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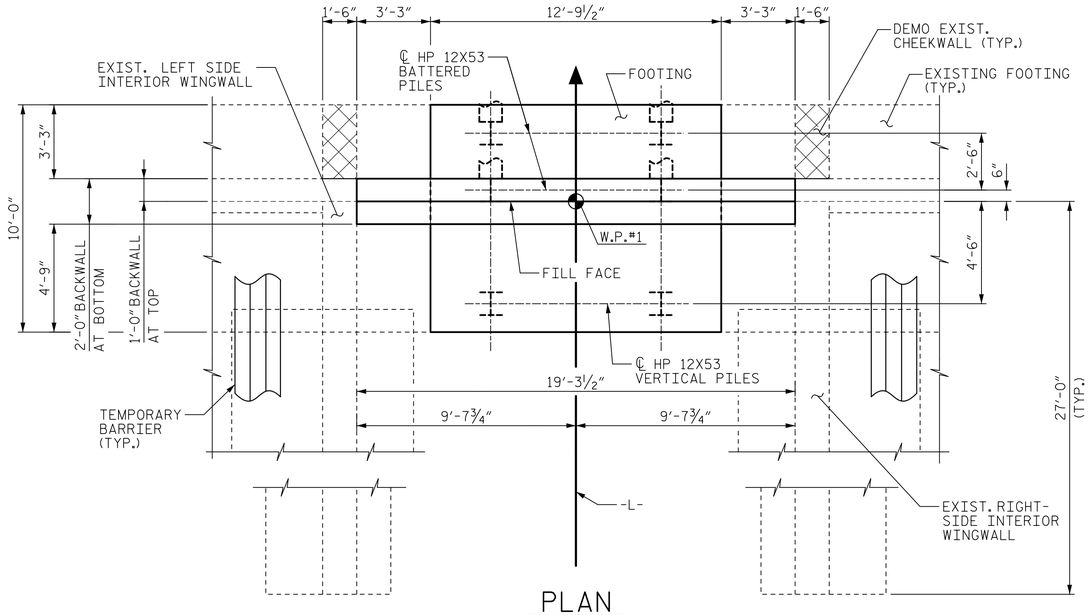
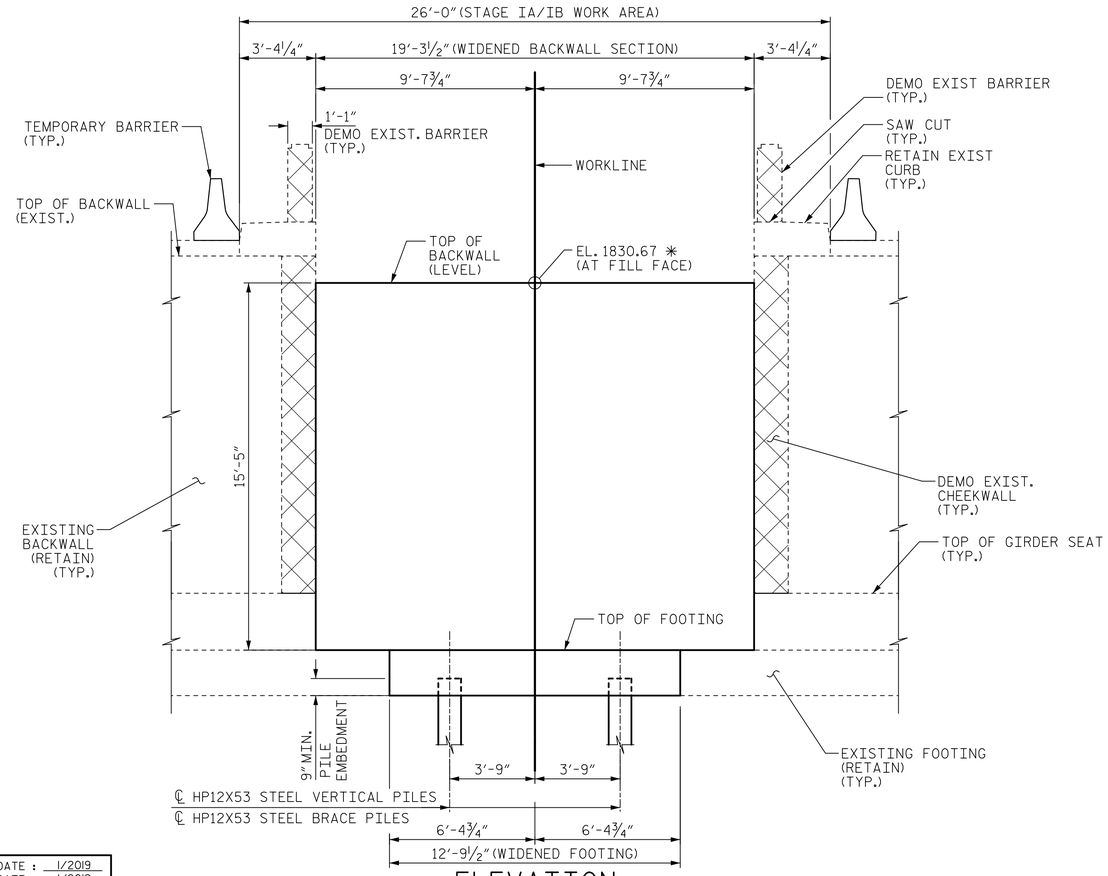


PLAN

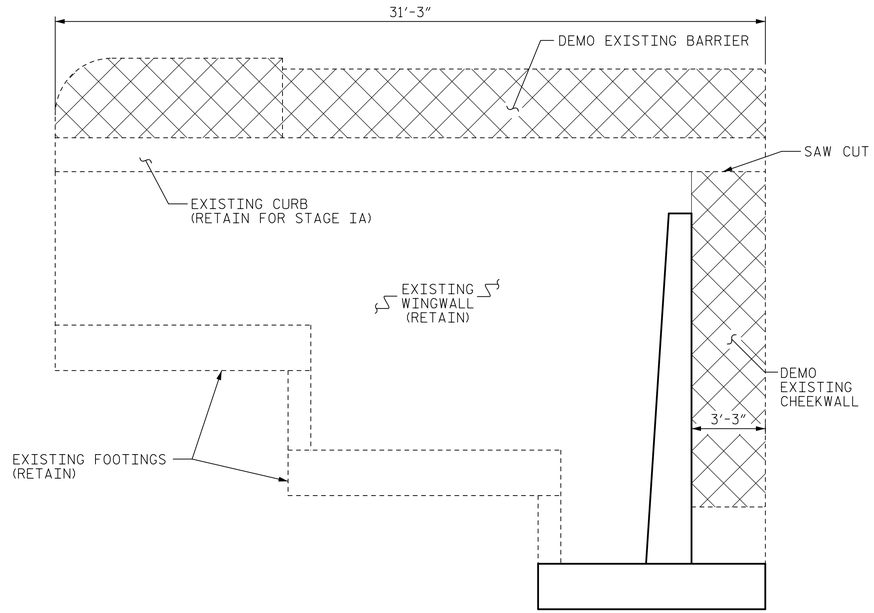
EXISTING CURB AND BARRIER NOT SHOWN FOR CLARITY



ELEVATION

DEMO SYMBOLOGY

AREA TO BE REMOVED



EXISTING WINGWALL ELEVATION

SHOWN FOR LEFT-SIDE INTERIOR WINGWALL, SIMILAR FOR RIGHT-SIDE INTERIOR WINGWALL

STAGE IA CONSTRUCTION SEQUENCE

1. DEMO EXISTING BARRIER ON WINGWALL (RETAIN CURB) AND CHEEKWALL.
2. INSTALL SHORING AS NECESSARY AND EXCAVATE.
3. DRIVE PILES, CONSTRUCT FOOTING AND BACKWALL.
4. CONSTRUCT APPROACH FILL.

NOTES:

DATA ON EXISTING END BENTS SHOWN BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND MEASUREMENTS PRIOR TO BEGINNING CONSTRUCTION AND REPORT ALL VARIATIONS TO THE ENGINEER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT DUE TO VARIATION BETWEEN THE PLANS AND EXISTING STRUCTURE.

ALL CUT SURFACES WITH EXPOSED REINFORCING SHALL BE GROUND SMOOTH.

APPLY A TYPE 4A EPOXY COAT TO ALL AREAS EXPOSED BY SAW CUT IN ACCORDANCE WITH SECTION 1081 OF THE STANDARD SPECIFICATIONS.

EXTENTS OF THE SAW CUTS SHALL NOT EXCEED THE STAGE IA LIMITS SHOWN.

SEE "DEMOLITION & CONSTRUCTION SEQUENCE" PLANS FOR STAGING INFORMATION.

FOR REINFORCING, SEE SHEET 2.

DEMOLITION LIMITS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT DETAILED DEMOLITION SEQUENCES AND SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PARTIALLY DEMOLISHED END BENT THROUGHOUT THE DURATION OF CONSTRUCTION.

✳ TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF PROPOSED FLOORBEAM AT END BENT.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 1 OF 5

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701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN
3/28/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

STAGE IA

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-112
1			3			TOTAL SHEETS
2			4			129

DRAWN BY : H. ROSEMOND DATE : 1/2019
CHECKED BY : G. COLS DATE : 1/2019
DESIGNED BY : K. MUENCH DATE : 1/2019
DESIGN CHECKED BY : J. SLOAN DATE : 1/2019

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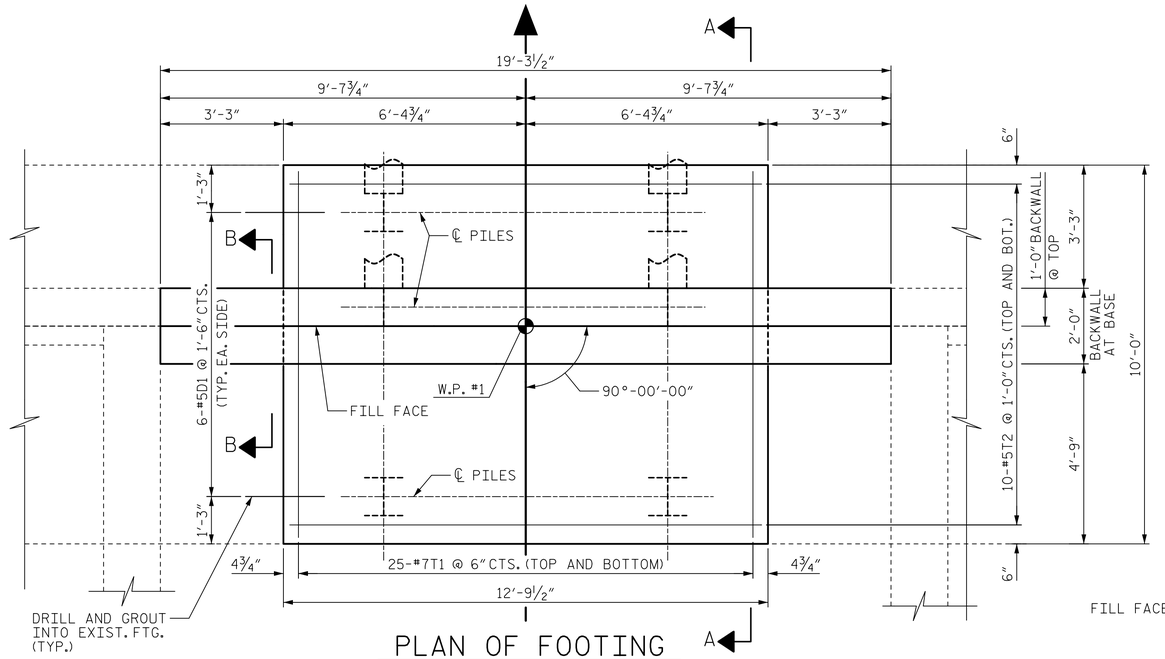
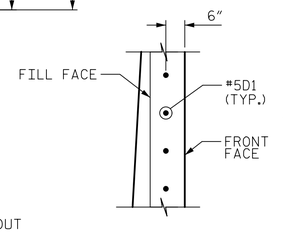
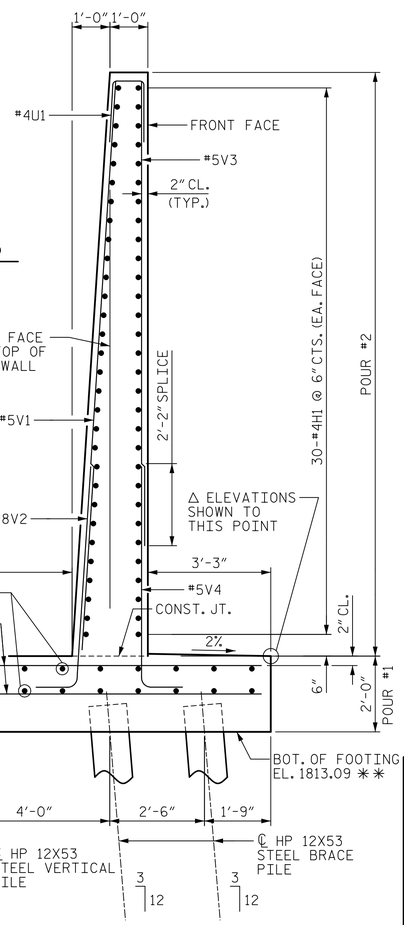


PLAN OF FOOTING

FOR PILE LOCATIONS, SEE SHEET 1.
BACKWALL REINFORCING NOT SHOWN.



SECTION B-B



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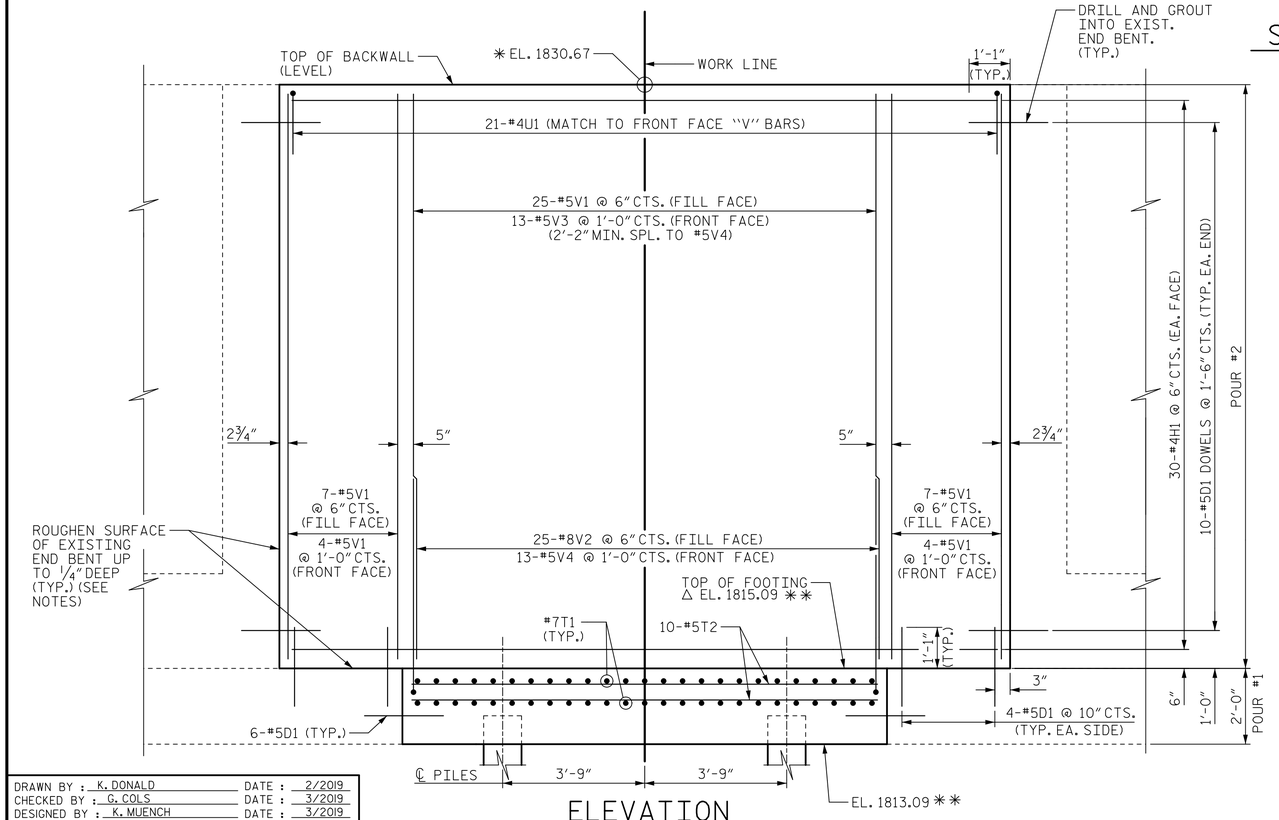


ELEVATION

NOTES

EXISTING WINGWALL AND TOP OF EXISTING FOOTING AT SIDES TO BE CONNECTED TO NEW SECTION SHALL BE CLEANED AND SCARIFIED TO ¼″DEEP.

REINFORCEMENT MAY BE SLIGHTLY SHIFTED AS NECESSARY TO AVOID DOWELS.

#5V1 AND #5V3 BARS IN BACKWALL SHALL BE PLACED 2″CLEAR FROM THE TOP OF THE BACKWALL.

THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATION.

DOWELS SHALL BE DRILLED AND GROUTED WITH A TYPE 3A EPOXY IN ACCORDANCE WITH SECTION 1081 OF THE STANDARD SPECIFICATIONS.

