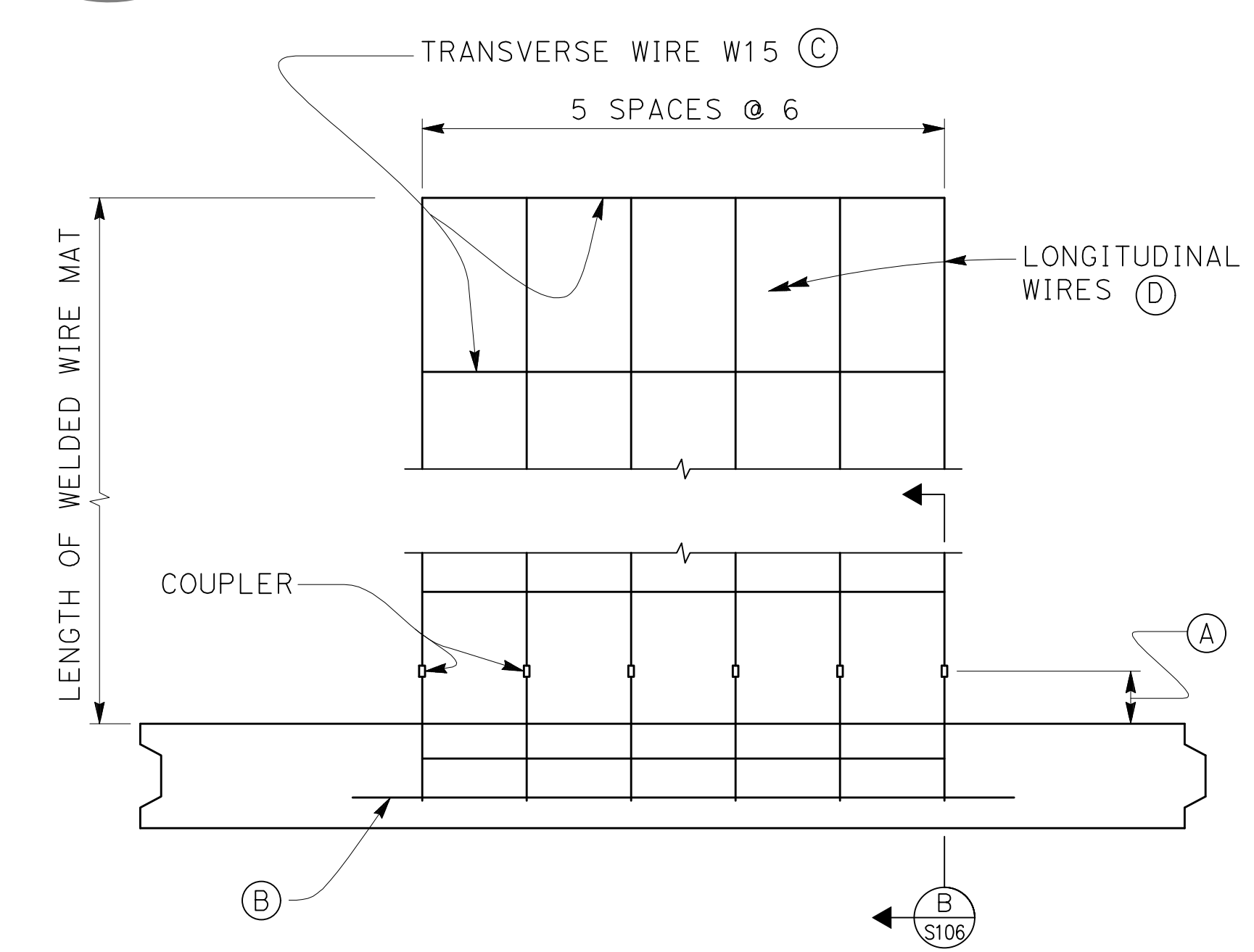
SECTION B
6" = 1'-0" S106

- NOTES:
- Center inspection wire in facing panel.
 - Fabricated inspection wires from W11 wire representative of the welded wire mats, with 3/8"Ø - 16 UNC threads for at least 1 1/2" of one end.
 - Place inspection wire horizontal and perpendicular to the wall panel prior to backfilling.
 - Encapsulate threaded end with corrosion inhibiting mastic, vinyl covering, and secure with plastic tie.

- NOTES:
- Distance as required to permit coupler to be swaged
 - Place #4 x 3'-2", centered on connector mat, but not welded to it
 - All transverse wires are size W15 at various spacings as shown elsewhere in plans
 - Size of longitudinal wires shown elsewhere in plans



PART ELEVATION
3/4" = 1'-0"



PLAN OF PANEL WITH SIX WIRE MAT
1 1/2" = 1'-0"

MARK	REVISIONS	DATE

FILE NO. 382400 050

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PLANS PREPARED BY:
BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS
500 S. Main Street, Suite 1200
Orange, California 92668
714-550-4665

REGISTERED PROFESSIONAL ENGINEER
MICHAEL A. THOMPSON
No. 54676
Exp. 9/30/24
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

7/29/24
REGISTERED STRUCTURAL ENGINEER

MARK	CHANGES	RESIDENT ENGINEER	DATE
	NO CHANGES		

BCA

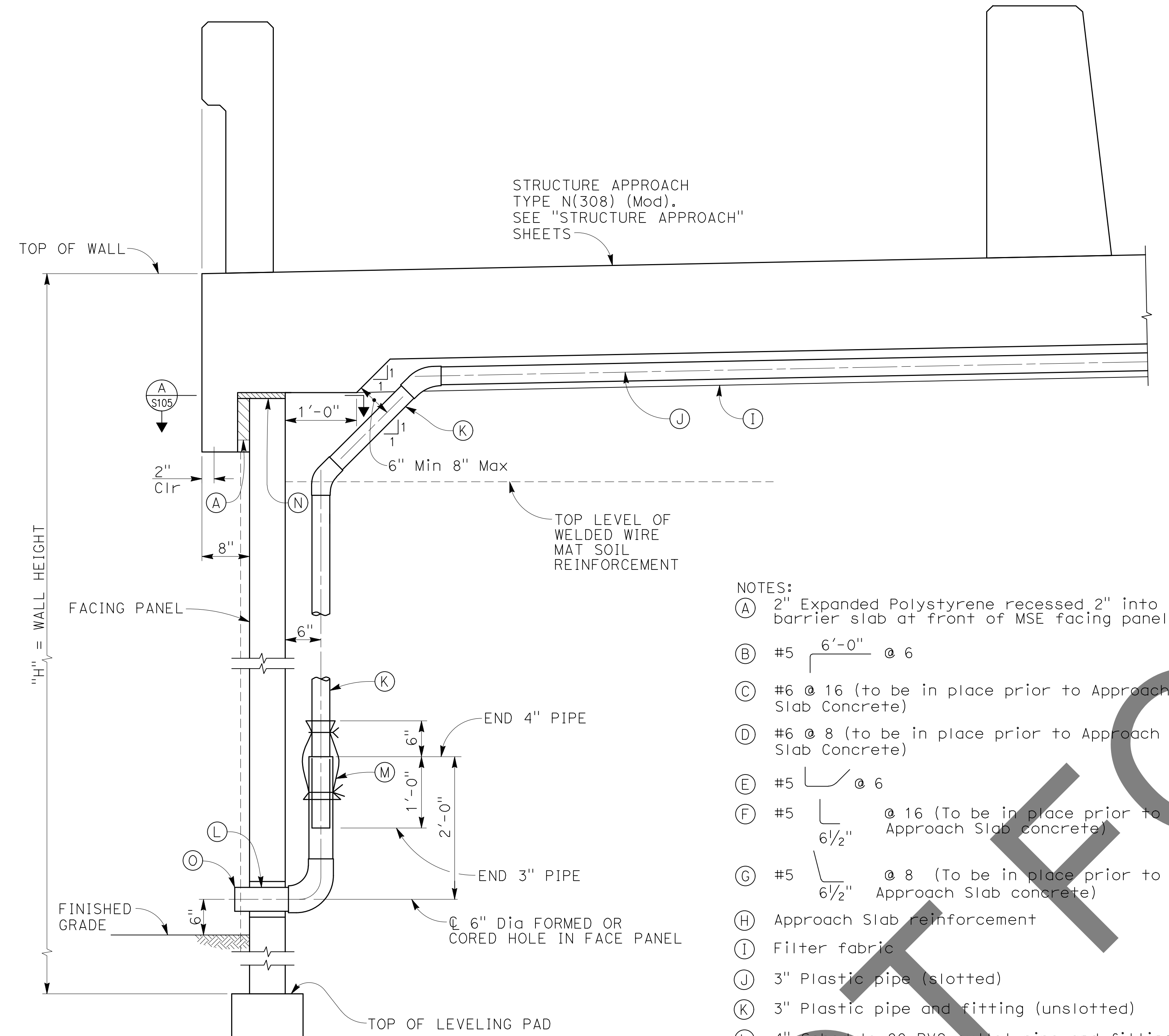
SAN BERNARDINO COUNTY
DEPARTMENT OF PUBLIC WORKS

DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24
APPROVED BY: Thomas Bustamonte THOMAS BUSTAMONTE, P.E. SUPERVISING ENGINEER 8/15/24			DATE: 8/15/24

GLEN HELEN PARKWAY BRIDGE
OVER CAJON WASH
MSE RETAINING WALL DETAILS No. 2

J.L. REF. 11334	W.O. NO. H14646	DRAWING NO. S-106	SHT. NO. 92	TOT. SHTS. 102
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100% SUBMISSION

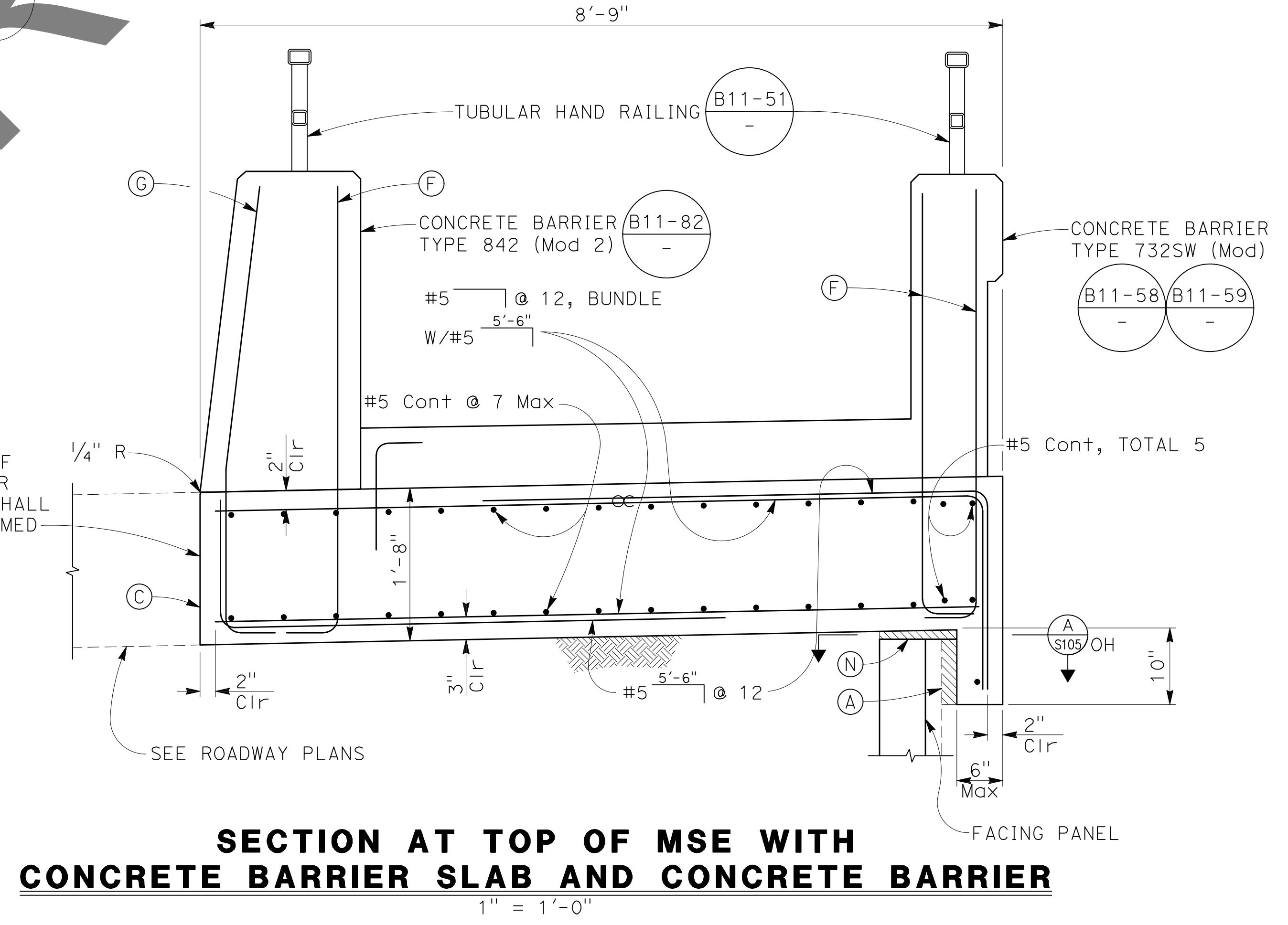
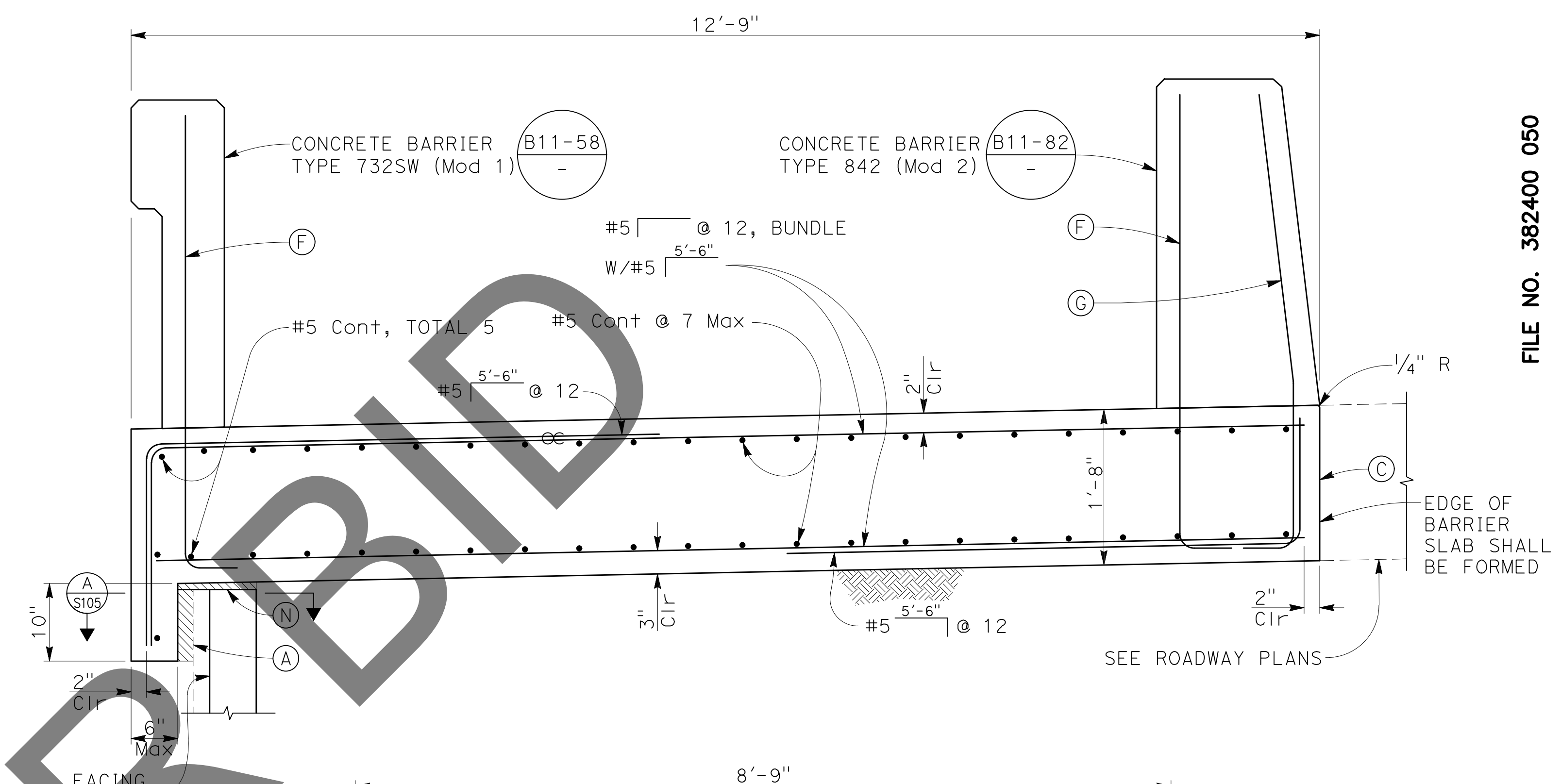


- NOTES:**
- (A) 2" Expanded Polystyrene recessed 2" into barrier slab at front of MSE facing panel
 - (B) #5 6'-0" @ 6
 - (C) #6 @ 16 (to be in place prior to Approach Slab Concrete)
 - (D) #6 @ 8 (to be in place prior to Approach Slab Concrete)
 - (E) #5 @ 6
 - (F) #5 @ 16 (To be in place prior to Approach Slab concrete)
 - (G) #5 @ 8 (To be in place prior to Approach Slab concrete)
 - (H) Approach Slab reinforcement
 - (I) Filter fabric
 - (J) 3" Plastic pipe (slotted)
 - (K) 3" Plastic pipe and fitting (unslotted)
 - (L) 4" Schedule 80 PVC outlet pipe and fittings (unslotted)
 - (M) 1'-0" wide x 2'-0" filter fabric wrapped around pipe and secured with nylon ties
 - (N) 1" Expanded Polystyrene
 - (O) Terminate pipe 1" past face of architectural treatment.

