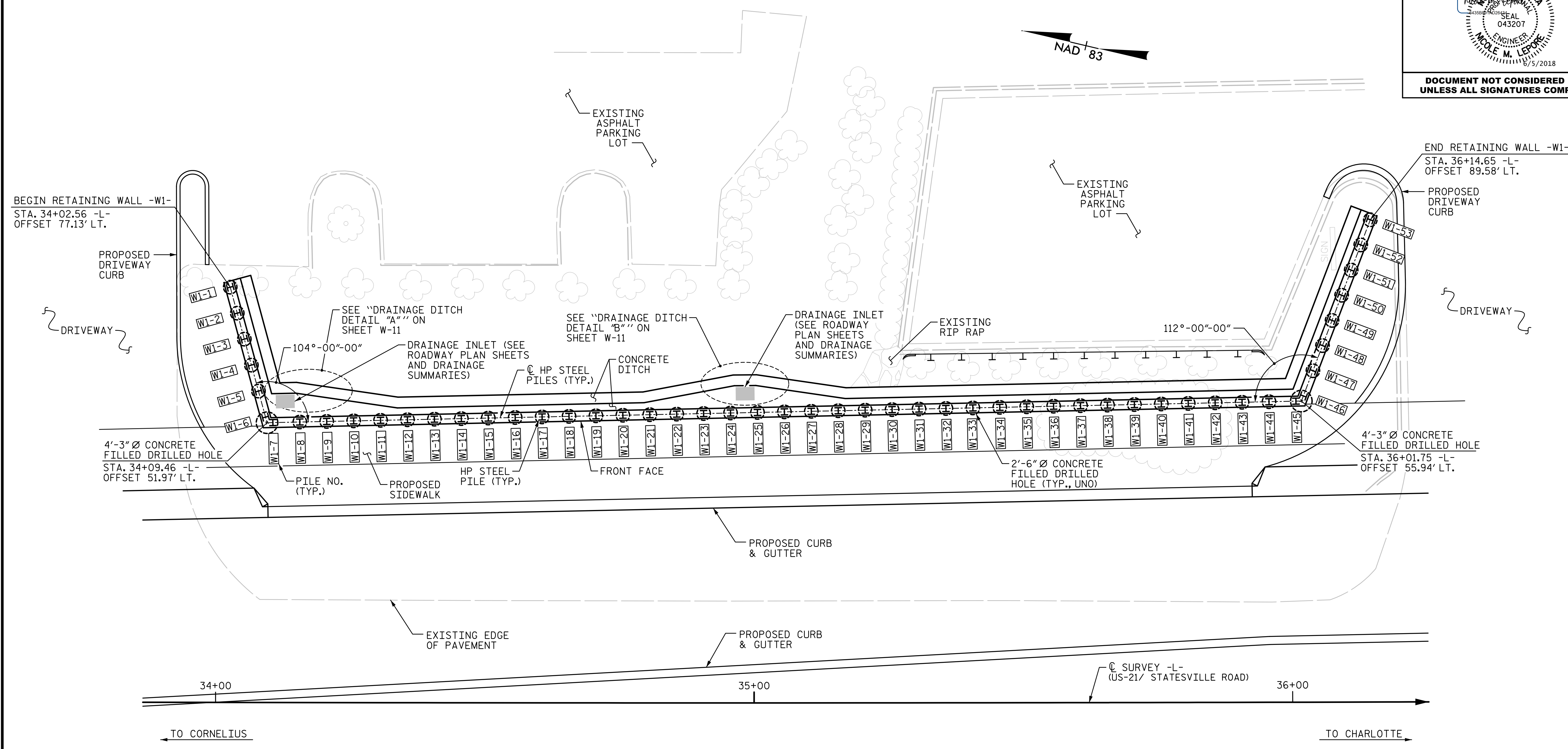


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RETAINING WALL -W1- PLAN

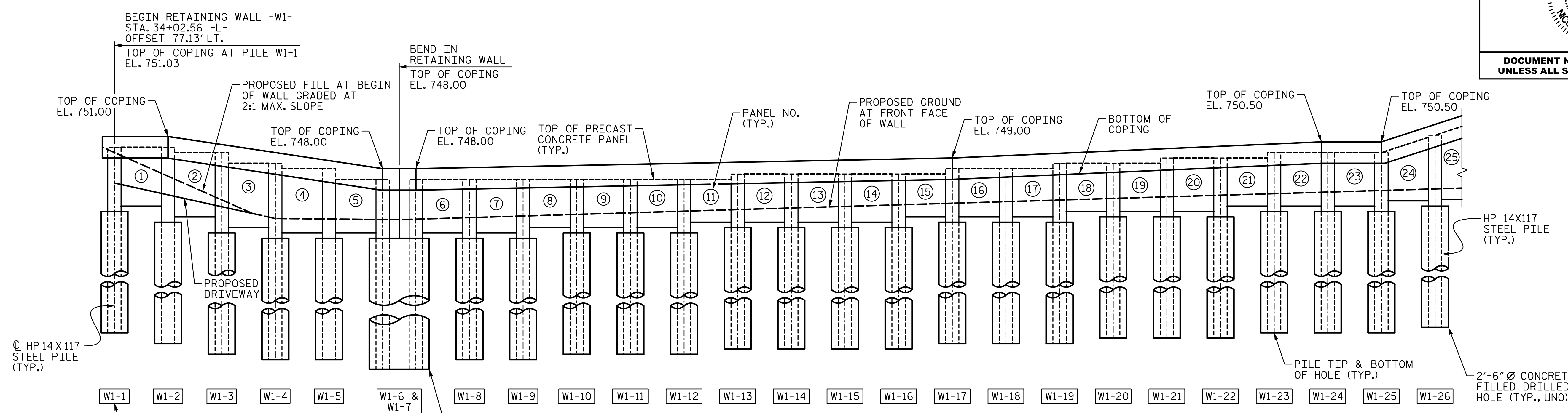
FOR PILE STATIONS, OFFSETS, AND ELEVATIONS, SEE "PILE INFORMATION" TABLE ON SHEET W-3. FENCE NOT SHOWN FOR CLARITY.

NOTES:

- SEE ROADWAY PLAN & PROFILE FOR HORIZONTAL AND VERTICAL CURVE INFORMATION.
- THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION OF RETAINING WALL.
- FENCE SHALL BE PROVIDED ALONG TOP OF WALL COPING PER NCDOT STANDARD DRAWING 866.01. FOR FENCE ATTACHMENT DETAILS SEE SHEET W-11.
- U.N.O.: UNLESS OTHERWISE NOTED.

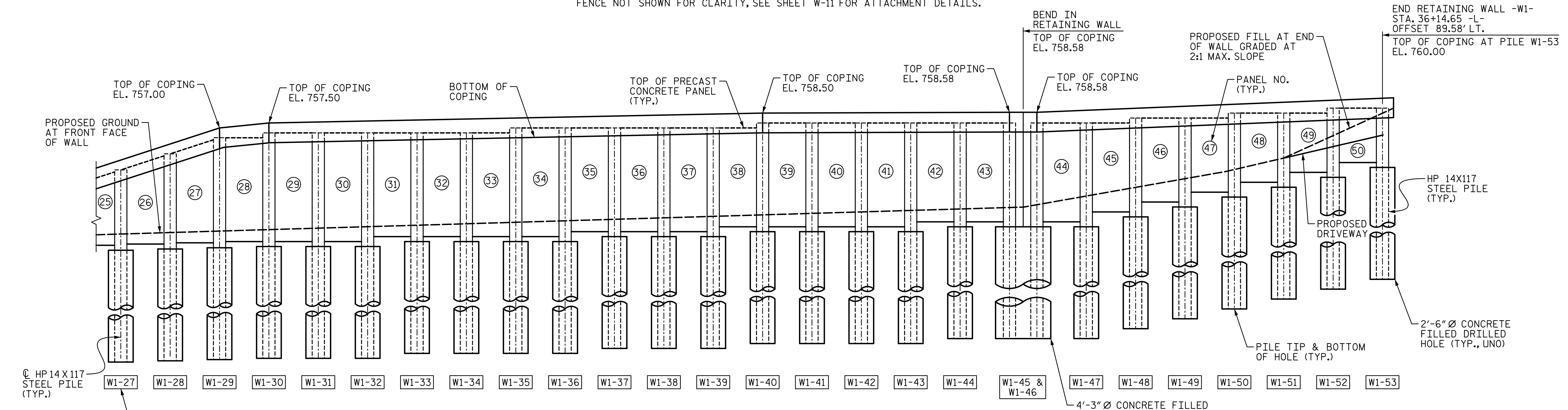
EXISTING AND PROPOSED UTILITIES NOT SHOWN. SEE ROADWAY PLAN SHEETS AND UTILITIES BY OTHERS SHEETS FOR LOCATIONS. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO WALL CONSTRUCTION.

8/5/2018
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mlw



RETAINING WALL -W1- ELEVATION

BOTTOM OF CONCRETE FILLED DRILLED HOLE NOT TO SCALE.
 FENCE NOT SHOWN FOR CLARITY, SEE SHEET W-11 FOR ATTACHMENT DETAILS.

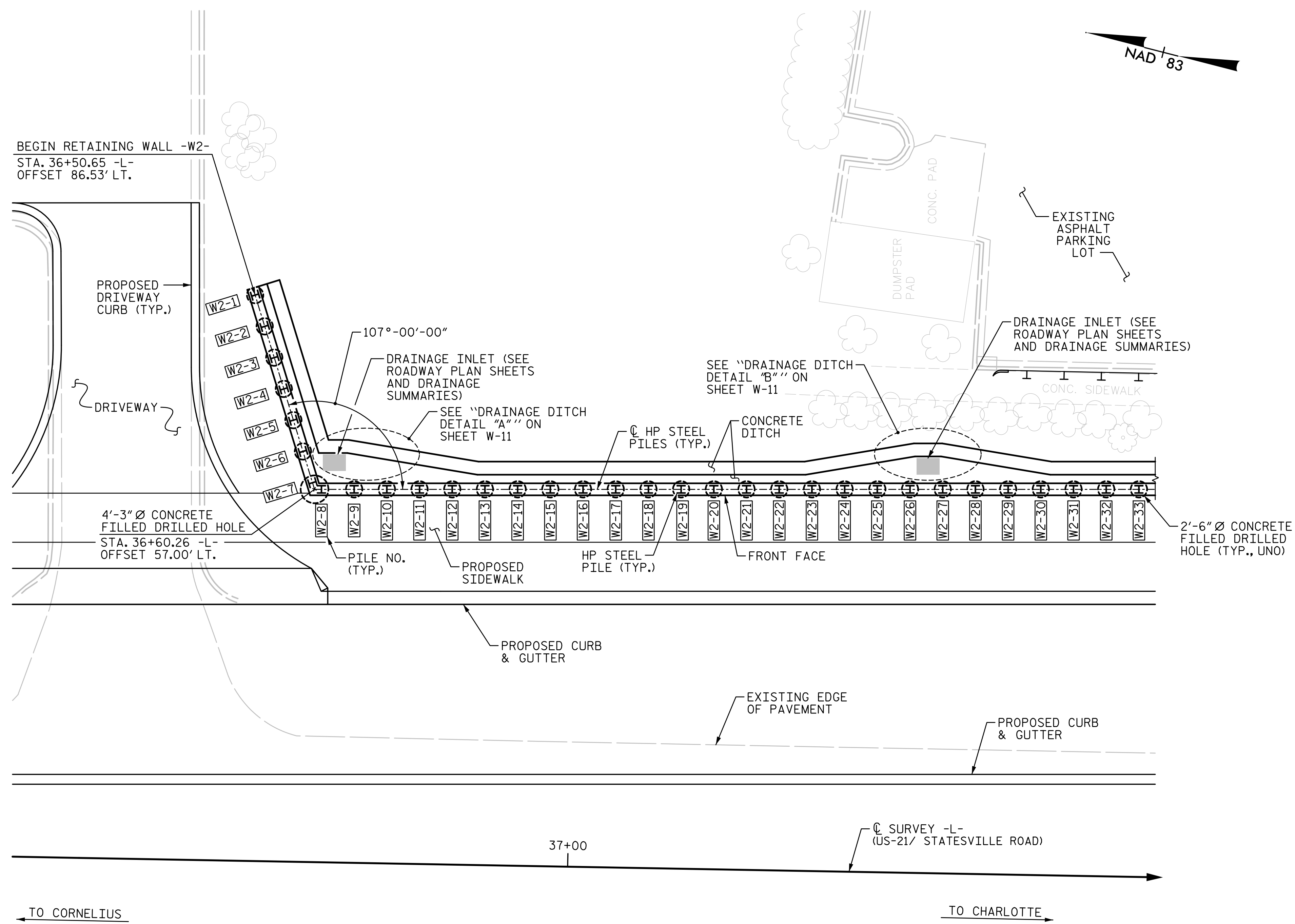


RETAINING WALL -W1- ELEVATION

BOTTOM OF CONCRETE FILLED DRILLED HOLE NOT TO SCALE.
 FENCE NOT SHOWN FOR CLARITY, SEE SHEET W-11 FOR ATTACHMENT DETAILS.

NOTES:
 FOR PILE STATIONS, OFFSETS, AND ELEVATIONS
 SEE "PILE INFORMATION" TABLE ON SHEET W-3.
 FOR PANEL HEIGHT AND ELEVATIONS SEE "PANEL
 INFORMATION" TABLE ON SHEET W-3.

