

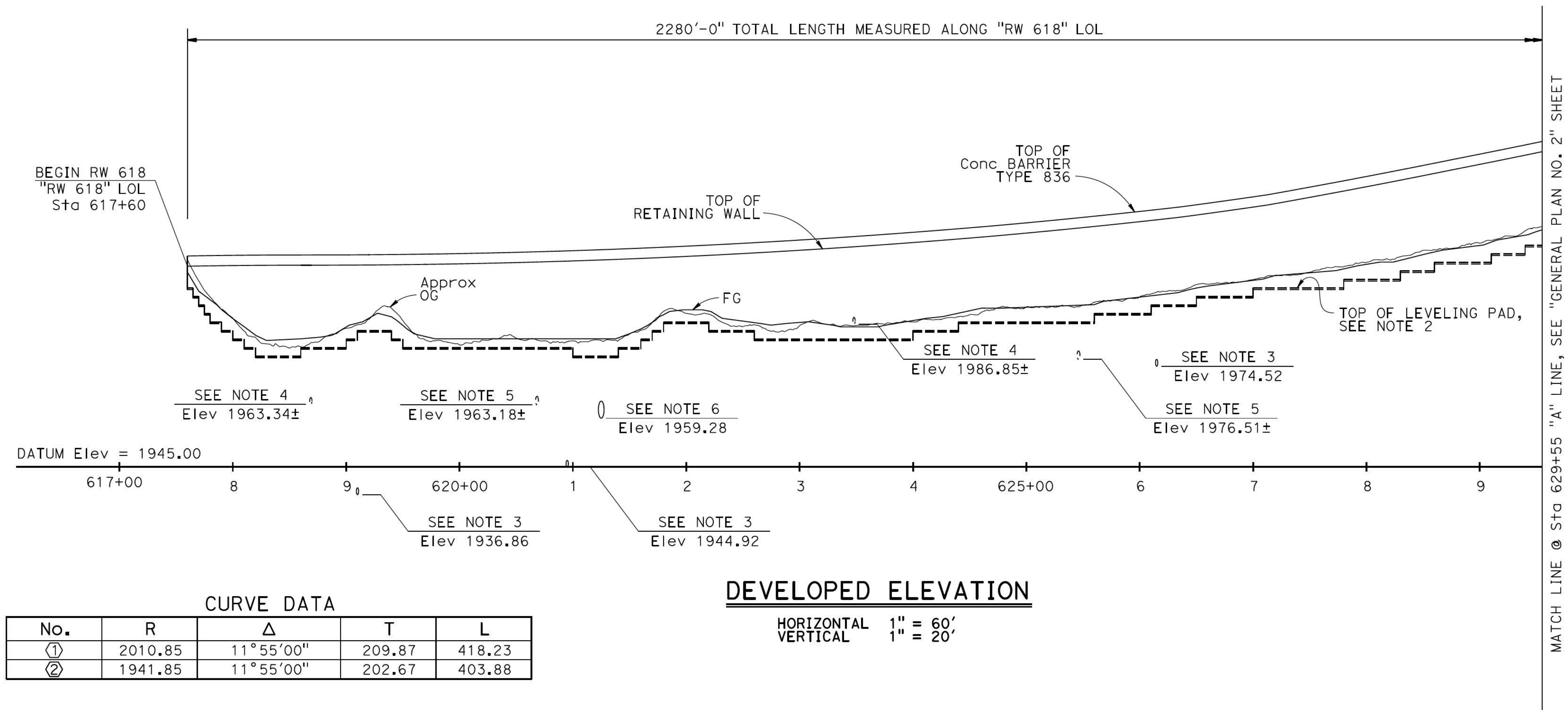
Sample Plan Set

MSE

Links

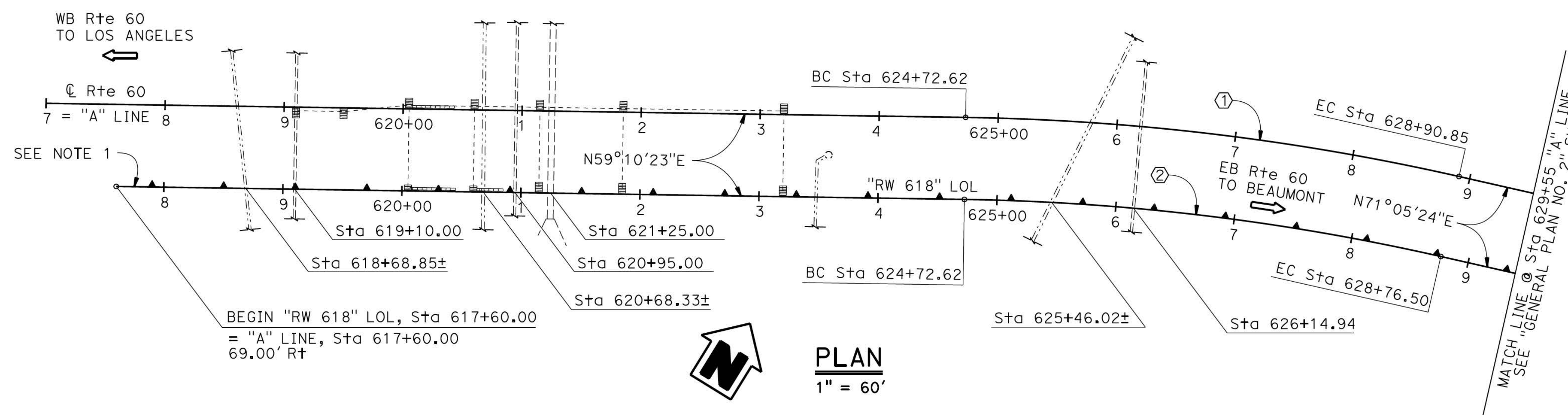
Caltrans Standard Plans: <https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications>

Caltrans Bridge Standard Details: <https://dot.ca.gov/programs/engineering-services/manuals/bridge-standard-details>



- NOTES:
1. Paint "RETAINING WALL No. 618" and "Br. No. 56E0159".
 2. For locations and elevations of leveling pad, see "STRUCTURE PLAN" sheets.
 3. New 24" RCP, see "ROADWAY PLANS".
 4. Exist 24" CMP to be removed, see "ROADWAY PLANS".
 5. Exist 30" CMP to be removed, see "ROADWAY PLANS".
 6. New 60" RCP wildlife crossing, see "ROADWAY PLANS".
 7. Elevations of underground pipes shown are at bottom of pipes at "RW 618" LOL.
 8. For "GENERAL NOTES", and "INDEX TO PLANS", see "INDEX TO PLANS" sheet.
 9. For Concrete Barrier Type 836, see "CONCRETE BARRIER TYPE 836" details sheets.

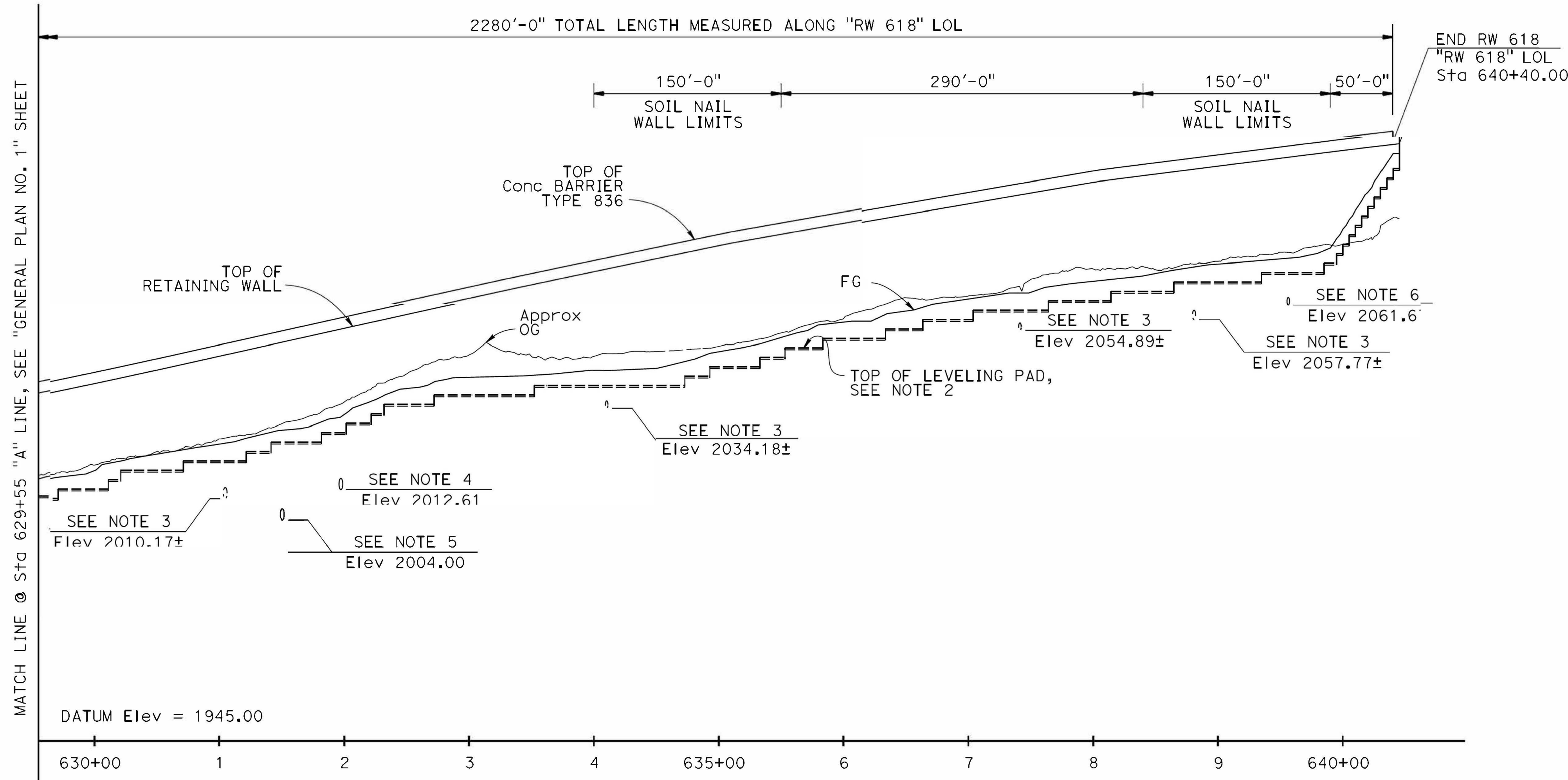
- LEGEND:
- ➡ Indicates direction of traffic
 - Indicates existing drainage pipes. Contractor to field verify the location and elevation.
 - ⋯ Indicates underground pipe location
 - ▤ Indicates Drain Inlet



QUANTITIES		
STRUCTURE EXCAVATION (SOIL NAIL WALL)	123	CY
STRUCTURE BACKFILL (SOIL NAIL WALL)	6	CY
SOIL NAIL	1,452	LF
MECHANICALLY STABILIZED EMBANKMENT	58,000	SQFT
STRUCTURAL CONCRETE, BARRIER SLAB	1,170	CY
STRUCTURAL SHOTCRETE	31	CY
CONCRETE BARRIER (TYPE 836)	2,283	LF

NOTE:
While these sample plans reflect the typical Caltrans' practice, they do not relate to any actual Caltrans projects. These sample plans shall only be used as references to the general workflow and quantities.

MATCH LINE @ Sta 629+55 "A" LINE, SEE "GENERAL PLAN NO. 1" SHEET

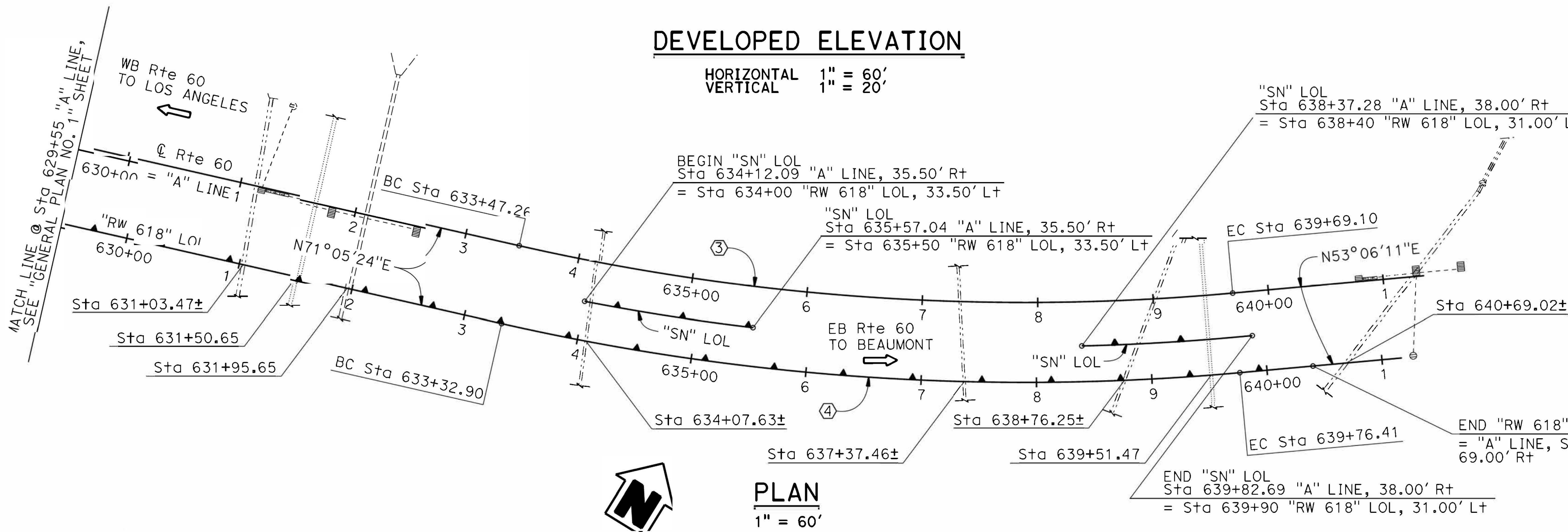


- NOTES:
- For "GENERAL NOTES" and "INDEX TO PLANS", see "INDEX TO PLANS" sheet.
 - For locations and elevations of leveling pad, see "STRUCTURE PLAN" sheets.
 - Exist 24", 30", or 36" CMP to be removed, see "ROADWAY PLANS".
 - New 36" RCP wildlife crossing, see "ROADWAY PLANS".
 - New 36" RCP, see "ROADWAY PLANS".
 - New 24" RCP, see "ROADWAY PLANS".
 - Elevations of underground pipes shown are at bottom of pipes at "RW 618" LOL.
 - For Concrete Barrier Type 836, see "CONCRETE BARRIER TYPE 836" details sheets.

- LEGEND:
- ➡ Indicates direction of travel
 - Indicates existing drainage pipes. Contractor to field verify the location and elevation.
 - ⋯ Indicates underground pipe location
 - ▮ Indicates Drain Inlet

DEVELOPED ELEVATION

HORIZONTAL 1" = 60'
VERTICAL 1" = 20'



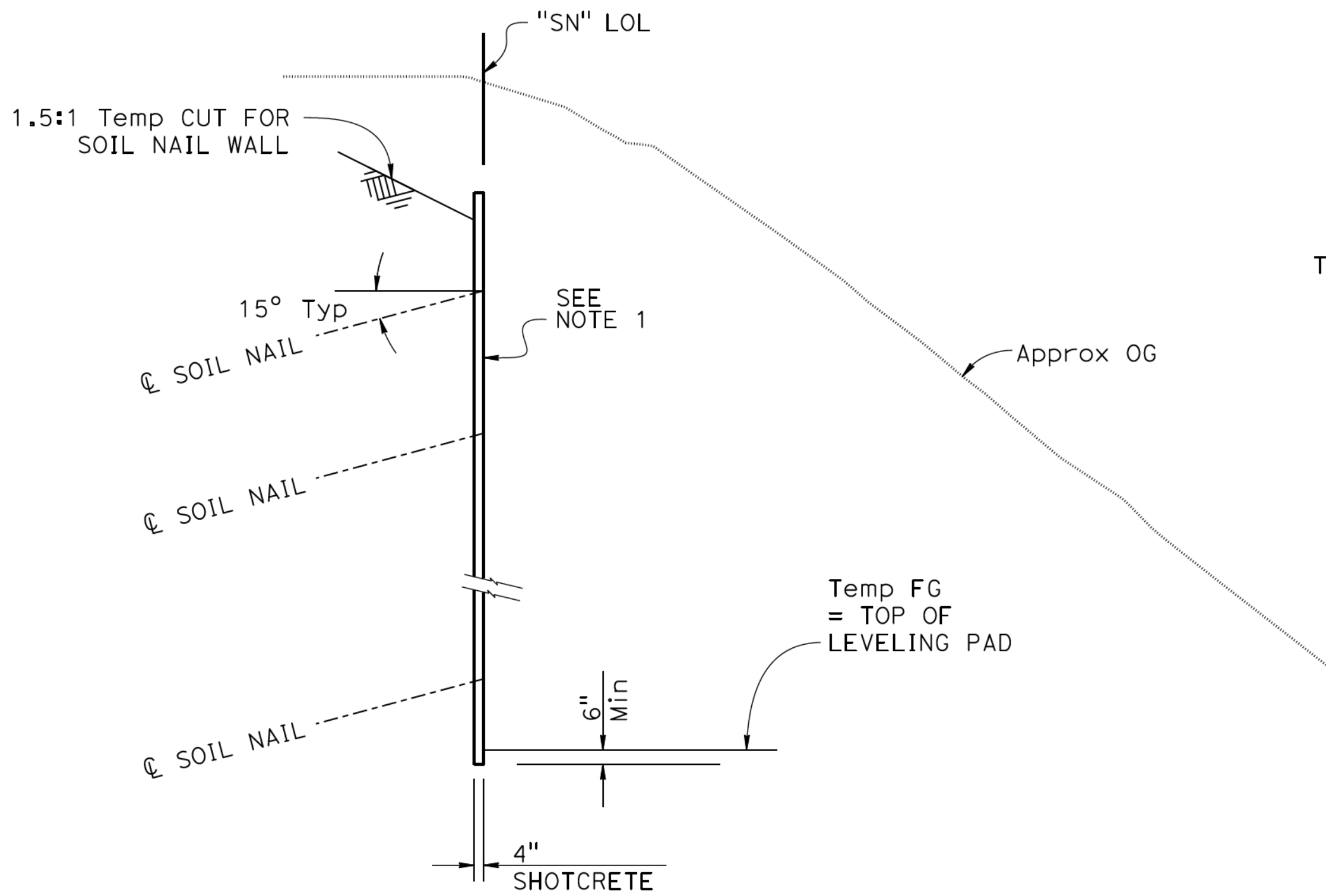
CURVE DATA

No.	R	Δ	T	L
③	1980.85	17°59'13"	313.50	621.85
④	2049.85	17°59'13"	324.42	643.51

NOTE:
While these sample plans reflect the typical Caltrans' practice, they do not relate to any actual Caltrans projects. These sample plans shall only be used as references to the general workflow documents.

NOTES:

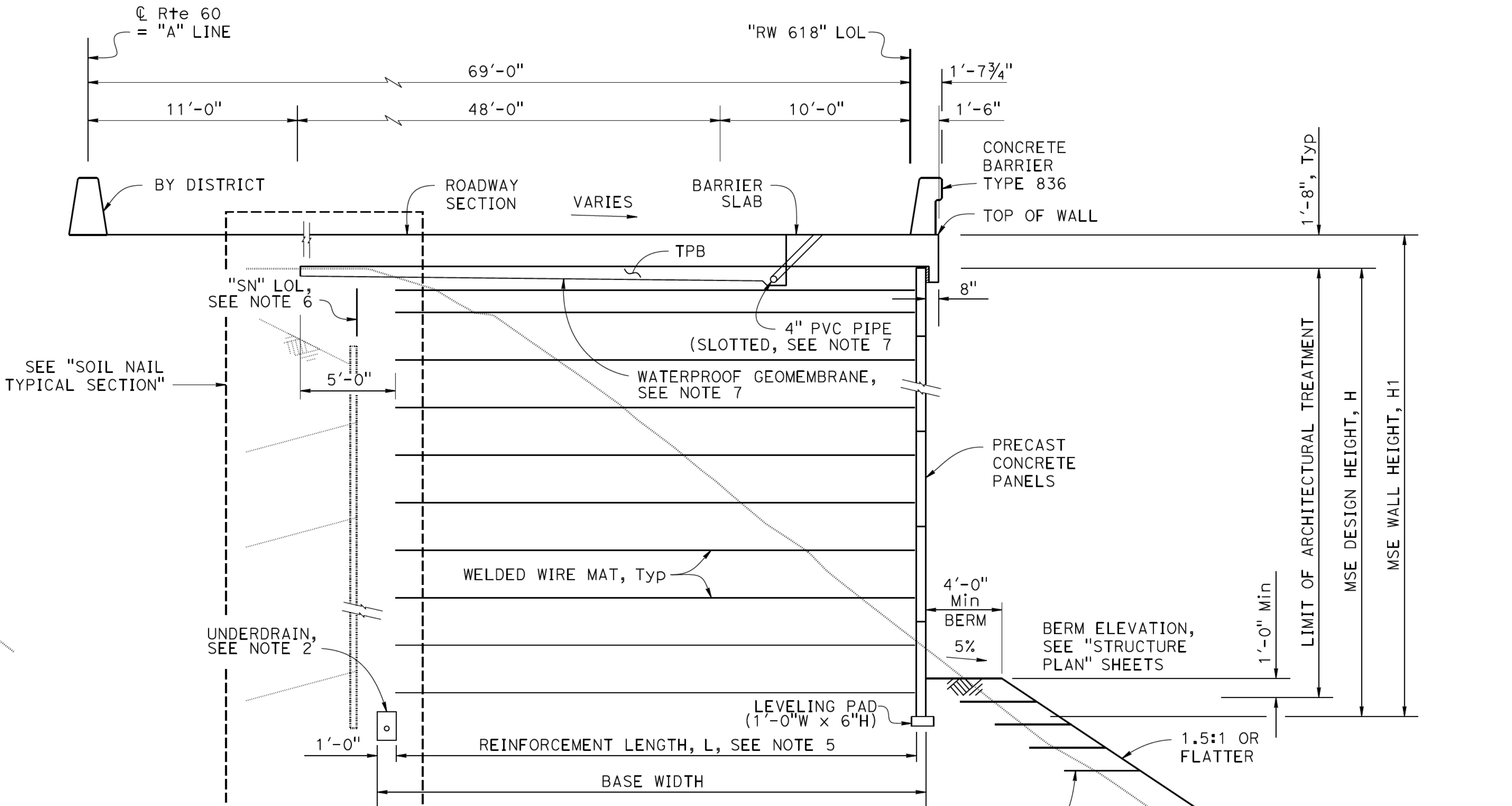
1. See "SOIL NAIL WALL DETAILS NO. 1" sheet.
2. For underdrain details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
3. For toe wrap-around details, see "MISCELLANEOUS DETAILS NO. 2" sheet.
4. For erosion control, see "ROADWAY PLANS".
5. For reinforcement length, see "MSE WALL PANEL DETAILS NO. 4" sheet.
6. For locations of soil nail wall, see "STRUCTURE PLAN NO. 8", "STRUCTURE PLAN NO. 9", and "STRUCTURE PLAN NO. 10" sheets.
7. For waterproof geomembrane, pipe, and TPB details, see "MSE WALL PANEL DETAILS NO. 4" sheet.



SOIL NAIL TYPICAL SECTION

1/4" = 1'-0"

(See Note 1 and Note 6)

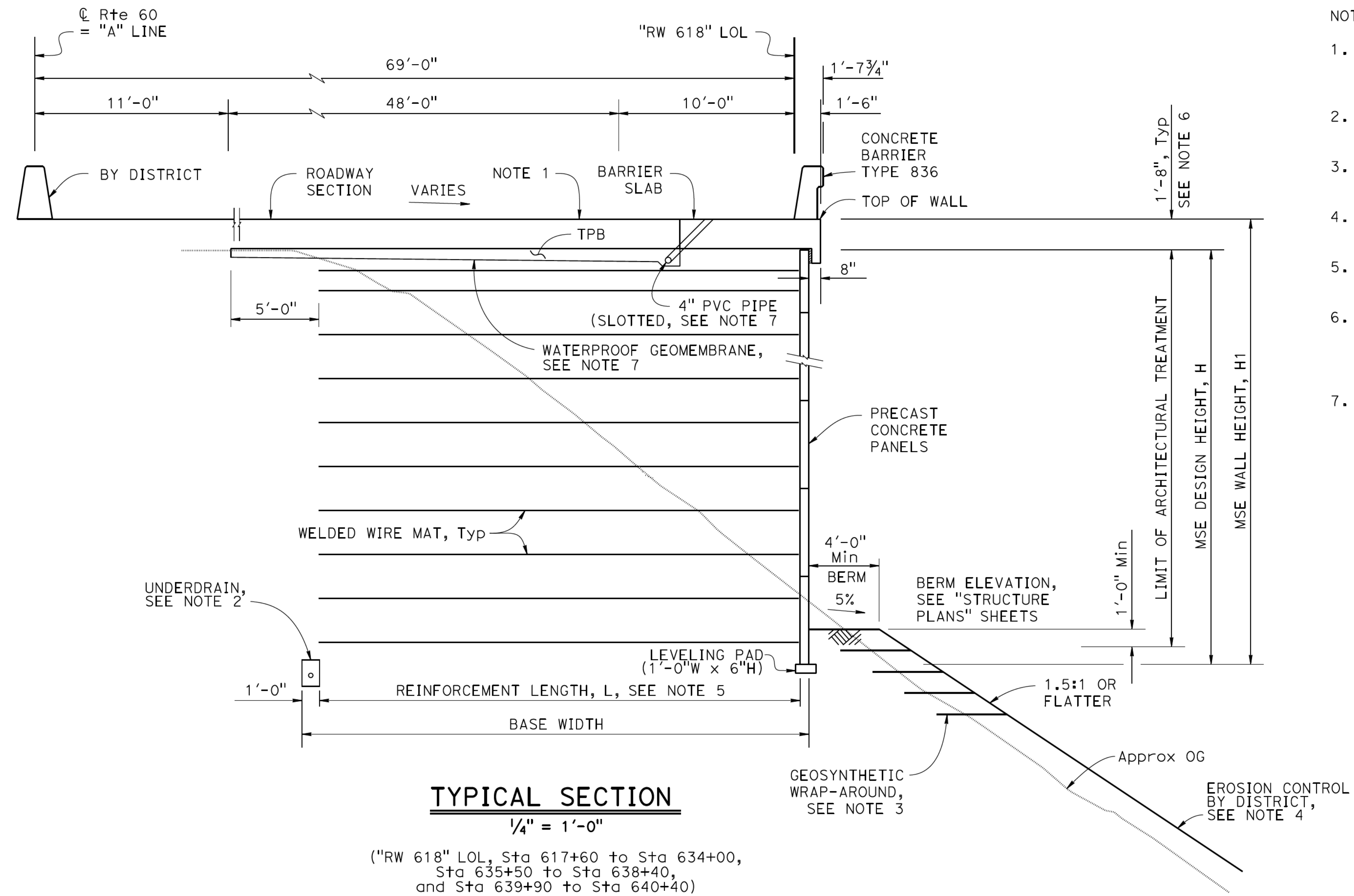


TYPICAL SECTION

1/4" = 1'-0"

("RW 618" LOL, Sta 634+00 to Sta 635+50 and Sta 638+40 to Sta 639+90)

NOTE:
While these sample plans reflect the typical Caltrans' practice, they do not relate to any actual Caltrans projects. These sample plans shall only be used as references to the general workflow documents.



- NOTES:
1. For roadway drainage limits and drain locations, see "GENERAL PLAN NO. 1" sheet.
 2. For underdrain details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
 3. For toe wrap-around details, see "MISCELLANEOUS DETAILS NO. 2" sheet.
 4. For erosion control details, see "ROADWAY PLANS".
 5. For reinforcement length, L, see "MSE WALL PANEL DETAILS NO. 4" sheet.
 6. For thickened barrier slab at line drain, see "CONCRETE BARRIER SLAB AT LINE DRAIN" on "DRAINAGE INLET DETAILS NO. 2" sheet.
 7. For waterproof geomembrane, pipe, and TPB, see "MSE WALL PANEL DETAILS NO. 4" sheet.

INDEX TO PLANS

Sheet No.	Title
1	GENERAL PLAN NO. 1
2	GENERAL PLAN NO. 2
3	GENERAL PLAN NO. 3
4	GENERAL PLAN NO. 4
5	INDEX TO PLANS
6	FOUNDATION PLAN NO. 1
7	FOUNDATION PLAN NO. 2
8	FOUNDATION PLAN NO. 3
9	FOUNDATION PLAN NO. 4
10	STRUCTURE PLAN NO. 1
11	STRUCTURE PLAN NO. 2
12	STRUCTURE PLAN NO. 3
13	STRUCTURE PLAN NO. 4
14	STRUCTURE PLAN NO. 5
15	STRUCTURE PLAN NO. 6
16	STRUCTURE PLAN NO. 7
17	STRUCTURE PLAN NO. 8
18	STRUCTURE PLAN NO. 9
19	STRUCTURE PLAN NO. 10
20	MSE WALL PANEL DETAILS NO. 1
21	MSE WALL PANEL DETAILS NO. 2
22	MSE WALL PANEL DETAILS NO. 3
23	MSE WALL PANEL DETAILS NO. 4
24	CONCRETE BARRIER TYPE 836 DETAILS NO. 1
25	CONCRETE BARRIER TYPE 836 DETAILS NO. 2
26	CONCRETE BARRIER SLAB DETAILS
27	DRAINAGE INLET DETAILS NO. 1
28	DRAINAGE INLET DETAILS NO. 2
29	MISCELLANEOUS DETAILS NO. 1
30	MISCELLANEOUS DETAILS NO. 2
31	SOIL NAIL ELEVATION NO. 1
32	SOIL NAIL ELEVATION NO. 2
33	SOIL NAIL WALL DETAILS NO. 1
34	SOIL NAIL WALL DETAILS NO. 2
35	LOG OF TEST BORINGS 1 OF 3
36	LOG OF TEST BORINGS 2 OF 3
37	LOG OF TEST BORINGS 3 OF 3

GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN

DESIGN:
AASHTO LRFD Bridge Design Specifications, 2012 (6th Edition) with California Amendments, preface dated January 2014

LIVE LOAD:
Surcharge = 240 lb/ft²

SOIL PARAMETERS:
MSE Backfill: $\phi = 34^\circ$, $\gamma = 120 \text{ lb/ft}^3$, $c = 0 \text{ psf}$
Retained Backfill: $\phi = 30^\circ$, $\gamma = 120 \text{ lb/ft}^3$, $c = 0 \text{ psf}$
Foundation: $\phi = 34^\circ \text{ to } 40^\circ$, $\gamma = 120 \text{ lb/ft}^3 \text{ to } 130 \text{ lb/ft}^3$, $c = 50 \text{ to } 500 \text{ psf}$
Seismic: $k_h = 0.28$

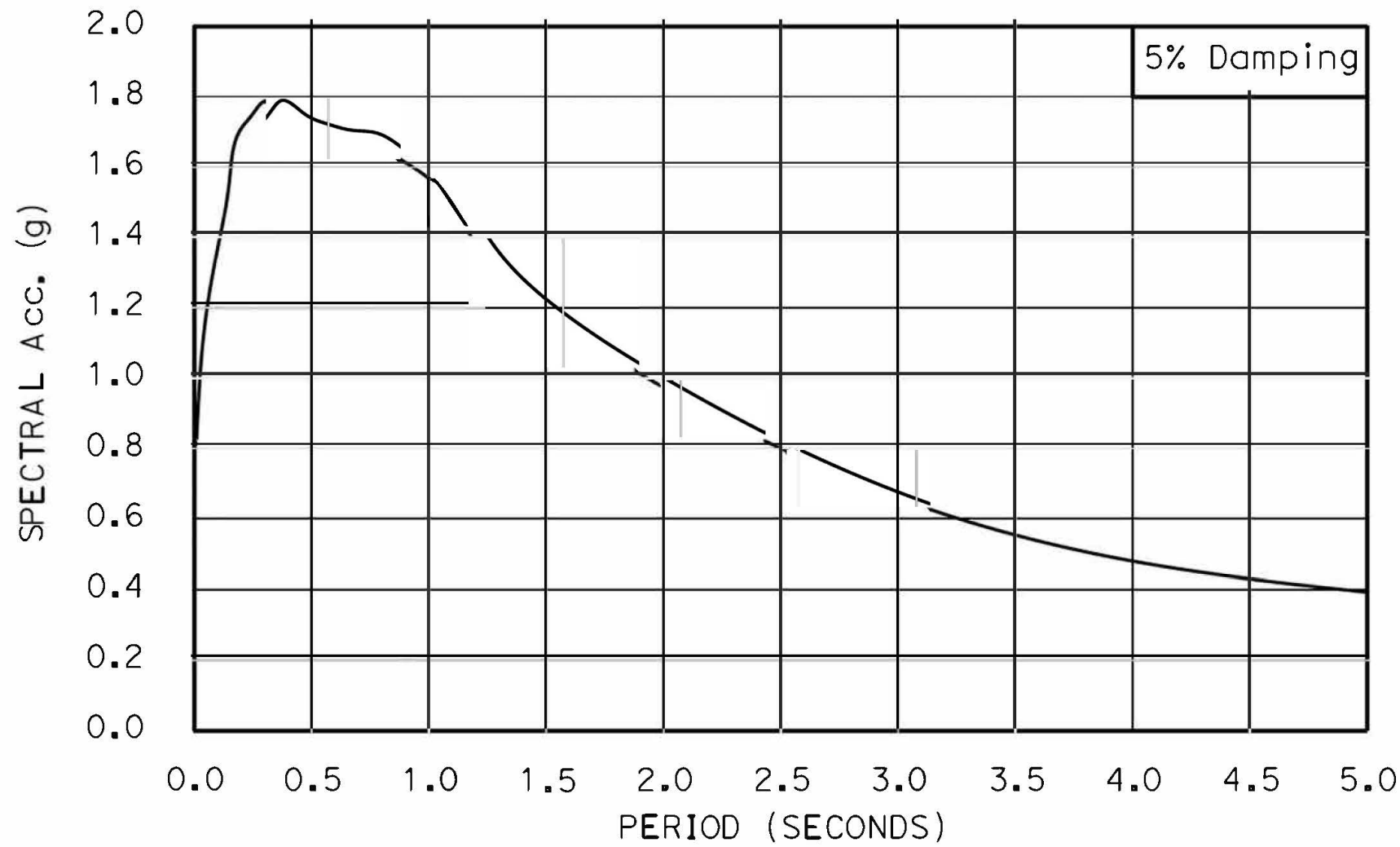
PRECAST CONCRETE PANELS
 $f'c = 4,000 \text{ psi}$ (Concrete compressive strength at 28 days)
 $fy = 60,000 \text{ psi}$ (Yield strength of reinforcement)

SOIL REINFORCEMENT:
Strips: $fy = 65,000 \text{ psi}$ (Yield strength)
Corrosion rate per California Amendments
Loss of galvanizing = 10 yr
Loss of carbon steel (After zinc depletion) = 1.1 mil/yr

REINFORCED CONCRETE:
 $f'c = 4,000 \text{ psi}$, except as noted (Concrete compressive strength at 28 days)
 $fy = 60,000 \text{ psi}$ (Yield strength of reinforcement)

MSE = Mechanically Stabilized Embankment

DESIGN LIFE = 75 years



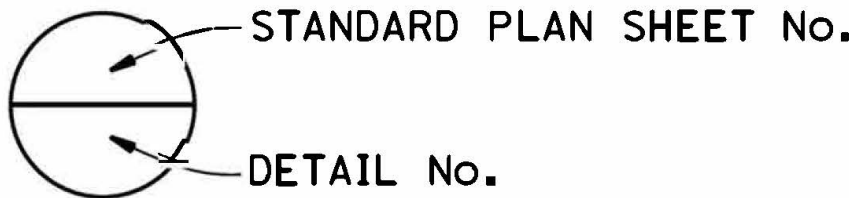
ARS CURVE
NO SCALE

GENERAL NOTES (SOIL NAIL WALL)

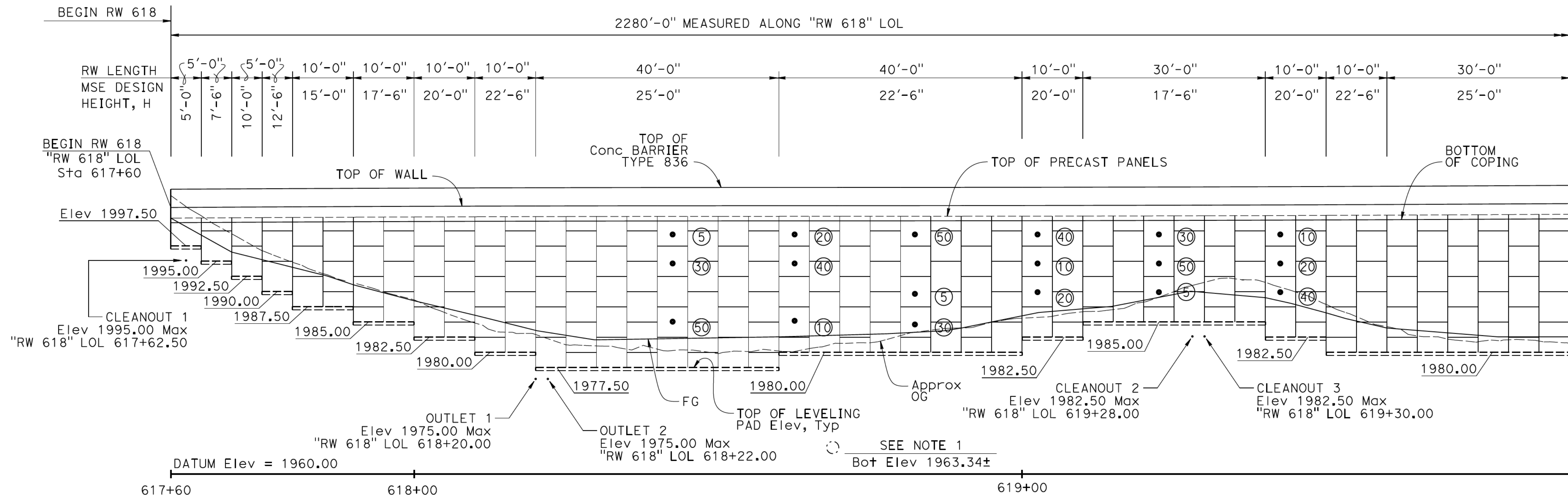
See "SOIL NAIL WALL DETAILS NO. 1" sheet

STANDARD PLANS DATED 2015

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)
RSP 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)
RSP D73B	DRAINAGE INLETS
RSP D98G	GRATED LINE DRAIN DETAILS
P18	CONCRETE PAVEMENT LANE SCHEMATICS AND ISOLATION JOINT DETAIL
RSP P51	EDGE DRAIN OUTLET AND VENT DETAILS
RSP P52	EDGE DRAIN CLEANOUT AND VENT DETAILS

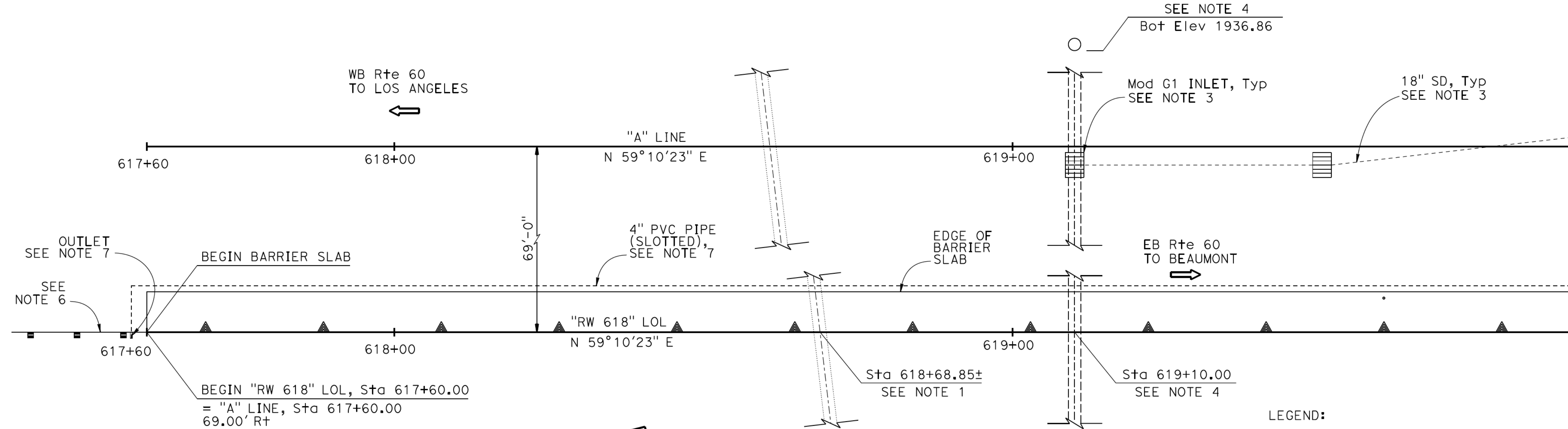


NOTE:
While these sample plans reflect the typical Caltrans' practice, they do not relate to any actual Caltrans projects. These sample plans shall only be used as references to the general workflow documents.



