



North Dakota Department of Transportation

Grant Levi, P.E.
Director

Jack Dalrymple
Governor

October 28, 2016

ADDENDUM 1 – JOB 23

TO: All prospective bidders on project NH-NHU-4-083(111)200, Job No. 23 scheduled for the November 18, 2016 bid opening.

The following plan and request for proposal revisions shall be made:

Plan Revisions:

See attached summary from Jugesh Kapur, PE, Burns & McDonnell, dated October 14, 2016 for an explanation.

Request for Proposal Revisions:

Add Special Provision 386(14) CONDITIONS OF CONTRACT AWARD

Remove and replace pages 7 to 15 of 17 of the Proposal pages located at the beginning of the Request for Proposal, with the enclosed pages revised 10/27/2016.

Page 7 of 17:

Item 203 0113 COMMON EXCAVATION-WASTE; quantity increased from 2,754 to 2,756 CY.

Item 203 0140 BORROW-EXCAVATION; quantity increased from 3,080 to 3,090 CY.

Item 203 0218 GUARDRAIL EMBANKMENT has been added, quantity 1 EA.

Item 210 0100 CLASS I EXCAVATION; quantity decreased from 3,258 to 3,164 CY.

Item 216 0100 WATER; quantity has increased from 145 TO 146 MGAL.

Item 251 0300 SEEDING CLASS III; quantity increased from 0.32 to 0.33 ACRE.

Page 8 of 17:

Item 251 2000 TEMPORARY COVER CROP; quantity increased from 0.37 to 0.39 ACRE.

Item 253 0201 HYDRAULIC MULCH; quantity increased from 0.69 to 0.72 ACRE.

Item 302 0120 AGGREGATE BASE COURSE CL 5; quantity increased from 4,305 to 4,356 TON.

Item 550 0305 9IN NON-REINF CONCRETE PVMT CL AE-DOWELED; quantity decreased from 4,005 to 3,982 SY.

Item 602 1130 CLASS AE-3 CONCRETE; quantity decreased from 3,627 to 3,580 CY.

Page 9 of 17:

Item 612 0115 REINFORCING STEEL-GRADE 60; quantity decreased from 444,703 to 440,294 LBS.

Item 612 0116 REINFORCING STEEL-GRADE 60-EPOXY COATED; quantity decreased from 528,697 to 527,222 LBS.

Addendum 1

Job 23, November 18, 2016 Bid Opening

Page 2 of 2

Item 622 0060 STEEL PILING HP 14 X 73; quantity decreased from 11,852 to 10,348 LF.

Page 10 of 17:

Item 704 9100 VIDEO MONITORING SYSTEM has been added, quantity 2 EA.

Item 708 1200 SMALL ROCK COVER; quantity has increased from 55 to 73 TON.

Item 708 1530 INLET PROTECTION-FIBER ROLL 6IN was deleted, quantity 1 EA.

Item 708 1532 REMOVAL INLET PROTECTION-FIBER ROLL 6IN has been deleted, quantity 1 EA.

Item 709 0151 GEOSYNTHETIC MATERIAL TYPE R1, quantity 775 SY.

Page 11 of 17:

Item 722 3720 INLET SPECIAL CATCH BASIN 6IN BEEHIVE 48IN has been deleted, quantity 1 EA.

Page 12 of 17:

Item 748 0120 CURB & GUTTER MOUNTABLE-TYPE I was added, quantity 93 LF.

Item 748 0140 CURB & GUTTER-TYPE I; quantity has decreased from 1,072 to 979 LF.

Item 750 0030 PIGMENTED IMPRINTED CONCRETE; quantity has increased from 141 to 262 SY.

Item 750 0115 SIDEWALK CONCRETE 4IN; quantity has decreased from 531 to 489 SY.

Page 13 of 17:

Item 764 0131 W-BEAM GUARDRAIL has been added, quantity 45.7 LF.

Item 764 0145 W-BEAM GUARDRAIL END TERMINAL was added, quantity 1 EA.

Item 770 0932 5IN DIAMETER RIGID CONDUIT-BRIDGE MOUNTED; quantity has decreased from 10,044 to 8,028 LF.

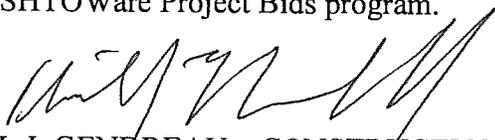
Page 15 of 17:

Item 714 0210 PIPE CONC REINF 15IN CL III-STORM DRAIN; quantity has decreased from 287 to 259 LF.

Page 7-15 of 17:

Items shifted.

This addendum is to be incorporated into the bidder's proposal for this project. AASHTOWare Project Bids files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at <http://www.bidx.com/> and load it into the AASHTOWare Project Bids program.



Fol CAL J. GENDREAU – CONSTRUCTION SERVICES ENGINEER

80:plm

Enclosure

October 14, 2016

To: All prospective bidders on Project NH-NHU-4-083(111)200, scheduled for November 18, 2016 bid opening.

The following plan revisions shall be made:

Project Information		
Project: NH-NHU-4-083(111)200		PCN: 18912
Location: Minot, Ward County		
Date:10/14/16		Lead Designer: Burns & McDonnell
Bid Opening Date: 11/18/16		JOB#: 23 Addendum#: 1
Distribute to: -Grp-DOT Bids Addenda (dotbids@nd.gov)		
Section	Sheet	Description of Change
2	1	<ul style="list-style-type: none"> Deleted Section 85 Landscaping Added Section 130 Guardrail Updated Section 6 (page 1-5 Notes and page 6 Environmental Notes) Added SP 0386(14) Removed SP 0363(14)
2	2	<ul style="list-style-type: none"> Added Guardrail Standard Drawings D764-1,5,22
4	1	<ul style="list-style-type: none"> Updated extents of imprinted concrete Removed sidewalk South of the bridge, West of US-83 Updated edge of pavement due to guardrail addition
6	ALL	<ul style="list-style-type: none"> Updated plan note on 100-P01 to include coordinating use of Temporary Construction Easement between projects Added additional details/updates to 105-P02 Adding 105-P02 shifted all other notes and all sheets had to be reprinted. Sheet total for the section went from 5 to 6. Moved 709-P01 from Section 170 to Section 6
8	1	<ul style="list-style-type: none"> Revised quantity of 203-0113 "Common Excavation-Waste" from 2,754 CY to 2,756 CY. Revised quantity of 203-0140 "Borrow Excavation" from 3,080 CY to 3,090 CY. Added item 203-0218 "Guardrail Embankment" 1 EA. Revised quantity of 210-0100 "Class 1 Excavation" from 3,258 CY to 3,164 CY. Revised quantity of 216-0100 "Water" from 145 M GAL to 146 M GAL.

		<ul style="list-style-type: none"> Revised quantity of 251-0300 "Seeding Class III" from 0.32 ACRE to 0.33 ACRE. Revised quantity of 251-2000 "Temporary Cover Crop" from 0.37 ACRE to 0.39 ACRE. Revised quantity of 253-0201 "Hydraulic Mulch" from 0.69 ACRE to 0.72 ACRE. Revised quantity of 302-0120 "Aggregate Base Course CL 5" from 4,305 TON to 4,356 TON. Revised quantity of 550-0305 "9IN Non Reinf Concrete PVMT CL AE-Doweled" from 4,005 SY to 3,982 SY. Revised quantity of 602-1130 "Class AE-3 Concrete" from 3,627 CY to 3,580 CY. Revised quantity of 612-0115 "Reinforcing Steel-Grade 60" from 444,703 LBS to 440,294 LBS. Revised quantity of 612-0116 "Reinforcing Steel-Grade 60-Epoxy Coated" from 528,697 LBS to 527,222 LBS. Revised quantity of 622-0060 "Steel Piling HP 14 X 73" from 11,852 LF to 10,348 LF.
8	2	<ul style="list-style-type: none"> Added item 704-9100 "Video Monitoring System" 2 EA. Revised quantity of 708-1200 "Small Rock Cover" from 55 TON to 73 TON. Removed item 708-1530 "Inlet Protection-Fiber Roll 6IN" 1EA. Removed item 708-1532 "Removal Inlet Protection-Fiber Roll 6IN" 1EA. Added item 709-0151 "Geosynthetic Material Type R1" 775 SY. Removed item 722-3720 "Inlet Special Catch Basin 6IN Beehive 48IN" 1EA. Added item 748-0120 "Curb & Gutter Mountable-Type 1" 93 LF. Revised quantity of 748-0140 "Curb & Gutter-Type I" from 1,072 LF to 979 LF. Revised quantity of 750-0030 "Pigmented Imprinted Concrete" from 141 SY to 262 SY. Revised quantity of 750-0115 "Sidewalk Concrete 4IN" from 531 SY to 489 SY.
8	3	<ul style="list-style-type: none"> Added item 764-0131 "W-Beam Guardrail" 45.7 LF. Added item 764-0145 "W-Beam Guardrail End Terminal" 1EA. Revised quantity of 770-0392 "5IN Diameter Rigid Conduit – Bridge Mounted" from 10,044 LF to 8,028 LF. Revised quantity of 714-4097 "Pipe Conduit 15IN-Storm Drain" from 287 LF to 259 LF. Revised quantity of 714-0210 "Pipe Conc Reinf 15IN CL III-Storm Drain" from 287 LF to 259 LF.

11	1	<ul style="list-style-type: none"> Updated aggregate base quantity to reflect extending the imprinted concrete
11	2	<ul style="list-style-type: none"> Updated embankment quantity to reflect the addition of guardrail
20	4	<ul style="list-style-type: none"> No design change, just a reprinted to reflect the extended imprinted concrete
20	10	<ul style="list-style-type: none"> Added approximate Sundre Line thrust block location. Trust block survey shots provided by the City of Minot on 10/5/2016 Updated Sheet Pile Wall to not disturb existing trust block
20	11	<ul style="list-style-type: none"> Revised phase 1 bottom wall elevation
30	2	<ul style="list-style-type: none"> Updated the typical to display the extended imprinted concrete
50	1	<ul style="list-style-type: none"> Removed a manhole due to imprinted concrete change Shifted Inlet 1E to tie to Inlet 1D Updated Inlet 2A location due to guardrail addition.
51	1	<ul style="list-style-type: none"> Updated pipe list to reflect manhole and inlet changes discussed above
52	2	<ul style="list-style-type: none"> Updated conduit quantity
60	1	<ul style="list-style-type: none"> Updated drainage profile to reflect catch basin removal and the shift of now inlet 1E Updated plan sheet drainage callouts Updated 15" pipe quantity, removed catch basin quantity, and updated stationing and callouts for inlet 1E
60	4	<ul style="list-style-type: none"> Changed the structure depth on Inlet 2B and MH2 Updated Location of Inlet 2A due to guardrail addition Updated drainage profile to reflect changes Updated sheet to show guardrail that was added
76	1	<ul style="list-style-type: none"> Updated inlet protection callouts and quantity to reflect the catch basin removal and shift of inlet 1E
76	4	<ul style="list-style-type: none"> Updated inlet protection location to reflect guardrail addition Updated temp cover crop by 0.2 acres to account for guardrail grading change
76	5	<ul style="list-style-type: none"> No design change, just reprinted to show updated drainage and imprinted concrete
77	1	<ul style="list-style-type: none"> No design change, just reprinted to show updated drainage and imprinted concrete
77	2	<ul style="list-style-type: none"> Added additional grading details to abutment 8 Added guardrail to drawing Updated seeding and mulch quantities by 0.1 acres

		<ul style="list-style-type: none"> • Updated Section A-A to show abutment details to scale
81	4	<ul style="list-style-type: none"> • No design change, just reprinted to show imprinted concrete change
81	7	<ul style="list-style-type: none"> • No design change, just reprinted to show imprinted guardrail change
82	1	<ul style="list-style-type: none"> • Updated limits/survey callouts of imprinted concrete
82	2	<ul style="list-style-type: none"> • West Sidewalk Removed • Edge of pavement moved due to guardrail addition • Callouts adjusted to reflect changes
82	3	<ul style="list-style-type: none"> • Updated point numbering to reflect changes made to sheets 1 and 2
90	1	<ul style="list-style-type: none"> • Updated aggregate base quantity and imprinted concrete quantity
90	2	<ul style="list-style-type: none"> • West sidewalk removed and 4IN sidewalk quantity updated • Edge of pavement shifted: 9In pavement quantity adjusted, aggregate base quantity adjusted, updated type -1 curb & gutter-Type 1 quantity, and added curb & gutter mountable-Type 1
130	1	<ul style="list-style-type: none"> • Sheet Added
130	2	<ul style="list-style-type: none"> • Sheet Added
130	3	<ul style="list-style-type: none"> • Sheet Added
140	10	<ul style="list-style-type: none"> • Moved location of lights
150	2	<ul style="list-style-type: none"> • Changed Note to "Ubiquiti NanoBeam M5 13dbi" • Moved EVD between signal heads 4 and 5 • Moved EVD between signal heads 7 and 8
150	5	<ul style="list-style-type: none"> • Updated the EVD Cable quantities and totals • Updated Wireless Interconnect Cable quantities and totals • Renamed "Wireless Interconnect Cable" to "Wireless Receiver Cable" • Added line "F Wireless Receiver Cable" to notes • Added note "The traffic signal system..."
150	9	<ul style="list-style-type: none"> • Moved EVD 11' on Westbound Pole • Moved EVD 12' on Northbound Pole
170	1	<ul style="list-style-type: none"> • Updated footing dimensions at Piers 2-4 • Added bottom of footing elevations • Removed lane callouts from Typical Deck Section • Turned off Stationing, lights, contour lines, Right of Way lines, utilities that aren't adjacent to bridge, sidewalks and curbs not on bridge • Added "Median" callout • Changed CP track designation to "MT" • Changed BNSF track designations to "M2" and "M1"

170	2	<ul style="list-style-type: none"> • Added bottom of footing elevations • Changed water elevation shown from “Ordinary High Water” to “50 Year” • Added sheet pile wall to Elevation view • Added “Median” callout • Clarified that ground line shown (Existing and Proposed) is along the CL roadway • Turned off Stationing, lights, contour lines, Right of Way lines, utilities that aren’t adjacent to bridge, sidewalks and curbs not on bridge
170	3	<ul style="list-style-type: none"> • Added permissible timing for removal
170	4	<ul style="list-style-type: none"> • Revised 602 notes
170	6	<ul style="list-style-type: none"> • Added OSHA note; changed BNSF contact; removed POX from geosynthetic reinforcement
170	7	<ul style="list-style-type: none"> • Increased table text size • Corrected “Item Description” for “Pile Supported Approach Slab”, “Bridge Approach Slab Remove & Replace”, “Finger Expansion Joint” • Corrected “Structural Engineer” unit to “MHR” • Updated Quantity for Class 1 Excavation, Class AE-3 Concrete, Re-Steel Grade 60, and HP14x73 Piling (due to pile layout change at Piers 2-4) • Updated Quantity for Re-Steel Grade 60 Epoxy (due to lengthening of bars in Abut 8)
170	8	<ul style="list-style-type: none"> • Added centerline proposed roadway
170	9	<ul style="list-style-type: none"> • Added centerline proposed roadway
170	11	<ul style="list-style-type: none"> • Modified Pile Layout at Piers 2 & 3 to have 9 piles at each footing • Modified associated pile coordinates
170	12	<ul style="list-style-type: none"> • Modified Pile Layout at Pier 4 have 9 piles at each footing • Modified associated pile coordinates
170	13	<ul style="list-style-type: none"> • Changed skew at girder seat locations
170	14	<ul style="list-style-type: none"> • Has been updated to match latest NDDOT details on PPG
170	15	<ul style="list-style-type: none"> • Updated pipe & aggregate callout to match PPG
170	16	<ul style="list-style-type: none"> • Fixed conduit sketch and sheet reference
170	17	<ul style="list-style-type: none"> • Updated underdrain details to match PPG
170	18	<ul style="list-style-type: none"> • Added rebar couplers for Phase 2
170	19	<ul style="list-style-type: none"> • Added rebar couplers for Phase 2
170	20	<ul style="list-style-type: none"> • Added Section C-C

		<ul style="list-style-type: none"> • Added construction joint callout
170	21	<ul style="list-style-type: none"> • Modified pipe callout
170	22	<ul style="list-style-type: none"> • Changed skew at girder seat locations
170	23	<ul style="list-style-type: none"> • Added 5XB102, 5XC103, and 5XC102 bars and callouts; added section B-B
170	24	<ul style="list-style-type: none"> • Adjusted 5XT102 bar and callout • Modified epoxy coated rebar weight • Removed 2 bars • Added rebar couplers for Phase 2
170	25	<ul style="list-style-type: none"> • Added 5XT102 Bars in section; Added heights to abutment that were originally "varies"; clarified callouts in section A-A • Added fillet information • Adjusted elev and dimension for joint filler on top of wall
170	26	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9 • Added groundline and top of rail • Clarified anchor well callout
170	27	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	29	<p>NB Pier 3 Dimensions</p> <ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9 • Clarified anchor well callout
170	30	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	31	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	32	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9 • Added groundline and top of rail • Clarified anchor well callout
170	33	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	34	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	35	<ul style="list-style-type: none"> • Added groundline and top of rail

		<ul style="list-style-type: none"> • Clarified anchor well callout
170	38	<ul style="list-style-type: none"> • Clarified anchor well callout
170	41	<ul style="list-style-type: none"> • Clarified anchor well callout
170	45	<ul style="list-style-type: none"> • Bearing types changed; • Anchor well detail added
170	45A	<ul style="list-style-type: none"> • New Sheet
170	46	<ul style="list-style-type: none"> • Increased text size in Table
170	74	<ul style="list-style-type: none"> • Increased text size in Table
170	75	<ul style="list-style-type: none"> • Added referencing notes • Adjusted referencing call outs <ul style="list-style-type: none"> ○ “Typical Blister...” ○ “South Gateway...” • Added couplers to transverse rebars; revised coupler note
170	76	<ul style="list-style-type: none"> • Added referencing notes • Adjusted referencing call outs <ul style="list-style-type: none"> ○ “Typical Blister...”, “South Gateway...”
170	77	<ul style="list-style-type: none"> • Added referencing note • Adjusted referencing call out “Typical Blister...”
170	78	<ul style="list-style-type: none"> • Added referencing note • Adjusted referencing call out “Typical Blister...”
170	79	<ul style="list-style-type: none"> • Added referencing note • Adjusted referencing call out “Typical Blister...”
170	80	<ul style="list-style-type: none"> • Added referencing notes • Adjusted referencing call out “North Gateway...”
170	81	<ul style="list-style-type: none"> • Added note about rebar extension in Typ. Section
170	82	<ul style="list-style-type: none"> • Removed “Blister” from N Gateway title
170	83	<ul style="list-style-type: none"> • Rotated to accurately represent the orientation of the gateway
170	85	<ul style="list-style-type: none"> • Revised notes and finish callouts • Changed sheet title to Thematic columns
170	86	<ul style="list-style-type: none"> • Added “Transition Barrier Detail” to plan and elevation titles
170	87	<ul style="list-style-type: none"> • Rebar callout added to section A-A
170	88	<ul style="list-style-type: none"> • Added referencing call out • Adjusted slab to stop at end of barrier • Rebar callout added to section B-B

170	89	<ul style="list-style-type: none"> • Added referencing call out • Added abutment backwall • Rebar callout added to sections A-A and C-C
170	91	<ul style="list-style-type: none"> • Added referencing call out • Stop slab right after abutment 8 CL
170	93	<ul style="list-style-type: none"> • Added note referencing barrier rail expansion devices sheet • Added hot-dip galvanizing to sliding plate • Modified detail at NE corner w/ joint and fillet added
170	94	<ul style="list-style-type: none"> • Changed name of “Elevation View” and “Plan View” titles
170	96	<ul style="list-style-type: none"> • Updated for Abutment 8 rebar modifications; added note
170	97	<ul style="list-style-type: none"> • Updated for Piers 2 & 3 modifications (crash wall & footing changed, due to change from 12 piles to 9) • Added note
170	98	<ul style="list-style-type: none"> • Updated for Pier 4 modifications (crash wall & footing changed, due to change from 12 piles to 9) • Added note
170	99	<ul style="list-style-type: none"> • Added note
170	100	<ul style="list-style-type: none"> • Added note
170	102	<ul style="list-style-type: none"> • Added note for conduit placement
170	103	<ul style="list-style-type: none"> • Changed profile view
170	105	<ul style="list-style-type: none"> • Modified dimension callout; added galvanizing note and studs
170	106	<ul style="list-style-type: none"> • Modified dimension callouts; added studs
170	107	<ul style="list-style-type: none"> • Chamfer and connection plate revised for sliding plate
170	109	<ul style="list-style-type: none"> • Chamfer and connection plate revised for sliding plate
170	110	<ul style="list-style-type: none"> • Trough modification
170	111	<ul style="list-style-type: none"> • Trough modification
170	112	<ul style="list-style-type: none"> • Extraneous note about adding a drainage system removed • Trough modification
170	116	<ul style="list-style-type: none"> • Removed grout pad callout
170	117	<ul style="list-style-type: none"> • Removed grout pad callout
170	118	<ul style="list-style-type: none"> • Removed grout pad callout
170	122	<ul style="list-style-type: none"> • Corrected offset callout from CL Roadway

		<ul style="list-style-type: none"> • Added dimensions to slab plan reinforcement spacing
170	124	<ul style="list-style-type: none"> • Corrected sheet # callout • Removed Type 5 sealant callout • Changed ½" jt. filler to 1"
170	125	<ul style="list-style-type: none"> • Orientation of joint details B & C corrected
170	126	<ul style="list-style-type: none"> • Corrected orientation of keyways
170	128	<ul style="list-style-type: none"> • Same as for NB (above)
170	129	<ul style="list-style-type: none"> • Added centerline proposed roadway
170	132	<ul style="list-style-type: none"> • Same as for NB (above)
170	133	<ul style="list-style-type: none"> • Same as for NB (above)
170	134	<ul style="list-style-type: none"> • Changed skew at girder seats
170	135	<ul style="list-style-type: none"> • Same as for NB (above)
170	136	<ul style="list-style-type: none"> • Updated underdrain details to match latest details on PPG, same as NB
170	137	<ul style="list-style-type: none"> • Removed expansion joint
170	138	<ul style="list-style-type: none"> • Adjusted dimension to accommodate joint filler below approach slab
170	139	<ul style="list-style-type: none"> • Updated underdrain callouts to match PPG
170	140	<ul style="list-style-type: none"> • Removed old callout on underdrain pipe • Adjusted top of wall dimension
170	141	<ul style="list-style-type: none"> • Added threaded rebars
170	142	<ul style="list-style-type: none"> • Added threaded rebars
170	143	<ul style="list-style-type: none"> • Removed expansion joint; added threaded rebars
170	144	<ul style="list-style-type: none"> • Added threaded rebars
170	145	<ul style="list-style-type: none"> • Removed expansion joint; added threaded rebars
170	147	<ul style="list-style-type: none"> • Added Section A-A with corresponding section cut arrows
170	148	<ul style="list-style-type: none"> • Same as for NB
170	149	<ul style="list-style-type: none"> • Changed skew at girder seats; added anchor wells in Plan
170	150	<ul style="list-style-type: none"> • Same as for NB
170	151	<ul style="list-style-type: none"> • Same as for NB • Added rebar for splicing
170	152	<ul style="list-style-type: none"> • Same as for NB • Adjusted elev and dimension for joint filler on top of wall

170	153	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9 • Added groundline and top of rail • Deleted note at anchor well layout
170	154	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	155	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	156	<ul style="list-style-type: none"> • Piles reduced from 12 to 9; deleted anchor well note
170	157	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9 • Deleted note at anchor well layout
170	158	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	159	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9 • Added groundline and top of rail • Deleted note at anchor well layout
170	160	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9 • Deleted note at anchor well layout
170	161	<ul style="list-style-type: none"> • Updated to accommodate reduction in # of piles per footing from 12 to 9
170	162	<ul style="list-style-type: none"> • Added groundline and top of rail • Deleted note at anchor well layout
170	165	<ul style="list-style-type: none"> • Deleted note at anchor well layout
170	168	<ul style="list-style-type: none"> • Deleted note at anchor well layout
170	171	<ul style="list-style-type: none"> • Revised bearing types at piers; added anchor well detail w/corrugated pipe
170	171A	<ul style="list-style-type: none"> • New Sheet
170	195	<ul style="list-style-type: none"> • Increased text size in table
170	196	<ul style="list-style-type: none"> • Added referencing notes • Couplers added to transverse bars and note revised for these bars
170	197	<ul style="list-style-type: none"> • Couplers added to transverse bars and note revised for these bars
170	198	<ul style="list-style-type: none"> • Couplers added to transverse bars and note revised for these bars

170	199	<ul style="list-style-type: none"> • Couplers added to transverse bars and note revised for these bars
170	200	<ul style="list-style-type: none"> • Added referencing notes
170	201	<ul style="list-style-type: none"> • Type 5 sealant callout removed
170	202	<ul style="list-style-type: none"> • Remove drip groove; couplers from phase 1 shown
170	203	<ul style="list-style-type: none"> • Added referencing call out • Changed barrier detail to section A-A and added rebar callout
170	204	<ul style="list-style-type: none"> • Added referencing call out • Changed barrier detail to section B-B and added rebar callout
170	205	<ul style="list-style-type: none"> • Added thrie beam connection; modified barrier shape
170	209	<ul style="list-style-type: none"> • Added median barrier callouts
170	210	<ul style="list-style-type: none"> • Changed median finish callouts
170	211	<ul style="list-style-type: none"> • Updated to reflect Abutment 8 rebar modifications • Added note
170	212	<ul style="list-style-type: none"> • Updated to reflect modifications at Piers 2 & 3 from going from 12 piles per footing to 9 • Added note
170	213	<ul style="list-style-type: none"> • Updated to reflect modifications at Pier 4 from going from 12 piles per footing to 9 • Added note
170	214	<ul style="list-style-type: none"> • Added note
170	215	<ul style="list-style-type: none"> • Added note
170	217	<ul style="list-style-type: none"> • Added note about conduit placement
170	218	<ul style="list-style-type: none"> • Modified dimension callouts • Added note for galvanizing • Replaced superstructure gap table w/ reference to phase 1
170	219	<ul style="list-style-type: none"> • Modified dimension callouts • Replaced superstructure gap table w/ reference to phase 1
170	223	<ul style="list-style-type: none"> • Trough modified
170	224	<ul style="list-style-type: none"> • Trough modified
170	225	<ul style="list-style-type: none"> • Extraneous note about adding a drainage system removed • Trough modified
170	226	<ul style="list-style-type: none"> • Removed grout pad
170	227	<ul style="list-style-type: none"> • Removed grout pad

170	229	<ul style="list-style-type: none"> • Corrected offset callout from CL Roadway • Added existing approach slab from Phase 1 • Added dimensions to rebar spacing • Changed ½" jt. filler to 1"
170	230	<ul style="list-style-type: none"> • Revised reinforcing steel quantity • Removed surface finish note
170	231	<ul style="list-style-type: none"> • Same as for NB (sheet 124) • Revised rebar callout
170	232	<ul style="list-style-type: none"> • Changed orientation of detail B & C and location of keyways • Added rebars • Revised reinforcement quantity
200	1-10	<ul style="list-style-type: none"> • Updated to show new imprinted concrete limits • Updated to show removal of sidewalk west of US-83, South of the Bridge • Fixed some elevation callouts • Cleaned up some labels • Updated grading limits/ embankment to reflect guardrail addition

This addendum is to be incorporated into the bidder's proposal for this project.

Sincerely,
Burns & McDonnell

Jugesh Kapur, PE, SE
Project Manager

Attachment(s): NH-NHU-4-083(111)200 Addendum 1 Sheets

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

CONDITIONS OF CONTRACT AWARD

PROJECT NH-NHU-4-083(111)200 – PCN 18912

This contract includes installing pipe that will be either reinforced concrete or flexible pipe as specified in section 51 of the plans.

The Bidder must bid both of the following options for the bid to be considered a responsive bid:

- Option 1 is Pipe Conduit Storm Sewer
- Option 2 is Reinforced Concrete Pipe Storm Sewer

A “zero” bid for an option will not be considered a responsible bid. Bids that are not responsive fail to meet the requirements of the “Invitation to Bid” and will not be accepted.

The contract will be awarded to the lowest responsible bidder, defined as the bidder with the lowest sum total of the base bid and the lower amount of the two options bid.

The Project Bids software will determine the total bid amount by calculating the lowest sum total of the base bid and the lower amount of the two options bid.

The Department and the City reserve the right to construct the project with the pipe option of the choice after award of the contract.

BID ITEMS

Project: NH-NHU-4-083(111)200 (PCN-18912)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	107	0101	RAILWAY PROTECTION INSURANCE-2 LOCATIONS	L SUM	1.				
003	202	0105	REMOVAL OF STRUCTURE	L SUM	1.				
004	202	0136	REMOVAL OF PAVEMENT	TON	2,454.				
005	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	88.				
006	202	0230	REMOVAL OF INLETS	EA	4.				
007	202	0312	REMOVE EXISTING FENCE	LF	154.				
008	203	0113	COMMON EXCAVATION-WASTE	CY	2,756.				
009	203	0119	TOPSOIL-IMPORTED	CY	310.				
010	203	0140	BORROW-EXCAVATION	CY	3,090.				
011	203	0218	GUARDRAIL EMBANKMENT	EA	1.				
012	210	0100	CLASS I EXCAVATION	CY	3,164.				
013	210	0111	CLASS 2 EXCAVATION	L SUM	1.				
014	210	0201	FOUNDATION PREPARATION	EA	1.				
015	216	0100	WATER	M GAL	146.				
016	251	0300	SEEDING CLASS III	ACRE	.330				

BID ITEMS

Project: NH-NHU-4-083(111)200 (PCN-18912)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
017	251	2000	TEMPORARY COVER CROP	ACRE	.390				
018	253	0201	HYDRAULIC MULCH	ACRE	.720				
019	256	0501	RIPRAP-SPECIAL	TON	2,800.				
020	260	0200	SILT FENCE SUPPORTED	LF	2,294.				
021	260	0201	REMOVE SILT FENCE SUPPORTED	LF	2,294.				
022	302	0120	AGGREGATE BASE COURSE CL 5	TON	4,356.				
023	302	9010	AGGREGATE FOR REINFORCED FABRIC CL 5	TON	11,370.				
024	430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	212.				
025	550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	3,982.				
026	602	0130	CLASS AAE-3 CONCRETE	CY	1,927.				
027	602	1130	CLASS AE-3 CONCRETE	CY	3,580.				
028	602	1133	CONCRETE BRIDGE APPROACH SLAB	SY	451.				
029	602	1134	PILE SUPPORTED APPROACH SLAB	SY	782.				
030	602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	509.				
031	602	1208	CONCRETE BRIDGE BARRIER	LF	1,972.				
032	602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	5,949.				

BID ITEMS

Project: NH-NHU-4-083(111)200 (PCN-18912)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
033	602	7001	SPECIAL SURFACE FINISH	L SUM	1.				
034	602	8000	PEDESTAL	EA	12.				
035	612	0115	REINFORCING STEEL-GRADE 60	LBS	440,294.				
036	612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	527,222.				
037	616	0360	STRUCTURAL STEEL	LBS	2,544,950.				
038	622	0020	STEEL PILING HP 10 X 42	LF	3,092.				
039	622	0040	STEEL PILING HP 12 X 53	LF	2,908.				
040	622	0060	STEEL PILING HP 14 X 73	LF	10,348.				
041	622	0070	STEEL PILING HP 14 X 102	LF	8,494.				
042	622	6760	STEEL SHEET PILING	SF	9,622.				
043	624	0123	PEDESTRIAN RAILING	LF	750.				
044	624	0124	PEDESTRIAN FENCE	LF	1,350.				
045	702	0100	MOBILIZATION	L SUM	1.				
046	704	0100	FLAGGING	MHR	300.				
047	704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,901.				
048	704	1036	ATTENUATION DEVICE-TYPE B-30	EA	2.				

BID ITEMS

Project: NH-NHU-4-083(111)200 (PCN-18912)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
049	704	1051	TYPE II BARRICADE	EA	7.				
050	704	1052	TYPE III BARRICADE	EA	14.				
051	704	1060	DELINEATOR DRUMS	EA	61.				
052	704	1067	TUBULAR MARKERS	EA	31.				
053	704	1086	SEQUENCING ARROW PANEL-TYPE B	EA	2.				
054	704	1500	OBLITERATION OF PAVEMENT MARKING	SF	10,897.				
055	704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	229.				
056	704	4011	PORTABLE CHANGEABLE MESSAGE SIGN	EA	4.				
057	704	9100	VIDEO MONITORING SYSTEM	EA	2.				
058	706	0400	FIELD OFFICE	EA	1.				
059	706	0500	AGGREGATE LABORATORY	EA	1.				
060	708	1200	SMALL ROCK COVER	TON	73.				
061	708	1540	INLET PROTECTION-SPECIAL	EA	35.				
062	708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	35.				
063	709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	775.				
064	709	0200	GEOSYNTHETIC REINFORCEMENT	SY	18,791.				

BID ITEMS

Project: NH-NHU-4-083(111)200 (PCN-18912)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
065	709	0600	GEOTEXTILE FABRIC-TYPE RR	SY	1,320.				
066	714	5950	CORR STEEL PIPE ELBOW 18IN	EA	1.				
067	714	8498	CASING PIPE 18IN	LF	368.				
068	722	0100	MANHOLE 48IN	EA	1.				
069	722	1100	MANHOLE RISER 48IN	LF	3.				
070	722	1110	MANHOLE RISER 60IN	LF	1.400				
071	722	3510	INLET-TYPE 2	EA	6.				
072	722	3520	INLET-TYPE 2 DOUBLE	EA	2.				
073	722	3701	INLET SPECIAL-TYPE 2 48IN	EA	1.				
074	722	3910	INLET SLOTTED DRAIN 15IN	LF	30.				
075	722	6140	ADJUST GATE VALVE BOX	EA	3.				
076	722	6200	ADJUST MANHOLE	EA	3.				
077	724	0210	FITTINGS-DUCTILE IRON	LBS	472.				
078	724	0300	GATE VALVE & BOX 6IN	EA	1.				
079	724	0314	GATE VALVE & BOX 12IN	EA	1.				
080	724	0810	WATERMAIN 6IN PVC	LF	24.				

BID ITEMS

Project: NH-NHU-4-083(111)200 (PCN-18912)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
081	724	0850	WATERMAIN 12IN PVC	LF	122.				
082	748	0120	CURB & GUTTER MOUNTABLE-TYPE I	LF	93.				
083	748	0140	CURB & GUTTER-TYPE I	LF	979.				
084	748	0141	CURB & GUTTER-TYPE 1 SPECIAL	LF	27.				
085	748	0520	CURB-TYPE I	LF	26.				
086	750	0030	PIGMENTED IMPRINTED CONCRETE	SY	262.				
087	750	0115	SIDEWALK CONCRETE 4IN	SY	489.				
088	750	0140	SIDEWALK CONCRETE 6IN	SY	50.				
089	750	1000	DRIVEWAY CONCRETE	SY	49.				
090	750	2115	DETECTABLE WARNING PANELS	SF	44.				
091	752	0600	FENCE CHAIN LINK	LF	30.				
092	752	0911	TEMPORARY SAFETY FENCE	LF	586.				
093	752	3100	CORNER ASSEMBLY CHAIN LINK	EA	2.				
094	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	75.				
095	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	102.				
096	754	0170	FLEXIBLE DELINEATORS	EA	1.				

BID ITEMS

Project: NH-NHU-4-083(111)200 (PCN-18912)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
097	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	68.				
098	754	0592	RESET SIGN PANEL	EA	3.				
099	754	0593	RESET SIGN SUPPORT	EA	2.				
100	762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	416.				
101	762	0420	SHORT TERM 4IN LINE-TYPE R	LF	5,419.				
102	762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	23,221.				
103	762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	10,008.				
104	762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE-GROOVED	LF	578.				
105	762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	2,084.				
106	762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	295.				
107	764	0131	W-BEAM GUARDRAIL	LF	45.700				
108	764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	1.				
109	770	0001	LIGHTING SYSTEM	EA	1.				
110	770	0100	PULL BOX	EA	2.				
111	770	0110	JUNCTION BOX	EA	5.				
112	770	0392	5IN DIAMETER RIGID CONDUIT-BRIDGE MOUNTED	LF	8,028.				

BID ITEMS

Project: NH-NHU-4-083(111)200 (PCN-18912)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
113	772	0001	TRAFFIC SIGNALS SYSTEM	EA	1.				
114	920	1237	STRUCTURAL ENGINEER	MHR	200.				
115	930	3000	BRIDGE BENCH MARKS	SET	1.				
116	930	3040	BEARINGS (EXPANSION)	EA	81.				
117	930	3042	BEARINGS (FIXED)	EA	10.				
118	930	7012	ROADWAY CANOPY	L SUM	1.				
119	930	8681	FINGER EXPANSION JOINT	LF	214.				
120	930	9535	DECK DRAINAGE SYSTEM	L SUM	1.				
121	930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	4.				
			SUBTOTAL						
OPTION 1									
122	714	4097	PIPE CONDUIT 15IN-STORM DRAIN	LF	259.				
123	714	4101	PIPE CONDUIT 18IN-STORM DRAIN	LF	10.				
			SUBTOTAL OPTION 1						

TABLE OF CONTENTS

Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	2	1

PLAN SECTIONS

Section	Page(s)	Description
1	1	Title Sheet
2	1 - 2	Table of Contents
4	1	Scope of Work
6	1 - 5	Notes
6	6	Environmental Notes
8	1 - 3	Quantities
10	1	Basis of Estimate
11	1 - 2	Data Tables
20	1 - 13	General Details
30	1 - 4	Typical Sections
40	1 - 3	Removals
50	1	Inlet and Manhole Summary
51	1	Allowable Pipe List
52	1 - 2	SRT Telecommunications Conduits
60	1 - 5	Plan & Profile
75	1 - 2	Wetland Impacts
76	1 - 5	Temporary Erosion Control
77	1 - 2	Permanent Erosion Control
80	1	Layouts
81	1 - 9	Survey Coordinate and Curve Data
82	1 - 3	Survey Data Layouts
90	1 - 2	Paving Layouts
100	1 - 43	Work Zone Traffic Control
110	1 - 11	Signing
130	1 - 3	Guardrail
140	1 - 10	Lighting
150	1 - 9	Signals
170	1 - 233	Bridges and Box Culverts
175	1 - 8	Soil Boring Logs
199	1	Tied Plans
200	1 - 14	Cross Sections

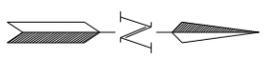
SPECIAL PROVISIONS

Number	Description
SP 0003(14)	Temporary Erosion and Sediment Best Management Practices
SP 0004(14)	Federal Migratory Bird Treaty Act
SP 0340(14)	Painting Over Galvanized Steel
SP 0341(14)	Railroad Requirements - BNSF
SP 0342(14)	Railroad Requirements - CP
SP 0343(14)	Bridge Removal and Building Monitoring
SP 0347(14)	Bridge Disc Bearings
SP 0364(14)	Mass Concrete
SP 0365(14)	Quality Control/Quality Assurance
SP 0366(14)	Work Zone Camera
SP 0372(14)	Bridge Deck Surface Tolerance and Texturing
SP 0386(14)	Conditions of Contract Award
SP 5131(14)	Permits and Environmental Considerations

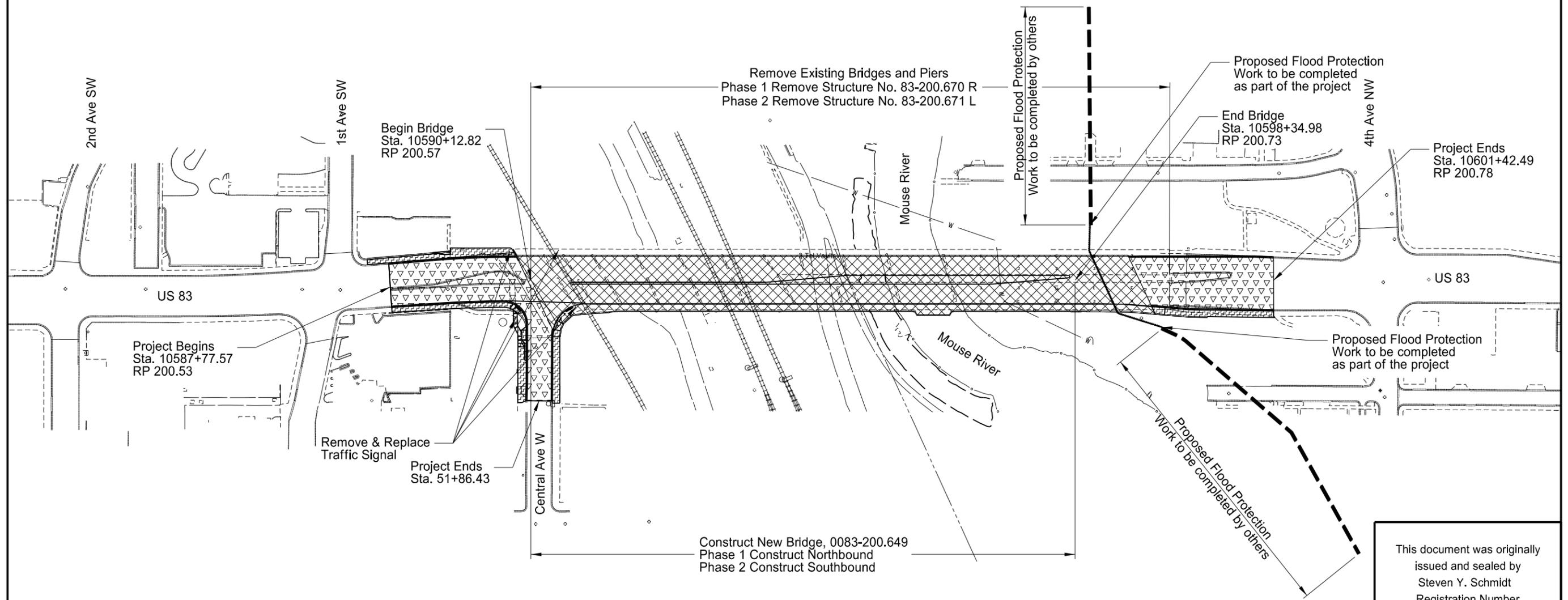
TABLE OF CONTENTS
LIST OF STANDARD DRAWINGS

Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	2	2

Number	Description	Number	Description
D-101-1, 2,3	NDDOT Abbreviations	D-764-1	W-Beam Guardrail General Details
D-101-10	NDDOT Utility Company and Organization Abbreviations	D-764-5	Sequential Kinking Terminal
D-101-20, 21	Line Styles	D-764-22	Typical Grading At Bridge Ends With W-Beam Guardrail
D-101-30, 31, 32	Symbols	D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
D-260-1	Erosion And Siltation Controls - Silt Fence	D-770-2	Feed Points (Roadway Lighting)
D-261-1	Erosion Control - Fiber Roll Placement Details	D-770-3	Pull Box Details
D-550-2	Longitudinal Joint Details	D-770-5	Light Standard Details
D-550-3	Transverse Contraction Joint Details	D-772-1	Feed Point - Traffic Signals
D-550-4	Transverse Expansion Joint Detail	D-772-2	Traffic Signal Standards
D-550-5	Transverse Construction Joint	D-772-3	Traffic Signal Standards (Mast Arm Type)
D-622-1	Pile Splice Details	D-772-4	Traffic Signal Head Mounting
D-704-1	Attenuation Device	D-900-1	Bridge Bench Marks
D-704-9	Construction Sign Details - Terminal And Guide Signs		
D-704-10	Construction Sign Details - Regulatory Signs		
D-704-12	Shoulder Closure Tapers		
D-704-13	Barricade And Channelizing Device Details		
D-704-14	Construction Sign Punching And Mounting Details		
D-704-16	Lane Closure On A Two Lane Road Using Traffic Control Signals		
D-704-27	Traffic Control Plan For Moving Operations		
D-704-50	Portable Sign Support Assembly		
D-704-51	Portable Precast Concrete Median Barrier (Temporary Usage)		
D-708-6	Erosion And Siltation Controls - Median Or Ditch Inlet Protection		
D-714-25	Transverse Mainline Pipe Installation Detail for Pipes More Than 4 Feet Below Top of the Proposed Subgrade		
D-714-26	Transverse Mainline Pipe Installation Detail for Pipes 4 Feet or Less Below Top of the Proposed Subgrade		
D-714-27	Pipe Installation Detail for Longitudinal Mainline Pipe or Pipe Not Under the Roadway		
D-722-1B	Inlet - Special		
D-722-2	Inlet - Type 2		
D-722-3A	Inlet - Slotted Drain		
D-722-5	Manhole Details		
D-724-1	Waterworks		
D-748-1	Curb & Gutter And Valley Gutter		
D-750-1	Concrete Driveway - Urban		
D-750-2	Sidewalk		
D-750-3	Curb Ramp Details		
D-752-2	Chain Link Fence		
D-754-7	Pipe Support And Sign Mounting Details		
D-754-23	Perforated Tube Assembly Details		
D-754-24, 25	Mounting Details Perforated Tube		
D-754-26, 27, 28, 42	Sign Punching, Stringer And Support Location Details Regulatory, Warning, And Guide Signs		
D-754-47	Sign Punching, Stringer And Support Location Details For Variable Length Signs		
D-762-1	Pavement Marking Message Details		
D-762-4	Pavement Marking		
D-762-11	Short-Term Pavement Marking		



Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	4	1



-  Bridge Construction and Approach Slabs
-  9IN Non Reinf Concrete Pvmnt, Curb & Gutter, Storm Sewer
-  Sidewalk Concrete 4IN, Sidewalk Concrete 6IN, Concrete Driveway, Moment Slab, Pigmented Imprinted Concrete 4IN

This document was originally issued and sealed by Steven Y. Schmidt Registration Number PE-9383, on 10/7/16 and the original document is stored at the North Dakota Department of Transportation

Scope of Work
Sta. 10587+77.57 to 10601+42.49
US-83 Broadway Viaduct
Minot, ND

NOTES

Revised 10/14/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)200	6	1

100-P01 **COORDINATION OF PROJECTS:** Another project in the vicinity of this project is under contract during the 2017 and 2018 construction seasons. This project is the Mouse River Enhanced Flood Protection Project, Phase MI-1, and is located along the north side of the Mouse River, on both sides of the viaduct, and crosses under US 83 Broadway at approximately Sta. 10598+72. The Contractor will be required to coordinate the use of common temporary construction easements with the Contractor of the Mouse River Enhanced Flood Protection Project. Both Contractors will be allowed use of these temporary construction easements concurrently and it will be the Contractors responsibility to coordinate work in these easements to avoid disruption and delays.

In addition, the Downtown Infrastructure Improvements Project located south of the US 83 Broadway Viaduct and in the downtown area in the City of Minot is under contract during the 2017 and 2018 construction seasons.

105-110 **PAVEMENT SWEEPING:** Sweep paved areas that were used by construction traffic before opening these areas to public traffic.

Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection.

Use a vacuum or pick-up type sweeper to perform this work.

105-200 **UTILITY COORDINATION:** A utility coordination meeting is required.

105-P01 **OPERATION OF CITY OF MINOT UTILITIES:** Notify the City of Minot Water Department, 701-857-4157, to operate all existing water main facilities owned by the City of Minot.

105-P02 **STATUS OF UTILITY COORDINATION:** Utility Conflict Plans and a Utility Inventory Summary are available to the Contractor as supplemental information. The following is a summary of utility relocation status. Refer to the item number provided on the Utility Inventory Summary.

Xcel Energy

Item #45: Buried power line is in conflict with proposed pier #2 construction and is scheduled to be relocated by others in the fall of 2016. If not relocated prior to beginning of construction, provide Xcel Energy with a 30-day notice to perform required relocation. Once relocated, existing buried line will be considered out of service. Confirm location of relocated Xcel facility and protect as necessary during construction of pier.

Items #56 - #58: Power pole and overhead lines to remain in place and will be adjusted by others during construction. Coordinate adjustments with Xcel Energy.

City of Minot

Items #7 - #10: Water line (6") is in conflict with construction of proposed Abutment #8. Water line is providing service to property currently being acquired by the City of Minot for the Enhanced Flood Protection project. Once the property is acquired, service will be terminated and the water line will be considered "out of service". Prior to initiating construction activities at proposed pier #8, coordinate with City of Minot on the status of this water line.

Item #72: Sanitary sewer line (10"VCP) is located near proposed Abutment #8 construction. Sanitary sewer is providing service to property currently being acquired by the City of Minot for the Enhanced Flood Protection project. Once the property is acquired, service will be terminated and the water line will be considered "out of service". Prior to initiating construction activities at proposed pier #8, coordinate with City of Minot on the status of this sanitary sewer line.

All other sanitary sewer, water line, and storm sewer are either not in conflict or adjusted as part of the project.

Burlington Northern Santa Fe Railroad

Item #28: Buried street light feed from small junction box attached to existing abutment to power pole has been relocated by the BNSF and this line is considered "out of service".

Item #29: Buried street light feed has been relocated by the BNSF to a new location. Existing buried line is considered "out of service". Confirm location of relocated street light feed with the BNSF prior to construction and protect as necessary during construction.

Item #30: Small junction box attached to existing pier has been relocated and is considered "out of service".

Item #31: Buried power feed from power pole to rail switch has been relocated by the BNSF and this line is considered "out of service". Confirm location of relocated power feed with the BNSF prior to construction and protect as necessary during construction.

Item #32: Existing power pole has been removed by the BNSF.

Item #33: Existing street light to be removed as part of the project.

This document was originally issued and sealed by Steven Y. Schmidt, Registration Number PE-9383, on 10/14/2016 and the original document is stored at the North Dakota Department of Transportation.

NOTES

Revised 10/14/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)200	6	2

107-112 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the Canadian Pacific Railway at RP 200.6. The type of work that will be performed within the railroad right of way is removal and demolition of existing bridge structures 83-200.670 R and 83-200.671 L, construction of proposed bridge structure 0083-200.649, Temporary Erosion and Sediment Control, and utility relocation work. Direct inquiries regarding protective liability insurance to:

Jim Krieger, PE
 Manager Public Works – Southern Region
 Canadian Pacific Railroad
 120 South 6th Street, Suite 900
 Minneapolis, MN 55402
 612-330-4555 off.
 jim_krieger@cpr.ca

107-115 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the BNSF Railway Company at RP 200.6. The type of work that will be performed within the railroad right of way is removal and demolition of existing bridge structures 83-200.670 R and 83-200.671 L, construction of proposed bridge structure 0083-200.649, Temporary Erosion and Sediment Control, and utility relocation work. Direct inquiries regarding protective liability insurance to:

Rosa Martinez
 Marsh USA Inc.
 4400 Comerica Bank Tower
 1717 Main Street
 Dallas, TX 75201-7357, USA
 214-303-8519
 Rosa.M.Martinez@marsh.com

108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.

108-150 PUBLIC RELATIONS COORDINATOR: Provide a public relations and information coordinator. The coordinator cannot be the project superintendent or construction foreman. The coordinator should be knowledgeable in construction operations, be able to develop effective media releases, possess written and verbal communication skills, and be able to organize productive meetings.

Provide the name, work address, and work phone number to the relevant project, community, and media personnel.

The public relations coordinator is responsible for providing the following:

1. Organizing, scheduling, and conducting the meeting specified in Note 108-100, "Weekly Planning/Reporting Meeting".
2. Advise Lance Meyer, from the City of Minot, PH: 701-857-4100, of upcoming construction activities in regard to street closures and traffic detour routes so that city police, emergency services, schools, and other pertinent city agencies may be notified.
3. Provide news releases and necessary drawings to the media before and during construction. News releases should inform the public on construction activities, schedules, street closures, width or height restrictions to traffic, and traffic detour routes. Update news releases regarding construction activities every other week, at a minimum.
4. Be available for media interviews.

Work directly with property owners and businesses affected by construction activities. The coordinator must have sufficient knowledge and authority to resolve property owner and business concerns regarding scheduling, maintaining access, and construction operations.

155-100 CONCRETE EQUIPMENT: Provide a NRMCA Certified plant for concrete used in Sections 550, "Concrete Pavement", 570 "Concrete Pavement Repair", 602 "Concrete Structures", and 622 "Pilings". 203-010 SHRINKAGE: 35 percent additional volume is included for shrinkage in earth embankment.

203-010 SHRINKAGE: 35% percent additional volume is included for shrinkage in earth embankment.

203-P01 EMBANKMENT: Construct embankments north of the Mouse River meeting the following characteristics:

1. No less than 35 percent of the particles by weight passing a #200 sieve.
2. A liquid limit (LL) no higher than 50 on that portion of the material passing a #40 sieve.
3. A plastic index (PI) no less than 12 on that portion of the material passing a #40 sieve.
4. A liquid limit (LL) and plastic index (PI) plotting above the "A" line on a plasticity chart.

Soils classified as clayey sand (SC) according to the Unified Soil Classification System (USCS), or soils classified as sandy lean clay, lean clay with sand, or lean clay (CL), would meet these criteria.

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NOTES

Revised 10/14/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)200	6	3

Place soils with a moisture content not less than one percentage point below, nor more than three percentage points above their optimum moisture content, when measured prior to compaction.

Place material in loose lifts 6 to 12 inches thick prior to compaction. Actual placed lift thickness will be dependent upon ambient temperatures, material moisture, and the equipment used to spread and compact the material. Adjust lift thickness as necessary to achieve proper compaction based on initial compaction test results.

Compact all material to at least 95 percent of the material's maximum standard Proctor (ASSHTO T99) dry density.

251-P01 SEEDING CLASS III: Provide the following seed mixture and hydraulic mulch for all seeding locations:

Species	Pounds Pure Live Seed/Acre
Kentucky Blue Grass	12.5
Red Fescue	7.5
Perennial Ryegrass	5
Total	25.0

253-P01 HYDRAULIC MULCH: Provide hydraulic mulch material as specified in the Section 253 "Mulching." Apply the hydraulic mulch after the seed is drilled into the topsoil. Provide a mixture of 5-10-5 fertilizer applied at a rate of 100 pounds per acre. Water the seed for at least three weeks after placement to provide sufficient moisture for growth.

The Contractor is responsible for regular maintenance of seeded areas which includes keeping these areas free of weeds and watering as needed to establish growth.

Include all costs for labor, materials, and equipment necessary to complete the work in the unit price bid for "Hydraulic Mulch".

302-110 BASE COURSE: Trim base course as specified in Section 302.04 C.1, "Surface Tolerance Type B."

550-P01 CONCRETE PAVEMENT: The development of a maturity curve, as specified in Section 550.04 B, "Mix Design", will not be required.

704-100 TRAFFIC CONTROL SUPERVISOR: Provide a Traffic Control Supervisor.

704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain 200 barriers from the NDDOT Maintenance Yard in Minot and the 30 units from the NDDOT Maintenance Yard in Stanley. Upon completion of the project, return the respective number of barrier until to the NDDOT Maintenance Yards in Minot and Stanley.

Some 4 inch x 4 inch boards are available at the return location. Provide any additional 4 inch x 4 inch boards necessary to stack barriers. The boards will become property of the Department. Include the cost for boards in the contract unit price for "Precast Concrete Median Barrier - State Furnished".

704-P01 TRAFFIC CONTROL PHASING: The proposed project includes two phases of construction. The 2017 season will include all of Phase 1 construction as described below. The 2018 season will include all of Phase 2 construction as described below. The following paragraphs summarize, by phase, the proposed construction activity.

Phase 1A Construction: Remove existing raised medians on US-83 North and South of Broadway Bridge and place temporary pavement creating uniform pavement surface.

Phase 1B Construction: Demo Existing NB Bridge and Construct NB Portion of the new viaduct (46'-1.5" of Deck), construct NB embankment and PCC pavement north of the bridge, reconstruct Central Avenue, construct Protection Canopy over 1st Ave. NW / BNSF Private Drive and the City of Minot Recreational Trail full width to protect during both phases of construction.

Winter 2017 – 2018: Complete the construction of the new NB structure during the 2017 construction season and open up to two NB through lanes and reopened the existing SB structure to two through lanes from November 1, 2017 to March 1, 2017.

Phase 2A Construction: Demo existing SB Bridge and construct SB portion of the new viaduct (37'-4.5" of Deck). Remove the temporary asphalt placed on the existing bridge structure to facilitate traffic movements during the winter months. Place barrier and shifting tapers on US-83 at the intersection of US-83 and Central Ave to direct traffic around the bridge demolition. Traffic will be shifted slightly to the East onto the temp asphalt placed in the existing right turn lane. This traffic shift will temporarily close Central Ave. to through traffic. Construct the new embankment on the south end of the project first and replace the temp asphalt on US-83 (see traffic control plans). Run traffic on the new asphalt and remove the temporary shifting tapers as well as open Central Ave. back up to right in, right out traffic.

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NOTES

Revised 10/14/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)200	6	4

Phase 2B Construction: Complete closure pour (3'-3" wide) and construct raised median followed by the completion of the SE quadrant of the intersection of US-83 and Central Ave.

704-P02 PORTABLE CHANGEABLE MESSAGE SIGN: Install Portable Changeable Message Signs (PCMS) before work begins on the project. The Engineer will determine the locations for PCMS installation. Relocate the PCMS as directed by the Engineer.

Provide an operator trained in the use of the PCMS.

The Engineer will determine the message to be displayed. The operator shall program the message within one hour of the Engineer's request to change the message.

706-P01 FIELD OFFICE: Provide a field office meeting the following requirements:

1. Minimum of 450 square feet.
2. Indoor bathroom facilities.
3. Air conditioner capable of maintaining 75 degree room temperature.
4. Full size refrigerator
5. Lighting (lumens required 110 foot-candles)
6. Minimum of 3 phone jacks
7. Heat, electric, sewer, and water hookups to be furnished and paid for by the Contractor.
8. Cabinet space of a minimum of 32 cubic feet.
9. Counter space of a minimum of 60 square feet.
10. The floor is to be free of protrusions so that it will accommodate office equipment.
11. Photocopy machine and toner to last the duration of the project.
12. Pay all rental fees and locate the field office on or as close to the project as possible and approved by the Engineer.
13. Provide field office for occupancy one week prior to the start of the project and remain available to project completion.
14. All requirements of the Filed Office are subject to approval by the Engineer.

708-P01 INLET PROTECTION: In addition to installation of inlet protection as shown in the plans, place sand bags in the gutter section and over the top of each slotted drain to prevent sediment from entering drains.

Remove all inlet protection devices at the end of the 2017 construction season when construction is no longer active. Reinstall the devices prior to the beginning of the 2018 construction season.

Include all costs for labor, materials, and equipment necessary to complete the work in the unit price bid for "Inlet Protection – Special".

708-P02 SMALL ROCK COVER: Provide crushed granite decorative rock at all locations shown on the plans with the following characteristics; multi-colored with various shapes and an average size of 2-1/2". Include all costs for labor, materials, and equipment necessary to complete the work in the unit price bid for "Small Rock Cover".

709-P01 GEOSYNTHETIC REINFORCEMENT: Supply a geosynthetic reinforcement with Long Term Tensile Strength (Tal) of 1,500 pounds per foot for the North Embankment and 1,700 pounds per foot for the South Embankment as per AASHTO R 69.

Submit manufacture certification that the material meets the Long Term Tensile Strength requirements and has been tested for compliance by National Transportation Product Evaluation Program (NTPEP) at the preconstruction conference.

Include cost for Geosynthetic Material Type S in the unit price for Geosynthetic Reinforcement.

722-100 INLETS AND MANHOLES: Inlets and manholes were designed with a minimum 4 foot riser height. Fill the bottom of each drainage structure with concrete, up to the lowest invert elevation.

722-P01 MANHOLE RISER 60IN: The existing storm sewer manhole, MH1, at Sta. 10589+43, 30' Lt. is approximately 30' deep and carries runoff from Broadway Avenue underneath the existing bridge abutment/retaining wall, and under the railroad tracks before discharging in to the Mouse River. Prior to installation of the Manhole Riser 60IN, remove the old manhole ring and cover to allow for inspection of the existing structure. The Engineer will determine the limits of removal of the existing manhole and the resulting final quantity of Manhole Riser 60IN that will be necessary to bring the structure to finished profile grade elevation.

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NOTES

Revised 10/14/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)200	6	5

750-P01 PIGMENTED IMPRINTED CONCRETE: Develop a mix design using any size coarse aggregate specified in Section 802.01 C.2, "Coarse Aggregate" and with a 60-40 fine aggregate-coarse aggregate ratio.

Provide a colored/stained Dark Gray pigment that meets the requirements of ASTM C 979.

Add pigment at the ratio recommended by the manufacturer directly into the mixer along with the aggregate, cement, and water. Add pigment while the mixer is operating at mixing speed. Continue mixing for 5 to 10 minutes or between 50 and 100 revolutions.

Form a pattern in the concrete using a roller to create a 4 inch x 8 inch brick pattern "Running Bond". Joint concrete at 4 feet to provide for expansion/contraction of sections.

Cure concrete using curing compound that meets the requirements of ASTM C 309, Type 1.

Submit 1 foot by 1 foot color sample to the Engineer for approval. Upon approval of the color sample, construct test panel measuring 48" x 24" x 3" thick on the project site demonstrating the final color and brick pattern. Engineer will use the test panel to evaluate the final colors and brick pattern of the Pigmented Imprinted Concrete constructed as indicated on the plans. Remove test panel from the job site after the Engineer has releases it.

770-P01: 5IN DIAMETER CONDUIT – BRIDGE MOUNTED. Install conduits for the North Dakota Department of Transportation and SRT Telecommunications, including all Schedule 80 PVC, conduit hangers attached to the bridge, expansion devices and all related appurtenances, as indicated on the plans. Include all costs for labor, materials, and equipment necessary to complete the work in the unit price bid for "5IN DIAMETER CONDUIT – BRIDGE MOUNTED".

770-P02: JUNCTION BOX: Install reinforced concrete junction boxes for the proposed SRT Telecommunication Conduits as indicated on the plans. Include all costs for labor, materials, and equipment necessary to complete the work in the unit price bid for "JUNCTION BOX".

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ENVIRONMENTAL NOTES

Revised 10/7/2016

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)200	6	6

ENVIRONMENTAL NOTES (EN): The North Dakota Department of Transportation and the Federal Highway Administration has made environmental commitments to secure approval of this project. The following environmental notes are requirements to comply with these commitments:

EN-1 SPAWNING RESTRICTION: Do not work within the Mouse River from April 15 to June 1.

EN-2 AQUATIC NUISANCE SPECIES (ANS): Notify the North Dakota Game and Fish Department (NDGFD) at least 72 hours prior to any vehicles, vessels, pumps and equipment entering the water, to allow the NDGFD sufficient time to inspect any and all such equipment for ANS. Contact the NDGFD ANS Coordinator, Jessica Howell, by phone (701)368-8368 or e-mail jmhowell@nd.gov for equipment inspections, or any additional information regarding ANS prevention protocol. Supply the inspection report to the engineer prior to work taking place in the water.

EN-3 TEMPORARY WATERS IMPACT: Temporary impact areas within the Mouse River are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in the Mouse River.

NOTIFICATIONS TO BE FILED BY CONTRACTOR:

EN-4 Notification is required for work within 3 nautical miles of the airport. Complete the Federal Aviation Administration Notice of Proposed Construction or Alteration Form 7460-1 (online at <http://oeaaa.faa.gov>).

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<u>SPEC-CODE</u>	<u>ITEM DESCRIPTION</u>	<u>Units</u>	<u>NH-NHU-4-083(111)200</u>	<u>NON-PARTICIPATING</u>	<u>TOTAL</u>
103-0100	Contract Bond	L SUM	1		1
107-0101	Railway Protection Insurance - 2 Locations	L SUM	1		1
202-0105	Removal of Structure	L SUM	1		1
202-0136	Removal of Pavement	TON	2,454		2,454
202-0174	Removal of Pipes All Types and Sizes	LF	88		88
202-0230	Removal of Inlets	EA	4		4
202-0312	Remove Existing Fence	LF	154		154
203-0113	Common Excavation-Waste	CY	2,756		2,756
203-0119	Topsoil-Imported	CY	310		310
203-0140	Borrow-Excavation	CY	3,090		3,090
203-0218	Guardrail Embankment	EA	1		1
210-0100	Class 1 Excavation	CY	3,164		3,164
210-0111	Class 2 Excavation	L SUM	1		1
210-0201	Foundation Preparation	EA	1		1
216-0100	Water	M GAL	146		146
251-0300	Seeding Class III	ACRE	0.33		0.33
251-2000	Temporary Cover Crop	ACRE	0.39		0.39
253-0201	Hydraulic Mulch	ACRE	0.72		0.72
256-0501	Riprap Special	TON	2,800		2,800
260-0200	Silt Fence Supported	LF	2,294		2,294
260-0201	Removal of Silt Fence Supported	LF	2,294		2,294
302-0120	Aggregate Base Course CL 5	TON	4,356		4,356
302-9010	Aggregate For Reinforced Fabric CL 5	TON	11,370		11,370
430-0500	Commercial Grade Hot Mix Asphalt	TON	212		212
550-0305	9IN Non Reinf Concrete Pvmt CL AE-Doweled	SY	3,982		3,982
602-0130	Class AAE-3 Concrete	CY	1,927		1,927
602-1130	Class AE-3 Concrete	CY	3,580		3,580
602-1133	Concrete Bridge Approach Slab	SY	451		451
602-1134	Pile Supported Approach Slab	SY	782		782
602-1135	Bridge Approach Slab - Remove & Replace	SY	509		509
602-1208	Concrete Bridge Barrier	LF	1,972		1,972
602-1250	Penetrating Water Repellent Treatment	SY	5,949		5,949
602-7001	Special Surface Finish	LSUM	1		1
602-8000	Pedestal	EA	12		12
612-0115	Reinforcing Steel- Grade 60	LBS	440,294		440,294
612-0116	Reinforcing Steel- Grade 60- Epoxy Coated	LBS	527,222		527,222
616-0360	Structural Steel	LBS	2,544,950		2,544,950
622-0020	Steel Piling HP 10 X 42	LF	3,092		3,092
622-0040	Steel Piling HP 12 X 53	LF	2,908		2,908
622-0060	Steel Piling HP 14 X 73	LF	10,348		10,348
622-0070	Steel Piling HP 14 X 102	LF	8,494		8,494
622-6760	Steel Sheet Piling	SF	9,622		9,622
624-0123	Pedestrian Railing	LF	750		750
624-0124	Pedestrian Fence	LF	1,350		1,350

Plan Quantities
Estimate of Quantities
US-83 Broadway Viaduct
Minot, ND

<u>SPEC-CODE</u>	<u>ITEM DESCRIPTION</u>	<u>Units</u>	<u>NH-NHU-4-083(111)200</u>	<u>NON-PARTICIPATING</u>	<u>TOTAL</u>
702-0100	Mobilization	L SUM	1		1
704-0100	Flagging	MHR	300		300
704-1000	Traffic Control Signs	UNIT	1,901		1,901
704-1036	Attenuation Device-Type B-30	EA	2		2
704-1051	Type II Barricades	EA	7		7
704-1052	Type III Barricades	EA	14		14
704-1060	Delineator Drums	EA	61		61
704-1067	Tubular Markers	EA	31		31
704-1086	Sequencing Arrow Panel - Type B	EA	2		2
704-1500	Obliteration of Pavement Marking	SF	10,897		10,897
704-3510	Precast Concrete Med Barrier - State Furnished	EA	229		229
704-4011	Portable Changeable Message Sign	EA	4		4
704-9100	Video Monitoring System	EA	2		2
706-0400	Field Office	EA	1		1
706-0500	Aggregate Laboratory	EA	1		1
708-1200	Small Rock Cover	TON	73		73
708-1540	Inlet Protection - Special	EA	35		35
708-1541	Removal of Inlet Protection - Special	EA	35		35
709-0151	Geosynthetic Material Type R1	SY	775		775
709-0200	Geosynthetic Reinforcement	SY	18,791		18,791
709-0600	Geosynthetic Material - Type RR	SY	1,320		1,320
714-5950	Corr Steel Pipe Elbow 18IN	EA	1		1
714-8498	Casing Pipe 18IN	LF	368		368
722-0100	Manhole 48IN	EA	1		1
722-1100	Manhole Riser 48IN	LF	3.0		3.0
722-1110	Manhole Riser 60IN	LF	1.4		1.4
722-3510	Inlet-Type 2	EA	6		6
722-3520	Inlet- Type 2 Double	EA	2		2
722-3701	Inlet Special- Type 2 48IN	EA	1		1
722-3910	Inlet Slotted Drain 15IN	LF	30		30
722-6140	Adjust Gate Valve Box	EA	3		3
722-6200	Adjust Manhole	EA	3		3
724-0210	Fittings Ductile Iron	LBS		472	472
724-0300	Gate Valve & Box 6IN	EA		1	1
724-0314	Gate Valve & Box 12IN	EA		1	1
724-0810	Watermain 6IN PVC	LF		24	24
724-0850	Watermain 12IN PVC	LF		122	122
748-0120	Curb & Gutter Mountable-Type I	LF	93		93
748-0140	Curb & Gutter-Type I	LF	979		979
748-0141	Curb & Gutter-Type I Special	LF	27		27
748-0520	Curb-Type I	LF	26		26
750-0030	Pigmented Imprinted Concrete	SY	262		262
750-0115	Sidewalk Concrete 4IN	SY	489		489
750-0140	Sidewalk Concrete 6IN	SY	50		50
750-1000	Concrete Driveway	SY	49		49
750-2115	Detectable Warning Panels	SF	44		44

Plan Quantities
Estimate of Quantities
US-83 Broadway Viaduct
Minot, ND

<u>SPEC-CODE</u>	<u>ITEM DESCRIPTION</u>	<u>Units</u>	<u>NH-NHU-4-083(111)200</u>	<u>NON-PARTICIPATING</u>	<u>TOTAL</u>
752-0600	Fence Chain Link	LF	30		30
752-0911	Temporary Safety Fence	LF	586		586
752-3100	Corner Assembly Chain Link	EA	2		2
754-0110	Flat Sheet For Signs-Type XI Refl Sheeting	SF	75		75
754-0112	Flat Sheet For Signs-Type IV Refl Sheeting	SF	102		102
754-0170	Flexible Delineators	EA	1		1
754-0206	Steel Galv Posts-Telescoping Perforated Tube	LF	68		68
754-0592	Reset Sign Panel	EA	3		3
754-0593	Reset Sign Support	EA	2		2
762-0122	Preformed Patterned PVMT MK- Message (Grooved)	SF	416		416
762-0420	Short Term 4IN Line - Type R	LF	5,419		5,419
762-0430	Short Term 4IN Line - Type NR	LF	23,221		23,221
762-1305	Preformed Patterned PVMT MK 4IN Line- Grooved	LF	10,008		10,008
762-1307	Preformed Patterned PVMT MK 6IN Line- Grooved	LF	578		578
762-1309	Preformed Patterned PVMT MK 8IN Line- Grooved	LF	2,084		2,084
762-1325	Preformed Patterned PVMT MK 24IN Line- Grooved	LF	295		295
764-0131	W-Beam Guardrail	LF	45.7		45.7
764-0145	W-Beam Guardrail End Terminal	EA	1		1
770-0001	Lighting System	EA	1		1
770-0100	Pull Box	EA	2		2
770-0110	Junction Box	EA	5		5
770-0392	5IN Diameter Conduit - Bridge Mounted	LF	8,028		8,028
772-0001	Traffic Signal System	EA	1		1
920-1237	Structural Engineer	MHR	200		200
930-3000	Bridge Bench Marks	SET	1		1
930-3040	Bearings (Expansion)	EA	81		81
930-3042	Bearings (Fixed)	EA	10		10
930-7012	Roadway Canopy	L SUM	1		1
930-8681	Finger Expansion Joint	LF	214		214
930-9535	Deck Drainage System	L SUM	1		1
930-9537	Abutment Underdrain System	EA	4		4

Option1: Pipe Conduit Storm Drain (See Section 51 for Allowable Materials)

<u>SPEC-CODE</u>	<u>ITEM DESCRIPTION</u>	<u>Units</u>	<u>NH-NHU-4-083(111)200</u>	<u>TOTAL</u>
714-4097	Pipe Conduit 15IN CL III- Storm Drain	LF	259	259
714-4101	Pipe Conduit 18IN CL III- Storm Drain	LF	10	10

Option2: Rienforced Concrete Pipe Storm Drain

<u>SPEC-CODE</u>	<u>ITEM DESCRIPTION</u>	<u>Units</u>	<u>NH-NHU-4-083(111)200</u>	<u>TOTAL</u>
714-0210	Pipe Conc Reinf 15IN CL III- Storm Drain	LF	259	259
714-0315	Pipe Conc Reinf 18IN CL III- Storm Drain	LF	10	10

Plan Quantities
Estimate of Quantities
US-83 Broadway Viaduct
Minot, ND

US-83 Phase 1 Earthwork									
Station	Area (SF)				Volume (CY)				
	End Area Exc.	End Area Embank.	End Area Aggregate Base CL 5	End Area Imported Topsoil	Excavation	Embankment	Borrow Excavation	Aggregate Base CL 5	Imported Topsoil
10587+77.57	31	0	36	0	-	-	-	-	-
10588+00.00	30	0	36	0	25	0	0	30	0
10588+25.00	33	0	36	0	29	0	0	33	0
10588+50.00	29	0	36	0	29	0	0	33	0
10588+75.00	21	2	37	5	23	0	0	35	0
10589+00.00	10	2	49	4	14	0	0	42	0
10589+25.00	1	6	55	5	5	0	0	52	0
10589+43.14	0	8	70	6	0	0	0	46	0
10589+50.00	0	9	76	6	0	0	0	21	0
10589+75.00	0	0	58	0	0	0	0	66	0
10590+00.00	0	0	64	0	0	0	0	57	0
10590+25.00	0	0	0	0	0	0	0	30	0
South of Bridge Subtotals					127	0	0	446	0
US 83 Broadway Viaduct									
10598+35.00	-	-	-	-	276	79	106	0	0
10598+35.00	0	0	0	0	-	-	-	-	-
10598+50.00	0	0	31	0	0	0	0	9	0
10598+58.08	0	90	43	13	0	13	18	11	2
10598+75.00	0	211	43	19	0	94	127	27	10
10599+00.00	0	196	45	20	0	188	254	41	18
10599+25.00	0	171	46	19	0	170	229	42	18
10599+50.00	0	120	48	15	0	135	182	43	16
10599+75.00	0	147	51	15	0	124	167	46	14
10600+00.00	59	35	59	12	27	84	114	51	12
10600+25.00	64	13	59	9	57	22	30	55	9
10600+46.86	62	3	60	6	51	6	8	48	6
10600+50.00	61	0	59	8	7	0	0	7	1
10600+75.00	62	0	60	3	57	0	0	55	5
10601+00.00	50	0	53	1	52	0	0	52	2
10601+25.00	50	0	53	0	47	0	0	49	1
10601+42.66	48	0	53	1	32	0	0	35	0
Pier 7 Over Excavation					600	-	-	-	-
North of Bridge Subtotals					1,207	915	1,236	571	114
US 83 Phase 1 Subtotals					1,334	915	1,236	1,017	114

Central Avenue Phase 1 Earthwork									
Station	Area (SF)				Volume (CY)				
	End Area Exc.	End Area Embank.	End Area Aggregate Base CL 5	End Area Imported Topsoil	Excavation	Embankment	Borrow Excavation	Aggregate Base CL 5	Imported Topsoil
50+36.47	0	0	92	33	-	-	-	-	-
50+50.00	0	0	74	26	0	0	0	42	15
50+75.00	0	0	83	29	0	0	0	73	26
51+00.00	8	0	82	0	4	0	0	77	14
51+25.00	24	0	70	0	15	0	0	71	0
51+50.00	50	0	69	0	34	0	0	65	0
51+75.00	44	0	44	0	43	0	0	52	0
51+86.15	61	0	54	0	22	0	0	20	0
Central Avenue Phase 1 Subtotals					118	0	0	399	54
TOTALS					1,452	915	1,236	1,416	168

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Data Tables
Earthwork Phase 1
US-83 Broadway Viaduct
Minot, ND

US-83 Phase 2 Earthwork									
Station	Area (SF)				Volume (CY)				
	End Area Exc.	End Area Embank.	End Area Aggregate Base CL 5	End Area Imported Topsoil	Excavation	Embankment	Borrow Excavation	Aggregate Base CL 5	Imported Topsoil
10587+77.57	49	0	42	0	-	-	-	-	-
10588+00.00	48	0	42	0	40	0	0	35	0
10588+25.00	50	0	43	0	46	0	0	39	0
10588+50.00	47	0	43	0	45	0	0	40	0
10588+75.00	27	0	47	0	35	0	0	42	0
10589+00.00	8	0	50	0	16	0	0	45	0
10589+25.00	0	0	64	0	4	0	0	53	0
10589+43.14	0	0	70	0	0	0	0	45	0
10589+50.00	0	0	75	0	0	0	0	18	0
10589+75.00	0	0	59	0	0	0	0	62	0
10590+00.00	0	0	0	0	0	0	0	27	0
10590+25.00	0	0	0	0	0	0	0	0	0
South of Bridge Subtotals					186	0	0	406	0
US 83 Broadway Viaduct									
Abutment 8 Berm	-	-	-	-	266	109	147	0	0
10598+17.32	0	129	0	15	-	-	-	-	-
10598+25.00	0	191	18	18	0	46	61	3	5
10598+50.00	0	289	42	23	0	222	300	28	19
10598+58.08	0	285	44	23	0	86	116	13	7
10598+75.00	0	272	43	23	0	174	235	27	14
10599+00.00	0	230	43	22	0	232	313	39	21
10599+25.00	0	212	43	17	0	205	276	40	18
10599+50.00	0	159	43	19	0	172	232	40	17
10599+75.00	0	59	43	13	0	101	136	40	15
10600+00.00	38	0	38	5	18	27	37	38	8
10600+25.00	39	0	38	5	36	0	0	36	5
10600+46.86	38	0	38	5	31	0	0	31	4
10600+50.00	37	0	38	5	4	0	0	4	1
10600+75.00	40	0	38	4	36	0	0	36	4
10601+00.00	47	0	39	3	40	0	0	36	4
10601+25.00	99	0	39	0	67	0	0	36	2
10601+42.66	97	0	38	0	64	0	0	25	0
Pier 7 Over Excavation					555	-	-	-	-
North of Bridge Subtotals					1,118	1,373	1,854	471	142
US 83 Phase 2 Subtotals					1,304	1,373	1,854	877	142

Earthwork Summary					
PHASE	Volume (CY)				
	Excavation	Embankment	Borrow Excavation	Aggregate Base CL 5	Imported Topsoil
1	1,452	915	1,236	1,416	168
2	1,304	1,373	1,854	877	142
TOTALS	2,756	2,288	3,090	2,293	310

EARTHWORK

See Cross Sections for Limits of Aggregate Base CL 5

All Excavation to be Wasted

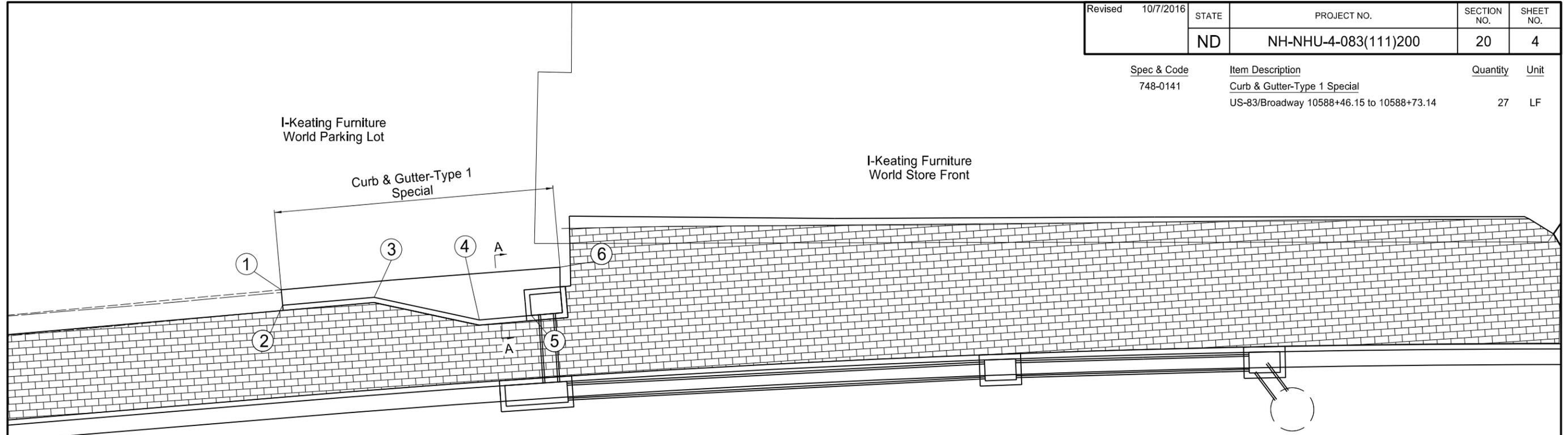
Earthwork Summary Total Excavation Includes 1155 CY of Excavation at Pier 7

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Data Tables
Earthwork Phase 2
US-83 Broadway Viaduct
Minot, ND

Revised	10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	20	4

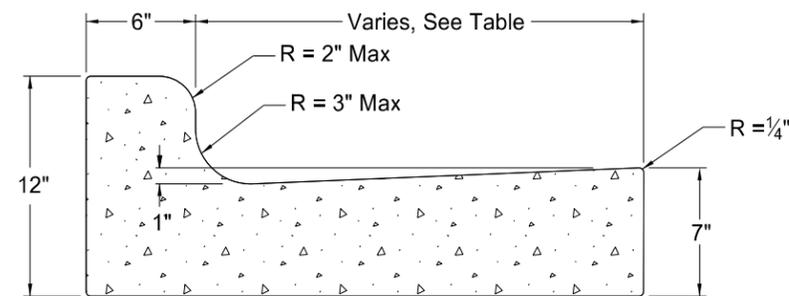
Spec & Code	Item Description	Quantity	Unit
748-0141	Curb & Gutter-Type 1 Special		
	US-83/Broadway 10588+46.15 to 10588+73.14	27	LF



Point	Station	Offset (Lt)	Northing	Easting
1	10588+46.15	48.77	451912.73	1774713.20
2	10588+46.18	47.27	451912.85	1774714.69
3	10588+55.06	47.49	451921.70	1774713.99
4	10588+65.06	44.66	451931.84	1774716.27
5	10588+70.10	44.78	451936.87	1774715.88
6	10588+73.14	49.25	451939.66	1774711.25

US-83 / Broadway

10589



Curb & Gutter-Type 1 Special
Section A-A

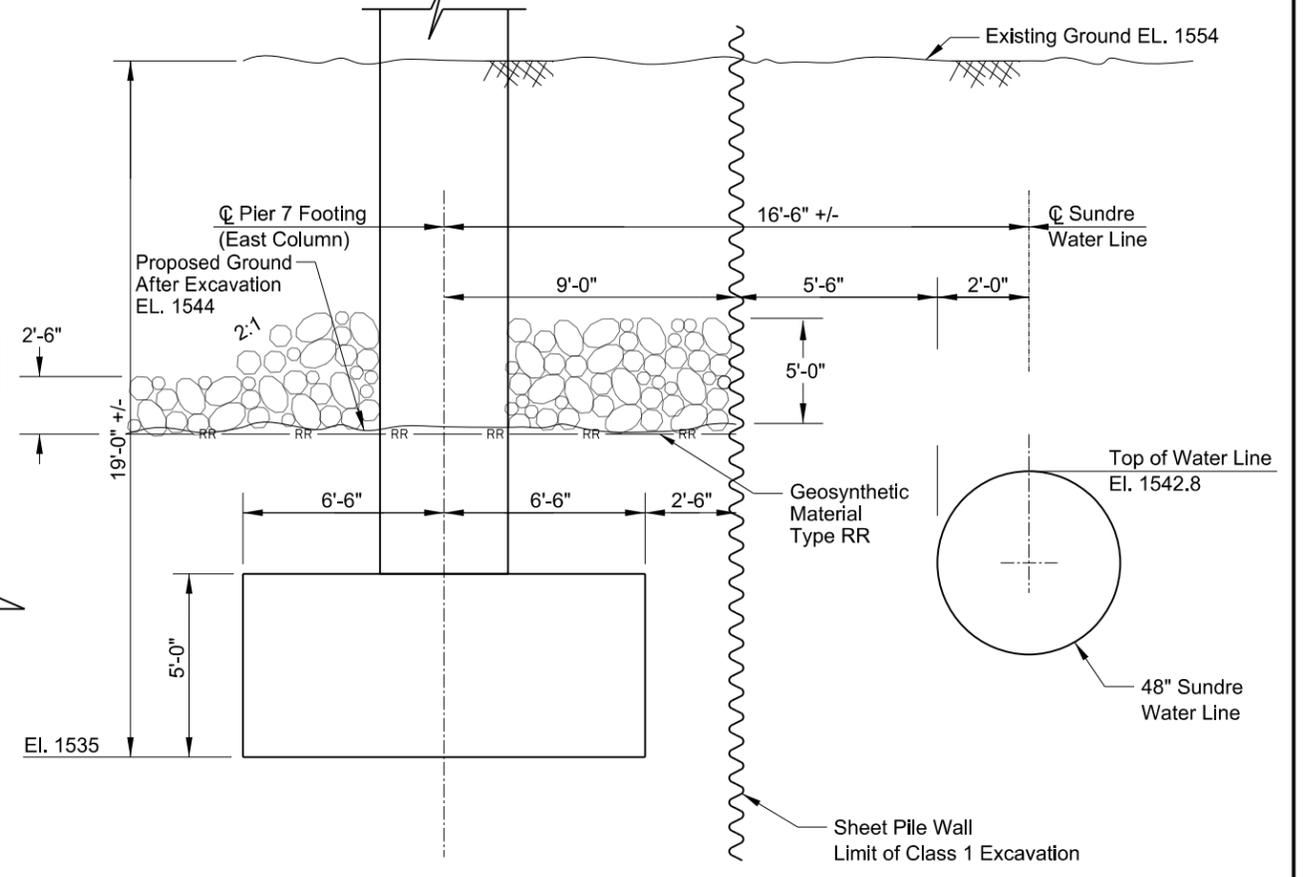
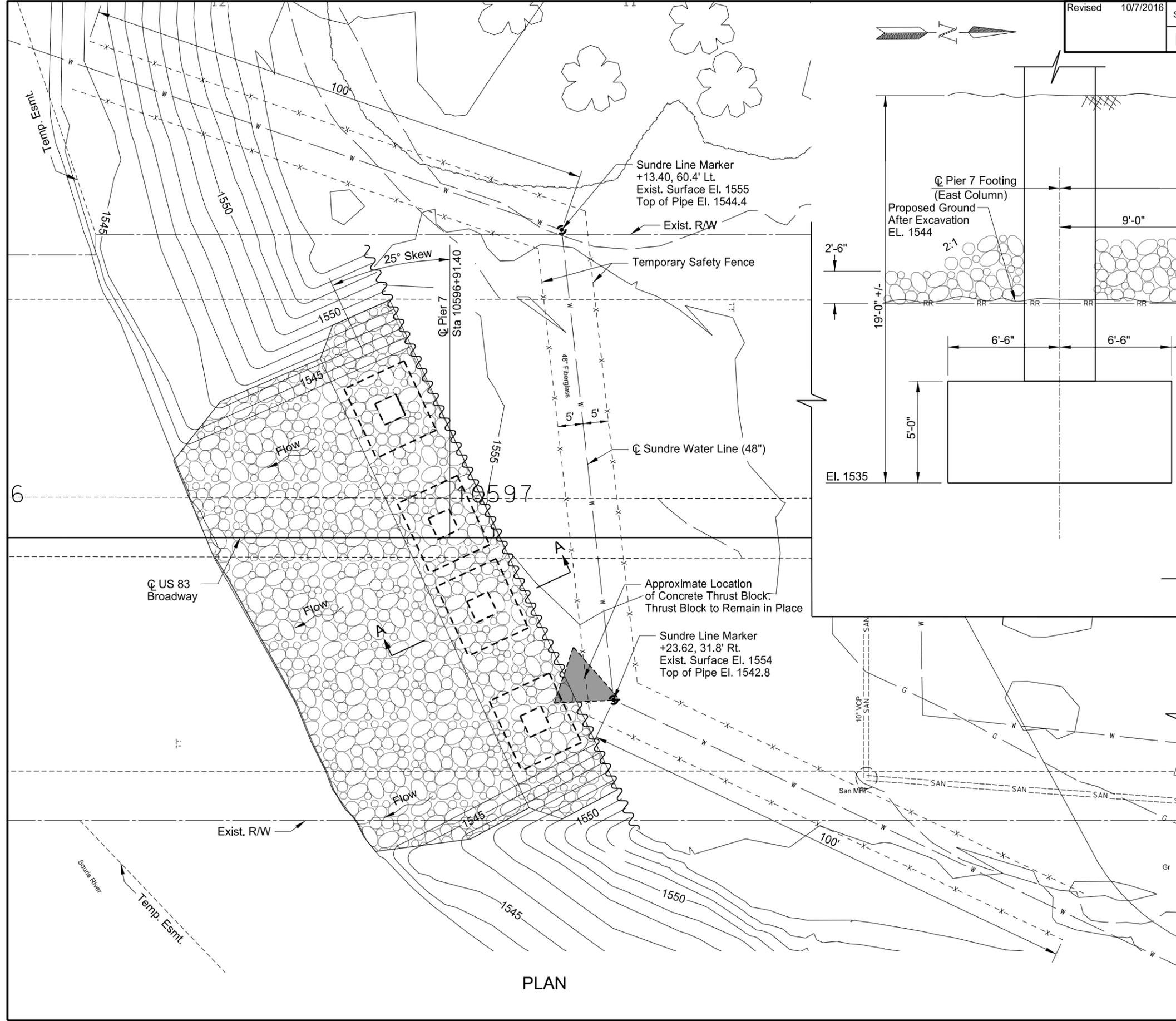


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Parking Lot Drainage Detail

US-83 Broadway Viaduct
Minot, ND

Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	20	10

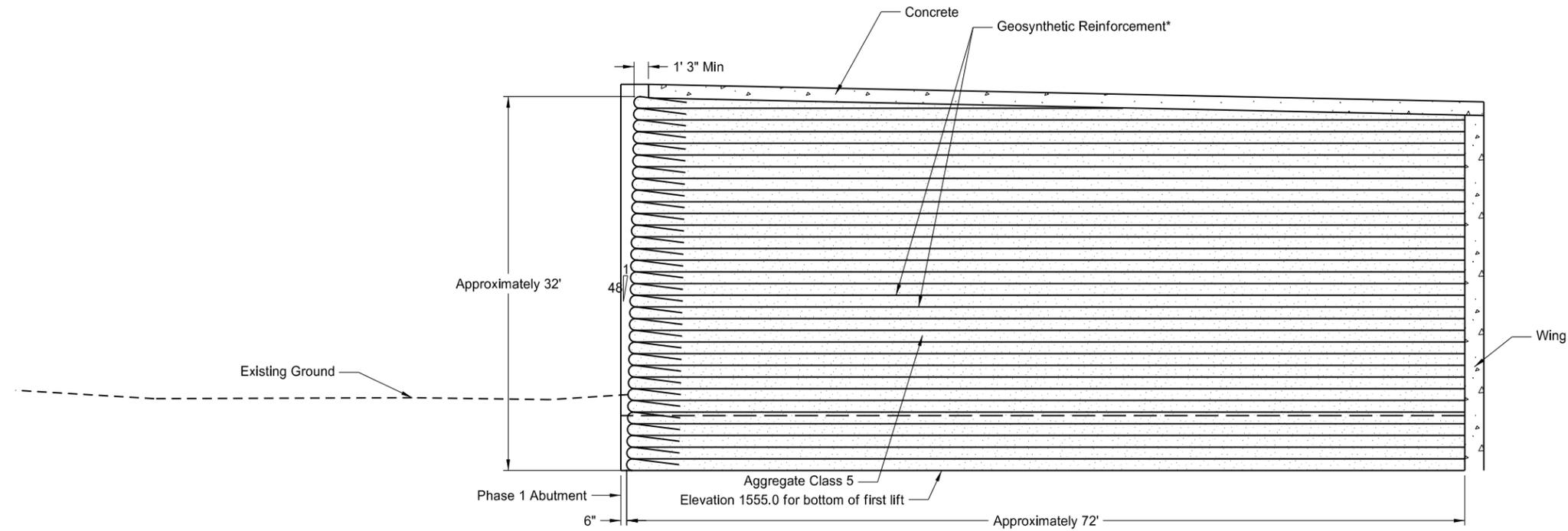


SECTION A-A
N.T.S.

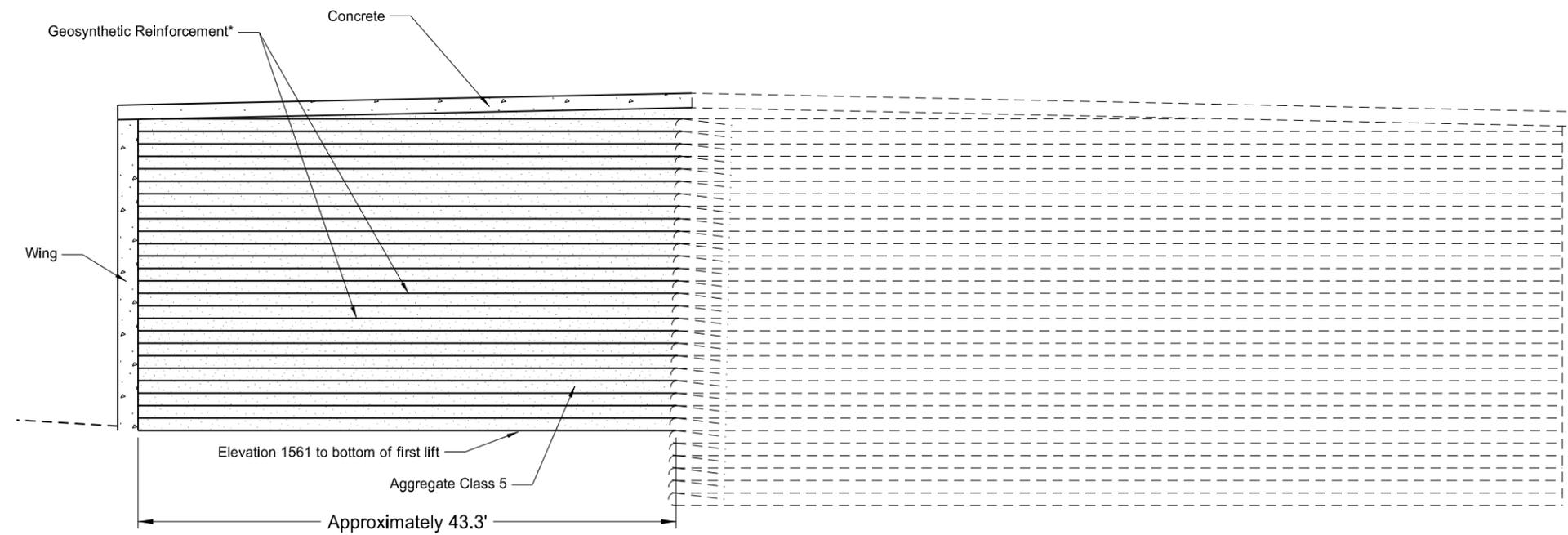
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Pier 7 & Sundre Water Line Location
US-83 Broadway Viaduct
Minot, ND

Revised 10/17/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	20	11



Cross Section View of Reinforced Embankment - Phase 1



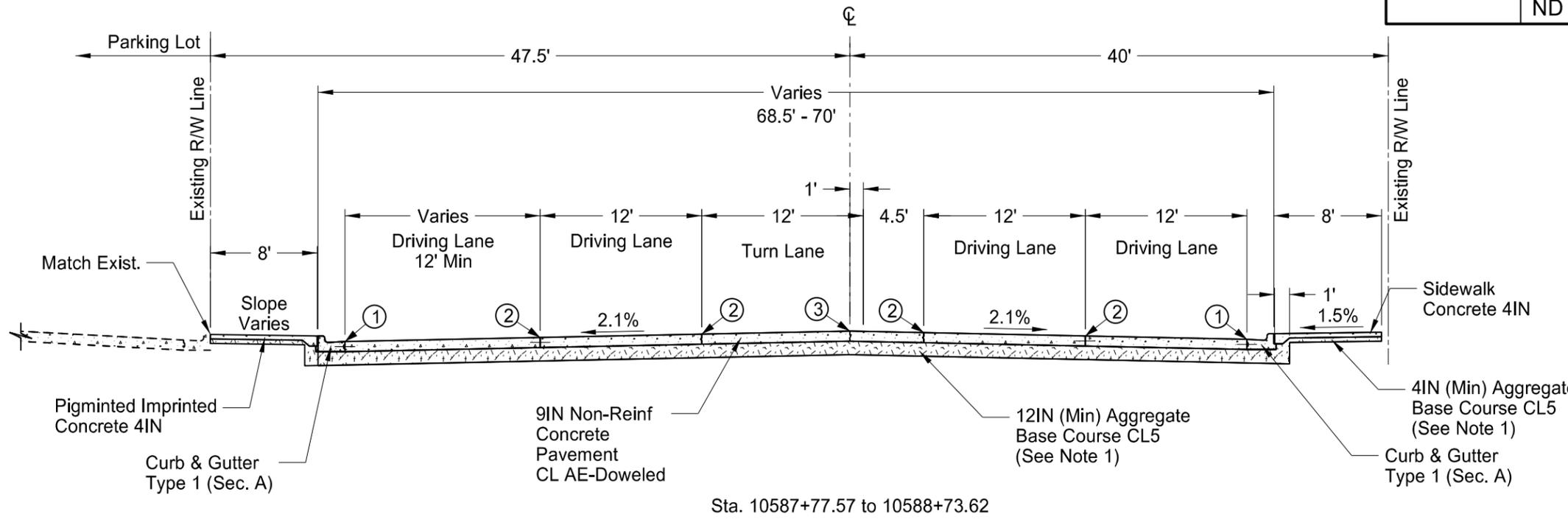
Cross Section View of Reinforced Embankment - Phase 2

*The Geosynthetic Reinforcement is to be continuous no splicing will be allowed.

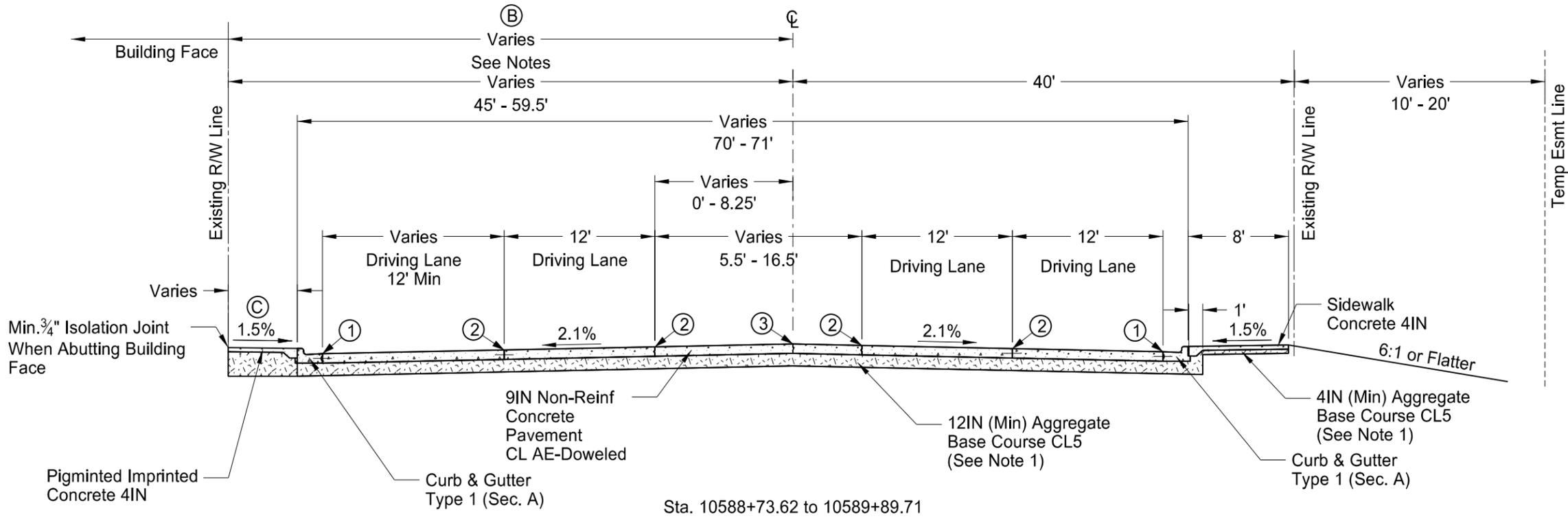
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Geosynthetic Wall
South Embankment
Station 10589+95 to Station 10590+12

Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	30	2



Notes:
1. Depth Varies. See Cross Sections and Section 11 Quantities.



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- (A) Applies to Sta. 10588+46.15 to 10588+73.62 See Section 20, Sheet 4.
- (B) Applies to Sta. 10588+70.83 to 10589+71.30 Offset Varies from 59.50' - 46.50'
- (C) Applies to Sta. 10588+73.62 to 10588+85.00 Slope Varies. Transition Slope to 1.5% (Typ.). Maintain Postive Drainage Toward Roadway.

- (1) No. 3 x 18" Tie Bars @ 4' c to c
- (2) Tied Joint
- (3) Keyed Joint

Proposed Typical Sections
US-83
Sta. 10587+77.57 to 10589+89.71
US-83 Broadway Viaduct
Minot, ND

INLET AND MANHOLE SUMMARY												
Structure	Size	Type	Grate Style	Station	Offset	Rim/Grate Elev.	Invert			Base Elevation	Riser (ft)	H' Dist. (ft)
							Direction	Size	Elev.			
1A		Type 2 Double	V	10588+80.00	29.7 RT	1585.75	North	15	1581.60	1581.41		4.00
1B		Type 2	D	10589+15.00	30.5 RT	1585.43	South	15	1580.48	1580.09		5.00
							North	15	1580.28			
1C		Type 2	V	10589+43.50	31.8 RT	1585.60	South	15	1579.97	1579.26		6.00
							West	18	1579.47			
1D		Type 2	D	10588+71.60	44.8 LT	1586.09	North	15	1581.94	1581.75		4.00
1E		Type 2 Double	V	10588+70.00	36.7 LT	1585.81	West	15	1581.86	1581.47		4.00
							North	15	1581.66			
1F		Type 2	D	10589+15.00	36.2 LT	1585.31	South	15	1580.36	1579.97		5.00
							North	15	1580.16			
1G		Type 2	V	10589+40.42	35.3 LT	1585.49	South	15	1579.57	1579.16		6.00
							NorthEast	18	1579.37			
MH1	60"	Existing		10589+42.85	31.1 LT	1585.69	SouthWest	18	1578.84	Existing	1.41	
							East	18	1578.83			
							NorthWest	18	1555.26			
2A		Type 2	V	10600+46.78	34.8 LT	1557.53	East	15	1552.68	1552.49		4.70
		Inlet Slotted Drain 15in			10600+37.46	36.0 LT						
2B	48"	Type 2-Special	V	10600+47.07	44.7 RT	1557.31	West	15	1552.48	1551.97		5.00
		Inlet Slotted Drain 15in			10600+31.70	44.5 RT						
MH2	48"			10601+65.00	81.5 RT	1553.55	SouthWest	15	1550.38	1549.05		3.00
							East	18	Existing			

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Inlet and Manhole Summary
 Drainage
 US-83 Broadway Viaduct
 Minot, ND

Begin Station/Location	End Station/Location	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Cover	R1 Fabric (Pay Item)	Applicable Backfill Detail
		IN	Bid Item	LF								
Inlet 1A	Inlet 1B	15	Pipe Conduit-Storm Drain	31	Reinforced Concrete Pipe-Class III	15			0.064, 0.079, 0.109	2.90	179	D714-26
			Spiral Rib Steel Pipe		P		3/4, 1					
Inlet 1B	Inlet 1C	15	Pipe Conduit-Storm Drain	26	Reinforced Concrete Pipe-Class III	15			0.064, 0.079, 0.109	4.38	76	D714-25
			Spiral Rib Steel Pipe		P		3/4, 1					
Inlet 1C	Exist. 18" Pipe	18	Pipe Conduit-Storm Drain	6	Reinforced Concrete Pipe-Class III	18				4.63	19	D714-25
Inlet 1D	Inlet 1E	15	Pipe Conduit-Storm Drain	7	Reinforced Concrete Pipe-Class III	15			0.064, 0.079, 0.109	2.90	40	D714-26
			Spiral Rib Steel Pipe		P		3/4, 1					
Inlet 1E	Inlet 1F	15	Pipe Conduit-Storm Drain	41	Reinforced Concrete Pipe-Class III	15			0.064, 0.079, 0.109	2.90	236	D714-26
			Spiral Rib Steel Pipe		P		3/4, 1					
Inlet 1F	Inlet 1G	15	Pipe Conduit-Storm Drain	23	Reinforced Concrete Pipe-Class III	15			0.064, 0.079, 0.109	3.90	140	D714-26
			Spiral Rib Steel Pipe		P		3/4, 1					
Inlet 1G	Exist. Storm MH 1	18	Pipe Conduit-Storm Drain	4	Reinforced Concrete Pipe-Class III	18				5.35	13	D714-25
Inlet 2A	Exist 15" Pipe	15	Pipe Conduit-Storm Drain	6	Reinforced Concrete Pipe-Class III	15				3.57	36	D714-26
Exist. 15" Pipe	Inlet 2B	15	Pipe Conduit-Storm Drain	6	Reinforced Concrete Pipe-Class III	15				3.58	36	D714-26
Inlet 2B	Storm MH 2	15	Pipe Conduit-Storm Drain	119	Reinforced Concrete Pipe-Class III	15			0.064, 0.079, 0.109	1.92		D714-27
			Spiral Rib Steel Pipe		P		3/4, 1					

Coatings
Z=Zinc
A=Aluminum
P=Polymeric (over Zinc or Aluminum)

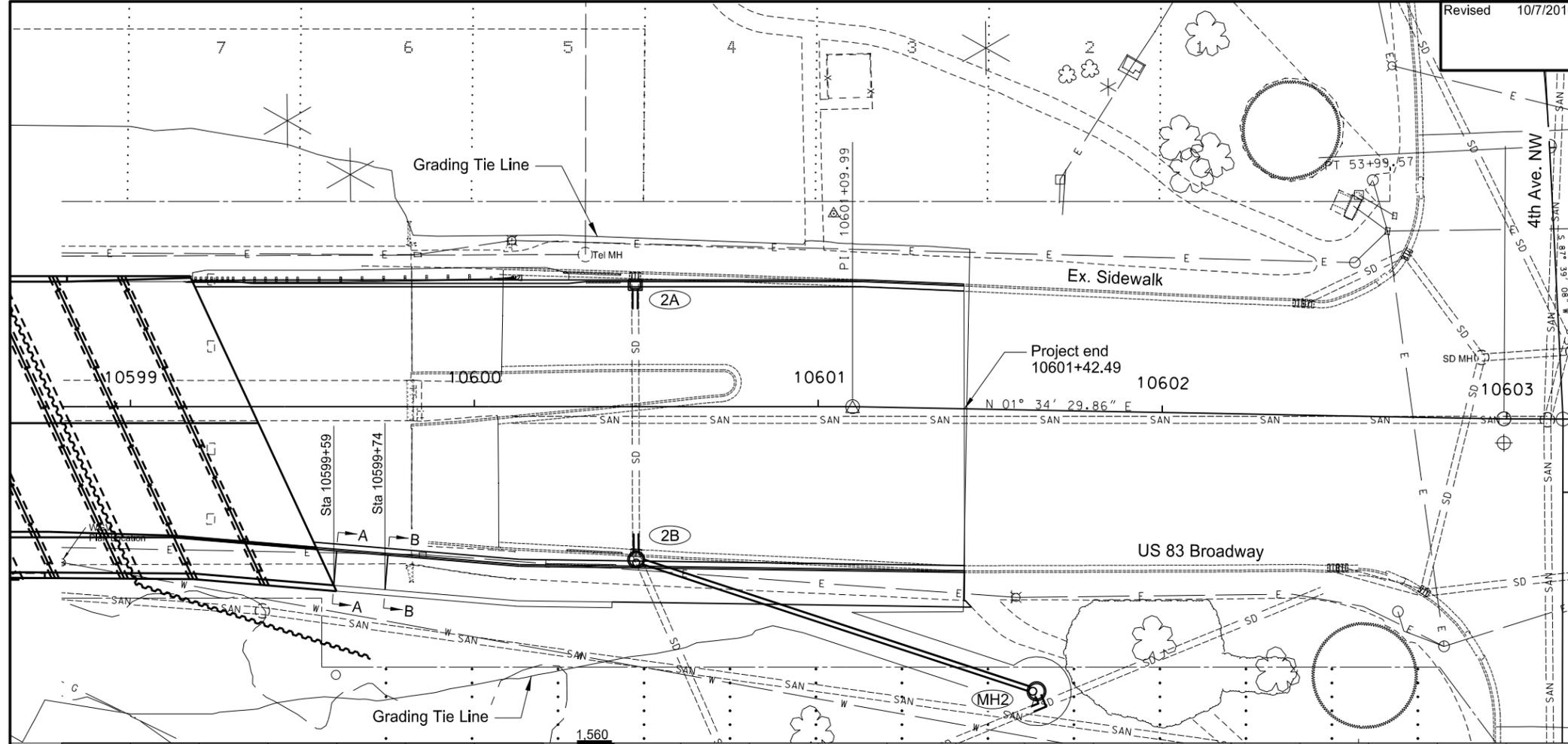
Spiral Ribs
3/4=3/4" x 3/4" @ 7-1/2"
1=3/4" x 1" @ 11-1/2"

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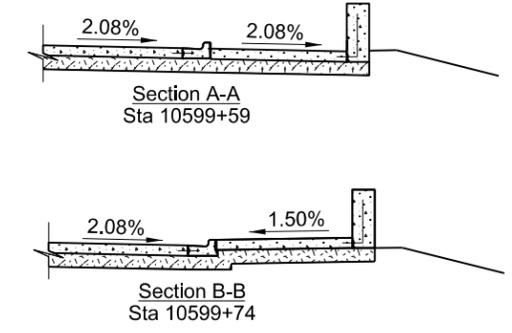
Allowable Pipe List
Drainage
US-83 Broadway Viaduct
Minot, ND

Revised 10/7/2016

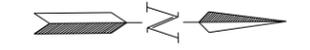
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)200	60	4



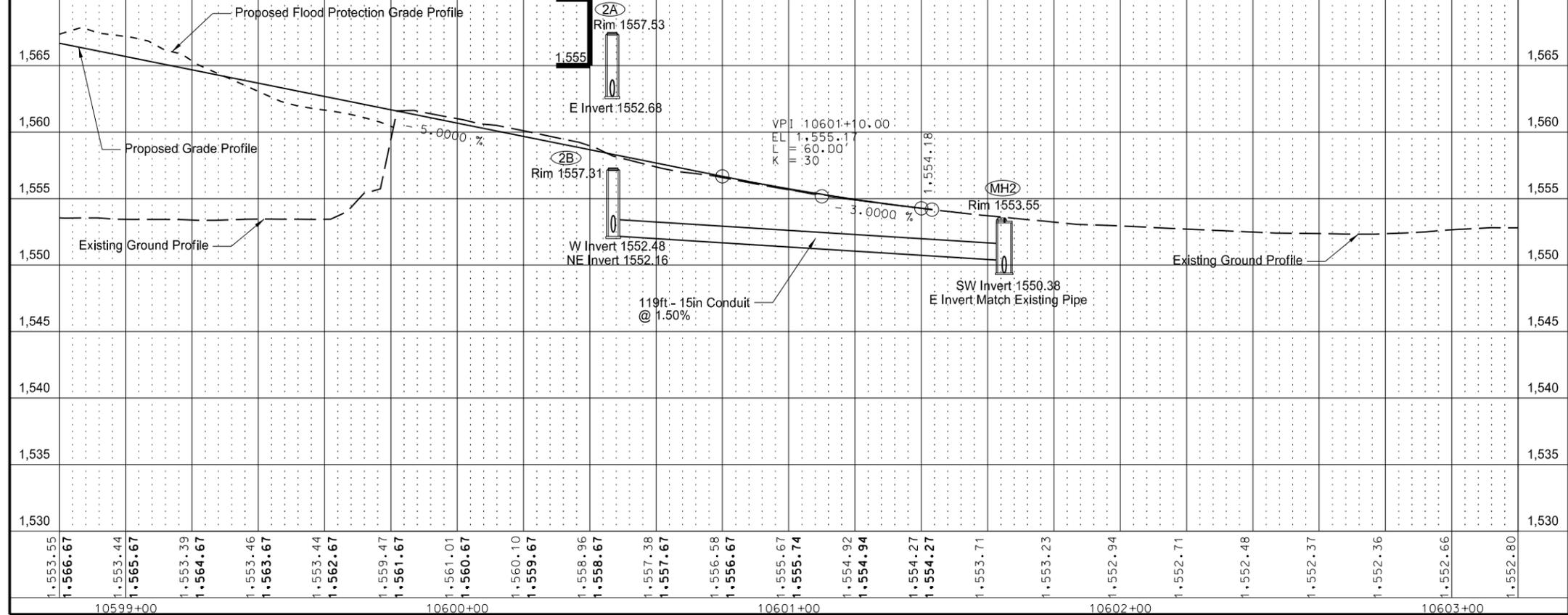
Spec & Code	Item Description	Quantity	Unit
202-0174	Removal of Pipe All Types and Sizes		
	10600+46.76 - 37.9' LT TO 10600+46.81 - 28.8' LT	9	LF
	10600+47.06 - 42.3' RT TO 10600+47.01 - 36.8' RT	6	LF
	TOTAL	15	LF
202-0230	Removal of Inlets		
	10600+46.76 - 37.9' LT	1	LF
	10600+47.06 - 12.3' RT	1	LF
	TOTAL	2	LF
714-4097	Pipe Conduit 15IN-Storm Drain		
	Inlet 2A to Exist. 15IN	6	LF
	Exist. 15IN to Inlet 2B	6	LF
	Inlet 2B to MH2	119	LF
	TOTAL	131	LF
714-5950	Corr Steel Pipe Elbow 18IN-Storm Drain		
	MH 2 to Exist. 18 IN	1	EA
	TOTAL	1	EA
722-0100	Manhole 48IN		
	Storm MH 2 - 10601+65.00 - 81.5' RT	1	EA
	TOTAL	1	EA
722-1100	Manhole Riser 48IN		
	Storm MH 2 - 10601+65.00, 81.5' RT	3	LF
	TOTAL	3	LF
722-3510	Inlet-Type 2		
	Inlet 2A, Sta 10600+46.78, 34.8' LT	1	EA
	TOTAL	1	EA
722-3701	Inlet Special - Type 2 48IN		
	Inlet 2B, Sta 10600+47.07, 44.7' RT	1	EA
	TOTAL	1	EA
722-3910	Inlet Slotted Drain 15IN		
	Inlet 2A - 10600+37.46 - 36.0' LT	10	LF
	Inlet 2B - 10600+31.70 - 44.5' RT	20	LF
	TOTAL	30	LF



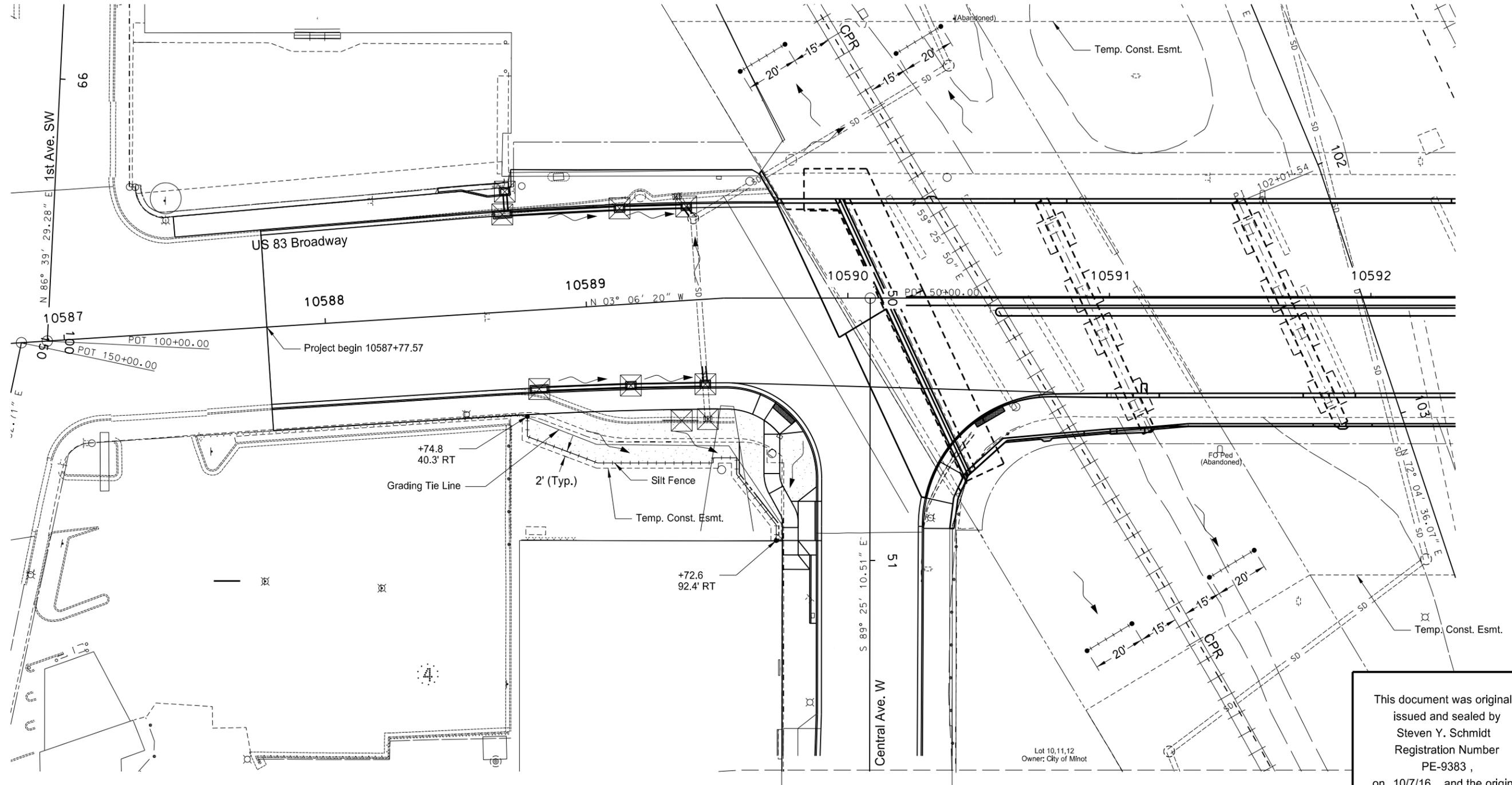
See Sec. 82 for Limits of Temporary Construction Easements.



