

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Sixth Edition 2012.

DESIGN LOADING

Live Load HL - 93 Modified

TRAFFIC DATA

Current (2010) AADT 1540
Future (2030) AADT 1850
DHV - % of AADT 12%
Design Hour Volume 222
Heavy Trucks (% of AADT) 12%
Heavy Trucks (% of DHV) 10%
Directional Distribution (% of DHV) 65%
18 kip Equivalent P 2.0 171
18 kip Equivalent P 2.5 163
Design Speed (mph) 35

HYDROLOGIC DATA

Drainage Area 85 sq mi
Design Discharge (Q50) 2600 cfs
Check Discharge (Q100) 2800 cfs
Headwater Elevation (Q50) 98.53 ft
Headwater Elevation (Q100) 98.88 ft
Discharge Velocity (Q50) 3.21 fps
Discharge Velocity (Q100) 3.23 fps
Headwater Elevation (Q1.1) 93.91 ft
Discharge Velocity (Q1.1) 2.16 fps
Headwater Elevation (Q25) 97.92 ft

MATERIALS

Concrete:
Curbs & Transition Barriers Class "LP"
All Other Class "A"
Reinforcing Steel ASTM A 615/A 615M, Grade 60

Structural Steel:
All Material (except as noted) ASTM A 709, Grade 50W (unpainted)
High Strength Bolts ASTM A 325, Type 3

BASIC DESIGN STRESSES

Concrete f 'c = 4,350 psi

Reinforcing Steel f y = 60,000 psi
Structural Steel:
ASTM A 709, Grade 50W F y = 50,000 psi
ASTM A 709, Grade 36 F y = 36,000 psi
ASTM A 325 F μ = 120,000 psi

MILFORD
PENOBSCOT COUNTY
SECOND OTTER BRIDGE
OVER
OTTER STREAM
COUNTY ROAD
FEDERAL AID PROJECT NO. BR-1666(700)X
PROJECT LENGTH 0.114 mi.
BRIDGE NO. 2754

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UTILITIES

Bangor Hydro-Electric Company
Fairpoint Communications
Time Warner Cable (Bangor Central Office)

MAINTENANCE OF TRAFFIC

Maintain one 12'-0" lane of two-way alternating traffic using single lane temporary bridge.

PROJECT LOCATION:	On County Road 0.59 miles Northerly of Richards Lane. Lat./Long. 44°56'44.58" N 68°36'41.12"W
PROGRAM AREA:	Bridge
OUTLINE OF WORK:	Bridge Replacement with 450 feet of approach work



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED

COMMISSIONER
CHIEF ENGINEER

DATE
2/5/13

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED

ROLAND A. LAVALLEE
No. 6465
P.E. NUMBER
1/13/13
DATE

PROJECT INFORMATION

PROGRAM
PROJECT MANAGER
DESIGNER
CONSULTANT
PROJECT RESIDENT
CONTRACTOR

BRIDGE
STEVE BODGE, P.E.
TIM COTE, P.E.
HNTB CORP.
PROJECT RESIDENT
CONTRACTOR

WIN 16667.00
BR-1666(700)X

MILFORD
SECOND OTTER BRIDGE

TITLE SHEET

SHEET NUMBER
1
OF 29

Date:1/25/2013

Username: moudiff

Division: BRIDGE

Filename:01_Title.dgn

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.19	Removing Existing Bridge (Structural Steel = 137 Tons, Concrete = 205 CY)	1	LS
203.20	Common Excavation	1,150	CY
203.23/18	Disposal of Special Waste	140	TON
203.24	Common Borrow	990	CY
203.25	Granular Borrow	460	CY
304.10	Aggregate Subbase Course - Gravel	1,050	CY
403.208	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, Surface	185	TON
403.213	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, Base	360	TON
409.15	Bituminous Tack Coat, Applied	85	GAL
501.231	Dynamic Loading Test	2	EA
501.54	Steel H-beam Piles 117 lb/ft, delivered	430	LF
501.541	Steel H-beam Piles 117 lb/ft, in place	430	LF
501.90	Pile Tips	8	EA
501.91	Pile Splices	4	EA
501.92	Pile Driving Equipment Mobilization	1	LS
502.219	Structural Concrete, Abutments and Retaining Walls (113 CY)	1	LS
502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges (120 CY)	1	LS
502.31	Structural Concrete Approach Slab (62 CY)	1	LS
502.49	Structural Concrete Curbs and Sidewalks (20 CY)	1	LS
503.12	Reinforcing Steel, Fabricated and Delivered	31,900	LB
503.13	Reinforcing Steel, Placing	31,900	LB
504.702	Structural steel fabricated and delivered, welded (238,000 lbs)	1	LS
504.71	Structural steel erection (238,000 lbs)	1	LS
505.08	Shear Connectors (1808 EA)	1	LS
507.0811	Steel Bridge Railing, 2 Bar (284 LF)	1	LS
508.14	High Performance Waterproofing Membrane (600 SY)	1	LS
510.10	Special Detour, 12 Foot Roadway Width Vehicular and Pedestrian Traffic Not Seperated	1	LS
512.081	French Drains (96 LF)	1	LS
514.06	Curing Box for Concrete Cylinders	1	EA
515.21	Protective Coating for Concrete Surfaces (200 SY)	1	LS
520.232	Expansion Device - Asphaltic Plug Joint	56	LF
526.301	Temporary Concrete Barrier, Type I (40 LF)	1	LS
526.34	Permanent Concrete Transition Barrier	4	EA
606.1721	Bridge Transition - Type I	4	EA
606.23	Guardrail Type 3c - Single Rail	525	LF
606.353	Reflectorized Flexible Guardrail Marker	8	EA
606.79	Guardrail 350 Flared Terminal	4	EA
610.08	Plain Riprap	1,310	CY
610.18	Stone Ditch Protection	20	CY
613.319	Erosion Control Blanket	62	SY
615.07	Loam	70	CY
618.1401	Seeding Method Number 2, Plan Quantity	11	UN
619.1201	Mulch, Plan Quantity	11	UN
619.1401	Erosion Control Mix	50	CY
620.58	Erosion Control Geotextile	780	SY
621.101	Plug/Starter Plant	50	EA
621.014	Evergreen Trees 18" - 24" Gr. A Conf.	50	EA
621.510	Hybrid Rhododendron (15" - 18")	50	EA
621.54	Decid. Shrubs/Trees 18" - 24" Gr. A Conf.	60	EA
627.733	4" White or Yellow Painted Pavement Marking Line	2,400	LF
629.05	Hand Labor, Straight Time	20	HR
631.12	All Purpose Excavator (including operator)	20	HR
631.14	Grader (including operator)	10	HR
631.15	Roller, Earth and Base Course (including operator)	10	HR
631.172	Truck-large (including operator)	20	HR
639.19	Field Office, Type B	1	EA
645.106	Demount Regulatory, Warning, Confirmation and Route Marker Assembly Sign	8	EA
645.108	Demount Pole	8	EA
645.116	Reinstall Regulatory, Warning, Confirmation and Route Marker Assembly Sign	8	EA
645.118	Reinstall Pole	8	EA
652.312	Type III Barricades	8	EA
652.33	Drum	30	EA
652.34	Cone	40	EA
652.35	Construction Signs	315	SF
652.361	Maintenance of Traffic Control Devices (460 CD)	1	LS
652.38	Flaggers	320	HR
656.75	Temporary Soil Erosion and Water Pollution Control	1	LS
659.10	Mobilization	1	LS

GENERAL CONSTRUCTION NOTES

1. The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract items.

2. For easements, construction limits and right of way lines, refer to Right of Way Maps.

3. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.

4. Do no excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.

5. In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the plans, payment for removing existing pavement, grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.

6. All embankment material, except as otherwise shown, placed below EL 93.91 shall be Granular Borrow meeting the requirements of Subsection 703.19, Material for Underwater Backfill.

7. Place loam 2 inches deep on all new or reconstructed sideslopes or as directed by the Resident.

8. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Item No. 619.1401, Erosion Control Mix.

9. Place a 24-in. wide strip of Temporary Erosion Control Blanket on the sideslopes along the top of riprap and behind the wingwalls.

10. An NCHRP350 compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail.

11. Place a 4-ft wide strip of Extended Use Erosion Control Blanket along the bottom of all ditches.

12. Extended Use Erosion Control Blanket, seeded gutters, riprap downspouts, and other gutters lined with Stone Ditch Protection shall be constructed after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion. Payment will be made under the appropriate Contract items.

13. Protective Coating for Concrete Surfaces shall be applied to the following areas:

All exposed surfaces of concrete curbs, Fascias down to the drip notch, All exposed surfaces of Concrete Transition Barriers, Top of abutment backwalls and to one foot below the top of backwalls on the back side.

14. Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/contractors/index.shtml>.

15. The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. It is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.

16. The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.

17. The project geotechnical report titled: Geotechnical Design Report for the Replacement of: Second Otter Bridge Over Otter Chain Stream, Soils Report No. 2012-33, December 20, 2012 may be accessed at the MaineDOT web address.

18. Geotechnical information furnished or referred to in this plan set is for the use of the Bidders and the Contractor. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the construction site. MaineDOT will not be responsible for the Bidder's or Contractor's interpretations of, or conclusions drawn from, the geotechnical information. The boring logs contained in the plan set present factual and interpretive subsurface information collected at discrete locations. Data provided may not be representative of the subsurface conditions between the boring locations.

19. Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:

a. If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.

b. If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.

c. If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.

20. The Contractor shall submit a Bridge Demolition Plan to the Resident at least 10 business days prior to the start of demolition work. The plan shall outline the methods and equipment to be used to remove and dispose of all materials included in the existing bridge. No work related to the removal of the bridge shall be undertaken by the Contractor until MaineDOT has reviewed the Bridge Demolition Plan for appropriateness and completeness. Payment for all work necessary for developing, submitting and finalizing the demolition Plan will be considered incidental to the bridge removal pay item.

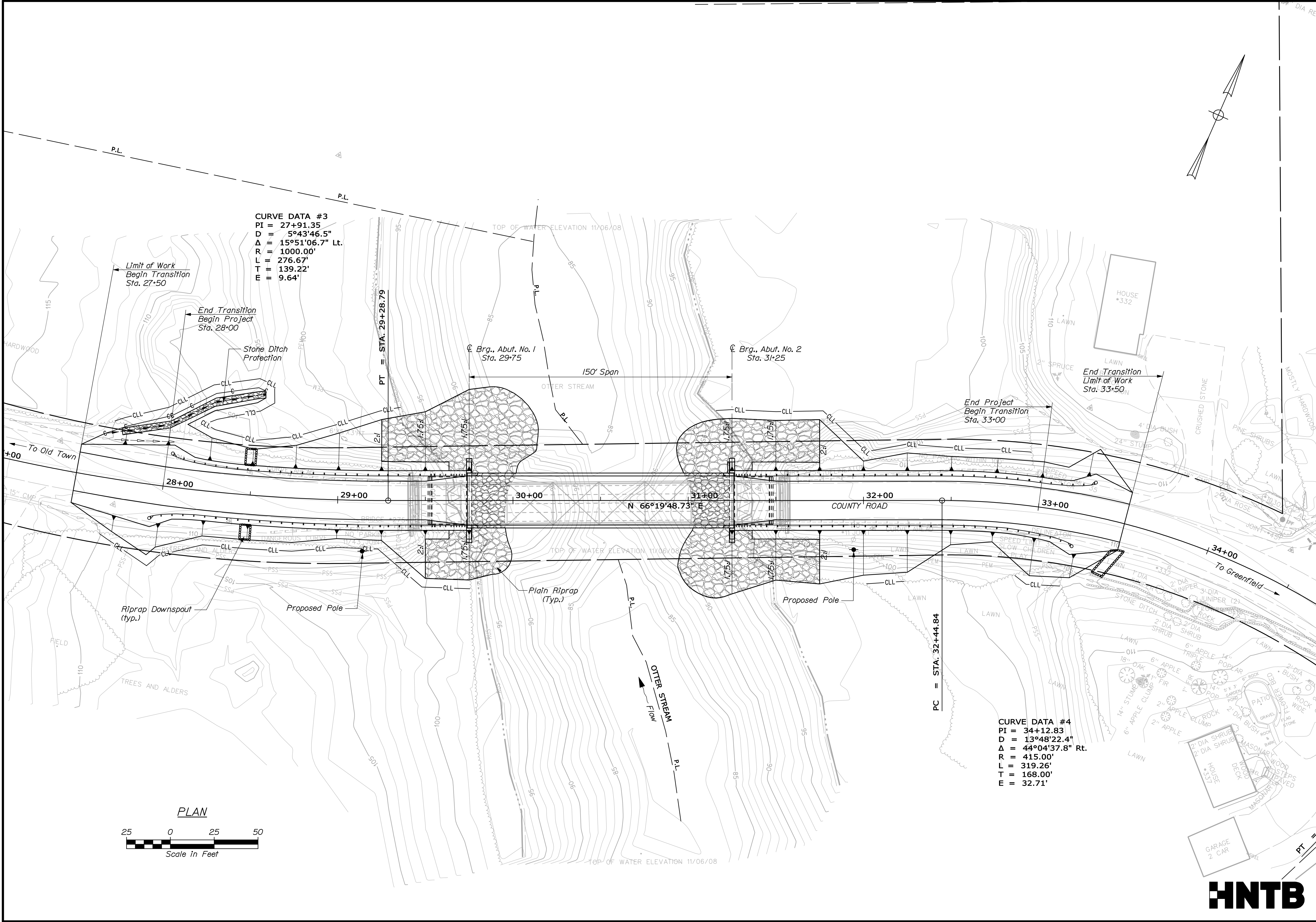
21. The existing bridge shall be removed by and become the property of the Contractor. The steel portions of the existing bridge are coated with a lead-based paint system. The Contractor is responsible for the containment, proper management and disposal of all lead-contaminated hazardous waste generated by the process of demolishing the bridge. The Contractor is responsible for implementing appropriate OSHA mandated personal protection standards related to this process. Once the existing bridge is removed, the Contractor is solely responsible for the care, custody and control of the components of the existing bridge and any hazardous waste generated as a result of the storage, recycling or disposal of the bridge components, including lead-coated steel. The Contractor shall recycle or reuse the steel in accordance with the Maine Department of Environmental Protection's "Maine Hazardous Waste Management Regulations," Chapter 850. A copy of this regulation is available at MaineDOT's offices on Child Street in Augusta. Payment for all labor, materials, equipment and other costs required to remove and dispose of the existing bridge will be considered incidental to the bridge removal pay item.

22. All costs for cofferdams, including pumping, maintenance, related temporary soil erosion and water pollution controls and removal, will not be paid for directly, but will be considered incidental to related Contract items.

23. The pavement sawcutting and sealing immediately behind each abutment shall not be paid for directly. Payment shall be considered incidental to the related contract items.

STATE OF MAINE DEPARTMENT OF TRANSPORTATION BR-1666(700)X WIN 16667.00 BRIDGE NO. 2764 BRIDGE PLANS										
	SECOND OTTER BRIDGE OTTER STREAM MILFORD		PENOBSCOT COUNTY		ESTIMATED QUANTITIES		SHEET NUMBER 2 OF 29			
	PROJ. MANAGER		S. Bodge		BY		DATE		SIGNATURE	
DESIGN-DETAILED		T. Cate		M. Cundiff		01/13		SIGNATURE		
CHECKED-REVIEWED		J. Wough		L. Mack		01/13		SIGNATURE		
DESIGN-DETAILED								P.E. NUMBER		
REVISIONS 1								DATE		
REVISIONS 2										
REVISIONS 3										
REVISIONS 4										
FIELD CHANGES										



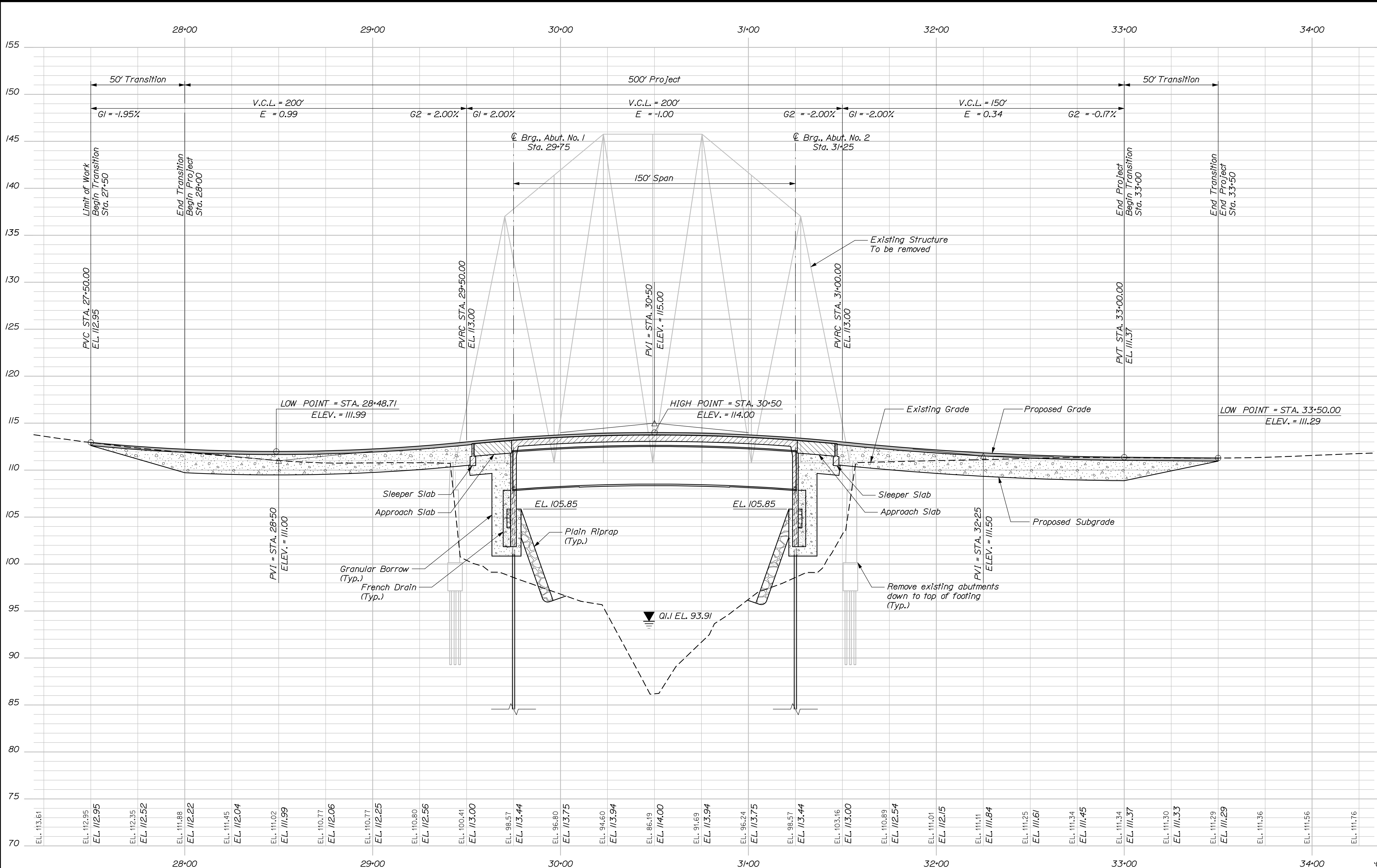


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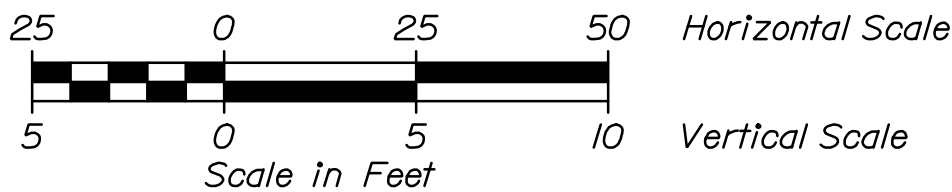
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Division: BRIDGE

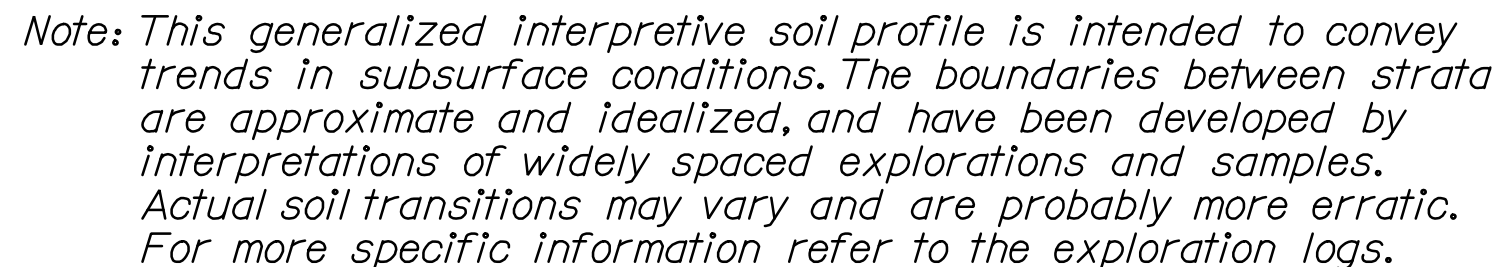
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PROFILE



STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BR-1666(700)X		WIN		BRIDGE PLANS	
SECOND OTTER BRIDGE		OTTER STREAM		PENOBSCOT COUNTY		MILFORD		SHEET NUMBER	
DATE		SIGNATURE		P.E. NUMBER		DATE		4	
BY		D.E.S.		M.R.P.		REVISIONS 1		OF 29	
S. BOOBE		J.B. REEVES				REVISIONS 2			
AUG. 2011						REVISIONS 3			
						REVISIONS 4			
						FIELD CHANGES			

