STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Eigth Edition, 2017.

DESIGN LOADING

Live Load .... HL - 93 Modified for Strength I

TRAFFIC DATA

Current (2018) AADT	5,360
Future (2038) AADT	6,430
DHV - % of AADT	10%
Design Hour Volume	643
% Heavy Trucks (AADT)	3%
% Heavy Trucks (DHV)	3%
Directional Distribution (DHV)	60%
18 kip Equivalent P 2.0	59
18 kip Equivalent P 2.5	56
Design Speed (mph)	25

MATERIALS

Concrete:
- Curbs and Transition Barriers .... Class "LP"
- All Other .... Class "A"

Reinforcing Steel
- Stainless Steel .... ASTM A955/A955M, Grade 75

Structural Steel:
- All Material (except as noted) .... ASTM A709, Grade 50 (Metalized)
- High Strength Bolts .... ASTM F3125, Grade A325 Type 1 (Galvanized)

BASIC DESIGN STRESSES

Concrete:
- Class "LP" .... f'c = 5,000 psi
- Class "A" .... f'c = 4,000 psi

Reinforcing Steel:
- Stainless .... f y = 75,000 psi

Structural Steel:
- ASTM A709, Grade 50 .... F y = 50,000 psi
- ASTM F3125, Grade A325, Type 1 .... F μ = 120,000 psi

FALMOUTH
CUMBERLAND COUNTY
LUNT ROAD BRIDGE
OVER
INTERSTATE 295
PROJECT NO. 021723.00
PROJECT LENGTH 0.12 mi
BRIDGE NO. 5829

INDEX OF SHEETS

UTILITIES

Consolidated Communications

MAINTENANCE OF TRAFFIC

Maintain One Lane of Alternating One-Way Traffic on the Existing Bridge, Using Temporary Traffic Signals.

PROJECT LOCATION:	On Lunt Road Over Interstate 295 Latitude 43°43'27" N Longitude 70°14'33" W
PROGRAM AREA:	Bridge Program
OUTLINE OF WORK:	Bridge Replacement

wsp

STATE OF MAINE DEPARTMENT OF TRANSPORTATION

APPROVED | DATE
COMMISSIONER: 8/6/18
CHIEF ENGINEER: 8-6-18

STATE OF MAINE Adam M. Stockin D12202 LICENSED PROFESSIONAL ENGINEER

SIGNATURE D12202
P.E. NUMBER July 31, 2018
DATE

PROJECT INFORMATION

PROGRAM	BRIDGE PROGRAM
PROJECT MANAGER	JOEL KITTREDGE
DESIGNER	ADAM STOCKIN, P.E.
CONSULTANT	WSP USA
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

WIN 21723.00

021723.00

FALMOUTH
LUNT ROAD BRIDGE
TITLE SHEET

SHEET NUMBER 1 OF 46

Filename:\CADD\001_TITLE.dgn Division: Username: Date:7/31/2018

ESTIMATED QUANTITIES

ITEM NO.	ITEM DESCRIPTION		QUANTITY	UNIT
202.13	Removing Existing Railings - Retained by Department		500	LF
202.15	Removing Manhole or Catch Basin		1	EA
202.19	Removing Existing Bridge		1	LS
202.202	Removing Pavement Surface		290	SY
203.20	Common Excavation		1060	CY
203.24	Common Borrow		420	CY
203.25	Granular Borrow		600	CY
206.082	Structural Earth Excavation - Major Structures		790	CY
206.092	Structural Rock Excavation - Major Structures		20	CY
304.10	Aggregate Subbase Course - Gravel		700	CY
403.208	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size		130	TON
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals)		41	TON
403.211	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Shimming)		13	TON
403.213	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base Course)		155	TON
409.15	Bituminous Tack Coat, Applied		75	GAL
501.231	Dynamic Loading Test		1	EA
501.50	Steel H-Beam Piles 89 lbs/ft, delivered		330	LF
501.501	Steel H-Beam Piles 89 lbs/ft, in place		205	LF
501.502	Rock Socketed H-Piles HP14x89 lbs/ft, In Place		125	LF
501.804	Drilling Equipment Mobilization		1	LS
501.90	Pile Tips		5	EA
501.91	Pile Splices		5	EA
501.92	Pile Driving Equipment Mobilization		1	LS
502.219	Structural Concrete, Abut & Ret Walls	(143 CY)	1	LS
502.23	Structural Concrete Piers		34	CY
502.239	Structural Concrete Piers	(125 CY)	1	LS
502.26	Structural Concrete Roadway and Sidewalk Slabs on Steel Bridges	(270 CY)	1	LS
502.291	Saw Cut Grooving	(7040 SF)	1	LS
502.31	Structural Concrete Approach Slabs	(24 CY)	1	LS
502.49	Structural Concrete Curbs and Sidewalks	(64 CY)	1	LS
503.17	Mechanical Welded Splice		1037	EA
503.26	Stainless Steel Reinforcement - Fabricated & Delivered		151500	LB
503.27	Stainless Steel Reinforcement - Placing		151500	LB
504.702	Structural Steel Fabricated & Delivered, Welded	(304800 LB)	1	LS
504.71	Structural Steel Erection	(304800 LB)	1	LS
505.08	Shear Connectors	(3150 EA)	1	LS
506.9104	Thermal Spray Coating - Shop Applied		1	LS
507.0821	Steel Bridge Railing, 3-Bar	(211 LF)	1	LS
507.0831	Steel Bridge Railing, 4-Bar	(211 LF)	1	LS
513.22	Crushed Stone Slope Protection		520	SY
514.06	Curing Box for Concrete Cylinders		1	EA
515.21	Protective Coating for Concrete Surfaces	(1420 SY)	1	LS
520.232	Expansion Device - Asphaltic Plug Joint		68	LF
523.52	Bearing Installation		5	EA
523.5401	Laminated Elastomeric Bearings, Fixed		5	EA
524.301	Temporary Structural Support - Approaches		1	LS
524.301	Temporary Structural Support - Pier		1	LS
524.40	Protective Shield over I-295		1	LS
526.301	Temporary Concrete Barrier - Type I	(1500 LF)	1	LS
526.305	Temporary Concrete Barrier, Braced Type I	(300 LF)	1	LS
526.34	Permanent Concrete Transition Barrier		4	EA
527.34	Work Zone Crash Cushions		6	UN

ESTIMATED QUANTITIES

ITEM NO.	ITEM DESCRIPTION		QUANTITY	UNIT
603.179	18 inch Culvert Pipe Option III		140	LF
604.092	Catch Basin Type B1-C		4	EA
604.18	Adjust Manhole or Catch Basin to Grade		3	EA
606.1301	31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, Single Faced)		325	LF
606.1303	31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, 15' Radius and Less)		20	LF
606.1305	31" W-Beam Guardrail - Mid-Way Splice Flared Terminal (31" Height)		2	EA
606.1306	31" W-Beam Guardrail - Mid-Way Splice Tangent Terminal (31" Height)		1	EA
606.1307	Bridge Transition (Asymmetrical)		4	EA
606.265	Terminal End - Single Rail - Galvanized Steel		3	EA
606.353	Reflectorized Flexible Guardrail Marker		7	EA
606.36	Guardrail Removed and Reset		130	LF
607.183	Chain Link Snow Fence 33 Inch	(240 LF)	1	LS
607.25	Remove and Reset Chain Link Fence		155	LF
608.08	Reinforced Concrete Sidewalk		3	SY
608.26	Curb Ramp Detectable Warning Field		15	SF
609.238	Terminal Curb Type 1 - 8 foot		1	EA
609.31	Curb Type 3		455	LF
613.319	Erosion Control Blanket		1550	SY
615.07	Loam		88	CY
618.14	Seeding Method Number 2		15	UN
619.12	Mulch		15	UN
619.14	Erosion Control Mix		88	CY
620.58	Erosion Control Geotextile		580	SY
620.66	Drainage Geocomposite		93	SY
627.18	12 inch Solid White Pavement Marking Line		73	LF
627.733	4" White or Yellow Painted Pavement Marking Line		2480	LF
627.77	Removing Existing Pavement Marking		195	SF
627.78	Temporary 4" Painted Pavement Marking Line, White or Yellow		900	LF
629.05	Hand Labor, Straight Time		100	HR
631.12	All Purpose Excavator (Including Operator)		20	HR
631.172	Truck - Large (Including Operator)		20	HR
639.18	Field Office Type A		0.5	EA
643.72	Temporary Traffic Signal - Lunt Road		1	LS
643.80	Traffic Signals at Bucknam Road/Legion Road/I-295 NB Ramp		1	LS
645.251	Roadside Guide Signs, Type I		5	SF
652.30	Flashing Arrow Board		4	EA
652.312	Type 3 Barricade		12	EA
652.33	Drum		150	EA
652.34	Cone		50	EA
652.35	Construction Signs		1650	SF
652.361	Maintenance of Traffic Control Devices	(136 CD)	1	LS
652.38	Flagger		200	HR
652.381	Traffic Officer		328	HR
652.41	Portable Changeable Message Sign		9	EA
656.75	Temporary Soil Erosion and Water Pollution Control		1	LS
659.10	Mobilization		1	LS

Earthwork Summary

Common Excavation for Estimate		
Common Ex (From Cross Sections and Plan Areas)	834.4	
Common Excavation from Driveways	12.3	
Grubbing in Fill	206.2	
Total		1053.0
Fill for Borrow Calculations		
Common Fill (From Cross Sections)	822.7	
Common Fill from Driveways	8.1	
Grubbing in Fill	206.2	
Total Fill		1036.9
Rock Excavation		
Rock Excavation (Assumed Quantity - 2% of Commo	30.0	
Structural Rock Excavation (Assumed Quantity - 1% c	10.5	
Total Rock Excavation		40.5
Available Common Excavation for Borrow Calculations		
(1) Total Common Excavation		1053.0
Deductions:		
Grubbing in Fill	206.2	
Pavement Removal	141.2	
(2) Total Deductions		347.4
Total Available Common Excavation (1) Minus (2)		665.0
Total Available Non-Rock Excavation		624.5
Computation of Waste Material		
Grubbing in Fill	206.2	
Pavement Removal	141.2	
Total Waste Material		347.4
Computation of Common Borrow for Estimate		
(3) Total Fill		1036.9
Total Available Non-Rock Excavation (x0.90)	562.0	
Total Available Rock Excavation (x1.30)	39.0	
Total Available Structural Rock Excavation (x1.30)	13.7	
(4) Total Available Excavation		614.7
Borrow Required = Total Fill Minus Total Available Excavation		412.5
Surplus Material = Available Excavation Minus		347.4

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

Bridge No. 5829

	BY	DATE
J. KITTREDGE		
AGP	WEG	7/18
TWP	TWP	7/18

SIGNATURE

P.E. NUMBER

DATE

PROJ. MANAGER	
DESIGN-DETAILED	
CHECKED-REVIEWED	
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

ESTIMATED QUANTITIES

SHEET NUMBER

2

OF 46

Date: 8/6/2018

Username:

Division:

Filename: ...\CADD\002_Quantities.dgn

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 lbe considered incidental to Contract Items.

2. Single tree and stump removal shall be considered incidental to Contract Items.

3. Do not excavate for Aggregate Subbase Course where existing material is suitable, as determined by the Resident.

4. 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.

5. Place loam 2 inches deep on all new or reconstructed side slopes, or as directed by the Resident.

6. An NCHRP 350 or MASH compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail. No exposed ends are allowed.

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

   All exposed surfaces of concrete curbs, sidewalk, fascias down to the drip notch, all exposed surfaces of new abutments, piers and wingwalls to one foot below grade.

8. Project information referred to below may be accessed at the following MaineDOT web address: http://www.maine.gov/contractors/*projecttbl

9. 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 during its life span.

10. The project geotechnical reports titled: "Geotechnical Design Report, Lunt Road Bridge over I-295 No. 5829, MaineDOT WIN 21723.00, Falmouth, Maine" dated June 2018, may be accessed at the MaineDOT web address.

11. 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 Bidders' 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.

12. 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 adjsutments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.

13. 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 demolition of the existing bridge shall be undertaken by the Contractor until MaineDOT has reviewed and approved 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 items.

14. 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 component 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 Environmnetal Protection's "Maine Hazardous Waste Management Regulations," Chapter 850. A copy of this regulation is available at Maine DOT'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.

15. Location of utilities shown are approximate and should be verified in the field by the Contractor.

16. The Contractor shall plan and conduct the work accordingly so that upon final completion of the project there is no drop-off from the edge of shoulder pavement.

17. All waste material not used on the project shall be disposed of off the project in waste areas approved by the Resident at the cost of the Contractor.

18. No existing drainage shall be abandoned, removed, or plugged without prior approval of the Resident.

19. Paved entrances shall be constructed with:
   2" Hot Mix Asphalt and
   12" Aggregate Subbase Course - Gravel

20. Driveway fill side slopes shall be the same as the non-guardrail fill slopes unless otherwise noted on the plans.

21. Coordinates shown throughout these plans are given as a convenience to the Contractor and are in no way intended to relieve the Contractor's responsibilities under Section 105, General Scope of Work.

22. Connections for proposed guardrail to existing guardrail will be incidental to item 606.

23. No separate payment for superintendent or foreman will be made for the supervision of equipment being paid for under the equipment rental items.

24. All work shall be done in accordance with the Maine Department of Transportation's Best Management Practices for Erosion Control & Sediment Control, February 2008.

25. Aluminum bridge rail which is removed remains the property of the Department and shall be delivered to:
   Maine DOT Dunstan Bridge Maintenance Lot
   576 US Route 1
   Scarborough, Maine
Removal, delivery, dismantling, and stacking shall be paid under Item 202.13. The Contractor shall inform the Resident and contact the Maine DOT Region 1 Bridge Maintenance Manager at (207) 462-4474 a minimum of 72 hours in advance of the proposed delivery to coordinate delivery of materials.

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

27. Existing "Lunt Road" placards affixed to the existing steel girders on the south fascia of the NB barrel and north fascia of the SB barrel shall be removed prior to bridge demolition and reinstalled on the new steel girders. Payment shall be incidental to the Contract.

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

29. Extended-use Erosion Control Blanket, seeded gutters, rip-rap, downspout, 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.

30. 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 Pay Item 619.14, Erosion Control Mix.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

Bridge No 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

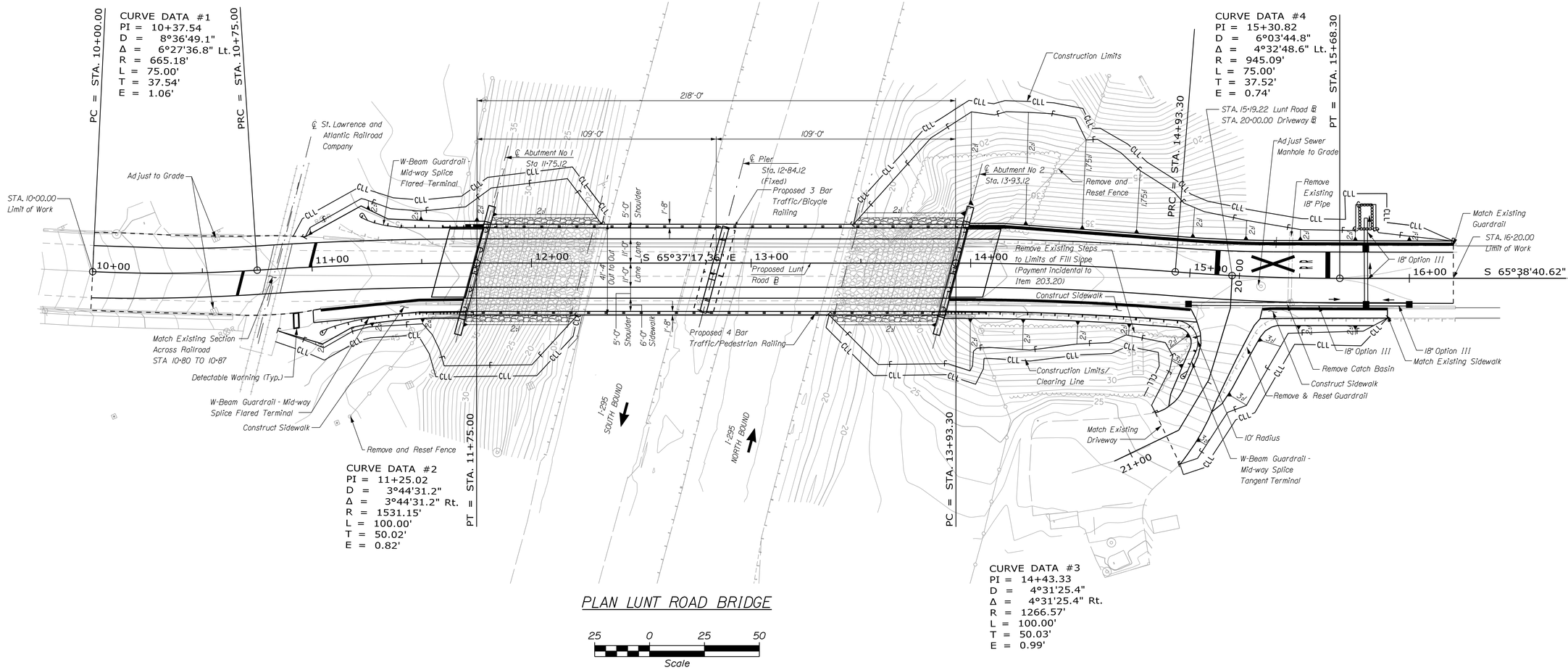
LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

GENERAL NOTES

SHEET NUMBER

3

OF 46



PLAN LUNT ROAD BRIDGE

25 0 25 50
Scale

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No 5829

BRIDGE PLANS

	BY	DATE
J. KITTREDGE		
PROJ. MANAGER		
DESIGN-DETAILED	KLH	7/18
CHECKED-REVIEWED	RAB	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

GENERAL PLAN

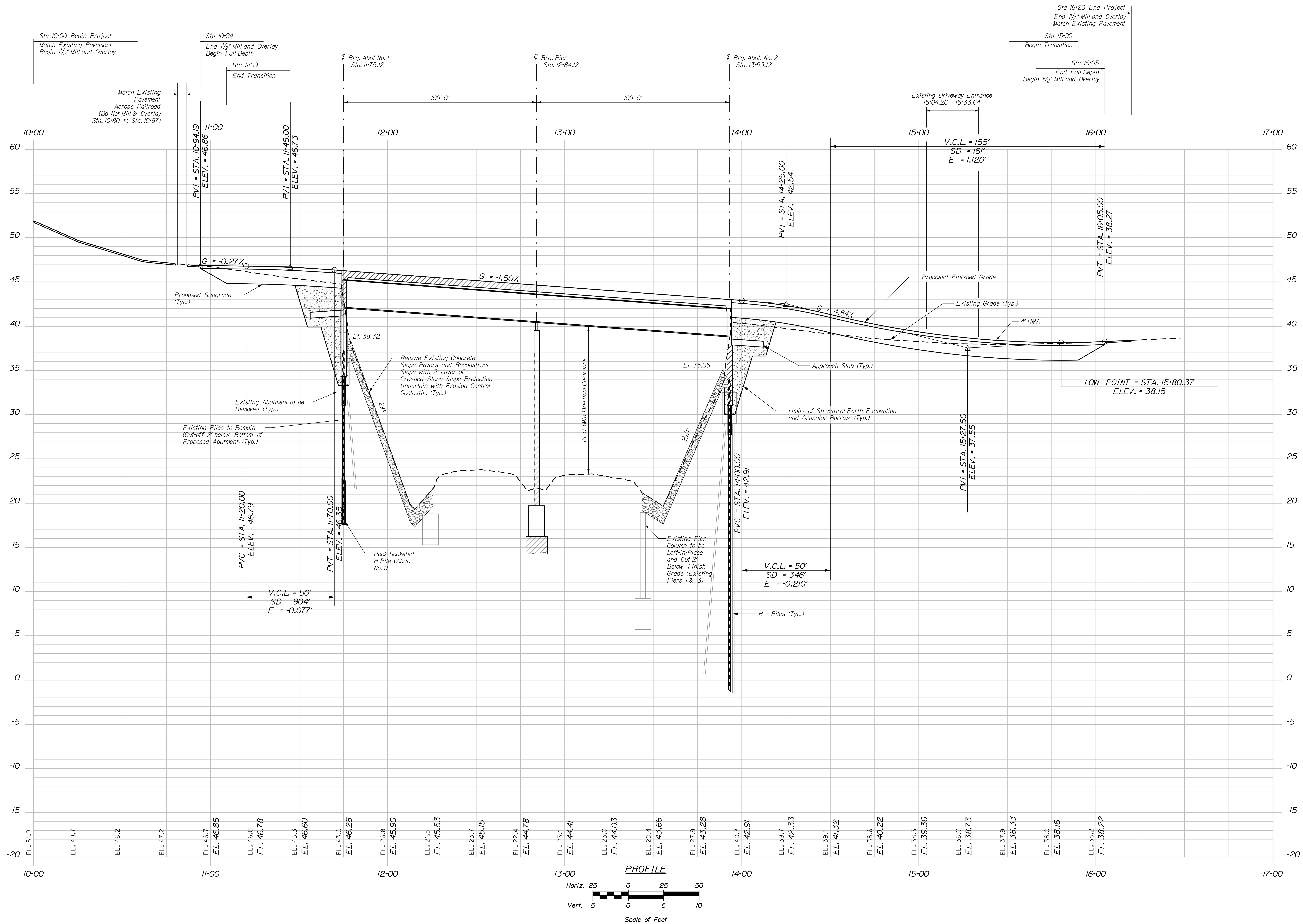
SHEET NUMBER

4

OF 46

Date: 7/31/2018
User name:
Division:
Filename: CADD\004_BDPlan.dgn

Date:7/31/2018
Username:
Division:
Filename: ...\CADD\005_Profile.dgn



PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

BRIDGE No. 5829

PROJ. MANAGER	J. KITTREDGE	BY	DATE
DESIGN-DETAILED	KLH	WEG	7/18
CHECKED-REVIEWED	RAB	KLH	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

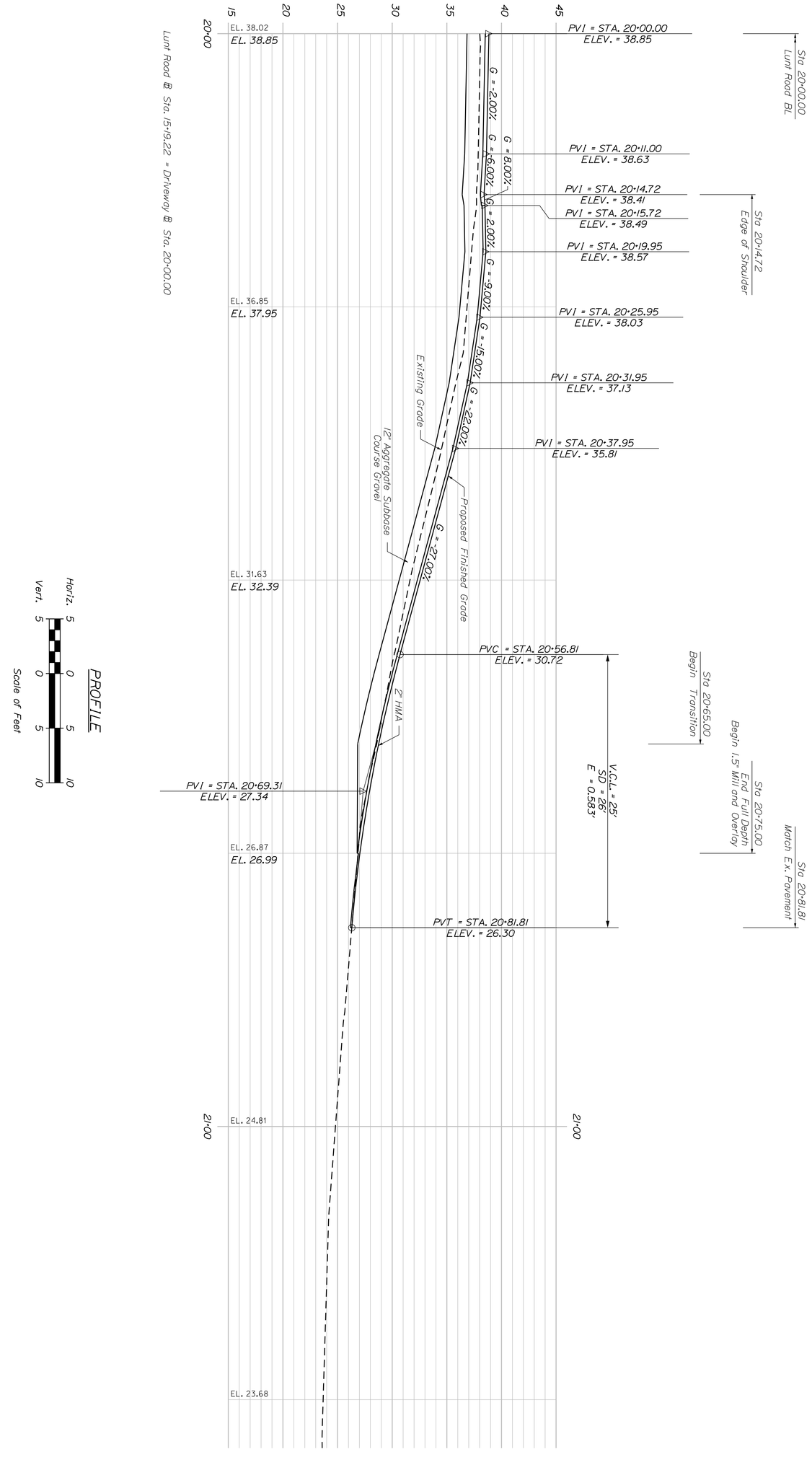
LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

PROFILE

SHEET NUMBER

5

OF 46



PROJ. MANAGER	J. KITTREDGE	BY	DATE
DESIGN-DETAILED	KLH	WEC	7/18
CHECKED-REVIEWED	RAB	KLH	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

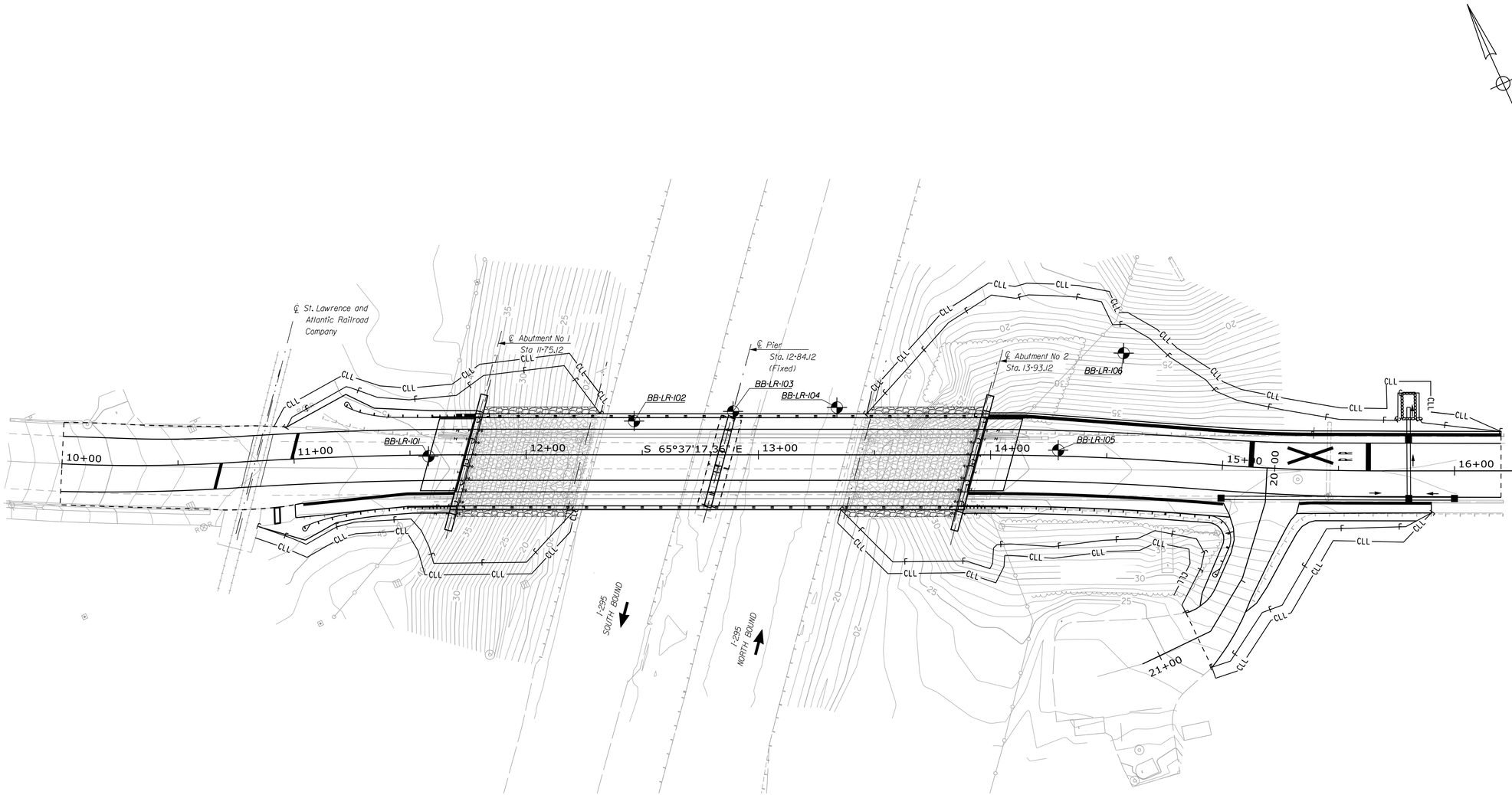
DRIVEWAY PROFILE

SHEET NUMBER 6 OF 46

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

BRIDGE No. 5829 WIN 21723.00 BRIDGE PLANS



BORING LOCATION PLAN

25 0 25 50

Scale

NOTES

1) Base map developed from electronic files (004_BDPLAN.dgn, Z_BDBridge.dgn, Z_Align.dgn, RWPLAN.dgn, and 3DContours.dgn) provided by WSP on July 10, 2018.

2) The as-drilled locations of the test borings were taped from existing structures by GZA during the subsurface investigation, and are considered approximate.

3) BB-LR-100 series bridge borings were performed by New England Boring Contractors and observed by GZA personnel between August 7 and 11, 2017

BORING LOCATION PLAN LEGEND

BB-LR-106 Location and designation of cased wash boring

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	NVW	BY	DATE
CHECKED-REVIEWED	CLS	NVW	SEPT 2017
DESIGN2-DETAILED2		CLS	SEPT 2017
DESIGN3-DETAILED3			
REVISIONS 1	NVW	NVW	JULY 2018
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

P.E. NUMBER

SIGNATURE

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

GENERAL PLAN

PREPARED BY:

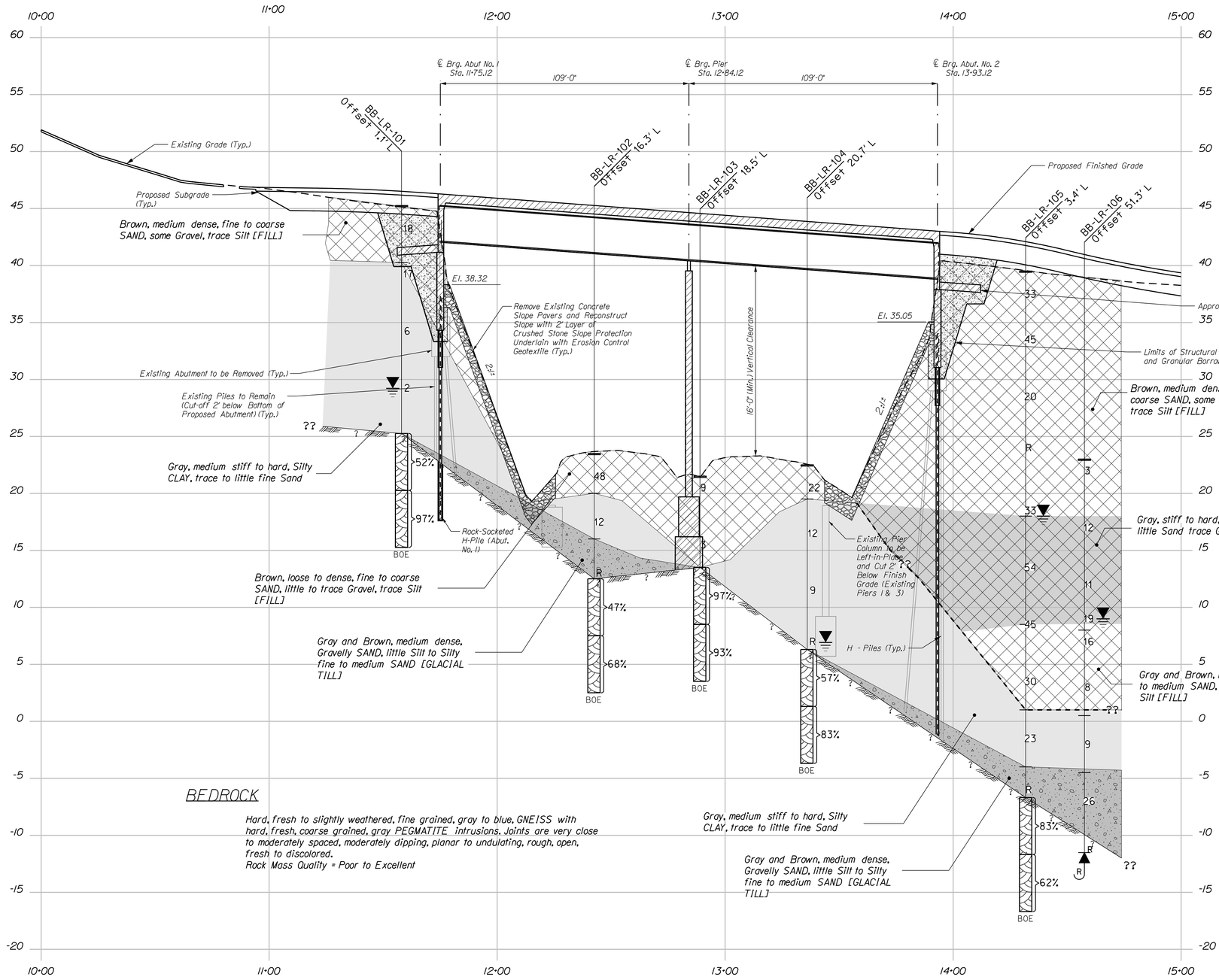
GZA

SHEET NUMBER

7

OF 46

Filename:\007_Boring Location Plan.dgn Division: Username: Date:8/3/2018



NOTES

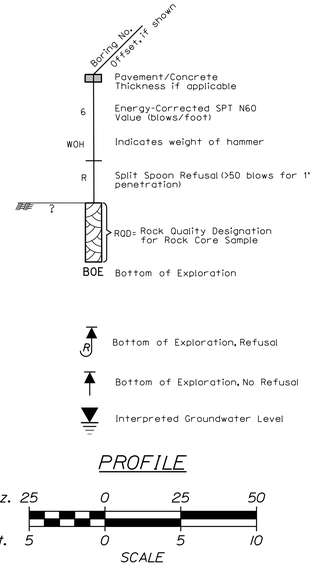
1) Profile developed from an electronic file (005_Profile.dgn) provided by WSP on June 7, 2018 and electronic files (005_Profile.dgn and Profile_Xref.dgn) provided by WSP on July 17, 2018.

2) The as-drilled locations of the test borings were taped from existing structures by GZA during the subsurface investigation. Ground surface elevations at boring locations were interpolated between 1-foot contours in the electronic file 3DContours.dgn provided by WSP on September 5, 2017. Both should be considered accurate to the degree implied by the methods used.

3) BB-LR-100 series bridge borings were performed by New England Boring Contractors and observed by GZA personnel between August 7 and 11, 2017.

4) This generalized interpretive soil profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

INTERPRETIVE SUBSURFACE PROFILE LEGEND



PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

BRIDGE No. 5829

PROJ. MANAGER	J. KITTREDGE
DESIGN-DETAILED	
CHECKED-REVIEWED	
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	NVW
REVISIONS 2	NVW
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

BY	DATE
NVW	SEPT 2017
CLS	SEPT 2017
	JUNE 2018
	JULY 2018

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

INTERPRETIVE SUBSURFACE PROFILE

PREPARED BY:

GZA

SHEET NUMBER

8

OF 46

Filename: ...\CADD\009_BorLog_01.dgn Username: Division: Date: 7/31/2018

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lunt Road Bridge #5829
Location: Falmouth, Maine

Boring No.: BB-LR-101
PIN: 21723.00

Driller:	New England Boring Contractors	Elevation (ft.)	45.3	Auger ID/OD:	
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Split Spoon
Logged By:	N. Williams	Rig Type:	Mobile Drill - ATV	Hammer Wt./Fall:	140/30
Date Start/Finish:	8-10-17/8-10-17	Drilling Method:	SSA / Drive & Wash	Core Barrel:	NX2
Boring Location:	See Boring Location Plan	Casing ID/OD:	3"	Water Level *:	NE
Hammer Efficiency Factor:	0.68	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D - Split Spoon Sample
MD - Unsuccessful Split Spoon Sample attempt
U - Thin Wall Tube Sample
MU - Unsuccessful Thin Wall Tube Sample attempt
V - Insitu Vane Shear Test
MV - Unsuccessful Insitu Vane Shear Test attempt
R - Rock Core Sample
SSA - Solid Stem Auger
HSA - Hollow Stem Auger
RC - Roller Cone
WOH - weight of WOb. hammer
WOR - weight of rods
WOP - Weight of one person
S_u - Insitu Field Vane Shear Strength (psf)
T_v - Pocket Torvane Shear Strength (psf)
q_u - Unconfined Compressive Strength (ksf)
N-uncorrected - Raw field SPT N-value
Hammer Efficiency Factor - Annual Calibration Value
N_{60} - SPT N-uncorrected corrected for hammer efficiency
N_{60} - (Hammer Efficiency Factor/60)*N-uncorrected
$S_{u(Lab)}$ - Lab Vane Shear Strength (psf)
WC - water content, percent
LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index
G - Grain Size Analysis
C - Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	44.8		Top 6": Pavement (0.5)	
	10	24/10	1.0 - 3.0	14-10-6-4	16	18				Brown, dry, medium dense, fine to coarse SAND, some Gravel, trace Silt. -FILL- (SP)	G A-1-b, SP
								41.3		(4.0)	
5	20	24/24	5.0 - 7.0	5-7-8-9	15	17				Gray, moist, very stiff, Silty CLAY. (CL)	LL=44 PL=20 PI=24 WC=25.8
10	30	24/24	10.0 - 12.0	2-2-3-4	5	6				Gray, moist, medium stiff, Silty CLAY. (CL)	WC=26.1
	U1	24/10	13.0 - 15.0				39			Gray, moist, hard, Silty CLAY. (CL)	C $S_{u(Lab)}$=1840 psf
15	40	24/24	15.0 - 17.0	WOH-WOH-2-4	2	2				Gray, wet, medium stiff, Silty CLAY, little fine Sand. (CL)	LL=24 PL=15 PI=9 WC=31.1
							39				
							57				
							100/ 6"	25.8		(19.5)	
20	R1	60/60	20.0 - 25.0	RQD = 52%						R1: 20.0'-25.0' Hard, fresh, fine grained, gray to blue, GNEISS with hard, fresh, coarse grained, gray Pegmatite intrusion at 21.2'-22.7'. Joints are very close to close, moderately dipping to high angle, undulating, rough, discolored, open. One joint at 21.6' was very wide. Rock Mass Quality = Fair Recovery = 100% Rock Core Times (min/sec): 20.0-21.0 (2:01) 21.0-22.0 (2:15) 22.0-23.0 (2:12) 23.0-24.0 (3:34)	
25	R2	60/60	25.0 - 30.0	RQD = 97%						R2: 25.0'-30.0' Hard, fresh, fine grained, gray to blue, GNEISS. Joints are close to moderately spaced, moderately dipping, undulating, rough, fresh, open. Rock Mass Quality = Excellent Recovery = 100% Rock Core Times (min/sec): 25.0-26.0 (2:33) 26.0-27.0 (2:40) 27.0-28.0 (2:05) 28.0-29.0 (2:01) 29.0-30.0 (2:19)	
30								15.3		(30.0) Bottom of Exploration at 30.00 feet below ground surface.	
35											
40											
45											
50											

Remarks:
1. SSA to 5.0' prior to sampling. Advanced 3" casing to 19.5'.
2. 3" casing refusal at 19.5'. Advanced roller bit to 20.0' prior to core sampling.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-LR-101

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lunt Road Bridge #5829
Location: Falmouth, Maine

Boring No.: BB-LR-102
PIN: 21723.00

Driller:	New England Boring Contractors	Elevation (ft.)	23.0	Auger ID/OD:	
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Split Spoon
Logged By:	N. Williams	Rig Type:	Mobile Drill - Truck	Hammer Wt./Fall:	140/30
Date Start/Finish:	8-7-17/8-7-17	Drilling Method:	SSA / Drive & Wash	Core Barrel:	NX2
Boring Location:	See Boring Location Plan	Casing ID/OD:	4"/3"	Water Level *:	NE
Hammer Efficiency Factor:	0.87	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D - Split Spoon Sample
MD - Unsuccessful Split Spoon Sample attempt
U - Thin Wall Tube Sample
MU - Unsuccessful Thin Wall Tube Sample attempt
V - Insitu Vane Shear Test
MV - Unsuccessful Insitu Vane Shear Test attempt
R - Rock Core Sample
SSA - Solid Stem Auger
HSA - Hollow Stem Auger
RC - Roller Cone
WOH - weight of WOb. hammer
WOR - weight of rods
WOP - Weight of one person
S_u - Insitu Field Vane Shear Strength (psf)
T_v - Pocket Torvane Shear Strength (psf)
q_u - Unconfined Compressive Strength (ksf)
N-uncorrected - Raw field SPT N-value
Hammer Efficiency Factor - Annual Calibration Value
N_{60} - SPT N-uncorrected corrected for hammer efficiency
N_{60} - (Hammer Efficiency Factor/60)*N-uncorrected
$S_{u(Lab)}$ - Lab Vane Shear Strength (psf)
WC - water content, percent
LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index
G - Grain Size Analysis
C - Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	22.5		Top 6": Pavement (0.5)	
	10	24/12	1.0 - 3.0	17-19-14-10	33	48				Light brown, dry, dense, medium to coarse SAND, little Gravel, trace Silt. -FILL- (SP)	
								19.0		(4.0)	
5	20	24/12	5.0 - 7.0	3-3-5-7	8	12				Gray, dry, stiff, Silty CLAY, little Gravel, little Sand. (CL)	WC=15.5
								16.0		(7.0)	
10	30	10/8	10.0 - 10.8	43-82/4"	R		55			Gray, dry, gravelly, SAND, little Silt. Full diameter rock in tip of spoon. -GLACIAL TILL- (SM)	
	R1	60/60	11.0 - 16.0	RQD = 47%				11.0		(11.0) R1: 11.0'-16.0' Hard, fresh, fine grained, dark gray, GNEISS with hard, fresh, coarse grained, gray Pegmatite intrusion from 11.9'-13.2'. Joints are very close to moderately spaced, moderately dipping, planar, rough, fresh to discolored, partially open to open. Rock Mass Quality = Poor Recovery = 100% Rock Core Times (min/sec): 11.0-12.0 (2:23) 12.0-13.0 (3:10) 13.0-14.0 (3:35) 14.0-15.0 (2:03) 15.0-16.0 (2:33)	q_p = 805 ksf
15	R2	60/60	16.0 - 21.0	RQD = 68%						R2: 16.0'-21.0' Hard, fresh, fine grained, gray to blue, GNEISS. Joints are very close to moderately spaced, moderately dipping, planar, rough, fresh to discolored, open. Rock Mass Quality = Fair Recovery = 100% Rock Core Times (min/sec): 16.0-17.0 (1:40) 17.0-18.0 (1:36) 18.0-19.0 (1:40) 19.0-20.0 (1:42) 20.0-21.0 (1:31)	
20								2.0		(21.0) Bottom of Exploration at 21.00 feet below ground surface.	
25											