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 netwin



RETAINING WALL -W2- PLAN

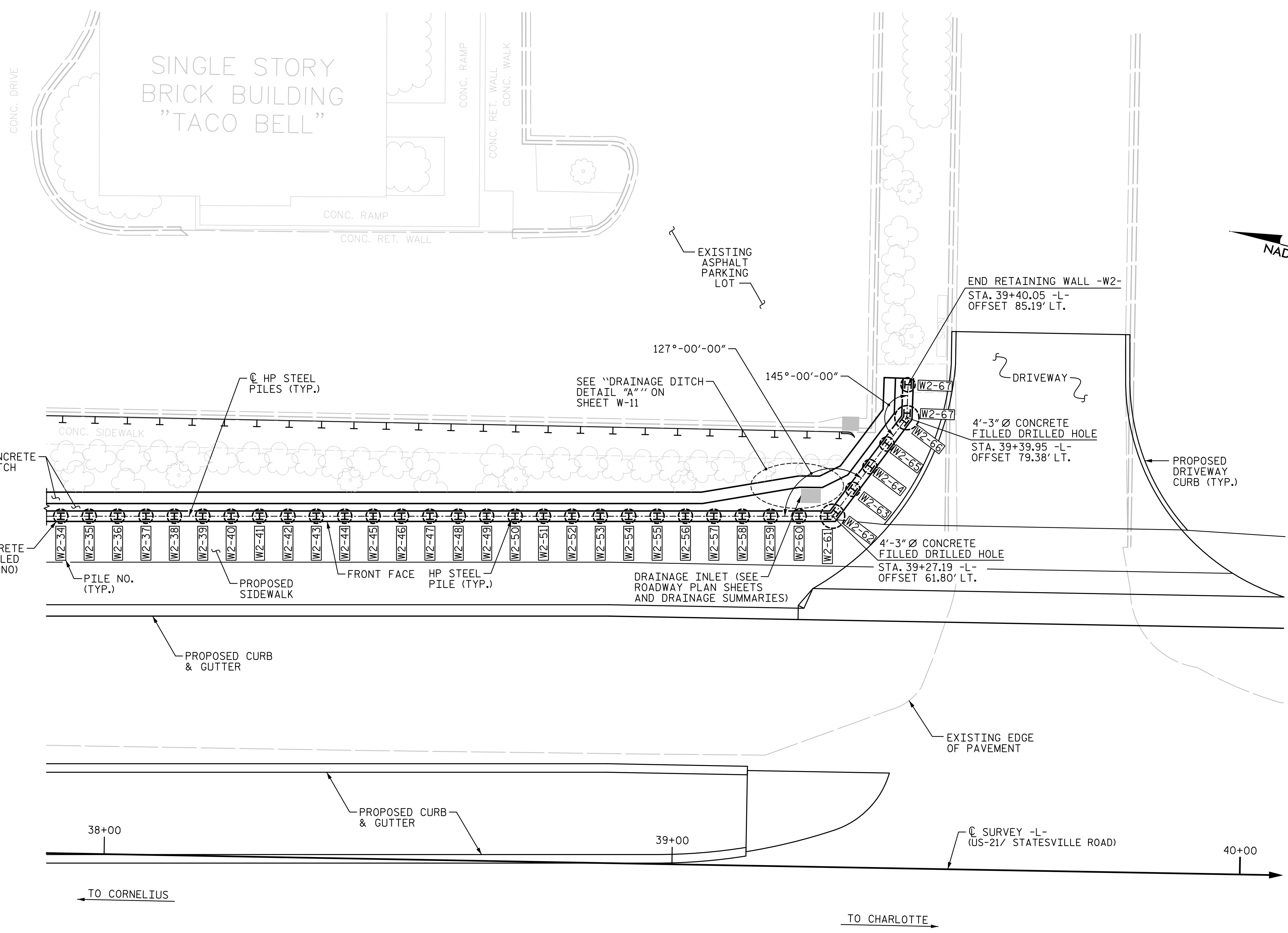
FOR PILE STATIONS, OFFSETS, AND ELEVATIONS, SEE "PILE INFORMATION" TABLE ON SHEET W-8.
 FENCE NOT SHOWN FOR CLARITY.

EXISTING AND PROPOSED UTILITIES NOT SHOWN. SEE ROADWAY PLAN SHEETS AND UTILITIES BY OTHERS SHEETS FOR LOCATIONS. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO WALL CONSTRUCTION.

NOTES:

- SEE ROADWAY PLAN & PROFILE FOR HORIZONTAL AND VERTICAL CURVE INFORMATION.
- THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION OF RETAINING WALL.
- FENCE SHALL BE PROVIDED ALONG TOP OF WALL COPING PER NCDOT STANDARD DRAWING 866.01. FOR FENCE ATTACHMENT DETAILS SEE SHEET W-11.
- U.N.O.: UNLESS OTHERWISE NOTED.

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RETAINING WALL -W2- PLAN

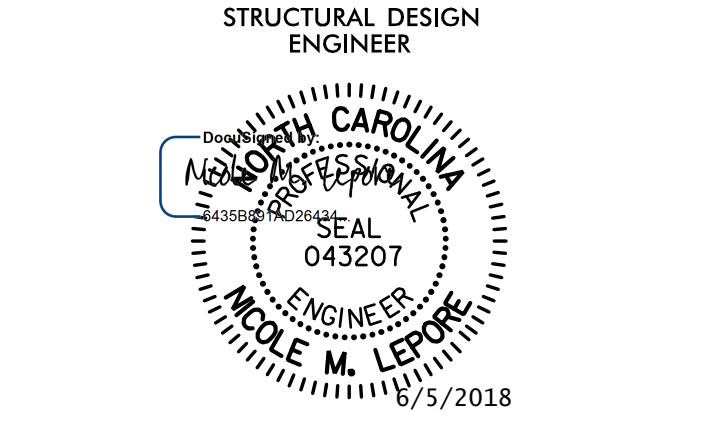
FOR PILE STATIONS, OFFSETS, AND ELEVATIONS, SEE "PILE INFORMATION" TABLE ON SHEET W-8.
 FENCE NOT SHOWN FOR CLARITY.

NOTES:

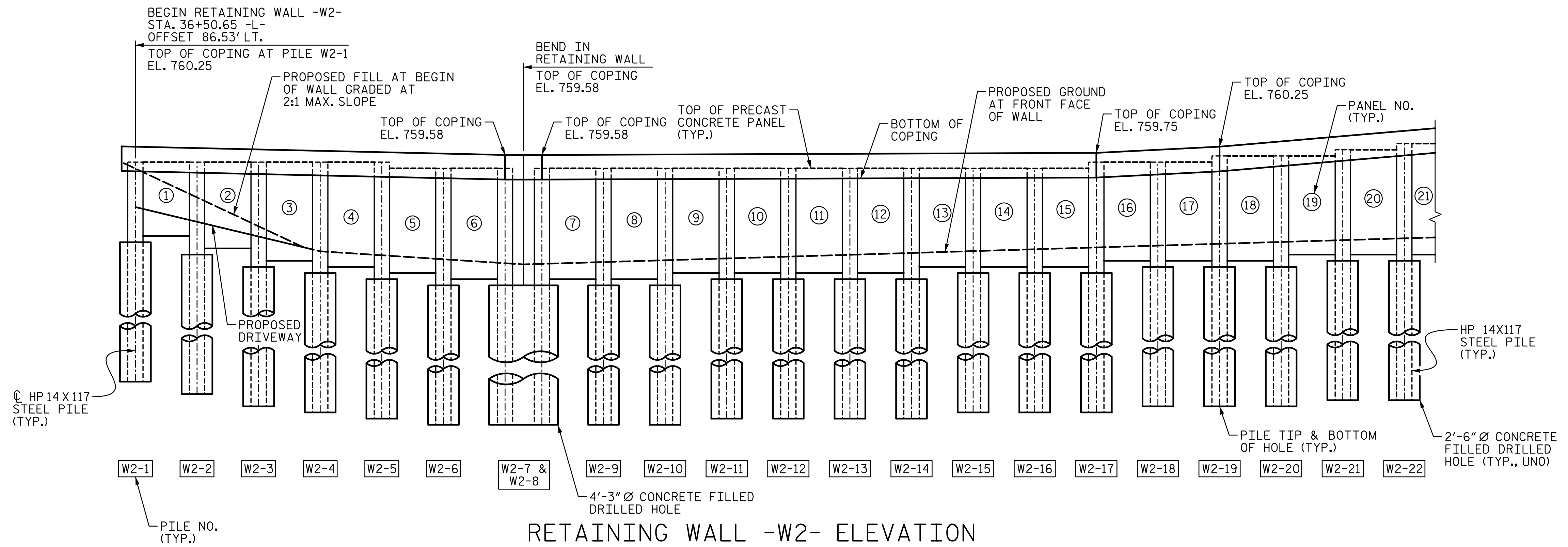
- SEE ROADWAY PLAN & PROFILE FOR HORIZONTAL AND VERTICAL CURVE INFORMATION.
- THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION OF RETAINING WALL.
- FENCE SHALL BE PROVIDED ALONG TOP OF WALL COPING PER NCDOT STANDARD DRAWING 866.01. FOR FENCE ATTACHMENT DETAILS SEE SHEET W-11.
- U.N.O.: UNLESS OTHERWISE NOTED.

EXISTING AND PROPOSED UTILITIES NOT SHOWN. SEE ROADWAY PLAN SHEETS AND UTILITIES BY OTHERS SHEETS FOR LOCATIONS. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO WALL CONSTRUCTION.

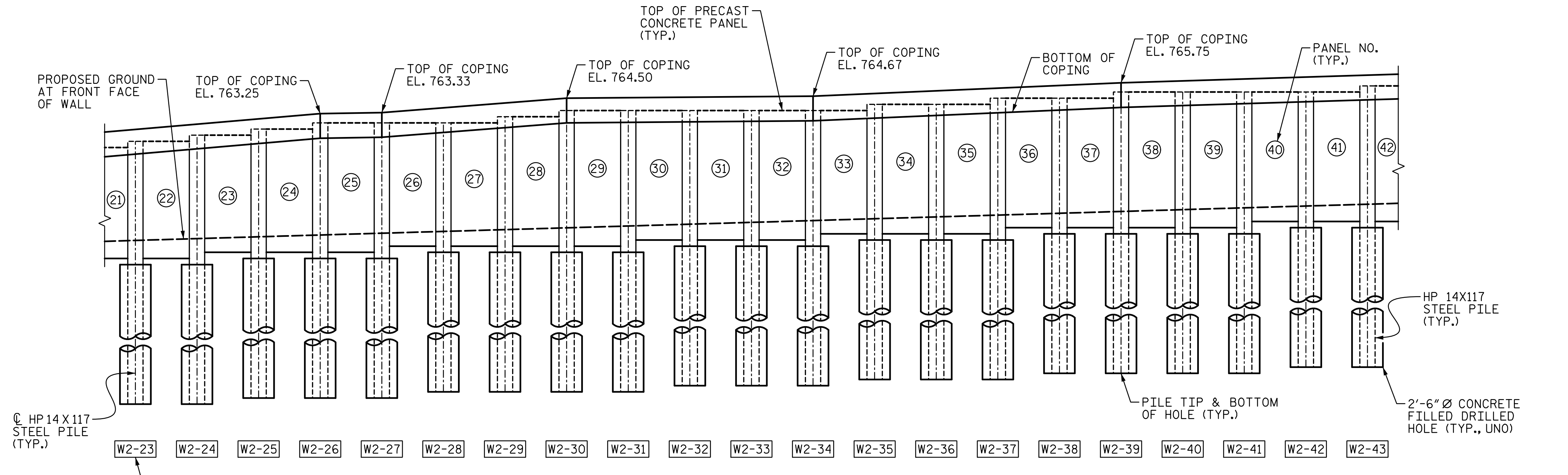
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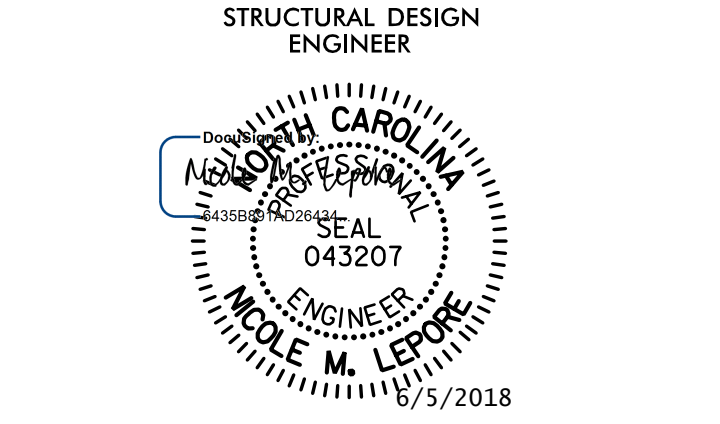
RETAINING WALL -W2- ELEVATION
 BOTTOM OF CONCRETE FILLED DRILLED HOLE NOT TO SCALE.
 FENCE NOT SHOWN FOR CLARITY, SEE SHEET W-11 FOR ATTACHMENT DETAILS.



