

BIDDING DOCUMENTS
MIDDLE FORK GREENWAY SECTION 3A
TRAILHEAD AND GREENWAY
WATAUGA COUNTY, NORTH
CAROLINA

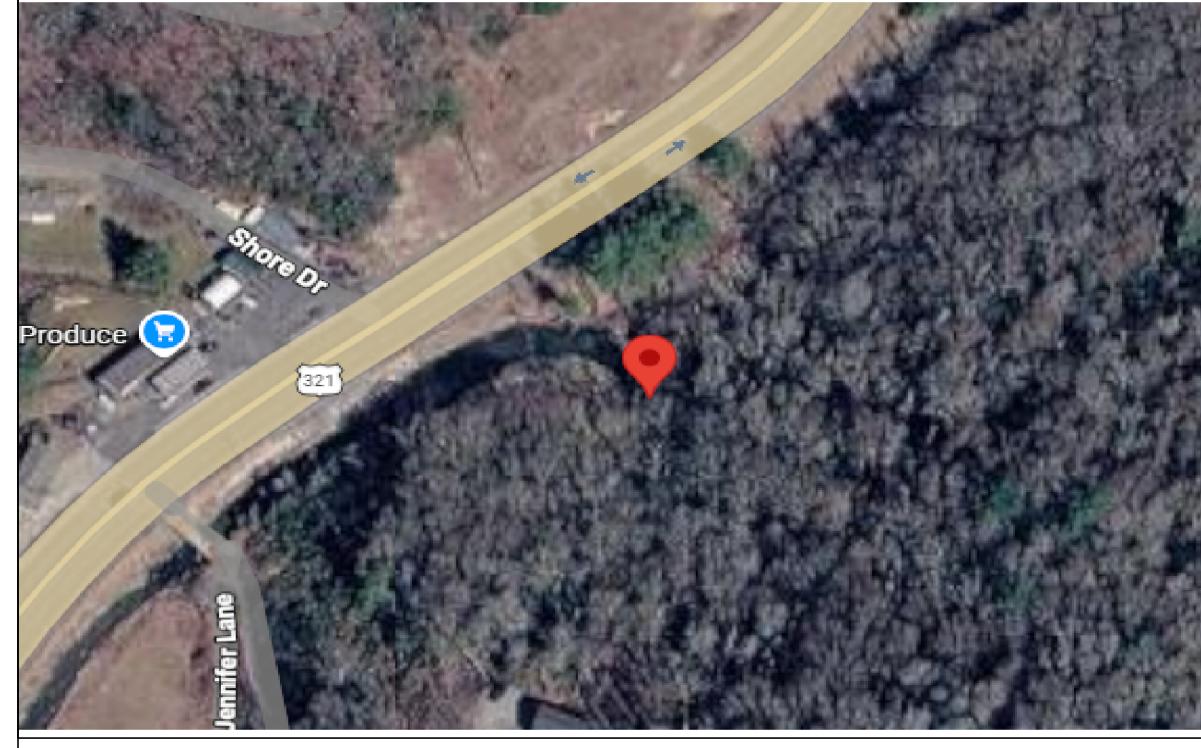
ADDENDUM #1

Revised Bridge Plans for pedestrian bridges provided by Arete Engineers, PLLC.

February 11, 2026



VICINITY MAP



ARETÉ ENGINEERS

MIDDLEFORK GREENWAY SECTION 3

DOWNSTREAM BRIDGE ABUTMENT DESIGN

TYPE OF WORK: STRUCTURE

ABBREVIATIONS

A	AREA
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ADH.	ADHESIVE
AGG.	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT.	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPRH.	APPROACH
APPROX.	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BOT.	BOTTOM
BRG.	BEARING
CTS.	CENTERS
CIPL	CAST IN PLACE
C/L	CENTERLINE
CON.	CONNECTION
CONC.	CONCRETE
COORD.	COORDINATE
DGN.	DESIGN
DIM.	DIMENSION
DWG.	DRAWING
EA.	EACH
EL.	ELEVATION
ENGR.	ENGINEER
EXIST.	EXISTING
F TO F	FACE TO FACE
FDN.	FOUNDATION
FT.	FEET
CALV.	GALVANIZED
GR.	GRADE
HORIZ.	HORIZONTAL
IN.	INCH
LB.	POUND
LONG.	LONGITUDINAL
MAX.	MAXIMUM
MIN.	MINIMUM
O/C	ON CENTER
OD	OUTSIDE DIAMETER
PAR.	PARALLEL
PVC	POLYVINYL CHLORIDE
REINF.	REINFORCEMENT
SCH.	SCHEDULE
STD.	STANDARD
STL.	STEEL
STR.	STRUCTURE
W.W.F.	WELDED WIRE FABRIC

SHEET INDEX

S1	COVER SHEET / STANDARD NOTES
S2	BRIDGE ELEVATION & PLAN
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S7	WINGWALLS -W3- & -W4-
S8	ADDITIONAL DETAILS

DESIGN DATA:

SPECIFICATIONS

A.A.S.H.T.O. GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, DECEMBER 2009

A.A.S.H.T.O. LRFD BRIDGE DESIGN SPECIFICATIONS

LIVE LOAD IMPACT ALLOWANCE	90 PSF PEDESTRIAN LOAD
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	N/A
- AASHTO M270 GRADE 50W	36,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	50,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	50,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	60,000 LBS. PER SQ. IN.
CONCRETE IN SHEAR	3,000 LBS. PER SQ. IN.
STRUCTURAL TIMBER - TREATED OR UNTREATED	SEE A.A.S.H.T.O.
EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	60 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP. CONCRETE SHALL BE CURED IN COMPLIANCE WITH NCDOT SPECIFICATIONS.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS, UNLESS OTHERWISE NOTES, SHALL BE EMBEDDED A MINIMUM OF 6" INTO EXISITING CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

CONSTRUCTION SEQUENCE:

PLACE BACKFILL IN ACCORDANCE WITH NCDOT SPECIFICATIONS. PLACE BACKFILL ABOVE THE BEARING SEAT AFTER THE PREFABRICATED FRP BRIDGE IS SET ON THE END BENTS.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACE IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

LAP SPLICES SHALL BE A MINIMUM LENGTH OF 40 X DIAMETER OF BAR.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HERON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

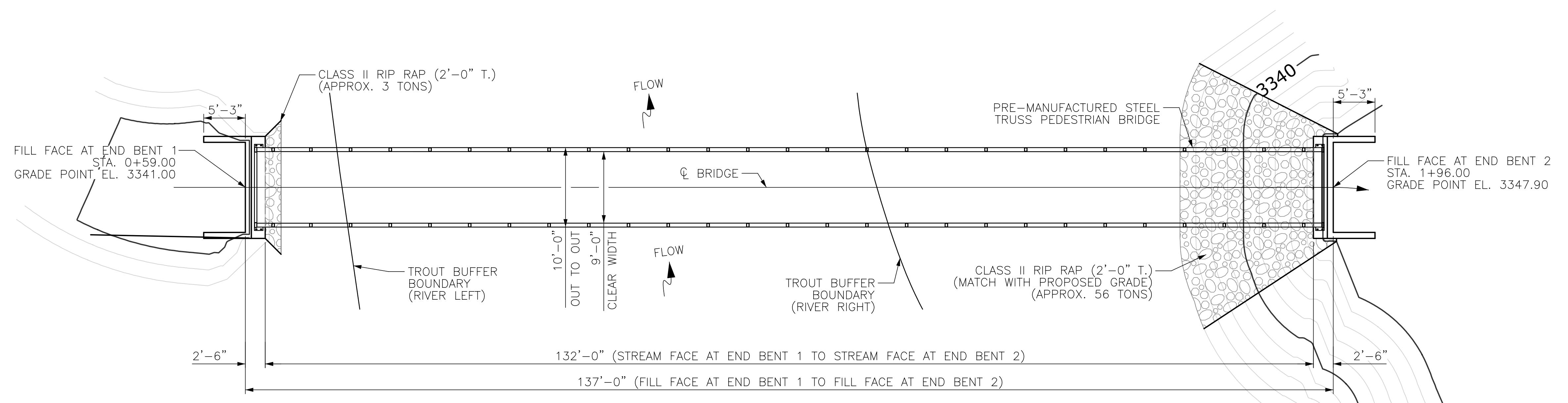
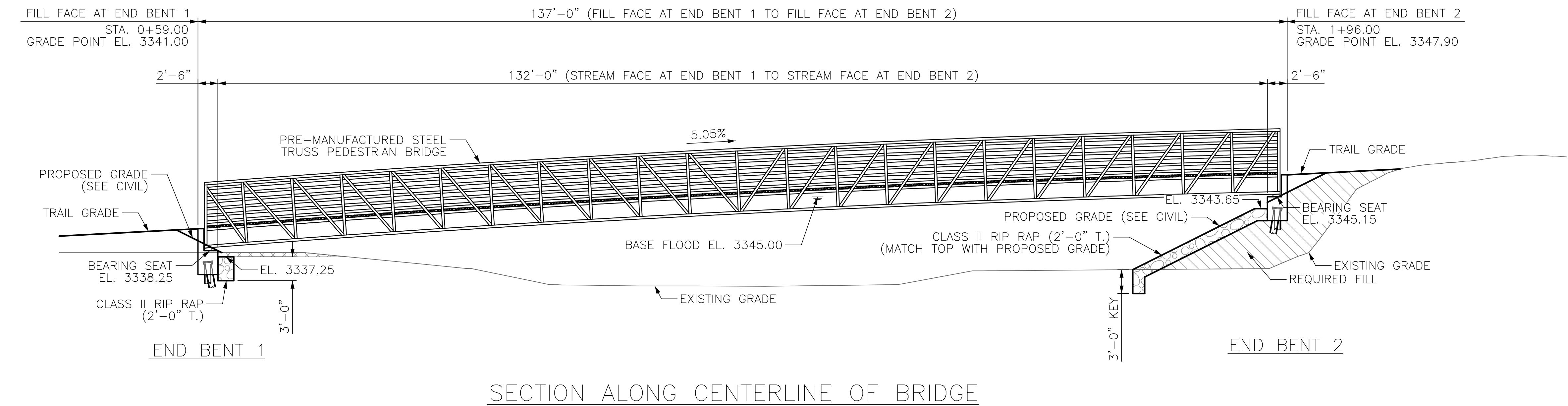
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE Affected BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON THE PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CHAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CHAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CHAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.



DATE	2/6/2026
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EOR	WMH
PROJECT NO.	53999
SHEET CONTENTS	
COVER SHEET / STANDARD NOTES	
REVISIONS:	
1	2/10/2026
SHEET NO.	S-1
TOTAL SHEETS	8



PLAN

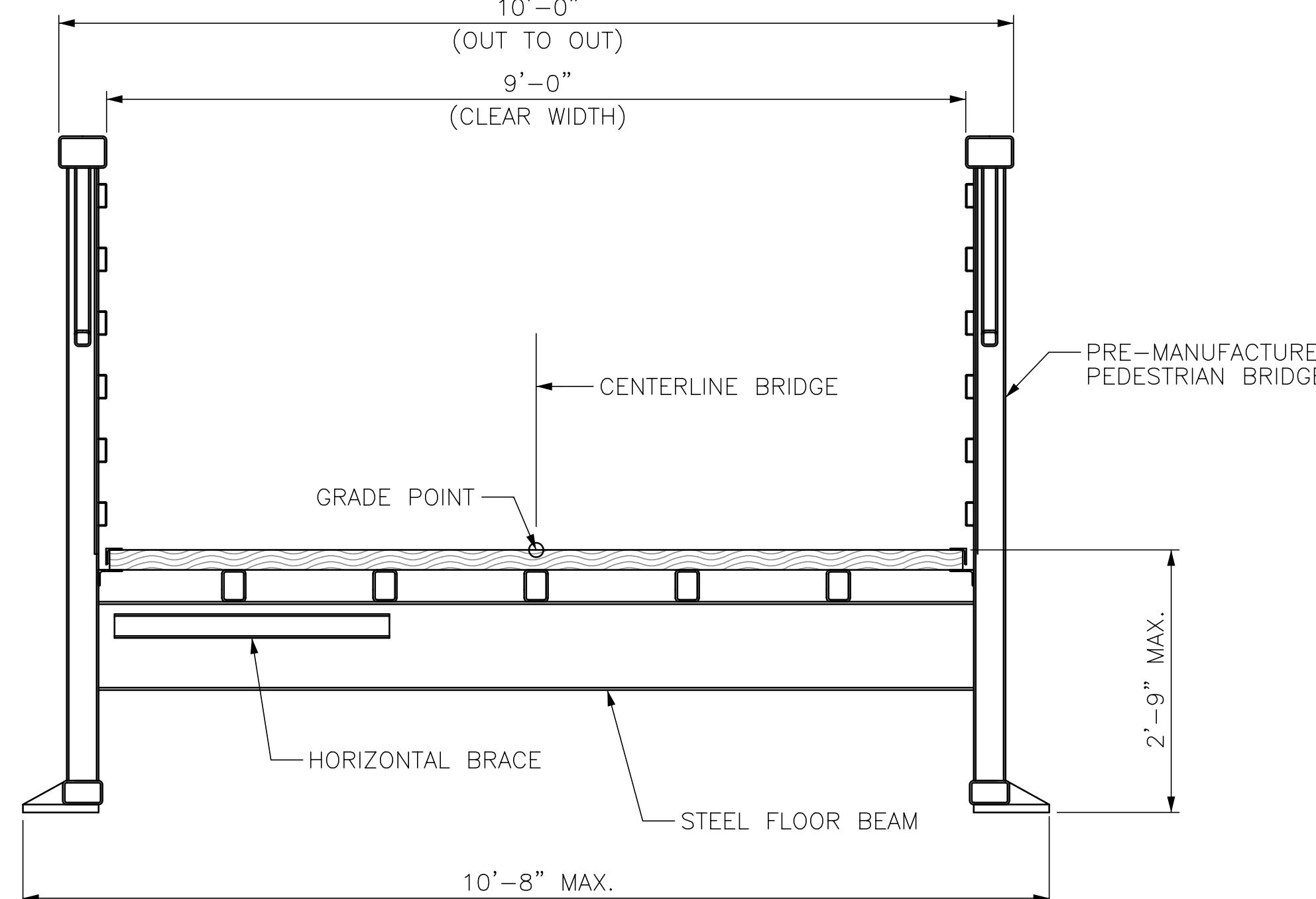
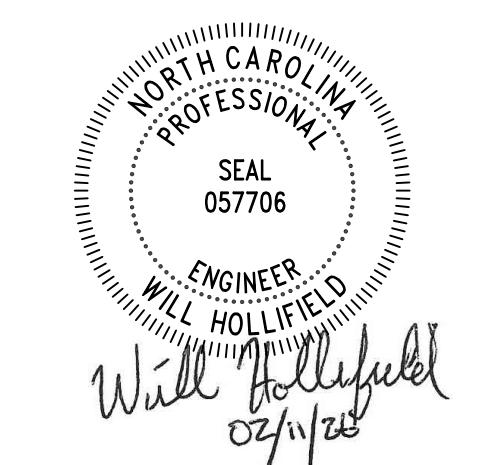
MFG SECTION 3 ABUTMENT DESIGN (DOWNSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.160833, LONG: -81.644166

DATE	2/6/2026
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EOB	WMH
PROJECT NO.	53999

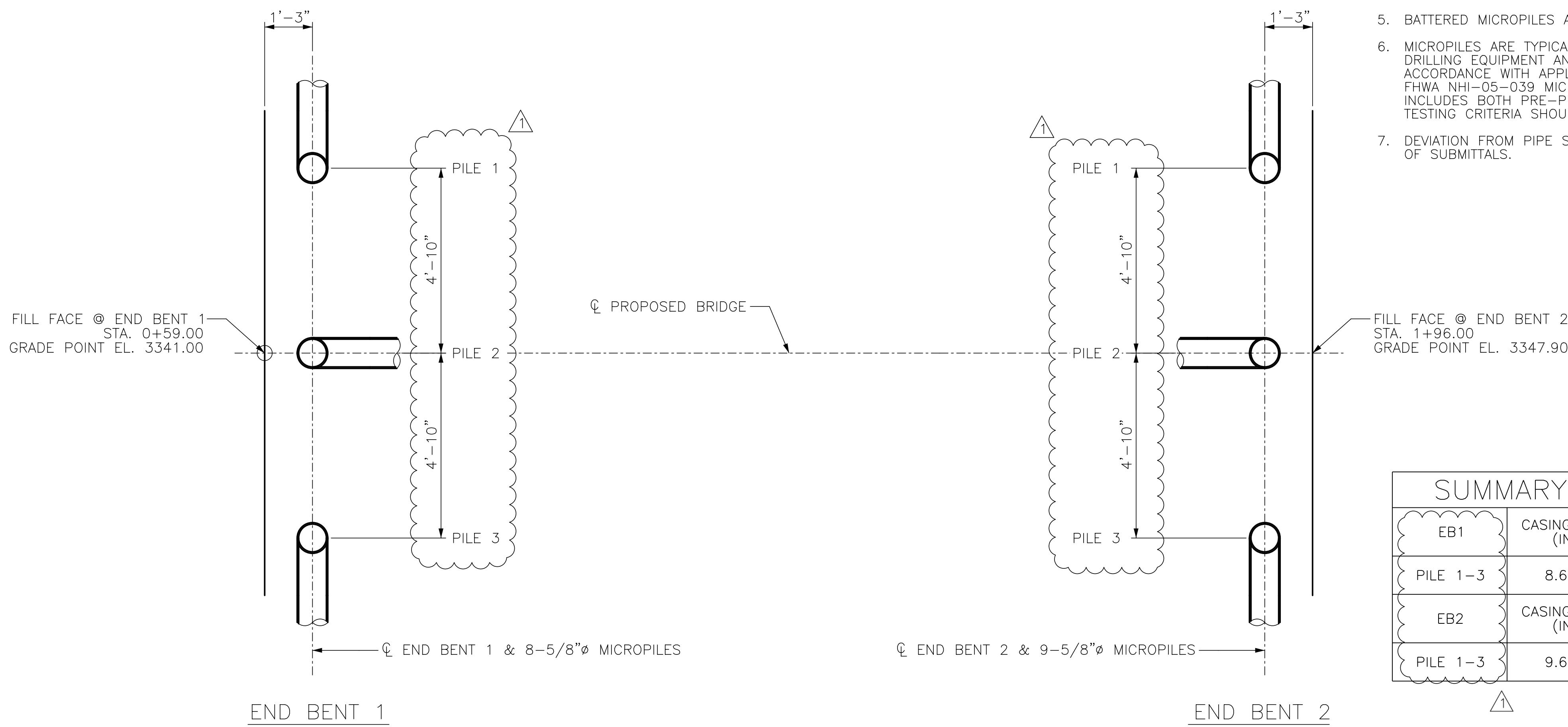
SHEET CONTENTS
BRIDGE ELEVATION & PLAN

REVISIONS:	1	2/10/2026

SHEET NO.	S-2
TOTAL SHEETS	08



TYPICAL SECTION (PRE-MANUFACTURED BRIDGE)



FOUNDATION LAYOUT

BEGIN STATION (FILL FACE)	END STATION (FILL FACE)	BACKWALL WIDTH	END CLEARANCE	GRADE	HORIZONTAL BRIDGE LENGTH (PLAN LENGTH)
0+59.00	1+96.00	9"	2"	+5.05%	135'-2"

PREMANUFACTURED PEDESTRIAN BRIDGE NOTES

1. BRIDGE LOADING & GEOMETRY IS ESTIMATED. AFTER SHOP DRAWINGS FOR THE PREMANUFACTURED PEDESTRIAN BRIDGE ARE SUBMITTED, CONSTRUCTION ADMINISTRATOR SHALL FORWARD SHOP DRAWINGS TO ARETÉ ENGINEERS FOR VERIFICATION THAT THE SUBSTRUCTURE CAN SUPPORT CALCULATED BRIDGE LOADS.
2. PREMANUFACTURED PEDESTRIAN BRIDGE DESIGN PER AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES (LATEST EDITION).
3. THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
4. FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE SHALL INDICATE THE LOCATION OF DRAINAGE HOLES FOR THE BRIDGE TUBULAR MEMBERS IN THE SHOP DRAWINGS.
5. FOR ADDITIONAL INFORMATION, SEE SPECIAL PROVISIONS.
6. FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE MUST MAINTAIN THE MAX. BACKWALL HEIGHT AS SHOWN IN THE PLANS.
7. FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE INCLUDE BACKWALL COVER PLATE FOR EXPANSION.

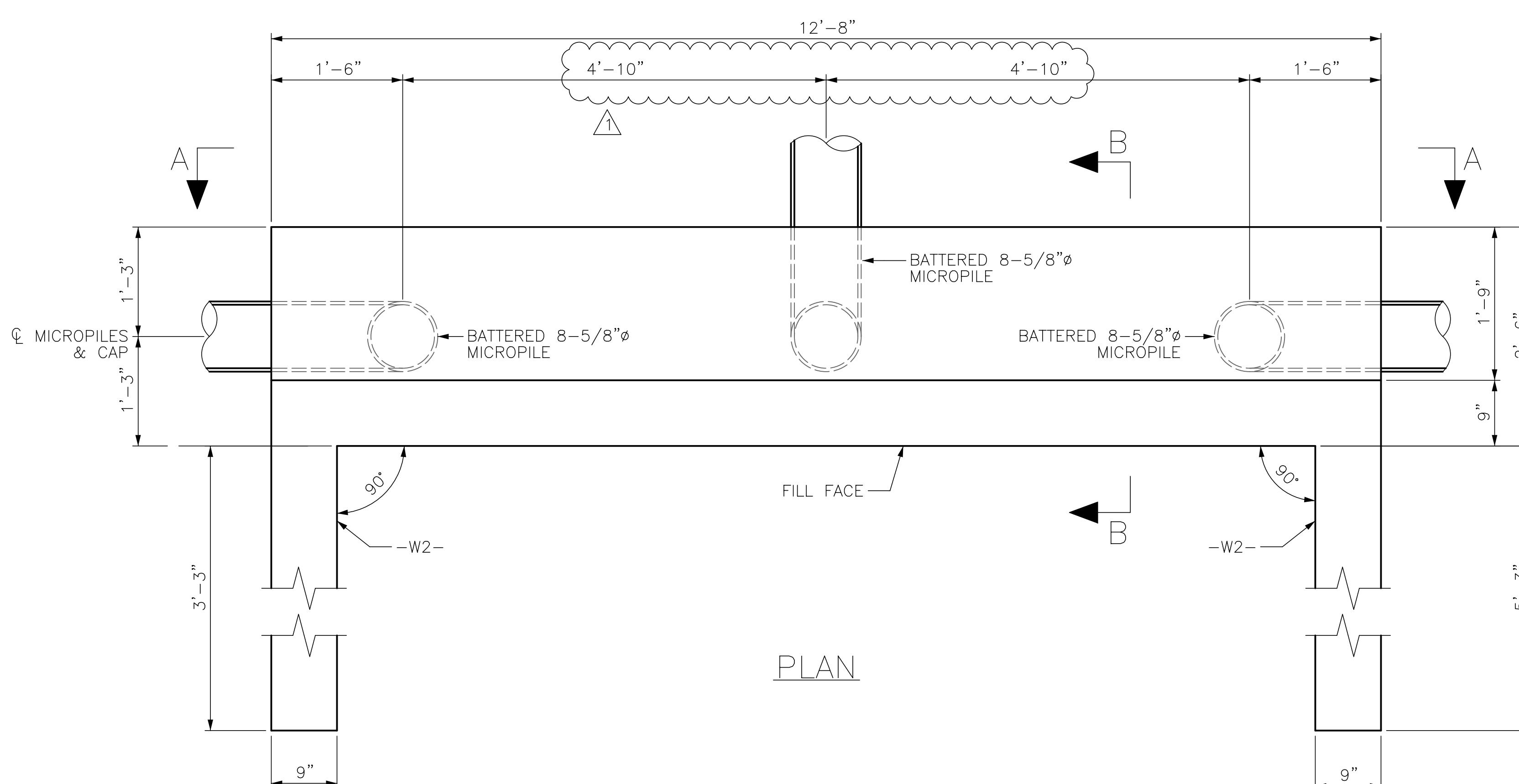
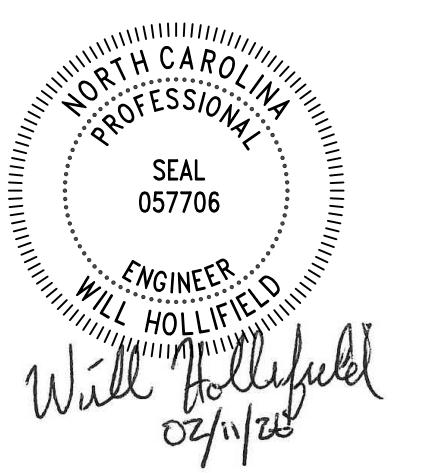
MICROPILE NOTES:

1. FOR MICROPILE INFORMATION AND OTHER SUBSTRUCTURE DESIGN CONSIDERATIONS, SEE STAMPED GEOTECHNICAL REPORT.
2. MINIMUM BOND LENGTH OF 10 FEET IS REQUIRED FOR ALL PILES AT END BENTS 1 AND 2.
3. PENETRATION OF AT LEAST 5 FEET INTO WEATHERED ROCK OR CRYSTALLINE ROCK IS REQUIRED FOR REINFORCEMENT CASINGS.
4. USE REINFORCEMENT CASINGS WITH YIELD STRENGTHS OF AT LEAST 80 KSI AND A MINIMUM WALL THICKNESS OF 0.5" FOR ALL MICROPILES.
5. BATTERED MICROPILES AT ALL LOCATIONS ARE TO BE BATTERED AT 2:12.
6. MICROPILES ARE TYPICALLY DESIGNED BY THE MICROPILE DRILLING CONTRACTOR BASED ON THEIR AVAILABLE DRILLING EQUIPMENT AND MATERIAL AVAILABILITY. MICROPILES SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE SECTIONS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, LATEST EDITION AND FHWA NHI-05-039 MICROPILE DESIGN AND CONSTRUCTION REFERENCE MANUAL. A LOAD TESTING PROGRAM THAT INCLUDES BOTH PRE-PRODUCTION VERIFICATION TESTING AND PRODUCTION PROOF TESTING IS REQUIRED. LOAD TESTING CRITERIA SHOULD FOLLOW RECOMMENDATIONS OUTLINES IN FHWA NH-05-039.
7. DEVIATION FROM PIPE SIZE AND ROD DIAMETER MUST BE APPROVED BY ENGINEER OF RECORD UPON RECEIPT OF SUBMITTALS.

