09/08/99

PROJECT NO: 15002.1007012

CONTRACT: DB00358

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

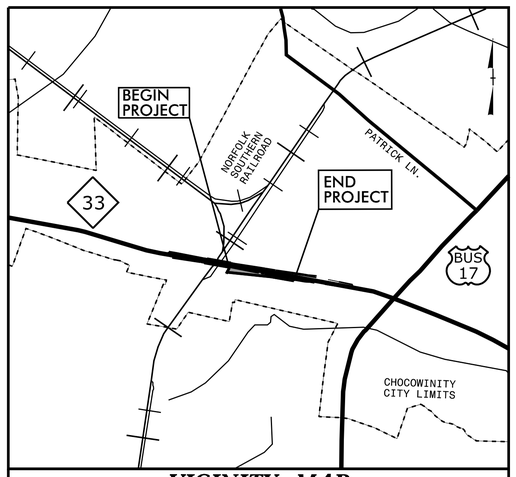
BEAUFORT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15002.1007012	1	

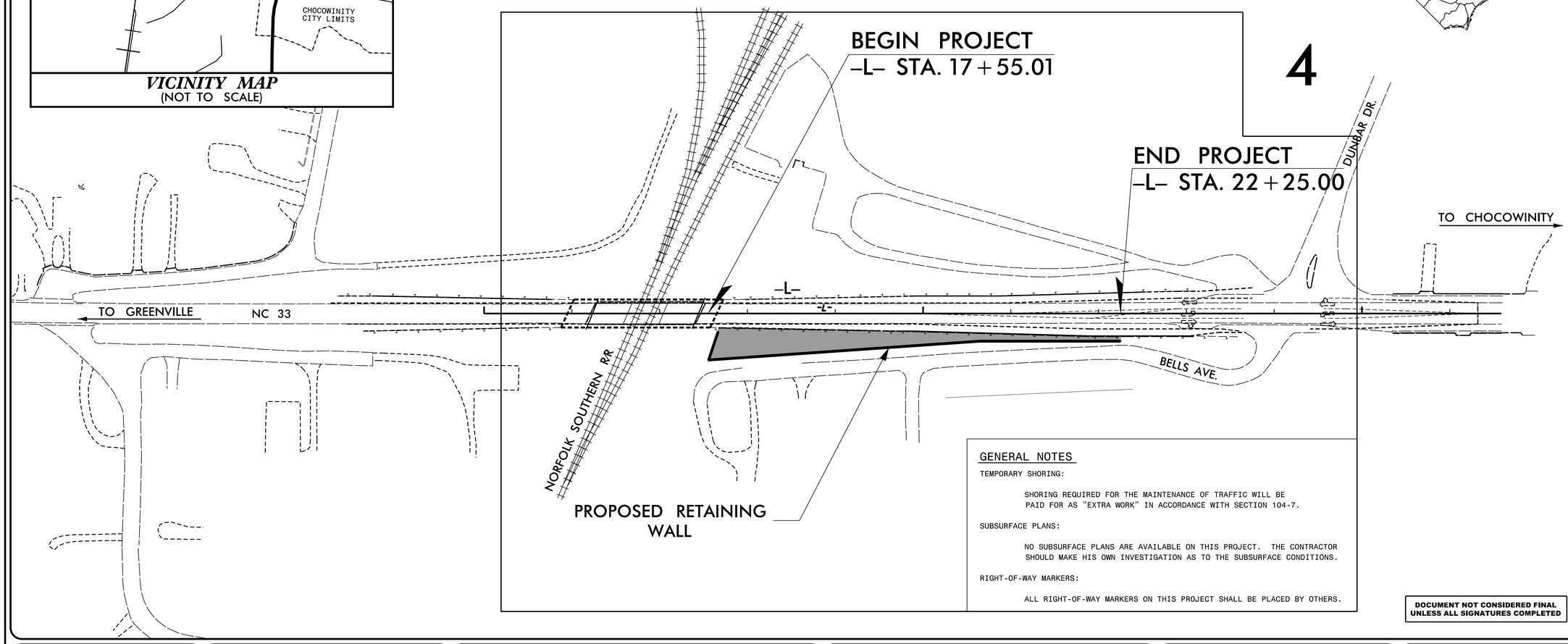
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
15002.1007012	N/A	P.E.

LOCATION: NC 33 FROM EAST OF NORFOLK SOUTHERN RAILROAD TO BELLS AVE.

TYPE OF WORK: GRADING AND RETAINING WALL



VICINITY MAP
(NOT TO SCALE)



GENERAL NOTES

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

PROJECT LENGTH

TOTAL LENGTH PROJECT
15002.1007012 = 0.089 MILES

INDEX OF SHEETS

Prepared by the Office of:

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 27, 2017

LETTING DATE:
DECEMBER 12, 2017

PHILLIP E. ROGERS, PE
PROJECT ENGINEER

CASEY E. HARRIS, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 37526 ENGINEER WYATT D. YELVERTON

DocuSigned by: Wyatt D. Yelverton
SIGNATURE: 11/7/2017 P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 32562 ENGINEER PHILLIP E. ROGERS

DocuSigned by: Phillip Rogers
SIGNATURE: 11/7/2017 P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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USER: Charris
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TIME: 5:01:06 PM

PROJECT REFERENCE NO.	SHEET NO.
15002.1007012	1A

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 23
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H–Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

REVISIONS

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29/08/09

PROJECT REFERENCE NO.	SHEET NO.
15002.1007012	1C

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

SURVEY CONTROL SHEET B-4416

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
100	BL-100	647598.9050	2562012.7420	41.36	7+48.82	24.91 LT
101	BL-101	647424.9750	2562628.6960	57.38	13+88.44	18.68 RT
102	BL-102	647361.5910	2562980.1240	62.79	17+45.53	15.74 RT
103	BL-103	647224.5810	2563636.6300	40.04	24+16.06	28.53 RT

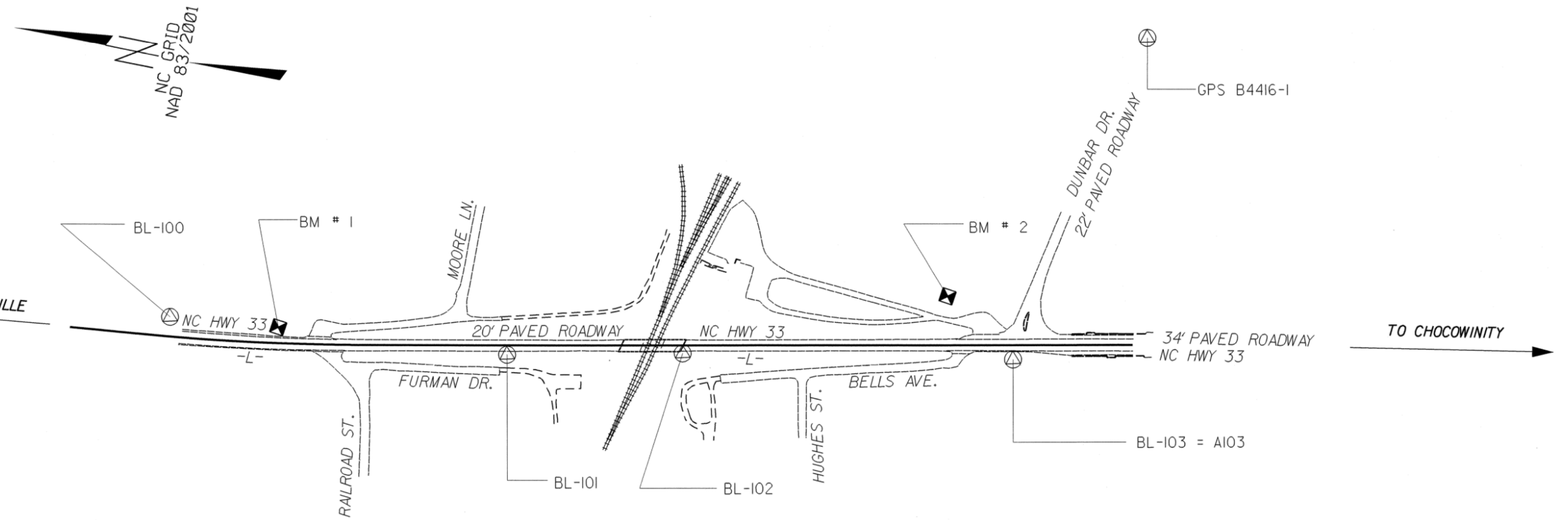
BY

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	GPS B4416-1	647813.6980	2564026.1940	32.32	OUTSIDE PROJECT LIMITS	
A103	BL-103	647224.5810	2563636.6300	40.04	24+16.06	28.53 RT

BENCHMARK DATA

```
**************************************
200       ELEVATION = 42.43
N 647565      E 2562183
L STATION 9+23  32 LEFT
N 76° 50' 07.6" W  DIST   1493.07
BM #1 RR SPIKE IN BASE OF 18" PECAN TREE
**************************************

**************************************
201       ELEVATION = 40.58
N 647375      E 2563530
L STATION 22+83  100 LEFT
BM #2 RR SPIKE IN BASE OF 20" PINE TREE
**************************************
```



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS B4416-1" WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF NORTHING: 647813.698 (FT) EASTING: 2564026.194 (FT) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988731 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B4416-1" TO -L- STATION 9+00.00 IS S 81°38'19.8 W 1893.21 FT ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
15002.1007012	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 32582 ENGINEER PHILIP E. ROGERS

4/21/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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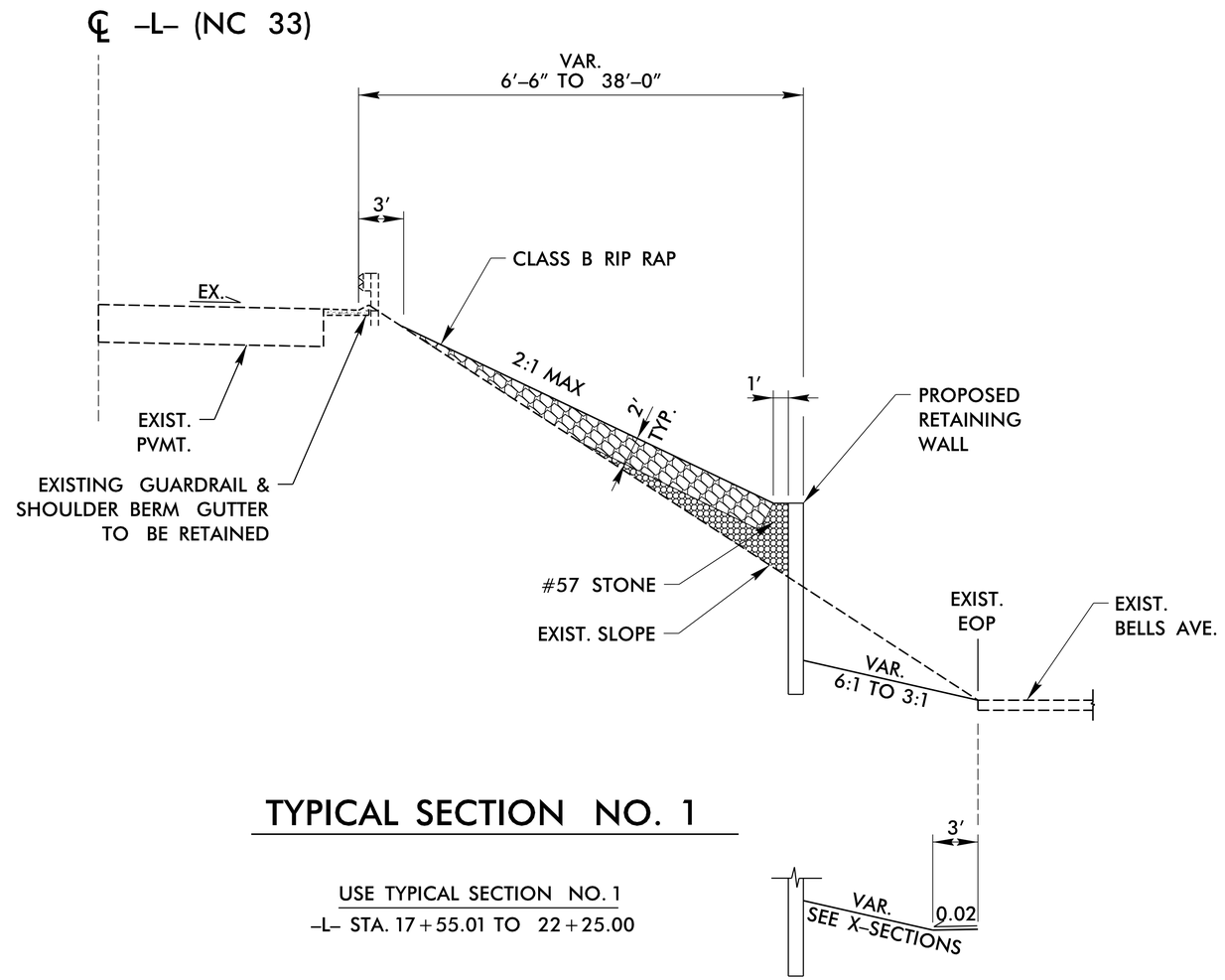
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 17+55.01 TO 22+25.00

TYPICAL SECTION NO. 1A
–L– STA. 18+00.00 TO 19+75.00
SEE PLAN SHEET NO. 4 FOR DITCH LOCATION

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
15002.1007012	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 32562, PHILLIP E. ROGERS, 11/7/2017	SEAL 37526, 11/7/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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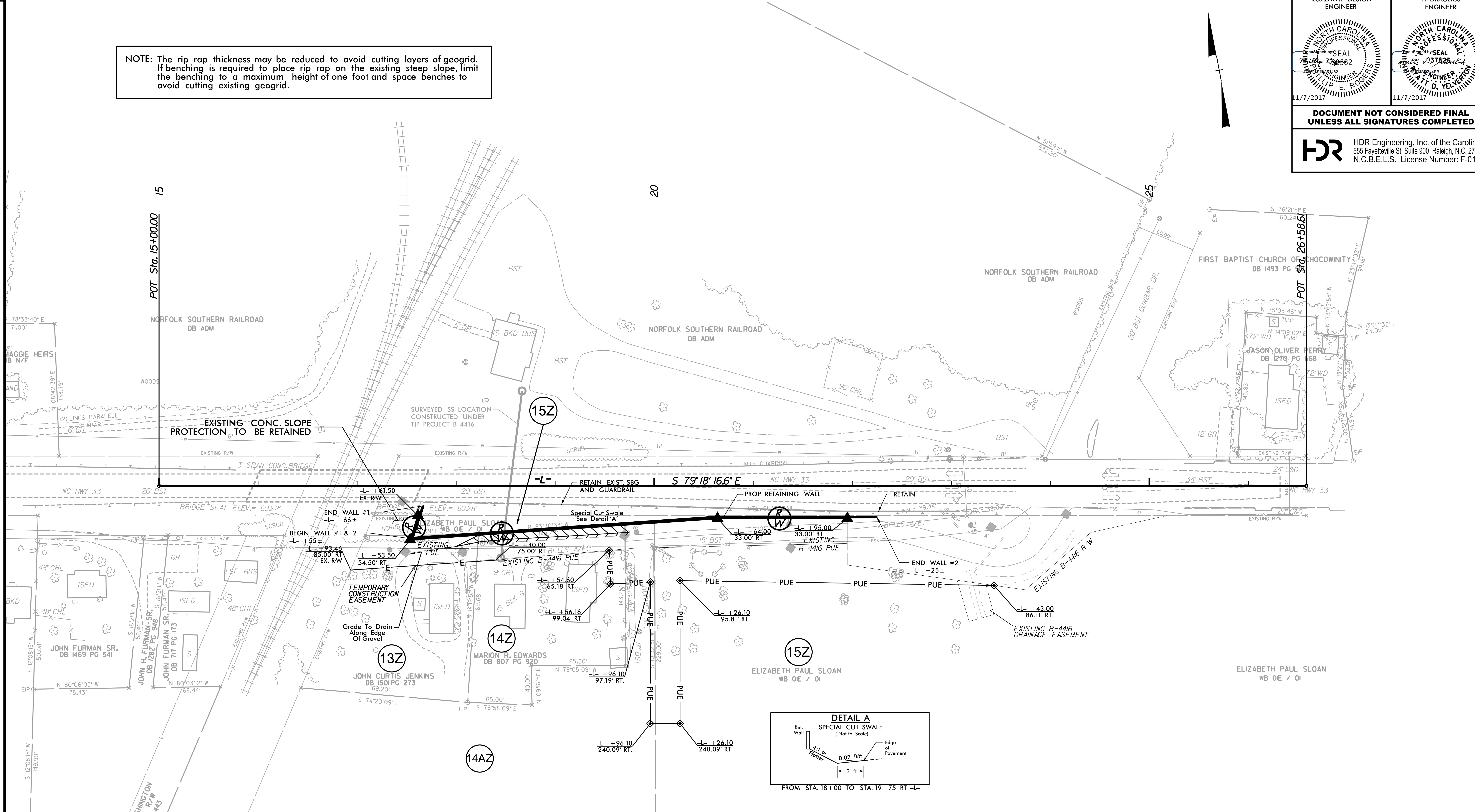
N.C.B.E.L.S. License Number: F-0116

NOTE: The rip rap thickness may be reduced to avoid cutting layers of geogrid. If benching is required to place rip rap on the existing steep slope, limit the benching to a maximum height of one foot and space benches to avoid cutting existing geogrid.



SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- STA. 17+55.01	-L- STA. 22+25.00	505	0	0	505
PROJECT TOTALS:		505	0	0	505
SAY:		550			

EST. 560 TONS CLASS B RIP RAP
EST. 370 TONS NO. 57 STONE

FOR RETAINING WALL PLANS, SEE SHEET S-1 THRU S-13

REVISIONS

PROJ. REFERENCE NO.	SHEET NO.
15002.1007012	TMP-1

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUM

LEGEND

- DIRECTION OF TRAFFIC FLOW
- DRUM
- WORK AREA
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- EXISTING PAVEMENT MARKING LINES

GENERAL NOTES

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

E) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

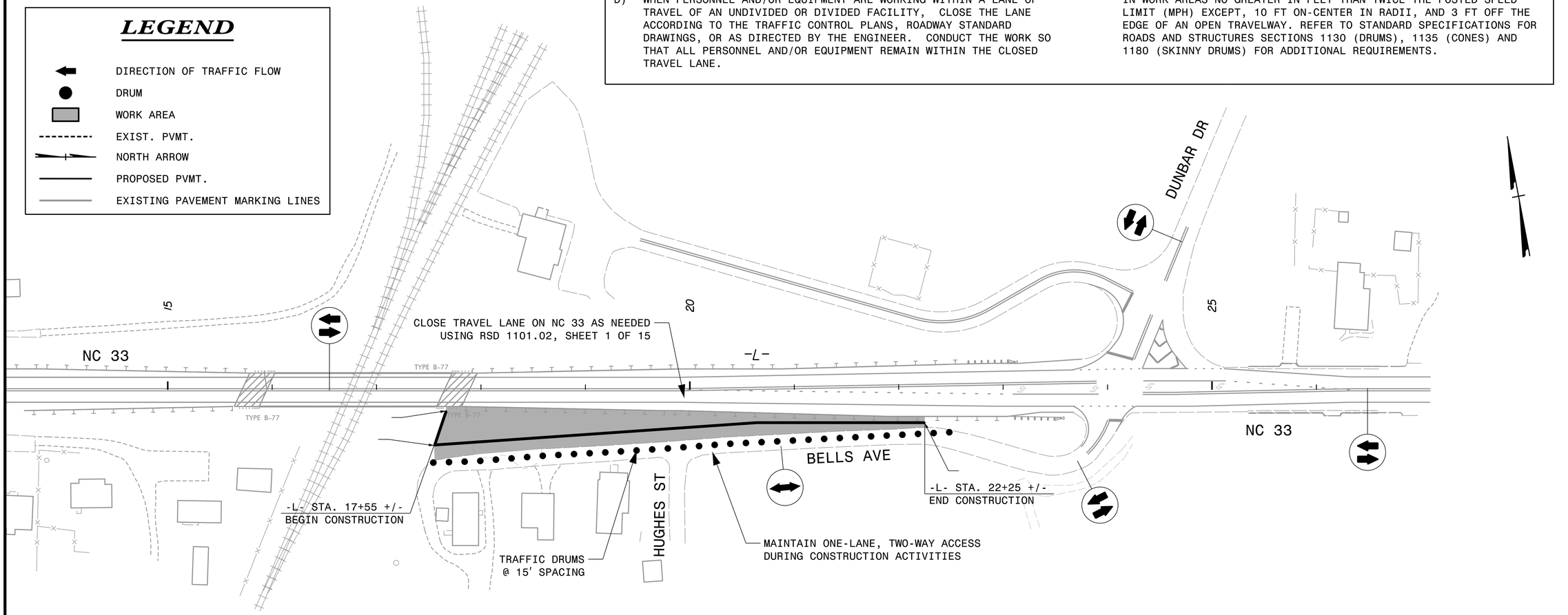
SIGNING

F) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

G) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

H) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.



PHASING

NOTES:

BEFORE BEGINNING ANY CONSTRUCTION ACTIVITIES, INSTALL ADVANCE WARNING SIGNS ON NC 33 & BELLS AVE, ACCORDING TO RSD 1101.01. FIELD VERIFY LOCATIONS WITH THE RESIDENT ENGINEER PRIOR TO INSTALLATION.

MAINTAIN ACCESS TO ALL RESIDENCES AND EMERGENCY SERVICES AT ALL TIMES.

PHASE 1

USING LANE CLOSURES AND FLAGGERS, RSD 1101.02, SHEET 1 OF 15, AS NEEDED ON NC 33 & LANE NARROWING ON BELLS AVE, CONSTRUCT RETAINING WALL ALONG -L- (NC 33) FROM STA. 17+55 +/- TO STA. 22+25 +/-. RE-OPEN TRAVEL LANES TO THE EXISTING TRAFFIC PATTERNS AT THE END OF EACH WORK DAY.

ONCE ALL CONSTRUCTION IS COMPLETE, REMOVE ALL TEMPORARY SIGNS AND DEVICES.

APPROVED: DocuSigned by: Michelle Ward — F83857568926486...