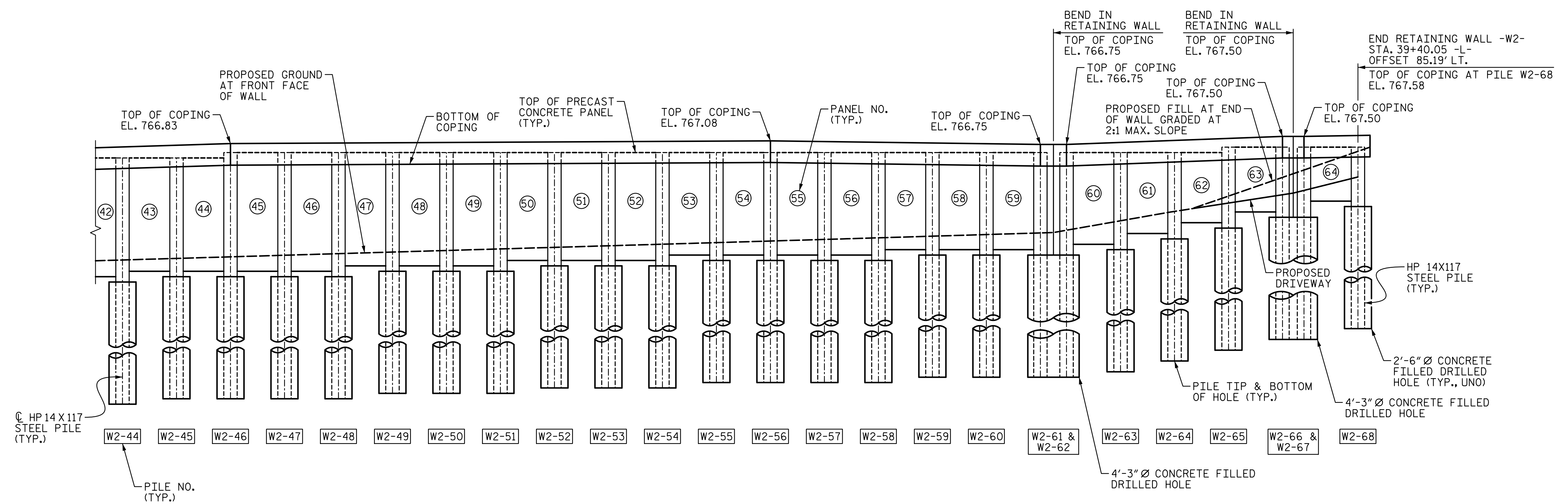
RETAINING WALL -W2- ELEVATION
 BOTTOM OF CONCRETE FILLED DRILLED HOLE NOT TO SCALE.
 FENCE NOT SHOWN FOR CLARITY, SEE SHEET W-11 FOR ATTACHMENT DETAILS.

NOTES:
 FOR PILE STATIONS, OFFSETS, AND ELEVATIONS SEE "PILE INFORMATION" TABLE ON SHEET W-8.
 FOR PANEL HEIGHT AND ELEVATIONS SEE "PANEL INFORMATION" TABLE ON SHEET W-8.

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RETAINING WALL -W2- ELEVATION

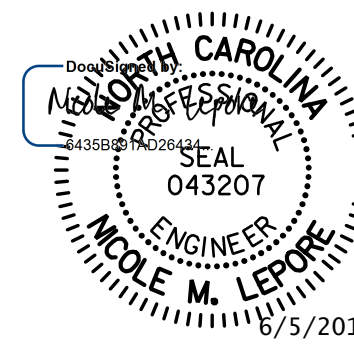
BOTTOM OF CONCRETE FILLED DRILLED HOLE NOT TO SCALE.
 FENCE NOT SHOWN FOR CLARITY, SEE SHEET W-11 FOR ATTACHMENT DETAILS.

NOTES:

FOR PILE STATIONS, OFFSETS, AND ELEVATIONS SEE "PILE INFORMATION" TABLE ON SHEET W-8.

FOR PANEL HEIGHT AND ELEVATIONS SEE "PANEL INFORMATION" TABLE ON SHEET W-8.

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PILE INFORMATION table with columns: PILE NO., STATION -L-, OFFSET, PILE SIZE, TOP OF COPING ELEVATION, TOP OF PILE ELEVATION, TOP OF 2'-6" Ø HOLE ELEVATION, PILE TIP ELEVATION, TOTAL PILE LENGTH. Rows 1-68.

PANEL INFORMATION table with columns: PANEL NO., PILE TO LEFT, PILE TO RIGHT, PANEL WALL HEIGHT, BOT. OF PANEL WALL ELEVATION. Rows 1-64.

BILL OF MATERIAL table with columns: SOLDIER PILE RETAINING WALL, *S.F. 2,972.5

*RETAINING WALL AREA QUANTITY "TOP OF WALL" IS TOP OF PANEL.

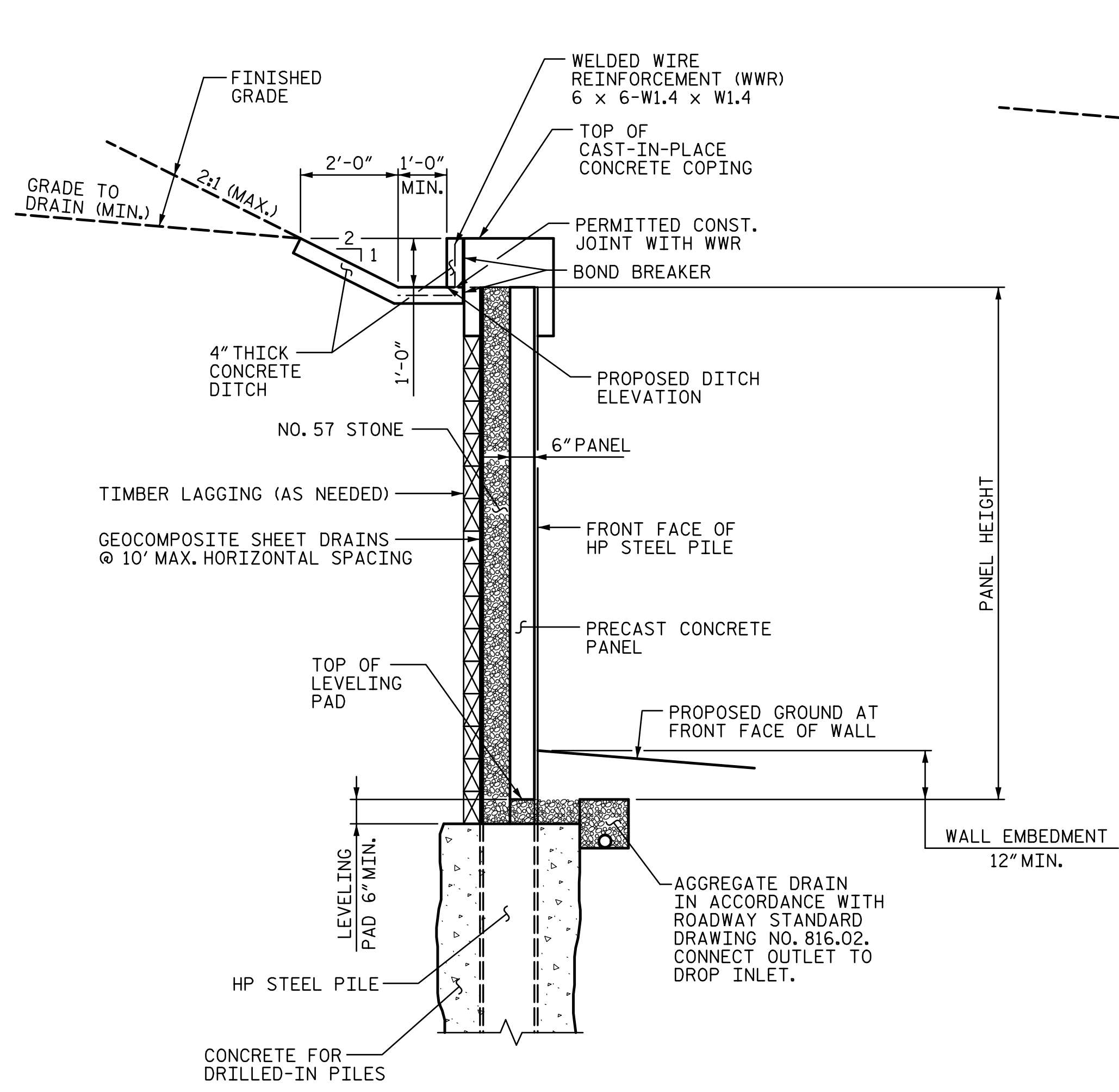
PANEL LEGEND table with columns: PANEL WALL HEIGHT, PANELS USED. Rows 5'-0" to 11'-0".

PILE QUANTITIES table with columns: PILE TYPE, LENGTH (FT). Row: HP 14x117, 1,995

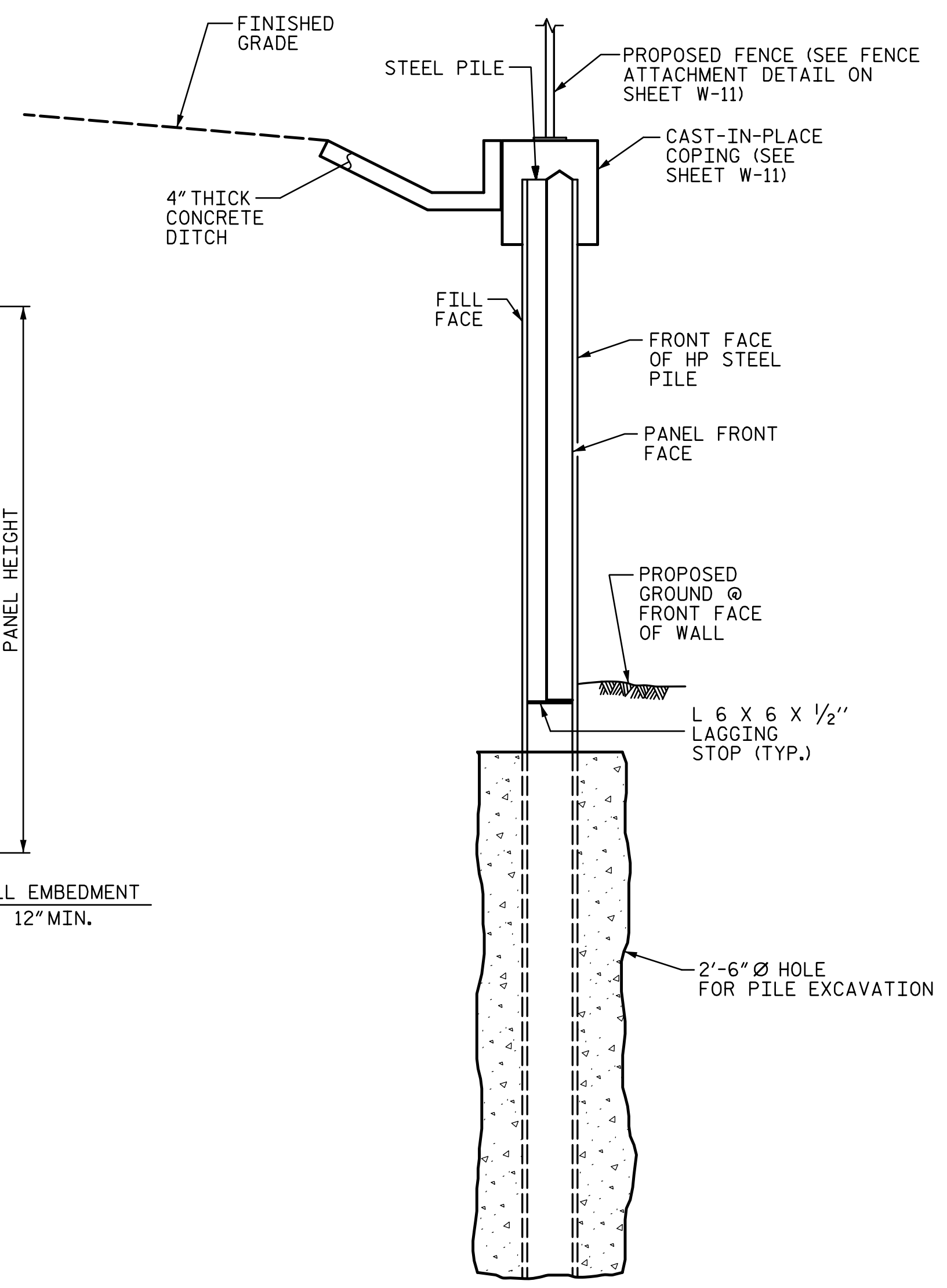
PANEL QUANTITIES table with columns: PANEL, NUMBER. Rows 2'-6" to 5'-0".

- ◆ 4'-3" Ø HOLE
□ ALL PILE STATIONING AND OFFSETS ARE TO CENTERLINE OF PILE AND CENTER OF DRILLED HOLE.