DEVELOPED ELEVATION

1" = 10'



PLAN

1" = 10'

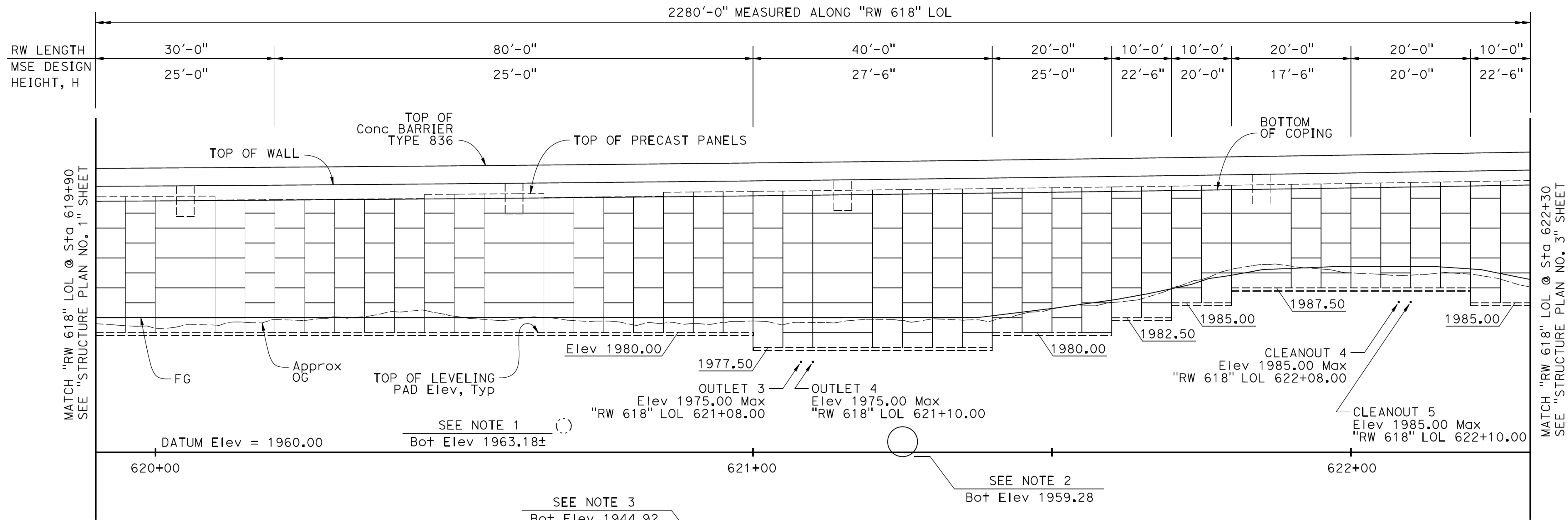
LEGEND:

- Inspection wire, see details on "MSE WALL PANEL DETAILS NO. 3" sheet.
- Ⓢ Indicates interval in years from time of construction to time of removal of inspection wire.

WALL ELEVATIONS		
"RW 618" STATIONS	TOP OF WALL ELEVATIONS	MIN BERM ELEVATIONS
617+60	2003.84	2002.50
617+70	2003.90	1998.25
617+80	2003.95	1994.00
617+90	2003.99	1991.00
618+00	2004.03	1988.50
618+10	2004.06	1986.10
618+20	2004.09	1983.60
618+30	2004.11	1982.00
618+40	2004.12	1982.22
618+50	2004.13	1982.40
618+60	2004.13	1982.60
618+70	2004.14	1982.70
618+80	2004.14	1983.20
618+90	2004.15	1984.00
619+00	2004.16	1986.00
619+10	2004.18	1987.16
619+20	2004.20	1988.57
619+30	2004.22	1989.86
619+40	2004.25	1989.00
619+50	2004.29	1986.50
619+60	2004.33	1984.00
619+70	2004.37	1983.20
619+80	2004.42	1982.55
619+90	2004.48	1982.55

NOTES:

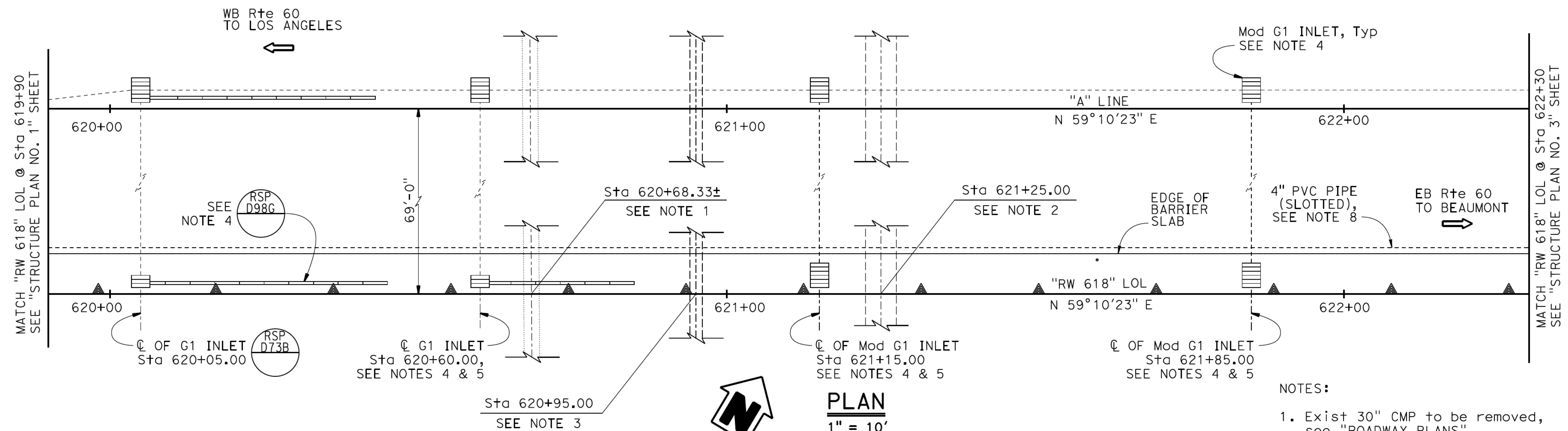
- Exist 24" CMP to be removed, see "ROADWAY PLANS".
- For underdrain outlet and cleanout details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
- See "ROADWAY PLANS".
- New 24" RCP, see "ROADWAY PLANS".
- All elevations shown for pipes are at "RW 618" LOL.
- Midwest Guardrail System, see "ROADWAY PLANS".
- For 4" PVC pipe and vent/outlet details, see "MSE WALL PANEL DETAILS NO. 4" sheet.



DEVELOPED ELEVATION

1" = 10'

WALL ELEVATIONS		
"RW 618" STATIONS	TOP OF WALL ELEVATIONS	MIN BERM ELEVATIONS
619+90	2004.48	1982.55
620+00	2004.54	1982.55
620+10	2004.60	1982.55
620+20	2004.67	1982.55
620+30	2004.74	1982.55
620+40	2004.82	1982.55
620+50	2004.90	1982.55
620+60	2004.99	1982.55
620+70	2005.08	1982.55
620+80	2005.18	1982.55
620+90	2005.28	1982.55
621+00	2005.39	1982.55
621+10	2005.50	1982.55
621+20	2005.61	1982.55
621+30	2005.73	1982.55
621+40	2005.86	1982.83
621+50	2005.99	1984.00
621+60	2006.12	1985.45
621+70	2006.26	1987.36
621+80	2006.41	1989.60
621+90	2006.56	1990.75
622+00	2006.71	1991.05
622+10	2006.87	1991.05
622+20	2007.03	1990.67
622+30	2007.20	1988.90



PLAN

1" = 10'

NOTES:

1. Exist 30" CMP to be removed, see "ROADWAY PLANS".

2. New 60" alternative pipe culvert or RCP wildlife crossing, see "ROADWAY PLANS".

3. New 24" RCP, see "ROADWAY PLANS".

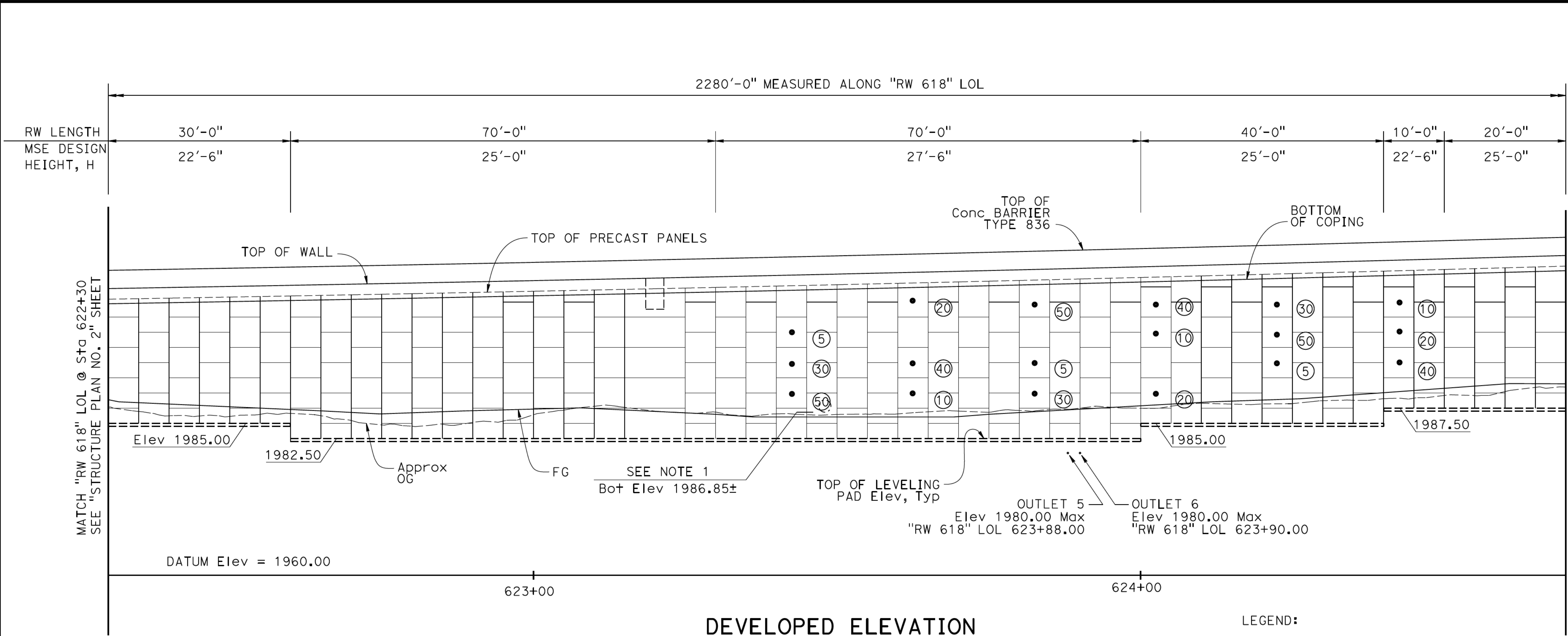
4. For locations, dimensions, and details of G1 and Mod G1 drainage inlets, and grated line drain, see "ROADWAY PLANS".

5. See details on "DRAINAGE INLET DETAILS NO. 1" sheet.

6. For underdrain outlet and cleanout details, see "MISCELLANEOUS DETAILS NO. 1" sheet.

7. All elevations shown for pipes are at "RW 618" LOL.

8. For 4" PVC pipe and vent/outlet details, see "MSE WALL PANEL DETAILS NO. 4" sheet.

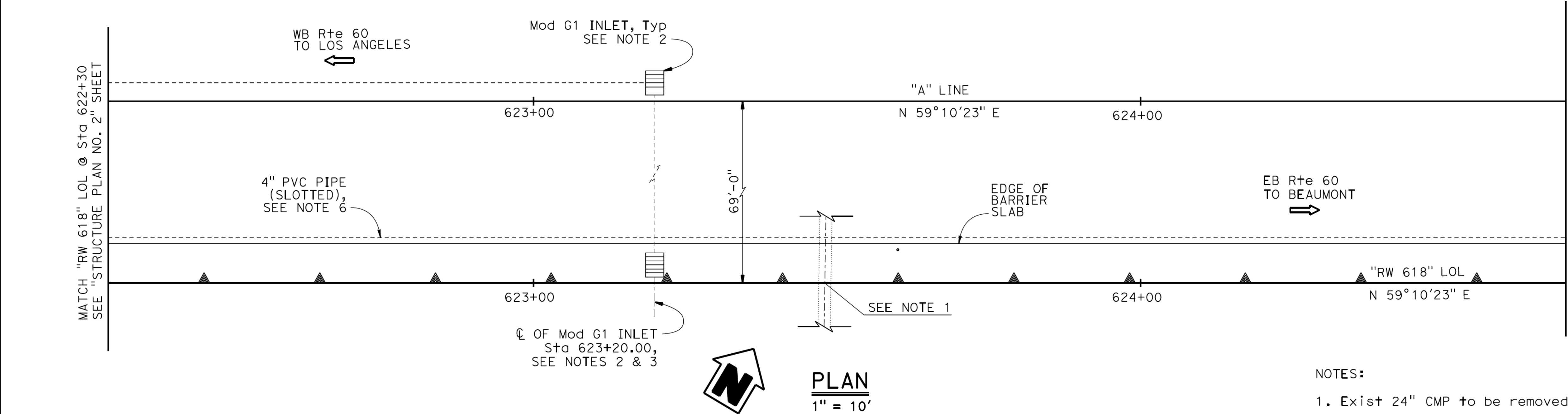


DEVELOPED ELEVATION

1" = 10'

LEGEND:

- Inspection wire, see details on "MSE WALL PANEL DETAILS NO. 3" sheet.
- Ⓜ Indicates interval in years from time of construction to time of removal of inspection wire.

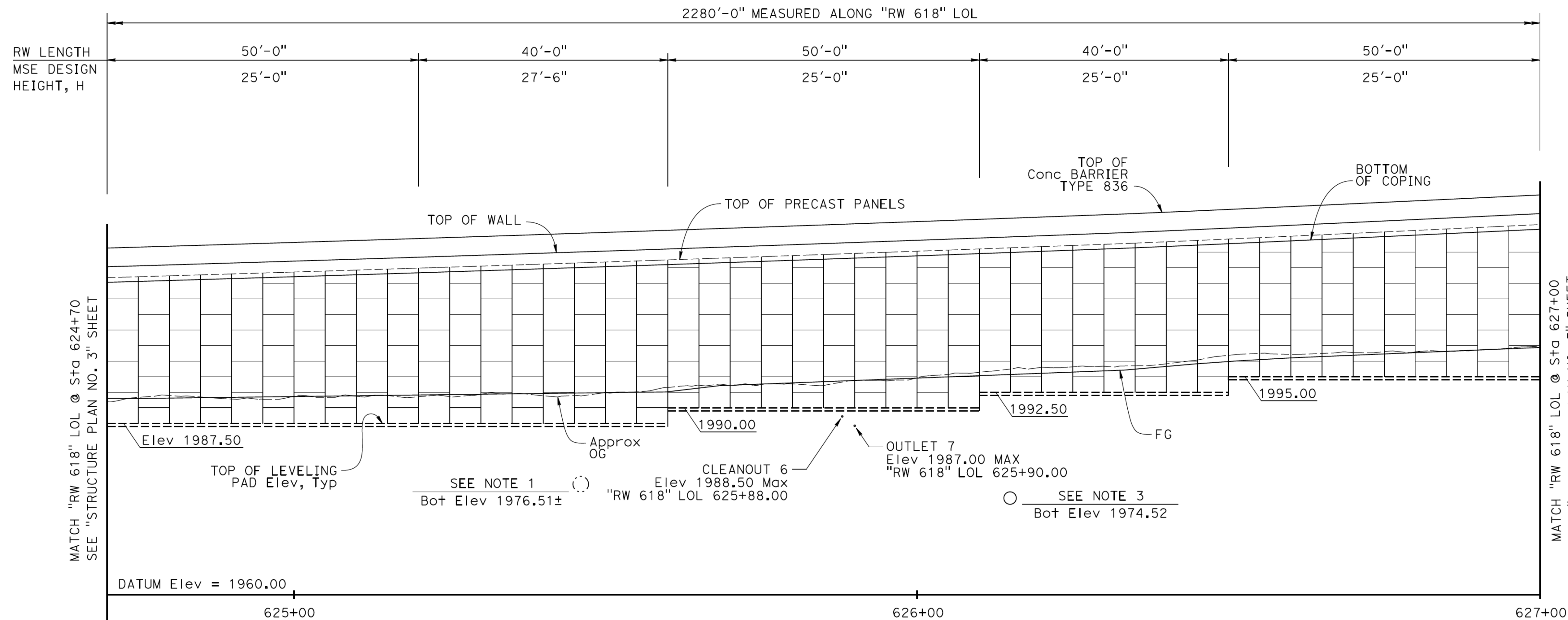


NOTES:

- Exist 24" CMP to be removed.

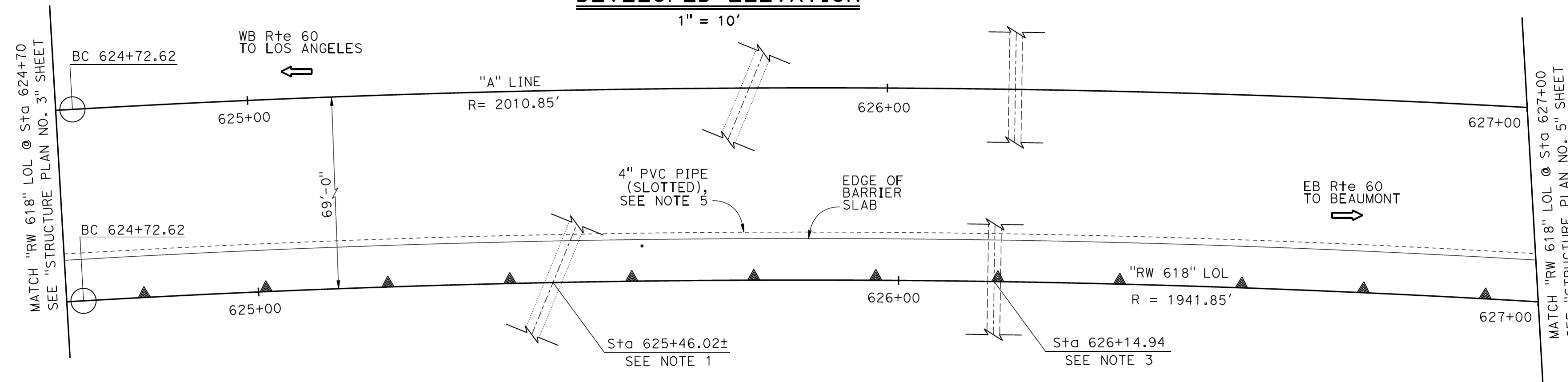
WALL ELEVATIONS		
"RW 618" STATIONS	TOP OF WALL ELEVATIONS	MIN BERM ELEVATIONS
622+30	2007.20	1988.90
622+40	2007.37	1988.19
622+50	2007.55	1987.74
622+60	2007.73	1987.29
622+70	2007.92	1986.80
622+80	2008.11	1986.75
622+90	2008.31	1987.09
623+00	2008.51	1987.35
623+10	2008.71	1987.45
623+20	2008.92	1986.97
623+30	2009.14	1986.05
623+40	2009.36	1986.05
623+50	2009.58	1986.05
623+60	2009.81	1986.05
623+70	2010.05	1986.11
623+80	2010.29	1986.78
623+90	2010.53	1987.34
624+00	2010.78	1987.90
624+10	2011.03	1988.46
624+20	2011.29	1988.84
624+30	2011.55	1989.33
624+40	2011.82	1990.05
624+50	2012.09	1990.80
624+60	2012.37	1991.56
624+70	2012.65	1991.52

- For locations, dimensions and details of G1 and Mod G1 Drainage inlets and Grated line Drain, see "ROADWAY PLANS".
- See details on "DRAINAGE INLETS DETAILS NO. 1" sheet.
- For underdrain outlet and cleanout details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
- All elevations shown for pipes are at "RW 618" LOL.
- For 4" PVC pipe and vent/outlet details, see "MSE WALL PANEL DETAILS NO. 4" sheet.



DEVELOPED ELEVATION

1" = 10'



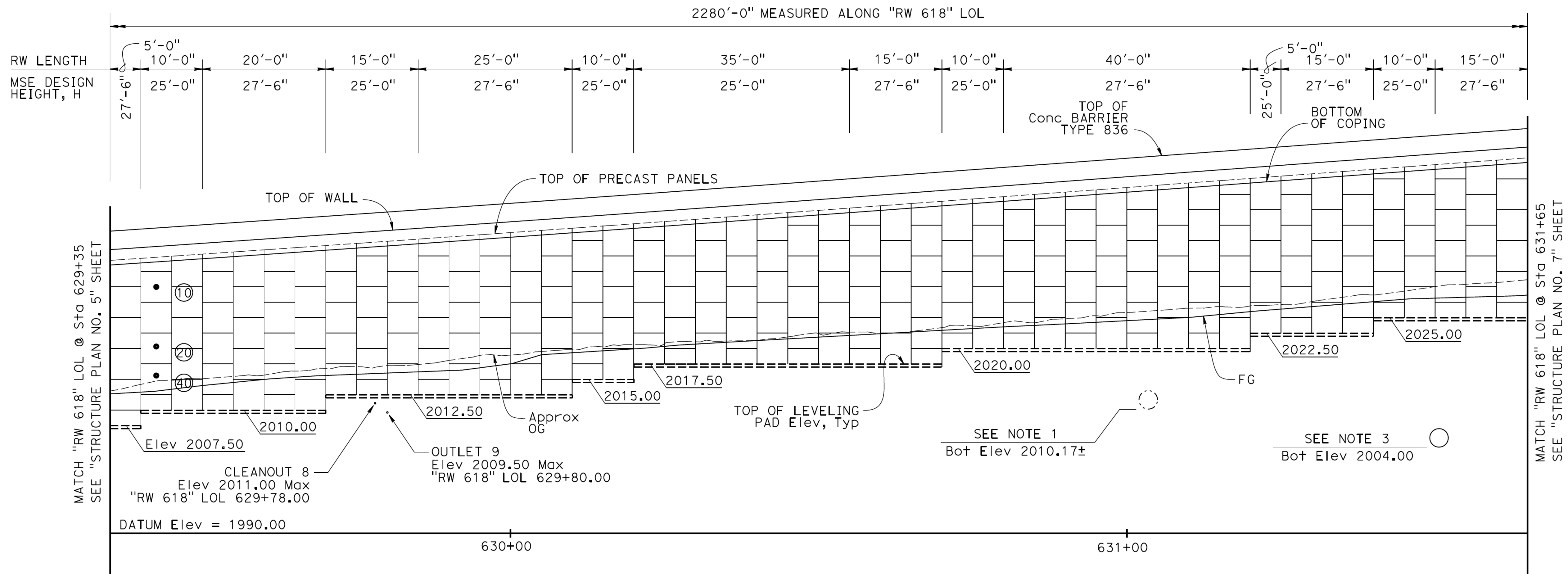
PLAN
1" = 10'

WALL ELEVATIONS

"RW 618" STATIONS	TOP OF WALL ELEVATIONS	MIN BERM ELEVATIONS
624+70	2012.65	1991.52
624+80	2012.94	1991.52
624+90	2013.24	1991.69
625+00	2013.55	1991.81
625+10	2013.86	1991.94
625+20	2014.18	1992.06
625+30	2014.50	1992.19
625+40	2014.83	1992.31
625+50	2015.16	1992.51
625+60	2015.50	1992.59
625+70	2015.84	1993.63
625+80	2016.18	1994.00
625+90	2016.54	1994.39
626+00	2016.89	1994.78
626+10	2017.25	1995.16
626+20	2017.62	1995.55
626+30	2017.99	1995.93
626+40	2018.40	1996.65
626+50	2018.84	1997.43
626+60	2019.30	1998.02
626+70	2019.76	1998.44
626+80	2020.22	1998.86
626+90	2020.69	1999.28
627+00	2021.17	1999.69

NOTES:

- Exist 30" CMP to be removed, see "ROADWAY PLANS".
- For underdrain outlet and cleanout details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
- New 24" RCP, see "ROADWAY PLANS".
- All elevations shown for pipes are at "RW 618" LOL.
- For 4" PVC pipe and vent/outlet details, see "MSE WALL PANEL DETAILS NO. 4" sheet.



DEVELOPED ELEVATION

1" = 10'

LEGEND:

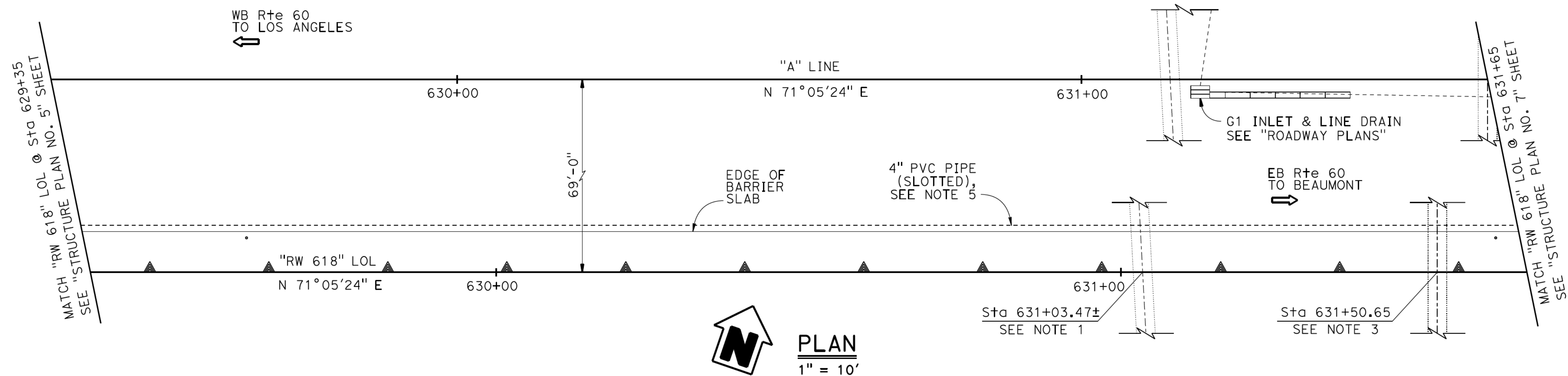
- Inspection wire, see details on "MSE WALL PANEL DETAILS NO. 3" sheet.
- Ⓢ Indicates interval in years from time of construction to time of removal of inspection wire.

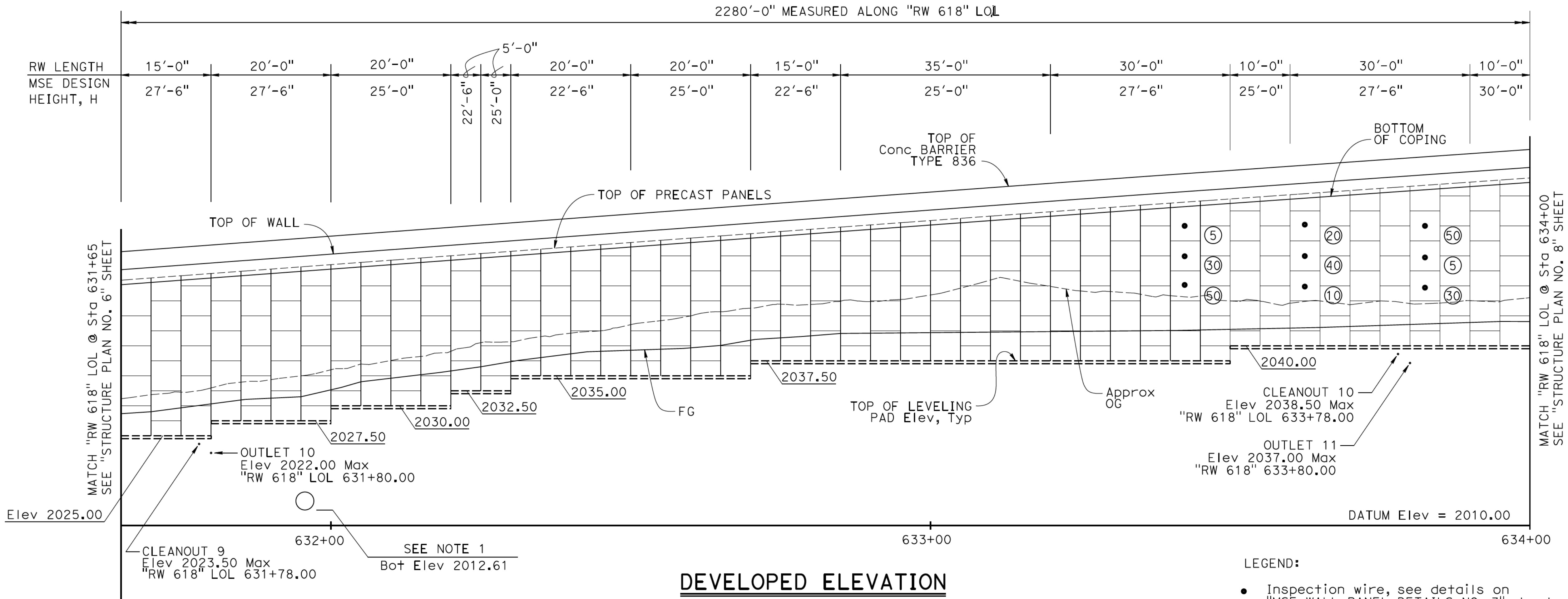
WALL ELEVATIONS

"RW 618" STATIONS	TOP OF WALL ELEVATIONS	Min BERM ELEVATIONS
629+40	2036.39	2012.93
629+50	2037.07	2014.00
629+60	2037.76	2014.99
629+70	2038.46	2015.63
629+80	2039.15	2016.02
629+90	2039.86	2016.41
630+00	2040.57	2017.49
630+10	2041.28	2019.31
630+20	2041.99	2019.95
630+30	2042.72	2020.72
630+40	2043.44	2021.28
630+50	2044.17	2021.85
630+60	2044.91	2022.40
630+70	2045.65	2022.96
630+80	2046.39	2023.52
630+90	2047.13	2024.00
631+00	2047.88	2024.52
631+10	2048.62	2025.05
631+20	2049.35	2025.99
631+30	2050.10	2026.80
631+40	2050.84	2027.60
631+50	2051.58	2028.18
631+60	2052.32	2028.46

NOTES:

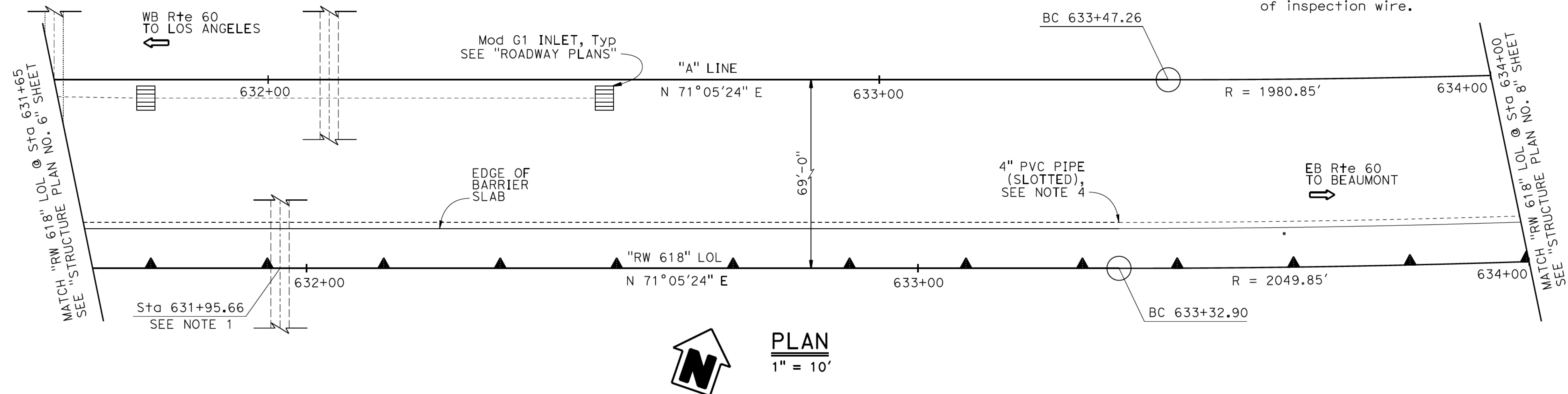
- Exist 36" CMP to be removed, see "ROADWAY PLANS".
- For underdrain outlet and cleanout details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
- New 36" RCP, see "ROADWAY PLANS".
- All elevations shown for pipes are at "RW 618" LOL.
- For 4" PVC pipe and vent/outlet details, see "MSE WALL PANEL DETAILS NO. 4" sheet.





LEGEND:

- Inspection wire, see details on "MSE WALL PANEL DETAILS NO. 3" sheet.
- Ⓢ Indicates interval in years from time of construction to time of removal of inspection wire.

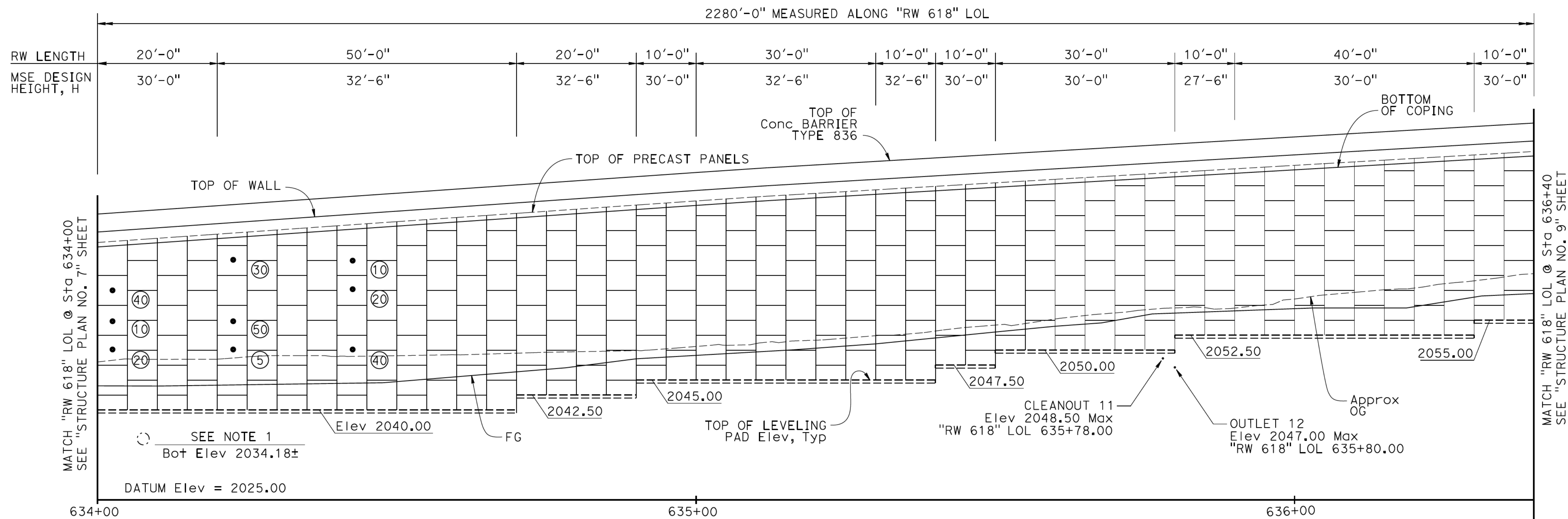


WALL ELEVATIONS

"RW 618" STATIONS	TOP OF WALL ELEVATIONS	Min BERM ELEVATIONS
631+70	2053.06	2029.00
631+80	2053.81	2030.30
631+90	2054.54	2031.26
632+00	2055.29	2032.66
632+10	2056.03	2034.59
632+20	2056.71	2035.80
632+30	2057.50	2037.35
632+40	2058.24	2038.66
632+50	2058.98	2039.25
632+60	2059.71	2039.66
632+70	2060.45	2040.93
632+80	2061.18	2041.66
632+90	2061.91	2042.10
633+00	2062.64	2042.19
633+10	2063.37	2042.28
633+20	2064.10	2042.37
633+30	2064.83	2042.46
633+40	2065.54	2042.53
633+50	2066.24	2042.74
633+60	2066.95	2042.95
633+70	2067.65	2043.22
633+80	2068.35	2043.55
633+90	2069.04	2043.88
634+00	2069.75	2044.03

NOTES:

- New 36" RCP wildlife crossing, see "ROADWAY PLANS".
- For underdrain outlet and cleanout details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
- All elevations shown for pipes are at "RW 618" LOL.
- For 4" PVC pipe and vent/outlet details, see "MSE WALL PANEL DETAILS NO. 4" sheet.

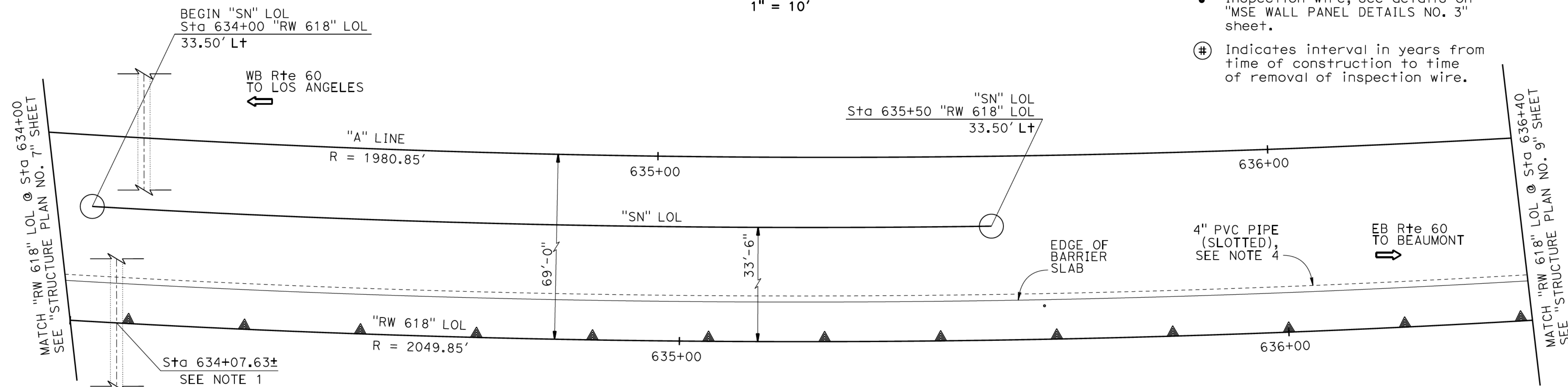


DEVELOPED ELEVATION

1" = 10'

LEGEND:

- Inspection wire, see details on "MSE WALL PANEL DETAILS NO. 3" sheet.
- Ⓢ Indicates interval in years from time of construction to time of removal of inspection wire.