EXPOSED SURFACES OF END BENT SHALL BE PROTECTED WITH SILANE. SILANE SHALL NOT BE APPLIED UNTIL STAGES II AND III ARE COMPLETE. SEE SPECIAL PROVISIONS.

INSTALL THE 2″Ø PIPE DRAIN THROUGH THE BACKWALL AS REQUIRED ON THE TYPICAL SECTION DETAILS SHEET. REINFORCING MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN.

✳ TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF PROPOSED FLOORBEAM AT END BENT.

✳✳ ELEVATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION. TOP AND BOTTOM OF PROPOSED FOOTING SHALL MATCH ELEVATIONS OF ADJACENT EXISTING FOOTINGS. ANY DEVIATIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTING THE FOOTING.

FOR SILANE TREATMENT, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

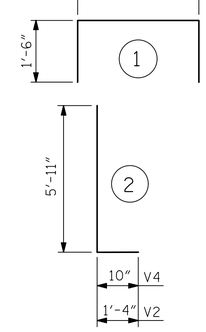
END BENT 1

BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
D1	40	5	STR	1′-9″	73
H1	60	4	STR	18′-11″	758
T1	50	7	STR	9′-8″	988
T2	20	5	STR	12′-5″	259
U1	21	4	1	3′-8″	51
V1	47	5	STR	15′-0″	735
V2	25	8	2	7′-3″	484
V3	13	5	STR	12′-5″	168
V4	13	5	2	6′-9″	92

TOTAL REINFORCING STEEL	3608 LBS.
TOTAL CLASS A CONCRETE	26.0 CY
POUR 1 (FOOTING)	9.5 CY
POUR 2 (WALL)	16.5 CY

HP 12 X 53 STEEL PILES	
No. 6	LIN. FT. = 150
STEEL PILE POINTS	6 EA.
PILE EXCAVATION	
IN SOIL	48 LF
NOT IN SOIL	12 LF
PILE DRIVING EQUIP. SETUP	6 EA.
SILANE TREATMENT	1900 SF.
SURFACE PREPARATION FOR SILANE	1900 SF.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

DRAWN BY : K. DONALD	DATE : 2/2019
CHECKED BY : G. COLS	DATE : 3/2019
DESIGNED BY : K. MUENCH	DATE : 3/2019
DESIGN CHECKED BY : J. SLOAN	DATE : 3/2019

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701 CORPORATE CENTER DRIVE, SUITE 475
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2/28/2020

PROJECT NO. 15BPR.20
HENDERSON COUNTY
STATION: 35+30.22 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1
STAGE IA

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-113
1			3			TOTAL SHEETS
2			4			129

USER: Henry.Rosemond
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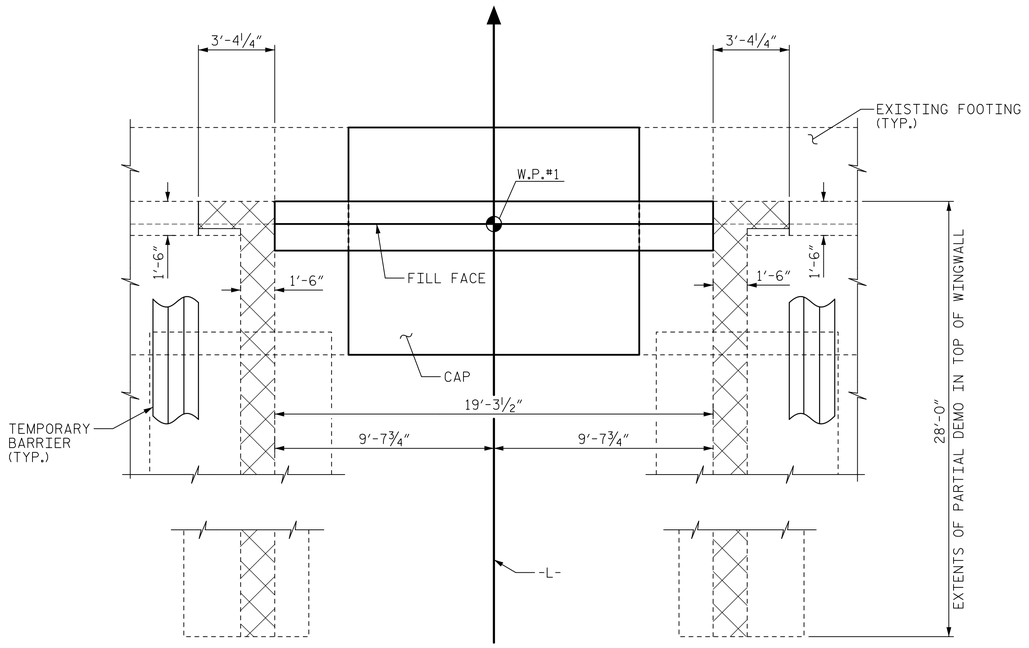
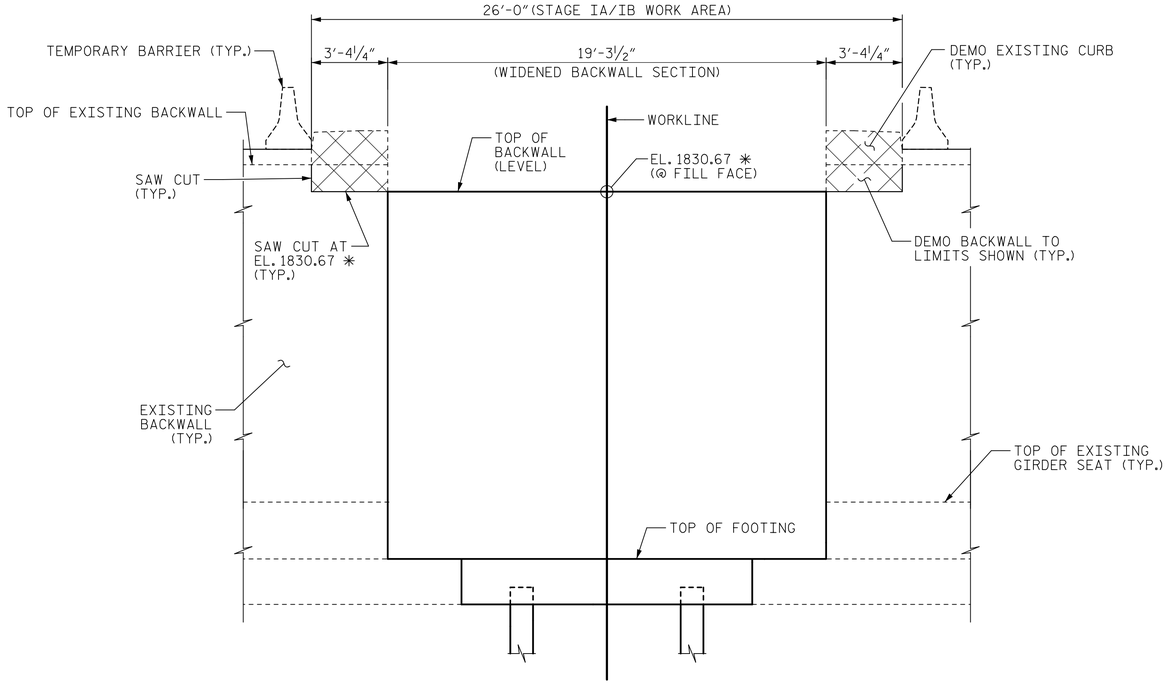


PLAN

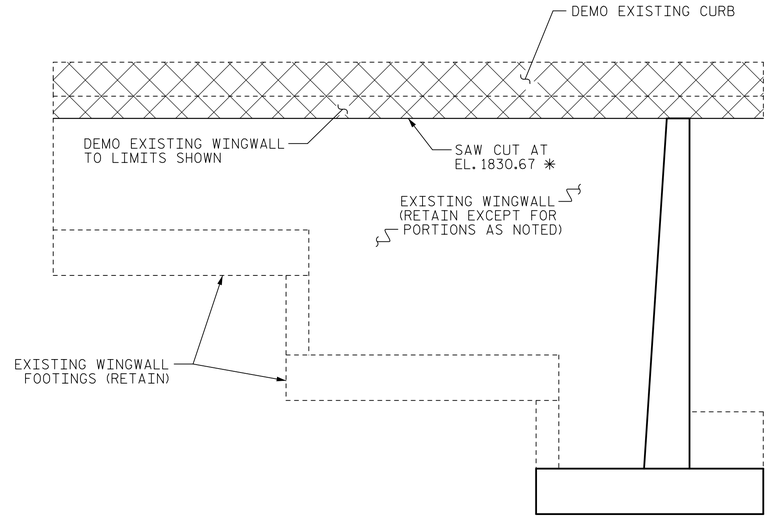
EXISTING CURB AND RAIL NOT SHOWN FOR CLARITY



ELEVATION

DEMO SYMBOLOGY

AREA TO BE REMOVED



EXISTING WINGWALL ELEVATION

SHOWN FOR LEFT-SIDE INTERIOR WINGWALL, SIMILAR FOR RIGHT-SIDE INTERIOR WINGWALL

STAGE IB CONSTRUCTION SEQUENCE

1. DEMO EXISTING CURB.
2. PARTIALLY DEMO EXISTING WINGWALL AND BACKWALL TO LIMITS SHOWN.

NOTES:

DATA ON EXISTING END BENTS SHOWN BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND MEASUREMENTS PRIOR TO BEGINNING CONSTRUCTION AND REPORT ALL VARIATIONS TO THE ENGINEER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT DUE TO VARIATION BETWEEN THE PLANS AND EXISTING STRUCTURE.

ALL CUT SURFACES WITH EXPOSED REINFORCING SHALL BE GROUND SMOOTH.

APPLY A TYPE 4A EPOXY COAT TO ALL AREAS EXPOSED BY SAW CUT IN ACCORDANCE WITH SECTION 1081 OF THE STANDARD SPECIFICATIONS.

EXTENTS OF THE SAW CUTS SHALL NOT EXCEED THE STAGE IB LIMITS SHOWN. SEE SPECIAL PROVISIONS.

SEE ''DEMOLITION & CONSTRUCTION SEQUENCE'' PLANS FOR STAGING INFORMATION.

DEMOLITION LIMITS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT DETAILED DEMOLITION SEQUENCES AND SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PARTIALLY DEMOLISHED END BENT THROUGHOUT THE DURATION OF CONSTRUCTION.

✳ TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF PROPOSED FLOORBEAM AT END BENT.

DRAWN BY : H. ROSEMOND DATE : 1/2019
CHECKED BY : G. COLS DATE : 1/2019
DESIGNED BY : K. MUENCH DATE : 1/2019
DESIGN CHECKED BY : J. SLOAN DATE : 1/2019

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PROJECT NO. 15BPR.20
HENDERSON COUNTY
STATION: 35+30.22 -L-

SHEET 3 OF 5

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701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

STAGE IB

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-114
1			3			TOTAL SHEETS
2			4			129

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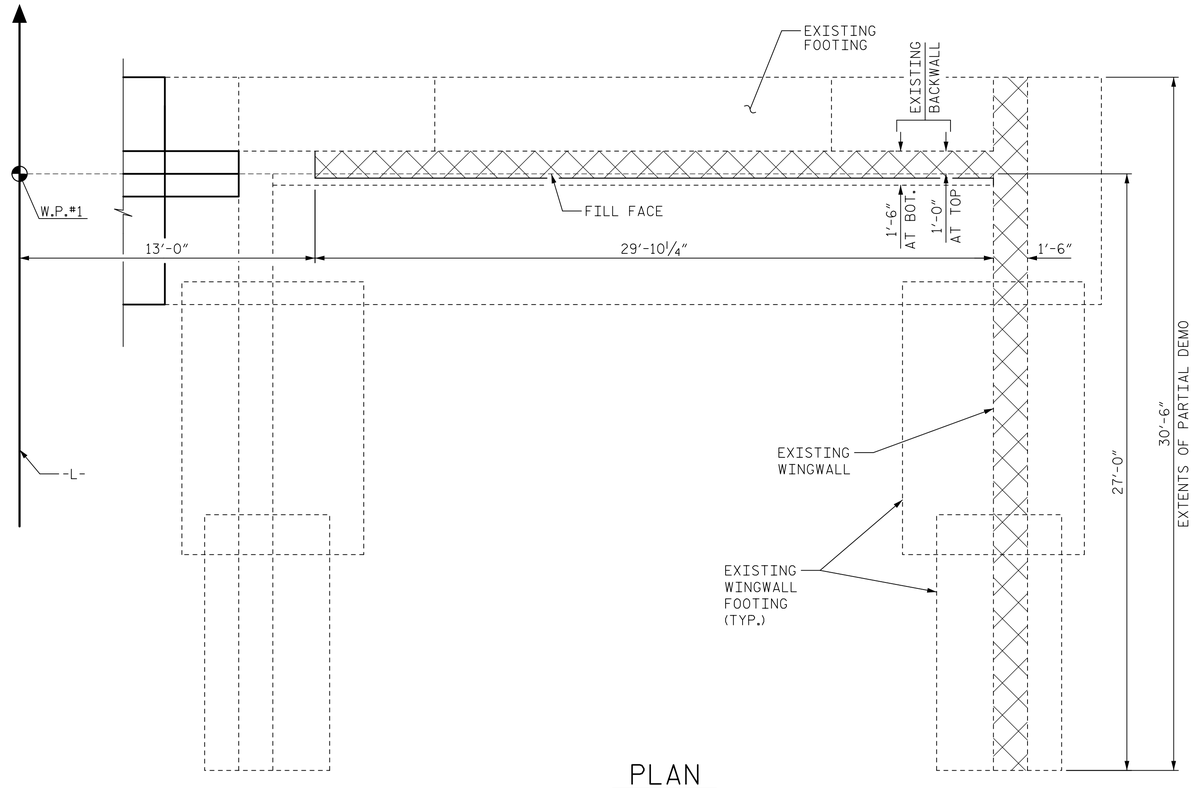
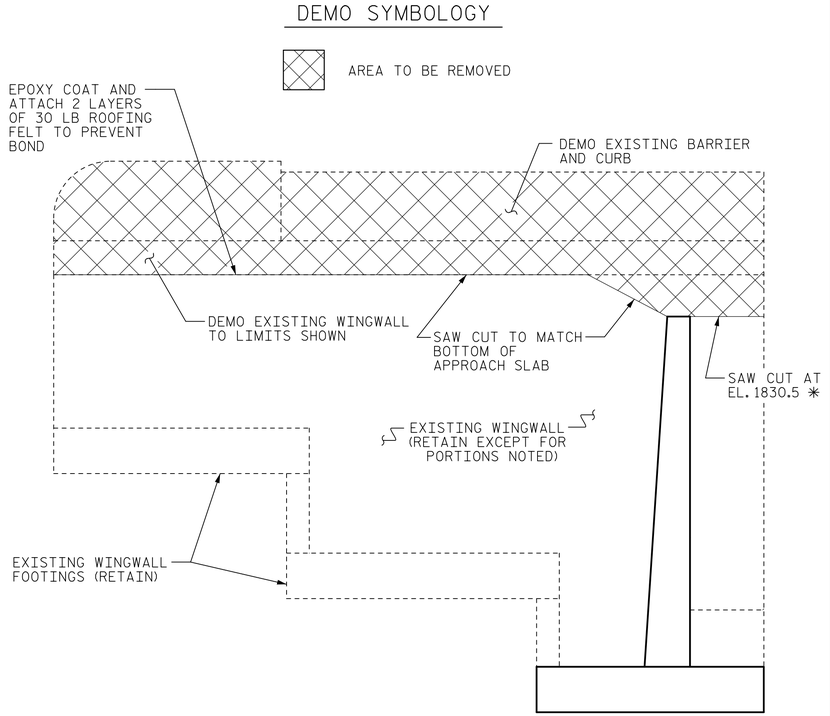
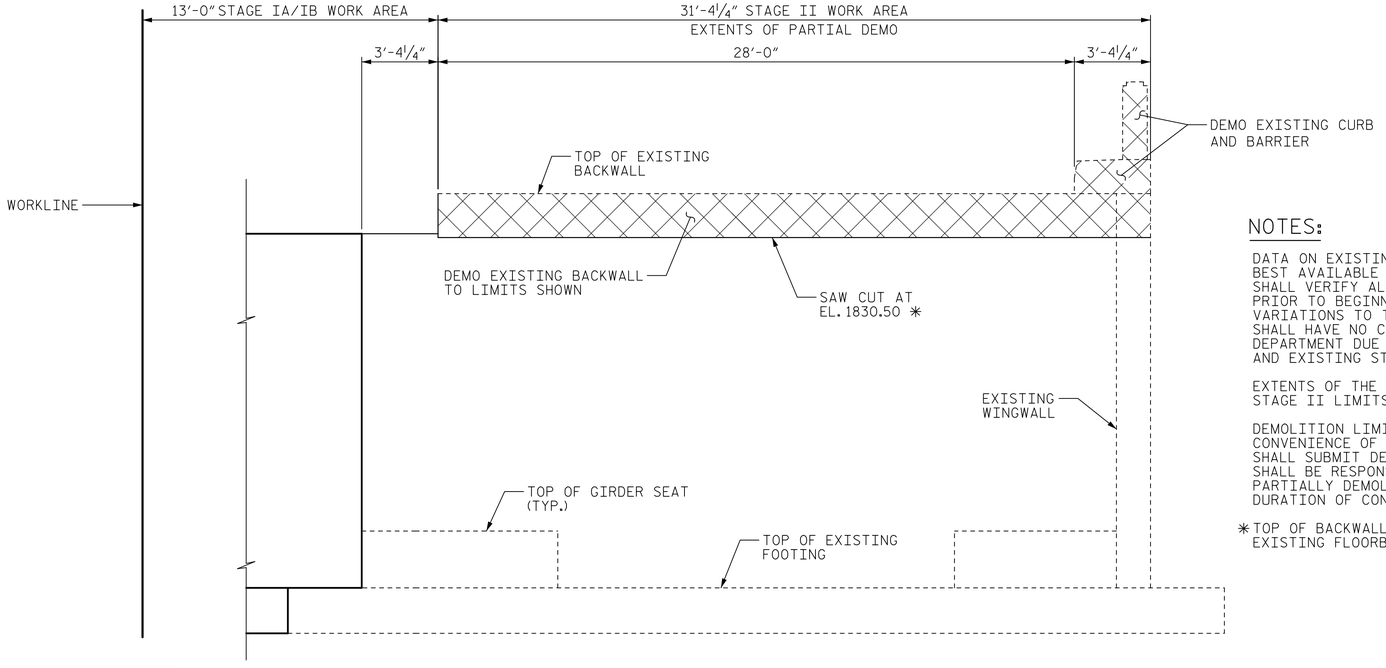


PLAN



EXISTING WINGWALL ELEVATION



ELEVATION

STAGE II CONSTRUCTION SEQUENCE

1. DEMO EXISTING BARRIER AND CURB ON WINGWALL.
2. SAW CUT AND DEMO EXISTING BACKWALL TO ELEVATIONS AND LIMITS SHOWN.
3. SAW CUT AND DEMO EXISTING WINGWALL TO ELEVATIONS AND LIMITS SHOWN.