SUMMARY OF MICROPILE INFORMATION/INSTALLATION					
EB1	CASING O.D. (IN)	MIN. REINFORCEMENT BAR	ANTICIPATED BEDROCK EL. (FT)	FACTORED RESISTANCE PER PILE (KIPS)	UPLIFT RESISTANCE (KIPS)
PILE 1-3	8.625	#11	3321	150	80
EB2	CASING O.D. (IN)	MIN. REINFORCEMENT BAR	ANTICIPATED BEDROCK EL. (FT)	FACTORED RESISTANCE PER PILE (KIPS)	UPLIFT RESISTANCE (KIPS)
PILE 1-3	9.625	#11	3316	150	80

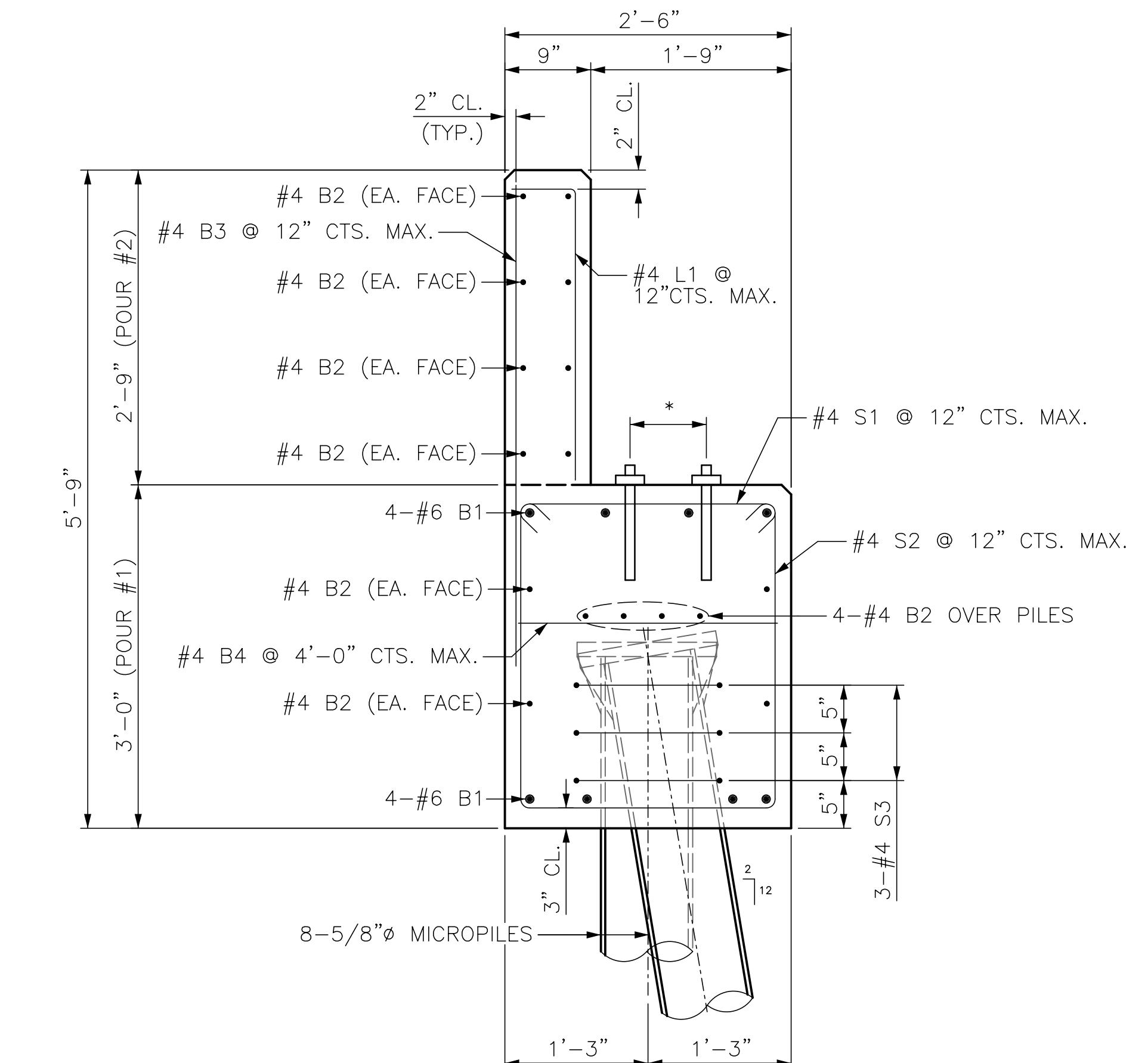
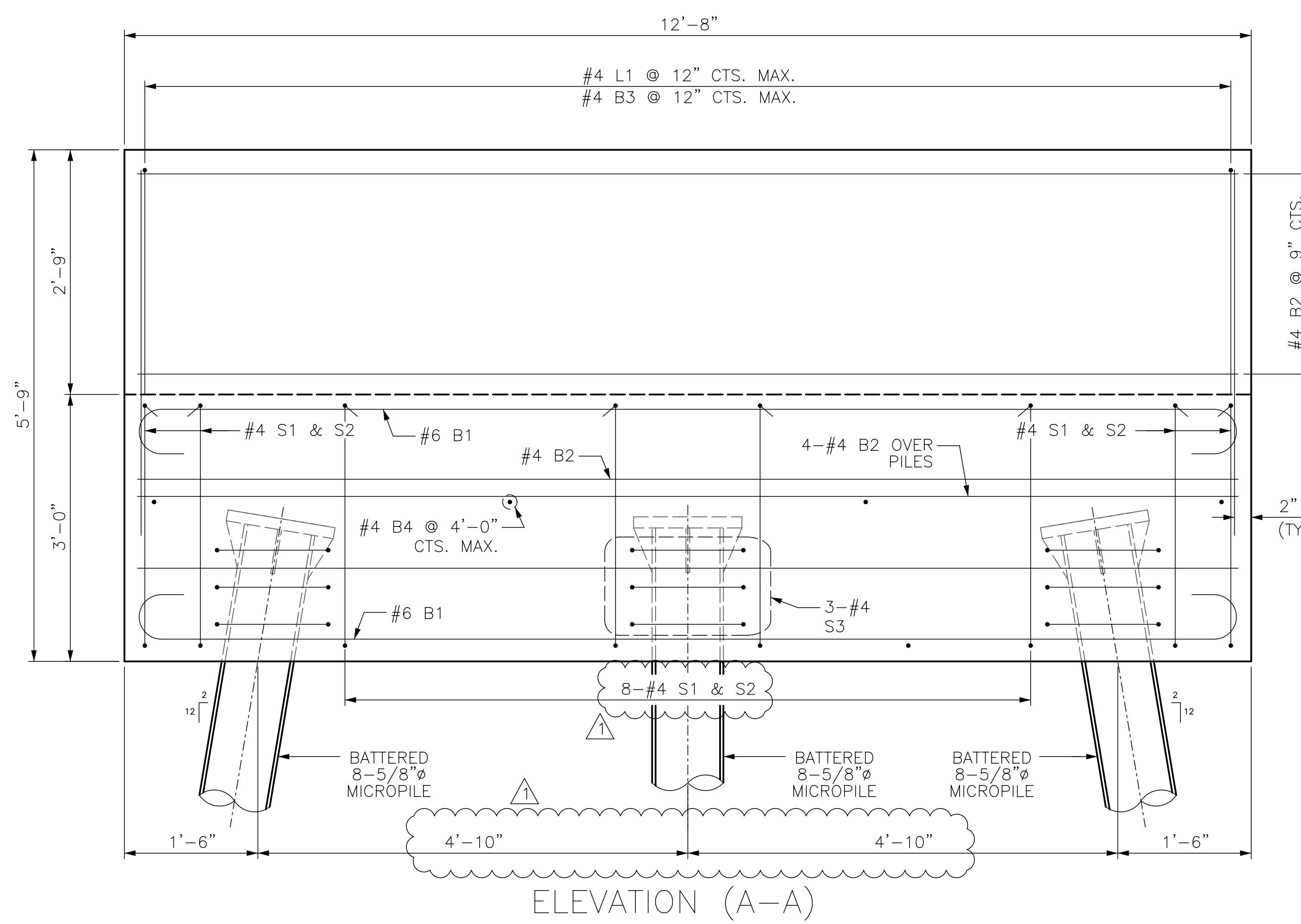
MFG SECTION 3 ABUTMENT DESIGN (DOWNSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.160833, LONG: -81.644166

DATE	2/6/2026
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PROJECT NO.	53999
SHEET CONTENTS	
BRIDGE CROSS SECTION / FOUNDATION LAYOUT	
REVISIONS:	
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SHEET NO.	S-3
TOTAL SHEETS	08



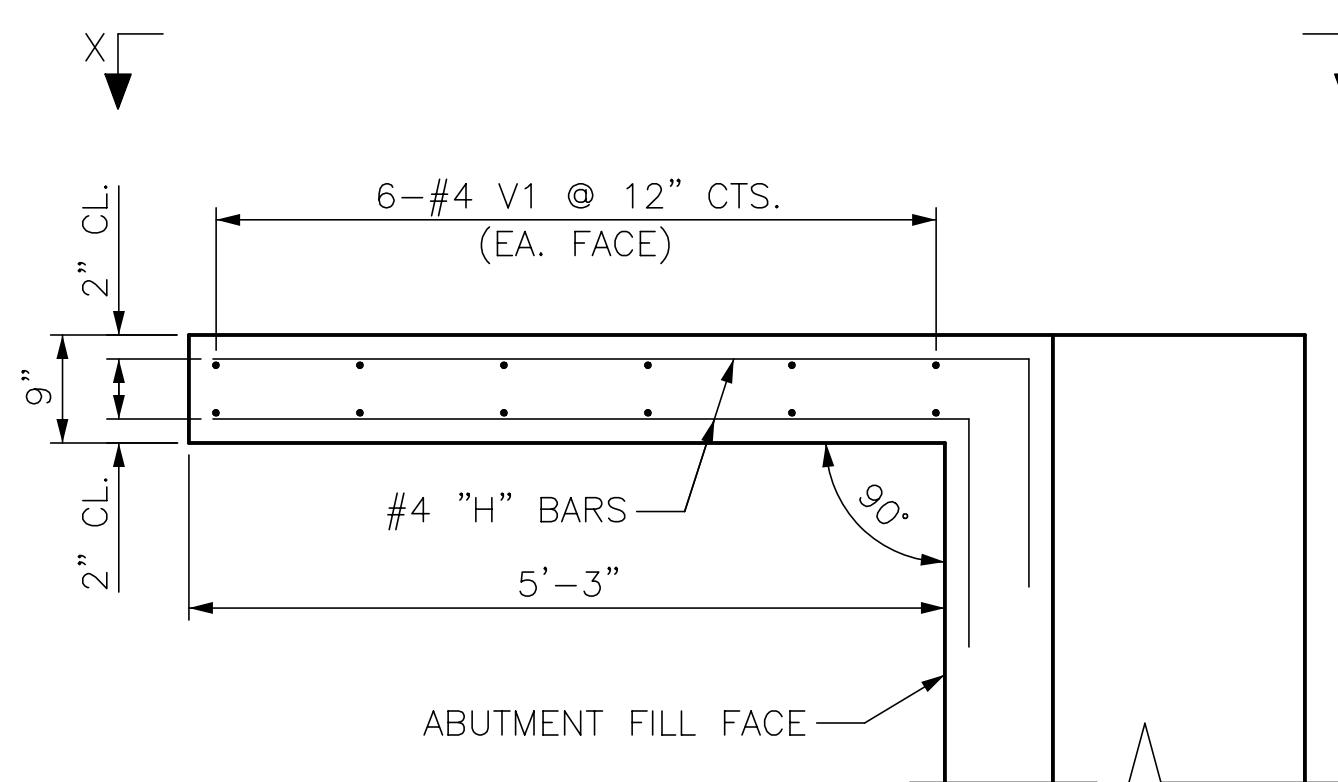
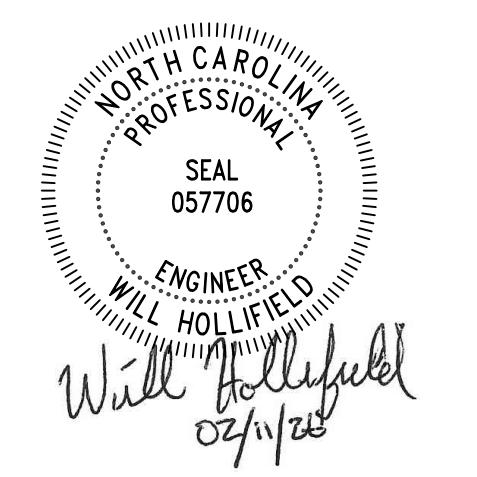
BAR TYPES		BILL OF MATERIAL (END BENT 1)				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#6	1	13'-6"	162	
B2	16	#4	STR	12'-4"	132	
B3	14	#4	STR	4'-2"	39	
B4	4	#4	STR	2'-2"	6	
S1	12	#4	2	2'-11"	23	
S2	12	#4	3	8'-1"	65	
S3	9	#4	4	5'-2"	31	
L1	14	#4	5	2'-11"	27	
REINFORCING STEEL (FOR END BENT 1)		485 LBS.				
CLASS A CONCRETE BREAKDOWN (FOR END BENT 1)						
POUR #1 (CAP & LOWER WINGS)		4.23 C.Y.				
POUR #2 (BACKWALL & UPPER WINGS)		1.62 C.Y.				
TOTAL CLASS A CONCRETE		5.85 C.Y.				

** DIMENSIONS PROVIDED BY FABRICATOR OR PREMANUFACTURED PREDESTRIAN BRIDGE.

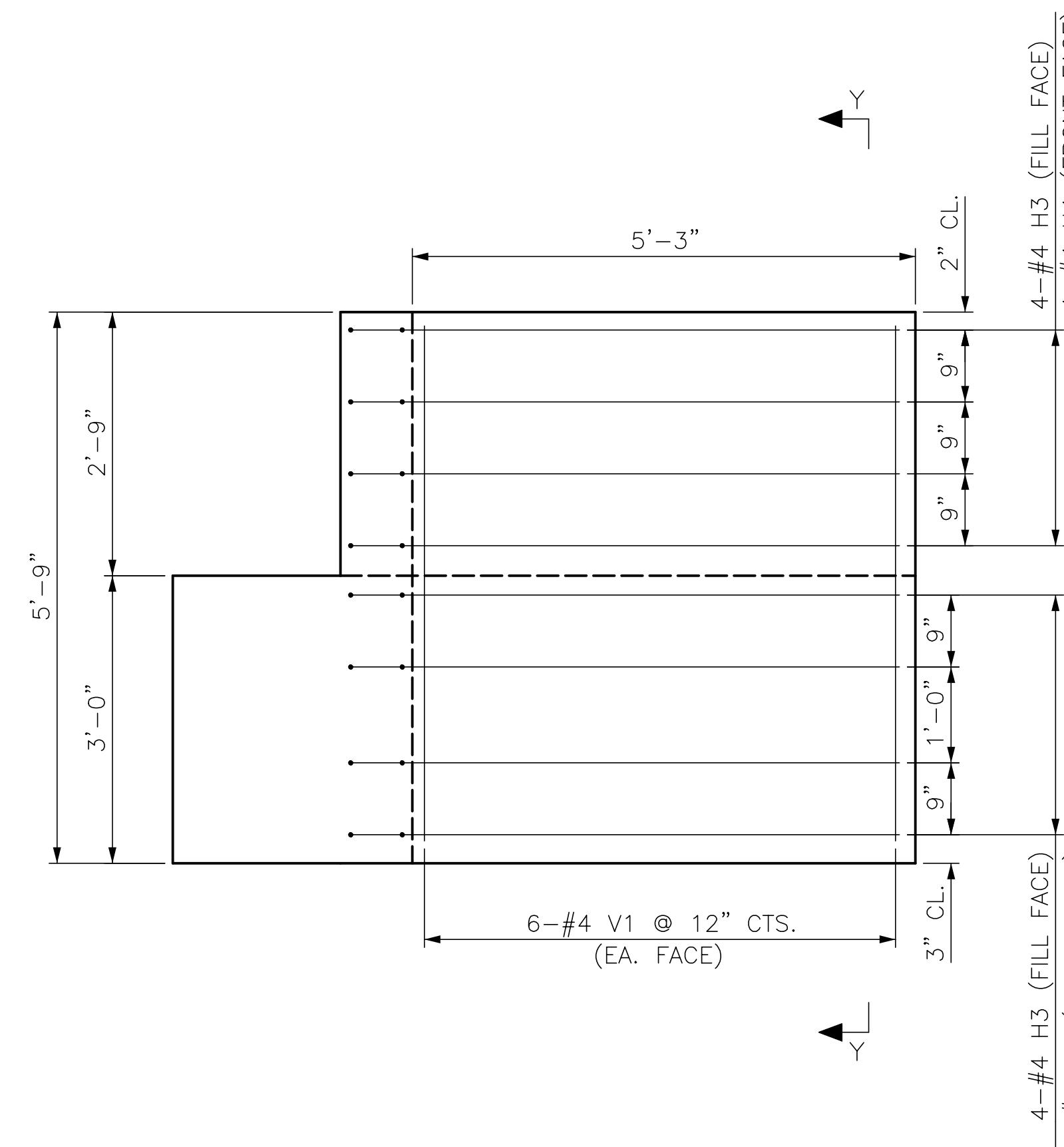


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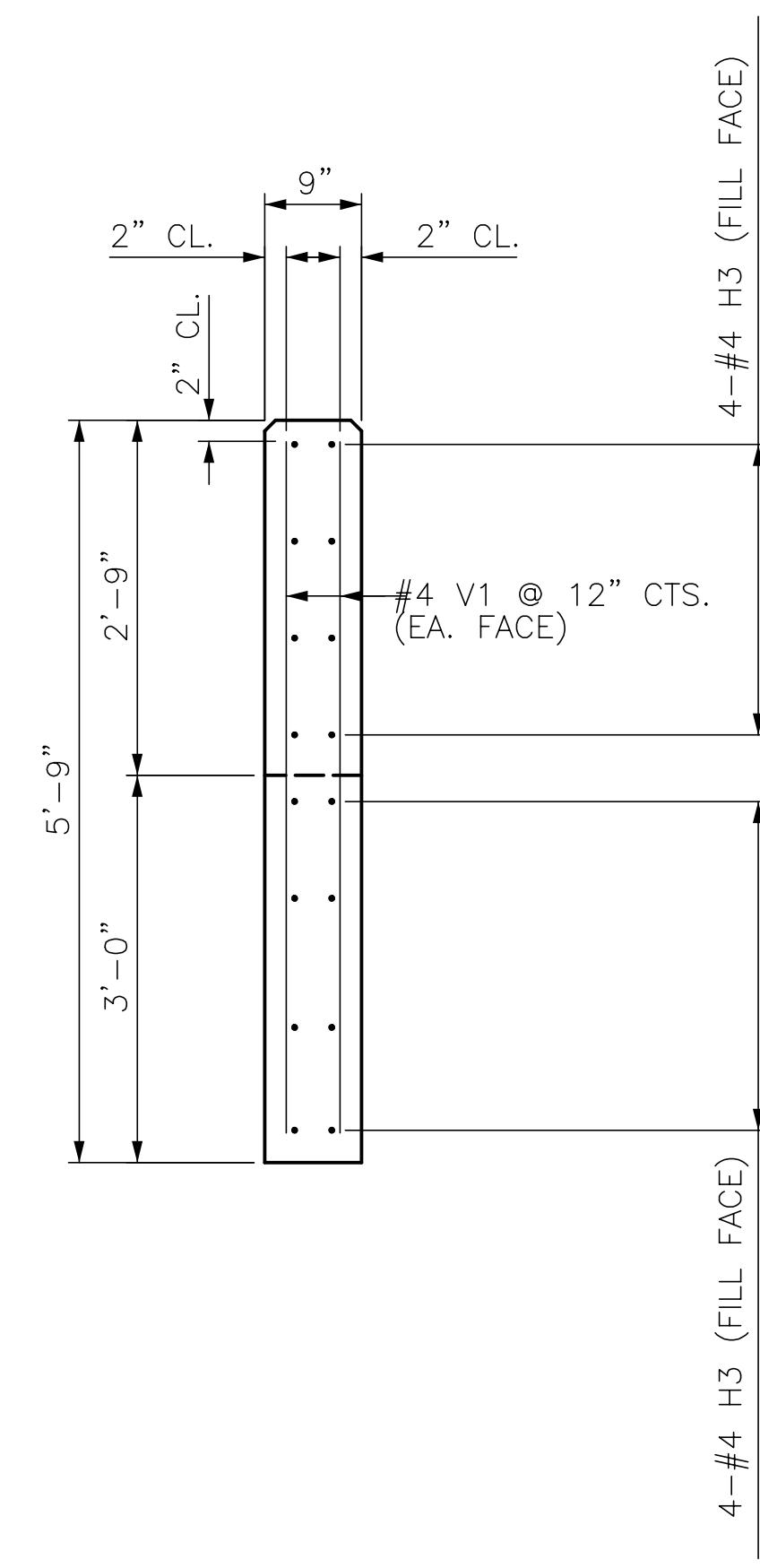
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SHEET CONTENTS	
END BENT 1	
REVISIONS:	
1	2/10/2026
SHEET NO.	S-4
TOTAL SHEETS	1



-W1 - PLAN

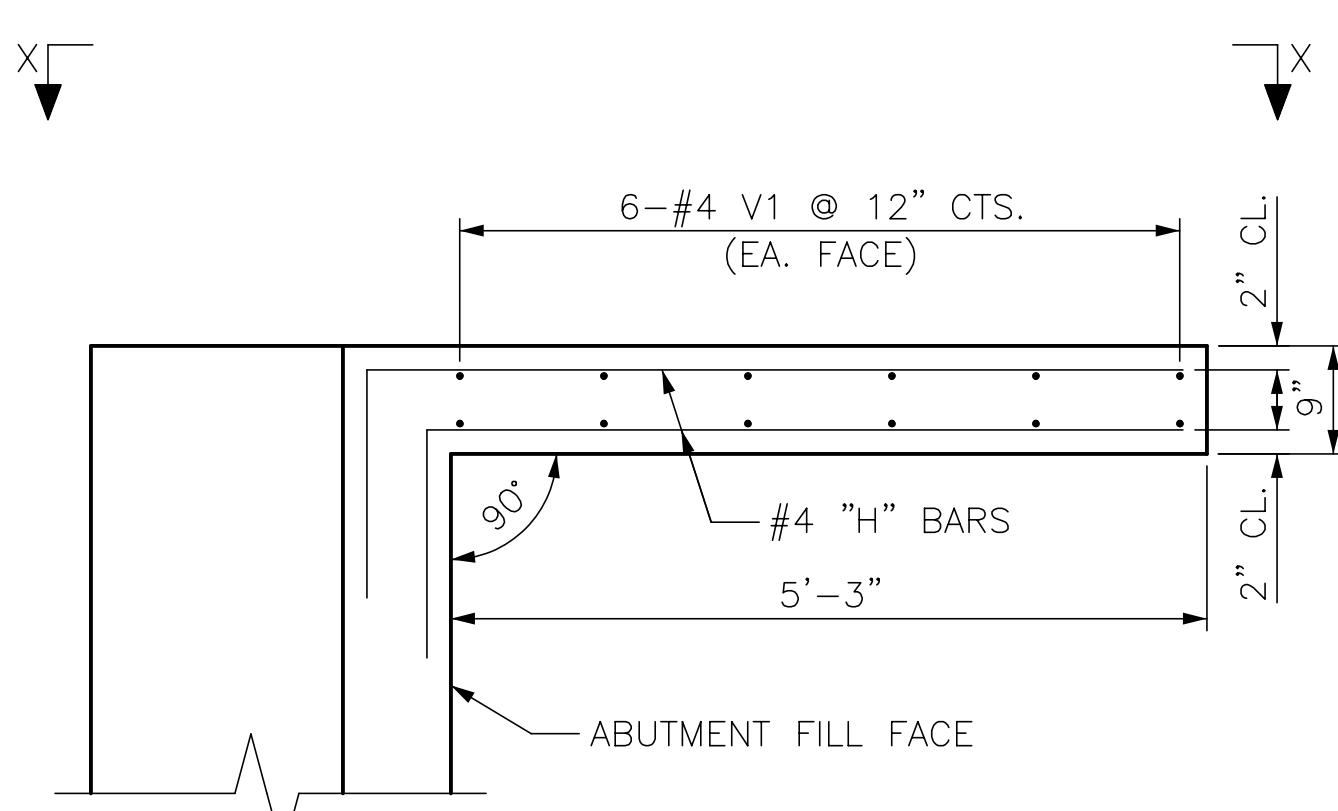


-W1 - ELEVATION (X-X)

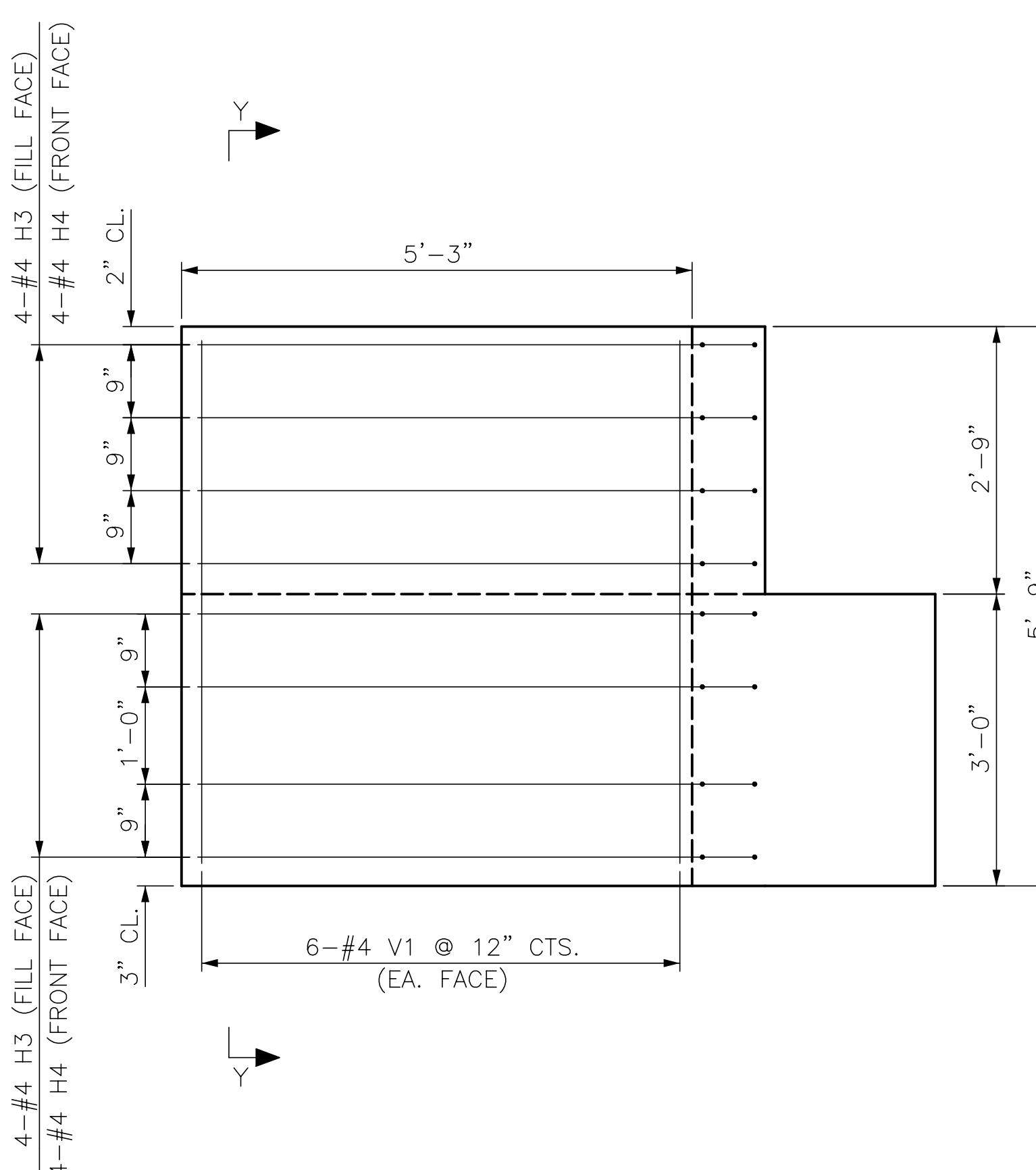


-W1 - SECTION (Y-Y)