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Plan and Profiles
Sta. 10599+00 to 10601+42.49
US-83 Broadway Viaduct
Minot, ND



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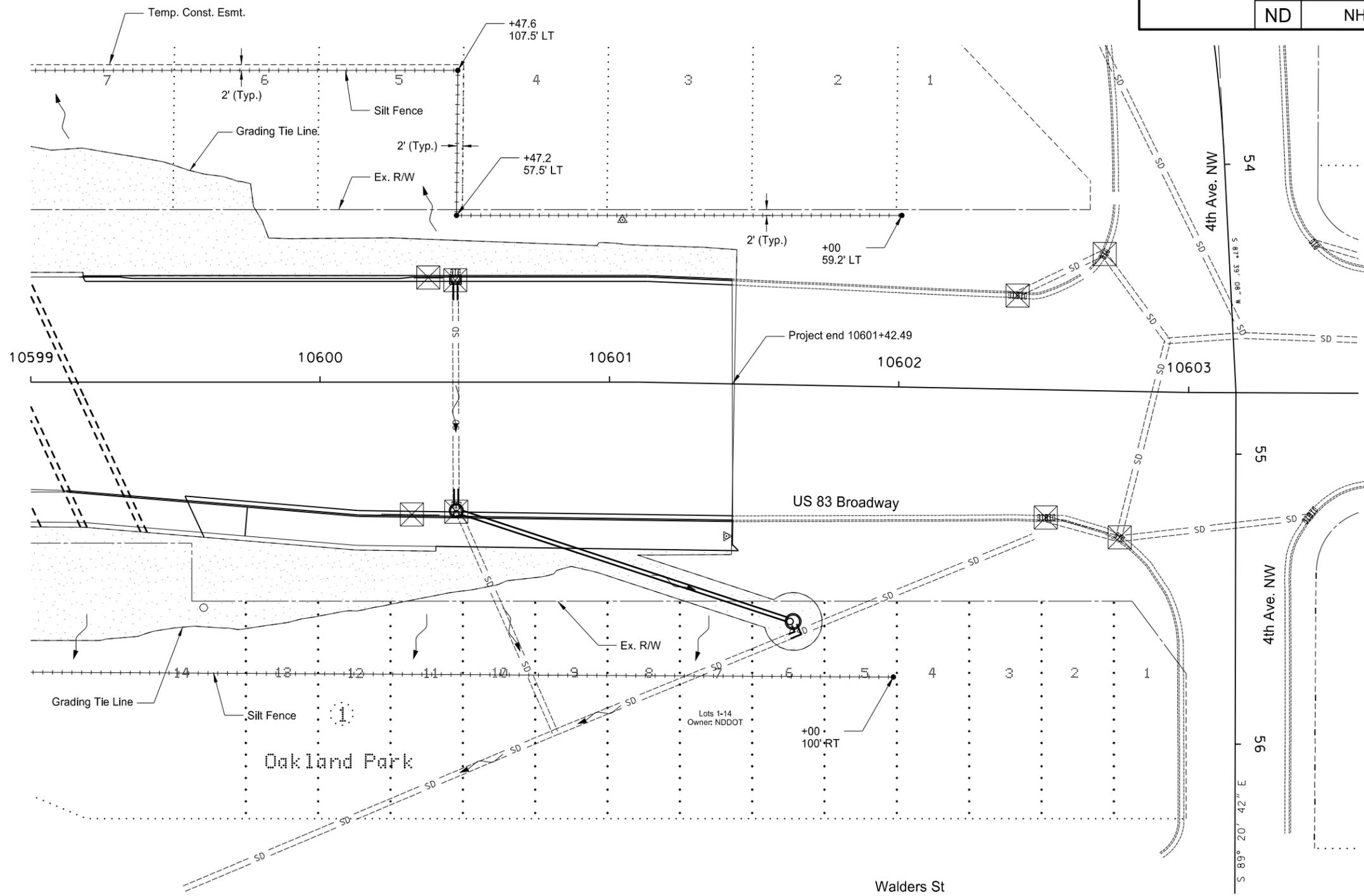
Spec & Code	Item Description	Phase 1	Phase 2	Total	Unit
251-2000	Temporary Cover Crop	0.05	0	0.05	ACRE
253-0201	Hydraulic Mulch	0.05	0	0.05	ACRE
260-0200	Silt Fence Supported	209	0	209	LF
260-0201	Removal of Silt Fence Supported	0	209	209	LF
708-1540	Inlet Protection - Special	6	9	15	EA
708-1541	Removal of Inlet Protection - Special	6	9	15	EA

SEEDING & EROSION CONTROL LEGEND

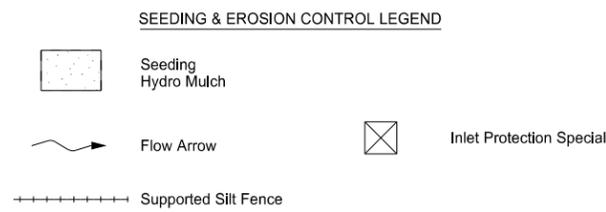
	Seeding		Inlet Protection Special
	Hydro Mulch		Inlet Protection Fiber Rolls
	Flow Arrow		
	Supported Silt Fence		



Temporary Seeding and Erosion Control Plans
 Sta. 10587+00 to Sta. 10592+00
 US-83 Broadway Viaduct
 Minot, ND

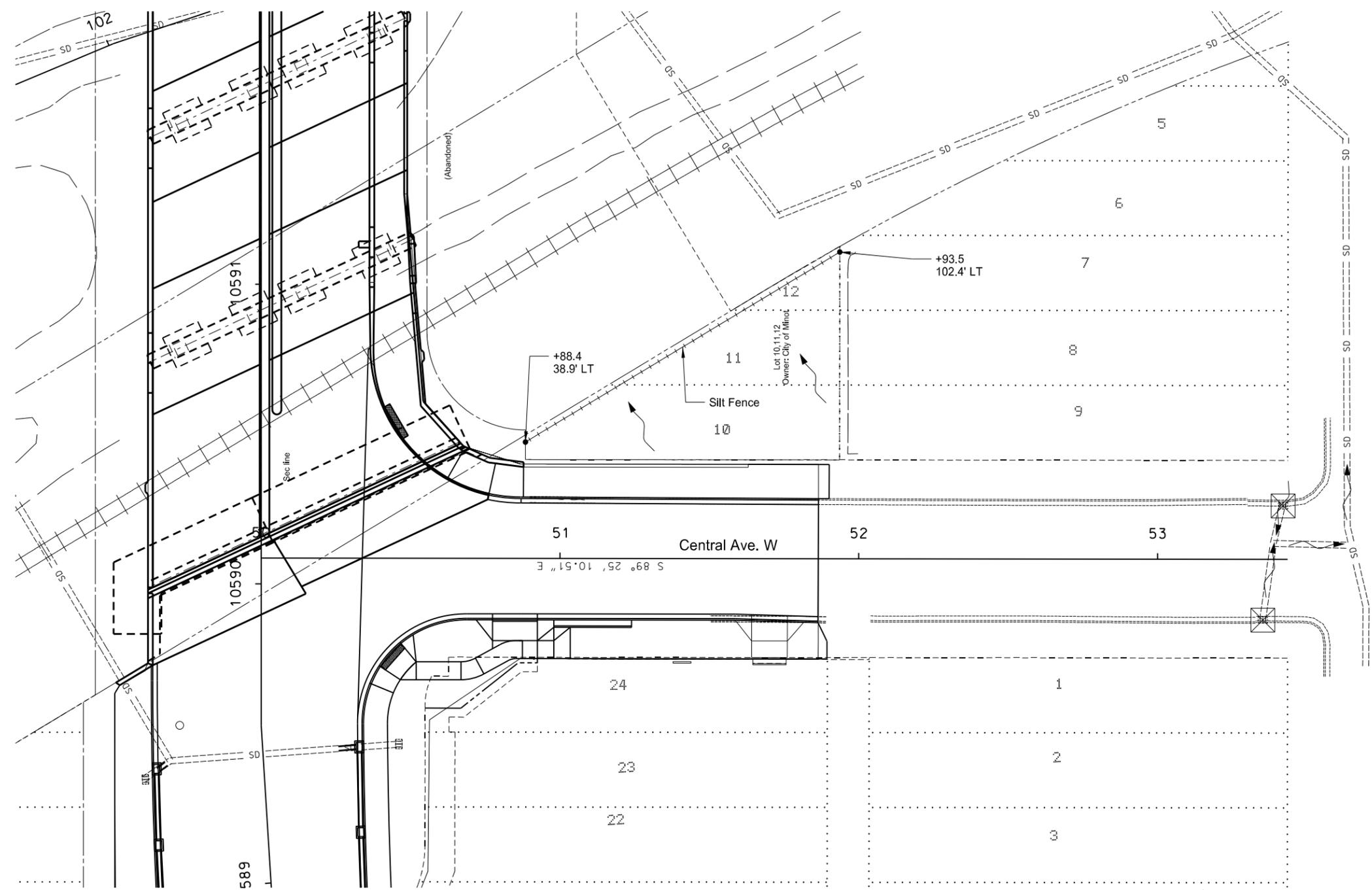


Spec & Code	Item Description	Phase 1	Phase 2	Total	Unit
251-2000	Temporary Cover Crop	0.13	.012	0.25	ACRE
253-0201	Hydraulic Mulch	0.13	.012	0.25	ACRE
260-0200	Silt Fence Supported	650	0	650	LF
260-0201	Removal of Silt Fence Supported	0	650	650	LF
708-1540	Inlet Protection - Special	8	8	16	EA
708-1541	Removal of Inlet Protection - Special	8	8	16	EA



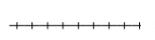
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Temporary Seeding and Erosion Control Plans
 Sta. 10599+00 to Sta. 10603+00
 US-83 Broadway Viaduct
 Minot, ND



Spec & Code	Item Description	Phase 1	Phase 2	Total	Unit
260-0200	Silt Fence Supported	123	0	123	LF
260-0201	Removal of Silt Fence Supported	0	123	123	LF
708-1540	Inlet Protection - Special	2	2	4	EA
708-1541	Removal of Inlet Protection - Special	2	2	4	EA

SEEDING & EROSION CONTROL LEGEND

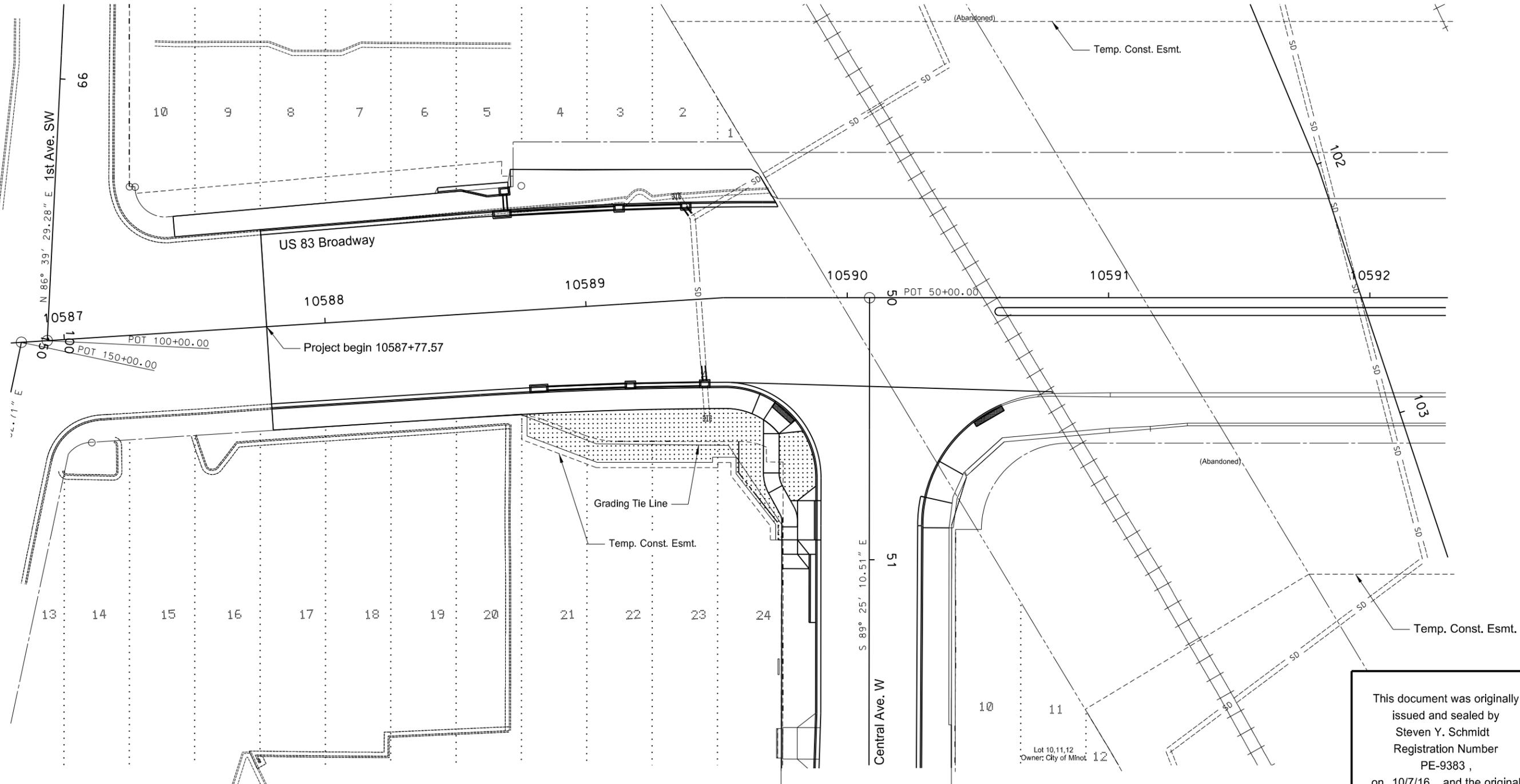
-  Inlet Protection Special
-  Flow Arrow
-  Supported Silt Fence



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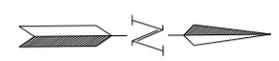
Temporary Seeding and Erosion Control Plans
Central Ave.
US-83 Broadway Viaduct
Minot, ND

Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	77	1



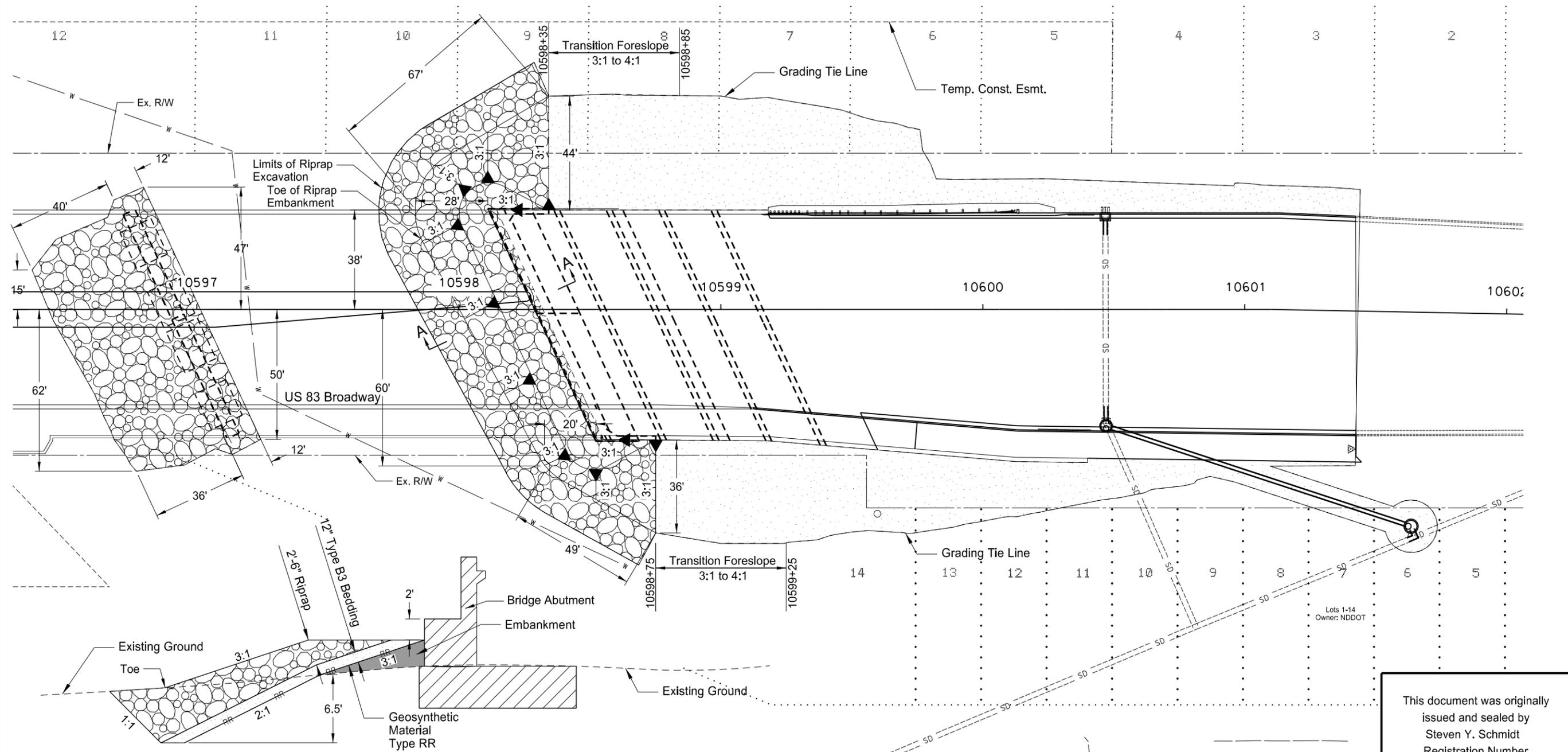
Spec & Code	Item Description	Quantity	Unit
708-1200	Small Rock Cover Station 10588+00 - 10589+88	73	TONS

SEEDING & EROSION CONTROL LEGEND



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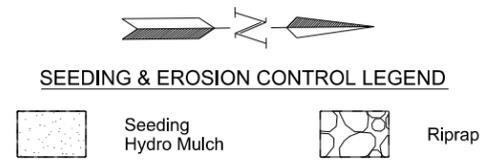
Permanent Erosion Control and Seeding
 Sta. 10587+00 to Sta. 10592+00
 US-83 Broadway Viaduct
 Minot, ND



SECTION A-A

Grass Species	Variety	Pounds Pure Live Seed Per Acre
Class III - Seed Mix		
Kentucky Blue Grass	Park	12.5
Red Fescue	-	7.5
Perennial Ryegrass	-	5
TOTAL		25.0

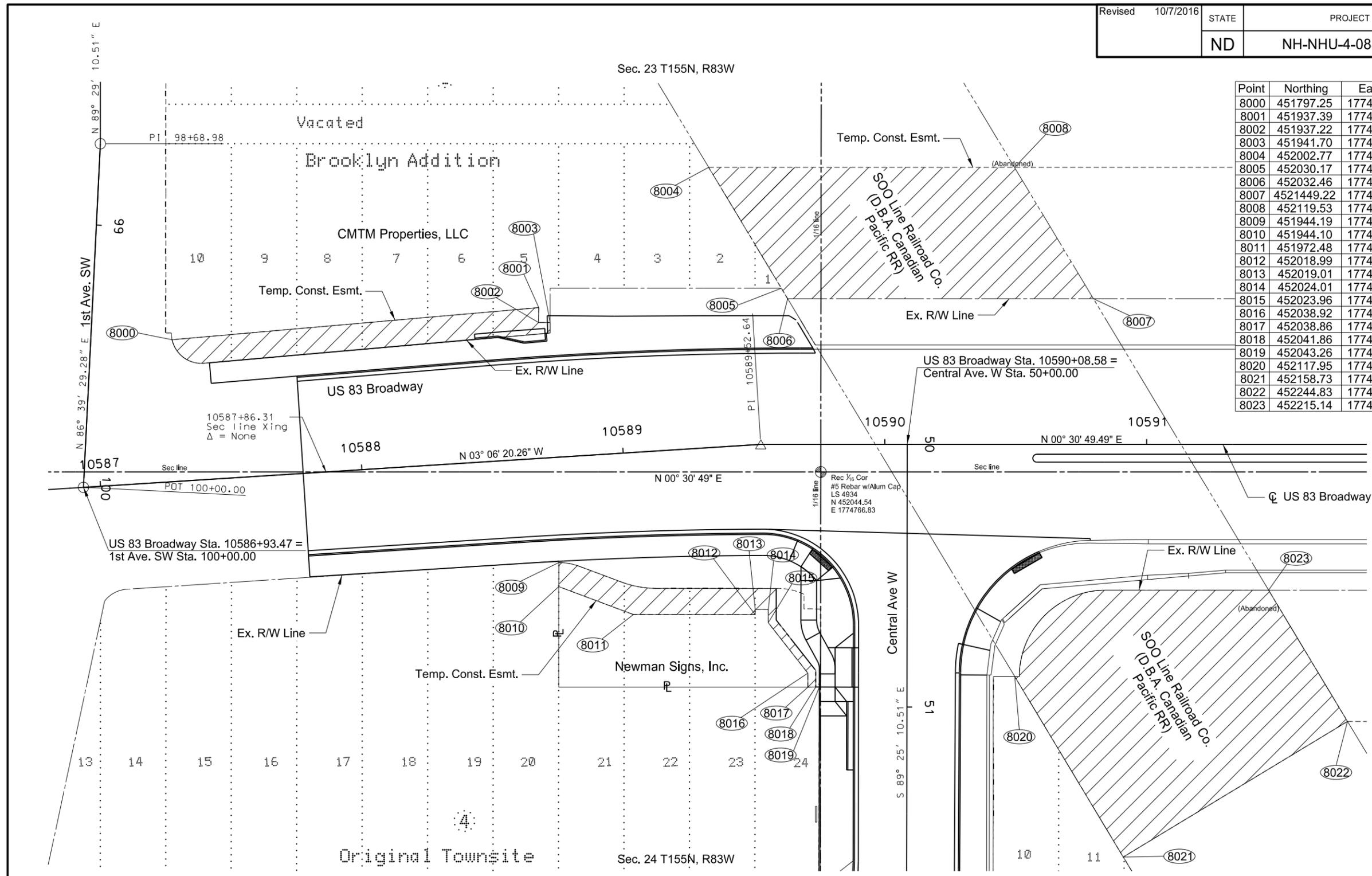
Spec & Code	Item Description	Quantity	Unit
251-0300	Seeding Class III Station 10598+30 - 10602+00	0.33	ACRE
253-0201	Hydraulic Mulch Station 10598+30 - 10602+00	0.33	ACRE
256-0501	Riprap Special Station 10596+35 - 10598+60	2,800	TONS
709-0600	Geosynthetic Material Type RR Station 10596+35 - 10598+60	1,320	SY



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Permanent Erosion Control and Seeding
Sta. 10597+00 to Sta. 10602+00
US-83 Broadway Viaduct
Minot, ND

Point	Northing	Easting	Station	Offset	Side
8000	451797.25	1774714.24	10587+30.8	54.0	LT
8001	451937.39	1774703.30	10588+71.3	57.3	LT
8002	451937.22	1774708.95	10588+70.8	51.7	LT
8003	451941.70	1774708.98	10588+75.3	51.4	LT
8004	452002.77	1774650.45	10589+39.5	106.5	LT
8005	452030.17	1774696.70	10589+60.6	59.5	LT
8006	452032.46	1774700.72	10589+62.9	55.5	LT
8007	4521449.22	1774701.77	10590+79.7	55.5	LT
8008	452119.53	1774651.50	10590+49.5	105.5	LT
8009	451944.19	1774800.46	10588+72.8	40.1	RT
8010	451944.10	1774809.59	10588+72.3	49.2	RT
8011	451972.48	1774820.50	10589+00.0	61.6	RT
8012	452018.99	1774820.97	10589+46.4	64.6	RT
8013	452019.01	1774818.97	10589+46.5	62.6	RT
8014	452024.01	1774819.02	10589+55.5	62.9	RT
8015	452023.96	1774824.03	10589+55.5	67.9	RT
8016	452038.92	1774843.40	10589+70.6	87.1	RT
8017	452038.86	1774848.72	10589+70.6	92.4	RT
8018	452041.86	1774848.73	10589+73.6	92.4	RT
8019	452043.26	1774848.75	10589+75.0	92.4	RT
8020	452117.95	1774845.45	10590+49.7	88.5	RT
8021	452158.73	1774914.49	10590+91.1	157.1	RT
8022	452244.83	1774863.63	10591+76.7	105.5	RT
8023	452215.14	1774813.36	10591+46.6	55.5	RT

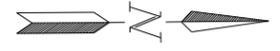


1st Ave. SW
 PI Station = 98+68.98
 N 451770.56 E 1774639.37
 Delta = 02° 49' 41.23" LT
 No Curve

US 83 Broadway
 PI Station = 10589+52.64
 N 452021.71 E 1774756.13
 Delta = 03° 37' 09.75" RT
 No Curve

LEGEND

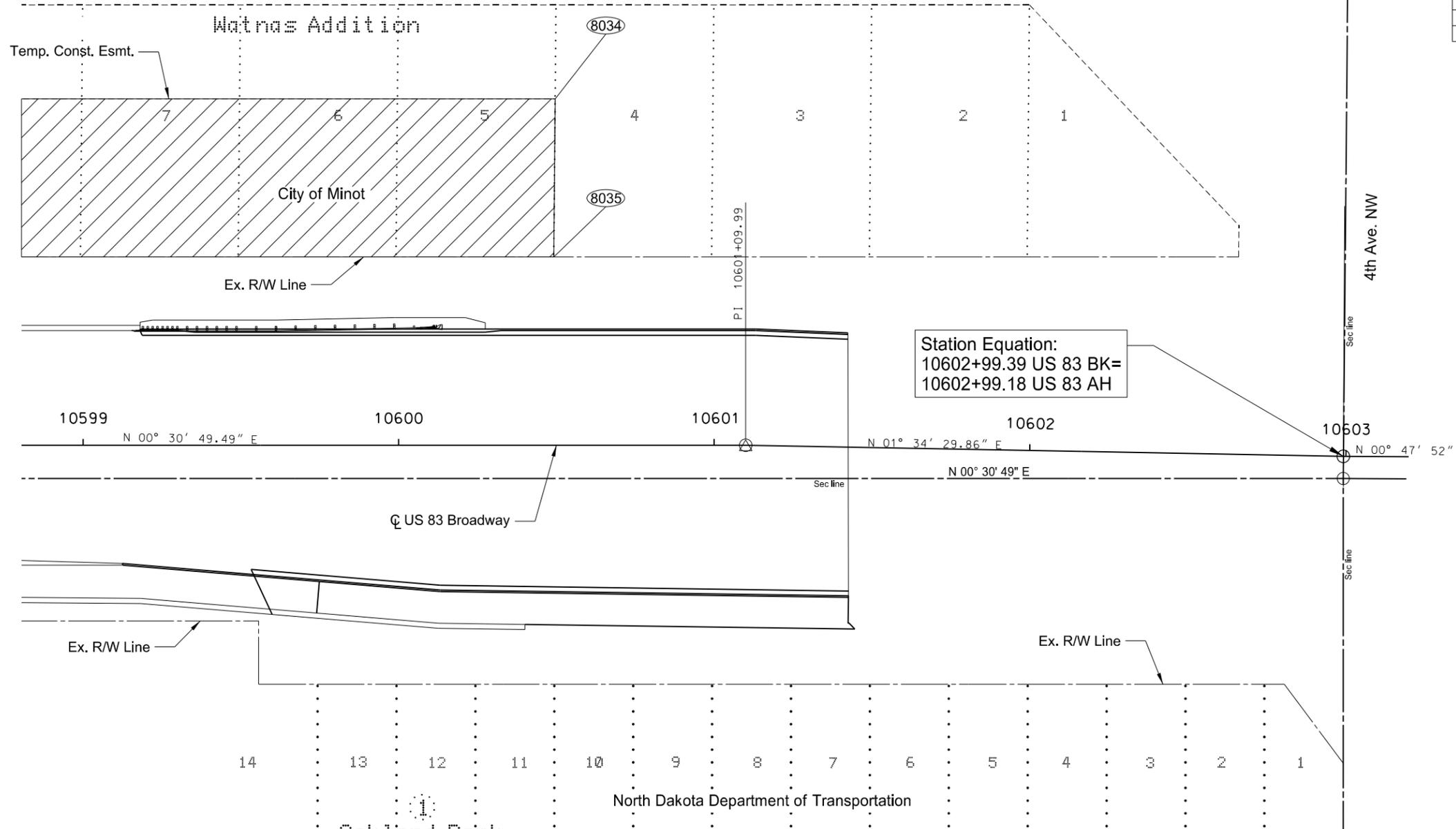
- Existing R/W Line
- Construction Easement
- Easement Area



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Survey Data Layout Sheets
 Alignment Description and
 Temporary Construction Easements
 US-83 Broadway Viaduct
 Minot, ND

Sec. 23, T155N, R83W



Point	Northing	Easting	Station	Offset	Side
8034	453119.62	1774656.47	10600+49.6	109.5	LT
8035	453118.73	1774706.46	10600+49.2	59.5	LT

LEGEND

- Existing R/W Line
 - Construction Easement
 - Easement Area
-

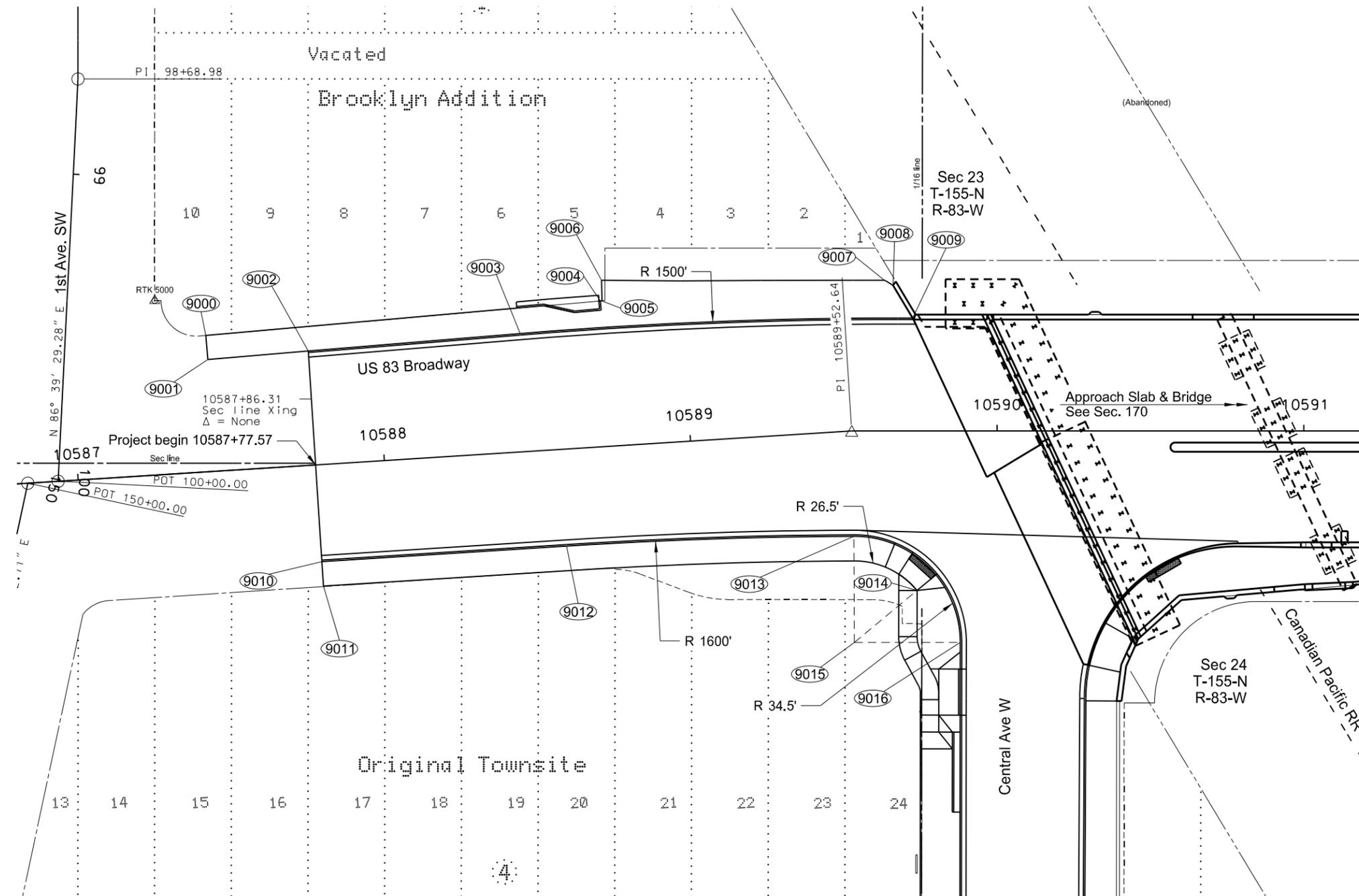
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Survey Data Layout Sheets
Alignment Description and
Temporary Construction Easements

US-83 Broadway Viaduct
Minot, ND

Sec. 24, T155N, R83W

US 83 Broadway
PI Station = 10601+09.99
N 453179.01 E 1774766.50
Delta = 01° 03' 40.51" RT
No Curve

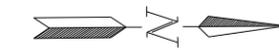
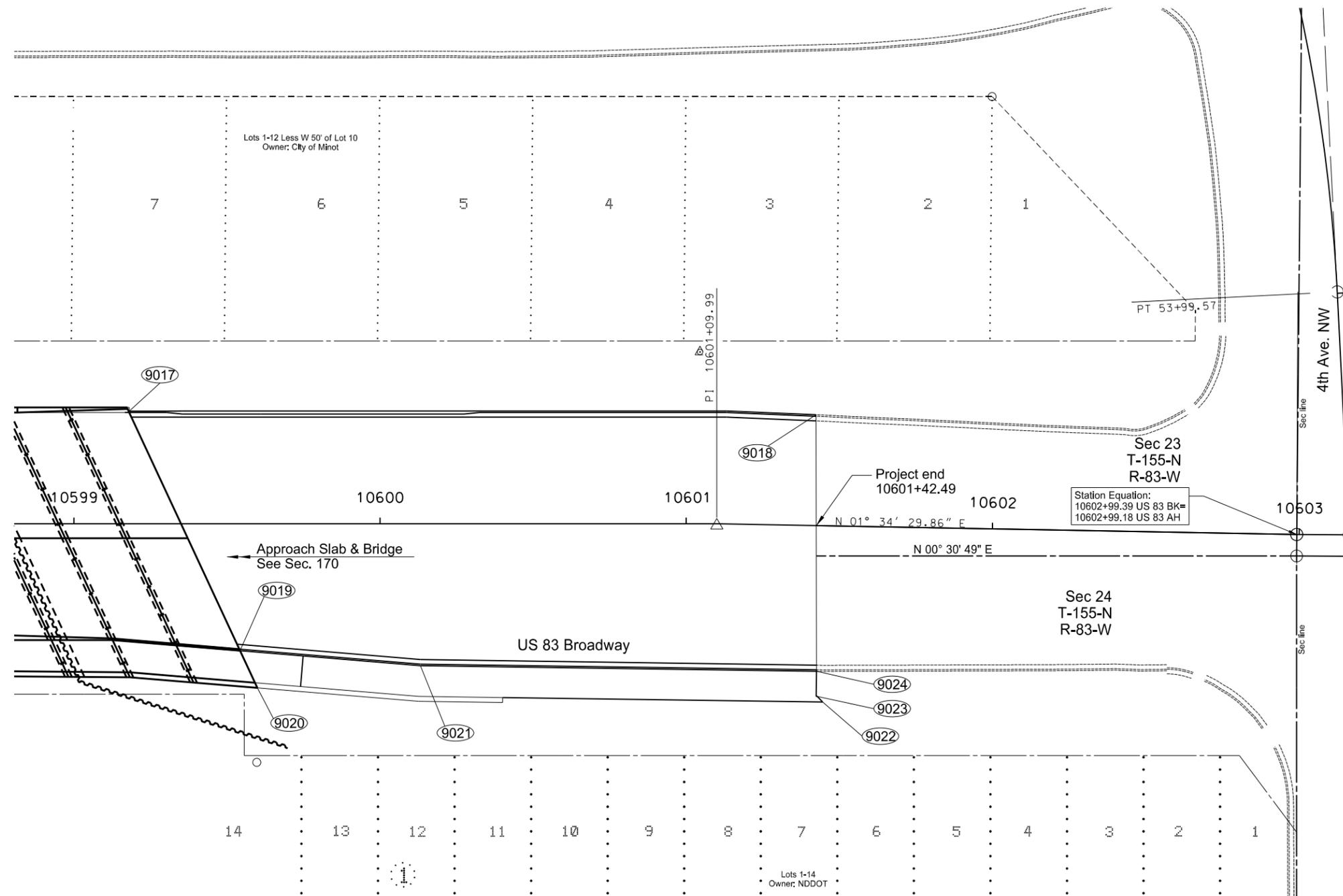


Point	Northing	Easting	Station	Offset	Side
9000	451811.46	1774723.16	10587+44.5	44.3	LT
9001	451812.05	1774731.00	10587+44.7	36.5	LT
9002	451844.83	1774728.53	10587+77.5	37.1	LT
9003	451913.94	1774723.47	10588+46.8	38.5	LT
9004	451940.16	1774713.12	10588+73.5	47.4	LT
9005	451940.69	1774713.07	10588+74.07	47.4	LT
9006	451940.61	1774706.35	1588+74.35	54.1	LT
9007	452032.81	1774707.21	10589+63.30	49.0	LT
9008	452035.61	1774708.90	10589+66.12	47.3	LT
9009	452041.91	1774719.55	10589+72.5	36.8	LT
9010	451848.64	1774797.06	10587+77.6	31.5	RT
9011	451849.08	1774805.05	10587+77.6	39.5	RT
9012	451928.46	1774792.73	10588+57.6	31.5	RT
9013	452022.11	1774790.40	10589+51.2	34.2	RT
9014	452042.54	1774808.21	10589+74.0	51.9	RT
9015	452021.95	1774824.90	10589+49.2	68.7	RT
9016	452056.45	1774825.25	10589+88.0	68.8	RT

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Survey Data Layout
 Survey Data Points
 Sta. 10587+00 to 10591+00
 US-83 Broadway Viaduct
 Minot, ND

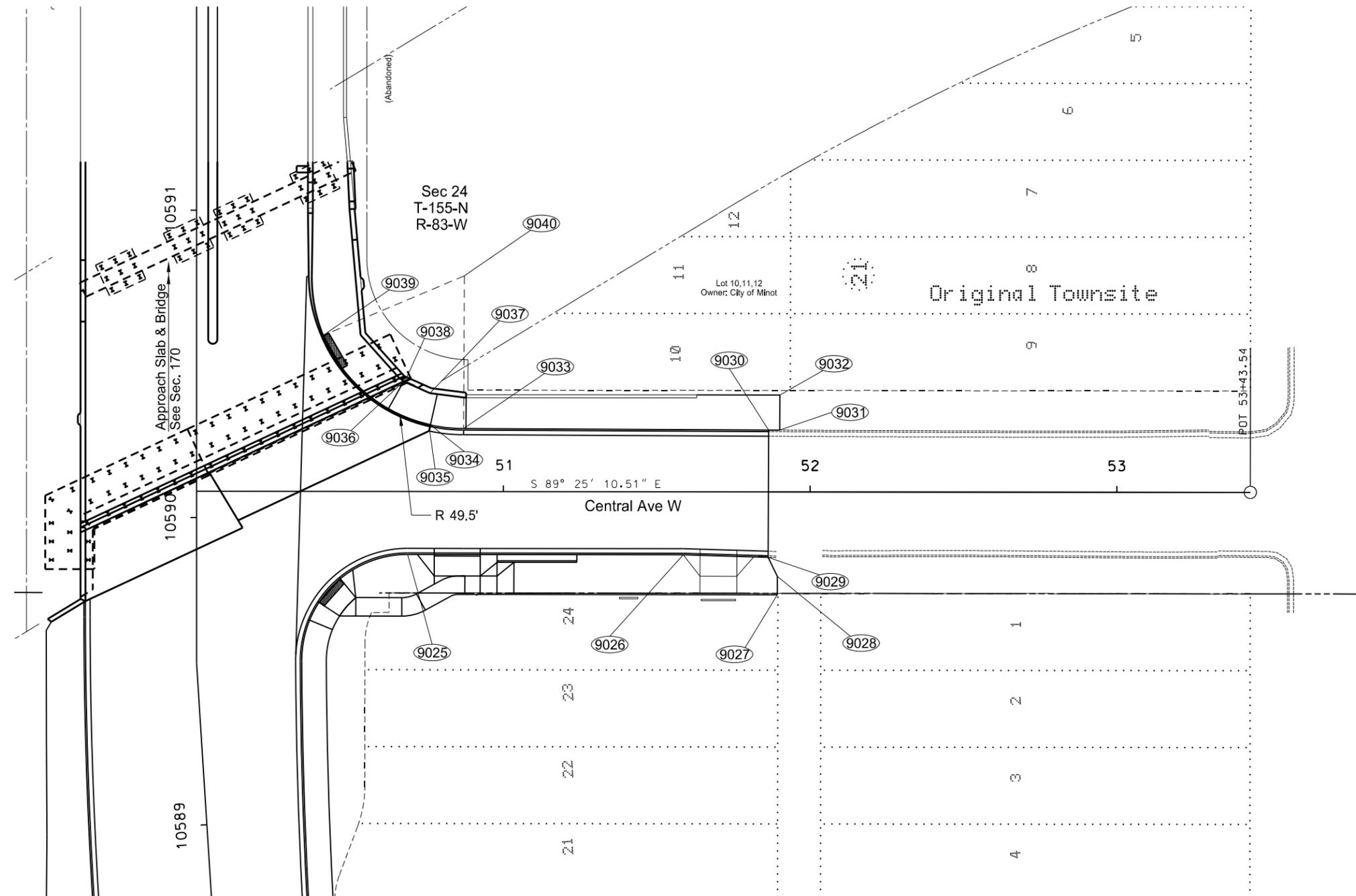
Point	Northing	Easting	Station	Offset	Side
9017	452987.44	1774728.12	10599+18.1	36.7	LT
9018	453211.70	1774731.28	10601+41.7	36.1	LT
9019	453022.92	1774806.45	10599+54.3	41.3	RT
9020	453028.47	1774818.64	10599+59.9	53.5	RT
9021	453081.76	1774811.88	10600+13.2	46.3	RT
9022	453213.07	1774824.90	10601+45.6	57.4	RT
9023	453210.98	1774822.99	10601+43.5	55.6	RT
9024	453211.19	1774814.86	10601+43.5	47.5	RT



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Survey Data Layout
Sta. 10599+00 to 10603+00
US-83 Broadway Viaduct
Minot, ND

Point	Northing	Easting	Station	Offset	Side
9025	452056.45	1774825.25	50+68.8	20.5	RT
9026	452055.54	1774915.06	51+58.7	20.5	RT
9027	452042.27	1774945.65	51+89.4	33.5	RT
9028	452048.25	1774945.71	51+89.4	27.5	LT
9029	452054.45	1774942.77	51+86.4	21.3	LT
9030	452095.86	1774943.31	51+86.5	20.1	LT
9031	452095.81	1774946.91	51+90.1	20.1	LT
9032	452107.22	1774947.06	51+90.1	31.5	RT
9033	452097.26	1774843.82	50+87.0	20.5	RT
9034	452098.50	1774833.05	50+76.2	21.6	RT
9035	452096.51	1774832.81	50+76.0	19.6	LT
9036	452112.76	1774824.47	50+67.5	35.8	LT
9037	452108.88	1774832.99	50+76.1	32.0	LT
9038	452114.09	1774825.47	50+68.5	37.1	LT
9039	452127.96	1774798.27	50+41.1	50.7	LT
9040	452146.95	1774844.52	50+87.2	70.2	LT

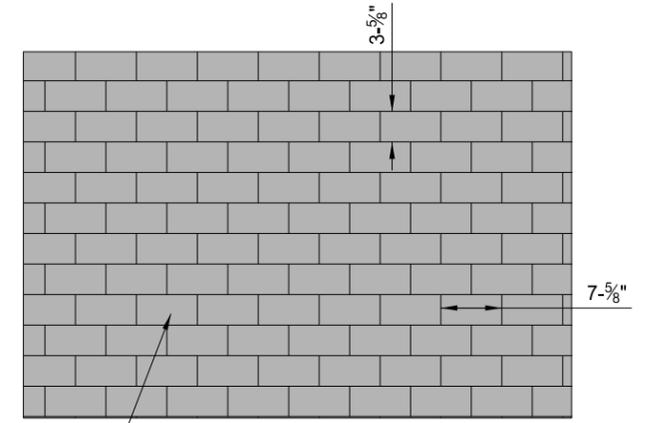
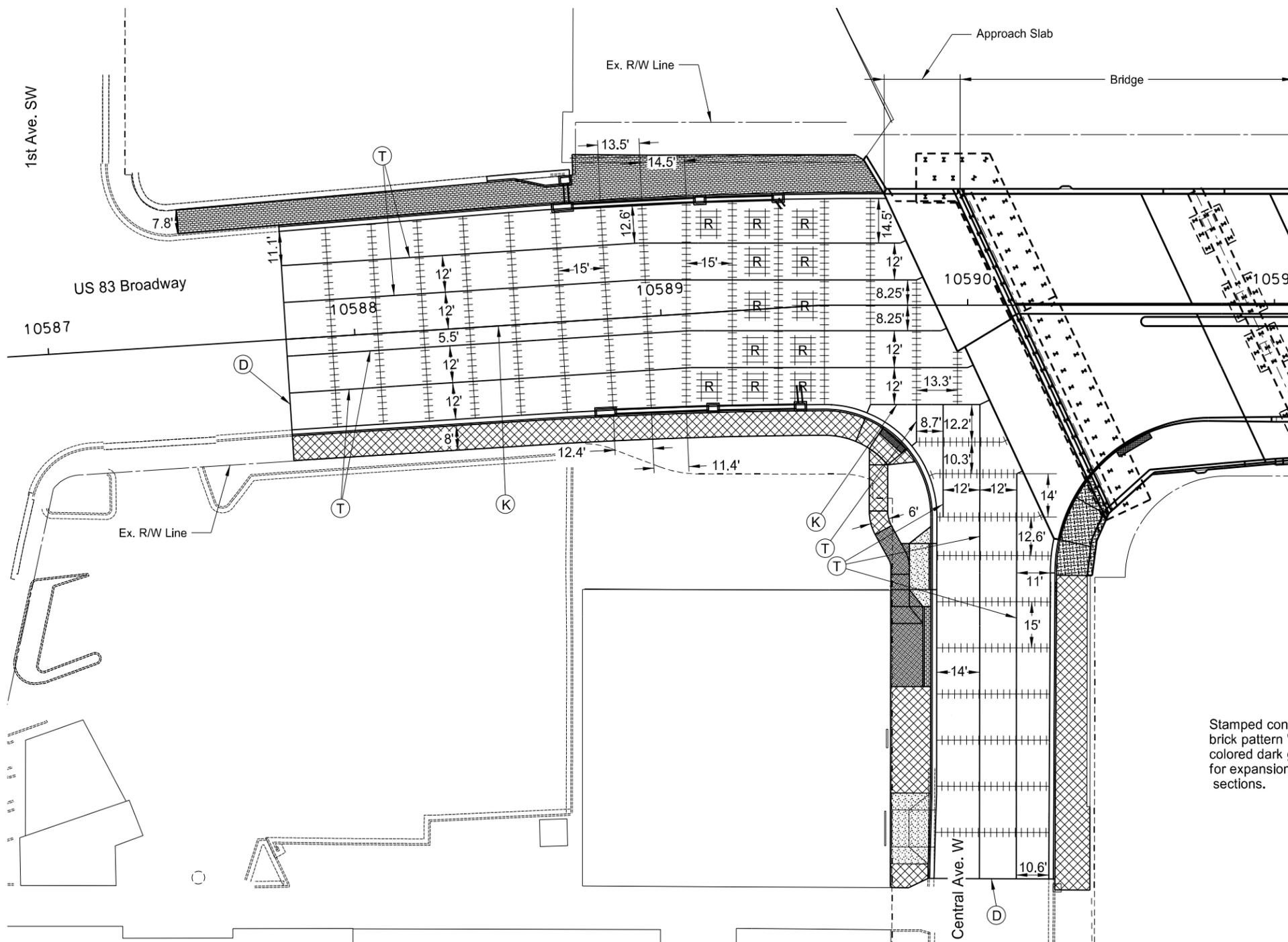


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Survey Data Layout
 Sta. 50+00.00 to 52+15
 Central Ave
 US-83 Broadway Viaduct
 Minot, ND

Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	90	1

Spec & Code	Item Description	Quantity	Unit
302-0120	Aggregate Base Course CL 5 US-83/Broadway 10587+77.57 to 10589+89.71 Central Avenue 50+33.85 to 51+46.43	1598 748	TON TON
550-0305	9IN Non Reinf Concrete Pvmnt CL AE-Doweled US-83/Broadway 10587+77.57 to 10589+89.71 Central Avenue 50+33.85 to 51+46.43	1568 617	SY SY
748-0140	Curb & Gutter-Type I US-83/Broadway 10587+77.57 to 10589+73.51 Central Avenue 50+33.85 to 51+86.43	372 286	LF LF
750-0030	Pigmented Imprinted Concrete US-83/Broadway 10587+44.65 to 10589+72.51 Central Avenue 50+97.96 to 51+24.000	256 6	SY SY
750-0115	Sidewalk Concrete 4IN US-83/Broadway 10587+77.57 to 10589+83.00 Central Avenue 50+87.79 to 51+90.12	197 178	SY SY
750-0140	Sidewalk Concrete 6IN Central Avenue 50+71.73 to 51+24.00	50	SY
750-1000	Concrete Driveway Central Avenue 50+71.96 to 50+97.96 Central Avenue 51+58.65 to 51+81.65	17 32	SY SY
750-2115	Detectable Warning Panels US-83/Broadway 10589+71.26 to 10590+60.05	44	SY

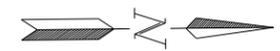


Stamped concrete sidewalk brick pattern "running bond" colored dark gray jointed at 4' for expansion/contraction of sections.

- Pigmented Imprinted Concrete 4"
- Sidewalk Concrete 4"
- Sidewalk Concrete 6"
- Concrete Driveway 6"
- Moment Slab (See Section 20 for Details & Quantities)

- Pavement Reinforcement - See Section 20, Sheet 2 for details
- Tied Joint
- Deformed Bar Installation See Section 20, Sheet 1
- Keyed Joint
- Doweled Joint - Placed in driving lanes only @ Transverse Joint Spacing

- NOTES:
- All joints on this project shall be sealed with hot pour seal.
 - All tie bars shall be epoxy coated in accordance with Section 836.02B of the Standard Specifications.
 - Joint spacing is 15' unless otherwise noted.

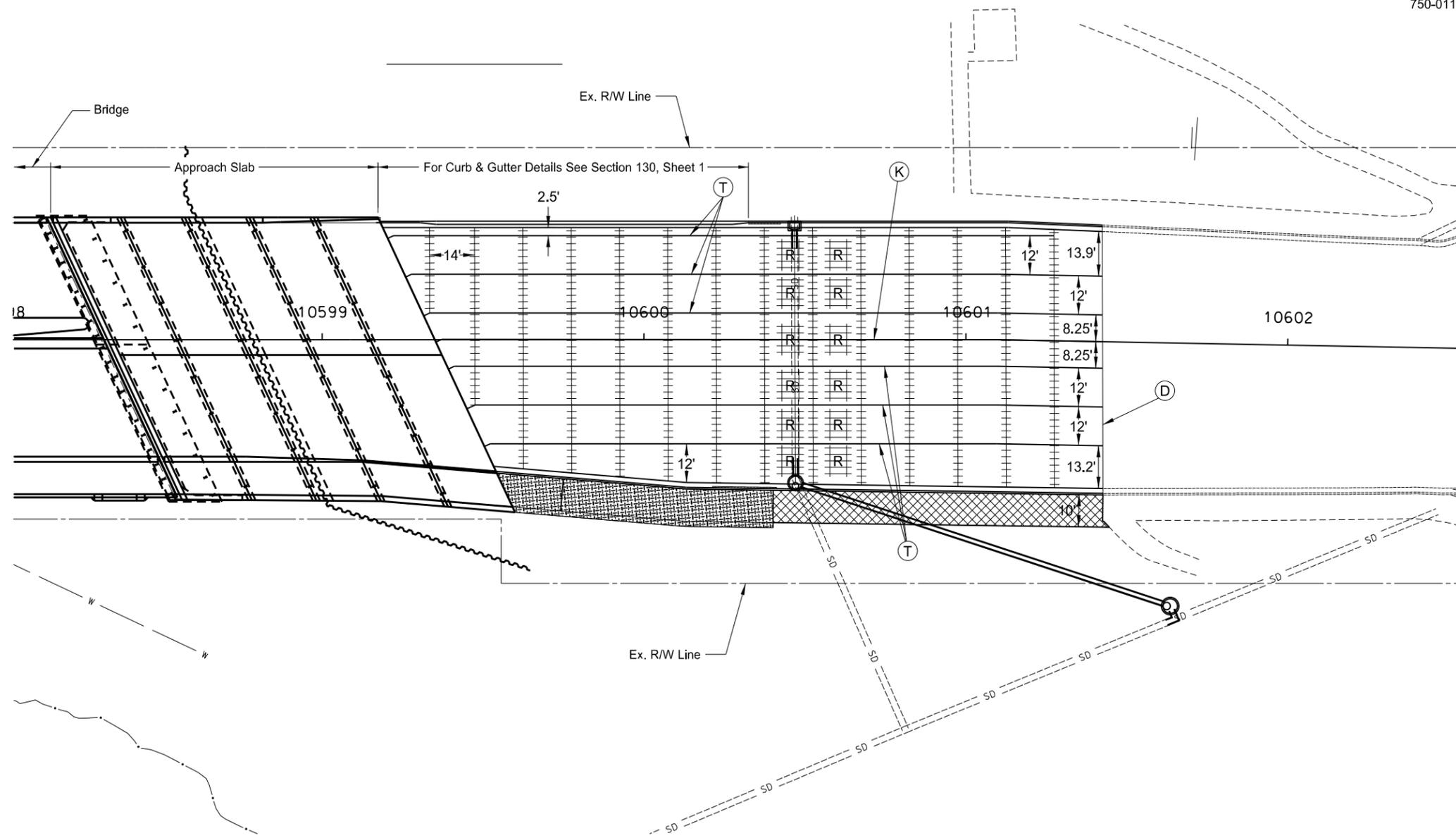


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Paving Layout
Sta. 10587+77.57 to Sta. 10590+28.00
US-83 Broadway Viaduct
Minot, ND

Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	90	2

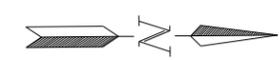
Spec & Code	Item Description	Quantity	Unit
302-0120	Aggregate Base Course CL 5 US-83/Broadway 10599+18.26 to 10601+42.46	1954	TON
550-0305	9IN Non Reinf Concrete Pvmnt CL AE-Doweled US-83/Broadway 10599+18.26 to 10601+42.46	1797	SY
748-0140	Curb & Gutter-Type I US-83/Broadway 10599+18.08 to 10601+42.46	321	LF
748-0120	Curb & Gutter Mountable-Type 1 US-83/Broadway 10599+35.00 to 10600+27.50	93	LF
750-0115	Sidewalk Concrete 4IN US-83/Broadway 10600+40.14 to 10601+42.46	114	SY



- Pigmented Imprinted Concrete 4"
- Sidewalk Concrete 4"
- Sidewalk Concrete 6"
- Concrete Driveway 6"
- Moment Slab (See Section 20 for Details & Quantities)

- Pavement Reinforcement - See Section 20, Sheet 2 for details
- Tied Joint
- Deformed Bar Installation
See Section 20, Sheet 1
- Keyed Joint
- Doweled Joint - Placed in driving lanes only
@ Transverse Joint Spacing

- NOTES:**
- All joints on this project shall be sealed with hot pour seal.
 - All tie bars shall be epoxy coated in accordance with Section 836.02B of the Standard Specifications.
 - Joint spacing is 15' unless otherwise noted.

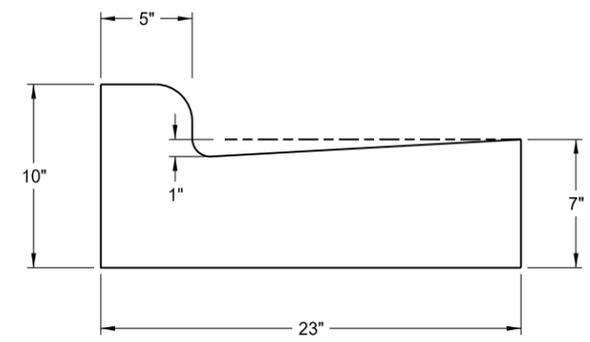
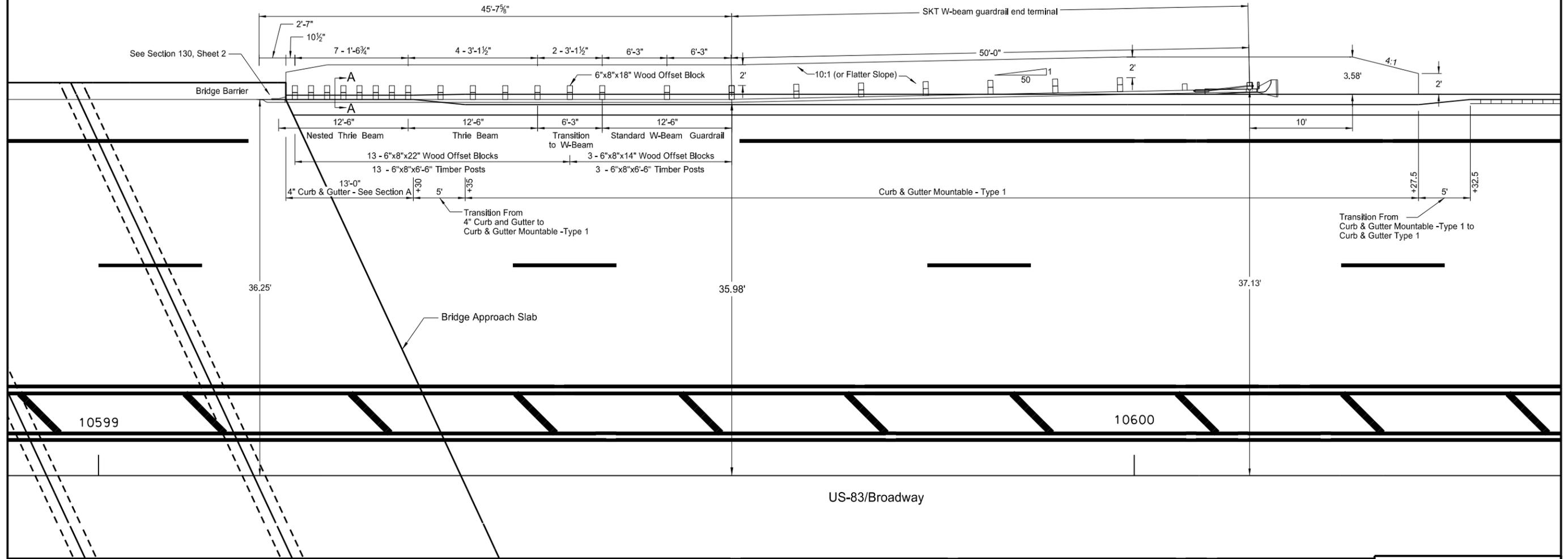


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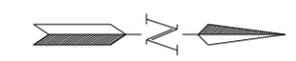
Paving Layout
Sta. 10599+35.00 to Sta. 10601+42.45
US-83 Broadway Viaduct
Minot, ND

23 USC § 409 Documents
 NDDOT Reserves All Objections

Sheet Added 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	130	1



Section A - 4" Curb & Gutter
 (Paid for as Curb & Gutter-Type I)
 Sta. 10599+18 to 10599+56



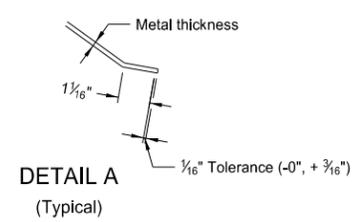
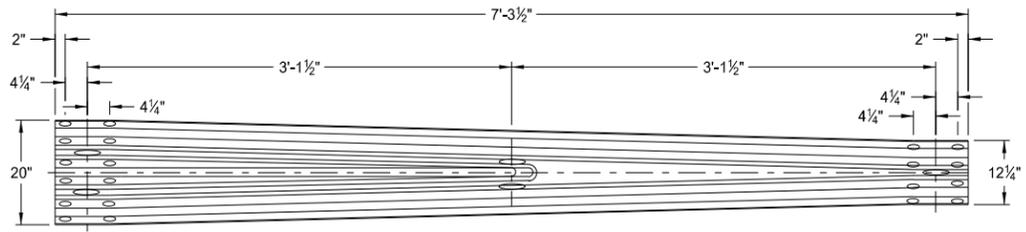
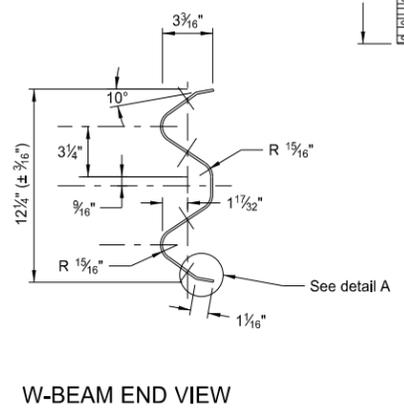
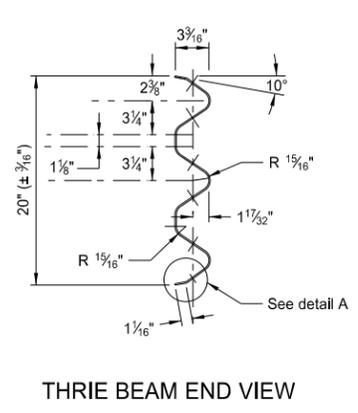
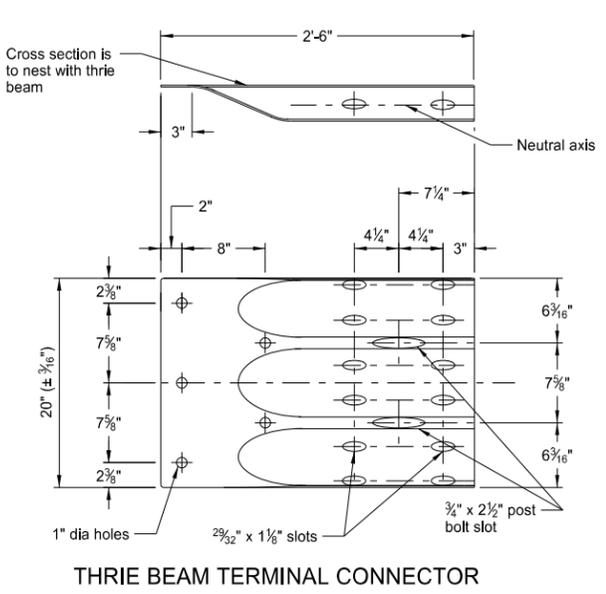
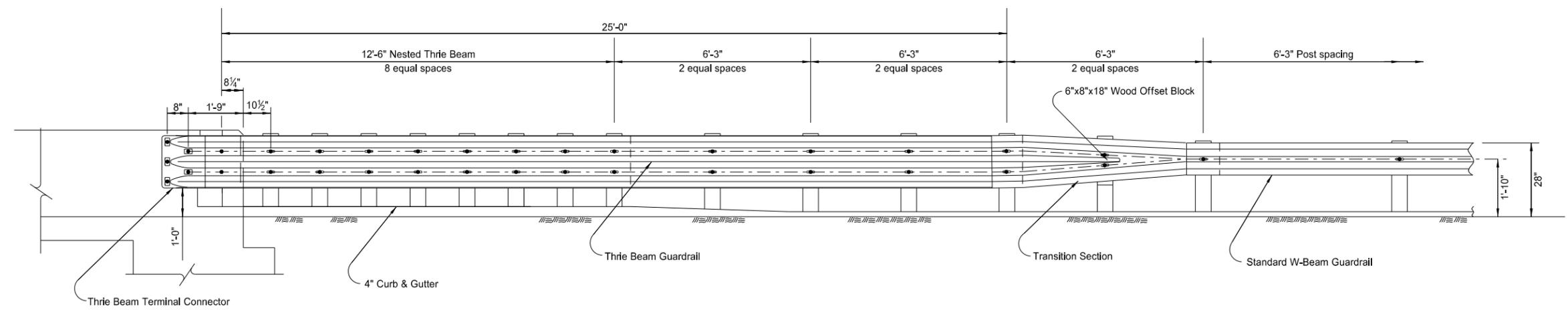
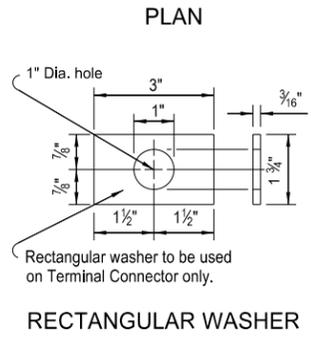
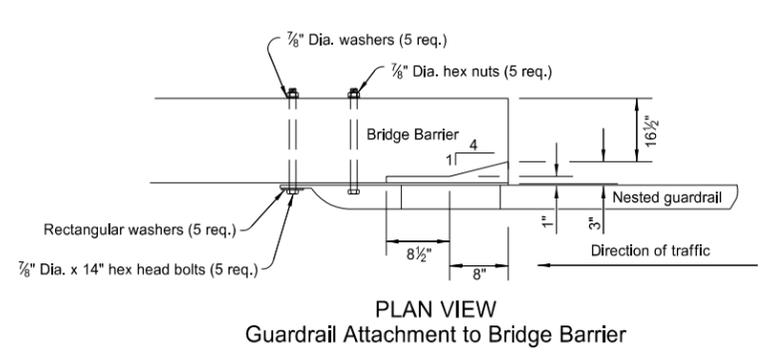
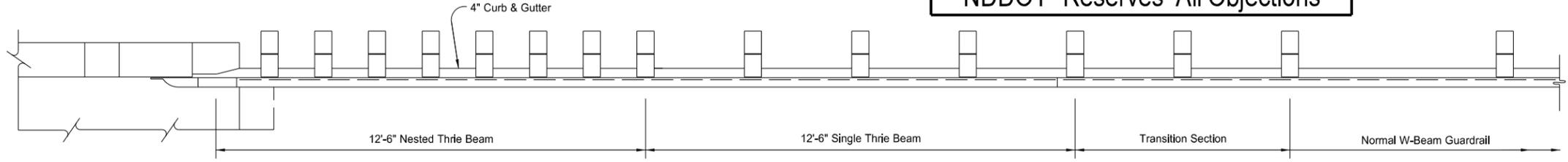
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W-Beam Guardrail Layout
 US-83 Southbound
 RP 200.634, US-83 Broadway Viaduct
 Minot, ND

23 USC § 409 Documents
NDDOT Reserves All Objections

Sheet Added 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	130	2

- Notes:
1. Use galvanized 12 gauge steel rail elements unless otherwise noted.
 2. Use galvanized anchor bolts and post rail fittings.
 3. Fabricate terminal connector from 10 gauge steel.
 4. Lap guardrail splices, including terminal connector, in the direction of traffic.



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Guardrail Transition Details
US-83 Southbound
RP 200.634, US-83 Broadway Viaduct
Minot, ND

**23 USC § 409 Documents
NDDOT Reserves All Objections**

Sheet Added	10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	130	3

W-BEAM GUARDRAIL SUMMARY OF QUANTITIES

THRIE/W-BEAM GUARDRAIL AT BRIDGE ENDS

LOCATION	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(B)
	5/8" Ø x 18" LONG GUARDRAIL BOLT	6" x 8" x 6"-6" TIMBER POST	5/8" Ø x 1 1/4" LONG GUARDRAIL BOLT	12'-6" STRAIGHT W-BEAM RAIL SECTION	REFLECTORIZED PLATES	8"x 6" x 22" WOOD OFF-SET BLOCK	8"x 6" x 18" WOOD OFF-SET BLOCK	8"x 6" x 14" WOOD OFF-SET BLOCK	6'-3" W-THRIE BEAM TRANSITION SECTION	25'-0" THRIE BEAM SECTION	12'-6" THRIE BEAM SECTION	2'-6" THRIE BEAM TERMINAL CONNECTOR	7/8" Ø x 22" LONG BOLT	3/4" Ø x 2-1/2" LONG POST BOLT	EMBANKMENT
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	CY
Sta 10599+15.50 to 10600+11.15 LT	29	16	52	1	5	12	1	3	1	1	1	1	5	2	343
TOTAL	29	16	52	1	5	12	1	3	1	1	1	1	5	2	343

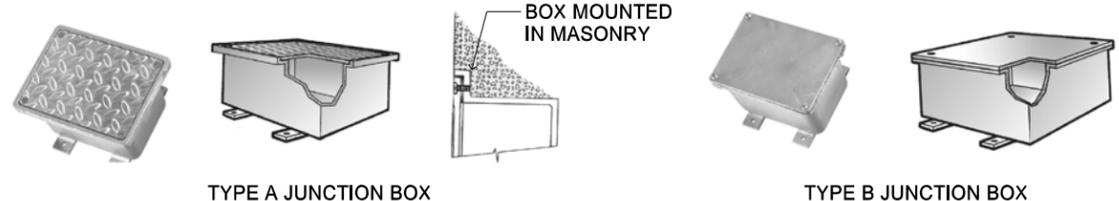
SPEC CODE	BID ITEM	QTY	UNIT
<u>203</u>	<u>0218 GUARDRAIL EMBANKMENT</u>		
	Sta 10599+18.00 to 10600+27.50 LT	1	Ea
	Total	1	Ea
<u>764</u>	<u>0131 W-BEAM GUARDRAIL</u>		
	Sta 10599+17.39 to 10599+61.14 LT	45.7	LF
	Total	45.7	LF
<u>764</u>	<u>0145 W-BEAM GUARDRAIL END TERMINAL</u>		
	Sta 10599+61.14 to 10600+11.15 LT	1	Ea
	Total	1	Ea

- (A) Include these items in the contract unit price bid for "W-Beam Guardrail".
- (B) The volume of embankment (cubic yards) is for informational purposes only.

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**Thrie/W-Beam Guardrail Quantities
US-83 Southbound**

**RP 200.634, US-83 Broadway Viaduct
Minot, ND**

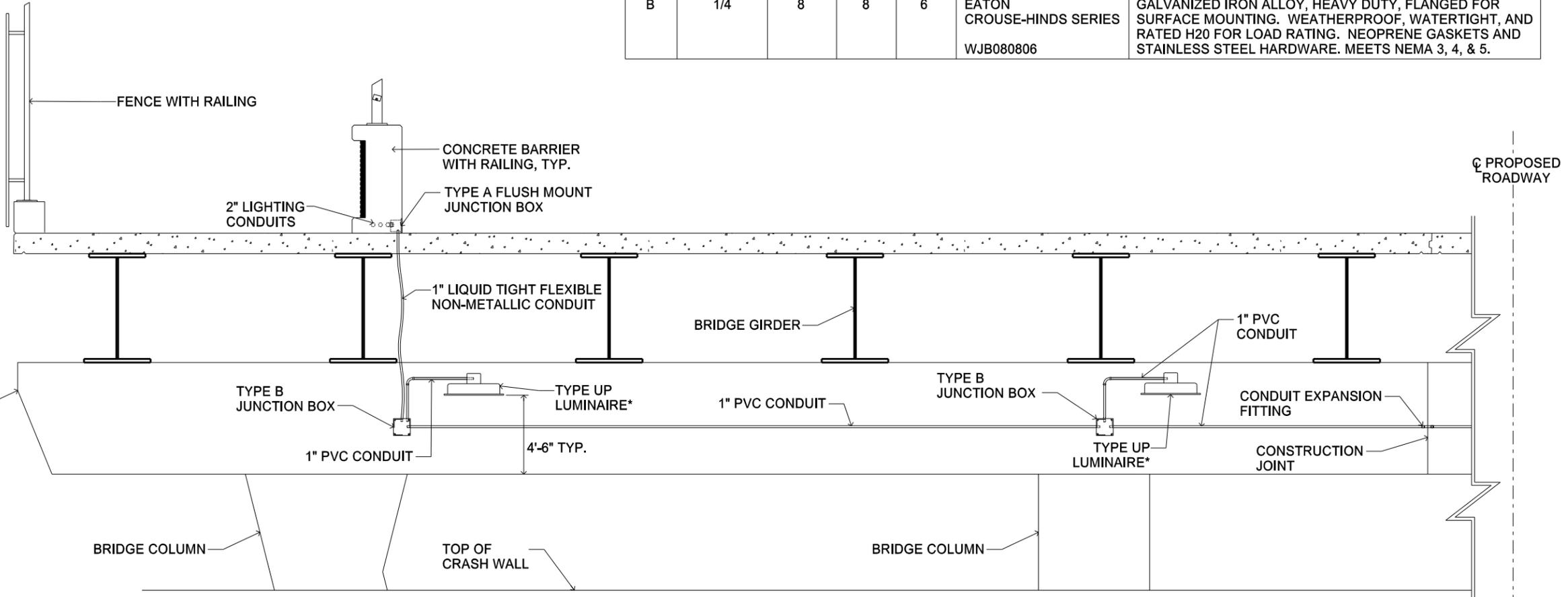


TYPE A JUNCTION BOX TYPE B JUNCTION BOX

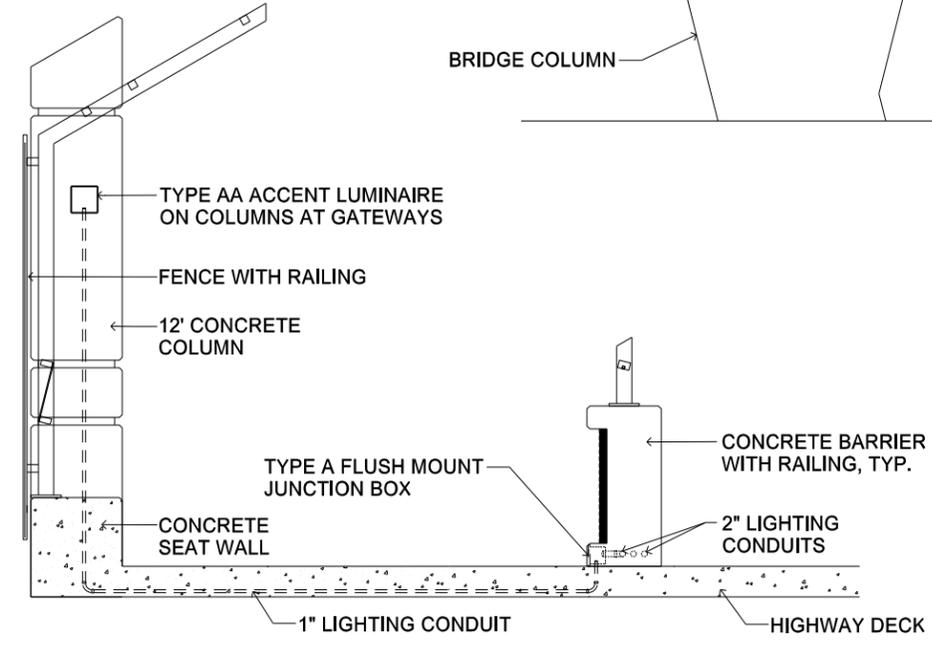
SPECIAL JUNCTION BOX SCHEDULE

TYPE	WALL THICKNESS (IN.)	LENGTH (IN.)	WIDTH (IN.)	DEPTH (IN.)	MANUFACTURER & CATALOG NUMBER	DESCRIPTION
A	1/4	6	6	6	EATON CROUSE-HINDS SERIES WJBF060606	GALVANIZED IRON ALLOY, HEAVY DUTY, EXTERNAL FLANGED FOR SURFACE FLUSH MOUNTING. WEATHERPROOF, WATERTIGHT, AND RATED H20 FOR LOAD RATING. NEOPRENE GASKETS AND STAINLESS STEEL HARDWARE. MEETS NEMA 3, 4, & 5.
B	1/4	8	8	6	EATON CROUSE-HINDS SERIES WJB080806	GALVANIZED IRON ALLOY, HEAVY DUTY, FLANGED FOR SURFACE MOUNTING. WEATHERPROOF, WATERTIGHT, AND RATED H20 FOR LOAD RATING. NEOPRENE GASKETS AND STAINLESS STEEL HARDWARE. MEETS NEMA 3, 4, & 5.

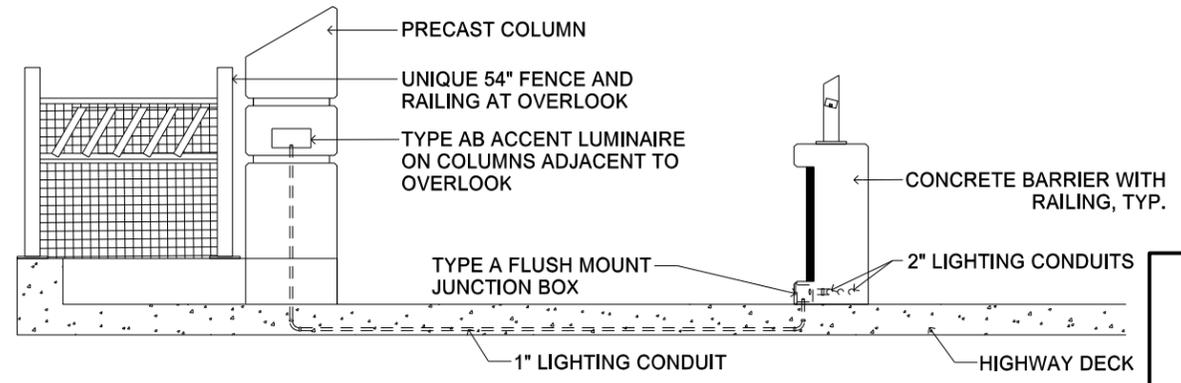
- NOTES:**
- SEE GATEWAY FEATURE DETAILS IN THE BRIDGE PLANS FOR STRUCTURE DIMENSION INFORMATION.
 - SEE OVERLOOK FEATURE DETAILS IN THE BRIDGE PLANS FOR STRUCTURE DIMENSION INFORMATION.
 - LUMINAIRES AND JUNCTION BOXES SHALL BE AFFIXED TO THE BRIDGE STRUCTURE PER THE MANUFACTURER'S RECOMMENDATIONS.
- *TYPE UP LUMINAIRES SHOULD BE POSITIONED ON THE PIER CAP FACE PER THE STATION AND OFFSET OUTLINED ON THE LIGHTING SHEETS.



TYPICAL JUNCTION BOX & CONDUIT DETAILS FOR UNDERPASS LIGHTING
PIER SECTION NOT TO SCALE



TYPICAL JUNCTION BOX & CONDUIT SECTION FOR ACCENT LIGHTING AT BRIDGE GATEWAYS
ROADWAY SECTION NOT TO SCALE



TYPICAL JUNCTION BOX & CONDUIT DETAILS FOR ACCENT LIGHTING AT BRIDGE OVERLOOK
ROADWAY SECTION NOT TO SCALE

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Lighting Special Junction Box & Conduit Details

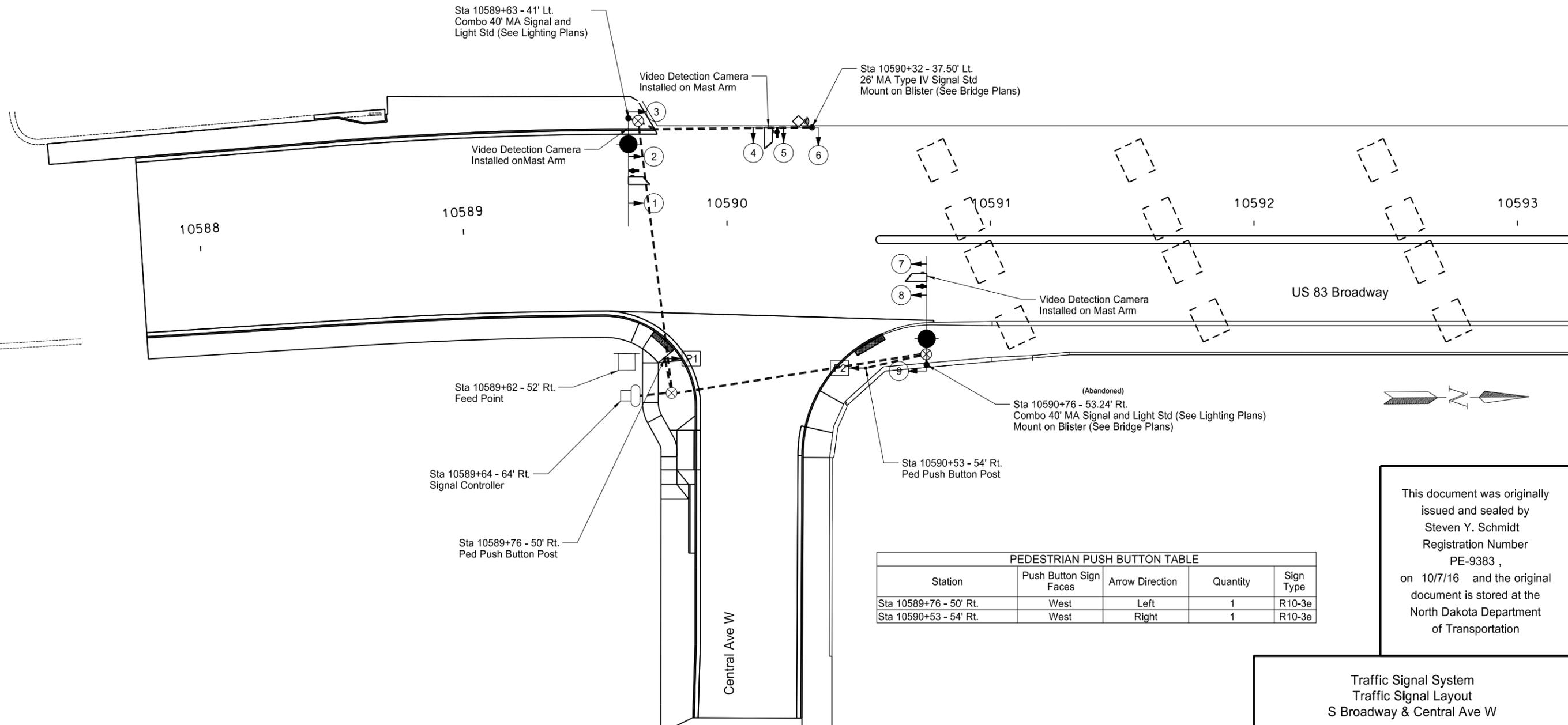
US-83 Broadway Viaduct
Minot, ND

Description	Footing Depth "D"	Footing Depth "D"
	(ft)	(ft)
Combination Signal Standard 40' Mounting Height		
40'-45' Signal Mast Arm	16, 16	15, 15
40'-45' Signal Mast Arm	Mount on Blister	Mount on Blister
Type IV Signal Standard		
26'-30' Signal Mast Arm	Mount on Blister	Mount on Blister

NOTE:
Determine ambient noise level at the US 83 Broadway and Central Ave W intersection and program the rapid tick WALK indication no more than 2 to 5 dBA above ambient sound level.

Traffic signal system to incorporate the following non-standard components:

1. Opticom emergency vehicle preemption device
2. Aries programming software
3. Econolite traffic signal controller
4. Autoscope video detection
5. Flir Detection Cameras
6. Ubiquiti NanoBeam M5 13dbi



Station	Push Button Sign Faces	Arrow Direction	Quantity	Sign Type
Sta 10589+76 - 50' Rt.	West	Left	1	R10-3e
Sta 10590+53 - 54' Rt.	West	Right	1	R10-3e

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Traffic Signal System
Traffic Signal Layout
S Broadway & Central Ave W

US-83 Broadway Viaduct
Minot, ND

TRAFFIC SIGNAL SYSTEM					
Run #	Station	Conduit Runs		Cable Runs	
		LF	DIA	LF	TYPE
1	10590+65.07 - 47' Rt. to 10590+76 - 53' Rt.	12	3"	15	(1) No. 12 AWG 2 (B)
				15	(1) EVD Cable (C)
				15	(1) Coaxial Cable (D)
				15	(1) Video Power Cable (E)
				15	(1) No. 14 AWG 5 (Cable 5)
2	10590+53 - 54' Rt. to 10590+65 - 47' Rt.	14	2"	17	(1) No. 16 AWG 2 (A)
				17	(1) No. 14 AWG 3 (Cable 7)
3	10590+32 - 37.33' Lt. to 10589+66 - 40' Lt.	67	3"	70	(1) No. 12 AWG 2 (B)
				70	(1) EVD Cable (C)
				70	(1) Coaxial Cable (D)
				70	(1) Video Power Cable (E)
				70	(1) Wireless Receiver Cable (F)
				70	(1) No. 14 AWG 7 (Cable 1)
4	10589+63 - 41' Lt. to 10589+66 - 40' Lt.	4	3"	7	(1) No. 12 AWG 2 (B)
				7	(1) EVD Cable (C)
				7	(1) Coaxial Cable (D)
				7	(1) Video Power Cable (E)
				7	(1) No. 14 AWG 5 (Cable 3)
5	10590+65 - 47' Rt. to 10589+64 - 64' Rt.	102	3"	111	(1) No. 12 AWG 2 (B)
				111	(1) EVD Cable (C)
				111	(1) Coaxial Cable (D)
			2"	111	(1) Video Power Cable (E)
				111	(1) No. 14 AWG 5 (Cable 5)
				111	(1) No. 16 AWG 2 (A)
6	10589+66 - 40' Lt. to 10589+64 - 64' Rt.	104	3"	113	(1) No. 12 AWG 2 (B)
				113	(1) EVD Cable (C)
				113	(1) Coaxial Cable (D)
				113	(1) Video Power Cable (E)
				113	(1) Wireless Receiver Cable (F)
		3"	113	(1) No. 14 AWG 7 (Cable 1)	
			113	(1) No. 14 AWG 5 (Cable 2)	
			113	(1) No. 12 AWG 2 (B)	
			113	(1) EVD Cable (C)	
			113	(1) Coaxial Cable (D)	
7	10589+76 - 50' Rt. to 10589+64 - 64' Rt.	18	2"	27	(1) No. 16 AWG 2 (A)
				27	(1) No. 14 AWG 3 (Cable 6)
8	10589+64 - 64' Rt. to 10589+62 - 52' Rt.	13	2"	46	(2) No. 6 RHW
				23	(1) No. 6 THW

QUANTITIES (A)																																	
STATION	EA	EA	EA	EA	LF	LF	EA	LF	EA	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA							
10589+62 - 52' Rt.			1																														
10589+63 - 41' Lt.	1						46		57	58			1	46	1	57	57		1	1	1												
10589+64 - 64' Rt.																																	
10589+76 - 50' Rt.		1						12										8															
10590+32 - 37.33' Lt.	1						34		93	13			1	45	1	49	49		2			1											
10590+53 - 54' Rt.		1							12									8															
10590+76 - 53.07' Rt.	1						47		135				1	59	1	63	53		2	1													
Various Locations					2	147	393	429	155	429	303	46	23		429		429	429	155														
TOTAL	3	2	1	2	147	393	556	179	714	374	46	23	3	579	3	598	588	171	5	2	1	1	2	1	2	2	1	1	1	1	1	217	

The traffic signal system to be complete and the contractor to furnish and install all equipment and materials necessary for the satisfactory operation of electrical apparatus and for complete operation of the traffic signal system whether specifically mentioned or not.

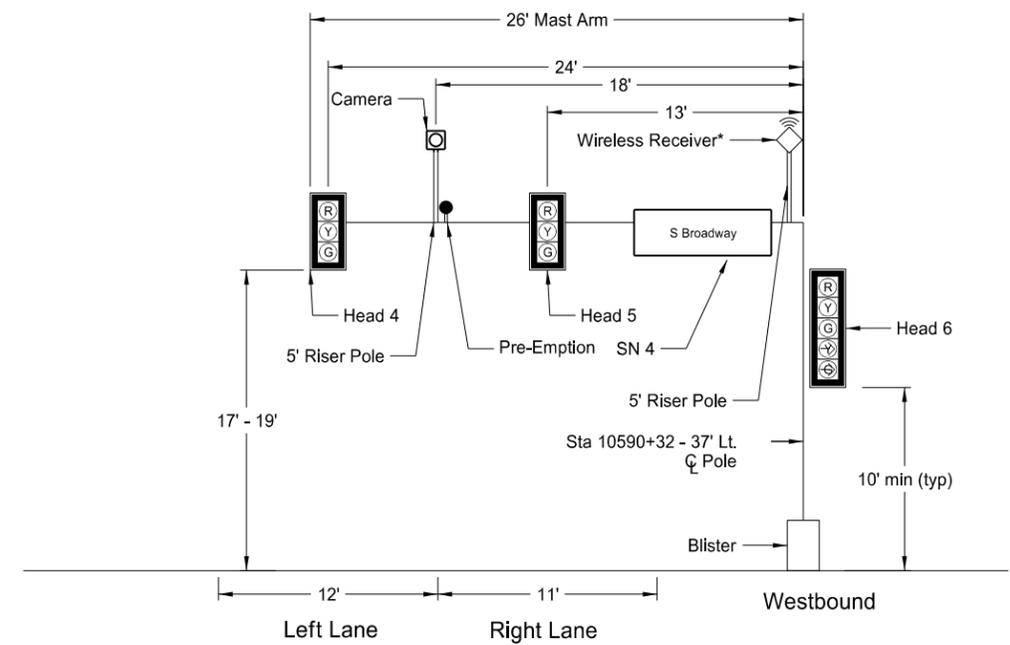
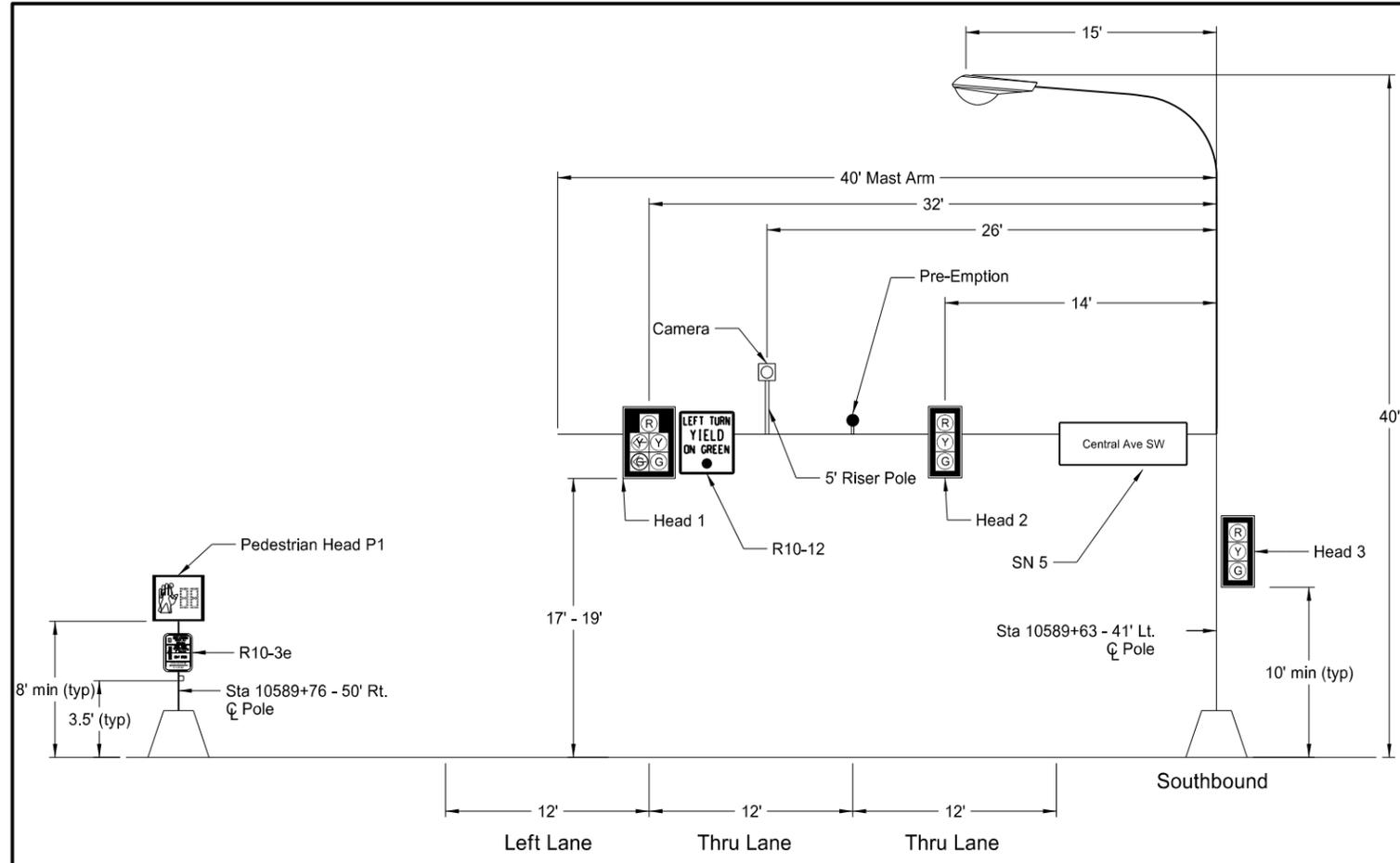
(A) These items shall not be bid separately but shall be included in the item "Traffic Signal System".

- A Pedestrian Push Button Cable
- B Emergency Vehicle Indicator Lamp
- C Emergency Vehicle Detector Cable
- D Video Detection Cable
- E Video Power Cable
- F Wireless Receiver Cable

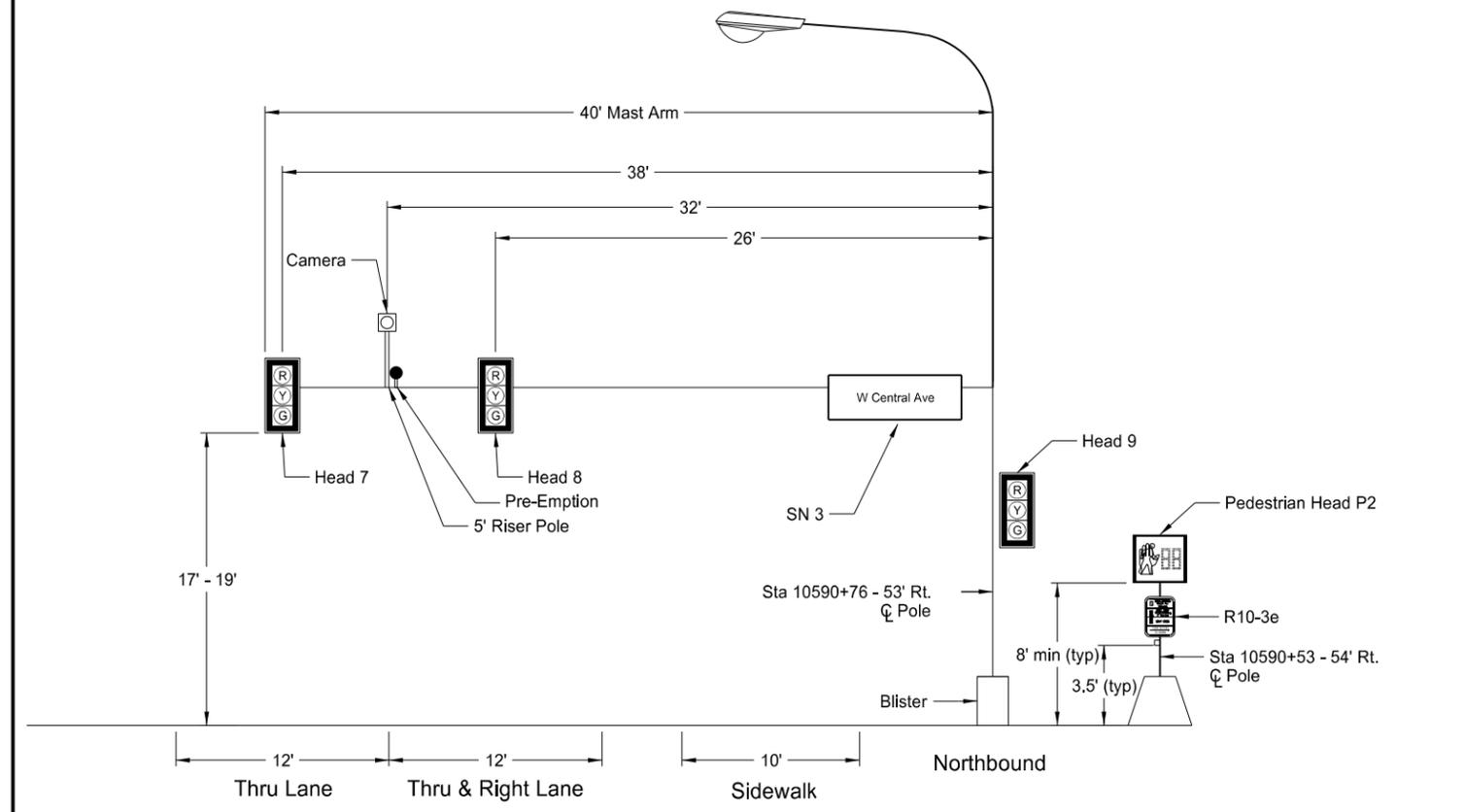
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Traffic Signal System
 Traffic Signal Cable Runs and Quantities
 S Broadway & Central Ave W
 US-83 Broadway Viaduct
 Minot, ND

Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	150	9



* Mount wireless receiver per manufacturer's recommendations.

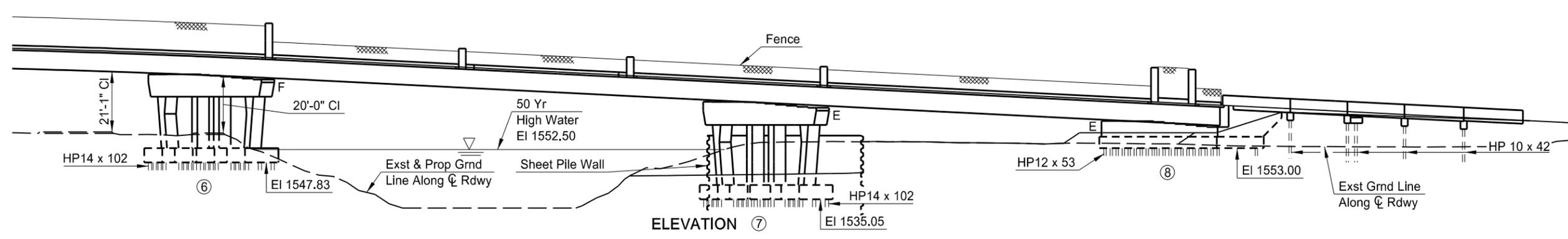
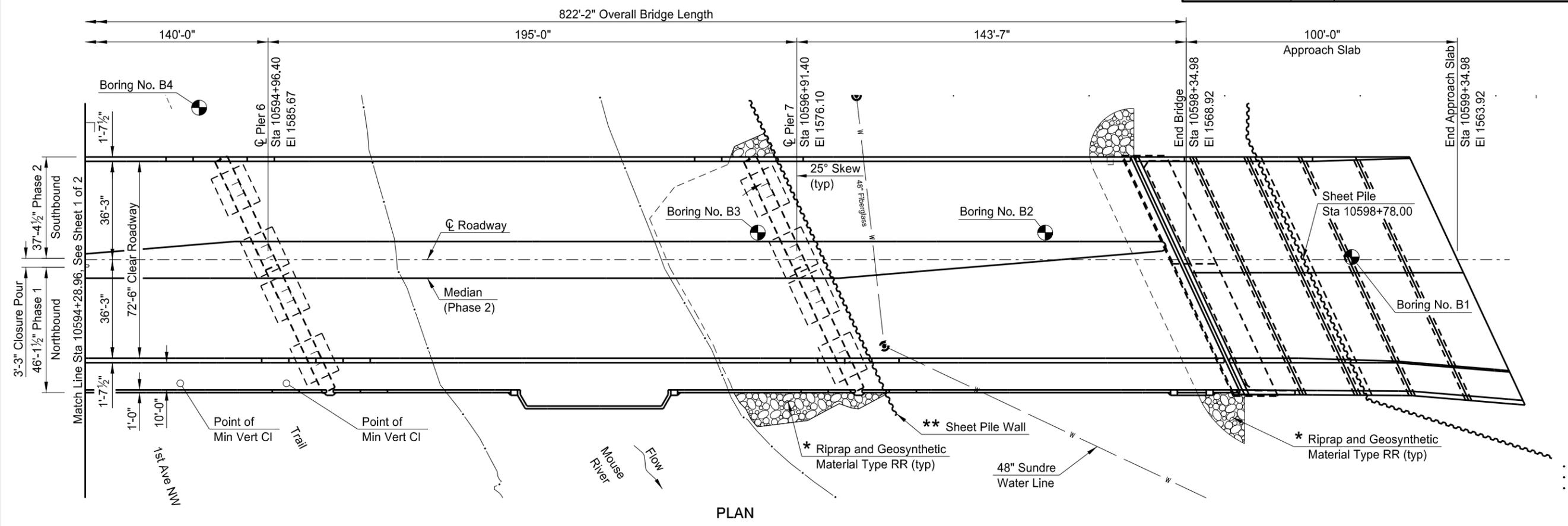


NOTE
Minimum head mounting height shall be between 17-19 feet, in accordance with NDDOT Standard Drawing D-772-3.

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Traffic Signal System
Signal Standards and Head Locations
S Broadway & Central Ave W
US-83 Broadway Viaduct
Minot, ND

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	2



HYDRAULIC DATA

Drainage Area	3,900	sq mi
Stream Gradient	0.00034	ft/ft
Design Frequency	50	yr
Design Discharge	5,400	cfs
Design Headwater Stage	1552.5	ft
Design Tailwater Stage	1552.5	ft
Velocity Through Bridge	2.3	fps
100-Year Frequency Discharge	10,900	cfs
100-Year Frequency Headwater	1,557.0	ft
Overtopping Stage	Top of Flood Protection	
Overtopping Discharge	> 26,600	cfs

* See Details in Section 77.
** See Details in Section 20.

Note:
Floodwall not shown.
See Section 77 and Floodwall Plan Set
for Further Grading Details.

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**US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER**

**BRIDGE LAYOUT
SHEET 2 OF 2**

NOTES

23 U.S.C. 409
NDDOT Reserves All Objections

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	3

- 100 SCOPE OF WORK: This project consists of building a new 7-span steel welded plate girder bridge in two phases with an overall bridge length of 822'-2". The slab width is 46'-1½" in Phase 1 and 40'-7½" in Phase 2, including a 3'-3" closure pour, for an overall out-to-out dimension of 86'-9".
- 100 GENERAL: During Construction of Phase 2a, Abutment 1 will be completed and backfilled prior to completion of other bridge elements. This is to allow for placement of Temporary Asphalt Pavement and to facilitate Phase 2a Temporary Traffic Control. See Phase 2a Temporary Traffic Control sheets in Section 100.
- 100 GENERAL: The cost of furnishing and placing preformed expansion joint filler, concrete inserts, rebar couplers, silicone sealant, and other miscellaneous items shall be included in the price bid for Class AE-3 and AAE-3 concrete.
- 100 GENERAL: A previous bridge was located on the northbound alignment prior to construction of the existing northbound structure. Contractor may encounter buried foundations during construction of the new bridges. Exact locations are unknown but are generally indicated on existing bridge plans, available from the NDDOT.
- 107 WORK DRAWINGS: The Contractor shall submit the following work drawings to the Engineer for review:
1. Structural Steel
 2. Roadway, Trail, and Railroad Canopies
 3. Expansion Joints
 4. Disc Bearings
 5. Railings
 6. Fencing
 7. Deck Drainage System
 8. Lighting
 9. Conduits
 10. Barrier Treatment
 11. Bracing at Exterior Girders
 12. Pile Casing
 13. Bridge Demolition Plans
 14. Letter "M" and Ring
- 202 REMOVAL OF STRUCTURE: No demolition work shall be performed between the hours of 10:00 pm and 6:00 am. Plans of the existing bridge are available from the NDDOT as part of the supplemental bid information. The Contractor shall remove the existing northbound bridge in a manner that prevents any damage to the parts of the southbound bridge to remain. Prevent debris from falling into Mouse River. The aluminum pipe railings mounted to the concrete barriers are to be removed. The work needed for the removal of the deck, overlay, diaphragms, light standards, curb and concrete railing, and aluminum pipe railings shall be included in the lump sum bid item, "Removal of Structure." All beams and concrete removed shall become the property of the Contractor and shall be disposed of properly off of the right of way. Estimated square footage of deck to be removed, measured out to out and not including approach slabs, is 46,200 sq. feet for the northbound bridge and 39,500 sq. feet for the southbound bridge.

Work needed to remove beams, bearings, expansion joints, approach slabs, longitudinal joints, joint filler, sealants, abutments, counterforts, pier caps, columns, footings and walls, remnants of sheet piling, concrete forms, timber and other construction debris, foam filler, exposed reinforcing, all associated piling to 3' below existing grade, and any related excavation and reinstallation of backfill to restore groundlines shall be included in the lump sum bid item, "Removal of Structure."

All costs associated with installation and removal of cofferdams shall be included in the bid item, "Removal of Structure."

One stairway on each side of the bridge is to be removed in its entirety. The piling supporting the stairway shall be cut 3' below existing grade. The existing ground shall be leveled to create a smooth finished grade following piling removal. All costs to remove and dispose of the staircase and associated piling shall be included in the bid item, "Removal of Structure."

Demolition Plan sheets included in the Contract Plans are oriented from North to South to match the orientation of the existing bridge plans and the numbering scheme of the existing piers.

Complete and submit SFN 17987 "Asbestos Notification of Demolition and Renovation" to the North Dakota Department of Health 10 days prior to beginning the removal of any concrete in the structure.

210 EXCAVATION: The excavation for removals at the abutments and piers shall be included in the lump sum bid item, "Removal of Structure."

210 EXCAVATION: All costs associated with temporary shoring adjacent to Railroad tracks, if required, shall be included in the bid item, "Class 1 Excavation." The Contractor shall consult with the CP Railroad and BNSF Railroad as to whether temporary shoring will be required. The Contractor shall be responsible for requesting and receiving approval from the CP Railroad and BNSF Railroad for any temporary shoring adjacent to tracks.

210 EXCAVATION: All costs associated with temporary shoring to protect the 48" Sundre Water Line North of Pier 7 shall be included in the bid item, "Class 1 Excavation."

210 SELECT BACKFILL: Select backfill shall meet the requirements of Section 816.02 Class 3. The backfill shall be placed in layers of not more than 6 inches, moistened or dried as required, and thoroughly compacted with mechanical tamping equipment. The work and material needed for placing select backfill shall not be bid separately but shall be included in the pay item, "Abutment Underdrain System."

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NOTES

210 RIPRAP: Riprap and bedding shall conform to the following gradations.

Bedding Gradation Identification	B3	
Sieve Size		
10"	---	
8"	100	
6"	79	100
4"	69	86
3"	62	79
1.5"	44	61
3/4"	27	43
3/8"	11	27
#4	0	11
#10	0	5
#20		
Bedding Layer Thickness (inches)	12	

Riprap Gradation Identification	R270	
Layer Thickness (inches)		
High Turbulent Flow	---	
Low Turbulent Flow	30	
Percent Sample Between Weight Limits		
W ₁₀₀ range (lbs)	1350	550
W ₅₀ range (lbs)	570	270
W ₁₅ range (lbs)	260	85
W ₅ range (lbs)	220	20
Corresponding Minimum W ₃₀ (lbs)	140	

- 602 PILE SUPPORTED APPROACH SLABS: Mechanical finishing of the approach slabs shall be required. A tine finish shall be applied using the deck tining requirements. Tining shall start 6" from the beginning and end of the approach slabs. A surface tolerance of 3/16" in 10 feet is also required.
- 602 FALSEWORK: Exterior steel girders shall be braced to prevent rotation. The strength of the bracing shall be dependent on the forces induced by the weight of the concrete, forms, equipment and workers. The design shall be based on the assumption that diaphragms will not carry any load. The Contractor's bracing plan and design, stamped by a Professional Engineer, shall be submitted to the Engineer for review.
- 602 SURFACE FINISH "D": Surface finish "D" shall be required on all exposed substructure surfaces, outside edges of the deck, and on all barrier and curb surfaces. The surface finish color for all exposed substructure surfaces, outside edges of the deck, curb, back faces of the barriers, front faces of the barriers along the multi-use path and sidewalk, shall be Sand, color number 33690, and shall meet Federal Standard No. 595B. This work shall be included in the price bid for Class AE-3 and AAE-3 concrete.

Submit to the Engineer 3" x 5" FED-STD-595B color chip card for color number 33690 with a declaration of conformity along with a 1' x 1' sample of the special surface finish.

- 602 SPLIT FACE TEXTURE: Split Face Texturing and rustification shall be required on selected surfaces of the piers, and barriers as detailed in the Contract Plans. The Split Face Texture shall be Custom Rock "Bush Hammer", Texture #T321, Fitzgerald Formliners "Light Granite", Texture #17032 or approved equal. This work shall be included in the price bid for Class AE-3 and AAE-3 concrete.
- 602 DECK CONCRETE: Beams have variations in the anticipated camber. To build the deck to the anticipated thickness will require adjustments in deck elevation and/or riser dimensions. These adjustments result in concrete quantity discrepancies. The Contractor shall consider this quantity discrepancy when bidding the unit price for Class AAE-3 concrete. The Department will pay plan quantity of Class AAE-3 concrete.
- 602 PENETRATING WATER REPELLENT TREATMENT: Penetrating water repellent shall be applied to the driving surface of the concrete deck.
- 602 DECK PLACEMENT: The deck concrete shall be placed at the minimum rates of pour shown on the "Slab Pouring Sequence" sheets.
- 602 LONGITUDINAL GROOVING: After the curing of the deck and approach slabs is complete, and before the penetrating water repellent is applied, cut longitudinal grooves into the deck and approach slabs using a mechanical cutting device. Perform any required surface correction grinding to the deck prior to grooving. Cut grooves that are 1/8" in width (+/- 1/64") and 3/16" in depth (+/- 1/16"). Space grooves at 3/4" center to center. Stop the grooving 2 feet from the face of the barrier/curb and 6" from the beginning and end of the deck and approach slabs. Include the price for grooving in the bid item "Class AAE-3 Concrete."
- 602 MULTI-USE PATH FINISH: The multi-use path on the bridge shall not be tined. This path shall be transversely broomed to slightly roughen the surface.
- 602 RIVER GAUGE: The Contractor shall install anchor bolts for the river gauge at the location indicated in the plans. For anchor bolts and installation details Contact Brent Hanson of the USGS ND Water Science Center @ 701-250-7421 (0) or brhanson@usgs.gov
- 602 BEARING SEAT ELEVATIONS: Bearing Seat Elevations shall be as shown in the Contract Plans. Disc Bearing Assemblies shall be fabricated to match the assembly heights shown on the Disc Bearing Details sheets.

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NOTES

23 U.S.C. 409
NDDOT Reserves All Objections

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	6

622 SHEET PILE: Install sheet pile meeting PZC 13 or approved equivalent. Submit sheet pile that has structural properties equal to or greater than those listed in the plans and meeting the requirements of Section 840.03 of the Standard Specifications. Cold-rolled sheet pile will not be permitted.

Seal the sheet pile interlocks prior to driving the sheet pile. Sealant must reduce seepage under the temperature range anticipated for the project location (-30 degrees F to 120 degrees F) and withstand a hydrostatic head of 65 feet. Approved sealants are Adeka A-30, Wadit or approved equivalent.

Clean and prepare interlocks per the pile and sealant manufacturers' recommendations prior to installation. Perform installation per pile and sealant manufacturers' recommendations.

624 PEDESTRIAN FENCE: The bid item for "Pedestrian Fence" includes 420 LF of 10'-0" Fence (410 LF in Phase 1, 10 LF in Phase 2), 590 LF of 6'-6" Fence (80 LF in Phase 1, 510 LF in Phase 2), and 340 LF of 4'-6" Fence (340 LF in Phase 1, none in Phase 2).

Include the cost of the North and South Gateways in the contract unit price for "Pedestrian Fence."

714 PILE CASING: Encase the approach slab piles inside an 18" diameter casing. Provide a casing of sufficient strength to withstand the forces applied to the casing, including earth pressure. Submit work drawings for the pile casing as specified in Section 105.08, "Work Drawings."

Encase the pile from the bottom of the Approach Footing to Elevation 1549.0. Place spacer blocks at the top and bottom of each piece of casing, and place additional spacer blocks as needed to maintain a uniform space between the pile and the casing.

Fill the casing with a polymer free sodium bentonite slurry after the granular material is in place and compacted. Mix the bentonite slurry with water as specified by the slurry manufacturer. Limit the amount of water to 100 gallons per 80 pounds of bentonite. Place the slurry within the casing in a manner which ensures that the voids are filled from the bottom up.

Include the cost of furnishing materials, equipment, labor, and incidentals in the contract unit price for "Casing Pipe 18" ."

930 ROADWAY CANOPY: The Contractor shall construct a canopy under the existing structure and above the BNSF trail in existing span 8, roadways in existing spans 9 and 12, BNSF railways in existing spans 10 and 11, and CP railway in existing span 15 to protect traffic from falling material.

Each canopy must be erected before any portion of the existing structure is removed. The canopy must also be in place before commencement of any demolition work, and shall remain in place until after construction of the new structure is complete. Erection of the canopy shall be completed in a minimum amount of time and with the least inconvenience to the public and railroads. The canopy shall be of a design and material selected by the Contractor and submitted to the Engineer for review. The minimum vertical clearance shall be 21'-0" above the railroad tracks and 15'-0" above the roadways. The canopies and supports shall project a minimum distance of 5'-0" beyond the outside edge of deck of the new structure and beyond the edge of the railway clearance diagram and driving lanes beneath the new structure. The existing clearances to the lowest member of the existing bridge are: BNSF Railway: 22'-1", CP Railway: 21'-3½", and Roadway: 21'-0".

After completion of the structure, the canopies shall be removed and shall remain the property of the Contractor. The canopy shall be paid for the at the contract lump sum unit price for "Roadway Canopy." The roadway canopy shall be measured as a lump sum price and shall include construction, maintenance and removal.

930 RAILROAD FLAGGING: The Contractor shall give a minimum of sixty (60) working days notice to the Railways Roadmasters in advance of when flagging services will be required to bulletin the flagger's position, and shall provide five (5) working days' notice to the Roadmaster to abolish the position per union requirements. The BNSF Roadmaster can be reached at 701-837-6614. The CP Roadmaster can be reached at 612-330-4556.

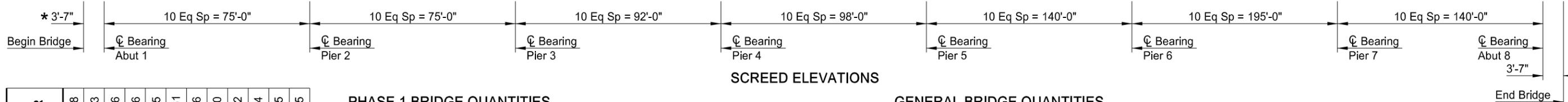
930 RIGHT OF ENTRY: The Contractor shall contact the following to obtain a Right of Entry Agreement before entering railway property:

Richard Scott of BNSF at 763-782-3492 or Richard.Scott2@BNSF.com
Dave LeClaire of CP at 612-330-4556 or Dave_LeClaire@cpr.ca

930 RAILROAD SAFETY EQUIPMENT: All Contractor employees working on railroad property will wear OSHA approved safety glasses with side shields, hard hats, an orange safety vest of ANSI Class II/III, and above the ankle, lace up, steel-toed safety boots with a defined heel. During inclement weather, proper clothing/equipment to protect against frostbite, slipping, etc. will be worn. Hearing protection, fall protection, and respirators will be worn as needed and required by state and federal regulations.

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☉ GIRDER N6	☉ GIRDER N5	☉ GIRDER N4	☉ GIRDER N3	☉ GIRDER N2	☉ GIRDER N1
1587.32	1587.44	1587.55	1587.65	1587.76	1587.85
1587.37	1587.49	1587.60	1587.71	1587.82	1587.92
1587.50	1587.63	1587.75	1587.87	1587.98	1588.09
1587.60	1587.74	1587.87	1588.00	1588.12	1588.23
1587.68	1587.83	1587.97	1588.10	1588.23	1588.34
1587.73	1587.89	1588.03	1588.18	1588.32	1588.43
1587.76	1587.92	1588.07	1588.22	1588.37	1588.49
1587.78	1587.94	1588.09	1588.24	1588.39	1588.52
1587.79	1587.94	1588.09	1588.24	1588.39	1588.53
1587.79	1587.95	1588.10	1588.25	1588.40	1588.54
1587.80	1587.95	1588.10	1588.25	1588.40	1588.55
1587.81	1587.96	1588.11	1588.26	1588.41	1588.56
1587.83	1587.98	1588.13	1588.28	1588.43	1588.59
1587.86	1588.01	1588.16	1588.31	1588.46	1588.62
1587.89	1588.05	1588.20	1588.35	1588.50	1588.65
1587.93	1588.08	1588.23	1588.38	1588.53	1588.68
1587.96	1588.12	1588.27	1588.42	1588.57	1588.72
1588.00	1588.15	1588.30	1588.45	1588.60	1588.75
1588.03	1588.18	1588.33	1588.48	1588.63	1588.78
1588.06	1588.21	1588.36	1588.51	1588.66	1588.82
1588.10	1588.25	1588.40	1588.55	1588.70	1588.85
1588.14	1588.29	1588.44	1588.59	1588.74	1588.89
1588.20	1588.35	1588.50	1588.65	1588.80	1588.95
1588.26	1588.42	1588.57	1588.72	1588.87	1589.01
1588.32	1588.48	1588.63	1588.78	1588.93	1589.07
1588.38	1588.53	1588.68	1588.83	1588.98	1589.12
1588.42	1588.58	1588.73	1588.88	1589.03	1589.16
1588.45	1588.61	1588.76	1588.91	1589.06	1589.20
1588.48	1588.63	1588.78	1588.93	1589.08	1589.22
1588.50	1588.65	1588.80	1588.95	1589.10	1589.25
1588.52	1588.67	1588.82	1588.97	1589.12	1589.27
1588.54	1588.69	1588.84	1588.99	1589.15	1589.30
1588.58	1588.73	1588.88	1589.03	1589.18	1589.33
1588.61	1588.77	1588.93	1589.08	1589.23	1589.38
1588.62	1588.79	1588.95	1589.11	1589.27	1589.43
1588.61	1588.79	1588.96	1589.13	1589.29	1589.45
1588.58	1588.76	1588.94	1589.12	1589.29	1589.46
1588.52	1588.71	1588.90	1589.08	1589.26	1589.44
1588.44	1588.64	1588.83	1589.03	1589.22	1589.40
1588.34	1588.54	1588.75	1588.95	1589.15	1589.34
1588.22	1588.43	1588.64	1588.85	1589.06	1589.26
1588.08	1588.30	1588.52	1588.74	1588.95	1589.16
1587.86	1588.10	1588.33	1588.55	1588.78	1589.00
1587.60	1587.85	1588.09	1588.33	1588.56	1588.79
1587.29	1587.55	1587.80	1588.06	1588.30	1588.54
1586.93	1587.20	1587.47	1587.73	1587.99	1588.23
1586.52	1586.80	1587.07	1587.35	1587.62	1587.88
1586.05	1586.35	1586.63	1586.92	1587.20	1587.47
1585.55	1585.85	1586.15	1586.44	1586.74	1587.02
1585.00	1585.31	1585.62	1585.93	1586.23	1586.53
1584.42	1584.74	1585.06	1585.38	1585.69	1586.01
1583.80	1584.14	1584.47	1584.80	1585.13	1585.45
1582.91	1583.26	1583.61	1583.96	1584.30	1584.63
1581.99	1582.35	1582.70	1583.06	1583.41	1583.75
1581.08	1581.44	1581.79	1582.15	1582.50	1582.83
1580.14	1580.51	1580.87	1581.22	1581.57	1581.89
1579.18	1579.55	1579.91	1580.26	1580.61	1580.93
1578.19	1578.56	1578.91	1579.27	1579.62	1579.94
1577.17	1577.53	1577.89	1578.24	1578.59	1578.92
1576.13	1576.49	1576.85	1577.20	1577.55	1577.89
1575.10	1575.46	1575.81	1576.16	1576.52	1576.86
1574.09	1574.45	1574.80	1575.15	1575.51	1575.86
1573.39	1573.75	1574.10	1574.45	1574.81	1575.16
1572.70	1573.06	1573.41	1573.77	1574.12	1574.47
1572.03	1572.38	1572.74	1573.09	1573.44	1573.79
1571.35	1571.71	1572.06	1572.42	1572.77	1573.11
1570.67	1571.03	1571.38	1571.74	1572.09	1572.43
1569.98	1570.34	1570.70	1571.05	1571.40	1571.74
1569.28	1569.64	1569.99	1570.35	1570.70	1571.04
1568.56	1568.92	1569.28	1569.63	1569.98	1570.32
1567.83	1568.19	1568.54	1568.90	1569.25	1569.60
1567.09	1567.45	1567.80	1568.15	1568.51	1568.86
1566.91	1567.27	1567.62	1567.97	1568.33	1568.68



SCREED ELEVATIONS

☉ GIRDER N7
1587.18
1587.23
1587.36
1587.46
1587.55
1587.61
1587.66
1587.70
1587.72
1587.74
1587.75

10 Eq Sp = 72'-4"

* 3'-5 1/2" @ GIRDER N7

PHASE 1 BRIDGE QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
210	0100	CLASS 1 EXCAVATION	CY	1938
302	9010	AGGREGATE FOR REINFORCED FABRIC CLASS 5	TON	5320
602	0130	CLASS AAE-3 CONCRETE	CY	998.7
602	1130	CLASS AE-3 CONCRETE	CY	1804.0
602	1133	CONCRETE BRIDGE APPROACH SLAB	SY	234
602	1134	PILE SUPPORTED APPROACH SLAB	SY	403
602	1135	BRIDGE APPROACH SLAB - REMOVE & REPLACE	SY	273
602	1208	CONCRETE BRIDGE BARRIER	LF	1018
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	2809
602	8000	PEDESTAL	EA	12
612	0115	REINFORCING STEEL - GRADE 60	LBS	225,721
612	0116	REINFORCING STEEL - GRADE 60 - EPOXY COATED	LBS	282,168
616	0360	STRUCTURAL STEEL	LBS	1,387,875
622	0020	STEEL PILING HP 10 X 42	LF	1592
622	0040	STEEL PILING HP 12 X 53	LF	1625
622	0060	STEEL PILING HP 14 X 73	LF	6503
622	0070	STEEL PILING HP 14 X 102	LF	5309
622	6760	STEEL SHEET PILING	SF	4938
624	0123	PEDESTRIAN RAILING	LF	750
624	0124	PEDESTRIAN FENCE	LF	830
709	0200	GEOSYNTHETIC REINFORCEMENT	SY	10,950
714	8498	CASING PIPE 18"	LF	189
930	3040	BEARINGS (EXPANSION)	EA	45
930	3042	BEARINGS (FIXED)	EA	6
930	8681	FINGER EXPANSION JOINT	LF	124
930	9535	DECK DRAINAGE SYSTEM	L SUM	1
930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	2

GENERAL BRIDGE QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0105	REMOVAL OF STRUCTURE	L SUM	1
210	0111	CLASS 2 EXCAVATION	L SUM	1
210	0201	FOUNDATION PREPARATION	EA	1
256	0501	RIPRAP SPECIAL	TON	2800
709	0600	GEOTEXTILE FABRIC - TYPE RR	SY	1320
920	1237	STRUCTURAL ENGINEER	MHR	200
930	3000	BRIDGE BENCH MARKS	SET	1
930	7012	ROADWAY CANOPY	L SUM	1

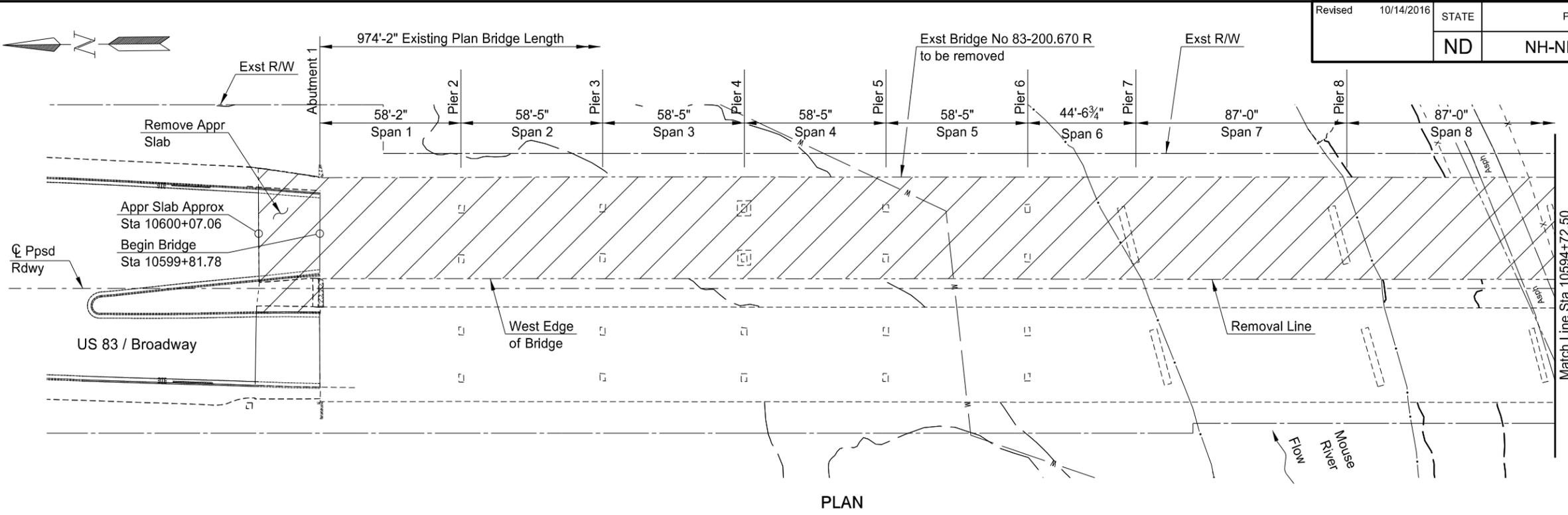
For Note on "Pedestrian Fence" Quantity, see Dwg 83-200.649-6.

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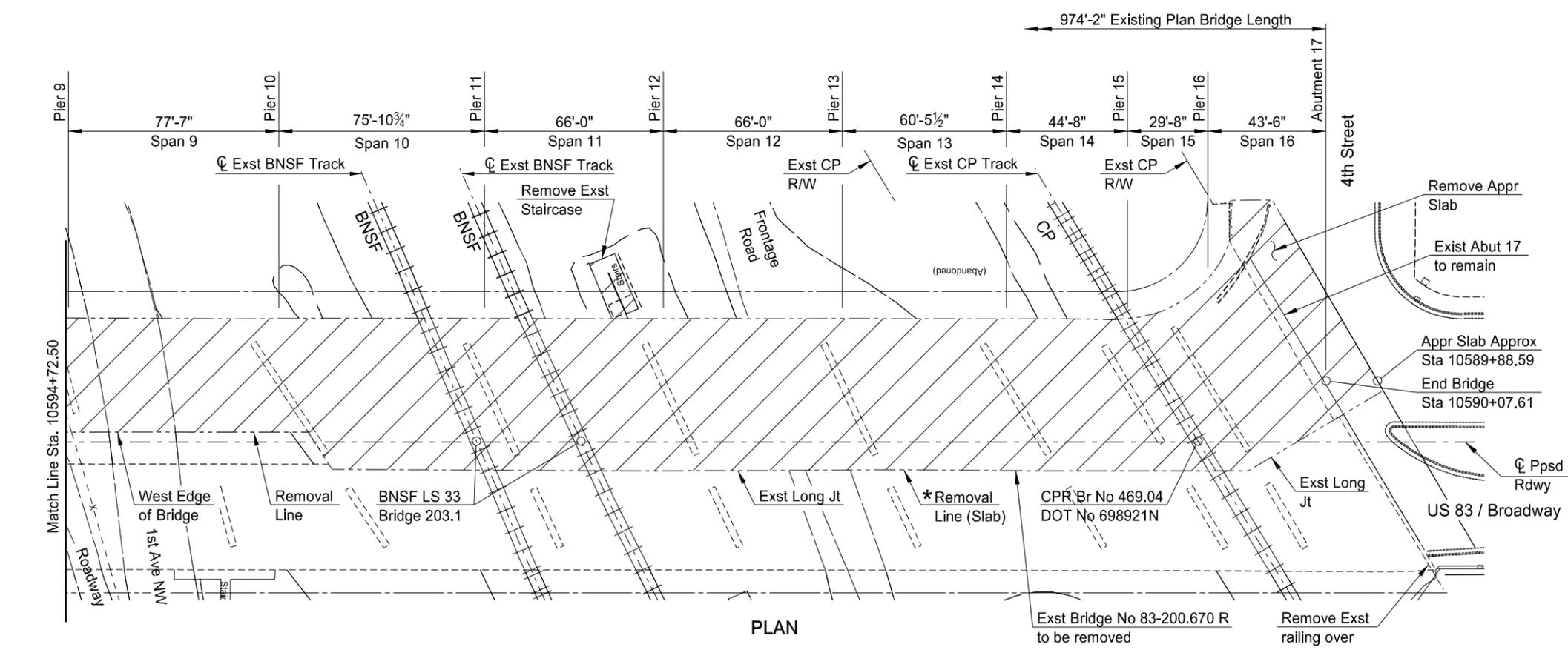
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

NORTHBOUND
SCREED ELEVATIONS & QUANTITIES

23 U.S.C. 409
 NDDOT Reserves All Objections



PLAN



PLAN

NOTES:

Demolition plans are shown from North to South to match the orientation of the Existing Bridge Plans and the number scheme of the existing piers.

All salvageable materials except street lighting system and traffic control system shall become the property of the contractor and properly disposed of by the contractor.

LEGEND

 Hatched area indicates structure to be removed.

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SURVEY CONTROL POINTS			
POINT	NORTHING	EASTING	ELEVATION
GPS 1	450,642.52	1,774,194.49	1614.25
GPS 2	457,663.46	1,775,411.95	1717.40

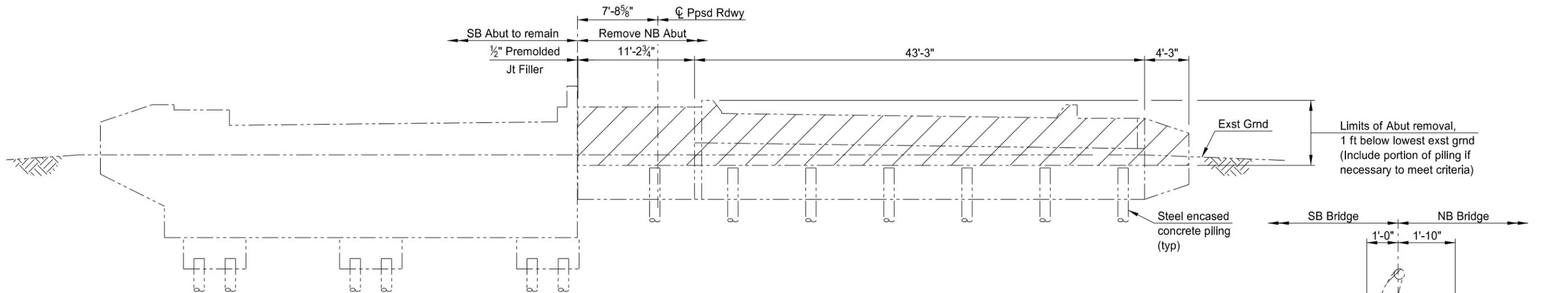
* Removal also includes curb and railing extension beyond removal line.

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

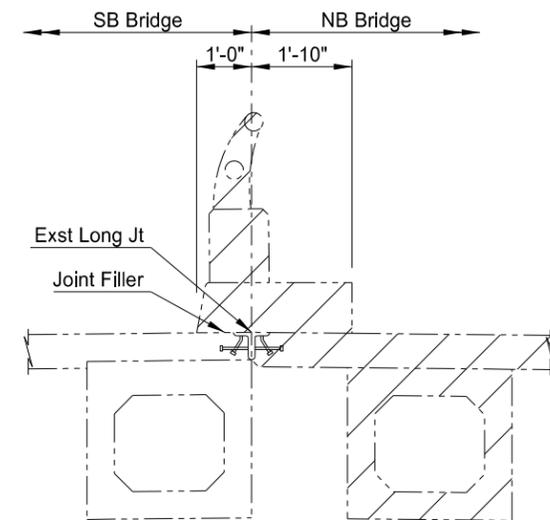
NORTHBOUND

DEMOLITION PLAN

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	9



ABUTMENT 1
(Looking North)

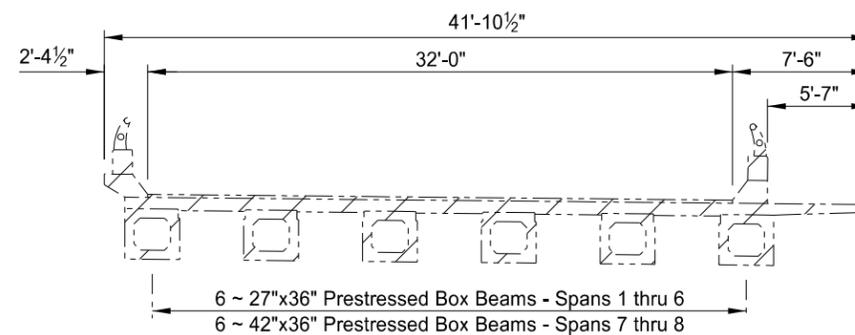


DETAIL A

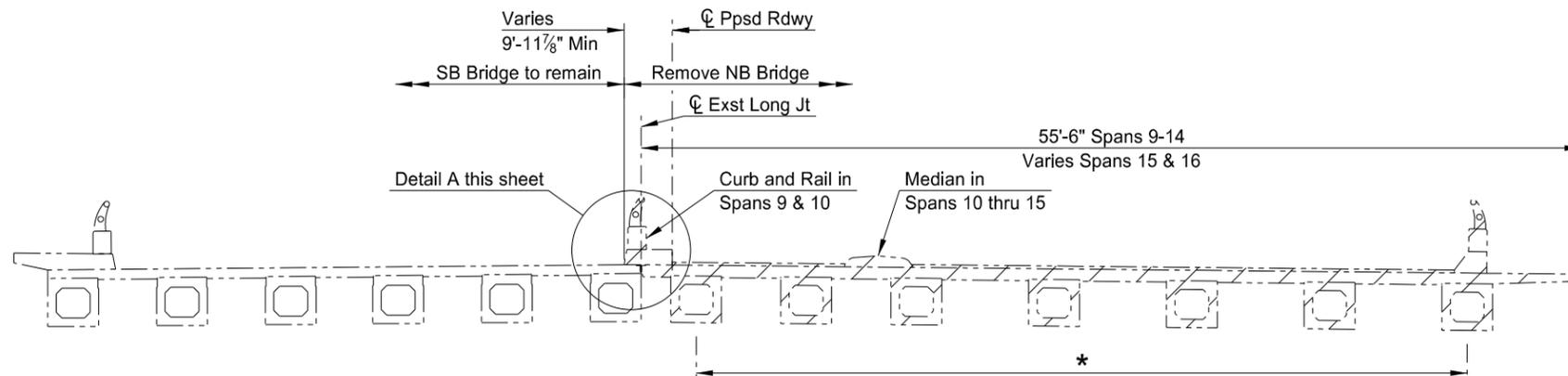
LEGEND

 Hatched area indicates structure to be removed.

Note: Original plan dimensions shown. Removals to include any subsequent modifications, additions or overlays with no increase in cost or schedule.



SLAB SECTION AT SPANS 1 THRU 8
(Looking North)



SLAB SECTION AT SPANS 9 THRU 16
(Looking North)

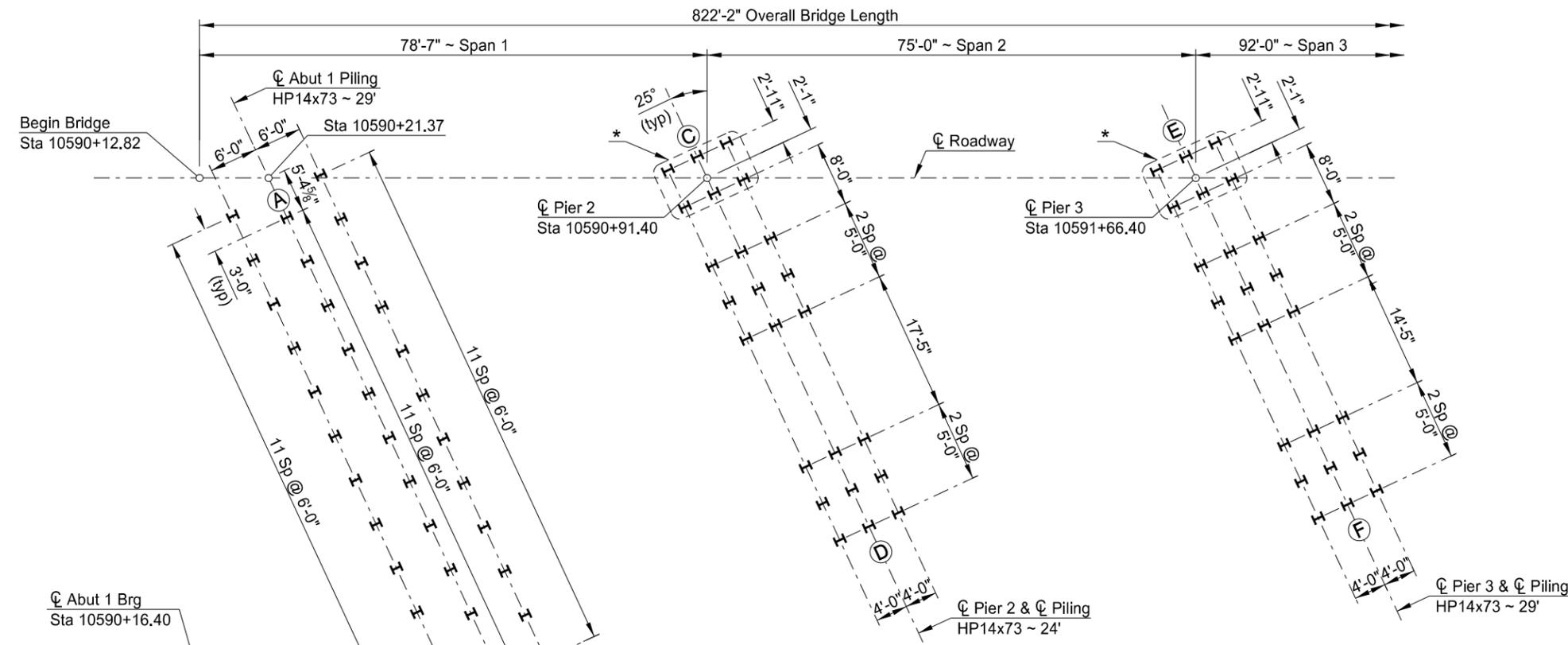
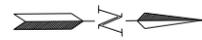
- * 9 ~ 33"x36" Prestressed Box Beams - Span 10.
- 7 ~ 33"x36" Prestressed Box Beams - Span 9, 11 & 12.
- 8 ~ 27"x36" Prestressed Box Beams - Span 13.
- 8 ~ 21"x36" Prestressed Box Beams - Span 14, 15.
- 9 ~ 21"x36" Prestressed Box Beams - Span 16.

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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

**NORTHBOUND
DEMOLITION DETAILS**

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	11



PILE COORDINATES		
PILE	NORTHING	EASTING
ABUT 1	A	452,092.67
	B	452,120.02
PIER 2	C	452,159.26
	D	452,180.15
PIER 3	E	452,234.25
	F	452,253.91

NOTES:

For double acting or single acting diesel hammers, the safe bearing value of piles shall be determined by the following formula:

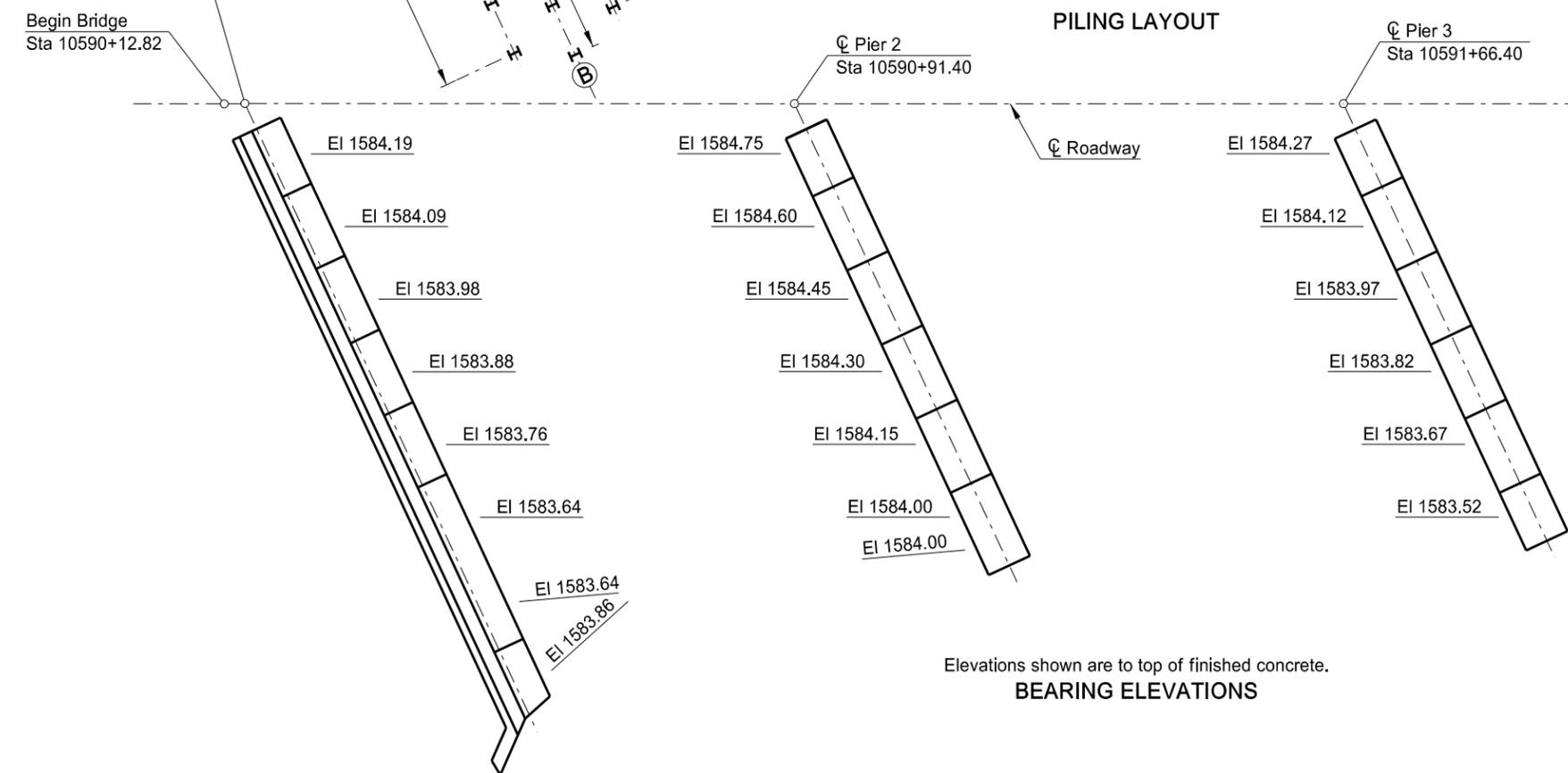
$$P = \frac{4.5E}{S + 0.2} \times \frac{W + 0.2M}{W + M}$$

- P = Safe bearing value, in pounds.
- W = Weight of striking parts (ram), in pounds.
- M = Weight of parts being driven, in pounds. Includes pile weight, anvil (if any), driving cap, etc.
- E = Energy per blow, in foot-pounds.
- S = Average penetration of pile in inches per blow for last ten blows.

For single acting hammers, calculate E by multiplying observed stroke (ft) and W (lbs).

- HP10 x 42 Pile shall be driven to 105 Tons.
- HP12 x 53 Pile shall be driven to 130 Tons.
- HP14 x 73 Pile shall be driven to 180 Tons.
- HP14 x 102 Pile shall be driven to 250 Tons.

* Piles for Phase 2 structure to be driven during Phase 1.