DATE: 4/21/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

REVISIONS

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SOIL STABILIZATION TIMEFRAMES

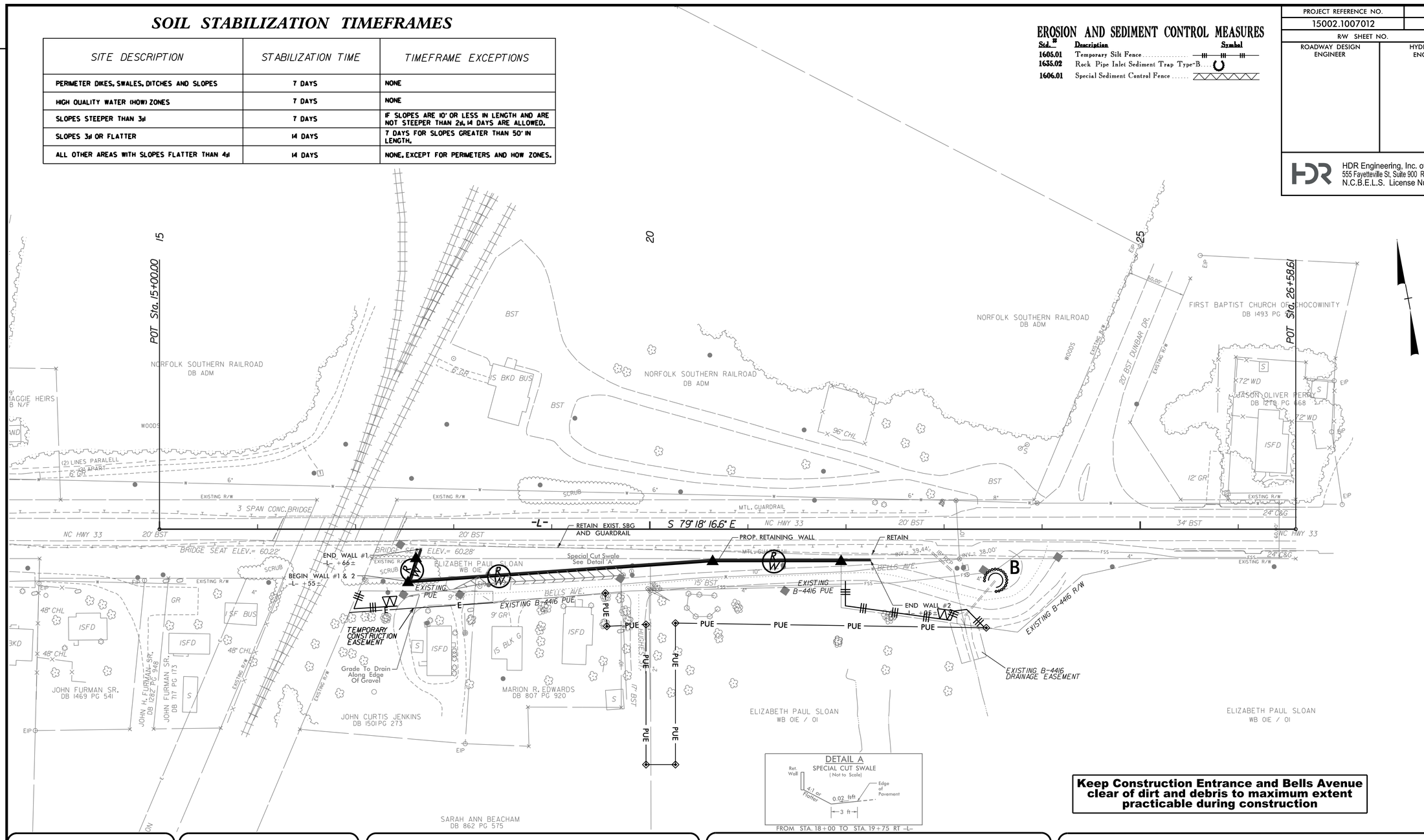
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1635.02	Rock Pipe Inlet Sediment Trap Type B	
1606.01	Special Sediment Control Fence	

PROJECT REFERENCE NO.	SHEET NO.
15002.1007012	EC-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



Keep Construction Entrance and Bells Avenue clear of dirt and debris to maximum extent practicable during construction

GRAPHIC SCALE

50 25 0 50 100
SCALE

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

Designed by:

Wyatt Yelverton, PE, CPESC *3609*
NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

REVISIONS

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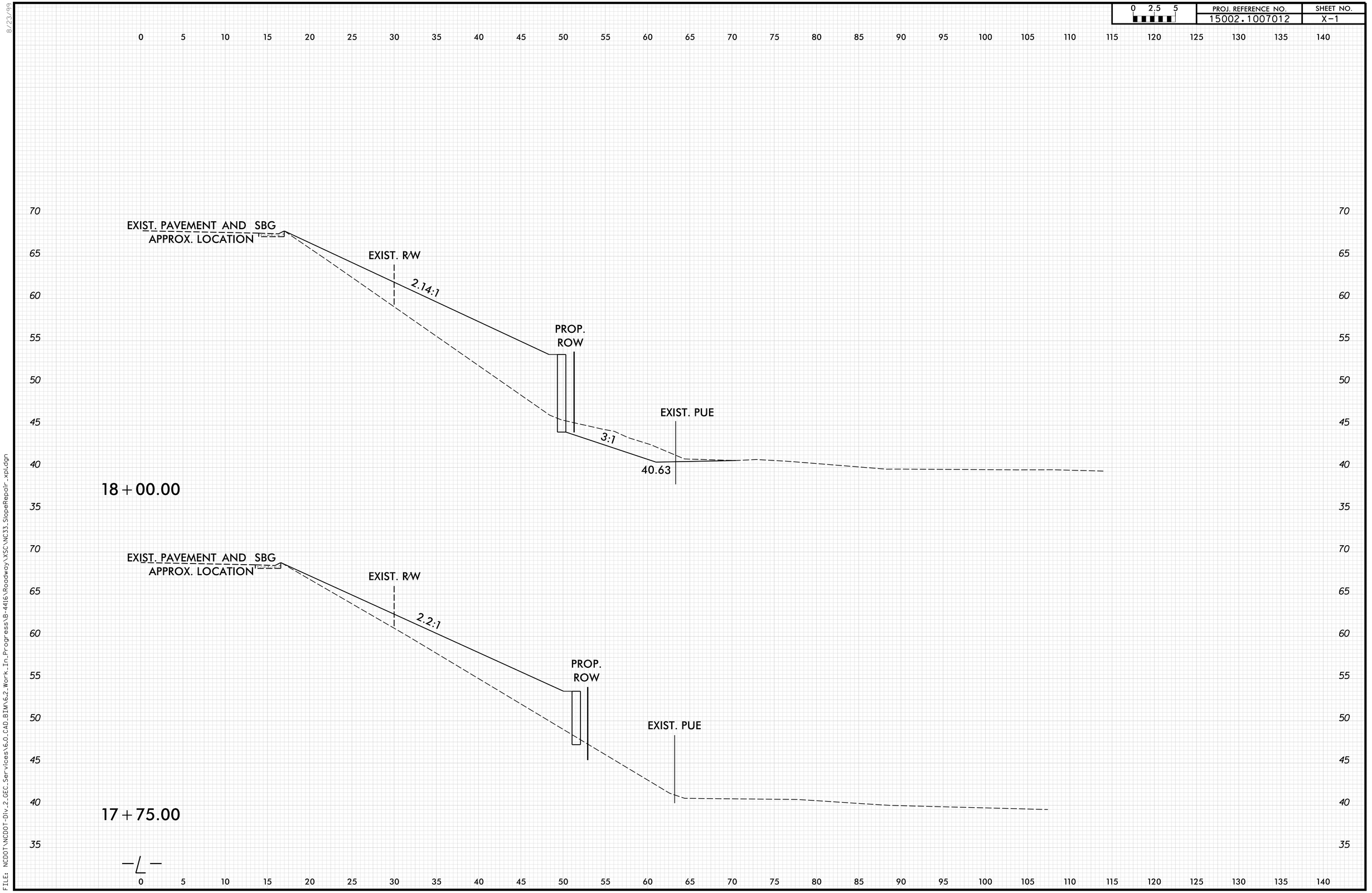

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
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40
35

EXIST. PAVEMENT AND SBG
APPROX. LOCATION

EXIST. R/W

2:1

PROP.
ROW

EXIST. PUE

4:1

40.80

18+50.00

EXIST. PAVEMENT AND SBG
APPROX. LOCATION

EXIST. R/W

2.1:1

PROP.
ROW

EXIST. PUE

4:1

40.75

18+25.00

—L—

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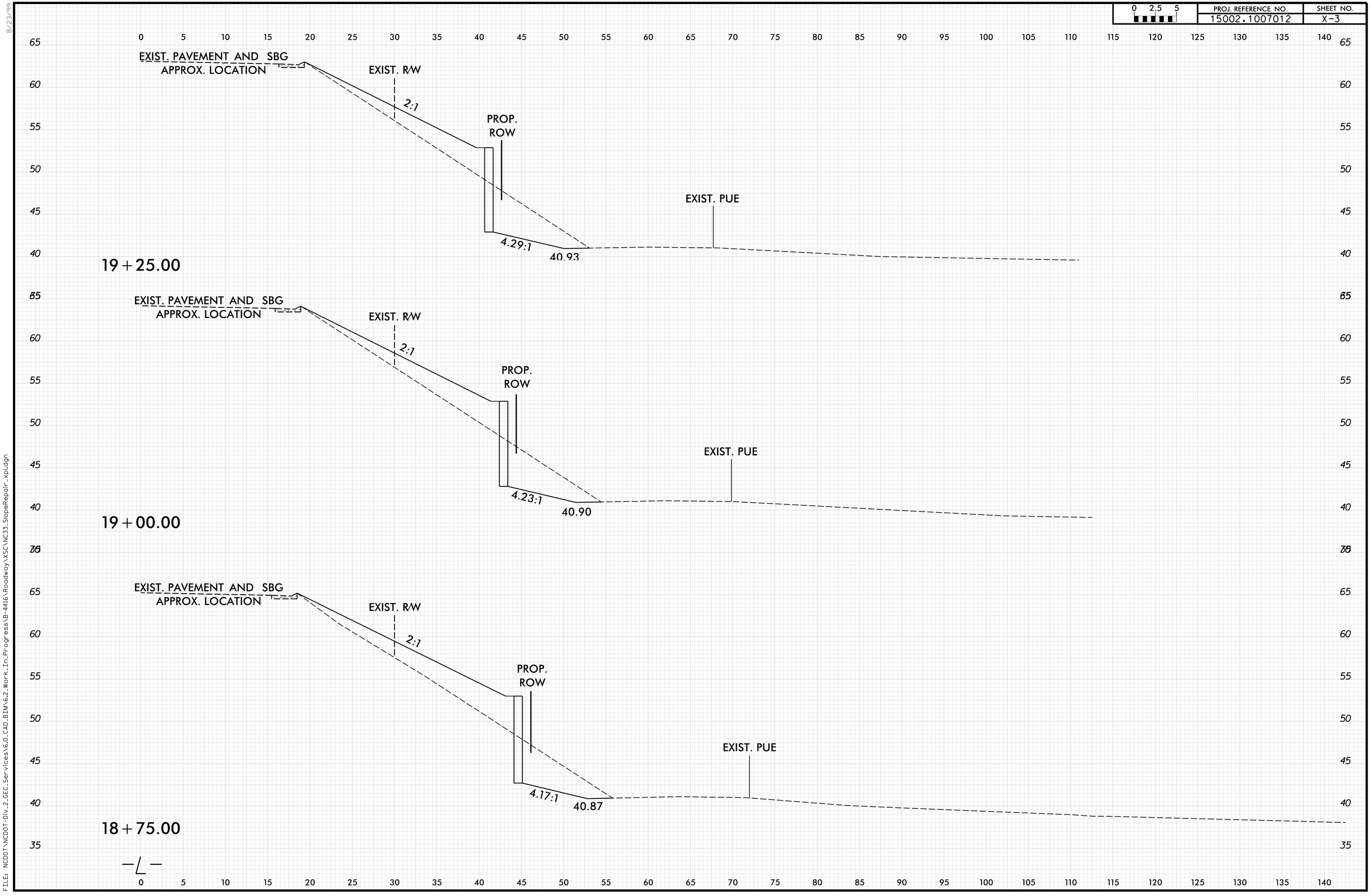

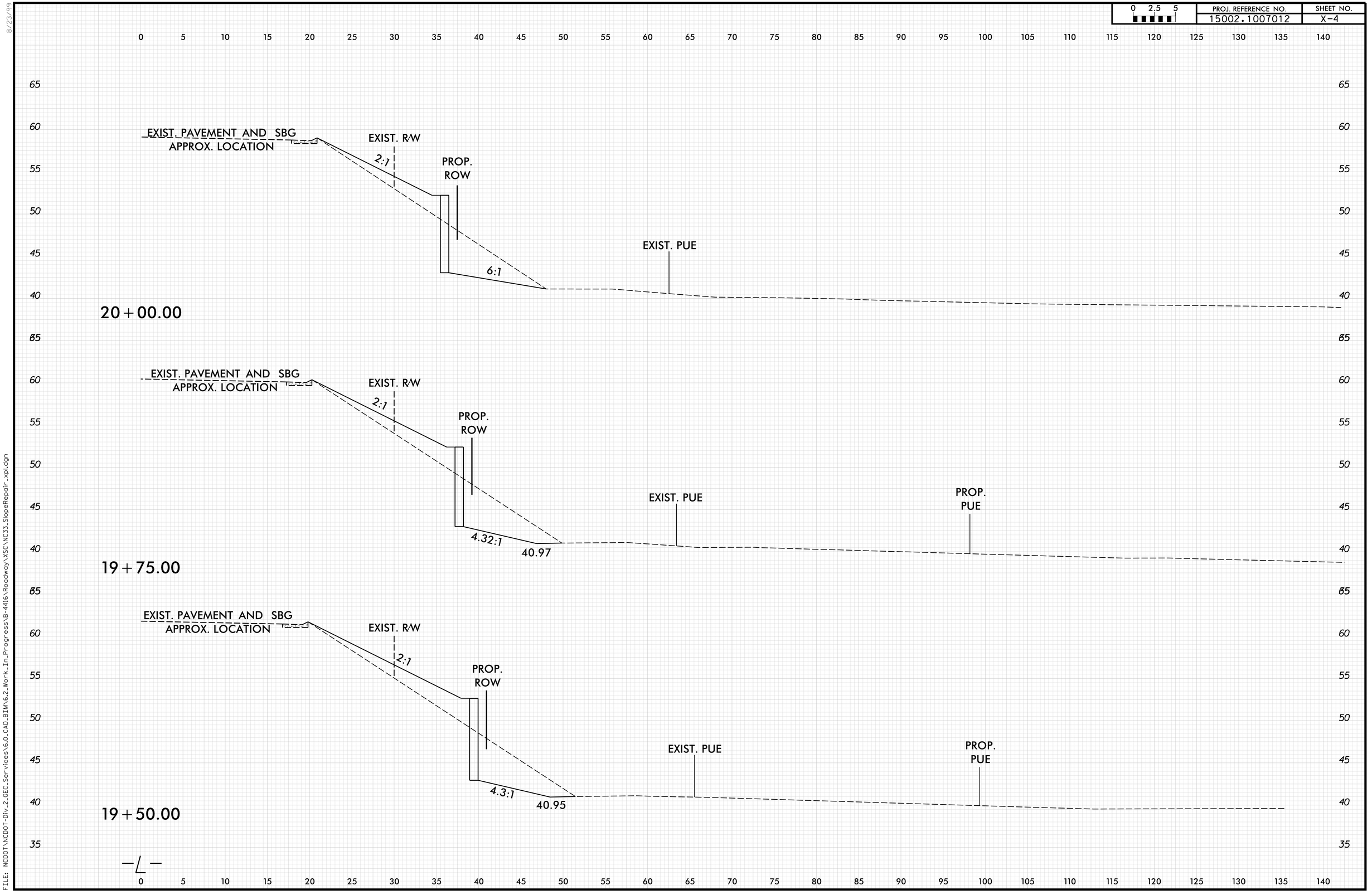

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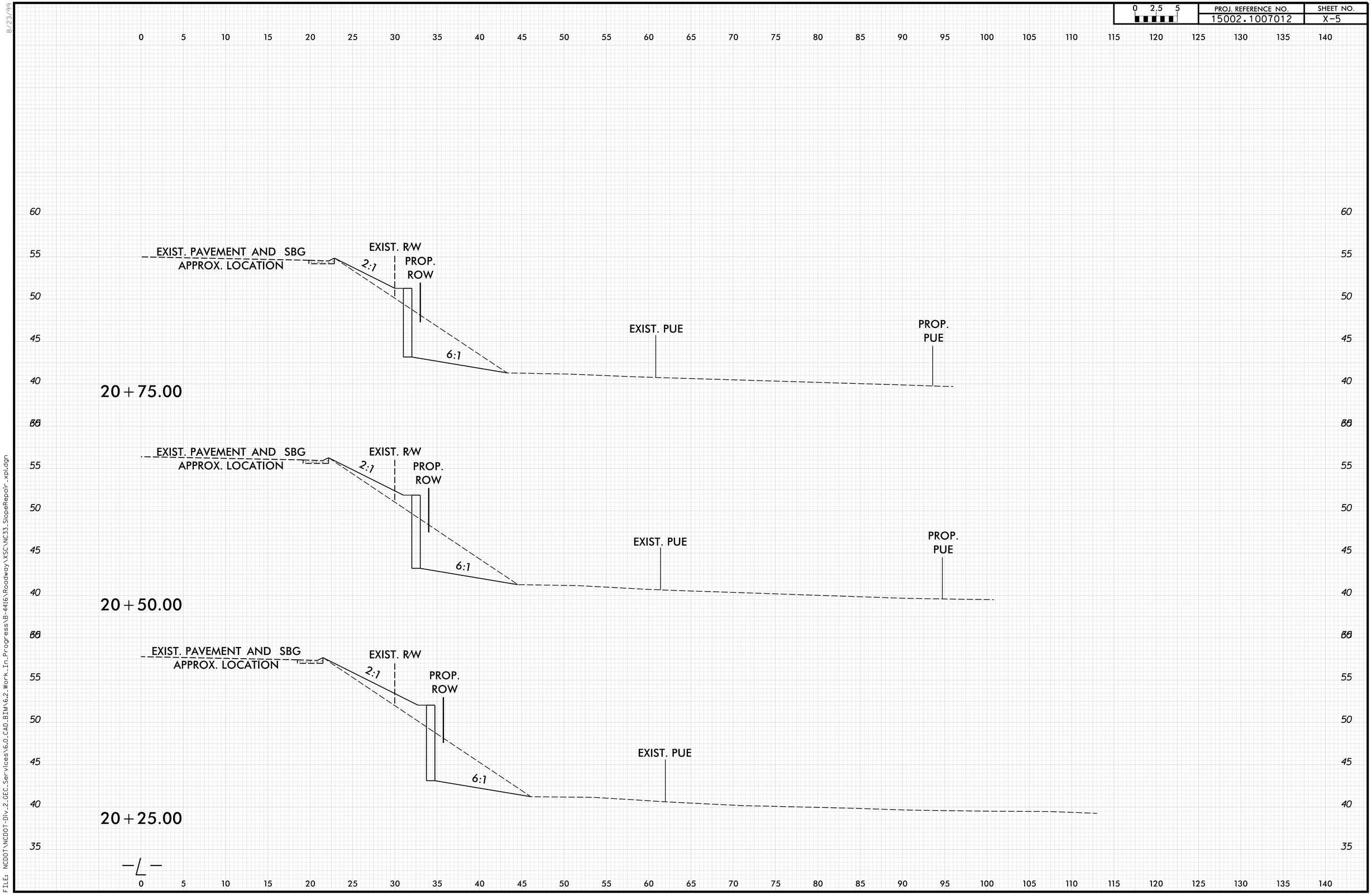

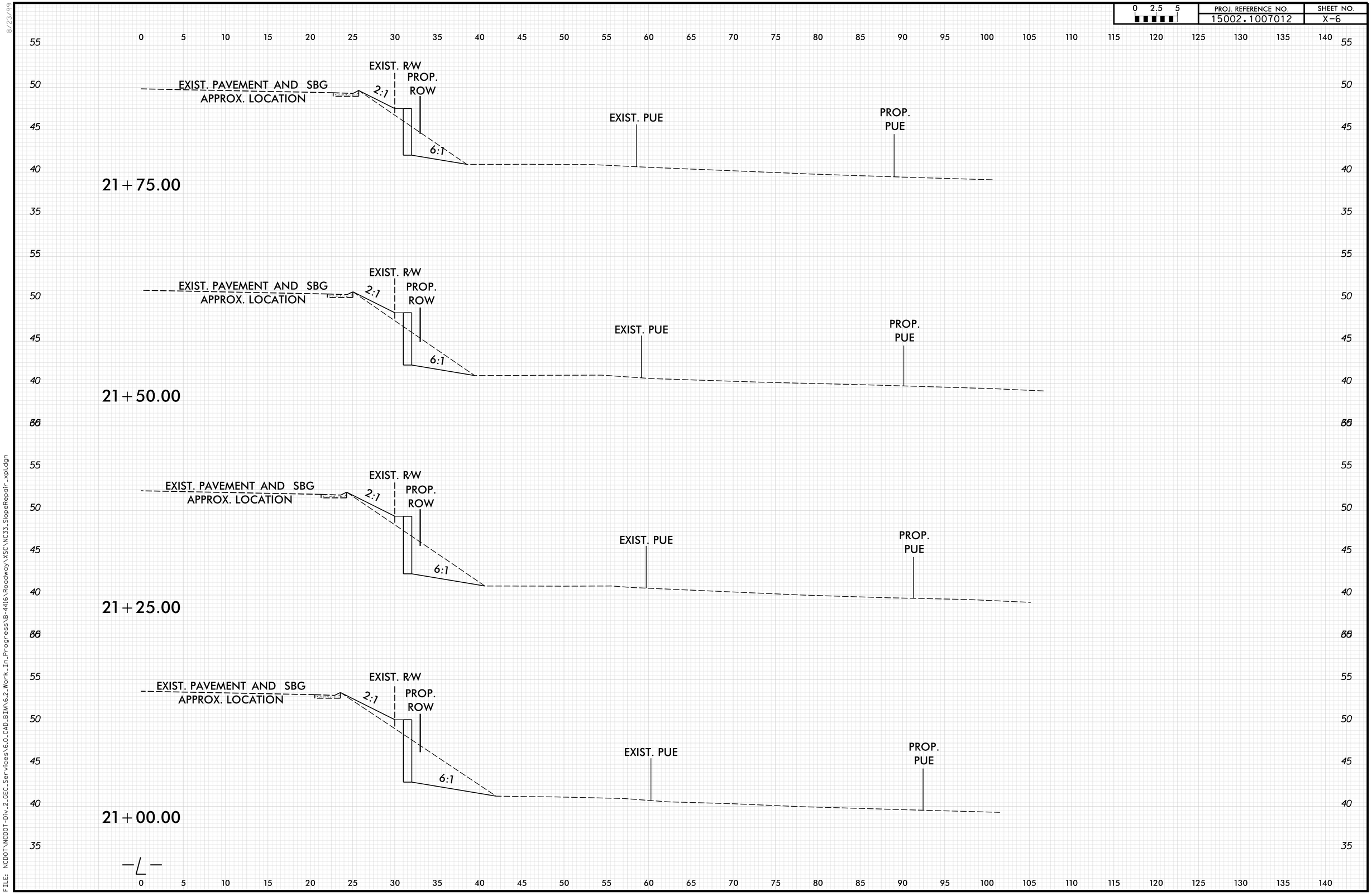

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8/23/99

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50 45 40 35

EXIST. PAVEMENT AND SBG
APPROX. LOCATION

EXIST. R/W

22+50.00

EXIST. PAVEMENT AND SBG
APPROX. LOCATION

2:1

6:1

R/W

PROP.
PUE

22+25.00

EXIST. PAVEMENT AND SBG
APPROX. LOCATION

2:1

6:1

EXIST. R/W

PROP.
PUE

22+00.00

℄

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140

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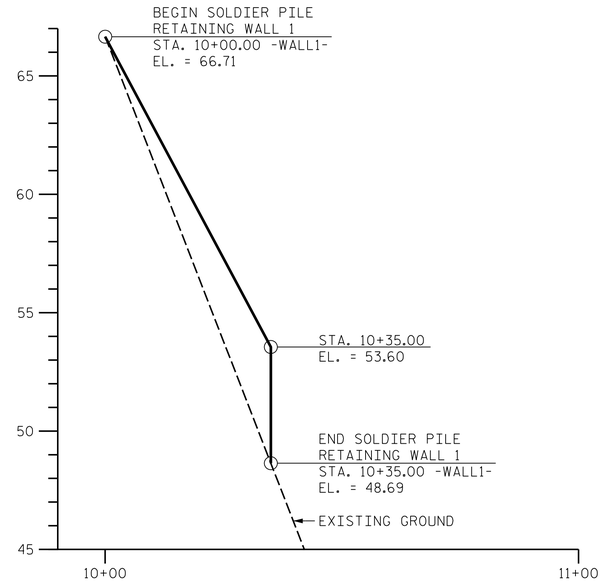
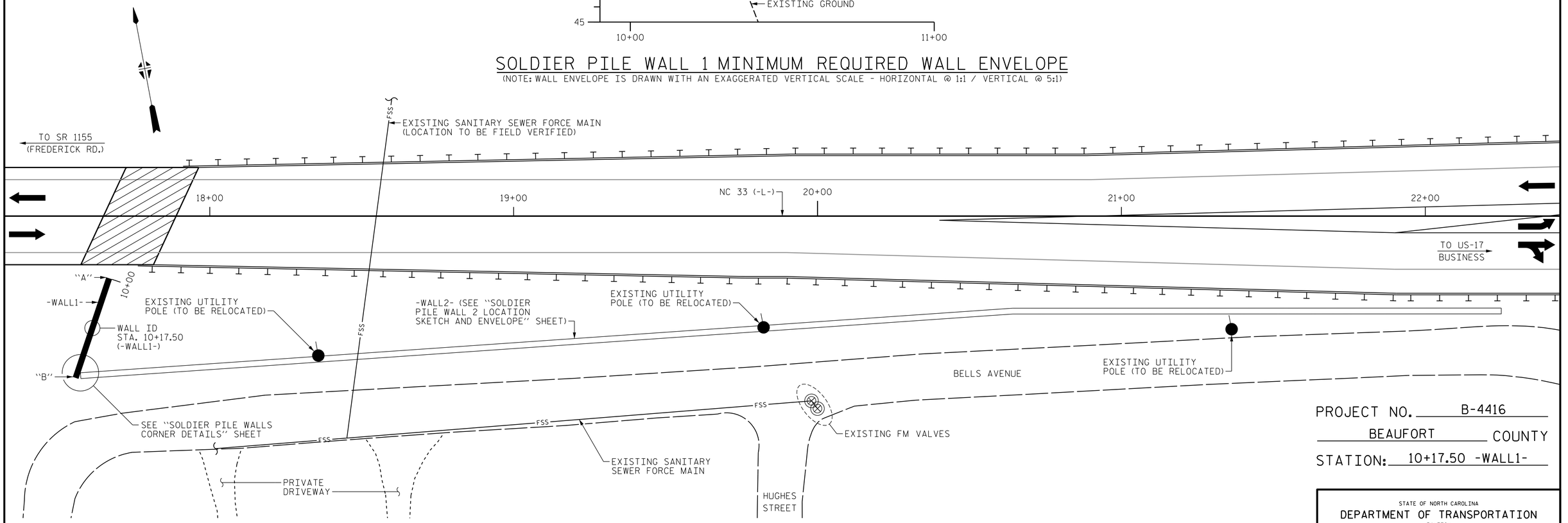


SOLDIER PILE WALL 1 MINIMUM REQUIRED WALL ENVELOPE

(NOTE: WALL ENVELOPE IS DRAWN WITH AN EXAGGERATED VERTICAL SCALE - HORIZONTAL @ 1:1 / VERTICAL @ 5:1)



SOLDIER PILE WALL 1 LOCATION SKETCH

"A" - BEGIN SOLDIER PILE RETAINING WALL 1 STA. 10+00.00 -WALL1- STA. 17+66.16 -L- 20.27' OFFSET (RT)