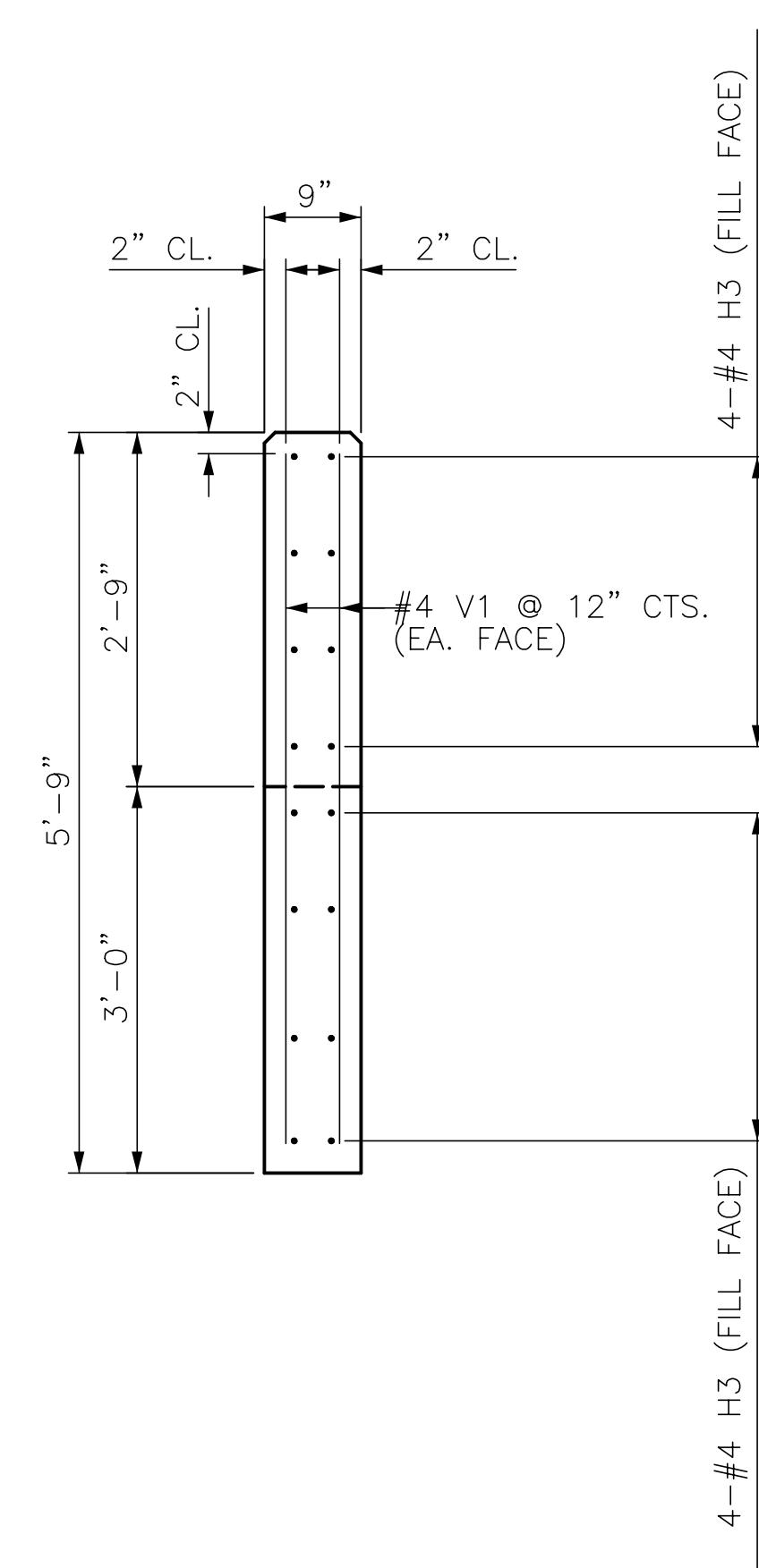
BILL OF MATERIAL (-W4-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W4-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					



-W2 - PLAN



-W2 - ELEVATION (X-X)



-W2 - SECTION (Y-Y)

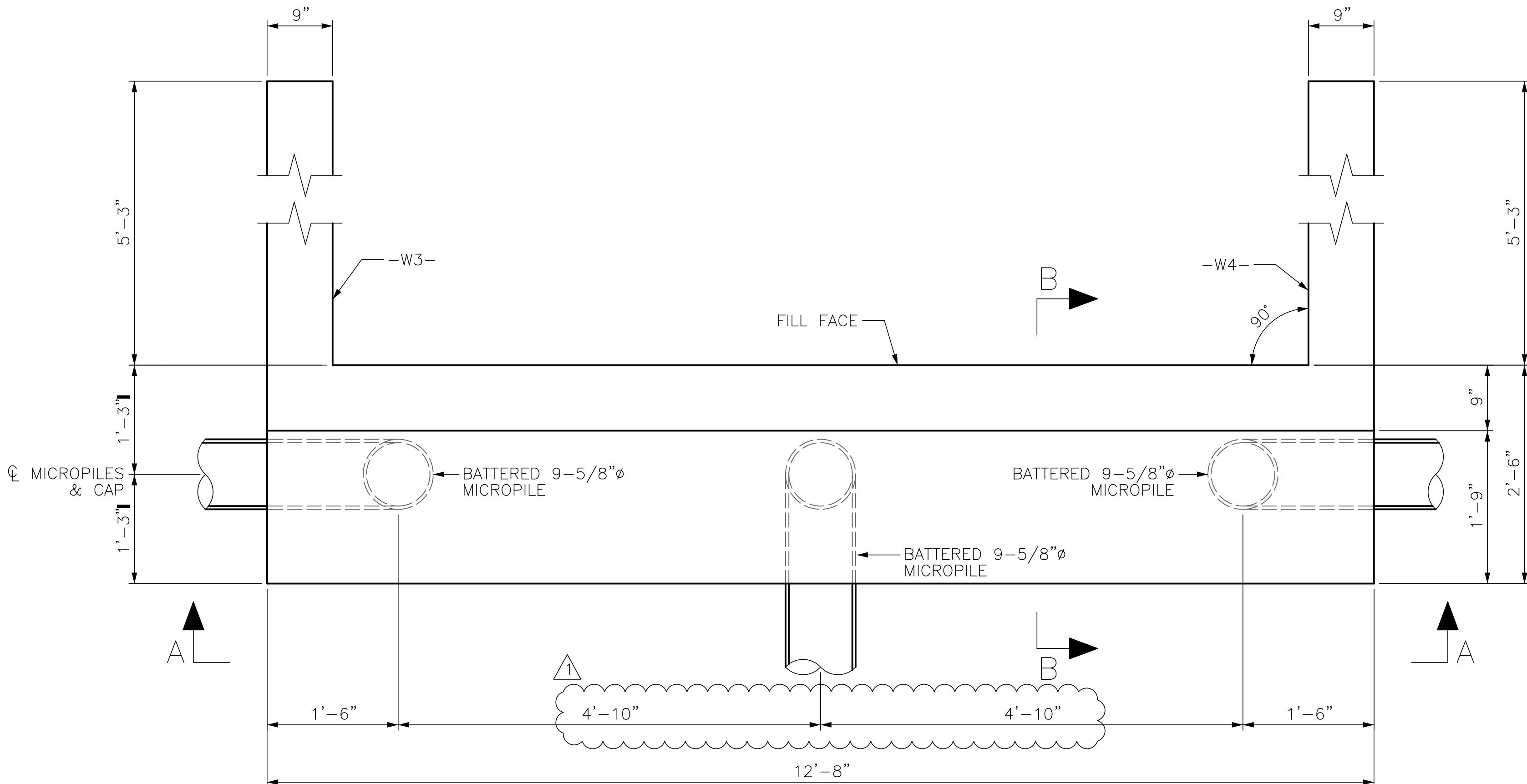
BILL OF MATERIAL (-W3-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W3-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					

MFG SECTION 3 ABUTMENT DESIGN (DOWNSTREAM BRIDGE)
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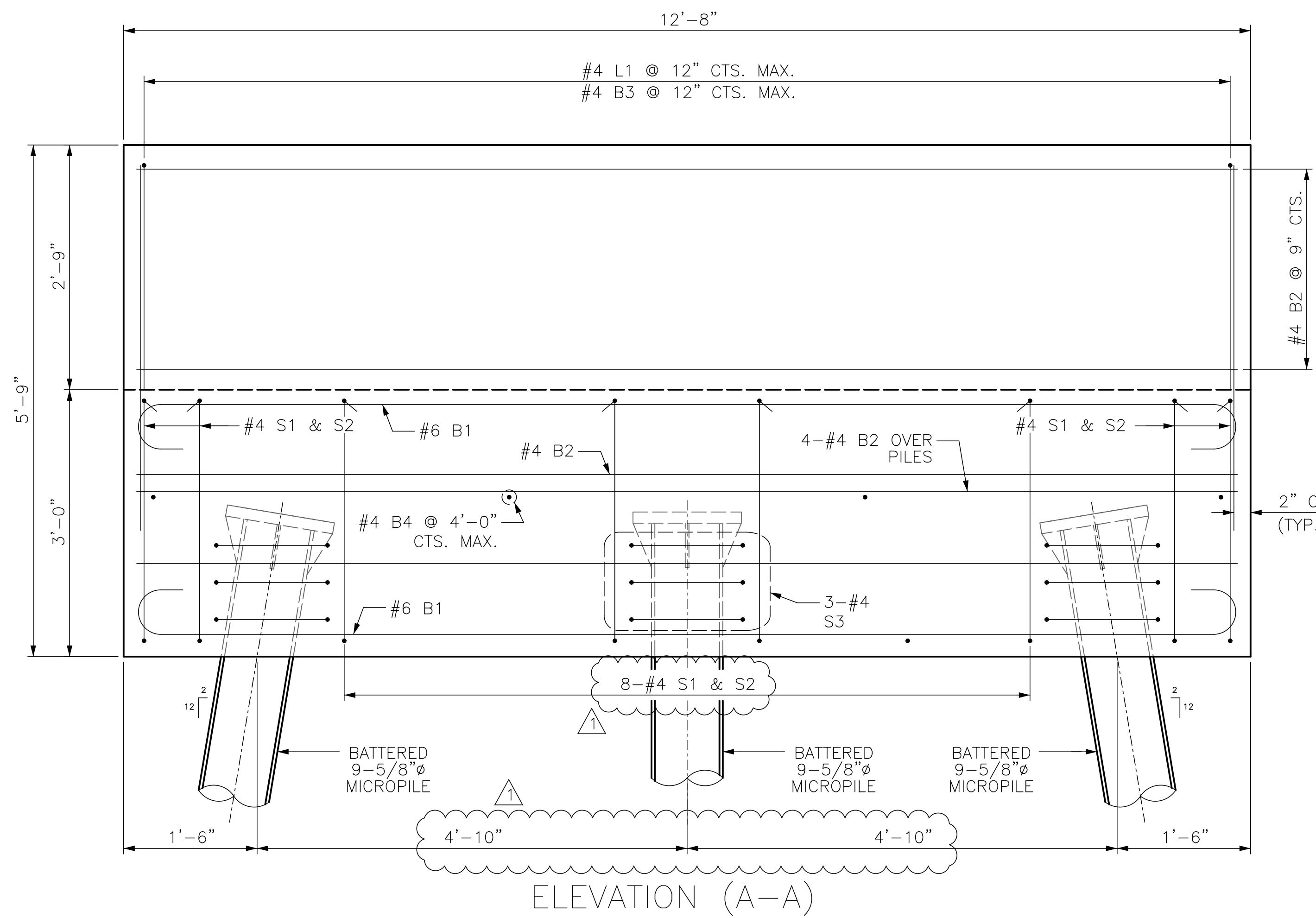
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PROJECT NO.	53999
SHEET CONTENTS	
WINGWALLS -W1 - & -W2-	

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SHEET NO.	S-5
TOTAL SHEETS	08



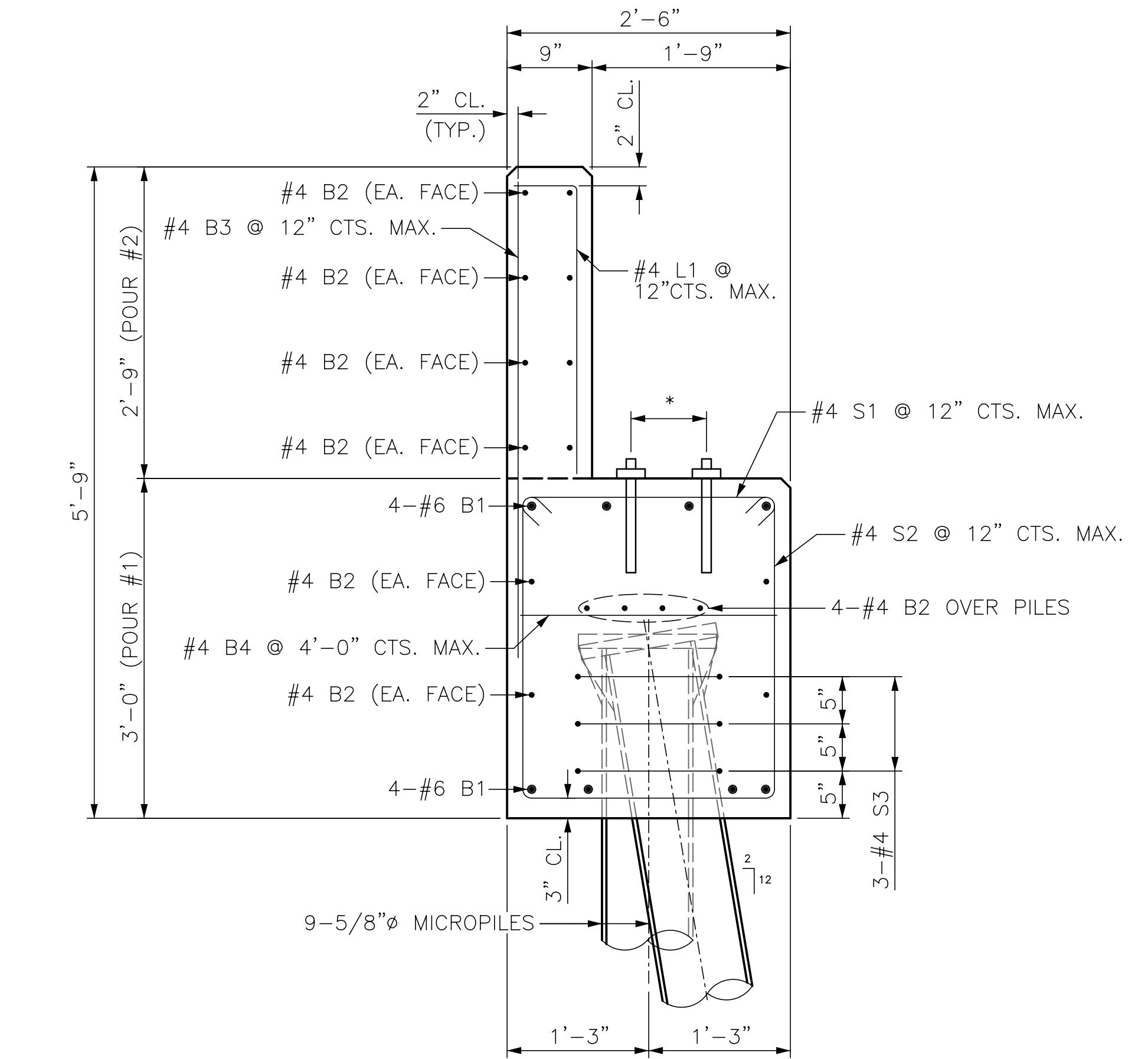
PLAN



ELEVATION (A-A)

BAR TYPES		BILL OF MATERIAL (END BENT 2)				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#6	1	13'-6"	162	
B2	16	#4	STR	12'-4"	132	
B3	14	#4	STR	4'-2"	39	
B4	4	#4	STR	2'-2"	6	
S1	12	#4	2	2'-11"	23	
S2	12	#4	3	8'-1"	65	
S3	9	#4	4	5'-2"	31	
L1	14	#4	5	2'-11"	27	
REINFORCING STEEL (FOR END BENT 2)		485 LBS.				
CLASS A CONCRETE BREAKDOWN (FOR END BENT 2)						
POUR #1 (CAP & LOWER WINGS)		4.39 C.Y.				
POUR #2 (BACKWALL & UPPER WINGS)		1.77 C.Y.				
TOTAL CLASS A CONCRETE		6.16 C.Y.				

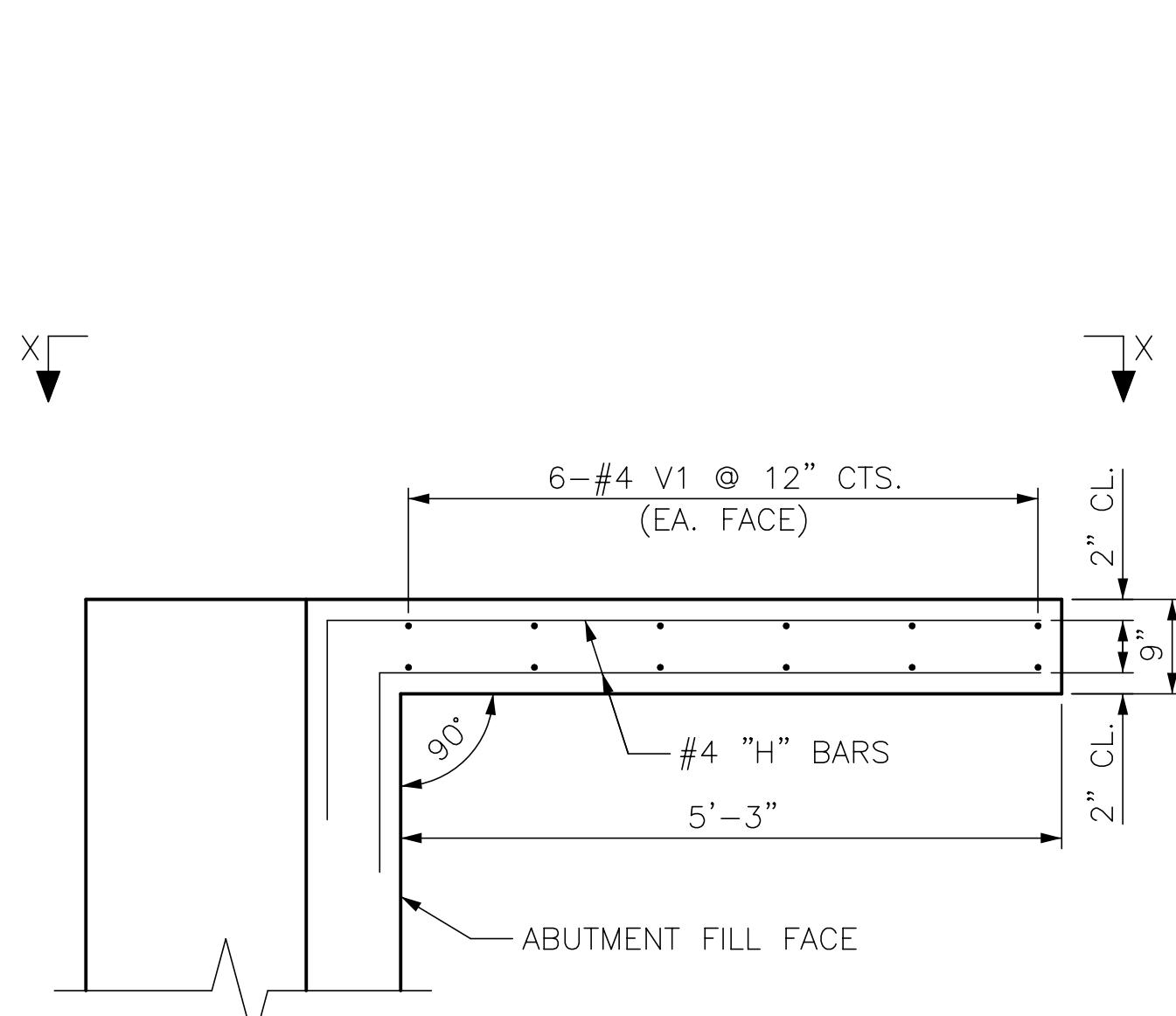
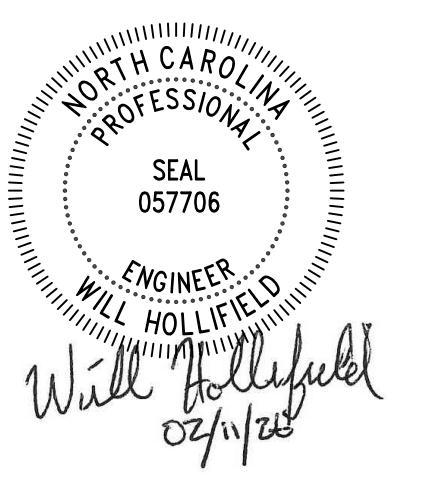
** DIMENSIONS PROVIDED BY FABRICATOR OR PREMANUFACTURED PREDESTRIAN BRIDGE.



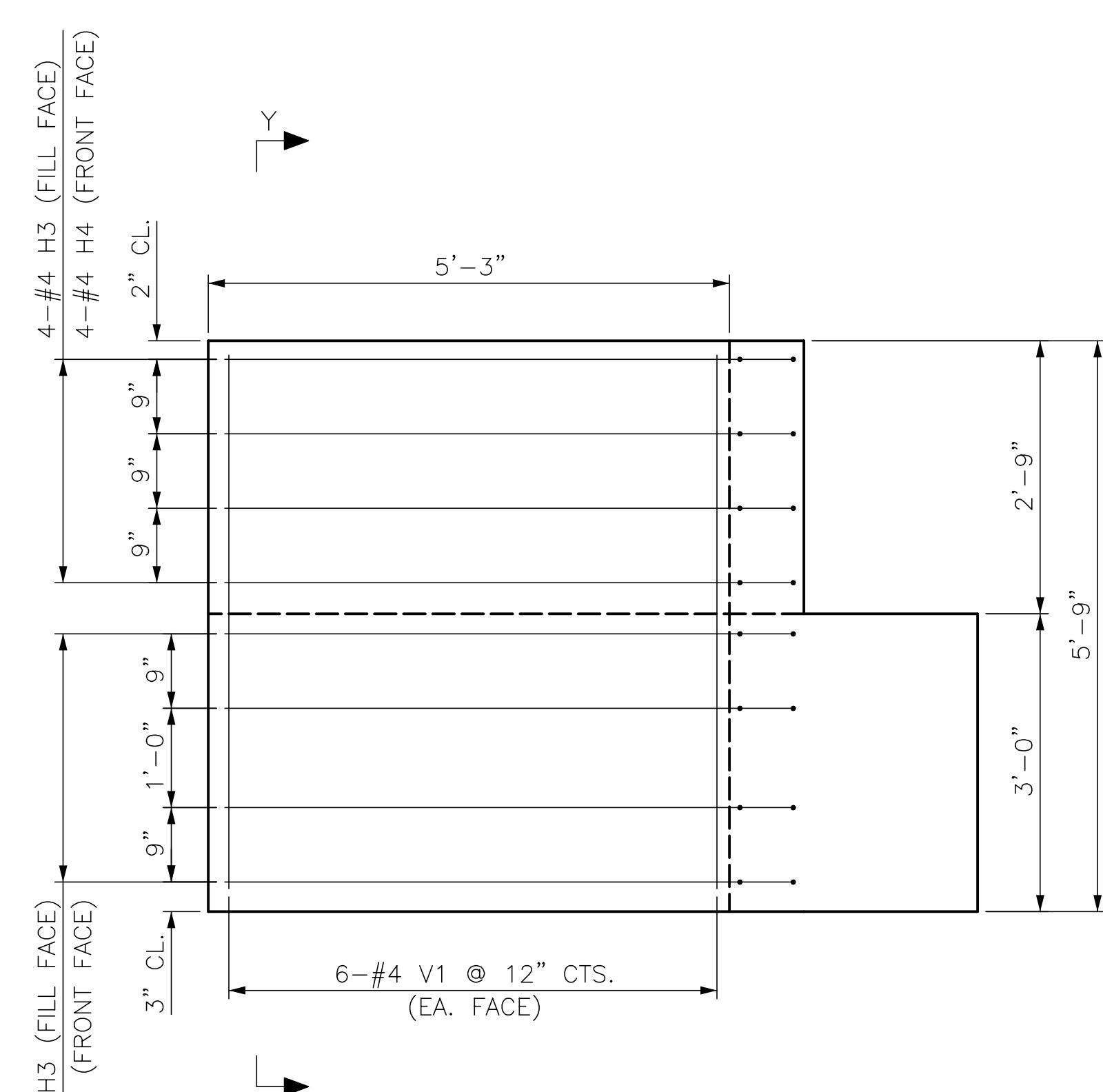
SECTION (B-B)

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AT
LAT: 36.160833, LONG: -81.644166