DESIGN DATA - CONCRETE BARRIER SLAB

DESIGN: AASHTO LRFD Bridge Design Specifications, 6th Edition with California Amendments.
 F_t : 54 kips on barrier
 EQE: $k_h = 0.556$
 $k_v = 0.0$

REINFORCED CONCRETE: $f'_c = 3600$ psi
 $f_y = 60$ ksi
 $n = 8$



SECTION AT TOP OF MSE WITH STRUCTURE APPROACH SLAB AND CONCRETE BARRIER

- NOTES:**
- Low end of subgrade drain shown, at high end install cap at end of 3" slotted pipe. Subgrade drain located at end of Structure Approach slab, see "STRUCTURE PLANS".
 - Not all barrier reinforcement shown.
 - For outlet details, see "MSE RETAINING WALL No. 4" sheet.
 - At acute corners of approach slab, bend reinforcement as required to expansion joint.
 - Specific concrete barrier to be utilized as shown on "TYPICAL SECTION" sheet.

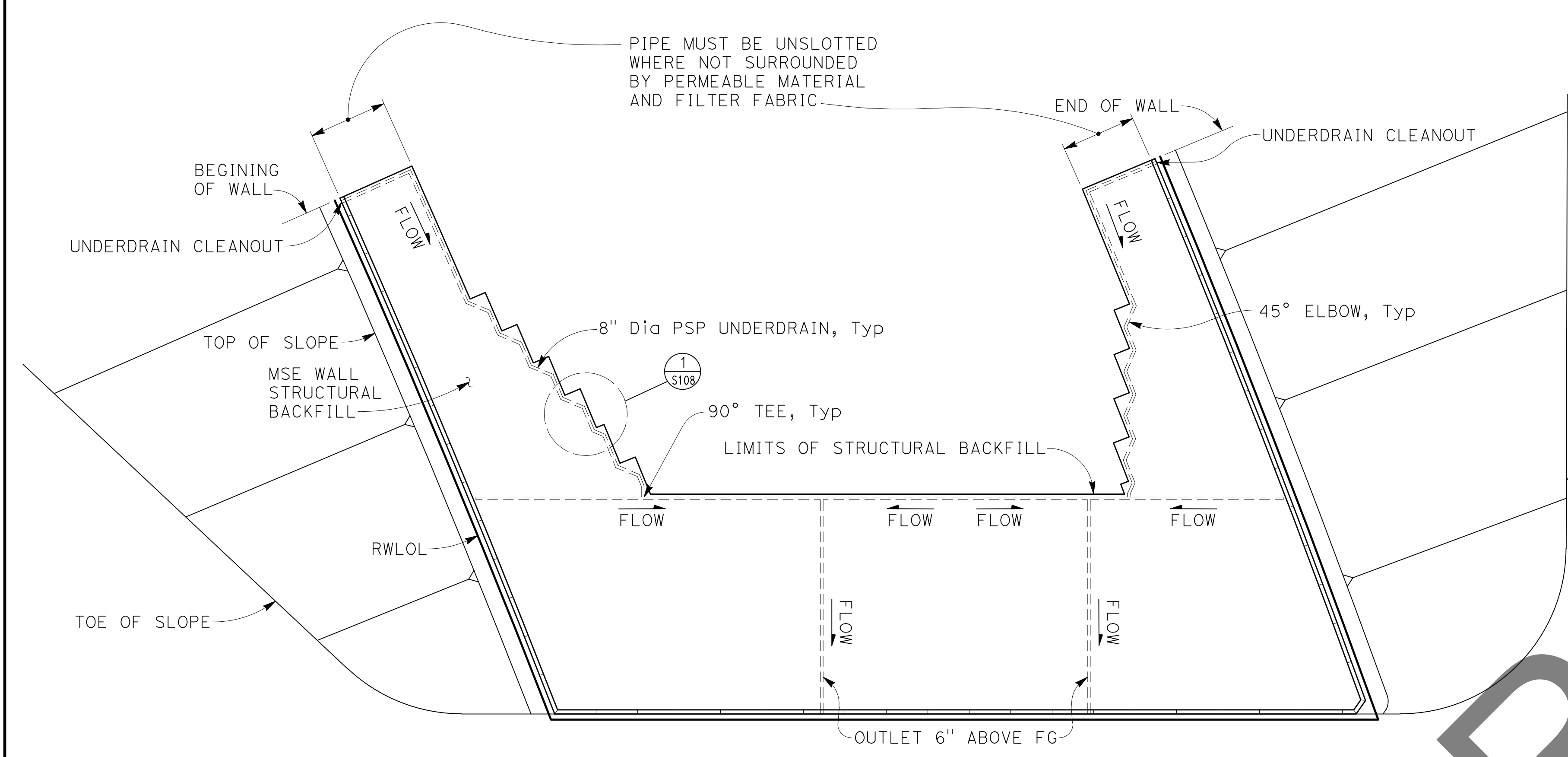
LEGEND:
 ⊕ Indicates Bundled Bars

FILE NO. 382400 050

NOTE:
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

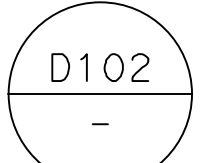
REVISIONS	DATE	APPR.	DATE

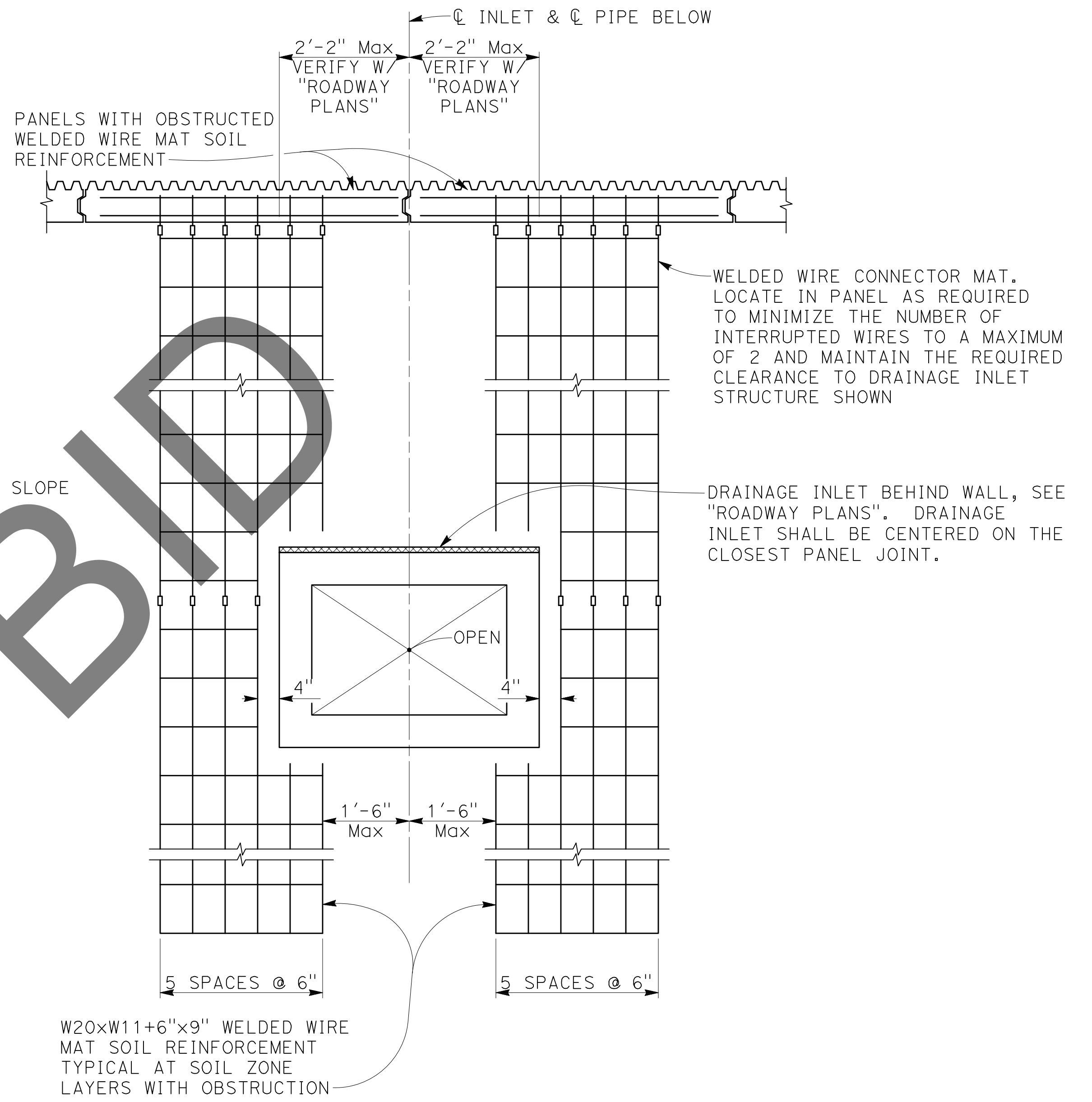
PLANS PREPARED BY: BIGGS CARDOSA ASSOCIATES INC STRUCTURAL ENGINEERS 500 S. Main Street, Suite 1200 Orange, California 92668 714-550-4665	REGISTERED PROFESSIONAL ENGINEER No. 54676 Exp. 9/30/24 STRUCTURAL STATE OF CALIFORNIA	SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS		GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH MSE RETAINING WALL DETAILS No. 3	
		DESIGNED BY: GOD DRAWN BY: SMH CHECKED BY: SEM RECOMMENDED BY: CHRIS NGUYEN/P.E. ENGINEERING MANAGER 8/15/24 DATE	APPROVED BY: THOMAS BUSTAMONTE/P.E. SUPERVISING ENGINEER 8/15/24 DATE	APPROVED BY: DEPUTY DIRECTOR 8/15/24 DATE	J.L. REF. 11334 W.O. NO. H14646 DRAWING NO. S-107 SHT. NO. 93 TOT. SHTS. 102



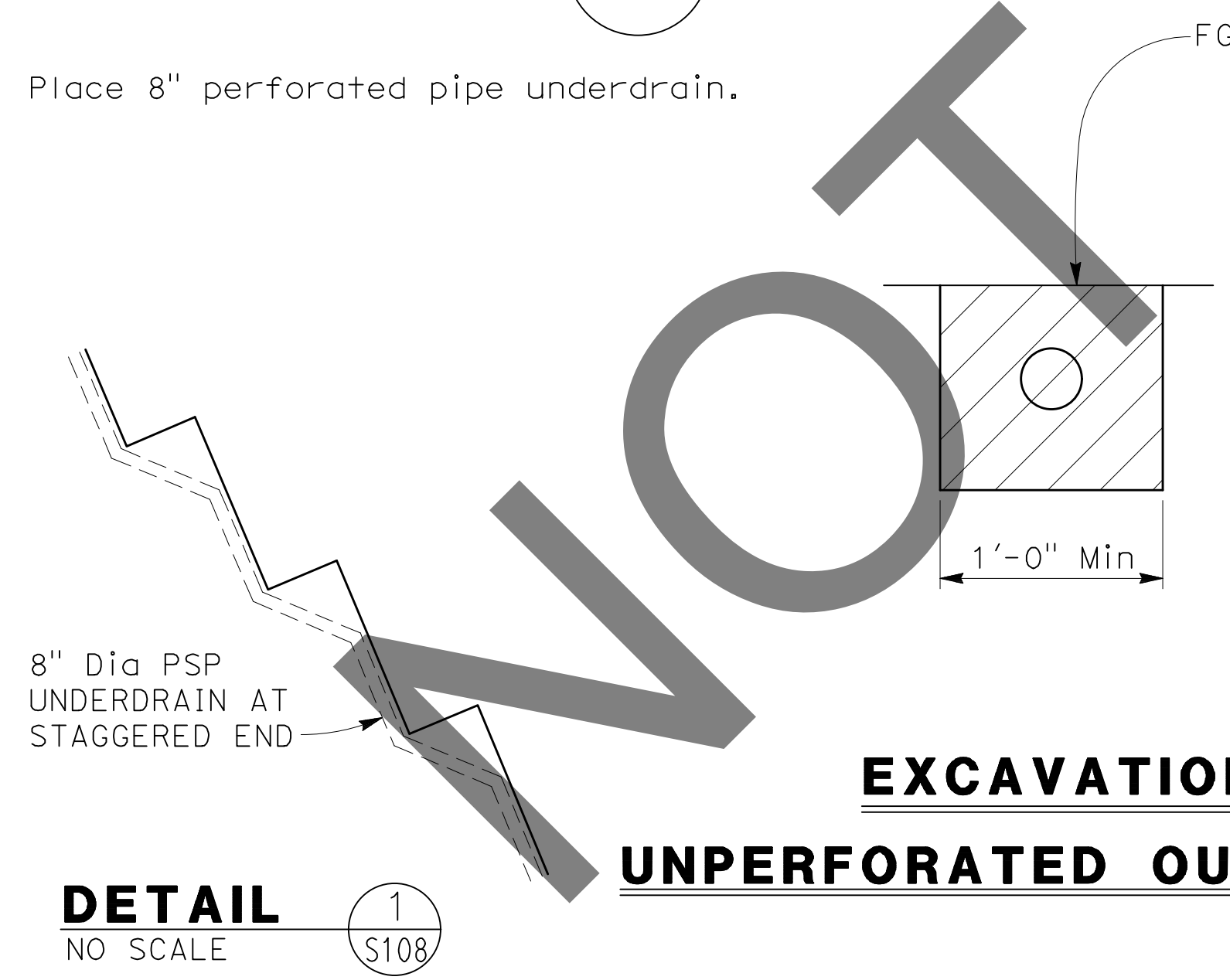
PLAN
1" = 10'

- LEGEND:
- Limits of Structure Excavation
 - Limits of Structure Backfill
 - Limits of Permeable Material

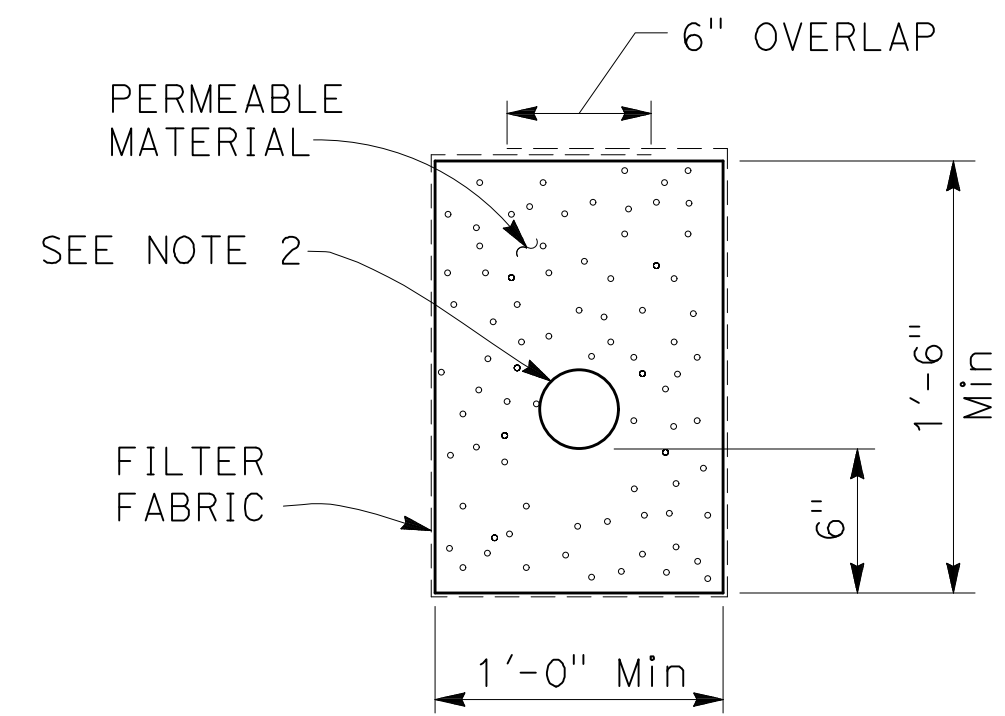
- NOTES:
- See Caltrans Standard Plan .
 - Place 8" perforated pipe underdrain.