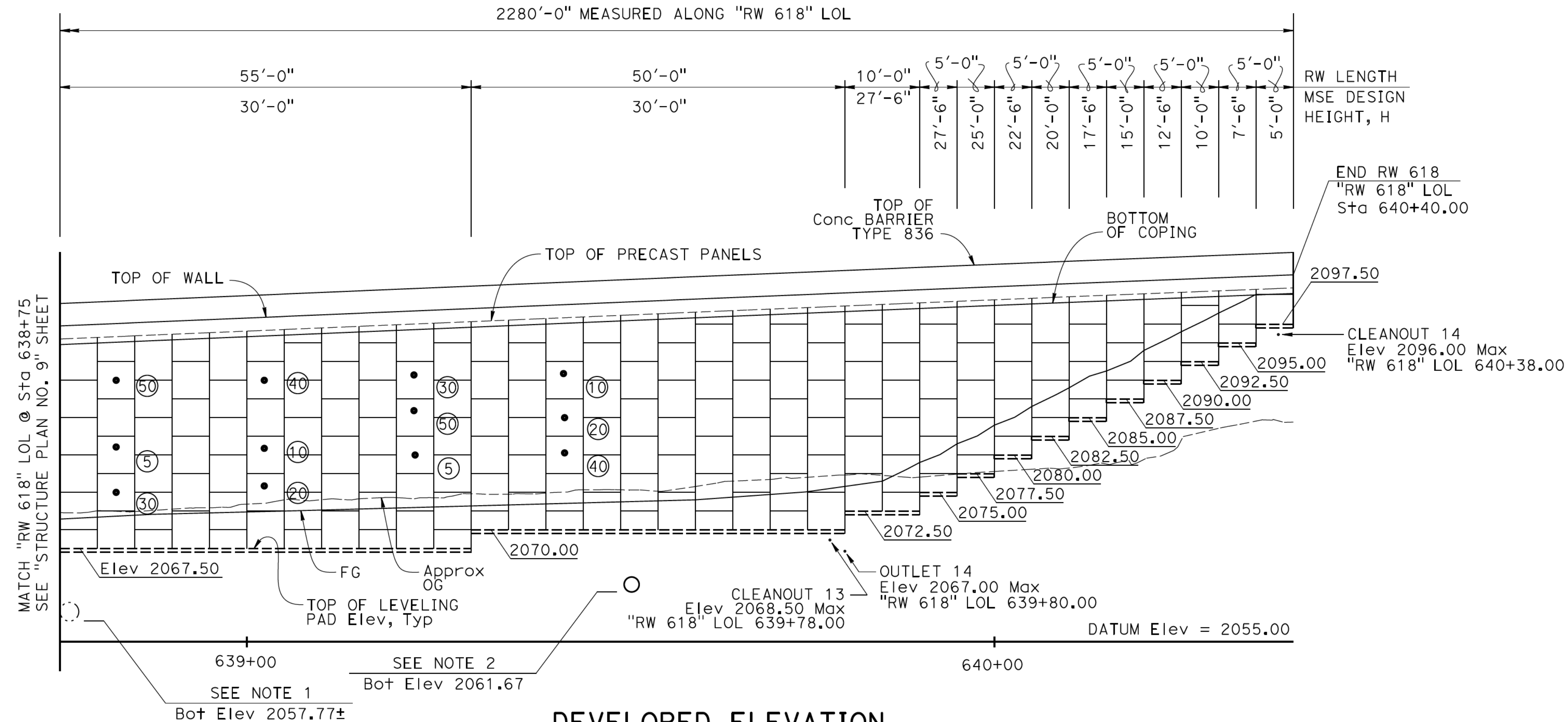
PLAN
1" = 10'

WALL ELEVATIONS

"RW 618" STATIONS	TOP OF WALL ELEVATIONS	Min BERM ELEVATIONS
634+00	2069.75	2044.03
634+10	2070.44	2044.00
634+20	2071.14	2044.15
634+30	2071.84	2044.30
634+40	2072.53	2044.44
634+50	2073.22	2044.74
634+60	2073.92	2045.55
634+70	2074.61	2046.38
634+80	2075.31	2047.38
634+90	2076.00	2048.55
635+00	2076.69	2049.12
635+10	2077.36	2049.70
635+20	2077.96	2050.33
635+30	2078.54	2051.05
635+40	2079.13	2052.04
635+50	2079.72	2053.02
635+60	2080.30	2054.00
635+70	2080.89	2054.95
635+80	2081.47	2056.20
635+90	2082.05	2056.56
636+00	2082.64	2056.93
636+10	2083.22	2057.06
636+20	2083.80	2057.26
636+30	2084.38	2058.86
636+40	2084.96	2059.44

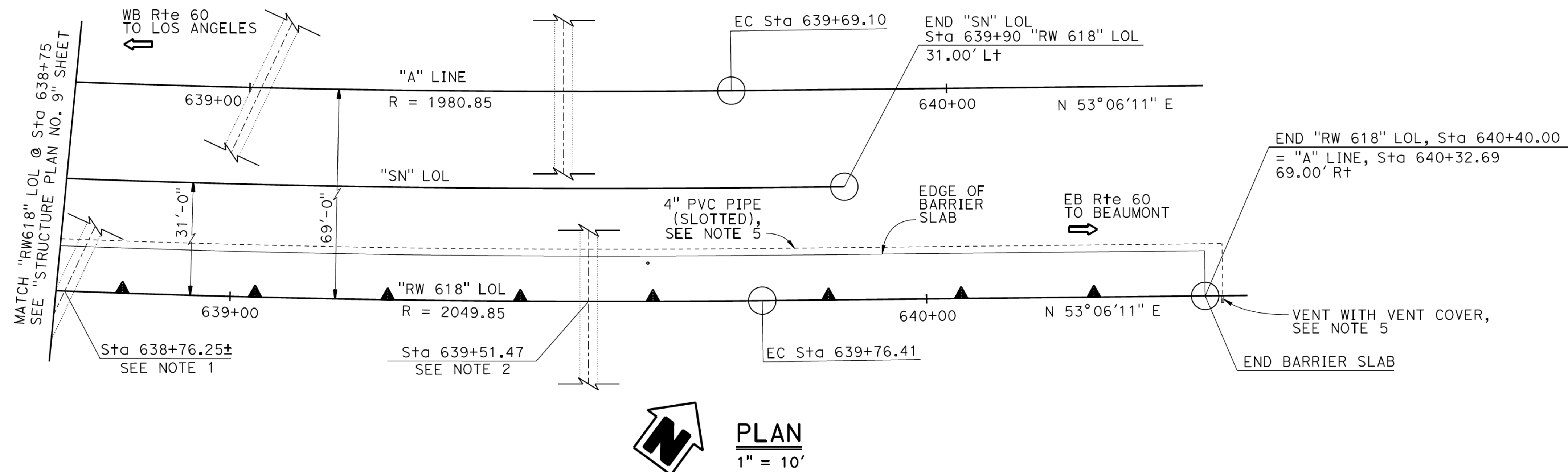
NOTES:

- Exist 24" CMP to be removed, see "ROADWAY PLANS".
- For underdrain outlet and cleanout details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
- All elevations shown for pipes are at "RW 618" LOL.
- For 4" PVC pipe and vent/outlet details, see "MSE WALL PANEL DETAILS NO. 4" sheet.



DEVELOPED ELEVATION

1" = 10'



WALL ELEVATIONS

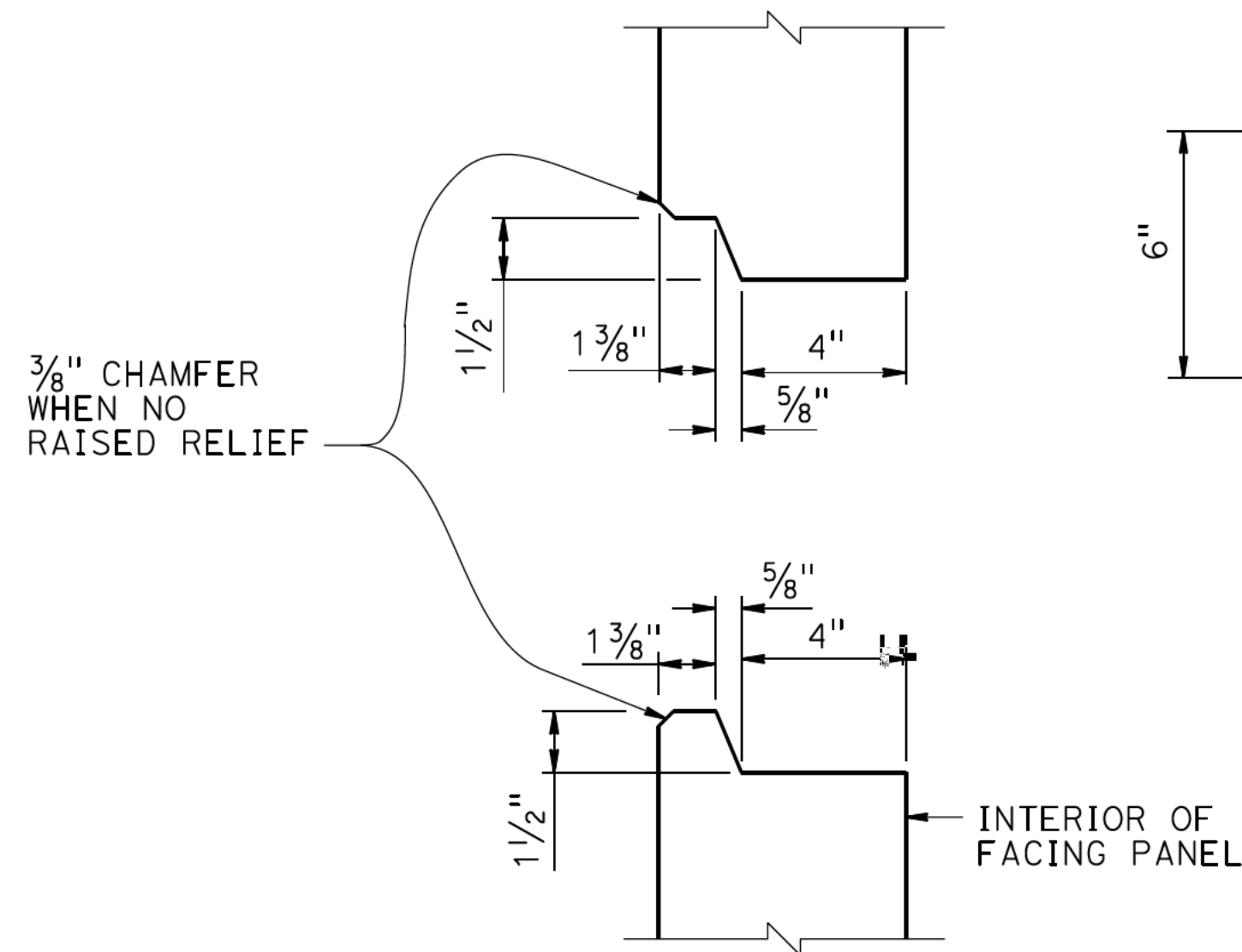
"RW 618" STATIONS	TOP OF WALL ELEVATIONS	Min BERM ELEVATIONS
638+80	2097.49	2071.68
638+90	2097.92	2072.12
639+00	2098.33	2072.37
639+10	2098.76	2072.63
639+20	2099.18	2072.90
639+30	2099.60	2073.18
639+40	2100.20	2073.45
639+50	2100.44	2073.72
639+60	2100.87	2074.00
639+70	2101.28	2074.72
639+80	2101.70	2075.80
639+90	2102.12	2079.00
640+00	2102.52	2084.00
640+10	2102.93	2089.00
640+20	2103.33	2094.00
640+30	2103.72	2099.00
640+40	2104.12	2104.00

NOTES:

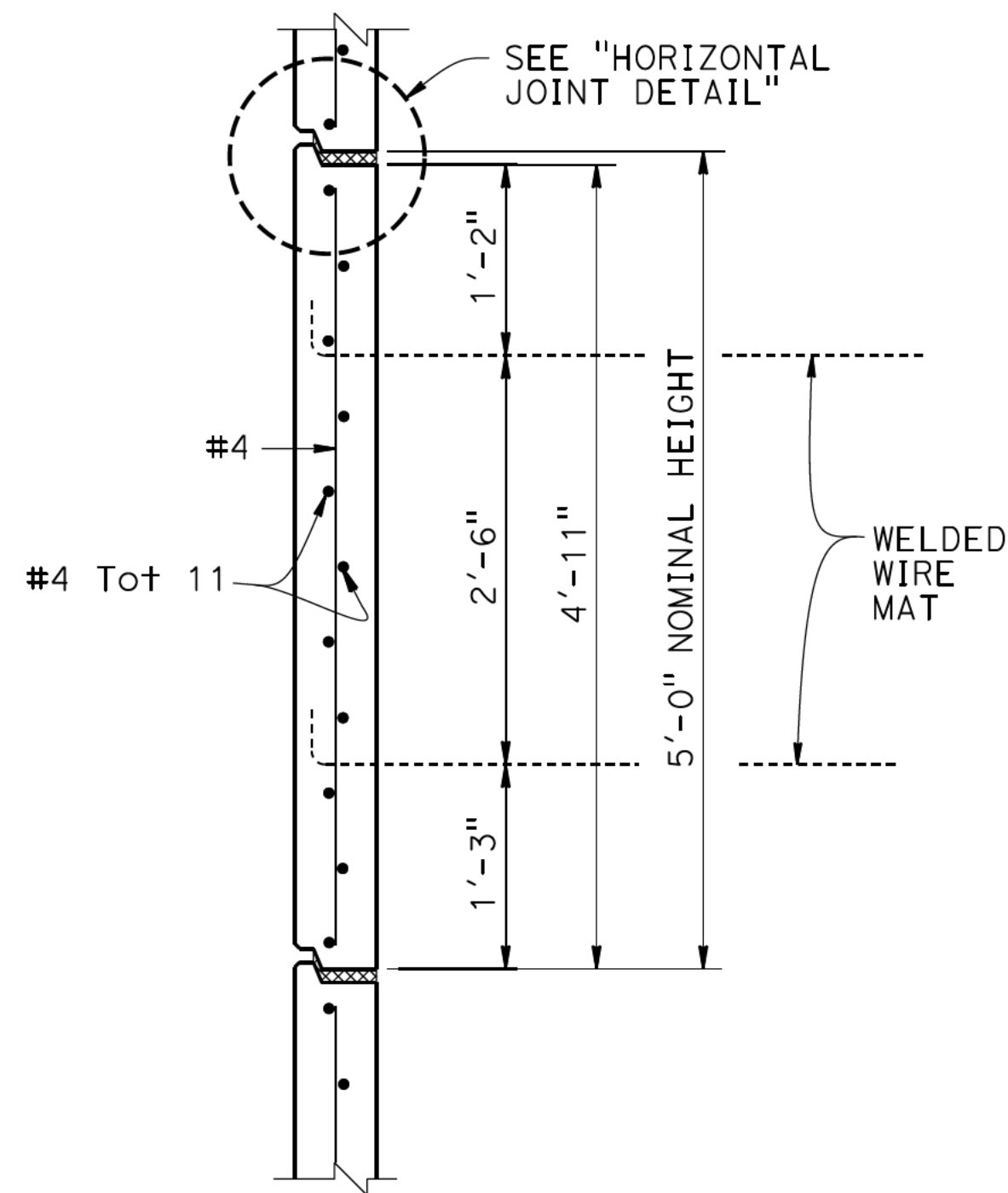
- Exist 30" CMP to be removed, see "ROADWAY PLANS".
- New 24" RCP, see "ROADWAY PLANS".
- For underdrain outlet and cleanout details, see "MISCELLANEOUS DETAILS NO. 1" sheet.
- All elevations shown for pipes are at "RW 618" LOL.
- For 4" PVC pipe and vent/outlet details, see "MSE WALL PANEL DETAILS NO. 4" sheet.

LEGEND:

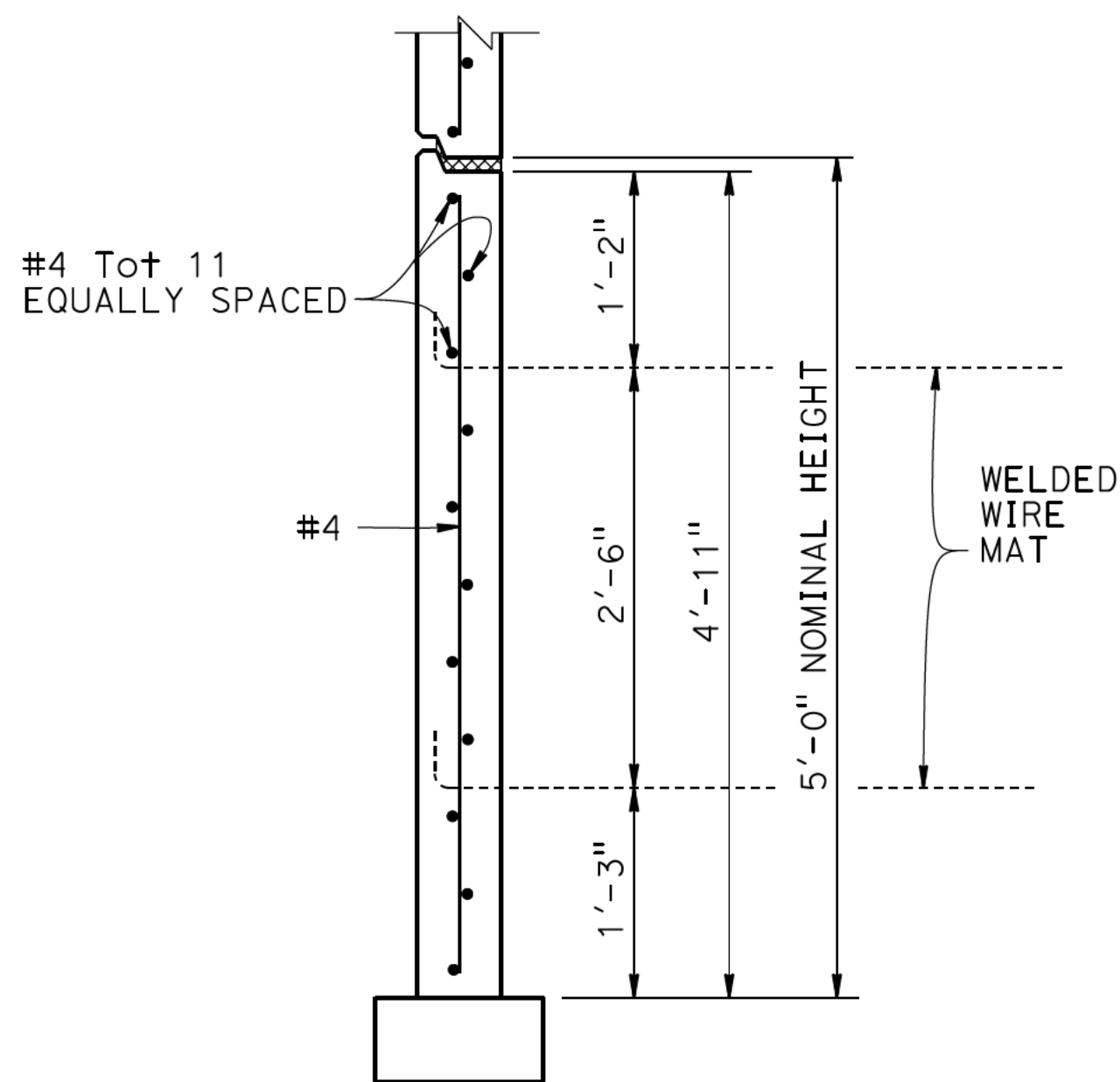
- Inspection wire, see details on "MSE WALL PANEL DETAILS NO. 3" sheet.
- # Indicates interval in years from time of construction to time of removal of inspection wire.



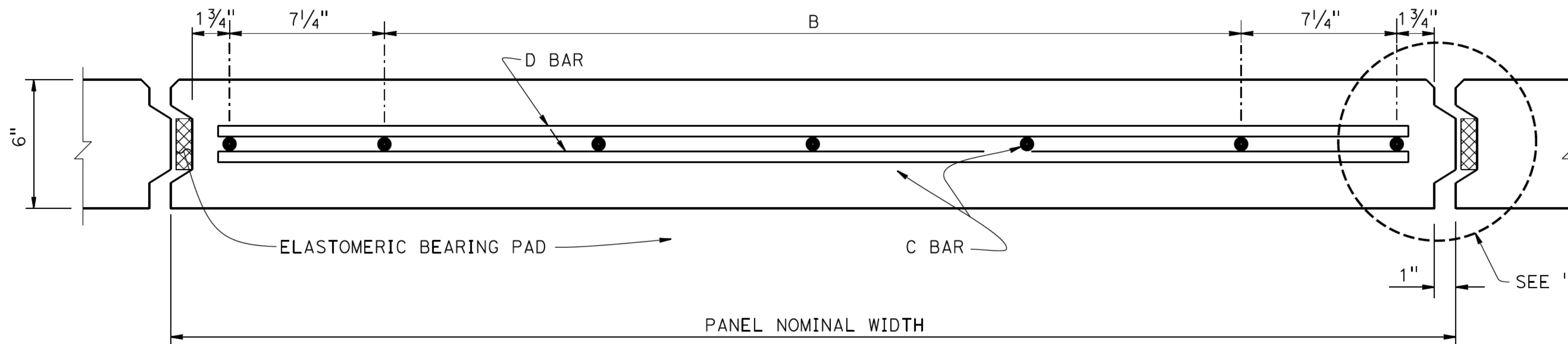
HORIZONTAL JOINT DETAIL
3" = 1'-0"



INTERMEDIATE PANEL
1" = 1'-0"



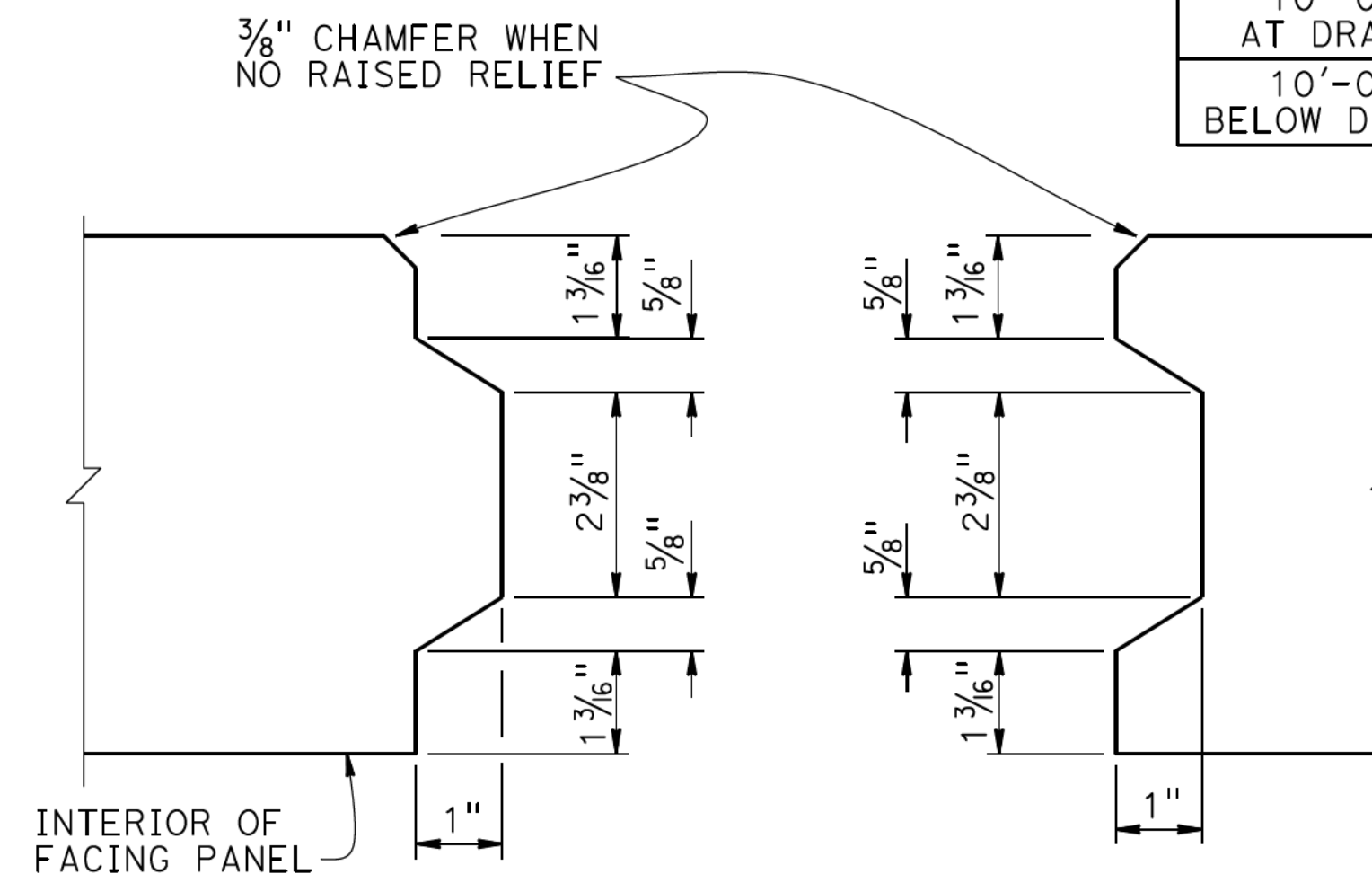
BOTTOM PANEL
1" = 1'-0"



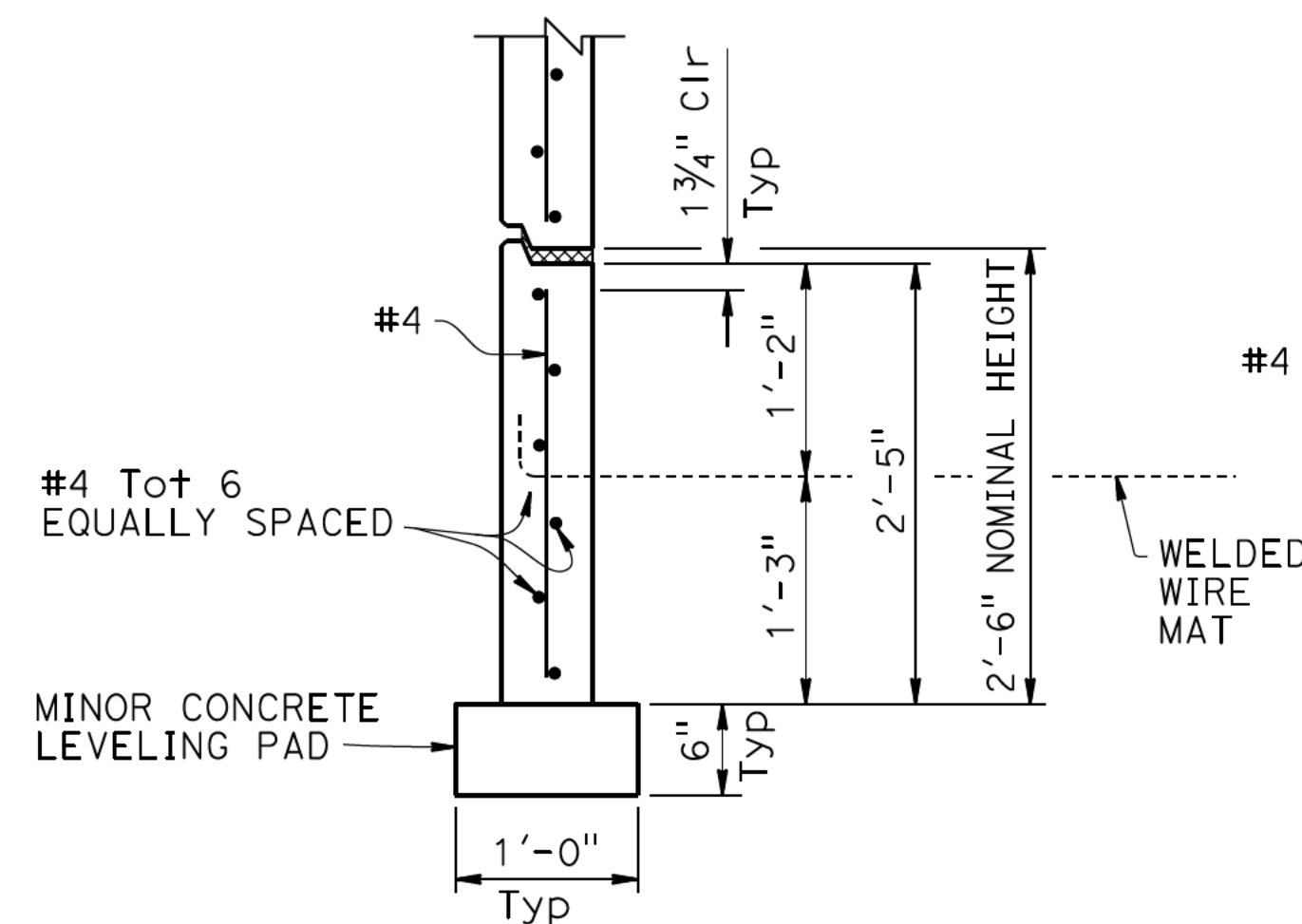
PLAN - FACING PANEL
3" = 1'-0"

NOTES:

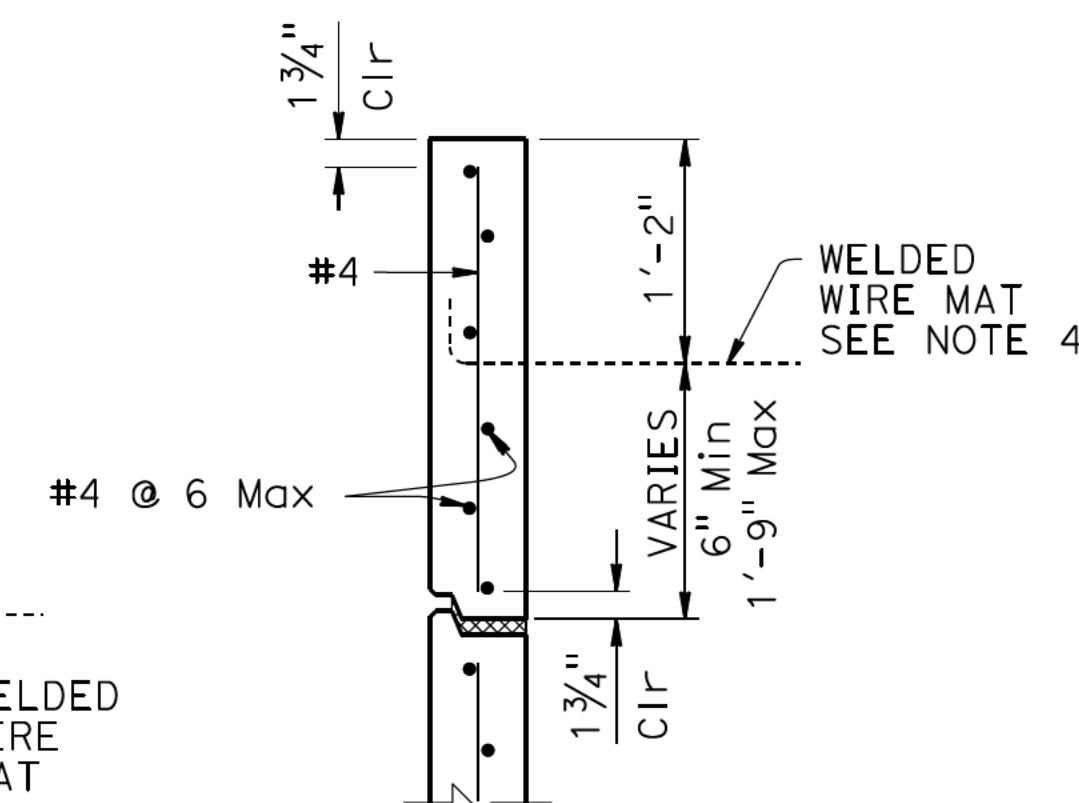
1. Architectural treatment not shown, See details on "MISCELLANEOUS DETAILS NO. 2" sheet.
2. Place reinforced elastomeric bearing pads in all of the panel joints between the panels. Place one in each vertical joint where the horizontal joints intersect. Place two per panel in each horizontal joint:
3/4" x 2 3/8" x 6" for vertical joints
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.
4. Top layer of welded wire mats attached parallel to top of panel when top of wall is angled or curved as shown elsewhere in "STRUCTURE PLANS".
5. Eliminate mid level mat when closer than 6" to top mat, continue variable dimension between remaining mats.



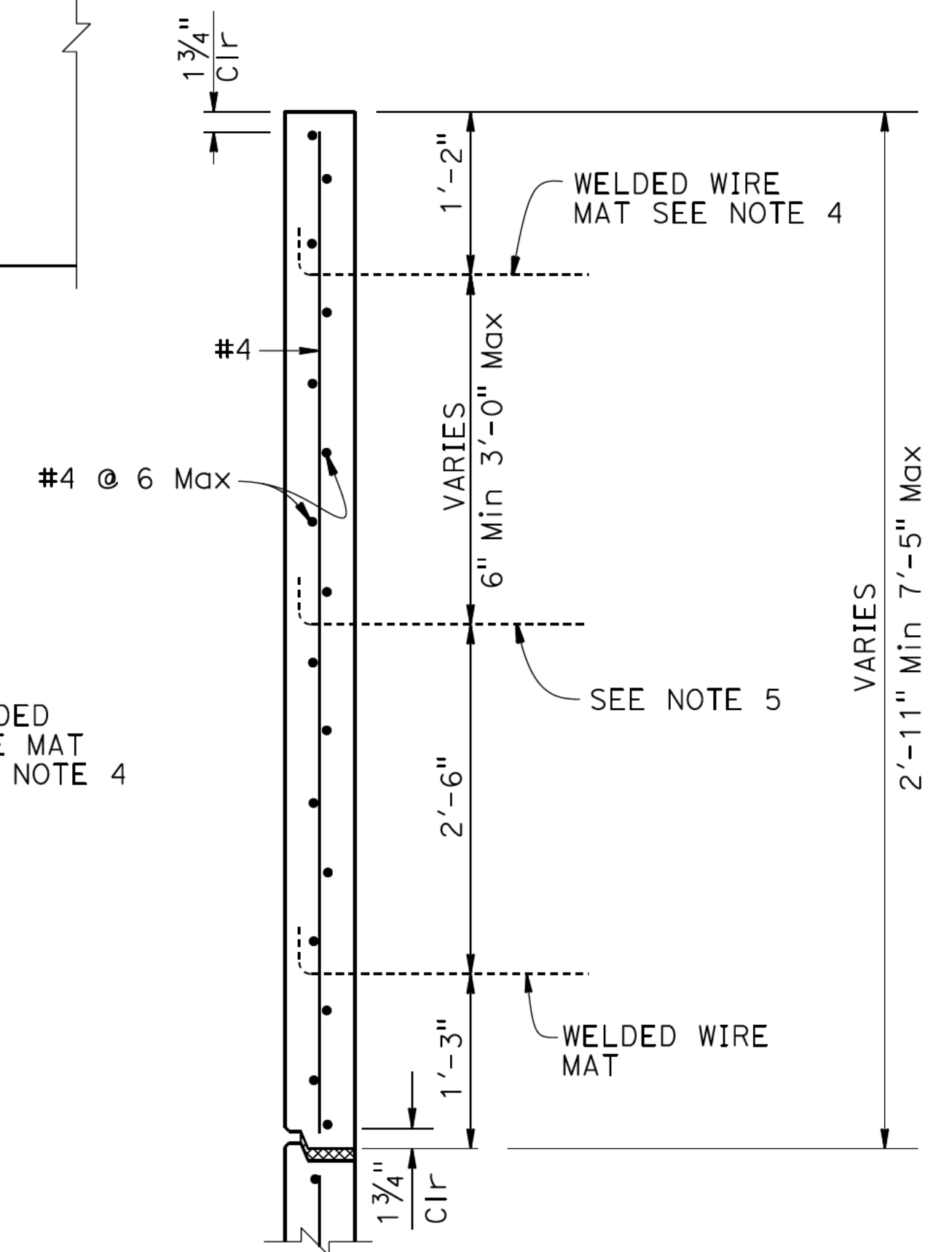
VERTICAL JOINT DETAIL
6" = 1'-0"



BOTTOM HALF PANEL
1" = 1'-0"

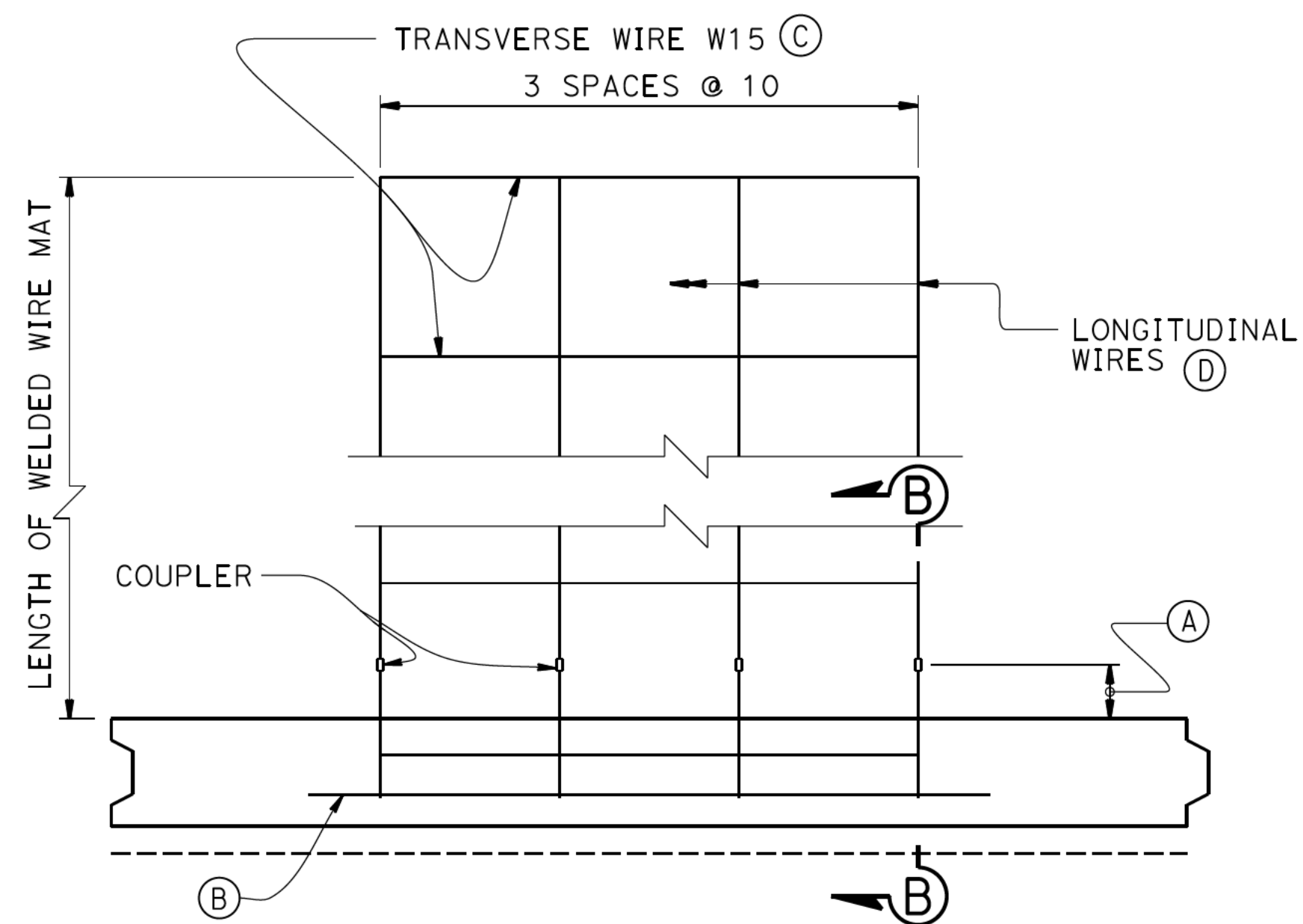


TOP HALF PANEL
1" = 1'-0"