"B" - END SOLDIER PILE RETAINING WALL 1 STA. 10+35.00 -WALL1- STA. 17+55.01 -L- 53.45' OFFSET (RT)

DES BY: B. ROGERS	DATE: 02/17	DWG BY: W. TOWE	DATE: 02/17
DES CHK: T. ANDREWS	DATE: 02/17	CHK BY: B. ROGERS	DATE: 02/17

DocuSigned by: SEAL 023230 — NORTH CAROLINA PROFESSIONAL ENGINEER — ANNA C. TEAGUE

4/21/2017

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 10+17.50 -WALL1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 1 LOCATION SKETCH AND ENVELOPE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-01
1	---	---	3	---	---	TOTAL SHEETS
2	---	---	4	---	---	S-14

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USER: wtowe
FILE: ...\3.0 CADD\Final Plans\01
DATE: 4/21/2017
PENTABLE: B-4416.tbl
TIME: 5:42:55 AM

SOLDIER PILE WALL 2 MINIMUM REQUIRED WALL ENVELOPE

(NOTE: WALL ENVELOPE IS DRAWN WITH AN EXAGGERATED VERTICAL SCALE - HORIZONTAL @ 1:1 / VERTICAL @ 5:1)

SOLDIER PILE WALL 2 LOCATION SKETCH

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 12+35.37 -WALL2-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 2 LOCATION SKETCH AND ENVELOPE

NORTH CAROLINA PROFESSIONAL SEAL 033730 ENGINEER ANNA C. TEAGUE

DocuSigned by: Anna C. Teague

4/21/2017

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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DES CHK: T. ANDREWS	DATE: 02/17	CHK BY: B. ROGERS	DATE: 02/17

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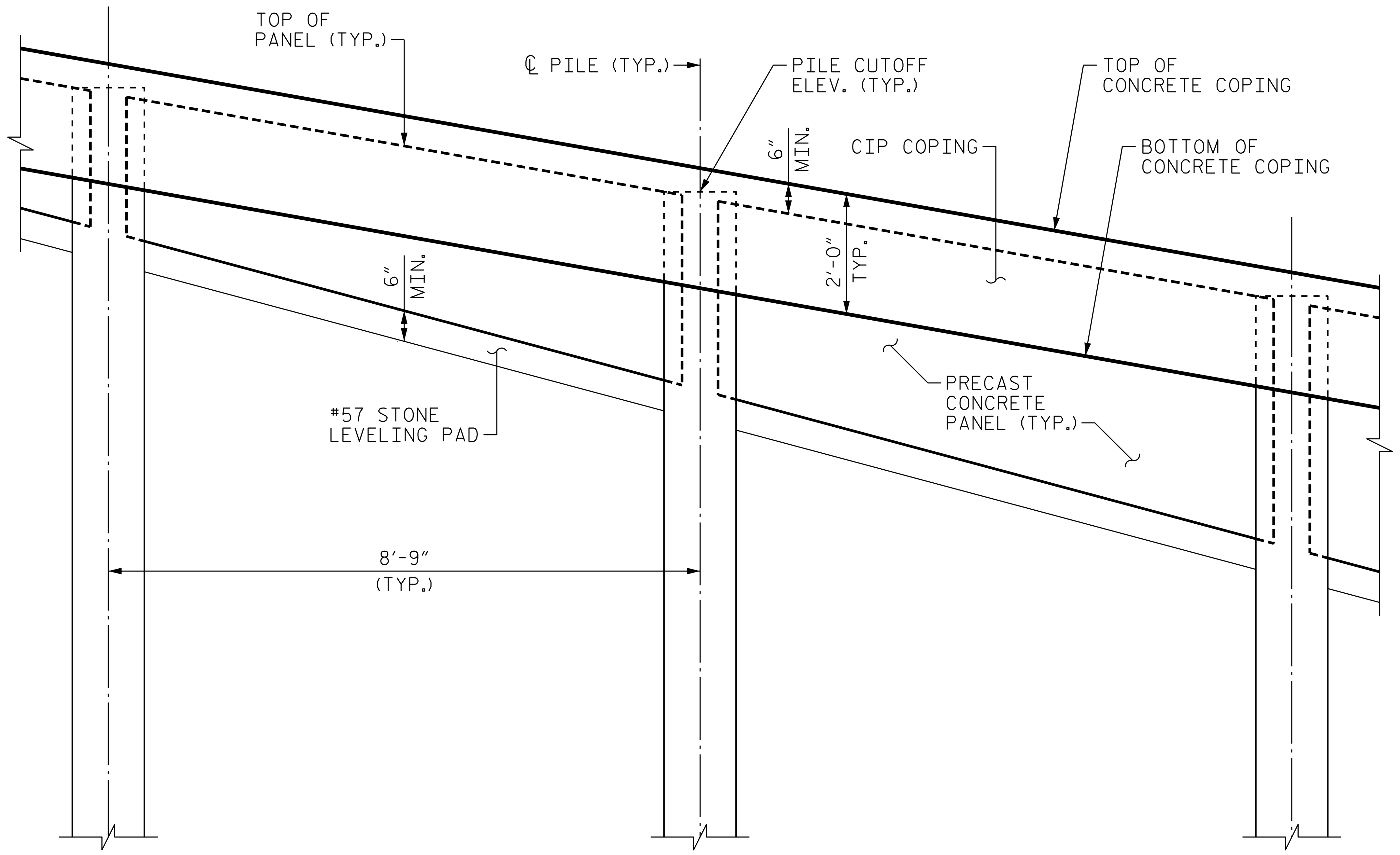

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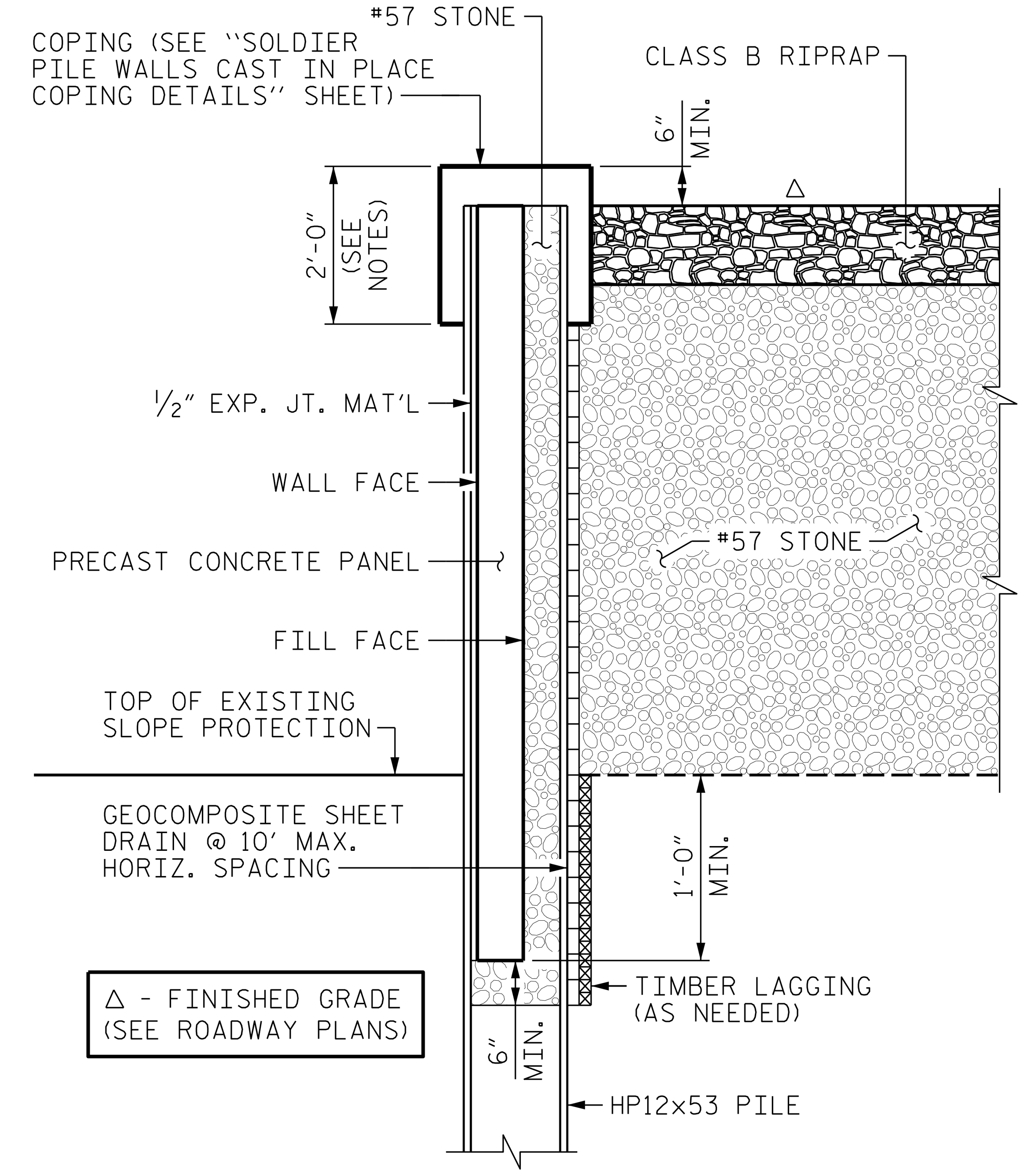

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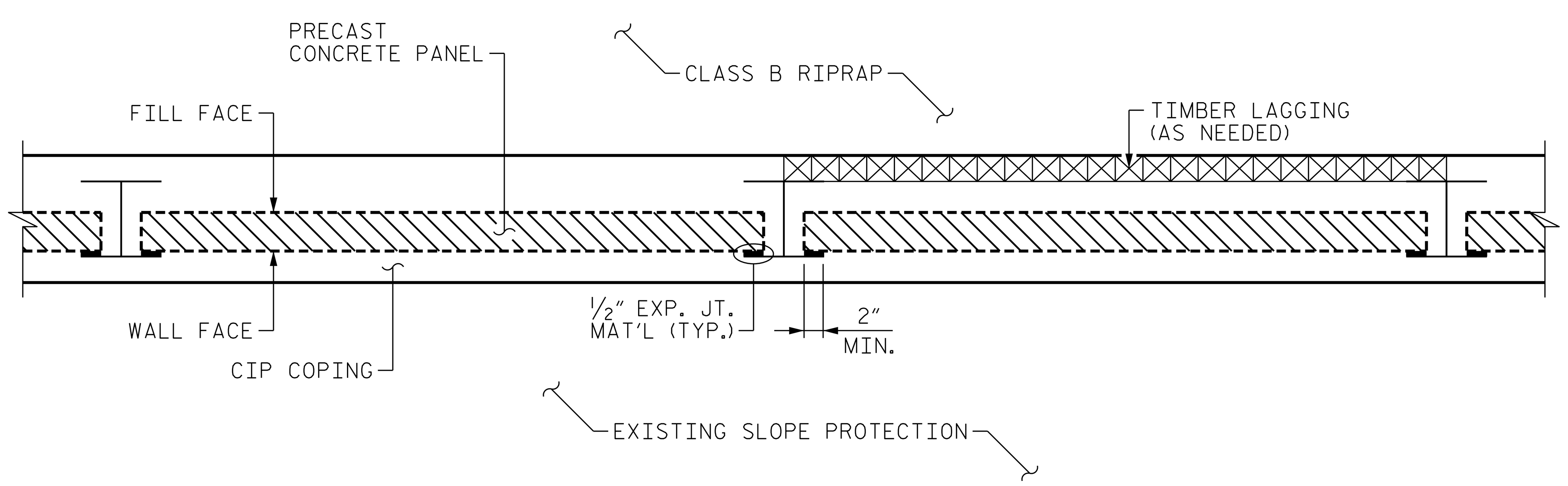

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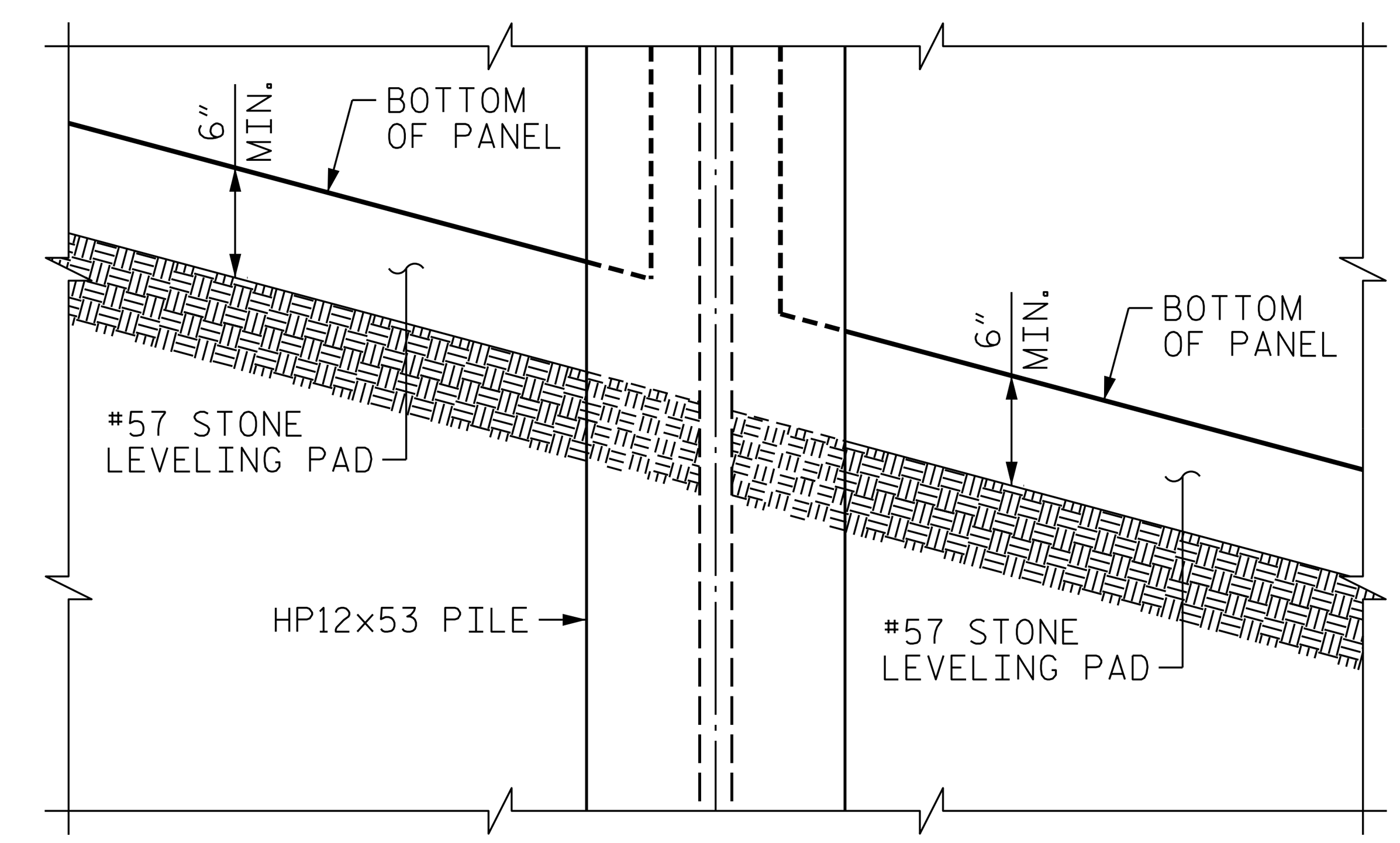

FOUNDATION DETAIL

NOTES (CON'T)

STATIONS AND OFFSETS FOR RETAINING WALL ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.

NOTES

FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.

USE SOLDIER PILE RETAINING WALL WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALLS.

AT THE CONTRACTOR'S OPTION, PROVIDE A SOLDIER PILE WALL WITH A CAST IN PLACE FACE. SEE "SOLDIER PILE WALLS ALTERNATE DETAILS" SHEET. CONTRACTOR MUST PROVIDE DESIGN CALCULATIONS AND SHOP DRAWINGS FOR THE CAST IN PLACE ALTERNATE OPTION TO THE ENGINEER FOR APPROVAL.

PAINT EXPOSED GALVANIZED H-PILES GRAY IN ACCORDANCE WITH ARTICLE 442-12 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALLS.

USE VIBRATED H-PILES FOR RETAINING WALLS. NOTE A POTENTIAL LAYER OF ASPHALT (APPROXIMATELY 6 INCHES THICK) PRESENT AT THE BASE OF THE EXISTING EMBANKMENT MAY REQUIRE IMPACT DRIVING OR EXCAVATION TO PENETRATE.

LAYERS OF GEOGRID WILL BE ENCOUNTERED IN THE EXISTING EMBANKMENT. MINIMIZE CUTTING OF GEOGRID LAYERS BEHIND THE SOLDIER PILE WALL AS EXCAVATION IS PERFORMED IN FRONT OF THE WALL. INSTALL SOLDIER PILES AND PANELS OR TIMBER LAGGING PRIOR TO EXCAVATING IN FRONT OF THE WALL.

UTILIZE TIMBER LAGGING BEHIND THE PILE FLANGES AS NEEDED FOR TEMPORARY SHORING (SEE DETAILS). LIMIT CUTTING INTO THE EXISTING GEOGRID REINFORCED SLOPE BEHIND THE WALL ONLY TO THAT NECESSARY TO PLACE PANELS OR TIMBER LAGGING.

USE COARSE AGGREGATE STANDARD SIZE #57 THAT MEETS TABLE 1005-1 OF THE STANDARD SPECIFICATIONS FOR BACKFILL BEHIND THE SOLDIER PILE WALL AND AS FILL TO CONSTRUCT THE 2:1 SLOPE BEHIND THE WALL.

DO NOT BENCH INTO THE EXISTING SLOPE PRIOR TO PLACEMENT OF COARSE AGGREGATE TO MINIMIZE DISTURBANCE TO THE EXISTING GEOGRID.

CAP THE COARSE AGGREGATE WITH RIP RAP AS INDICATED ON THE PLANS.

ADJUST DEPTH OF COPING TO MATCH SURFACE OF EXISTING CONCRETE SLOPE PROTECTION ONLY ALONG WALL FACE WHEN FULL DEPTH COPING CANNOT BE ACHIEVED DUE TO INTERFERENCE WITH EXISTING CONCRETE SLOPE PROTECTION. FIELD CUT BARS IN COPING AS NECESSARY TO MAINTAIN A 2 INCH CLEAR TO EXISTING CONCRETE SLOPE PROTECTION.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF DRAINAGE STRUCTURES AND UTILITIES PRIOR TO INSTALLING PILES.

INSTALL SOLDIER PILES AND PANELS OR TIMBER LAGGING PRIOR TO EXCAVATING IN FRONT OF THE WALL.

CONCRETE PANELS SHALL BE HELD SECURELY AGAINST PILES UNTIL BACKFILL IS PLACED.

WHERE STRUCTURAL TIMBER LAGGING IS USED, FILL THE ANNULAR SPACE BETWEEN THE PRECAST CONCRETE PANELS AND THE STRUCTURAL TIMBER LAGGING WITH #57 STONE. ALSO FILL ANY ANNULAR SPACE BETWEEN THE FACE OF THE EXCAVATION AND THE STRUCTURAL TIMBER WITH #57 STONE. PLACE BACKFILL BEHIND THE STRUCTURAL TIMBER LAGGING IMMEDIATELY AFTER INSTALLATION.

BOTH CUSHIONING MATERIAL AND BACKFILL MATERIAL BEHIND THE PANELS SHALL BE #57 STONE AND COMPACTED AS REQUIRED BY THE ENGINEER. THE STONE SHALL BE RODDED AND SPREAD IN ORDER TO FILL ALL VOIDS AND ENSURE MAXIMUM DENSITY. FLUSHING THE STONE TO AID COMPACTION WILL NOT BE ALLOWED.

WHERE PRACTICAL, THE TOP FEW PIECES OF STRUCTURAL TIMBER LAGGING SHALL BE REMOVED PRIOR TO BACKFILLING BEHIND PANELS. ALL OTHER STRUCTURAL TIMBER LAGGING SHALL BE LEFT IN PLACE.

THE CONTRACTOR MAY ELECT TO USE AN ALTERNATIVE METHOD OF PROVIDING A SAFE EXCAVATION. HOWEVER, THE ALTERNATE METHOD MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

CLASS "AA" CONCRETE SHALL BE USED FOR FABRICATION OF PRECAST CONCRETE PANELS.

PLACE ALL PILES AND PANELS FOR RETAINING WALL 1 BEFORE BEGINNING THE CONSTRUCTION OF RETAINING WALL 2.

PILES SHALL BE INSTALLED AS CLOSE AS POSSIBLE ALONG THE EXISTING CONCRETE SLOPE PROTECTION WITHOUT DAMAGE TO THE EXISTING CONCRETE SLOPE PROTECTION. ANY DAMAGE TO THE EXISTING CONCRETE SLOPE PROTECTION SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER.

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 10+17.50 -WALL1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 1 DETAILS AND NOTES

4/21/2017

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NO.	BY:	DATE:	NO.	BY:	DATE:		
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2	---	---	4	---	---	TOTAL SHEETS	S-14

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CHK BY: T. ANDREWS DATE: 02/17

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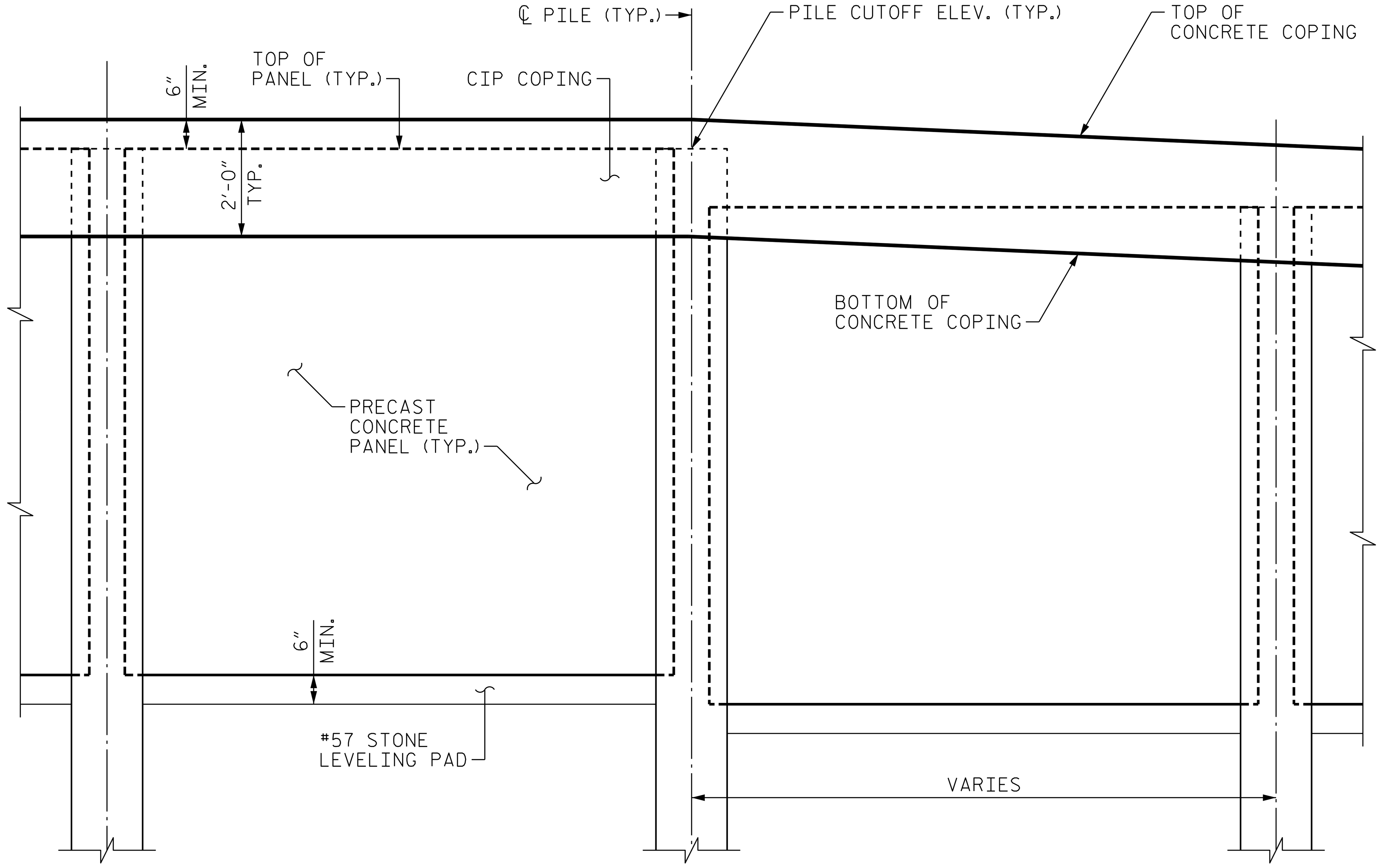