PLAN OF PANELS WITH OBSTRUCTED WELDED WIRE MATS
NO SCALE



DETAIL
NO SCALE



UNDERDRAIN DETAIL
NO SCALE

100% SUBMISSION

MARK	REVISIONS	DATE

FILE NO. 382400 050

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

PLANS PREPARED BY:
BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS
500 S. Main Street, Suite 1200
Orange, California 92668
714-550-4665

BCA

MARK	CHANGES	RESIDENT ENGINEER	DATE
	NO CHANGES		

FIELD CHANGES

REGISTERED PROFESSIONAL ENGINEER
MICHAEL A. THOMAS
No. 54676
Exp. 9/30/24
REGISTERED STRUCTURAL ENGINEER
7/29/24

SAN BERNARDINO COUNTY
DEPARTMENT OF PUBLIC WORKS

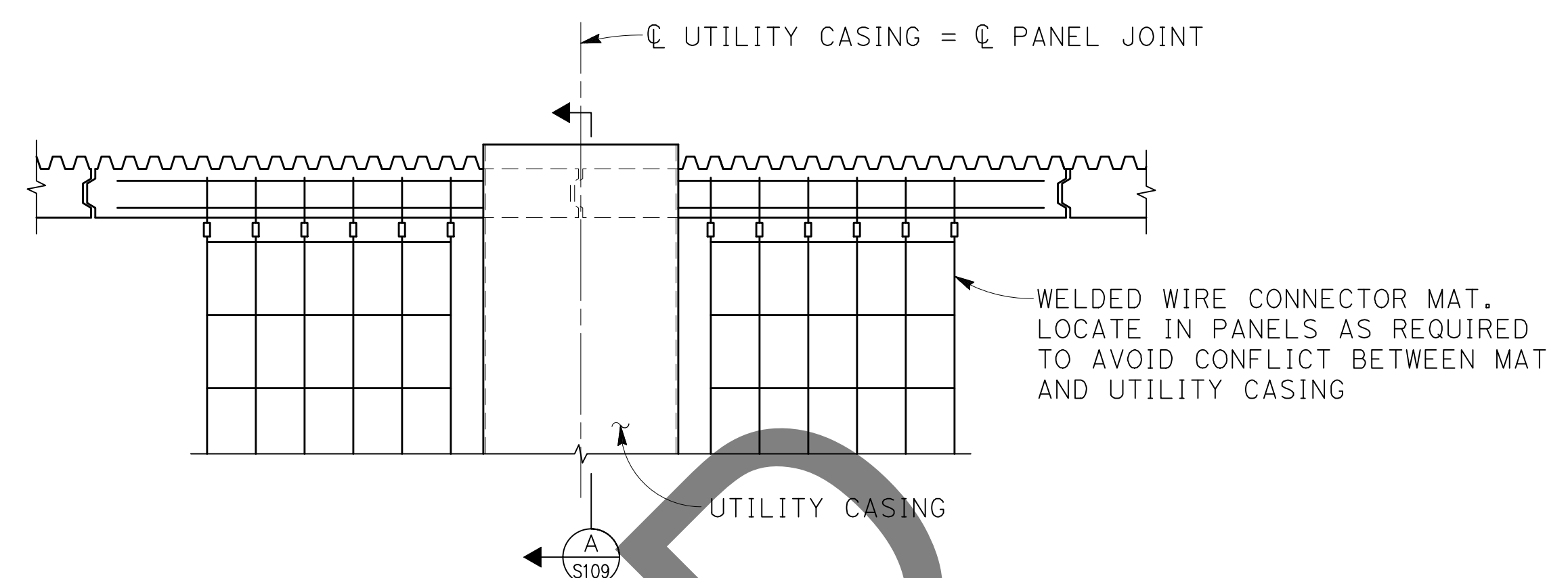
DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER
			8/15/24

APPROVED BY: THOMAS BUSTAMANTE, P.E. SUPERVISING ENGINEER

8/15/24

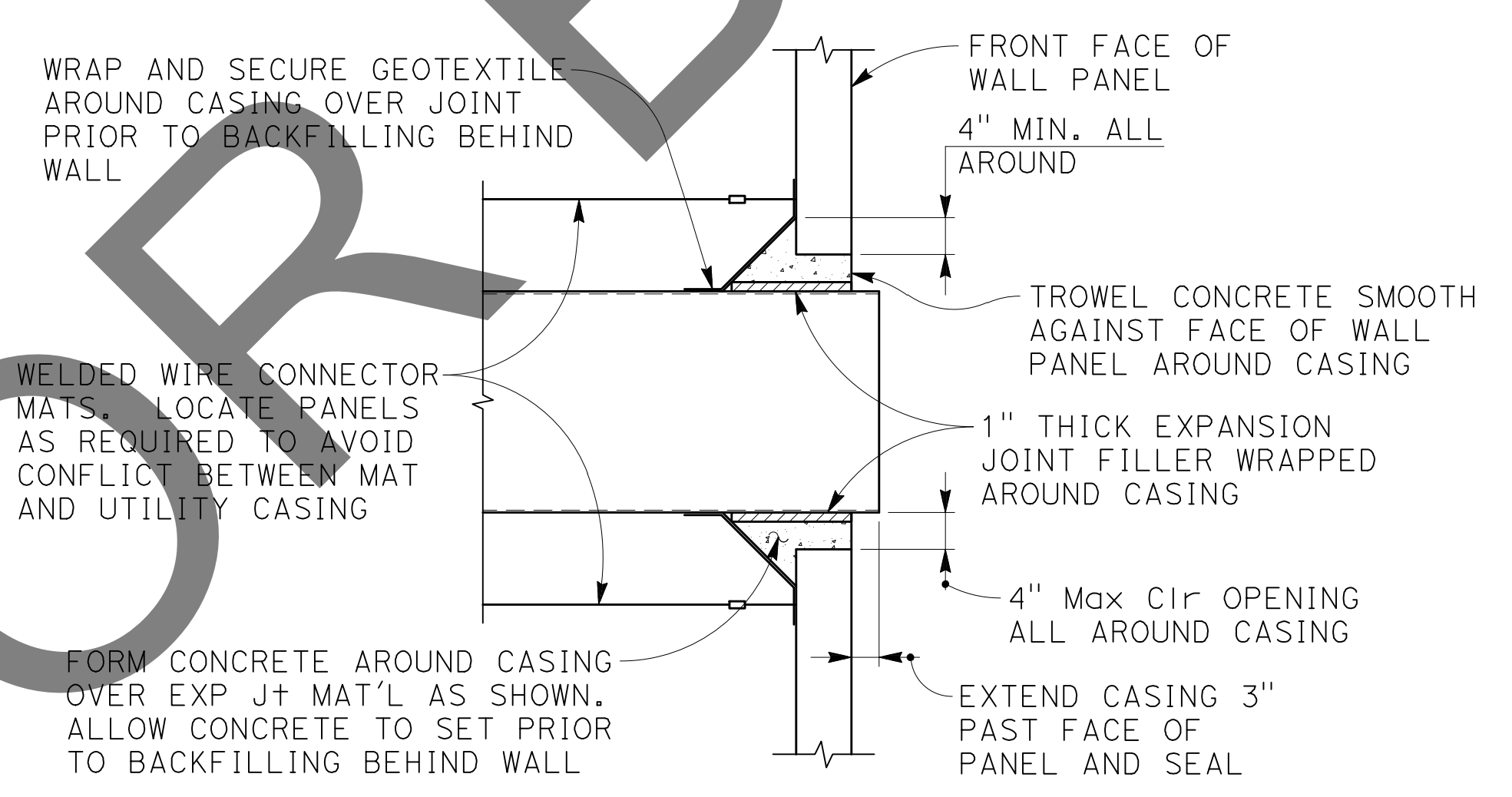
GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH
MSE RETAINING WALL DETAILS No. 4

J.L. REF. 11334	W.O. NO. H14646	DRAWING NO. S-108	SHT. NO. 94	TOT. SHTS. 102
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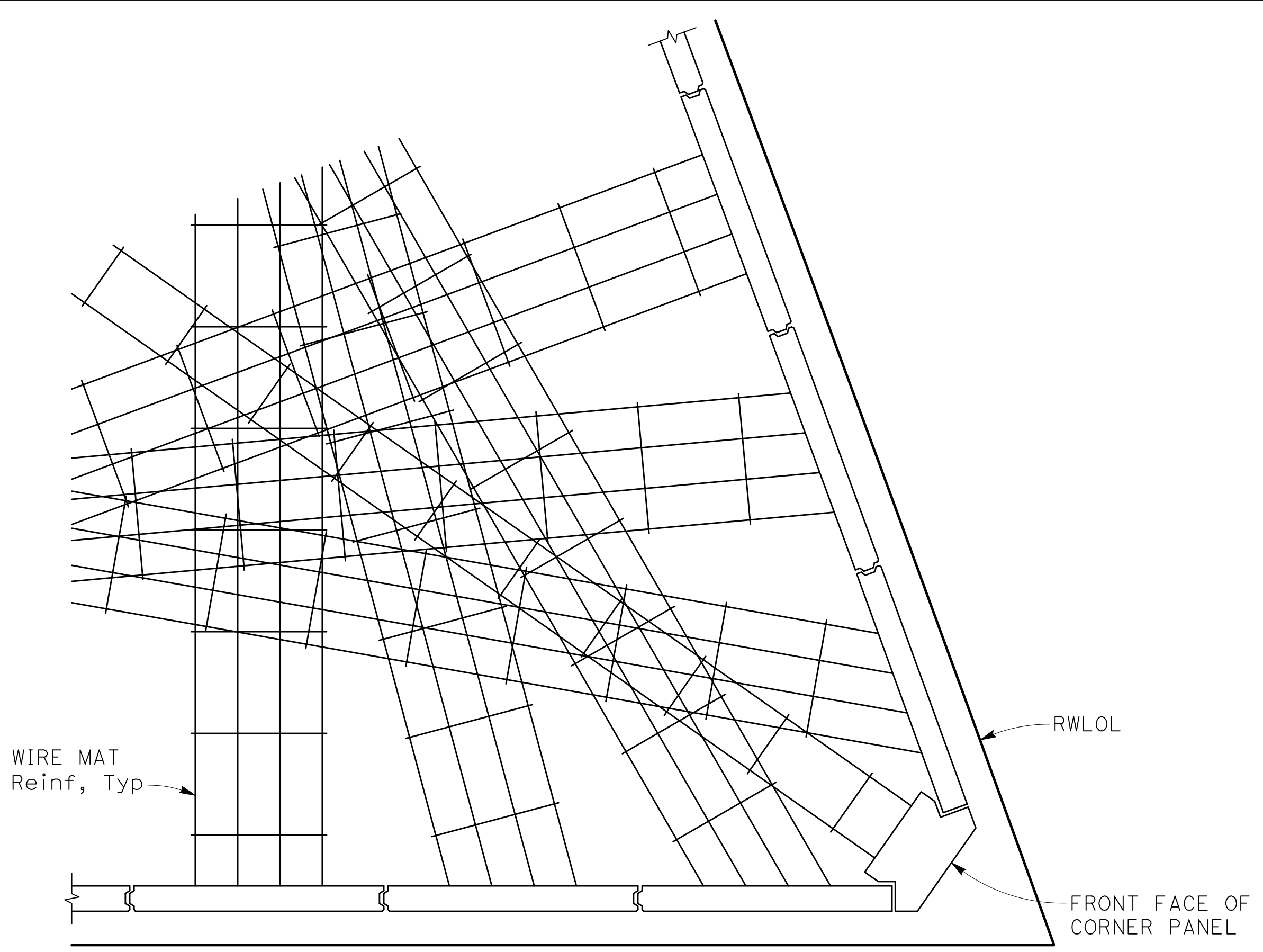
PLAN OF PANELS WITH UTILITY CASING PENETRATION

NO SCALE



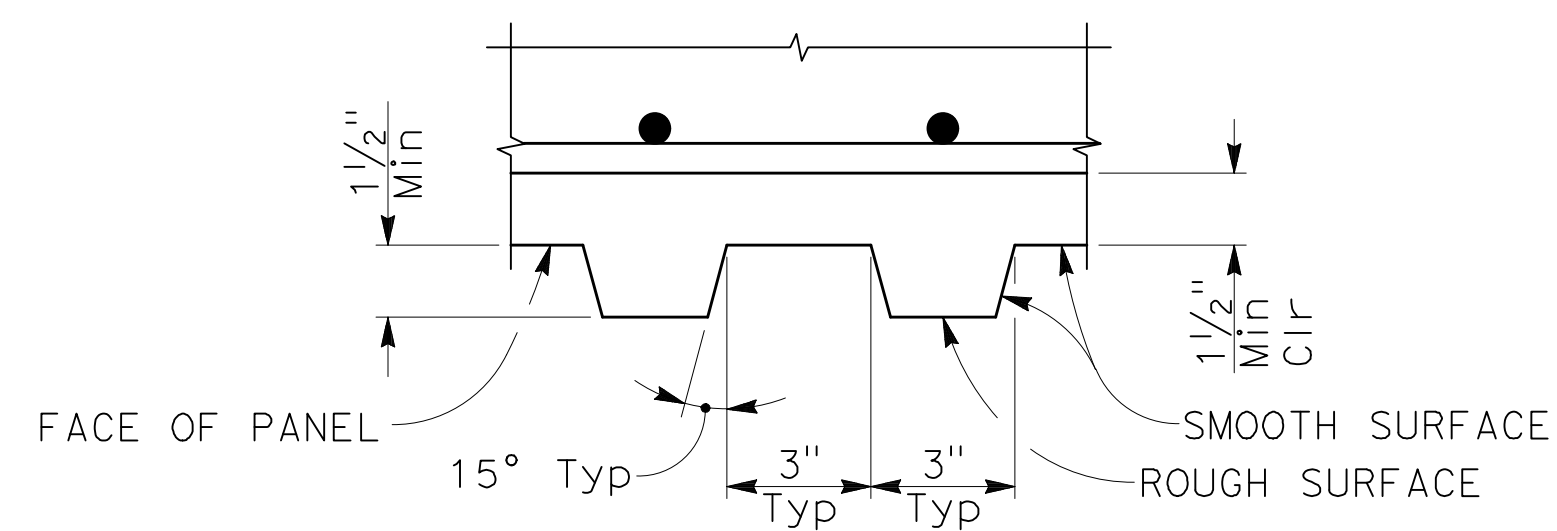
SECTION A

NO SCALE



PLAN VIEW AT ACUTE CORNER

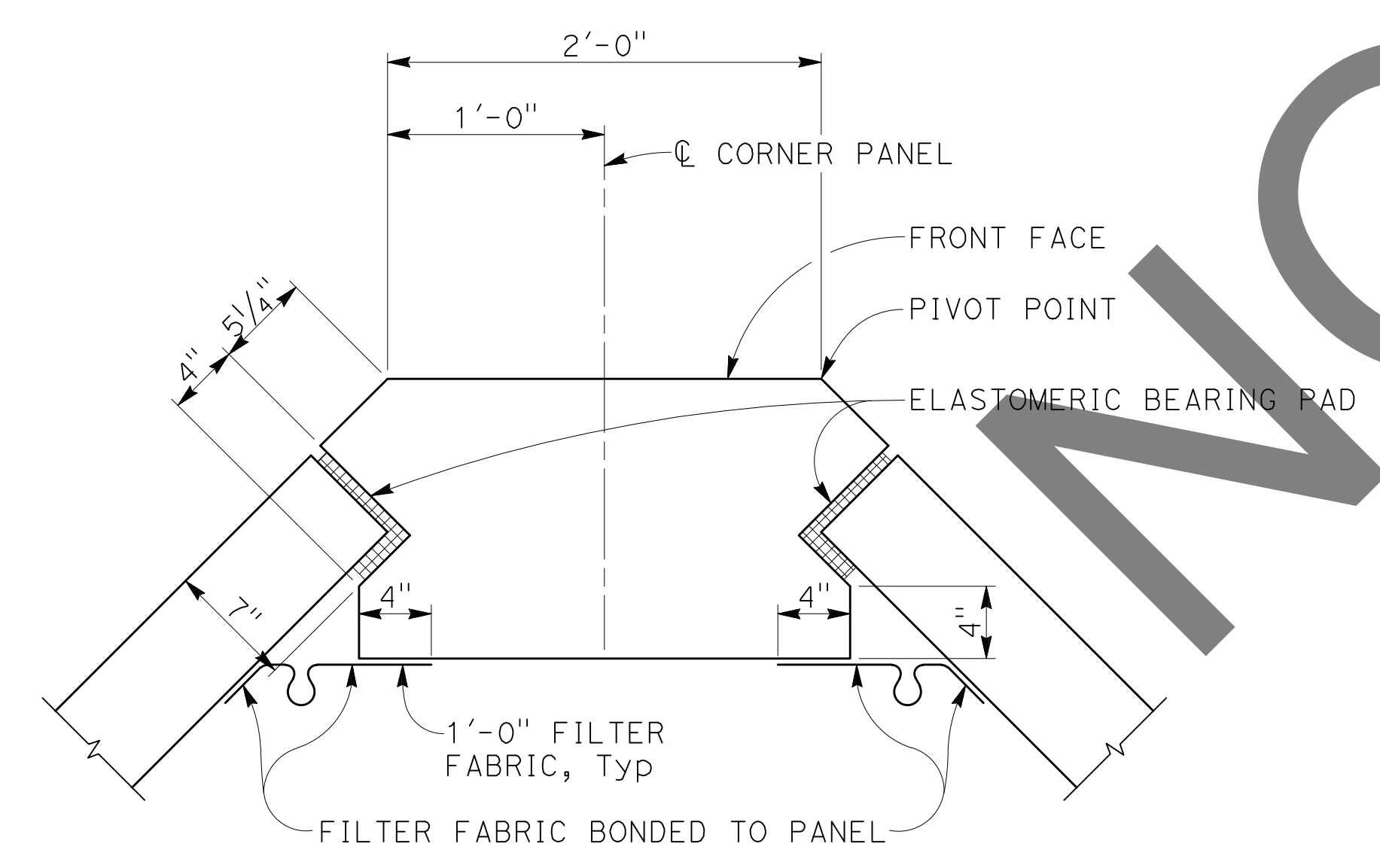
1/2" = 1'-0"