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

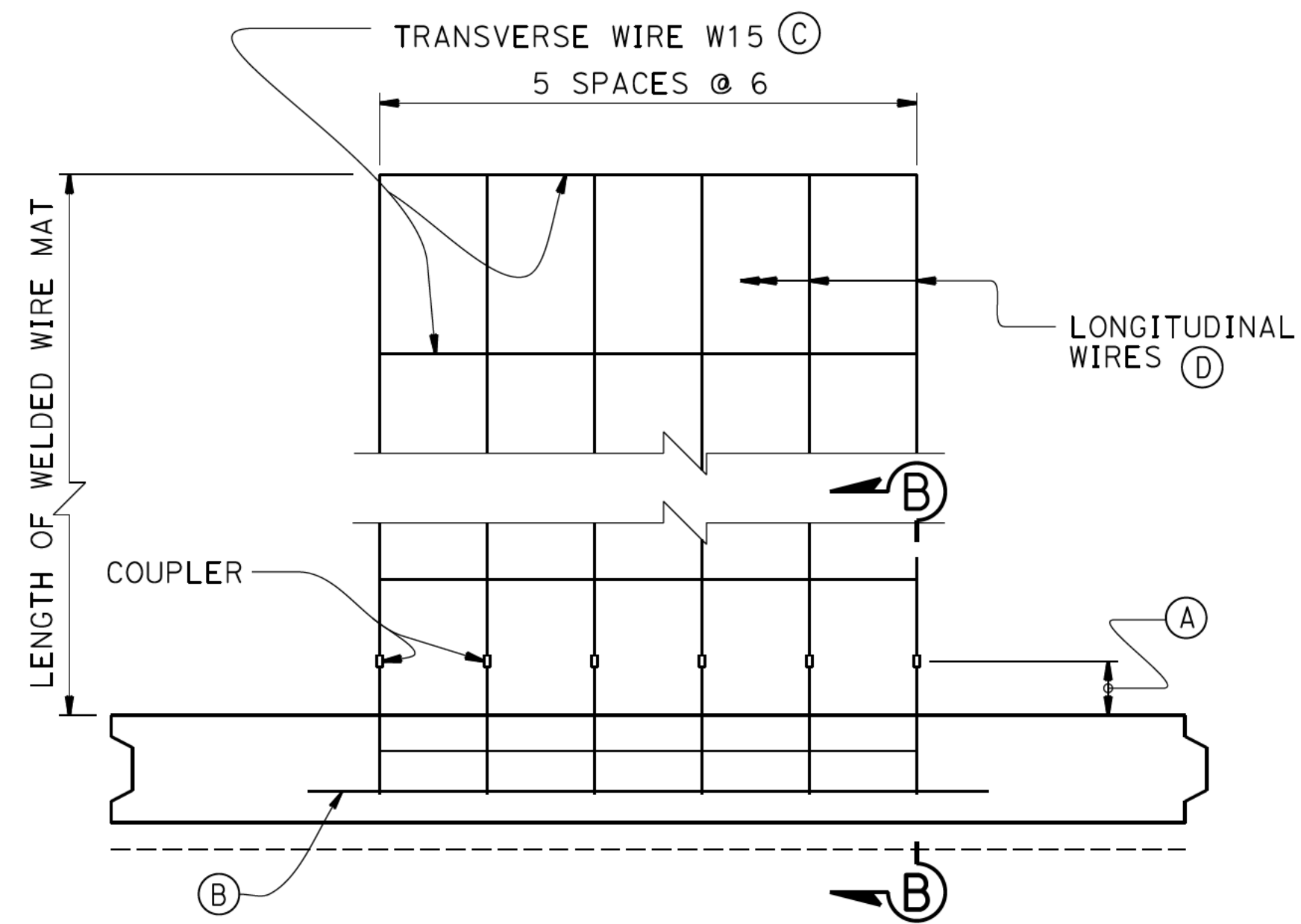
PANEL REBAR TABLE			
PANEL NOMINAL WIDTH	B	C BAR	D BAR
5'-0"	4 SPACES @ 10 = 3'-4"	#4 Tot 7	#4
10'-0" AT DRAIN	10 SPACES @ 10 = 8'-4"	#4 Tot 13	#6
10'-0" BELOW DRAIN	10 SPACES @ 10 = 8'-4"	#4 Tot 13	#4



PLAN OF PANEL WITH FOUR WIRE MAT

1 1/2" = 1'-0"

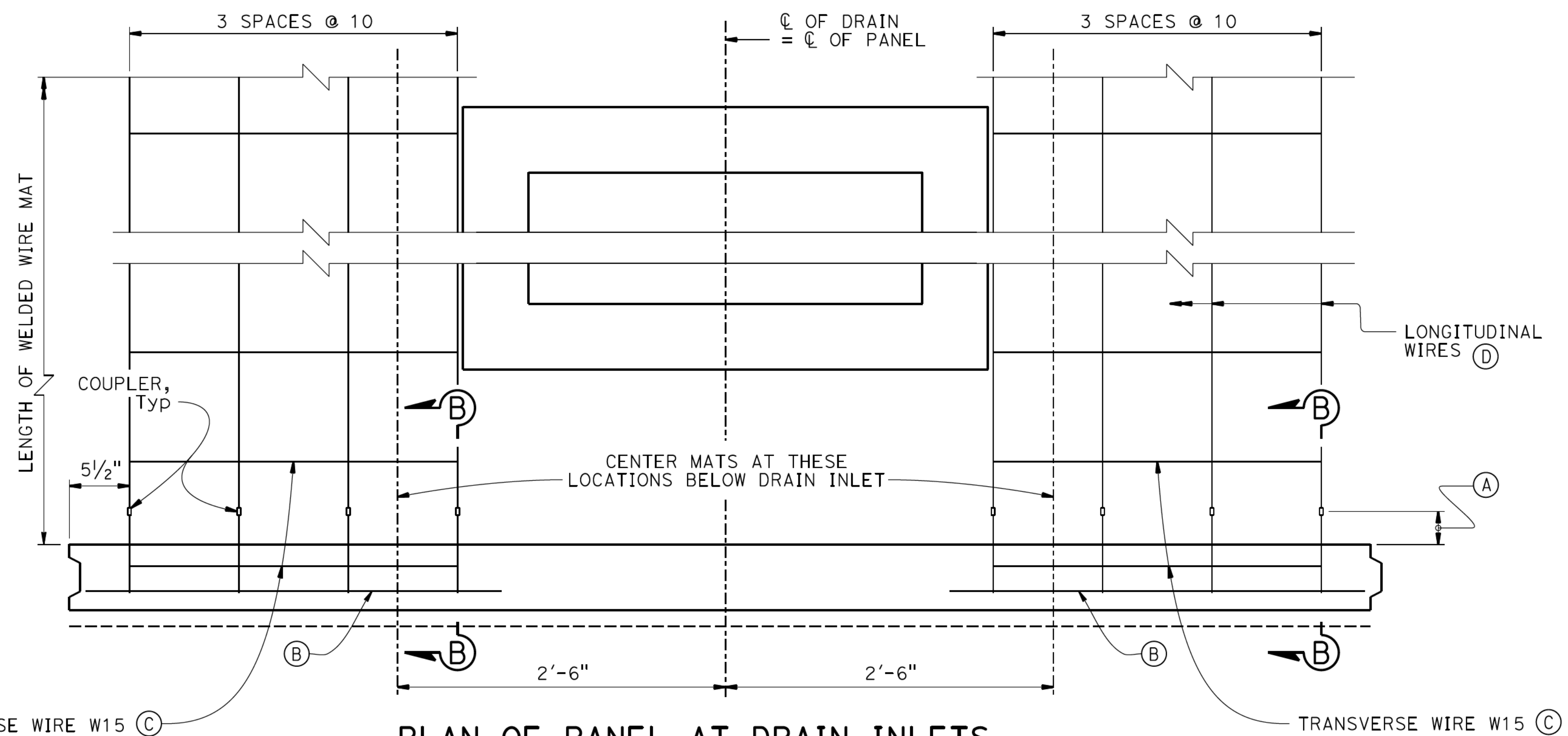
TYPICAL FOR 5'-0" WIDE PANELS



PLAN OF PANEL WITH SIX WIRE MAT

1 1/2" = 1'-0"

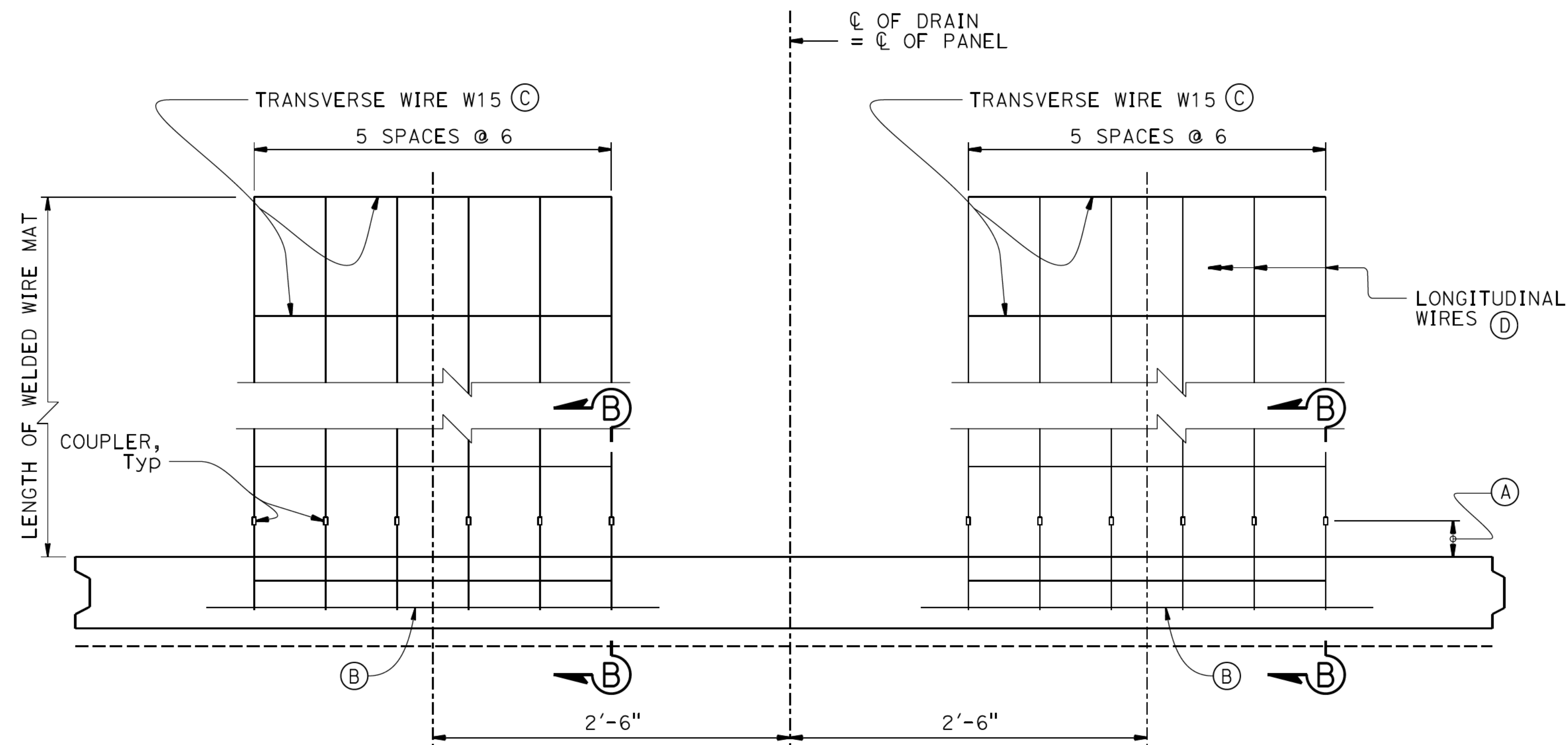
TYPICAL FOR 5'-0" WIDE PANELS



PLAN OF PANEL AT DRAIN INLETS

1 1/2" = 1'-0"

10'-0" WIDE PANELS



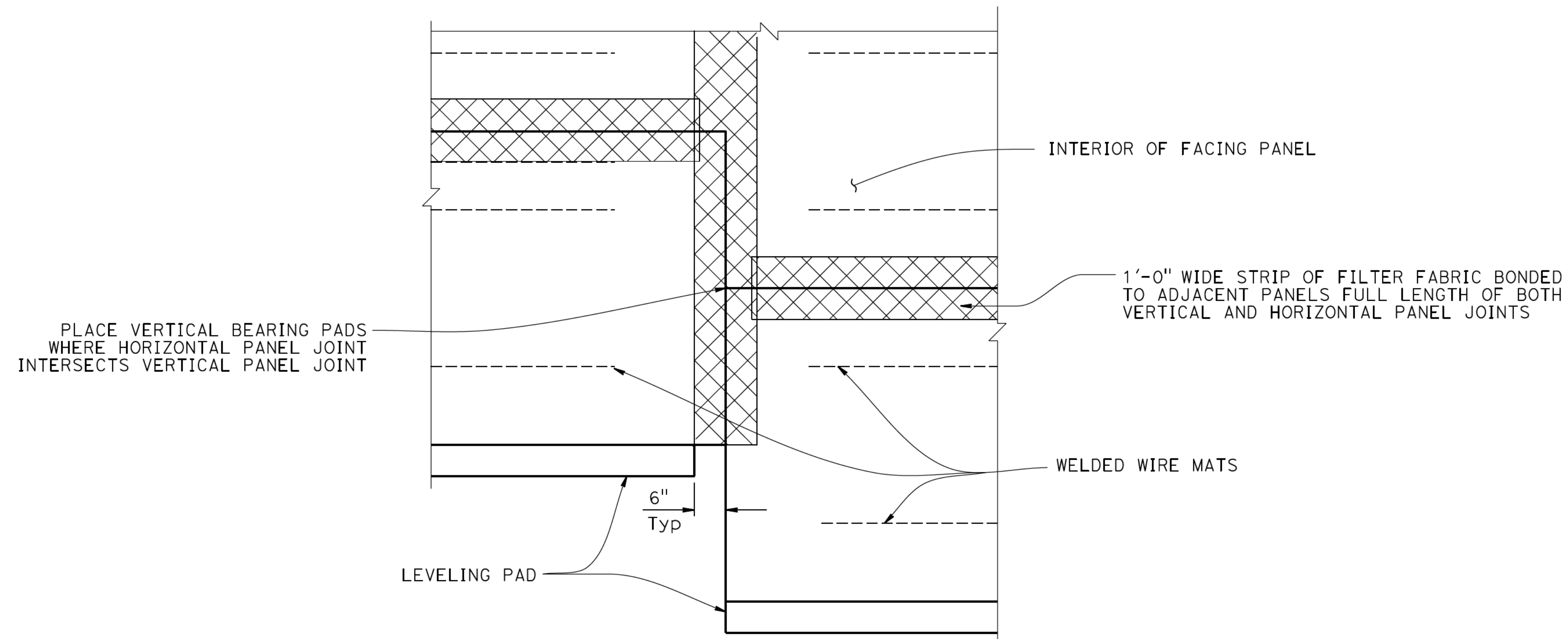
PLAN OF PANEL BELOW DRAIN INLETS

1 1/2" = 1'-0"

10'-0" WIDE PANELS

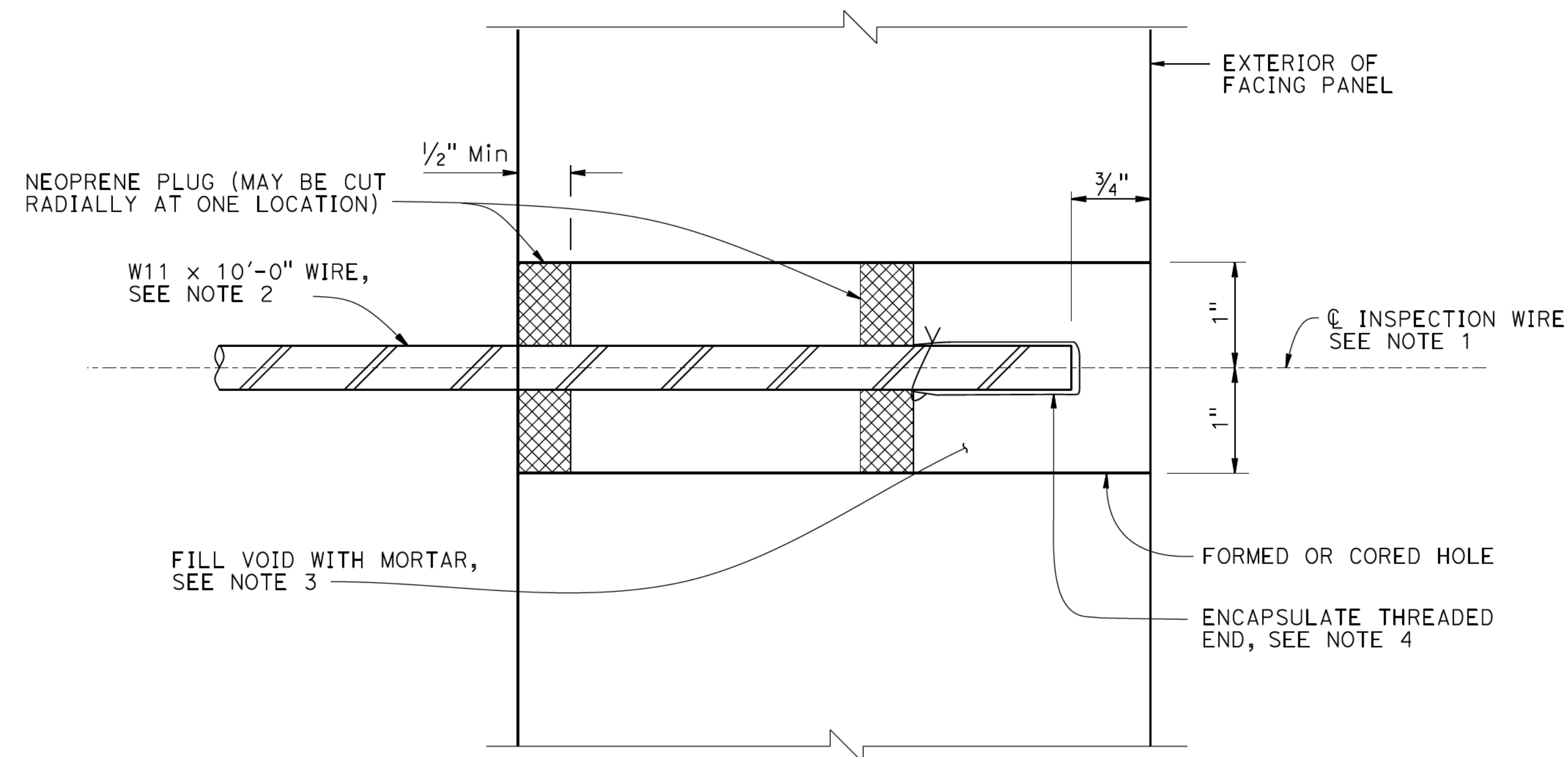
NOTES:

- 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 size W15 at various spacing as shown on "MSE WALL PANEL DETAILS NO. 4" sheet
 - Size of longitudinal wires shown on "MSE WALL PANEL DETAILS NO. 4" sheet
- Top mat shall be sloped following roadway cross slope. Second mat may be sloped to provide 6" minimum clearance between mats.
 - For architectural treatment details, see "MISCELLANEOUS DETAILS NO. 2" sheet.
 - For "SECTION B-B", see "MSE WALL PANEL DETAILS NO. 3" sheet.



PART ELEVATION

$\frac{3}{4}" = 1'-0"$

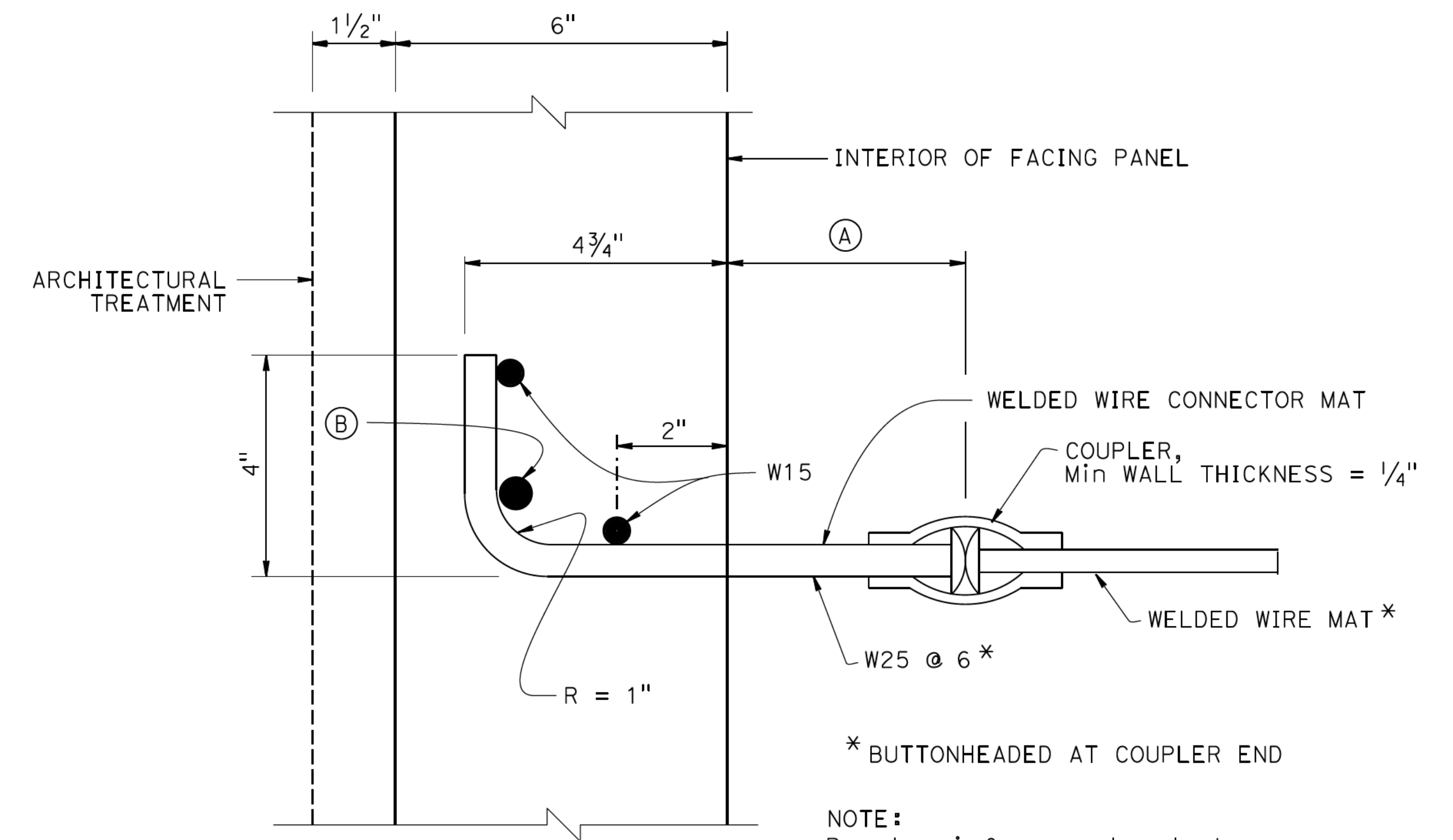


SECTION THRU INSPECTION WIRE

NO SCALE

NOTES:

1. Center inspection wire in facing panel.
 2. Fabricated inspection wire from W11 wire representative of the welded wire mats, with $\frac{3}{8}"$ $\emptyset$ 16 UNC threads for at least $1\frac{1}{2}"$ of one end.
 3. Place inspection wire horizontal and perpendicular to the wall panel prior to backfilling.
 4. Encapsulate threaded end with corrosion inhibiting mastic, vinyl covering, and secure with plastic tie.
- UNC = Unified Coarse Threads
5. For location of "SECTION B-B", see "MSE WALL PANEL DETAILS NO. 2" sheet.



SECTION B-B

$6" = 1'-0"$

NOTE:
Panel reinforcement not shown

SOIL REINFORCEMENT TABLE

PANEL SIZE	5' x 5'			
MSE DESIGN HEIGHT, H	5'-0"	7'-6"	10'-0"	12'-6"
REINFORCEMENT LENGTH, L (BASE WIDTH)	10'-0" (11'-7½")	10'-0" (11'-7½")	12'-0" (13'-7½")	15'-0" (16'-7½")
	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-W20xW15 @ 6 Bot 4-W20xW15 @ 9

PANEL SIZE	5' x 5'			
MSE DESIGN HEIGHT, H	15'-0"	17'-6"	20'-0"	22'-6"
REINFORCEMENT LENGTH, L (BASE WIDTH)	17'-6" (19'-1½")	20'-0" (21'-7½")	20'-0" (21'-7½")	22'-6" (24'-1½")
	Top 4-W15xW15 @ 6 3 of 4-W20xW15 @ 6 1 of 4-W20xW15 @ 9 Bot 4-W20xW15 @ 9	Top 4-W15xW15 @ 6 4 of 4-W20xW15 @ 6 1 of 4-W25xW15 @ 9 Bot 4-W25xW15 @ 9	Top 4-W15xW15 @ 6 4 of 4-W20xW15 @ 18 2 of 4-W25xW15 @ 24 Bot 4-W25xW15 @ 24	Top 4-W15xW15 @ 6 4 of 4-W20xW15 @ 18 3 of 4-W25xW15 @ 24 Bot 4-W25xW15 @ 24

PANEL SIZE	5' x 5'			
MSE DESIGN HEIGHT, H	25'-0"	27'-6"	30'-0"	32'-6"
REINFORCEMENT LENGTH, L (BASE WIDTH)	25'-0" (26'-7½")	27'-6" (29'-1½")	30'-0" (31'-1½")	32'-6" (34'-1½")
	Top 4-W15xW15 @ 6 4 of 4-W20xW15 @ 18 3 of 4-W25xW15 @ 24 1 of 6-W25xW15 @ 24 Bot 6-W25xW15 @ 24	Top 4-W15xW15 @ 6 4 of 4-W20xW15 @ 18 3 of 4-W25xW15 @ 24 2 of 6-W25xW15 @ 30 Bot 6-W25xW15 @ 30	Top 4-W15xW15 @ 6 4 of 4-W20xW15 @ 18 4 of 4-W25xW15 @ 24 2 of 6-W25xW15 @ 30 Bot 6-W25xW15 @ 30	Top 4-W15xW15 @ 18 4 of 4-W20xW15 @ 18 4 of 4-W25xW15 @ 24 3 of 6-W25xW15 @ 30 Bot 6-W25xW15 @ 30

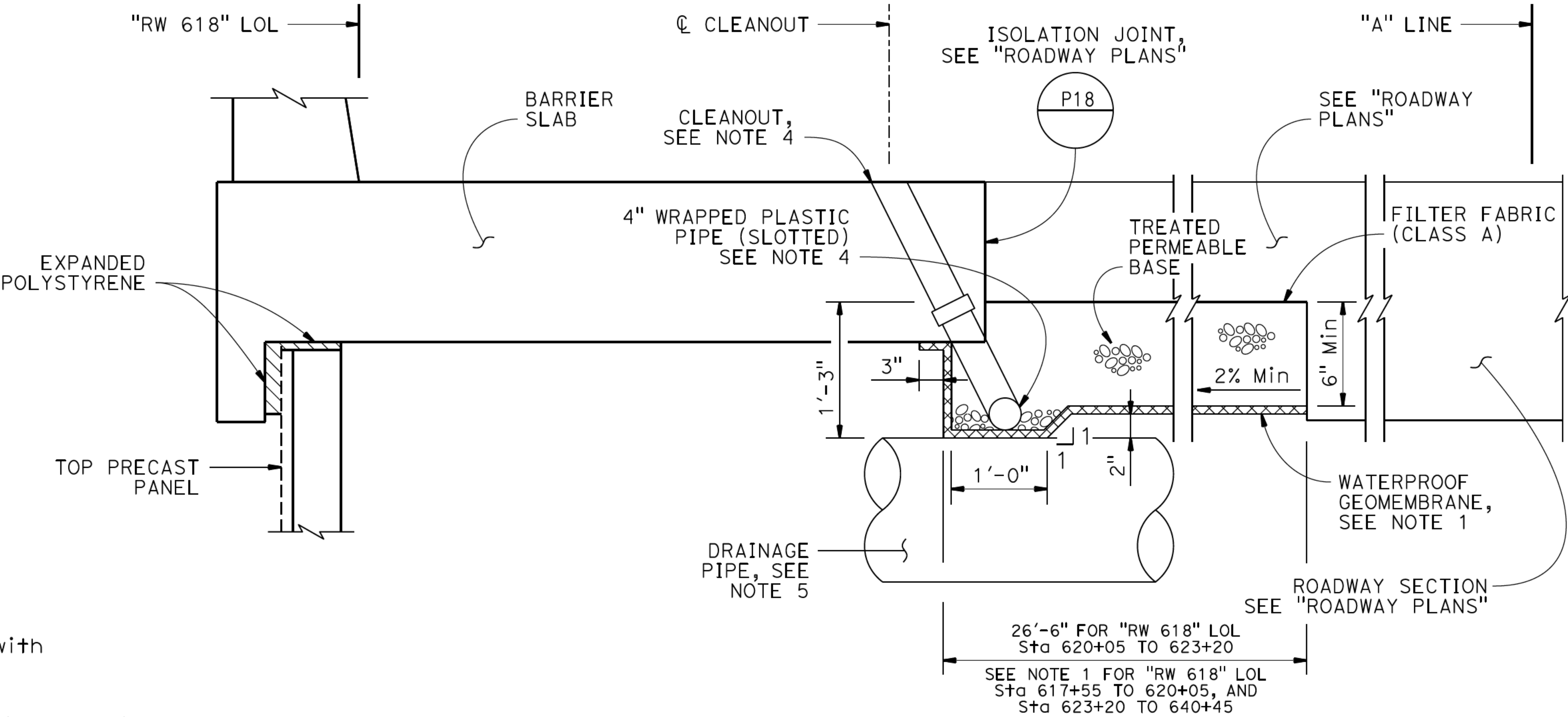
PANEL SIZE	10' x 5'	
MSE DESIGN HEIGHT, H	25'-0"	27'-6"
REINFORCEMENT LENGTH, L (BASE WIDTH)	25'-0" (26'-7½")	27'-6" (29'-1½")
	Top 8-W15xW15 @ 6 4 of 8-W20xW15 @ 18 3 of 8-W25xW15 @ 24 1 of 12-W25xW15 @ 24 Bot 12-W25xW15 @ 24	Top 8-W15xW15 @ 6 4 of 8-W20xW15 @ 18 3 of 8-W25xW15 @ 24 2 of 12-W25xW15 @ 30 Bot 12-W25xW15 @ 30

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 tranverse wires at 24-inch spacing

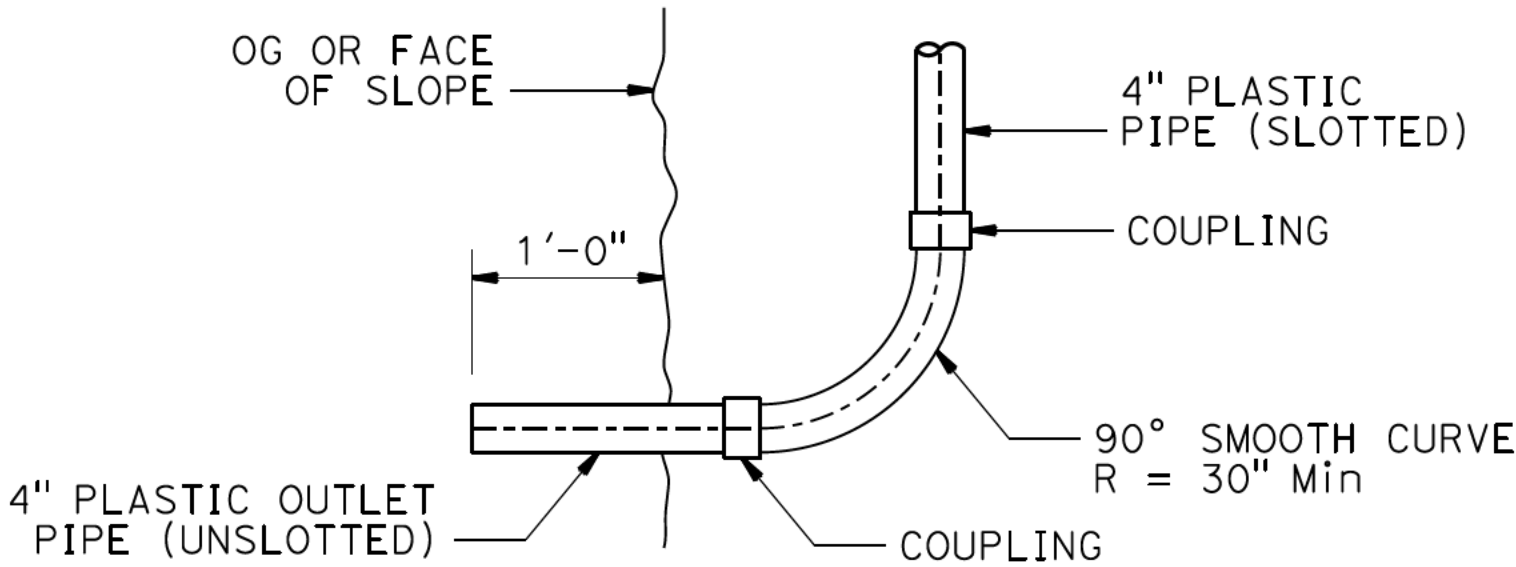
NOTE: See Plan views of panels on "MSE WALL PANEL DETAILS NO. 2" sheet.

NOTES:

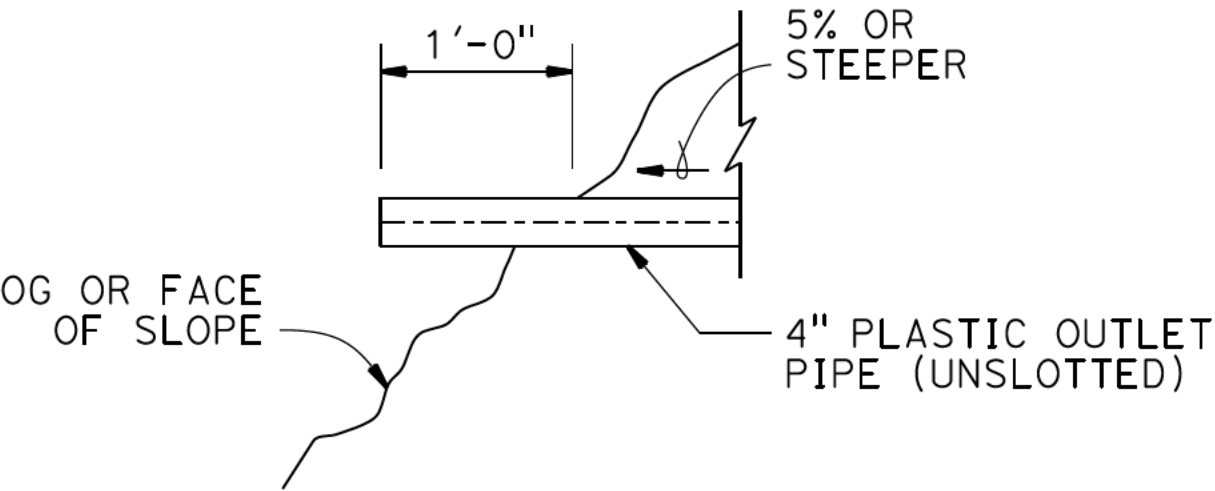
- Limits of waterproof geomembrane, filter fabric, and treated permeable base to match wall limits and extend 5'-0" minimum beyond limits of soil reinforcement and BEGIN and END wall limits. See "ROADWAY PLANS" for quantities.
- Geomembrane field seams shall be placed 1'-0" minimum away from construction joints.
- Slope geomembrane to drain towards 4" slotted pipe.
- For pipe and cleanout details, see "CONCRETE BARRIER SLAB DETAILS" sheet. For 4" slotted pipe quantity, see "ROADWAY PLANS".
- Drainage pipe to clear waterproof geomembrane. See "ROADWAY PLANS" for pipe details.