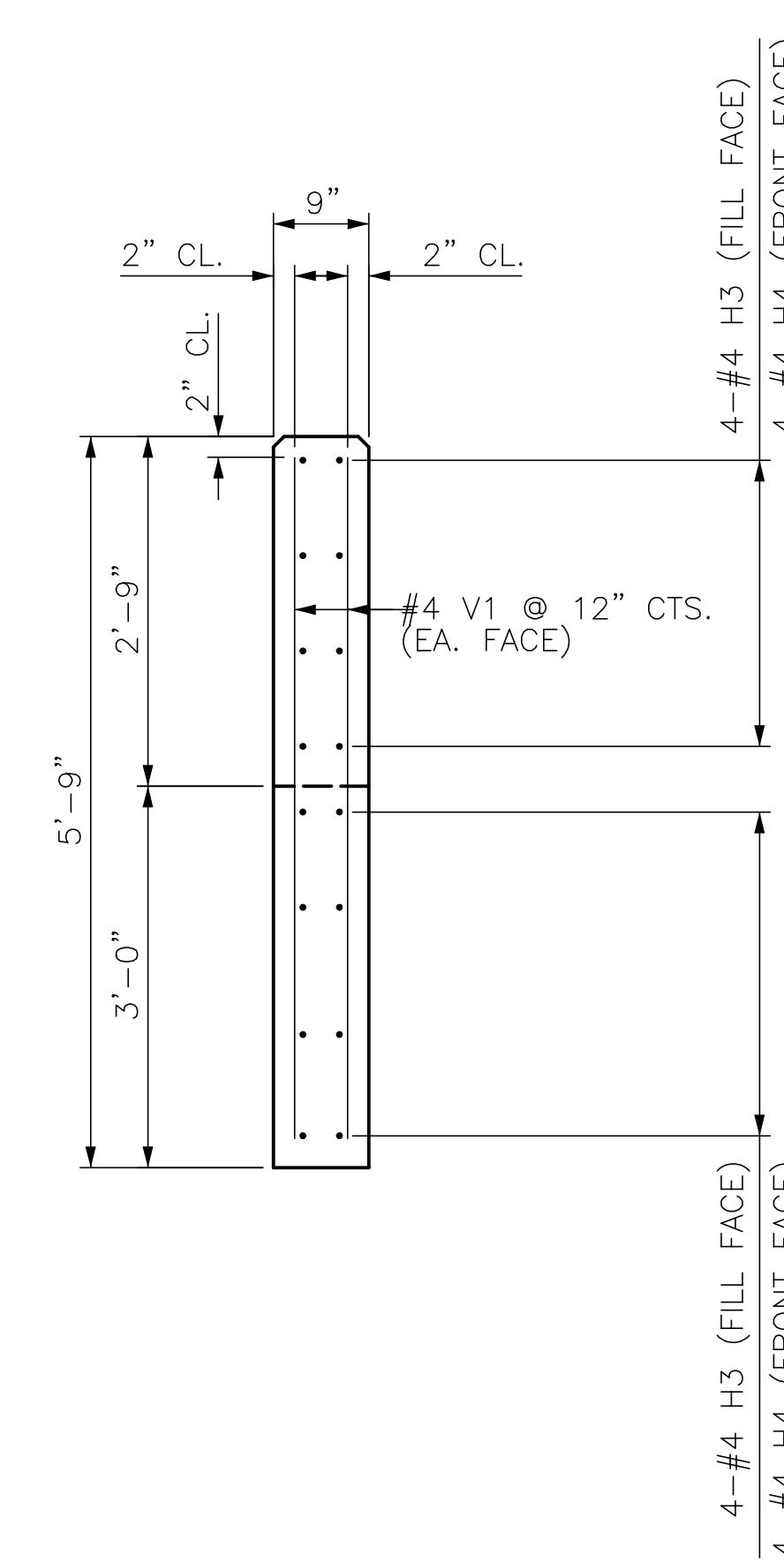
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END BENT 2	
REVISIONS:	
1	2/10/2026
SHEET NO.	S-6
TOTAL SHEETS	1



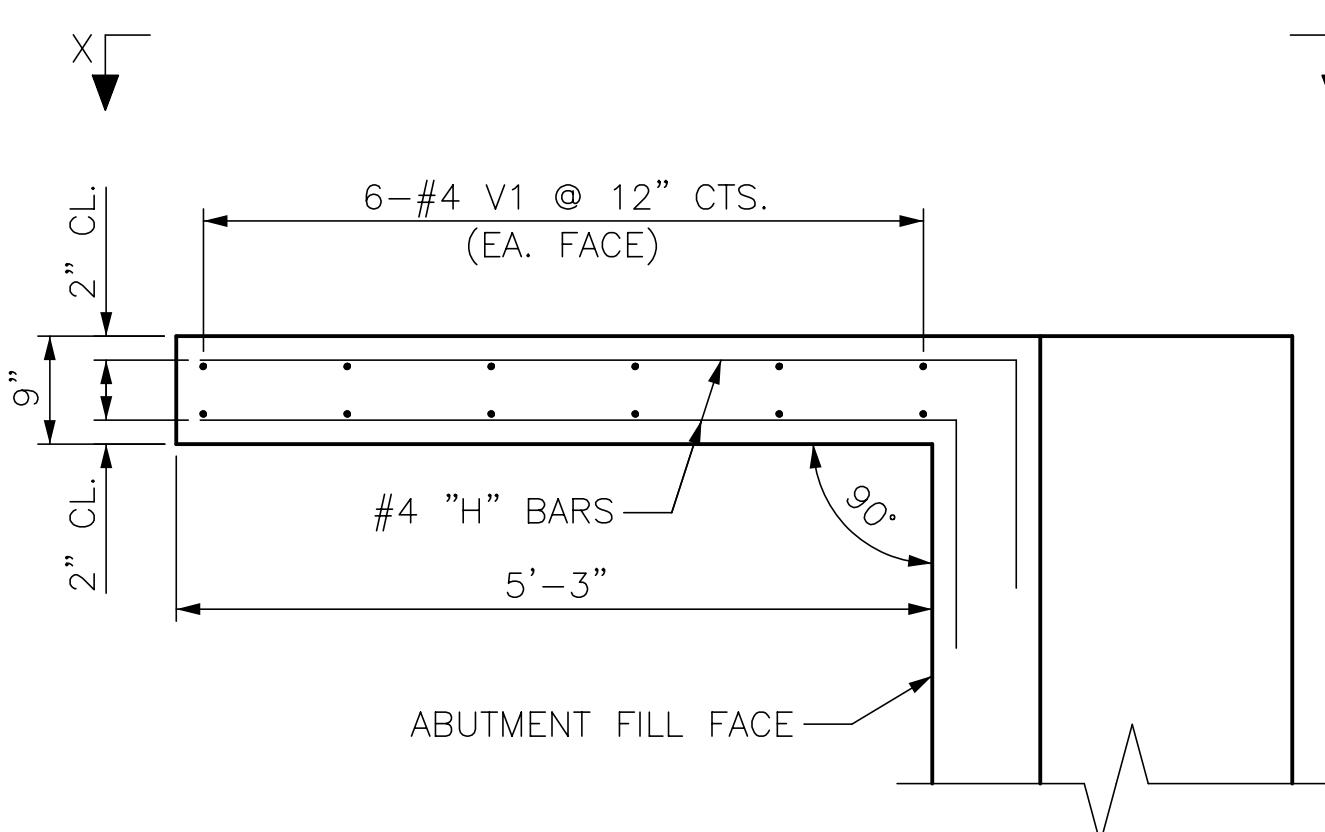
-W3- PLAN



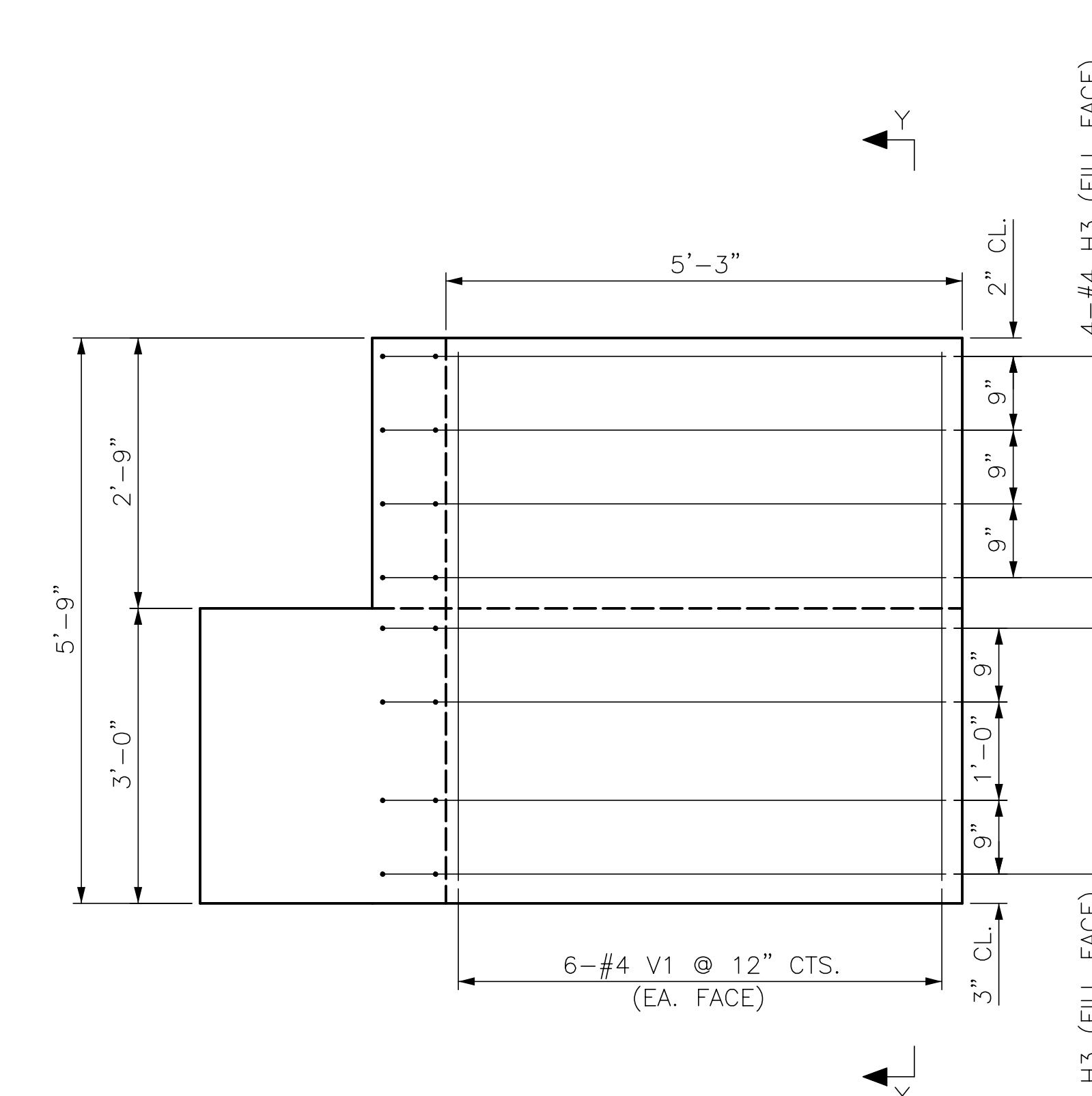
-W3- ELEVATION (X-X)



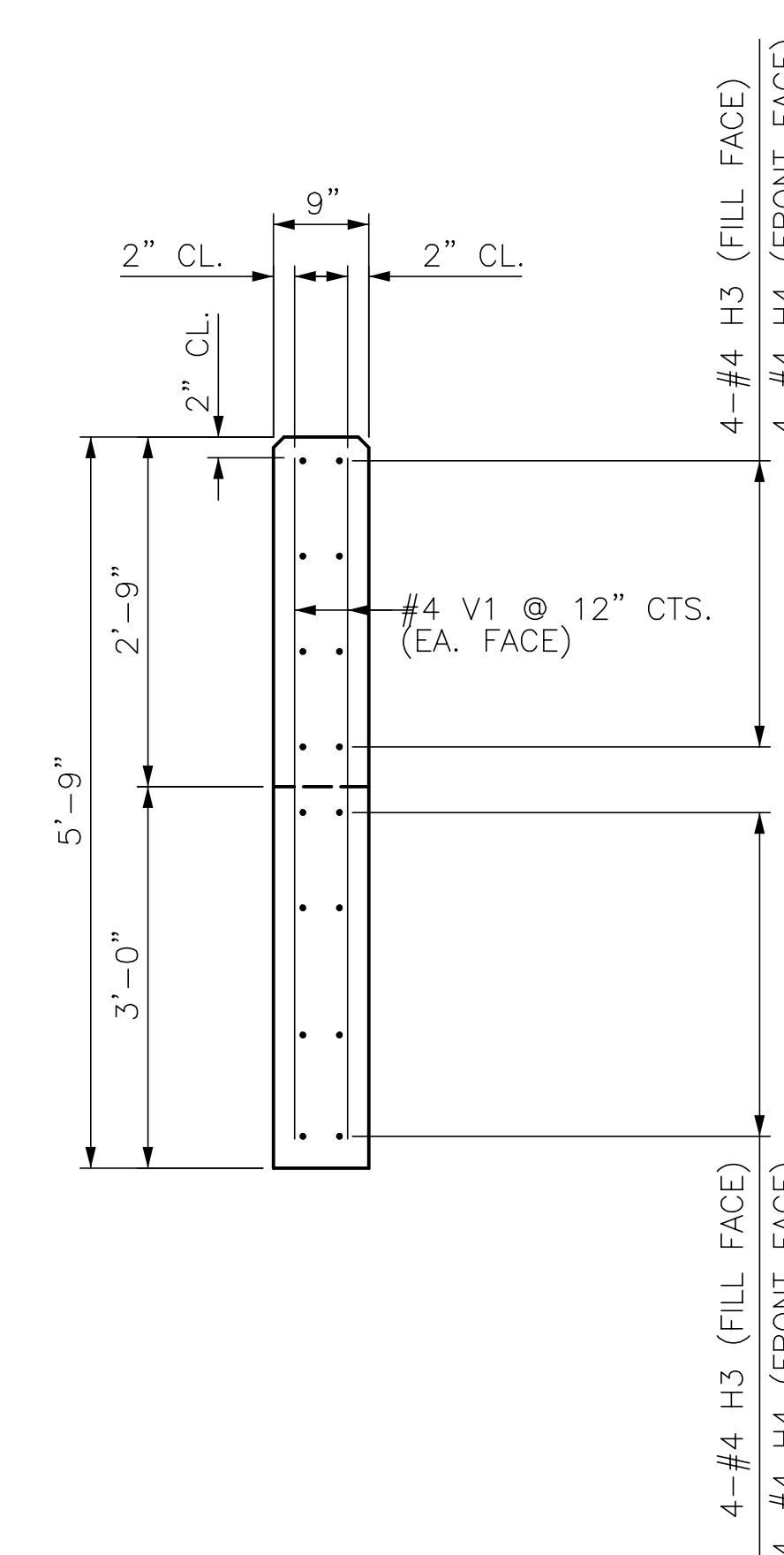
-W3- SECTION Y-Y



-W4- PLAN

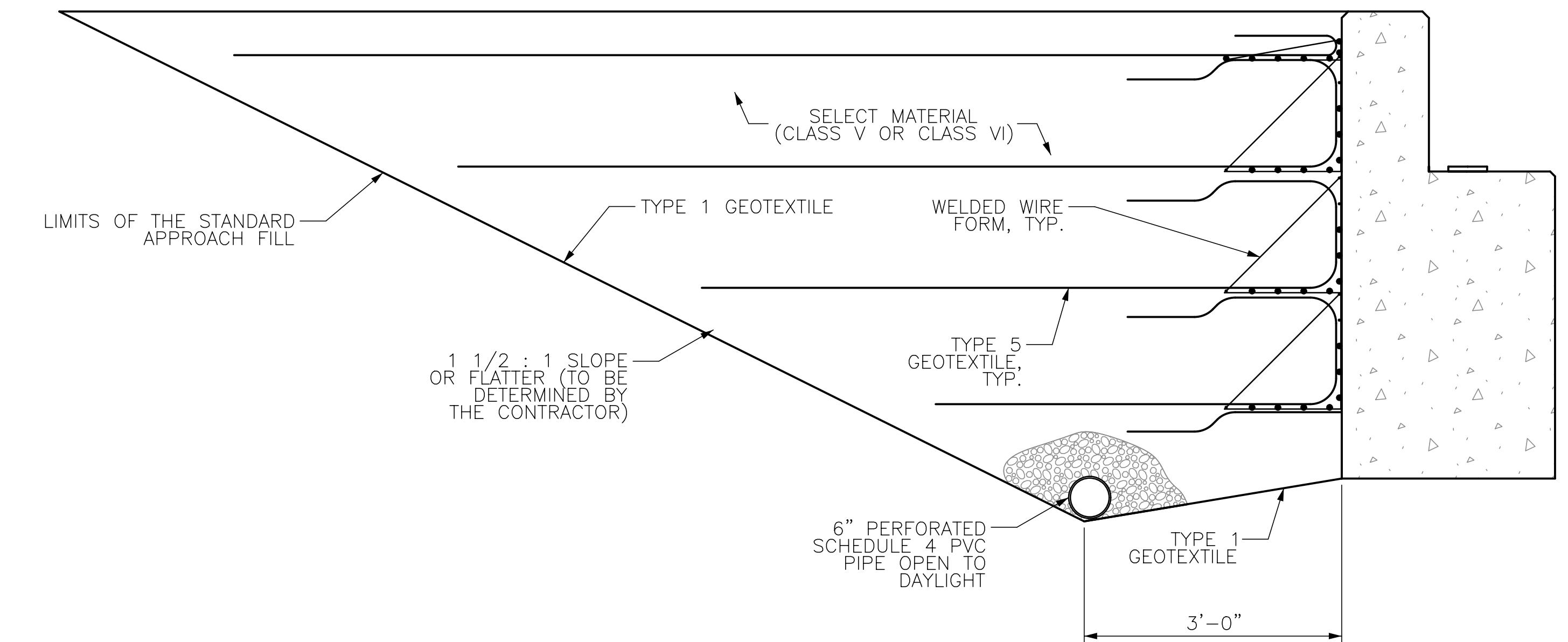
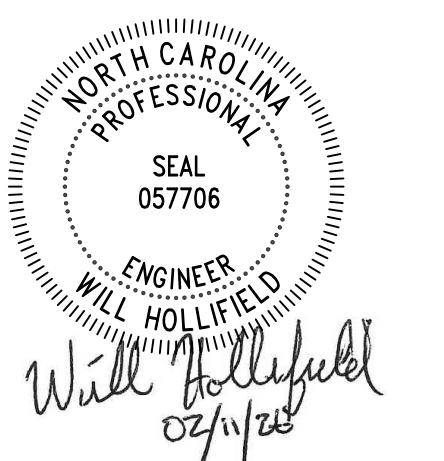


-W4- ELEVATION (X-X)

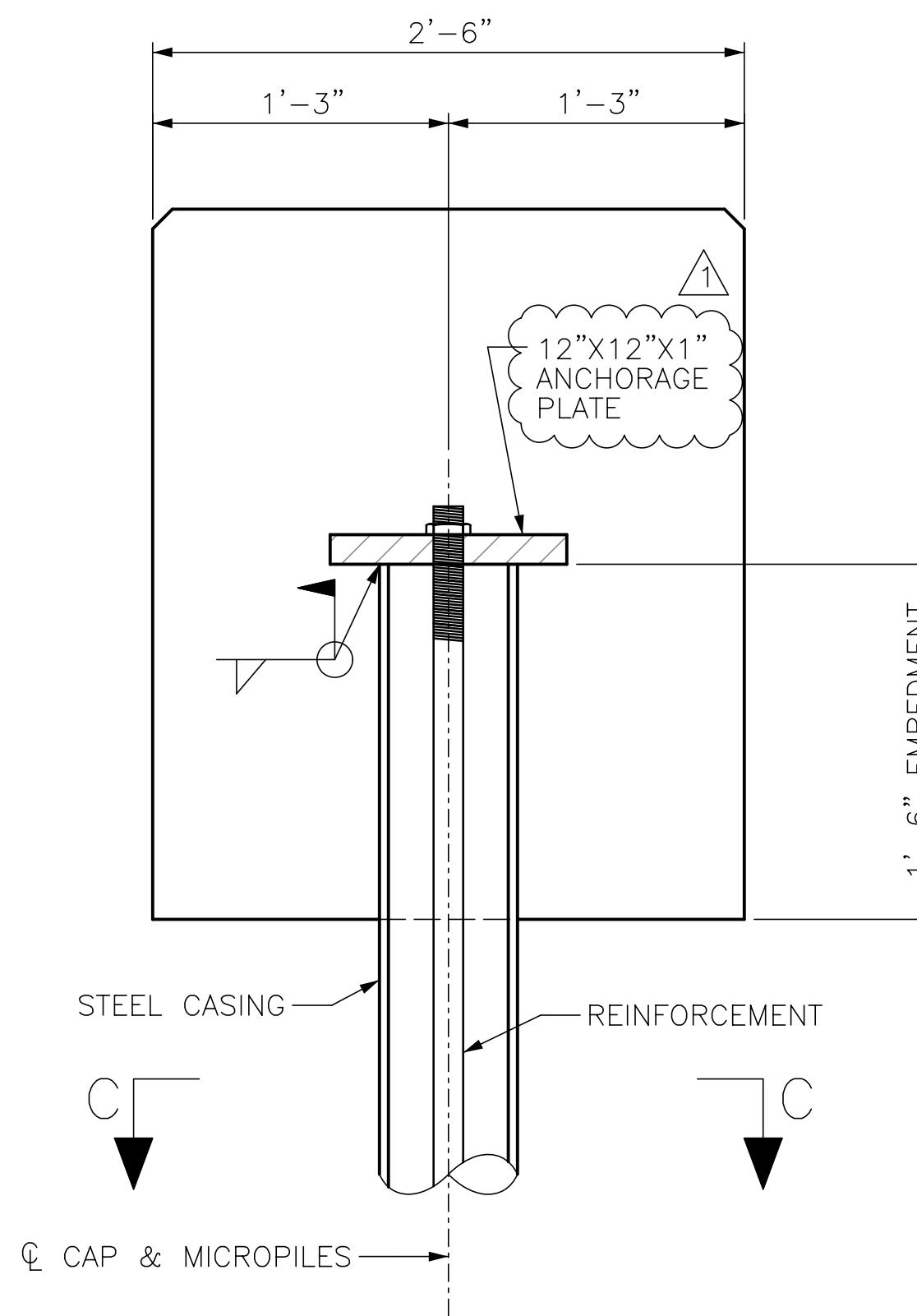


-W4- SECTION Y-Y

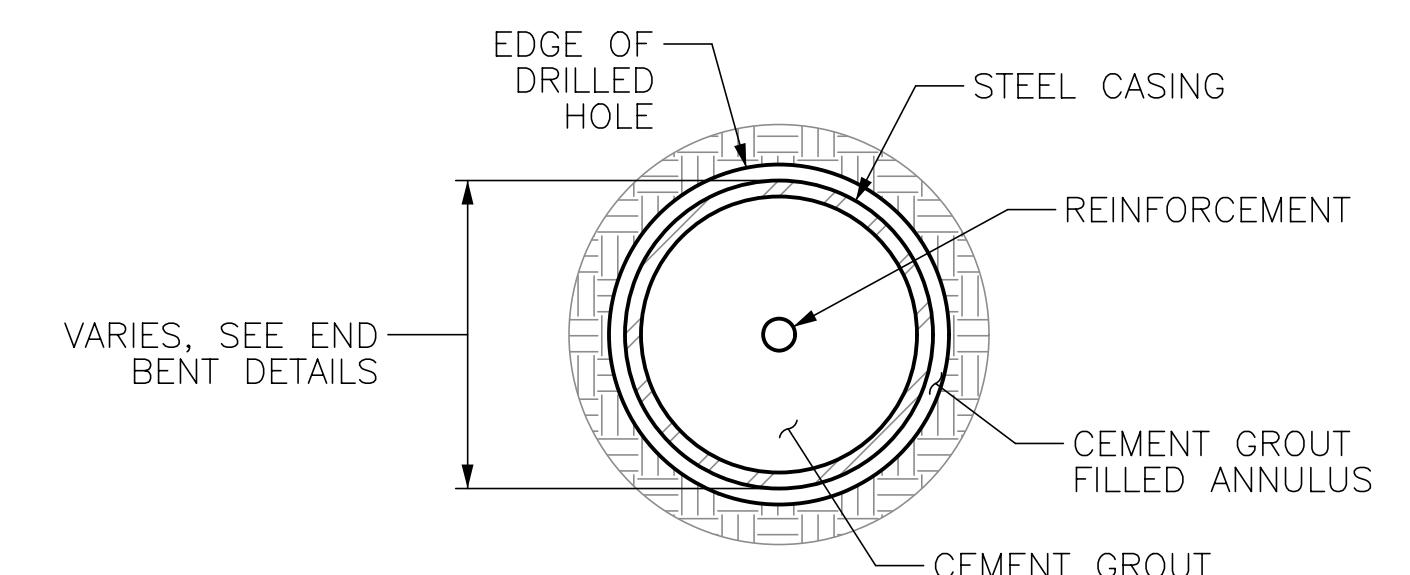
BILL OF MATERIAL (-W3-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W3-)					
118 LBS.					
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					
<img alt="Bar type diagram for W3 showing a 1'-7" wide column with 1'-7" horizontal reinforcement.					



APPROACH FILL DETAIL



TYP. MICROPILE ANCHORAGE DETAIL



TYP. MICROPILE DETAIL (SECTION C-C)

MFG SECTION 3 ABUTMENT DESIGN (DOWNSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.160833, LONG: -81.644166

DATE	2/6/2026
DRAWN BY	WMH
CHECK BY	AGF
EOR	WMH
PROJECT NO.	53999

SHEET CONTENTS

ADDITIONAL DETAILS

REVISIONS:

1	2/10/2026

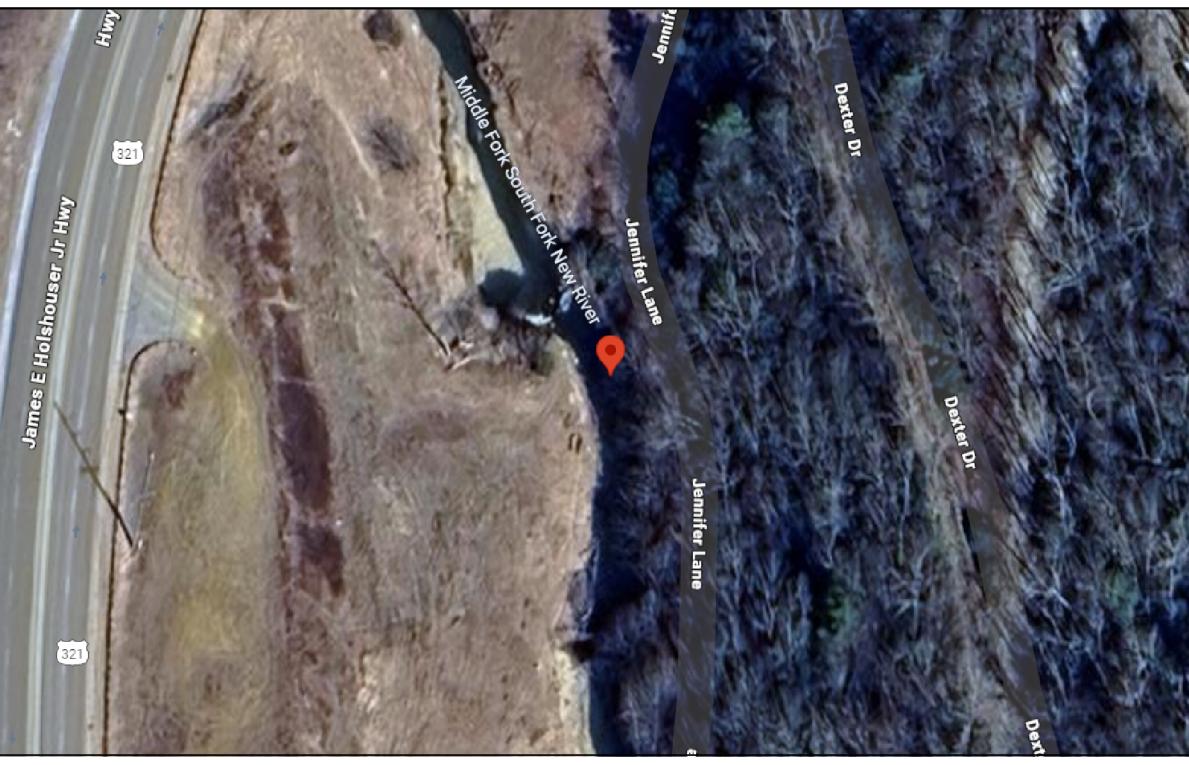
SHEET NO.