ARCHITECTURAL TREATMENT DETAIL

NO SCALE

NOTE: GROOVES SHALL BE VERTICAL



TYPICAL CORNER PANEL DETAIL

1 1/2" = 1'-0"

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MARK	REVISIONS	DATE

MARK	REVISIONS	DATE

FILE NO. 382400 050

PLANS PREPARED BY:
BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS
500 S. Main Street, Suite 1200
Orange, California 92668
714-550-4665

REGISTERED PROFESSIONAL ENGINEER
MICHAEL A. THOMPSON
No. 54676
Exp. 9/30/24
STRUCTURAL ENGINEER
STATE OF CALIFORNIA

7/29/24
REGISTERED STRUCTURAL ENGINEER

MARK CHANGES NO CHANGES
RESIDENT ENGINEER DATE

BCA

SAN BERNARDINO COUNTY
DEPARTMENT OF PUBLIC WORKS

DESIGNED BY: GOD
DRAWN BY: SMH
CHECKED BY: SEM
RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24
APPROVED BY: THOMAS BUSTAMANTE, P.E. SUPERVISING ENGINEER 8/15/24
DEPUTY DIRECTOR

11334 H14646 S-109 95 102

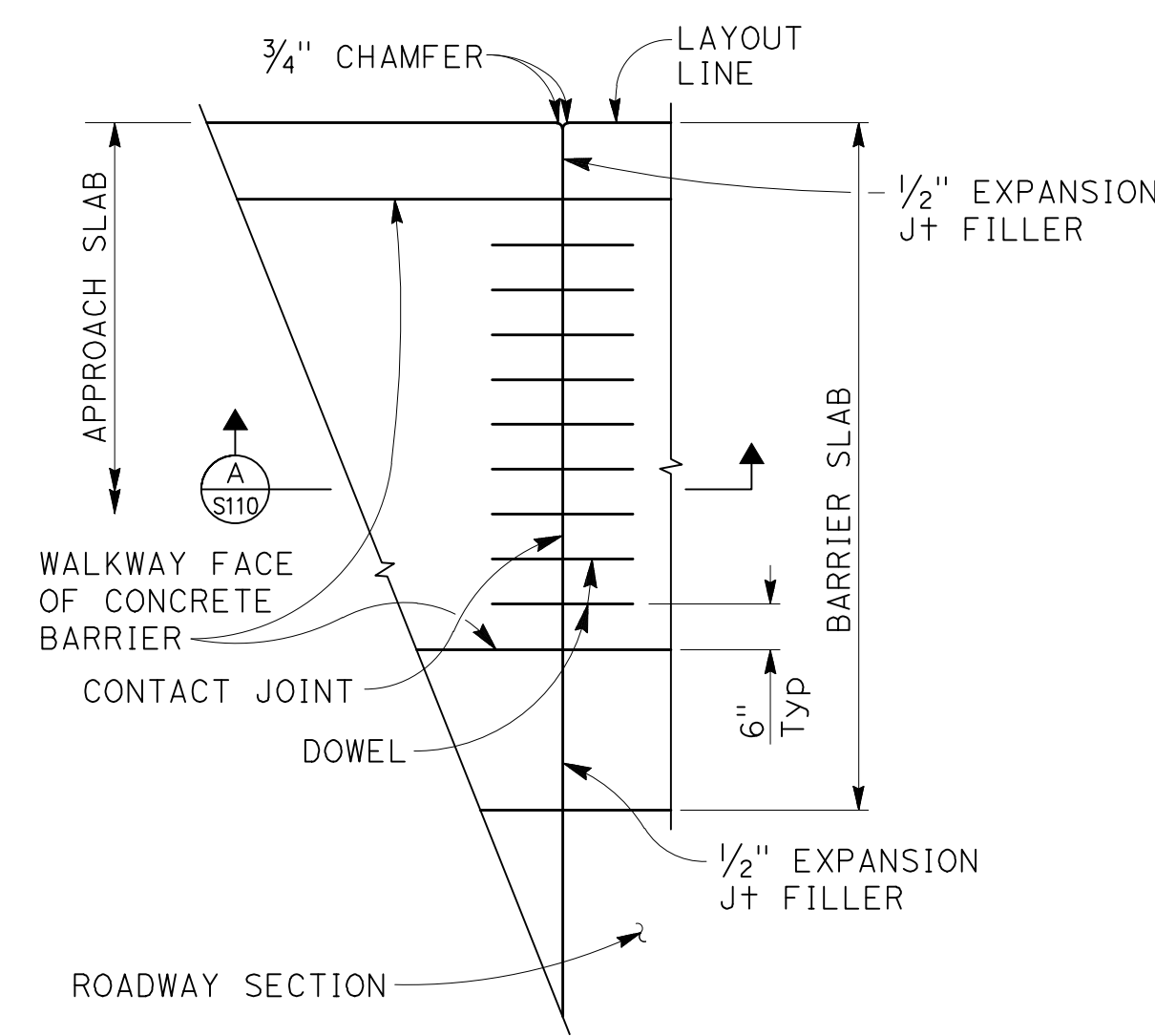
100% SUBMISSION

GLEN HELEN PARKWAY BRIDGE
OVER CAJON WASH
MSE RETAINING WALL DETAILS No. 5

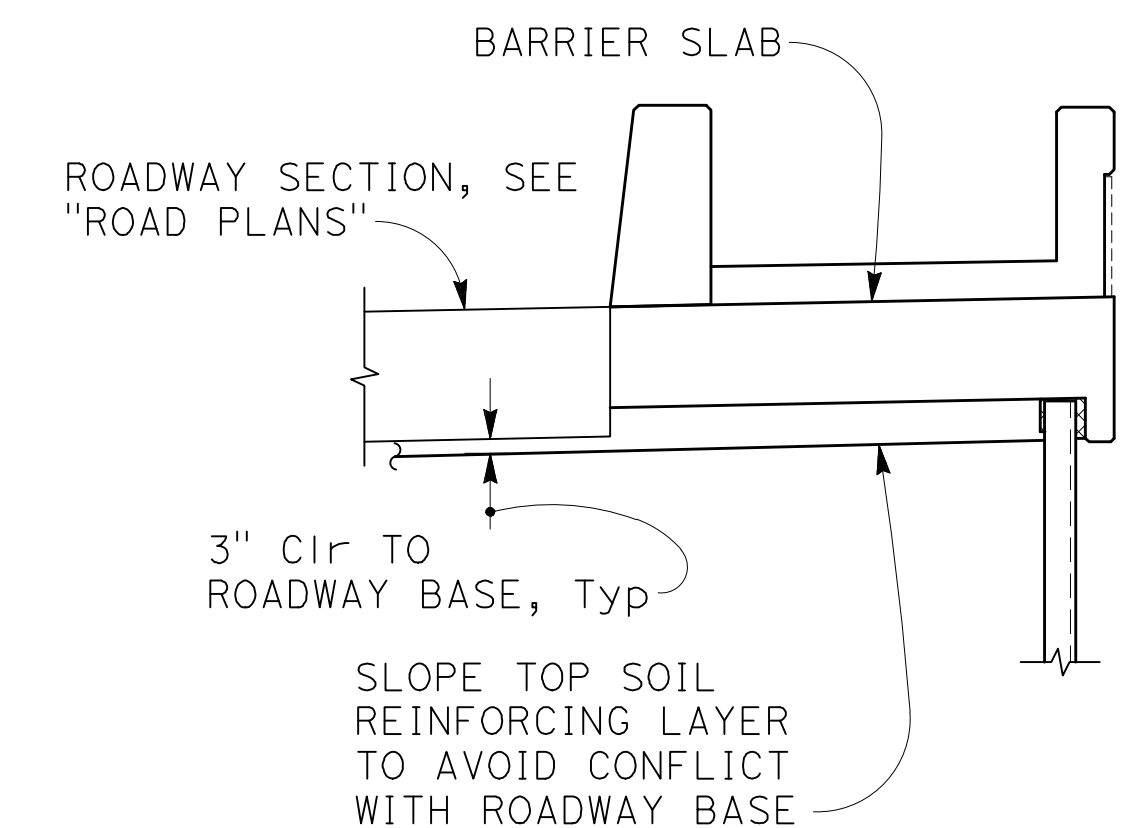
J.L. REF. 11334
W.O. NO. H14646
DRAWING NO. S-109
SHT. NO. 95
TOT. SHTS. 102

NOTES:

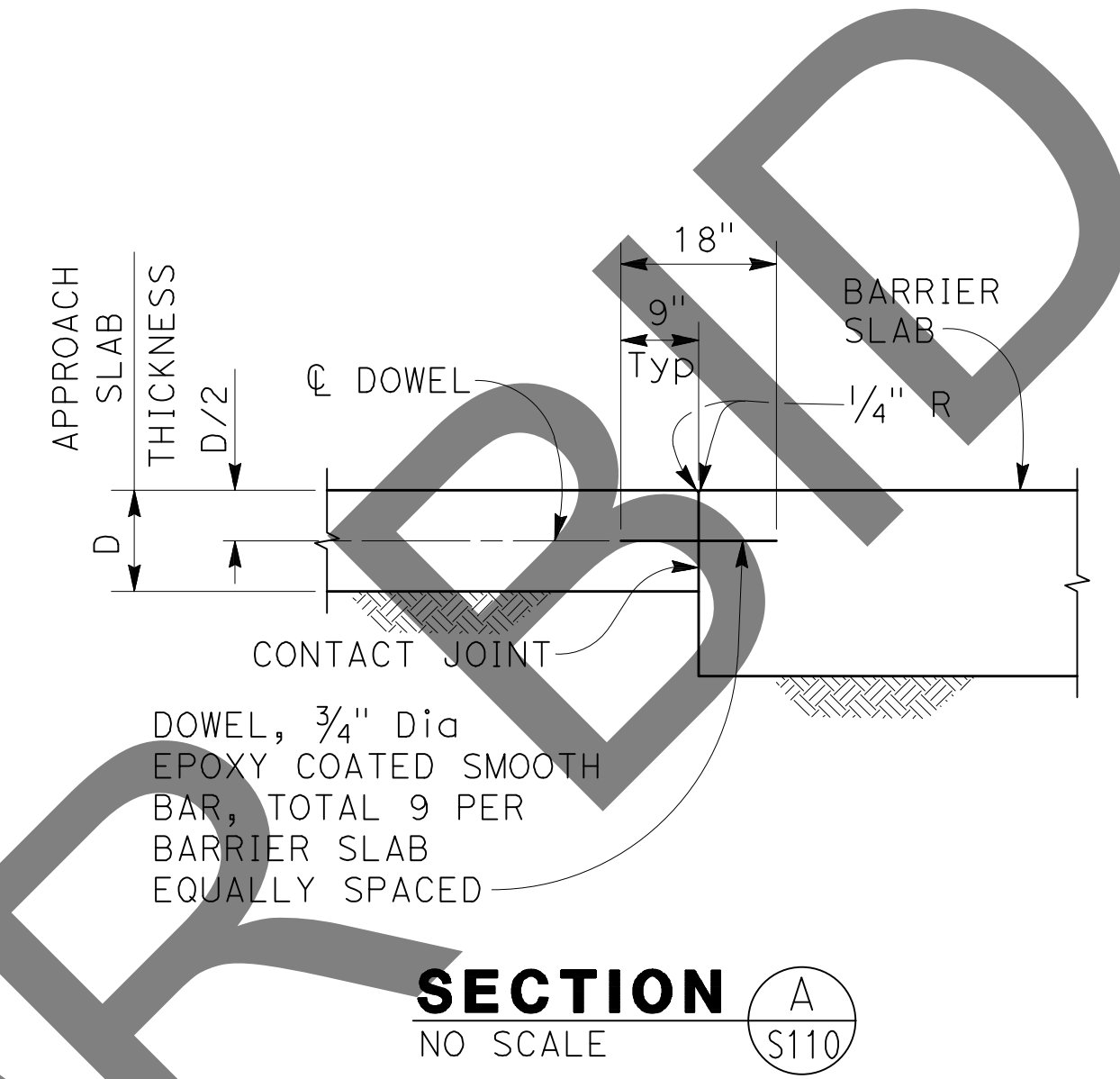
1. Concrete barrier, barrier slab and approach slab reinforcement not shown.
2. Provide 1/2" open joint in concrete barrier at location of contact joint between approach slab and barrier slab. Provide Type AL Seal (see Std. Plan B6-21) in 1/2" open joint at traffic face of concrete barrier at bottom 6" of barrier at low side of roadway only.



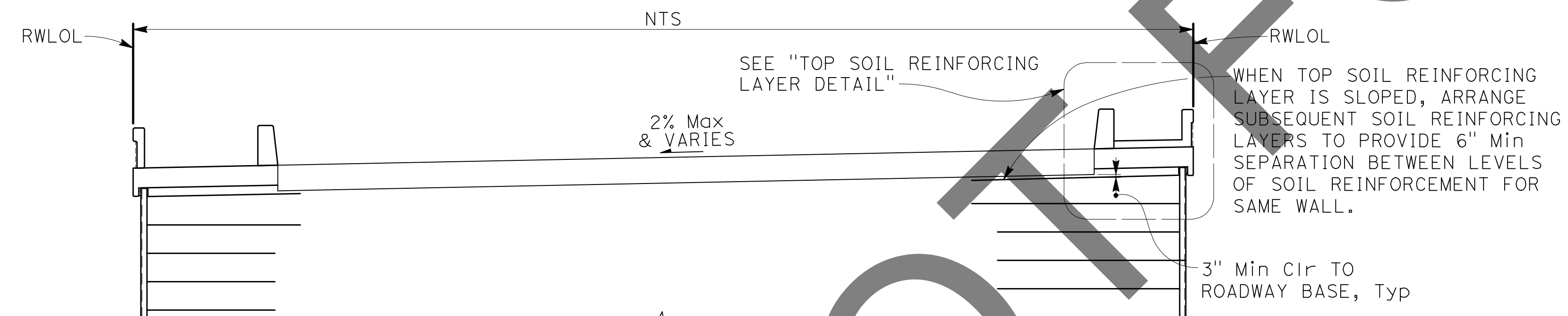
BARRIER SLAB DOWEL DETAIL
NO SCALE



TOP SOIL REINFORCING LAYER DETAIL
NO SCALE



SECTION A
NO SCALE



BACK TO BACK WALL SOIL REINFORCING DETAIL
NO SCALE

MARK	REVISIONS	DATE

MARK	REVISIONS	DATE

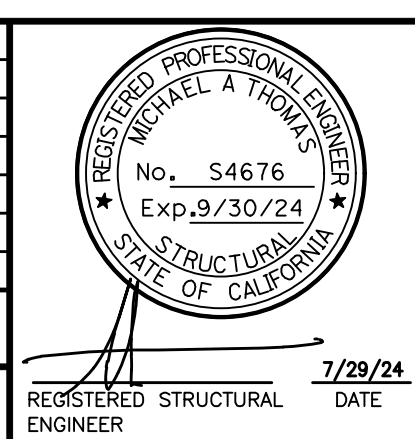
FILE NO. 382400 050

NOTE:
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BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS
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Orange, California 92668
714-550-4665



MARK	CHANGES	RESIDENT ENGINEER	DATE



SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS			
DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24
APPROVED BY: Thomas Bustamonte THOMAS BUSTAMONTE, P.E. SUPERVISING ENGINEER 8/15/24		APPROVED BY: Mervat Nizamkhalil, P.E. DEPUTY DIRECTOR 8/15/24	

GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH				
MSE RETAINING WALL DETAILS No. 6				
J.L. REF.	W.O. NO.	DRAWING NO.	SHT. NO.	TOT. SHTS.
11334	H14646	S-110	96	102

