STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

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

DESIGN LOADING

Live Load ..... HL - 93 Modified for Strength I
CAN/CSA-S6-19 CL-625-ONT Loading

TRAFFIC DATA

Current (2020) AADT	2220
Future (2040) AADT	4080
DHV - % of AADT	10
Design Hour Volume	408
Heavy Trucks (% of AADT)	5
Heavy Trucks (% of DHV)	5
Directional Distribution (% of DHV)	55
18 kip Equivalent P 2.0	144
18 kip Equivalent P 2.5	137
Design Speed (mph)	25

HYDROLOGIC DATA

Drainage Area	5,976 sq mi
Design Discharge (Q50)	163,120 cfs
Check Discharge (Q100)	176,980 cfs
Headwater Elevation (Q1.1)	455.7 ft
Headwater Elevation (Q2)	459.2 ft
Headwater Elevation (Q10)	465.1 ft
Headwater Elevation (Q25)	466.5 ft
Headwater Elevation (Q50)	467.6 ft
Headwater Elevation (Q100)	468.6 ft
Discharge Velocity (Q1.1)	7.6 fps
Discharge Velocity (Q2)	7.8 fps
Discharge Velocity (Q10)	8.5 fps
Discharge Velocity (Q25)	9.3 fps
Discharge Velocity (Q50)	9.7 fps
Discharge Velocity (Q100)	10.1 fps

MATERIALS

Concrete:
- Curbs, Sidewalk, Median Island, Abutment 2
- Concrete Barriers & Transition Barriers ..... Class "LP"
- Seals ..... Class "S"
- All Other ..... Class "A"

Reinforcing Steel:
- Pier Reinforcement, as noted ..... ASTM A 615, Grade 75
- Plain (except as noted) ..... ASTM A 615, Grade 60
- Stainless Steel ..... ASTM A 955, Grade 75

Structural Steel:
- Flanges and Splices, as noted ..... ASTM A709, Grade 70W (unpainted)
- All Other (except as noted) ..... ASTM A 709, Grade 50W (unpainted)
- High Strength Bolts ..... ASTM F 3125, Grade A325, Type 3

BASIC DESIGN STRESSES

Concrete, Class "S"	f 'c = 3,000 psi
Concrete, Class "A"	f 'c = 4,000 psi
Concrete, Class "LP"	f 'c = 5,000 psi
Plain Reinforcing Steel, Grade 75	f y = 75,000 psi
Plain Reinforcing Steel, Grade 60	f y = 60,000 psi
Stainless Reinforcing Steel	f y = 75,000 psi
Structural Steel:	
ASTM A 709, Grade 70W	F y = 70,000 psi
ASTM A 709, Grade 50W	F y = 50,000 psi
ASTM F 3125, Grade A325, Type 3	F u = 120,000 psi

MADAWASKA - EDMUNDSTON
AROOSTOOK COUNTY, MAINE, USA
MADAWASKA COUNTY,
NEW BRUNSWICK, CANADA

INTERNATIONAL BRIDGE
OVER
SAINT JOHN RIVER
BRIDGE AVENUE
FEDERAL PROJECT NO. 2173600
PROJECT LENGTH 0.38 mi.
MAINEDOT BRIDGE NO. 2399
NBDTI ASSET NO. E320

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UTILITIES

Twin Rivers Paper Company
Eastern Maine Railway
Canadian National Railroad
Town of Madawaska (Sewer)
City of Edmundston (Sewer)
Bell Aliant
Fiber360
Versant Power

MAINTENANCE OF TRAFFIC

Maintain two lanes of traffic and a sidewalk on the existing bridge, unless otherwise noted.

PROJECT LOCATION:	International Bridge #2399 between Madawaska, Maine and Edmundston, New Brunswick carrying Bridge Avenue over the Saint John River. Latitude: 47°21'35"N Longitude: 68°19'57"W
PROGRAM AREA:	Bridge
OUTLINE OF WORK:	Replacement of the International Bridge

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

	DATE
APPROVED	
COMMISSIONER	12-22-2020
CHIEF ENGINEER:	12-21-2020

JOSHUA K. DAVIS No. 12190 STATE OF MAINE REGISTERED PROFESSIONAL ENGINEER

SIGNATURE
P.E. NUMBER 11/14/20
DATE

PROJECT INFORMATION

PROGRAM	BRIDGE
PROJECT MANAGER	ANDREW LATHE
DESIGNER	
CONSULTANT	HNTB
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

WIN 021736.00

2173600

MADAWASKA-EDMUNDSTON INTERNATIONAL BRIDGE

TITLE SHEET

SHEET NUMBER
1
OF 160

Date: 11/20/2020
Username:
Division:
Filename: 001_Title.dgn

Username:
Division:
Date:12/4/2020
Filename: 002_Estimated Quantities.dgn

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.19	Removing Existing Bridge (32,500 SF)	1	LS
203.20	Common Excavation	1,550	CY
203.24	Common Borrow	17,300	CY
203.25	Granular Borrow	38,100	CY
203.55	Culvert Bedding Stone	8,300	CY
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	5,800	CY
206.092	Structural Rock Excavation - Major Structures	20	CY
304.10	Aggregate Subbase Course - Gravel	150	CY
403.2081	Hot Mix Asphalt - 12.5 mm (Polymer Modified)	1,200	TON
409.15	Bituminous Tack Coat, Applied	230	G
501.220	Micropiles	58	EA
501.2331	Micropile Verification Load Test (includes Verification Pile)	1	EA
501.2341	Micropile Proof Load Test	3	EA
501.804	Drilling Equipment Mobilization (Micropiles)	1	LS
502.219	Structural Concrete, Abutments and Retaining Walls (4,300 CY)	1	LS
502.239	Structural Concrete Piers (1,270 CY)	1	LS
502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges (3,000 CY)	1	LS
502.31	Structural Concrete Approach Slab (72 CY)	1	LS
502.341	Structural Concrete Roadway Median	14	CY
502.49	Structural Concrete Curbs and Sidewalks (600 CY)	1	LS
502.565	Concrete Fill	140	CY
502.77	FRP Bridge Drain - Type: A	7	EA
502.77	FRP Bridge Drain - Type: F	7	EA
503.12	Reinforcing Steel, Fabricated and Delivered	958,100	LB
503.13	Reinforcing Steel, Placing	958,100	LB
503.17	Mechanical / Welded Splice	301	EA
503.26	Stainless Steel Reinforcement, Fabricated and Delivered	985,000	LB
503.27	Stainless Steel Reinforcement, Placing	985,000	LB
504.702	Structural Steel Fabricated and Delivered, Welded (7,260,000 LBS)	1	LS
504.71	Structural Steel Erection (7,260,000 LBS)	1	LS
505.08	Shear Connectors (17,888 EA)	1	LS
507.0823	Steel Bridge Rail, 3 Bar S3-TL4 (3,723 LF)	1	LS
508.14	High Performance Waterproofing Membrane (7,600 SY)	1	LS
512.081	French Drains (470 LF)	1	LS
513.22	Crushed Stone Slope Protection	250	SY
515.21	Protective Coating for Concrete Surfaces (3,400 SY)	1	LS
521.23	Expansion Device - Finger Joint (Abutment 1) (65 LF)	1	EA
521.23	Expansion Device - Finger Joint (Abutment 2) (103 LF)	1	EA
523.52	Bearing Installation	31	EA
523.5551	Pot or Disc Bearings, Fixed	12	EA
523.5552	Pot or Disc Bearings, Expansion	19	EA
524.301	Temporary Structural Support (Earth)	1	LS
524.301	Temporary Structural Support (Girder 4)	1	LS
524.40	Protective Shield (3000 SY)	1	LS
526.301	Temporary Concrete Barrier, Type 1 (260 LF)	1	LS
526.34	Permanent Concrete Transition Barrier	4	EA
606.65	Guardrail Thrie Beam - Single Rail	38	LF
606.66	Terminal End Thrie Beam	2	EA
607.1706	Temporary Chain Link Fence - 8 Foot (1250 LF)	1	LS
607.183	Chain Link Snow Fence, 33" (620 LF)	1	LS
610.08	Plain Riprap	170	CY
610.16	Heavy Riprap	28,900	CY
615.07	Loam	700	CY
618.14	Seeding Method Number 2	113	UNIT
619.12	Mulch	113	UNIT
619.14	Erosion Control Mix	700	CY
620.58	Erosion Control Geotextile	24,000	SY
620.60	Separation Geotextile	1,850	SY
626.11	Precast Concrete Junction Box	3	EA
626.22	Non-Metallic Conduit	5,600	LF
626.221	Non-Metallic Conduit, Concrete Encased	710	LF
627.733	4" White or Yellow Painted Pavement Marking Line	6,200	LF
627.76	Temporary Pavement Marking Line, White or Yellow	1	LS
629.05	Hand Labor, Straight Time	120	HR
631.10	Air Compressor (Including Operator)	40	HR
631.11	Air Tool (Including Operator)	80	HR
631.12	All Purpose Excavator (Including Operator)	80	HR
631.172	Truck - Large (Including Operator)	120	HR
631.22	Front End Loader (Including Operator)	40	HR
634.160	Highway Lighting	1	LS
634.2042	Luminaires - LED	10	EA
634.210	Conventional Light Standard	10	EA
634.803	Aesthetic Lighting	1	LS
639.18	Field Office Type A - Modified	1	EA
639.19	Field Office Type B	1	EA
641.35	Flagpole	3	EA
645.103	Demount Guide Sign	11	EA
645.291	Roadside Guide Signs, Type II	60	SF
645.292	Regulatory, Warning, Confirmation and Route Marker Assembly Sign, Type II	160	SF
652.312	Type III Barricades	5	EA
652.33	Drum	50	EA
652.34	Cone	50	EA

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
652.35	Construction Signs	300	SF
652.361	Maintenance of Traffic Control Devices	1	LS
652.38	Flaggers	400	HR
652.41	Portable-Changeable Message Sign	10	EA
653.24	4 Inch Polysterene Plastic Insulation	320	SY
656.75	Temporary Soil Erosion and Water Pollution Control	1	LS
659.10	Mobilization	1	LS
660.21	On-The-Job Training	7,000	HR

ESTIMATED QUANTITIES
ITEMS SPECIFIC TO GENERAL SERVICES ADMINISTRATION

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
626.22	Non-Metallic Conduit	300	LF
626.221	Non-Metallic Conduit, Concrete Encased	150	LF
634.2042	Luminaires - LED	3	EA
634.210	Conventional Light Standard	3	EA
645.12	Overhead Guide Sign (Sta 103+30)	1	LS
645.12	Overhead Guide Sign (Sta 112+85)	1	LS
910.301	Special Work - Utility Conduit (Bridge Only)	1	LS
910.301	Special Work - Utility Conduit (Approach Only)	1	LS

ESTIMATED QUANTITIES
ITEMS SPECIFIC TO TOWN OF MADAWASKA

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
801.011	Bypass Pumping System	1	LS
801.183	12-Inch PVC Sanitary Sewer (DR-18)	380	LF
803.173	Sewer Manhole - 4 Foot Diameter	3	EA
805.293	Additional Select Backfill Material	20	CY
827.302	Unsuitable Soil Excavation - Below Grade	20	CY
827.304	Trench Rock Excavation	20	CY
827.33	Trench Insulation - 2 Inch	40	LF

ESTIMATED QUANTITIES
ITEMS SPECIFIC TO CITY OF EDMUNDSTON

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
910.301	Special Work - Relocation of Municipal Services (Category B)	1	LS

ESTIMATED QUANTITIES
ITEMS SPECIFIC TO CITY OF EDMUNDSTON

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
910.301	Special Work - Relocation of Municipal Services (Category A)	1	LS

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Waugh	BY	P. Bishop
CHECKED-REVIEWED	J. Olund	DATE	11\20
DESIGN2-DETAILED2	-	BY	K. Segal
DESIGN3-DETAILED3	-	DATE	11\20
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ESTIMATED QUANTITIES

SHEET NUMBER

2

OF 160

ESTIMATED QUANTITIES - **ALTERNATE AA1**

ITEMS SPECIFIC TO PIER 1 H-PILE FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	1,100	CY
501.239	Dynamic Loading Test - Providing For	2	EA
501.54	Steel H-beam Piles 117 lb/ft, delivered	1,900	LF
501.541	Steel H-beam Piles 117 lb/ft, in place	1,900	LF
501.90	Pile Tips	36	EA
501.91	Pile Splices	36	EA
501.92	Pile Driving Equipment Mobilization	1	LS
502.239	Structural Concrete Piers (270 CY)	1	LS
502.249	Structural Concrete Piers (placed under water) (290 CY)	1	LS
503.12	Reinforcing Steel, Fabricated and Delivered	54,900	LB
503.13	Reinforcing Steel, Placing	54,900	LB
511.07	Cofferdam (Pier 1)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AA2**

ITEMS SPECIFIC TO PIER 1 DRILLED SHAFT FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	1,100	CY
501.8016	6 Foot Diameter Drilled Shaft	180	LF
501.804	Drilling Equipment Mobilization (Drilled Shafts)	1	LS
501.807	Removal of Obstructions	4	HR
501.82	Crosshole Sonic Logging Testing	1	EA
501.83	Drilled Shaft Confirmatory Borings	115	LF
501.831	Drilled Shaft - Rock Socket (5.5 ft dia.)	65	LF
501.832	Drilled Shaft - Sloping Rock	2	HR
501.85	Coring of Drilled Shafts without Defects	10	LF
501.86	Drilled Shaft Inspection Device Test	4	EA
501.861	Concrete Test Cylinders of Shafts without Defects	4	EA
501.87	Thermal Integrity Profiler Test, Providing For	4	EA
502.239	Structural Concrete Piers (270 CY)	1	LS
502.249	Structural Concrete Piers (placed under water) (245 CY)	1	LS
503.12	Reinforcing Steel, Fabricated and Delivered	54,100	LB
503.13	Reinforcing Steel, Placing	54,100	LB
511.07	Cofferdam (Pier 1)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AB1**

ITEMS SPECIFIC TO PIER 2 SPREAD FOOTING FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.2318	Disposal of Special Waste	2,200	TON
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	1,400	CY
206.092	Structural Rock Excavation - Major Structures	25	CY
502.239	Structural Concrete Piers (270 CY)	1	LS
502.24	Structural Concrete Piers (placed under water)	1,060	CY
503.12	Reinforcing Steel, Fabricated and Delivered	55,600	LB
503.13	Reinforcing Steel, Placing	55,600	LB
511.07	Cofferdam (Pier 2)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AB2**

ITEMS SPECIFIC TO PIER 2 DRILLED SHAFT FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.2318	Disposal of Special Waste	950	TON
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	600	CY
501.8016	6 Foot Diameter Drilled Shaft	90	LF
501.804	Drilling Equipment Mobilization (Drilled Shafts)	1	LS
501.807	Removal of Obstructions	4	HR
501.82	Crosshole Sonic Logging Testing	1	EA
501.83	Drilled Shaft Confirmatory Borings	35	LF
501.831	Drilled Shaft - Rock Socket (5.5 ft dia.)	65	LF
501.832	Drilled Shaft - Sloping Rock	2	HR
501.85	Coring of Drilled Shafts without Defects	10	LF
501.86	Drilled Shaft Inspection Device Test	4	EA
501.861	Concrete Test Cylinders of Shafts without Defects	4	EA
501.87	Thermal Integrity Profiler Test, Providing For	4	EA
502.239	Structural Concrete Piers (270 CY)	1	LS
502.249	Structural Concrete Piers (placed under water) (245 CY)	1	LS
503.12	Reinforcing Steel, Fabricated and Delivered	54,100	LB
503.13	Reinforcing Steel, Placing	54,100	LB
511.07	Cofferdam (Pier 2)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AC1**

ITEMS SPECIFIC TO PIER 3 SPREAD FOOTING FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.2318	Disposal of Special Waste	2,350	TON
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	1,500	CY
206.092	Structural Rock Excavation - Major Structures	25	CY
502.239	Structural Concrete Piers (270 CY)	1	LS
502.24	Structural Concrete Piers (placed under water)	1,155	CY
503.12	Reinforcing Steel, Fabricated and Delivered	55,600	LB
503.13	Reinforcing Steel, Placing	55,600	LB
511.07	Cofferdam (Pier 3)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AC2**

ITEMS SPECIFIC TO PIER 3 DRILLED SHAFT FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.2318	Disposal of Special Waste	950	TON
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	600	CY
501.8016	6 Foot Diameter Drilled Shaft	100	LF
501.804	Drilling Equipment Mobilization (Drilled Shafts)	1	LS
501.807	Removal of Obstructions	4	HR
501.82	Crosshole Sonic Logging Testing	1	EA
501.83	Drilled Shaft Confirmatory Borings	35	LF
501.831	Drilled Shaft - Rock Socket (5.5 ft dia.)	65	LF
501.832	Drilled Shaft - Sloping Rock	2	HR
501.85	Coring of Drilled Shafts without Defects	10	LF
501.86	Drilled Shaft Inspection Device Test	4	EA
501.861	Concrete Test Cylinders of Shafts without Defects	4	EA
501.87	Thermal Integrity Profiler Test, Providing For	4	EA
502.239	Structural Concrete Piers (270 CY)	1	LS
502.249	Structural Concrete Piers (placed under water) (245 CY)	1	LS
503.12	Reinforcing Steel, Fabricated and Delivered	54,100	LB
503.13	Reinforcing Steel, Placing	54,100	LB
511.07	Cofferdam (Pier 3)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AD1**

ITEMS SPECIFIC TO PIER 4 SPREAD FOOTING FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.2318	Disposal of Special Waste	2,350	TON
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	1,500	CY
206.092	Structural Rock Excavation - Major Structures	25	CY
502.239	Structural Concrete Piers (270 CY)	1	LS
502.24	Structural Concrete Piers (placed under water)	1,060	CY
503.12	Reinforcing Steel, Fabricated and Delivered	55,600	LB
503.13	Reinforcing Steel, Placing	55,600	LB
511.07	Cofferdam (Pier 4)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AD2**

ITEMS SPECIFIC TO PIER 4 DRILLED SHAFT FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.2318	Disposal of Special Waste	950	TON
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	600	CY
501.8016	6 Foot Diameter Drilled Shaft	90	LF
501.804	Drilling Equipment Mobilization (Drilled Shafts)	1	LS
501.807	Removal of Obstructions	4	HR
501.82	Crosshole Sonic Logging Testing	1	EA
501.83	Drilled Shaft Confirmatory Borings	85	LF
501.831	Drilled Shaft - Rock Socket (5.5 ft dia.)	65	LF
501.832	Drilled Shaft - Sloping Rock	2	HR
501.85	Coring of Drilled Shafts without Defects	10	LF
501.86	Drilled Shaft Inspection Device Test	4	EA
501.861	Concrete Test Cylinders of Shafts without Defects	4	EA
501.87	Thermal Integrity Profiler Test, Providing For	4	EA
502.239	Structural Concrete Piers (270 CY)	1	LS
502.249	Structural Concrete Piers (placed under water) (245 CY)	1	LS
503.12	Reinforcing Steel, Fabricated and Delivered	54,100	LB
503.13	Reinforcing Steel, Placing	54,100	LB
511.07	Cofferdam (Pier 4)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AE1**

ITEMS SPECIFIC TO PIER 5 SPREAD FOOTING FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.2318	Disposal of Special Waste	2,600	TON
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	1,650	CY
206.092	Structural Rock Excavation - Major Structures	25	CY
502.239	Structural Concrete Piers (270 CY)	1	LS
502.24	Structural Concrete Piers (placed under water)	1,300	CY
503.12	Reinforcing Steel, Fabricated and Delivered	55,600	LB
503.13	Reinforcing Steel, Placing	55,600	LB
511.07	Cofferdam (Pier 5)	1	LS

ESTIMATED QUANTITIES - **ALTERNATE AE2**

ITEMS SPECIFIC TO PIER 5 DRILLED SHAFT FOUNDATION ALTERNATE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
203.2318	Disposal of Special Waste	950	TON
206.082	Structural Earth Excavation - Major Structures, Plan Quantity	600	CY
501.8016	6 Foot Diameter Drilled Shaft	110	LF
501.804	Drilling Equipment Mobilization (Drilled Shafts)	1	LS
501.807	Removal of Obstructions	4	HR
501.82	Crosshole Sonic Logging Testing	1	EA
501.83	Drilled Shaft Confirmatory Borings	120	LF
501.831	Drilled Shaft - Rock Socket (5.5 ft dia.)	65	LF
501.832	Drilled Shaft - Sloping Rock	8	HR
501.85	Coring of Drilled Shafts without Defects	10	LF
501.86	Drilled Shaft Inspection Device Test	4	EA
502.861	Concrete Test Cylinders of Shafts without Defects	4	EA
501.87	Thermal Integrity Profiler Test, Providing For	4	EA
502.239	Structural Concrete Piers (270 CY)	1	LS
502.249	Structural Concrete Piers (placed under water) (245 CY)	1	LS
503.12	Reinforcing Steel, Fabricated and Delivered	54,100	LB
503.13	Reinforcing Steel, Placing	54,100	LB
511.07	Cofferdam (Pier 5)	1	LS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

12130

P.E. NUMBER

11/19/2020

DATE

	BY	DATE
A. LATHE	P. Bishop	11\20
J. Waugh	K. Segal	11\20
J. Olund	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ESTIMATED QUANTITIES

SHEET NUMBER

3

OF 160

HNTB

Date:11/20/2020

Username:

Filename: 003_Estimated Quantities (Alternates).dgnDivision:

Filename: 004_GeneralNotes.dgn Division: Username: Date:12/9/2020

GENERAL CONSTRUCTION NOTES

1. All stations and elevations are expressed in feet and decimal. All dimensions are measured in feet and inches, unless noted otherwise. All other units are U.S. Customary unless noted otherwise.

2. All horizontal coordinates are referenced to NAD83(2011) / Maine 2000 East.

3. The vertical elevation datum used throughout these Plans is NAVD88.

4. All plan dimensions are horizontal at 45°F without account for profile grade or cross slope, unless noted otherwise.

5. The Contract Documents contain five pier foundation bid alternates, as follows:

   a. One alternate for the foundation of Pier No. 1 (Bid Alternates AA1 and AA2), and

   b. One alternate for the foundation of Pier No. 2 (Bid Alternates AB1 and AB2), and

   c. One alternate for the foundation of Pier No. 3 (Bid Alternates AC1 and AC2), and

   d. One alternate for the foundation of Pier No. 4 (Bid Alternates AD1 and AD2), and

   e. One alternate for the foundation of Pier No. 5 (Bid Alternates AE1 and AE2).

   Only one foundation alternate shall be bid and constructed for each pier alternate. The pier columns and pier caps are designed, detailed and bid independent of the foundation alternate selected.

6. The General Plans, Profile Sheets, and similar Plan Sheets depict drilled shaft pier foundations corresponding to bid alternates AA2, AB2, AC2, AD2, and AE2.

7. Geotechnical information furnished or referred to in this Plan set is for the use of the Bidders and the Contractor. No assurance is given that the information or interpretations will be representative of actual subsurface conditions at the construction site. MaineDOT will not be responsible for the Bidder's or Contractor's interpretations 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 boring locations.

8. 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 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 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 and adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation and Time.

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

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

10. With the exception of locations corresponding to specific cofferdam pay items, all costs for cofferdams, including pumping, maintenance, related temporary soil erosion and water pollution controls and removal, will not be paid for directly, but will be considered incidental to related Contract items.

11. Payment for any temporary structural support systems necessary for phased construction of Abutment 2 and its corresponding embankments will be made under Item 524.301, Temporary Structural Support (Earth).

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

13. Temporary pavement ramps shall be constructed where identified on the plans, or as directed by the Resident, to meet the following criteria:

   a. Temporary ramps within the traveled way shall be constructed at a length of four feet per inch of transition depth.

   b. For pedestrian walkways, temporary ramps shall be constructed using a 8% profile grade and 2% cross slope. Curb Type 3, Mold 1 shall be used on all temporary pedestrian ramps adjacent to traffic. All materials, placement, maintenance and removal of Curb Type 3 shall be incidental to Contract items.

   c. Materials, placement, maintenance, and removal shall be incidental to Contract items.

14. 4" White Painted Pavement Marking Lines shall be painted using a constant offset from bridge curb of 6 feet. 4" Double Yellow Centerline shall be painted at the bridge baseline from Abut. 1 to Sta. 120+50. 4" Yellow Painted Pavement Marking Lines shall be painted at the bridge baseline from Sta. 120+50 to Abut. 2 and at the outbound baseline from Sta. 920+50 to Abut. 2.

15. All subbase, pavement, striping, drainage (with the exception of French Drains), guardrail and ancillary items off of the bridge, both temporary and permanent, shall be by Others unless otherwise shown on the Plans.

16. All temporary pavement marking lines and temporary pavement marking line removal on final surface pavement shall be completed using pavement marking tape.

17. See Edmundston Sewer & Closed Drainage Plans for sanitary sewer and storm drain construction adjacent to Abutment 2.

18. The Contractor shall demount and dispose of existing bridge posting / detour signs following opening of the new bridge to traffic throughout Aroostook County which state "Madawaska Bridge Posted to 5 Tons, Seek Alternate Route". An estimate of 10 signs is identified in this Contract and the final count and locations will be provided by the Resident. Payment will be made under Item 645.103, Demount Guide Sign.

19. Field Office, Type A - Modified shall be located in the United States. Field Office, Type, B shall be located in Canada.

PROJECT INFORMATION

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

   a. 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 lifespan.

   b. The hydrologic report of the bridge site may be accessed at the MaineDOT web address. The hydrologic report is based on the designer'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.

   c. The project geotechnical report titled: Geotechnical Design Report, Madawaska International Bridge No. 2399 over St. John River Replacement, dated November 2020, may be accessed at the MaineDOT web address.

   d. The latest detailed condition inspection reports for the existing bridge may be accessed at the MaineDOT web address.

   e. An ice jam study titled: Edmundston-Madawaska International Crossing Ice Study, dated December 19, 2018 may be accessed at the MaineDOT web address.

CONSTRUCTION ACCESS

1. Temporary access roads, constructed by the Contractor along the riverbanks, shall be constructed in accordance with Special Provision 105, Temporary Access Roads and Embankments.

2. Trestles located within the river shall be removed each winter. See Special Provision 105, Temporary Work Trestles, for additional information.

3. A navigational opening shall be maintained during construction. See Special Provision 105, Temporary Work Trestles, for additional information.

4. Separation geotextile shall be placed on top of wetlands prior to placement of any temporary fills. After removal of temporary fills and separation geotextile, wetland areas shall be regraded and restored to their preexisting condition and revegetated in accordance with Special Provision 105, Temporary Access Roads and Embankments.

5. Riprap and riverbank reconstruction limits identified on the Plans are based upon assumed clearing and temporary access road fill limits. Placement of riprap and corresponding riverbank reconstruction shall only occur within regions impacted by Contractor activities and may be reduced and/or modified as directed by the Resident.

6. Riprap used along the riverbanks shall not be sulfide bearing rock. See Special Provision 610 for additional information.

7. A portion of the Canadian riverbank, immediately west of Ferry Avenue and shown on the Plans, is archaeologically significant. Excavation or other earth disturbance within this region is prohibited; however, vegetation clearing may occur provided the natural ground sediment is not disturbed. Any access roads or staging, constructed by the Contractor within this region, shall, at a minimum, consist of a 2-foot thick layer of clean granular material placed atop a biaxial geogrid and separation geotextile laid over the existing ground prior to traversing the area with construction equipment. Refer to the Riverbank Terrace Protection detail shown on the Typical Sections Sheet.

8. Property registered to United States of America, depicted on the Right of Way Maps as Parcel 4 and located west of the existing bridge, will not become available to the Contractor until the date identified within Special Provision 104, Reserved Limits.

PROJECT SITE AND SHIELDING NOTES

1. All existing utility facilities shall be adjusted by the respective utility owners unless otherwise noted.

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

3. The clearing limits as shown on the Plans are approximate. The exact limits will be established in the field and approved by the Resident. Single trees and stump removal shall be considered clearing. Payment for clearing will be considered incidental to Contract Items.

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

5. Existing inslopes in proposed fill areas shall be benched by excavating steps of sufficient width to permit placing and compacting the fill material along with the material removed.

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

7. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Item No. 619.14, Erosion Control Mix.

8. The Department is pursuing a beneficial reuse permit to allow dredge material (river excavations) to be used as construction fill on the proposed US Land Port of Entry (LPOE) site. If the permit is granted and if the LPOE contractor approves of the reuse of this material, the Contractor shall place and manage granular river excavations on the proposed US LPOE site. The final disposal location will be identified during construction. Since disposal of the material on the proposed US LPOE site is not guaranteed, the Contractor shall provide bid for Item 203.2318, Disposal of Special Waste, assuming an offsite disposal location in accordance with Special Provision 203.

9. Dredge Material meeting the requirements for onsite beneficial reuse, as determined by the Department, shall be deposited onsite in a location identified by the Resident. All costs associated with the excavation, handling, and onsite depositing of beneficially reused Dredge Material will be considered incidental to Item 206.082, Structural Earth Excavation - Major Structures, Plan Quantity.

10. All Granular Borrow placed below EL 470.00 shall meet the requirements of Subsection 703.19, Material for Underwater Backfill.

11. Place Heavy Riprap on reconstructed riverbank slopes up to elevation 470.00. Seeding Method No. 2 shall be used on reconstructed riverbank slopes, above elevation 470.00 unless noted otherwise.

12. Protective Shielding shall be installed in accordance with Special Provision 524. Estimates of required Protective Shielding, per location and stage, are as follows:

Estimate of Protective Shielding			
Location	Stage I Construction	Stage II Construction	Existing Bridge Demolition
Over Eastern Maine Railway	1,425 SY	0 SY	0 SY
Over Canadian National Railroad	1,025 SY	100 SY	450 SY

EXISTING BRIDGE REMOVAL NOTES

1. The existing bridge shall be removed by and become the property of the Contractor, except as otherwise noted in Special Provision 202 and as shown on the Bridge Removal Details Sheet.

2. Once vehicular and pedestrian traffic is switched to the proposed bridge, Temporary Concrete Barrier shall be placed across Bridge Avenue, adjacent to each abutment, blocking public access to the bridge demolition work zone. Exact barrier locations shall be coordinated with the Resident.

PROJECT ABBREVIATIONS

CBP: Customs and Border Protection
CBSA: Canada Border Services Agency
CNR: Canadian National Railroad
EMR: Eastern Maine Railway
GSA: General Services Administration
LPOE: Land Port of Entry (United States)
NBDTI: New Brunswick Department of Transportation
POE: Port of Entry (Canada)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. GLUND · No. 12130 · REGISTERED PROFESSIONAL ENGINEER

SIGNATURE 12/9/20

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	DATE
DESIGN-DETAILED	J. Glund	P. Bishop 11\20
CHECKED-REVIEWED	J. Waugh	K. Segal 11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GENERAL NOTES

SHEET NUMBER
4
OF 160

Date:11/20/2020

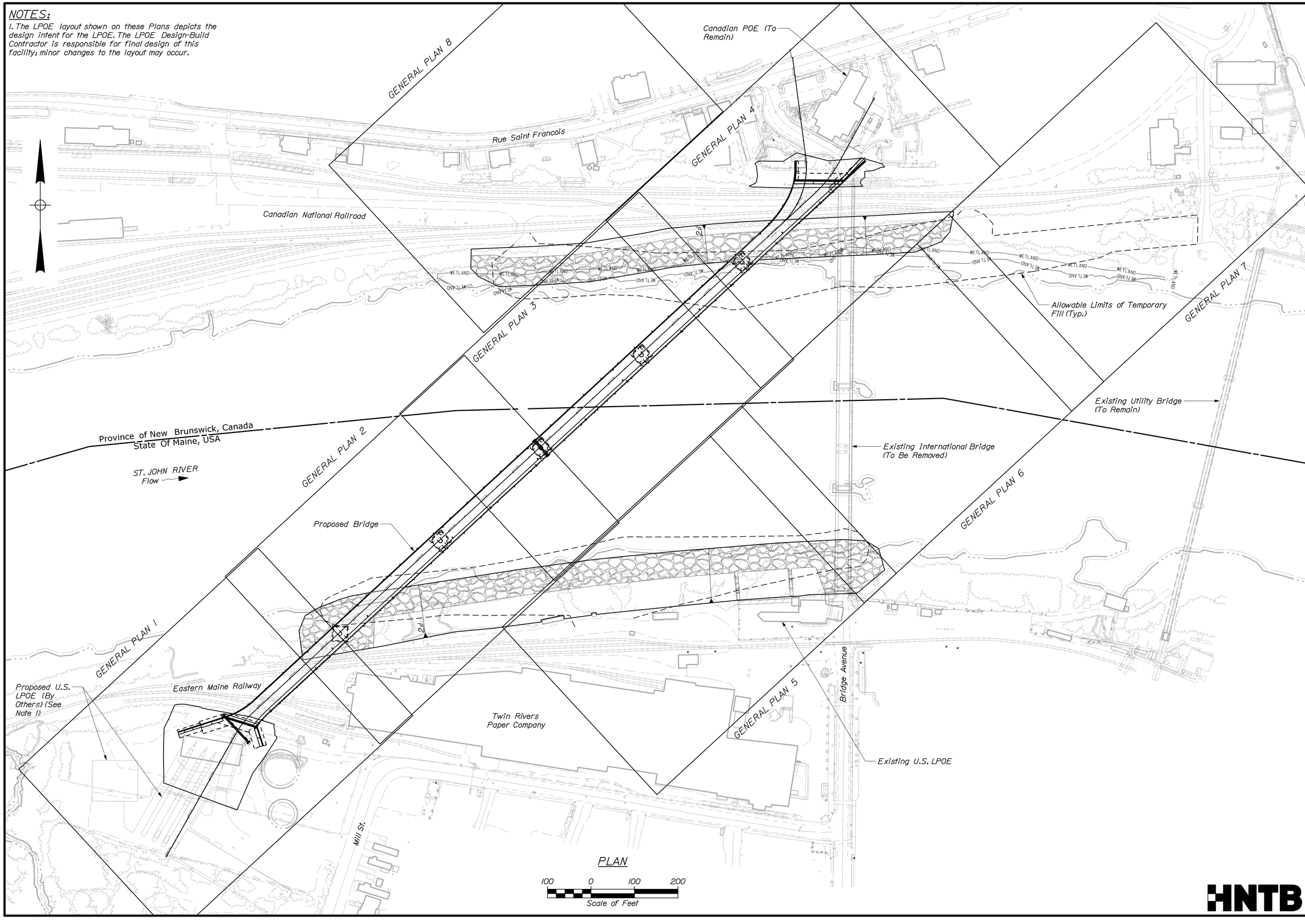
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Division:

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NOTES:

1. The LPOE layout shown on these Plans depicts the design intent for the LPOE. The LPOE Design-Build Contractor is responsible for final design of this facility; minor changes to the layout may occur.



HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

PROJECT SITE PLAN

SHEET NUMBER

5

OF 160

NOTES:

1. The LPOE layout shown on these Plans depicts the design intent for the LPOE. The LPOE Design-Build Contractor is responsible for final design of this facility; minor changes to the layout may occur.

Item #626.11 Precast Concrete Junction Box
Location
Sta. 103+24.48, 47.3' Rt.
Sta. 103+40.23, 39.9' Rt.

Item #626.22 Non-Metallic Conduit

Location	Length of Run
Sta. 103+50.15, 0.5' Rt. To Sta. 121+93.21, 7.3' Rt. (2 - 4" Conduit)	1844 LF
Sta. 103+60.20, 23.4' Rt. To Sta. 114+31.25, 26.2' Rt. (1 - 2" Conduit)	1097 LF
Sta. 103+61.19, 25.4' Rt. To Sta. 106+51.25, 26.2' Rt. (1 - 2" Conduit)	296 LF

Item #626.221 Non-Metallic Conduit, Concrete Encased

Location	Length of Run
Sta. 102+15.60, 7.1' Rt. To Sta. 103+50.15, 0.5' Rt. (2 - 4" Conduit)	134 LF
Sta. 102+15.60, 7.1' Rt. To Sta. 103+61.19, 25.4' Rt. (1 - 2" Conduit)	142 LF
Sta. 103+24.48, 47.3' Rt. To Sta. 103+40.23, 39.9' Rt. (1 - 2" Conduit)	13 LF
Sta. 103+24.48, 47.3' Rt. To 104+25.30, 165.0' Rt. (1 - 2" Conduit)	166 LF
Sta. 103+40.23, 39.9' Rt. To 103+60.20, 23.4' Rt. (1 - 2" Conduit)	25 LF

Item #634.803 Aesthetic Lighting

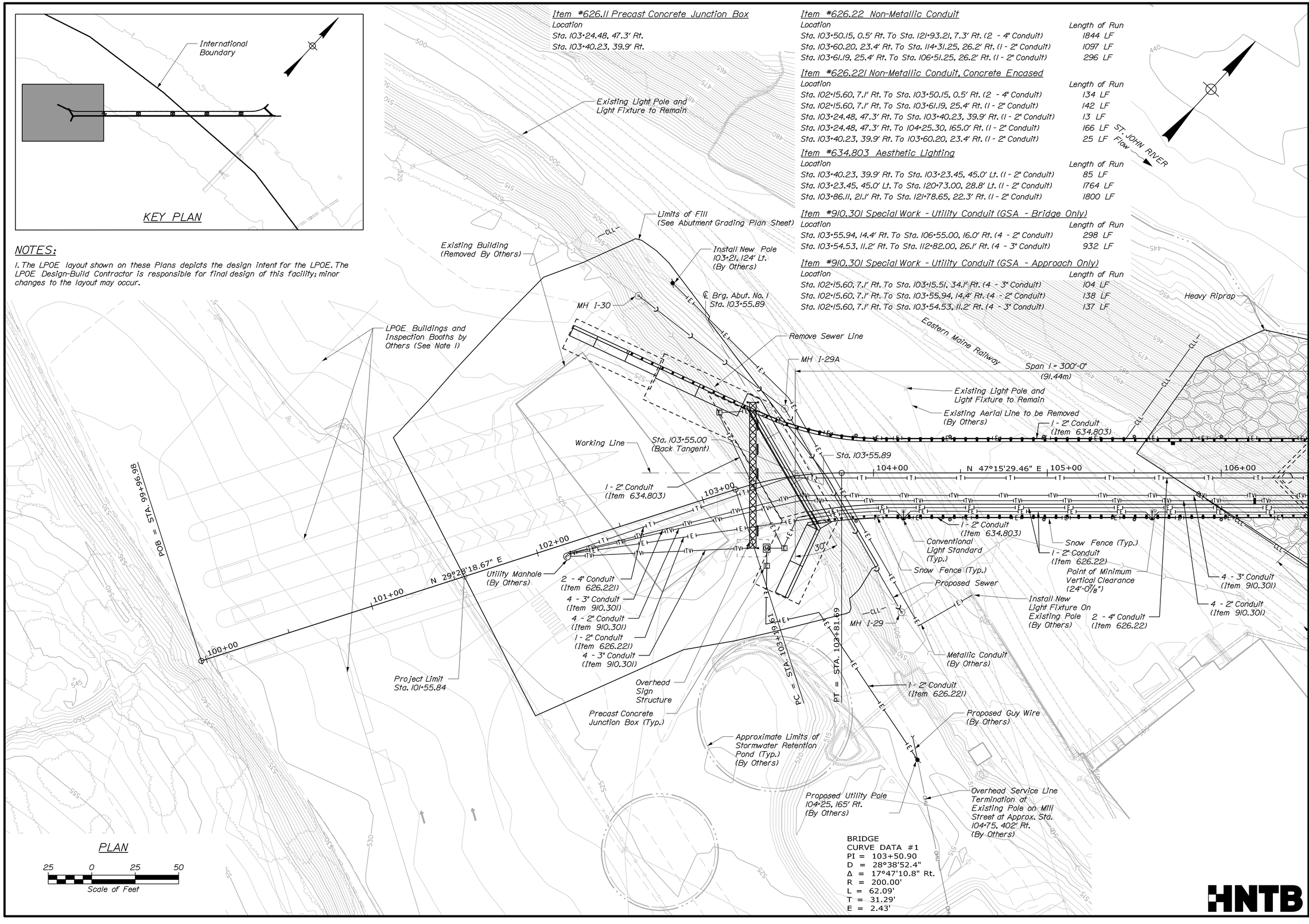
Location	Length of Run
Sta. 103+40.23, 39.9' Rt. To Sta. 103+23.45, 45.0' Lt. (1 - 2" Conduit)	85 LF
Sta. 103+23.45, 45.0' Lt. To Sta. 120+73.00, 28.8' Lt. (1 - 2" Conduit)	1764 LF
Sta. 103+86.11, 21.1' Rt. To Sta. 121+78.65, 22.3' Rt. (1 - 2" Conduit)	1800 LF

Item #910.301 Special Work - Utility Conduit (GSA - Bridge Only)

Location	Length of Run
Sta. 103+55.94, 14.4' Rt. To Sta. 106+55.00, 16.0' Rt. (4 - 2" Conduit)	298 LF
Sta. 103+54.53, 11.2' Rt. To Sta. 112+82.00, 26.1' Rt. (4 - 3" Conduit)	932 LF

Item #910.301 Special Work - Utility Conduit (GSA - Approach Only)

Location	Length of Run
Sta. 102+15.60, 7.1' Rt. To Sta. 103+15.51, 34.1' Rt. (4 - 3" Conduit)	104 LF
Sta. 102+15.60, 7.1' Rt. To Sta. 103+55.94, 14.4' Rt. (4 - 2" Conduit)	138 LF
Sta. 102+15.60, 7.1' Rt. To Sta. 103+54.53, 11.2' Rt. (4 - 3" Conduit)	137 LF



PLAN

25 0 25 50
Scale of Feet

BRIDGE
CURVE DATA #1
PI = 103+50.90
D = 28°38'52.4"
Δ = 17°47'10.8" Rt.
R = 200.00'
L = 62.09'
T = 31.29'
E = 2.43'

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · REGISTERED PROFESSIONAL ENGINEER

SIGNATURE 12/30

P.E. NUMBER 11/19/2020

DATE

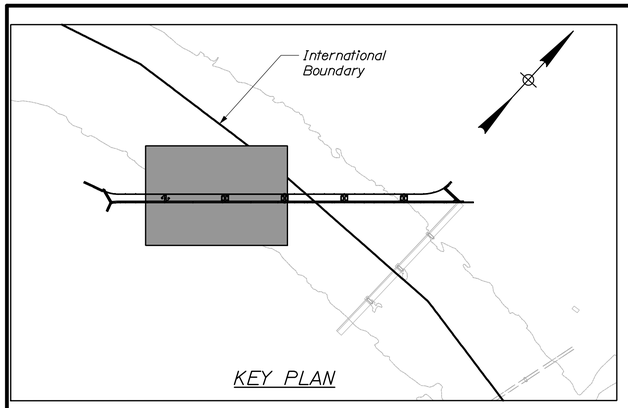
	BY	DATE
A. LATHE		
PROJ. MANAGER	E. Davidson	11\20
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	
DESIGN2-DETAILED2	J. Olund	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GENERAL PLAN 1

SHEET NUMBER
6
OF 160

Date:11/20/2020
Username:
Division:
Filename: 006_Plan_01.dgn



Province of New Brunswick, Canada
State Of Maine, USA

Heavy Riprap

℄ Brg. Pier No. 1
Sta. 106+55.00

℄ Brg. Pier No. 2
Sta. 109+70.00

℄ Brg. Pier No. 3
Sta. 112+85.00

Span 2 = 315'-0"
(96.01m)

Span 3 = 315'-0"
(96.01m)

90° (Typ.)

Overhead Sign Structure

FRP Bridge Drain - Type: A (Typ.)

106+00 107+00 108+00 109+00 110+00 111+00 N 47°15'29.46" E 112+00 13+00

4 - 3" Conduit
(Item 910.301)

4 - 2" Conduit
(Item 910.301)

60'-0"

See Note 1

See Note 2

Terminate and Cap Conduits at ℄ Pier 1

2:1

1 - 2" Conduit
(Item 626.22)

2 - 4" Conduit
(Item 626.22)

FRP Bridge Drain - Type: F (Typ.)

Allowable Limits of Temporary Fill (Typ.)

ST. JOHN RIVER Flow

Eastern Maine Railway

PLAN

25 0 25 50
Scale of Feet

NOTES:

1. Install Heavy Riprap around the Pier as shown.

2. Install Heavy Riprap and the upper fill slope along the remainder of the river banks as shown on the Typical Section sheet and where disturbed by Contractor, see General Notes.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	BY	DATE
A. LATHE	E. Davidson	11\20
E. Davidson	J. Olund	11\20
L. Driscoll	-	-
-	-	-

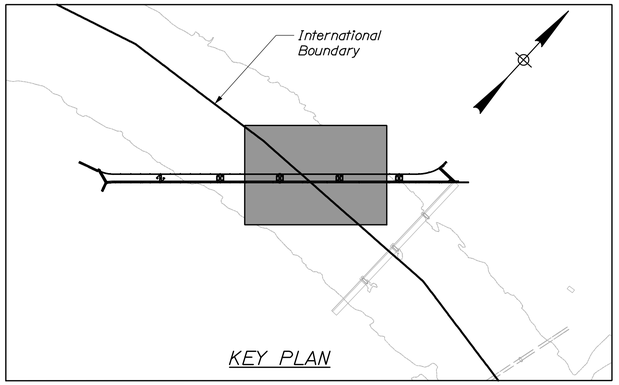
PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	E. Davidson
CHECKED-REVIEWED	L. Driscoll
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-
REVISIONS 1	-
REVISIONS 2	-
REVISIONS 3	-
REVISIONS 4	-
FIELD CHANGES	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GENERAL PLAN 2

SHEET NUMBER
7
OF 160

Filename: 007_Plan_02.dgn Division: Username: Date:11/20/2020



KEY PLAN

See Note 1

Extend Culverts, 5% maximum slope. Outlets shall be riprapped and follow Standard Details 802(05) Roadway Culvert End Slope Treatment and 802(09) Energy Dissipater Riprap Apron. (Typ.) (Incidental to Contract Items)

℄ Brg. Pier No. 3
Sta. 112+85.00

℄ Brg. Pier No. 4
Sta. 116+00.00

Span 3 = 315'-0"
(96.01m)

Span 4 = 315'-0"
(96.01m)

Span 5 = 315'-0"
(96.01m)

Overhead Sign Structure

FRP Bridge Drain - Type: A (Typ.)

90° (Typ.)

See Note 1

111+00 N 47°15'29.46" E 112+00 113+00 114+00 115+00 116+00 117+00 118+00

FRP Bridge Drain - Type: F (Typ.)

2 - 4" Conduit
(Item 626.22)

1 - 2" Conduit
(Item 626.22)

2 - 4" Conduit
(Item 626.22)

ST. JOHN RIVER
Flow

Province of New Brunswick, Canada
State Of Maine, USA

NOTES:

1. Install Heavy Riprap and the upper fill slope as shown on the Typical Section Sheet and where disturbed by Contractor. See General Notes.

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	BY	DATE
A. LATHE		
PROJ. MANAGER		
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	J. Olund	11\20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GENERAL PLAN 3

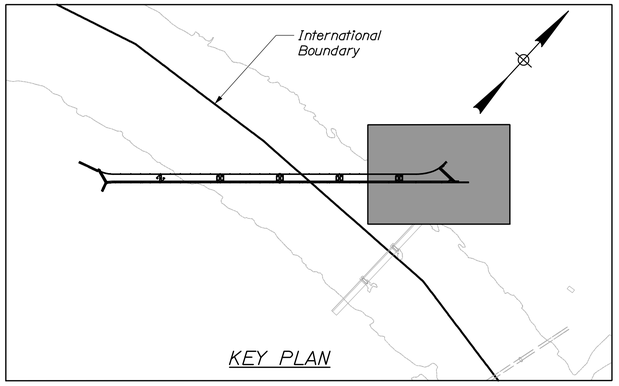
SHEET NUMBER

8

OF 160

Date:11/20/2020
Username:
Division:
Filename: 008_Plan_03.dgn

Date:11/20/2020
Username:
Division:
Filename: 009_Plan_04.dgn



Item #626.22 Non-Metallic Conduit
Location — *Length of Run*
Sta. 114+50.75, 26.2' Rt. To Sta. 122+07.00, 27.5' Rt. (1 - 2" Conduit) — *795 LF*

Item #626.221 Non-Metallic Conduit, Concrete Encased
Location — *Length of Run*
Sta. 121+93.21, 7.3' Rt. To Sta. 122+63.00, 47.0' Rt. (2 - 4" Conduit) — *83 LF*
Sta. 122+07.00, 27.5' Rt. To Sta. 122+63.00, 47.0' Rt. (1 - 2" Conduit) — *63 LF*

Item #626.11 Precast Concrete Junction Box
Location
Sta. 122+63.00, 47.0' Rt.

℄ Brg. Pier No. 5
Sta. 119+15.00

℄ Bridge Sta. 120+41.06 =
℄ Outbound Sta. 920+41.06

POB = STA. 920+00.00

PC = STA. 920+41.06

℄ Brg. Abut. No. 2
Sta. 121+80.57

PT = STA. 922+12.39

CL

PC = STA. 1214+42.78

Span 5 = 315'-0"
(96.01m)

Span 6 = 268'-0"
(81.69m)

Structural Concrete
Roadway Median

FRP Bridge
Drain - Type: A
(Typ.)

℄ Outbound

24'-0"

8'-0"

See Note 1

Sta. 921+53.73
46°49'17"

N 47°15'29.46" E

118+00
119+00
120+00
920+00
921+00
121+00
122+00

℄ Bridge

Sta. 121+80.57

Working Line

Project Limit
Sta. 122+42.98

2 - 4" Conduit
(Item 626.221)

Precast Concrete
Junction Box

Point of Minimum
Vertical Clearance
(23'-2¾")

Snow
Fence
(Typ.)

Sta. 121+83.00
(Ahead Tangent)

1 - 2" Conduit
(Item 626.221)

Existing Abutment (To Be
Removed)

Approach
Sidewalk (By
Others)

Limits of Fill
(See Abutment Grading Plan Sheet)

Approximate Location of
Existing Fiber360 Line

Heavy
Riprap

FRP Bridge Drain
- Type: F (Typ.)

180'-0" (See Note 2)

ST. JOHN RIVER
Flow

See Note 1

Canadian National Railroad

2:1

Existing International Bridge
(To Be Removed)

924+00

Rue Saint Francois

N 07°34'53.66" W

923+00

POE = STA. 1240476

PT = STA. 122+39.89

922+00

124+00

123+00

N 28°42'47.03" E

BRIDGE
CURVE DATA #2
PI = 121+91.76
D = 19°05'54.9"
Δ = 18°32'42.4" Lt.
R = 300.00'
L = 97.10'
T = 48.98'
E = 3.97'

OUTBOUND
CURVE DATA #1
PI = 921+33.92
D = 32°00'31.7"
Δ = 54°50'22.1" Lt.
R = 179.00'
L = 171.33'
T = 92.86'
E = 22.65'

NOTES:

1. Install heavy riprap and the upper fill slope as shown on the Typical Section Sheet and where disturbed by Contractor. See General Notes.

2. Install Heavy Riprap as Shown.

PLAN
25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	11\20
DESIGN2-DETAILED2	J. Olund	11\20
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GENERAL PLAN 4

SHEET NUMBER
9
OF 160

Filename: 010_Plan_05.dgn Division: Username: Date:11/20/2020

Heavy Riprap (Typ.)

ST. JOHN RIVER Flow

Eastern Maine Railway

Plain Riprap Downspout (Typ.)

Allowable Limits of Temporary Fill

See Note 2

Existing International Bridge (To Be Removed)

See Note 1

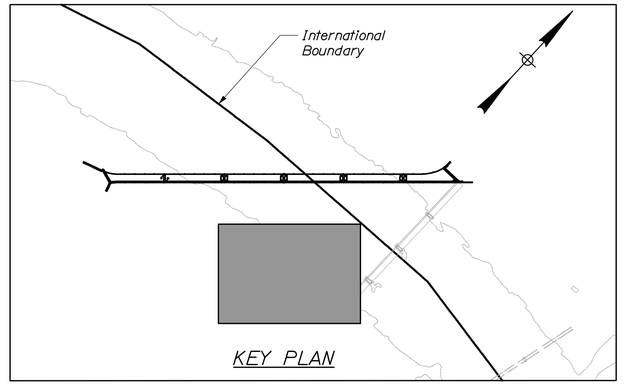
See General Notes for construction activities within Parcel 4

Existing Abutment (To Be Removed)

Guardrail Thrie Beam - Single Rail with Thrie Beam Terminal Ends (Final Placement to be Directed by Resident)

Existing US Land Port Of Entry

Twin Rivers Paper Company



NOTES:

1. Install Heavy Riprap atop the foreslope at the Existing Abutment removal location, as shown.

2. Install Heavy Riprap and the upper fill slope along the remainder of the river banks as shown on the Typical Section sheet and where disturbed by Contractor, see General Notes.

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

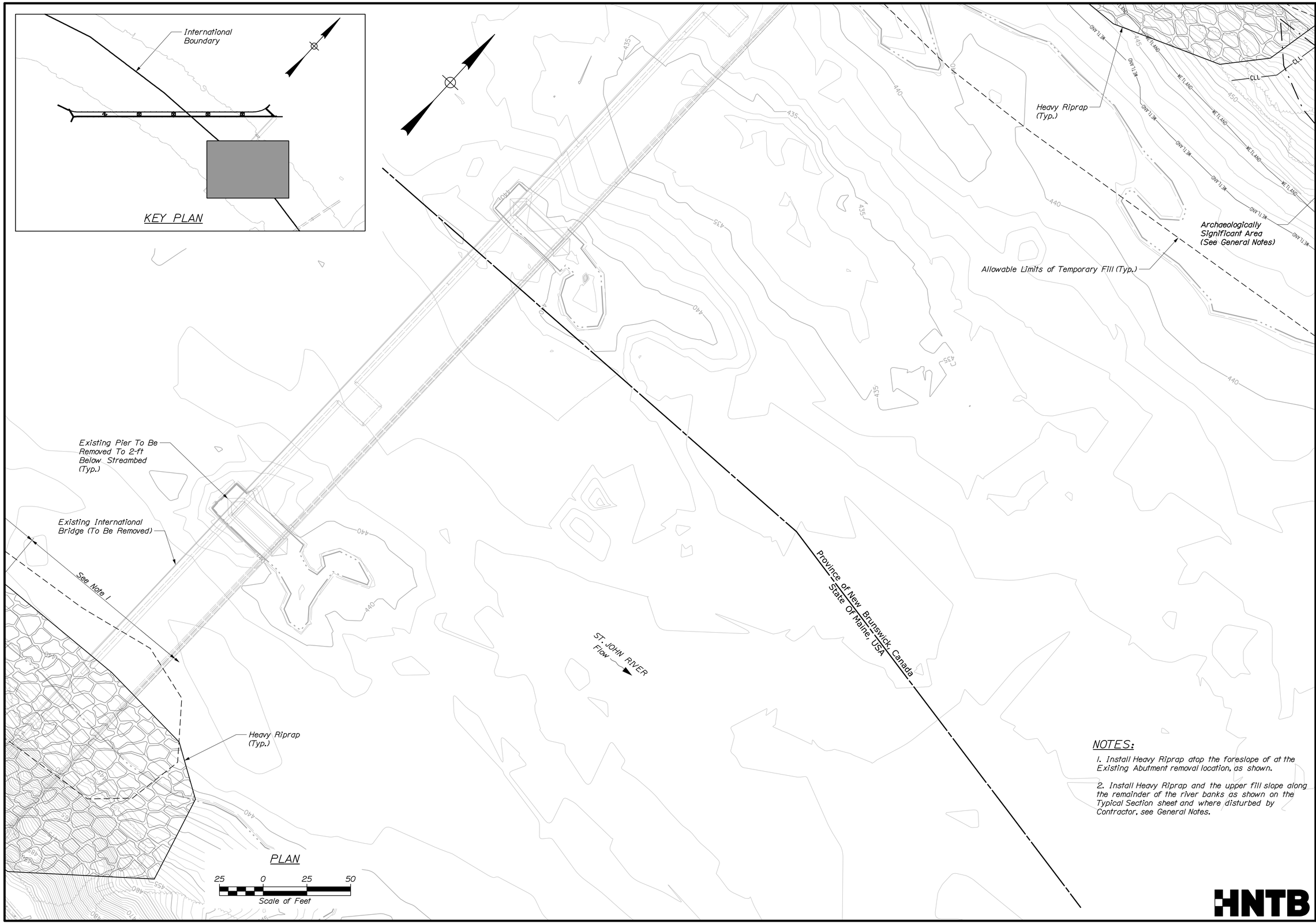
DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	E. Davidson	BY	J. Olund
CHECKED-REVIEWED	L. Driscoll	DATE	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GENERAL PLAN 5

SHEET NUMBER
10
OF 160



NOTES:

1. Install Heavy Riprap atop the foreslope of at the Existing Abutment removal location, as shown.

2. Install Heavy Riprap and the upper fill slope along the remainder of the river banks as shown on the Typical Section sheet and where disturbed by Contractor, see General Notes.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	E. Davidson
CHECKED-REVIEWED	L. Driscoll
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-

	BY	DATE
REVISIONS 1	E. Davidson	11\20
REVISIONS 2	J. Olund	11\20
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GENERAL PLAN 6

SHEET NUMBER

11

OF 160

Date:11/20/2020 Username: Division: Filename: 011_Plan_06.dgn

Filename: 012_Plan_07.dgn Division: Username: Date:11/20/2020

Heavy Riprap (Typ.) (See Note)

Archaeologically Significant Area (See General Notes)

Allowable Limits of Temporary Construction Fill (Typ.)

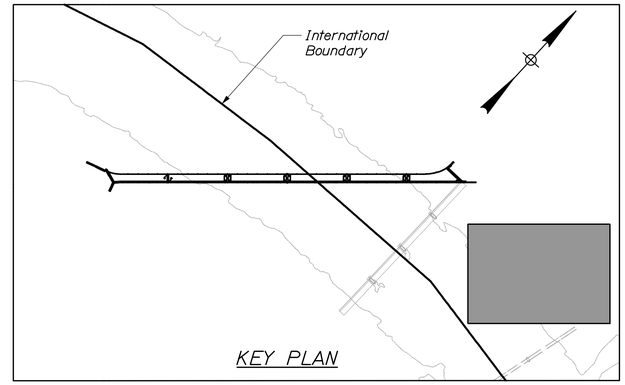
Canadian National Railroad

Avenue Ferry

ST. JOHN RIVER Flow

WETLAND

ONW 1.3M



NOTES:

1. Install Heavy Riprap and the upper fill slope as shown on the Typical Section Sheet and where disturbed by Contractor. See General Notes.

PLAN

25 0 25 50

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
A. LATHE		
PROJ. MANAGER	E. Davidson	11\20
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

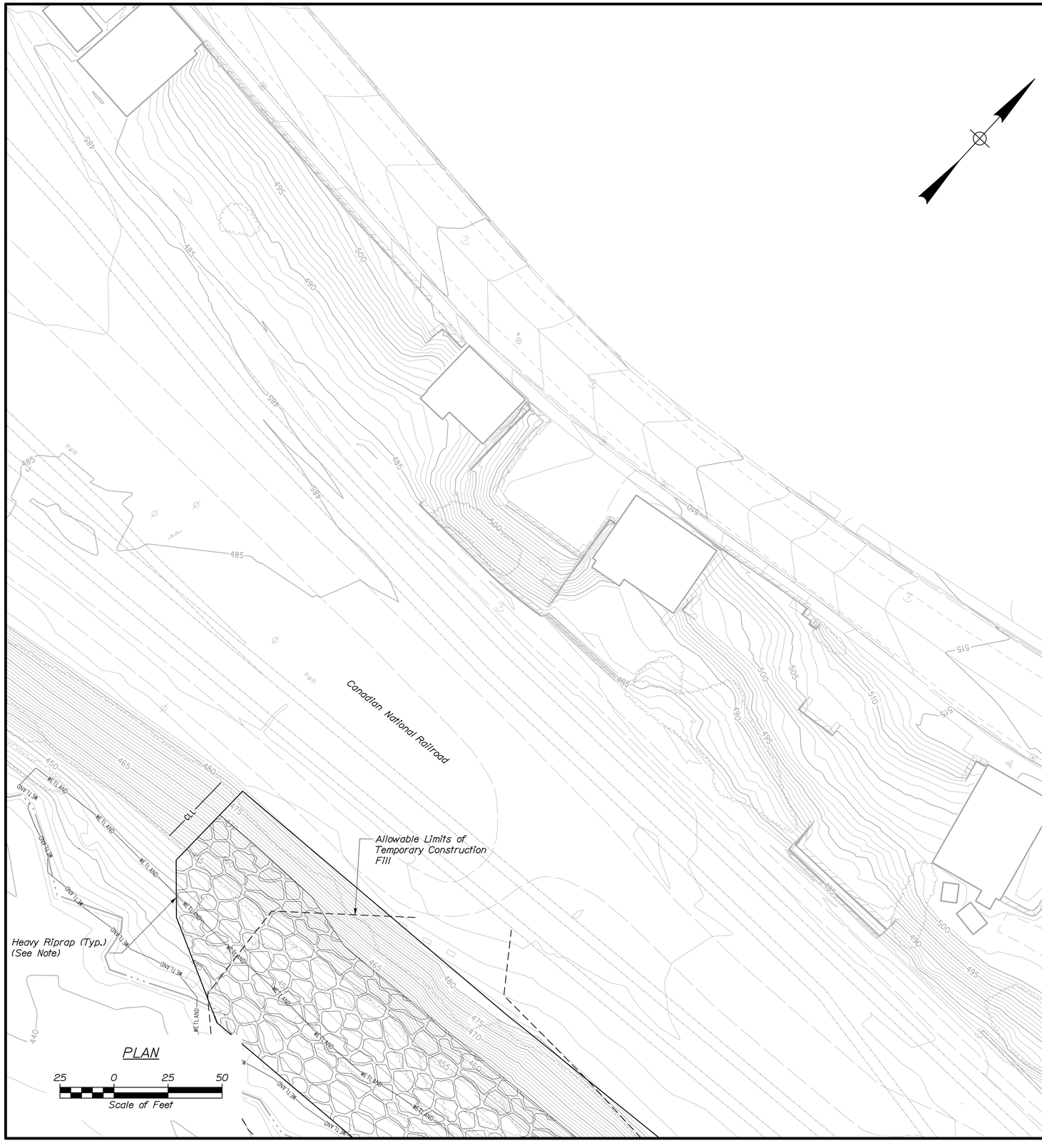
GENERAL PLAN 7

SHEET NUMBER

12

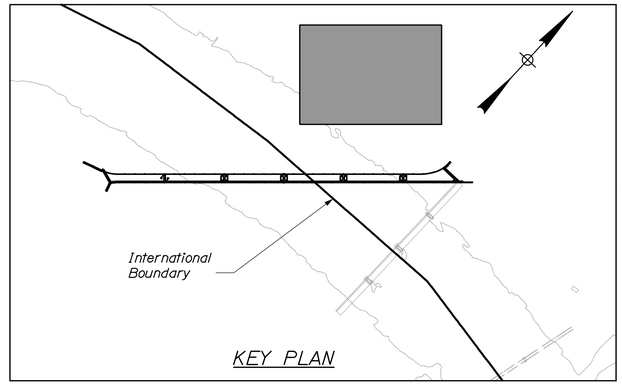
OF 160

Filename: 013_Plan_08.dgn Division: Username: Date:11/20/2020



PLAN

25 0 25 50
Scale of Feet



KEY PLAN

NOTES:

1. Install Heavy Riprap and the upper fill slope as shown on the Typical Section Sheet and where disturbed by Contractor. See General Notes.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GENERAL PLAN 8

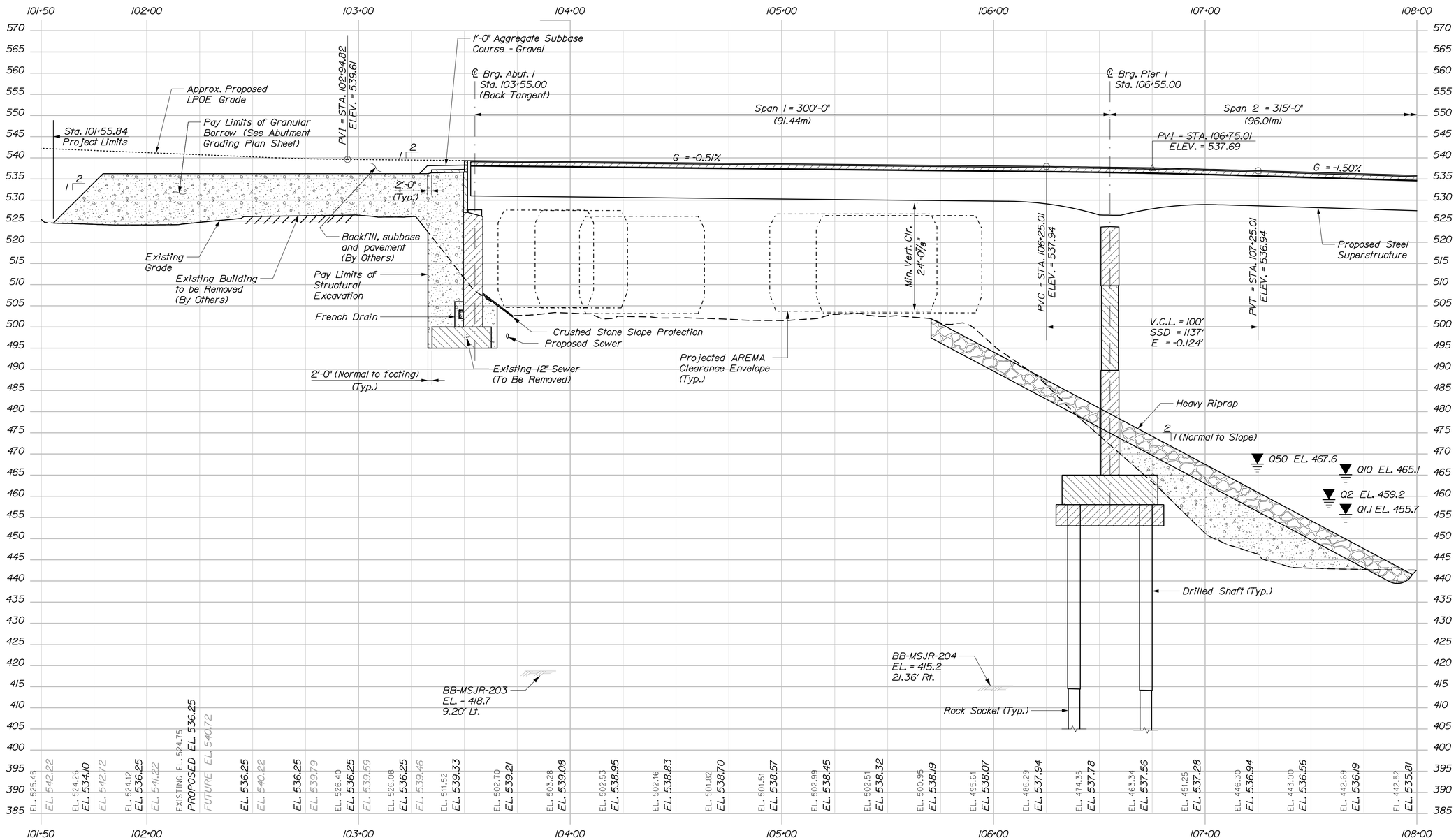
SHEET NUMBER

13

OF 160

HNTB

Username:
Division:
Date:11/20/2020
Filename: 014_Profile_1.dgn



NOTES:

1. Railroad clearance envelopes represent horizontal projections beneath the structure and are skewed to this view.

PROFILE

Horiz. 25 0 25 50

Vert. 12.5 0 12.5 25

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	E. Davidson	BY	DATE
CHECKED-REVIEWED	L. Driscoll	E. Davidson	11\20
DESIGN2-DETAILED2	-	J. Olund	11\20
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

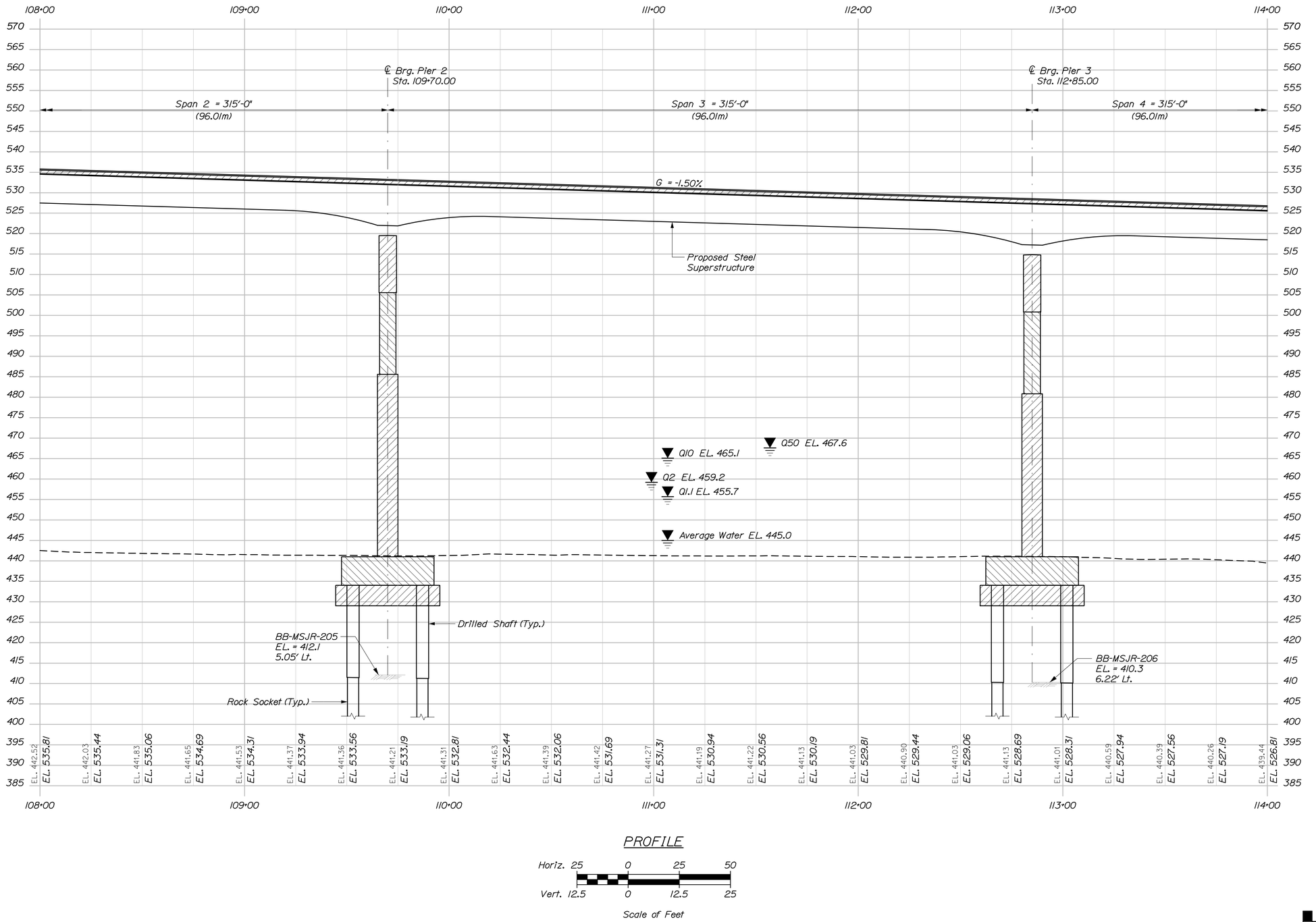
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

PROFILE 1

SHEET NUMBER

14

OF 160



PROFILE

Horiz. 25 0 25 50

Vert. 12.5 0 12.5 25

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

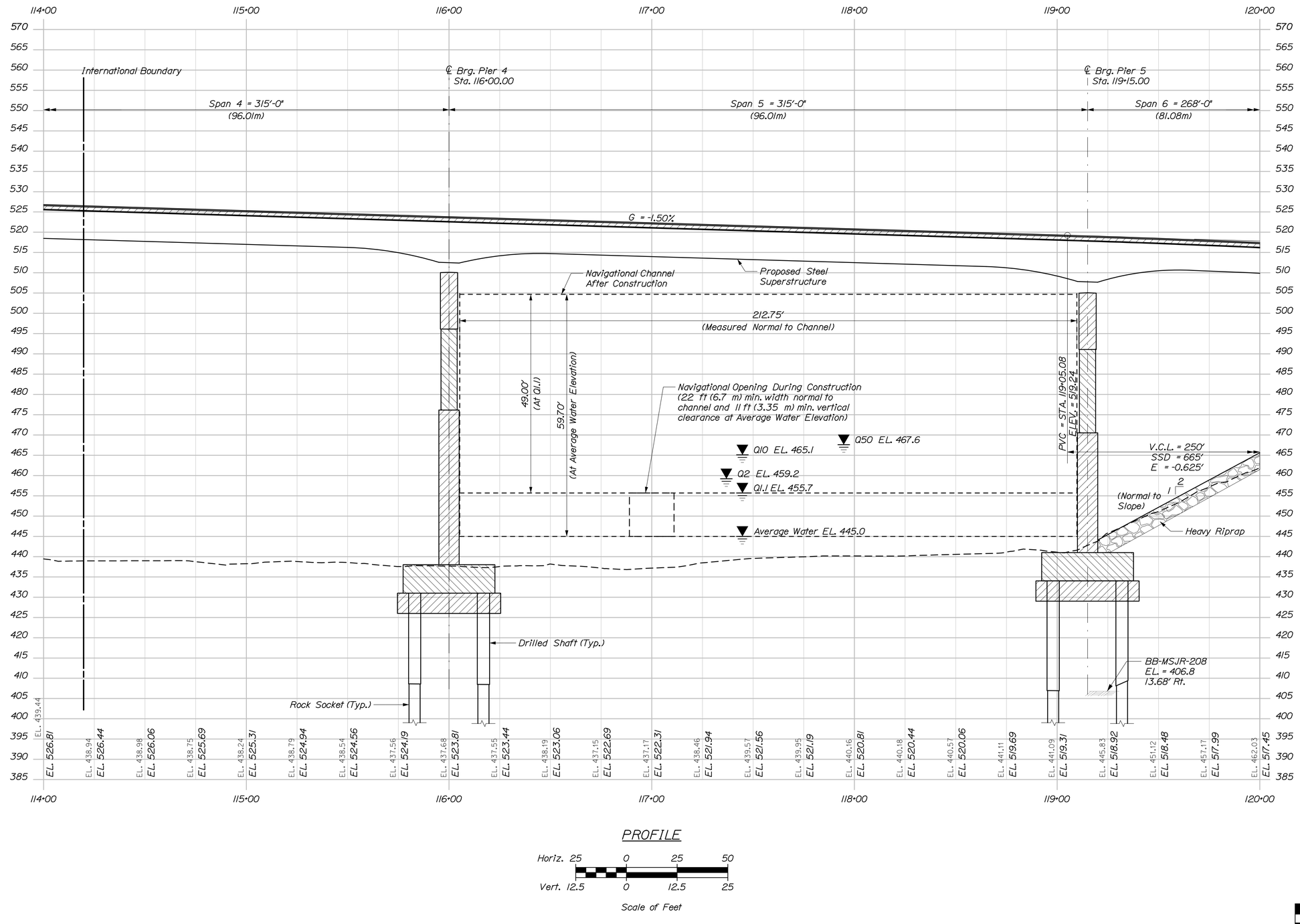
PROFILE 2

SHEET NUMBER

15

OF 160

Filename: 015_Profile_2.dgn Division: Username: Date:11/20/2020



PROFILE

Horiz. 25 0 25 50

Vert. 12.5 0 12.5 25

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/9/2020
DATE

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	E. Davidson
CHECKED-REVIEWED	L. Driscoll
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-

	BY	DATE
REVISIONS 1	E. Davidson	11\20
REVISIONS 2	J. Olund	11\20
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

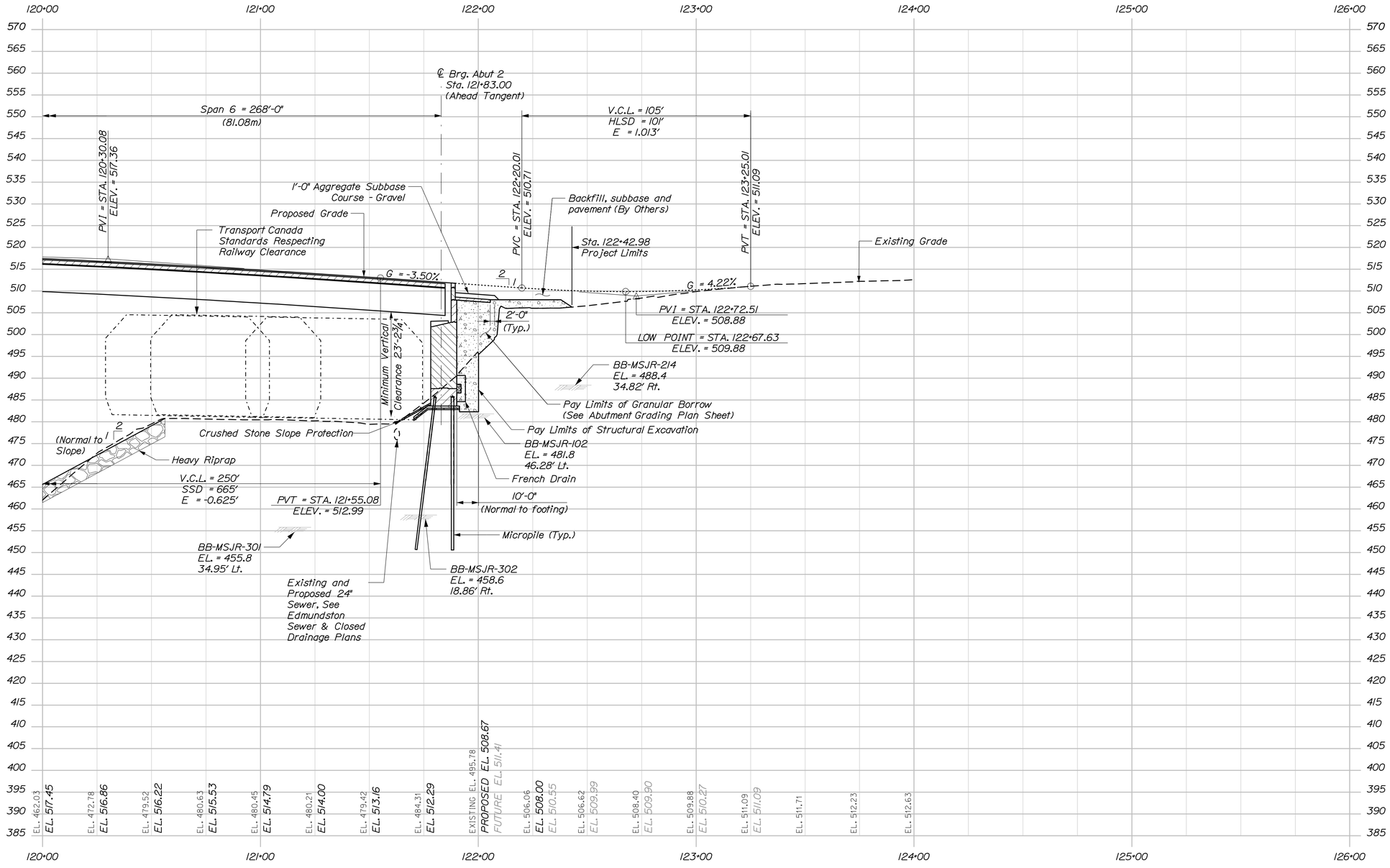
PROFILE 3

SHEET NUMBER

16

OF 160

Filename: 016_Profile_3.dgn Division: Username: Date:11/20/2020



NOTES:

1. Railroad clearance envelopes represent horizontal projections beneath the structure and are skewed to this view.

PROFILE

Horiz. 25 0 25 50

Vert. 12.5 0 12.5 25

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

PROFILE 4

SHEET NUMBER

17

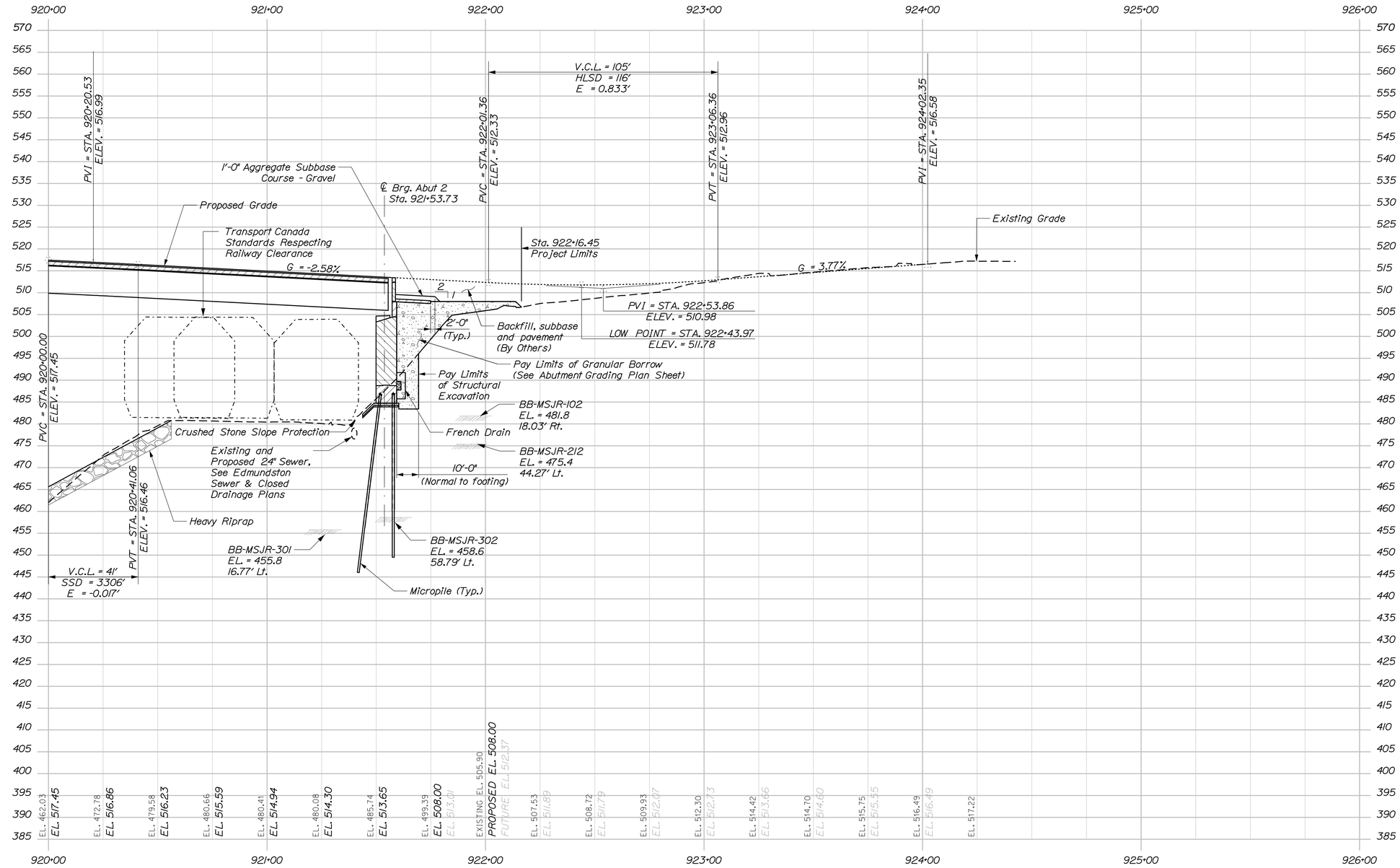
OF 160

Username:

Date:11/20/2020

Division:

Filename: 017_Profile_4.dgn



NOTES:

1. Railroad clearance envelopes represent horizontal projections beneath the structure and are skewed to this view.

PROFILE (OUTBOUND)

Horiz. 25 0 25 50

Vert. 12.5 0 12.5 25

Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

JOSHUA K. OLUND No. 12130 STATE OF MAINE REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

PROFILE OUTBOUND

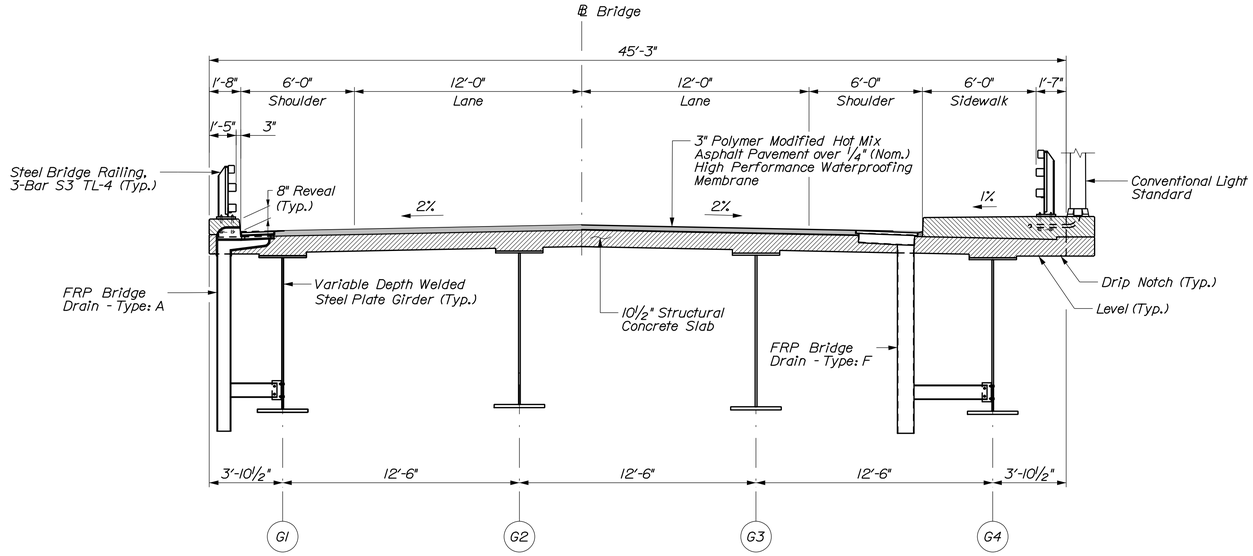
SHEET NUMBER 18 OF 160

Username:

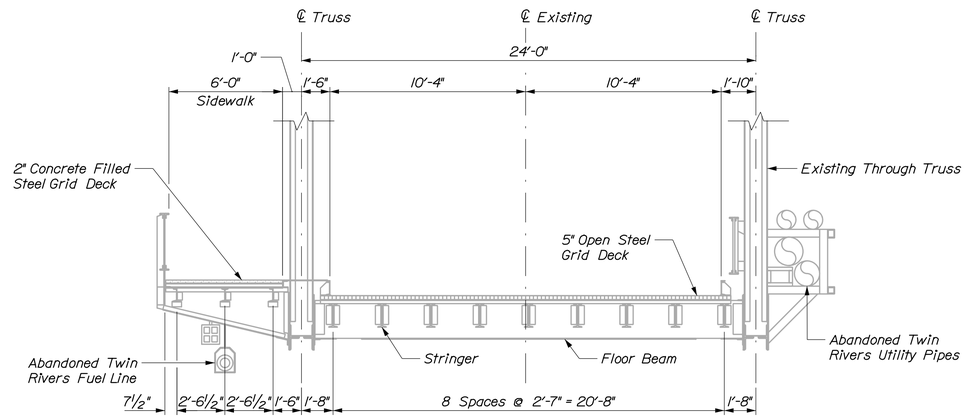
Division:

Date:11/20/2020

Filename: 018_Profile Outbound.dgn



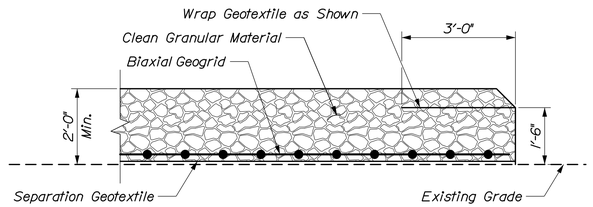
PROPOSED BRIDGE SECTION



EXISTING BRIDGE SECTION

NOTE:

Confirm utility pipes are inactive prior to Commencing Bridge Demolition. See Special Provision 202 for additional information.