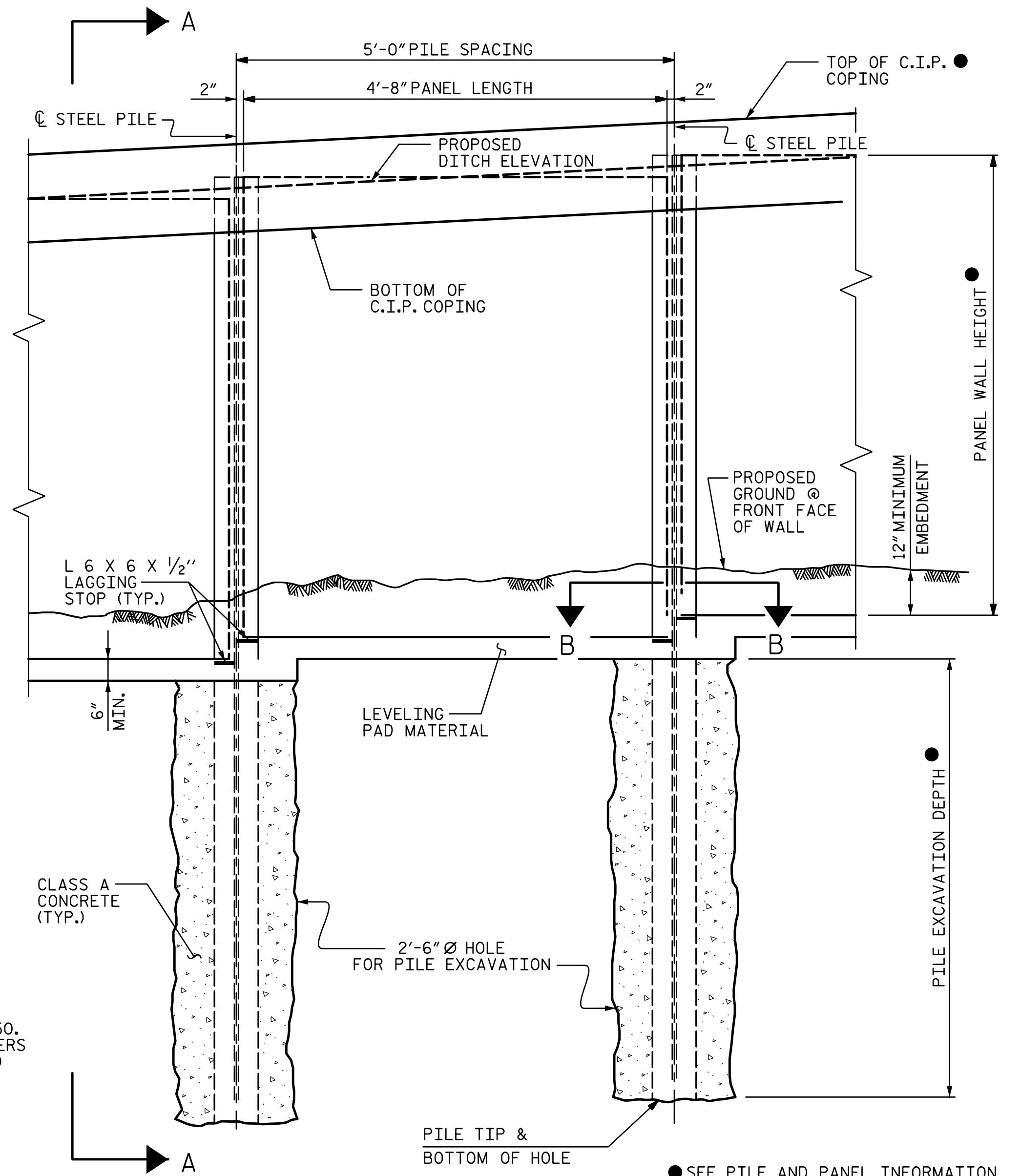
RETAINING WALL -W2-



SOLDIER PILE WALL WITH PRECAST PANEL - TYPICAL SECTION
PROPOSED FENCE AND CONNECTION DETAILS NOT SHOWN FOR CLARITY

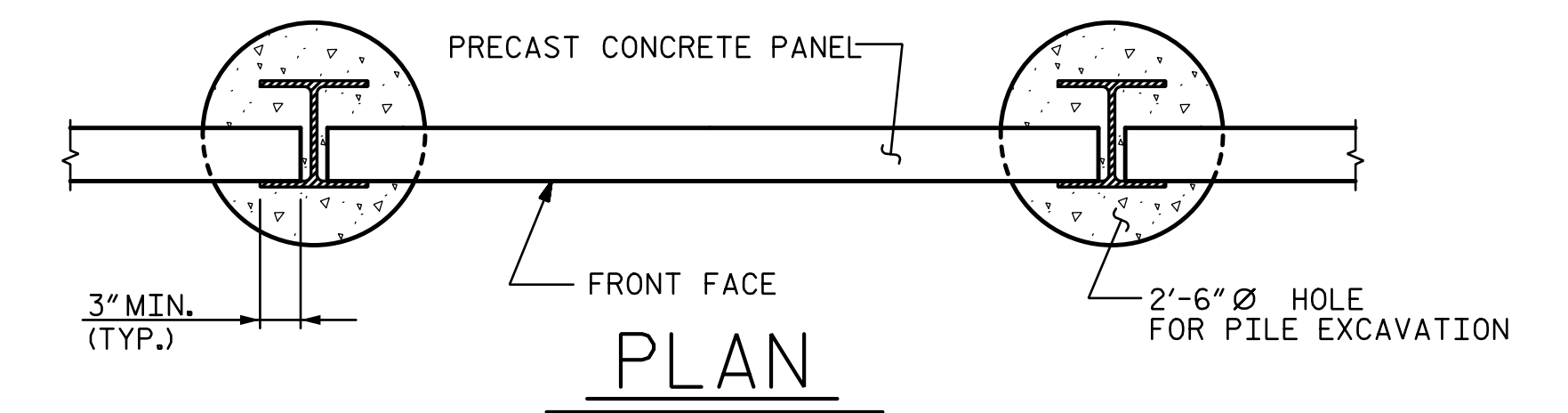


SECTION A-A



ELEVATION

FOR SECTION B-B, SEE SHEET W-10.
PROPOSED FENCE AND CONNECTION DETAILS NOT SHOWN FOR CLARITY.



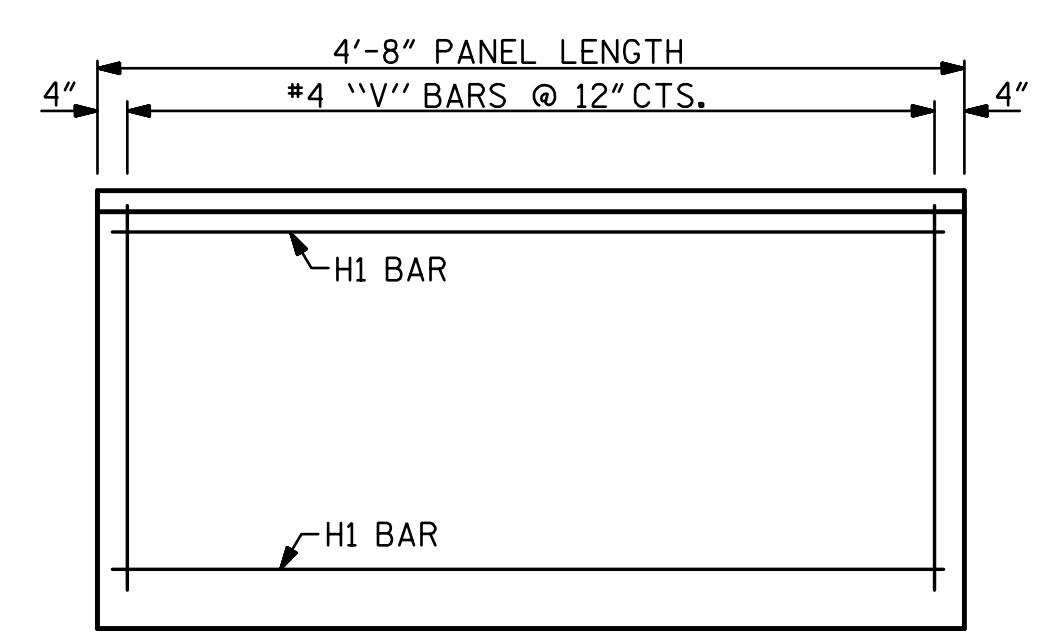
PLAN

NOTES:

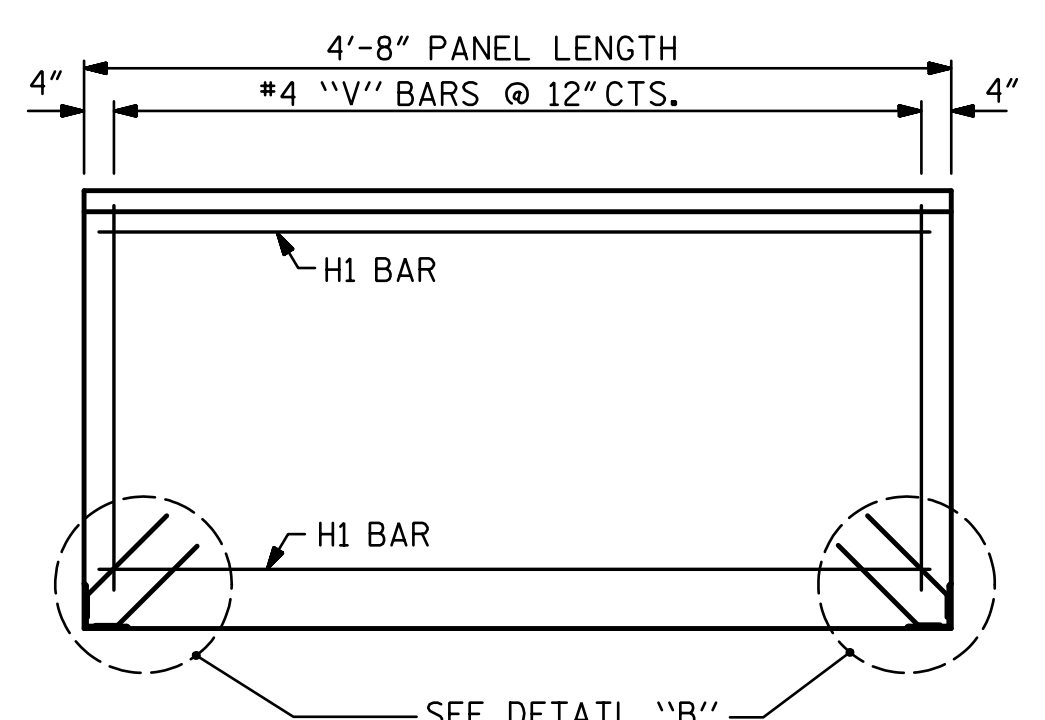
- FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.
- BEFORE BEGINNING MOBILIZATION AND CONSTRUCTION, CONTRACTOR SHALL SUBMIT PROPOSED EQUIPMENT AND INSTALLATION PROCEDURE FOR REVIEW. PROCEDURE SHALL INCLUDE METHODS DURING PILE INSTALLATION TO PREVENT DAMAGE TO ADJACENT INSTALLED PILES.
- WEATHERED ROCK AND CRYSTALLINE ROCK MAY BE ENCOUNTERED AT WALL NO. 2. CONTRACTOR SHALL EXCAVATE THROUGH THESE MATERIALS AS NEEDED TO MEET MINIMUM PILE TIP ELEVATIONS.
- DRILLED IN H-PILES ARE REQUIRED FOR RETAINING WALL NOS. 1 AND 2.
- USE A SOLDIER PILE RETAINING WALL WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE NCDOT STANDARD SPECIFICATIONS FOR RETAINING WALL NOS. 1 AND 2.
- AN EXPOSED AGGREGATE FINISH THAT MEETS ARTICLE 1077-12 OF THE NCDOT STANDARD SPECIFICATIONS IS REQUIRED FOR PRECAST CONCRETE PANELS FOR RETAINING WALL NOS. 1 AND 2.
- PAINT GALVANIZED H-PILES GRAY IN ACCORDANCE WITH ARTICLE 442-12 OF THE NCDOT STANDARD SPECIFICATIONS FOR RETAINING WALL NOS. 1 AND 2.
- BEFORE BEGINNING SOLDIER PILE WALL CONSTRUCTION FOR RETAINING WALL NOS. 1 AND 2, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.
- IN 4" CONCRETE PAVED DITCHES, PLACE 1/2" EXPANSION JOINTS AT 30' INTERVALS AND AT ALL OTHER POINTS WHERE PROPOSED DITCHES ABUT RIGID OBJECTS. PLACE GROOVED JOINTS 1" DEEP AT 10' INTERVALS BETWEEN EXPANSION JOINTS.
- IN CAST IN PLACE CONCRETE COPING 1/2" EXPANSION JOINT MATERIAL SHALL BE PLACED EVERY 30' MAX. DO NOT PLACE EXPANSION JOINT ABOVE A PILE. CONTRACTOR IS RESPONSIBLE FOR FITTING REINFORCING IN COPING SUCH THAT 2" CL. IS MAINTAINED FROM THE EXPANSION JOINT.
- CONSTRUCT WIDTH AND SHAPE OF PROPOSED 4" CONCRETE PAVED DITCHES AS SHOWN OR AS DIRECTED ENGINEER.
- FOR DITCH GRADES ABOVE 2%, INSTALL MATTING ON SIDE OF PAVING FOR MINIMUM WIDTH OF 36" OR AS DIRECTED BY THE ENGINEER.

- PROVIDE PANELS WITH A FLAT BOTTOM.
- CONTRACTOR SHALL CLEARLY MARK THE FILL FACE SIDE OF THE PRECAST PANEL TO ENSURE PROPER ORIENTATION DURING INSTALLATION.
- USE STEEL PILES, ANGLES, AND LAGGING STOPS MEETING THE REQUIREMENTS OF AASHTO M270, GRADE 50. GALVANIZE ALL STEEL COMPONENTS INCLUDING PILES, ANGLES, LAGGING STOPS, BOLTS, NUTS, AND WASHERS IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS. REPAIR ANY DAMAGED GALVANIZATION IN ACCORDANCE WITH ARTICLE 1076-7 OF THE NCDOT STANDARD SPECIFICATIONS.
- ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS SPECIFICATIONS.
- AT THE CONTRACTOR'S OPTION, USE AN APPROVED NON-SHRINK NON-METALLIC GROUT BETWEEN THE FLANGES OF THE STEEL PILES TO SUPPORT THE BOTTOM PANEL IN LIEU OF LAGGING STOPS.
- ADJUST PILE EXCAVATION ELEVATIONS TO MAINTAIN 1'-0" MINIMUM EMBEDMENT OF THE BOTTOM PANEL.
- USE CLASS AA FOR PANELS AND CLASS A CONCRETE FOR COPING, DITCH AND PILE EXCAVATION BACKFILL, IN ACCORDANCE WITH ARTICLE 1000-4 OF THE NCDOT STANDARD SPECIFICATIONS.
- DO NOT SPLICE STEEL PILES.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR PROPOSED FENCE, SEE SPECIAL PROVISIONS.
- INSTALL FENCE IN ACCORDANCE WITH SECTION 866 OF NCDOT STANDARD SPECIFICATIONS AND USE "FENCE ATTACHMENT DETAIL" ON SHEET W-11.
- STEEL BASE PLATES, THREADED RODS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS. AFTER INSTALLATION, GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS.
- THREADED RODS SHALL MEET THE REQUIREMENTS OF ASTM A307. NUTS SHALL MEET THE REQUIREMENTS OF ASTM A563 AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F436.
- CONTRACTOR MAY ELECT TO PROVIDE ALTERNATE FENCE ATTACHMENT DESIGN TO OWNER AND ENGINEER FOR APPROVAL. THIS ALTERNATE DESIGN SHALL MEET CURRENT AASHTO REQUIREMENTS FOR PEDESTRIAN RAILING.