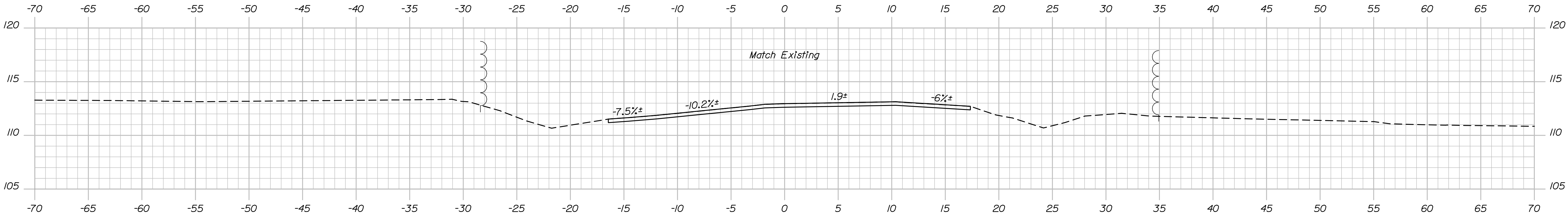


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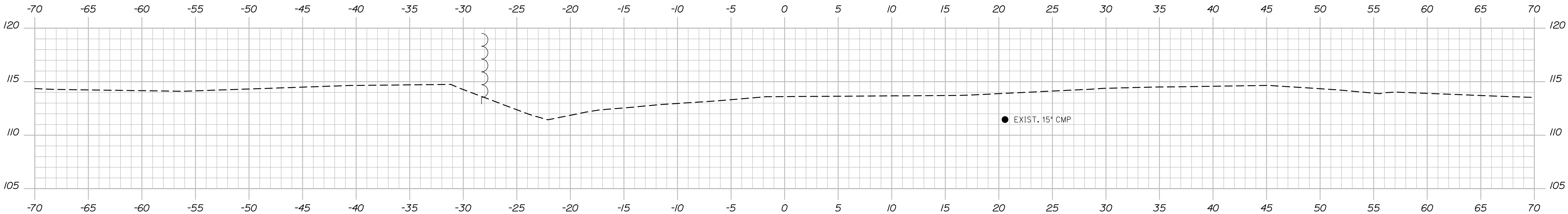
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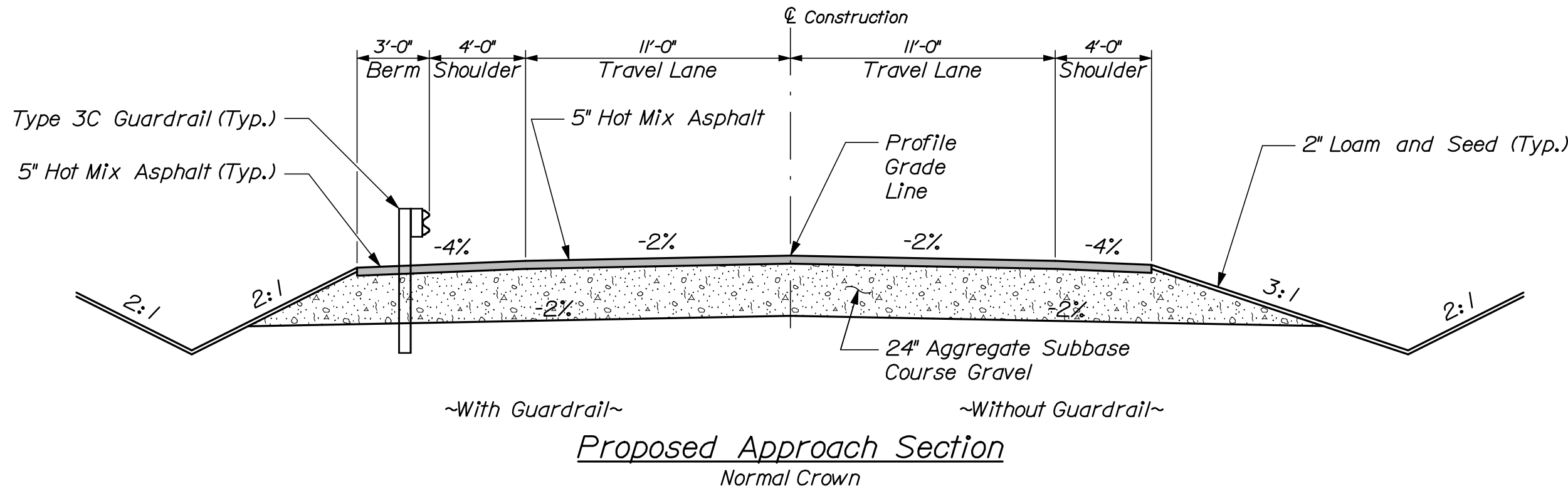


27+50.00

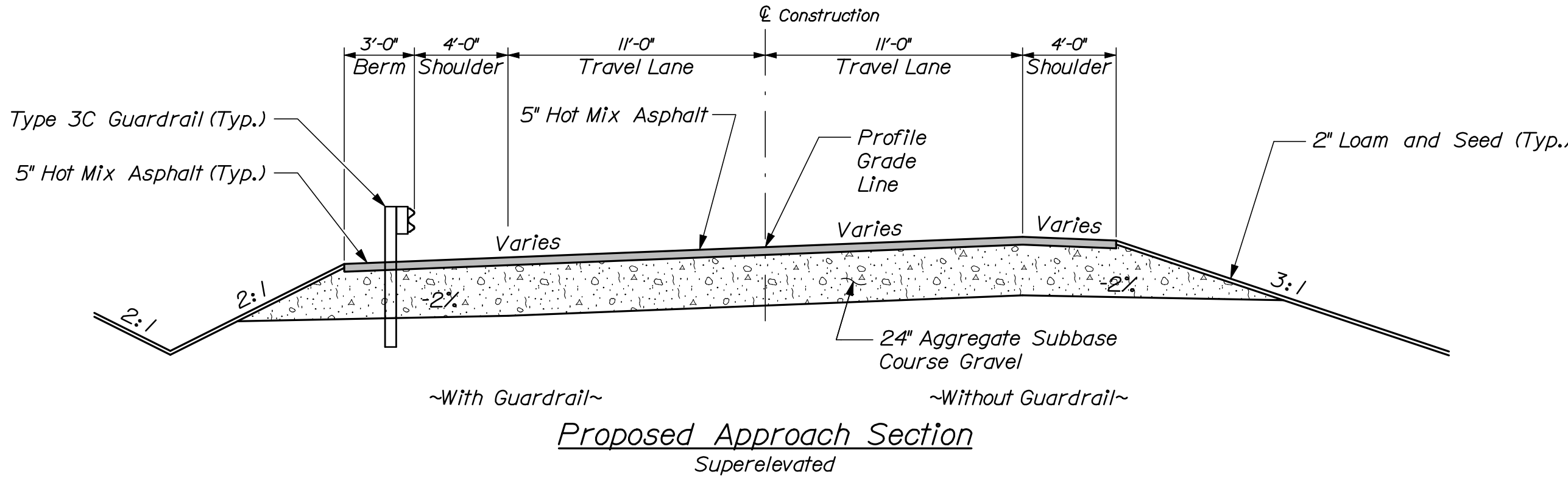
Begin Transition



27+25.00



Proposed Approach Section
Normal Crown



Proposed Approach Section
Superelevated

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	BR-1666(700)X	
	WIN	19423.00
	\$(PCF_BRIDGENUMBER)	

PROJ. MANAGER	S. Bodge	BY	DATE
DESIGN-DETAILED	A. Tower	M. Cundiff	01/13
CHECKED-REVIEWED	J. Wough	T. Cote	01/13
DESIGN-DETAILED	-	-	-
DESIGN-DETAILED	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

SECOND OTTER BRIDGE	
OTTER STREAM	
PENOBSCOT COUNTY	
MILFORD	CROSS SECTIONS

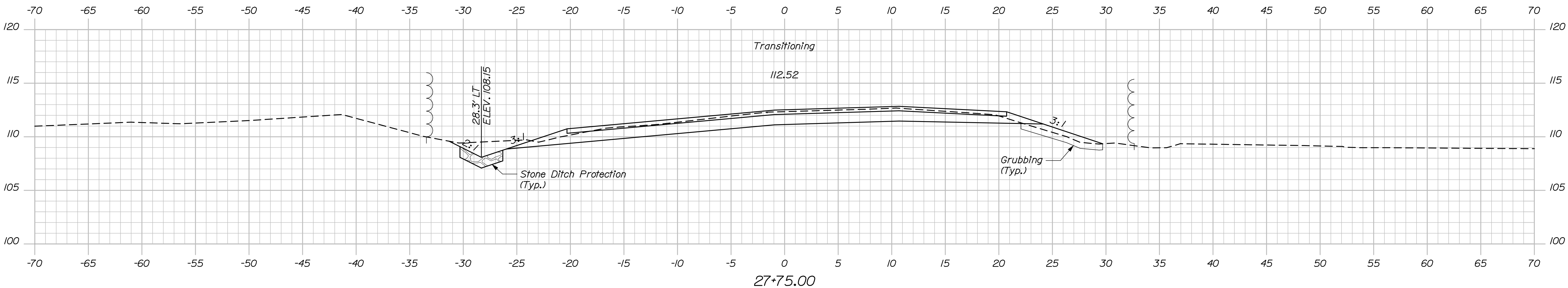
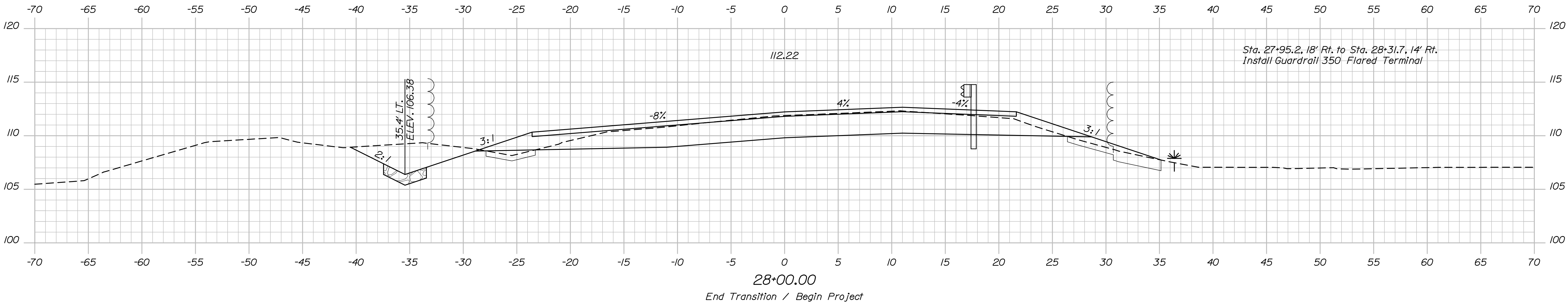
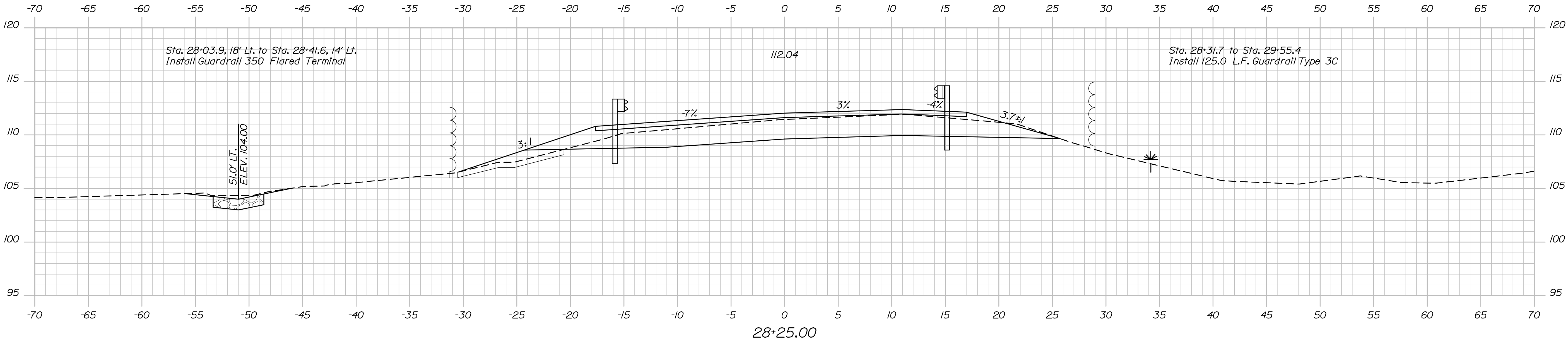
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OF 29

Date:1/31/2013

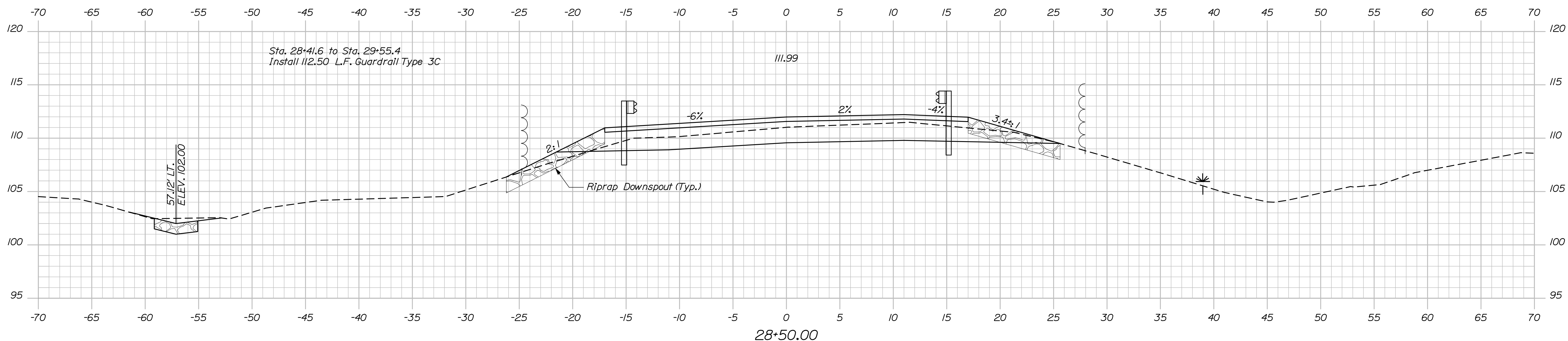
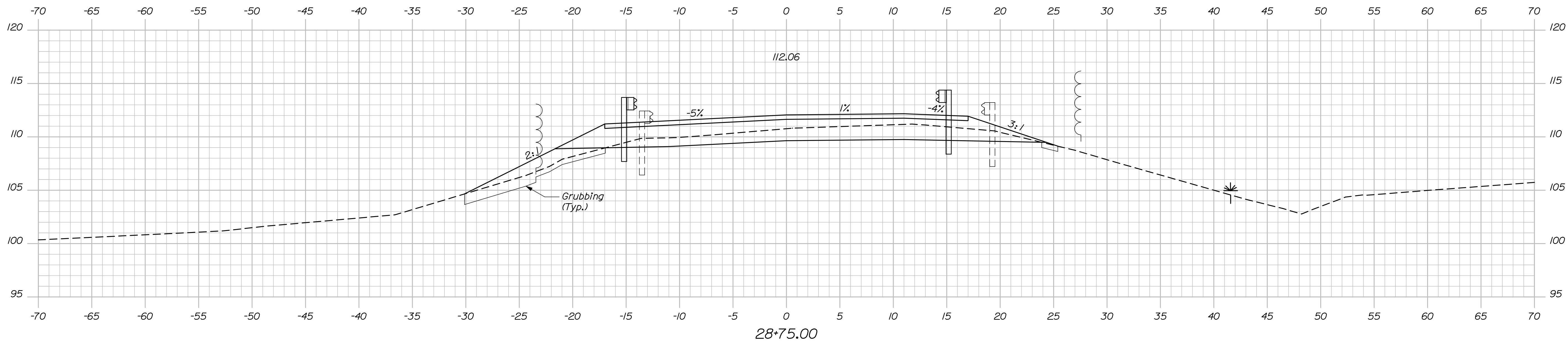
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Division: BRIDGE

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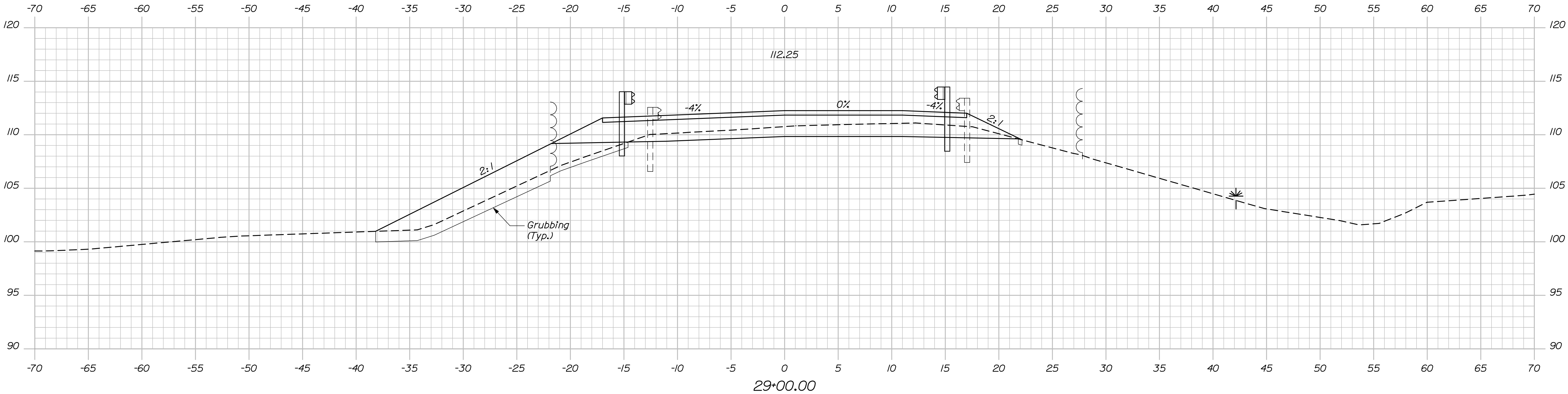
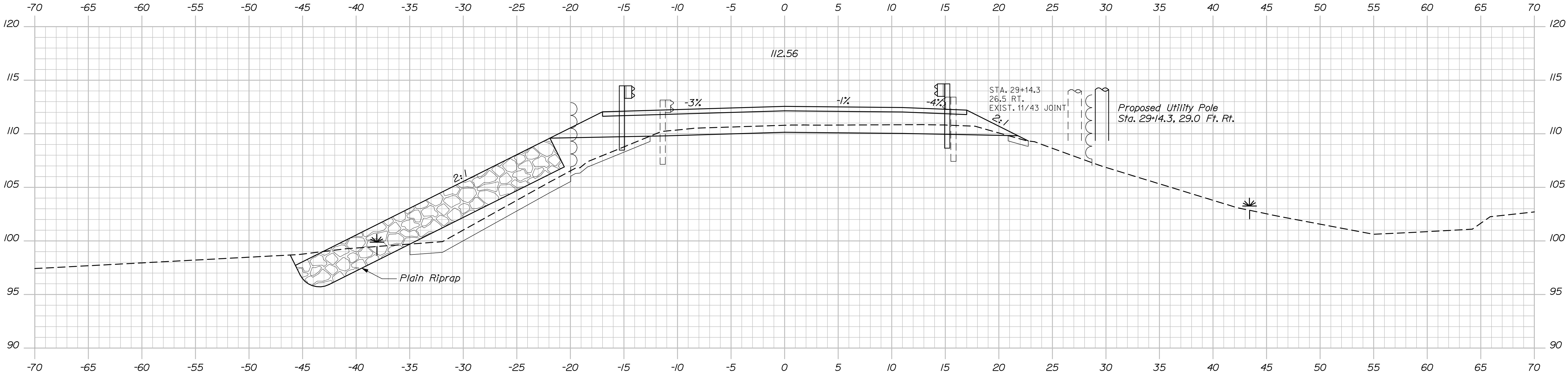


STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BR-1666(700)X		WIN		\$ (PCF_BRIDGENUMBER) 19423.00		BRIDGE PLANS	
SECOND OTTER BRIDGE		OTTER STREAM		PENOBSCOT COUNTY		MILFORD		CROSS SECTIONS		SHEET NUMBER	
BY		DATE		SIGNATURE		P.E. NUMBER		DATE		9	
S. Bodge		01/13		M. Cundiff		-		-		OF 29	
DESIGN-DETAILED		A. Tower		T. Cote		-		-		Sta. 27+75.00 to Sta. 28+25.00	
CHECKED-REVIEWED		J. Wough		-		-		-			
DESIGN-DETAILED		-		-		-		-			
DESIGN-DETAILED		-		-		-		-			
REVISIONS 1		-		-		-		-			
REVISIONS 2		-		-		-		-			
REVISIONS 3		-		-		-		-			
REVISIONS 4		-		-		-		-			
FIELD CHANGES		-		-		-		-			