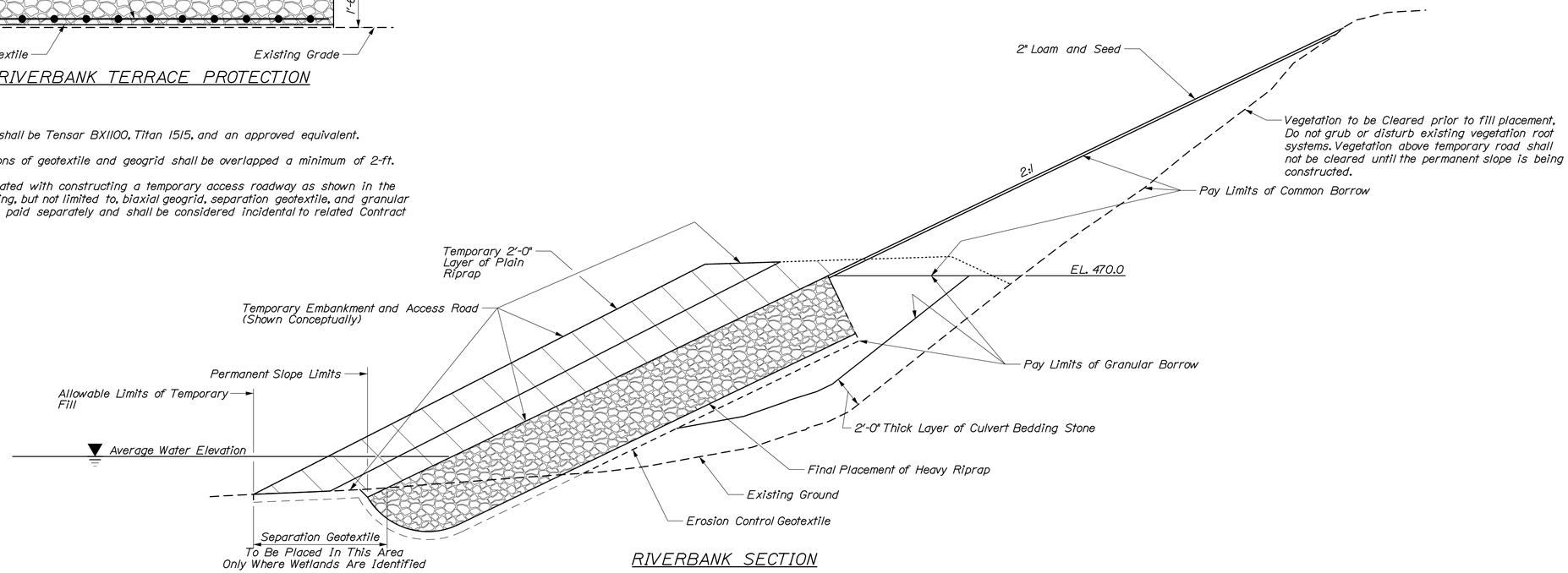
RIVERBANK TERRACE PROTECTION

NOTES:

1. *Biaxial Geogrid shall be Tensar BX1100, Titan 1515, and an approved equivalent.*

2. *Individual sections of geotextile and geogrid shall be overlapped a minimum of 2-ft.*

3. *All costs associated with constructing a temporary access roadway as shown in the above detail including, but not limited to, biaxial geogrid, separation geotextile, and granular material, will not be paid separately and shall be considered incidental to related Contract Items.*



RIVERBANK SECTION

(U.S. riverbank shown looking downstream, Canadian riverbank similar looking upstream)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	DATE	BY
A. LATHE	11\20	P. Bishop
PROJ. MANAGER	11\20	J. Olund
DESIGN-DETAILED	-	-
CHECKED-REVIEWED	-	-
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TYPICAL SECTIONS

SHEET NUMBER 19 OF 160

HNTB

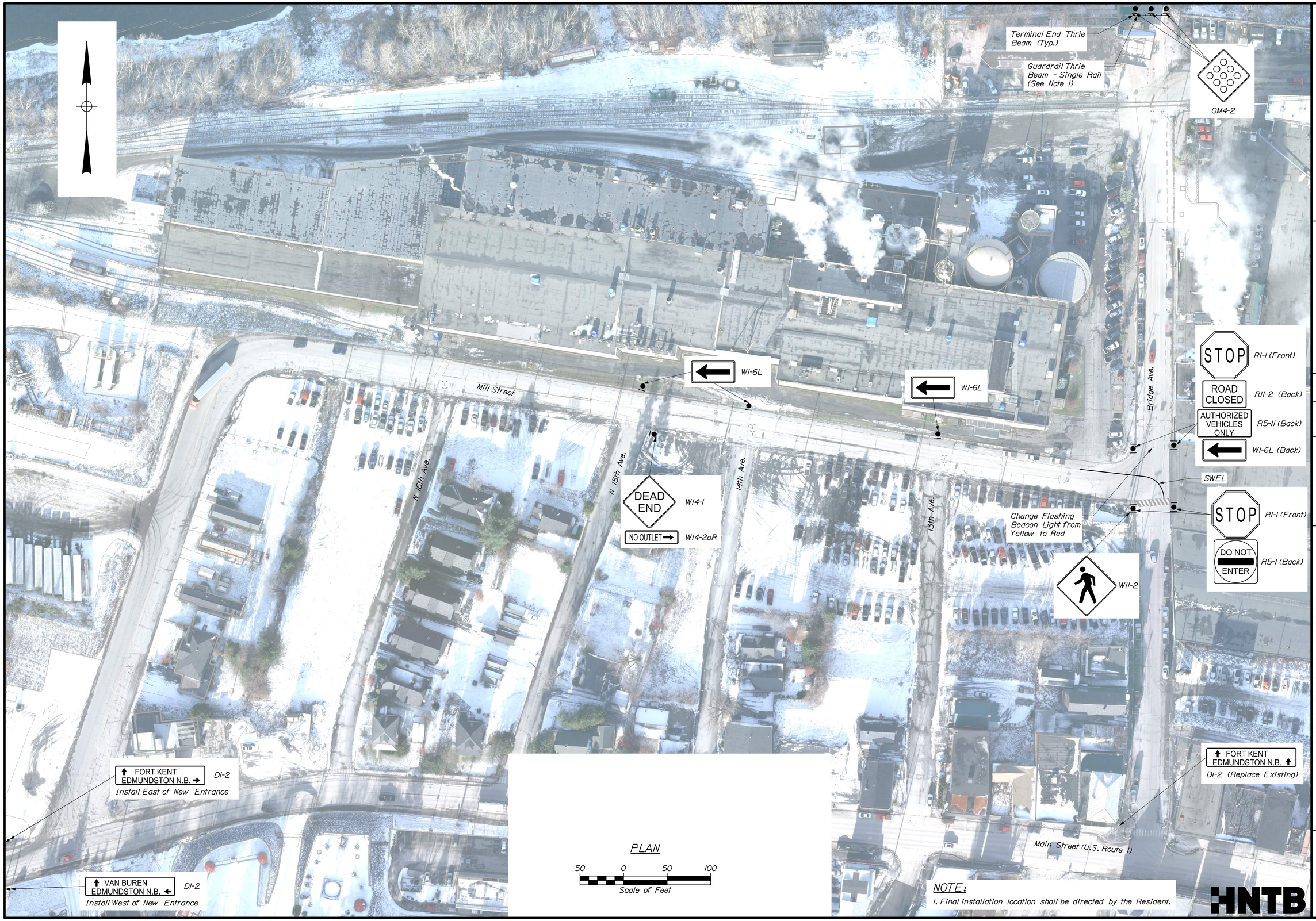
Date:11/20/2020 Username: Division: Filename: 019_Typical Sections.dgn

Date:11/20/2020

Username:

Division:

Filename: 020_BridgeSt_Plan_01.dgn



PLAN

50 0 50 100

Scale of Feet

NOTE:

1. Final installation location shall be directed by the Resident.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130

P.E. NUMBER

11/19/2020

DATE

	A. LATHE	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

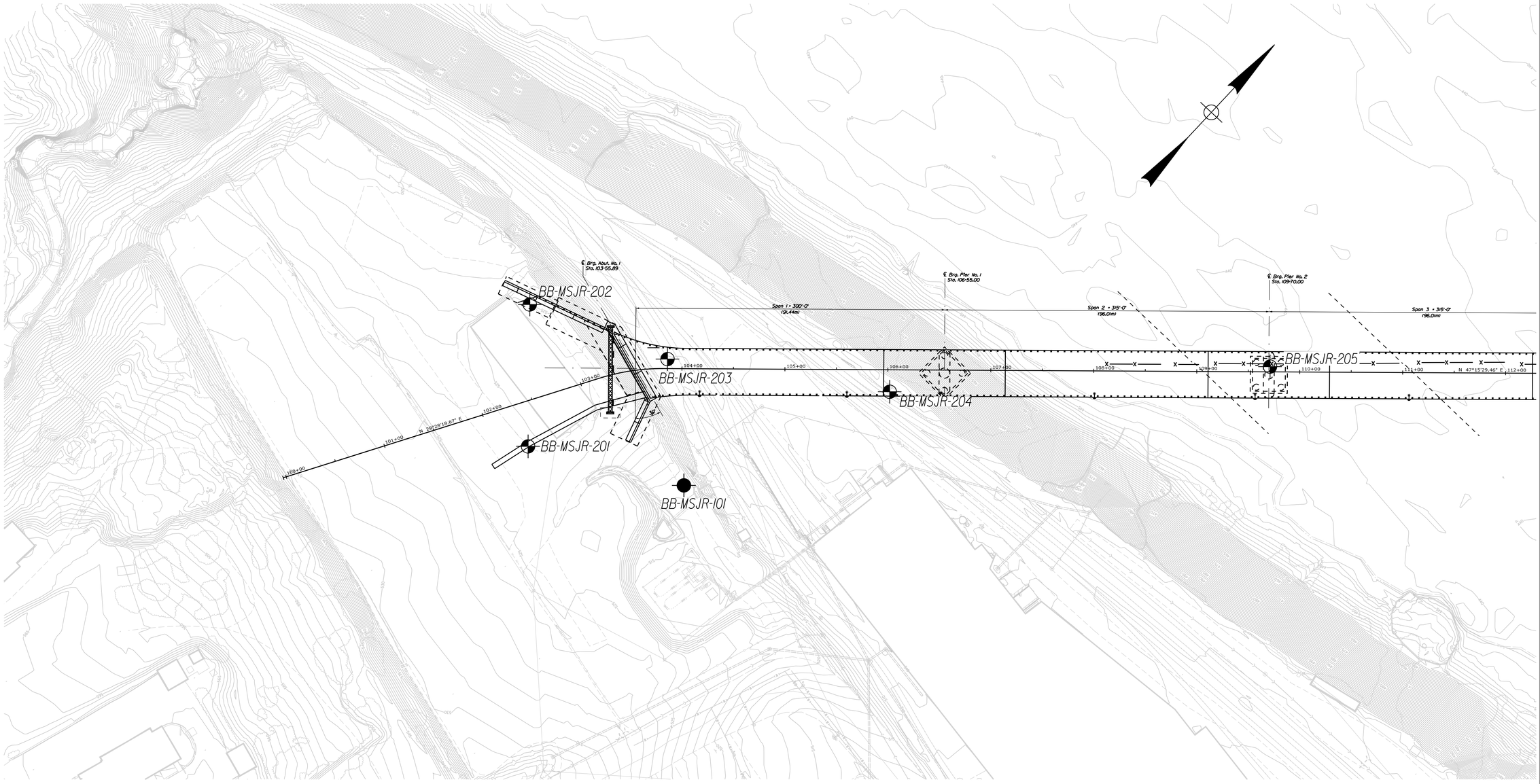
BRIDGE AVENUE SIGNING

SHEET NUMBER

20

OF 160

Filename: ...\Figures\BLP-Border1.dgn Division: Bridge Username: common Date:11/12/2020



NOTES

1) Base map developed from electronic files (Topo.dgn and Contours.dgn) provided by HNTB on October 26, 2018, and from electronic files (Alignments.dgn and Bridge.dgn) provided by HNTB on March 9, 2020.

2) The 100-series borings were located approximately by GZA using tape measurements to features shown on the site plan. The 200-series and 300-series borings were surveyed by a MEDOT survey crew or EXP survey crew and supplied to GZA.

3) BB-MSJR-100 series bridge borings were performed by New England Boring Contractors and observed by GZA personnel between August 28 and September 5, 2018.

4) BB-MSJR-200 series bridge borings were performed by New England Boring Contractors or Logan Drilling Group, and observed by GZA personnel between October 28, 2019 and March 3, 2020.

5) BB-MSJR-300 series bridge borings were performed by Logan Drilling Group, and observed by GZA personnel between June 10 and June 11, 2020.

6) The location of the geophysical survey lines were provided in the Geophysical Seismic Refraction Top of Rock Survey Report by NDT on November 15, 2018.

BORING LOCATION PLAN LEGEND

BB-MSJR-205	Location and designation of completed 200-Series cased wash boring
BB-MSJR-101	Location and designation of preliminary 100-Series cased wash boring
×——×	Geophysical Survey line along the proposed alignment
- - - - - - - - - -	Geophysical Survey line parallel to the river flow

PLAN

50 0 50 100
Scale in Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

WIN
021736.00

BRIDGE PLANS

STATE OF MAINE — CHRISTOPHER L. SHAW No. 7275 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE
7275
P.E. NUMBER
October 30, 2020
DATE

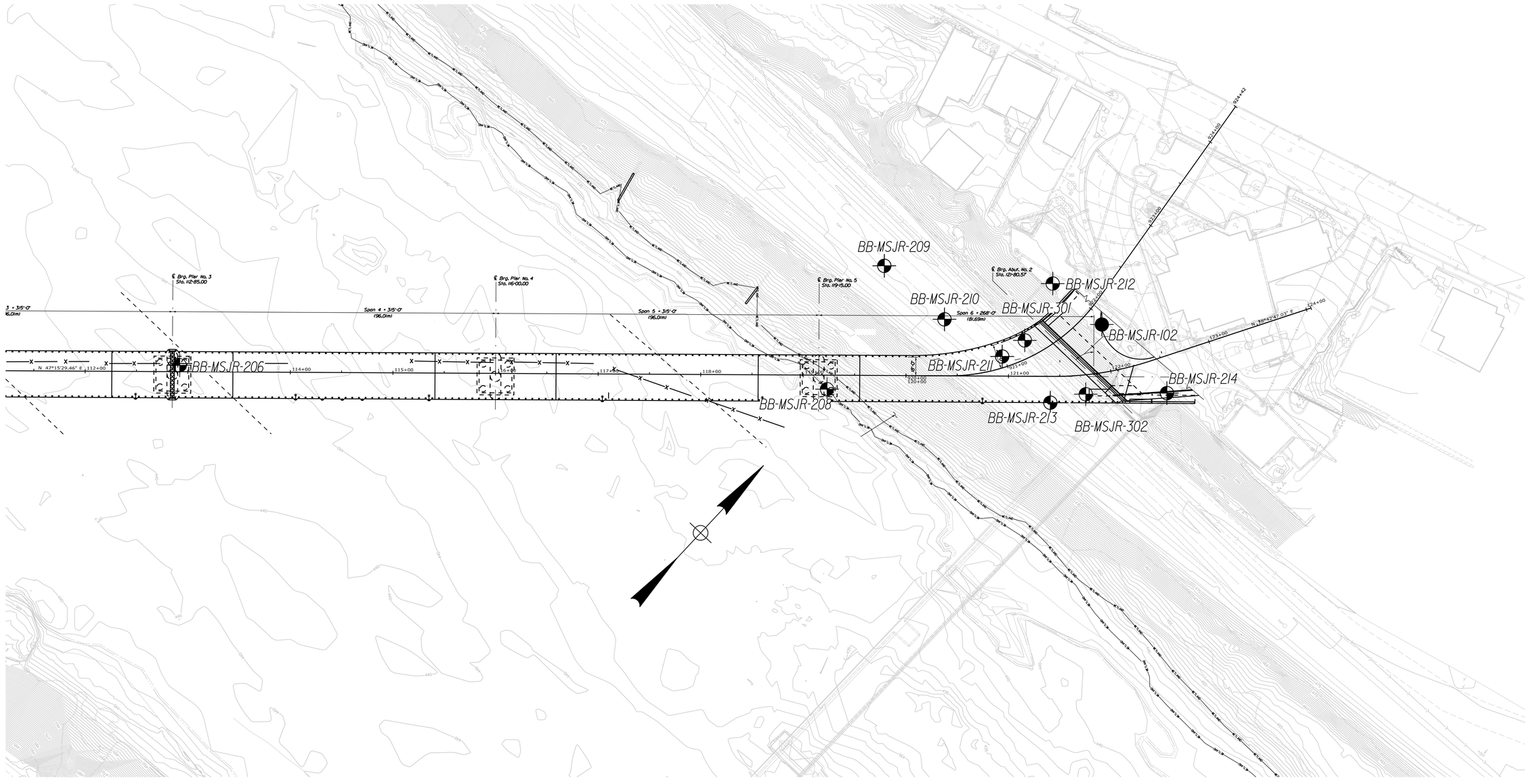
PROJ. MANAGER	A. Lothel	
DESIGN-DETAILED	NVW	7/20
CHECKED-REVIEWED	ARB	CLS 5/20
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BORING LOCATION PLAN 1 OF 2

PREPARED BY:
GZA

SHEET NUMBER
21
OF 160



NOTES

1) See Boring Location Plan 1 of 2.

LEGEND

BB-MSJR-302, BB-MSJR-214	Location and designation of completed 200-Series and 300-Series cased wash boring
BB-MSJR-102	Location and designation of preliminary 100-Series cased wash boring
×——×	Geophysical Survey line along the proposed alignment
- - - - - - - - - -	Geophysical Survey line parallel to the river flow

PLAN

50 0 50 100

Scale in Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

WIN
021736.00

BRIDGE PLANS

STATE OF MAINE
CHRISTOPHER L. SHAW
No. 7275
LICENSED
PROFESSIONAL ENGINEER

	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	NVW		7/20
CHECKED-REVIEWED	ARB	GLS	5/20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE
7275
P.E. NUMBER
October 30, 2020
DATE

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BORING LOCATION PLAN 2 OF 2

PREPARED BY:

GZA

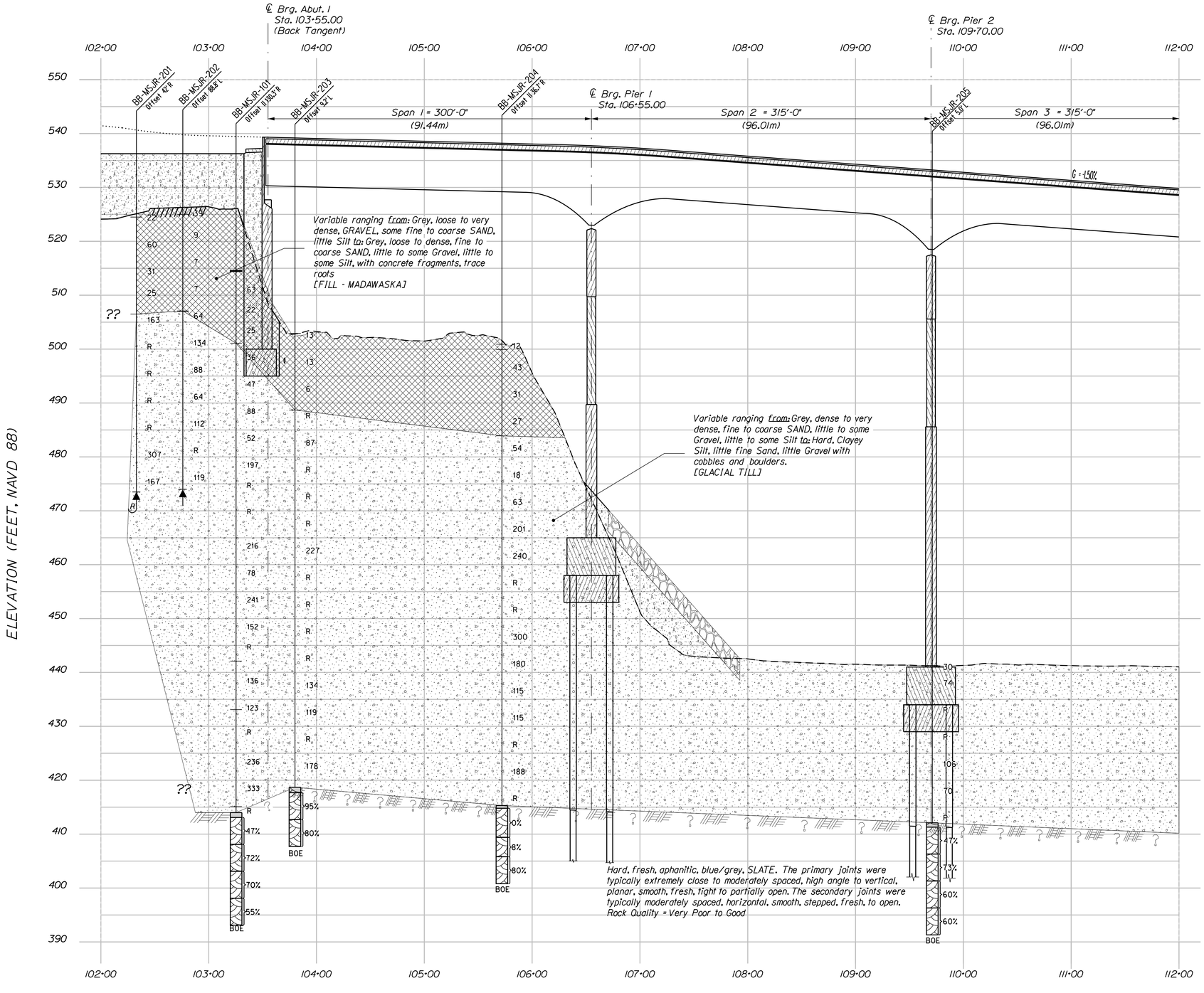
SHEET NUMBER

22

OF 160

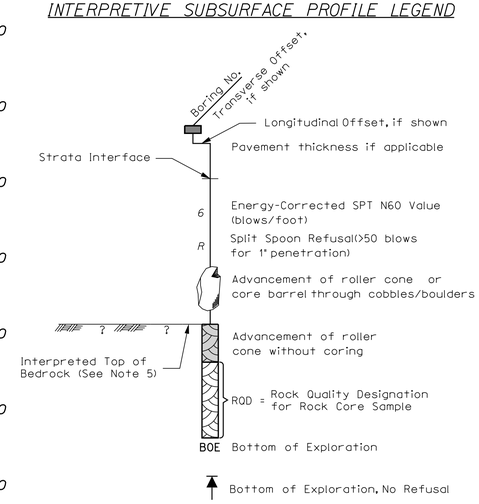
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Division: Bridge Username: common Date:11/12/2020



PROFILE

INTERPRETIVE SUBSURFACE PROFILE LEGEND



NOTES

1) Base map developed from electronic files provided by HNTB on September 10, 2020 (Files included Profiles.dgn).

2) BB-MSJR-100 series bridge borings were performed by New England Boring Contractors and observed by GZA personnel between August 28 and September 5, 2018.

3) BB-MSJR-200 and -300 series bridge borings were performed by New England Boring Contractors or Logan Drilling Group, and observed by GZA personnel between October 28, 2019 and March 3, 2020, and June 10 and June 11, 2020.

4) BB-MSJR-101, -102, -204, -208 through -213, -301, and -302 station and offsets are measured parallel to slope/river with respect to the bridge alignment.

5) 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 and bedrock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

Horiz. 50 0 50 100
Vert. 10 0 10 20
Scale in Feet

PREPARED BY: GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · CHRISTOPHER L. SHAW · No. 7275 · LICENSED PROFESSIONAL ENGINEER

	SIGNATURE	DATE
P.E. NUMBER	7275	5/20
DATE	October 30, 2020	

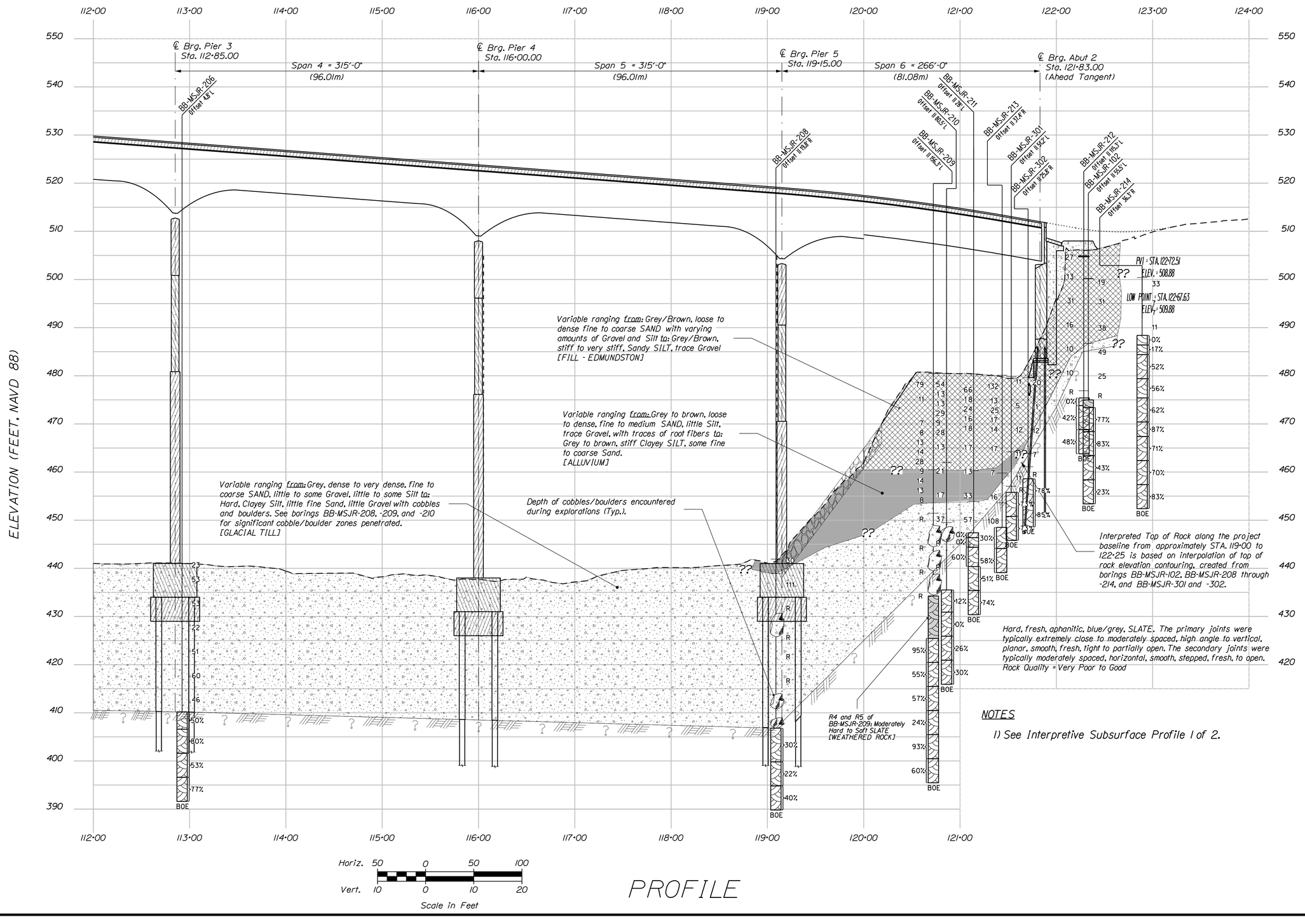
	BY	DATE
PROJ. MANAGER	A. Lahiel	7/20
DESIGN-DETAILED	N.V.W	5/20
CHECKED-REVIEWED	C.L.S	
DESIGN2-DETAILED2	A.R.B	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

INTEPRETIVE SUBSURFACE PROFILE 1 OF 2

SHEET NUMBER
23
OF 160

Division: Bridge Username: common Date:11/12/2020



PROFILE

NOTES

1) See Interpretive Subsurface Profile 1 of 2.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — CHRISTOPHER L. SHAW No. 7275 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE
7275

P.E. NUMBER
October 30, 2020

DATE

BY	DATE
A. Lothel	7/20
NVW	5/20
ARB	
CLS	

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

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

INTERPRETIVE SUBSURFACE PROFILE
2 OF 2

PREPARED BY:
GZA

SHEET NUMBER
24
OF 160

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-201
WIN: 021736.00

Driller:	New England Boring Contractors	Elevation (ft.):	524.5
Operator:	Brad Enos	Datum:	NAVD 88
Logged By:	N. Williams	Rig Type:	Mobile B-24 Track Rig
Date Start/Finish:	10/27/19 - 10/27/19	Drilling Method:	Drive & Wash
Boring Location:	N1285429.3, E2182758.7	Casing ID/OD:	4"/4.5"
Hammer Efficiency Factor:	0.895	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐
Auger ID/OD:	4.5"	Sampler:	Standard Split-spoon
Hammer Wt./Fall:	140#/30"	Core Barrel:	--
Water Level *:	16.8'		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
MDH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOH = Weight of Hammer
q_p = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)\ psf}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{cr} = Hammer Efficiency Factor-60/Chi-uncorrected
T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constitution Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Strength 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	24/12	0.0 - 2.0	5-8-7-10	15	22	SSA			Grey, dry, medium dense, fine to coarse SAND, some silt, some gravel, (F.Fill), with concrete pieces.	
5	2D	24/10	5.0 - 7.0	15-16-24-11	40	60				Grey, dry, very dense, fine to coarse SAND, some silt, some gravel, (F.Fill), with concrete pieces.	G*46; A-1-b, SM; WC=6.3
										Solid stem auger was advanced to 10.0' prior to sampling 3D. Drive & Wash techniques were used from 12.0'-24.0'. Washed ahead prior to casing advancement.	
10	3D	24/18	10.0 - 12.0	11-12-9-8	21	31				Grey, dry, dense, fine to coarse SAND, some silt, some gravel, (F.Fill). Bottom 2"= moist, fine to medium Sand.	
							RC				
15	4D	24/3	14.0 - 16.0	12-8-9-12	17	25				Grey, dry, medium dense, medium to coarse SAND, some gravel, little silt, (F.Fill).	
								506.5		-18.0	
20	5D	24/10	19.0 - 21.0	34-83-26-19	109	163				Intermittent increases in resistance observed during roller cone advancement throughout Glacial Till, indicates possible cobbles throughout stratum. Grey, wet, very dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	
25	6D	3/3	24.0 - 24.3	75/3"	-					Grey, wet, very dense, Sandy GRAVEL, little silt, (Glacial Till). Possible weathered boulder.	
30	7D	9/9	29.0 - 29.8	42-100/3"	-					Grey, wet, hard, SILT, little fine to coarse sand, trace gravel, (Glacial Till).	G*47; A-4, ML; WC=12.2
35	8D	7/7	34.0 - 34.6	69-100/1"	-					Grey, wet, hard, SILT, some fine to coarse sand, trace gravel, (Glacial Till).	
40	9D	12/12	39.0 - 40.0	72-150/6"	-					Grey, wet, very dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).	
45	10D	18/18	44.0 - 45.5	41-75-131	206	307				Grey, wet, very dense, fine to coarse SAND, some gravel, some Silt, (Glacial Till).	G*48; A-2-4, SM; WC=7.7
50	11D	24/24	49.0 - 51.0	46-71-41-188	112	167		473.5		Grey, wet, very dense, Silty fine to coarse SAND, trace gravel, (Glacial Till).	
										Bottom of Exploration at 51.0 feet below ground surface. -51.0	
55											
60											
65											
70											

Remarks:
1. Automatic hammer NEBC *.919 Energy Transfer Ratio = 0.895
2. Reported water level was measured 48 hours after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-201

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-202
WIN: 021736.00

Driller:	New England Boring Contractors	Elevation (ft.):	525.1
Operator:	Brad Enos	Datum:	NAVD 88
Logged By:	L. Navarrete	Rig Type:	Mobile B-53 Track Rig
Date Start/Finish:	10/27/19 - 10/27/19	Drilling Method:	Drive & Wash
Boring Location:	N1285531.2, E2182665.8	Casing ID/OD:	4"/4.5"
Hammer Efficiency Factor:	0.895	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐
Auger ID/OD:	4.5"	Sampler:	Standard Split-spoon
Hammer Wt./Fall:	140#/30"	Core Barrel:	--
Water Level *:	19.8'		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
MDH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOH = Weight of Hammer
q_p = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)\ psf}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{cr} = Hammer Efficiency Factor-60/Chi-uncorrected
T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constitution Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Strength 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	24/12	0.0 - 2.0	5-15-11-8	26	39	SSA			Brown, dry, dense, fine to coarse SAND, some silt, little gravel, trace roots, (F.Fill).	
5	2D	24/14	4.0 - 6.0	4-3-3-2	6	9				Brown, dry, loose, fine to coarse SAND, some gravel, some silt, (F.Fill).	G*49; A-1-b, SM; WC=8.3
										Solid stem auger advanced to 10.0' prior to sampling 3D. Drive & Wash techniques were used from 12.0'-24.0'. Washed ahead prior to casing advancement.	
10	3D	24/10	9.0 - 11.0	1-3-2-4	5	7				Brown, moist, loose, fine to coarse SAND, some gravel, some silt, (F.Fill).	G*50; A-1-b, SM; WC=11.2
15	4D	24/3	14.0 - 16.0	4-3-2-2	5	7				Grey/brown, wet, loose, GRAVEL, some silt, little fine to coarse sand, (F.Fill).	
							15				
							15				
							23	507.1		-18.0	
20	MD1 5D	0/0 24/14	19.0 - 19.0 19.0 - 21.5	75/0" 15-27-75-11	43	64	72 93			Increase in resistance during roller cone advancement at 18.0' indicates possible strata change. Black water encountered at 18.0'. No recovery. Advanced roller cone to 19.5' prior to sampling 5D. Grey, wet, very dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	
25	6D	24/15	24.0 - 26.0	50-42-48-38	90	134				Grey, wet, very dense, Silty fine to coarse SAND, trace gravel, (Glacial Till).	
30	7D	24/9	29.0 - 31.0	28-33-26-26	59	88				Grey, wet, very dense, Silty fine to coarse SAND, little gravel, (Glacial Till).	
35	8D	24/13	34.0 - 36.0	14-19-24-19	43	64				Grey, wet, hard, SILT, some fine to coarse sand, trace gravel, (Glacial Till).	G*51; A-4, ML; WC=8.8
40	9D	24/14	39.0 - 41.0	22-33-42-40	75	112				Grey, wet, hard, SILT, some fine to coarse sand, little gravel, (Glacial Till).	
45	10D	14/9	44.0 - 45.2	27-28-23/2"	-					Grey, wet, hard, SILT, some fine to coarse sand, trace gravel, (Glacial Till).	
50	11D	24/18	49.0 - 51.0	40-44-36-43	80	119		474.1		Grey, wet, very dense, Silty fine to coarse SAND, some silt, little gravel, (Glacial Till).	
										Bottom of Exploration at 51.0 feet below ground surface. -51.0	
55											
60											
65											
70											

Remarks:
1. Automatic hammer NEBC *.919 Energy Transfer Ratio = 0.895
2. Reported water level was measured 48 hours after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-202

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-203
WIN: 021736.00

Driller:	New England Boring Contractors	Elevation (ft.):	502.9
Operator:	Brad Enos	Datum:	NAVD 88
Logged By:	L. Navarrete	Rig Type:	Mobile B-53 Track Rig
Date Start/Finish:	10/31/19 - 11/06/19	Drilling Method:	Drive & Wash
Boring Location:	N1285583.7, E2182799.7	Casing ID/OD:	4"/4.5"
Hammer Efficiency Factor:	0.895	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐
Auger ID/OD:	4.5"	Sampler:	Standard Split-spoon
Hammer Wt./Fall:	140#/30"	Core Barrel:	NQ
Water Level *:	9.7'		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
MDH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOH = Weight of Hammer
q_p = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)\ psf}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{cr} = Hammer Efficiency Factor-60/Chi-uncorrected
T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constitution Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Strength 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	1-4-5-6	9	13	SSA			Brown, moist, medium dense, fine to coarse SAND, some gravel, little silt, (F.Fill).	G*52; A-1-b, SP-SM; WC=2.0
5	2D	24/9	5.0 - 7.0	7-6-3-4	9	13				Brown, moist, medium dense, fine to coarse SAND, some silt, trace gravel, (F.Fill).	
										Solid stem auger was advanced to 10.0' prior to sampling 3D. Drive & Wash techniques were used beyond 12.0'. Washed ahead prior to casing advancement.	
10	3D	24/12	10.0 - 12.0	2-3-1-1	4	6	RC			Brown, wet, loose, Gravely fine to coarse SAND, little silt, (F.Fill).	G*53; A-1-b, SM; WC=10.6
								488.7		-14.2	
15	4D	9/0	15.0 - 15.8	150-75/3"	-					Increased resistance during roller cone advancement indicates possible strata change at 14.2'. No recovery.	
20	5D	24/15	20.0 - 22.0	20-25-33-29	58	87				Grey, wet, hard, SILT, trace gravel, trace fine sand, (Glacial Till).	
25	6D	9/9	25.0 - 25.8	92-108/3"	-					Grey, wet, very stiff, SILT, little fine to coarse sand, little gravel, (Glacial Till).	
30	7D	5/3	30.0 - 30.4	100/5"	-					Grey, wet, very dense, fine to coarse SAND, little silt, trace gravel, (Glacial Till).	
										Increased resistance during roller cone advancement from 30.0'-30.5' indicates possible cobbles.	
35	8D	6/6	35.0 - 35.5	106/6"	-					Grey, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till).	G*54; A-2-4, GC-GM; WC=7.1
40	9D	20/16	40.0 - 41.7	44-94-58-19/2"	152	227				Top 10": Grey, wet, hard, Sandy SILT, little gravel, (Glacial Till). Bottom 10": Grey, wet, very dense, Silty fine SAND, trace medium to coarse sand, little gravel, (Glacial Till).	
45	10D	6/6	45.0 - 45.5	150/6"	-					Grey, wet, very dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	
50	11D	11/11	50.0 - 50.9	60-51/5"	-					Grey, wet, very dense, Silty fine to coarse SAND, little gravel, (Glacial Till).	
55	12D	8/8	55.0 - 55.7	72-48/2"	-					Grey, wet, very dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	
60	13D	14/14	60.0 - 61.2	90-47-43/2"	-					Grey, wet, hard, SILT, little fine to coarse sand, little gravel, (Glacial Till).	
65	14D	18/18	65.0 - 66.5	23-37-52	90	134				Grey, wet, very dense, fine to medium SAND, little silt, (Glacial Till).	
70	15D	24/20	70.0 - 72.0	28-39-41-73	80	119				Grey, wet, very dense, fine to medium SAND, little silt, (Glacial Till).	

Remarks:
1. Automatic hammer NEBC *.919 Energy Transfer Ratio = 0.895
2. Reported water level was measured 48 hours after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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 2

Boring No.: BB-MSJR-203

Maine Department of Transportation

Soil/Rock Exploration Log

US CUSTOMARY UNITS

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-203
WIN: 021736.00

Driller:	New England Boring Contractors	Elevation (ft.):	502.9
Operator:	Brad Enos	Datum:	NAVD 88
Logged By:	L. Navarrete	Rig Type:	Mobile B-53 Track Rig
Date Start/Finish:	10/31/19 - 11/06/19	Drilling Method:	Drive & Wash
Boring Location:	N1285583.7, E2182799.7	Casing ID/OD:	4"/4.5"
Hammer Efficiency Factor:	0.895	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐
Auger ID/OD:	4.5"	Sampler:	Standard Split-spoon
Hammer Wt./Fall:	140#/30"	Core Barrel:	NQ
Water Level *:	9.7'		

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
MDH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOH = Weight of Hammer
q_p = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)\ psf}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
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T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constitution Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Strength or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75	16D	8/6	75.0 - 75.7	85-50/2"	-					Grey, wet, very dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	
										Increase in resistance during roller cone advancement from 74.7'-80.1' indicates possible cobbles/boulders.	
80	17D	24/20	80.2 - 82.2	62-57-62-61	119	178				Grey, wet, very dense, fine to coarse SAND, little silt, trace gravel, (Glacial Till).	
								418.7		-84.2	
85	R1	60/60	85.2 - 90.2	RQD = 95%			NQ			Increase in resistance during roller cone advancement at 84.2'. Consistent dark grey rock fragments encountered at 84.2' indicates probable rock. Advanced roller cone from 84.2'-85.2'. Set up to core at 85.2'. R1: Medium hard, fresh, aphanitic, grey, SLATE. Joints are very close to moderately spaced, moderately dipping, planar, smooth, fresh, partially open to open, with silt infilling. ~SANGERVILLE FORMATION~ Rock Quality = Excellent Recovery = 100% Rock Core Times (min/sec): 85.2-86.2' (3:04), 86.2-87.2' (2:31), 87.2-88.2' (2:33), 88.2-89.2' (2:37), 89.2-90.2' (3:10).	
90	R2	60/60	90.2 - 95.2	RQD = 80%						R2: 90.2-90.9': Fractured into 2"-3" size gravel pieces. 90.9'-95.2': Medium hard, fresh, aphanitic, grey, SLATE. Joints are moderately spaced, moderately dipping, planar, smooth, fresh, open. ~SANGERVILLE FORMATION~ Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 90.2-91.2' (5:06), 91.2-92.2' (5:06), 92.2-93.2' (4:00), 93.2-94.2' (4:17), 94.2-95.2' (4:19).	
95								407.7		-95.2	
										Bottom of Exploration at 95.2 feet below ground surface.	
100											
105											
110											
115											
120											
125											
130											
135											
140											
145											
150											
155											
160											

Remarks:
1. Automatic hammer NEBC *.919 Energy Transfer Ratio = 0.895
2. Reported water level was measured 48 hours after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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 2 of 2

Boring No.: BB-MSJR-203

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 21736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

CHRISTOPHER L. SNOW — No. 7295 — STATE OF MAINE — LICENSED PROFESSIONAL ENGINEER

Chris Snow

P.E. NUMBER

October 30, 2020

DATE

PROJ. MANAGER	A. Lathe
DESIGN-DETAILED	N. Williams
CHECKED-REVIEWED	A. Blaisdell
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

BY	DATE
--	8/2020
C. Snow	8/2020

SIGNATURE

72/5

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BORING LOGS 1

PREPARED BY:

GZA

SHEET NUMBER

25

OF 160

Division: Bridge
Filename: ...\Boring logs sheets.dgn

Date:11/12/2020
Username: BMC

Maine Department of Transportation — Soil/Rock Exploration Log (US CUSTOMARY UNITS)

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-101
WIN: 0217136.00

Driller: New England Boring Contractors	Elevation (ft.): 515 (est.)	Auger ID/OD:	4.5" SSA
Operator: Mike Porter	Datum: NAVD 88	Sampler:	Standard Splitspoon
Logged By: N. Williams	Rig Type: Mobile B-24 Truck Rig	Hammer Wt./Fall:	140lb/30"
Date Start/Finish: 08-28-18/08-31-18	Drilling Method: Drive & Wash	Core Barrel:	NQ
Boring Location: N1285505.0, E2182895.2	Casing ID/OD: 4"/4.5"	Water Level *:	25.0'
Hammer Efficiency Factor: 0.937	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field 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/C = Weight of Rods or Casing
WOP = Weight of the Person
s_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$s_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
Nc = Hammer Efficiency Factor/60%(N-uncorrected)
s_u = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constitution Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Soil Strength or RQD (%)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	11-21-19-15	40	62	SSA			Grey, dry, very dense, GRAVEL, some fine to coarse sand, little silt, one 3/4" piece of Gravel, (Fill).	G#1 A-1-b, GM WC=4.2
	2D	24/12	4.5 - 6.5	5-6-8-7	14	22				Grey, dry, medium dense, fine to coarse SAND, some silt, some gravel, (Fill). intermittent increases in resistance during roller cone advancement from 6.5'-10.0', indicating possible cobbles.	G#2 A-2-4, SM WC=11.7
5						51					
						40					
						56					
						103					
						66					
10	3D	24/12	10.0 - 12.0	9-8-8-10	16	25				Grey, moist, medium dense, medium to coarse SAND, some silt, little gravel, (Fill).	
						41					
						46					
						55					
						48		501.5		—13.5—	
15						68					
	4D	24/8	15.0 - 17.0	15-13-10-12	23	36				Grey, moist, dense, fine to coarse SAND, some gravel, little silt, (Glacial Till).	G#3 A-1-a, SM
						27					
						58					
						48					
						54					
20						63					
	5D	24/9	20.0 - 22.0	12-15-15-17	30	47				Grey, wet, hard, Clayey SILT, little fine sand, little gravel, (Glacial Till).	A-4, ML-CL LL=20 PL=14 PI=6
						36					
						59					
						85					
						116					
25						127					
	6D	24/8	25.0 - 27.0	35-29-27-33	56	87				Grey, wet, very dense, Silty fine to coarse SAND, some gravel, (Glacial Till).	G#5 A-4, SM
						76					
						106					
						120					
						122					
30						96					
	7D	24/12	30.0 - 32.0	25-16-17-25	33	52	RC			Grey, wet, hard, Clayey SILT, little gravel, little fine sand, (Glacial Till).	
35											
	8D	24/16	35.0 - 37.0	40-45-81-77	126	197				Grey to tan, wet, very dense, fine to coarse SAND, some silt, little gravel (Glacial Till).	
40											
	9D	14/14	40.0 - 41.2	48-104-75/2"	-					Grey and tan, wet, very dense, Silty fine to coarse SAND, little gravel, (Glacial Till). increase in resistance during roller c one advancement from 42.2'-42.7', with black rock chips in wash return indicating possible cobbles/boulders.	
45											
	10D	13/12	45.0 - 46.1	78-113-50/1"	-					Grey and tan, wet, very dense, Silty fine to medium SAND, some gravel, clay seams, (Glacial Till).	
50											
	11D	21/12	50.0 - 51.8	45-58-80-90/3"	138	216				Grey and tan, wet, very dense, fine to coarse SAND, some silt, some gravel. Sand seam in bottom of spoon sample, (Glacial Till).	G#6 A-2-4, SC-SM
55											
	12D	24/16	55.0 - 57.0	24-26-24-40	50	78				Grey and tan, wet, very dense, Gravelly fine to coarse SAND, little silt, (Glacial Till).	G#7 A-1-b, SM
60											
	13D	23/13	60.0 - 61.9	59-83-71-150/5"	154	240				Grey and tan, wet, very dense, Silty fine to coarse SAND, some gravel, (Glacial Till).	
65											
	14D	24/18	65.0 - 67.0	51-41-56-65	97	151				Grey and tan, wet, very dense, Silty fine to coarse SAND, some gravel, (Glacial Till).	
70											
	15D	15/15	70.0 - 71.3	84-84-100/3"	-					Grey, wet, very dense, Silty fine to coarse SAND, some gravel, (Glacial Till). From 72.5'-76.8', fine sand in wash water return with gravel lenses observed during roller cone advancement.	
75											

Remarks:
1. Automatic Hammer NEBC *B-24 ETR = 0.937, calibrated on 7/3/18.
2. Reported water level was measured immediately after casing was removed.
3. P_LD refers to point load diametrical and P_LA refers to point load axial test, q_p is estimated from the point load strength.
4. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Page 1 of 2
Boring No.: BB-MSJR-101

Maine Department of Transportation — Soil/Rock Exploration Log (US CUSTOMARY UNITS)

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-101
WIN: 0217136.00

Driller: New England Boring Contractors	Elevation (ft.): 515 (est.)	Auger ID/OD:	4.5" SSA
Operator: Mike Porter	Datum: NAVD 88	Sampler:	Standard Splitspoon
Logged By: N. Williams	Rig Type: Mobile B-24 Truck Rig	Hammer Wt./Fall:	140lb/30"
Date Start/Finish: 08-28-18/08-31-18	Drilling Method: Drive & Wash	Core Barrel:	NQ
Boring Location: N1285505.0, E2182895.2	Casing ID/OD: 4"/4.5"	Water Level *:	25.0'
Hammer Efficiency Factor: 0.937	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
s_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$s_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
Nc = Hammer Efficiency Factor/60%(N-uncorrected)
s_u = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constitution Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Soil Strength or RQD (%)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75	16D	24/24	75.0 - 77.0	16-38-49-88	87	136				Olive, wet, very dense, Silty fine to medium SAND, trace gravel, silt lenses, organic odor, (Glacial Till).	G#8 A-4, SM
80	17D	24/20	80.0 - 82.0	30-31-48-30	79	123				Olive, wet, very dense, fine to medium SAND, little silt, organic odor, (Glacial Till).	
85	18D	13/8	85.0 - 86.1	45-129-50/1"	-					Grey and tan, wet, very dense, fine to coarse SAND, some silt, some gravel, (Glacial Till). increased resistance during roller cone advancement from 86.1'-86.4', indicating possible cobbles/boulders.	
90	19D	24/19	90.0 - 92.0	67-65-86-131	151	236				Grey and tan, wet, very dense, fine to coarse SAND, some gravel, little silt, (Glacial Till).	G#9 A-1-b, SM
95	20D	24/12	95.0 - 97.0	69-75-138-130	213	333				Grey and tan, wet, very dense, fine to coarse SAND, some silt, some gravel, (Glacial Till).	
100	21D	7/6	100.0 - 100.6	100-75/1"	-		RC	414.4		Olive, wet, very dense, fine to medium SAND, some silt, trace gravel, vertically fractured gravel in tip of spoon, (Glacial Till).	q_p=284 ksf
	R1	60/60	101.5 - 106.5	RQD = 47%			NQ	100.6		Split spoon refusal with vertically fractured rock in tip of spoon indicates probable bedrock encountered at 100.6'. Advanced roller cone from 100.6' to 101.5'. Practical auger refusal at 101.5'. Set up to core. R1: Hard, fresh, aphanitic, blue/grey, SLATE. Primary joints are extremely close to moderately spaced, high angle to vertical, planar, rough, fresh, tight to partially open. Secondary are moderately spaced, horizontal, smooth, stepped, fresh, open. -SANGERVILLE FORMATION- Rock Quality = Poor Recovery= 100% Rock Core Times (min/sec): 101.5-102.5' (6:47), 102.5-103.5' (2:22), 103.5-104.5' (4:05), 104.5-105.5' (2:42), 105.5-106.5' (2:42) R2: Hard, fresh, aphanitic, blue/grey, SLATE. Primary joints are close to moderately spaced, horizontal, planar/stepped, smooth, fresh, partially open to open. Secondary joints are high angle, undulating, rough, fresh, tight. -SANGERVILLE FORMATION- Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 105.5-106.5' (12:42), 106.5-107.5' (14:16), 107.5-108.5' (2:16), 108.5-109.5' (15:41), 109.5-110.5' (2:01), 110.5-111.5' (2:08) R3: Hard, fresh, aphanitic, blue/grey, SLATE. Primary joints are extremely close to moderately spaced, high angle to vertical, planar, rough, fresh, tight to partially open. Secondary are moderately spaced, horizontal, smooth, stepped, fresh, open. -SANGERVILLE FORMATION- Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 111.5-112.5' (2:54), 112.5-113.5' (2:30), 113.5-114.5' (2:12), 113.5-114.5' (11:39) R4: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are close to moderately spaced, high angle to vertical, planar to undulating, rough, fresh, tight. -SANGERVILLE FORMATION- Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 116.5-117.5' (2:35), 117.5-118.5' (2:09), 118.5-119.5' (11:40), 119.5-120.5' (11:42), 120.5-121.5' (1:39)	q_p=376 ksf
105											
110	R2	60/60	106.5 - 111.5	RQD = 72%							
115	R3	60/60	111.5 - 116.5	RQD = 70%							P_LD, q_p=1241 ksf P_LA, q_p=1217 ksf
120	R4	60/60	116.5 - 121.5	RQD = 55%				393.5			q_p=412 ksf
125										Bottom of Exploration at 121.5 feet below ground surface.	

Remarks:
1. Automatic Hammer NEBC *B-24 ETR = 0.937, calibrated on 7/3/18.
2. Reported water level was measured immediately after casing was removed.
3. P_LD refers to point load diametrical and P_LA refers to point load axial test, q_p is estimated from the point load strength.
4. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Page 2 of 2
Boring No.: BB-MSJR-101

Maine Department of Transportation — Soil/Rock Exploration Log (US CUSTOMARY UNITS)

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-204
WIN: 0217136.00

Driller: New England Boring Contractors	Elevation (ft.): 500.9	Auger ID/OD:	4.5"
Operator: Brad Enos	Datum: NAVD 88	Sampler:	Standard Splitspoon
Logged By: L. Navarrete	Rig Type: Mobile B-53 Track Rig	Hammer Wt./Fall:	140#/30"
Date Start/Finish: 11/05/19-11/06/19	Drilling Method: Drive & Wash	Core Barrel:	NQ
Boring Location: N1285707.8, E2182979.1	Casing ID/OD: 4"/4.5"	Water Level *:	20.8'
Hammer Efficiency Factor: 0.895	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
s_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$s_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
Nc = Hammer Efficiency Factor/60%(N-uncorrected)
s_u = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constitution Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Soil Strength or RQD (%)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	3-4-4-5	8	12		500.0		0-1": Ballast 1"-10": Black, moist, medium stiff, SILT, some fine to medium sand, little roots, little wood fragments, (Topsoil). ---0.9--- 10"-17": Brown, dry, medium dense, fine to coarse SAND, little silt, trace gravel (Fill). 1D sampled with 3" splitspoon.	
						14					
						26					
	2D	24/13	4.0 - 6.0	12-14-15-16	29	43				Brown, wet, dense, fine to coarse SAND, little silt, trace gravel, (Fill). 2D sampled with 3" splitspoon.	
5						25					
						5					
						63					
						41					
	3D	24/14	9.0 - 11.0	7-8-13-11	21	31				Brown, wet, dense, fine to coarse SAND, little silt, little gravel, (Fill).	
						44					
						34					
						54					
10						58					
						65					
	4D	24/14	14.0 - 16.0	12-12-6-10	18	27				Top 4": Brown, wet, medium dense, fine to coarse SAND, little silt, little gravel, (Fill). Bottom 10": Brown, wet, medium dense, fine SAND, little silt, trace medium to coarse sand, (Fill).	
						50					
						35					
						24		483.9		Increase in resistance during roller cone advancement indicates probable stratum change at 17.0'. ---17.0---	
						61					
15						78					
	5D	24/14	19.0 - 21.0	13-14-22-17	36	54				Brown, wet, dense, Silty fine to coarse SAND, little gravel, (Glacial Till).	
						101					
						79					
						83					
						143					
20						166					
	6D	24/14	24.0 - 26.0	7-6-6-8	12	18				Grey, wet, very stiff, SILT, little fine to coarse sand, trace gravel, (Glacial Till).	
						42					
						39					
						56					
						44					
25						57					
	7D	24/2	29.0 - 31.0	18-17-25-66	42	63				Grey, wet, hard, SILT, some gravel, little sand, (Glacial Till).	G#55 A-4, ML WC=4.9
						83					
						90					
						130					
						85					
30						92					
	8D	18/16	34.0 - 35.5	57-58-77	135	201				Grey, wet, very dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	
						72					
						67					
						114					
						94					
35						108					
	9D	18/18	39.0 - 40.5	46-61-100	161	240				Grey, wet, hard, Sandy SILT, little gravel, (Glacial Till).	G#56 A-4, ML WC=10.6
						56					
						116					
						120					
						131					
40						475					
	10D	6/6	44.0 - 44.5	99/6"	-		RC			Grey, wet, very dense, fine to coarse SAND, some silt, trace gravel, (Glacial Till). Advanced roller cone prior to casing advancement from 44.5'-85.7'.	
45											
	11D	12/12	49.0 - 50.0	59-117/6"	-					Grey, wet, very dense, fine to coarse SAND, some silt, little gravel, (Glacial Till).	
50											
	12D	18/14	54.0 - 55.5	37-62-139	201	300				Grey, wet, very dense, fine to coarse SAND, some silt, trace gravel, (Glacial Till).	
55											
	13D	19/14	59.0 - 60.6	38-59-62-15/1"	121	180				Grey, wet, very dense, fine to coarse SAND, some silt, trace gravel, (Glacial Till).	
60											
	14D	24/20	64.0 - 66.0	35-34-43-48	77	115				Grey, wet, hard, Sandy SILT, trace gravel, (Glacial Till).	G#57 A-4, ML WC=14.4
65											
	15D	24/24	69.0 - 71.0	25-35-42-54	77	115				Grey, wet, very dense, fine SAND, little silt, (Glacial Till).	
70											
	16D	12/12	74.0 - 75.0	37-104/6"	-					Grey, wet, very dense, fine SAND, some silt, trace gravel, (Glacial Till).	
75											

Remarks:
1. Automatic hammer NEBC *.919 Energy Transfer Ratio = 0.895
2. Reported water level was measured 24 hours after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Page 1 of 2
Boring No.: BB-MSJR-204

Maine Department of Transportation — Soil/Rock Exploration Log (US CUSTOMARY UNITS)

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-204
WIN: 0217136.00

Driller: New England Boring Contractors	Elevation (ft.): 500.9	Auger ID/OD:	4.5"
Operator: Brad Enos	Datum: NAVD 88	Sampler:	Standard Splitspoon
Logged By: L. Navarrete	Rig Type: Mobile B-53 Track Rig	Hammer Wt./Fall:	140#/30"
Date Start/Finish: 11/05/19-11/06/19	Drilling Method: Drive & Wash	Core Barrel:	NQ
Boring Location: N1285707.8, E2182979.1	Casing ID/OD: 4"/4.5"	Water Level *:	20.8'
Hammer Efficiency Factor: 0.895	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
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RC = Roller Cone
WOH = Weight of 140 lb. Hammer
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WOP = Weight of the Person
s_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$s_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
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N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
Nc = Hammer Efficiency Factor/60%(N-uncorrected)
s_u = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constitution Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Soil Strength or RQD (%)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75											
80	17D	18/3	79.0 - 80.5	54-68-58	126	188				Brown, wet, very dense, fine to coarse SAND, little gravel, trace silt, (Glacial Till).	
85	18D	9/4	84.0 - 84.8	60-78/3"	-			415.2		Grey, wet, very dense, fine to coarse SAND, little silt, trace gravel, (Glacial Till).	
90	R1	64/64	86.1 - 91.4	RQD = 0%			NQ			—85.7— increase in roller cone resistance and dark grey rock fragments observed in wash return at 85.7', indicates rock. Advanced roller cone to 86.1' set up to core. R1: Hard, fresh, aphanitic, blue/grey, SLATE. Primary joints are extremely close to closely spaced, high angle, planar, smooth, fresh, open. Highly fractured from 86.1'-87.6'. -SANGERVILLE FORMATION- Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 86.1-87.1' (2:39), 87.1-88.1' (3:11), 88.1-89.1' (2:48), 89.1-90.1' (2:55), 90.1-91.1' (3:06), 91.1-91.4' (1:24)	
95	R2	44/44	91.4 - 95.1	RQD = 82%						R2: Medium hard, fresh to slightly weathered, aphanitic, grey, SLATE. Primary joints are very close to closely spaced, high angle, planar, smooth, fresh to discolored, partially open, with silt infilling. Secondary joints are moderately spaced, low angle, planar, smooth, fresh, open. -SANGERVILLE FORMATION- Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 91.4-92.4' (3:14), 92.4-93.4' (3:05), 93.4-94.4' (3:04), 94.4-95.1' (2:52) R3: Medium hard, fresh, aphanitic, grey, SLATE. Joints are close to moderately spaced, high angle to moderately dipping, planar, smooth, fresh, partially open to open. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 95.1-96.1' (2:45), 96.1-97.1' (3:15), 97.1-98.1' (2:06), 98.1-99.1' (2:23), 99.1-100.1' (2:36)	q_p=627 ksf
100	R3	60/60	95.1 - 100.1	RQD = 80%				400.8			
105											
110											
115											
120											
125										Bottom of Exploration at 100.1 feet below ground surface.	

Remarks:
1. Automatic hammer NEBC *.919 Energy Transfer Ratio = 0.895
2. Reported water level was measured 24 hours after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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 2 of 2
Boring No.: BB-MSJR-204

Division: Bridge
Filename: ...\Boring logs sheets.dgn
Date:11/12/2020
Username: BMC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600
WIN 21736.00
MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

CHRISTOPHER L. SNOW — No. 7275 — STATE OF MAINE — REGISTERED PROFESSIONAL ENGINEER

P.E. NUMBER
October 30, 2020
DATE

PROJ. MANAGER	A. Lothe	BY	DATE
DESIGN-DETAILED	N. Williams	--	8/2020
CHECKED-REVIEWED	A. Blaisdell	C. Snow	8/2020
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BORING LOGS 2

SHEET NUMBER
26
OF 160

PREPARED BY:
GZA

Maine Department of Transportation

Soil/Rock Exploration Log

VS CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-205

WIN: 021736.00

Driller: New England Boring Contractors	Elevation (ft.): 441.3	Auger ID/OD:	
Operator: Brad Enos	Datum: NAVD 88	Sampler: Standard Split-spoon	
Logged By: N. Williams	Rig Type: Elevated Platform - CME	Hammer Wt./Fall: 140#/30"	
Date Start/Finish: 10/29/19-10/30/19	Drilling Method: Drive & Wash	Core Barrel: NX	
Boring Location: N1285977.8, E2183232.4	Casing ID/OD: 4"/4.5"	Water Level *:	River
Hammer Efficiency Factor: 0.6	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 = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
MOH = Weight of 140lb. Hammer
MORC = Weight of Rods or Casing
MOP = Weight of the Person
$S_{u(r)}$ = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)\ corr}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor/60*(N-uncorrected)
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constention Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Strength or RQD (/)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0								441.0		Top 4": River Rock	
	1D	24/10	0.0 - 2.0	9-15-15-21	30	30		440.7		0.3' Grey/blue, wet, dense, Silty fine to coarse SAND, little gravel, (Glacial Till).	G*21 A-4, SM
							43				
							67				
							RC				
	2D	24/16	3.0 - 5.0	24-31-43-46	74	74				Grey/blue, wet, very dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).	G*22 A-2-4, SM
5											
	3D	12/8	8.0 - 9.0	67-127/6"	-					Grey/blue, wet, very dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).	
10											
	4D	13/7	13.0 - 14.1	66-145-60/1"	-					Grey/blue, wet, very dense, Silty fine to coarse SAND, trace gravel, (Glacial Till).	
15											
	5D	24/14	18.0 - 20.0	30-35-71-110	106	106				Grey/blue, wet, very dense, Silty fine to coarse SAND, some gravel, (Glacial Till). Less resistance at 21.5' during roller cone advancement. Sand observed in wash return indicates possible sand seam.	
20											
	6D	24/16	23.0 - 25.0	14-27-43-38	70	70				Grey, wet, very dense, fine to coarse SAND, some silt, some gravel, (Glacial Till). Less bonded structure than previous samples.	
	7D	14/10	28.0 - 29.2	13-64-85/2"	-						
							ND	412.1		29.2' Increase in resistance during roller c one advancement at 29.2', indicates rock. Advance roller cone to 30.0'. Advance 4" casing to 30.0'. Set up to core. R1: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are extremely close from 30.0'-31.0' and closely spaced from 31.0'-35.0', high angle, planar, smooth, fresh, light, 30.0'-31.0' highly fractured resulting in gravel pieces. -SANGERVILLE FORMATION- Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 30.0-31.0' (6:12), 31.0-32.0' (3:00), 32.0-33.0' (2:42), 33.0-34.0' (2:42), 34.0-35.0' (2:24) R2: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are very close to extremely close from 35.0-36.3' and close to moderately spaced from 36.3'-40.0', high angle, planar, smooth, fresh, light. One decarbonized joint at 36.3'. Probable drill breaks from 39.7'-40.0'. -SANGERVILLE FORMATION- Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 35.0-36.0' (2:18), 36.0-37.0' (2:40), 37.0-38.0' (3:24), 38.0-39.0' (1:23), 39.0-40.0' (2:24) R3: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are very close from 40.0'- 41.0' and close to moderately spaced from 41.0'-45.0', high angle, planar, smooth, fresh to discolored, light to partially open. One drill break at 43.7'. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 40.0-41.0' (3:18), 41.0-42.0' (2:15), 42.0-43.0' (3:05), 43.0-44.0' (2:07), 44.0-45.0' (2:57) R4: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are closely spaced, high angle, planar, smooth, fresh, tight to partially open. -SANGERVILLE FORMATION- Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 45.0-46.0' (3:50), 46.0-47.0' (2:22), 47.0-48.0' (1:50), 48.0-49.0' (1:45), 49.0-50.0' (3:25)	PLD, q_d=1047 ksf PLA, q_d=891 ksf
30	R1	60/60	30.0 - 35.0	RQD = 47%							
35	R2	60/60	35.0 - 40.0	RQD = 73%							q_d=701 ksf
40	R3	60/60	40.0 - 45.0	RQD = 60%							
45	R4	60/60	45.0 - 50.0	RQD = 60%							q_d=815 ksf
50								391.3		50.0' Bottom of Exploration at 50.0 feet below ground surface.	
55											
60											
65											
70											

Remarks:

1. Mudline measured 7.2' below the top of deck. Deck surveyed at 448.5' by MEDOT survey crew.
2. Advanced roller cone prior to casing advancement.
3. PLD refers to point load diametrical and PLA refers to point load axial test; q_d is estimated from the point load strength.
4. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-205

Maine Department of Transportation

Soil/Rock Exploration Log

VS CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-206

WIN: 021736.00

Driller: New England Boring Contractors	Elevation (ft.): 441.0	Auger ID/OD:	
Operator: Brad Enos	Datum: NAVD 88	Sampler: Standard Split-spoon	
Logged By: N. Williams	Rig Type: Elevated Platform - CME	Hammer Wt./Fall: 140#/30"	
Date Start/Finish: 10/30/19-10/31/19	Drilling Method: Driver/Spin & Wash	Core Barrel: NQ	
Boring Location: N1286610.3, E2183944.3	Casing ID/OD: 3/3.5", 4/4.5"	Water Level *:	River
Hammer Efficiency Factor: 0.6	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 = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
MOH = Weight of 140lb. Hammer
MORC = Weight of Rods or Casing
MOP = Weight of the Person
$S_{u(r)}$ = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)\ corr}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor/60*(N-uncorrected)
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constention Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Strength or RQD (/)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0								440.7		Top 4": River Gravel	
	1D	24/12	0.0 - 2.0	6-12-11-17	23	23		440.4		0.3' Bottom 8": Grey, wet, very stiff, SILT, trace sand, (Glacial Till).	G*23 A-4, ML
							43				
							67				
							RC				
	2D	24/16	3.0 - 5.0	17-25-28-32	53	53				Grey, wet, hard, SILT, little sand, trace gravel, (Glacial Till).	G*24 A-4, ML
5											
	3D	24/12	8.0 - 10.0	21-26-27-29	53	53				Top 6": Grey, wet, hard, SILT, little gravel, little fine sand, (Glacial Till). Bottom 6": Grey/brown, wet, hard, SILT, some fine to medium sand, trace gravel, (Glacial Till).	
10											
	4D	24/16	13.0 - 15.0	6-8-14-20	22	22				Grey, wet, medium dense, fine to medium SAND, little silt, piece of wood in bottom of sample, (Glacial Till).	
15											
	5D	24/10	18.0 - 20.0	24-22-29-29	51	51				Grey, wet, very dense, Silty fine to coarse SAND, little gravel, (Glacial Till).	
20											
	6D	24/16	23.0 - 25.0	21-28-32-38	60	60				Grey, wet, very dense, fine to coarse SAND, little gravel, little silt, (Glacial Till).	
	7D	24/17	28.0 - 30.0	26-17-29-34	46	46					
							ND	410.3		30.7' Roller cone refusal at 30.7'. Advance 3" casing and roller cone to 30.8' and set up to core. R1: Hard, slightly weathered, aphanitic, blue/grey, SLATE. Joints are extremely close to closely spaced, high angle, planar, rough, fresh to discolored, partially open to open. One vertical joint observed throughout core. -SANGERVILLE FORMATION- Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 30.8-31.8' (1:47), 31.8-32.8' (1:25), 32.8-33.8' (2:13), 33.8-34.5' (1:49) R2: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are close to moderately spaced, high angle, planar, smooth to rough, fresh, tight. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 34.5-35.5' (1:23), 35.5-36.5' (2:07), 36.5-37.5' (1:25), 37.5-38.5' (1:16), 38.5-39.4' (2:07) R3: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are very close to moderately spaced, high angle, planar, smooth, fresh, tight to partially open. -SANGERVILLE FORMATION- Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 39.4-40.4' (1:23), 40.4-41.4' (2:07), 41.4-42.4' (1:58), 42.4-43.4' (1:44), 43.4-44.4' (1:23) R4: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are close to moderately spaced, high angle, planar, smooth, fresh, tight to partially open. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 44.4-45.4' (1:40), 45.4-46.4' (2:00), 46.4-47.4' (1:22), 47.4-48.4' (2:12), 48.4-49.4' (1:45)	
30	R1	44/44	30.8 - 34.5	RQD = 50%							
35	R2	59/59	34.5 - 39.4	RQD = 80%							q_d=1536 ksf
40	R3	60/60	39.4 - 44.4	RQD = 53%							
45	R4	60/60	44.4 - 49.4	RQD = 77%							q_d=806 ksf
50								391.6		49.4' Bottom of Exploration at 49.4 feet below ground surface.	
55											
60											
65											
70											

Remarks:

1. Mudline measured 7.3' below top of deck. Deck surveyed at 448.3'.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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.

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Boring No.: BB-MSJR-206

Maine Department of Transportation

Soil/Rock Exploration Log

VS CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-208

WIN: 021736.00

Driller: New England Boring Contractors	Elevation (ft.): 441.9	Auger ID/OD:	
Operator: Brad Enos	Datum: NAVD 88	Sampler: Standard Split-spoon	
Logged By: N. Williams	Rig Type: Elevated Platform - CME	Hammer Wt./Fall: 140#/30"	
Date Start/Finish: 10/31/19-11/01/19	Drilling Method: Drive/Spin & Wash	Core Barrel: NQ	
Boring Location: N1286610.3, E2183944.3	Casing ID/OD: 3/3.5", 4/4.5"	Water Level *:	River
Hammer Efficiency Factor: 0.6	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 = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
MOH = Weight of 140lb. Hammer
MORC = Weight of Rods or Casing
MOP = Weight of the Person
$S_{u(r)}$ = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(r)\ corr}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor/60*(N-uncorrected)
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Constention Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (#/6 in.) Strength or RQD (/)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0								441.9		Grey, wet, dense, Sandy GRAVEL, little silt, (Alluvial Deposit). Gravel in sample from top 2".	G*25 A-1-b, GM
	1D	24/6	0.0 - 2.0	8-9-21-11	30	30					
								438.9		3.0'	
							40				
	2D	24/11	5.0 - 7.0	34-51-60-72	111	111	58			Grey, wet, hard, SILT, some fine to coarse sand, trace gravel, (Glacial Till). 7.5'-8.0': Increased resistance during roller cone advancement. Intermittent increases in resistance during roller cone advancement from 8.0'-10.0'.	G*26 A-4, ML
							RC				
10											
	3D	5/4	10.0 - 10.4	97/4"	-					Grey, wet, hard, SILT, some fine to coarse sand, trace gravel, (Glacial Till). Piece of quartz gravel in spoon tip.	
	R1	36/21	11.4 - 14.4				ND	430.5		Increased resistance during roller cone advancement at 11.3'. 3" casing spun to 11.4'. Roller cone refusal at 11.4', set up to core. 11.4' R1: Grey, cobbles/boulders, 2"-8" long pieces recovered.	
15	R2	12/12	14.5 - 15.5							R2: Grey, cobbles/boulders, 1"-3" long pieces recovered. Advanced 3" casing and washed ahead to 16.1'.	
	4D	4/4	16.1 - 16.4	90/4"	-		RC	425.8		16.1' Grey, wet, hard, Clayey SILT, trace fine sand, trace gravel, (Glacial Till). Very high resistance during roller cone advancement from 17.3'-17.5'.	
20	5D	7/7	20.0 - 20.6	52-67/2"	-					Grey, wet, hard, Clayey SILT, some fine sand, trace gravel, (Glacial Till).	
										28.1'	
25	6D	15/12	25.0 - 26.3	38-64-99/3"	-					Grey, wet, very dense, Silty fine to coarse SAND, little gravel, (Glacial Till).	
	R3	46/13	28.2 - 32.0				ND	413.8		Roller cone refusal at 28.1'. Advance 3" casing and roller cone to 28.2'. Set up to core. R3: Grey, cobbles/boulder, 1"-6" long pieces recovered. Broke through at 31.1' with core barrel.	
							RC	410.8		31.1' Attempted to use spoon to retrieve previously cored material at 31.0', no material recovered.	
30	R4	84/50	33.1 - 40.1	RQD = 30%			ND	408.8		33.1' Roller cone refusal at 33.1'. Advance 3" casing and roller cone to 33.1'. Set up to core. R4: Began rock core at 33.1', lost resistance at 33.5'. Increased resistance at 35.1' suggests rock. Possible cobbles/boulders or highly weathered rock at 33.1'-35.1'.	q_d=773 ksf
35								406.8		35.1' R4 (Beginning of rock core): Hard, slightly to moderately weathered, aphanitic, grey, SLATE. Highly fractured from 35.1'-36.3, and from 38.4'-38.6', resulting in gravel pieces. Joints are extremely close to closely spaced, high angle, planar, smooth, fresh to discolored, tight to open, one high angle, undulating, open joint at 39.4' recovered from 39.4'-40.1'. -SANGERVILLE FORMATION- Rock Quality = Poor Recovery = 60% Rock Core Times (min/sec): 35.1-36.1' (2:23), 36.1-37.1' (2:27), 37.1-38.1' (2:26), 38.1-39.1' (1:22), 39.1-40.1' (2:23) R5: Hard, slightly weathered, aphanitic, grey, SLATE. Highly fractured from 42.5'-43.1' resulting in fine gravel pieces. Joints are extremely close to closely spaced, high angle, planar, smooth to rough, fresh to discolored, partially open to open. -SANGERVILLE FORMATION- Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 40.1-41.1' (1:30), 41.1-42.1' (1:20), 42.2-43.1' (1:16), 43.1-44.1' (1:24), 44.1-45.1' (2:48) R6: Hard, slightly weathered to fresh, aphanitic, grey, SLATE, highly fractured from 46.1'-47.0' resulting in gravel pieces. Joints are extremely close to closely spaced, high angle, planar, smooth, fresh to discolored, partially open. One high angle, undulating, open joint at 46.7'. -SANGERVILLE FORMATION- Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 45.1-46.1' (1:15), 46.1-47.1' (2:07), 47.1-48.1' (1:25), 48.1-49.1' (1:34), 49.1-50.1' (2:30)	
40	R5	60/60	40.1 - 45.1	RQD = 22%							
45	R6	60/60	45.1 - 50.1	RQD = 40%							q_d=723 ksf
50								391.8		50.1' Bottom of Exploration at 50.1 feet below ground surface.	
55											
60											
65											
70											

Remarks:

1. Mudline measured 9.0' below top of deck. Deck surveyed at 450.9'.
2. Casing driven with 300 lb hammer. Washed ahead after sampling 2D, prior to driving 4" casing.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-208

Division: Bridge
Filename: ...\Boring logs sheets.dgn

Date:11/12/2020
Username: BMC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 21736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

CHRISTOPHER L. SIDAY — No. 7275 — LICENSED PROFESSIONAL ENGINEER — STATE OF MAINE

	BY:	DATE
PROJ. MANAGER	A. Lothe	
DESIGN-DETAILED	--	8/2020
CHECKED-REVIEWED	N. Williams	8/2020
DESIGN2-DETAILED2	A. Blaisdell	
DESIGN3-DETAILED3	C. Snow	
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

7275
P.E. NUMBER

October 30, 2020
DATE

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BORING LOGS 3

PREPARED BY:

GZA

SHEET NUMBER

27

OF 160

Division: Bridge
Filename: ...\Boring logs sheets.dgn

Date:11/12/2020
Username: BMC

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS.