NOTES:

DATA ON EXISTING END BENTS SHOWN BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND MEASUREMENTS PRIOR TO BEGINNING CONSTRUCTION AND REPORT ALL VARIATIONS TO THE ENGINEER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT DUE TO VARIATION BETWEEN THE PLANS AND EXISTING STRUCTURE.

EXTENTS OF THE SAW CUTS SHALL NOT EXCEED THE STAGE II LIMITS SHOWN.

DEMOLITION LIMITS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT DETAILED DEMOLITION SEQUENCES AND SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PARTIALLY DEMOLISHED END BENT THROUGHOUT THE DURATION OF CONSTRUCTION.

* TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF EXISTING FLOORBEAM AT END BENT.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 4 OF 5

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701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
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RALEIGH

SUBSTRUCTURE

END BENT 1

STAGE II

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-115
1			3			TOTAL SHEETS
2			4			129

DRAWN BY :	H. ROSEMOND	DATE : 1/2019
CHECKED BY :	G. COLS	DATE : 1/2019
DESIGNED BY :	K. MUENCH	DATE : 1/2019
DESIGN CHECKED BY :	J. SLOAN	DATE : 1/2019

USER: Henry.Rosemond
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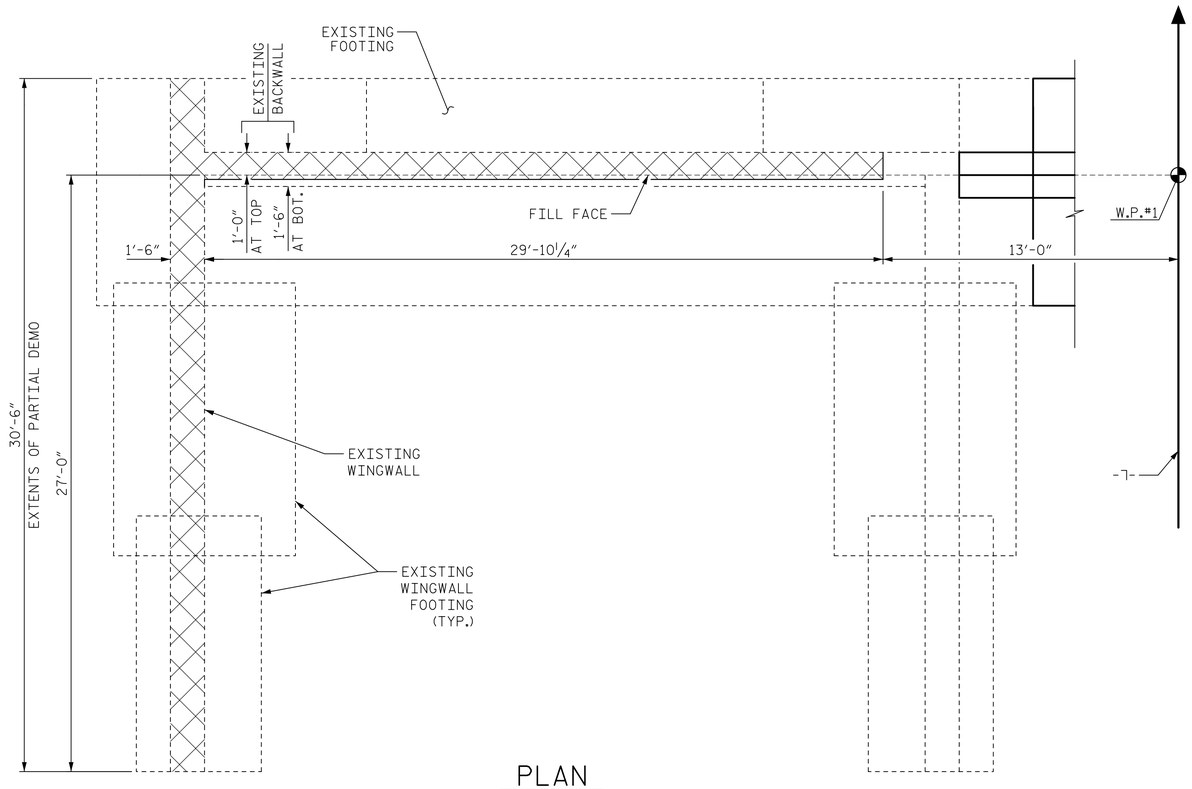
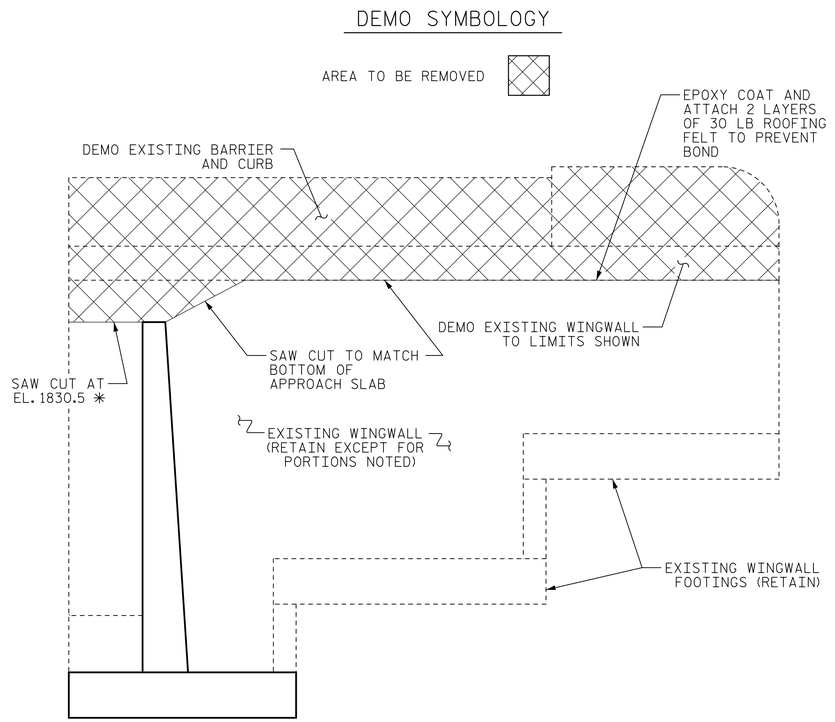
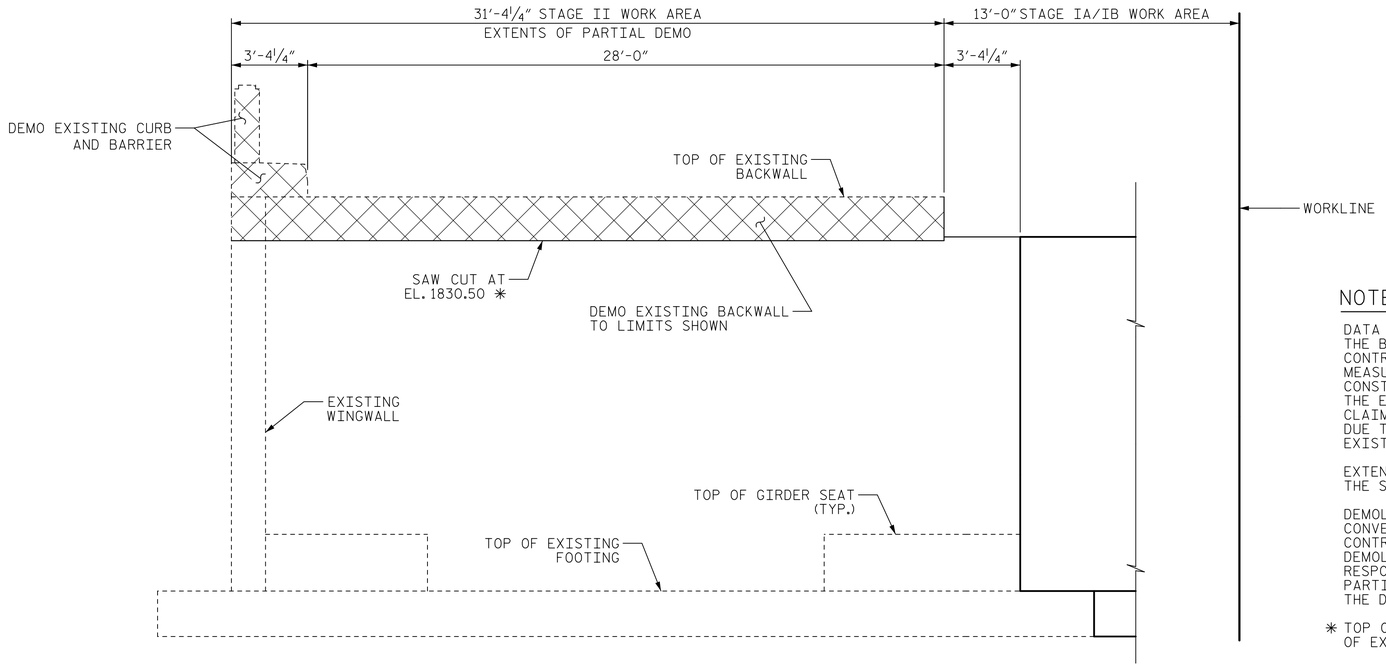


PLAN



EXISTING WINGWALL ELEVATION



ELEVATION

STAGE III CONSTRUCTION SEQUENCE

1. DEMO EXISTING BARRIER AND CURB ON WINGWALL.
2. SAW CUT AND DEMO EXISTING BACKWALL TO ELEVATIONS AND LIMITS SHOWN.
3. SAW CUT AND DEMO EXISTING WINGWALL TO ELEVATIONS AND LIMITS SHOWN.

NOTES:

DATA ON EXISTING END BENTS SHOWN BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND MEASUREMENTS PRIOR TO BEGINNING CONSTRUCTION AND REPORT ALL VARIATIONS TO THE ENGINEER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT DUE TO VARIATION BETWEEN THE PLANS AND EXISTING STRUCTURE.

EXTENTS OF THE SAW CUTS SHALL NOT EXCEED THE STAGE III LIMITS SHOWN.

DEMOLITION LIMITS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT DETAILED DEMOLITION SEQUENCES AND SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PARTIALLY DEMOLISHED END BENT THROUGHOUT THE DURATION OF CONSTRUCTION.

* TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF EXISTING FLOORBEAM AT END BENT.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 5 OF 5

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AECOM TECHNICAL SERVICES OF NC, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
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1/28/2020

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DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

STAGE III

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-116
1			3			TOTAL SHEETS
2			4			129

DRAWN BY :	H. ROSEMOND	DATE :	1/2019
CHECKED BY :	G. COLS	DATE :	1/2019
DESIGNED BY :	K. MUENCH	DATE :	1/2019
DESIGN CHECKED BY :	J. SLOAN	DATE :	1/2019

DATE: 2/27/2020
TIME: 4:05:4 PM

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DATE: 3/2/2021
TIME: 1:59:50 PM

POST-TENSIONING SYSTEM CONSTRUCTION SEQUENCE

1. THIS SEQUENCE APPLIES TO BENTS 1 THRU 4.
2. USE A SAW TO CUT OUT THE STAY-IN-PLACE STEEL FORMWORK AT EACH END OF THE CAP AT THE LOCATION OF THE ANCHORAGE. MAINTAIN A BLADE DEPTH THAT DOES NOT CUT INTO THE EXISTING CONCRETE SUBSTRATE. PHOTOGRAPH THE CONCRETE SUBSTRATE AND DOCUMENT ITS CONDITION. SUBMIT THE PHOTOGRAPHS AND CONDITION REPORT TO THE ENGINEER. COMPLETE THE REMOVAL OF THE COLUMN STAY-IN-PLACE FORM AND EVALUATION OF THE BENT COLUMN CONCRETE IN PARALLEL WITH THIS STEP.
3. USING GROUND PENETRATING RADAR (GPR), DETERMINE THE LOCATION OF THE EXISTING REINFORCEMENT IN THE BENT IN THE VICINITY OF THE ANCHORAGE.
4. USING THE RESULTS OF THE GPR, DETERMINE THE PRECISE LOCATION OF ANCHORAGES THAT WILL BE DRILLED INTO THE EXISTING STRUCTURE. CONTRACTOR MAY PROPOSE TO ADJUST THE HORIZONTAL AND VERTICAL ANCHORAGE SPACING TO MISS EXISTING REINFORCEMENT.
5. SUBMIT SHOP DRAWINGS AND ERECTION METHODOLOGY FOR REVIEW BY THE ENGINEER. ALL CONTRACTOR PROPOSED CHANGES TO THE ANCHORAGE SHALL BE SUBMITTED WITH THE SHOP DRAWINGS FOR REVIEW.
6. FOLLOWING REVIEW AND ACCEPTANCE OF THE SHOP DRAWINGS, DRILL HOLES INTO THE BENT USING A SEPARATE METAL TEMPLATE FOR EACH LOCATION. CONTRACTOR SHALL USE A DRILL BIT CAPABLE OF PENETRATING CONCRETE THAT IS NOT CAPABLE OF PENETRATING REINFORCING STEEL. CONTRACTOR SHALL CLEARLY MARK THE LOCATION AND ORIENTATION OF EACH TEMPLATE TO ENSURE THE HOLES WILL BE PROPERLY DRILLED FOR EACH ANCHORAGE. IF REINFORCEMENT IS ENCOUNTERED, STOP WORK AND REPORT TO THE ENGINEER.
7. INSTALL ALL ADHESIVE ANCHORS FOR THE ANCHORAGE.
8. USING A HYDRAULIC TEST JACK, PROOF LOAD EACH ADHESIVE ANCHOR TO 10 KIPS OF TENSION.
9. FOLLOWING THE COMPLETION OF DRILLING, INSTALLATION, AND PROOF LOADING OF ALL ADHESIVE ANCHORS, FABRICATE THE SOLE PLATES, CORBELS, JACK BEARINGS, AND POST-TENSIONING BARS. ANCHORAGE HOLES IN SOLE PLATES AND CORBELS SHALL BE SHOP DRILLED USING THE TEMPLATE THAT WAS USED TO DRILL THE HOLES IN THE BENT CAP.
10. INTENTIONALLY ROUGHEN THE CONCRETE SUBSTRATE OF THE BENT CAP AT THE LOCATION OF THE GROUT PAD TO AN AMPLITUDE OF 1/4".
11. PLACE A 1/4" THICK EXPANDED POLYSTYRENE SLEEVE AROUND THE ADHESIVE ANCHORS AT THE LOCATION OF THE GROUT PAD TO PREVENT BOND WITH GROUT DURING INSTALLATION.
12. PLACE THE ANCHORAGE AGAINST THE BENT CAP IN A LEVEL POSITION, SQUARE TO THE CAP. SET THE ANCHORAGE AT THE SPECIFIED DISTANCE AWAY FROM THE BENT TO ENSURE THE CORRECT GROUT PAD THICKNESS USING ADJUSTABLE SHIMS OR LUGS ON THE FACE OF THE ANCHORAGE. PLACEMENT AND SPACING METHODOLOGY SHALL BE SHOWN IN SHOP AND ERECTION DRAWINGS. LOCATE LUGS OR SHIMS TO PREVENT OVERSTRESS IN THE ANCHORAGE AND BENT CAP CONCRETE DURING THE STRESSING OF ADHESIVE ANCHORS PRIOR TO THE PLACEMENT OF THE GROUT PAD.
13. USING A HYDRAULIC JACK, PRETENSION AND LOCK OFF EACH ADHESIVE ANCHOR AT A TENSION OF 1 KIP. CONTRACTOR MAY PROPOSE STRESSING A SPECIFIC NUMBER OF ADHESIVE ANCHORS RATHER THAN ALL OF THE ANCHORS. STRESSING OF ADHESIVE ANCHORS SHALL BE SUFFICIENT TO FIX THE ANCHORAGE IN PLACE DURING INSTALLATION OF THE GROUT PAD BETWEEN THE ANCHORAGE AND THE BENT CAP, WITHOUT THE AID OF ANY EXTERNAL SUPPORTS.
14. INSTALL THE GROUT PAD BETWEEN THE ANCHORAGE AND THE BENT. PUMP THE GROUT FROM THE BOTTOM OF THE ANCHORAGE, AND ENSURE ADEQUATE PLACEMENT AND CONSOLIDATION OF THE GROUT USING WEEP HOLES AT THE TOP OF THE ANCHORAGE. CLOSE THE WEEP HOLES AFTER THE GROUT IS ALLOWED TO FLOW THROUGH THE HOLE.
15. ENSURE ADEQUATE CURE TIME FOR THE GROUT PAD TO REACH SPECIFIED STRENGTH BASED ON THE GROUT MANUFACTURER'S PUBLISHED CURE TIMES.
16. INSTALL THE 4-1 3/4" Ø POST-TENSIONING BARS, INCLUDING NUTS AND ANCHOR PLATES. TIGHTEN ALL NUTS TO HAND TIGHT CONDITION.
17. STRESS THE POST-TENSIONING BARS IN THE ORDER SHOWN IN THE "POST-TENSIONING STRESSING ORDER" DETAIL.
    a. INITIALLY STRESS ALL BARS TO A TENSION OF 5 KIPS.
    b. STRESSING THEN SHALL PROCEED IN INCREMENTS OF 25 KIPS UP TO THE FINAL TENSION IN THE BARS, 235 KIPS PER BAR AFTER LOCK OFF.
    c. NO BAR SHALL HAVE A LOAD THAT IS 25 KIPS GREATER OR LESS THAN THE LOADING IN ANY OTHER POST-TENSIONING BARS.
    d. CONTRACTOR SHALL OBSERVE THE BENTS AND THE ANCHORAGES CONTINUOUSLY DURING STRESSING OPERATIONS. IF ANY DISTRESS IN THE BENT OR ANCHORAGE IS OBSERVED DURING STRESSING OPERATIONS, CONTRACTOR SHALL CEASE STRESSING OPERATIONS AND REPORT TO THE ENGINEER.
18. USING A HYDRAULIC JACK, PRETENSION AND LOCK OFF EACH ADHESIVE ANCHOR AT A SERVICE TENSION OF 1 KIP.
19. INSTALL SILICONE SEALANT AROUND THE EDGES OF THE ANCHORAGE THAT FACE THE BENT CAP.
20. INSTALL COVER ON TOP OF THE ANCHORAGE TO PREVENT WATER INTRUSION.