Remarks:
1. Observed intermittent increase in resistance during auger advancement, consistent with possible cobbles/boulders from approximately 7.0'-10.0'.
2. Spun 4" casing to 8.0' and drove casing to 10.8'. Drove 3" casing to 11.0' prior to core sampling.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-LR-102

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

Bridge No. 5829

BRIDGE PLANS

	BY	DATE
J. KITTREDGE		
PROJ. MANAGER	WEG	7/18
DESIGN-DETAILED	TWP	
CHECKED-REVIEWED	AWS	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

BORING LOGS 1 OF 4

SHEET NUMBER
9
OF 46

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lunt Road Bridge •5829
Location: Falmouth, Maine

Boring No.: BB-LR-103
PIN: 21723.00

Driller:	New England Boring Contractors	Elevation (ft.)	22.0	Auger ID/OD:	
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Split Spoon
Logged By:	N. Williams	Rig Type:	Mobile Drill - Truck	Hammer Wt./Fall:	140/30
Date Start/Finish:	8-8-17/8-8-17	Drilling Method:	SSA / Drive & Wash	Core Barrel:	NX2
Boring Location:	See Boring Location Plan	Casing ID/OD:	3"	Water Level *:	NE
Hammer Efficiency Factor:	0.87	Hammer Type:	Automatic ☒ Hydraulic ☐	Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample attempt; V = Vaitu Vane Shear Test; MV = Unsuccessful Vaitu Vane Shear Test attempt
R = Rock Core Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; RC = Roller Core; WOH = weight of 140lb. hammer; WOR = weight of rods; WOP = Weight of one person
S_u = Vaitu Field Vane Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw Field SPT N-value; Hammer Efficiency Factor = Annual Calibration Value; N_{60} = SPT N-uncorrected corrected for hammer efficiency; N_{60} = Hammer Efficiency Factor/60)•N-uncorrected
$S_{u(Lab)}$ = Lab Vane Shear Strength (psf); WC = water content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-2-4-8	6	9	SSA	21.7		Top 3": Topsoil (0.3)	G A-1-b, SP
										Bottom 7": Light brown, dry, loose, fine to medium SAND, trace Gravel, trace Silt. -FILL- (SP)	
5	2D	24/5	5.0 - 7.0	1-1-1-1	2	3				Light brown, dry, very loose, fine to medium SAND, trace Gravel, trace Silt. Clay with sand in tip of spoon. -FILL- (SP-SM)	G A-3, SP-SM
								14.2		(7.8)	
	R1	60/60	8.0 - 13.0	RQD = 97%			94			R1: 8.0'-13.0' Hard, fresh, fine grained, gray to blue, GNEISS. Joints are close to moderately spaced, moderately dipping, planar, rough, discolored, open. One joint is low angle, planar, rough, discolored, very wide, with gravel infilling. Rock Mass Quality = Excellent Recovery = 100% Rock Core Times (min:sec): 8.0-9.0 (2:42) 9.0-10.0 (2:36) 10.0-11.0 (2:56) 11.0-12.0 (3:08) 12.0-13.0 (2:59)	
10											
	R2	60/59	13.0 - 18.0	RQD = 93%						R2: 13.0'-18.0' Hard, fresh, fine grained, gray to blue, GNEISS with hard, fresh, coarse grained, gray Pegmatite intrusion from 17.0'-18.0'. Joints are close to moderately spaced, moderately dipping, planar, rough, discolored, open. One horizontal joint at 15.. 9', planar, fresh, open. Rock Mass Quality = Excellent Recovery = 98% Rock Core Times (min:sec): 13.0-14.0 (3:08) 14.0-15.0 (3:48) 15.0-16.0 (2:04) 16.0-17.0 (2:05) 17.0-18.0 (3:50)	q_p = 940 ksf
15											
								4.0		(18.0)	
20										Bottom of Exploration at 18.00 feet below ground surface.	
25											

Remarks:
1. Advanced SSA to 5.0'. Advanced 3" casing from 7.0'-7.8'. 3" casing met refusal at 7.8'. Advanced roller bit to 8.0' prior to core sampling.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
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Page 1 of 1
Boring No.: BB-LR-103

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lunt Road Bridge •5829
Location: Falmouth, Maine

Boring No.: BB-LR-104
PIN: 21723.00

Driller:	New England Boring Contractors	Elevation (ft.)	22.5	Auger ID/OD:	
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Split Spoon
Logged By:	N. Williams	Rig Type:	Mobile Drill - Truck	Hammer Wt./Fall:	140/30
Date Start/Finish:	8-8-17/8-8-17	Drilling Method:	SSA / Drive & Wash	Core Barrel:	NX2
Boring Location:	See Boring Location Plan	Casing ID/OD:	3"	Water Level *:	NE
Hammer Efficiency Factor:	0.87	Hammer Type:	Automatic ☒ Hydraulic ☐	Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample attempt; V = Vaitu Vane Shear Test; MV = Unsuccessful Vaitu Vane Shear Test attempt
R = Rock Core Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; RC = Roller Core; WOH = weight of 140lb. hammer; WOR = weight of rods; WOP = Weight of one person
S_u = Vaitu Field Vane Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw Field SPT N-value; Hammer Efficiency Factor = Annual Calibration Value; N_{60} = SPT N-uncorrected corrected for hammer efficiency; N_{60} = Hammer Efficiency Factor/60)•N-uncorrected
$S_{u(Lab)}$ = Lab Vane Shear Strength (psf); WC = water content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	22.0		Top 6": Pavement (0.5)	
	1D	24/15	1.0 - 3.0	9-9-6-6	15	22				Light brown, dry, medium dense, medium to coarse SAND. Clay in tip of spoon. -FILL- (SP)	
								19.5		(3.0)	
5											
	2D	24/24	5.0 - 7.0	3-4-4-6	8	12				Gray, moist, stiff, Silty CLAY. (CL)	
10	3D	24/24	10.0 - 12.0	2-3-3-4	6	9				Gray, moist, stiff, Silty CLAY, trace fine Sand. (CL) Fine sand seams throughout.	
							27				
							33				
							42				
15	4D	11/6	15.0 - 15.9	10-80/5"	R		70			Gray, wet, sandy CLAY. (CL) Fine sand seams throughout.	
								6.4		(16.1)	
	R1	60/60	16.2 - 21.2	RQD = 57%						R1: 16.2'-21.2' Hard, fresh, fine grained, gray to blue, GNEISS with hard, fresh, coarse grained, gray Pegmatite intrusion from 16.2'-17.5'. Joints are very close to close, moderately dipping, planar, rough, fresh to discolored, open. Rock Mass Quality = Fair Recovery = 100% Rock Core Times (min:sec): 16.2-17.2 (2:01) 17.2-18.2 (2:02) 18.2-19.2 (1:28) 19.2-20.2 (1:46) 20.2-21.2 (1:29)	q_p = 562 ksf
20											
	R2	60/60	21.2 - 26.2	RQD = 83%						R2: 21.2'-26.2' Hard, fresh, fine grained, gray to blue, GNEISS. Joints are very close to moderately spaced, moderately dipping, planar, rough, fresh, open. Rock Mass Quality = Good Recovery = 100% Rock Core Times (min:sec): 21.2-22.2 (1:21) 22.2-23.2 (1:26) 23.2-24.2 (1:15) 24.2-25.2 (1:17) 25.2-26.2 (1:15)	
25								-3.7		(26.2)	
										Bottom of Exploration at 26.20 feet below ground surface.	
30											
35											
40											
45											
50											

Remarks:
1. Advanced SSA to 10.0'. Advanced 3" casing to 15.0' prior to split spoon sampling.
2. Casing refusal at 16.1'. Advanced roller bit to 16.2' prior to core sampling.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-LR-104

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00 Bridge No. 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE	BY	DATE
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

BORING LOGS 2 OF 4

SHEET NUMBER
10
OF 46

Username:
Date: 7/31/2018
Division:
Filename: ...\CADD\010_BorLog_02.dgn

Filename: ...\CADD\011_BorLog_03.dgn Division: Username: Date: 7/31/2018

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lunt Road Bridge *5829
Location: Falmouth, Maine

Boring No.: BB-LR-105
PIN: 21723.00

Driller:	New England Boring Contractors	Elevation (ft.)	39.5	Auger ID/OD:	
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Split Spoon
Logged By:	N. Williams	Rig Type:	Mobile Drill - Truck	Hammer Wt./Fall:	140/30
Date Start/Finish:	8-9-17/8-9-17	Drilling Method:	SSA / Drive & Wash	Core Barrel:	NX2
Boring Location:	See Boring Location Plan	Casing ID/OD:	4"	Water Level *:	NE

Hammer Efficiency Factor: 0.87 Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WOP = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
$S_{u(Lab)}$ = Lab Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = Hammer Efficiency Factor/60(1)-N-uncorrected
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/(6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA	39.0		Top 6": Pavement	
								-0.5			
	10	24/11	1.0 - 3.0	15-13-10-15	23	33				Light brown, dry, dense, fine to medium SAND, trace Gravel, trace Silt. -FILL- (SP-SM)	G A-1-b, SP-SM
5	20	24/15	5.0 - 7.0	8-16-15-10	31	45				Light brown and gray, dry, dense, sandy GRAVEL, little Silt. -FILL- (GP-GM)	G A-1-a, GP-GM
10	30	24/8	10.0 - 12.0	4-7-7-5	14	20	72			Light brown and gray, dry, medium dense, fine to coarse SAND, some Gravel, trace Silt. Silty clay in tip of spoon. -FILL- (SW)	
							76				
							182				
							179				
							176				
15	40	13/7	15.0 - 16.1	16-32-66/1"	R					Gray, dry, fine to coarse SAND, some Gravel, little Silt. Full diameter rock in tip of spoon. -FILL- (SW)	
20	50	24/10	20.0 - 22.0	9-8-15-9	23	33		18.0		Top 8": Gray, wet, medium dense, fine to coarse SAND, little Gravel, trace Silt. (SW) Bottom 2": Gray, wet, Silty CLAY, little Sand, little Gravel, possible clay fill. -FILL-	
								-21.5			
							105				
25	60	24/12	25.0 - 27.0	9-21-16-14	37	54				Gray, wet, hard, Silty CLAY, little fine Sand. -FILL- (CL)	WC=20.7
							88				
							106				
							124				
30	70	24/12	30.0 - 32.0	6-10-21-25	31	45		8.5		Top 6": Gray, wet, Silty CLAY, little Sand, little Gravel. (CL) Bottom 6": Brown, wet, fine to coarse SAND, trace Gravel, trace Silt.	
								-31.0			
							199				
							308				
35	80	24/10	35.0 - 37.0	9-12-9-9	21	30				Gray, wet, medium dense, fine to medium SAND. (SP)	
							140				
							135	1.0			
							134	-38.5			
40	90	24/20	40.0 - 42.0	3-7-9-10	16	23				Gray with black, wet, very stiff, Silty CLAY, trace fine Sand, trace organic fibers. (CL) Organic odor.	WC=29.4
								-43.5			
45								-4.0			

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lunt Road Bridge *5829
Location: Falmouth, Maine

Boring No.: BB-LR-105
PIN: 21723.00

Driller:	New England Boring Contractors	Elevation (ft.)	39.5	Auger ID/OD:	
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Split Spoon
Logged By:	N. Williams	Rig Type:	Mobile Drill - Truck	Hammer Wt./Fall:	140/30
Date Start/Finish:	8-9-17/8-9-17	Drilling Method:	SSA / Drive & Wash	Core Barrel:	NX2
Boring Location:	See Boring Location Plan	Casing ID/OD:	4"	Water Level *:	NE

Hammer Efficiency Factor: 0.87 Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WOP = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
$S_{u(Lab)}$ = Lab Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = Hammer Efficiency Factor/60(1)-N-uncorrected
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Rec./Rec. (in.)	Sample Depth (ft.)	Blows/(6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
45	100	13/12	45.0 - 46.1	4-4-50/1"	R			-6.7		Gray and brown, wet, silty fine SAND. Gravel in tip of spoon. -GLACIAL TILL- (SM)	
								-46.2		R1: 46.2'-51.2' Hard, fresh, fine grained, blue to gray, GNEISS. Joints are very close to close, moderately dipping, planar, rough, fresh, open. One joint is decomposed at 48.0'. Sand infilling. Rock Mass Quality = Good Recovery = 100% Rock Core Times (min:sec): 46.2-47.2 (1:03) 47.2-48.2 (1:33) 48.2-49.2 (1:42) 49.2-50.2 (2:22) 50.2-51.2 (1:40)	
50	R1	60/60	46.2 - 51.2	RQD = 83%							
	R2	60/52	51.2 - 56.2	RQD = 62%						R2: 51.2'-56.2' Hard, fresh, fine grained, gray to blue, GNEISS with hard, fresh, coarse grained, gray Pegmatite intrusion from 54.8'-55.3'. Joints are very close to close, moderately dipping, planar, rough, fresh to discolored, partially open to open. Rock Mass Quality = Fair Recovery = 87% Rock Core Times (min:sec): 51.2-52.2 (1:55) 52.2-53.2 (1:50) 53.2-54.2 (1:41) 54.2-55.2 (2:09) 55.2-56.2 (3:45)	
55								-16.7			
60											
								-56.2		Bottom of Exploration at 56.20 feet below ground surface.	

Remarks:
1. Intermittent increased resistance during SSA advancement consistent with presence of cobbles from 7.0'-10.0'.
2. Advanced SSA to 10.0'. Advanced 4" casing to 15.0'.
3. During roller cone advancement, observed high resistance from 16.0'-16.9' consistent with possible boulder and intermittent resistance to 20.0' consistent with possible cobbles.
4. Split spoon refusal at 46.1'. Drove casing to 46.2' prior to core sampling.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-LR-105

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00 BRIDGE PLANS

Bridge No. 5829

		BY	DATE
PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

BORING LOGS 3 OF 4

SHEET NUMBER
11
OF 46

Filename: ...\CADD\012_BorLog_04.dgn   Division: Username: Date: 7/31/2018

Maine Department of Transportation Soil/Rock Exploration Log US CUSTOMARY UNITS	Project: Lunt Road Bridge #5829 Location: Falmouth, Maine	Boring No.: BB-LR-106 PIN: 21723.00

Driller:	New England Boring Contractors	Elevation (ft.)	23.0	Auger ID/OD:	
Operator:	Brad Enos	Datum:	NAVD 88	Sampler:	Split Spoon
Logged By:	N. Williams	Rig Type:	ATV-Mounted Mobile Drill	Hammer Wt./Fall:	140/30
Date Start/Finish:	8-11-17/8-11-17	Drilling Method:	SSA / Drive & Wash	Core Barrel:	NX2
Boring Location:	See Boring Location Plan	Casing ID/OD:	4"	Water Level *:	NE
Hammer Efficiency Factor:	0.68	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	3-2-1-2	3	3	SSA	22.8		Top 2": Topsoil (0.2)	
										Gray, dry, soft, sandy organic SILT. (OL)	G A-8, OL
5	2D	24/8	5.0 - 7.0	2-4-7-5	11	12				Gray, moist, stiff, Silty CLAY, trace Gravel. -FILL- (CL)	
10	3D	24/7	10.0 - 12.0	3-5-5-5	10	11				Gray, moist, stiff, Silty CLAY, little Sand, trace Gravel. -FILL- (CL-ML)	G A-4-A-7, CL-ML
	4D	24/12	13.0 - 15.0	3-8-9-9	17	19				Gray, wet, very stiff, Silty CLAY, little Sand, trace Gravel. -FILL- (CL)	
15	5D	24/14	15.0 - 17.0	8-6-8-10	14	16		8.0		(15.0) Brown, wet, medium dense, fine to medium SAND, trace Gravel, trace Silt. (SP)	
20	6D	24/3	19.0 - 21.0	4-3-4-6	7	8				Brown, wet, loose, fine to medium SAND, trace Gravel, trace Silt. (SP)	G A-1-b, SP
								0.5		(22.5)	
25	7D	24/24	24.0 - 26.0	2-3-5-5	8	9				Gray, wet, stiff, Silty CLAY, trace Sand, trace organic fibers. (CL) Organic odor present.	
								-4.5		(27.5)	
30	8D	24/16	29.0 - 31.0	4-12-11-12	23	26				Brown, wet, medium dense, silty fine to medium SAND. -GLACIAL TILL- (SM)	
35	9D	6/6	34.0 - 34.5	90-50/0"	R			-11.5		Gray/red, wet, silty fine SAND. Possible decomposed rock. -GLACIAL TILL- (SM)	
										(34.5) Bottom of Exploration at 34.50 feet below ground surface.	
40											
45											
50											

Remarks:

1. Intermittent resistance encountered during SSA advancement consistent with presence of cobbles to 10.0'.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Page 1 of 1
Boring No.: BB-LR-106

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

Bridge No. 5829

		BY	DATE
PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

BORING LOGS 4 OF 4

SHEET NUMBER
12
OF 46

Filename: ...\CADD\013_Curb_Stripe_01.dgn Username: Division: Date: 8/3/2018

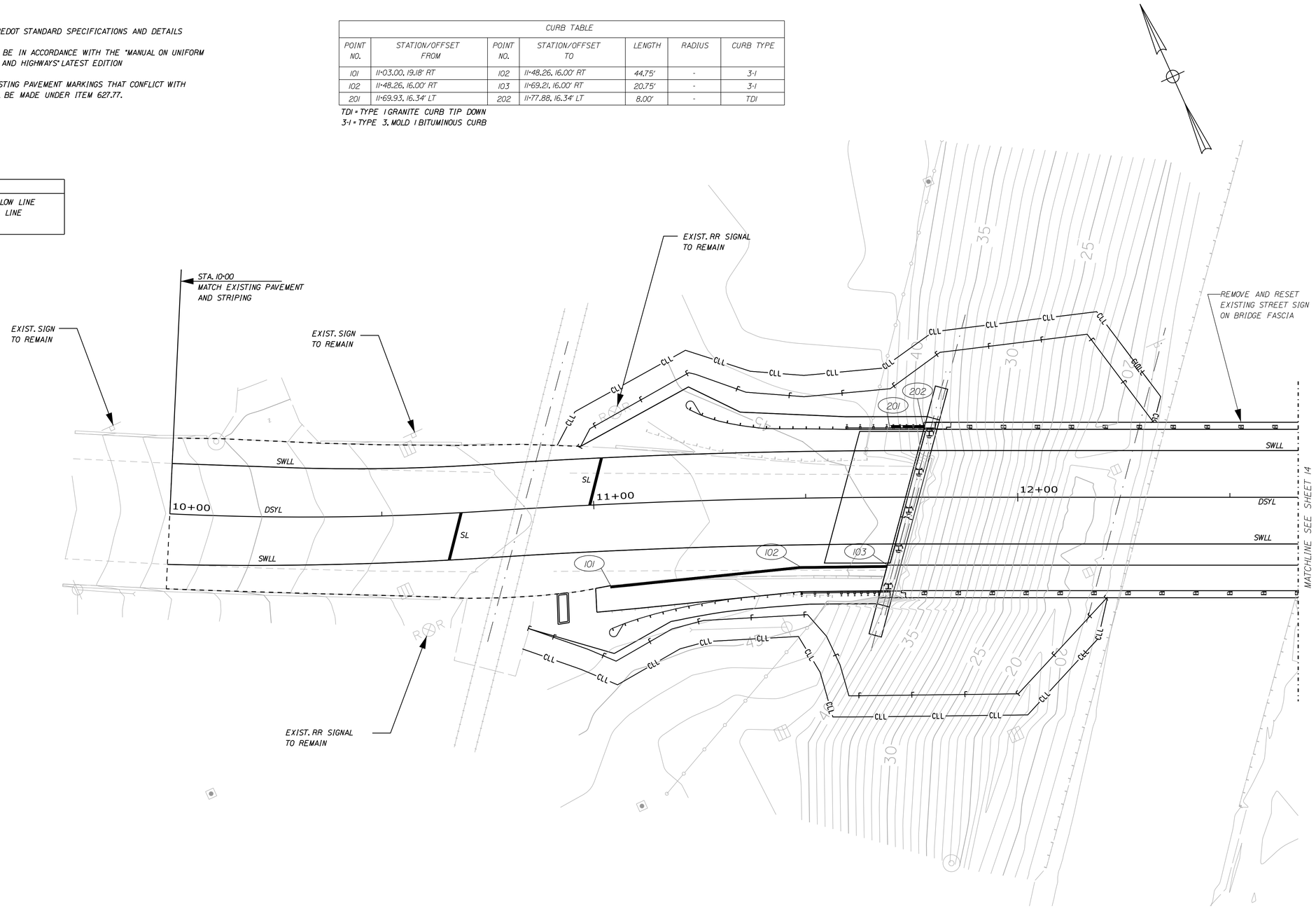
NOTES:

1. ALL WORK SHALL CONFORM WITH THE MAINEDOT STANDARD SPECIFICATIONS AND DETAILS
2. ALL PROPOSED WORK AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" LATEST EDITION
3. THE CONTRACTOR SHALL REMOVE ANY EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED MARKINGS. PAYMENT SHALL BE MADE UNDER ITEM 627.77.

CURB TABLE						
POINT NO.	STATION/OFFSET FROM	POINT NO.	STATION/OFFSET TO	LENGTH	RADIUS	CURB TYPE
101	11+03.00, 19.18' RT	102	11+48.26, 16.00' RT	44.75'	-	3-1
102	11+48.26, 16.00' RT	103	11+69.21, 16.00' RT	20.75'	-	3-1
201	11+69.93, 16.34' LT	202	11+77.88, 16.34' LT	8.00'	-	TDI

TDI = TYPE 1 GRANITE CURB TIP DOWN
3-1 = TYPE 3, MOLD 1 BITUMINOUS CURB

STRIPING LEGEND	
DSYL	4" DOUBLE SOLID YELLOW LINE
SWLL	4" SOLID WHITE LANE LINE
SL	12" WIDE STOP LINE



PLAN

12.5 0 12.5 25
Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	KLH	WEG	7/18
CHECKED-REVIEWED	RAB	KLH	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

CURBING, SIGNING AND STRIPING 1 OF 2

SHEET NUMBER
13
OF 46

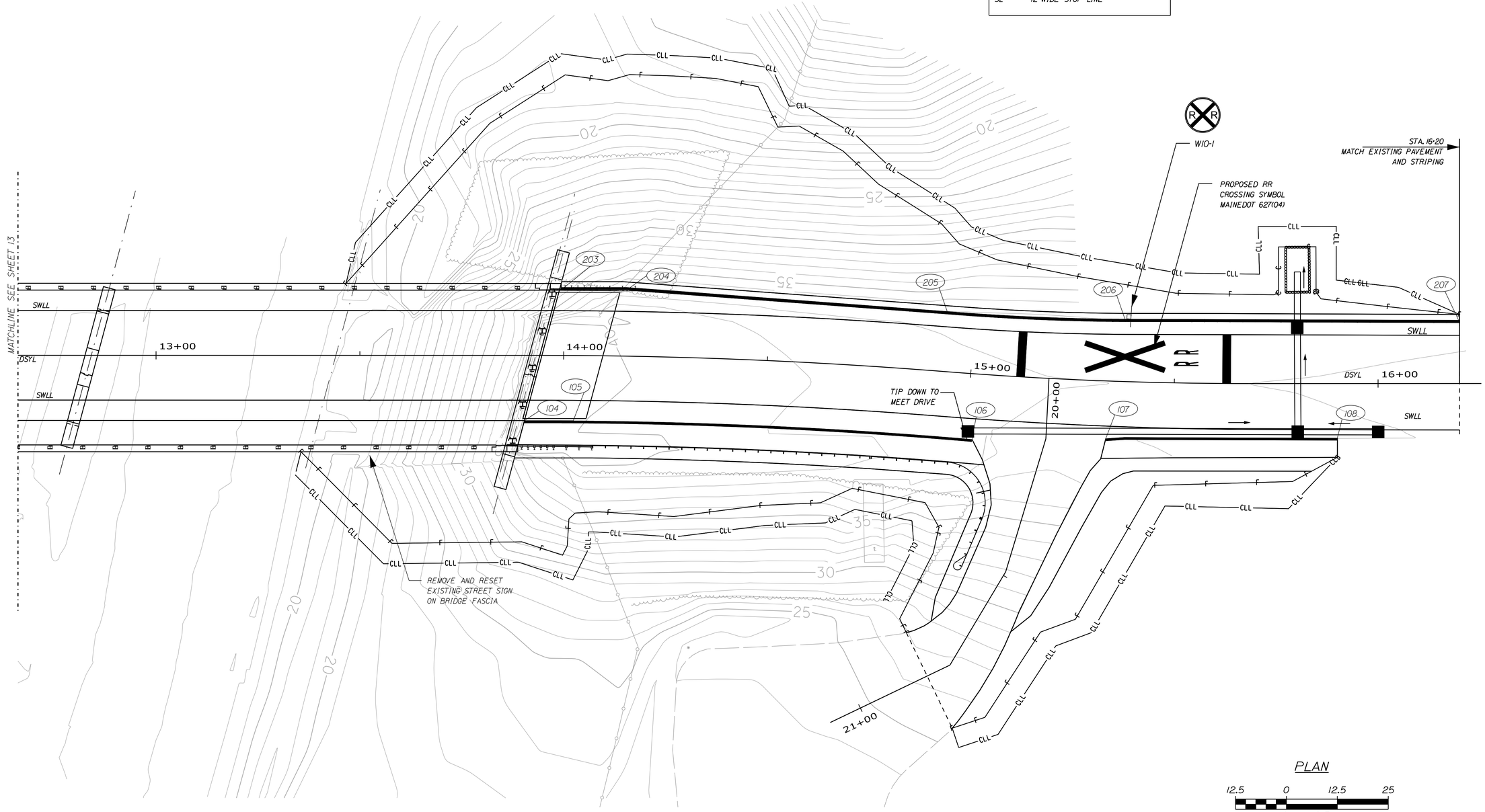
CURB TABLE						
POINT NO.	STATION/OFFSET FROM	POINT NO.	STATION/OFFSET TO	LENGTH	RADIUS	CURB TYPE
104	13+90.38, 16.00' RT	105	14+02.48, 16.00' RT	12.00'	-	3-1
105	14+02.48, 16.00' RT	106	15+01.44, 16.00' RT	97.96'	1250.56'	3-1
107	15+33.71, 14.12' RT	108	15+90.00, 13.33' RT	56.81'	-	3-1
203	13+99.32, 16.10' LT	204	14+15.23, 16.28' LT	16.05'	-	3-1
204	14+15.23, 16.28' LT	205	14+93.30, 14.17' LT	79.03'	-	3-3
205	14+93.30, 14.17' LT	206	15+37.62, 14.74' LT	43.65'	588.00'	3-3
206	15+37.62, 14.74' LT	207	16+20.00, 15.00' LT	81.90'	-	3-3

3-1 = TYPE 3, MOLD 1 BITUMINOUS CURB
3-3 = TYPE 3, MOLD 3 BITUMINOUS CURB

NOTES:

1. ALL WORK SHALL CONFORM WITH THE MAINEDOT STANDARD SPECIFICATIONS AND DETAILS
2. ALL PROPOSED WORK AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" LATEST EDITION
3. THE CONTRACTOR SHALL REMOVE ANY EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED MARKINGS. PAYMENT SHALL BE MADE UNDER ITEM 627.77.

STRIPING LEGEND	
DSYL	4" DOUBLE SOLID YELLOW LINE
SWLL	4" SOLID WHITE LANE LINE
SL	12" WIDE STOP LINE



PLAN

12.5 0 12.5 25
Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

BRIDGE No 5829

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	KLH	7/18
CHECKED-REVIEWED	RAB	7/18
DESIGN2-DETAILED2	KLH	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

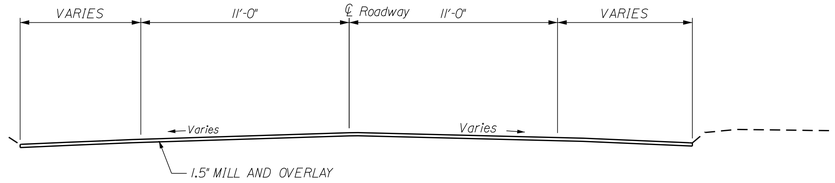
CURBING, SIGNING AND STRIPING 2 OF 2

SHEET NUMBER

14

OF 46

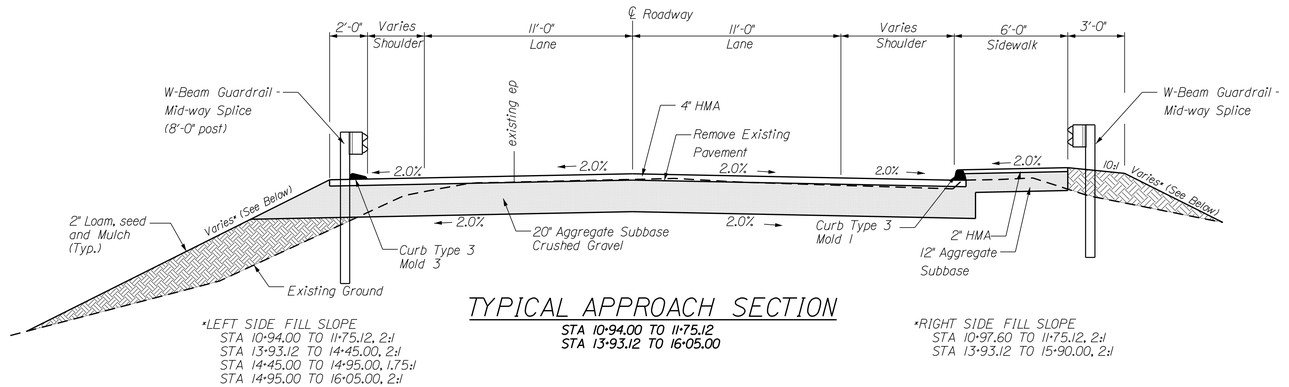
Filename: ...\CADD\014_Curb_Stripe_02.dgn Division: Username: Date: 7/31/2018



TYPICAL MILL & OVERLAY SECTION

STA 10+00.00 TO 10+94.00

Note: Match Existing Pavement
Cross Slopes STA 10+00 to 10+94

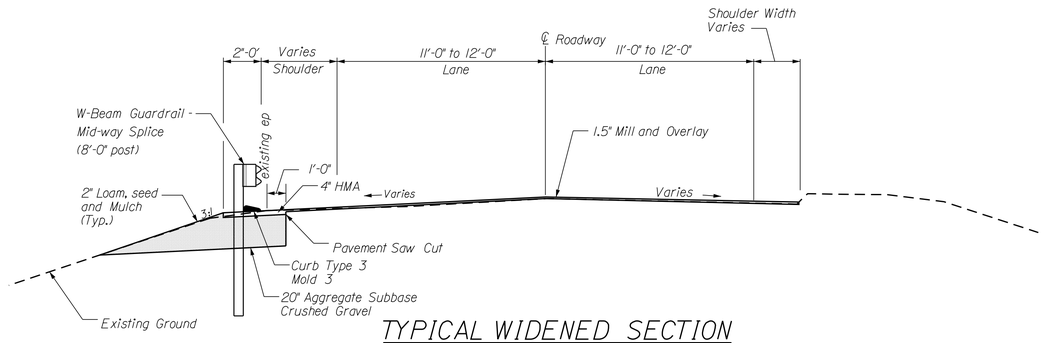


TYPICAL APPROACH SECTION

STA 10+94.00 TO 11+75.12
STA 13+93.12 TO 16+05.00

*LEFT SIDE FILL SLOPE
STA 10+94.00 TO 11+75.12, 2:1
STA 13+93.12 TO 14+45.00, 2:1
STA 14+45.00 TO 14+95.00, 1.75:1
STA 14+95.00 TO 16+05.00, 2:1

*RIGHT SIDE FILL SLOPE
STA 10+97.60 TO 11+75.12, 2:1
STA 13+93.12 TO 15+90.00, 2:1



TYPICAL WIDENED SECTION

STA 16+05.00 TO 16+20.00

TYPICAL SECTION NOTES

1. Transition from normal crown to existing pavement cross slope STA 15+45 to 16+05.
2. Guardrail berm shall be 2 feet wide on northeast approach only. All other locations shall have standard 3 feet wide berms with standard guardrail posts.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	BY	DATE	
CHECKED-REVIEWED	TWP	7/18	SIGNATURE
DESIGN2-DETAILED2	AMS	7/18	
DESIGN3-DETAILED3			P.E. NUMBER
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			DATE
REVISIONS 4			
FIELD CHANGES			

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

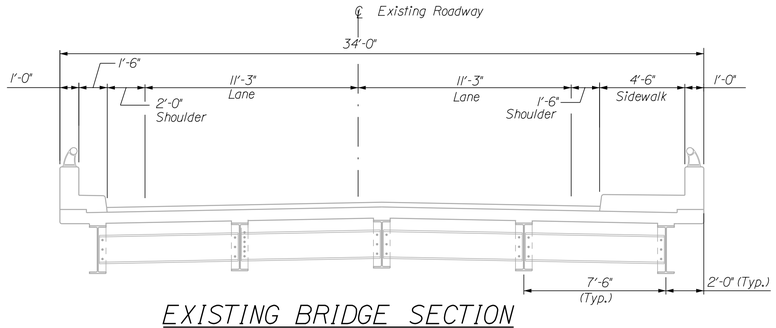
APPROACH TYPICAL SECTIONS

SHEET NUMBER

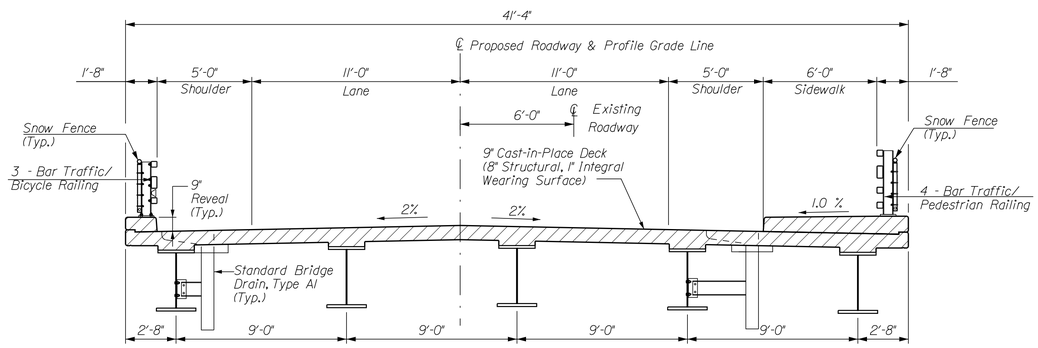
15

OF 46

Filename: ...\015_ApproachTypical_01.dgn Division: Username: Date:7/31/2018



EXISTING BRIDGE SECTION



PROPOSED BRIDGE SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	TWP	7/18
CHECKED-REVIEWED	AMS	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

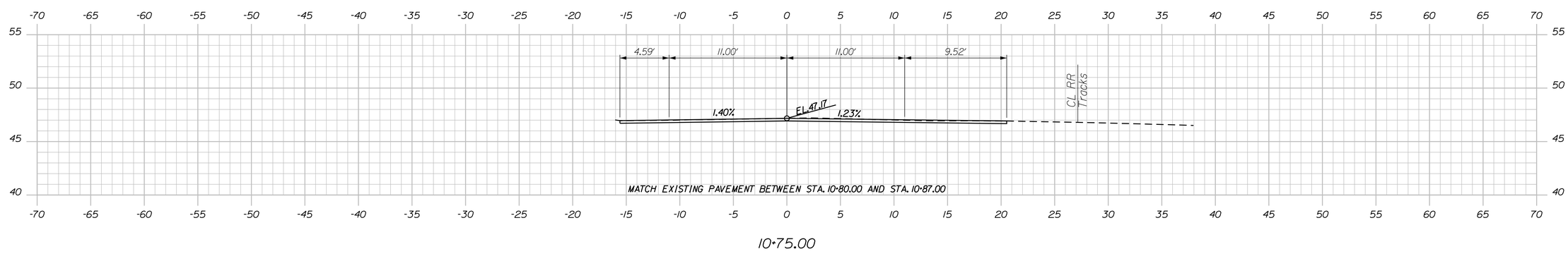
BRIDGE TYPICAL SECTIONS

SHEET NUMBER

16

OF 46

Filename: ...\CADD\016_BridgeTypical_01.dgn Division: Username: Date:7/31/2018



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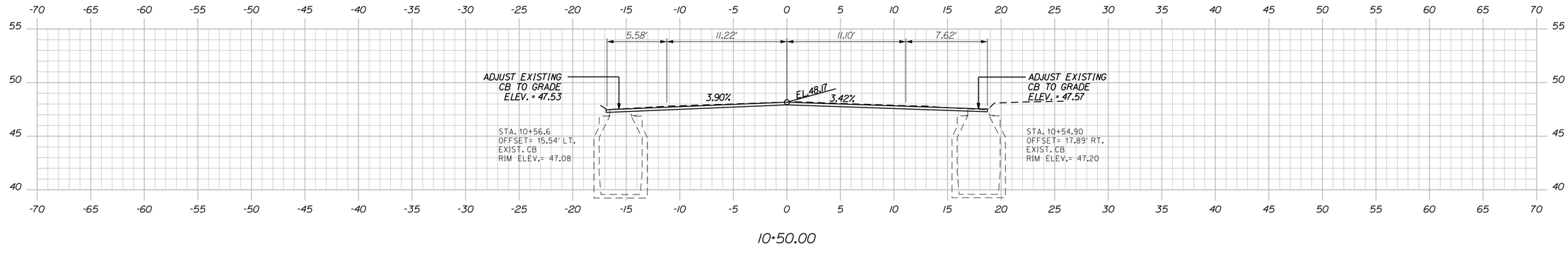

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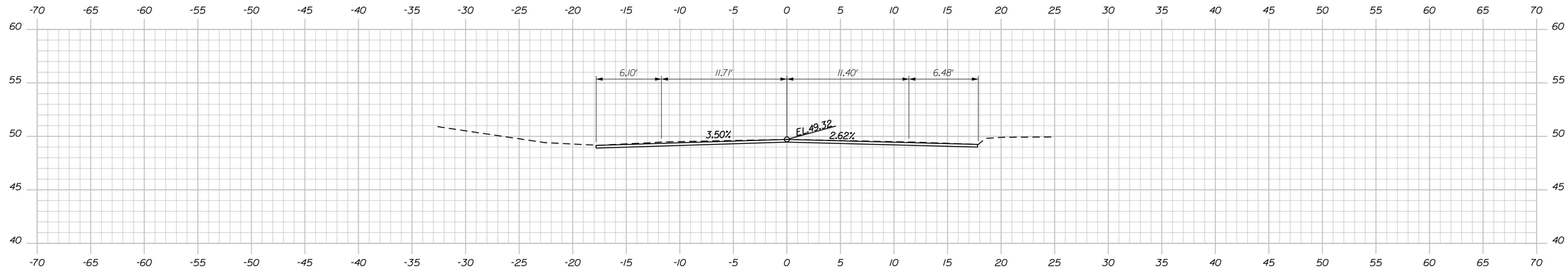

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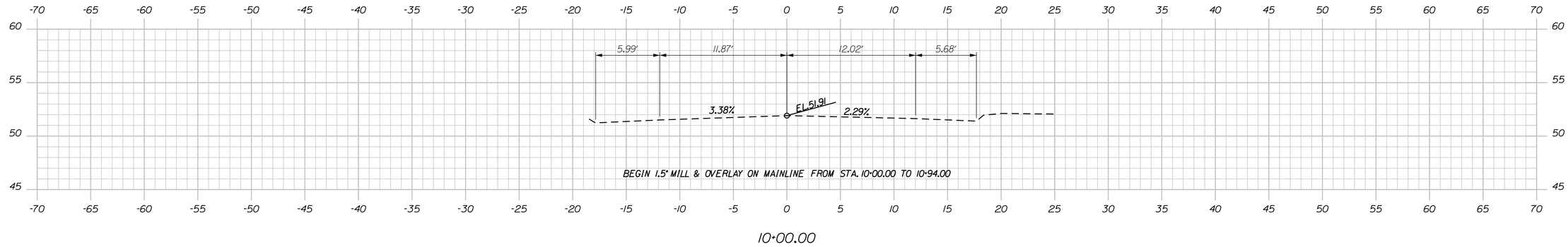


10+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

BRIDGE No. 5829

WIN 21723.00

BRIDGE PLANS

PROJ. MANAGER	$PROJMANAGER$		
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	AMS	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

CROSS SECTIONS

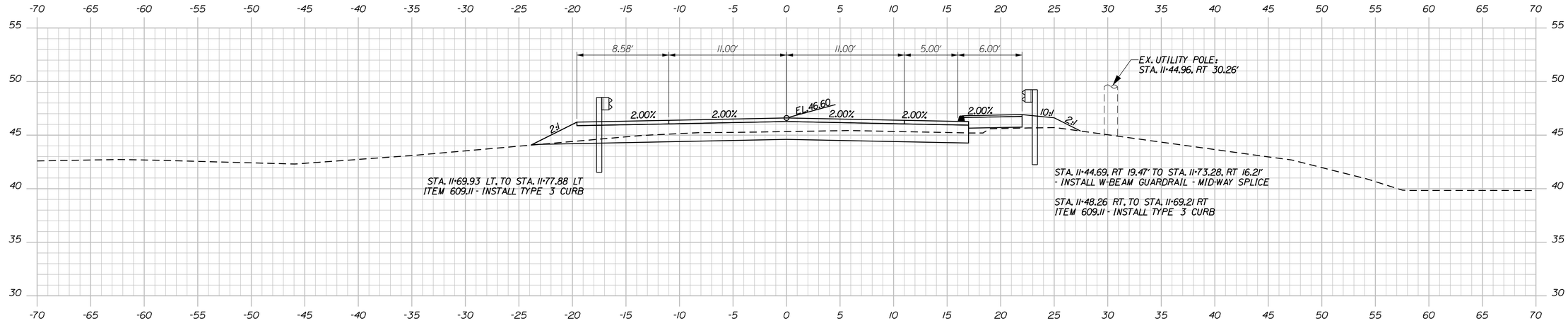
SHEET NUMBER

17

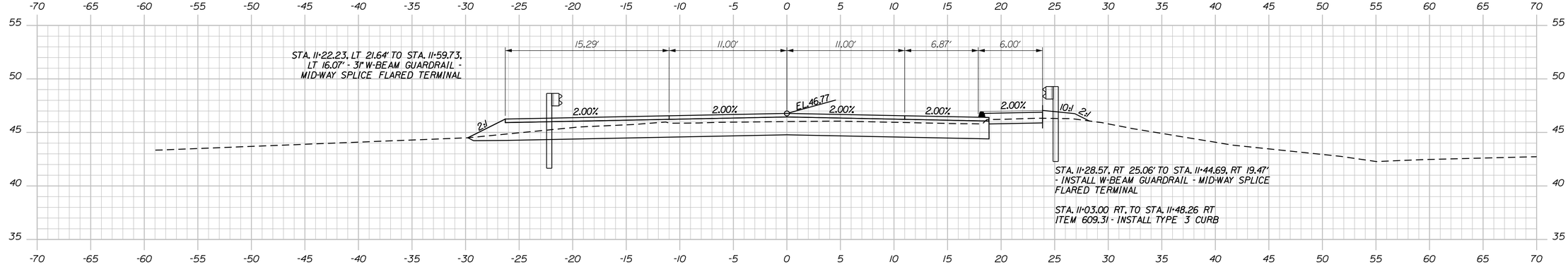
OF 46

Sta. 10+00.00 to Sta. 10+75.00

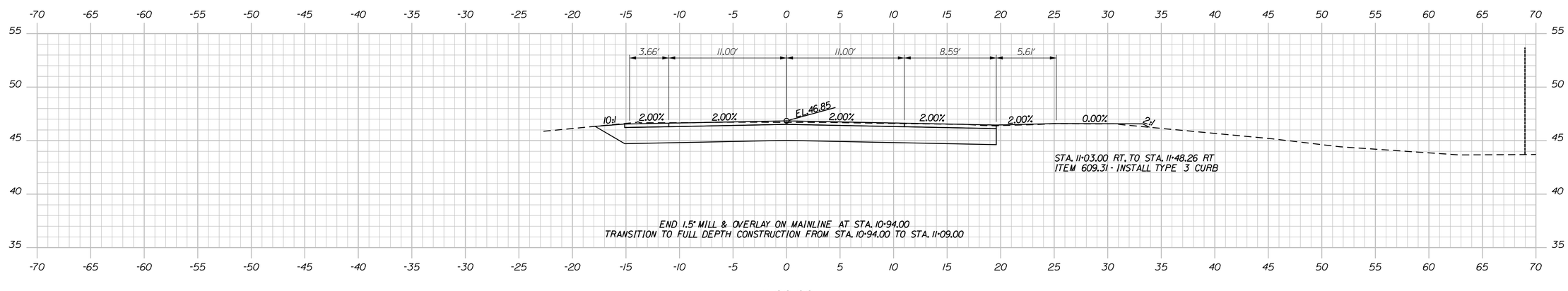
Filename: ...\CADD\017_Xsect1.dgn Division: Username: Date:7/31/2018