Project: International Bridge Replacement Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-209
WIN: 021736.00

Driller: Logan Drilling Group | Elevation (ft.): 480.6 | Auger ID/OD: 4/4.25"
Operator: Al McGlinchey | Datum: NAVD 88 | Sampler: Standard Splitspoon
Logged By: L. Navarrete | Rig Type: CME-55 Track Rig | Hammer Wt./Fall: 140#/30"
Date Start/Finish: 2/25/20 - 2/26/20 | Drilling Method: Drive & Wash | Core Barrel: NQ
Boring Location: N1286736.2, E2183902.9 N1286736.2, E2183902.9 | Casing ID/OD: 4/4.5" | Water Level ▼: 12.8'
Hammer Efficiency Factor: 0.789 | Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field 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/C = Weight of Rods or Casing
WOP = Weight of Dry Person
Nc = Uncorrected Field Vane Shear Test Value
Hammer Efficiency Factor=Ratio of Actual to Theoretical Hammer Energy
T_{pk} = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$T_{uf(-090)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
Nc = Uncorrected Field Vane Shear Test Value
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.) or Rock Strength or RQD (/)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	G1		0.0 - 1.0				SSA			Brown, frozen, Silty fine to coarse SAND, trace gravel, (Fill).	
	10	24/23	2.0 - 4.0	20-30-30-32	60	79				Grey, frozen, fine to medium SAND, little silt, trace gravel, (Fill).	
5											
	20	24/17	5.0 - 7.0	4-4-4-5	8	11				Brown, dry, loose, fine to medium SAND, some silt, trace gravel, (Fill).	
10											
	30	24/13	10.0 - 12.0	2-3-2-2	5	7				Brown, moist, loose, fine to coarse SAND, some silt, trace gravel, (Fill).	
	40	24/6	12.0 - 14.0	3-2-4-4	6	8				Brown, moist, loose, fine to coarse SAND, some silt, trace gravel, (Fill).	
15	50	24/11	14.0 - 16.0	3-5-5-5	10	13				Brown, wet, medium dense, fine to coarse SAND, some silt, some gravel, (Fill).	
	60	24/10	16.0 - 18.0	3-6-5-5	11	14				Brown, wet, medium dense, Silty fine to coarse SAND, little gravel, (Fill).	
	70	24/14	18.0 - 20.0	6-8-13-12	21	28				Brown, wet, medium dense, fine to coarse SAND, some silt, little gravel, (Fill).	
20								460.6		-20.0	
	80	24/21	20.0 - 22.0	3-3-4-5	7	9				Grey, moist, loose, fine to medium SAND, little silt, (Alluvium).	
	90	24/3	22.0 - 24.0	5-5-6-7	11	14				Brown, wet, stiff, SILT, some fine to coarse sand, (Alluvium).	
25	100	24/24	24.0 - 26.0	5-5-5-7	10	13				Brown, wet, medium dense, Silty fine SAND, trace fine gravel, (Alluvium).	G=39 A-4, SM
	110	24/24	26.0 - 28.0	1-3-3-2	6	8				Brown to grey, wet, loose, Silty fine SAND, trace gravel, (Alluvium). Auger drill action increased at 29.0'.	G=40 A-2-4, SM
								451.6		-29.0	
30	120	18/17	30.0 - 31.5	19-28-50/6"	--					Grey, moist to wet, very dense, fine to coarse SAND, some gravel, little silt, (Glacial Till).	
	R1	54/15	31.5 - 36.0				ND	449.1		-31.5 Set up to core at 31.5'. R1: Grey/white, cobbles/boulder, 3/4"-3" long pieces recovered.	
								444.6		-36.0	G=41 A-1-b, SM
35	130	12/10	36.0 - 37.0	33-54/6"	--			443.6		Grey, wet, very dense, fine to coarse SAND, some gravel, little silt, (Glacial Till). -37.0	
	R2	48/5	37.0 - 41.0							R2: Grey, cobbles/boulder, 3/8"-1" long pieces recovered.	
40								439.6		-41.0	
	140 R3	10/10 50/10	41.0 - 41.8 46.0	42-50/4"	--			438.8		Grey, wet, very dense, fine to coarse SAND, some gravel, little silt, (Glacial Till). -41.8 Set up to core at 41.8'. R3: Grey, cobbles/boulder, 3/8"-3" long pieces recovered.	
45								434.6		-46.0	
	150 R4	2/2 58/26	46.0 - 46.2 46.5 - 51.0	48/2" RQD = 0%	--			434.4		Grey, wet, very dense, fine to coarse SAND, some gravel, little silt, (Glacial Till). -46.2 Spilspoon refusal at 46.2'. Set up to core. R4: Medium hard to soft, moderately weathered, aphanitic, grey SLATE. Highly fractured into 1"-3" size pieces with high angle joints. Recovery loss indicates probable weathered rock. Rock Quality = Very Poor Recovery = 45% Rock Core Times (min:sec): 46.2-47.0' (1:13), 47.0-48.0' (1:15), 48.0-49.0' (0:56), 49.0-50.0' (1:14), 50.0-51.0' (3:05)	
50	R5	48/38	51.0 - 55.0	RQD = 0%						R5: Medium hard to soft, moderately weathered, aphanitic, grey SLATE. Highly fractured into 1"-4" size pieces with high angle joints. Recovery loss indicates probable weathered rock. Rock Quality = Very Poor Recovery = 75% Rock Core Times (min:sec): 51.0-52.0' (1:37), 52.0-53.0' (2:02), 53.0-54.0' (2:41), 54.0-55.0' (1:25)	
55								425.6		-55.0	q_u=659 ksf
	R6	60/60	55.0 - 60.0	RQD = 95%						R6: Hard, fresh, aphanitic, grey, SLATE. Joints are moderately spaced, moderately dipping to high angle, planar to undulating, smooth, fresh to discolored, open to partially open. Rock Quality = Excellent Recovery = 100% Rock Core Times (min:sec): 55.0-56.0' (1:05), 56.0-57.0' (1:10), 57.0-58.0' (1:09), 58.0-59.0' (0:59), 59.0-60.0' (1:11)	
60	R7	60/60	60.0 - 65.0	RQD = 55%						R7: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Primary joints are very close to closely spaced, moderately dipping to vertical, fresh to discolored, undulating to planar, smooth, open to moderately wide. Secondary joints are widely spaced, low angle, undulating, smooth, discolored, partially open to open. Rock Quality = Fair Recovery = 100% Rock Core Times (min:sec): 60.0-61.0' (1:18), 61.0-62.0' (1:31), 62.0-63.0' (1:17), 63.0-64.0' (1:17), 64.0-65.0' (1:58)	q_u=612 ksf
65	R8	60/60	65.0 - 70.0	RQD = 57%						R8: Hard, fresh, aphanitic, grey, SLATE. Joints are close to moderately spaced, moderately dipping to high angle, planar to undulating, smooth, fresh, partially open, with some silt infilling. Rock Quality = Fair Recovery = 100% Rock Core Times (min:sec): 65.0-66.0' (1:21), 66.0-67.0' (1:19), 67.0-68.0' (1:16), 68.0-69.0' (1:08), 69.0-70.0' (1:43)	
70	R9	60/60	70.0 - 75.0	RQD = 24%						R9: Hard, fresh, aphanitic, grey, SLATE. Joints are very close to moderately spaced, moderately dipping to vertical, planar, smooth, fresh to decomposed, partially open to open, with some silt and sand infilling. Rock Quality = Very Poor Recovery = 100% Rock Core Times (min:sec): 70.0-71.0' (1:31), 71.0-72.0' (0:52), 72.0-73.0' (1:02), 73.0-74.0' (1:06), 74.0-75.0' (1:03)	

Remarks:...

1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured 24 hours after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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 2

Boring No.: BB-MSJR-209

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS.

Project: International Bridge Replacement Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-209
WIN: 021736.00

Driller: Logan Drilling Group | Elevation (ft.): 480.6 | Auger ID/OD: 4/4.25"
Operator: Al McGlinchey | Datum: NAVD 88 | Sampler: Standard Splitspoon
Logged By: L. Navarrete | Rig Type: CME-55 Track Rig | Hammer Wt./Fall: 140#/30"
Date Start/Finish: 2/25/20 - 2/26/20 | Drilling Method: Drive & Wash | Core Barrel: NQ
Boring Location: N1286736.2, E2183902.9 N1286736.2, E2183902.9 | Casing ID/OD: 4/4.5" | Water Level ▼: 12.8'
Hammer Efficiency Factor: 0.789 | Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field 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/C = Weight of Rods or Casing
WOP = Weight of Dry Person
Nc = Uncorrected Field Vane Shear Test Value
Hammer Efficiency Factor=Ratio of Actual to Theoretical Hammer Energy
T_{pk} = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$T_{uf(-090)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
Nc = Uncorrected Field Vane Shear Test Value
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.) or Rock Strength or RQD (/)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
75	R10	60/60	75.0 - 80.0	RQD = 93%						R10: Hard, fresh, aphanitic, grey, SLATE. Joints are very close to moderately spaced, high angle, planar, smooth, fresh, tight to open. Rock Quality = Excellent Recovery = 100% Rock Core Times (min:sec): 75.0-76.0' (1:33), 76.0-77.0' (1:33), 77.0-78.0' (1:34), 78.0-79.0' (1:17), 79.0-80.0' (2:05)	
80	R11	60/60	80.0 - 85.0	RQD = 60%						R11: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. 80.0-81.3': Joints are extremely close to closely spaced, high angle to vertical, undulating to planar, smooth, fresh, open. 81.3'-81.8': Highly fractured into gravel-size pieces. 81.8'-84.2': Joints are very close to moderately spaced, high angle to vertical, planar, smooth, fresh to discolored, tight to partially open. 84.2'-85.0': Highly fractured into gravel-size pieces. Rock Quality = Poor Recovery = 100% Rock Core Times (min:sec): 80.0-81.0' (2:15), 81.0-82.0' (0:57), 82.0-83.0' (1:21), 83.0-84.0' (1:55), 84.0-85.0' (1:57)	
85								395.6		-85.0 Bottom of Exploration at 85.0 feet below ground surface.	

Remarks:...

1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured 24 hours after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Page 2 of 2

Boring No.: BB-MSJR-209

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS.

Project: International Bridge Replacement Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-210
WIN: 021736.00

Driller: Logan Drilling Group | Elevation (ft.): 480.5 | Auger ID/OD: 4/4.25"
Operator: Al McGlinchey | Datum: NAVD 88 | Sampler: Standard Splitspoon
Logged By: L. Navarrete | Rig Type: CME-55 Track Rig | Hammer Wt./Fall: 140#/30"
Date Start/Finish: 2/26/20 - 2/27/20 | Drilling Method: Drive & Wash | Core Barrel: NQ/HQ
Boring Location: N1286738.2, E2183981.4 | Casing ID/OD: 3/3.5" | Water Level ▼: 29.3
Hammer Efficiency Factor: 0.789 | Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field 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/C = Weight of Rods or Casing
WOP = Weight of Dry Person
Nc = Uncorrected Field Vane Shear Test Value
Hammer Efficiency Factor=Ratio of Actual to Theoretical Hammer Energy
T_{pk} = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$T_{uf(-090)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
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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.) or Rock Strength or RQD (/)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	G1		0.0 - 1.0				SSA			Black to brown, frozen, Silty fine to coarse SAND, trace gravel, (Fill).	
	10	24/24	2.0 - 4.0	17-20-21-14	41	54				Grey, frozen, fine to coarse SAND, some silt, trace gravel, (Fill).	
5	20	24/12	4.0 - 6.0	4-6-4-4	10	13				Brown, dry, medium dense, fine to coarse SAND, some silt, trace gravel, (Fill).	
	30	24/18	6.0 - 8.0	2-4-6-9	10	13				Brown, dry, medium dense, fine SAND, some silt, (Fill).	
	40	24/18	8.0 - 10.0	11-11-11-6	22	29				Brown, dry, medium dense, fine to coarse SAND, some silt, little gravel, (Fill).	
10	50	24/18	10.0 - 12.0	3-4-3-5	7	9				Brown, moist, loose, Silty fine to coarse SAND, little gravel, (Fill).	
	60	24/13	12.0 - 14.0	4-2-19-16	21	28				Brown, moist, medium dense, fine to coarse SAND, some silt, little gravel, (Fill).	
15	70	24/17	15.0 - 17.0	4-3-7-4	10	13				Brown, moist, medium dense, fine to coarse SAND, some silt, little gravel, (Fill).	
								462.0		-18.5	
	80	24/24	20.0 - 22.0	4-8-8-9	16	21				Grey to brown, moist, medium dense, fine SAND, little silt, (Alluvium).	
20	90	24/22	25.0 - 27.0	5-6-7-10	13	17				Brown, wet, medium dense, Silty fine SAND, trace gravel, (Alluvium).	G=42 A-4, SM
	100	24/22	30.0 - 32.0	15-14-14-25	28	37		449.5		Increase in resistance during NQ barrel advancement at 28.0' indicates possible cobbles. -31.0	
25	R1	36/10	32.0 - 35.0				ND			Bottom 15": Brown to grey, moist, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till). Increase in resistance during NQ barrel advancement at 32.0'. Set up to core at 32.0'. R1: Grey/brown, cobbles, 3/8"-2" long pieces recovered. Rock Core Times (min:sec): 32.0-33.0' (1:30), 33.0-34.0' (2:10), 4.0-35.0' (2:45)	
	110 R2	4/4 60/0	35.0 - 35.3 40.3	50/4"	--					Grey, wet, very dense, fine to coarse SAND, some gravel, some silt, (Glacial Till). Set up to core at 35.3'. R2: No recovery. Rock Core Times (min:sec): 35.3-36.0' (4:24), 36.0-37.0' (1:30), 37.0-38.0' (2:07), 38.0-39.0' (2:37), 39.0-40.0' (2:57) Set up to core at 40.3'.	
30								440.2		-40.3	
	120 R3	3/3 56/56	40.0 - 40.3 45.0	50/3" RQD = 12%	--					Grey, wet, very dense, GRAVEL, some fine to coarse sand, trace silt, (Glacial Till). Spilspoon refusal at 40.3'. Setup to core. R3: Hard, fresh to slightly weathered, aphanitic, grey, SLATE.40.3'-43.3': Joints are extremely close to closely spaced, high angle to vertical, planar to undulating, smooth, fresh to discolored, tight to open. 43.3'-45.0': Highly fractured into gravel-size pieces. Rock Quality = Very Poor Recovery = 100% Rock Core Times (min:sec): 40.3-41.0' (2:41), 41.0-42.0' (2:31), 42.0-43.0' (1:44), 43.0-44.0' (1:24), 44.0-45.0' (2:19)	
35	R4	60/60	45.0 - 50.0	RQD = 0%			HQ			NQ core barrel jam after R3. NQ casing removed and HQ casing advanced to 40.0' and set up to core. R4: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are extremely close, high angle to vertical, planar to undulating, smooth, fresh to discolored, partially open to open, with silt infilling. Rock Quality = Very Poor Recovery = 100% Rock Core Times (min:sec): 45.0-46.0' (1:39), 46.0-47.0' (2:57), 47.0-48.0' (2:09), 49.0-49.0' (0:54), 49.0-50.0' (0:42)	
40	R5	60/60	50.0 - 55.0	RQD = 26%						R5: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. 45.0'-49.0': Joints are extremely close to moderately spaced, high angle to vertical, planar to undulating, rough to smooth, fresh to discolored, partially open to open, with silt infilling. 49.0'-50.0': highly fractured into gravel-size pieces. Rock Quality = Poor Recovery= 100% Rock Core Times (min:sec): 50.0-51.0' (1:07), 51.0-52.0' (1:19), 52.0-53.0' (1:15), 53.0-54.0' (1:21), 54.0-55.0' (4:10)	
45	R6	60/60	55.0 - 60.0	RQD = 30%				420.5		R6: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Primary joints are extremely close to moderately spaced, high angle to vertical, undulating to planar, smooth, fresh to discolored, partially open to open, with silt infilling. Secondary joints are moderately spaced, horizontal to low angle, planar to undulating, rough, discolored, moderately wide. Rock Quality = Poor Recovery = 100% Rock Core Times (min:sec): 55.0-56.0' (1:48), 56.0-57.0' (2:04), 57.0-58.0' (1:46), 58.0-59.0' (1:51), 59.0-60.0' (2:32)	
50										-60.0 Bottom of Exploration at 60.0 feet below ground surface.	

Remarks:...

1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured immediately after casing was removed.
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Boring No.: BB-MSJR-210

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS.

Project: International Bridge Replacement Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-211
WIN: 021736.00

Driller: Logan Drilling Group | Elevation (ft.): 480.4 | Auger ID/OD: 4/4.5"
Operator: Al McGlinchey | Datum: NAVD 88 | Sampler: Standard Splitspoon
Logged By: L. Navarrete | Rig Type: CME-55 Track Rig | Hammer Wt./Fall: 140#/30"
Date Start/Finish: 3/3/20 - 3/3/20 | Drilling Method: Drive & Wash | Core Barrel: NQ
Boring Location: N1286750.1, E2184047.2 | Casing ID/OD: 3/3.5" | Water Level ▼: 12.4'
Hammer Efficiency Factor: 0.789 | Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐

Definitions:
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SSA = Solid Stem Auger
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G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) or Rock Strength or RQD (/)	N-uncorrected	%Q	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	G1		0.0 - 2.0				SSA			Brown, frozen, fine to coarse SAND, little silt, little gravel, (Fill).	
	10	9/7	2.0 - 2.8	23-50/3"	--					Brown, frozen, fine to coarse SAND, little silt, little gravel, (Fill).	
	20	24/23	3.0 - 5.0	10-33-17-14	50	66				Brown to grey, frozen, fine SAND, little silt, (Fill).	
5	30	24/17	5.0 - 7.0	9-7-7-8	14	18				Brown to grey, dry, very stiff, Sandy SILT, trace gravel, (Fill).	C=43 A-4, ML
	40	24/20	7.0 - 9.0	12-10-8-10	18	24				Brown, dry, medium dense, fine to coarse SAND, some gravel, little silt, (Fill).	C=44 A-1-b, SM
	50	24/15	9.0 - 11.0	5-6-6-5	12	16				Brown, moist, medium dense, fine to coarse SAND, some silt, trace gravel, (Fill).	
10	60	24/14	11.0 - 13.0	6-8-6-6	14	18				Brown, moist, medium dense, fine to coarse SAND, some silt, little gravel, (Fill).	
	70	24/9	15.0 - 17.0	9-7-6-7	13	17				Brown, moist, medium dense, fine to coarse SAND, some silt, little gravel, (Fill).	
15							ND				
	80	24/24	20.0 - 22.0	5-5-5-5	10	13		460.3		Top 1": Similar to 70. -20.1	
	90	24/24	25.0 - 27.0	3-7-18-21	25	33				Bottom 23": Grey, wet, stiff, Clayey SILT, some fine sand, (Alluvium).	G=45 A-1-b, ML
20								454.0		-26.4	
	100	24/14	30.0 - 32.0	38-23-20-20	43	57				Top 16": Grey, wet, dense, fine SAND, little silt, (Alluvium). Bottom 8": Brown to grey, wet, stiff, SILT, some fine to medium sand, (Glacial Till).	
	R1	12/12	33.0 - 34.0	RQD = 0%				447.4		Brown to grey, wet, very dense, fine to coarse SAND, some silt, some gravel, (Glacial Till). -33.0	
25	R2	24/24	34.0 - 36.0	RQD = 0%						Increase in resistance during NQ barrel advancement at 33.0'. Set up to core. R1: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Highly fractured into gravel-size pieces. Rock Quality = Very Poor Recovery = 100% Rock Core Times (min:sec): 33.0-34.0' (1:15) R2: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. 34.0-34.5': Highly fractured into gravel-size pieces. 34.5'-36.0': Joints are extremely close, high angle to vertical, undulating to planar, smooth, fresh to discolored, partially open to open. Rock Quality = Very Poor Recovery = 100% Rock Core Times (min:sec): 34.0-35.0' (2:32), 35.0-36.0' (2:18)	
30	R3	48/48	36.0 - 40.0	RQD = 60%						R3: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Primary joints are extremely close to closely spaced, high angle to vertical, planar to undulating, smooth, fresh to discolored, tight to open. Secondary joints are very close to moderately spaced, horizontal to low angle, planar, fresh to discolored, open. Rock Quality = Fair Recovery = 100% Rock Core Times (min:sec): 36.0-37.0' (2:15), 37.0-38.0' (1:38), 38.0-39.0' (1:45), 39.0-40.0' (1:28)	
35	R4	60/48	40.0 - 45.0	RQD = 51%						R4: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Primary joints are close to moderately spaced, high angle to vertical, planar, smooth, fresh to discolored, partially open to open. Secondary joints are closely spaced, moderately dipping, planar, smooth, fresh to discolored, tight, some silt infilling. Rock Quality = Fair Recovery = 80% Rock Core Times (min:sec): 40.0-41.0' (2:22), 41.0-42.0' (1:46), 42.0-43.0' (1:40), 43.0-44.0' (1:53), 44.0-45.0' (2:25)	
40	R5	60/49	45.0 - 50.0	RQD = 74%				430.4		R5: Hard, fresh, aphanitic, grey, SLATE. Joints are closely spaced, horizontal to low angle, undulating, rough, fresh, open. One high angle joint at 17.7', undulating, rough, fresh, open. Rock Quality = Fair Recovery = 87% Rock Core Times (min:sec): 45.0-46.0' (1:34), 46.0-47.0' (1:30), 47.0-48.0' (2:58), 48.0-49.0' (2:56), 49.0-50.0' (1:35)	
45										-50.0 Bottom of Exploration at 50.0 feet below ground surface.	
50											
55											
60											
65											
70											

Remarks:...

1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured immediately after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-211

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 21736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

CHRISTOPHER L. SNOW No. 7295 LICENSED PROFESSIONAL ENGINEER STATE OF MAINE

PROJ. MANAGER	A. Lathe	--	8/2020	SIGNATURE
DESIGN-DETAILED	N. Williams	--	8/2020	7275
CHECKED-REVIEWED	A. Blodgett	C. Snow		P.E. NUMBER
DESIGN2-DETAILED2				October 30, 2020
DESIGN3-DETAILED3				DATE
REVISIONS 1				
REVISIONS 2				
REVISIONS 3				
REVISIONS 4				
FIELD CHANGES				

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BORING LOGS 4

SHEET NUMBER

28

OF 160

Maine Department of Transportation — Soil/Rock Exploration Log (US CUSTOMARY UNITS)

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB
Boring No.: BB-MSJR-301
WIN: 021736.00

Driller: Logan Drilling Group	Elevation (ft.): 479.8	Auger ID/OD: 4/4.25"
Operator: Al McGlinchey	Datum: NAVD 88	Sampler: Standard Splitspoon
Logged By: L. Navarrete	Rig Type: CME-55 Track Rig	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 6/10/20 - 6/10/20	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location: N1286776.6, E2184052.6	Casing ID/OD: 3/3.5"	Water Level *: 12.7'
Hammer Efficiency Factor: 0.789	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of WOh. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (psf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*(N-uncorrected)
S_t = Peak Torsional 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. Pattern or Strength 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	24/16	0.0 - 2.0	4-5-3-3	8	11	SSA	479.5		Top 4": Brown, moist, fine to coarse SAND, some silt, trace gravel, with roots, (Topsoil).	
								479.2		Bottom 8": Dark brown, moist, medium dense, fine to coarse SAND, some silt, trace gravel, with glass and asphalt fragments, (Fill).	
5	2D	24/12	5.0 - 7.0	5-2-2-3	4	5				Top 5": Brown, dry, fine to coarse SAND, trace gravel, (Fill).	
								472.5		Bottom 7": Grey, moist, medium stiff, SILT, trace fine sand, trace wood pieces, (Fill).	
10	3D	24/15	10.0 - 12.0	4-5-4-3	9	12				Grey to brown, moist, medium dense, fine to coarse SAND, some gravel, trace silt, (Fill).	
15	4D	24/14	15.0 - 17.0	5-5-3-3	8	11		464.2		Top 8": Grey to black, wet, medium dense, fine to coarse SAND, some silt, some gravel, trace roots, (Fill).	
								463.7		Bottom 6": Grey, wet, medium stiff, SILT, trace fine sand, with wood fragments, trace roots, (Alluvium).	
20	5D	24/14	20.0 - 22.0	5-4-4-3	8	11		457.1		Grey, wet, medium dense, fine SAND, little silt, (Alluvium).	
								455.8		Brown, wet, very dense, fine to coarse SAND, little silt, some gravel, (Glacial Till).	
	6D	1/1	23.5 - 23.6	50/1"	--		ND			Split spoon refusal at 23.6. Began advancement with NQ barrel, increase in resistance during NQ barrel	
	R1	60/56	24.0 - 29.0	RQD = 73%						advancement at 24'.	

Remarks:
1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured immediately after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-301

Maine Department of Transportation — Soil/Rock Exploration Log (US CUSTOMARY UNITS)

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB
Boring No.: BB-MSJR-213
WIN: 021736.00

Driller: Logan Drilling Group	Elevation (ft.): 480.2	Auger ID/OD: 4/4.5"
Operator: Al McGlinchey	Datum: NAVD 88	Sampler: Standard Splitspoon
Logged By: L. Navarrete	Rig Type: CME-55 Track Rig	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 3/3/20 - 3/3/20	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location: N1286749.2, E2184112.3	Casing ID/OD: 3/3.5"	Water Level *: 8.0'
Hammer Efficiency Factor: 0.789	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of WOh. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*(N-uncorrected)
S_t = Peak Torsional 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. Pattern or Strength or RQD (*)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	G1		0.0 - 2.0				SSA			Brown, frozen, fine to coarse, SAND, little gravel, little silt, (Fill).	
	1D	24/24	2.0 - 4.0	38-50-50-37	100	132				Top 12": Brown, frozen, fine to coarse SAND, some silt, little gravel, (Fill). Bottom 12": Brown to grey, frozen, fine SAND, little silt, (Fill).	
5	2D	24/22	5.0 - 7.0	5-15-5-6	10	13				Brown, dry, stiff, Sandy SILT, trace gravel, (Fill).	CL: A-6, ML
	3D	24/21	7.0 - 9.0	5-9-10-9	19	25				Brown, dry, medium dense, fine to coarse SAND, some gravel, some silt, (Fill).	C: A-1-b, SM
10	4D	24/12	9.0 - 11.0	7-7-6-8	13	17				Brown, moist, medium dense, fine to coarse SAND, little silt, little gravel, (Fill).	
	5D	24/12	11.0 - 13.0	6-6-5-5	11	14				Brown, moist, medium dense, fine to coarse SAND, some silt, little gravel, (Fill).	
15	6D	24/12	15.0 - 17.0	7-6-7-7	13	17				Brown, moist, medium dense, fine to coarse SAND, little silt, little gravel, (Fill).	
	7D	24/24	20.0 - 22.0	3-2-3-6	5	7		459.9		Top 4": Brown, moist, fine to coarse SAND, some silt, little gravel, (Fill).	
								459.7		Bottom 20": Brown to grey, moist, loose, fine to medium SAND, little silt, (Alluvium).	
25	8D	24/24	25.0 - 27.0	8-5-7-28	12	16	ND			Top 27": Brown to grey, wet, medium dense, Silty fine to coarse SAND, trace gravel, (Alluvium).	C: A-4, SM
								453.7		Bottom 3": Brown, wet, fine to coarse SAND, some silt, some gravel, (Glacial Till).	
30	9D	19/16	30.0 - 31.6	50-32-50-50/1"	82	108				Grey/orange, wet, very dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).	C: A-1-b, SM
	R1	53/53	31.6 - 36.0	RQD = 50%				448.6		Splitspoon refusal at 31.6'. Set up to core. R1: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Primary joints are extremely close to close, high angle to vertical, planar, smooth, fresh to discolored, tight to open, with silt infilling. Secondary joints are closely spaced, horizontal to low angle, planar to undulating, smooth to rough, fresh to discolored, tight to partially open, with silt infilling. Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 31.6-32.0' (1:53), 32.0-33.0' (1:28), 33.0-34.0' (1:24), 34.0-35.0' (1:38), 35.0-36.0' (1:46)	
35	R2	60/60	36.0 - 41.0	RQD = 58%				439.2		R2: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are extremely close to moderately spaced, high angle to vertical, planar, smooth, fresh to discolored, tight to partially open, with little silt infilling. Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 36.0-37.0' (1:16), 37.0-38.0' (1:20), 38.0-39.0' (1:34), 39.0-40.0' (1:29), 40.0-41.0' (1:16)	
40								41.0		Bottom of Exploration at 41.0 feet below ground surface.	

Remarks:
1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured immediately after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
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Page 1 of 1
Boring No.: BB-MSJR-213

Maine Department of Transportation — Soil/Rock Exploration Log (US CUSTOMARY UNITS)

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB
Boring No.: BB-MSJR-212
WIN: 021736.00

Driller: New England Boring Contractors	Elevation (ft.): 504.9	Auger ID/OD: 4.5"
Operator: Brad Enos	Datum: NAVD 88	Sampler: Standard Splitspoon
Logged By: N. Williams	Rig Type: Mobile Drill	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 10/29/19-10/29/19	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location: N1286835.7, E2184034.7	Casing ID/OD: 3/3.5", 4/4.5"	Water Level *: NM
Hammer Efficiency Factor: 0.895	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of WOh. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*(N-uncorrected)
S_t = Peak Torsional 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. Pattern or Strength 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	24/11	0.4 - 2.4	7-9-9-14	18	27	SSA	504.5		Top 5": ASPHALT	
								504.1		Brown, dry, medium dense, fine to coarse SAND, little silt, little gravel, (Fill).	
5	2D	24/10	4.0 - 6.0	5-3-6-4	9	13				Grey, moist, medium dense, fine to medium SAND, some silt, little gravel, (Fill). Probable reworked till. Gravel in spoon tip.	
10	3D	24/24	9.0 - 11.0	4-13-8-6	21	31	RC			Top 12": Grey, moist, hard, Clayey SILT, some fine to medium sand, trace gravel, (Fill). Bottom 12": Grey/brown, moist, fine to coarse SAND, some silt, some gravel, (Fill).	
15	4D	24/12	14.0 - 16.0	4-5-6-22	11	16				Grey, wet, very stiff, Silty CLAY, some fine to medium sand, some gravel, (Fill). Fine to medium sand in spoon tip (1" lens).	
	5D	24/0	19.0 - 21.0	4-3-4-5	7	10				No recovery in 2" spoon. Collect sample interval with 3" spoon: 16" recovery in 3" spoon. Grey, wet, loose, Silty fine to medium SAND, some gravel.	
20											
25	6D	24/10	24.0 - 26.0	4-4-3-2	7	10				Top 5": Grey, wet, loose, fine to medium SAND, some silt, little gravel, (Fill). Bottom 5": Brown/orange, wet, loose, fine to medium SAND, trace silt, (Fill), stratified color.	
	7D R1	3/2 19/19	29.0 - 29.3 31.1 - 36.1	85/4" RQD = 0%	-		ND	475.4		Grey/brown, wet, very dense, fine to coarse SAND, little gravel, little silt, (Glacial Till/Decomposed Rock). Apparent residual bedrock structure. Advance roller cone to 29.5', advance 3" casing to 29.5'. Set up to core.	
30	R2	60/60		RQD = 42%				475.4		R1: Hard, moderately weathered, aphanitic, blue/grey, SLATE. Highly fractured into gravel-size pieces. -SANGERVILLE FORMATION- Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 29.5-30.5' (2:11), 30.5-31.1' (1:02) R2: Hard, moderately to slightly weathered, aphanitic, blue/grey, SLATE. 31.1'-33.6': Joints are extremely close to very close, 33.6'-36.1': joints are moderately spaced, high angle, planar, smooth, fresh to discolored, open, some fine gravel infilling. 33.6'-36.1': one high angle joint, undulating, rough. -SANGERVILLE FORMATION- Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 31.1-32.1' (2:11), 32.1-33.1' (2:30), 33.1-34.1' (2:47), 34.1-35.1' (3:03), 35.1-36.1' (3:59) R3: Hard, fresh, slightly weathered, aphanitic, blue/grey, SLATE. Joints are close to moderately spaced, high angle to vertical, planar to undulating, rough, fresh to discolored, tight to partially open. -SANGERVILLE FORMATION- Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 36.1-37.1' (2:16), 37.1-38.1' (1:14), 38.1-39.1' (1:29), 39.1-40.1' (1:30), 40.1-41.1' (2:30)	
35	R3	60/60	36.1 - 41.1	RQD = 48%				463.8			
40								41.1		Bottom of Exploration at 41.1 feet below ground surface.	
45											

Remarks:
1. Automatic hammer NEBC #019 Energy Transfer Ratio = 0.895
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types: transitions may be gradual.
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Page 1 of 1
Boring No.: BB-MSJR-212

Maine Department of Transportation — Soil/Rock Exploration Log (US CUSTOMARY UNITS)

Project: International Bridge Replacement, Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB
Boring No.: BB-MSJR-302
WIN: 021736.00

Driller: Logan Drilling Group	Elevation (ft.): 479.6	Auger ID/OD: 4/4.25"
Operator: Al McGlinchey	Datum: NAVD 88	Sampler: Standard Splitspoon
Logged By: L. Navarrete	Rig Type: CME-55 Track Rig	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 6/10/20 - 6/11/20	Drilling Method: Drive & Wash	Core Barrel: NQ
Boring Location: N1286778.9, E2184131.9	Casing ID/OD: 3/3.5"	Water Level *: 13.6'
Hammer Efficiency Factor: 0.789	Hammer Type: Automatic ☒ Hydraulic ☐ Rope & Cathead ☐	

Definitions:
D = Split Spoon Sample
WO = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
WV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of WOh. Hammer
WOR/C = Weight of Rods or Casing
WOP = Weight of the Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_u = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*(N-uncorrected)
S_t = Peak Torsional 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. Pattern or Strength 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	24/18	0.0 - 2.0	6-8-7-6	15	20	SSA			Brown, moist, medium dense, fine to coarse SAND, little silt, some gravel, little silt, with roots, and asphalt fragments, (Fill).	
5	2D	24/16	5.0 - 7.0	8-5-3-4	8	11				Brown to black, moist, medium dense, fine to coarse SAND, some silt, some gravel, 3" silt seam from 5.8'-6.1', (Fill).	
10	3D	24/12	10.0 - 12.0	5-6-3-4	9	12				Brown, moist, medium dense, fine to coarse SAND, some gravel, little silt, (Fill).	
15	4D	24/19	15.0 - 17.0	1-2-3-2	5	7		463.9		Top 9": Brown to grey, wet, fine SAND, trace silt, (Fill).	
								463.7		Bottom 10": Grey to black, wet, medium stiff, SILT, trace fine sand, (Alluvium).	
								461.1			
	5D	3/3	20.0 - 20.3	50/3"	--			458.6		Grey, wet, very dense, GRAVEL, some fine sand, (Glacial Till). Split spoon refusal at 20.3. Began advancement with NQ barrel, increase in resistance during NQ barrel advancement at 21.0'. No recovery in core barrel from 20.3'-21.0' indicates probable Glacial till.	
20	R1	60/60	21.0 - 26.0	RQD = 78%			ND	458.6		Setup to core at 21.0'. R1: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are close to moderately spaced, high angle to vertical, planar, smooth, fresh to discolored, tight to open, with silt infilling. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 21.0-22.0' (1:23), 22.0-23.0' (1:10), 23.0-24.0' (1:09), 24.0-25.0' (1:14), 25.0-26.0' (1:32) R2: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are extremely close to moderately spaced, high angle, planar, smooth, fresh to discolored, light. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 26.0-27.0' (1:31), 27.0-28.0' (1:18), 28.0-29.0' (1:15), 29.0-30.0' (1:09), 30.0-31.0' (1:32)	
25	R2	60/60	26.0 - 31.0	RQD = 85%							
30								448.6			
35								31.0		Bottom of Exploration at 31.0 feet below ground surface.	
40											
45											

Remarks:
1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured immediately after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-302

Division: Bridge
Filename: ...\Boring logs sheets.dgn

Date:11/12/2020
Username: BMC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600
WIN 21736.00
BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

CHRISTOPHER L. SNOW No. 7295 — STATE OF MAINE — REGISTERED PROFESSIONAL ENGINEER

P.E. NUMBER
October 30, 2020
DATE
SIGNATURE

PROJ. MANAGER	A. Lothe
DESIGN-DETAILED	N. Williams
CHECKED-REVIEWED	A. Blaisdell
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	

	BY	DATE
REVISIONS 1	--	8/2020
REVISIONS 2	C. Snow	8/2020
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BORING LOGS 5

PREPARED BY: GZA

SHEET NUMBER
29
OF 160

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-102
WIN: 021736.00

Driller:	New England Boring Contractors	Elevation (ft.):	507 (est.)	Auger ID/OD:	4.5" SSA
Operator:	Mike Porter	Datum:	NAVD 88	Sampler:	Standard Splitspoon
Logged By:	N. Williams	Rig Type:	Mobile B-24 Truck Rig	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	09-04-18/09-05-18	Drilling Method:	Drive & Wash	Core Barrel:	NQ
Boring Location:	N1286839.2, E2184097.0	Casing ID/OD:	4"/4.5"	Water Level *:	18.8'
Hammer Efficiency Factor:	0.937	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
RQD = Length of Rock Pieces ≥ 4" Length of Run
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of the Auger
q_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*(N-uncorrected
q_T = Pocket Torvane 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.) or Strength 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	24/20	0.5 - 2.5	WOH-5-7-10	12	19	SSA	506.5		-TOPSOIL- 0.5'	G*10 A-1-a, SM WC=6.6
										Grey, moist, medium dense, Gravelly fine to coarse SAND, little silt, (Fill).	
	2D	24/22	4.5 - 6.5	13-12-8-6	20	31					G*11 A-1-b, SM WC=8.7
5						52				Grey, dry, dense, Silty fine to coarse SAND, some gravel, (Fill).	
						29					
						28					
						47					
						72					
10	3D	24/10	10.0 - 12.0	12-12-12-10	24	37				Grey, wet, dense, Silty fine to coarse SAND, some gravel, (Fill).	
						40					
						49		493.5		-13.5'	
						32					
15	4D	24/10	15.0 - 17.0	15-14-17-12	31	48				Grey, wet, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).	G*12 A-1-b, SM WC=13.2
						29					
						32					
						24					
						26					
						68					
20	5D	24/22	20.0 - 22.0	4-3-13-18	16	25				Top 11": Silty fine to medium SAND, some silt, trace gravel. Bottom 11": Grey, wet, medium dense, Silty fine to coarse SAND, some gravel (Glacial Till).	
						42					
						52					
						79					
						102					
25						382					
	6D	2/2	25.0 - 25.2	75/2"	R		ND	481.8		Grey, wet, Sandy GRAVEL, some silt, possible bedrock; vertically foliated rock fragments, (Glacial Till). 25.2'	
	R1	60/60	26.8 - 31.8	RQD = 77%						Split spoon refusal with vertically foliated rock fragments in tip of spoon indicates probable bedrock, increased resistance during roller cone advancement at 25.2'-26.8'. Blue rock chips in wash return. Set up to core. R1: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are close to moderately spaced, high angle to vertical, undulating, rough, fresh, tight. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 26.8-27.8' (3:08), 27.8-28.8' (2:56), 28.8-29.8' (1:42), 29.8-30.8' (2:44), 30.8-31.8' (1:40)	
30											
	R2	60/60	31.8 - 36.8	RQD = 83%						R2: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are moderately spaced, high angle, undulating, rough, fresh, open. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 31.8-32.8' (1:54), 32.8-33.8' (2:01), 33.8-34.8' (1:29), 34.8-35.8' (1:42), 35.8-36.8' (2:00)	q_p=140 ksf
35											
	R3	60/60	36.8 - 41.8	RQD = 43%						R3: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are very close to moderately spaced, high angle to vertical, undulating, rough, fresh to discolored, partially open to open, gravel infilling. -SANGERVILLE FORMATION- Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 36.8-37.8' (2:50), 37.8-38.8' (1:26), 38.8-39.8' (1:34), 39.8-40.8' (1:38), 40.8-41.8' (1:34)	
40											
	R4	60/60	41.8 - 46.8	RQD = 23%						R4: Hard, fresh, aphanitic, blue/grey, SLATE. Joints are extremely close to close, high angle to vertical, undulating, rough, fresh to discolored, open. -SANGERVILLE FORMATION- Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 41.8-42.8' (2:30), 42.8-43.8' (1:31), 43.8-44.8' (3:30), 44.8-45.8' (2:11), 45.8-46.8' (1:53)	PLD q_p=85 ksf PLA q_p=308 ksf
45								460.2		Bottom of Exploration at 46.8 feet below ground surface. 46.8'	
50											

Remarks:

1. Automatic Hammer NEBC #B-24 ETR = 0.937, calibrated on 7/3/18.
2. Reported water level was measured immediately after casing was removed.
3. PLD refers to point load diametrical and PLA refers to point load axial test; q_p is estimated from the point load strength.
4. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-102

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-214
WIN: 021736.00

Driller:	Logan Drilling Group	Elevation (ft.):	500.4	Auger ID/OD:	
Operator:	Al McGlinchey	Datum:	NAVD 88	Sampler:	Standard Splitspoon
Logged By:	L. Navarrete	Rig Type:	CME-55 Track Rig	Hammer Wt./Fall:	140#/30"
Date Start/Finish:	2/27/20 - 2/28/20	Drilling Method:	Drive & Wash	Core Barrel:	HQ/NQ
Boring Location:	N1286833.6, E2184188.9	Casing ID/OD:	4/4.5"	Water Level *:	15.8'
Hammer Efficiency Factor:	0.789	Hammer Type:	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
WD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
WU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
RQD = Length of Rock Pieces ≥ 4" Length of Run
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WOR = Weight of the Auger
q_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(LAB)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Hammer Efficiency Factor*(N-uncorrected
q_T = Pocket Torvane 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.) or Strength or RQD (/)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0											
							HD				
	1D	22/6	1.0 - 2.8	1-2-23-42/4"	25	33				Brown, moist, medium dense, fine to coarse SAND, some silt, some gravel, (Fill).	
										No recovery.	
5	2D	24/0	5.0 - 7.0	1-1-4-4	5	7					
	3D	24/12	7.0 - 9.0	4-3-2-2	5	7				Brown, moist, loose, fine to coarse SAND, some gravel, some silt, (Fill).	
10	4D	24/7	10.0 - 12.0	6-3-5-22	8	11				Grey, wet, loose, GRAVEL, some fine to coarse sand, trace silt, (Fill).	
								488.9		11.5'	
								488.4		Slate gravel pieces recovered in splitspoon shoe indicates probable weathered bedrock. 12.0'	
	R1	24/24	12.0 - 14.0	RQD = 0%						R1: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are extremely close, high angle to vertical, planar to undulating, smooth, fresh to discolored, open. Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 12.0-13.0' (2:30), 13.0-14.0' (3:10)	
	R2	24/24	14.0 - 16.0	RQD = 17%						R2: Hard, fresh, aphanitic, grey, SLATE. Primary joints are extremely close to moderately spaced, high angle to vertical, planar to undulating, smooth, fresh to discolored, tight to open. One low angle fracture at 15.5'. Rock Quality = Very Poor Recovery = 100% Rock Core Times (min/sec): 14.0-15.0' (1:30), 15.0-16.0' (2:10)	PLD, q_p=547 ksf PLA, q_p=561 ksf
15	R3	60/60	16.0 - 21.0	RQD = 52%			ND			R3: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are extremely close to moderately spaced, high angle to vertical, planar to undulating, smooth, fresh to discolored, tight to open. One low angle joint at 19.5'. Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 16.0-17.0' (1:39), 17.0-18.0' (1:35), 18.0-19.0' (2:33), 19.0-20.0' (2:08), 20.0-21.0' (2:48)	
20	R4	48/48	21.0 - 25.0	RQD = 56%						R4: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are extremely close to moderately spaced, moderately dipping to high angle, planar to undulating, smooth, fresh to discolored, tight to open. 23.5'-24.0': Highly fractured into gravel-size pieces. One high angle joint at 24.5'. Rock Quality = Poor Recovery = 100% Rock Core Times (min/sec): 21.0-22.0' (2:11), 22.0-23.0' (1:32), 23.0-24.0' (1:26), 24.0-25.0' (1:21)	
25	R5	60/60	25.0 - 30.0	RQD = 62%						R5: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Primary joints are extremely close to moderately spaced, high angle to vertical, planar to undulating, smooth, fresh to discolored, tight to open. One horizontal joint at 25.5', undulating, smooth, discolored, open. Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 25.0-26.0' (1:55), 26.0-27.0' (2:15), 27.0-28.0' (1:47), 28.0-29.0' (1:20), 29.0-30.0' (1:43)	
	R6	36/36	30.0 - 33.0	RQD = 87%						R6: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are extremely close to moderately spaced, high angle to vertical, planar, smooth, fresh to discolored, open to moderately wide. Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 30.0-31.0' (1:00), 31.0-32.0' (1:43), 32.0-33.0' (2:01)	
30											
	R7	60/60	33.0 - 38.0	RQD = 71%						R7: Hard, fresh to slightly weathered, aphanitic, grey, SLATE. Joints are extremely close to moderately spaced, moderately dipping to high angle, undulating to planar, fresh, partially open. Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 33.0-34.0' (1:00), 34.0-35.0' (1:43), 35.0-36.0' (1:42), 36.0-37.0' (2:27), 37.0-38.0' (2:13)	
35											
	R8	60/60	38.0 - 43.0	RQD = 70%						R8: Hard, fresh, aphanitic, grey, SLATE. Primary joints are close, moderately dipping, planar, fresh, smooth, tight to partially open. Secondary joints are extremely close to closely spaced, high angle, planar, smooth, fresh to discolored, open. Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 38.0-39.0' (1:37), 39.0-40.0' (2:27), 40.0-41.0' (1:29), 41.0-42.0' (2:39), 42.0-43.0' (2:38)	
40											
	R9	60/60	43.0 - 48.0	RQD = 83%						R9: Hard, fresh, aphanitic, grey, SLATE. Joints are moderately spaced, moderately dipping, planar, fresh, smooth, tight to open. Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 43.0-44.0' (2:27), 44.0-45.0' (1:21), 45.0-46.0' (2:05), 46.0-47.0' (2:34), 47.0-48.0' (1:55)	q_p=1631 ksf
45								452.4		Bottom of Exploration at 48.0 feet below ground surface. 48.0'	
50											

Remarks:

1. Automatic Hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured 0.5 hours after borehole completion with casing in place.
3. PLD refers to point load diametrical and PLA refers to point load axial test; q_p is estimated from the point load strength.
4. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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-MSJR-214

Division: Bridge
Filename: ...\Boring logs sheets.dgn

Date:11/12/2020
Username: BMC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 21736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

CHRISTOPHER L. SNOW No. 7275 LICENSED PROFESSIONAL ENGINEER STATE OF MAINE

P.E. NUMBER

October 30, 2020
DATE

SIGNATURE

DATE	BY	
8/2020	--	
8/2020	C. Snow	

PROJ. MANAGER	A. Lahie
DESIGN-DETAILED	N. Williams
CHECKED-REVIEWED	A. Blaisdell
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BORING LOGS 6

PREPARED BY:

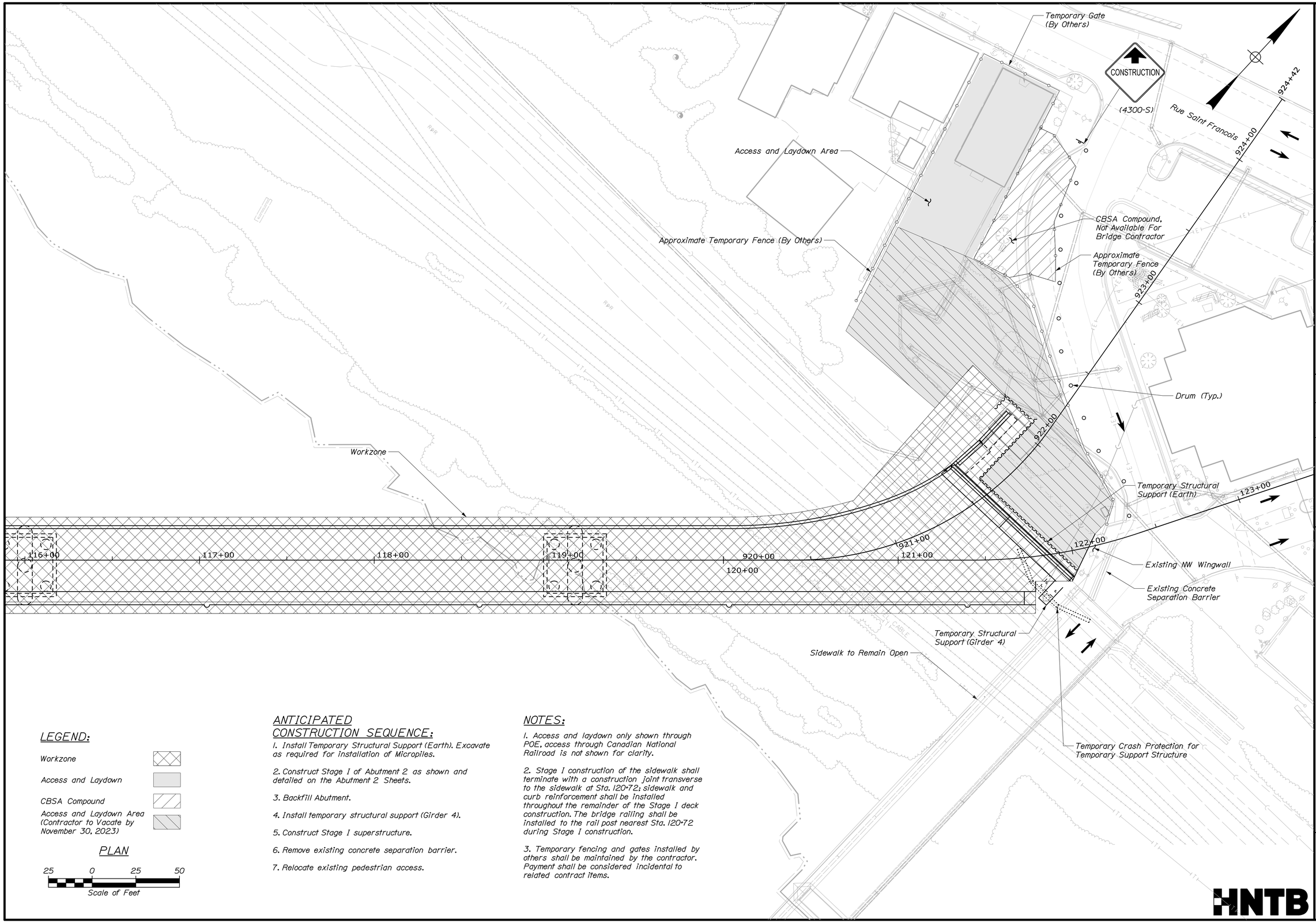
GZA

SHEET NUMBER

30

OF 160

Filename: 031_MOT Phase 1.dgn Division: Username: Date:11/20/2020



LEGEND:

- Workzone
- Access and Laydown
- CBSA Compound
- Access and Laydown Area (Contractor to Vacate by November 30, 2023)

PLAN

25 0 25 50

Scale of Feet

ANTICIPATED CONSTRUCTION SEQUENCE:

1. Install Temporary Structural Support (Earth). Excavate as required for installation of Micropiles.
2. Construct Stage 1 of Abutment 2 as shown and detailed on the Abutment 2 Sheets.
3. Backfill Abutment.
4. Install temporary structural support (Girder 4).
5. Construct Stage 1 superstructure.
6. Remove existing concrete separation barrier.
7. Relocate existing pedestrian access.

NOTES:

1. Access and laydown only shown through POE, access through Canadian National Railroad is not shown for clarity.
2. Stage 1 construction of the sidewalk shall terminate with a construction joint transverse to the sidewalk at Sta. 120+72; sidewalk and curb reinforcement shall be installed throughout the remainder of the Stage 1 deck construction. The bridge railing shall be installed to the rail post nearest Sta. 120+72 during Stage 1 construction.
3. Temporary fencing and gates installed by others shall be maintained by the contractor. Payment shall be considered incidental to related contract items.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER	E. Davidson	E. Davidson	11\20
DESIGN-DETAILED	E. Davidson	J. Olund	11\20
CHECKED-REVIEWED	L. Driscoll		
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

MAINTENANCE OF TRAFFIC STAGE 1

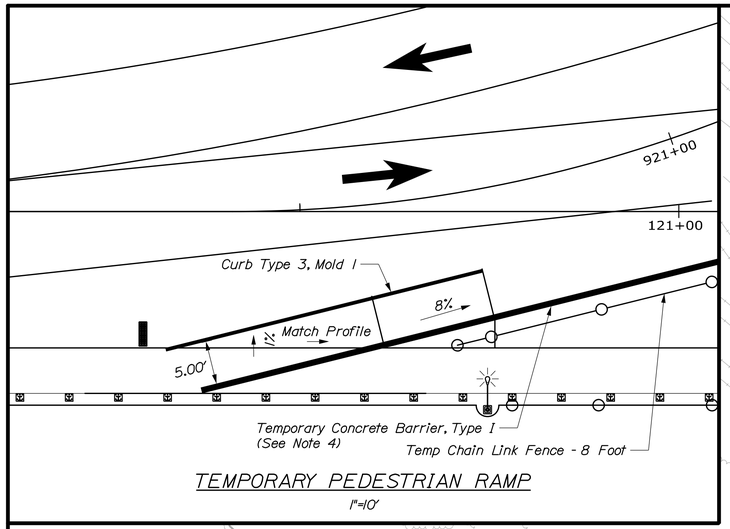
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31

OF 160

HNTB

Date:11/20/2020
Username:
Division:
Filename: 032_MOT Phase 2.dgn



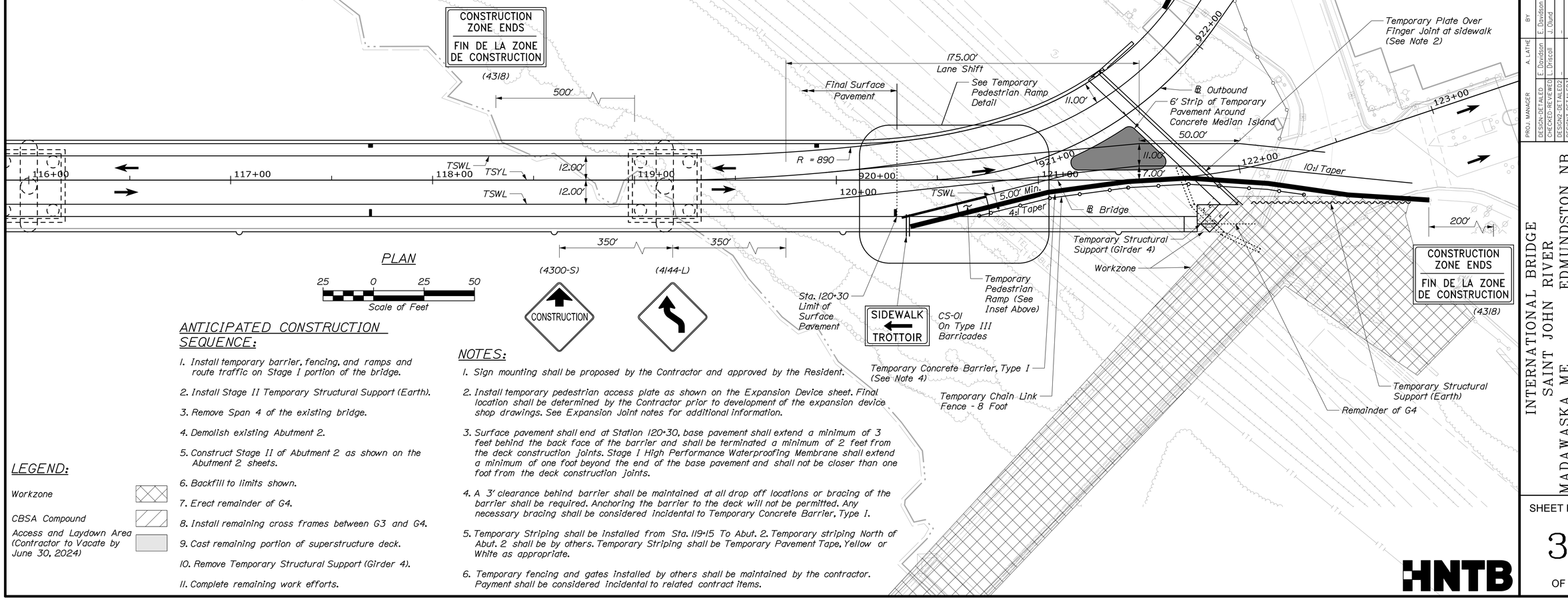
TEMPORARY PEDESTRIAN RAMP

1"=10'

STRIPING LEGEND:

TSWL Temporary Solid White Line

TSYL Temporary Solid Yellow Line



PLAN

25 0 25 50

Scale of Feet

ANTICIPATED CONSTRUCTION SEQUENCE:

1. Install temporary barrier, fencing, and ramps and route traffic on Stage I portion of the bridge.
2. Install Stage II Temporary Structural Support (Earth).
3. Remove Span 4 of the existing bridge.
4. Demolish existing Abutment 2.
5. Construct Stage II of Abutment 2 as shown on the Abutment 2 sheets.
6. Backfill to limits shown.
7. Erect remainder of G4.
8. Install remaining cross frames between G3 and G4.
9. Cast remaining portion of superstructure deck.
10. Remove Temporary Structural Support (Girder 4).
11. Complete remaining work efforts.

LEGEND:

Workzone

CBSA Compound

Access and Laydown Area (Contractor to Vacate by June 30, 2024)

NOTES:

1. Sign mounting shall be proposed by the Contractor and approved by the Resident.
2. Install temporary pedestrian access plate as shown on the Expansion Device sheet. Final location shall be determined by the Contractor prior to development of the expansion device shop drawings. See Expansion Joint notes for additional information.
3. Surface pavement shall end at Station 120+30, base pavement shall extend a minimum of 3 feet behind the back face of the barrier and shall be terminated a minimum of 2 feet from the deck construction joints. Stage I High Performance Waterproofing Membrane shall extend a minimum of one foot beyond the end of the base pavement and shall not be closer than one foot from the deck construction joints.
4. A 3' clearance behind barrier shall be maintained at all drop off locations or bracing of the barrier shall be required. Anchoring the barrier to the deck will not be permitted. Any necessary bracing shall be considered incidental to Temporary Concrete Barrier, Type 1.
5. Temporary Striping shall be installed from Sta. 119+15 To Abut. 2. Temporary striping North of Abut. 2 shall be by others. Temporary Striping shall be Temporary Pavement Tape, Yellow or White as appropriate.
6. Temporary fencing and gates installed by others shall be maintained by the contractor. Payment shall be considered incidental to related contract items.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
A. LATHE		
PROJ. MANAGER	E. Davidson	11\20
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	- -
DESIGN2-DETAILED2	-	- -
DESIGN3-DETAILED3	-	- -
REVISIONS 1	-	- -
REVISIONS 2	-	- -
REVISIONS 3	-	- -
REVISIONS 4	-	- -
FIELD CHANGES	-	- -

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

MAINTENANCE OF TRAFFIC STAGE II

SHEET NUMBER

32

OF 160

HNTB

PROPOSED SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR		TOTAL AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND BORDER	
DI-2	96"	30"	FORT KENT EDMUNDSTON N.B. →	TEXT DIMENSIONS SHALL CONFORM TO "STANDARD HIGHWAY SIGNS"			1	COLORS SHALL CONFORM TO "STANDARD HIGHWAY SIGNS"		20.00 (20.00)
DI-2	96"	30"	FORT KENT EDMUNDSTON N.B. ↑				1			20.00 (20.00)
DI-2	96"	30"	VAN BUREN EDMUNDSTON N.B. ←				1			20.00 (20.00)
0M4-2	18"	18"					3			2.25 (6.75)
RI-1	36"	36"	STOP				4			9.00 (36.00)
R5-1	36"	36"	DO NOT ENTER				2			9.00 (18.00)
R5-11	30"	24"	AUTHORIZED VEHICLES ONLY				2			5.00 (10.00)
RII-2	48"	30"	ROAD CLOSED				2			10.00 (20.00)
WI-6L	48"	24"					5			8.00 (40.00)
WII-2	36"	36"					1			9.00 (9.00)
WI4-1	36"	36"	DEAD END				1			9.00 (9.00)
WI4-2aR	36"	8"	NO OUTLET →				1			2.00 (2.00)

CONSTRUCTION SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS IN INCHES (CENTIMETERS)			NUMBER OF SIGNS REQUIRED	COLOR		TOTAL AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND BORDER	
CS-01	24" (60 CM)	18" (45 CM)	SIDEWALK ← TROTTOIR	TEXT DIMENSIONS SHALL CONFORM TO FHWA "STANDARD HIGHWAY SIGNS" OR TRANSPORTATION ASSOCIATION OF CANADA (TAC) "SIGN PATTERN MANUAL"			1	COLORS SHALL CONFORM TO FHWA "STANDARD HIGHWAY SIGNS" OR TAC "SIGN PATTERN MANUAL"		3.00 (3.00)
4144-L	30" (75 CM)	30" (75 CM)					1			6.25 (6.25)
4300-S	30" (75 CM)	30" (75 CM)	CONSTRUCTION				2			6.25 (12.50)
4318	48" (120 CM)	36" (90 CM)	CONSTRUCTION ZONE ENDS / FIN DE LA ZONE DE CONSTRUCTION				2			12.00 (24.00)

NOTE:

1. Construction sign summary includes phasing signs only. Additional signs will be required for maintenance of traffic.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

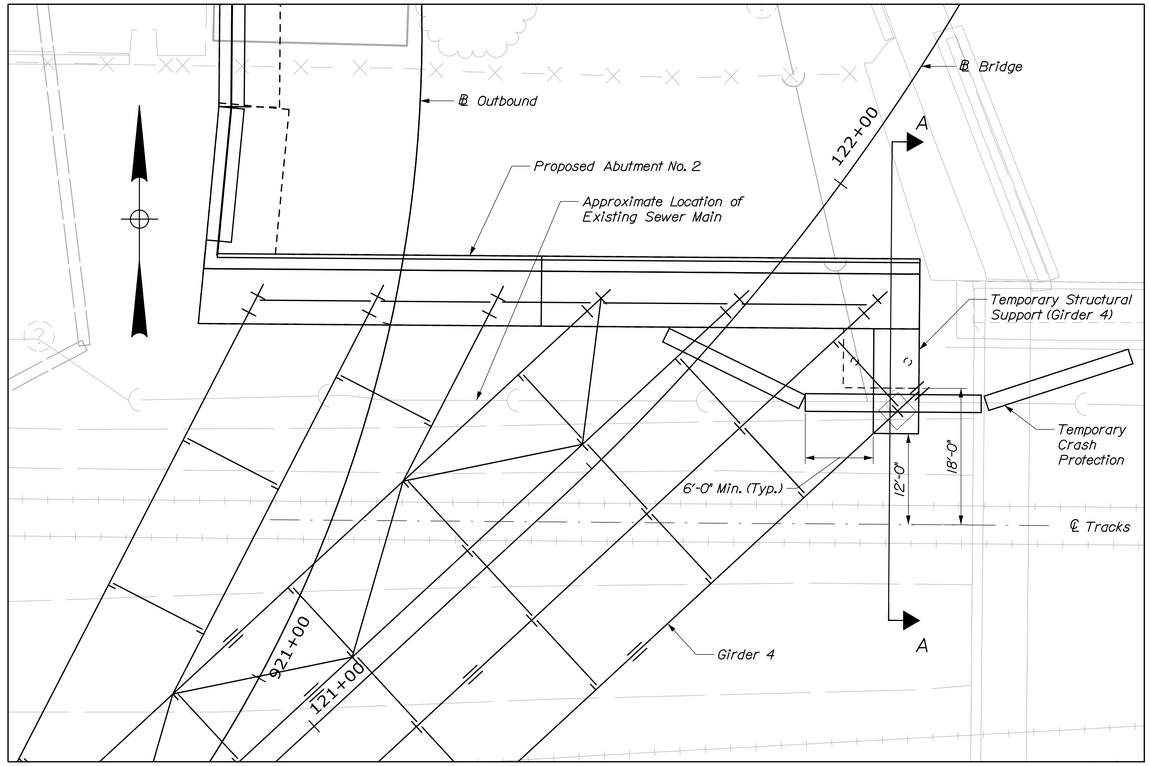
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	E. Davidson	BY	E. Davidson
CHECKED-REVIEWED	L. Driscoll	DATE	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

SIGN SUMMARY

SHEET NUMBER
33
OF 160

Username:
Division:
Filename: 033_SignSummary.dgn
Date:11/20/2020



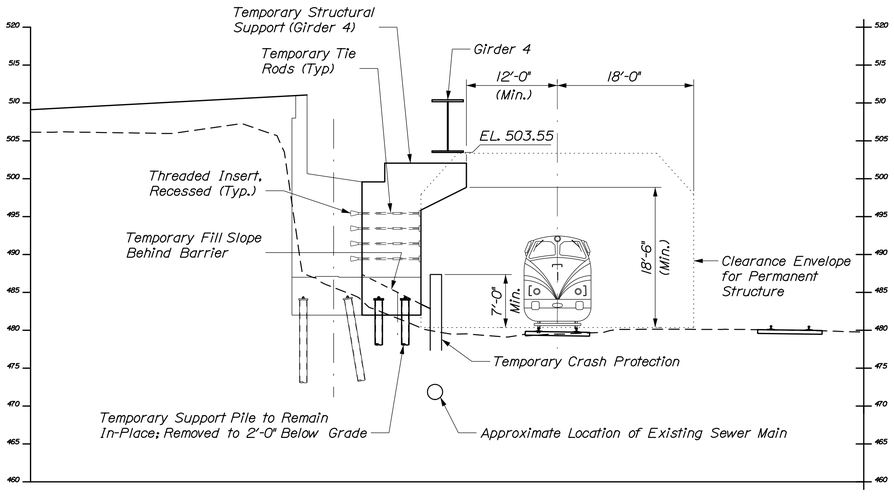
PARTIAL PLAN AT ABUTMENT NO. 2

NOTES:

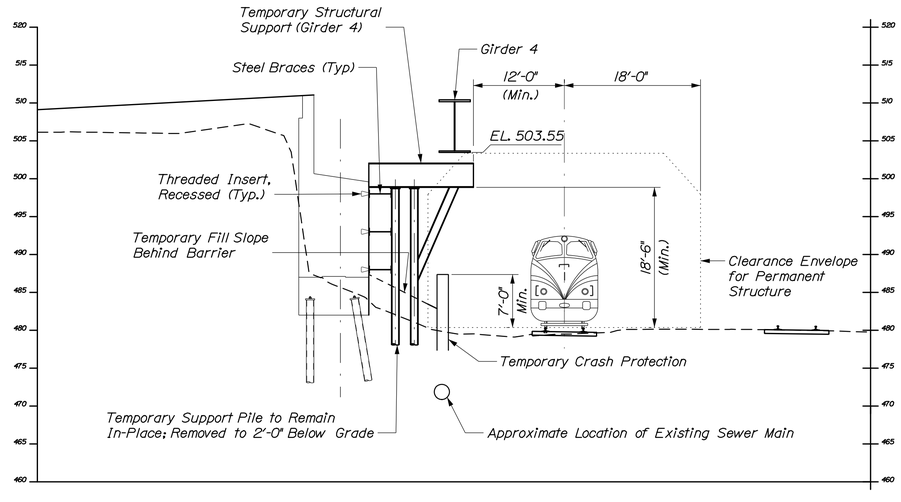
1. The Contractor shall provide a Temporary Structural Support beneath Girder 4 to accommodate Staged Construction of the proposed bridge. The details provided on this sheet depict separate concrete and steel support structures, as well as associated foundation and crash protection elements. These details are conceptual and are provided only for reference. The Contractor is responsible for the complete design, construction, maintenance, and removal, including crash protection, in accordance with Special Provision 524, Temporary Structural Support - Girder.

2. The Temporary Support Structure and crash protection shall not encroach upon the railroad clearance envelopes beyond the limits shown on this sheet.

3. Portions of the Temporary Support Structure extending above grade shall be removed in their entirety. Foundations and other items extending below grade shall be completely removed to a minimum of 2'-0" below grade and shall not disturb adjacent foundations, structures, or utilities.



SECTION A-A
(Temporary Concrete Support Concept)



SECTION A-A
(Temporary Steel Support Concept)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

BRIDGE NO. 2399

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

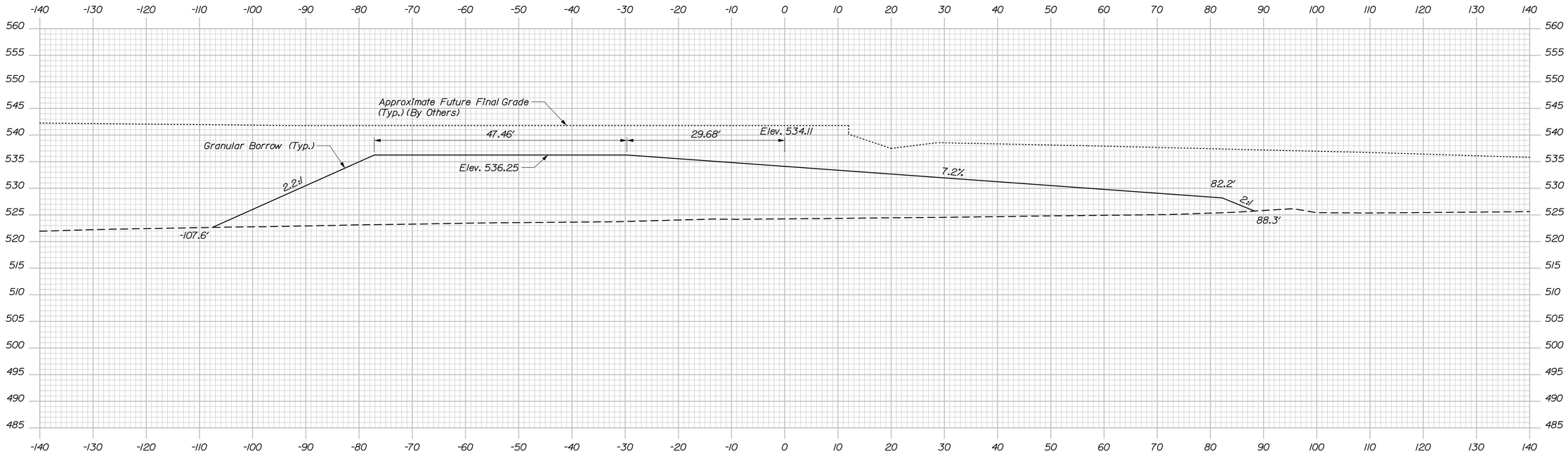
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Burns	P. Bishop	11\20
CHECKED-REVIEWED	J. Wough	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

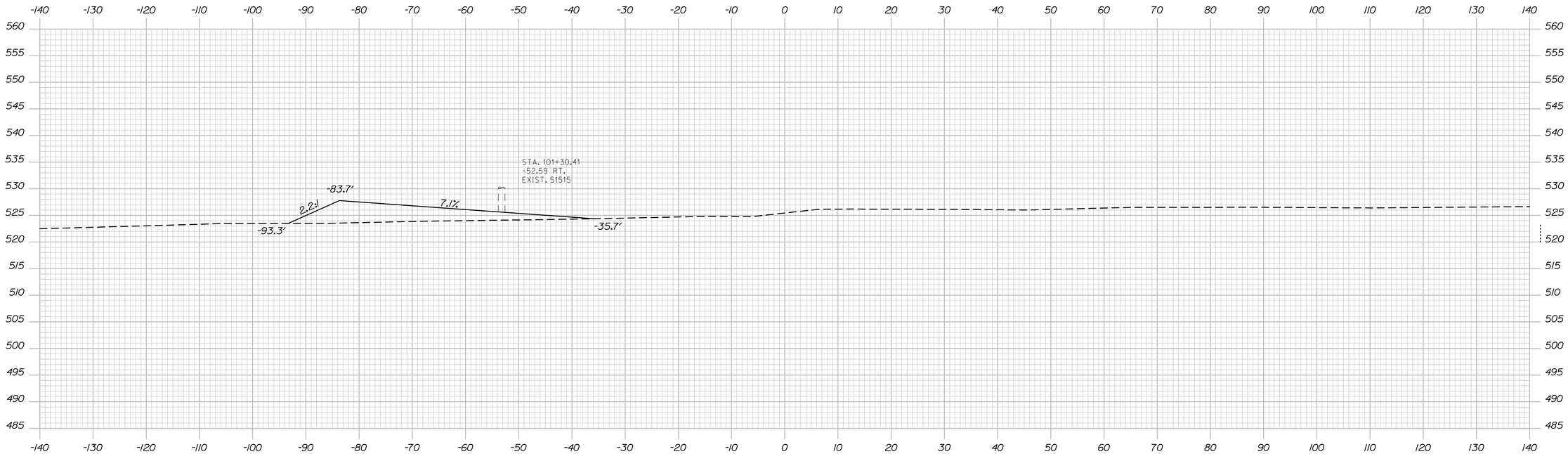
TEMPORARY GIRDER SUPPORT CONCEPT

SHEET NUMBER
34
OF 160

Username:
Division:
Filename: 034_TemporaryGirderSupport.dgn
Date:11/20/2020



101+75.00



NOTE:
1. Top surface is shown level but may be sloped to drain if desired.

101+50.00

Sta. 101+50.00 to Sta. 101+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	DATE
PROJ. MANAGER		
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	11\20
DESIGN2-DETAILED2	–	–
DESIGN3-DETAILED3	–	–
REVISIONS 1	–	–
REVISIONS 2	–	–
REVISIONS 3	–	–
REVISIONS 4	–	–
FIELD CHANGES	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

SHEET NUMBER

35

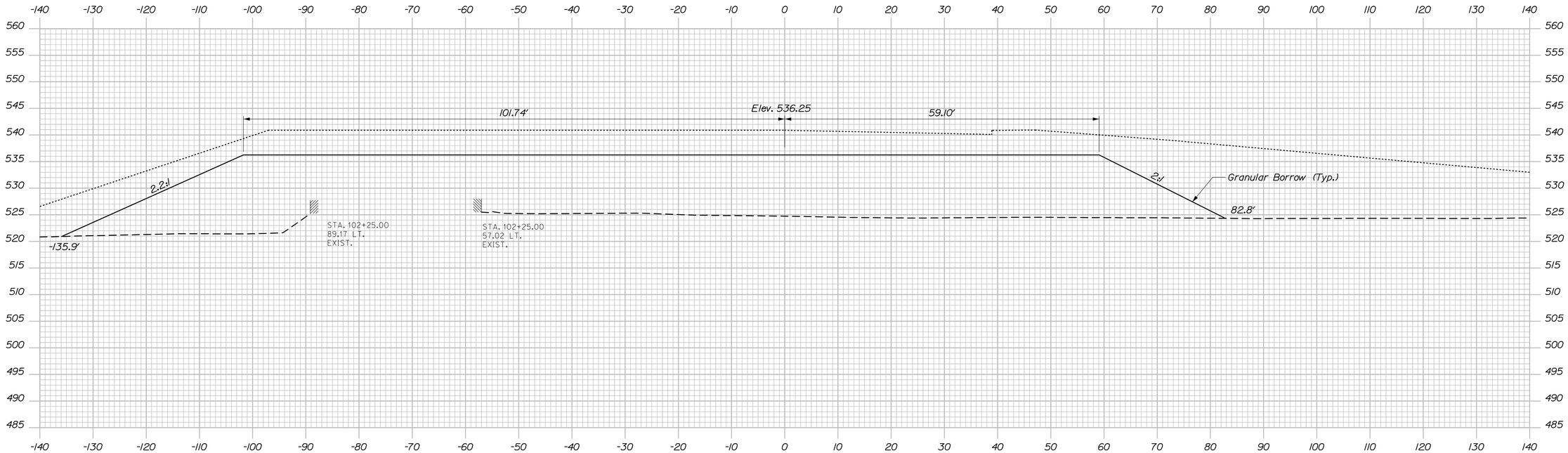
OF 160

Username:

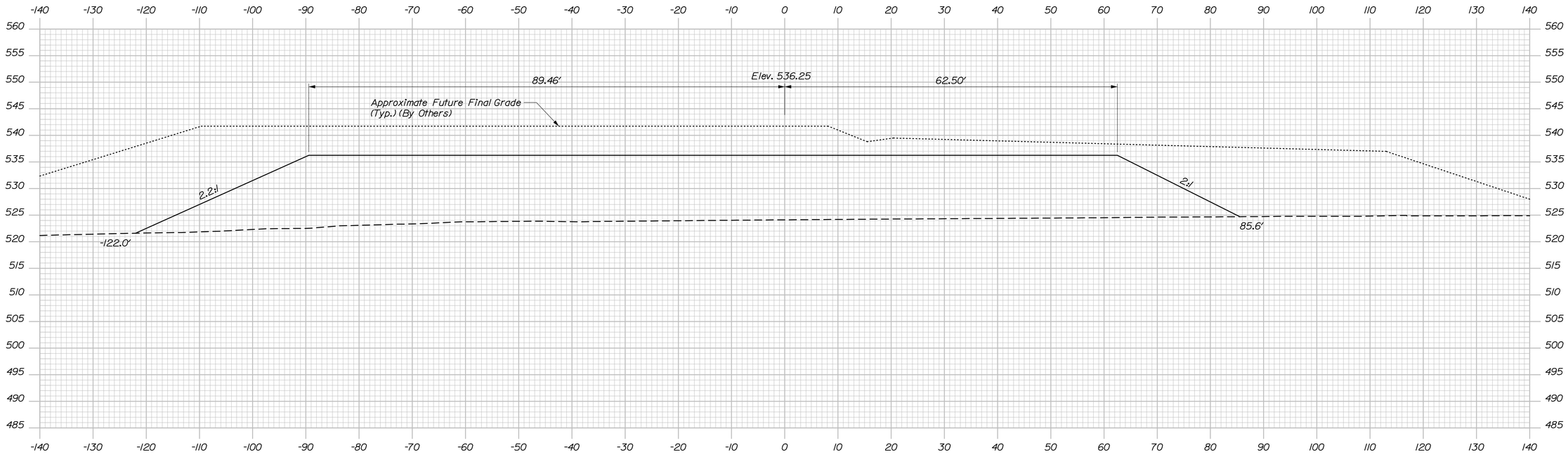
Division:

Date:11/20/2020

Filename: Xsect.dgn



102+25.00



NOTE:
1. Top surface is shown level but may be sloped to drain if desired.