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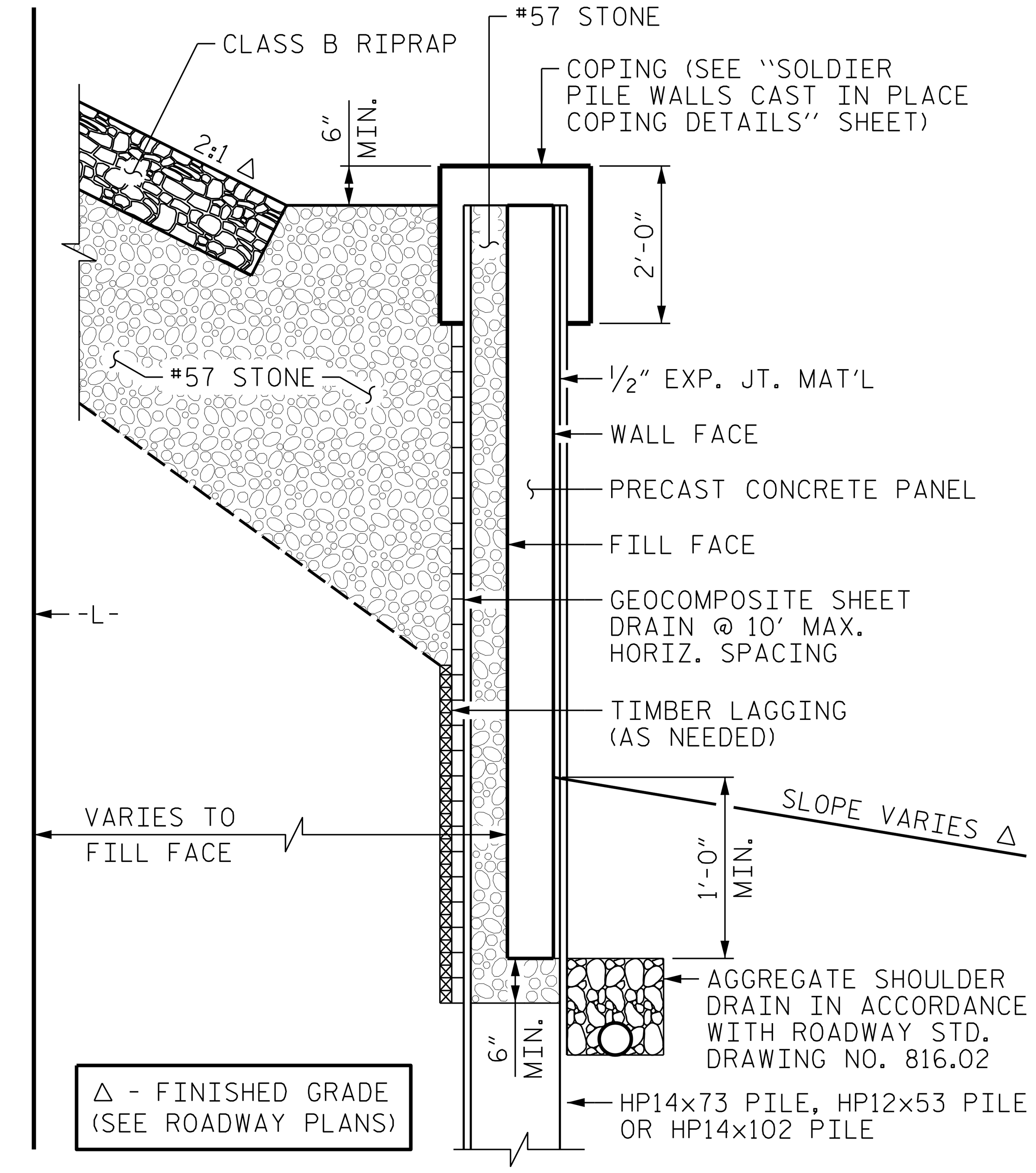

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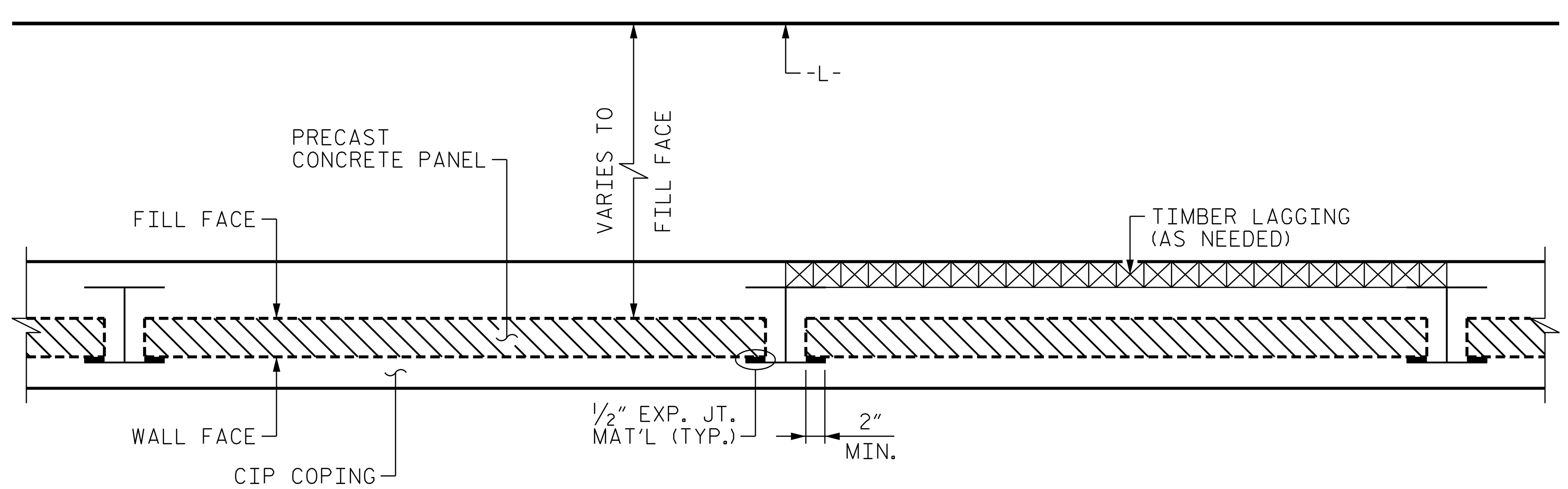

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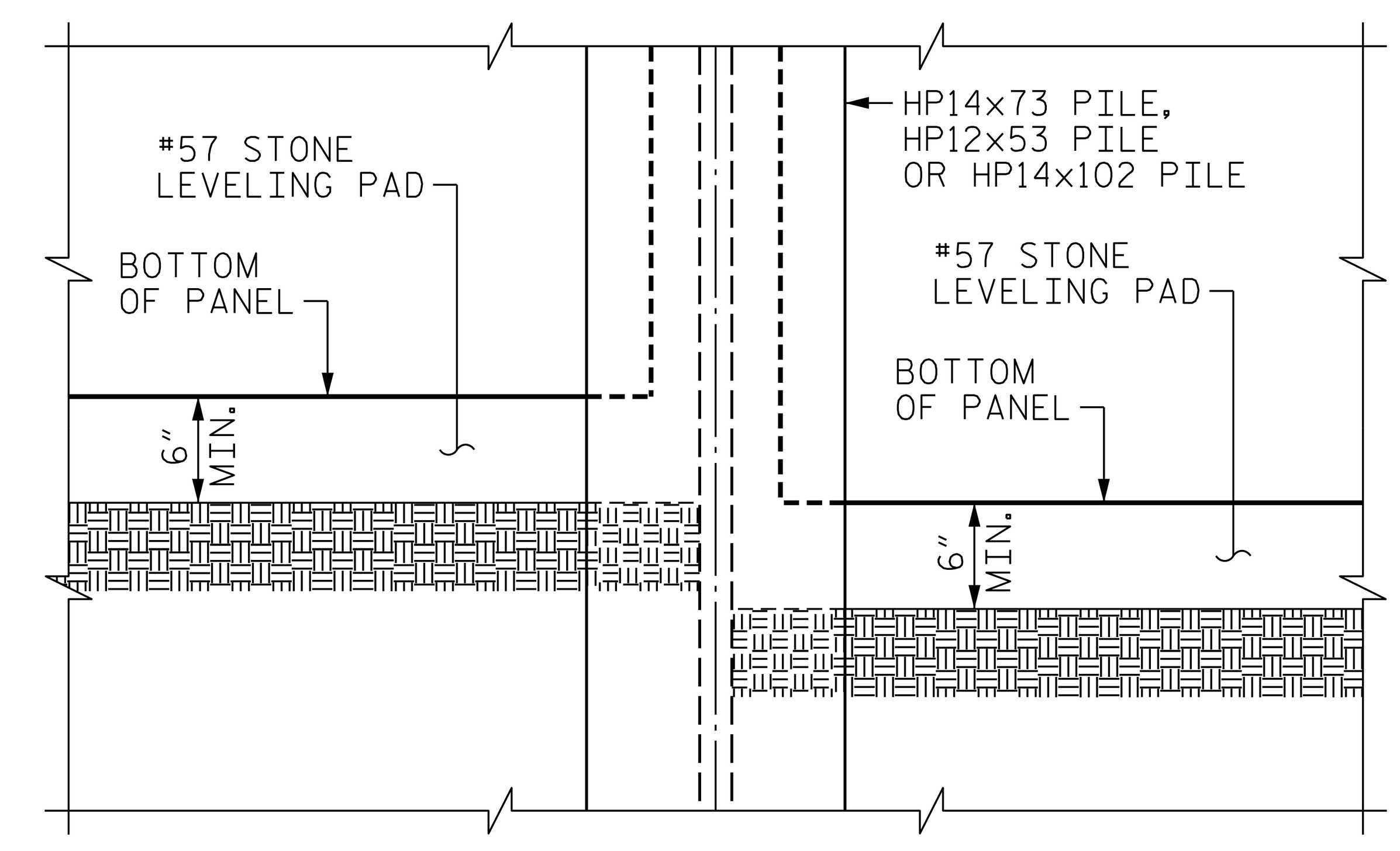


FOUNDATION STEP DETAIL

NOTES

FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.

USE SOLDIER PILE RETAINING WALL WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALLS.

AT THE CONTRACTOR'S OPTION, PROVIDE A SOLDIER PILE WALL WITH A CAST IN PLACE FACE. SEE "SOLDIER PILE WALLS ALTERNATE DETAILS" SHEET. CONTRACTOR MUST PROVIDE DESIGN CALCULATIONS AND SHOP DRAWINGS FOR THE CAST IN PLACE ALTERNATE OPTION TO THE ENGINEER FOR APPROVAL.

PAINT EXPOSED GALVANIZED H-PILES GRAY IN ACCORDANCE WITH ARTICLE 442-12 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALLS.

USE VIBRATED H-PILES FOR RETAINING WALLS. NOTE A POTENTIAL LAYER OF ASPHALT (APPROXIMATELY 6 INCHES THICK) PRESENT AT THE BASE OF THE EXISTING EMBANKMENT MAY REQUIRE IMPACT DRIVING OR EXCAVATION TO PENETRATE.

LAYERS OF GEOGRID WILL BE ENCOUNTERED IN THE EXISTING EMBANKMENT. MINIMIZE CUTTING OF GEOGRID LAYERS BEHIND THE SOLDIER PILE WALL AS EXCAVATION IS PERFORMED IN FRONT OF THE WALL. INSTALL SOLDIER PILES AND PANELS OR TIMBER LAGGING PRIOR TO EXCAVATING IN FRONT OF THE WALL.

UTILIZE TIMBER LAGGING BEHIND THE PILE FLANGES AS NEEDED FOR TEMPORARY SHORING (SEE DETAILS). LIMIT CUTTING INTO THE EXISTING GEOGRID REINFORCED SLOPE BEHIND THE WALL ONLY TO THAT NECESSARY TO PLACE PANELS OR TIMBER LAGGING.

USE COARSE AGGREGATE STANDARD SIZE #57 THAT MEETS TABLE 1005-1 OF THE STANDARD SPECIFICATIONS FOR BACKFILL BEHIND THE SOLDIER PILE WALL AND AS FILL TO CONSTRUCT THE 2:1 SLOPE BEHIND THE WALL.

DO NOT BENCH INTO THE EXISTING SLOPE PRIOR TO PLACEMENT OF COARSE AGGREGATE TO MINIMIZE DISTURBANCE TO THE EXISTING GEOGRID.

CAP THE COARSE AGGREGATE WITH RIP RAP AS INDICATED ON THE PLANS.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF DRAINAGE STRUCTURES AND UTILITIES PRIOR TO INSTALLING PILES.

INSTALL SOLDIER PILES AND PANELS OR TIMBER LAGGING PRIOR TO EXCAVATING IN FRONT OF THE WALL.

CONCRETE PANELS SHALL BE HELD SECURELY AGAINST PILES UNTIL BACKFILL IS PLACED.

WHERE STRUCTURAL TIMBER LAGGING IS USED, FILL THE ANNULAR SPACE BETWEEN THE PRECAST CONCRETE PANELS AND THE STRUCTURAL TIMBER LAGGING WITH #57 STONE. ALSO FILL ANY ANNULAR SPACE BETWEEN THE FACE OF THE EXCAVATION AND THE STRUCTURAL TIMBER WITH #57 STONE. PLACE BACKFILL BEHIND THE STRUCTURAL TIMBER LAGGING IMMEDIATELY AFTER INSTALLATION.

BOTH CUSHIONING MATERIAL AND BACKFILL MATERIAL BEHIND THE PANELS SHALL BE #57 STONE AND COMPACTED AS REQUIRED BY THE ENGINEER. THE STONE SHALL BE RODDED AND SPREAD IN ORDER TO FILL ALL VOIDS AND ENSURE MAXIMUM DENSITY. FLUSHING THE STONE TO AID COMPACTION WILL NOT BE ALLOWED.

WHERE PRACTICAL, THE TOP FEW PIECES OF STRUCTURAL TIMBER LAGGING SHALL BE REMOVED PRIOR TO BACKFILLING BEHIND PANELS. ALL OTHER STRUCTURAL TIMBER LAGGING SHALL BE LEFT IN PLACE.

THE CONTRACTOR MAY ELECT TO USE AN ALTERNATIVE METHOD OF PROVIDING A SAFE EXCAVATION. HOWEVER, THE ALTERNATE METHOD MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

CLASS "AA" CONCRETE SHALL BE USED FOR FABRICATION OF PRECAST CONCRETE PANELS.

PLACE ALL PILES AND PANELS FOR RETAINING WALL 1 BEFORE BEGINNING THE CONSTRUCTION OF RETAINING WALL 2. THEN PLACE PILE 1 IN RETAINING WALL 2 IMMEDIATELY ADJACENT TO PILE 5 IN RETAINING WALL 1. IF, AFTER PLACEMENT, PILE 1 OF RETAINING WALL 2 DOES NOT HAVE THE STATIONING INDICATED ON THE PLANS DUE TO INTERFERENCE WITH PILE 5 OF RETAINING WALL 1, ADJUST THE STATIONING OF ALL REMAINING PILES IN RETAINING WALL 2 TO MAINTAIN ALL PILE SPACING AS INDICATED ON THE PLANS.

THE EXISTING SANITARY SEWER FORCE MAIN BENEATH RETAINING WALL 2 SHALL BE LOCATED AND CLEARLY MARKED PRIOR TO ANY CONSTRUCTION ACTIVITY FOR RETAINING WALL 2. CONSULT THE ENGINEER BEFORE PROCEEDING IF THE FORCE MAIN IS FOUND IN CONFLICT WITH THE INSTALLATION OF PILES 16 OR 17.

NOTES (CON'T)

STATIONS AND OFFSETS FOR RETAINING WALL ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.

THE CONTRACTOR SHALL CONTACT THE TOWN OF CHOCOWINITY ONE WEEK PRIOR TO INSTALLING PILES ON THE PROJECT.
THE TOWN'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR CUTTING OFF AND ISOLATING ANY SEWER LINE THAT MAY BE IN CONFLICT.

THE CONTRACTOR SHALL NOT PROCEED WITH PILE INSTALLATION UNTIL PERMISSION IS GRANTED BY THE TOWN.

THE TOWN'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR PRESSURE TESTING ANY SUCH SEWER LINE FOR DAMAGE AFTER INSTALLATION OF THE PILES IS COMPLETE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES INCURRED TO ANY SEWER LINE RESULTING FROM THE INSTALLATION OF THE PILES.

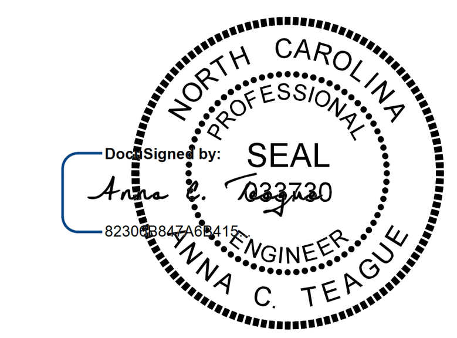
THE REPRESENTATIVE FOR THE TOWN AT THE TIME OF THIS CONTRACT IS:
KEVIN BRICKHOUSE
TOWN OF CHOCOWINITY
PUBLIC WORKS DIRECTOR
(252) 946-6568
kbtoc@ymail.com

AGGREGATE SHOULDER DRAIN TO BE DRAINED FROM SAG POINTS IN WALL 2 ENVELOPE AT STA. 10+45.10 -WALL2- AND 14+45.74 -WALL2-.
SUGGESTED OUTLET LOCATIONS ARE AT STA. 17+53 -L-, OFFSET 67' ± RT. AND AT STA. 23+47 -L-, OFFSET 51' ± RT.

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 12+35.37 -WALL2-



4/21/2017

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 2
DETAILS AND NOTES

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-04
1	---	---	3	---	---		TOTAL SHEETS
2	---	---	4	---	---		S-14

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DES BY: B. ROGERS DATE : 02/17
DES CHK: T. ANDREWS DATE : 02/17
DWG BY: W. TOWE DATE : 02/17
CHK BY: T. ANDREWS DATE : 02/17

PLOT DRIVER: B-4416.plt PENTABLE: B-4416.tbl
USER: wtowe DATE: 4/21/2017 TIME: 5:43:09 AM
FILE: ...\3.0 CADD\FinalPlans\04

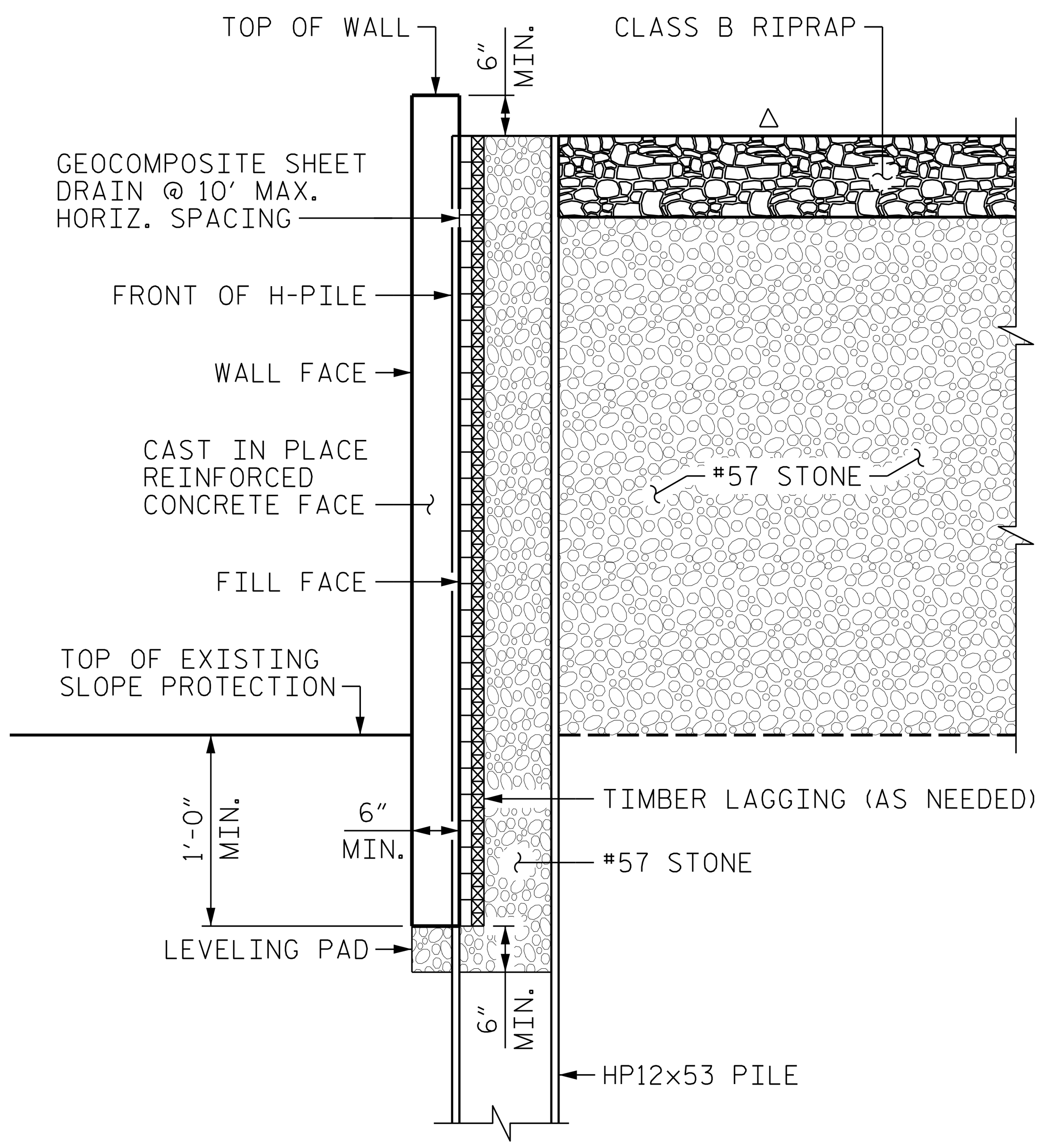
NOTES

AT THE CONTRACTOR'S OPTION, PROVIDE A SOLDIER PILE WALL WITH A CAST IN PLACE FACE. CONTRACTOR MUST PROVIDE DESIGN CALCULATIONS AND SHOP DRAWINGS FOR THE CAST IN PLACE ALTERNATE OPTION TO THE ENGINEER FOR APPROVAL.

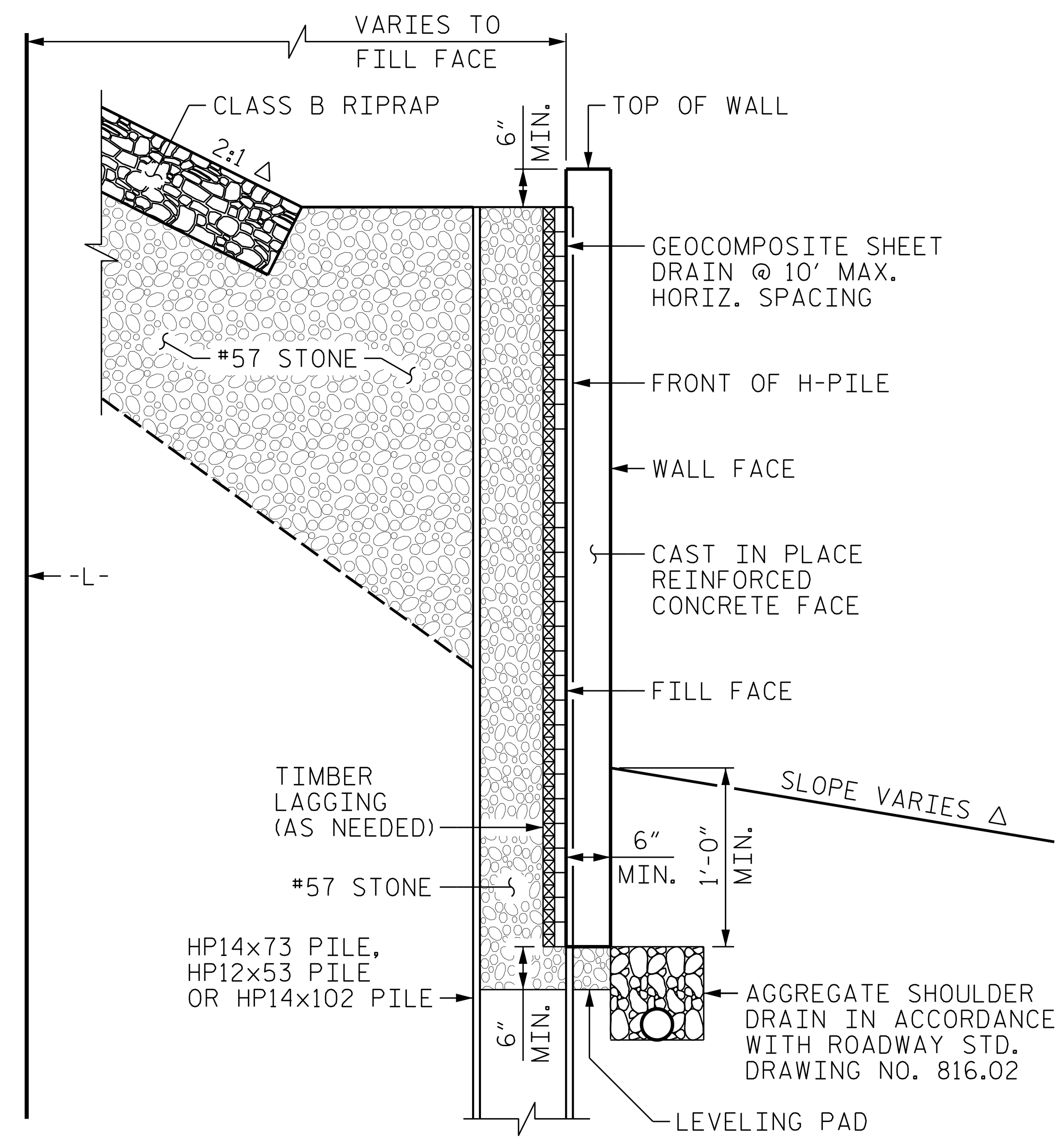
STATIONS AND OFFSETS FOR RETAINING WALLS ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.