Sta. 28+50.00 to Sta. 28+75.00

SHEET NUMBER		SECOND OTTER BRIDGE				PROJECT MANAGER		S. Boudge	BY	DATE	STATE OF MAINE	
10		OTTER STREAM				CHECKED-REVIEWED	A. Lower	M. Condiff	01/13	DEPARTMENT OF TRANSPORTATION		
		MILFORD				DESIGN-DETAILED	-	-	-	SIGNATURE		
		PENOBSCOT COUNTY				DESIGN-REVIEWED	J. Wough	-	-	P.E. NUMBER		
OF 29		CROSS SECTIONS				REVISIONS 1	-	-	-	BR-1666(700)X		
						REVISIONS 2	-	-	-	DATE		
						REVISIONS 3	-	-	-	\$ (PCF_BRIDGENUMBER) WIN 19423.00 BRIDGE PLANS		
						REVISIONS 4	-	-	-			
						FIELD CHANGES	-	-	-			



STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
BR-1666(700)X		WIN	
\$ (PCF_BRIDGENUMBER)		19423.00	
BRIDGE PLANS			

SECOND OTTER BRIDGE		PENOBSCOT COUNTY	
OTTER STREAM		MILFORD	
CROSS SECTIONS		SHEET NUMBER	
11		OF 29	

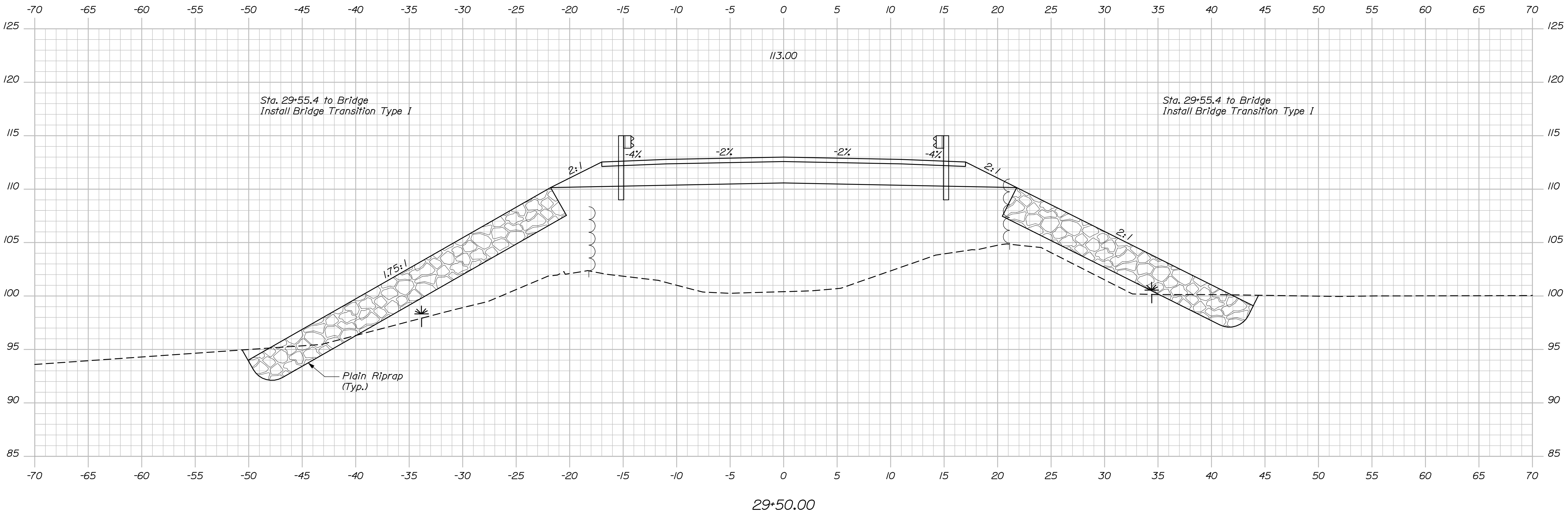
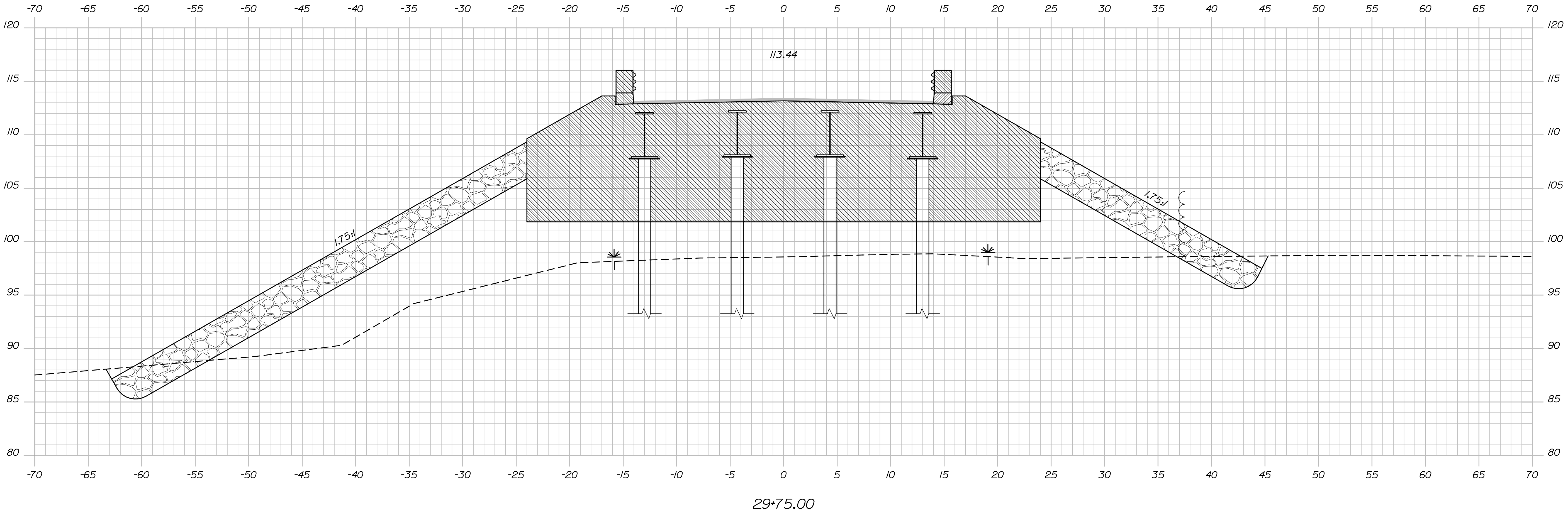
PROJ. MANAGER	BY	DATE	SIGNATURE
DESIGN-DETAILED	M. Cundiff	01/13	
CHECKED-REVIEWED	J. Wough	01/13	
DESIGN-DETAILED	-	-	
DESIGN-DETAILED	-	-	
REVISIONS 1	-	-	
REVISIONS 2	-	-	
REVISIONS 3	-	-	
REVISIONS 4	-	-	
FIELD CHANGES	-	-	

Date:1/31/2013

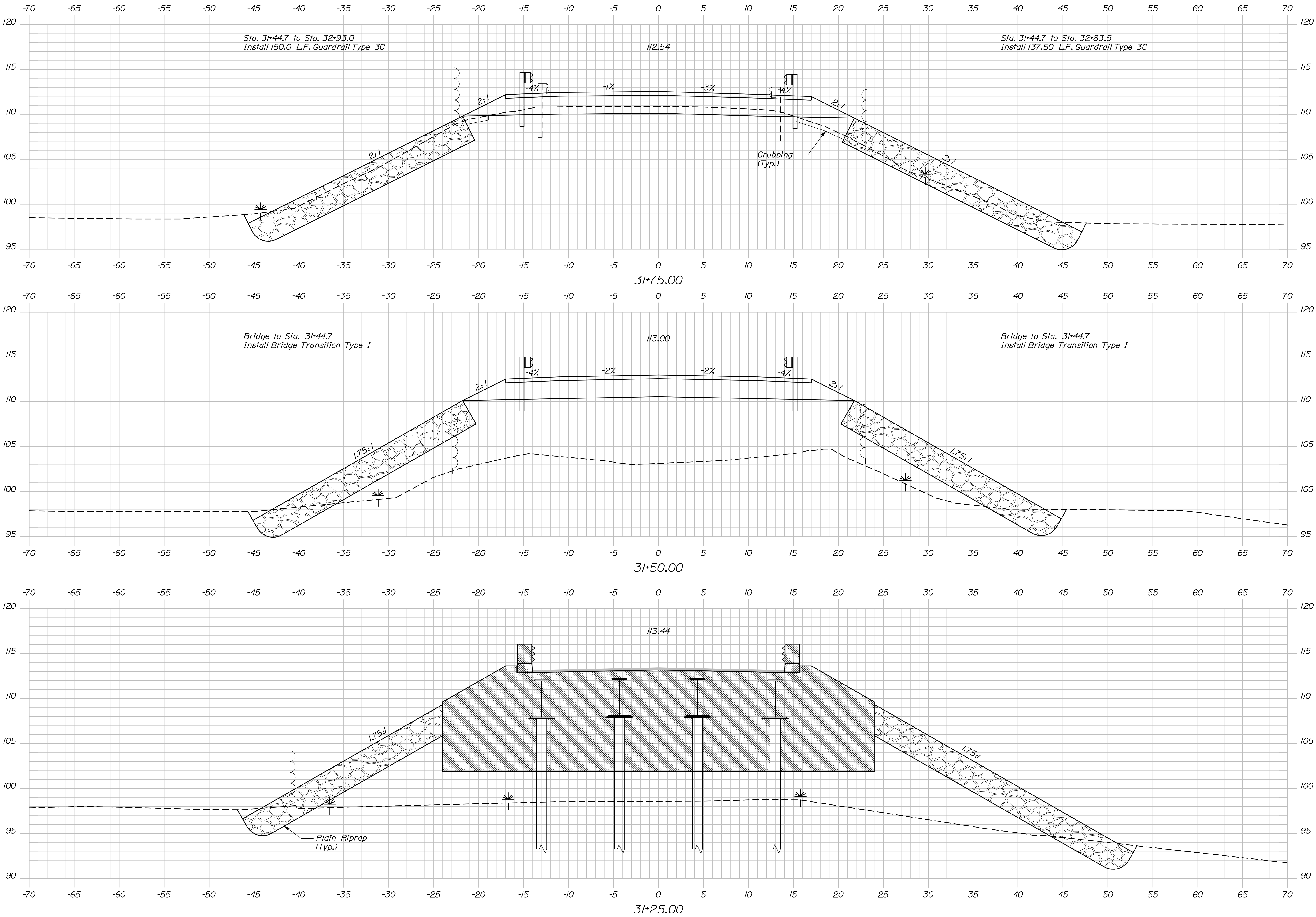
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Division: BRIDGE

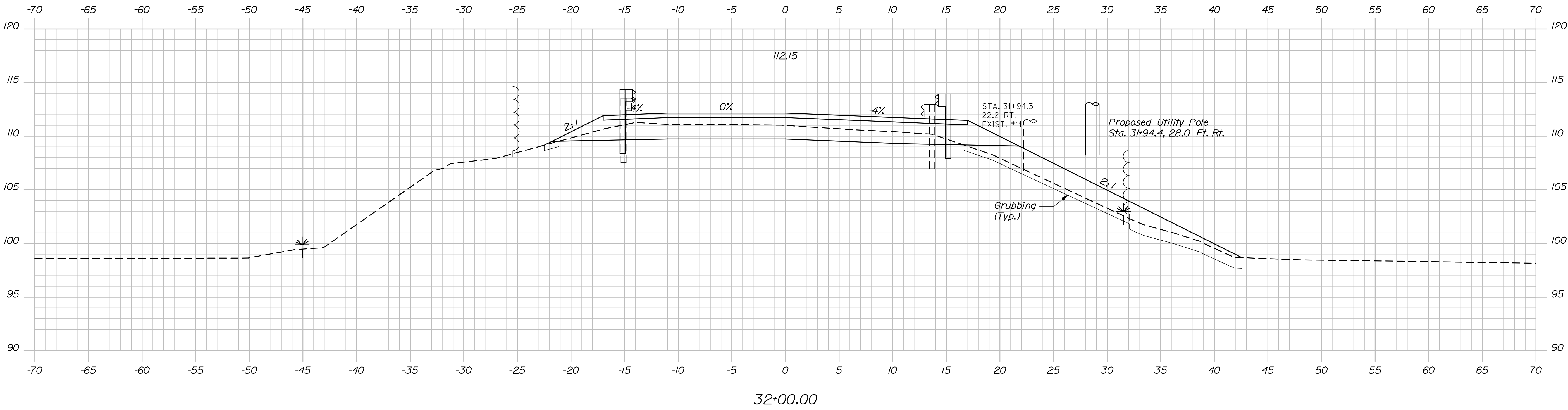
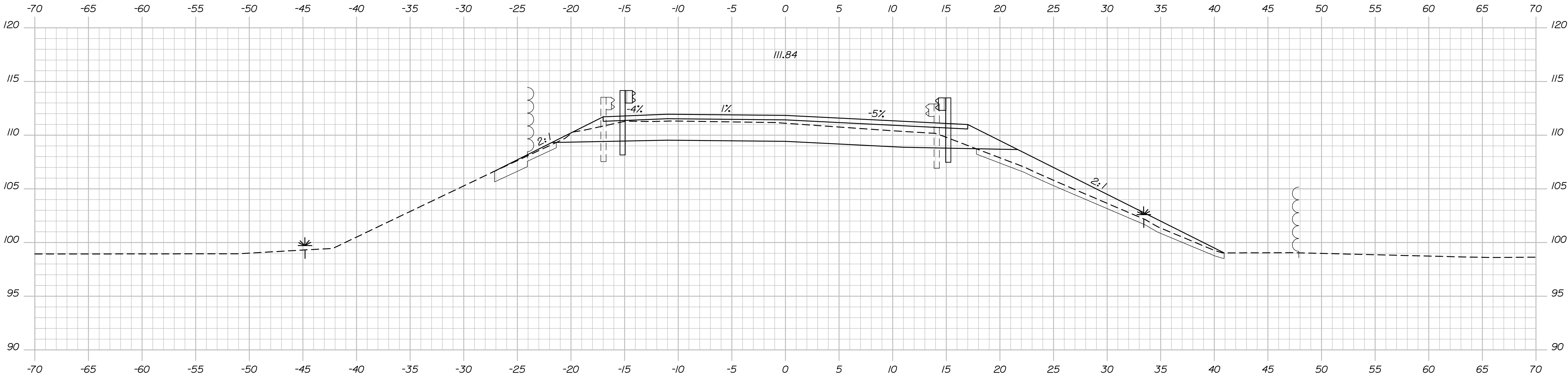
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STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BR-1666(700)X		WIN		\$ (PCF_BRIDGENUMBER) 19423.00		BRIDGE PLANS	
SECOND OTTER BRIDGE		OTTER STREAM		PENOBSCOT COUNTY		MILFORD		CROSS SECTIONS		SHEET NUMBER	
12		OF 29		SIGNATURE		P.E. NUMBER		DATE			
BY		DATE		S. Bodge		A. Tower		M. Cundiff		T. Cote	
CHECKED-REVIEWED		DESIGN-DETAILED		DESIGN-REVIEWED		DESIGN-DETAILED		DESIGN-REVIEWED		DESIGN-DETAILED	
REVISIONS 1		REVISIONS 2		REVISIONS 3		REVISIONS 4		FIELD CHANGES			



SHEET NUMBER		SECOND OTTER BRIDGE				PROJ. MANAGER		S. Budget		BY		DATE		STATE OF MAINE	
13 OF 29		OTTER STREAM				DESIGN-DETAILED		A. Tower		M. Cundiff		01/13		DEPARTMENT OF TRANSPORTATION	
		PENOBSCOT COUNTY				CHECKED-REVIEWED		J. Waugh		T. Cote		01/13			
						DESIGN2-DETAILED2		-		-		-		SIGNATURE	
						DESIGN3-DETAILED3		-		-		-			
		CROSS SECTIONS				REVISIONS 1		-		-		-		P.E. NUMBER	
						REVISIONS 2		-		-		-			
						REVISIONS 3		-		-		-			
						REVISIONS 4		-		-		-		DATE	
						FIELD CHANGES		-		-		-			
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														WIN	
														\$(PCF_BRIDGENUMBER) 19423.00	
														BRIDGE PLANS	

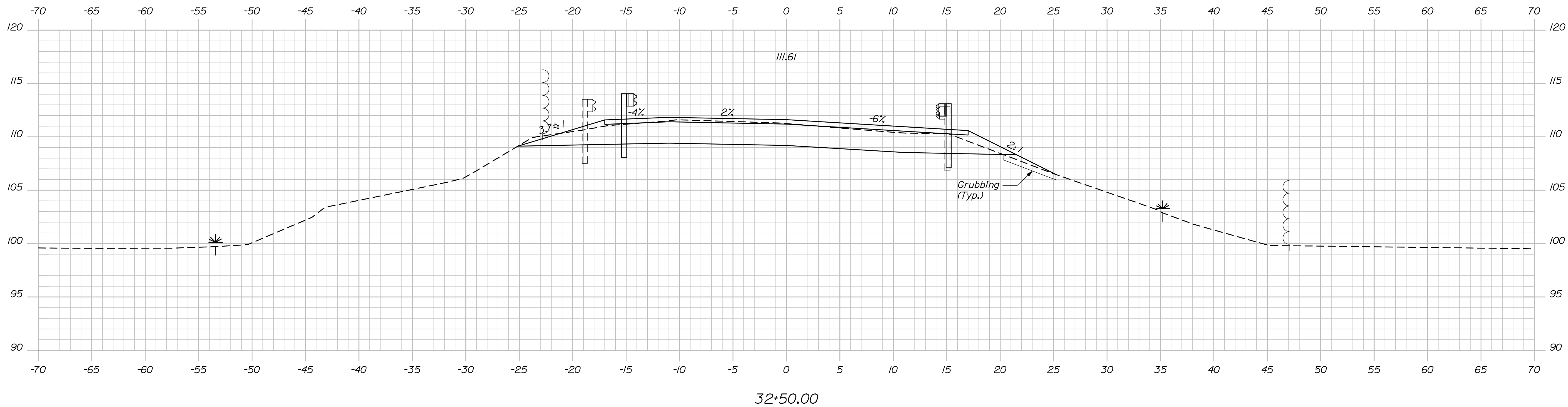


PROJ. MANAGER	S. BODGE	BY	DATE
CHECKED-DETAILED	A. Tower	M. Cundiff	01/13
CHECKED-REVIEWED	J. Wough	T. Cote	01/13
DESIGNS-DETAILED	-	-	-
DESIGNS-REVIEWED	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

SIGNATURE

P.E. NUMBER

DATE

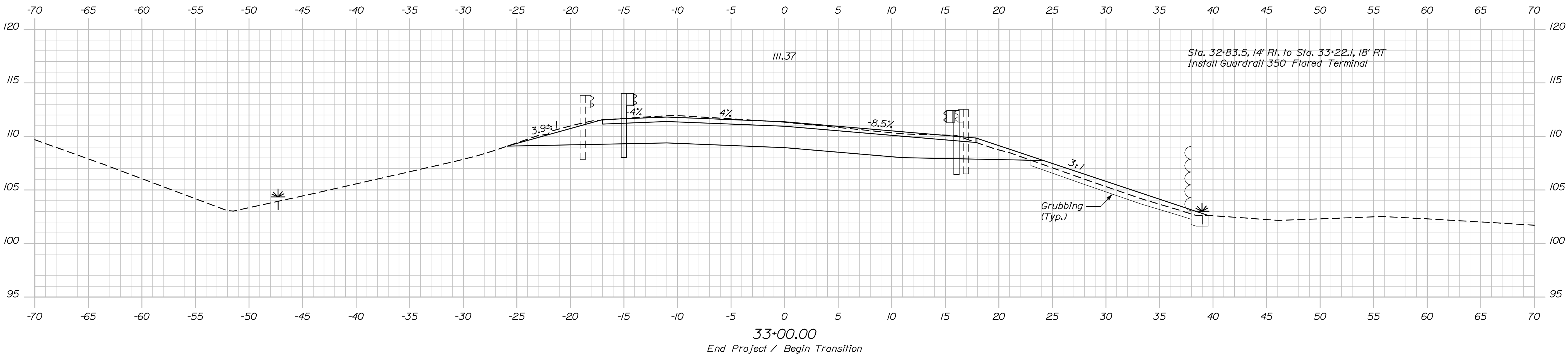
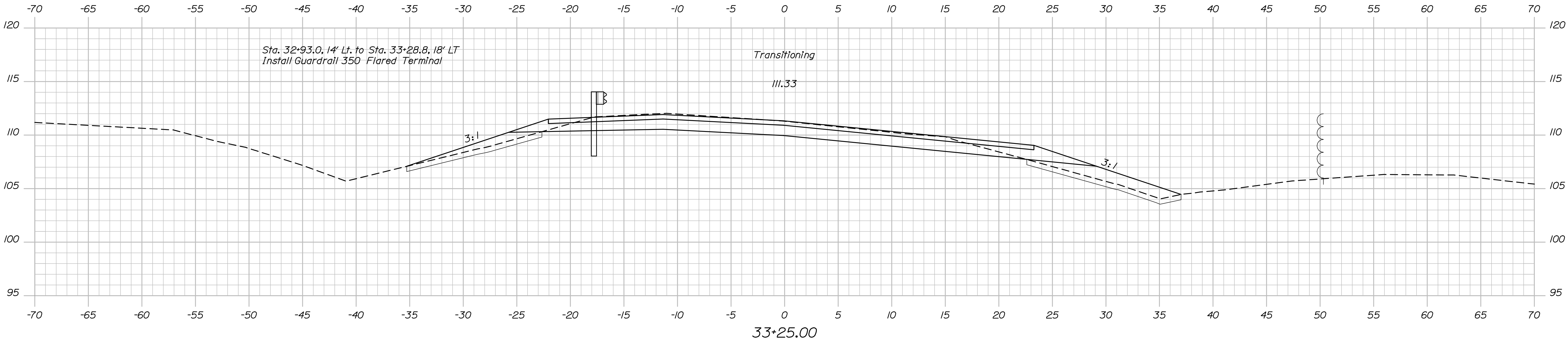
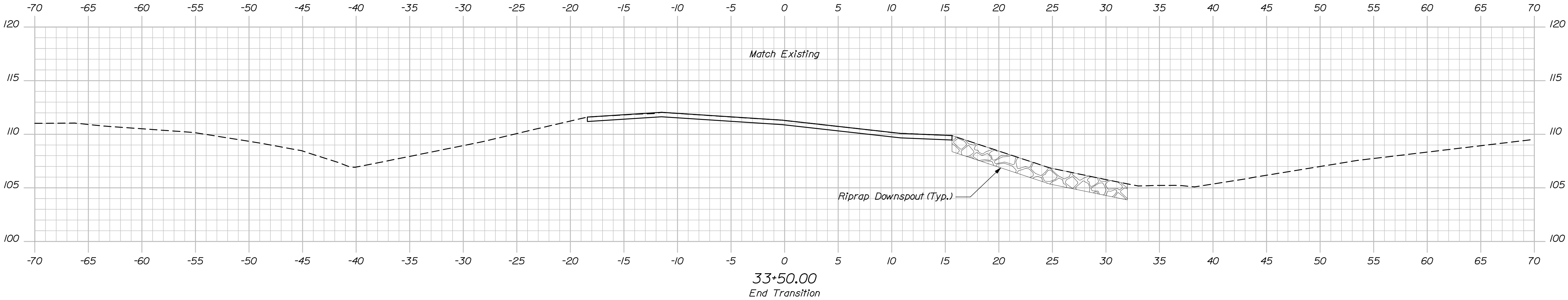