BENT COLUMN CONCRETE EVALUATION SEQUENCE

IN PARALLEL WITH THE INSTALLATION OF THE POST-TENSIONING SYSTEM AT THE BENT CAPS, THE CONTRACTOR AND THE ENGINEER SHALL EVALUATE THE CONCRETE IN THE COLUMNS. THE CONTRACTOR SHALL DRILL TWO 2" DIAMETER HOLES THRU THE STAY-IN-PLACE FORMWORK IN EACH COLUMN. ONE HOLE SHALL BE LOCATED AT A DISTANCE OF APPROXIMATELY 5'-0" BELOW THE SOFFIT OF THE CAP AND THE SECOND HOLE SHALL BE LOCATED APPROXIMATELY 5'-0" ABOVE THE GROUND SURFACE. USE THE FOLLOWING SEQUENCE TO DRILL THE HOLES AND PERFORM THE INSPECTION:

1. THE ENGINEER SHALL SOUND THE FORMS AND CHOOSE THE LOCATION OF THE HOLE. THE HOLE LOCATIONS SHALL BE CHOSEN AT A POINT WHERE THE FORMWORK SOUNDS TO BE DELAMINATED FROM THE CONCRETE SUBSTRATE.
2. THE CONTRACTOR SHALL DRILL THE HOLE THRU THE STAY-IN-PLACE FORM WITHOUT DAMAGING THE CONCRETE SUBSTRATE.
3. THE ENGINEER SHALL INSPECT THE CONCRETE SUBSTRATE ONCE THE HOLE HAS BEEN DRILLED. THE CONTRACTOR SHALL PHOTOGRAPH THE HOLE AND CONCRETE SUBSTRATE AND DOCUMENT THE CONDITION OF THE CONCRETE.
4. THE CONTRACTOR SHALL SUBMIT THE PHOTOGRAPHS AND CONDITION REPORT TO THE ENGINEER FOLLOWING THE EVALUATION.
5. UPON ACCEPTANCE OF THE SUBSTRATE BY THE ENGINEER, THE CONTRACTOR SHALL SEAL WELD A 3"DIAMETER X 1/2" THICK STEEL PLATE AROUND THE 2"DIAMETER HOLE.
6. COMPLETE THIS SEQUENCE IN PARALLEL WITH THE REMOVAL OF THE CAP STAY-IN-PLACE FORMWORK. NO SEPARATE PAYMENT SHALL BE MADE FOR THIS SEQUENCE, BUT PAYMENT SHALL BE INCLUDED IN THE POST-TENSIONING ANCHORAGE PAY ITEM.

POST-TENSIONING GENERAL NOTES

FOR FURTHER DETAILS, SEE POST-TENSIONING SYSTEM SPECIAL PROVISIONS.

PT = POST-TENSIONING

EDGES OF STEEL PLATES IN THE PT ANCHORAGE THAT BEAR AGAINST THE SURFACES OF OTHER PLATES SHALL BE TIGHT FIT WITH AN ANSI ROUGHNESS HEIGHT VALUE NOT GREATER THAN 500.

USE ASTM A193 316 B8M CLASS II ADHESIVE ANCHORS.

PLACE A CUSTOM COVERING OVER THE PT ANCHORAGE TO PREVENT WATER FROM COLLECTING ON THE ANCHORAGE.

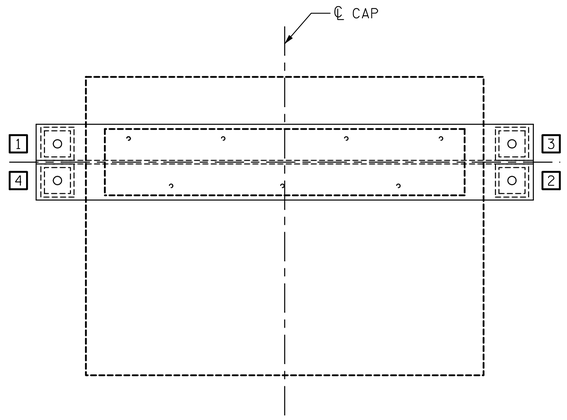
POST-TENSIONING BARS SHALL BE STAINLESS STEEL, ASTM A564, ALLOY S17400, TYPE 630 CONDITION H1025. ALL OTHER MECHANICAL PROPERTIES FOR THE BARS SHALL BE IN ACCORDANCE WITH ASTM A722, TYPE II. FOR FURTHER DETAILS, SEE SPECIAL PROVISIONS.

ALL PHOTOGRAPHS OF THE CONCRETE SUBSTRATE SHALL BE SUBMITTED IN JPEG FORMAT.

WHERE STAINLESS STEEL PLATES CONTACT WEATHERING STEEL PLATES, SHOP COAT BOTH SURFACES WITH NCDOT PAINT SYSTEM 4.

BILL OF MATERIAL

PAY ITEMS	PAY UNIT	STEEL WEIGHT
PT BARS	LUMP SUM	11,654 LBS.
PT BAR ANCHORAGE STRUCTURAL STEEL	LUMP SUM	58,479 LBS.



POST-TENSION STRESSING ORDER

PROJECT NO. 15BPR.20
HENDERSON COUNTY
STATION: 35+30.22 -L-

SHEET 1 OF 7

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN
3/2/2021

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1-4 POST-TENSIONING SYSTEM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-117
1			3			TOTAL SHEETS
2			4			129

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DESIGNED BY :	J.E. SLOAN	DATE :	2/2019
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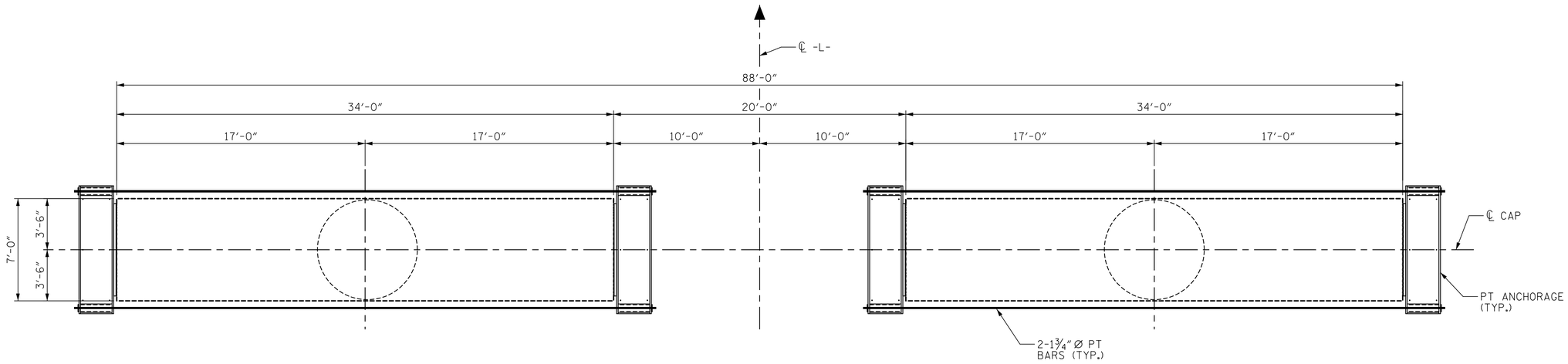
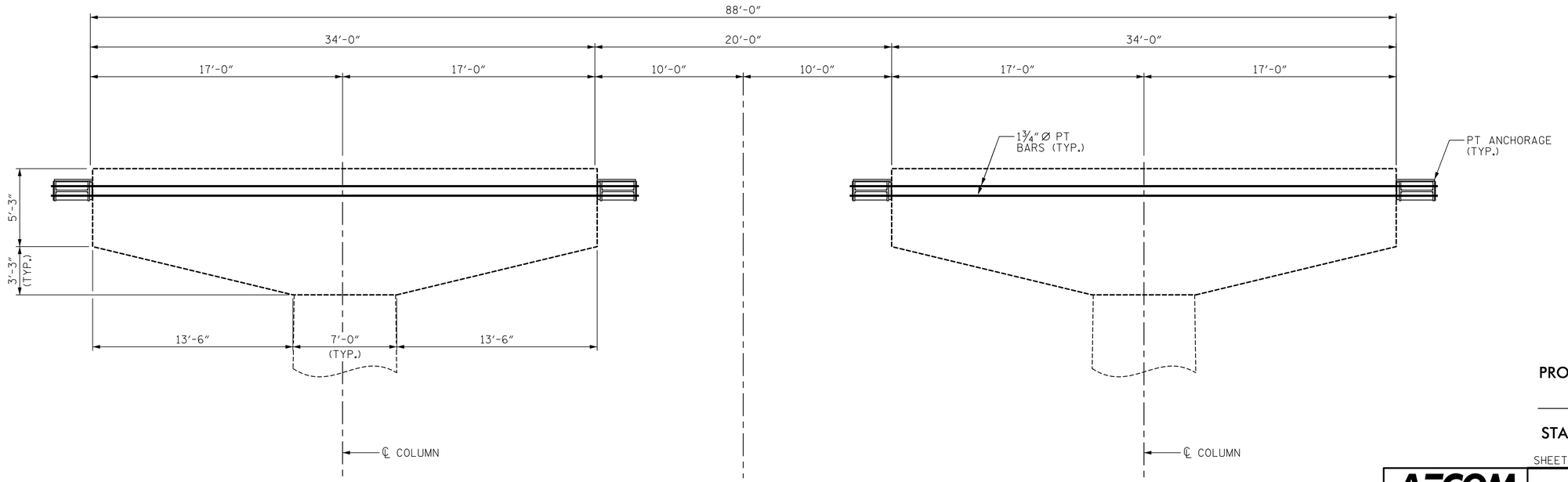


PLAN



ELEVATION

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 2 OF 7

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN 2/28/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 & 4
POST-TENSIONING
SYSTEM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-118
1			3			TOTAL SHEETS
2			4			129

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DESIGN CHECKED BY : D. TUTTLE DATE : 2/2019

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NOTES:

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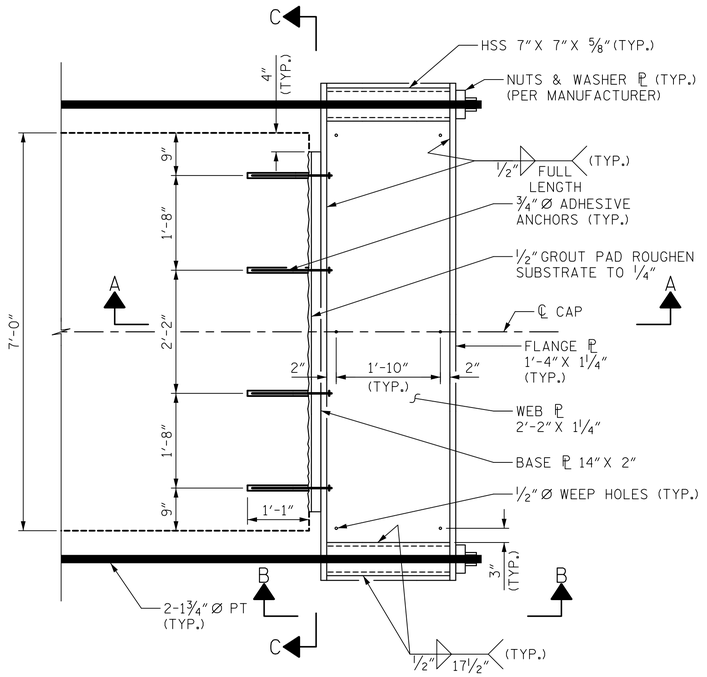

PLAN

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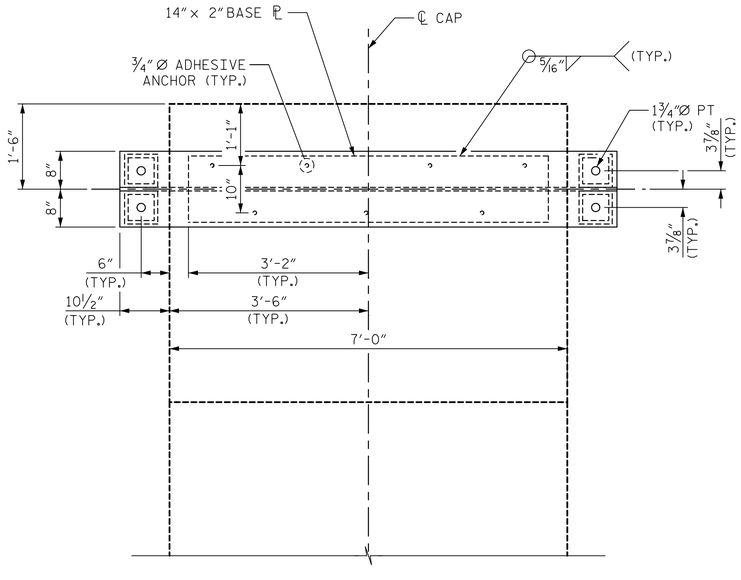
(BOTTOM ROW OF ADHESIVE ANCHORS NOT SHOWN)



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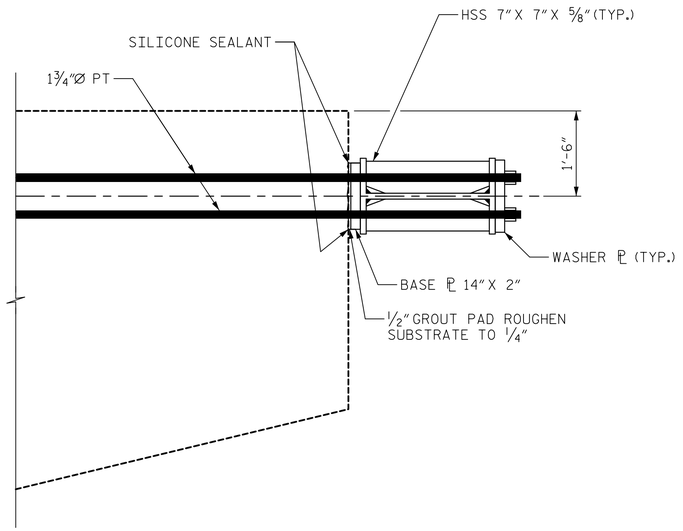

ELEVATION

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 3 OF 7

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SUBSTRUCTURE

BENTS 1 & 4 POST-TENSIONING ANCHORAGE

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			129

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DESIGN CHECKED BY : D. TUTTLE DATE : 2/2019

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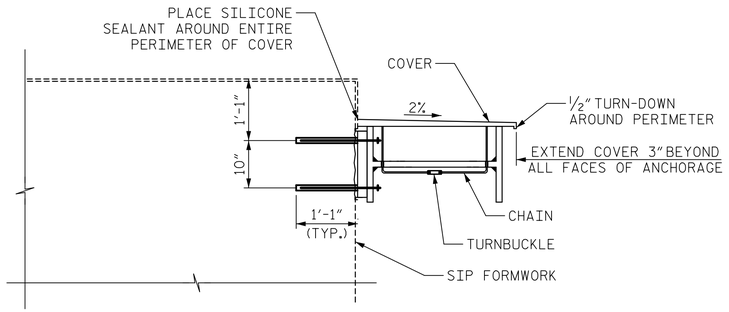
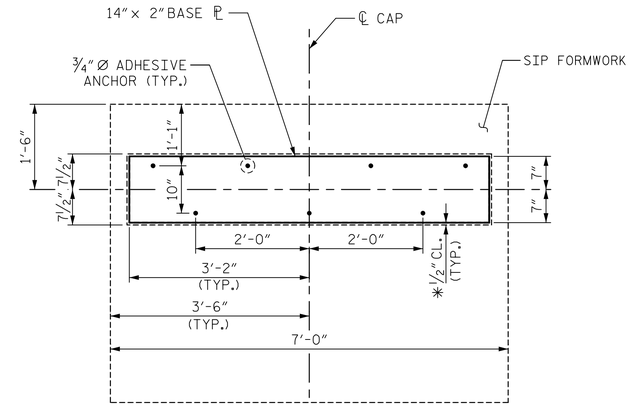