FOR ADDITIONAL NOTES, SEE "SOLDIER PILE WALL 1 DETAILS AND NOTES" AND "SOLDIER PILE WALL 2 DETAILS AND NOTES" SHEETS.

CLASS "A" CONCRETE SHALL BE USED FOR CAST IN PLACE CONCRETE FACING.



WALL 1 TYPICAL SECTION
(CAST IN PLACE FACE OPTION)



WALL 2 TYPICAL SECTION
(CAST IN PLACE FACE OPTION)

△ - FINISHED GRADE
(SEE ROADWAY PLANS)

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 10+17.50 -WALL1-
12+35.37 -WALL2-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALLS ALTERNATE DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023720 ANNA C. TEAGUE

DocuSigned by: Anna C. Teague

4/21/2017

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-05
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2	---	---	4	---	---	S-14

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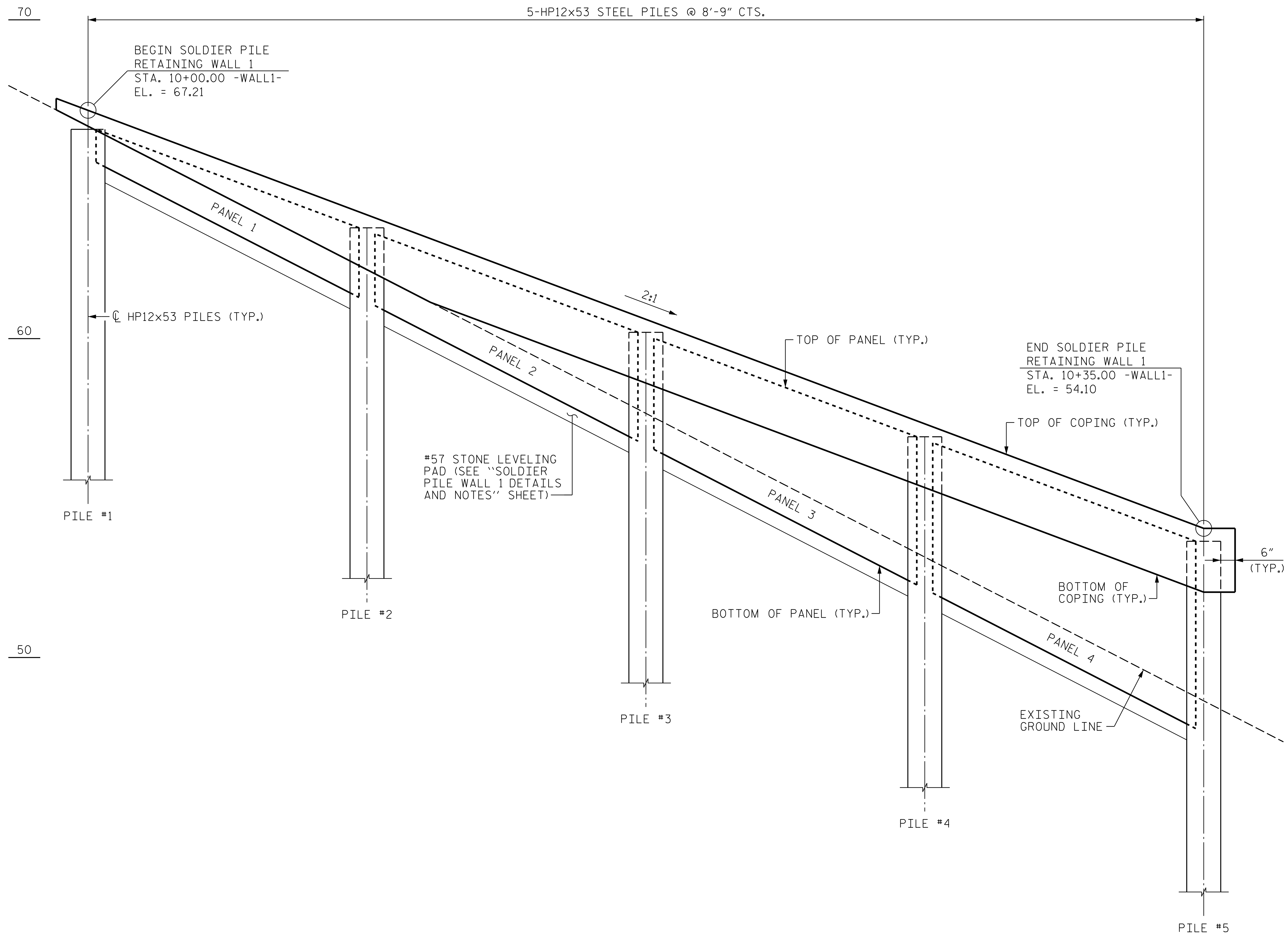


WALL 1 ELEVATION

NOTES

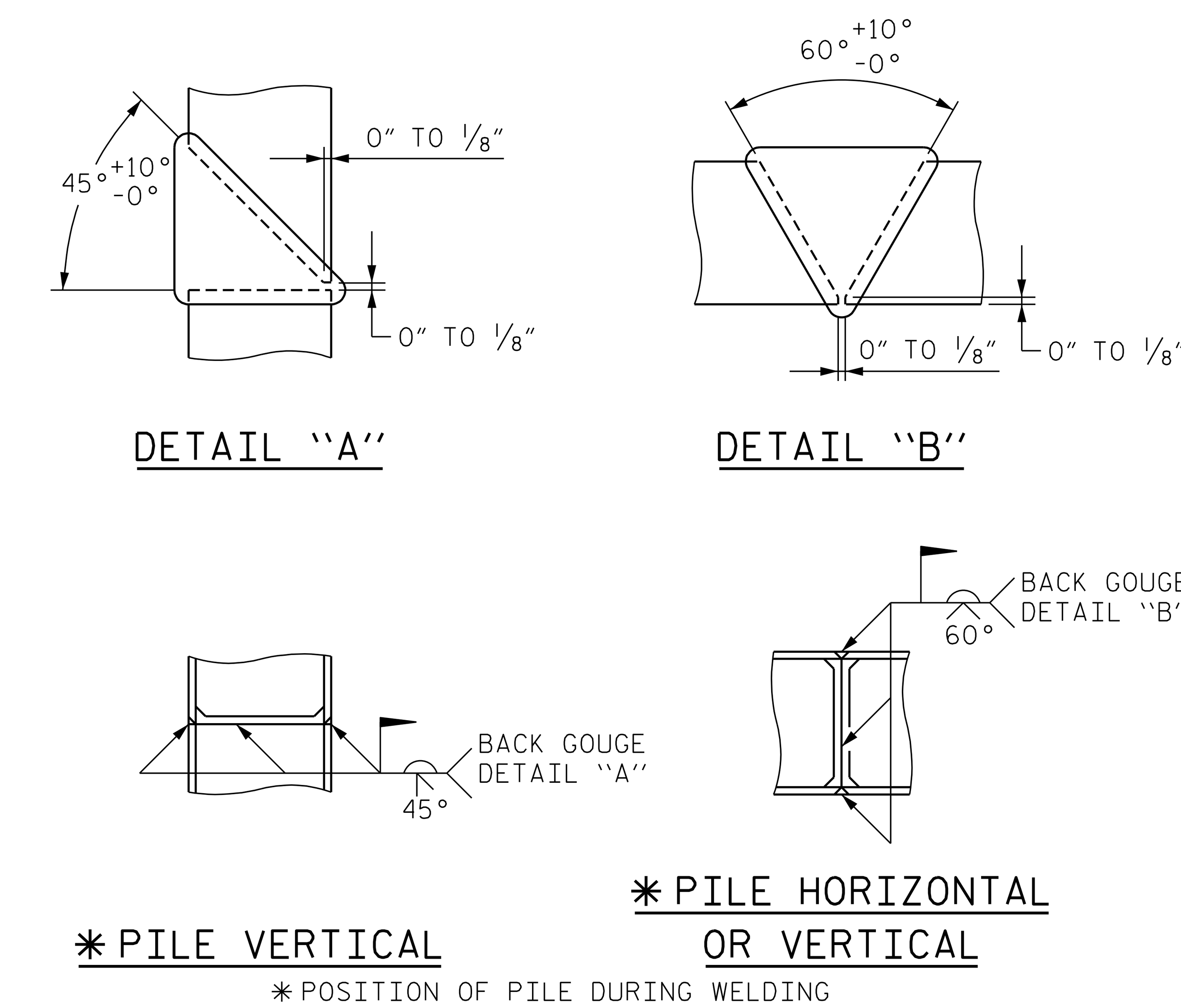
DO NOT SPLICE STEEL PILES ABOVE GROUND.

STEEL H-PILES SHALL BE ASTM A572 GRADE 50 OR ASTM A588. GALVANIZE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. REPAIR ANY DAMAGED GALVANIZATION IN ACCORDANCE WITH ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.

FOR COPING DETAILS, SEE "SOLDIER PILE WALLS CAST IN PLACE COPING DETAILS" SHEET.

FOR INFORMATION ABOUT THE CONNECTION BETWEEN WALLS 1 AND 2, SEE "SOLDIER PILE WALLS CORNER DETAILS" SHEET.

STATIONS AND OFFSETS FOR RETAINING WALL ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.



PILE SPLICE DETAILS

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 10+17.50 -WALL1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 1
WALL ELEVATION
(STA. 10+00 TO STA. 10+35)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023730 ANNA C. TEAGUE

4/21/2017

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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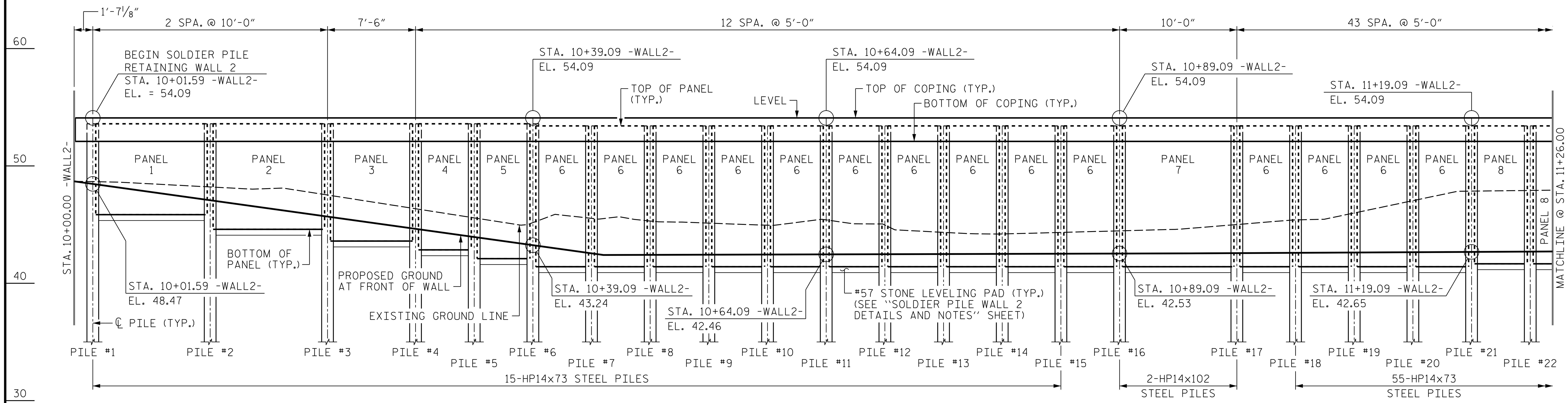
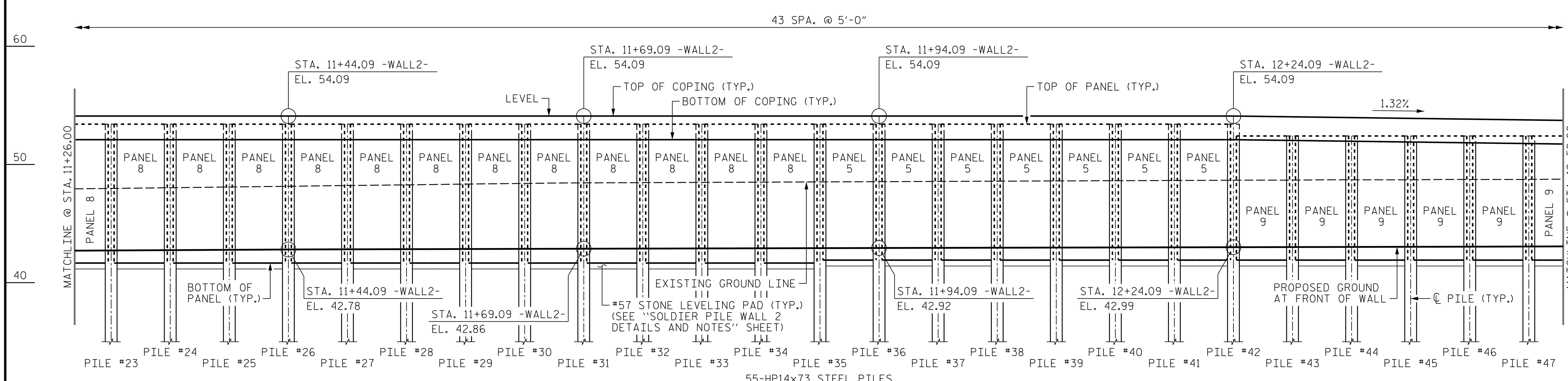
SHEET NO. S-06
TOTAL SHEETS S-14

DES BY:	B. ROGERS	DATE:	02/17	DWG BY:	W. TOWE	DATE:	02/17
DES CHK:	T. ANDREWS	DATE:	02/17	CHK BY:	T. ANDREWS	DATE:	02/17

PLOT DRIVER: B-4416.plt PENTABLE: B-4416.tbl
USER: wtowe DATE: 4/21/2017 TIME: 5:43:17 AM
FILE: ...\3.0 CADD\FinalPlans\06



WALL 2 PARTIAL ELEVATION



WALL 2 PARTIAL ELEVATION

NOTES

DO NOT SPLICE STEEL PILES ABOVE GROUND.

STEEL H-PILES SHALL BE ASTM A572 GRADE 50 OR ASTM A588. GALVANIZE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. REPAIR ANY DAMAGED GALVANIZATION IN ACCORDANCE WITH ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.

FOR COPING DETAILS, SEE "SOLDIER PILE WALLS CAST IN PLACE COPING DETAILS" SHEET.

FOR INFORMATION ABOUT THE CONNECTION BETWEEN RETAINING WALLS 1 AND 2, SEE "SOLDIER PILE WALLS CORNER DETAILS" SHEET.

FOR SPLICE DETAILS, SEE "SOLDIER PILE WALL 1 WALL ELEVATION (STA. 10+00 TO STA. 10+35)" SHEET.

STATIONS AND OFFSETS FOR RETAINING WALL ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.

PROJECT NO. B-4416

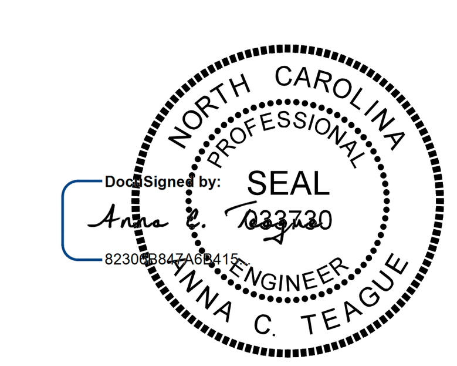
BEAUFORT COUNTY

STATION: 12+35.37 -WALL2-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 2 WALL ELEVATION (STA. 10+00 TO STA. 12+52)



4/21/2017

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1	---	---	3	---	---
2	---	---	4	---	---

SHEET NO. S-07

TOTAL SHEETS S-14

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N.C.B.E.L.S. License Number: F-0116

DES BY: B. ROGERS DATE: 02/17
DES CHK: T. ANDREWS DATE: 02/17
DWG BY: W. TOWE DATE: 02/17
CHK BY: T. ANDREWS DATE: 03/17

PLOT DRIVER: B-4416.plt DATE: 4/21/2017
PENTABLE: B-4416.tbl TIME: 5:43:21 AM
USER: wtowe
FILE: ...\3.0 CADD\FinalPlans\07

NOTES

DO NOT SPLICE STEEL PILES ABOVE GROUND.

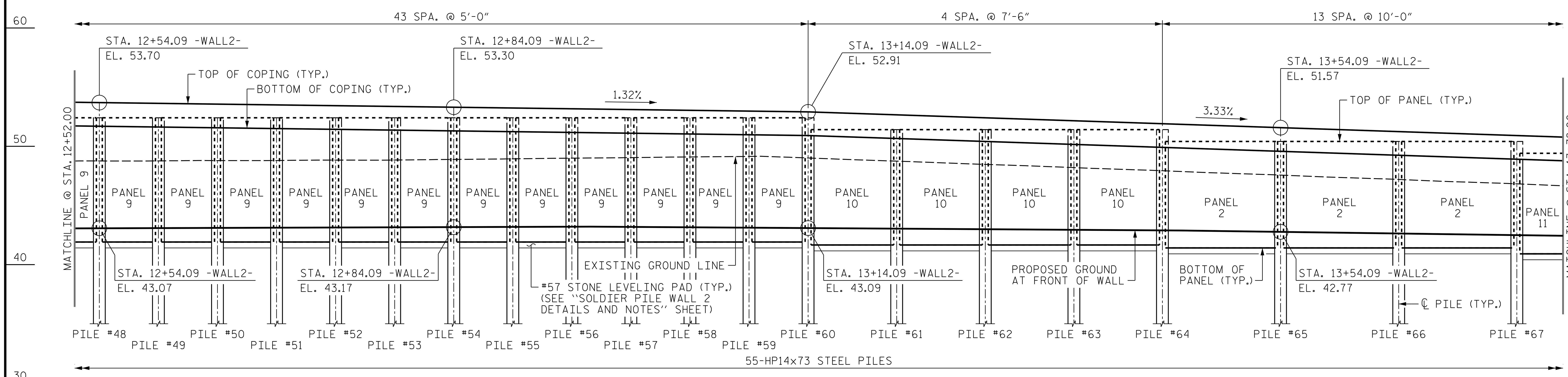
STEEL H-PILES SHALL BE ASTM A572 GRADE 50 OR ASTM A588. GALVANIZE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. REPAIR ANY DAMAGED GALVANIZATION IN ACCORDANCE WITH ARTICLE 1076-7 OF THE STANDARD SPECIFICATIONS.

FOR COPING DETAILS, SEE "SOLDIER PILE WALLS CAST IN PLACE COPING DETAILS" SHEET.

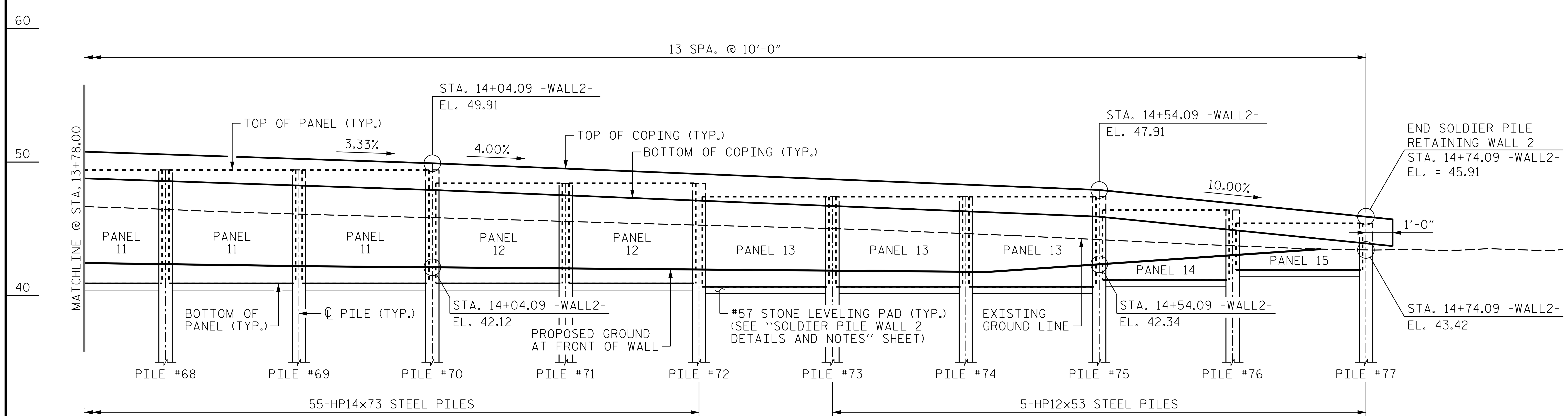
FOR INFORMATION ABOUT THE CONNECTION BETWEEN RETAINING WALLS 1 AND 2, SEE "SOLDIER PILE WALLS CORNER DETAILS" SHEET.

FOR SPLICE DETAILS, SEE "SOLDIER PILE WALL 1 WALL ELEVATION (STA. 10+00 TO STA. 10+35)" SHEET.

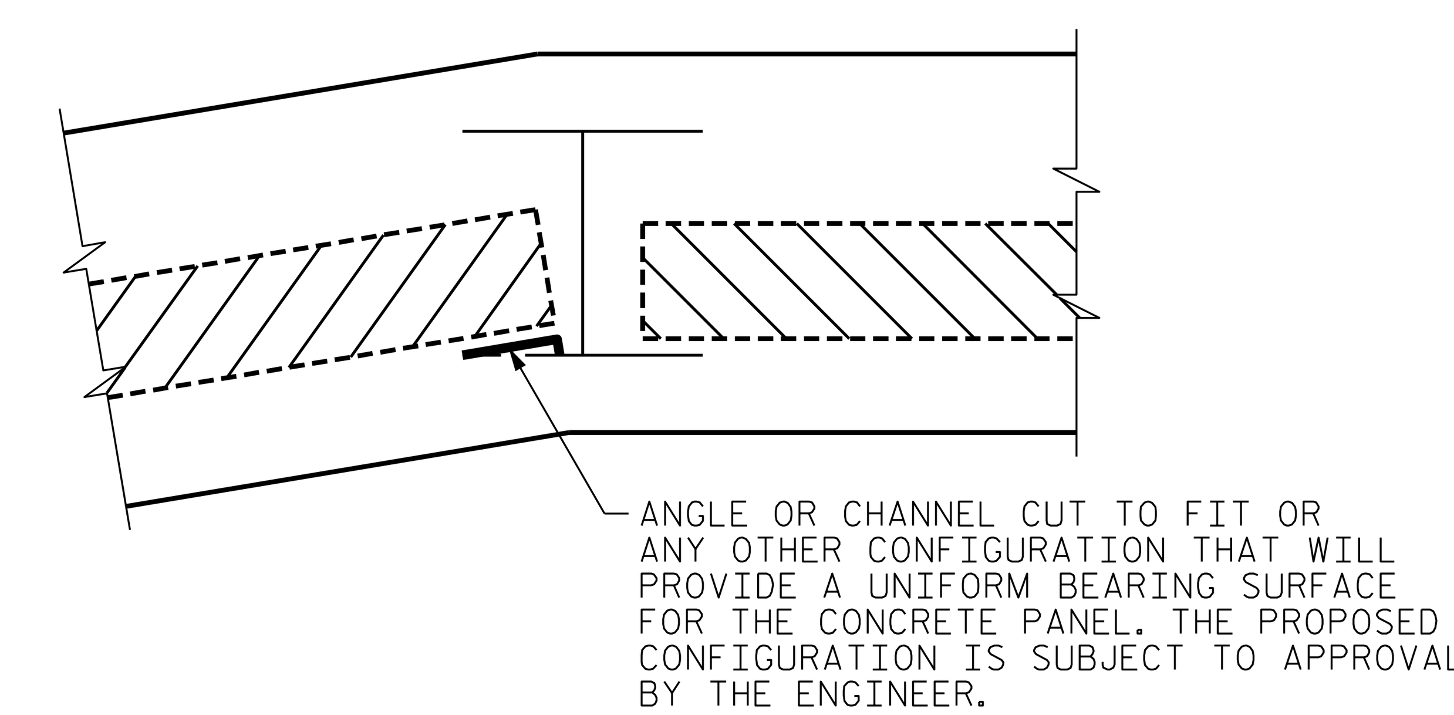
STATIONS AND OFFSETS FOR RETAINING WALL ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.