Date:1/31/2013

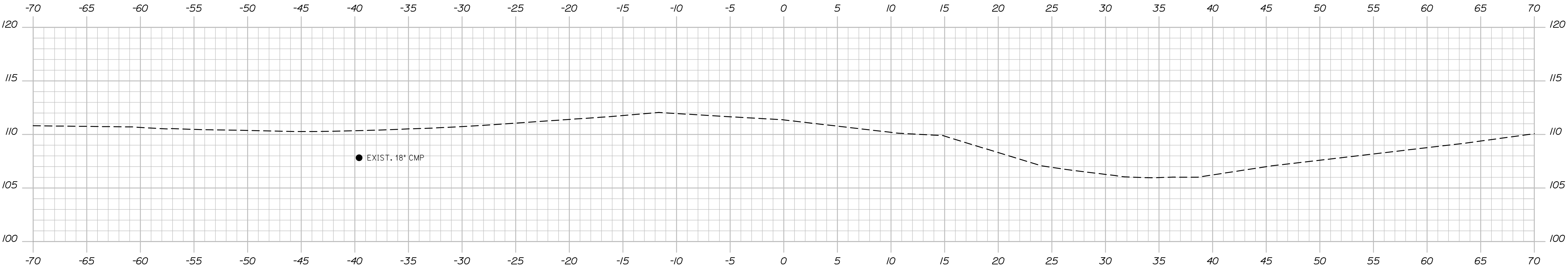
Username: MCundiff

Division: BRIDGE

Filename: 016_z_Xsect_33+75_009.dgn



STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		BR-1666(700)X		WIN		BRIDGE PLANS	
SECOND OTTER BRIDGE		OTTER STREAM		PENOBSCOT COUNTY		MILFORD		CROSS SECTIONS	
PROJ. MANAGER		BY		DATE		SIGNATURE		P.E. NUMBER	
DESIGN-DETAILED		M. Cundiff		01/13		T. Cote		-	
CHECKED-REVIEWED		A. Tower		01/13		J. Wough		-	
DESIGN-DETAILED		-		-		-		-	
REVISIONS 1		-		-		-		-	
REVISIONS 2		-		-		-		-	
REVISIONS 3		-		-		-		-	
REVISIONS 4		-		-		-		-	
FIELD CHANGES		-		-		-		-	
SHEET NUMBER		16		OF 29					



33+75.00

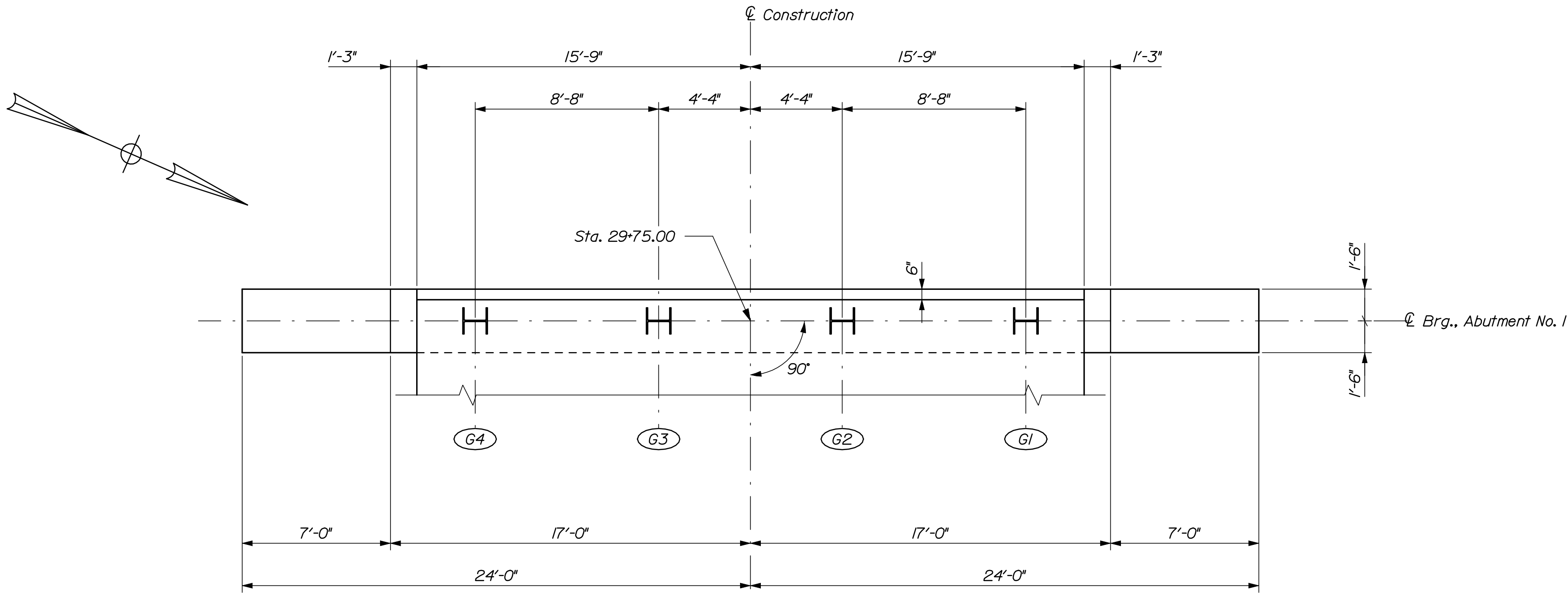
Sta. 33+75.00 to Sta. 33+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BR-1666(700)X
WIN
\$(PCF_BRIDGENUMBER) 19423.00
BRIDGE PLANS

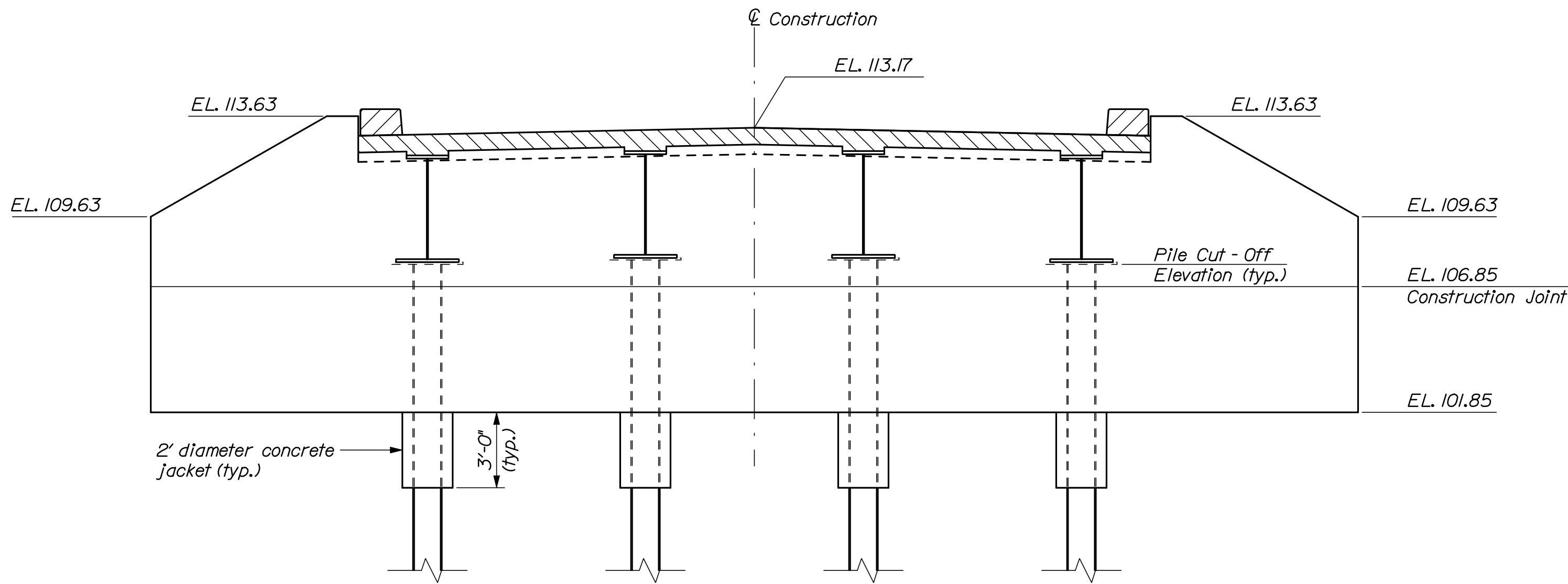
PROJ. MANAGER	S. Bodge	BY	DATE
DESIGN-DETAILED	A. Tower	M. Cundiff	01/13
CHECKED-REVIEWED	J. Waugh	T. Cote	01/13
DESIGN-DETAILED	-	-	-
DESIGN-DETAILED	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

SECOND OTTER BRIDGE
OTTER STREAM
PENOBSCOT COUNTY
MILFORD
CROSS SECTIONS

SHEET NUMBER
17
OF 29



ABUTMENT NO. 1 PLAN



ABUTMENT NO. 1 ELEVATION

ABUTMENT NOTES:

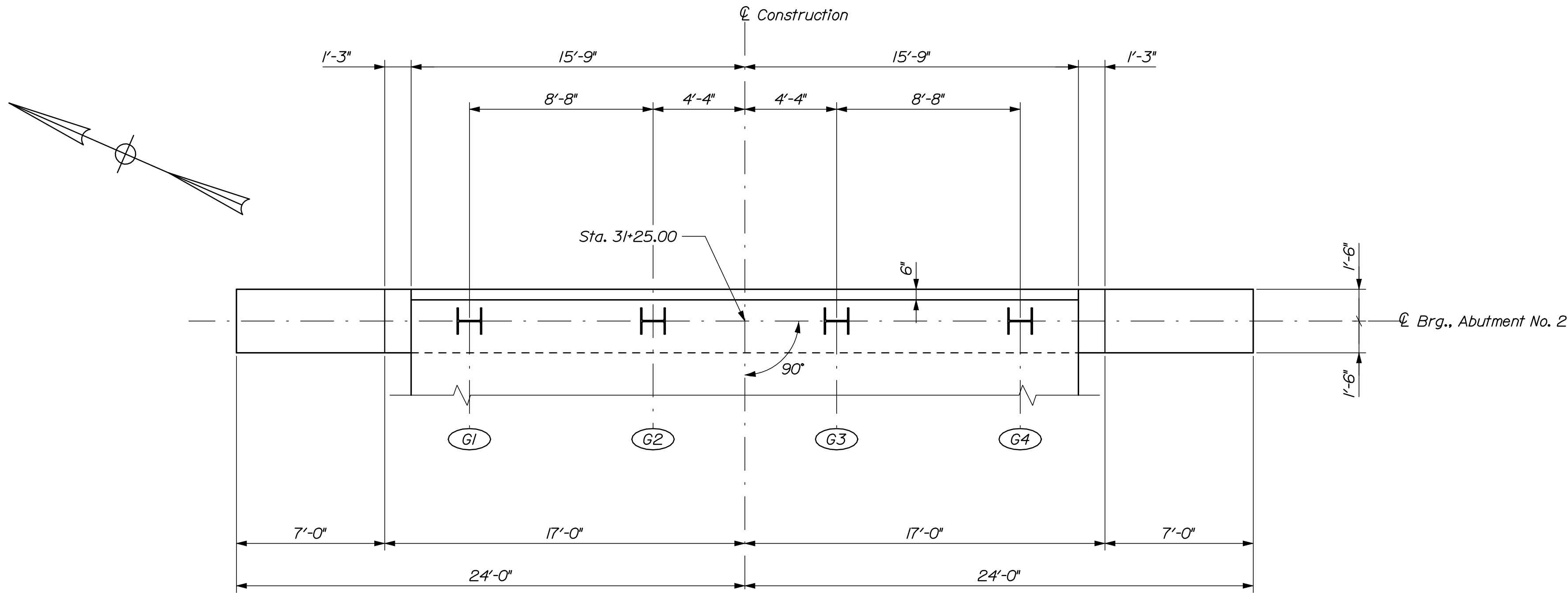
1. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.
2. All elevations are provided at centerline of bearing unless otherwise noted.
3. Cover joints where waterstops are not required in accordance with Standard Detail 502(O).
4. Place 4 inch diameter drains in breastwall and wingwalls at 8 feet maximum spacing. The exact location will be determined by the Resident.
5. Construct French Drains behind the abutments and wingwalls in accordance with Standard Specification Section 512, French Drains.
6. Abutments, wingwalls, and their footings shall be backfilled with Granular Borrow for Underwater Backfill. Pay limits will be the structural excavation limits in cut areas and a vertical plane located 10 feet behind the walls in fill areas.
7. The Contractor shall install Transition Barrier vertical closed stirrups as shown in Standard Details Section 526, prior to the placement of the curb concrete.
8. No backfilling around the front or rear face of the abutment will be allowed until the bridge deck has been placed and cured. Backfilling prior to deck placement may lead to unacceptable variations in girder camber.
9. Payment for concrete jacket around the tops of the H-piles will not be paid for directly. Payment shall be incidental to Pay Item 502.219 Structural Concrete Abutment and Retaining Walls. Fill concrete shall be used for the concrete jackets.

PILE NOTES:

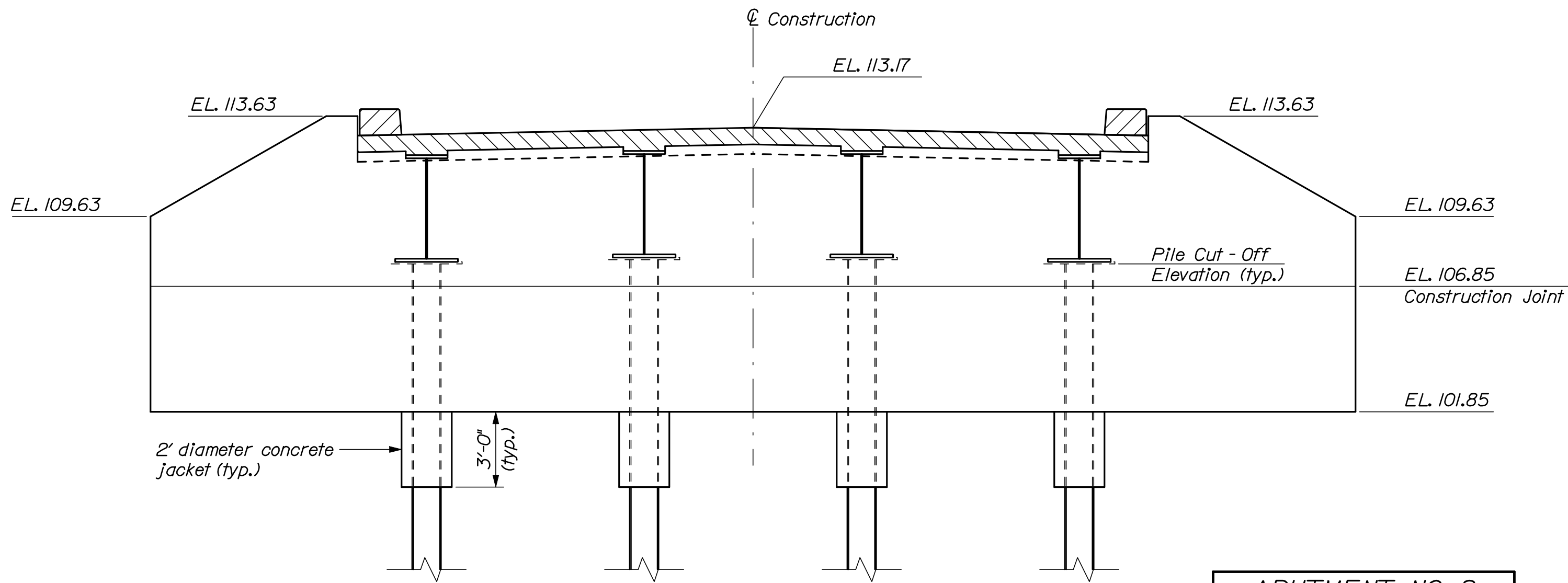
1. The maximum factored pile load is 508 kips.
2. H-pile material shall be ASTM A 572, Grade 50.
3. Estimate of piles required:
Abutment No. 1: 4 ~ HP 14x17 @ 50 feet
Abutment No. 2: 4 ~ HP 14x17 @ 57 feet
4. All piles shall be equipped with a pile tip in accordance with Standard Specifications Section 501.10, Prefabricated Pile Tips.
5. Piles shall be driven to bedrock.
6. Piles shall not be out of position shown by more than 2 inches in any direction.
7. The Contractor shall perform and submit a wave equation analysis for review and acceptance by the Resident. The maximum allowable driving stress is 0.90 times Fy. The submittal analyses shall include the proposed stopping criteria based on the wave equation analysis and the proposed driving system. The stopping criteria shall include the blows per inch and the number of 1-in. intervals at which pile installation may be terminated. The cost of performing the wave equation analysis will be considered incidental to Item No. 501.92, Pile Driving Equipment Mobilization.
8. The Contractor shall perform 2 dynamic load test(s), one at each abutment, to confirm the ultimate capacity of the piles. The required nominal resistance for the pile is the factored axial pile load divided by a resistance factor of 0.65 per LRFD Specifications. The dynamic test shall be performed on the first production pile driven at each abutment.
9. The sole plates and installation of the sole plate at the top of the H-piles shall not be paid for directly. Payment shall be incidental to Pay Item No. 501.541, Steel H-beam Pile 117 lbs/ft., In Place.