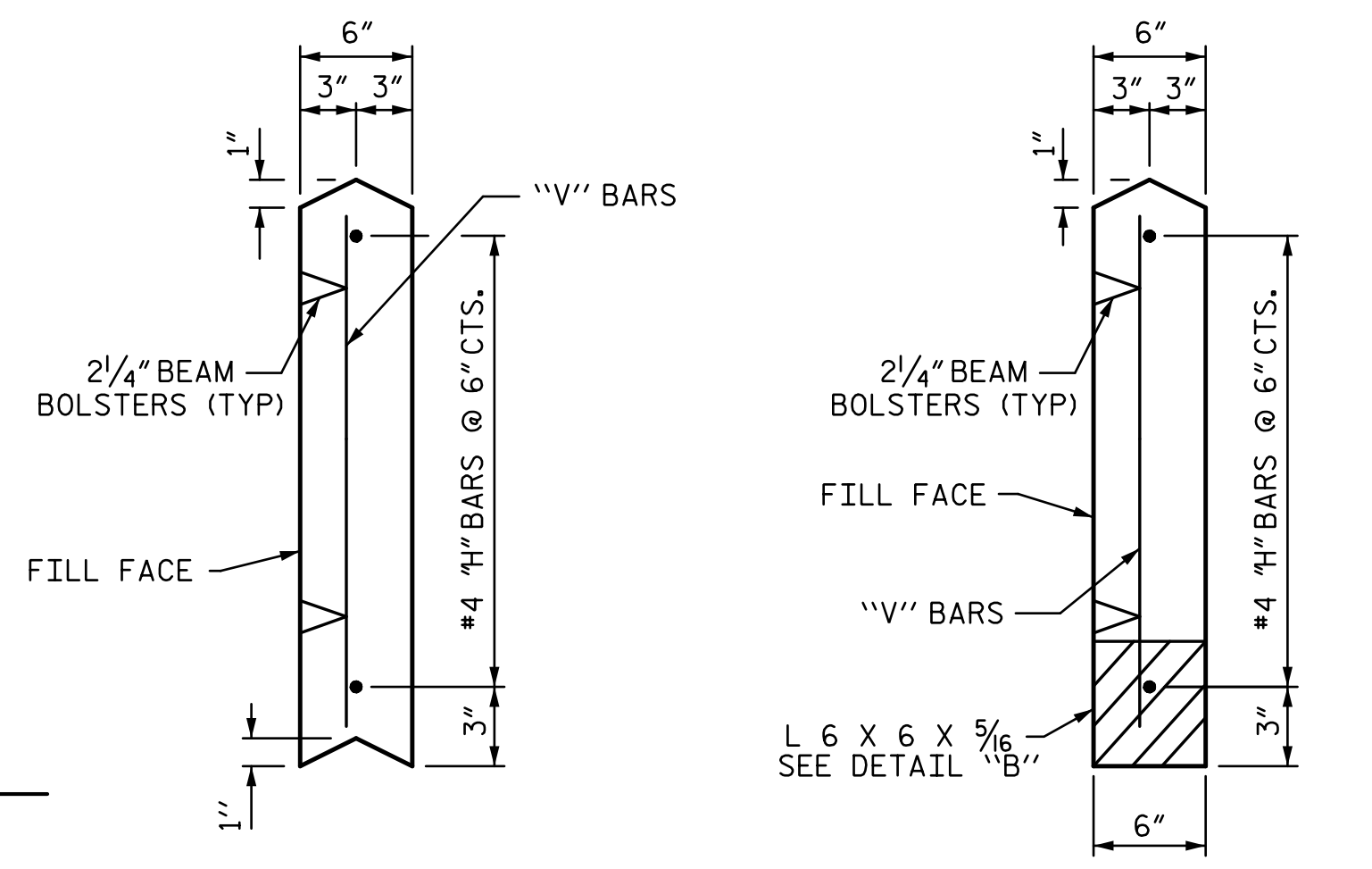
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**FRONT ELEVATION
OF UPPER PRECAST PANELS**

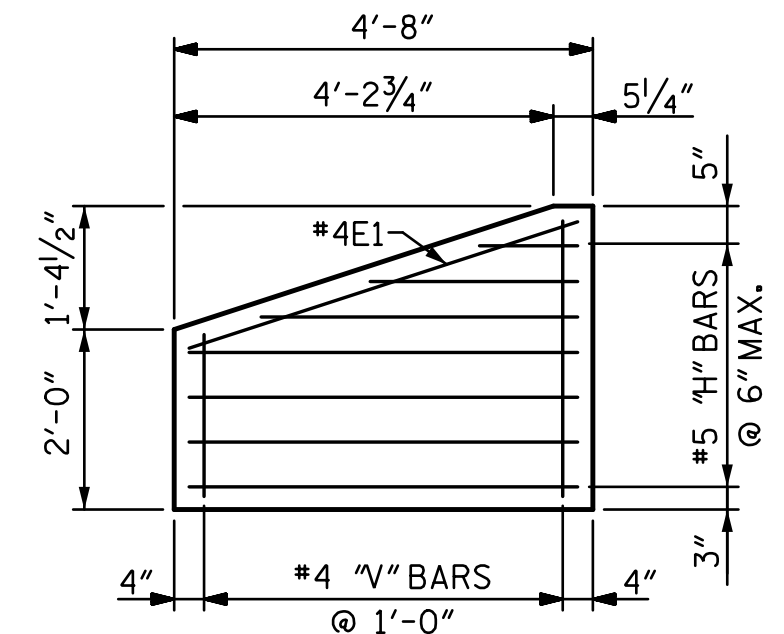


**FRONT ELEVATION
OF BOTTOM PRECAST PANEL**



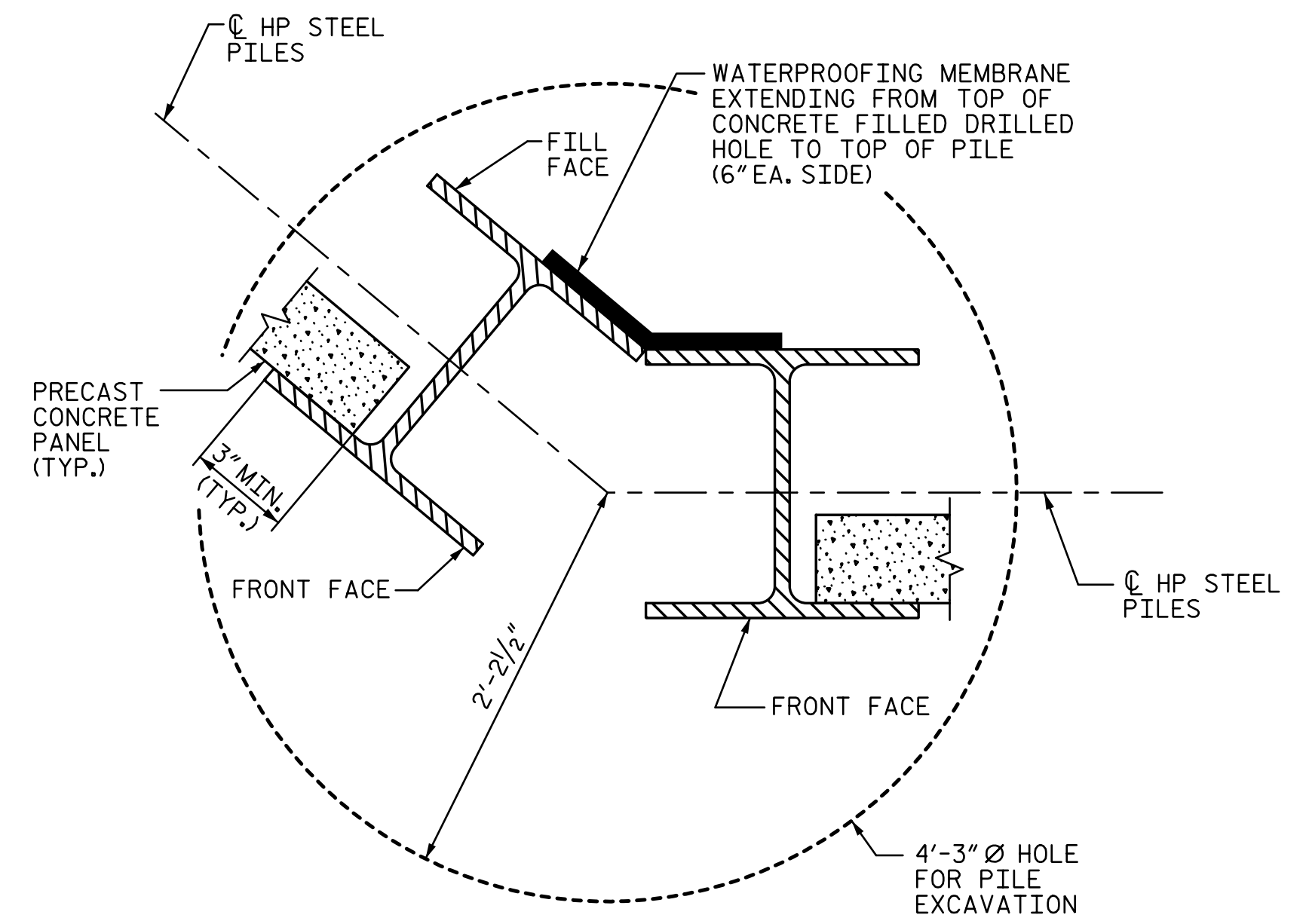
**SECTION THROUGH PRECAST PANELS
FOR LEVEL AND SLOPED PANELS**

PANEL HEIGHT	QUANTITIES FOR ONE PRECAST PANEL												
	CLASS AA CONCRETE C.Y.	BAR TYPES											
		NO.	BAR SIZE	TYPE	LENGTH	WEIGHT (lb)	NO.	BAR SIZE	TYPE	LENGTH	WEIGHT (lb)		
2'-6"	0.22	5	H1 #4	STR	4'-4"	15	5	V1 #4	STR	2'-2"	7		
3'-0"	0.26	6	H1 #4	STR	4'-4"	17	5	V2 #4	STR	2'-8"	9		
4'-0"	0.35	8	H1 #4	STR	4'-4"	23	5	V3 #4	STR	3'-8"	12		
4'-6"	0.39	9	H1 #4	STR	4'-4"	26	5	V4 #4	STR	4'-2"	14		
5'-0"	0.43	10	H1 #4	STR	4'-4"	29	5	V5 #4	STR	4'-8"	16		

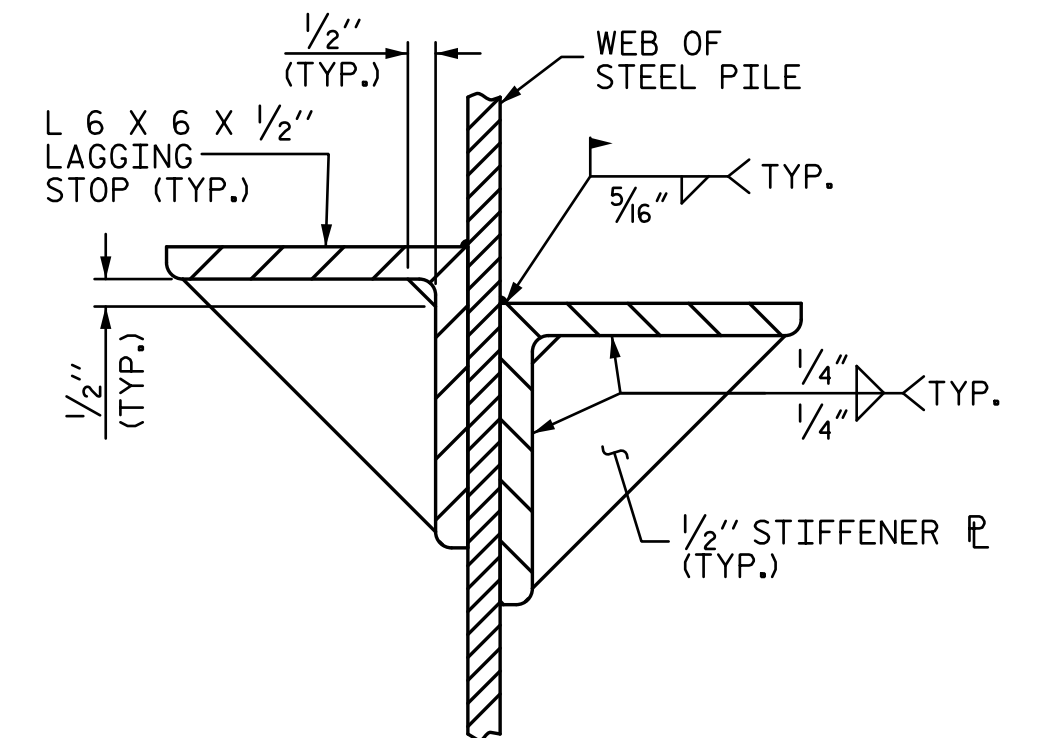


**FRONT ELEVATION
OF UPPER PRECAST SLOPED PANELS**

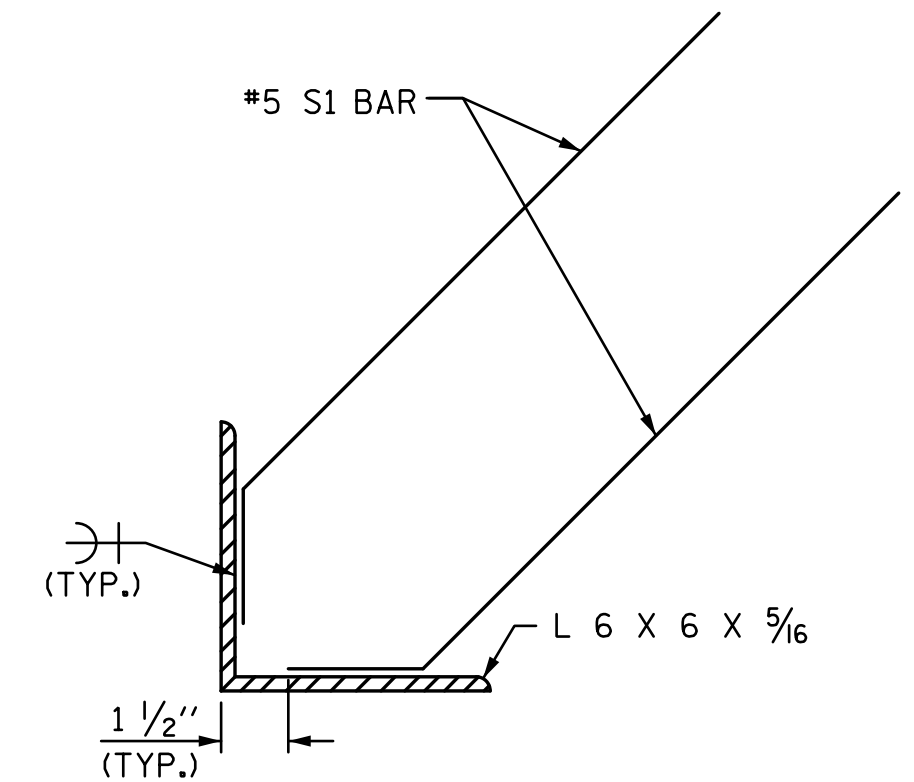
CLASS AA CONCRETE C.Y.	QUANTITIES FOR ONE SLOPED PRECAST PANEL											
	BAR TYPES											
	NO.	BAR SIZE	TYPE	LENGTH	WEIGHT (lb)	NO.	BAR SIZE	TYPE	LENGTH	WEIGHT (lb)		
0.24	4	H1 #4	STR	4'-4"	12	1	V1 #4	STR	1'-9"	1		
	1	H2 #4	STR	3'-4"	2	1	V2 #4	STR	2'-0"	1		
	1	H3 #4	STR	2'-3"	1	1	V3 #4	STR	2'-4"	2		
	1	H4 #4	STR	1'-0"	2	1	V4 #4	STR	2'-8"	2		
	1	E1 #4	STR	4'-6"	3	1	V5 #4	STR	3'-0"	2		