Elevations shown are to top of finished concrete.
BEARING ELEVATIONS

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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

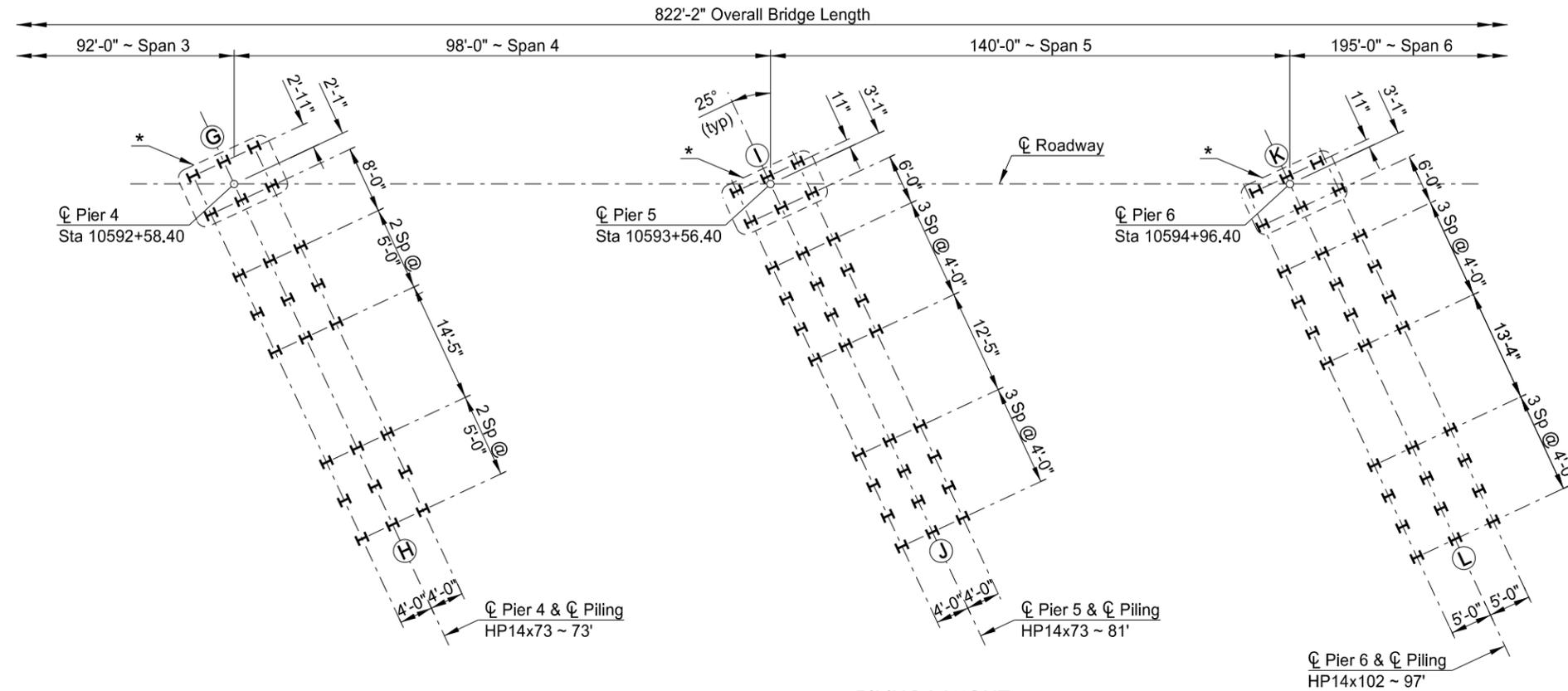
NORTHBOUND

PILING LAYOUT & BEARING ELEVATIONS



23 U.S.C. 409
NDDOT Reserves All Objections

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	12



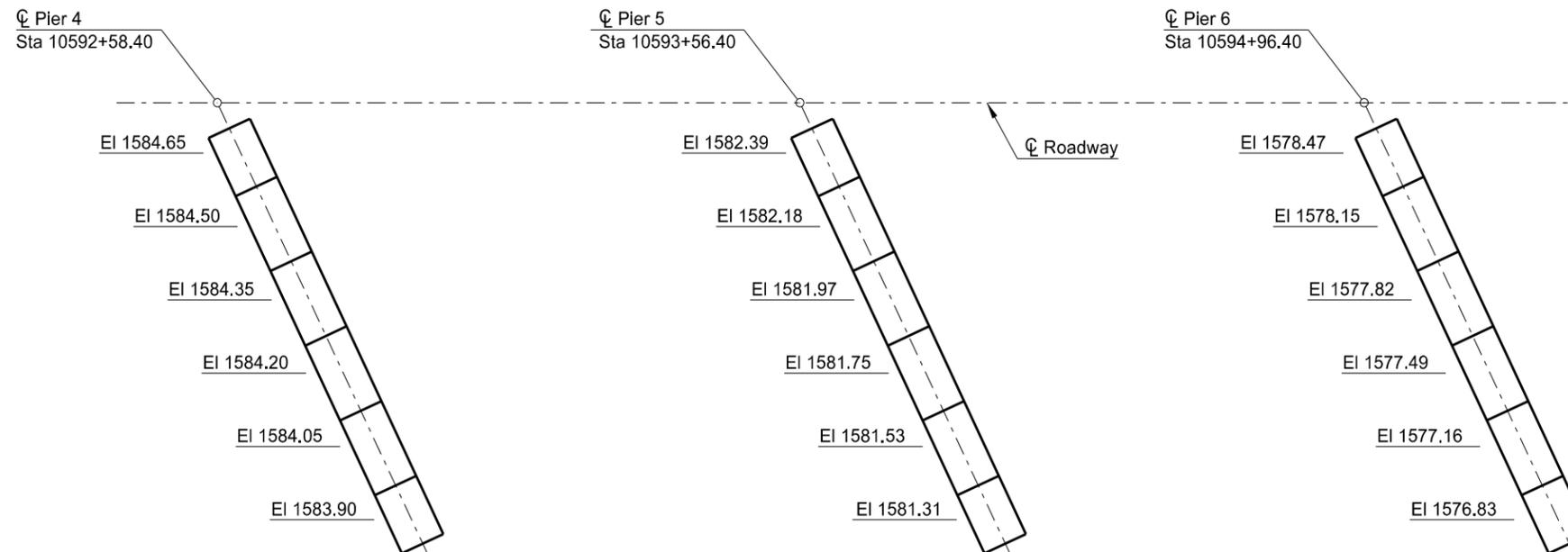
PILE COORDINATES		
PILE	NORTHING	EASTING
PIER 4 G	452,326.25	1,774,756.21
H	452,345.90	1,774,799.36
PIER 5 I	452,425.07	1,774,758.91
J	452,444.31	1,774,801.15
PIER 6 K	452,565.07	1,774,760.17
L	452,584.69	1,774,803.24

NOTES:

HP10 x 42 Pile shall be driven to 105 Tons.
HP12 x 53 Pile shall be driven to 130 Tons.
HP14 x 73 Pile shall be driven to 180 Tons.
HP14 x 102 Pile shall be driven to 250 Tons.

* Piles for Phase 2 structure to be driven during Phase 1.

PILING LAYOUT

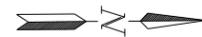


Elevations shown are to top of finished concrete.
BEARING ELEVATIONS

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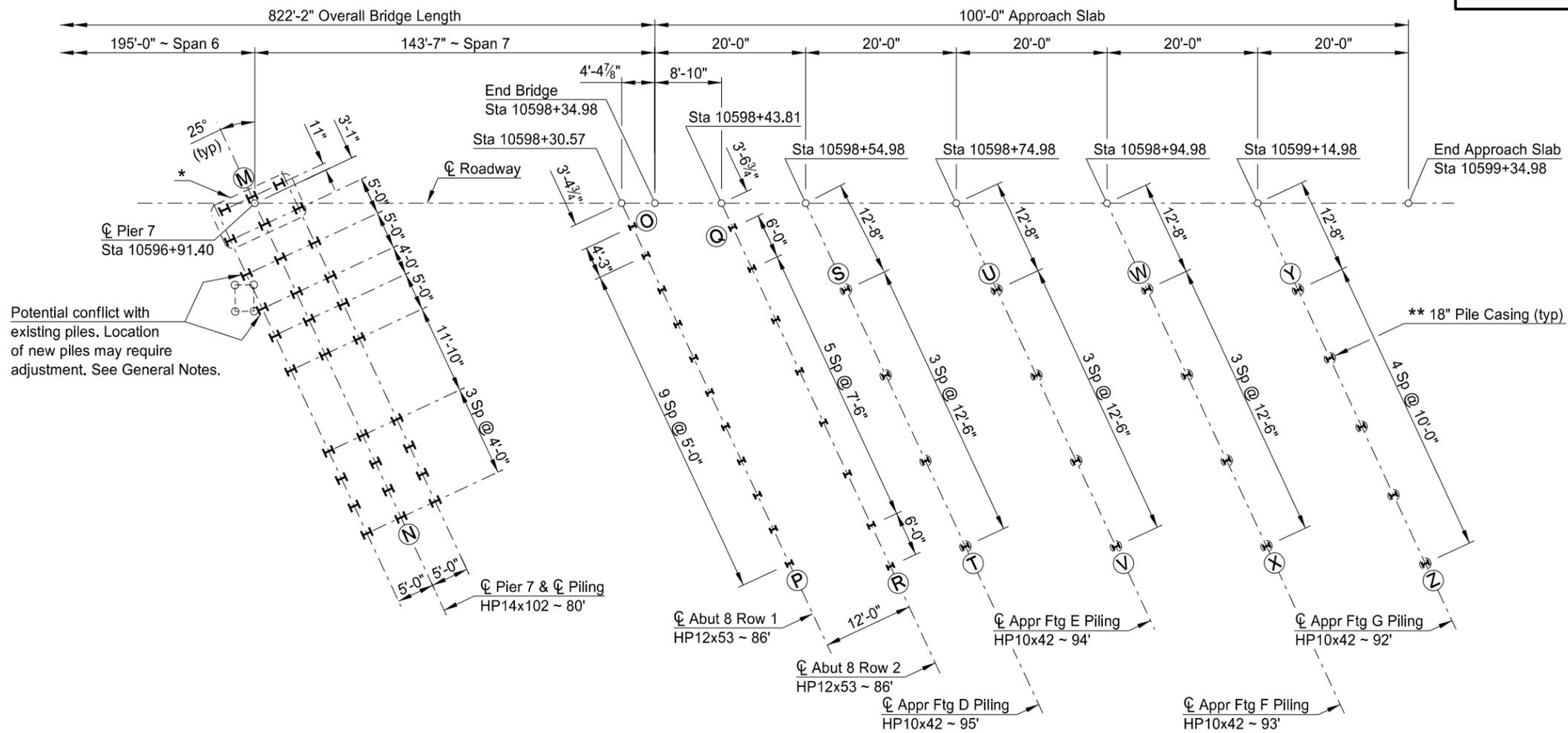
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

NORTHBOUND
PILING LAYOUT & BEARING ELEVATIONS



23 U.S.C. 409
NDDOT Reserves All Objections

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	13



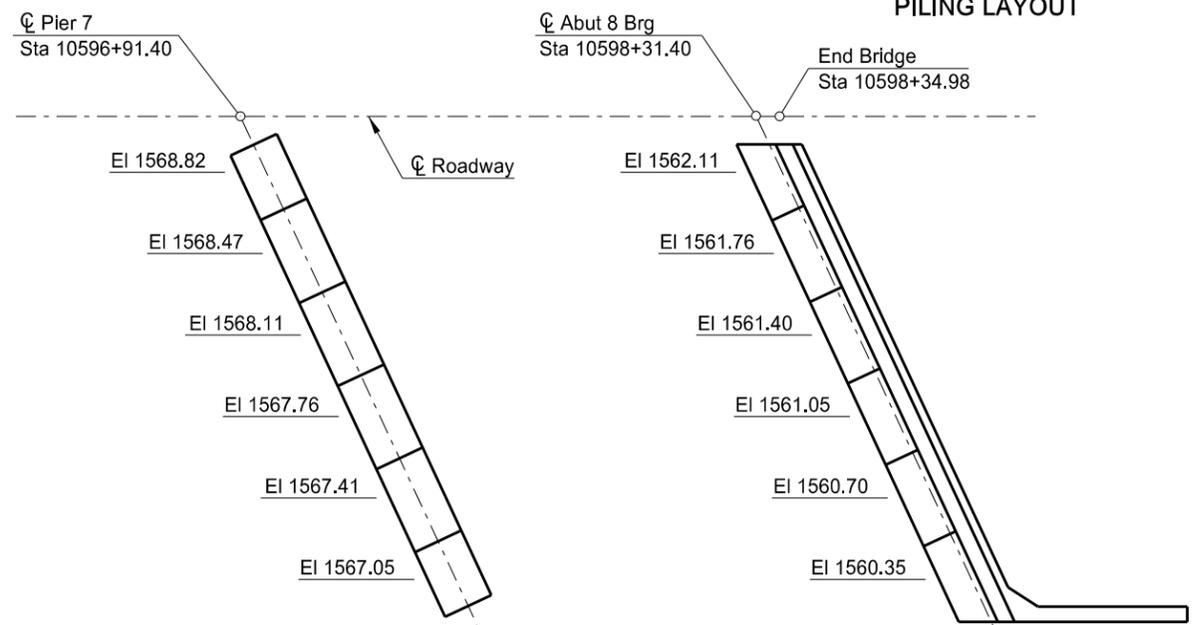
PILE COORDINATES			
PILE	NORTHING	EASTING	
PIER 7	M	452,760.06	1,774,761.92
	N	452,779.47	1,774,804.54
ABUT 8	O	452,901.02	1,774,767.09
	P	452,921.43	1,774,811.91
ABUT 8	Q	452,914.32	1,774,767.35
	R	452,934.84	1,774,812.40
APPR FTGD	S	452,929.27	1,774,775.74
	T	452,944.81	1,774,809.87
APPR FTGE	U	452,949.27	1,774,775.92
	V	452,964.81	1,774,810.05
APPR FTGF	W	452,969.24	1,774,776.05
	X	452,984.79	1,774,810.18
APPR FTGG	Y	452,989.26	1,774,776.27
	Z	453,005.84	1,774,812.68

NOTES:

HP10 x 42 Pile shall be driven to 105 Tons.
HP12 x 53 Pile shall be driven to 130 Tons.
HP14 x 73 Pile shall be driven to 180 Tons.
HP14 x 102 Pile shall be driven to 250 Tons.

* Piles for Phase 2 structure to be driven during Phase 1.

** 18" Casing around approach slab. Piles shall be encased from the bottom of the footing to Elevation 1549.0.

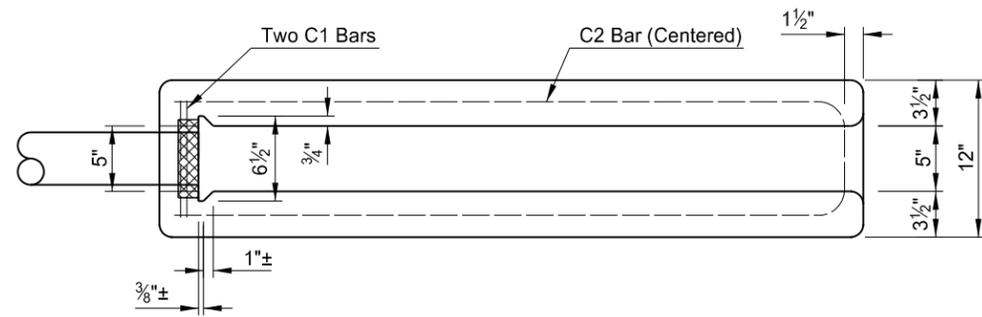


Elevations shown are to top of finished concrete.
BEARING ELEVATIONS

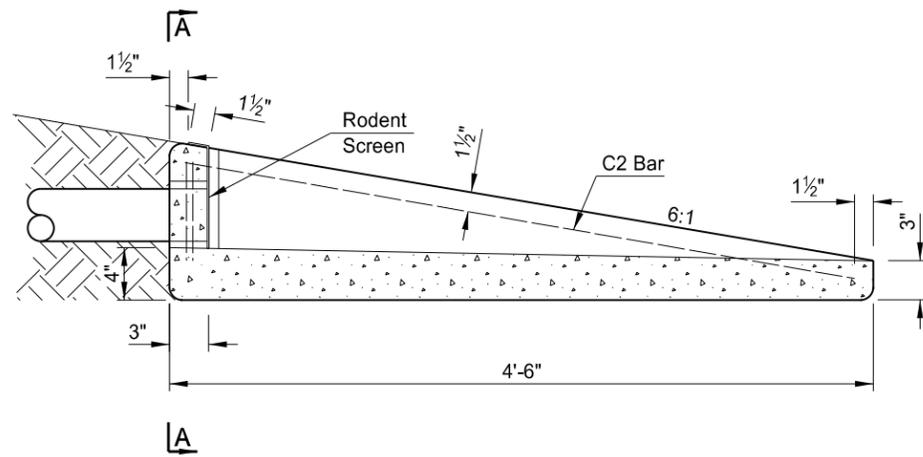
US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

NORTHBOUND
PILING LAYOUT &
BEARING ELEVATIONS

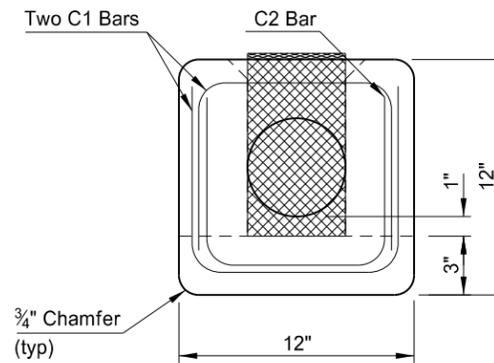
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	14



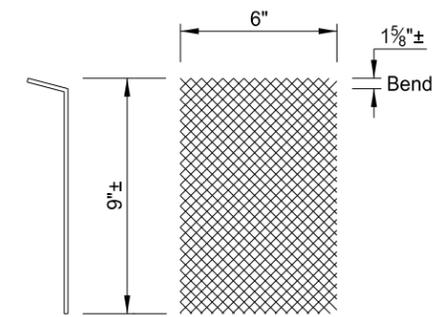
PLAN



SECTION
PRECAST CONCRETE HEADWALL



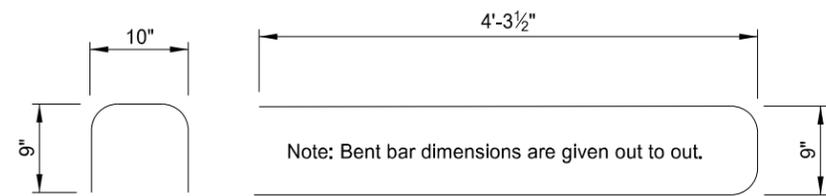
A-A



SIDE VIEW FRONT VIEW

RODENT SCREEN DETAILS

Dimensions are approximate to allow bend and a snug fit in headwall slot



BENT BAR DETAILS

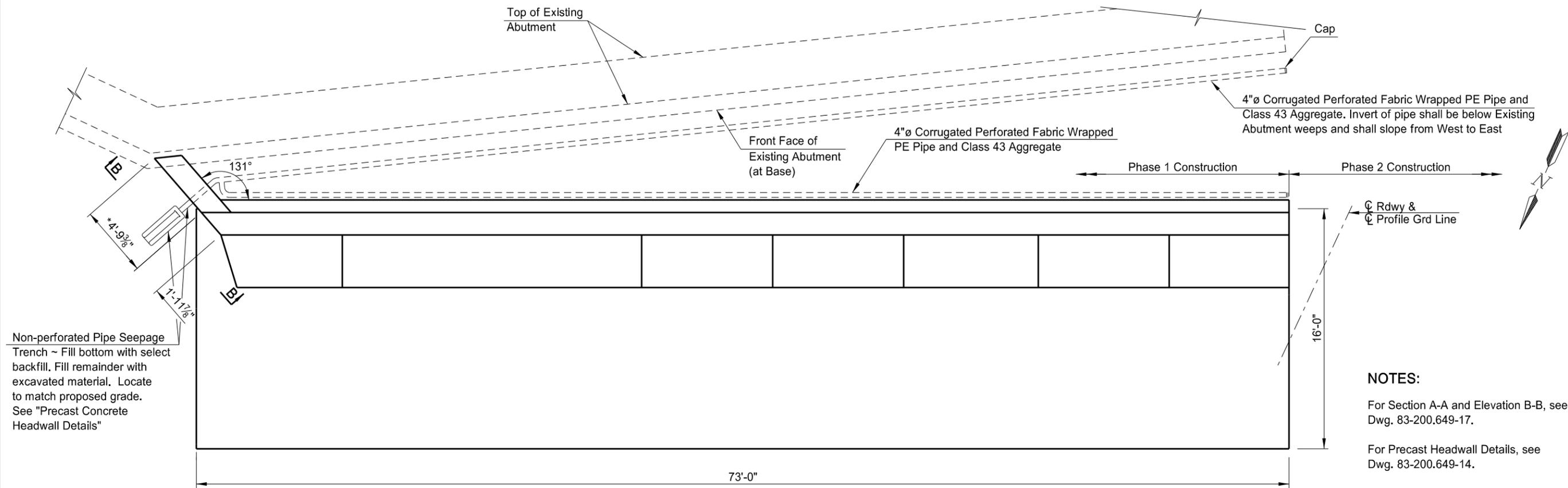
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US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

NORTHBOUND
ABUTMENT UNDERDRAIN DETAILS

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	15

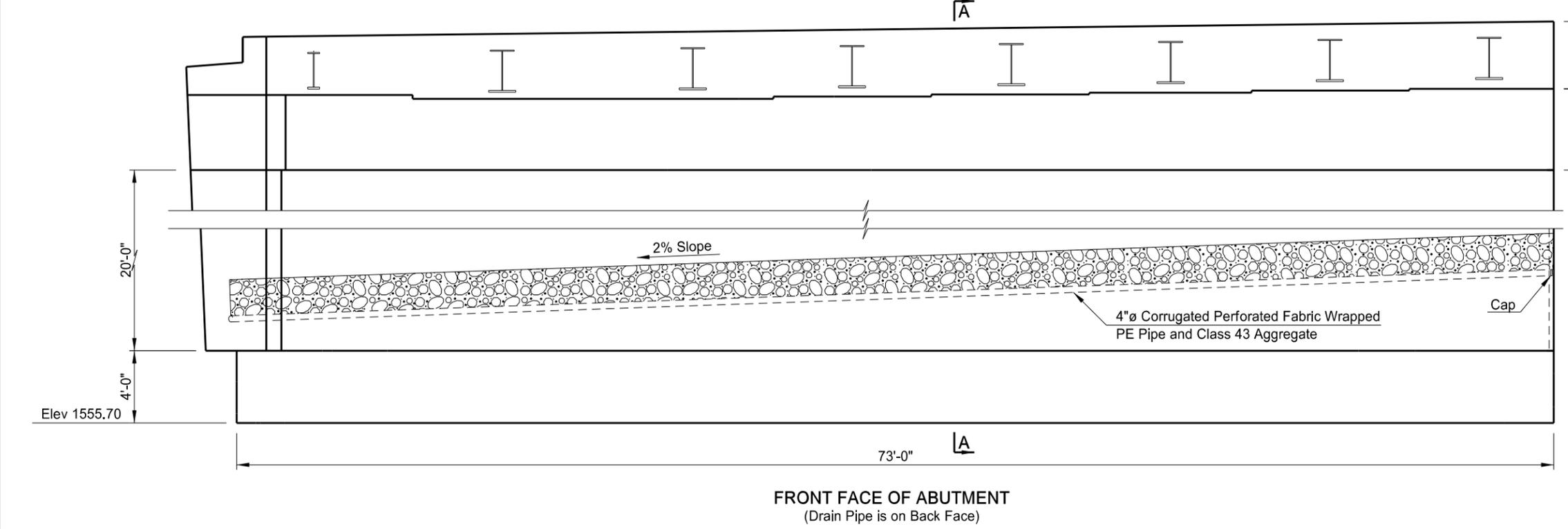
* Dimensions vary per height of wall.
See ELEVATION B-B and field verify.



Non-perforated Pipe Seepage
Trench ~ Fill bottom with select
backfill. Fill remainder with
excavated material. Locate
to match proposed grade.
See "Precast Concrete
Headwall Details"

NOTES:
For Section A-A and Elevation B-B, see
Dwg. 83-200.649-17.
For Precast Headwall Details, see
Dwg. 83-200.649-14.

PLAN

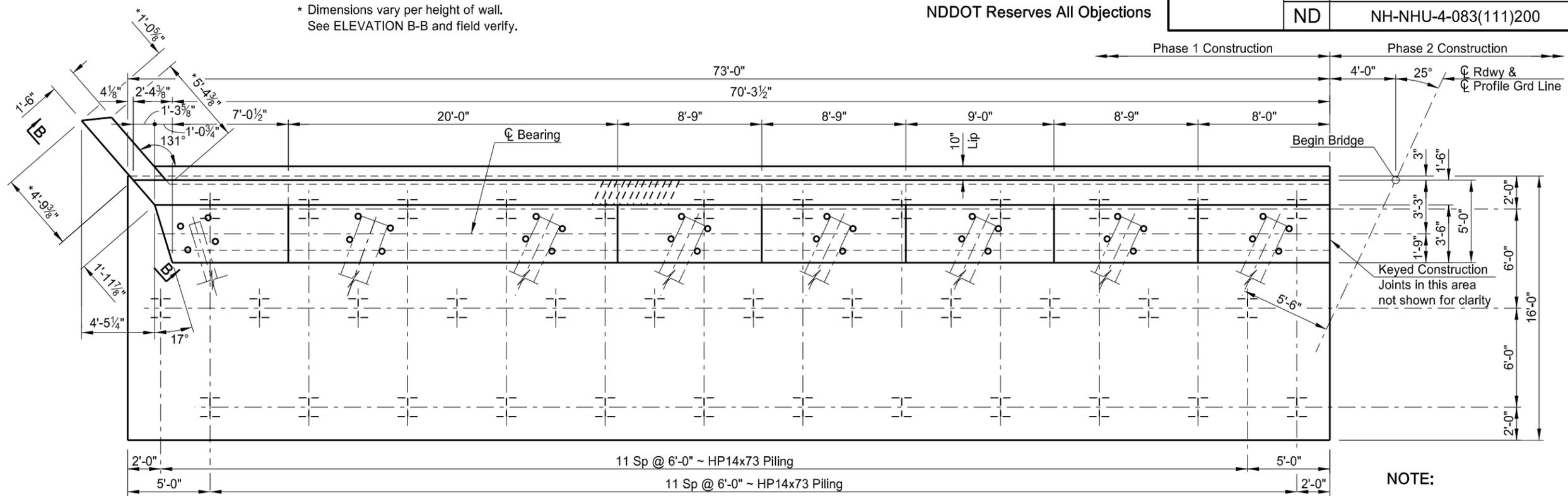


FRONT FACE OF ABUTMENT
(Drain Pipe is on Back Face)

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QUANTITIES
SEE DWG. 83-200.649-18
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
ABUTMENT 1 UNDERDRAIN DETAILS (SHOWING DIMENSIONS)

* Dimensions vary per height of wall.
See ELEVATION B-B and field verify.



PLAN

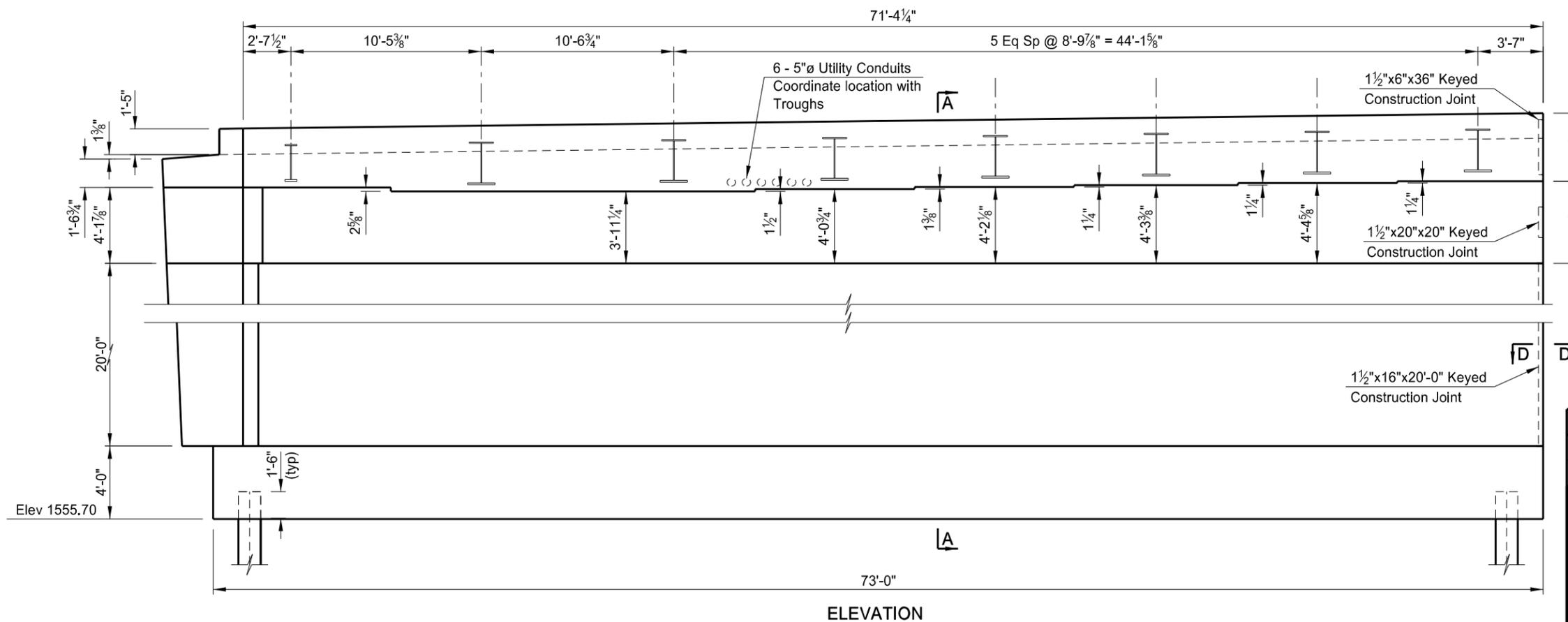
NOTE:

For Section A-A and D-D and Elevation B-B,
see Dwg 83-200.649-17 and Dwg 83-200.649-20.

NOMENCLATURE:

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ELEVATION

QUANTITIES

SEE DWG. 83-200.649-18

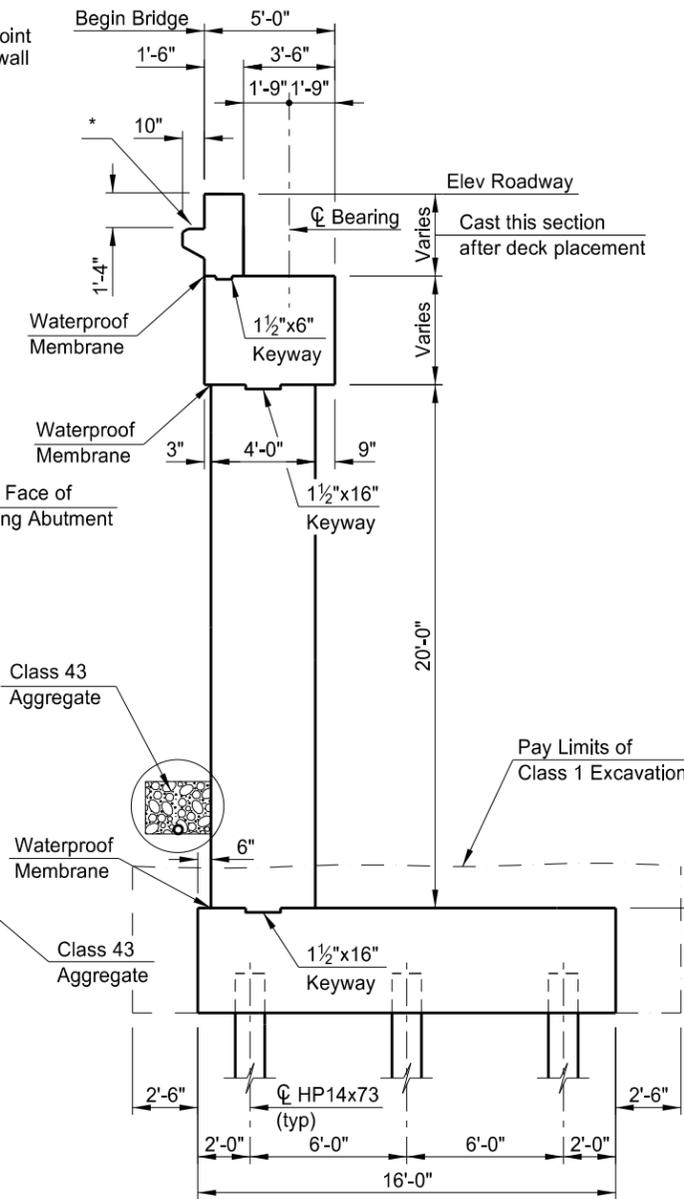
US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

NORTHBOUND

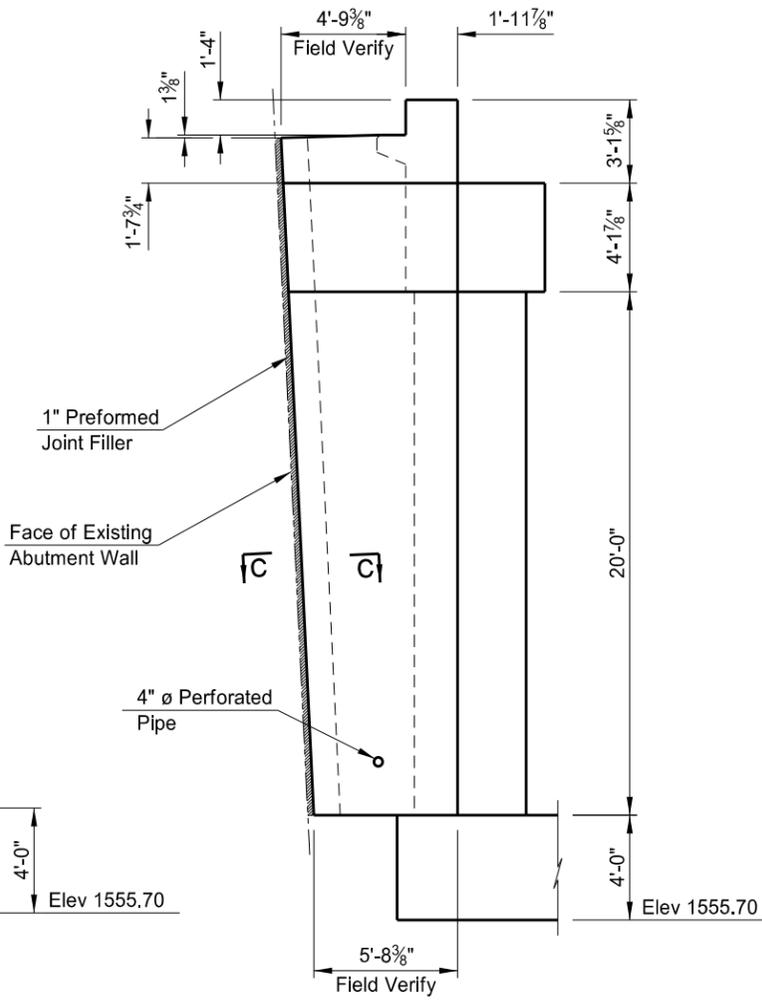
ABUTMENT 1 DETAILS
(SHOWING DIMENSIONS)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	17

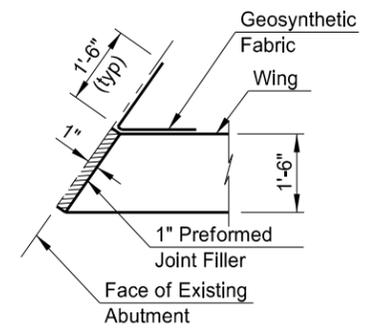
* Abutment side of Finger Joint shall not be set, and backwall shall not be poured until after deck is poured



SECTION A-A

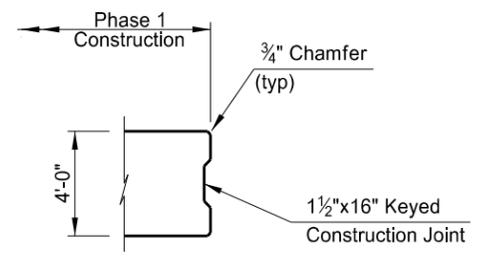


ELEVATION B-B



SECTION C-C

All material and work for Geosynthetic Fabric shall be included in the pay item "Class AE-3 Concrete."

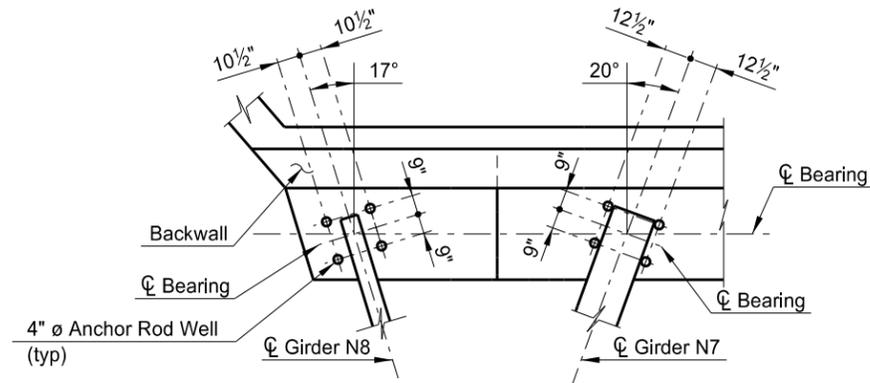


SECTION D-D

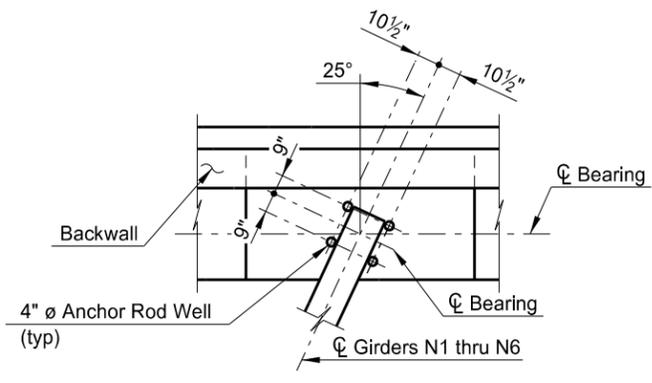
NOTES:

- For Detail "A", see Dwg 83-200.649-14.
- Use waterproof membrane that meets the requirements of Section 602.03 B. Center the waterproof membrane (1'-0" minimum width) on the joint.
- Weeps in Existing Abutment wall shall be cleaned out prior to installation of perforated pipe.

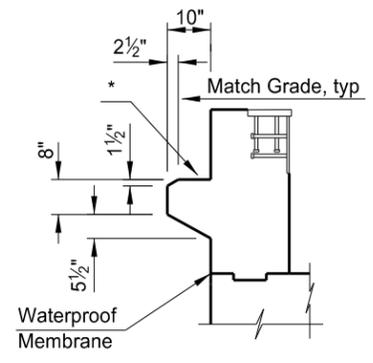
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PLAN ABUTMENT BEARING SEAT DETAIL GIRDERS N7 AND N8



TYPICAL PLAN ABUTMENT BEARING SEAT DETAIL GIRDERS N1 THRU N6



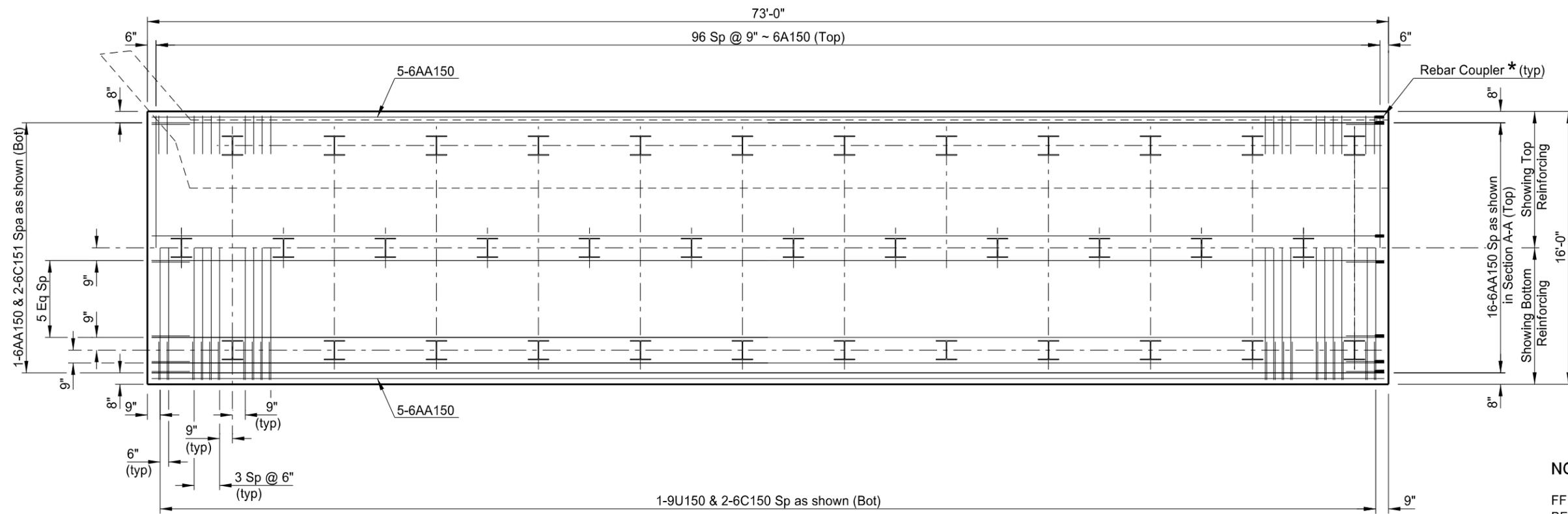
APPROACH LIP DETAIL

QUANTITIES

SEE DWG. 83-200.649-18

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
ABUTMENT 1 DETAILS (SHOWING DIMENSIONS)

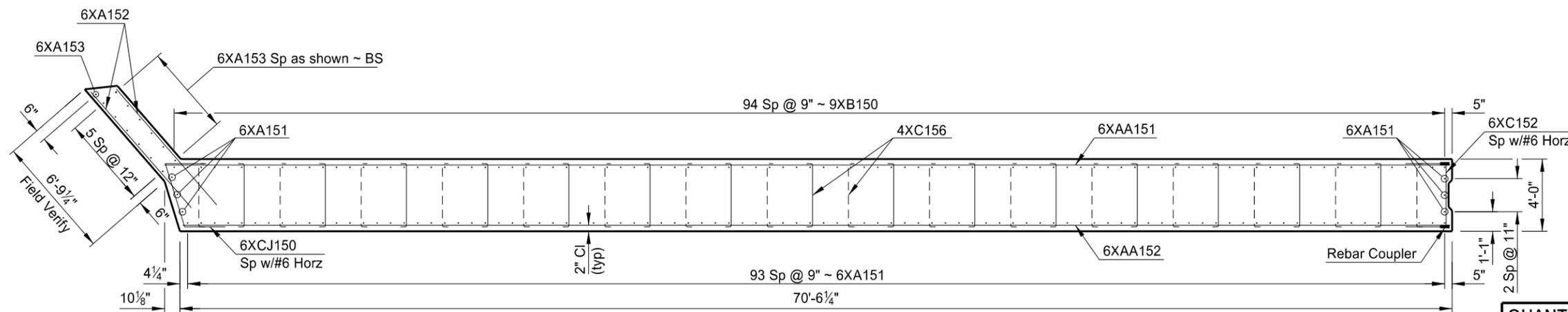
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	18



FOOTING PLAN

NOMENCLATURE:

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BS = Both Sides
Bot = Bottom



BEARING WALL PLAN

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QUANTITIES	
CLASS AE-3 CONCRETE	462.0 - CY
REINFORCING STEEL	16,123 - LBS
REINFORCING STEEL (EPOXY)	26,753 - LBS

NOTES:

For Section A-A, see Dwg. 83-200.649-20.

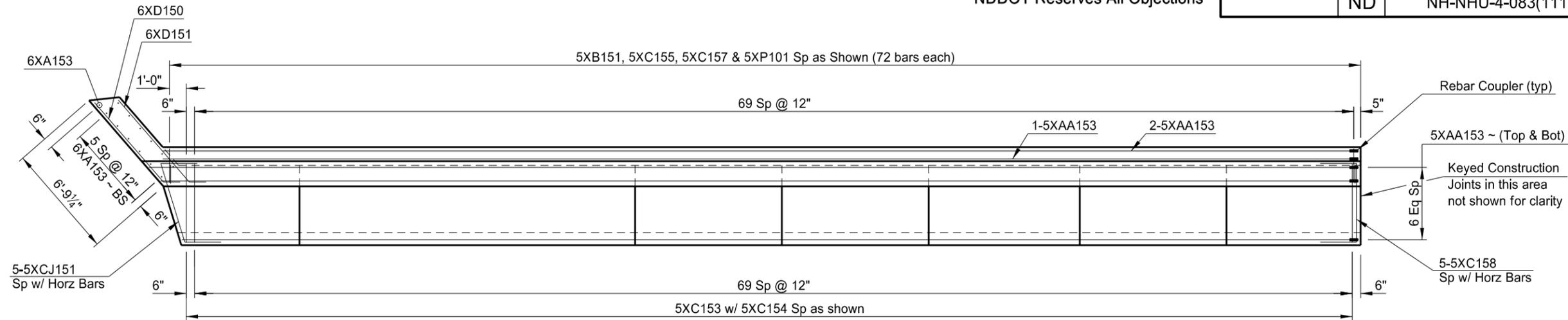
* Rebar coupler shall be an approved mechanical connector capable of developing 125% of the specified yield strength of the reinforcing steel. Where required, couplers shall be epoxy coated according to AASHTO M 284. Damaged epoxy coating on the couplers shall be repaired according to Section 612.03E.

US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

NORTHBOUND

ABUTMENT 1 DETAILS
(SHOWING REINFORCING)

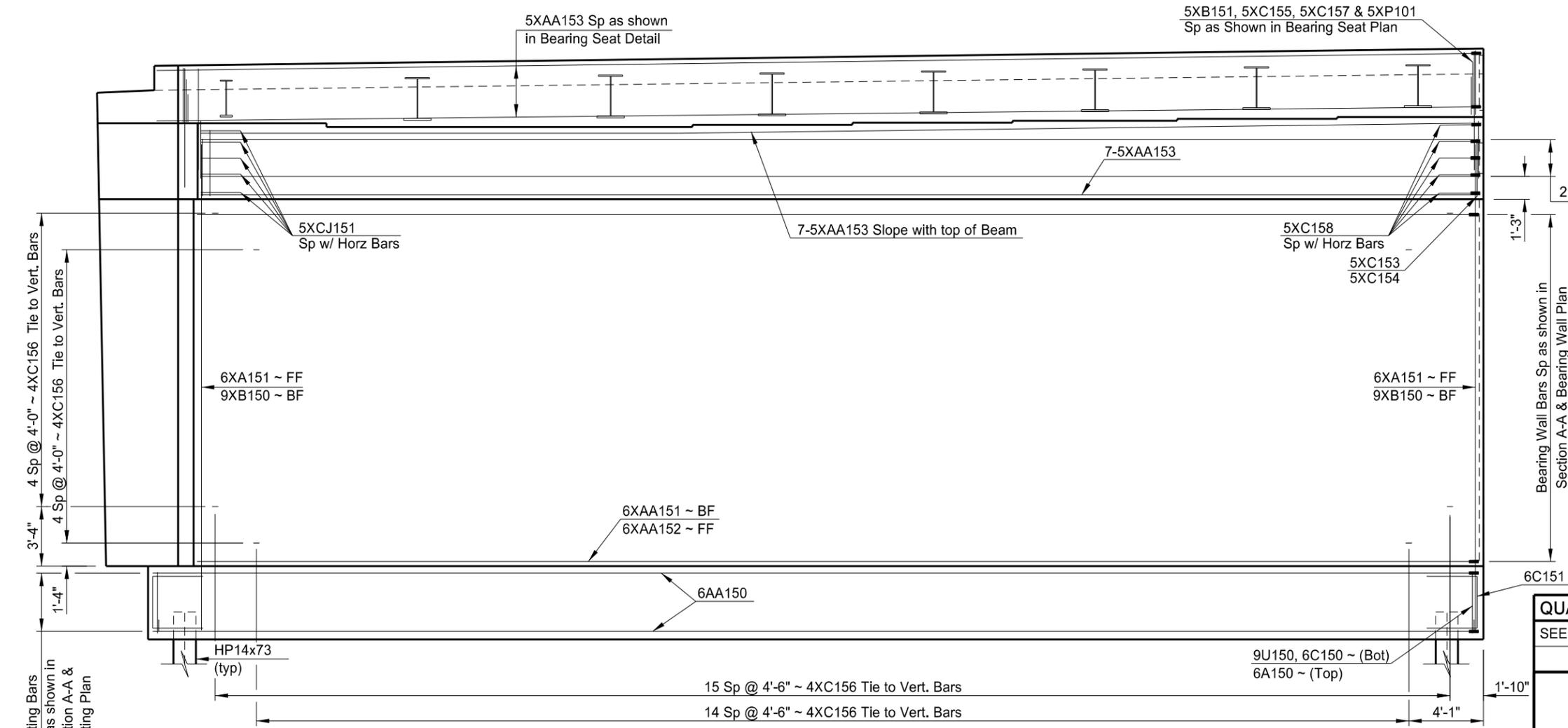
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	19



**BEARING SEAT PLAN
REINFORCING**

NOTES:

For Footing Plan and Bearing Wall Plan, see Dwg 83-200.649-18.
For Section A-A and Bearing Seat detail, see Dwg. 83-200.649-20.



**ELEVATION
REINFORCING**

NOMENCLATURE:

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Bot = Bottom

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QUANTITIES

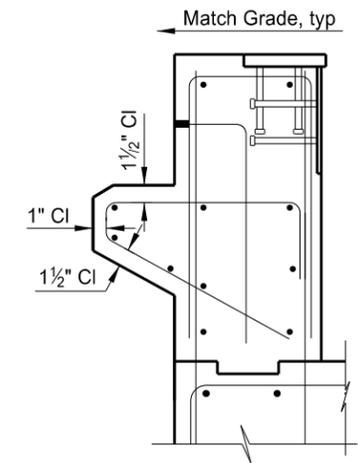
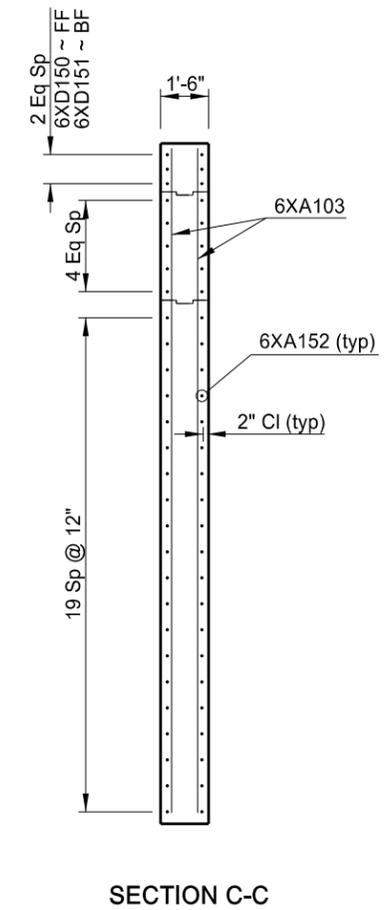
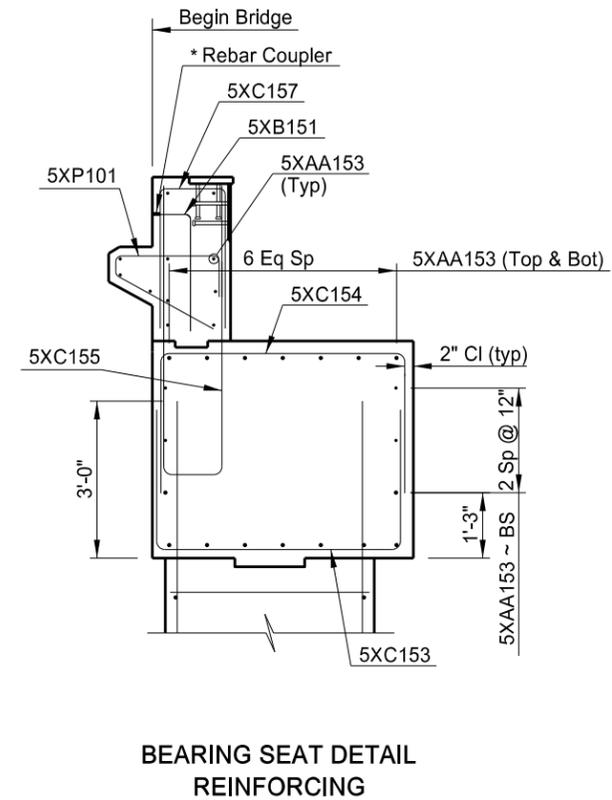
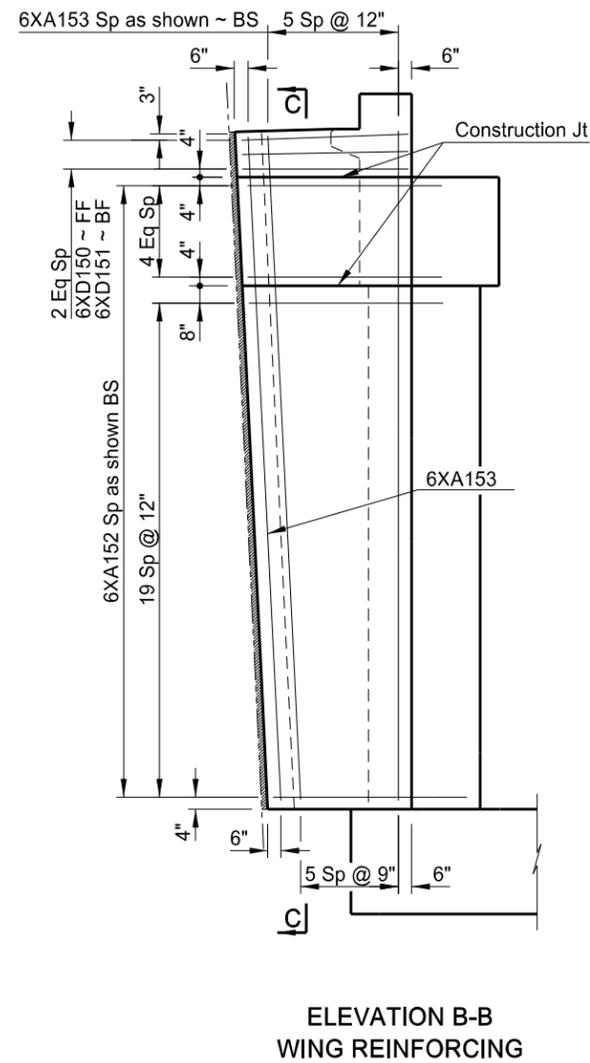
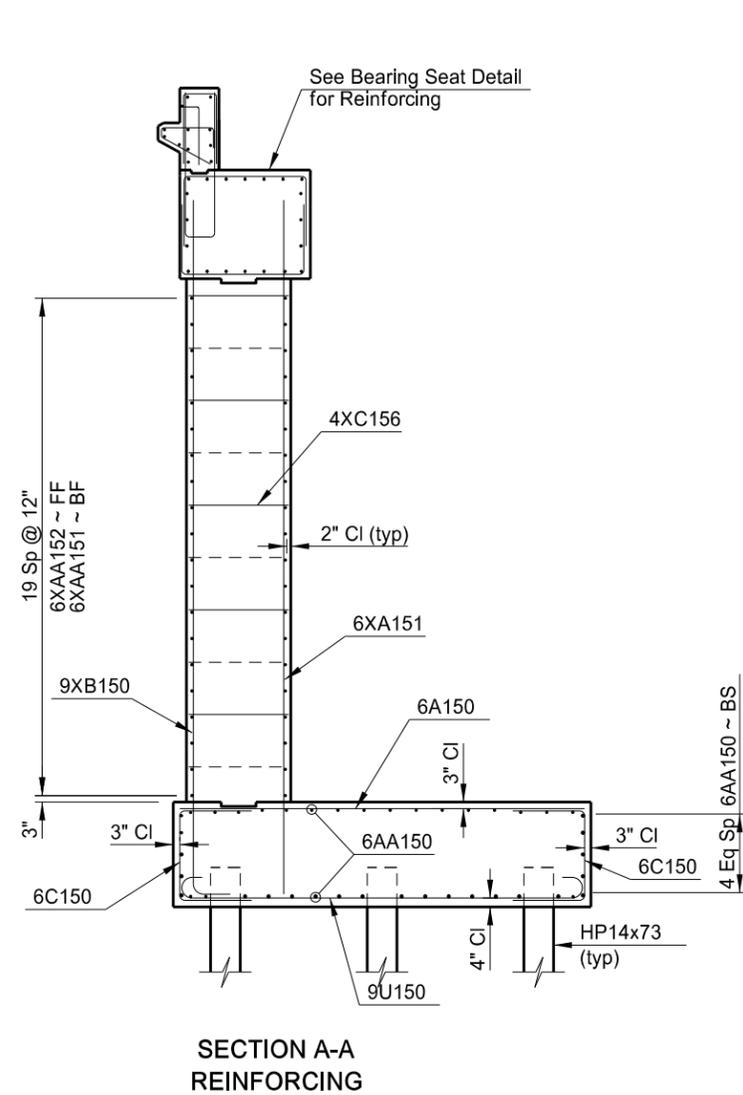
SEE DWG. 83-200.649-18

**US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER**

NORTHBOUND

**ABUTMENT 1 DETAILS
(SHOWING REINFORCING)**

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	20



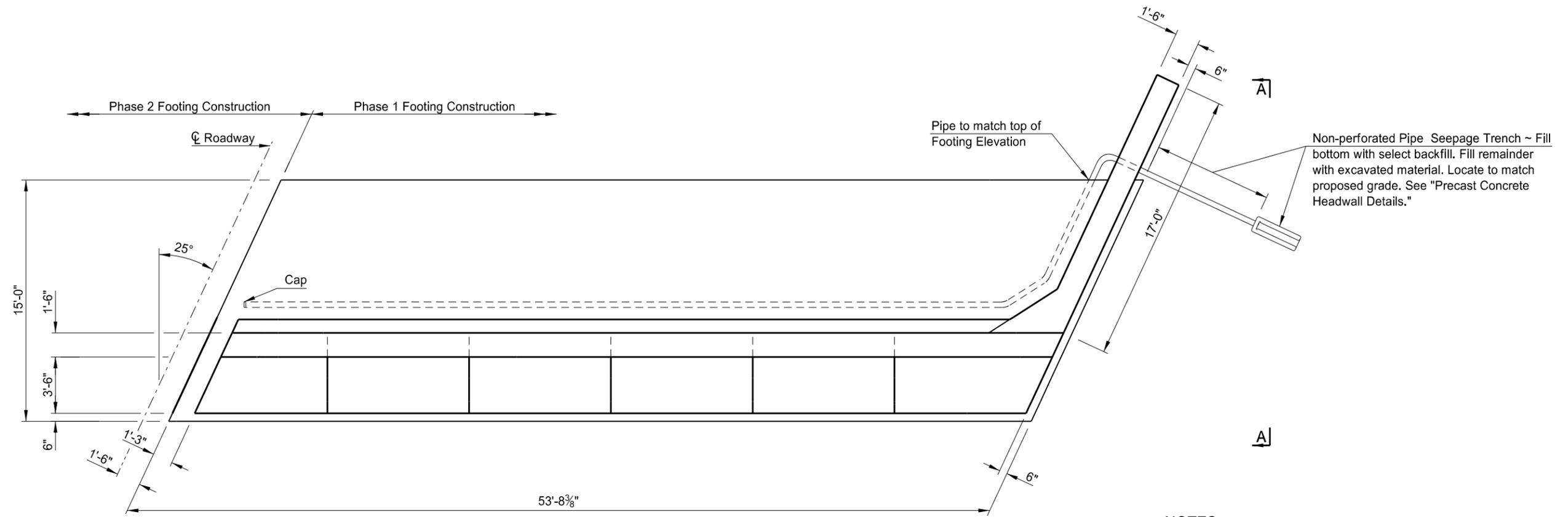
* The couplers shall be an approved mechanical connector capable of developing 125% of the specified yield strength of the reinforcing steel. The couplers shall be epoxy coated according to AASHTO M 284. Damaged epoxy coating on the couplers shall be repaired according to Section 612.03 E.

NOMENCLATURE:
FF = Front Face
BF = Back Face
BS = Both Sides
Bot = Bottom

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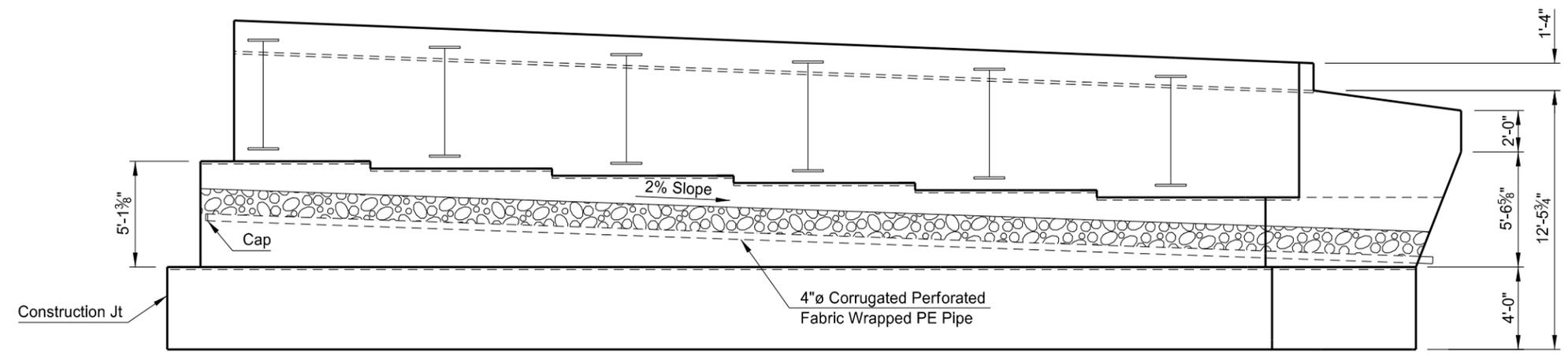
QUANTITIES
SEE DWG. 83-200.649-18
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
ABUTMENT 1 DETAILS (SHOWING REINFORCING)

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	21



PLAN

NOTES:
For Section A-A, see Dwg 83-200.649-25.
For Precast Concrete Headwall Details, see Dwg 83-200.649-14.

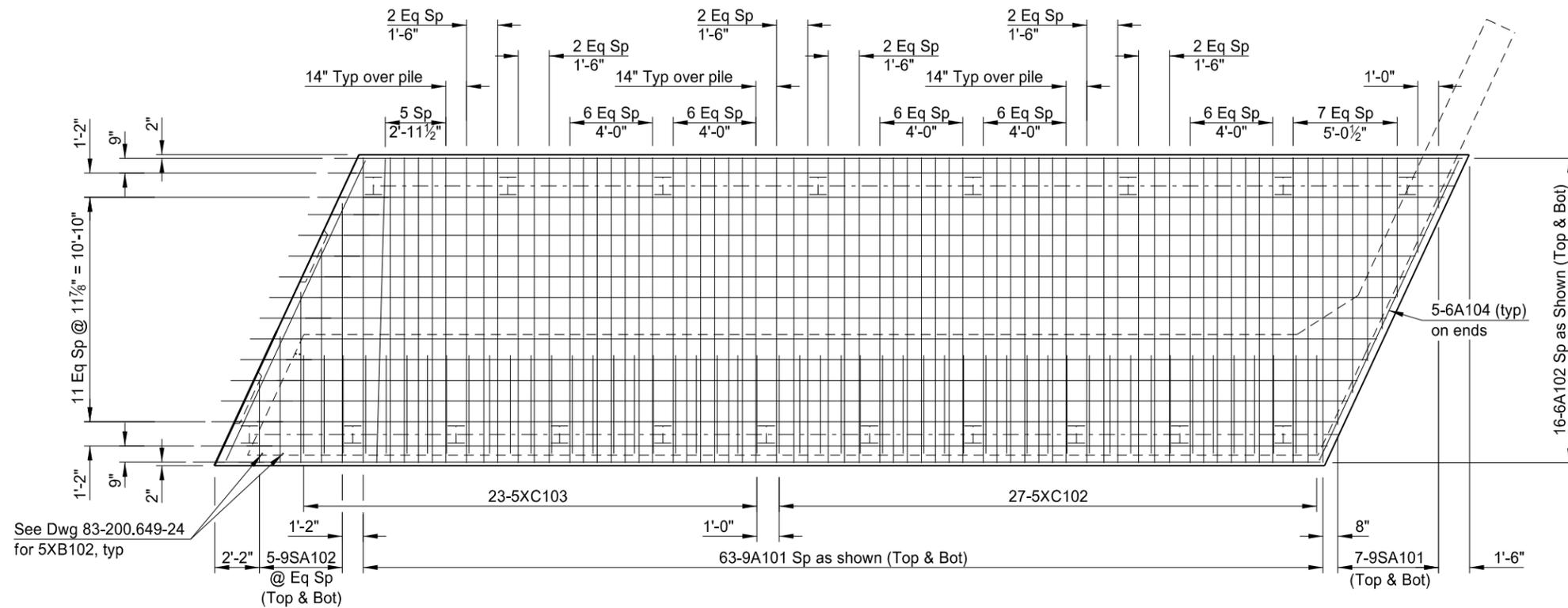


FRONT FACE OF ABUTMENT
(Drainage Pipe on Back Face)

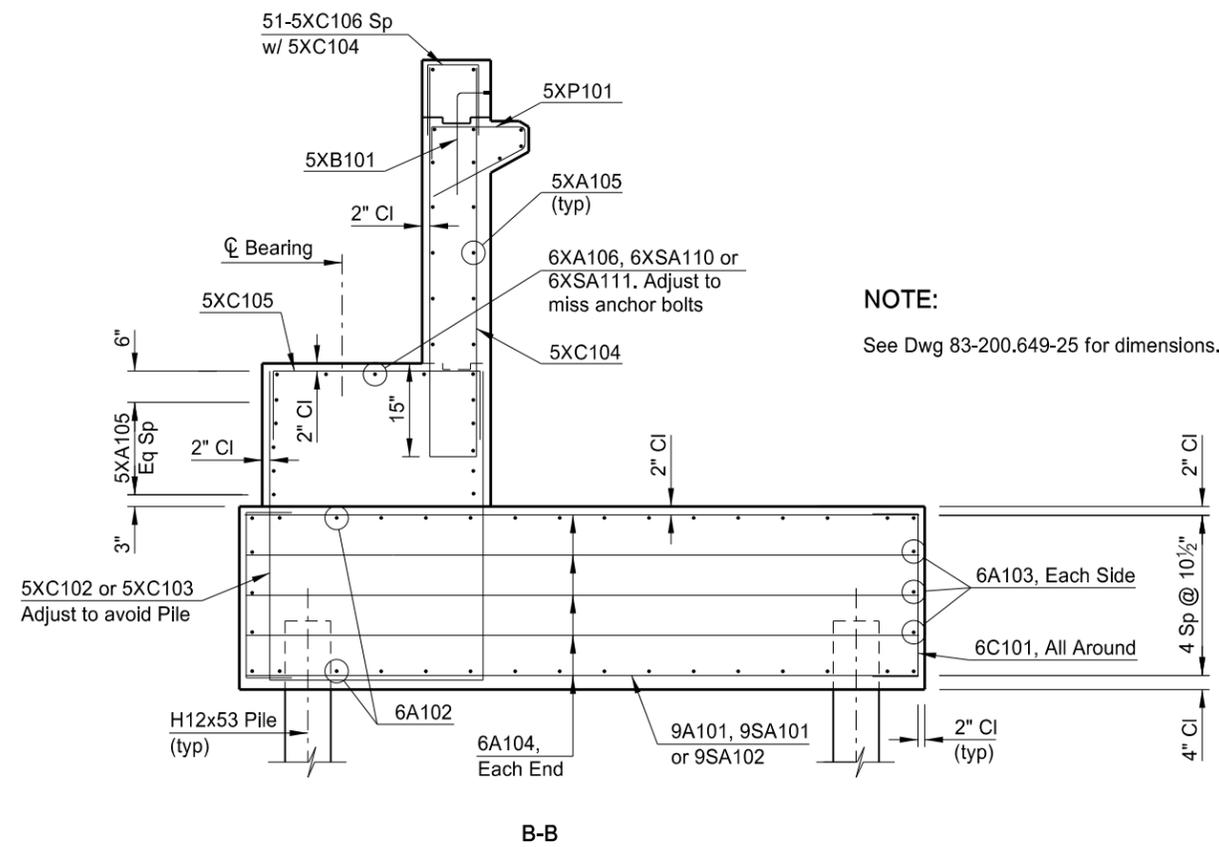
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QUANTITIES
SEE DWG 83-200.649-24
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
ABUTMENT 8 UNDERDRAIN DETAILS

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	23



FOOTING PLAN

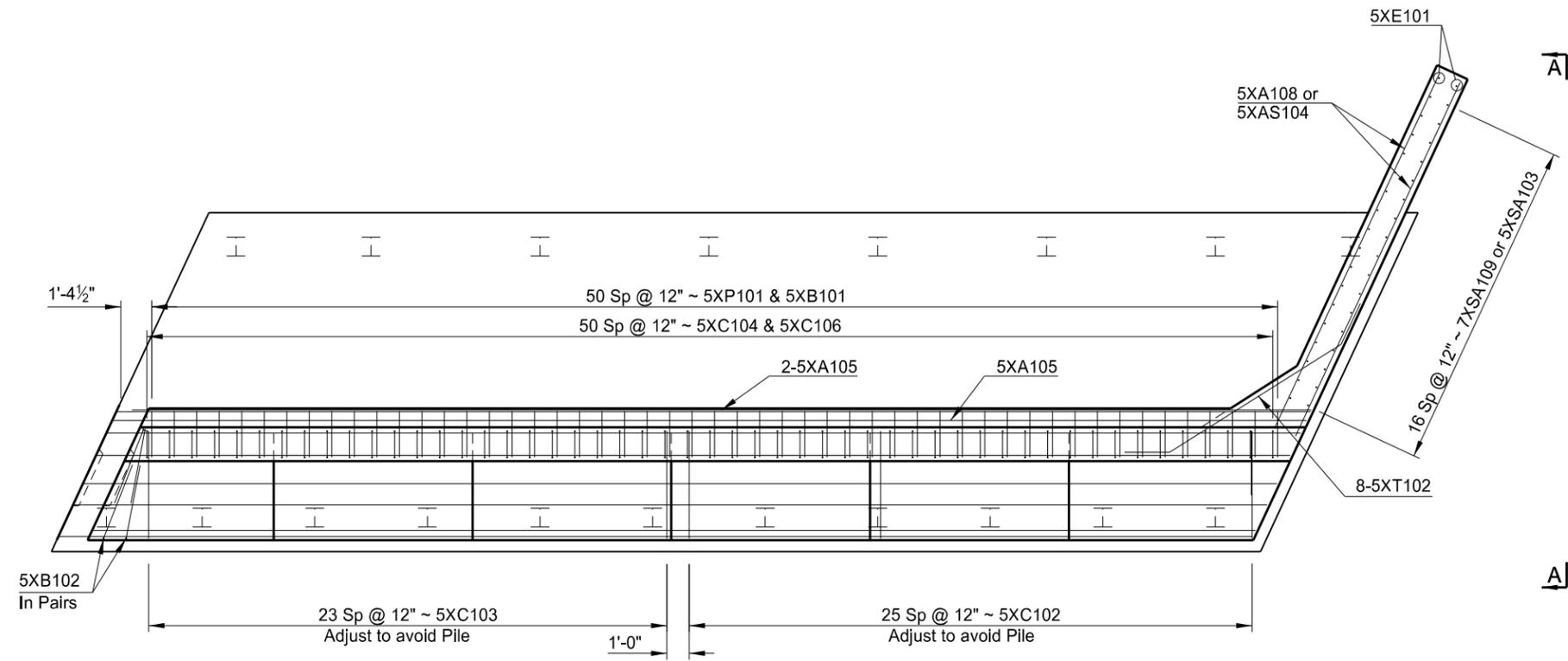


NOTE:
See Dwg 83-200.649-25 for dimensions.

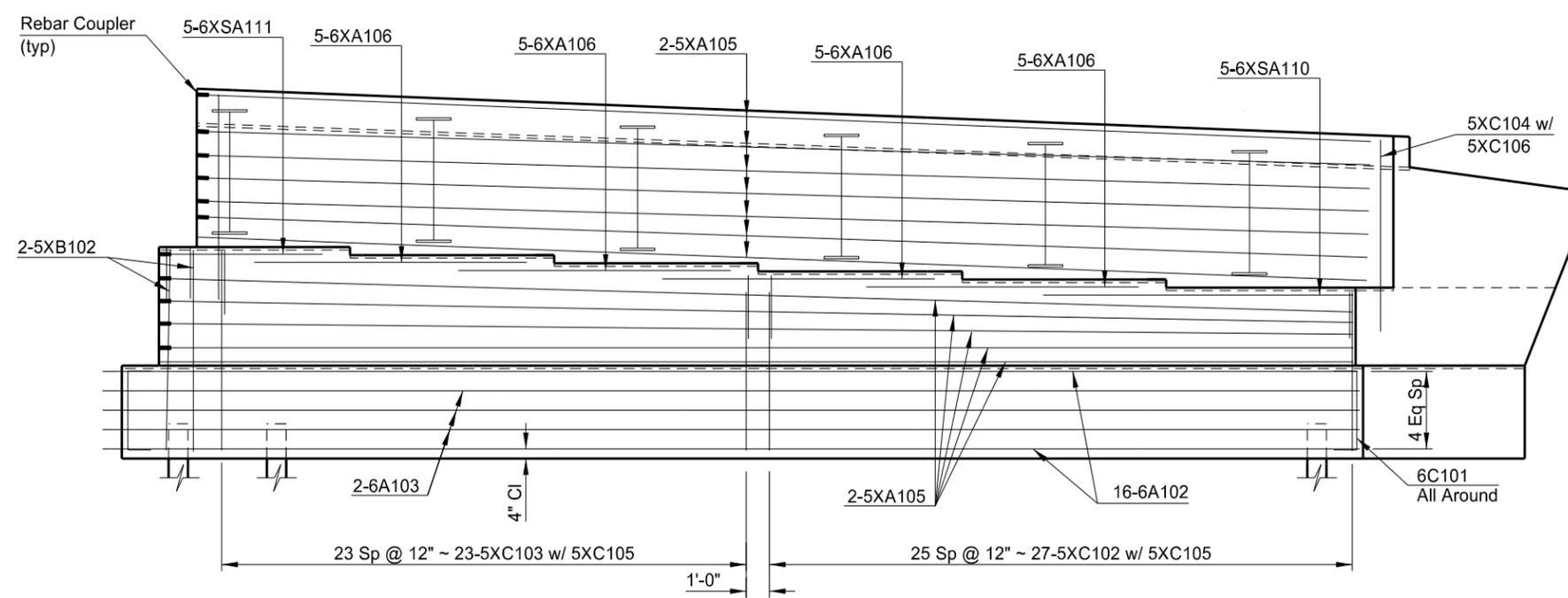
This document was originally issued and sealed by Jugesh Kapur Registration Number PE 9267 on 10/14/16 and the original document is stored at the North Dakota Department of Transportation

QUANTITIES
SEE DWG 83-200.649-24
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
ABUTMENT 8 FOUNDATION (SHOWING REINFORCING)

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	24



PLAN



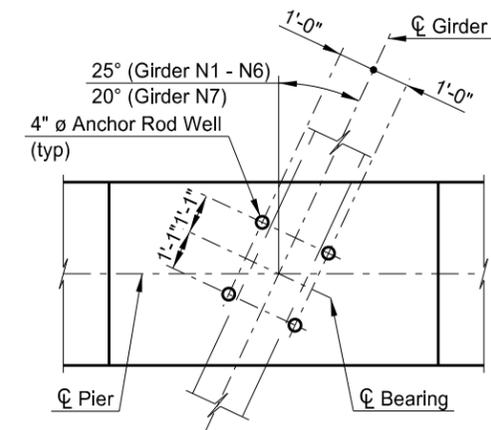
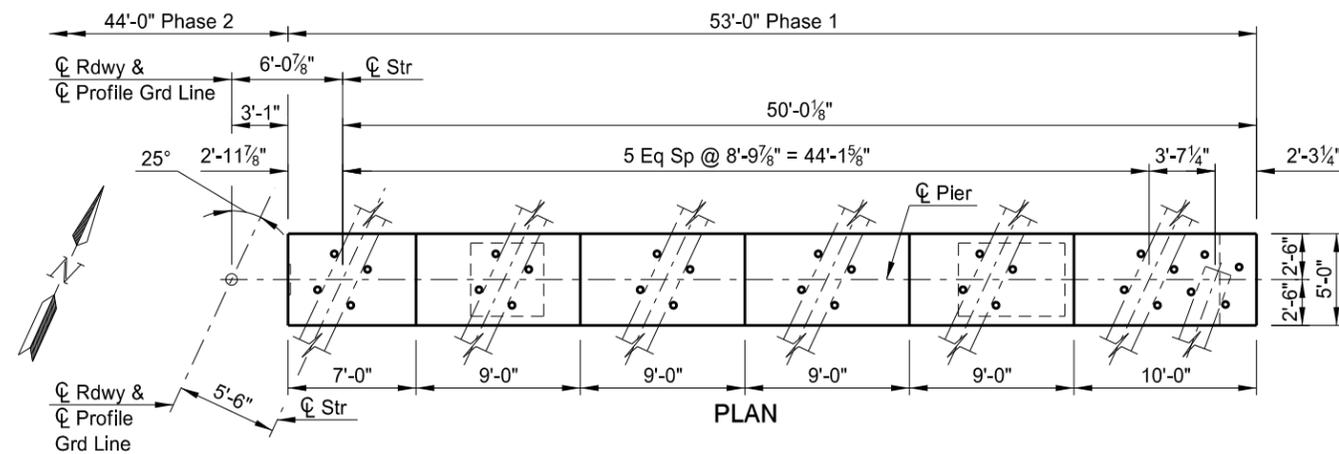
ELEVATION

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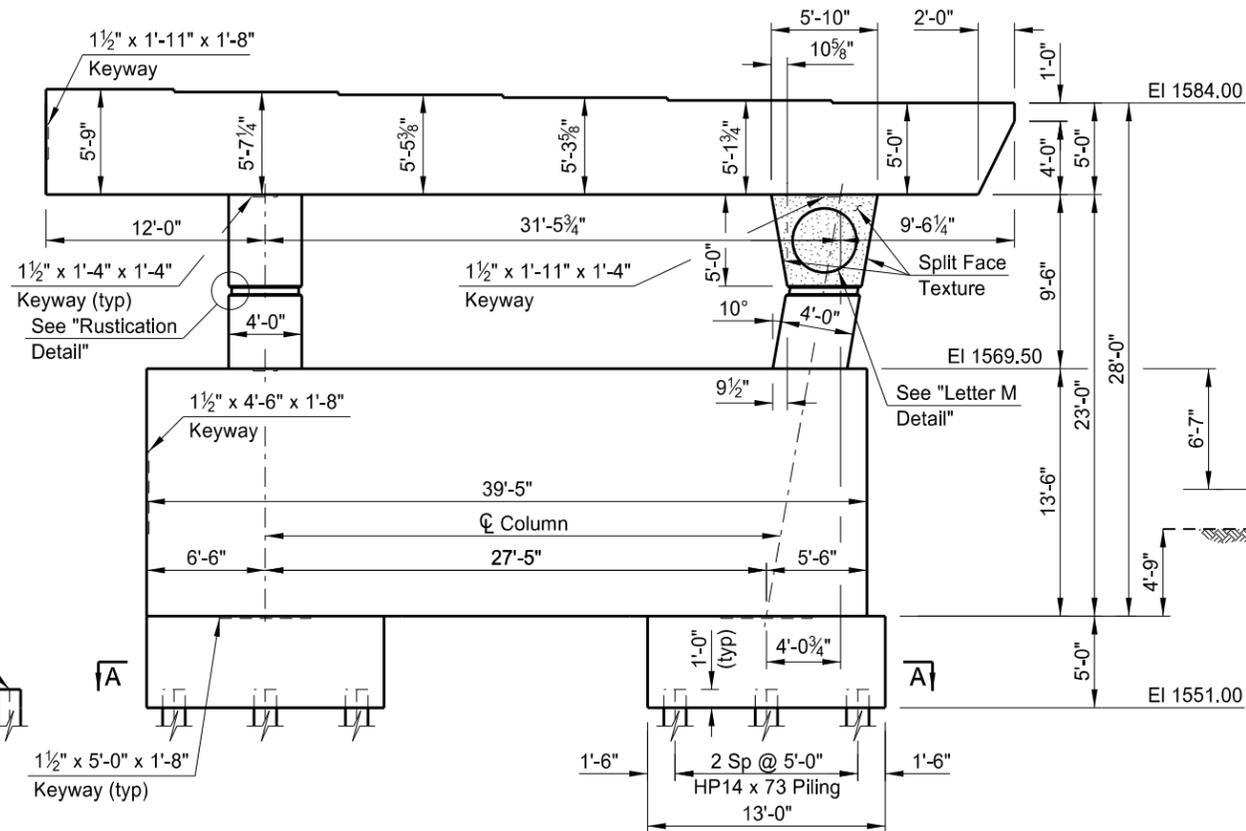
QUANTITIES	(ABUTMENT 8 NB)
CLASS AE-3 CONCRETE	188.1 CY
REINFORCING STEEL	11,697 LBS
REINFORCING STEEL - EPOXY COATED	5,980 LBS

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
ABUTMENT 8
(SHOWING REINFORCING)

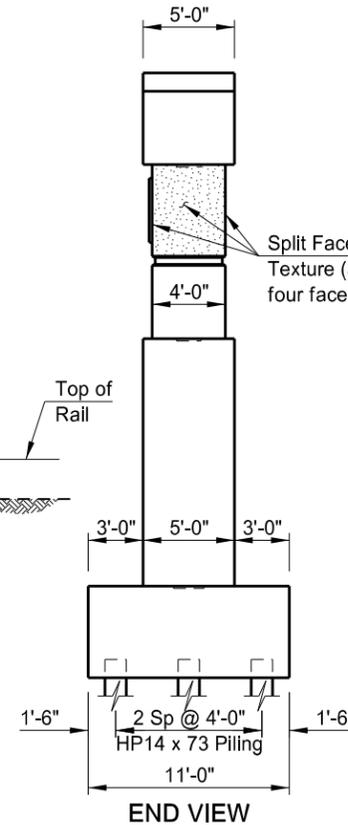
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	26



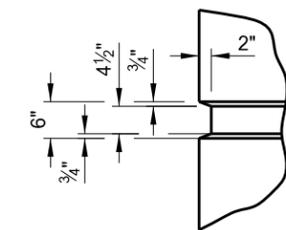
ANCHOR WELL LAYOUT



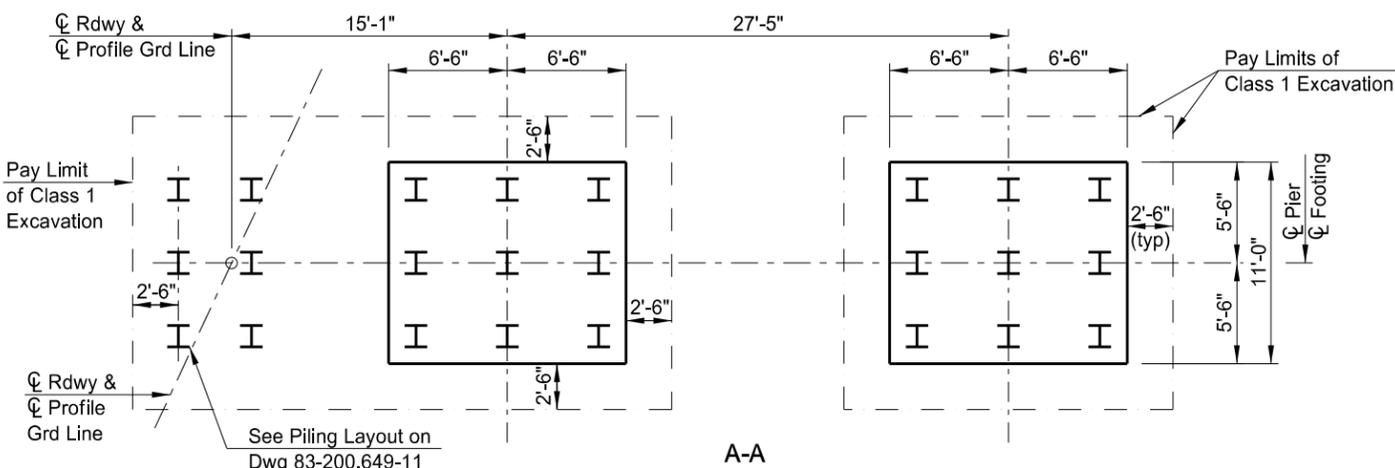
ELEVATION



END VIEW



RUSTICATION DETAIL



A-A

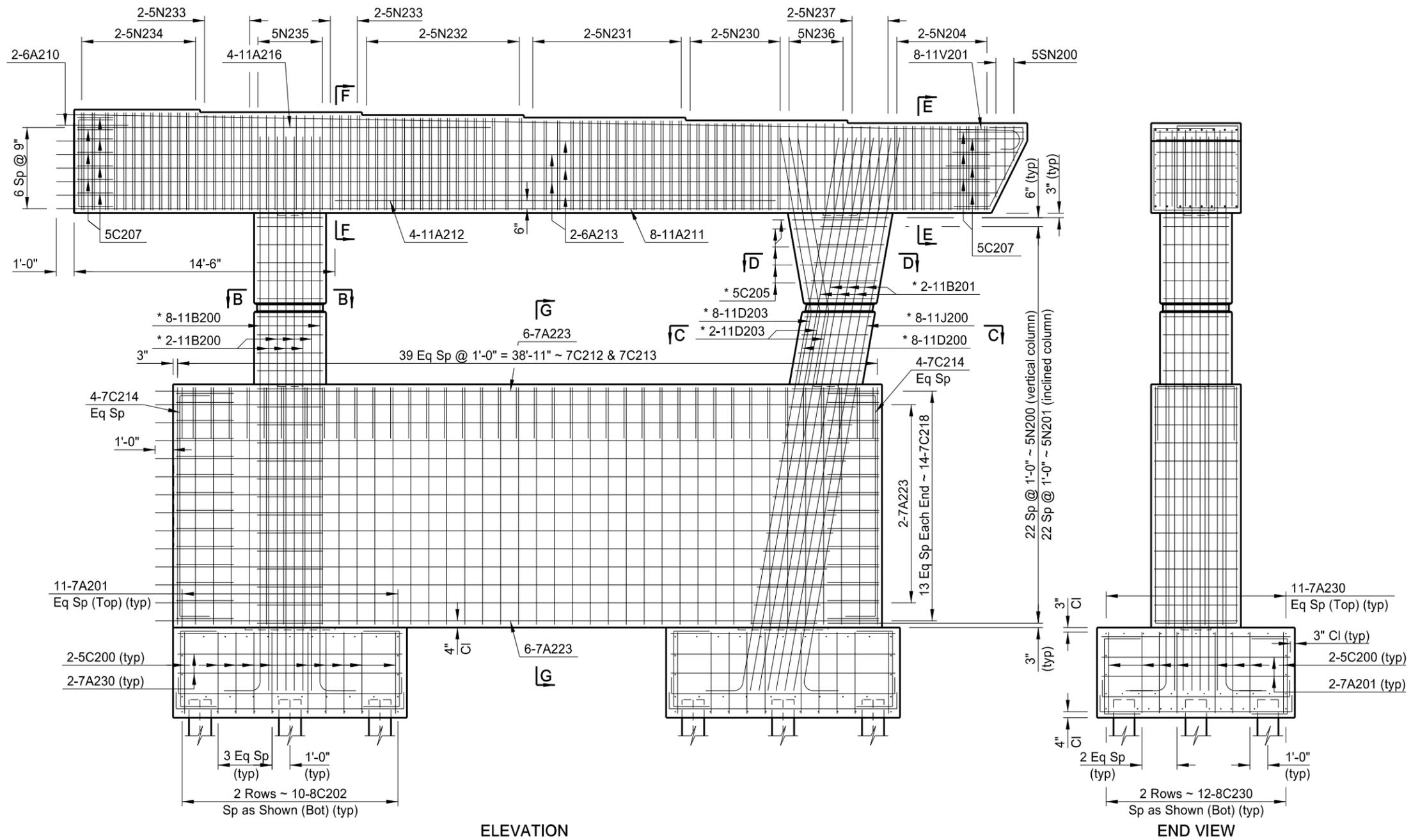
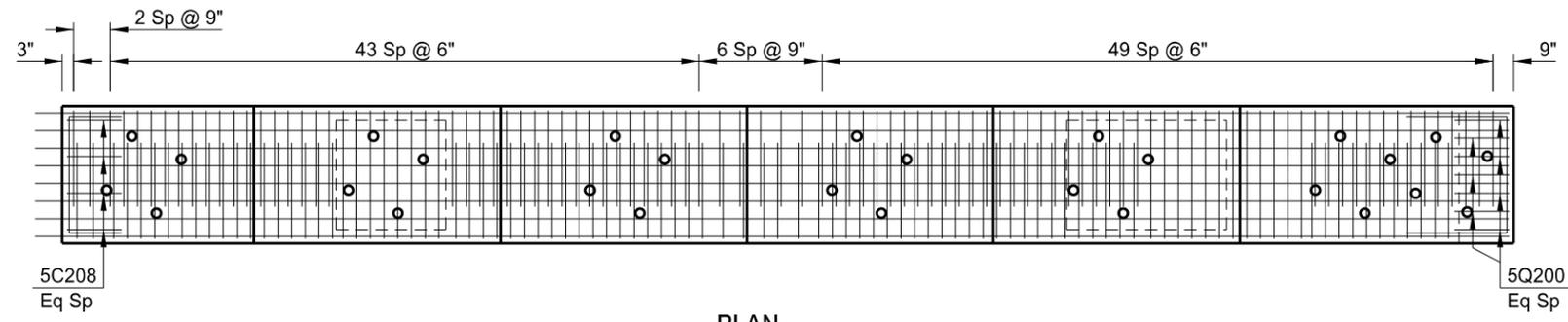
NOTES:

- For Letter M Detail, see Dwg 83-200.649-44.
- Letter M and Ring attached South face of East column only.

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QUANTITIES
SEE DWG 83-200.649-27
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
PIER 2 DETAILS (SHOWING DIMENSIONS)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	27



* The 11B200, 11B201, 11D200, 11D203 and 11J200 bars shall have an embedment of 4'-3" into the cap beam.

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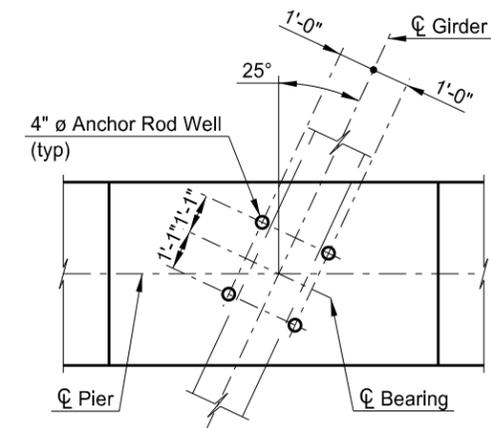
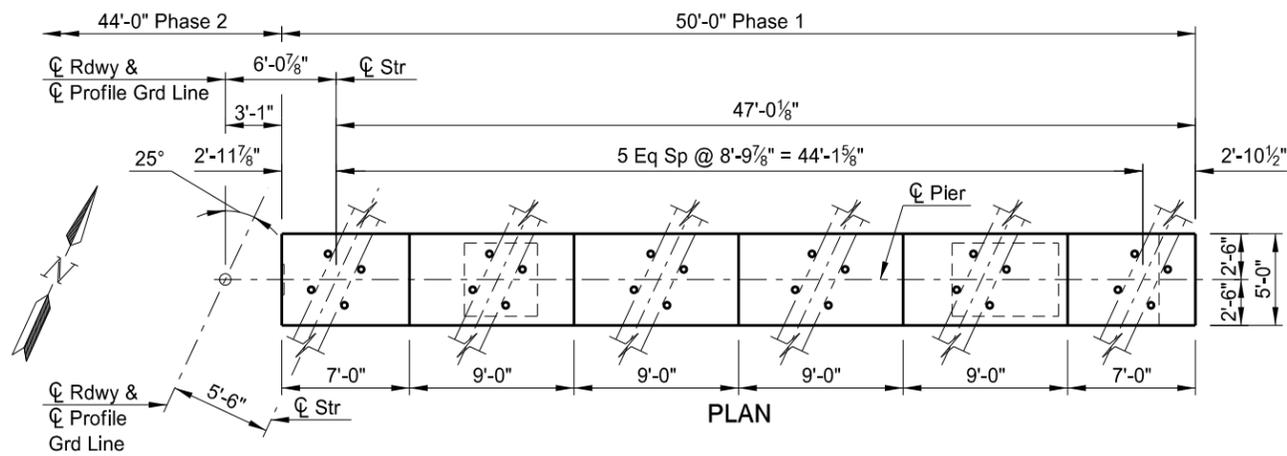
QUANTITIES	
CLASS AE-3 CONCRETE	215.3 CY
REINFORCING STEEL	33,955 LBS

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

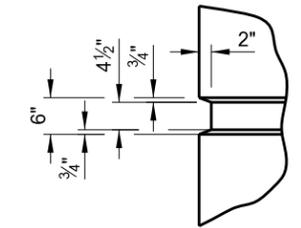
NORTHBOUND

PIER 2 DETAILS (SHOWING REINFORCING)

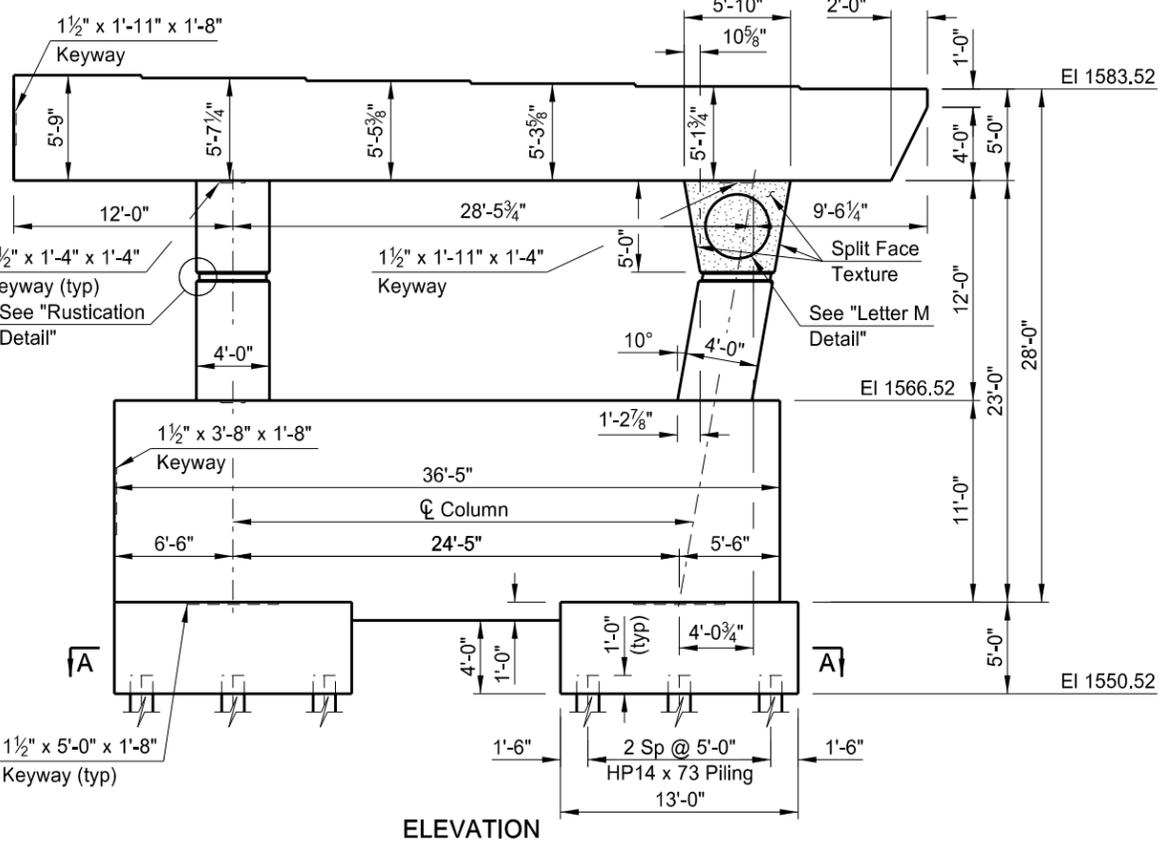
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	29



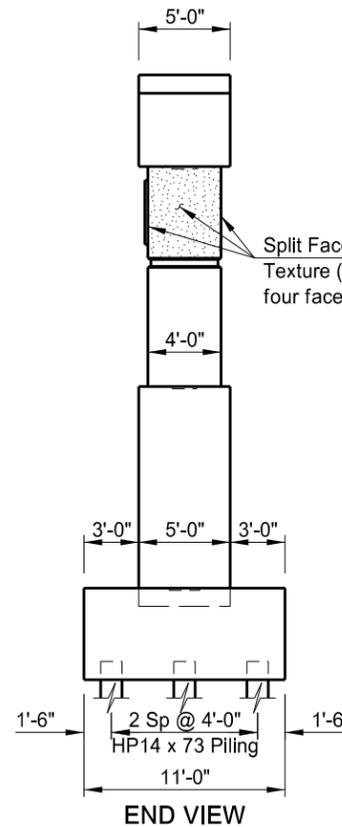
ANCHOR WELL LAYOUT



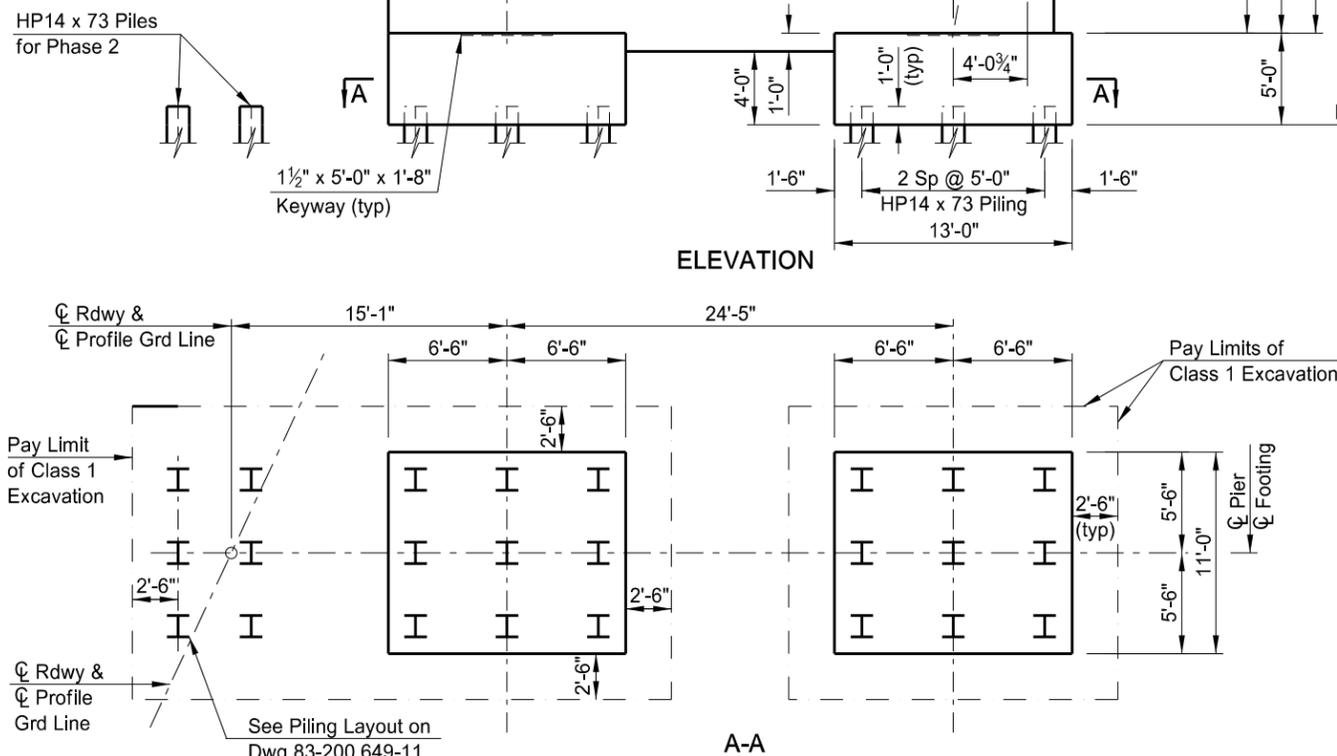
RUSTICATION DETAIL



ELEVATION



END VIEW



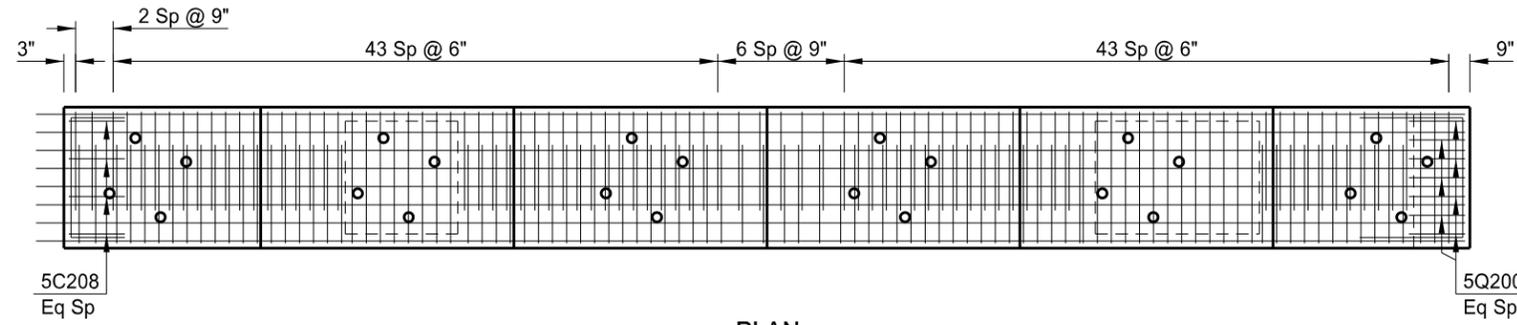
A-A

NOTES:
For Letter M Detail, see Dwg 83-200.649-44.
Letter M and Ring attached to South face of East column only.

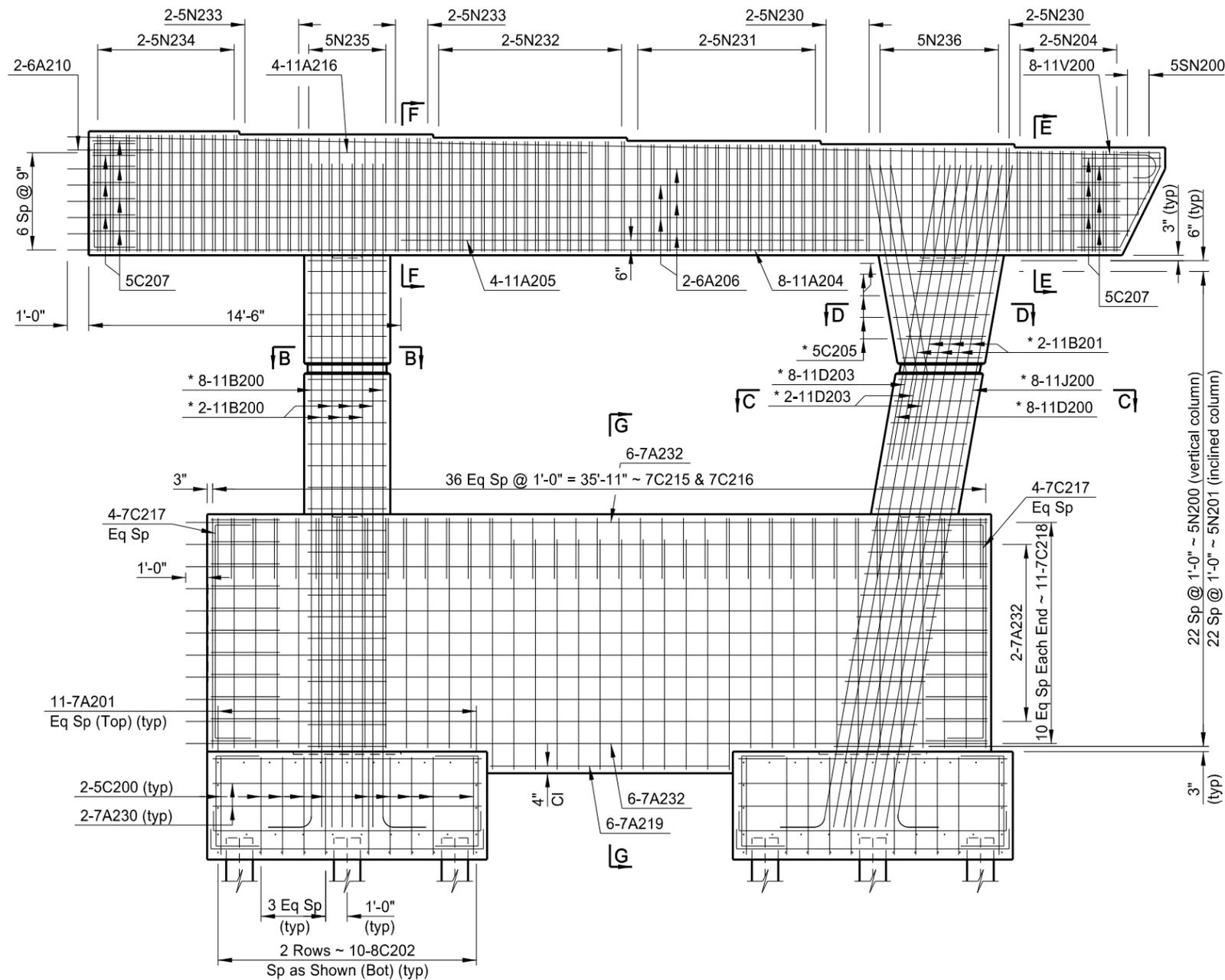
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QUANTITIES
SEE DWG 83-200.649-30
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
PIER 3 DETAILS (SHOWING DIMENSIONS)

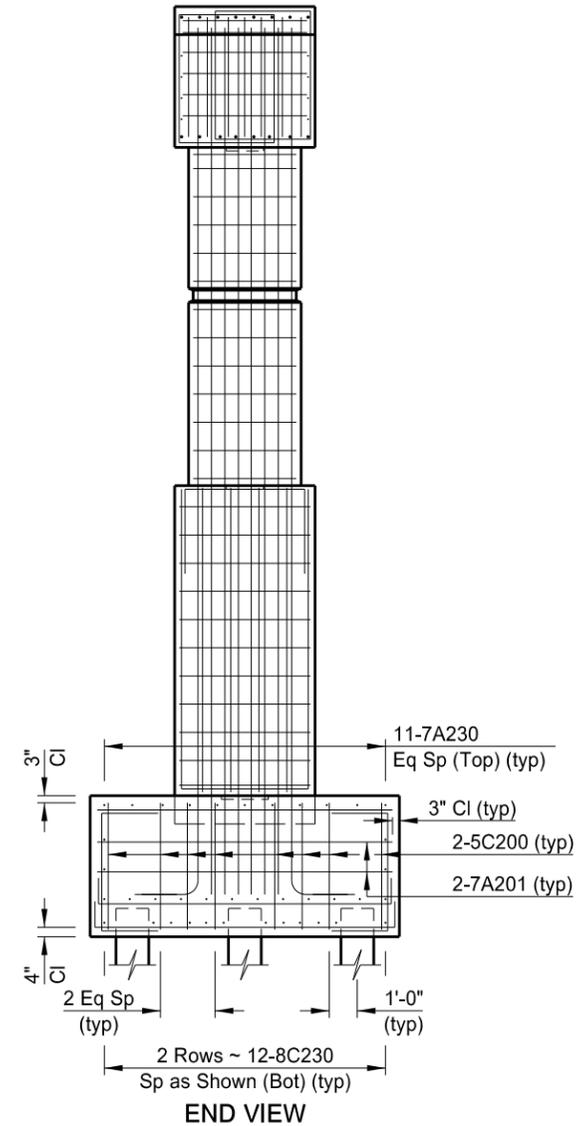
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	30



PLAN



ELEVATION



END VIEW

* The 11B200, 11B201, 11D200, 11D203 and 11J200 bars shall have an embedment of 4'-3" into the cap beam.

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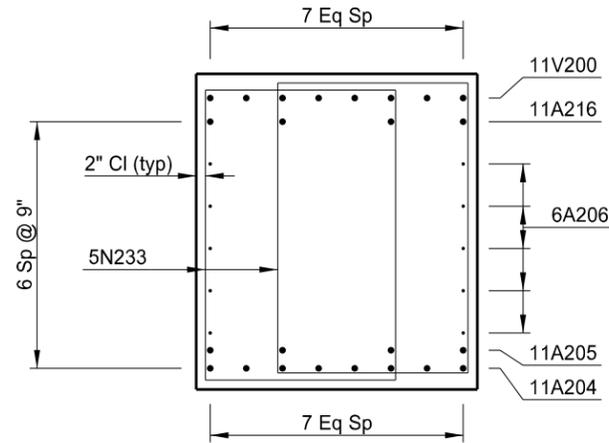
QUANTITIES	
CLASS AE-3 CONCRETE	193.2 CY
REINFORCING STEEL	32,828 LBS

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

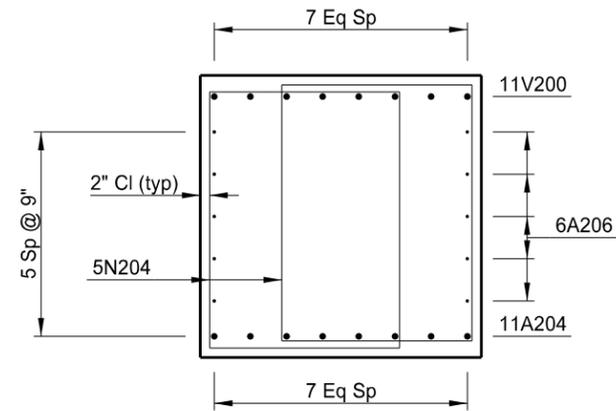
NORTHBOUND

PIER 3 DETAILS
(SHOWING REINFORCING)

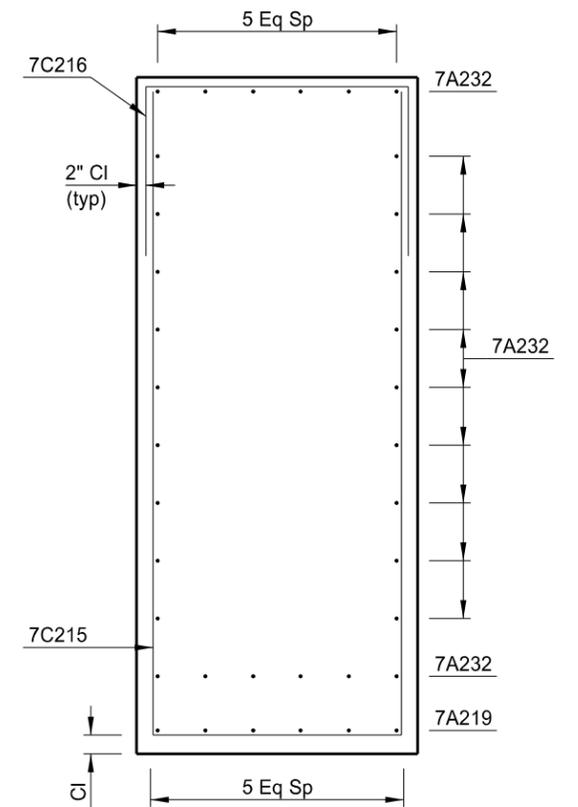
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	31



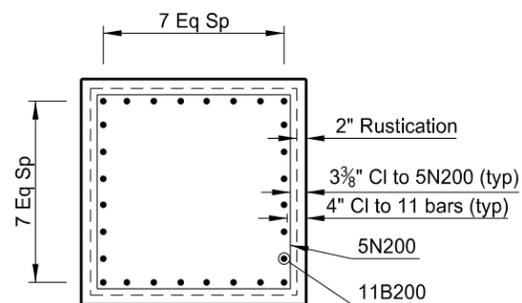
F-F



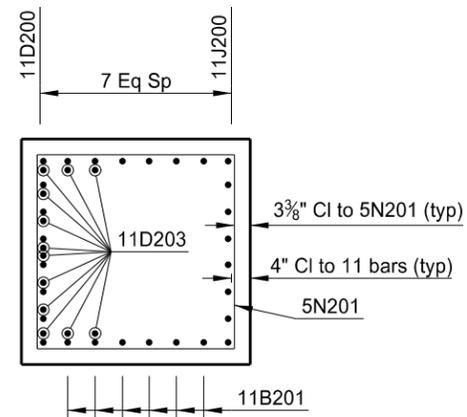
E-E



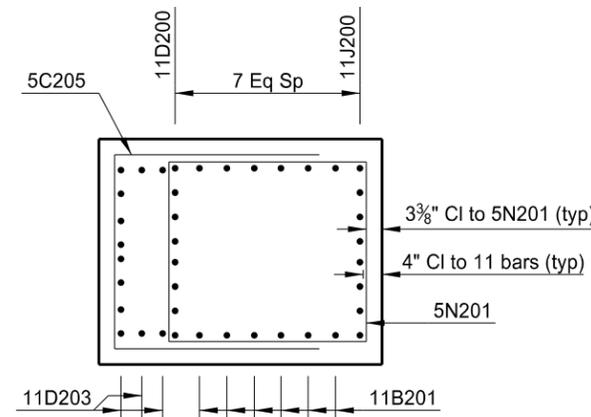
G-G



B-B



C-C

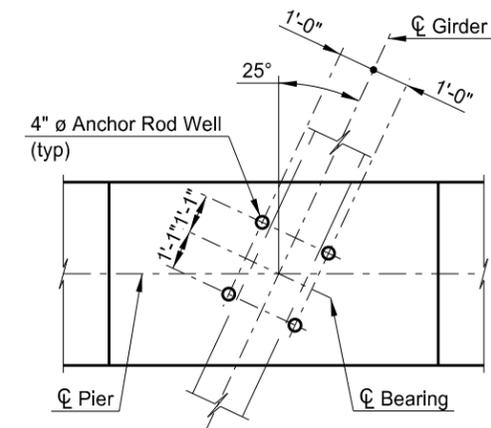
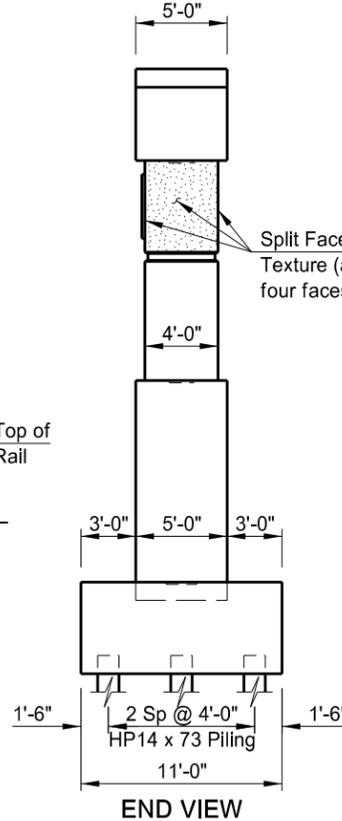
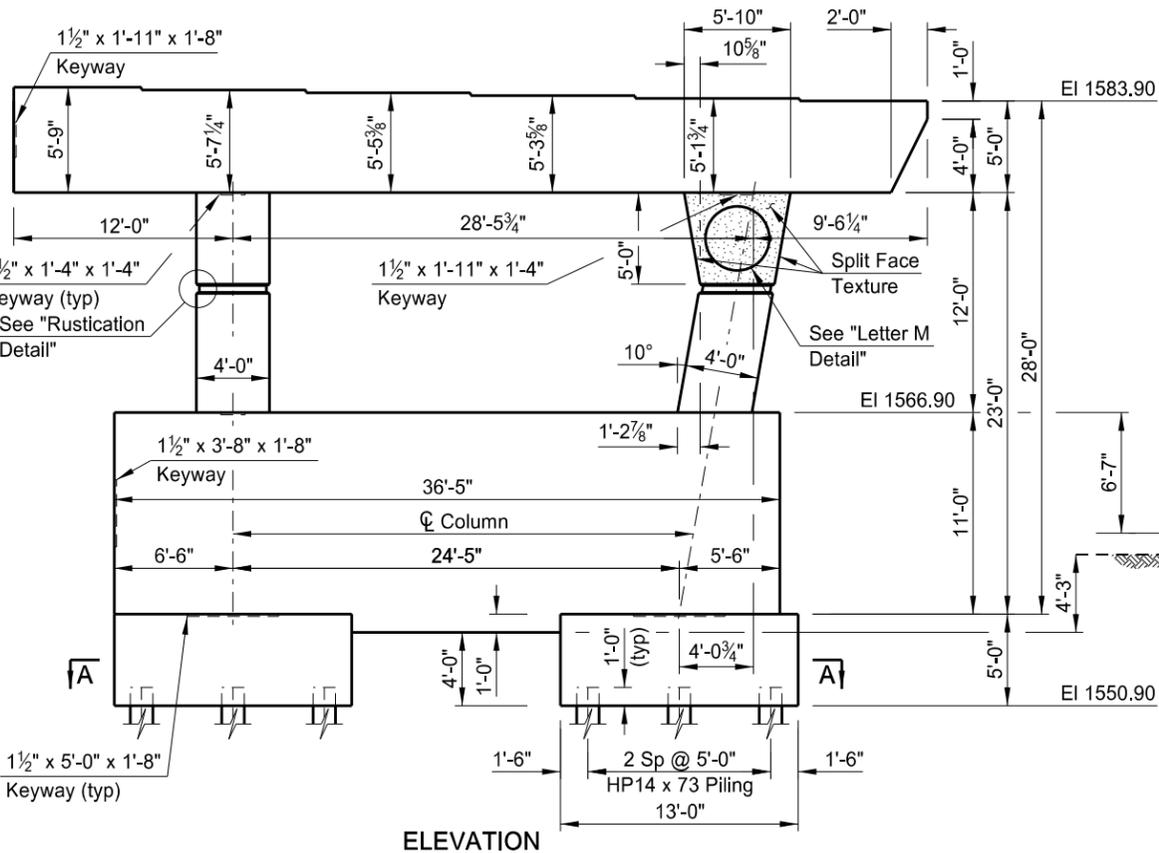
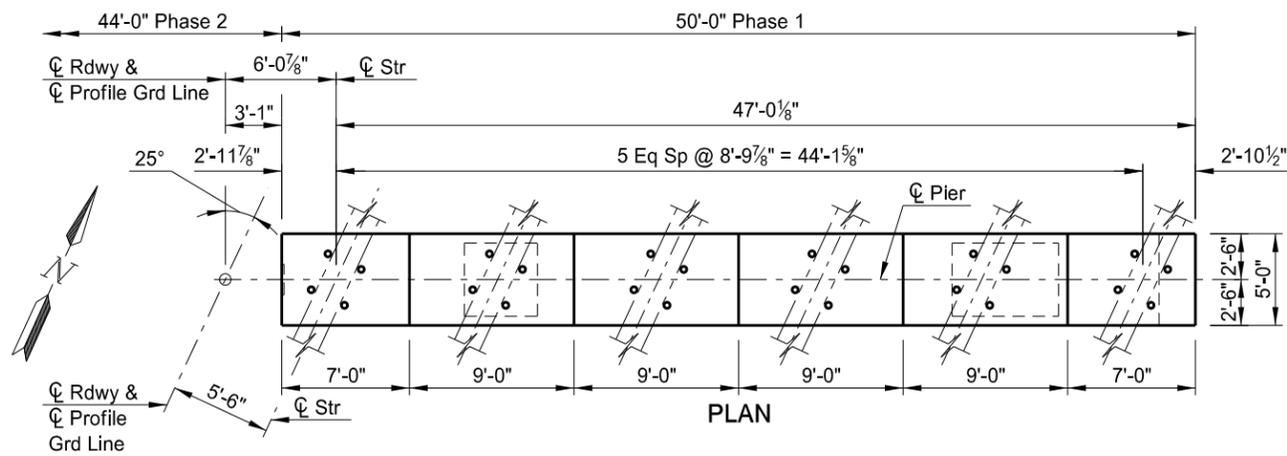


D-D

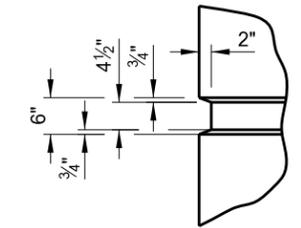
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QUANTITIES
SEE DWG 83-200.649-30
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
PIER 3 DETAILS (SHOWING REINFORCING)

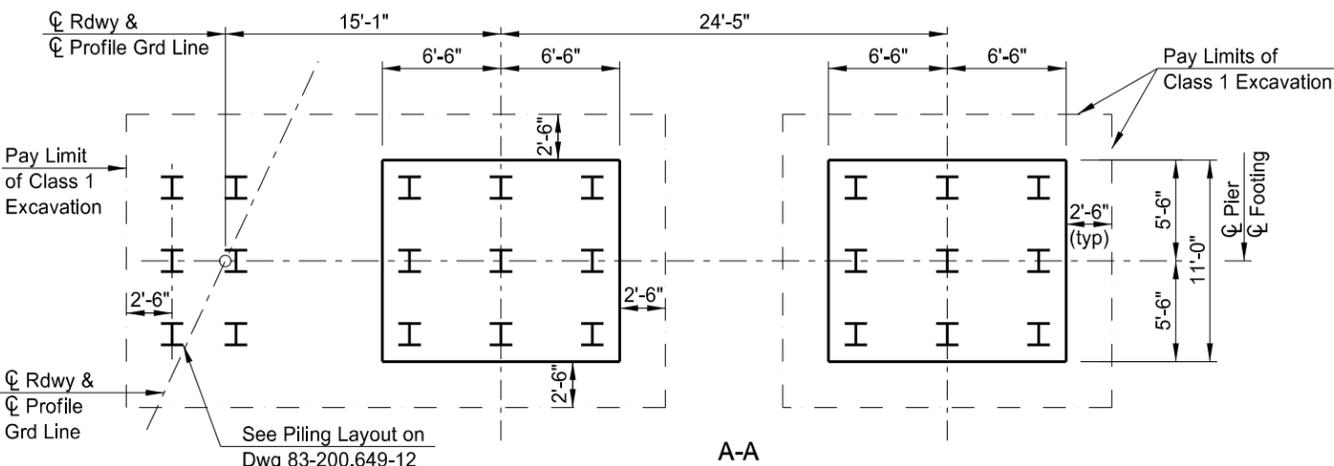
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	32



ANCHOR WELL LAYOUT



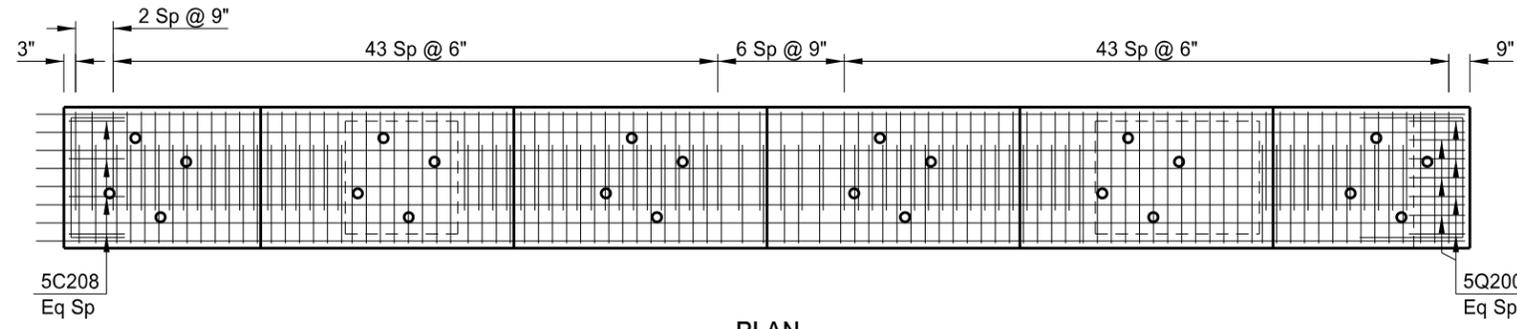
RUSTICATION DETAIL



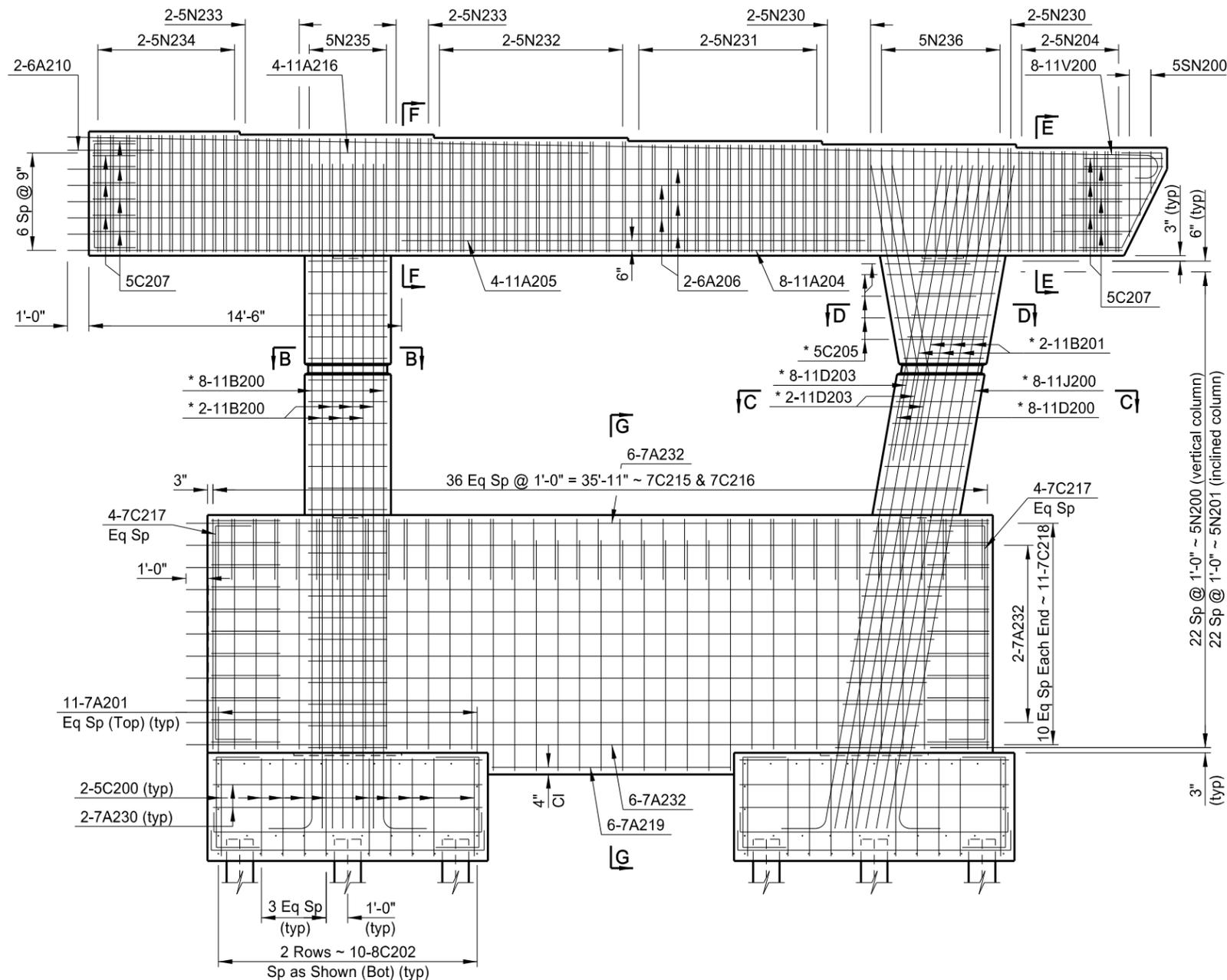
NOTES:
For Letter M Detail, see Dwg 83-200.649-44.
Letter M and Ring attached to South face of East column only.

QUANTITIES
SEE DWG 83-200.649-33
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
PIER 4 DETAILS (SHOWING DIMENSIONS)

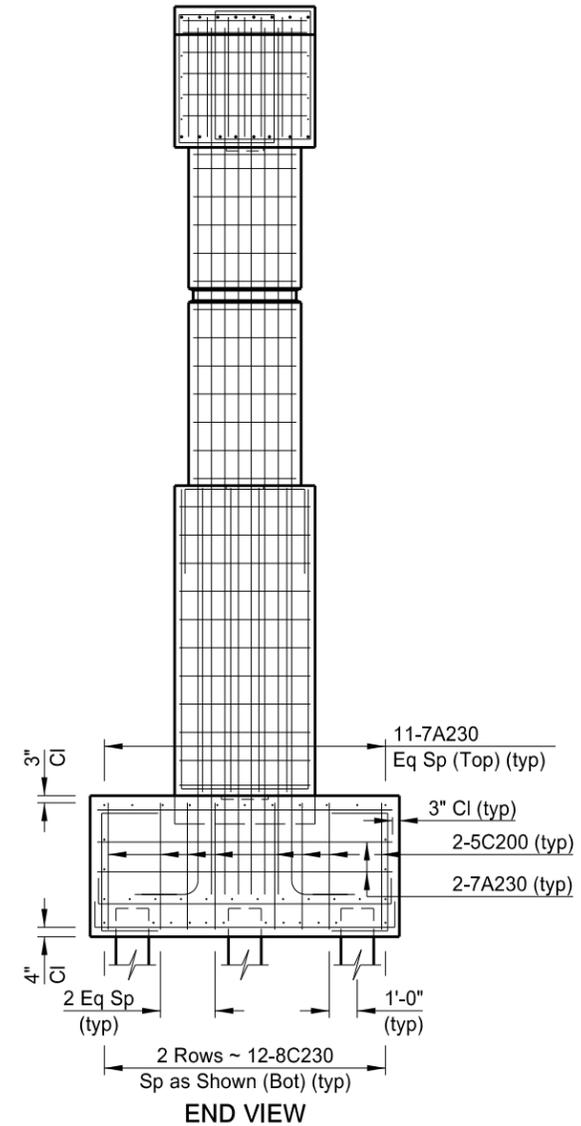
Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083 (111)200	170	33



PLAN



ELEVATION



END VIEW

* The 11B200, 11B201, 11D200, 11D203 and 11J200 bars shall have an embedment of 4'-3" into the cap beam.