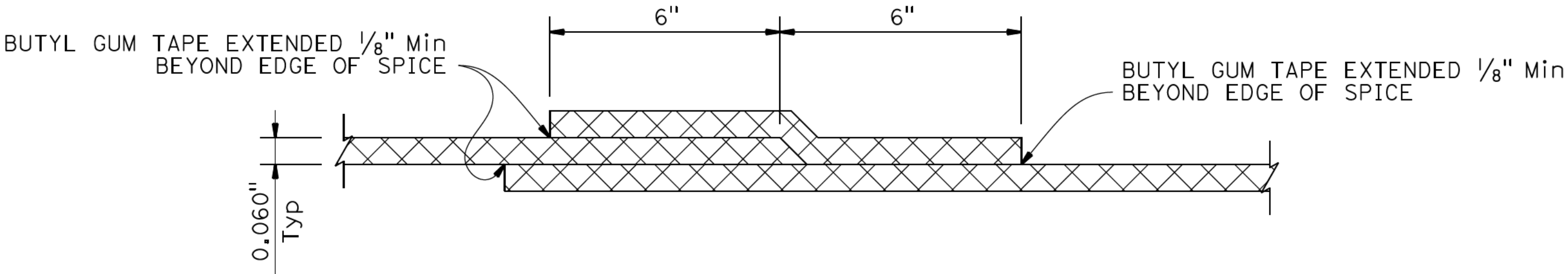
GEOMEMBRANE DETAIL
NO SCALE



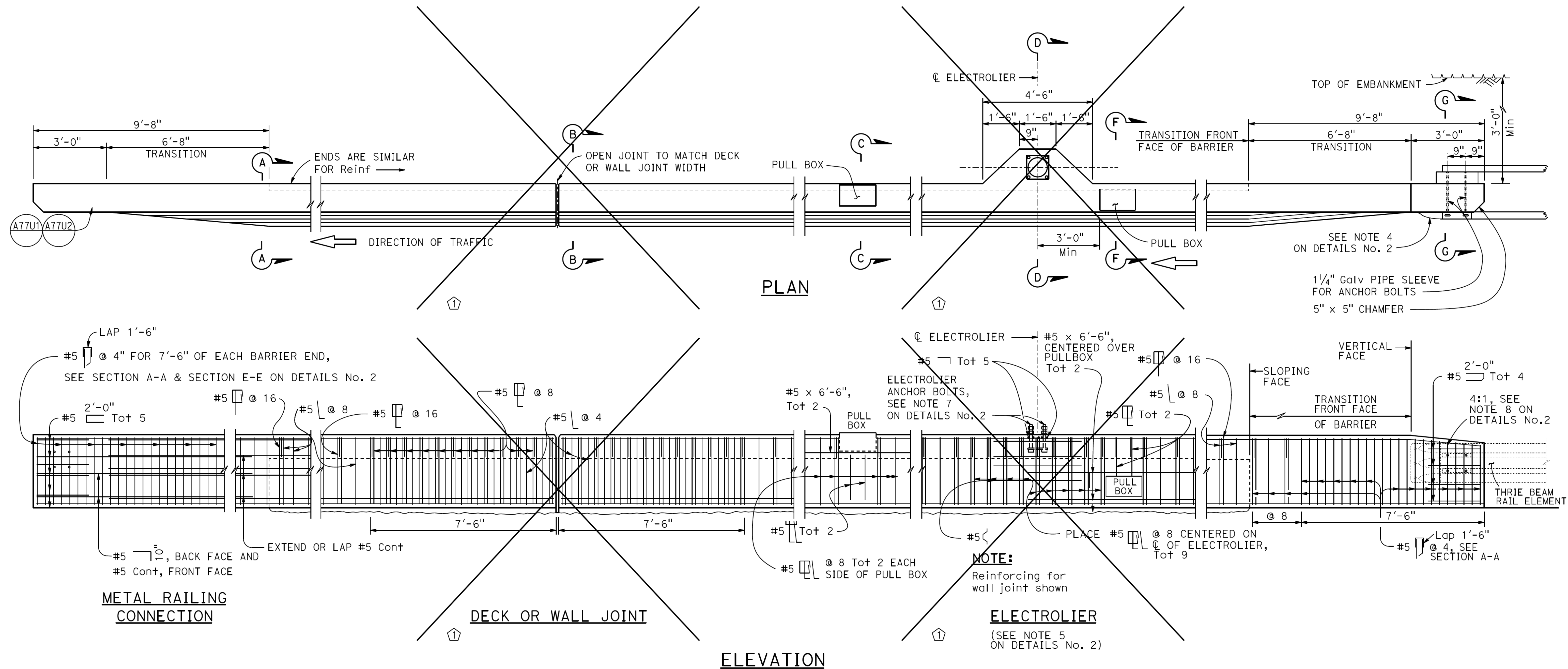
VENT / OUTLET PLAN DETAIL
NO SCALE

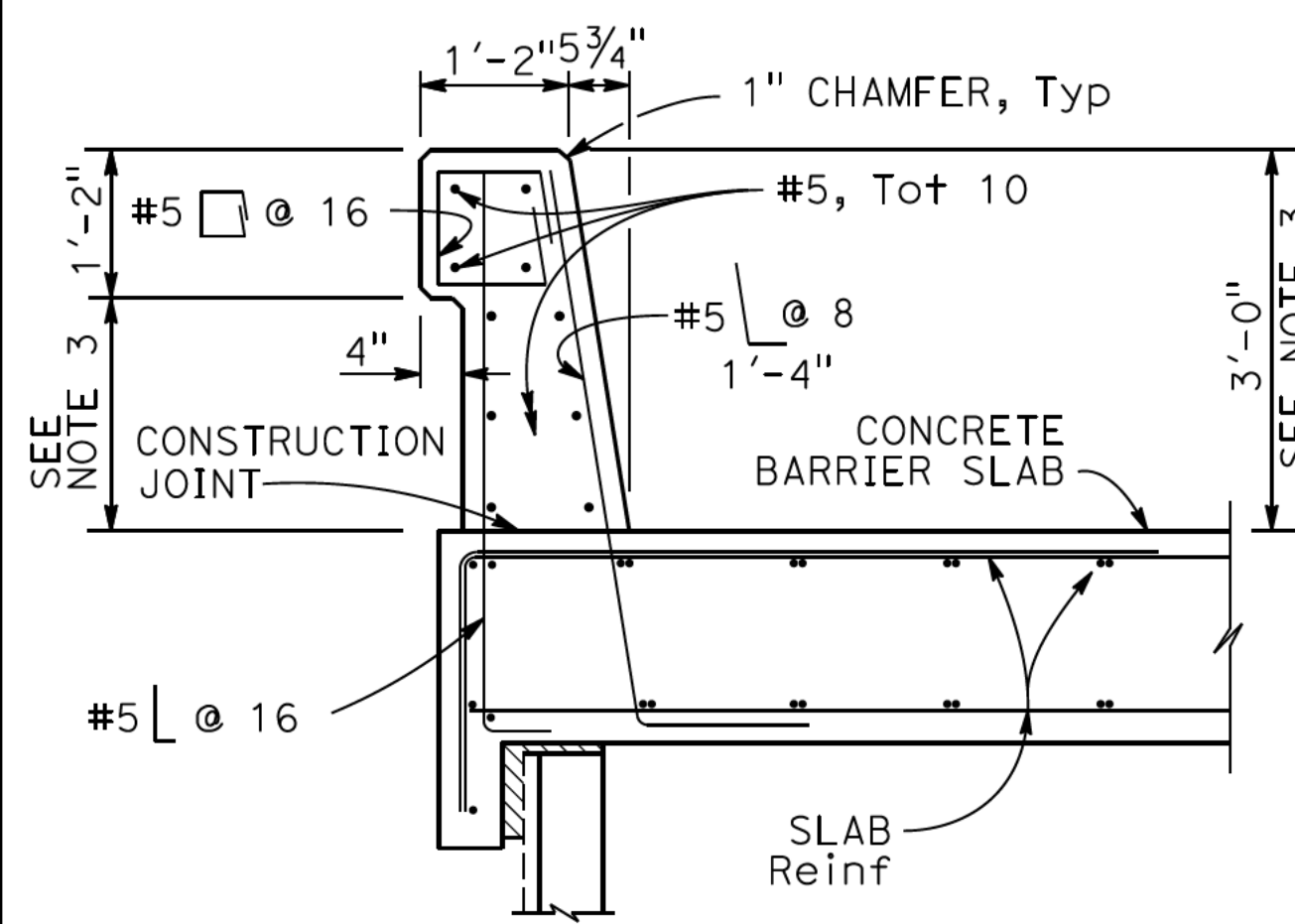


VENT / OUTLET ELEVATION DETAIL
NO SCALE

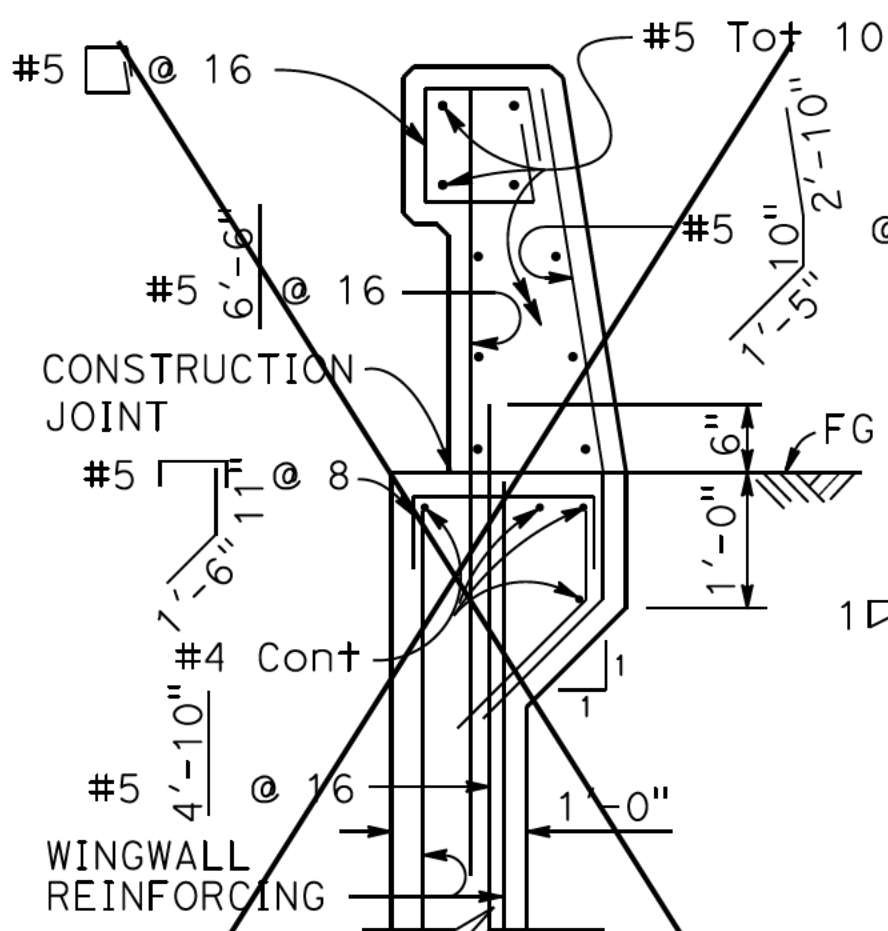


TONGUE AND GROOVE-FIELD SPLICE
WATERPROOF GEOMEMBRANE SPLICE DETAIL
NO SCALE

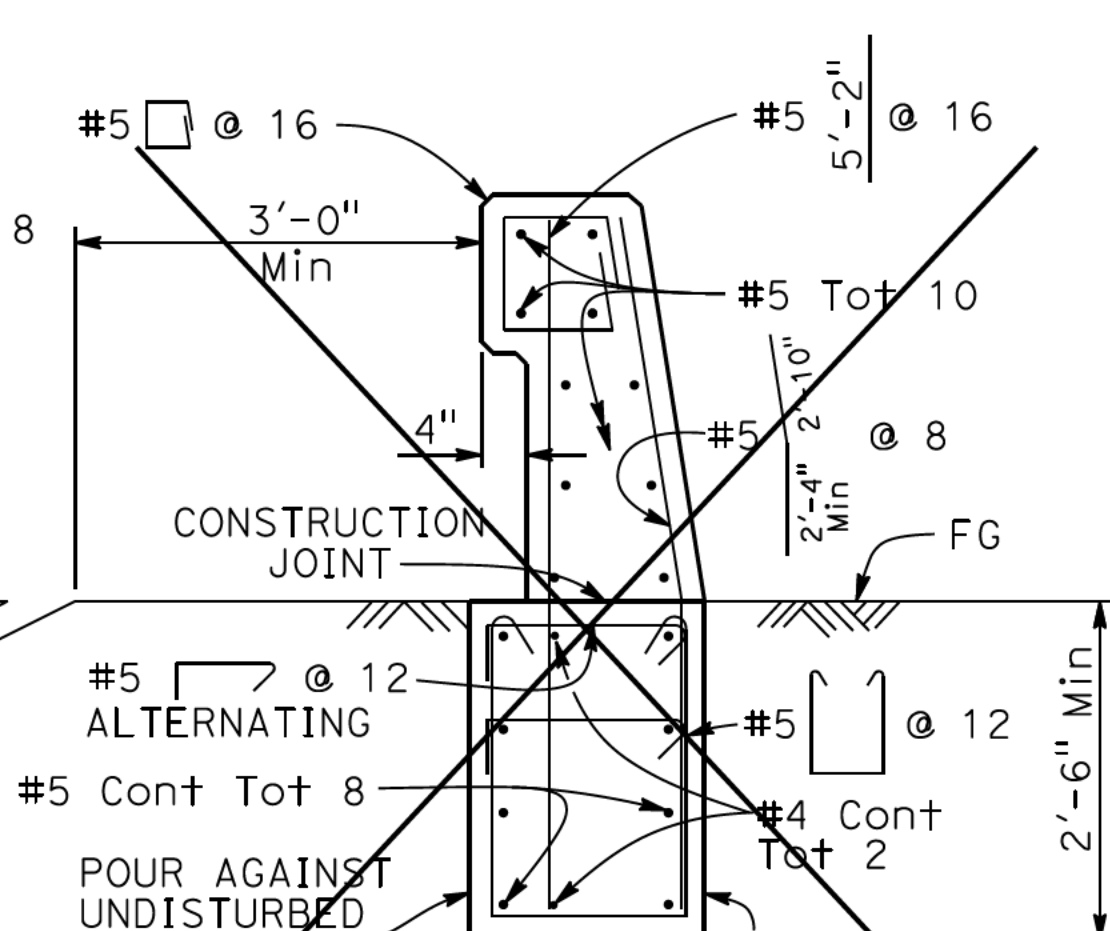




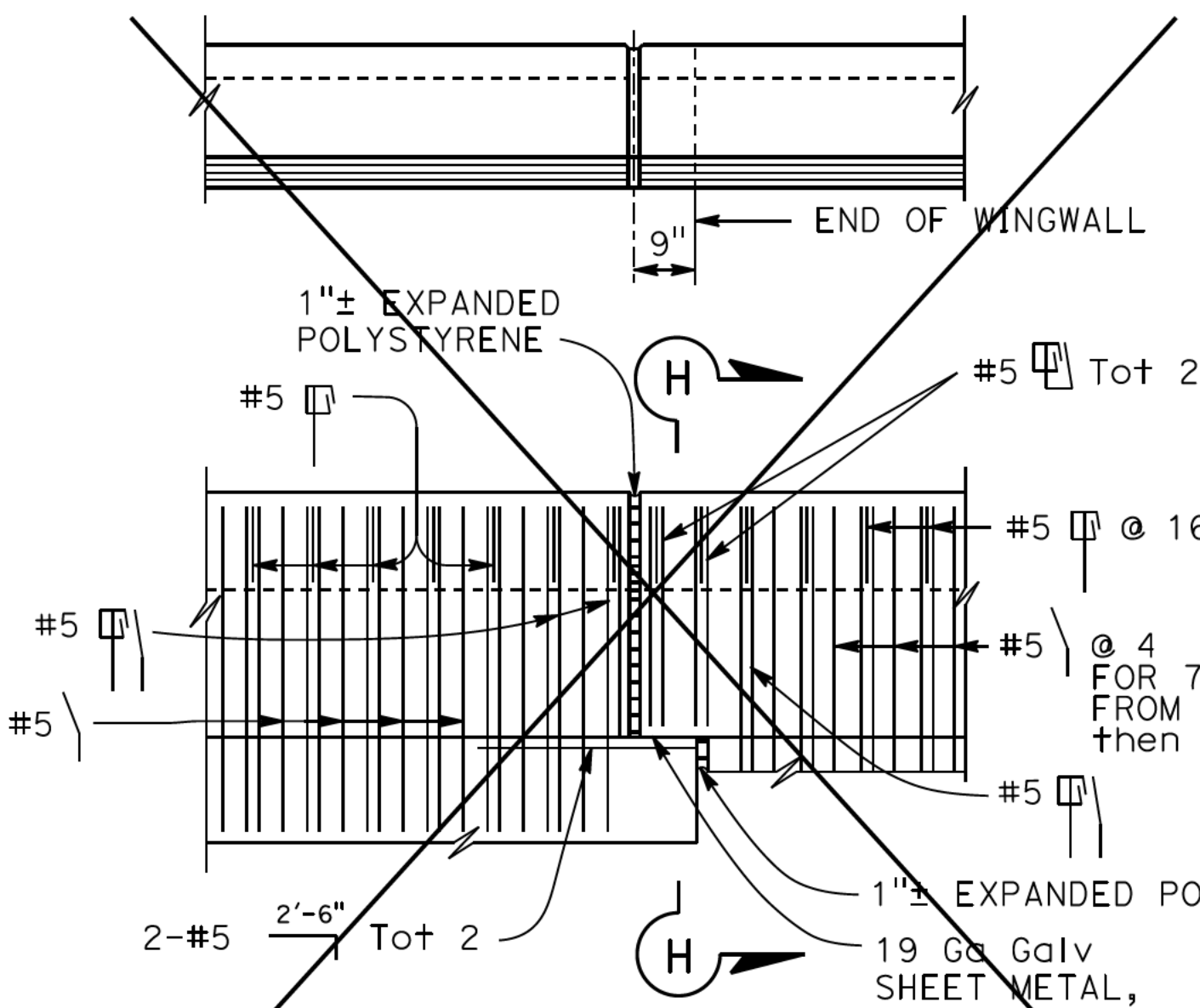
TYPE 836



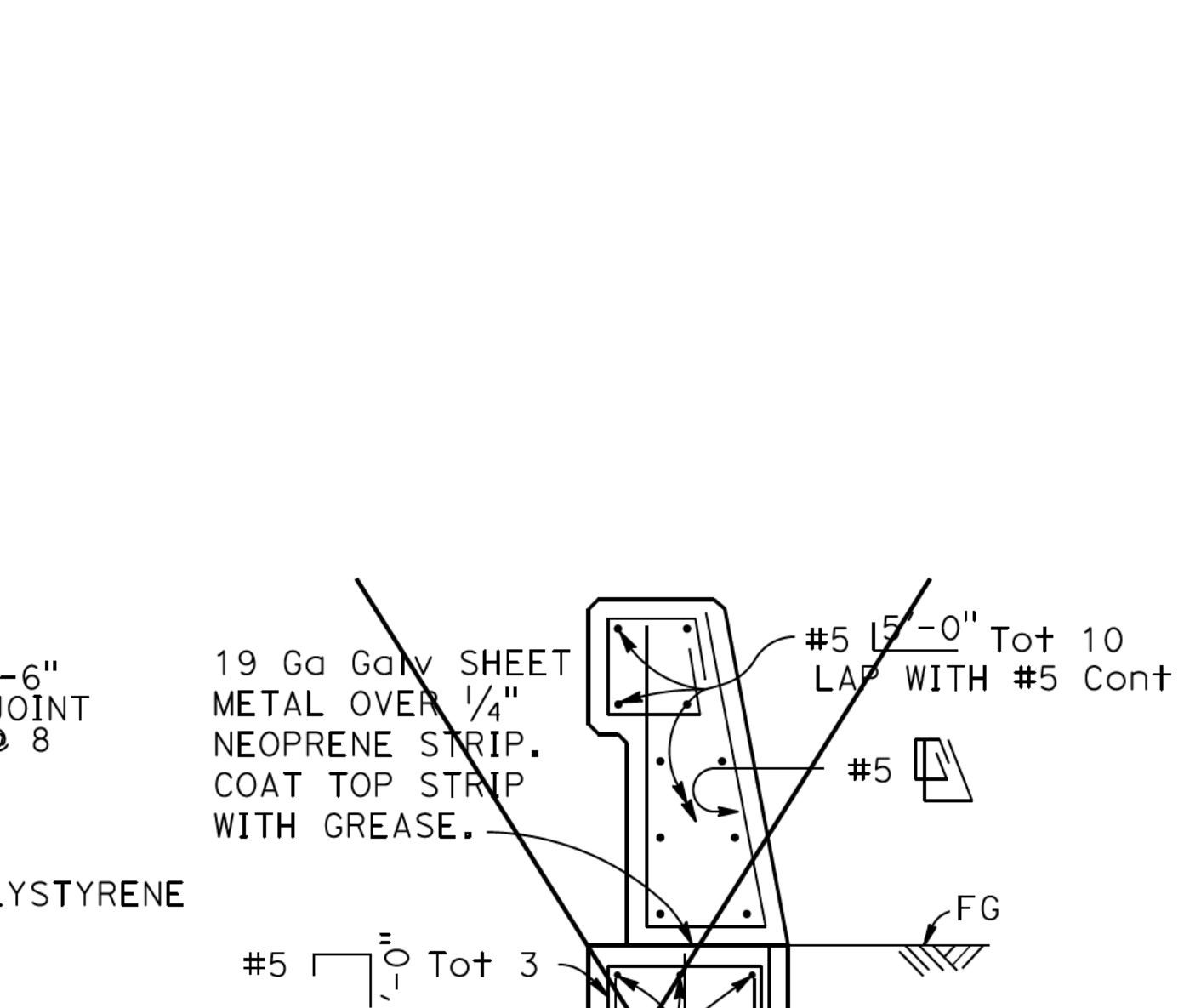
TYPE 836A



TYPE 836B

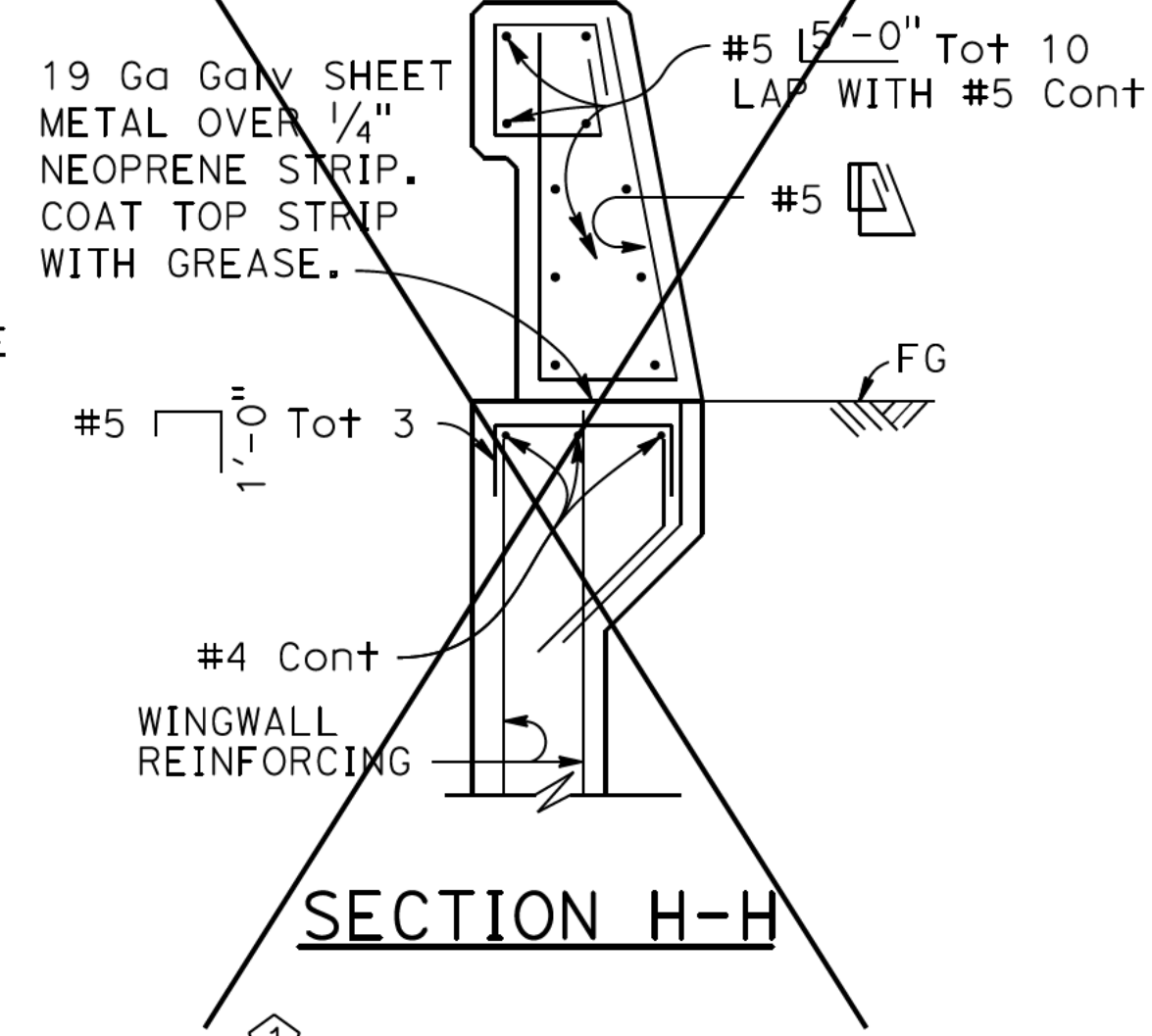


TYPE 836A

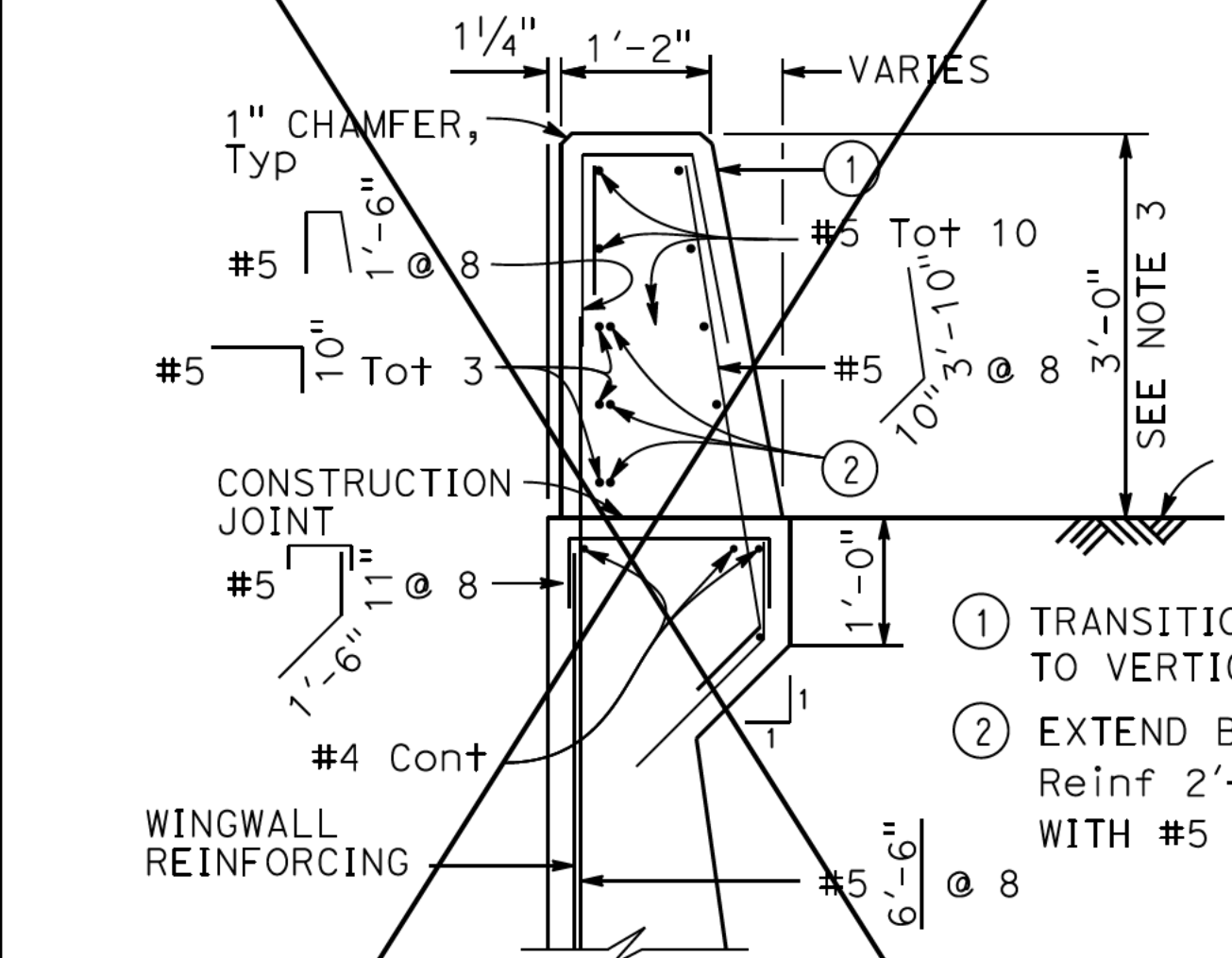


TYPE 836B

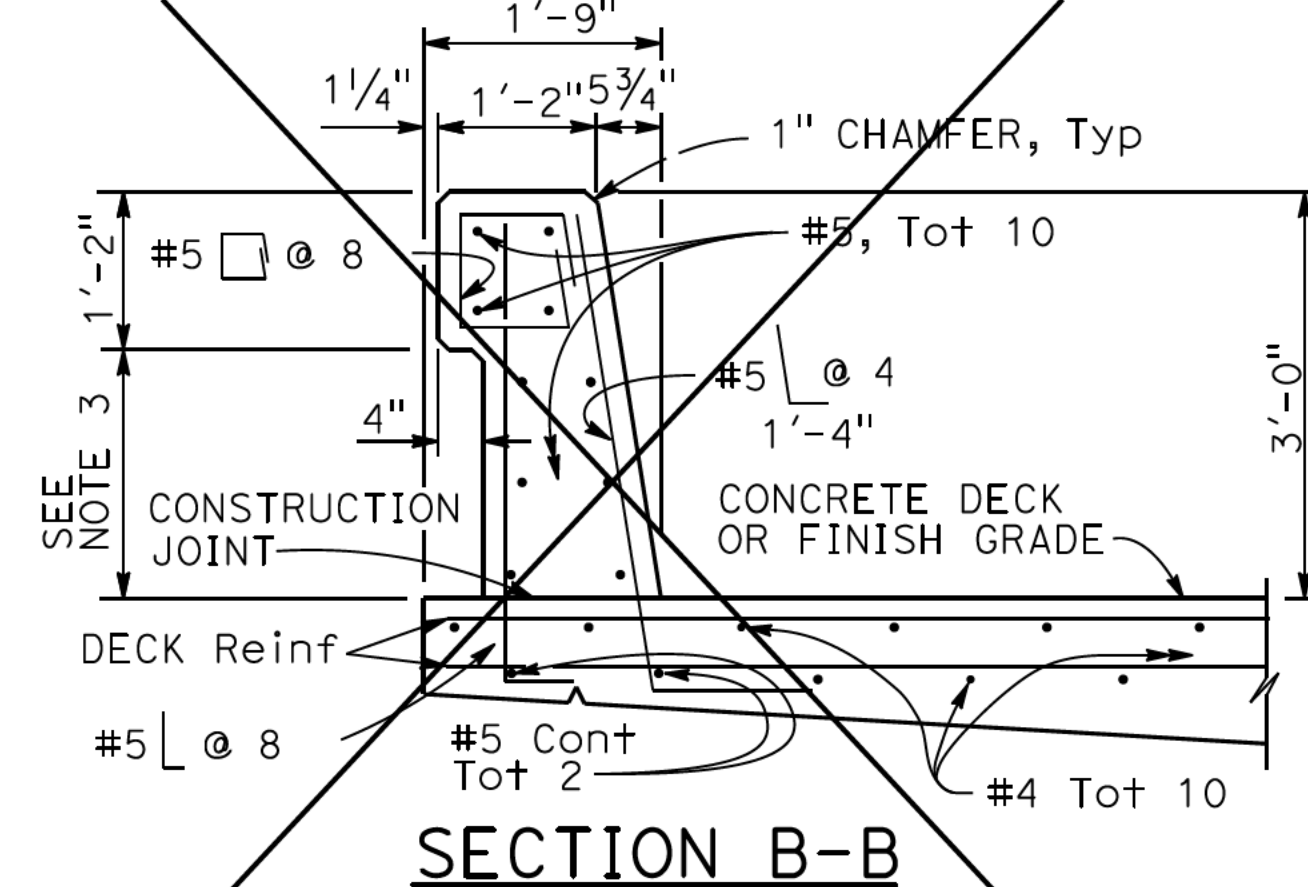
NOTE:
Types 842A & 842B are similar to Type 842 except as noted



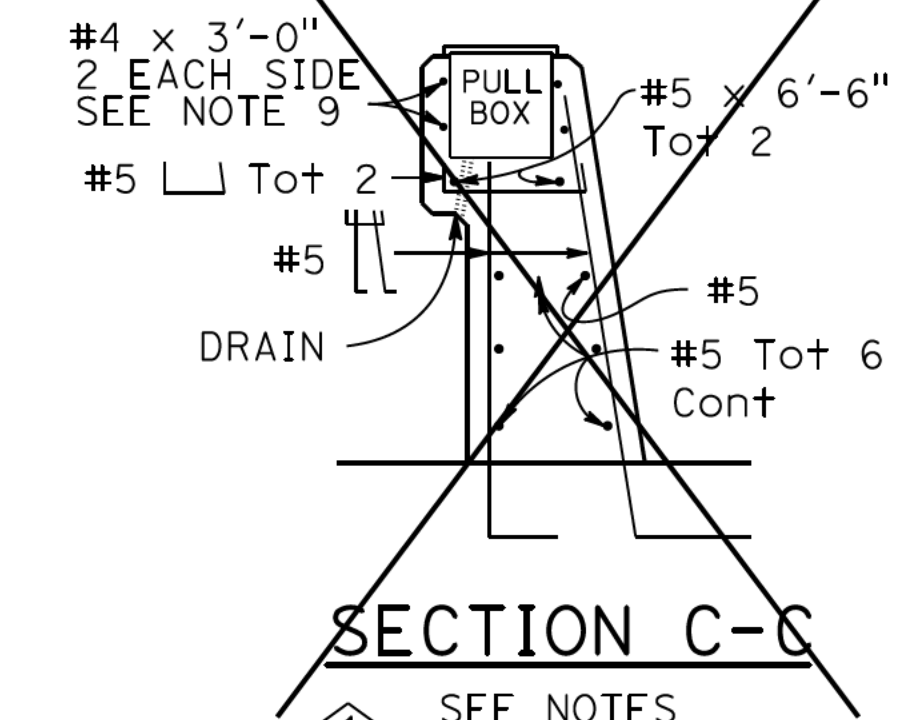
SECTION H-H



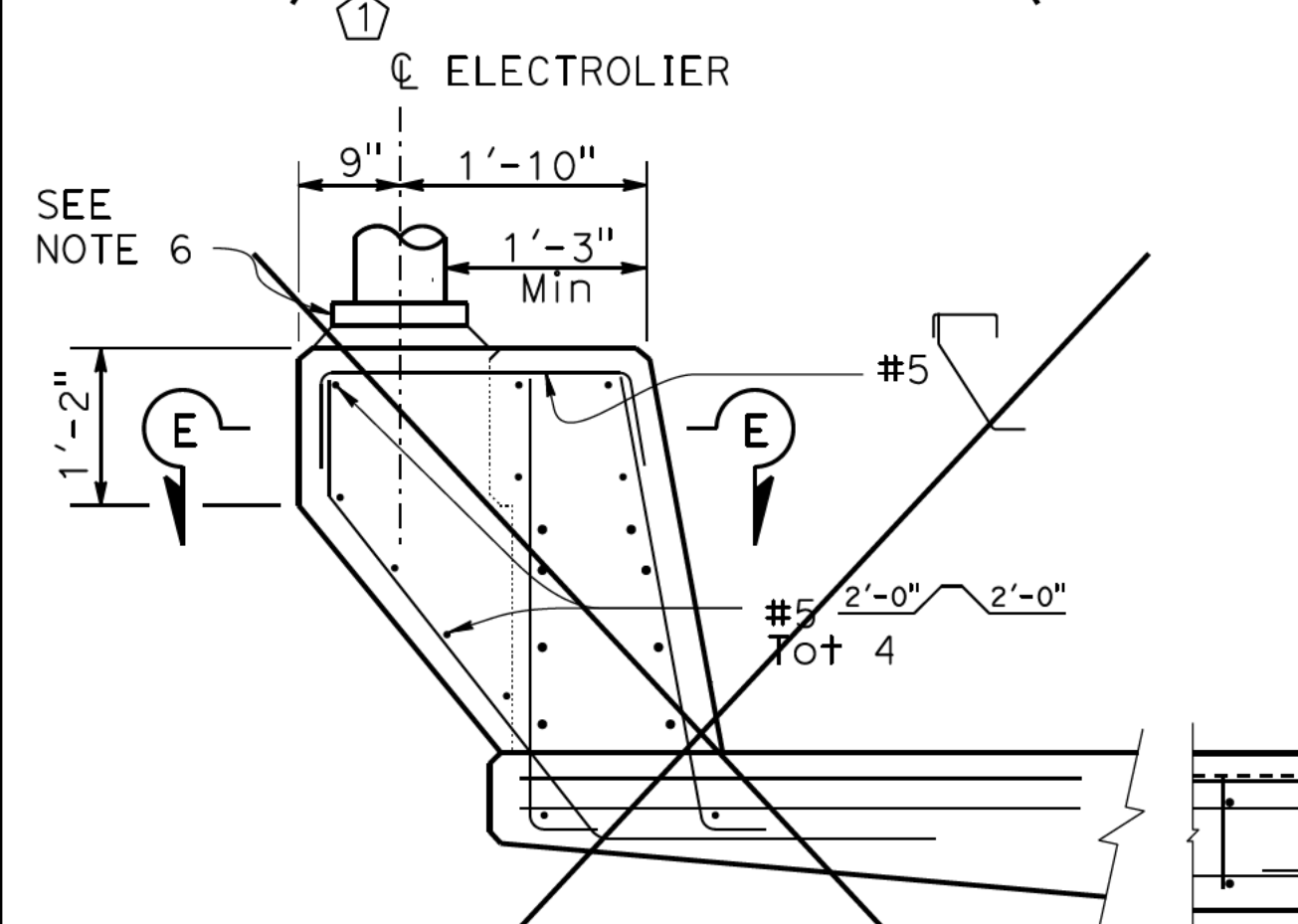
SECTION A-A



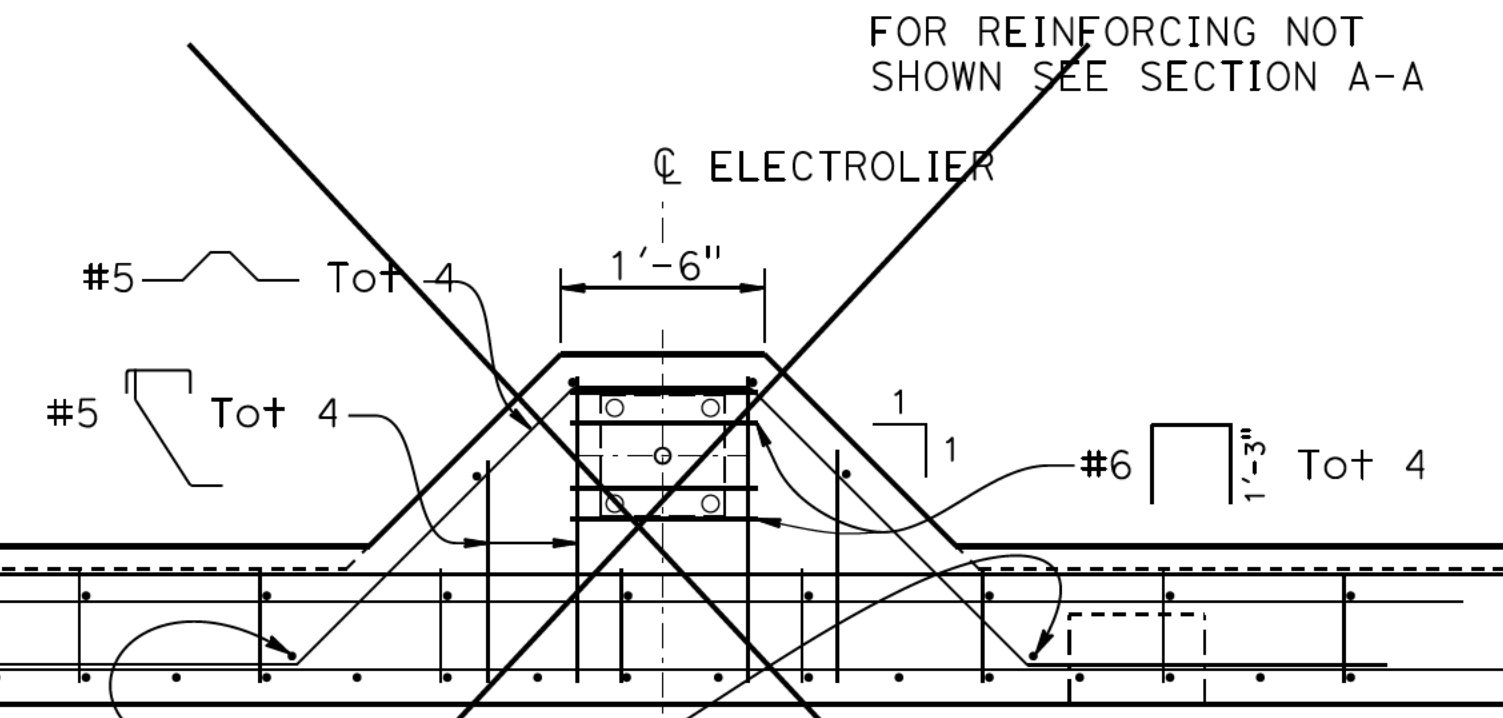
SECTION B-B



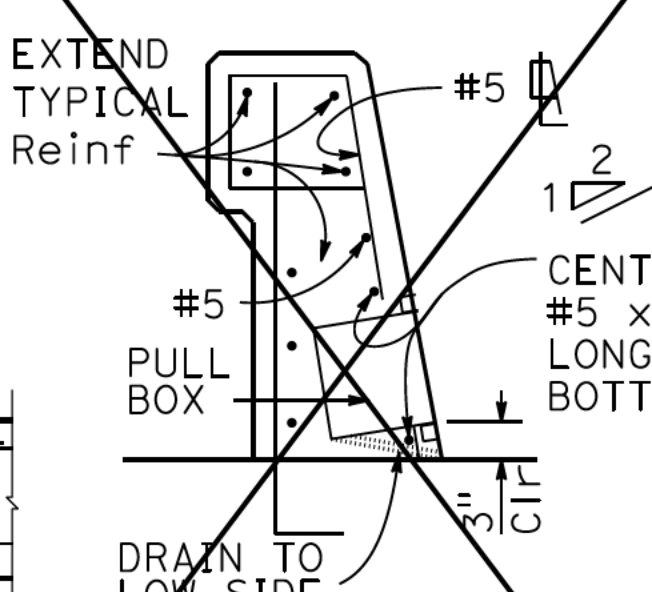
SECTION C-C



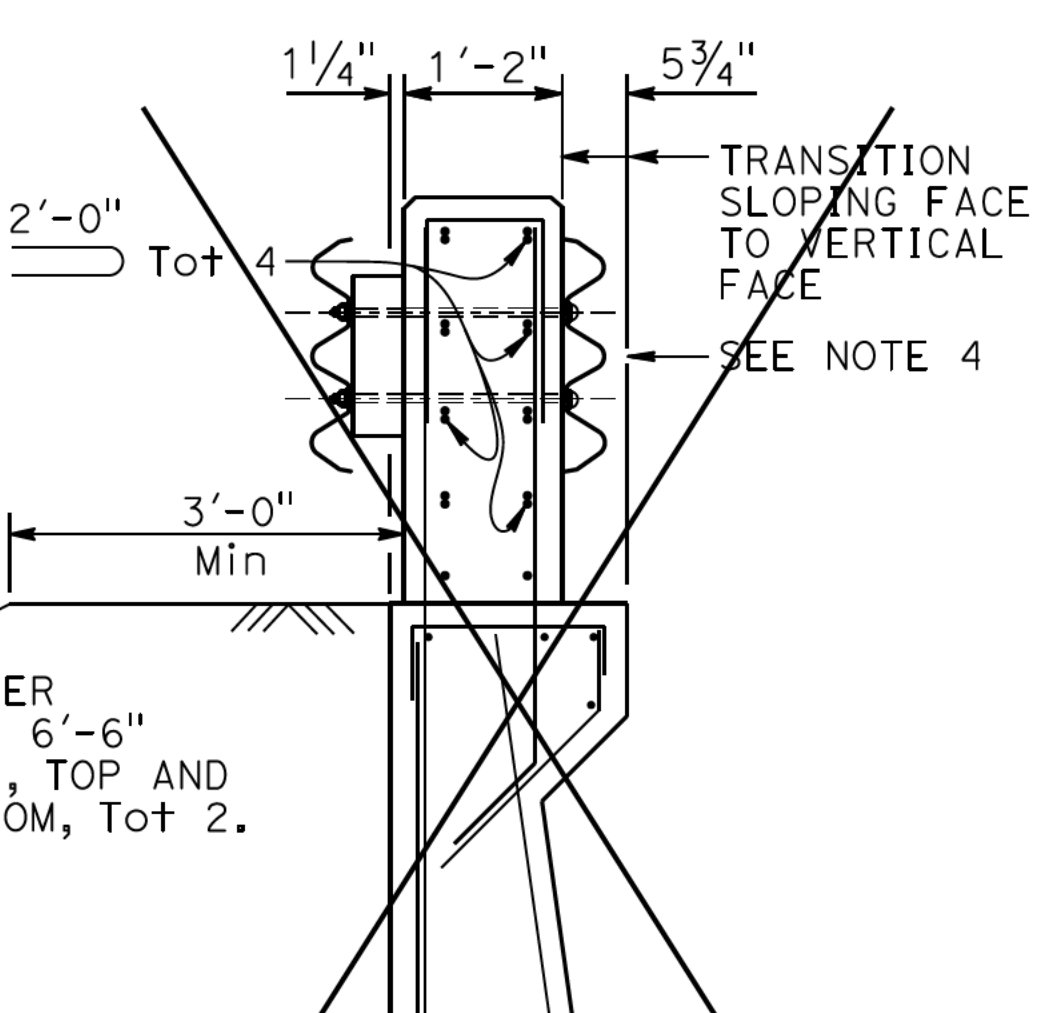
SECTION D-D



SECTION E-E



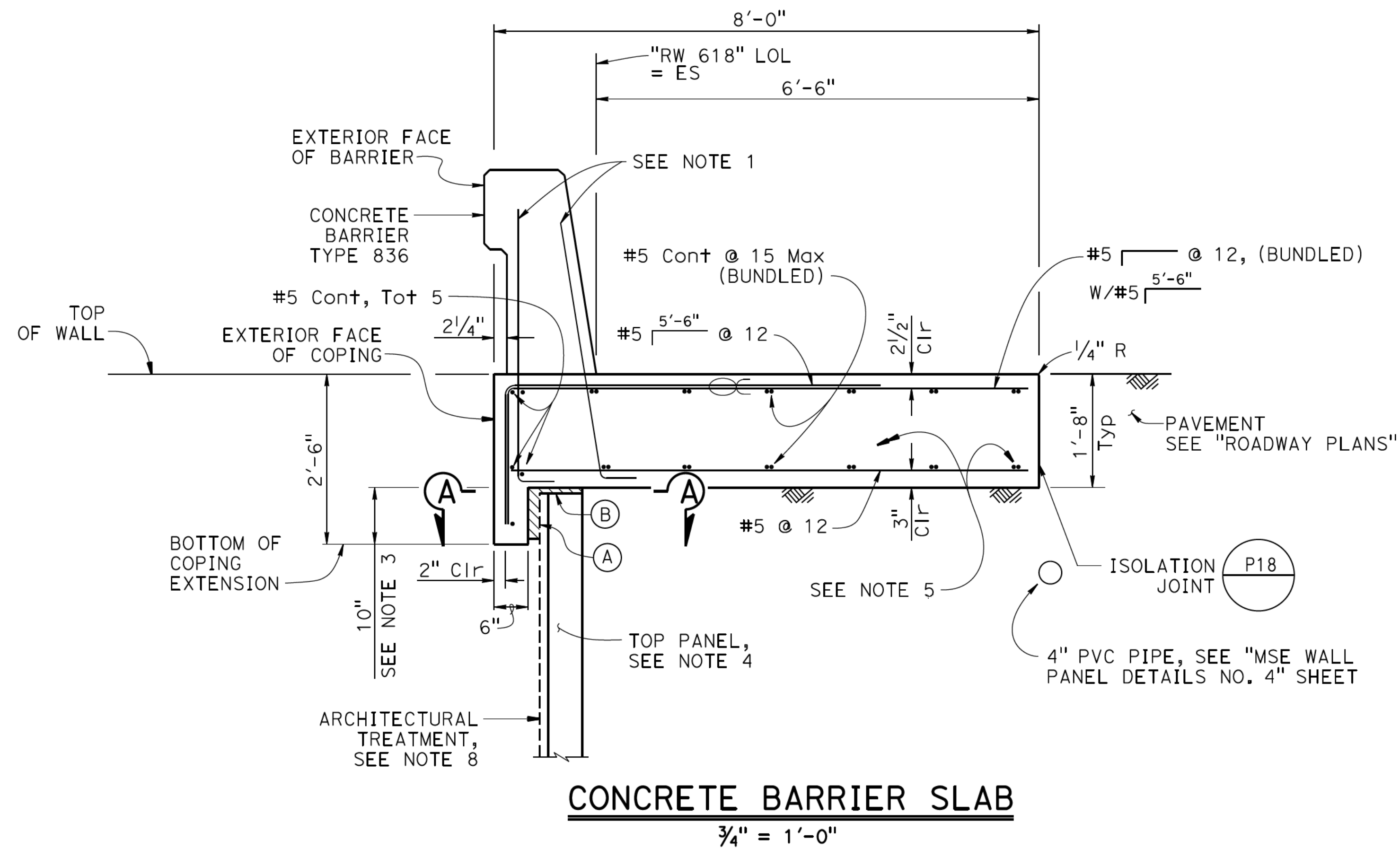
SECTION F-F



SECTION G-G

NOTES:

1. Walls are to be backfilled before barrier is placed.
2. Clearance to reinforcing steel in barrier to be 2", except as noted. Longitudinal reinforcement to stop at all expansion joints.
3. Dimensions may vary with roadway cross slope and with certain thickness of surfacing. See "ROADWAY PLANS."
4. For typical metal railing connection details not shown, see Standard Plans A77U1 and A77U2.
5. See Standard Plans ES-9A, ES-9B and Revised Standard Plans RSP ES-9C, RSP ES-9D, and RSP ES-9E for electrical details. The maximum number of conduits in the barrier is limited to two 2" conduits along with one 3" conduit. When a 3" conduit is used, it is restricted to the base of the barrier.
6. For electroiler mounting details, See Revised Standard Plans RSP ES-6A and RSP ES-6B.
7. Minimum concrete edge distance, to the reinforcing shown, shall be maintained. Edge distance may be adjusted to accomodate increase in concrete cover for architectural treatment.
8. Taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam rail element.
9. In front and back of pullbox (SECTION C-C) the #4 x 3'-0" bar must be centered so that extend minimum 8" beyond ends of pullbox. As an alternative, may substitute 4 x 4 - W12 x W12 welded fabric extending minimum 8" beyond ends of pullbox.

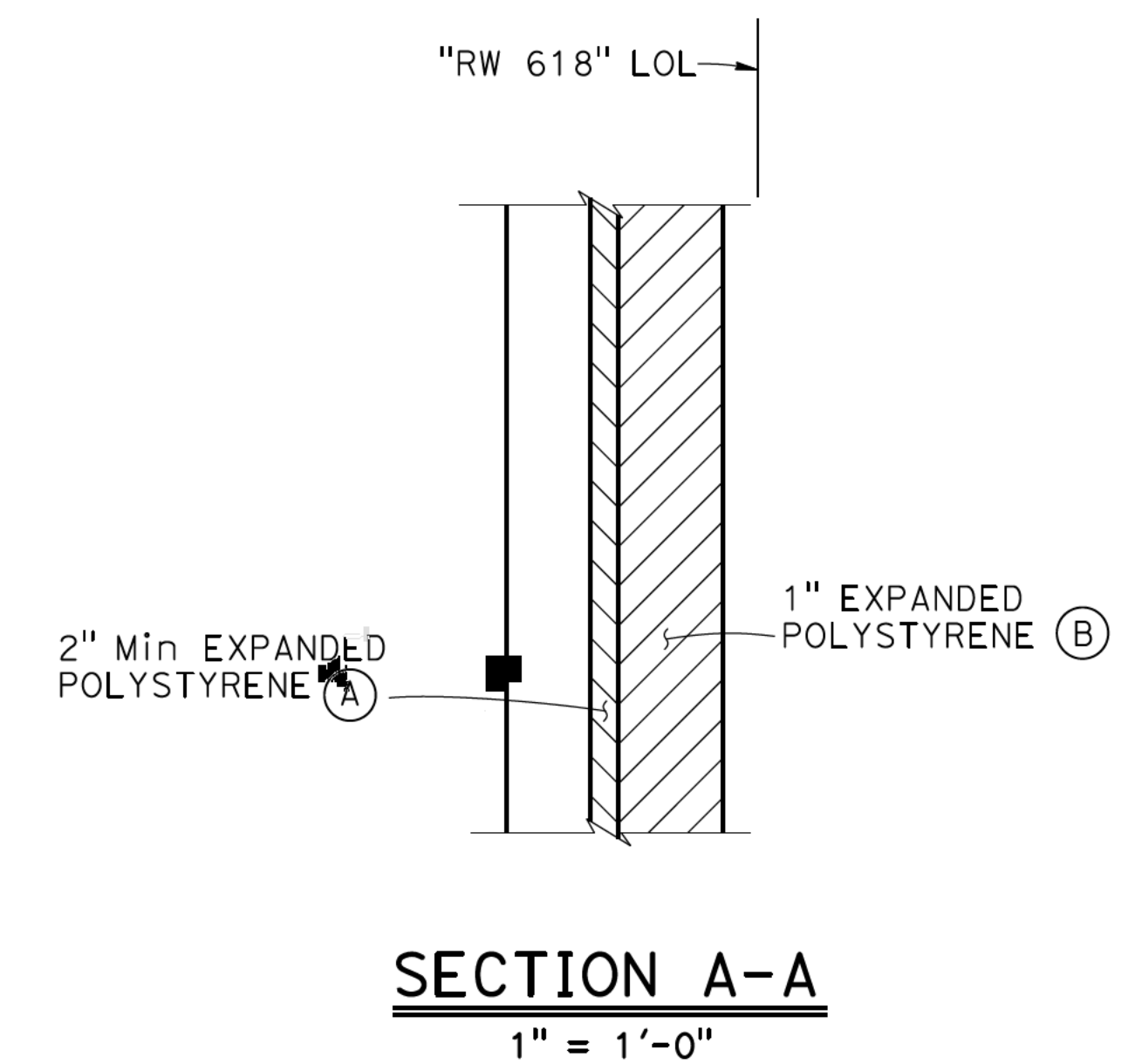
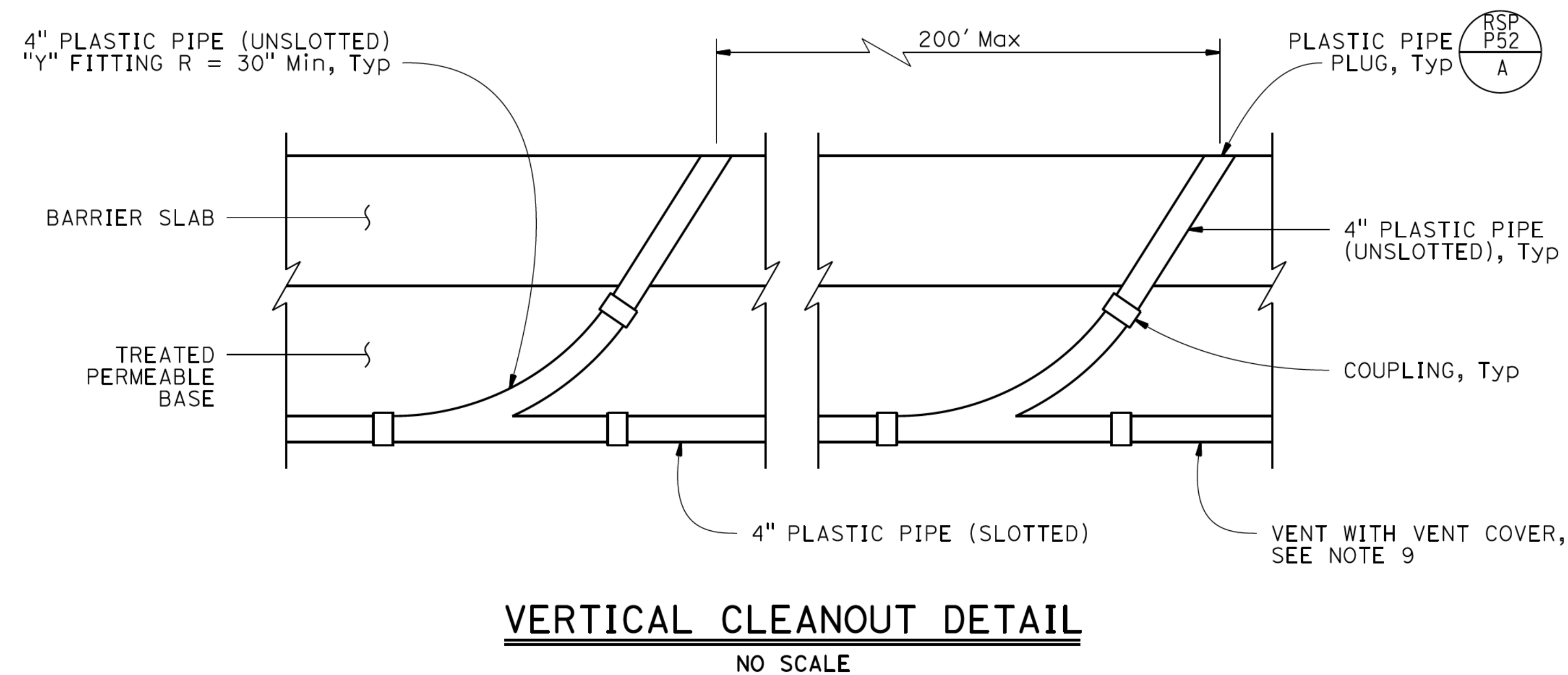


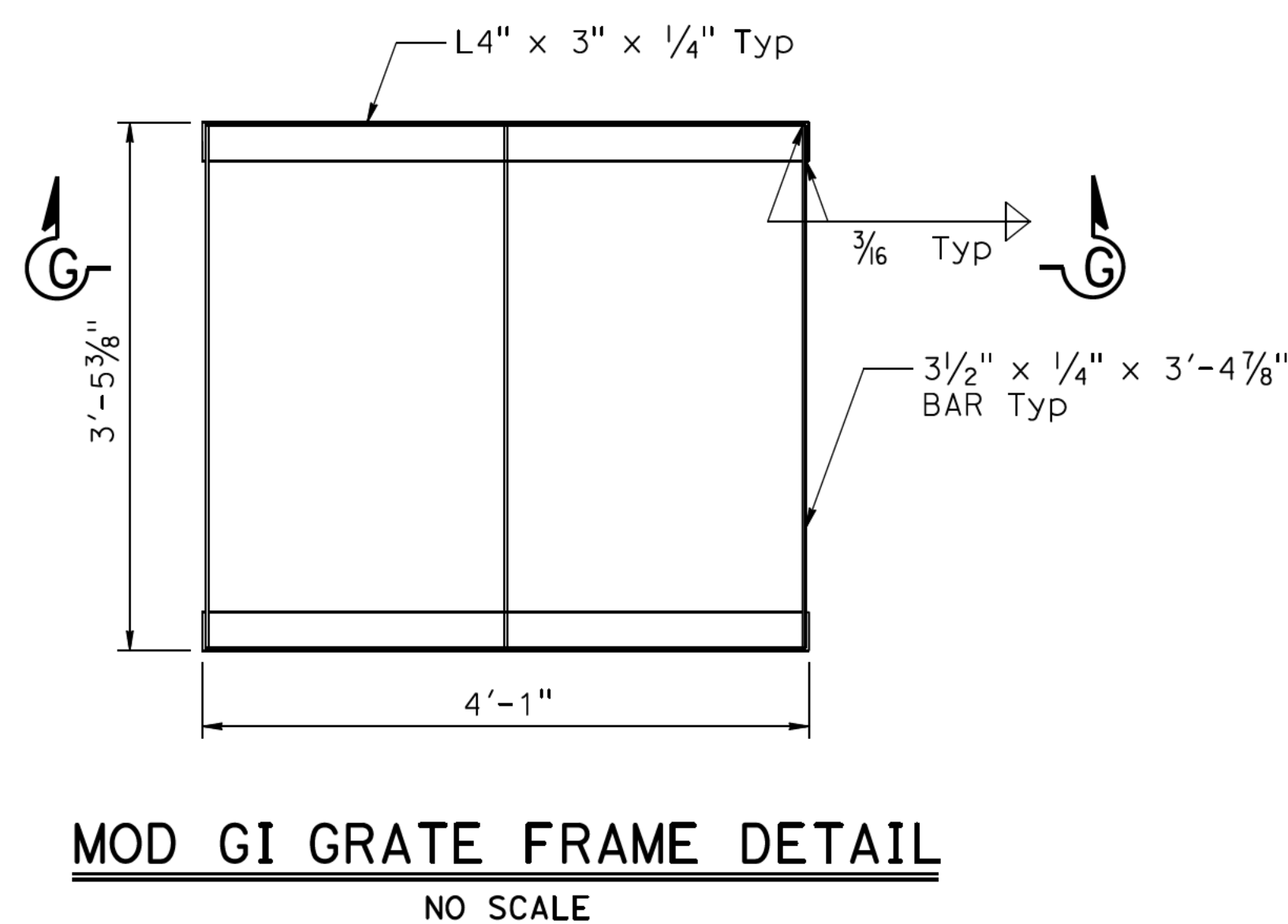
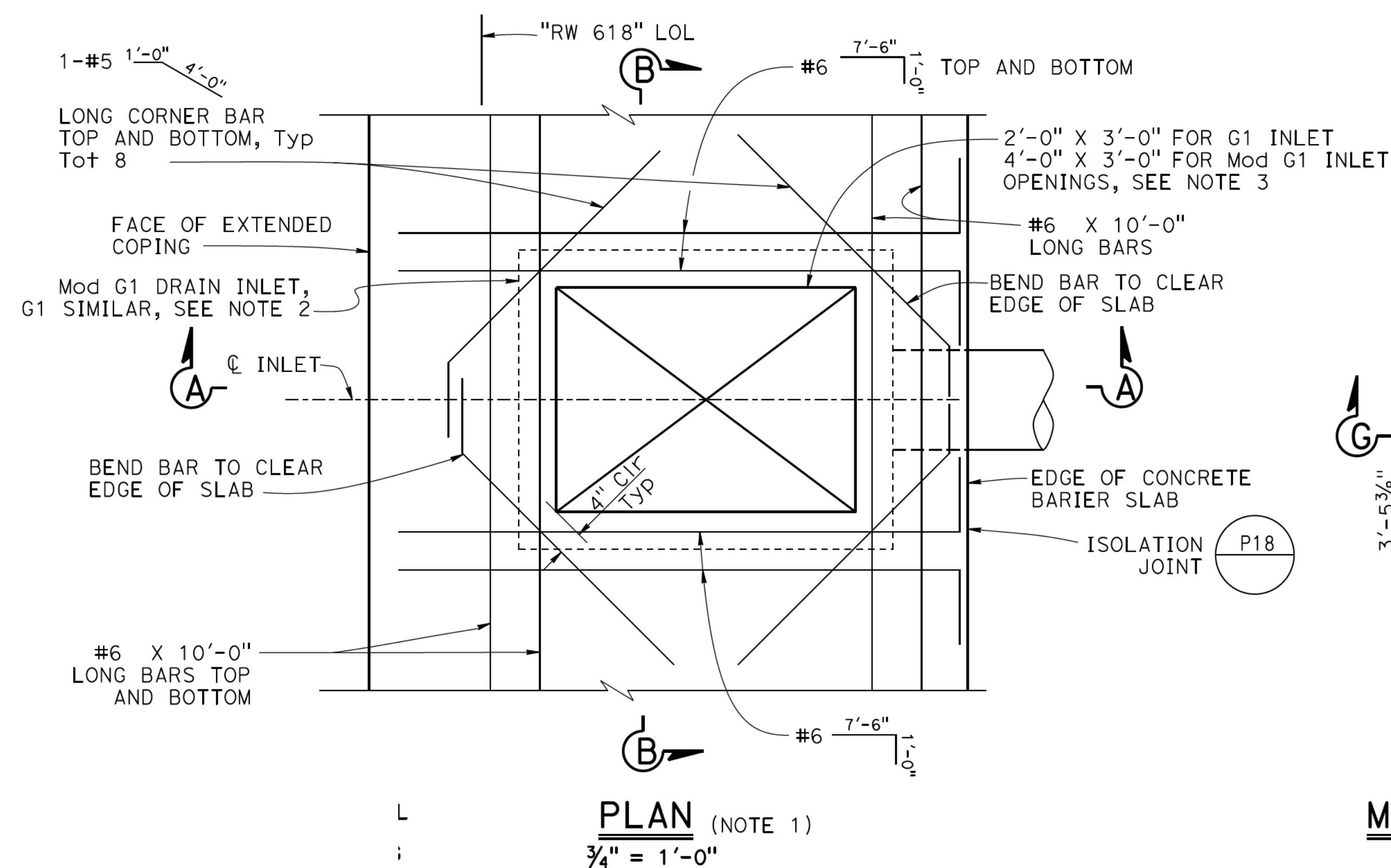
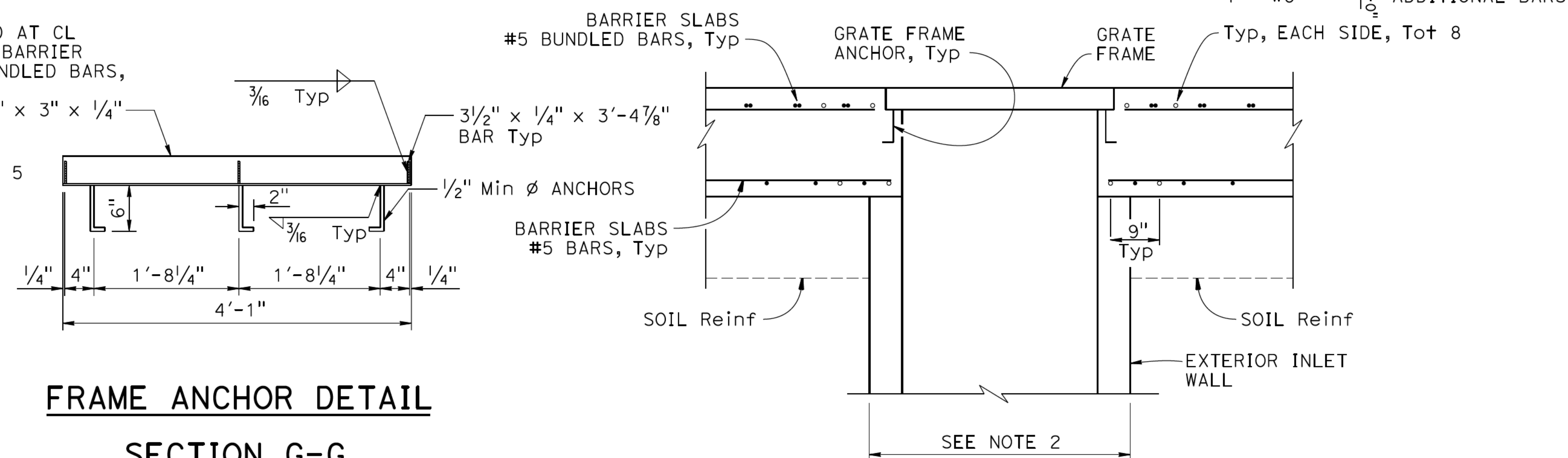
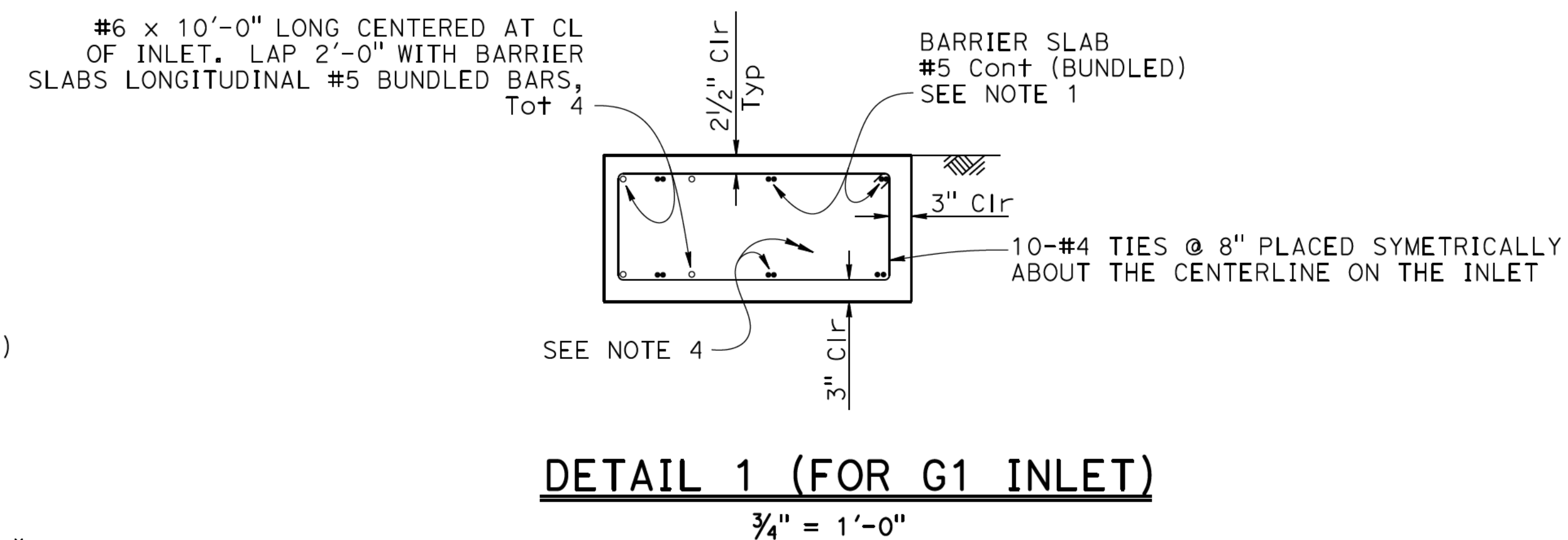
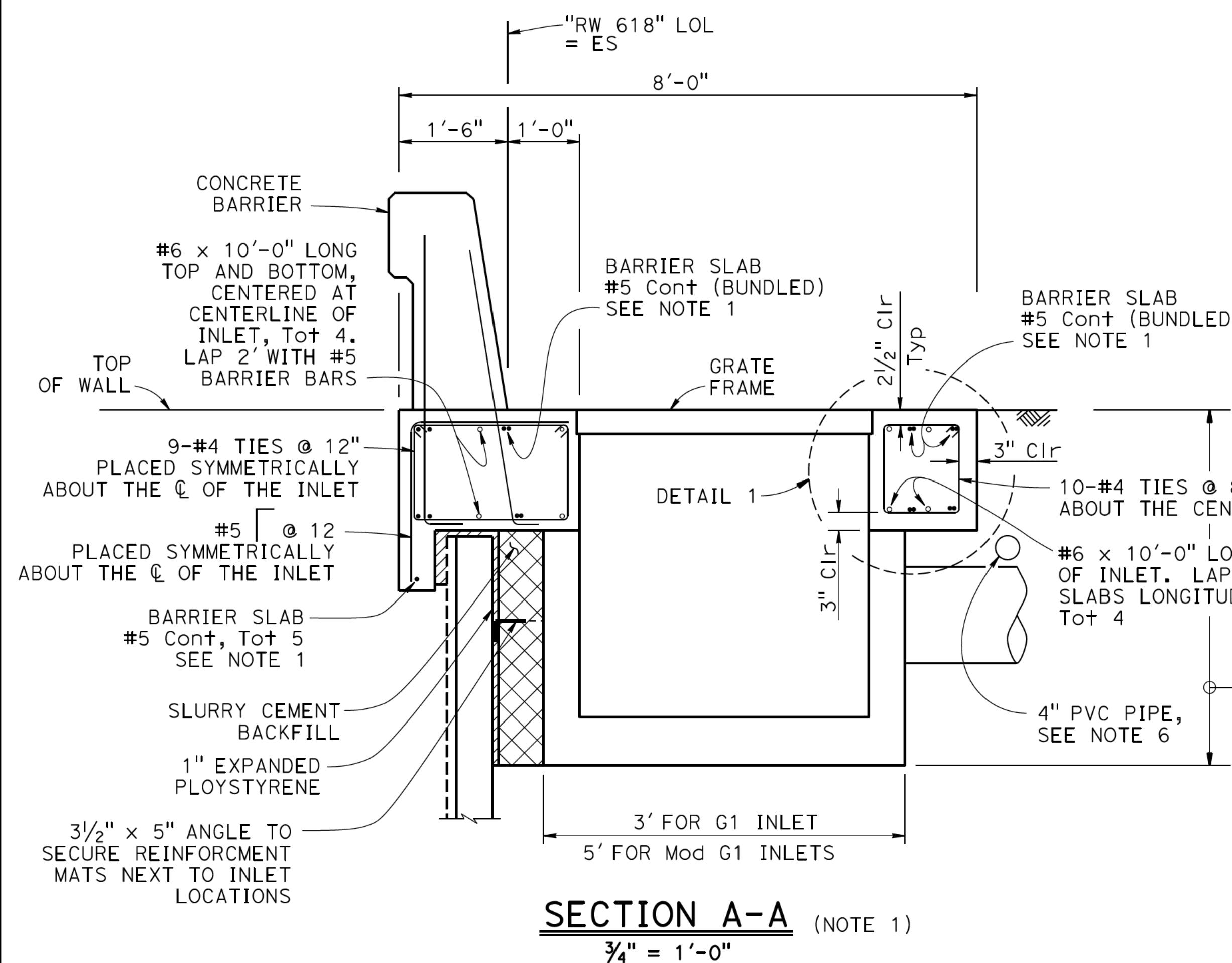
NOTES:

- (A) 2" Min Expanded Polystyrene
 - (B) 1" Expanded Polystyrene on MSE and Concrete Stem Walls
1. For barrier reinforcement not shown, see "CONCRETE BARRIER TYPE 836" details sheets.
 2. No expansion joints in concrete barrier or barrier slab within wall limits.
 3. Dimension to bottom of barrier slab.
 4. If top of panel is not flat and has a lip, then place an additional 1" strip of 1" expanded polystyrene on the panel.
 5. Extend bottom longitudinal #5 bundled bars 2 ft beyond this section into "CONCRETE BARRIER SLAB AT LINE DRAIN" section shown on "DRAINAGE INLET DETAILS NO. 2" sheet.
 6. See "DRAINAGE INLET DETAILS NO. 1" and "DRAINAGE INLET DETAILS NO. 2" sheets for more details.
 7. All reinforcement shall be epoxy coated for Concrete Barrier Type 836 and barrier slab.
 8. For architectural treatment details, see "MISCELLANEOUS DETAILS NO. 2" sheet.
 9. For vent detail, see "MSE WALL PANEL DETAILS NO. 4" sheet.

LEGEND:

○ Indicates Bundled Bars



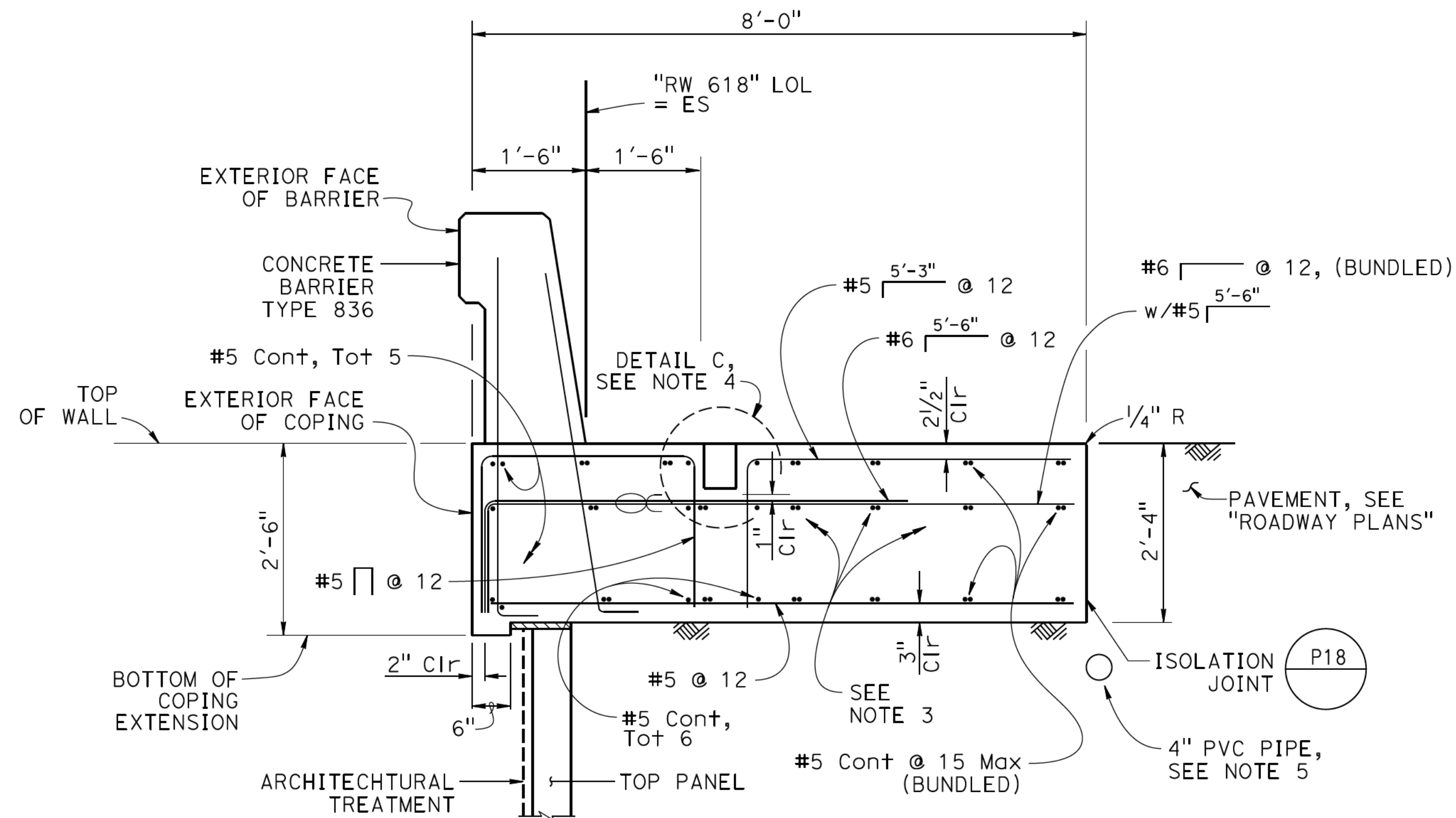


NOTES:

- For concrete barrier slab details, see "CONCRETE BARRIER SLAB DETAILS" sheet.
- For G1 and Mod G1 Inlet locations, dimensions and details, see "STRUCTURE PLAN NO. 2", "STRUCTURE PLAN NO. 3" and "ROADWAY PLANS" sheets.
- All reinforcement shall be epoxy coated for Concrete Barrier Type 836 and barrier slab.
- Extend bottom longitudinal #5 bundled bars 2 ft beyond this section into "CONCRETE BARRIER SLAB AT LINE DRAIN" section shown on "DRAINAGE INLET DETAILS NO. 2" sheet.
- For depth of drain inlet and its outlet, see "ROADWAY PLANS".
- See details on "MSE WALL PANEL DETAILS NO. 4" sheet.
- G1 and Mod G1 inlets, grate frame, and slurry cement backfill are District items. See "ROADWAY PLANS".