102+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	–	–	–
DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

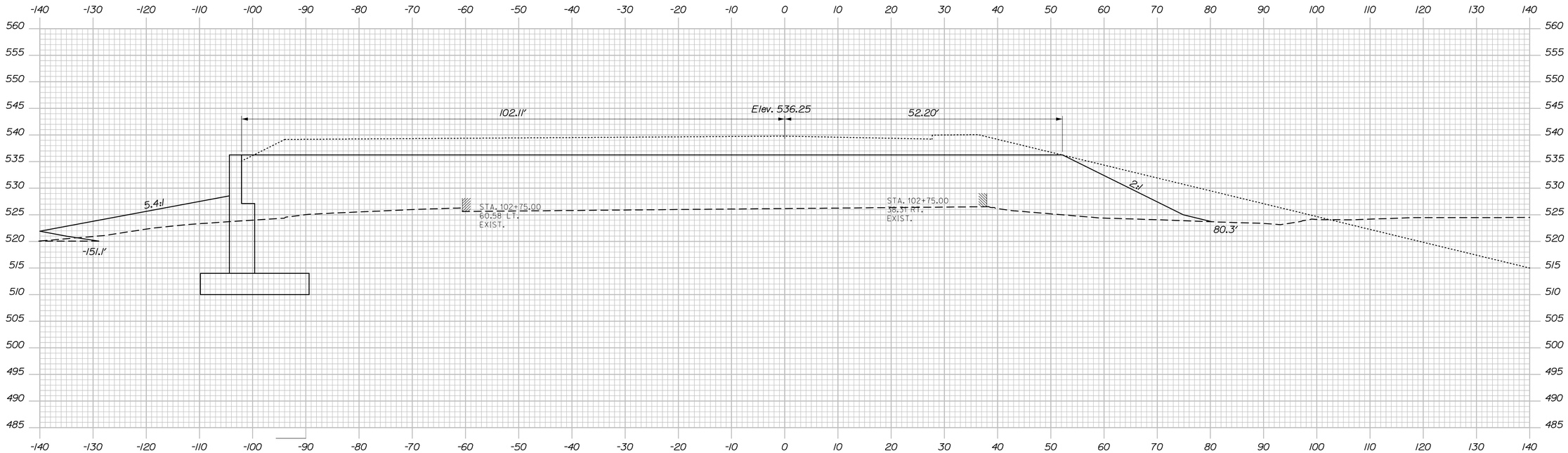
SHEET NUMBER

36

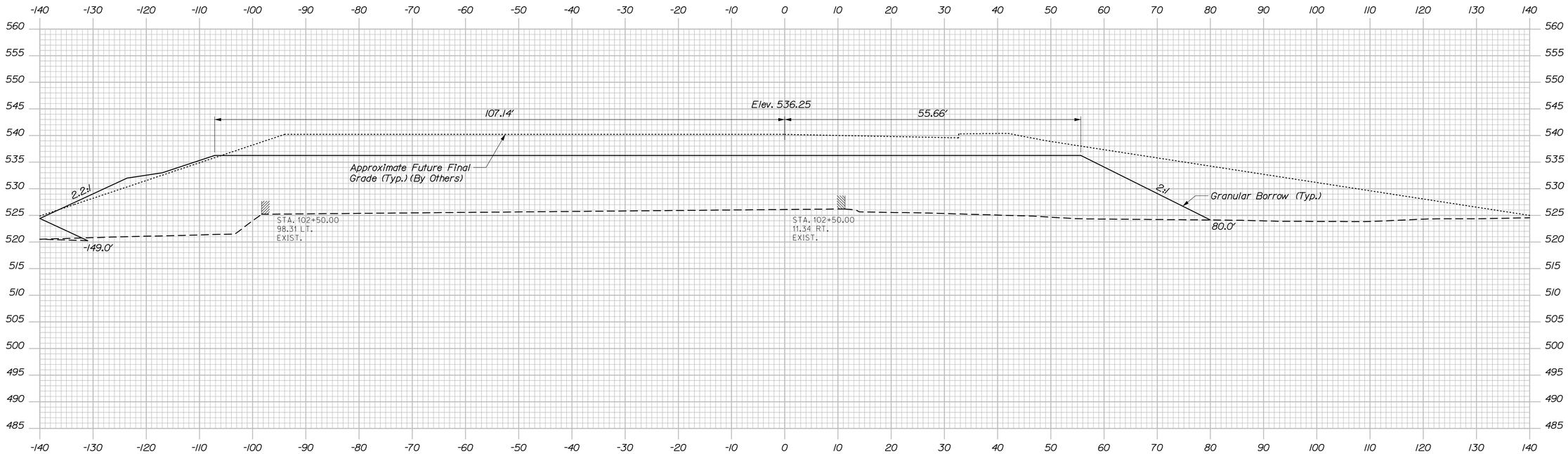
OF 160

Sta. 102+00.00 to Sta. 102+25.00

Username:
Division:
Date:11/20/2020
Filename: Xsect.dgn



102+75.00



NOTE:
1. Top surface is shown level but may be sloped to drain if desired.

102+50.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

			DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	E. Davidson	BY	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	–	–	–
DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

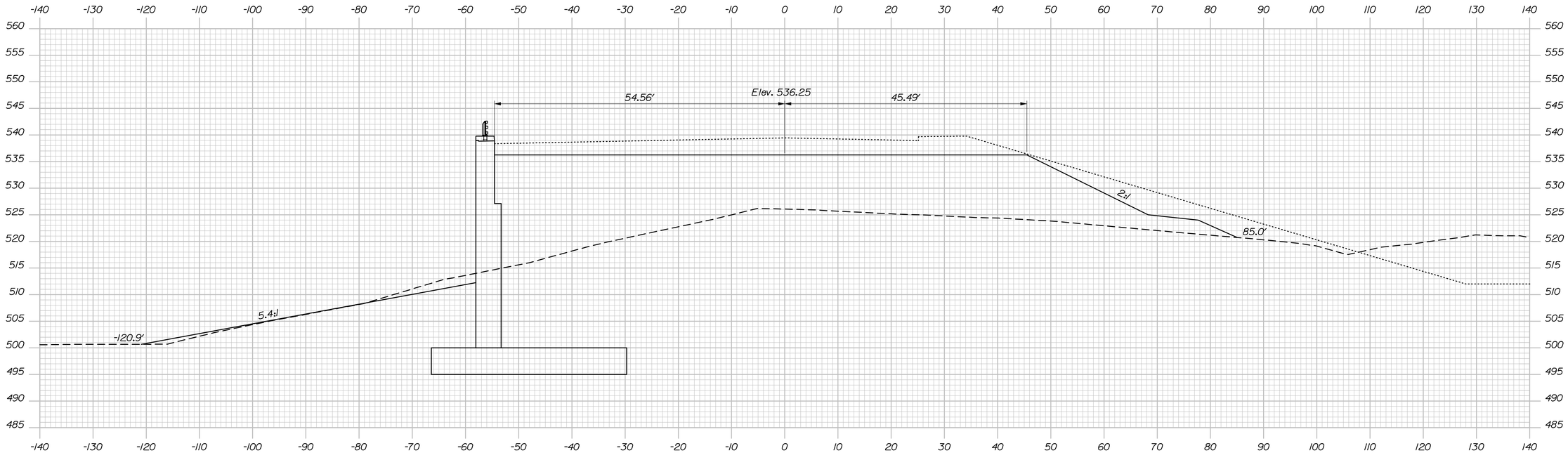
SHEET NUMBER

37

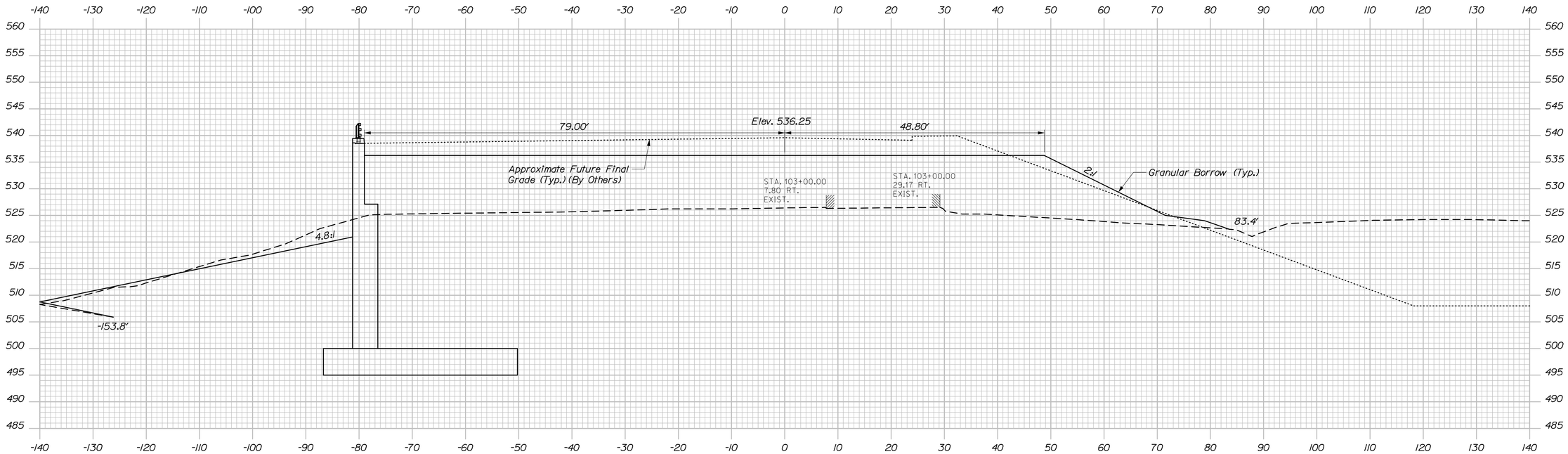
OF 160

Sta. 102+50.00 to Sta. 102+75.00

Username:
Division:
Filename: Xsect.dgn
Date:11/20/2020



103+25.00



103+00.00

NOTE:
1. Top surface is shown level but may be sloped to drain if desired.

Sta. 103+00.00 to Sta. 103+25.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	E. Davidson	BY	DATE
CHECKED-REVIEWED	L. Driscoll	E. Davidson	11\20
DESIGN2-DETAILED2	–	J. Olund	11\20
DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

SHEET NUMBER

38

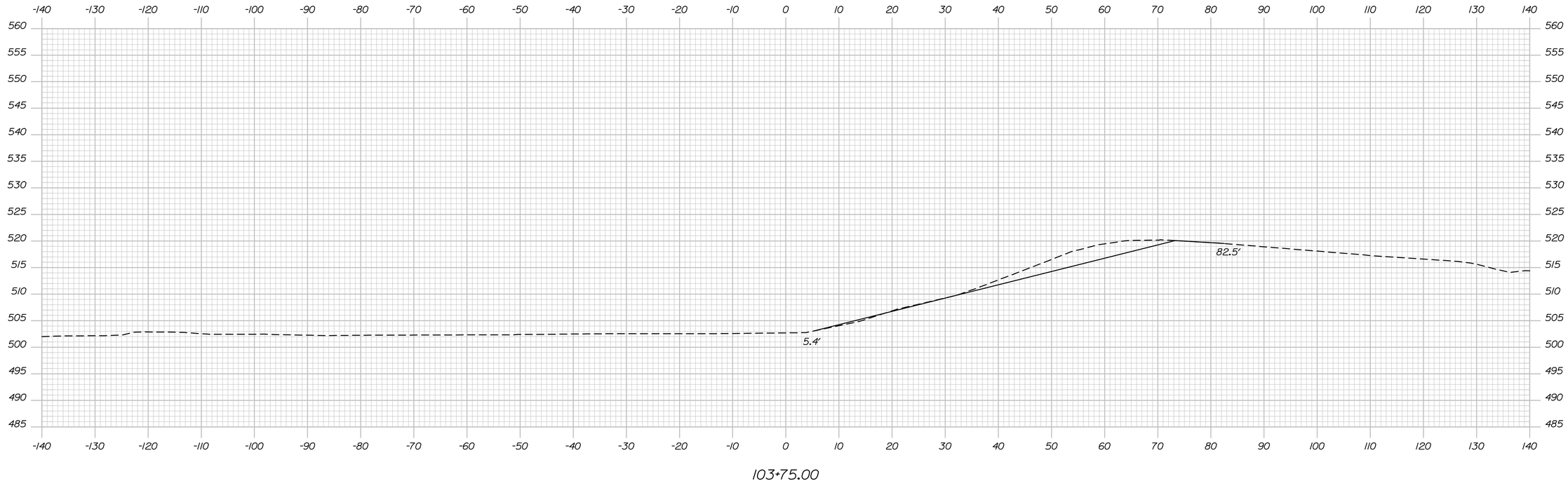
OF 160

Date:11/20/2020

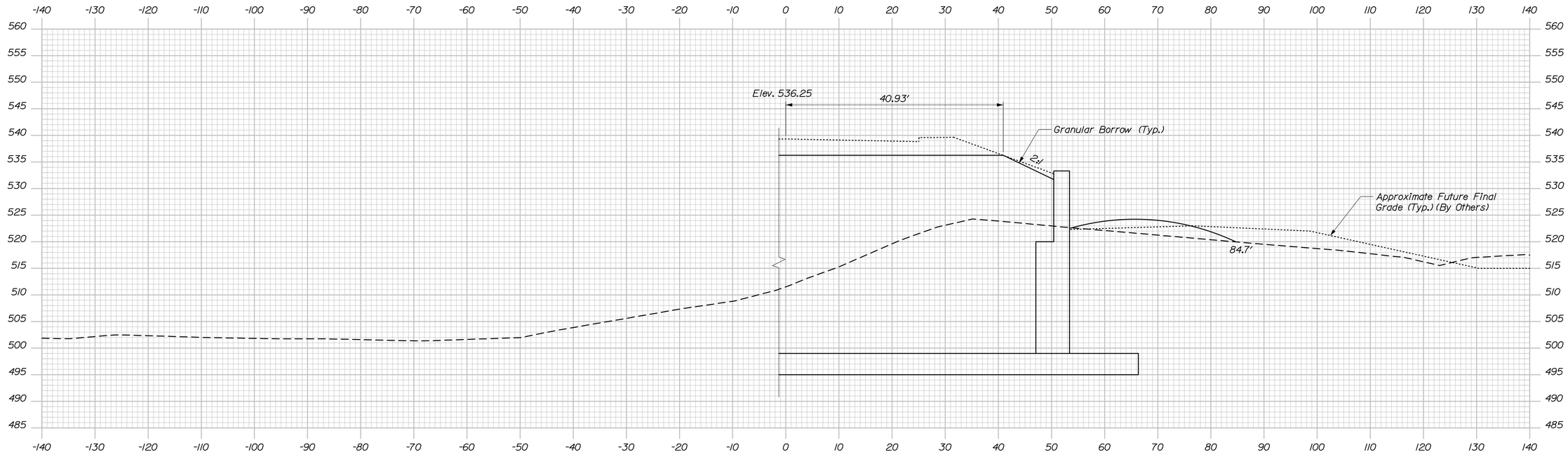
Username:

Division:

Filename: Xsect.dgn



103+75.00



NOTE:
1. Top surface is shown level but may be sloped to drain if desired.

103+50.00

Sta. 103+50.00 to Sta. 103+75.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

			DATE
PROJ. MANAGER	A. LATHE	BY	
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	–	–	–
DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

SHEET NUMBER

39

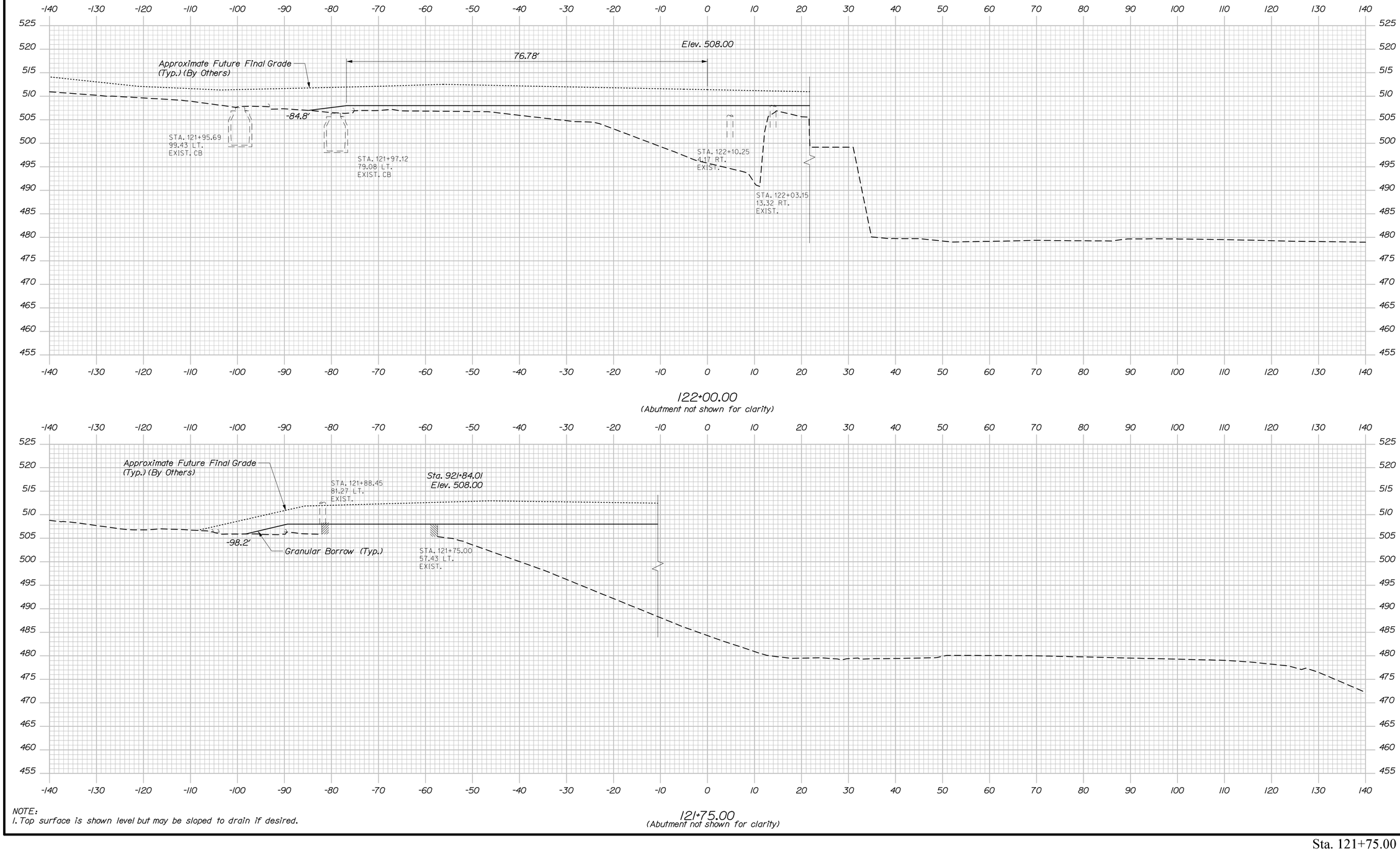
OF 160

Username:

Division:

Date:11/20/2020

Filename: Xsect.dgn



NOTE:
1. Top surface is shown level but may be sloped to drain if desired.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	–	–	–
DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

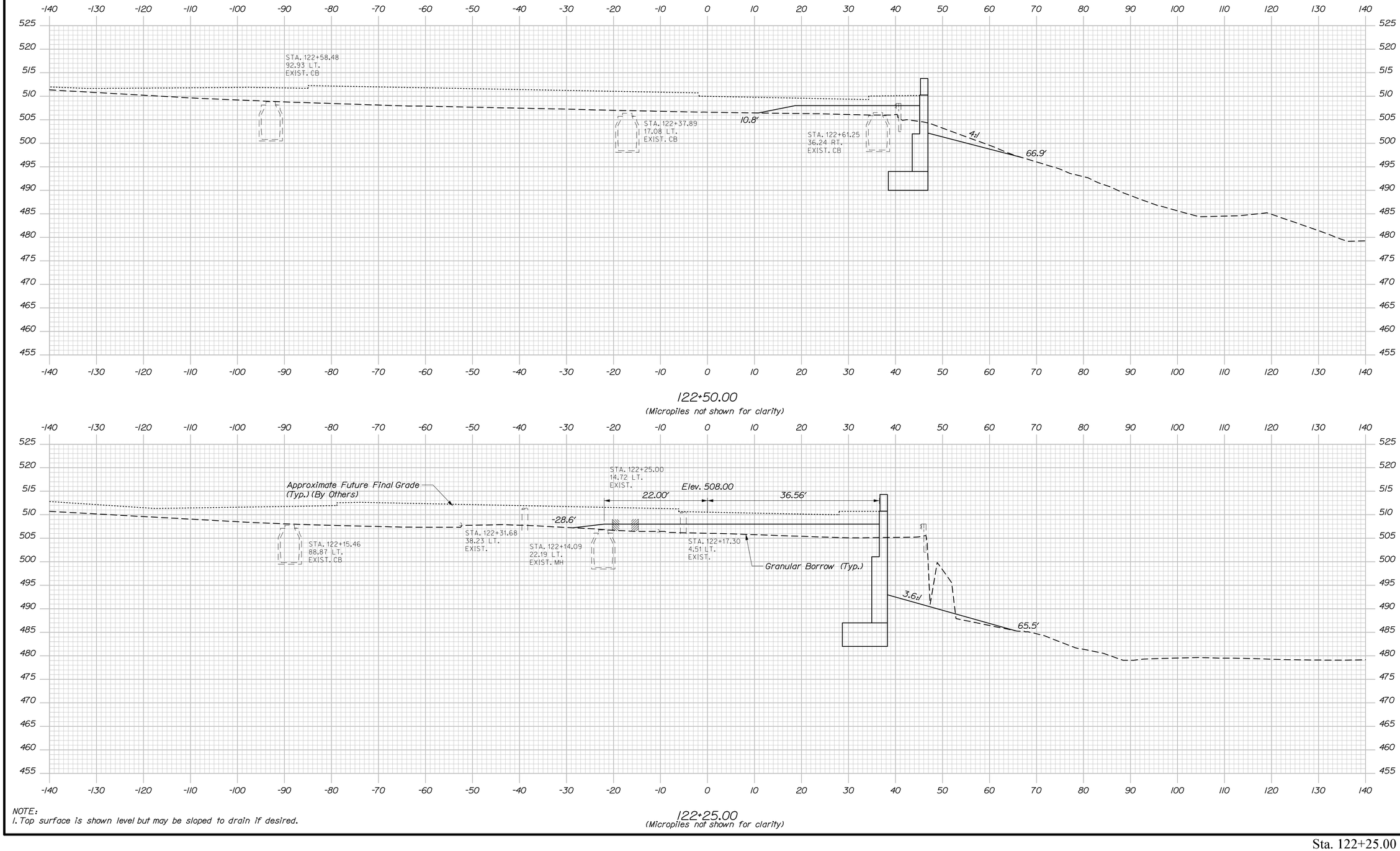
SHEET NUMBER

40

OF 160

Sta. 121+75.00 to Sta. 122+00.00

Username:
Division:
Filename: Xsect.dgn
Date:11/20/2020



NOTE:
1. Top surface is shown level but may be sloped to drain if desired.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	11\20
DESIGN2-DETAILED2	–	–
DESIGN3-DETAILED3	–	–
REVISIONS 1	–	–
REVISIONS 2	–	–
REVISIONS 3	–	–
REVISIONS 4	–	–
FIELD CHANGES	–	–

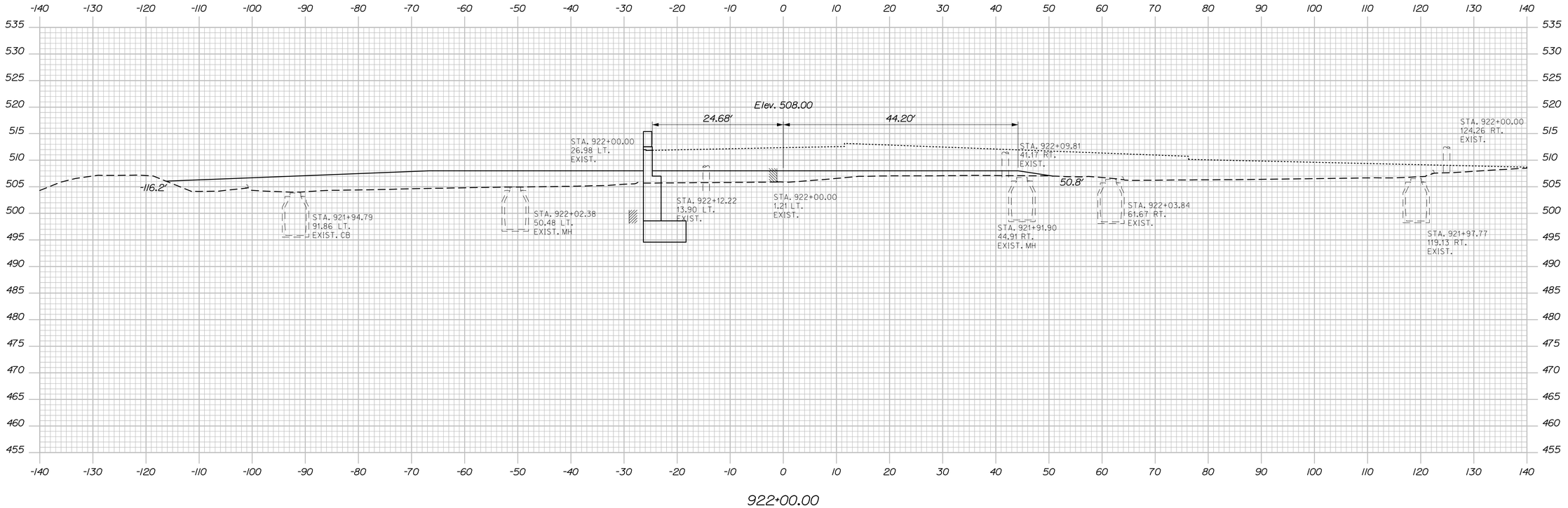
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

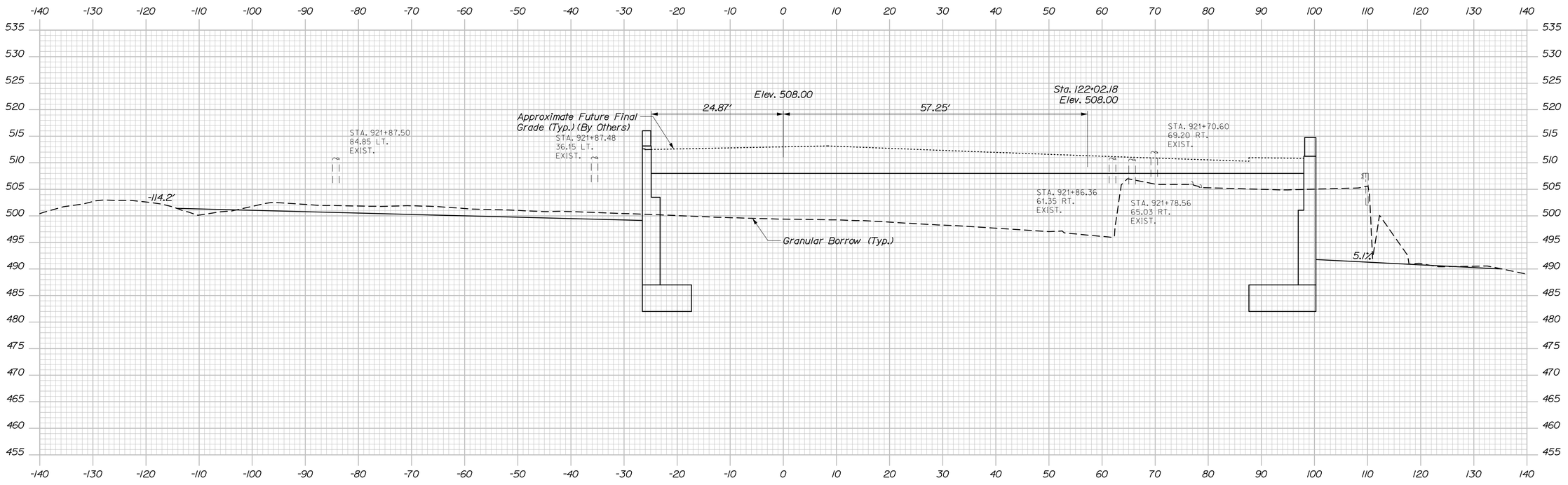
SHEET NUMBER
41
OF 160

Sta. 122+25.00 to Sta. 122+50.00

Username:
Division:
Filename: Xsect.dgn
Date:11/20/2020



922+00.00
(Micropiles not shown for clarity)



921+75.00
(Micropiles not shown for clarity)

NOTE:
1. Top surface is shown level but may be sloped to drain if desired.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

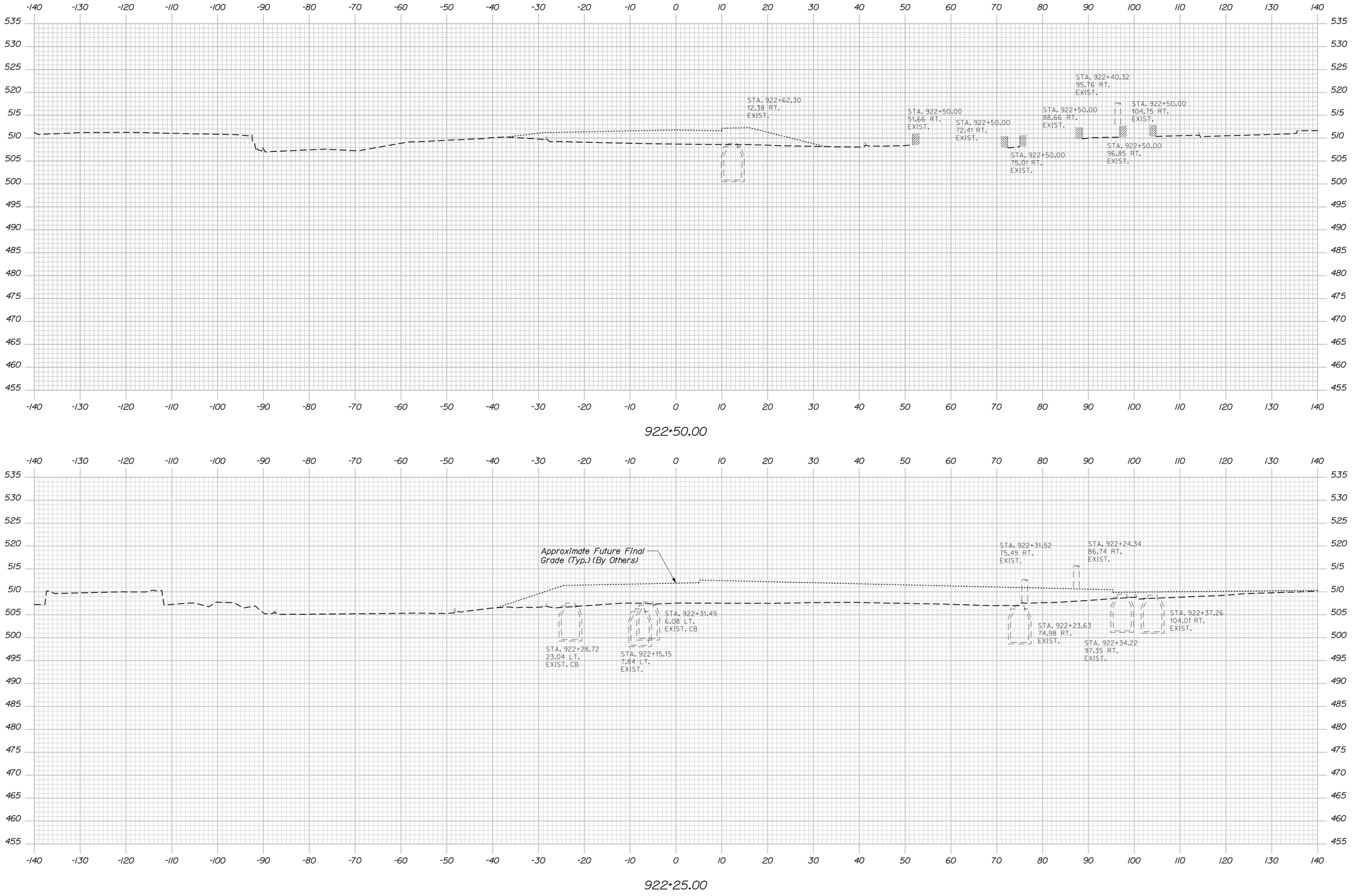
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

SHEET NUMBER
42
OF 160

Username:
Division:
Filename: Xsect.dgn
Date:11/20/2020

Sta. 921+75.00 to Sta. 922+00.00



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROSS SECTIONS

SHEET NUMBER

43

OF 160

Username:

Division:

Date:11/20/2020

Filename: Xsect.dgn

Sta. 922+25.00 to Sta. 922+50.00

Username:
Division:
Filename: 044_CrownlineDetail.dgn
Date:11/20/2020

℄ Outbound

℄ Bridge Sta. 120+41.06 =
℄ Outbound Sta. 920+41.06

PC

PT

PC

PT

℄ Bridge

Crown Line

920+00
120+00

921+00
121+00

922+00
122+00

123+

2%

1%

9.35'
8.40'
7.47'
6.59'
5.56'
4.38'
3.25'
2.32'
1.69'
1.01'
0.57'
0.11'
0.17'
0.99'
2.18'
3.70'
5.72'
8.25'
11.23'
14.59'
18.42'
22.91'
27.93'
33.11'
38.41'
43.83'

PLAN

10 0 10 20
Scale of Feet

NOTE:

1. Dimensions are posted at 10' increments measured along, and perpendicular to, the baselines
2. All cross slopes are normal to the respective Baselines.
3. Structural Concrete Roadway Median not shown for clarity.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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WIN 021736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	E. Davidson	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CROWNLINE DETAIL

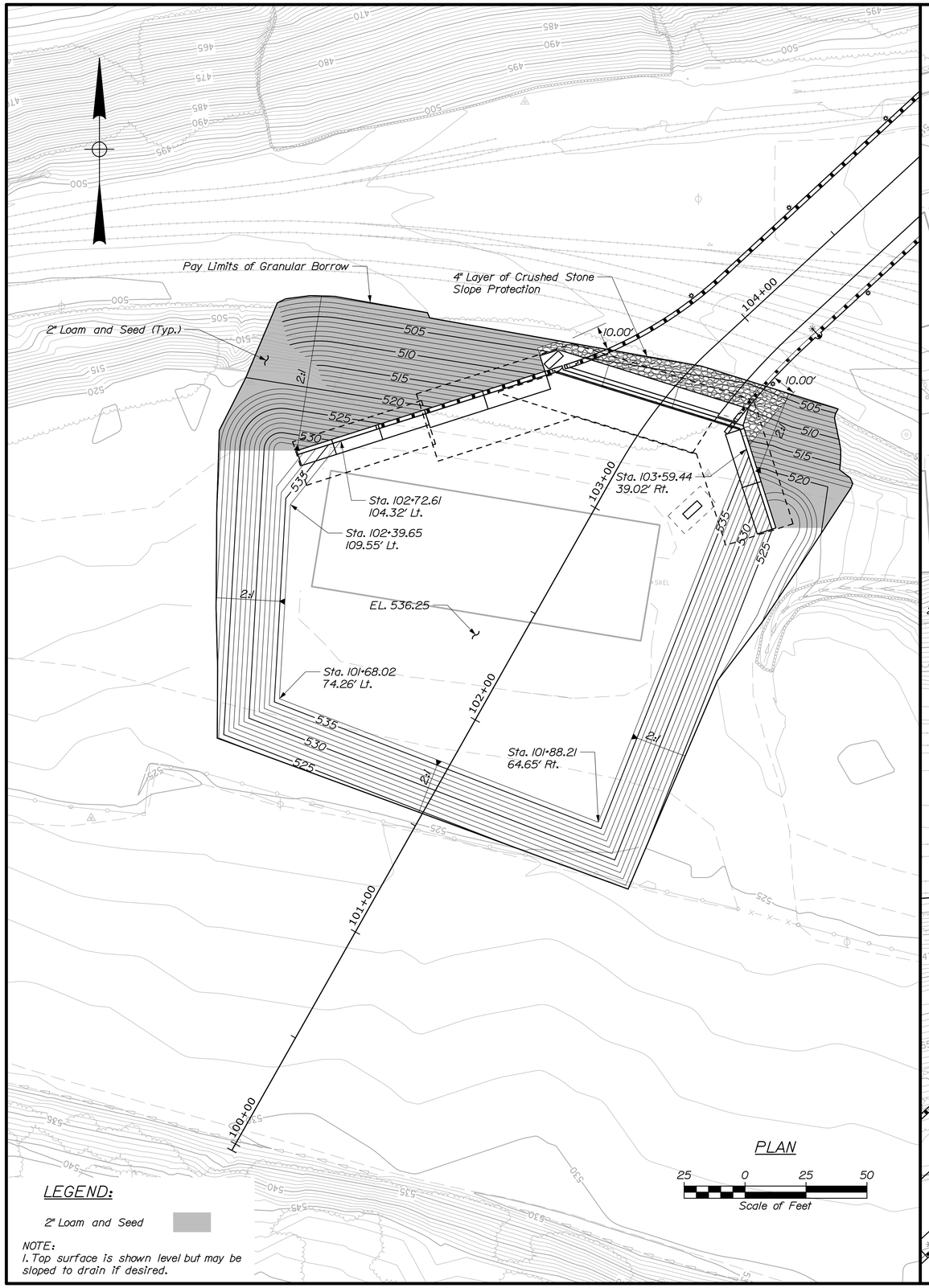
SHEET NUMBER
44
OF 160

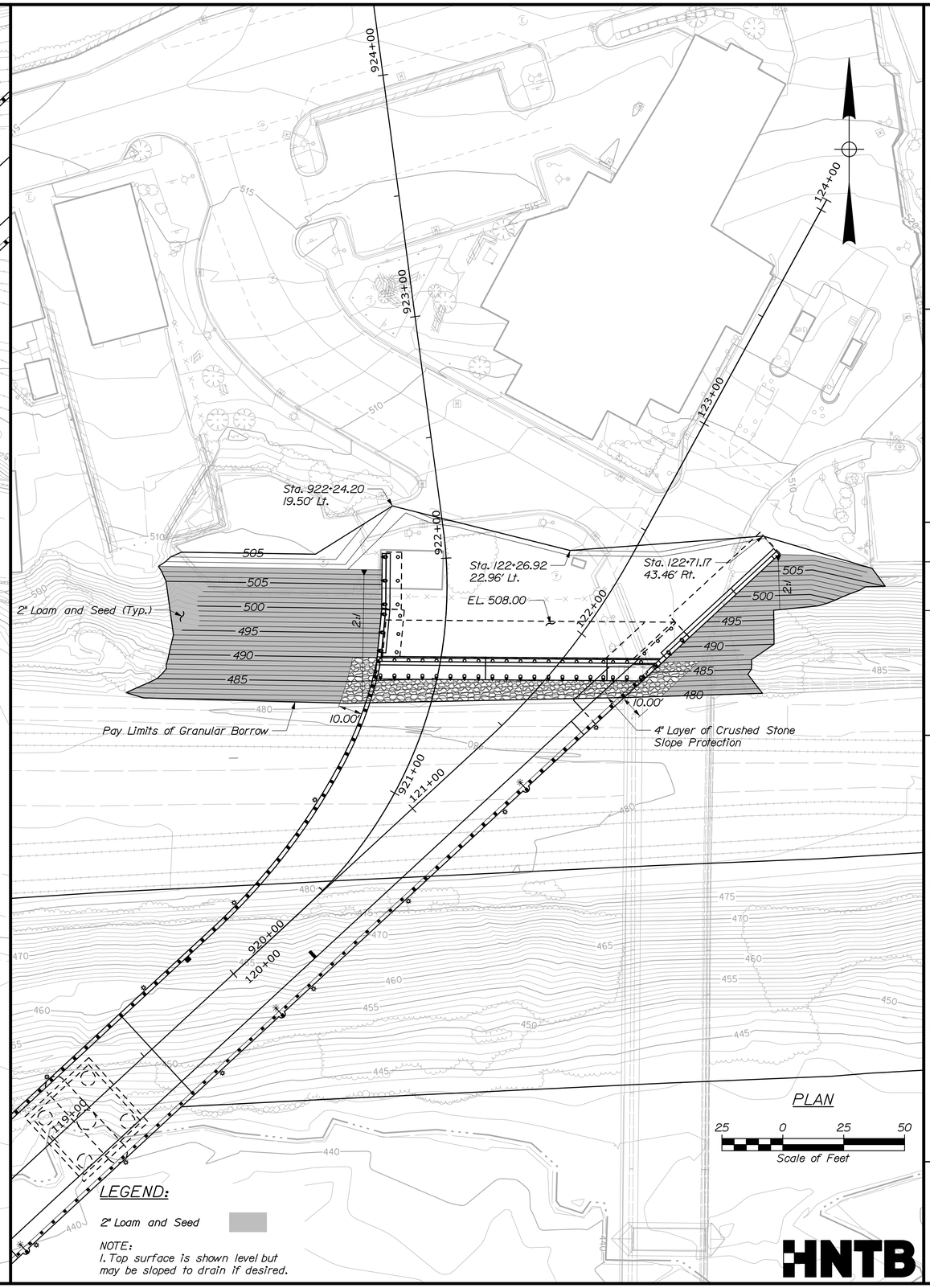
Username:

Division:

Date:11/20/2020

Filename: 045_GradingPlan.dgn





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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	E. Davidson	11\20
CHECKED-REVIEWED	L. Driscoll	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT GRADING PLAN

SHEET NUMBER

45

OF 160

ABUTMENT NOTES

1. The maximum factored applied footing pressure (Abutment No. 1) is 12.00 ksf and 8.50 ksf at Abutment 2, Northeast Wingwall.

2. Reinforcing steel shall have a minimum concrete cover of 2 inches in the walls and 3 inches in the footings unless otherwise noted.

3. Place 4 inch diameter drains in the breastwall and wingwalls at 10 feet maximum spacing. The exact location will be determined by the Resident.

4. Cover joints where waterstops are not required in accordance with Standard Details Section 502(01).

5. Construct French Drains behind the abutments and wingwalls in accordance with Standard Specifications Section 512, French Drains.

6. Abutments, wingwalls and their footings shall be backfilled with Granular Borrow.

7. Spread footings bearing on soil shall be supported either on naturally deposited and proof-compacted soil or on structural fill (Item 703.20, Gravel Borrow). Natural soil subgrade surfaces shall be confirmed by the Resident.

8. See "Abutment No. 2 Micropile Detail" sheet for additional foundation notes.

9. The Contractor shall install transition barrier vertical closed stirrups, as shown on "Bridge Transition Barrier Details" sheets.

10. The utility conduits passing through the abutment backwalls shall be either cast in place or run through a utility blockout, at the option of the Contractor. Additional reinforcing steel shall be provided around the utility conduit for either option, as shown on the plans. If blockouts are used, all voids around the conduits shall be fully grouted with a MaineDOT pre-approved product. All costs associated with construction of utility conduit blockouts shall be incidental to Item 502.219, Structural Concrete, Abutments and Retaining Walls.

11. The concrete pedestal elevations shown on "Abutment 1 Plan and Elevation" and "Abutment 2 Plan and Elevation" are approximate. The actual elevations shall be adjusted to accommodate the bearings supplied by the Contractor. The elevations provided on the Plans assume an overall bearing height of 16 inches at ℄ bearing.

12. Foundation concrete placed on bedrock shall be placed on bedrock cleaned of all loose rock and soil. The bedrock subgrade shall be confirmed to be relatively level. Where the bedrock surface slope exceeds 4H : 1V, the bedrock surface shall be benched to create level steps or made completely level, as approved by the Resident. Prior to placing the concrete, the bearing surface shall be washed with high-pressure water and air.

13. When the prepared bedrock surface is below the bottom of the 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.

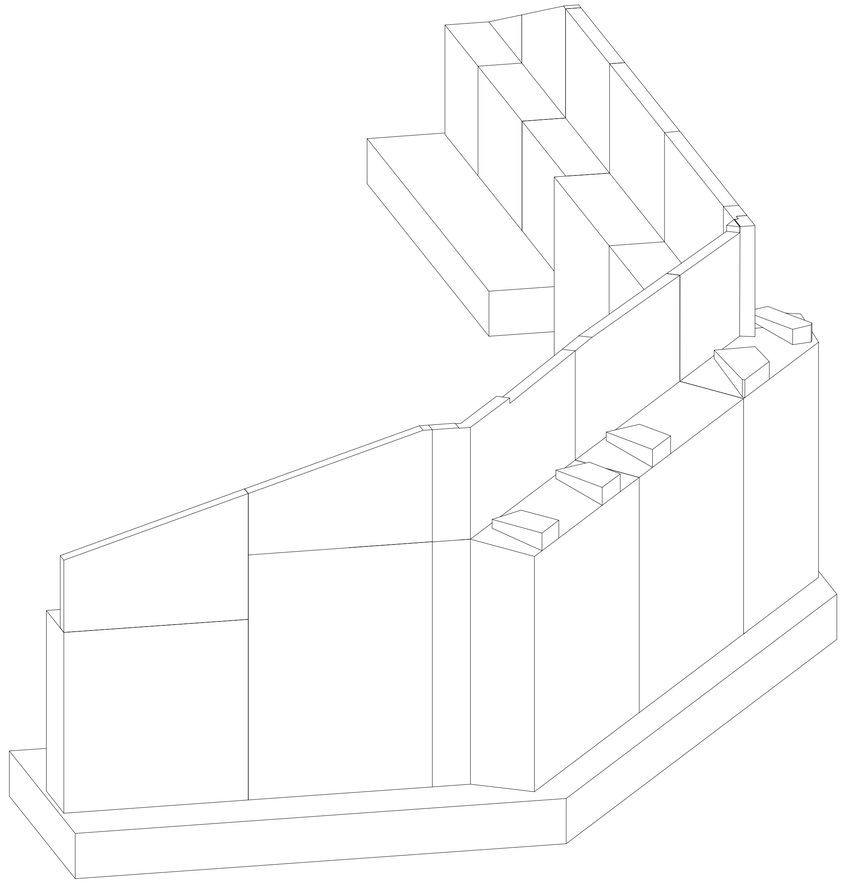
14. When bedrock protrudes above the bottom of the footing shown, the footing may be raised and vertical reinforcing may be cut in the field with the approval of the Resident. The minimum allowable footing thickness is shown on the Plans. Payment for adjusting footing depth and adjusting reinforcing steel will be considered incidental to related Contract items. No separate payment will be made.

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

16. The location of the vertical expansion joint separating the micropile and spread footing foundations, within the northeast wingwall, may require adjustment based upon the actual bedrock profile beneath the foundations. The Contractor shall provide a bedrock profile along the face of the northeast wingwall to the Engineer for review a minimum of 14 days prior to advancing foundation construction, for final location of the noted expansion joint. Adjustment to steel reinforcement, if required, will be provided by the Engineer.

17. Any undermining of micropile foundations, caused by Contractor activities, shall be backfilled with flowable concrete fill or other materials approved by the Resident. Payment shall be considered incidental to related contract items.

18. Jacking locations on bearing pedestals are detailed to support service loads as shown on "Disc Bearings" sheet.



ABUTMENT 1 ISOMETRIC VIEW
(Utility Blockouts, Transition Barriers and Weep Drains Not Shown)

ABUTMENT 2 ISOMETRIC VIEW
(Utility Blockouts, Transition Barriers, and Weep Drains Not Shown)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER	J. Yaltaires	E. Tobias	11\20
DESIGN-DETAILED	J. Yaltaires	E. Tobias	11\20
CHECKED-REVIEWED	I. McCabe	J. Olund	-
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT NOTES

SHEET NUMBER
46
OF 160

HNTB

Filename: 046_Abutment Notes.dgn Division: Username: Date:11/20/2020

FOUNDATION PLAN

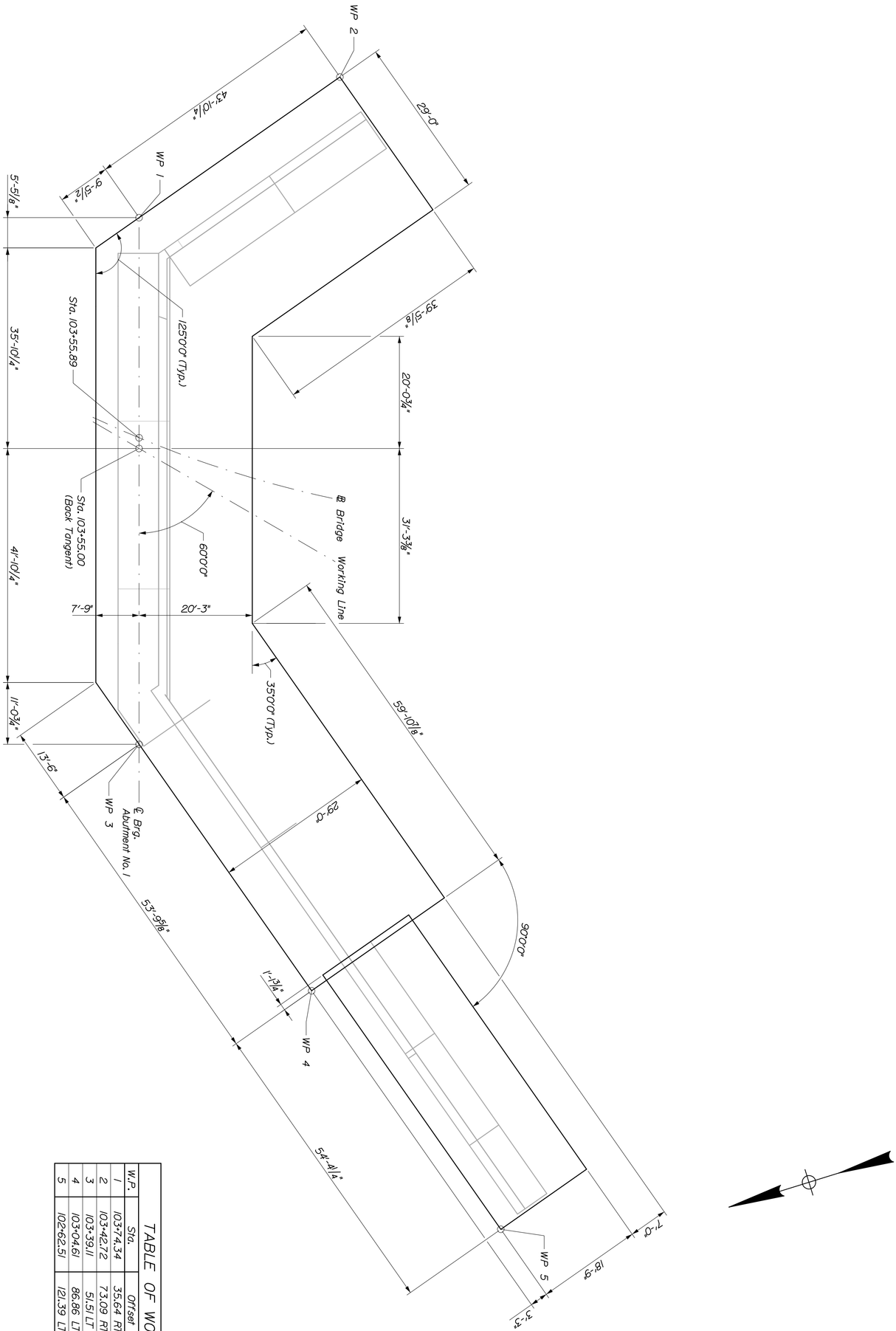


TABLE OF WORKING POINTS

W.P.	Sta.	Offset	Northing	Easting
1	103+74.34	35.64 RT	2855743.72	2182822.70
2	103+42.72	73.09 RT	2855501.96	2182836.06
3	103+39.11	51.51 LT	2855571.67	2182732.74
4	103+04.61	86.86 LT	2855555.27	2182681.50
5	102+62.51	121.39 LT	2855535.61	2182630.72

HNTB

SHEET NUMBER 47 OF 160

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 1 FOUNDATION PLAN

PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	J. Yaitanes	C. Wong	11\20
CHECKED-REVIEWED	I. McCabe	J. Olund	11\20
DESIGN2-DETAILED2	_	_	_
DESIGN3-DETAILED3	_	_	_
REVISIONS 1	_		_
REVISIONS 2	_		_
REVISIONS 3	_		_
REVISIONS 4	_		_
FIELD CHANGES	_		_

SIGNATURE
12130
P.E. NUMBER
11/19/2020
DATE

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED
PROFESSIONAL ENGINEER

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

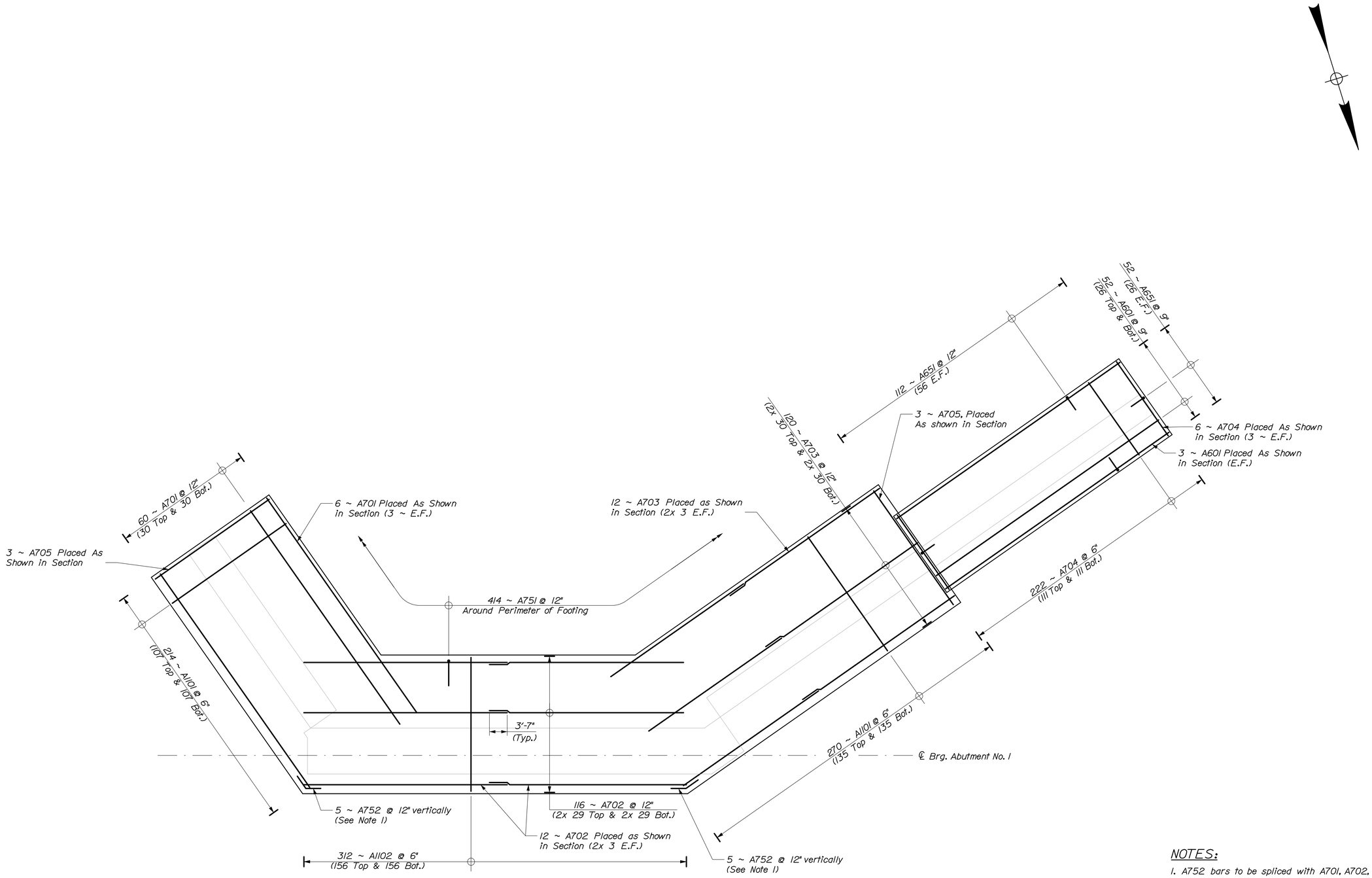
2173600

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

WIN
021736.00

BRIDGE PLANS

Filename: 048_Abutment 1 Foundation Reinforcing Plan.dgn Username: Date:11/20/2020



FOUNDATION PLAN

(Footing / Wall dowel bars not shown for clarity)

NOTES:

1. A752 bars to be spliced with A701, A702, and A703 bars.

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STATE OF MAINE
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MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

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BRIDGE PLANS

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	J. Yiatanes
CHECKED-REVIEWED	I. McCabe
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-
REVISIONS 1	-
REVISIONS 2	-
REVISIONS 3	-
REVISIONS 4	-
FIELD CHANGES	-

BY	DATE
C. Wong	11\20
J. Olund	11\20
-	-
-	-
-	-
-	-
-	-
-	-
-	-

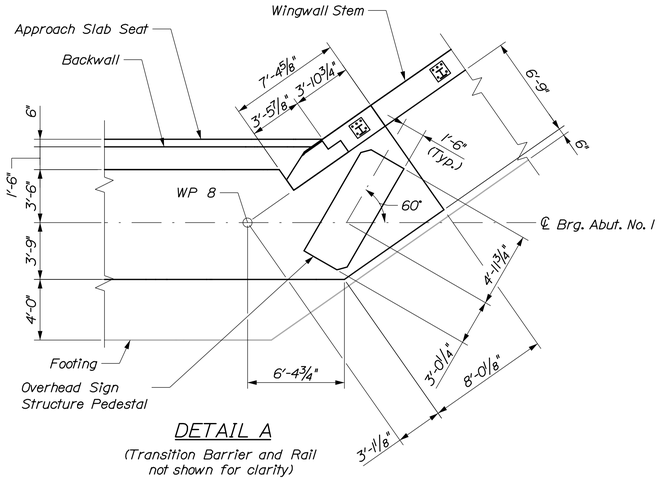
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 1
FOUNDATION REIN. PLAN

SHEET NUMBER

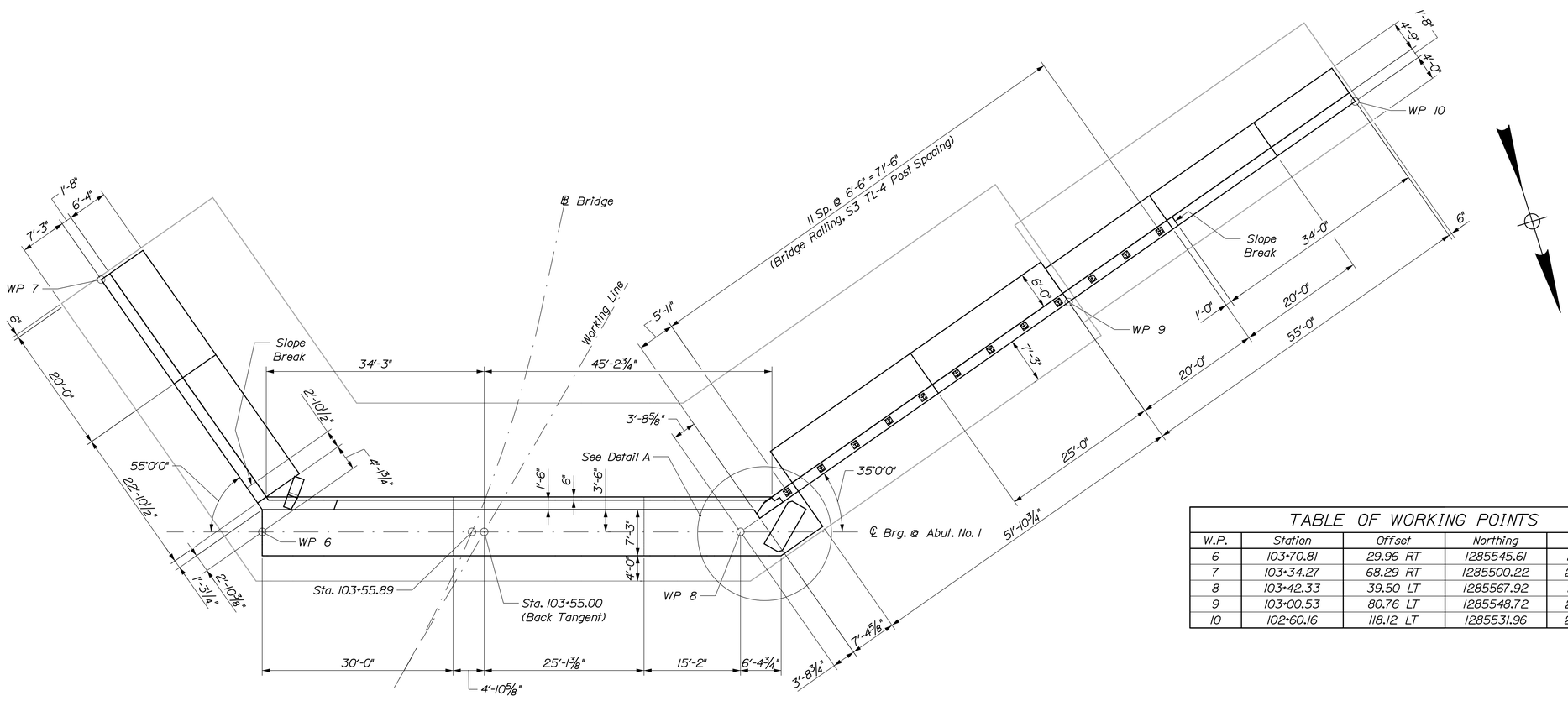
48

OF 160



DETAIL A

(Transition Barrier and Rail not shown for clarity)



PLAN

(Abutment footing shown screened for clarity)

TABLE OF WORKING POINTS				
W.P.	Station	Offset	Northing	Easting
6	103+70.81	29.96 RT	1285545.61	2182816.59
7	103+34.27	68.29 RT	1285500.22	2182829.00
8	103+42.33	39.50 LT	1285567.92	2182744.81
9	103+00.53	80.76 LT	1285548.72	2182684.80
10	102+60.16	118.12 LT	1285531.96	2182632.42

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER	J. Yiatanes	C. Wong	11\20
DESIGN-DETAILED	J. Yiatanes	J. Olund	11\20
CHECKED-REVIEWED	I. McCabe	-	-
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 1
GEOMETRY PLAN

SHEET NUMBER

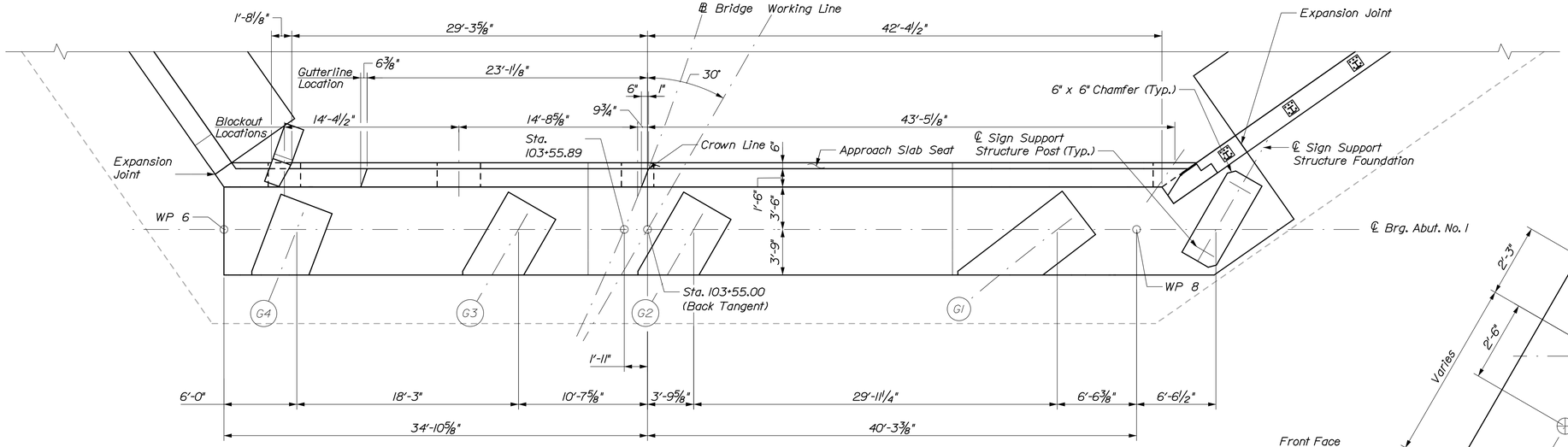
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OF 160

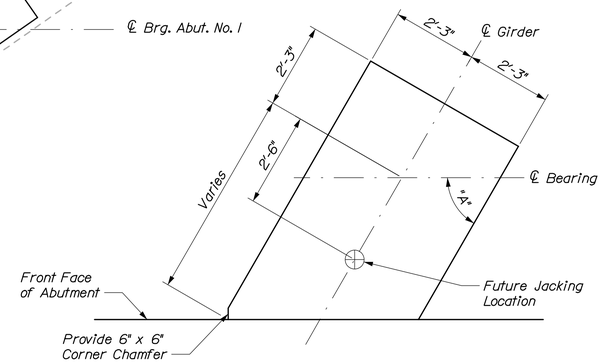
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Filename: 050_Abutment 1 Plan and Elevation.dgn Division: Username: Date:11/20/2020



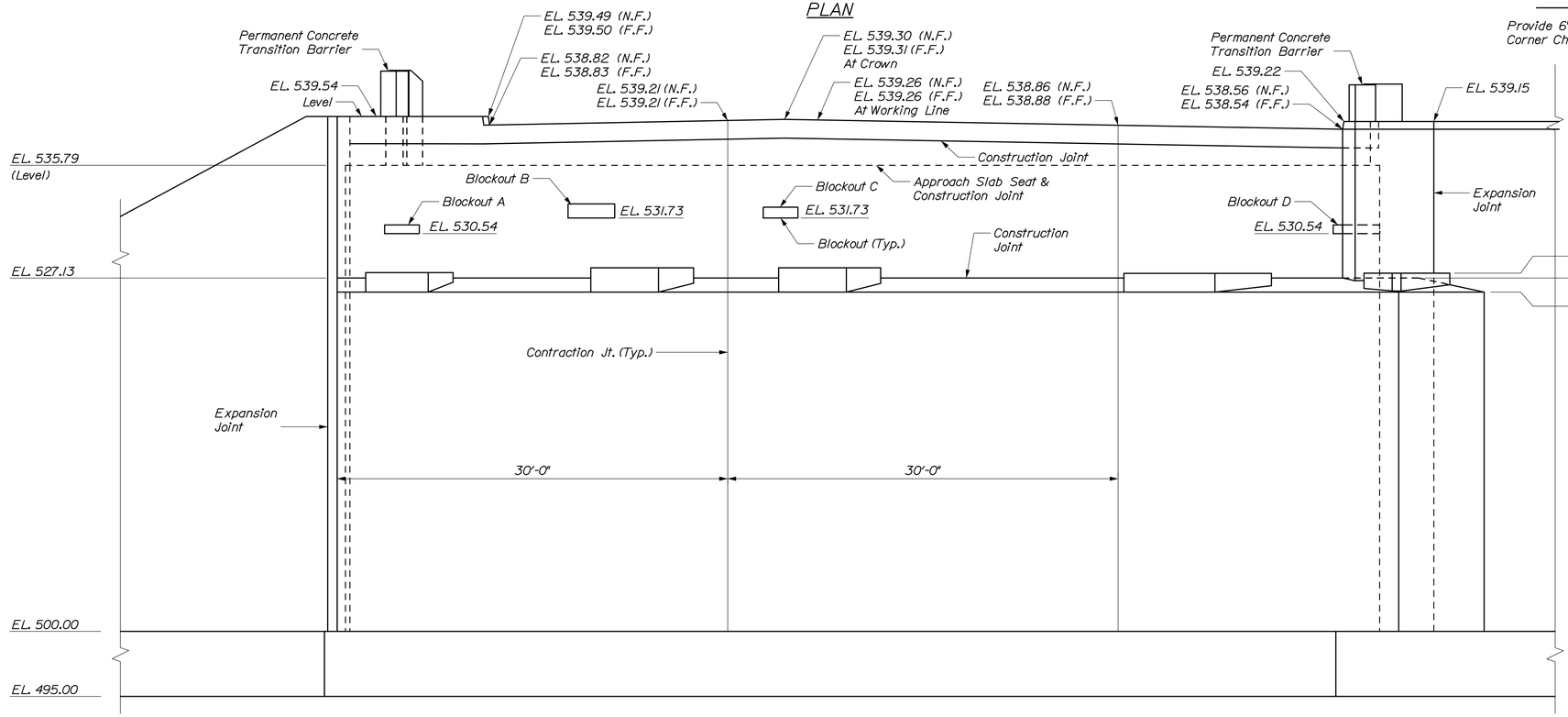
PLAN



BEARING PEDESTAL DETAIL

PEDESTAL ELEVATIONS	
Girder	Elevation
G1	527.49
G2	527.92
G3	527.92
G4	527.54

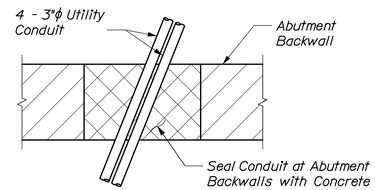
BEARING ANGLES	
Girder	A
G1	37°17'23"
G2	60°
G3	60°
G4	69°17'10"



ELEVATION

(Bridge Rail not shown for clarity)

UTILITY BLOCKOUTS		
Blockout	W x L	Conduits
A	32" x 8"	(3) 2" ϕ
B	43" x 13"	(4) 2" & (4) 3" ϕ
C	32" x 10"	(2) 4" ϕ
D (N.F.)	9" x 8"	(1) 2" ϕ
D (F.F.)	37" x 8"	(1) 2" ϕ



CONDUIT BLOCKOUT DETAIL

(3" Conduit Blockout shown, other Conduits similar)

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
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STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Yatlones	11\20
CHECKED-REVIEWED	I. McCabe	11\20
DESIGN2-DETAILED2	–	–
DESIGN3-DETAILED3	–	–
REVISIONS 1	–	–
REVISIONS 2	–	–
REVISIONS 3	–	–
REVISIONS 4	–	–
FIELD CHANGES	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

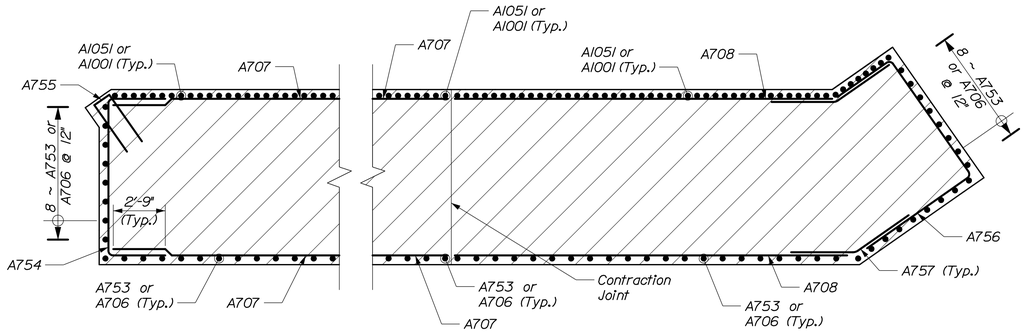
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SHEET NUMBER

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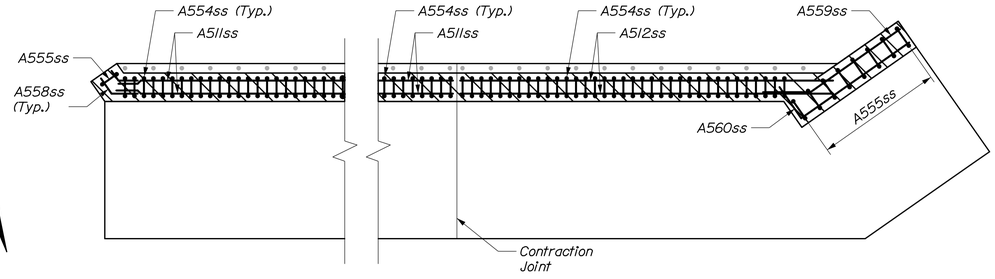
OF 160

HNTB

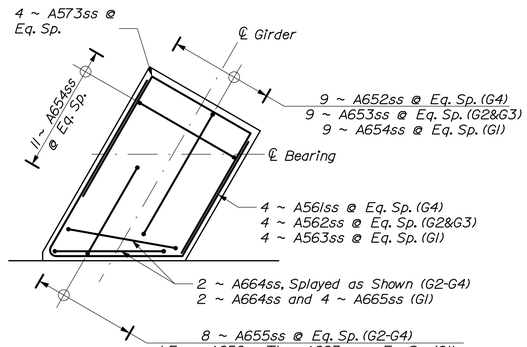


SECTION A-A

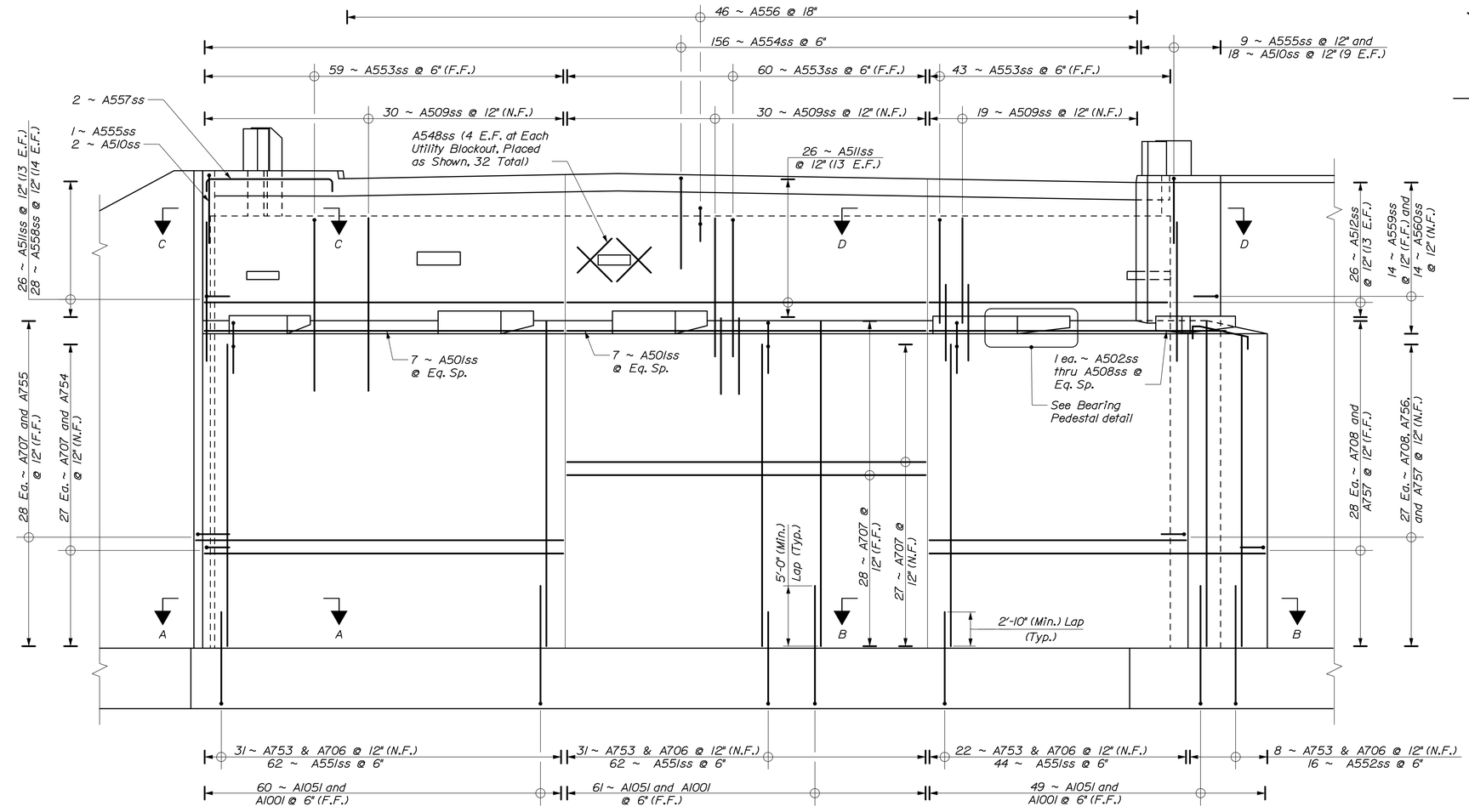
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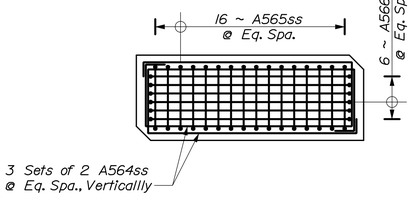
SECTION C-C



SECTION D-D



REINFORCING ELEVATION



OVERHEAD SIGN STRUCTURE PEDESTAL REINFORCEMENT PLAN

(Space Bars to Avoid Conflicts With Bearing Anchor Rods)

BEARING PEDESTAL DETAIL

(Space Bars to Avoid Conflicts With Bearing Anchor Rods)

Notes:

1. Coordinate verical location of utility and bridge lighting conduit blockouts with placement of bridge supported utility and bridge lighting conduits. Place to clear bottom of curtain trough by a minimum of 3". Adjust spacing of reinforcement at blockouts.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

BRIDGE NO. 2399

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	DATE	BY
PROJ. MANAGER		A. LATHE
DESIGN-DETAILED	11\20	P. Bishop
CHECKED-REVIEWED	11\20	J. Olund
DESIGN2-DETAILED2	-	J. Burns
DESIGN3-DETAILED3	-	D. Waugh
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 1 REINFORCING

SHEET NUMBER 51

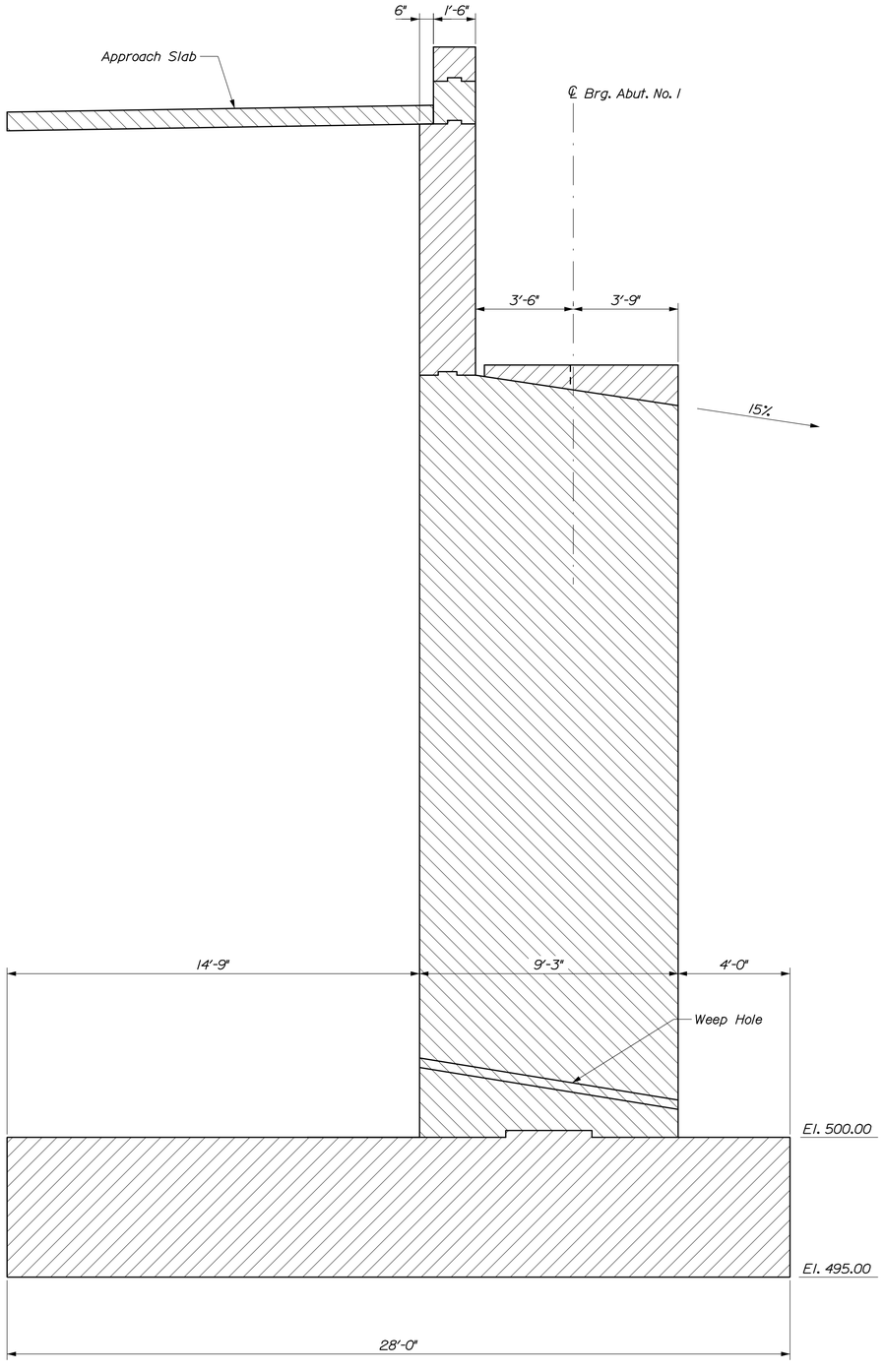
OF 160

Date:11/20/2020

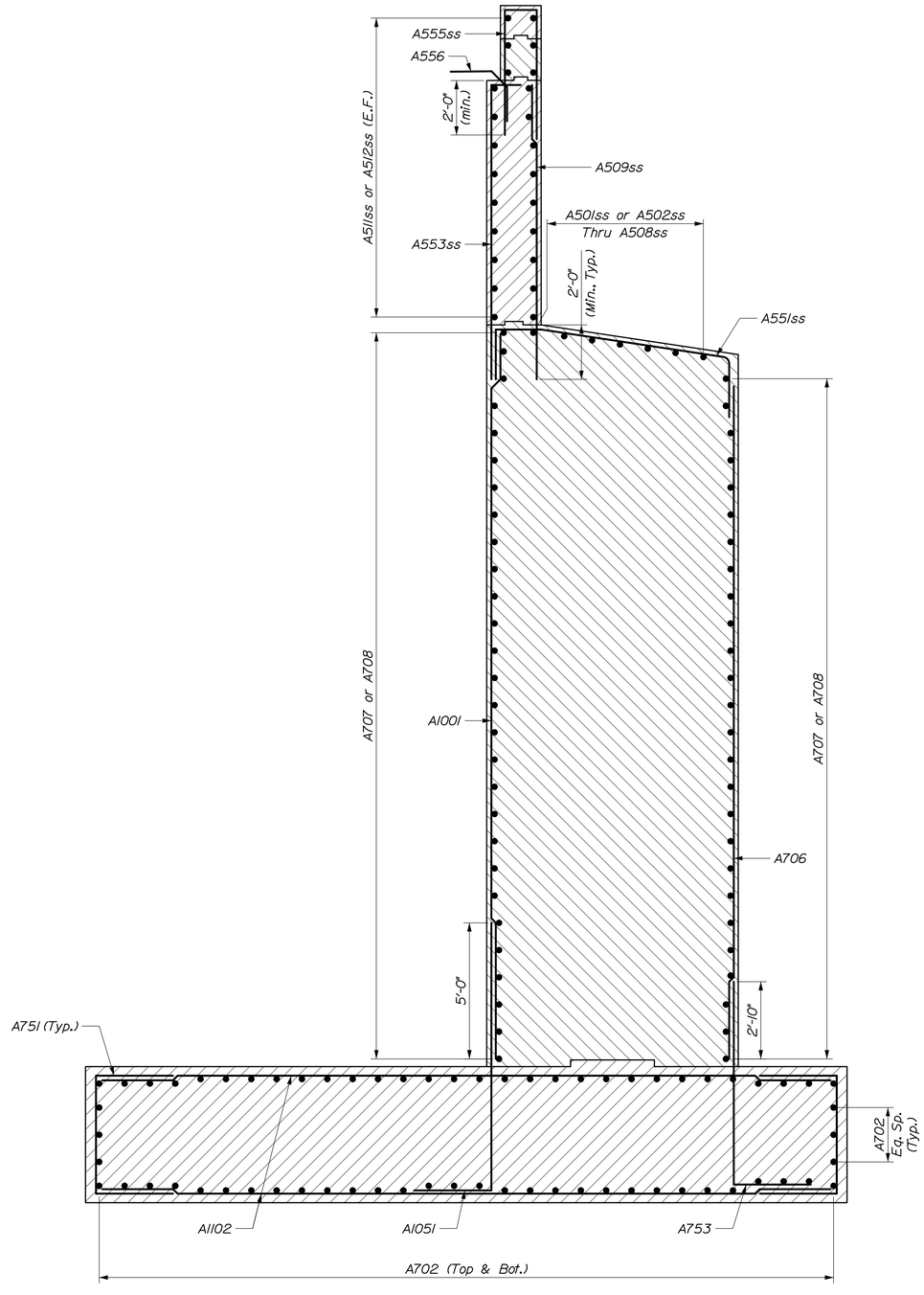
Username:

Division:

Filename: 051_Abutment 1 Reinforcement.dgn



ABUTMENT NO. 1 SECTION



ABUTMENT NO. 1 REINFORCEMENT SECTION

(Pedestal Reinforcement Not Shown For Clarity)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

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CHECKED-REVIEWED	I. McCabe	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

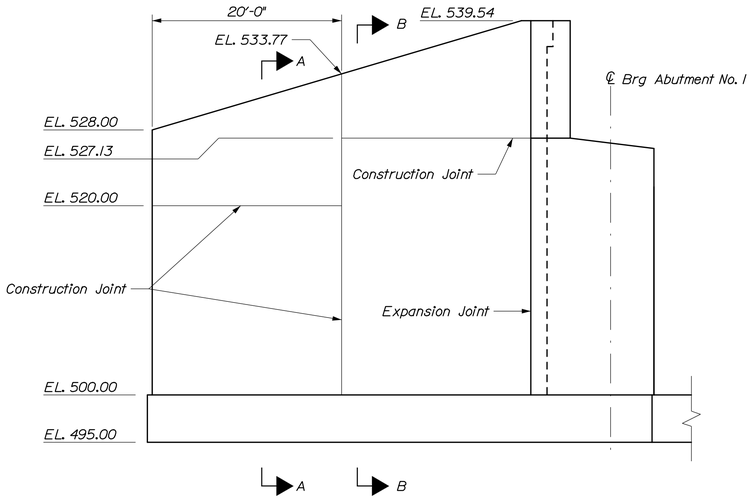
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SECTIONS

SHEET NUMBER

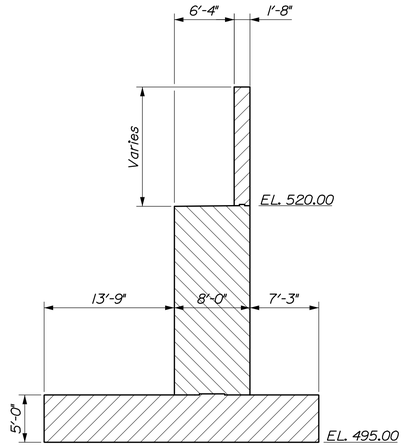
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OF 160

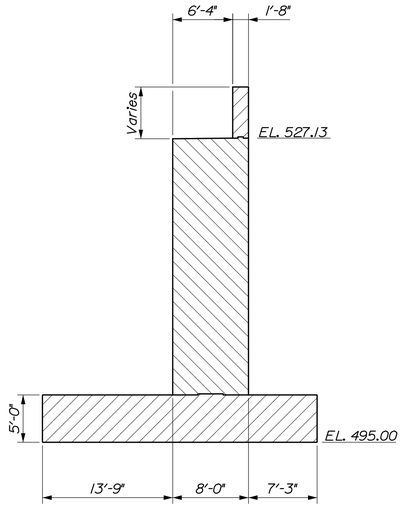
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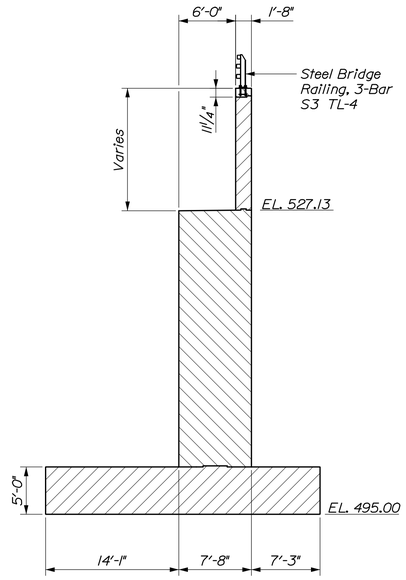
SOUTHEAST WINGWALL ELEVATION



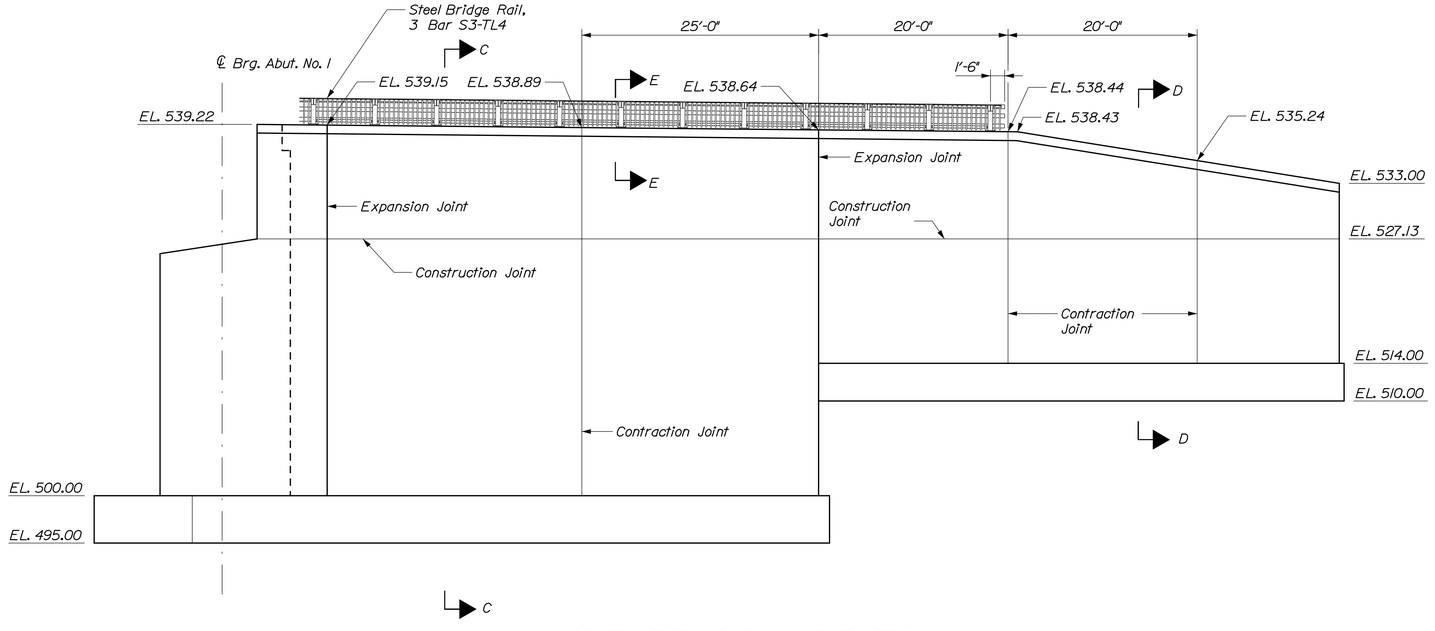
SECTION A-A



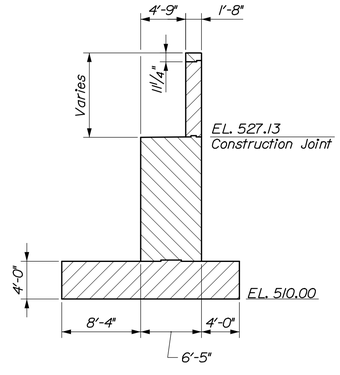
SECTION B-B



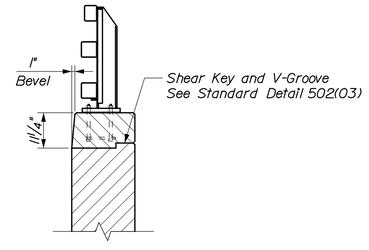
SECTION C-C



SOUTHWEST WINGWALL ELEVATION



SECTION D-D



SECTION E-E

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	A. LATHE	BY	DATE
PROJ. MANAGER	J. Yaltares	C. Wong	11\20
DESIGN-DETAILED	J. Yaltares	C. Wong	11\20
CHECKED-REVIEWED	I. McCabe	J. Olund	-
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

ABUTMENT 1 WINGWALL ELEVATIONS AND SECTIONS

SHEET NUMBER

53

OF 160

HNTB

Filename: 053_Abutment 1 Wingwall Elevations and Sections.dgn Username:

Date:11/20/2020

Date:11/20/2020
Username:
Filename: 054_Abutment 1 Wingwall Reinforcing Elevations.dgn

BAR SETS

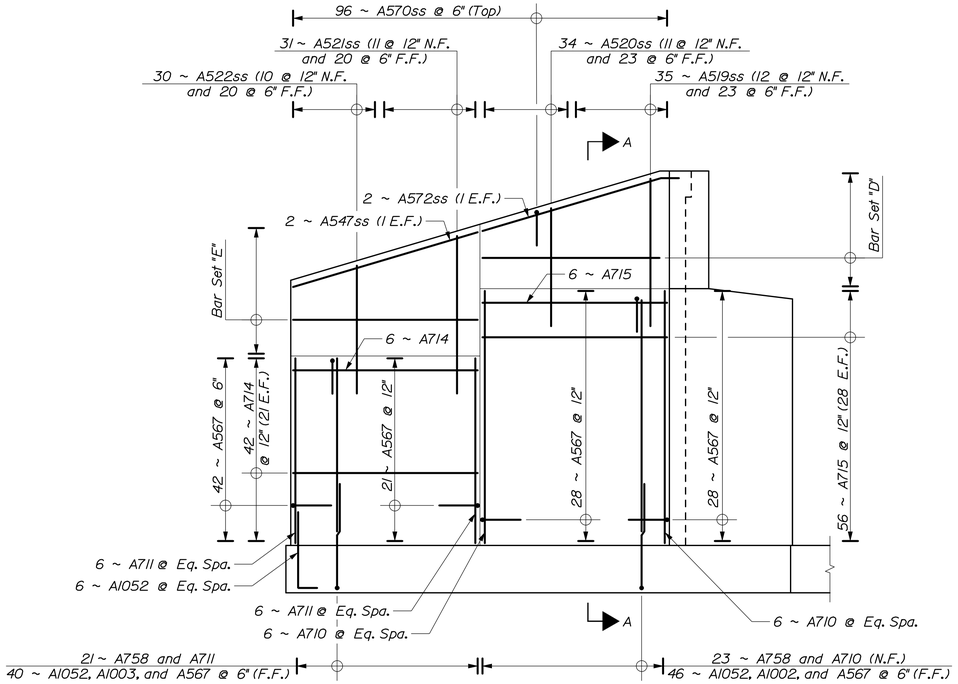
Bar Set "A":
24 ~ A525ss (12 @ 12", E.F.)

Bar Set "B":
(All Bars Spaced 12", Vertically)
16 ~ A526ss (8 E.F.)
2 ~ A527ss (1 E.F.)
2 ~ A528ss (1 E.F.)
2 ~ A529ss (1 E.F.)

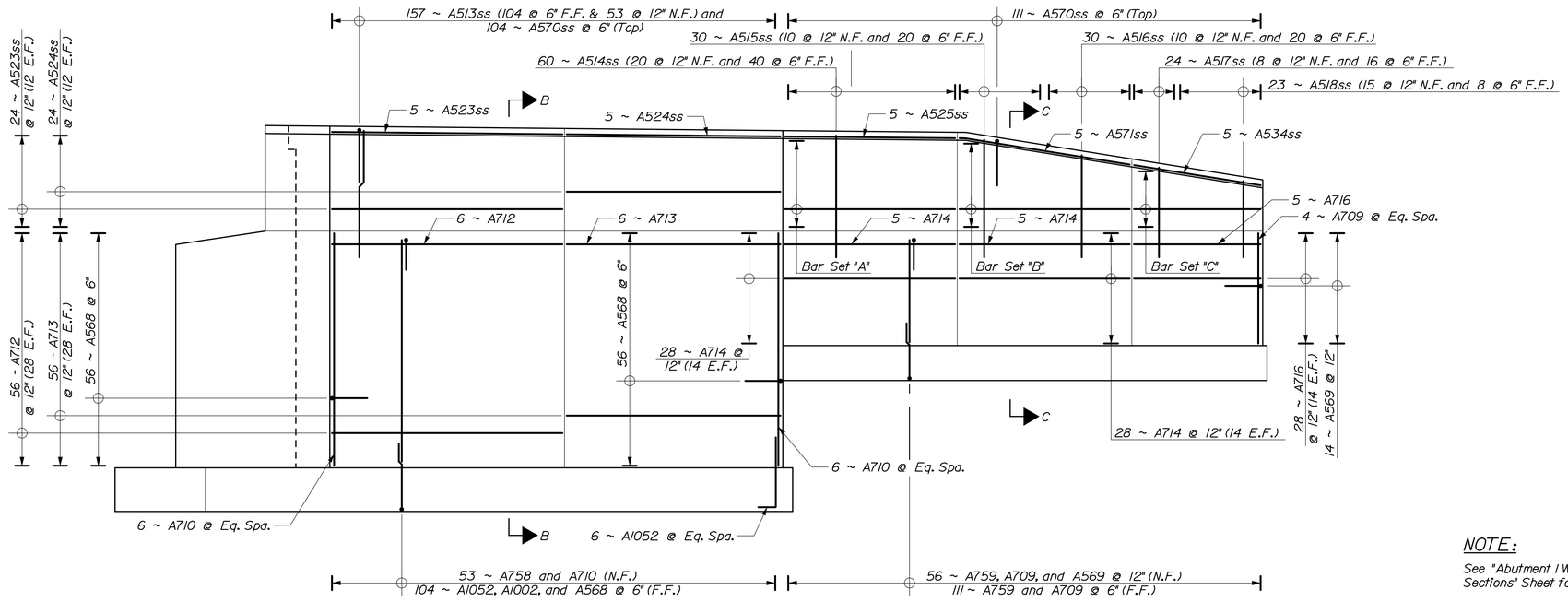
Bar Set "C":
(All Bars Spaced 12", Vertically)
10 ~ A530ss (5 E.F.)
2 ~ A531ss (1 E.F.)
2 ~ A532ss (1 E.F.)
2 ~ A533ss (1 E.F.)

Bar Set "D":
(All Bars Spaced 12", Vertically)
14 ~ A535ss (7 E.F.)
2 ~ A536ss (1 E.F.)
2 ~ A537ss (1 E.F.)
2 ~ A538ss (1 E.F.)
2 ~ A539ss (1 E.F.)
2 ~ A540ss (1 E.F.)

Bar Set "E":
(All Bars Spaced 12", Vertically)
16 ~ A541ss (8 E.F.)
2 ~ A542ss (1 E.F.)
2 ~ A543ss (1 E.F.)
2 ~ A544ss (1 E.F.)
2 ~ A545ss (1 E.F.)
2 ~ A546ss (1 E.F.)



SOUTHEAST WINGWALL REINFORCING ELEVATION



SOUTHWEST WINGWALL REINFORCING ELEVATION

NOTE:
See "Abutment 1 Wingwall Reinforcing Sections" Sheet for Sections.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE NO. 2399

BRIDGE PLANS

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Burns	BY
CHECKED-REVIEWED	J. Wough	P. Bishop
DESIGN2-DETAILED2	-	J. Olund
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

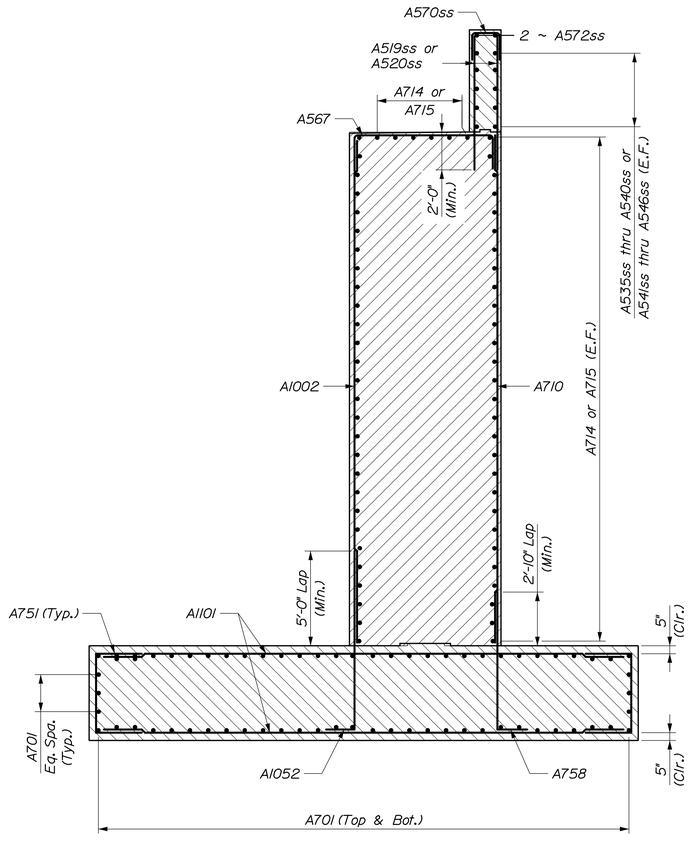
DATE: 11\20 · 11\20 · - · - · - · - · - · - · - · -

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

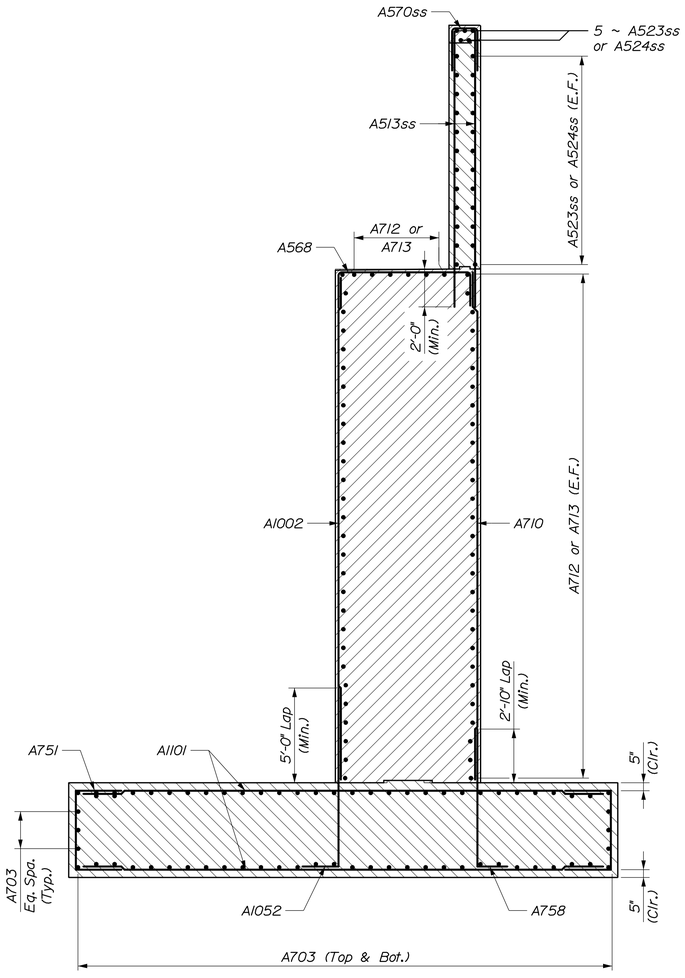
ABUTMENT 1 WINGWALL REINFORCING ELEVATIONS

SHEET NUMBER
54
OF 160

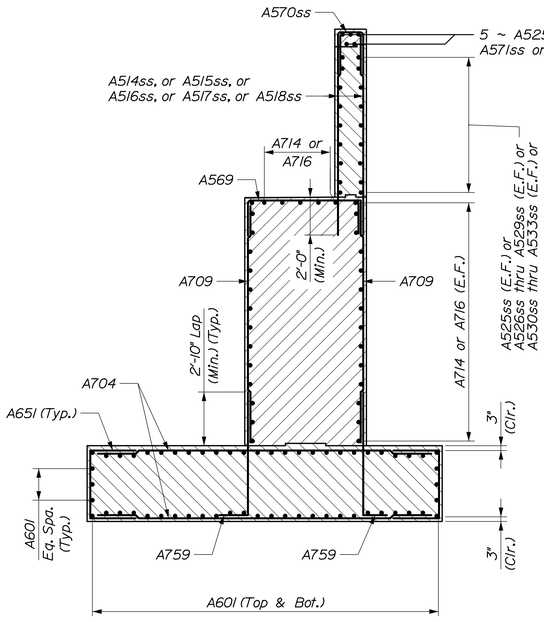
Filename: 055_Abutment 1 Wingwall Reinforcing Sections.dgn Username: Date:11/20/2020



SECTION A-A



SECTION B-B



SECTION C-C

NOTE:

See "Abutment 1 Wingwall Reinforcing Sections" Sheet for Section locations.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE NO. 2399

BRIDGE PLANS

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Burns	P. Bishop	11\20
CHECKED-REVIEWED	J. Wough	J. Olund	11\20
DESIGN2-DETAILED2	–	–	–
DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 1 WINGWALL REINFORCING SECTIONS

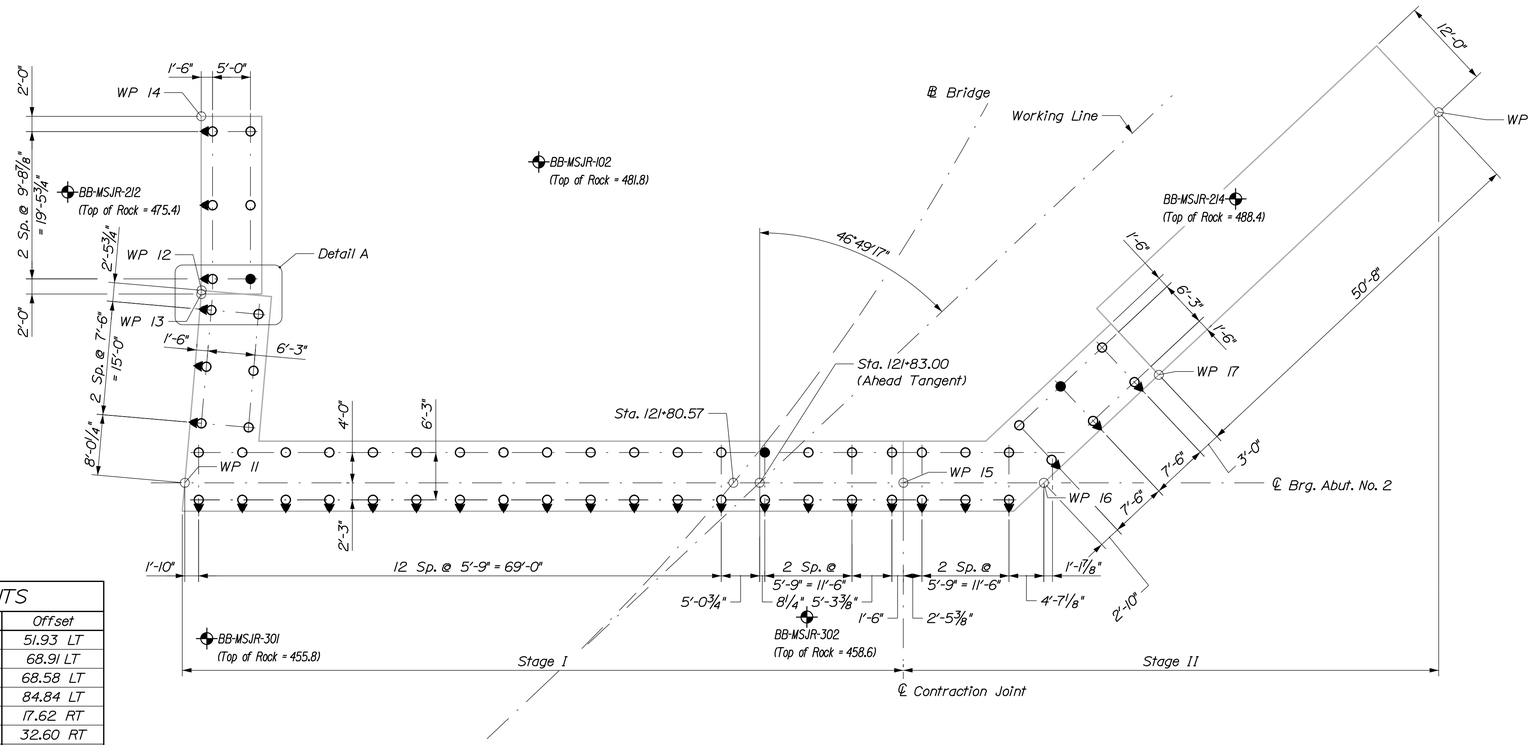
SHEET NUMBER

55

OF 160

Filename: 056_Abutment 2 Foundation Plan.dgn Division: Username: Date:11/20/2020

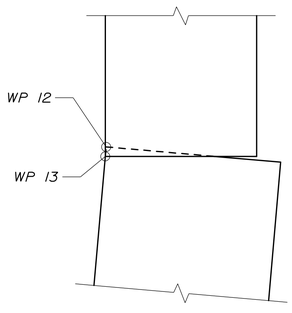
TABLE OF WORKING POINTS				
W.P.	Northing	Easting	Sta.	Offset
11	1286797.20	2184049.90	121+27.65	51.93 LT
12	1286822.58	2184052.31	121+47.82	68.91 LT
13	1286822.09	2184052.26	121+47.32	68.58 LT
14	1286845.56	2184052.44	121+70.10	84.84 LT
15	1286796.48	2184144.76	121+94.09	17.62 RT
16	1286796.34	2184163.30	122+04.16	32.60 RT
17	1286810.48	2184178.60	122+22.30	37.45 RT
18	1286844.86	2184215.81	122+68.16	52.99 RT



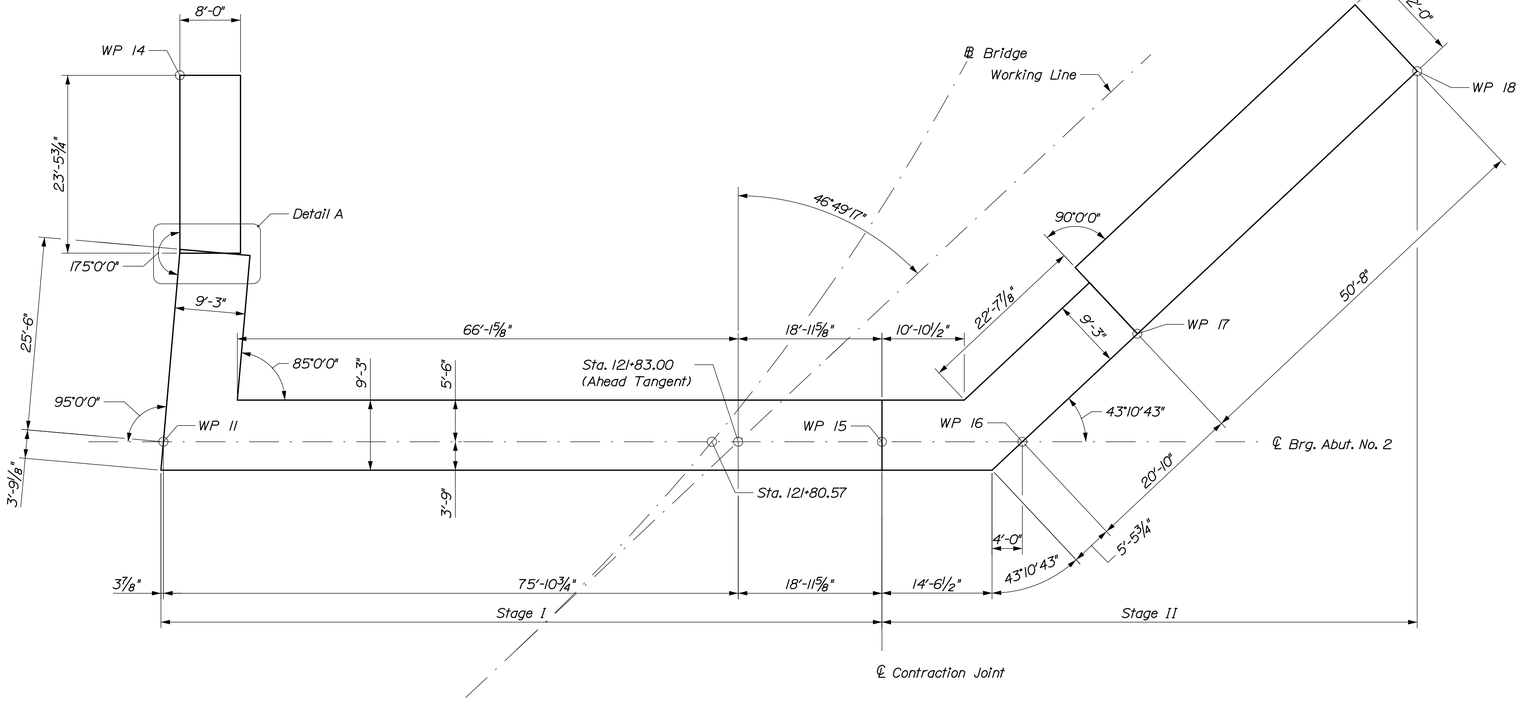
ABUTMENT NO. 2 FOUNDATION PLAN

PILE LEGEND:

- ○ = Plumb Micropile
- ● = Plumb Proof Test Micropile
- ○ = Battered Micropile



Detail A



ABUTMENT NO. 2 FOOTING PLAN

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	DATE
PROJ. MANAGER		
DESIGN-DETAILED	J. Yiatanes	11\20
CHECKED-REVIEWED	I. McCabe	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 2
FOUNDATION PLAN

SHEET NUMBER
56
OF 160

Filename: 057_Abutment 2 Foundation Reinforcing Drawings.dgn Username: Date:11/20/2020

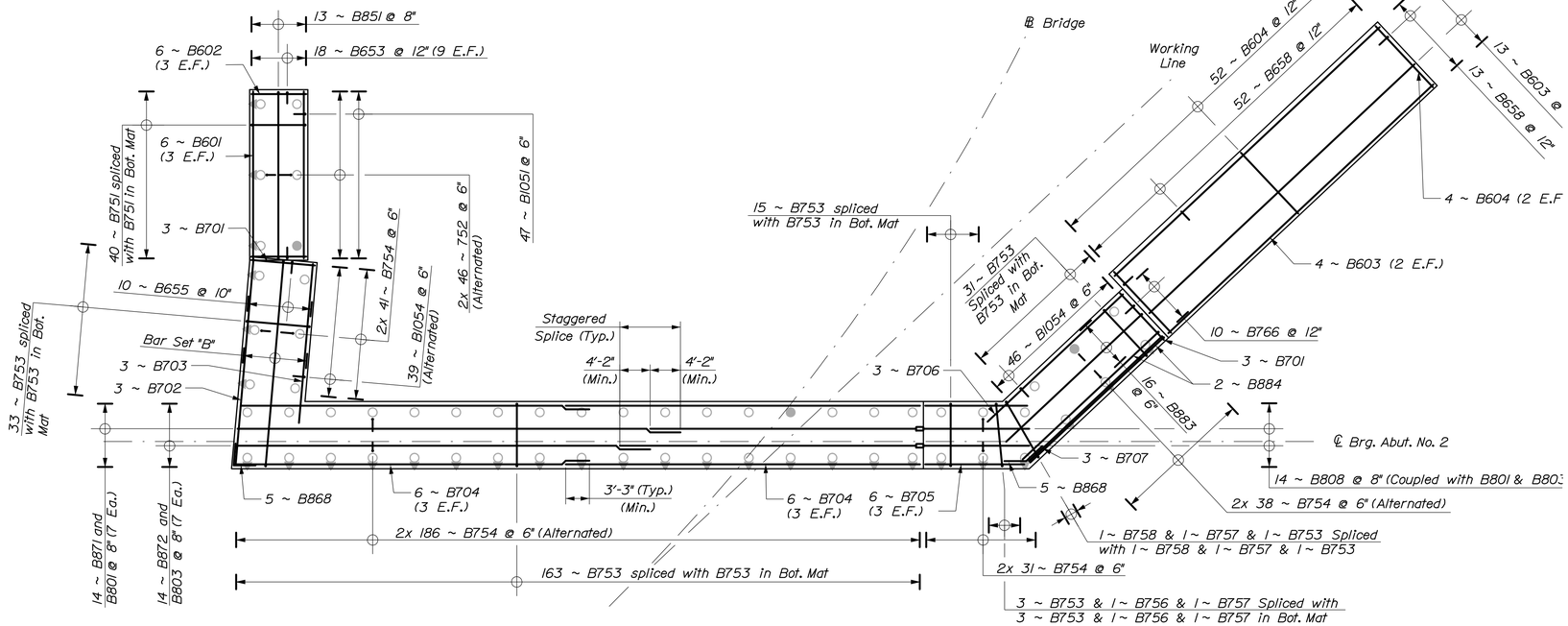
BAR SETS

Bar Set "A":
(All Bars Spaced 6")
1 ~ B856
2 ~ B857
2 ~ B858
2 ~ B859
1 ~ B860

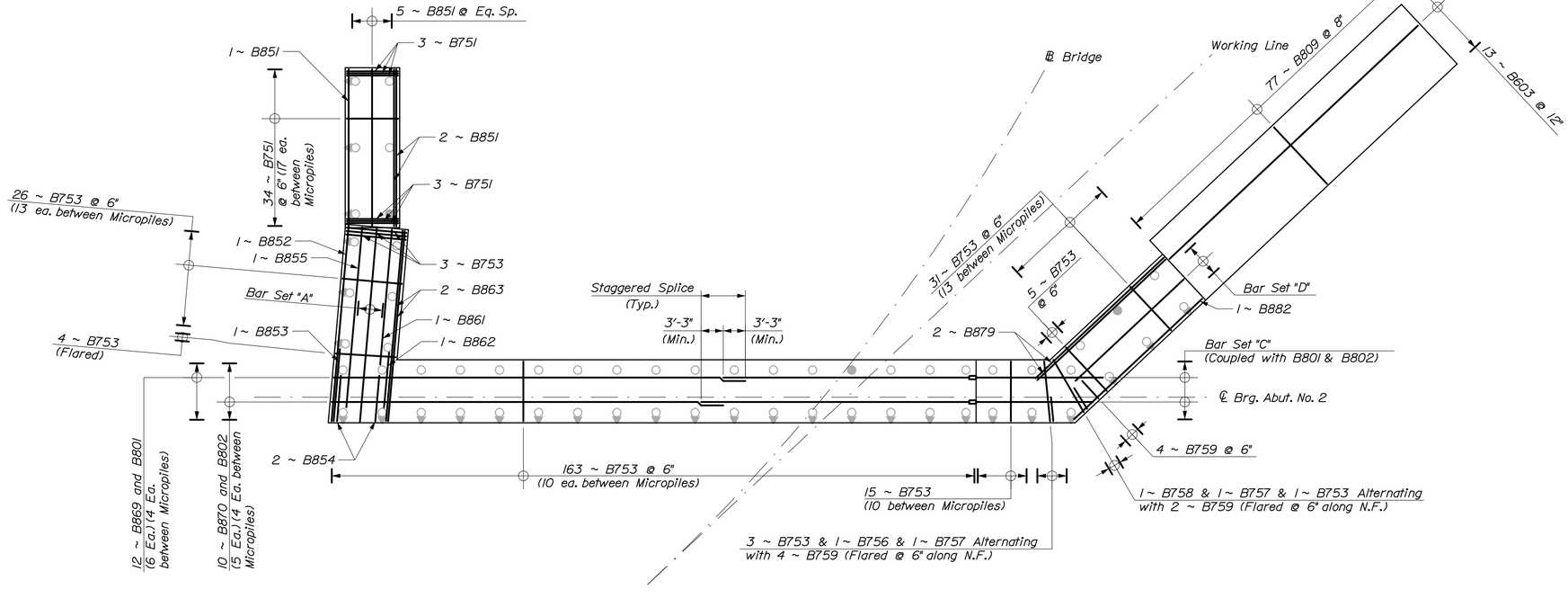
Bar Set "B":
(All Bars Spaced 6")
1 ~ B852
2 ~ B856
2 ~ B857
2 ~ B858
1 ~ B859
2 ~ B860
1 ~ B863
1 ~ B864
2 ~ B865
2 ~ B866
2 ~ B867

Bar Set "C":
(All Bars Coupled with B801 or B802)
(Bars Listed N.F. to F.F.)
1 ~ B873
1 ~ B874
1 ~ B804
1 ~ B805
1 ~ B806
1 ~ B807
1 ~ B875
2 ~ B876
1 ~ B877
1 ~ B878

Bar Set "D":
(All Bars Spaced 6")
6 ~ B880
2 ~ B881



FOOTING REINFORCEMENT PLAN (TOP)



FOOTING REINFORCEMENT PLAN (BOTTOM)

(Footing / Wingwall Dowel Bars Not Shown for Clarity)

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

11/19/2020
DATE

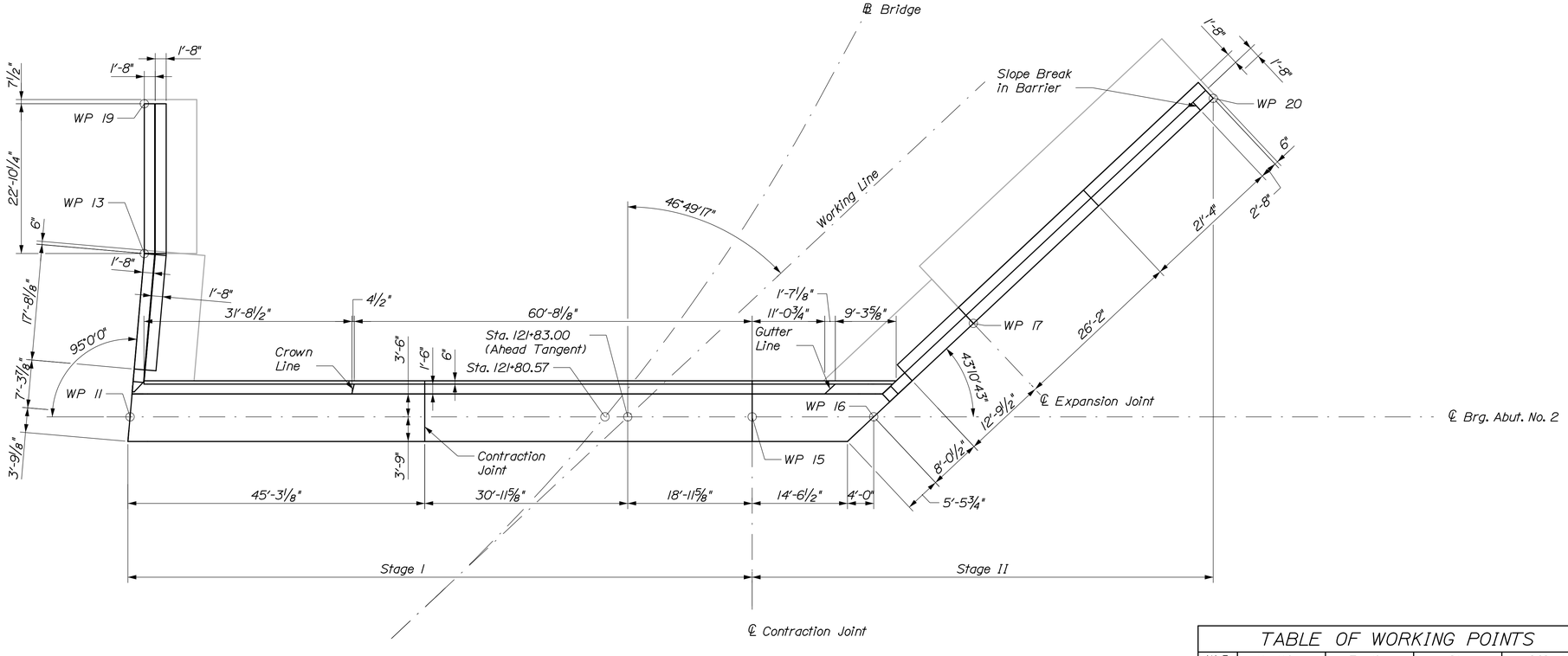
	A. LATHE	BY	DATE
PROJ. MANAGER	J. Yaltaras	C. Wong	11\20
DESIGN-DETAILED	J. McCabe	J. Olund	11\20
CHECKED-REVIEWED	-	-	-
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 2
FOUNDATION REIN. PLAN

SHEET NUMBER
57
OF 160

Filename: 058_Abutment 2 Geometry Plan.dgn Division: Username: Date:11/20/2020



PLAN
(Abutment footing shown screened for clarity)

TABLE OF WORKING POINTS				
W.P.	Northing	Easting	Sta.	Offset
19	1286844.94	2184052.43	121+69.45	84.42 LT
20	1286844.52	2184215.44	122+67.69	52.83 RT

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

WIN
021736.00

BRIDGE PLANS

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Yatlanes	C. Wong	11\20
CHECKED-REVIEWED	I. McCabe	J. Olund	11\20
DESIGN2-DETAILED2	–	–	–
DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

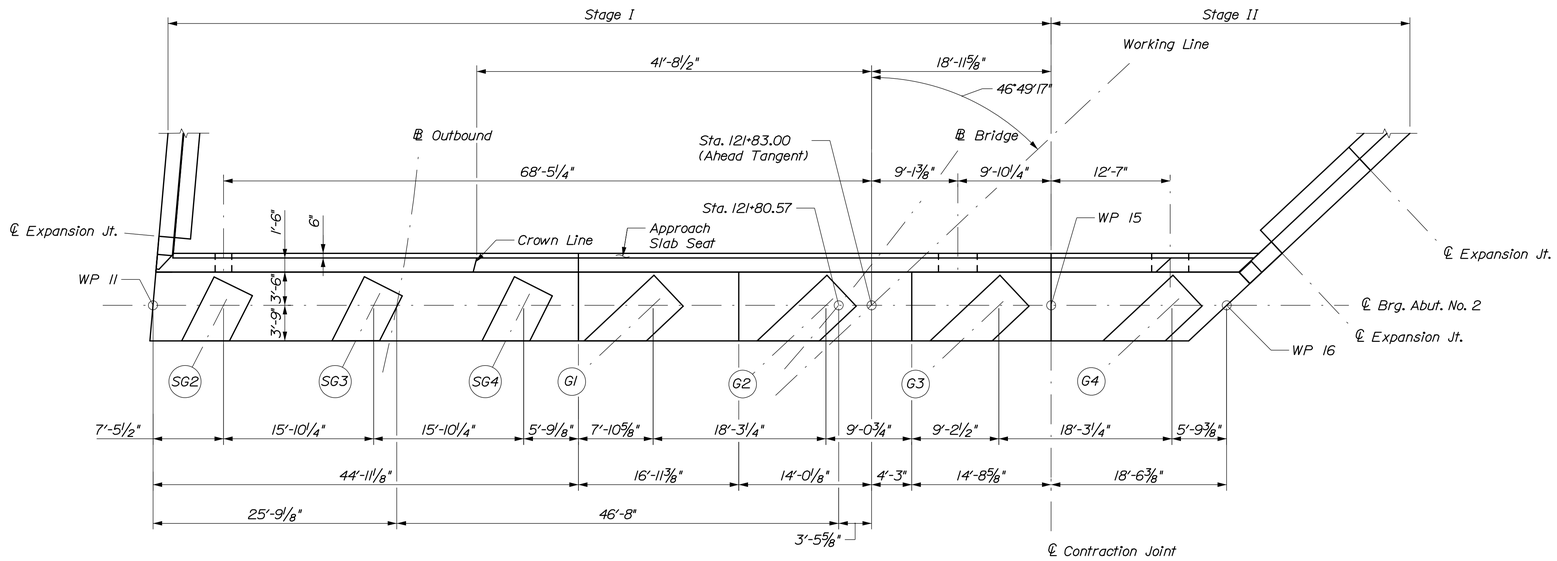
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 2
GEOMETRY PLAN

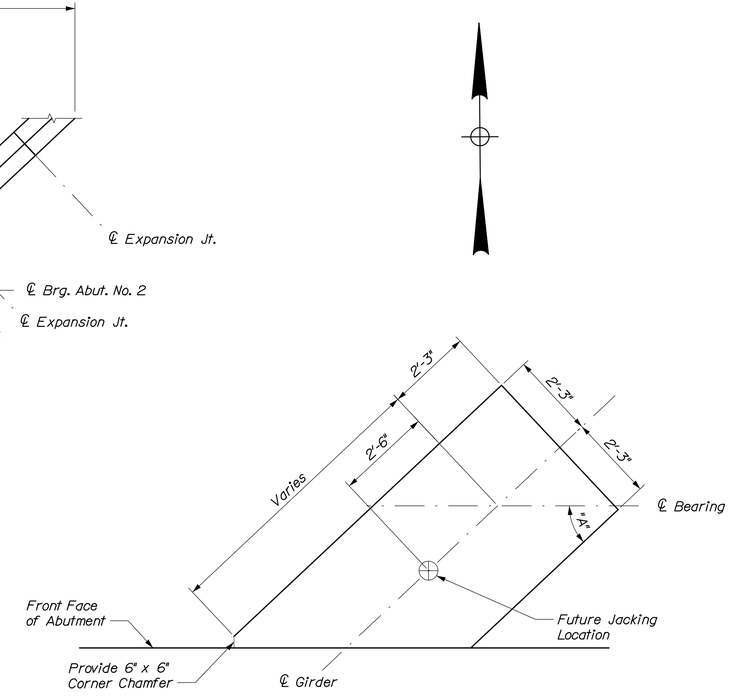
SHEET NUMBER

58

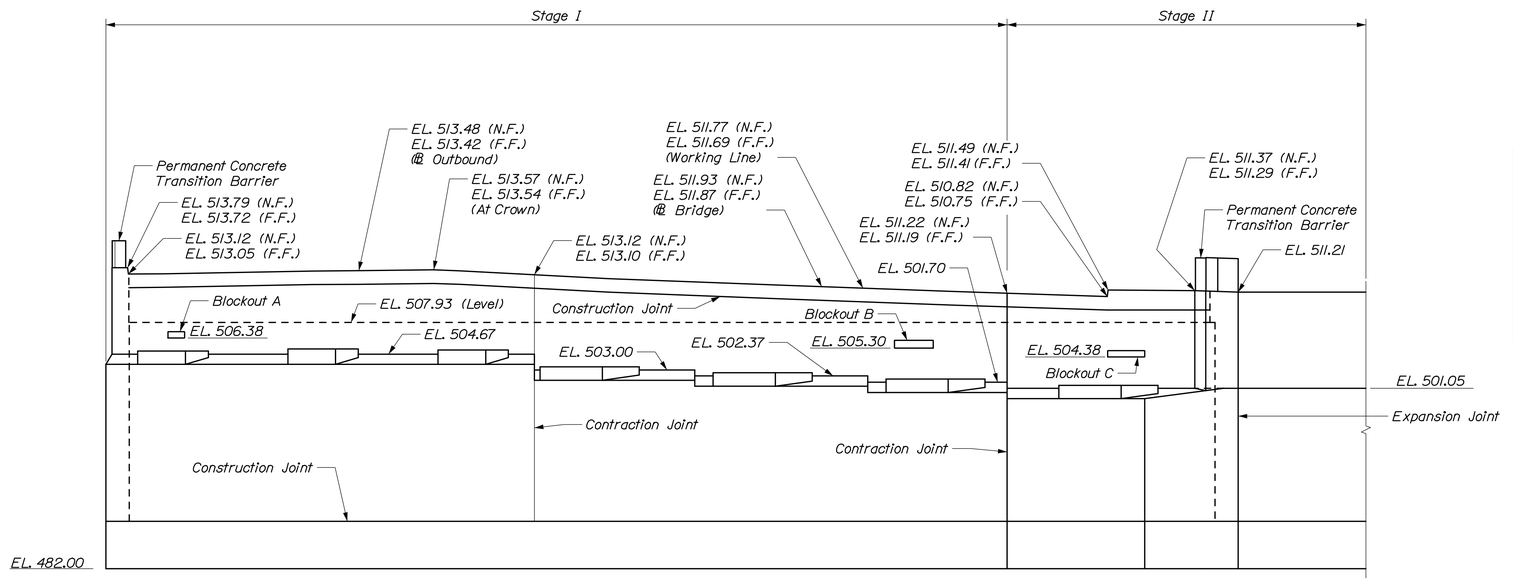
OF 160



PLAN



BEARING PEDESTAL DETAIL



ELEVATION
(Micropiles not shown for clarity)

PEDESTAL ELEVATIONS	
Girder	Elevation
SG2	505.00
SG3	505.22
SG4	505.11
G1	503.33
G2	502.71
G3	502.03
G4	501.38

BEARING ANGLES	
G	A
SG2	63°10'43"
SG3	63°10'43"
SG4	63°10'43"
G1	43°10'43"
G2	43°10'43"
G3	43°10'43"
G4	43°10'43"

UTILITY BLOCKOUTS		
Blockout	W x L	Conduits
A	21" x 8"	(1) 2" ϕ
B	49" x 10"	(2) 4" ϕ
C	50" x 8"	(3) 2" ϕ

NOTE:
See "Abutment 1 Plan and Elevation" Sheet for utility blockout details.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
2173600
WIN 021736.00
BRIDGE PLANS
MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE
P.E. NUMBER 12130
DATE 11/19/2020

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	I. McCabe
CHECKED-REVIEWED	J. Wough
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-

BY	DATE
C. Wong	11\20
J. Olund	11\20
-	-
-	-
-	-
-	-
-	-
-	-

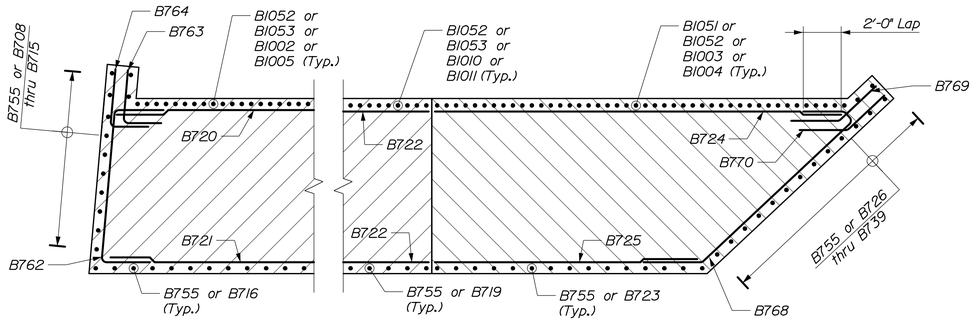
REVISIONS 1	-
REVISIONS 2	-
REVISIONS 3	-
REVISIONS 4	-
FIELD CHANGES	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 2
PLAN AND ELEVATION

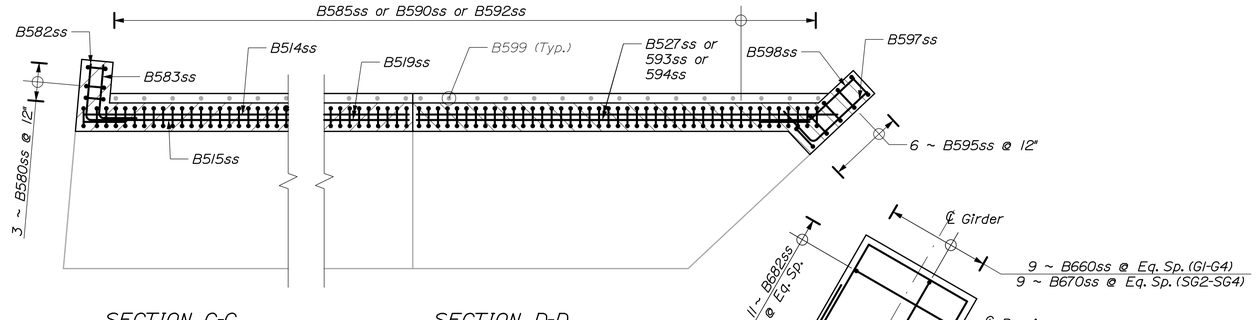
SHEET NUMBER
59
OF 160

Filename: 059_Abutment 2 Plan and Elevation.dgn Division: Username: Date:11/20/2020

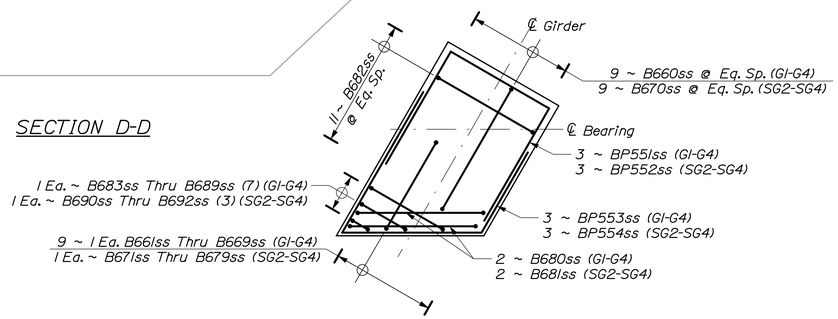


SECTION A-A

SECTION B-B



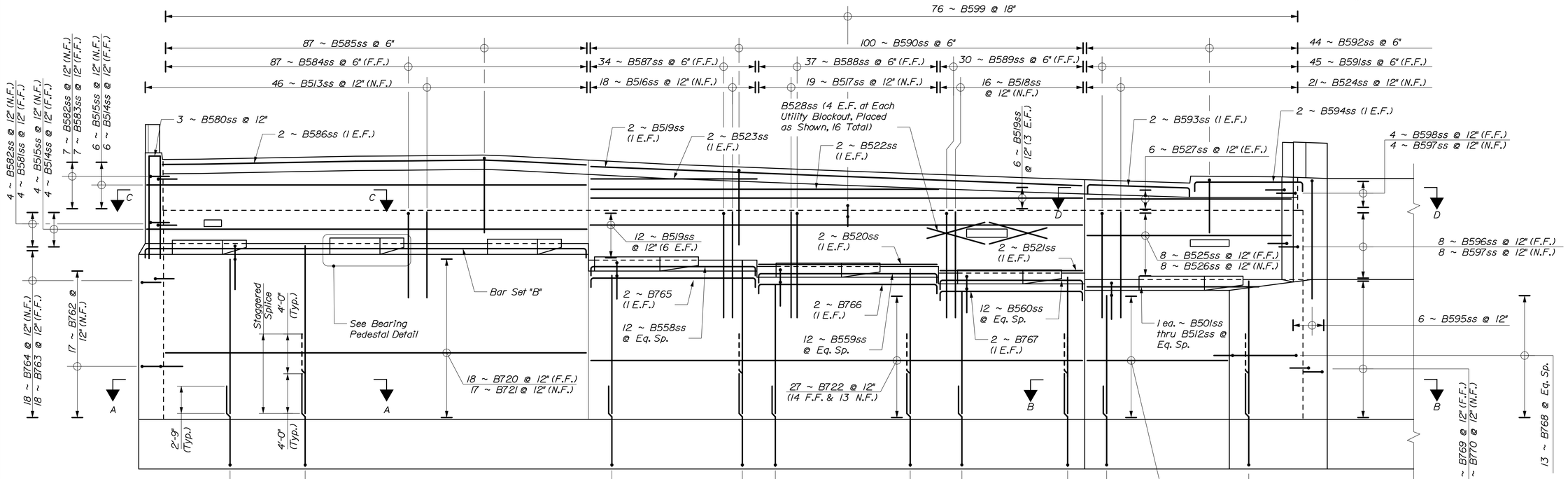
SECTION C-C



SECTION D-D

BEARING PEDESTAL DETAIL

(Space Bars to Avoid Conflicts With Bearing Anchor Rods)



REINFORCING ELEVATION

BAR SETS

Bar Set "A":
(All Bars Spaced at Eq. Spa.)
18 ~ B561ss
1 Eq. ~ B562ss thru B579ss

Bar Set "B":
(All Bars Spaced at Eq. Spa.)
1 ~ B550ss
2 ~ B551ss
1 ~ B552ss
2 ~ B553ss
1 ~ B554ss
3 ~ B555ss
1 ~ B556ss
1 ~ B557ss

Notes:

1. Coordinate verical location of utility and bridge lighting conduit blockouts with placement of bridge supported utility and bridge lighting conduits. Place to clear bottom of curtian trough by a minimum of 3". Adjust spacing of reinforcement at blockouts.

2. Lap splices shall be staggered so that no more than 50% of the bars are spliced in a given section.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. GLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	BY	DATE
A. LATHE		
PROJ. MANAGER	C. Wong	11\20
DESIGN-DETAILED	J. Glund	11\20
CHECKED-REVIEWED	-	-
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

ABUTMENT 2 REINFORCING

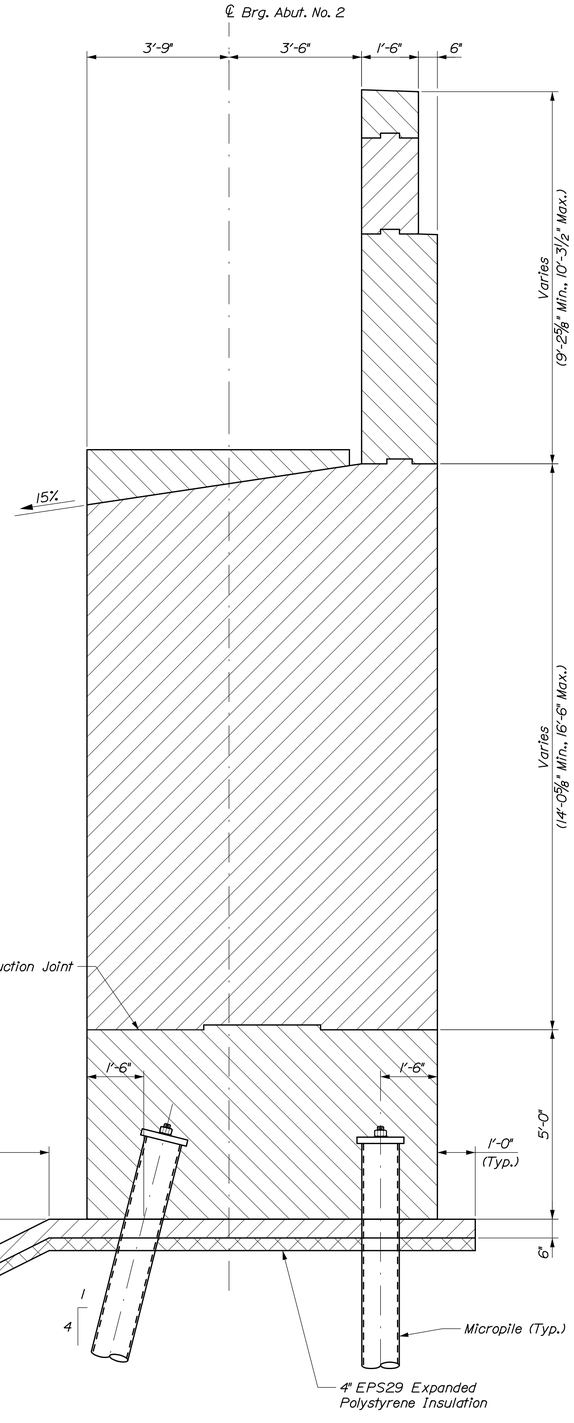
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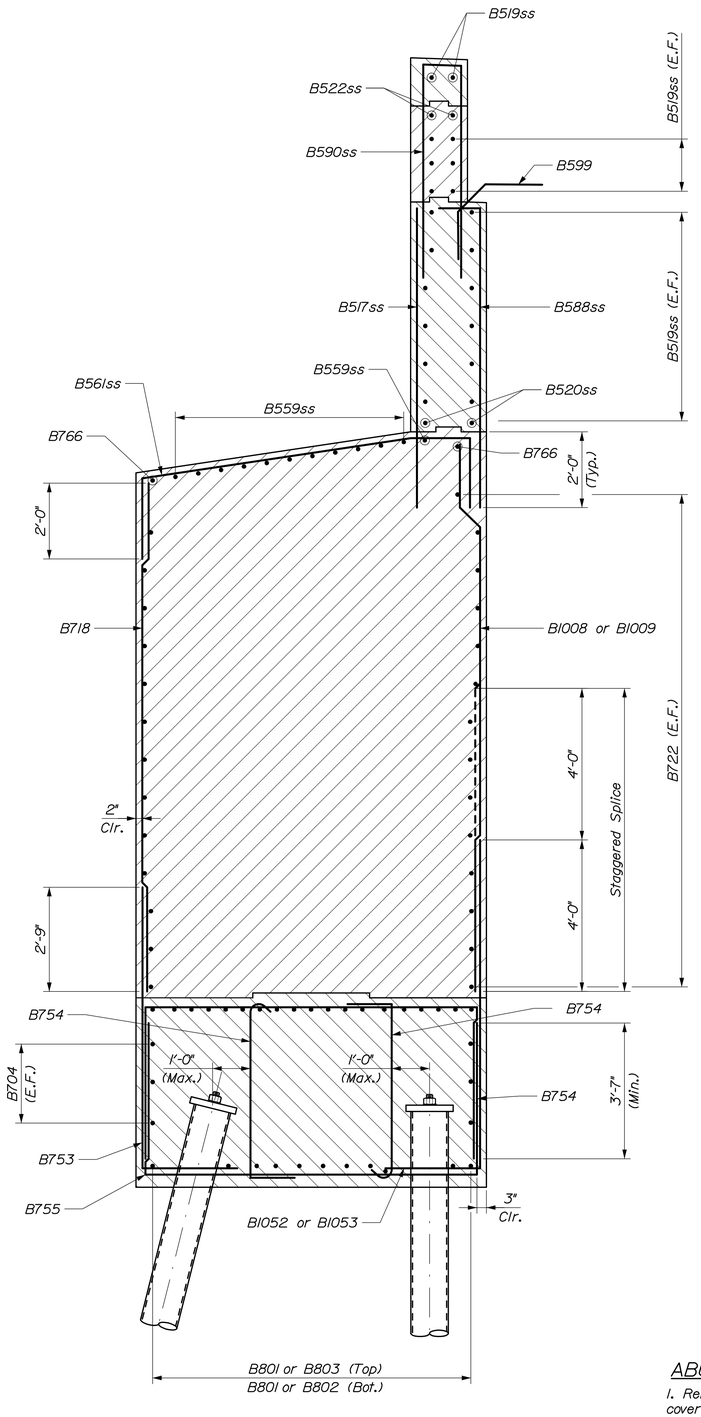
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Filename: 060_Abutment 2 Reinforcement.dgn Division: Username: Date:11/20/2020

Filename: 061_Abutment 2 Sections.dgn Username: Division: Date:11/20/2020



ABUTMENT NO. 2 SECTION



ABUTMENT 2 REINFORCEMENT SECTION

Section Taken at Girder 2
(Other Sections Similar)

ABUTMENT NOTES

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

2. B754 bars shall be alternated every 6".

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	I. McCabe	C. Wong	11\20
CHECKED-REVIEWED	J. Waugh	J. Olund	11\20
DESIGN2-DETAILED2	–	–	–
DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

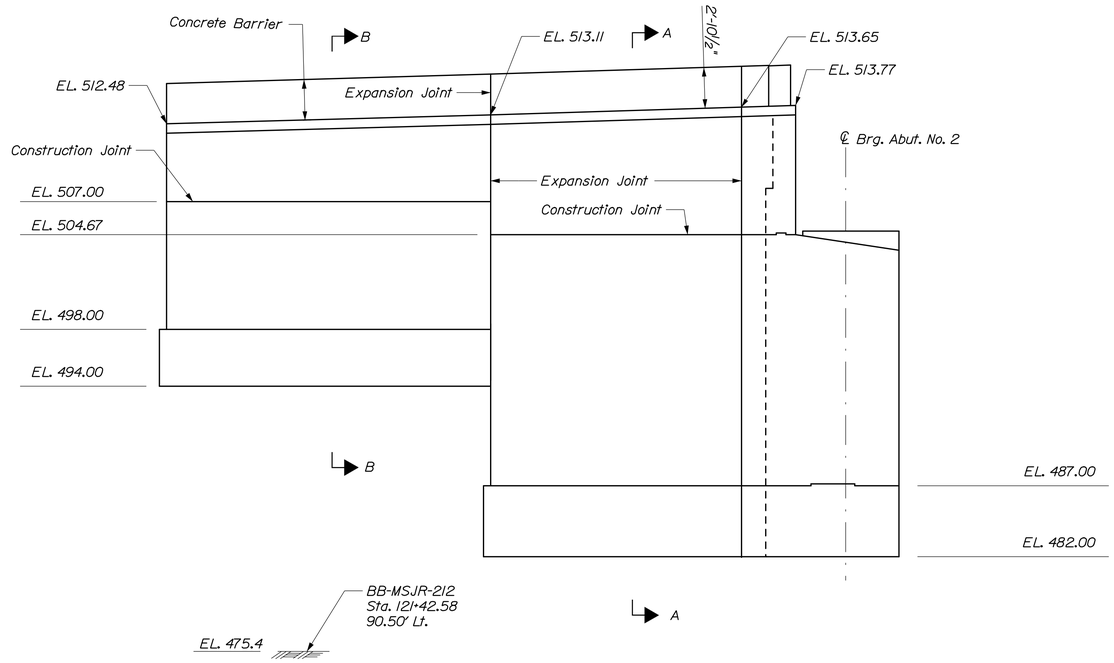
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 2
SECTIONS

SHEET NUMBER

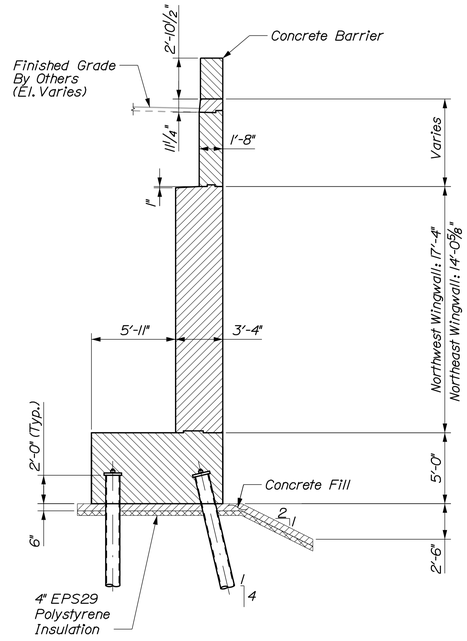
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OF 160

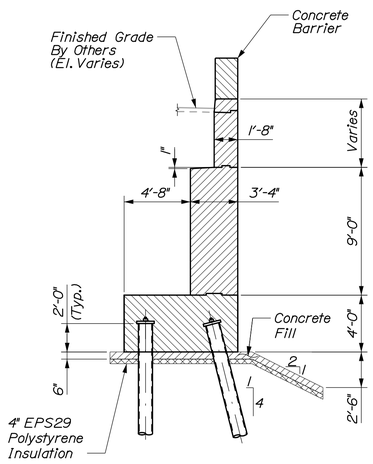


NORTHWEST WINGWALL ELEVATION

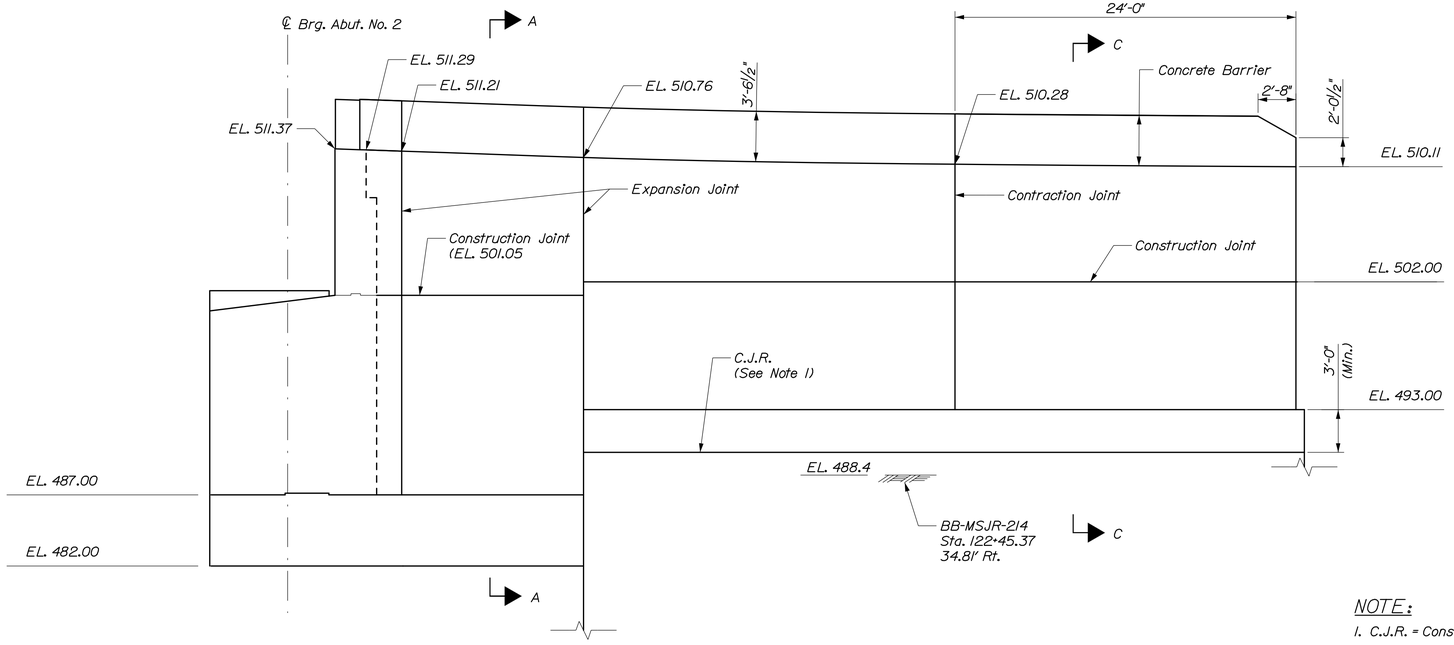
(Micropiles not shown for clarity)



SECTION A-A



SECTION B-B



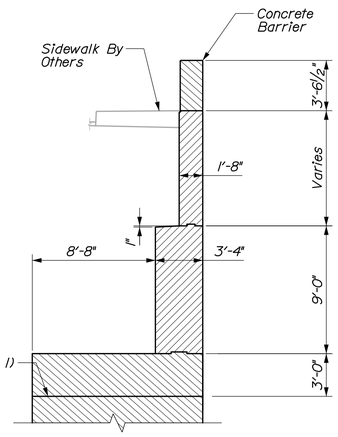
NORTHEAST WINGWALL ELEVATION

(Micropiles not shown for clarity)

NOTE:

1. C.J.R. = Construction Joint, Roughened to 1/4" Nominal Amplitude

2. Concrete Barrier on top of Abutment 2 Wingwalls shall be paid under Item 502.219, Structural Concrete, Abutments and Retaining Walls.



SECTION C-C

STATE OF MAINE
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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130

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DESIGN-DETAILED	I. McCabe
CHECKED-REVIEWED	J. Wrough
DESIGN2-DETAILED2	–
DESIGN3-DETAILED3	–

	BY	DATE
REVISIONS 1	C. Wong	11\20
REVISIONS 2	J. Olund	11\20
REVISIONS 3	–	–
REVISIONS 4	–	–
FIELD CHANGES	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
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ABUTMENT 2 WINGWALL
ELEVATIONS AND SECTIONS

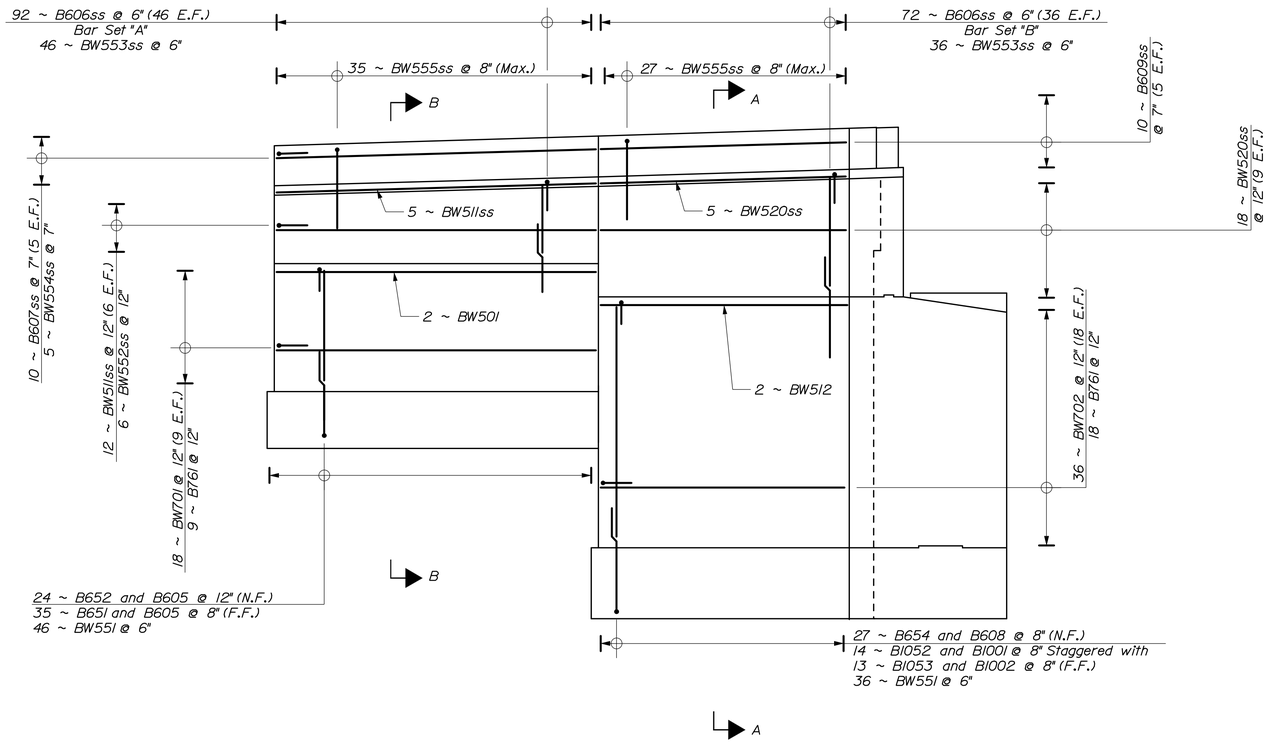
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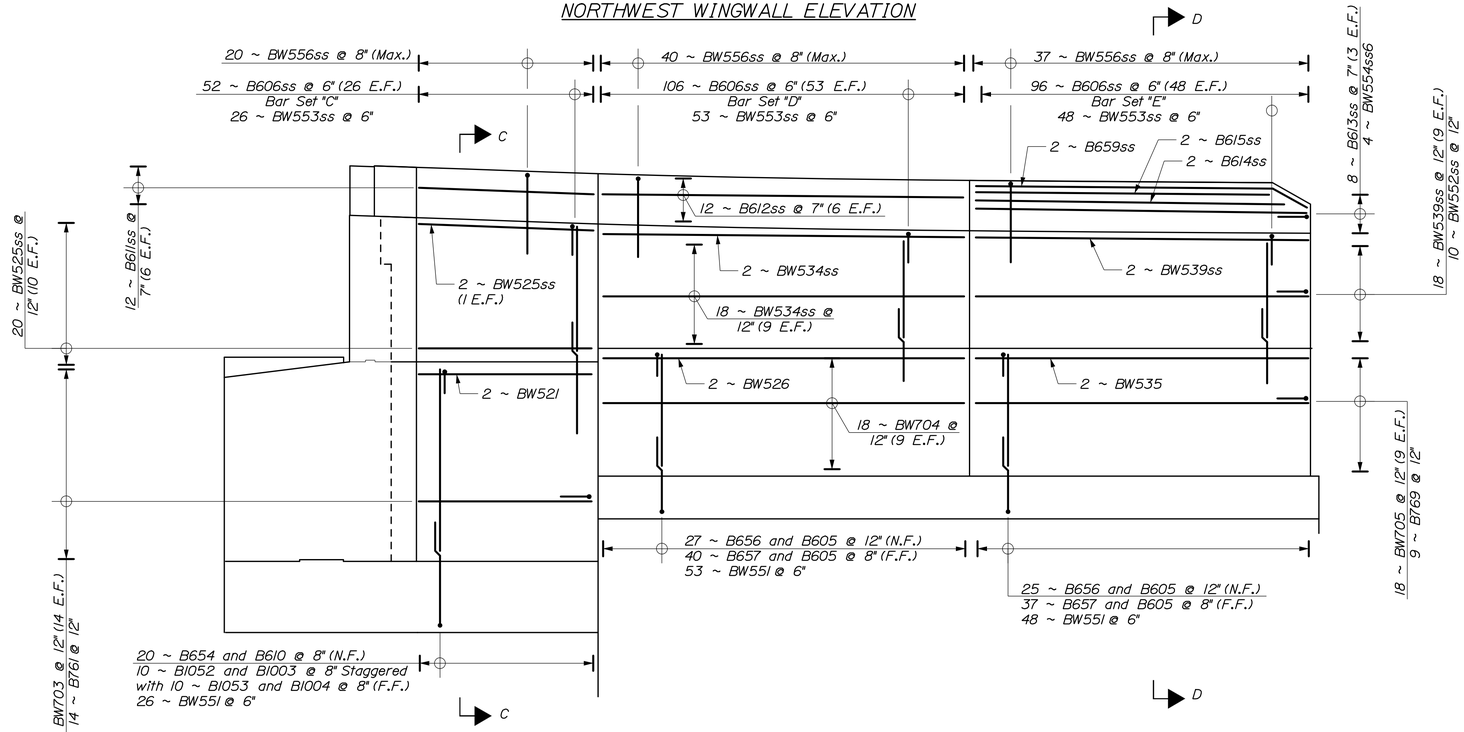
OF 160

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Filename: 062_Abutment 2 Wingwall Elevations and Sections.dgn Username: Date:11/20/2020



NORTHWEST WINGWALL ELEVATION



NORTHEAST WINGWALL ELEVATION

BAR SETS

Bar Set "A":
(All Bars Spaced 6" Horizontally)
4 ~ BW502ss (2 E.F.)
10 ~ BW503ss (5 E.F.)
12 ~ BW504ss (6 E.F.)
12 ~ BW505ss (6 E.F.)
10 ~ BW506ss (5 E.F.)
12 ~ BW507ss (6 E.F.)
10 ~ BW508ss (5 E.F.)
12 ~ BW509ss (6 E.F.)
10 ~ BW510ss (5 E.F.)