100% SUBMISSION

OUTFALL STRUCTURE DESIGN DATA

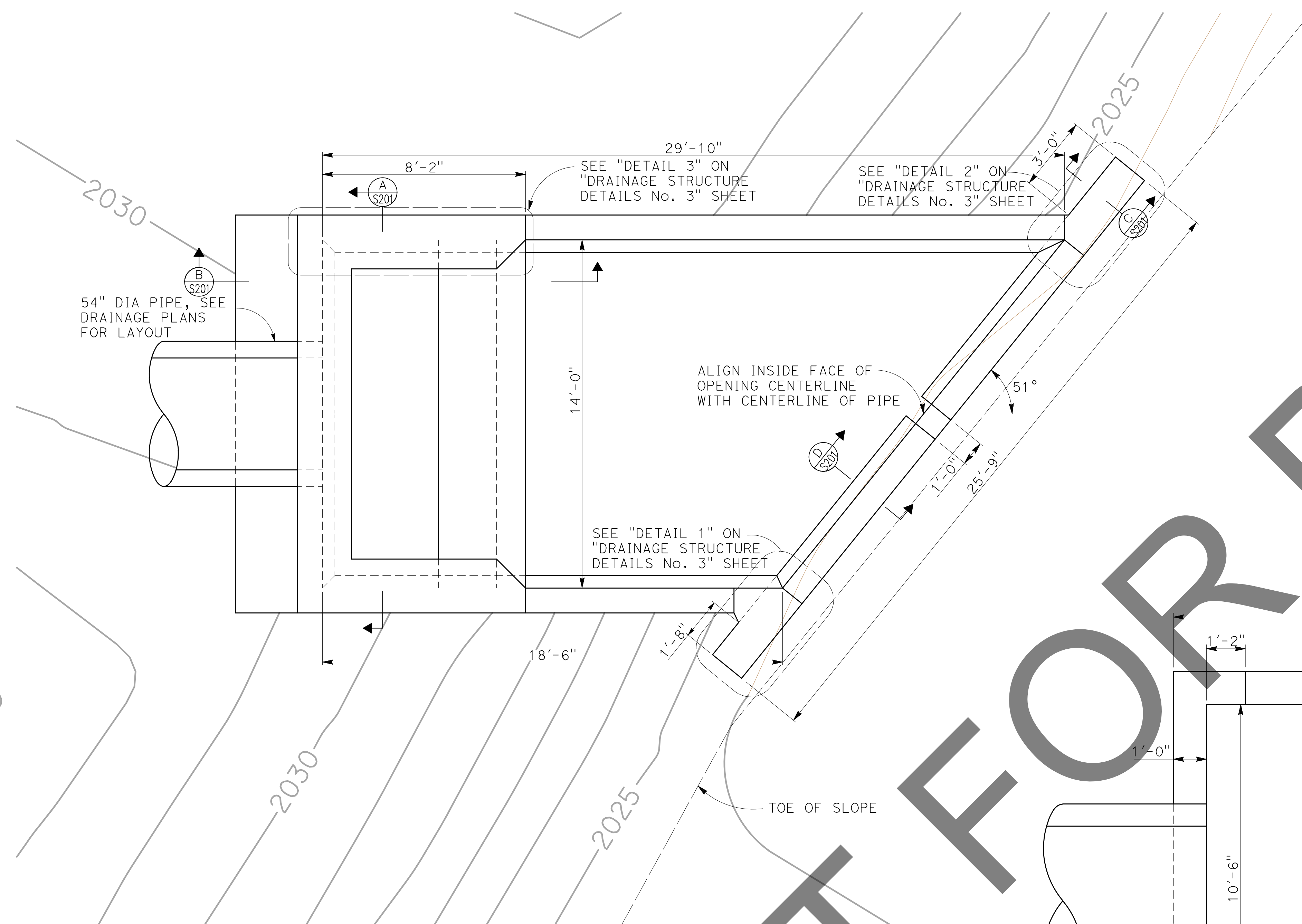
DESIGN CODE:
 United States Army Corps of Engineers Engineering Manuals:
 EM 1110-2-2104 - STRENGTH DESIGN FOR REINFORCED CONCRETE HYDRAULIC STRUCTURES
 EM 1110-2-2100 - STABILITY ANALYSIS OF CONCRETE STRUCTURES
 American Concrete Institute: Building Code Requirements for Structural Concrete and Commentary (ACI318-14)

REINFORCED CONCRETE:
 f'c = 4,000 psi
 fy = 60,000 psi

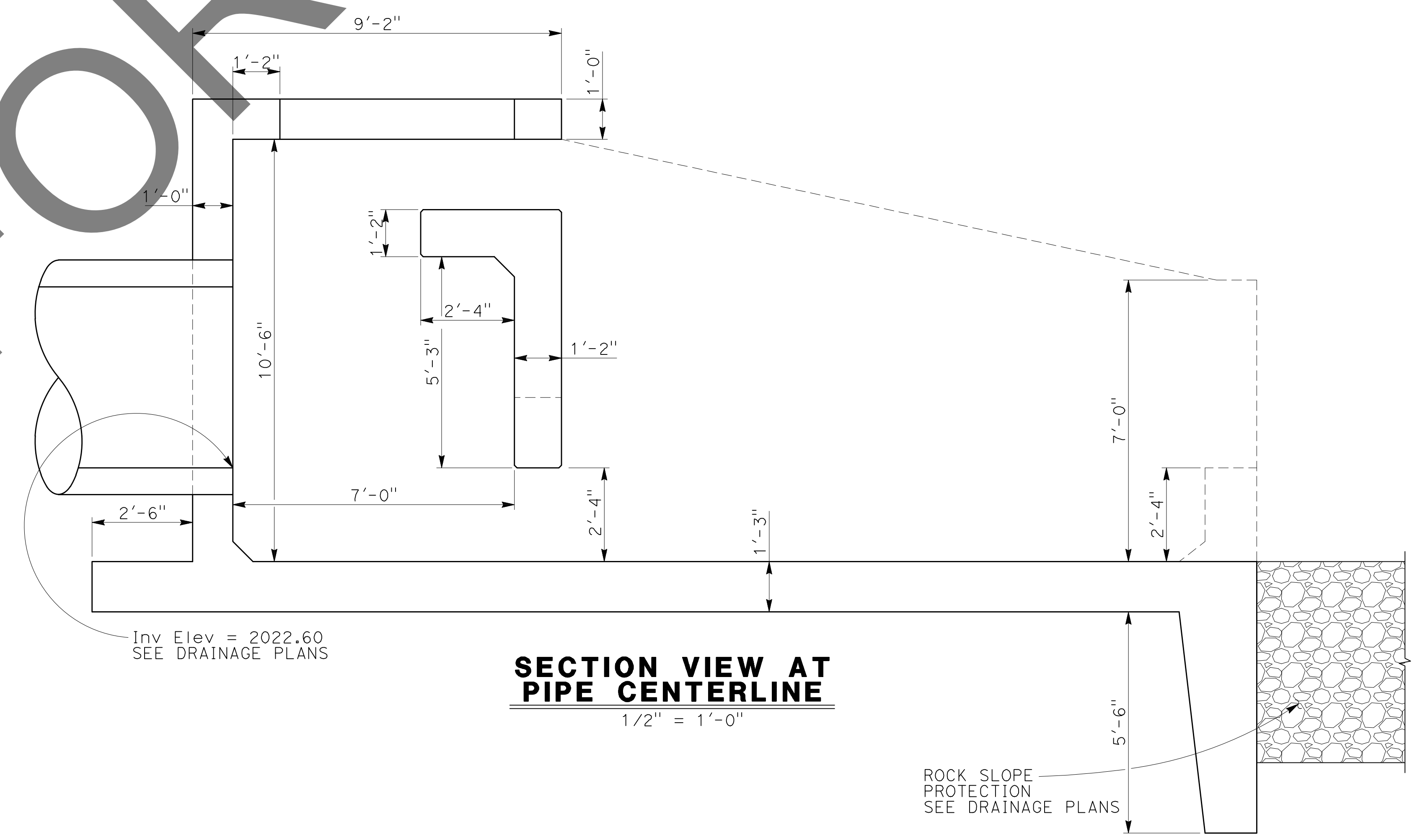
SOIL:
 Weight = 120 pcf
 At Rest Pressure = 53 pcf
 Passive Pressure = 430 pcf
 Friction Value = 0.20

DRAINAGE STRUCTURE DRAWING INDEX

Sheet No.	Title
S-200	DRAINAGE STRUCTURE DETAILS No. 1
S-201	DRAINAGE STRUCTURE DETAILS No. 2
S-202	DRAINAGE STRUCTURE DETAILS No. 3
S-203	DRAINAGE STRUCTURE DETAILS No. 4
S-204	DRAINAGE STRUCTURE DETAILS No. 5



PLAN VIEW
 3/8" = 1'-0"



SECTION VIEW AT PIPE CENTERLINE
 1/2" = 1'-0"

ROCK SLOPE PROTECTION SEE DRAINAGE PLANS

100% SUBMISSION

MARK	REVISIONS	DATE

FILE NO. 382400 050

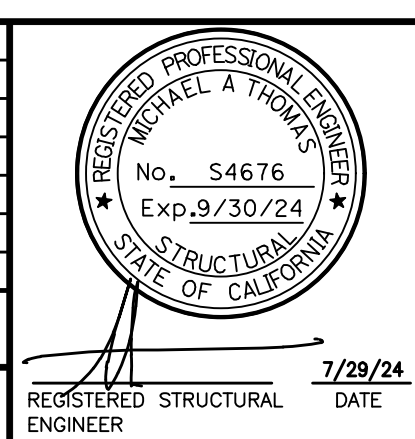
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 STRUCTURAL ENGINEERS
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 Orange, California 92668
 714-550-4665



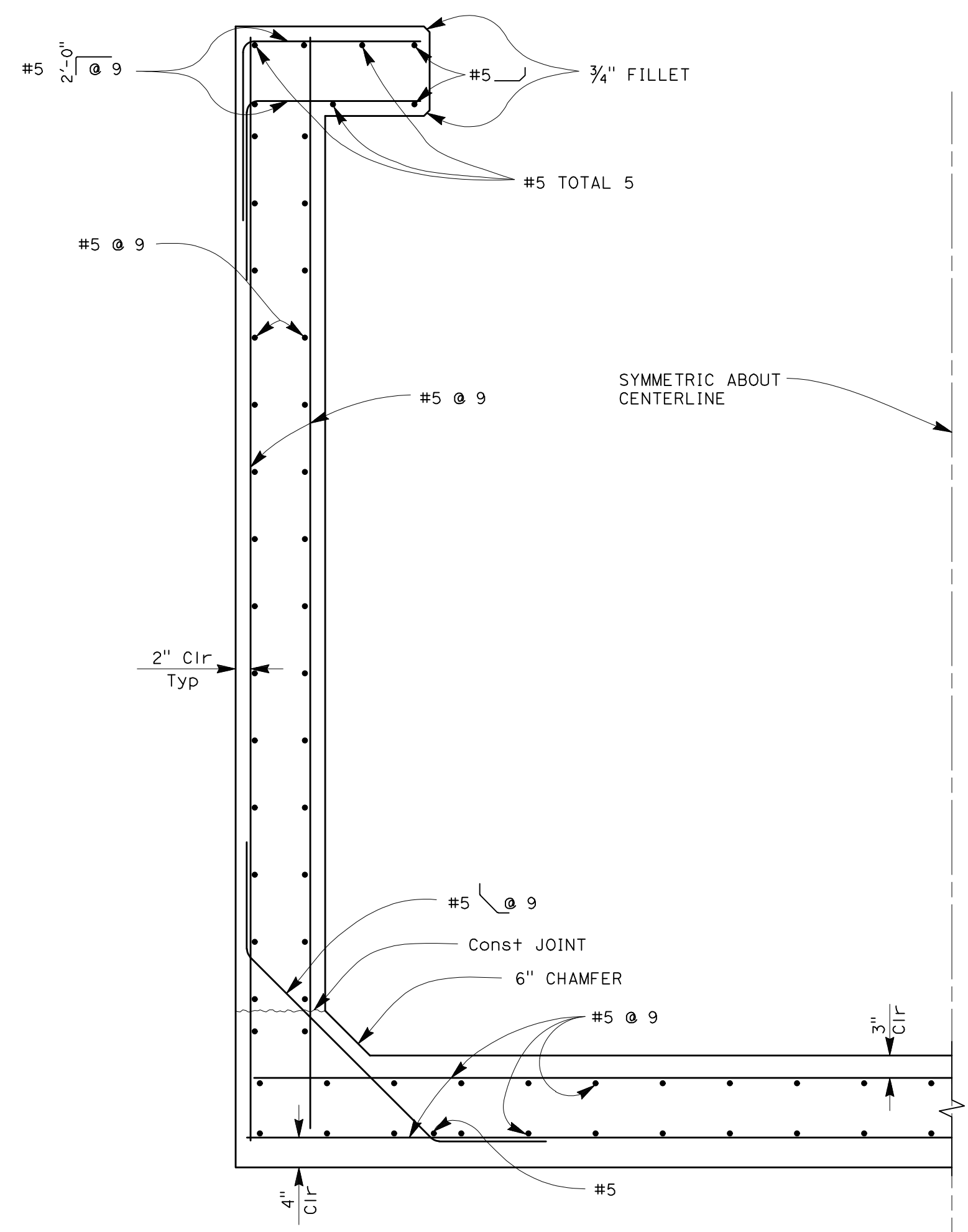
MARK	CHANGES	RESIDENT ENGINEER	DATE

FIELD CHANGES

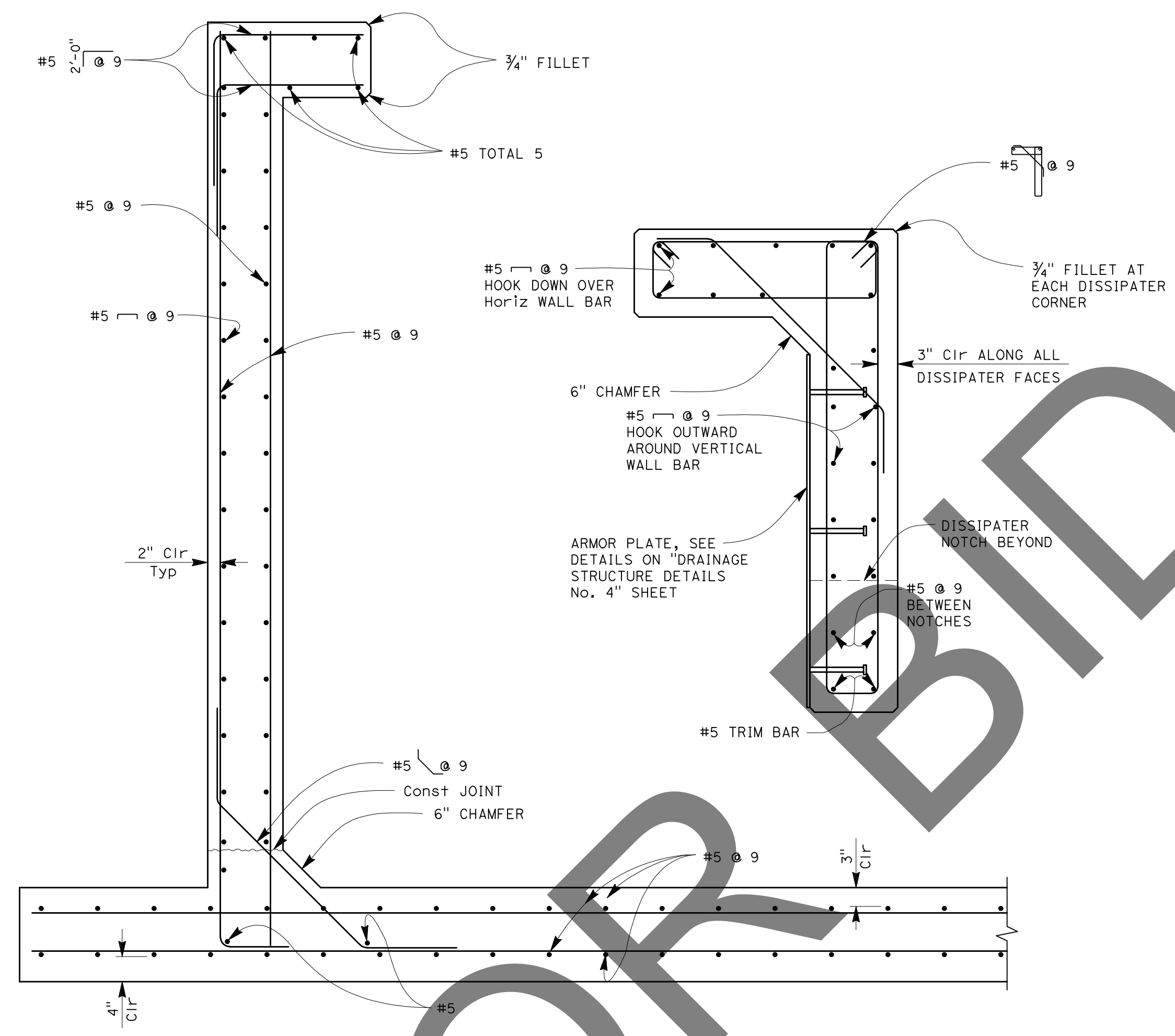


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS			
DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24
APPROVED BY: Thomas Bustamante SUPERVISING ENGINEER 8/15/24			APPROVED BY: Mervat Nizar Khalil, P.E. DEPUTY DIRECTOR 8/15/24