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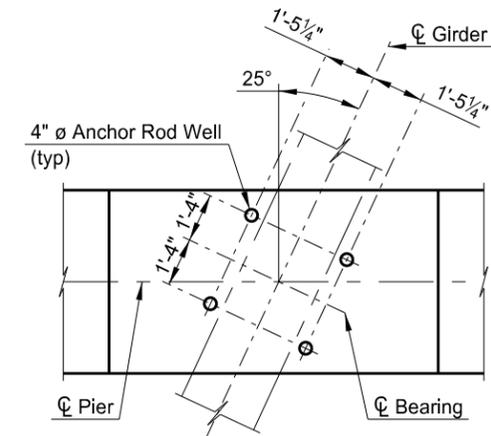
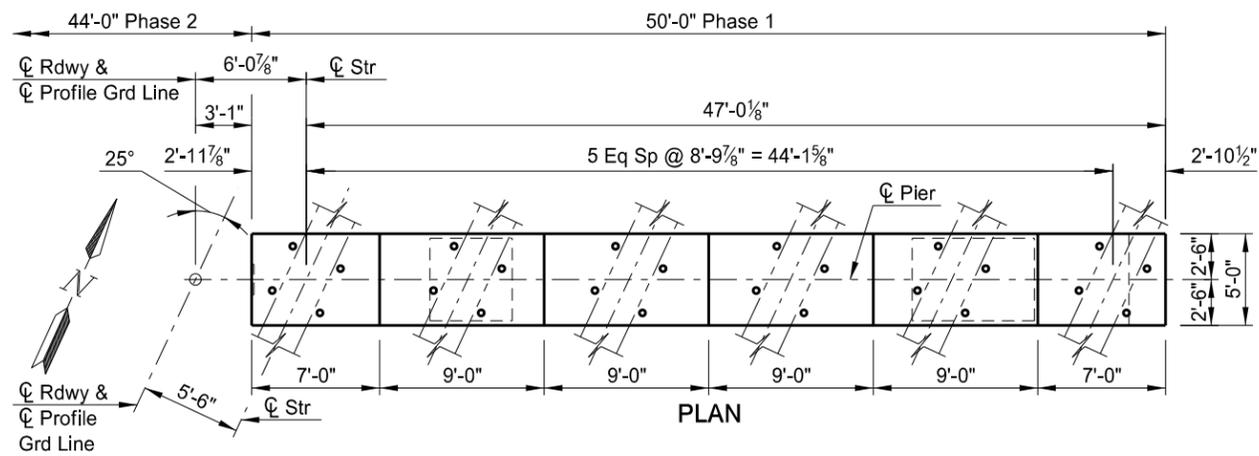
QUANTITIES	
CLASS AE-3 CONCRETE	193.2 CY
REINFORCING STEEL	32,828 LBS

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

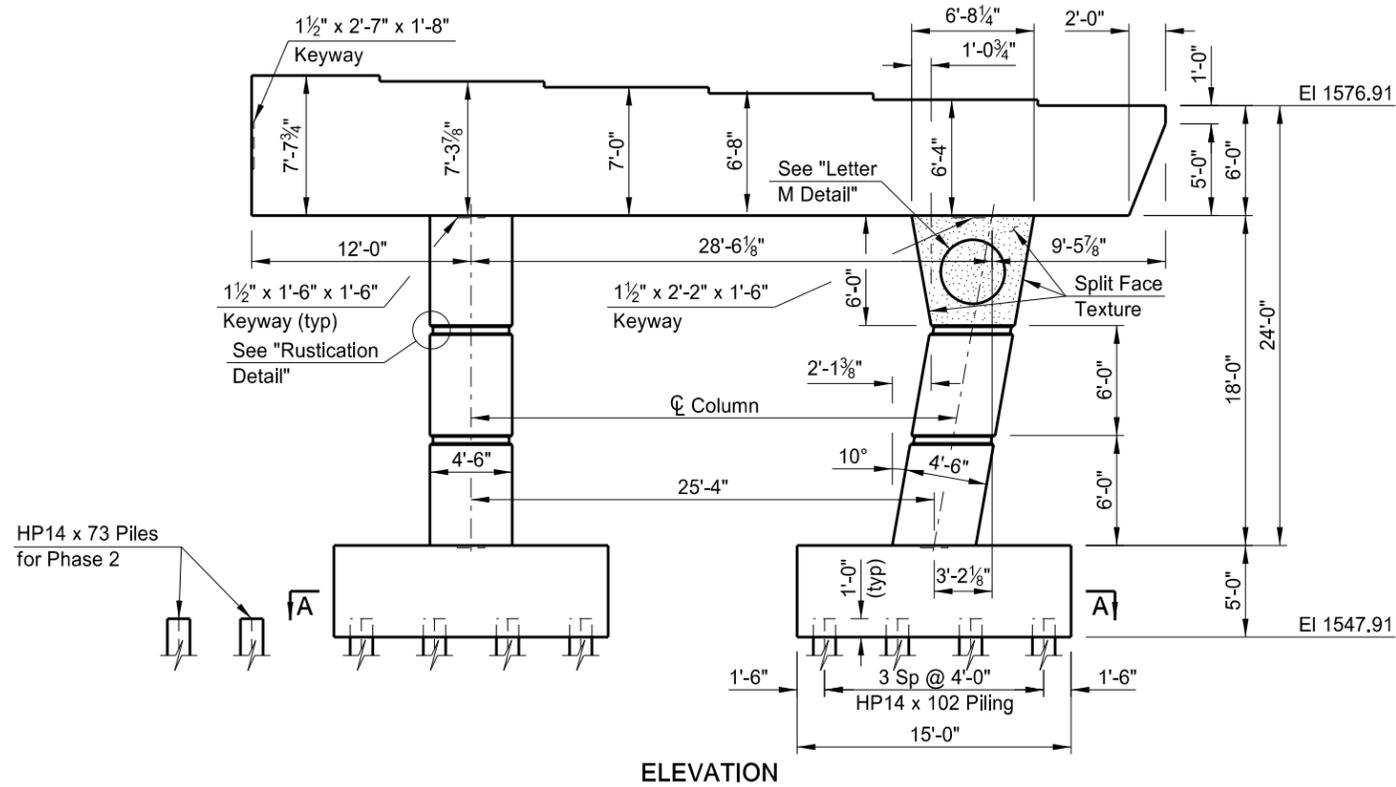
NORTHBOUND

PIER 4 DETAILS
(SHOWING REINFORCING)

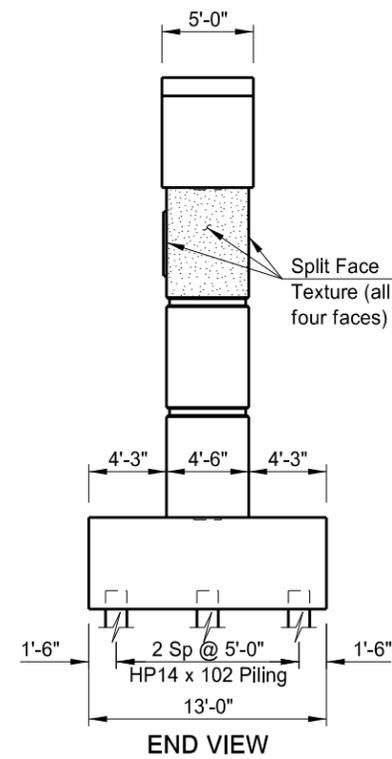
Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083 (111)200	170	38



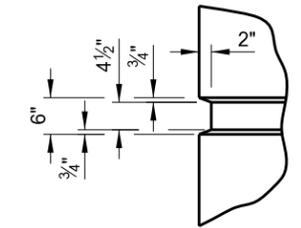
ANCHOR WELL LAYOUT



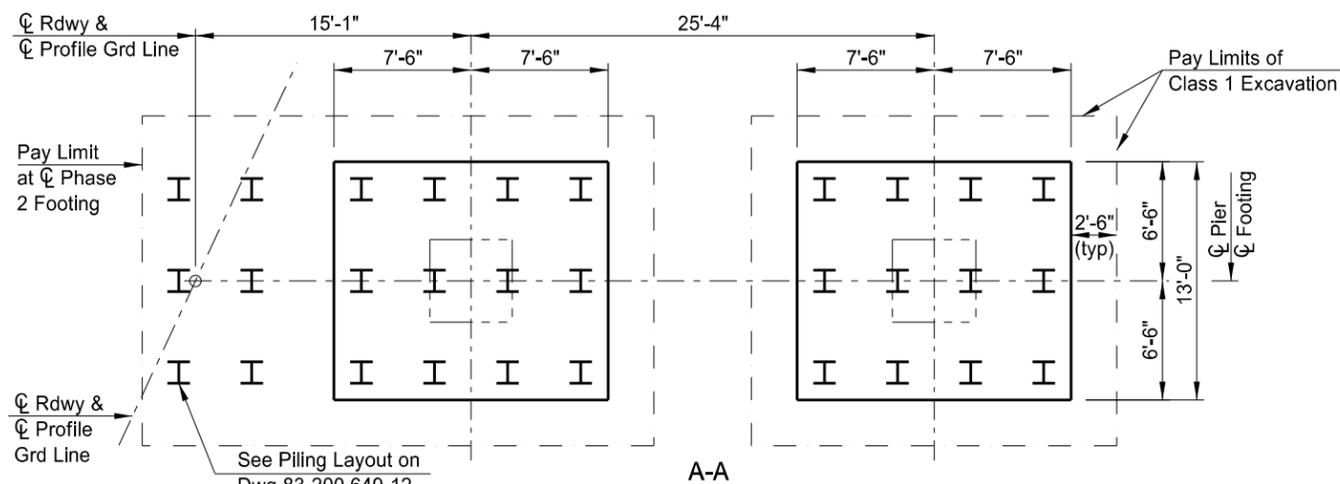
ELEVATION



END VIEW



RUSTICATION DETAIL



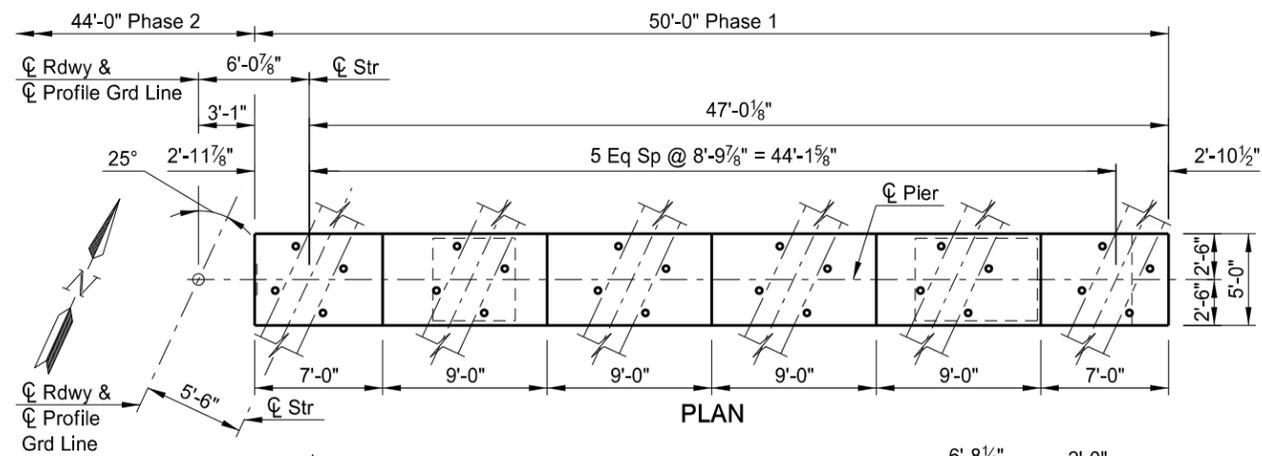
A-A

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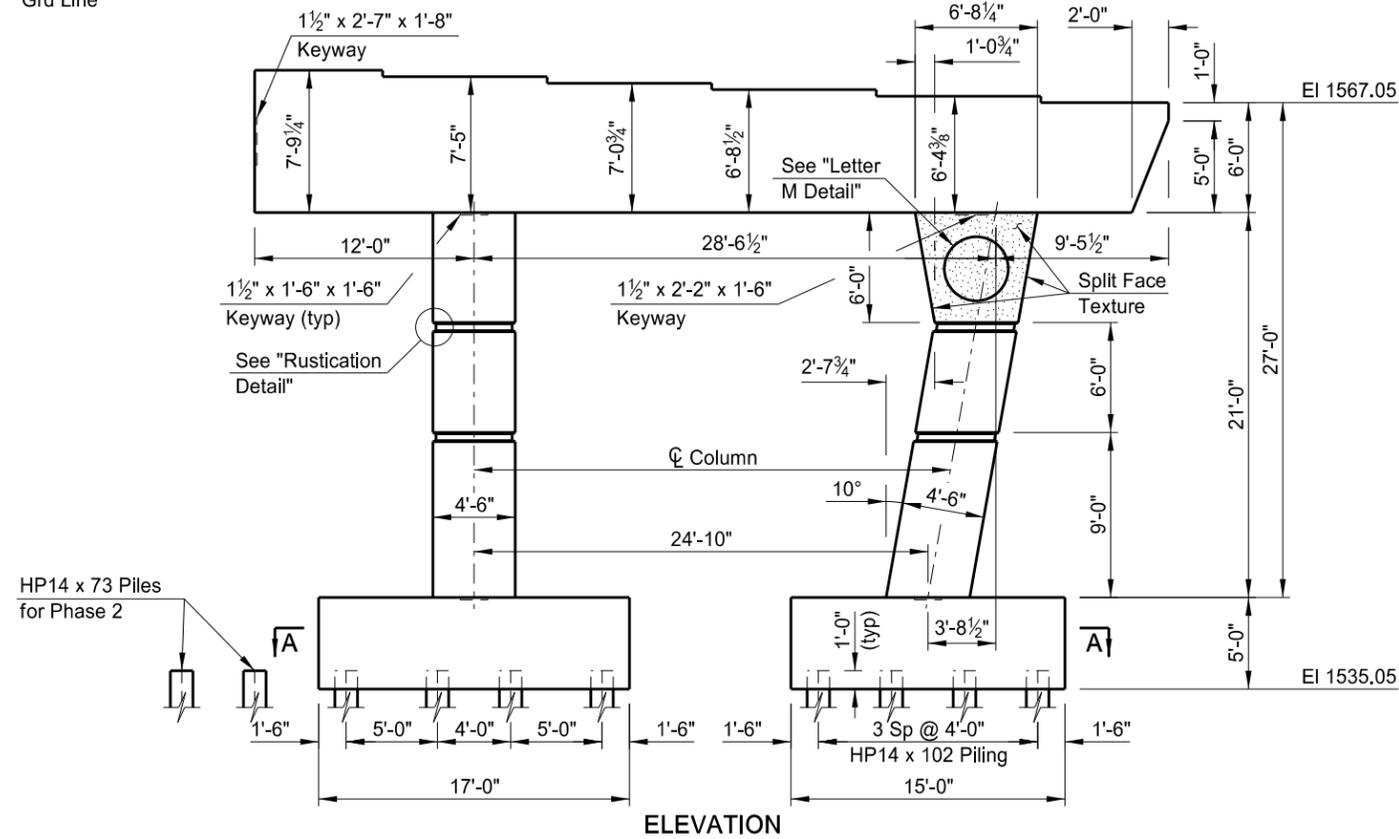
- NOTES:**
- For Letter M Detail, see Dwg 83-200.649-44.
 - Letter M and Ring attached to South face of East column only.

QUANTITIES
SEE DWG 83-200.649-39
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
PIER 6 DETAILS (SHOWING DIMENSIONS)

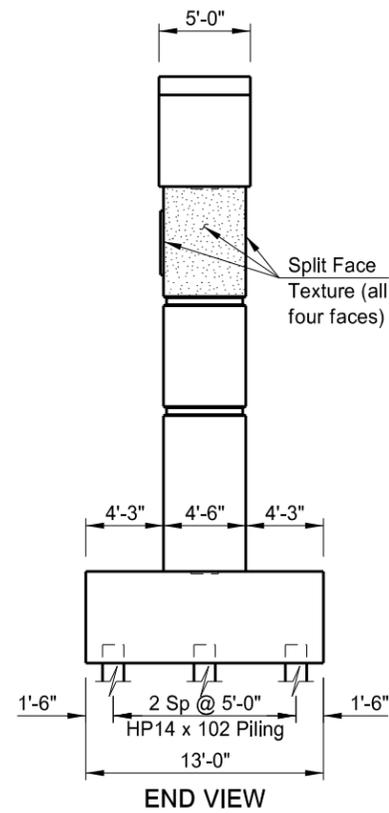
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	41



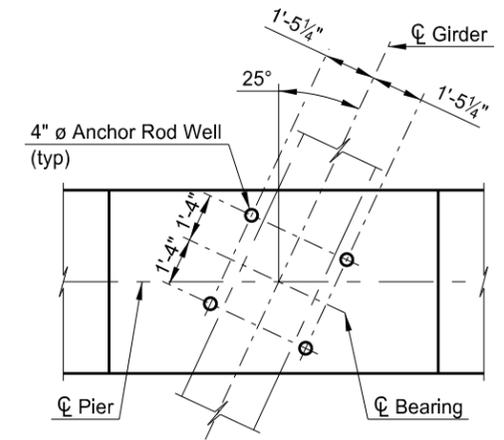
PLAN



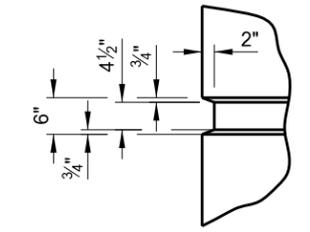
ELEVATION



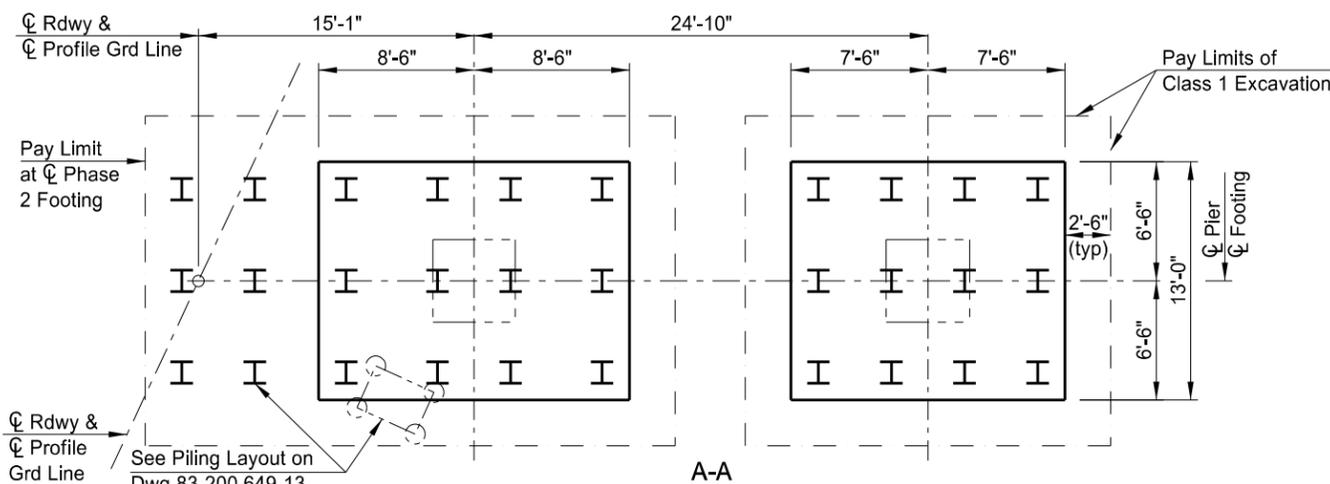
END VIEW



ANCHOR WELL LAYOUT



RUSTICATION DETAIL



A-A

NOTES:
For Letter M Detail, see Dwg 83-200.649-44
Letter M and Ring attached to South face of East column only.

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QUANTITIES
SEE DWG 83-200.649-42
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
PIER 7 DETAILS (SHOWING DIMENSIONS)

BEARING TABLE ①																								
LOCATION	GIRDER NO.	BEARING TYPE ②	SERVICE LIMIT STATE						STRENGTH LIMIT STATE										TEMP ADJ (in/10°F)	BEARING ASSEMBLY DIMENSIONS				
			BEARING DESIGN LOADS (kips)						BEARING DESIGN LOADS (kips)						DEFORMATIONS					HEIGHT (in) "h"	"A" (in)	"B" (in)	ANCHOR ROD DIAM. (in)	ANCHOR ROD LENGTH (in)
			VERTICAL			HORIZONTAL			VERTICAL			HORIZONTAL			ROTATION (+/- Rad)		MOVEMENT (+/- in) ④							
			DEAD	LIVE	WIND	TOTAL	LONGI-TUDINAL	TRANS-VERSE	DEAD	LIVE	TOTAL	LONGI-TUDINAL	TRANS-VERSE	DUE TO LIVE LOADS	DUE TO FAB. & CONST. TOL.	TOTAL	LONGI-TUDINAL	TRANS-VERSE						
Abutment 1	N1 thru N3	II	46	74	1	121	0	3	58	130	188	0	9	0.005	0.005	0.010	3.300	-	0.306	6.50	10.50	9.00	1.25	30.0
	N4 thru N7	III	46	74	1	121	0	-	58	130	188	0	-	0.005	0.005	0.010	3.300	0.250	0.305	6.50	12.50	9.00	1.25	30.0
	N8	III	10	35	1	46	0	-	12	62	74	0	-	0.004	0.005	0.009	3.300	0.250	0.227	5.75	10.50	9.00	1.25	30.0
Pier 2	N1 thru N3	II	128	119	3	250	0	9	162	208	370	0	31	0.003	0.005	0.008	2.668	-	0.247	7.25	12.00	13.00	1.50	30.0
	N4 thru N6	III	128	119	3	250	0	-	162	208	370	0	-	0.003	0.005	0.008	2.668	0.250	0.246	7.25	12.00	13.00	1.50	30.0
	N7	III	128	119	3	250	0	-	162	208	370	0	-	0.003	0.005	0.008	2.668	0.250	0.246	*8.50	12.00	13.00	1.50	30.0
Pier 3	N1 thru N3	II	114	126	3	243	0	11	145	220	365	0	35	0.003	0.005	0.008	2.036	-	0.189	7.25	12.00	13.00	1.50	30.0
	N4 thru N6	III	114	126	3	243	0	-	145	220	365	0	-	0.003	0.005	0.008	2.036	0.250	0.189	7.25	12.00	13.00	1.50	30.0
Pier 4	N1 thru N3	II	141	139	3	283	0	13	179	243	422	0	42	0.003	0.005	0.008	1.261	-	0.117	7.25	12.00	13.00	1.75	30.0
	N4 thru N6	III	141	139	3	283	0	-	179	243	422	0	-	0.003	0.005	0.008	1.261	0.250	0.117	7.25	12.00	13.00	1.75	30.0
Pier 5	N1 thru N3	I	157	163	4	324	56	15	198	285	483	57	48	0.003	0.005	0.008	-	-	-	7.25	12.00	13.00	2.00	30.0
	N4 thru N6	IV	157	163	4	324	56	-	198	285	483	57	-	0.003	0.005	0.008	-	0.250	-	7.25	12.00	13.00	2.00	30.0
Pier 6	N1 thru N3	I	298	200	7	505	48	24	377	350	727	41	79	0.003	0.005	0.008	-	-	-	8.75	17.25	16.00	2.00	30.0
	N4 thru N6	IV	298	200	7	505	48	-	377	350	727	41	-	0.003	0.005	0.008	-	0.250	-	8.75	17.25	16.00	2.00	30.0
Pier 7	N1 thru N3	II	318	201	7	526	0	24	402	352	754	0	84	0.003	0.005	0.008	2.387	-	0.221	9.50	17.25	16.00	2.00	30.0
	N4 thru N6	III	318	201	7	526	0	-	402	352	754	0	-	0.003	0.005	0.008	2.387	0.250	0.221	9.50	17.25	16.00	2.00	30.0
Abutment 8	N1 thru N3	II	74	94	2	170	0	7	94	164	258	0	22	0.004	0.005	0.009	3.566	-	0.330	6.75	12.00	13.00	1.25	30.0
	N4 thru N6	III	74	94	2	170	0	-	94	164	258	0	-	0.004	0.005	0.009	3.566	0.250	0.330	6.75	12.00	13.00	1.25	30.0

* Manufacturer shall provide a difference of 1/4" between bearing height for Girder No. N7 and N6 at Pier 2. Height of bearing for Girder No. N7 at Pier 2 assumes a shim plate, 1/4" thick, is provided.

NOTES:

- ① All bearings shall be marked prior to shipping. The marks shall include the bearing location on the bridge, and a direction arrow that points up station. All marks shall be permanent and be visible after the bearing is installed. The marks shall be on the sole plate of the bearing.
- ② TYPE I: Fixed Disc Bearing
TYPE II: Uni-Directional (Guided Longitudinal Expansion) Disc Bearings
TYPE III: Multi-Directional (Non-Guided Expansion) Disc Bearings
TYPE IV: Unit-Directional (Guided Transverse Expansion) Disc Bearings

See Dwg 83-200.649-45A for bearing details and corrugated pipe detail.
- ③ Sole plate shall be beveled to correlate with the longitudinal slope.
- ④ One way longitudinal and transverse movement is the maximum expansion or contraction in one direction when bearings are set at 60°F.
- ⑤ Sole plates shall be welded to the girder bottom flange.
- ⑥ Provide additional 1/4" gaps at side PTFE at girders N5 and N6. Provide additional 1/8" gaps at side PTFE at girders N3 and N4.

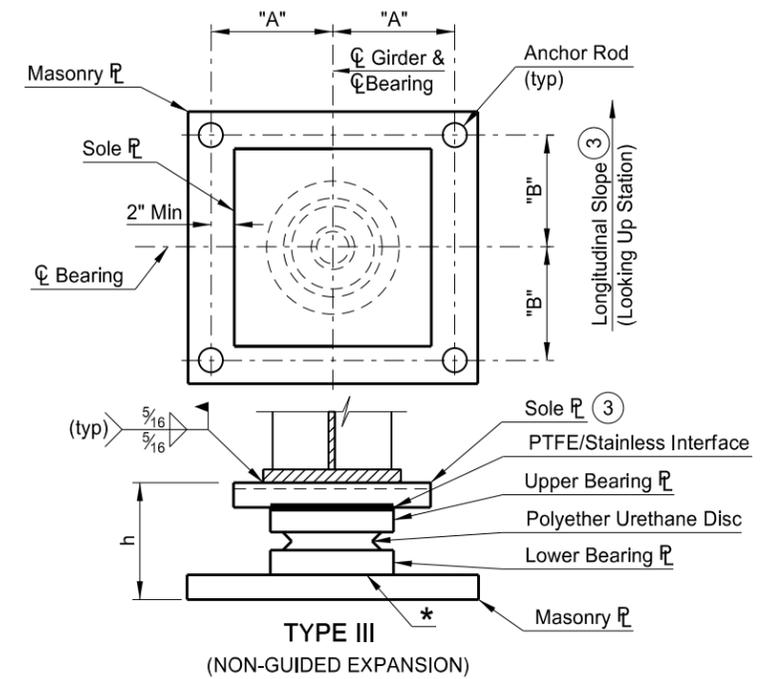
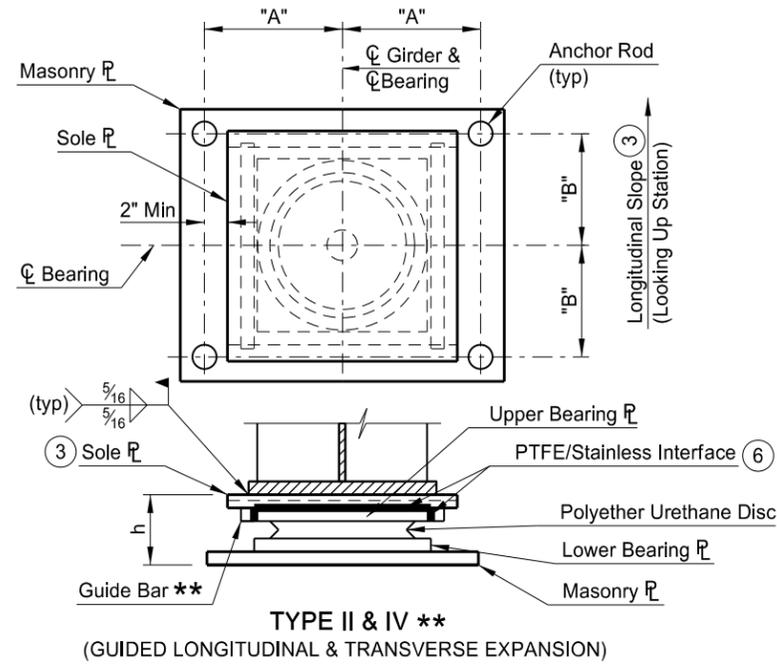
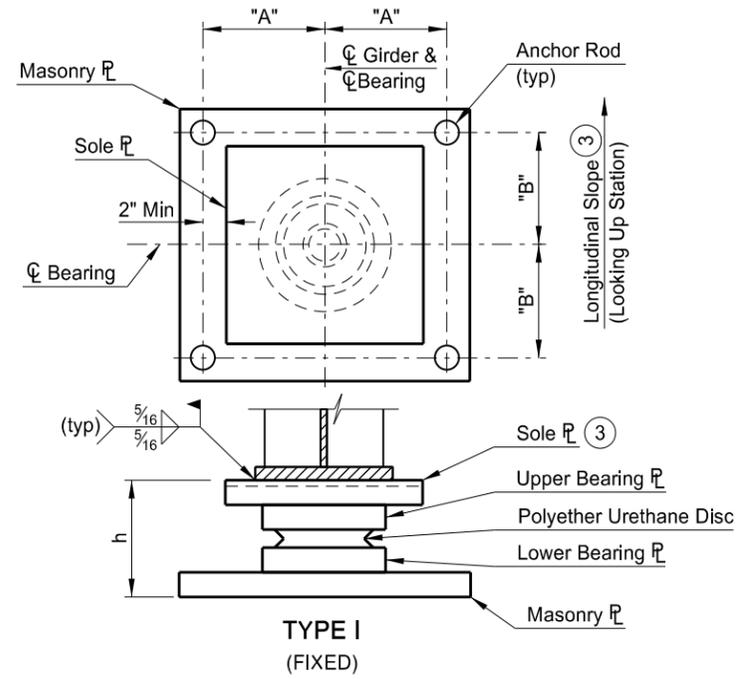
BEVELED SOLE PLATE LONGITUDINAL SLOPE (ft/ft) ③								
LOCATION	GIRDER NO.							
	N1	N2	N3	N4	N5	N6	N7	N8
Abutment 1	0.0179	0.0168	0.0157	0.0145	0.0135	0.0125	0.0134	0.0239
Pier 2	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0062	-
Pier 3	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	-	-
Pier 4	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	-	-
Pier 5	-0.0113	-0.0121	-0.0129	-0.0137	-0.0145	-0.0153	-	-
Pier 6	-0.0417	-0.0425	-0.0433	-0.0442	-0.0450	-0.0458	-	-
Pier 7	-0.0500	-0.0500	-0.0500	-0.0500	-0.0500	-0.0500	-	-
Abutment 8	-0.0500	-0.0500	-0.0500	-0.0500	-0.0500	-0.0500	-	-

("+" designates upward slope, "-" designates downward slope)

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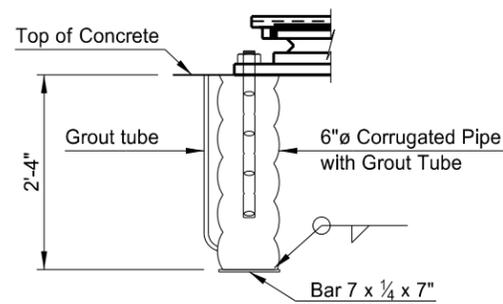
QUANTITIES	
BEARINGS (EXPANSION)	45 EA
BEARINGS (FIXED)	6 EA
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER	
NORTHBOUND	
DISC BEARING DETAILS	

Sheet Added 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	45A



** Guide Bars are shown for Type II in the longitudinal direction. Rotate 90-deg and install in the horizontal direction for Type IV.

* Manufacturer shall provide a difference of 1/4" between bearing height for Girder No. N7 and N6 at Pier 2. Height of bearing for Girder No. N7 at Pier 2 assumes a shim plate, 1/4" thick, is provided.



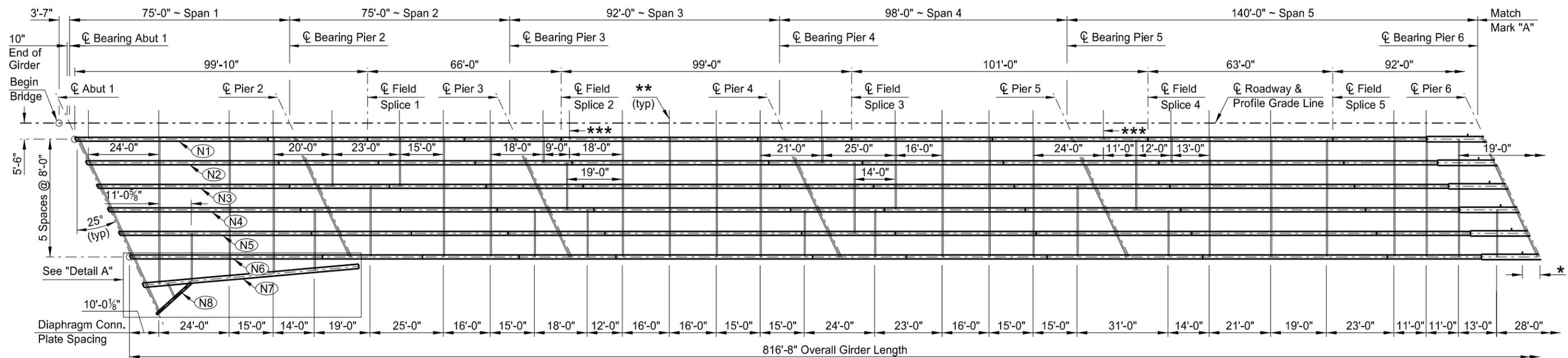
After the Phase 1 beams are set, suspend the swedge anchor bolts in the corrugated pipe and grout in using a non-shrink grout with 3,000 psi minimum strength. Include all materials and labor to install the corrugated pipe in the price bid for "Class AE-3 Concrete."

CORRUGATED PIPE DETAIL

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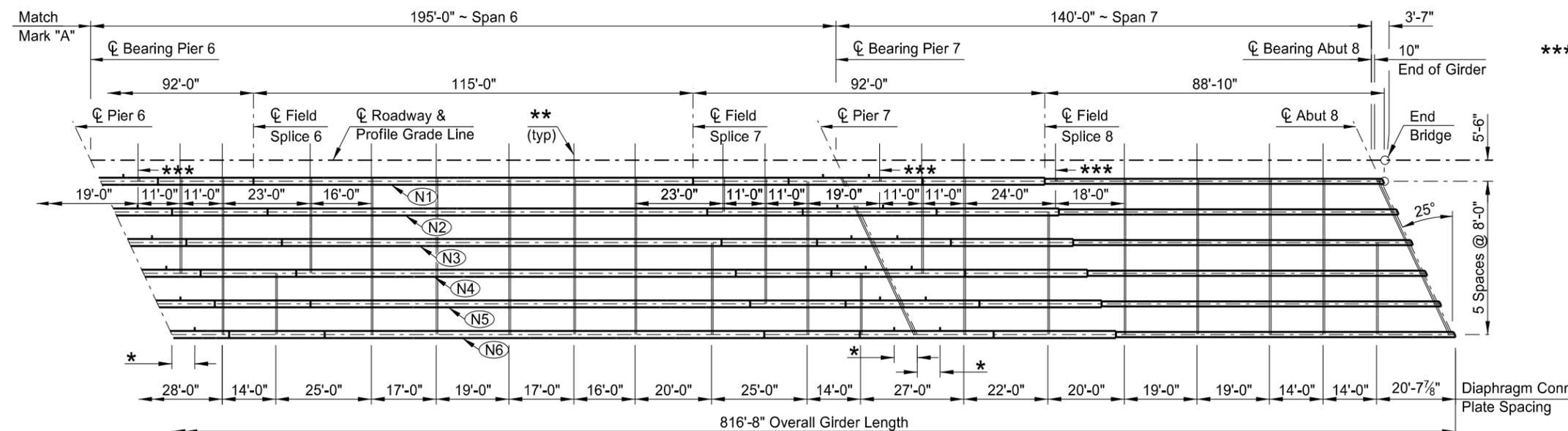
QUANTITIES
SEE DWG 83-200.649-45
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
DISC BEARING DETAILS

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	46



NOTES:

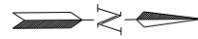
- * Transverse web stiffener spaced 6'-0" from ϕ Pier each side of Piers 6 and 7, all girders.
 - ** Diaphragms shown for connection to southbound bridge, typ. Diaphragms between phases shall not be installed until after Phase 2 deck has been poured.
 - *** Temporary braces shall be used where needed to stabilize Girder N1 during Phase 1 slab pour. Diaphragms shown cannot be placed until Phase 2 construction. Provide temporary braces as needed to stabilize slab overhang forming.
- See Dwg 83-200.649-64 for Detail A.



PLAN

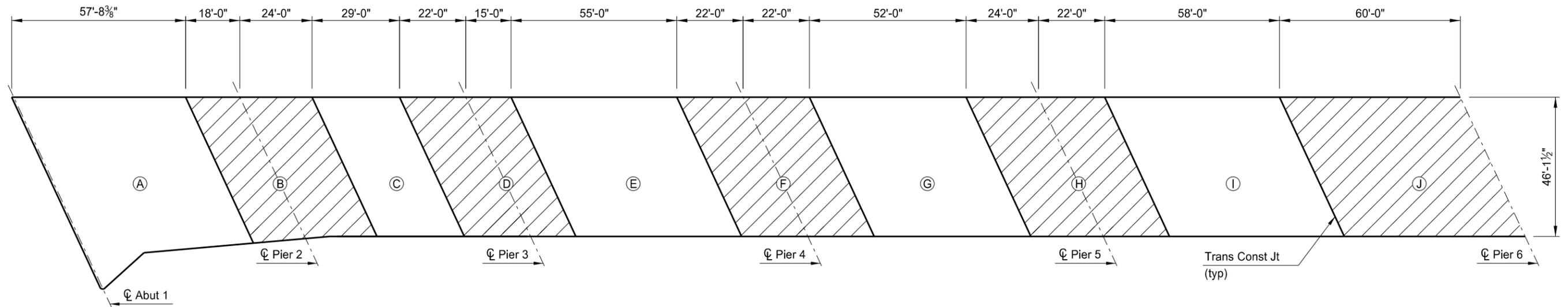
US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

NORTHBOUND
GIRDER LAYOUT

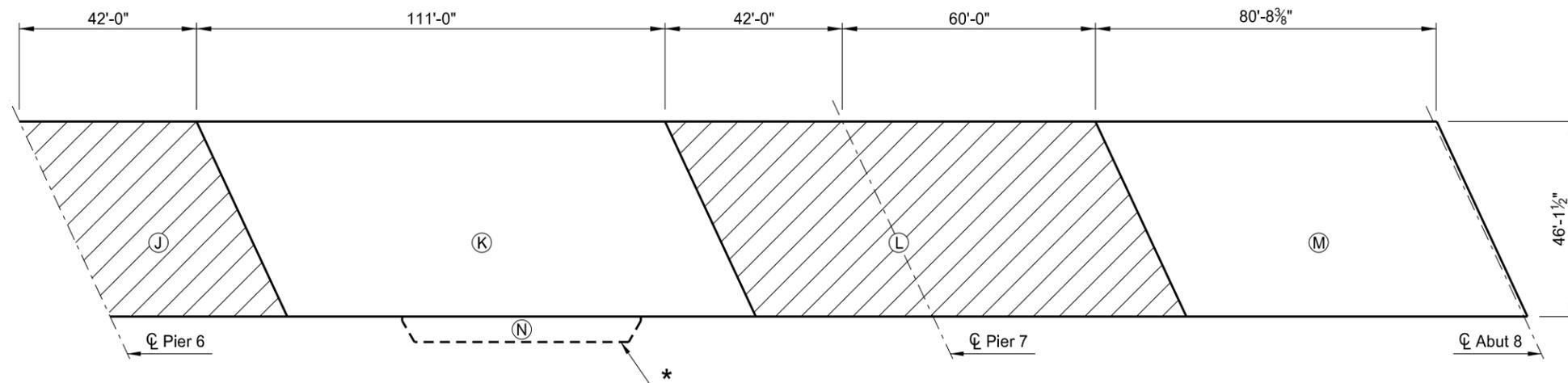


23 U.S.C. 409
NDDOT Reserves All Objections

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	74



SEQUENCE OF POURS				
BASIC SEQUENCE	1	2	3	4
	I + K + M	A + B + C + D + E + F + G	H + J + L	N
MIN RATE OF POUR (CU YDS / Hr)	29	36	29	25
Rate of Pour is based on a 10 Hour Workday. Absolute Minimum Rate of Pour is 25 Cu Yds/Hr. Alternate Pours to the Basic Sequence are subject to the Approval of the Engineer.				



* Overlook shall not be poured until remainder of Phase 1 deck is complete

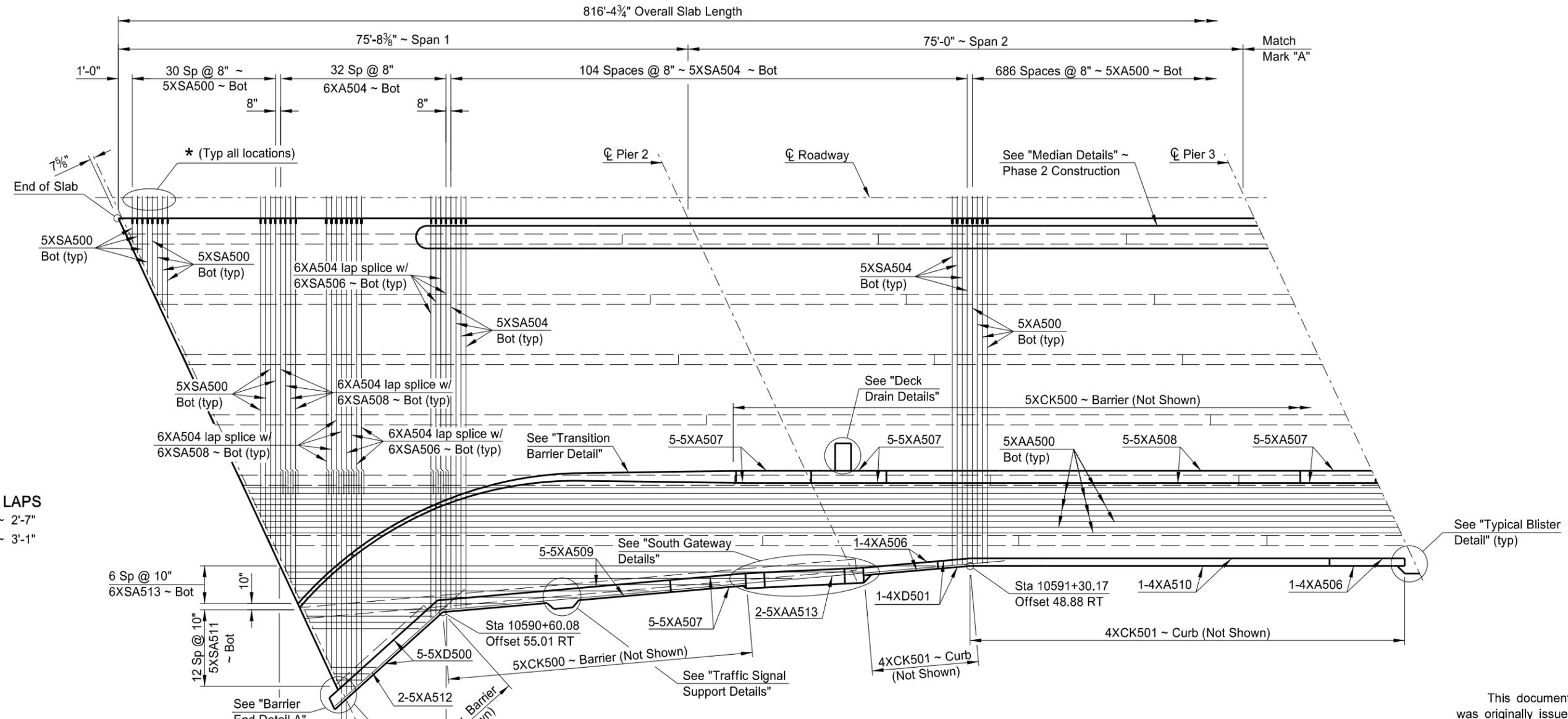
SLAB POURING SEQUENCE

US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

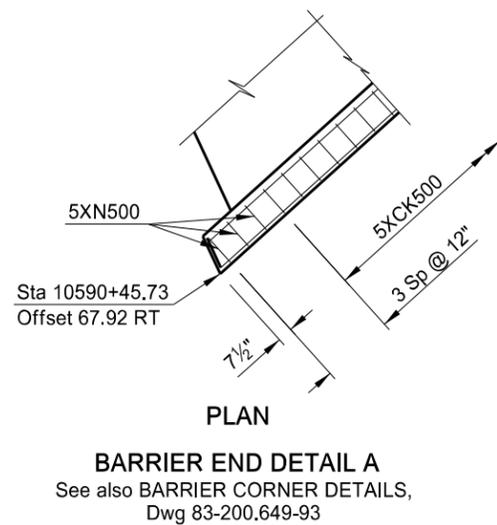
NORTHBOUND
POURING SEQUENCE

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Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	75



MIN LAPS
#5 ~ 2'-7"
#6 ~ 3'-1"



NOTES:

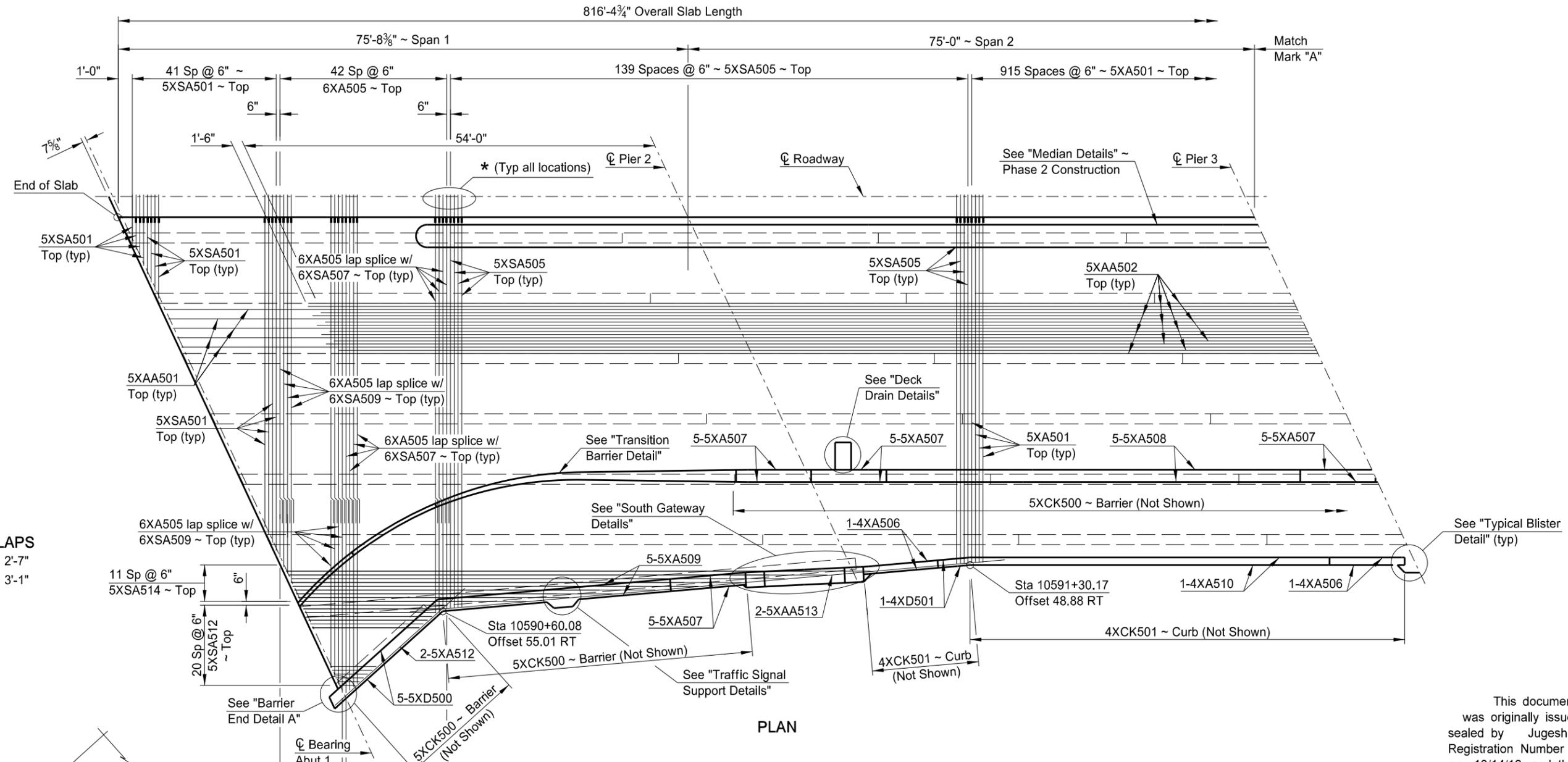
- For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.
- For "Transition Barrier Detail", see Dwg 83-200.649-86.
- For "Typical Blister Detail", see Dwg 83-200.649-82.
- For "Traffic Signal Support Details", see Dwg 83-200.649-95.
- For "South Gateway Details", see Dwg 83-200.649-83.
- For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-87, PEDESTRIAN BARRIER ELEVATION, Dwg 83-200.649-89, and BARRIER CORNER DETAILS, Dwg 83-200.649-93.
- For "Deck Drain Details", see Dwg 83-200.649-103 and Dwg 83-200.649-104.

* Portion of rebar beyond edge of deck shall be placed into threaded couplers at the time of closure pour preparations done after deck in Phase 2 has been cast. For transverse slab reinforcement, use threaded couplers supplied by "BPI Barsplicer by BarSplice Products, Inc." or "D50 DBR Coupler System by Dayton Superior Corporation" or approved equivalent. Cost of bar splicer assemblies in deck slab shall be incidental to price bid for "Reinforcing Steel (Epoxy)." Length shown in Bill of Reinforcing table includes both ends attached to coupler. The couplers shall be an approved mechanical connector capable of developing 125% of the specified yield strength of the reinforcing steel. The couplers shall be epoxy coated according to AASHTO M 284. Damaged epoxy coating on the couplers shall be repaired according to Section 612.03 E.

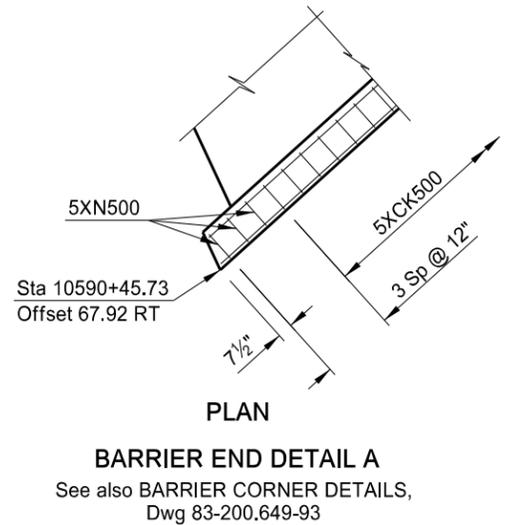
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QUANTITIES
SEE DWG 83-200.649-81
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
SLAB LAYOUT - BOTTOM REINFORCING SHEET 1 OF 6

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	76



MIN LAPS
#5 ~ 2'-7"
#6 ~ 3'-1"



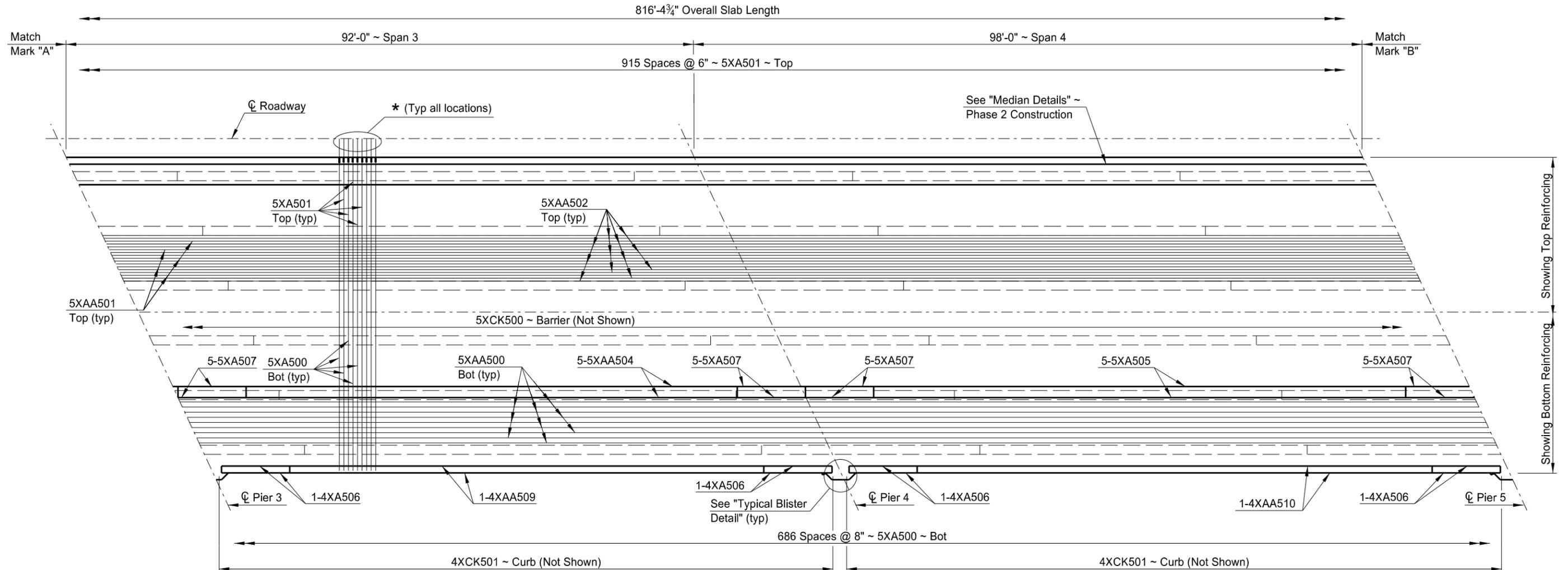
NOTES:
For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.
For "Transition Barrier Detail", see Dwg 83-200.649-86.
For "Typical Blister Detail", see Dwg 83-200.649-82.
For "Traffic Signal Support Details", see Dwg 83-200.649-95.
For "South Gateway Details", see Dwg 83-200.649-83.
For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-87, PEDESTRIAN BARRIER ELEVATION, Dwg 83-200.649-89, and BARRIER CORNER DETAILS, Dwg 83-200.649-93.
For "Deck Drain Details", see Dwg 83-200.649-103 and Dwg 83-200.649-104.

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QUANTITIES
SEE DWG 83-200.649-81
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
SLAB LAYOUT - TOP REINFORCING
SHEET 2 OF 6

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	77



PLAN

MIN LAPS
#5 ~ 2'-7"
#6 ~ 3'-1"

NOTES:

For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.

For "Typical Blister Detail", see Dwg 83-200.649-82.

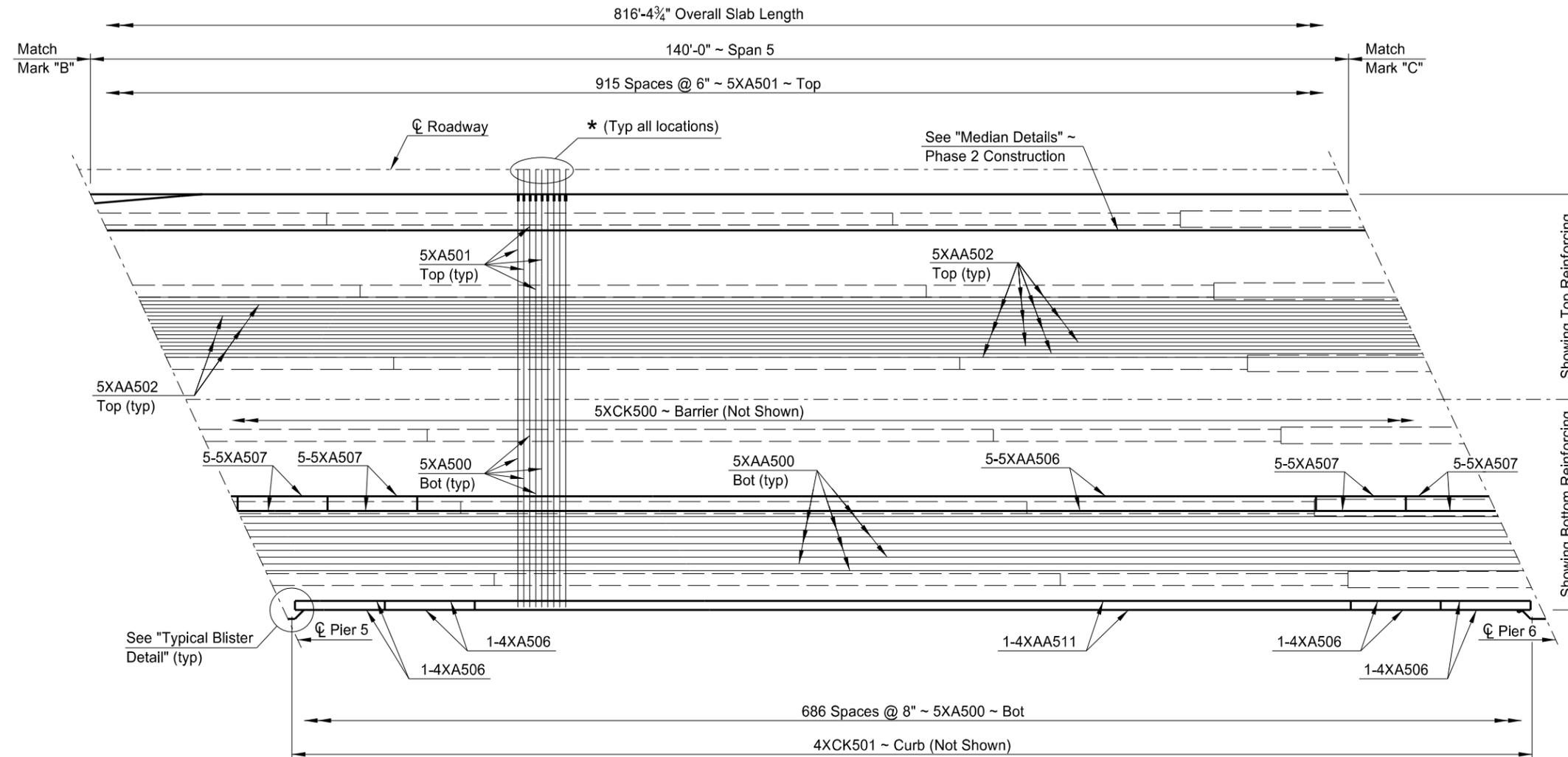
For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-87 and PEDESTRIAN BARRIER ELEVATION, Dwg 83-200.649-89.

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QUANTITIES
SEE DWG 83-200.649-81
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
SLAB LAYOUT
SHEET 3 OF 6

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	78



PLAN

MIN LAPS
#5 ~ 2'-7"
#6 ~ 3'-1"

NOTES:

For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.

For "Typical Blister Detail", see Dwg 83-200.649-82.

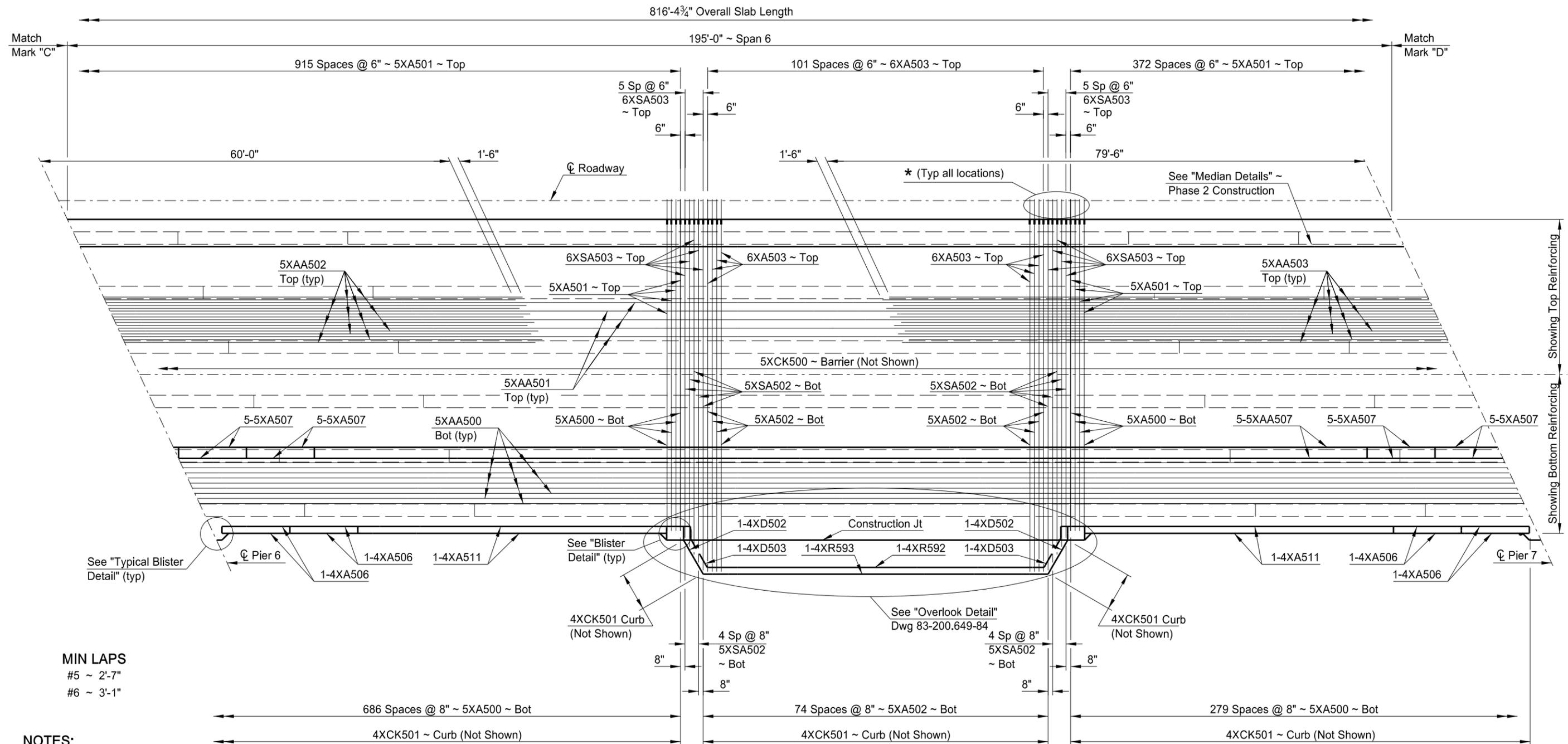
For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-87 and PEDESTRIAN BARRIER ELEVATION, Dwg 83-200.649-89.

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QUANTITIES
SEE DWG 83-200.649-81
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
SLAB LAYOUT SHEET 4 OF 6

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	79



PLAN

NOTES:

For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.

For "Typical Blister Detail", see Dwg 83-200.649-82.

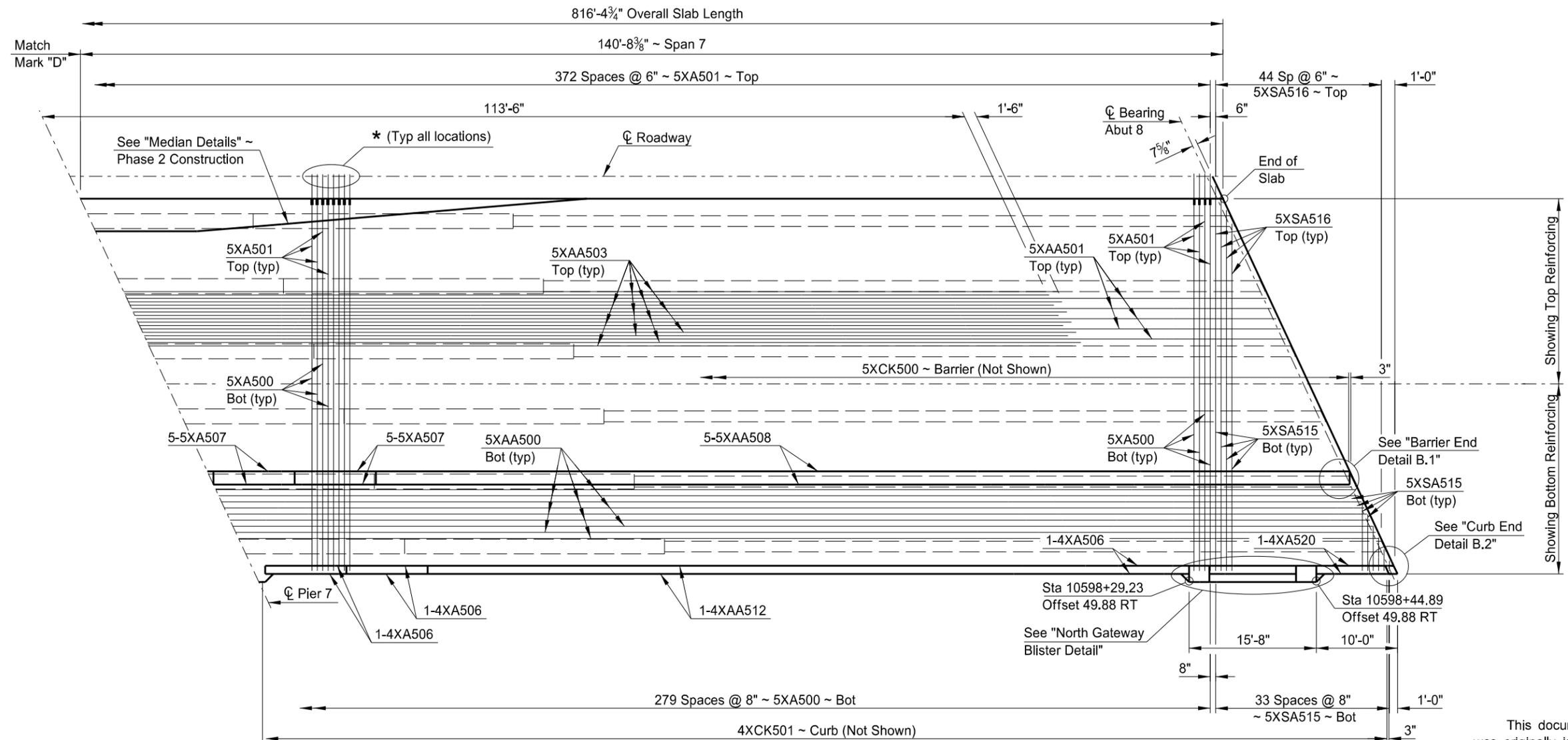
For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-88 and PEDESTRIAN BARRIER ELEVATION, Dwg 83-200.649-90.

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QUANTITIES
SEE DWG 83-200.649-81
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
SLAB LAYOUT
SHEET 5 OF 6

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	80



MIN LAPS
 #5 ~ 2'-7"
 #6 ~ 3'-1"

PLAN

NOTES:

For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.

For "North Gateway Details", see Dwg 83-200.649-82.

For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-87, PEDESTRIAN BARRIER ELEVATION, Dwg 83-200.649-90 and BARRIER CORNER DETAILS, Dwg 83-200.649-93.

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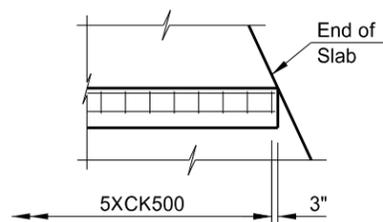
QUANTITIES

SEE DWG 83-200.649-81

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

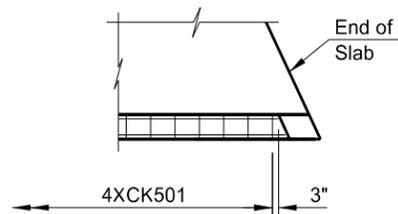
NORTHBOUND

SLAB LAYOUT SHEET 6 OF 6



PLAN

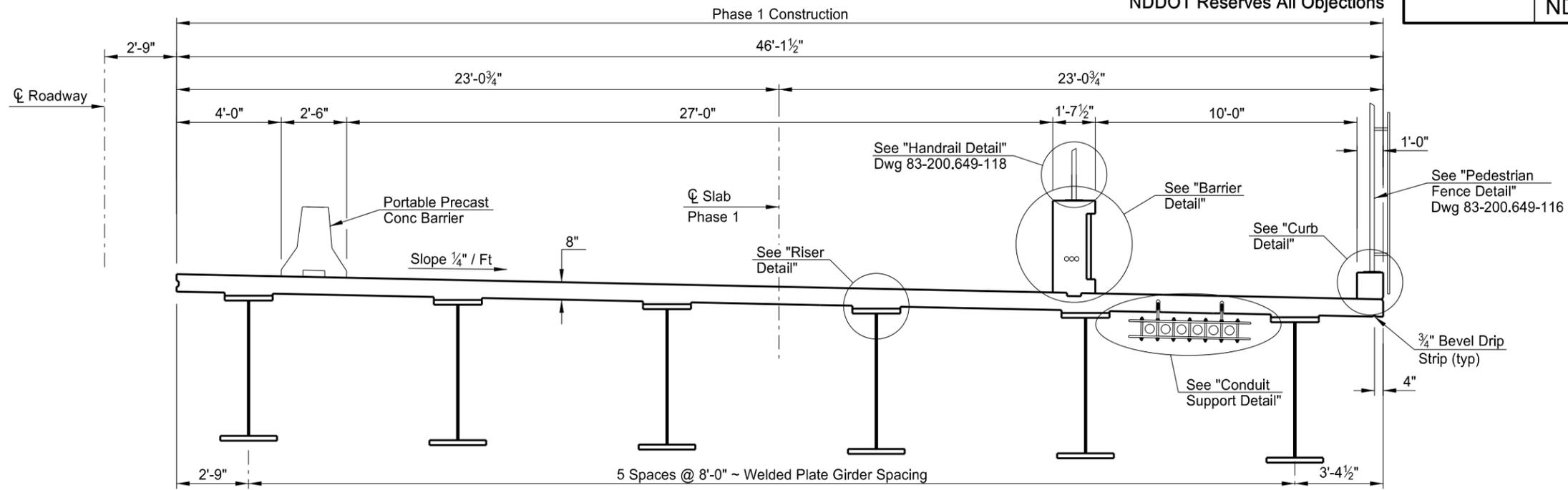
BARRIER END DETAIL B.1
 See also BARRIER RAIL EXPANSION DEVICES, Dwg 83-200.649-94



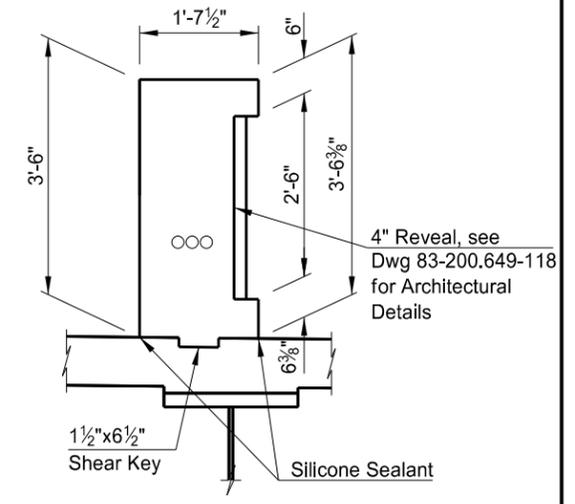
PLAN

CURB END DETAIL B.2
 See also BARRIER CORNER DETAILS, Dwg 83-200.649-93

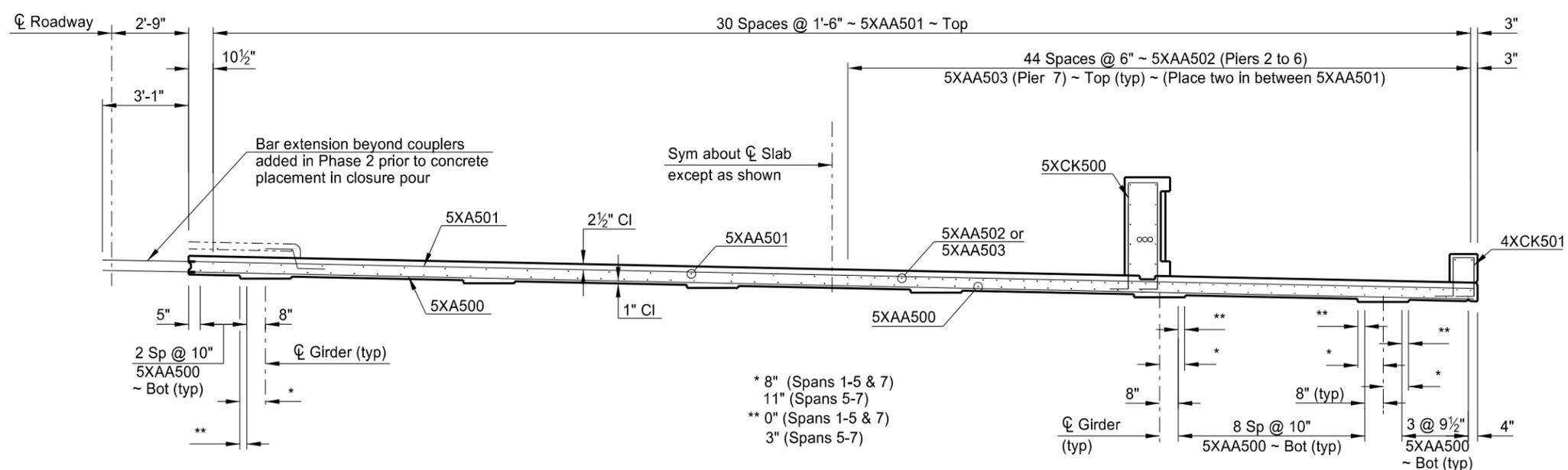
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	81



(SHOWING DIMENSIONS)
TYPICAL SLAB SECTION

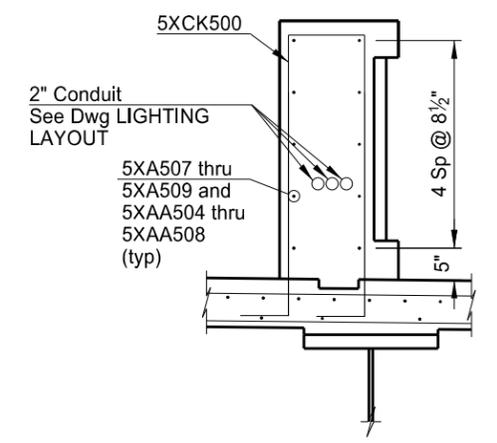


SHOWING DIMENSIONS



(SHOWING REINFORCING BETWEEN SUPPORTS)
TYPICAL SLAB SECTION

(SHOWING REINFORCING OVER PIERS)

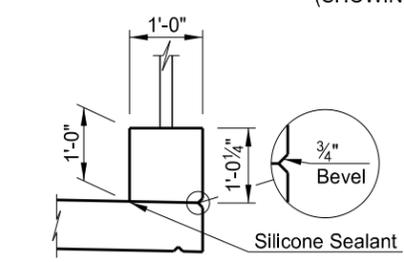


Barrier reinforcing shall have 1 1/2" clearance from the front face.

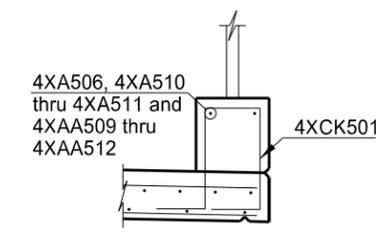
SHOWING REINFORCING
BARRIER DETAIL

NOTES:

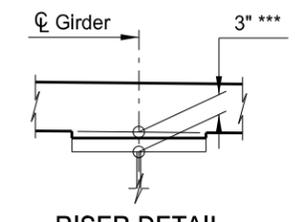
For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.
For "Conduit Support Details", see Dwg 83-200.649-102.



SHOWING DIMENSIONS
CURB DETAIL



SHOWING REINFORCING



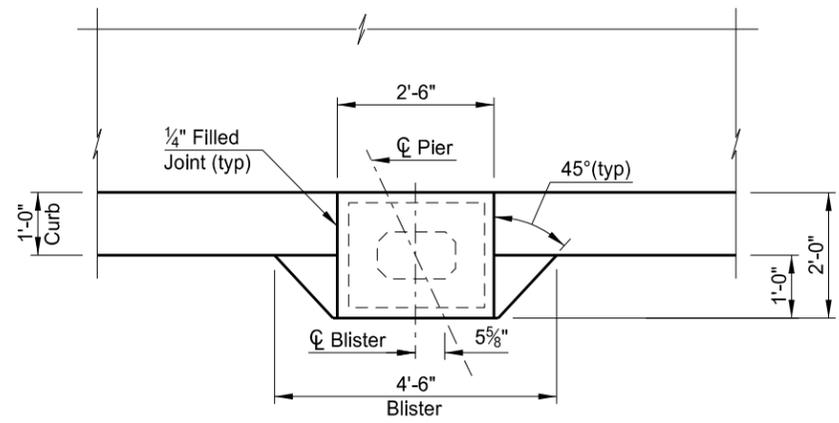
RISER DETAIL

*** Typical all girders except for girder N8 with variable riser dimension. See Dwg 83-200.649-73 for Details.

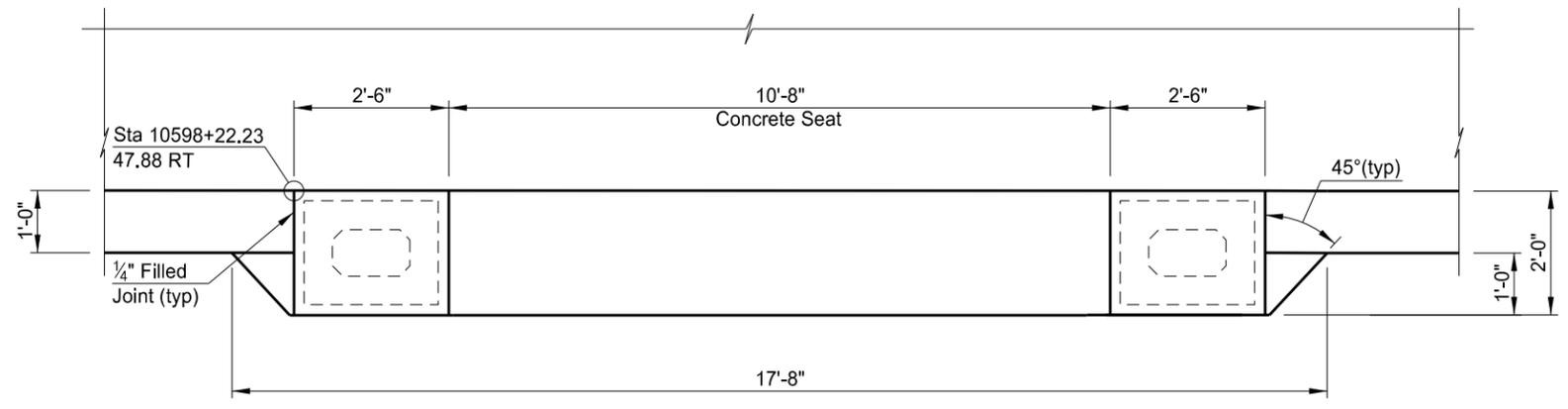
QUANTITIES	
CLASS AAE-3 CONCRETE	998.6 CY
REINFORCING STEEL (EPOXY)	282182 LBS
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER	
NORTHBOUND	
SLAB SECTION	

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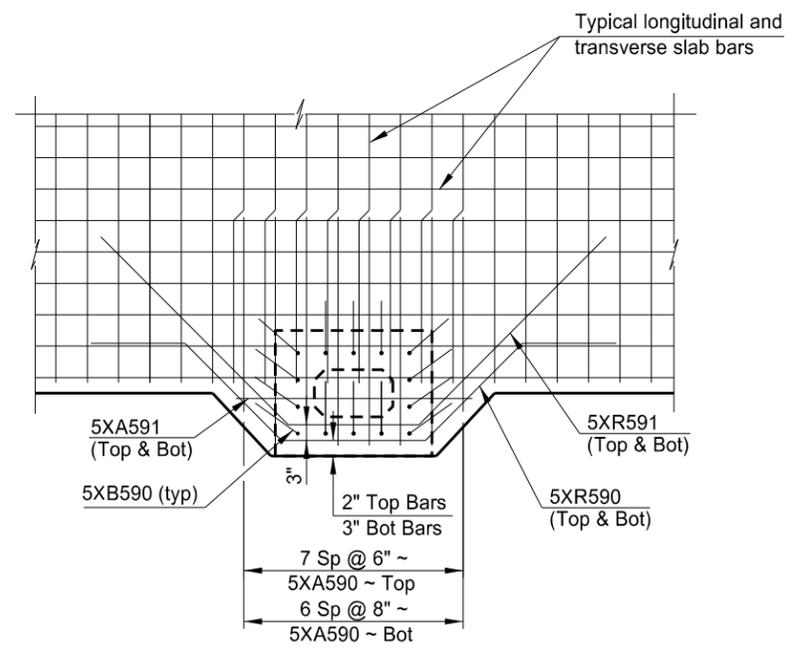
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	82



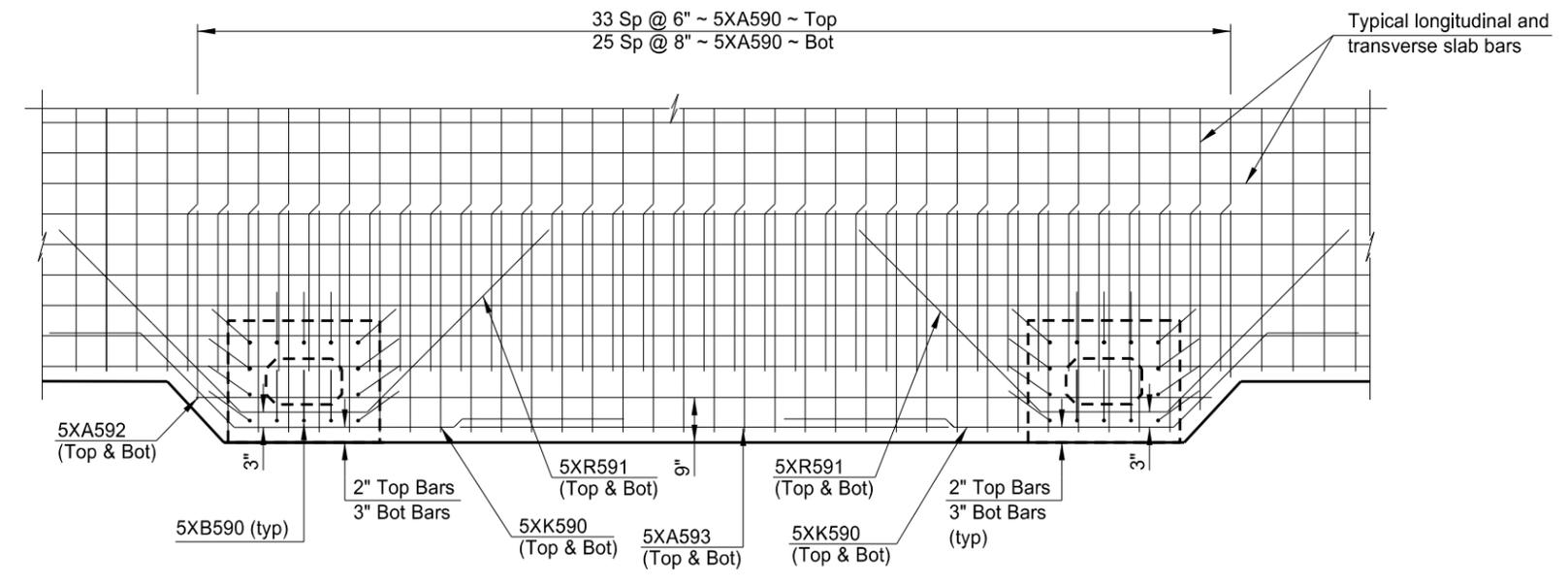
SHOWING DIMENSIONS



SHOWING DIMENSIONS



SHOWING REINFORCING
TYPICAL BLISTER DETAIL



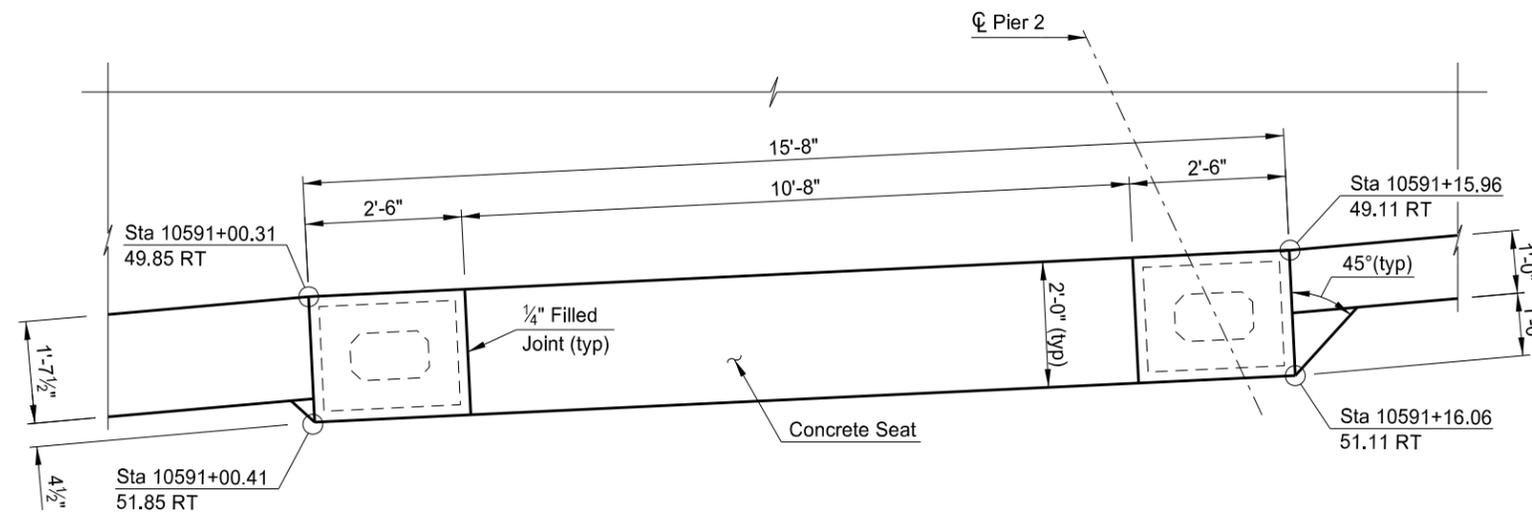
SHOWING REINFORCING
NORTH GATEWAY DETAIL

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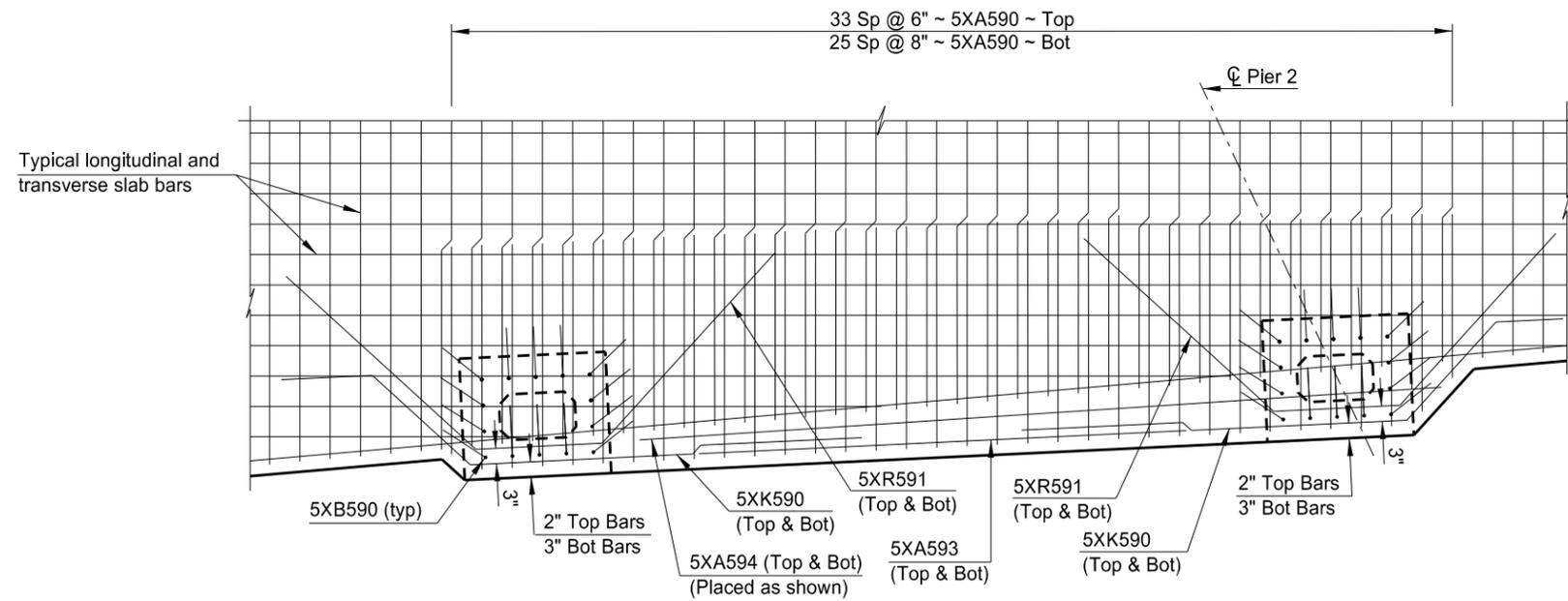
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

NORTHBOUND
SLAB DETAILS
SHEET 1 OF 3

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	83



SHOWING DIMENSIONS



SHOWING REINFORCING

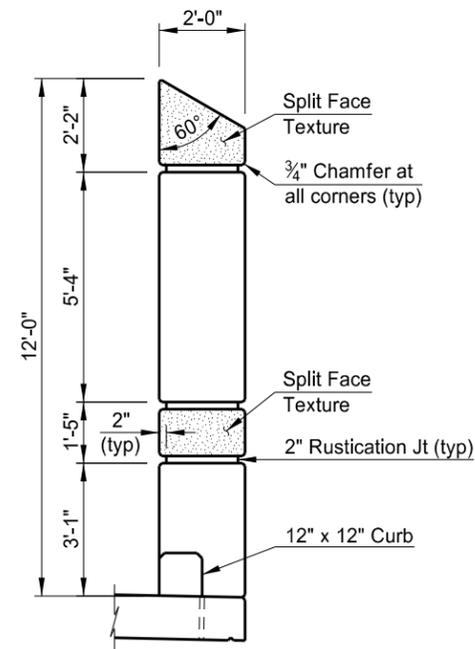
SOUTH GATEWAY DETAIL

This document was originally issued and sealed by Jugesh Kapur Registration Number PE 9267 on 10/14/16 and the original document is stored at the North Dakota Department of Transportation

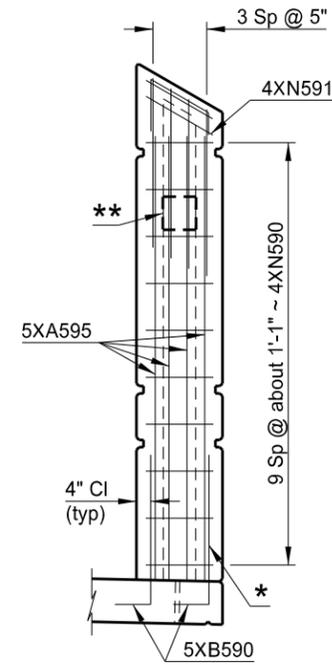
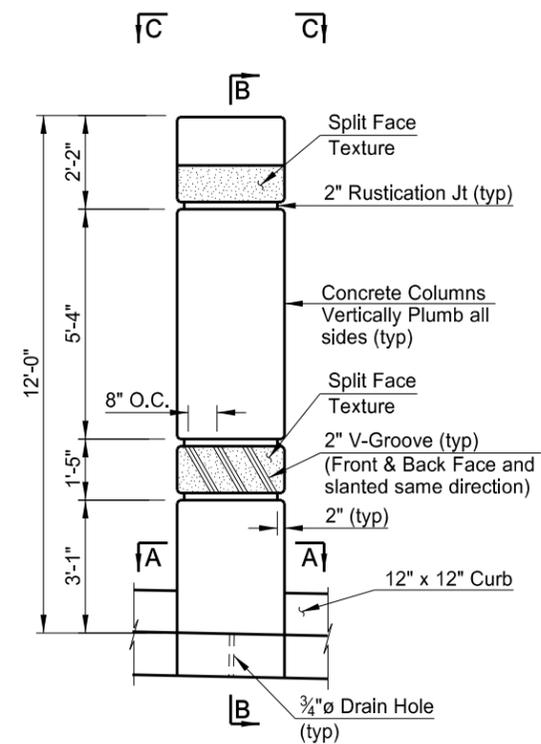
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

NORTHBOUND
SLAB DETAILS
 SHEET 2 OF 3

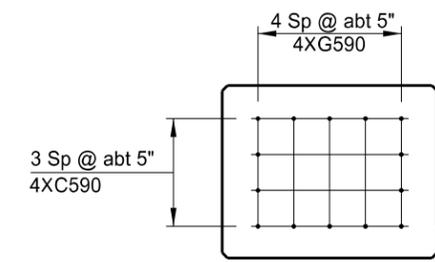
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	85



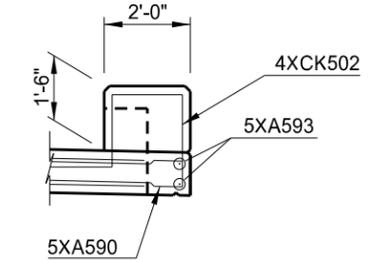
CONCRETE COLUMN ELEVATION - 12'-0"



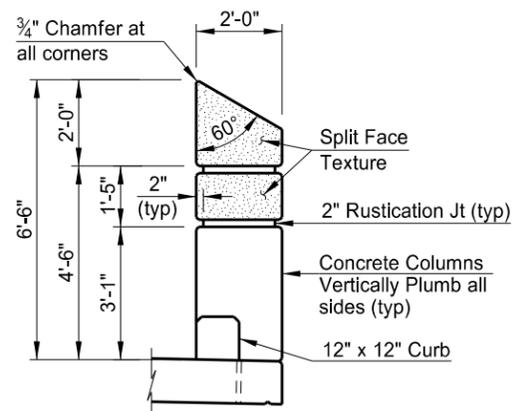
B-B



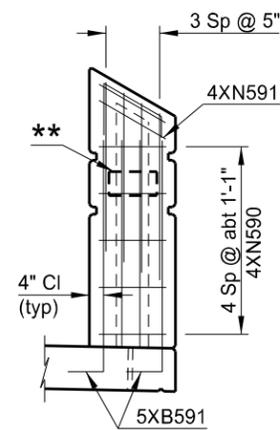
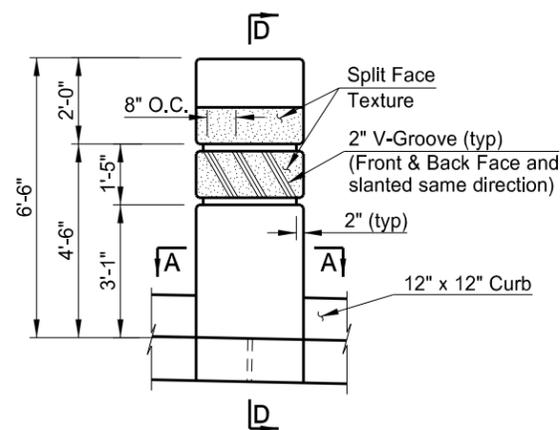
C-C
(Only top stirrups shown for clarity)
(Similar all thematic columns)



PART SECTION SHOWING
CONCRETE SEAT
(At Gateways)

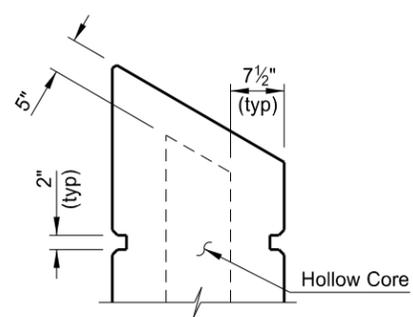


CONCRETE COLUMN ELEVATION - 6'-6"

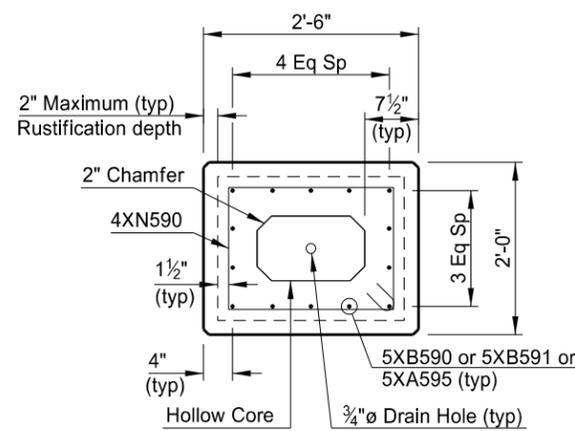


D-D

- * 2'-7" Minimum Lap Splice.
- ** See Lighting Details for luminary sizes and locations. Reinforcing spacing in columns shall be modified or reinforcing may be trimmed to 1" clear around luminary housing. Horizontal 4XN590 bars shall not be trimmed and must be translated vertically as required. Luminaries located in 6'-6" thematic columns are to be centered between rustications. Luminaries in 12' thematic columns shall be centered laterally and the bottom of luminary housing shall be 8' above deck.



COLUMN SECTION
DETAIL



A-A

NOTES:

Use Concrete Class AAE-3 concrete in columns. Split Face Texture shall be Custom Rock "Bush Hammer," Texture #T321, Fitzgerald Formliners "Light Granite," Texture #17032 or approved equal.

For location of concrete columns, see Dwg 83-200.649-89.

Surface finish "D" shall be required on all exposed column surfaces.

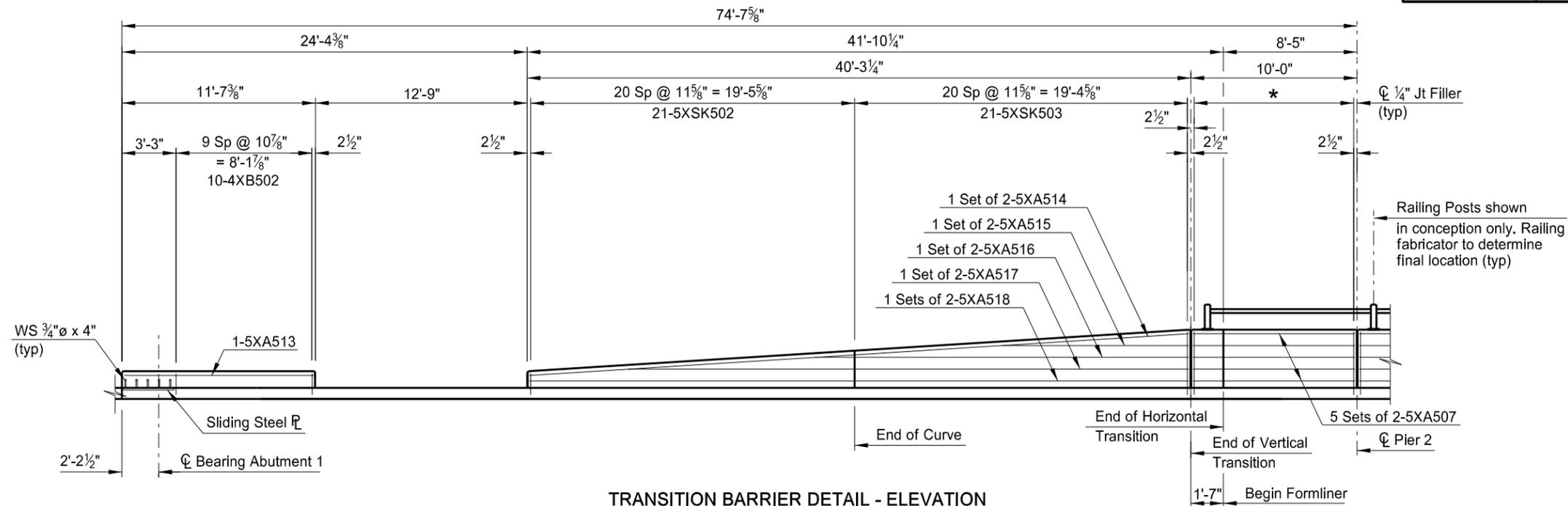
Surface finish color on all exposed column surfaces shall be Sand, color number 33690, and shall meet Federal Standard No. 595B.

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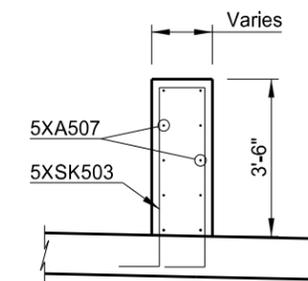
US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

NORTHBOUND
THEMATIC COLUMN DETAILS

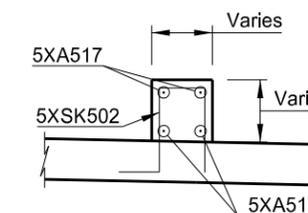
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	86



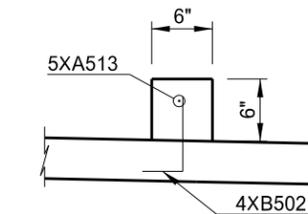
TRANSITION BARRIER DETAIL - ELEVATION



A-A

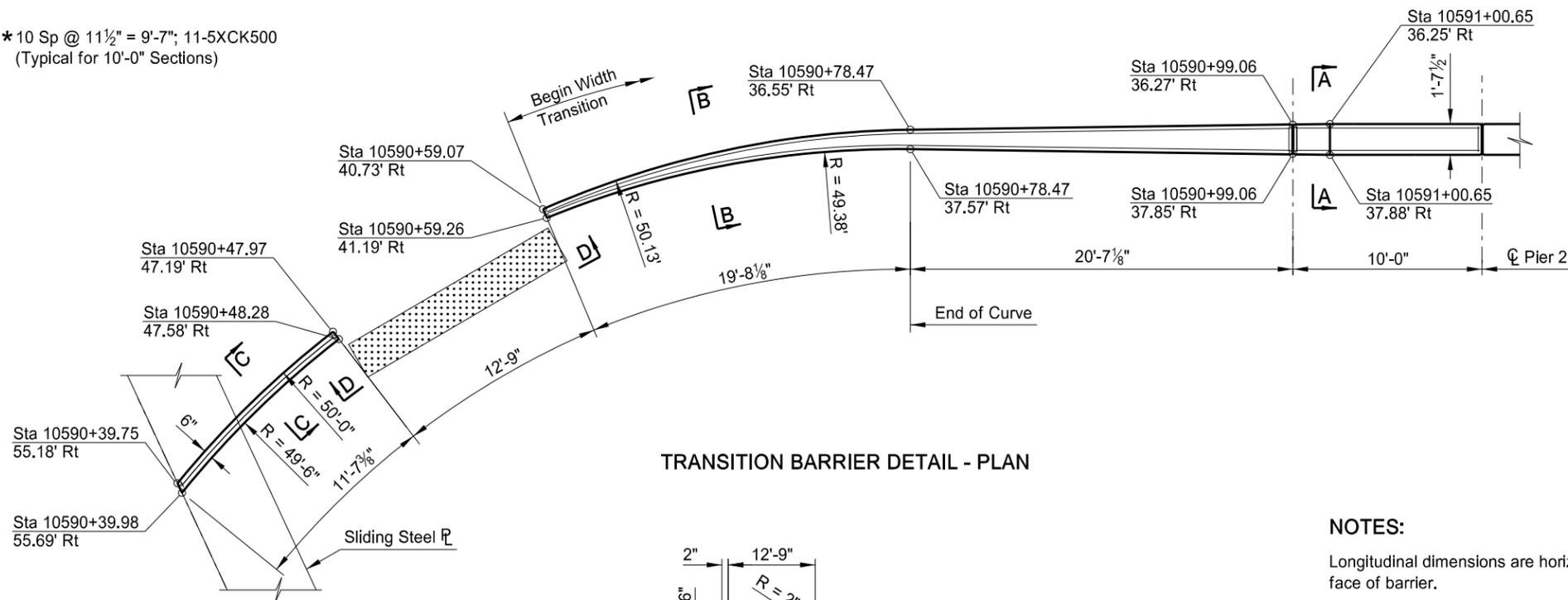


B-B

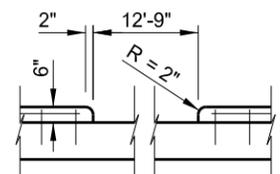


C-C

* 10 Sp @ 11 1/2" = 9'-7"; 11-5XCK500
(Typical for 10'-0" Sections)



TRANSITION BARRIER DETAIL - PLAN



D-D

NOTES:

- Longitudinal dimensions are horizontal at sidewalk face of barrier.
- See Dwg 83-200.649-105 for expansion joint details.
- See Dwg 83-200.649-118 for formliner details.
- See Dwg 83-200.649-118 for railing details.

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QUANTITIES

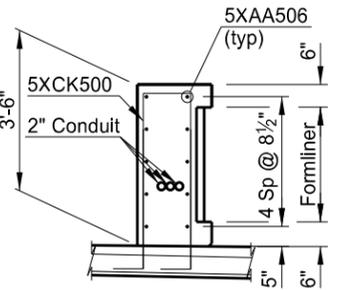
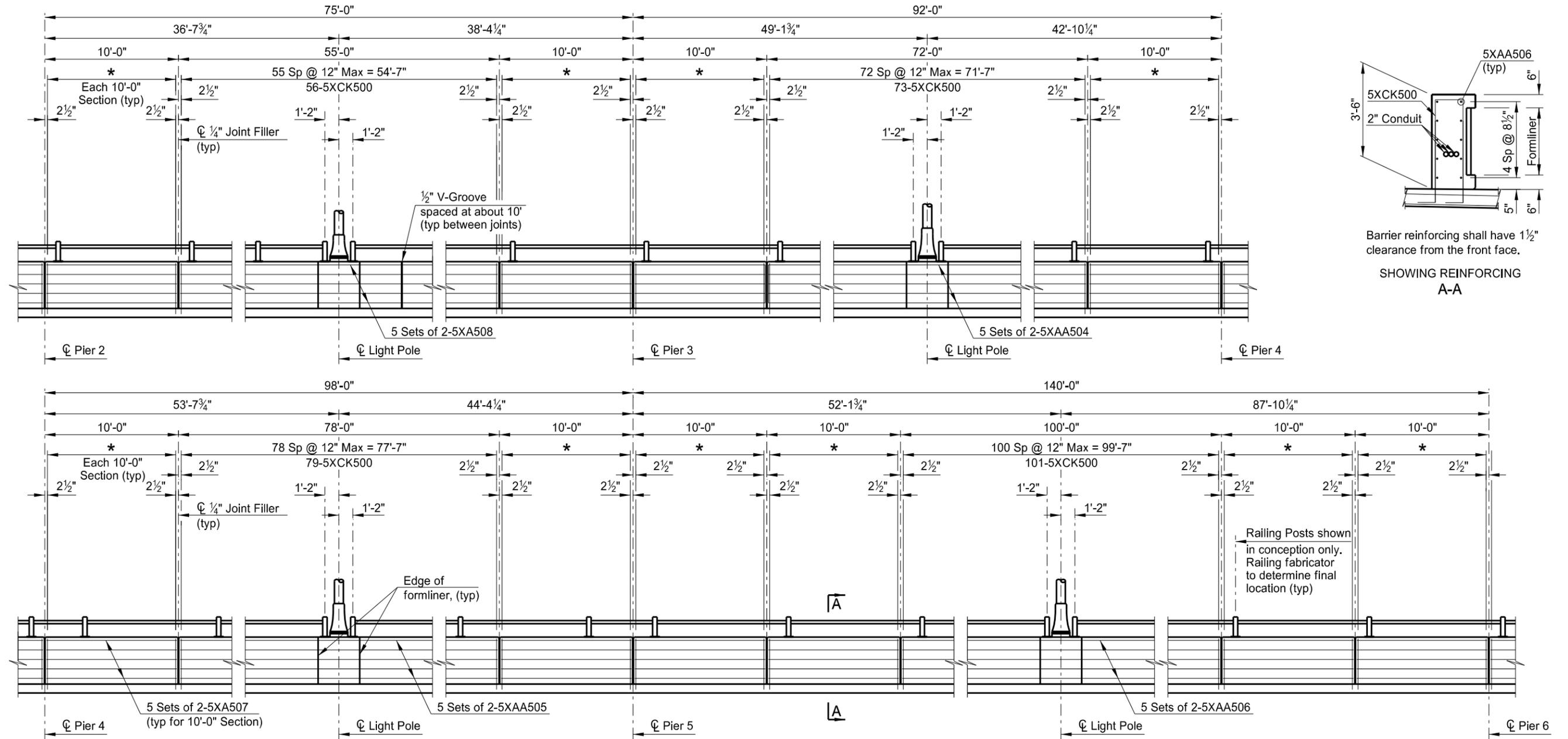
SEE SECTION 8 SHEETS 1-3

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

NORTHBOUND

ROADWAY BARRIER ELEVATION
SHEET 1 OF 3

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)200	170	87



Barrier reinforcing shall have 1 1/2" clearance from the front face.
SHOWING REINFORCING A-A

ELEVATION

* 10 Sp @ 11 1/2" = 9'-7"; 11-5XCK500
(Typical for 10'-0" Sections)

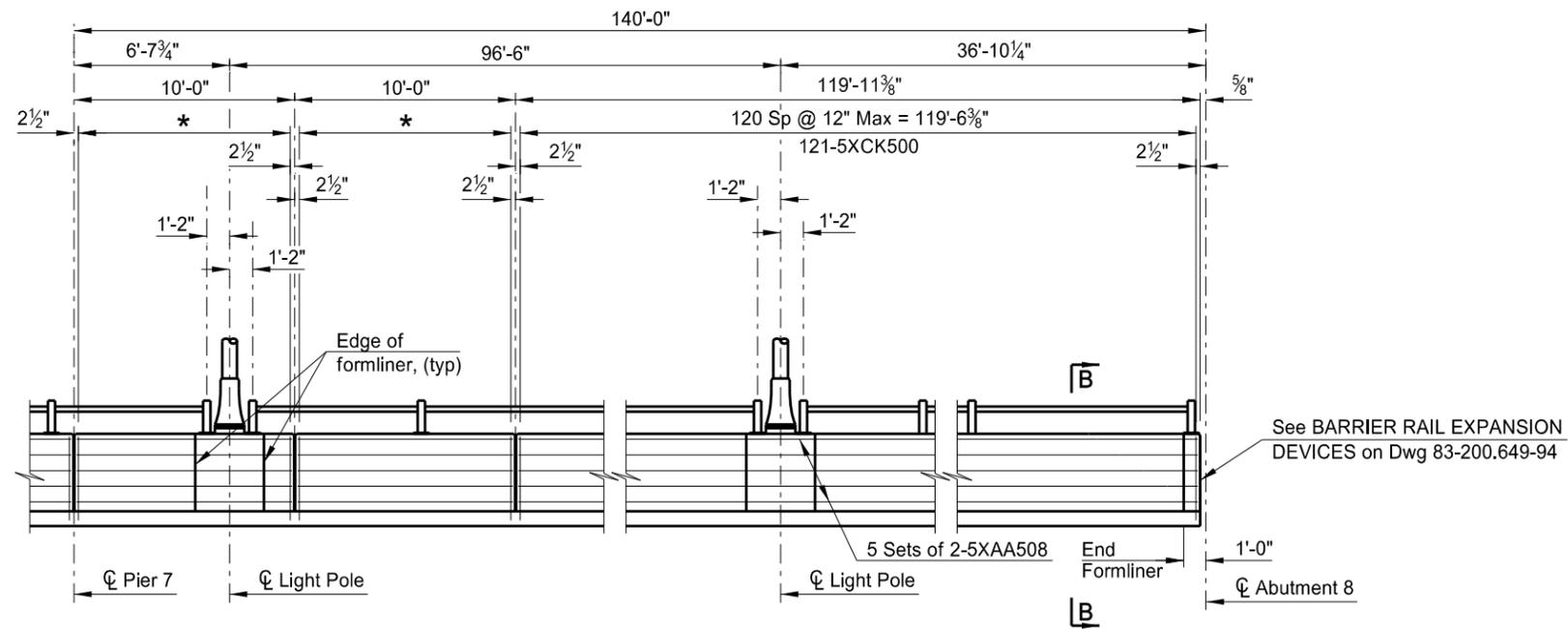
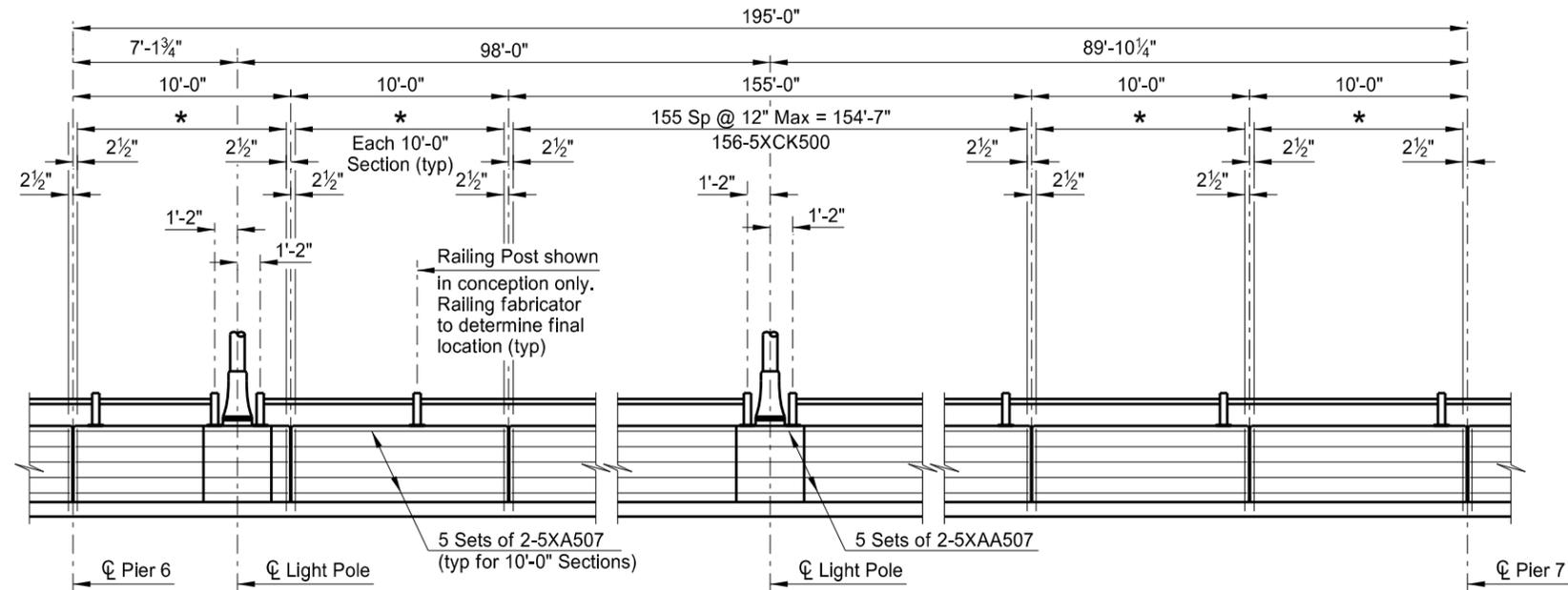
NOTES:

Longitudinal dimensions are horizontal at sidewalk face of barrier.
See Dwg 83-200.649-118 for formliner details.
See Dwg 83-200.649-118 for railing details.

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QUANTITIES
SEE SECTION 8 SHEETS 1-3
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
ROADWAY BARRIER ELEVATION SHEET 2 OF 3

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	88



* 10 Sp @ 11 1/2" = 9'-7"; 11-5XCK500
(Typical for 10'-0" Sections)

ELEVATION

NOTES:

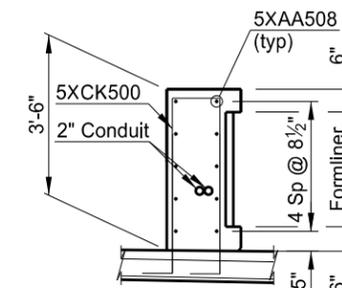
Longitudinal dimensions are horizontal at sidewalk face of barrier.

See Dwg 83-200.649-106 for expansion joint details.

See Dwg 83-200.649-118 for formliner details.

See Dwg 83-200.649-118 for railing details.

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Barrier reinforcing shall have 1 1/2" clearance from the front face.

SHOWING REINFORCING
B-B

QUANTITIES

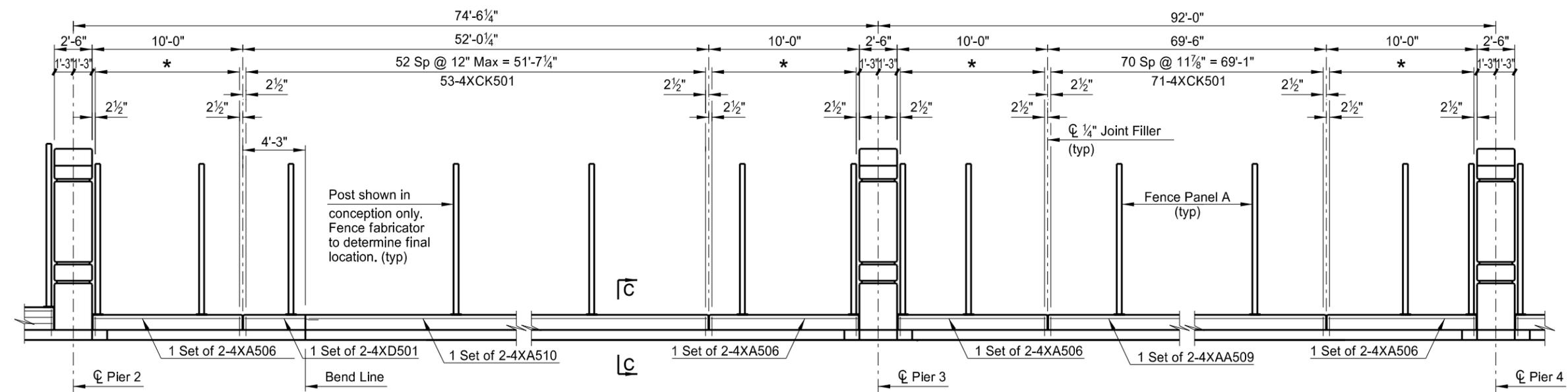
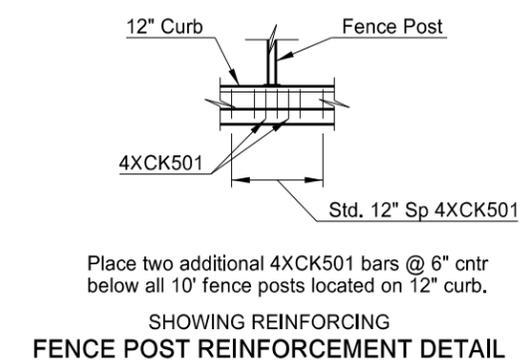
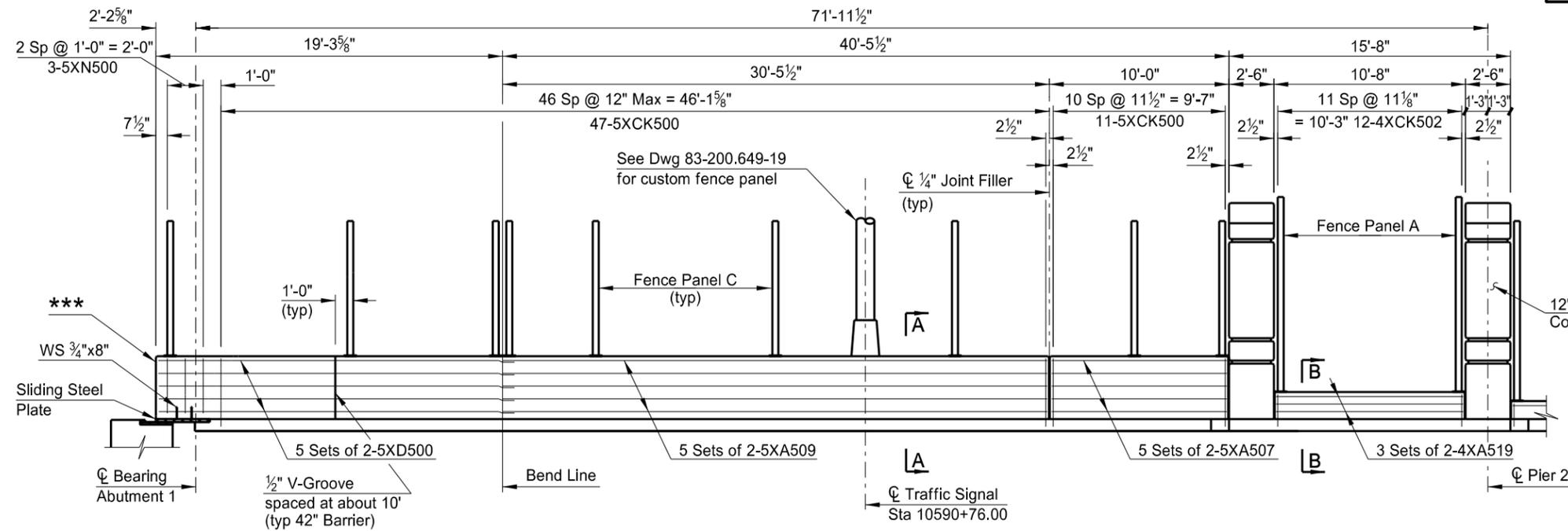
SEE SECTION 8 SHEETS 1-3

US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

NORTHBOUND

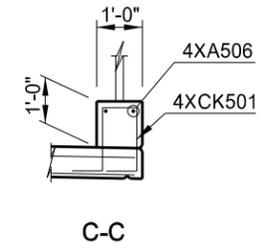
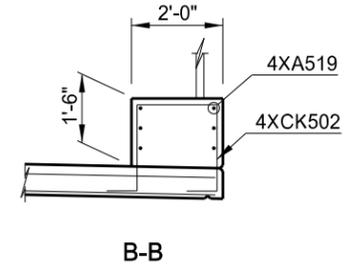
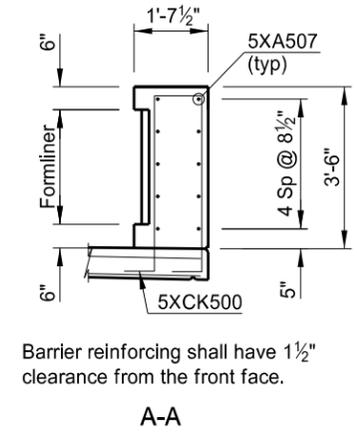
ROADWAY BARRIER ELEVATION
SHEET 3 OF 3

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	89



ELEVATION

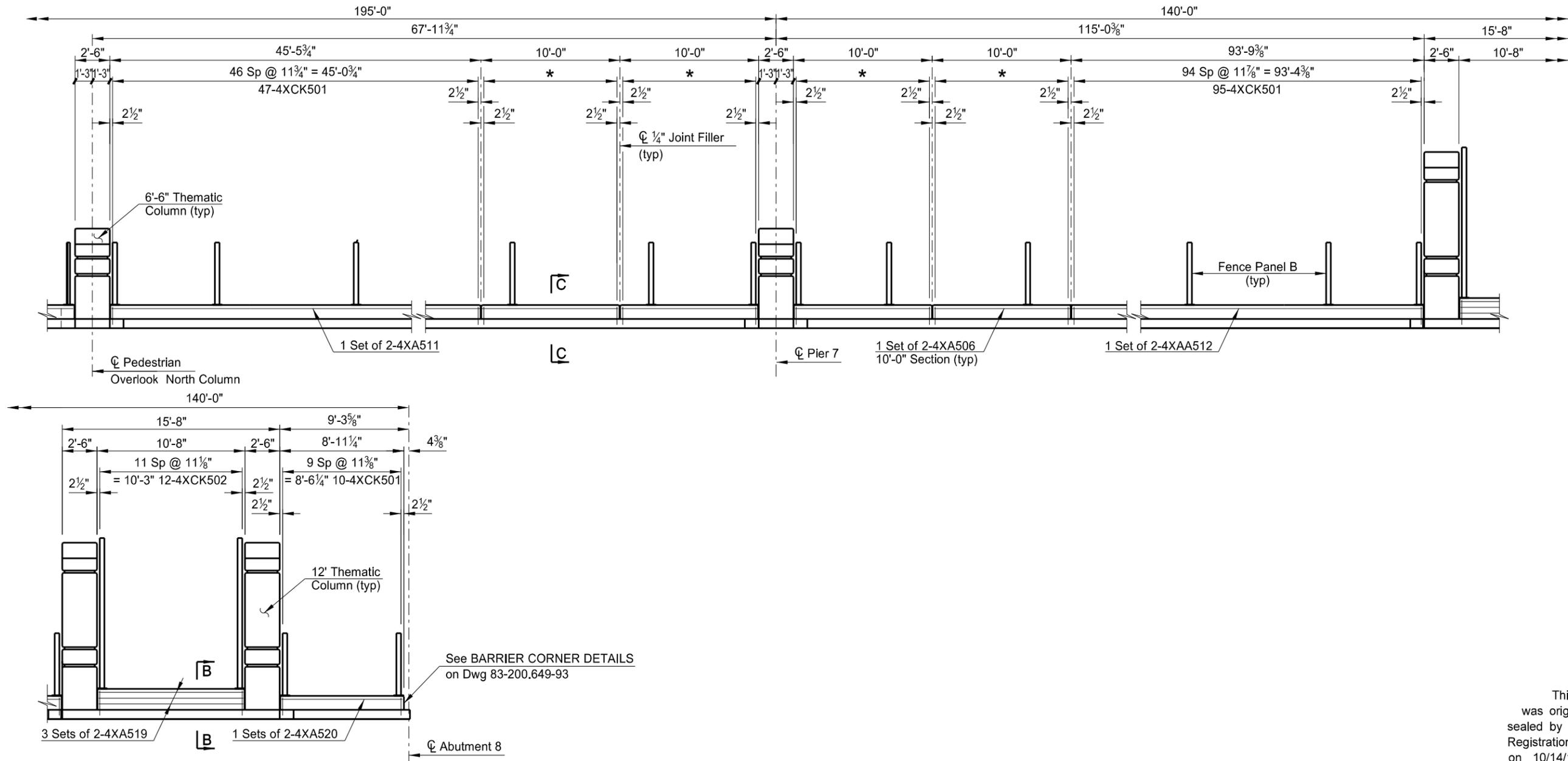
- * 10 Sp @ 11 1/2" = 9'-7"; 11-4XCK501 (Typical for 10'-0" Sections)
 - ** Use 1/2" Chamfer on curb top faces
 - *** See BARRIER CORNER DETAILS on Dwg 83-200.649-93
- NOTES:
Longitudinal dimensions are horizontal at outside face of barrier.
See Dwg 83-200.649-93 for expansion joint details.
See Dwg 83-200.649-116 for fence details.
See Dwg 83-200.649-118 for formliner details.



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QUANTITIES
SEE SECTION 8 SHEETS 1-3
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
PEDESTRIAN BARRIER ELEVATION SHEET 1 OF 3

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	91



ELEVATION

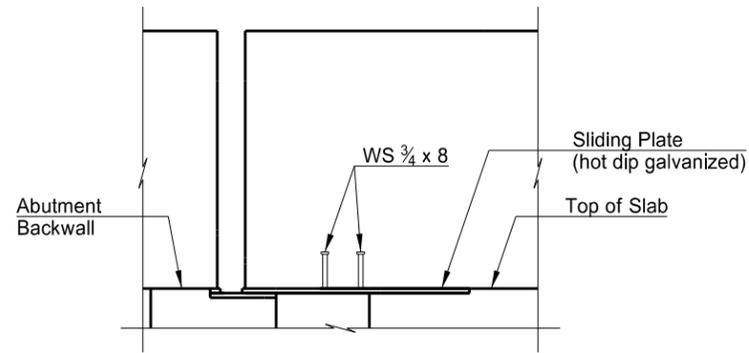
* 10 Sp @ 11 1/2" = 9'-7"; 11-4XCK501
(Typical for 10'-0" Sections)

- NOTES:
- Longitudinal dimensions are horizontal at outside face of barrier.
 - See Dwg 83-200.649-106 for expansion joint details.
 - See Dwg 83-200.649-89 for Section B-B and C-C.

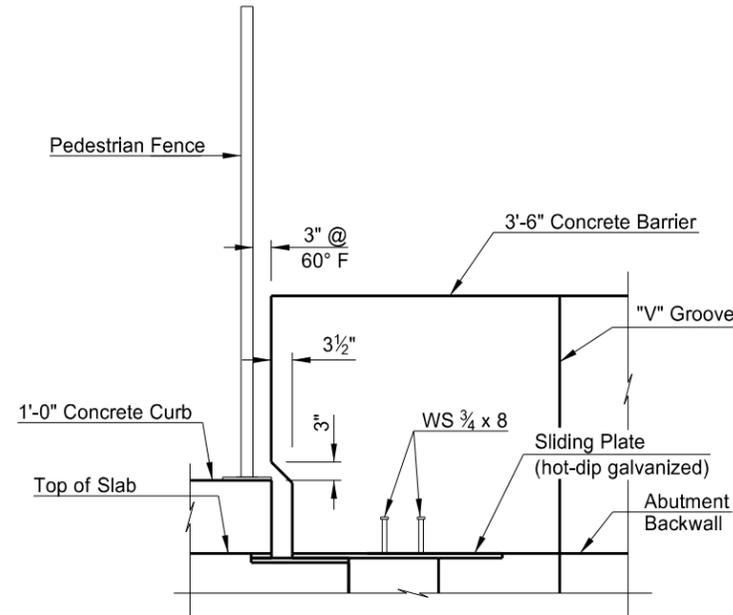
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QUANTITIES
SEE SECTION 8 SHEETS 1-3
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
PEDESTRIAN BARRIER ELEVATION SHEET 3 OF 3

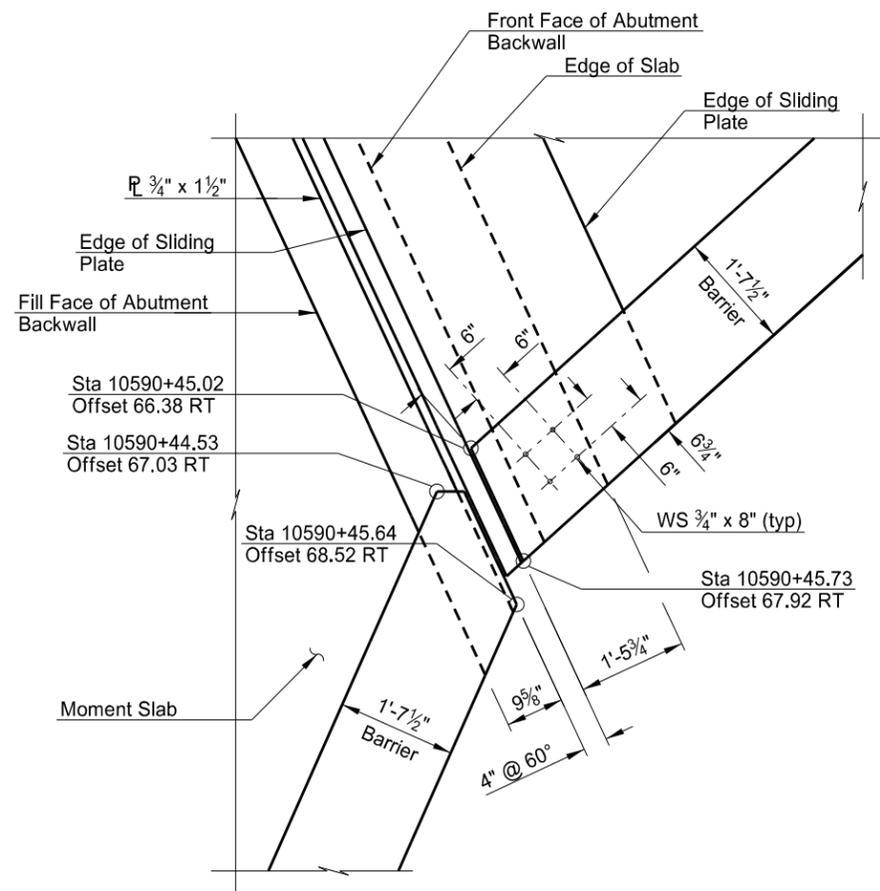
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	93



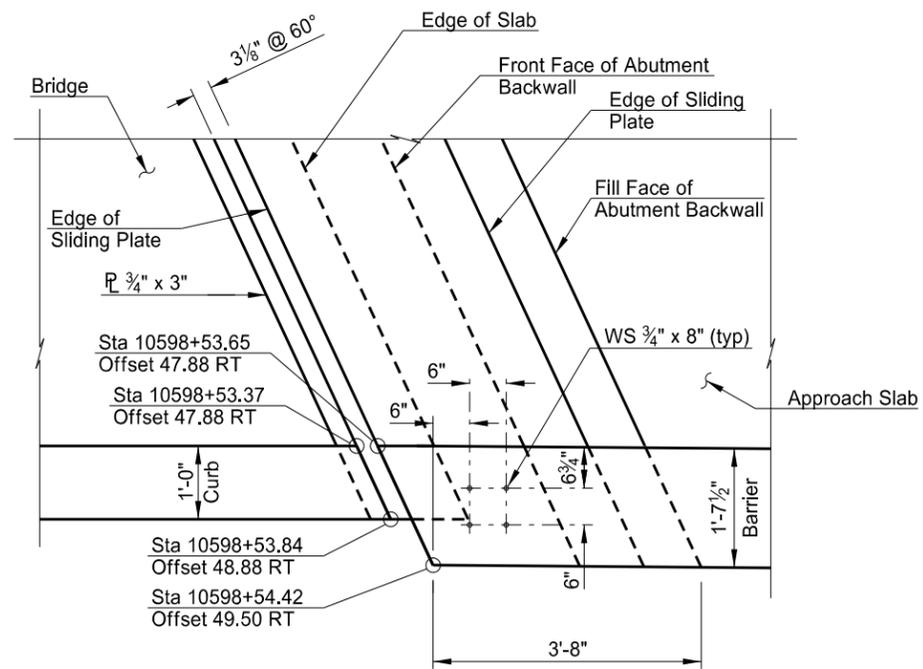
SOUTHEAST CORNER
PEDESTRIAN BARRIER PART ELEVATION



NORTHEAST CORNER
PEDESTRIAN BARRIER PART ELEVATION



SOUTHEAST CORNER
PEDESTRIAN BARRIER PLAN
See also BARRIER RAIL EXPANSION DEVICES,
Dwg 83-200.649-94

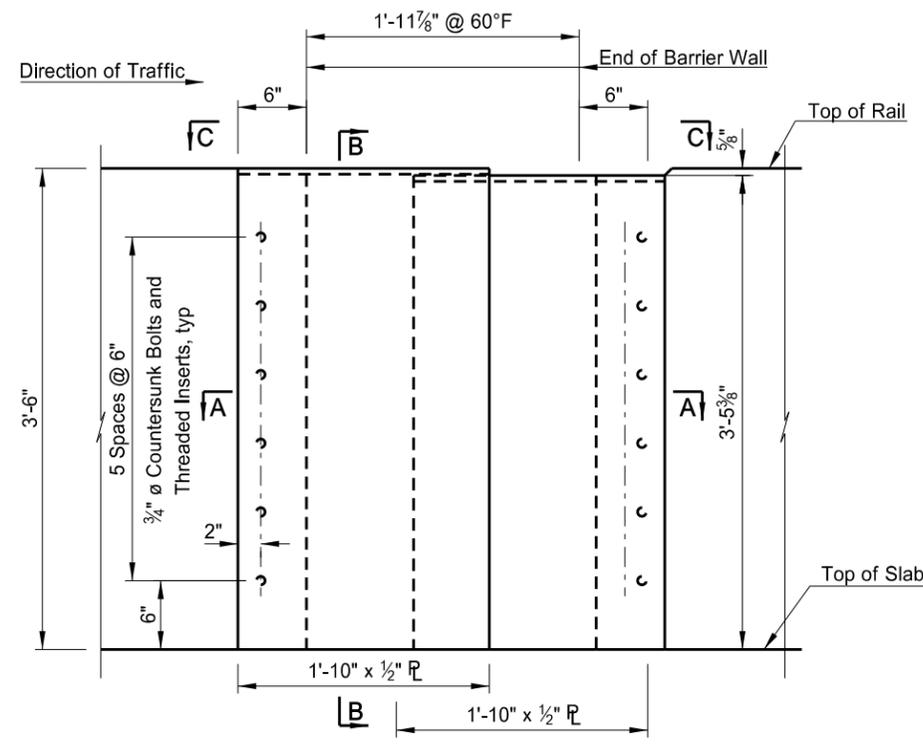


NORTHEAST CORNER
PEDESTRIAN BARRIER PLAN

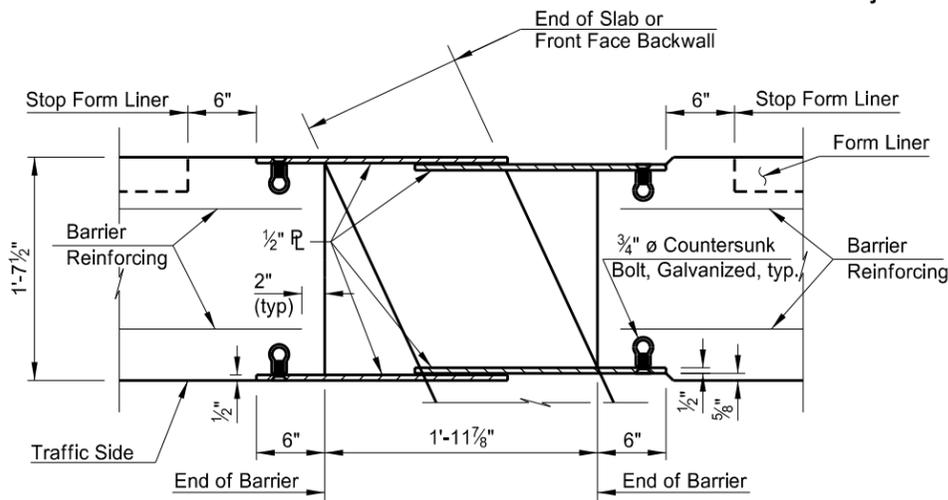
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US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER
NORTHBOUND
BARRIER CORNER DETAILS

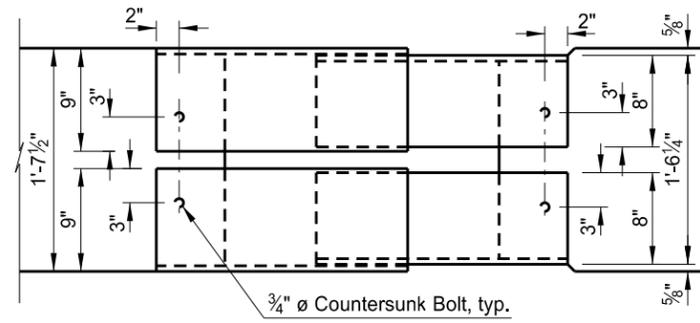
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	94



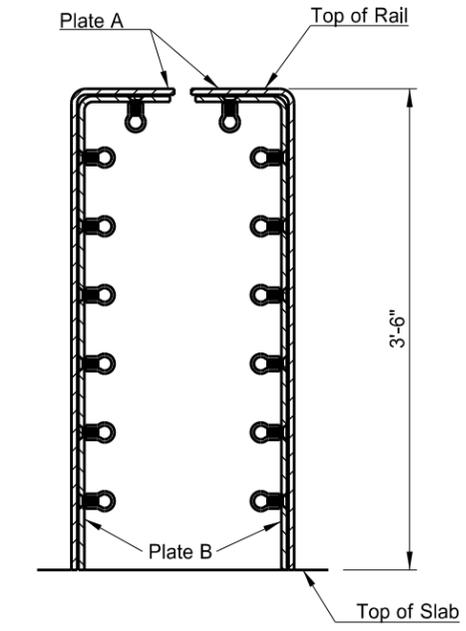
NORTHEAST CORNER ROADWAY BARRIER



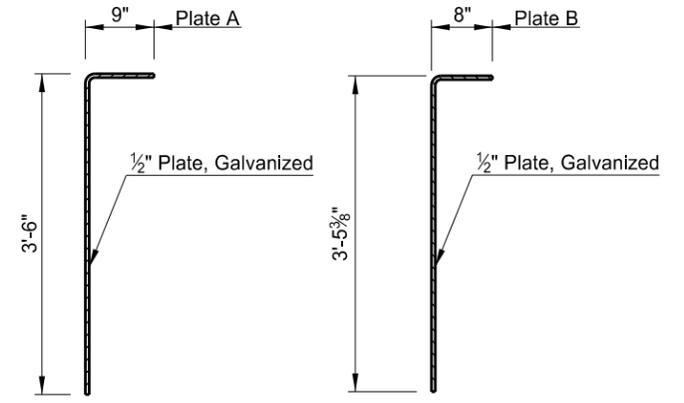
A-A



C-C

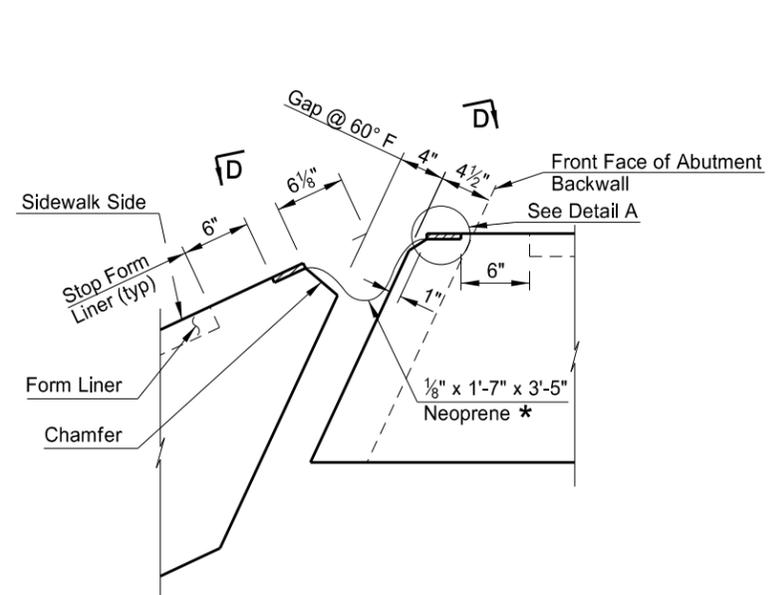


B-B



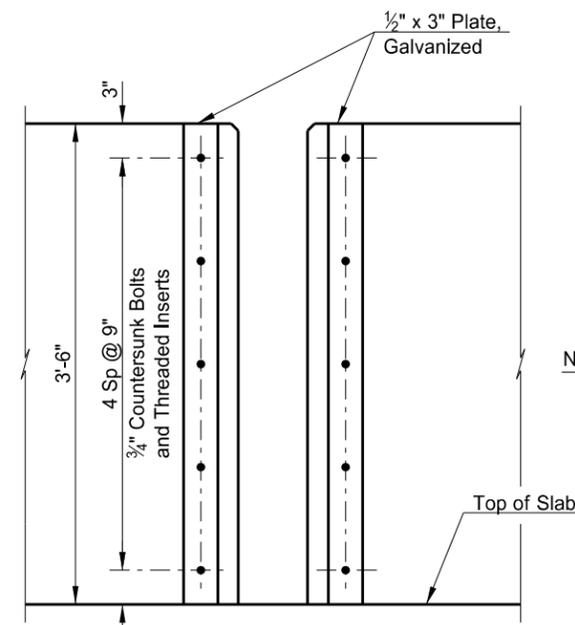
BENT PLATE DIMENSIONS

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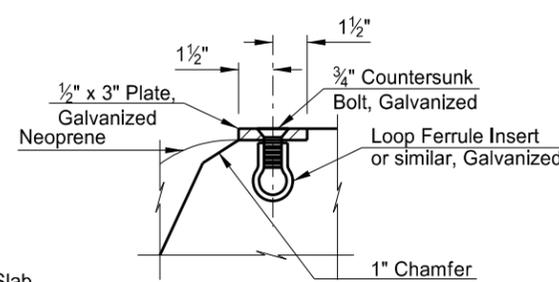
SOUTHEAST CORNER PEDESTRIAN BARRIER

* Neoprene sheets shall be 1/8" thick and conform to ASTM 2000, 40 Durometer.