Bar Set "B":
(All Bars Spaced 6", Horizontally)
8 ~ BW513ss (4 E.F.)
12 ~ BW514ss (6 E.F.)
10 ~ BW515ss (5 E.F.)
12 ~ BW516ss (6 E.F.)
10 ~ BW517ss (5 E.F.)
12 ~ BW518ss (6 E.F.)
8 ~ BW519ss (4 E.F.)

Bar Set "C":
(All Bars Spaced 6", Horizontally)
16 ~ BW522ss (8 E.F.)
20 ~ BW523ss (10 E.F.)
16 ~ BW524ss (8 E.F.)

Bar Set "D":
(All Bars Spaced 6", Horizontally)
2 ~ BW527ss (4 E.F.)
18 ~ BW528ss (6 E.F.)
18 ~ BW529ss (5 E.F.)
18 ~ BW530ss (6 E.F.)
18 ~ BW531ss (5 E.F.)
20 ~ BW532ss (6 E.F.)
12 ~ BW533ss (4 E.F.)

Bar Set "E":
(All Bars Spaced 6", Horizontally)
16 ~ BW536ss (8 E.F.)
48 ~ BW537ss (12 E.F.)
32 ~ BW538ss (16 E.F.)

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

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P.E. NUMBER

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CHECKED-REVIEWED	J. Wrought	J. Olund
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

DATE
11\20
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INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

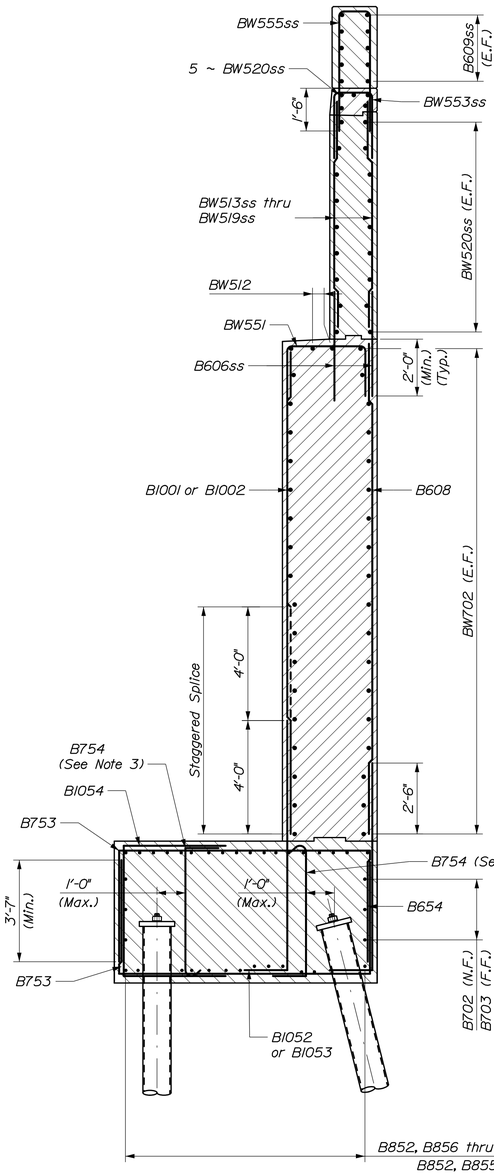
ABUTMENT 2 WINGWALL
REINFORCING ELEVATIONS

SHEET NUMBER
63
OF 160

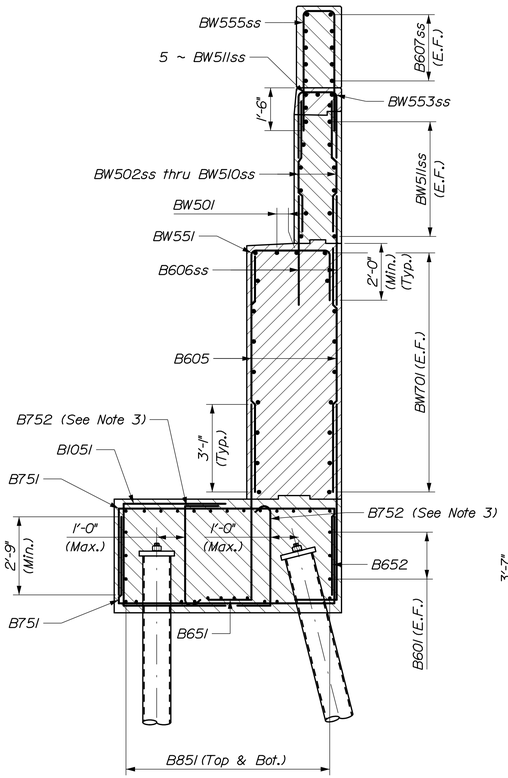
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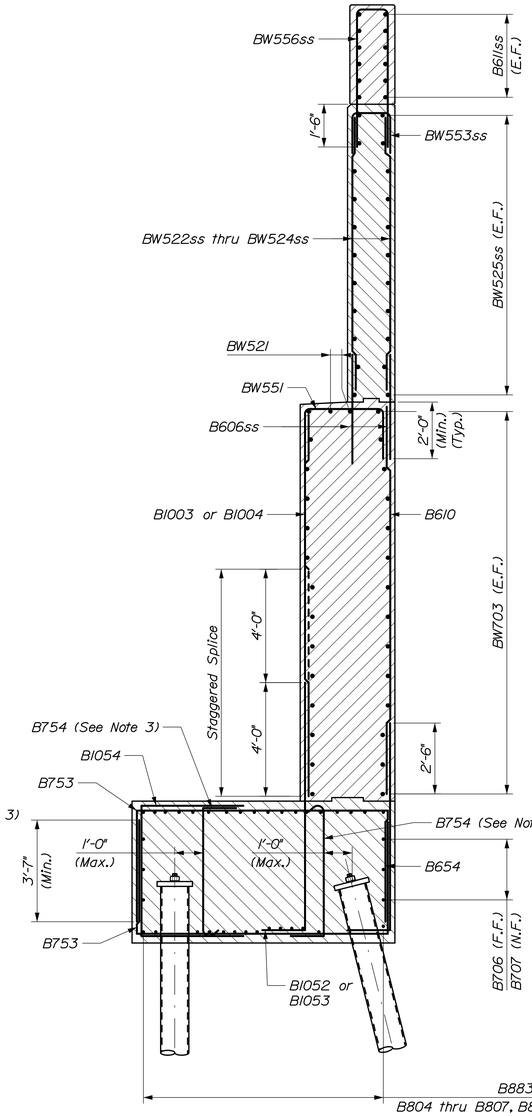
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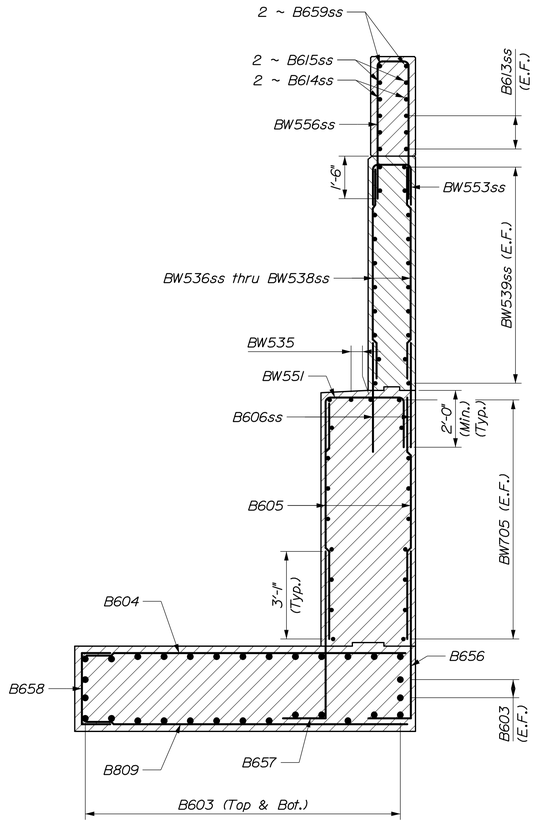
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

WINGWALL NOTES

1. For locations of Sections A-A through D-D, see Abutment 2 Wingwall Reinforcing Elevations Sheet.

2. Reinforcing steel shall have a minimum concrete cover of 3 inches all around unless otherwise noted.

3. B752 and B754 bars shall be alternated every 6".

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	J. McCabe	C. Wong	11\20
CHECKED-REVIEWED	J. Wough	J. Olund	11\20
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

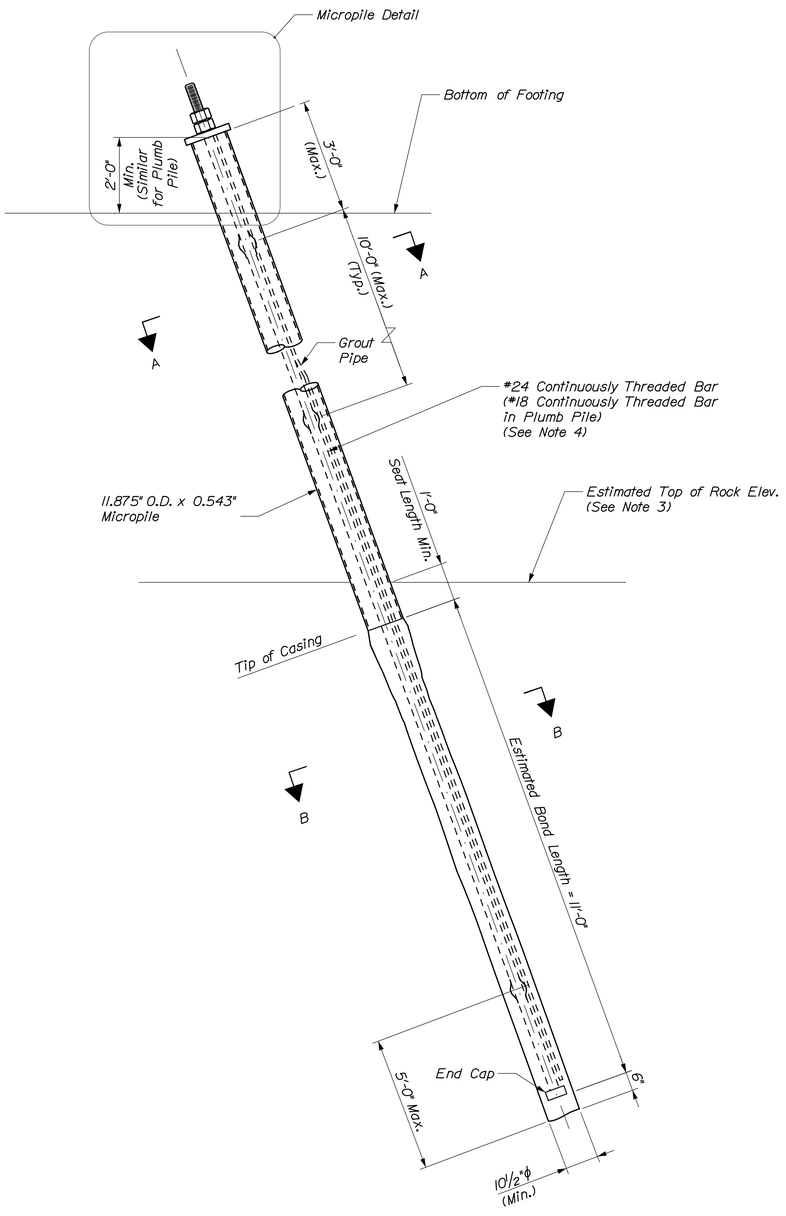
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 2 WINGWALL REINFORCING SECTIONS

SHEET NUMBER

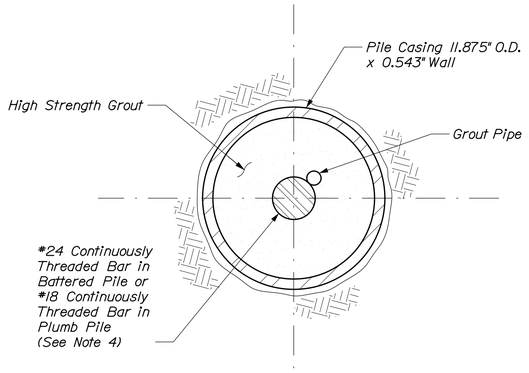
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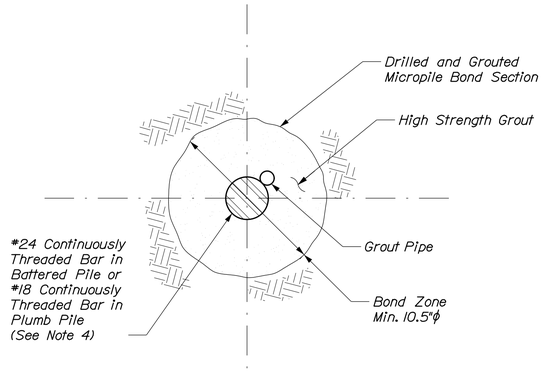
TYPICAL BATTERED PILE ELEVATION

(Plumb Pile Similar)



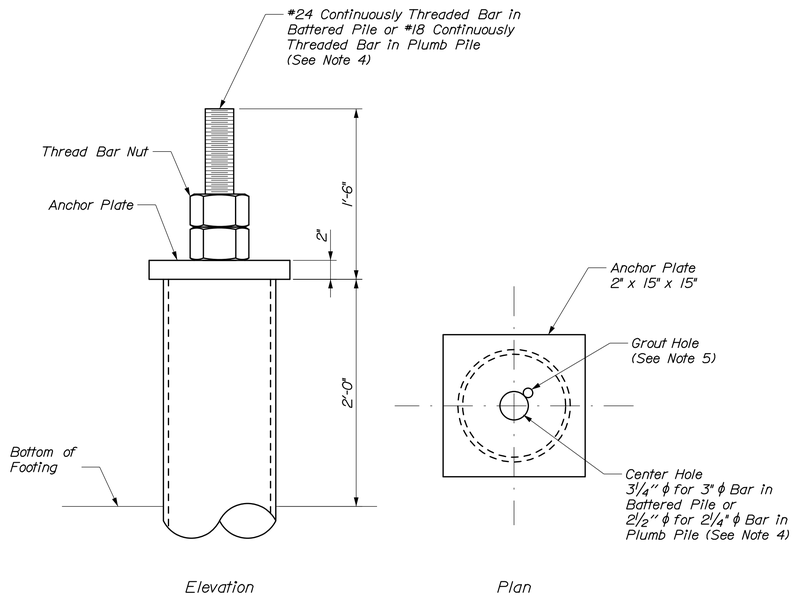
SECTION A-A

(Cased Zone)



SECTION B-B

(Bond Zone in Bedrock)



MICROPILE DETAIL

MICROPILE NOTES

1. Construct and test Micropiles in accordance with Special Provision Section 501, Micropiles.

2. The maximum factored micropile load is 490 kips in compression and 220 kips in tension (Strength Load Combination).

3. For Estimated Top of Rock Elevations refer to Top of Rock elevations shown on "Abutment 2 Foundation Plan" sheet.

4. Verification Test Pile and piles designated for Proof Testing, as indicated on the "Abutment 2 Foundation Plan" sheet, shall be furnished with a #24, Gr. 150, continuously threaded steel bar. For load testing, the factored design load (FDL) is 490 kips. Test load increments shall be proportioned relative to the FDL in accordance with Special Provision 501, Micropiles.

5. Contractor shall coordinate grout pipe hole diameter and grout pipe hole location in anchor plate with grout pipe diameter submitted to the Engineer for approval as part of the Micropile Installation Plan.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	I. McCabe	C. Wong	11\20
CHECKED-REVIEWED	J. Krough	J. Olund	11\20
DESIGN2-DETAILED2	_	_	_
DESIGN3-DETAILED3	_	_	_
REVISIONS 1	_	_	_
REVISIONS 2	_	_	_
REVISIONS 3	_	_	_
REVISIONS 4	_	_	_
FIELD CHANGES	_	_	_

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ABUTMENT 2
MICROPILE DETAILS

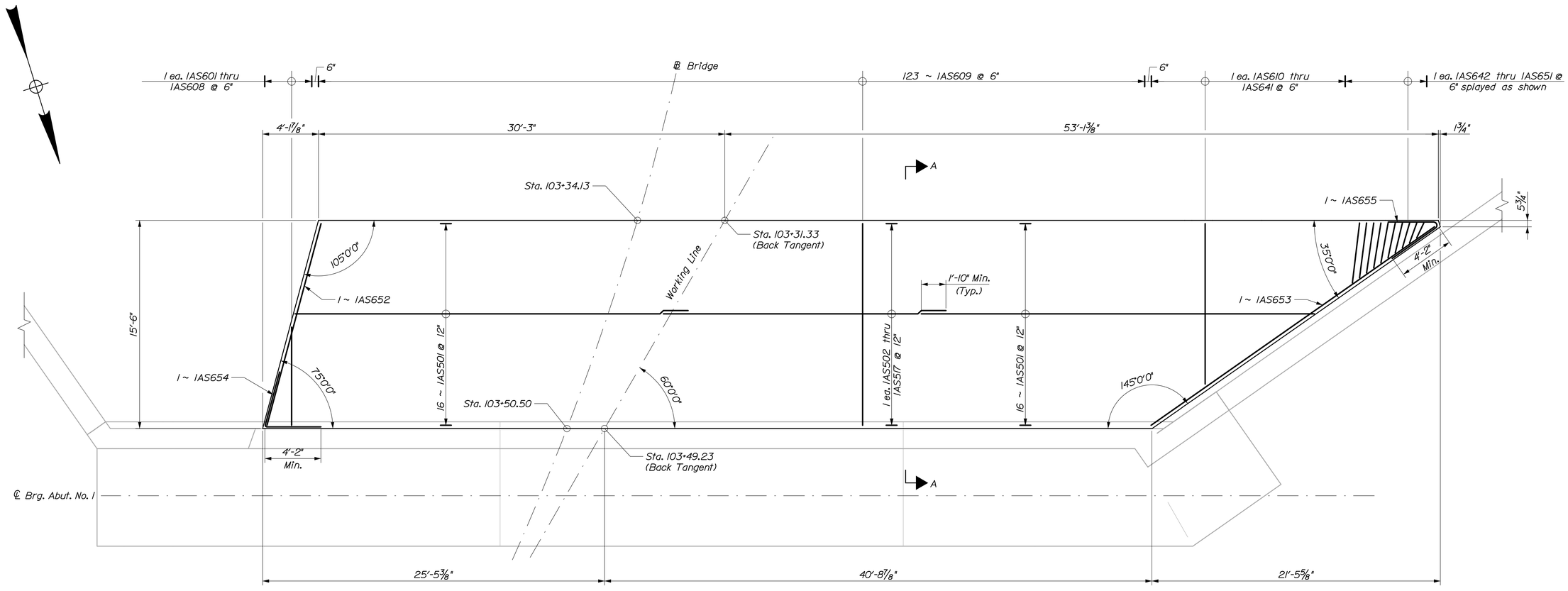
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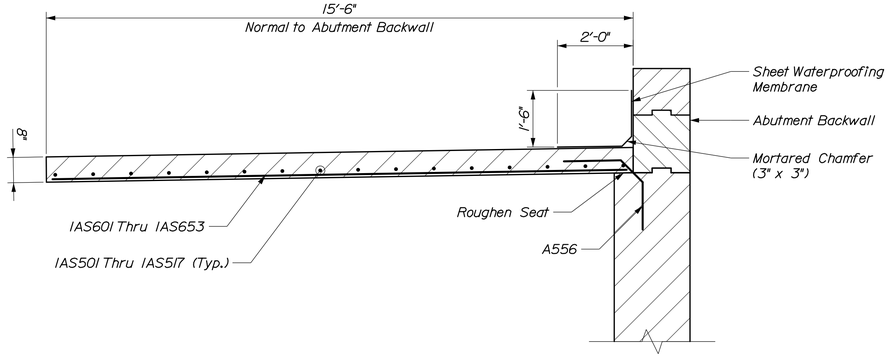
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Filename: 065_Abutment 2 Micropile Details.dgn Username: Division: Date:11/20/2020



APPROACH SLAB PLAN



SECTION A-A

Notes:

1. Approach slabs shall be installed in accordance with Standard Details 502(02) unless otherwise noted herein.

2. Payment for Sheet Waterproofing Membrane and Mortared Chamfer at the joint between the Approach Slab and Backwall will not be made directly and will be considered incidental to related Contract Items.

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

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PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	T. Poulin	P. Bishop	11\20
CHECKED-REVIEWED	T. McCabe	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
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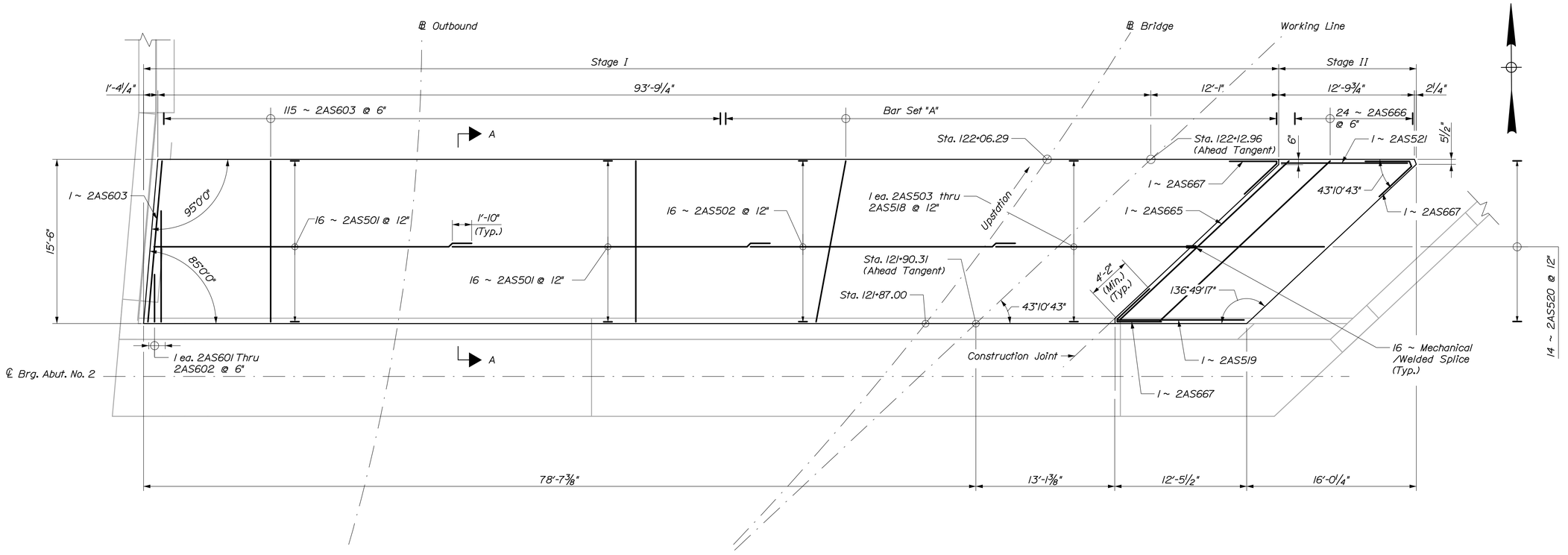
INTERNATIONAL BRIDGE
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ABUTMENT 1
APPROACH SLAB

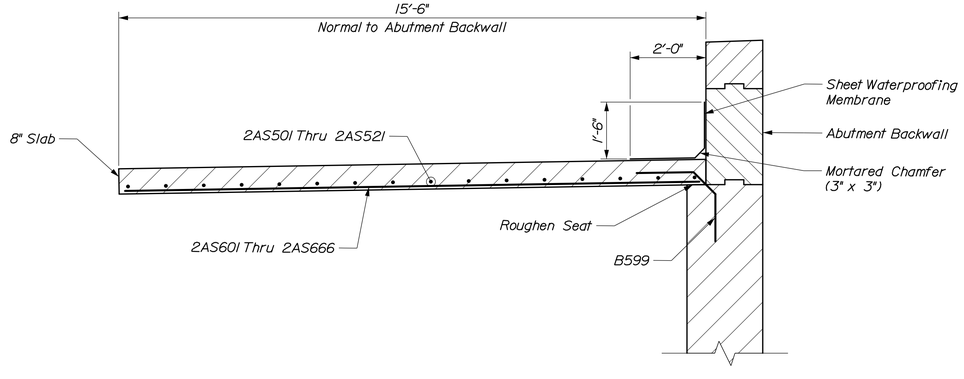
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OF 160

HNTB

Username:
Division:
Date:11/20/2020
Filename: 066_Abutment 1 Approach Slab.dgn



APPROACH SLAB PLAN



SECTION A-A

BAR SETS

Bar Set "A":
(All Bars Spaced 6" Horizontally along North Face)
9 ~ 2AS603
4 ~ 2AS604
3 ~ 2AS605
2 ~ 2AS606
2 ~ 2AS607
2 ~ 2AS608
2 ~ 2AS609
2 ~ 2AS610
2 ~ 2AS611
1 ~ 2AS612
2 ~ 2AS613
1 ~ 2AS614
1 ~ 2AS615
2 ~ 2AS616
1 Ea. 2AS617 thru 2AS665

Notes:

1. Approach slabs shall be installed in accordance with Standard Details 502(02) unless otherwise noted herein.

2. Payment for Sheet Waterproofing Membrane and Mortared Chamfer at the joint between the Approach Slab and Backwall will not be made directly and will be considered incidental to related Contract Items.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

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	BY	DATE
A. LATHE		
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DESIGN-DETAILED	P. Bishop	11\20
CHECKED-REVIEWED	J. Olund	-
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

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SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

ABUTMENT 2 APPROACH SLAB

SHEET NUMBER

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HNTB

Filename: 067_Abutment 2 Approach Slab.dgn Division: Username: Date:11/20/2020

PIER DESIGN CRITERIA

1. Critical AASHTO Load Combination - Strength V Limit State.

2. Buoyancy: Water level assumed at EL. 467.60.

3. Stream flow: Velocity of 9.7 fps skewed at 45° to longitudinal centerline of Pier Foundations.

4. Wind: 115 mph or 0.061 ksf, Strength III Limit State.

5. Ice:
   Strength Limit State - Thickness 2.5 feet, pressure 28.8 ksf at EL. 455.70, 30% of nose force applied transverse to pier.

   Extreme Limit State - Thickness 3.5 feet, pressure 14.4 ksf at EL. 467.60, 30% of nose force applied transverse to pier.

PIER NOTES

1. The maximum factored footing bearing pressure is 25.2 ksf for spread footing alternatives. The maximum factored footing bearing pressure is taken at bottom of spread footing and does not include the self-weight of the seal.

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

3. See General Construction Note 5 for foundation Bid Alternates reference.

4. Pier shaft casing shall conform to ASTM A252 Grade 3, rolled and welded with the seam facing down stream, and Standard Specification 504. Payment for furnishing and installing the pier shaft casing shall be incidental to Item 502.239, Structural Concrete Piers.

SEAL COFFERDAM NOTES

1. When sheet piling is used for seal cofferdams, appropriate rolled corners shall be used, and the inside face of the sheet piling shall be at or outside of the seal concrete dimensions shown.

2. The seal concrete placement dimensions shown represent the minimum seal size necessary to meet design requirements and are not based on the use of any particular sheet pile section.

3. The horizontal Pay Limit for seal concrete will be to the dimensions shown on the Plans. No additional payment will be made for concrete placed outside these Limits.

4. The depth of the seal is set for a water elevation of 455.7. If the water elevation at the time of construction is higher, the depth of the seal shall be adjusted, as approved by the Resident.

5. For the spread footing Alternates (AB1, AC1, AD1, and AE1), the method of placing dowels in the seal concrete shall be approved by the Resident. Dowels are not required for the other Alternates.

6. The identified depth of the seal, for drilled shaft foundation Alternates AB2, AC2, AD2, and AE2, is set for water elevation 455.7. The weight of this seal, alone, is not sufficient to resist buoyant forces resulting from dewatering activities. The Contractor shall incorporate additional tie-down details necessary to resist buoyant forces not resisted by the self-weight of the concrete seal. Conceptual tie-down details are provided by the shear connectors on the drilled shaft casing shown on the Plans. The Contractor shall submit design calculations, details and sequence of construction for concrete seals and tie-downs, as necessary, to resist buoyant forces and adequately seal the cofferdam for continued construction in the dry. The Contractor shall not apply more than 650 kips of tension to a single drilled shaft.

7. If pier seal is placed directly on bedrock, bedrock shall be cleaned of all weathered rock, loose fractured rock, boulders, and soil. Where the bedrock inclination is steeper than 4H:1V, the bedrock shall be benched in level steps or made completely level. Cofferdam excavation inspection shall be the responsibility of the Contractor and subject to review by the Resident and shall be conducted in accordance with Special Provision 511 - Cofferdams.

8. If the bedrock elevations vary from the elevations assumed in the development of these plans, the pier seals may need to be modified. The Contractor shall grant the Department 7 Days to modify the Plans from the date the Resident accepts the bedrock survey.

DRILLED SHAFT NOTES
(Alternates AA2, AB2, AC2, AD2, and AE2)

1. Refer to Special Provision 501 Drilled Shaft for inspection and integrity testing requirements and procedures.

2. The bedrock surface and rock socket elevations indicated are estimates only. The bedrock surface and rock socket length at each drilled shaft shall be approved by the Resident.

3. Lap splices shall not be permitted in the rock socket or for a distance of 12 feet above the top of rock elevation.

4. Do not fabricate reinforcing steel in the drilled shaft and rock socket steel until after the bottom of rock socket elevation has been determined from confirmatory core borings in accordance with Special Provision Section 501.041 and as accepted by the Resident.

PILE NOTES (Alternate AA1)

1. The maximum factored pile load is 478 kips (Strength Load Combination).

2. Estimate of Piles required:

   Pier No. 1: 36 - HP 14x117 @ 44'-6"

   Test pile order length shall include an additional 5 feet of length for each test pile to accommodate dynamic pile testing equipment.

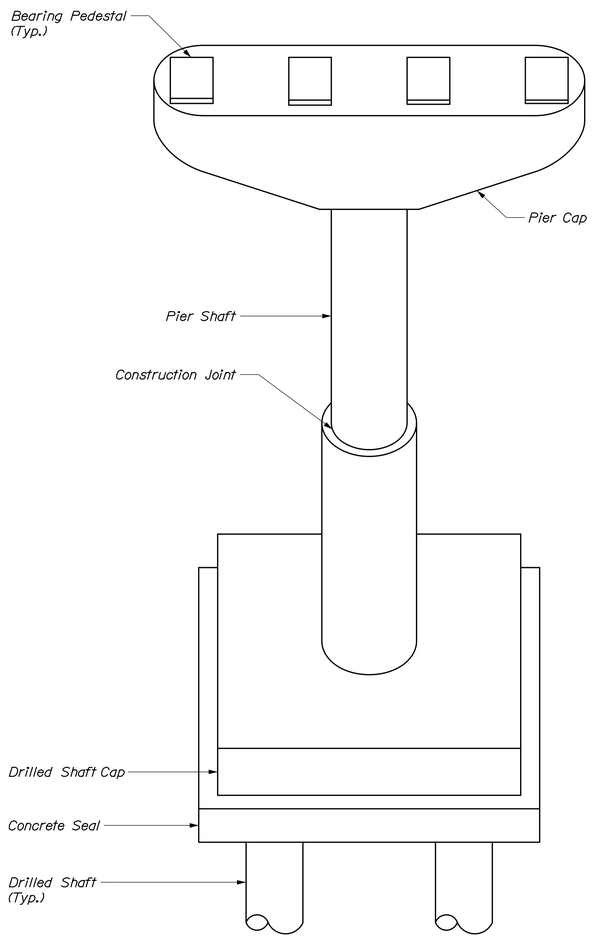
3. H-pile material shall be ASTM A572, Grade 50.

4. Piles shall be driven to the required resistance in accordance with Standard Specification Section 501. Piles shall be driven to a tip elevation no shallower than EL. 422.00, even if the nominal geotechnical resistance has been achieved.

5. Install pile to achieve a nominal geotechnical resistance of 735 kips.

6. The Contractor shall submit to the Department, for review and acceptance, their proposed pile driving equipment with a completed "Pile and Driving Equipment Data Form", Figure 1, of Standard Specifications Section 501-Foundaiton Piles. Acceptance of the proposed pile driving equipment by the Department will be based on Department-conducted wave equation analyses and the criteria specified in Section 501 and Subsection 501.042, Equipment for Driving Piles. If the Department-conducted wave equation analyses show that the proposed driving systems(s) is unacceptable, the Contractor shall modify or replace the proposed driving equipment in an amendment of the QCP, at their own expense, until subsequent wave equation analyses by the Department indicate the pile can be driven to the required resistance, without damage or excessive blows.

7. The Contractor shall provide access for the agents of the Department to perform (2) dynamic load tests, at Pier 1 Foundation Alternate 1a, with signal matching and 24-hour (minimum) restrike, as specified in Special Provision 501-Dynamic Loading Test, to confirm the nominal resistance of the piles. The dynamic pile load test will be completed on the first production pile driven and will include a minimum 24-hour restrike test. The required nominal resistance of the pile is specified in Pile Note 5.



PIER ISOMETRIC VIEW

(Drilled Shaft Alternative at Pier 2 Shown; Others Similar)

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
A. LATHE		
PROJ. MANAGER	C. Count	11\20
DESIGN-DETAILED	P. Bishop	11\20
CHECKED-REVIEWED	J. Wough	-
DESIGN2-DETAILED2	J. Olund	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

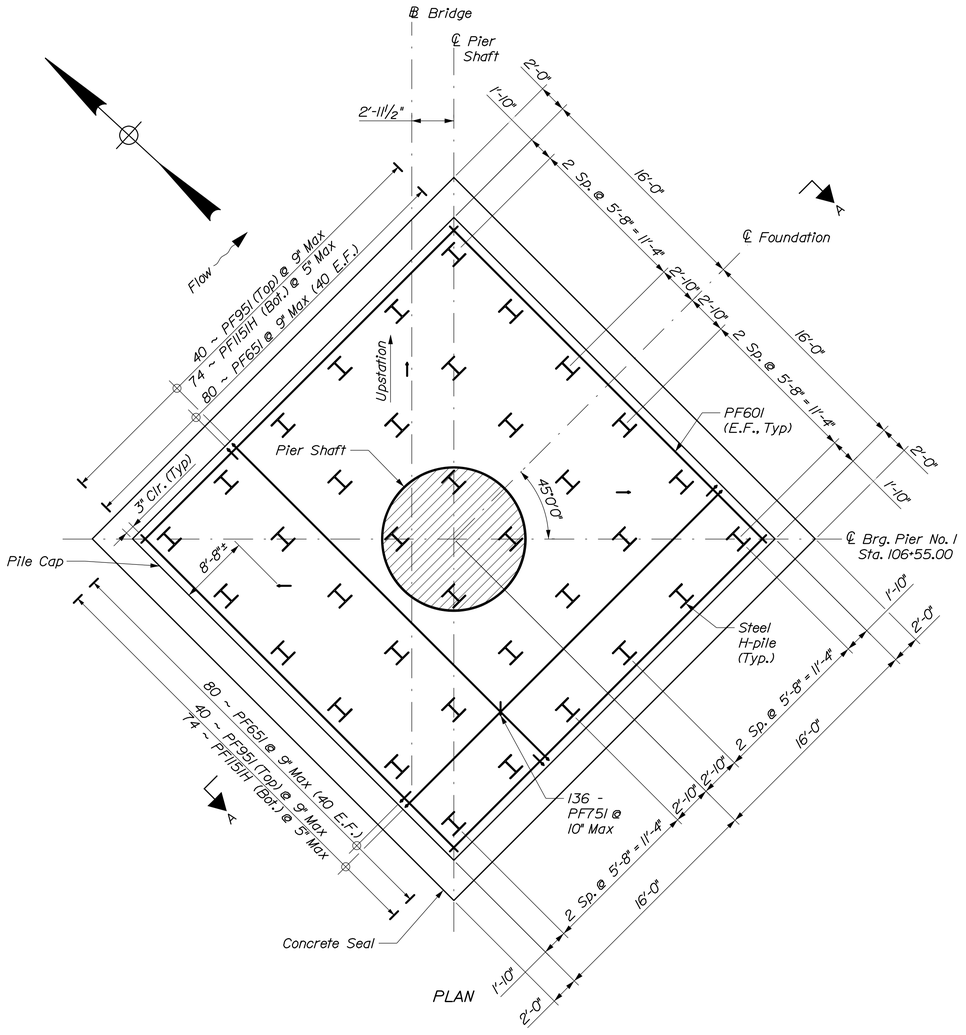
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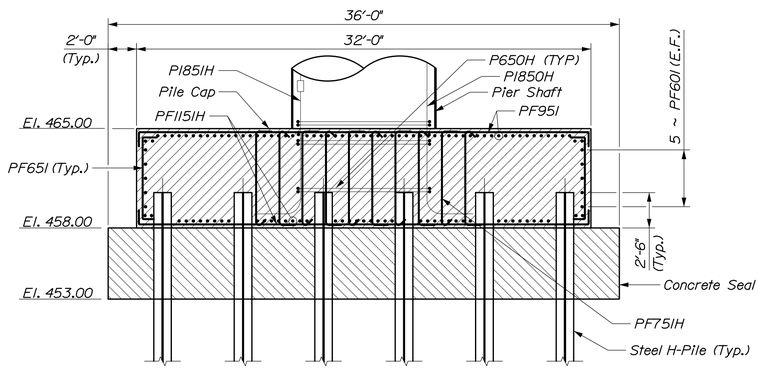
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68

OF 160

Filename: 068_Pier Notes.dgn Division: Username: Date:11/20/2020



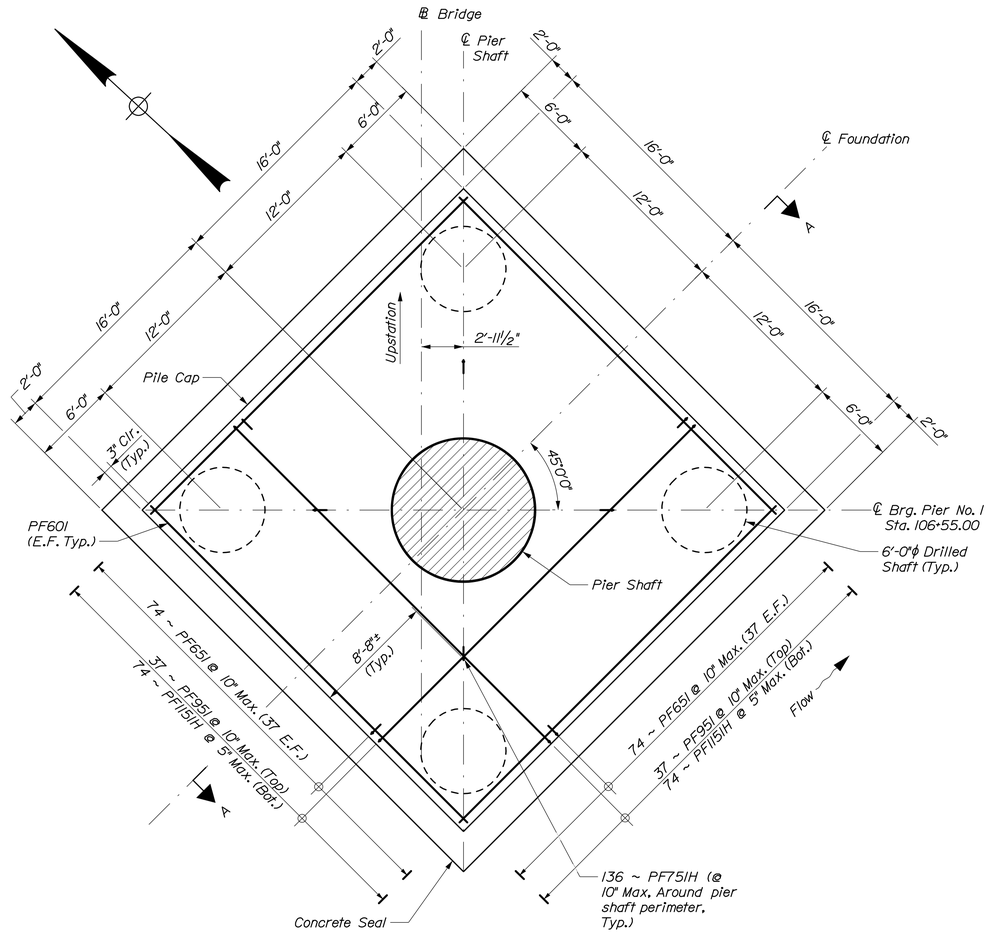


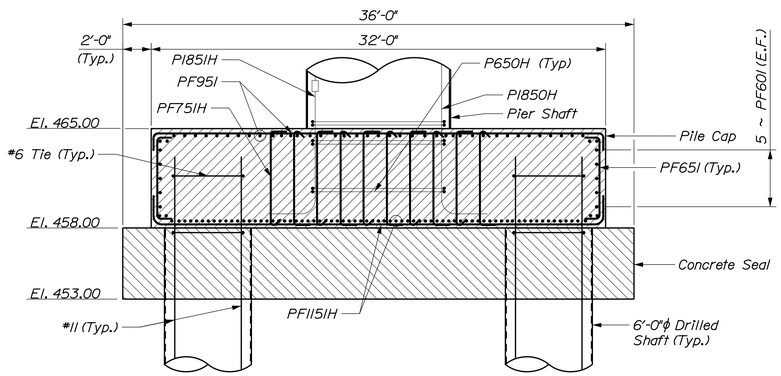
SECTION A-A

ALTERNATE AAI - PILE FOUNDATION

NOTES:

1. Pier bar marks are shown generically. The number prefix in the Reinforcement Schedule denotes the pier location such as IP for Pier 1, 2P for Pier 2, etc.





SECTION A-A

ALTERNATE AA2 - DRILLED SHAFT FOUNDATION

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MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

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021736.00

BRIDGE PLANS

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED
PROFESSIONAL ENGINEER

PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	C. Count	P. Bishop	11\20
CHECKED-REVIEWED	J. Waugh	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

SIGNATURE
12130
P.E. NUMBER
11/19/2020
DATE

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SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

PIER 1
FOUNDATION ALTERNATES

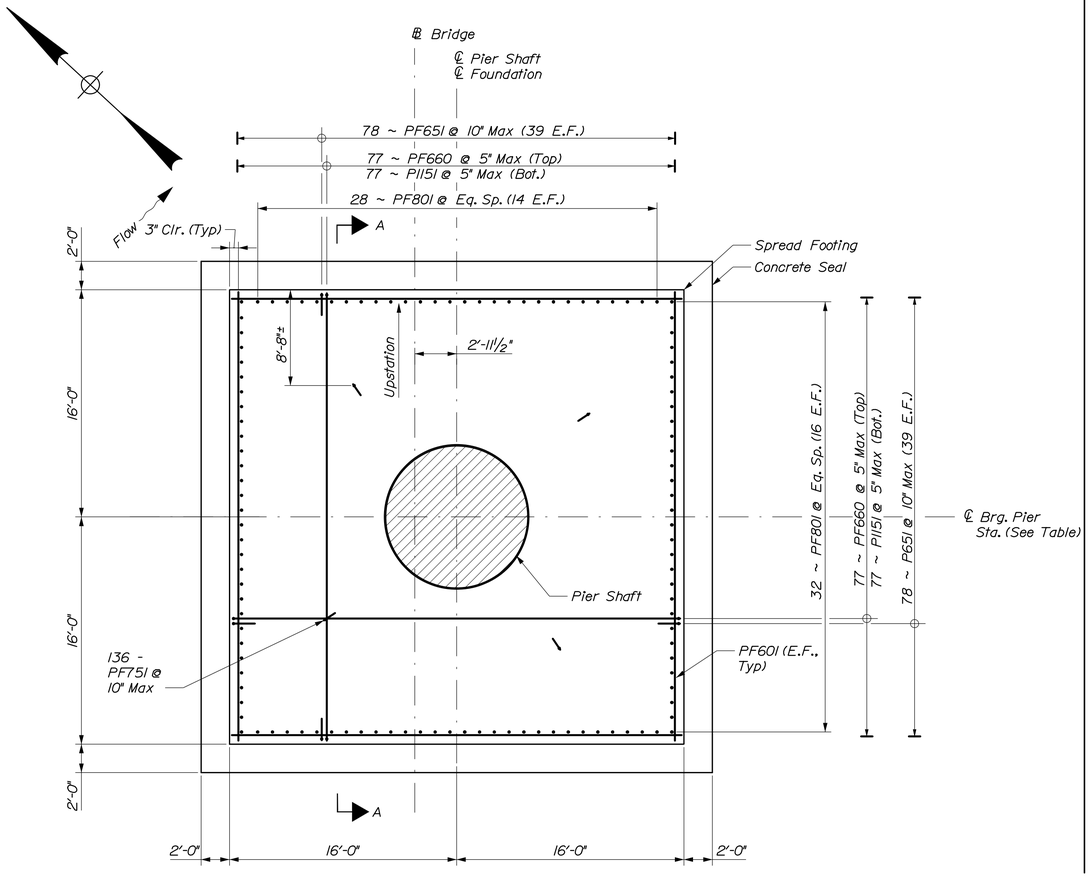
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69
OF 160

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Date:11/20/2020

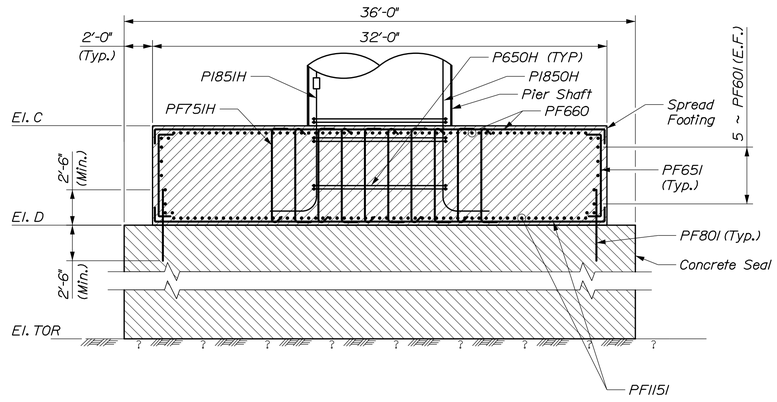
Division:

Filename: 069_Pier 1 Foundation - Alternates.dgn



PLAN

PIER DATA TABLE					
Pier No.	Sta.	El. C	El. D	El. E	El. TOR
2	109+70.00	441.00	434.00	429.00	411.00
3	112+85.00	441.00	434.00	429.00	409.00
4	116+00.00	439.00	432.00	427.00	407.00
5	199+15.00	441.00	434.00	429.00	406.00



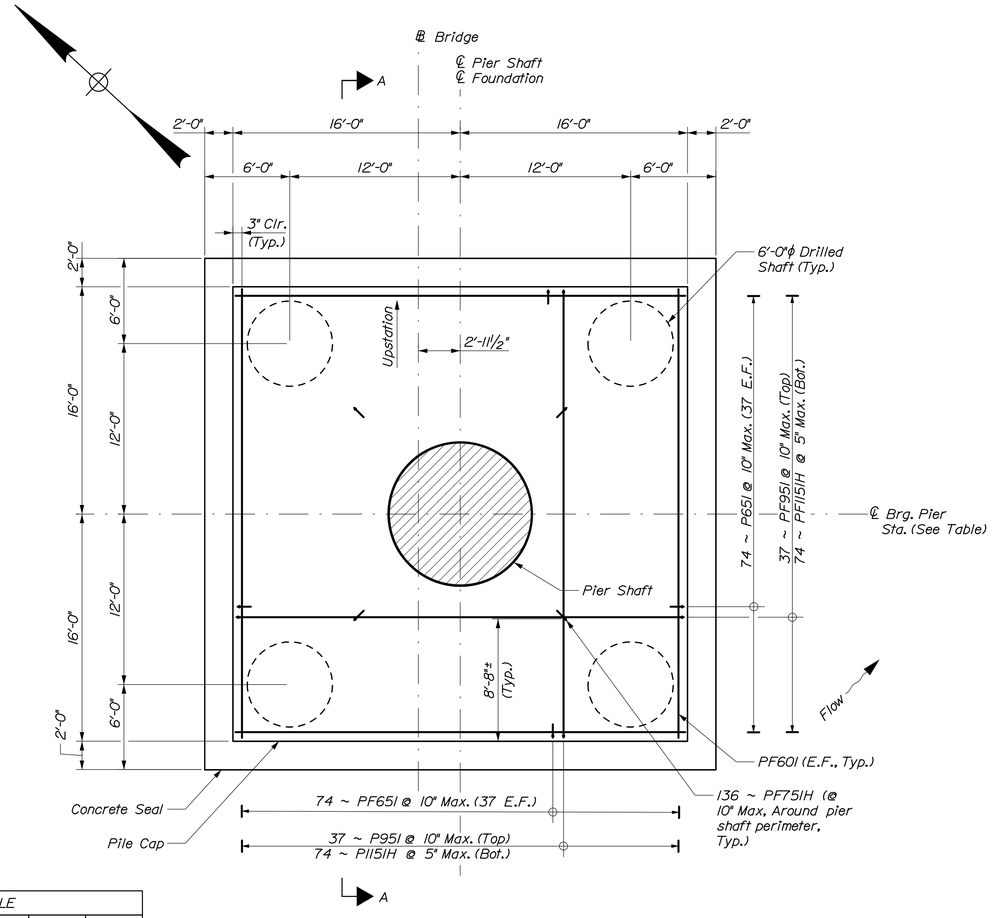
SECTION A-A

ALTERNATE ABI, ACI, ADI, and AEI - SPREAD FOOTING FOUNDATIONS

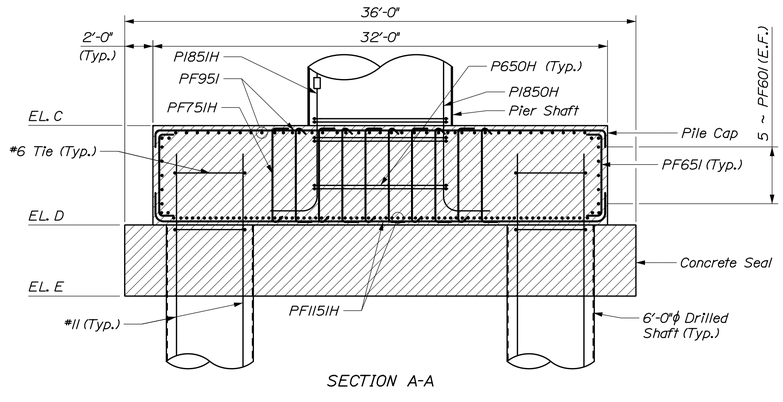
NOTES:

1. Pier bar marks are shown generically. The number prefix in the Reinforcement Schedule denotes the pier location such as IP for Pier 1, 2P for Pier 2, etc.

2. El. TOR refers to the approximate top of rock elevation near the pier footing as extrapolated from the boring logs. See the Interpretive Subsurface Profile for additional information.



PLAN



SECTION A-A

ALTERNATE AB2, AC2, AD2, and AE2 - DRILLED SHAFT FOUNDATIONS

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DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE — JOSHUA K. GLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

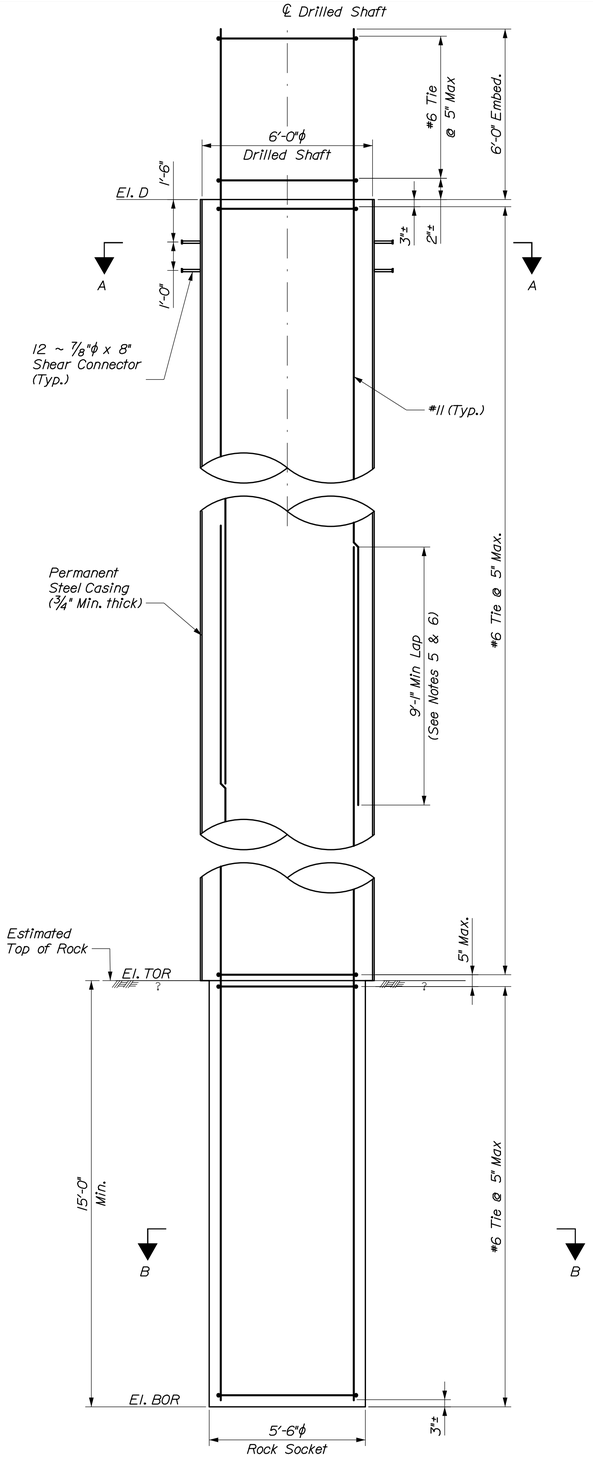
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	C. Count	P. Bishop	11\20
CHECKED-REVIEWED	J. Waugh	J. Glund	11\20
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DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

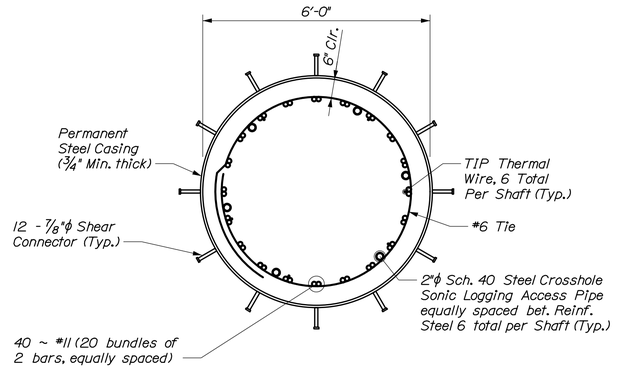
PIERS 2-5
FOUNDATION ALTERNATES

SHEET NUMBER
70
OF 160

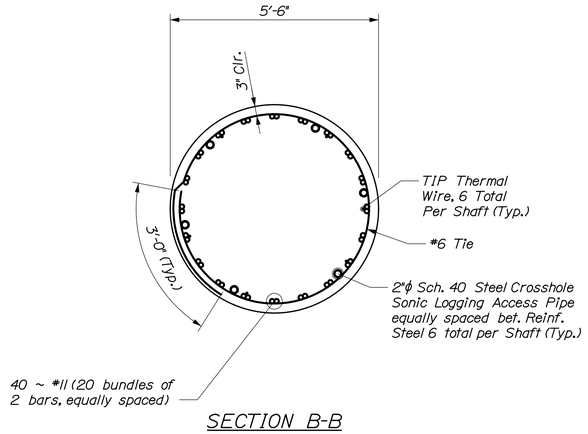
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TYPICAL DRILLED SHAFT SECTION



SECTION A-A



SECTION B-B

DRILLED SHAFT DATA TABLE			
Pier No.	EL. D	Assumed El. TOR	Assumed El. BOR
1	458.00	413.00	397.50
2	434.00	411.00	395.50
3	434.00	409.00	393.50
4	432.00	407.00	391.50
5	434.00	406.00	390.50

NOTES:

1. El. D refers to the top of concrete seal.

2. El. TOR refers to the approximate top of rock elevation near the pier footing as interpreted from the boring logs. See the Interpretive Subsurface profile for additional information.

3. El. BOR refers to the assumed required rock socket tip elevation assuming a nominal 6" casing embedment into rock and the minimum rock socket length noted.

4. Drilled Shaft and Rock Socket reinforcing steel shall conform to ASTM A615 Gr. 75, plain.

5. Drilled shaft Lap splices shall be staggered so that no more than 50% of the bars are being spliced in a given section. Lap splices of individual bars within a bundle shall not overlap.

6. Mechanical splices may be used at the Contractor's option (at no additional cost) in lieu of the lap splice shown. Mechanical splices shall be staggered 2'-0" minimum, within each bundled bar pair, such that individual bar splices do not overlap. Alternatively, the lap splice shown may be eliminated at the Contractor's discretion and a continuous bar utilized.

7. Permanent steel casing shall be seated into rock to provide a seal around the entire casing perimeter, see Special Provision 501 Drilled Shafts.

8. Shear connectors shall be in conformance with Standard Specification Section 505.

9. Details shown apply to Pier Alternates AA2, AB2, AC2, AD2, and AE2 only.

10. Thermal Integrity Profiling (TIP) testing is required at all drilled shaft locations, refer to Special Provision 501 Drilled Shafts.

STATE OF MAINE
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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	C. Count	P. Bishop	11\20
CHECKED-REVIEWED	J. Wrough	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

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DRILLED SHAFT DETAILS

SHEET NUMBER

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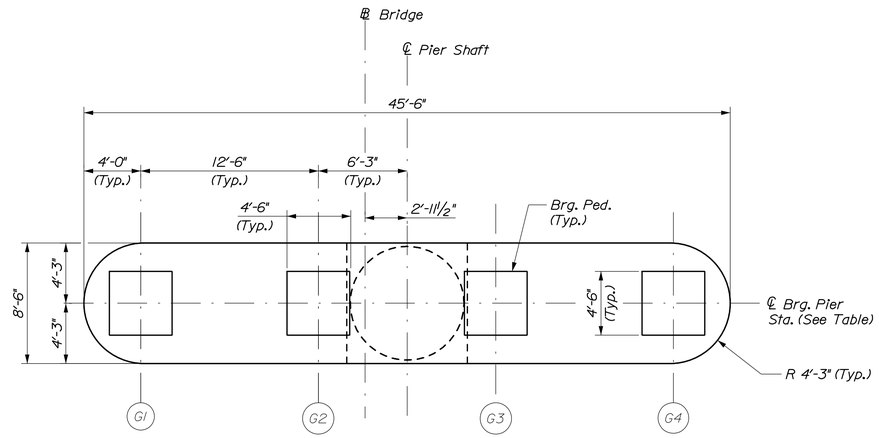
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Username:

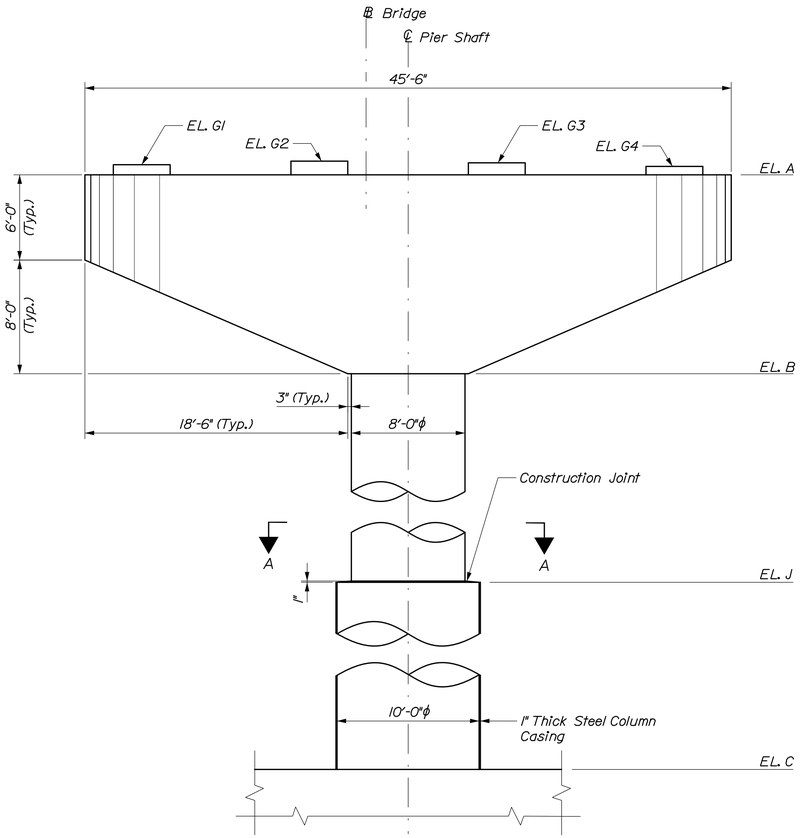
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PLAN

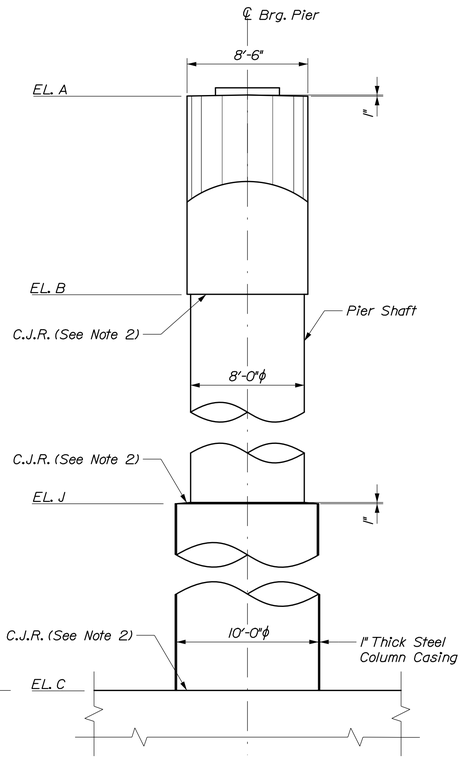


FRONT ELEVATION

(Looking Upstation)

Pier Shaft and Cap Geometry Consistent for All Alternates

Pier Foundation as per Chosen Alternative

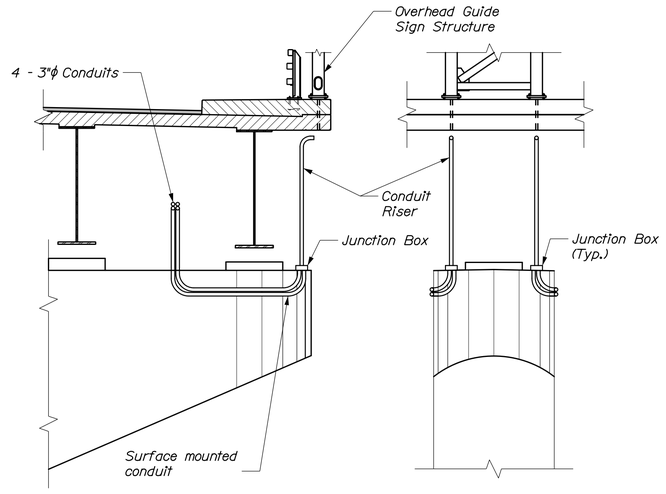


SIDE ELEVATION

PIER GEOMETRY TABLE									
Pier No.	Sta.	El. A	El. B	El. C	EL. J	El. G1	EL. G2	EL. G3	EL. G4
1	106+55.00	523.72	509.72	465.00	489.72	524.22	524.38	524.35	524.10
2	109+70.00	519.58	505.58	441.00	485.58	520.07	520.24	520.21	519.96
3	112+85.00	514.85	500.85	441.00	480.85	515.35	515.51	515.48	515.23
4	116+00.00	510.13	496.13	439.00	476.13	510.62	510.79	510.76	510.51
5	119+15.00	505.07	491.07	441.00	471.07	505.56	505.72	505.69	505.44

* Pedestal elevations are based upon an assumed bearing height.

See Bearing Layout Sheets for additional information.



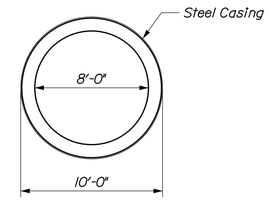
Front Elevation

Side Elevation

NOTES:

Conduit detail is conceptual. Contractor is responsible for developing final location of conduits, junction boxes, and attachment to the pier. Final layout and attachment details shall be submitted to the Resident for approval. Payment shall be incidental to Item 910.301, Special Work - Utility Conduit (Bridge Only).

PIER 3 CONDUIT DETAIL



SECTION A-A

NOTES:

1. The shaft diameter is measured to the concrete. The steel casing shall have an inside diameter equal to the shaft diameter shown.

2. C.J.R. = Construction Joint, Roughened to ¼" Nominal Amplitude.

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STATE OF MAINE
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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE JOSHUA K. OLUND No. 12130 REGISTERED PROFESSIONAL ENGINEER

SIGNATURE 12/1/20

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	C. Count	P. Bishop	11\20
CHECKED-REVIEWED	J. Wough	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

PIERS 1-5
PLAN AND ELEVATION

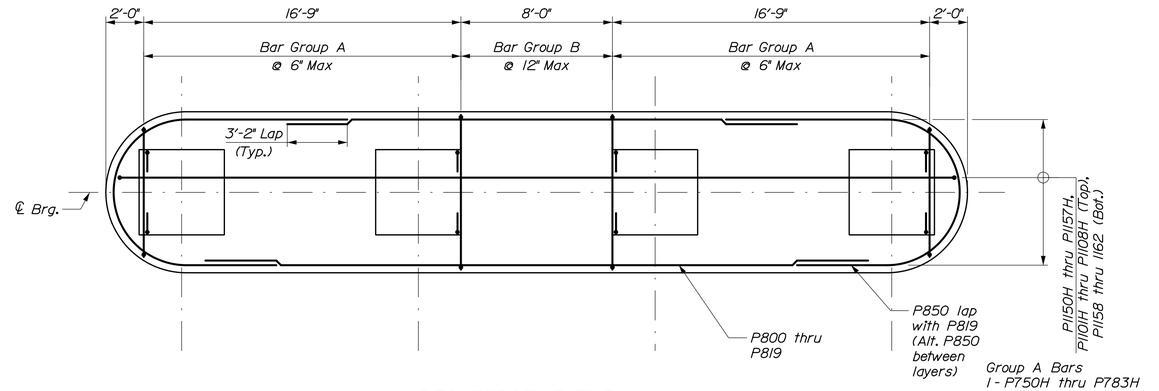
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OF 160

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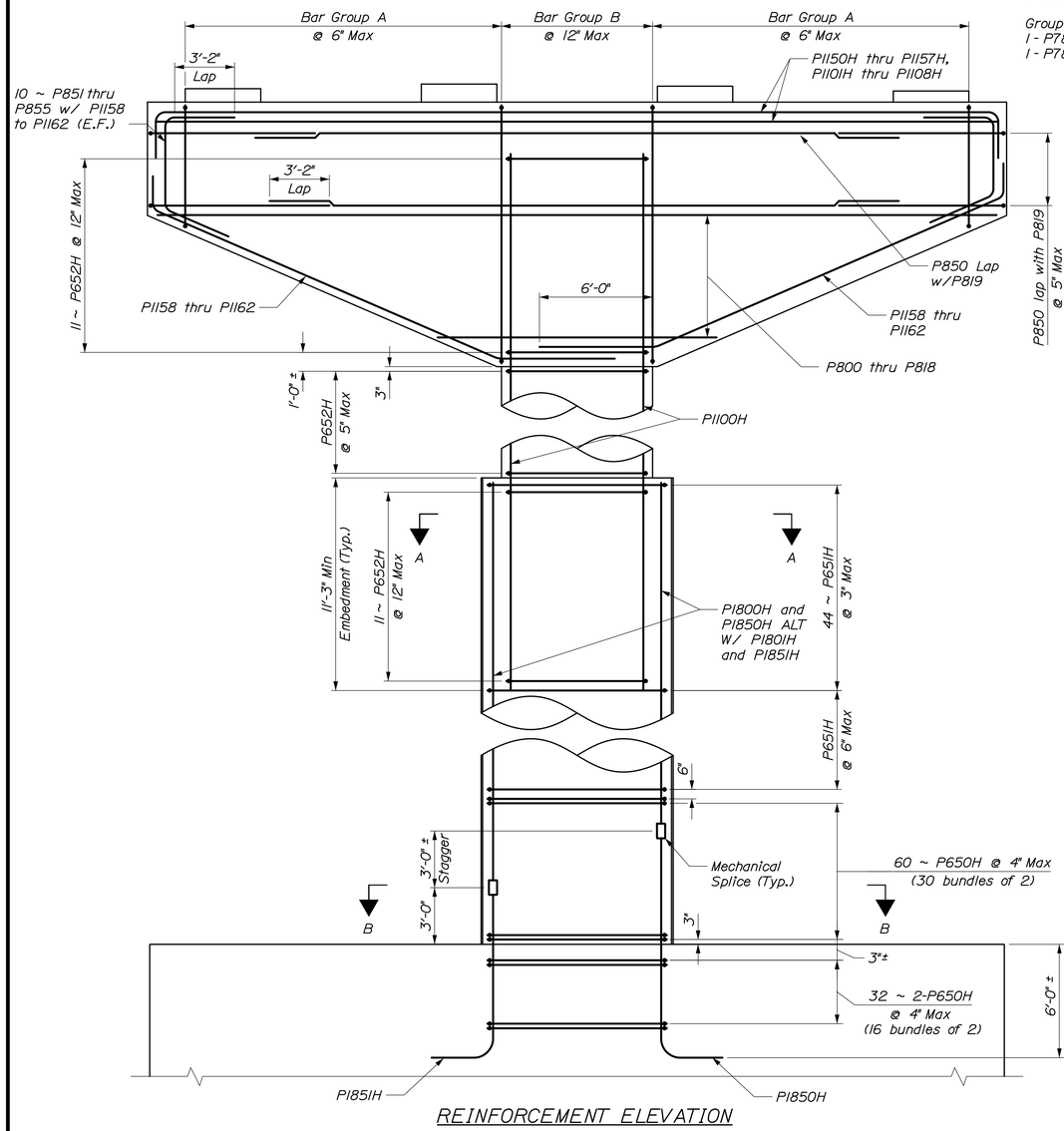
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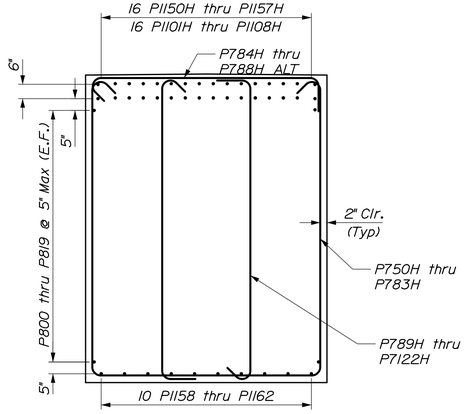
REINFORCEMENT PLAN

Group A Bars
1 - P750H thru P783H
2 - P789H thru P7122H
1 - P784H thru P788H

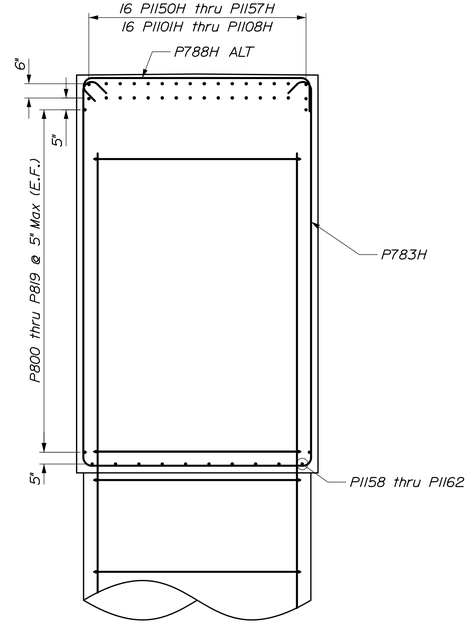
Group B Bars
1 - P788H
1 - P783H



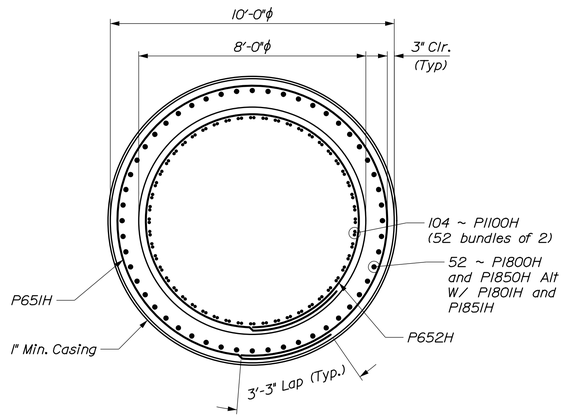
REINFORCEMENT ELEVATION



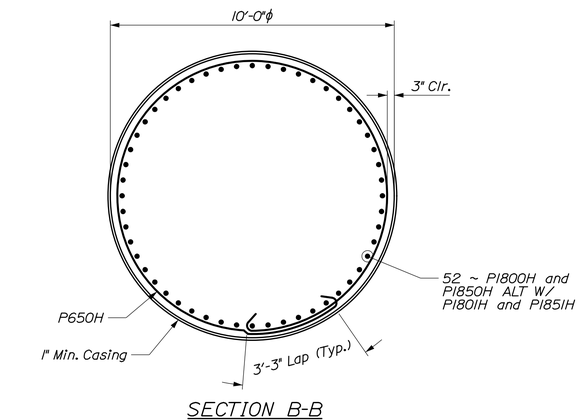
TYPICAL PIER CAP REINFORCEMENT SECTION



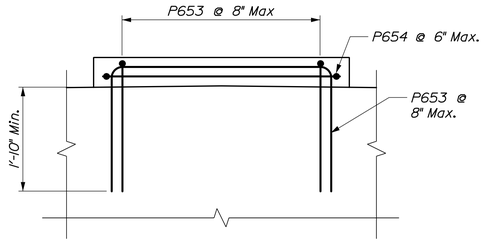
PIER CAP REINFORCEMENT SECTION AT COLUMN



SECTION A-A



SECTION B-B



BEARING PEDESTAL REINFORCEMENT DETAIL

(Space Bars to Avoid Conflict With Bearing Anchor Rods)

NOTES:

1. All pier cap and pier column reinforcement shall conform to ASTM A615, Gr. 75, plain, unless otherwise noted.

2. Lap splices shall be staggered such that no more than 50% of the bars are spliced in a given section.

3. Pier bar marks are shown generically. The number prefix in the Reinforcement Schedule denotes the pier location such as 1P for Pier 1, 2P for Pier 2, etc.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE * JOSHUA K. OLUND No. 12130 * REGISTERED PROFESSIONAL ENGINEER

SIGNATURE 12/30

P.E. NUMBER

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	C. Count	P. Bishop	11\20
CHECKED-REVIEWED	J. Waugh	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
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FIELD CHANGES	-	-	-

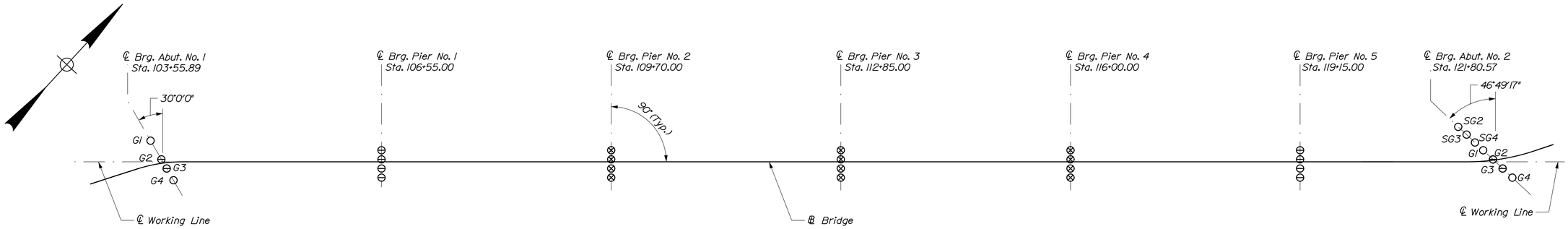
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

PIERS 1 - 5
REINFORCEMENT

SHEET NUMBER

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OF 160



DISC BEARING LAYOUT PLAN

DISC BEARING NOTES:

1. The actual dimension "H" shall be the responsibility of the Contractor. Dimensions and sizes of plates not shown are dependent on design loads, capacity, and the manufacturer of the bearings. The shop drawings, prepared by the manufacturer, shall provide all pertinent bearing information. The final bearing pedestal elevations shall be determined by the Contractor and submitted with the shop drawings for approval prior to construction of the substructure units. Dimension "H" does not consider the depth of 1" cheese plate for G2 at Abutment 1 and Piers 1-5 and G1 at Abutment 2.

2. Masonry plates shall be placed on 1/8" thick preformed pads in accordance with the specifications.

3. All steel, unless otherwise specified, shall meet the requirements of ASTM A709, Grade 50W.

4. Bearing anchorage shall be either Anchor Stud with double nuts and washers in blockout, or Bolt & Stud with Coupler in blockout, at the Contractor's option, both options shown in details.

5. Anchorage spacing shall be coordinated with the bearing manufacturer.

6. Anchor bolts shall meet the requirements of ASTM F3125, Type 1.

7. Anchor rods shall meet the requirements of ASTM F1554, Grade 105 and shall be swedged on the embedded portion of the rod.

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

9. Anchor bolts, rods, washers, and nuts shall be galvanized to ASTM A153 or ASTM B695, Class 50, Type 1. Payment for galvanizing will be considered incidental to the disc bearing pay items.

10. For abutment bearings, all steel located below the polyether urethane disc shall be coated in accordance with Standard Specifications Section 506, Protective Coating - Steel (Thermal Spray Coating). All remaining steel shall be coated in accordance with Standard Specifications Section 506, Protective Coating - Steel (Zinc Rich Coating System). Payment for Coatings for Disc Bearings will be considered incidental to Item 523.5552 Pot or Disc Bearings, Expansion.

11. For pier bearings, all steel located below the polyether urethane disc shall be coated in accordance with Standard Specifications Section 506, Protective Coating - Steel (Thermal Spray Coating). All remaining steel shall remain uncoated. Payment for Coatings for Disc Bearings will be considered incidental to Item 523.5551, Pot or Disc Bearings, Fixed or Item 523.5552 Pot or Disc Bearings, Expansion as applicable.

12. The abbreviation "PTFE" indicates polytetraflouroethylene.

13. All PTFE, including guide and restraint surfaces, shall be unfilled.

14. PTFE minimum bearing pressure shall be 1 ksi under total service loading and 3 ksi under total strength loading.

15. Average compressive stresses on the disc shall be computed using the minimum plan area of the unstressed disc, excluding the area of any holes.

16. The design temperature range shall be 125°F (-20°F to 105°F).

17. Design of the sole plates and masonry plates is the responsibility of the Bearing Manufacturer. Payment for these shall be made under Item 523.5551, Pot or Disc Bearings, Fixed or Item 523.5552, Pot or Disc Bearings, Expansion as applicable.

18. Sole plate shall be beveled according to the grade defined at each substructure location in the Disc Bearing Design Table.

19. Strength Limit State rotations shown in the Disc Bearing Design Table do not include an allowance for uncertainties of 0.005 radians, as defined in AASHTO LRFD Bridge Design Specifications, 8th Edition 2017.

20. Anchor rods shall be installed to a minimum of 18 inches into the substructure units, below the bottom of the pedestals.

21. Bearings shall be designed with a thermal load factor of 1.2.

22. Longitudinal horizontal forces do not include friction forces at expansion bearings.

23. 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. Bearings shall be restrained during transit.

24. Bearing installation shall be in strict conformance with the Standard Specifications and the manufacturer's recommendations.

25. In the Disc Bearing Setting Corrections Table, a negative value for Dimension "X" indicates a direction away from the nearer expansion joint. A positive value for Dimension "X" indicates a direction toward the nearer expansion joint.

26. Pier No. 3 bearings shall be welded to the girder prior to welding of any other bearings. Bearings stiffeners at Pier 3 shall be in line with the centerline of bearing at the time of welding.

27. Piers No. 2 and No. 4 bearings shall be welded to the girders at 45°F± 10°F and shall be reset if the structural steel was set outside of this temperature range.

28. Temperatures shown in the Disc Bearing Setting Corrections Table are those of the steel girders and not necessarily the ambient air temperature.