11+50.00



11+25.00



11+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

		SIGNATURE	
		P.E. NUMBER	
		DATE	

	BY	DATE
ENGINEER	WEG	7/18
PROJ. MANAGER	AMS	7/18

PROJ. MANAGER	$PROJMANAGER	
DESIGN-DETAILED	TWP	
CHECKED-REVIEWED	AMS	
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

CROSS SECTIONS

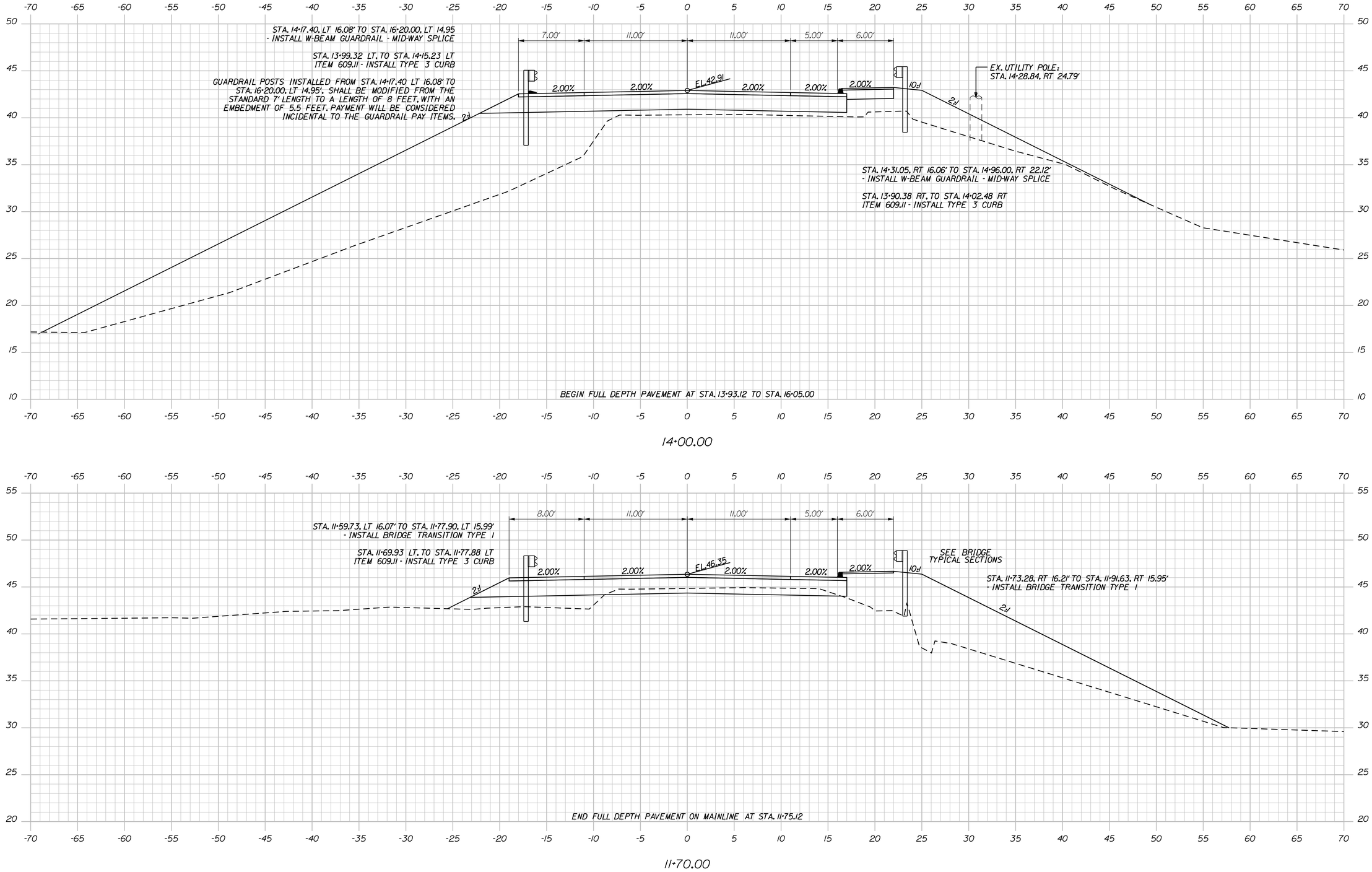
SHEET NUMBER

18

OF 46

Sta. 11+00.00 to Sta. 11+50.00

Filename: ...\CADD\018_Xsect2.dgn Division: Username: Date:7/31/2018



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER $PROJMANAGER$		
DESIGN-DETAILED TWP	WEG	7/18
CHECKED-REVIEWED AMS	AMS	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

CROSS SECTIONS

SHEET NUMBER

19

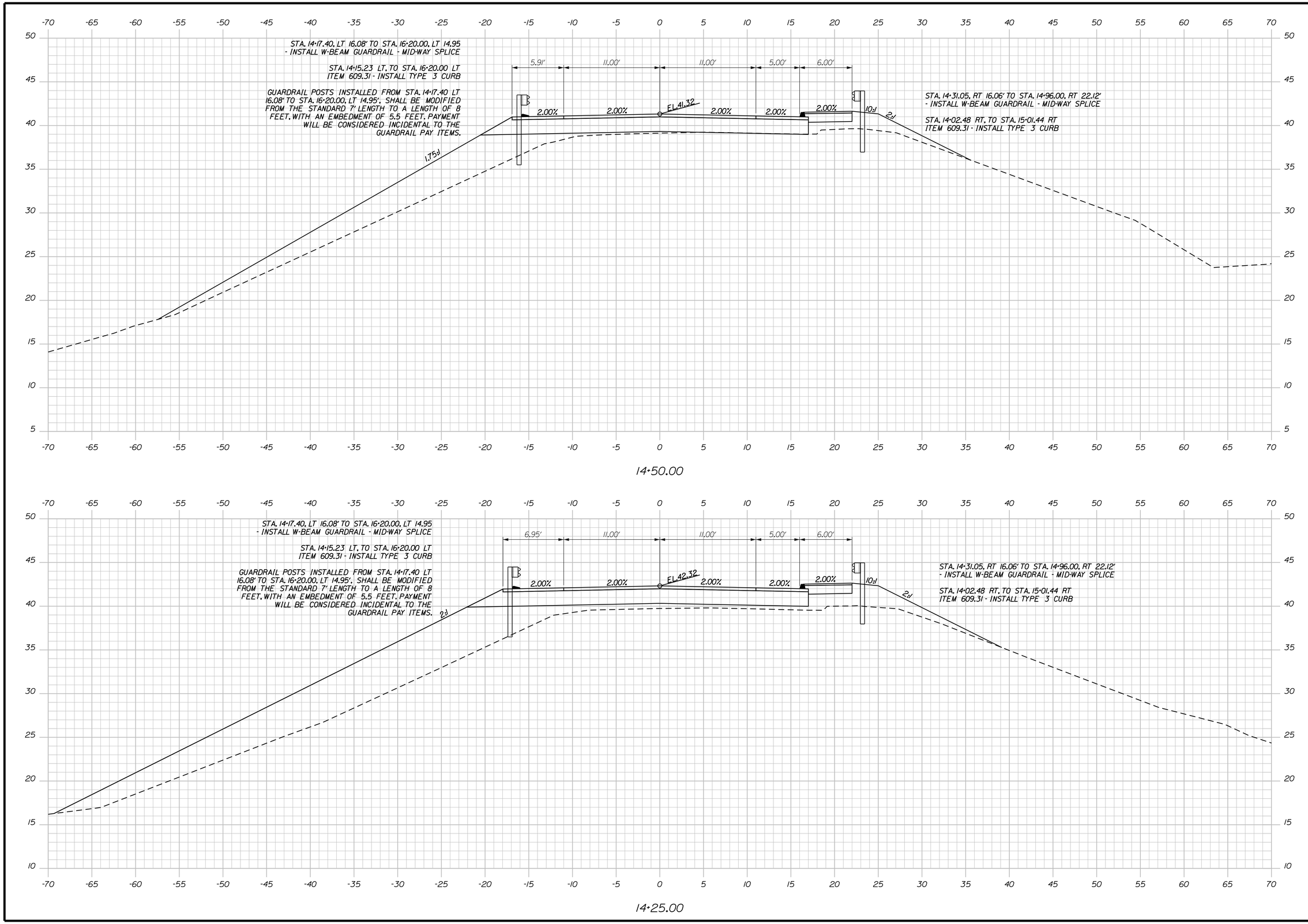
OF 46

Sta. 11+70.00 to Sta. 14+00.00

Username: Division:

Date:7/31/2018

Filename: ...\CADD\019_Xsect3.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

PROJ. MANAGER $PROJMANAGER$	BY	DATE
DESIGN-DETAILED TWP	WEG	7/18
CHECKED-REVIEWED AMS	AMS	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

CROSS SECTIONS

SHEET NUMBER

20

OF 46

Sta. 14+25.00 to Sta. 14+50.00

Username:

Division:

Date:7/31/2018

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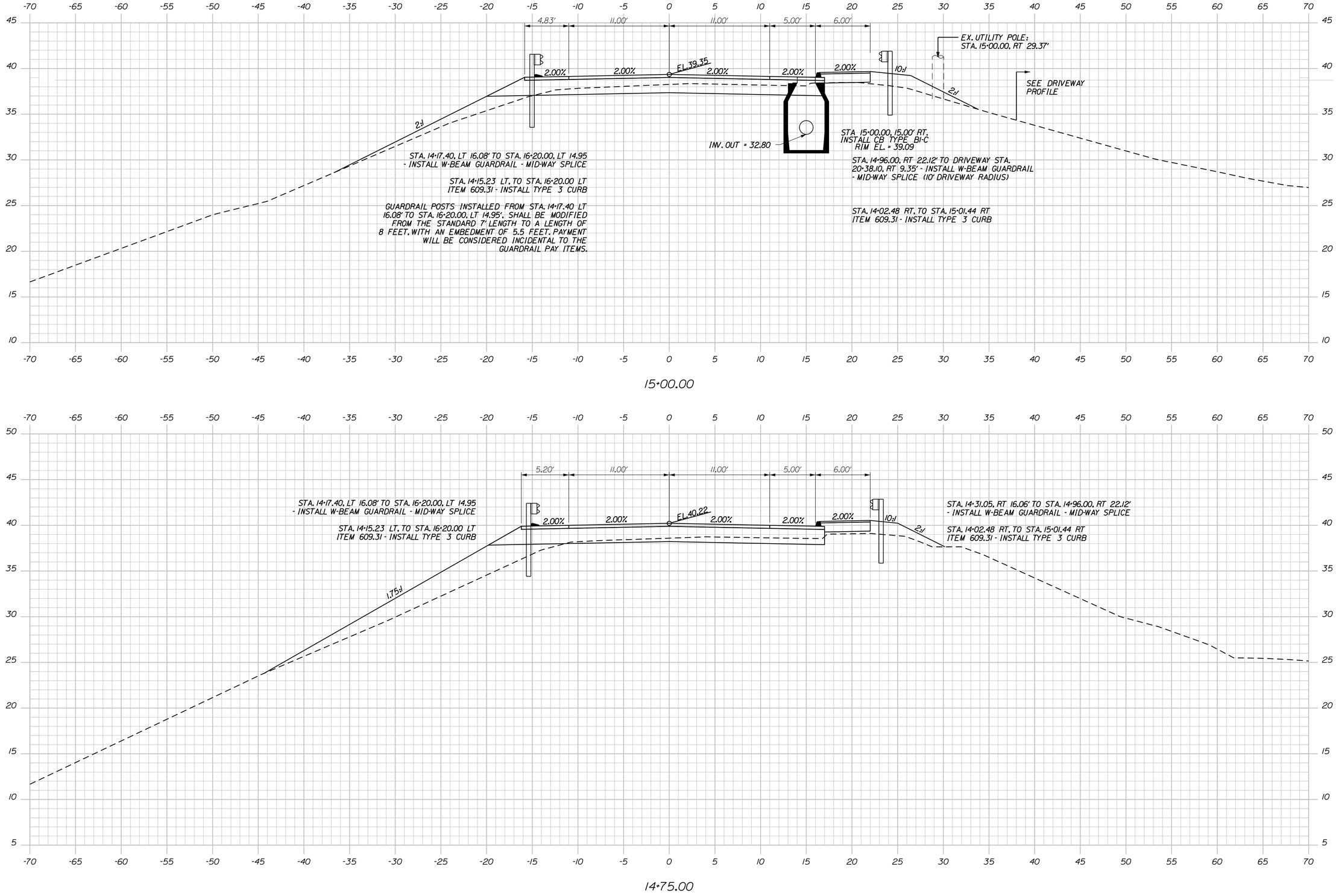

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

BRIDGE No. 5829

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	AMS	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

CROSS SECTIONS

SHEET NUMBER

21

OF 46

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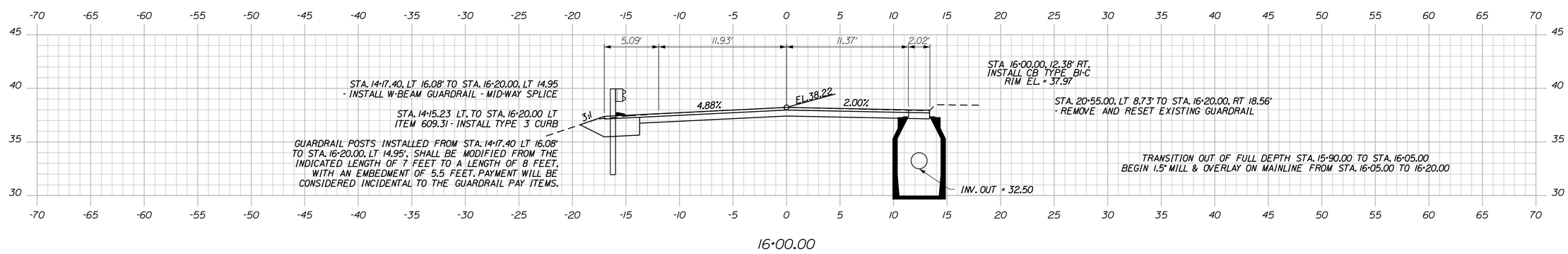
Date:7/31/2018 Username: Division: Filename: ...\CADD\021_Xsect5.dgn



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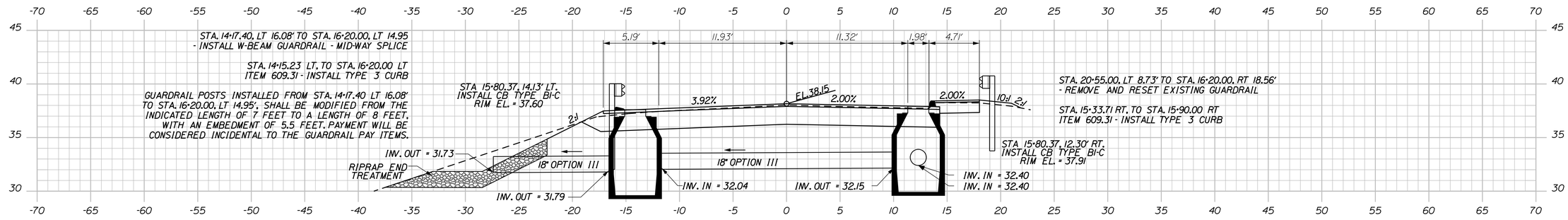

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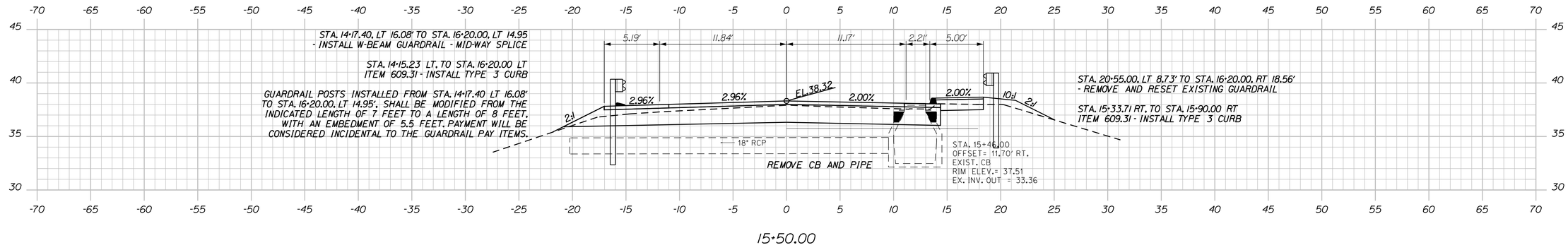

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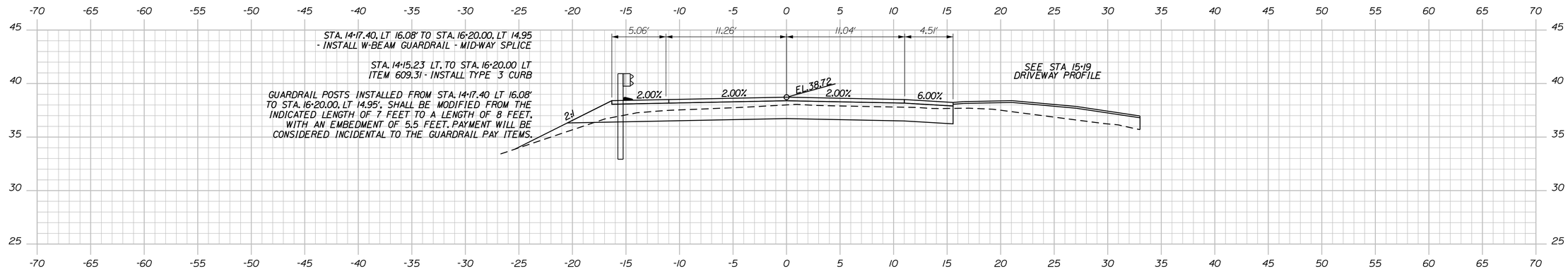


15+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

BRIDGE No. 5829

WIN 21723.00

BRIDGE PLANS

PROJ. MANAGER	$PROJMANAGER$	BY	DATE
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	AMS	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

CROSS SECTIONS

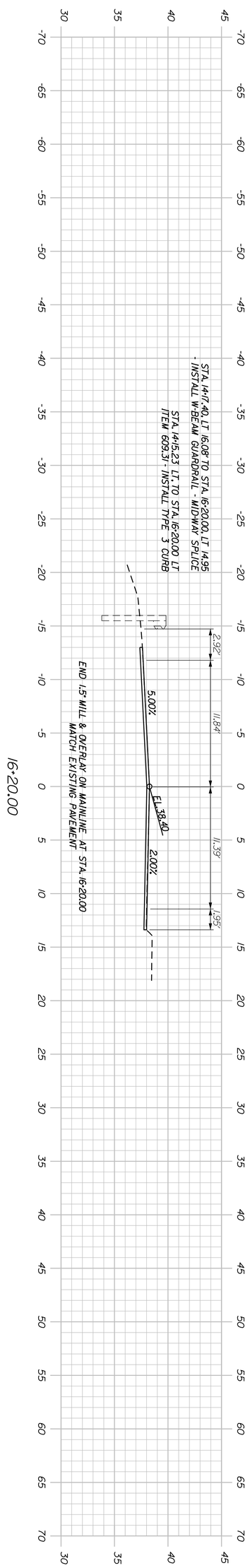
SHEET NUMBER

22

OF 46

Sta. 15+25.00 to Sta. 16+00.00

Date:7/31/2018
Username:
Division:
Filename: ...\CADD\022_Xsect16.dgn



Sta. 16+20.00 to Sta. 16+20.00

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

CROSS SECTIONS

SHEET NUMBER 23 OF 46

PROJ. MANAGER $PROJMANAGER$		BY	DATE
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	AMS	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

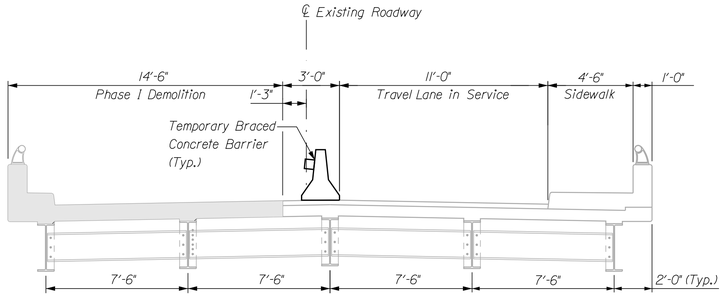
P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

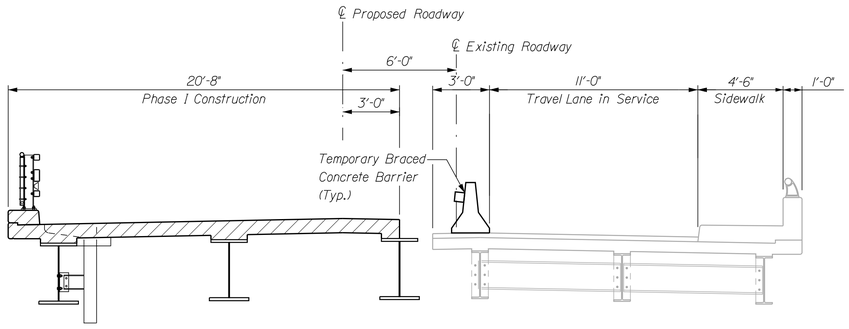
021723.00

BRIDGE No. 5829 WIN 21723.00 BRIDGE PLANS



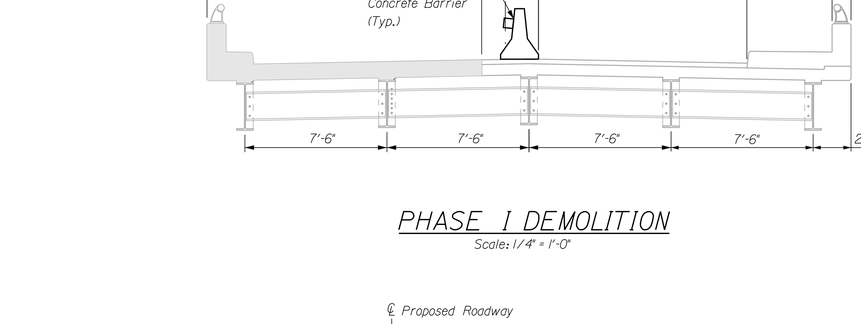
PHASE I DEMOLITION

Scale: 1/4" = 1'-0"



PHASE I CONSTRUCTION

Scale: 1/4" = 1'-0"



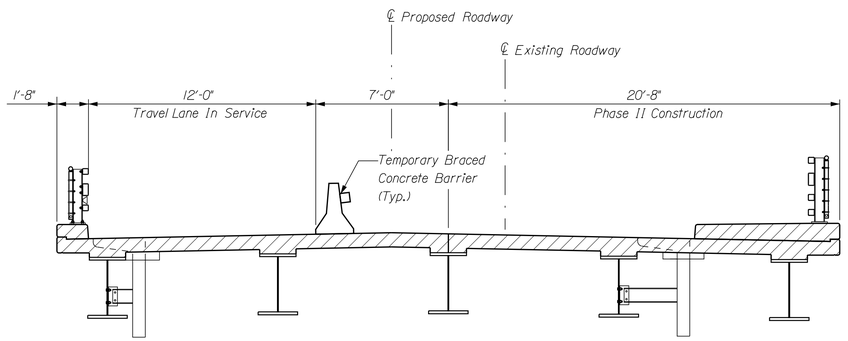
PHASE II DEMOLITION

Scale: 1/4" = 1'-0"

STAGED CONSTRUCTION NOTES

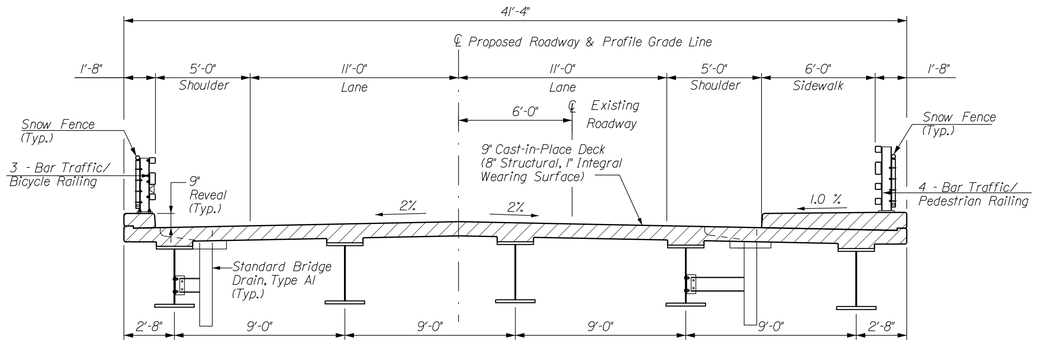
1. All construction shall be completed using approved maintenance of traffic procedures and in accordance with approved Maintenance of Traffic Plans.

2. Temporary structural supports shall be installed as necessary in each stage of construction behind the abutments to support the portion of Lunt Road carrying traffic.



PHASE II CONSTRUCTION

Scale: 1/4" = 1'-0"



COMPLETED BRIDGE IN SERVICE

Scale: 1/4" = 1'-0"

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	AMS	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

STAGED CONSTRUCTION

SHEET NUMBER

24

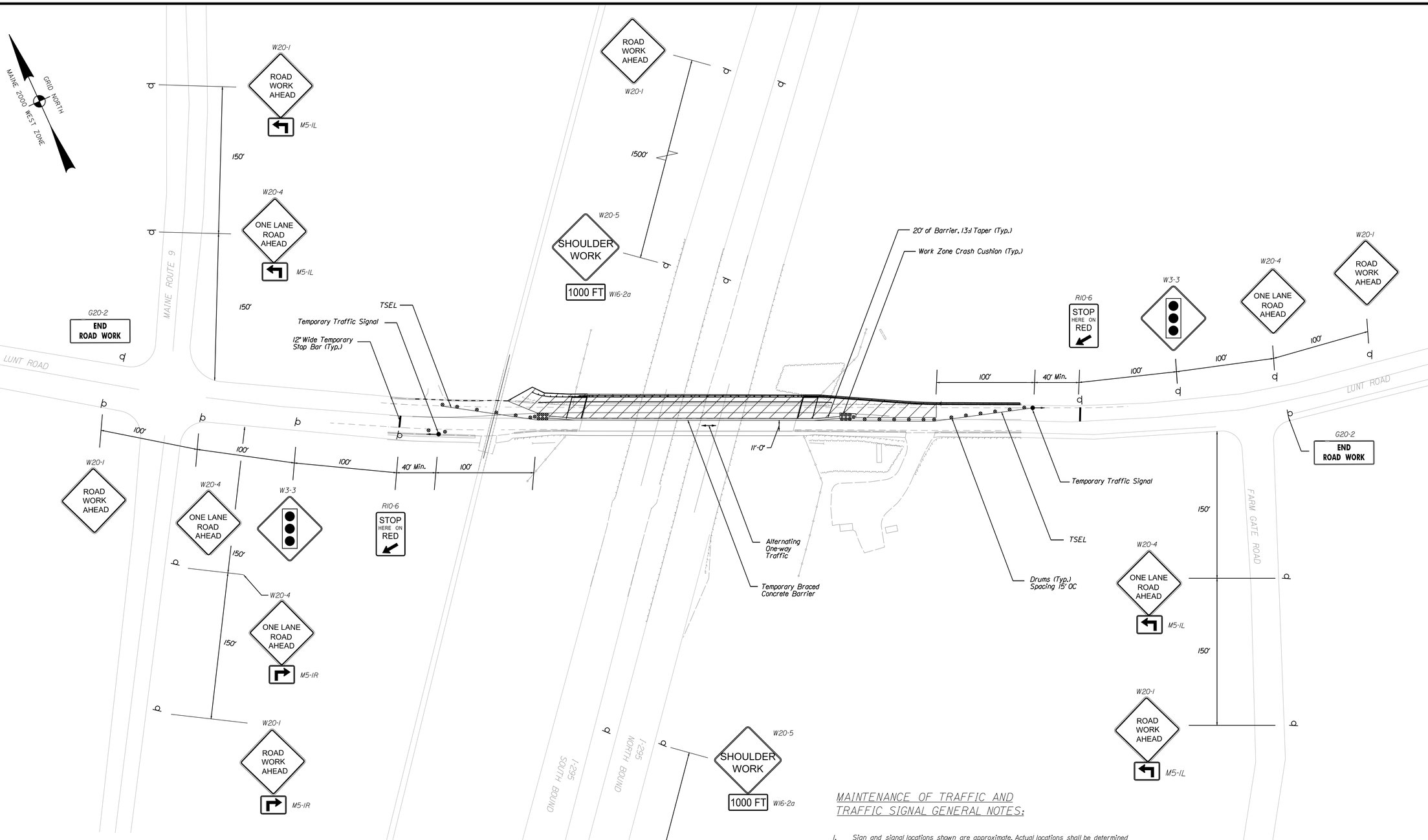
OF 46

Username: Date:7/31/2018

Division:

Filename: ...\024_Staged_Construction.dgn

Filename: ...\CADD\025_TCP_ Phase I.dgn Username: Division: Date: 7/31/2018



MAINTENANCE OF TRAFFIC PHASE I

LEGEND

- b — CONSTRUCTION SIGN
- ⊗ — TRAFFIC DRUM
- ═ — CONCRETE BARRIER
- ▨ — WORK ZONE

TSEL = 4" Temporary Single White Edge Line

PLAN

50 0 50 100

Scale of Feet

MAINTENANCE OF TRAFFIC AND TRAFFIC SIGNAL GENERAL NOTES:

1. Sign and signal locations shown are approximate. Actual locations shall be determined in the field and approved by the Resident.
2. The Contractor shall cover all existing signs that conflict with work zone signs and signals.
3. All traffic control shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," (MUTCD), USDOT, FHWA, latest edition.
4. The Contractor shall remove all existing pavement markings that conflict with proposed markings as directed by the Resident. Payment will be made under Item 627.77 - Remove Existing Pavement Marking.
5. This plan does not constitute the entirety of traffic phases and staged construction work required. Additional maintenance of traffic phases may be necessary for work efforts associated with, but not limited to, installation of closed drainage, sidewalk, embankment and driveway work. The Contractor is responsible for development and submittal of Maintenance of Traffic plans in accordance with Section 652.
6. Face of barrier shall be delineated when next to travelway (reflective markings). Payment will be made under Item 627.78 - Temporary 4" Painted Pavement Marking Line, White or Yellow.
7. Access to residential drives shall be maintained at all times.

STATE OF MAINE
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021723.00

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BRIDGE NO: 5829

BRIDGE PLANS

	SIGNATURE	P.E. NUMBER	DATE

PROJ. MANAGER	J. KITTREDGE
DESIGN-DETAILED	KLH
CHECKED-REVIEWED	RAB
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	

BY	DATE
KLH	7/18
RAB	7/18

REVISIONS
REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

MAINTENANCE OF TRAFFIC PHASE I

SHEET NUMBER

25

OF 46

Filename: ...\CADD\026_TCP_ Phase II.dgn Division: Username: Date: 8/3/2018

GRID NORTH
MAINE 2000 WEST ZONE

MAINE ROUTE 9

LUNT ROAD

FARM GATE ROAD

I-295 SOUTH BOUND

I-295 NORTH BOUND

W20-1 ROAD WORK AHEAD
M5-1L
150'
R9-9 SIDEWALK CLOSED
On Type III Barricade
W20-4 ONE LANE ROAD AHEAD
M5-1L
G20-2 END ROAD WORK
150'
W20-1 ROAD WORK AHEAD
1500'
W20-5 SHOULDER WORK
1000 FT W16-2a
TSEL
Temporary Traffic Signal
12' Wide Temporary Stop Bar (Typ.)
Alternating One-way Traffic
12'-0"
20' Barrier, 13:1 Taper (Typ.)
Work Zone Crash Cushion (Typ.)
R10-6 STOP HERE ON RED
W3-3
100'
40' Min.
100'
100'
100'
W20-4 ONE LANE ROAD AHEAD
100'
W20-1 ROAD WORK AHEAD
G20-2 END ROAD WORK
Drums (Typ.) Spacing 15' OC
Temporary Braced Concrete Barrier
On Type III Barricade
R9-9 SIDEWALK CLOSED
150'
W20-4 ONE LANE ROAD AHEAD
M5-1L
150'
W20-1 ROAD WORK AHEAD
M5-1L
W20-1 ROAD WORK AHEAD
W20-4 ONE LANE ROAD AHEAD
M5-1L
150'
W3-3
R10-6 STOP HERE ON RED
W20-4 ONE LANE ROAD AHEAD
M5-1R
150'
W20-1 ROAD WORK AHEAD
M5-1R
W20-5 SHOULDER WORK
1000 FT W16-2a
1500'
W20-1 ROAD WORK AHEAD

MAINTENANCE OF TRAFFIC PHASE II

LEGEND

- CONSTRUCTION SIGN
- TRAFFIC DRUM
- CONCRETE BARRIER
- WORK ZONE

TSEL = 4" Temporary Single White Edge Line

PLAN

50 0 50 100
Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE NO: 5829

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	KLH	7/18
CHECKED-REVIEWED	RAB	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

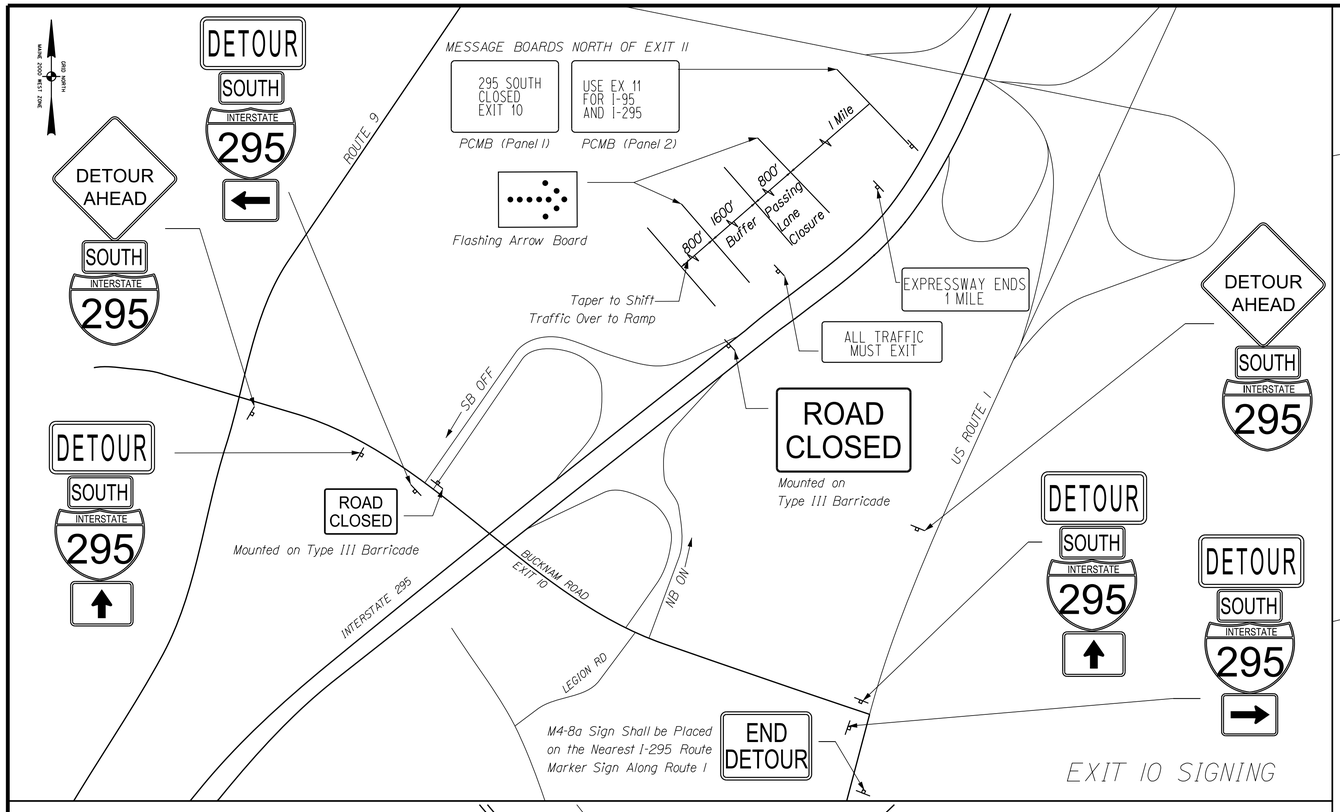
MAINTENANCE OF TRAFFIC
PHASE II

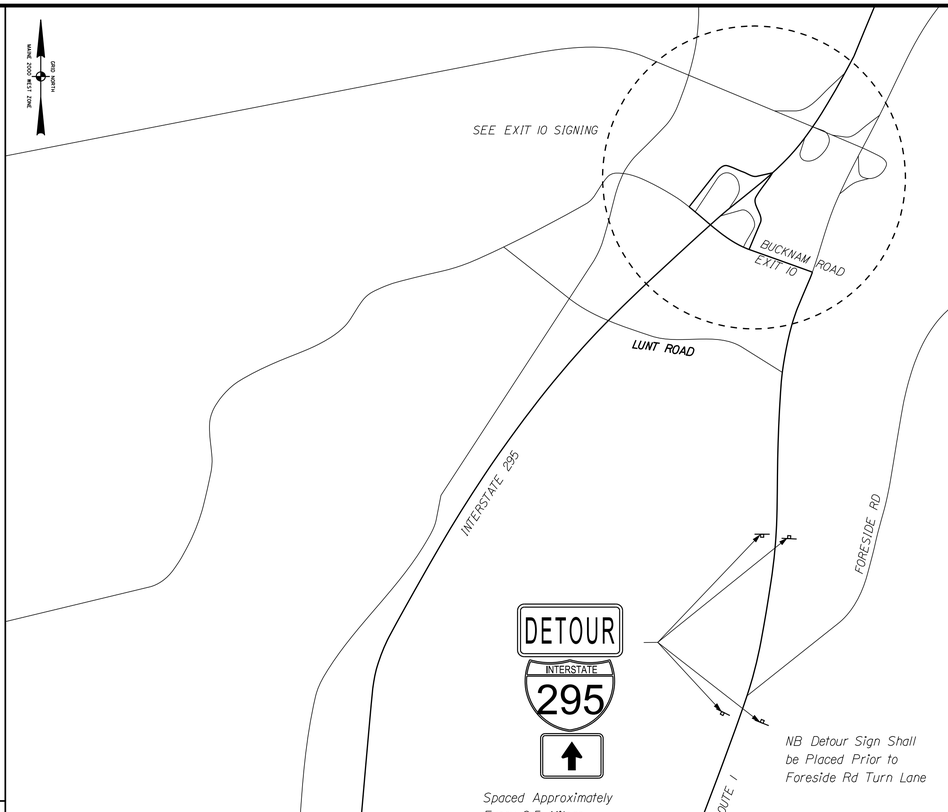
SHEET NUMBER

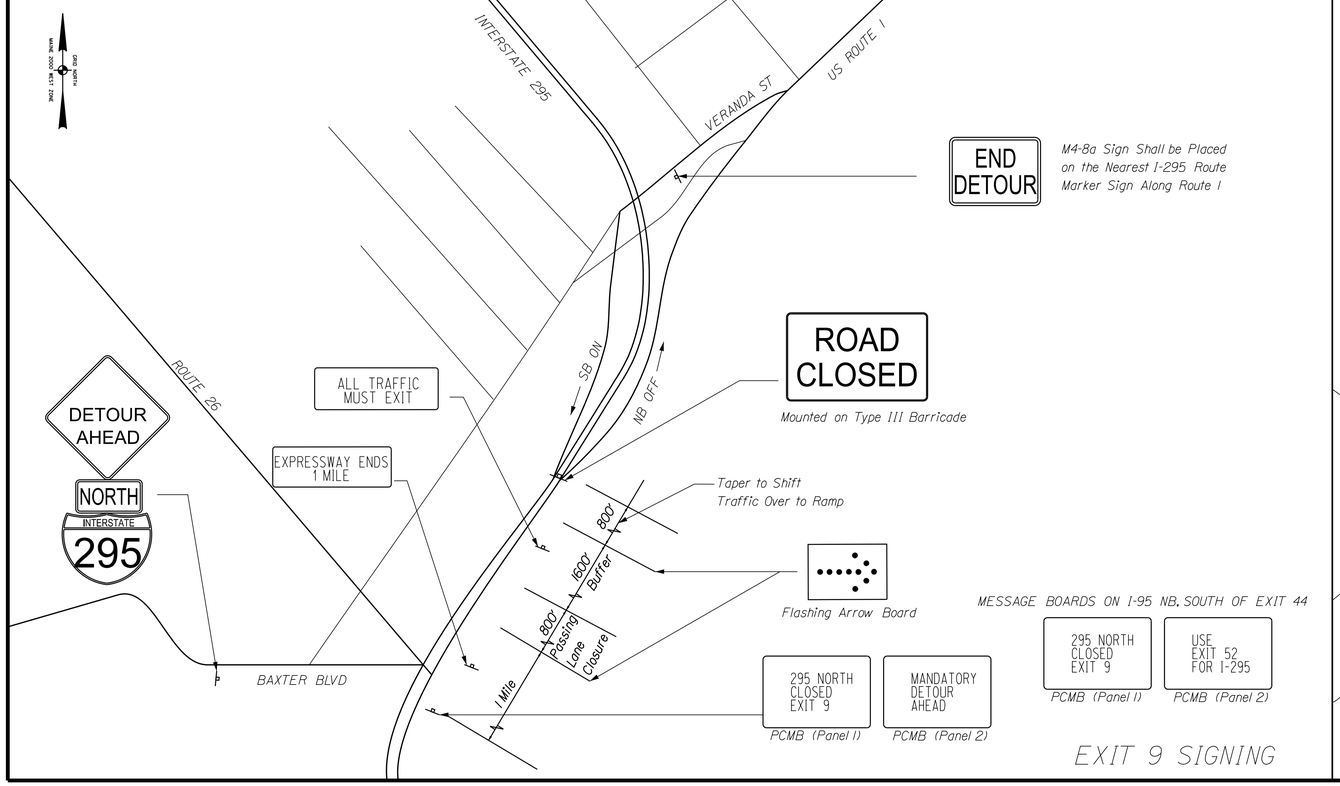
26

OF 46

Filename: ...\CADD\027_Detour_Plan.dgn Division: Username: Date: 7/31/2018







STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE NO: 5829

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	KLH	7/18
CHECKED-REVIEWED	RAB	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