ABUTMENT NO. 1 PILE CUT-OFF ELEVATIONS	
Pile	Elevation
G1	107.74
G2	107.91
G3	107.91
G4	107.74

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		BR-1666(700)X		WIN 16667.00		BRIDGE NO. 2754 BRIDGE PLANS	
SECOND OTTER BRIDGE OTTER STREAM MILFORD		PENOBSCOT COUNTY		ABUTMENT NO. 1		SHEET NUMBER	
18		OF 29					

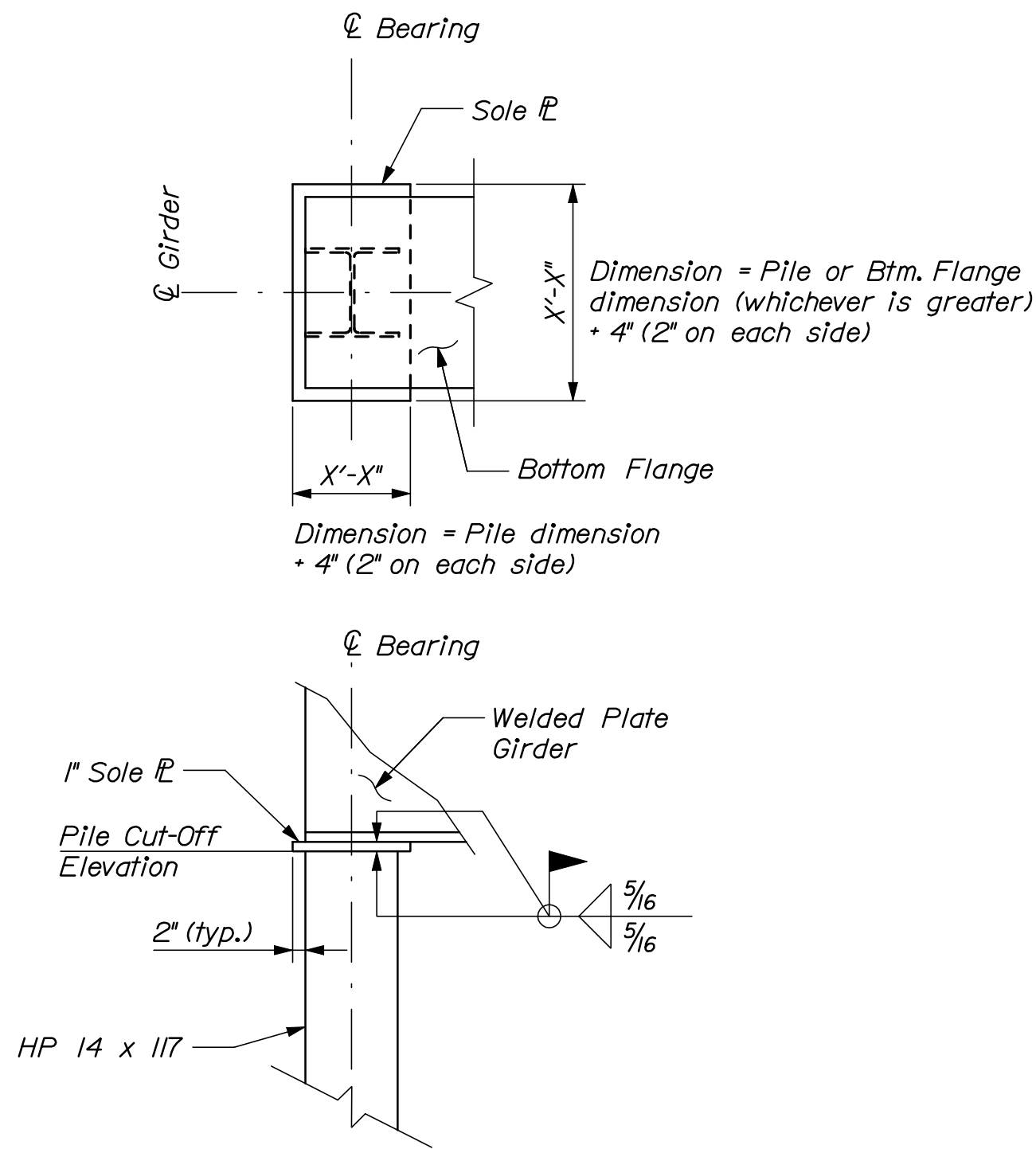


ABUTMENT NO. 2 PLAN



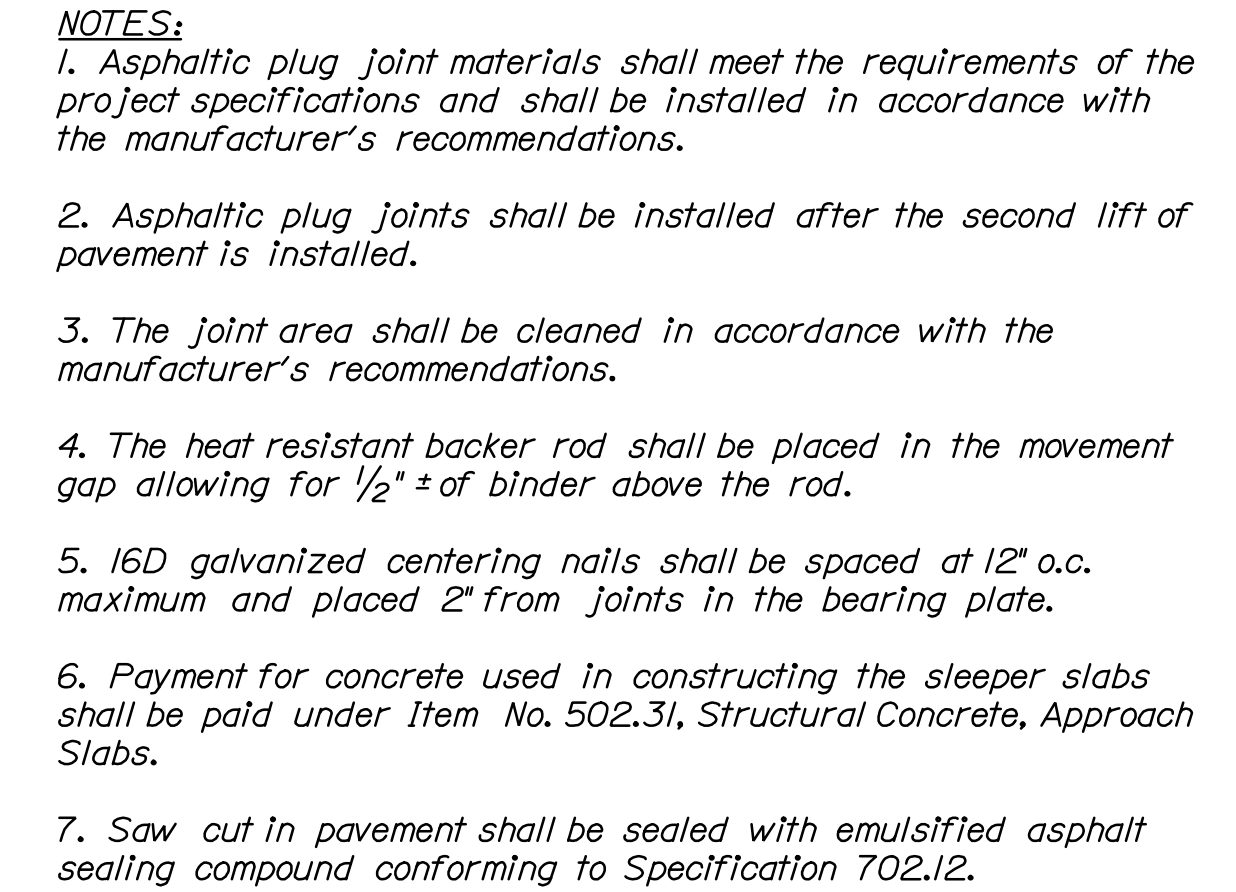
ABUTMENT NO. 2 ELEVATION

ABUTMENT NO. 2 PILE CUT-OFF ELEVATIONS	
Pile	Elevation
G1	107.74
G2	107.91
G3	107.91
G4	107.74

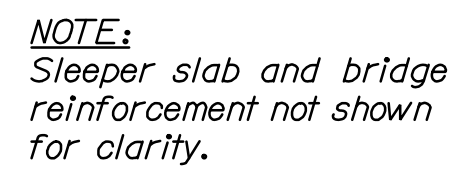


PILE CUT-OFF DETAIL

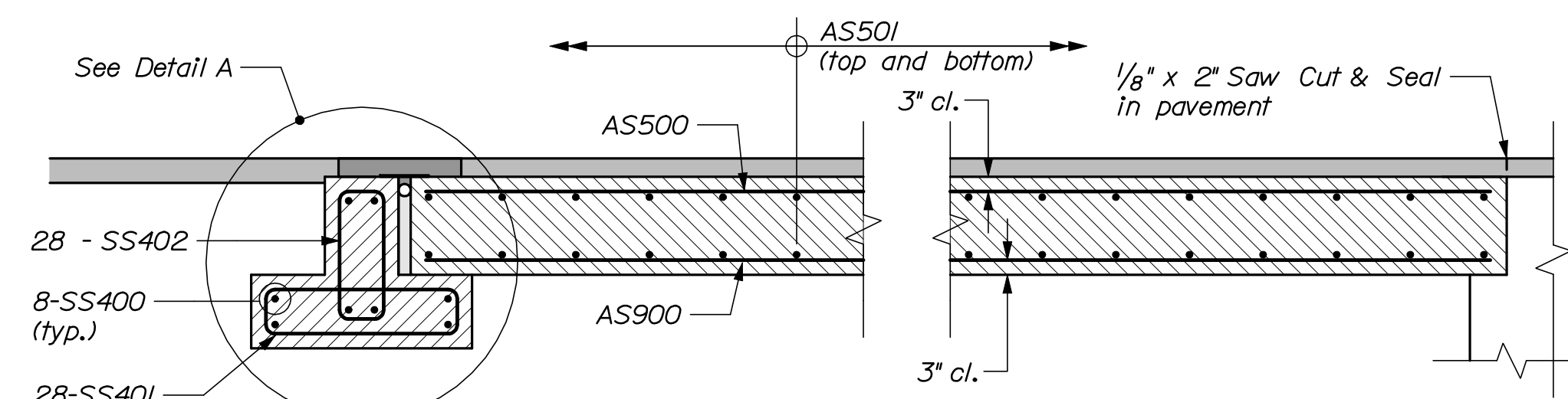
Pile cut-off elevation shall be located at center of the pile.
Cut the pile at a slope to match the profile grade.



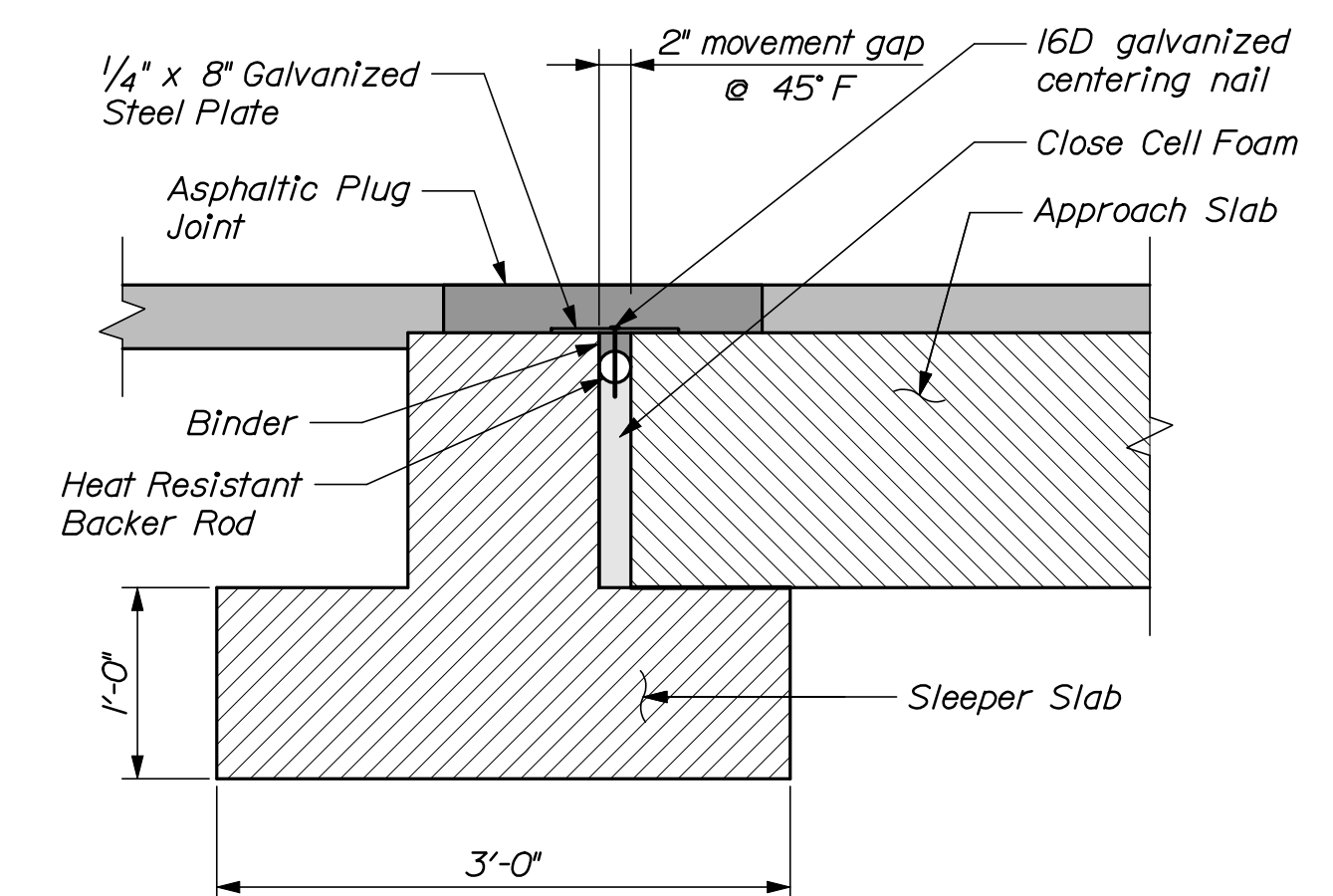
ABUTMENT BACKFILL DETAIL



APPROACH SLAB PLAN



APPROACH SLAB SECTION

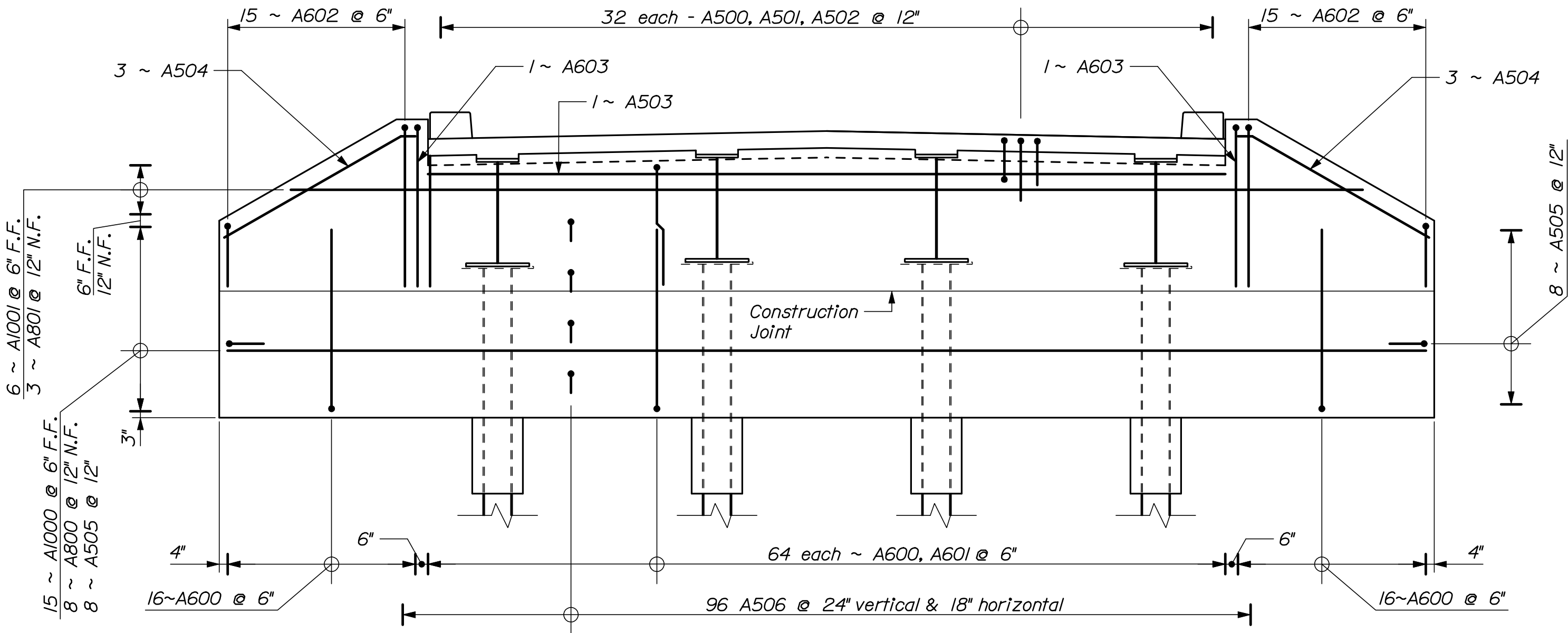


DETAIL A

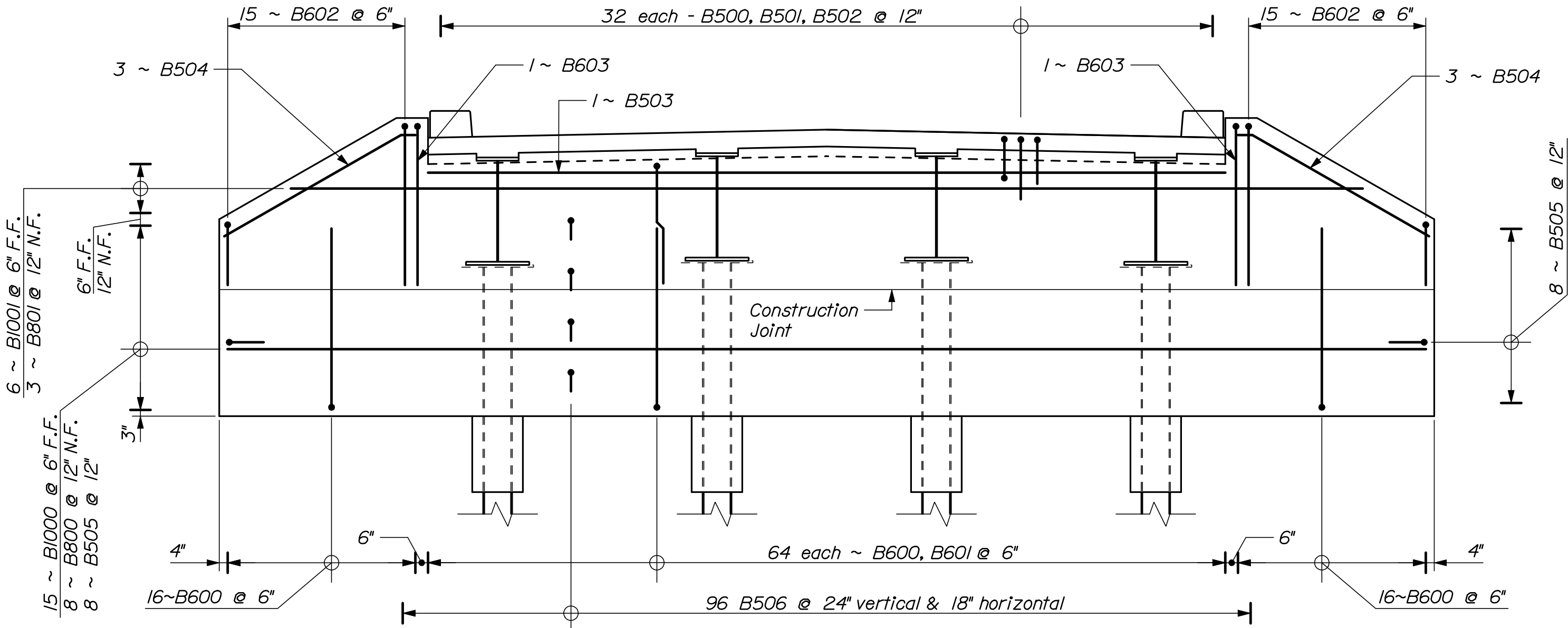
DESIGN-DETAILED	A. Tower	M. Curditt	01/13
CHECKED-REVIEWED	J. Waugh	T. Cotte	01/13
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-
SIGNATURE			P.E. NUMBER
DATE			