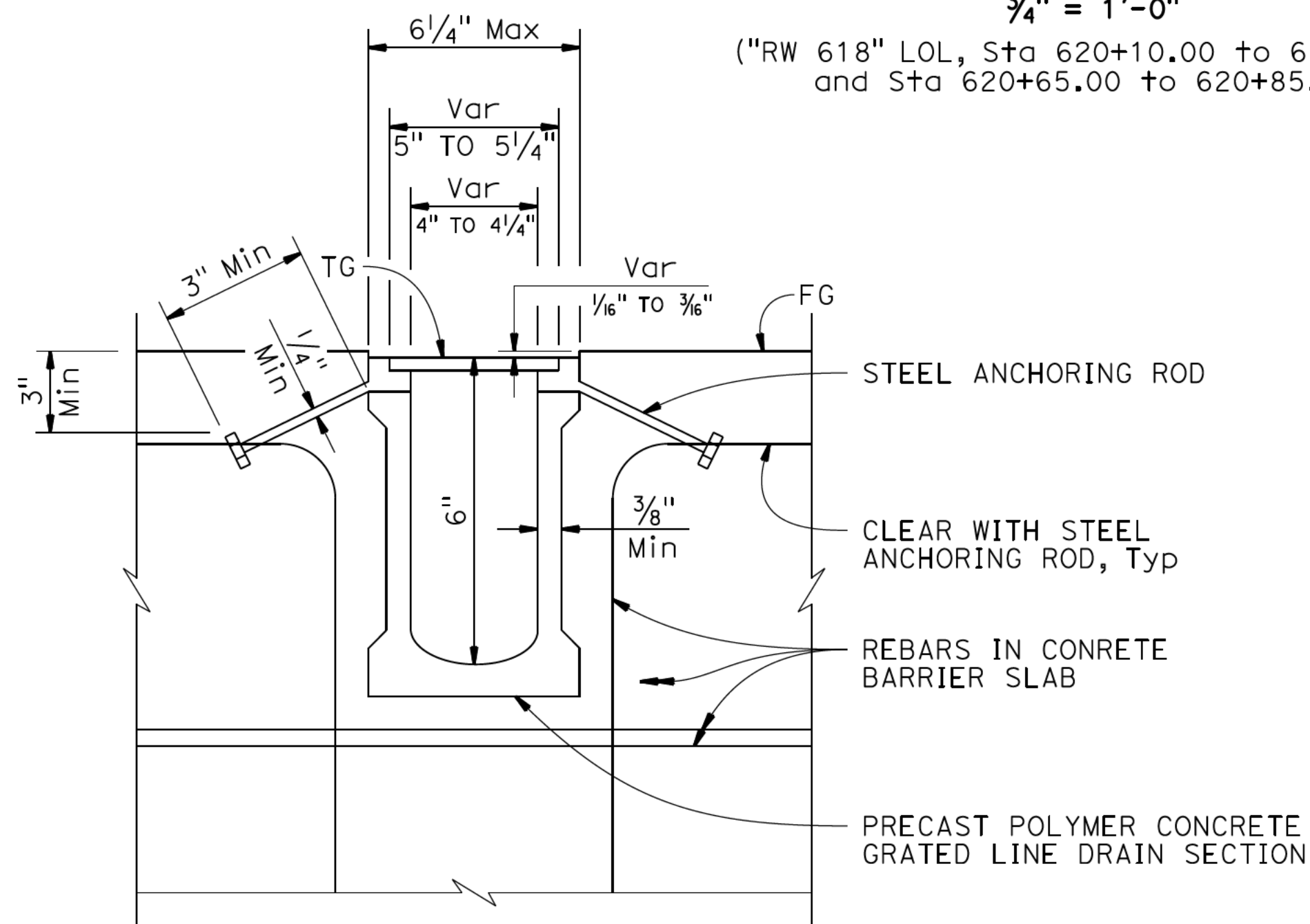
LEGEND:

- Additional bar
- Bundled bar

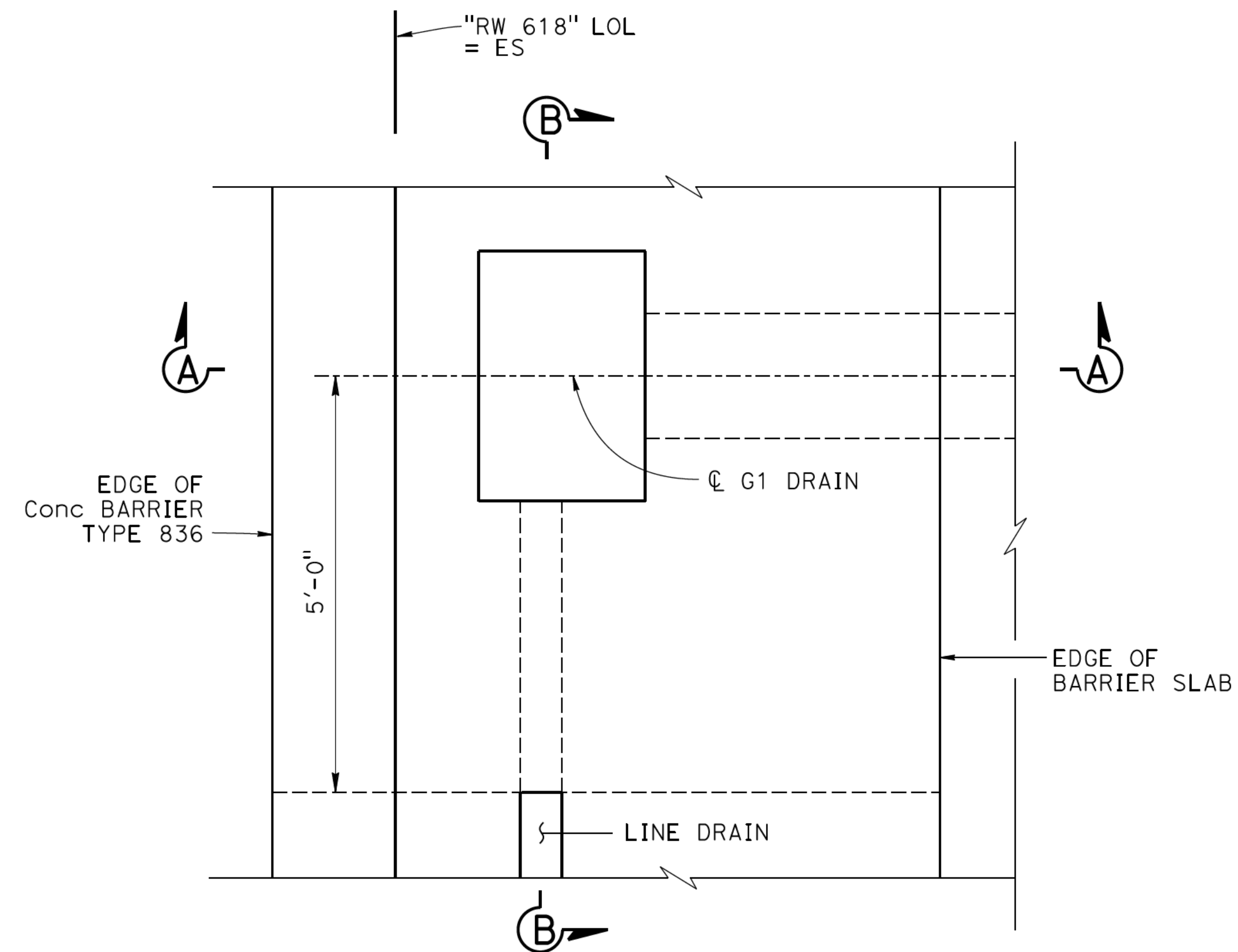


CONCRETE BARRIER SLAB AT LINE DRAIN

$\frac{3}{4}" = 1'-0"$
("RW 618" LOL, Sta 620+10.00 to 620+45.00
and Sta 620+65.00 to 620+85.00)

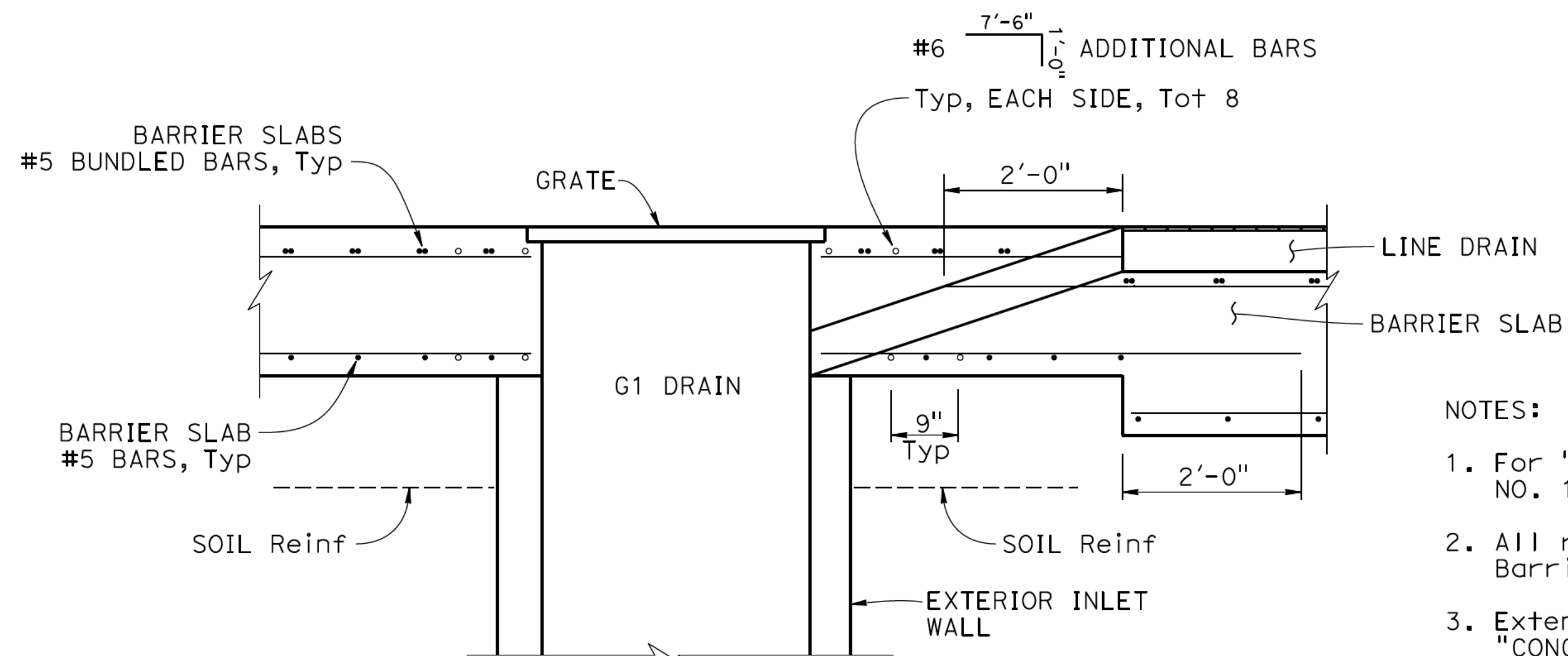


DETAIL C
NO SCALE



LINE DRAIN CONNECTION WITH G1 DRAIN

$\frac{3}{4}" = 1'-0"$

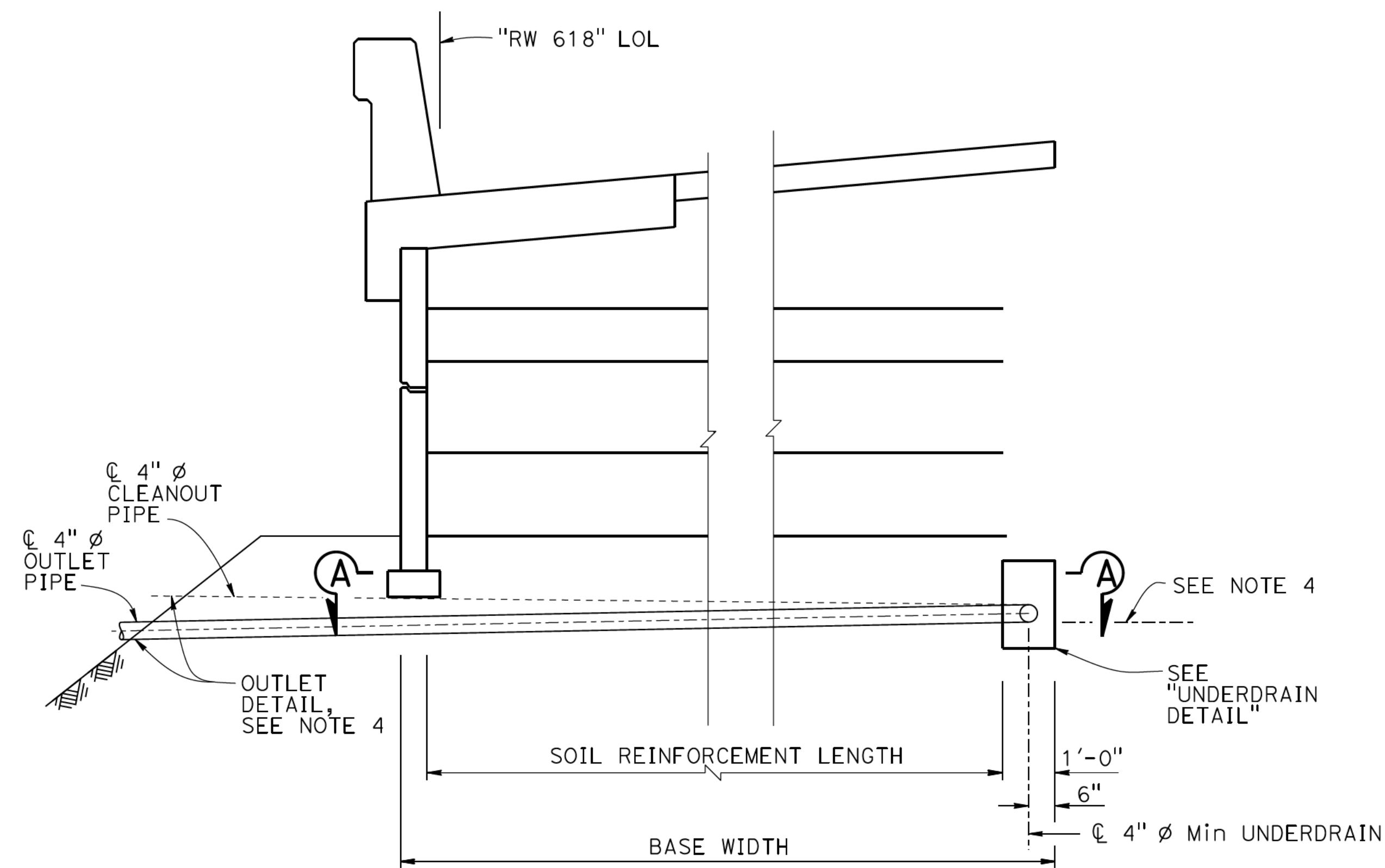


SECTION B-B

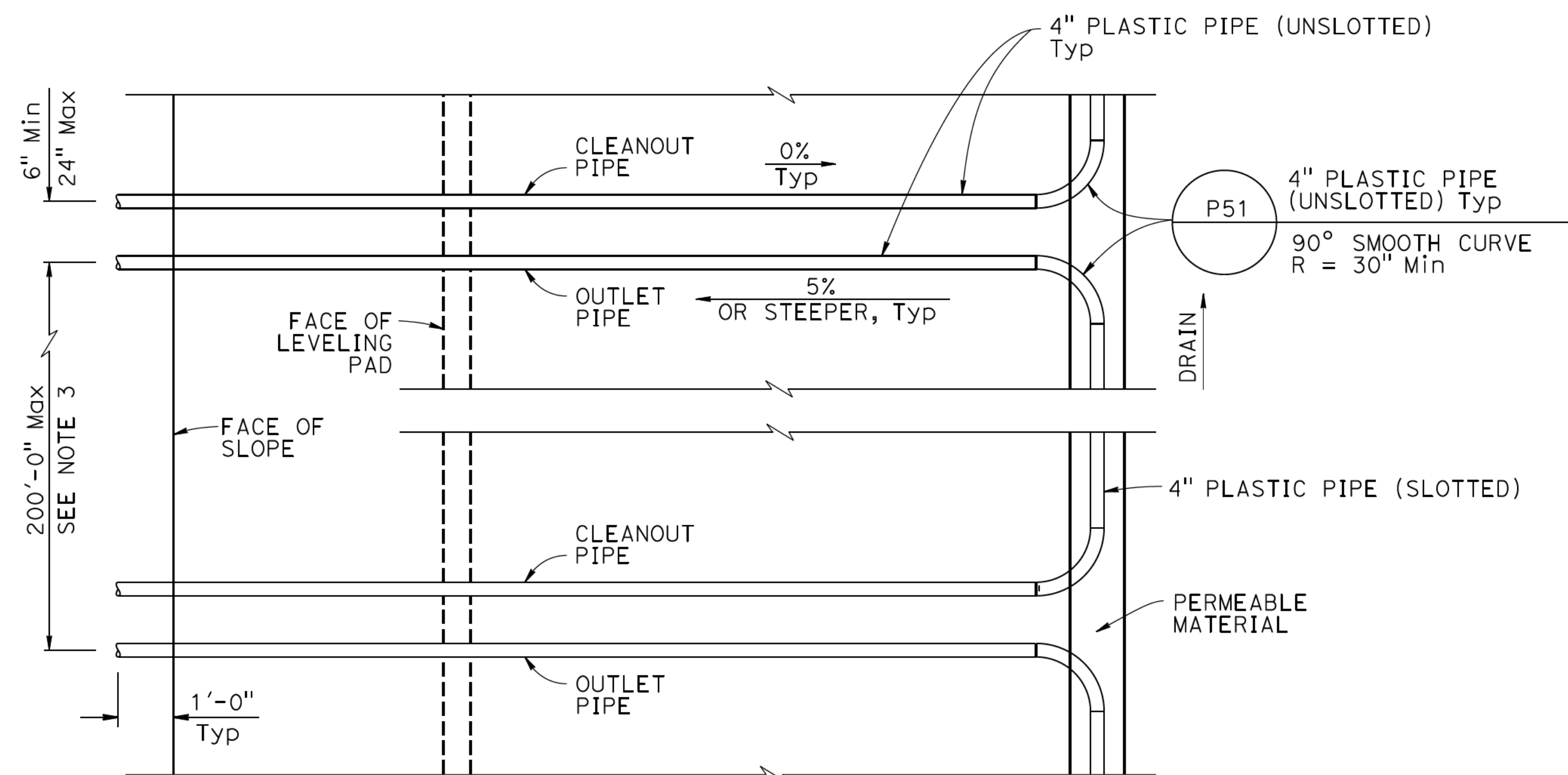
$\frac{3}{4}" = 1'-0"$

NOTES:

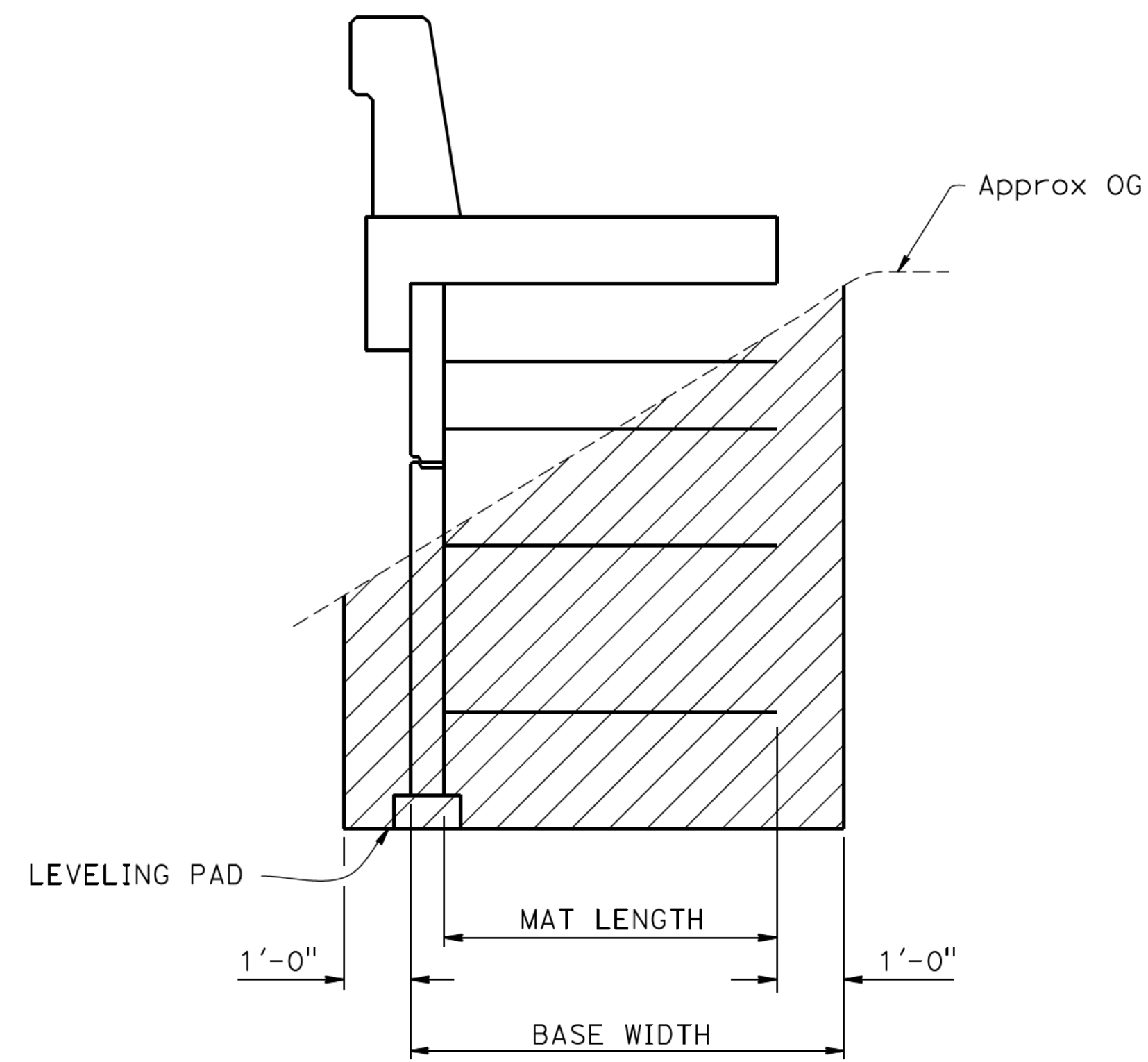
1. For "SECTION A-A", see "DRAINAGE INLET DETAILS NO. 1" sheet.
2. All reinforcement shall be epoxy coated for Concrete Barrier Type 836 and barrier slab.
3. Extend #5 bundled bars 2 ft beyond this section into "CONCRETE BARRIER SLAB" section shown on "CONCRETE BARRIER SLAB DETAILS" sheet.
4. For locations of grated line drain, see "ROADWAY PLANS". For additional details, see RSP D98G sheet.
5. For 4" PVC pipe details, see "MSE WALL PANEL DETAILS NO. 4" sheet.



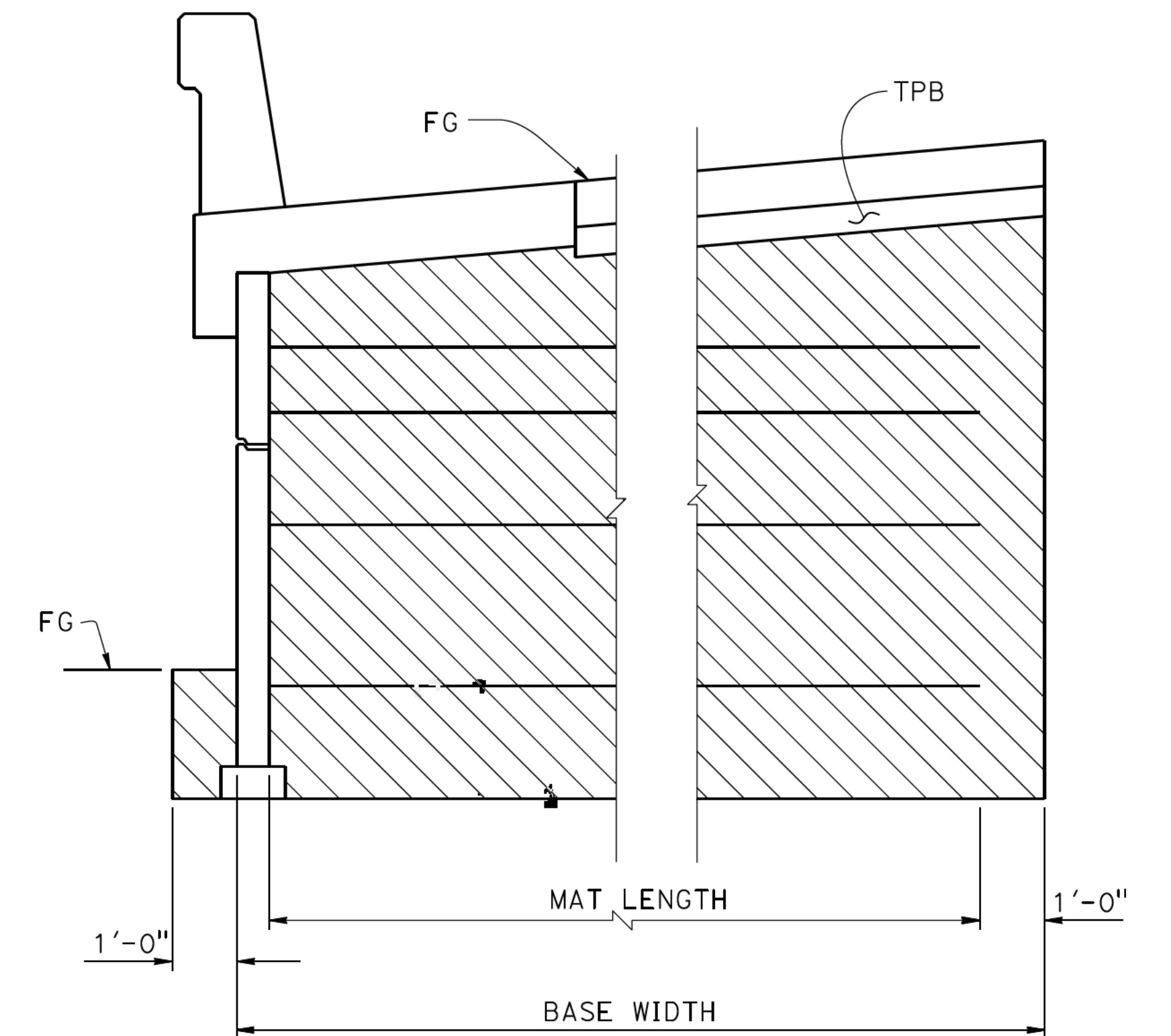
ROADWAY SECTION
NO SCALE



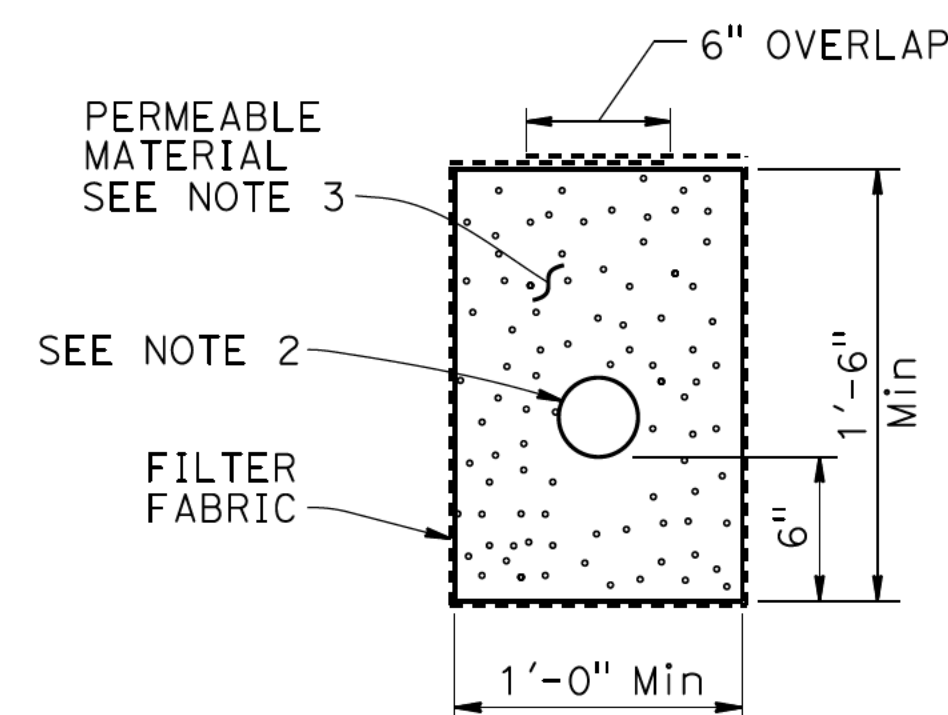
SECTION A-A
NO SCALE



LIMITS OF STRUCTURE EXCAVATION
NO SCALE



LIMITS OF STRUCTURE BACKFILL
NO SCALE



UNDERDRAIN DETAIL
NO SCALE

NOTES:

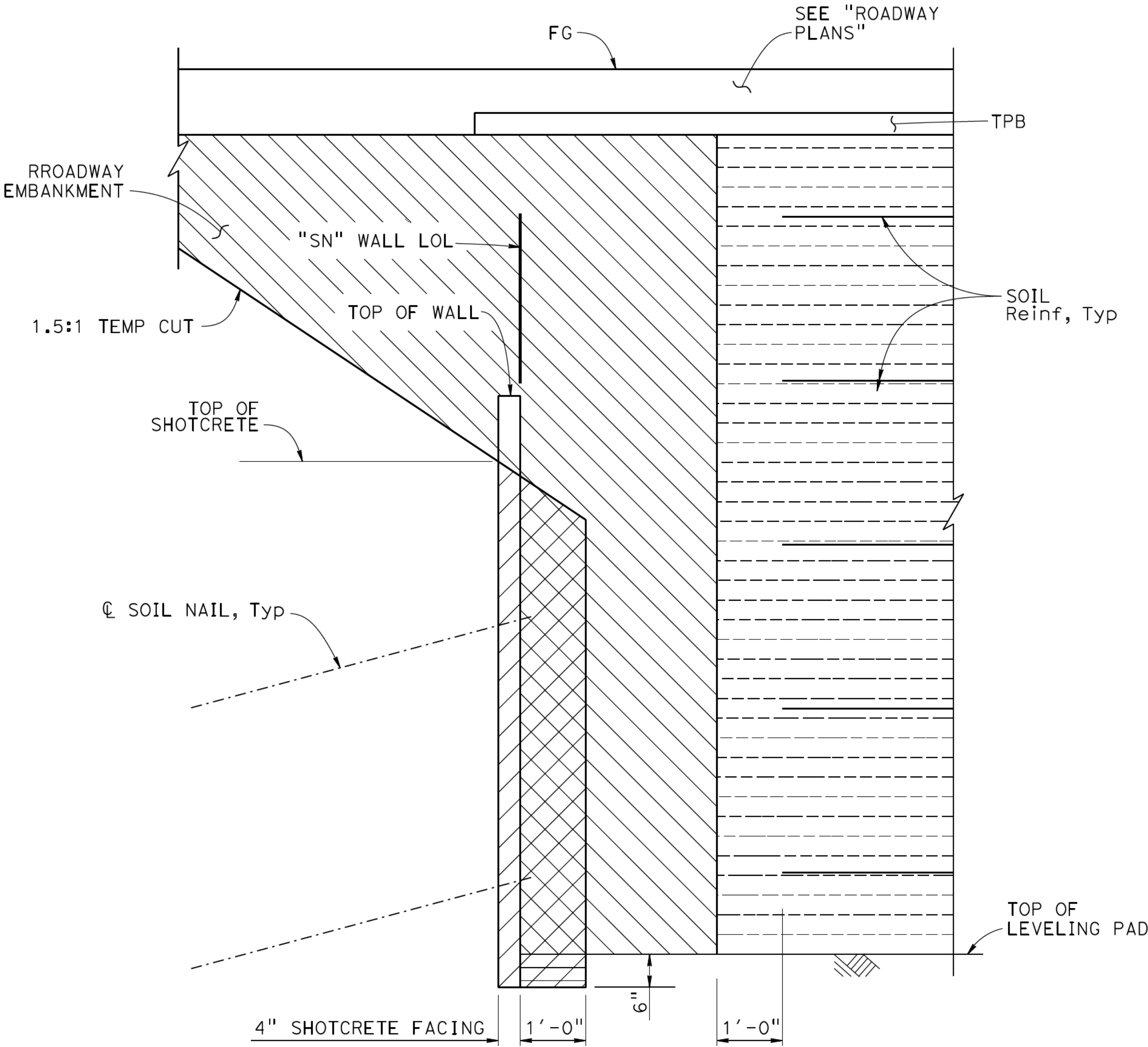
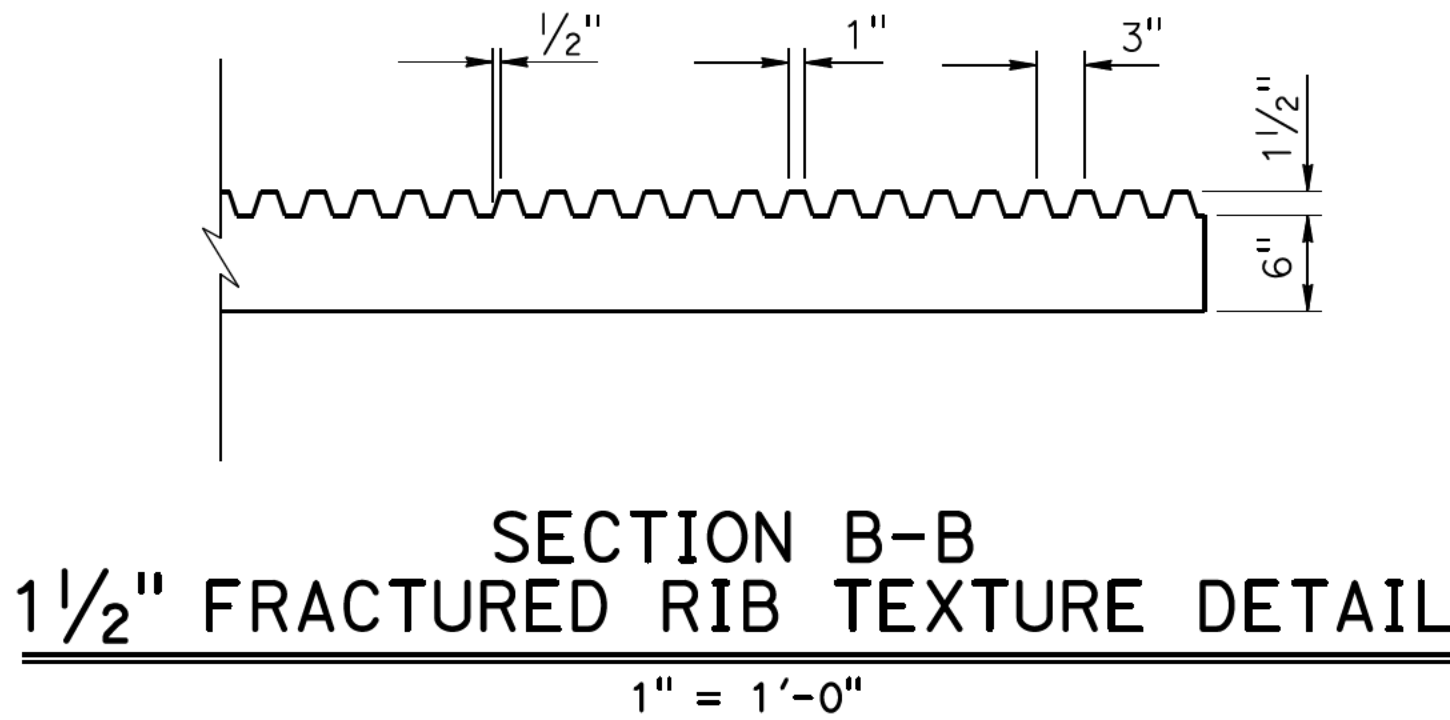
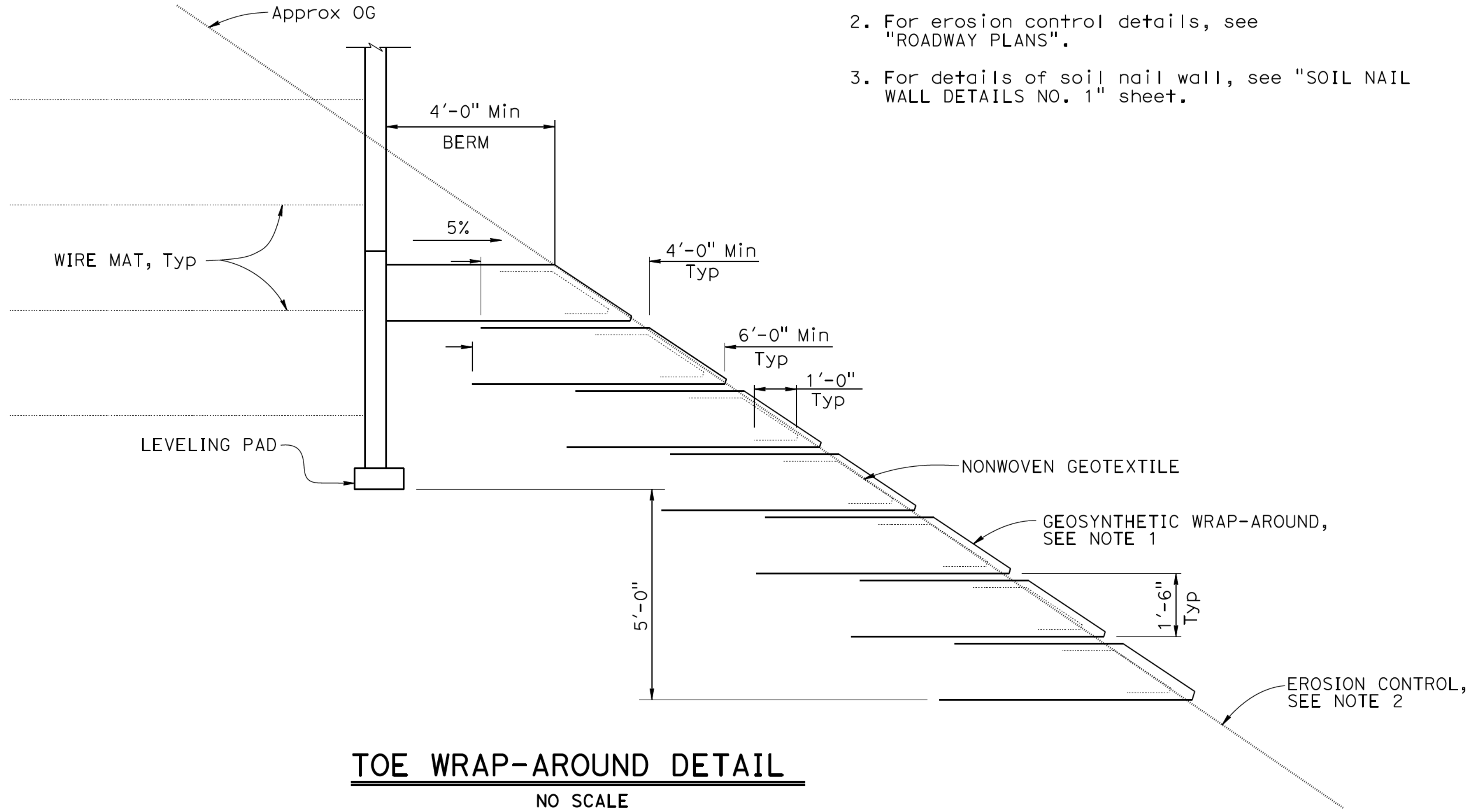
1. For locations of outlet and clean out pipes, see "STRUCTURE PLAN" sheets.
2. 4" $\emptyset$ slotted smoothed wall PVC pipe.
3. Maximum spacing of outlet pipe is 200 feet.
4. Locate underdrain behind and below bottom level of reinforcement straps.

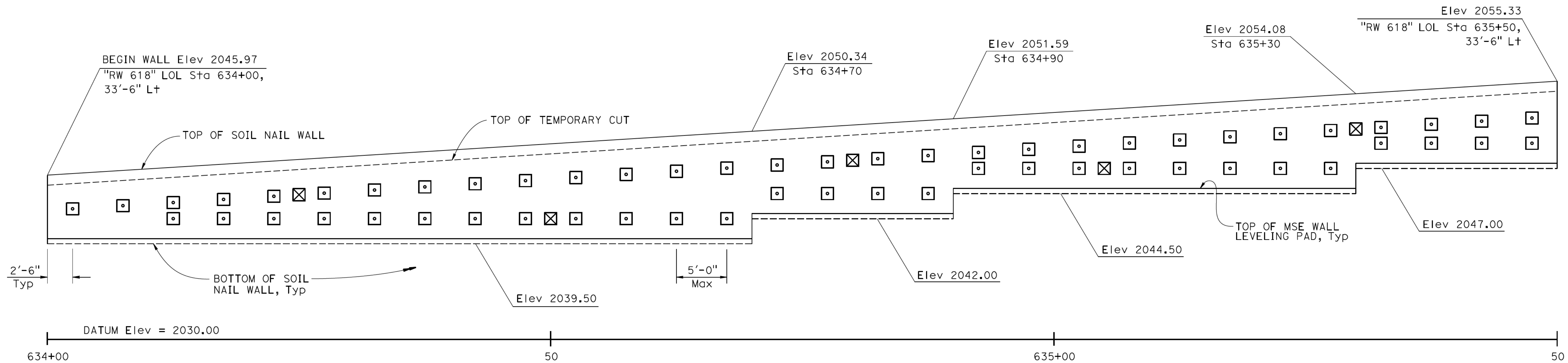
LEGEND:

-  Limits of Structure Excavation
-  Limits of Structure Backfill

- NOTES:
- 1. Long term Design strength (LTDS) of Geosynthetic Wrap-Around shall be 400 lbs/ft. For Geosynthetic Wrap-Around quantity, see "ROADWAY PLANS".
 - 2. For erosion control details, see "ROADWAY PLANS".
 - 3. For details of soil nail wall, see "SOIL NAIL WALL DETAILS NO. 1" sheet.

- LEGEND:
- Structure excavation (soil nail wall)
 - Structure backfill (soil nail wall)
 - Structure backfill (MSE wall)
 - Roadway Embankment, see "ROADWAY PLANS"





DEVELOPED ELEVATION

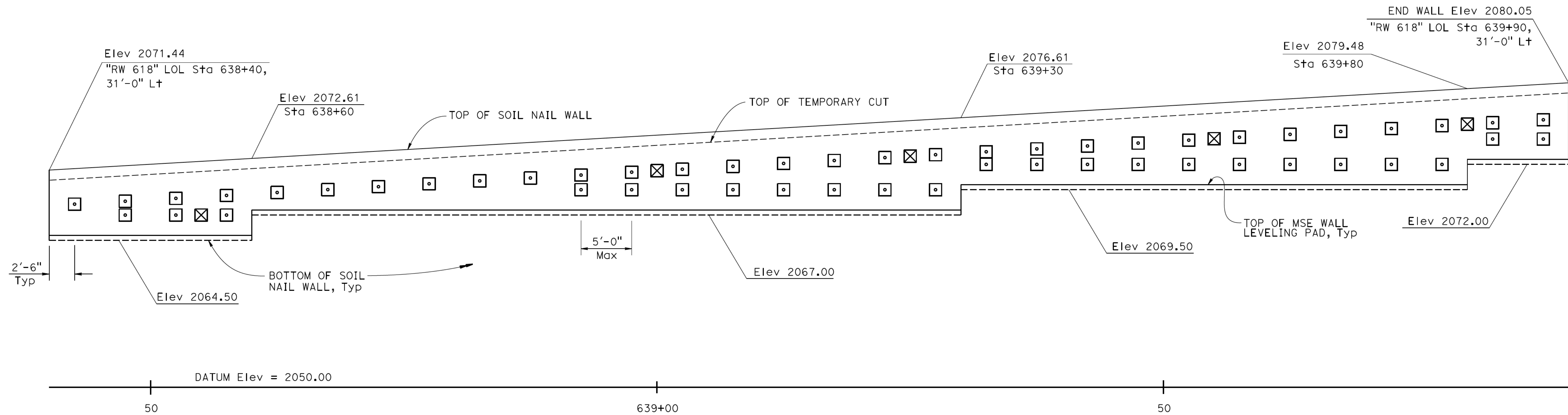
1" = 5'

NOTES:

1. Stations are "RW 618" LOL stations.
2. Bottom of soil nail wall is 6" below bottom of MSE wall, (Top of MSE Wall leveling pad).
3. Vertical spacing of soil nails shall be no more than 5'-0" and no less than 2'-0".