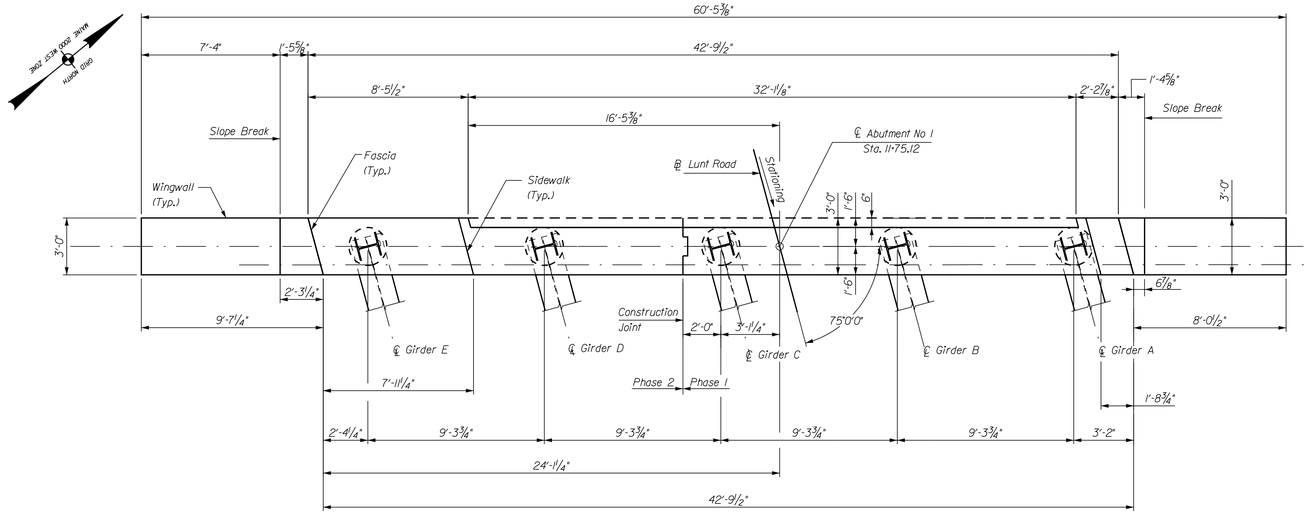
LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

I-295 DETOUR PLAN

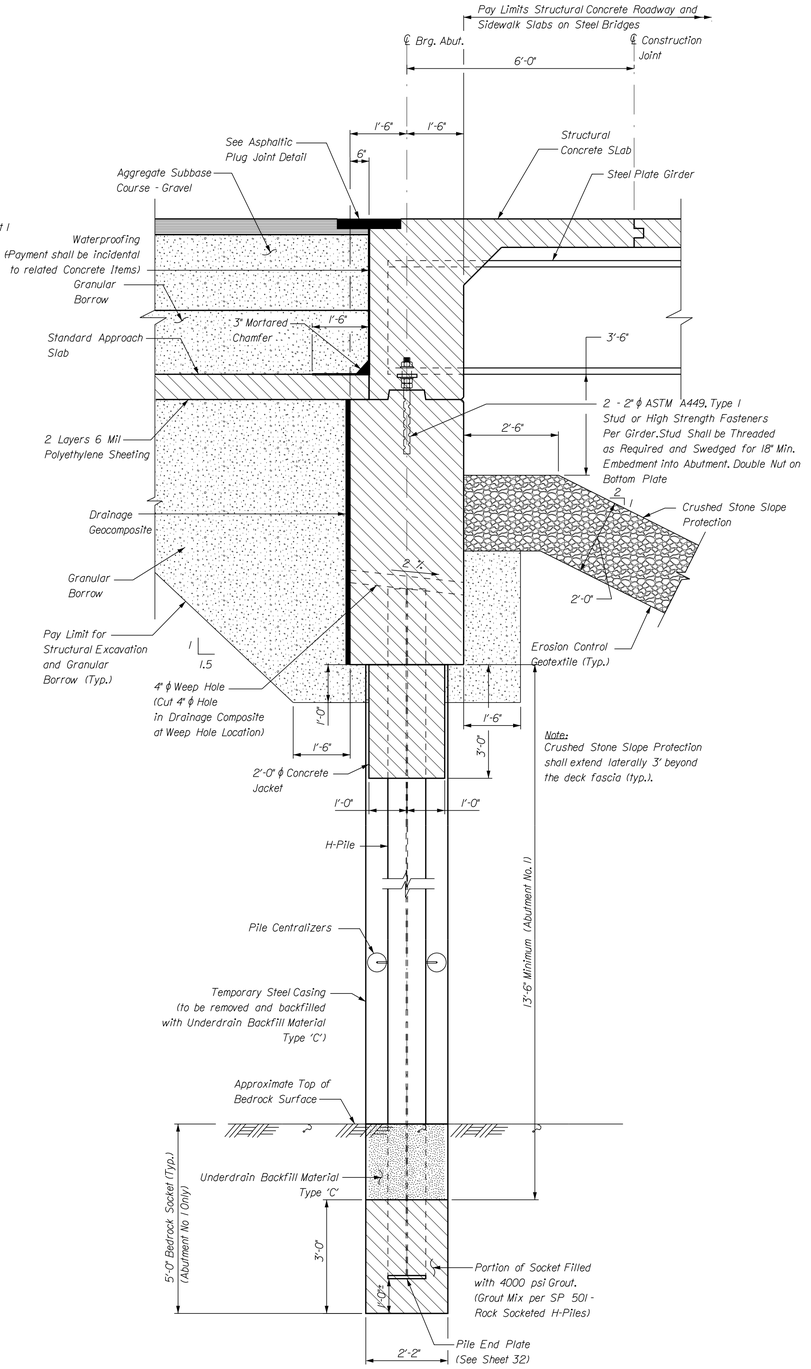
SHEET NUMBER

27

OF 46



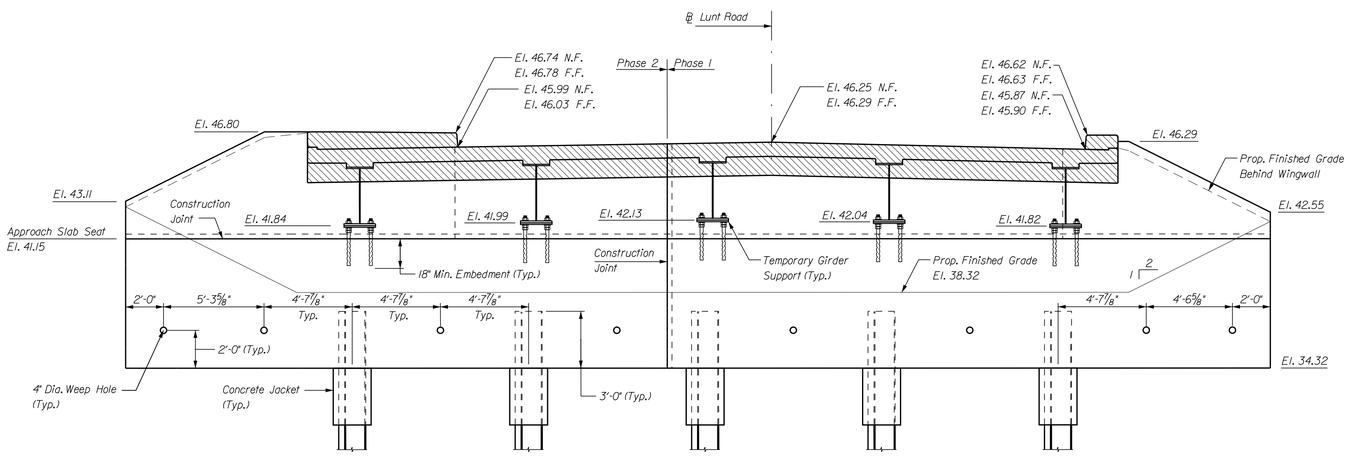
ABUTMENT No. 1 PLAN



TYPICAL SECTION AT ABUTMENT No. 1 AND No. 2

Note:
Bedrock Socket Only Applicable at Abutment No. 1

TEMPORARY GIRDER SUPPORT DETAIL



ABUTMENT No. 1 ELEVATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No 5829

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	WEG	7/18
CHECKED-REVIEWED	NLG	7/18
	MM	
	TWP	

SIGNATURE

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DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

ABUTMENT No 1
PLAN AND ELEVATION

SHEET NUMBER

28

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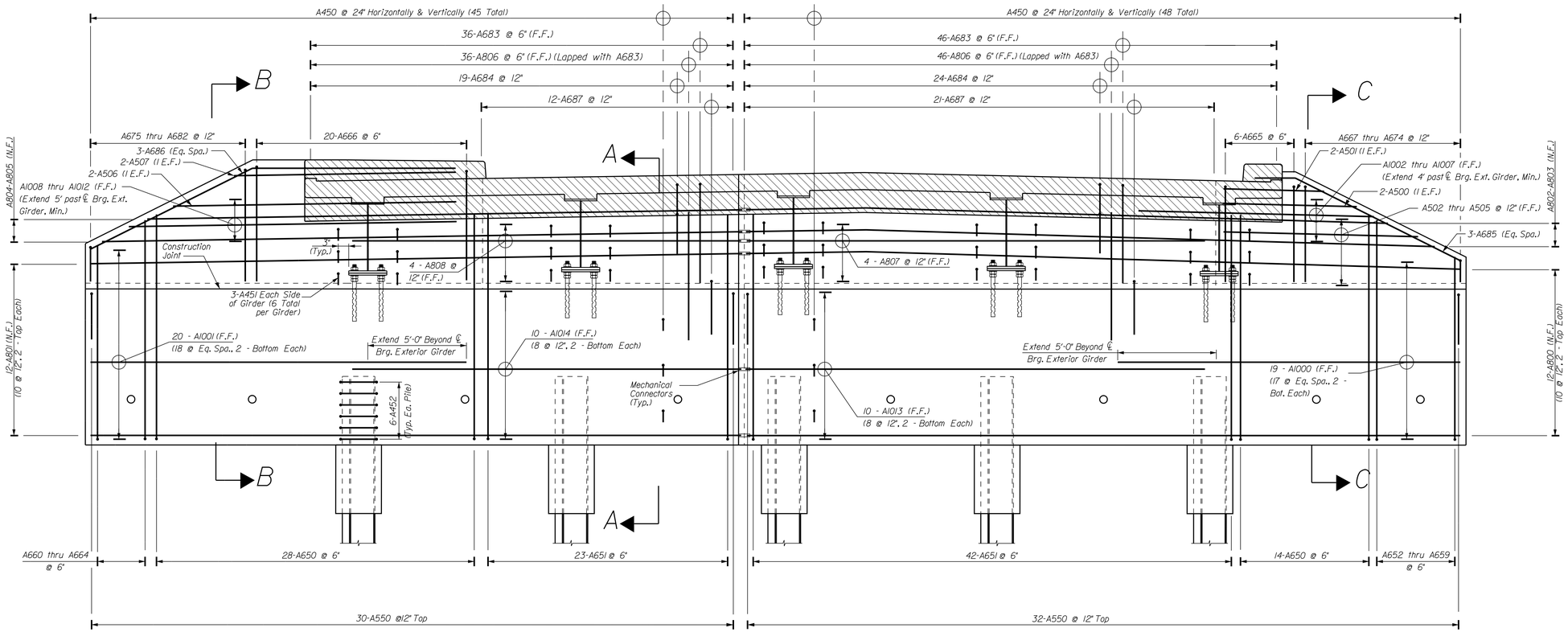
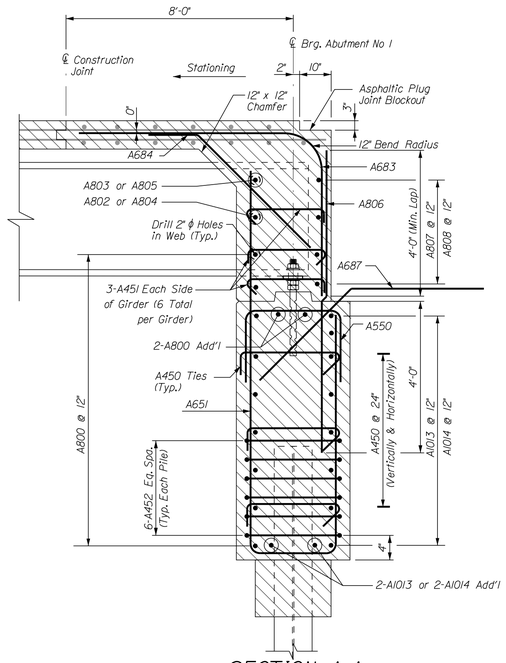
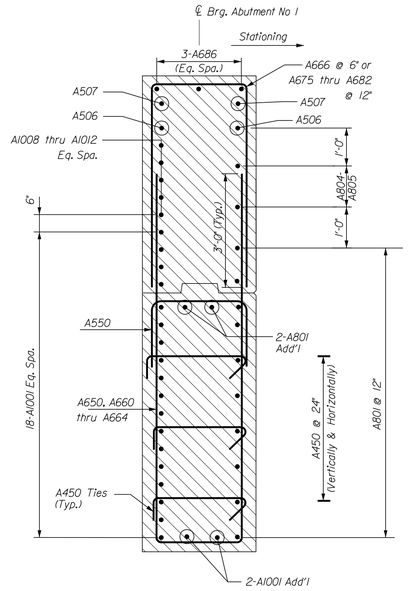


ABUTMENT No 1 REINFORCEMENT



SECTION A-A



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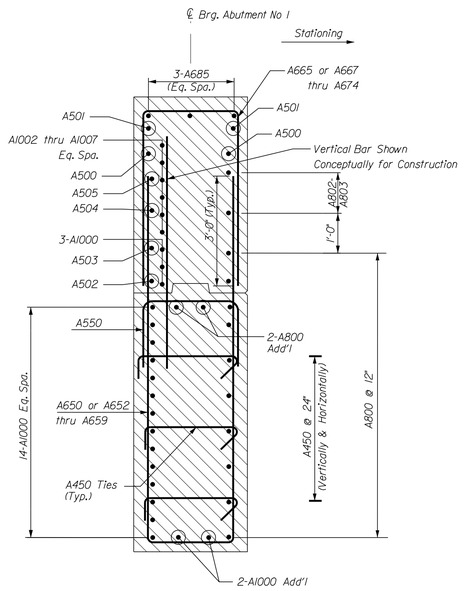

SECTION C-C

ABUTMENT REINFORCING NOTES:

1. Deck reinforcing shown screened for clarity.
2. The blockout for the asphaltic plug joint shall extend transversely from gutterline to gutterline.
3. Adjust vertical reinforcing bars to fit around girders and piles.

STATE OF MAINE
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021723.00

WIN 21723.00

BRIDGE No 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE	BY	DATE
DESIGN-DETAILED	NLG	WEG	7/18
CHECKED-REVIEWED	MM	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

ABUTMENT No 1
REINFORCEMENT

SHEET NUMBER

29

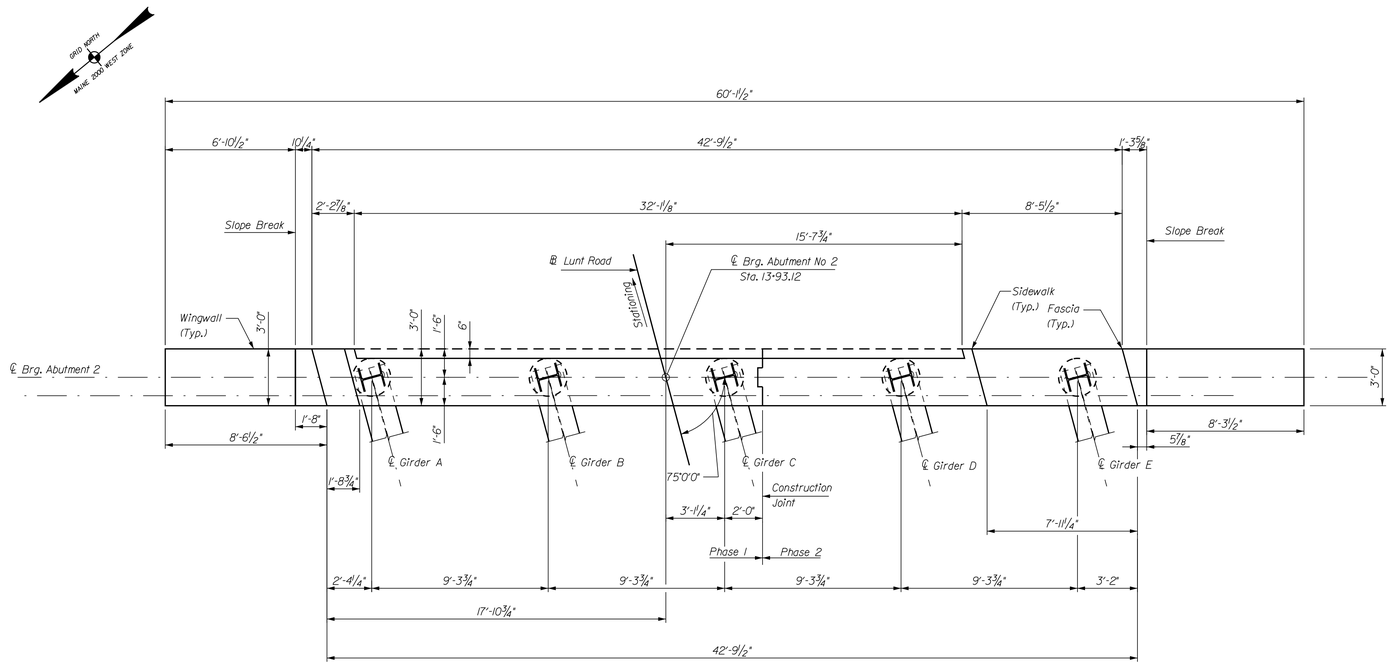
OF 46

Username:

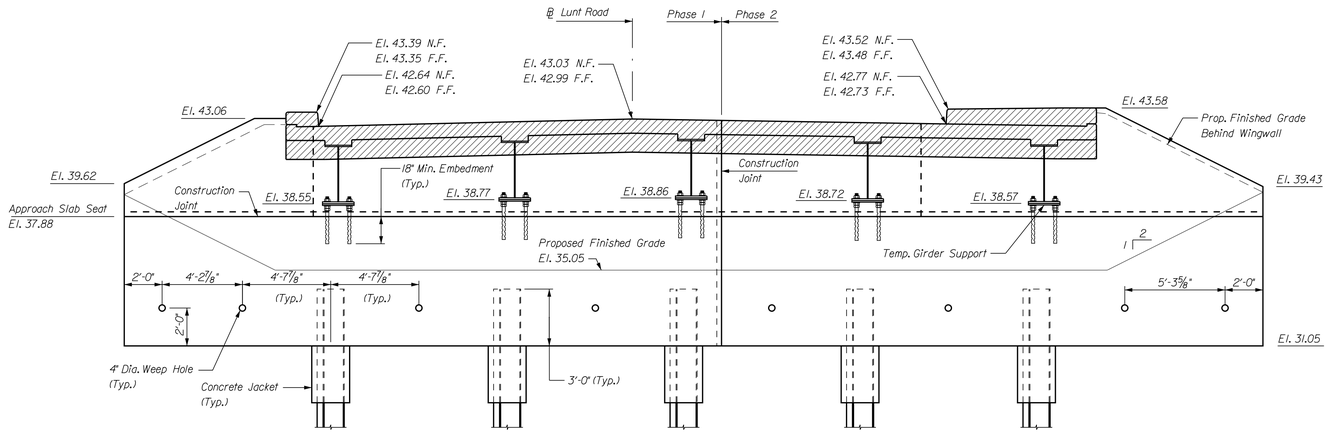
Date:7/31/2018

Division:

Filename: ...\029_Abutment1_Reinforcing.dgn



ABUTMENT No. 2 PLAN



ABUTMENT No. 2 ELEVATION

ABUTMENT NOTES

1. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.

2. Cover joints where waterstops are not required in accordance with Standard Details (Section 502(11)).

3. Construct drainage geocomposite behind the abutments and wingwalls in accordance with special provision section 620, geotextiles - drainage composite.

4. Abutments, wingwalls and their footings shall be backfilled with Granular Borrow. Pay limits will be shown on sheet 28.

5. 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 may be used for the concrete jackets.

6. Existing Abutments shall be completely removed, existing abutment H-Piles to be cut-off 2' below proposed bottom of abutment stem. Structural Excavation to remove the existing abutments shall be incidental to Pay Item 202.19.

PILE NOTES

1. The maximum calculated factored axial pile load is 466 kips. (Strength 1)

2. H-pile material shall be ASTM A572, grade 50.

3. Estimate of the piles required (Includes an extra 5 feet per pile as a contingency):
   Abutment No. 1 5 - HP 14x89 @ 25'
   Abutment No. 2 5 - HP 14x89 @ 41'

4. Splicing of Piles is not permitted at Abutment No. 1.

5. Installation of Rock Socketed H-Piles at Abutment No. 1 shall be paid under Item 501.502 - Rock Socketed H-Piles HP14x89 lbs/ft, In Place.

6. Installation of driven H-Piles at Abutment No. 2 shall be paid under Item 501.501 - Steel H-Beam Piles 89 lb/ft, In Place.

7. H-Piles installed at Abutment No. 2 shall be driven to bearing on or near the top of bedrock.

8. A steel plate shall be welded across abutment No. 1 pile tips. (See detail on sheet 32)

9. H-Piles installed at Abutment No. 2 shall be fitted with cast steel driving tips per Section 501.10 - Pile Tips.

10. 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 analysis shall include the proposed driving criteria based on the wave equation analysis and the proposed driving system. The stopping criteria shall include the blows per inch and the minimum number of 1 inch 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.

11. The Contractor shall perform a total of 1 dynamic pile load tests, at Abutment No. 2, to confirm the ultimate capacity of the piles. The required normal resistance for the pile is the factored axial pile load divided by the resistance factor of 0.65 per LFRD specifications. The dynamic test shall be performed on the first production pile driven at Abutment No. 2. Minimum 24 hour pile restrikes shall be conducted on all test piles in order to ensure the required normal resistance has been achieved and verify pile relaxation has not occurred. The contractor may drive production piles to the preliminary driving criteria. However pile cut-off will not be permitted until competition of restrike testing and establishment of final driving criteria.

12. The Temporary Girder Supports, including anchor rods, leveling plates and any associated hardware and labor required for installation shall not be paid for directly. Payment shall be incidental to pay item 502.219, structural concrete, abutments and retaining walls.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	NLG	WEG	7/18
CHECKED-REVIEWED	MM	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

ABUTMENT No. 2
PLAN AND ELEVATION

SHEET NUMBER

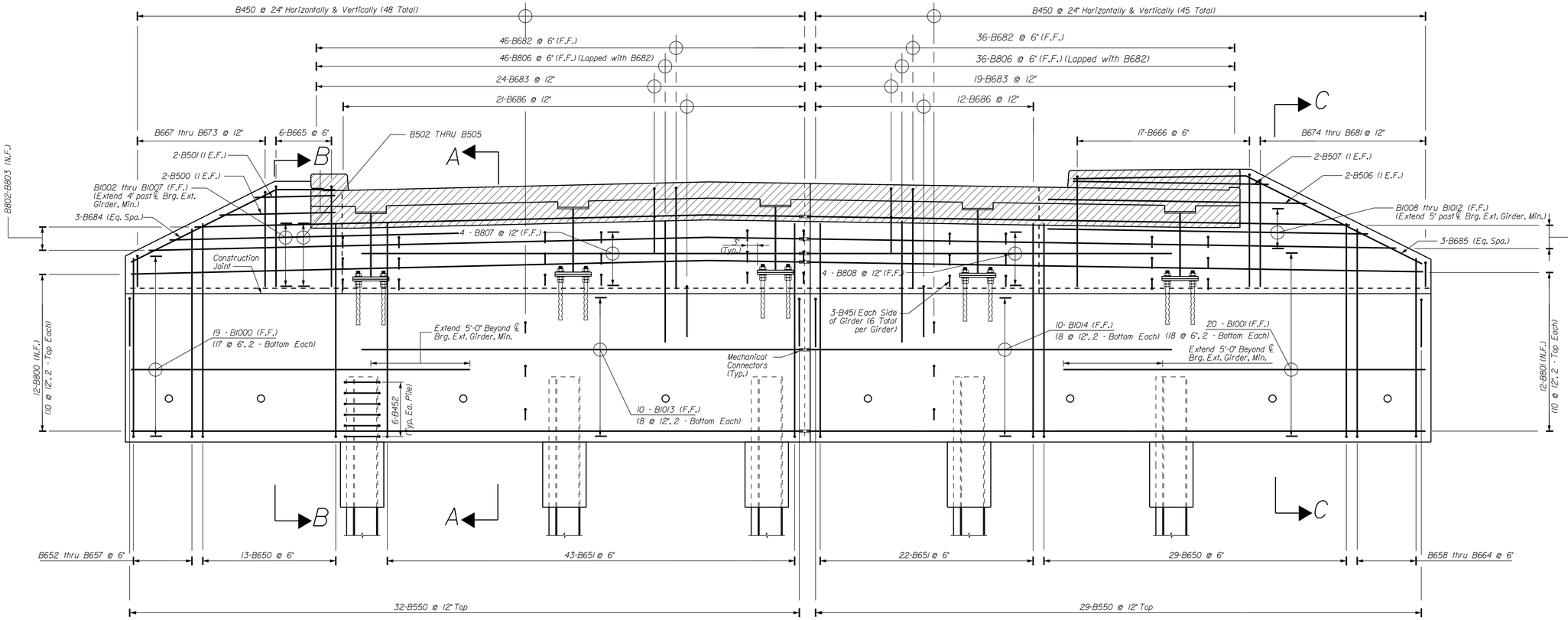
30

OF 46

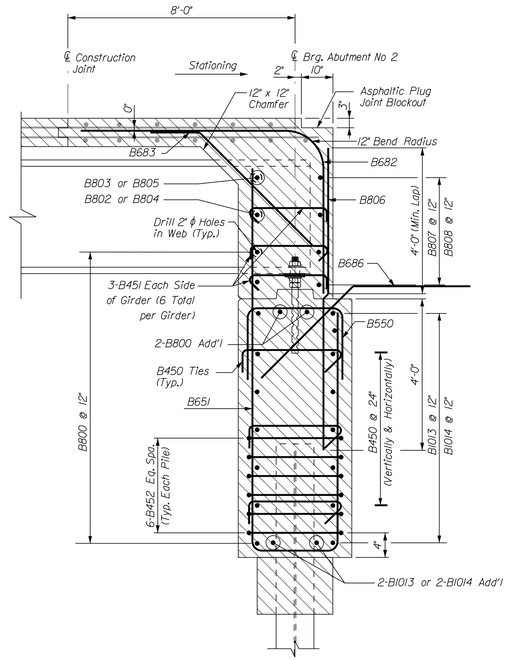
Date:7/31/2018

Username:

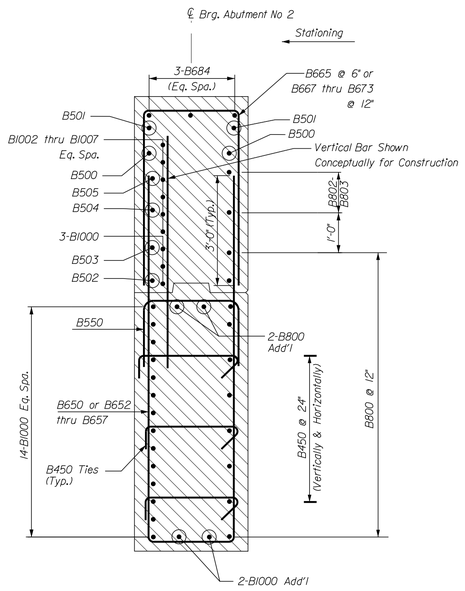
Filename: ...\CADD\030_Abutment2_Masonry.dgn Division:



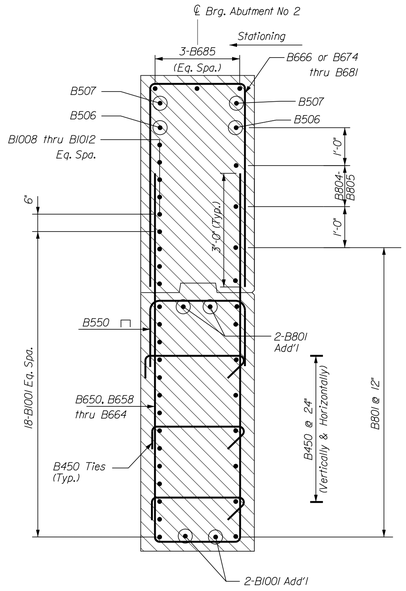
ABUTMENT No 2 REINFORCEMENT



SECTION A-A



SECTION B-B



SECTION C-C

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

BRIDGE No 5829

PROJ. MANAGER	J. KITTREDGE	BY	DATE
DESIGN-DETAILED	NLG	WEG	7/18
CHECKED-REVIEWED	MM	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

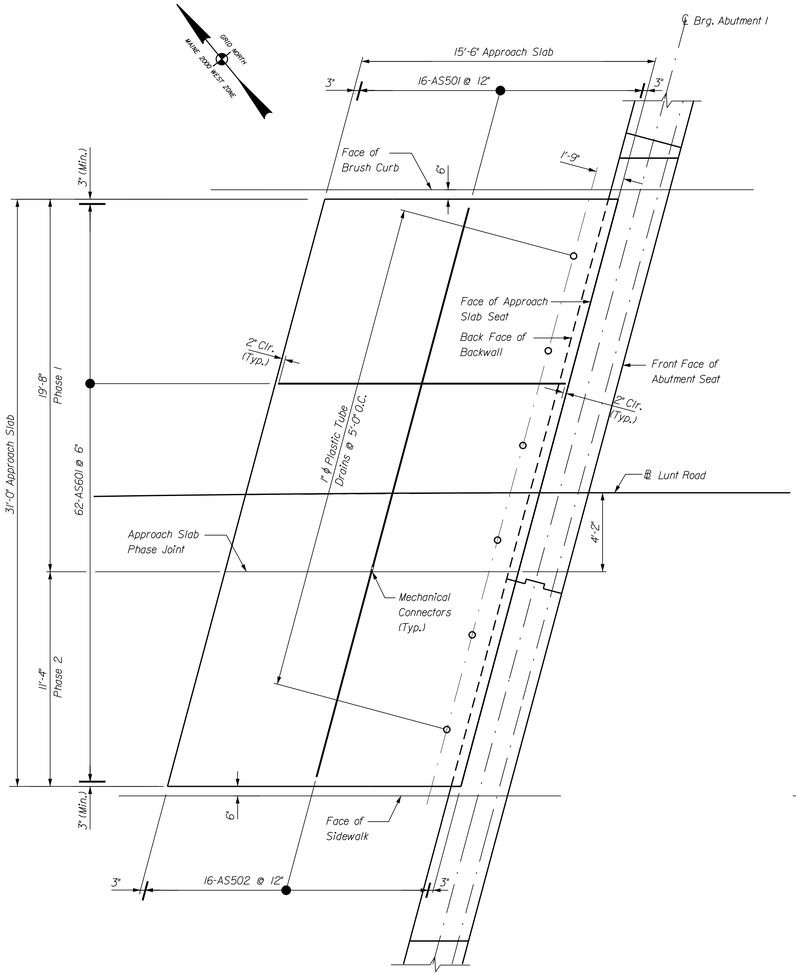
LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

ABUTMENT No 2
REINFORCEMENT

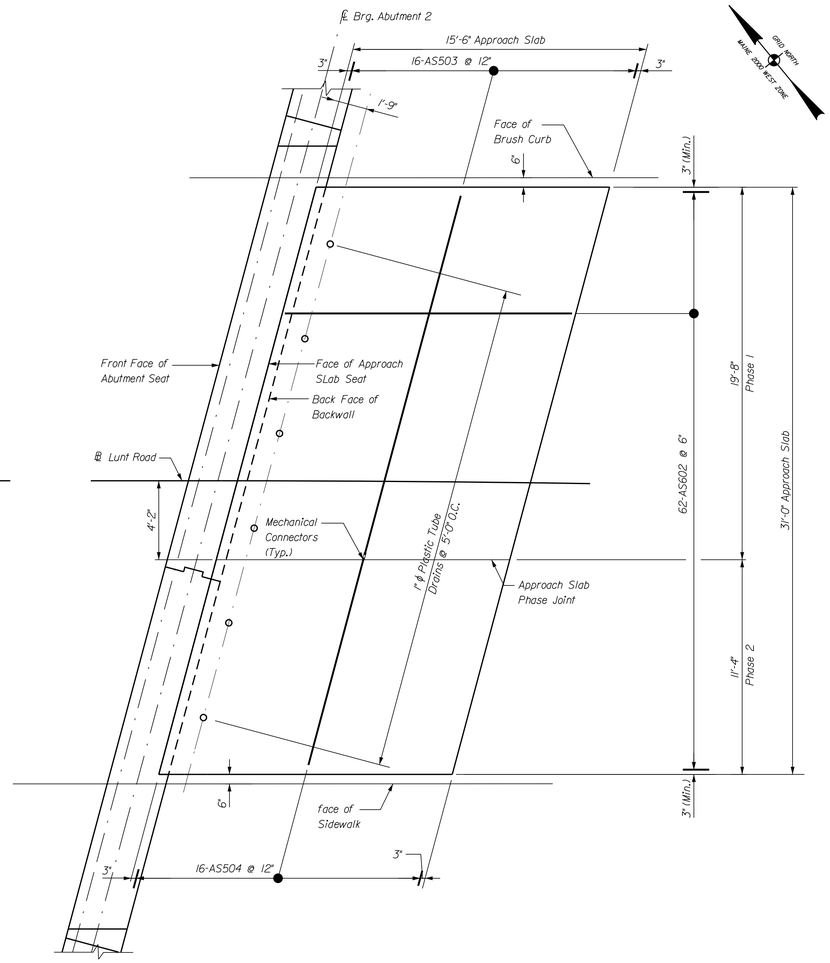
SHEET NUMBER

31

OF 46



PLAN APPROACH SLAB ABUTMENT 1



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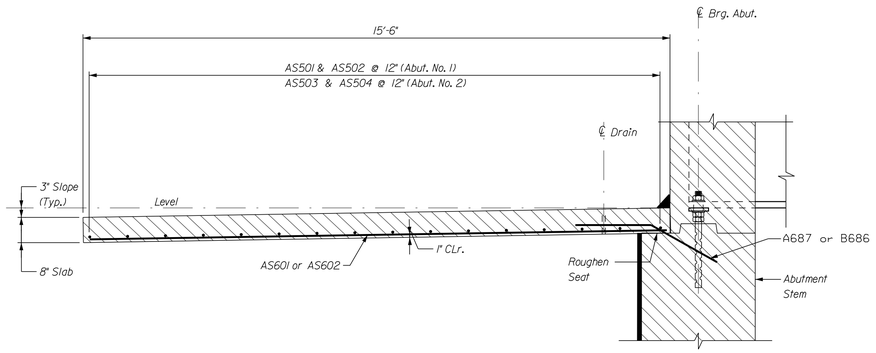
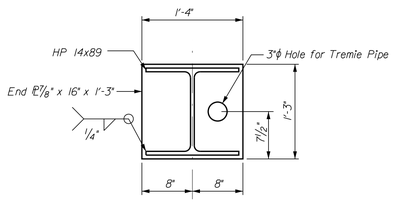


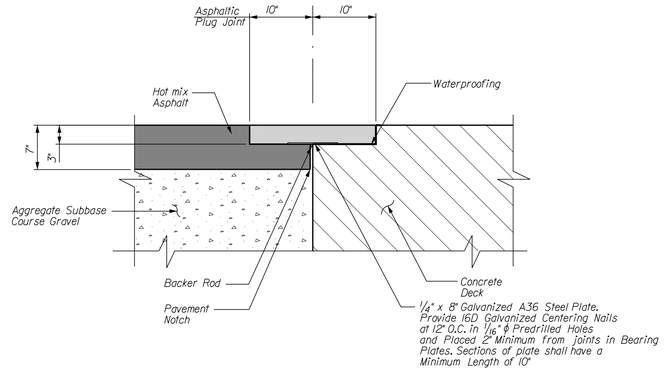
TYPICAL APPROACH SLAB SECTION

(Abutment 1 Shown, Abutment Similar, Opposite Hand)



PILE END PLATE DETAIL

(Pile End Plate to be used for Rock Socketed Piles Only)



ASPHALTIC PLUG JOINT DETAIL

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	TWP	WEG	7/18
CHECKED-REVIEWED	AMS	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

APPROACH SLAB MASONRY AND REINFORCING

SHEET NUMBER

32

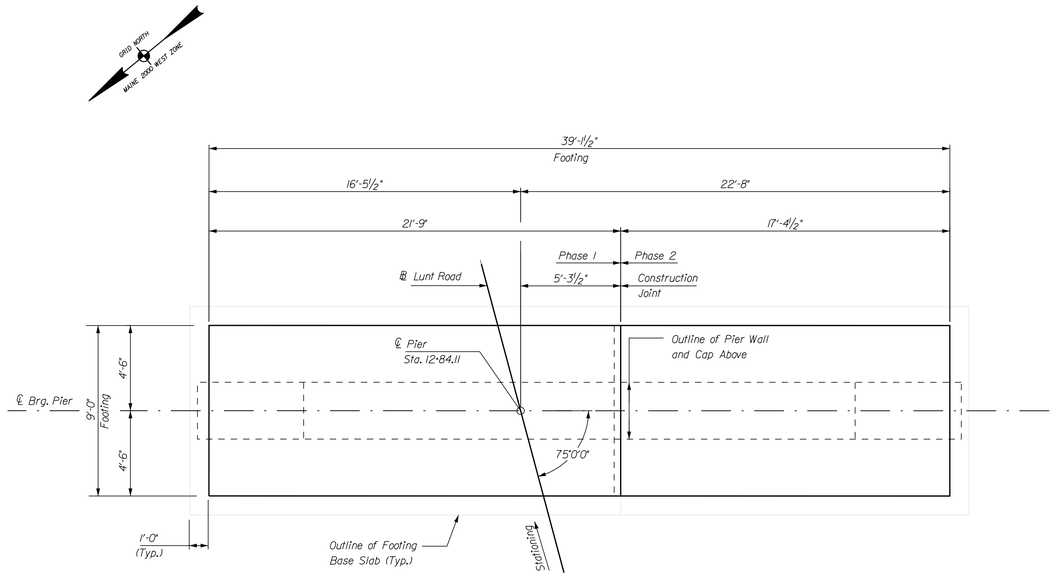
OF 46

Username:

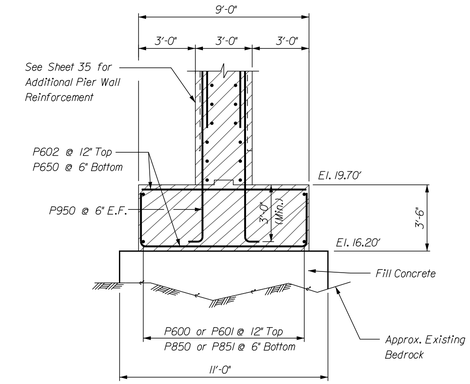
Date:7/31/2018

Division:

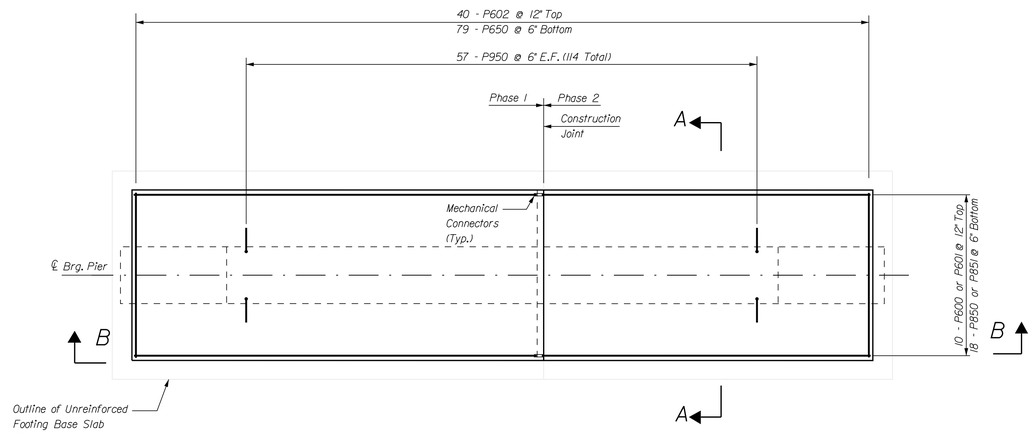
Filename: ...\CADD\032_Approachslabs.dgn



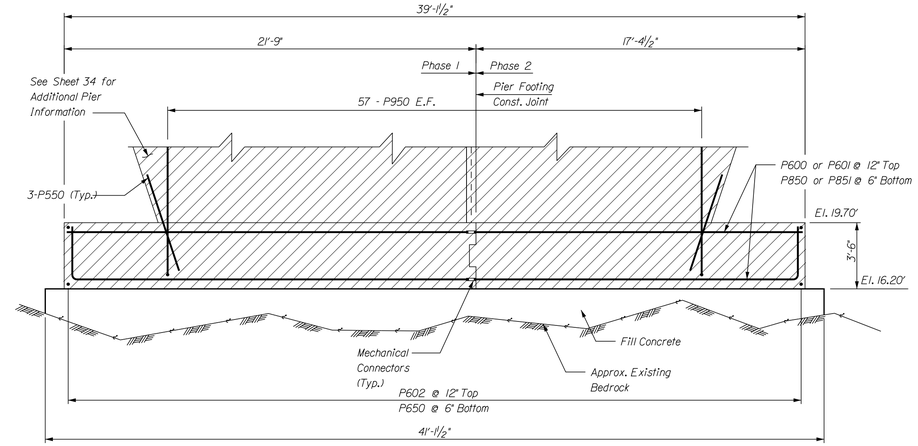
PIER FOOTING MASONRY PLAN



SECTION A-A



PIER FOOTING REINFORCEMENT PLAN



SECTION B-B

PIER NOTES:

1. Reinforcing steel shall have a minimum concrete cover of 3 inches unless otherwise noted.

2. Maximum calculated footing bearing pressure is 24.3 kips per square foot (Maine Modified Strength 1). Maximum factored bearing resistance is 28 ksf.