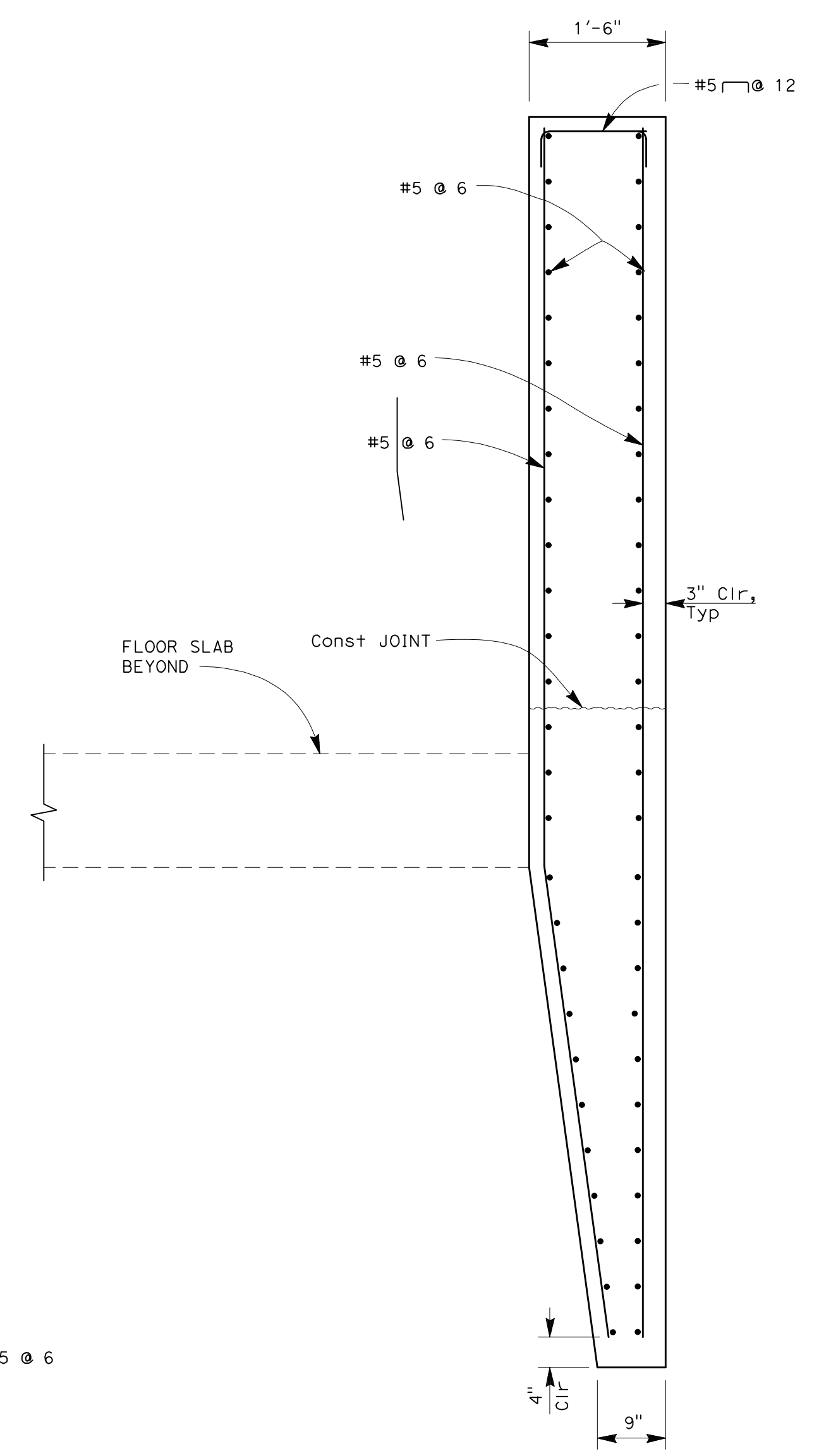
GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH				
DRAINAGE STRUCTURE DETAILS No. 1				
J.L. REF.	W.O. NO.	DRAWING NO.	SHT. NO.	TOT. SHTS.
11334	H14646	S-200	97	102



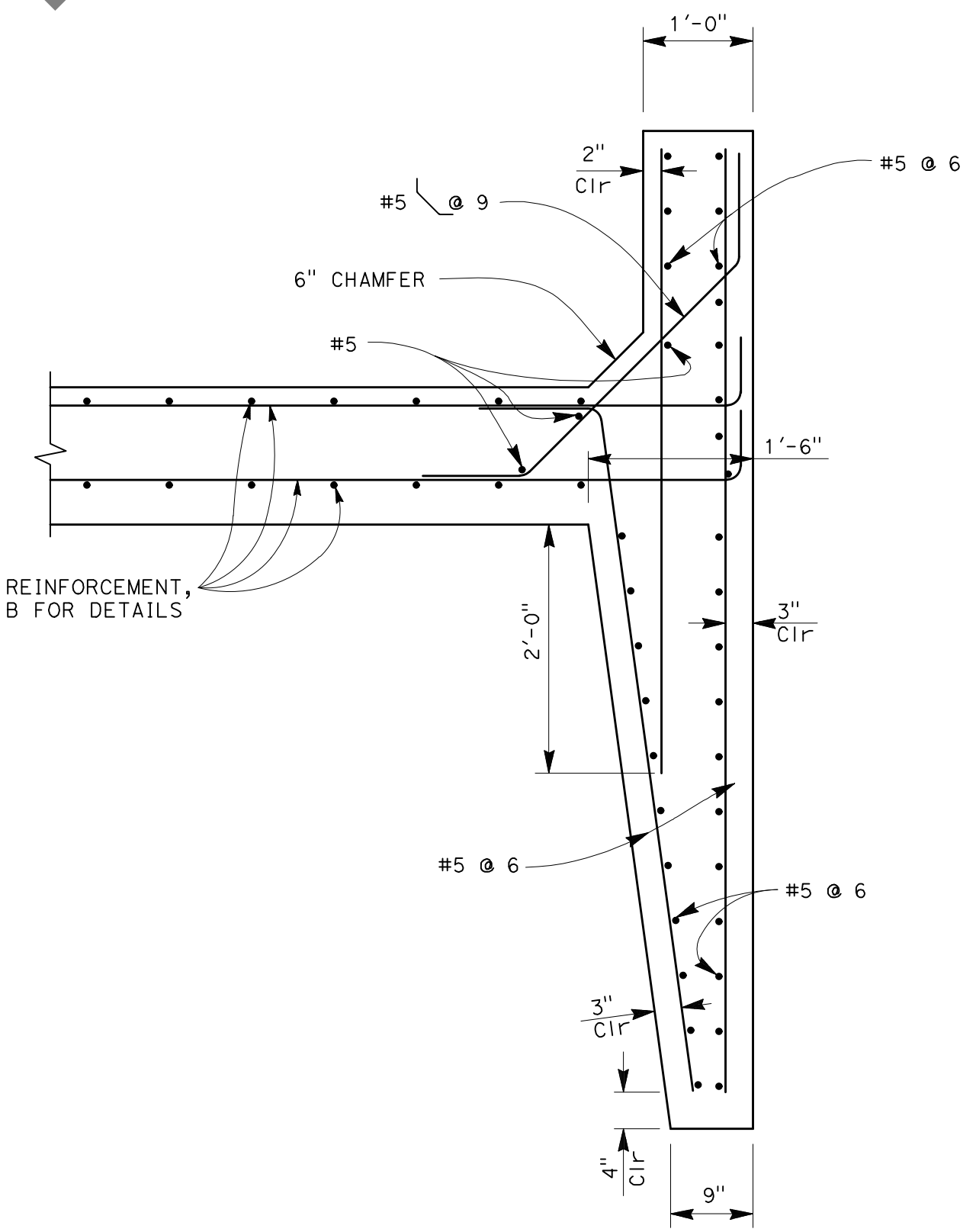
SECTION A
3/4" = 1'-0"
S201



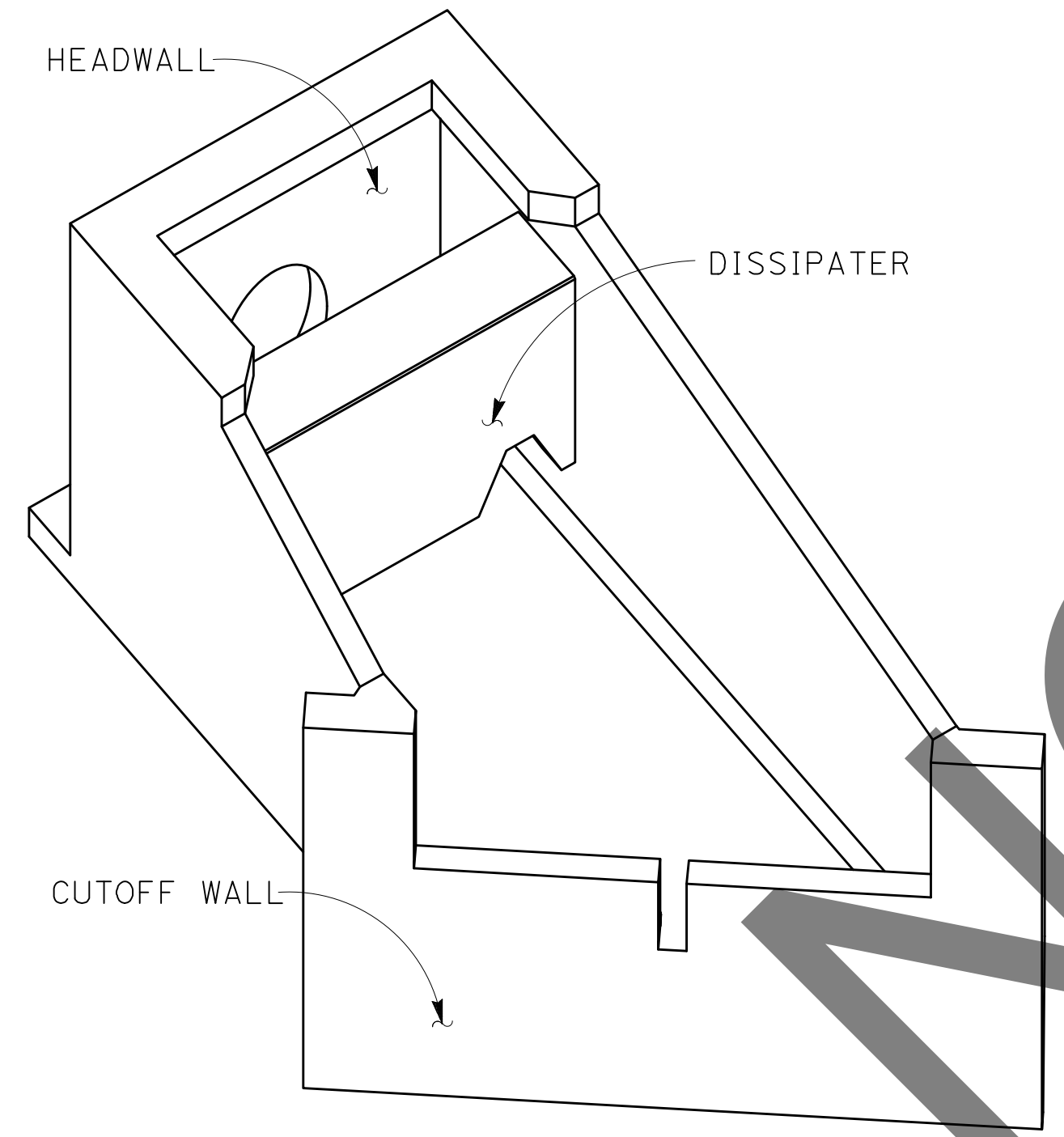
SECTION B
3/4" = 1'-0"
S201



SECTION C
3/4" = 1'-0"
S201



SECTION D
3/4" = 1'-0"
S201



ISOMETRIC VIEW
NO SCALE

MARK	REVISIONS	DATE

MARK	REVISIONS	DATE

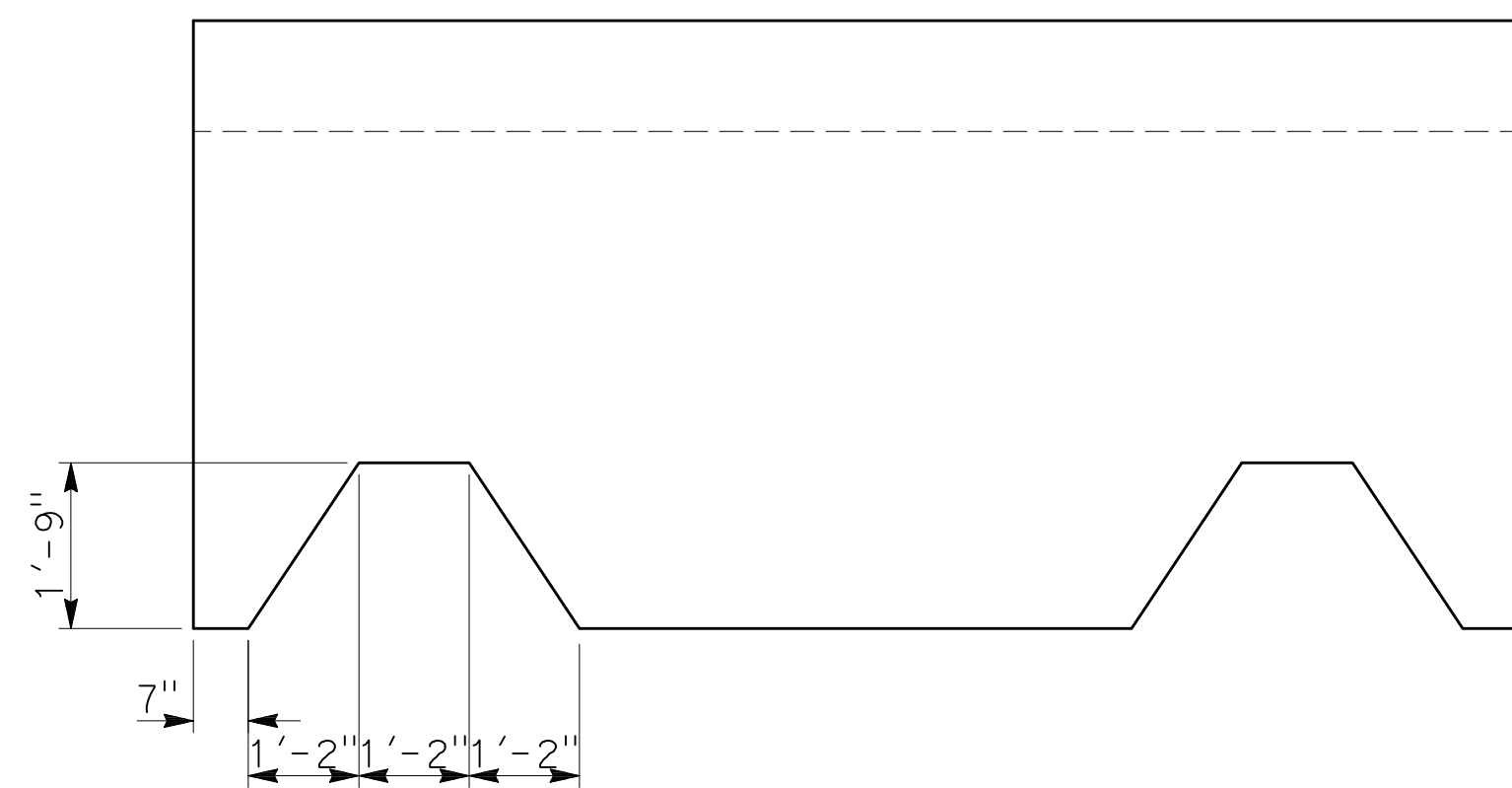
FILE NO. 382400 050

NOTE:
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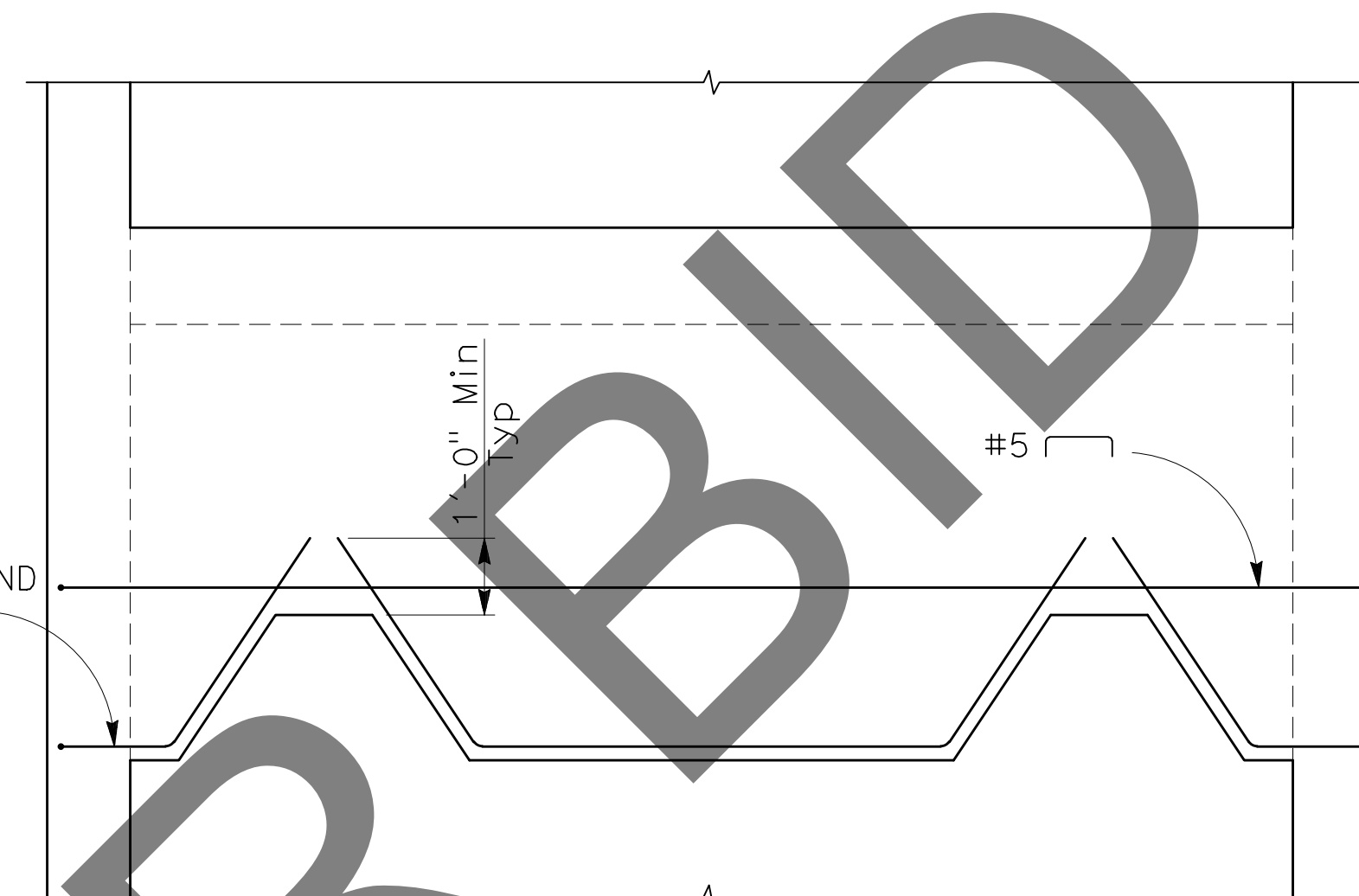
PLANS PREPARED BY: BIGGS CARDOSA ASSOCIATES INC STRUCTURAL ENGINEERS 500 S. Main Street, Suite 1200 Orange, California 92668 714-550-4665													
<table border="1"> <thead> <tr> <th>MARK</th> <th>CHANGES</th> <th>RESIDENT ENGINEER</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		MARK	CHANGES	RESIDENT ENGINEER	DATE					<table border="1"> <tr> <td>REGISTERED STRUCTURAL ENGINEER</td> <td>7/29/24</td> </tr> </table>		REGISTERED STRUCTURAL ENGINEER	7/29/24
MARK	CHANGES	RESIDENT ENGINEER	DATE										
REGISTERED STRUCTURAL ENGINEER	7/29/24												

SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS			
DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24
APPROVED BY: THOMAS BUSTAMONTE, P.E. SUPERVISING ENGINEER 8/15/24		APPROVED BY: MURRAY NICKERHILL, P.E. DEPUTY DIRECTOR 8/15/24	

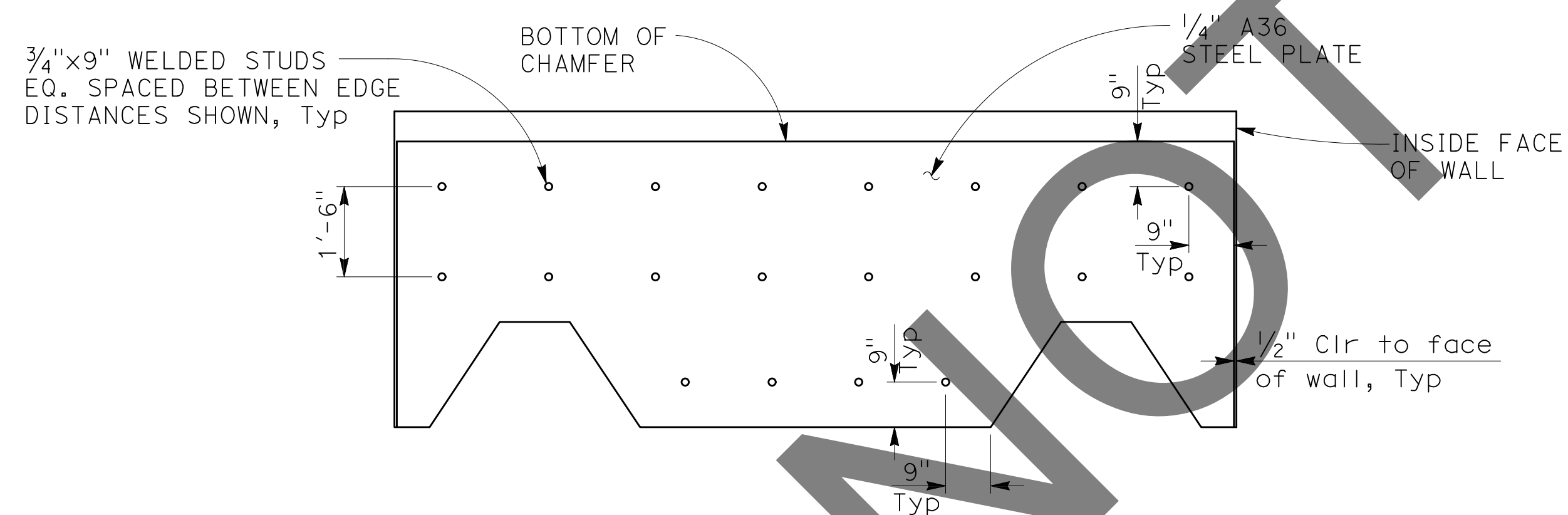
100% SUBMISSION				
GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH DRAINAGE STRUCTURE DETAILS No. 2				
J.L. REF.	W.O. NO.	DRAWING NO.	SHT. NO.	TOT. SHTS.
11334	H14646	S-201	98	102



DISSIPATER LAYOUT
1/2" = 1'-0"



DISSIPATER ELEVATION
1/2" = 1'-0"



ARMOR PLATE DETAIL
1/2" = 1'-0"

MARK	REVISIONS	DATE

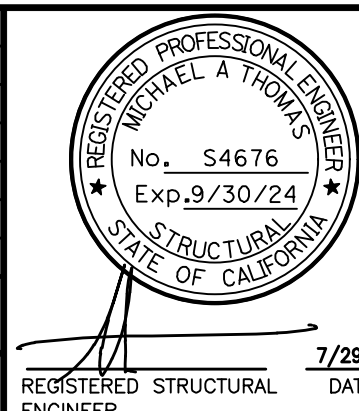
FILE NO. 382400 050

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BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS
500 S. Main Street, Suite 1200
Orange, California 92668
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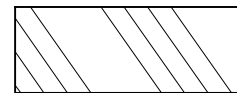
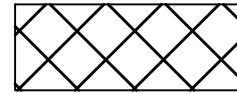
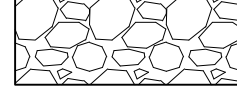
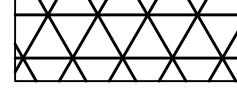


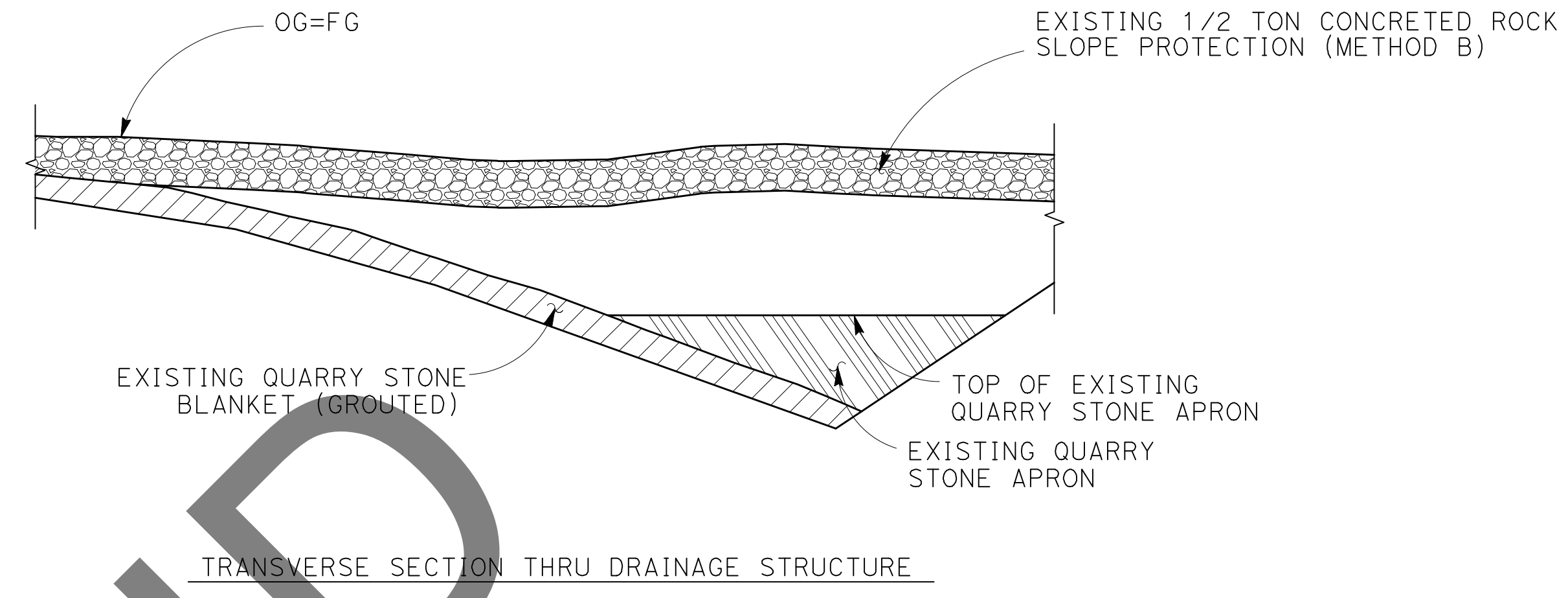
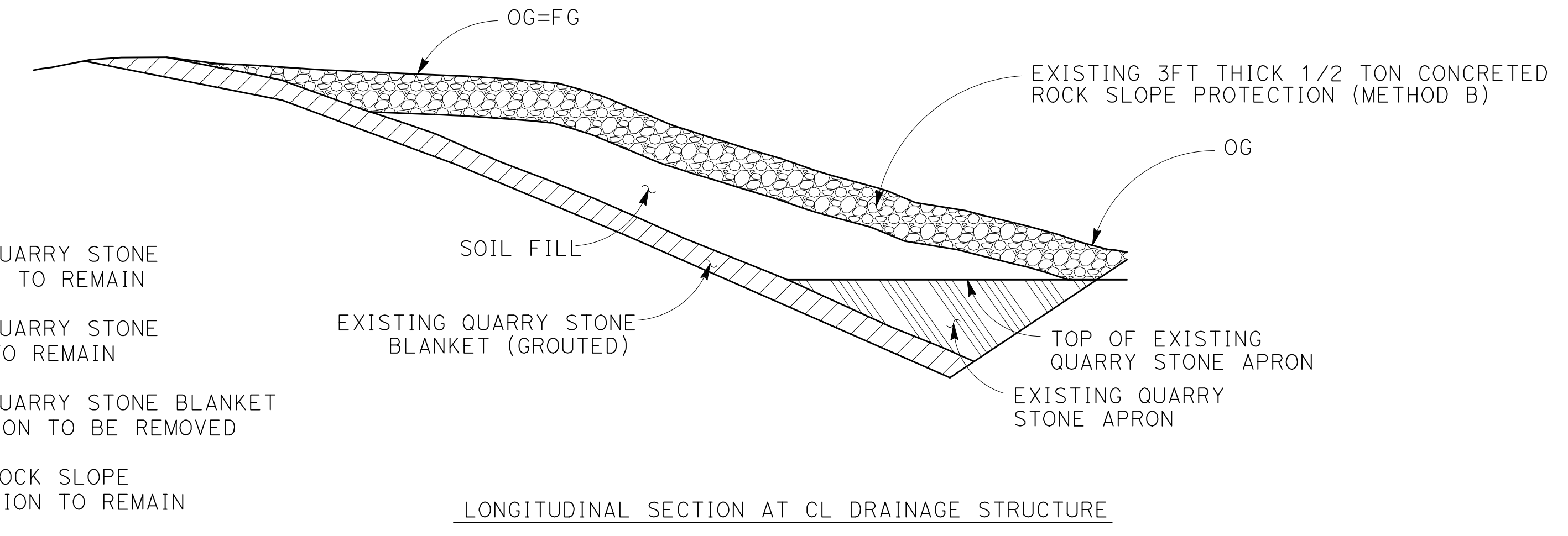
MARK	CHANGES	RESIDENT ENGINEER	DATE
	NO CHANGES		



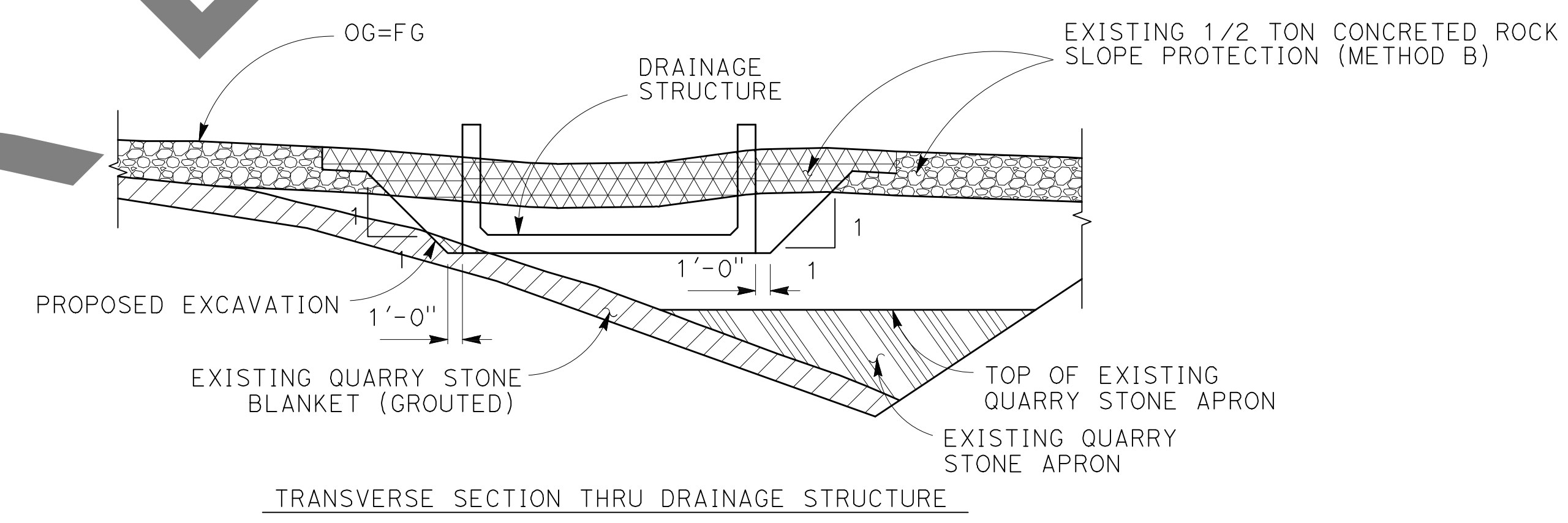
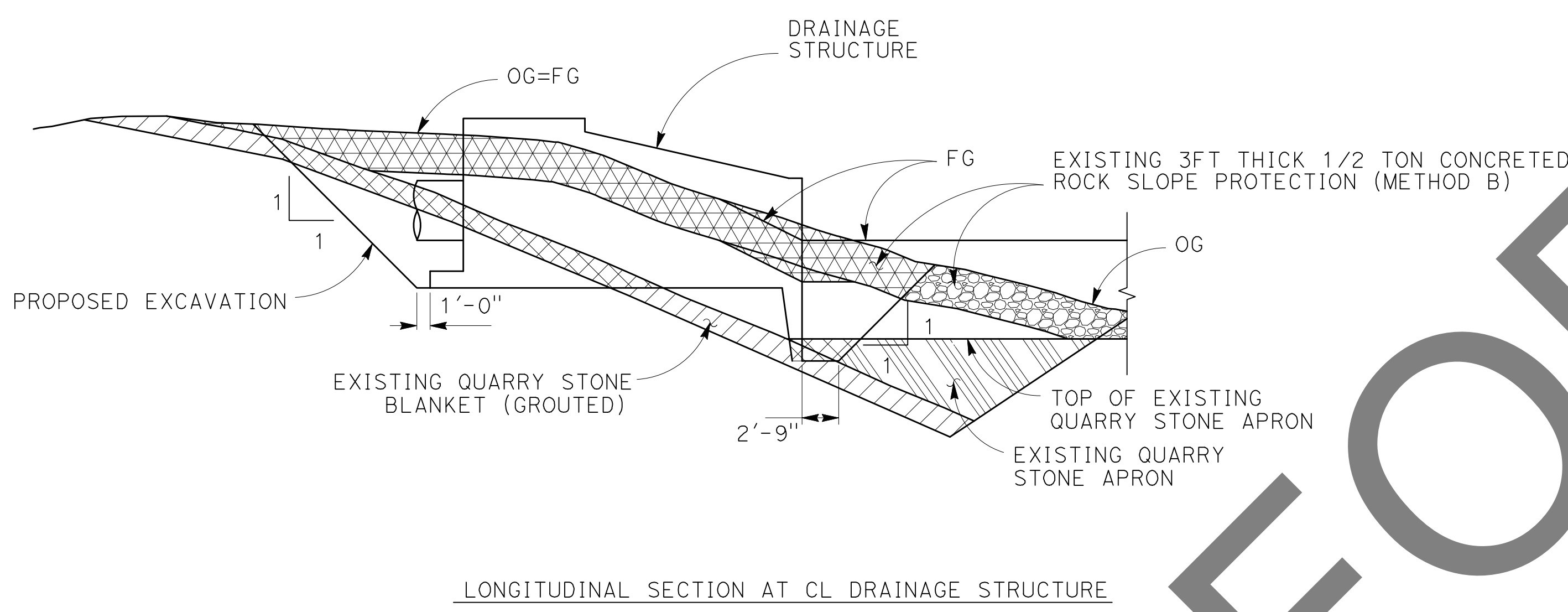
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS			
DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: Chris Nguyen, P.E. ENGINEERING MANAGER 8/15/24
APPROVED BY: Thomas Bustamonte, P.E. SUPERVISING ENGINEER 8/15/24		APPROVED BY: Mervat Nizamkhal, P.E. DEPUTY DIRECTOR 8/15/24	

100% SUBMISSION			
GLEN HELEN PARKWAY BRIDGE OVER CAJON WASH DRAINAGE STRUCTURE DETAILS No. 4			
J.L. REF.	W.O. NO.	DRAWING NO.	SHT. NO.
11334	H14646	S-203	100
TOT. SHTS.	102		