D-D

BARRIER RAIL - VERTICAL JOINT DETAILS
Abutment 1 - Right Pedestrian Barrier



DETAIL A

Other Barrier Rail Corner similar.

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

NORTHBOUND BARRIER RAIL EXPANSION DEVICES

BILL OF REINFORCING STEEL, GRADE 60

Revised 10/14/2016

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	NH-NHU-4-083(111)(200)	170	96

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS										LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS										
					a	b	c	d	e	f	g	h	k	a						b	c	d	e	f	g	h	k			
ABUTMENT 1	6	A150	97	15'-6"		15'-6"										REGULAR	9	A101	126	14'-8"		14'-8"								
	6	C150	192	9'-7"		3'-1"	3'-5"	3'-1"								6	A102	32	54'-6"		54'-6"									
	6	C151	32	9'-5"		3'-1"	3'-3"	3'-1"								6	A103	6	54'-6"		54'-6"									
	6	AA150	42	75'-8"		37'-10"	3'-1"		2		72'-6"					6	A104	10	16'-2"		16'-2"									
	9	U150	96	18'-0"		15'-6"					4 3/4"					6	C101	170	5'-6"		1'-0"	3'-6"	1'-0"							
	6	XA151	100	26'-8"		26'-8"										9	SA101	2	55'-2"	2'-6"	13'-3"			6						
	6	XA152	50	8'-6"		8'-6"										9	SA102	2	41'-3"	4'-0"	12'-6"			4						
	6	XA153	13	25'-5"		25'-5"										5	XA105	27	51'-6"		51'-6"									
	9	XB150	95	29'-11"		26'-8"	3'-3"									6	XA106	20	12'-7"		12'-7"									
	5	XB151	72	2'-9"		2'-0"	9"									5	XA108	6	17'-10"		17'-10"									
ABUTMENT 8	6	XC152	20	11'-2"		3'-9"	3'-8"	3'-9"							5	XB101	51	2'-9"		2'-0"	9"									
	5	XC153	71	11'-10"		3'-7"	4'-8"	3'-7"							5	XB102	4	12'-1"		8'-4"	3'-9"									
	5	XC154	71	11'-0"		3'-2"	4'-8"	3'-2"							5	XC102	27	18'-2"		6'-9"	4'-8"	6'-9"								
	5	XC155	72	12'-4"		5'-7"	1'-2"	5'-7"							5	XC103	23	20'-2"		7'-9"	4'-8"	7'-9"								
	4	XC156	155	4'-8"		6"	3'-7 1/2"	6"							5	XC104	51	16'-2"		7'-6"	1'-2"	7'-6"								
	5	XC157	72	6'-2"		2'-6"	1'-2"	2'-6"							5	XC105	50	10'-2"		2'-9"	4'-8"	2'-9"								
	5	XC158	5	10'-1"		2'-9"	4'-6 3/4"	2'-9"							5	XC106	51	4'-2"		1'-6"	1'-2"	1'-6"								
	6	XCJ150	20	11'-4"		3'-9"	3'-10"	3'-9"				3.7	12		5	XT101	2	12'-7"		1'-7"	9'-0"	2'-0"	12*	14.1	12	10.2				
	5	XCJ151	5	10'-3"		2'-9"	4'-9 1/4"	2'-9"				3.7	12		5	XT102	8	13'-0"		2'-0"	9'-0"	2'-0"	12*	6.4	12	6.4				
	6	XD150	3	8'-11"		6'-4"	2'-7"					10.4	12		5	XP101	51	5'-6"	5"	2'-1"	2'-2"		1 1/4"	10"	12	6.5				
6	XD151	3	9'-1"		6'-6"	2'-7"					10.4	12		5	XSA103	2	27'-0"	2'-1"	6'-11"			5								
5	XP101	72	5'-6"	5"	2'-1"	2'-2"				1 1/4"	10"	12	6.5	5	XSA104	2	70'-0"	11'-8"	16'-4"			4								
6	XAA151	20	75'-2"		37'-7"	3'-9"		2		71'-4"				7	XSA109	2	115'-6"	10'-3"	10'-9"			10								
6	XAA152	20	74'-0"		37'-0"	3'-9"		2		70'-3"				6	XSA110	1	64'-7"	11'-10"	14'-0"			4								
5	XAA153	31	75'-0"		37'-6"	2'-11"		2		72'-1"				6	XSA111	1	34'-9"	5'-11"	8'-0"			4								

**23 U.S.C. 409
NDDOT Reserves All Objections**

NOTES:

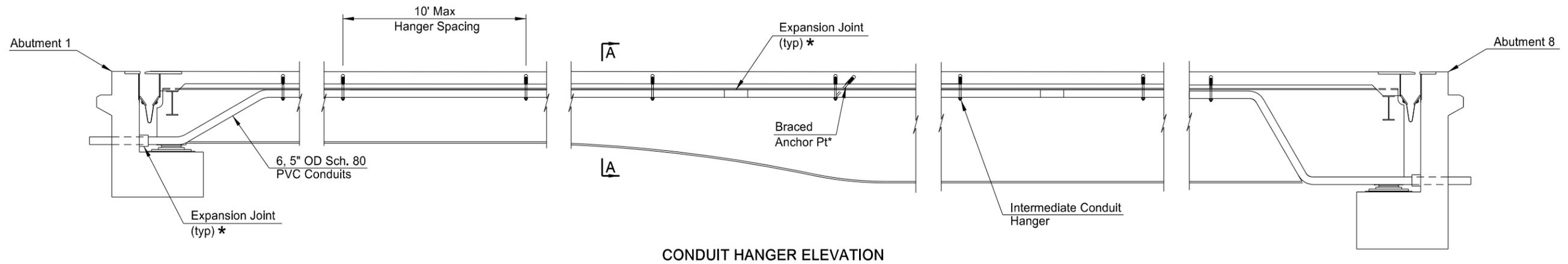
- All dimensions are out to out of bars.
 - Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
 - Adjacent "AA" bars shall be turned end for end so that the splice locations are staggered.
 - The "f" dimension indicates the inside radius unless otherwise noted.
 - An "X" preceding a bar designation indicates an epoxy coated bar.
 - Lettered shapes shown on "Bar Details" sheet.
 - Verify the quantity, size and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
- * See bending diagram on 83-200.649-101.

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Transportation

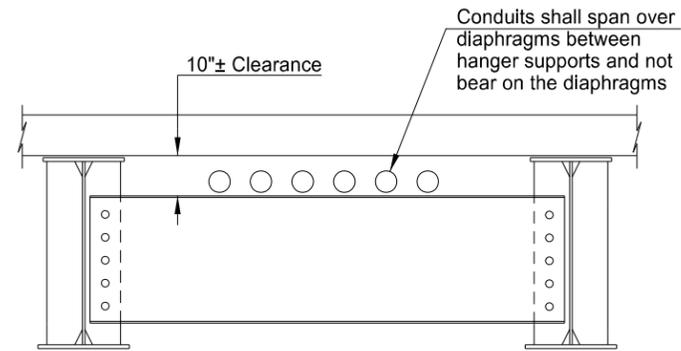
**US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER**

NORTHBOUND
**BILL OF REINFORCING
SHEET 1 OF 6**

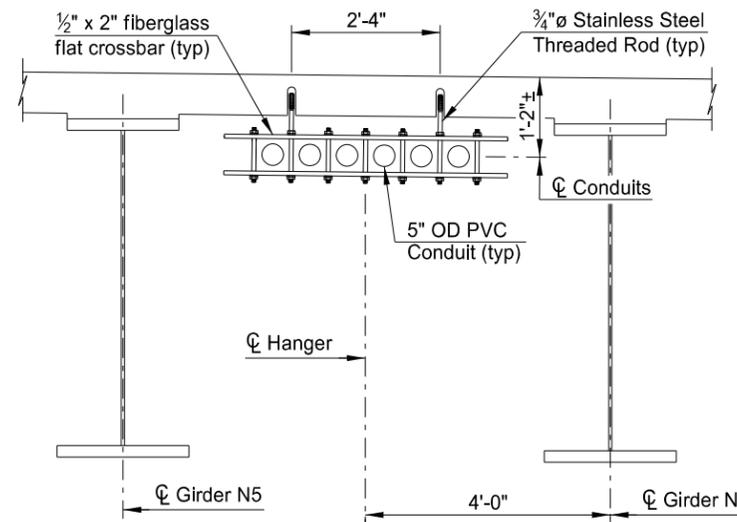
Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	102



CONDUIT HANGER ELEVATION



A-A



TYPICAL HANGER ARRANGEMENT

NOTES:

Conduit bank weight is 50 lbs/ft. Contractor shall submit shop drawings and sealed calculations to the Engineer for approval.

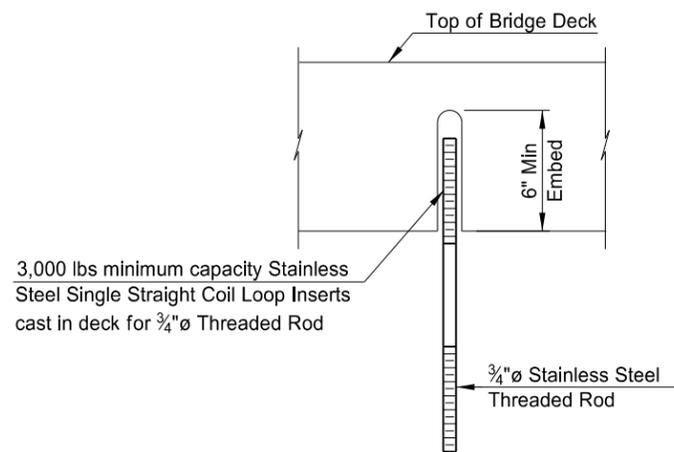
* Locate expansion joints and braced anchor points per manufacturer's recommendation.

Hanger Manufacturers:

1. Condux
2. Osburn Associates, Inc.
3. Unistrut

All costs for installation, including embedded inserts in deck, shall be included in the bid price for "5 inch Diameter Conduit - Bridge Mounted."

Shift conduits at abutments in order to avoid conflict with joint trough drainage system and disc bearings.



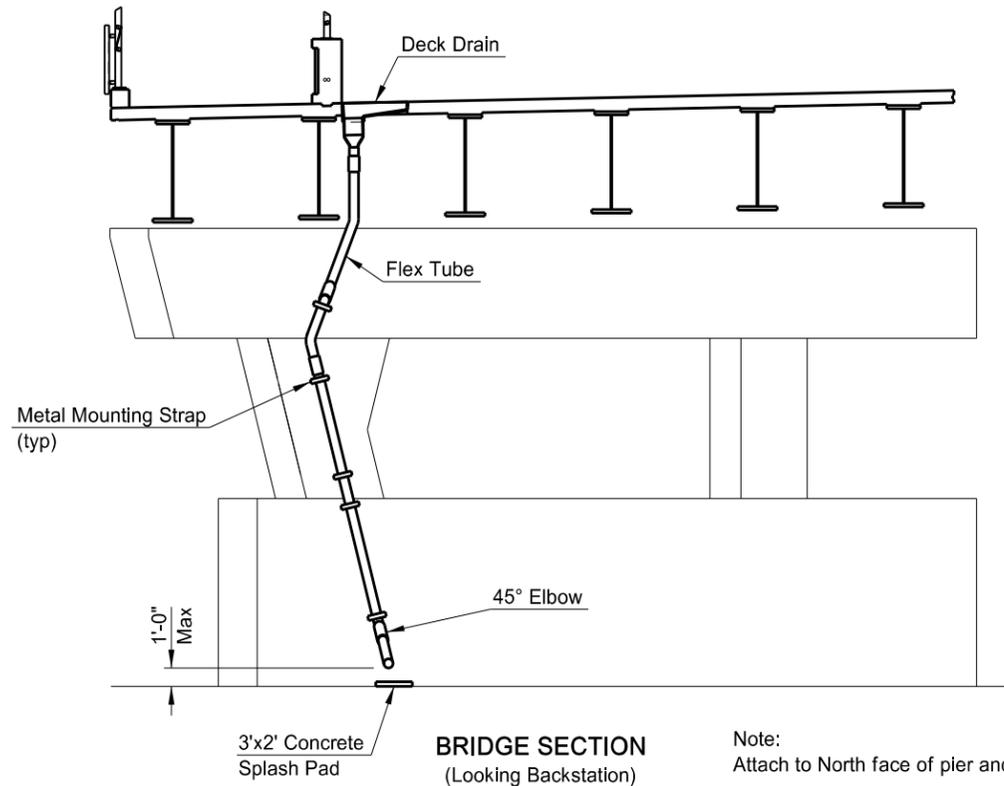
THREADED ROD INSTALLATION
ANCHOR DETAIL

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AND MOUSE RIVER

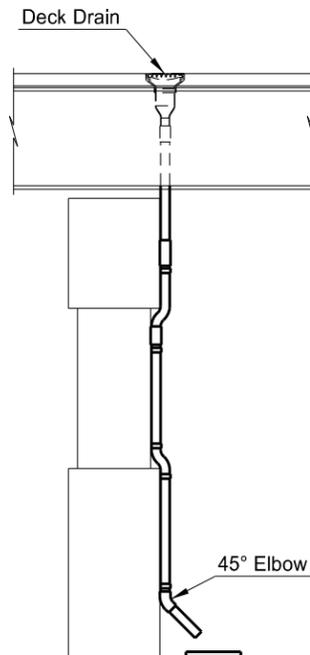
NORTHBOUND
CONDUIT SUPPORT

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	103



BRIDGE SECTION
(Looking Backstation)

Note:
 Attach to North face of pier and column.



PROFILE
(Looking West)

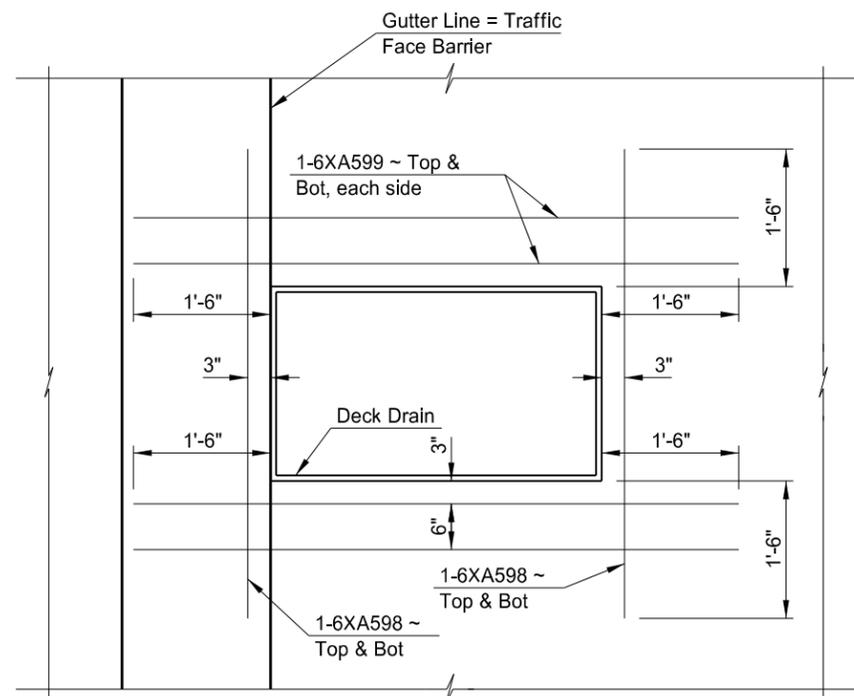
NOTES:

A new drainage system shall be added at Pier 2.

All pipe, elbows & couplers used in the drainage system shall be 6" ø galvanized steel pipe with the exception of the identified rubber hose (Flex Tube). The rubber hose shall be 6" ø high grade EPDM/SBR blend, reinforced, oil & weather resistant with an operating temperature range of -20° to 195°, and a minimum bend radius of 24 inches. The downspouts shall be Neenah R-3949-A Heavy Duty scupper or approved equal and reducer as detailed with a 6" coupler to rubber hose.

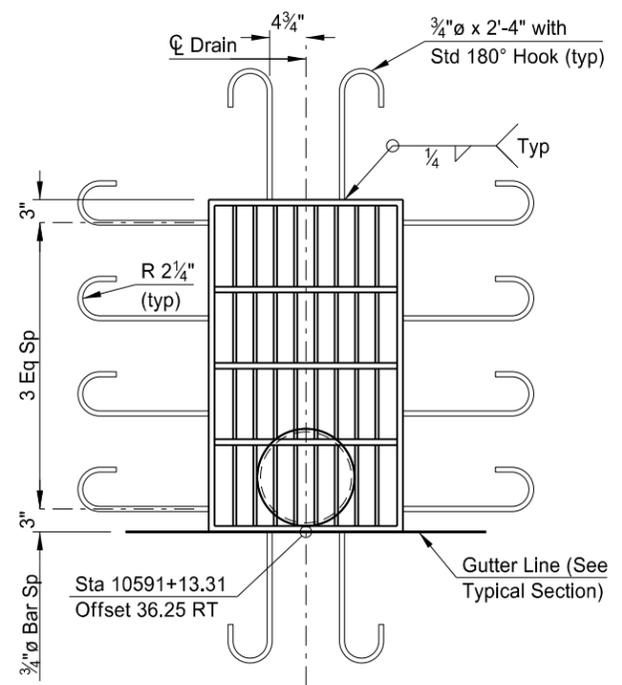
The rubber hose shall be fastened to the steel couplers with a double bolt clamp having a recommended torque of 60 ft-lbs. Galvanized steel straps shall be used to secure the deck drainage system to the piers by means of an approved anchorage. Details and calculations shall be submitted to the Engineer for review.

All scupper, reducer, grating, anchor bars, steel pipes, fittings, rubber hose, metal straps, anchoring devices, miscellaneous hardware, and labor required to fabricate, assemble and install the drains shall be paid for as a lump sum item "Deck Drainage System". Shop drawings and material certification shall be submitted to the Engineer for review.

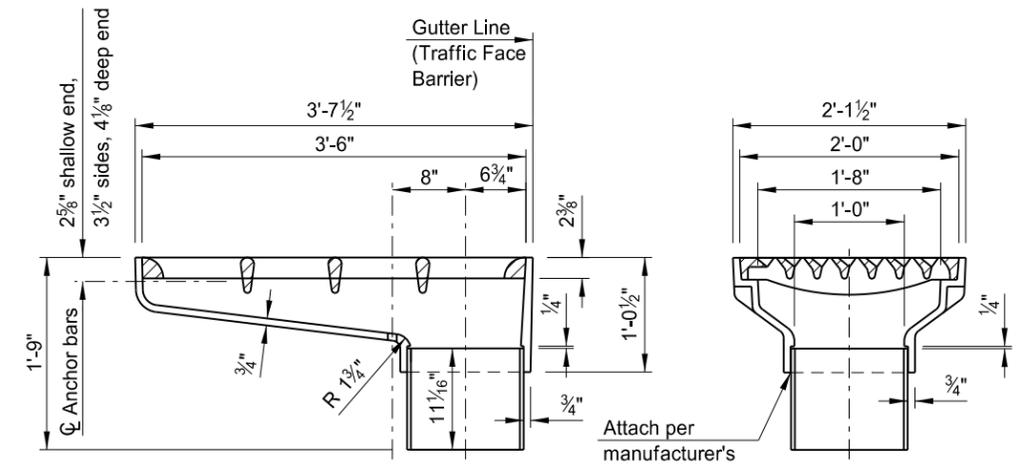


REINFORCEMENT AT DECK INLET

Note:
 Cut slab reinforcing to clear deck inlet. Rotate barrier hook bars 180° at drain. Set additional reinforcing bars shown between top and bottom reinforcing or in plane of corresponding bars.



PLAN OF DRAIN



LONGITUDINAL SECTION

SECTION

NEENAH R-3949-A HEAVY DUTY BRIDGE SCUPPER OR EQUAL

(Bolted Grate included in assembly)

Attach per manufacturer's recommendations.

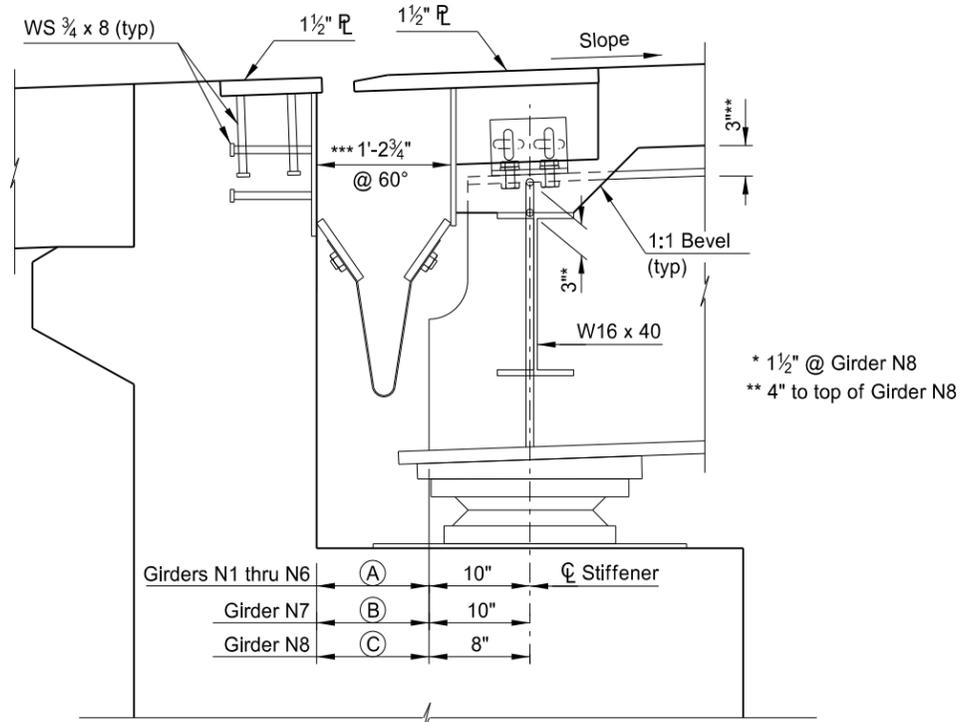
Note:
 Reducer not shown.

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**US-83 OVER CP AND BNSF RAILWAYS
 AND MOUSE RIVER**

NORTHBOUND

**DECK DRAIN DETAILS
 SHEET 1 OF 2**

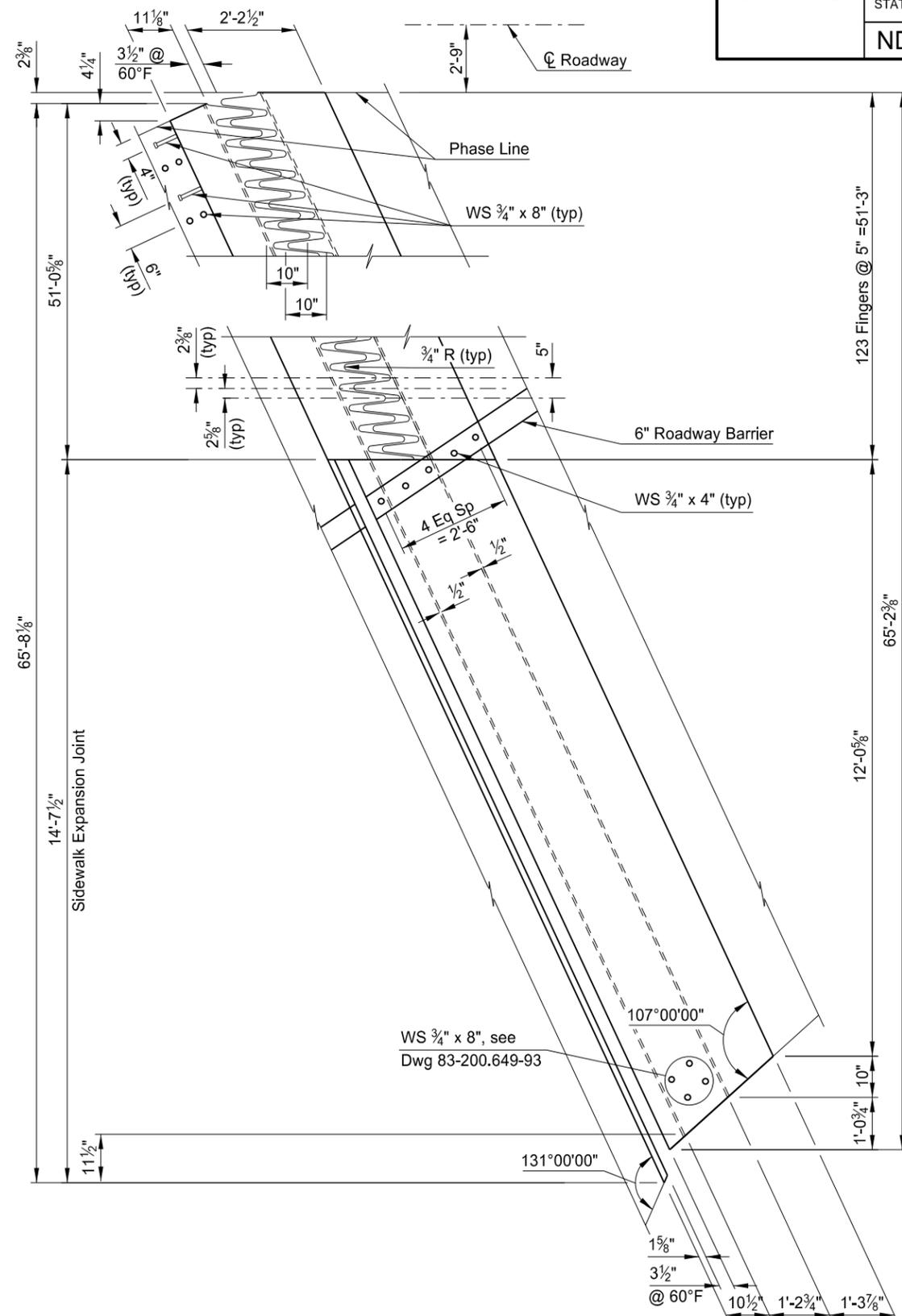


FINGER JOINT AT ABUTMENT 1
 (Along C Girder)

*** Plan dimension is based on installation at 60°F. The gap settings shall be increased or decreased by (#) for each 10° fall or rise in temperature respectively.

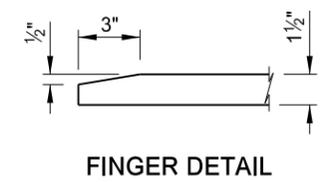
- ① Girders N1 thru N6: Temperature adjustment = 0.305501 in/10°F
- ② Girder N7: Temperature adjustment = 0.304338 in/10°F
- ③ Girder N8: Temperature adjustment = 0.227031 in/10°F

SUPERSTRUCTURE TEMPERATURE TABLE			
GAP BETWEEN BEAM AND ABUTMENT BACKWALL			
TEMP (°F)	ABUTMENT 1		
	(A)	(B)	(C)
-30	1'-3 7/8"	1'-3 1/8"	1'-4"
-20	1'-3 5/8"	1'-2 3/4"	1'-3 3/4"
-10	1'-3 1/4"	1'-2 1/2"	1'-3 1/2"
0	1'-3"	1'-2 1/8"	1'-3 3/8"
10	1'-2 3/4"	1'-1 7/8"	1'-3 1/8"
20	1'-2 3/8"	1'-1 5/8"	1'-2 7/8"
30	1'-2 1/8"	1'-1 1/4"	1'-2 5/8"
40	1'-1 3/4"	1'-1"	1'-2 3/8"
50	1'-1 1/2"	1'-0 5/8"	1'-2 1/8"
60	1'-1 1/8"	1'-0 3/8"	1'-2"
70	1'-0 7/8"	1'-0"	1'-1 3/4"
80	1'-0 1/2"	11 3/4"	1'-1 1/2"
90	1'-0 1/4"	11 3/8"	1'-1 1/4"
100	1'-0"	11 1/8"	1'-1"
110	11 5/8"	10 5/8"	1'-0 7/8"
120	11 3/8"	10 1/2"	1'-0 5/8"



JOINT DETAIL AT ABUTMENT 1

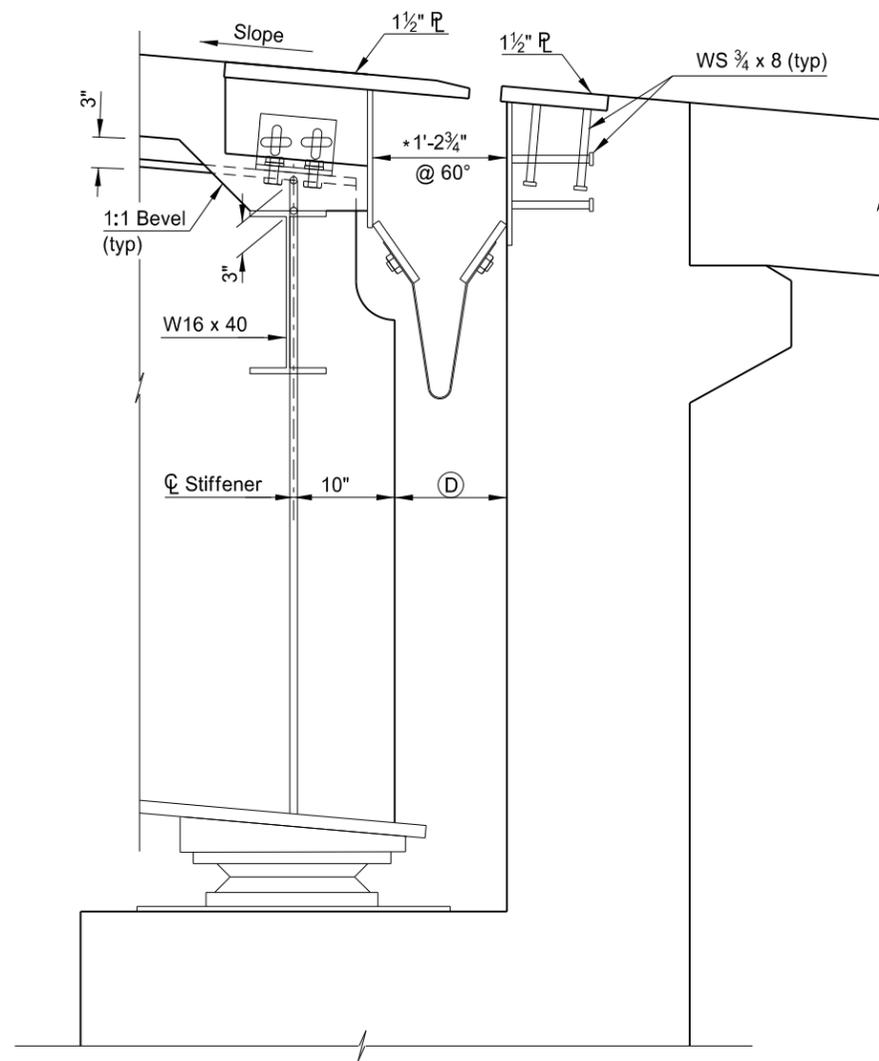
23 U.S.C. 409
 NDDOT Reserves All Objections



NOTES:
 All dimensions are horizontal.
 All finger expansion joint material shall be Grade 50 and hot-dipped galvanized after fabrication.

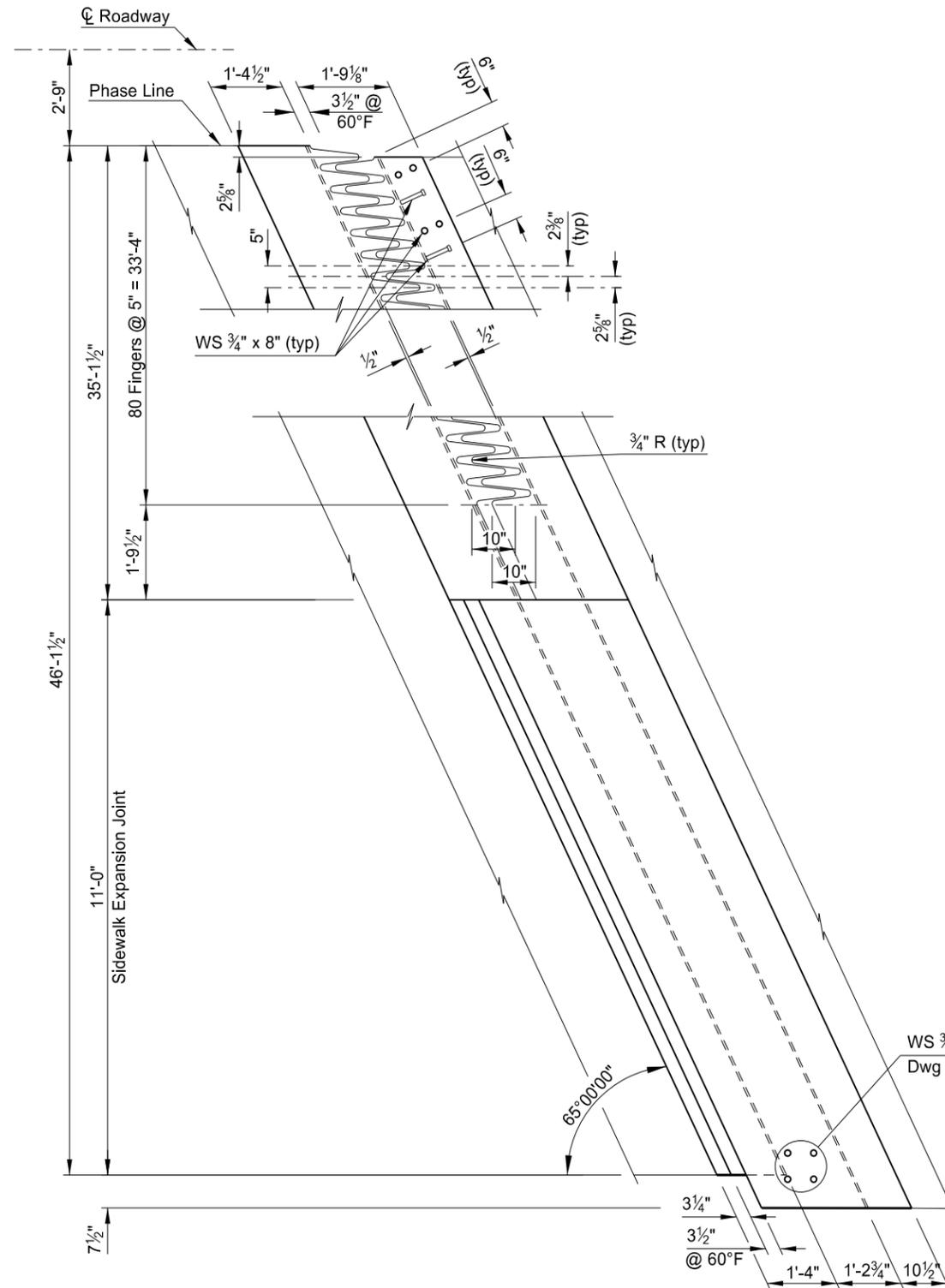
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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
 NORTHBOUND
SOUTH FINGER JOINT DETAILS
 SHEET 1 OF 5



FINGER JOINT AT ABUTMENT 8
(Along ϕ Girder)

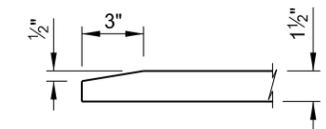
* Plan dimension is based on installation at 60°F. The gap settings shall be increased or decreased by (4) for each 10° fall or rise in temperature respectively.



JOINT DETAIL AT ABUTMENT 8

(4) Temperature adjustment = 0.330199 in/10°F

SUPERSTRUCTURE TEMPERATURE TABLE	
GAP BETWEEN BEAM AND ABUTMENT BACKWALL	
TEMP (°F)	ABUTMENT 8 (D)
-30	1'-4 1/8"
-20	1'-3 7/8"
-10	1'-3 1/2"
0	1'-3 1/8"
10	1'-2 7/8"
20	1'-2 1/2"
30	1'-2 1/8"
40	1'-1 7/8"
50	1'-1 1/2"
60	1'-1 1/8"
70	1'-0 7/8"
80	1'-0 1/2"
90	1'-0 1/8"
100	11 1/8"
110	11 1/2"
120	11 1/4"



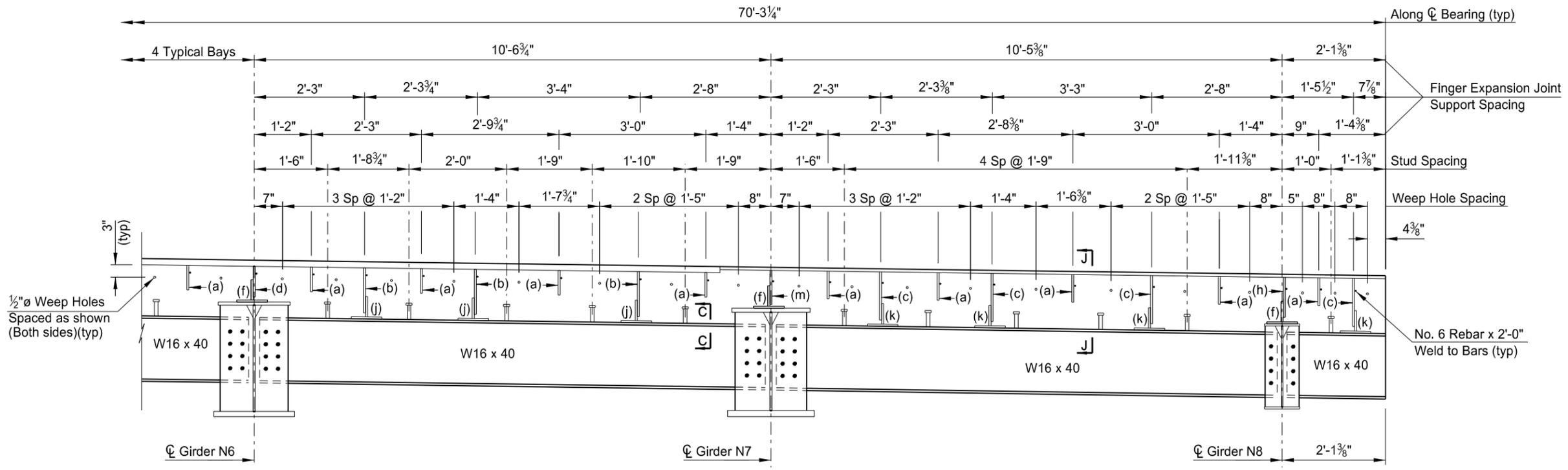
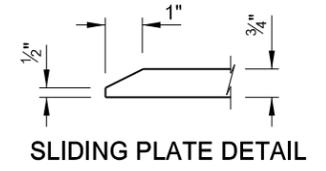
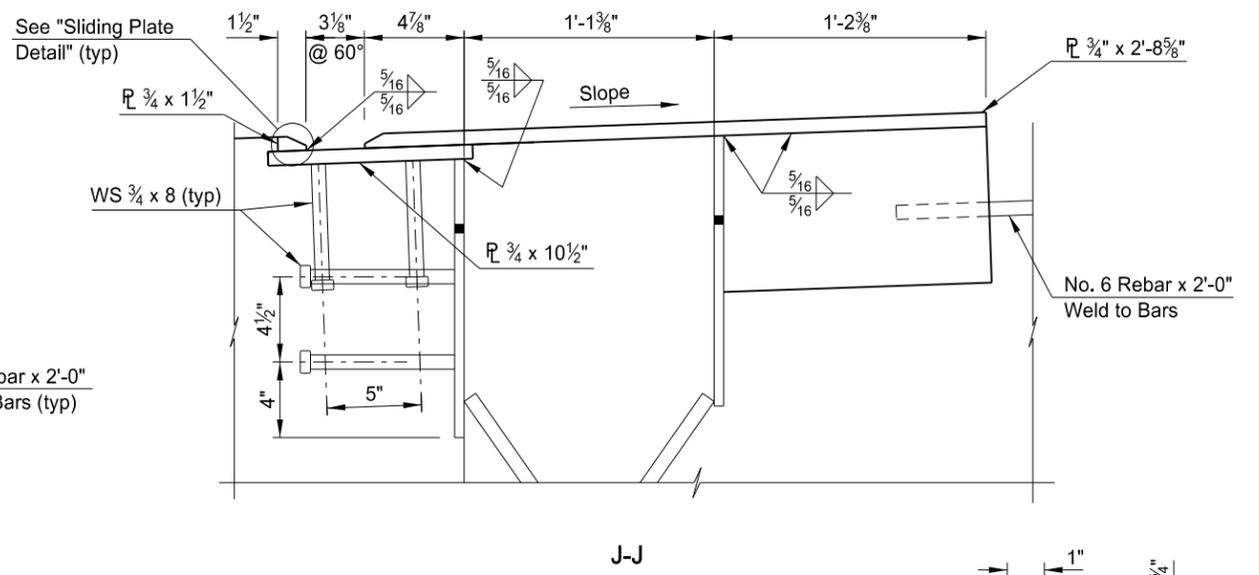
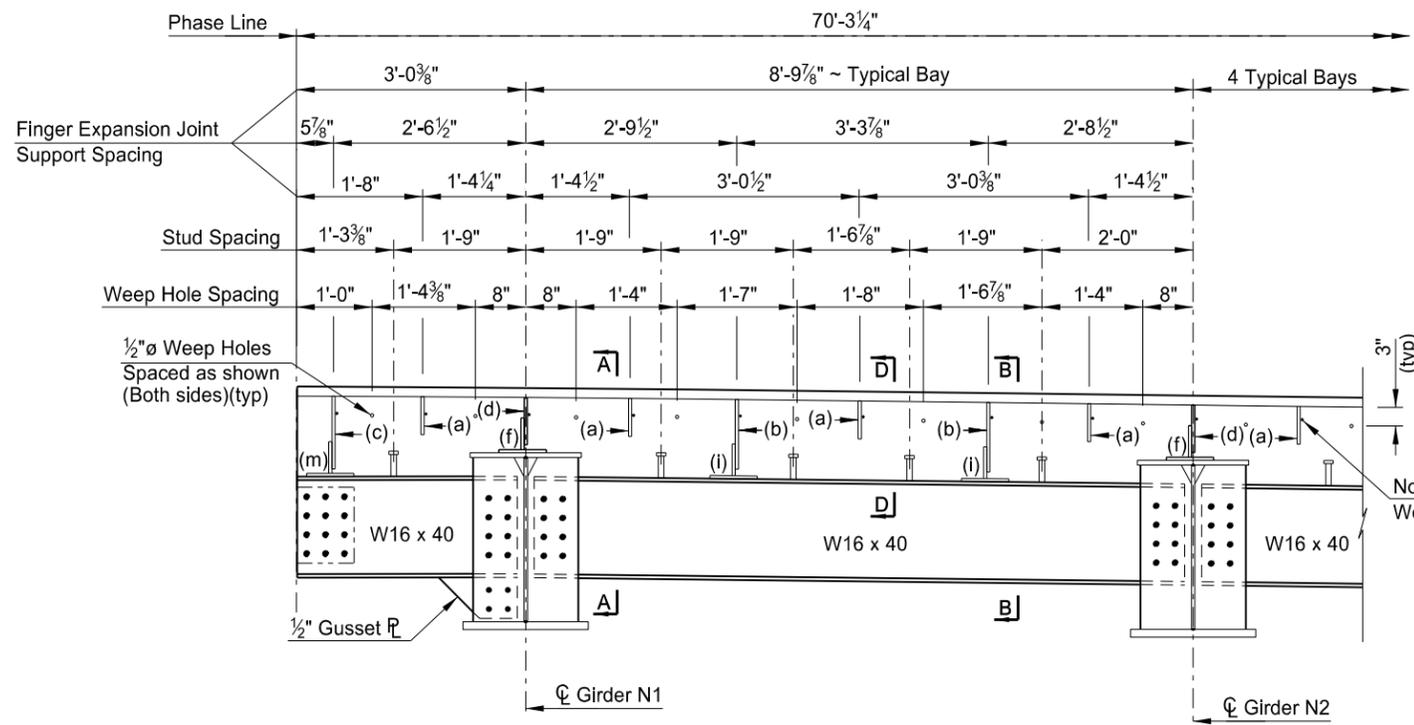
FINGER DETAIL

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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

NORTHBOUND
NORTH FINGER JOINT DETAILS
SHEET 2 OF 5

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	107



No. 6 Rebar x 2'-0"
Weld to Bars (typ)

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NOTES:
See Dwg 83-200.649-69 For End Diaphragms.
See Dwg 83-200.649-109 For sections A-A, B-B, C-C and D-D.
See Dwg 83-200.649-109 For Expansion Joint Support Details.

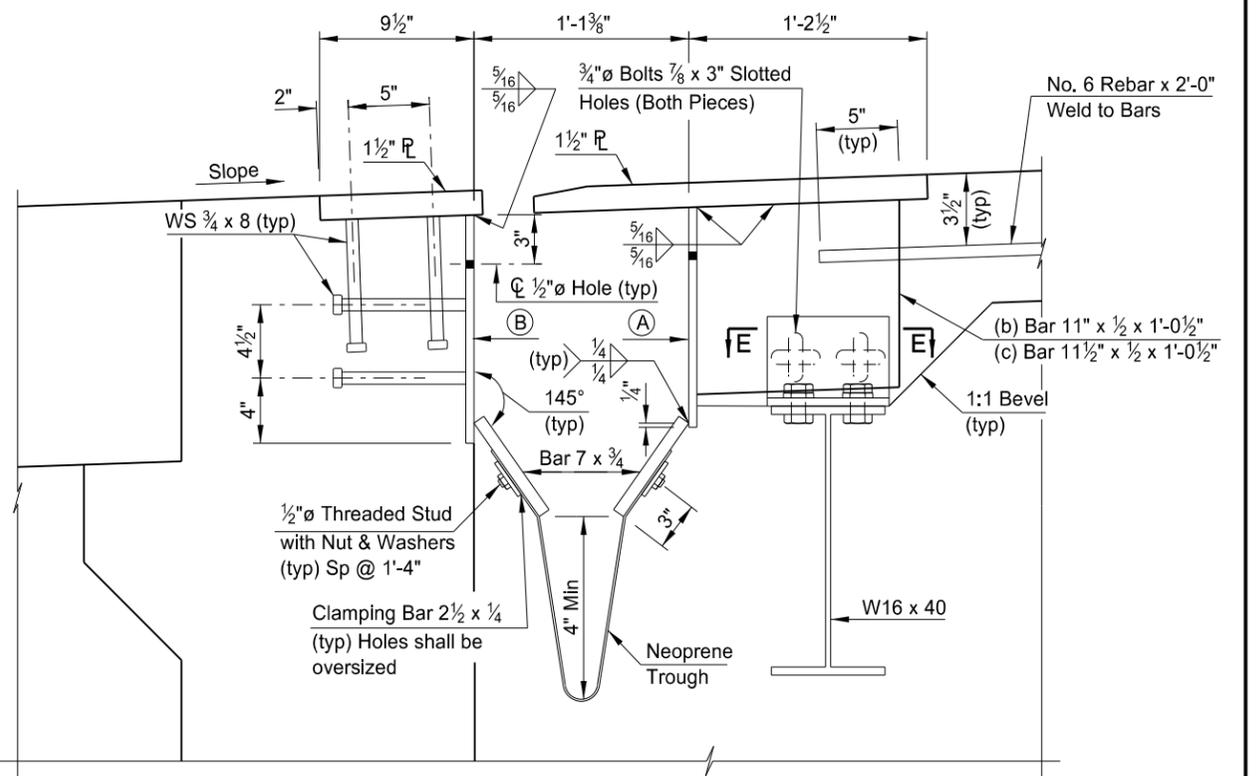
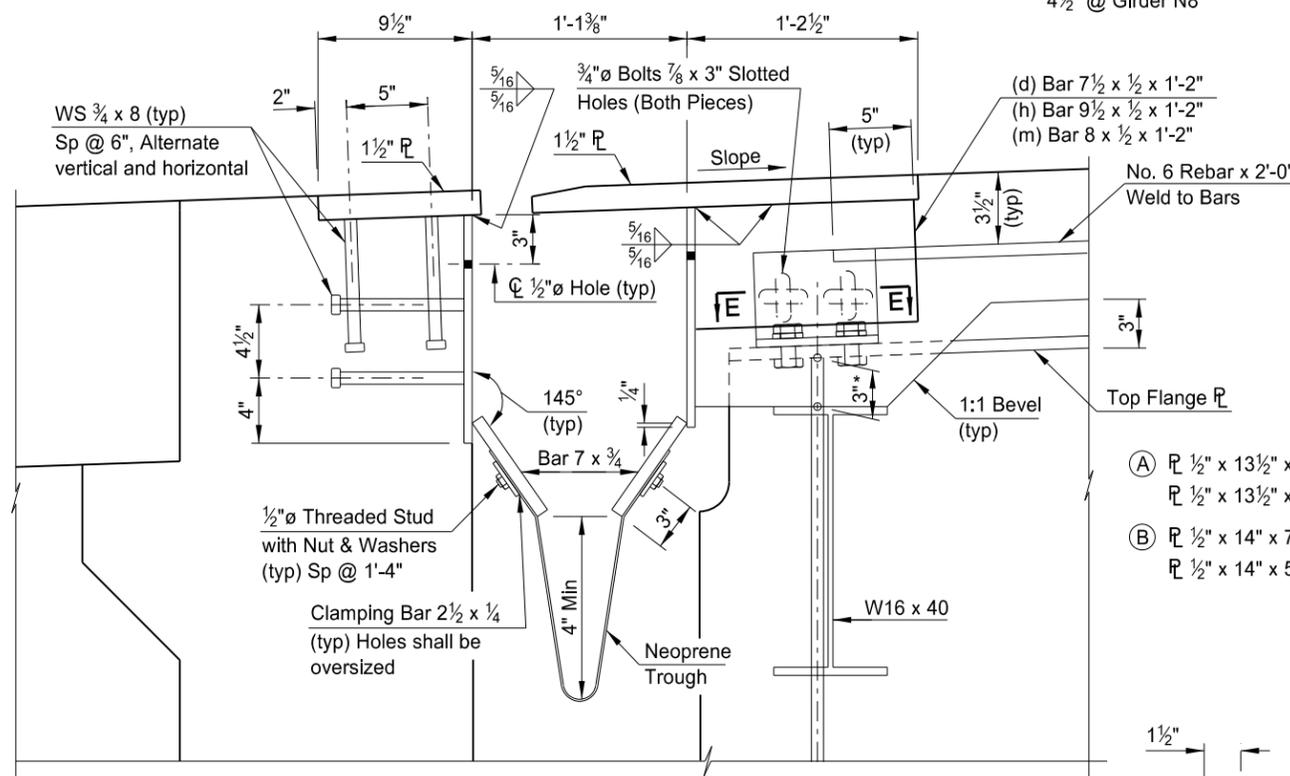
EXPANSION JOINT SUPPORT BEAM DETAIL NEAR ABUTMENT 1

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

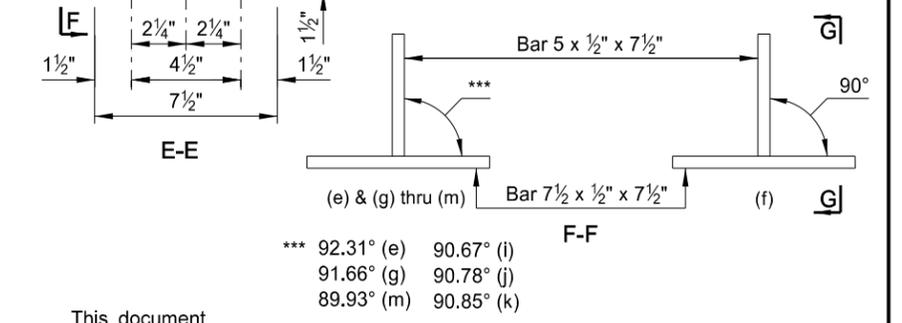
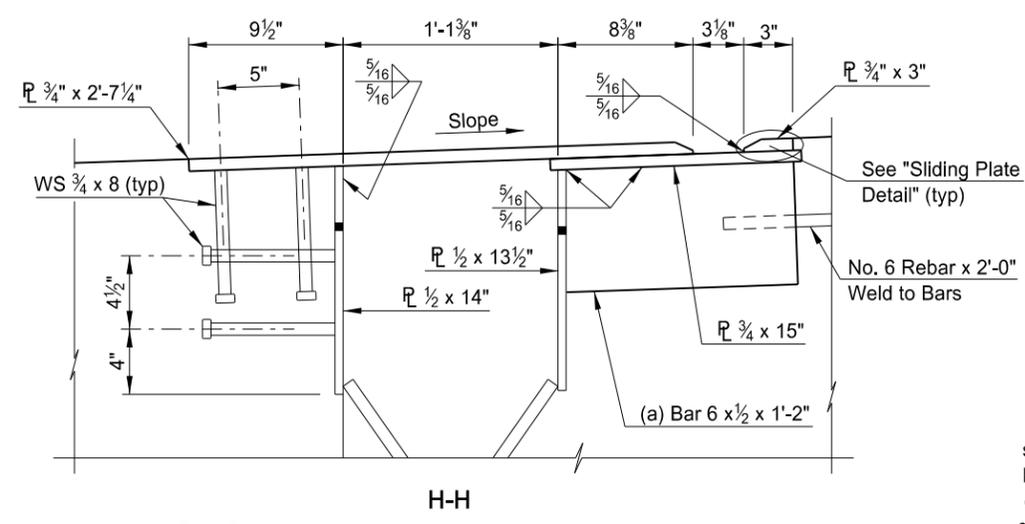
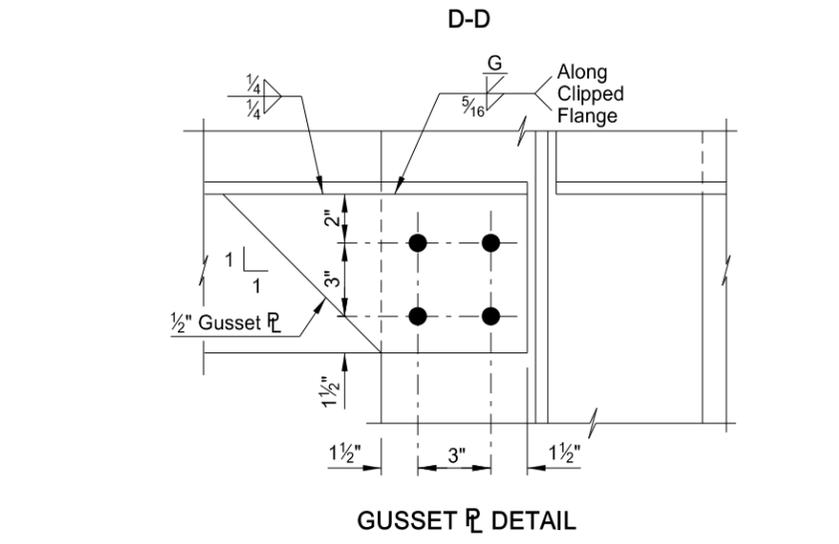
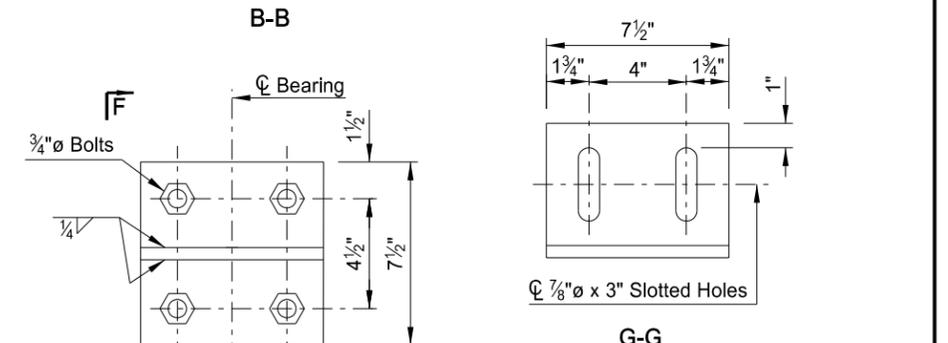
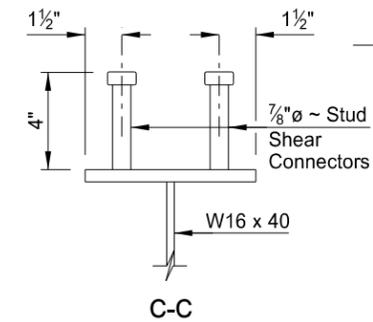
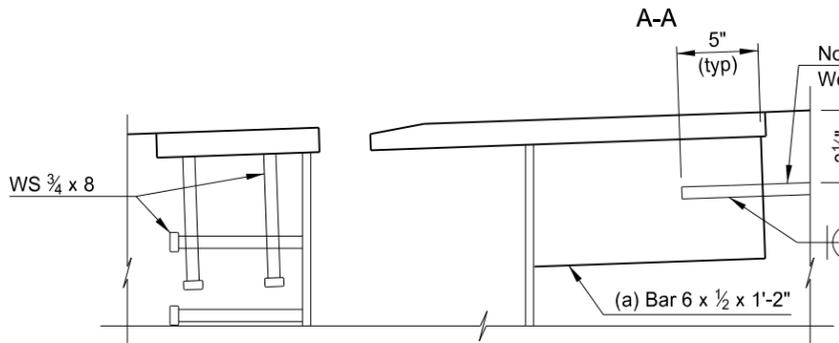
NORTHBOUND
SOUTH FINGER JOINT DETAILS
SHEET 3 OF 5

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	109

* 1/2" @ Girder N8
 ** 4 1/2" @ Girder N8



- (A) PL 1/2" x 13 1/2" x 70'-9 1/4" ~ Abut 1
 PL 1/2" x 13 1/2" x 50'-10 3/4" ~ Abut 8
- (B) PL 1/2" x 14" x 71'-5" ~ Abut 1
 PL 1/2" x 14" x 51'-4 1/8" ~ Abut 8



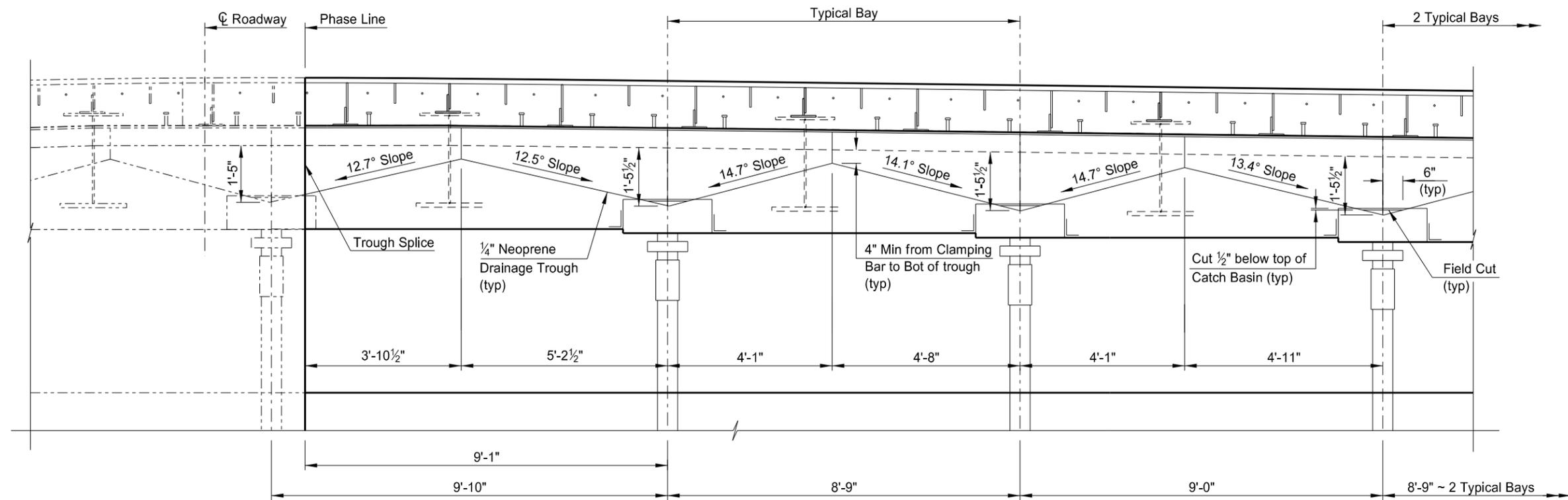
NOTES:
 See Dwg 83-200.649-107 and Dwg 83-200.649-108 for section locations.
 For "Sliding Plate Detail", see Dwg 83-200.649-107.

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**US-83 OVER CP AND BNSF RAILWAYS
 AND MOUSE RIVER**

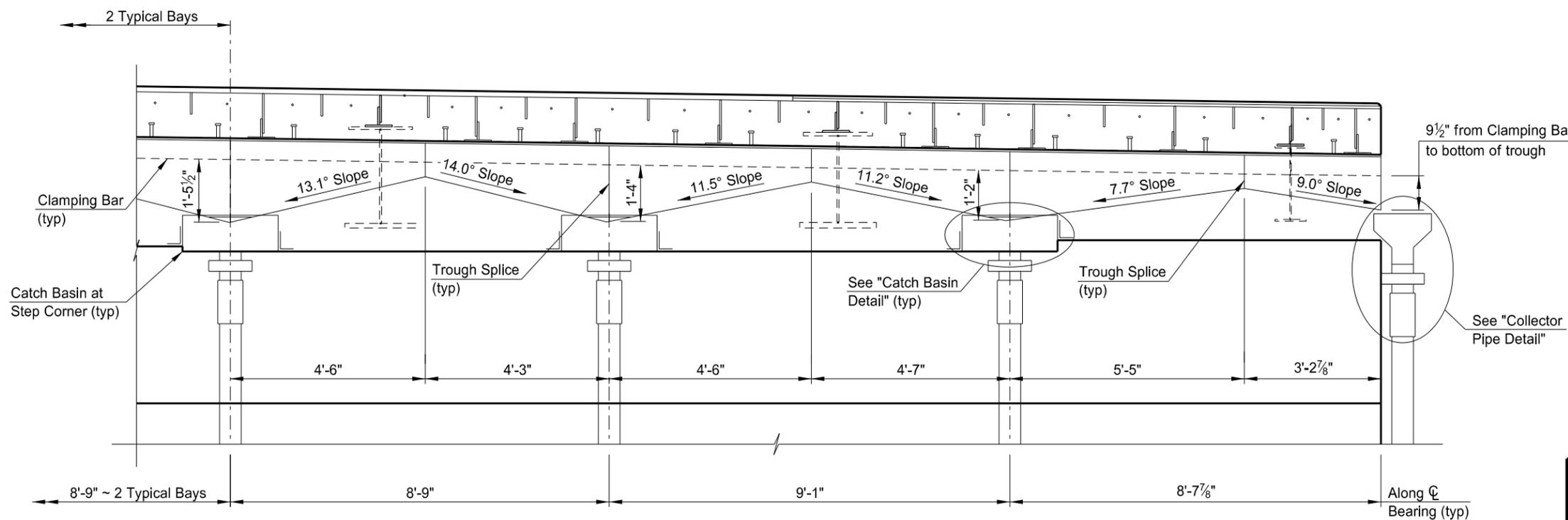
NORTHBOUND
**FINGER JOINT DETAILS
 SHEET 5 OF 5**

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	110



NOTES:

- For joint drainage system notes at abutment, see Dwg 83-200.649-112.
- For "Collector Pipe Detail", see Dwg 83-200.649-112.
- For "Catch Basin Detail", see Dwg 83-200.649-112.



DRAINAGE SYSTEM AT ABUTMENT 1

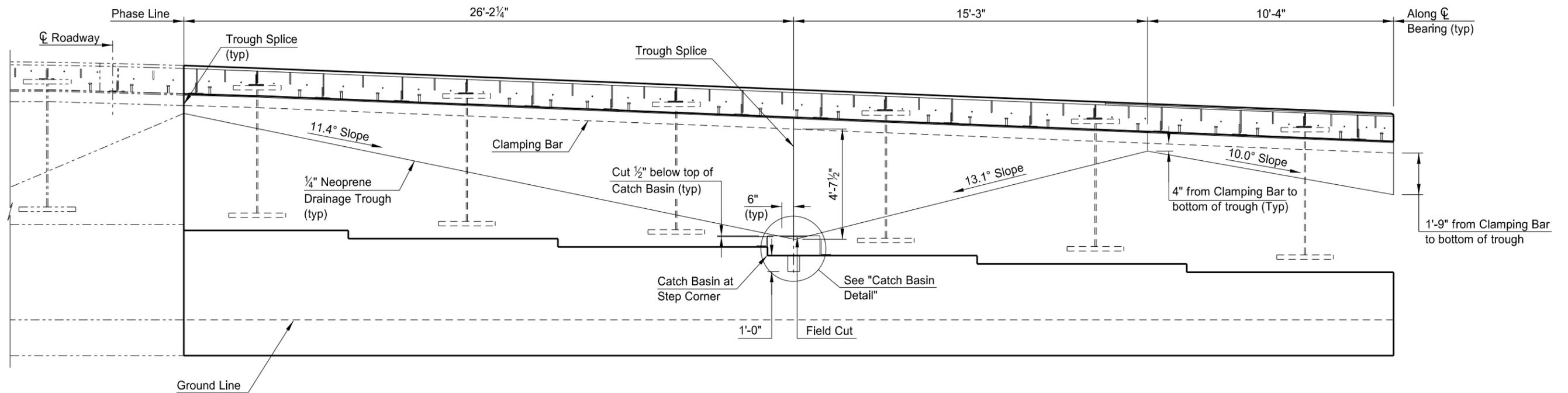
See "Collector Pipe Detail"

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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

**NORTHBOUND
ABUTMENT 1 DRAINAGE SYSTEM**

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	111



DRAINAGE SYSTEM AT ABUTMENT 8

NOTES:

For joint drainage system notes at the abutment, see Dwg 83-200.649-112.

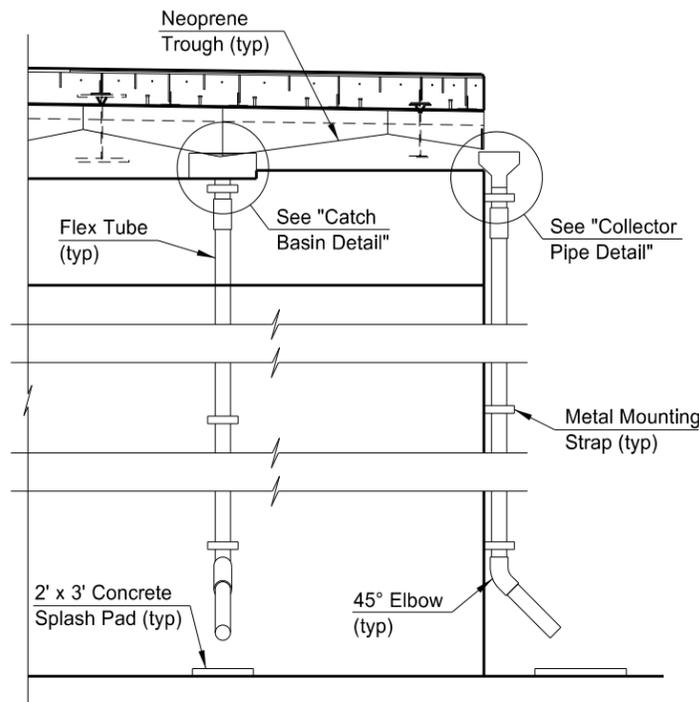
For "Catch Basin Detail", see Dwg 83-200.649-112.

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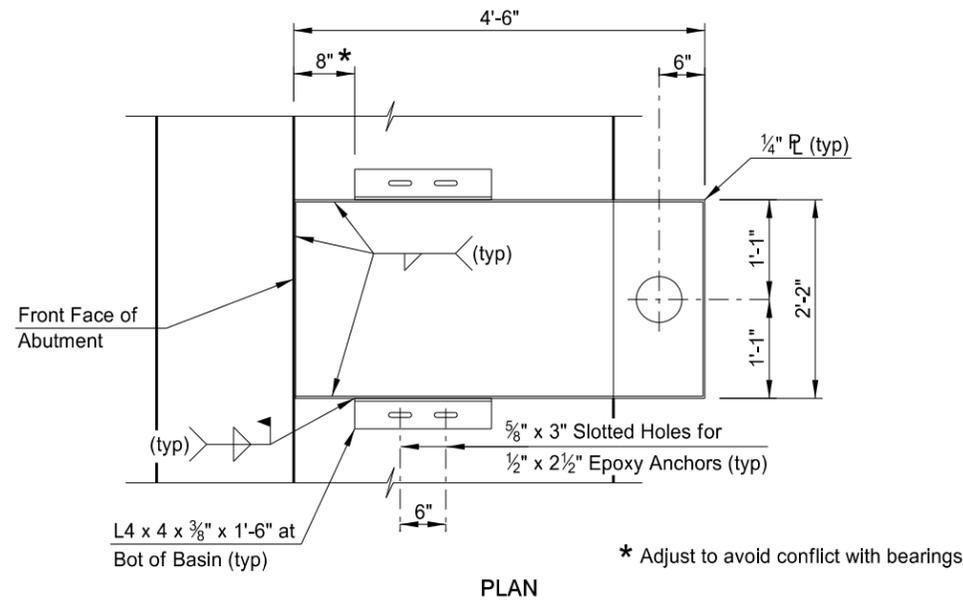
US-83 OVER CP AND BNSF RAILWAYS
 AND MOUSE RIVER

NORTHBOUND
 ABUTMENT 8 DRAINAGE SYSTEM

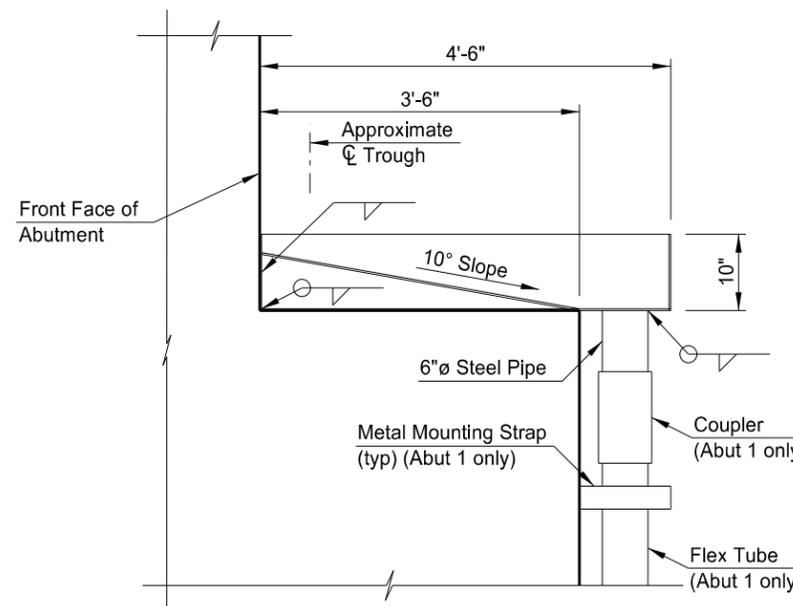
Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	112



GENERAL VIEW
DRAINAGE SYSTEM AT ABUTMENT 1

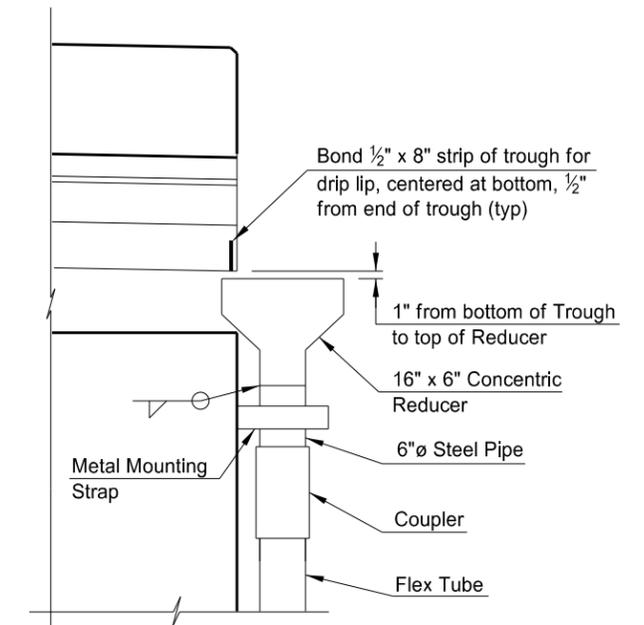


PLAN



SECTION

CATCH BASIN DETAIL
Abutment 1 shown, Abutment 8 similar



COLLECTOR PIPE DETAIL

Nylon Reinforced Neoprene Sheets shall meet the following requirements:

1. Tensile Strength = 1,100 PSI
2. Elongation = 300%
3. Durometer Hardness = 50

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US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

NORTHBOUND
ABUTMENT DRAINAGE SYSTEM DETAILS

NOTES:

The shape of the neoprene trough should conform to the slope shown.

Additional splices in the trough shall be avoided if possible. Splices shall use a mechanical splice (bolts, rivets or sewing). Upstream side shall be on top of downstream side. Each section of the trough shall extend 3" past the trough splice locations shown for a total of 6" of overlap minimum.

Shop drawings and material certification shall be submitted to the Engineer for review.

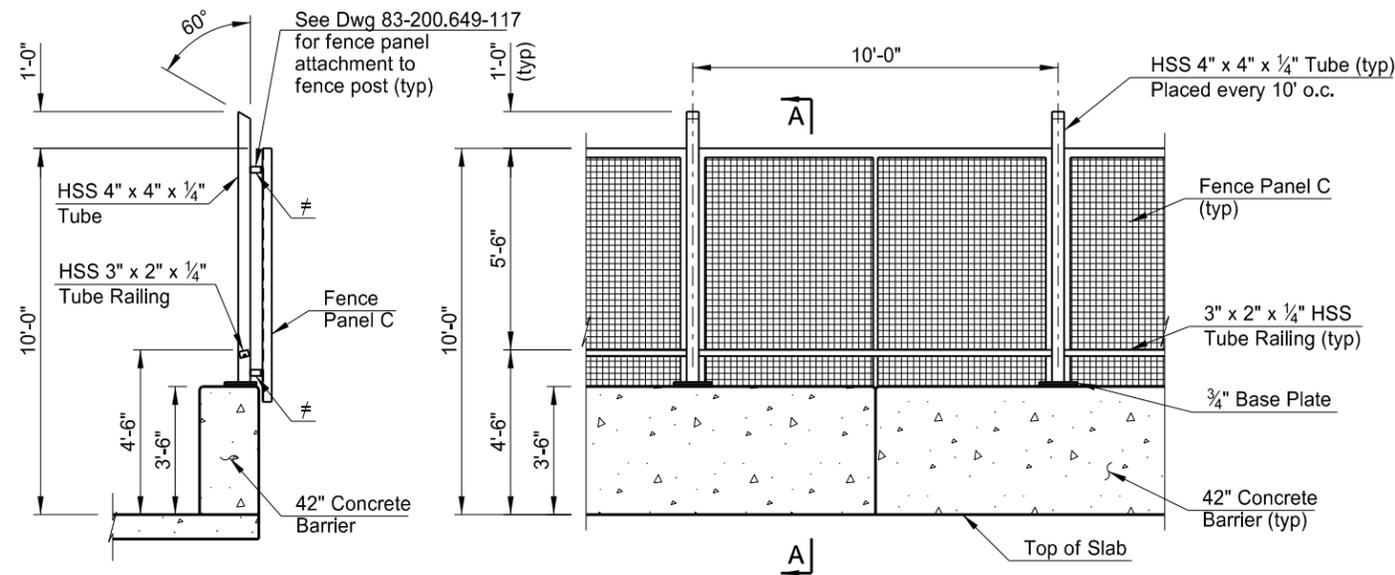
All pipe, elbows and couplers used in the drainage system shall be 6" diameter galvanized steel pipe with the exception of the identified rubber hose (Flex Tube). The rubber hose shall be 6" diameter high grade EPDM/SBR blend, reinforced, oil and weather resistant with an operating temperature range of -20° to 195°, and a minimum bend radius of 24 inches. All exposed hardware and catch basins shall be galvanized.

The rubber hose shall be fastened to the steel couplers with a double bolt clamp having a recommended torque of 60 ft-lbs. Galvanized steel straps shall be used to secure the deck drainage system to the abutments by means of an approved anchorage. Details and calculations shall be submitted to the Engineer for review.

All materials including reducer, steel pipes, fittings, rubber hose, metal straps, anchoring devices, catch basins, misc. hardware, other miscellaneous items required, and labor required to fabricate, assemble and install the drains shall be paid for as a lump sum item "Deck Drainage System". Shop drawings and material certification shall be submitted to the Engineer for review.

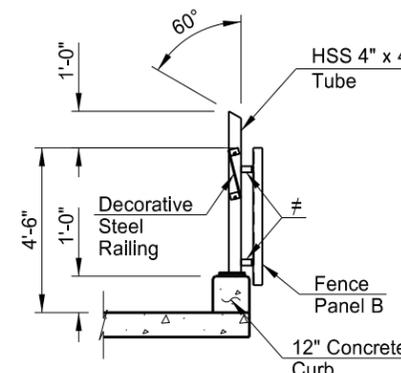
Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	116

≠ Fence panel to fence post connection shall be located approximately 6 inches from top of fence panel at top, and approximately 6 inches from top of curb/barrier at bottom. Local grades cause this to vary.

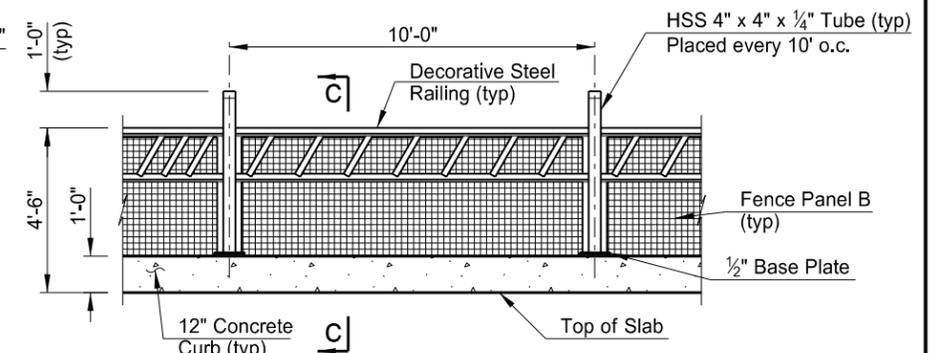


A-A - 10' FENCE ON 42" BARRIER

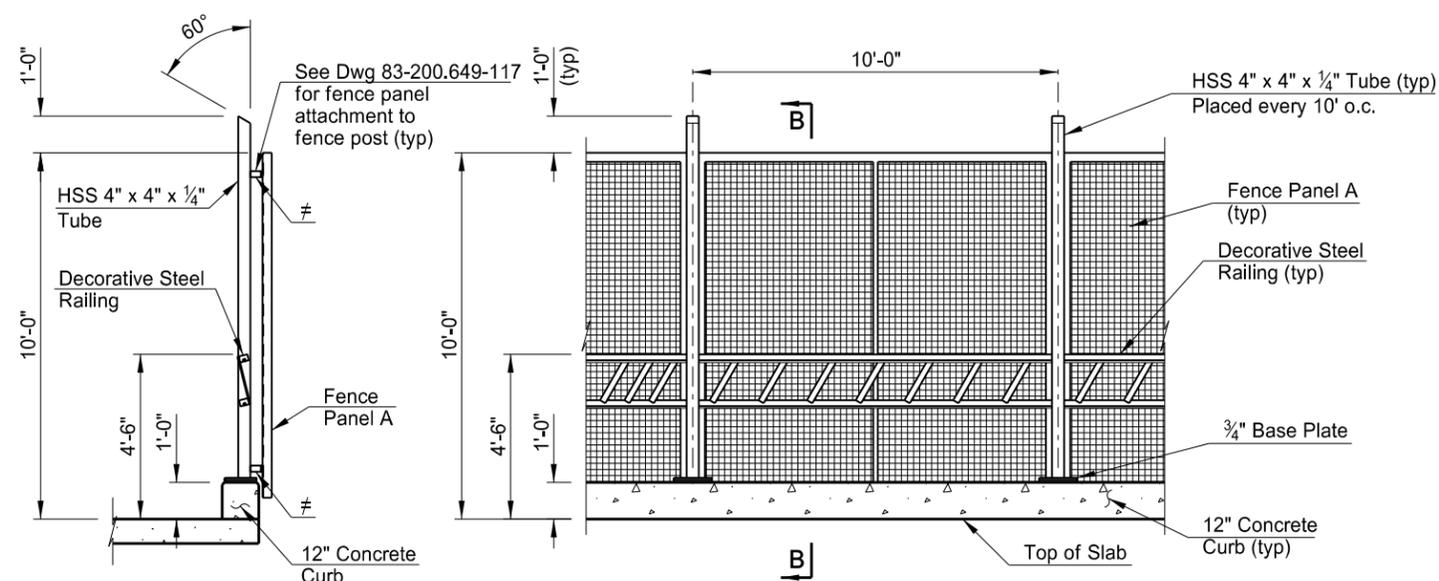
ELEVATION - 10' FENCE ON 42" BARRIER



C-C - 54" FENCE ON 12" CURB

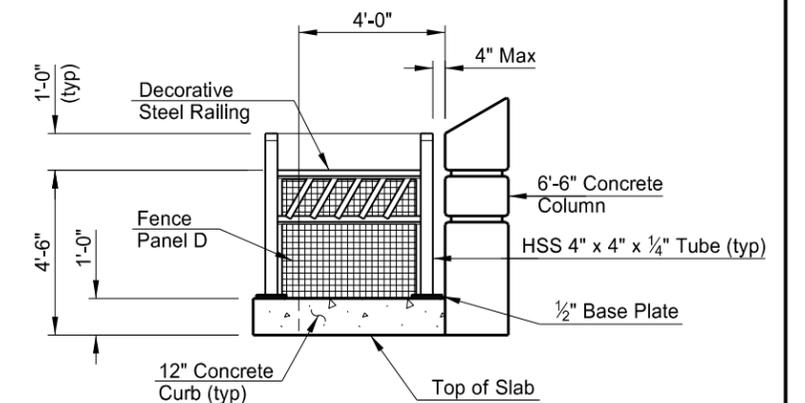


ELEVATION - 54" FENCE ON 12" CURB



B-B - 10' FENCE ON 12" CURB

ELEVATION - 10' FENCE ON 12" CURB



ELEVATION - 54" FENCE ON 12" CURB AT OVERLOOK
(Looking Backstation)

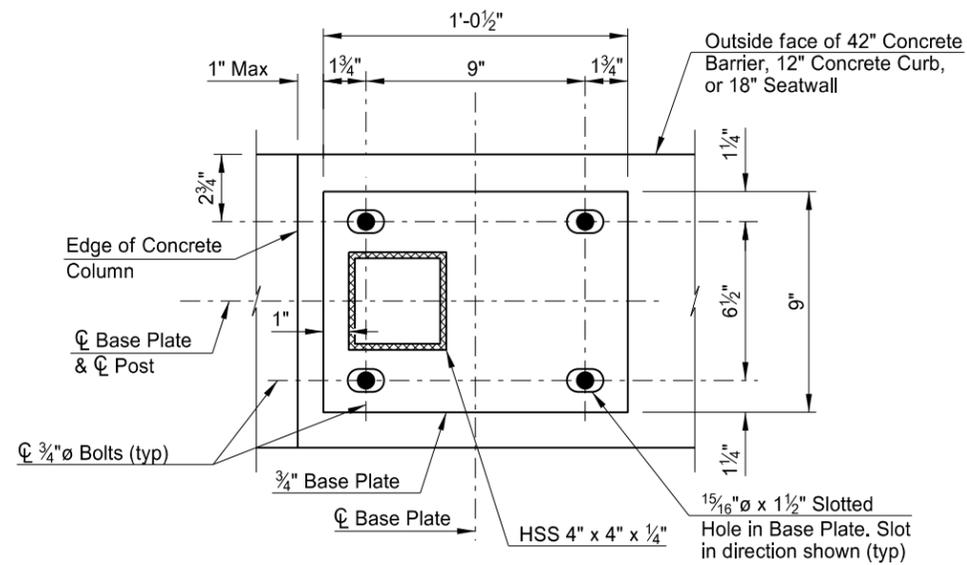
NOTES:

For additional details, see Dwg 83-200.649-113, Dwg 83-200.649-117 & Dwg 83-200.649-119.

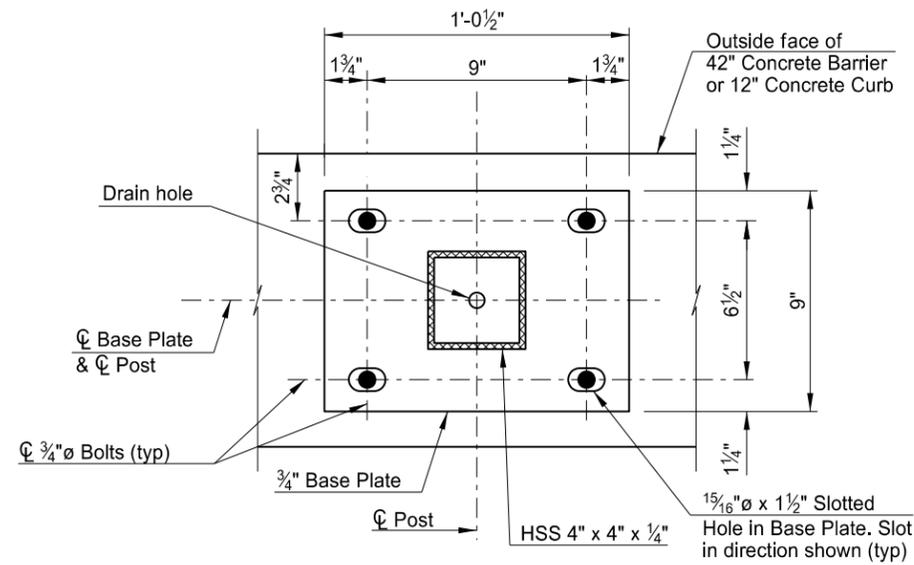
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US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER
NORTHBOUND
FENCE DETAILS

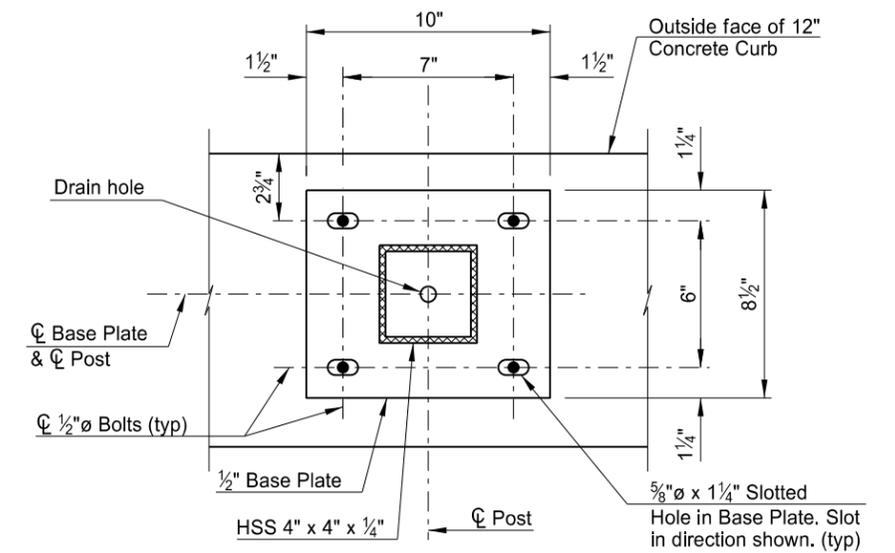
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	117



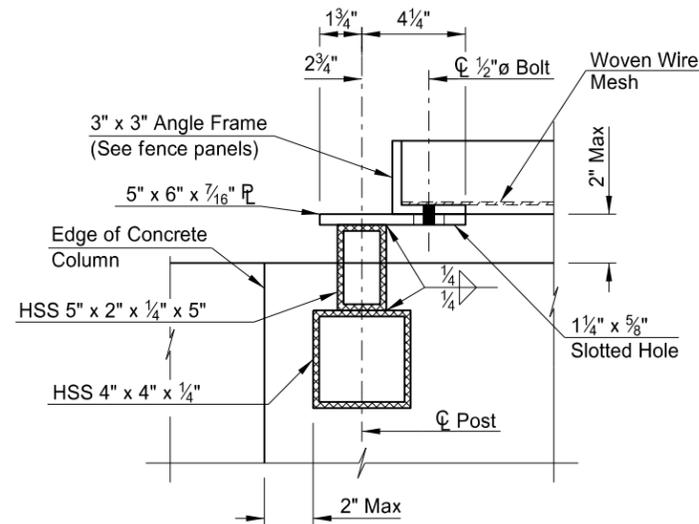
PLAN - 10' FENCE POST ANCHORAGE AT COLUMNS



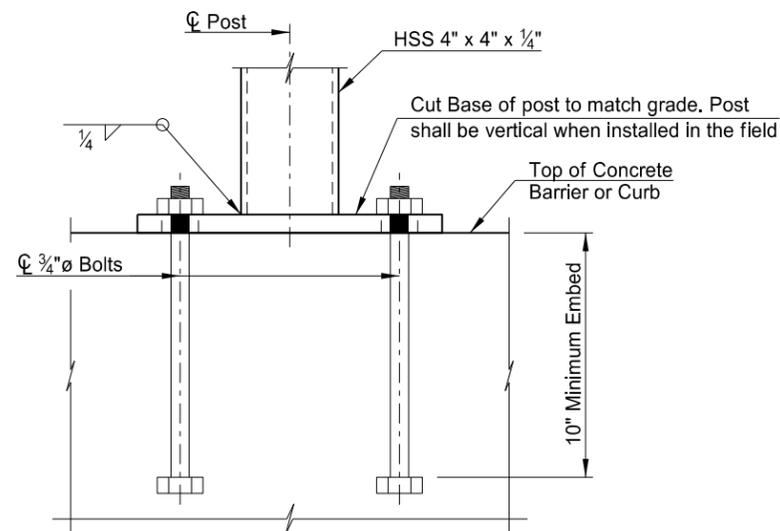
PLAN - 10' FENCE POST ANCHORAGE



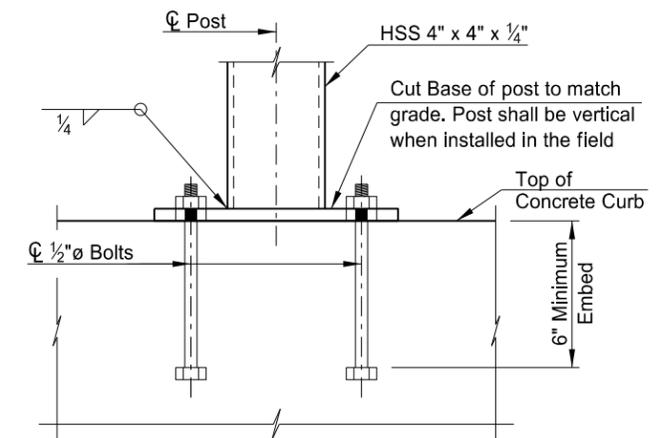
PLAN - 54\"/>



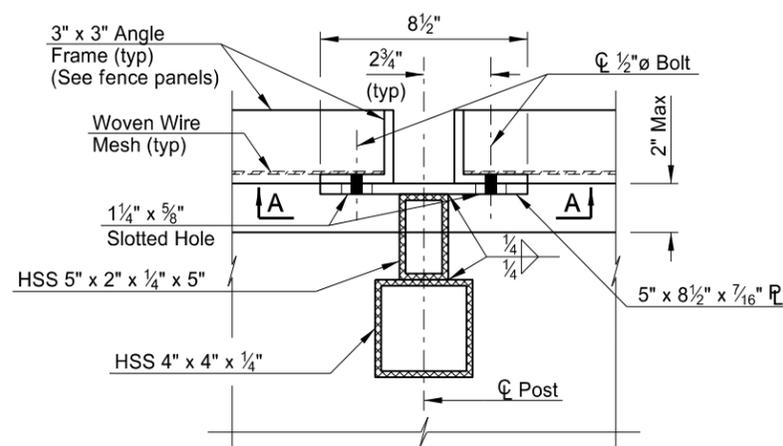
PLAN OF FENCE PANEL ATTACHMENT TO FENCE POST AT COLUMNS



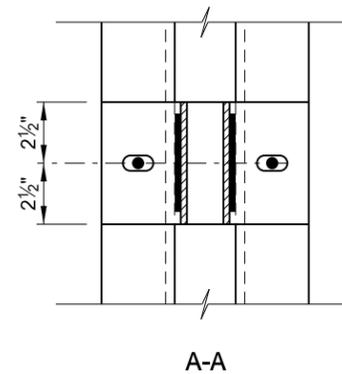
ELEVATION - 10' FENCE POST ANCHORAGE



ELEVATION - 54\"/>



PLAN OF FENCE PANEL ATTACHMENT TO FENCE POST



A-A

NOTES:

Structural steel tube sections shall conform to ASTM A500, Grade B. All other structural steel shall conform to ASTM A709, Grade 50. Bolts and nuts shall conform to ASTM A307.

All areas of fence that may retain water shall be provided with 3/8\"/>

All anchor bolts shall conform to ASTM F 1554, Grade 55, except the handrail anchors may be Grade 36.

All anchors must be cast-in-place. If contractor elects to use post installed anchors, they must submit sealed calculations to the Engineer.

All fence panels and structural steel shall be hot-dipped galvanized after fabrication and painted Federal Standard Black (No. 27038).

All posts shall be oriented to true vertical.

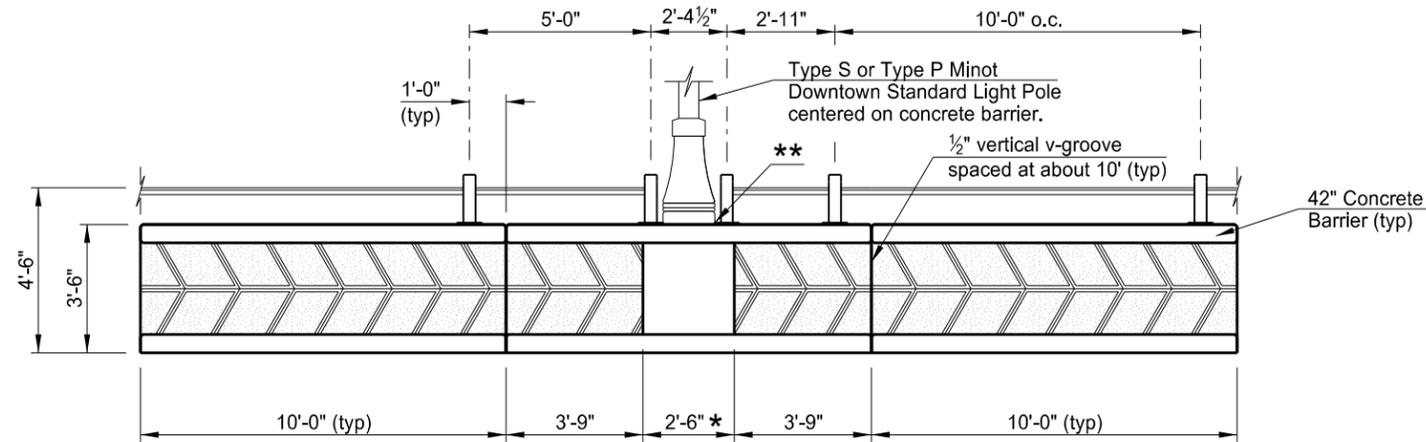
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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

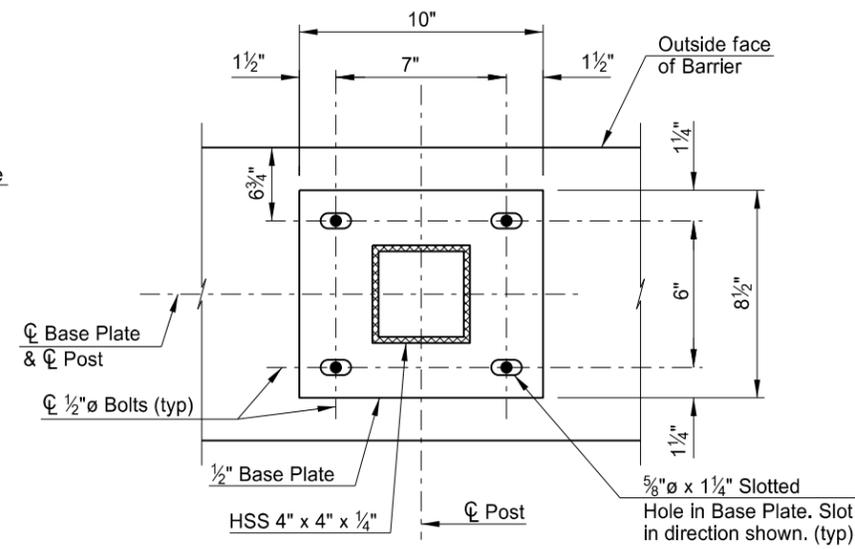
NORTHBOUND

FENCE DETAILS (MISCELLANEOUS DETAILS)

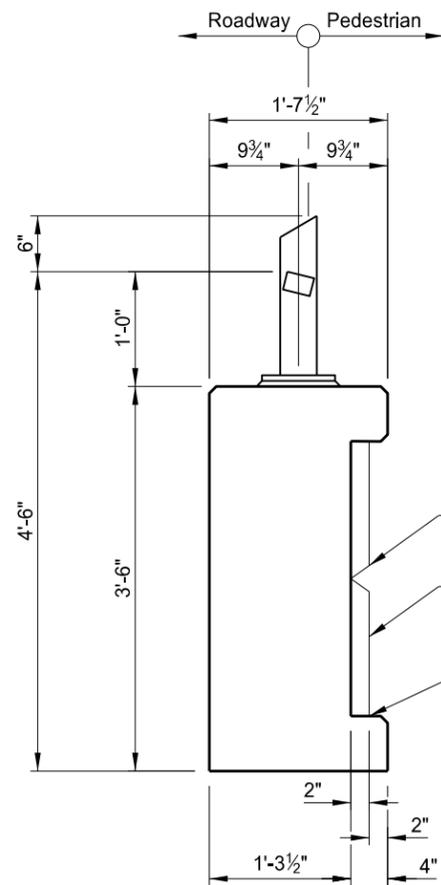
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	118



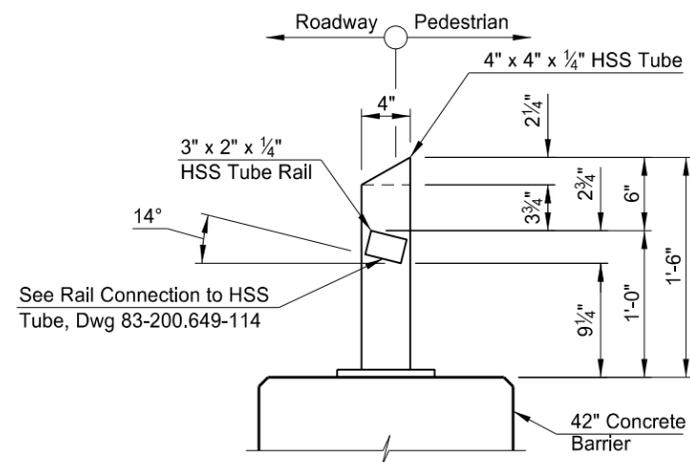
ELEVATION - LIGHT POLE ON BARRIER
(At Pedestrian Face)



PLAN - 18" HANDRAIL POST ANCHORAGE



SECTION - BARRIER WITH RAILING



SECTION - 18" RAILING

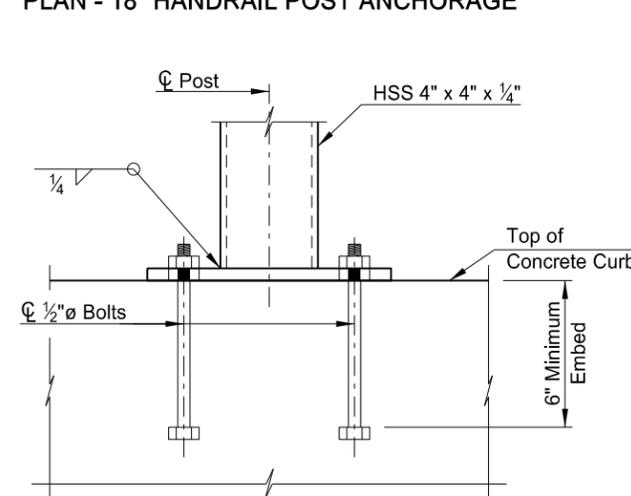
NOTES:

- * No formliner within region of barrier underneath luminaries (typ).
- ** Align railing post base plate at base of light pole.

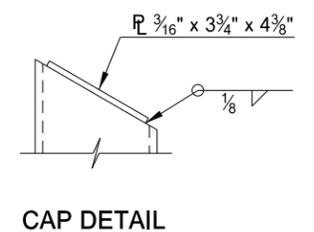
All concrete surfaces to be rubbed finish, unless otherwise noted.

For additional Handrail notes, see Dwg 83-200.649-117.

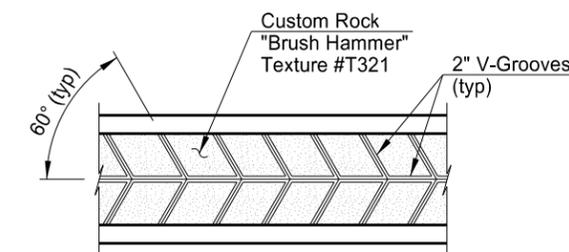
Contractor to supply final mockup of all color and texture selections for approval prior to construction.



ELEVATION - 18" HANDRAIL POST ANCHORAGE



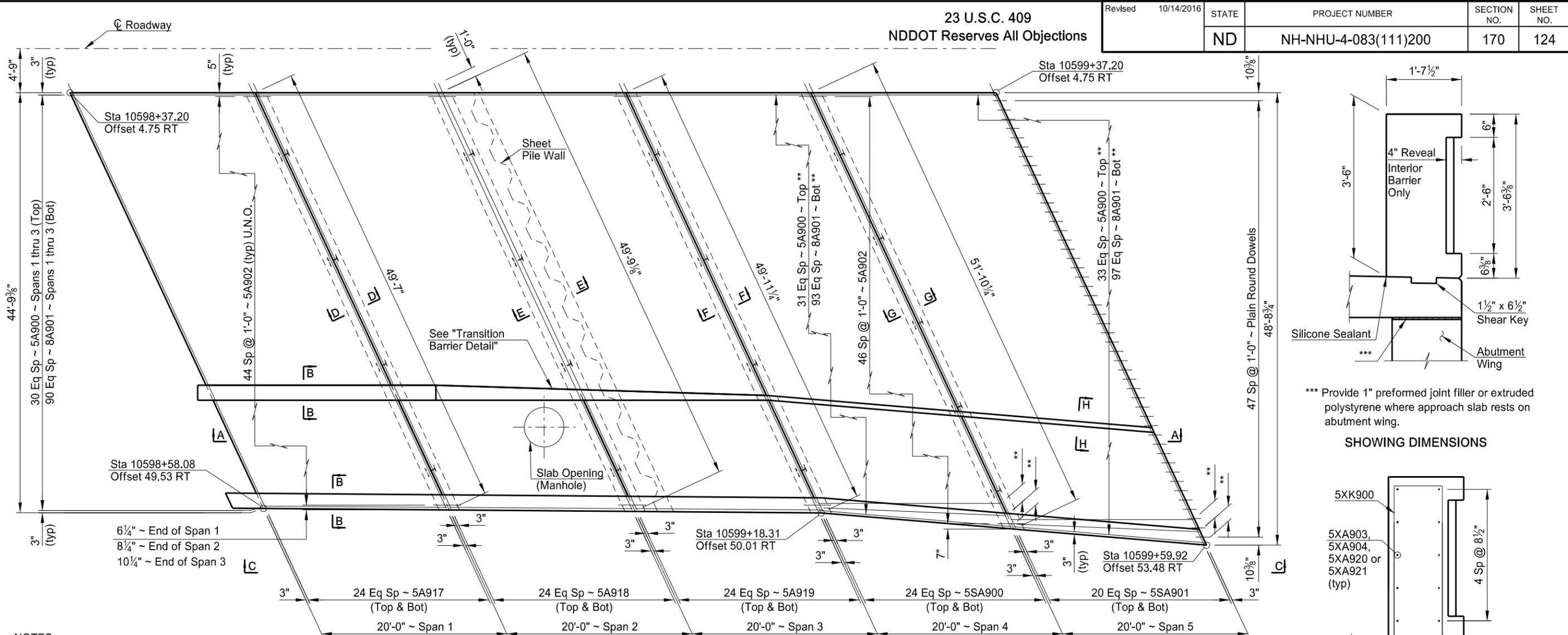
CAP DETAIL



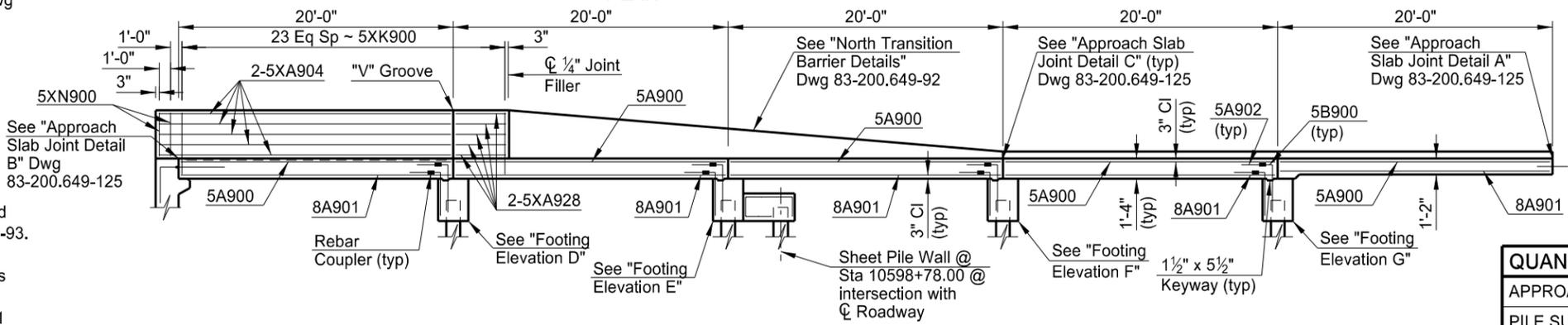
FORMLINER LAYOUT
(See Barrier Elevations for Formliner Limits)

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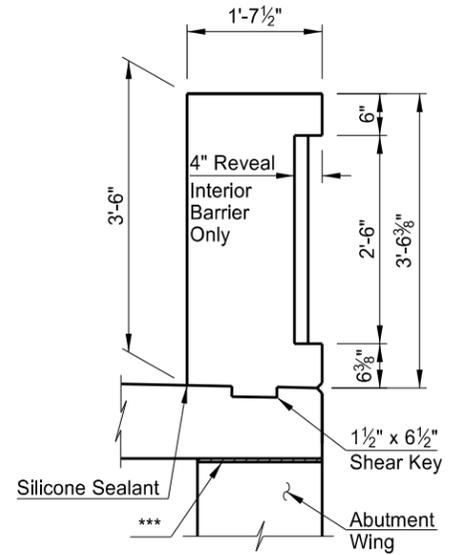
**US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER**
NORTHBOUND
HANDRAIL DETAILS



PLAN

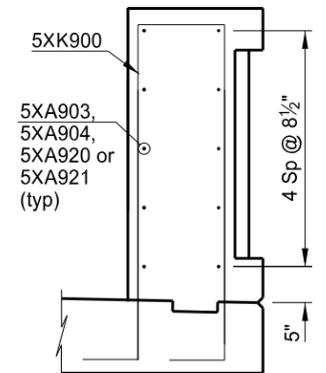


VIEW A-A



*** Provide 1" preformed joint filler or extruded polystyrene where approach slab rests on abutment wing.

SHOWING DIMENSIONS



* Barrier reinforcing shall have a 1/2" clearance from the front face.

SHOWING REINFORCING

B-B

NOTES:
For Section D-D thru H-H and View C-C, see Dwg 83-200.649-125 and 83-200.649-126.
For Footing Elevation D, E, F and G, see Dwg 83-200.649-125 and Dwg 83-200.649-126.
For "North Transition Barrier Details", see Dwg 83-200.649-92.
For additional information, see BARRIER RAIL EXPANSION DEVICES, Dwg 83-200.649-94 and BARRIER CORNER DETAILS, Dwg 83-200.649-93.

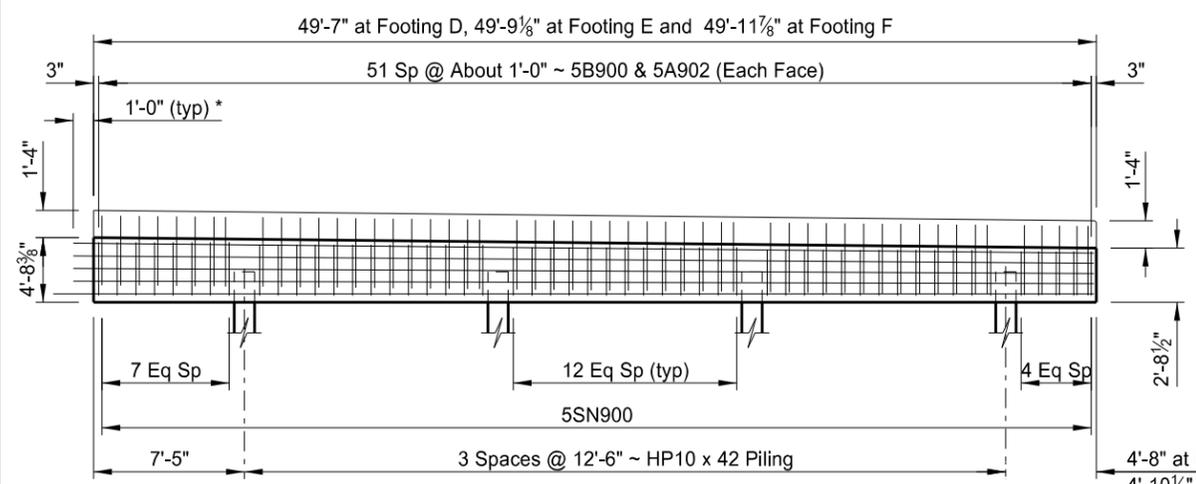
The A902 bars shall be coupled to the B900 bars extending out of the approach slab footing. Also, the A905 thru A919 and SA900 thru SA901 bars shall be coupled with the corresponding bars in phase 2 construction. The couplers shall be an approved mechanical connector capable of developing 125% of the specified yield strength of the reinforcing steel.

** Reinforcing bars shall be splayed near tapered approach slab end as shown. Maximum spacing = 6" for A901 bars and 1'-6" for A900 bars.

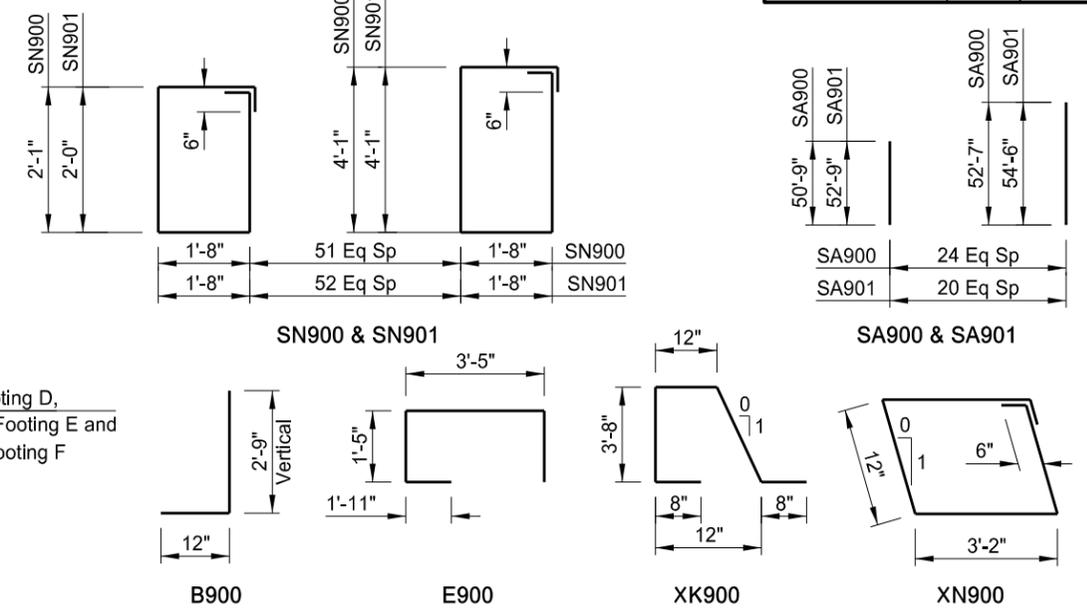
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QUANTITIES	(ONE SLAB)
APPROACH SLAB	106.4 SY
PILE SUPPORTED APPROACH SLAB	402.7 SY

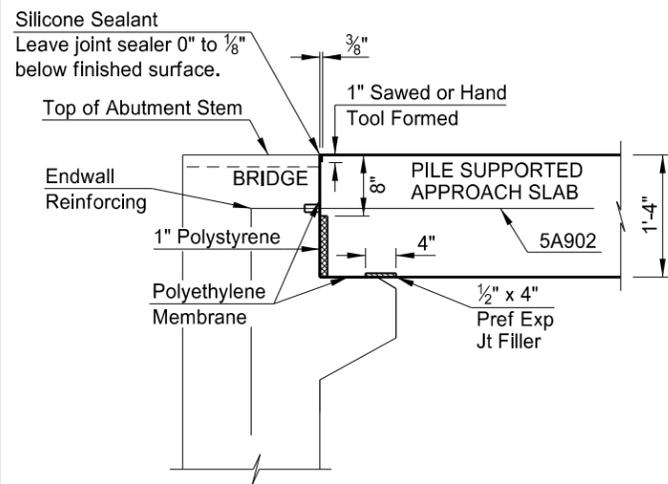
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
NORTH APPROACH SLAB DETAILS
SHEET 1 OF 3



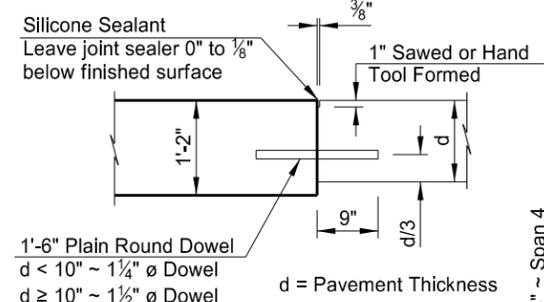
FOOTINGS ELEVATION D, E AND F



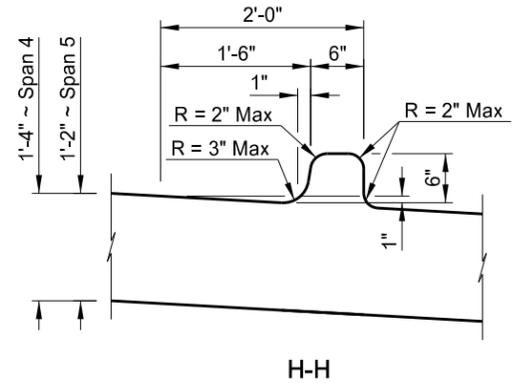
BENT BAR DETAILS



APPROACH SLAB JOINT DETAIL B



JOINT DETAIL A



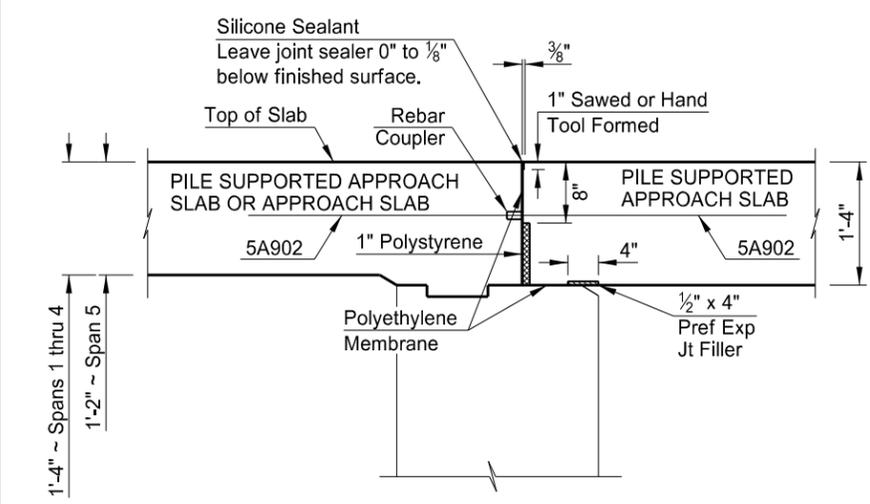
H-H

NOTES:

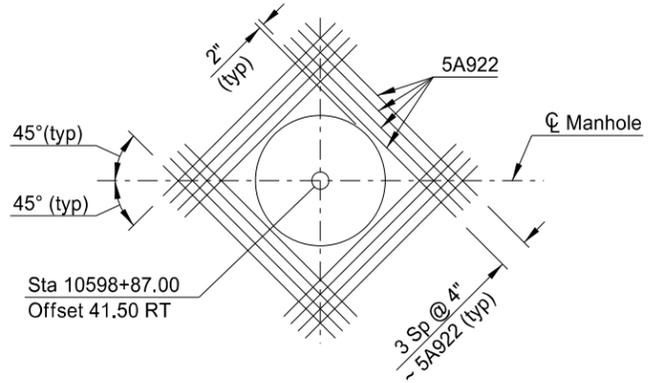
The estimated material quantities shown are for information purposes only. All materials including concrete, reinforcing bars, polyethylene film, preformed joint filler, polystyrene, silicone sealant, connection plates and pipes, and all labor required to build the approach slabs and barriers shall be included in the pay items "Concrete Bridge Approach Slab" and "Pile Supported Approach Slab." The concrete shall be Class AE-3 and the reinforcing steel shall be Grade 60. The polyethylene film shall meet the requirements of AASHTO M 171.

The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the "Bent Bar Details" are out to out.

* 2'-6" for 7A906, 7A909, 7A912 and 7A915 bars to alternate location of mechanical couplers in cap phase 2 construction.



APPROACH SLAB JOINT DETAIL C



PART SLAB PLAN AT OPENING

Note: Transverse and longitudinal slab reinforcing not shown for clarity (cut reinforcing to within 2" of back of manhole frame.)

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SKEW ANGLE = 25°			
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
5	A900	159	19'-8"
8	A901	465	19'-8"
5	A902	827	3'-0"
5	XA903	20	19'-8"
5	XA904	10	21'-3"
7	A905	6	50'-5"
7	A906	2	51'-11"
4	A907	6	50'-5"
7	A908	6	50'-7"
7	A909	2	52'-1"
4	A910	6	50'-7"
7	A911	6	50'-9"
7	A912	2	52'-3"
4	A913	6	50'-9"
7	A914	6	52'-8"
4	A915	2	54'-2"
5	A916	6	52'-8"
5	A917	50	50'-3"
5	A918	50	50'-6"
5	A919	50	50'-8"
5	XA920	10	23'-5"
5	XA921	10	20'-7"
5	A922	16	6'-0"
5	XA923	2	35'-6"
5	XA924	2	28'-2"
5	XA925	2	19'-2"
5	XA926	2	10'-3"
5	XA927	2	35'-7"
5	XA928	10	3'-7"
5	SA900	2	1291'-8"
5	SA901	2	1126'-2"
5	B900	418	3'-9"
5	XK900	128	9'-8"
5	XSK900	1	238'-11"
5	XN900	6	9'-4"
5	SN900	3	546'-0"
5	SN901	1	552'-1"

ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS)	CONCRETE (CY)
54,405	305.9

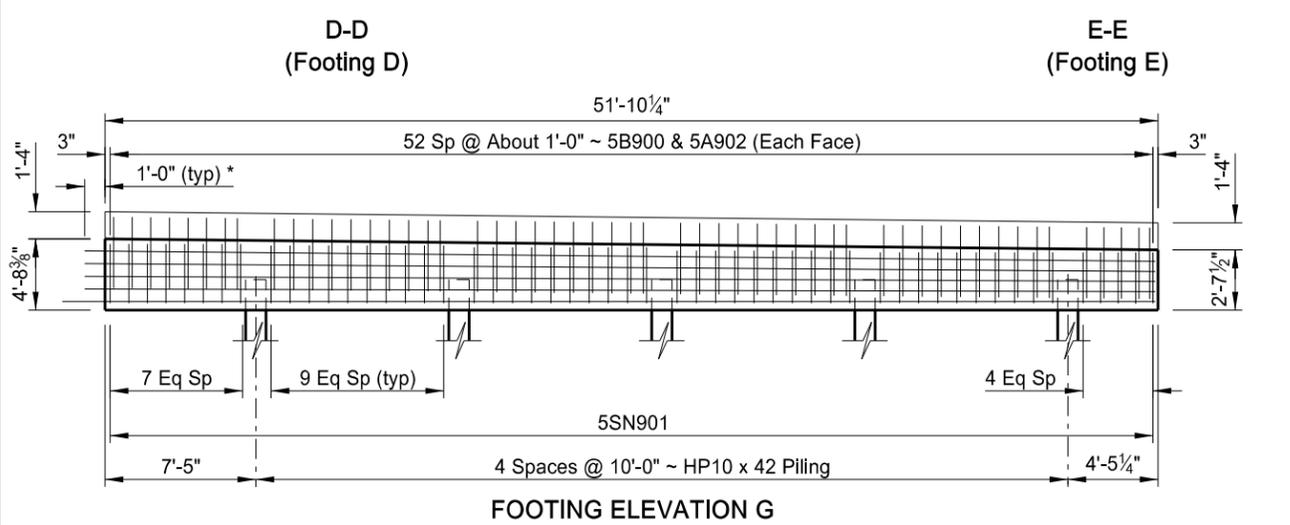
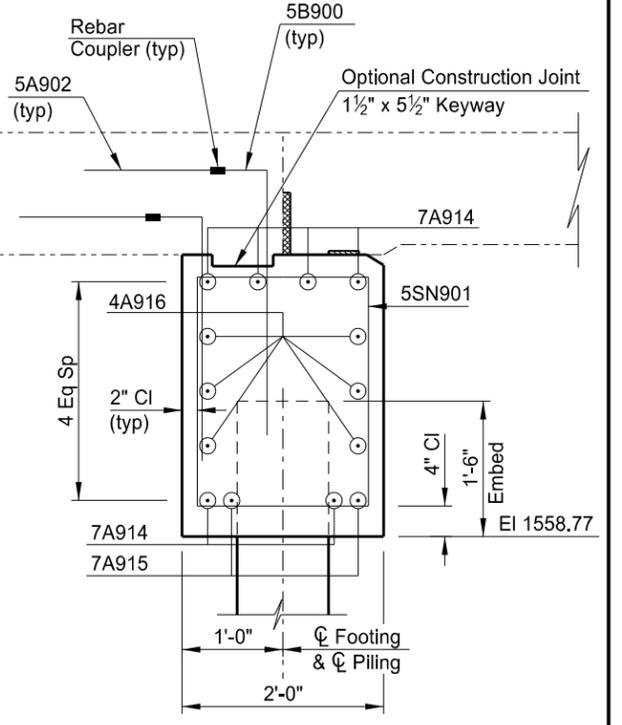
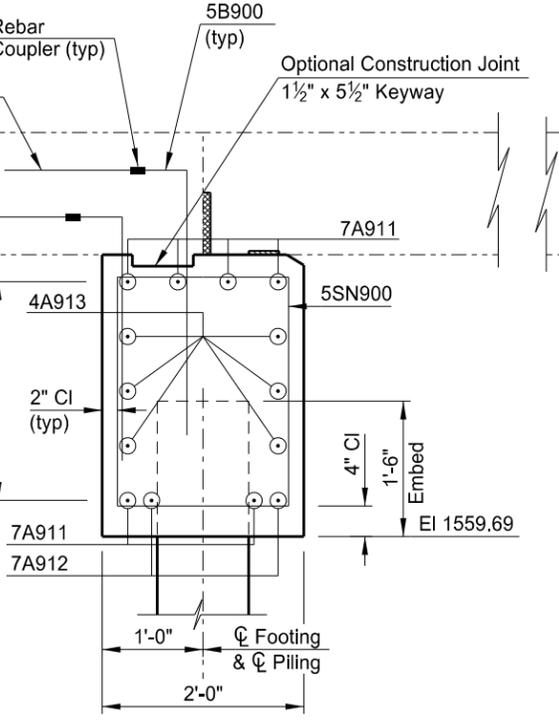
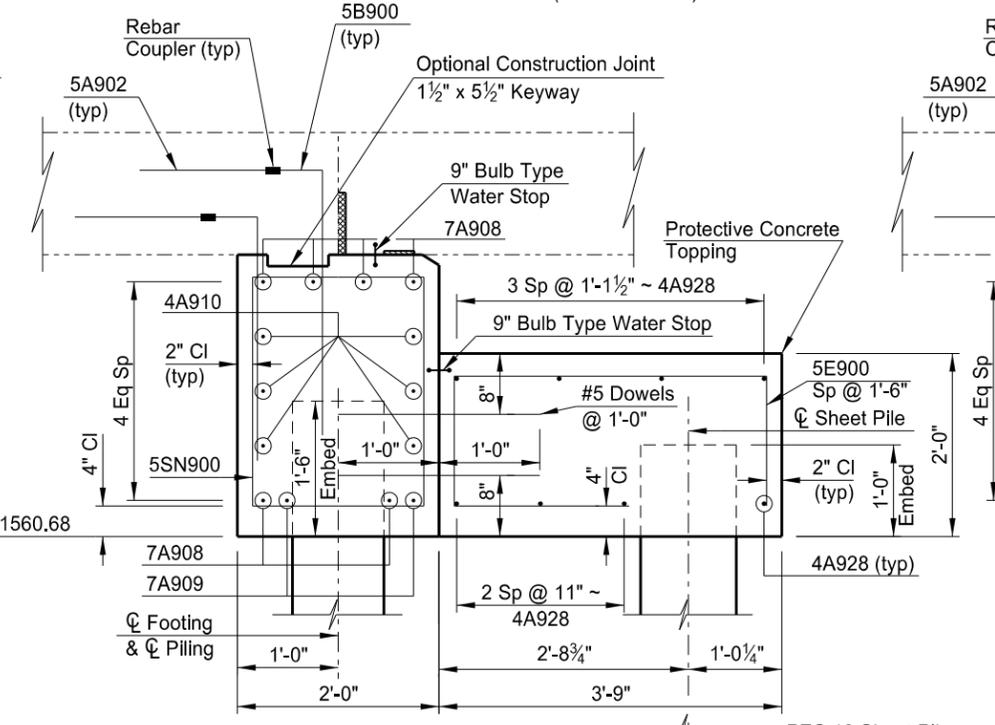
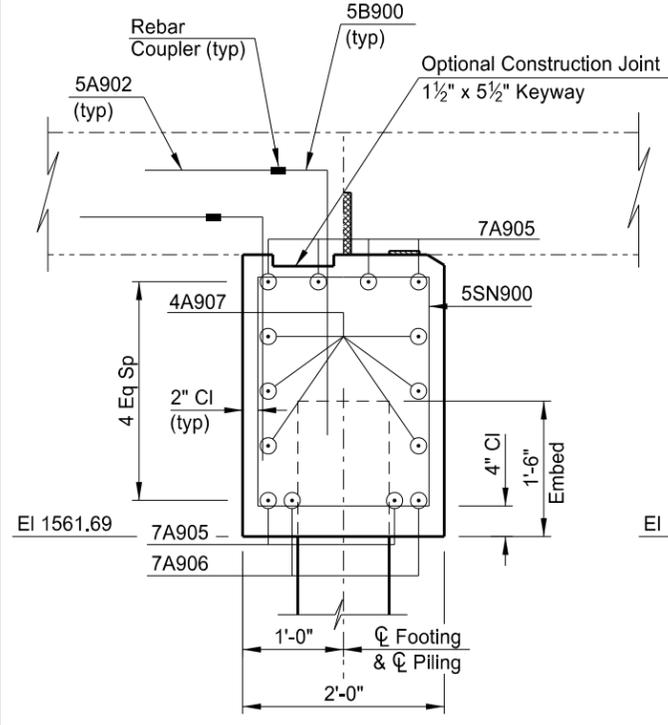
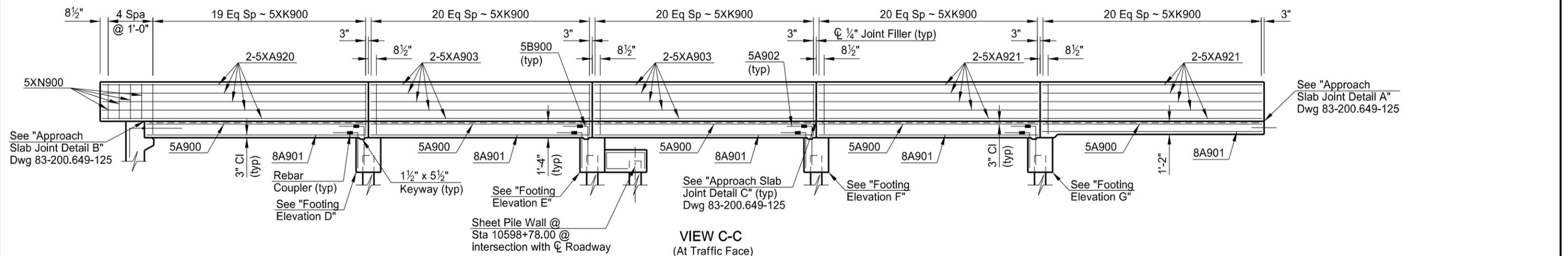
QUANTITIES
SEE DWG 83-200.649-124

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

NORTHBOUND

NORTH APPROACH SLAB DETAILS
SHEET 2 OF 3

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	126



NOTES:

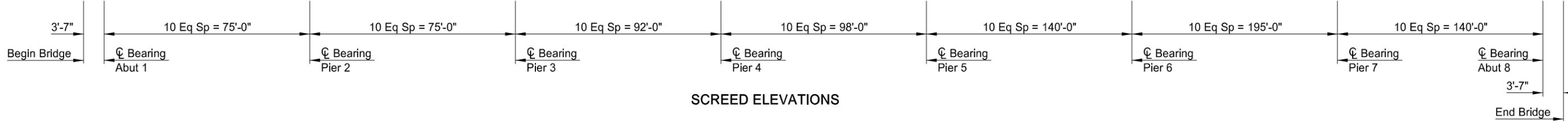
* 2'-6" for 7A906, 7A909, 7A912 and 7A915 bars to alternate location of mechanical couplers in phase 2 construction.