**TYPICAL WALL TURN DETAIL
(FOR GREATER THAN 15° TURNS)**



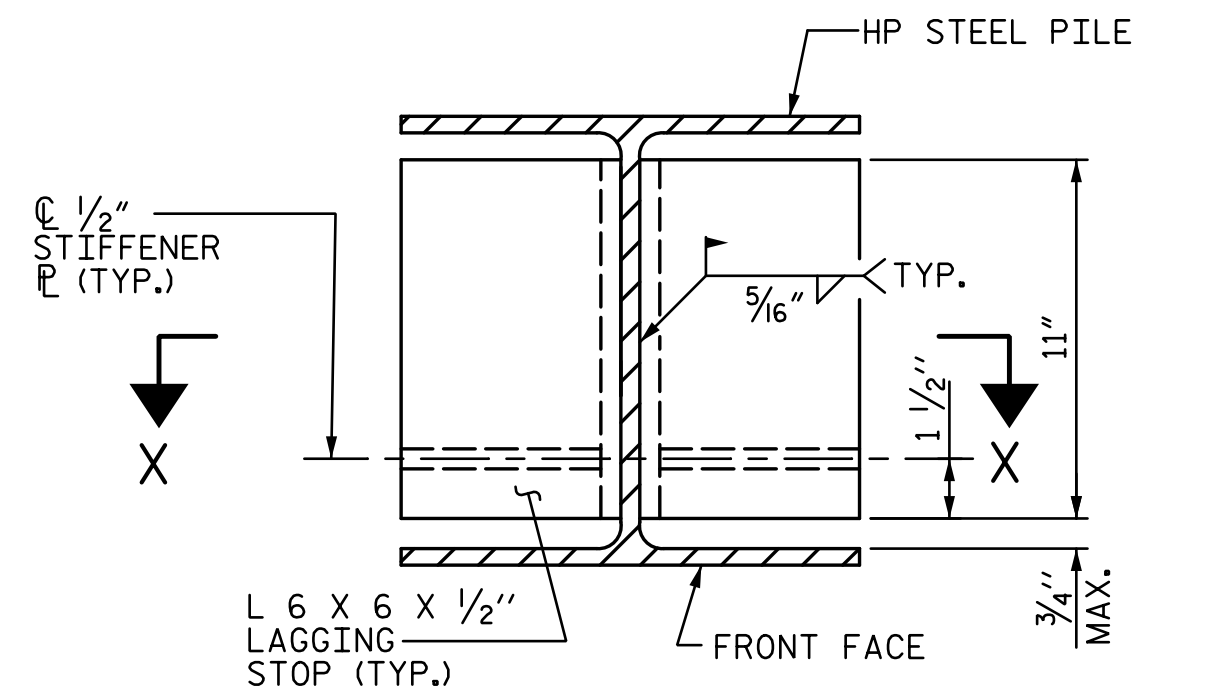
SECTION X-X



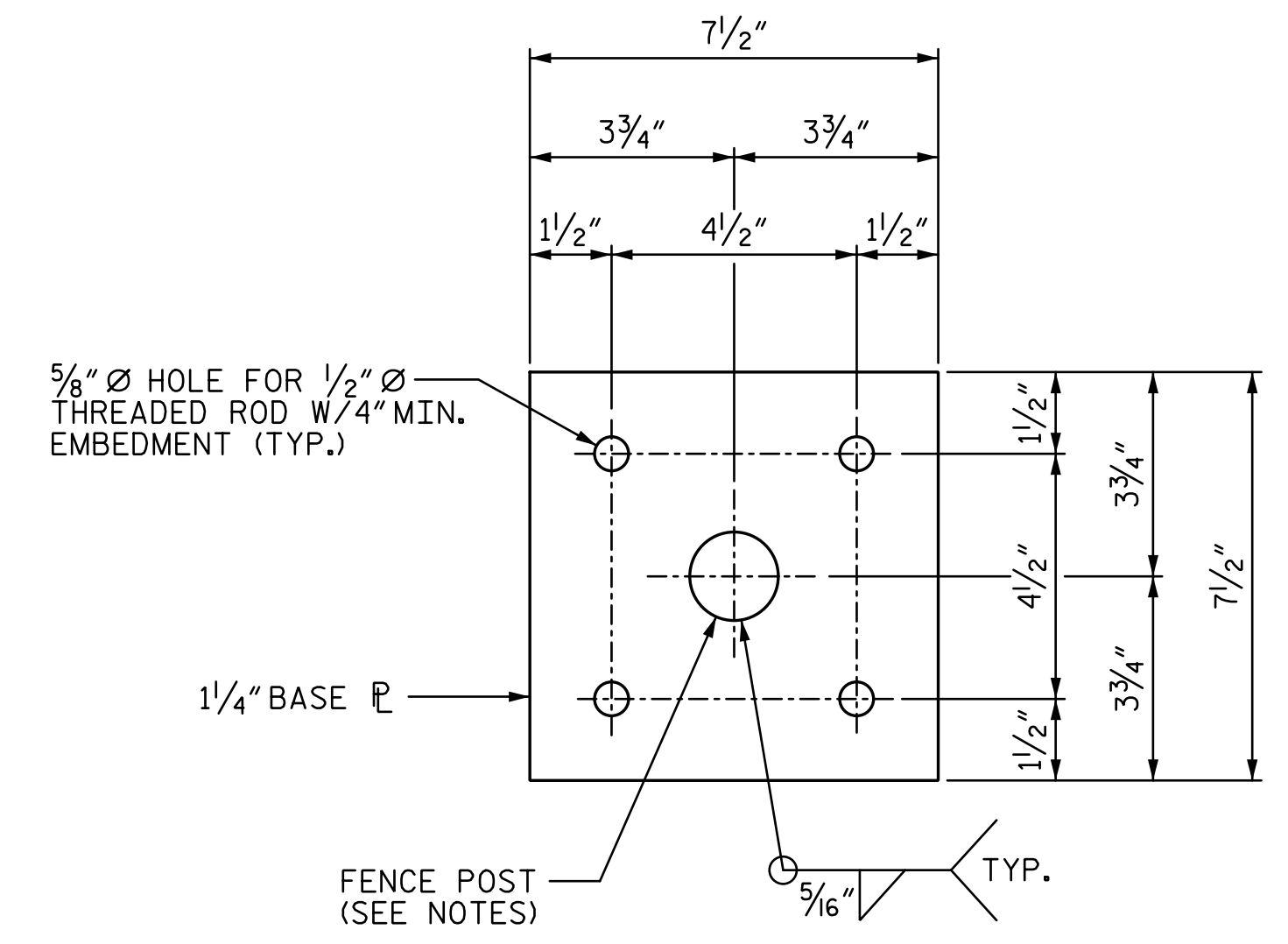
DETAIL "B"

ADDITIONAL BARS FOR ONE BOTTOM PANEL				
NO.	BAR SIZE	TYPE	LENGTH	WEIGHT (lb)
4	S1 #5	1	1'-6"	6

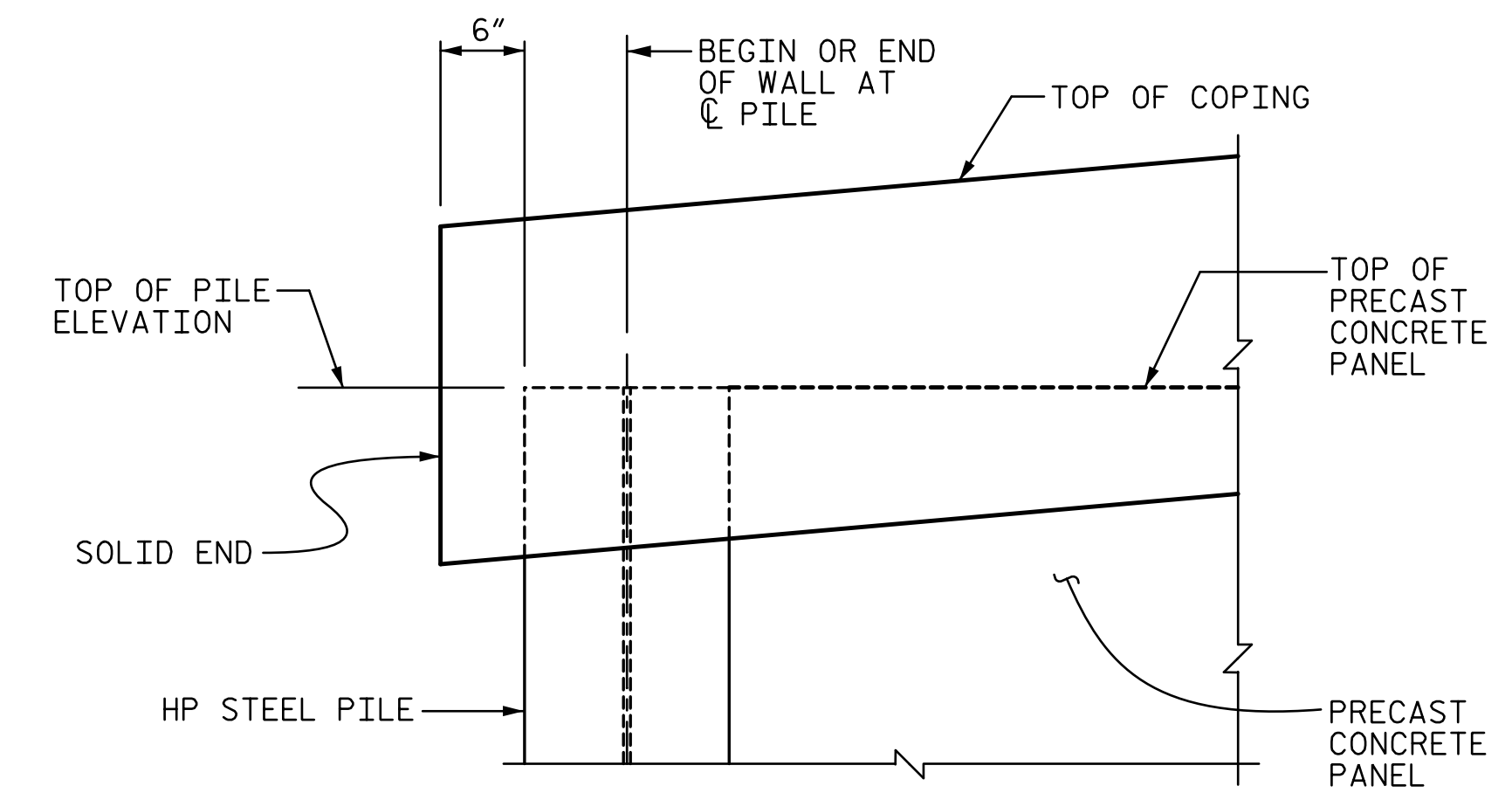
BAR TYPE	
①	10 5/8" x 1'-3 1/2" x 10 5/8"