LEGEND:

-  Soil nail
-  Proof test nail or as directed by the engineer.



DEVELOPED ELEVATION

1" = 5'

NOTES:

1. Stations are "RW 618" LOL stations.
2. Bottom of soil nail wall is 6" below bottom of MSE wall, (Top of MSE Wall leveling pad).
3. Vertical spacing of soil nails shall be no more than 5'-0" and no less than 2'-0".

LEGEND:

- Soil nail
- ⊗ Proof test nail or as directed by the engineer.

NOTES:

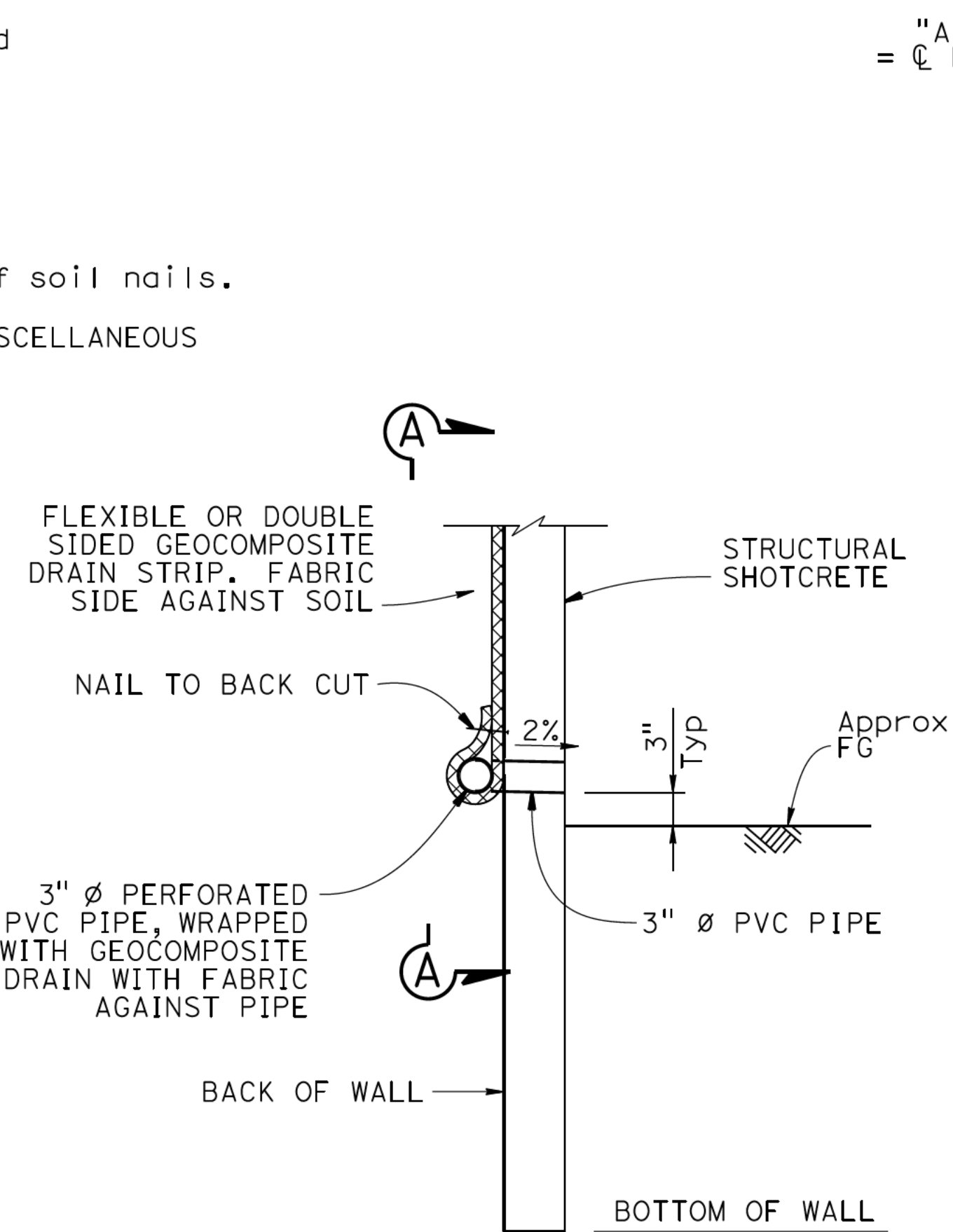
1. Wall height is the vertical distance from the top of shotcrete to the bottom of the wall.
2. Inclination angle of nails is 15 degrees measured from horizontal.
3. First row of the nails is placed 2'-6" below the top of shotcrete, and nail spacing needs to be adjusted in area with geometric constraints.
4. Q_0 = Design pullout resistance.
5. The nail length shall be at least 12'-0" up to wall height = 10ft and 18'-0" up to wall height = 16 ft.
6. For soil nail locations, see "SOIL NAIL ELEVATION" sheets.
7. A = 33'-6" for "RW 618 LOL, Sta 634+00 to 635+50.
A = 31'-0" for "RW 618 LOL, Sta 638+40 to 639+90.
8. Geocomposite drains at 5'-0" Max spacing, centered between columns of soil nails.
9. For limits of payment for structure excavation and backfill, see "MISCELLANEOUS DETAILS NO. 2" sheet.

GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN

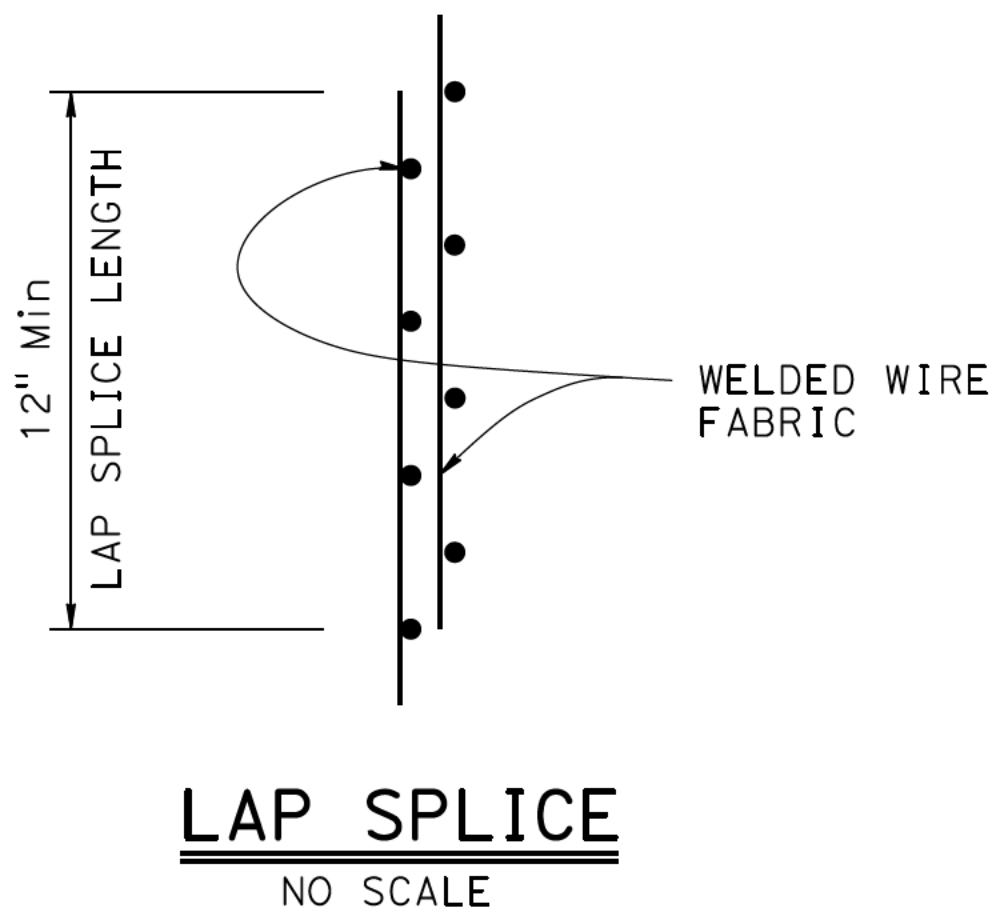
- DESIGN:**
AASHTO LRFD Bridge Design Specifications, 2012 (6th Edition) with California Amendments, preface dated January 2014
- LOADING:**
1.5:1 inclined ground
- SOIL PARAMETERS:**
 ϕ = Longterm drained friction angle 33°
 γ = Unit weight of soil 120 lb/ft³
- REINFORCED CONCRETE AND SHOTCRETE:**
ASTM A706
 f_y = 60,000 psi (Yield strength of reinforcement)
 f'_c = 3,600 psi (minimum concrete strength at 28 days)
- STRUCTURAL STEEL:**
ASTM A36
 f_y = 36,000 psi
- SOIL NAIL:**
ASTM A615 / A615m
Grade 75, f_y = 75,000 psi

SOIL NAIL WALL DESIGN TABLE

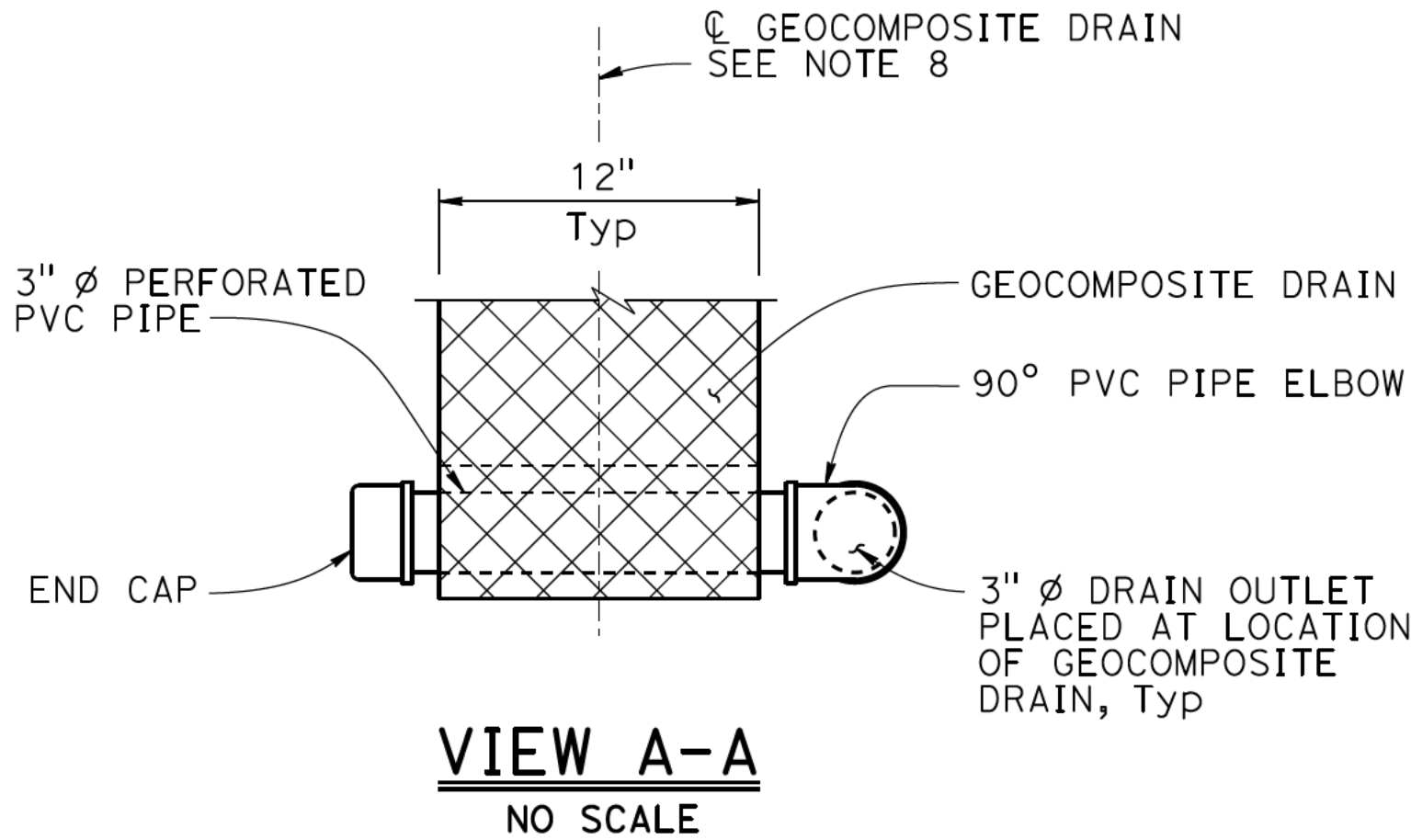
ZONE	"RW 618" LOL STATION	WALL HEIGHT (H)	MINIMUM NAIL LENGTH (LE)	MAXIMUM NAIL SPACING VERTICAL	MAXIMUM NAIL SPACING HORIZONTAL	Q_0 (lbs/ft)
1	634+00 to 635+50 638+40 to 639+90	5' to 10'	See Note 5	5'-0"	5'-0"	2720



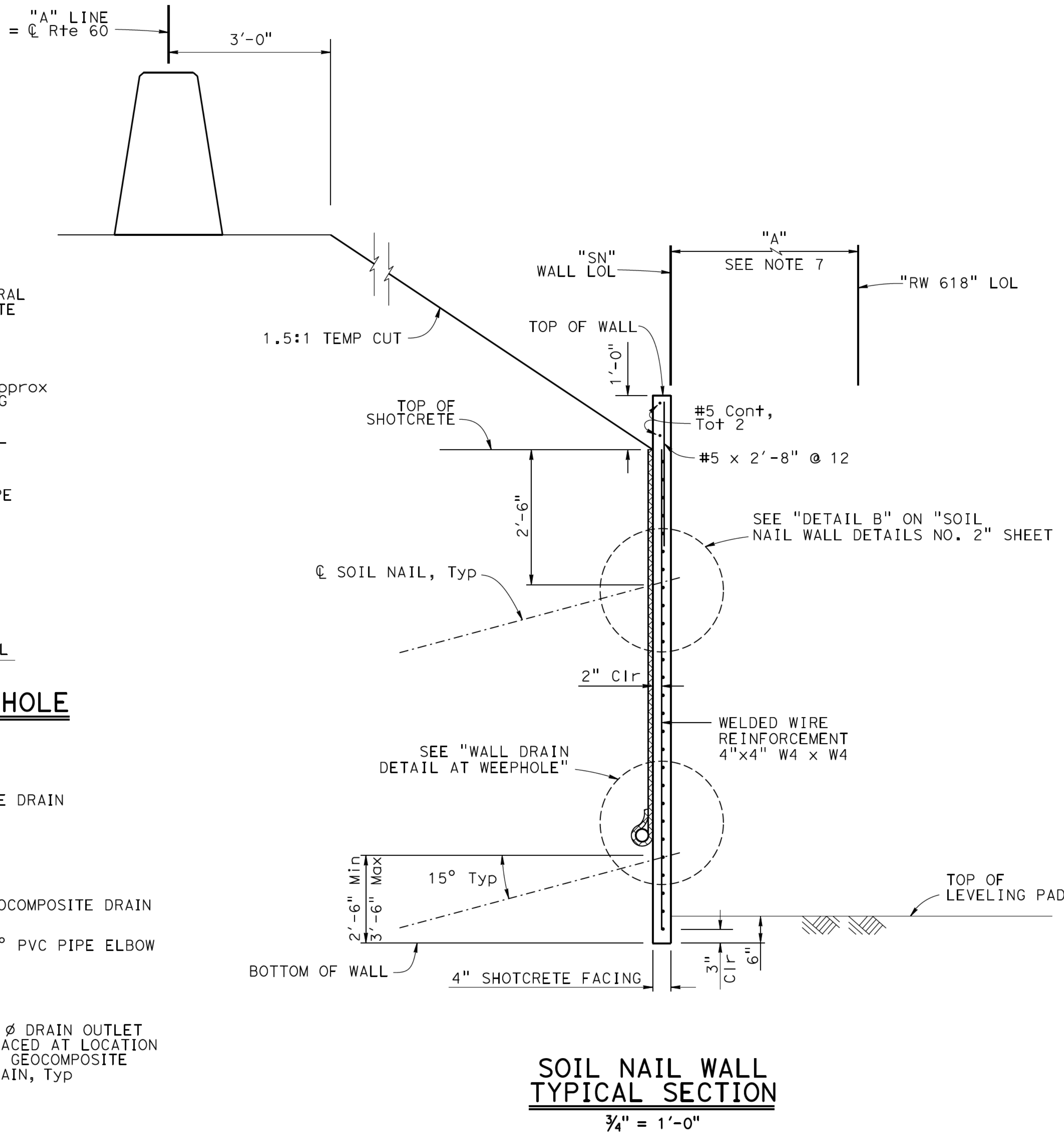
WALL DRAIN DETAIL AT WEEPHOLE
NO SCALE



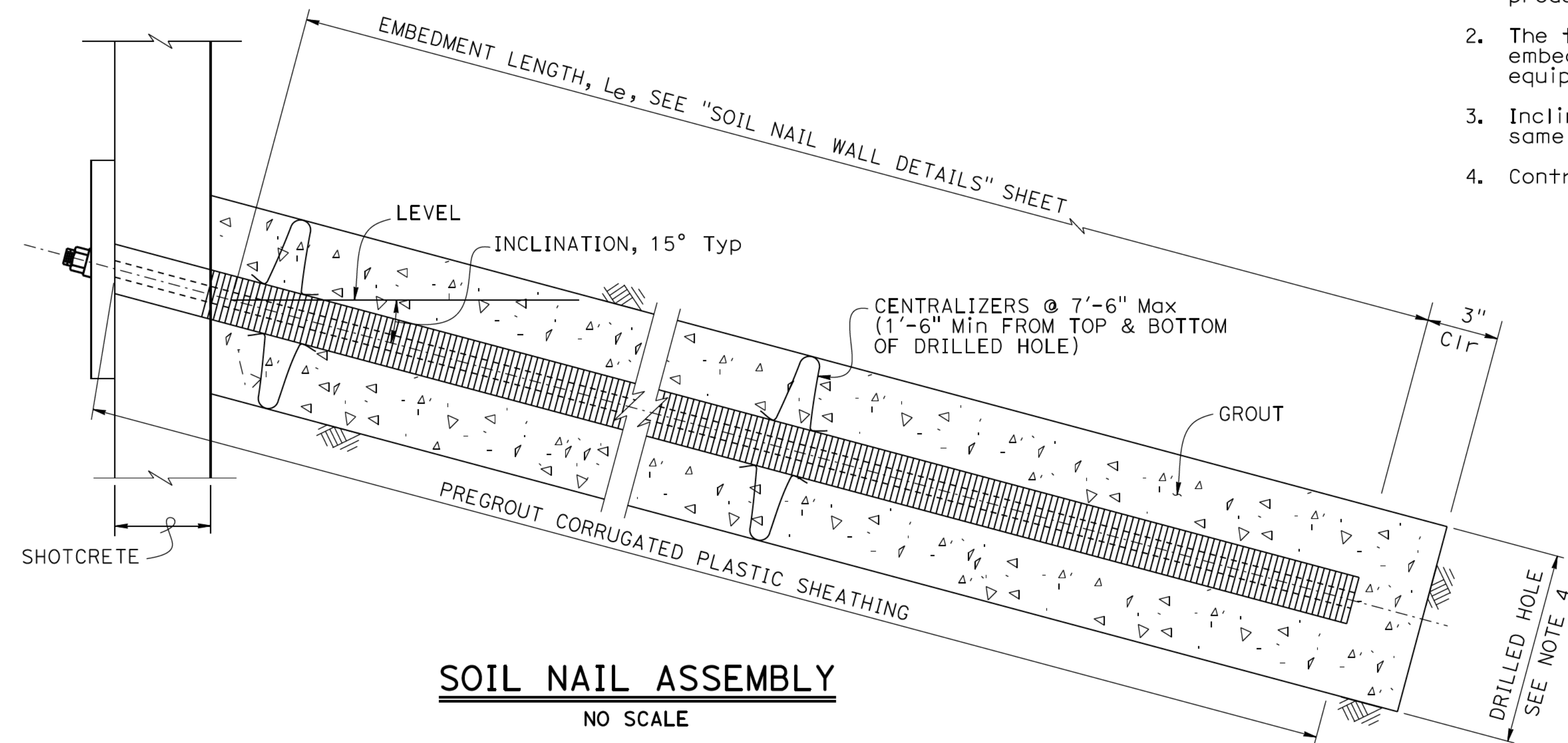
LAP SPLICE
NO SCALE



VIEW A-A
NO SCALE

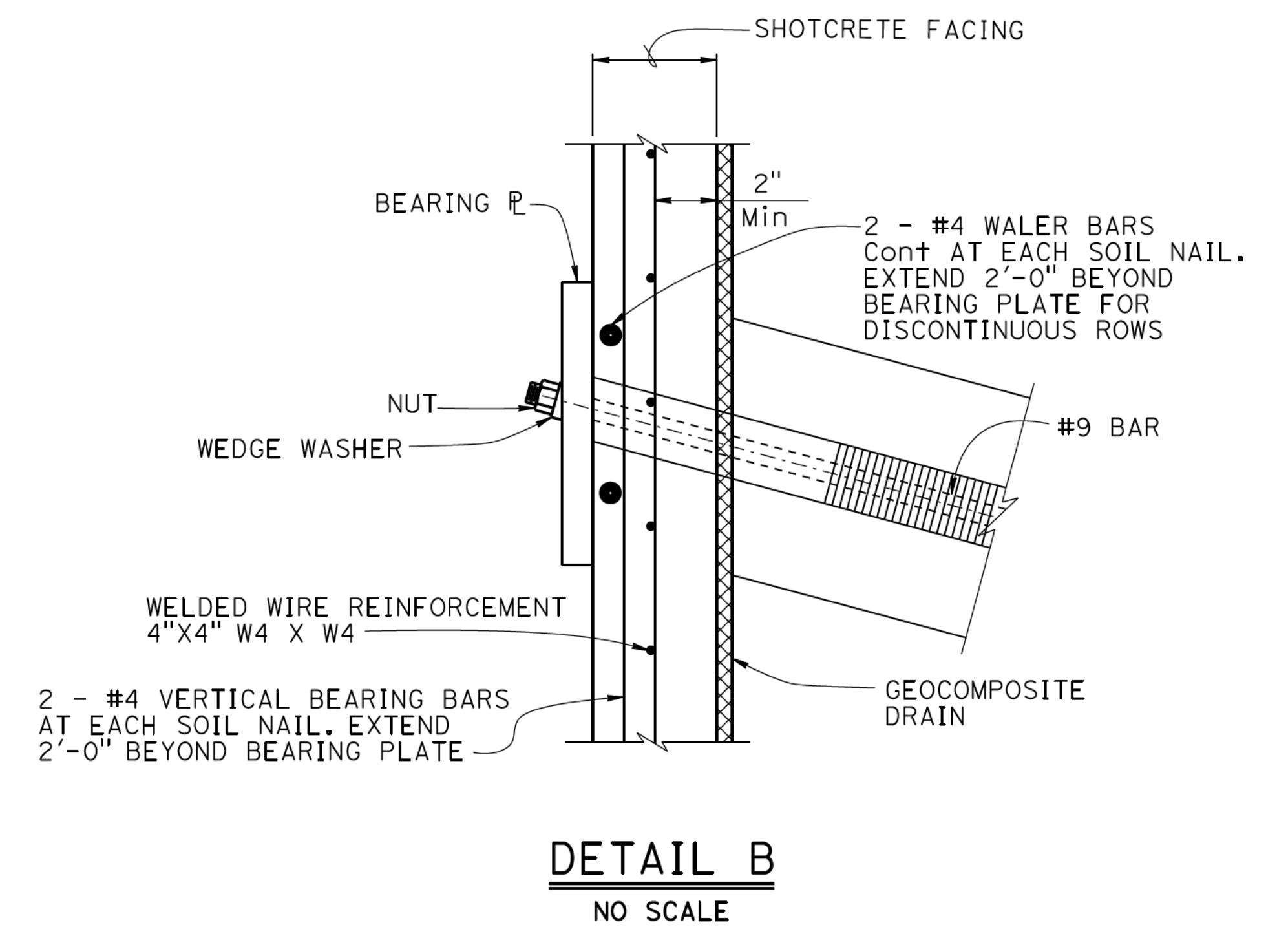
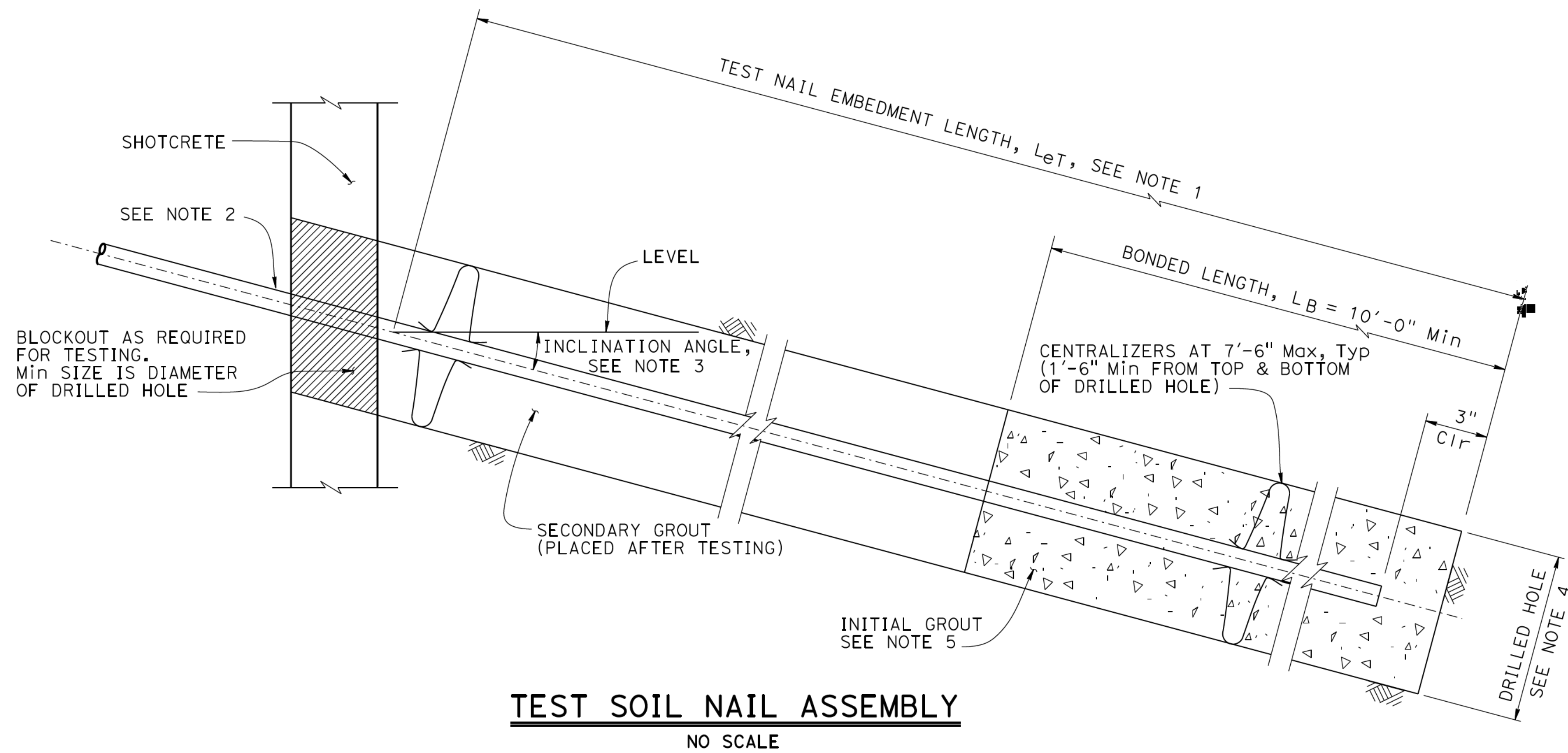
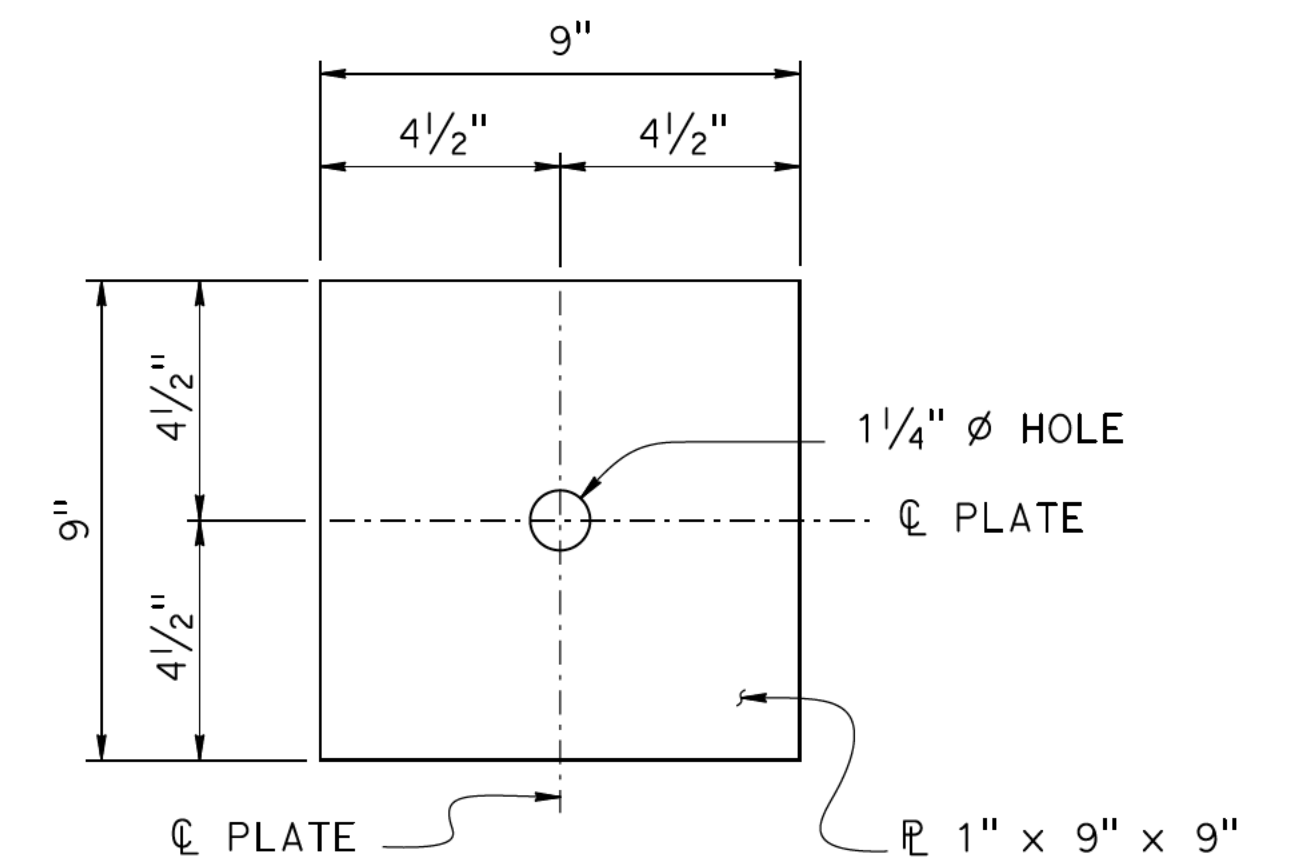


SOIL NAIL WALL
TYPICAL SECTION
3/4" = 1'-0"



NOTES:

1. The test nail embedment length, L_{eT} , shall be equal to 2/3 of the embedment length, L_e , of adjacent production soil nail assemblies, but not less than 12'-0".
2. The total length of the test nail assembly equals the embedment length plus the length required for jacking equipment.
3. Inclination of proof test soil nail assembly to be the same as adjacent soil nail assembly.
4. Contractor to determine drilled hole diameter.



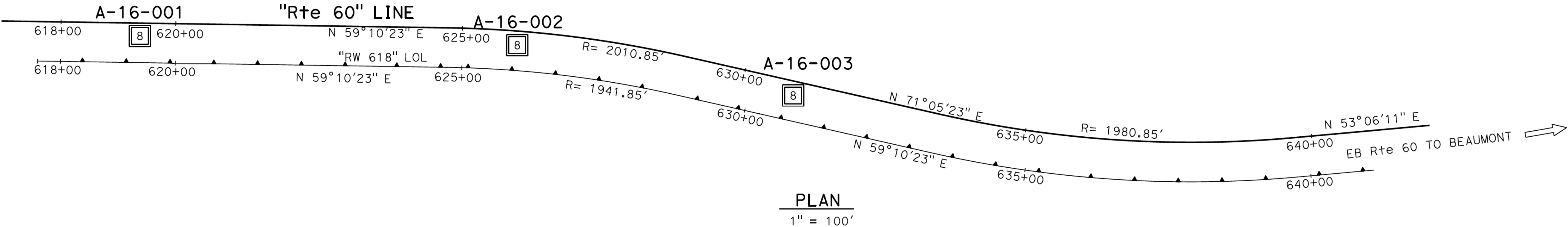
BENCH MARK

TBM238:
Set 1" iron pipe open
40.76' Rt Sta 619+36.04
N 2,286,076.54
E 6,304,689.39
Elev 2006.67
Vert Datum; NAVD 88
Horiz Datum; NAD 83

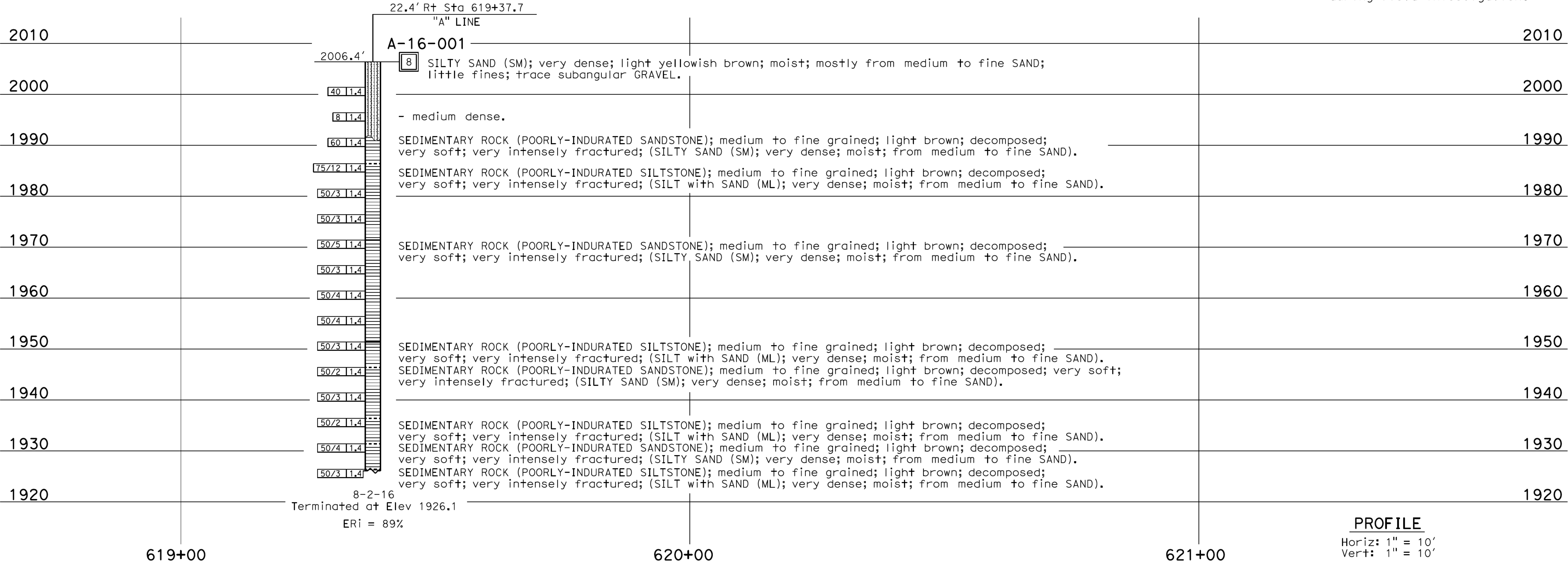
TBM239:
Set 1" iron pipe open
33.74' Rt Sta 625+91.39
N 2,286,408.05
E 6,305,258.34
Elev 2018.49
Vert Datum; NAVD 88
Horiz Datum; NAD 83

TBM241:
Set 1" iron pipe open
33.17' Rt Sta 630+88.07
N 2,286,585.89
E 6,305,713.46
Elev 2047.35
Vert Datum; NAVD 88
Horiz Datum; NAD 83

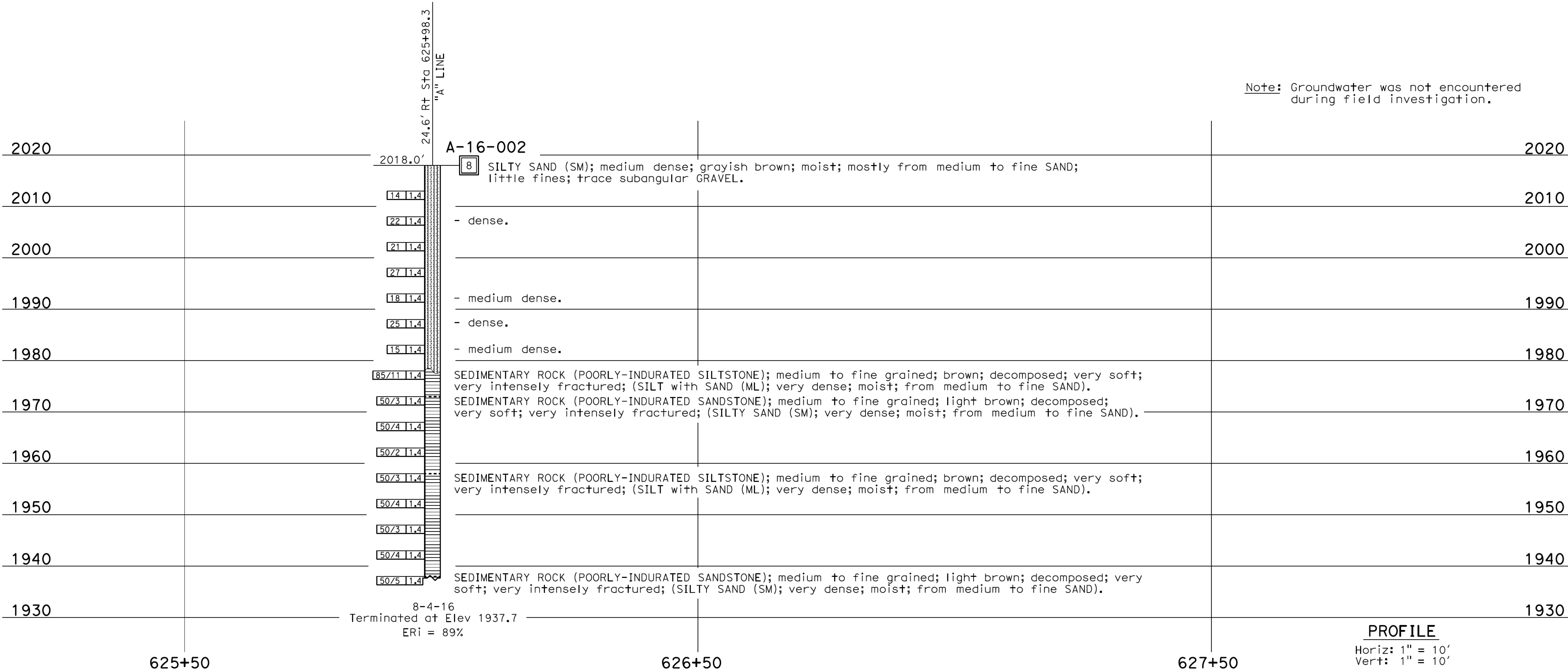
WB Rte 60 TO LOS ANGELES



Note: Groundwater was not encountered during field investigation.



FOR PLAN VIEW, SEE
"LOG OF TEST BORINGS 1 OF 3"



FOR PLAN VIEW, SEE
"LOG OF TEST BORINGS 1 OF 3"

Note: Groundwater was not encountered during field investigation.