All materials including concrete, dowels, reinforcing bars, water stop and all labor required to build the protective concrete topping shall be included in the pay item "Steel Sheet Piling". The concrete shall be Class AE-3 and the reinforcing steel shall be Grade 60.

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QUANTITIES
SEE DWG 83-200.649-124
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
NORTHBOUND
NORTH APPROACH SLAB DETAILS
SHEET 3 OF 3

☉ GIRDER S5	☉ GIRDER S4	☉ GIRDER S3	☉ GIRDER S2	☉ GIRDER S1
1587.84	1587.60	1587.35	1587.10	1586.84
1587.91	1587.67	1587.43	1587.18	1586.93
1588.08	1587.86	1587.63	1587.39	1587.14
1588.23	1588.03	1587.80	1587.57	1587.33
1588.35	1588.16	1587.94	1587.72	1587.49
1588.45	1588.27	1588.06	1587.84	1587.62
1588.51	1588.35	1588.14	1587.94	1587.72
1588.55	1588.39	1588.20	1588.00	1587.79
1588.57	1588.41	1588.22	1588.03	1587.83
1588.58	1588.41	1588.23	1588.04	1587.85
1588.59	1588.41	1588.23	1588.05	1587.86
1588.61	1588.43	1588.24	1588.06	1587.88
1588.63	1588.45	1588.26	1588.08	1587.90
1588.66	1588.48	1588.29	1588.11	1587.93
1588.70	1588.51	1588.33	1588.14	1587.96
1588.73	1588.55	1588.36	1588.18	1588.00
1588.77	1588.58	1588.40	1588.21	1588.03
1588.80	1588.61	1588.43	1588.25	1588.06
1588.83	1588.65	1588.46	1588.28	1588.10
1588.86	1588.68	1588.49	1588.31	1588.13
1588.90	1588.71	1588.53	1588.35	1588.16
1588.94	1588.75	1588.57	1588.39	1588.21
1588.99	1588.82	1588.63	1588.45	1588.26
1589.05	1588.88	1588.70	1588.51	1588.33
1589.11	1588.94	1588.76	1588.58	1588.39
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1589.20	1589.04	1588.86	1588.67	1588.48
1589.24	1589.07	1588.89	1588.71	1588.52
1589.26	1589.10	1588.91	1588.73	1588.54
1589.29	1589.11	1588.93	1588.75	1588.56
1589.31	1589.13	1588.95	1588.77	1588.58
1589.34	1589.16	1588.98	1588.79	1588.61
1589.38	1589.20	1589.01	1588.83	1588.65
1589.43	1589.24	1589.06	1588.88	1588.69
1589.47	1589.29	1589.11	1588.92	1588.74
1589.51	1589.33	1589.15	1588.97	1588.79
1589.52	1589.35	1589.18	1589.01	1588.83
1589.51	1589.35	1589.19	1589.02	1588.85
1589.48	1589.33	1589.17	1589.01	1588.85
1589.43	1589.28	1589.13	1588.98	1588.83
1589.35	1589.22	1589.08	1588.93	1588.79
1589.27	1589.14	1589.00	1588.87	1588.73
1589.11	1589.00	1588.88	1588.75	1588.62
1588.92	1588.82	1588.71	1588.60	1588.48
1588.67	1588.59	1588.49	1588.39	1588.28
1588.38	1588.31	1588.22	1588.13	1588.03
1588.03	1587.97	1587.90	1587.82	1587.73
1587.64	1587.59	1587.52	1587.46	1587.38
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1586.73	1586.69	1586.65	1586.60	1586.56
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1585.67	1585.65	1585.64	1585.61	1585.59
1584.86	1584.87	1584.87	1584.86	1584.85
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1581.16	1581.24	1581.26	1581.28	1581.28
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1574.72	1574.74	1574.76	1574.78	1574.80
1574.04	1574.06	1574.08	1574.10	1574.12
1573.36	1573.39	1573.41	1573.43	1573.45
1572.67	1572.71	1572.73	1572.75	1572.77
1571.98	1572.02	1572.04	1572.06	1572.08
1571.28	1571.32	1571.34	1571.36	1571.37
1570.57	1570.60	1570.62	1570.64	1570.66
1569.84	1569.87	1569.89	1569.91	1569.93
1569.11	1569.13	1569.15	1569.17	1569.19
1568.93	1568.95	1568.97	1568.99	1568.99



SCREED ELEVATIONS

PHASE 2 BRIDGE QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
210	0100	CLASS 1 EXCAVATION	CY	1226
302	9010	AGGREGATE FOR REINFORCED FABRIC CLASS 5	TON	6050
602	0130	CLASS AAE-3 CONCRETE	CY	858.7
602	1130	CLASS AE-3 CONCRETE	CY	1743.4
602	1133	CONCRETE BRIDGE APPROACH SLAB	SY	219
602	1134	PILE SUPPORTED APPROACH SLAB	SY	379
602	1135	BRIDGE APPROACH SLAB - REMOVE & REPLACE	SY	236
602	1208	CONCRETE BRIDGE BARRIER	LF	954
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	3140
602	7001	SPECIAL SURFACE FINISH	L SUM	1
612	0115	REINFORCING STEEL - GRADE 60	LBS	212,392
612	0116	REINFORCING STEEL - GRADE 60 - EPOXY COATED	LBS	234,274
616	0360	STRUCTURAL STEEL	LBS	1,157,069
622	0020	STEEL PILING HP 10 X 42	LF	1500
622	0040	STEEL PILING HP 12 X 53	LF	1283
622	0060	STEEL PILING HP 14 X 73	LF	3845
622	0070	STEEL PILING HP 14 X 102	LF	3185
622	6760	STEEL SHEET PILING	SF	4684
624	0124	* PEDESTRIAN FENCE	LF	520
709	0200	GEOSYNTHETIC REINFORCEMENT	SY	7840
714	8498	CASING PIPE 18"	LF	179
930	3040	BEARINGS (EXPANSION)	EA	36
930	3042	BEARINGS (FIXED)	EA	4
930	8681	FINGER EXPANSION JOINT	LF	90
930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	2

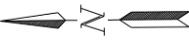
GENERAL BRIDGE QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0105	REMOVAL OF STRUCTURE	L SUM	1
210	0111	CLASS 2 EXCAVATION	L SUM	1
210	0201	FOUNDATION PREPARATION	EA	1
256	0501	RIPRAP SPECIAL	TON	2800
709	0600	GEOTEXTILE FABRIC - TYPE RR	SY	1320
920	1237	STRUCTURAL ENGINEER	MHR	200
930	3000	BRIDGE BENCH MARKS	SET	1
930	7012	ROADWAY CANOPY	L SUM	1
930	9535	DECK DRAINAGE SYSTEM	L SUM	1

* For Note on "Pedestrian Fence" Quantity, see Dwg 83-200.649-6.

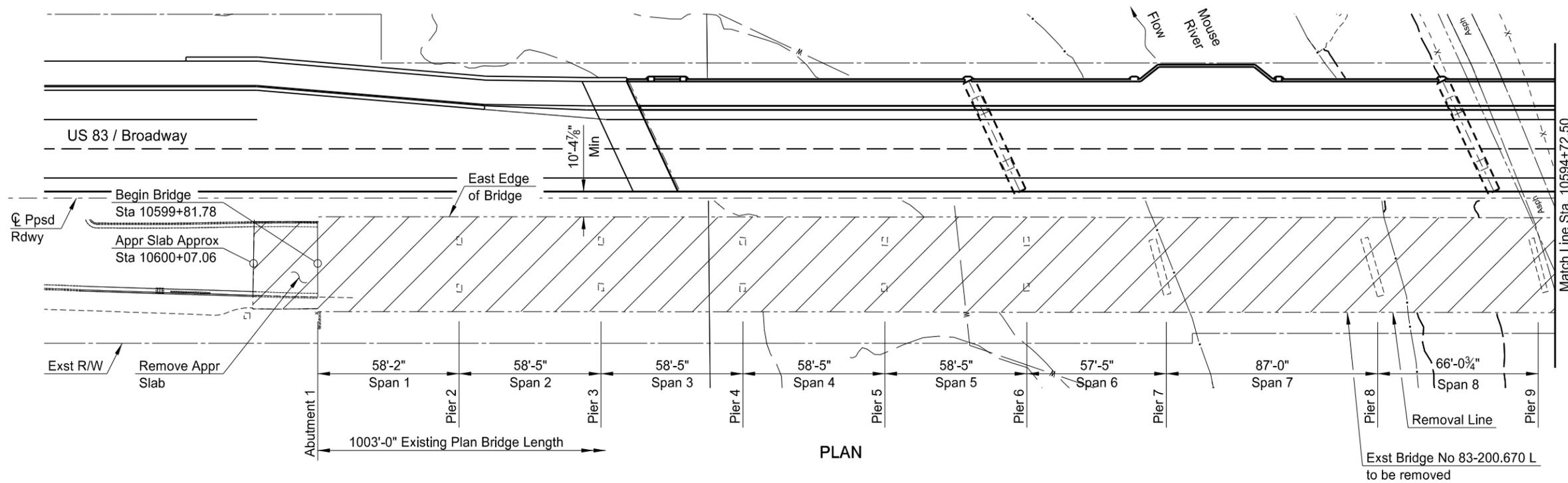
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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
SCREED ELEVATIONS & QUANTITIES



23 U.S.C. 409
NDDOT Reserves All Objections

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	129



PLAN

Exst Bridge No 83-200.670 L
to be removed

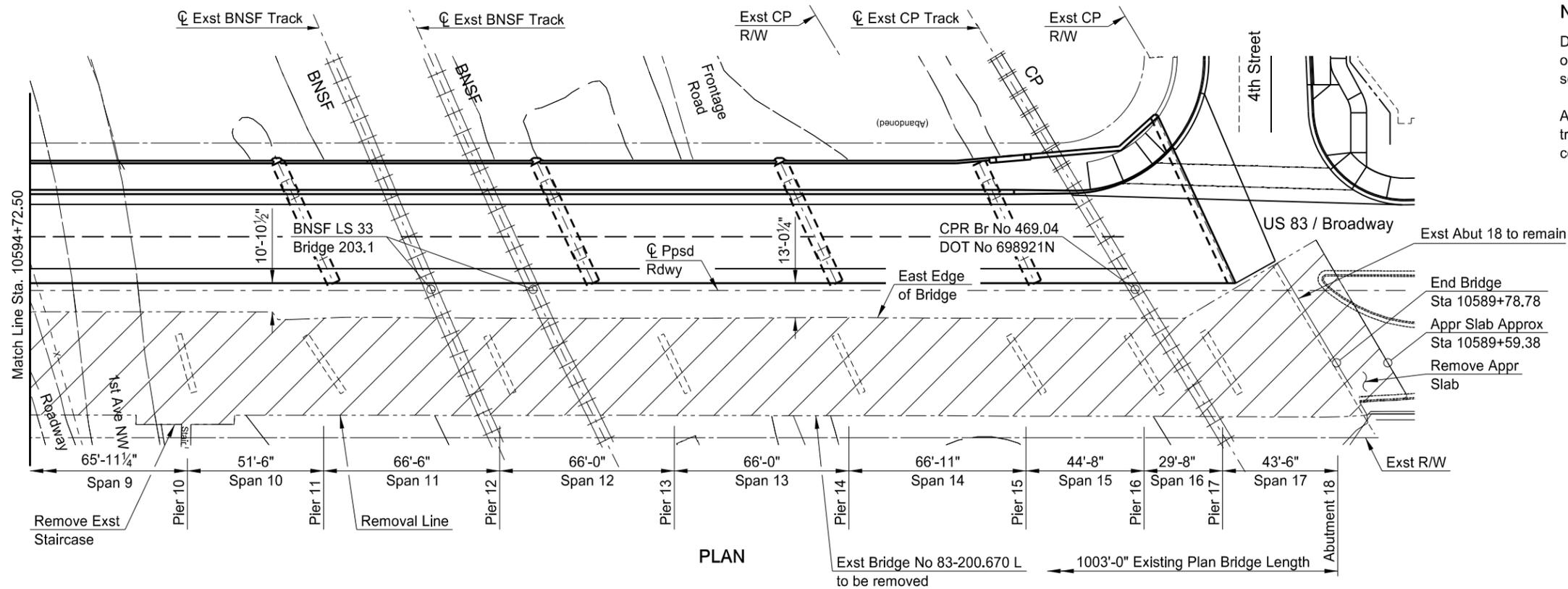
NOTES:

Demolition plans are shown from North to South to match the orientation of the Existing Bridge Plans and the number scheme of the existing piers.

All salvageable materials except street lighting system and traffic control system shall become the property of the contractor and properly disposed of by the contractor.

LEGEND

 Hatched area indicates structure to be removed.

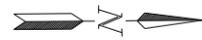


PLAN

Exst Bridge No 83-200.670 L
to be removed

**US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER**

**SOUTHBOUND
DEMOLITION PLAN**



PILE COORDINATES

	PILE	NORTHING	EASTING
ABUT 1	A	452,071.51	1,774,715.20
	B	452,089.76	1,774,755.27
PIER 2	C	452,147.06	1,774,727.94
	D	452,157.18	1,774,750.16
PIER 3	E	452,222.06	1,774,728.62
	F	452,232.18	1,774,750.84

NOTES:

For double acting or single acting diesel hammers, the safe bearing value of piles shall be determined by the following formula:

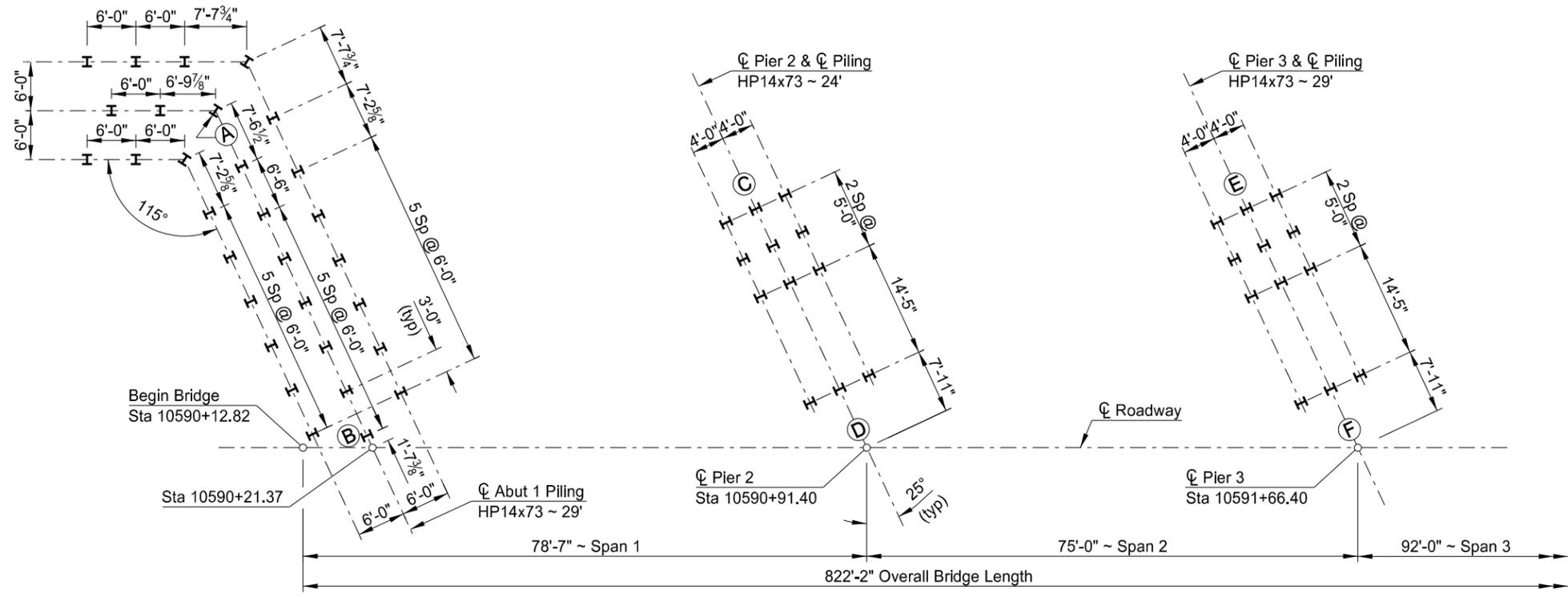
$$P = \frac{4.5E}{S + 0.2} \times \frac{W + 0.2M}{W + M}$$

P = Safe bearing value, in pounds.
 W = Weight of striking parts (ram), in pounds.
 M = Weight of parts being driven, in pounds. Includes pile weight, anvil (if any), driving cap, etc.
 E = Energy per blow, in foot-pounds.
 S = Average penetration of pile in inches per blow for last ten blows.

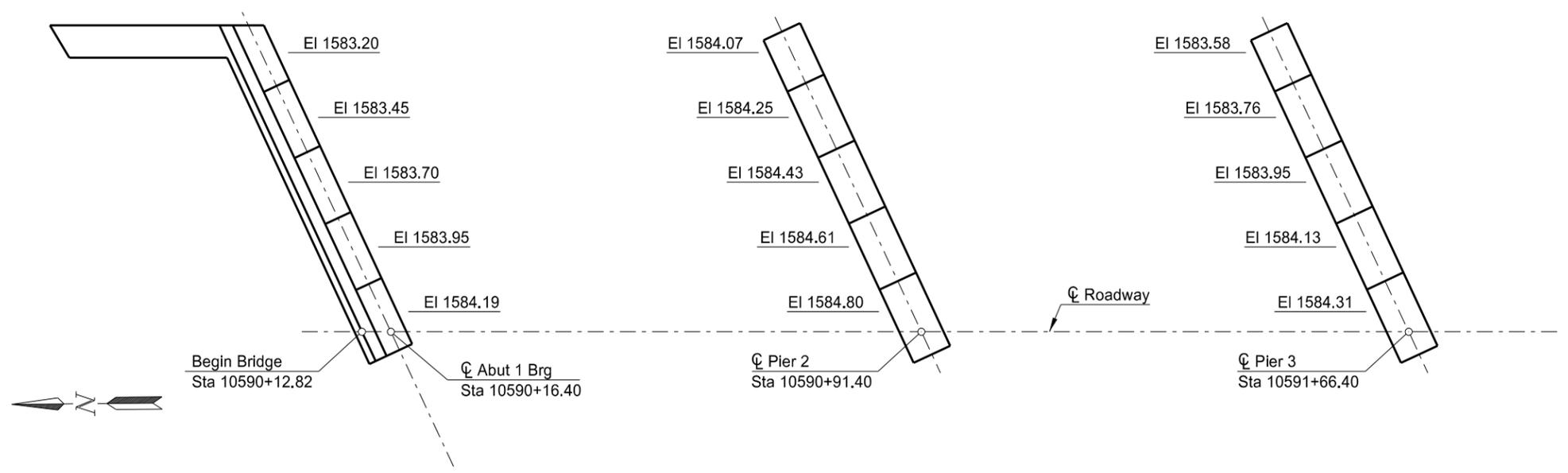
For single acting hammers, calculate E by multiplying observed stroke (ft) and W (lbs).

HP10 x 42 Pile shall be driven to 105 Tons.
 HP12 x 53 Pile shall be driven to 130 Tons.
 HP14 x 73 Pile shall be driven to 180 Tons.
 HP14 x 102 Pile shall be driven to 250 Tons.

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PILING LAYOUT



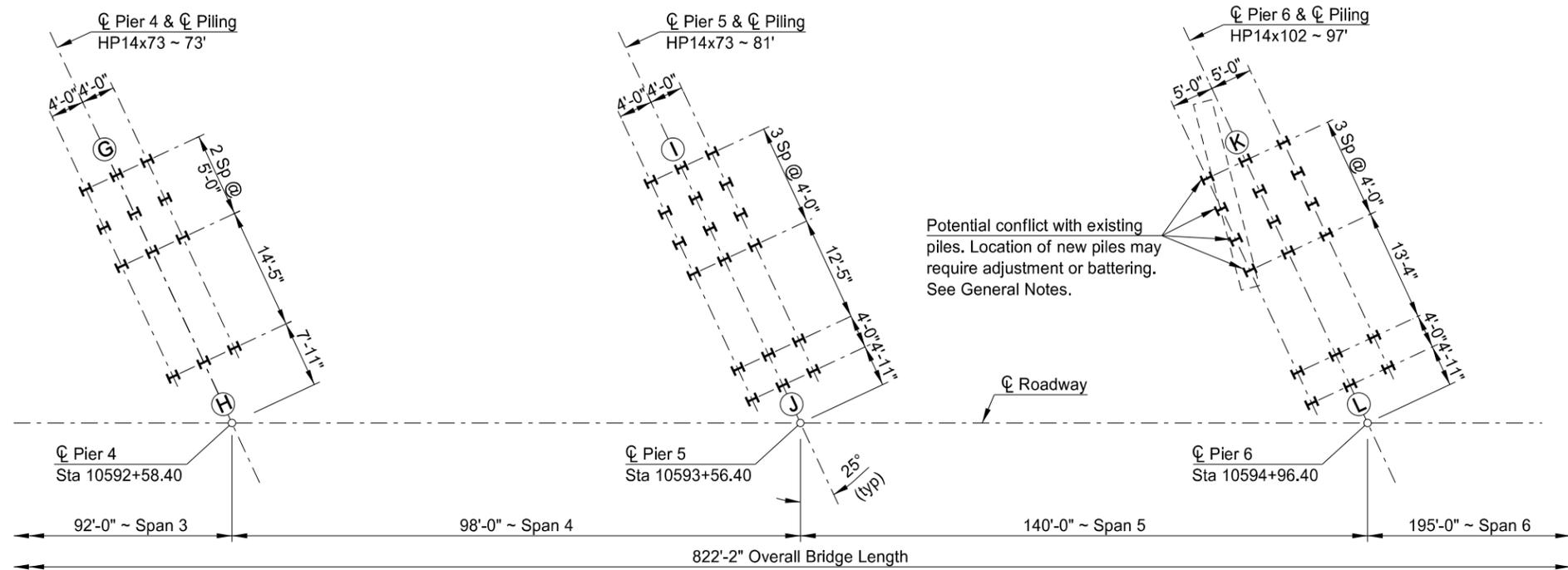
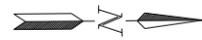
Elevations shown are to top of finished concrete.
BEARING ELEVATIONS

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

SOUTHBOUND

PILING LAYOUT & BEARING ELEVATIONS

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	133

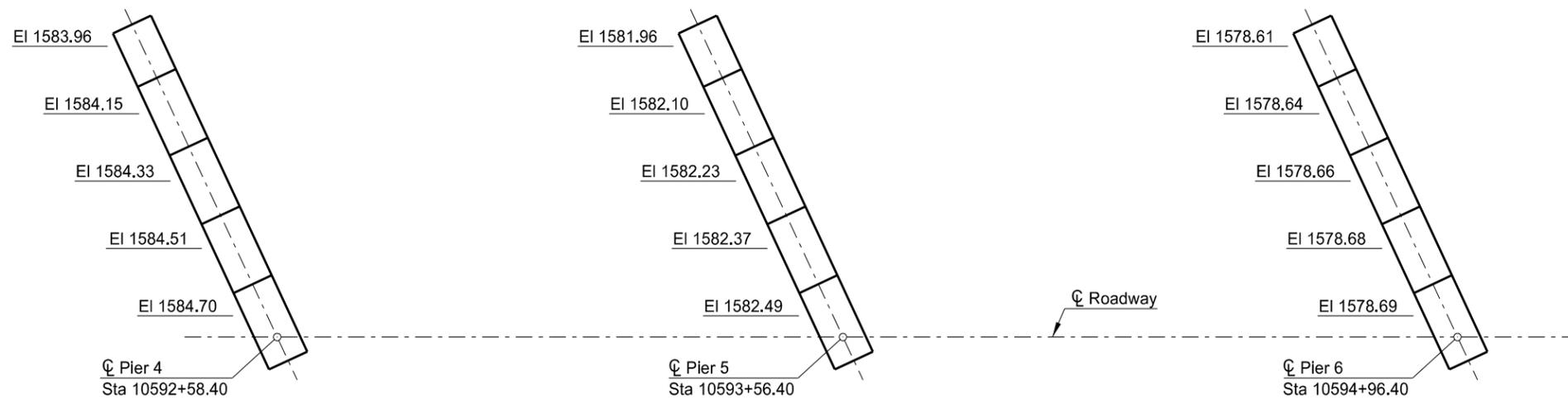


Potential conflict with existing piles. Location of new piles may require adjustment or battering. See General Notes.

PILE COORDINATES		
PILE	NORTHING	EASTING
PIER 4	G	452,314.06
	H	452,324.18
PIER 5	I	452,411.64
	J	452,423.42
PIER 6	K	452,551.25
	L	452,563.41

NOTES:
 HP10 x 42 Pile shall be driven to 105 Tons.
 HP12 x 53 Pile shall be driven to 130 Tons.
 HP14 x 73 Pile shall be driven to 180 Tons.
 HP14 x 102 Pile shall be driven to 250 Tons.

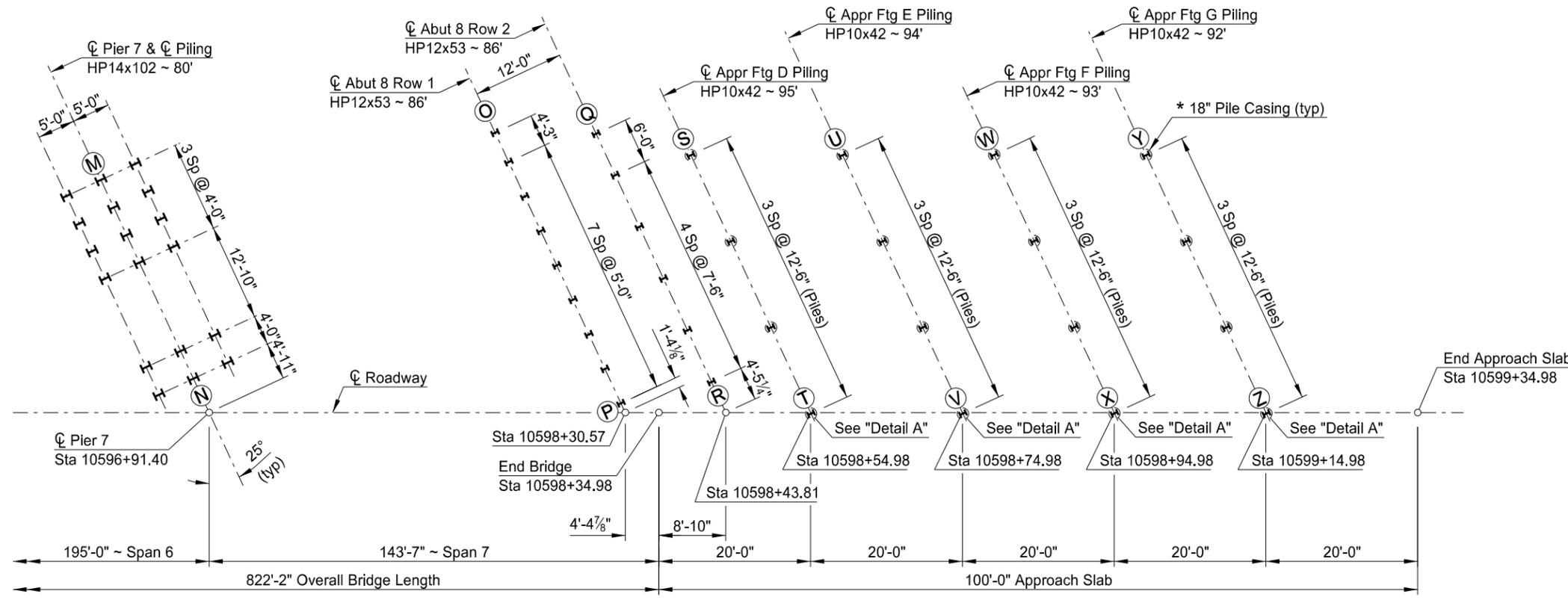
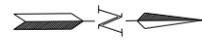
PILING LAYOUT



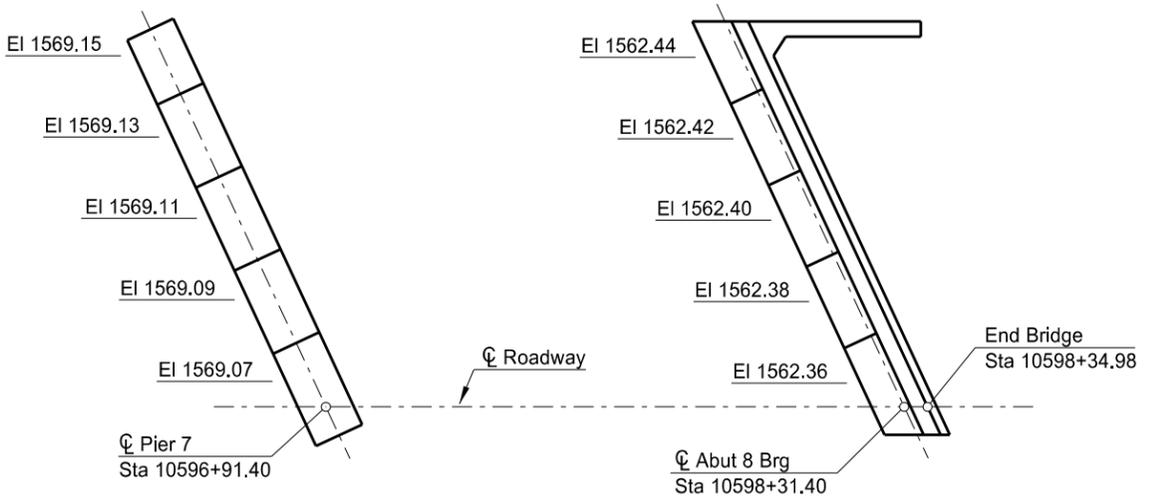
Elevations shown are to top of finished concrete.
BEARING ELEVATIONS

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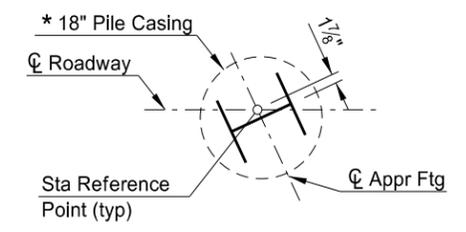
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
 SOUTHBOUND
 PILING LAYOUT & BEARING ELEVATIONS



PILING LAYOUT



Elevations shown are to top of finished concrete.
BEARING ELEVATIONS



DETAIL A

PILE COORDINATES			
	PILE	NORTHING	EASTING
PIER 7	M	452,746.45	1,774,732.03
	N	452,758.40	1,774,758.27
ABUT 8	O	452,882.78	1,774,727.05
	P	452,899.05	1,774,762.77
ABUT 8	Q	452,896.08	1,774,727.31
	R	452,911.01	1,774,760.07
APPR FTG D	S	452,908.54	1,774,730.24
	T	452,924.09	1,774,764.36
APPR FTG E	U	452,928.54	1,774,730.42
	V	452,944.09	1,774,764.54
APPR FTG F	W	452,948.52	1,774,730.55
	X	452,964.06	1,774,764.67
APPR FTG G	Y	452,968.54	1,774,730.77
	Z	452,984.08	1,774,764.90

NOTES:

HP10 x 42 Pile shall be driven to 105 Tons.
HP12 x 53 Pile shall be driven to 130 Tons.
HP14 x 73 Pile shall be driven to 180 Tons.
HP14 x 102 Pile shall be driven to 250 Tons.

* 18" Casing around approach slab piles. Piles shall be encased from the bottom of the footing to Elevation 1549.0.

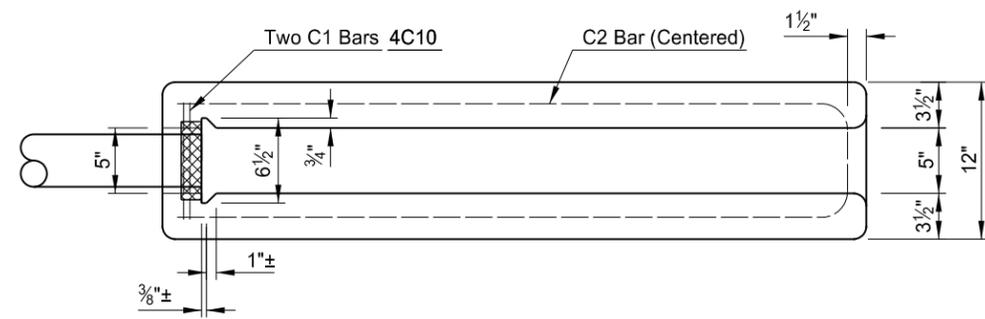
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US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

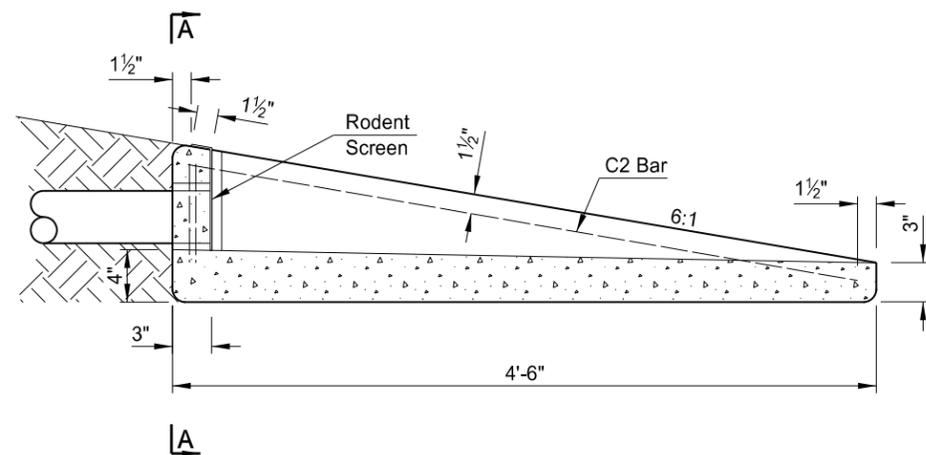
SOUTHBOUND

PILING LAYOUT &
BEARING ELEVATIONS

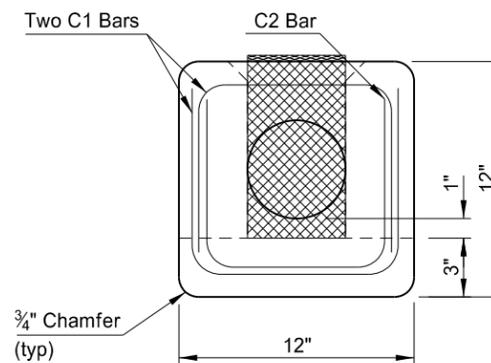
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	135



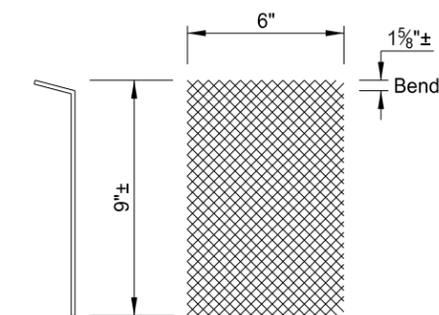
PLAN



SECTION
PRECAST CONCRETE HEADWALL



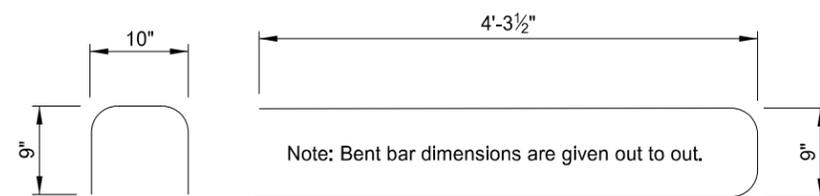
A-A



SIDE VIEW FRONT VIEW

RODENT SCREEN DETAILS

Dimensions are approximate to allow bend and a snug fit in headwall slot



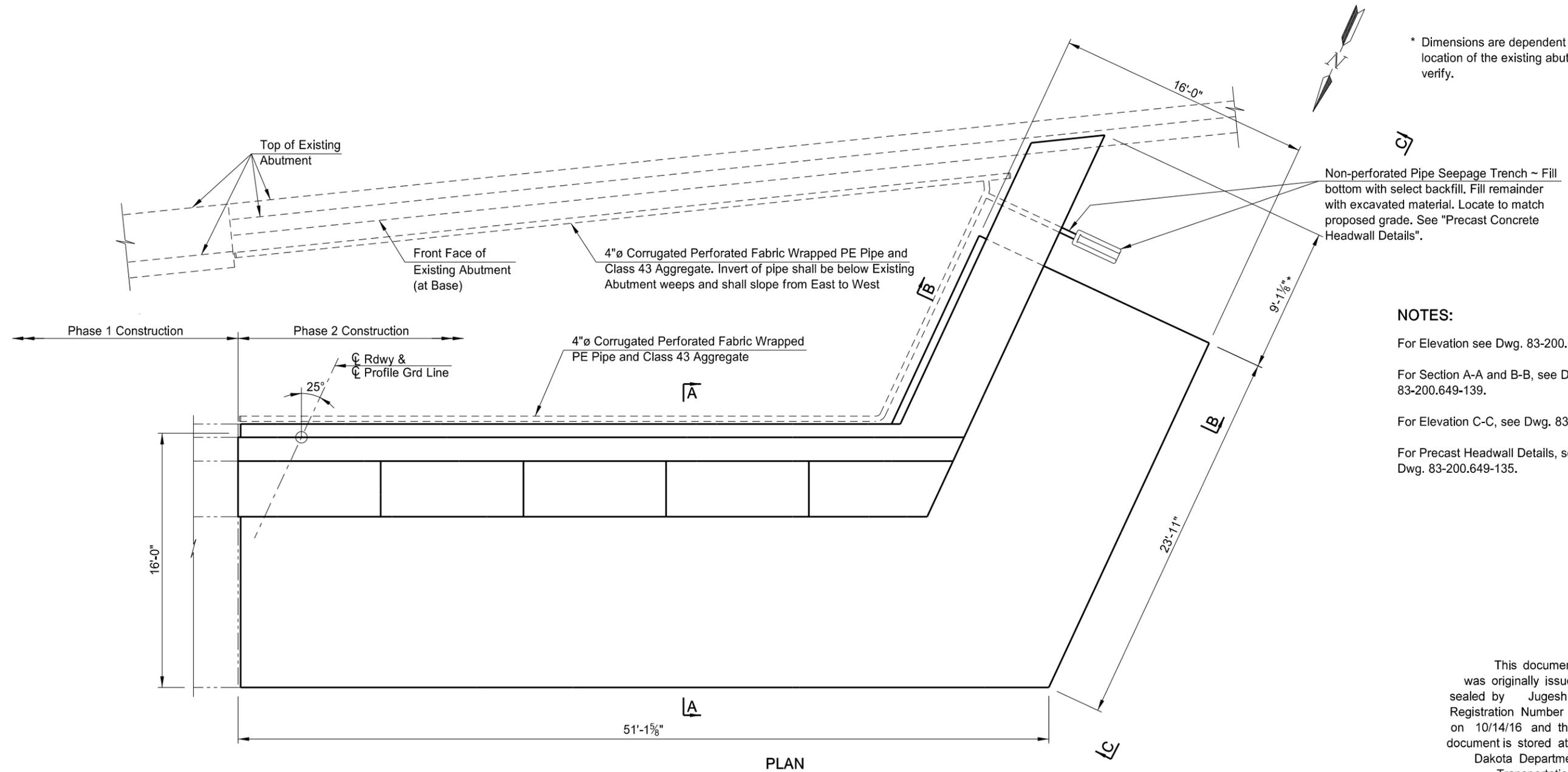
BENT BAR DETAILS

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US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

SOUTHBOUND
ABUTMENT UNDERDRAIN DETAILS

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	136



* Dimensions are dependent upon actual location of the existing abutment. Field verify.

Non-perforated Pipe Seepage Trench ~ Fill bottom with select backfill. Fill remainder with excavated material. Locate to match proposed grade. See "Precast Concrete Headwall Details".

NOTES:

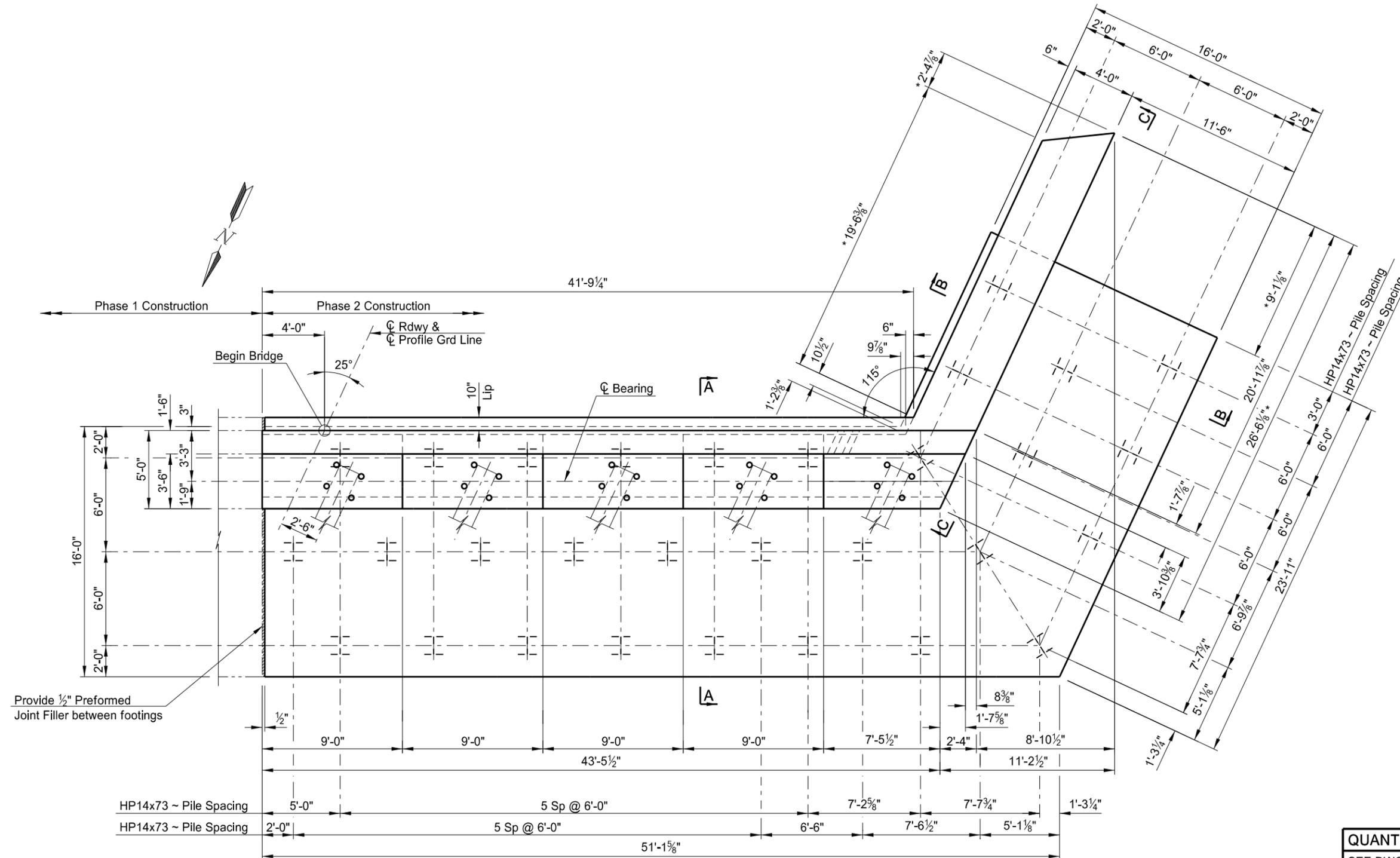
- For Elevation see Dwg. 83-200.649-138.
- For Section A-A and B-B, see Dwg. 83-200.649-139.
- For Elevation C-C, see Dwg. 83-200.649-140.
- For Precast Headwall Details, see Dwg. 83-200.649-135.

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QUANTITIES
SEE DWG. 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 1 UNDERDRAIN DETAILS (SHOWING DIMENSIONS)

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	137

* Dimensions are dependent upon actual location of the existing abutment. Field verify.



NOTES:
 For Elevation see Dwg. 83-200.649-138.
 For Section A-A and B-B, see Dwg. 83-200.649-139.
 For Elevation C-C, see Dwg. 83-200.649-140.

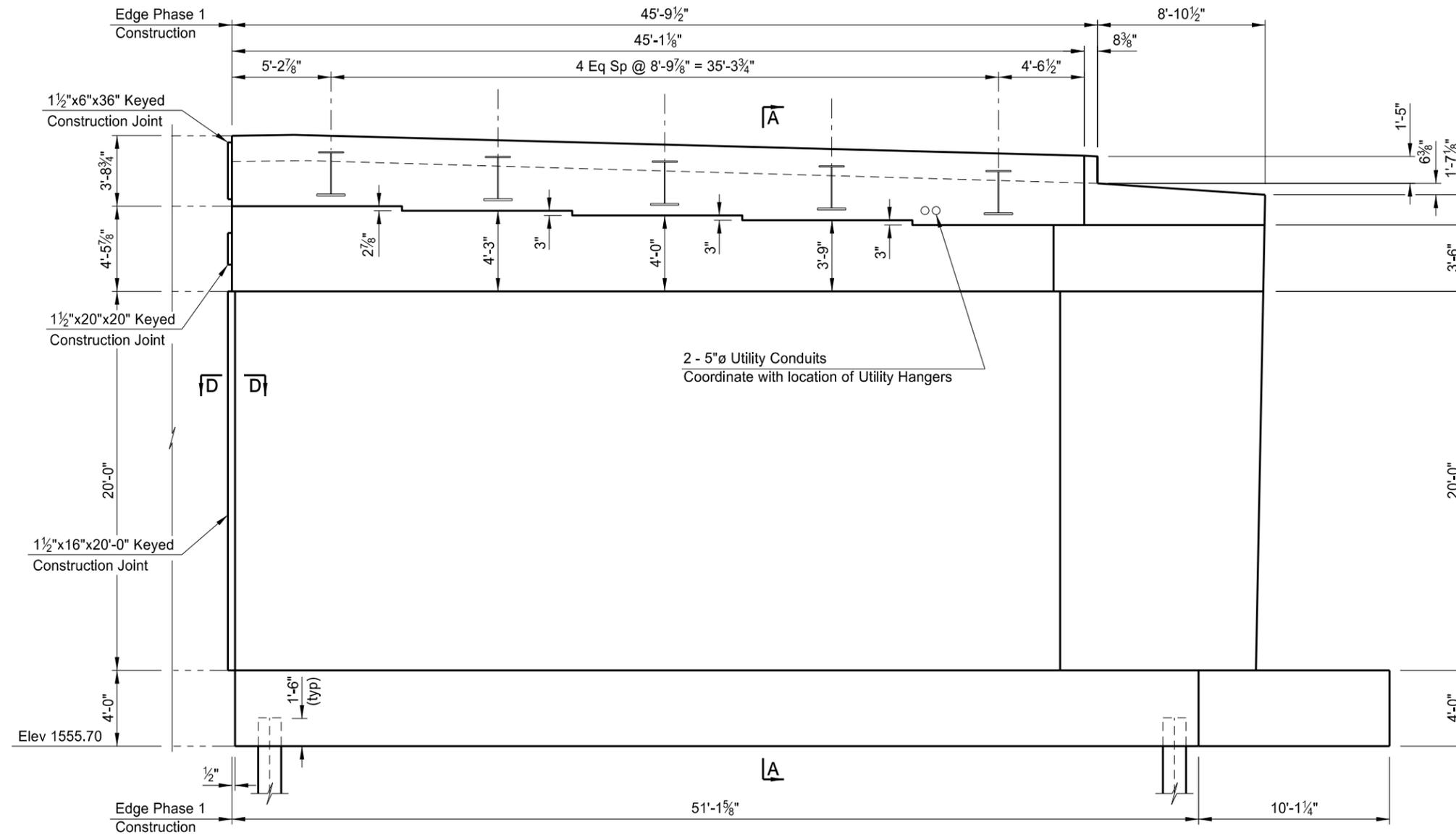
NOMENCLATURE:
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QUANTITIES
SEE DWG. 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 1 DETAILS (SHOWING DIMENSIONS)

PLAN

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	138



ELEVATION

NOTE:

For Section A-A and D-D, see Dwg. 83-200.649-139.

NOMENCLATURE:

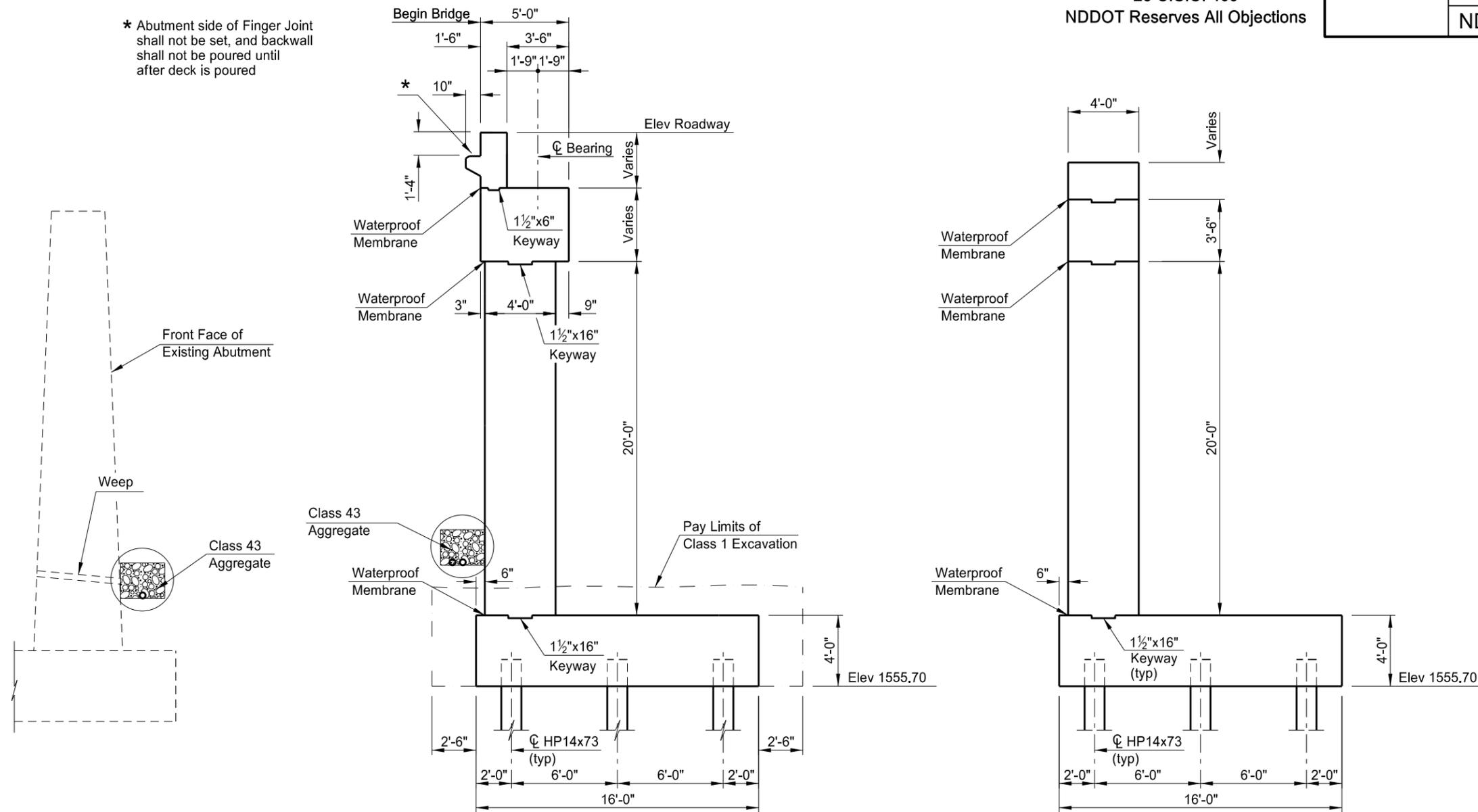
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QUANTITIES
SEE DWG. 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER SOUTHBOUND ABUTMENT 1 DETAILS (SHOWING DIMENSIONS)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	139

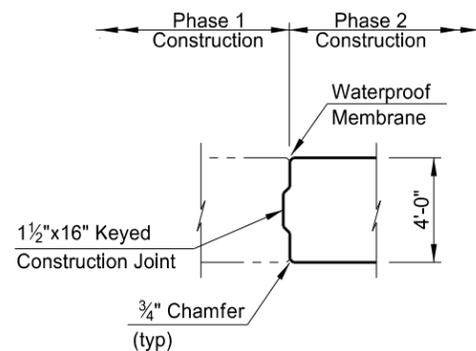
* Abutment side of Finger Joint shall not be set, and backwall shall not be poured until after deck is poured



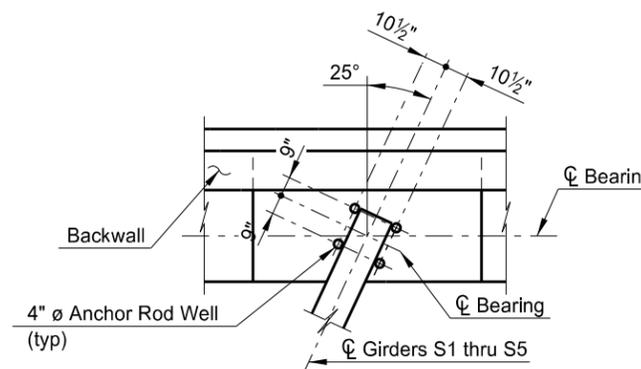
NOTES:

- For Detail "A", see Dwg 83-200.649-135.
- Use waterproof membrane that meets the requirements of Section 602.03 B. Center the waterproof membrane (1'-0" minimum width) on the joint.
- Weeps in Existing Abutment wall shall be cleaned out prior to installation of perforated pipe.

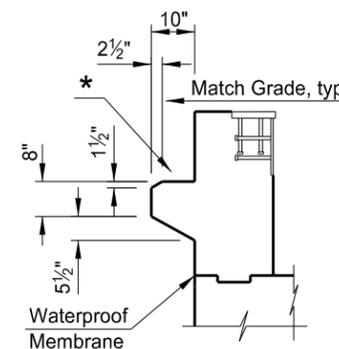
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SECTION D-D



TYPICAL PLAN
ABUTMENT BEARING SEAT DETAIL
GIRDERS S1 THRU S5



APPROACH LIP DETAIL

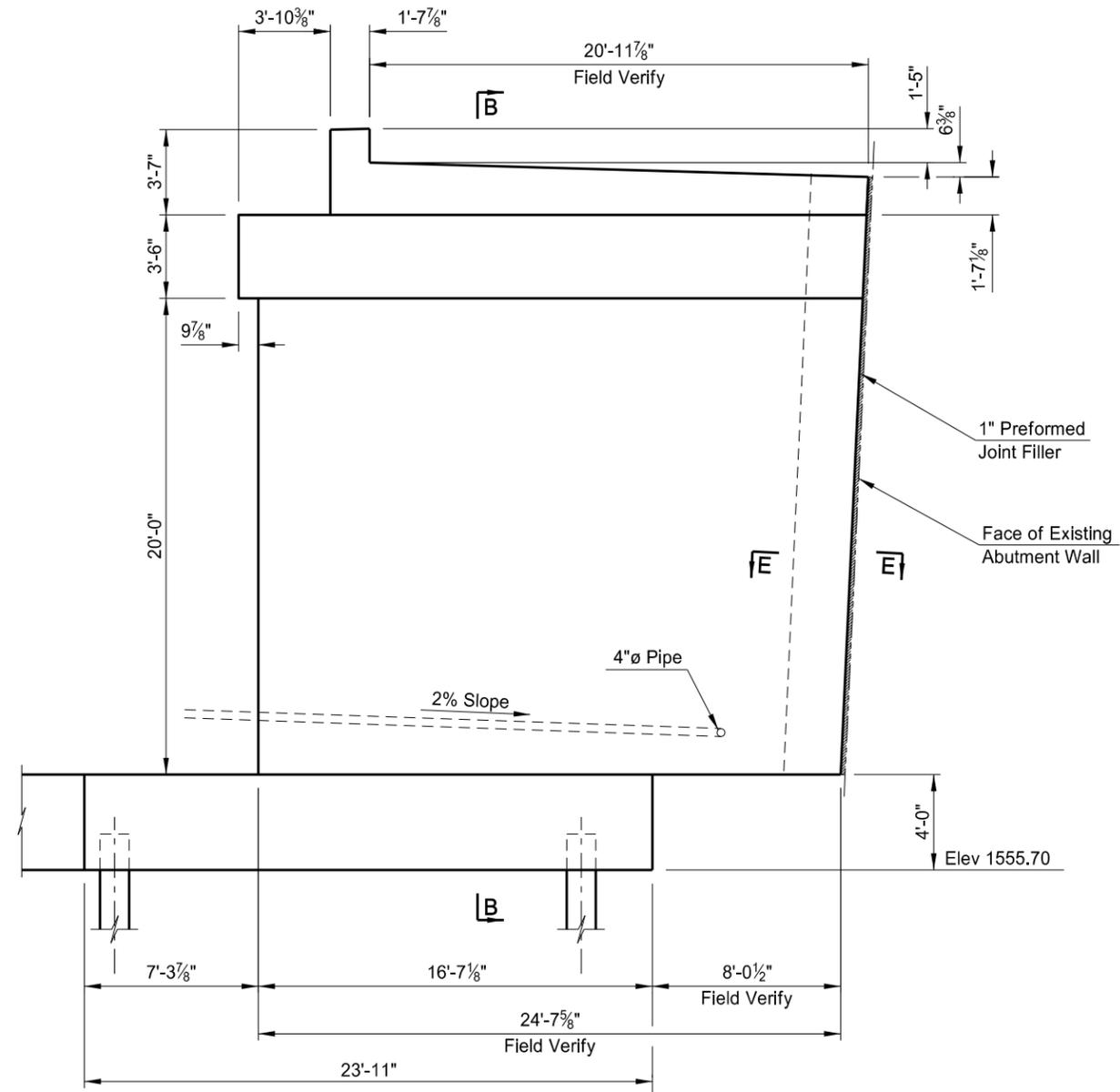
QUANTITIES

SEE DWG. 83-200.649-141

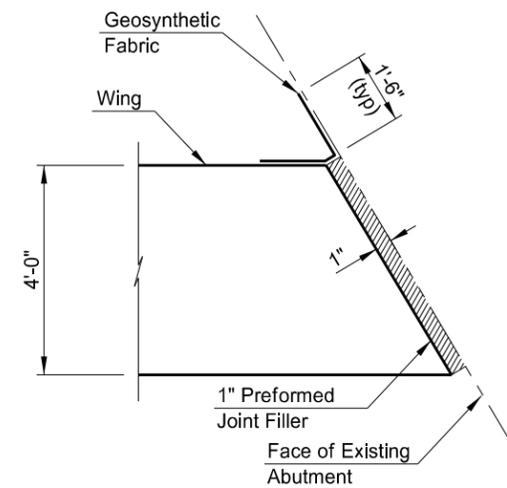
US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

SOUTHBOUND
ABUTMENT 1 DETAILS
(SHOWING DIMENSIONS)

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	140



ELEVATION C-C



All material and work for Geosynthetic Fabric shall be included in the pay item "Class AE-3 Concrete."

SECTION E-E

NOTE:

For Section B-B, see Dwg 83-200.649-139.

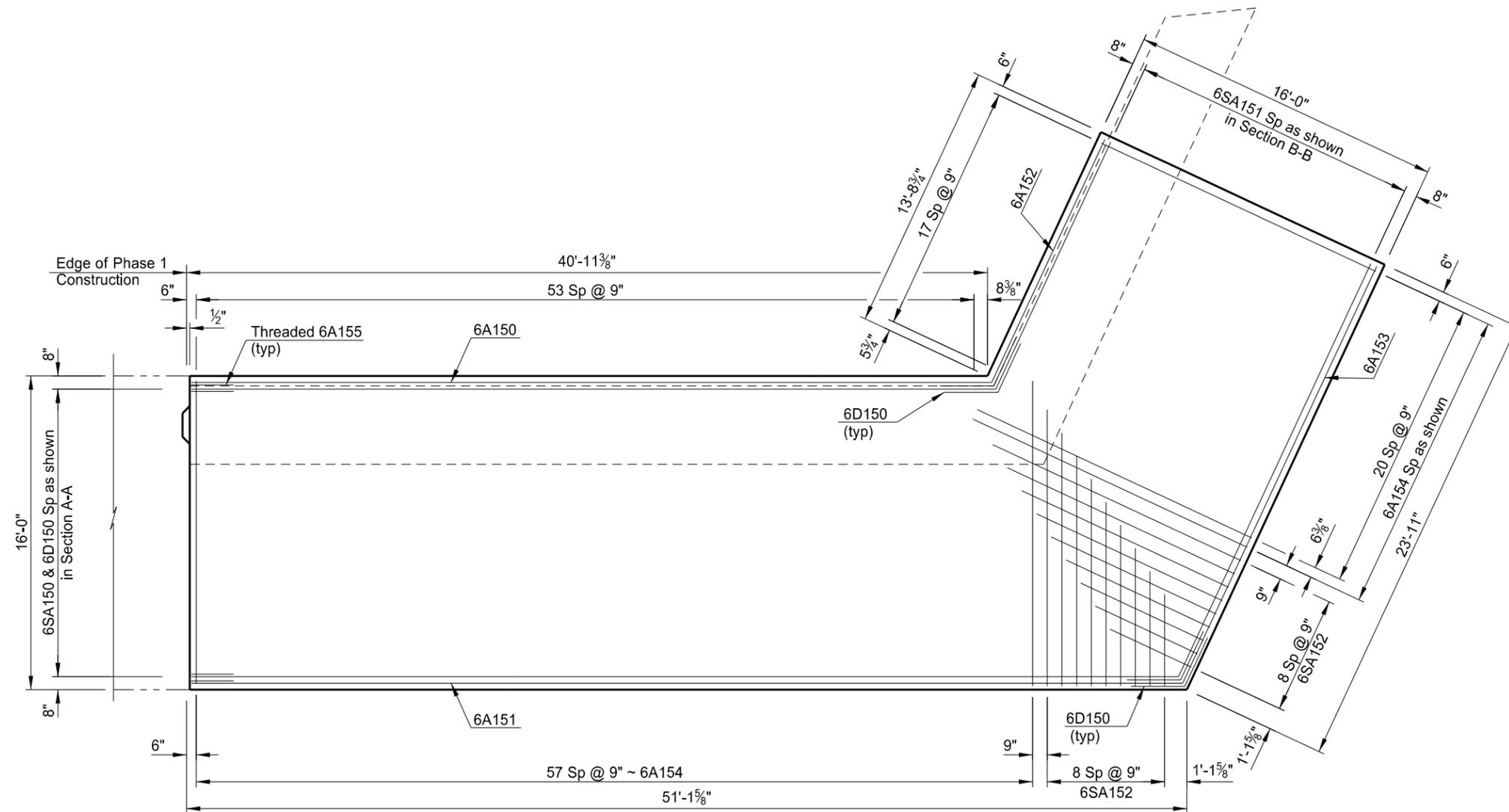
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QUANTITIES
SEE DWG. 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 1 DETAILS (SHOWING DIMENSIONS)

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	142



NOTE:

For Section A-A & Section B-B, see Dwg. 83-200.649-146.

NOMENCLATURE:

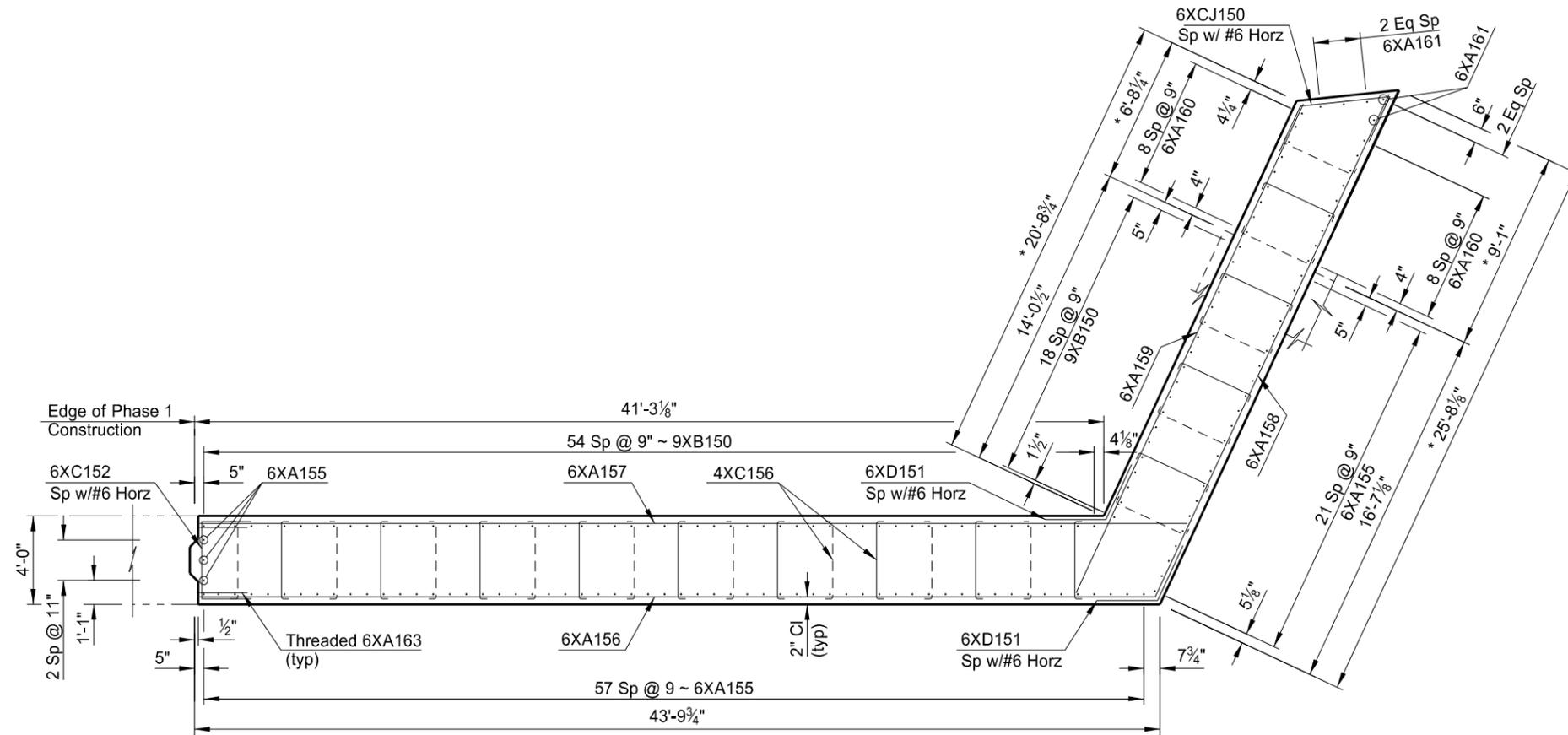
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FOOTING PLAN
 TOP REINFORCING

QUANTITIES
SEE DWG 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 1 DETAILS (SHOWING REINFORCING)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	143



BEARING WALL PLAN
 REINFORCING

* Dimensions are dependent upon actual location of the existing abutment. Field verify.

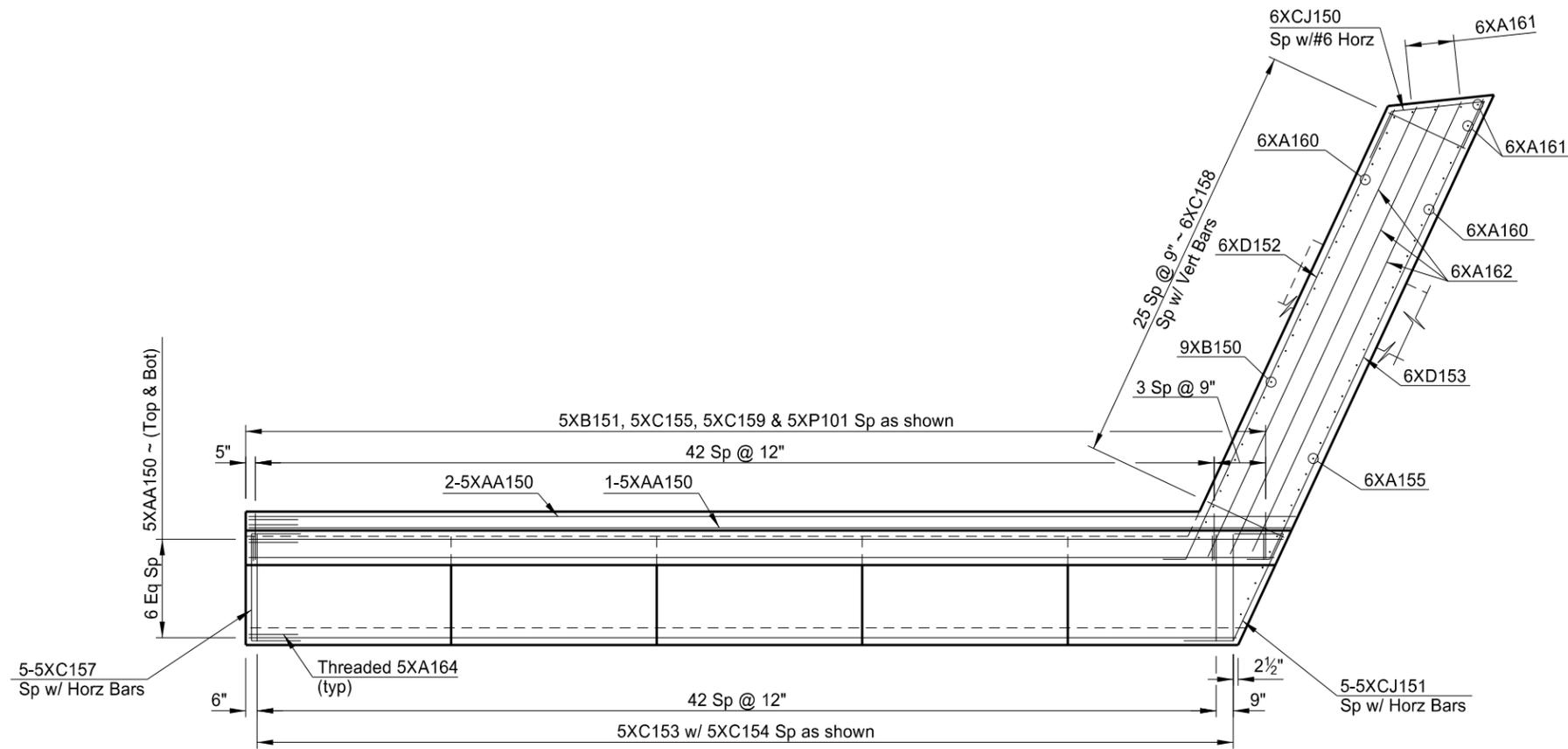
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QUANTITIES
SEE DWG 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 1 DETAILS (SHOWING REINFORCING)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	144



NOTE:
 For spacing of wingwall reinforcing, see Dwg 83-200.649-147.

NOMENCLATURE:

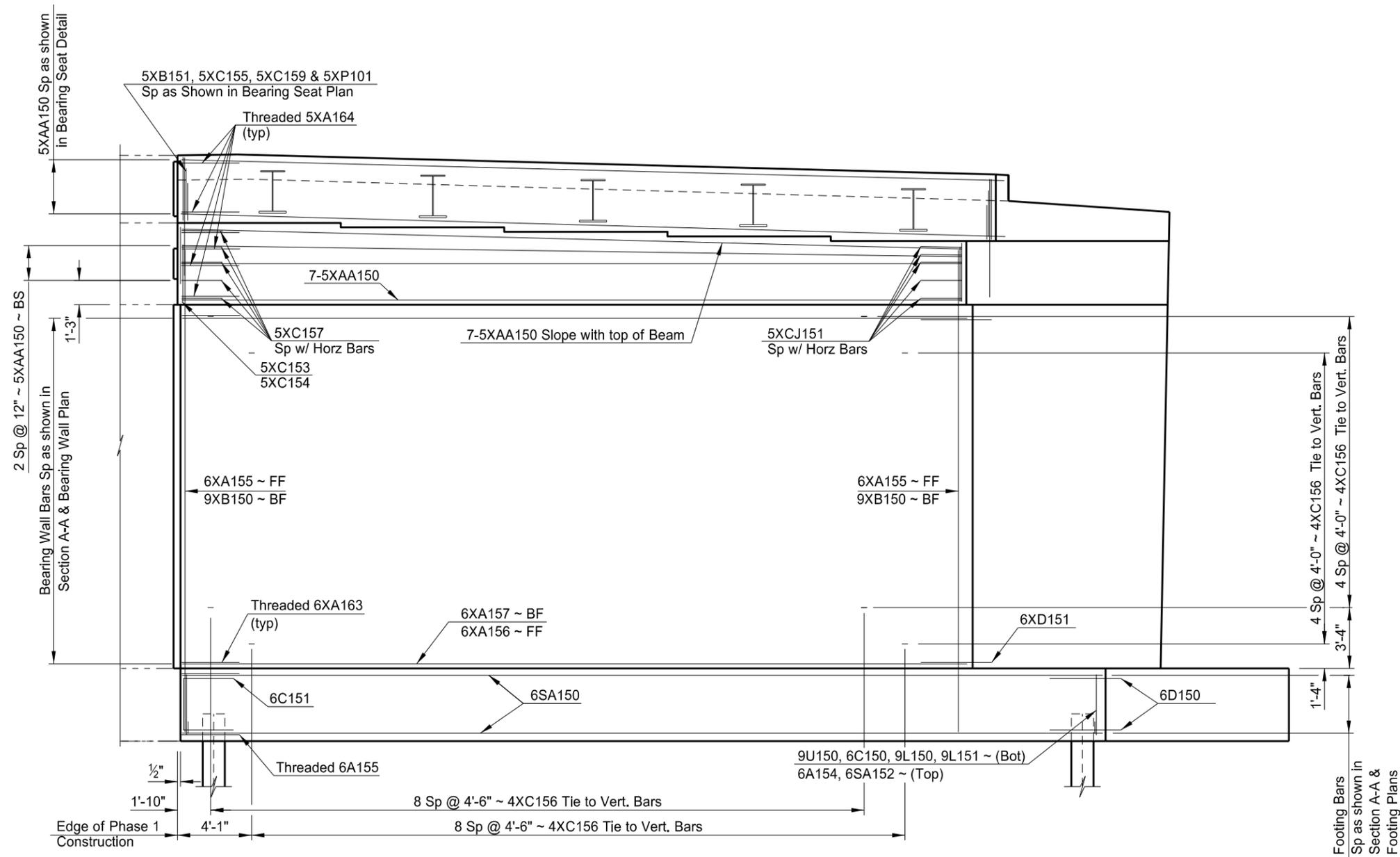
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**BEARING SEAT PLAN
 REINFORCING**

QUANTITIES
SEE DWG. 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 1 DETAILS (SHOWING REINFORCING)

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	145



ELEVATION

NOTES:

For Footing Plans, see Dwg. 83-200.649-141 and 83-200.649-142.
For Section A-A and Bearing Seat Detail, see Dwg 83-200.649-146.
For Bearing Wall Plan, See Dwg 83-200.649-143.
For Bearing Seat Plan, see Dwg 83-200.649-144.

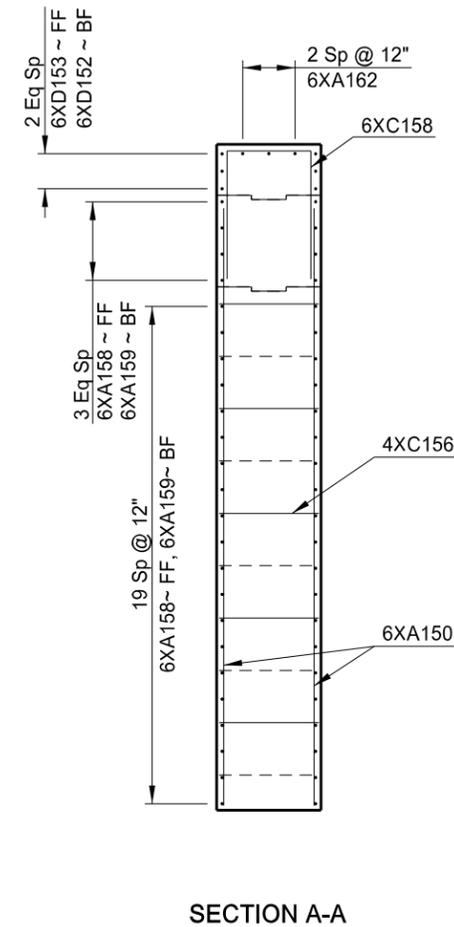
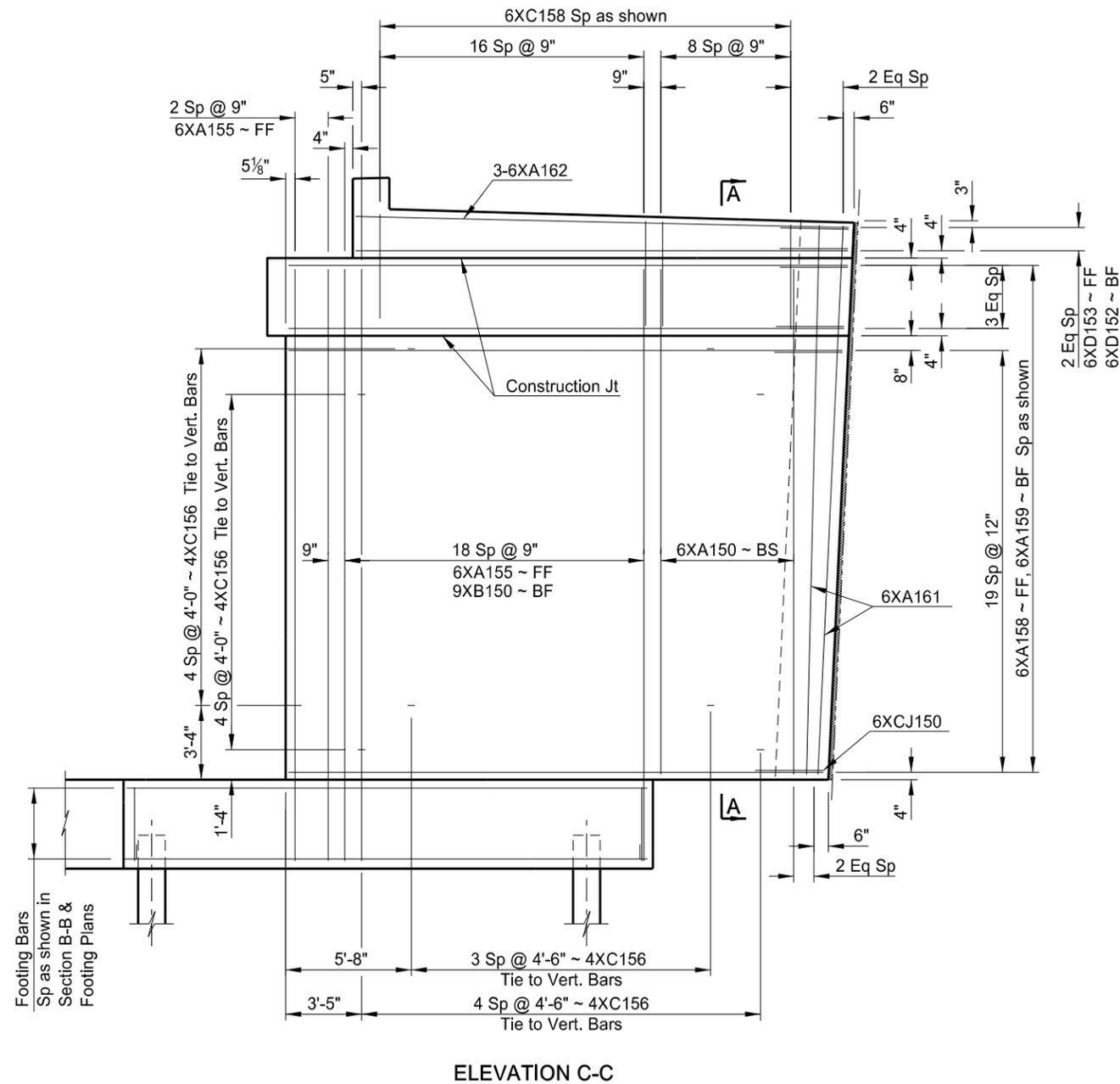
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QUANTITIES
SEE DWG. 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 1 DETAILS (SHOWING REINFORCING)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	147



NOTES:

For Footing Plans, see Dwg 83-200.649-141 and Dwg 83-200.649-142.

For Section B-B, see Dwg 83-200.649-146.

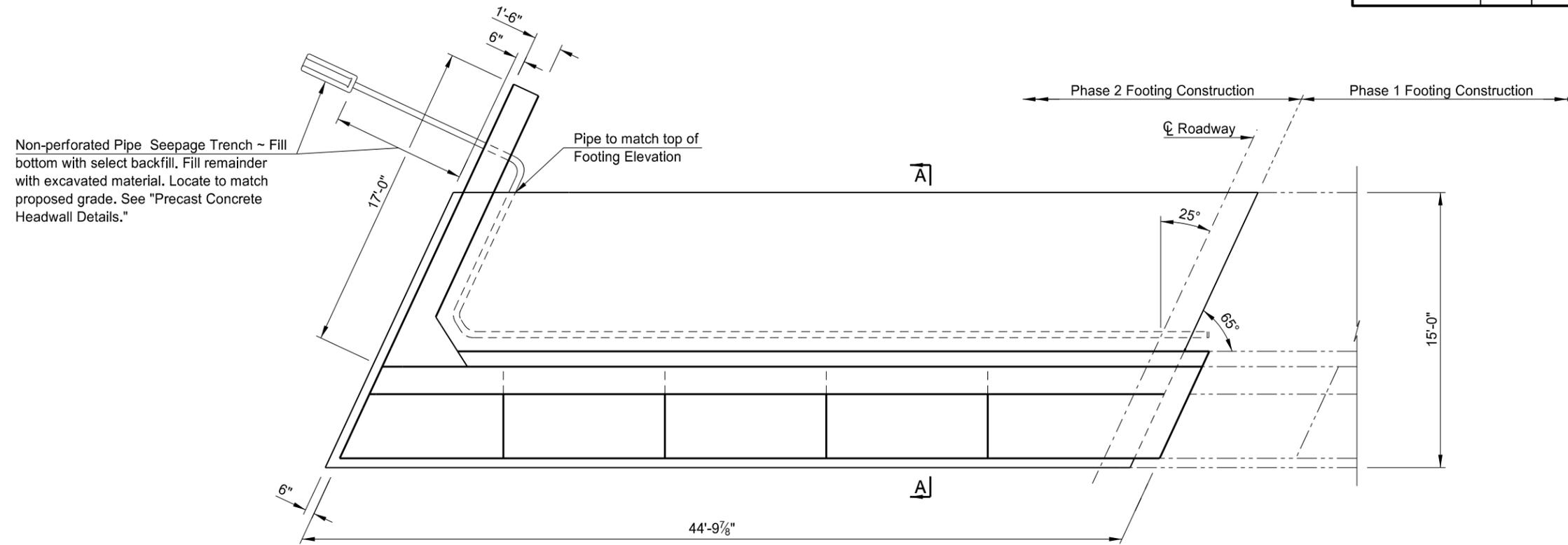
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QUANTITIES
SEE DWG. 83-200.649-141
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND ABUTMENT 1 DETAILS (SHOWING REINFORCING)

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	148

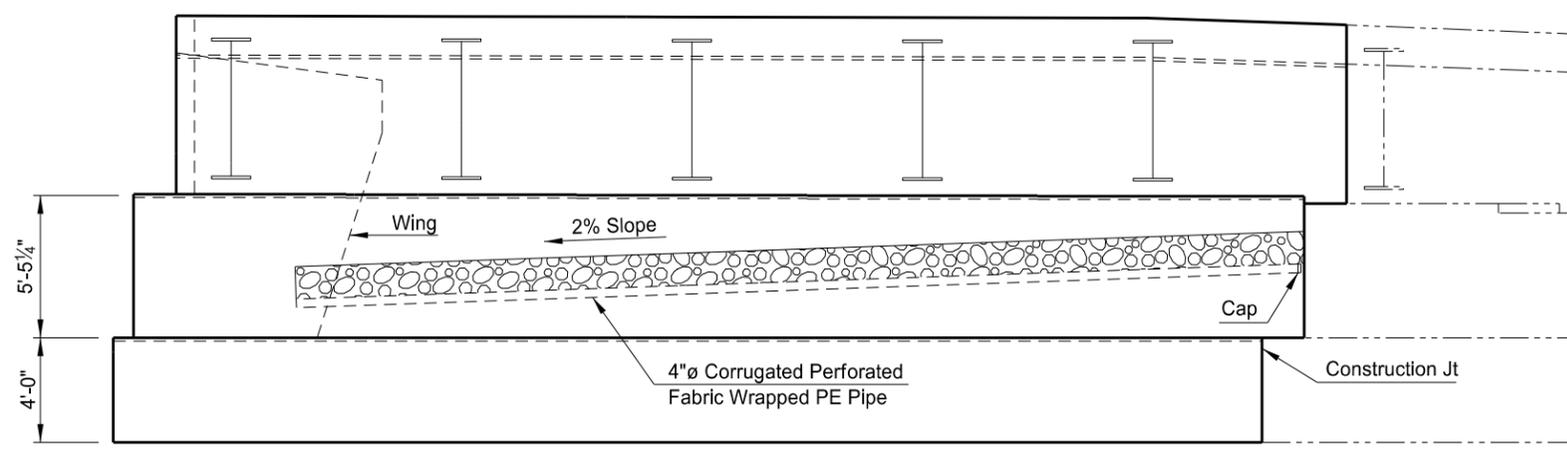


PLAN

NOTES:

For Section A-A, see Dwg 83-200.649-152.

For Precast Concrete Headwall Details, see Dwg 83-200.649-135.

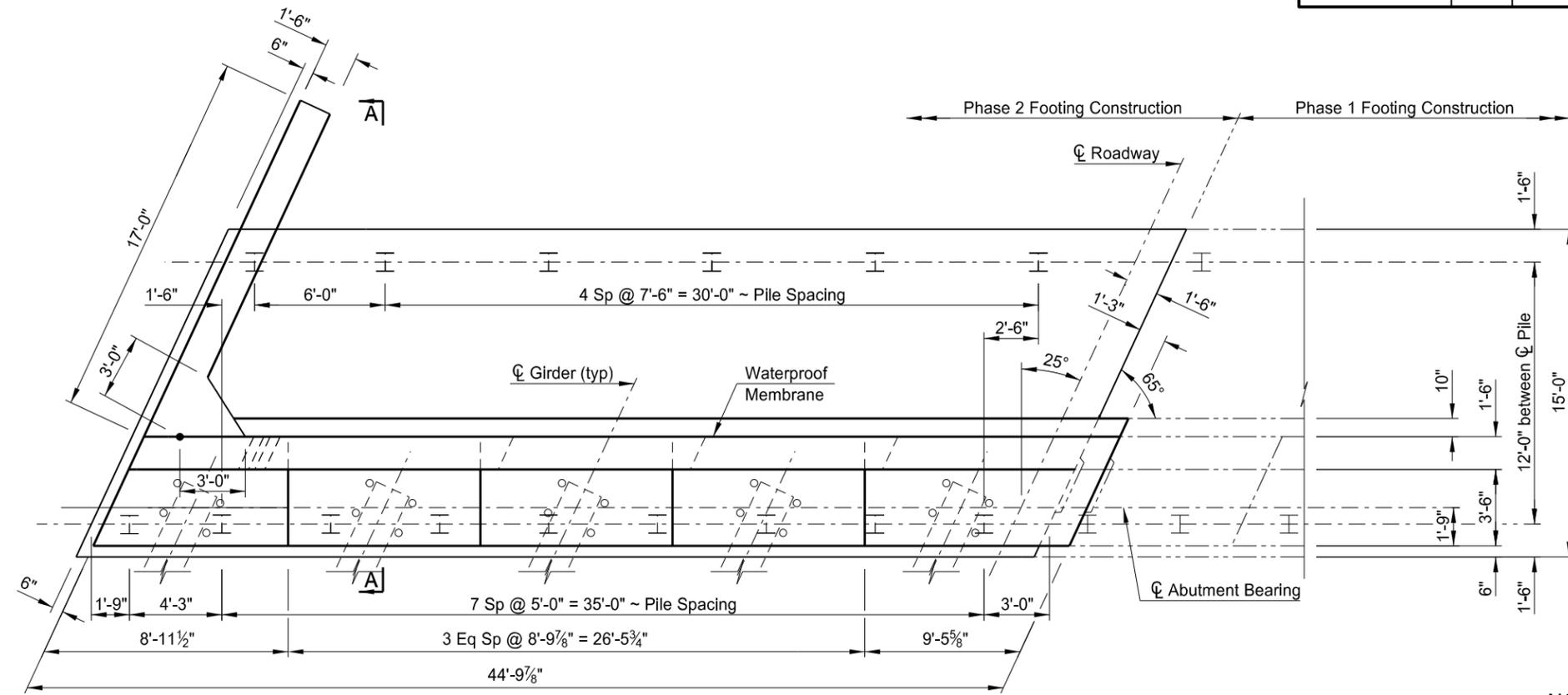


FRONT FACE OF ABUTMENT
(Drainage Pipe on Back Face)

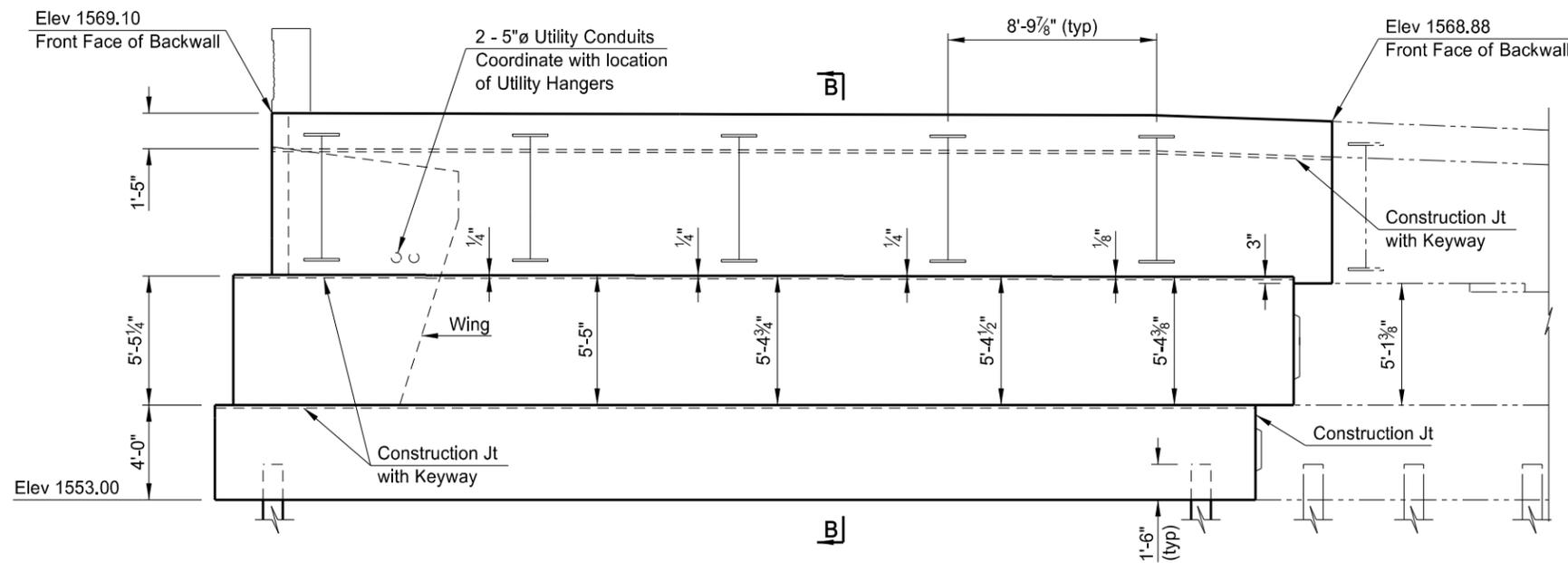
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QUANTITIES
SEE DWG 83-200-649-151
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 8 UNDERDRAIN DETAILS

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	149



PLAN



ELEVATION

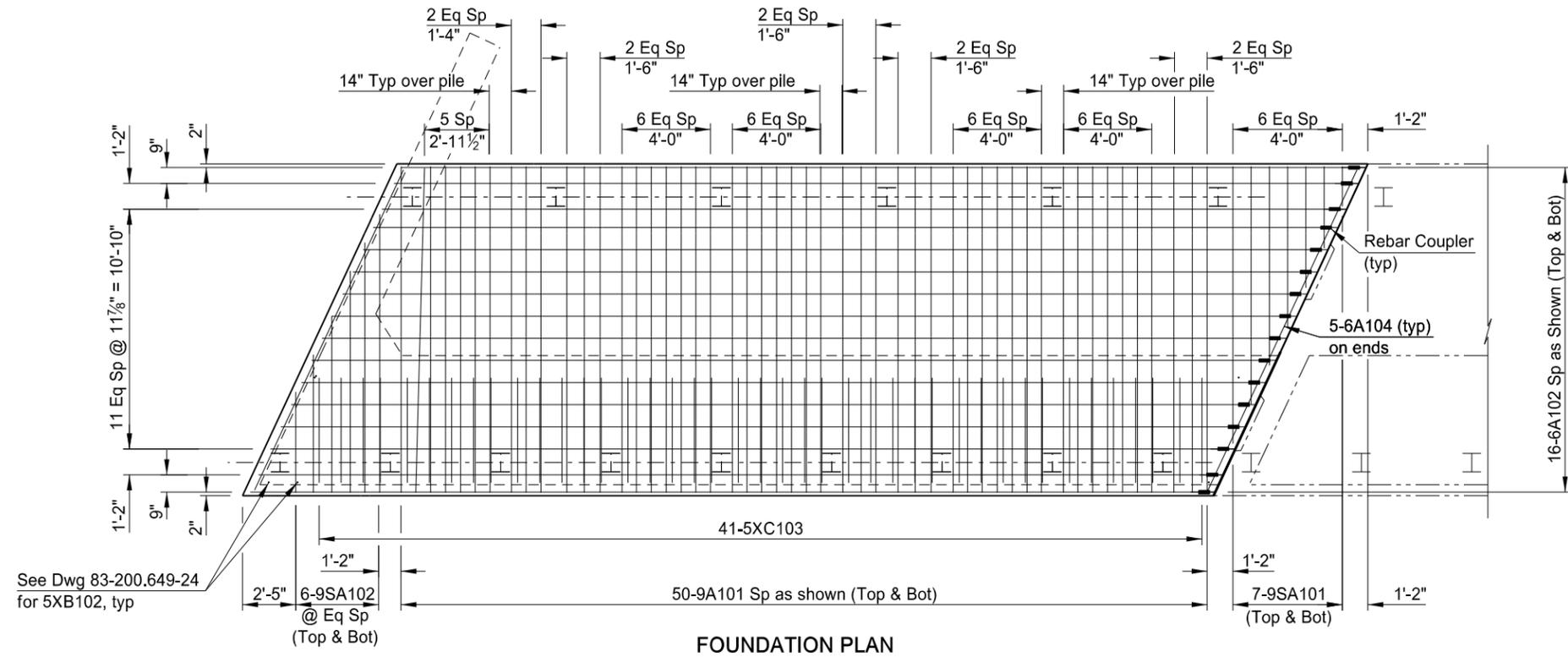
NOTES:

- For Section A-A, see Dwg 83-200.649-152.
- For Drain Details, see Dwg 83-200.649-135.
- For Section B-B, see Dwg 83-200.649-150.

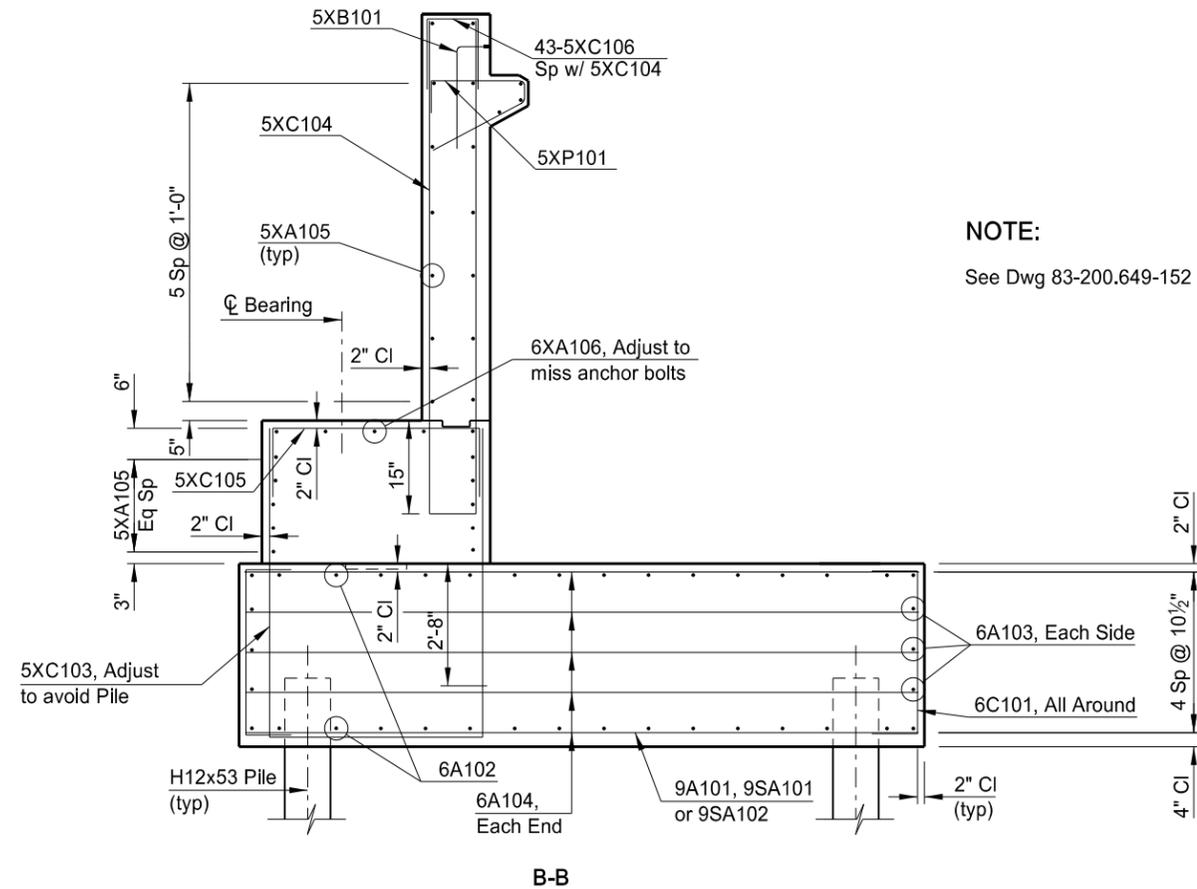
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QUANTITIES
SEE DWG 83-200.649-151
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 8
(SHOWING DIMENSIONS)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	150



FOUNDATION PLAN

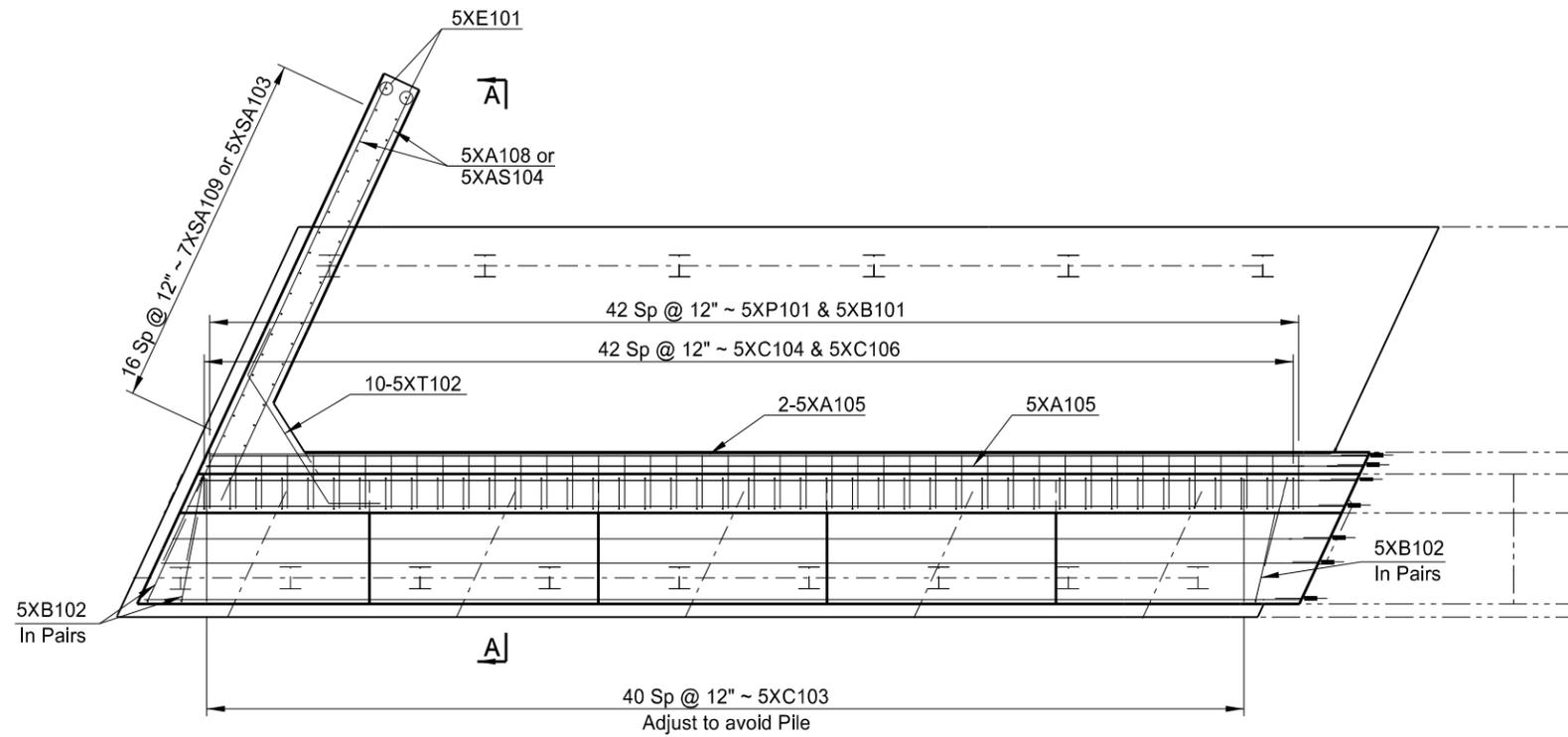


NOTE:
See Dwg 83-200.649-152 for dimensions.

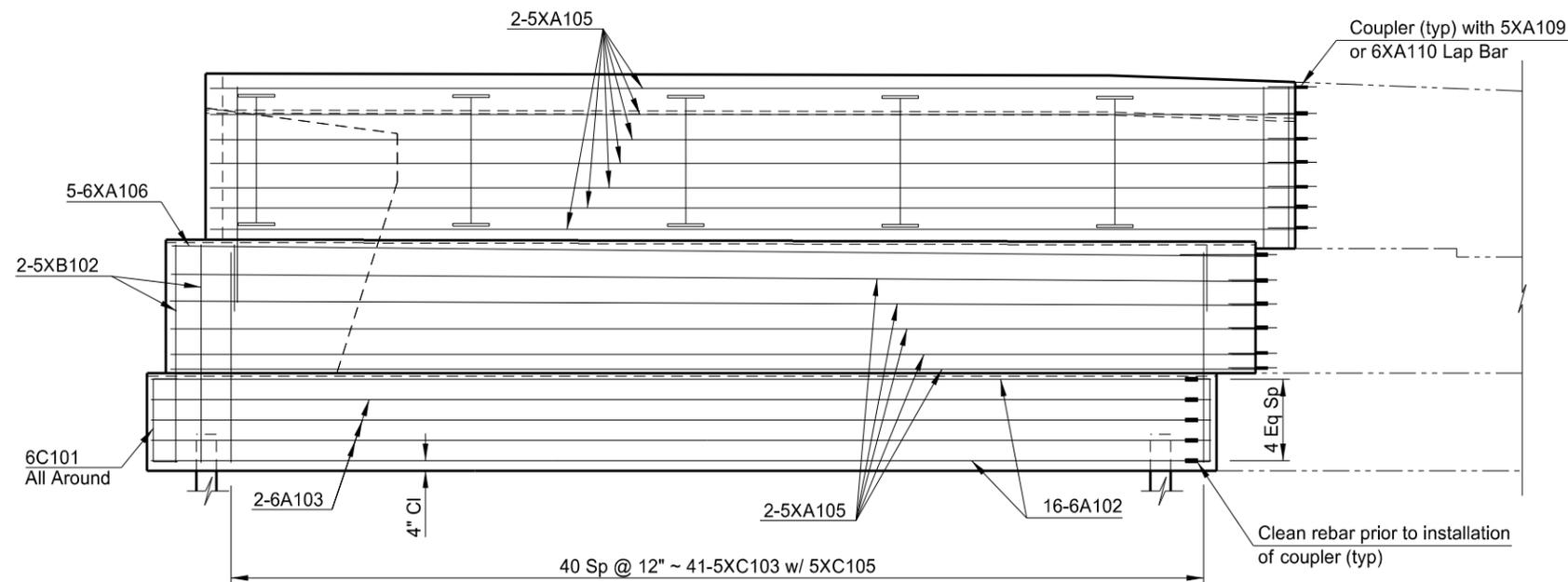
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QUANTITIES
SEE DWG 83-200.649-151
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ABUTMENT 8 FOUNDATION (SHOWING REINFORCING)

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	151



PLAN



ELEVATION

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QUANTITIES	(ABUTMENT 8 SB)
CLASS AE-3 CONCRETE	170.4 CY
REINFORCING STEEL	9,553 LBS
REINFORCING STEEL - EPOXY COATED	5,392 LBS

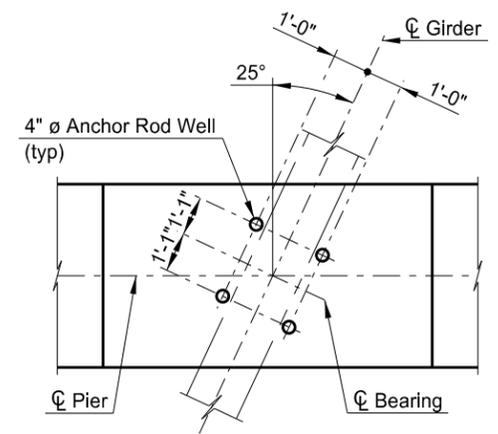
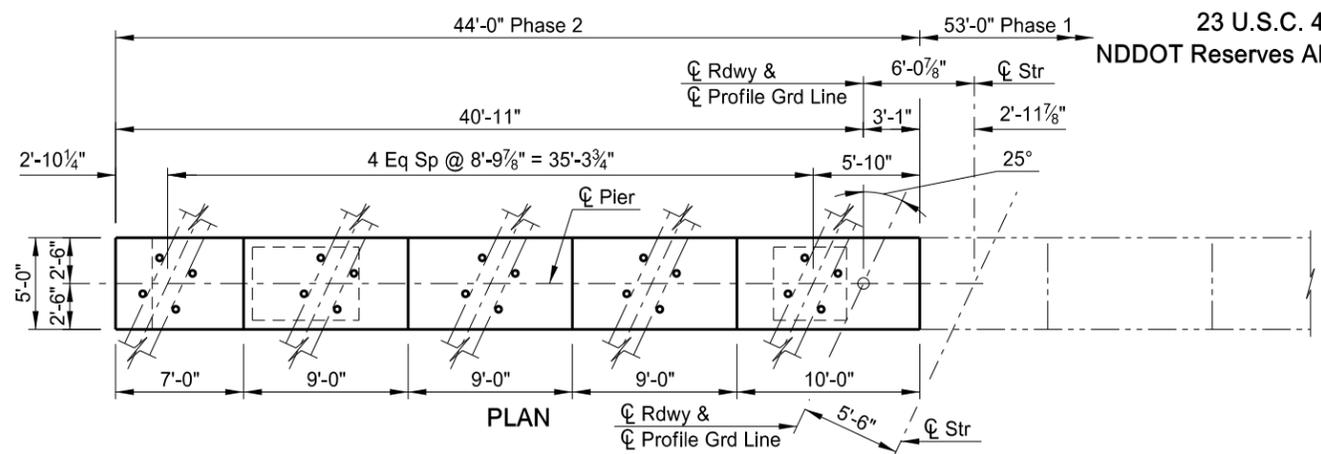
US-83 OVER CP AND BNSF RAILWAYS
 AND MOUSE RIVER

SOUTHBOUND

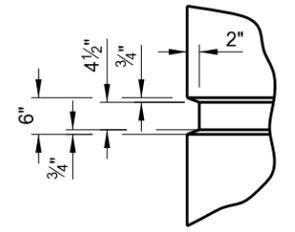
ABUTMENT 8
 (SHOWING REINFORCING)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	153

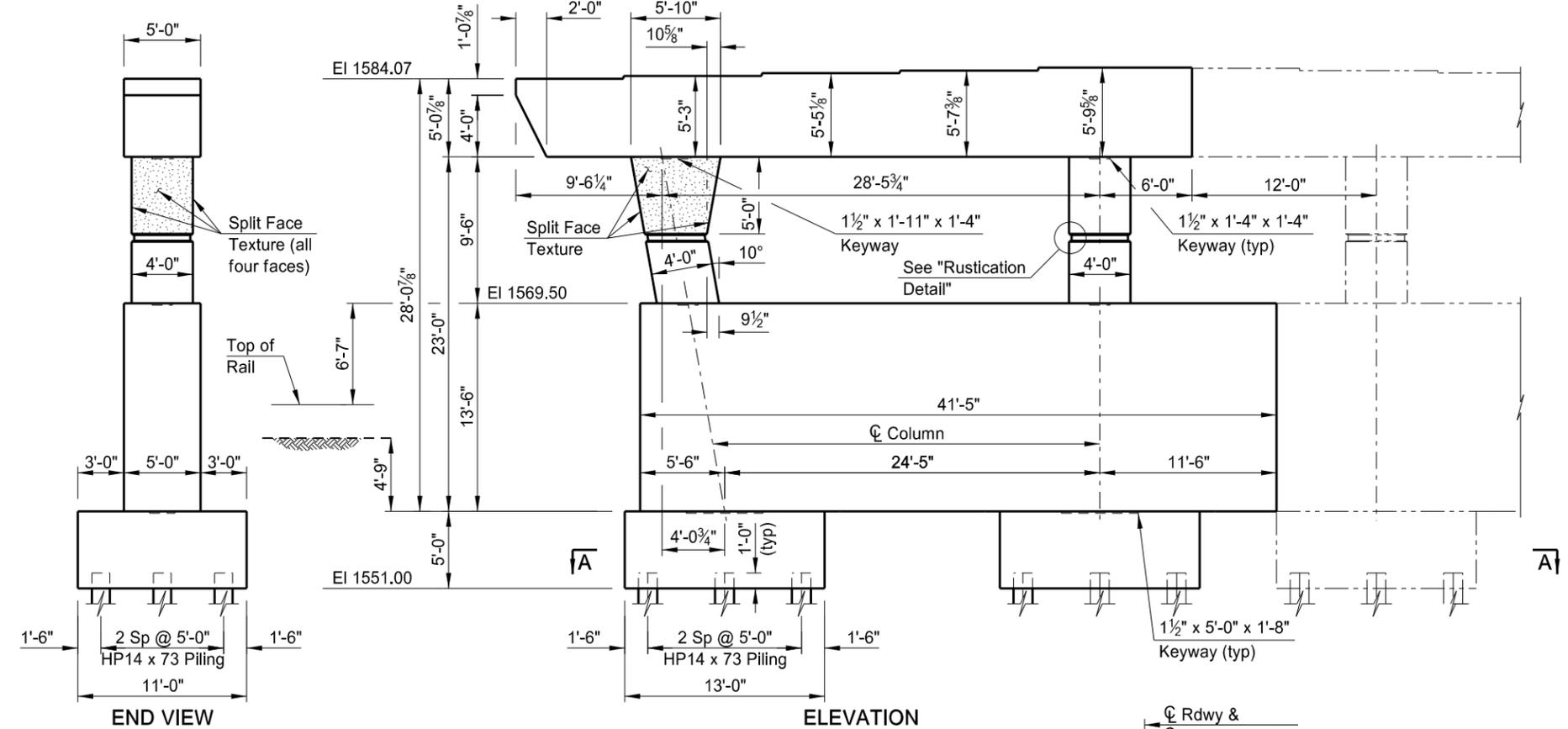
23 U.S.C. 409
NDDOT Reserves All Objections



ANCHOR WELL LAYOUT

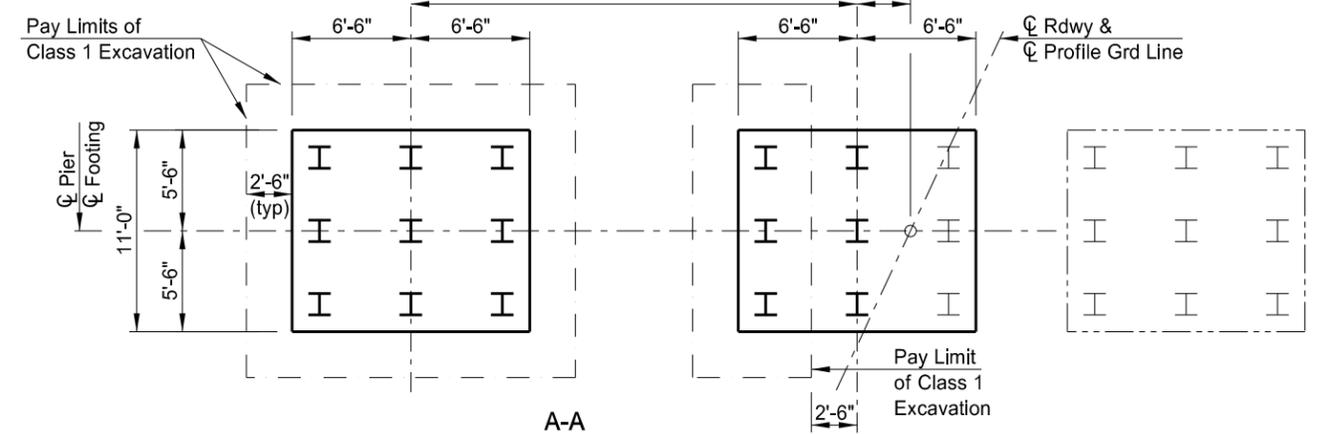


RUSTICATION DETAIL



END VIEW

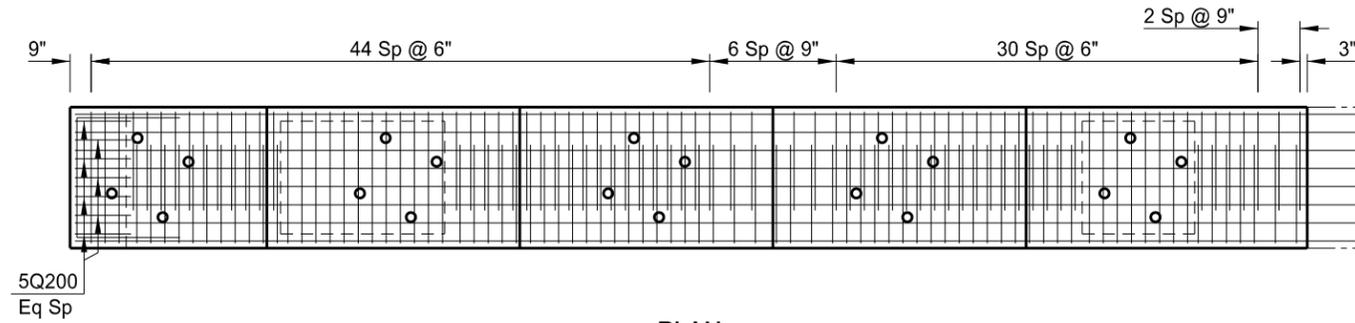
ELEVATION



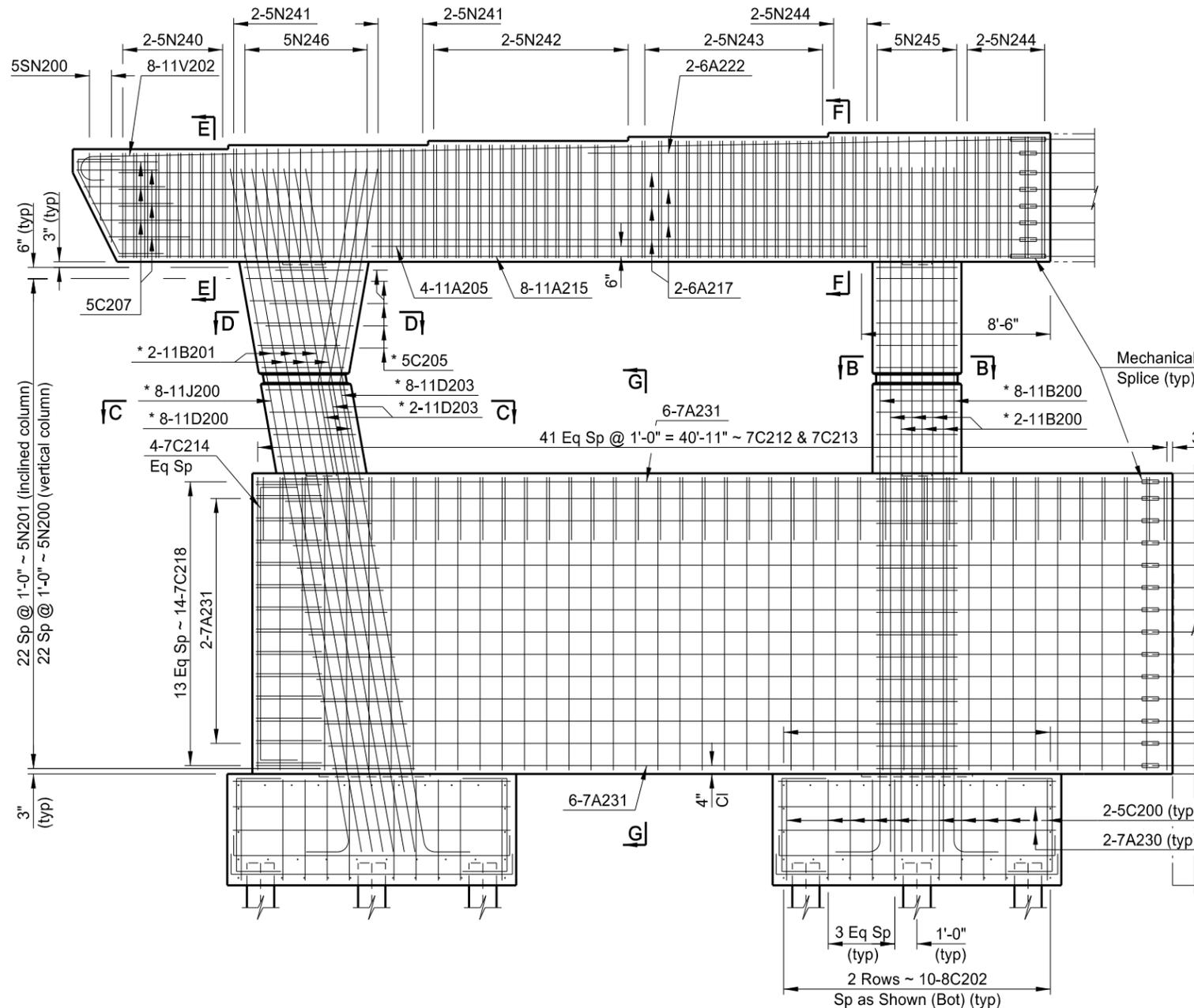
A-A

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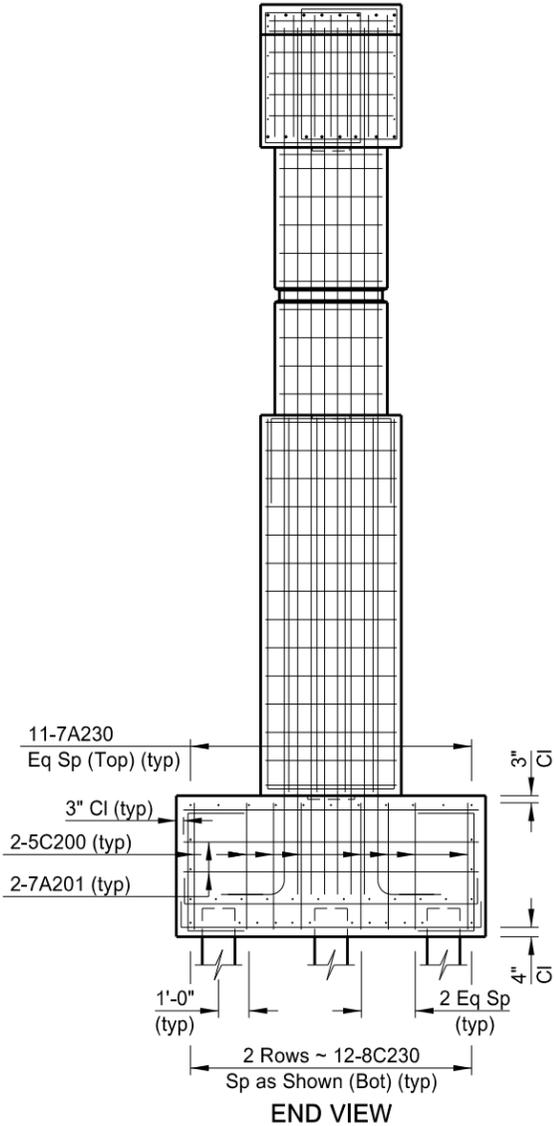
QUANTITIES
SEE DWG 83-200.649-154
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
PIER 2 DETAILS (SHOWING DIMENSIONS)



PLAN



ELEVATION



END VIEW

* The 11B200, 11B201, 11D200, 11D203 and 11J200 bars shall have an embedment of 4'-3" into the cap beam.