SECTION B-B

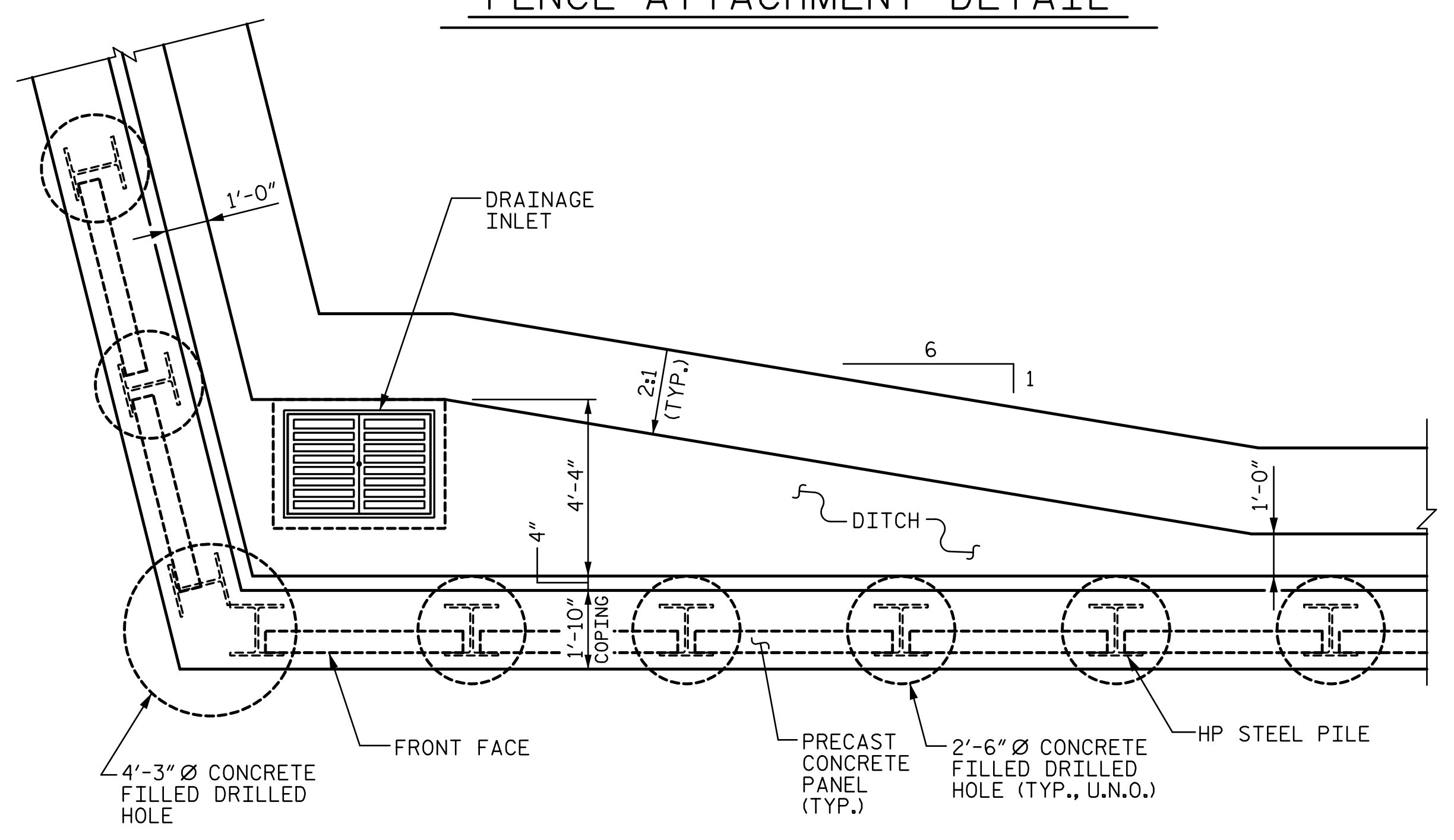


FENCE ATTACHMENT DETAIL



COPING END DETAIL

FENCE AND ATTACHMENT DETAILS NOT SHOWN FOR CLARITY



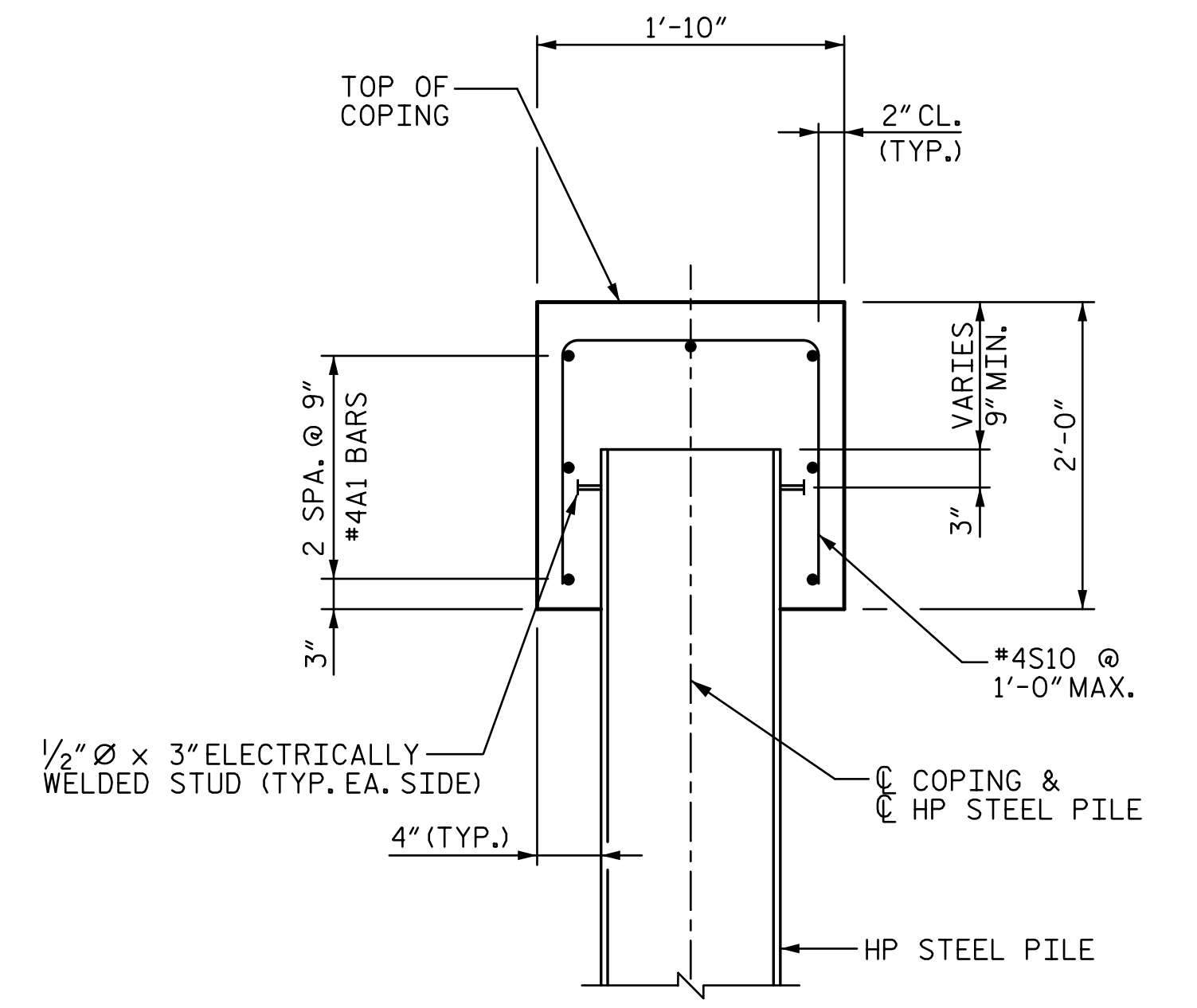
DRAINAGE DITCH DETAIL "A"

FENCE AND ATTACHMENTS NOT SHOWN FOR CLARITY. SEE ROADWAY PLAN SHEETS AND DRAINAGE SUMMARY SHEETS FOR DRAINAGE INLET LOCATION AND INFORMATION.

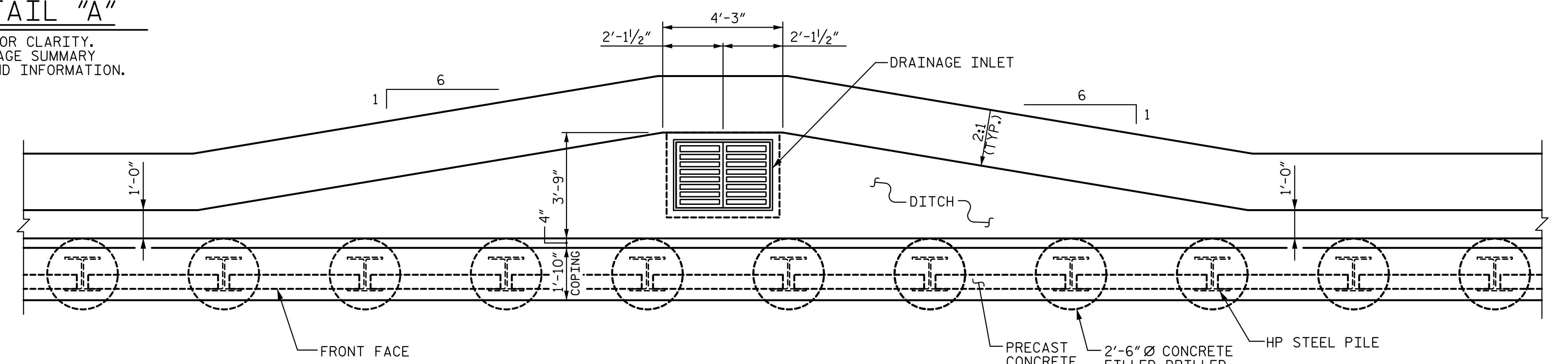
COPING BAR TYPES			
BAR	SIZE	TYPE	LENGTH
A1	#4	STR.	*
S10	#4	1	4'-10"

BAR TYPE	
1'-6"	1'-8"
①	

* CONTRACTOR TO DETERMINE LENGTH BASED ON PLACEMENT OF EXP. JTS.