3. Wind - 100 mph.

4. The bedrock will vary in nature, slope, and degree of fracturing. The top of bedrock shown corresponds to the boring. Actual bedrock elevations will vary. After foundation excavations are completed and all unsound bedrock removed, the Contractor shall survey the foundation bedrock and provide the surveyed bedrock elevations to the Resident for review and approval by the Engineer.

5. Foundation concrete shall be placed on bedrock cleaned of all soil and highly weathered or fractured rock and cleaned with high-pressure water and/or air. The bedrock subgrade shall be confirmed to be relatively level. Where the bedrock surface slope exceeds 4H:1V, the bedrock surface shall be benched in level steps or made completely level.

6. Where the prepared bedrock surface is below the bottom of footing elevation shown on the plans, concrete fill may be placed to fill the void. Concrete fill shall be Class A concrete. Alternatively, the footing thickness may be increased up to an additional 1 foot as approved by the Resident. If the footing thickness is increased, the top of footing elevation shall be as shown on the plans.

7. At the option of the Resident, bedrock that protrudes above a horizontal plane 12 inches below the bottom of footing elevation may be removed. Payment for bedrock removal will be made under Item No. 206.092, Structural Rock Excavation, - Major Structures.

8. Payment for base slab fill concrete shall be made under Item 502.23.

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BRIDGE No. 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE	BY
DESIGN-DETAILED	TWP	WEG
CHECKED-REVIEWED	AMS	TWP
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		

REVISIONS	BY	DATE
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

P.E. NUMBER

SIGNATURE

DATE

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PIER FOOTING MASONRY AND REINFORCEMENT

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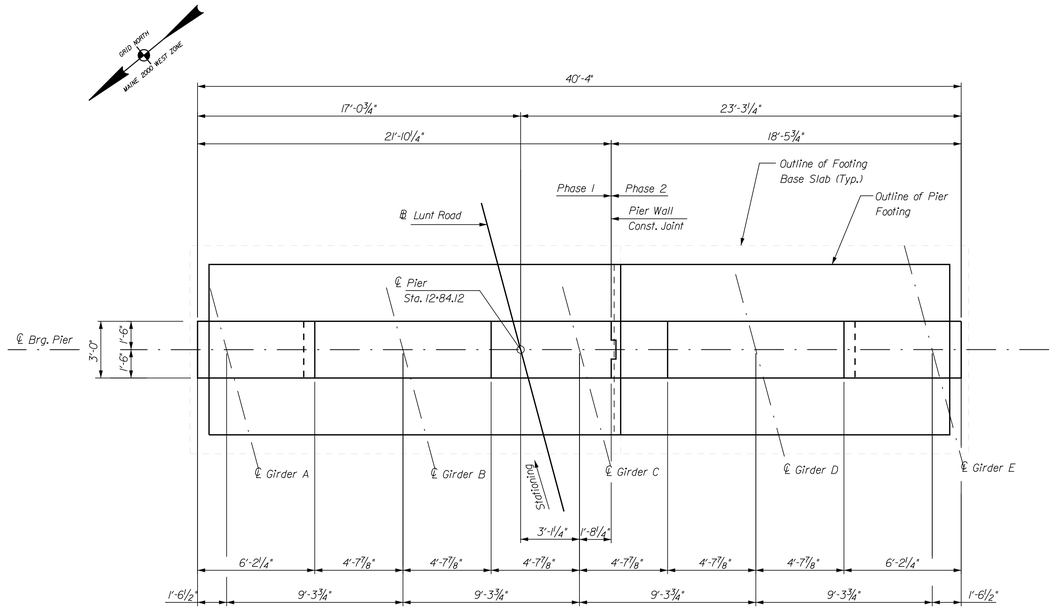
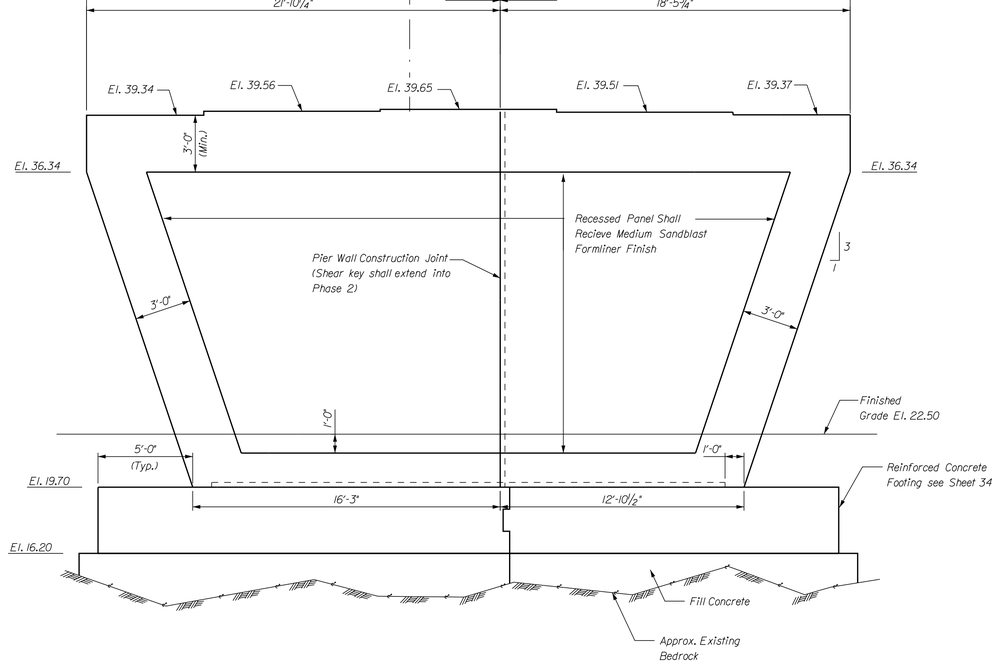
Filename: ...\CADD\033_PierFooting.dgn Division: Username: Date:7/31/2018



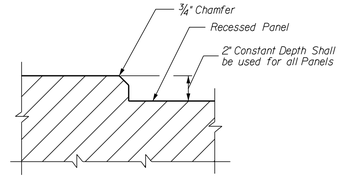
PIER MASONRY PLAN



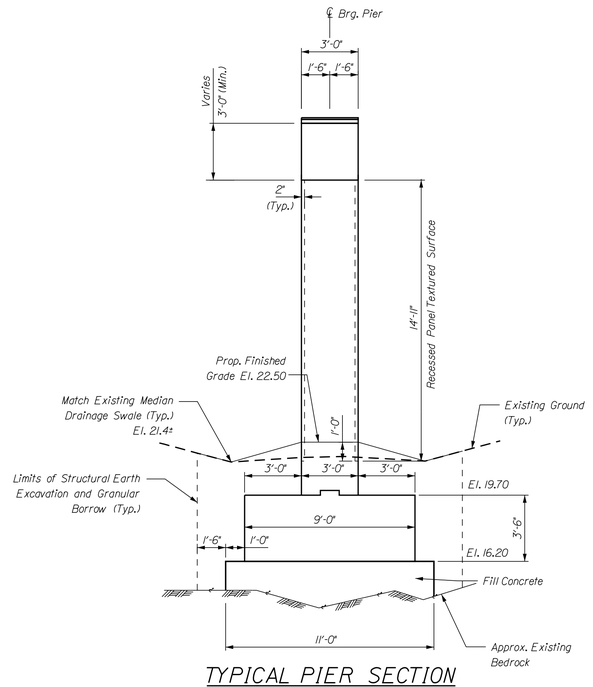
PIER ELEVATION

PIER NOTES

1. Payment for the Concrete Formliner is considered incidental to related Contract Items.



RECESS DETAIL



TYPICAL PIER SECTION

STATE OF MAINE
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WIN 21723.00

BRIDGE No 5829

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	WEG	7/18
CHECKED-REVIEWED	TWP	7/18
DESIGN2-DETAILED2	AMS	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

PIER MASONRY

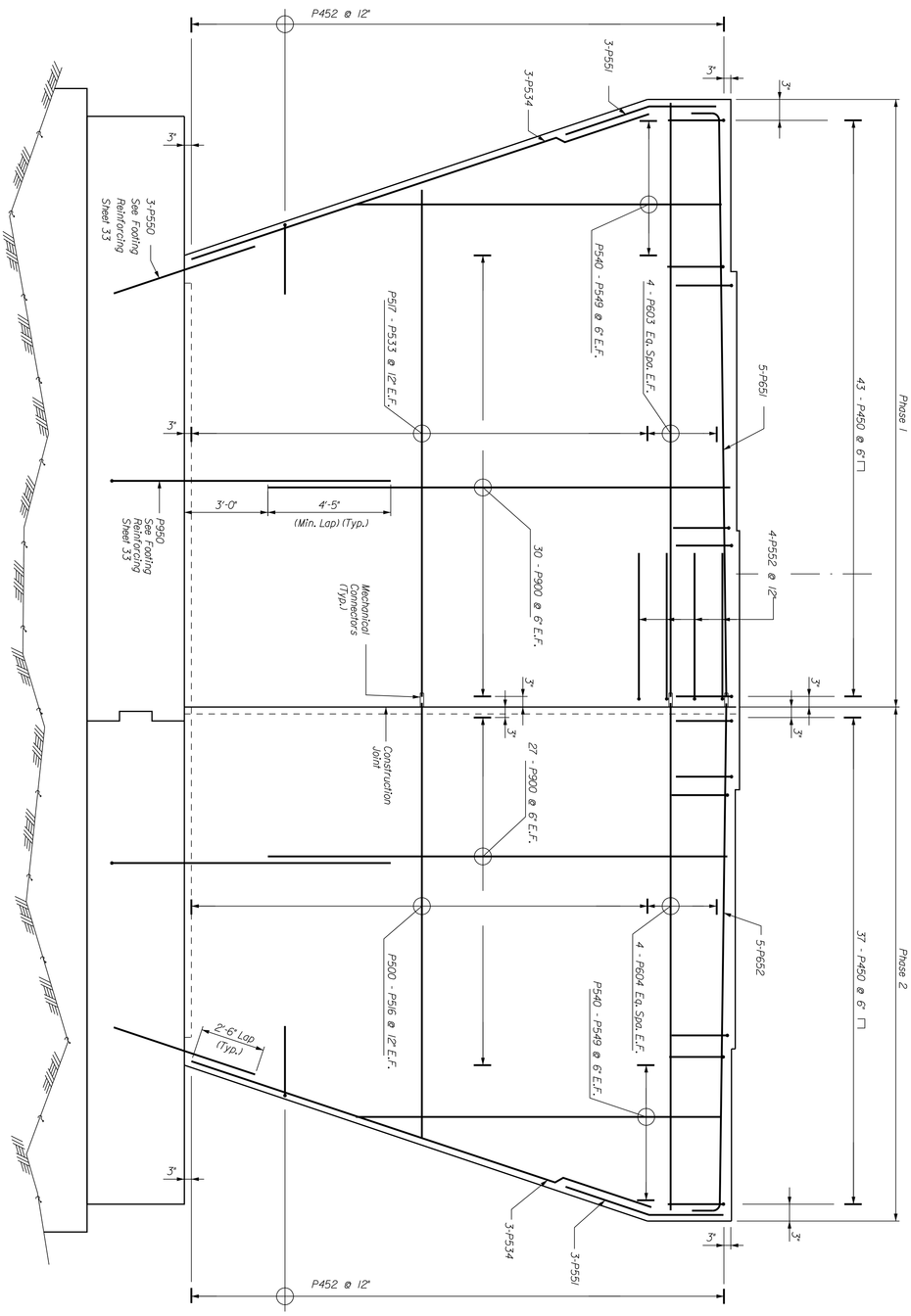
SHEET NUMBER

34

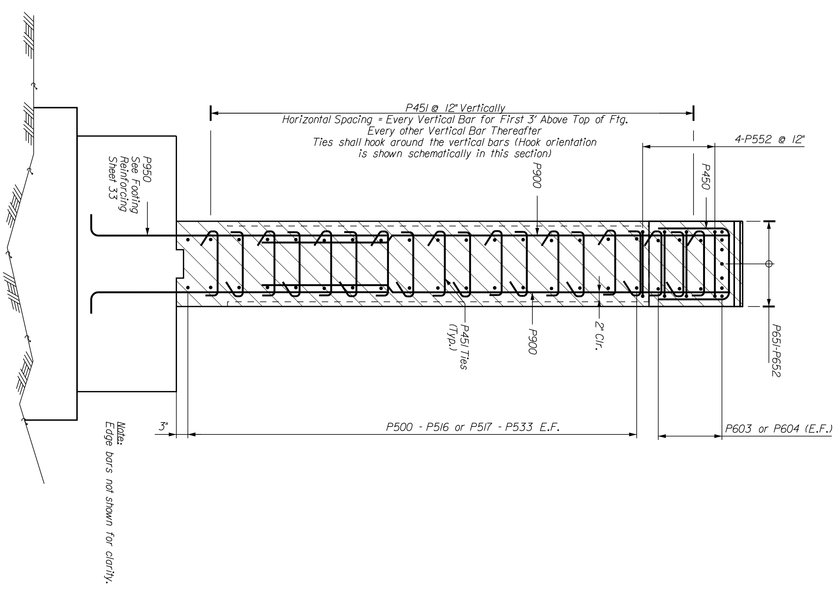
OF 46

Filename: ...\CADD\034_PierMasonry.dgn Username: Division: Date:7/31/2018

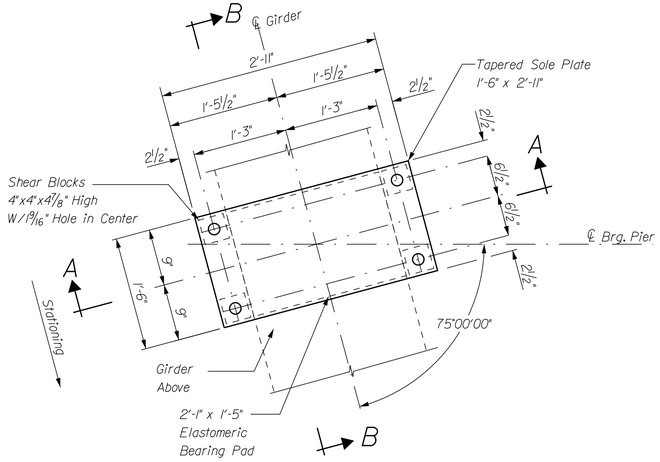
TYPICAL PIER REINFORCEMENT ELEVATION



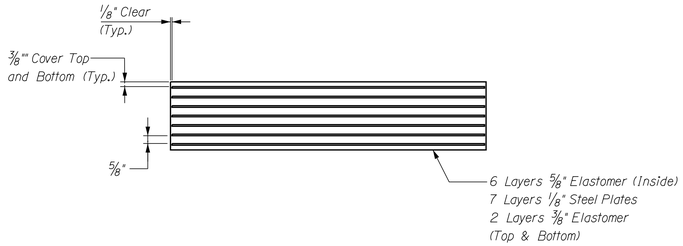
TYPICAL PIER REINFORCEMENT SECTION



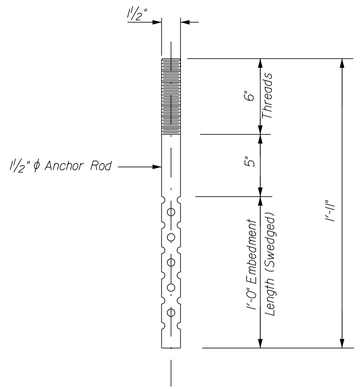
SHEET NUMBER 35 OF 46	LUNT ROAD BRIDGE INTERSTATE 295 FALMOUTH CUMBERLAND PIER REINFORCEMENT	PROJ. MANAGER J. KITTREDGE / BY / DATE DESIGN-DETAILED NLG WEG 7/18 CHECKED-REVIEWED MM TWP 7/18 DESIGN2-DETAILED2 DESIGN3-DETAILED3 REVISIONS 1 REVISIONS 2 REVISIONS 3 REVISIONS 4 FIELD CHANGES	SIGNATURE P.E. NUMBER DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION 021723.00 BRIDGE NO. 5829 WIN 21723.00 BRIDGE PLANS



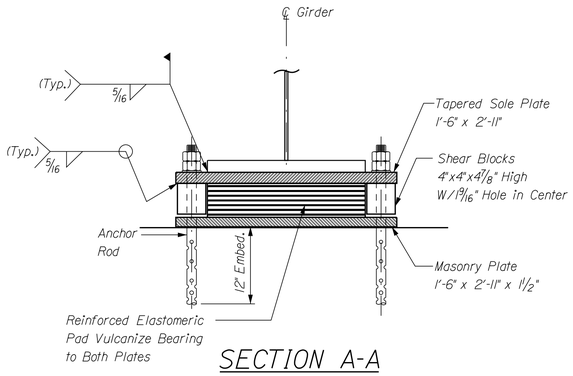
PLAN - FIXED BEARINGS AT PIER (5 TOTAL)



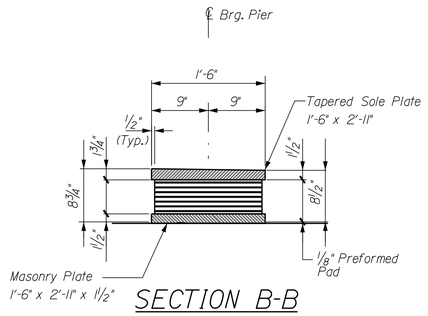
ELASTOMERIC PAD SECTION



ANCHOR ROD DETAIL



SECTION A-A



SECTION B-B

BEARING DESIGN CRITERIA AT PIER	
UNFACTORED DEAD LOAD	243.0 KIPS
UNFACTORED LIVE LOAD (WITHOUT IMPACT)	145.0 KIPS
MAXIMUM LONGITUDINAL DISPLACEMENT	0.00 INCHES

TABLE OF BEARING ANGLES	
Girders A - E	75°0'0"

ELASTOMERIC BEARING NOTES

1. The Shear Modulus Of The Elastomer Shall Be 112.5 psi ± 15%.
2. Vulcanizing Of The Elastomer To The Steel Plates Shall Be Done During The Primary Mold Process.
3. Upset The Threads On The Anchor Rod After Assembly.
4. Masonry Plates, Sole Plates And Shear Blocks Shall Meet The Requirements Of ASTM A709/A709m, Grade 50. Anchor Rods Shall Meet The Requirements Of ASTM F 1554, Grade 105 And Shall Be Swedged On The Embedded Portion Of The Rod.
5. Bearings shall be covered during shipping and at any time prior to installation that the bearings may be exposed to sunlight.
6. Masonry Plates and Sole Plates Shall Be Galvanized In Accordance With Section 506. Anchor Rods, Washers And Nuts Shall Be Galvanized To ASTM A 153 Or ASTM B 695, Class 50, Type 1.
7. The Superstructure May Be Erected When The Ambient Air Temperature Is Within The Range Of 65°F And 90°F. If The Ambient Air Temperature Is Outside This Range, The Bearings Shall Be Reset As Directed By The Resident.
8. All Bearings Shall Be Marked Prior to Shipping. The marks shall include the bearing location on the bridge and a direction arrow that points upstation. All marks shall be permanent and shall be visible after the bearing is installed.
9. All Necessary Precautions Shall Be Taken To Protect Bearing Components From Field Weld Flash And Splatter. Heat From Welding Operations Shall Be Controlled Such That Steel Adjacent To The Elastomer Does Not Exceed 200°F. The Temperature Shall Be Verified By The Use Of Temperature Indicating Crayons Or Other Suitable Means.
10. The Contractor Shall Not Weld The Girders To The Sole Plate Until After All Adjustments Have Been Made In Accordance With Standard Specification Section 523.09.4.
11. Masonry Plates Shall Be Placed On 1/8" Thick Preformed Pads In Accordance With Standard Specifications Subsection 523.09, Installation Of Bearings.

STATE OF MAINE
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BRIDGE No. 5829

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
	TWP	7/18
	AMS	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
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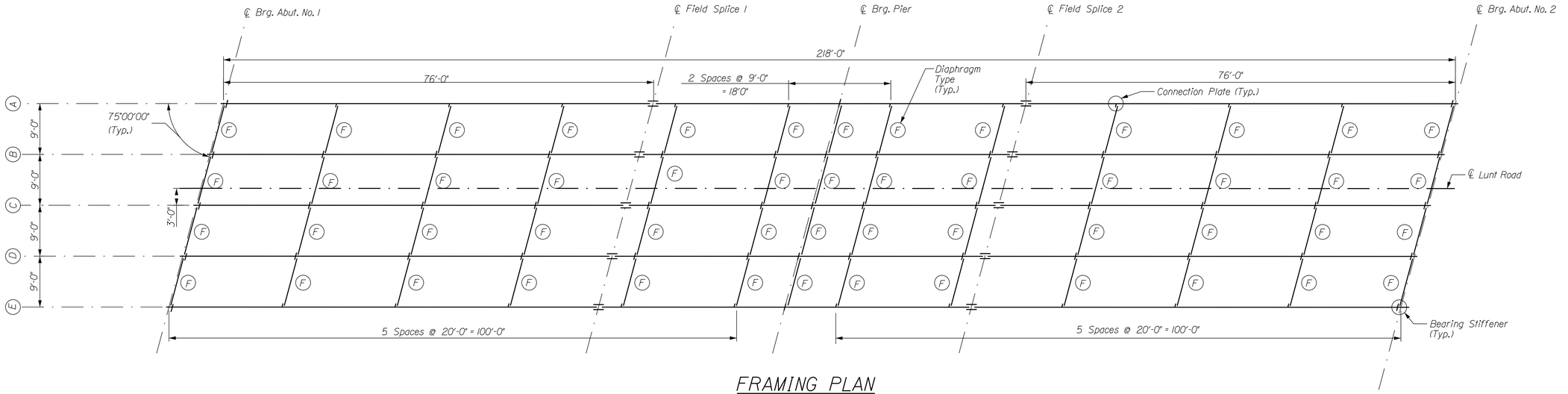
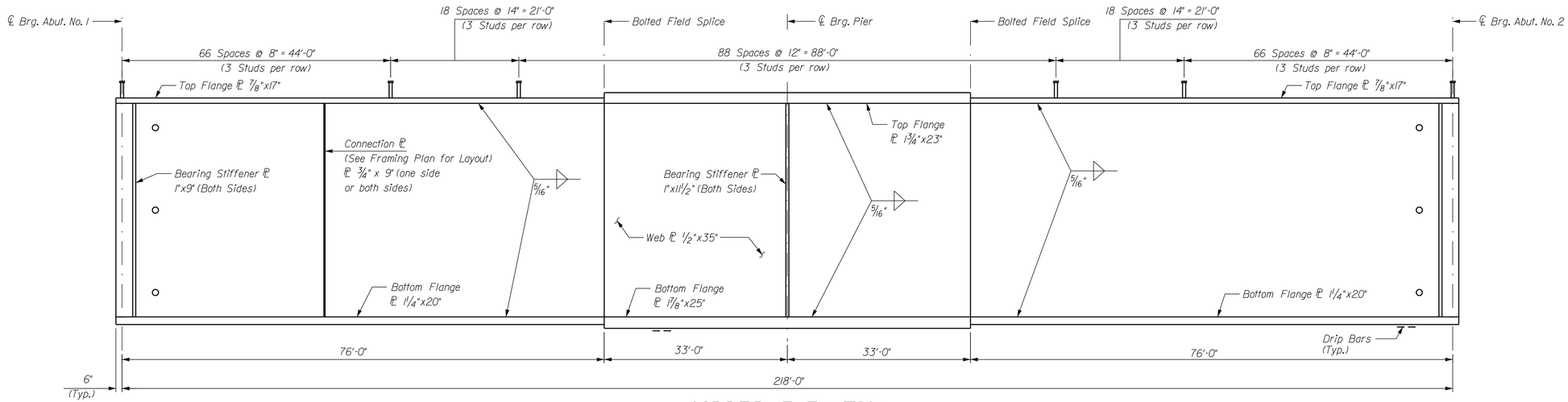
BEARING DETAILS

SHEET NUMBER
36
OF 46

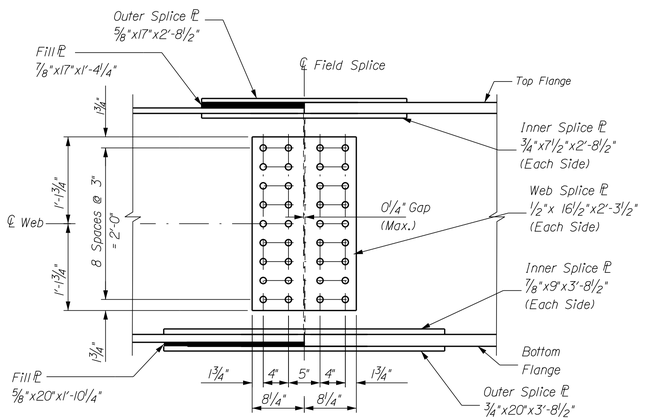
Filename: ...\CADD\036_BearingDetails.dgn Division: Username: Date: 7/31/2018



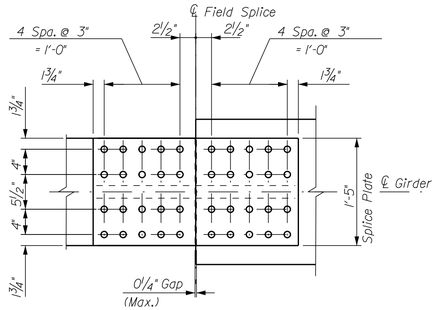
FRAMING PLAN



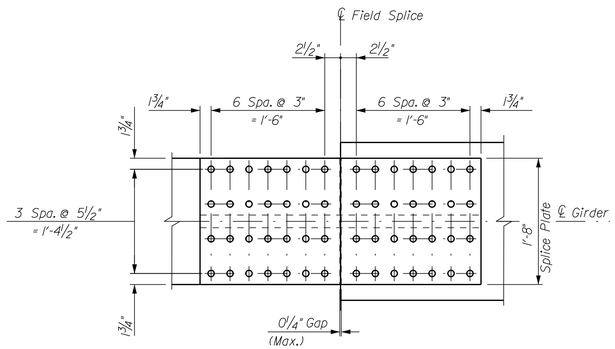
GIRDER ELEVATION



ELEVATION FIELD SPLICE



PLAN FIELD SPLICE TOP FLANGE



PLAN FIELD SPLICE BOTTOM FLANGE

STATE OF MAINE
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BRIDGE No 5829

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	TWP	7/18
CHECKED-REVIEWED	AMS	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

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LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

FRAMING PLAN

SHEET NUMBER

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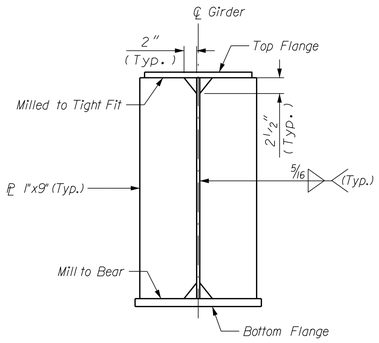
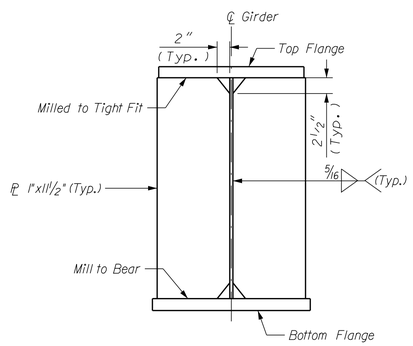
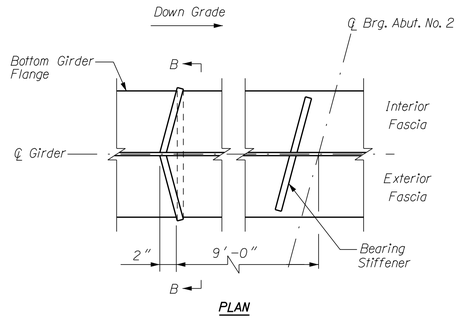
Filename: ...\CADD\037_FramingPlan.dgn Division: Username: Date: 7/31/2018



BEARING STIFFENERS AT ABUTMENT

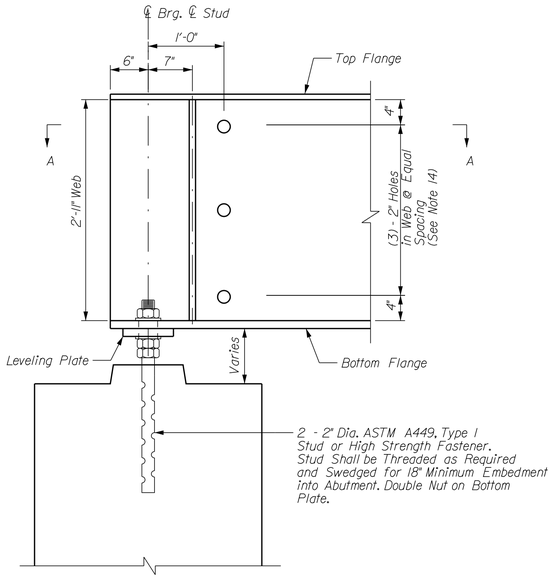


BEARING STIFFENERS AT PIER

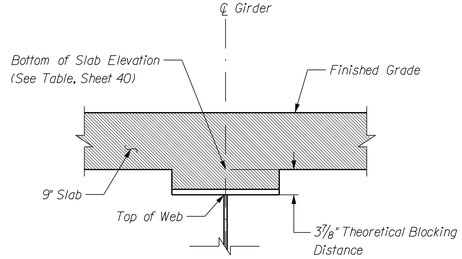


DRIP BAR DETAIL

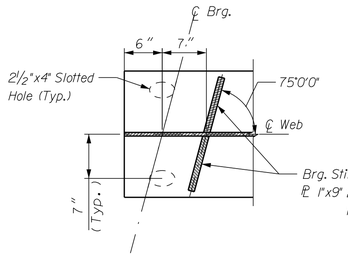
(Abutment No. 2 Shown, Pier Similar)
(Low end of Girders Only)



GIRDER END DETAIL

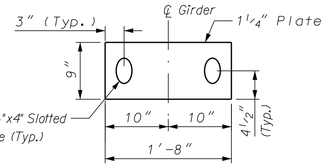


BLOCKING DETAIL



SECTION A-A

(Abutment No. 1 Shown, Abutment No. 2 Similar)



LEVELING PLATE

STRUCTURAL STEEL NOTES

1. Camber ordinates, as shown on Sheet 40, are computed to compensate for all dead load deflections and for the curvature of the finished grade profile.

2. No transverse butt-weld splices will be allowed in the flange plates or web plates within 10 feet or 10% of the span length (whichever is greater) from the points of maximum negative moment or maximum positive moment. Butt-weld splices in flanges shall be not less than 3 feet from transverse butt-welds in the web plates and no transverse web or flange butt-welds shall be located within 3 feet of other transverse welds (eg. connection plates to web welds) on either flange or web. No transverse butt-weld splices will be allowed in areas of stress reversal.

3. Sections of flange plates or web plates between transverse shop splices or between a transverse shop splice and a field splice shall be not less than 20 feet in length unless otherwise shown on the plans.

4. Bearing stiffeners shall be plumb after erection and dead loading of the structure.

5. Crossframe or diaphragm connection plates may be either plumb or normal to the top flange.

6. Filler plates may be steel conforming to the requirements of A709, Grade 50.

7. For field splice details, see sheet 38.

8. Bolted field splice connections shall be made using 7/8" diameter ASTM F3125 Grade A325 Type 1 (Galvanized) 3 H.S. bolts. Hole size shall be 15/16" unless otherwise shown. Bolt threads shall be excluded from the shear plane of field splice connections.

9. Bolted cross frame connections shall be made using 7/8" diameter, ASTM F3125 Grade A325 Type 1 (Galvanized) H.S. bolts. Hole size shall be 15/16" diameter. The minimum edge distance shall be 1 1/2" unless otherwise shown. Oversized or short-slotted holes are not permitted for use in cross frame connections. Bolt threads shall be excluded from the shear plane of cross frame connections.

10. Prior to structural steel erection, the Contractor shall submit an erection sequence to the Engineer for approval.

11. Girder webs shall be vertical under full dead load.

12. Holes in web shall be vertical (plumb) after superstructure slab placement number 1 (Phase 1) and slab placement number 3 (Phase 2). Reinforcement through web holes must be installed after superstructure slab placement number 1 (Phase 1) and slab placement number 3 (Phase 2).

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	TWP	7/18
CHECKED-REVIEWED	AMS	7/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

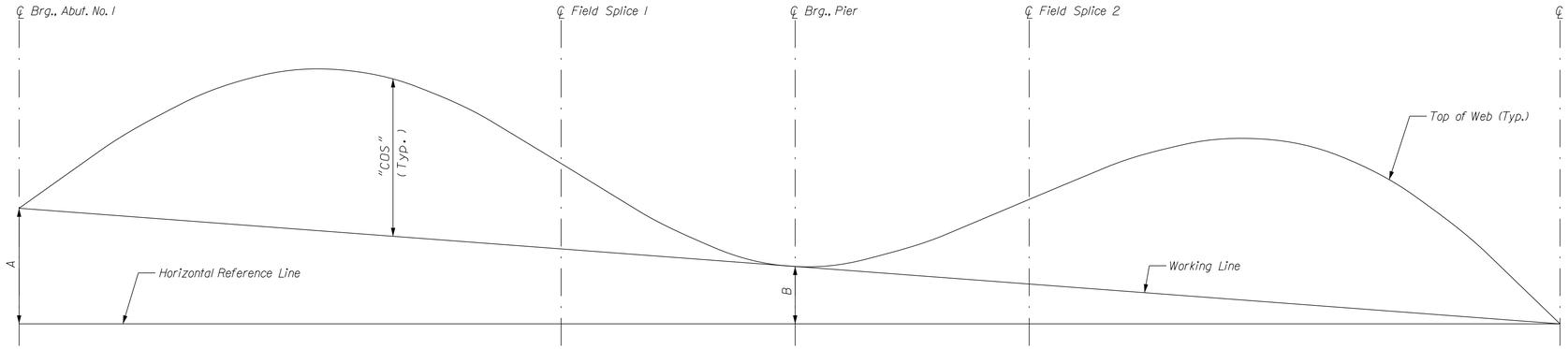
GIRDER DETAILS 1 OF 2

SHEET NUMBER

38

OF 46

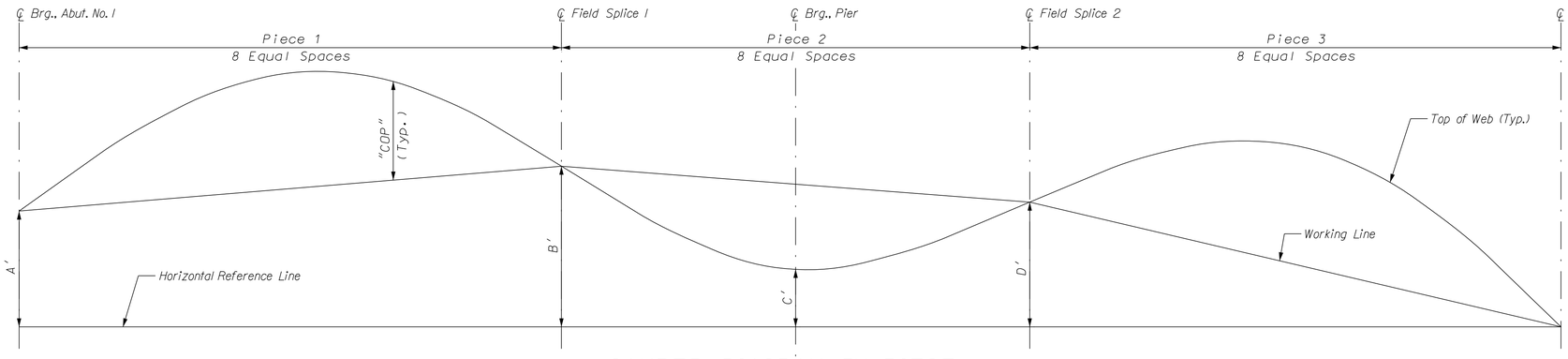
Filename: ...\CADD\038_Girder Details.dgn Division: Username: Date: 7/31/2018



CAMBER DIAGRAM BY SPAN

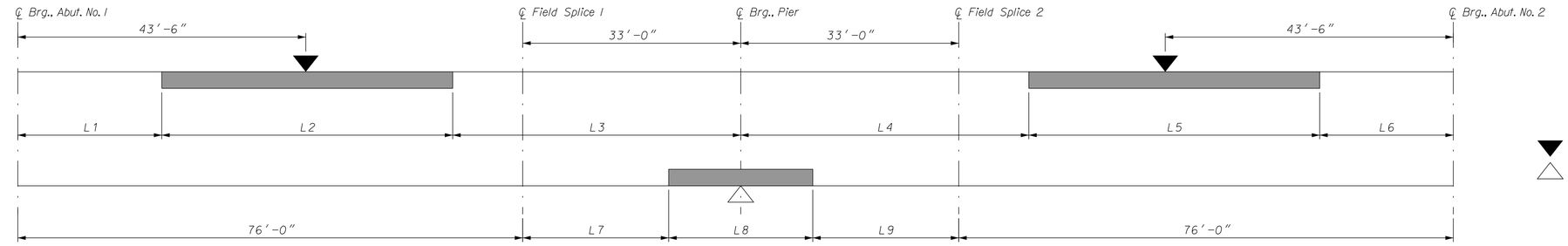
TABLE OF CAMBER DIMENSIONS (ft)						
GIRDER	A	B	A'	B'	C'	D'
A & E	3.27	1.64	3.27	2.26	1.64	1.27
B - D	3.27	1.64	3.27	2.28	1.64	1.29

TABLE OF CAMBER ORDINATES PER SPAN ("COS") (in)																					
GIRDER	CL. Brg. Abut. 1	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	CL. Brg. Pier	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	CL. Brg. Abut. 2
A & E	0.00	1.20	2.19	2.83	3.05	2.85	2.30	1.56	0.82	0.24	0.00	0.24	0.82	1.56	2.30	2.85	3.05	2.83	2.19	1.20	0.00
B - D	0.00	1.40	2.56	3.30	3.56	3.32	2.68	1.82	0.96	0.28	0.00	0.28	0.96	1.82	2.68	3.32	3.56	3.30	2.56	1.40	0.00



CAMBER DIAGRAM BY PIECE

TABLE OF CAMBER ORDINATES PER PIECE ("COP") (in)																						
	Piece 1									Piece 2									Piece 3								
	CL. Brg. Abut. 1	1/8	2/8	3/8	4/8	5/8	6/8	7/8	CL. Field Splice 1	CL. Field Splice 1	1/8	2/8	3/8	4/8	5/8	6/8	7/8	CL. Field Splice 2	CL. Field Splice 2	1/8	2/8	3/8	4/8	5/8	6/8	7/8	CL.Brg. Abut. 2
GIRDER	0.00	9.50	19.00	28.50	38.00	47.50	57.00	66.50	76.00	76.00	84.25	92.50	100.75	109.00	117.25	125.50	133.75	142.00	142.00	151.50	161.00	170.50	180.00	189.50	199.00	208.50	218.00
A & E	0.00	0.86	1.57	2.04	2.20	2.03	1.55	0.84	0.00	0.00	-0.58	-1.08	-1.44	-1.59	-1.44	-1.08	-0.58	0.00	0.00	0.84	1.55	2.03	2.20	2.04	1.57	0.86	0.00
B - D	0.00	1.00	1.84	2.38	2.57	2.37	1.81	0.99	0.00	0.00	-0.67	-1.26	-1.67	-1.85	-1.67	-1.26	-0.67	0.00	0.00	0.99	1.81	2.37	2.57	2.38	1.84	1.00	0.00



STRESS DIAGRAM

(Shaded areas are always in compression, others are in tension or have stress reversals)

TABLE OF STRESS DIAGRAM DIMENSIONS (ft)									
GIRDER	L1	L2	L3	L4	L5	L6	L7	L8	L9
A & E	19'-0"	46'-9"	43'-3"	43'-3"	46'-9"	19'-0"	22'-10"	20'-4"	22'-10"
B - D	16'-9"	51'-9"	40'-6"	40'-6"	51'-9"	16'-9"	21'-10"	22'-4"	21'-10"

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	TWP	7/18	
CHECKED-REVIEWED	AGP	7/18	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BY | DATE | SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

GIRDER DETAILS 2 OF 2

SHEET NUMBER

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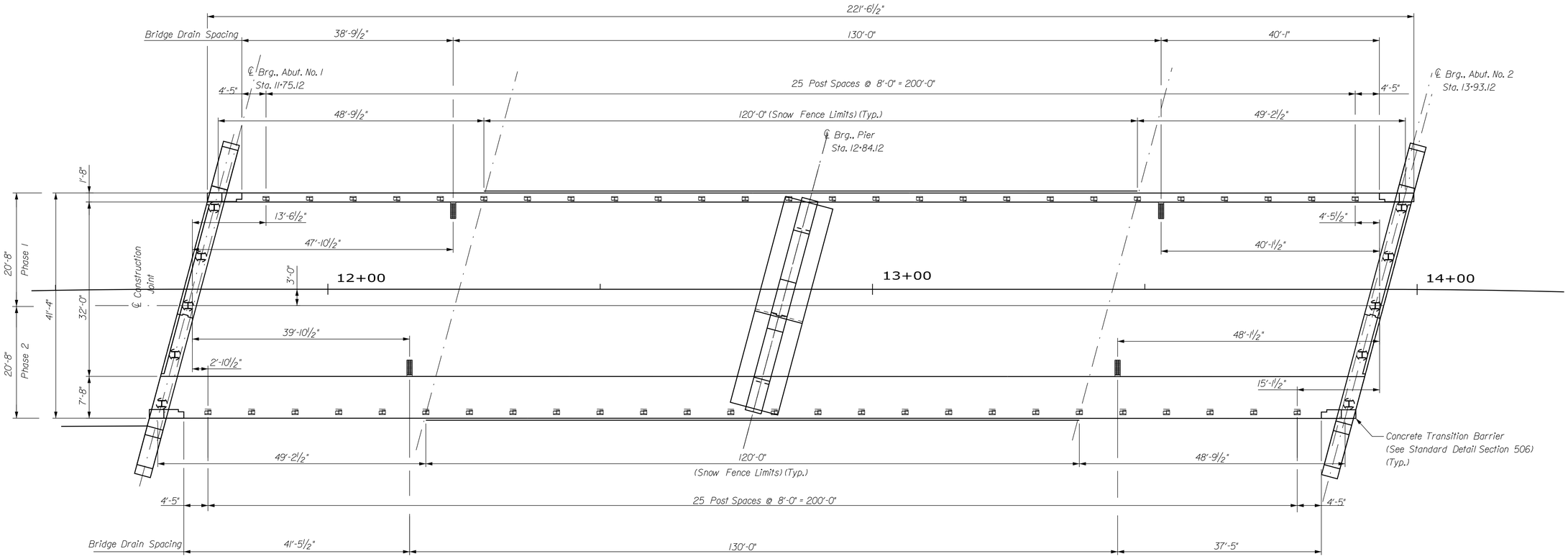
Date: 7/31/2018
Username:
Division:
Filename: ...\CADD\039_Girder Details 2.dgn