MILFORD
SECOND OTER BRIDGE
OTTER STREAM
PENOBSCOT COUNTY
ABUTMENT DETAILS

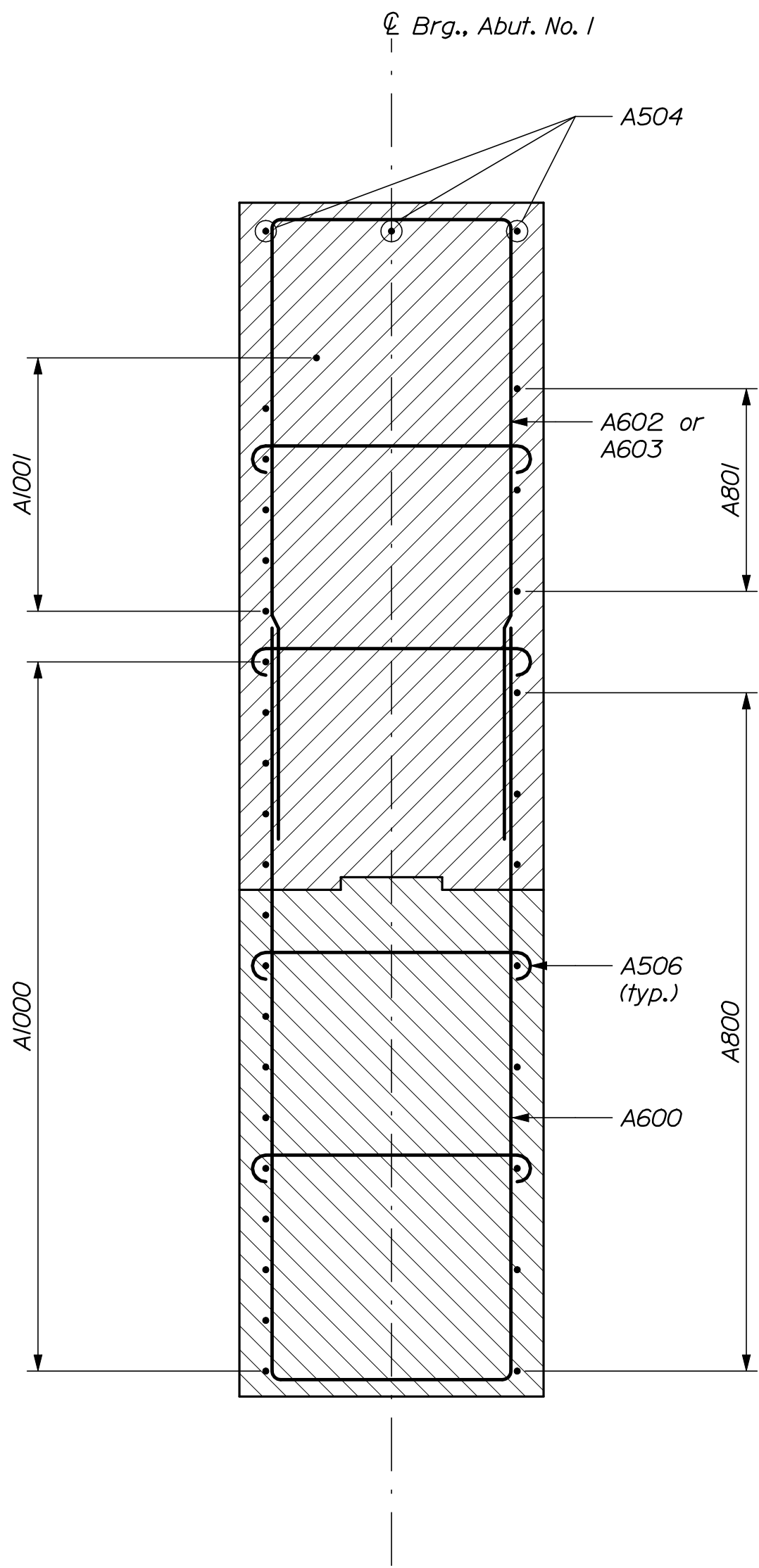
SHEET NUMBER



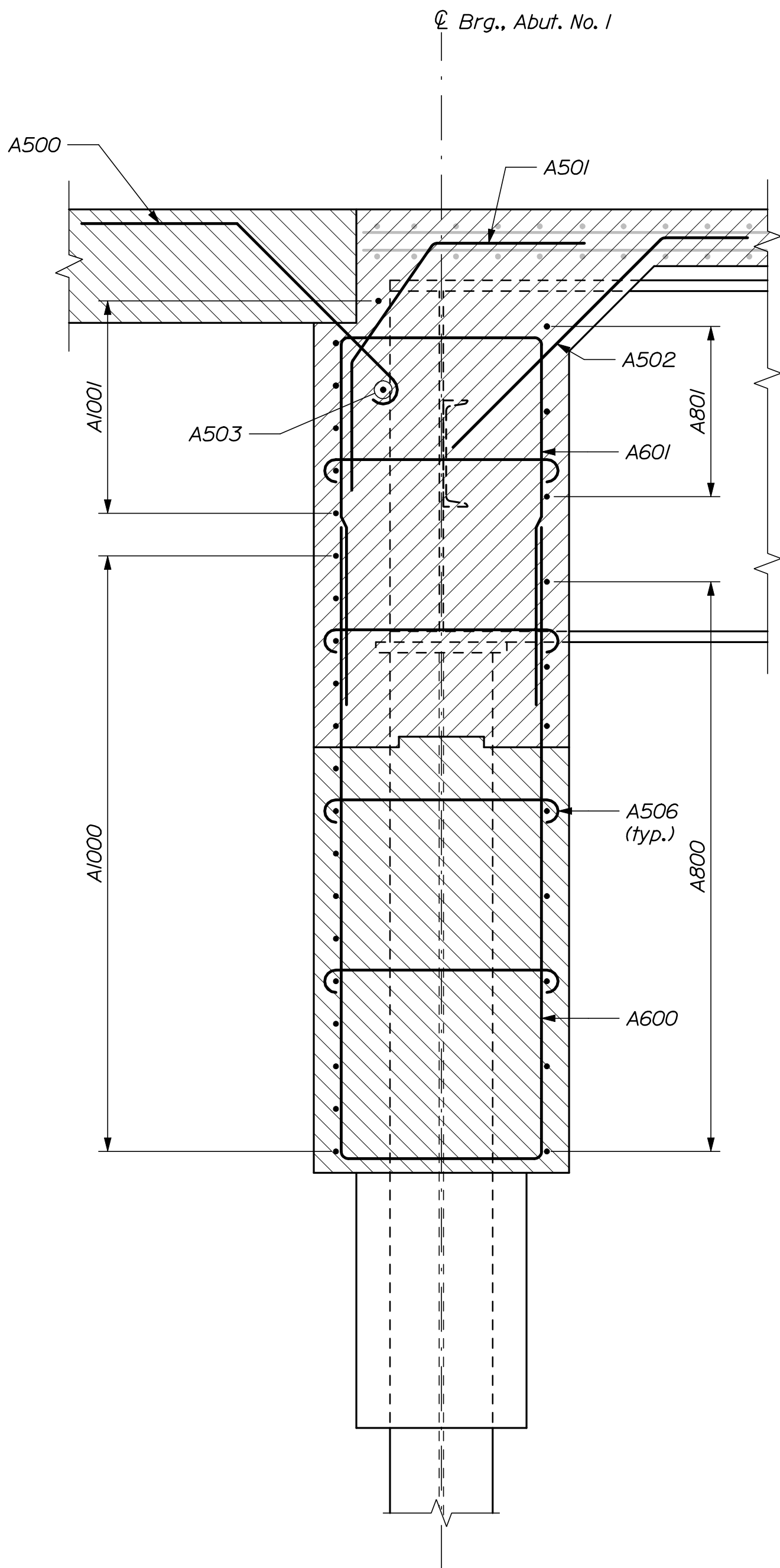
ABUTMENT NO. 1 REINFORCING



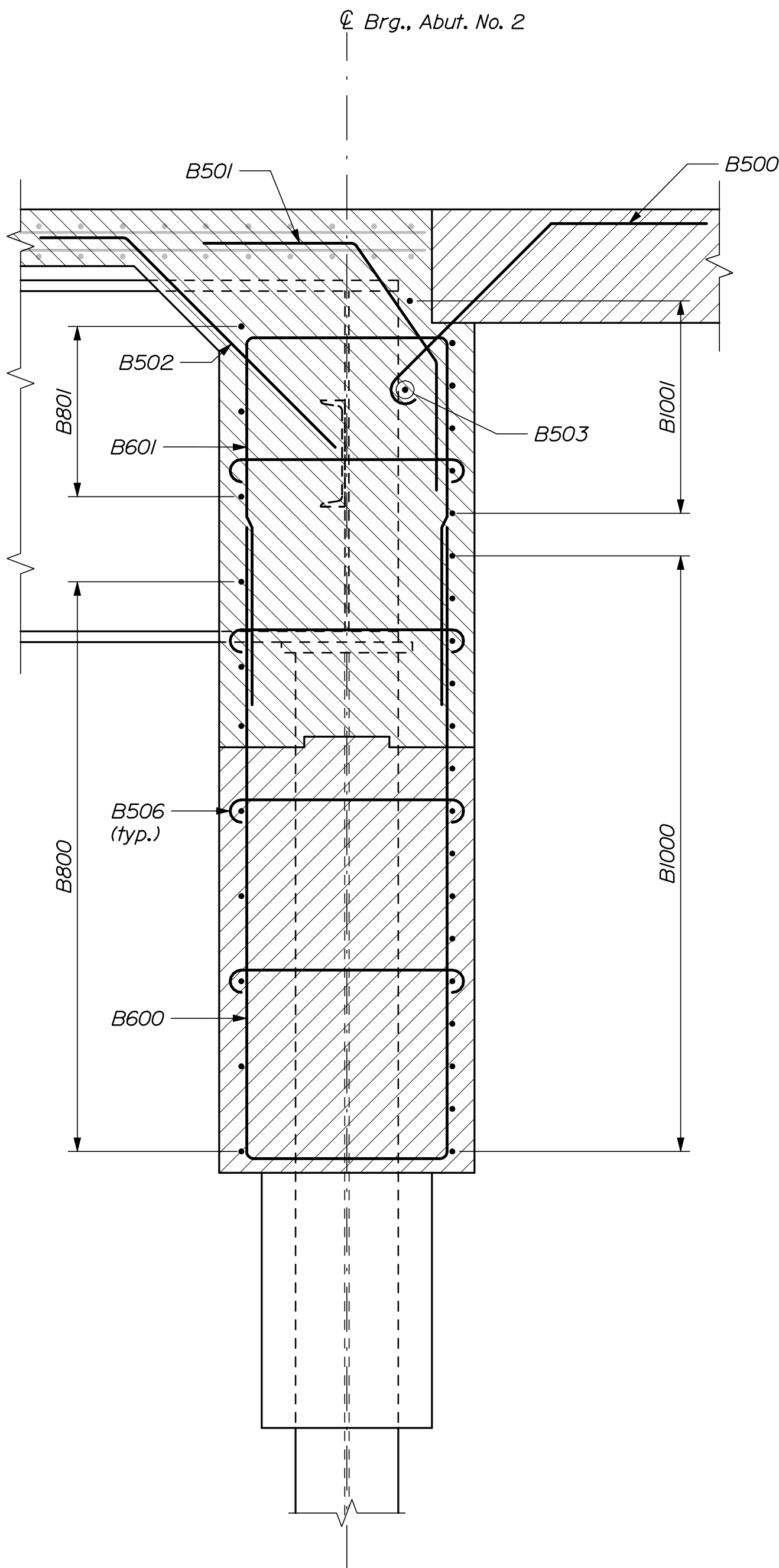
ABUTMENT NO. 2 REINFORCING



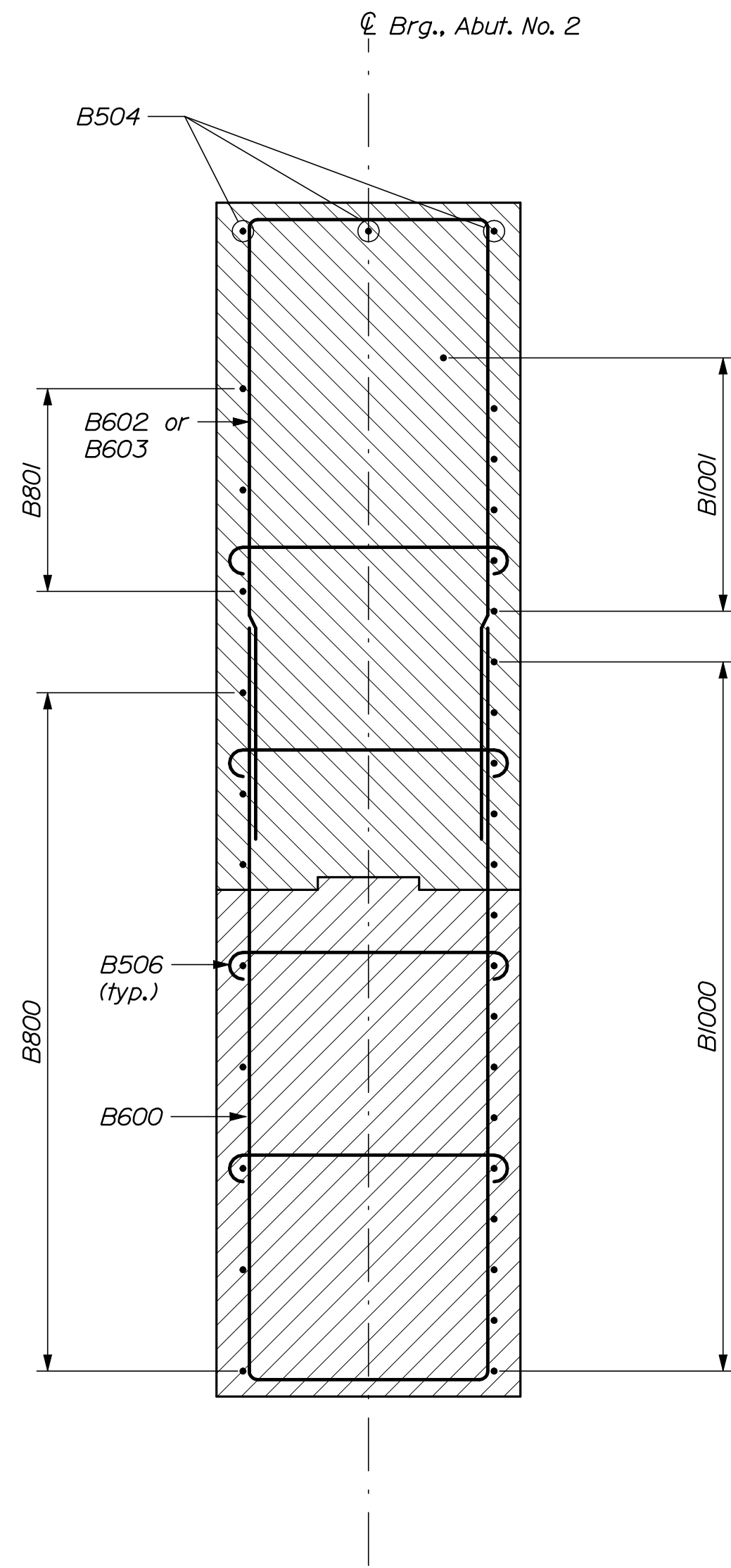
ABUTMENT NO. 1 WINGWALL SECTION



ABUTMENT NO. 1 SECTION



ABUTMENT NO. 2 SECTION



ABUTMENT NO. 2 WINGWALL SECTION

NOTES:

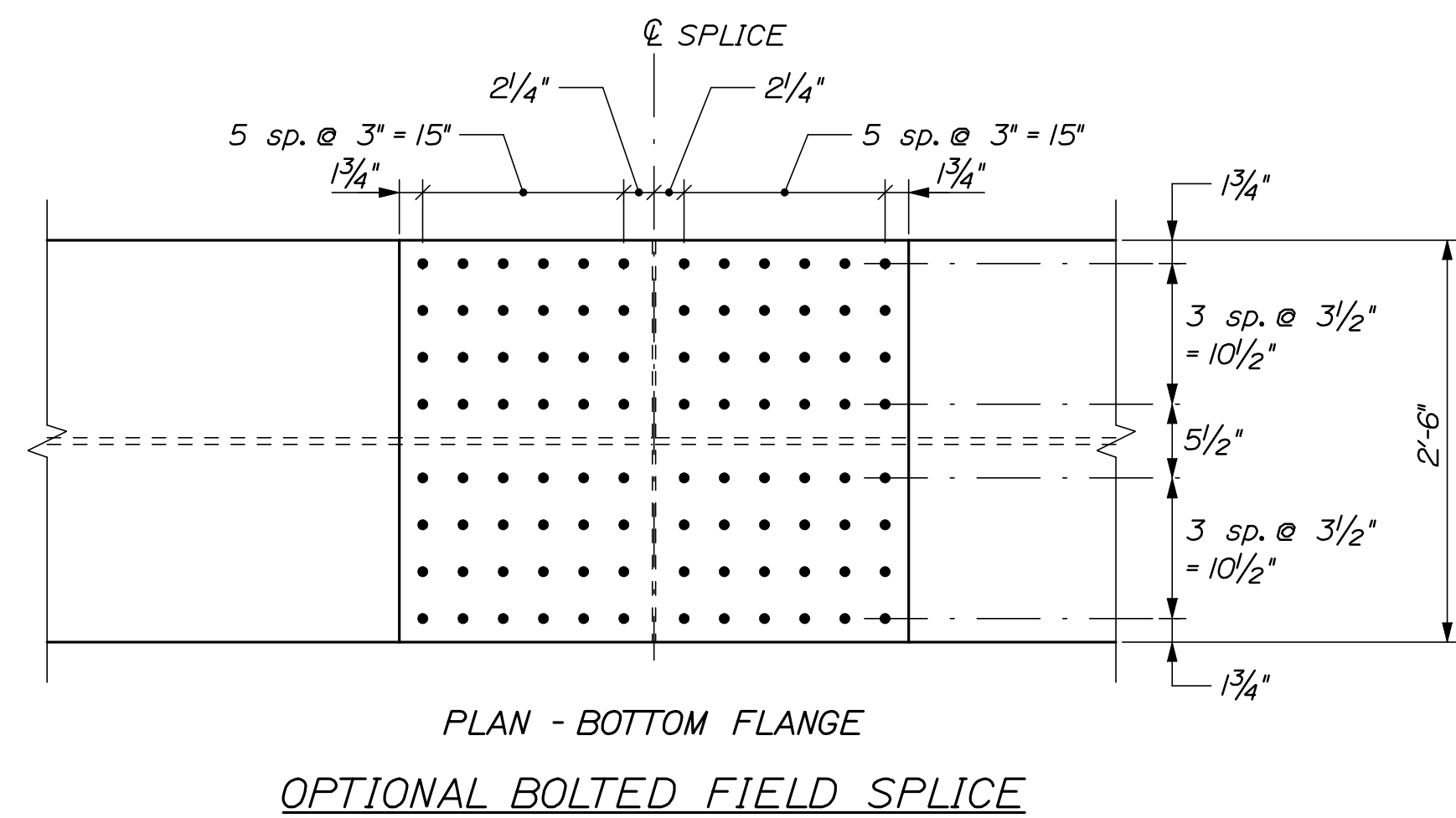
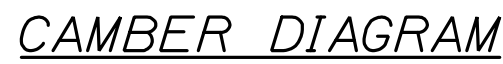
1. Deck reinforcing shown screened for clarity.

2. Where A506 or B506 do not intersect horizontal reinforcing, hook bar around vertical reinforcing.

SECOND OTTER BRIDGE OTTER STREAM MILFORD PENOBSCOT COUNTY	STATE OF MAINE DEPARTMENT OF TRANSPORTATION			
	BR-1666(700)X			
	BRIDGE NO. 2754 WIN 16667.00 BRIDGE PLANS			
ABUTMENT SECTIONS	PROJ. MANAGER	S. Bodge	BY	DATE
	DESIGN-DETAILED	A. Tower	M. Cundiff	01/13
	CHECKED-REVIEWED	J. Wough	T. Cote	01/13
	DESIGN-DETAILED	-	-	-
	REVISIONS 1	-	-	-
	REVISIONS 2	-	-	-
SHEET NUMBER	REVISIONS 3	-	-	-
	REVISIONS 4	-	-	-
FIELD CHANGES				
22				
OF 29				

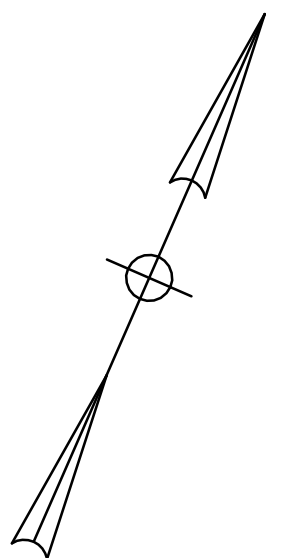


GIRDER	BOTTOM OF SLAB ELEVATIONS										
	℄ Brg., Abut. No. 1	0.1 x L	0.2 x L	0.3 x L	0.4 x L	0.5 x L	0.6 x L	0.7 x L	0.8 x L	0.9 x L	℄ Brg., Abut. No. 2
Exterior	112.24	112.64	112.98	113.22	113.38	113.43	113.38	113.22	112.98	112.64	112.24
Interior	112.41	112.85	113.20	113.47	113.64	113.69	113.64	113.47	113.20	112.85	112.41



GIRDER	DEAD LOAD COMPONENT	DEAD LOAD DEFLECTIONS (INCHES)										
		℄ Brg., Abut. No. 1	y1	y2	y3	y4	y5	y6	y7	y8	y9	℄ Brg., Abut. No. 2
Exterior	Steel Dead Load	0	-0.95	-1.80	-2.44	-2.86	-2.99	-2.86	-2.44	-1.80	-0.95	0
	Deck Concrete Load	0	-1.76	-3.30	-4.50	-5.24	-5.50	-5.24	-4.50	-3.30	-1.76	0
	Superimposed Dead Load	0	-0.64	-1.20	-1.63	-1.90	-1.99	-1.90	-1.63	-1.20	-0.64	0
Interior	Steel Dead Load	0	-0.97	-1.84	-2.50	-2.92	-3.06	-2.92	-2.50	-1.84	-0.97	0
	Deck Concrete Load	0	-2.15	-4.03	-5.48	-6.40	-6.71	-6.40	-5.48	-4.03	-2.15	0
	Superimposed Dead Load	0	-0.60	-1.13	-1.52	-1.79	-1.87	-1.79	-1.52	-1.13	-0.60	0

9. The ends of the girders and the end diaphragms shall be coated with a zinc-rich coating system in accordance with Special Provision Section 506 in a distance of 10 feet from the face to the abutments.