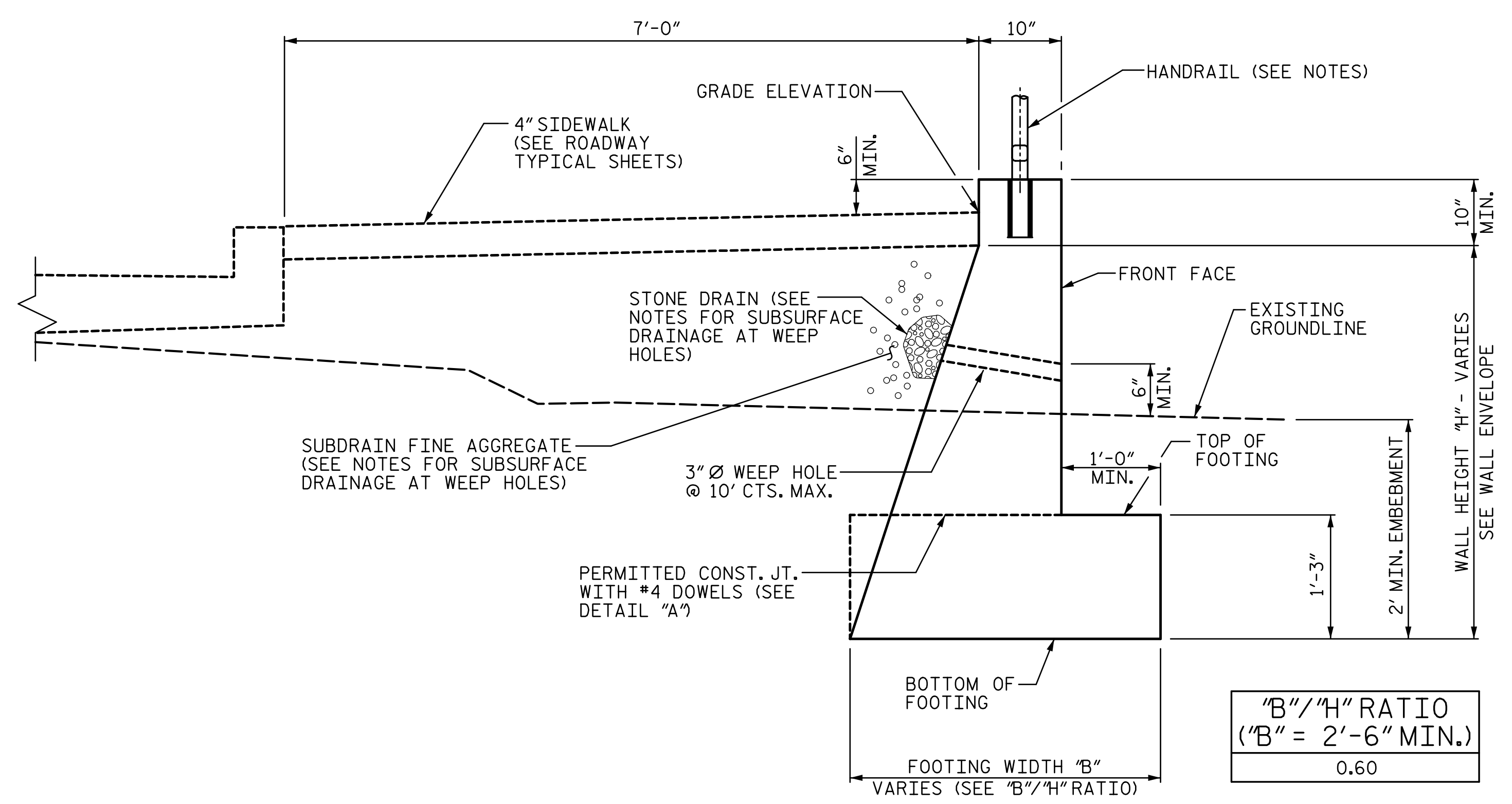
COPING DETAIL



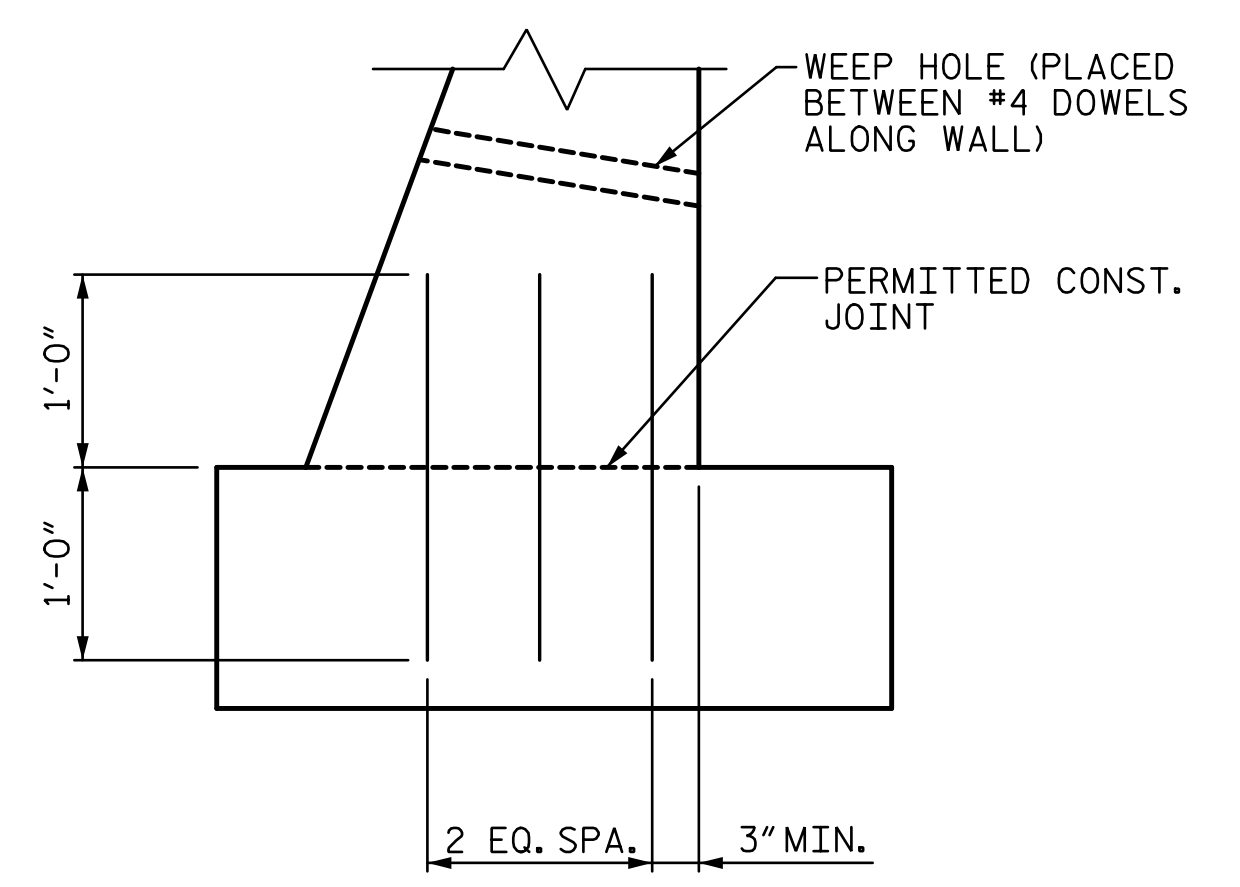
DRAINAGE DITCH DETAIL "B"

FENCE AND ATTACHMENTS NOT SHOWN FOR CLARITY. SEE ROADWAY PLAN SHEETS AND DRAINAGE SUMMARY SHEETS FOR DRAINAGE INLET LOCATION AND INFORMATION.

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SECTION THRU CIP GRAVITY WALL



DETAIL "A"

RETAINING WALL -W3- CAST-IN-PLACE (CIP) GRAVITY RETAINING WALL

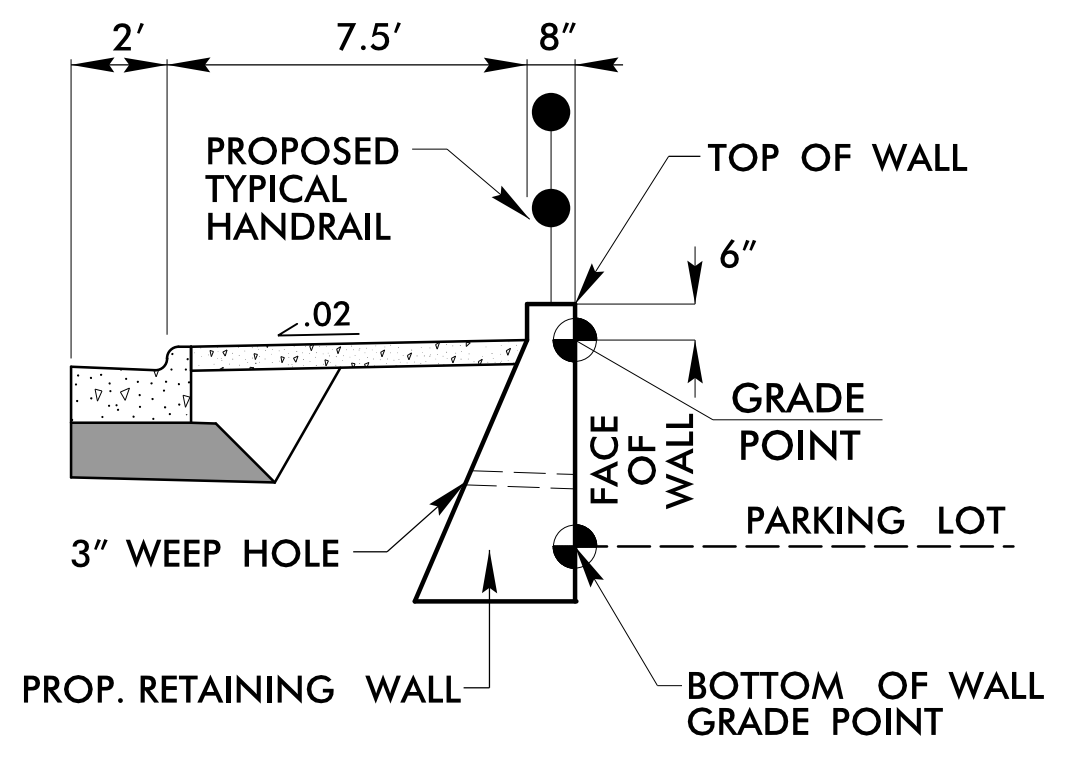
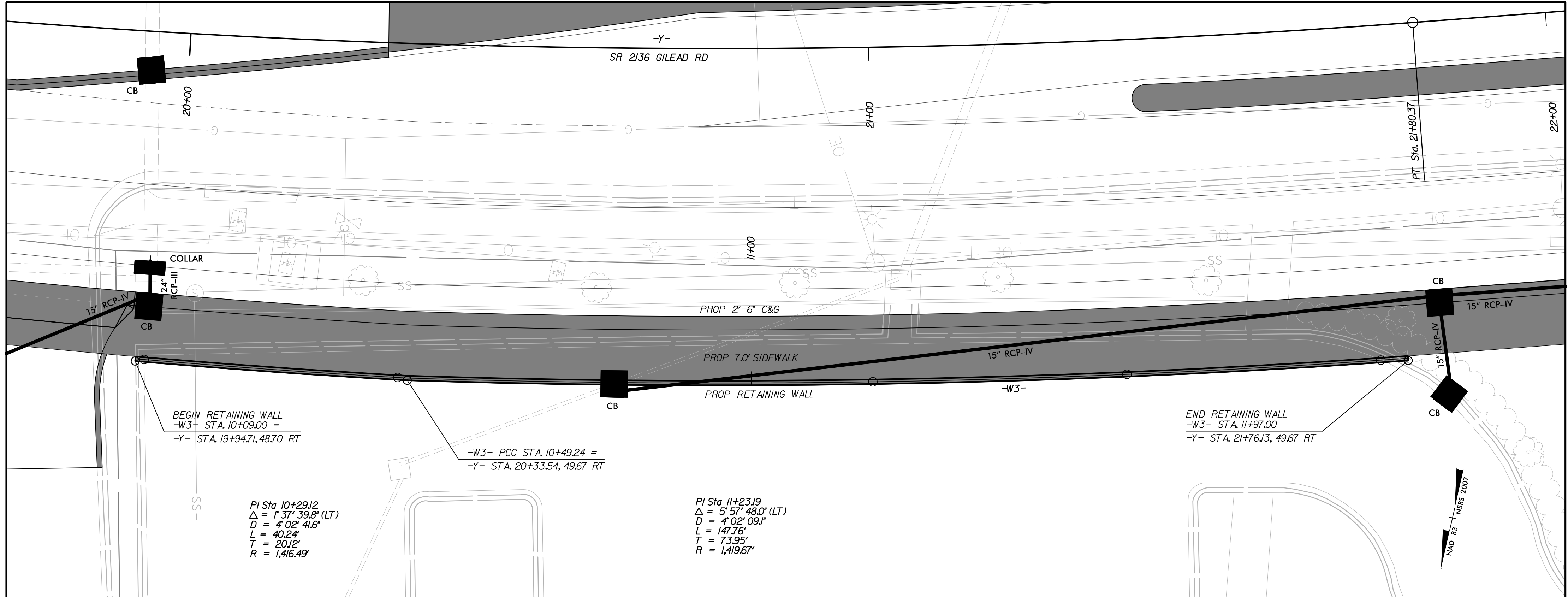
NOTES:

- FOR CAST-IN-PLACE (CIP) GRAVITY RETAINING WALL, SEE SECTION 453 OF THE STANDARD SPECIFICATIONS.
- FOR SUBSURFACE DRAINAGE AT WEEP HOLES, SEE ARTICLE 414-8 OF THE NCDOT STANDARD SPECIFICATION.
- A WIRE SCREEN SHALL BE SECURED TO THE FILL FACE OF ALL WEEP HOLES. SEE ARTICLE 420-11 OF THE NCDOT STANDARD SPECIFICATION.
- CIP GRAVITY WALL IS BASED ON THE FOLLOWING IN-SITU ASSUME SOIL PARAMETERS:
 UNIT WEIGHT, $\gamma = 120$ LB/CF
 FRICTION ANGLE, $\phi = 35$ DEGREES
 (GROUNDWATER WITHIN 7' OF BOTTOM OF FOOTING)
 FRICTION ANGLE, $\phi = 30$ DEGREES
 (GROUNDWATER MORE THAN 7' BELOW BOTTOM OF FOOTING)
 COHESION, $c = 0$ LB/SF
- DO NOT USE CIP GRAVITY WALL IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE BOTTOM OF FOOTING.
- DO NOT USE CIP GRAVITY WALL WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW WALL.
- BEFORE BEGINNING CIP GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF WALL, EXISTING GROUND AND GRADE ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS OF 25' OR LESS ALONG WALL. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPE IS ACCEPTED.
- DO NOT PLACE CONCRETE FOR FOOTING UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
- WHEN CONSTRUCTING CIP GRAVITY WALL WITH A CONSTRUCTION JOINT AS SHOWN IN DETAIL "A", PROVIDE A MINIMUM OF 3 EQUALLY SPACED #4 DOWELS AT INTERVALS OF 1'-6" ALONG THE WALL.
- FOR HANDRAIL, SEE SPECIAL PROVISIONS.
- CONTRACTOR SHALL INSTALL HANDRAIL IN ACCORDANCE WITH ROADWAY "DETAIL OF PIPE HANDRAIL MOUNTED ON RETAINING WALL" ON SHEET 2C-3.

RETAINING WALL -W3- DETAIL SHEET

STV 100 years
 STV Engineers, Inc.
 300 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

PROJECT REFERENCE NO. U-5114	SHEET NO. W-13
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



RETAINING WALL DETAIL NOT TO SCALE

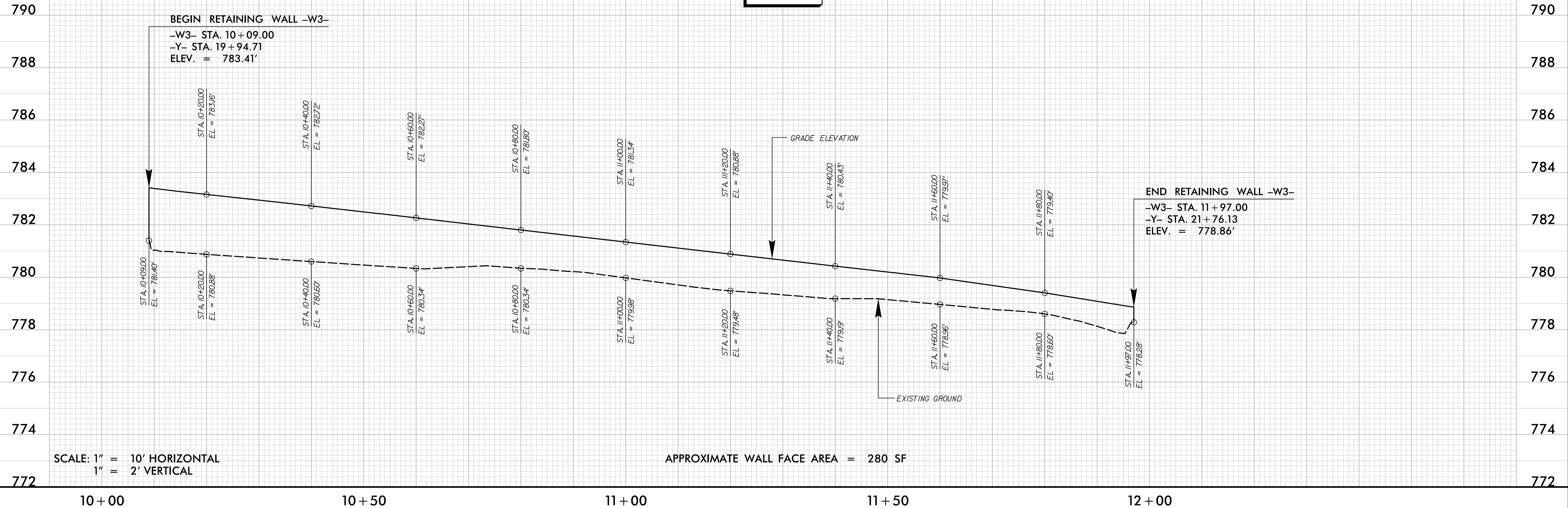
SCALE 1" = 10'

PLAN VIEW

SEE SHEET 8 FOR FULL PLAN VIEW

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF WALL

-W3-



5/2/2018 10:00 AM C:\Users\psh\OneDrive\Documents\psh\U-5114_rdy_psh_w-13.dgn