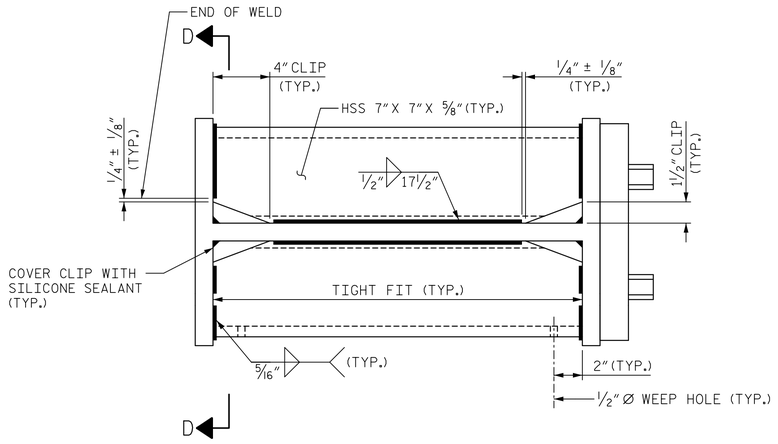
VIEW A-A

NOTE: TIE DOWN COVER WITH CHAINS AND TURNBUCKLE AT EACH SET OF WEEP HOLES



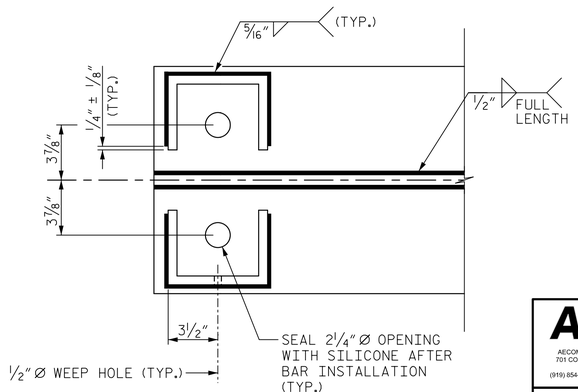
VIEW C-C

* FROM BASE ℄ TO FORMWORK OPENING



VIEW B-B

(POST-TENSIONED BAR NOT SHOWN FOR CLARITY)



VIEW D-D

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 4 OF 7

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN 12/28/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 & 4 POST-TENSIONING ANCHORAGE DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-120
1			3			TOTAL SHEETS
2			4			129

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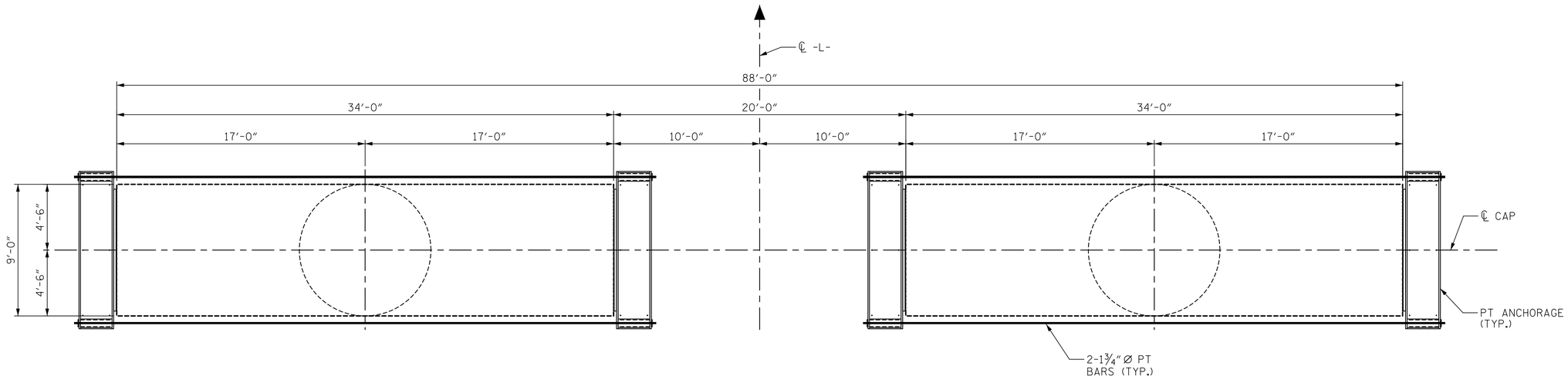
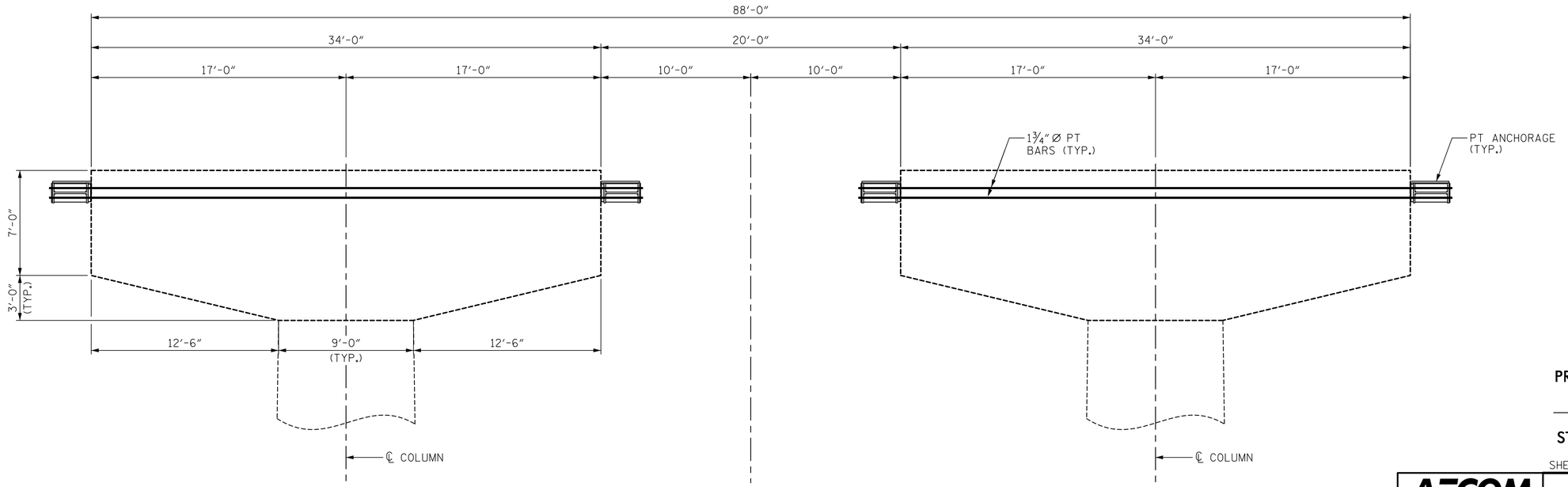


PLAN



ELEVATION

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 5 OF 7

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SUBSTRUCTURE

BENTS 2 & 3 POST-TENSIONING SYSTEM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-121
1			3			TOTAL SHEETS
2			4			129

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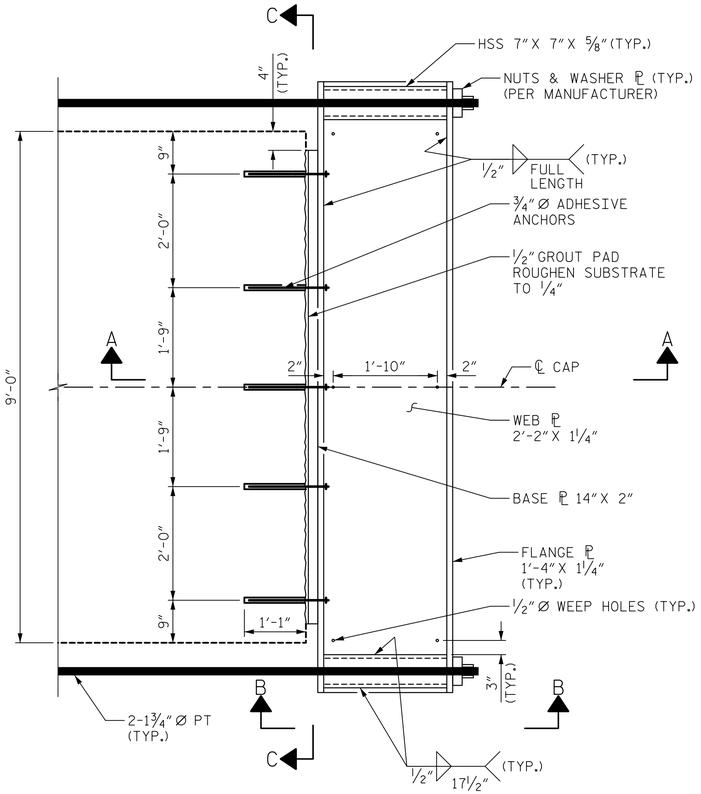

PLAN

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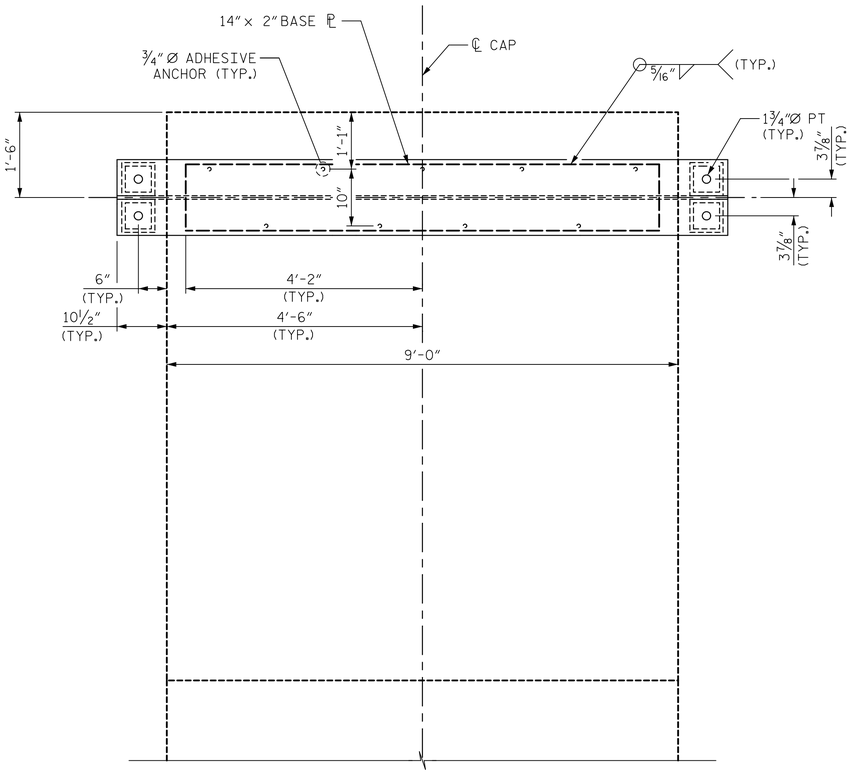
(BOTTOM ROW OF ADHESIVE ANCHORS NOT SHOWN)



END ELEVATION

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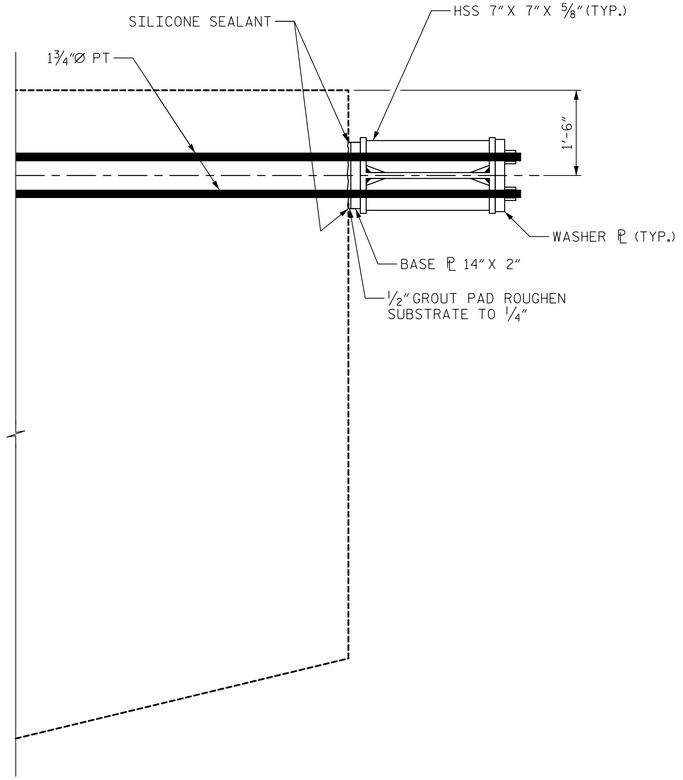
NOTES:

FOR SECTIONS A-A, B-B, AND C-C, SEE SHEET 7 OF 7.



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Date: 2/28/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 2 & 3 POST-TENSIONING ANCHORAGE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-122
1			3			TOTAL SHEETS
2			4			129

PROJECT NO. 15BPR.20
HENDERSON **COUNTY**
STATION: 35+30.22 -L-
SHEET 6 OF 7

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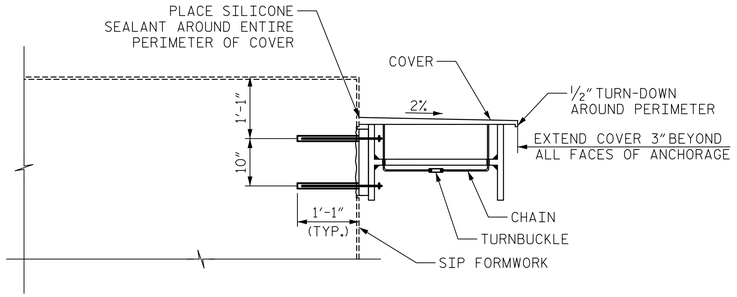
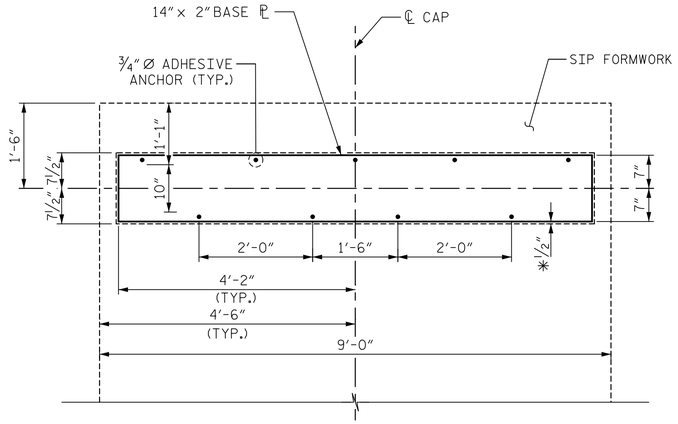


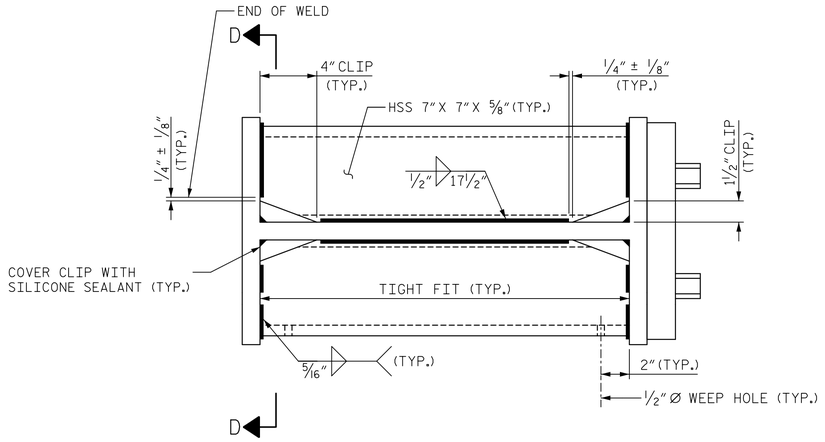
VIEW A-A

NOTE: TIE DOWN COVER WITH CHAINS AND TURNBUCKLE AT EACH SET OF WEEP HOLES



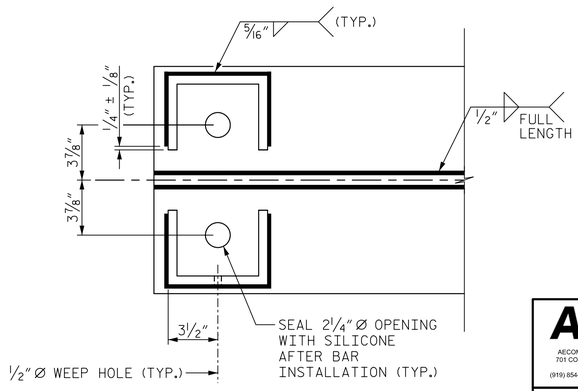
VIEW C-C

✳ CLEAR FROM BASE ℄ TO FORMWORK OPENING



VIEW B-B

(POST-TENSIONED BAR NOT SHOWN FOR CLARITY)