SUPERSTRUCTURE PLAN

BOTTOM OF SLAB ELEVATIONS																				
GIRDER	CL. Brg. Abut. 1	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	CL. Brg. Pier	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	CL. Brg. Abut. 2
A	45.16	45.08	44.98	44.86	44.71	44.54	44.34	44.12	43.91	43.71	43.53	43.38	43.26	43.14	43.03	42.90	42.75	42.57	42.37	42.14	41.89
B	45.38	45.31	45.23	45.12	44.97	44.79	44.58	44.36	44.14	43.93	43.74	43.60	43.48	43.38	43.27	43.15	43.01	42.83	42.61	42.37	42.11
C	45.48	45.41	45.32	45.21	45.07	44.89	44.68	44.45	44.23	44.02	43.84	43.70	43.58	43.47	43.37	43.25	43.10	42.92	42.71	42.47	42.21
D	45.33	45.26	45.18	45.07	44.92	44.74	44.53	44.31	44.09	43.88	43.70	43.55	43.43	43.33	43.23	43.11	42.96	42.78	42.57	42.32	42.06
E	45.19	45.11	45.01	44.89	44.74	44.56	44.36	44.15	43.93	43.73	43.55	43.41	43.28	43.17	43.05	42.93	42.78	42.60	42.39	42.16	41.92

DEAD LOAD DEFLECTIONS (INCHES)																						
GIRDER	DEAD LOAD COMPONENT	CL. Brg. Abut. 1	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	CL. Brg. Pier	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	CL. Brg. Abut. 2
A & E	Steel Dead Load	0.000	-0.227	-0.415	-0.538	-0.582	-0.548	-0.448	-0.308	-0.164	-0.049	0.000	-0.049	-0.164	-0.308	-0.448	-0.548	-0.582	-0.538	-0.415	-0.227	0.000
	Deck Concrete Load	0.000	-0.810	-1.477	-1.902	-2.041	-1.897	-1.524	-1.028	-0.538	-0.157	0.000	-0.157	-0.538	-1.028	-1.524	-1.897	-2.041	-1.903	-1.477	-0.810	0.000
	Superimposed Dead Load	0.000	-0.165	-0.302	-0.392	-0.425	-0.401	-0.329	-0.227	-0.120	-0.036	0.000	-0.036	-0.120	-0.227	-0.329	-0.401	-0.425	-0.392	-0.302	-0.165	0.000
B - D	Steel Dead Load	0.000	-0.242	-0.442	-0.573	-0.621	-0.584	-0.477	-0.327	-0.174	-0.052	0.000	-0.052	-0.174	-0.327	-0.477	-0.584	-0.621	-0.573	-0.442	-0.242	0.000
	Deck Concrete Load	0.000	-1.007	-1.835	-2.364	-2.536	-2.357	-1.894	-1.277	-0.669	-0.195	0.000	-0.195	-0.669	-1.277	-1.894	-2.357	-2.536	-2.364	-1.835	-1.007	0.000
	Superimposed Dead Load	0.000	-0.154	-0.283	-0.367	-0.398	-0.376	-0.308	-0.213	-0.113	-0.033	0.000	-0.033	-0.113	-0.213	-0.308	-0.376	-0.398	-0.367	-0.283	-0.154	0.000

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829

BRIDGE PLANS

		BY	DATE
PROJ. MANAGER	J. KITTREDGE		
DESIGN-DETAILED	NLG	WEG	7/18
CHECKED-REVIEWED	TWP	TWP	7/18
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

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LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

SUPERSTRUCTURE PLAN

SHEET NUMBER

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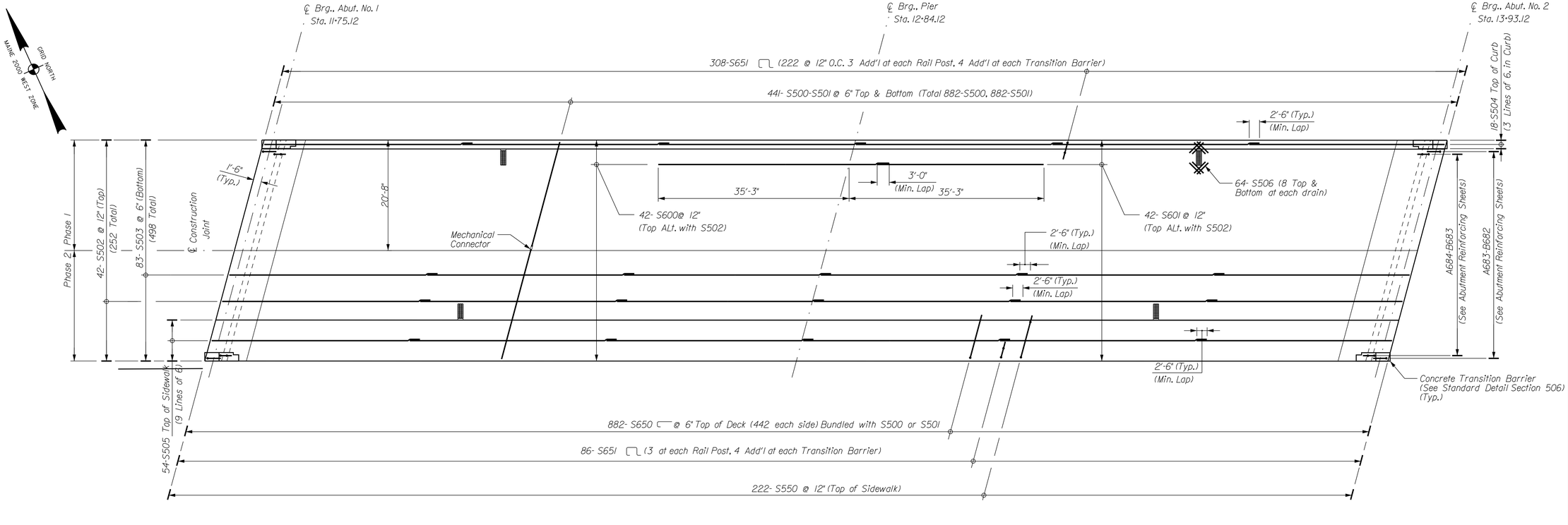
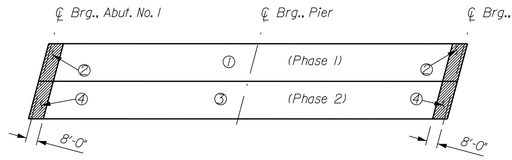
OF 46

Username: Date: 7/31/2018

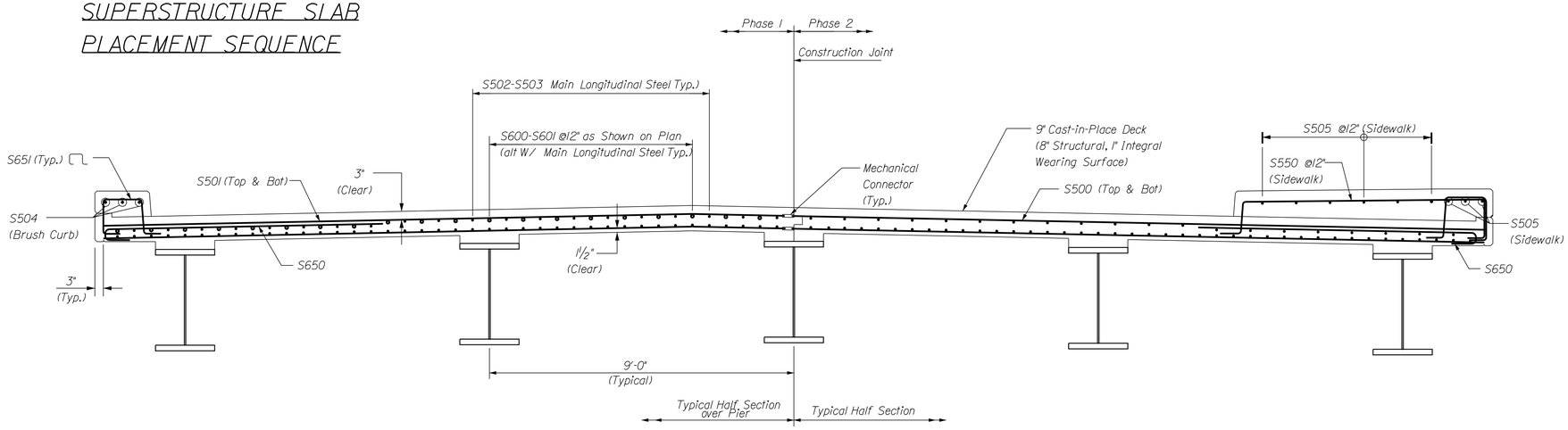
Filename: ...\040_ SuperstructurePlan.dgn Division:



DECK REINFORCING PLAN



SUPERSTRUCTURE SLAB PLACEMENT SEQUENCE



TYPICAL DECK REINFORCEMENT SECTION

SUPERSTRUCTURE NOTES:

1. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.
2. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.
3. The theoretical blocking used for design of the structure is 3⅞ inches at the centerline of bearing of the abutments and piers. Refer to Standard Details 502(03) for blocking details.
4. Adjust reinforcing bars to fit around the bridge drains in a manner approved by the Resident. Do not cut the reinforcing bars.
5. The Contractor shall install Concrete Transition Barrier vertical closed stirrups, as shown in Standard Details Section 526, prior to the placement of the curb or sidewalk concrete.
6. Provide 4 add'l stirrups in the curbs at each Transition Barrier location.
7. The use of Precast Concrete Panels will not be allowed on this project.
8. The Superstructure Slab Concrete (except an 8' length at both ends) shall be placed in one continuous operation and the concrete shall be kept plastic until the entire placement has been made. The beginning and end 8' shall be completed in a separate pour.

STATE OF MAINE
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BRIDGE No. 5829

BRIDGE PLANS

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DESIGN-DETAILED	NLG	7/18
CHECKED-REVIEWED	TWP	7/18
DESIGN2-DETAILED2		
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REVISIONS 1		
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REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

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DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

SUPERSTRUCTURE PLAN

SHEET NUMBER

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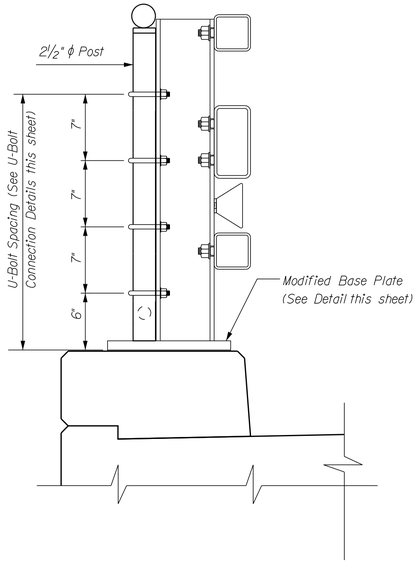
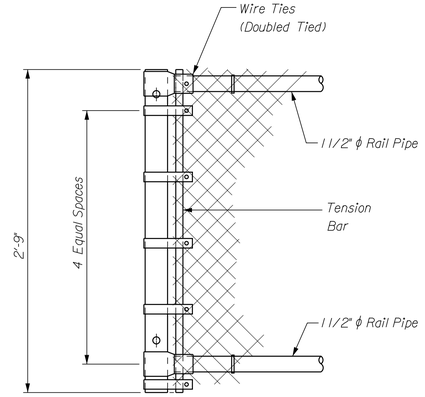
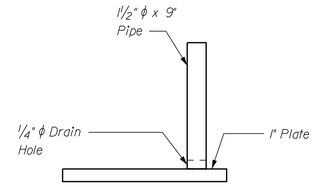


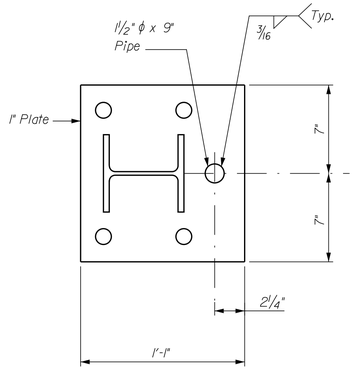
SNOW FENCE CONNECTION DETAIL



END POST DETAIL



MODIFIED BASE PLATE ELEVATION



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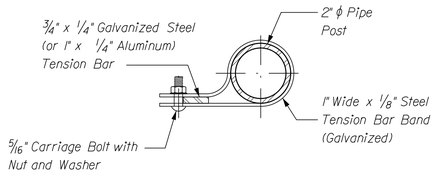
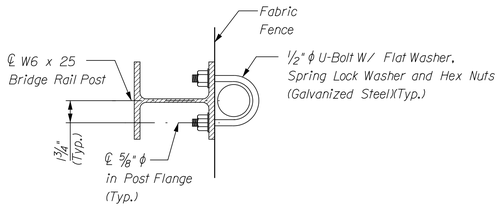
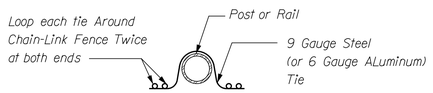


DOUBLE PIGTAILED TIE



U_BOLT CONNECTION DETAIL



DOUBLE PIGTAILED TIE

SNOW FENCE NOTES:

1. For Snow Fence Installation Limits See Superstructure Plan Sheet.

2. Payment for Modified Post Base Plates will be Considered Incidental to Related Contract items.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE No. 5829 BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	WEG	7/18
CHECKED-REVIEWED	AMS	7/18
DESIGN2-DETAILED2		
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REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

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DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

SNOW FENCE DETAILS

SHEET NUMBER

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Filename: ...\CADD\043_Rebar Schedule.dgn Division: Username: Date: 7/31/2018

STRAIGHT BARS

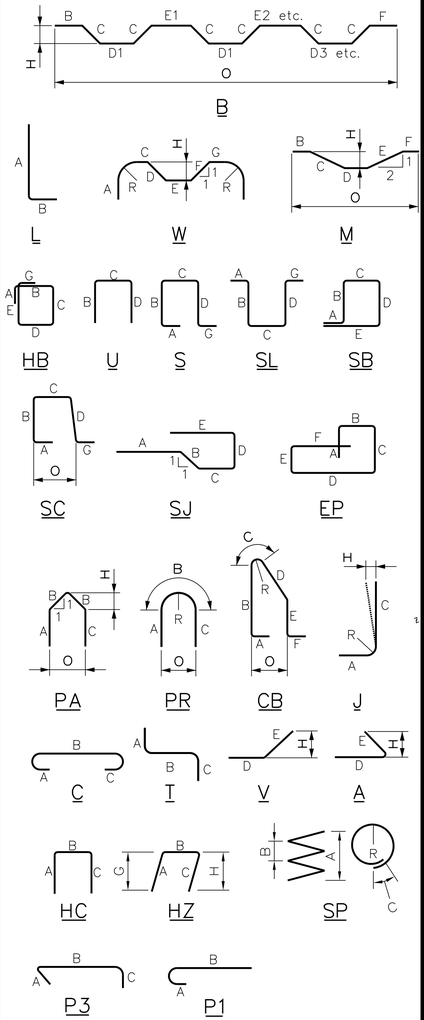
MARK	QTY.	LENGTH	LOCATION
Abutment No. 1			
A500	2	6'-5"	EF North Wingwall
A501	2	4'-5"	EF North Wingwall
A502	1	10'-4"	FF North Wingwall
A503	1	10'-2"	FF North Wingwall
A504	1	8'-6"	FF North Wingwall
A505	1	6'-6"	FF North Wingwall
A506	2	12'-4"	EF South Wingwall
A507	2	10'-0"	EF South Wingwall
A800	12	31'-6"	NF Abut Stem & Wing (Phase 1)
A801	12	28'-3"	NF Abut Stem & Wing (Phase 2)
A802	1	30'-4"	NF Abut BW & Wing (Phase 1)
A803	1	28'-4"	NF Abut BW & Wing (Phase 1)
A804	1	27'-9"	NF Abut BW & Wing (Phase 2)
A805	1	25'-9"	NF Abut BW & Wing (Phase 2)
A806	82	8'-0"	FF Stem to BW Vertical Bar
A807	4	20'-8"	FF Abut Backwall (Phase 1)
A808	4	16'-8"	FF Abut Backwall (Phase 2)
A1000	19	16'-2"	FF Wingwall Stem (Phase 1)
A1001	20	17'-0"	FF Wingwall Stem (Phase 2)
A1002	1	15'-4"	FF Wingwall BW (Phase 1)
A1003	1	14'-4"	FF Wingwall BW (Phase 1)
A1004	1	13'-4"	FF Wingwall BW (Phase 1)
A1005	1	12'-4"	FF Wingwall BW (Phase 1)
A1006	1	11'-4"	FF Wingwall BW (Phase 1)
A1007	1	10'-4"	FF Wingwall BW (Phase 1)
A1008	1	16'-3"	FF Wingwall BW (Phase 2)
A1009	1	15'-3"	FF Wingwall BW (Phase 2)
A1010	1	14'-3"	FF Wingwall BW (Phase 2)
A1011	1	13'-3"	FF Wingwall BW (Phase 2)
A1012	1	12'-3"	FF Wingwall BW (Phase 2)
A1013	10	20'-8"	FF Abut Stem (Phase 1)
A1014	10	16'-8"	FF Abut Stem (Phase 2)
Abutment No. 2			
B500	2	5'-4"	EF North Wingwall
B501	2	3'-9"	EF North Wingwall
B502	1	9'-6"	FF North Wingwall
B503	1	9'-4"	FF North Wingwall
B504	1	8'-0"	FF North Wingwall
B505	1	6'-0"	FF North Wingwall
B506	2	11'-10"	EF South Wingwall
B507	2	9'-0"	EF South Wingwall
B800	12	31'-2"	NF Abut Stem & Wing (Phase 1)
B801	12	28'-3"	NF Abut Stem & Wing (Phase 2)
B802	1	30'-0"	NF Abut BW & Wing (Phase 1)
B803	1	28'-4"	NF Abut BW & Wing (Phase 1)
B804	1	27'-0"	NF Abut BW & Wing (Phase 2)
B805	1	25'-0"	NF Abut BW & Wing (Phase 2)
B806	82	8'-0"	FF Stem to BW Vertical Bar
B807	4	20'-8"	FF Abut Backwall (Phase 1)
B808	4	16'-8"	FF Abut Backwall (Phase 2)
B1000	19	16'-2"	FF Wingwall Stem (Phase 1)
B1001	20	17'-0"	FF Wingwall Stem (Phase 2)
B1002	1	15'-4"	FF Wingwall BW (Phase 1)
B1003	1	14'-4"	FF Wingwall BW (Phase 1)
B1004	1	13'-4"	FF Wingwall BW (Phase 1)
B1005	1	12'-4"	FF Wingwall BW (Phase 1)
B1006	1	11'-4"	FF Wingwall BW (Phase 1)
B1007	1	10'-4"	FF Wingwall BW (Phase 1)
B1008	1	16'-3"	FF Wingwall BW (Phase 2)
B1009	1	15'-3"	FF Wingwall BW (Phase 2)
B1010	1	14'-3"	FF Wingwall BW (Phase 2)
B1011	1	13'-3"	FF Wingwall BW (Phase 2)
B1012	1	12'-3"	FF Wingwall BW (Phase 2)
B1013	10	20'-8"	FF Abut Stem (Phase 1)
B1014	10	16'-8"	FF Abut Stem (Phase 2)

MARK	QTY.	LENGTH	LOCATION
Approach Slab			
AS501	16	19'-5"	Bottom transverse
AS502	16	11'-1"	Bottom transverse
AS503	16	19'-5"	Bottom transverse
AS504	16	11'-1"	Bottom transverse
AS601	62	15'-0"	Bottom longitudinal
AS602	62	15'-0"	Bottom longitudinal

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
Abutment No. 1														
A450	93	3'-8"	P3	0'-6"	2'-8"	0'-6"								Typical Tie, wingwall and abutment stem
A451	30	3'-2"	P3	0'-6"	2'-2"	0'-6"								Tie Adjacent to Girder Bottom Flange
A452	30	12'-0"	HB	0'-6"	2'-9"	2'-9"	2'-9"	2'-9"		0'-6"				Pile Ties
A550	62	6'-8"	U		2'-0"	2'-8"	2'-0"							Top of abut stem, below const. joint
A650	42	22'-4"	U		9'-10"	2'-8"	9'-10"							Wingwall Stem
A651	65	19'-4"	U		6'-4"	2'-8"	10'-4"							Abutment Stem
A652	1	21'-10"	U		9'-7"	2'-8"	9'-7"							Wingwall Stem (Phase 1)
A653	1	21'-4"	U		9'-4"	2'-8"	9'-4"							Wingwall Stem (Phase 1)
A654	1	20'-10"	U		9'-1"	2'-8"	9'-1"							Wingwall Stem (Phase 1)
A655	1	20'-4"	U		8'-10"	2'-8"	8'-10"							Wingwall Stem (Phase 1)
A656	1	19'-10"	U		8'-7"	2'-8"	8'-7"							Wingwall Stem (Phase 1)
A657	1	19'-4"	U		8'-4"	2'-8"	8'-4"							Wingwall Stem (Phase 1)
A658	1	18'-10"	U		8'-1"	2'-8"	8'-1"							Wingwall Stem (Phase 1)
A659	1	18'-4"	U		7'-10"	2'-8"	7'-10"							Wingwall Stem (Phase 1)
A660	1	21'-10"	U		9'-7"	2'-8"	9'-7"							Wingwall Stem (Phase 2)
A661	1	21'-4"	U		9'-4"	2'-8"	9'-4"							Wingwall Stem (Phase 2)
A662	1	20'-10"	U		9'-1"	2'-8"	9'-1"							Wingwall Stem (Phase 2)
A663	1	20'-4"	U		8'-10"	2'-8"	8'-10"							Wingwall Stem (Phase 2)
A664	1	19'-10"	U		8'-7"	2'-8"	8'-7"							Wingwall Stem (Phase 2)
A665	6	11'-0"	U		4'-2"	2'-8"	4'-2"							Wingwall Backwall (Phase 1)
A666	20	12'-6"	U		4'-11"	2'-8"	4'-11"							Wingwall Backwall (Phase 2)
A667	1	10'-6"	U		3'-11"	2'-8"	3'-11"							Wingwall Stem (Phase 1)
A668	1	9'-6"	U		3'-5"	2'-8"	3'-5"							Wingwall Stem (Phase 1)
A669	1	8'-6"	U		2'-11"	2'-8"	2'-11"							Wingwall Stem (Phase 1)
A670	1	7'-6"	U		2'-5"	2'-8"	2'-5"							Wingwall Stem (Phase 1)
A671	1	6'-6"	U		1'-11"	2'-8"	1'-11"							Wingwall Stem (Phase 1)
A672	1	5'-6"	U		1'-5"	2'-8"	1'-5"							Wingwall Stem (Phase 1)
A673	1	4'-6"	U		0'-11"	2'-8"	0'-11"							Wingwall Stem (Phase 1)
A674	1	4'-0"	U		0'-8"	2'-8"	0'-8"							Wingwall Stem (Phase 1)
A675	1	12'-0"	U		4'-8"	2'-8"	4'-8"							Wingwall Stem (Phase 2)
A676	1	11'-0"	U		4'-2"	2'-8"	4'-2"							Wingwall Stem (Phase 2)
A677	1	10'-0"	U		3'-8"	2'-8"	3'-8"							Wingwall Stem (Phase 2)
A678	1	9'-0"	U		3'-2"	2'-8"	3'-2"							Wingwall Stem (Phase 2)
A679	1	8'-0"	U		2'-8"	2'-8"	2'-8"							Wingwall Stem (Phase 2)
A680	1	7'-0"	U		2'-2"	2'-8"	2'-2"							Wingwall Stem (Phase 2)
A681	1	6'-0"	U		1'-8"	2'-8"	1'-8"							Wingwall Stem (Phase 2)
A682	1	5'-0"	U		1'-2"	2'-8"	1'-2"							Wingwall Stem (Phase 2)
A683	82	12'-0"	J	8'-0"		4'-0"					0'-0"		1'-0"	FF Abutment Backwall
A684	43	7'-5"	V				3'-3"	4'-2"			3'-0"			NF Abutment Backwall
A685	3	9'-9"	V				1'-9"	8'-0"			3'-7"			Top of Wingwall North
A686	3	16'-7"	V				8'-9"	7'-10"			3'-7"			Top of Wingwall South
A687	33	7'-0"	V				3'-6"	3'-6"			2'-5"			Approach Slab Anchor Bar
Abutment No. 2														
B450	93	3'-8"	P3	0'-6"	2'-8"	0'-6"								Typical Tie, wingwall and abutment stem
B451	30	3'-2"	P3	0'-6"	2'-2"	0'-6"								Tie Adjacent to Girder Bottom Flange
B452	30	12'-0"	HB	0'-6"	2'-9"	2'-9"	2'-9"	2'-9"		0'-6"				Pile Ties
B550	61	6'-8"	U		2'-0"	2'-8"	2'-0"							Top of abut. stem, below const. joint
B650	42	22'-4"	U		9'-10"	2'-8"	9'-10"							Wingwall Stem
B651	65	19'-4"	U		6'-4"	2'-8"	10'-4"							Abutment Stem
B652	1	21'-8"	U		9'-6"	2'-8"	9'-6"							Wingwall Stem (Phase 1)
B653	1	21'-2"	U		9'-3"	2'-8"	9'-3"							Wingwall Stem (Phase 1)
B654	1	20'-8"	U		9'-0"	2'-8"	9'-0"							Wingwall Stem (Phase 1)
B655	1	20'-2"	U		8'-9"	2'-8"	8'-9"							Wingwall Stem (Phase 1)
B656	1	19'-8"	U		8'-6"	2'-8"	8'-6"							Wingwall Stem (Phase 1)
B657	1	19'-2"	U		8'-3"	2'-8"	8'-3"							Wingwall Stem (Phase 1)
B658	1	21'-6"	U		9'-5"	2'-8"	9'-5"							Wingwall Stem (Phase 2)
B659	1	21'-0"	U		9'-2"	2'-8"	9'-2"							Wingwall Stem (Phase 2)
B660	1	20'-6"	U		8'-11"	2'-8"	8'-11"							Wingwall Stem (Phase 2)
B661	1	20'-0"	U		8'-8"	2'-8"	8'-8"							Wingwall Stem (Phase 2)
B662	1	19'-6"	U		8'-5"	2'-8"	8'-5"							Wingwall Stem (Phase 2)
B663	1	19'-0"	U		8'-2"	2'-8"	8'-2"							Wingwall Stem (Phase 2)
B664	1	18'-6"	U		7'-11"	2'-8"	7'-11"							Wingwall Stem (Phase 2)
B665	6	11'-0"	U		4'-2"	2'-8"	4'-2"							Wingwall Backwall (Phase 1)
B666	17	12'-6"	U		4'-11"	2'-8"	4'-11"							Wingwall Backwall (Phase 2)
B667	1	11'-4"	U		4'-4"	2'-8"	4'-4"							Wingwall Stem (Phase 1)
B668	1	10'-4"	U		3'-10"	2'-8"	3'-10"							Wingwall Stem (Phase 1)
B669	1	9'-4"	U		3'-4"	2'-8"	3'-4"							Wingwall Stem (Phase 1)
B670	1	8'-4"	U		2'-10"	2'-8"	2'-10"							Wingwall Stem (Phase 1)
B671	1	7'-4"	U		2'-4"	2'-8"	2'-4"							Wingwall Stem (Phase 1)
B672	1	6'-4"	U		1'-10"	2'-8"	1'-10"							Wingwall Stem (Phase 1)
B673	1	5'-4"	U		1'-4"	2'-8"	1'-4"							Wingwall Stem (Phase 1)
B674	1	12'-2"	U		4'-9"	2'-8"	4'-9"							Wingwall Stem (Phase 2)
B675	1	11'-2"	U		4'-3"	2'-8"	4'-3"							Wingwall Stem (Phase 2)
B676	1	10'-2"	U		3'-9"	2'-8"	3'-9"							Wingwall Stem (Phase 2)
B677	1	9'-2"	U		3'-3"	2'-8"	3'-3"							Wingwall Stem (Phase 2)
B678	1	8'-2"	U		2'-9"	2'-8"	2'-9"							Wingwall Stem (Phase 2)
B679	1	7'-2"	U		2'-3"	2'-8"	2'-3"							Wingwall Stem (Phase 2)
B680	1	6'-2"	U		1'-9"	2'-8"	1'-9"							Wingwall Stem (Phase 2)
B681	1	5'-2"	U		1'-3"	2'-8"	1'-3"							Wingwall Stem (Phase 2)
B682	82	12'-0"	J	8'-0"		4'-0"					0'-0"		1'-0"	FF Abutment Backwall
B683	43	7'-5"	V				3'-3"	4'-2"			3'-0"			NF Abutment Backwall
B684	3	9'-10"	V				2'-4"	7'-6"			3'-4"			Top of Wingwall North
B685	3	17'-1"	V				8'-0"	9'-1"			3'-11"			Top of Wingwall South
B686	33	7'-0"	V				3'-6"	3'-6"			2'-5"			Approach Slab Anchor Bar

TYPE – BENDING DIAGRAMS



All reinforcement is Stainless Steel.

All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 318.

Reinforcing Bar: ASTM A955, Grade 75 (Stainless Steel)

GENERAL NOTES

The first two digits following the letter(s) of the mark indicate the size ofthe bar:

Mark "A502" = bar size #5
Mark "P801" = bar size #8
Mark "S650" = bar size #6

Each crank bar, Type B, may be replaced by two (2) straight bars (one top and one bottom) of the same bar size as the crank bar. Payment in either case shall be based on crank bars as schedule on the plans.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

BRIDGE NO. 5829

	J. KITTREDGE	DATE	SIGNATURE
PROJ. MANAGER			
DESIGN-DETAILED	AGP	6/18	
CHECKED-REVIEWED	TWP	6/18	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295 CUMBERLAND
FALMOUTH

REINFORCING STEEL SCHEDULE 1 of 2

SHEET NUMBER

43

OF 46

Filename: ...\CADD\044_Rebar Schedule2.dgn Division: Username: Date: 7/31/2018

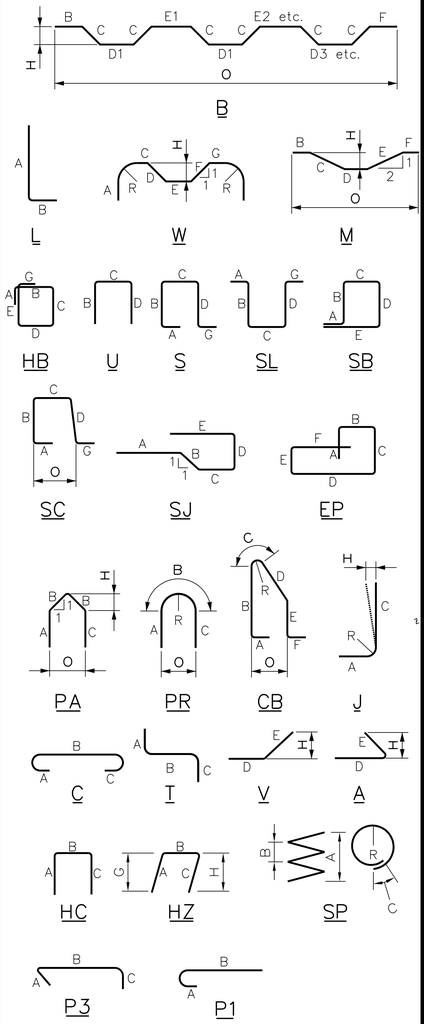
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
			Pier
P500	2	13'-7"	Pier stem, horizontal (Phase 2)
P501	2	13'-11"	Pier stem, horizontal (Phase 2)
P502	2	14'-3"	Pier stem, horizontal (Phase 2)
P503	2	14'-7"	Pier stem, horizontal (Phase 2)
P504	2	14'-11"	Pier stem, horizontal (Phase 2)
P505	2	15'-3"	Pier stem, horizontal (Phase 2)
P506	2	15'-7"	Pier stem, horizontal (Phase 2)
P507	2	15'-11"	Pier stem, horizontal (Phase 2)
P508	2	16'-3"	Pier stem, horizontal (Phase 2)
P509	2	16'-7"	Pier stem, horizontal (Phase 2)
P510	2	16'-11"	Pier stem, horizontal (Phase 2)
P511	2	17'-3"	Pier stem, horizontal (Phase 2)
P512	2	17'-7"	Pier stem, horizontal (Phase 2)
P513	2	17'-11"	Pier stem, horizontal (Phase 2)
P514	2	18'-3"	Pier stem, horizontal (Phase 2)
P515	2	18'-7"	Pier stem, horizontal (Phase 2)
P516	2	18'-11"	Pier stem, horizontal (Phase 2)
P517	2	15'-3"	Pier stem, horizontal (Phase 1)
P518	2	15'-7"	Pier stem, horizontal (Phase 1)
P519	2	15'-11"	Pier stem, horizontal (Phase 1)
P520	2	16'-3"	Pier stem, horizontal (Phase 1)
P521	2	16'-7"	Pier stem, horizontal (Phase 1)
P522	2	16'-11"	Pier stem, horizontal (Phase 1)
P523	2	17'-3"	Pier stem, horizontal (Phase 1)
P524	2	17'-7"	Pier stem, horizontal (Phase 1)
P525	2	17'-11"	Pier stem, horizontal (Phase 1)
P526	2	18'-3"	Pier stem, horizontal (Phase 1)
P527	2	18'-7"	Pier stem, horizontal (Phase 1)
P528	2	18'-11"	Pier stem, horizontal (Phase 1)
P529	2	19'-3"	Pier stem, horizontal (Phase 1)
P530	2	19'-7"	Pier stem, horizontal (Phase 1)
P531	2	19'-11"	Pier stem, horizontal (Phase 1)
P532	2	20'-3"	Pier stem, horizontal (Phase 1)
P533	2	20'-7"	Pier stem, horizontal (Phase 1)
P534	6	17'-4"	Pier stem, inclined face
P540	4	17'-10"	Pier stem, vertical
P541	4	16'-4"	Pier stem, vertical
P542	4	14'-10"	Pier stem, vertical
P543	4	13'-4"	Pier stem, vertical
P544	4	11'-10"	Pier stem, vertical
P545	4	10'-4"	Pier stem, vertical
P546	4	8'-10"	Pier stem, vertical
P547	4	7'-4"	Pier stem, vertical
P548	4	5'-10"	Pier stem, vertical
P549	4	4'-4"	Pier stem, vertical
P550	6	5'-8"	Pier Footing, Inclined Face
P600	10	21'-7"	Top of footing, longitudinal (Phase 1)
P601	10	17'-2"	Top of footing, longitudinal (Phase 2)
P602	40	8'-6"	Top of footing , transverse
P603	8	21'-7"	Pier stem, horizontal (Phase 1)
P604	8	18'-3"	Pier stem, horizontal (Phase 2)
P900	114	16'-9"	Pier stem, vertical
			Superstructure
S500	1764	20'-6"	Top and bottom transverse
S502	252	39'-3"	Top longitudinal
S503	498	39'-3"	Bottom longitudinal
S504	18	39'-3"	Brush curb (top)
S505	54	39'-3"	Sidewalk longitudinal (top)
S506	64	3'-0"	Drain
S600	42	43'-3"	Top longitudinal at pier
S601	42	30'-3"	Top longitudinal at pier

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
								Pier						
P450	80	5'-6"	U		1'-6"	2'-6"	1'-6"							Top of pier
P451	823	3'-6"	P3	0'-6"	2'-6"	0'-6"								Stirrups along pier's height
P452	40	7'-8"	U		2'-6"	2'-8"	2'-6"							Side U-bar
P551	6	5'-6"	V				2'-6"	3'-0"			1'-0"			Top of pier
P552	4	12'-6"	U		5'-1"	2'-5"	5'-1"							Top of pier next to construction joint
P650	79	14'-6"	U		3'-0"	8'-6"	3'-0"							Bottom of footing
P651	5	24'-2"	L	21'-8"	2'-6"									Top of Pier
P652	5	20'-9"	L	18'-3"	2'-6"									Top of Pier
P850	18	24'-6"	L	21'-6"	3'-0"									Bottom of footing, longitudinal (Phase 1)
P851	18	20'-1"	L	17'-1"	3'-0"									Bottom of footing, longitudinal (Phase 2)
P950	114	12'-2"	L	10'-8"	1'-6"									Footing reinforcement (L-bar)
										Superstructure				
S550	222	11'-3"	SC	0'-10"	1'-2 1/2"	7'-2"	1'-2 1/2"			0'-10"		7'-3"		Sidewalk Stirrup
S650	882	7'-6"	P1	0'-7"	6'-11"									Overhang Hook
S651	394	5'-6"	SC	0'-10"	1'-2 1/2"	1'-4 1/2"	1'-2 1/2"			0'-10"		1'-5 1/2"		Curb Stirrup

TYPE – BENDING DIAGRAMS



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All dimensions are out-to-out of bar.

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Reinforcing Bar: ASTM A955, Grade 75 (Stainless Steel)

GENERAL NOTES

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

021723.00

WIN 21723.00

BRIDGE PLANS

BRIDGE NO. 5829

	BY	DATE
PROJ. MANAGER	J. KITTREDGE	
DESIGN-DETAILED	AGP	6/18
CHECKED-REVIEWED	WEG	6/18
DESIGN2-DETAILED2	TWP	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LUNT ROAD BRIDGE
INTERSTATE 295
FALMOUTH CUMBERLAND

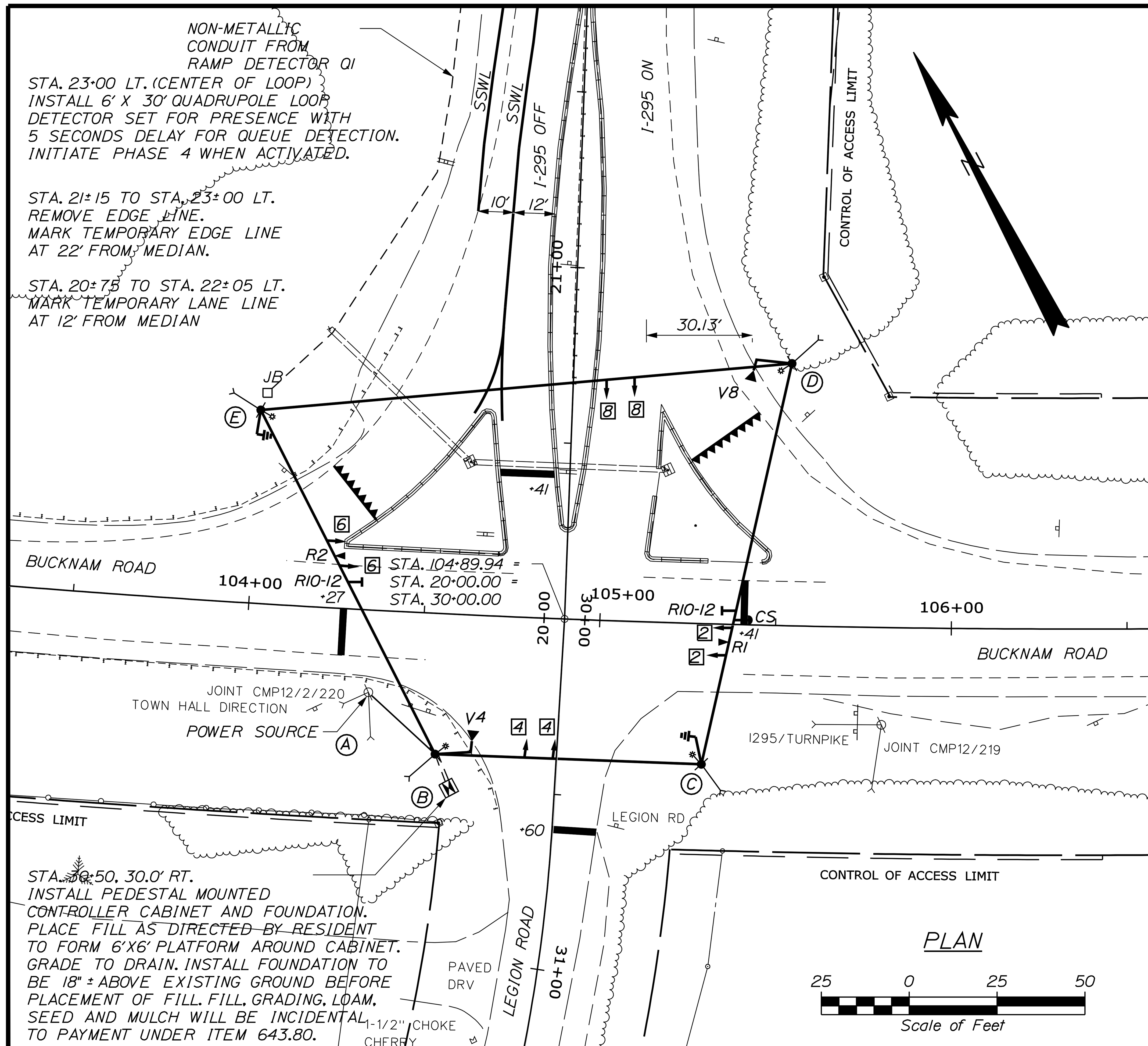
REINFORCING STEEL SCHEDULE 2 of 2

SHEET NUMBER

44

OF 46

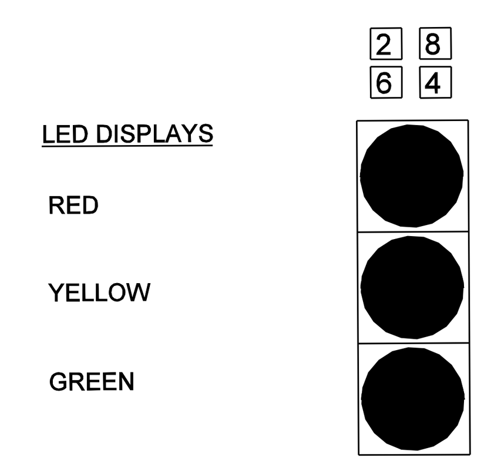
Date:8/2/2018 Username: morin Division: HIGHWAY Filename: ...\008_Temp_Signaldgn.dgn



LEGEND

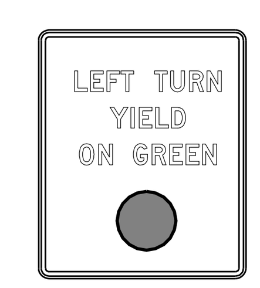
- EXISTING POWER POLE
- WOOD SIGNAL POLE W/ GUY
- CONTROLLER CABINET - PEDESTAL MOUNTED
- NEW SIGNAL HEADS
- OPTICAL PREEMPTION RECEIVER
- PREEMPTION CONFIRMATION STROBE
- AERIAL POWER
- 6' X 30' QUADRUPOLE LOOP DETECTOR
- CONDUIT
- 24" STOP BAR - PAINTED
- 24"X36" YIELD LINE - PAINTED
- RADAR FOR ADVANCE AND PRESENCE DETECTION ON BRACKET ARM
- APPROXIMATE RIGHT OF WAY
- JUNCTION BOX
- OVERHEAD SIGN
- LUMINAIRE
- VIDEO DETECTOR ON BRACKET ARM

SIGNAL HEAD DETAIL



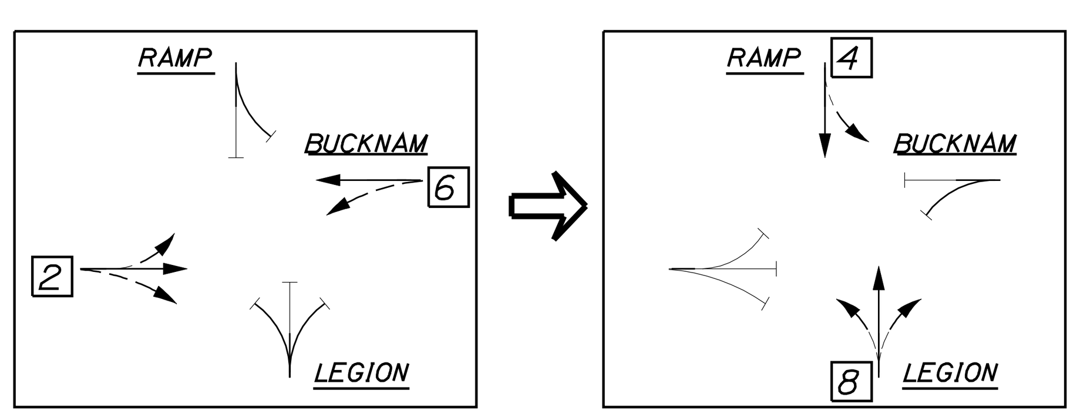
ALL SIGNAL FACE DISPLAYS SHALL BE 12" LED.
ALL SIGNAL FACE DISPLAYS SHALL HAVE TUNNEL VISORS AND 5" WIDE BACKPLATES WITH YELLOW RETROREFLECTIVE TAPE.