WALL 2 PARTIAL ELEVATION



WALL 2 PARTIAL ELEVATION



WALL BEND DETAIL

(BEARINGS NOT SHOWN FOR CLARITY)

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 12+35.37 -WALL2-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 2 WALL ELEVATION (STA. 12+52 TO STA. 14+74.09)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023730 ANNA C. TEAGUE

DocuSigned by: Anna C. Teague

4/21/2017

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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2	---	---	4	---	---		

SHEET NO. S-08

TOTAL SHEETS S-14

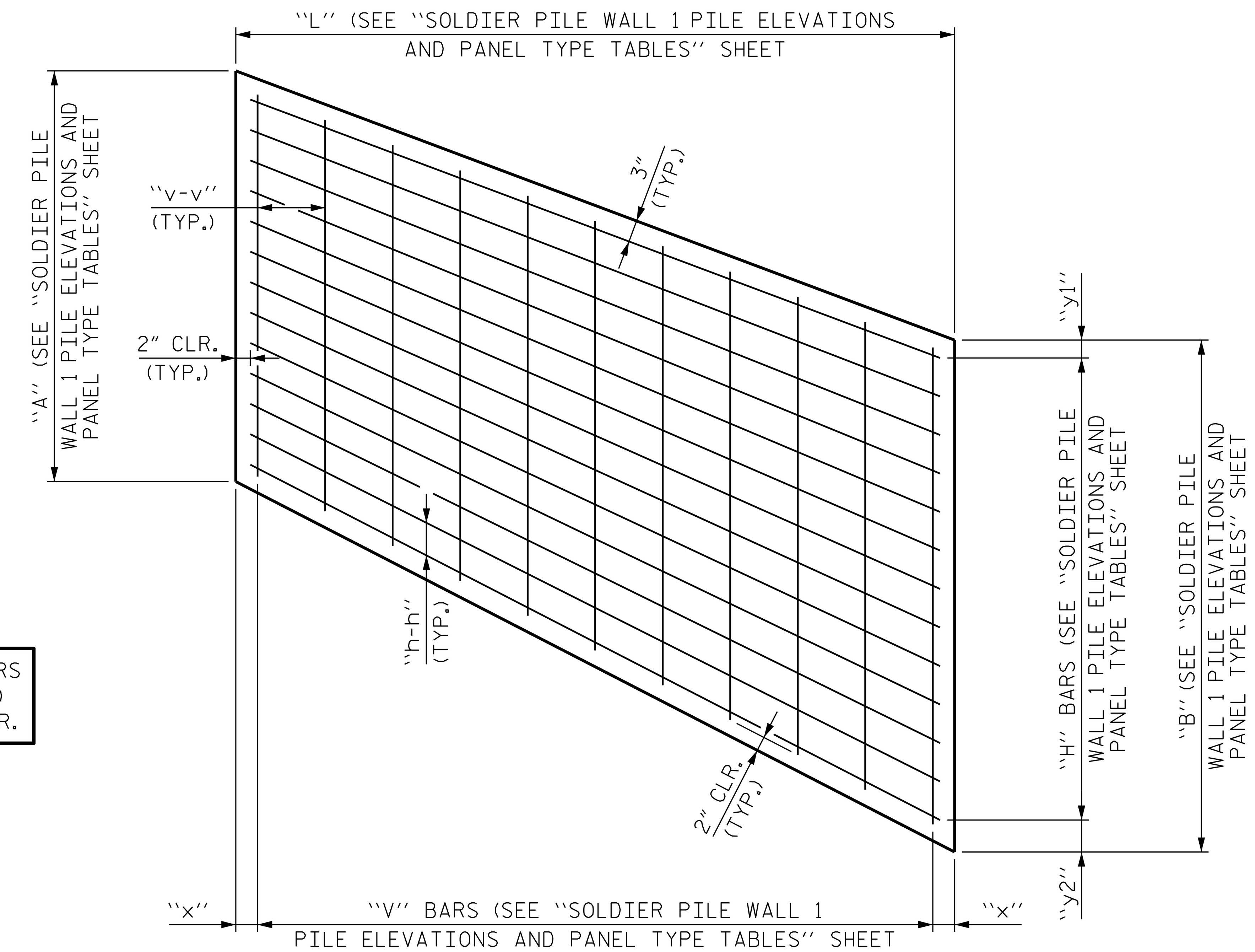
DES BY: B. ROGERS	DATE: 02/17	DWG BY: W. TOWE	DATE: 02/17
DES CHK: T. ANDREWS	DATE: 02/17	CHK BY: T. ANDREWS	DATE: 03/17

PLOT DRIVER: B-4416.plt DATE: 4/21/2017
PENTABLE: B-4416.tbl TIME: 5:43:24 AM
USER: wtowe
FILE: ...\3.0 CADD\FinalPlans\08

NOTES

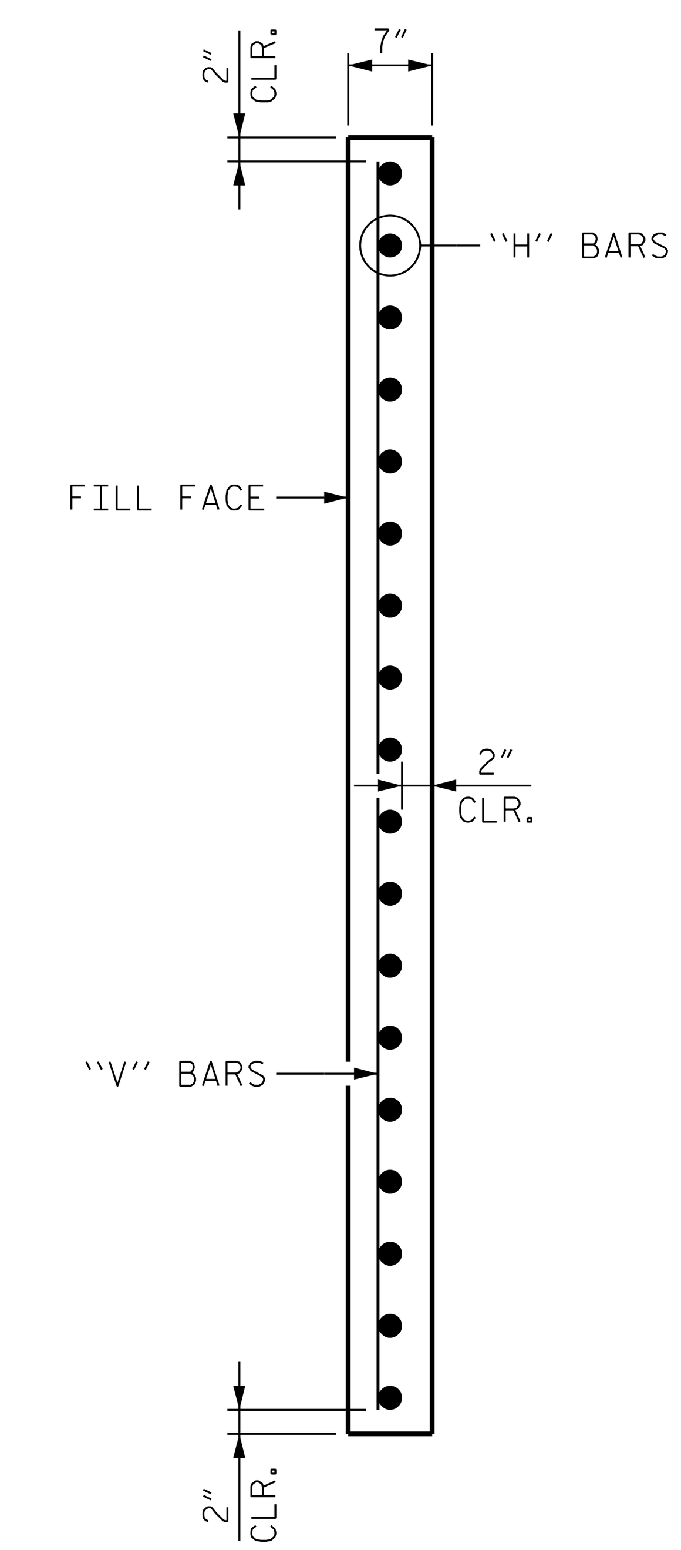
QUANTITIES ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.

NOTE: SHOP CUT VERTICAL AND HORIZONTAL BARS IN THE SLOPED PANELS AS NECESSARY TO MAINTAIN A MINIMUM OF 2" CLEAR COVER.

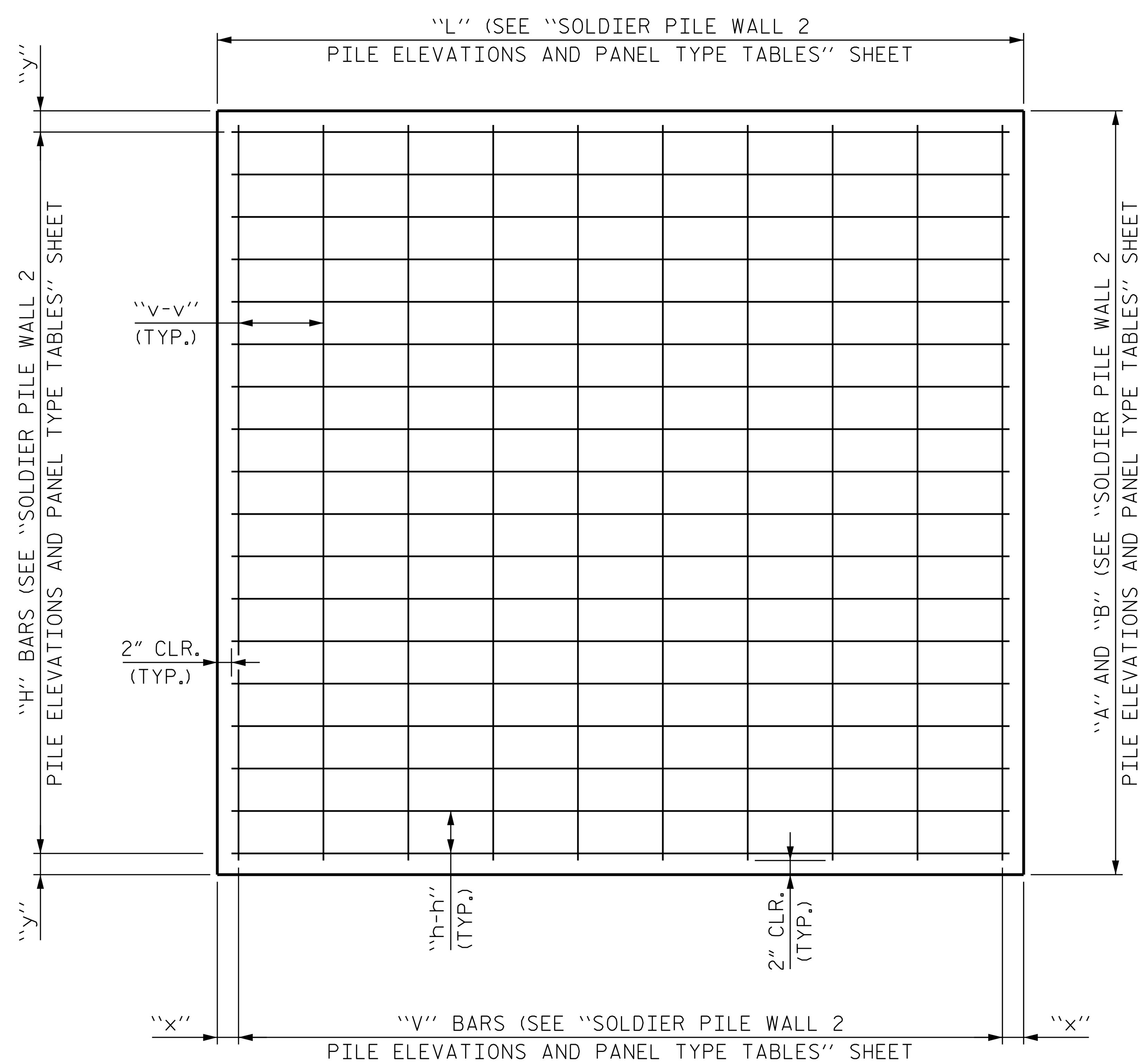


WALL 1 PANEL TYPE 1 - 4

(FRONT FACE SHOWN)



SECTION THRU PANELS



WALL 2 PANEL TYPE 1 - 14

(FRONT FACE SHOWN)

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 10+17.50 -WALL1-
12+35.37 -WALL2-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALLS PRECAST PANEL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 023730 ENGINEER ANNA C. TEAGUE

4/21/2017

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NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	S-09
1	---	---	3	---	---	TOTAL SHEETS	S-14
2	---	---	4	---	---		

DES BY: B. ROGERS	DATE: 02/17	DWG BY: W. TOWE	DATE: 02/17
DES CHK: T. ANDREWS	DATE: 02/17	CHK BY: T. ANDREWS	DATE: 02/17

PLOT DRIVER: B-4416.plt PENTABLE: B-4416.tbl
USER: wtowe DATE: 4/21/2017 TIME: 5:43:28 AM
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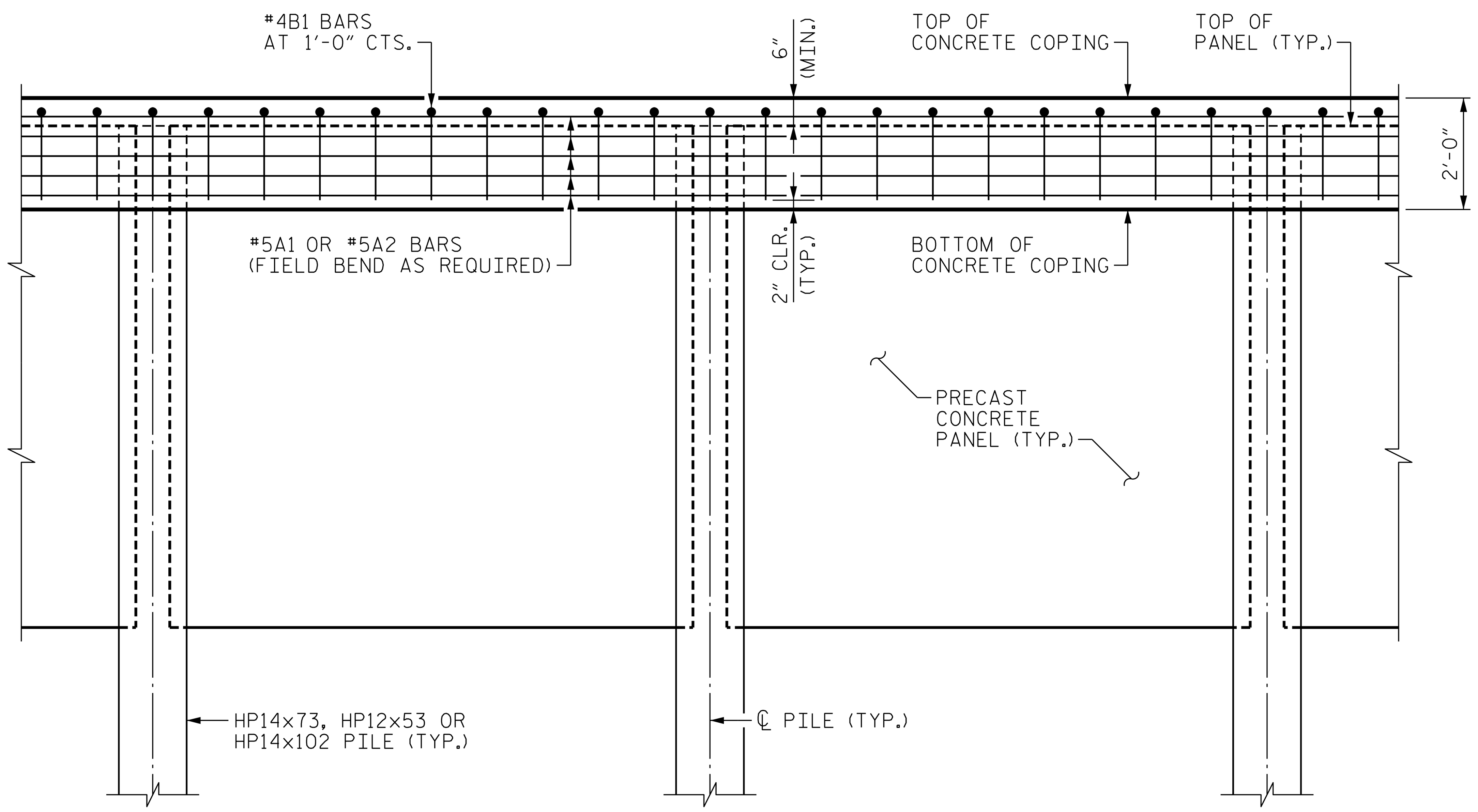
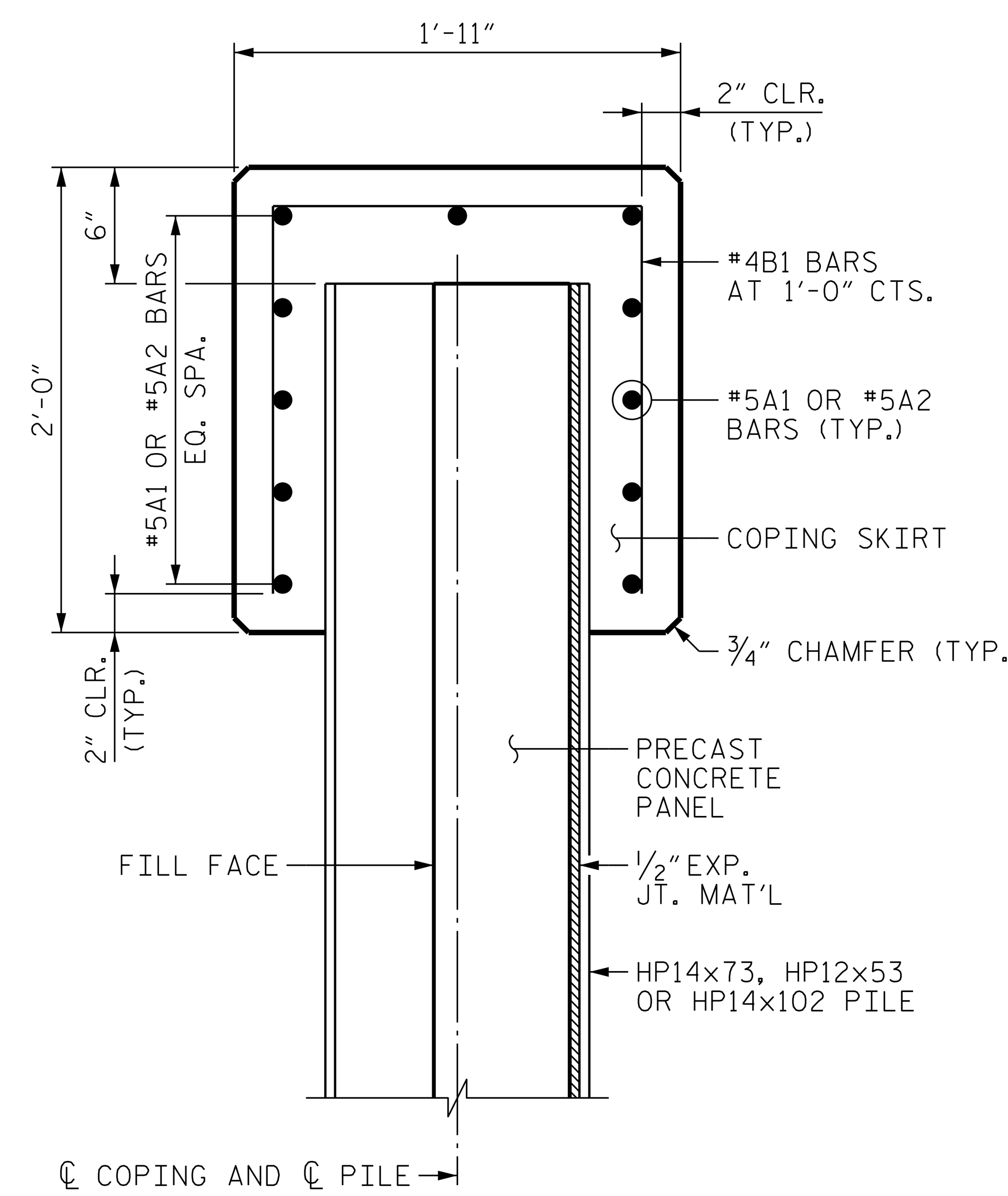


C.I.P. COPING PARTIAL ELEVATION



C.I.P. COPING DETAIL AT PILES

NOTES

BACKFILLING SHALL BE COMPLETED PRIOR TO FORMING OR PLACING THE COPING.

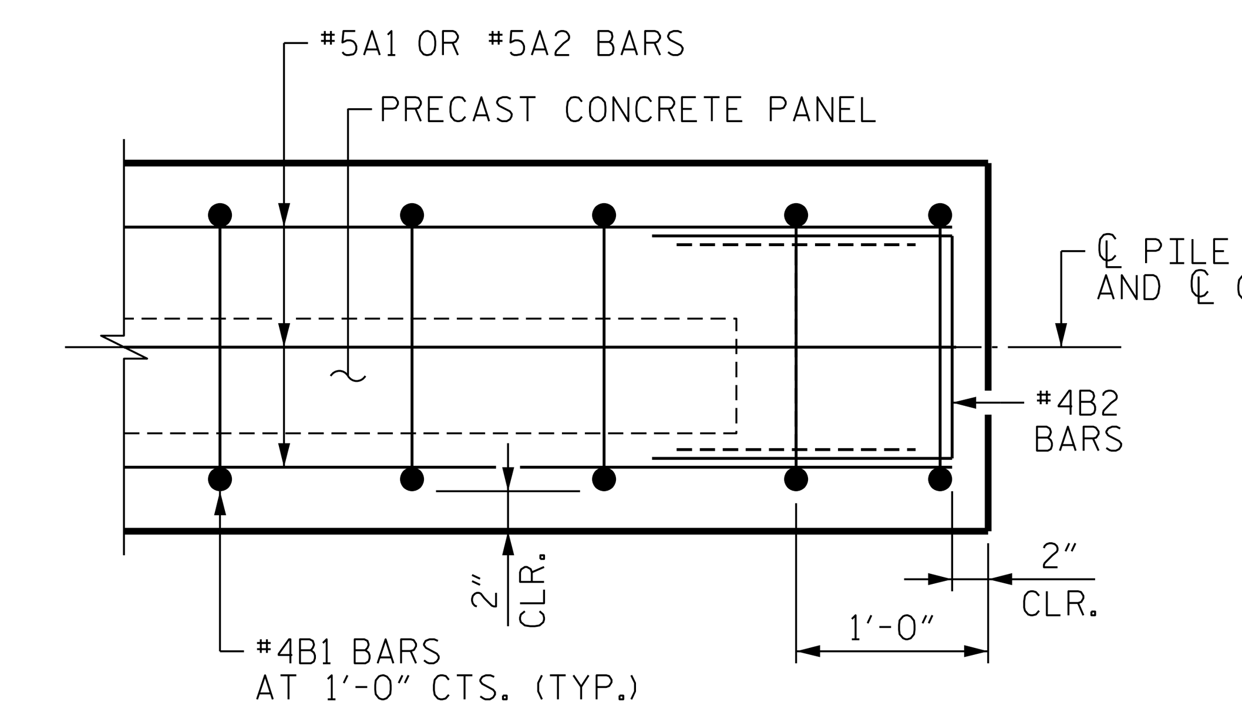
THE TOP OF THE COPING PROFILE MAY BE ADJUSTED BY THE ENGINEER TO GIVE A UNIFORM APPEARANCE.

EXPANSION JOINTS SHALL BE PROVIDED AT 90' MAXIMUM SPACING. CONSTRUCTION JOINTS IN COPING ARE PERMITTED AT LOCATIONS WHERE COPING CHANGES SLOPE AND AT 30' SPACING. A V-GROOVE SHALL BE PROVIDED AT ALL CONSTRUCTION JOINTS. EXTEND V-GROOVE FOR FULL HEIGHT OF COPING.

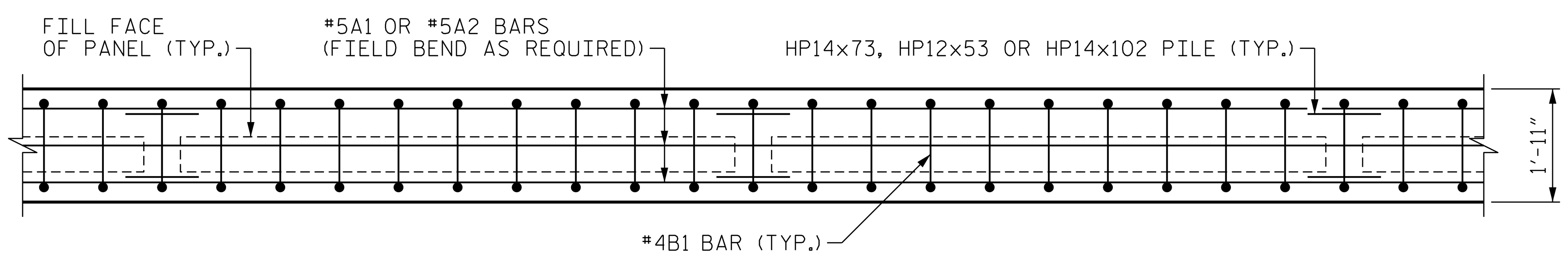
THE HEIGHT OF THE COPING AT THE END OF RETAINING WALL MAY BE ADJUSTED IN THE FIELD TO COVER THE TOP OF THE PRECAST PANELS.