LEGEND

⊗ - Fixed

○ - Expansion

⊖ - Uni-directional (Transversely Restrained)

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	T. Poulin	BY
CHECKED-REVIEWED	C. Mancini	BY
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-
DESIGN-DETAILED	P. Bishop	BY
CHECKED-REVIEWED	J. Olund	BY
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-
DESIGN-DETAILED	11\20	DATE
CHECKED-REVIEWED	11\20	DATE
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

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BEARING LAYOUT

SHEET NUMBER

74

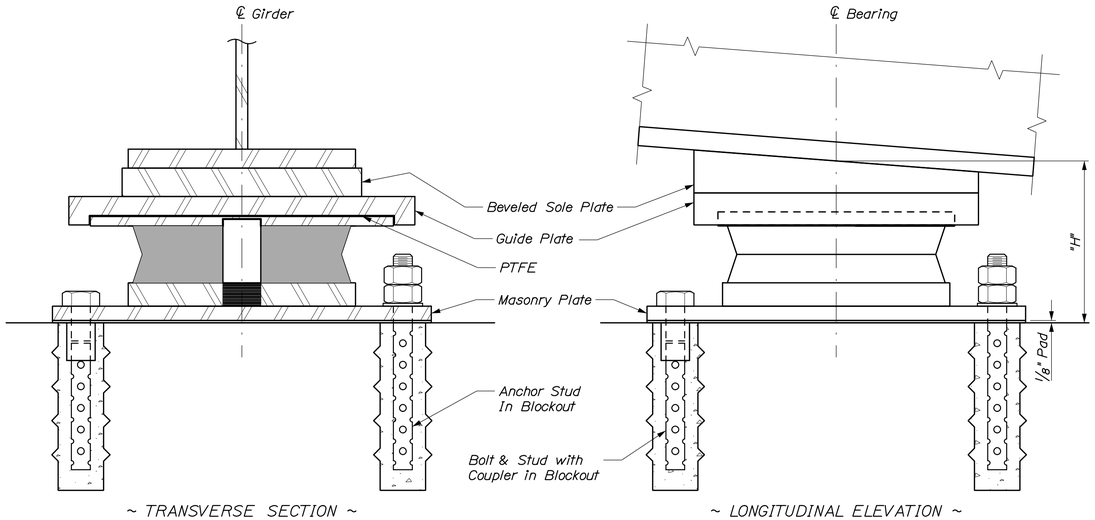
OF 160

Date:11/20/2020

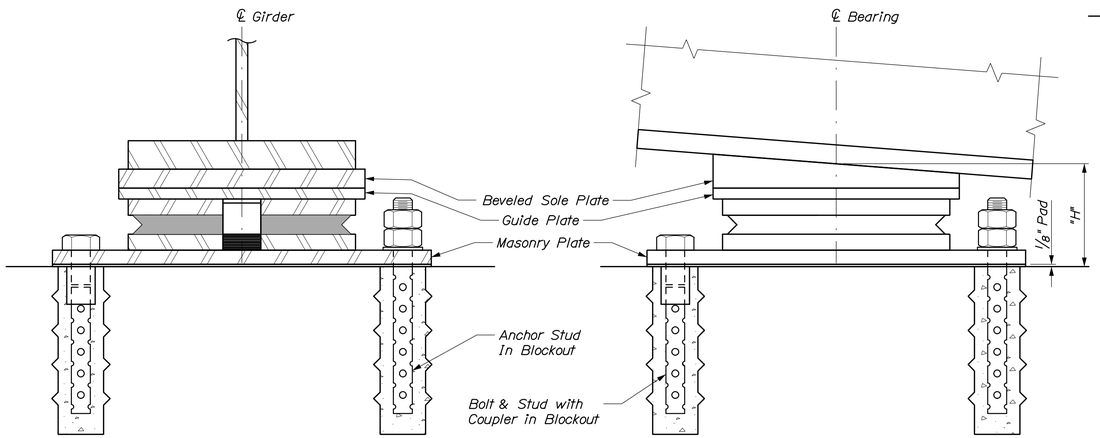
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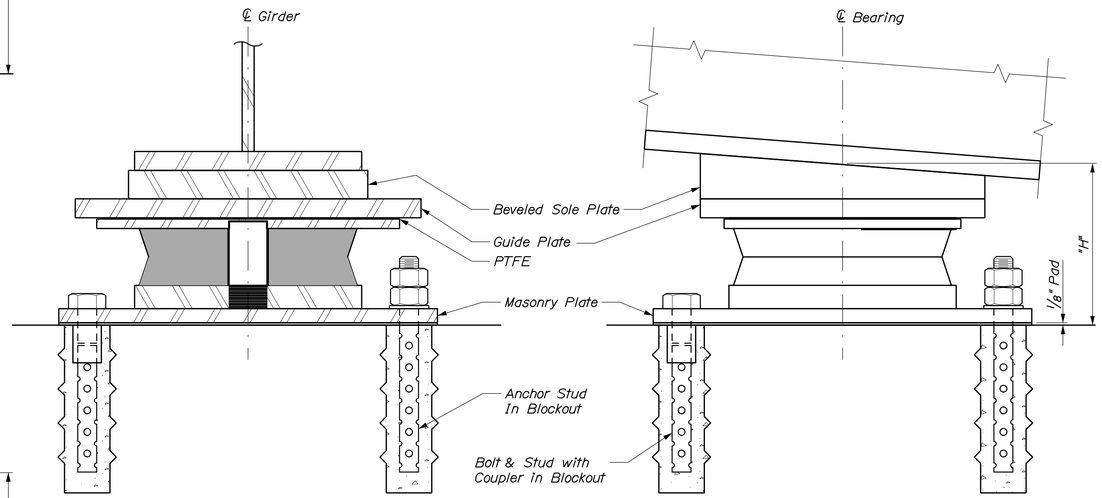
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UNI-DIRECTIONAL BEARING



FIXED BEARING



EXPANSION BEARING

DISC BEARING DESIGN TABLE

Location	Bearing Type	Design Loads Per Bearing (kips)										Dim "H" (in.) (See Note 1)	Design Rotation				Total Long. Movement (in.)	Sole Plate Bevel
		Vertical					Horizontal						Strength		Service			
		Strength	Extreme Event	Service			Strength		Extreme		Service							
		Total Load	Total Load	Dead Load *	Max. Live Load **	Min. Live Load **	Long.	Trans.	Long.	Trans.	Long.	Trans.	Rotation (radians)	Load (kips)	Rotation (radians)	Load (kips)		
Abut. No. 1	Unguided	851	524	440	168	-38	0	0	0	0	0	0	16	0.056	387	0.044	284	9.1	0.18%
Abut. No. 1	Uni-dir	1098	668	562	212	-23	0	279	0	167	0	235	16	0.040	931	0.031	708	8.2	-0.47%
Pier No. 1	Uni-dir	2257	1479	1306	356	-41	0	156	0	345	0	117	16	0.015	1360	0.012	1023	5.6	-0.80%
Pier No. 2	Fixed	2101	1356	1183	351	-56	131	127	299	299	101	97	12	0.022	948	0.017	699	0.0	-1.50%
Pier No. 3	Fixed	2007	1369	1119	355	-55	121	141	314	314	83	107	12	0.019	993	0.014	727	0.0	-1.50%
Pier No. 4	Fixed	2088	1343	1169	352	-56	144	133	302	302	113	101	12	0.018	1021	0.014	783	0.0	-1.50%
Pier No. 5	Uni-dir	2216	1483	1328	310	-40	0	65	0	279	0	57	16	0.021	1213	0.016	921	5.8	-0.10%
Abut. No. 2 (G2, G3)	Uni-dir	876	521	428	185	-27	0	141	0	130	0	117	16	0.037	741	0.029	563	7.3	-3.68%
Abut. No. 2 (G1, G4)	Unguided	684	457	413	88	-15	0	0	0	0	0	0	16	0.039	644	0.030	497	7.2	-3.68%
Abut. No. 2 (SG2)	Unguided	192	121	106	29	-18	0	0	0	0	0	0	16	0.026	173	0.020	131	7.1	-2.29%
Abut. No. 2 (SG3)	Unguided	186	115	101	28	-20	0	0	0	0	0	0	16	0.040	160	0.031	116	7.3	-1.98%
Abut. No. 2 (SG4)	Unguided	58	24	16	16	-30	0	0	0	0	0	0	16	0.046	13	0.036	13	7.4	-3.05%

* Tabulated Dead Loads include DC1, DC2, and DW loads.
** Tabulated Live Loads include IM loading and multiple presence factors.

DISC BEARING SETTING CORRECTIONS TABLE

	Dimension "X" (inches)					
	15 °F	30 °F	45°F	60 °F	75 °F	90 °F
Abut. No. 1	-2 1/8"	-1 1/8"	0	1 1/8"	2 1/4"	3 1/4"
Pier No. 1	-1 1/2"	-3/4"	0	3/4"	1 1/2"	2 1/4"
Pier No. 2	--	--	--	--	--	--
Pier No. 3	--	--	--	--	--	--
Pier No. 4	--	--	--	--	--	--
Pier No. 5	-1 1/2"	-3/4"	0	3/4"	1 1/2"	2 1/4"
Abut. No. 2	-2 1/8"	-1 1/8"	0	1 1/8"	2 1/4"	3 1/4"

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	A. LATHE	DATE
PROJ. MANAGER	T. Poulin	11\20
DESIGN-DETAILED	P. Bishop	11\20
CHECKED-REVIEWED	J. Olund	- -
DESIGN2-DETAILED2	C. Marcini	- -
DESIGN3-DETAILED3	-	- -
REVISIONS 1	-	- -
REVISIONS 2	-	- -
REVISIONS 3	-	- -
REVISIONS 4	-	- -
FIELD CHANGES	-	- -

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DISC BEARINGS

SHEET NUMBER
75
OF 160

Filename: 075_Disc Bearings.dgn Division: Username: Date:11/20/2020

Date:11/20/2020
Username:
Filename: 076_Framing Plan and Girder Elevation - Span 1.dgn

℄ Brg. Abut. No. 1
Sta. 103+55.89
(Expansion)

Span 1 = 300'-0"

63'-9"

12 Spaces @ 19'-8¼" = 236'-3"

℄ Brg. Pier No. 1
Sta. 106+55.00
(Expansion)

℄ Optional Bolted
Field Splice 1
Sta. 104+07.00

℄ Optional Bolted
Field Splice 2
Sta. 104+90.00

℄ Optional Bolted
Field Splice 3
Sta. 106+05.00

83'-0"

115'-0"

50'-0"

30° Skew

G1

SG1

G2

G3

G4

Working Line

℄ Bridge

Diaphragm or Crossframe
Type (Typ.)

Connection ℄ (Typ.)

Lateral Brace (Typ.)

Bridge Drain
Downspout
(Typ.)

Utility Support Brackets for
CBP use (do not drill holes
for utility attachment in
Cross Member) (Pier 1 only)

2'-0"

90°

Drip Bar (Typ.)

M1

12'-6"

9'-2½"

3'-3½"

12'-6"

1'-0"
Min.

2'-0"
(Min.)

4'-0" (Min.)
5'-0" (Max.)

10'-0" (Max.)

Utility Support Angle
(Typ.)
(see Structural Steel Note 12)

2'-0"
Min.

1'-0"
Min.

Intermediate Stiffeners (Typ.)

Jacking Stiffeners (Typ.)

Bearing Stiffeners (Typ.)

See Sheet "Framing Plan - Span 1 - Flared End"

FRAMING PLAN

℄ Brg. Abut. No. 1

℄ Optional Bolted
Field Splice 1

℄ Optional Bolted
Field Splice 2

℄ Optional Bolted
Field Splice 3

℄ Brg. Pier No. 1

Shear Connector
Layout

D2

N1 Spaces @ S1 = D1

G1 & G4: Quad Studs, G2 & G3: Triple Studs

190 Spaces @ 15" = 237'-6"
(Triple Studs)

1'-6"

A

83'-0"

115'-0"

50'-0"

2'-6"

Top Flange ℄
32" x 2½"

Top Flange ℄
36" x 2¾" Gr. 70

4'-6"
(Typ.)

3'-3"
(Typ.)

Bearing Stiffener ℄
1⅝" x 1'-5½"
(Both Sides)

Jacking Stiffener ℄
1½" x 1'-5"
(Both Sides)

Intermediate
Stiffener ℄
1" x 1'-4"
(Single Side)
(G1 and G3
only)

5/16

Typ.

Top Flange ℄
32" x 2½"

Top Flange ℄
32" x 2½"

Web ℄
96" x 13/16" (Typ.)

Bearing Stiffener ℄
1⅝" x 1'-5½"
(Both Sides)

Jacking Stiffener ℄
1½" x 1'-5"
(Both Sides)

Web ℄
Varies (96" to
120") x 13/16"

Intermediate
Stiffener ℄
1⅜" x 1'-5½"
(Both Sides)

D1
Varies

10'-0"

Bottom Flange ℄
36" x 2½"

X1

Bottom Flange ℄
36" x 2¾" Gr. 70

Bottom Flange ℄
36" x 2½"

Point of Horizontal Tangency

Bottom Flange ℄
36" x 2½"

45'-0" (Parabolic Haunch)

5'-0"
(Typ.)

P1

Span 1

NOTE:
See Sheet "Framing Plan - Span 1 - Flared End" sheet for structural steel notes and parabolic web dimension notes.

GIRDER ELEVATION

(G4 Shown, Others Similar)
1058 (G1), 861 (G2), 828 (G3), 858 (G4)
Shear Connectors, 3605 Total

TABLE OF GIRDER PIECE DIMENSIONS							
	SPAN 1	"P1"	"A"	"N1"	"S1"	"D1"	"D2"
Girder 1	318'-7⅞"	68'-7⅞"	70'-7⅞"	121	8"	80'-8"	5⅞"
Girder 2	301'-10 13/16"	-	53'-10 13/16"	96	8"	64'-0"	4 13/16"
Girder 3	294'-8 3/16"	-	46'-8 3/16"	85	8"	56'-8"	6 3/16"
Girder 4	285'-8¾"	41'-9⅛"	37'-8¾"	71	8"	47'-4"	10¾"

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SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

FRAMING PLAN AND GIRDER ELEVATION - SPAN 1

PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	C. Mancini	C. Wong	11\20
CHECKED-REVIEWED	T. Poulin	J. Olund	11\20
DESIGN2-DETAILED2	_	_	_
DESIGN3-DETAILED3	_	_	_
REVISIONS 1	_		_
REVISIONS 2	_		_
REVISIONS 3	_		_
REVISIONS 4	_		_
FIELD CHANGES	_		_

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12130
P.E. NUMBER
11/19/2020
DATE

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED
PROFESSIONAL ENGINEER

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

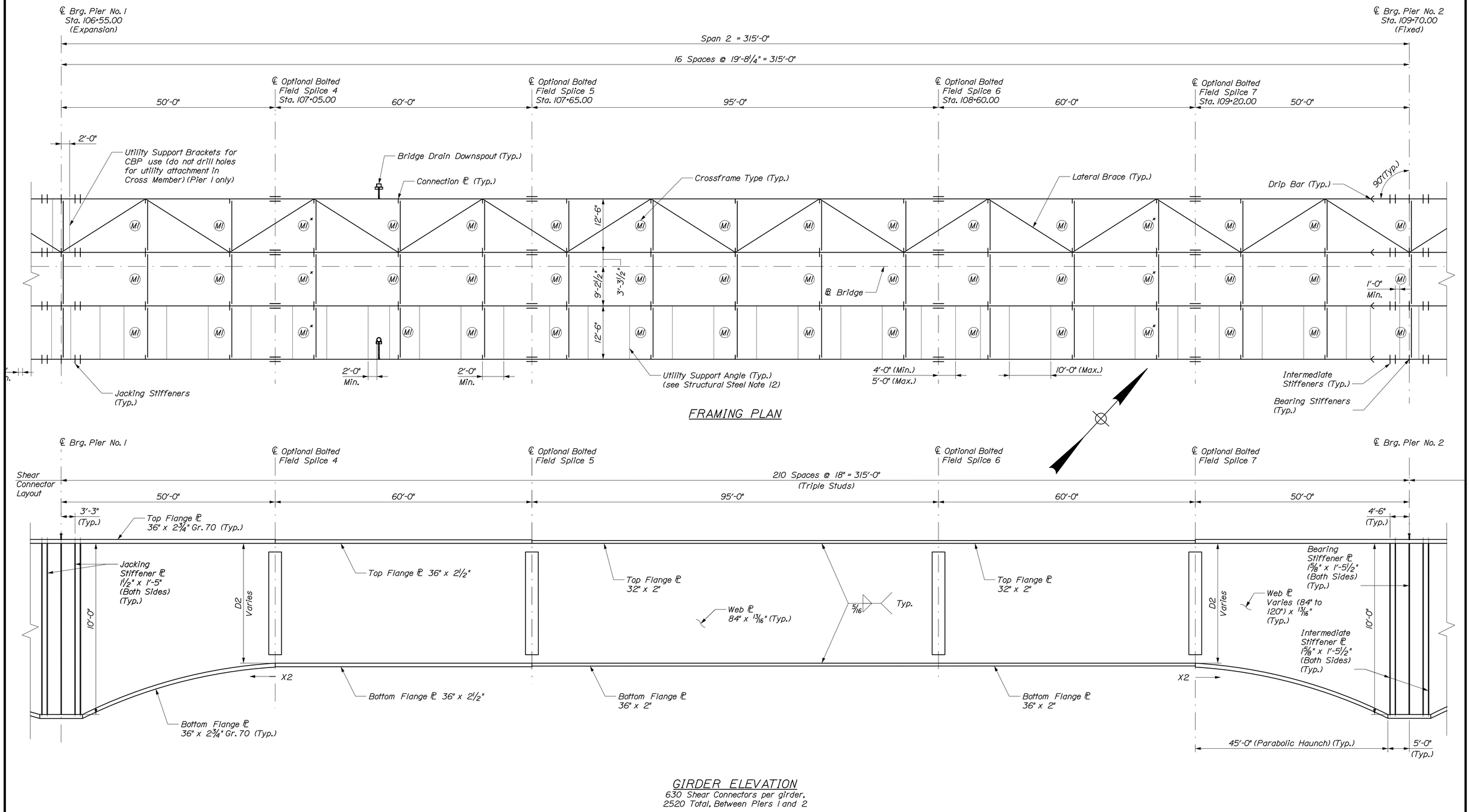
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MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

WIN
021736.00

BRIDGE PLANS

SHEET NUMBER
76
OF 160



GIRDER ELEVATION

630 Shear Connectors per girder, 2520 Total, Between Piers 1 and 2

Date:11/20/2020

Username:

Filename: 077_Framing Plan and Girder Elevation - Span 2.dgn

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SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

FRAMING PLAN AND GIRDER ELEVATION - SPAN 2

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	C. Mancini	C. Wong	11\20
CHECKED-REVIEWED	T. Poulin	J. Olund	11\20
DESIGN2-DETAILED2	_	_	_
DESIGN3-DETAILED3	_	_	_
REVISIONS 1	_		_
REVISIONS 2	_		_
REVISIONS 3	_		_
REVISIONS 4	_		_
FIELD CHANGES	_		_

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

STATE OF MAINE * JOSHUA K. OLUND No. 12130 * LICENSED PROFESSIONAL ENGINEER

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

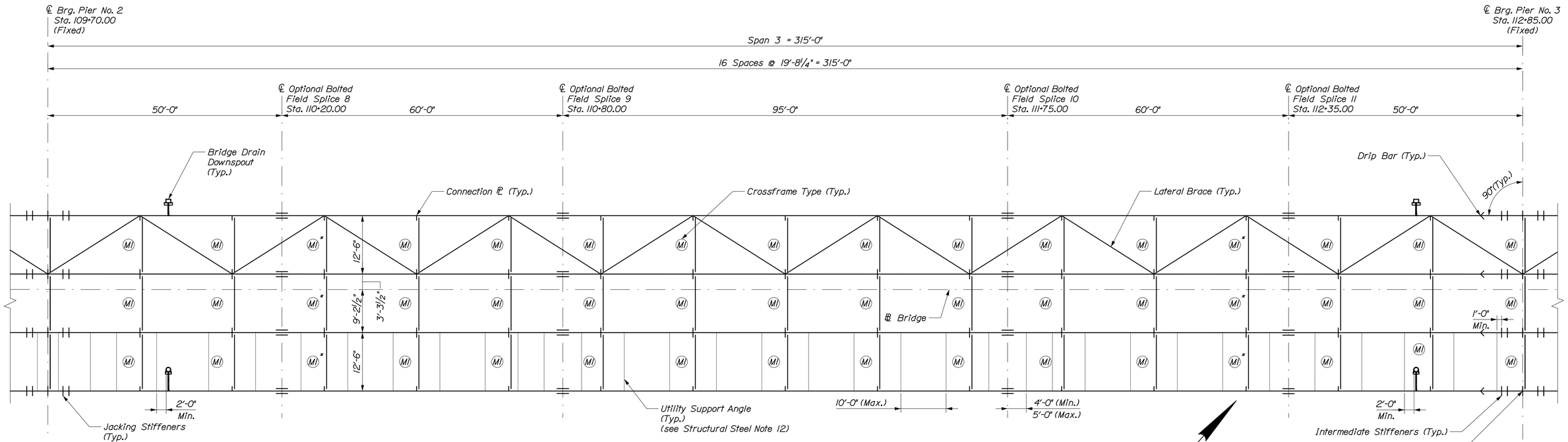
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MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

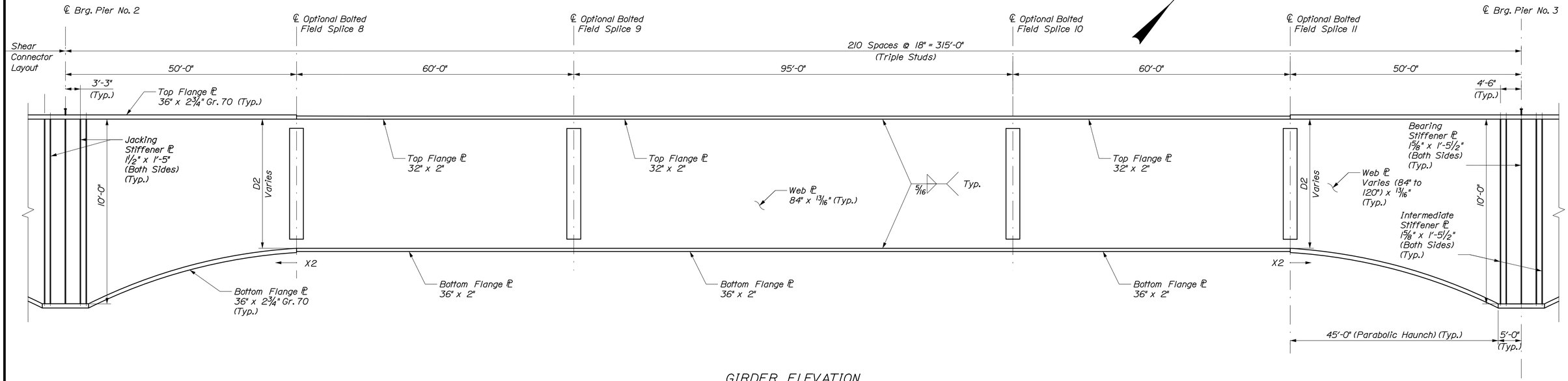
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BRIDGE PLANS

SHEET NUMBER
77
OF 160



FRAMING PLAN



GIRDER ELEVATION

630 Shear Connectors per girder,
2520 Total, Between Piers 2 and 3

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SAINT JOHN RIVER
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FRAMING PLAN AND GIRDER ELEVATION - SPAN 3

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PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	C. Mancini	C. Wong	11\20
CHECKED-REVIEWED	T. Poulin	J. Olund	11\20
DESIGN2-DETAILED2	_	_	_
DESIGN3-DETAILED3	_	_	_
REVISIONS 1	_		_
REVISIONS 2	_		_
REVISIONS 3	_		_
REVISIONS 4	_		_
FIELD CHANGES	_		_

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P.E. NUMBER
11/19/2020
DATE

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DEPARTMENT OF TRANSPORTATION

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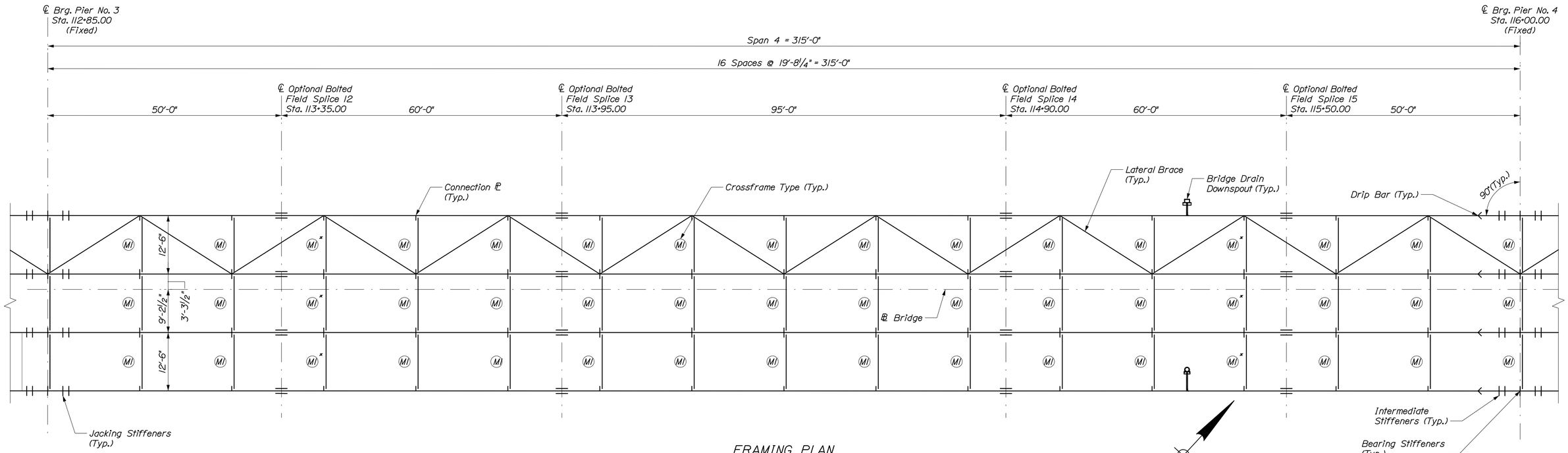
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NBDTI ASSET NO. E320

WIN
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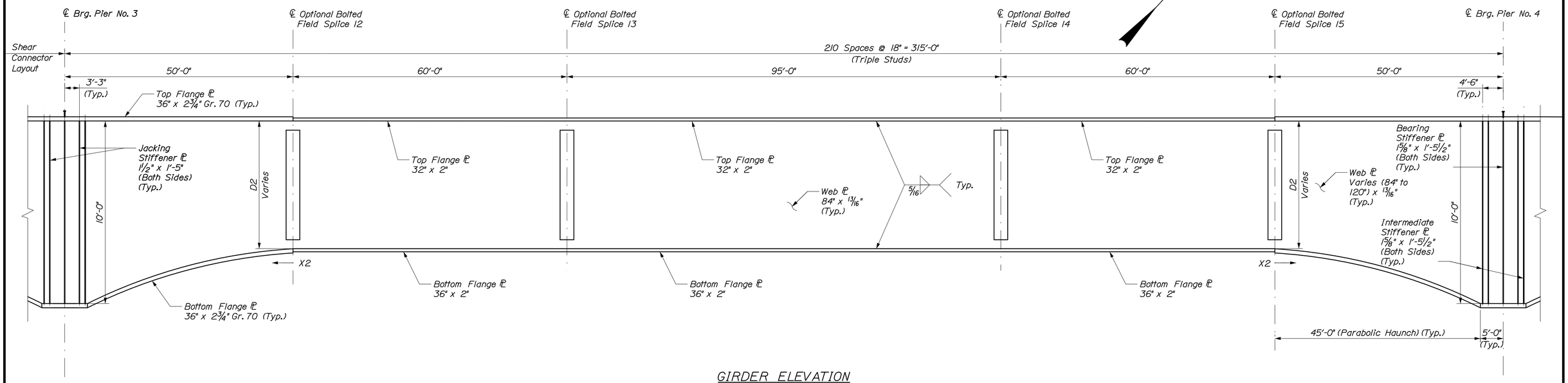
BRIDGE PLANS

SHEET NUMBER
78
OF 160

Date:11/20/2020
Username:
Filename: 078_Framing Plan and Girder Elevation - Span 3.dgn



FRAMING PLAN



GIRDER ELEVATION

630 Shear Connectors per girder,
2520 Total, Between Piers 3 and 4

Date:11/20/2020
Username:
Filename: 079_Framing Plan and Girder Elevation - Span 4.dgn

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FRAMING PLAN AND GIRDER ELEVATION - SPAN 4

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	C. Mancini	C. Wong	11\20
CHECKED-REVIEWED	T. Poulin	J. Olund	11\20
DESIGN2-DETAILED2	_	_	_
DESIGN3-DETAILED3	_	_	_
REVISIONS 1	_		_
REVISIONS 2	_		_
REVISIONS 3	_		_
REVISIONS 4	_		_
FIELD CHANGES	_		_

SIGNATURE
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P.E. NUMBER
11/19/2020
DATE

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED
PROFESSIONAL ENGINEER

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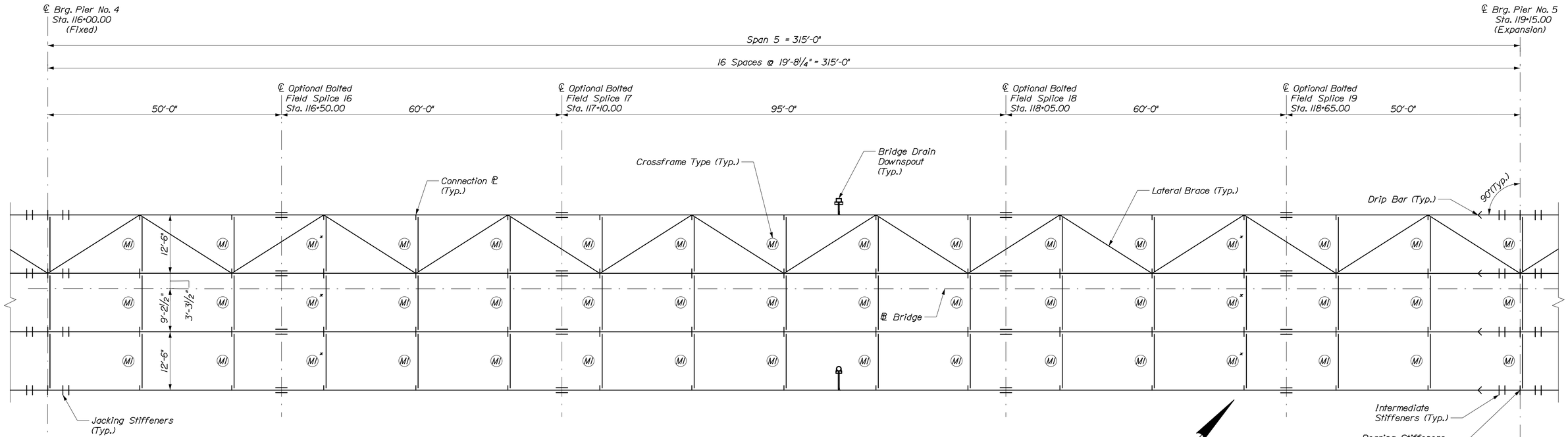
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MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

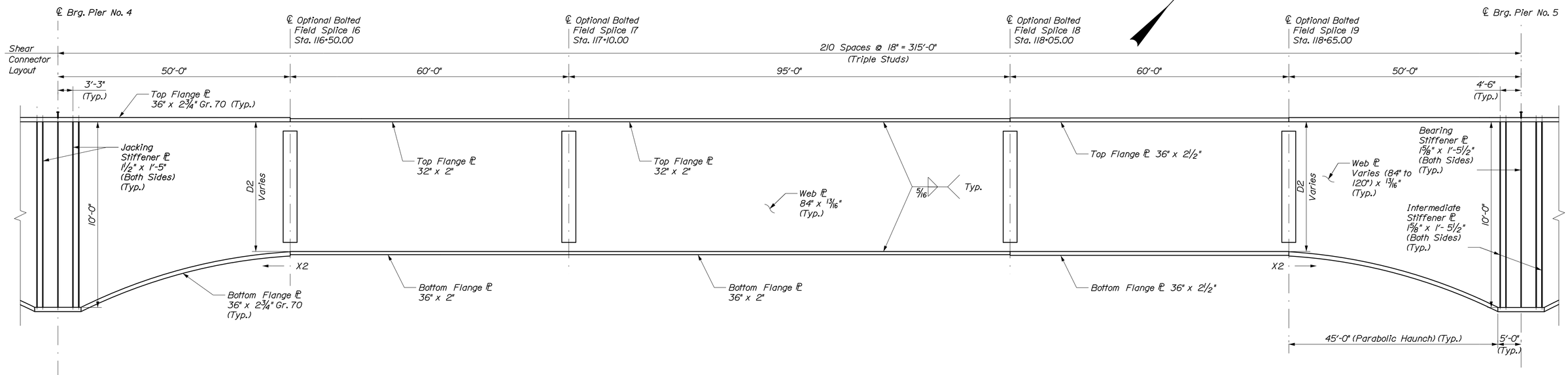
WIN
021736.00

BRIDGE PLANS

SHEET NUMBER
79
OF 160



FRAMING PLAN



GIRDER ELEVATION

630 Shear Connectors per girder,
2520 Total, Between Piers 4 and 5

Date:11/20/2020
Username:
Filename: 080_Framing Plan and Girder Elevation - Span 5.dgn

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MADAWASKA, ME EDMUNDSTON, NB

FRAMING PLAN AND GIRDER ELEVATION - SPAN 5

PROJ. MANAGER	A. LATHE	BY	DATE
DESIGN-DETAILED	C. Mancini	C. Wong	11\20
CHECKED-REVIEWED	T. Poulin	J. Olund	11\20
DESIGN2-DETAILED2	_	_	_
DESIGN3-DETAILED3	_	_	_
REVISIONS 1	_		_
REVISIONS 2	_		_
REVISIONS 3	_		_
REVISIONS 4	_		_
FIELD CHANGES	_		_

SIGNATURE
12130
P.E. NUMBER
11/19/2020
DATE

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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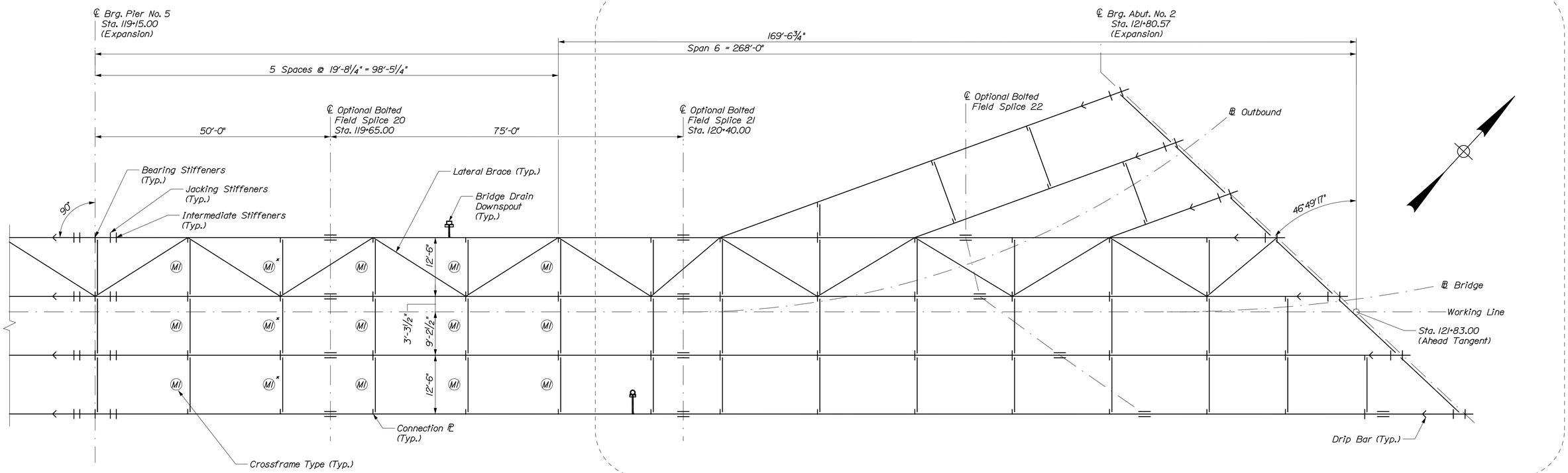
MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

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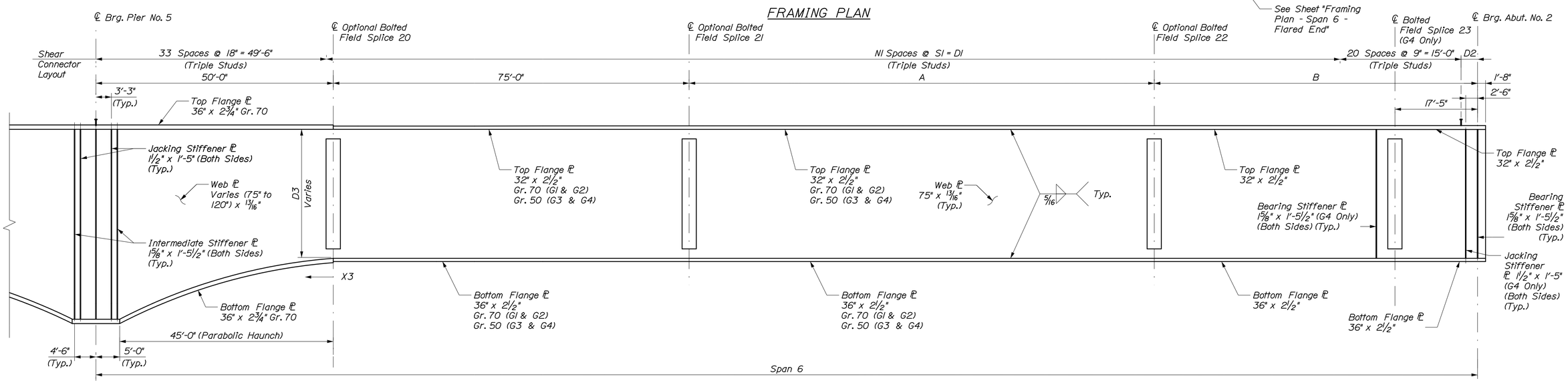
BRIDGE PLANS

SHEET NUMBER
80
OF 160

Date:11/20/2020
Username:
Filename: 081_Framing Plan and Girder Elevation - Span 6.dgn



FRAMING PLAN



GIRDER ELEVATION

(G4 Shown, Others Similar)
717 (G1), 756 (G2), 798 (G3), 837 (G4)
Shear Connectors, 3108 Total

TABLE OF GIRDER PIECE DIMENSIONS

	SPAN 6	"A"	"B"	"NI"	"SI"	"DI"	"D2"
Girder 1	251'-2 1/16"	60'-0"	66'-2 1/16"	186	12"	186'-0"	8 1/16"
Girder 2	264'-5 7/8"	63'-0"	76'-5 7/8"	199	12"	199'-0"	11 7/8"
Girder 3	277'-9 3/4"	80'-0"	72'-9 3/4"	213	12"	213'-0"	3 3/4"
Girder 4	291'-1 9/16"	98'-0"	68'-1 9/16"	226	12"	226'-0"	7 5/8"

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SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

FRAMING PLAN AND GIRDER ELEVATION - SPAN 6

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	C. Mancini	C. Wong	11\20
CHECKED-REVIEWED	T. Poulin	J. Olund	11\20
DESIGN2-DETAILED2	_	_	_
DESIGN3-DETAILED3	_	_	_
REVISIONS 1	_		_
REVISIONS 2	_		_
REVISIONS 3	_		_
REVISIONS 4	_		_
FIELD CHANGES	_		_

SIGNATURE
12130
P.E. NUMBER
11/19/2020
DATE

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED
PROFESSIONAL ENGINEER

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

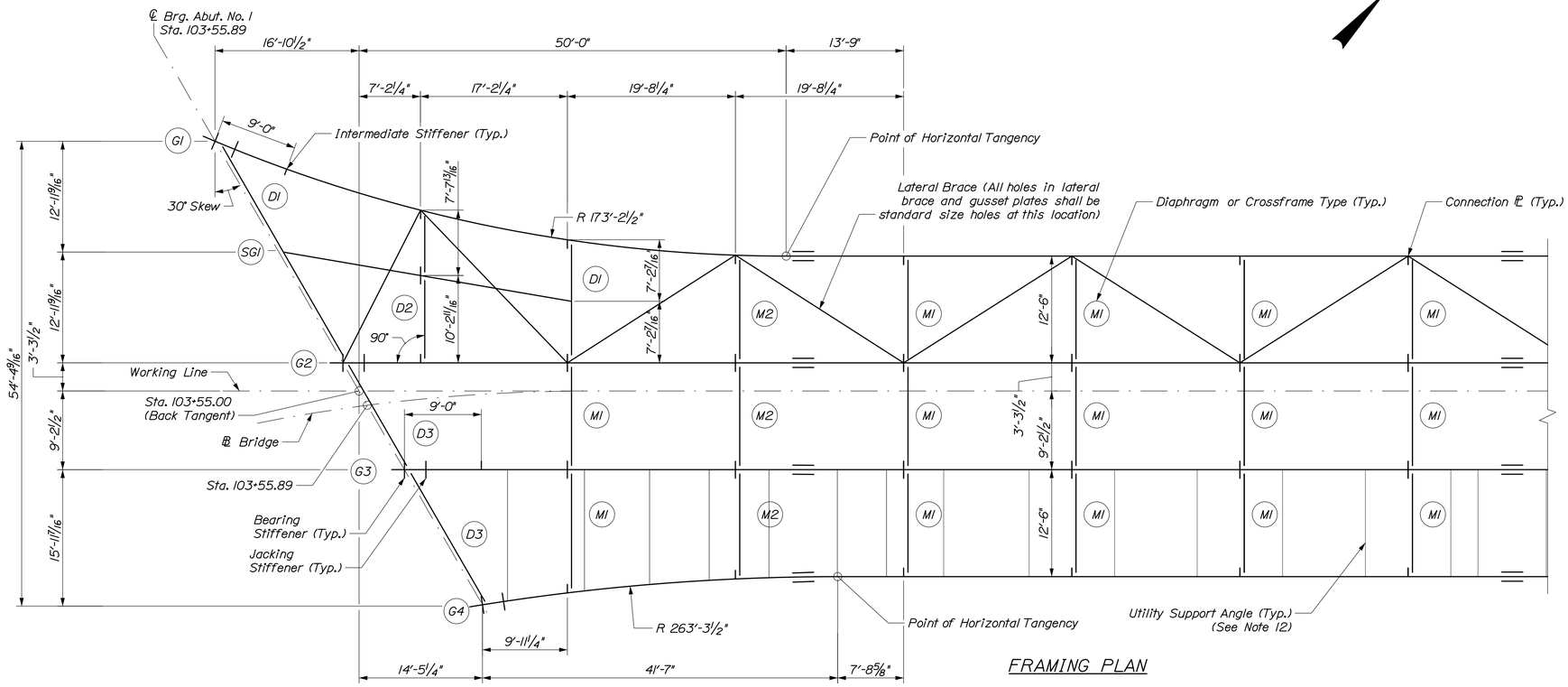
2173600

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

WIN
021736.00

BRIDGE PLANS

SHEET NUMBER
81
OF 160



FRAMING PLAN

STRUCTURAL STEEL NOTES:

1. Camber ordinates, as shown, are computed to compensate for all dead load deflections and for 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 percent 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 one foot from transverse butt welds in the web plates and no transverse web or flange butt welds shall be located within one foot of other transverse welds (e.g. connection plates to web welds) on either flange or web.

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. One longitudinal butt weld splice will be allowed in the web of the haunched sections of the girders. The weld shall be parallel to the top flange. Feather edges between the longitudinal welds and the bottom flanges will not be allowed.

5. Bearing and Jacking stiffeners shall be plumb after erection and dead loading of the structure. Intermediate web stiffeners may be either plumb or normal to the top flange.

6. All connection plates, and bearing stiffeners used as connection plate, shall be welded to the web and top and bottom flanges using ⅝" fillet welds. Crossframe and diaphragm connection plates may be either plumb or normal to the top flange.

7. See Diaphragm or Crossframe Connection to Girder Connection Plate table for required connection plate thicknesses.

8. Structural steel shall be detailed and fabricated for Steel Dead Load Fit.

9. At locations marked with an asterisk (*), the designated crossframes may be changed to Type D3 or D6 diaphragms as required to accommodate the Contractor's deck placement sequence. No extra compensation will be allowed for any diaphragms substituted, and any additional costs will be considered incidental to the Contract items.

10. All bolted connections shall be made using ⅞"ϕ ASTM F3125 Grade A325, Type 3 bolts. Bolts shall be installed with heads down at all bottom flange connections and heads up at all top flange connections. Bolt threads shall be excluded from the shear plane of the field splice connections and the splayed girder (SG) connections.

11. All structural steel within 12 feet of the ℄ bearing at abutments shall be coated with a zinc-rich coating system in accordance with Standard Specification Section 506, Shop Applied Protective Coating - Steel (Zinc Rich Coating System). Paint color shall meet Federal Color 30045 (Brown) of Federal Color Standard 595B. All costs related to coating will not be paid for directly, but will be considered incidental to related structural steel contract items.

12. Utility Support Angles shall be placed in Spans 1, 2 and 3 to meet the specified limits, final layout shall be approved by the Engineer.

13. After placement of the superstructure concrete, the abutments and piers shall be thoroughly cleaned of all stains by a method approved by the Resident. Payment will be considered incidental to Contract Items.

14. Filler and cheese plates shall be weathering steel conforming to the requirements of ASTM A709, Grade 50W.

15. Provide cheese plate between bottom flange and bearing sole plate for lateral bracing connections at abutments and piers. Cheese plate shall extend transversely as shown on sheet "Girder Detail 5" and be a single monolithic plate. Cheese plate shall, at a minimum, extend longitudinally full length of sole plate. If cheese plate does not extend full length of the lateral brace connection, plate shall be terminated midway between rows of bolts.

16. Oversized holes are permitted in either lateral bracing element or Gusset Plates; the other connecting element shall have standard holes, unless otherwise noted.

17. Contact surface shall conform to Class B Surface for all lateral bracing connections.

18. At first panel points adjacent to parabolic haunch areas, provide one Pier/Haunch Lateral bracing Connection on the parabolic haunch side and one Typical Lateral Bracing Connection on the midspan side of the panel point.

19. Butt welds shall be ground flush in the longitudinal direction of the girder.

20. All web, flange, and field splice plates in tension or tension reversal, as well as lateral bracing members and gusset plates, shall be impact tested in accordance with AASHTO M270, Zone 2.

21. Drip Bars shall be fabricated in accordance with Standard Detail 504(10) unless otherwise specified.

PARABOLIC WEB DIMENSION NOTES:

1. Web Depth = Start Depth + Depth Change × (Distance From Start / Parabola Length)

   Span 1: D1 = 96.0" + 24.0" × (X1 / 45.0')²
   Span 2 to 5: D2 = 84.0" + 36.0" × (X2 / 45.0')²
   Span 6: D3 = 75.0" + 45.0" × (X3 / 45.0')²

2. Depth change = Algebraic difference in web depth between start location and end transition

3. X1, X2 and X3 are measured in feet. D1, D2 and D3 are normal to the top of web.

DIAPHRAGM OR CROSSFRAME TO GIRDER CONNECTION PLATES

WIDTH	MIN. THICKNESS
14" (Min.)	⅞"
15"	1"
16"	1"
17"	1⅛"
18"	1⅛"

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DEPARTMENT OF TRANSPORTATION

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WIN 021736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

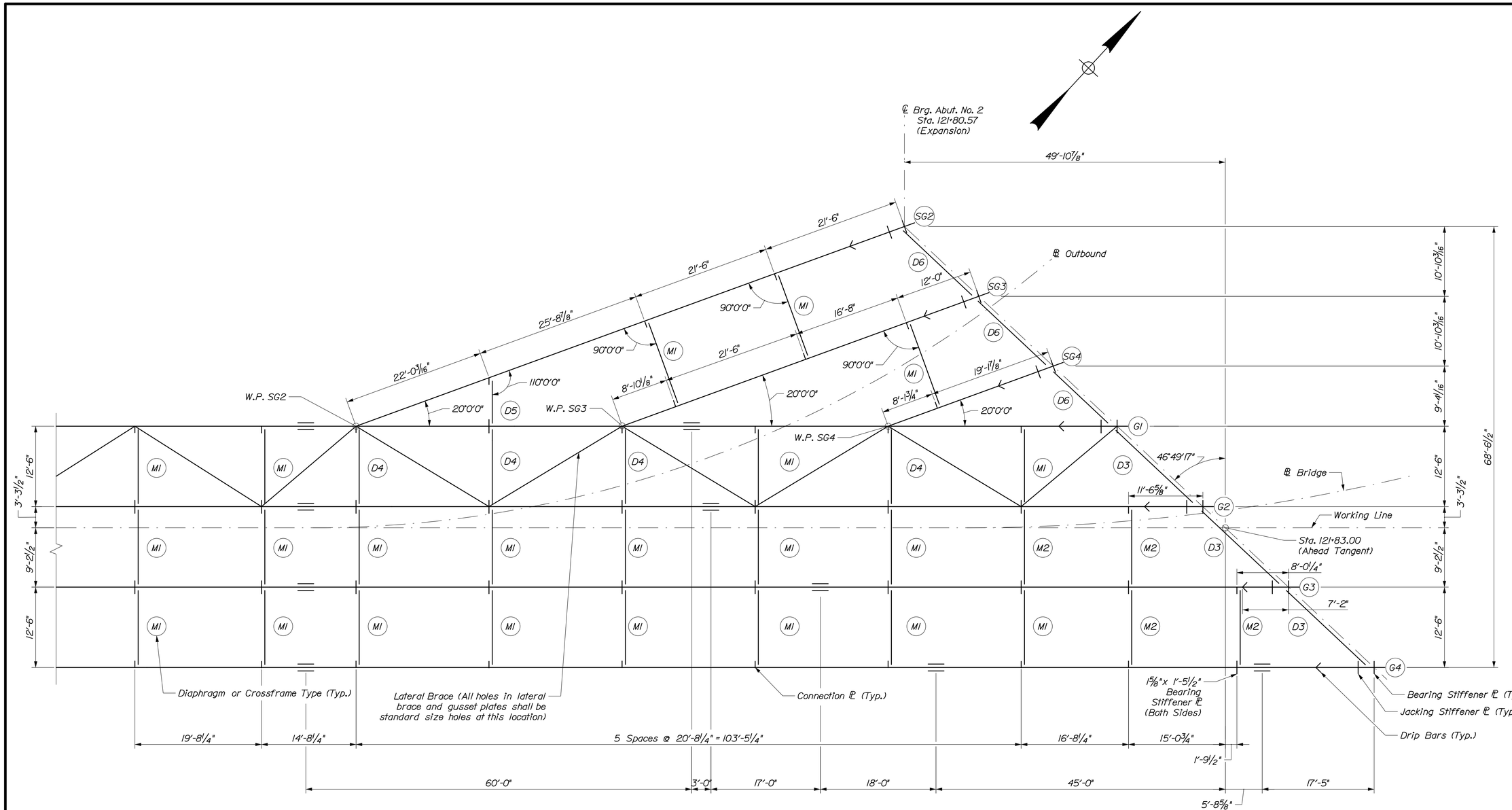
	A. LATHE	BY	DATE
PROJ. MANAGER			
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CHECKED-REVIEWED	T. Poulin	J. Olund	11\20
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DESIGN3-DETAILED3	–	–	–
REVISIONS 1	–	–	–
REVISIONS 2	–	–	–
REVISIONS 3	–	–	–
REVISIONS 4	–	–	–
FIELD CHANGES	–	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

FRAMING PLAN - SPAN 1 - FLARED END

SHEET NUMBER
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OF 160

Filename: 082_Framing Plan - Span 1 - Flared End.dgn Division:
Username: Date:12/4/2020



FRAMING PLAN

TABLE OF WORKING POINTS				
W.P.	Station	Offset	Northing	Easting
SG2	120+47.81	15.79 LT	1286716.47	2184015.79
SG3	120+89.19	15.79 LT	1286744.55	2184046.18
SG4	121+30.56	15.79 LT	1286772.63	2184076.56

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BRIDGE PLANS

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NBDTI ASSET NO. E320

JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER STATE OF MAINE

SIGNATURE 12/1/20

P.E. NUMBER

DATE 11/19/2020

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	C. Mancini
CHECKED-REVIEWED	T. Poulin
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-

	BY	DATE
REVISIONS 1	C. Wong	11\20
REVISIONS 2	J. Olund	11\20
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

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FRAMING PLAN - SPAN 6 - FLARED END

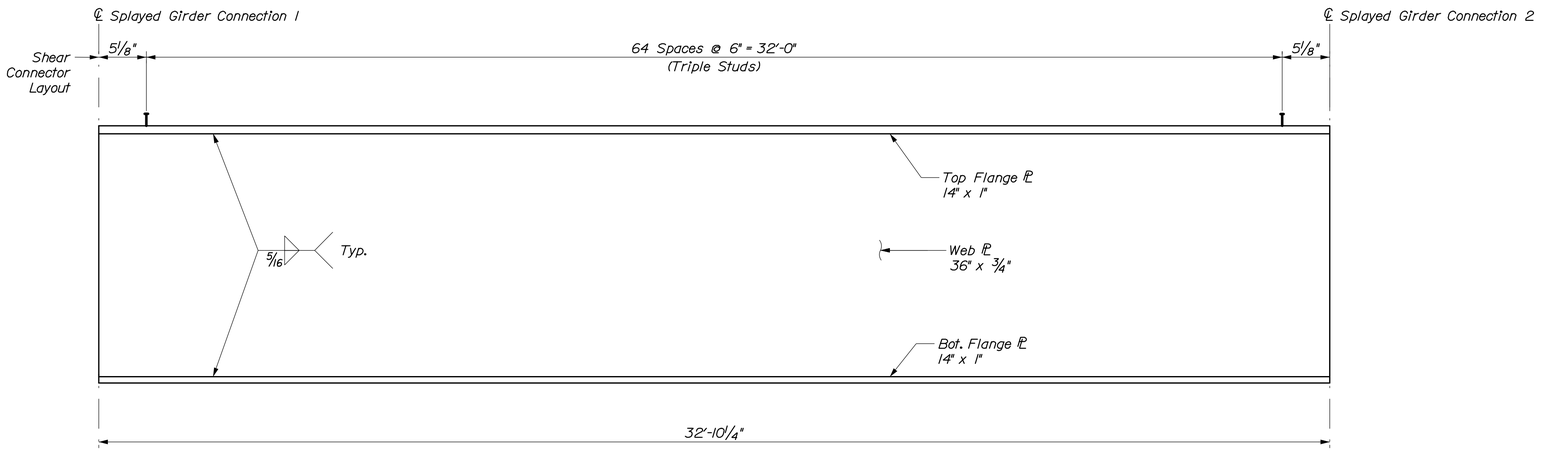
SHEET NUMBER

83

OF 160

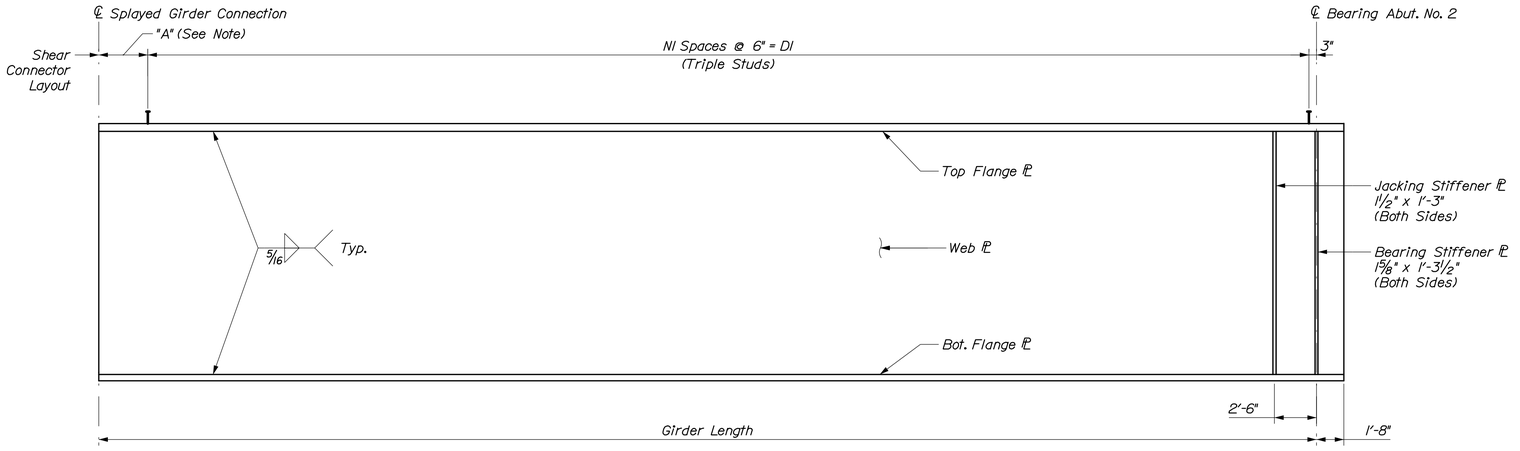
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Filename: 083_Framing Plan - Span 6 - Flared End.dgn Division: Username: Date:12/4/2020



SPLAYED GIRDER ELEVATION - SG1

195 Shear Connectors



Note: Apply 15# felt paper to top of girder for distance "A"

SPLAYED GIRDER ELEVATION - SG2-4

480 (SG2) 300 (SG3) 120 (SG4)
Shear Connectors, 900 Total

SPLAYED GIRDER DIMENSIONS							
	GIRDER LENGTH	BOTTOM FLANGE	TOP FLANGE	WEB	"A"	"N1"	"D1"
SG2	88'-10⅝"	32" X 1¾"	32" X 1¾"	62" x ¾"	9'-1⅝"	159	79'-6"
SG3	57'-1⅞"	32" X 1¾"	32" X 1¾"	62" x ¾"	7'-4⅞"	99	49'-6"
SG4	25'-5¼"	32" X 1¾"	32" X 1¾"	62" x ¾"	5'-8¼"	39	19'-6"

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BRIDGE PLANS

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STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

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CHECKED-REVIEWED	C. Mancini	11\20
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DESIGN3-DETAILED3	J. Olund	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

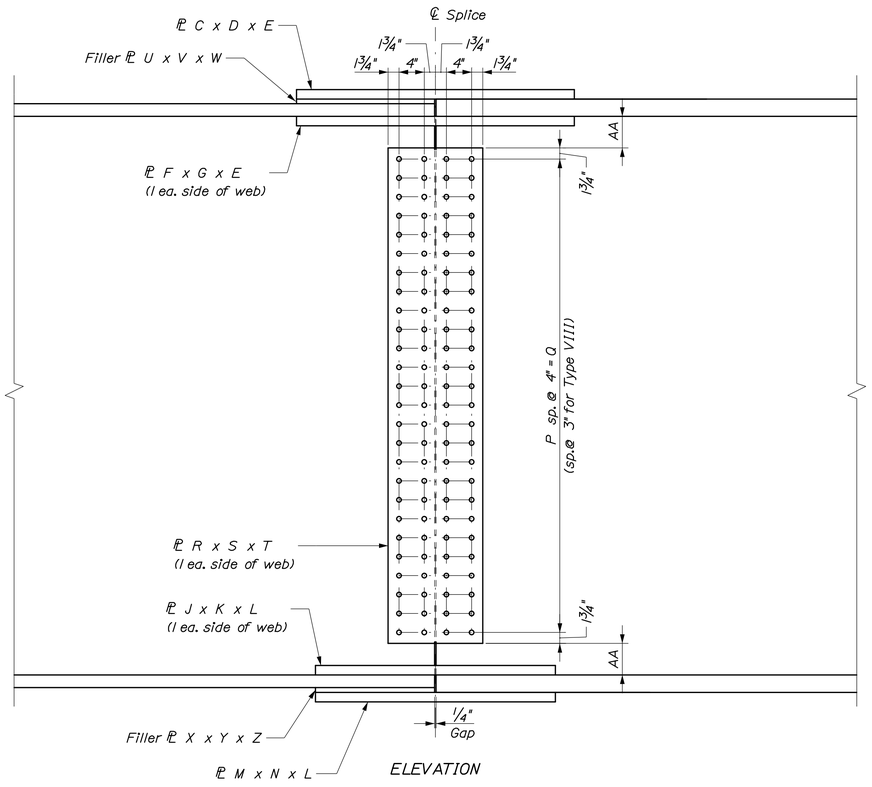
GIRDER ELEVATION - SPLAYED GIRDERS

SHEET NUMBER

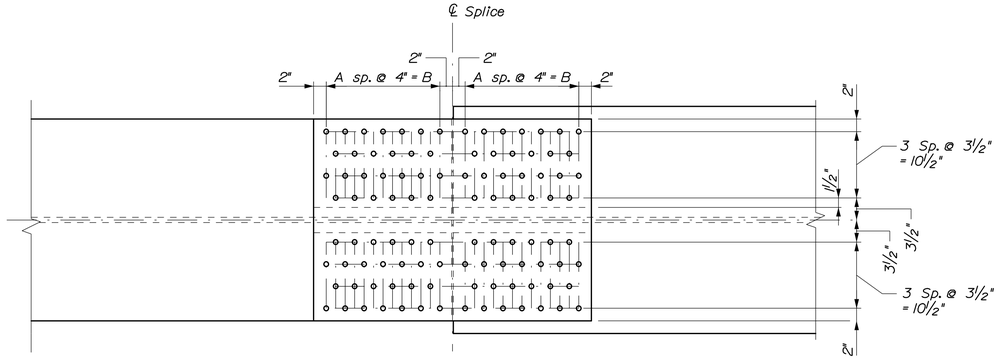
84

OF 160

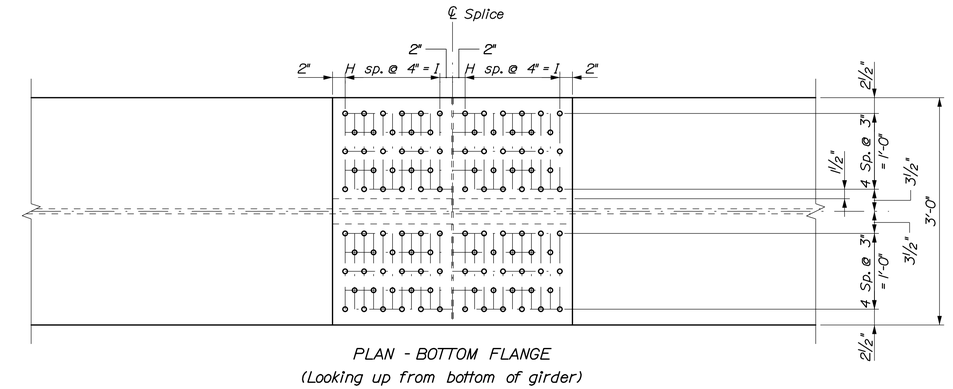
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ELEVATION



PLAN - TOP FLANGE



PLAN - BOTTOM FLANGE
(Looking up from bottom of girder)

BOLTED FIELD SPLICE

FIELD SPLICE TABLE

Field Splice Type	Field Splice	Flange Splice Grade	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	AA
Type I	1, 2	Gr. 50W	8	2'-8"	1.5"	2'-8"	6'-0"	1.5"	1'-2"	9	3'-0"	1.5"	1'-4"	6'-8"	1.5"	3'-0"	21	7'-0"	0.5"	1'-3"	7'-3.5"	-	-	-	-	-	-	4.25"
Type II	3	Gr. 50W	7	2'-4"	1.5"	2'-8"	5'-4"	1.5"	1'-2"	6	2'-0"	1.5"	1'-4"	4'-8"	1.5"	3'-0"	21	7'-0"	0.5"	1'-3"	7'-3.5"	0.25"	2'-8"	2'-7.875"	0.25"	3'-0"	2'-3.875"	4.25"
Type III	4, 19	Gr. 50W	8	2'-8"	1.75"	2'-8"	6'-0"	1.5"	1'-2"	7	2'-4"	1.5"	1'-4"	5'-4"	1.5"	3'-0"	18	6'-0"	0.5"	1'-3"	6'-3.5"	0.25"	2'-8"	2'-11.875"	0.25"	3'-0"	2'-7.875"	4.25"
Type IV	5, 18	Gr. 50W	5	1'-8"	1.25"	2'-8"	4'-0"	1.25"	1'-2"	5	1'-8"	1.25"	1'-4"	4'-0"	1.25"	3'-0"	18	6'-0"	0.5"	1'-3"	6'-3.5"	0.5"	2'-8"	1'-11.875"	0.5"	3'-0"	1'-11.875"	4.25"
Type V	6, 9, 10, 13, 14, 17	Gr. 50W	5	1'-8"	1.25"	2'-8"	4'-0"	1.25"	1'-2"	5	1'-8"	1.25"	1'-4"	4'-0"	1.25"	3'-0"	18	6'-0"	0.5"	1'-3"	6'-3.5"	-	-	-	-	-	-	4.25"
Type VI	7, 8, 11, 12, 15, 16	Gr. 50W	7	2'-4"	1.25"	2'-8"	5'-4"	1.25"	1'-2"	6	2'-0"	1.25"	1'-4"	4'-8"	1.25"	3'-0"	18	6'-0"	0.5"	1'-3"	6'-3.5"	0.75"	2'-8"	2'-7.875"	0.75"	3'-0"	2'-3.875"	4.25"
Type VII	20	Gr. 70W	8	2'-8"	1.5"	2'-8"	6'-0"	1.5"	1'-2"	7	2'-4"	1.5"	1'-4"	5'-4"	1.5"	3'-0"	16	5'-4"	0.5"	1'-3"	5'-7.5"	0.25"	2'-8"	2'-11.875"	0.25"	3'-0"	2'-7.875"	3.75"
Type VIII	21	Gr. 70W	8	2'-8"	1.5"	2'-8"	6'-0"	1.5"	1'-2"	8	2'-8"	1.5"	1'-4"	6'-0"	1.5"	3'-0"	22	5'-6"	0.5"	1'-3"	5'-9.5"	-	-	-	-	-	-	2.75"
Type IX	22	Gr. 50W	7	2'-4"	1.5"	2'-8"	5'-4"	1.5"	1'-2"	8	2'-8"	1.5"	1'-4"	6'-0"	1.5"	3'-0"	16	5'-4"	0.5"	1'-3"	5'-7.5"	-	-	-	-	-	-	3.75"
Type X	23	Gr. 50W	6	2'-0"	1.5"	2'-8"	4'-8"	1.5"	1'-2"	6	2'-0"	1.5"	1'-4"	4'-8"	1.5"	3'-0"	16	5'-4"	0.5"	1'-3"	5'-7.5"	-	-	-	-	-	-	3.75"

NOTES:

1. All Field Splices are optional with the exception of FS23.
2. All splice plates used in the web shall be Grade 50W steel.

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BRIDGE PLANS

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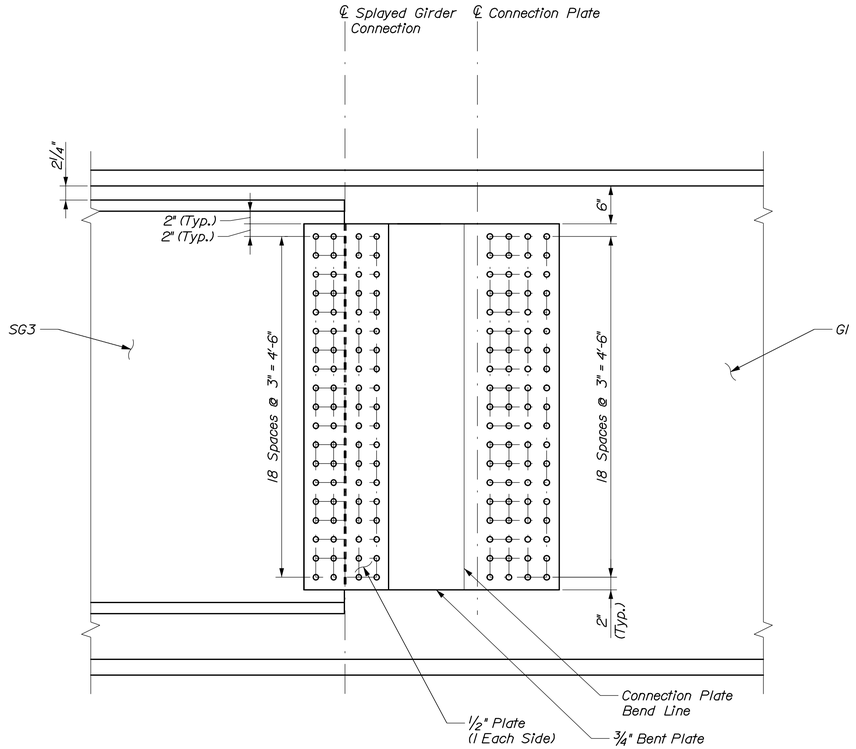
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REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

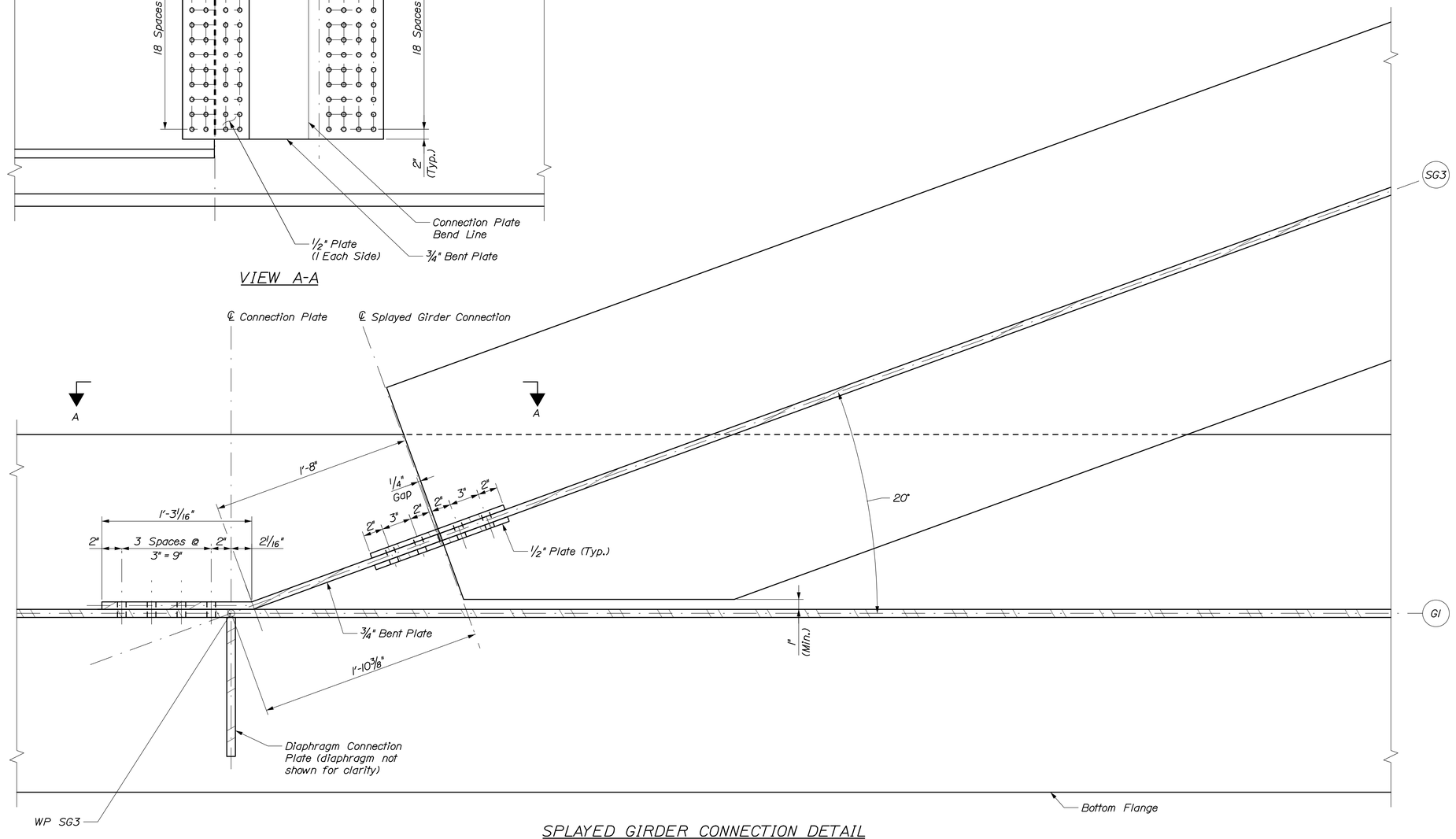
GIRDER DETAILS 1

SHEET NUMBER
85
OF 160

Username:
Date:11/20/2020
Filename: 085_Girder Details 1 - Field Splice Details.dgn
Division:



VIEW A-A



SPLAYED GIRDER CONNECTION DETAIL

(SG3 shown, SG2 and SG4 similar. Lateral bracing not shown for clarity)

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BRIDGE PLANS

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REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

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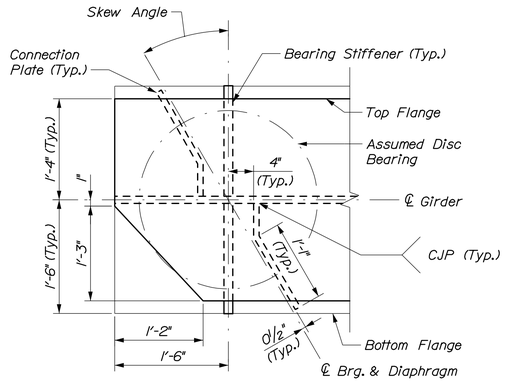
GIRDER DETAILS 2

SHEET NUMBER
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OF 160

Username:

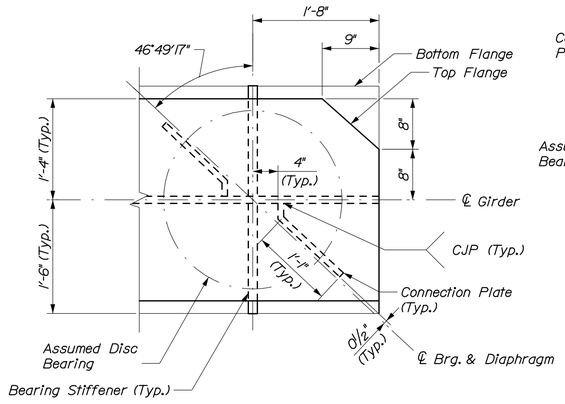
Date:11/20/2020

Filename: 086_Girder Details 2 - Splayed Girder Connections.dgn



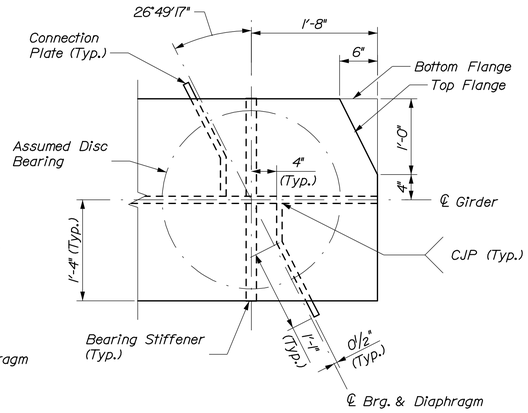
ABUTMENT 1 STIFFENER/CONNECTION PLATE AND CORNER CLIP DETAIL

(Omit bent connection plate on fascia side of G1 and G4)



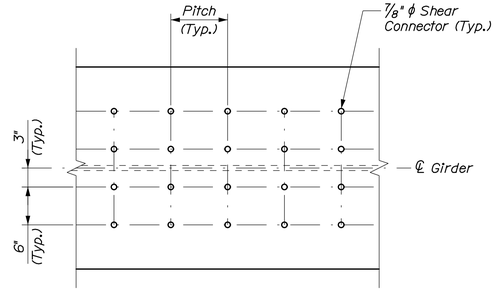
ABUTMENT 2 STIFFENER/CONNECTION PLATE AND CORNER CLIP DETAIL

(Omit bent connection plate on fascia side of G4)



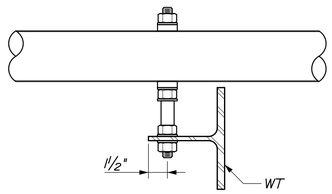
ABUTMENT 2 STIFFENER/CONNECTION PLATE AND CORNER CLIP DETAIL

(Omit bent connection plate on fascia side of SG2)

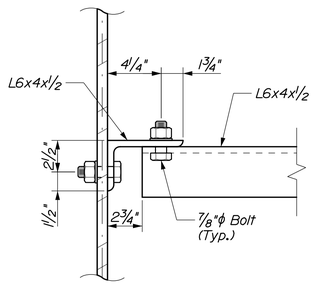


QUAD STUD LAYOUT

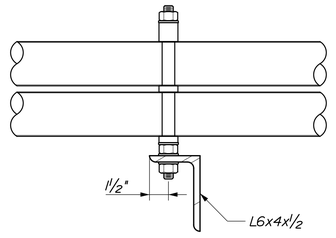
(Triple and Double Shear Connector arrangements shall be in accordance with Standard Detail 505(01))



SECTION A-A



SECTION B-B

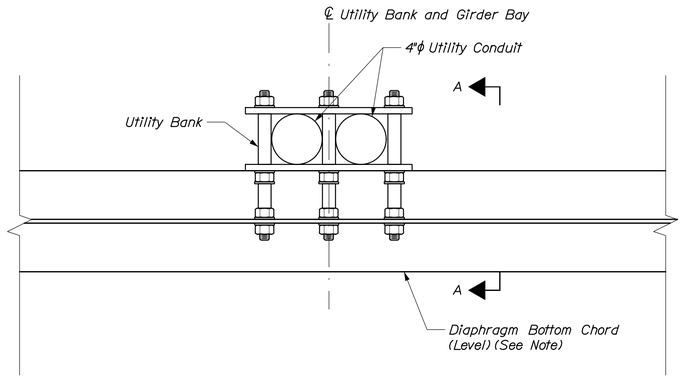


SECTION C-C

Notes:

1. The 4" diameter conduits shall be Champion IPS/XW fiberglass conduit, or an approved equal, and be installed without wiring.

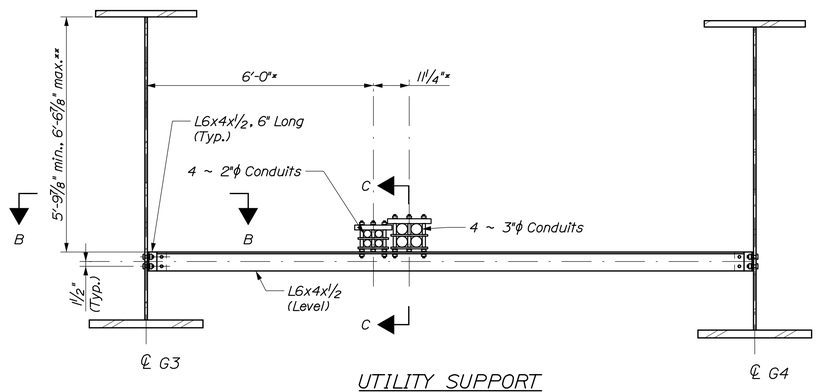
2. Costs for all conduit hangers, expansion fittings, and other incidentals necessary to complete the work shall be incidental to item 626.22, Non-Metallic Conduit.



4"ϕ UTILITY SUPPORT DETAIL BETWEEN G2 AND G3

Not to Scale

Note: Connection based on Type M2 Diaphragm. Add spacers as required at other locations.



UTILITY SUPPORT

Abutment 1 to Pier 3
Not to Scale

* Horizontal dimensions to conduits are based on 1" spacers between conduits.
** Vertical dimension min. and max. given to account for difference between girder depths at midspans and piers.