OVERHEAD SIGNING



R10-12
30" X 36"
2 REQUIRED

PHASING SEQUENCE



INITIAL SIGNAL TIMING

PHASE	1	2	3	4	5	6	7	8
MIN INITIAL	-	4.0	-	4.0	-	4.0	-	4.0
VEH EXT	-	3.0	-	3.0	-	3.0	-	3.0
MAX. GREEN I	-	72	-	17	-	72	-	17
YELLOW	-	3.5	-	3.0	-	3.5	-	3.0
ALL RED	-	2.0	-	2.5	-	2.0	-	2.5
FLASH	-	Y	-	R	-	Y	-	R
RECALL	-	SOFT	-	-	-	SOFT	-	-

POLE NOTES

'A' EXISTING POLE CMP 12/2/220 (POWER SOURCE).
INSTALL AERIAL POWER FROM POLE 'A' TO POLE 'B'.

'B' STA. 104+55, 40' RT:
INSTALL 45' CLASS 4 WOOD TRAFFIC SIGNAL POLE WITH GUY AND ANCHOR.
INSTALL SERVICE METER AND POLE-MOUNTED METER DISCONNECT ENCLOSURE.
INSTALL POLE RISERS AS REQUIRED FOR POWER SERVICE TO CONTROLLER AND FOR POWER AND COMMUNICATION CONDUCTORS TO TRAFFIC SIGNALS, TRAFFIC DETECTORS, LUMINAIRES, AND EMERGENCY PREEMPTION EQUIPMENT.
CONNECT POWER AND COMMUNICATIONS CONDUCTORS AERIALLY FROM POLE 'B' TO POLE 'C' AND POLE 'E'.
INSTALL LUMINAIRE ON POLE AT HEIGHT OF 30' ABOVE ROAD ELEVATION.
INSTALL VIDEO DETECTION FOR PHASE 4 TRAFFIC.

'C' STA. 105+30, 40' RT:
INSTALL 45' CLASS 4 WOOD TRAFFIC SIGNAL POLE WITH GUY AND ANCHOR.
CONNECT POWER AND COMMUNICATIONS CONDUCTORS AERIALLY FROM POLE 'C' TO POLE 'D'.
INSTALL LUMINAIRE ON POLE AT HEIGHT OF 30' ABOVE ROAD ELEVATION.
INSTALL ADVANCE DETECTION WITH DILEMMA ZONE PROTECTION AND SECONDARY STOP BAR PRESENCE DETECTION ON 10' BRACKET ARM FOR DETECTION OF APPROACHING EASTBOUND TRAFFIC ON BUCKNAM ROAD. MOUNT TOP OF ARM AT 17' ABOVE ROADWAY ELEVATION.

'D' STA. 20+75, 62' RT:
INSTALL 45' CLASS 4 WOOD TRAFFIC SIGNAL POLE WITH GUY AND ANCHOR.
CONNECT POWER AND COMMUNICATIONS CONDUCTORS AERIALLY FROM POLE 'D' TO POLE 'E'.
INSTALL LUMINAIRE ON POLE AT HEIGHT OF 30' ABOVE ROAD ELEVATION.
INSTALL VIDEO DETECTION FOR PHASE 4 TRAFFIC.

'E' STA. 104+00, 55' LT:
INSTALL 45' CLASS 4 WOOD TRAFFIC SIGNAL POLE WITH GUY AND ANCHOR.
CONNECT POWER AND COMMUNICATIONS CONDUCTORS AERIALLY FROM POLE 'E' TO POLE 'B'.
INSTALL POLE RISERS AS REQUIRED FOR TRAFFIC DETECTOR CONDUCTORS.
INSTALL BURIED CONDUIT FROM POLE 'E' TO JUNCTION BOX FOR LEAD-IN FROM PRESENCE LOOP DETECTOR 'Q1'.
INSTALL LUMINAIRE ON POLE AT HEIGHT OF 30' ABOVE ROAD ELEVATION.
INSTALL ADVANCE DETECTION WITH DILEMMA ZONE PROTECTION AND SECONDARY STOP BAR PRESENCE DETECTION ON 8' BRACKET ARM FOR DETECTION OF APPROACHING WESTBOUND TRAFFIC ON BUCKNAM ROAD. MOUNT TOP OF ARM AT 17' ABOVE ROADWAY ELEVATION.

EMERGENCY VEHICLE PREEMPTION NOTES

1. EMERGENCY VEHICLE PREEMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS INSTALLED BY OTHERS IN EMERGENCY VEHICLES.
2. OPTICAL PREEMPTION RECEIVERS AND CONFIRMATION STROBE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE MANUFACTURED BY TOMAR ELECTRONICS, INC. THE CONTRACTOR SHALL CONFIRM OPERATIONAL COMPATIBILITY OF NEW EQUIPMENT WITH EXISTING TOMAR PREEMPTION EMITTERS OF TOWN OF FALMOUTH EMERGENCY VEHICLES.
3. EMERGENCY OPTICAL PREEMPTION RECEIVERS AND CONFIRMATION STROBE SHALL BE ATTACHED TO SPANWIRE WITH APPROVED SPANWIRE MOUNT HARDWARE MANUFACTURED BY TOMAR AND SHALL BE BOTTOM TETHERED.
4. PREEMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH WESTBOUND RECEIVER 'R2' HAVING FIRST PRIORITY.
5. IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED BY AN OPTICAL RECEIVER, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE GREEN INDICATION FOR BUCKNAM ROAD PHASES 2 AND 6 FOR A MINIMUM OF TEN SECONDS OR UNTIL THE PREEMPTION SIGNAL CEASES. THE CONTROLLER THEN SHALL TIME PREEMPTION PHASE CLEARANCE OF 3.3 SECONDS YELLOW AND 2.7 SECONDS ALL RED AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PREEMPTION PHASES AS NECESSARY. THE CONTROLLER SHALL RESUME NORMAL SIGNAL OPERATION AFTER SERVICING THE LAST PREEMPTION CALL AND PREEMPTION CLEARANCE.
6. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
7. THE CONFIRMATION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PREEMPTION GREEN INDICATION IS ON.

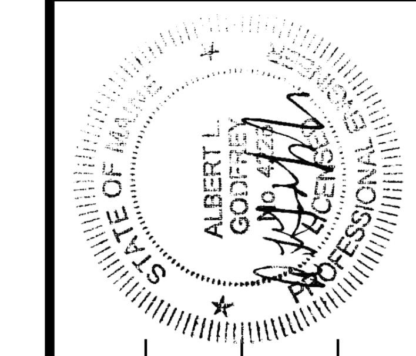
LUMINAIRE NOTES

1. ALL PROPOSED LIGHTING SHALL BE PHOTOCELL ACTIVATED BY A PHOTOCELL ON THE CONTROL CABINET.
2. LIGHTING FIXTURE VOLTAGE SHALL BE 240 VOLTS.
3. LIGHTING FIXTURES SHALL BE IES FULL CUTOFF LIGHT EMITTING DIODE (LED) FIXTURES. IES DISTRIBUTION TYPE 3. LED COLOR TEMPERATURE SHALL BE 3000K.
4. ALL FIXTURES SHALL BE GASKETED AND HAVE SURGE PROTECTION AND A DOUBLE FUSE KIT. FIXTURES SHALL BE GRAY.
5. LUMINAIRES ON POLES 'B' AND 'C' SHALL BE AMERICAN ELECTRIC LIGHTING 'AUTOBAHN' ATB0 SERIES. 48 WATT 700 MA LED FIXTURES. CATALOG NUMBER ATB0 20BLEDE70 R3 3K.
6. LUMINAIRES ON POLES 'D' AND 'E' SHALL BE AMERICAN ELECTRIC LIGHTING 'AUTOBAHN' ATB2 SERIES. 91 WATT 700 MA LED FIXTURES. CATALOG NUMBER ATB2 40BLEDE70 R3 3K.
7. LUMINAIRES SHALL BE ATTACHED TO WOOD SIGNAL POLES WITH STEEL BRACKETS AND 2-INCH DIAMETER MINIMUM LENGTH GALVANIZED STEEL HORIZONTAL PIPE TENON MOUNT.
8. LUMINAIRES SHALL OPERATE ON THE SAME METER AS THE TRAFFIC SIGNALS.

TRAFFIC SIGNAL NOTES

1. TRAFFIC SIGNAL WORK FOR THIS PROJECT WILL INCLUDE, BUT NOT BE LIMITED TO, FURNISHING AND INSTALLING A COMPLETE NEMA TS-2 TYPE 2 TRAFFIC SIGNAL CABINET AND FOUNDATION, CONTROLLER, MMU, FLASHER UNIT, DETECTOR RACK, AND OTHER NECESSARY COMPONENTS; TRAFFIC SIGNAL ASSEMBLIES; ADVANCE RADAR DETECTION FOR DILEMMA ZONE PROTECTION; INTERSECTION LIGHTING; EMERGENCY VEHICLE OPTICAL PREEMPTION RECEIVERS AND CONFIRMATION STROBE; PRESENCE LOOP FOR QUEUE DETECTION ON THE I-295 RAMP; VIDEO DETECTION AT STOP BARS; AND RELATED INCIDENTAL WORK AND MATERIALS. ALL EQUIPMENT SHALL BE NEW.
2. ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE LATEST REVISIONS OF THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE NATIONAL ELECTRICAL CODE, AND ANY REQUIREMENTS OF THE POWER COMPANY.
3. AN EXTERNAL, STANDALONE BREAKER TO DISCONNECT POWER TO THE NEW CONTROL CABINET SHALL BE INSTALLED IN A LOCKABLE NEMA 3R ENCLOSURE BETWEEN THE METER AND THE CABINET.
4. THE CONTROL CABINET AND THE POWER DISCONNECT ENCLOSURE EACH SHALL BE MARKED WITH ARC HAZARD TYPE 2, 3 OR 4 AND THE APPROPRIATE PPE REQUIRED. SEE SECTION 643.09 FOR OTHER REQUIREMENTS.
5. THE CONTROLLER SHALL BE A NAZTEC NEMA TS-2 TYPE 2 CONTROLLER CAPABLE OF FUTURE COORDINATION WITH OTHER EXISTING BUCKNAM ROAD TRAFFIC SIGNAL CONTROLLERS.
6. THE CONTROL CABINET SHALL ACCOMMODATE NECESSARY WIRING AND CONTROL HARDWARE FOR INTERSECTION LIGHTING AS WELL AS TRAFFIC SIGNAL CONTROL COMPONENTS.
7. SIGNAL ASSEMBLIES SHALL BE POLYCARBONATE WITH DOUBLE SPANWIRE SUPPORT. ALL SIGNAL ASSEMBLIES, OVERHEAD SIGNAGE, AND EMERGENCY VEHICLE PREEMPTION EQUIPMENT ATTACHED TO SPANWIRES SHALL BE STABILIZED WITH A BOTTOM TETHER.
8. ADVANCE DETECTION FOR DILEMMA ZONE PROTECTION ON THE BUCKNAM ROAD APPROACHES TO THE TRAFFIC SIGNAL SHALL BE WAVETRONIX SMARTSENSOR 'ADVANCE' WITH SAFE ARRIVAL TECHNOLOGY OR APPROVED EQUAL. DETECTORS SHALL BE INDIVIDUALLY SURGE PROTECTED AND FUSED.
9. LOCATIONS OF ANY EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE PRESENCE OF UNDERGROUND UTILITY FACILITIES PRIOR TO COMMENCING ANY EXCAVATION WORK OR INSTALLATION OF POLES, FOUNDATIONS, JUNCTION BOXES, CONDUIT OR GROUND-MOUNTED SIGNAGE AND SHALL NOTIFY UTILITIES OF PROPOSED WORK IN ACCORDANCE WITH MRSA TITLE 23 SECTION 3360-A, MAINE "DIG SAFE" SYSTEM. CONTRACTOR SHALL CONTACT DIG SAFE AT LEAST THREE WORKING DAYS PRIOR TO THE BEGINNING OF EXCAVATION. ALL UTILITIES SHALL BE LOCATED BEFORE BEGINNING EXCAVATION.
10. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 48 HOURS BEFORE ANY OPERATIONS ARE CONDUCTED THAT POTENTIALLY COULD CONFLICT WITH AERIAL UTILITIES.
11. NEW CONDUIT NOT UNDER PAVEMENT SHALL BE 3 INCH MINIMUM, PVC SCHEDULE 40. MINIMUM BURIAL DEPTH FOR CONDUIT SHALL BE 36". TOP 3 INCHES OF CONDUIT SHALL BE SEALED TO PREVENT ENTRY BY RODENTS. CONDUIT BETWEEN THE POWER SOURCE AND THE CABINET SHALL BE CONCRETE ENCASED.
12. THERE SHALL BE NO SPLICES OR JUNCTION BOXES EXCEPT AS NOTED ON THE PROJECT PLANS OR APPROVED BY THE RESIDENT.
13. JUNCTION BOX COVERS SHALL BE LABELED "TRAFFIC".
14. SPECIFIED TRAFFIC SIGNAL POLE LOCATIONS ARE MEASURED TO THE CENTER OF THE POLES. SPECIFIED LOCATION FOR THE CONTROLLER IS MEASURED TO THE CENTER OF THE CONTROLLER FOUNDATION.
15. ALL FIELD WIRING SHALL BE NEATLY BUNDLED AND CLEARLY IDENTIFIED WITH PERMANENT, LEGIBLE, WEATHERPROOF TAGS SECURELY ATTACHED TO EACH CABLE.
16. AT THE TIME OF FINAL PROJECT INSPECTION, THE CONTRACTOR SHALL FURNISH TO THE RESIDENT THREE COMPLETE SETS OF AS-BUILT TRAFFIC SIGNAL PLANS. ONE ADDITIONAL SET SHALL REMAIN IN THE CABINET.
17. THE MAINTENANCE OF TRAFFIC SIGNALS SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR UNTIL FINAL ACCEPTANCE BY MAINEDOT. ALL EQUIPMENT INSTALLED WILL REMAIN THE PROPERTY OF MAINEDOT.
18. PAYMENT UNDER ITEM 643.80 SHALL INCLUDE, BUT NOT BE LIMITED TO, POWER SERVICE AND METER, METER DISCONNECT AND ENCLOSURE, WOOD POLES, BRACKET ARMS, SPANWIRES, TETHER WIRES, SIGNAL ASSEMBLIES AND LED LAMPS, BACKPLATES, VISORS, GUY LEADS AND ANCHORS, CONTROLLER AND CABINET, LUMINAIRES, WAVETRONIX RADAR TRAFFIC DETECTORS, TOMAR EMERGENCY VEHICLE PREEMPTION EQUIPMENT, WIRING, CABLE, POLE RISERS, AND ALL APPURTENANCES AND INCIDENTALS NECESSARY FOR A COMPLETELY FUNCTIONING TRAFFIC SIGNAL INSTALLATION, OTHER THAN RELATED LABOR, MATERIALS AND EQUIPMENT INCLUDED IN OTHER PAY ITEMS OF THE CONTRACT.
19. INSTALL 6' X 30' QUADRUPOLE LOOP DETECTOR ON I-295 NB OFF-RAMP 259 FEET BACK FROM STOP BAR. SET LOOP FOR PRESENCE WITH 5 SECONDS DELAY FOR QUEUE DETECTION. WHEN ACTIVATED, PREEMPT THE TIMING PLAN AND INITIATE PHASE 4.
20. REMOVE EXISTING STOP SIGNS.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
021723.00
WIN 21723.00
HIGHWAY PLANS



	BY	DATE
PROJ. MANAGER	BRIAN KEEZER	
DESIGN-DETAILED	ALG	MSM	8/18
CHECKED-REVIEWED	ALG	8/18
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE 4226
P.E. NUMBER
8/1/2018
DATE

FALMOUTH
BUCKNAM ROAD
TEMPORARY SIGNAL PLAN

SHEET NUMBER
45
OF 46

PLAN LEGEND

Town, County, State		New R/W Along Existing R/W		Existing	Proposed	Existing	Proposed
Approx. Property Lines	P.L.	Building	Clearing Limit Line CLL	Sanitary Sewer		Traveled Way	
Existing Right of Way		Trees Conifer	Deciduous	Telephone Line	T	Ditch	
Limits of Wrought Portion	L.O.W.P.	Tree Line	Bush Line	Electric Line	E	Catch Basin	
Control Of Access	C.O.A.	Water Edge		Water Line	W	Manhole	
New Right of Way		Ledge	Rock/Boulder Flag Pole	Underdrain Line		Sewer Manhole	
New Easement		Fence CHAIN LINK	BARB WIRE STOCKADE	Gas Line	G	Utility Pole	
New Temporary Rights		Sign	Well WELL Mailbox	Guardrail		Fire Hydrant	
New R/W Within Existing R/W				Culvert		Curbing	

Cut Line C—C—C Fill Line F—F—F
Stonewall Retaining Wall
Baseline 10+00 11+00 12+00
Monument Traverse Point
Iron Rod Found ● IRF Pipe Found ● IPF
Replacement Pin Set ⊙

STATE OF MAINE
REGISTRY OF DEEDS
COUNTY _____
RECEIVED _____, _____
at _____h_____m_____M and recorded in
Plan Book _____, Page _____
Attest: _____
REGISTER

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 ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100
Scale of Feet

CONTROL INFORMATION
HORIZONTAL DATUM: US STATE PLANE NAD 83 (2011)
VERTICAL DATUM: NAVD 88
COMBINED FACTOR: 0.9999793

GRID NORTH
MAINE 2000 WEST ZONE

OWNER:
STATE OF MAINE
DEPT. OF TRANSPORTATION
OPERATOR:
ST. LAWRENCE & ATLANTIC
RAILROAD COMPANY
V26_20 STA 8380-8572
V26/S20 STA 8410 TO STA 8463
BOOK/PAGE 25500/215

EXISTING RIGHT OF WAY INFORMATION

A) MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP STATE HIGHWAY "295", FALMOUTH, CUMBERLAND COUNTY FEDERAL AID PROJECT NO. I-295-3 (5) S4, DATED DEC 1958 S.H.C. FILE NO. 3-132, SHEETS 12 OF 18

B) STATE OF MAINE HIGHWAY COMMISSION RIGHT OF WAY MAP STATE HIGHWAY "295" FEDERAL AID PROJECT NO. L.S.I.-295-3(1) PLAN RELOCATED DEPOT ROAD AND RAMPS 2 & 2A S.H.C. FILE NO. 3-184, SHEETS 8 & 9 OF 10, DATED DEC 1967

C) CUMBERLAND COUNTY COMMISSIONERS RECORDS VOL 22, PAGE 1 DATED 1954 WIDTH VARIES, 50-FEET & 66-FEET. (LUNT ROAD)

REMO A. DiMILLO
JANE DiMILLO
MAP/LOT- U25/41
BOOK/PAGE 20385/333
POR-4

CURVE DATA #1
PI = 10+37.54
D = 8°36'49.1"
Δ = 6°27'36.8" Lt.
R = 665.18'
L = 75.00'
T = 37.54'
E = 1.06'

PC = STA. 10+00.00
PRC = STA. 10+75.00

STATE OF MAINE
BOOK/PAGE 2453/1

CURVE DATA #4
PI = 15+30.82
D = 6°03'44.8"
Δ = 4°32'48.6" Lt.
R = 945.09'
L = 75.00'
T = 37.52'
E = 0.74'

PRC = STA. 14+93.30
PT = STA. 15+68.30

STATE HIGHWAY 295 (NORTH BOUND)
TO CUMBERLAND

C.O.A.

ANNA C. DOUGLASS TO
TOWN OF FALMOUTH
BK 2583 PG 226
SLOPE EASEMENT

SHARON M. CASTELLUCCI
MAP/LOT- U27/4
BOOK/PAGE 23445/266
POR-3

OWNER:
STATE OF MAINE
DEPT. OF TRANSPORTATION
OPERATOR:
ST. LAWRENCE & ATLANTIC
RAILROAD COMPANY
V26_20 STA 8380-8572
V26/S20 STA 8410 TO STA 8463
BOOK/PAGE 25500/215

CURVE DATA #2
PI = 11+25.02
D = 3°44'31.2"
Δ = 3°44'31.2" Rt.
R = 1531.15'
L = 100.00'
T = 50.02'
E = 0.82'

PT = STA. 11+75.00
PC = STA. 13+93.30

STATE HIGHWAY 295 (SOUTH BOUND)
TO PORTLAND

CURVE DATA #3
PI = 14+43.33
D = 4°31'25.4"
Δ = 4°31'25.4" Rt.
R = 1266.57'
L = 100.00'
T = 50.03'
E = 0.99'

STATE OF MAINE
MAP/LOT- R04/30
BOOK/PAGE 3224/221
POR-5

CORRESPONDENCE FROM DRUMMOND WOODSUM PLIMPTON & MACHAHON, P.A. DATED NOV. 23, 1982 IN CONNECTION WITH FEDERAL WATER POLLUTION CONTROL PROJECT NO. C-230233-02 REFERENCES PUMPING STATION NO. 4 AND THAT IT IS THE TOWN'S UNDERSTANDING, THAT THE STATE OF MAINE, THROUGH THE DEPT. OF TRANSPIRATION WILL BE GRANTING A PERMIT FOR THE USE OF THIS PARCEL AS PUMPING STATION NO. 4. (AS OF THE PRINTING OF THIS PLAN A COPY OF THE LOCATION PERMIT HAS NOT BEEN LOCATED.)

TOWN OF FALMOUTH PUMPING STATION NO. 4
FOR TOWN OF FALMOUTH
PREPARED BY E.C. JORDAN DATED 8/22/89
ON FILE WITH OWEN HASKELL INC.

LUNT ROAD
OVER
STATE HIGHWAY 295

BRIDGE NO.5829 WIN 021723.00

CONTROLLED ACCESS LIMIT

CONTROLLED ACCESS LIMIT LINE ALONG R/W LINE

CONTROLLED ACCESS LIMIT LINE NOT ON R/W LINE

NO ACCESS WILL BE PERMITTED TO OR FROM STATE HIGHWAY "X" AND ADJOINING PROPERTIES WITHIN BOUNDARIES DEFINED BY CONTROLLED ACCESS LIMIT LINES

ITEM	CHECKED
EXISTING CONDITION PLAN	C.W.K.
FINAL RIGHT OF WAY	RMC
AREAS	

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460

FALMOUTH
RIGHT OF WAY MAP

REVISIONS

NO.	DATE	DESCRIPTION	BY

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

DAVID BERNHARDT
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

To the best of my knowledge and belief the Highway Right of Way lines depicted hereon are based upon a survey conforming to the Standards of Practice promulgated by the Maine Board of Licensure for Professional Land Surveyors 02-360 CMR, Chapter 90; Exceptions: (1) No separate survey report, (2) Monumentation only as shown on plan. See sheet X of this plan set for coordinates. (3) Other boundary lines, including lines between abutters are approximate and for general reference purposes only.

STATE HIGHWAY 295
LUNT ROAD
FALMOUTH CUMBERLAND COUNTY
BRIDGE IMPROVEMENTS

OCTOBER 2016 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 3-632
SCALE 1" = 25' | SHEET 1 OF 1

SHEET NUMBER
46
OF 45

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Seventh Edition with Interim Revisions through 2016.

DESIGN LOADING

Live Load ..... Maine Legal Load Configurations

TRAFFIC DATA

Current (2016) AADT	3430
Future (2036) AADT	4800
DHV - % of AADT	12
Design Hour Volume	576
Heavy Trucks (% of AADT)	5
Heavy Trucks (% of DHV)	5
Directional Distribution (% of DHV)	68
18 kip Equivalent P 2.0	59
18 kip Equivalent P 2.5	56
Design Speed (mph)	35

HYDROLOGIC DATA

Drainage Area	600 sq mi
Design Discharge (Q50)	16,172 cfs
Check Discharge (Q100)	19,357 cfs
Headwater Elevation (Q10)	24.3 ft
Headwater Elevation (Q50)	29.3 ft
Headwater Elevation (Q100)	31.5 ft
Discharge Velocity (Q10)	5.5 fps
Discharge Velocity (Q50)	6.3 fps
Discharge Velocity (Q100)	6.6 fps

MATERIALS

Concrete	Class "A"
Reinforcing Steel	ASTM A 615/A 615M, Grade 60
Structural Steel:	
All Material (except as noted)	ASTM A 709, Grade 50
Anchor Rods	ASTM F 1554, Grade 105

BASIC DESIGN STRESSES

Concrete	f 'c = 4000 psi
Reinforcing Steel	f y = 60,000 psi
Structural Steel:	
ASTM A 709, Grade 50	F y = 50,000 psi
ASTM F 1554	F μ = 125,000 psi

FALMOUTH
CUMBERLAND COUNTY
LAMBERT STREET BRIDGE
OVER
PRESUMPSCOT RIVER
BLACKSTRAP ROAD
PROJECT NO. STP-2260(000)
PROJECT LENGTH 0.0405 mi.
BRIDGE NO. 5553

LIST OF DRAWINGS

UTILITIES

Central Maine Power
Consolidated Communications
Spectrum Cable
Oxford Networks

MAINTENANCE OF TRAFFIC

Maintain one 11'-0" wide lane of alternating one - way traffic using temporary traffic signals.

PROJECT LOCATION	In Falmouth, Lambert Street Bridge carrying Blackstrap Road over Presumpscot River, 0.3 miles northwest of the intersection of Lambert Street / Blackstrap Road with Washington Avenue. Lat./Long. 43°43'28.3" N 70°18'09.2" W
PROGRAM AREA	Highway Bridges - Traditional
OUTLINE OF WORK	Lambert Street Bridge Rehabilitation including structural steel rehabilitation, bridge wearing surface replacement, scour countermeasures, and other miscellaneous repairs.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

APPROVED — DATE 8/6/18
COMMISSIONER: Bruce A. Van Note — DATE 8-6-18
CHIEF ENGINEER: Angela Wood Taylor — DATE

STATE OF MAINE — GARRETT A. GUSTAFSON 13553 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE — P.E. NUMBER 13553 — DATE 8-6-18

PROJECT INFORMATION

PROGRAM	Bridge Program
PROJECT MANAGER	Joel Kittredge
DESIGNER	Garrett Gustafson
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

FALMOUTH
LAMBERT ST. BRIDGE

TITLE SHEET

WIN 22600.00

STP-2260(000)

SHEET NUMBER 1 OF 10

Filename:\00\BRIDGE\MSTA\001_Title.dgn Division: BRIDGE Username: Garrett.A.Gustafson Date:8/6/2018

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION		QUANTITY	UNIT
202.202	REMOVING PAVEMENT SURFACE		1050	SY
203.20	COMMON EXCAVATION		54	CY
203.2318	DISPOSAL OF SPECIAL WASTE		400	T
203.24	COMMON BORROW		10	CY
304.10	AGGREGATE SUBBASE COURSE- GRAVEL		54	CY
403.208	HMA - 12.5 mm NOM MAXIMUM SIZE SURFACE		105	T
403.213	HMA - 12.5 mm NOM MAXIMUM SIZE BASE		16	T
409.15	BITUMINOUS TACK COAT, APPLIED		35	G
502.70	BRIDGE DRAIN EXTENSIONS		7	EA
504.514	BEARING STIFFENER - FULL HEIGHT		8	EA
504.514	BEARING STIFFENER - CONNECTION PLATE		24	EA
504.702	STRUCTURAL STEEL FABRICATED AND DELIVERED, WELDED	(390 LB)	1	LS
504.71	STRUCTURAL STEEL ERECTION	(390 LB)	1	LS
506.144	FIELD PAINTING NEW AND EXISTING STRUCTURAL STEEL	(31,100 LB)	1	LS
506.17	SURFACE PREPARATION OF EXISTING STEEL	(30,700 LB)	1	LS
506.18	CONTAINMENT AND POLLUTION CONTROL MEASURES	(30,700 LB)	1	LS
506.191	DISPOSAL OF SPECIAL WASTE OR HAZARDOUS WASTE	(30,700 LB)	1	LS
508.14	HIGH PERFORMANCE WATERPROOFING MEMBRANE	(520 SY)	1	LS
511.07	COFFERDAM: PIER NO. 1		1	LS
511.07	COFFERDAM: PIER NO. 2		1	LS
515.21	PROTECTIVE COATING FOR CONCRETE SURFACES	(260 SY)	1	LS
518.50	REPAIR OF UPWARD FACING SURFACES - TO REINFORCING STEEL		330	SF
518.51	REPAIR OF UPWARD FACING SURFACES - BELOW REINFORCING STEEL < 8 IN.		140	SF
518.52	REPAIR OF UPWARD FACING SURFACES - BELOW REINFORCING STEEL ≥ 8 IN.		1	CY
518.60	REPAIR OF VERTICAL FACING SURFACES < 8 INCHES		20	SF
520.244	BRIDGE JOINT MODIFICATION TYPE 4		4	EA
524.301	TEMPORARY STRUCTURAL SUPPORT		1	LS
526.301	TEMPORARY CONCRETE BARRIER, TYPE 1 (280 LF)		1	LS
527.34	WORK ZONE CRASH CUSHIONS		2	UN
606.36	GUARDRAIL, REMOVE, AND RESET		50	LF
610.16	HEAVY RIPRAP		800	CY
610.18	STONE DITCH PROTECTION		30	CY
620.50	EROSION CONTROL FILTER LAYER		210	SY
627.733	4" WHITE OR YELLOW PAINTED MARKING LINE		645	LF
629.05	HAND LABOR, STRAIGHT TIME		40	HR
631.10	AIR COMPRESSOR (INCLUDING OPERATOR)		10	HR
631.11	AIR TOOL (INCLUDING OPERATOR)		10	HR
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)		10	HR
631.172	TRUCK - LARGE (INCLUDING OPERATOR)		10	HR
639.18	FIELD OFFICE, TYPE A		0.5	EA
643.72	TEMPORARY TRAFFIC SIGNAL		1	LS
652.312	TYPE III BARRICADES		6	EA
652.35	CONSTRUCTION SIGNS		250	SF
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES (60 CD)		1	LS
652.38	FLAGGERS		80	HR
652.41	PORTABLE - CHANGEABLE MESSAGE SIGN		2	EA
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL		1	LS
659.10	MOBILIZATION		1	LS

GENERAL CONSTRUCTION NOTES

1. During construction, the Bridge will be Alternating Traffic Maintaining one 11 foot Lane for a time period as specified in the Special Provisions.

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

3. The clearing limits 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.

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

5. Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.

6. 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.

7. Construct the riprap apron at each Pier up to 4 feet above the existing footing and as directed by the Resident.

8. 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.

9. 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.
   - Concrete barrier railing.

10. Project information referred to below may be accessed at the following MaineDOT web address: http://www.maine.gov/mdot/contractors/.

11. 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.

12. The Scour Critical Bridge Plan of Action Report, which Contains Hydrologic Information may be accessed at the MaineDOT web address. The 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.

13. 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.

14. Provide painted steel bridge drain downspout extensions, or approved equal, at all drain locations. The downspout extensions shall extend a minimum of 6 inches below the bottom flange of the closest beam. The Contractor shall submit a method of attachment to the existing bridge drain downspouts for the approval of the Resident. The minimum downspout inside diameter is 8 inches including connection materials. All associated work will be paid for under Pay Item No. 502.70, Bridge Drain Extensions.

GENERAL CONSTRUCTION NOTES (CONTINUED)

15. All reinforcing steel that is to be exposed and reused shall be cleaned by a method approved by the Resident. This work will be considered incidental to related Contract items. No separate payment will be made.

16. 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. The Contractor is responsible for implementing appropriate OSHA mandated personal protection standards related to this process. The Contractor is solely responsible for the care, custody, and control of the components of any hazardous waste generated as a result of the storage, recycling, or disposal of any elements related to the project. The Contractor shall perform the Work 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.

17. Reconstruct the berm and sideslope at Sta. 6+75, left, as directed by the Resident

18. Place pavement to within 1 inch of the face of the guardrail.

19. Guardrail removed for the Contractor's convenience will not be measured separately and will be considered incidental to related Contract items. No separate payment will be made.

PIER SCOUR COUNTERMEASURE NOTES

1. Construct heavy riprap pier scour countermeasure aprons a minimum of 4 feet thick and no steeper than 1.5H:1V.

2. Match heavy riprap pier scour countermeasures into existing abutment riprap slopes as directed by the Resident.

3. The best approximation of the top of the existing footings is EL. 17.7.

JOINT MODIFICATION NOTES

1. The existing granite curbs are to remain. Cut the existing joint armor as necessary to complete the Work. Grind any exposed portions of the existing joint armor smooth as directed by the Resident. All Work related to the joint armor will be considered incidental to Pay Item No. 520.244, Bridge Joint Modification Type 4. No separate payment will be made.

2. Leave the existing transverse reinforcing steel projecting 2 feet from the face of curb. Lap splice new transverse steel to the existing transverse steel.

3. Reinforcing steel shall have 2 inch minimum cover unless otherwise noted.

4. The minimum lap splice length for #5 bar is 24 inches.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-2260(000)

WIN 22600.00

BRIDGE NUMBER 5553

BRIDGE PLANS

PROJ. MANAGER	JOEL KITTREDGE			
DESIGN-DETAILED	G. Gustafson	BY	DATE	
CHECKED-REVIEWED	D. Eaton	G. Gustafson	July 2018	SIGNATURE
DESIGN2-DETAILED2		J. Leavitt	July 2018	
DESIGN3-DETAILED3				P.E. NUMBER
REVISIONS 1				
REVISIONS 2				DATE
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

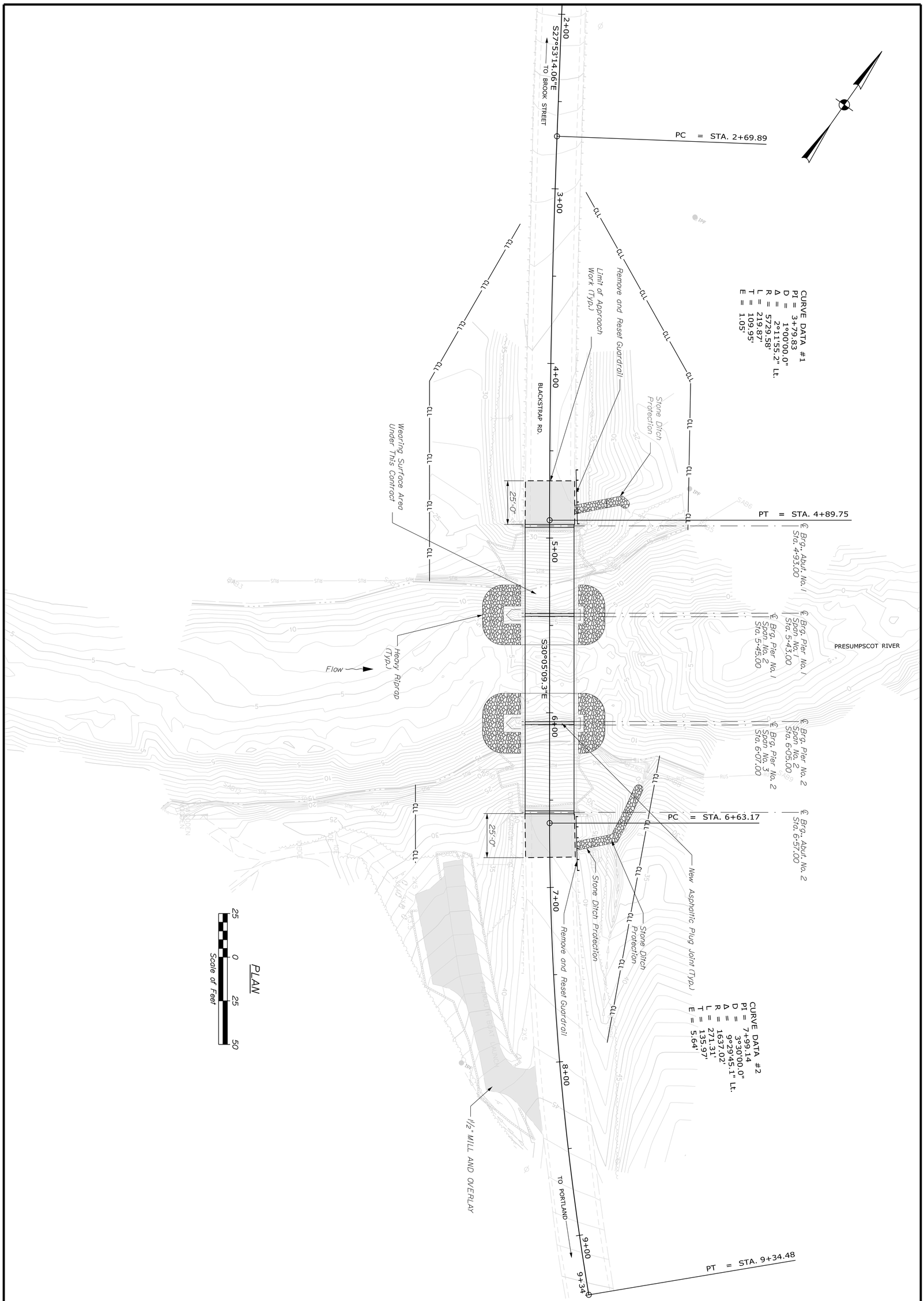
LAMBERT STREET BRIDGE
PRESUMPSCOT RIVER
FALMOUTH CUMBERLAND COUNTY

ESTIMATED QUANTITIES

SHEET NUMBER

2

OF 10



PROJ. MANAGER	J. Kittredge	BY	DATE	
DESIGN-DETAILED	G. Gustafson	J. Leavitt	July 2018	
CHECKED-REVIEWED	D. Eaton	G. Gustafson	July 2018	SIGNATURE
DESIGN2-DETAILED2				
DESIGN3-DETAILED3				P.E. NUMBER
REVISIONS 1				
REVISIONS 2				DATE
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

SHEET NUMBER 3 OF 10

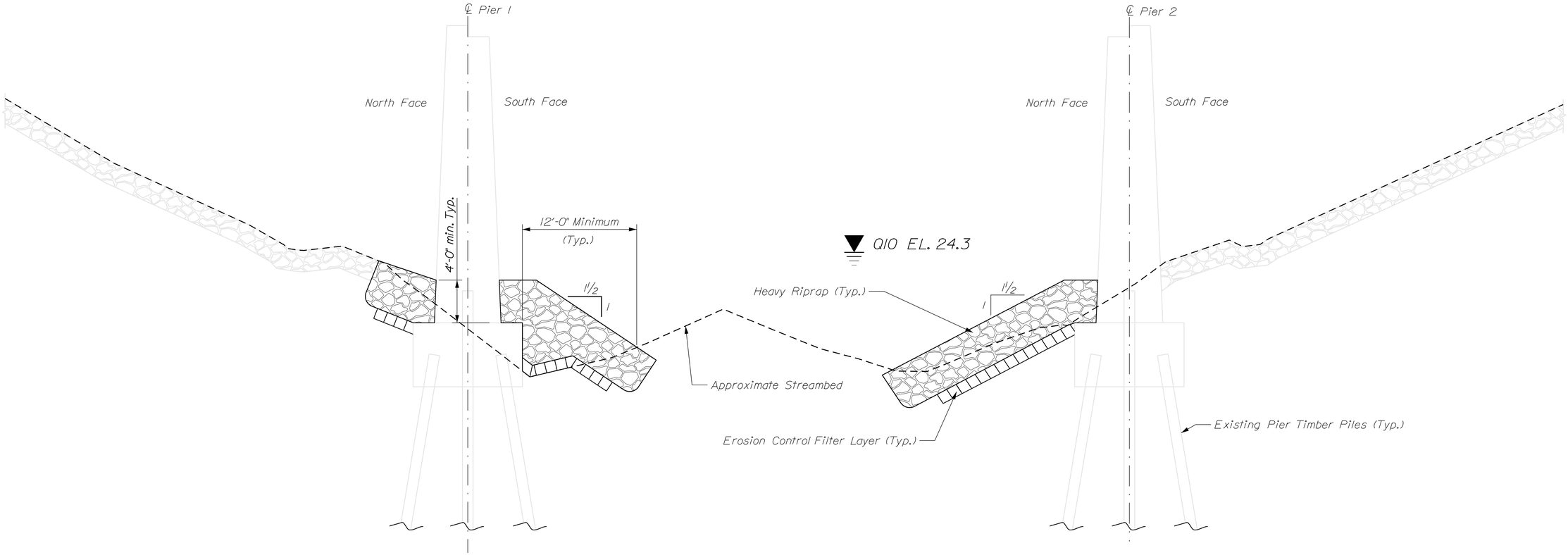
LAMBERT STREET BRIDGE
PRESUMPSCOT RIVER
FALMOUTH CUMBERLAND COUNTY

GENERAL PLAN

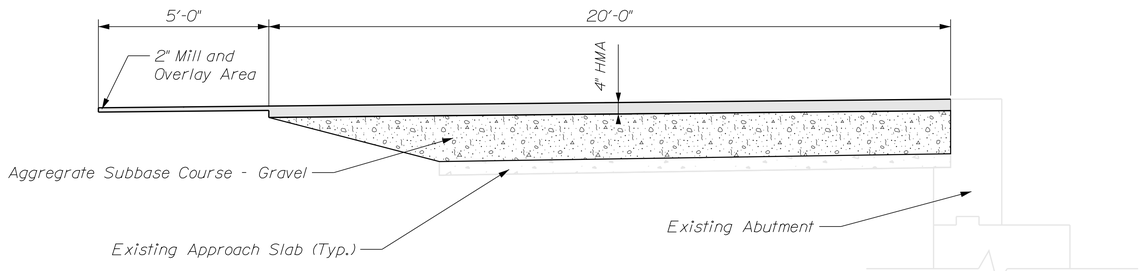
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-2260(000)

BRIDGE NO. 5553 WIN 022600.00 BRIDGE PLANS



PARTIAL PROFILE



APPROACH LONGITUDINAL SECTION

Typical

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-2260(000)

WIN 022600.00

BRIDGE NO. 5563 BRIDGE PLANS

PROJ. MANAGER	J. Kittredge		
DESIGN-DETAILED	G. Gustafson	J. Leavitt	July 2018
CHECKED-REVIEWED	D. Eaton	G. Gustafson	July 2018
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