S-8

TOTAL SHEETS

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VICINITY MAP



ARETÉ ENGINEERS

MIDDLEFORK GREENWAY SECTION 3

UPSTREAM BRIDGE ABUTMENT DESIGN

TYPE OF WORK: STRUCTURE

ABBREVIATIONS

A	AREA
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ADH.	ADHESIVE
AGG.	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT.	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPRH.	APPROACH
APPROX.	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BOT.	BOTTOM
BRG.	BEARING
CTS.	CENTERS
CIPL	CAST IN PLACE
C/L	CENTERLINE
CON.	CONNECTION
CONC.	CONCRETE
COORD.	COORDINATE
DGN.	DESIGN
DIM.	DIMENSION
DWG.	DRAWING
EA.	EACH
EL.	ELEVATION
ENGR.	ENGINEER
EXIST.	EXISTING
F TO F	FACE TO FACE
FDN.	FOUNDATION
FT.	FEET
GALV.	GALVANIZED
GR.	GRADE
HORIZ.	HORIZONTAL
IN.	INCH
LB.	POUND
LONG.	LONGITUDINAL
MAX.	MAXIMUM
MIN.	MINIMUM
O/C	ON CENTER
OD	OUTSIDE DIAMETER
PAR.	PARALLEL
PVC	POLYVINYL CHLORIDE
REINF.	REINFORCEMENT
SCH.	SCHEDULE
STD.	STANDARD
STL.	STEEL
STR.	STRUCTURE
W.W.F.	WELDED WIRE FABRIC

DESIGN DATA:

SPECIFICATIONS

A.A.S.H.T.O. GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, DECEMBER 2009

A.A.S.H.T.O. LRFD BRIDGE DESIGN SPECIFICATIONS

LIVE LOAD IMPACT ALLOWANCE	90 PSF PEDESTRIAN LOAD
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	N/A
- AASHTO M270 GRADE 50W	36,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	50,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	50,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	60,000 LBS. PER SQ. IN.
CONCRETE IN SHEAR	3,000 LBS. PER SQ. IN.
STRUCTURAL TIMBER - TREATED OR UNTREATED	SEE A.A.S.H.T.O.
EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN	375 LBS. PER SQ. IN.
OF TIMBER	
EQUIVALENT FLUID PRESSURE OF EARTH	60 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP. CONCRETE SHALL BE CURED IN COMPLIANCE WITH NCDOT SPECIFICATIONS.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS, UNLESS OTHERWISE NOTES, SHALL BE EMBEDDED A MINIMUM OF 6" INTO EXISITING CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

CONSTRUCTION SEQUENCE:

PLACE BACKFILL IN ACCORDANCE WITH NCDOT SPECIFICATIONS. PLACE BACKFILL ABOVE THE BEARING SEAT AFTER THE PREFABRICATED FRP BRIDGE IS SET ON THE END BENTS.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACE IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

LAP SPLICES SHALL BE A MINIMUM LENGTH OF 40 X DIAMETER OF BAR.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HERON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL.

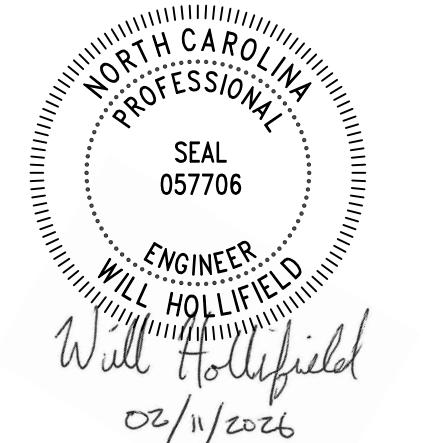
ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE Affected BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON THE PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CHAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CHAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CHAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

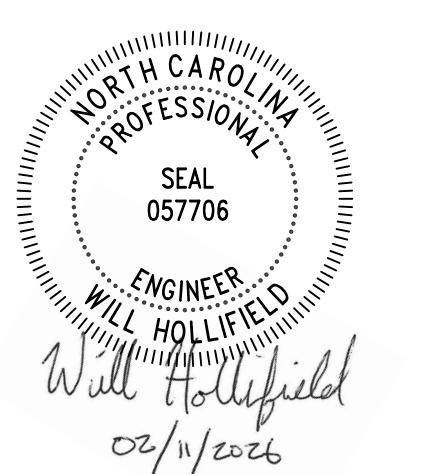


MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.1591667, LONG: -81.645277

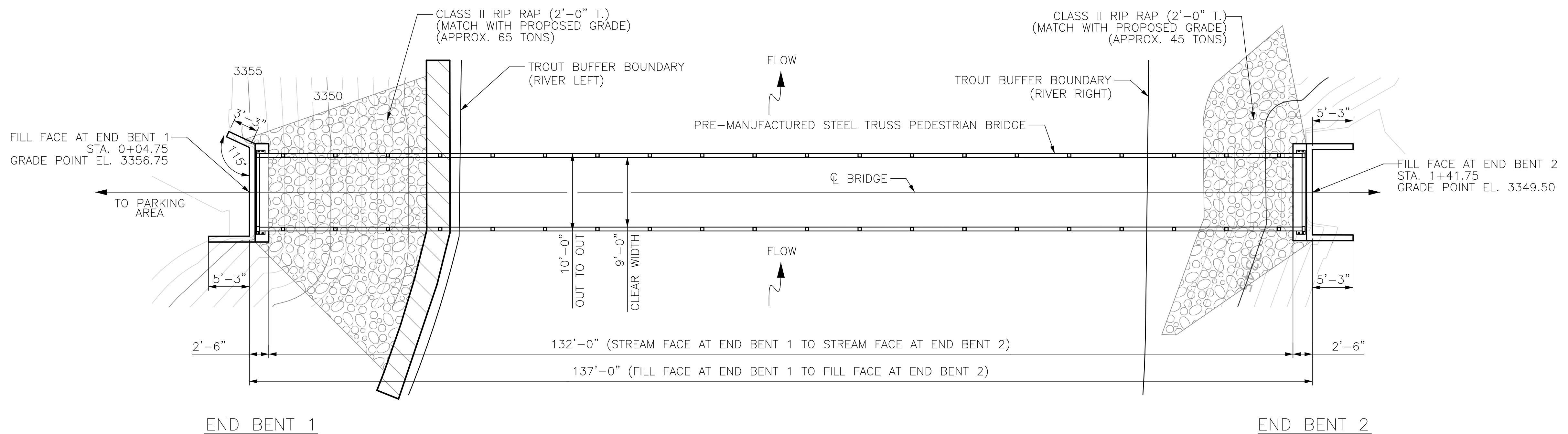
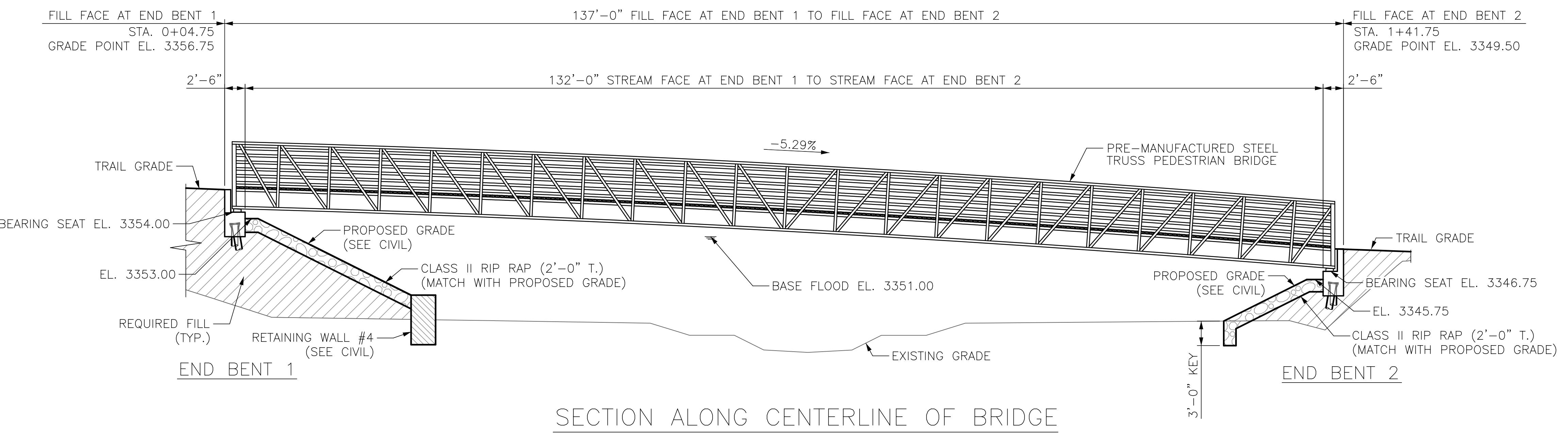
DATE 2/6/2026
DRAWN BY WMH
CHECK BY AGF
EOR WMH
PROJECT NO. 53999
SHEET CONTENTS
COVER SHEET / STANDARD NOTES

REVISIONS:
1 2/10/2026
SHEET NO.
S-1
TOTAL SHEETS
8

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S3	BRIDGE CROSS SECTION / FOUNDATION LAYOUT
S4	END BENT 1
S5	WINGWALLS -W1- & -W2-
S6	END BENT 2
S7	WINGWALLS -W3- & -W4-
S8	ADDITIONAL DETAILS



MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
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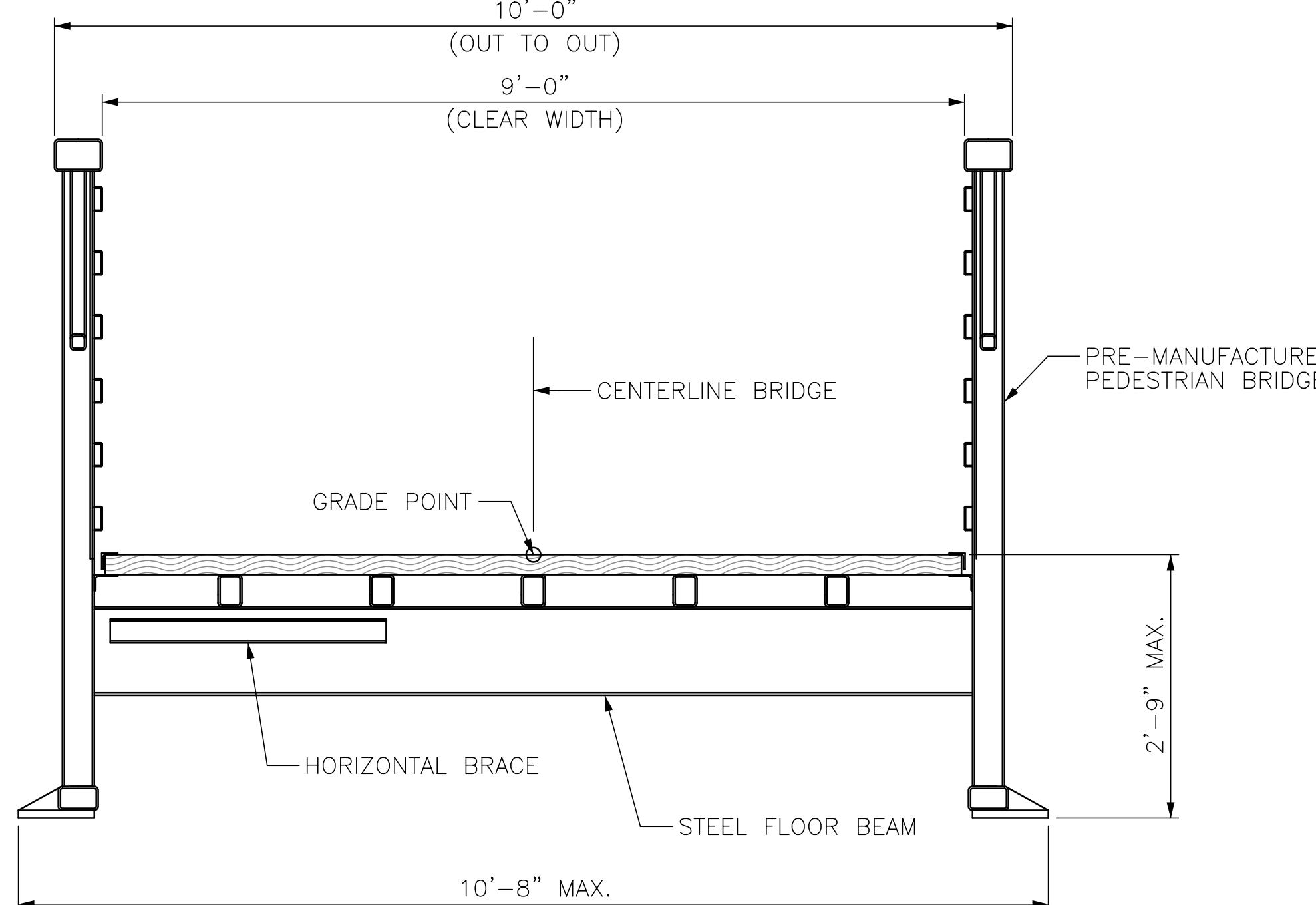
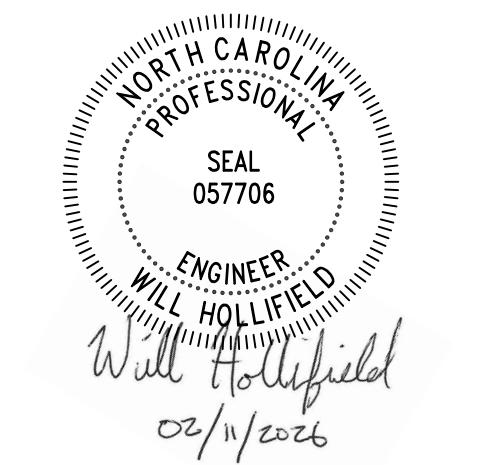


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DRAWN BY	WMH
CHECK BY	AGF
EOR	WMH
PROJECT NO.	53999

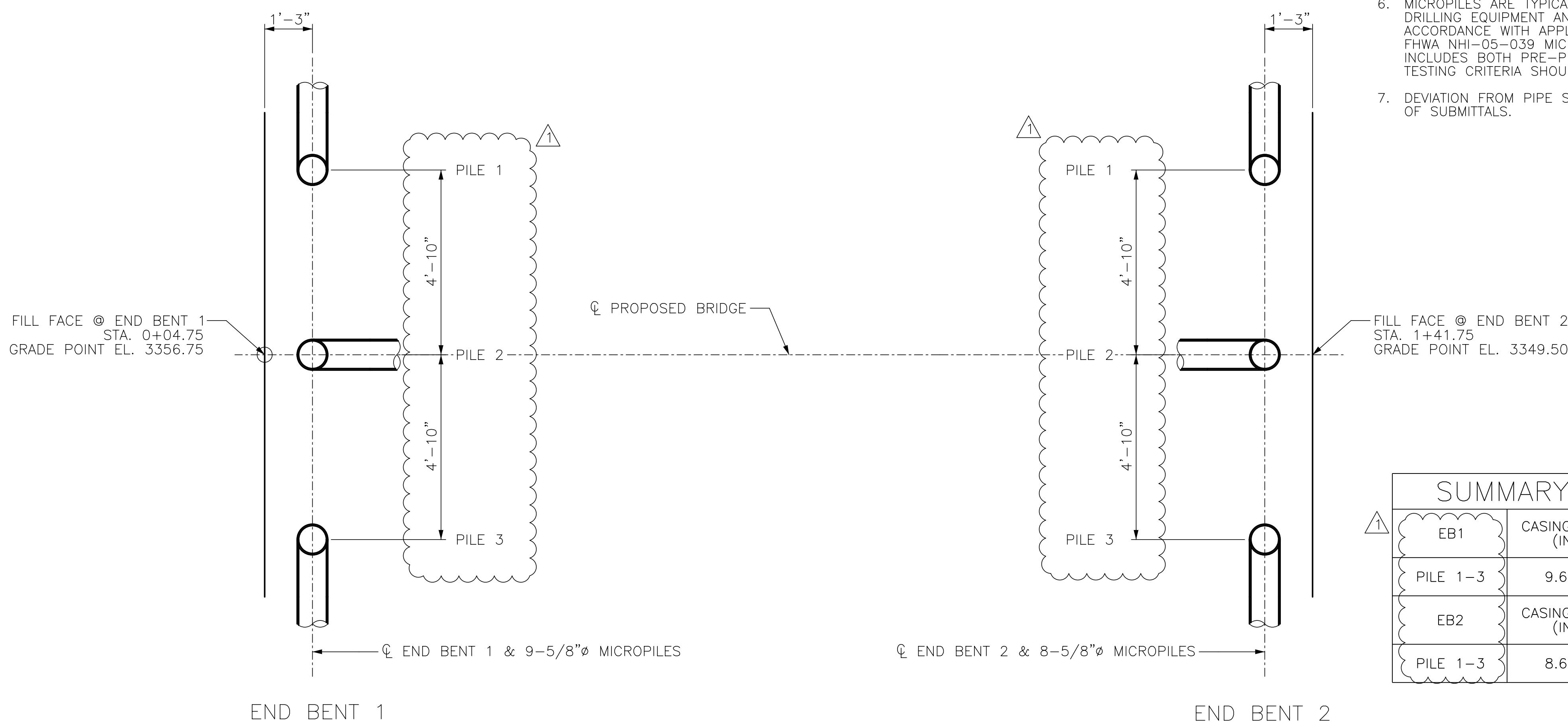
SHEET CONTENTS
BRIDGE ELEVATION & PLAN

REVISIONS:	
1	2/10/2026

SHEET NO.	S-2
TOTAL SHEETS	08



TYPICAL SECTION (PRE-MANUFACTURED BRIDGE)



FOUNDATION LAYOUT

BEGIN STATION (FILL FACE)	END STATION (FILL FACE)	BACKWALL WIDTH	END CLEARANCE	GRADE	HORIZONTAL BRIDGE LENGTH (PLAN LENGTH)
0+04.75	1+41.75	9"	2"	-5.29%	135'-2"

PREMANUFACTURED PEDESTRIAN BRIDGE NOTES

1. BRIDGE LOADING & GEOMETRY IS ESTIMATED. AFTER SHOP DRAWINGS FOR THE PREMANUFACTURED PEDESTRIAN BRIDGE ARE SUBMITTED, CONSTRUCTION ADMINISTRATOR SHALL FORWARD SHOP DRAWINGS TO ARETÉ ENGINEERS FOR VERIFICATION THAT THE SUBSTRUCTURE CAN SUPPORT CALCULATED BRIDGE LOADS.
2. PREMANUFACTURED PEDESTRIAN BRIDGE DESIGN PER AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES (LATEST EDITION).
3. THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
4. FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE SHALL INDICATE THE LOCATION OF DRAINAGE HOLES FOR THE BRIDGE TUBULAR MEMBERS IN THE SHOP DRAWINGS.
5. FOR ADDITIONAL INFORMATION, SEE SPECIAL PROVISIONS.
6. FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE MUST MAINTAIN THE MAX. BACKWALL HEIGHT AS SHOWN IN THE PLANS.
7. FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE INCLUDE BACKWALL COVER PLATE TO FOR EXPANSION.

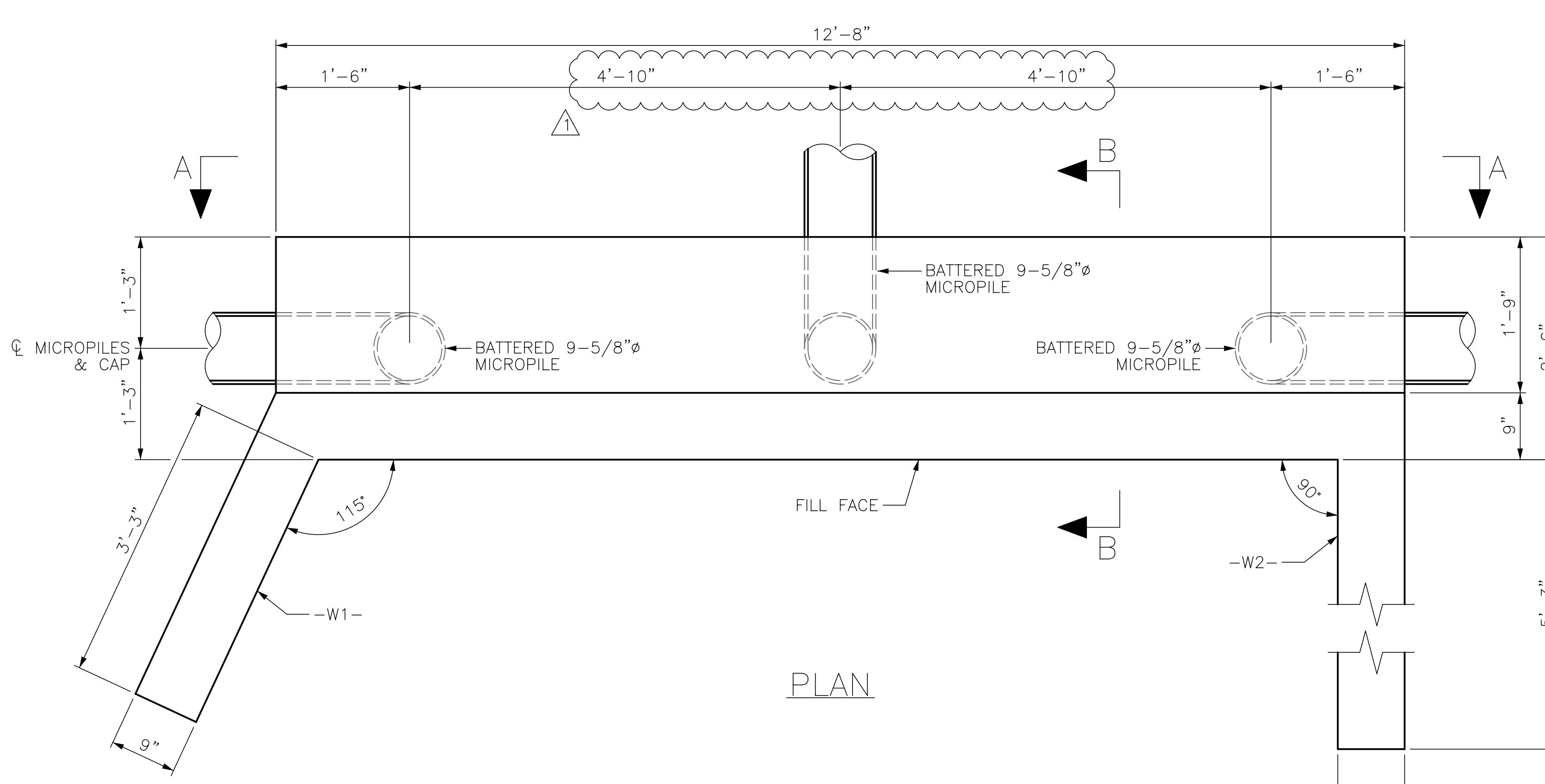
MICROPILE NOTES:

1. FOR MICROPILE INFORMATION AND OTHER SUBSTRUCTURE DESIGN CONSIDERATIONS, SEE STAMPED GEOTECHNICAL REPORT.
2. MINIMUM BOND LENGTH OF 10 FEET IS REQUIRED FOR ALL PILES AT END BENTS 1 AND 2.
3. PENETRATION OF AT LEAST 5 FEET INTO WEATHERED ROCK OR CRYSTALLINE ROCK IS REQUIRED FOR REINFORCEMENT CASINGS.
4. USE REINFORCEMENT CASINGS WITH YIELD STRENGTHS OF AT LEAST 80 KSI AND A MINIMUM WALL THICKNESS OF 0.5" FOR ALL MICROPILES.
5. BATTERED MICROPILES AT ALL LOCATIONS ARE TO BE BATTERED AT 2:12.
6. MICROPILES ARE TYPICALLY DESIGNED BY THE MICROPILE DRILLING CONTRACTOR BASED ON THEIR AVAILABLE DRILLING EQUIPMENT AND MATERIAL AVAILABILITY. MICROPILES SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE SECTIONS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, LATEST EDITION AND FHWA NHI-05-039 MICROPILE DESIGN AND CONSTRUCTION REFERENCE MANUAL. A LOAD TESTING PROGRAM THAT INCLUDES BOTH PRE-PRODUCTION VERIFICATION TESTING AND PRODUCTION PROOF TESTING IS REQUIRED. LOAD TESTING CRITERIA SHOULD FOLLOW RECOMMENDATIONS OUTLINES IN FHWA NH-05-039.
7. DEVIATION FROM PIPE SIZE AND ROD DIAMETER MUST BE APPROVED BY ENGINEER OF RECORD UPON RECEIPT OF SUBMITTALS.