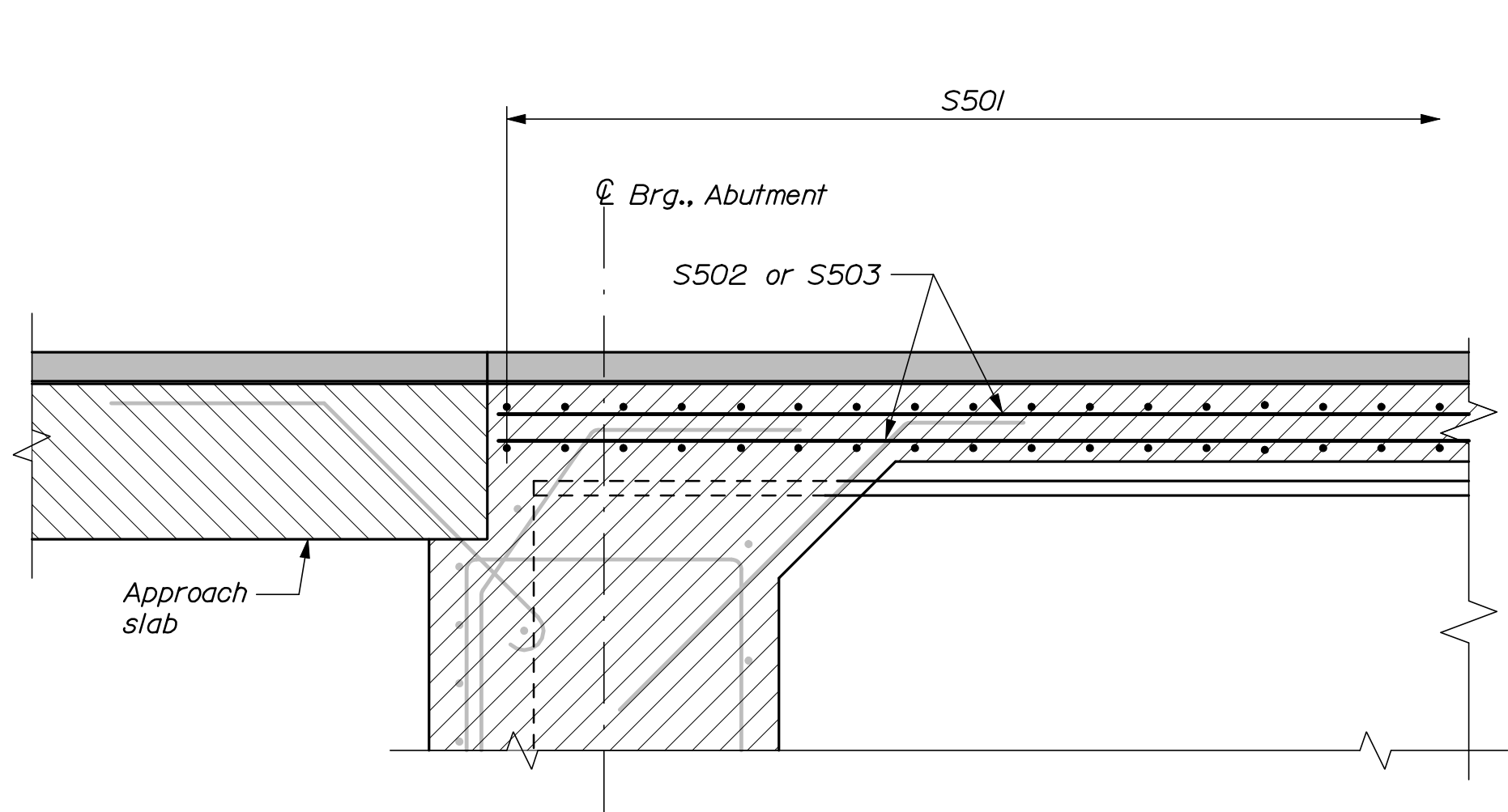


This diagram illustrates the cross-section of a bridge deck and its support structure. The bridge deck is supported by a central pier and two side piers, all constructed from concrete. The deck is composed of a 3" Hot Mix Asphalt Pavement over a 1/4" (Nom.) High Performance Waterproofing Membrane, which is supported by an 8" Structural Concrete Slab. The bridge deck is shown with a 2.0% slope. The bridge is supported by Welded Plate Girders (Typ.) which are connected to the concrete piers. The diagram includes various dimensions and labels for the different components and materials.

Labels and Dimensions:

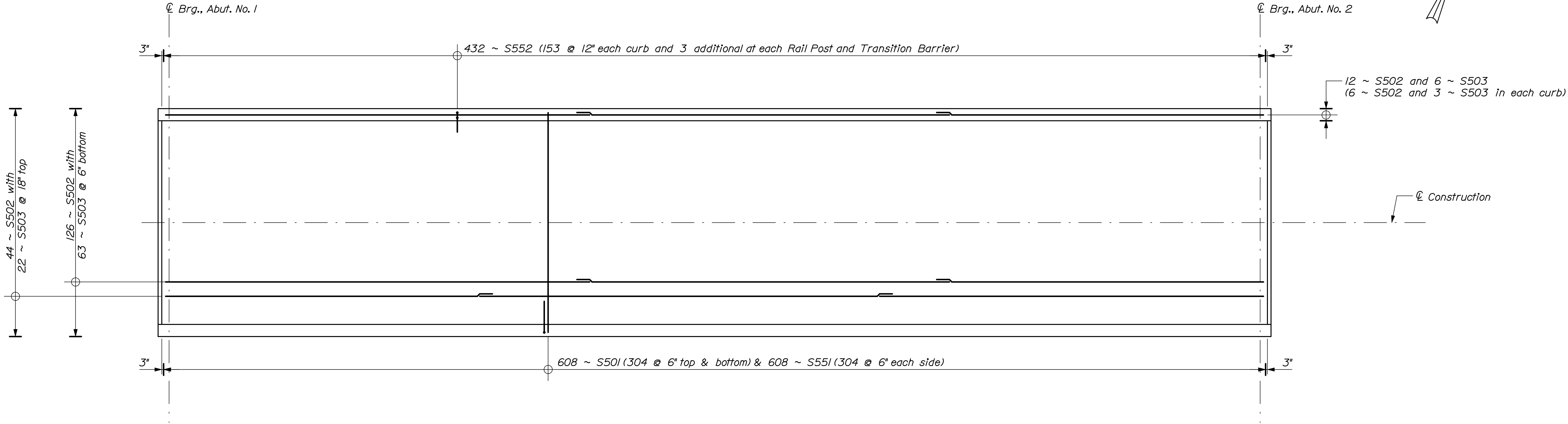
- Labels:**
 - Steel Bridge Railing ~ 2 Bar Traffic Railing (Typ.)
 - 9" Reveal (Typ.)
 - Welded Plate Girder (Typ.)
 - 3" Hot Mix Asphalt Pavement over 1/4" (Nom.) High Performance Waterproofing Membrane
 - 8" Structural Concrete Slab
 - Construction
- Dimensions:**
 - 15'-8" (Total width of the bridge deck)
 - 14'-0" (Width of the bridge deck excluding the railing)
 - 1'-8" (Width of the railing)
 - 2'-8" (Width of the bridge deck over the side pier)
 - 8'-8" (Width of the bridge deck over the central pier)
 - 4'-4" (Width of the bridge deck over the central pier)
 - 2'-8" (Width of the bridge deck over the side pier)
 - 2.0% (Slope of the bridge deck)

1. The theoretical blocking used for the structure is 3 1/2" inches (2" clear) at the centerline of bearing of the abutments. Refer to Standard Detail 502(02) for blocking details.
2. Reinforcing steel shall have a minimum concrete cover of 2" unless otherwise noted.
3. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.
4. The superstructure slab shall be placed in one continuous operation and shall be kept plastic until the entire placement has been made.
5. At the Contractor's option, Precast Deck Panels may be used in place of the full depth cast-in-place deck slab, in accordance with Special Provisions Section 502, Structural Concrete - Precast Deck Panels, and in accordance with the Standard Details.
6. Payment for the reinforcing steel fabricated, delivered, and placed in the cast-in-place portion of the structural concrete slab will be considered incidental to the appropriate Section 502 pay item.
7. Provide 3 additional stirrups in the curbs at each Transition Barrier location.
8. The Contractor shall install Transition Barrier vertical closed stirrups, as shown in Standard Details Section 526, prior to the placement of the curb or sidewalk concrete.

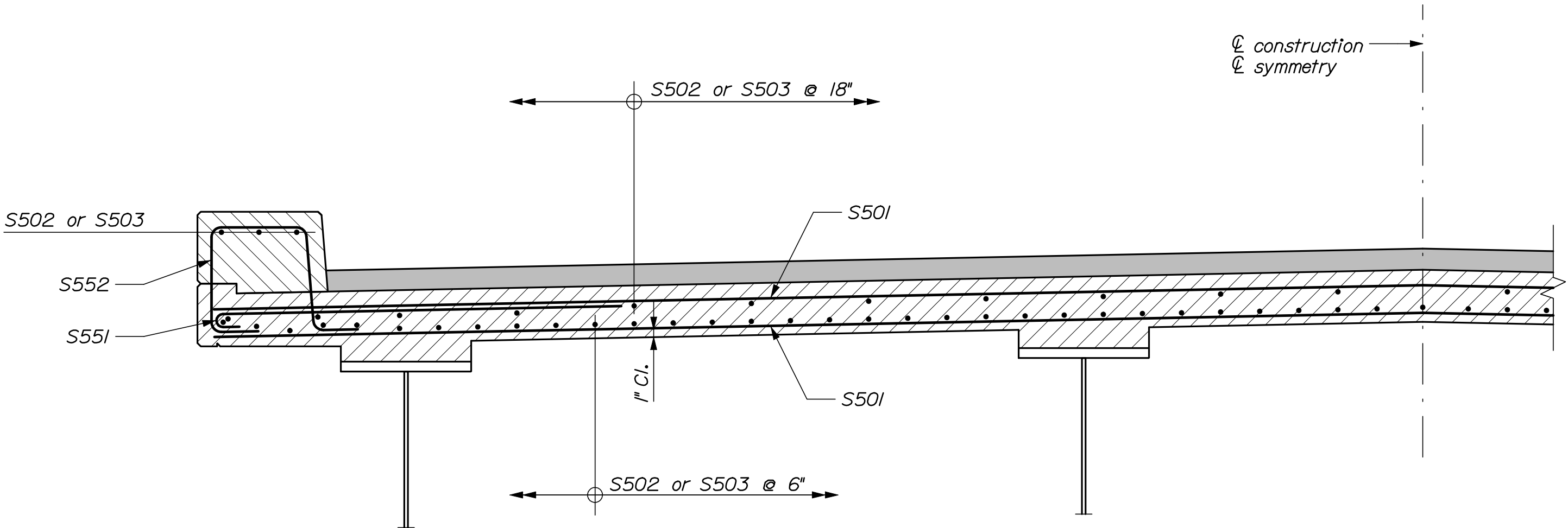


PARTIAL LONGITUDINAL SECTION

NOTE:
 Abutment and approach slab reinforcing shown screened for clarity.



SUPERSTRUCTURE REINFORCING PLAN



PARTIAL TRANSVERSE SECTION

SHEET NUMBER										STATE OF MAINE									
26										DEPARTMENT OF TRANSPORTATION									
										BR-1666(700)X									
										WIN 16667.00									
BRIDGE NO. 2754										BRIDGE PLANS									
SECOND OTTER BRIDGE																			
OTTER STREAM																			
MILFORD																			
PENOBSCOT COUNTY																			
SUPERSTRUCTURE REINFORCING																			
PROJ. MANAGER																			
S. Bodge																			
BY																			
DATE																			
DESIGN-DETAILED																			
J. Waugh																			
M. Cundiff																			
01/13																			
CHECKED-REVIEWED																			
A. Tower																			
T. Cote																			
01/13																			
SIGNATURE																			
DESIGN2-DETAILED2																			
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DESIGN3-DETAILED3																			
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FIELD CHANGES																			
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HNTB

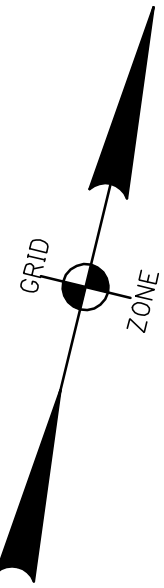
Date:1/31/2013

Username: MCundiff

Division: BRIDGE

Filename: 028_RWPLAN1.dgn

THIS AREA SEE SURVEY FOR
DEMONT SUBDIVISION PLAN
BY S.J. PLISGA, JR.
MARCH 5, 1976
PENOBSCOT COUNTY REGISTRY OF DEEDS
MAP FILE NO. 601



CURVE DATA #3
PI = 27+91.35
D = 5°43'46.5"
Δ = 15°51'06.7" Lt.
R = 1000.00'
L = 276.66'
T = 139.22'
E = 9.64'

CHERYL A. JONES
SCOTT E. JONES
ITEM NO. (1)
SLOPE EASE. = 0.10± AC. (1)
DRAINAGE EASE. = 0.05± AC. (1)
TEMP. ROAD RIGHTS = 0.25± AC. (1)
TOTAL AREA = 1.21± AC. (PER SURVEY)

OUTLET DRAINAGE STRUCTURE
STA. 27+50 TO 28+65 LT.

JEFFERY P. RANDALL
RAQUEL P. RANDALL
PARCEL NO. (2)
LAND TAKEN = 892± S.F. (UNDERWATER)
LAND TAKEN = 1182± S.F. (OTHER)
TOTAL LAND TAKEN = 0.05± AC.
SLOPE EASE. = 1028± S.F. (2)
TOTAL AREA = 7± AC. (PER TOWN)
REM. AREA = 6.95± AC.

R/W REFERENCES
PENOBSCOT COUNTY COMM. RECORDS
VOL. 5, PAGE 330
1854, 4 RODS
PENOBSCOT COUNTY COMM. RECORDS
VOL. 7, PAGE 28
1861, 4 RODS
SEE ALSO:
S.H.C. FILE NO. S-10-162
1961, SHEET 1 OF 1
PENOBSCOT COUNTY R.O.D.
BOOK 26, PAGE 75

CURVE DATA #2
PI = 23+76.09
D = 1°54'35.5"
Δ = 1°28'20.4" Rt.
R = 3000.00'
L = 77.09'
T = 38.55'
E = 0.25'

REVISIONS				PLAN FILED IN PLAN BOOK		PAGE		COUNTY RECORD	
NO.	DATE	DESCRIPTION	BY	NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE
								</	

BRIDGE NO. 2754

SECOND OTTER BRIDGE
OVER
OTTER STREAM

WIN 16667.00

TOWN WAY
COUNTY ROAD
MILFORD
PENOBSCOT COUNTY
FEDERAL AID PROJECT NUMBER BR-1666(700)X

NOVEMBER 2012
SCALE 1" = 25'
RIGHT-OF-WAY MAP
SHEET 1 OF 2
D.O.T. FILE NO. 10-480

SHEET NUMBER

28

OF 29

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016
MILFORD
RIGHT OF WAY MAP

SYMBOLS		CHECKED	
• IP or • IIP	(IRON PIPE or PIN FOUND)	TECH	ITEM
□ S.T.	(SEPTIC TANK)	BASE MAP	BASE MAP
Δ BM	(BENCHMARK)	EXIST. R/W	EXIST. R/W
—	GRADING LIMIT LINE	PROP. LINES	PROP. LINES
—	CONSTRUCTION LIMIT LINE	AREAS	AREAS
—	PROPERTY LINE		
—	LIMITS OF WRIGHT PORTION (LOW P.)		
—	EXISTING RIGHT OF WAY		
—	NEW RIGHT OF WAY		
—	NEW ROW WITHIN EXIST. ROW		
—	CONTROL OF ACCESS		

Date:1/31/2013

Username: MCundiff

Division: BRIDGE

Filename: 029_RWPLAN2.dgn

THIS AREA SEE SURVEY
FINAL SUBDIVISION PLAN OF THE
OTTER CHAIN OVERLOOK SUBDIVISION
FOR ELIOT & KAREN ESTABROOK
MAY 29, 1990
PENOBSCOT REGISTRY OF DEEDS
D 106-90

CHERYL A. JONES
SCOTT E. JONES
ITEM NO. (1)
SLOPE EASE. = 0.10± AC. (1)
DRAINAGE EASE. = 0.05± AC. (1)
TEMP. ROAD EASE. = 0.25± AC. (1)
TOTAL AREA = 1.21± AC. (PER SURVEY)

GREGORY A. BOSSE
HELEN L. BOSSE
ITEM NO. (3)
SLOPE EASE. = 0.06± AC. (2)
TEMP. ROAD EASE = 0.43± AC. (1)
TOTAL AREA = 1.9± AC. (PER SURVEY)

JEFFERY P. RANDALL
RAQUEL P. RANDALL
PARCEL NO. (2)
LAND TAKEN = 892± S.F. (UNDERWATER)
LAND TAKEN = 1182± S.F. (OTHER)
TOTAL LAND TAKEN = 0.05± AC.
SLOPE EASE. = 1028± S.F. (2)
TOTAL AREA = 7± AC. (PER TOWN)
REM. AREA = 6.95± AC.

R/W REFERENCES

PENOBSCOT COUNTY COMM. RECORDS
VOL. 5, PAGE 330
1854, 4 RODS

PENOBSCOT COUNTY COMM. RECORDS
VOL. 7, PAGE 28
1861, 4 RODS

SEE ALSO:

S.H.C. FILE NO. S-10-162
1961, SHEET 1 OF 1
PENOBSCOT COUNTY R.O.D.
BOOK 26, PAGE 75

CURVE DATA #4
PI = 34+12.83
D = 13°48'22.4"
Δ = 44°04'37.8" Rt.
R = 415.00'
L = 319.25'
T = 168.00'
E = 32.71'

MARK H. DALTON
DONNA C. DALTON
PARCEL NO. (4)
LAND TAKEN = 990± S.F. (UNDERWATER)
LAND TAKEN = 2716± S.F. (OTHER)
TOTAL LAND TAKEN = 0.09± AC.
SLOPE EASE. = 1233± S.F. (1)
TOTAL AREA = 1.5± AC. (PER DEED)
REM. AREA = 1.41± AC.

DAVID PREBLE
SHERRY PREBLE

ANDREW HOLMES

ROBERT S. SCOTT

CLARENCE THERIAULT
PAULETTE THERIAULT

THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION
OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CANNOT BE USED TO
ESTABLISH LEGAL BOUNDARIES BETWEEN ADJUTING PROPERTY OWNERS.

SYMBOLS	
• IP or • IIP (IRON PIPE or PIN FOUND)	○ (WELL)
□ S.T. (SEPTIC TANK)	— GRADING LIMIT LINE
△ BM (BENCH MARK)	— CONSTRUCTION LIMIT LINE
△ BM (BENCH MARK)	— PROPERTY LINE
— WATER LINE	— PL
— GAS LINE	— LIMITS OF WRIGHT PORTION (LOW.P.)
— TELEPHONE LINE	— EXISTING RIGHT OF WAY
— SEWER LINE	— NEW RIGHT OF WAY
	— NEW ROW WITHIN EXIST. ROW
	— CONTROL OF ACCESS

CHECKED	
ITEM	TECH
BASE MAP	BDM
EXIST. R/W	BDM
PROP. LINES	BDM
AREAS	BDM

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016
MILFORD
RIGHT OF WAY MAP

REVISIONS			PLAN FILED IN PLAN BOOK						COUNTY RECORD	
NO.	DATE	DESCRIPTION	BY	NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE	