VIEW D-D

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DESIGN CHECKED BY : D. TUTTLE	DATE : 2/2019		

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HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 7 OF 7

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RALEIGH

SUBSTRUCTURE

BENTS 2 & 3 POST-TENSIONING ANCHORAGE DETAILS

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			129

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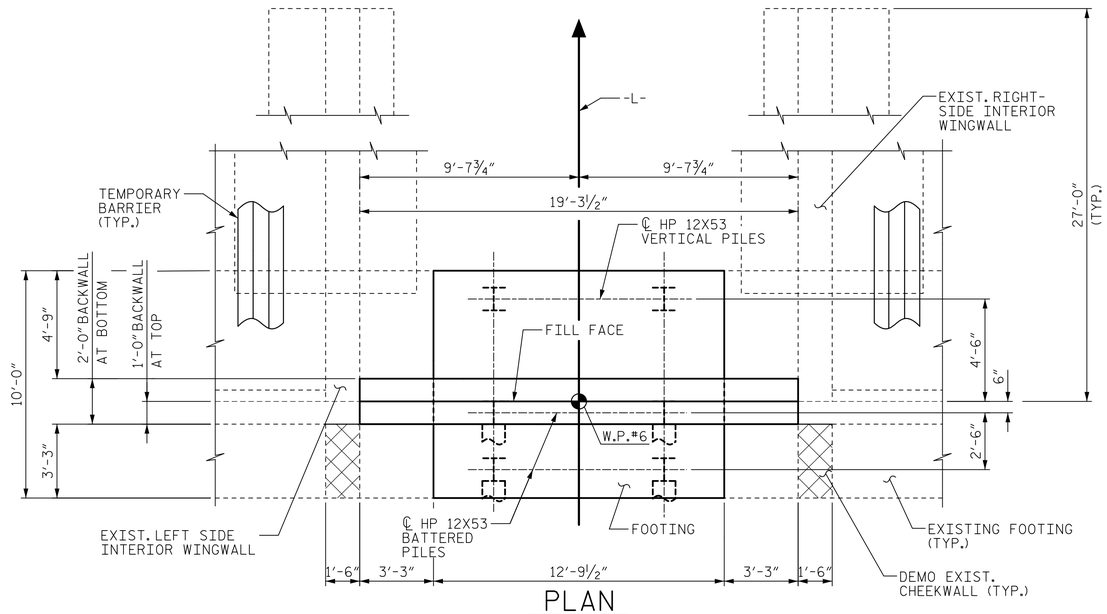
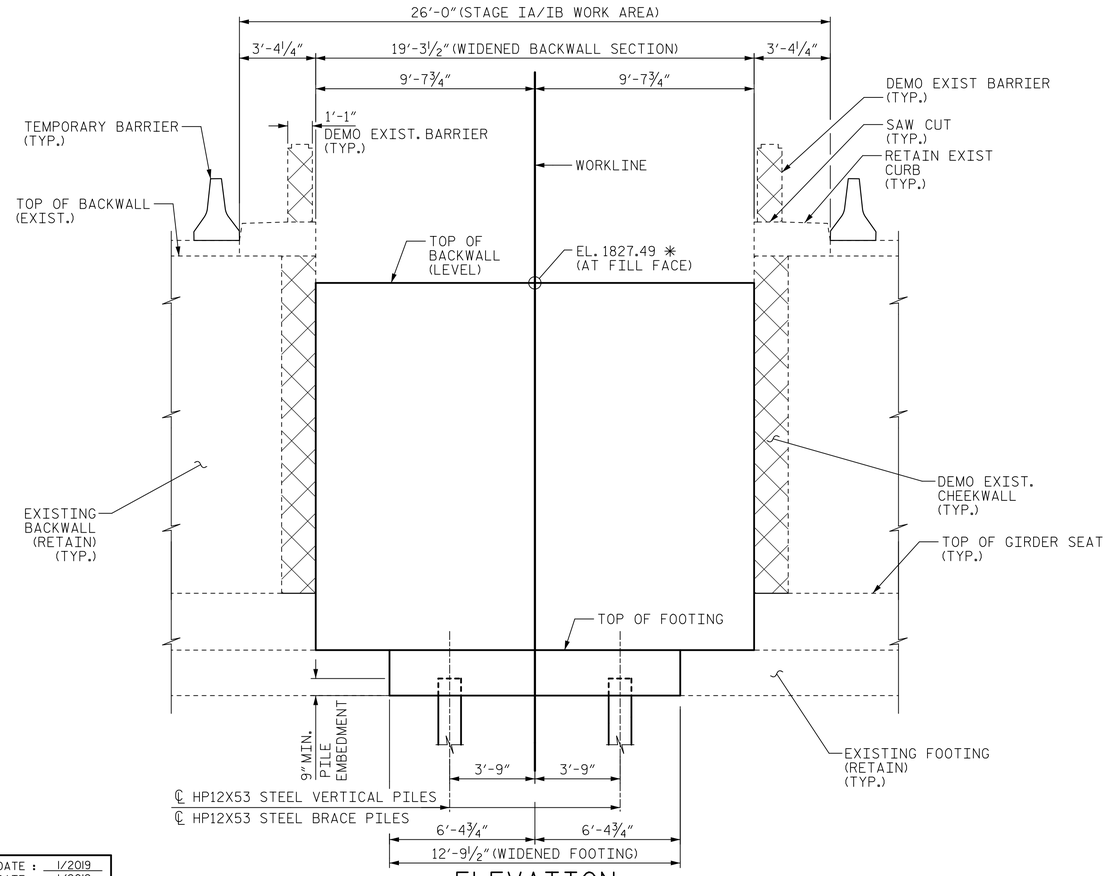


PLAN

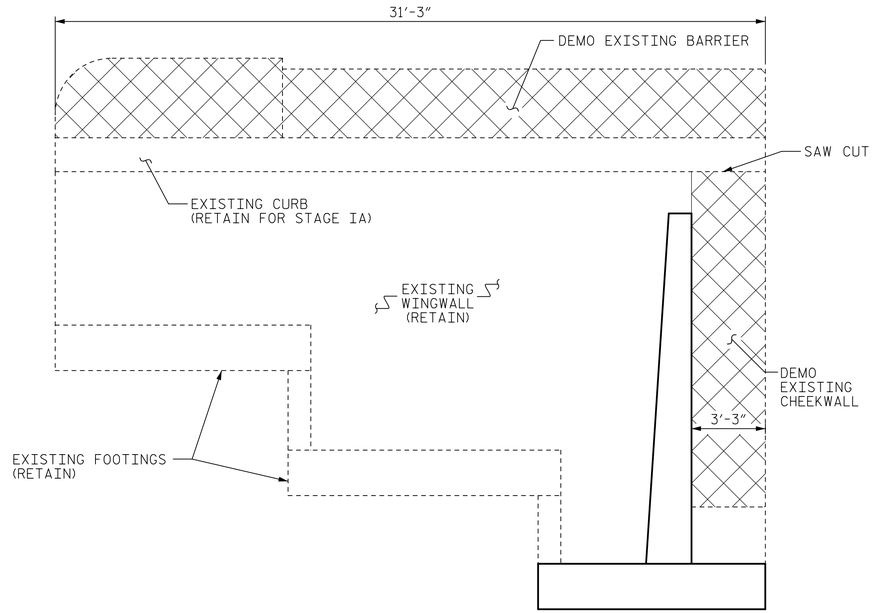
EXISTING CURB AND RAIL NOT SHOWN FOR CLARITY



ELEVATION

DEMO SYMBOLOGY

AREA TO BE REMOVED



EXISTING WINGWALL ELEVATION

SHOWN FOR RIGHT-SIDE INTERIOR WINGWALL, SIMILAR FOR LEFT-SIDE INTERIOR WINGWALL

STAGE IA CONSTRUCTION SEQUENCE

1. DEMO EXISTING BARRIER ON WINGWALL (RETAIN CURB) AND CHEEKWALL.
2. INSTALL SHORING AS NECESSARY AND EXCAVATE.
3. DRIVE PILES, CONSTRUCT FOOTING AND BACKWALL.
4. CONSTRUCT APPROACH FILL.

NOTES:

DATA ON EXISTING END BENTS SHOWN BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND MEASUREMENTS PRIOR TO BEGINNING CONSTRUCTION AND REPORT ALL VARIATIONS TO THE ENGINEER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT DUE TO VARIATION BETWEEN THE PLANS AND EXISTING STRUCTURE.

ALL CUT SURFACES WITH EXPOSED REINFORCING SHALL BE GROUND SMOOTH.

APPLY A TYPE 4A EPOXY COAT TO ALL AREAS EXPOSED BY SAW CUT IN ACCORDANCE WITH SECTION 1081 OF THE STANDARD SPECIFICATIONS.

EXTENTS OF THE SAW CUTS SHALL NOT EXCEED THE STAGE IA LIMITS SHOWN.

SEE "DEMOLITION & CONSTRUCTION SEQUENCE" PLANS FOR STAGING INFORMATION.

FOR REINFORCING, SEE SHEET 2.

DEMOLITION LIMITS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT DETAILED DEMOLITION SEQUENCES AND SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PARTIALLY DEMOLISHED END BENT THROUGHOUT THE DURATION OF CONSTRUCTION.

✳ TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF PROPOSED FLOORBEAM AT END BENT.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 1 OF 5

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AECOM TECHNICAL SERVICES OF NC, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-0342

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN
11/28/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

STAGE IA

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-124
1			3			TOTAL SHEETS
2			4			129

DRAWN BY : H. ROSEMOND DATE : 1/2019
CHECKED BY : G. COLS DATE : 1/2019
DESIGNED BY : K. MUENCH DATE : 1/2019
DESIGN CHECKED BY : J. SLOAN DATE : 1/2019

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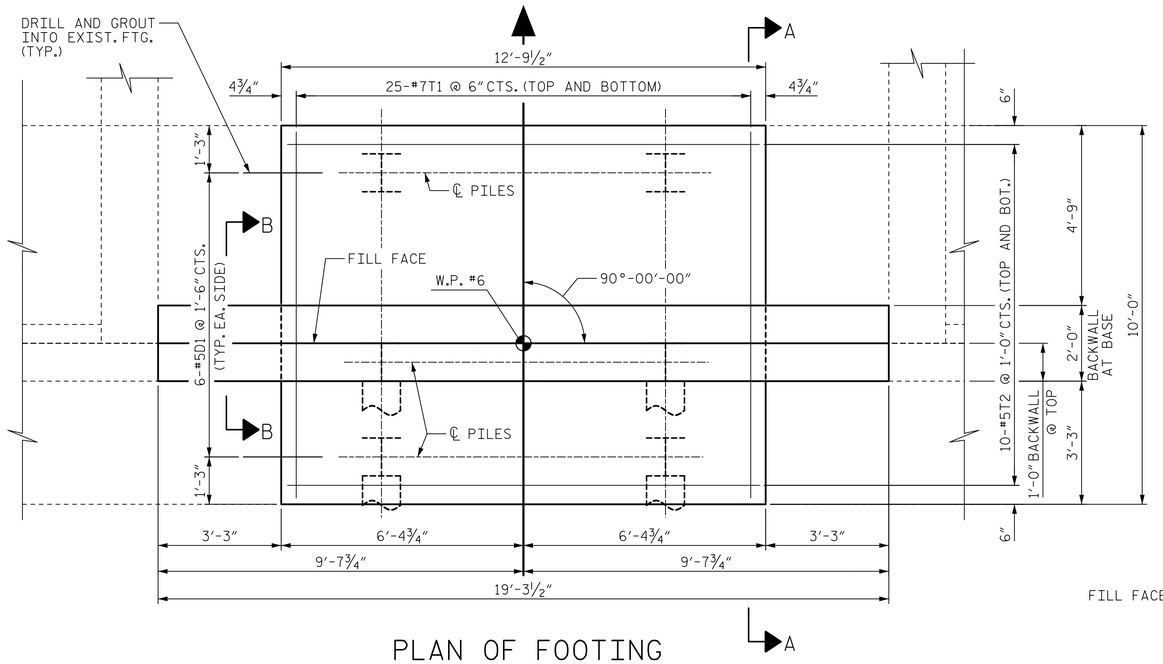
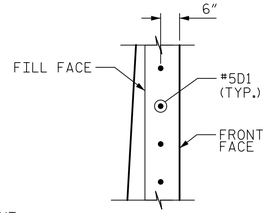
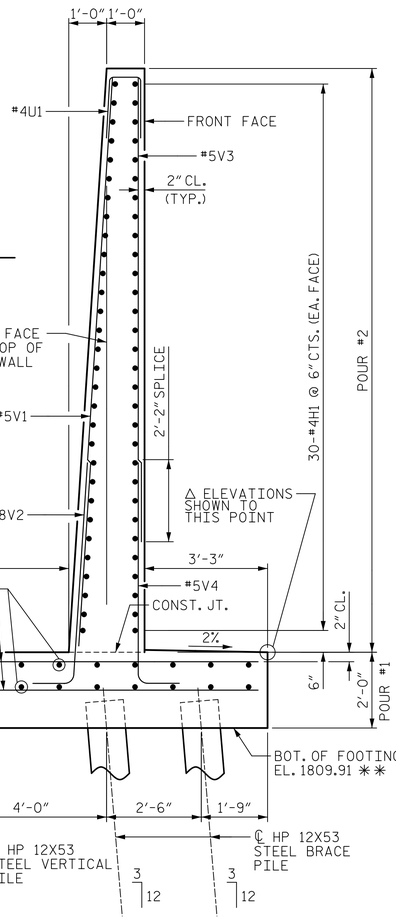


PLAN OF FOOTING

FOR PILE LOCATIONS, SEE SHEET 1.
BACKWALL REINFORCING NOT SHOWN.



SECTION B-B



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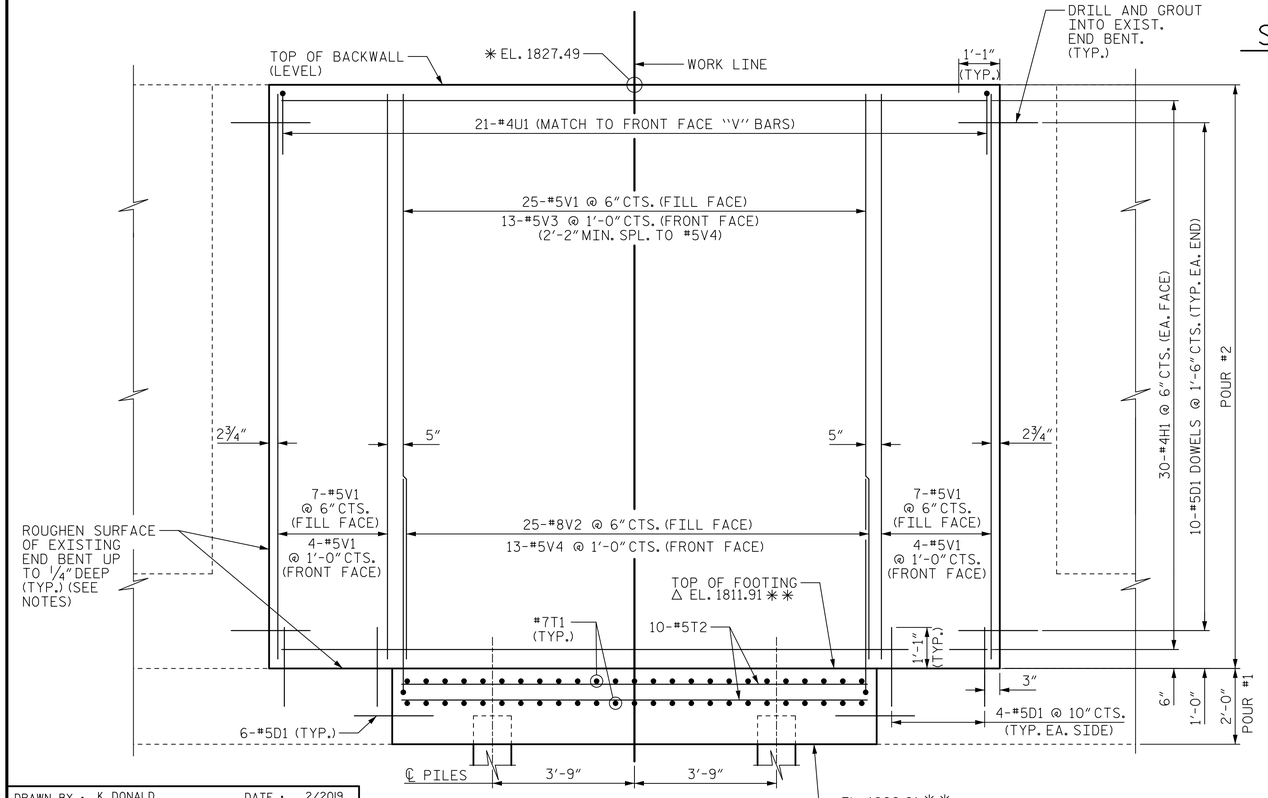

ELEVATION

NOTES

EXISTING WINGWALL AND TOP OF EXISTING FOOTING AT SIDES TO BE CONNECTED TO NEW SECTION SHALL BE CLEANED AND SCARIFIED TO 1/4" DEEP.

REINFORCEMENT MAY BE SLIGHTLY SHIFTED AS NECESSARY TO AVOID DOWELS.

#5V1 AND #5V3 BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF THE BACKWALL.

THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATION.