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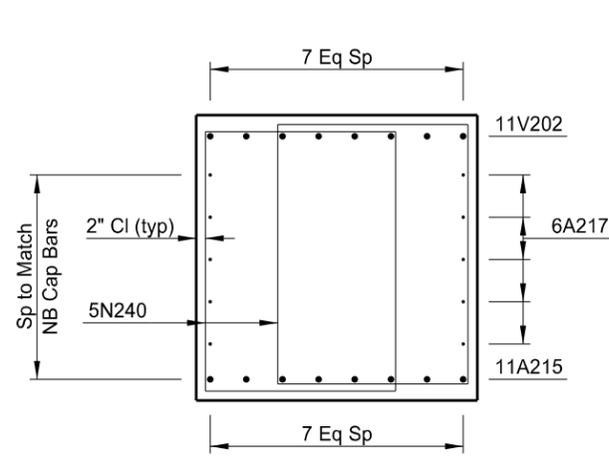
QUANTITIES	
CLASS AE-3 CONCRETE	212.2 CY
REINFORCING STEEL	32,073 LBS

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

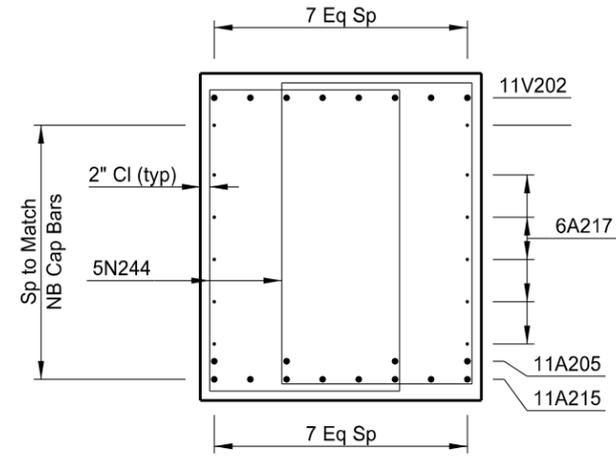
SOUTHBOUND

PIER 2 DETAILS
(SHOWING REINFORCING)

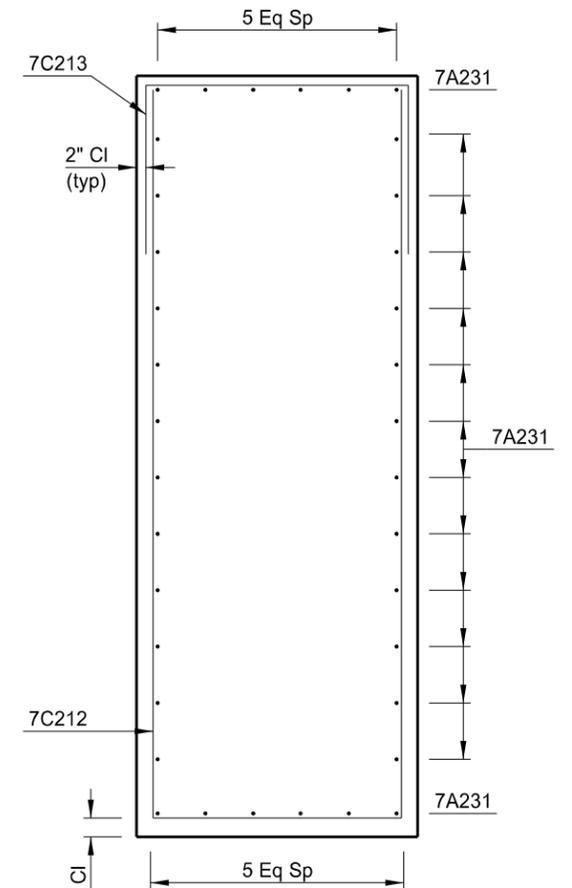
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	155



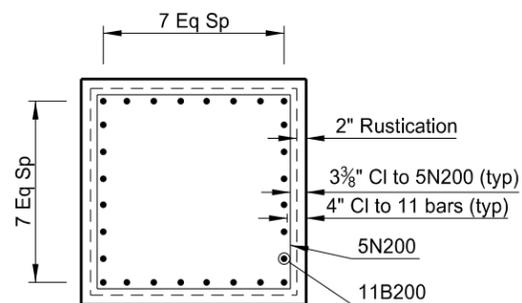
E-E



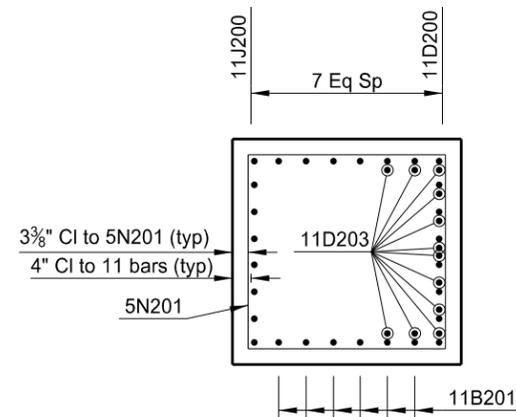
F-F



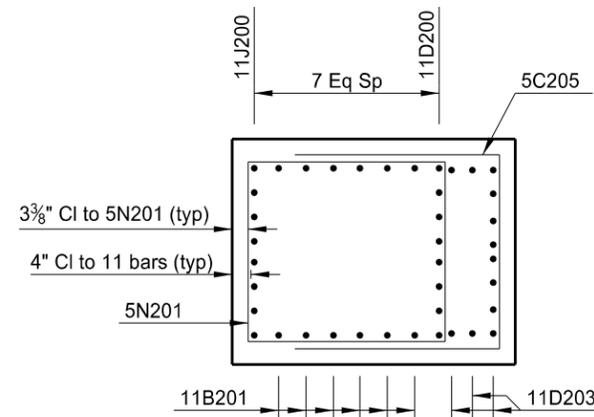
G-G



B-B



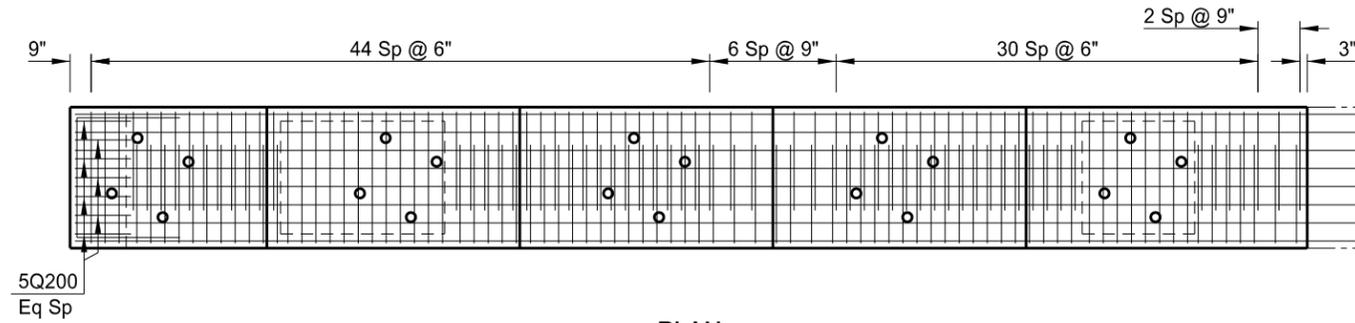
C-C



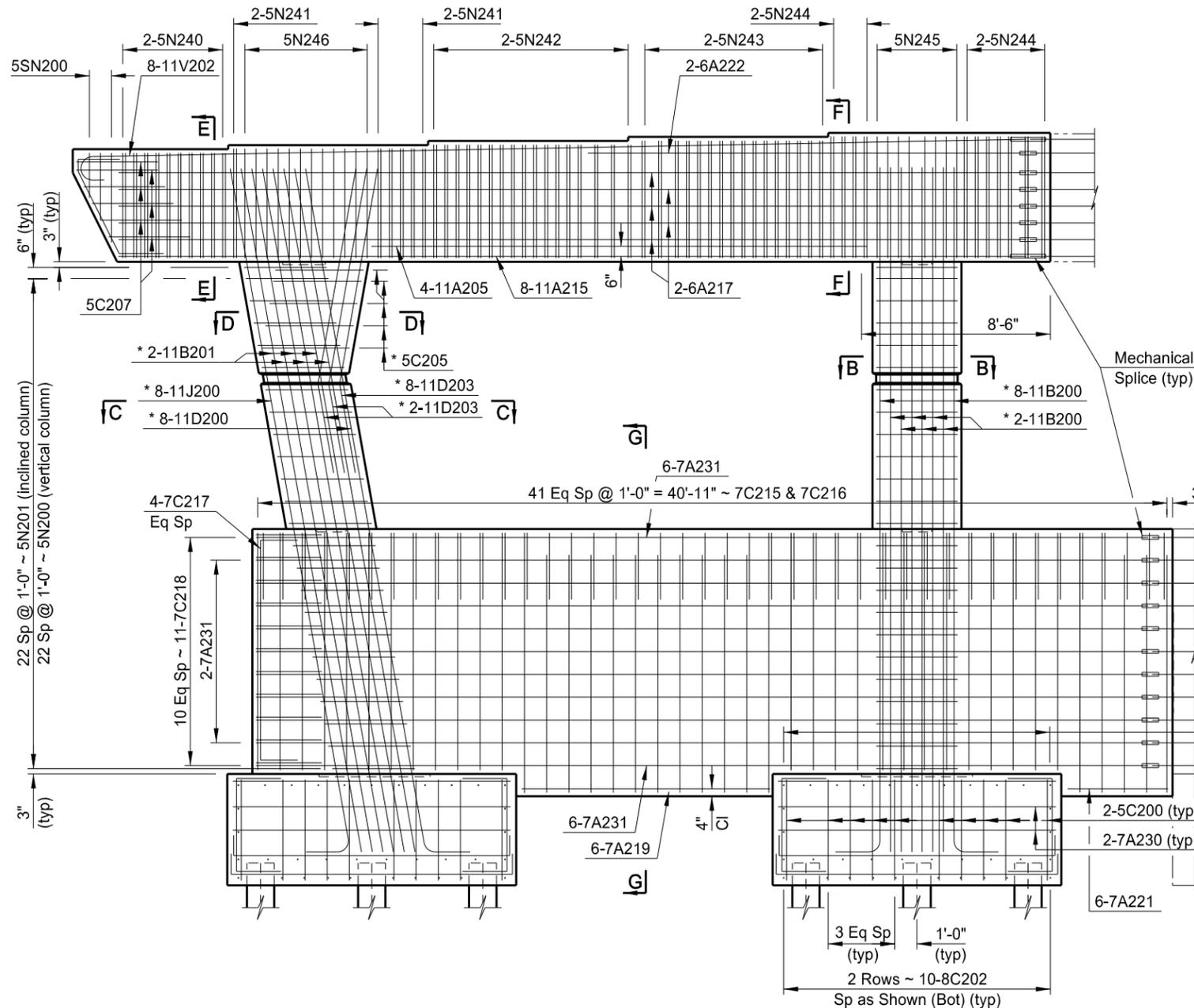
D-D

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QUANTITIES
SEE DWG 83-200.649-154
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
PIER 2 DETAILS (SHOWING REINFORCING)



PLAN

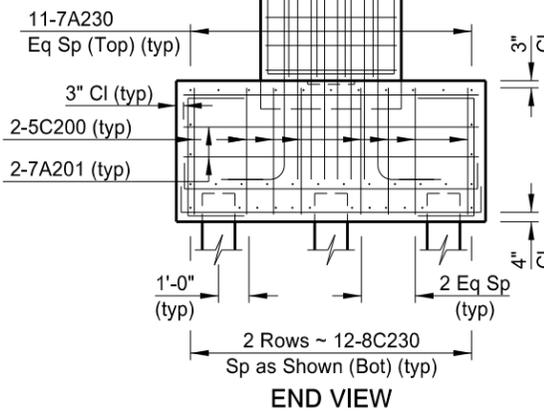


ELEVATION

Mechanical Splice (typ)

* The 11B200, 11B201, 11D200, 11D203 and 11J200 bars shall have an embedment of 4'-3" into the cap beam.

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END VIEW

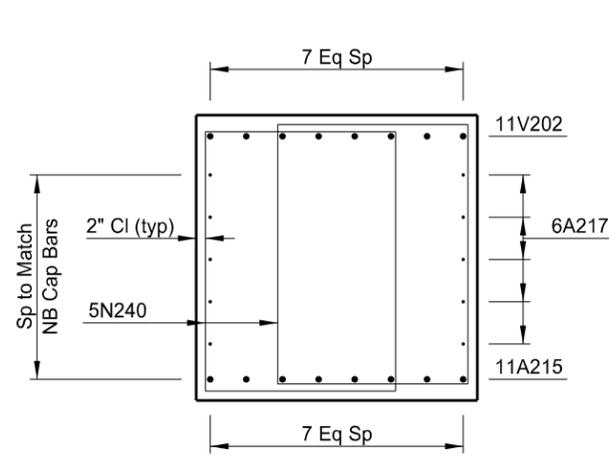
QUANTITIES	
CLASS AE-3 CONCRETE	198.9 CY
REINFORCING STEEL	31,257 LBS

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

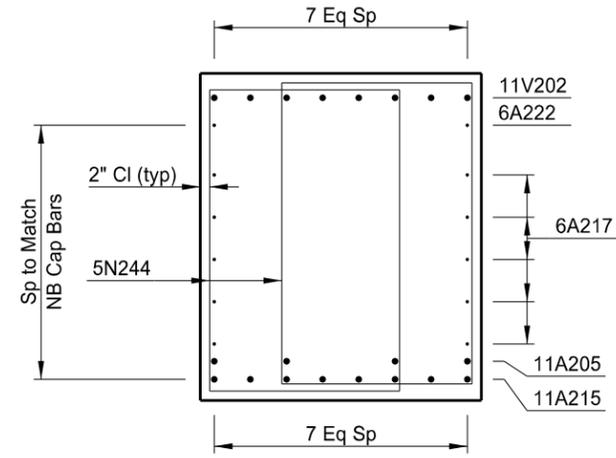
SOUTHBOUND

PIER 3 DETAILS (SHOWING REINFORCING)

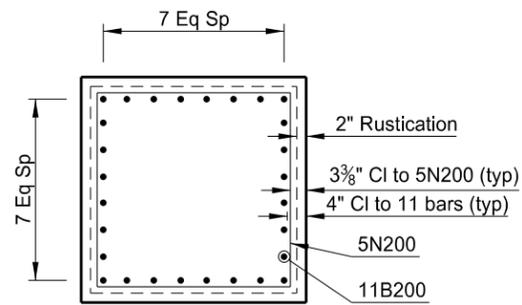
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	158



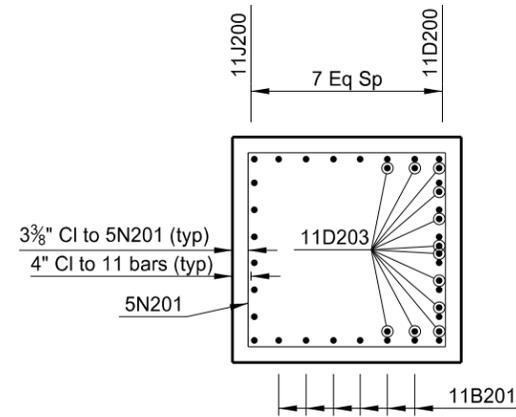
E-E



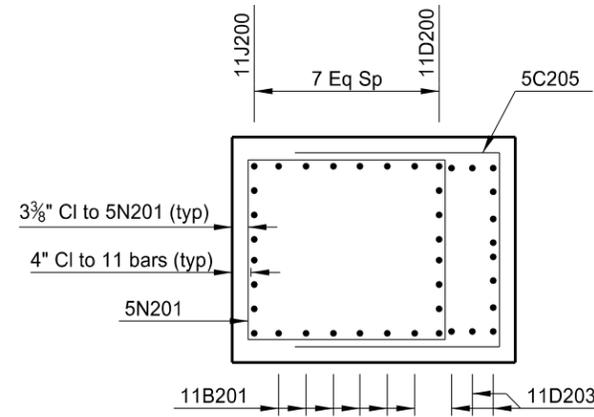
F-F



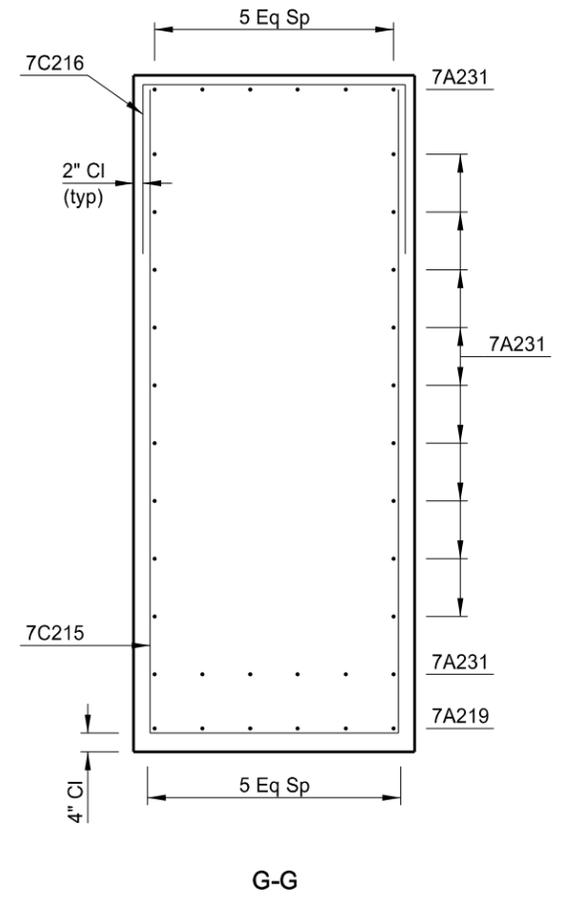
B-B



C-C



D-D



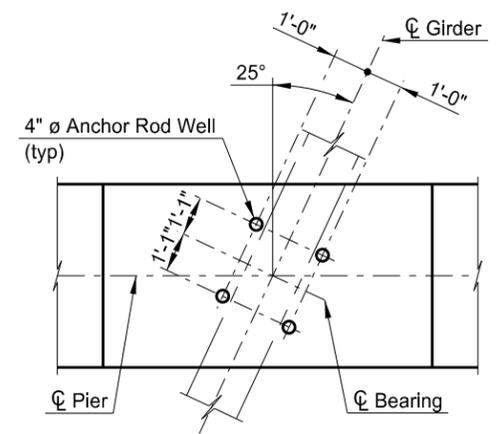
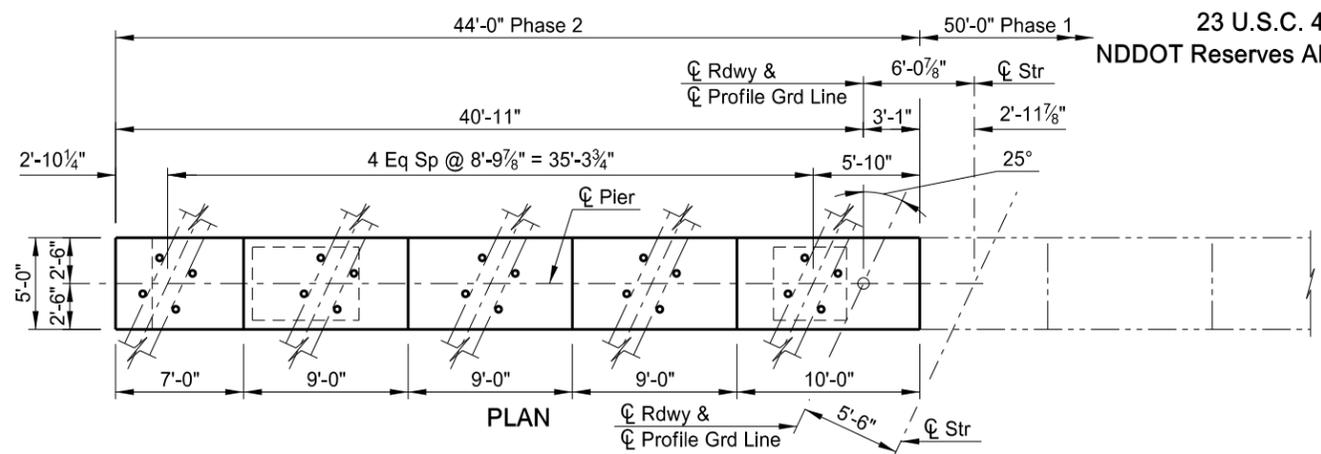
G-G

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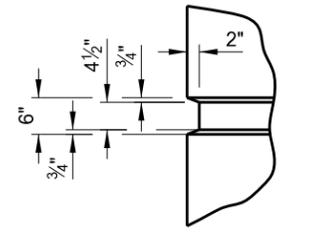
QUANTITIES
SEE DWG 83-200.649-157
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
PIER 3 DETAILS (SHOWING REINFORCING)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	159

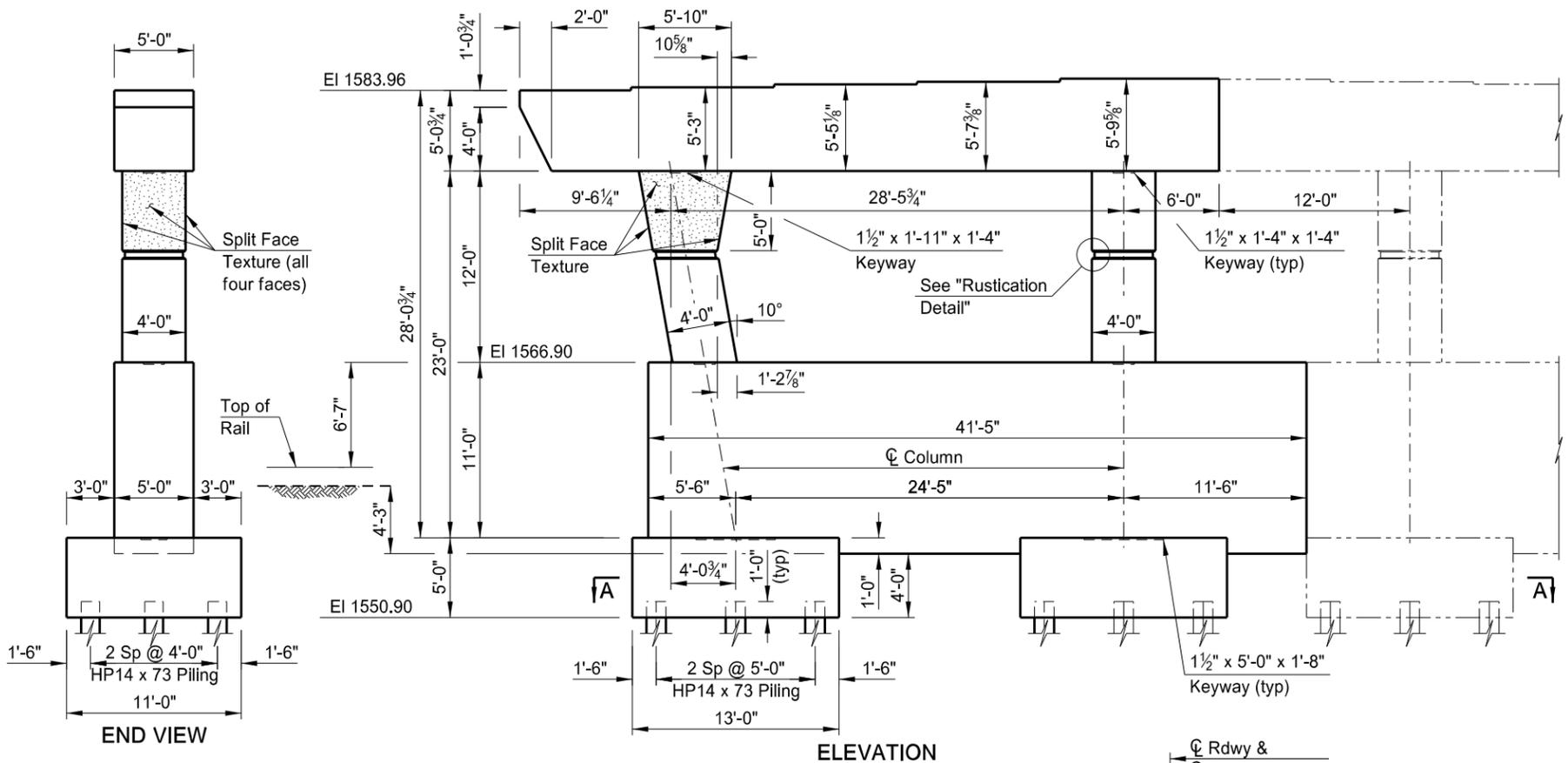
23 U.S.C. 409
NDDOT Reserves All Objections



ANCHOR WELL LAYOUT

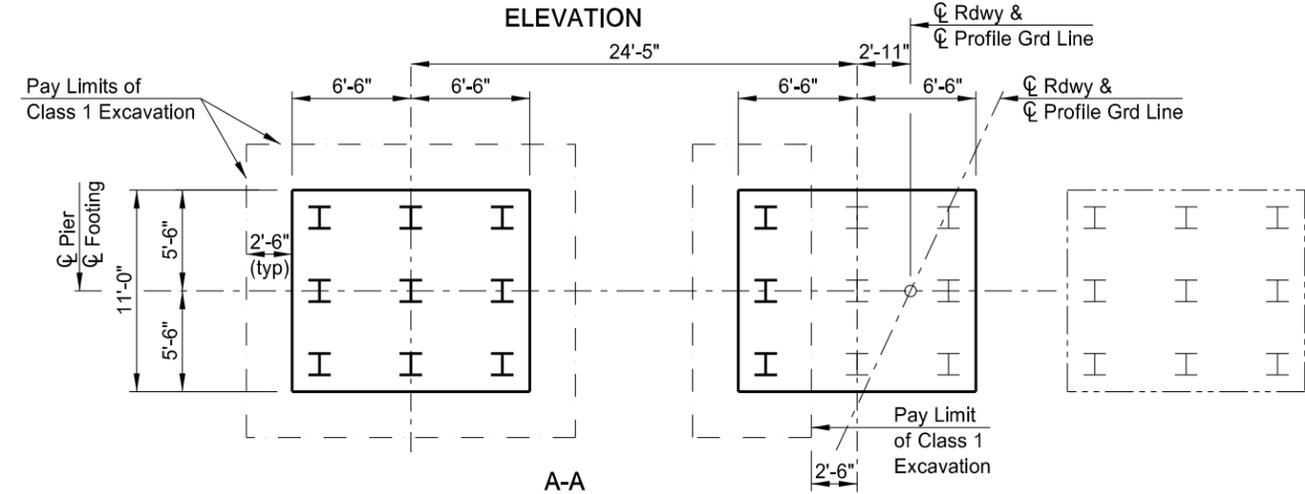


RUSTICATION DETAIL



END VIEW

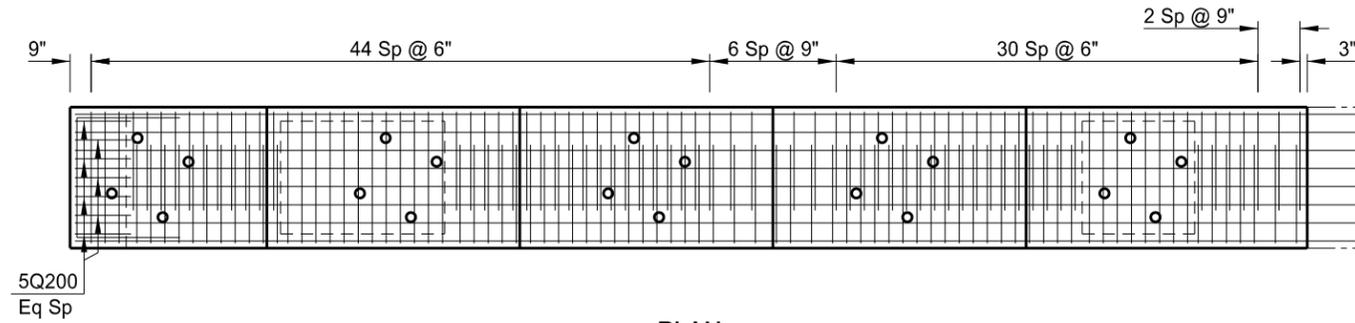
ELEVATION



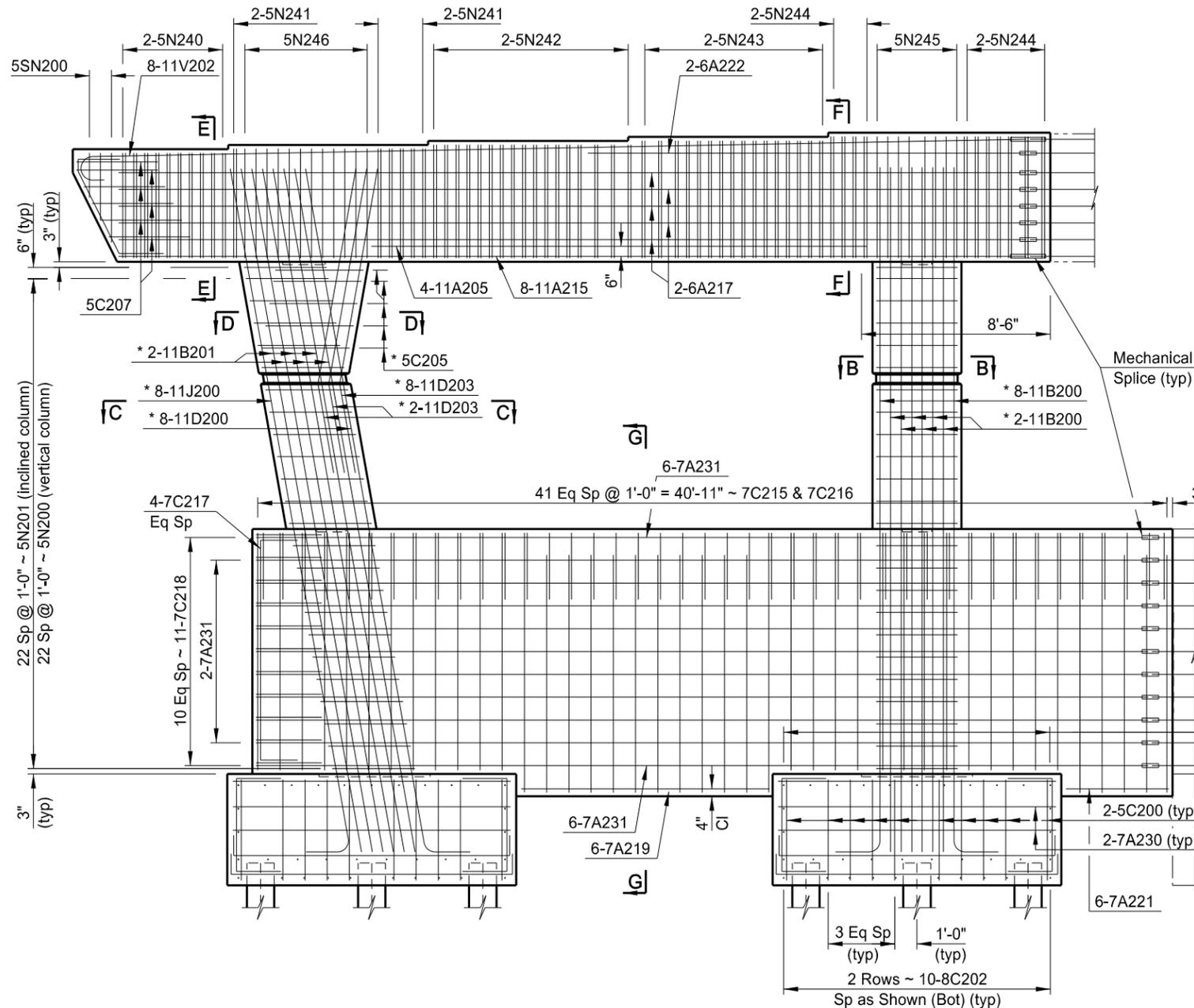
A-A

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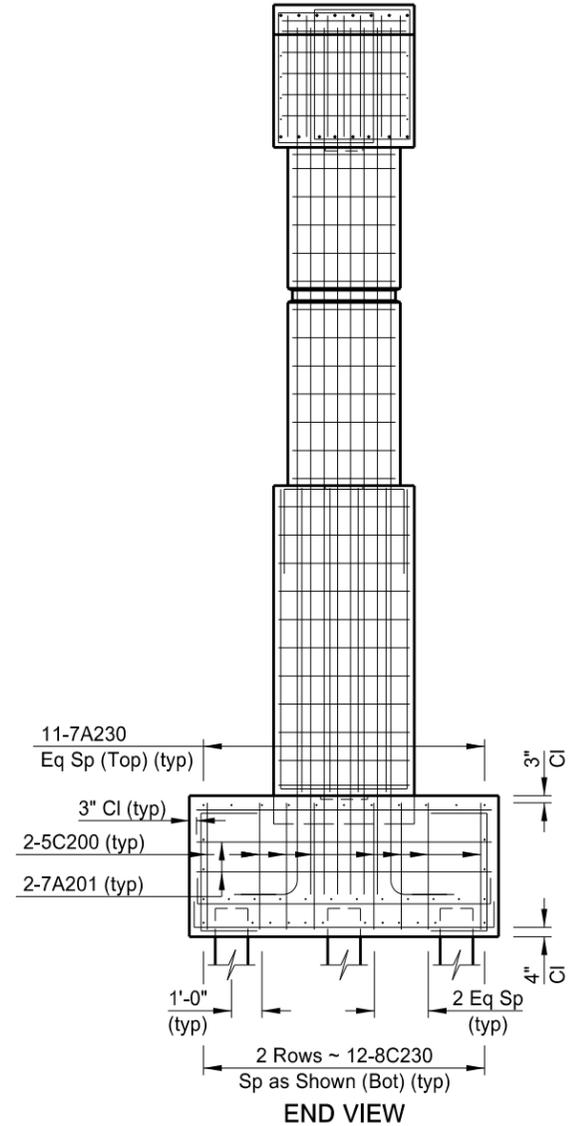
QUANTITIES
SEE DWG 83-200.649-160
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
PIER 4 DETAILS (SHOWING DIMENSIONS)



PLAN



ELEVATION



END VIEW

* The 11B200, 11B201, 11D200, 11D203 and 11J200 bars shall have an embedment of 4'-3" into the cap beam.

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QUANTITIES	
CLASS AE-3 CONCRETE	198.9 CY
REINFORCING STEEL	31,257 LBS

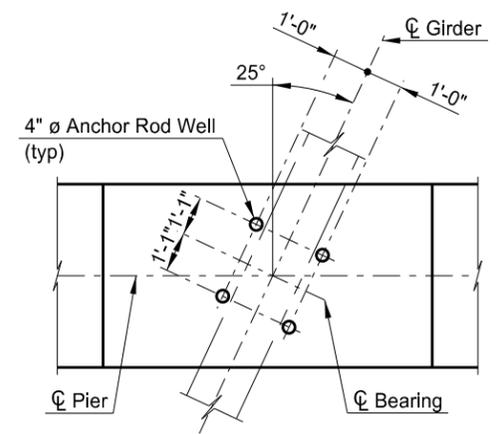
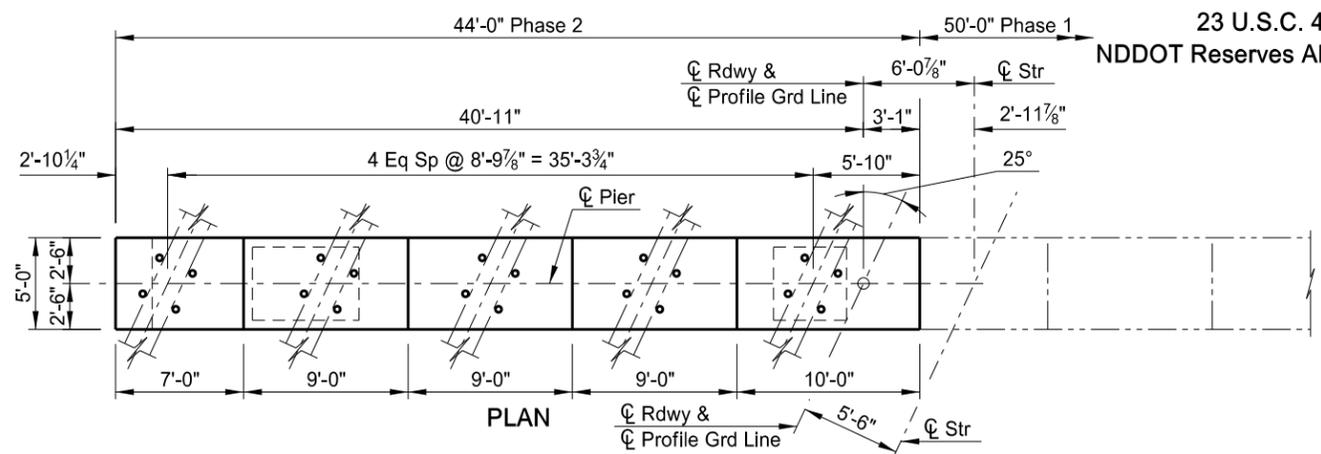
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

SOUTHBOUND

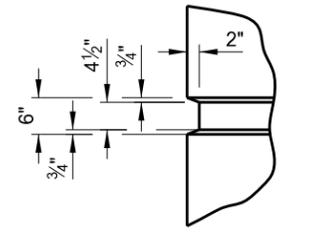
PIER 4 DETAILS
(SHOWING REINFORCING)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	162

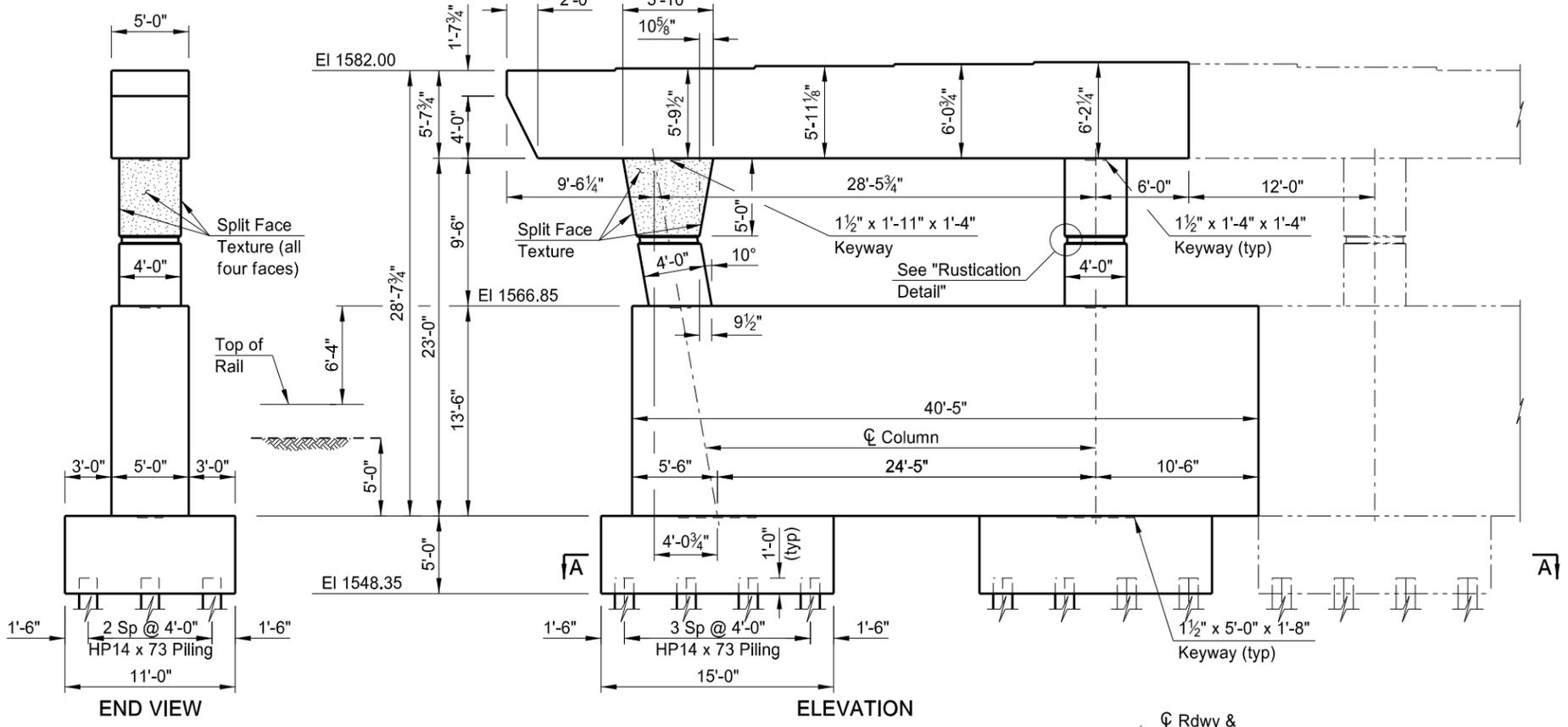
23 U.S.C. 409
NDDOT Reserves All Objections



ANCHOR WELL LAYOUT

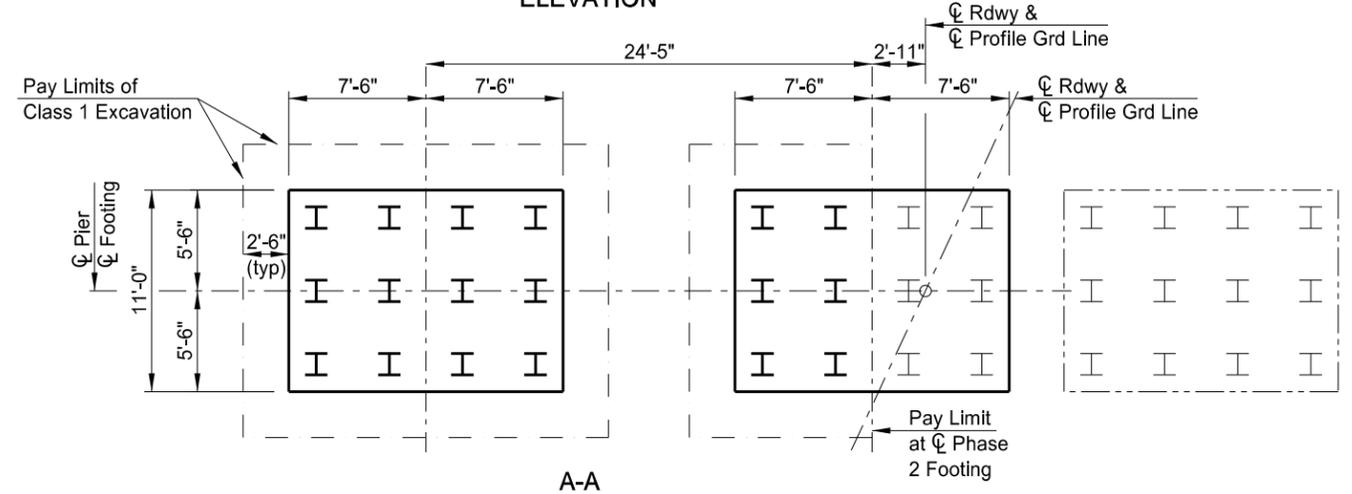


RUSTICATION DETAIL



END VIEW

ELEVATION



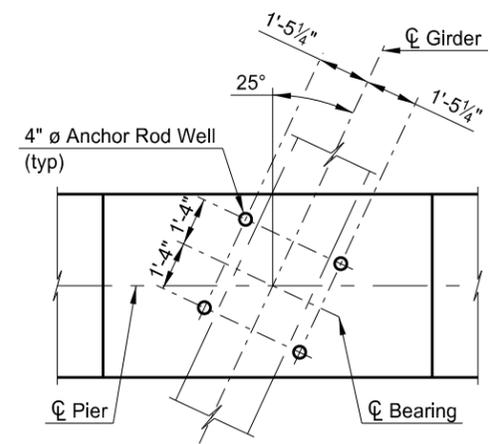
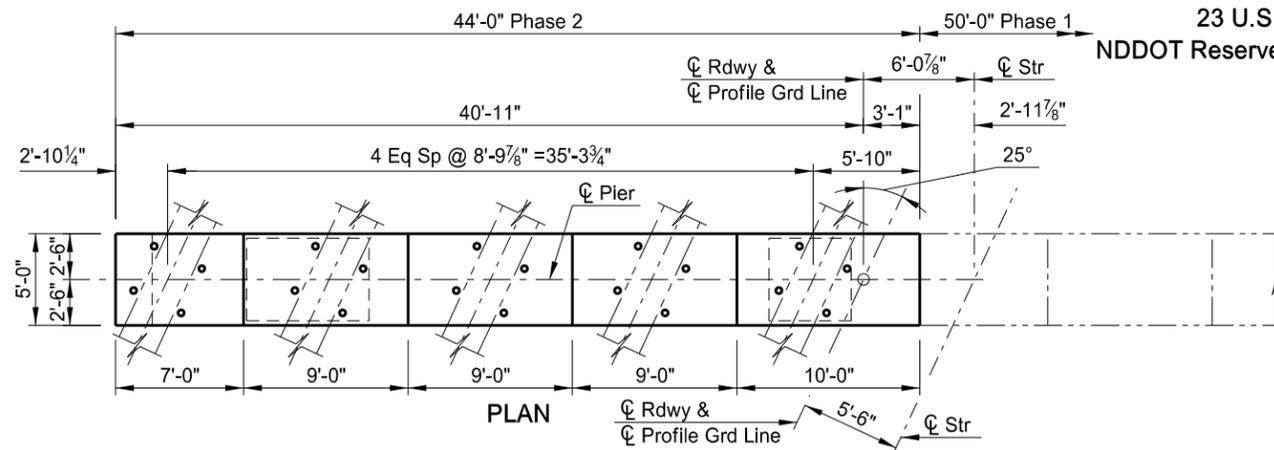
A-A

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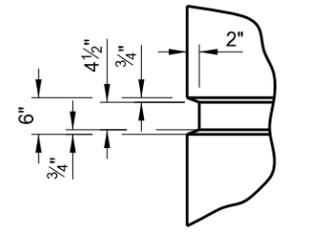
QUANTITIES
SEE DWG 83-200.649-163
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
PIER 5 DETAILS (SHOWING DIMENSIONS)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	165

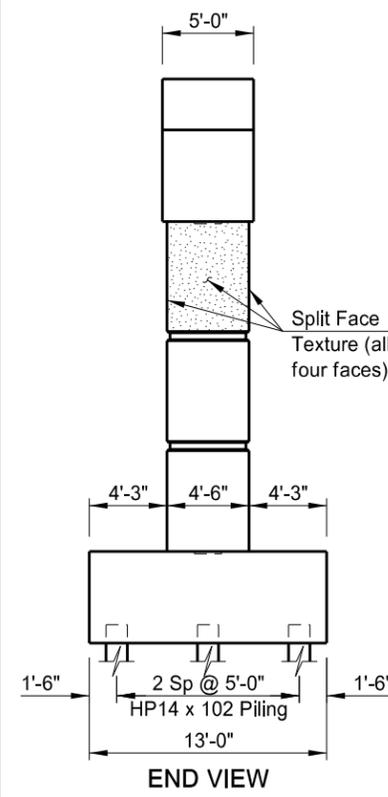
23 U.S.C. 409
NDDOT Reserves All Objections



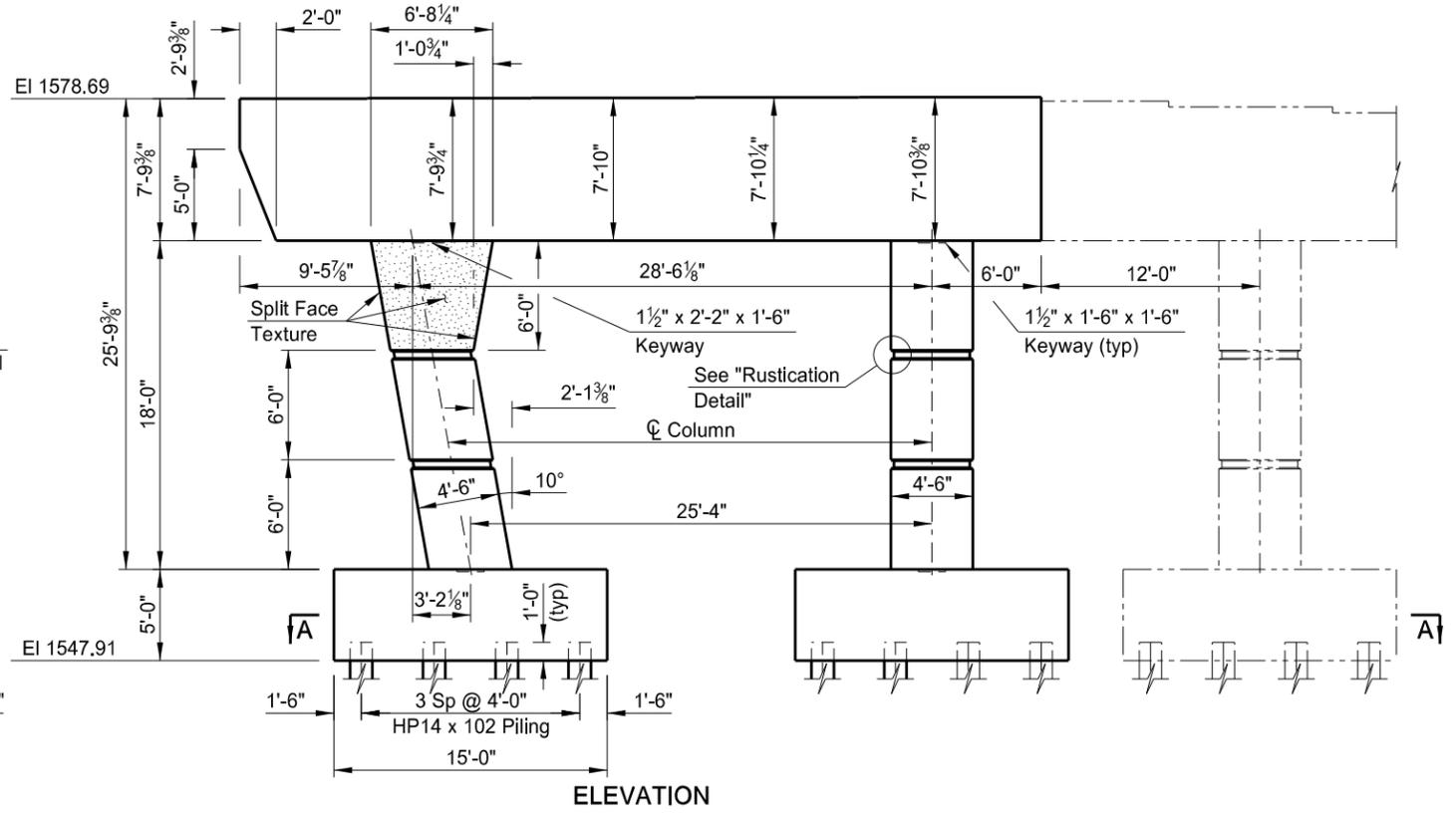
ANCHOR WELL LAYOUT



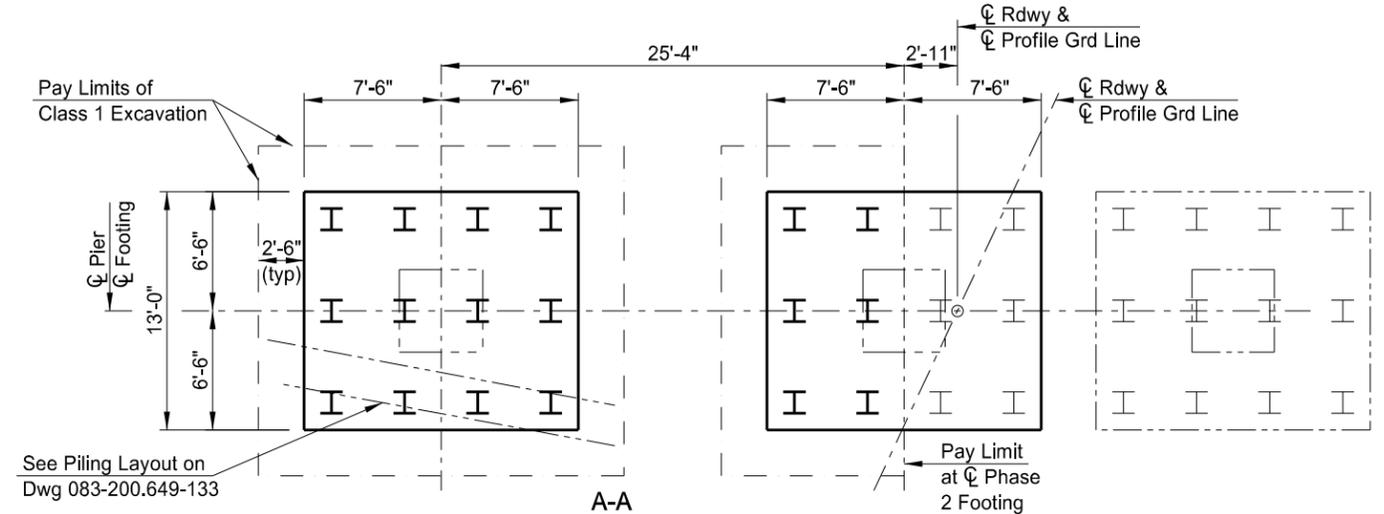
RUSTICATION DETAIL



END VIEW



ELEVATION



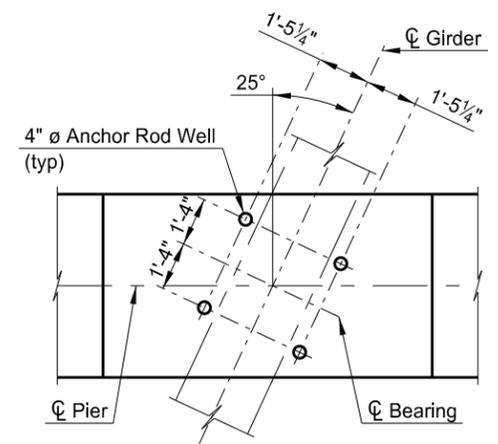
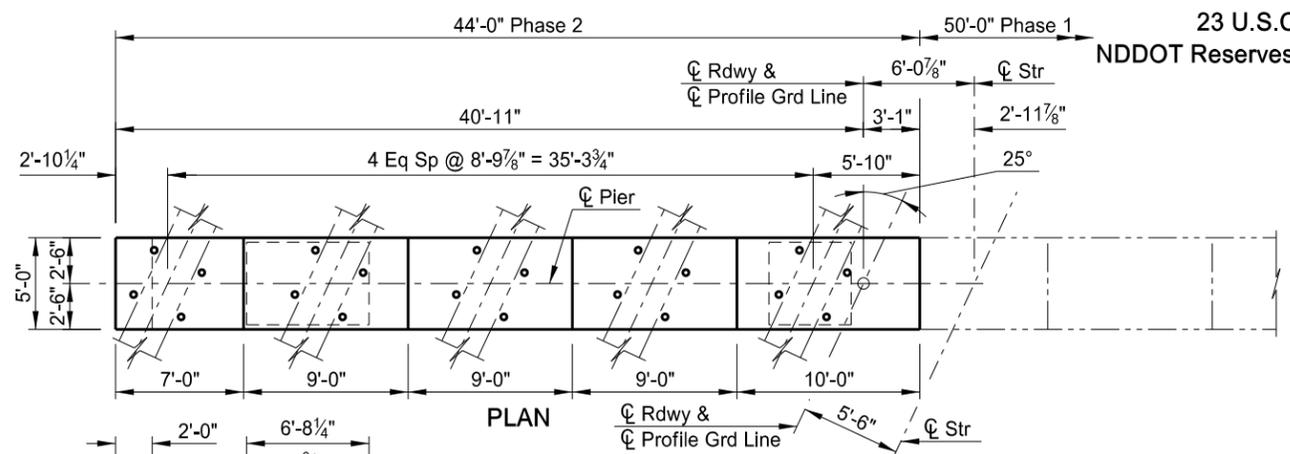
A-A

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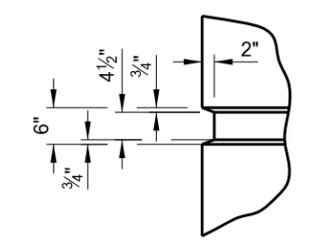
QUANTITIES
SEE DWG 83-200.649-166
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
PIER 6 DETAILS (SHOWING DIMENSIONS)

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083 (111)200	170	168

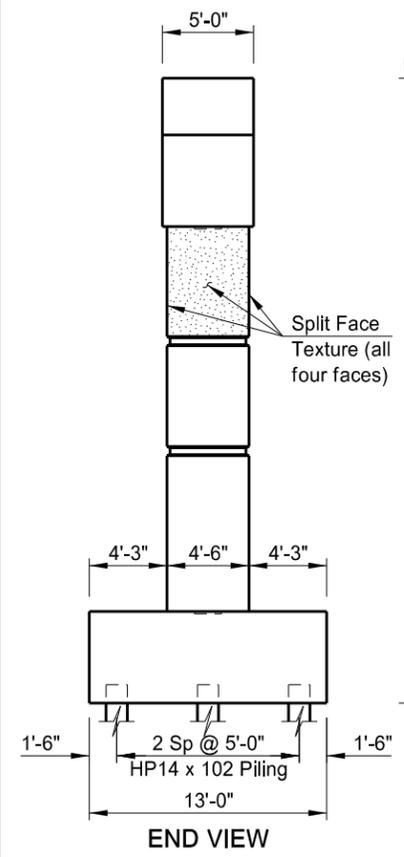
23 U.S.C. 409
NDDOT Reserves All Objections



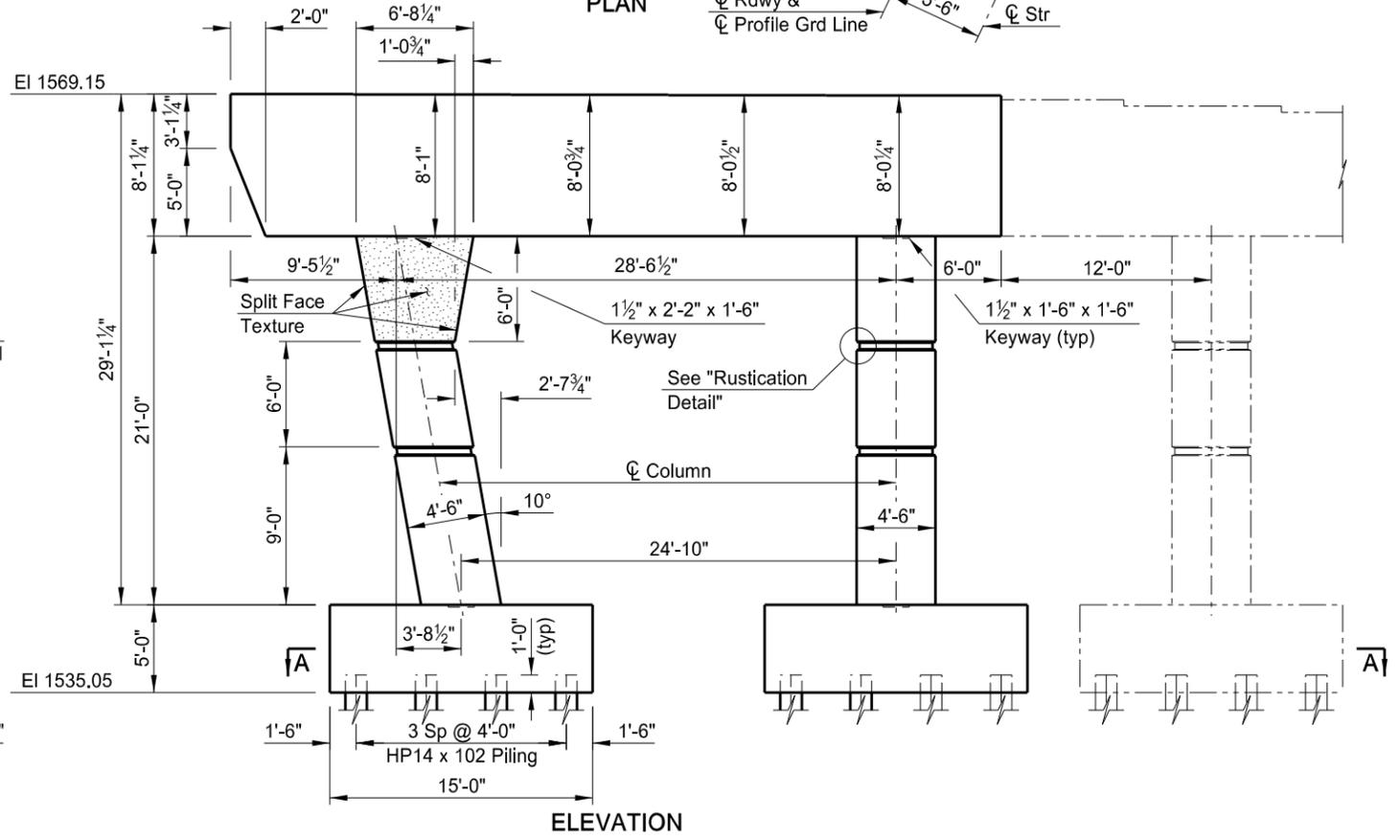
ANCHOR WELL LAYOUT



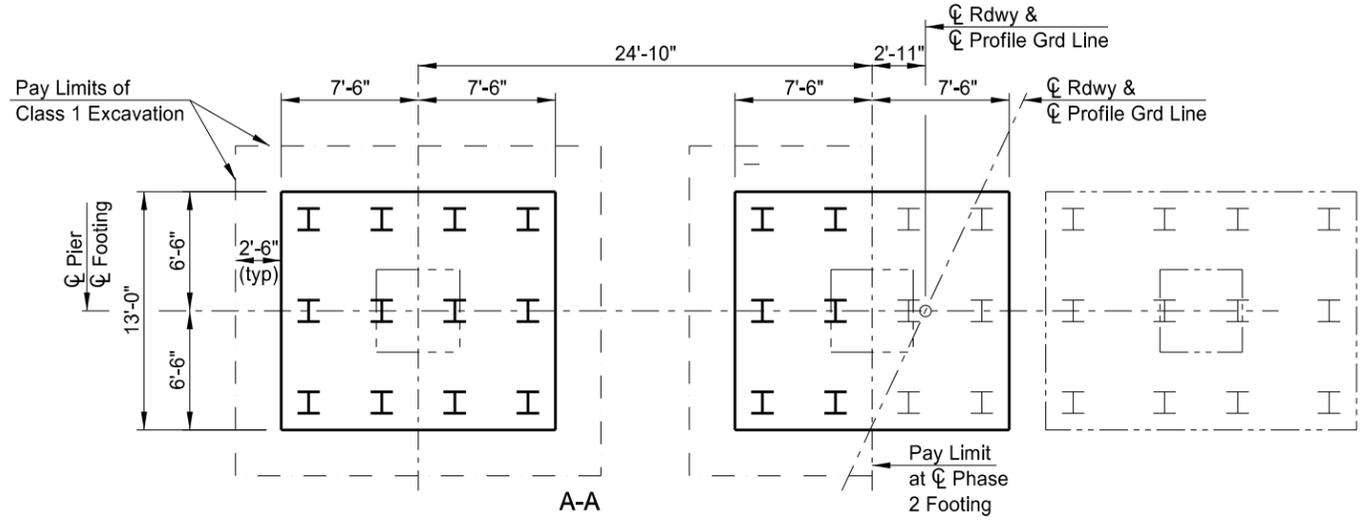
RUSTICATION DETAIL



END VIEW



ELEVATION



A-A

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QUANTITIES
SEE DWG 83-200.649-169
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
PIER 7 DETAILS (SHOWING DIMENSIONS)

BEARING TABLE ①																								
LOCATION	GIRDER NO.	BEARING TYPE ②	SERVICE LIMIT STATE						STRENGTH LIMIT STATE										TEMP ADJ (in/10°F)	BEARING ASSEMBLY DIMENSIONS				
			BEARING DESIGN LOADS (kips)						BEARING DESIGN LOADS (kips)						DEFORMATIONS					HEIGHT (in) "h"	"A" (in)	"B" (in)	ANCHOR ROD DIAM. (in)	ANCHOR ROD LENGTH (in)
			VERTICAL			HORIZONTAL			VERTICAL			HORIZONTAL			ROTATION (+/- Rad)		MOVEMENT (+/- in) ④							
			DEAD	LIVE	WIND	TOTAL	LONGI-TUDINAL	TRANS-VERSE	DEAD	LIVE	TOTAL	LONGI-TUDINAL	TRANS-VERSE	DUE TO LIVE LOADS	DUE TO FAB. & CONST. TOL.	TOTAL	LONGI-TUDINAL	TRANS-VERSE						
Abutment 1	S1 thru S3	III	46	74	1	121	0	-	58	130	188	0	-	0.005	0.005	0.010	3.300	0.250	0.306	6.50	10.50	9.00	1.25	30.0
	S4 thru S5	II	46	74	1	121	0	3	58	130	188	0	9	0.005	0.005	0.010	3.300	-	0.306	6.50	10.50	9.00	1.25	30.0
Pier 2	S1 thru S3	III	128	119	3	250	0	-	162	208	370	0	-	0.003	0.005	0.008	2.668	0.250	0.247	7.25	12.00	13.00	1.50	30.0
	S4 thru S5	II	128	119	3	250	0	9	162	208	370	0	31	0.003	0.005	0.008	2.668	-	0.247	7.25	12.00	13.00	1.50	30.0
Pier 3	S1 thru S3	III	114	126	3	243	0	-	145	220	365	0	-	0.003	0.005	0.008	2.036	0.250	0.189	7.25	12.00	13.00	1.50	30.0
	S4 thru S5	II	114	126	3	243	0	11	145	220	365	0	35	0.003	0.005	0.008	2.036	-	0.189	7.25	12.00	13.00	1.50	30.0
Pier 4	S1 thru S3	III	141	139	3	283	0	-	179	243	422	0	-	0.003	0.005	0.008	1.261	0.250	0.117	7.25	12.00	13.00	1.75	30.0
	S4 thru S5	II	141	139	3	283	0	13	179	243	422	0	42	0.003	0.005	0.008	1.261	-	0.117	7.25	12.00	13.00	1.75	30.0
Pier 5	S1 thru S3	IV	157	163	4	324	56	-	198	285	483	57	-	0.003	0.005	0.008	-	0.250	-	7.25	12.00	13.00	2.00	30.0
	S4 thru S5	I	157	163	4	324	56	15	198	285	483	57	48	0.003	0.005	0.008	-	-	-	7.25	12.00	13.00	2.00	30.0
Pier 6	S1 thru S3	IV	298	200	7	505	48	-	377	350	727	41	-	0.003	0.005	0.008	-	0.250	-	8.75	17.25	16.00	2.00	30.0
	S4 thru S5	I	298	200	7	505	48	24	377	350	727	41	79	0.003	0.005	0.008	-	-	-	8.75	17.25	16.00	2.00	30.0
Pier 7	S1 thru S3	III	318	201	7	526	0	-	402	352	754	0	-	0.003	0.005	0.008	2.387	0.250	0.221	9.50	17.25	16.00	2.00	30.0
	S4 thru S5	II	318	201	7	526	0	24	402	352	754	0	84	0.003	0.005	0.008	2.387	-	0.221	9.50	17.25	16.00	2.00	30.0
Abutment 8	S1 thru S3	III	74	94	2	170	0	-	94	164	258	0	-	0.004	0.005	0.009	3.566	0.250	0.330	6.75	12.00	13.00	1.25	30.0
	S4 thru S5	II	74	94	2	170	0	7	94	164	258	0	22	0.004	0.005	0.009	3.566	-	0.330	6.75	12.00	13.00	1.25	30.0

NOTES:

- ① All bearings shall be marked prior to shipping. The marks shall include the bearing location on the bridge, and a direction arrow that points up station. All marks shall be permanent and be visible after the bearing is installed. The marks shall be on the sole plate of the bearing.
- ② TYPE I: Fixed Disc Bearing
TYPE II: Uni-Directional (Guided Longitudinal Expansion) Disc Bearings
TYPE III: Multi-Directional (Non-Guided Expansion) Disc Bearings
TYPE IV: Unit-Directional (Guided Transverse Expansion) Disc Bearings

See Dwg 83-200.649-171A for bearing details and corrugated pipe detail.
- ③ Sole plate shall be beveled to correlate with the longitudinal slope.
- ④ One way longitudinal and transverse movement is the maximum expansion or contraction in one direction when bearings are set at 60°F.
- ⑤ Sole plates shall be welded to the girder bottom flange.
- ⑥ Provide additional 1/4" gaps at side PTFE at girders N5 and N6. Provide additional 1/8" gaps at side PTFE at girders N3 and N4.

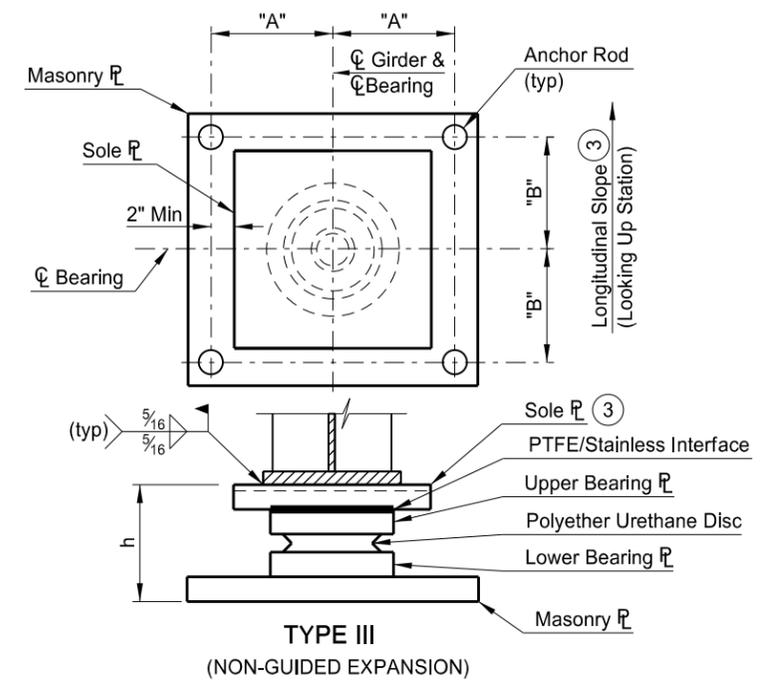
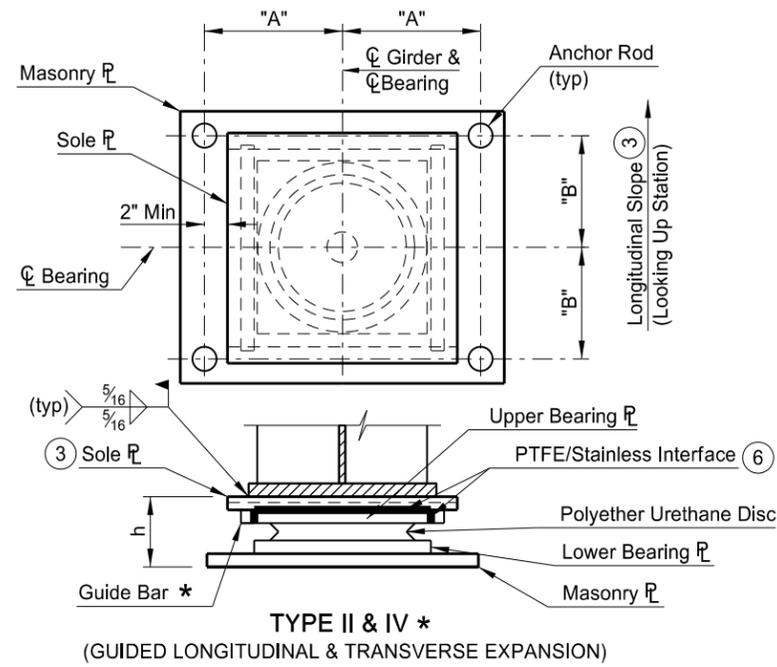
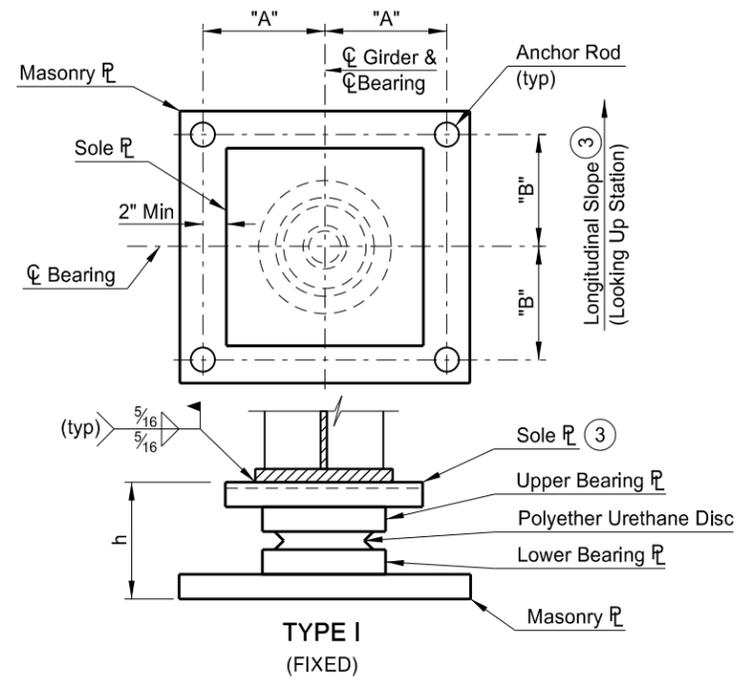
BEVELED SOLE PLATE LONGITUDINAL SLOPE (ft/ft) ③					
LOCATION	GIRDER NO.				
	S1	S2	S3	S4	S5
Abutment 1	0.0234	0.0223	0.0212	0.0201	0.0190
Pier 2	0.0044	0.0044	0.0044	0.0044	0.0044
Pier 3	0.0044	0.0044	0.0044	0.0044	0.0044
Pier 4	0.0044	0.0044	0.0044	0.0044	0.0044
Pier 5	-0.0072	-0.0080	-0.0088	-0.0096	-0.0105
Pier 6	-0.0377	-0.0385	-0.0393	-0.0401	-0.0409
Pier 7	-0.0500	-0.0500	-0.0500	-0.0500	-0.0500
Abutment 8	-0.0500	-0.0500	-0.0500	-0.0500	-0.0500

("+" designates upward slope, "-" designates downward slope)

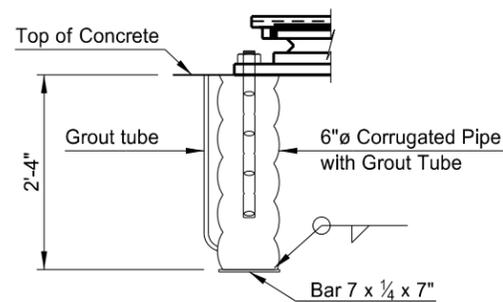
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QUANTITIES	
BEARINGS (EXPANSION)	36 EA
BEARINGS (FIXED)	4 EA
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER SOUTHBOUND DISC BEARING DETAILS	

Sheet Added 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	171A



* Guide Bars are shown for Type II in the longitudinal direction. Rotate 90-deg and install in the horizontal direction for Type IV.

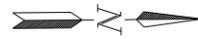


After the Phase 2 beams are set, suspend the swedge anchor bolts in the corrugated pipe and grout in using a non-shrink grout with 3,000 psi minimum strength. Include all materials and labor to install the corrugated pipe in the price bid for "Class AE-3 Concrete."

CORRUGATED PIPE DETAIL

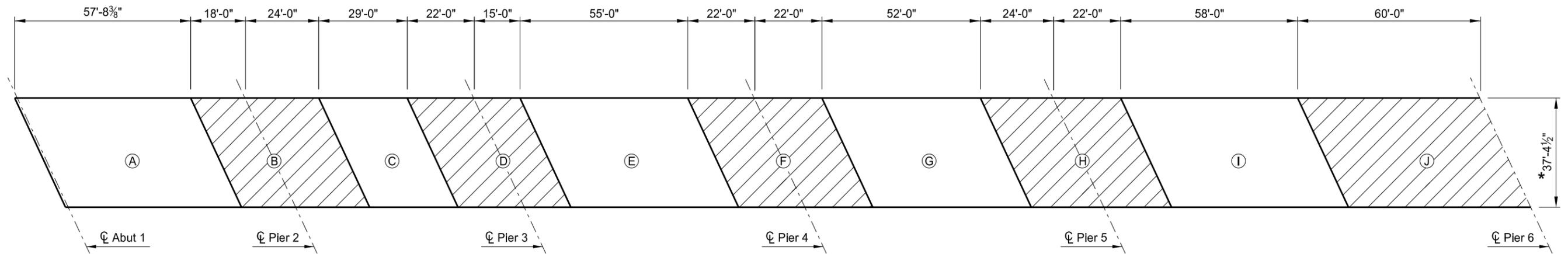
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QUANTITIES
SEE DWG 83-200.649-171
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
DISC BEARING DETAILS



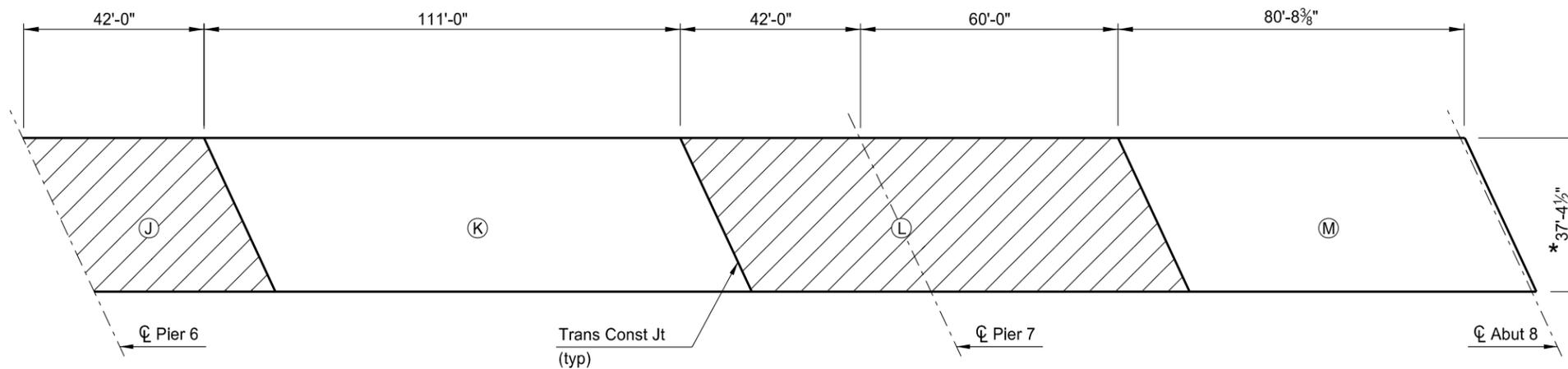
23 U.S.C. 409
NDDOT Reserves All Objections

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	195



SEQUENCE OF POURS			
BASIC SEQUENCE	1	2	3
	Ⓘ + Ⓚ + Ⓜ	Ⓐ + Ⓑ + Ⓒ + Ⓓ + Ⓔ + Ⓕ + Ⓖ	Ⓗ + ⓵ + Ⓛ
MIN RATE OF POUR (CU YDS / Hr)	25	29	25
Rate of Pour is based on a 10 Hour Workday. Absolute Minimum Rate of Pour is 25 Cu Yds/Hr. Alternate Pours to the Basic Sequence are subject to the Approval of the Engineer.			

* Dimension does not include 3'-3" Closure Pour.
Closure Pour may be completed from end to end.

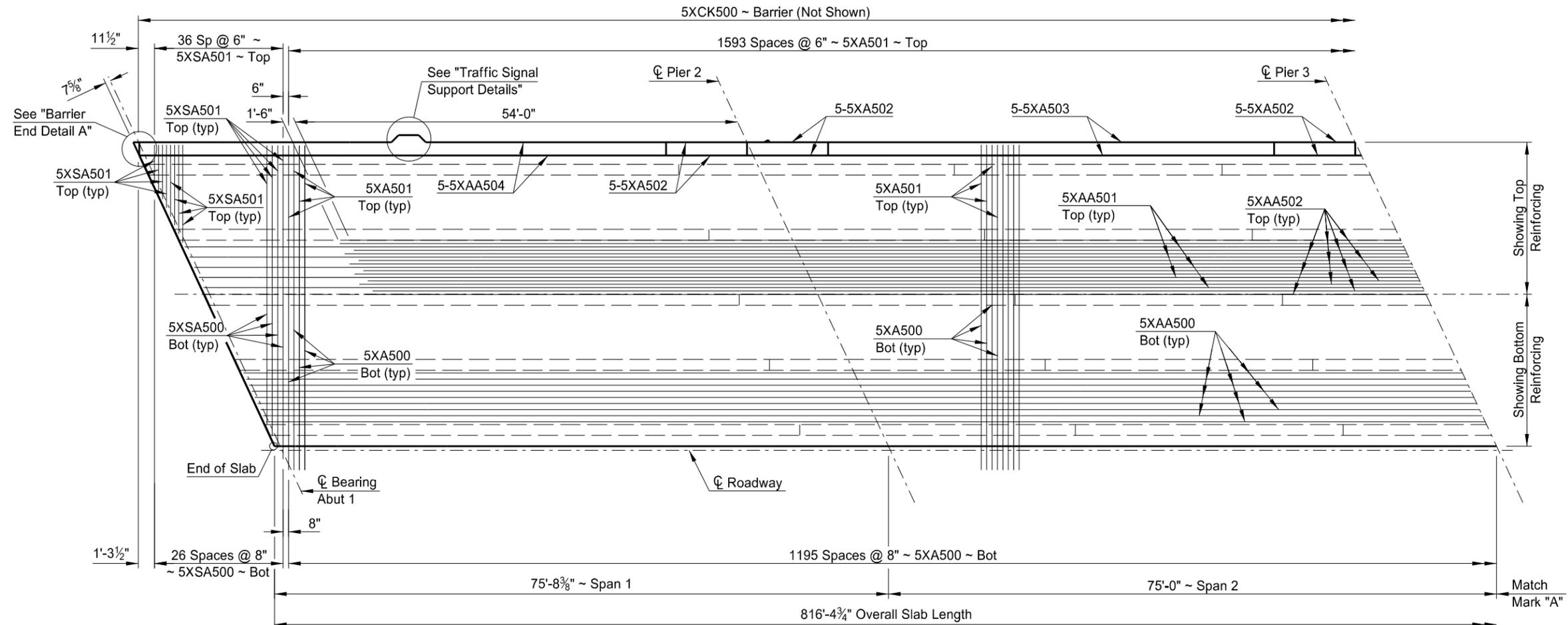


SLAB POURING SEQUENCE

US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

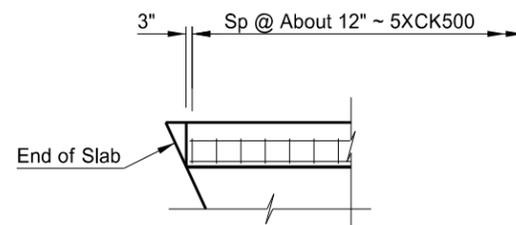
SOUTHBOUND
POURING SEQUENCE

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	196



PLAN

MIN LAPS
#5 ~ 2'-7"
#6 ~ 3'-1"



PLAN

BARRIER END DETAIL A
See also BARRIER RAIL EXPANSION DEVICES,
Dwg 83-200.649-206

NOTES:

For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-203.

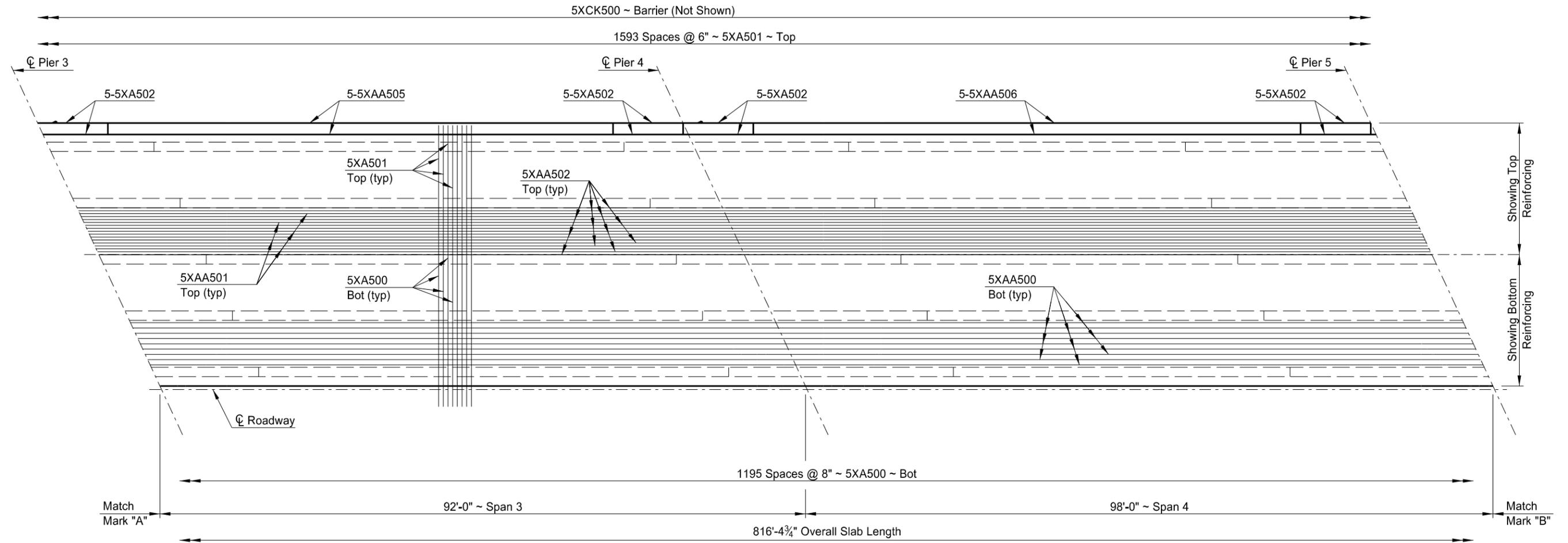
For "Traffic Signal Support Details", see Dwg 83-200.649-207.

For transverse slab reinforcement thru phase line, contractor shall also have option to use bar splicer assembly method by means of attachment of threaded coupler to form at phase line with "BPI Barsplicer by BarSplice Products, Inc." or "D50 DBR Coupler System by Dayton Superior Corporation" or approved equivalent. Cost of bar splicer assemblies in deck slab shall be incidental to price bid for "Reinforcing Steel (Epoxy)." Couplers shall be capable of developing 125% of specified yield strength of the reinforcing steel.

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QUANTITIES
SEE DWG 83-200.649-201
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
SLAB LAYOUT SHEET 1 OF 5

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	197



PLAN

MIN LAPS
 #5 ~ 2'-7"
 #6 ~ 3'-1"

NOTES:

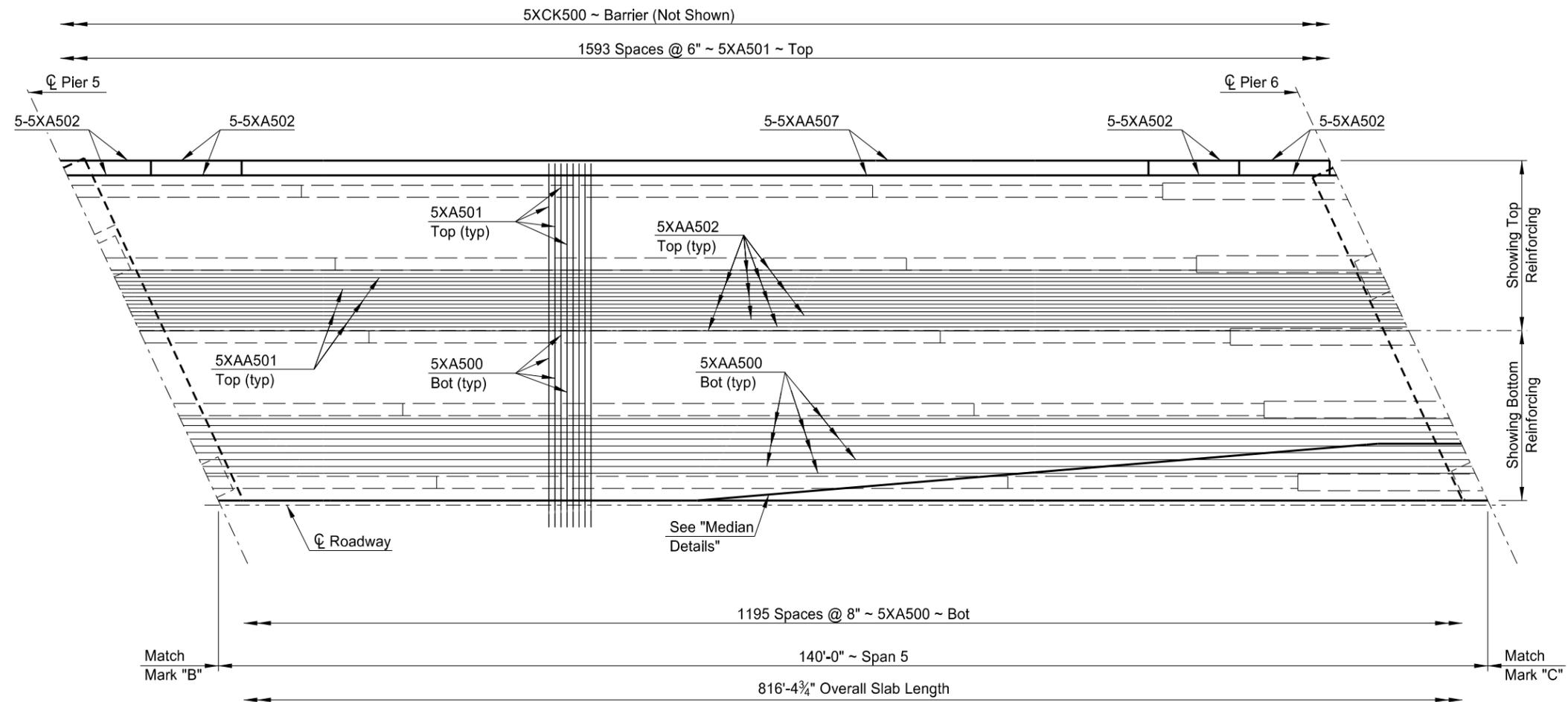
For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-203.

For transverse slab reinforcement thru phase line, contractor shall also have option to use bar splicer assembly method by means of attachment of threaded coupler to form at phase line with "BPI Barsplicer by BarSplice Products, Inc." or "D50 DBR Coupler System by Dayton Superior Corporation" or approved equivalent. Cost of bar splicer assemblies in deck slab shall be incidental to price bid for "Reinforcing Steel (Epoxy)."

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QUANTITIES
SEE DWG 83-200.649-201
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
SLAB LAYOUT SHEET 2 OF 5

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	198



PLAN

MIN LAPS
 #5 ~ 2'-7"
 #6 ~ 3'-1"

NOTES:

For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.

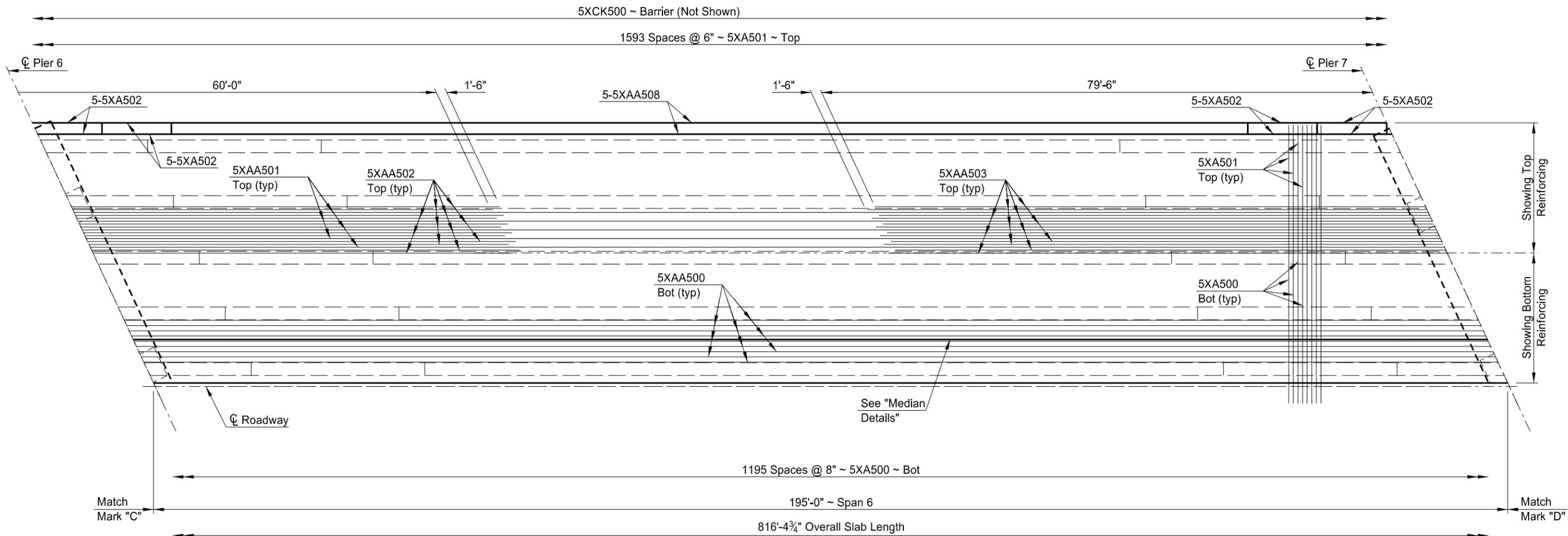
For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-203.

For transverse slab reinforcement thru phase line, contractor shall also have option to use bar splicer assembly method by means of attachment of threaded coupler to form at phase line with "BPI Barsplicer by BarSplice Products, Inc." or "D50 DBR Coupler System by Dayton Superior Corporation" or approved equivalent. Cost of bar splicer assemblies in deck slab shall be incidental to price bid for "Reinforcing Steel (Epoxy)."

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QUANTITIES
SEE DWG 83-200.649-201
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
SLAB LAYOUT
SHEET 3 OF 5

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	199



PLAN

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MIN LAPS
#5 ~ 2'-7"
#6 ~ 3'-1"

NOTES:

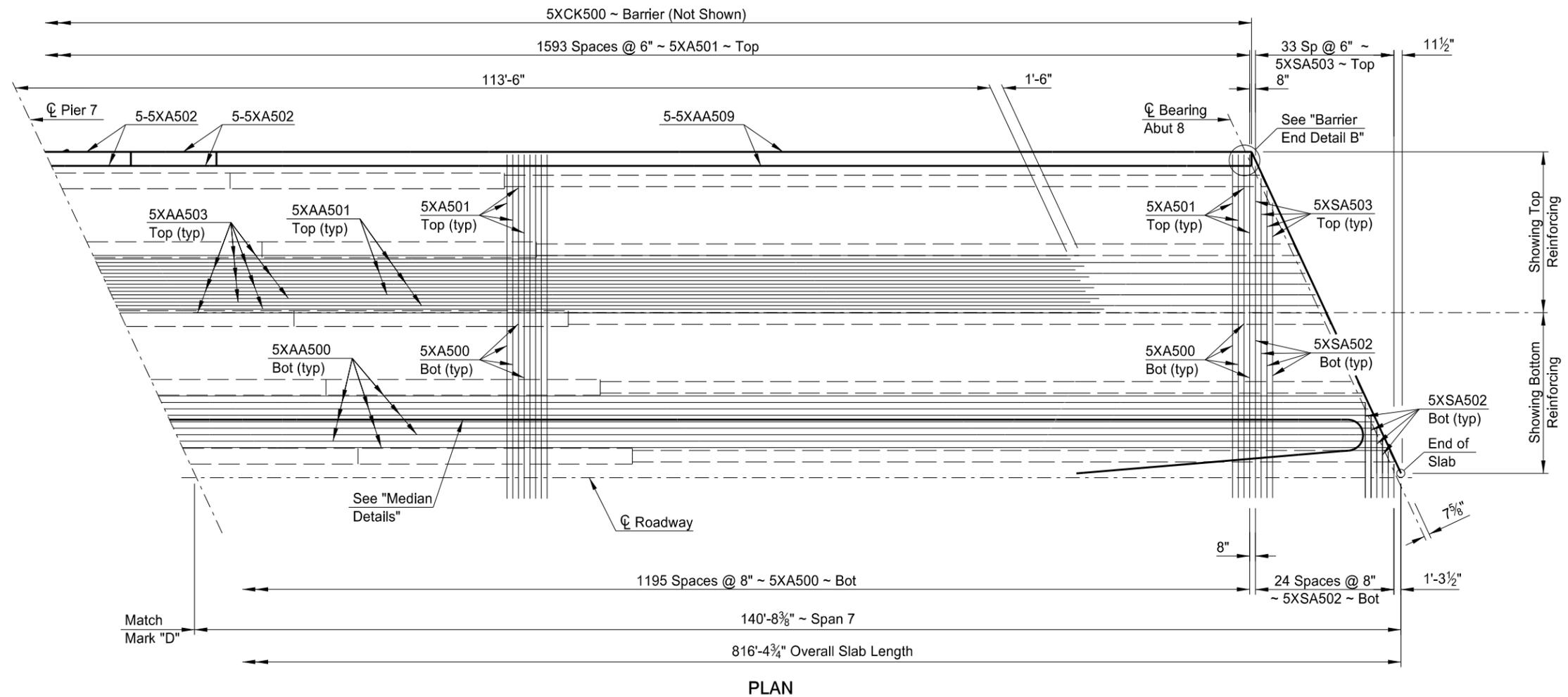
For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.

For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-204.

For transverse slab reinforcement thru phase line, contractor shall also have option to use bar splicer assembly method by means of attachment of threaded coupler to form at phase line with "BPI Barsplicer by BarSplice Products, Inc." or "D50 DBR Coupler System by Dayton Superior Corporation" or approved equivalent. Cost of bar splicer assemblies in deck slab shall be incidental to price bid for "Reinforcing Steel (Epoxy)."

QUANTITIES
SEE DWG 83-200.649-201
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
SLAB LAYOUT SHEET 4 OF 5

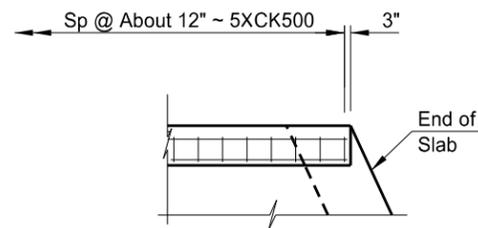
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	200



PLAN

MIN LAPS

- #5 ~ 2'-7"
- #6 ~ 3'-1"



PLAN

BARRIER END DETAIL B
See also BARRIER RAIL EXPANSION DEVICES,
Dwg 83-200.649-206

NOTES:

For "Median Details", see Dwg 83-200.649-208 and Dwg 83-200.649-209.

For additional information, see ROADWAY BARRIER ELEVATION, Dwg 83-200.649-204.

For transverse slab reinforcement thru phase line, contractor shall also have option to use bar splicer assembly method by means of attachment of threaded coupler to form at phase line with "BPI Barsplicer by BarSplice Products, Inc." or "D50 DBR Coupler System by Dayton Superior Corporation" or approved equivalent. Cost of bar splicer assemblies in deck slab shall be incidental to price bid for "Reinforcing Steel (Epoxy)."

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QUANTITIES

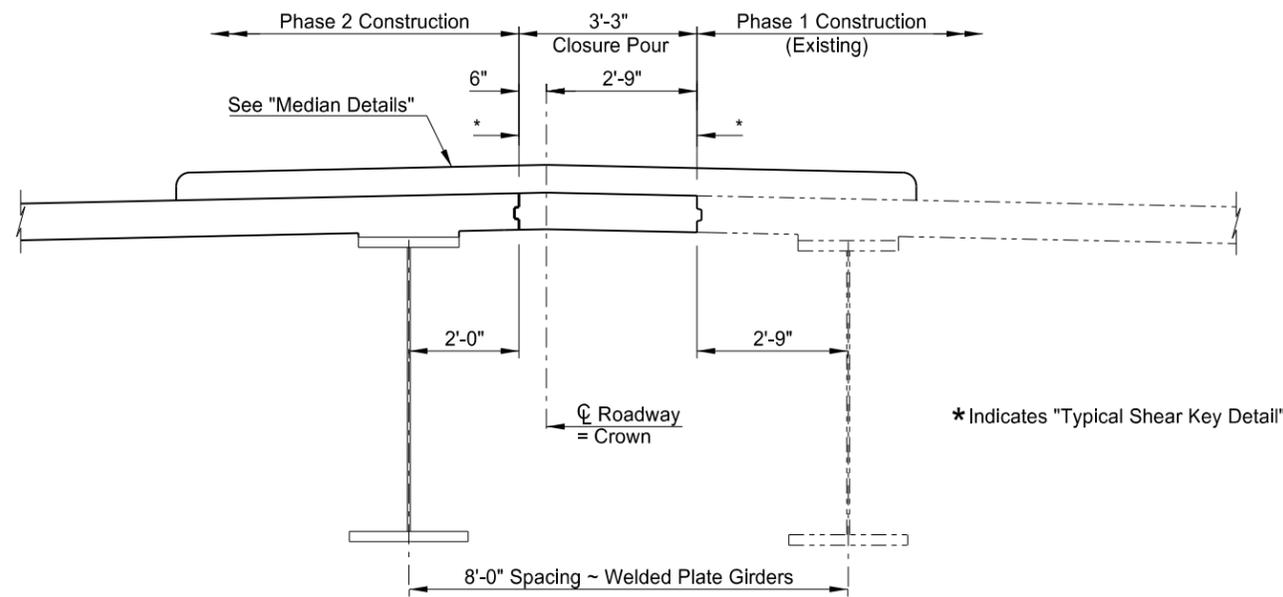
SEE DWG 83-200.649-201

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

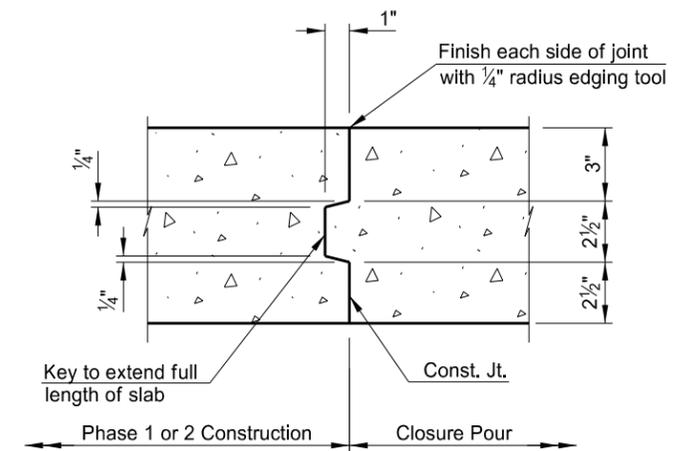
SOUTHBOUND

SLAB LAYOUT
SHEET 5 OF 5

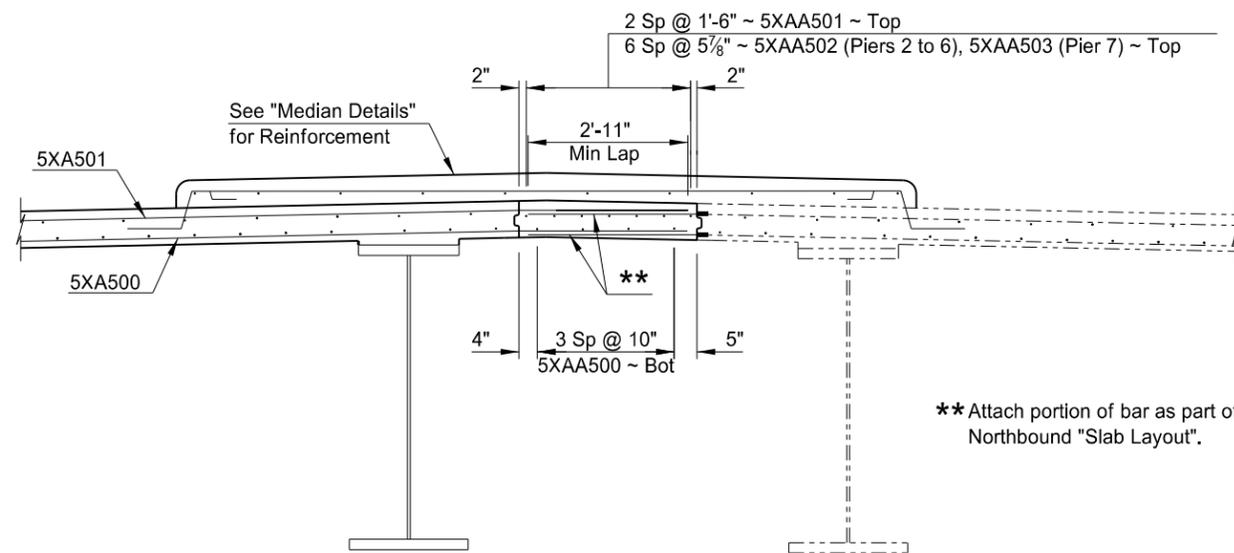
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	202



(SHOWING DIMENSIONS)



TYPICAL SHEAR KEY DETAIL



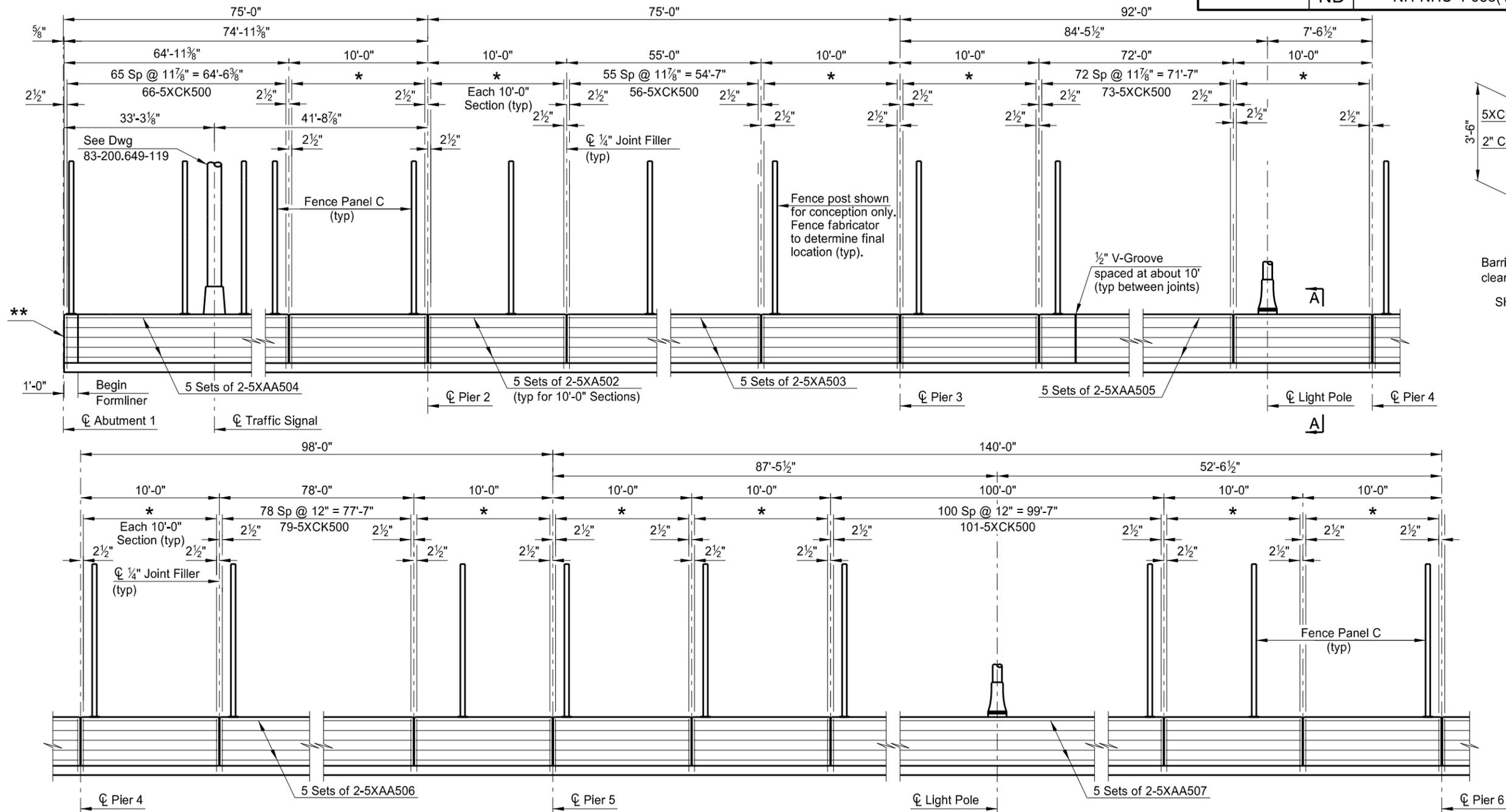
** Attach portion of bar as part of Phase 2, see Northbound "Slab Layout".

(SHOWING REINFORCING)

CLOSURE POUR DETAIL

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QUANTITIES
SEE DWG 83-200.649-201
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
SLAB DETAILS



ELEVATION

* 10 Sp @ 11 1/2" = 9'-7"; 11-5XCK500
 (Typical for 10'-0" Sections)

** See BARRIER RAIL EXPANSION DEVICES, Dwg 83-200.649-206

NOTES:

Longitudinal dimensions are horizontal at outside face of barrier.

See Dwg 83-200.649-206 for expansion details.

See Dwg 83-200.649-118 for formliner details.

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QUANTITIES

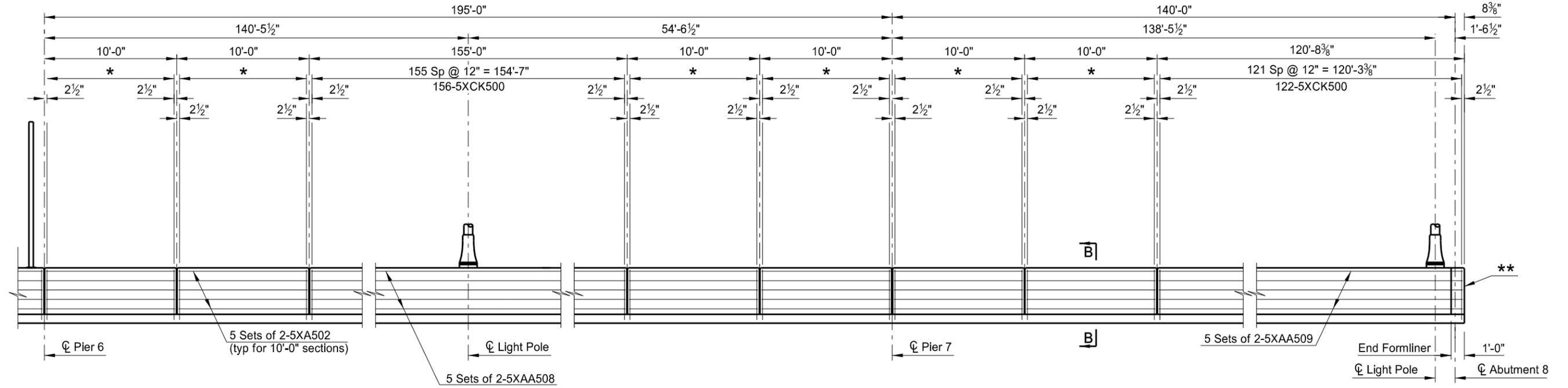
SEE SECTION 8 SHEETS 1-3

US-83 OVER CP AND BNSF RAILWAYS
 AND MOUSE RIVER

SOUTHBOUND

ROADWAY BARRIER ELEVATION
 SHEET 1 OF 2

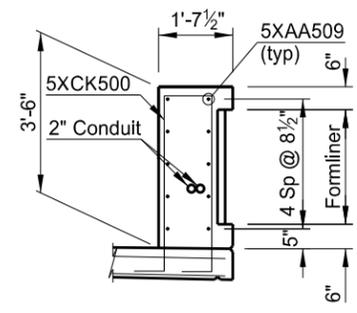
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	204



ELEVATION

- * 10 Sp @ 11 1/2" = 9'-7"; 11-5XCK500 (Typical for 10'-0" Sections)
- ** See BARRIER RAIL EXPANSION DEVICES, Dwg 83-200.649-206

NOTES:
 Longitudinal dimensions are horizontal at outside face of barrier.
 See Dwg 83-200.649-206 for expansion details.
 See Dwg 83-200.649-118 for formliner details.



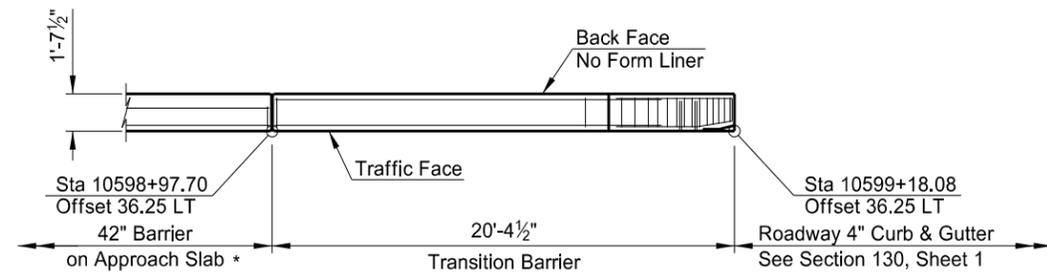
Barrier reinforcing shall have 1 1/2" clearance from the front face.

SHOWING REINFORCING
B-B

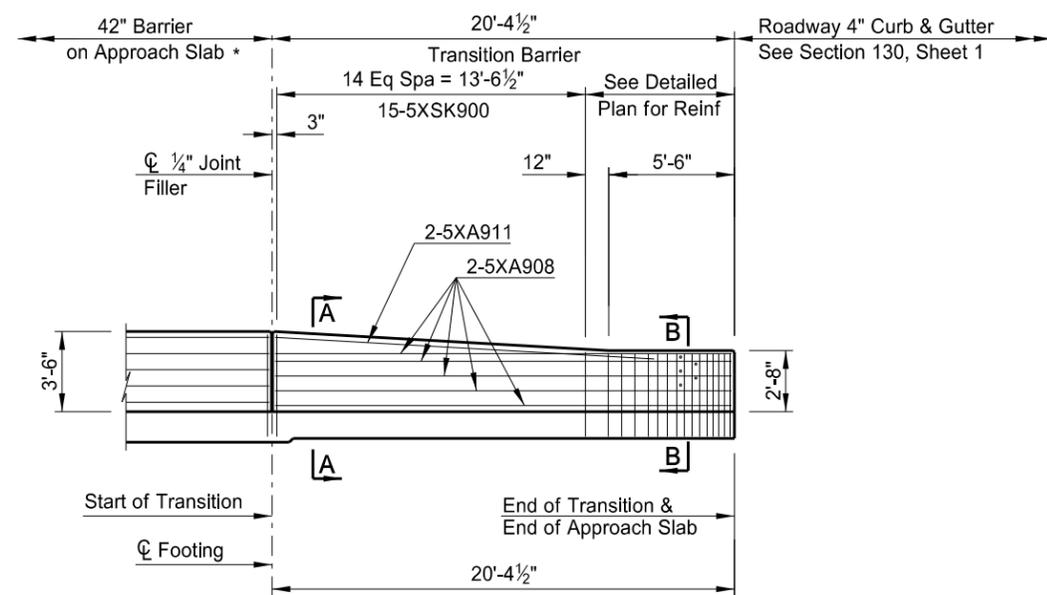
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QUANTITIES
SEE SECTION 8 SHEETS 1-3
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
ROADWAY BARRIER ELEVATION
SHEET 2 OF 2

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	205

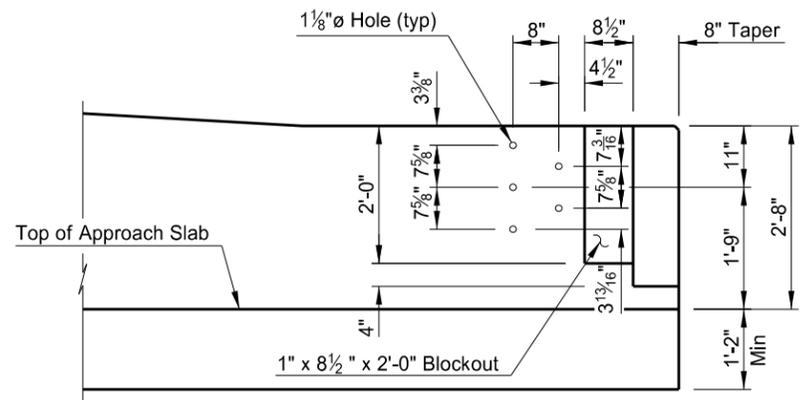


PLAN

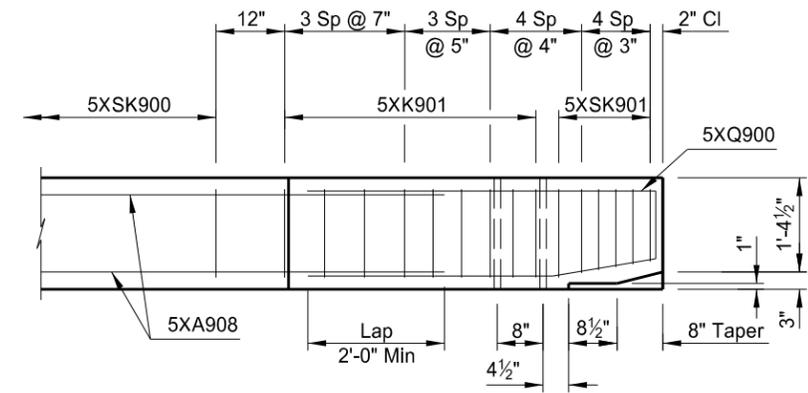


ELEVATION
(At Traffic Face)

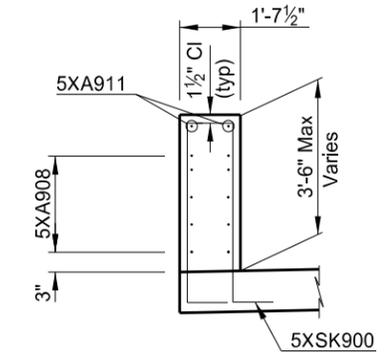
* For additional information, see NORTH APPROACH SLAB DETAILS, Dwg 83-200.649-231 and Dwg 83-200.649-232.



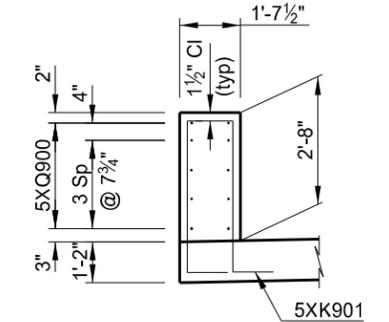
ELEVATION
(Showing Holes and Blockout)



DETAILED PLAN



SECTION A-A

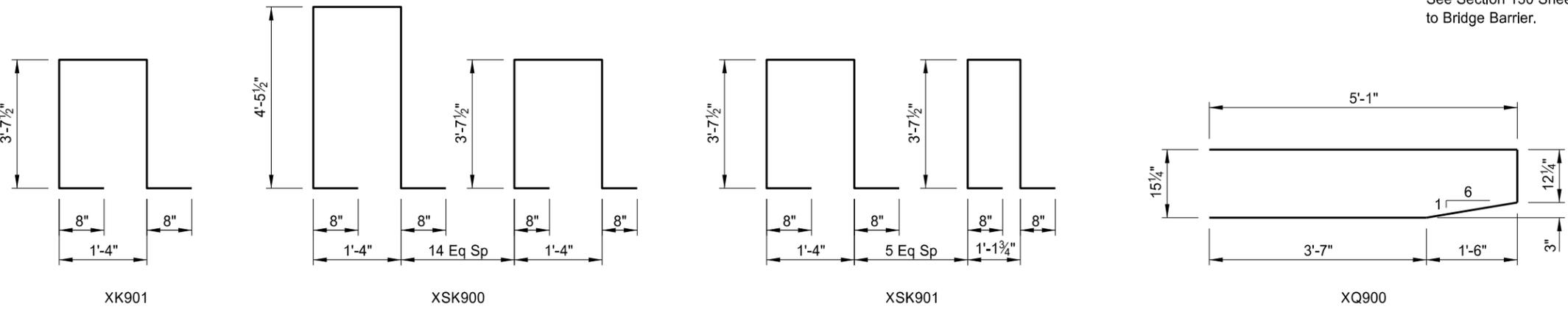


SECTION B-B

NOTES:

All materials including concrete, reinforcing bars, and all labor required to build the transition barrier shall be included in the pay item "Approach Slab".
See Section 130 Sheet 2 for Guardrail Attachment to Bridge Barrier.

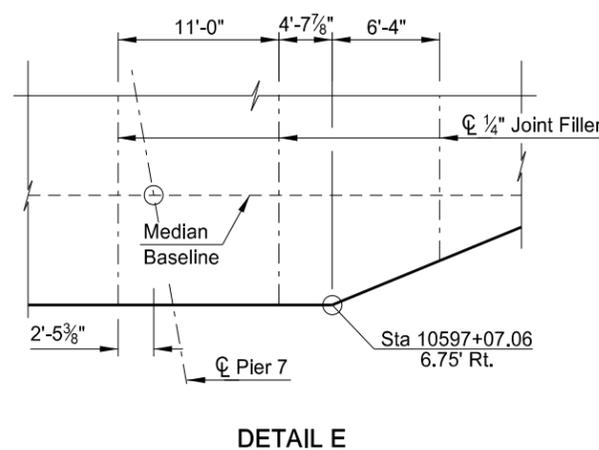
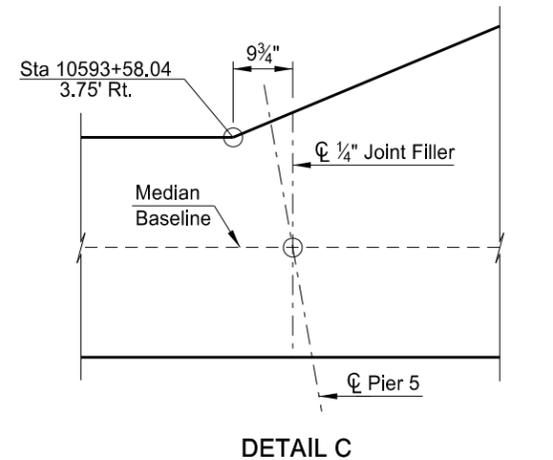
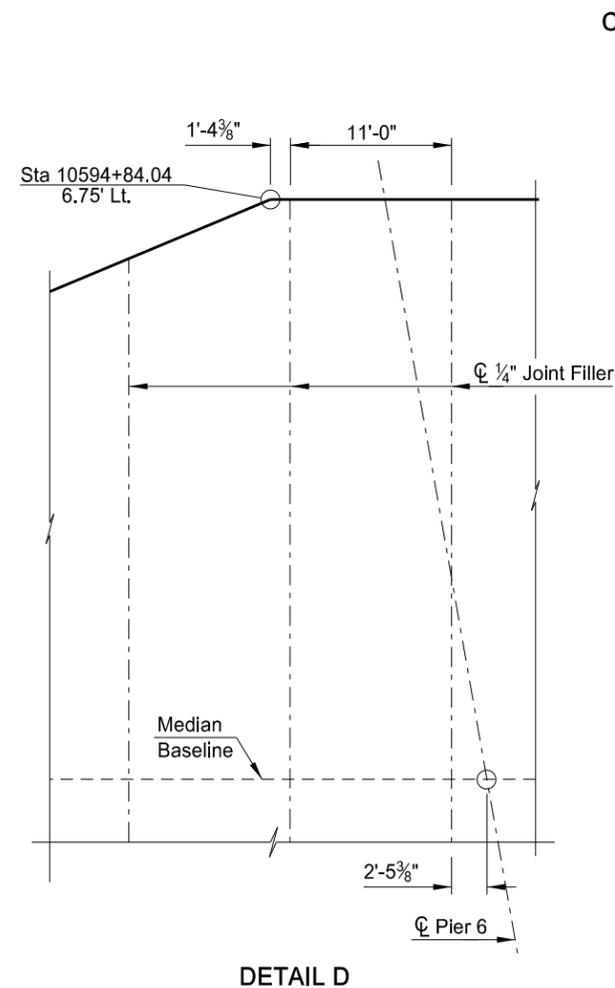
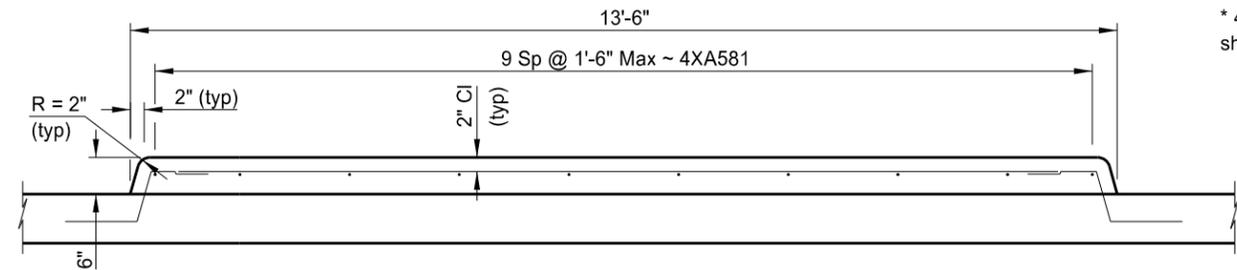
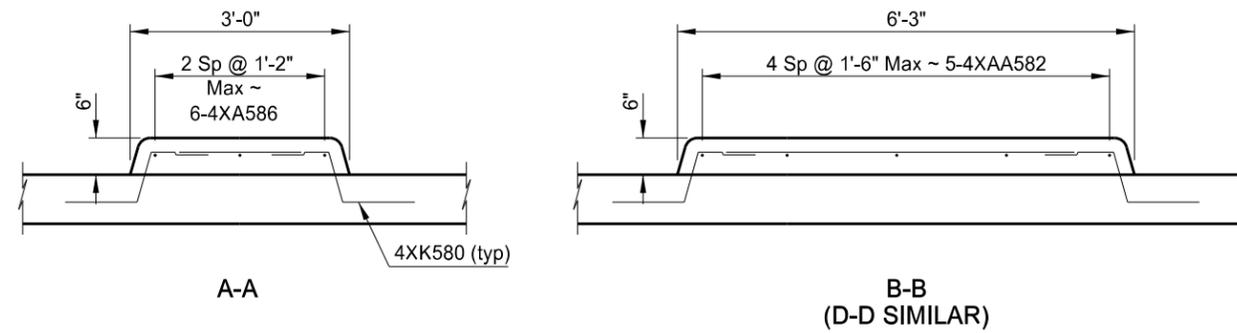
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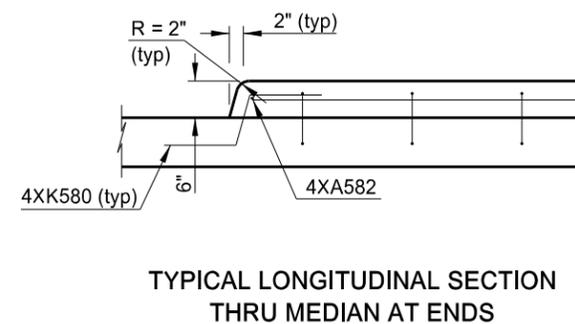
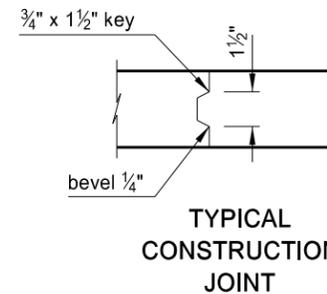
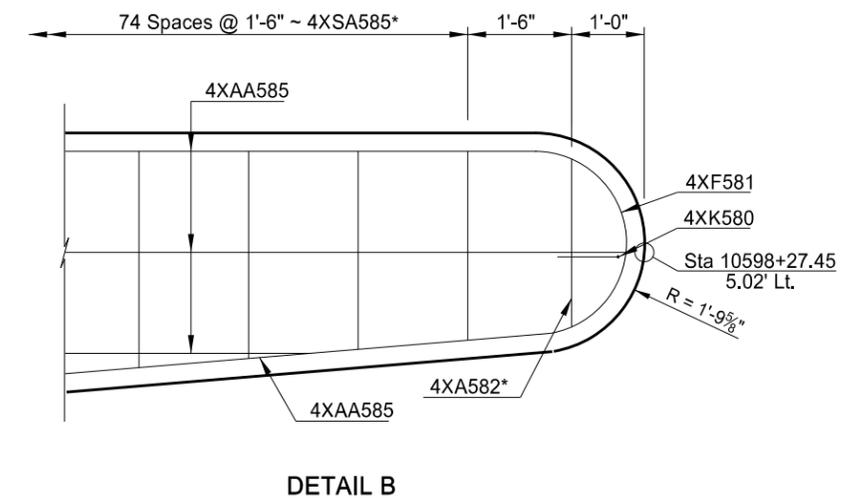
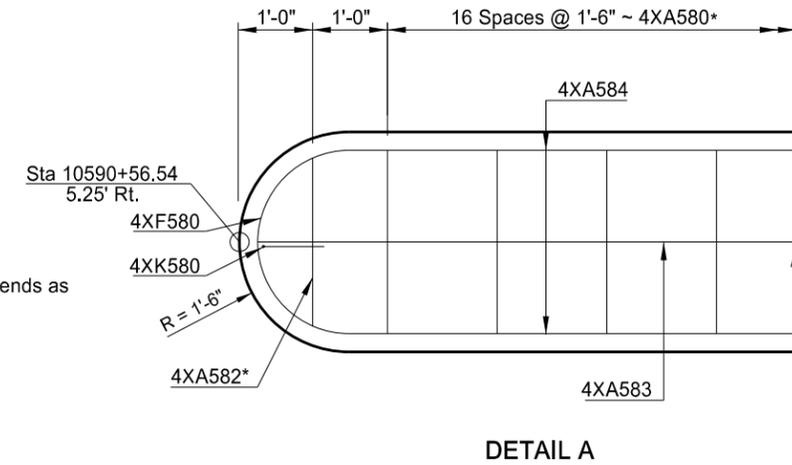
BENT BAR DETAILS

QUANTITIES
SEE DWG. 83-200.649-232
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
NORTH TRANSITION BARRIER DETAILS

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	209



* 4XK580 bars to be placed on both ends as shown on this sheet.

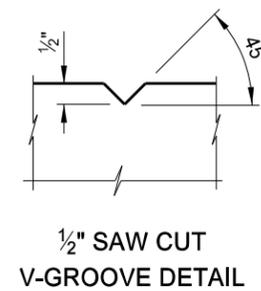
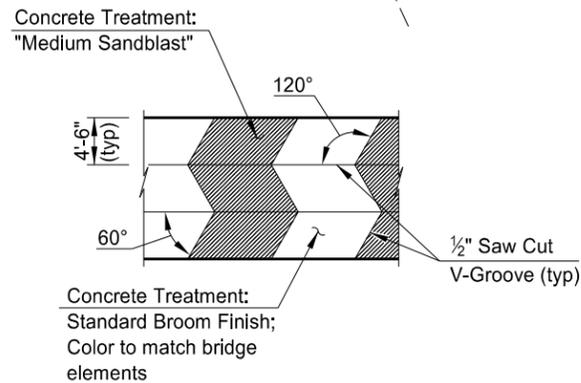
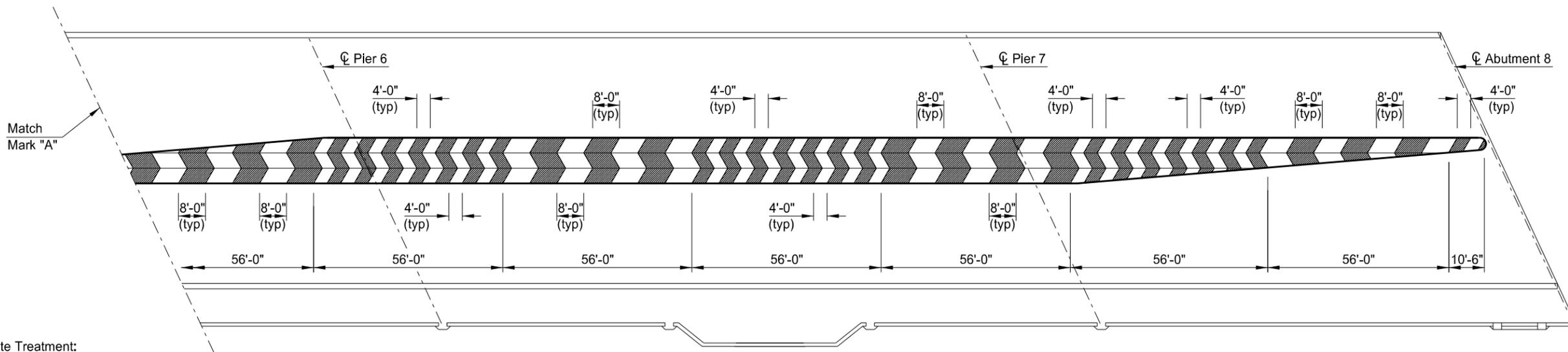
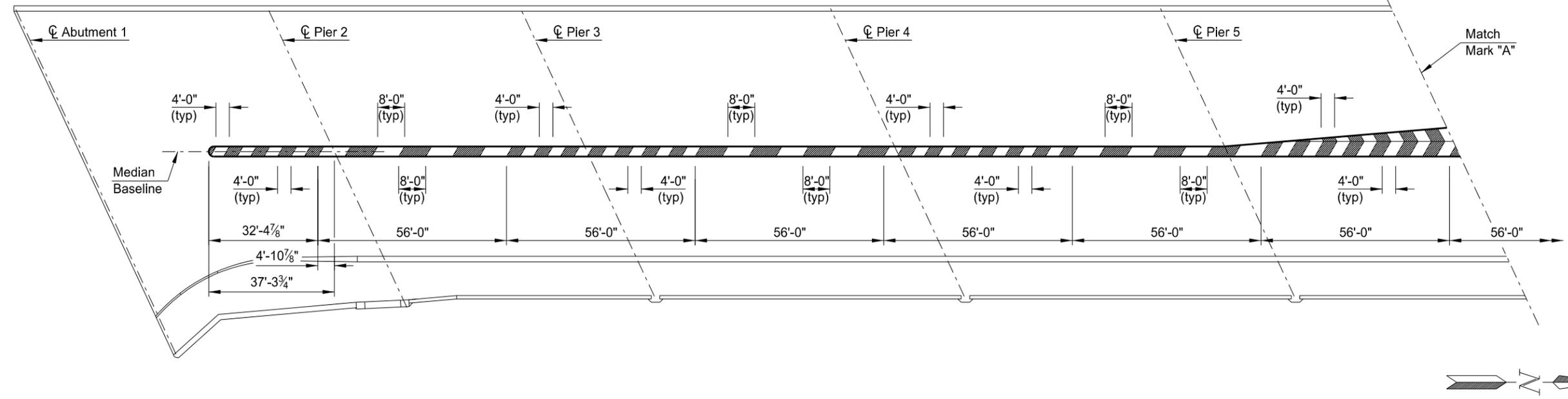


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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

SOUTHBOUND
MEDIAN DETAILS
SHEET 2 OF 2

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	210



PLAN

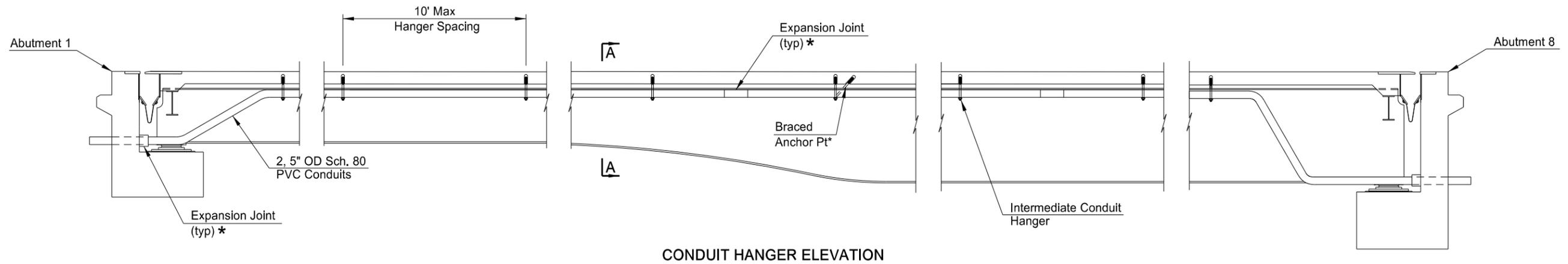
NOTE:
Contractor shall follow surface treatments and aesthetics as detailed on the plans. Ensure adjacent sections alternate surface treatments.
See Median Details 1 sheet for location of Median Baseline.

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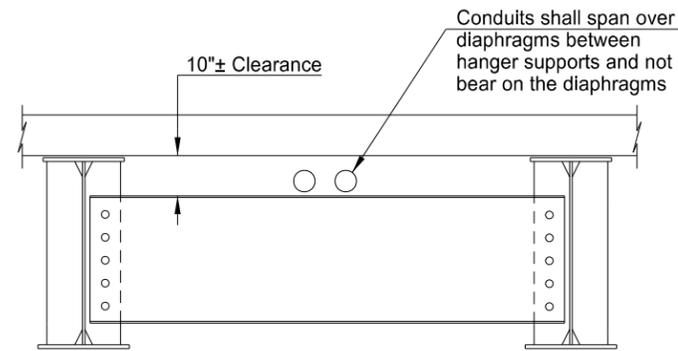
**US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER**

SOUTHBOUND
MEDIAN CONCRETE TREATMENT DETAILS

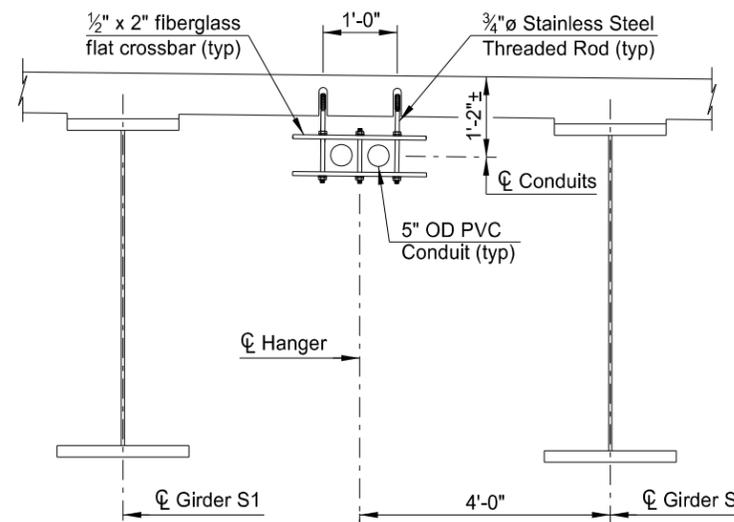
Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	217



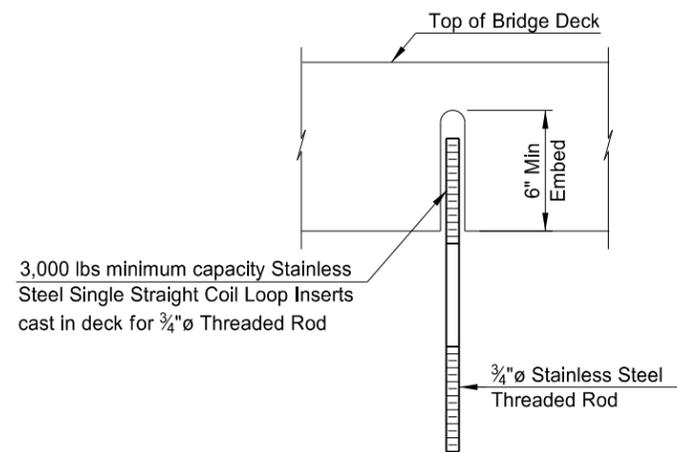
CONDUIT HANGER ELEVATION



A-A



TYPICAL HANGER ARRANGEMENT



THREADED ROD INSTALLATION ANCHOR DETAIL

NOTES:

Conduit bank weight is 17 lbs/ft. Contractor shall submit shop drawings and sealed calculations to the Engineer for approval.