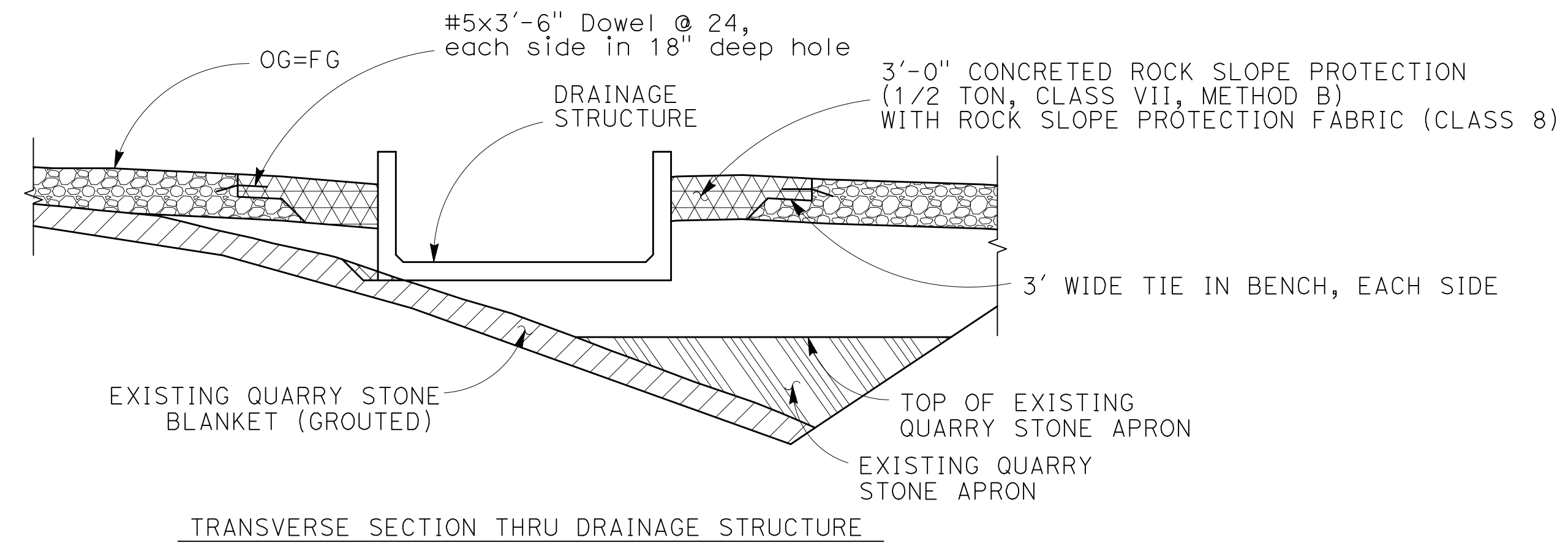
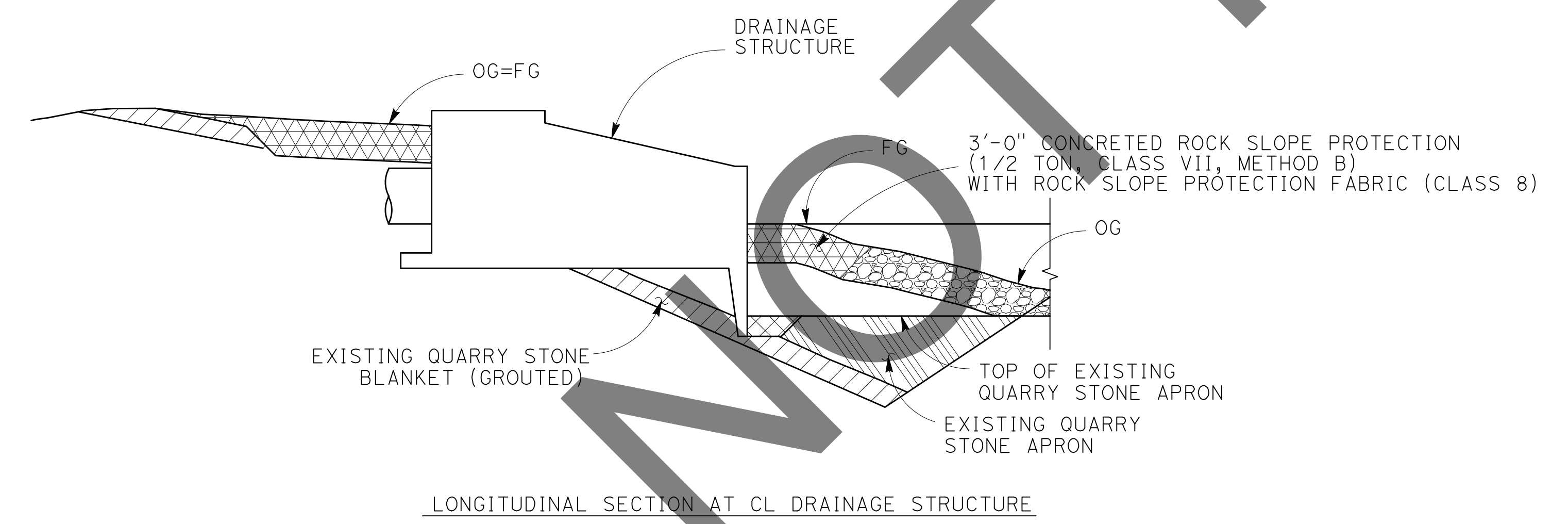
- LEGEND:**
-  EXIST QUARRY STONE BLANKET TO REMAIN
 -  EXIST QUARRY STONE APRON TO REMAIN
 -  EXIST QUARRY STONE BLANKET AND APRON TO BE REMOVED
 -  EXIST ROCK SLOPE PROTECTION TO REMAIN
 -  EXIST ROCK SLOPE PROTECTION TO BE REMOVED AND REPLACED OUTSIDE DRAINAGE STRUCTURE LIMITS



EXISTING CONDITION
NO SCALE



CONDITION DURING CONSTRUCTION
NO SCALE



FINAL CONDITION
NO SCALE


100% SUBMISSION

APPR.	DATE
REVISIONS	
MARK	
APPR.	DATE
REVISIONS	
MARK	


FILE NO. 382400 050

NOTE:
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PLANS PREPARED BY:
BIGGS CARDOSA ASSOCIATES INC
 STRUCTURAL ENGINEERS
 500 S. Main Street, Suite 1200
 Orange, California 92668
 714-550-4665



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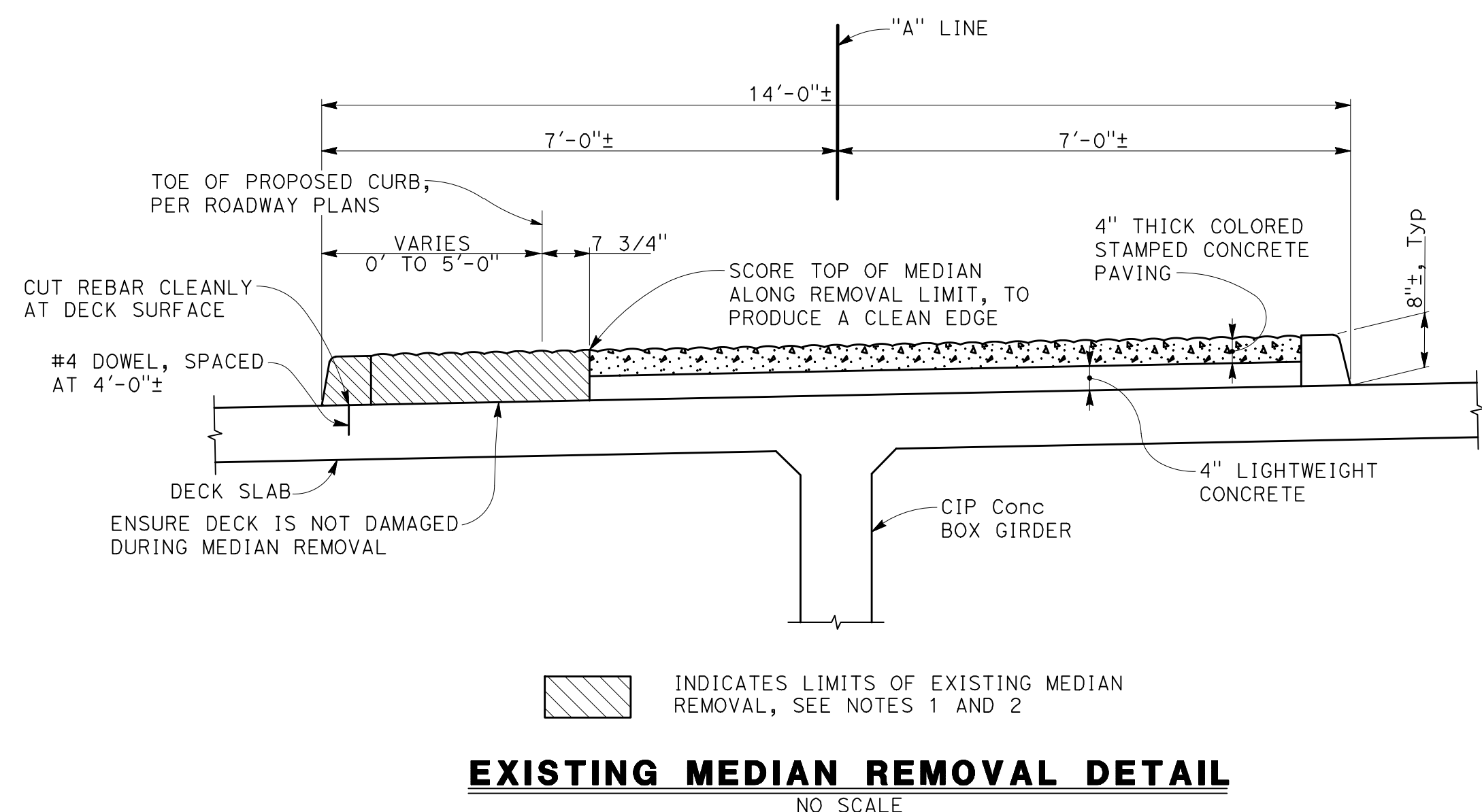
REGISTERED PROFESSIONAL ENGINEER
 No. 54676
 Exp. 9/30/24
 STRUCTURAL
 STATE OF CALIFORNIA

SAN BERNARDINO COUNTY
 DEPARTMENT OF PUBLIC WORKS

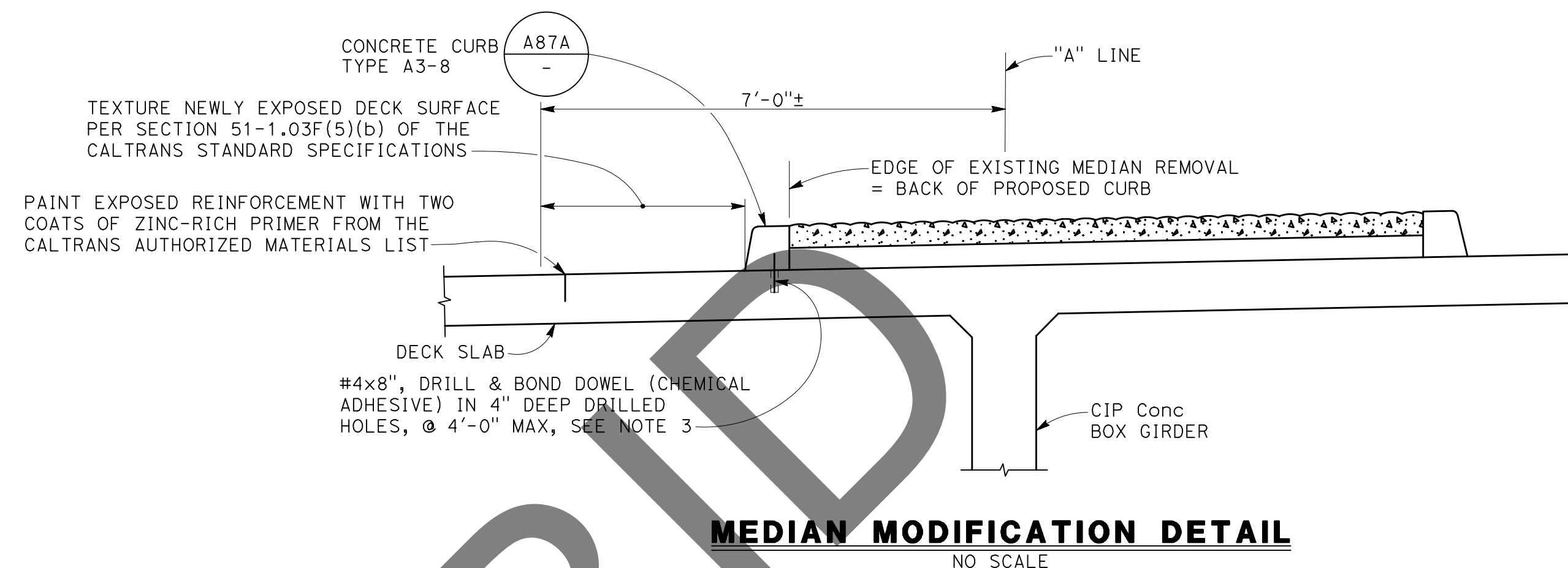
DESIGNED BY: GOD	DRAWN BY: SMH	CHECKED BY: SEM	RECOMMENDED BY: CHRIS NGUYEN, P.E. ENGINEERING MANAGER 8/15/24
APPROVED BY: Thomas Bustamonte SUPERVISING ENGINEER 8/15/24		APPROVED BY: Mervat Nizamkhal, P.E. DEPUTY DIRECTOR 8/15/24	

GLEN HELEN PARKWAY BRIDGE
 OVER CAJON WASH
 DRAINAGE STRUCTURE DETAILS No. 5

J.L. REF.	W.O. NO.	DRAWING NO.	SHT. NO.	TOT. SHTS.
11334	H14646	S-204	101	102



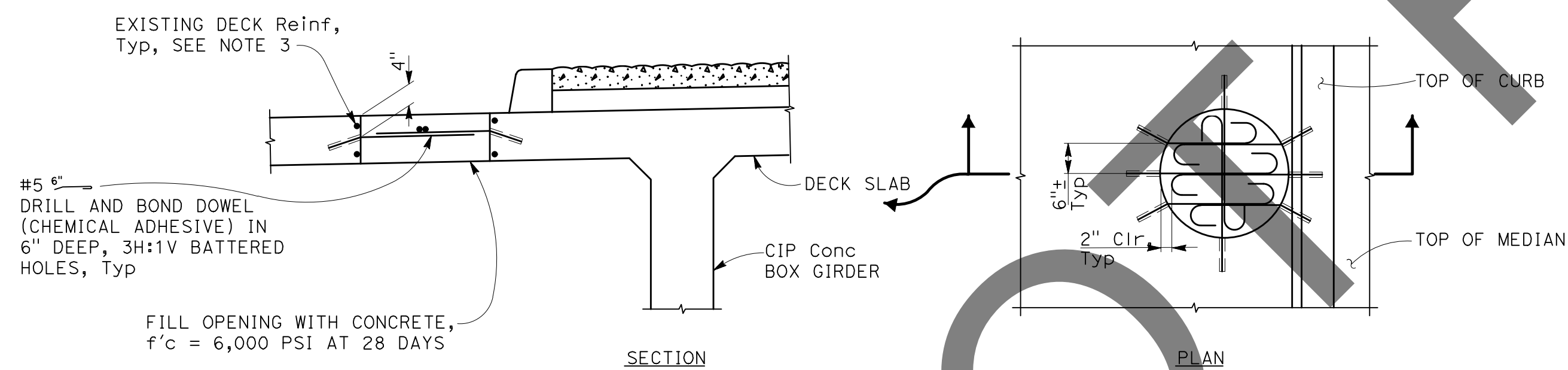
EXISTING MEDIAN REMOVAL DETAIL
NO SCALE



MEDIAN MODIFICATION DETAIL
NO SCALE

NOTES:

1. Existing median removal includes removal of the manhole frame and cover near station 35+14.00
2. Take care to protect existing joint seal assembly during existing median removal.
3. Ensure drilling does not damage bridge reinforcement. If reinforcement is encountered during drilling, stop drilling immediately and fill the partial hole with 4,000 psi 28-day strength non-shrink grout from the Caltrans Authorized Materials list.
4. All Drill and Bond dowels must be grade 60 Stainless Steel rebar conforming to ASTM A995.



INFILL OF MANHOLE OPENING NEAR Sta. 35+14.00
NO SCALE

MARK	REVISIONS	DATE

FILE NO. 382400 050

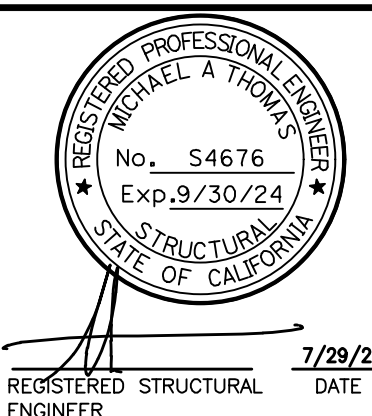
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FIELD CHANGES



SAN BERNARDINO COUNTY
DEPARTMENT OF PUBLIC WORKS

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100% SUBMISSION

GLEN HELEN PARKWAY GRADE SEPERATION

MODIFICATION DETAILS

FROM 500' SOUTHWEST OF UPRR CROSSING TO CAJON BOULEVARD

J.L. REF.	W.O. NO.	DRAWING NO.	SHT. NO.	TOT. SHTS.
11334	H14646	S-300	102	102