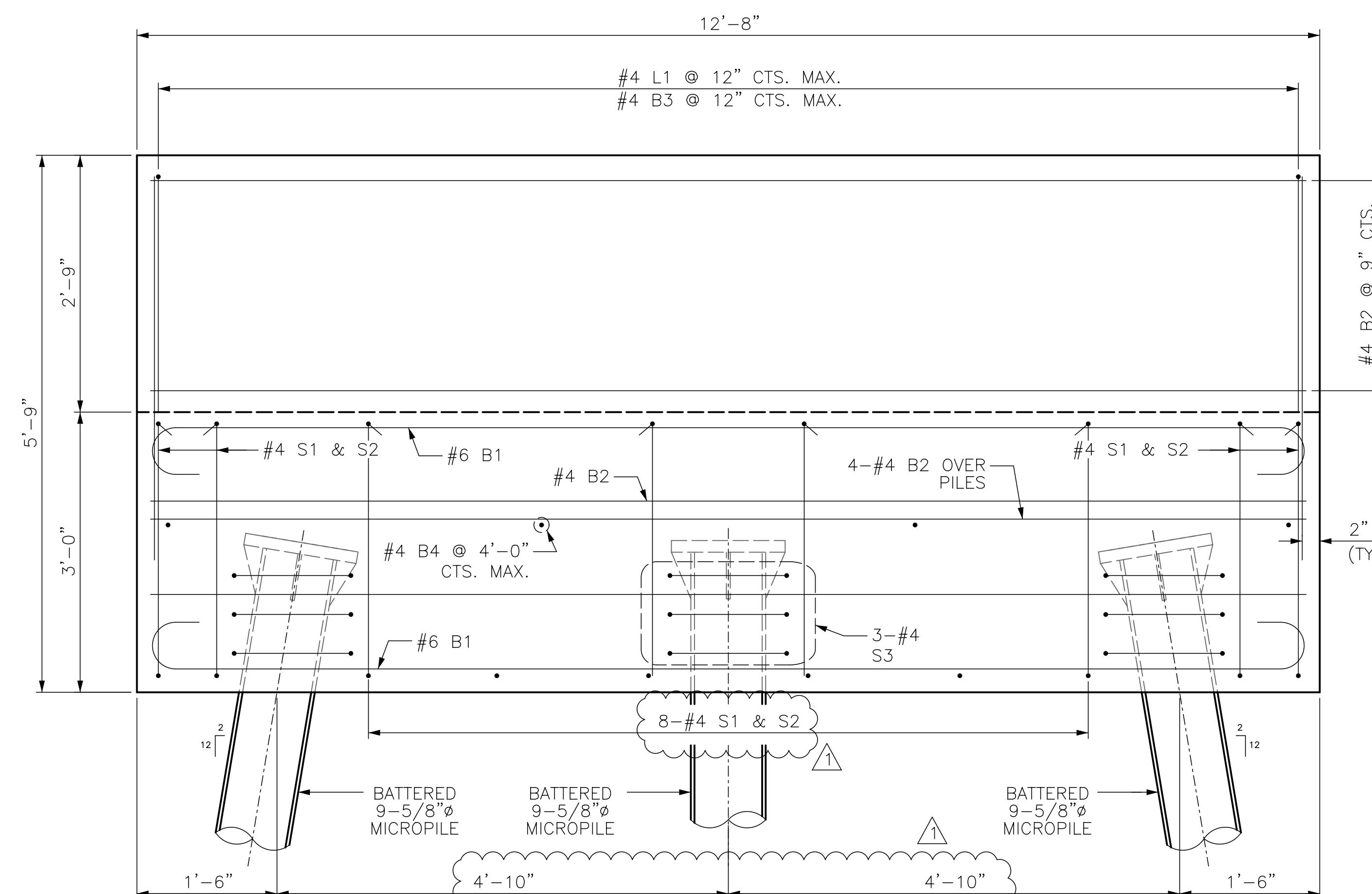
MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.1591667, LONG: -81.645277

DATE	2/6/2026
DRAWN BY	WMH
CHECK BY	AGF
EOB	WMH
PROJECT NO.	53999
SHEET CONTENTS	
BRIDGE CROSS SECTION / FOUNDATION LAYOUT	
REVISIONS:	
1	2/10/2026

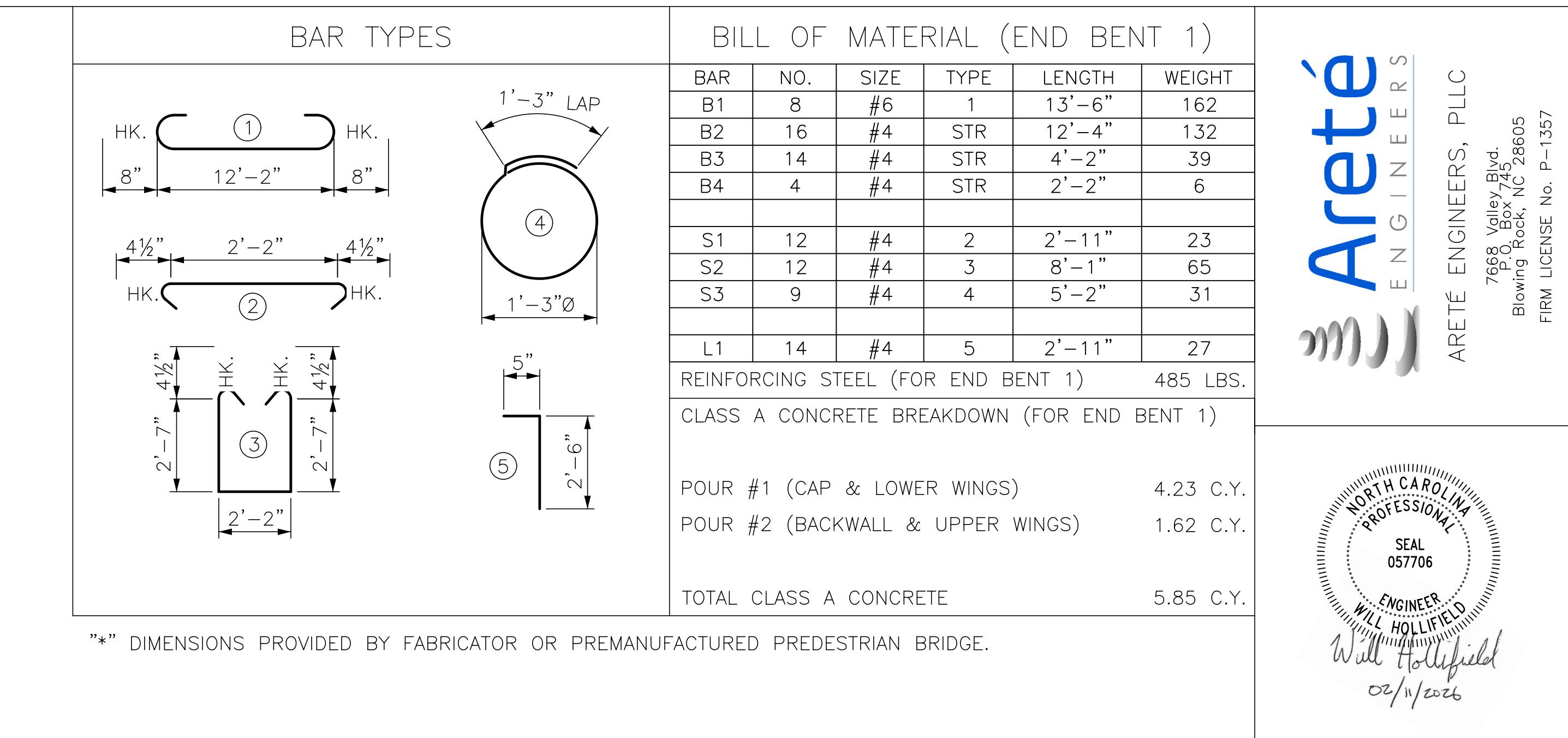
SHEET NO.
S-3
TOTAL SHEETS
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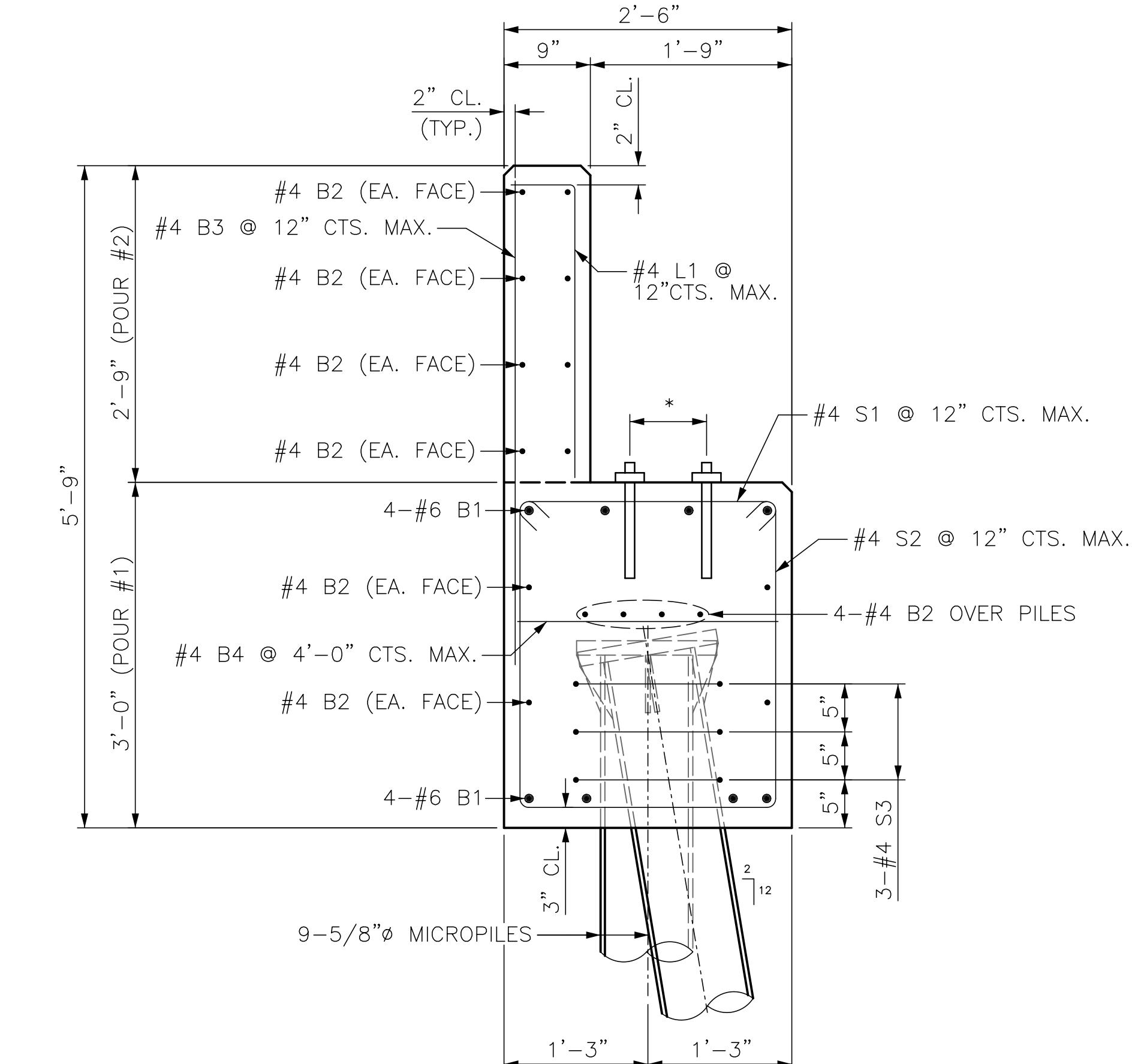
PLAN



ELEVATION (A-A)



“*” DIMENSIONS PROVIDED BY FABRICATOR OR PREMANUFACTURED PREDESTRIAN BRIDGE.



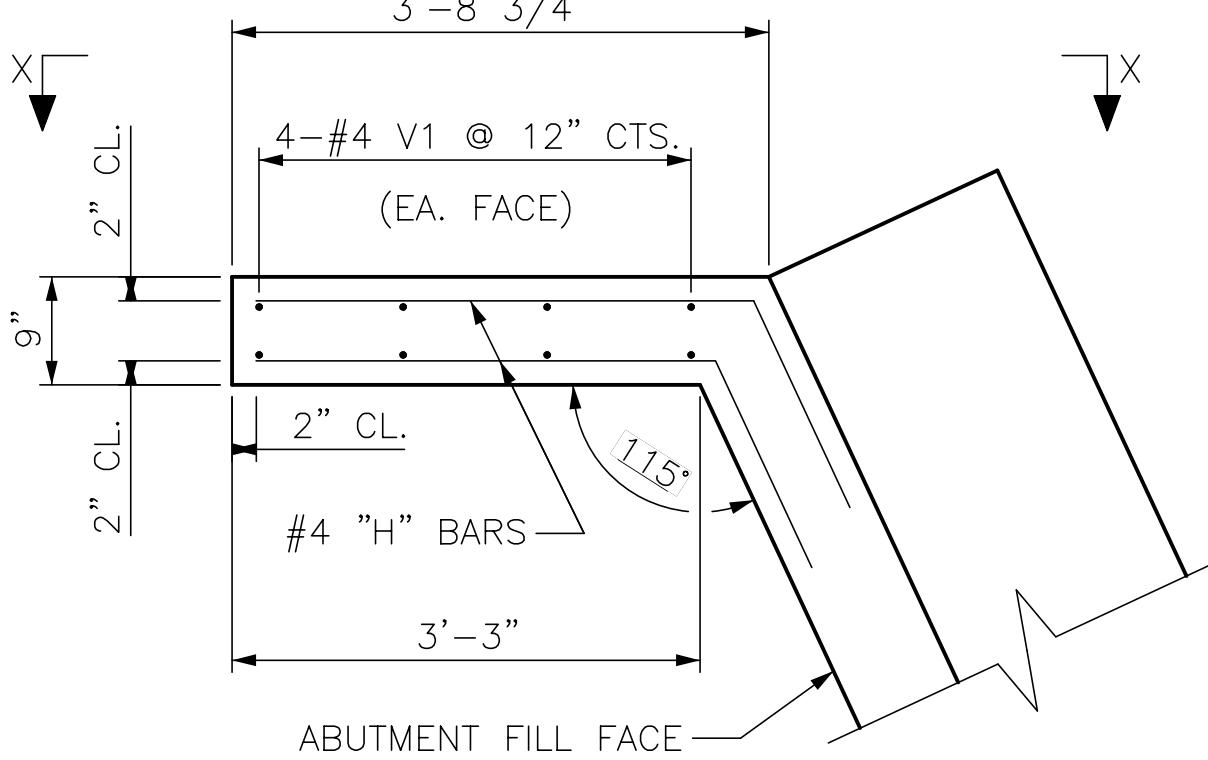
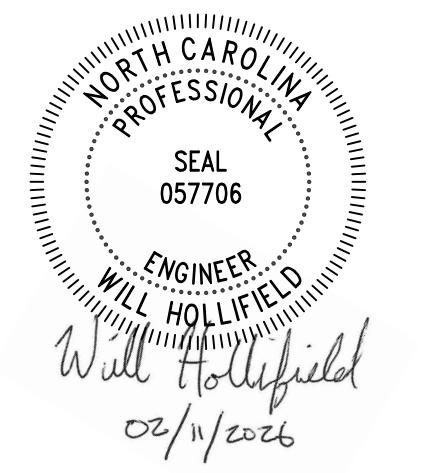
SECTION (B-B)

MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT

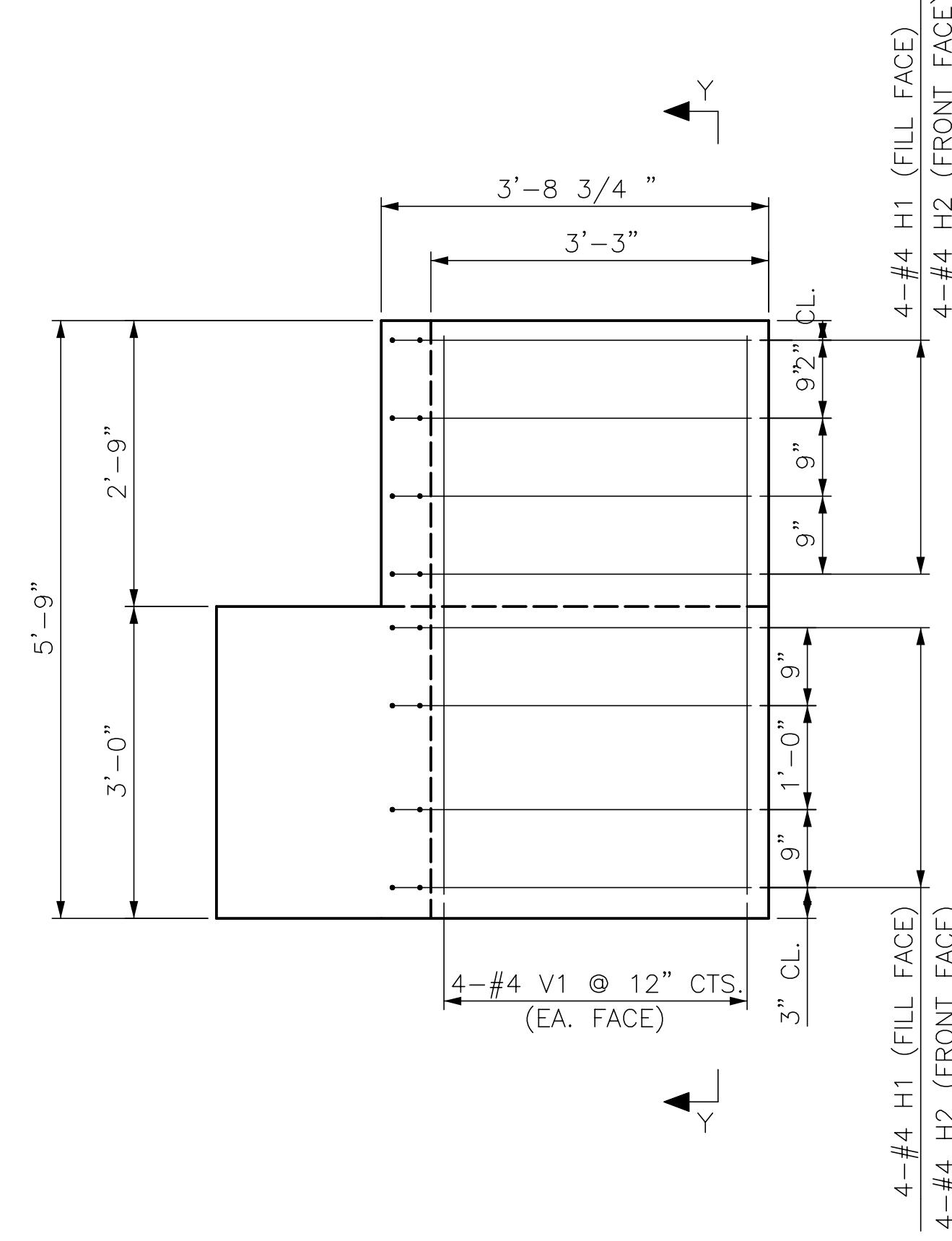
LAT: 36.1591667, LONG: -81.645277

A circular North Carolina Professional Engineer seal. The outer ring contains the text "NORTH CAROLINA" at the top and "PROFESSIONAL" at the bottom, separated by a dotted line. The inner circle contains "SEAL" at the top and the number "057706" in the center. The bottom half of the inner circle contains "ENGINEER" above "WILL HOLLIFIELD". Below the seal is a handwritten signature "Will Hollifield" and the date "02/11/2026".

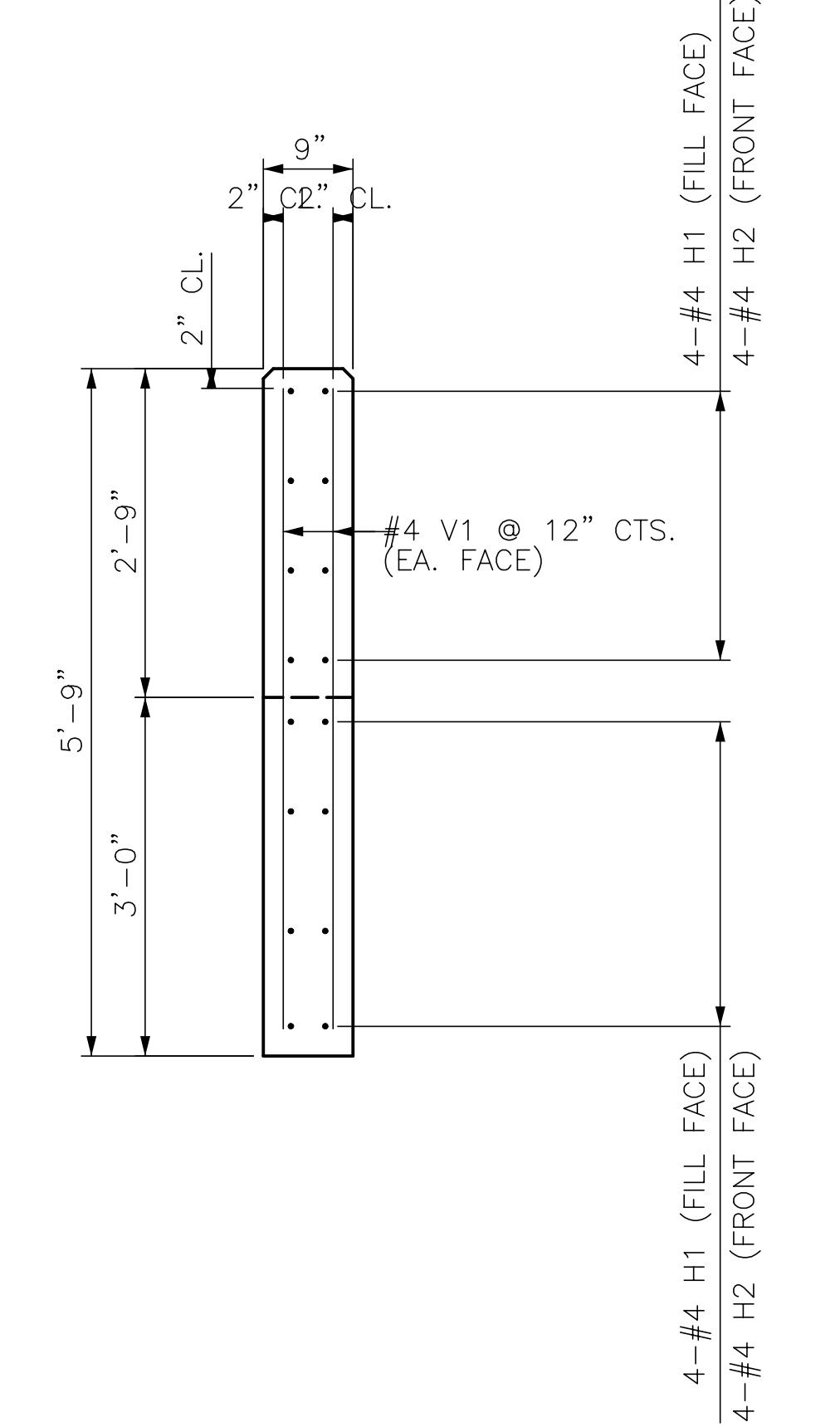
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-W1 - PLAN

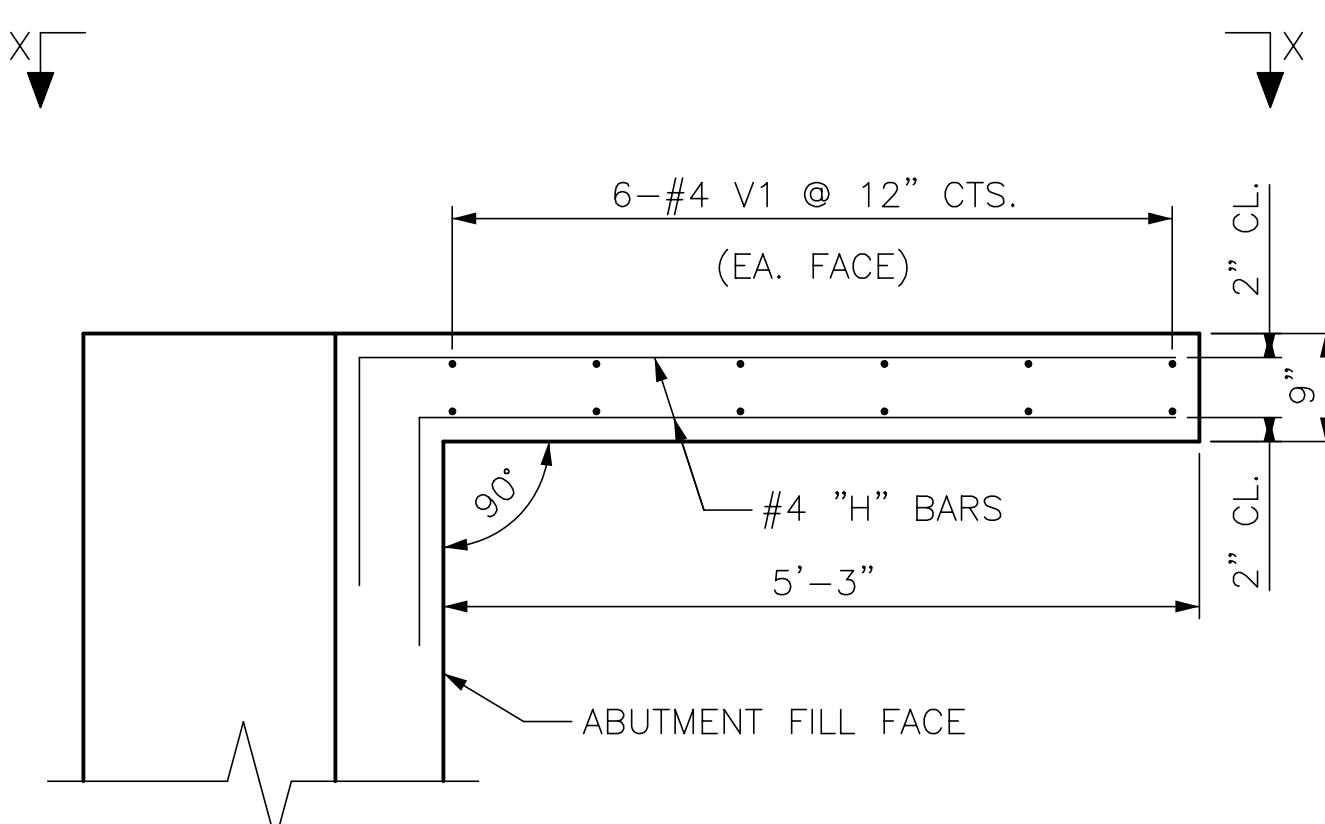


-W1 - ELEVATION (X-X)