FOR ADDITIONAL COPING DETAILS AT THE CORNER BETWEEN RETAINING WALLS 1 AND 2, SEE "SOLDIER PILE WALLS CORNER DETAILS" SHEET.

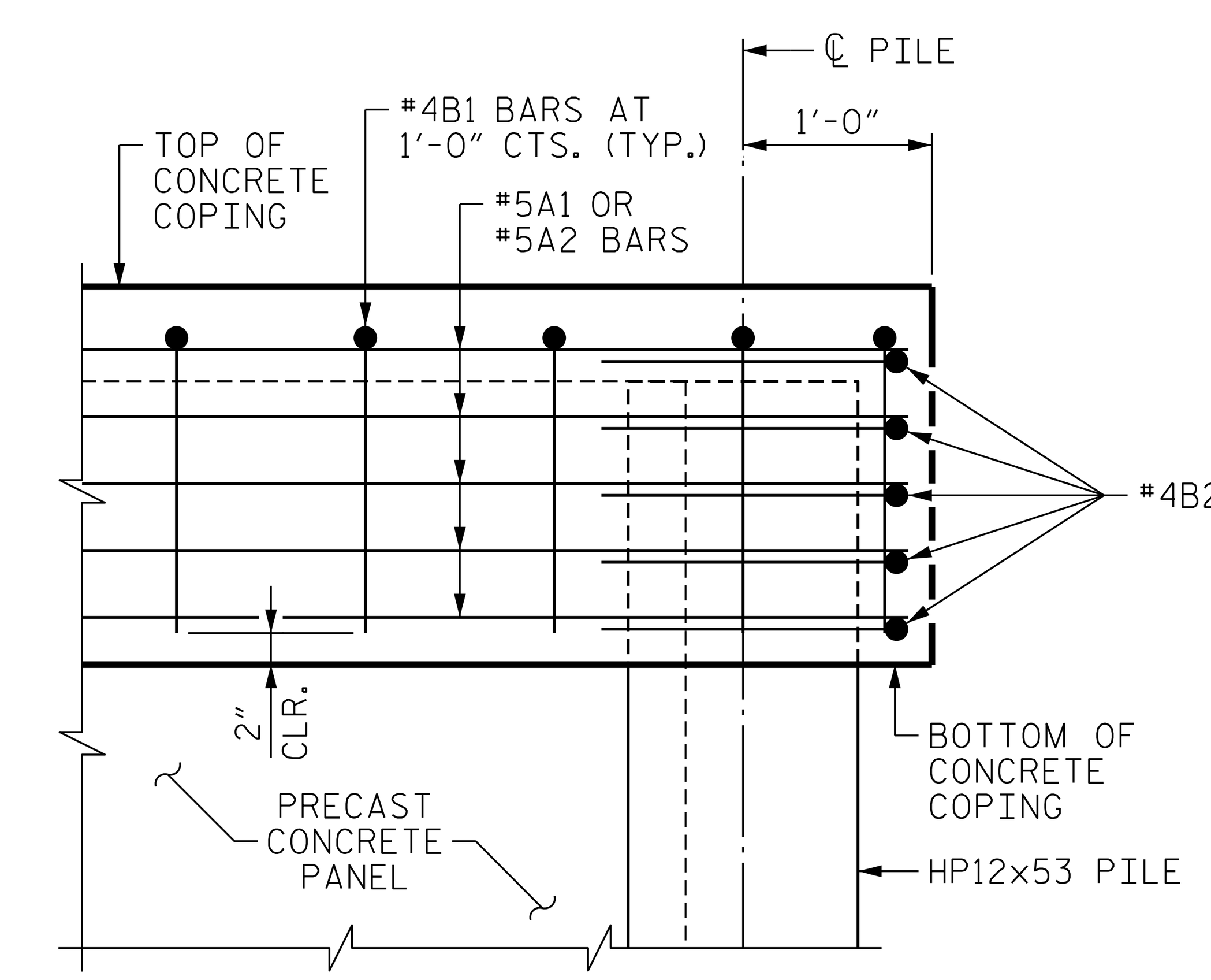
ALL CONCRETE IN THE COPING SHALL BE CLASS "A".



TOP VIEW

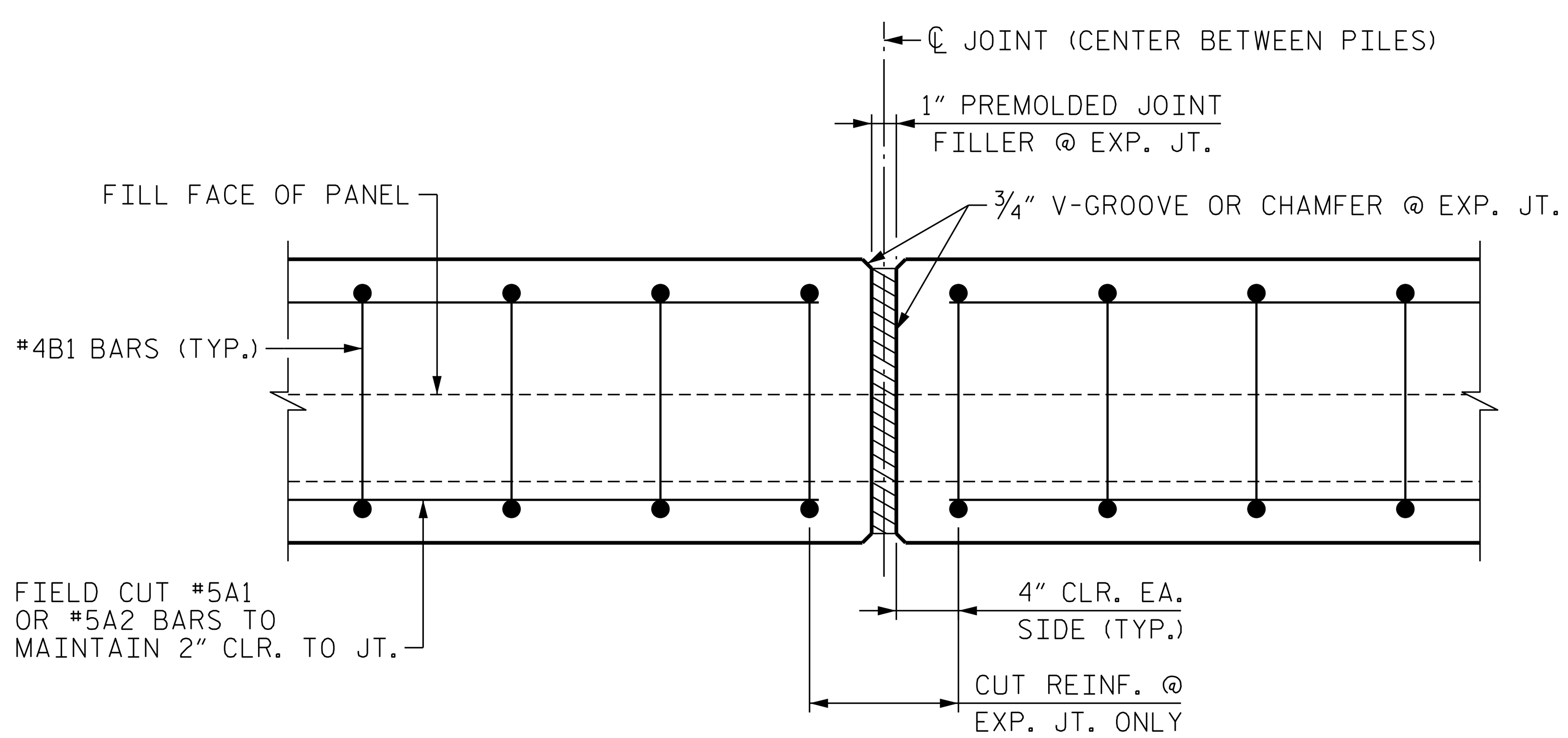


C.I.P. COPING PARTIAL PLAN

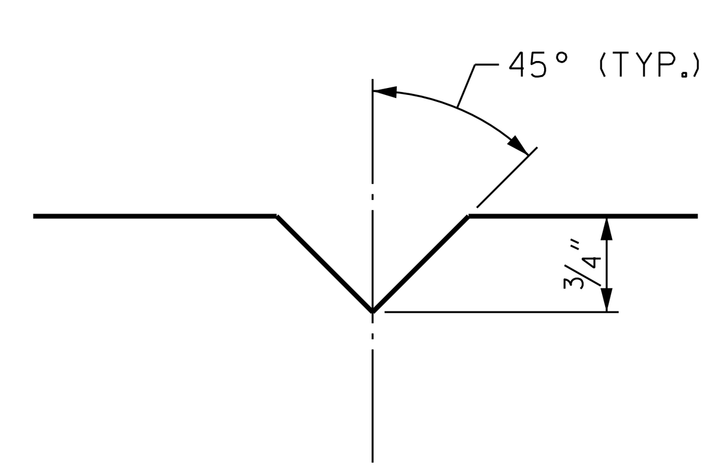


ELEVATION VIEW

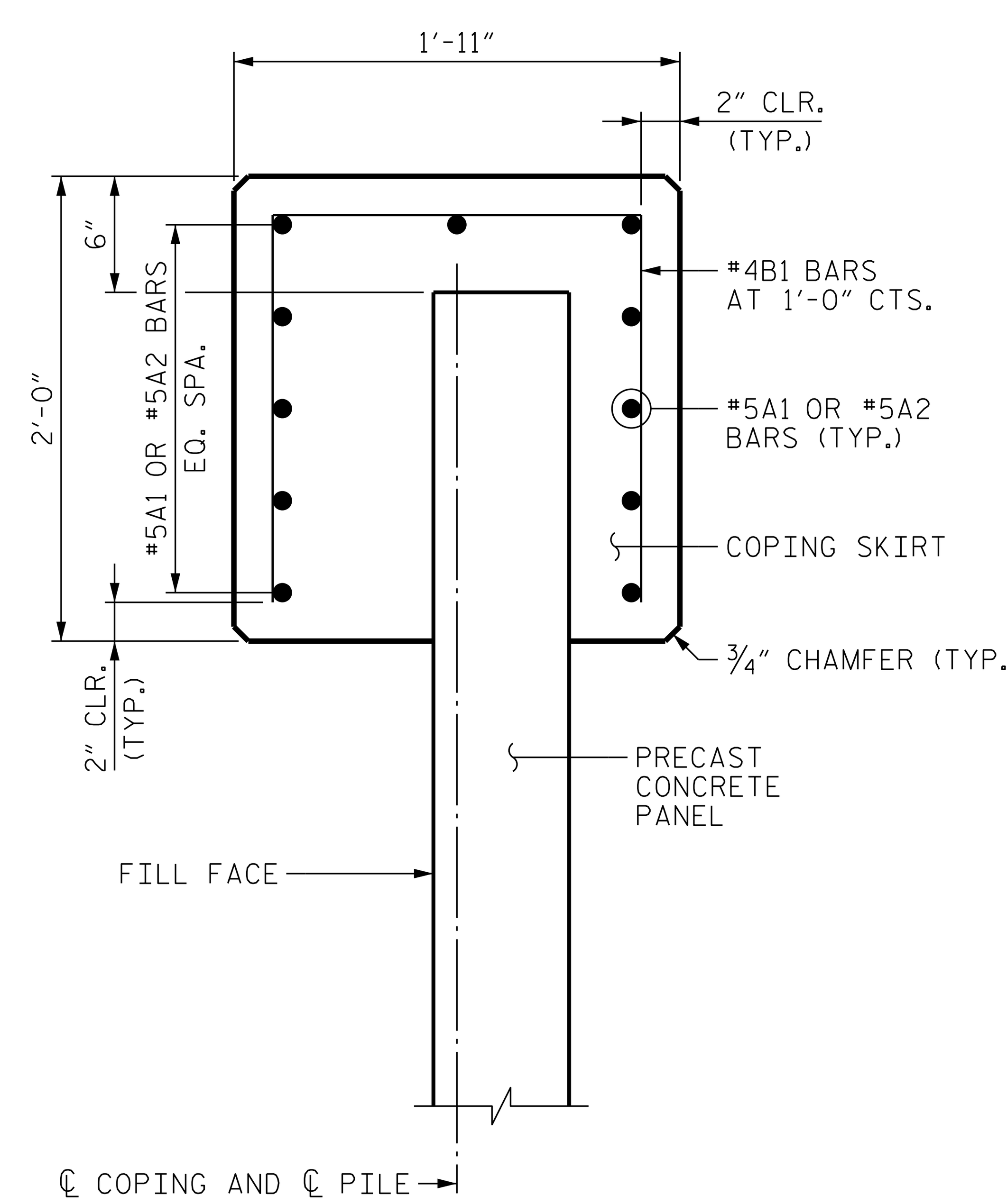
END OF COPING DETAILS



EXPANSION JOINT DETAIL



V-GROOVE DETAIL



C.I.P. COPING DETAIL AT PANELS

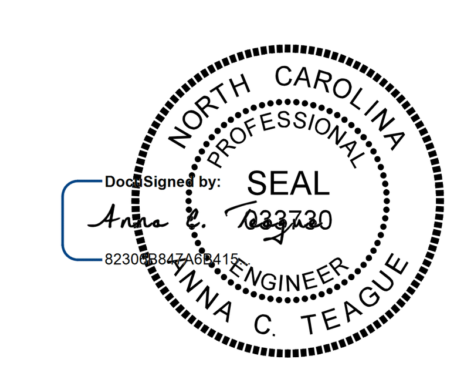
PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 10+17.50 -WALL1-
12+35.37 -WALL2-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALLS CAST IN PLACE COPING DETAILS



4/21/2017

REVISIONS								SHEET NO.
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1	---	---	3	---	---			TOTAL SHEETS
2	---	---	4	---	---			S-14

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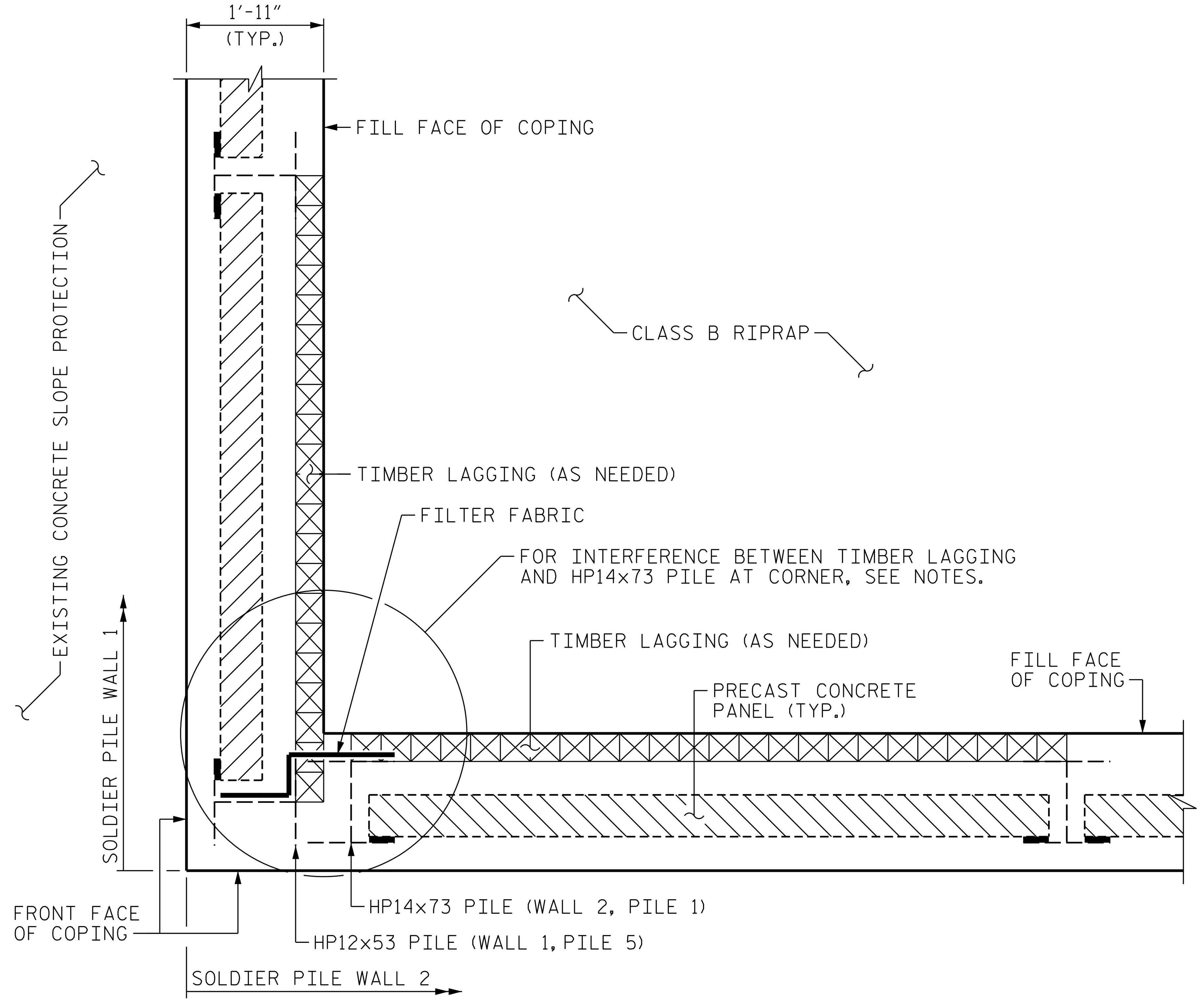
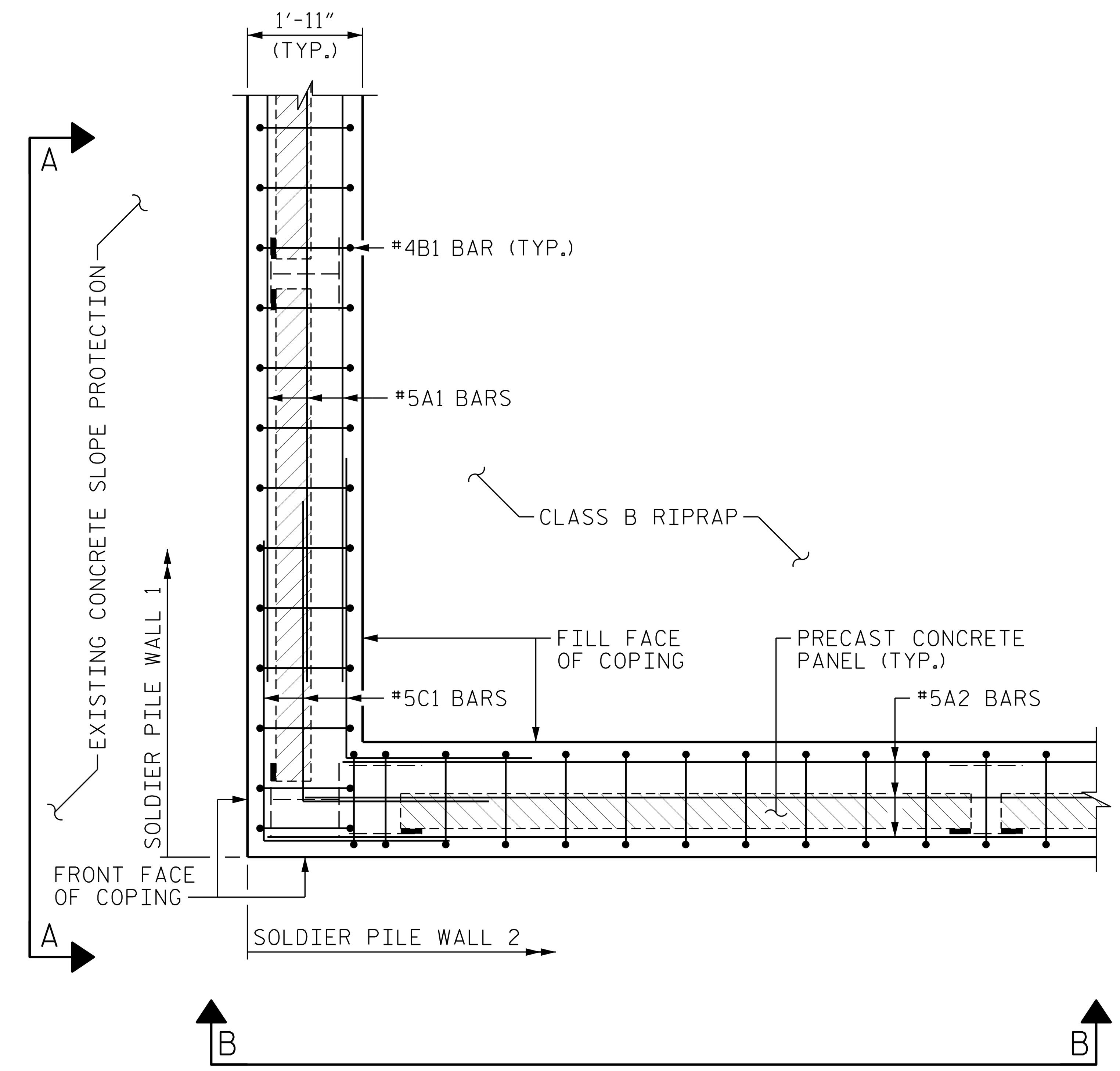
DES BY: B. ROGERS DATE: 02/17
DES CHK: T. ANDREWS DATE: 02/17
DWG BY: W. TOWE DATE: 02/17
CHK BY: T. ANDREWS DATE: 03/17



CORNER DETAIL



CORNER PLAN

(TIMBER LAGGING NOT SHOWN FOR CLARITY)
(FOR TIMBER LAGGING AT CORNER, SEE "CORNER DETAIL" HEREON)

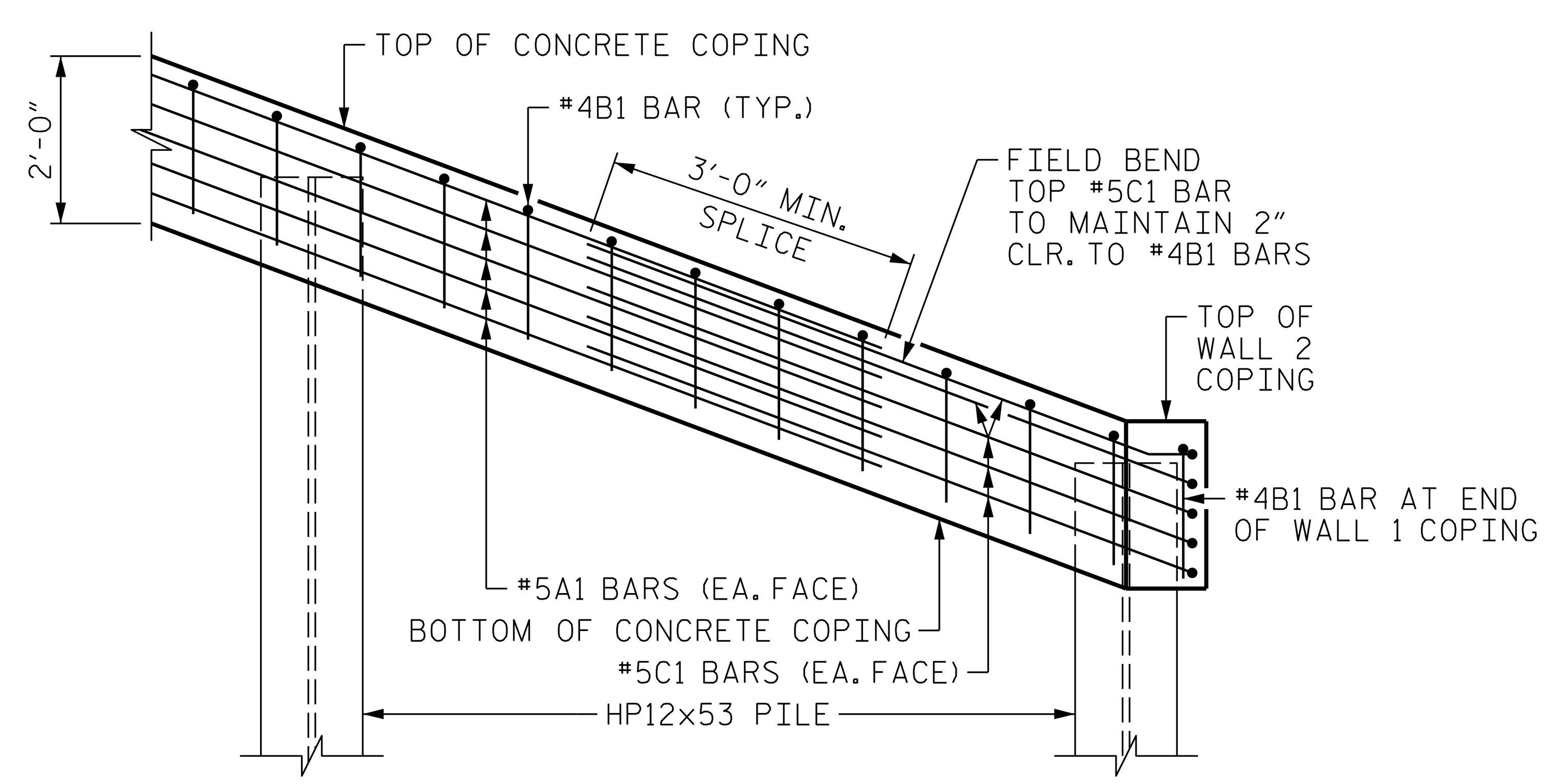
NOTES

TO RETAIN MATERIAL AT THE CORNER DETAIL BETWEEN WALL 1 AND WALL 2, UTILIZE AN ENGINEERING FABRIC THAT MEETS THE SPECIFICATIONS FOR TYPE 2 FABRIC IN TABLE 1056-1 OF THE STANDARD SPECIFICATIONS. ADHERE THE FABRIC TO THE CORNER SOLDIER PILES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

AS NEEDED, TRIM TIMBER LAGGING TO FACILITATE PLACEMENT OF THE HP14x73 PILE IN WALL 2 WHICH IS LOCATED ADJACENT TO THE HP12x53 PILE IN WALL 1. DO NOT TRIM TIMBER LAGGING UNTIL AFTER CONSTRUCTION OF WALL 1 IS COMPLETED. IF THE TIMBER LAGGING FOR WALL 1 IS TO REMAIN IN PLACE, DO NOT TRIM THE TIMBER LAGGING UNTIL THE ANNULAR SPACE BETWEEN TIMBER LAGGING AND THE FILL FACE OF THE PRECAST CONCRETE PANELS HAS BEEN FILLED WITH #57 STONE.