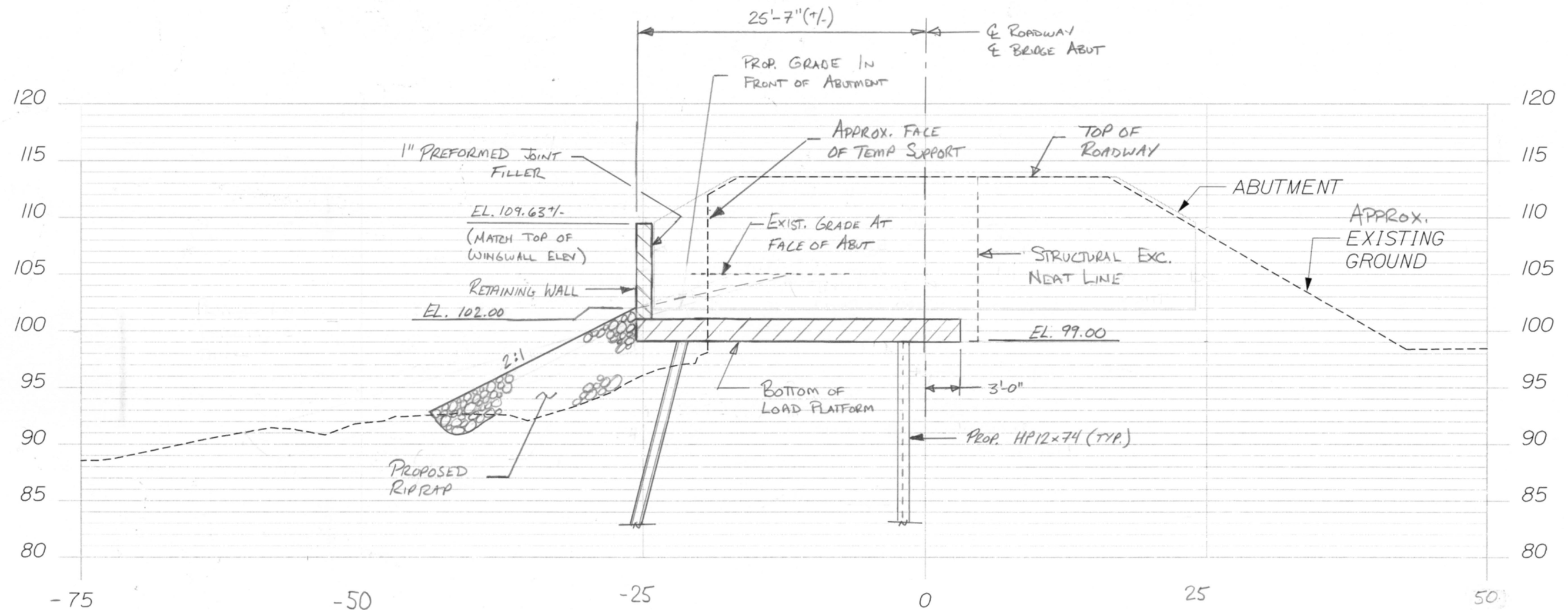
DAVID BERNHARDT
COMMISSIONER
KENNETH L. SWEENEY
CHIEF ENGINEER

DATE

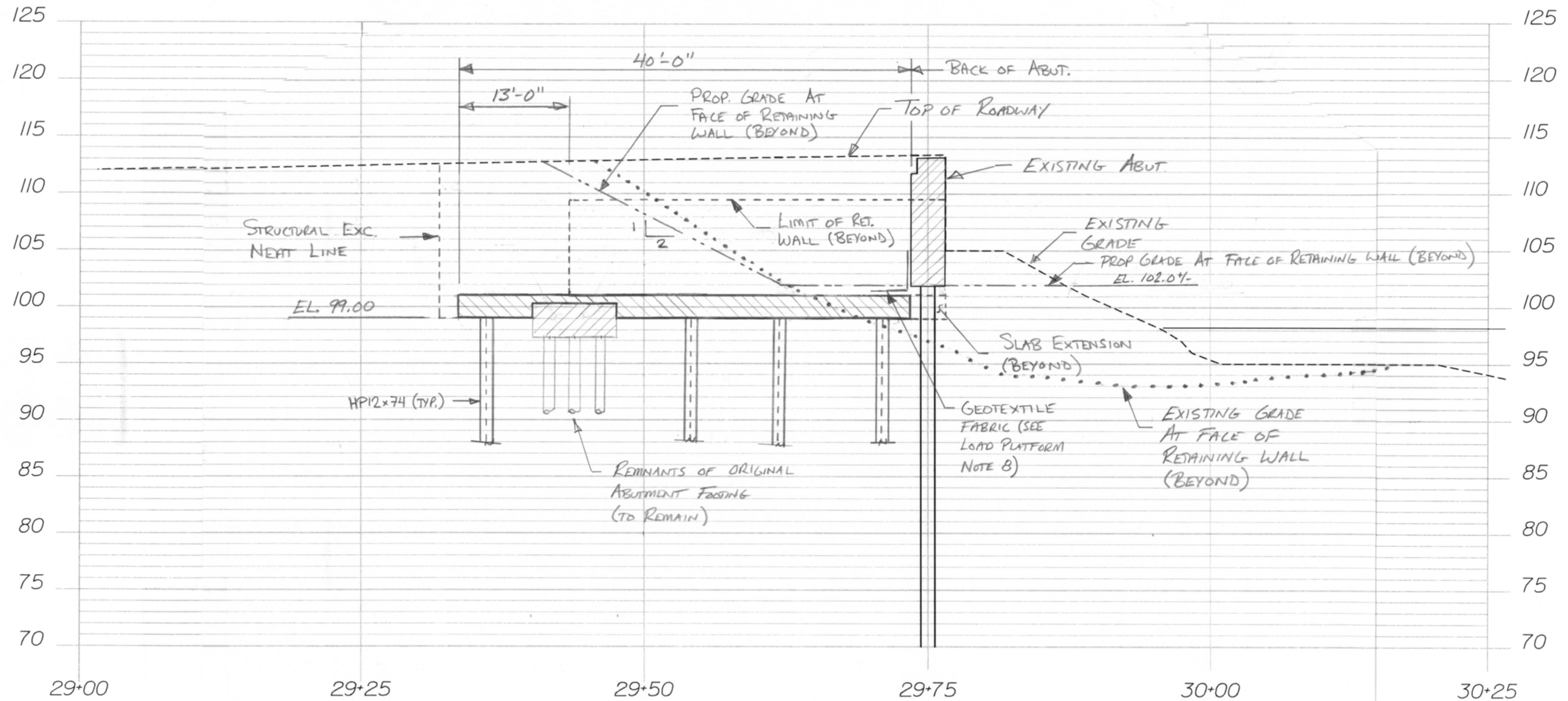
TOWN WAY
COUNTY ROAD
MILFORD
PENOBSCOT COUNTY
FEDERAL AID PROJECT NUMBER BR-1666(700)X
NOVEMBER 2012
SCALE 1" = 25'
RIGHT-OF-WAY MAP
SHEET 2 OF 2
D.O.T. FILE NO. 10-480

SHEET NUMBER
29
OF 29



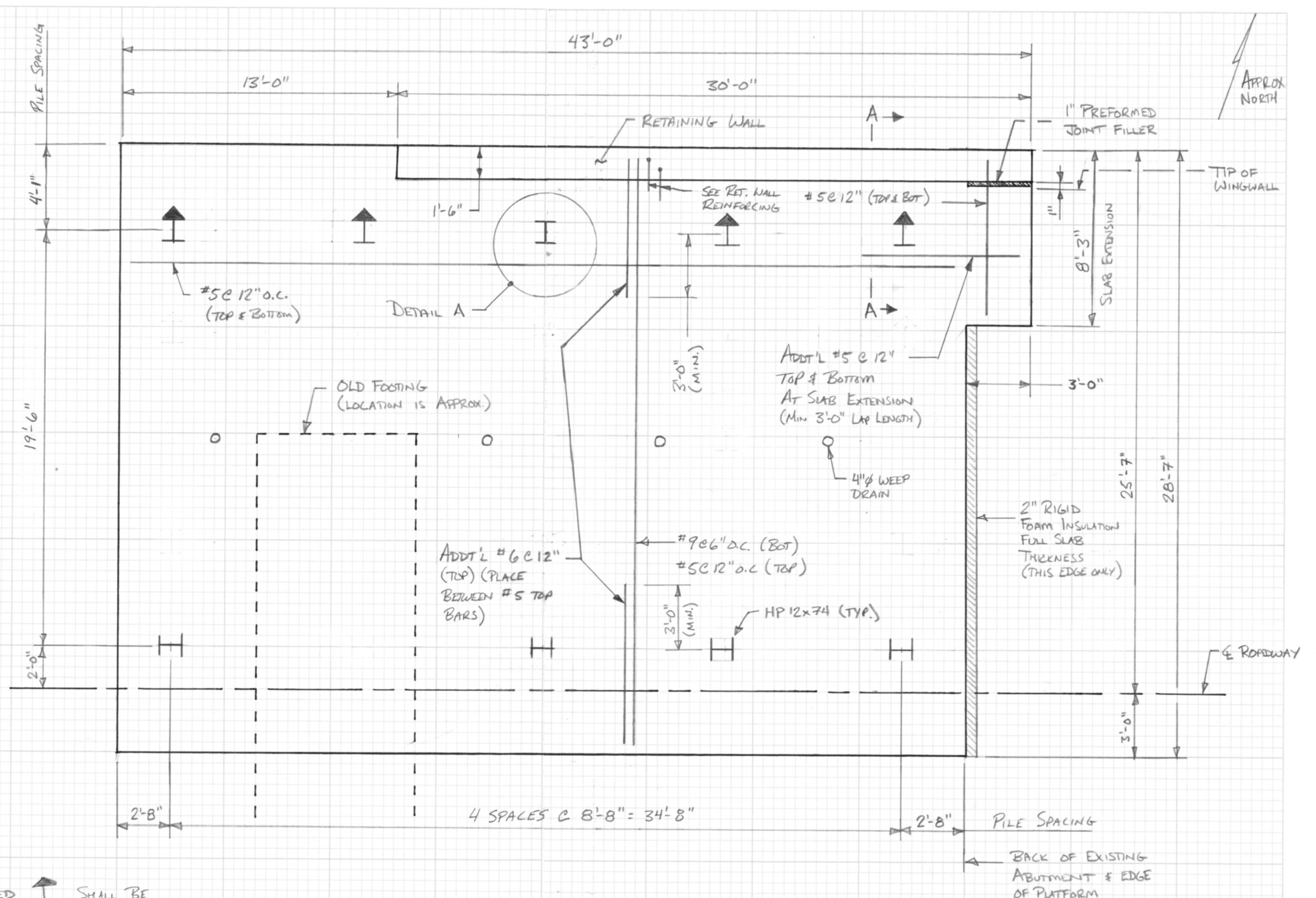


SECTION A-A



SECTION B-B

NOTE: APPROACH SLAB NOT SHOWN

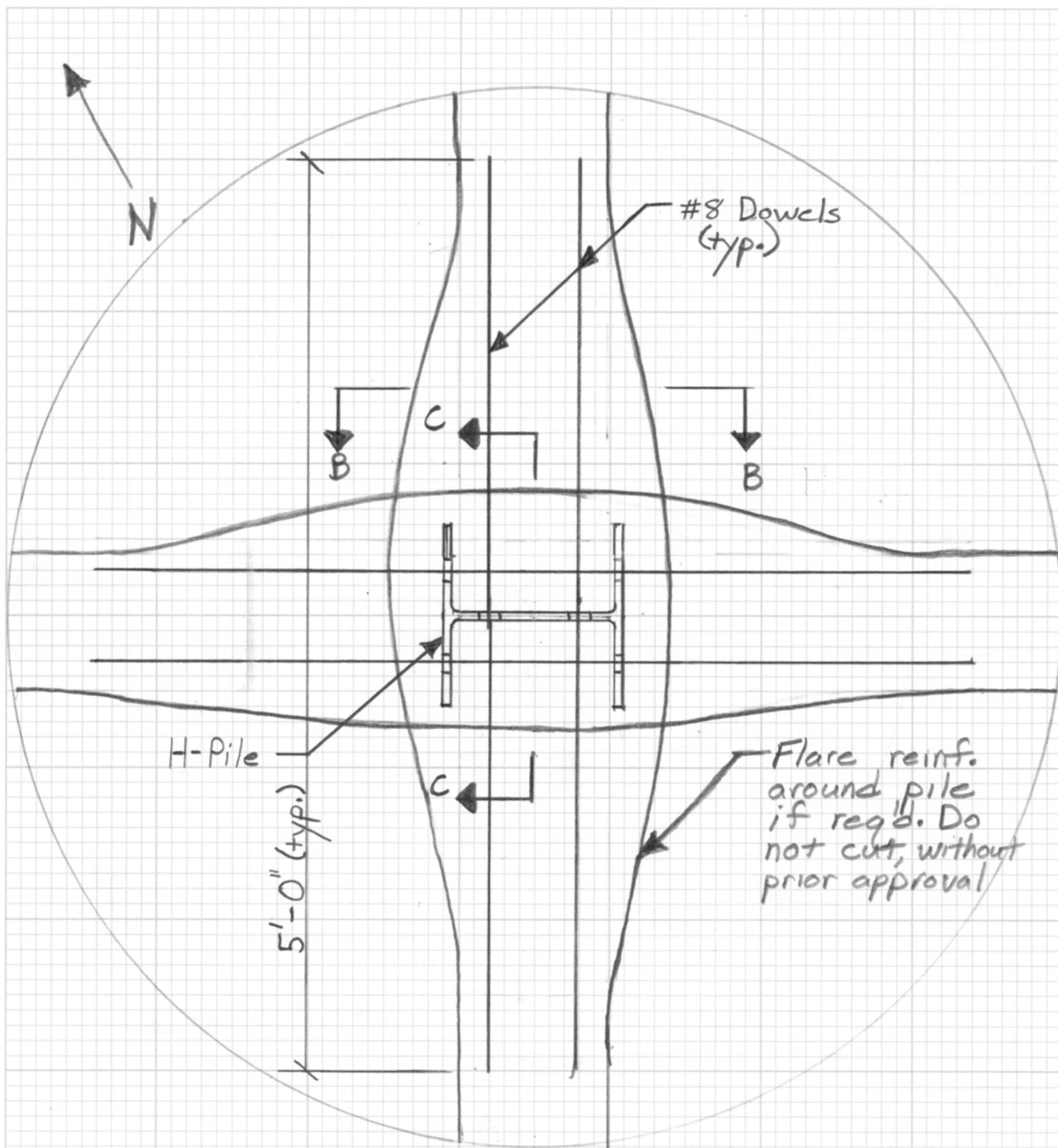


NOTE: PILES MARKED  SHALL BE
BATTERED AT 3"/FOOT IN THE DIRECTION
OF THE ARROW

SLAB PLAN

Calculations for	Job No.	Sheet No. 5/8
Made by JDW	Date 8/7/14	
Checked by KEB	Date 8/7/14	
Backchecked by	Date	

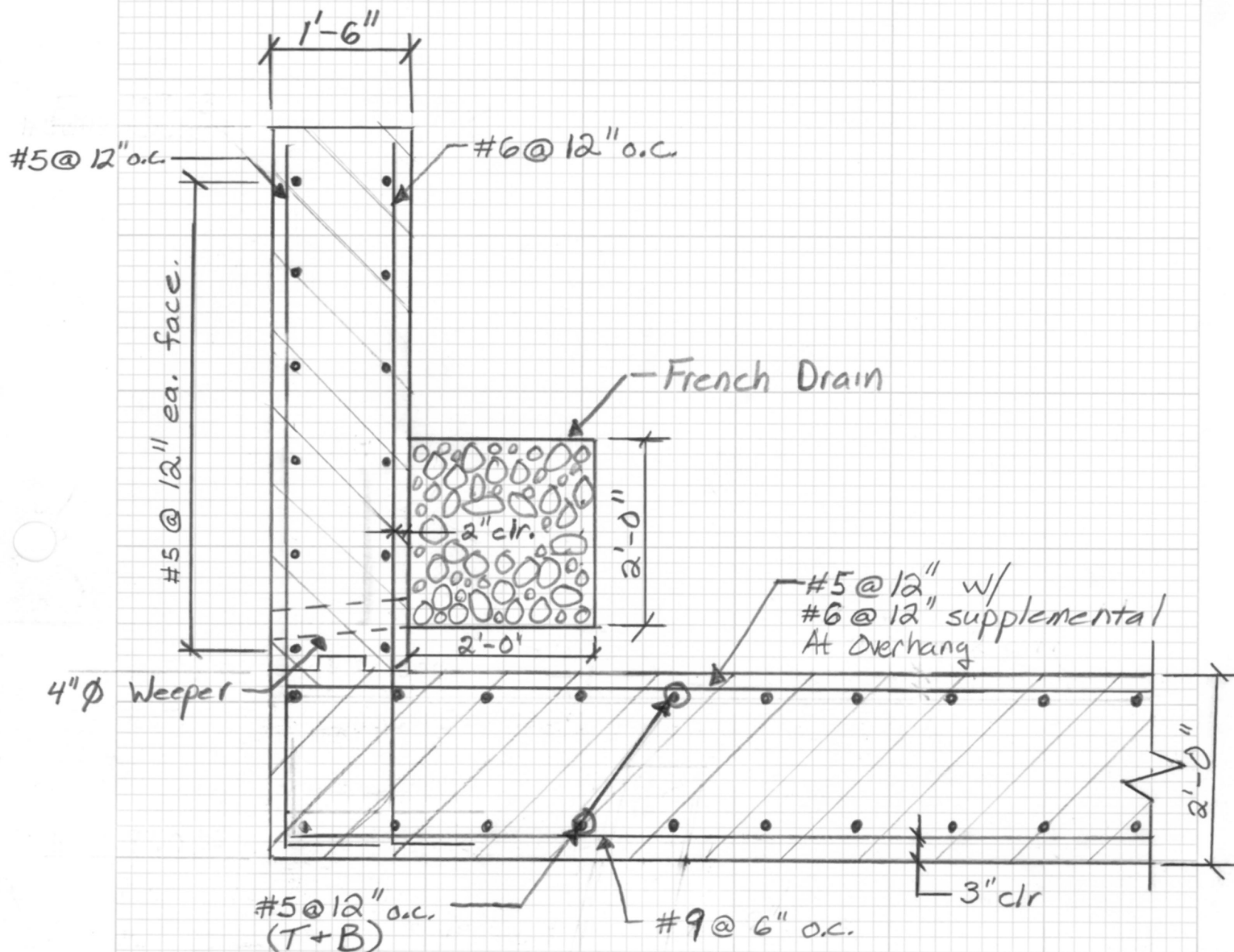
HNTB



Detail A

Calculations for	Job No.	Sheet No. 6/8
Made by JDW	Date 8/7/14	
Checked by KED	Date 8/7/14	
Backchecked by	Date	

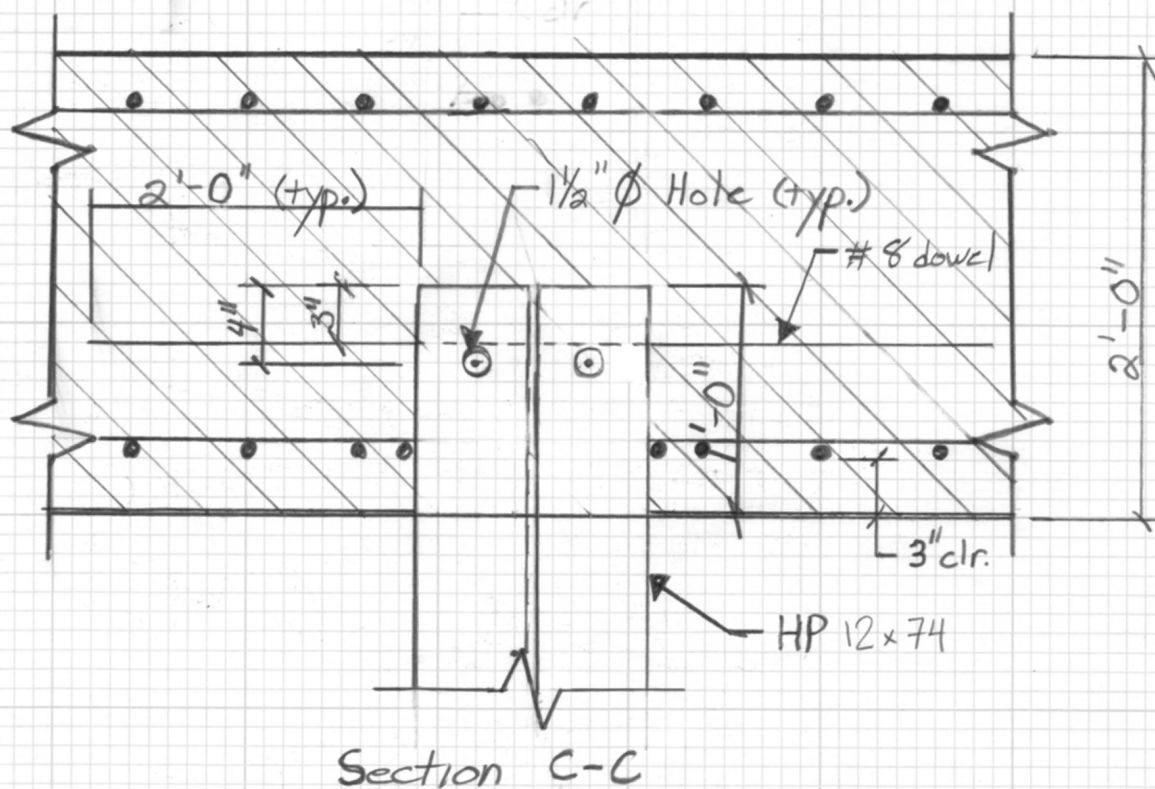
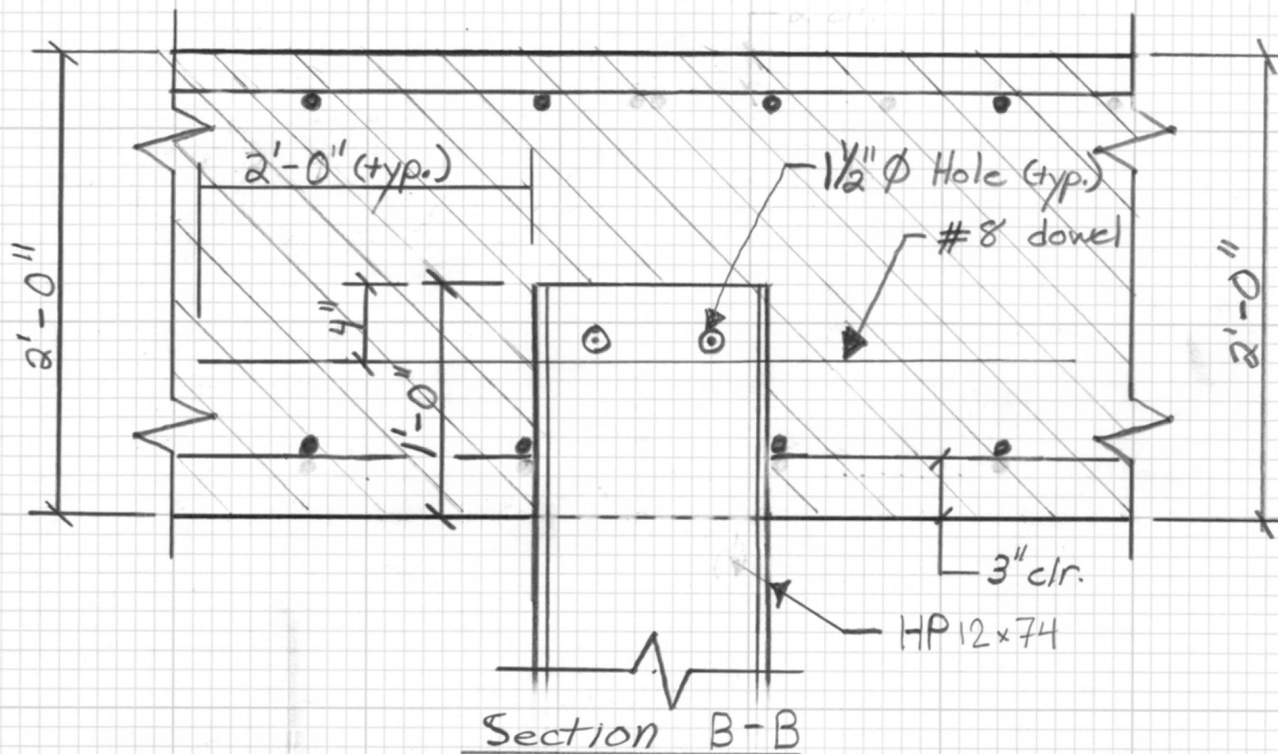
HNTB



Section A-A

Calculations for	Job No.	Sheet No. 7/8
Made by JDW	Date 8/7/14	
Checked by KEB	Date 8/7/14	
Backchecked by	Date	

HNTB



Calculations for	Job No.	Sheet No. 8/8
Made by T. COLE	Date 8/2/14	
Checked by JDW	Date 8/7/14	
Backchecked by	Date	

HNTB