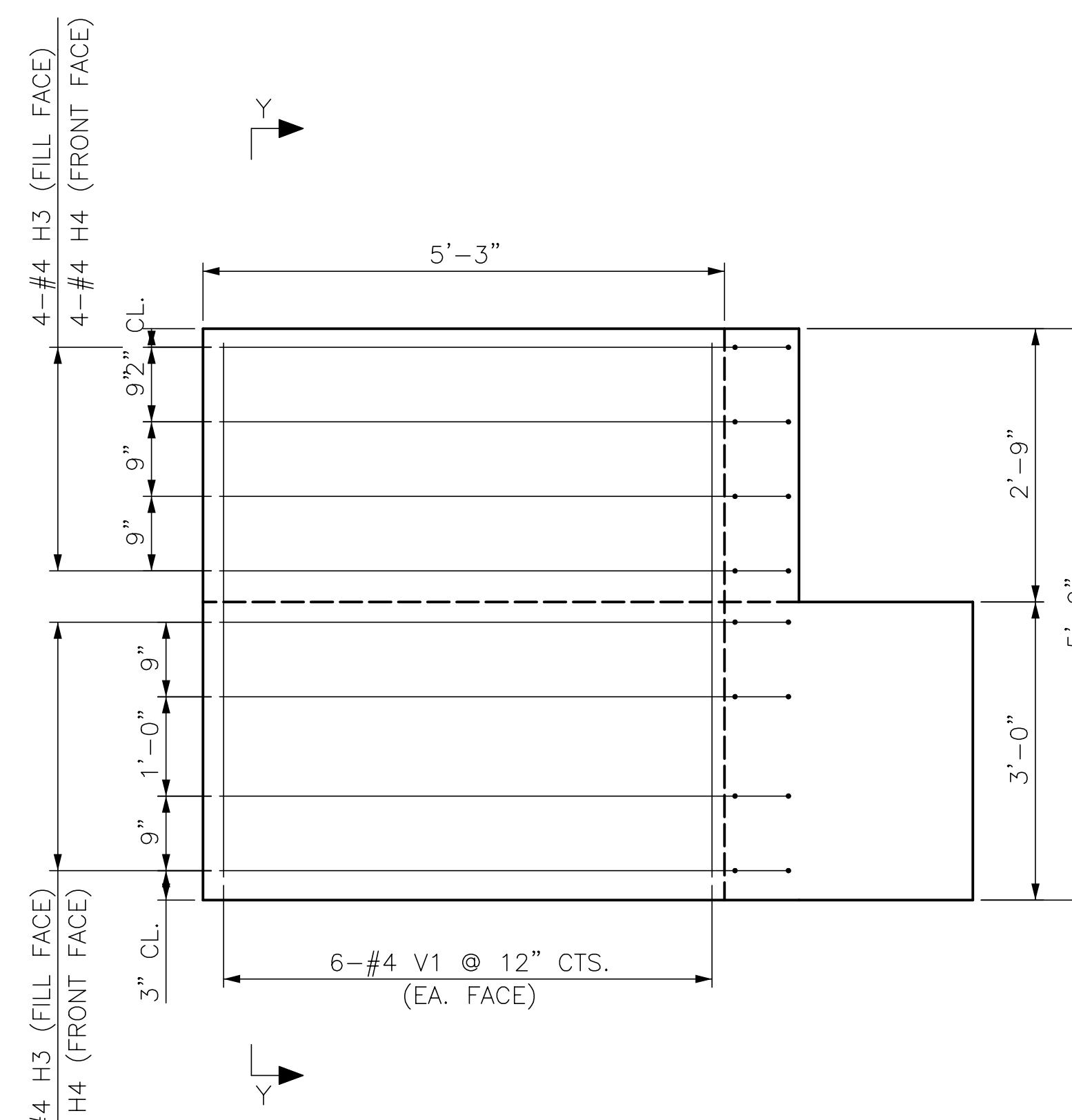


-W1 - SECTION Y-Y

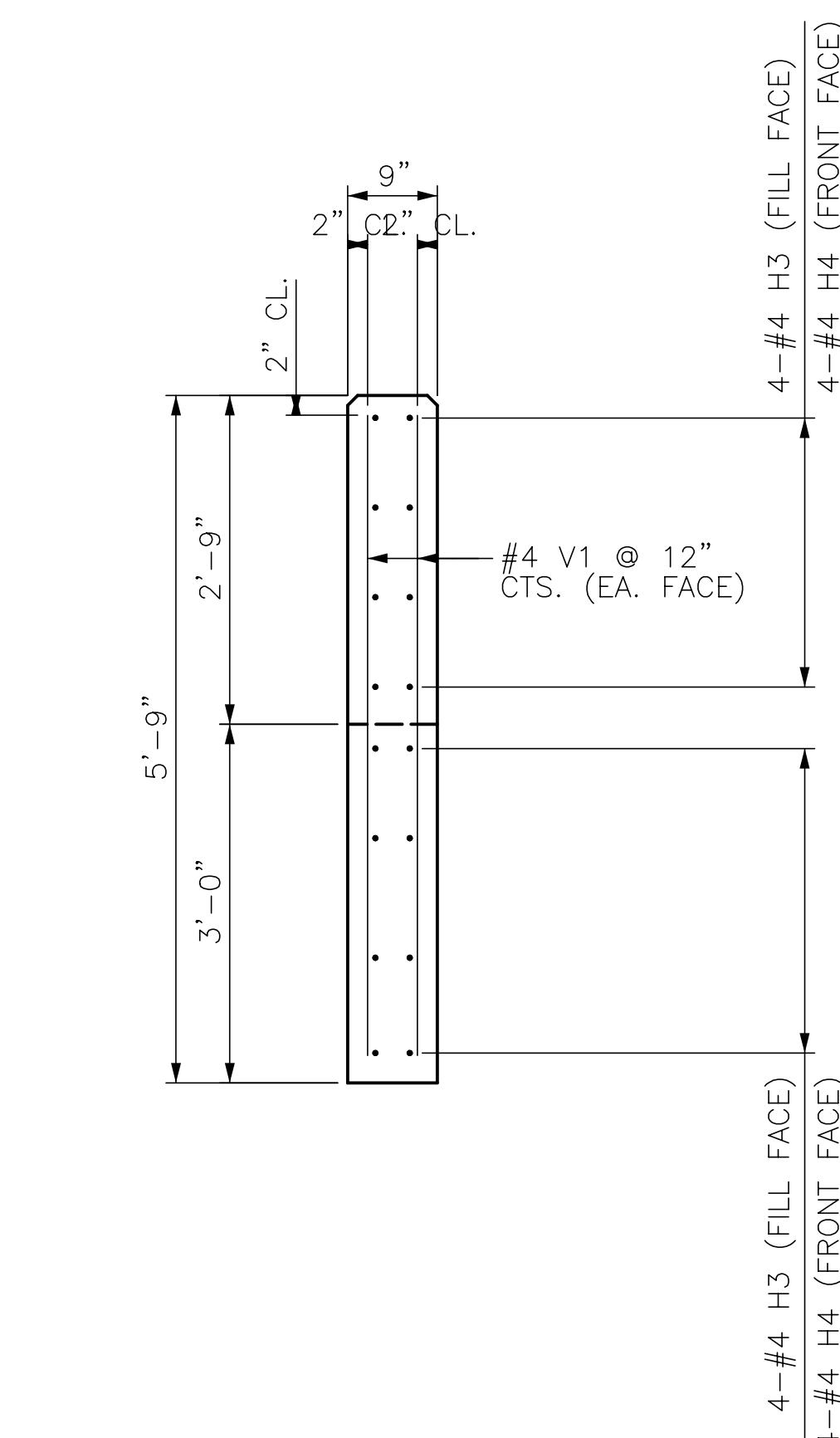
BILL OF MATERIAL (-W1-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	8	#4	6	5'-0"	27
H2	8	#4	6	4'-9"	25
V1	8	#4	STR	5'-4"	29
REINFORCING STEEL (FOR -W1-)					
81 LBS.					
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					



-W2 - PLAN



-W2 - ELEVATION (X-X)



-W2 - SECTION Y-Y

BILL OF MATERIAL (-W2-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W2-)					
118 LBS.					
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					

MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
LAT: 36.1591667, LONG: -81.645277
AT

DATE	2/6/2026
DRAWN BY	WMH
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EOR	WMH
PROJECT NO.	53999

SHEET CONTENTS

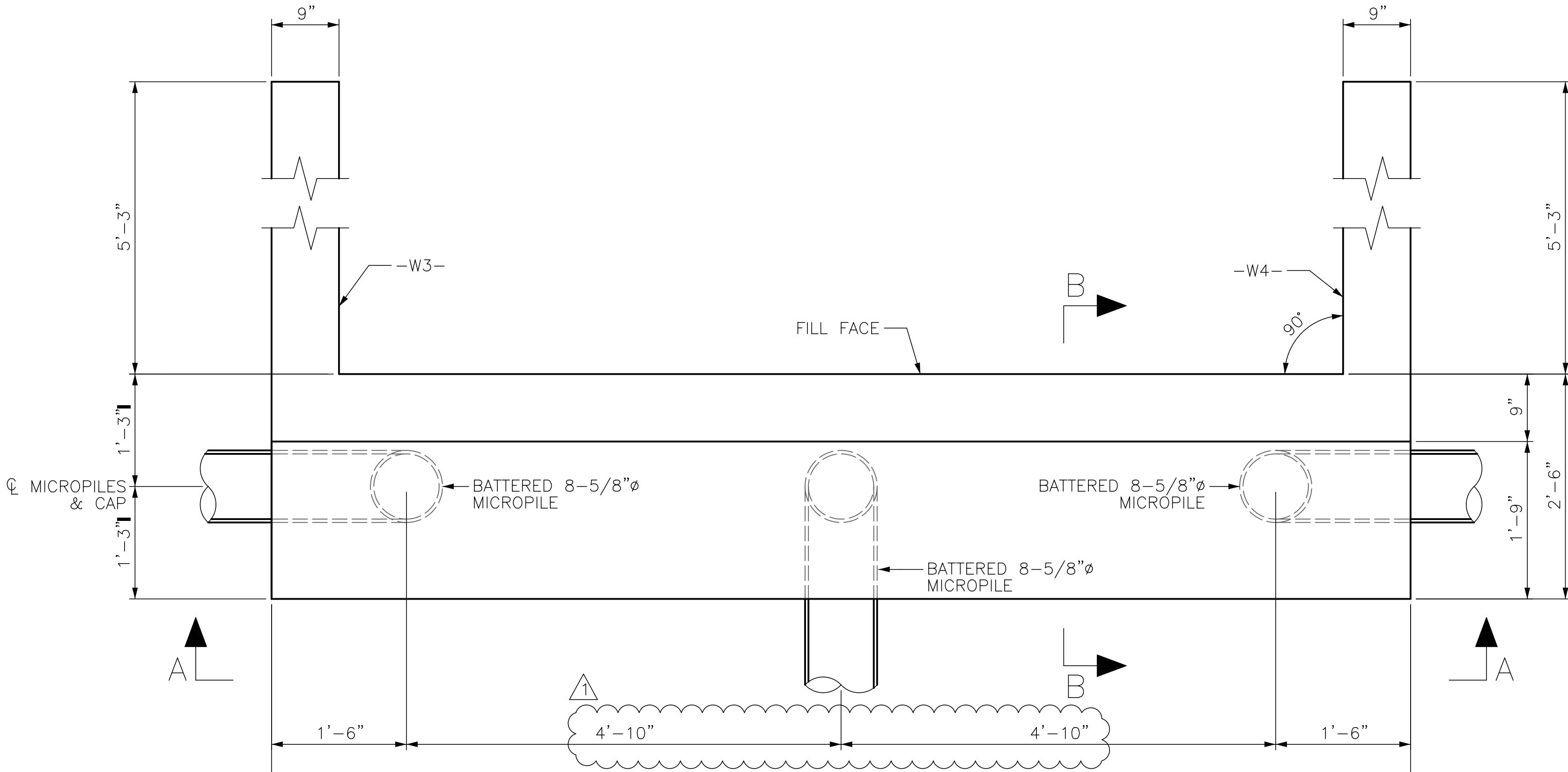
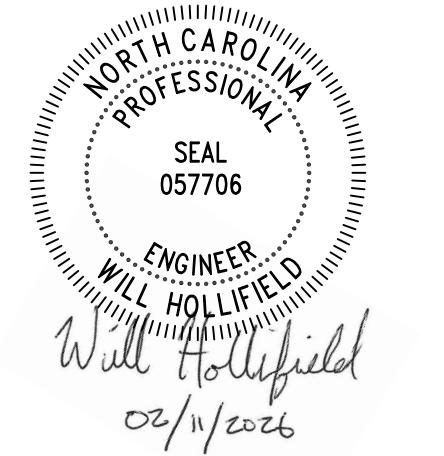
WINGWALLS
-W1 - & -W2-

REVISIONS:
1 2/10/2026

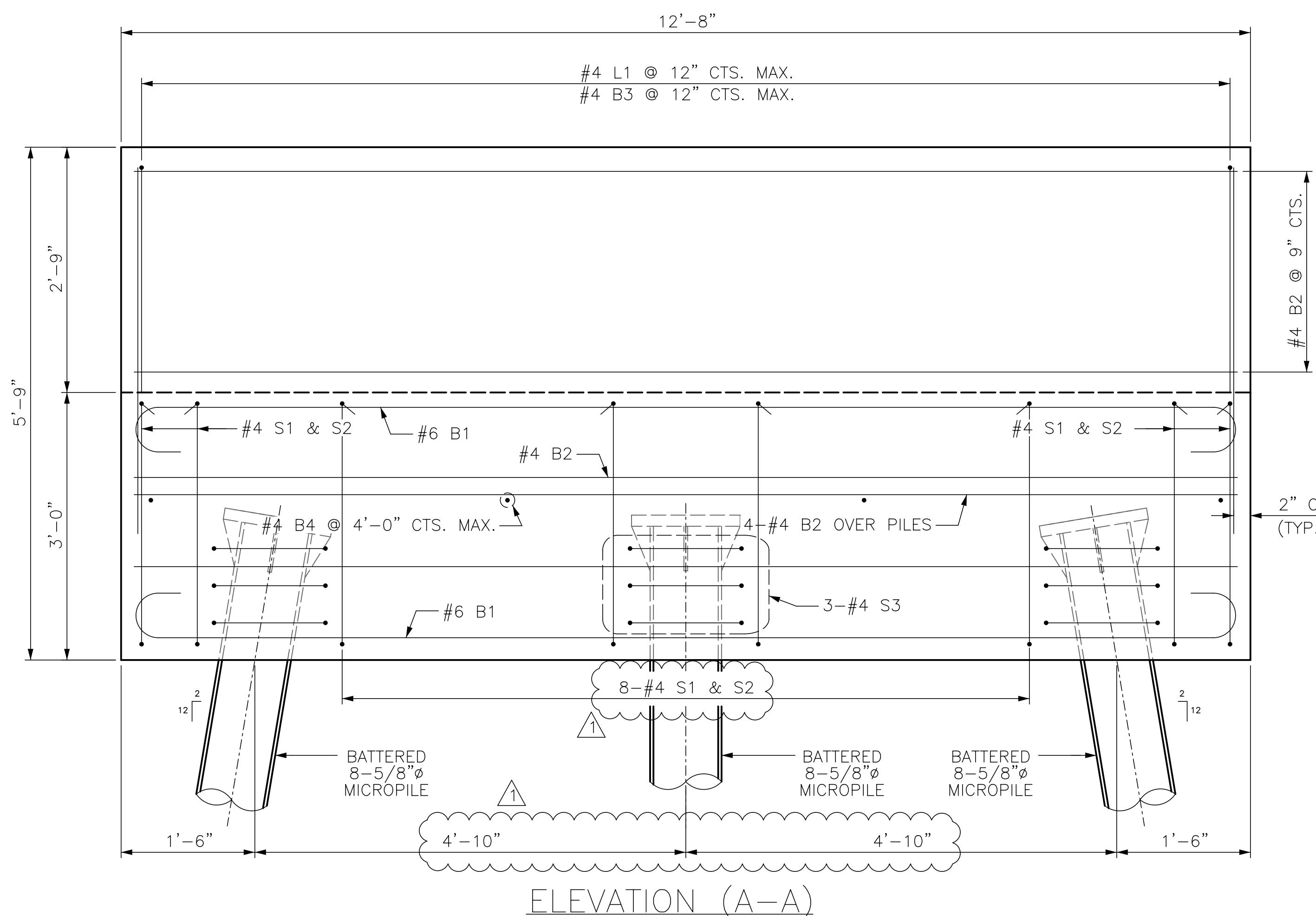
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S-5

TOTAL SHEETS



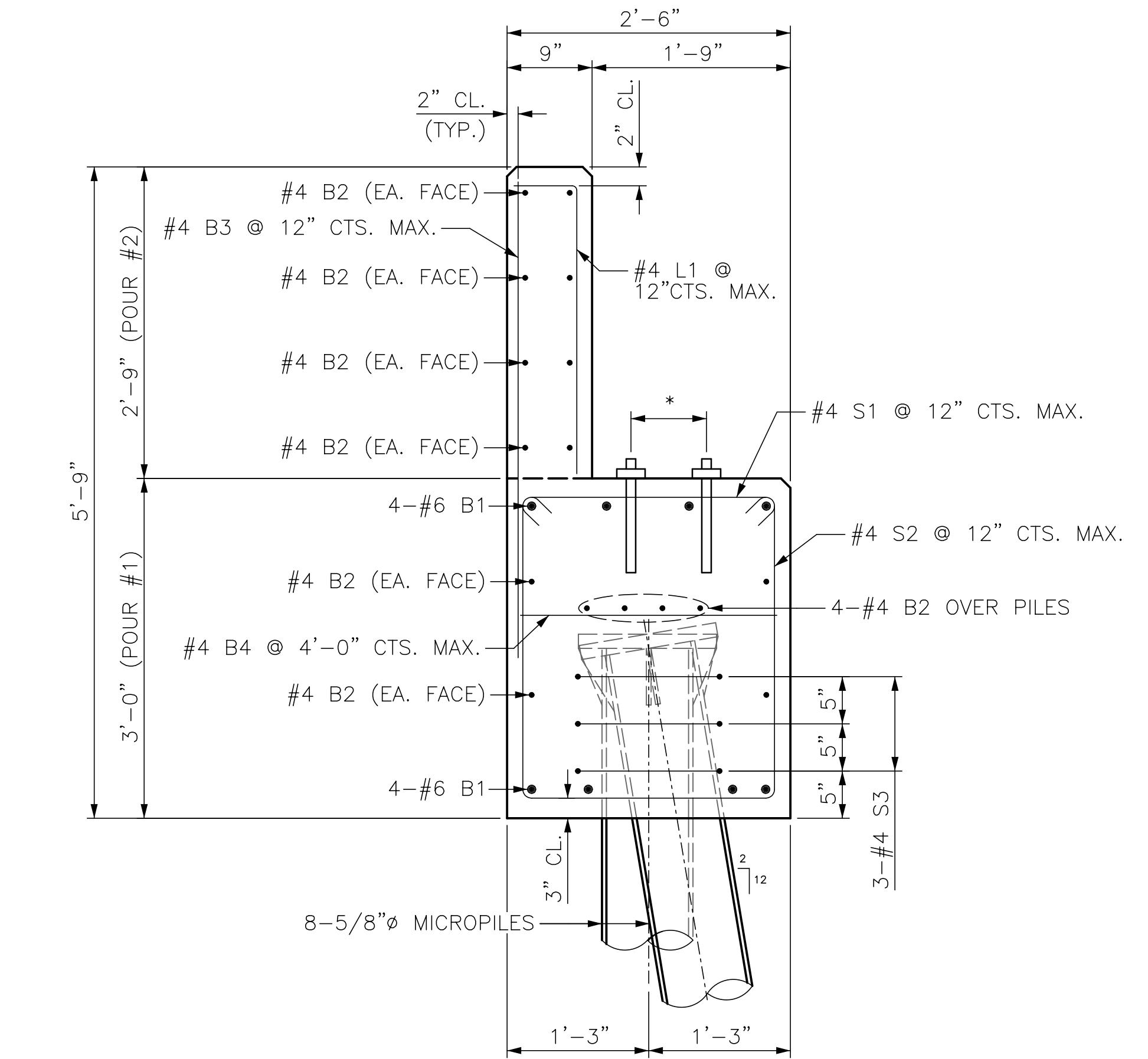
PLAN



ELEVATION (A-A)

BAR TYPES		BILL OF MATERIAL (END BENT 2)				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#6	1	13'-6"	162	
B2	16	#4	STR	12'-4"	132	
B3	14	#4	STR	4'-2"	39	
B4	4	#4	STR	2'-2"	6	
S1	12	#4	2	2'-11"	23	
S2	12	#4	3	8'-1"	65	
S3	9	#4	4	5'-2"	31	
L1	14	#4	5	2'-11"	27	
REINFORCING STEEL (FOR END BENT 2)		485 LBS.				
CLASS A CONCRETE BREAKDOWN (FOR END BENT 2)						
POUR #1 (CAP & LOWER WINGS)		4.39 C.Y.				
POUR #2 (BACKWALL & UPPER WINGS)		1.77 C.Y.				
TOTAL CLASS A CONCRETE		6.16 C.Y.				

** DIMENSIONS PROVIDED BY FABRICATOR OR PREMANUFACTURED PREDESTRIAN BRIDGE.

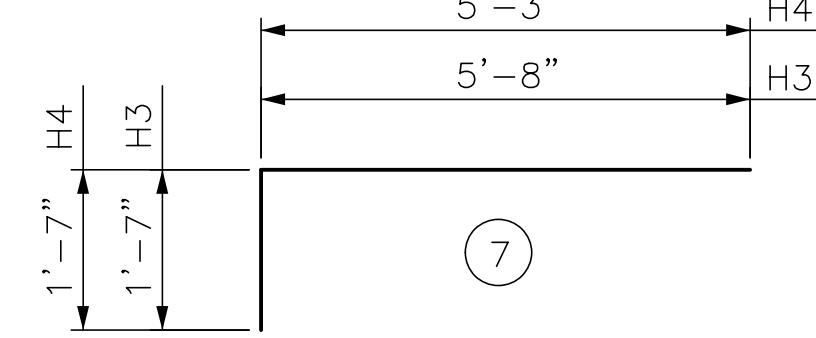


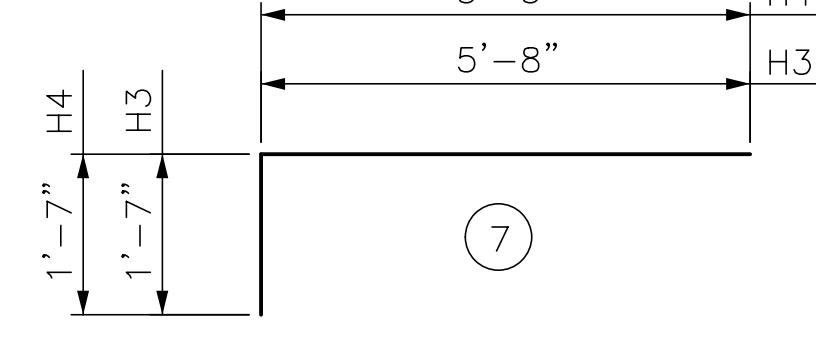
SECTION (B-B)