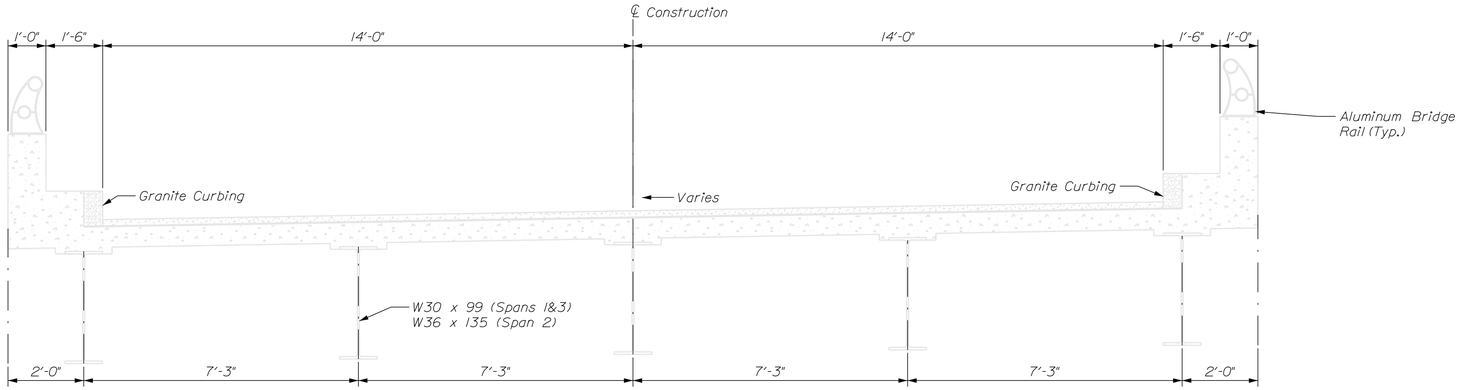
LAMBERT STREET BRIDGE
PRESUMPSCOT RIVER
FALMOUTH CUMBERLAND COUNTY

PROFILE

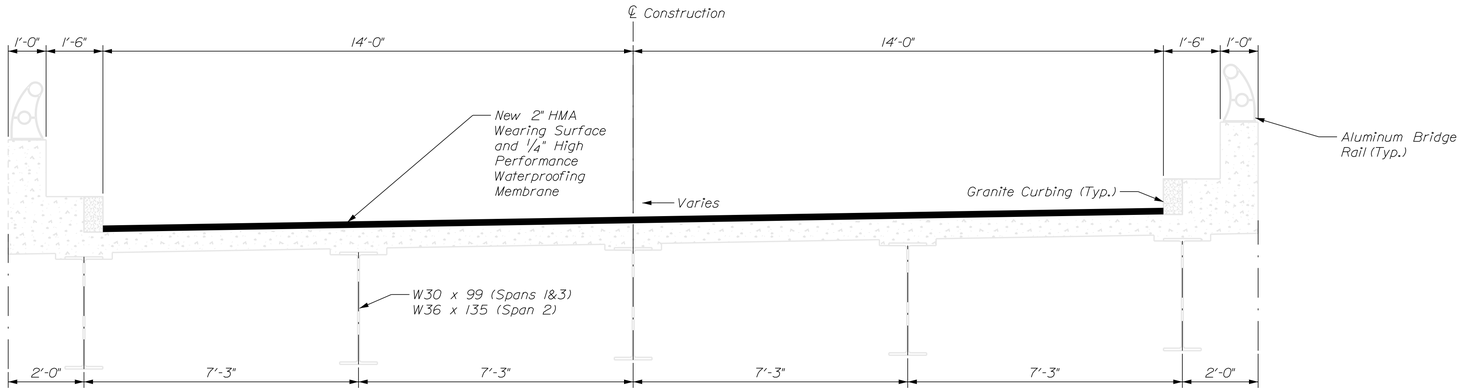
SHEET NUMBER

4

OF 10



EXISTING BRIDGE TYPICAL SECTION



PROPOSED BRIDGE TYPICAL SECTION

Filename: ...\MSTA\005_Typical Sections.dgn Division: BRIDGE Username: Garrett.A.Gustafson Date:8/6/2018

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-2260(000)

WIN 22600.00

BRIDGE NUMBER 5553

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER JOEL KITTREDGE		
DESIGN-DETAILED	G. Gustafson	July 2018
CHECKED-REVIEWED	J. Leavitt	July 2018
DESIGN2-DETAILED2	G. Gustafson	
DESIGN3-DETAILED3	D. Eaton	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

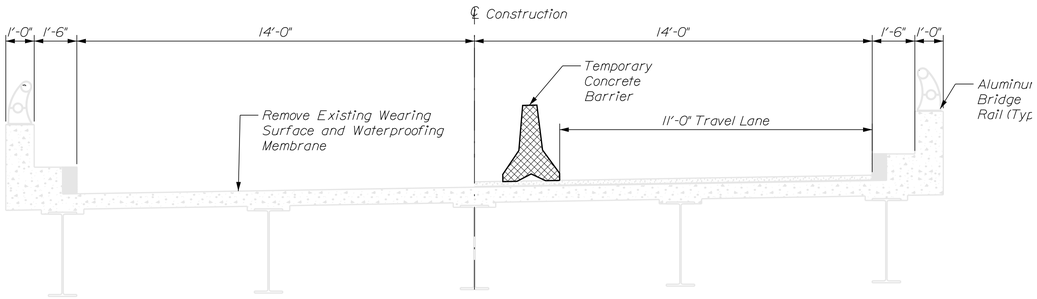
LAMBERT STREET BRIDGE
PRESUMPSCOT RIVER
FALMOUTH CUMBERLAND COUNTY

TYPICAL SECTIONS

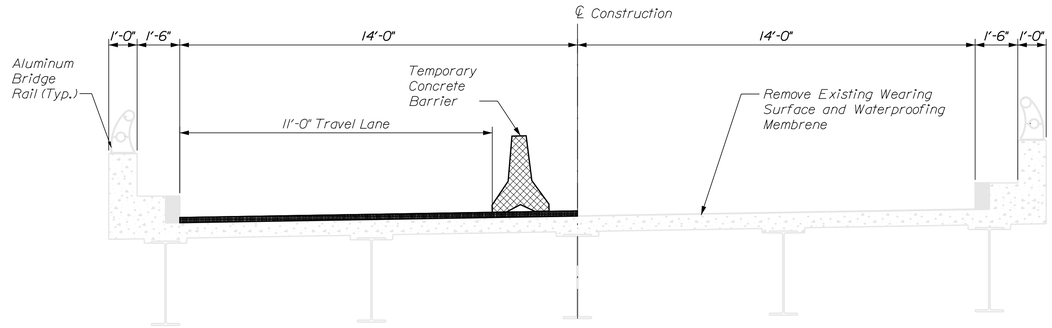
SHEET NUMBER

5

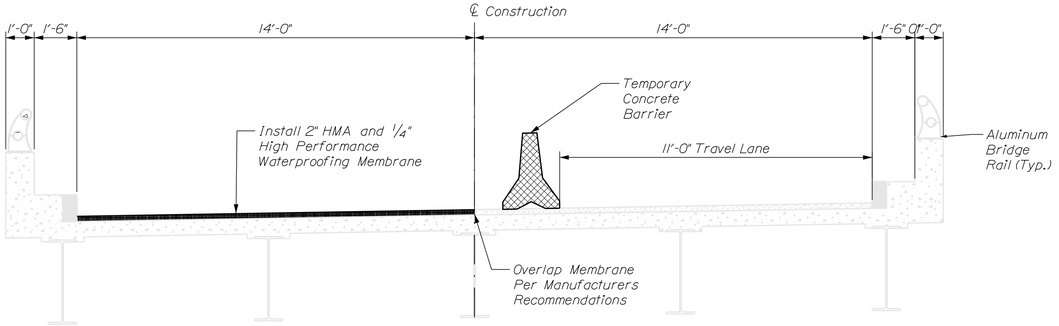
OF 10



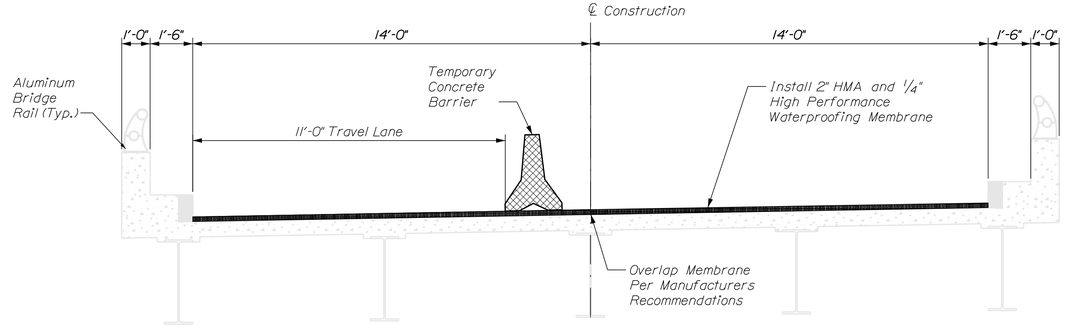
STAGE 1



STAGE 3



STAGE 2



STAGE 4

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-2260(000)

WIN **22600.00**

BRIDGENUMBER 5553 BRIDGE PLANS

PROJ. MANAGER	J. Kittredge		
DESIGN-DETAILED	G. Gustafson	BY	DATE
CHECKED-REVIEWED	D. Eaton	J. Leavitt	July 2018
DESIGN2-DETAILED2		G. Gustafson	July 2018
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

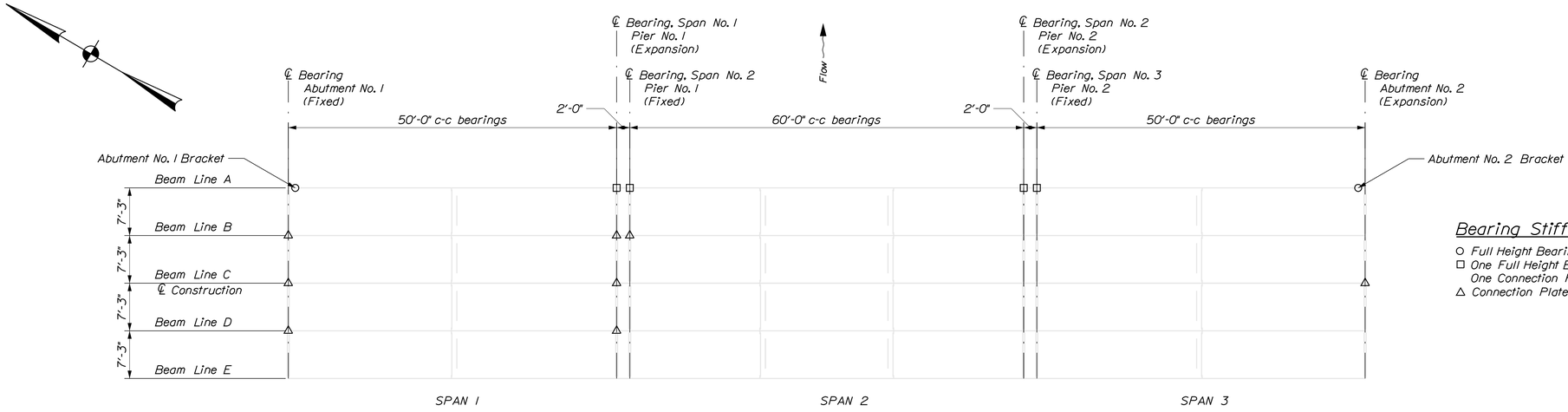
LAMBERT STREET BRIDGE
PRESUMPSCOT RIVER
FALMOUTH CUMBERLAND COUNTY

STAGED CONSTRUCTION

SHEET NUMBER

6

OF 10

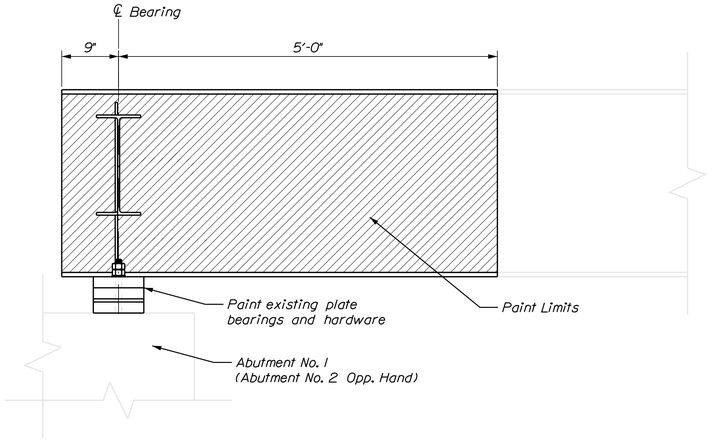


FRAMING PLAN

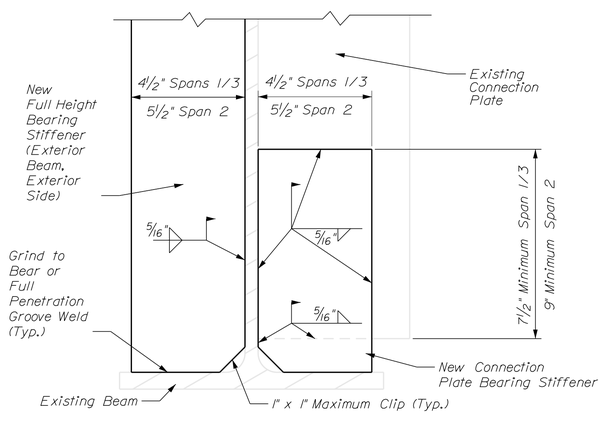
All Dimensions Horizontal

Bearing Stiffener Locations

- ○ Full Height Bearing Stiffener (Each Side)
- □ One Full Height Bearing Stiffener (Exterior Side) and One Connection Plate Bearing Stiffener (Interior Side).
- △ Connection Plate Bearing Stiffener (Each Side)



BEAM END PAINT EXTENT



BEARING STIFFENER PLATES

BEARING STIFFENER NOTES

1. The Contractor shall provide access to all bearing locations prior to ordering Bearing Stiffener materials. Additional bearing stiffener locations are anticipated at the direction of the Resident.

2. The Contractor shall field verify beam dimensions or fabricate stiffeners with extra length to allow for field adjustments. Varying stiffener geometry is anticipated due to section loss and distortion of the webs and flanges.

3. Install bearing stiffeners as shown and as directed by the Resident. Bearing stiffener work will be measured for payment under the appropriate version of Pay Item No. 504.514, Bearing Stiffener.

4. Install Connection Plate Bearing Stiffeners at the top of the web as directed by the Resident.

5. Full Height Bearing Stiffeners shall be tight fit at the top flange.

6. At the location of each new Bearing Stiffener, the existing beam surfaces shall be thoroughly cleaned to remove paint, corroded material, dirt and foreign contaminants. This Work will be paid for under the applicable Section 506 Pay Items.

7. Bearing Stiffeners shall be minimum ½" steel plate.

8. The bearing stiffeners shall be installed prior to the joint modification and beam end painting.

PAINT NOTES

1. The work associated with cleaning, preparing and painting the beam ends, diaphrams and bearings shall be measured for payment under the applicable Section 506 Pay Items. Clean and paint the existing steel bearings in place.

2. All beam ends, existing diaphragms, existing connection plates, existing bearings, new bearing stiffeners, and new abutment brackets within 5 feet of the existing centerline of bearing shall be coated with a 2 coat system in accordance with Standard Specifications Section 506. The top coat paint color shall match the existing paint.

3. Prior to paint coating, remove all debris from the bridge seat areas as necessary. This work will be considered incidental to the the related Section 506 Contract items.

4. Clean all steel surfaces to be painted in accordance with Standard Specifications Section 506 and as directed by the Resident.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-2260(000)

WIN 022600.00

BRIDGE NUMBER 5553

BRIDGE PLANS

PROJ. MANAGER	J.Kittredge		
DESIGN-DETAILED	G. Gustafson	J. Leavitt	July 2018
CHECKED-REVIEWED	D. Eaton	G. Gustafson	July 2018
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

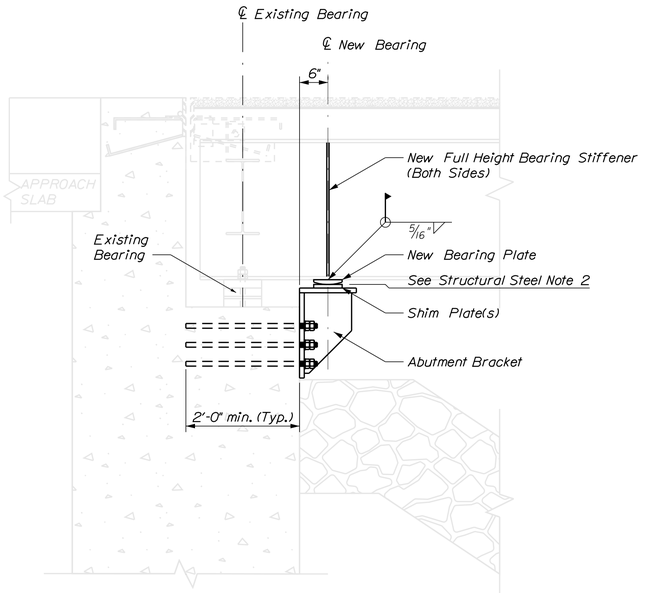
LAMBERT STREET BRIDGE
PRESUMPSCOT RIVER
FALMOUTH CUMBERLAND COUNTY

STRUCTURAL STEEL (1 OF 2)

SHEET NUMBER

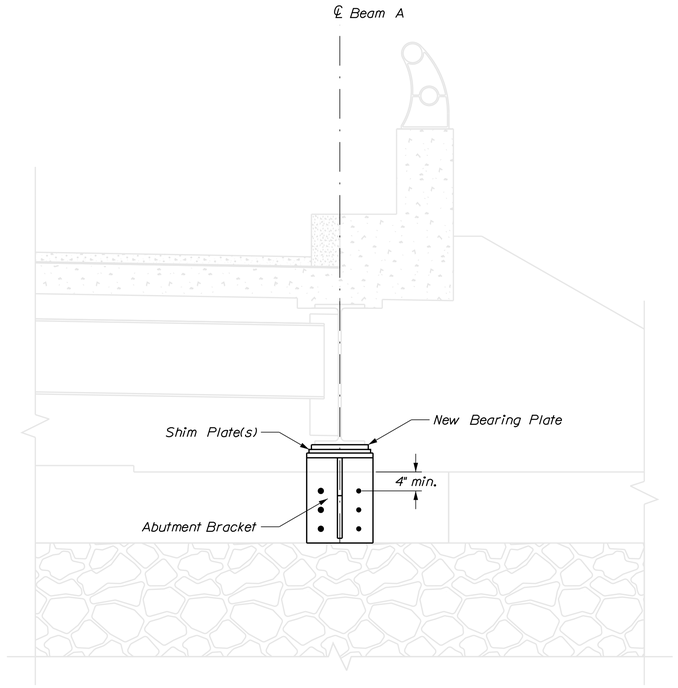
7

OF 10



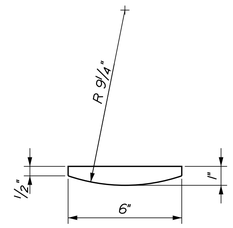
ABUTMENT NO. 1 SECTION

Abutment No. 2 Opposite Hand



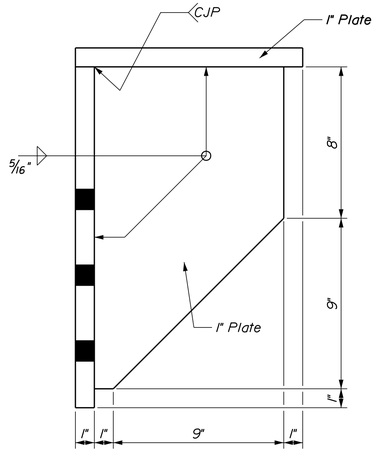
ABUTMENT NO. 1 FRONT ELEVATION

Abutment No. 2 Opposite Hand

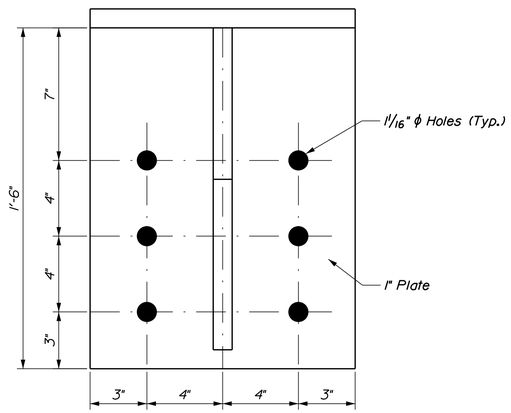


BEARING PLATE

12" Long



ABUTMENT BRACKET SIDE ELEVATION



ABUTMENT BRACKET FRONT ELEVATION

STRUCTURAL STEEL NOTES

1. Install abutment brackets under Beam A at Abutment No. 1 and 2. The abutment brackets shall be installed prior to the joint modification and beam end painting.

2. Prior to starting the Work, survey the Beam A bottom of bottom flange elevation at the new centerline of bearing at each abutment. One inch less than these surveyed elevations shall be the top of abutment bracket elevation. Submit top of abutment bracket elevations to the Resident for approval.

3. Shim plates may be used to achieve the top of abutment bracket elevations. If used, a maximum of 2 shim plates are permitted at each location. The maximum total shim plate thickness is 2 inches. Each shim plate shall be welded to the abutment bracket or the shim plate below. Shim plates shall meet all Structural Steel requirements of this Contract and shall be field painted.

4. All holes shall be drilled. Thermal cut holes are not permitted.

5. Oversized or slotted holes are not permitted.

6. Heavy hex nuts for anchor rods shall meet the requirements of ASTM A563, Grade D or DH.

7. Upset anchor rod threads after installation of each abutment bracket.

8. After transferring load to the abutment brackets, remove the existing anchor rod nuts at the Abutment No. 1 and 2 Beam A existing bearings.

DRILLED AND ANCHORED ROD NOTES

1. The anchoring material shall be chosen from the MaineDOT Qualified Products List of Grout Materials and shall be submitted to the Resident for approval. Drilling and anchoring will be considered incidental to 504.71, Structural Steel Erection. No separate payment will be made.

2. Anchor rods shall be 1 inch diameter.

3. Anchor rod threads shall be excluded from the shear plane and the embeded portion of each rod shall be swedged.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-2260(000)

WIN 022600.00

BRIDGE NUMBER 5553 — BRIDGE PLANS

PROJ. MANAGER	J. Kittredge		
DESIGN-DETAILED	G. Gustafson	BY	DATE
CHECKED-REVIEWED	D. Eaton	J. Leavitt	July 2018
DESIGN2-DETAILED2		G. Gustafson	July 2018
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

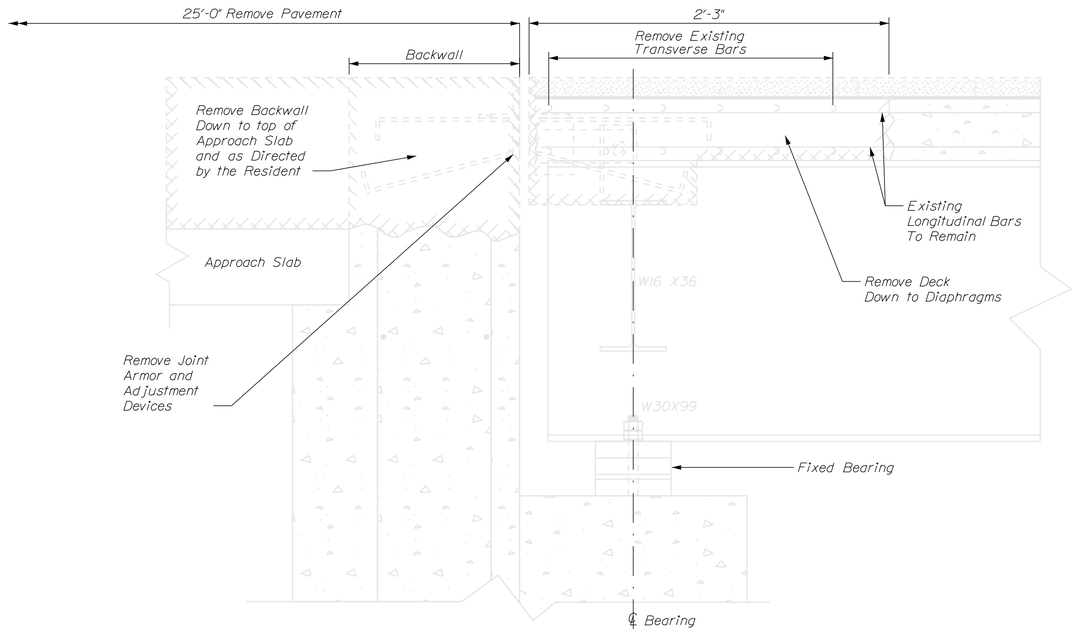
LAMBERT STREET BRIDGE
PRESUMPSCOT RIVER
FALMOUTH — CUMBERLAND COUNTY

STRUCTURAL STEEL (2 OF 2)

SHEET NUMBER

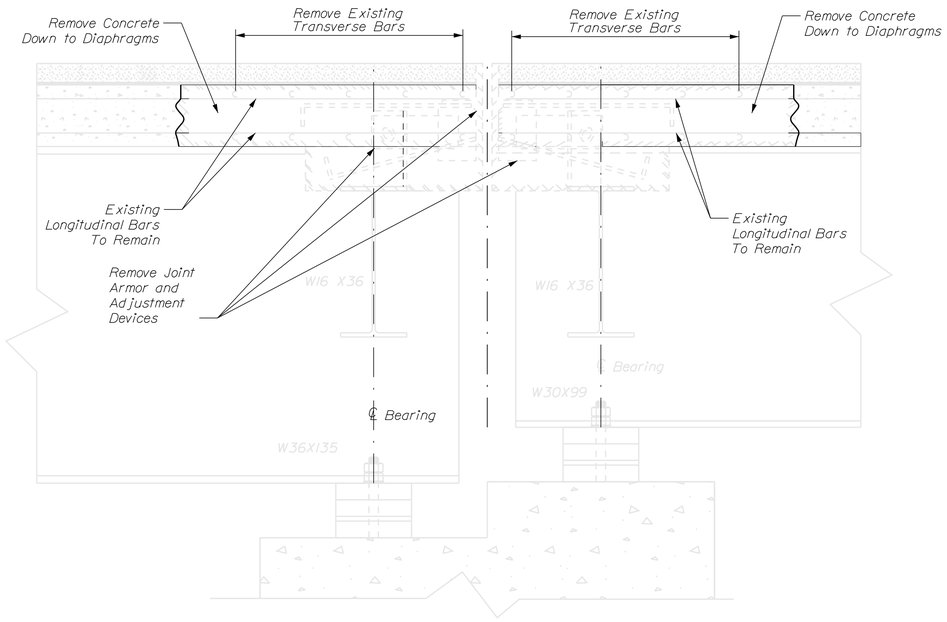
8

OF 10



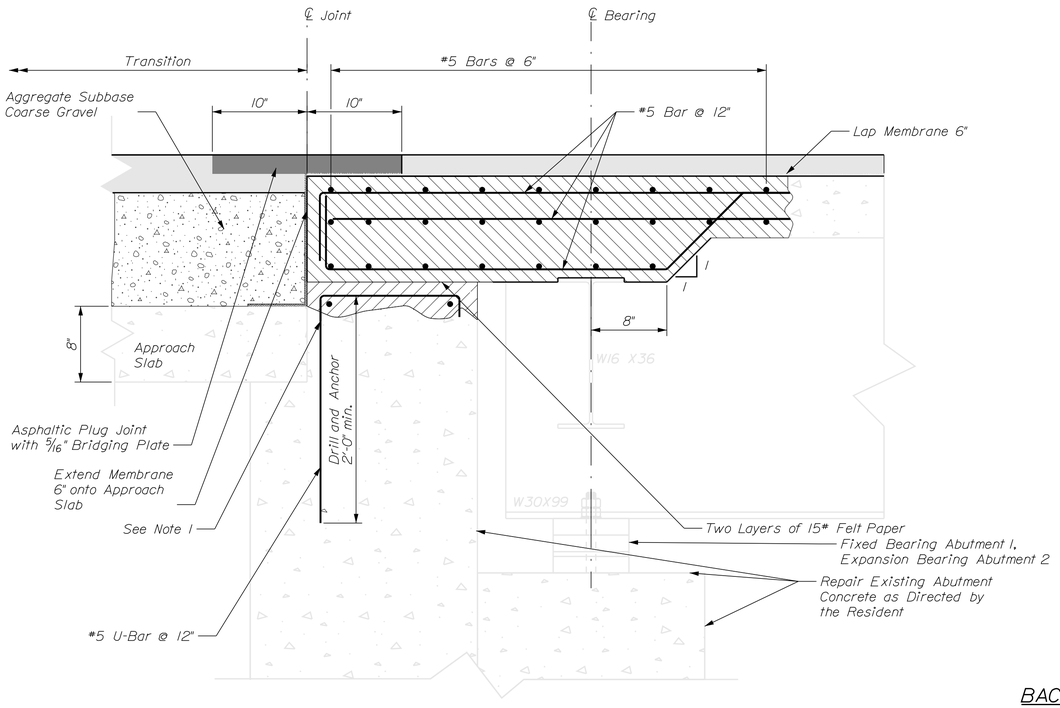
ABUTMENT NO.1 JOINT DEMOLITION

Section at Abutment 2 Opp. Hand



PIER NO.2 JOINT DEMOLITION

Pier No. 1 Opp. Hand

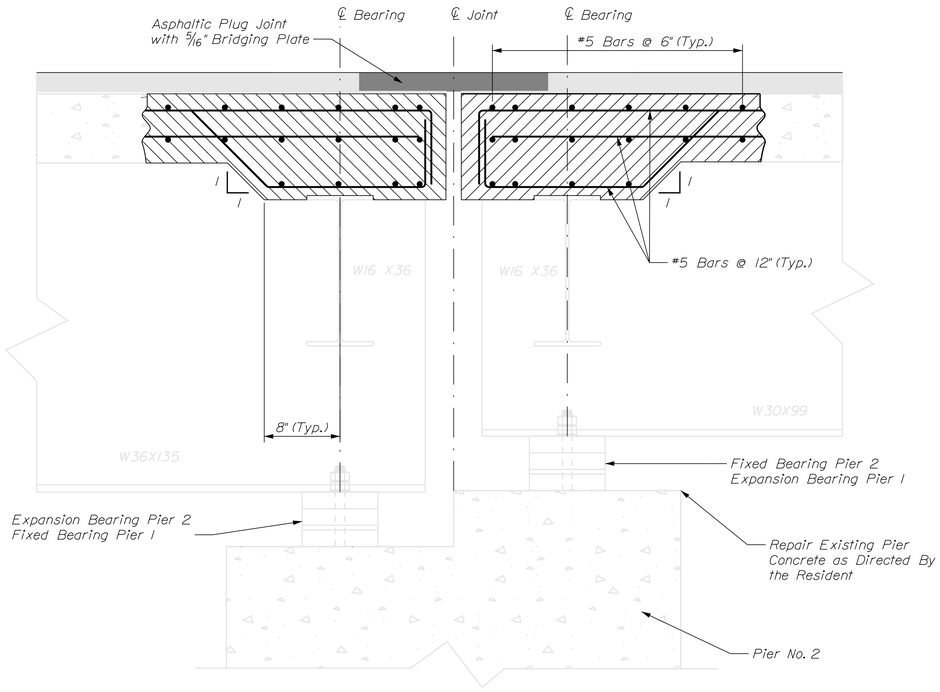


ABUTMENT NO. 1 JOINT MODIFICATION

Abutment No. 2 Opp. Hand

BACKWALL NOTES

1. Field cut reinforcing steel U-Bar and tie to existing reinforcing.



PIER NO. 2 JOINT MODIFICATION

Pier No. 1 Opp. Hand

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STP-2260(000)

WIN 022600.00

BRIDGE NUMBER 5553

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	G. Gustafson	July 2018
DESIGN-DETAILED	J. Leavitt	July 2018
CHECKED-REVIEWED	G. Gustafson	
DESIGN2-DETAILED2	D. Eaton	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

LAMBERT STREET BRIDGE
PRESUMPSCOT RIVER
FALMOUTH CUMBERLAND COUNTY

JOINT MODIFICATIONS

SHEET NUMBER

9

OF 10

Filename: ...\009_Joint Modifications.dgn Division: BRIDGE Username: Garrett.A.Gustafson Date:8/6/2018

PLAN LEGEND

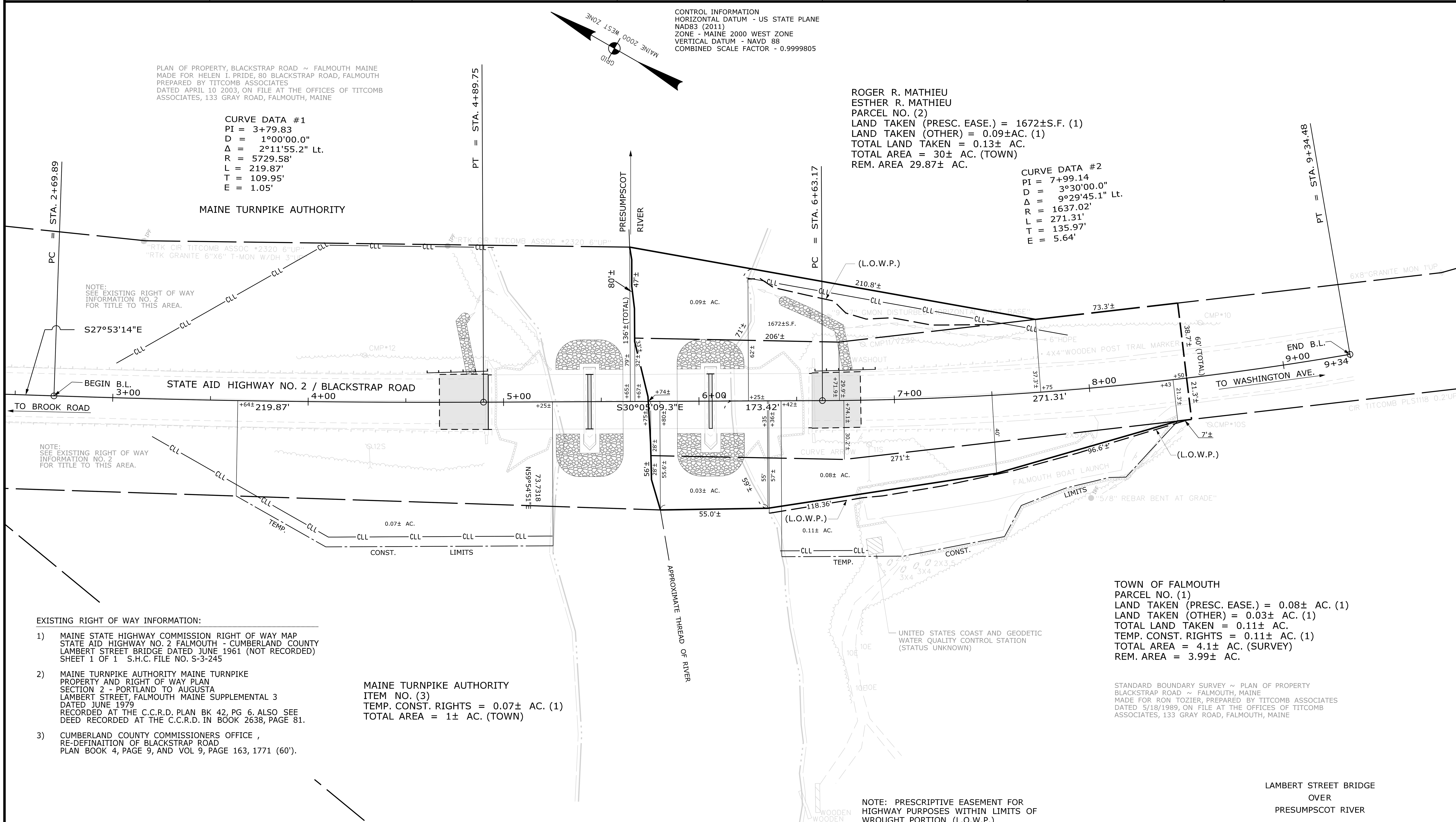
	Existing	Proposed
Town, County, State	P.L.	
Approx. Property Lines		
Existing Right of Way		
Limits of Wrought Portion	L.O.W.P.	
Control Of Access	C.O.A.	
New Right of Way		
New Easement		
New Temporary Rights		
New R/W Within Existing R/W		
New R/W Along Existing R/W		
Building / Clearing Limit Line		CLL
Trees: Conifer, Deciduous		
Tree Line / Bush Line		
Water Edge		
Ledge / Rock/Boulder / Flag Pole		
Fence (Chain Link, Barb Wire, Stockade)		
Sign / Well / Mailbox		
Sanitary Sewer		
Telephone Line	T	T
Electric Line	E	E
Water Line	W	W
Underdrain Line		
Gas Line	G	G
Guardrail		
Culvert		
Traveled Way		
Ditch		
Catch Basin		
Manhole		
Sewer Manhole		
Utility Pole		
Fire Hydrant		
Curbing		
Cut Line / Fill Line	C	F
Stonewall / Retaining Wall		
Baseline	10+00, 11+00, 12+00	
Monument		
Traverse Point		
Iron Rod Found (IRF) / Pipe Found (IPF)		
Replacement Pin Set		

STATE OF MAINE
REGISTRY OF DEEDS

COUNTY ____________
RECEIVED ____________, ____
at ____h____m____M and recorded in
Plan Book ________, Page ________
Attest: ____________
REGISTER

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 ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100
Scale of Feet



CONTROL INFORMATION
HORIZONTAL DATUM - US STATE PLANE
NAD83 (2011)
ZONE - MAINE 2000 WEST ZONE
VERTICAL DATUM - NAVD 88
COMBINED SCALE FACTOR - 0.9999805
MAINE 2000 WEST ZONE
GRID
PLAN OF PROPERTY, BLACKSTRAP ROAD ~ FALMOUTH MAINE
MADE FOR HELEN I. PRIDE, 80 BLACKSTRAP ROAD, FALMOUTH
PREPARED BY TITCOMB ASSOCIATES
DATED APRIL 10 2003, ON FILE AT THE OFFICES OF TITCOMB
ASSOCIATES, 133 GRAY ROAD, FALMOUTH, MAINE
CURVE DATA #1
PI = 3+79.83
D = 1°00'00.0"
Δ = 2°11'55.2" Lt.
R = 5729.58'
L = 219.87'
T = 109.95'
E = 1.05'
PT = STA. 4+89.75
PC = STA. 2+69.89
MAINE TURNPIKE AUTHORITY
PRESUMPSCOT RIVER
ROGER R. MATHIEU
ESTHER R. MATHIEU
PARCEL NO. (2)
LAND TAKEN (PRESC. EASE.) = 1672±S.F. (1)
LAND TAKEN (OTHER) = 0.09±AC. (1)
TOTAL LAND TAKEN = 0.13± AC.
TOTAL AREA = 30± AC. (TOWN)
REM. AREA 29.87± AC.
CURVE DATA #2
PI = 7+99.14
D = 3°30'00.0"
Δ = 9°29'45.1" Lt.
R = 1637.02'
L = 271.31'
T = 135.97'
E = 5.64'
PT = STA. 9+34.48
PC = STA. 6+63.17
(L.O.W.P.)
210.8'±
73.3'±
NOTE:
SEE EXISTING RIGHT OF WAY
INFORMATION NO. 2
FOR TITLE TO THIS AREA.
S27°53'14"E
80'±
47'±
136'±(TOTAL)
0.09± AC.
1672±S.F.
206'±
71'±
62'±
38.7'±
60' (TOTAL)
END B.L.
9+00
9+34
BEGIN B.L.
3+00
STATE AID HIGHWAY NO. 2 / BLACKSTRAP ROAD
4+00
5+00
6+00
7+00
8+00
TO WASHINGTON AVE.
TO BROOK ROAD
219.87'
S30°05'09.3"E
173.42'
271.31'
NOTE:
SEE EXISTING RIGHT OF WAY
INFORMATION NO. 2
FOR TITLE TO THIS AREA.
N59°54'51"E
73.73'
56'±
55'
57'±
59'±
0.03± AC.
0.08± AC.
271'±
96.6'±
7'±
(L.O.W.P.)
118.36'
55.0'±
(L.O.W.P.)
0.11± AC.
0.07± AC.
CLL
TEMP.
CONST.
LIMITS
APPROXIMATE THREAD OF RIVER
UNITED STATES COAST AND GEODETIC
WATER QUALITY CONTROL STATION
(STATUS UNKNOWN)
FALMOUTH BOAT LAUNCH

EXISTING RIGHT OF WAY INFORMATION:

1) MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP
STATE AID HIGHWAY NO. 2 FALMOUTH - CUMBERLAND COUNTY
LAMBERT STREET BRIDGE DATED JUNE 1961 (NOT RECORDED)
SHEET 1 OF 1 S.H.C. FILE NO. S-3-245

2) MAINE TURNPIKE AUTHORITY MAINE TURNPIKE
PROPERTY AND RIGHT OF WAY PLAN
SECTION 2 - PORTLAND TO AUGUSTA
LAMBERT STREET, FALMOUTH MAINE SUPPLEMENTAL 3
DATED JUNE 1979
RECORDED AT THE C.C.R.D. PLAN BK 42, PG 6. ALSO SEE
DEED RECORDED AT THE C.C.R.D. IN BOOK 2638, PAGE 81.

3) CUMBERLAND COUNTY COMMISSIONERS OFFICE ,
RE-DEFINAITION OF BLACKSTRAP ROAD
PLAN BOOK 4, PAGE 9, AND VOL 9, PAGE 163, 1771 (60').

MAINE TURNPIKE AUTHORITY
ITEM NO. (3)
TEMP. CONST. RIGHTS = 0.07± AC. (1)
TOTAL AREA = 1± AC. (TOWN)

TOWN OF FALMOUTH
PARCEL NO. (1)
LAND TAKEN (PRESC. EASE.) = 0.08± AC. (1)
LAND TAKEN (OTHER) = 0.03± AC. (1)
TOTAL LAND TAKEN = 0.11± AC.
TEMP. CONST. RIGHTS = 0.11± AC. (1)
TOTAL AREA = 4.1± AC. (SURVEY)
REM. AREA = 3.99± AC.

STANDARD BOUNDARY SURVEY ~ PLAN OF PROPERTY
BLACKSTRAP ROAD ~ FALMOUTH, MAINE
MADE FOR RON TOZIER, PREPARED BY TITCOMB ASSOCIATES
DATED 5/18/1989, ON FILE AT THE OFFICES OF TITCOMB
ASSOCIATES, 133 GRAY ROAD, FALMOUTH, MAINE

NOTE: PRESCRIPTIVE EASEMENT FOR
HIGHWAY PURPOSES WITHIN LIMITS OF
WROUGHT PORTION (L.O.W.P.)

LAMBERT STREET BRIDGE
OVER
PRESUMPSCOT RIVER

BRIDGE NO. 5553

WIN 022600.00

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	RMC	CWK
FINAL RIGHT OF WAY	RMC	N.T.A.
AREAS	RMC	N.T.A.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460
FALMOUTH
RIGHT OF WAY MAP

Username: Ronald.M.Carpentier Date:8/2/2018
Division: ROW
Filename: ...\00\ROW\MSTA\010_RWPLAN1.dgn

REVISIONS

NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK ____ PAGE ____ COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

DAVID BERNHARDT
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

To the best of my knowledge and belief the Highway Right of Way lines depicted hereon are based upon a survey conforming to the Standards of Practice promulgated by the Maine Board of Licensure for Professional Land Surveyors 02-360 CMR, Chapter 90; Exceptions: (1) No separate survey report, (2) Monumentation only as shown on plan. See sheet X of this plan set for coordinates. (3) Other boundary lines, including lines between abutters are approximate and for general reference purposes only.

STATE AID HIGHWAY NO. 2
BLACKSTRAP ROAD
FALMOUTH CUMBERLAND COUNTY
FEDERAL AID PROJECT NO. STP-2260(000)

SEPTEMBER 2017
SCALE 1" = 25'
RIGHT-OF-WAY MAP
SHEET 1 OF 1
D.O.T. FILE NO. 3-625

SHEET NUMBER
10
OF 10