DOWELS SHALL BE DRILLED AND GROUTED WITH A TYPE 3A EPOXY IN ACCORDANCE WITH SECTION 1081 OF THE STANDARD SPECIFICATIONS.

EXPOSED SURFACES OF END BENT SHALL BE PROTECTED WITH SILANE. SILANE SHALL NOT BE APPLIED UNTIL STAGES II AND III ARE COMPLETE. SEE SPECIAL PROVISIONS.

INSTALL THE 2"Ø PIPE DRAIN THROUGH THE BACKWALL AS REQUIRED ON THE TYPICAL SECTION DETAILS SHEET. REINFORCING MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN.

* TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF PROPOSED FLOORBEAM AT END BENT.

** ELEVATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION. TOP AND BOTTOM OF PROPOSED FOOTING SHALL MATCH ELEVATIONS OF ADJACENT EXISTING FOOTINGS. ANY DEVIATIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTING THE FOOTING.

FOR SILANE TREATMENT, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

END BENT 2

BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
D1	40	5	STR	1'-9''	73
H1	60	4	STR	18'-11''	757
T1	50	7	STR	9'-8''	988
T2	20	5	STR	12'-5''	259
U1	21	4	1	3'-8''	51
V1	47	5	STR	15'-0''	735
V2	25	8	2	7'-3''	484
V3	13	5	STR	12'-5''	168
V4	13	5	2	6'-9''	92

TOTAL REINFORCING STEEL	3608 LBS.
TOTAL CLASS A CONCRETE	26.0 CY
POUR 1 (FOOTING)	9.5 CY
POUR 2 (WALL)	16.5 CY

HP 12 X 53 STEEL PILES	
No. 6	LIN. FT. = 90
STEEL PILE POINTS	6 EA.
PILE EXCAVATION	
IN SOIL	54 LF
NOT IN SOIL	6 LF
PILE DRIVING EQUIP. SETUP	6 EA.
SILANE TREATMENT	1900 SF.
SURFACE PREPARATION FOR SILANE	1900 SF.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 2 OF 5

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RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-0342

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN 3/8/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2 STAGE IA

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-125
1			3			TOTAL SHEETS
2			4			129

DRAWN BY :	K. DONALD	DATE :	2/2019
CHECKED BY :	G. COLS	DATE :	3/2019
DESIGNED BY :	K. MUENCH	DATE :	3/2019
DESIGN CHECKED BY :	J. SLOAN	DATE :	3/2019

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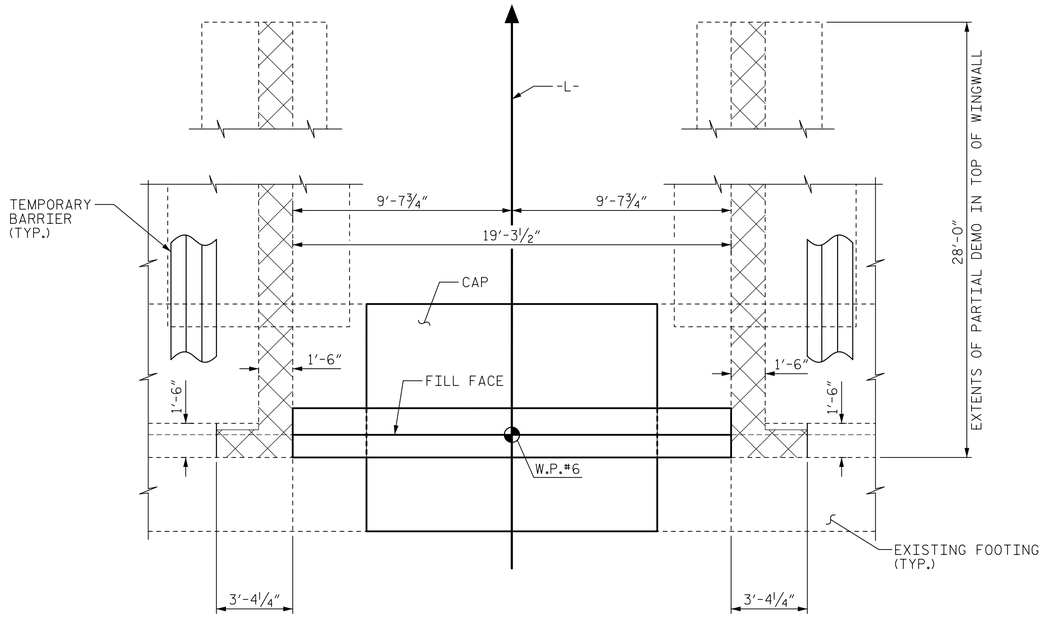
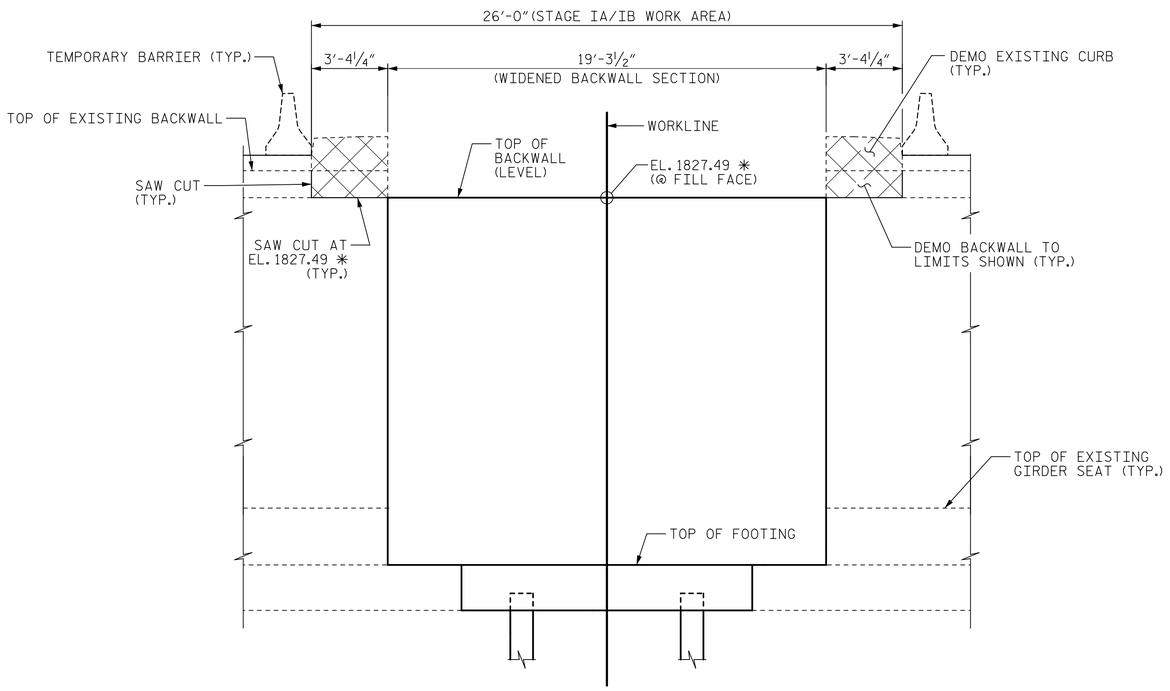


PLAN

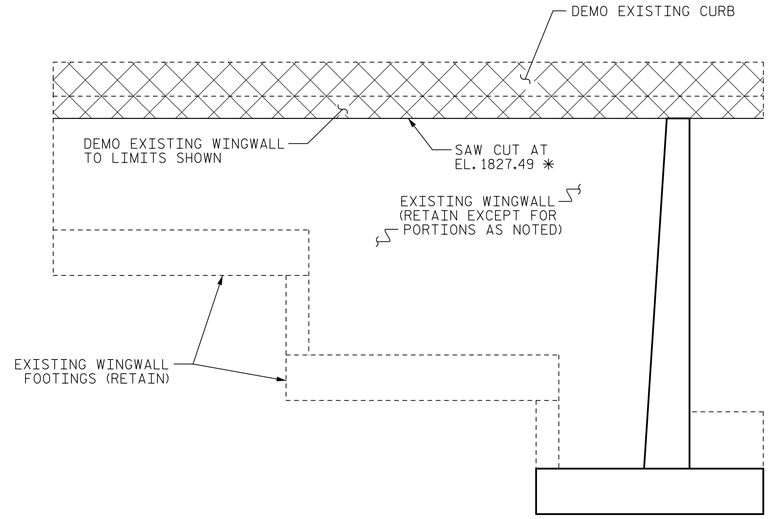
EXISTING CURB AND RAIL NOT SHOWN FOR CLARITY



ELEVATION

DEMO SYMBOLOGY

AREA TO BE REMOVED



EXISTING WINGWALL ELEVATION

SHOWN FOR RIGHT-SIDE INTERIOR WINGWALL, SIMILAR FOR LEFT-SIDE INTERIOR WINGWALL

STAGE IB CONSTRUCTION SEQUENCE

1. DEMO EXISTING CURB.
2. PARTIALLY DEMO EXISTING WINGWALL AND BACKWALL TO LIMITS SHOWN.

NOTES:

DATA ON EXISTING END BENTS SHOWN BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND MEASUREMENTS PRIOR TO BEGINNING CONSTRUCTION AND REPORT ALL VARIATIONS TO THE ENGINEER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT DUE TO VARIATION BETWEEN THE PLANS AND EXISTING STRUCTURE.

ALL CUT SURFACES WITH EXPOSED REINFORCING SHALL BE GROUND SMOOTH.

APPLY A TYPE 4A EPOXY COAT TO ALL AREAS EXPOSED BY SAW CUT IN ACCORDANCE WITH SECTION 1081 OF THE STANDARD SPECIFICATIONS.

EXTENTS OF THE SAW CUTS SHALL NOT EXCEED THE STAGE IB LIMITS SHOWN.

SEE "DEMOLITION & CONSTRUCTION SEQUENCE" PLANS FOR STAGING INFORMATION.

DEMOLITION LIMITS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT DETAILED DEMOLITION SEQUENCES AND SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PARTIALLY DEMOLISHED END BENT THROUGHOUT THE DURATION OF CONSTRUCTION.

* TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF PROPOSED FLOORBEAM AT END BENT.

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CHECKED BY :	G. COLS	DATE :	1/2019
DESIGNED BY :	K. MUENCH	DATE :	1/2019
DESIGN CHECKED BY :	J. SLOAN	DATE :	1/2019

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN 2/28/2020

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

STAGE IB

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-126
1			3			TOTAL SHEETS
2			4			129

USER: Henry.Rosemond
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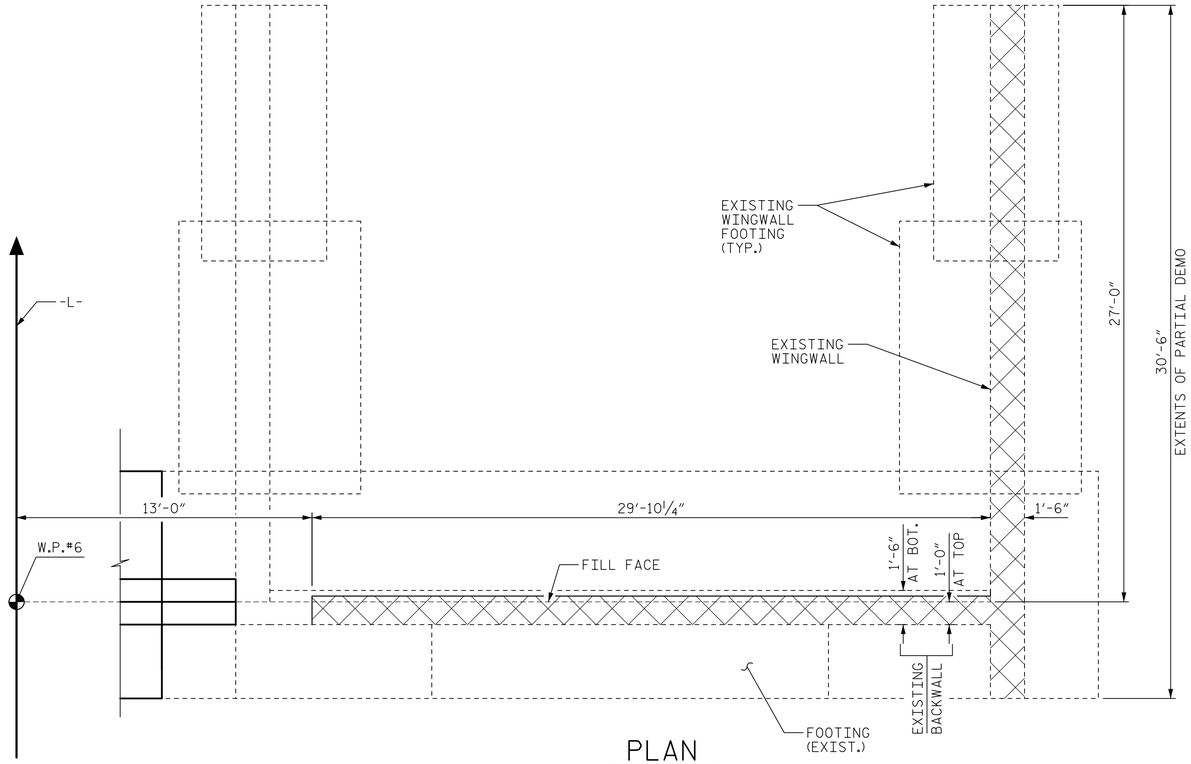
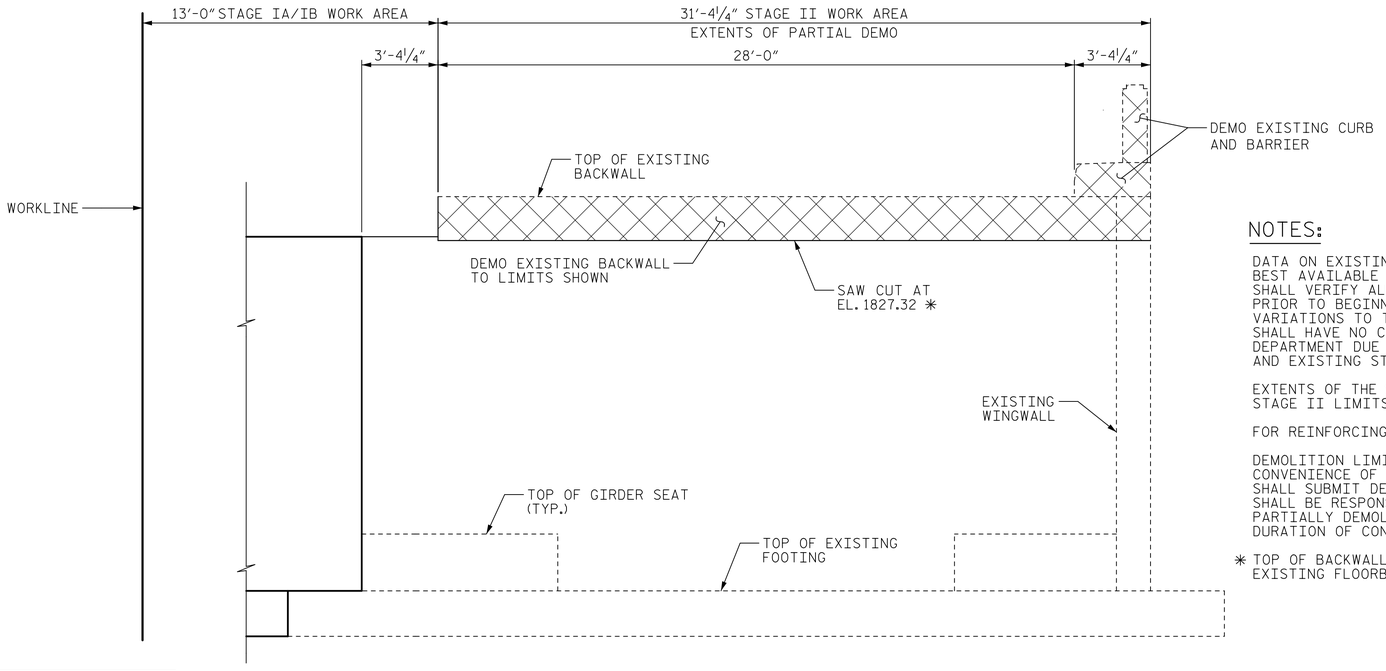


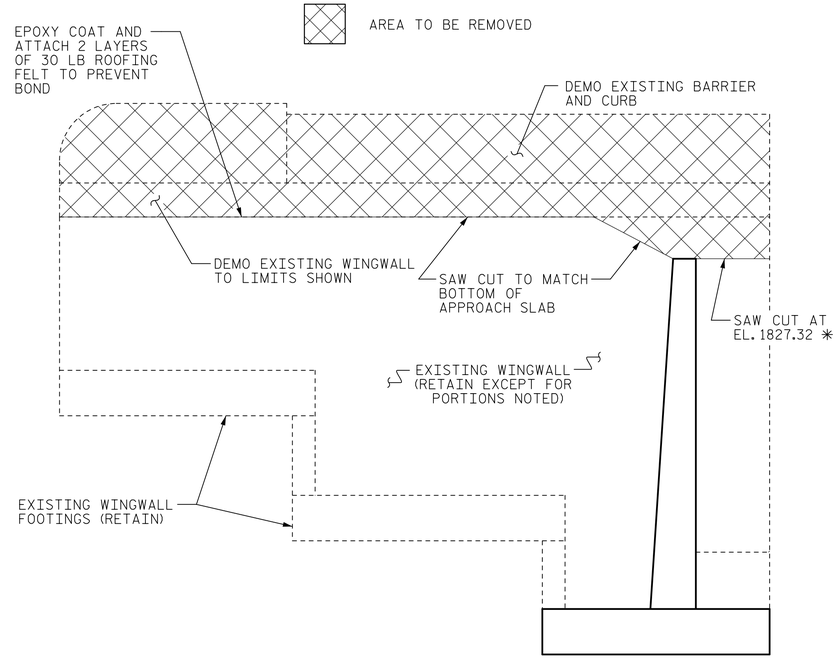
PLAN



ELEVATION

DEMO SYMBOLOGY

AREA TO BE REMOVED



EXISTING WINGWALL ELEVATION

STAGE II CONSTRUCTION SEQUENCE

1. DEMO EXISTING BARRIER AND CURB ON WINGWALL.
2. SAW CUT AND DEMO EXISTING BACKWALL TO ELEVATIONS AND LIMITS SHOWN.
3. SAW CUT AND DEMO EXISTING WINGWALL TO ELEVATIONS AND LIMITS SHOWN.