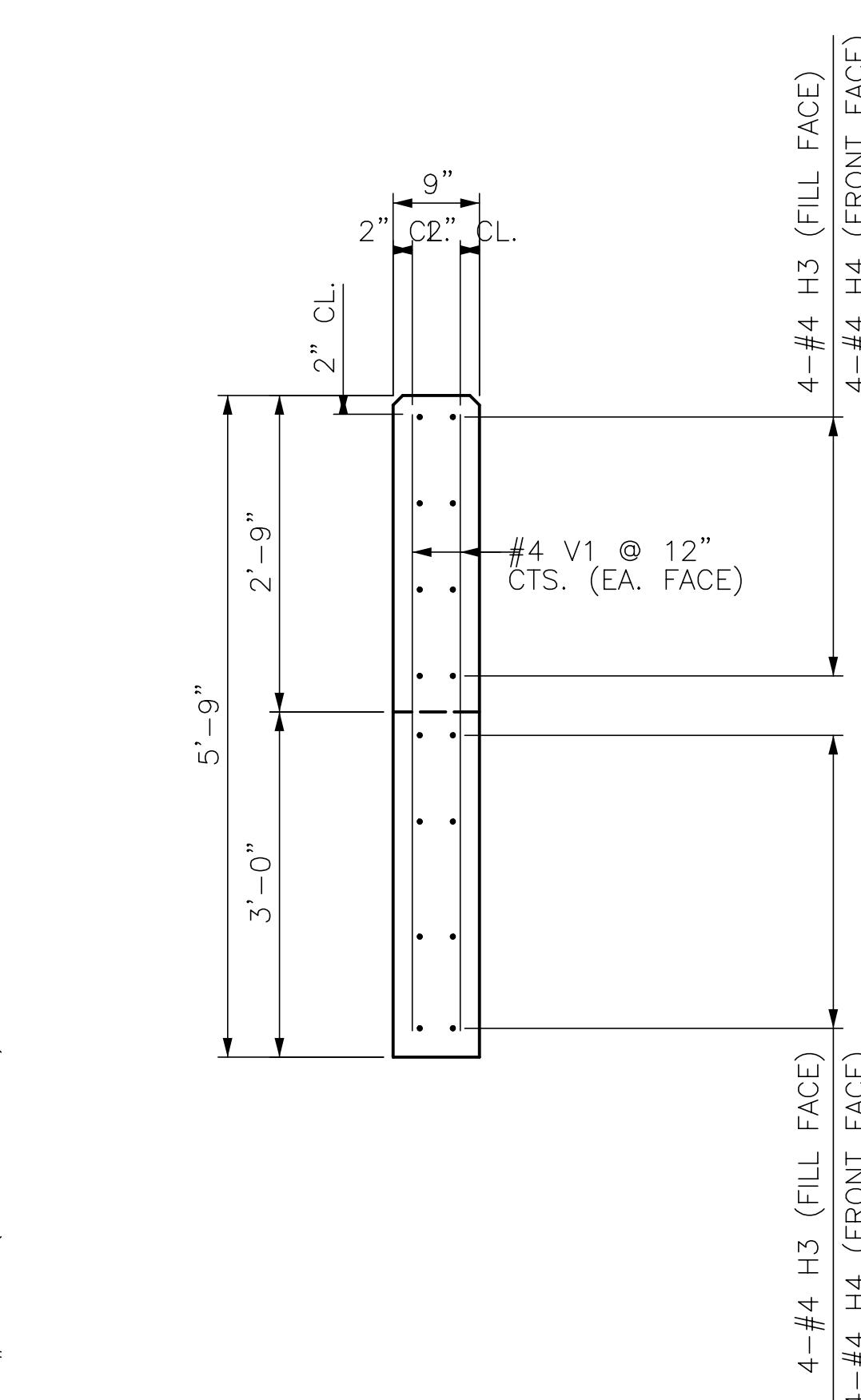
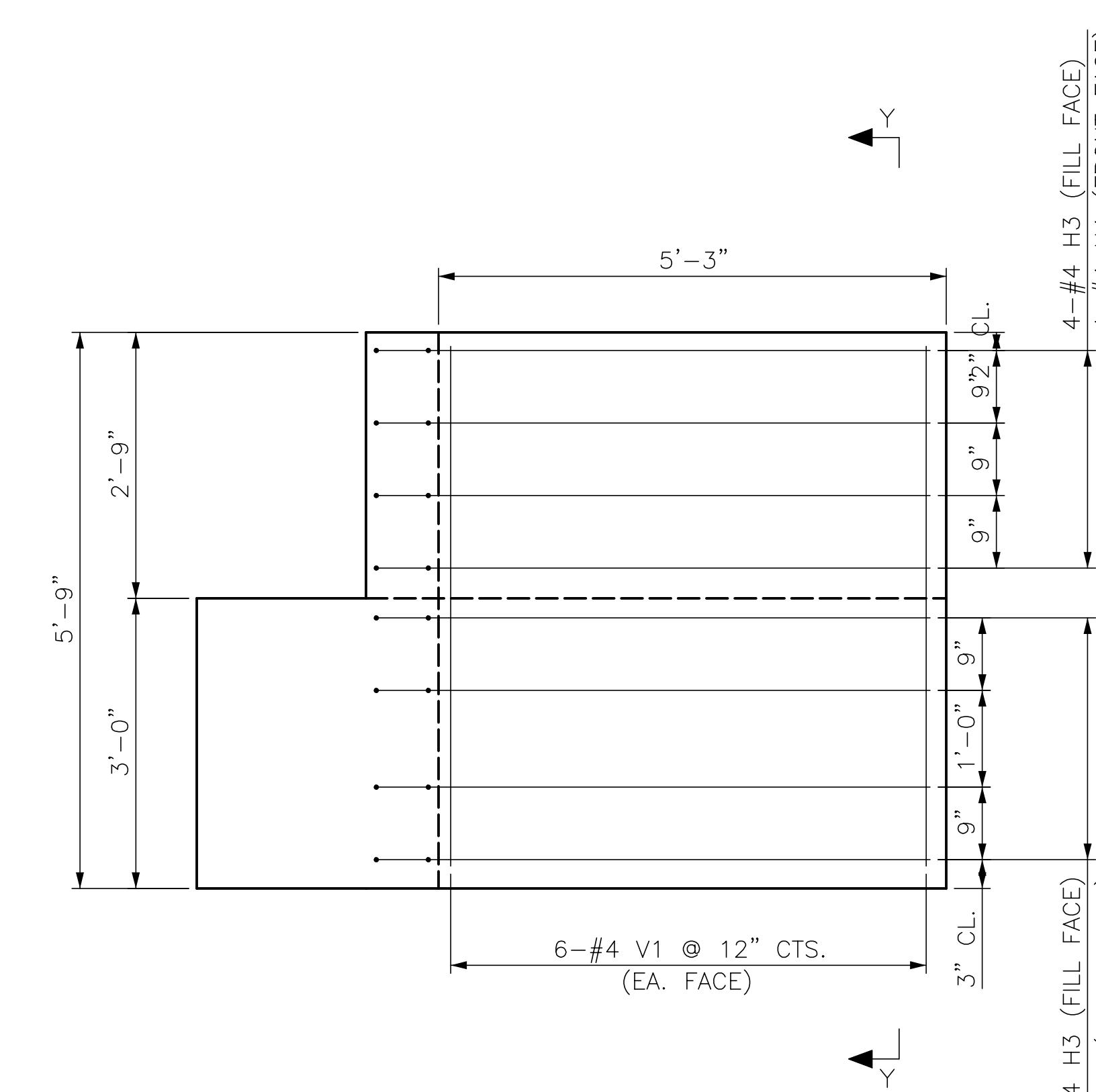
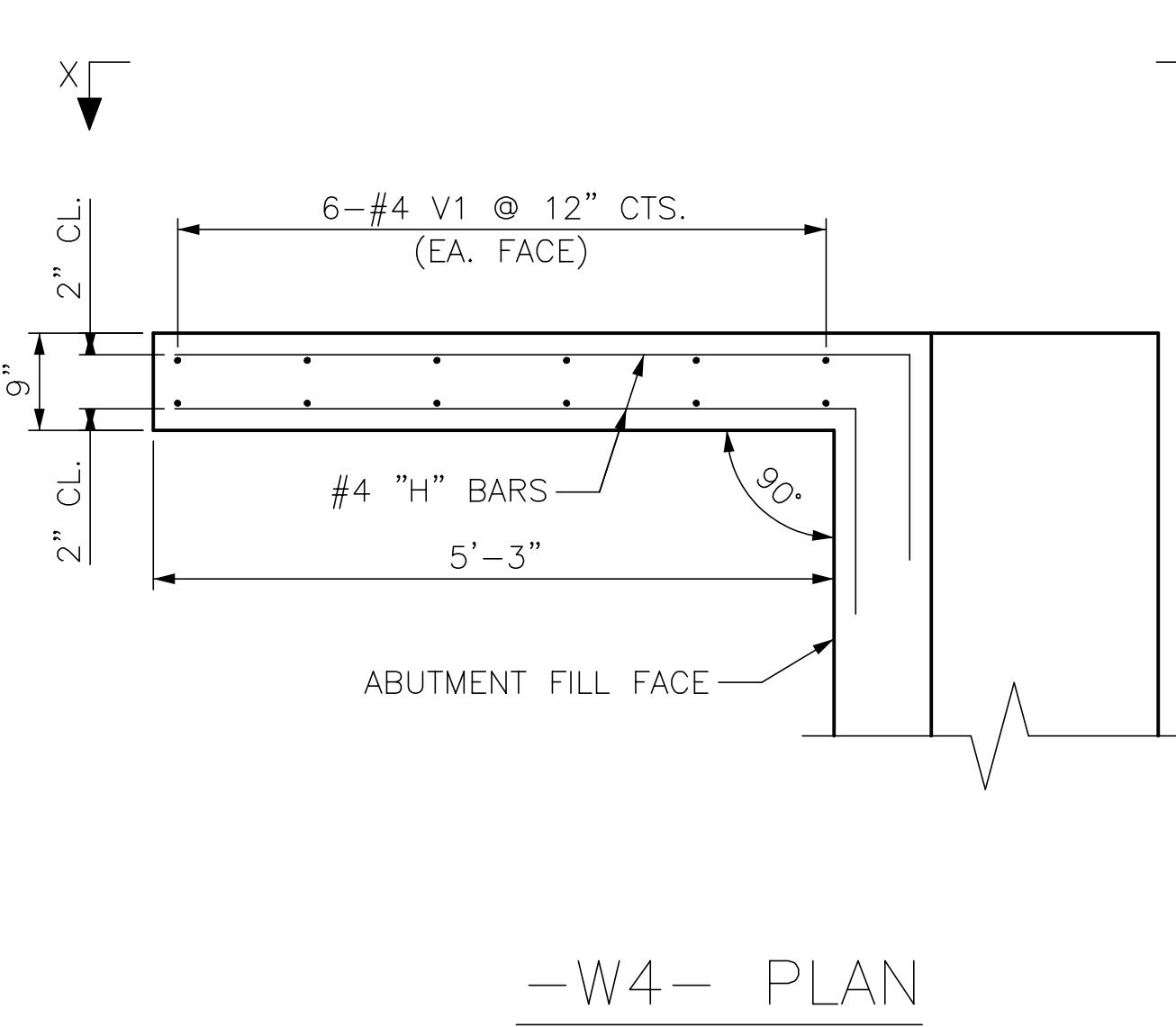
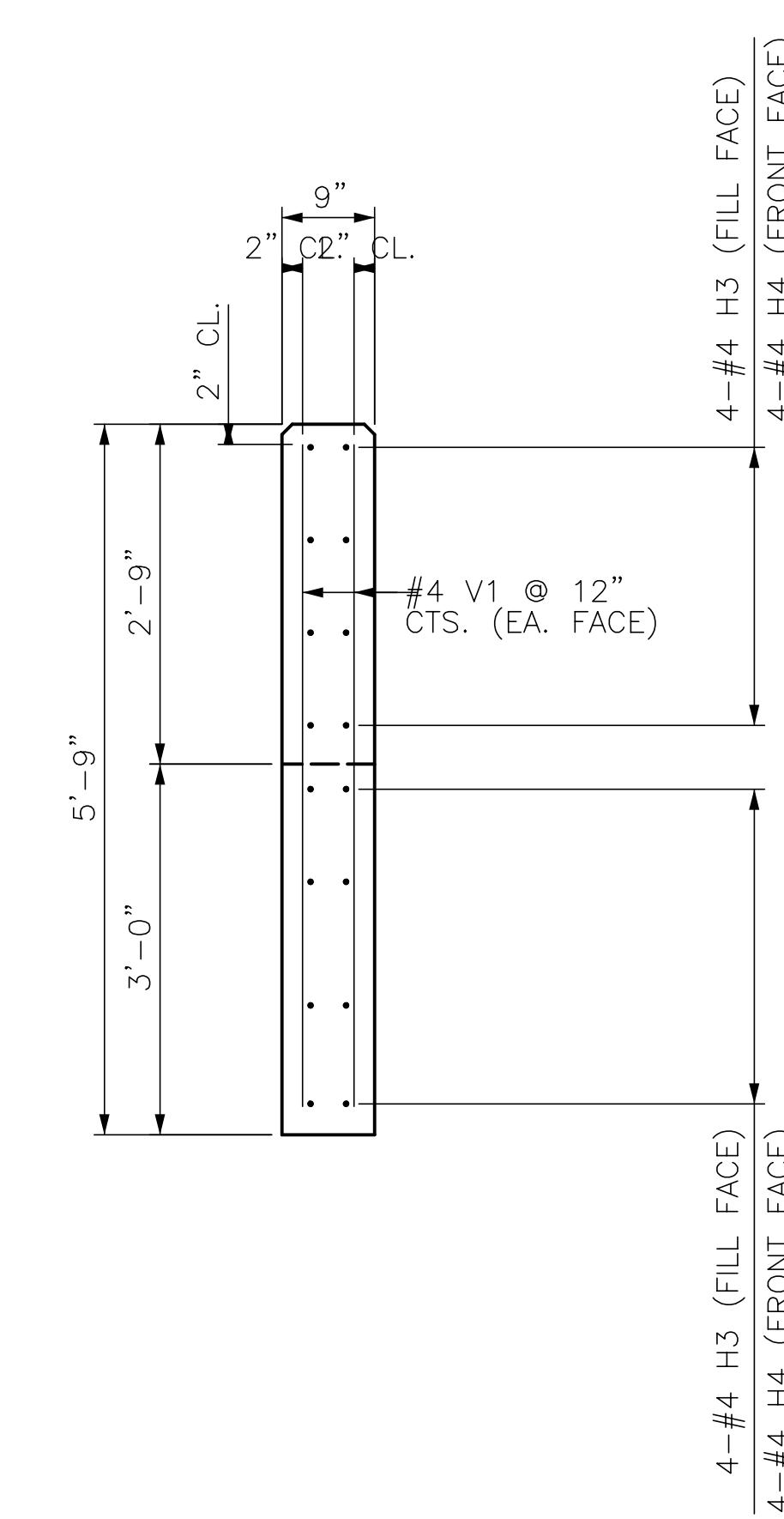
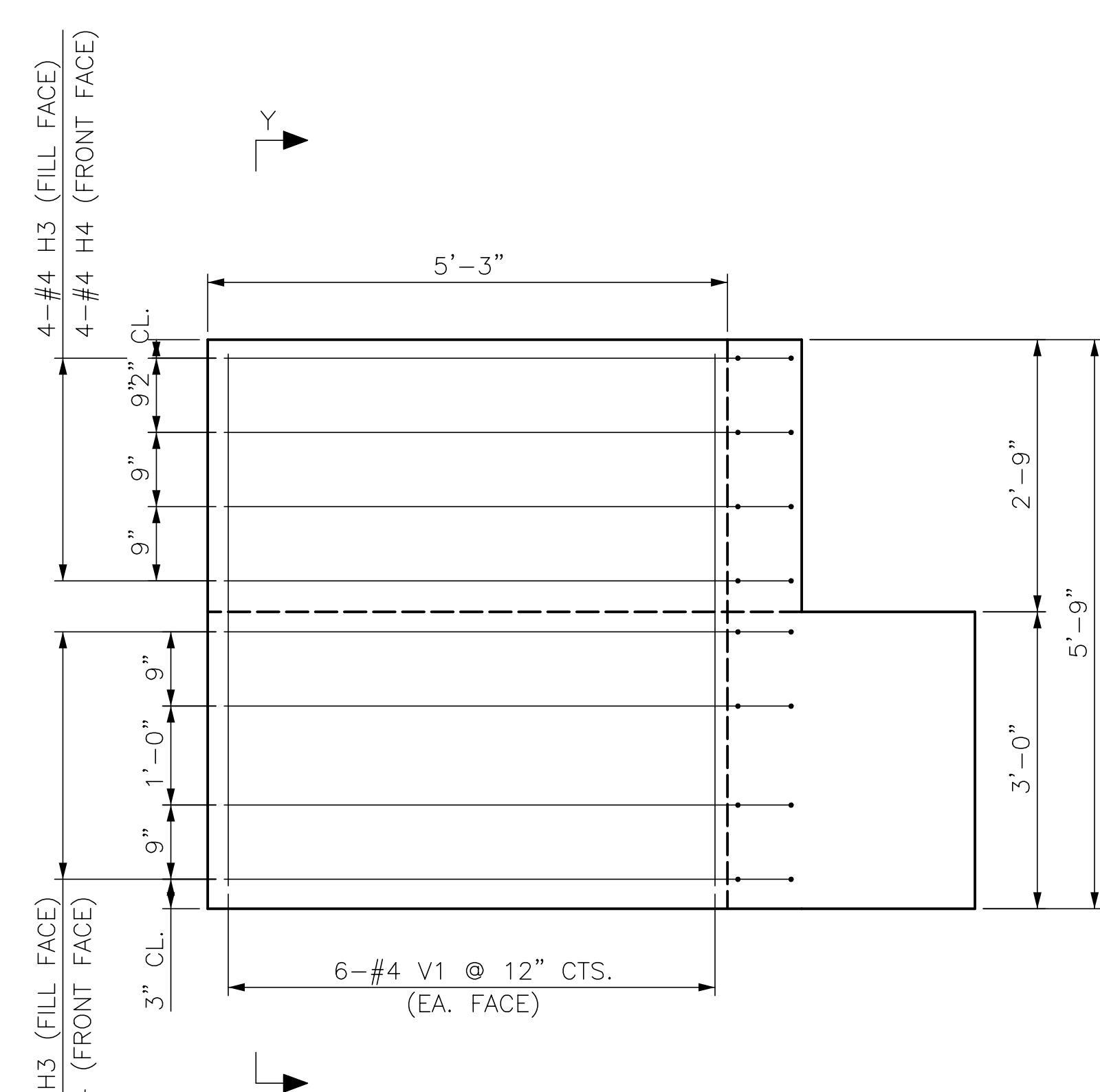
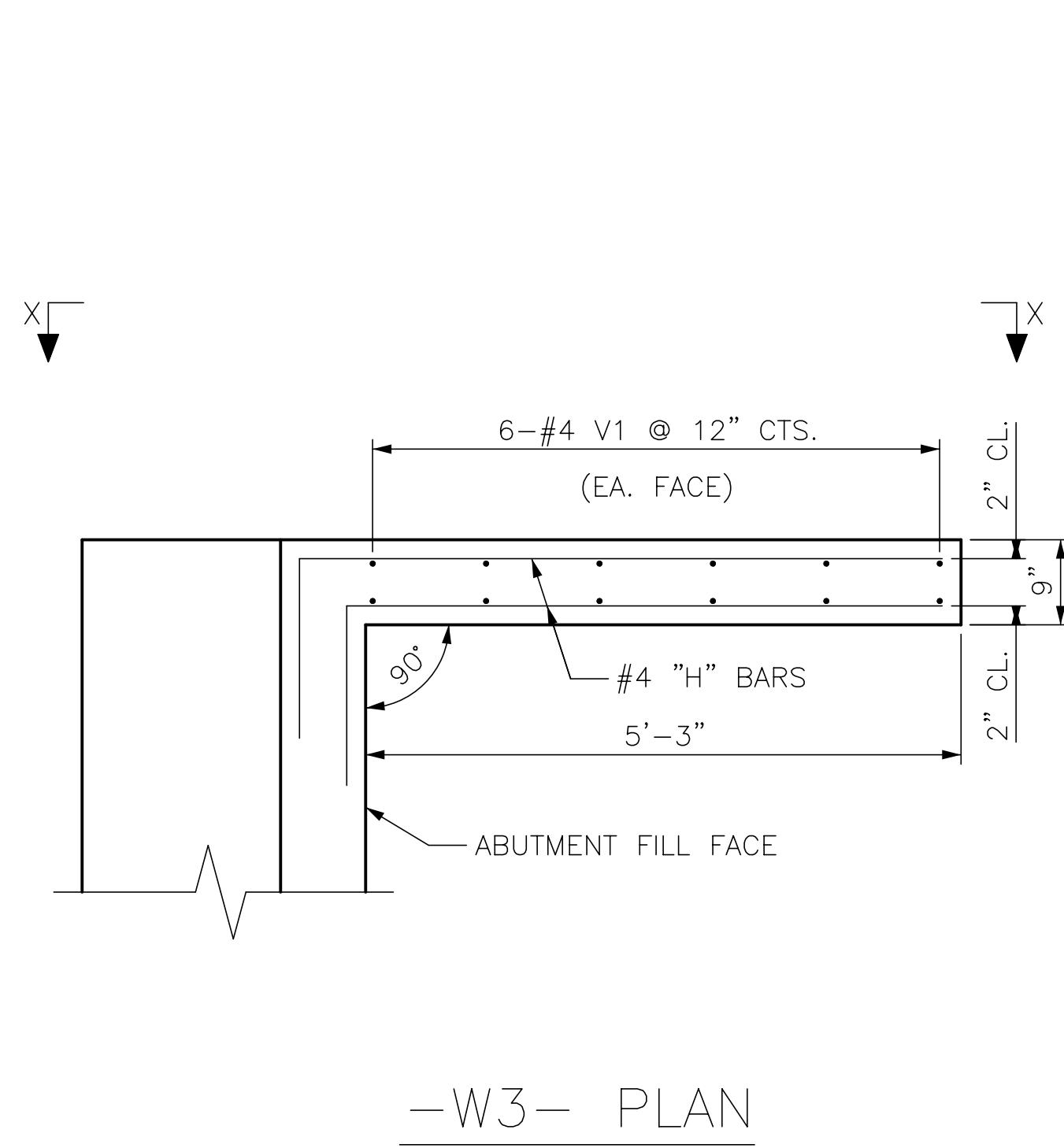
MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
LAT: 36.1591667, LONG: -81.645277
AT

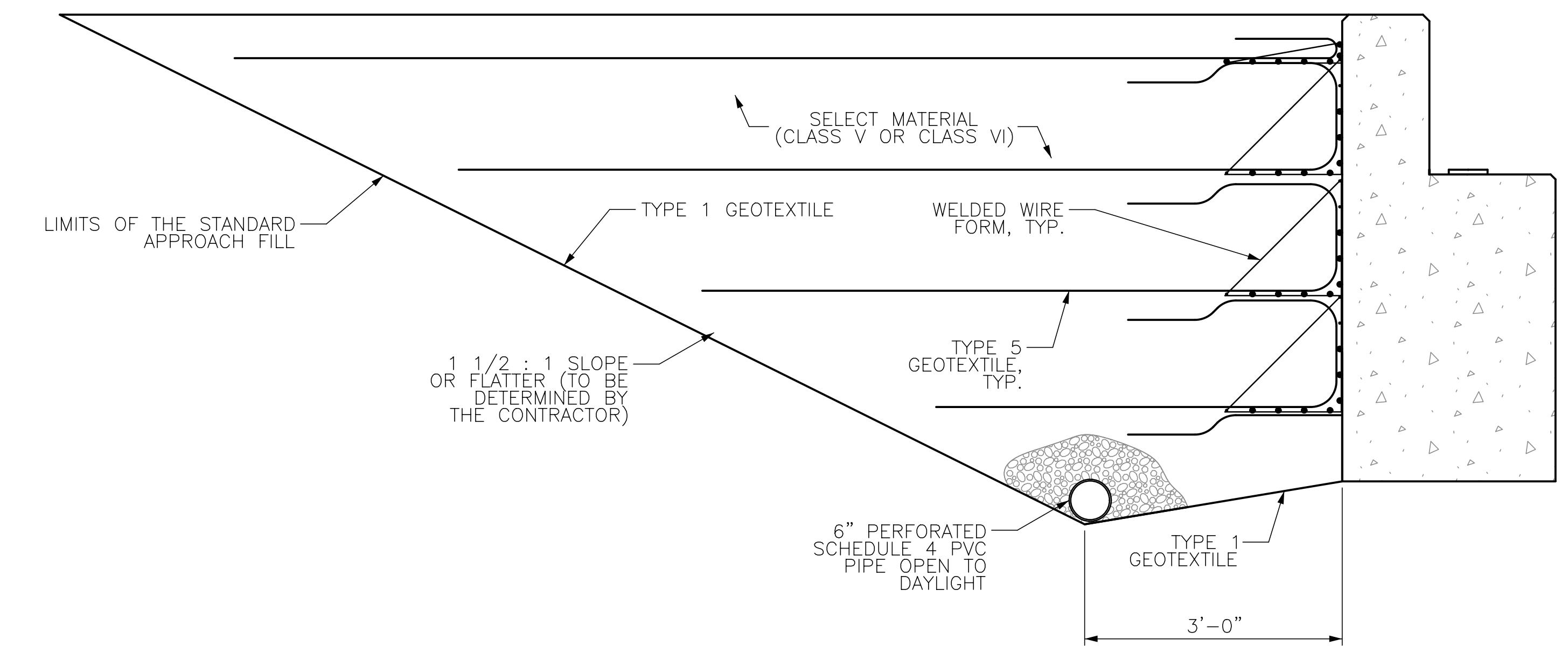
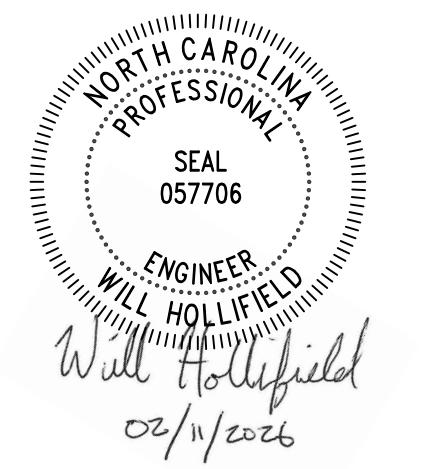
DATE	2/6/2026
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EOR	WMH
PROJECT NO.	53999
SHEET CONTENTS	
END BENT 2	
REVISIONS:	
1	2/10/2026
SHEET NO.	S-6
TOTAL SHEETS	1

MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
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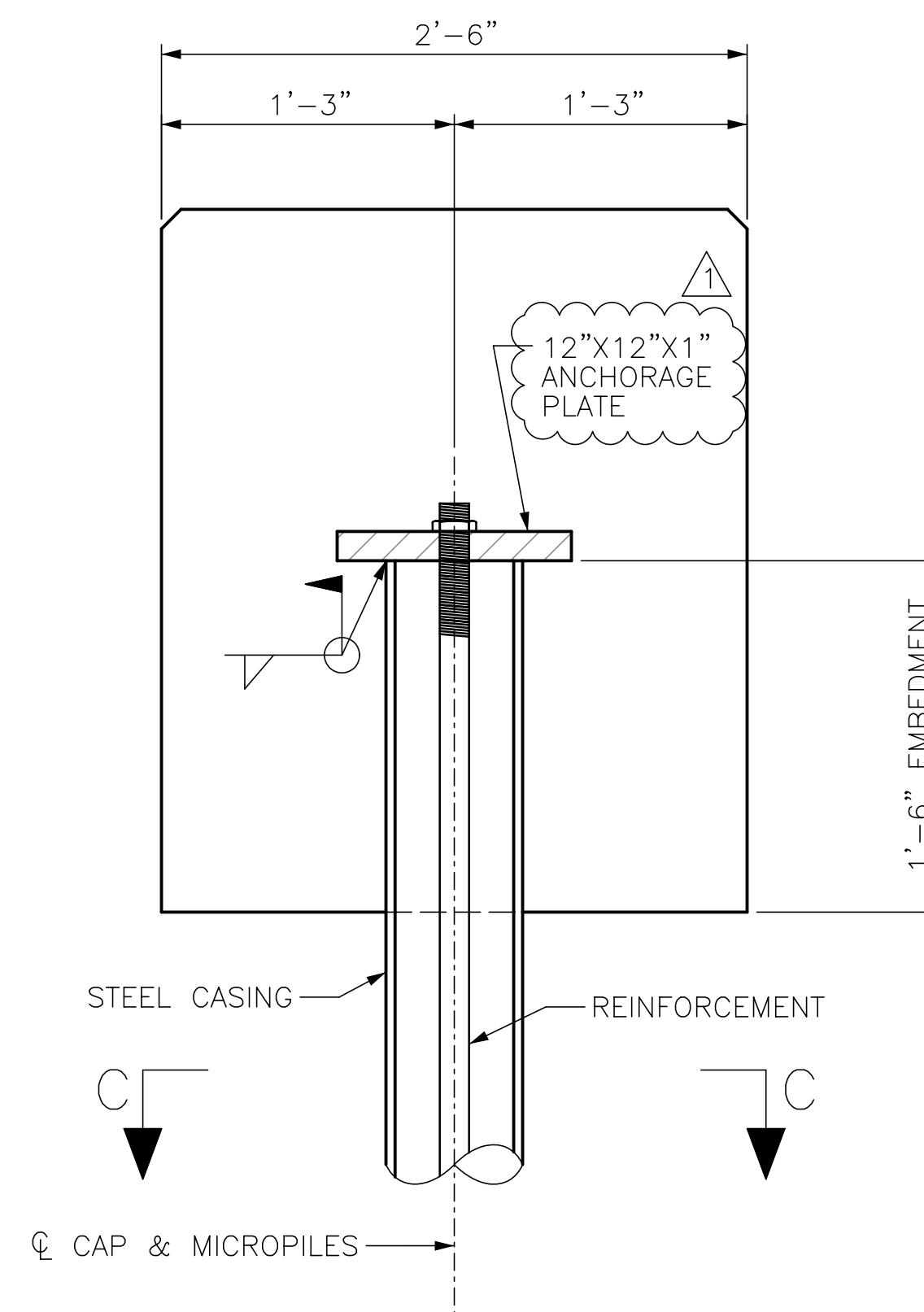
BILL OF MATERIAL (-W3-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W3-)					
118 LBS.					
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					
					

BILL OF MATERIAL (-W4-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W4-)					
118 LBS.					
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					
					

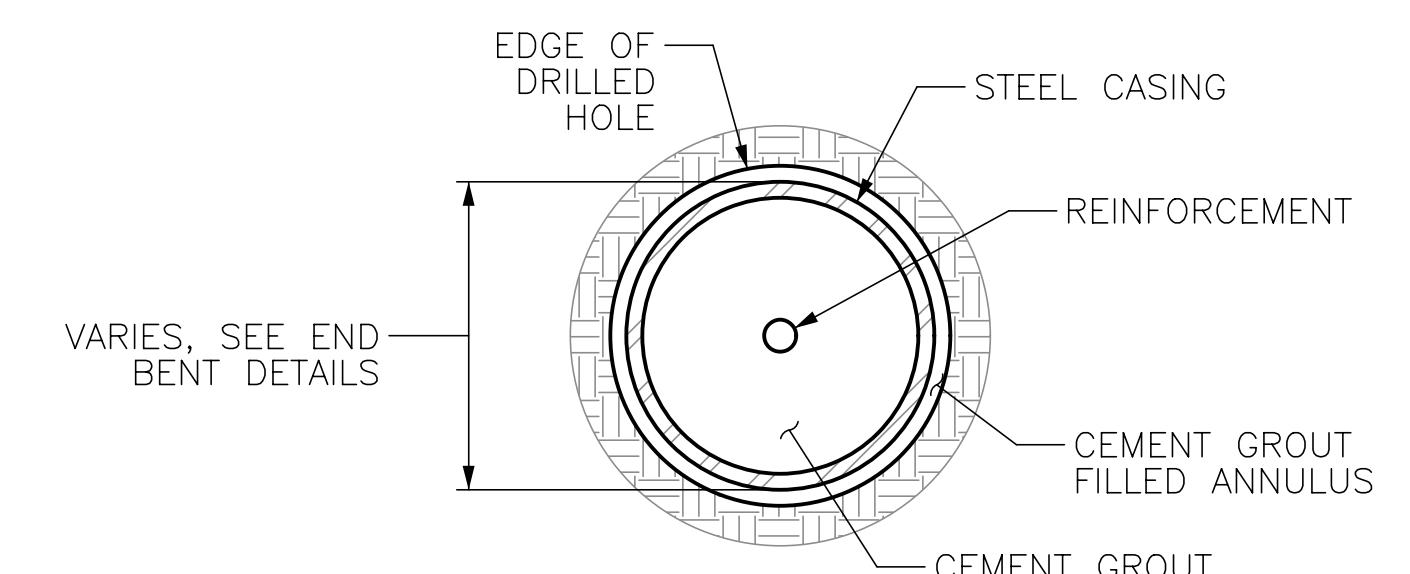




APPROACH FILL DETAIL



TYP. MICROPILE ANCHORAGE DETAIL



TYP. MICROPILE DETAIL (SECTION C-C)

MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.1591667, LONG: -81.645277

DATE	2/6/2026
DRAWN BY	WMH
CHECK BY	AGF
EOR	WMH
PROJECT NO.	53999

SHEET CONTENTS

ADDITIONAL DETAILS

REVISIONS:

1	2/10/2026

SHEET NO.

S-8

TOTAL SHEETS