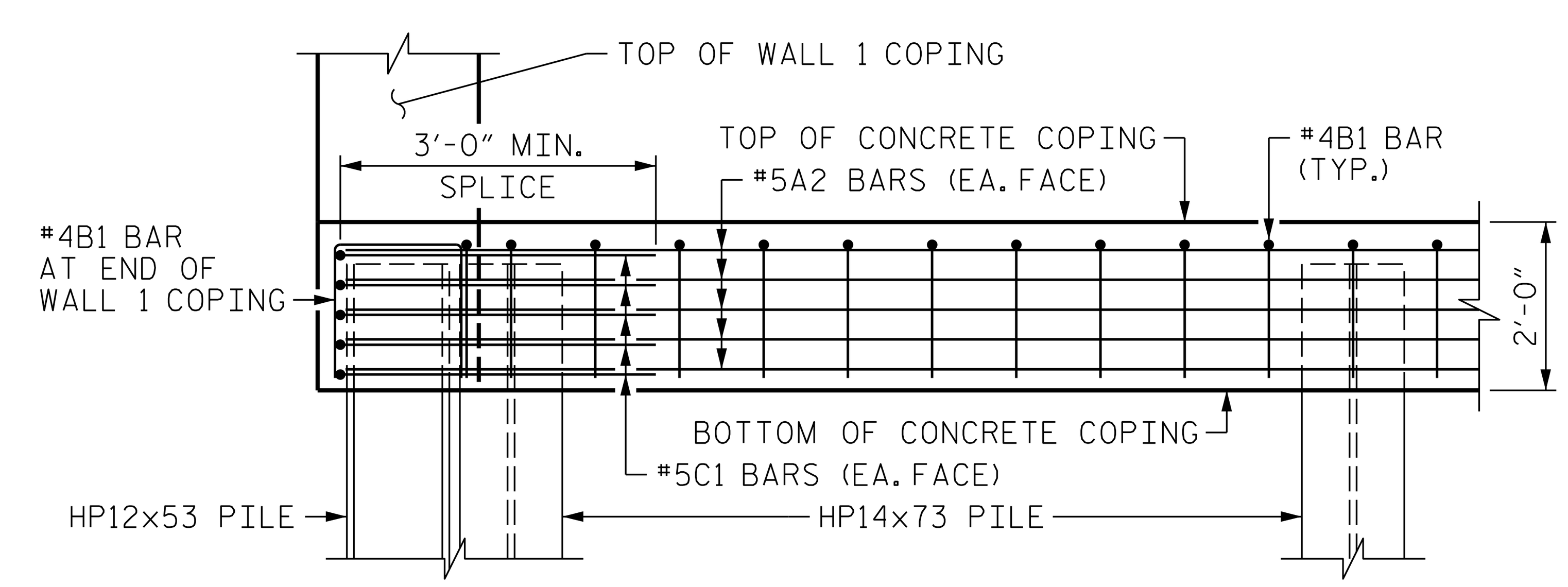
FOR ADDITIONAL COPING DETAILS, SEE "SOLDIER PILE WALLS CAST IN PLACE COPING DETAILS" SHEET.

CORNER DETAIL NOT SHOWN FOR CAST IN PLACE ALTERNATE OPTION.



VIEW A-A

(COPING ALONG SOLDIER PILE WALL 1)



VIEW B-B

(COPING ALONG SOLDIER PILE WALL 2)

PROJECT NO. B-4416
BEAUFORT COUNTY
STATION: 10+17.50 -WALL1-
12+35.37 -WALL2-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023730 ANNA C. TEAGUE
4/21/2017

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALLS CORNER DETAILS

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-11
1	---	---	3	---	---		TOTAL SHEETS
2	---	---	4	---	---		S-14

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N.C.B.E.L.S. License Number: F-0116

DES BY: B. ROGERS	DATE: 02/17	DWG BY: W. TOWE	DATE: 02/17
DES CHK: T. ANDREWS	DATE: 02/17	CHK BY: T. ANDREWS	DATE: 03/17

NOTES

QUANTITIES ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.

SOLDIER PILE WALL 1 PILE ELEVATIONS & PANEL TYPE

PILE STATION	PILE NO.	PILE SIZE	PILE SPA. (FT)	PILE LENGTH (FT)	BOT. OF PILE ELEV. (FT)	TOP OF PILE ELEV. (FT)	TOP OF COPING ELEV. (FT)	PANEL TYPE
10+00.00	1	HP12x53	---	22	44.71	66.71	67.21	1
10+08.75	2	HP12x53	8.75	22	41.43	63.43	63.93	2
10+17.50	3	HP12x53	8.75	22	38.16	60.16	60.66	3
10+26.25	4	HP12x53	8.75	22	34.88	56.88	57.38	4
10+35.00	5	HP12x53	8.75	22	31.60	53.60	54.10	

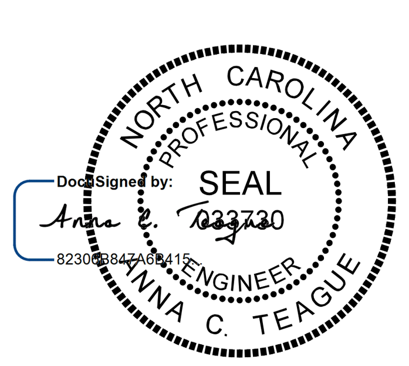
SOLDIER PILE WALL 1 PRECAST PANELS TABLE

PANEL TYPE	NO. REQ'D	"A"	"B"	"L"	BAR TYPES HORIZONTAL NO. PER PANEL	BAR TYPES HORIZONTAL "h-h" SPACING (MAX.)	BAR TYPES VERTICAL NO. PER PANEL	BAR TYPES VERTICAL "v-v" SPACING	"Y1"	"Y2"	"X"	CONC. C. Y. PER PANEL
1	1	1'-0"	2'-2 5/8"	8'-3"	5-H1	6"	9-V1	1'-0"	2 1/2"	4 3/8"	3"	0.29
2	1	2'-2 5/8"	3'-5 3/8"	8'-3"	7-H1	6"	9-V2	1'-0"	2 1/2"	4 3/8"	3"	0.51
3	1	3'-5 3/8"	4'-8 1/8"	8'-3"	10-H1	6"	9-V3	1'-0"	2 1/2"	4 3/8"	3"	0.72
4	1	4'-8 1/8"	5'-10 7/8"	8'-3"	12-H1	6"	9-V4	1'-0"	2 1/2"	4 3/8"	3"	0.94

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 10+17.50 -WALL1-



4/21/2017

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N.C.B.E.L.S. License Number: F-0116

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 1 PILE ELEVATIONS AND PANEL TYPE TABLES

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	---	---	3	---	---
2	---	---	4	---	---

SHEET NO. S-12

TOTAL SHEETS S-14

DES BY: B. ROGERS	DATE: 02/17	DWG BY: W. TOWE	DATE: 02/17
DES CHK: T. ANDREWS	DATE: 02/17	CHK BY: B. ROGERS	DATE: 02/17

PLOT DRIVER: B-4416.plt PENTABLE: B-4416.tbl
USER: wtowe DATE: 4/21/2017 TIME: 5:43:39 AM
FILE: ...\3.0 CADD\FinalPlans\12

SOLDIER PILE WALL 2 PILE ELEVATIONS & PANEL TYPE

PILE STATION	PILE NO.	PILE SIZE	PILE SPA. (FT)	PILE LENGTH (FT)	BOT. OF PILE ELEV. (FT)	TOP OF PILE ELEV. (FT)	TOP OF COPING ELEV. (FT)	PANEL TYPE
10+01.59	1	HP14x73	1.59 *	35	18.59	53.59	54.09	1
10+11.59	2	HP14x73	10	38	15.59	53.59	54.09	2
10+21.59	3	HP14x73	10	39	14.59	53.59	54.09	3
10+29.09	4	HP14x73	7.5	37.5	16.09	53.59	54.09	4
10+34.09	5	HP14x73	5	41.5	12.09	53.59	54.09	5
10+39.09	6	HP14x73	5	41.5	12.09	53.59	54.09	6
10+44.09	7	HP14x73	5	41.5	11.91	53.41	54.09	6
10+49.09	8	HP14x73	5	41.5	11.91	53.41	54.09	6
10+54.09	9	HP14x73	5	41.5	11.91	53.41	54.09	6
10+59.09	10	HP14x73	5	41.5	11.91	53.41	54.09	6
10+64.09	11	HP14x73	5	41.5	11.91	53.41	54.09	6
10+69.09	12	HP14x73	5	41.5	11.91	53.41	54.09	6
10+74.09	13	HP14x73	5	41.5	11.91	53.41	54.09	6
10+79.09	14	HP14x73	5	41.5	11.91	53.41	54.09	6
10+84.09	15	HP14x73	5	41.5	11.91	53.41	54.09	6
10+89.09	16	HP14x102	5	47.5	5.91	53.41	54.09	7
10+99.09	17	HP14x102	10	47.5	5.91	53.41	54.09	6
11+04.09	18	HP14x73	5	41.5	11.91	53.41	54.09	6
11+09.09	19	HP14x73	5	41.5	11.91	53.41	54.09	6
11+14.09	20	HP14x73	5	41.5	11.91	53.41	54.09	6
11+19.09	21	HP14x73	5	41.5	11.91	53.41	54.09	8
11+24.09	22	HP14x73	5	41.5	11.91	53.41	54.09	8
11+29.09	23	HP14x73	5	41.5	11.91	53.41	54.09	8
11+34.09	24	HP14x73	5	41.5	11.91	53.41	54.09	8
11+39.09	25	HP14x73	5	41.5	11.91	53.41	54.09	8
11+44.09	26	HP14x73	5	41.5	11.91	53.41	54.09	8
11+49.09	27	HP14x73	5	41.5	11.91	53.41	54.09	8
11+54.09	28	HP14x73	5	41.5	11.91	53.41	54.09	8
11+59.09	29	HP14x73	5	41.5	11.91	53.41	54.09	8
11+64.09	30	HP14x73	5	41.5	11.91	53.41	54.09	8
11+69.09	31	HP14x73	5	41.5	11.91	53.41	54.09	8
11+74.09	32	HP14x73	5	41.5	11.91	53.41	54.09	8
11+79.09	33	HP14x73	5	41.5	11.91	53.41	54.09	8
11+84.09	34	HP14x73	5	41.5	11.91	53.41	54.09	8
11+89.09	35	HP14x73	5	41.5	11.91	53.41	54.09	5
11+94.09	36	HP14x73	5	41.5	11.91	53.41	54.09	5
11+99.09	37	HP14x73	5	41.5	11.91	53.41	54.09	5
12+04.09	38	HP14x73	5	41.5	11.91	53.41	54.09	5
12+09.09	39	HP14x73	5	41.5	11.91	53.41	54.09	

* THE CENTERLINE OF PILE 1 IS LOCATED A DISTANCE OF 1.59 FEET ALONG THE LENGTH OF WALL 2.

SOLDIER PILE WALL 2 PILE ELEVATIONS & PANEL TYPE

PILE STATION	PILE NO.	PILE SIZE	PILE SPA. (FT)	PILE LENGTH (FT)	BOT. OF PILE ELEV. (FT)	TOP OF PILE ELEV. (FT)	TOP OF COPING ELEV. (FT)	PANEL TYPE
								5
12+14.09	40	HP14x73	5	41.5	11.91	53.41	54.09	5
12+19.09	41	HP14x73	5	41.5	11.91	53.41	54.09	5
12+24.09	42	HP14x73	5	41.5	11.91	53.41	54.09	9
12+29.09	43	HP14x73	5	37.5	14.91	52.41	54.03	9
12+34.09	44	HP14x73	5	37.5	14.91	52.41	53.96	9
12+39.09	45	HP14x73	5	37.5	14.91	52.41	53.90	9
12+44.09	46	HP14x73	5	37.5	14.91	52.41	53.83	9
12+49.09	47	HP14x73	5	37.5	14.91	52.41	53.76	9
12+54.09	48	HP14x73	5	37.5	14.91	52.41	53.70	9
12+59.09	49	HP14x73	5	37.5	14.91	52.41	53.63	9
12+64.09	50	HP14x73	5	37.5	14.91	52.41	53.57	9
12+69.09	51	HP14x73	5	37.5	14.91	52.41	53.50	9
12+74.09	52	HP14x73	5	37.5	14.91	52.41	53.43	9
12+79.09	53	HP14x73	5	37.5	14.91	52.41	53.37	9
12+84.09	54	HP14x73	5	37.5	14.91	52.41	53.30	9
12+89.09	55	HP14x73	5	37.5	14.91	52.41	53.24	9
12+94.09	56	HP14x73	5	37.5	14.91	52.41	53.17	9
12+99.09	57	HP14x73	5	37.5	14.91	52.41	53.10	9
13+04.09	58	HP14x73	5	37.5	14.91	52.41	53.04	9
13+09.09	59	HP14x73	5	37.5	14.91	52.41	52.97	9
13+14.09	60	HP14x73	5	37.5	14.91	52.41	52.91	10
13+21.59	61	HP14x73	7.5	39	12.41	51.41	52.66	10
13+29.09	62	HP14x73	7.5	39	12.41	51.41	52.41	10
13+36.59	63	HP14x73	7.5	39	12.41	51.41	52.16	10
13+44.09	64	HP14x73	7.5	39	12.41	51.41	51.91	2
13+54.09	65	HP14x73	10	38	12.41	50.41	51.57	2
13+64.09	66	HP14x73	10	38	12.41	50.41	51.24	2
13+74.09	67	HP14x73	10	38	12.41	50.41	50.91	11
13+84.09	68	HP14x73	10	38	11.41	49.41	50.57	11
13+94.09	69	HP14x73	10	38	11.41	49.41	50.24	11
14+04.09	70	HP14x73	10	38	11.41	49.41	49.91	12
14+14.09	71	HP14x73	10	35	13.41	48.41	49.51	12
14+24.09	72	HP14x73	10	35	13.41	48.41	49.11	13
14+34.09	73	HP12x53	10	30	17.41	47.41	48.71	13
14+44.09	74	HP12x53	10	30	17.41	47.41	48.31	13
14+54.09	75	HP12x53	10	30	17.41	47.41	47.91	14
14+64.09	76	HP12x53	10	25	21.41	46.41	46.91	15
14+74.09	77	HP12x53	10	16	29.41	45.41	45.91	

SOLDIER PILE WALL 2 PRECAST PANELS TABLE

PANEL TYPE	NO. REQ'D	"A"	"B"	"L"	BAR TYPES: HORIZONTAL: NO. PER PANEL	BAR TYPES: HORIZONTAL: "h-h" SPACING (MAX.)	BAR TYPES: VERTICAL: NO. PER PANEL	BAR TYPES: VERTICAL: "v-v" SPACING	"Y"	"X"	CONC. C. Y. PER PANEL
1	1	7'-9"	7'-9"	9'-6"	16-H1	6"	10-V1	1'-0"	3"	3"	1.59
2	4	9'-0"	9'-0"	9'-6"	18-H1	6"	10-V2	1'-0"	3"	3"	1.85
3	1	10'-0"	10'-0"	7'-0"	20-H2	6"	8-V3	1'-0"	3"	3"	1.51
4	1	10'-9"	10'-9"	4'-6"	22-H3	6"	5-V4	1'-0"	3"	3"	1.05
5	8	11'-6"	11'-6"	4'-6"	23-H3	6"	5-V5	1'-0"	3"	3"	1.12
6	14	12'-0"	12'-0"	4'-6"	24-H3	6"	5-V6	1'-0"	3"	3"	1.17
7	1	12'-0"	12'-0"	9'-6"	24-H1	6"	10-V6	1'-0"	3"	3"	2.46
8	14	11'-9"	11'-9"	4'-6"	24-H3	6"	5-V7	1'-0"	3"	3"	1.14
9	18	10'-6"	10'-6"	4'-6"	21-H3	6"	5-V8	1'-0"	3"	3"	1.02
10	4	9'-9"	9'-9"	7'-0"	20-H2	6"	8-V9	1'-0"	3"	3"	1.47
11	3	8'-6"	8'-6"	9'-6"	17-H1	6"	10-V10	1'-0"	3"	3"	1.74
12	2	7'-6"	7'-6"	9'-6"	15-H1	6"	10-V11	1'-0"	3"	3"	1.54
13	3	6'-9"	6'-9"	9'-6"	14-H1	6"	10-V12	1'-0"	3"	3"	1.39
14	1	5'-3"	5'-3"	9'-6"	11-H1	6"	10-V13	1'-0"	3"	3"	1.08
15	1	3'-6"	3'-6"	9'-6"	7-H1	6"	10-V14	1'-0"	3"	3"	0.72

NOTES

QUANTITIES ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.

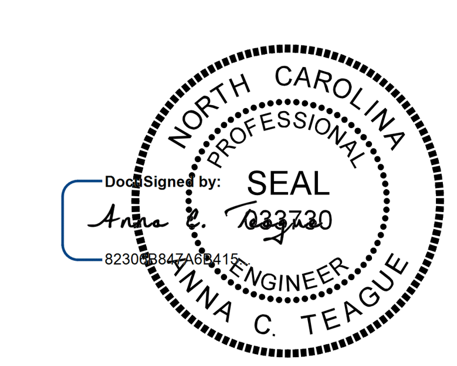
PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 12+35.37 -WALL2-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL 2 PILE ELEVATIONS AND PANEL TYPE TABLES



4/21/2017

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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REVISIONS							
NO.	BY:	DATE:		NO.	BY:	DATE:	
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2	---	---		4	---	---	

SHEET NO. S-13
TOTAL SHEETS S-14

DES BY: B. ROGERS DATE: 02/17
DES CHK: T. ANDREWS DATE: 02/17
DWG BY: W. TOWE DATE: 02/17
CHK BY: B. ROGERS DATE: 02/17

PENTABLE: B-4416.tbl TIME: 5:43:42 AM
PLOT DRIVER: B-4416.plt USER: wtowe DATE: 4/21/2017 FILE: ...\3.0 CADD\FinalPlans\13

BILL OF MATERIALS (WALL 1)

PRECAST CONCRETE PANELS

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
H1	34	6	STR.	9'-5"	481
V1	9	4	STR.	1'-10"	12
V2	9	4	STR.	3'-0"	18
V3	9	4	STR.	4'-3"	26
V4	9	4	STR.	5'-6"	34
REINFORCING STEEL (PANELS)				LBS.	571
CLASS 'AA' CONCRETE (PANELS)				CU. YDS.	2.5

BILL OF MATERIALS (WALL 1)

RETAINING WALL

PRECAST CONCRETE PANEL TYPE		NUMBER REQUIRED
1		1
2		1
3		1
4		1
HP12x53 STEEL PILES	NO. = 5	L.F. = 110
COPING		L.F. = 39
NO. 57 STONE		CU. YDS. = AS REQ'D
3" TIMBER LAGGING		NBF = AS REQ'D

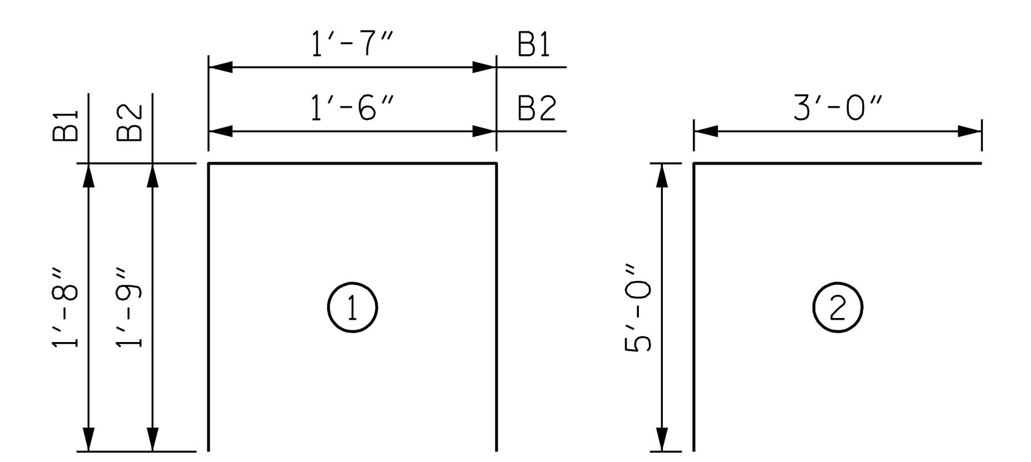
BILL OF MATERIALS (WALLS 1 & 2)

CAST-IN-PLACE COPING

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
A1	11	5	STR.	36'-6"	419
A2	99	5	STR.	55'-3"	5,705
B1	514	4	1	4'-11"	1,689
B2	10	5	1	5'-0"	53
C1	11	5	2	8'-0"	92
NOTE: SPLICE A2 BARS AND "A" BARS WITH C1 BARS @ 3'-0" MIN.					
REINFORCING STEEL (COPING)				LBS.	7,958
CLASS 'A' CONCRETE (COPING)				CU. YDS.	59.6

BAR TYPES (WALLS 1 & 2)

CAST-IN-PLACE COPING



BILL OF MATERIALS (WALL 2)

PRECAST CONCRETE PANELS

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
H1	253	6	STR.	9'-2"	3,484
H2	100	6	STR.	6'-8"	1,002
H3	1256	6	STR.	4'-2"	7,861
V1	10	4	STR.	7'-5"	50
V2	40	4	STR.	8'-8"	232
V3	8	4	STR.	9'-8"	52
V4	5	4	STR.	10'-5"	35
V5	40	4	STR.	11'-2"	299
V6	80	4	STR.	11'-8"	624
V7	70	4	STR.	11'-5"	534
V8	90	4	STR.	10'-2"	612
V9	32	4	STR.	9'-5"	202
V10	30	4	STR.	8'-2"	164
V11	20	4	STR.	7'-2"	96
V12	30	4	STR.	6'-5"	129
V13	10	4	STR.	4'-11"	33
V14	10	4	STR.	3'-2"	22
REINFORCING STEEL (PANELS)				LBS.	15,431
CLASS 'AA' CONCRETE (PANELS)				CU. YDS.	93.9

NOTES

QUANTITIES ARE NOT PROVIDED FOR CAST IN PLACE ALTERNATE OPTION.

BILL OF MATERIALS (WALL 2)

RETAINING WALL

PRECAST CONCRETE PANEL TYPE		NUMBER REQUIRED
1		1
2		4
3		1
4		1
5		8
6		14
7		1
8		14
9		18
10		4
11		3
12		2
13		3
14		1
15		1
HP14x73 STEEL PILES	NO. = 70	L.F. = 2,773
HP12x53 STEEL PILES	NO. = 5	L.F. = 131
HP14x102 STEEL PILES	NO. = 2	L.F. = 95
COPING		L.F. = 474
NO. 57 STONE		CU. YDS. = AS REQ'D
3" TIMBER LAGGING		NBF = AS REQ'D

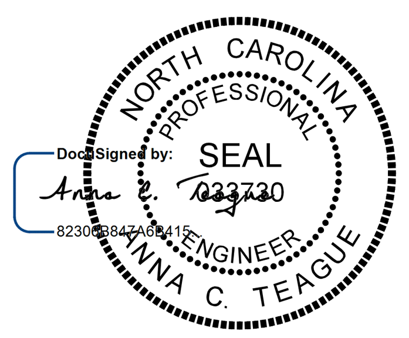
SOLDIER PILE RETAINING WALLS

SOLDIER PILE RETAINING WALL 1	140.8 SF
SOLDIER PILE RETAINING WALL 2	5,152.5 SF
TOTAL	5,293.3 SF

PROJECT NO. B-4416

BEAUFORT COUNTY

STATION: 10+17.50 -WALL1-
12+35.37 -WALL2-



4/21/2017

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALLS BILL OF MATERIALS & ESTIMATED QUANTITIES

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	---	---	3	---	---
2	---	---	4	---	---

SHEET NO. S-14
TOTAL SHEETS S-14

HDR Engineering, Inc. of the Carolinas
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