* Locate expansion joints and braced anchor points per manufacturer's recommendation.

- Hanger Manufacturers:
1. Condux
 2. Osburn Associates, Inc.
 3. Unistrut

All costs for installation, including embedded inserts in deck, shall be included in the bid price for "5 inch Diameter Conduit - Bridge Mounted."

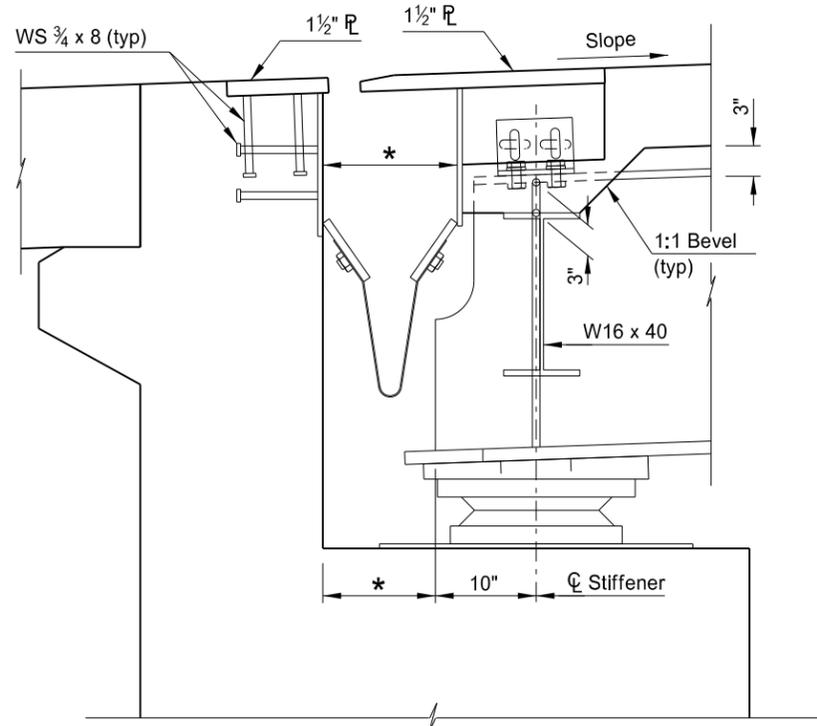
Shift conduits at abutments in order to avoid conflict with joint trough drainage system and disc bearings.

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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

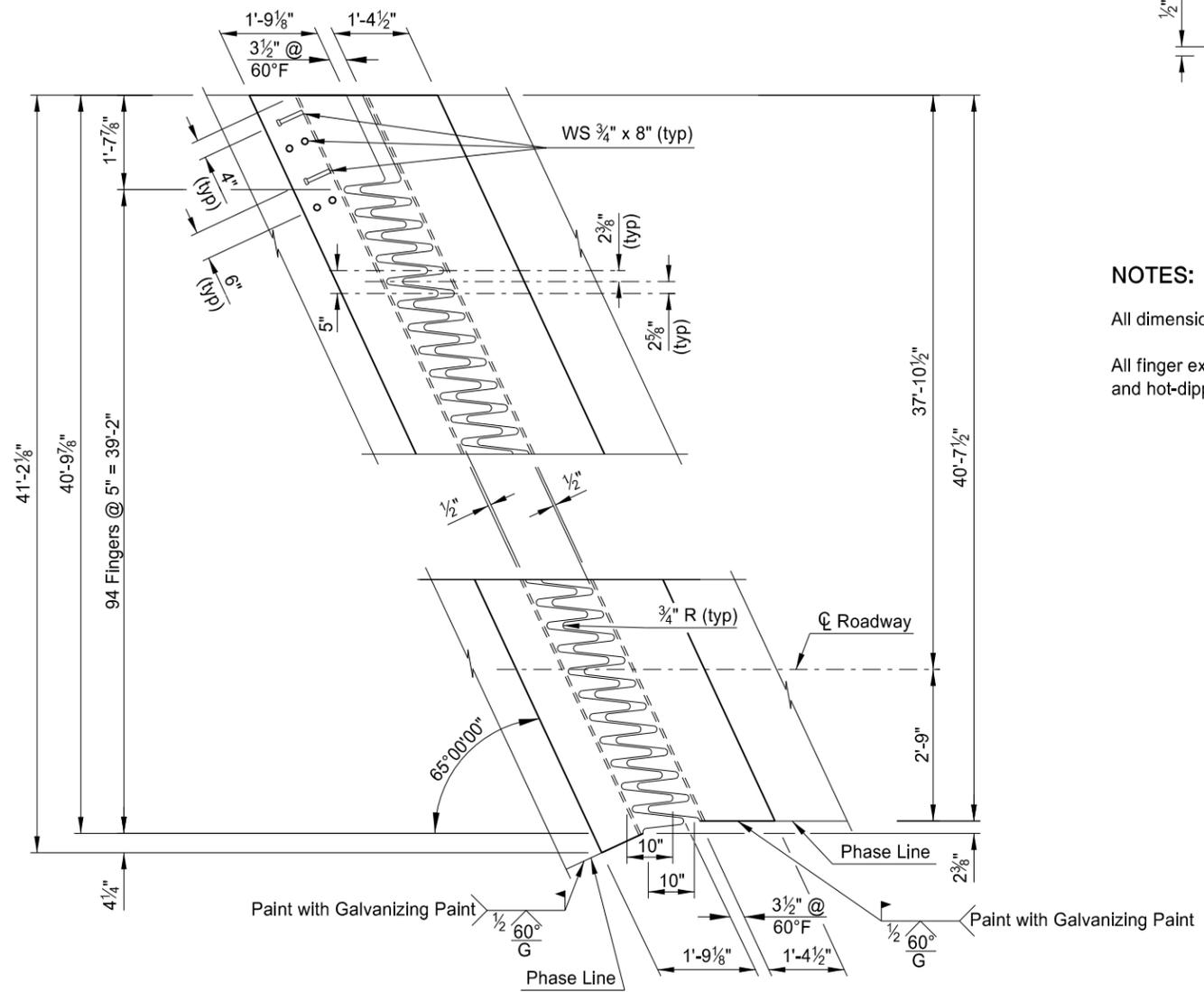
SOUTHBOUND
CONDUIT SUPPORT

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	218

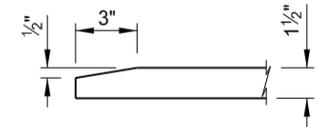


FINGER JOINT AT ABUTMENT 1
 (Along ϕ Girder)

* Match opening in Phase 1



JOINT DETAIL AT ABUTMENT 1



FINGER DETAIL

NOTES:

All dimensions are horizontal.

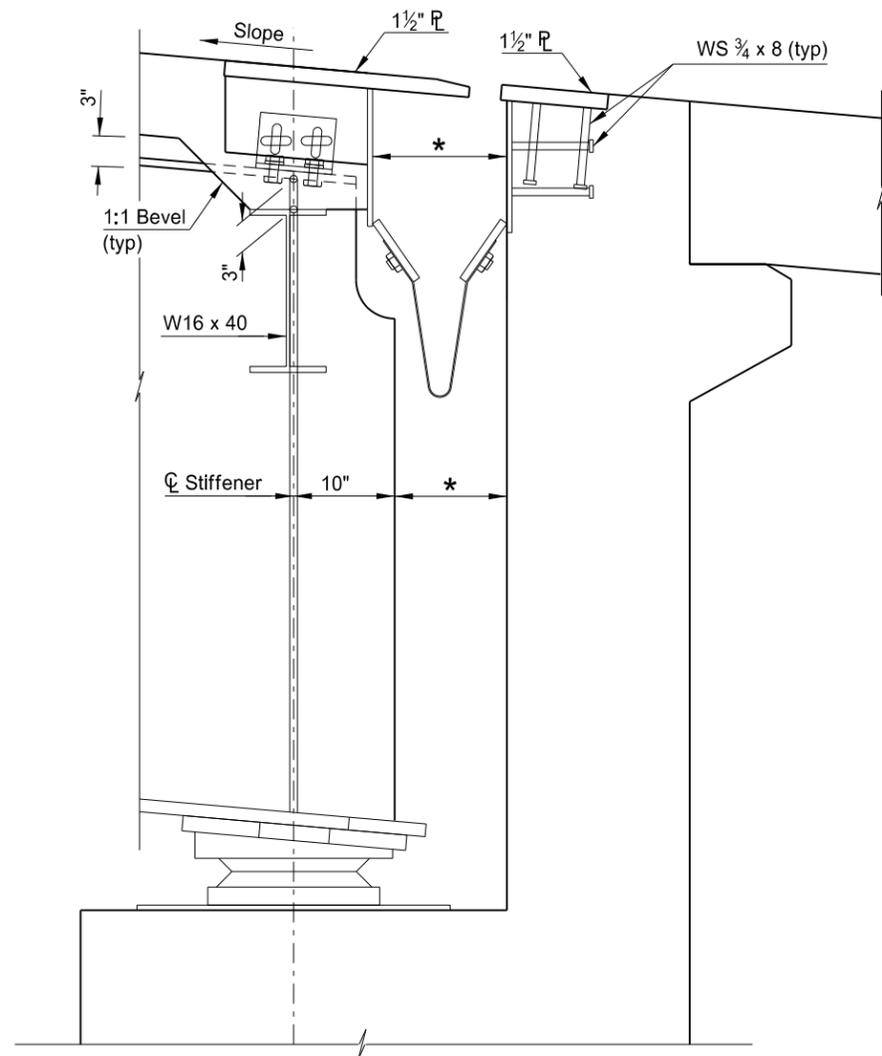
All finger expansion joint material shall be Grade 50 and hot-dipped galvanized after fabrication.

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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

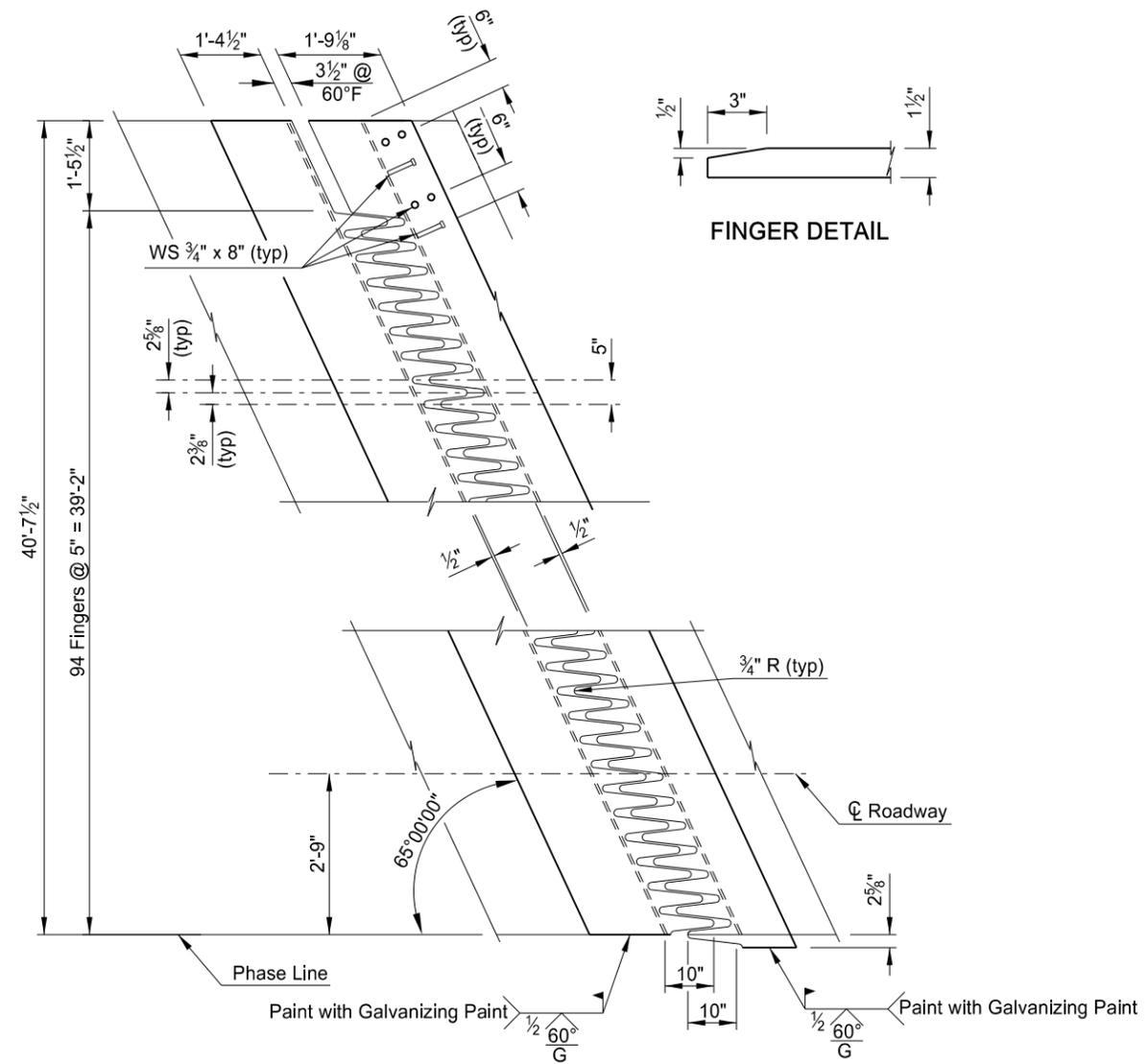
SOUTHBOUND
 SOUTH FINGER JOINT DETAILS
 SHEET 1 OF 5

Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	219

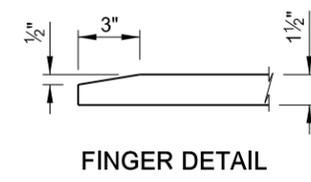


FINGER JOINT AT ABUTMENT 8
 (Along ϕ Girder)

* Match opening in Phase 1



JOINT DETAIL AT ABUTMENT 8

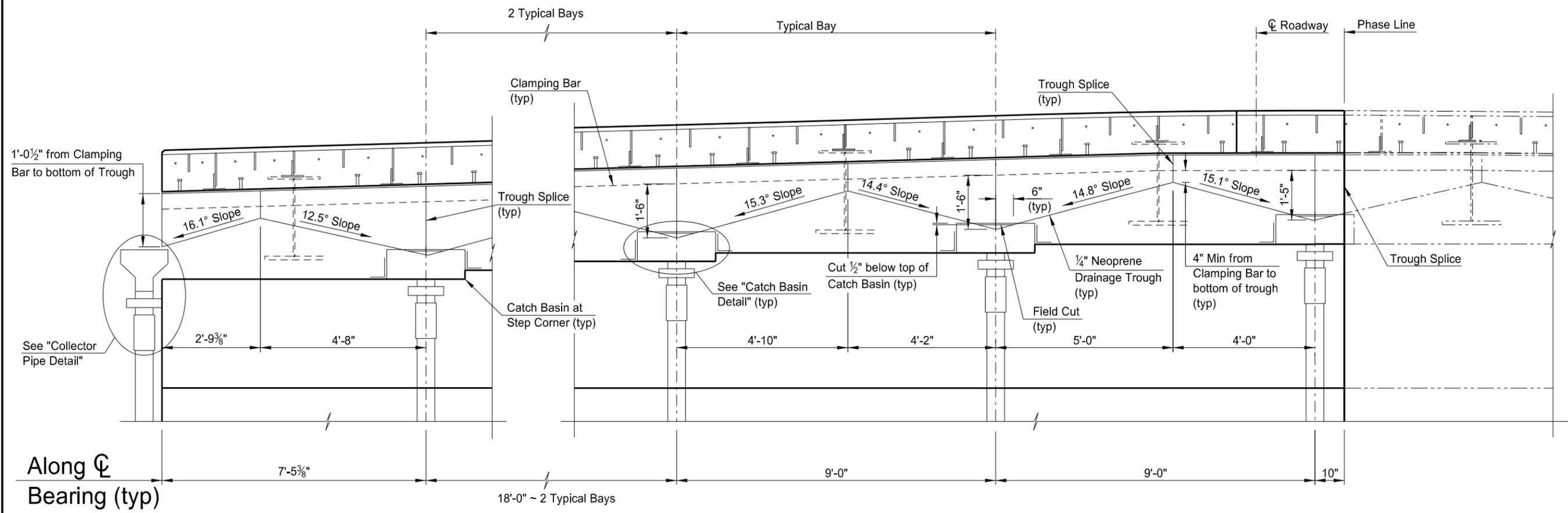


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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

SOUTHBOUND
 NORTH FINGER JOINT DETAILS
 SHEET 2 OF 5

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	223



DRAINAGE SYSTEM AT ABUTMENT 1

- NOTES:**
- For joint drainage system notes at abutment, see Dwg 83-200.649-225.
 - For "Collector Pipe Detail", see Dwg 83-200.649-225.
 - For "Catch Basin Detail", see Dwg 83-200.649-225.

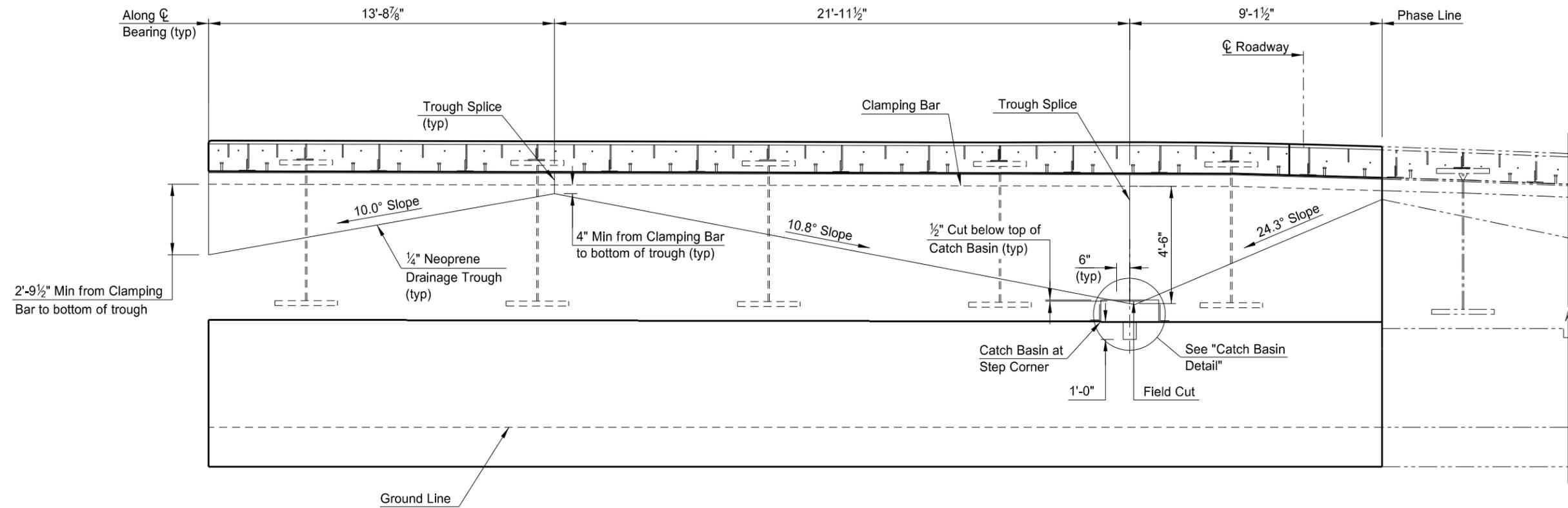
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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

SOUTHBOUND

ABUTMENT 1 DRAINAGE SYSTEM

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	224



DRAINAGE SYSTEM AT ABUTMENT 8

NOTES:

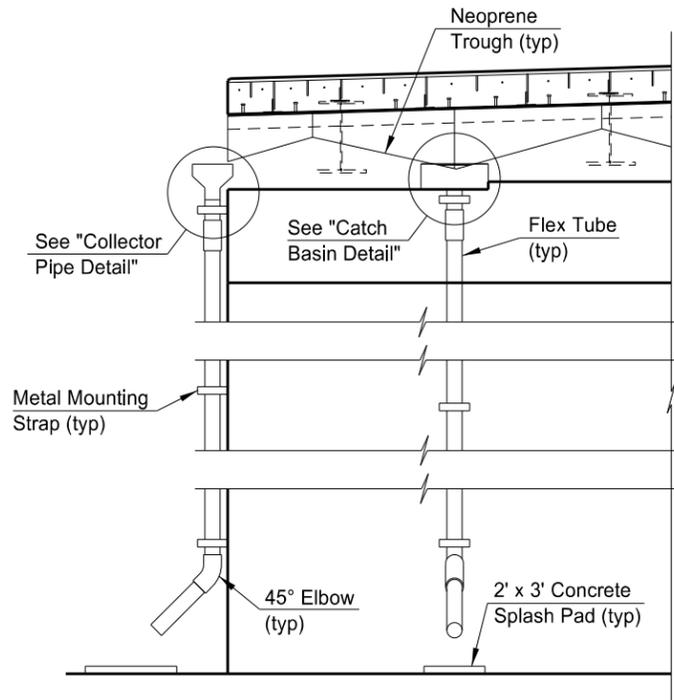
For joint drainage system notes at the abutment, see Dwg 83-200.649-225.
For "Catch Basin Detail", see Dwg 83-200.649-225.

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US-83 OVER CP AND BNSF RAILWAYS
AND MOUSE RIVER

SOUTHBOUND
ABUTMENT 8 DRAINAGE SYSTEM

Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	225



GENERAL VIEW
 DRAINAGE SYSTEM AT ABUTMENT 1

NOTES:

The shape of the neoprene trough should conform to the slope shown.

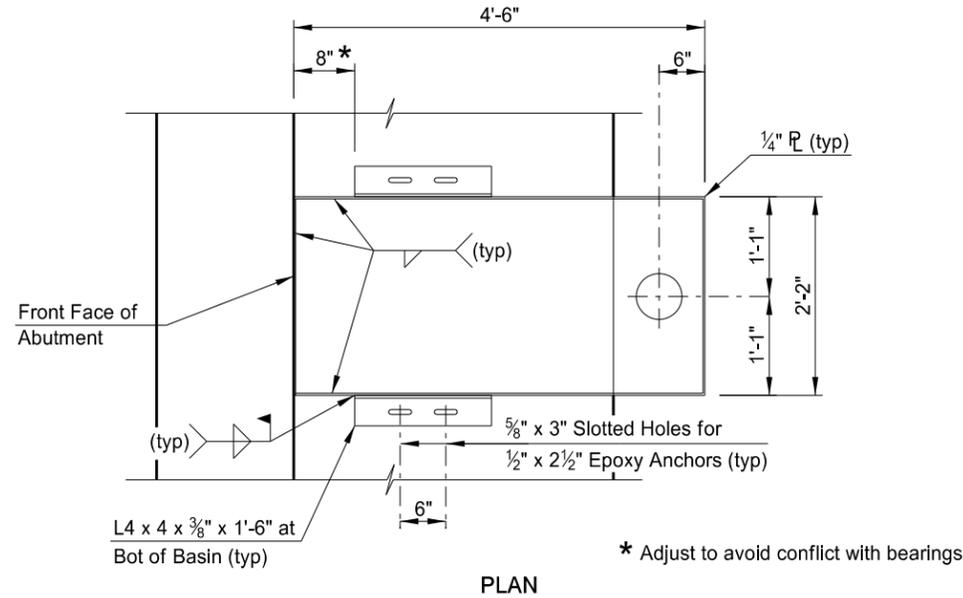
Additional splices in the trough shall be avoided if possible. Splices shall use a mechanical splice (bolts, rivets or sewing). Upstream side shall be on top of downstream side. Each section of the trough shall extend 3" past the trough splice locations shown for a total of 6" of overlap minimum.

Shop drawings and material certification shall be submitted to the Engineer for review.

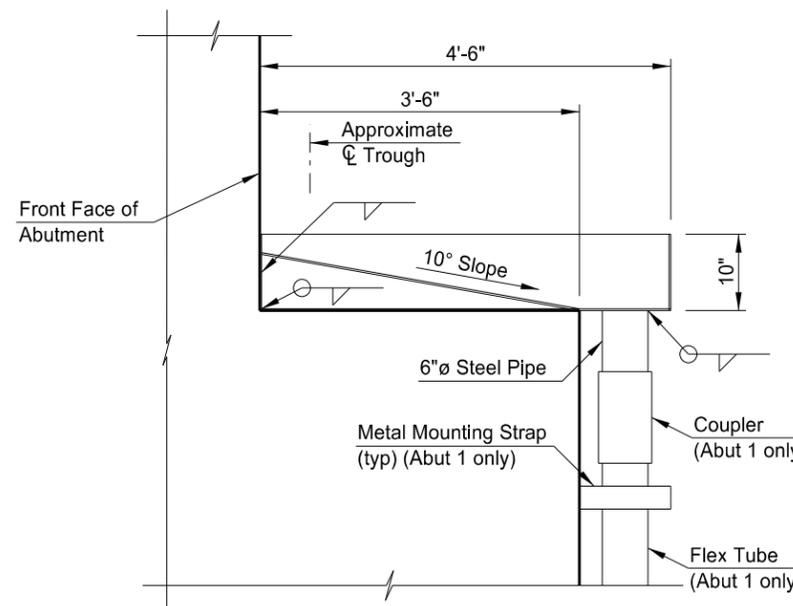
All pipe, elbows and couplers used in the drainage system shall be 6"Ø galvanized steel pipe with the exception of the identified rubber hose (Flex Tube). The rubber hose shall be 6"Ø high grade EPDM/SBR blend, reinforced, oil and weather resistant with an operating temperature range of -20° to 195°, and a minimum bend radius of 24 inches. All exposed hardware and catch basins shall be galvanized.

The rubber hose shall be fastened to the steel couplers with a double bolt clamp having a recommended torque of 60 ft-lbs. Galvanized steel straps shall be used to secure the deck drainage system to the abutments by means of an approved anchorage. Details and calculations shall be submitted to the Engineer for review.

All materials including reducer, steel pipes, fittings, rubber hose, metal straps, anchoring devices, catch basins, misc. hardware, other miscellaneous items required, and labor required to fabricate, assemble and install the drains shall be paid for as a lump sum item "Deck Drainage System". Shop drawings and material certification shall be submitted to the Engineer for review.

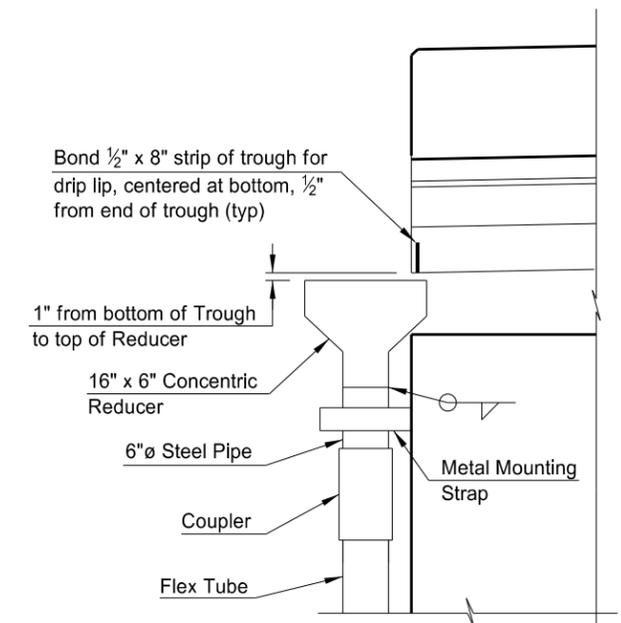


PLAN



SECTION

CATCH BASIN DETAIL
 Abutment 1 shown, Abutment 8 similar



COLLECTOR PIPE DETAIL

Nylon Reinforced Neoprene Sheets shall meet the following requirements:

1. Tensile Strength = 1,100 PSI
2. Elongation = 300%
3. Durometer Hardness = 50

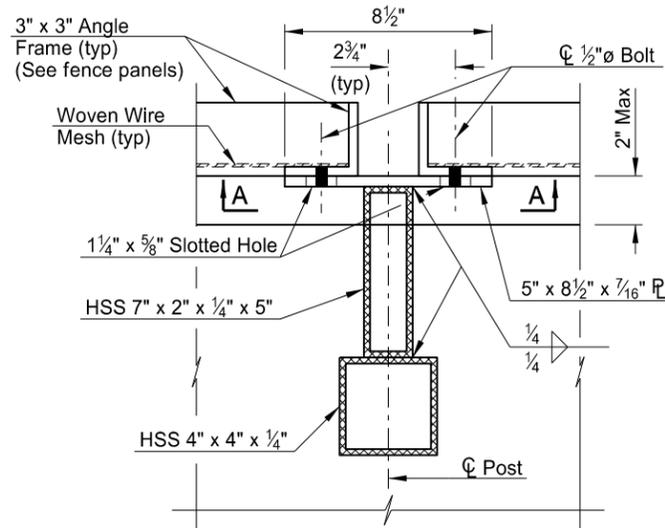
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US-83 OVER CP AND BNSF RAILWAYS
 AND MOUSE RIVER

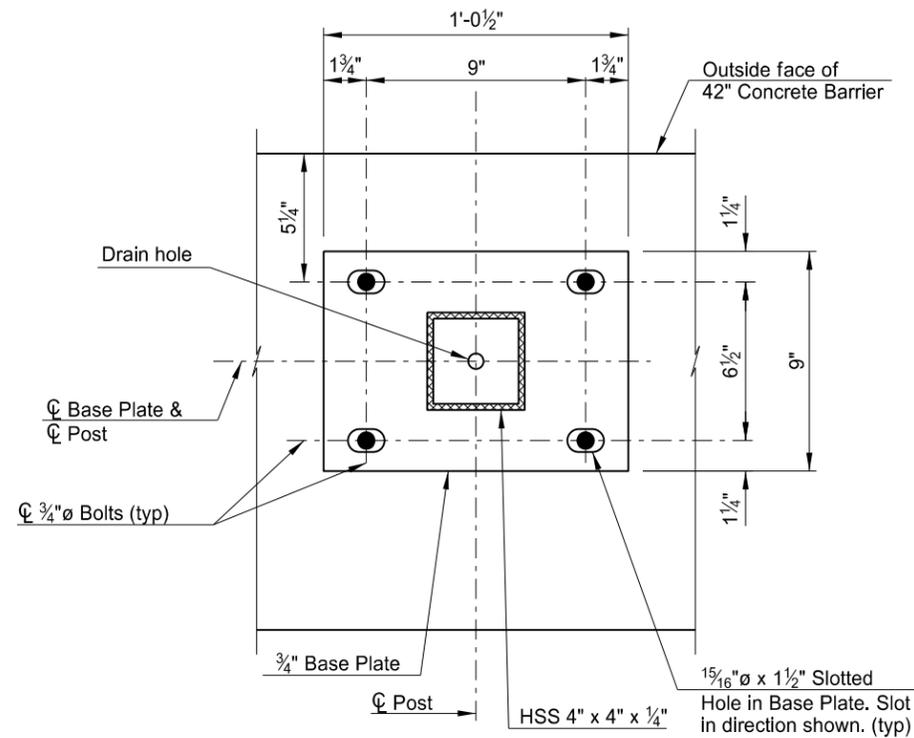
SOUTHBOUND

ABUTMENT DRAINAGE SYSTEM DETAILS

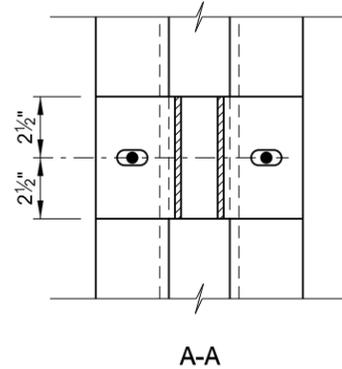
Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	226



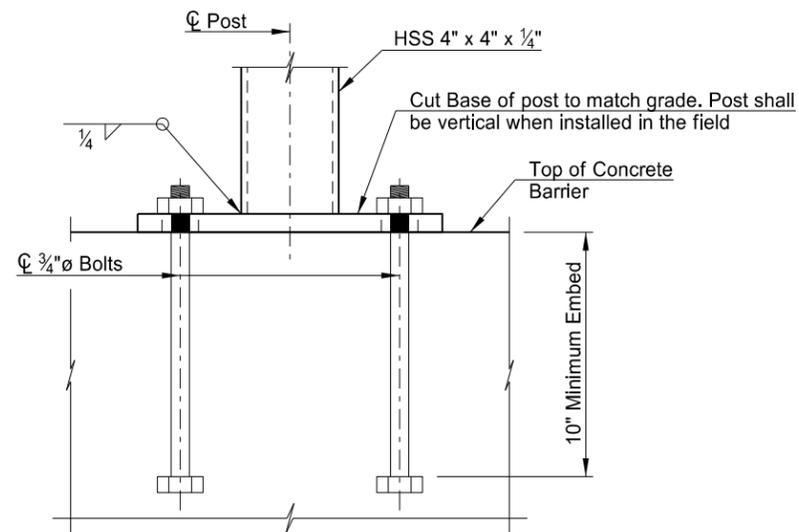
PLAN OF FENCE PANEL ATTACHMENT TO FENCE POST



PLAN - 10' FENCE POST ANCHORAGE



A-A



ELEVATION - 10' FENCE POST ANCHORAGE

NOTES:

Structural steel tube sections shall conform to ASTM A500, Grade B. All other structural steel shall conform to ASTM A709, Grade 50. Bolts and nuts shall conform to ASTM A307.

All areas of fence that may retain water shall be provided with 3/8\" diameter drain holes.

All anchor bolts shall conform to ASTM F 1554, Grade 55.

All anchors must be cast-in-place. If contractor elects to use post installed anchors, they must submit sealed calculations to the Engineer.

All structural steel shall be hot-dipped, galvanized, and painted Federal Standard Black (No. 27038).

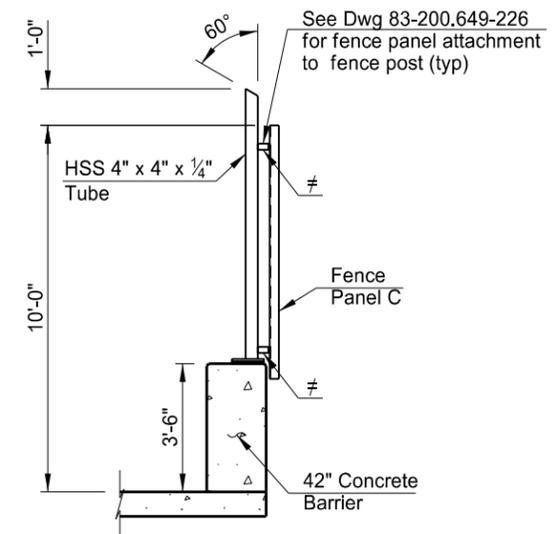
All posts shall be oriented to true vertical.

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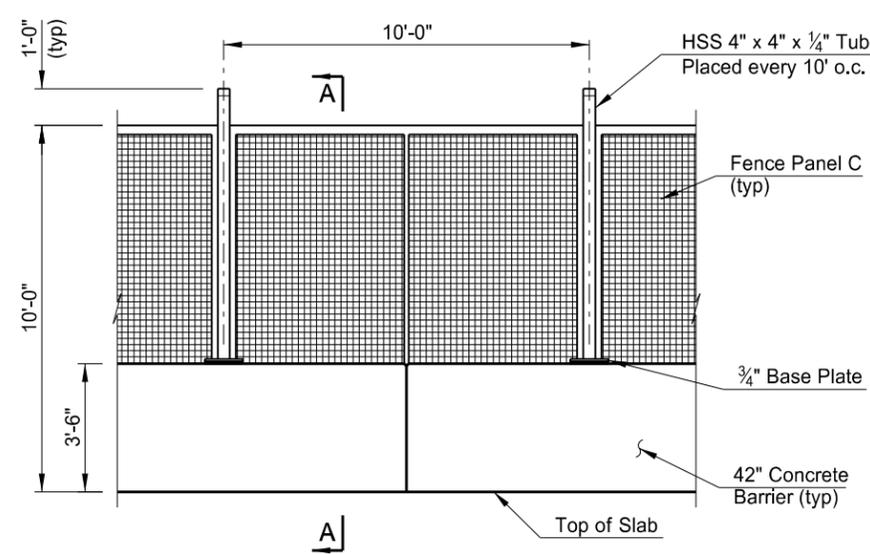
US-83 OVER CP AND BNSF RAILWAYS
 AND MOUSE RIVER
 SOUTHBOUND
 FENCE DETAILS
 (MISCELLANEOUS DETAILS)

23 U.S.C. 409
NDDOT Reserves All Objections

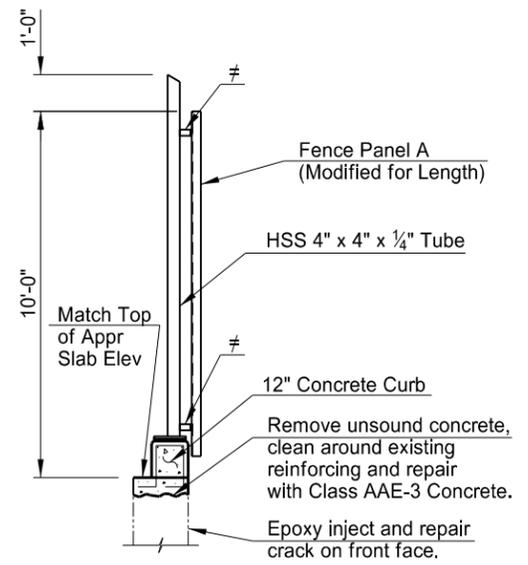
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	227



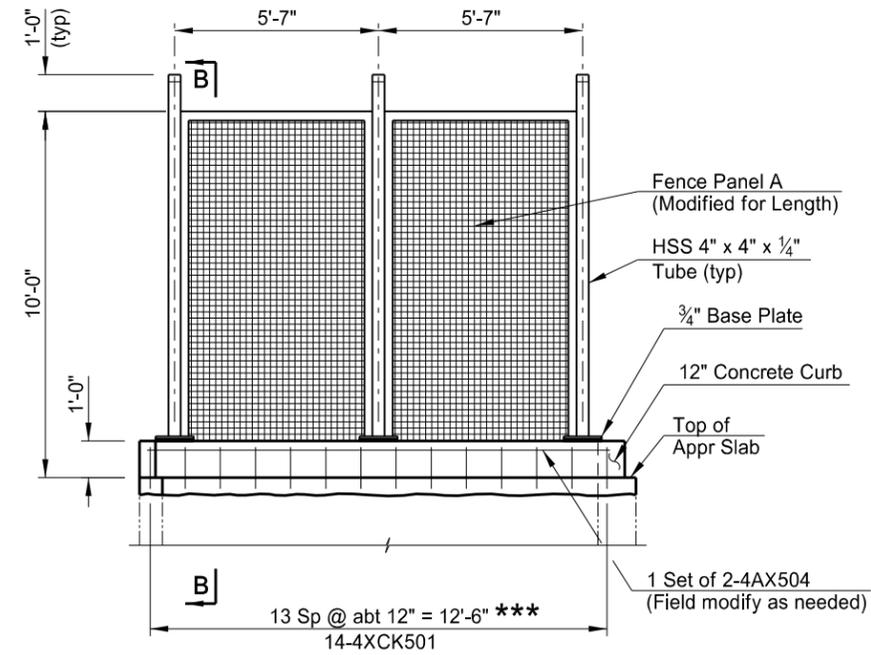
A-A - 10' FENCE ON 42" BARRIER



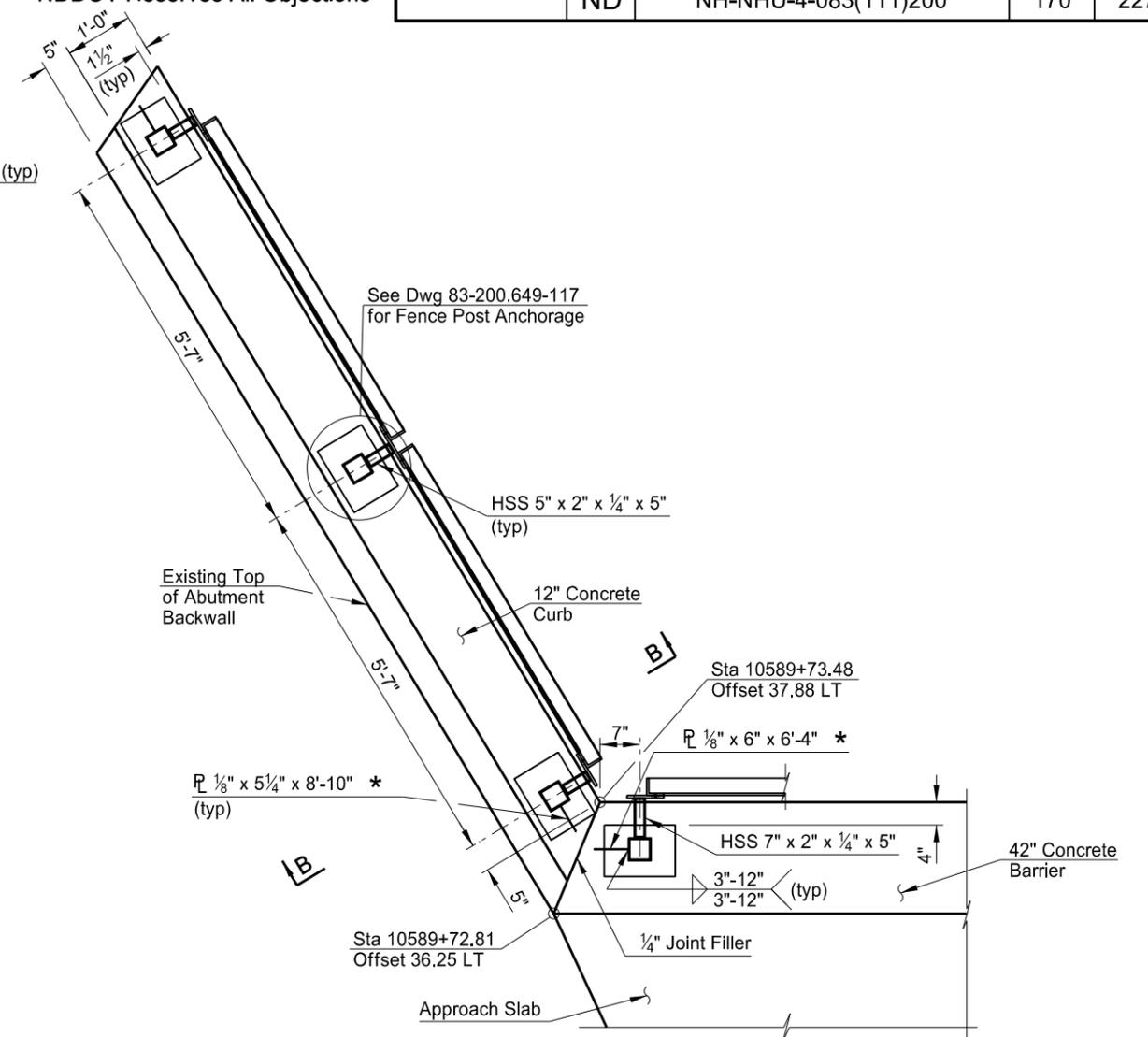
ELEVATION - 10' FENCE ON 42" BARRIER



B-B - 10' FENCE ON ABUTMENT 1 WINGWALL **
(At Existing Wingwall)



ELEVATION - 10' FENCE ON ABUTMENT 1 WINGWALL
(At Existing Wingwall)



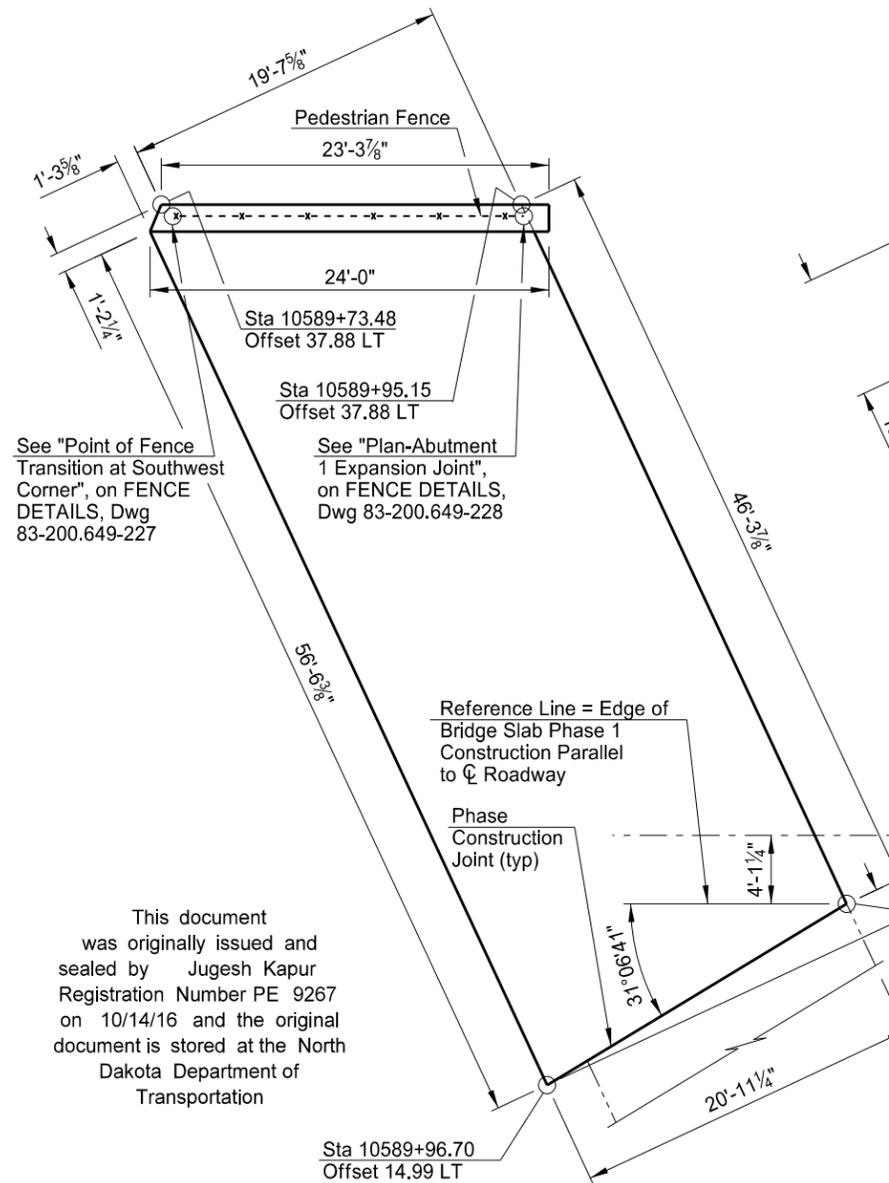
PLAN OF FENCE TRANSITION AT SOUTHWEST CORNER ABUTMENT 1

- * Plate shall begin 2 inches above base plate and be centered on post.
- ** Repair work and concrete cost shall be considered incidental with 10' Fence.
- *** Place two additional 4XCK501 bars @ 6" centers below both 10' fence posts.
- ≠ Fence panel to fence post connection shall be located approximately 6 inches from top of fence panel at top and approximately 6 inches from top of curb/barrier at bottom. Local grades cause this to vary.

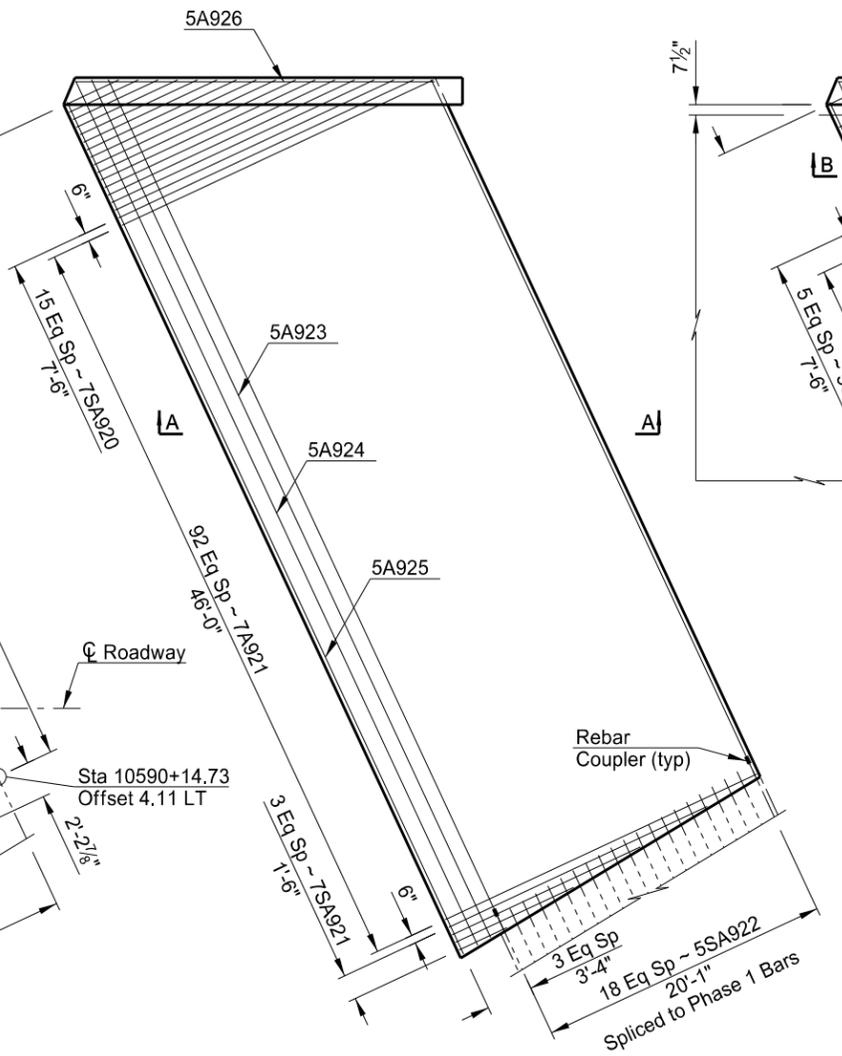
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US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
FENCE DETAILS
(MISCELLANEOUS DETAILS)

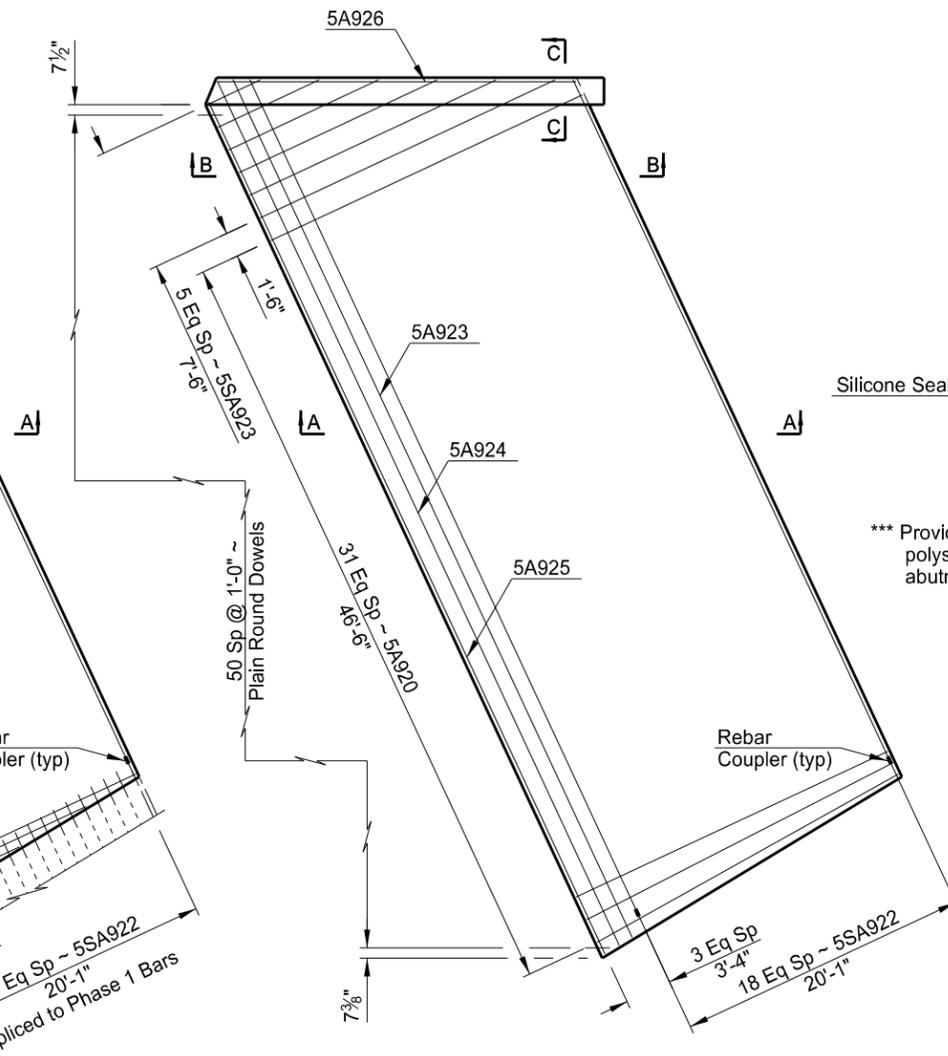
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	229



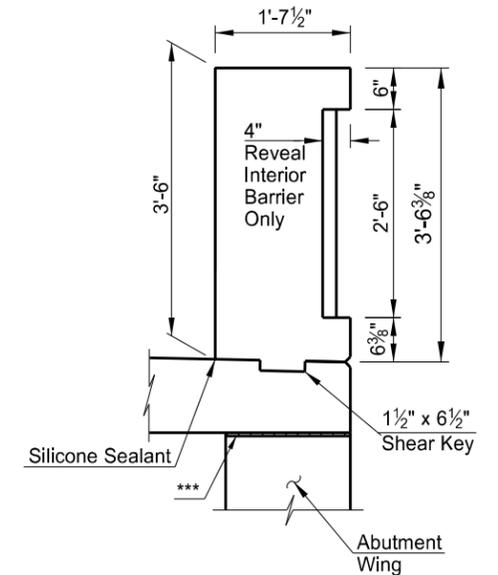
PLAN SHOWING CONCRETE DIMENSIONS



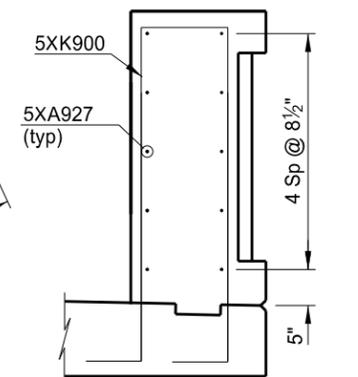
PLAN SHOWING BOTTOM REINFORCEMENT



PLAN SHOWING TOP REINFORCEMENT



SHOWING DIMENSIONS SECTION C-C



* Barrier reinforcing shall have a 1 1/2" clearance from the front face.

SHOWING REINFORCING SECTION C-C

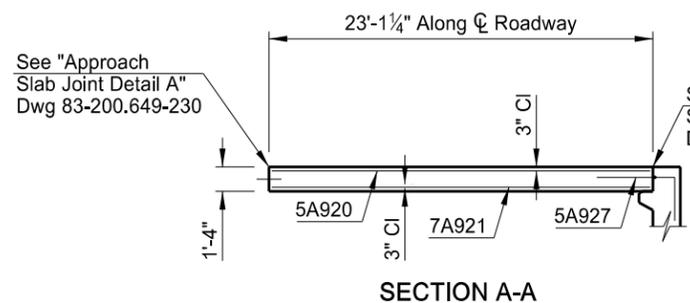
NOTES:
Reinforcing bars shall be splayed near phase construction joint as shown.

The SA922 bars shall be coupled with the corresponding bars in phase 1 construction. The couplers shall be an approved mechanical connector capable of developing 125% of the specified yield strength of the reinforcing steel.

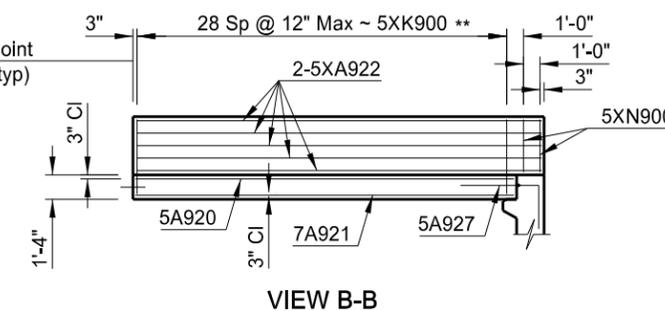
For additional information, see BARRIER RAIL EXPANSION DEVICES, Dwg 83-200.649-206.

** Place two additional 5XK900 bars @ 6" c/ntr below all fence posts. See "Fence Post Reinforcement Detail" on PEDESTRIAN BARRIER ELEVATION, Dwg 83-200.649-89.

For fence details, see Dwg 83-200.649-226 and Dwg 83-200.649-227.



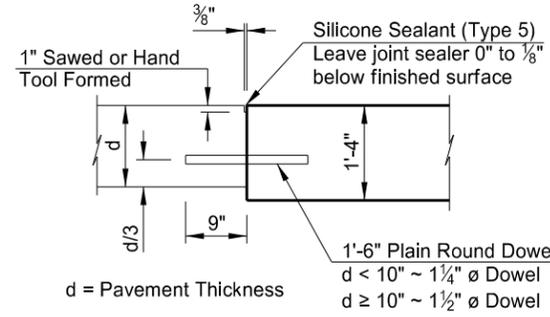
SECTION A-A



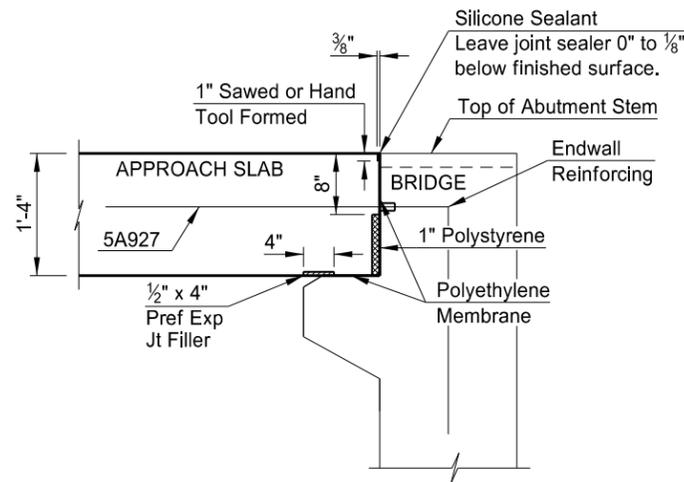
VIEW B-B

QUANTITIES	(ONE SLAB)
APPROACH SLAB	121.6 SY
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER	
SOUTHBOUND	
SOUTH APPROACH SLAB DETAILS SHEET 1 OF 2	

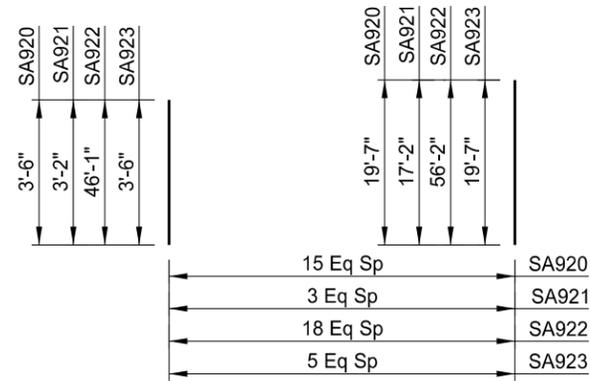
Revised	10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	170	230



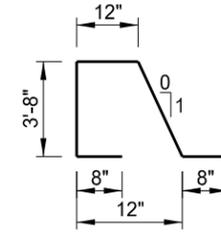
JOINT DETAIL A



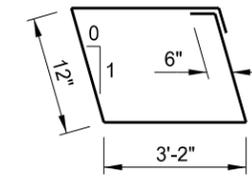
APPROACH SLAB JOINT DETAIL B



SA920, SA921, SA922 and SA923



XK900



XN900

BENT BAR DETAILS

SKEW ANGLE = 25°

BAR LIST - ONE SLAB

SIZE	MARK	NO.	LENGTH
5	A920	32	20'-8"
7	A921	93	20'-8"
5	XA922	10	22'-5"
5	A923	2	56'-8"
5	A924	2	57'-3"
5	A925	2	56'-5"
5	A926	2	21'-7"
5	A927	43	3'-0"
5	XK900	29	9'-8"
5	XN900	2	9'-4"
7	SA920	1	184'-8"
7	SA921	1	40'-8"
5	SA922	2	971'-7"
5	SA923	1	69'-3"

ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL (LBS)	CONCRETE (CY)
8,241	52.3

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NOTES:

The estimated material quantities shown are for information purposes only. All materials including concrete, reinforcing bars, polyethylene film, prefabricated joint filler, polystyrene, silicone sealant, and all labor required to build the approach slabs and barriers shall be included in the pay item "Concrete Bridge Approach Slab." The concrete shall be Class AE-3 and the reinforcing steel shall be Grade 60. The polyethylene film shall meet the requirements of AASHTO M 171.

The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the "Bent Bar Details" are out to out.

QUANTITIES

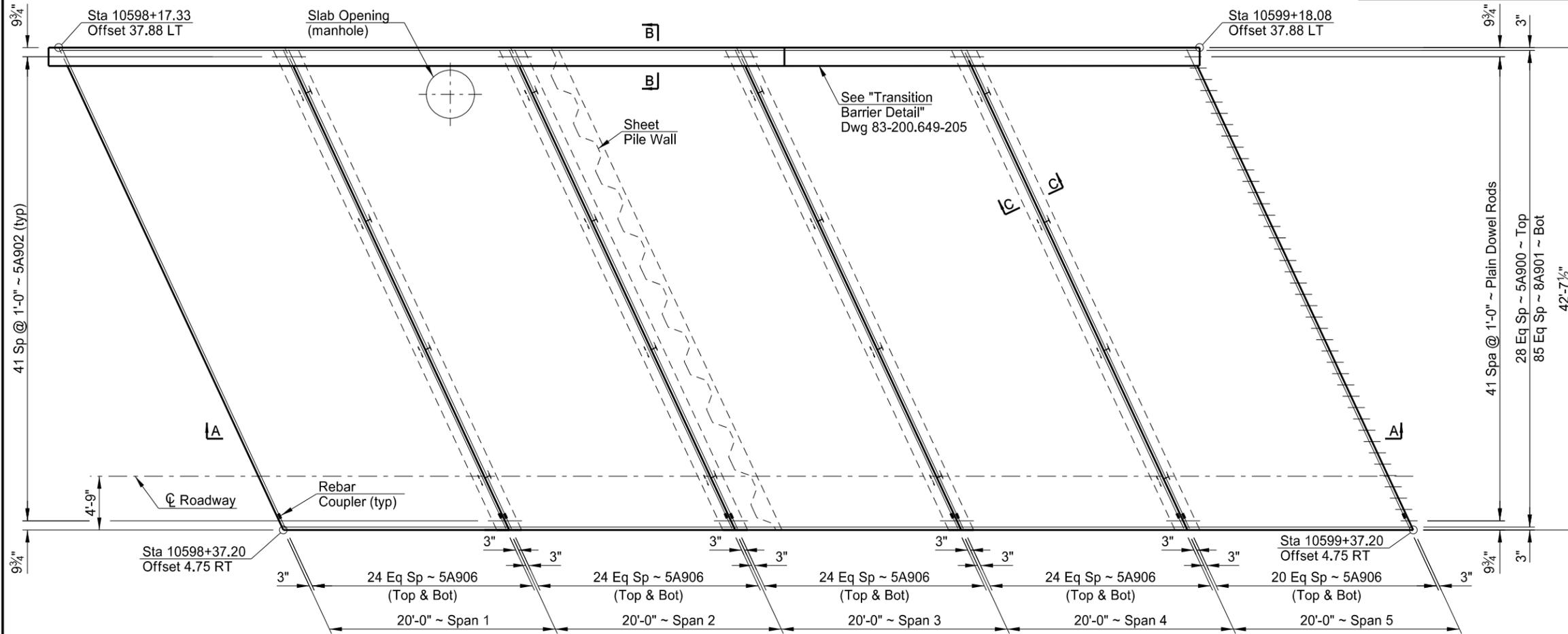
SEE DWG 83-200.649-229

US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER

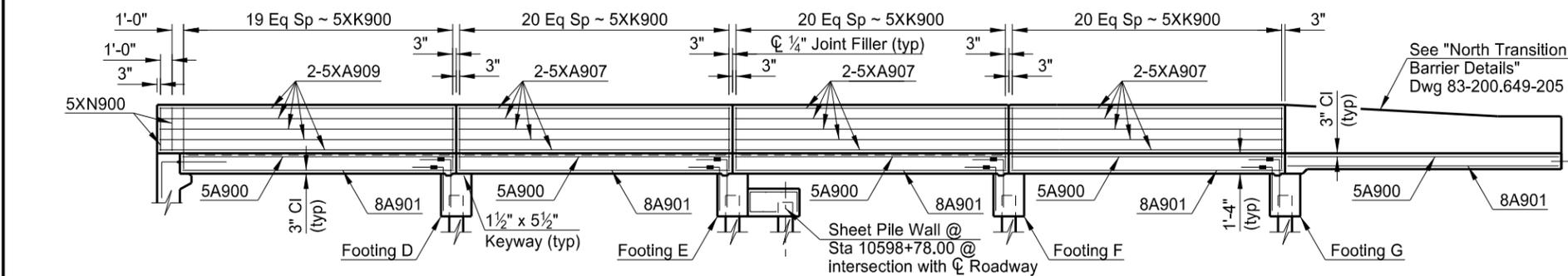
SOUTHBOUND

SOUTH APPROACH SLAB DETAILS
SHEET 2 OF 2

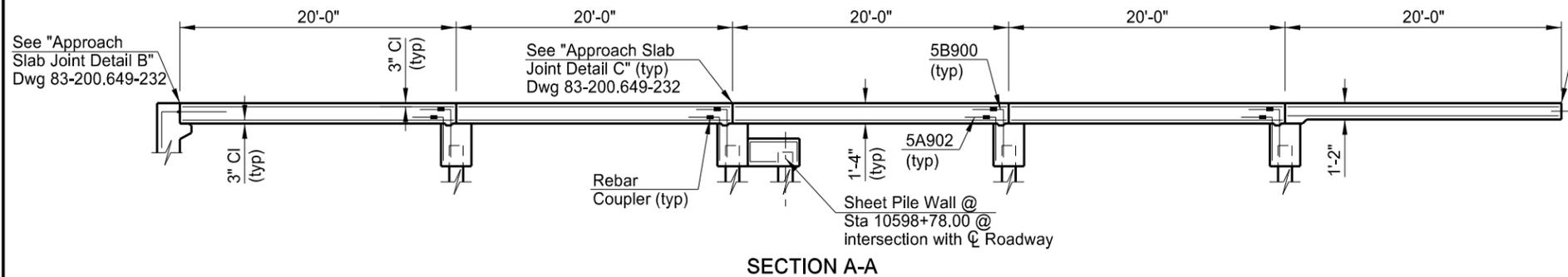
Revised 10/14/2016	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	170	231



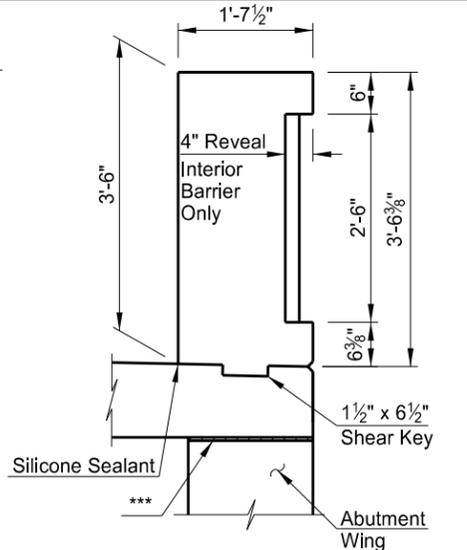
PLAN



ELEVATION
(At Traffic Face)

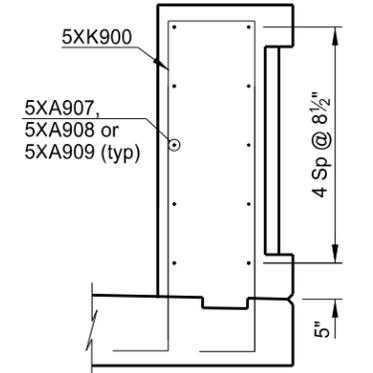


SECTION A-A



*** Provide 1/2" preformed joint filler or extruded polystyrene where approach slab rests on abutment wing.

SHOWING DIMENSIONS



* Barrier reinforcing shall have a 1 1/2" clearance from the front face.

SHOWING REINFORCING
SECTION B-B

NOTES:
For Section C-C, see Dwg 83-200.649-232.
For "North Transition Barrier Details", see Dwg 83-200.649-205.
For "Footing Elevation", see Dwg 83-200.649-232.
For additional information, see BARRIER RAIL EXPANSION DEVICES, Dwg 83-200.649-206.
The A902 bars shall be coupled to the B900 bars extending out of the approach slab footing. Also, the A903 thru A906 bars shall be coupled with the corresponding bars in phase 1 construction. The couplers shall be an approved mechanical connector capable of developing 125% of the specified yield strength of the reinforcing steel.

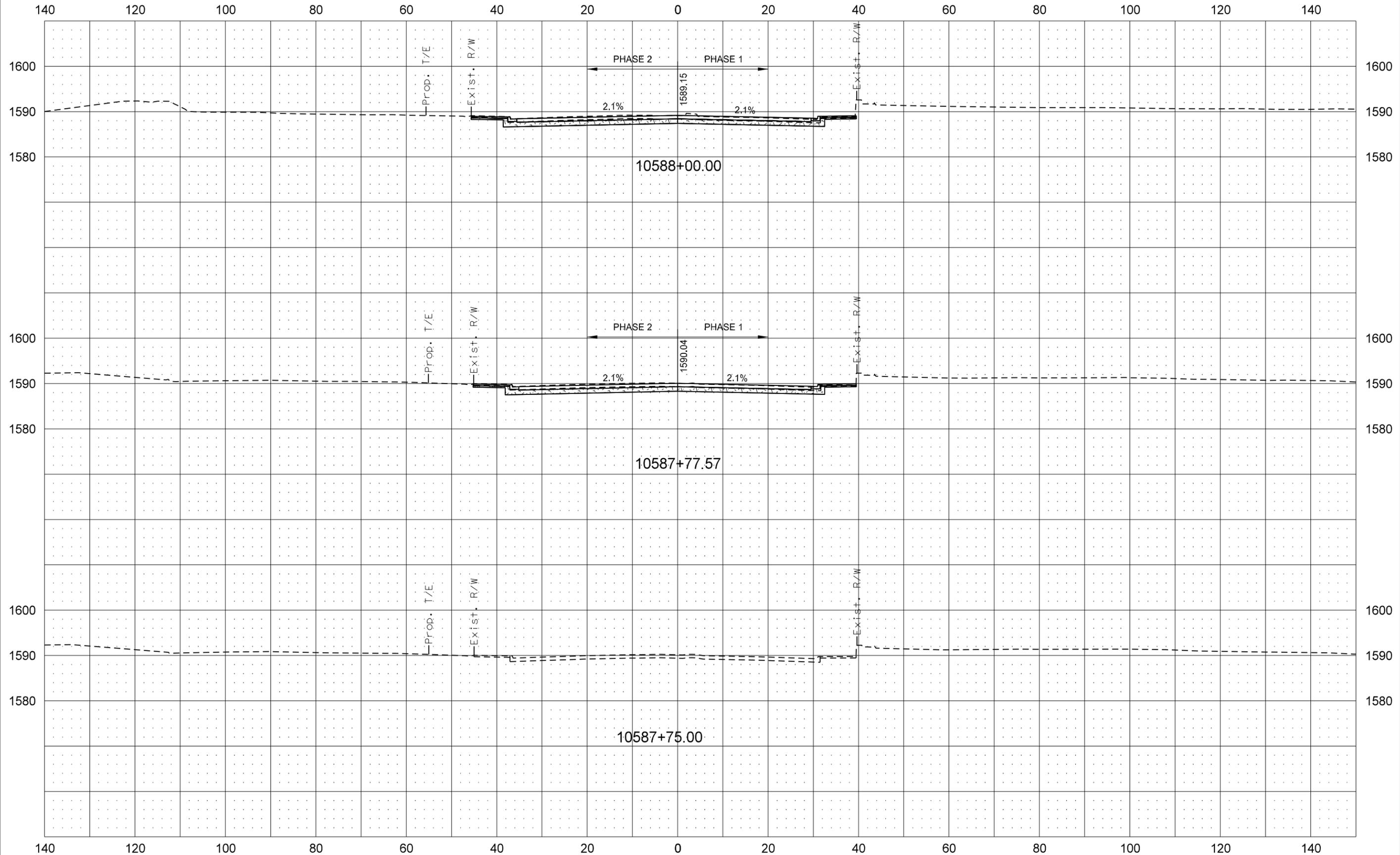
See "Approach Slab Joint Detail A" Dwg 83-200.649-232

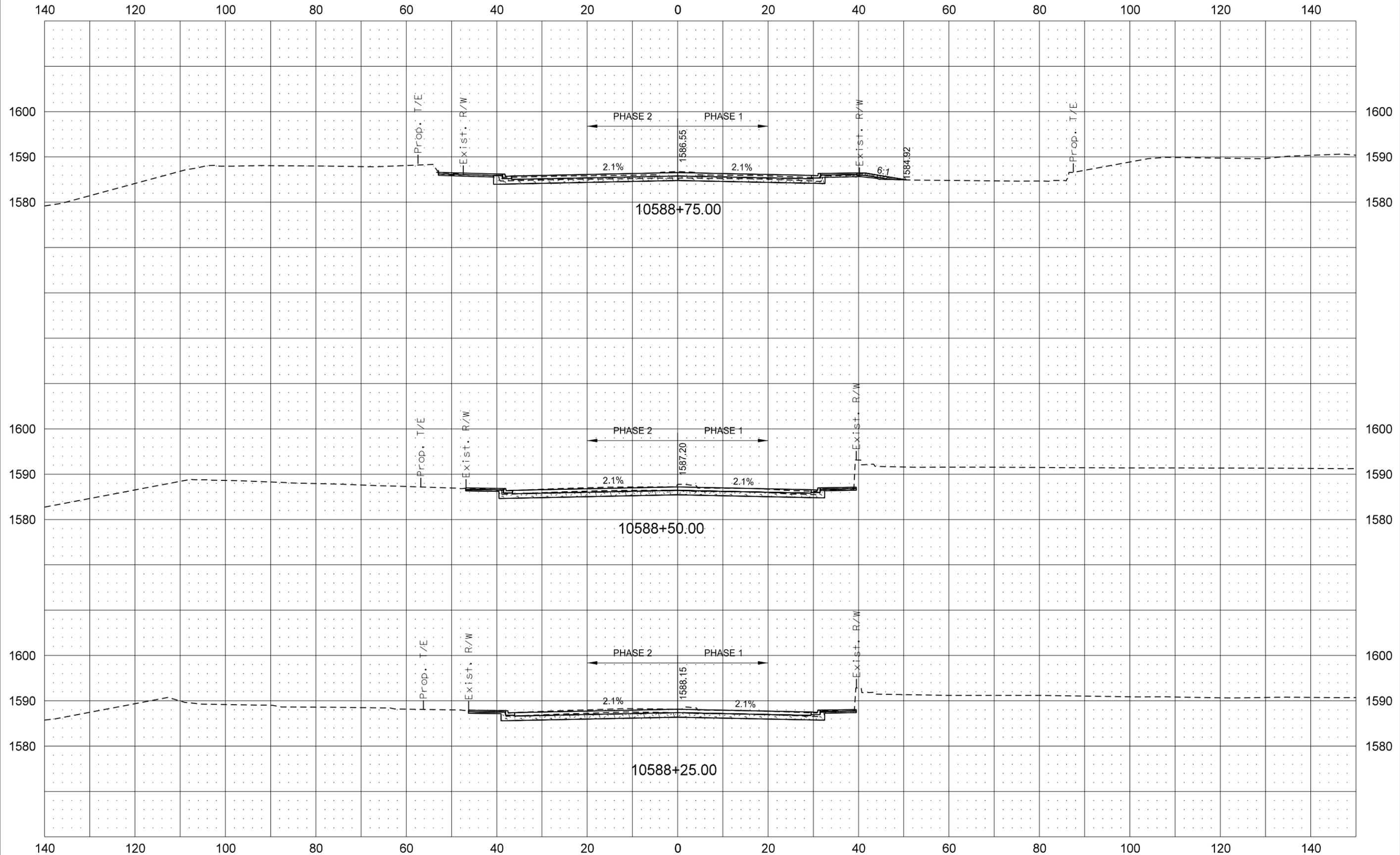
QUANTITIES	(ONE SLAB)
APPROACH SLAB	94.7 SY
PILE SUPPORTED APPROACH SLAB	378.9 SY

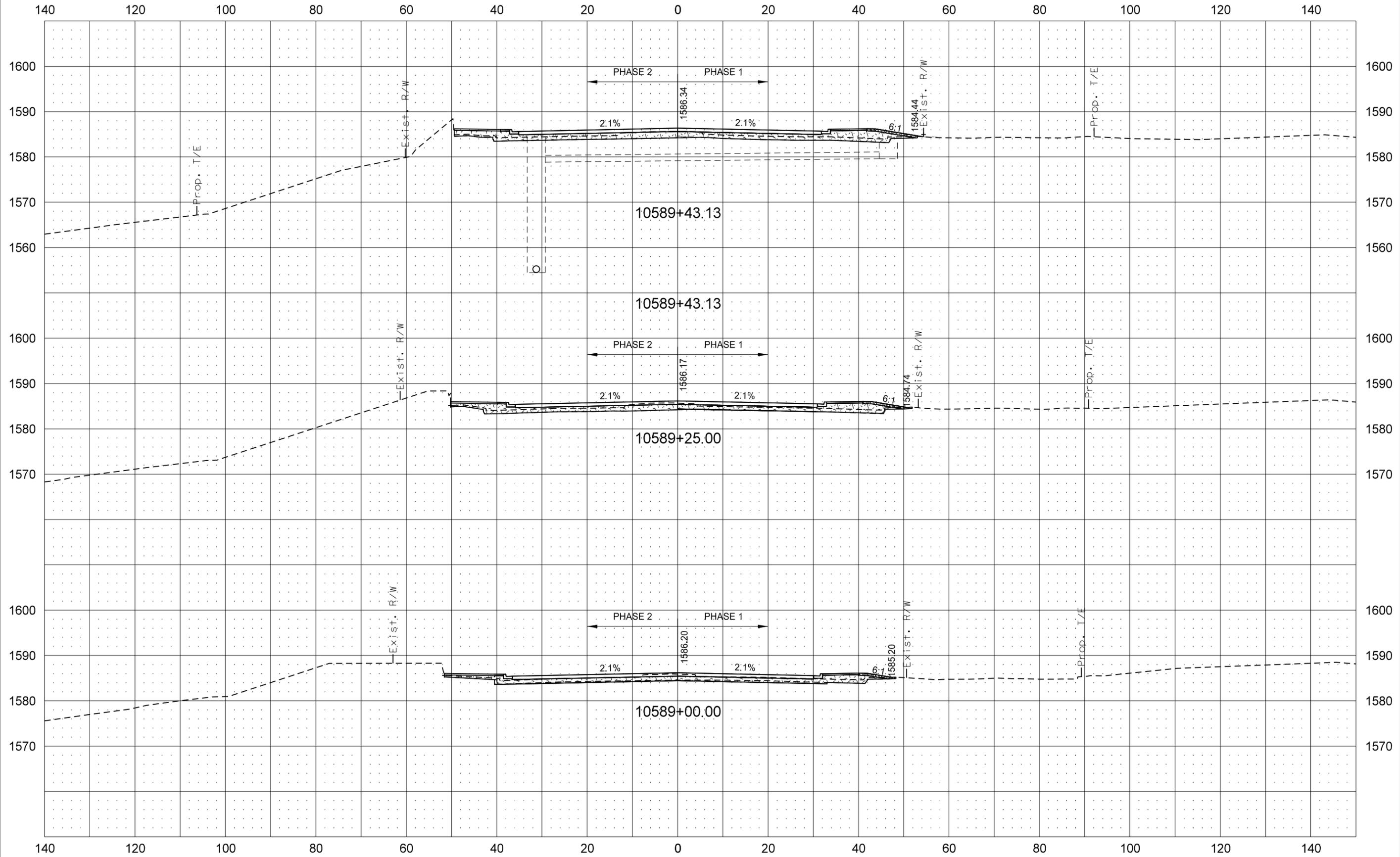
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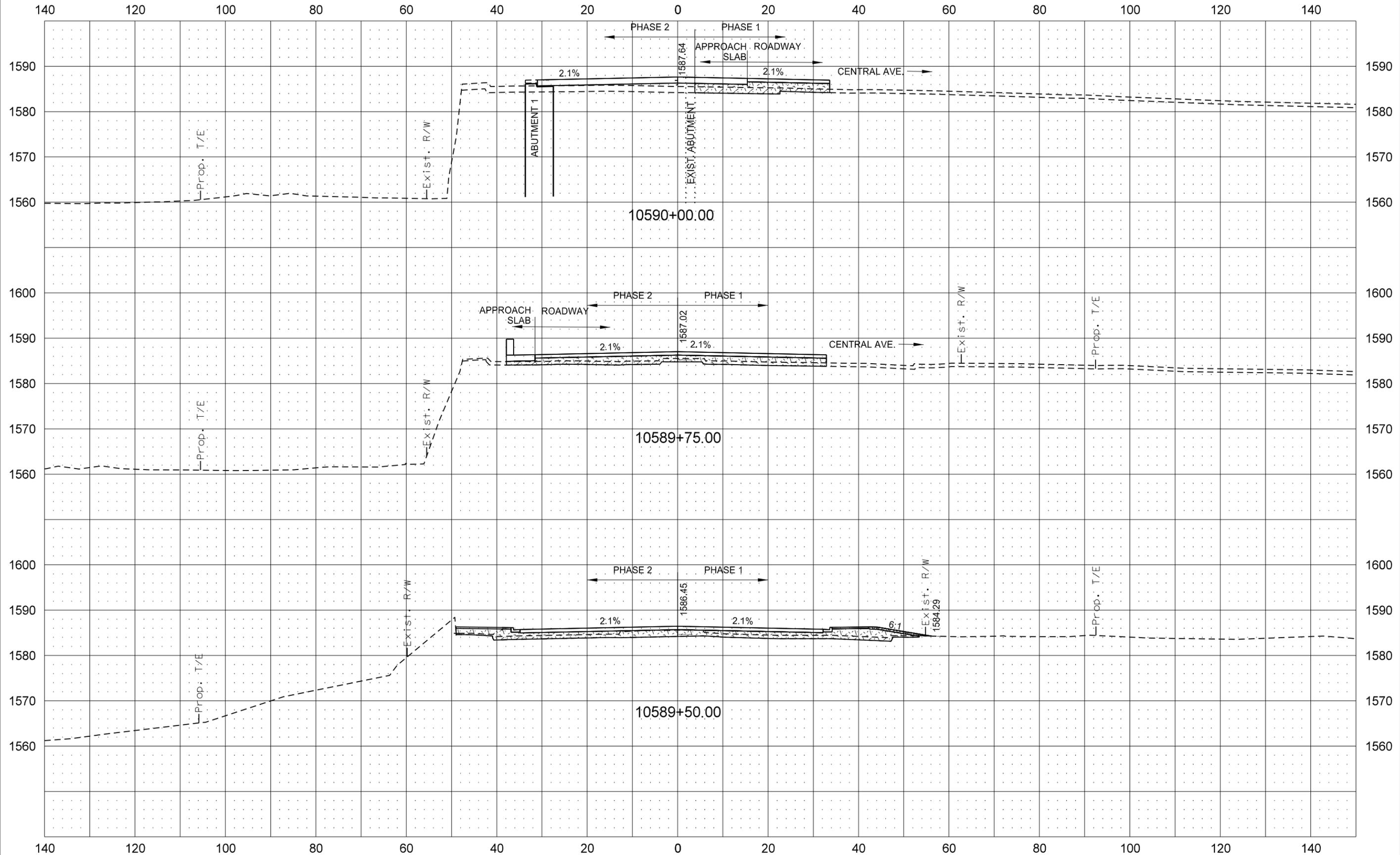
US-83 OVER CP AND BNSF RAILWAYS AND MOUSE RIVER
SOUTHBOUND
NORTH APPROACH SLAB DETAILS
Sheet 1 of 2

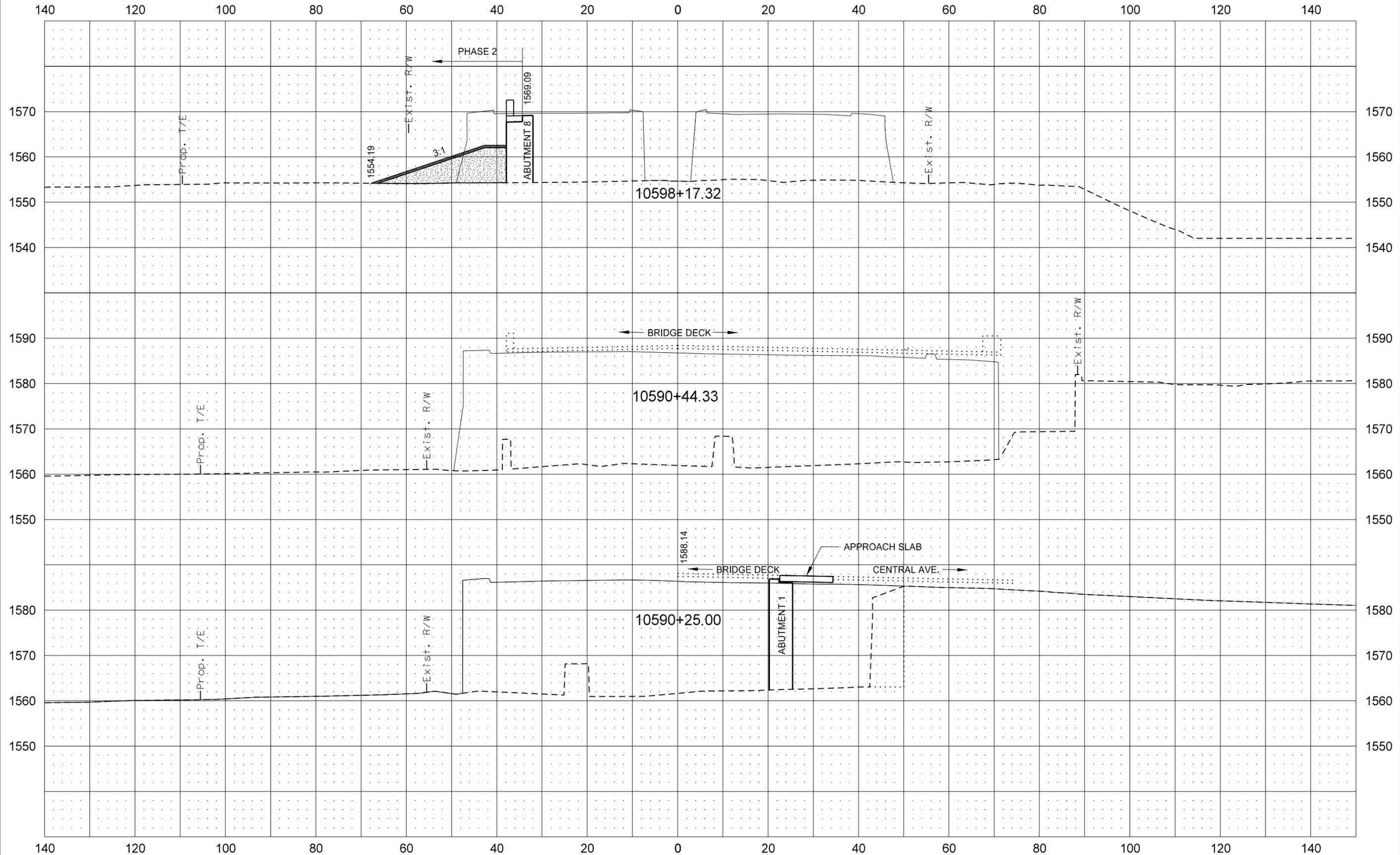
Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	200	1

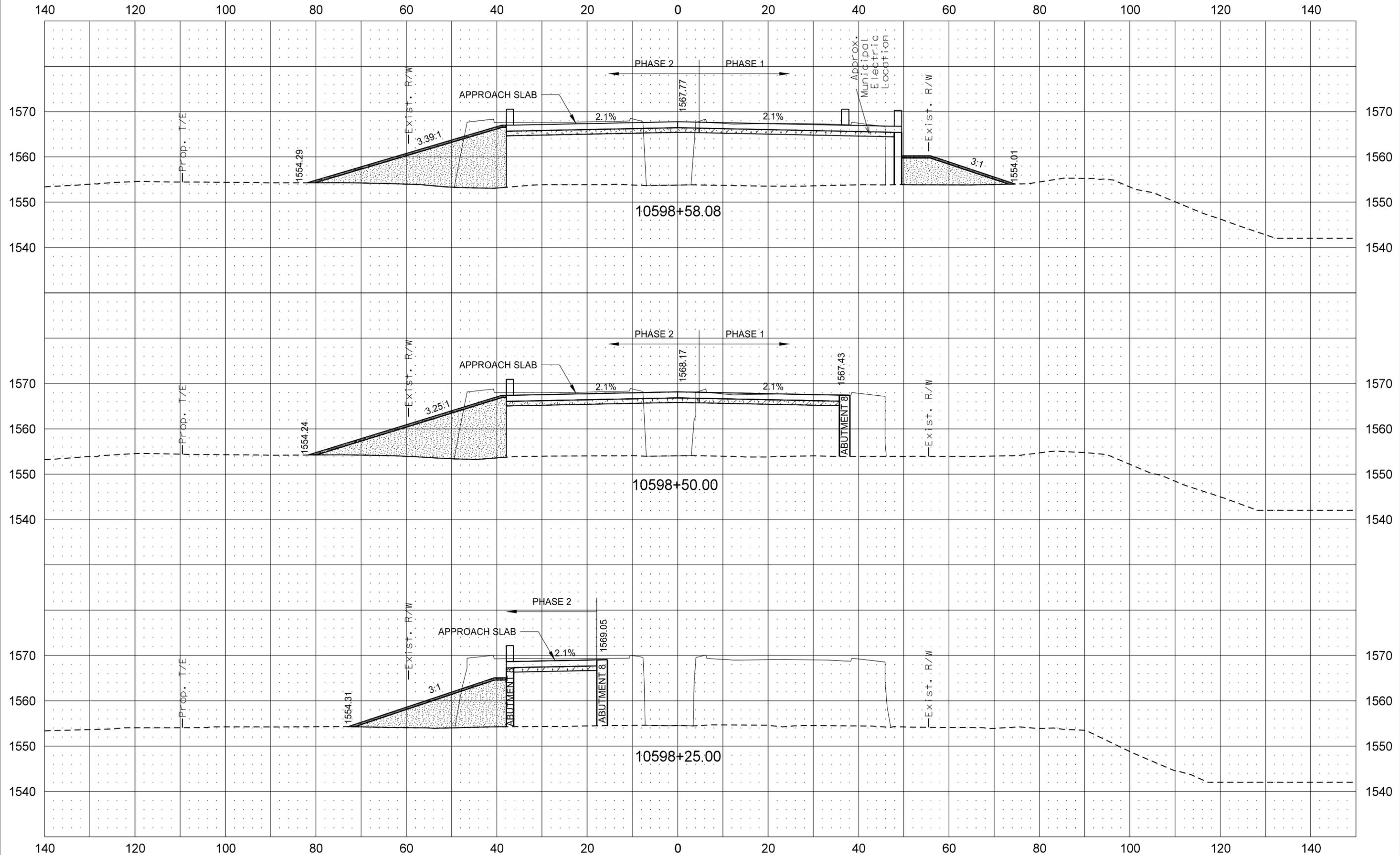




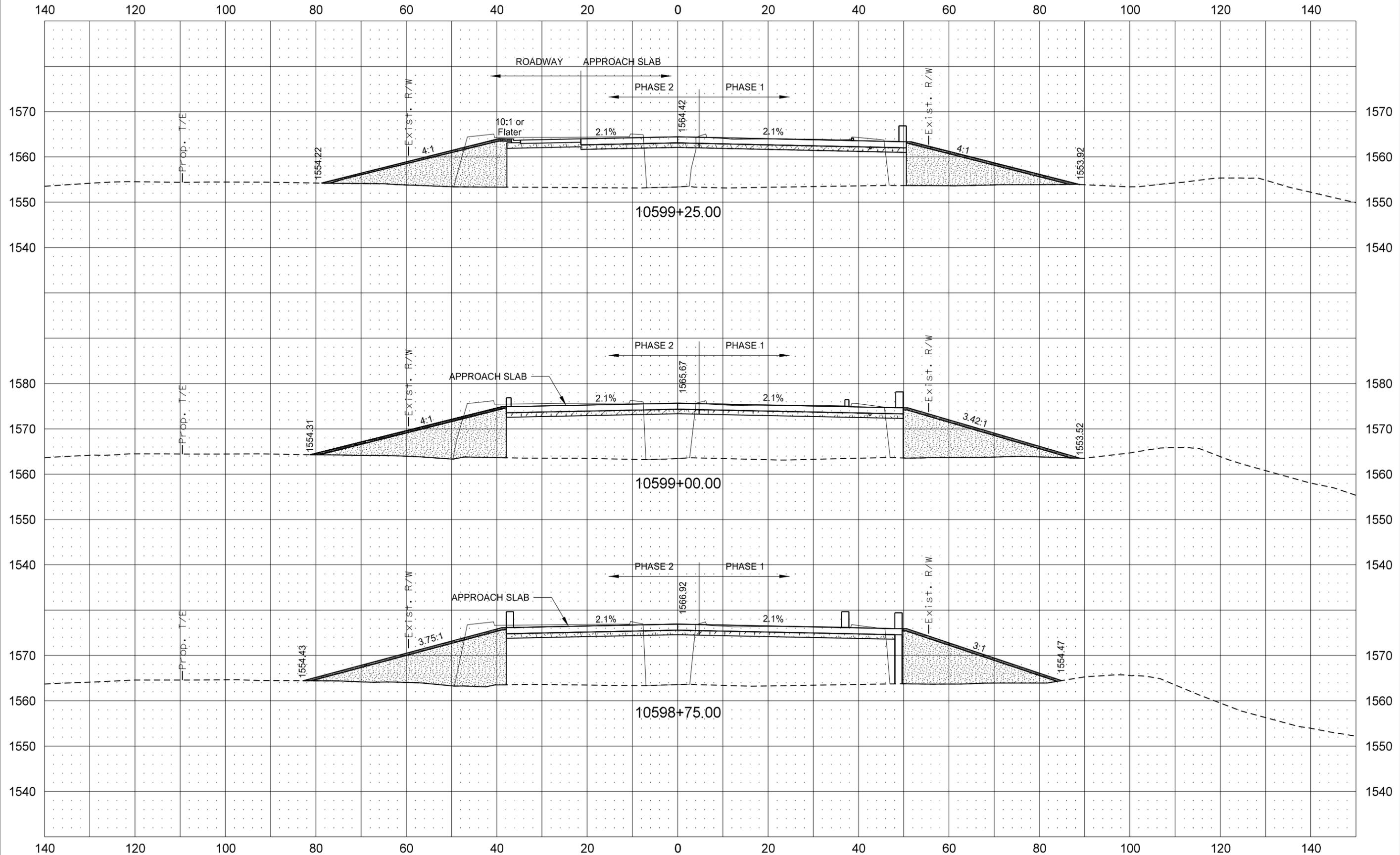




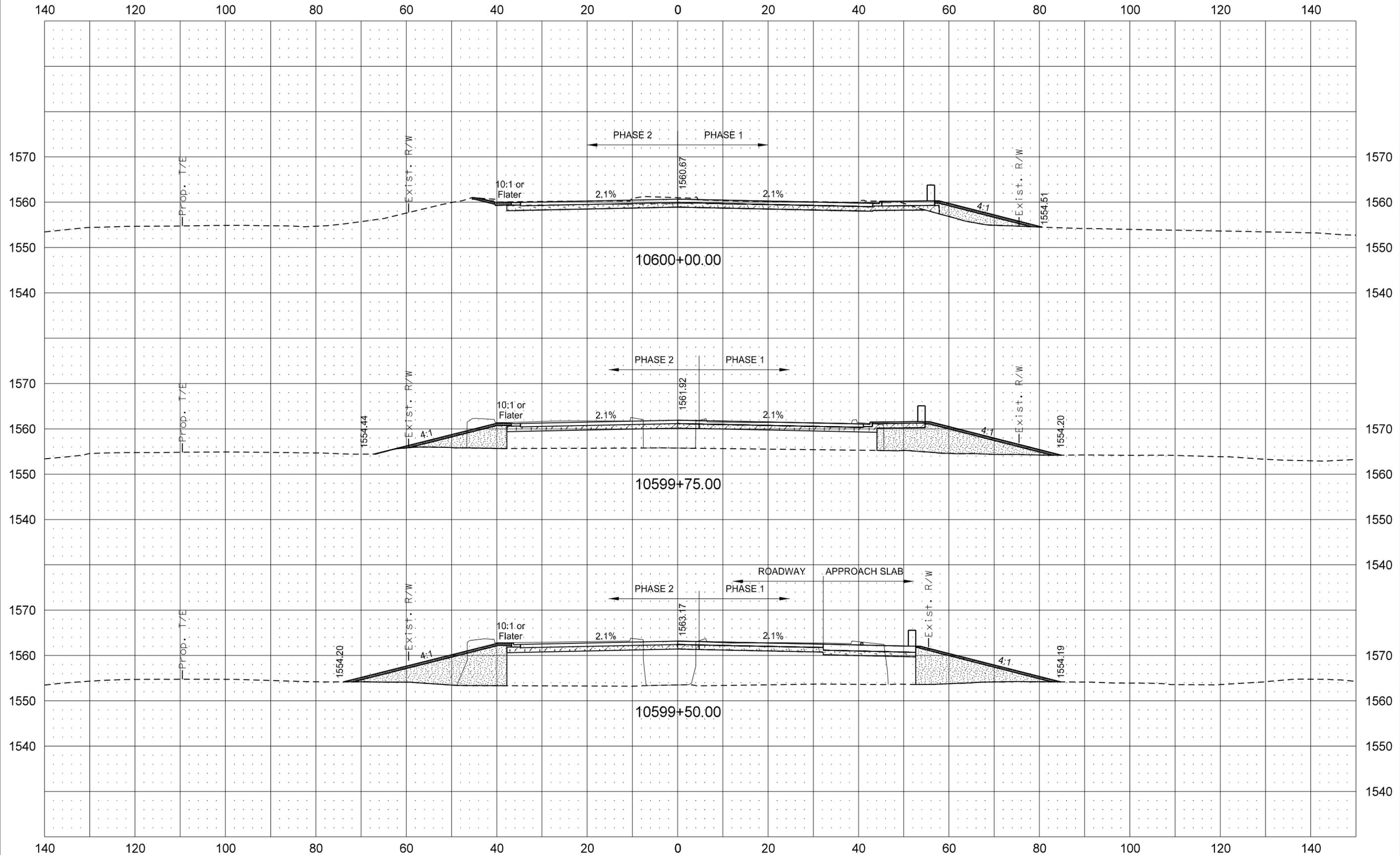


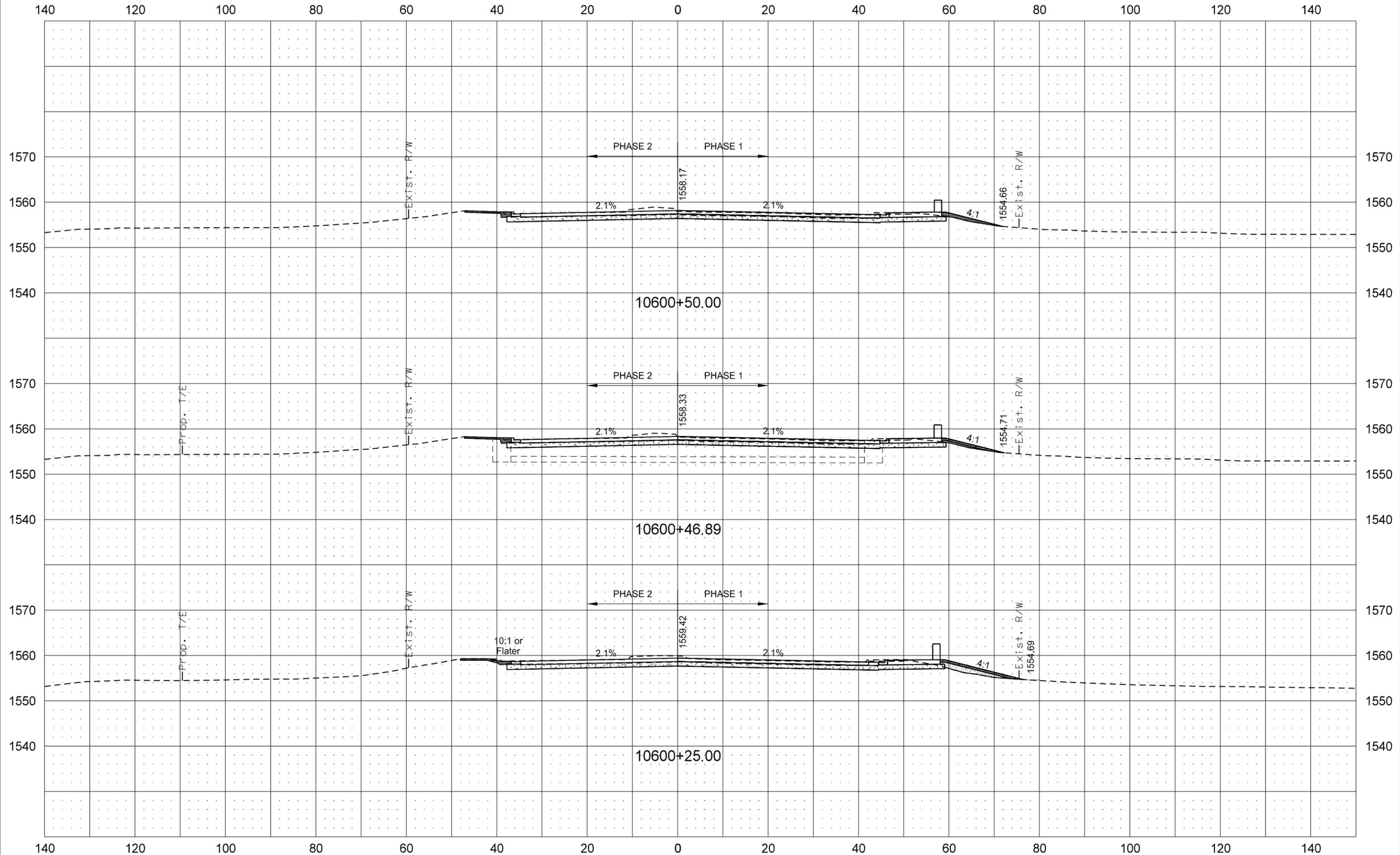


Revised 10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-NHU-4-083(111)200	200	7

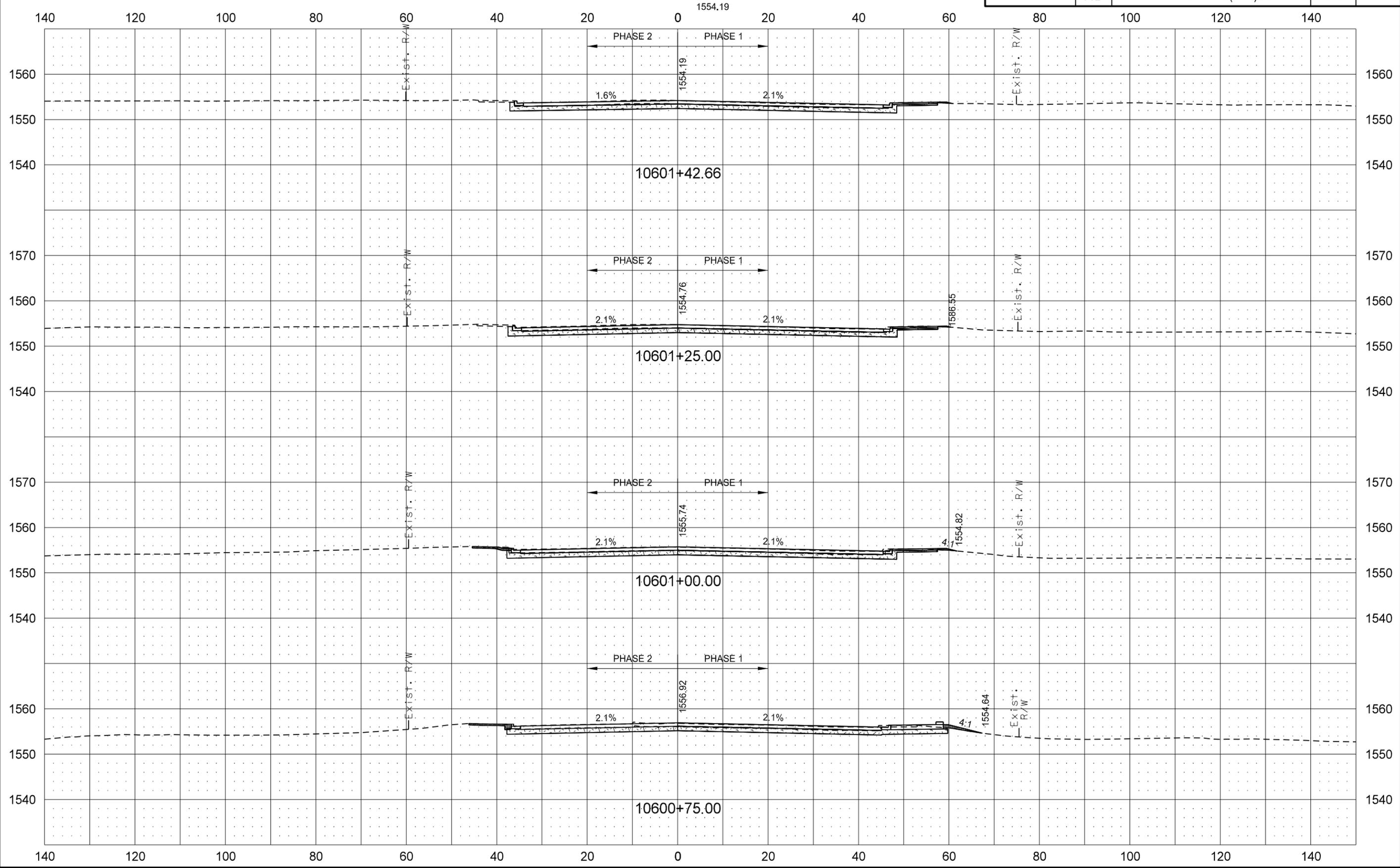


Revised	10/7/2016	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	NH-NHU-4-083(111)200	200	8





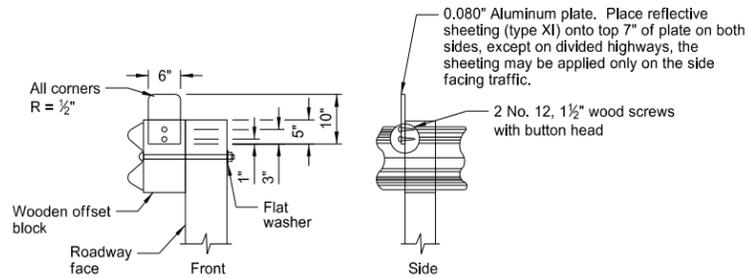
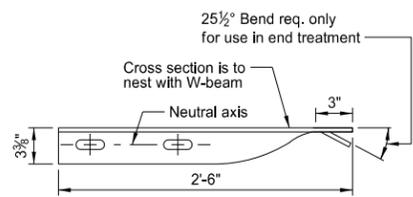
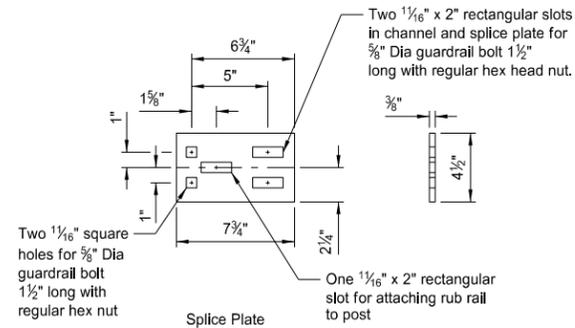
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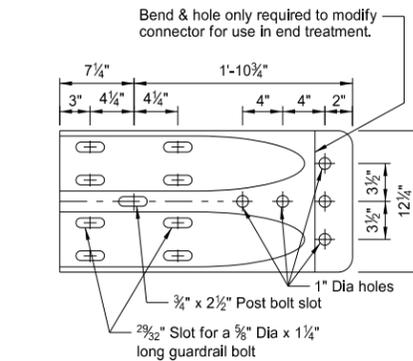
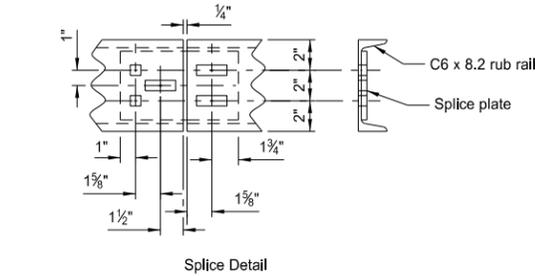
W-BEAM GUARDRAIL GENERAL DETAILS

NOTES:

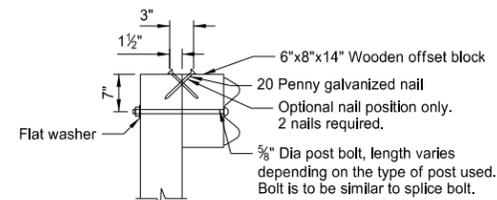
1. ReflectORIZED plates: Reflector plates shall begin at the first post and be spaced at 25' centers on guardrail less than 250' in length and at 50' centers for guardrail over 250' in length. The reflector shall be the same color as the pavement marking adjacent to that reflector unless noted otherwise on the plans.
2. Manner of replacing bituminous material at guardrail post: All excess earth from excavations for guard posts shall be disposed of as directed by the engineer. Replace bituminous material wherever guardrail is installed after mat has been laid. Cost of excavation and replacing of bituminous material to be included in the price bid for other items.
3. The Object Marker shall fit within the vertical edges of the Impact Plate. The retroreflective sheeting shall be type XI sheeting meeting the requirements of Section 894.02.B of the standard specifications. The sheeting shall be applied to 0.100 Aluminum sheeting meeting the requirements Section 894.01.A. The Object Marker shall attach to the Impact Head Plate with rivets or some other attachment device. The rivets or attachment device shall be non-rust. The stripes shall slope downward toward the roadway side.
4. Guardrail installation height tolerance = $-\frac{1}{4}"$, $+1"$.



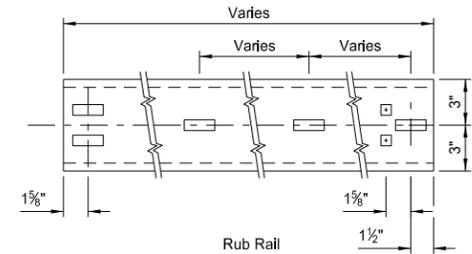
REFLECTORIZED PLATE DETAIL
Additional reflectors are added to the W-beam guardrail quantities for placement on end treatment.



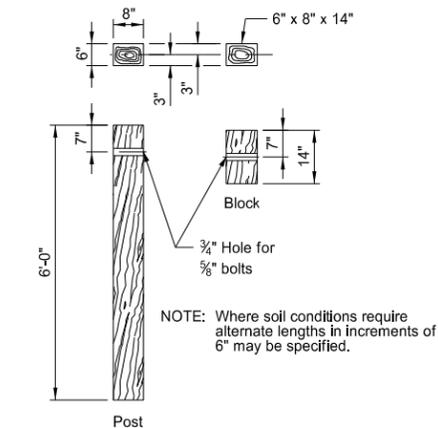
W BEAM TERMINAL CONNECTOR



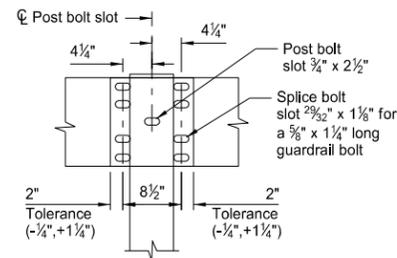
TYPICAL POST ATTACHMENT DETAIL



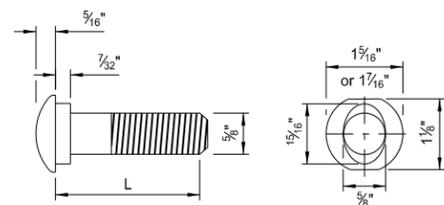
C6x8 RUB RAIL AND SPLICE PLATE



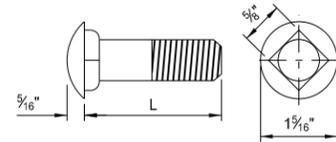
6"x8" TIMBER POST & BLOCK



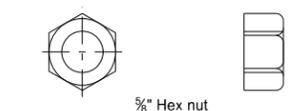
SPLICE DETAIL



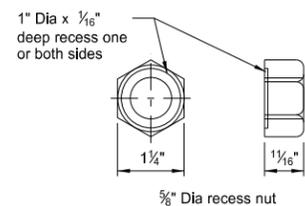
$\frac{5}{8}"$ Diameter Guardrail Bolt	
L	Thread Length
1 $\frac{1}{4}"$	Full length thread
2"	1 $\frac{3}{4}"$ Min thread length
9 $\frac{1}{2}"$	4" Min thread length
18"	4" Min thread length
20"	4" Min thread length
22"	4" Min thread length
25"	4" Min thread length



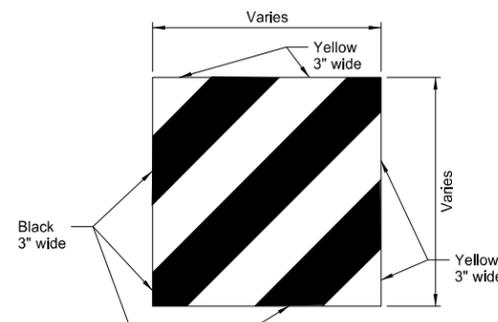
$\frac{5}{8}"$ Diameter Carriage Bolt	
L	Thread Length
1 $\frac{1}{2}"$	Full length thread
3"	1 $\frac{1}{2}"$ Min thread length
11"	1 $\frac{3}{4}"$ Min thread length
13"	1 $\frac{3}{4}"$ Min thread length



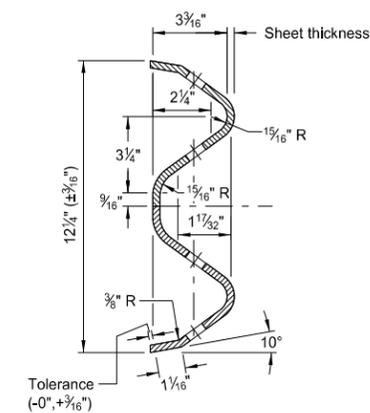
$\frac{5}{8}"$ CARRIAGE BOLT & NUT



$\frac{5}{8}"$ GUARDRAIL BOLT & RECESS NUT



IMPACT HEAD OBJECT MARKER



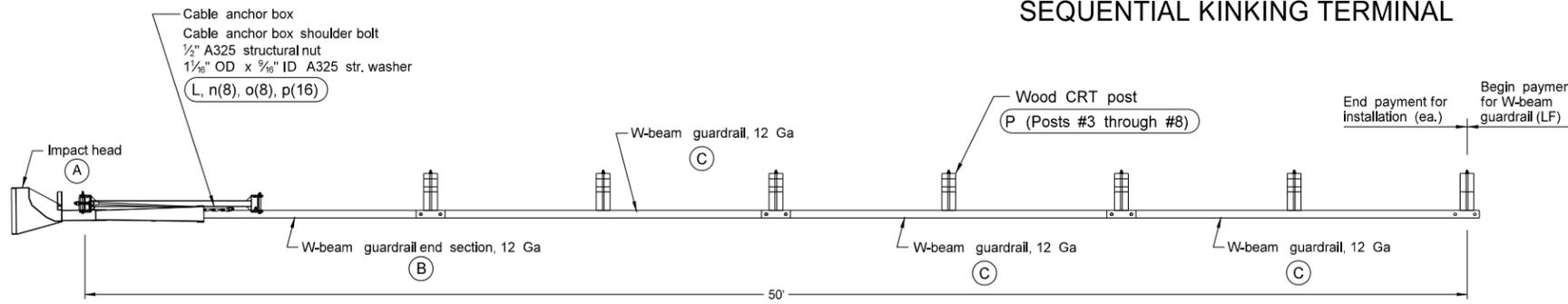
W-BEAM CROSS SECTION

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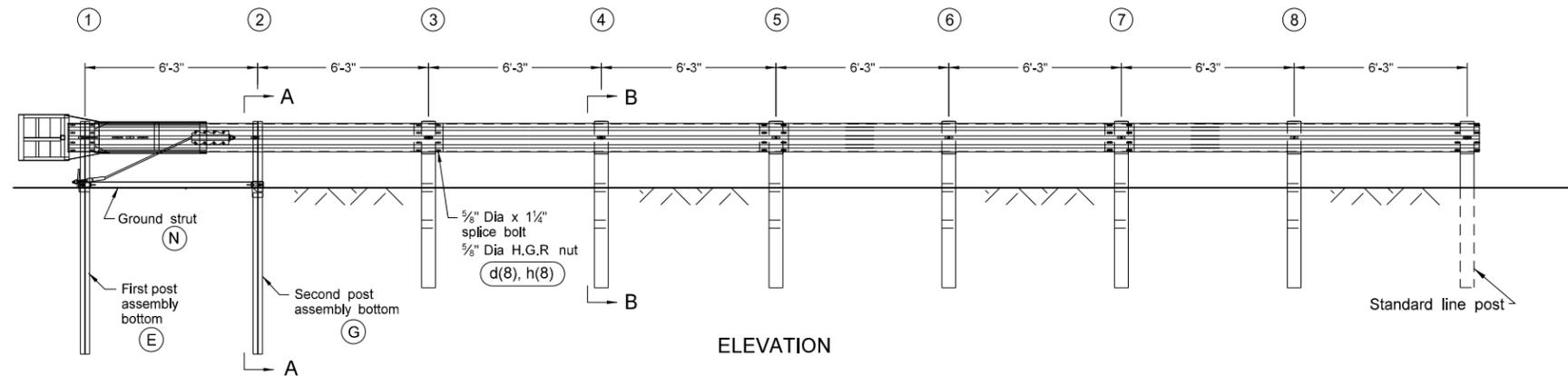
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SEQUENTIAL KINKING TERMINAL

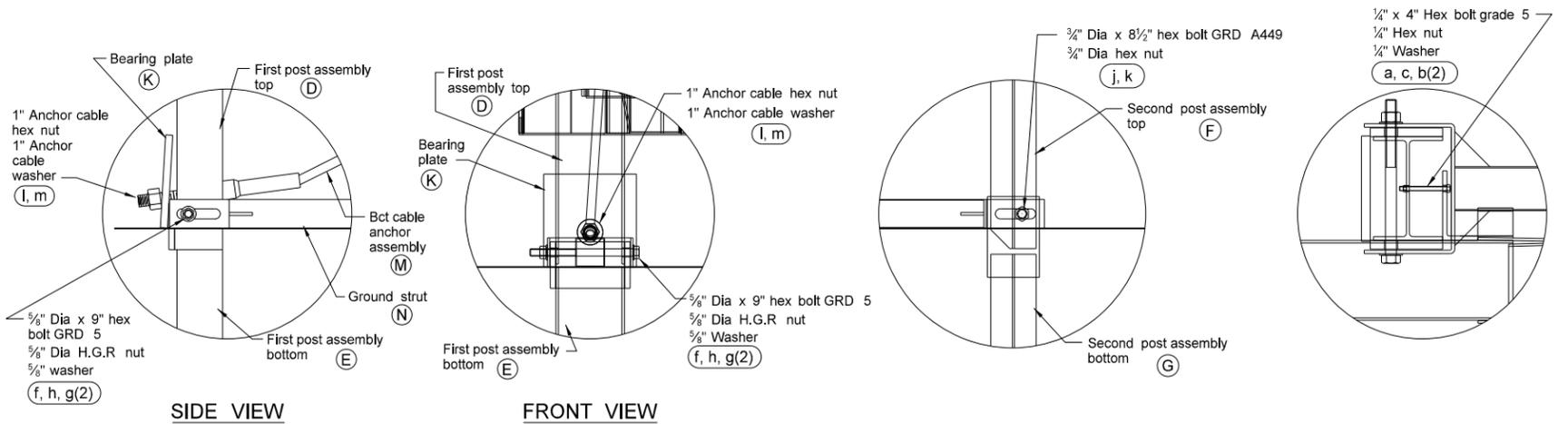
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PLAN



ELEVATION



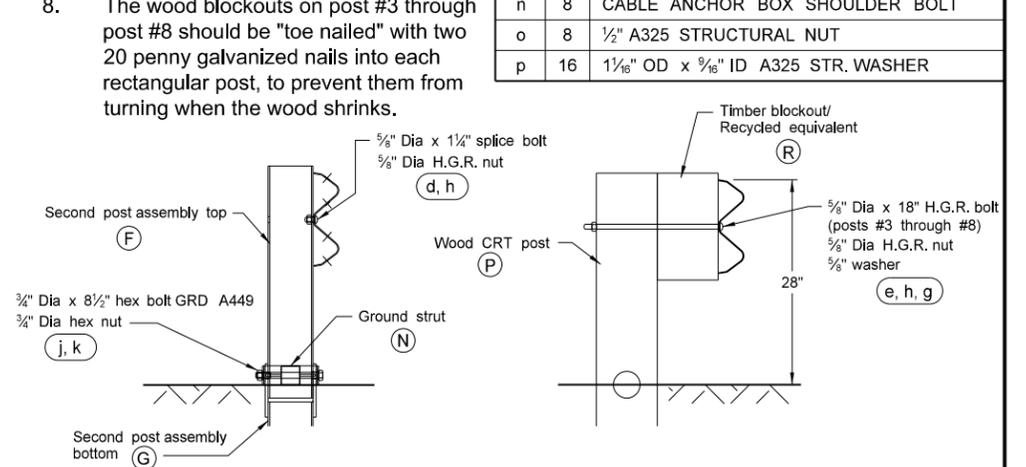
SIDE VIEW

FRONT VIEW

POST #1 CONNECTION DETAILS

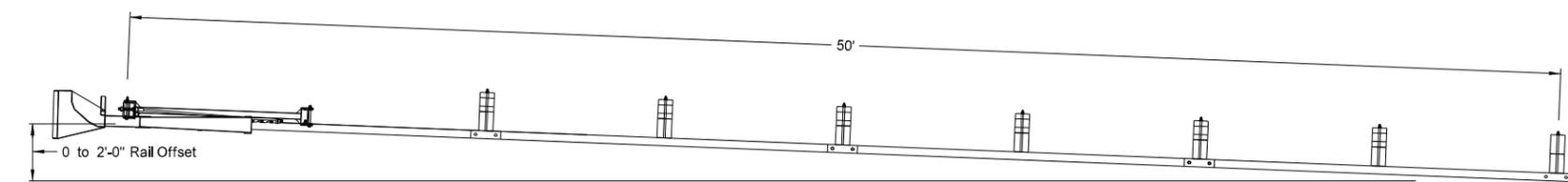
SIDE VIEW DETAIL OF POST #2

IMPACT HEAD CONNECTION DETAIL



SECTION A-A
Post #2

SECTION B-B
Posts #3 through #8



FLARED INSTALLATION
25:1 maximum flare rate

GENERAL NOTES:

- Breakaway posts are required with the SKT.
- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The SKT can be flared at a rate of up to 25:1 to prevent the impact head from encroaching on the shoulder.
- The lower sections of the posts shall not protrude more than 4" above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
- The lower section of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
- When rock is encountered, a 10" diameter post hole, 20" into the rock surface may be used if approved by the engineer. Granular material will be placed in the bottom of the hole, approximately 2 1/2" deep to provide drainage. Posts 1 & 2 can be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
- The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.
- The wood blockouts on post #3 through post #8 should be "toe nailed" with two 20 penny galvanized nails into each rectangular post, to prevent them from turning when the wood shrinks.

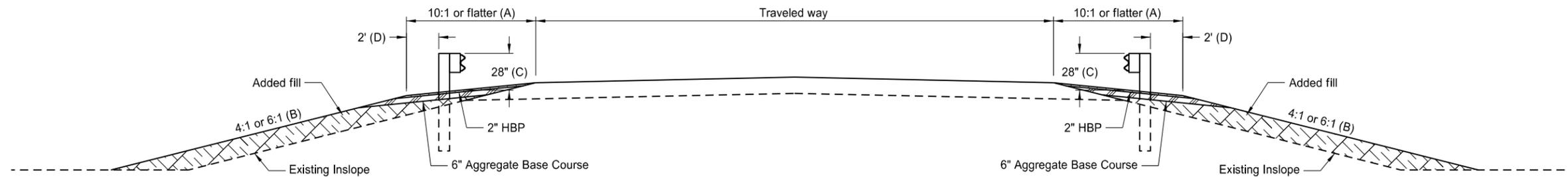
ITEM QTY		BILL OF MATERIALS
A	1	IMPACT HEAD
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga
C	3	W-BEAM GUARDRAIL, 12 Ga
D	1	FIRST POST ASSEMBLY TOP
E	1	FIRST POST ASSEMBLY BOTTOM
F	1	SECOND POST ASSEMBLY TOP
G	1	SECOND POST ASSEMBLY BOTTOM
K	1	BEARING PLATE
L	1	CABLE ANCHOR BOX
M	1	BCT CABLE ANCHOR ASSEMBLY
N	1	GROUND STRUT HINGED POST
P	6	WOOD CRT POST
R	6	TIMBER BLOCKOUT/RCY EQUIVALENT
HARDWARE		
a	2	1/4" x 4" HEX BOLT Grade 5
b	4	1/4" WASHER
c	2	1/4" HEX NUT
d	25	5/8" Dia x 1 1/4" SPLICE BOLT, POST #2
e	6	5/8" Dia x 18" H.G.R. BOLT (POSTS 3 THRU 8)
f	1	5/8" Dia x 9" HEX BOLT GRD 5
g	8	5/8" WASHER
h	32	5/8" Dia H.G.R. NUT
j	1	3/4" Dia x 8 1/2" HEX BOLT GRD A449
k	1	3/4" Dia HEX NUT
l	2	1" ANCHOR CABLE HEX NUT
m	2	1" ANCHOR CABLE WASHER
n	8	CABLE ANCHOR BOX SHOULDER BOLT
o	8	1/2" A325 STRUCTURAL NUT
p	16	1 1/16" OD x 3/16" ID A325 STR. WASHER

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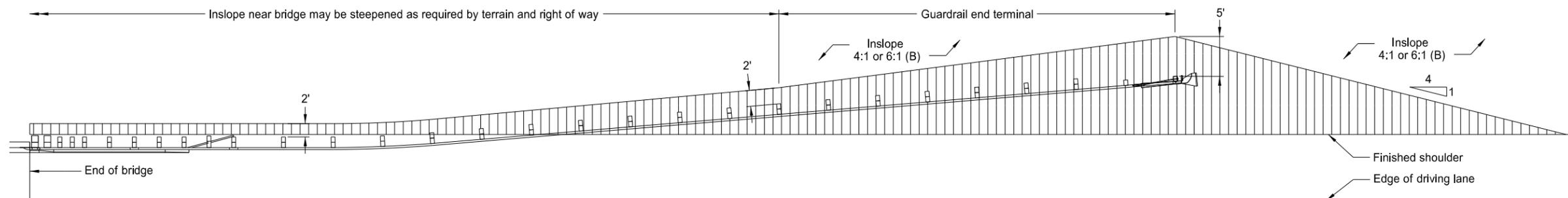
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TYPICAL GRADING AT BRIDGE ENDS
WITH W-BEAM GUARDRAIL

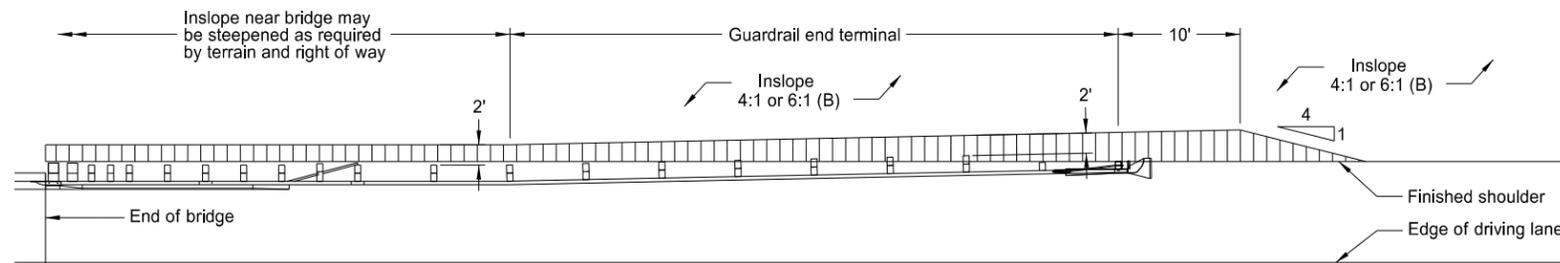
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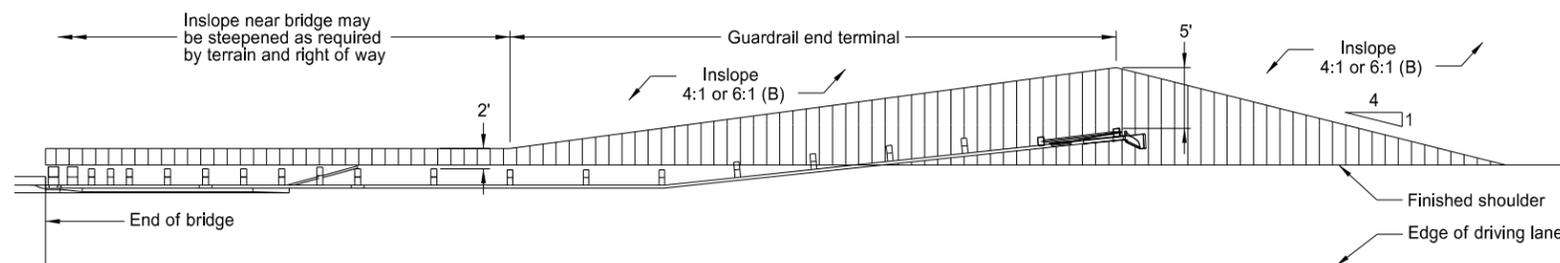
TYPICAL SECTION



PLAN LAYOUT
FLARED GUARDRAIL WITH END TERMINAL



PLAN LAYOUT
NON-FLARED GUARDRAIL WITH TANGENT END TERMINAL



PLAN LAYOUT
NON-FLARED GUARDRAIL WITH FLARED END TERMINAL

NOTES:

- (A) Slope flatter than 10:1 may be required to provide proper guardrail height.
- (B) Where normal inslope is 4:1 the added fill shall be 4:1. Where normal inslope is 6:1 the added fill shall be 6:1.
- (C) Measured from top of guardrail to top of surfacing at front face of guardrail.
- (D) Dimension at end terminals may vary per Plan Layouts shown on this sheet.

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