NOTES:

DATA ON EXISTING END BENTS SHOWN BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND MEASUREMENTS PRIOR TO BEGINNING CONSTRUCTION AND REPORT ALL VARIATIONS TO THE ENGINEER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT DUE TO VARIATION BETWEEN THE PLANS AND EXISTING STRUCTURE.

EXTENTS OF THE SAW CUTS SHALL NOT EXCEED THE STAGE II LIMITS SHOWN.

FOR REINFORCING, SEE SHEET 2.

DEMOLITION LIMITS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT DETAILED DEMOLITION SEQUENCES AND SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PARTIALLY DEMOLISHED END BENT THROUGHOUT THE DURATION OF CONSTRUCTION.

* TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF EXISTING FLOORBEAM AT END BENT.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 4 OF 5

DRAWN BY : H. ROSEMOND	DATE : 1/2019	
CHECKED BY : G. COLS	DATE : 1/2019	
DESIGNED BY : K. MUENCH	DATE : 1/2019	
DESIGN CHECKED BY : J. SLOAN	DATE : 1/2019	

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RALEIGH, NC 27607
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2/28/2020

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DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

STAGE II

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-127
1			3			TOTAL SHEETS
2			4			129

USER: Henry.Rosemond
DGN: R:\Structures\04 Drawings\401_239_15BPR.20_SMU_EB3.dgn

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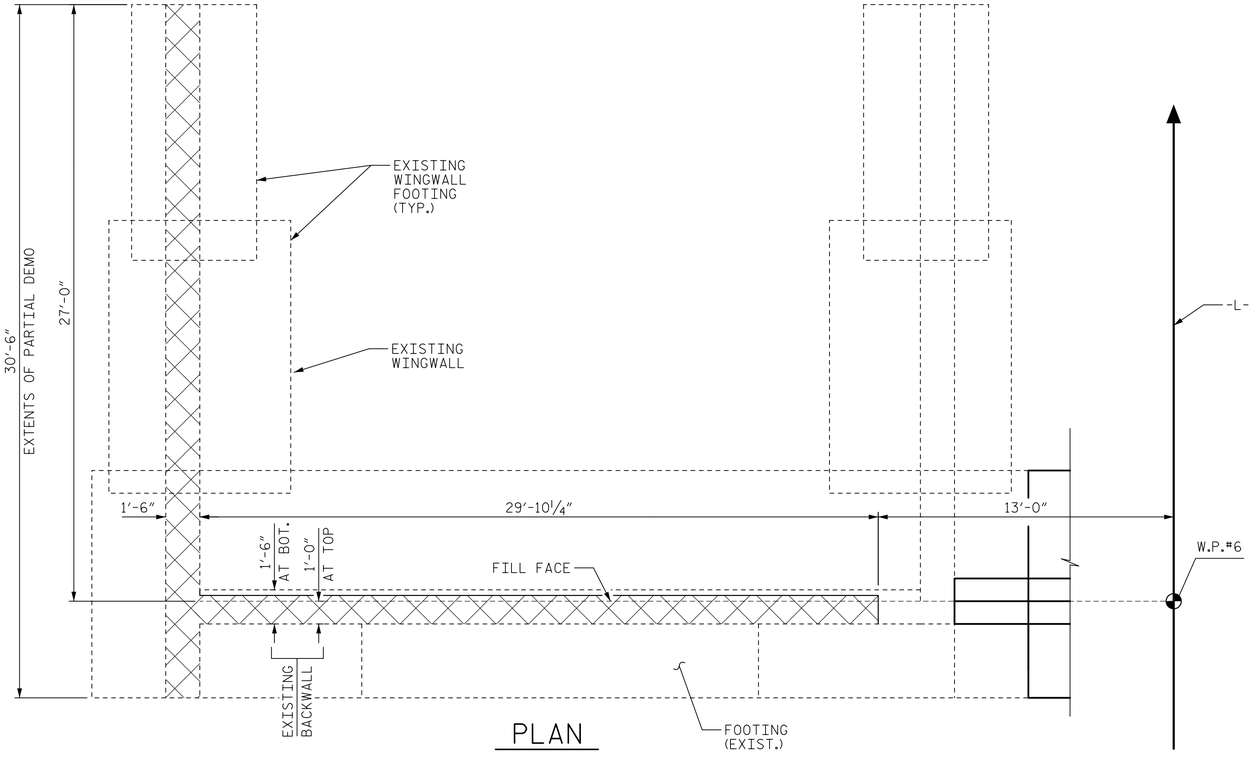
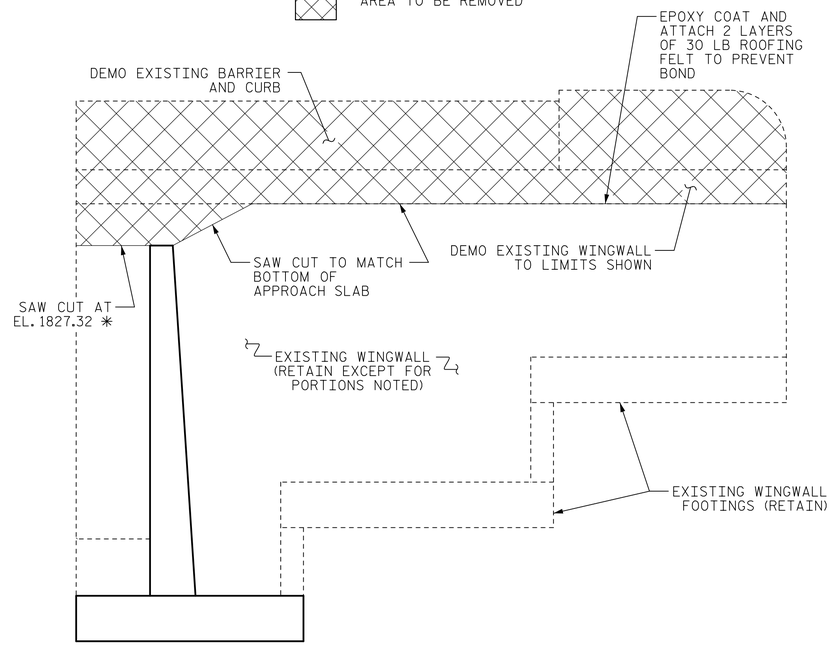


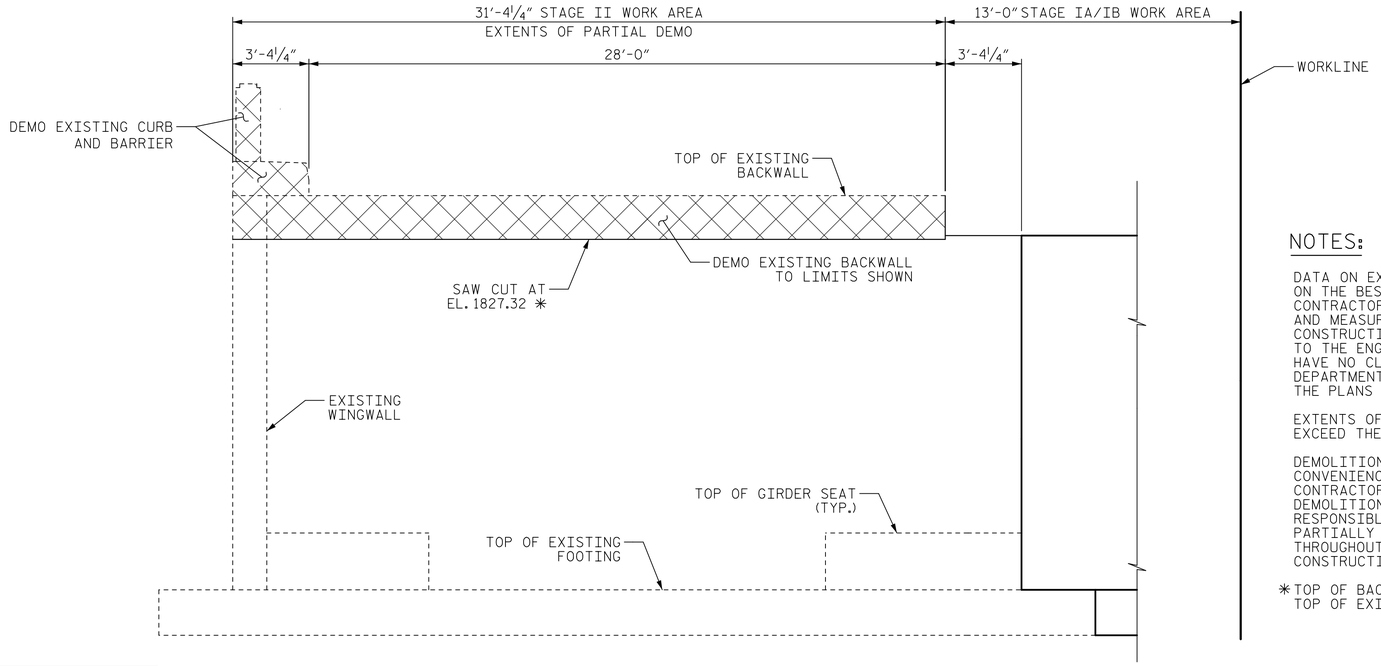
PLAN

DEMO SYMBOLOGY

AREA TO BE REMOVED



EXISTING WINGWALL ELEVATION



ELEVATION

STAGE III CONSTRUCTION SEQUENCE

1. DEMO EXISTING BARRIER AND CURB ON WINGWALL.
2. SAW CUT AND DEMO EXISTING BACKWALL TO ELEVATIONS AND LIMITS SHOWN.
3. SAW CUT AND DEMO EXISTING WINGWALL TO ELEVATIONS AND LIMITS SHOWN.

NOTES:

DATA ON EXISTING END BENTS SHOWN BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND MEASUREMENTS PRIOR TO BEGINNING CONSTRUCTION AND REPORT ALL VARIATIONS TO THE ENGINEER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT DUE TO VARIATION BETWEEN THE PLANS AND EXISTING STRUCTURE.

EXTENTS OF THE SAW CUTS SHALL NOT EXCEED THE STAGE III LIMITS SHOWN.

DEMOLITION LIMITS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT DETAILED DEMOLITION SEQUENCES AND SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PARTIALLY DEMOLISHED END BENT THROUGHOUT THE DURATION OF CONSTRUCTION.

* TOP OF BACKWALL ELEVATION SHALL MATCH TOP OF EXISTING FLOORBEAM AT END BENT.

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

SHEET 5 OF 5

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AECOM TECHNICAL SERVICES OF NC, INC.
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN
12/28/2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

STAGE III

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-128
1			3			TOTAL SHEETS
2			4			129

DRAWN BY : H. ROSEMOND DATE : 1/2019
CHECKED BY : G. COLS DATE : 1/2019
DESIGNED BY : K. MUENCH DATE : 1/2019
DESIGN CHECKED BY : J. SLOAN DATE : 1/2019

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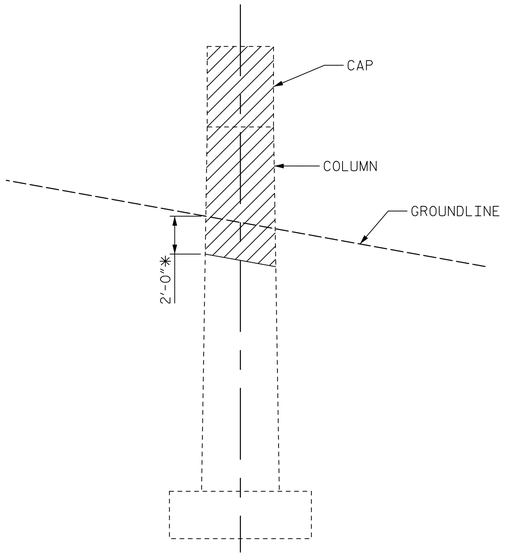
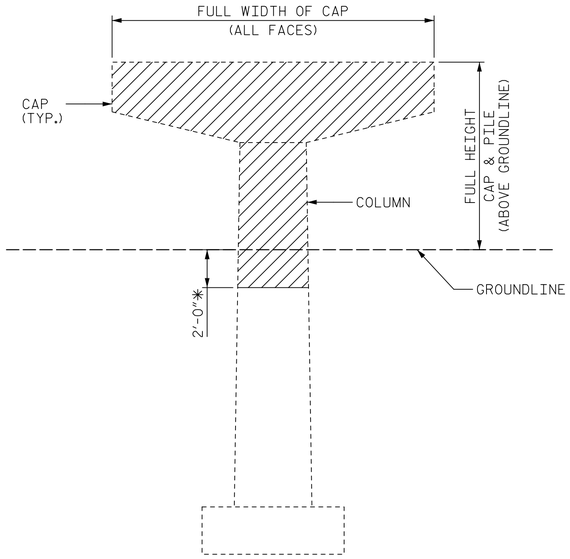
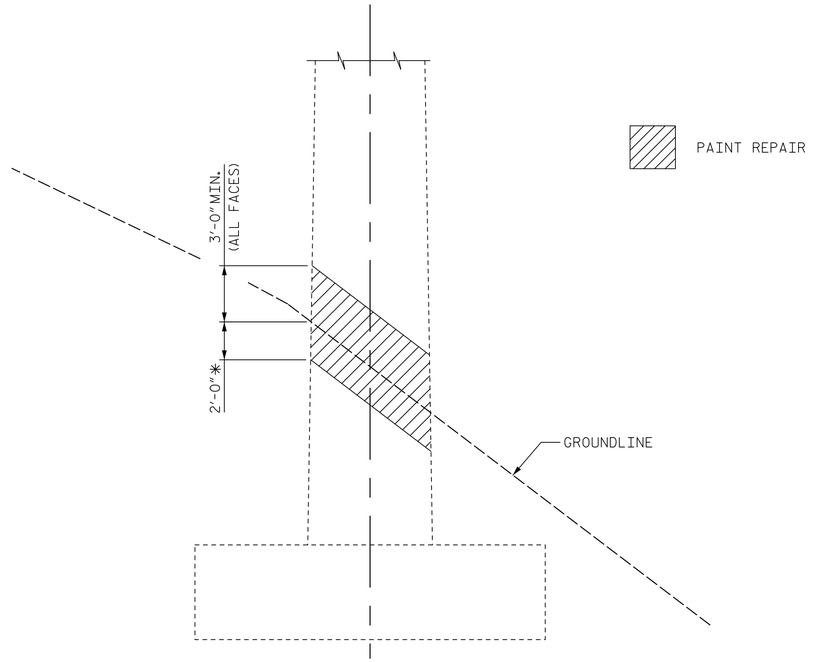


PROFILE



ELEVATION



PROFILE

PAINT REPAIR AT BENTS 1 AND 4

PAINT REPAIR AT BENTS 2 AND 3

* OR AS DIRECTED BY THE ENGINEER, 2'-0" MAX

PAINT REPAIR QUANITIES	
	AREA (SQ. YDS.)
BENT 1	284.2
BENT 2	44.3
BENT 3	42.7
BENT 4	282.6
TOTAL	654.7

NOTES:

FOR CLEANING AND PAINTING OF EXISTING WEATHERING STEEL, SEE SPECIAL PROVISIONS.

EXCAVATION SHALL BE INCIDENTAL TO THE CLEANING AND PAINTING OF EXISTING WEATHERING STEEL PAY ITEM.

CONTRACTOR SHALL REMOVE ALL VEGETATION AND FILTH FROM THE STRUCTURE

PROJECT NO. 15BPR.20

HENDERSON COUNTY

STATION: 35+30.22 -L-

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035062 JOHN E. SLOAN
2/28/2020

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REHABILITATION

SUBSTRUCTURE REPAIRS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-129
1			3			TOTAL SHEETS
2			4			129

DRAWN BY : H. ROSEMOND DATE : 01/2019
CHECKED BY : G. COLS DATE : 01/2019
DESIGNED BY : G. COLS DATE : 01/2019
DESIGN CHECKED BY : J. SLOAN DATE : 03/2019

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USER: Henry.Rosemond
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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS - - - - - - - - - - - - - - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD -	SEE PLANS
IMPACT ALLOWANCE - - - - - - - - - - - - - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36 - -	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W - -	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50 - -	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60 - - -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION - - - - - - - - - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR - - - - - - - - - - - - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED 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 - - - - -	30 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.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

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 CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

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 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 CAMBER. 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 CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER 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.

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 PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

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 HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

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REV. 6-16-95	EEM	(/) RGW	REV. 5-7-03	RWW	(/) JTE	REV. 10-1-11	MAA	(/) GM			
REV. 8-16-99	RWW	(/) LES	REV. 5-1-06	TLA	(/) GM	REV. 12-17	MAA	(/) THC			

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