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2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	C. Mancini	BY	11\20
CHECKED-REVIEWED	T. Poulin	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

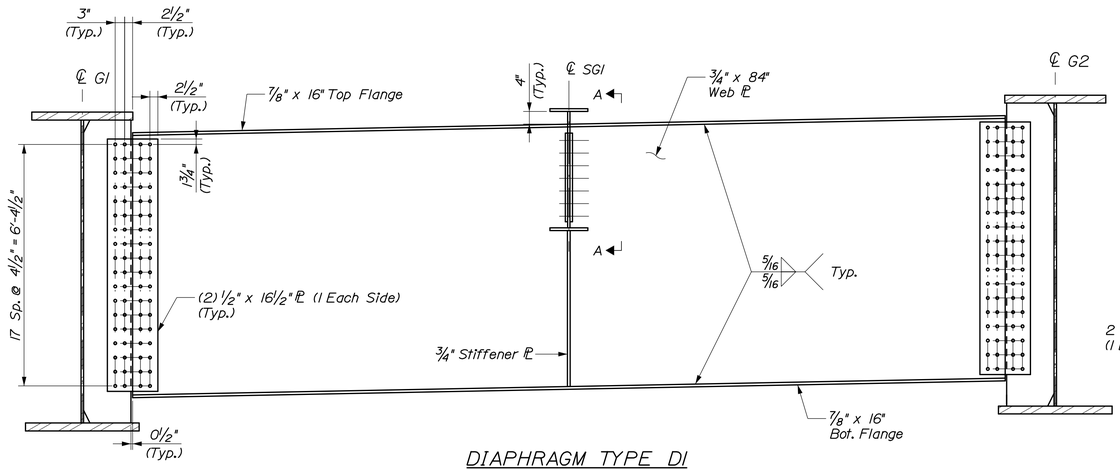
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GIRDER DETAILS 3

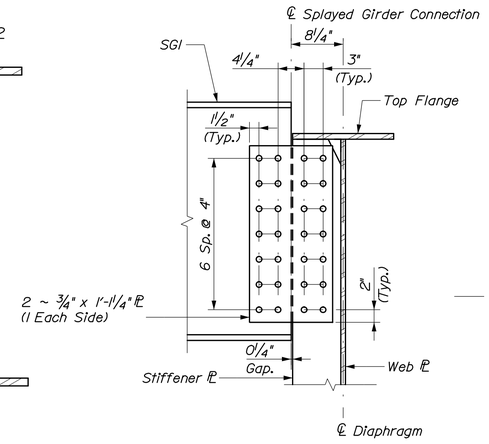
SHEET NUMBER 87

OF 160

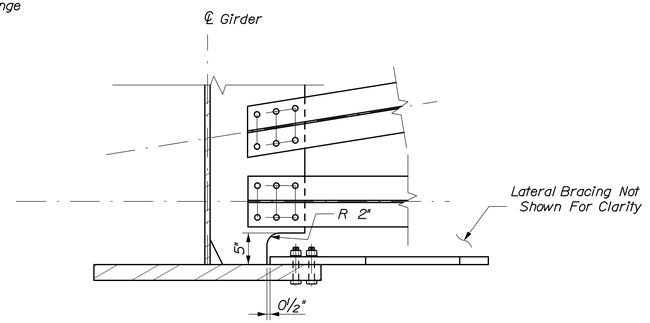
Filename: 087_Girder Details 3 - General Details.dgn Division: Username: Date:11/20/2020



DIAPHRAGM TYPE D1

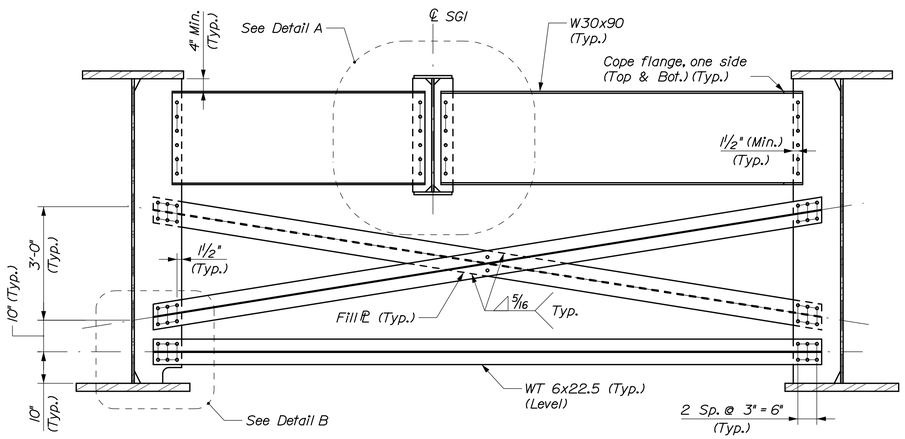


SECTION A-A

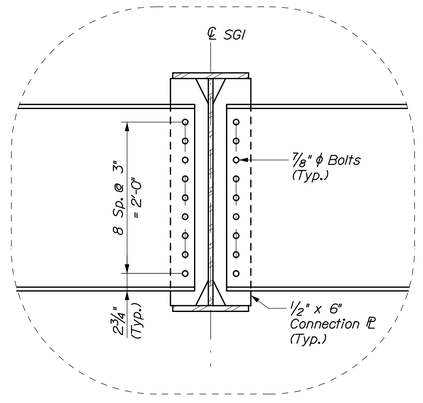


DETAIL B

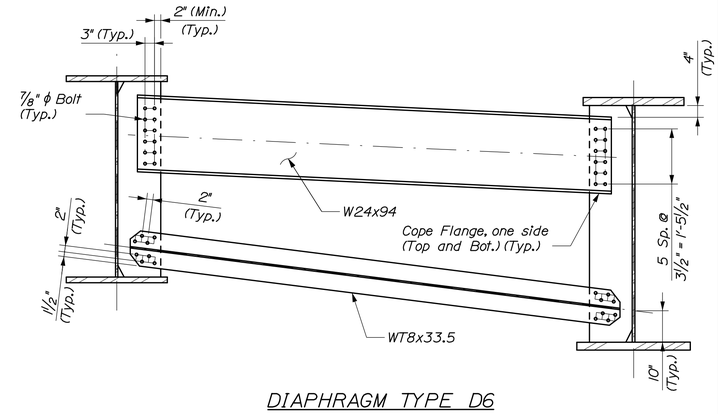
Span 1 Lateral Bracing Connection Only



CROSSFRAME TYPE D2

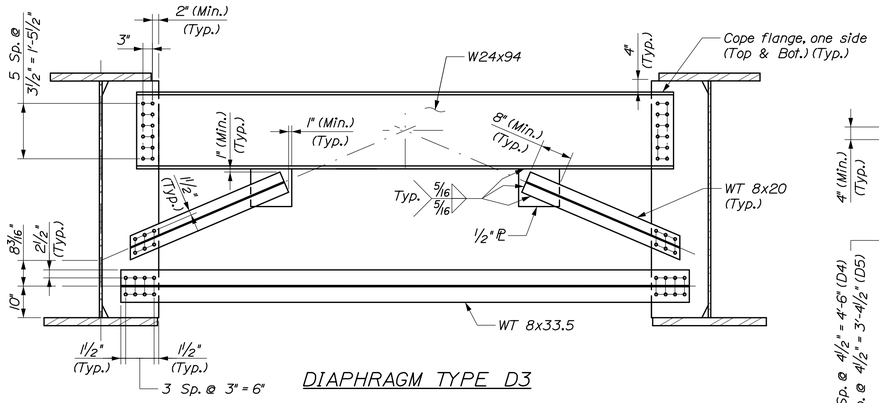


DETAIL A

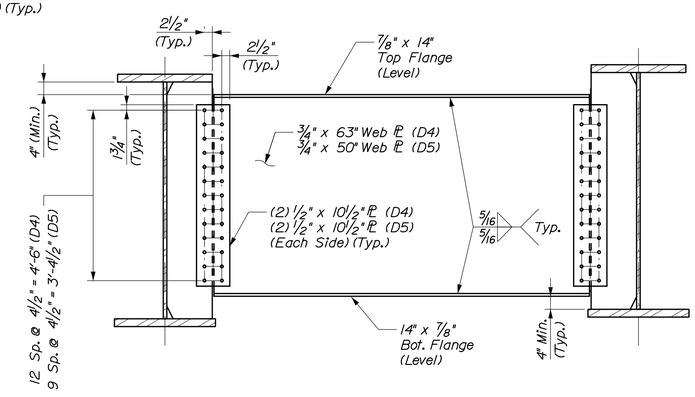


DIAPHRAGM TYPE D6

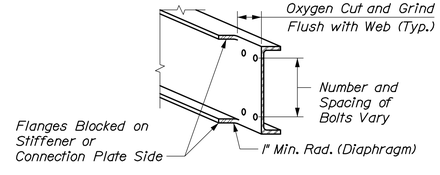
(G1 to SGI diaphragm Shown, others similar)



DIAPHRAGM TYPE D3



DIAPHRAGM TYPE D4, D5



COPING DETAIL

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130

P.E. NUMBER

11/19/2020

DATE

	BY	DATE
A. LATHE	Wong	11\20
C. Mancini	J. Olund	11\20
P. Poulin	-	-

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

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

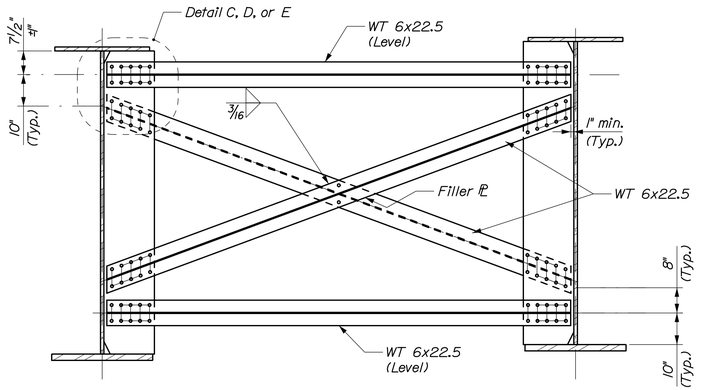
GIRDER DETAILS 4

SHEET NUMBER

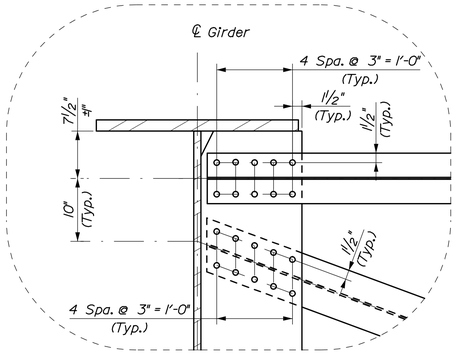
88

OF 160

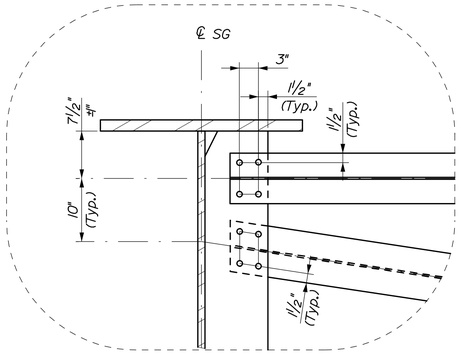
Filename: 088_Girder Details 4 - Diaphragms -1.dgn Division: Username: Date:11/20/2020



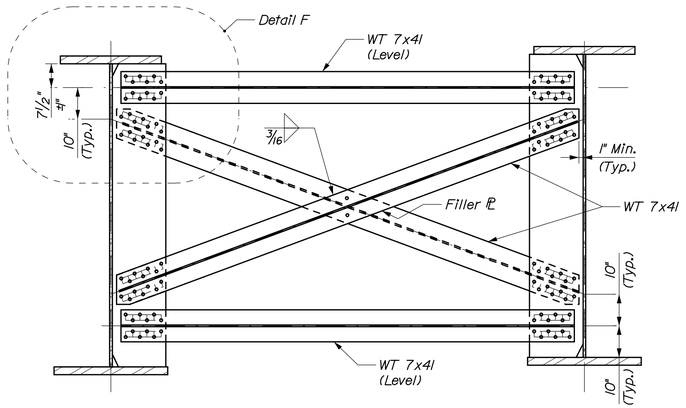
CROSSFRAME TYPE MI



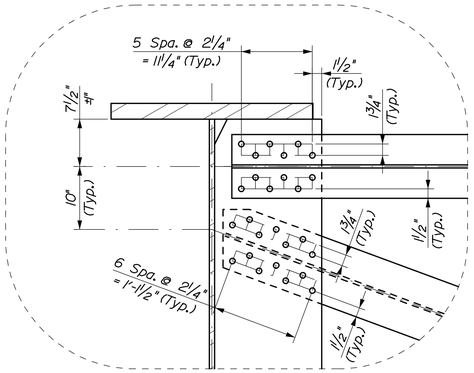
DETAIL C - MI CONNECTION AT GIRDERS SPANS 1 AND 6



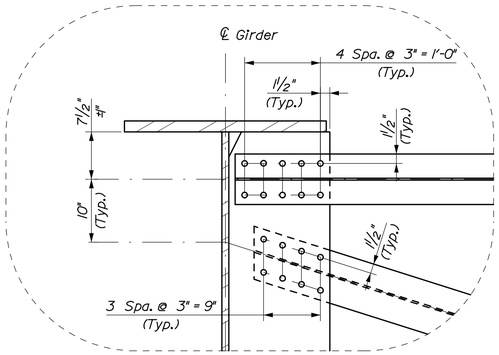
DETAIL D - MI CONNECTION AT SG2, SG3, SG4



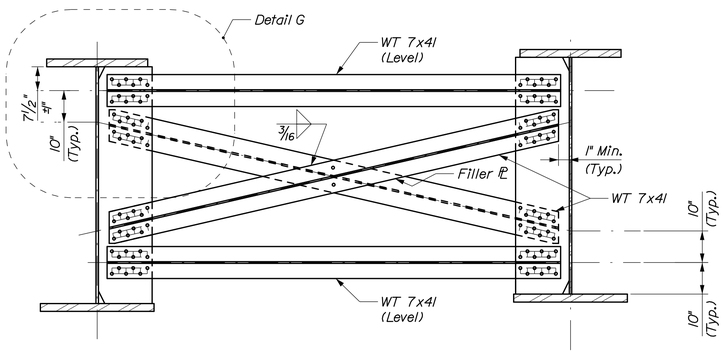
CROSSFRAME TYPE M2 - SPAN 1



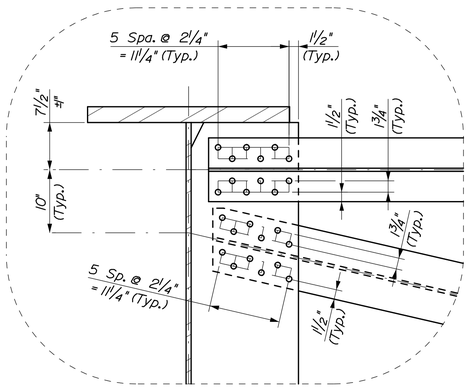
DETAIL F - M2 SPAN 1



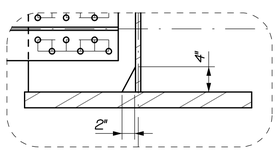
DETAIL E - MI CONNECTION AT GIRDERS SPANS 2-5



CROSSFRAME TYPE M2 - SPAN 6



DETAIL G - M2 SPAN 6



CORNER CLIP DETAIL

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/20

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN- DETAILED	C. Mancini	11\20
CHECKED- REVIEWED	C. Wong	11\20
DESIGN2- DETAILED2	T. Poulin	11\20
DESIGN3- DETAILED3	J. Olund	11\20
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

GIRDER DETAILS 5

SHEET NUMBER

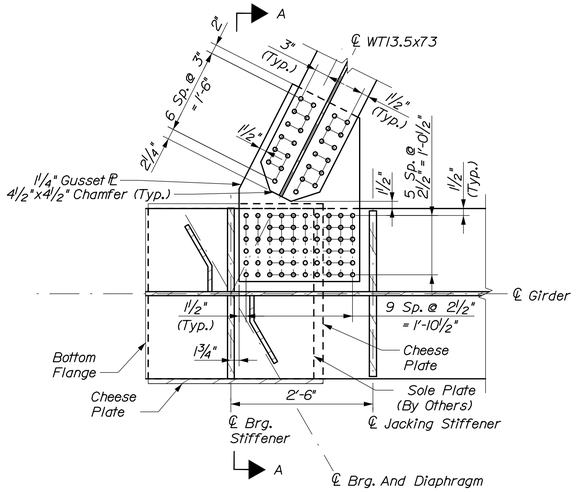
89

OF 160

Filename: 089_Girder Details 5 - Diaphragms - 2.dgn Division:

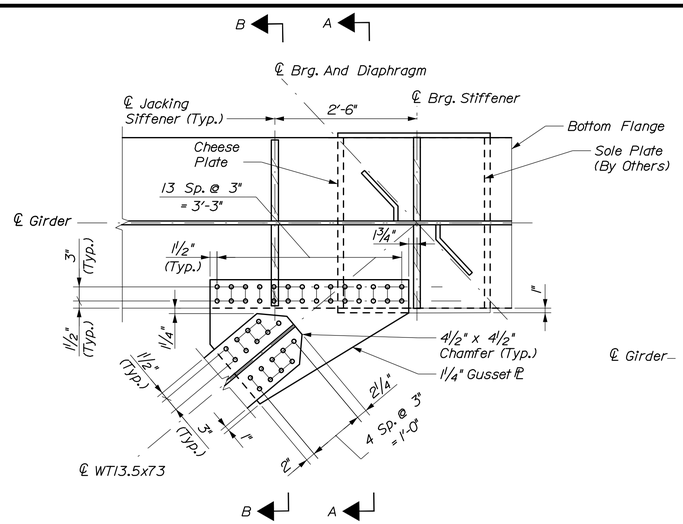
Username:

Date:11/20/2020

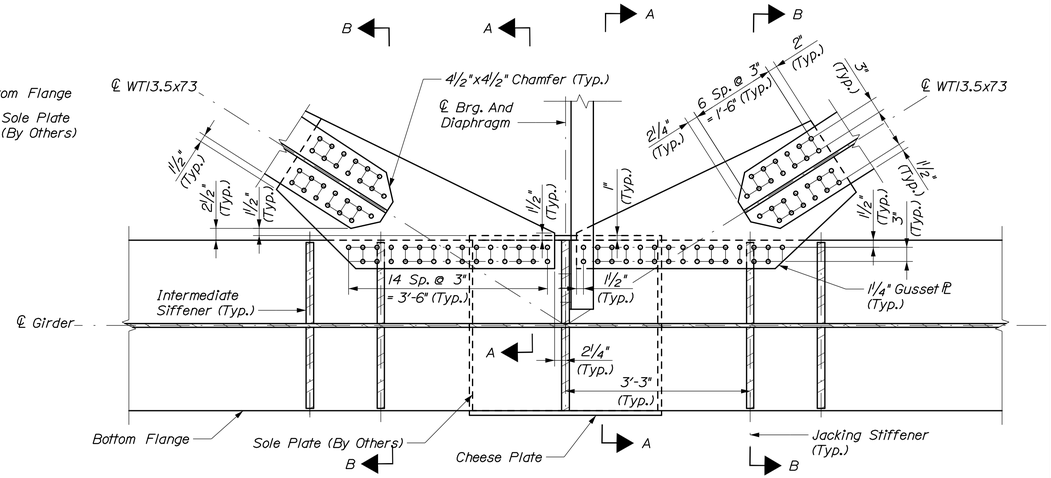


ABUT. NO. 1 LATERAL BRACING PLAN

(All holes at Abut. No. 1 Lateral Bracing Connection shall be standard size holes. Oversize holes shall not be permitted at this location.)

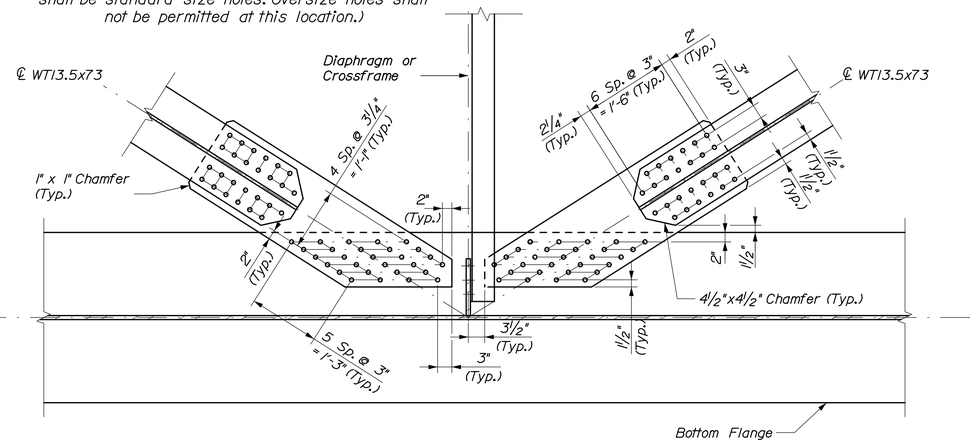


ABUT. NO. 2 LATERAL BRACING PLAN

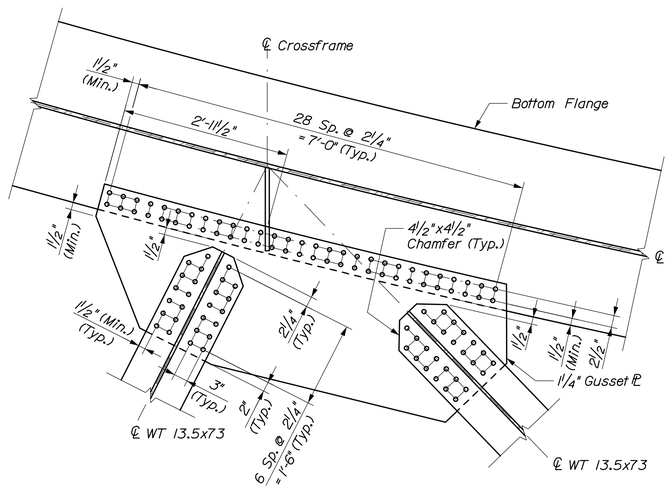


PIER/HAUNCH LATERAL BRACING PLAN (JACKING STIFFENER)

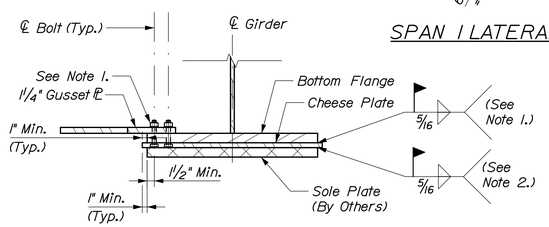
Piers 1-5 shown
(All Bracing Members in Parabolic Haunch Areas similar)



TYPICAL LATERAL BRACING PLAN

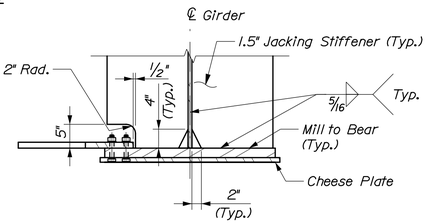


SPAN 1 LATERAL BRACING PLAN



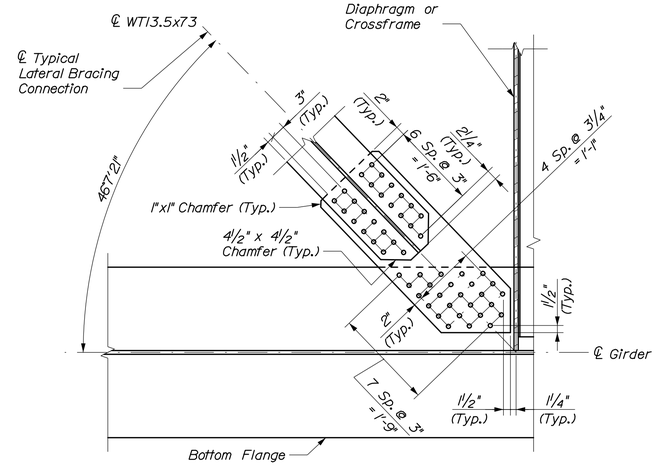
SECTION A-A

Pier No. 1 shown
(Abut. No. 1, Abut. No. 2, Piers 2-5 similar)
(Lateral Bracing Not Shown For Clarity)
(Bearing Assembly Not Shown For Clarity)



SECTION B-B

Pier No. 1 shown
(Abut. No. 1, Abut. No. 2, Piers 2-5 similar)
(Lateral Bracing Not Shown For Clarity)
(Bearing Assembly Not Shown For Clarity)



SPAN 6 LATERAL BRACING PLAN

Span 1 shown
(Connections in Span 6 with Lateral Bracing Angles of 40°24'0" & 39°51'15", similar)
(Right side not shown for clarity)

NOTES:

1. Cheese plate may be installed to flange in shop or field. If cheese plate is shop installed, Tension Control Bolts (or similar) shall be provided for lateral bracing gusset connection.

2. Contractor shall coordinate cheese plate with as-built sole plate to allow for field welding operations.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

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PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	C. Mancini
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REVISIONS 1	-
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REVISIONS 3	-
REVISIONS 4	-
FIELD CHANGES	-

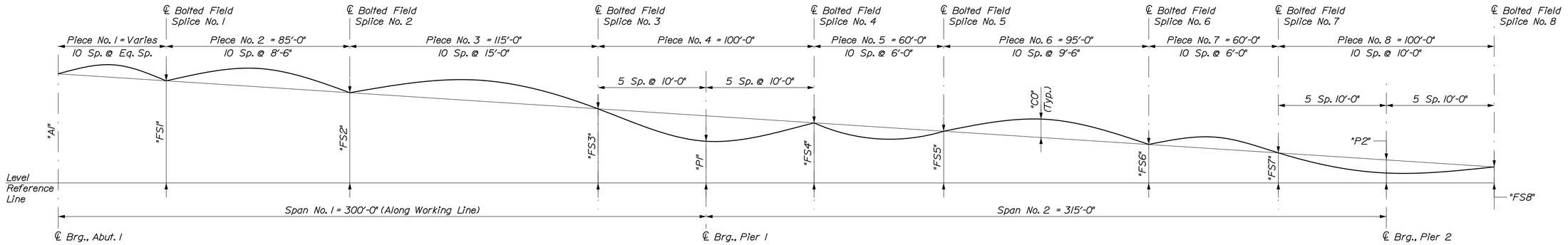
DATE	BY
11\20	C. Wong
11\20	J. Olund
-	-
-	-
-	-
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-	-
-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

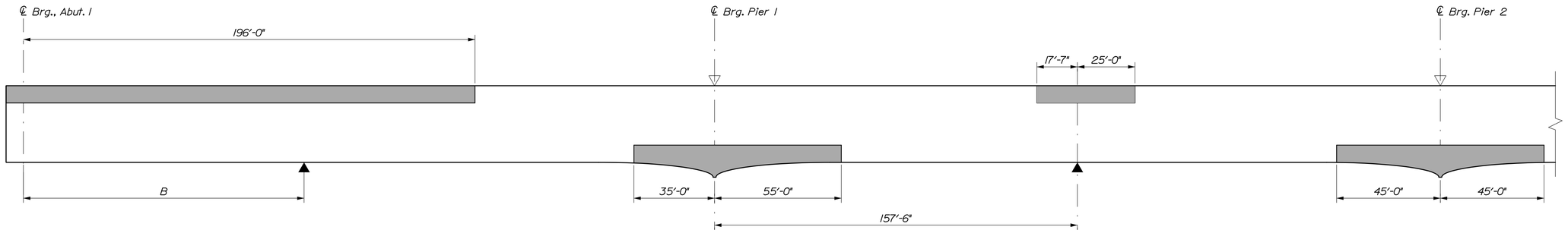
GIRDER DETAILS 6

SHEET NUMBER
90
OF 160

Filename: 090_Girder Details 6 - Lateral Bracing.dgn Division: Username: Date:12/4/2020



PARTIAL CAMBER DIAGRAM ~ SPAN NO. 1 THRU 2



PARTIAL STEEL GIRDER BEAM STRESS DIAGRAM ~ SPAN NO. 1 THRU 2

LEGEND

- Indicates areas always in compression. All other areas are in tension or have stress reversal.
- ▽ Point of maximum negative moment.
- ▲ Point of maximum positive moment.

Table of Max Positive Bending Moment	
GIRDER	"B"
G1	117'-0"
G2	107'-0"
G3	105'-0"
G4	115'-0"

TABLE OF CAMBER ORDINATES "C0" (Inches)

		Piece No. 1										Piece No. 2										Piece No. 3										
GIRDER	℄ A1	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	FS1	8.3'	16.6'	24.9'	33.2'	41.5'	49.8'	58.1'	66.4'	74.7'	FS2	11.5'	23'	34.5'	46'	57.5'	69'	80.5'	92'	103.5'	FS3	GIRDER
G1	0.00	0.90	2.40	3.38	3.99	4.19	4.03	3.53	2.45	1.32	0.00	0.63	1.07	1.49	1.68	1.83	1.74	1.58	1.19	0.70	0.00	0.84	1.44	1.74	1.80	1.71	1.48	1.11	0.71	0.32	0.00	G1
G2	0.00	0.32	0.62	0.83	0.92	0.95	0.92	0.78	0.64	0.37	0.00	0.83	1.40	1.83	2.08	2.14	2.07	1.76	1.38	0.72	0.00	0.88	1.47	1.83	1.97	1.88	1.61	1.24	0.82	0.37	0.00	G2
G3	0.00	0.04	0.15	0.31	0.36	0.42	0.48	0.42	0.31	0.20	0.00	0.69	1.25	1.68	1.90	2.04	1.91	1.71	1.27	0.72	0.00	0.87	1.48	1.85	1.97	1.86	1.61	1.25	0.82	0.38	0.00	G3
G4	0.00	0.08	0.23	0.38	0.51	0.52	0.51	0.49	0.41	0.20	0.00	0.59	1.05	1.39	1.67	1.73	1.72	1.51	1.17	0.69	0.00	0.94	1.61	1.96	2.07	1.98	1.73	1.36	0.89	0.42	0.00	G4

TABLE OF CAMBER ORDINATES "C0" (Inches)

		Piece No. 4										Piece No. 5										Piece No. 6										
GIRDER	FS3	10'	20'	30'	40'	℄ P1	60'	70'	80'	90'	FS4	6'	12'	18'	24'	30'	36'	42'	48'	54'	FS5	9.5'	19'	28.5'	38'	47.5'	57'	66.5'	76'	85.5'	FS6	GIRDER
G1	0.00	-0.42	-0.78	-1.02	-1.22	-1.60	-1.32	-1.12	-0.77	-0.44	0.00	0.02	0.04	0.04	0.03	0.03	0.05	0.06	0.05	0.03	0.00	0.54	1.01	1.36	1.56	1.68	1.56	1.37	1.03	0.55	0.00	G1
G2	0.00	-0.45	-0.83	-1.07	-1.28	-1.48	-1.36	-1.14	-0.78	-0.44	0.00	0.04	0.08	0.08	0.07	0.07	0.08	0.09	0.08	0.04	0.00	0.55	1.03	1.38	1.59	1.71	1.59	1.39	1.04	0.56	0.00	G2
G3	0.00	-0.43	-0.78	-1.00	-1.21	-1.60	-1.29	-1.08	-0.73	-0.41	0.00	0.05	0.10	0.11	0.10	0.10	0.11	0.12	0.10	0.05	0.00	0.57	1.07	1.43	1.64	1.77	1.65	1.44	1.08	0.57	0.00	G3
G4	0.00	-0.42	-0.74	-0.95	-1.17	-1.58	-1.25	-1.02	-0.68	-0.38	0.00	0.06	0.11	0.12	0.12	0.13	0.13	0.14	0.11	0.05	0.00	0.59	1.11	1.48	1.70	1.83	1.70	1.49	1.11	0.59	0.00	G4

TABLE OF CAMBER ORDINATES "C0" (Inches)

		Piece No. 7										Piece No. 8										
GIRDER	FS6	6'	12'	18'	24'	30'	36'	42'	48'	54'	FS7	10'	20'	30'	40'	℄ P2	60'	70'	80'	90'	FS8	GIRDER
G1	0.00	0.02	0.04	0.04	0.01	-0.02	-0.05	-0.07	-0.09	-0.04	0.00	-0.68	-1.27	-1.67	-1.95	-2.14	-1.95	-1.67	-1.27	-0.68	0.00	G1
G2	0.00	0.02	0.05	0.05	0.02	-0.01	-0.04	-0.06	-0.08	-0.04	0.00	-0.70	-1.32	-1.73	-2.05	-2.28	-2.05	-1.74	-1.32	-0.71	0.00	G2
G3	0.00	0.03	0.05	0.06	0.03	0.00	-0.03	-0.06	-0.08	-0.04	0.00	-0.72	-1.36	-1.78	-2.12	-2.40	-2.13	-1.79	-1.36	-0.73	0.00	G3
G4	0.00	0.03	0.05	0.06	0.03	0.00	-0.03	-0.06	-0.08	-0.04	0.00	-0.74	-1.38	-1.81	-2.19	-2.53	-2.19	-1.82	-1.38	-0.74	0.00	G4

TABLE OF CAMBER DIMENSIONS (Feet)

GIRDER	"A1"	"FS1"	"FS2"	"FS3"	"P1"	"FS4"	"FS5"	"FS6"	"FS7"	"P2"	"FS8"
G1	25.84	27.30	27.20	25.37	24.56	24.01	23.53	22.17	20.93	20.09	19.62
G2	27.06	27.92	28.02	26.31	25.53	25.00	24.53	23.16	21.90	21.05	20.58
G3	27.65	28.28	28.42	26.83	26.08	25.59	25.14	23.76	22.48	21.61	21.14
G4	27.93	28.45	28.65	27.19	26.47	26.02	25.58	24.19	22.90	22.01	21.54

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE 12130

P.E. NUMBER 11/19/2020

DATE

PROJ. MANAGER	BY	DATE
A. LATHE		
DESIGN-DETAILED	C. Wong	11\20
CHECKED-REVIEWED	C. Mancini	11\20
DESIGN2-DETAILED2	T. Poulin	- -
DESIGN3-DETAILED3	J. Olund	- -
REVISIONS 1		- -
REVISIONS 2		- -
REVISIONS 3		- -
REVISIONS 4		- -
FIELD CHANGES		- -

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CAMBER AND GIRDER STRESS DIAGRAMS

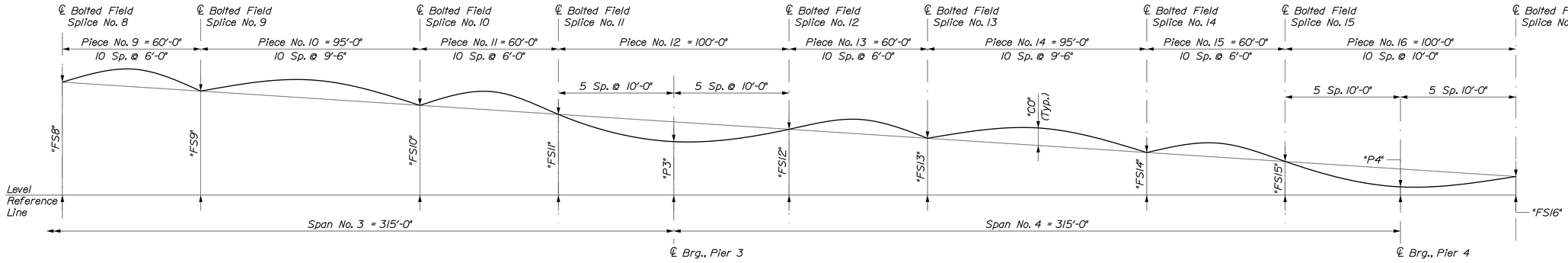
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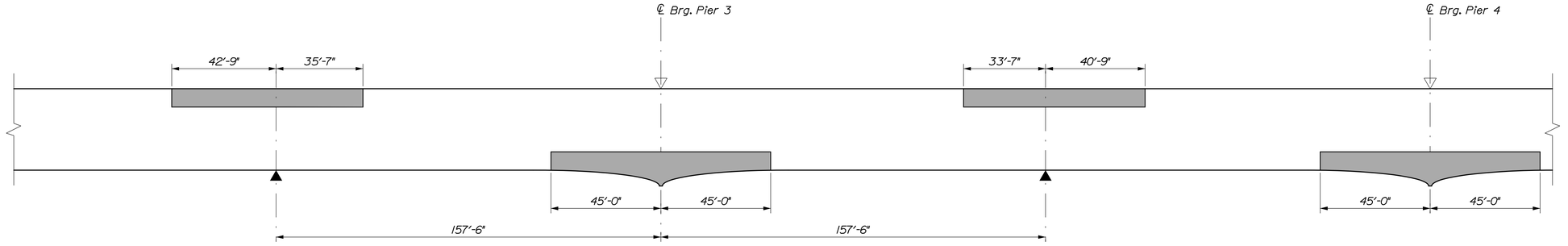
OF 160

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Filename: 091_Camber and Girder Stress Diagrams Span 1 thru 2.dgn Username: Date:11/20/2020



PARTIAL CAMBER DIAGRAM ~ SPAN NO. 3 THRU 4



PARTIAL STEEL GIRDER BEAM STRESS DIAGRAM ~ SPAN NO. 3 THRU 4

TABLE OF CAMBER ORDINATES "CO" (Inches)

		Piece No. 9										Piece No. 10										Piece No. 11											
GIRDER	FS8	6'	12'	18'	24'	30'	36'	42'	48'	54'	FS9	9.5'	19'	28.5'	38'	47.5'	57'	66.5'	76'	85.5'	FS10	6'	12'	18'	24'	30'	36'	42'	48'	54'	FS11	GIRDER
G1	0.00	0.03	0.05	0.11	0.17	0.22	0.23	0.24	0.19	0.09	0.00	0.69	1.29	1.71	1.94	2.07	1.92	1.67	1.24	0.66	0.00	0.02	0.04	0.03	-0.01	-0.04	-0.07	-0.10	-0.12	-0.06	0.00	G1
G2	0.00	0.03	0.06	0.11	0.17	0.22	0.23	0.24	0.19	0.09	0.00	0.69	1.29	1.71	1.95	2.08	1.92	1.67	1.24	0.66	0.00	0.02	0.04	0.04	0.00	-0.03	-0.06	-0.09	-0.10	-0.05	0.00	G2
G3	0.00	0.02	0.05	0.11	0.17	0.22	0.23	0.24	0.19	0.09	0.00	0.70	1.31	1.73	1.97	2.11	1.95	1.69	1.26	0.67	0.00	0.02	0.05	0.04	0.01	-0.03	-0.06	-0.09	-0.10	-0.05	0.00	G3
G4	0.00	0.02	0.04	0.10	0.16	0.21	0.22	0.23	0.18	0.09	0.00	0.71	1.33	1.76	2.00	2.13	1.97	1.72	1.28	0.68	0.00	0.02	0.05	0.04	0.01	-0.03	-0.06	-0.09	-0.11	-0.05	0.00	G4

TABLE OF CAMBER ORDINATES "CO" (Inches)

		Piece No. 12										Piece No. 13										Piece No. 14											
GIRDER	FS11	10'	20'	30'	40'	℄ P3	60'	70'	80'	90'	FS12	6'	12'	18'	24'	30'	36'	42'	48'	54'	FS13	9.5'	19'	28.5'	38'	47.5'	57'	66.5'	76'	85.5'	FS14	GIRDER
G1	0.00	-0.78	-1.45	-1.90	-2.22	-2.46	-2.22	-1.90	-1.45	-0.78	0.00	-0.01	-0.02	0.02	0.07	0.11	0.14	0.16	0.13	0.06	0.00	0.68	1.28	1.70	1.94	2.08	1.93	1.69	1.26	0.67	0.00	G1
G2	0.00	-0.80	-1.48	-1.94	-2.29	-2.55	-2.29	-1.95	-1.48	-0.80	0.00	0.00	-0.01	0.03	0.08	0.13	0.15	0.17	0.13	0.07	0.00	0.68	1.28	1.70	1.94	2.09	1.94	1.69	1.26	0.67	0.00	G2
G3	0.00	-0.81	-1.51	-1.97	-2.34	-2.62	-2.34	-1.97	-1.51	-0.81	0.00	0.00	-0.01	0.04	0.09	0.13	0.15	0.17	0.14	0.07	0.00	0.69	1.30	1.73	1.97	2.11	1.96	1.71	1.28	0.68	0.00	G3
G4	0.00	-0.81	-1.51	-1.98	-2.37	-2.70	-2.37	-1.98	-1.51	-0.81	0.00	-0.01	-0.01	0.03	0.08	0.13	0.15	0.17	0.14	0.07	0.00	0.70	1.31	1.75	1.99	2.14	1.99	1.73	1.30	0.69	0.00	G4

TABLE OF CAMBER ORDINATES "CO" (Inches)

		Piece No. 15										Piece No. 16										
GIRDER	FS14	6'	12'	18'	24'	30'	36'	42'	48'	54'	FS15	10'	20'	30'	40'	℄ P4	60'	70'	80'	90'	FS16	GIRDER
G1	0.00	0.05	0.10	0.11	0.09	0.06	0.03	-0.01	-0.04	-0.02	0.00	-0.68	-1.27	-1.67	-1.96	-2.17	-1.95	-1.66	-1.26	-0.68	0.00	G1
G2	0.00	0.05	0.10	0.11	0.09	0.07	0.03	-0.01	-0.04	-0.02	0.00	-0.70	-1.31	-1.73	-2.04	-2.28	-2.04	-1.72	-1.30	-0.70	0.00	G2
G3	0.00	0.05	0.10	0.11	0.09	0.06	0.03	-0.01	-0.04	-0.02	0.00	-0.72	-1.35	-1.77	-2.10	-2.37	-2.10	-1.76	-1.34	-0.71	0.00	G3
G4	0.00	0.05	0.09	0.11	0.08	0.05	0.02	-0.02	-0.05	-0.02	0.00	-0.73	-1.37	-1.79	-2.15	-2.46	-2.15	-1.78	-1.36	-0.72	0.00	G4

TABLE OF CAMBER DIMENSIONS (Feet)

GIRDER	"FS8"	"FS9"	"FS10"	"FS11"	"P3"	"FS12"	"FS13"	"FS14"	"FS15"	"P4"	"FS16"
G1	19.62	19.22	17.70	16.30	15.37	14.84	14.46	13.02	11.63	10.64	10.02
G2	20.58	20.18	18.67	17.27	16.32	15.81	15.42	13.99	12.59	11.60	10.99
G3	21.14	20.75	19.24	17.83	16.89	16.38	16.00	14.56	13.15	12.16	11.56
G4	21.54	21.16	19.65	18.24	17.28	16.78	16.40	14.96	13.55	12.56	11.97

LEGEND

- Indicates areas always in compression. All other areas are in tension or have stress reversal.
- ▽ Point of maximum negative moment.
- ▲ Point of maximum positive moment.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE JOSHUA K. OLUND No. 12130 REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

12130

P.E. NUMBER

11/19/2020

DATE

	BY	DATE
PROJ. MANAGER	A. LATHE	
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CHECKED-REVIEWED	T. Poulin	11\20
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INTERNATIONAL BRIDGE
SAINT JOHN RIVER
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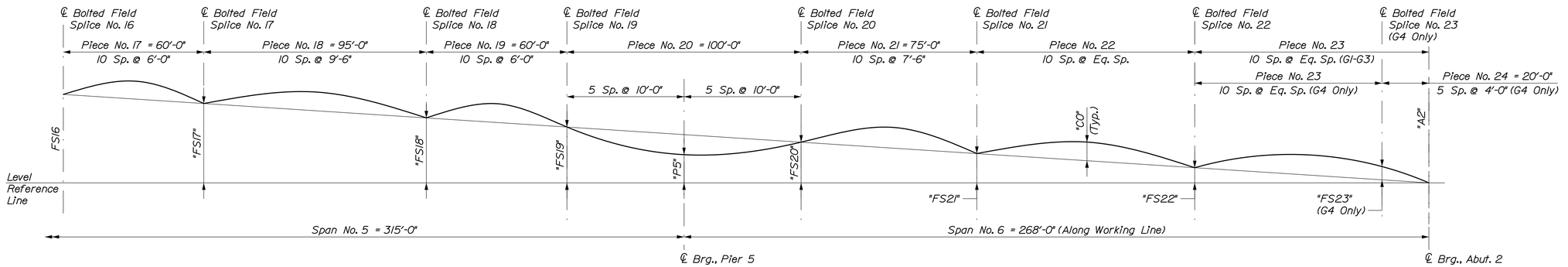
CAMBER AND GIRDER STRESS DIAGRAMS

SHEET NUMBER

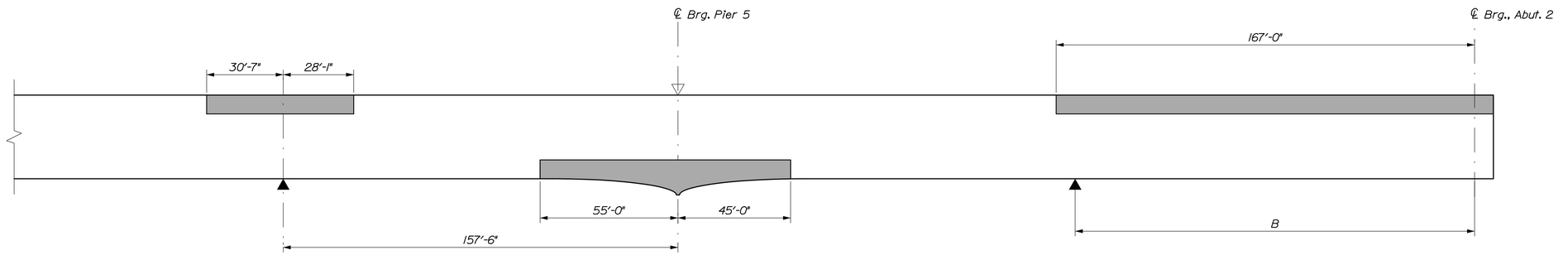
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Filename: 092_Camber and Girder Stress Diagrams Div3 Span 3 thru 4.dgn Username: Date:11/20/2020



PARTIAL CAMBER DIAGRAM ~ SPAN NO. 5 THRU 6



PARTIAL STEEL GIRDER BEAM STRESS DIAGRAM ~ SPAN NO. 5 THRU 6

TABLE OF CAMBER ORDINATES "C0" (Inches)

		Piece No. 17										Piece No. 18										Piece No. 19											
GIRDER	FS16	6'	12'	18'	24'	30'	36'	42'	48'	54'	FS17	9.5'	19'	28.5'	38'	47.5'	57'	66.5'	76'	85.5'	FS18	6'	12'	18'	24'	30'	36'	42'	48'	54'	FS19	GIRDER
G1	0.00	0.01	0.02	0.06	0.11	0.16	0.17	0.18	0.14	0.07	0.00	0.55	1.03	1.35	1.53	1.62	1.48	1.27	0.93	0.49	0.00	-0.07	-0.14	-0.21	-0.27	-0.34	-0.35	-0.34	-0.31	-0.16	0.00	G1
G2	0.00	0.01	0.03	0.07	0.12	0.17	0.18	0.19	0.15	0.07	0.00	0.56	1.05	1.38	1.56	1.65	1.51	1.30	0.95	0.50	0.00	-0.06	-0.12	-0.19	-0.25	-0.31	-0.32	-0.32	-0.29	-0.15	0.00	G2
G3	0.00	0.01	0.03	0.07	0.13	0.17	0.18	0.19	0.15	0.08	0.00	0.58	1.08	1.42	1.61	1.71	1.56	1.35	0.99	0.52	0.00	-0.06	-0.11	-0.17	-0.23	-0.30	-0.31	-0.31	-0.28	-0.14	0.00	G3
G4	0.00	0.01	0.02	0.07	0.12	0.17	0.18	0.19	0.15	0.08	0.00	0.60	1.11	1.47	1.66	1.76	1.62	1.39	1.03	0.54	0.00	-0.05	-0.10	-0.16	-0.22	-0.28	-0.30	-0.30	-0.28	-0.14	0.00	G4

TABLE OF CAMBER ORDINATES "C0" (Inches)

		Piece No. 20										Piece No. 21										Piece No. 22											
GIRDER	FS19	10'	20'	30'	40'	℄ P5	60'	70'	80'	90'	FS20	7.5'	15'	22.5'	30'	37.5'	45'	52.5'	60'	67.5'	FS21	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	FS22	GIRDER
G1	0.00	-0.75	-1.37	-1.70	-1.89	-2.28	-1.75	-1.40	-0.98	-0.56	0.00	0.44	0.80	1.16	1.49	1.60	1.58	1.50	1.22	0.66	0.00	0.39	0.65	0.68	0.76	0.75	0.71	0.60	0.46	0.24	0.00	G1
G2	0.00	-0.77	-1.41	-1.77	-1.99	-2.41	-1.85	-1.49	-1.06	-0.64	0.00	0.43	0.80	1.15	1.50	1.58	1.60	1.51	1.23	0.72	0.00	0.65	1.07	1.44	1.61	1.82	1.96	2.14	1.63	0.90	0.00	G2
G3	0.00	-0.79	-1.43	-1.80	-2.04	-2.50	-1.91	-1.54	-1.11	-0.65	0.00	0.37	0.70	1.03	1.34	1.42	1.44	1.34	1.11	0.57	0.00	1.10	2.13	2.78	3.17	3.34	3.16	2.83	2.09	1.19	0.00	G3
G4	0.00	-0.79	-1.44	-1.81	-2.08	-2.59	-1.95	-1.55	-1.15	-0.65	0.00	0.32	0.62	0.93	1.22	1.33	1.32	1.30	1.04	0.62	0.00	1.82	3.24	4.20	4.84	5.11	4.86	4.27	3.32	1.82	0.00	G4

TABLE OF CAMBER ORDINATES "C0" (Inches)

		Piece No. 23										
GIRDER	FS22	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	CL A2	GIRDER
G1	0.00	1.37	2.67	3.83	4.62	4.26	3.80	3.13	2.19	1.11	0.00	G1
G2	0.00	0.86	1.50	1.98	2.17	2.25	2.08	1.75	1.28	0.67	0.00	G2
G3	0.00	0.50	0.83	0.99	1.07	1.05	0.92	0.74	0.53	0.27	0.00	G3

TABLE OF CAMBER ORDINATES "C0" (Inches)

		Piece No. 23									Piece No. 24						
GIRDER	FS22	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	FS23	.2L	.4L	.6L	.8L	CL A2	GIRDER
G4	0.00	0.16	0.37	0.42	0.40	0.32	0.06	-0.22	-0.36	-0.17	0.00	-0.30	-0.22	-0.14	-0.07	0.00	G4

TABLE OF CAMBER DIMENSIONS (Feet)

GIRDER	"FS16"	"FS17"	"FS18"	"FS19"	"P5"	"FS20"	"FS21"	"FS22"	"FS23"	"A2"
G1	10.02	9.46	7.86	6.60	5.89	5.56	4.76	3.17	-	0.00
G2	10.99	10.44	8.85	7.58	6.85	6.52	5.72	3.95	-	0.00
G3	11.56	11.03	9.44	8.16	7.41	7.07	6.32	3.78	-	0.00
G4	11.97	11.45	9.87	8.57	7.80	7.47	6.75	3.48	0.73	0.00

LEGEND

- Indicates areas always in compression. All other areas are in tension or have stress reversal.
- ▽ Point of maximum negative moment.
- ▲ Point of maximum positive moment.

Table of Max Positive Bending Moment	
GIRDER	"B"
G1	131'-0"
G2	124'-0"
G3	123'-0"
G4	116'-0"

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

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INTERNATIONAL BRIDGE
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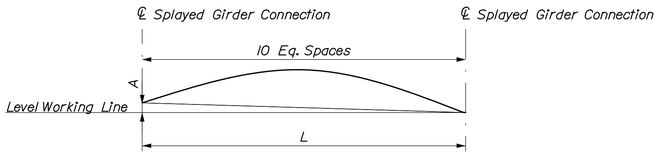
CAMBER AND GIRDER STRESS DIAGRAMS

SHEET NUMBER

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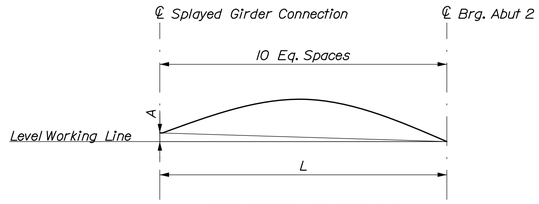
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Filename: 093_Camber and Girder Stress Diagrams Bridge 5 thru 6.dgn Username: Date:11/20/2020



CAMBER DIAGRAM

GIRDER SG1



CAMBER DIAGRAM

GIRDERS SG2, SG3, SG4

GIRDER	CAMBER ORDINATES (INCHES)										
	℄ Splayed Girder Connection	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	℄ Splayed Girder Connection
SG1	0.00	0.10	0.18	0.24	0.28	0.29	0.28	0.24	0.18	0.10	0.00

GIRDER	CAMBER ORDINATES (INCHES)										
	℄ Splayed Girder Connection	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	℄ Brg., Abut. 2
SG2	0.00	-0.29	-0.49	-0.70	-0.87	-0.98	-1.03	-0.97	-0.80	-0.48	0.00
SG3	0.00	-0.19	-0.34	-0.45	-0.52	-0.55	-0.54	-0.48	-0.37	-0.21	0.00
SG4	0.00	0.08	0.16	0.23	0.30	0.33	0.30	0.25	0.18	0.10	0.00

TABLE OF REFERENCE DIMENSIONS (FEET)				
	SG1	SG2	SG3	SG4
L	34.66	88.89	57.16	25.43
A	0.85	3.33	2.45	1.14

GIRDER	DEAD LOAD COMPONENT	DEAD LOAD DEFLECTIONS (INCHES)										
		℄ Splayed Girder Connection	y1	y2	y3	y4	y5	y6	y7	y8	y9	℄ Splayed Girder Splice
SG1	Steel Dead Load	-0.02	-0.40	-0.79	-1.17	-1.55	-1.93	-2.31	-2.69	-3.06	-3.44	-3.81
	Deck Concrete Load	-0.03	-0.60	-1.17	-1.72	-2.28	-2.82	-3.36	-3.88	-4.40	-4.91	-5.42
	Superimposed Dead Load	-0.01	-0.09	-0.17	-0.25	-0.32	-0.40	-0.48	-0.55	-0.63	-0.70	-0.77

GIRDER	DEAD LOAD COMPONENT	DEAD LOAD DEFLECTIONS (INCHES)										
		℄ Splayed Girder Connection	y1	y2	y3	y4	y5	y6	y7	y8	y9	℄ Brg., Abut. 2
SG2	Steel Dead Load	-5.23	-4.78	-4.33	-3.86	-3.37	-2.86	-2.32	-1.77	-1.19	-0.60	0.00
	Deck Concrete Load	-11.07	-10.04	-9.01	-7.97	-6.91	-5.82	-4.71	-3.57	-2.40	-1.21	0.00
	Superimposed Dead Load	-1.56	-1.47	-1.38	-1.27	-1.13	-0.98	-0.81	-0.62	-0.42	-0.21	0.00
SG3	Steel Dead Load	-4.92	-4.44	-3.96	-3.48	-3.00	-2.51	-2.01	-1.52	-1.01	-0.51	0.00
	Deck Concrete Load	-10.32	-9.32	-8.32	-7.31	-6.30	-5.27	-4.24	-3.19	-2.14	-1.07	0.00
	Superimposed Dead Load	-1.47	-1.34	-1.21	-1.08	-0.94	-0.79	-0.64	-0.48	-0.33	-0.16	0.00
SG4	Steel Dead Load	-2.81	-2.53	-2.25	-1.97	-1.69	-1.41	-1.13	-0.84	-0.56	-0.28	0.00
	Deck Concrete Load	-5.89	-5.30	-4.72	-4.13	-3.54	-2.95	-2.36	-1.77	-1.18	-0.59	0.00
	Superimposed Dead Load	-0.84	-0.75	-0.67	-0.59	-0.50	-0.42	-0.34	-0.25	-0.17	-0.08	0.00

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STATE OF MAINE
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BRIDGE PLANS

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SIGNATURE

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CHECKED-REVIEWED	J. Olund	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

CAMBER AND DEFLECTION
SPLAYED GIRDERS

SHEET NUMBER

94

OF 160

Date:11/20/2020

Username:

Filename: 094_Camber and Deflection Splayed Girders.dgn

GIRDER	DEAD LOAD COMPONENT	SPAN 1 - DEAD LOAD DEFLECTIONS (INCHES)																			
		℄ Brg., Abut. 1	y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	y13	y14	y15	y16	y17	y18	y19	℄ Brg., Pier 1
G1	Steel Dead Load	0.00	-2.31	-4.10	-5.43	-6.16	-6.84	-7.40	-7.80	-8.02	-8.03	-7.83	-7.44	-6.86	-6.13	-5.27	-4.33	-3.35	-2.39	-1.50	-0.72	0.00
	Deck Concrete Load	0.00	-3.23	-5.71	-7.66	-8.80	-9.80	-10.61	-11.16	-11.42	-11.36	-10.98	-10.31	-9.37	-8.22	-6.91	-5.52	-4.12	-2.81	-1.67	-0.75	0.00
	Superimposed Dead Load	0.00	-0.40	-0.71	-1.02	-1.31	-1.56	-1.77	-1.92	-2.01	-2.04	-2.00	-1.91	-1.75	-1.55	-1.32	-1.06	-0.79	-0.54	-0.31	-0.11	0.00
G2	Steel Dead Load	0.00	-1.56	-2.98	-4.23	-5.24	-6.02	-6.58	-6.95	-7.12	-7.10	-6.91	-6.54	-6.01	-5.36	-4.60	-3.77	-2.91	-2.07	-1.29	-0.61	0.00
	Deck Concrete Load	0.00	-2.29	-4.36	-6.19	-7.67	-8.81	-9.62	-10.12	-10.31	-10.21	-9.83	-9.20	-8.34	-7.29	-6.11	-4.87	-3.62	-2.46	-1.45	-0.64	0.00
	Superimposed Dead Load	0.00	-0.38	-0.75	-1.09	-1.39	-1.64	-1.85	-1.99	-2.07	-2.09	-2.04	-1.94	-1.78	-1.58	-1.34	-1.09	-0.82	-0.57	-0.34	-0.15	0.00
G3	Steel Dead Load	0.00	-1.40	-2.63	-3.66	-4.50	-5.18	-5.70	-6.03	-6.20	-6.19	-6.02	-5.69	-5.23	-4.65	-3.98	-3.26	-2.51	-1.77	-1.10	-0.51	0.00
	Deck Concrete Load	0.00	-2.10	-3.96	-5.51	-6.78	-7.78	-8.52	-8.98	-9.16	-9.07	-8.73	-8.16	-7.38	-6.44	-5.38	-4.26	-3.15	-2.12	-1.24	-0.54	0.00
	Superimposed Dead Load	0.00	-0.42	-0.81	-1.17	-1.48	-1.74	-1.94	-2.08	-2.15	-2.16	-2.11	-2.00	-1.83	-1.63	-1.39	-1.12	-0.86	-0.60	-0.37	-0.19	0.00
G4	Steel Dead Load	0.00	-1.18	-2.17	-2.96	-3.66	-4.26	-4.74	-5.07	-5.26	-5.29	-5.17	-4.90	-4.51	-4.01	-3.43	-2.79	-2.14	-1.51	-0.93	-0.43	0.00
	Deck Concrete Load	0.00	-1.87	-3.42	-4.65	-5.72	-6.62	-7.31	-7.77	-7.99	-7.95	-7.67	-7.18	-6.49	-5.65	-4.71	-3.72	-2.73	-1.83	-1.06	-0.46	0.00
	Superimposed Dead Load	0.00	-0.46	-0.88	-1.25	-1.57	-1.83	-2.04	-2.18	-2.25	-2.25	-2.19	-2.07	-1.90	-1.69	-1.44	-1.18	-0.91	-0.65	-0.42	-0.23	0.00

GIRDER	DEAD LOAD COMPONENT	SPAN 2 - DEAD LOAD DEFLECTIONS (INCHES)																			
		℄ Brg., Pier 1	y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	y13	y14	y15	y16	y17	y18	y19	℄ Brg., Pier 2
G1	Steel Dead Load	0.00	0.37	0.64	0.74	0.64	0.40	0.08	-0.26	-0.58	-0.84	-1.02	-1.11	-1.10	-1.00	-0.83	-0.60	-0.36	-0.16	-0.03	0.01	0.00
	Deck Concrete Load	0.00	0.15	0.09	-0.31	-1.06	-1.96	-2.84	-3.61	-4.19	-4.55	-4.66	-4.51	-4.12	-3.54	-2.80	-2.00	-1.23	-0.60	-0.19	-0.01	0.00
	Superimposed Dead Load	0.00	0.10	0.11	0.07	-0.03	-0.16	-0.30	-0.44	-0.55	-0.64	-0.68	-0.69	-0.65	-0.57	-0.47	-0.34	-0.21	-0.09	0.00	0.05	0.00
G2	Steel Dead Load	0.00	0.33	0.55	0.59	0.46	0.21	-0.12	-0.46	-0.77	-1.02	-1.19	-1.26	-1.24	-1.12	-0.93	-0.69	-0.43	-0.21	-0.06	0.00	0.00
	Deck Concrete Load	0.00	0.11	-0.01	-0.46	-1.23	-2.15	-3.03	-3.79	-4.37	-4.72	-4.82	-4.66	-4.27	-3.67	-2.92	-2.11	-1.33	-0.67	-0.23	-0.03	0.00
	Superimposed Dead Load	0.00	0.04	0.04	-0.03	-0.15	-0.31	-0.47	-0.62	-0.75	-0.84	-0.89	-0.89	-0.84	-0.76	-0.63	-0.49	-0.33	-0.19	-0.08	-0.02	0.00
G3	Steel Dead Load	0.00	0.29	0.45	0.46	0.30	0.02	-0.31	-0.65	-0.96	-1.21	-1.36	-1.42	-1.38	-1.24	-1.03	-0.77	-0.50	-0.25	-0.08	-0.01	0.00
	Deck Concrete Load	0.00	0.07	-0.10	-0.58	-1.38	-2.31	-3.20	-3.96	-4.54	-4.89	-4.98	-4.81	-4.40	-3.79	-3.03	-2.20	-1.39	-0.72	-0.26	-0.05	0.00
	Superimposed Dead Load	0.00	-0.01	-0.04	-0.13	-0.28	-0.46	-0.65	-0.82	-0.97	-1.07	-1.12	-1.12	-1.06	-0.96	-0.81	-0.64	-0.46	-0.30	-0.17	-0.08	0.00
G4	Steel Dead Load	0.00	0.23	0.35	0.32	0.13	-0.16	-0.50	-0.85	-1.15	-1.39	-1.53	-1.58	-1.52	-1.36	-1.13	-0.85	-0.56	-0.30	-0.12	-0.03	0.00
	Deck Concrete Load	0.00	0.01	-0.20	-0.70	-1.51	-2.44	-3.34	-4.10	-4.68	-5.03	-5.12	-4.94	-4.52	-3.89	-3.12	-2.27	-1.45	-0.76	-0.30	-0.08	0.00
	Superimposed Dead Load	0.00	-0.07	-0.12	-0.24	-0.42	-0.63	-0.84	-1.04	-1.20	-1.31	-1.36	-1.36	-1.29	-1.17	-1.01	-0.81	-0.60	-0.41	-0.26	-0.16	0.00

GIRDER	DEAD LOAD COMPONENT	SPAN 3 - DEAD LOAD DEFLECTIONS (INCHES)																			
		℄ Brg., Pier 2	y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	y13	y14	y15	y16	y17	y18	y19	℄ Brg., Pier 3
G1	Steel Dead Load	0.00	-0.25	-0.55	-0.95	-1.42	-1.92	-2.39	-2.79	-3.09	-3.26	-3.29	-3.18	-2.94	-2.59	-2.14	-1.64	-1.15	-0.70	-0.37	-0.15	0.00
	Deck Concrete Load	0.00	-0.42	-1.01	-1.82	-2.84	-3.90	-4.86	-5.65	-6.20	-6.48	-6.48	-6.18	-5.62	-4.84	-3.90	-2.89	-1.90	-1.07	-0.48	-0.16	0.00
	Superimposed Dead Load	0.00	0.01	-0.08	-0.21	-0.37	-0.54	-0.71	-0.86	-0.97	-1.04	-1.05	-1.03	-0.95	-0.83	-0.68	-0.51	-0.34	-0.18	-0.06	0.02	0.00
G2	Steel Dead Load	0.00	-0.22	-0.51	-0.89	-1.34	-1.83	-2.28	-2.67	-2.96	-3.13	-3.17	-3.07	-2.84	-2.50	-2.07	-1.59	-1.11	-0.67	-0.35	-0.13	0.00
	Deck Concrete Load	0.00	-0.42	-1.01	-1.83	-2.85	-3.92	-4.89	-5.68	-6.24	-6.52	-6.52	-6.22	-5.66	-4.88	-3.94	-2.93	-1.94	-1.10	-0.50	-0.15	0.00
	Superimposed Dead Load	0.00	-0.05	-0.16	-0.31	-0.49	-0.69	-0.87	-1.03	-1.16	-1.23	-1.26	-1.22	-1.14	-1.01	-0.84	-0.65	-0.45	-0.28	-0.14	-0.04	0.00
G3	Steel Dead Load	0.00	-0.19	-0.46	-0.82	-1.26	-1.73	-2.18	-2.56	-2.85	-3.02	-3.06	-2.96	-2.74	-2.41	-1.99	-1.53	-1.06	-0.64	-0.32	-0.12	0.00
	Deck Concrete Load	0.00	-0.41	-1.00	-1.82	-2.85	-3.93	-4.90	-5.70	-6.27	-6.56	-6.56	-6.26	-5.70	-4.92	-3.97	-2.95	-1.95	-1.10	-0.49	-0.15	0.00
	Superimposed Dead Load	0.00	-0.12	-0.24	-0.41	-0.62	-0.84	-1.05	-1.23	-1.37	-1.45	-1.48	-1.44	-1.35	-1.20	-1.01	-0.80	-0.58	-0.37	-0.21	-0.10	0.00
G4	Steel Dead Load	0.00	-0.18	-0.42	-0.76	-1.19	-1.64	-2.07	-2.45	-2.73	-2.90	-2.94	-2.85	-2.64	-2.32	-1.92	-1.46	-1.01	-0.61	-0.30	-0.11	0.00
	Deck Concrete Load	0.00	-0.42	-1.00	-1.81	-2.83	-3.91	-4.89	-5.70	-6.27	-6.57	-6.57	-6.28	-5.72	-4.93	-3.98	-2.95	-1.95	-1.10	-0.50	-0.16	0.00
	Superimposed Dead Load	0.00	-0.20	-0.33	-0.52	-0.76	-1.00	-1.24	-1.44	-1.60	-1.69	-1.72	-1.68	-1.57	-1.41	-1.20	-0.96	-0.71	-0.48	-0.29	-0.17	0.00

GIRDER	DEAD LOAD COMPONENT	SPAN 4 - DEAD LOAD DEFLECTIONS (INCHES)																			
		℄ Brg., Pier 3	y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	y13	y14	y15	y16	y17	y18	y19	℄ Brg., Pier 4
G1	Steel Dead Load	0.00	-0.12	-0.31	-0.61	-1.02	-1.49	-1.96	-2.37	-2.70	-2.93	-3.02	-2.97	-2.80	-2.50	-2.12	-1.67	-1.20	-0.77	-0.43	-0.18	0.00
	Deck Concrete Load	0.00	-0.35	-0.87	-1.64	-2.66	-3.76	-4.79	-5.66	-6.32	-6.70	-6.80	-6.61	-6.13	-5.41	-4.51	-3.51	-2.49	-1.57	-0.85	-0.35	0.00
	Superimposed Dead Load	0.00	0.02	-0.06	-0.18	-0.34	-0.51	-0.68	-0.83	-0.95	-1.03	-1.06	-1.04	-0.97	-0.86	-0.72	-0.55	-0.38	-0.22	-0.09	0.00	0.00
G2	Steel Dead Load	0.00	-0.11	-0.30	-0.60	-1.01	-1.47	-1.92	-2.33	-2.65	-2.87	-2.95	-2.91	-2.73	-2.45	-2.06	-1.62	-1.17	-0.74	-0.40	-0.17	0.00
	Deck Concrete Load	0.00	-0.34	-0.86	-1.65	-2.67	-3.77	-4.80	-5.67	-6.32	-6.70	-6.80	-6.59	-6.12	-5.40	-4.50	-3.49	-2.47	-1.55	-0.83	-0.33	0.00
	Superimposed Dead Load	0.00	-0.04	-0.14	-0.27	-0.45	-0.65	-0.83	-1.00	-1.13	-1.22	-1.25	-1.23	-1.15	-1.03	-0.87	-0.68	-0.49	-0.31	-0.16	-0.06	0.00
G3	Steel Dead Load	0.00	-0.10	-0.29	-0.59	-0.99	-1.44	-1.89	-2.29	-2.61	-2.81	-2.90	-2.85	-2.68	-2.39	-2.01	-1.58	-1.13	-0.71	-0.38	-0.15	0.00
	Deck Concrete Load	0.00	-0.33	-0.85	-1.63	-2.66	-3.77	-4.80	-5.67	-6.32	-6.70	-6.79	-6.58	-6.10	-5.38	-4.47	-3.46	-2.43	-1.52	-0.80	-0.32	0.00
	Superimposed Dead Load	0.00	-0.10	-0.21	-0.37	-0.57	-0.79	-1.01	-1.19	-1.34	-1.43	-1.47	-1.44	-1.36	-1.22	-1.04	-0.83	-0.61	-0.40	-0.23	-0.11	0.00
G4	Steel Dead Load	0.00	-0.10	-0.29	-0.58	-0.98	-1.42	-1.86	-2.25	-2.56	-2.76	-2.84	-2.79	-2.62	-2.33	-1.96	-1.53	-1.09	-0.69	-0.37	-0.15	0.00
	Deck Concrete Load	0.00	-0.33	-0.84	-1.62	-2.64	-3.74	-4.77	-5.64	-6.29	-6.67	-6.76	-6.55	-6.06	-5.33	-4.42	-3.41	-2.39	-1.48	-0.78	-0.31	0.00
	Superimposed Dead Load	0.00	-0.17	-0.29	-0.47	-0.70	-0.95	-1.19	-1.40	-1.56	-1.66	-1.70	-1.67	-1.58	-1.42	-1.22	-0.98	-0.74	-0.50	-0.31	-0.18	0.00

GIRDER	DEAD LOAD COMPONENT	SPAN 5 - DEAD LOAD DEFLECTIONS (INCHES)																			
		℄ Brg., Pier 4	y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	y13	y14	y15	y16	y17	y18	y19	℄ Brg., Pier 5
G1	Steel Dead Load	0.00	-0.06	-0.18	-0.40	-0.69	-1.03	-1.36	-1.63	-1.81	-1.90	-1.87	-1.73	-1.50	-1.18	-0.81	-0.43	-0.09	0.14	0.22	0.15	0.00
	Deck Concrete Load	0.00	-0.10	-0.35	-0.82	-1.48	-2.19	-2.82	-3.31	-3.60	-3.66	-3.49	-3.09	-2.51	-1.78	-0.99	-0.22	0.41	0.78	0.81	0.51	0.00
	Superimposed Dead Load	0.00	0.03	-0.03	-0.12	-0.24	-0.38	-0.51	-0.62	-0.70	-0.74	-0.74	-0.70	-0.61	-0.50	-0.36	-0.22	-0.08	0.03	0.09	0.10	0.00
G2	Steel Dead Load	0.00	-0.06	-0.18	-0.40	-0.70	-1.04	-1.36	-1.63	-1.82	-1.91	-1.89	-1.76	-1.53	-1.21	-0.85	-0.48	-0.14	0.10	0.20	0.15	0.00
	Deck Concrete Load	0.00	-0.11	-0.39	-0.88	-1.57	-2.31	-2.96	-3.47	-3.78	-3.85	-3.69	-3.30	-2.72	-1.99	-1.19	-0.41	0.24	0.65	0.72	0.48	0.00
	Superimposed Dead Load	0.00	-0.03	-0.09	-0.21	-0.35	-0.51	-0.66	-0.78	-0.87	-0.92	-0.92	-0.88	-0.79	-0.66	-0.50	-0.34	-0.18	-0.06	0.02	0.04	0.00
G3	Steel Dead Load	0.00	-0.05	-0.18	-0.40	-0.71	-1.05	-1.37	-1.65	-1.84	-1.93	-1.92	-1.79	-1.56	-1.25	-0.89	-0.52	-0.18	0.07	0.18	0.14	0.00
	Deck Concrete Load	0.00	-0.12	-0.42	-0.93	-1.65	-2.41	-3.09	-3.62	-3.95	-4.04	-3.89	-3.51	-2.92	-2.18	-1.37	-0.56	0.12	0.56	0.67	0.45	0.00
	Superimposed Dead Load	0.00	-0.08	-0.16	-0.29	-0.46	-0.64	-0.82	-0.96	-1.07	-1.13	-1.13	-1.08	-0.98	-0.83	-0.66	-0.47	-0.29	-0.14	-0.05	-0.02	0.00
G4	Steel Dead Load	0.00	-0.06	-0.19	-0.41	-0.71	-1.05	-1.38	-1.66	-1.85	-1.95	-1.94	-1.81	-1.59	-1.29	-0.93	-0.56	-0.22	0.03	0.15	0.13	0.00
	Deck Concrete Load	0.00	-0.15	-0.45	-0.97	-1.70	-2.49	-3.20	-3.75	-4.09	-4.20	-4.07	-3.69	-3.10	-2.35	-1.52	-0.70	0.01	0.47	0.60	0.41	0.00
	Superimposed Dead Load	0.00	-0.14	-0.24	-0.39	-0.59	-0.79	-0.99	-1.16	-1.28	-1.34	-1.35	-1.29	-1.18	-1.02	-0.82	-0.61	-0.40	-0.23	-0.12	-0.08	0.00

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
A. LATHE		
PROJ. MANAGER	C. Wong	11\20
DESIGN-DETAILED	C. Mancini	11\20
CHECKED-REVIEWED	J. Olund	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TABLE OF DEFLECTIONS I

SHEET NUMBER

95

OF 160

Filename: 095_Table of Deflections 1.dgn Division: Username: Date:11/20/2020

GIRDER	DEAD LOAD COMPONENT	SPAN 6 - DEAD LOAD DEFLECTIONS (INCHES)																				
		℄ Brg., Pier 5	y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	y13	y14	y15	y16	y17	y18	y19	℄ Brg., Abut. 2
G1	Steel Dead Load	0.00	-0.38	-0.78	-1.26	-1.83	-2.45	-3.09	-3.72	-4.28	-4.74	-5.09	-5.29	-5.32	-5.18	-4.87	-4.38	-3.73	-2.95	-2.05	-1.06	0.00
	Deck Concrete Load	0.00	-0.85	-1.80	-2.93	-4.19	-5.53	-6.87	-8.13	-9.24	-10.15	-10.81	-11.18	-11.21	-10.89	-10.21	-9.18	-7.82	-6.19	-4.30	-2.22	0.00
	Superimposed Dead Load	0.00	-0.03	-0.15	-0.30	-0.48	-0.68	-0.88	-1.08	-1.26	-1.41	-1.52	-1.58	-1.59	-1.55	-1.45	-1.30	-1.11	-0.88	-0.61	-0.32	0.00
G2	Steel Dead Load	0.00	-0.36	-0.77	-1.27	-1.86	-2.50	-3.15	-3.76	-4.29	-4.72	-5.00	-5.13	-5.11	-4.92	-4.58	-4.08	-3.44	-2.70	-1.86	-0.96	0.00
	Deck Concrete Load	0.00	-0.86	-1.85	-3.04	-4.41	-5.84	-7.24	-8.53	-9.63	-10.50	-11.07	-11.33	-11.25	-10.84	-10.09	-9.01	-7.64	-6.00	-4.15	-2.15	0.00
	Superimposed Dead Load	0.00	-0.11	-0.26	-0.44	-0.66	-0.91	-1.16	-1.39	-1.60	-1.77	-1.89	-1.94	-1.94	-1.87	-1.74	-1.55	-1.31	-1.02	-0.71	-0.37	0.00
G3	Steel Dead Load	0.00	-0.34	-0.75	-1.27	-1.87	-2.53	-3.19	-3.81	-4.34	-4.76	-5.03	-5.15	-5.09	-4.85	-4.44	-3.88	-3.19	-2.42	-1.60	-0.80	0.00
	Deck Concrete Load	0.00	-0.87	-1.90	-3.16	-4.61	-6.12	-7.59	-8.93	-10.08	-10.97	-11.55	-11.78	-11.65	-11.13	-10.26	-9.03	-7.52	-5.78	-3.91	-1.98	0.00
	Superimposed Dead Load	0.00	-0.19	-0.37	-0.59	-0.87	-1.17	-1.47	-1.75	-1.99	-2.18	-2.31	-2.37	-2.34	-2.24	-2.05	-1.80	-1.48	-1.12	-0.73	-0.36	0.00
G4	Steel Dead Load	0.00	-0.33	-0.74	-1.26	-1.88	-2.56	-3.24	-3.87	-4.41	-4.83	-5.10	-5.20	-5.12	-4.85	-4.38	-3.73	-2.89	-1.90	-0.76	0.00	0.00
	Deck Concrete Load	0.00	-0.89	-1.95	-3.26	-4.78	-6.37	-7.92	-9.35	-10.55	-11.48	-12.07	-12.31	-12.15	-11.57	-10.58	-9.17	-7.35	-5.15	-2.60	-0.90	0.00
	Superimposed Dead Load	0.00	-0.28	-0.49	-0.77	-1.10	-1.46	-1.81	-2.15	-2.43	-2.64	-2.77	-2.82	-2.76	-2.61	-2.36	-2.01	-1.57	-1.05	-0.45	-0.02	0.00

Filename: 096_Table of Deflections 2.dgn Division: Username: Date:11/20/2020

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	C. Mancini	BY	DATE
CHECKED-REVIEWED	T. Poulin	C. Wong	11\20
DESIGN2-DETAILED2	-	J. Olund	11\20
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TABLE OF DEFLECTIONS II

SHEET NUMBER

96

OF 160

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 1																				
	℄ Brg., Abut. 1	10′	20′	30′	40′	50′	60′	70′	80′	90′	100′	110′	120′	130′	140′	150′	160′	170′	180′	190′	200′	210′
G1	537.55	537.90	538.18	538.36	538.45	538.50	538.53	538.54	538.54	538.54	538.52	538.49	538.45	538.40	538.34	538.26	538.18	538.09	537.98	537.87	537.75	537.63
G2	538.06	538.21	538.33	538.42	538.48	538.54	538.58	538.60	538.61	538.61	538.60	538.57	538.53	538.47	538.41	538.33	538.24	538.14	538.03	537.92	537.79	537.66
G3	537.98	538.01	538.06	538.13	538.20	538.26	538.30	538.33	538.35	538.35	538.34	538.32	538.28	538.23	538.17	538.09	538.01	537.91	537.80	537.68	537.56	537.43
G4	537.60	537.62	537.65	537.72	537.80	537.85	537.89	537.92	537.94	537.95	537.95	537.93	537.90	537.85	537.79	537.71	537.63	537.53	537.42	537.31	537.18	537.06

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 1 (CONT'D)										
	220′	230′	240′	250′	260′	270′	280′	290′	300′	310′	℄ Brg., Pier 1
G1	537.50	537.37	537.23	537.10	536.97	536.84	536.72	536.61	536.50	536.39	536.29
G2	537.53	537.40	537.26	537.13	537.01	536.89	536.78	536.67	536.56	-	536.54
G3	537.30	537.17	537.04	536.92	536.80	536.69	536.58	536.47	-	-	536.42
G4	536.93	536.80	536.68	536.56	536.45	536.35	536.24	-	-	-	536.18

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 2																				
	℄ Brg., Pier 1	10′	20′	30′	40′	50′	60′	70′	80′	90′	100′	110′	120′	130′	140′	150′	160′	170′	180′	190′	200′	210′
G1	536.29	536.18	536.08	535.98	535.88	535.79	535.70	535.61	535.51	535.42	535.32	535.21	535.10	534.99	534.86	534.72	534.57	534.42	534.25	534.07	533.89	533.70
G2	536.54	536.44	536.34	536.24	536.15	536.06	535.97	535.88	535.79	535.70	535.60	535.49	535.38	535.27	535.14	535.00	534.85	534.70	534.53	534.35	534.17	533.97
G3	536.42	536.33	536.23	536.14	536.05	535.96	535.88	535.79	535.70	535.61	535.51	535.41	535.30	535.18	535.05	534.92	534.77	534.61	534.44	534.26	534.08	533.88
G4	536.18	536.09	535.99	535.90	535.82	535.73	535.65	535.56	535.47	535.38	535.29	535.19	535.08	534.96	534.84	534.70	534.55	534.39	534.22	534.04	533.85	533.66

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 2 (CONT'D)										
	220′	230′	240′	250′	260′	270′	280′	290′	300′	310′	℄ Brg., Pier 2
G1	533.50	533.30	533.10	532.91	532.71	532.53	532.35	532.18	532.02	531.88	531.81
G2	533.78	533.58	533.38	533.18	532.98	532.79	532.61	532.44	532.28	532.13	532.06
G3	533.68	533.48	533.28	533.07	532.88	532.69	532.50	532.33	532.17	532.02	531.94
G4	533.46	533.25	533.05	532.84	532.64	532.45	532.27	532.09	531.93	531.78	531.71

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 3																				
	℄ Brg., Pier 2	10′	20′	30′	40′	50′	60′	70′	80′	90′	100′	110′	120′	130′	140′	150′	160′	170′	180′	190′	200′	210′
G1	531.81	531.67	531.55	531.44	531.33	531.24	531.15	531.07	530.98	530.89	530.80	530.69	530.58	530.46	530.33	530.18	530.03	529.86	529.68	529.50	529.30	529.10
G2	532.06	531.93	531.81	531.69	531.59	531.50	531.41	531.33	531.25	531.16	531.06	530.96	530.85	530.73	530.60	530.45	530.30	530.13	529.95	529.77	529.57	529.37
G3	531.94	531.81	531.69	531.58	531.48	531.39	531.30	531.22	531.14	531.05	530.96	530.86	530.75	530.63	530.50	530.36	530.20	530.04	529.86	529.67	529.47	529.27
G4	531.71	531.57	531.45	531.34	531.24	531.15	531.06	530.98	530.90	530.82	530.73	530.63	530.52	530.40	530.27	530.13	529.97	529.81	529.63	529.44	529.24	529.03

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 3 (CONT'D)										
	220′	230′	240′	250′	260′	270′	280′	290′	300′	310′	℄ Brg., Pier 3
G1	528.89	528.68	528.46	528.25	528.05	527.85	527.66	527.48	527.31	527.16	527.08
G2	529.16	528.94	528.73	528.52	528.31	528.11	527.92	527.74	527.57	527.41	527.34
G3	529.05	528.84	528.62	528.41	528.20	528.00	527.81	527.62	527.45	527.30	527.21
G4	528.82	528.60	528.39	528.17	527.96	527.76	527.56	527.38	527.21	527.05	526.98

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 4																				
	℄ Brg., Pier 3	10′	20′	30′	40′	50′	60′	70′	80′	90′	100′	110′	120′	130′	140′	150′	160′	170′	180′	190′	200′	210′
G1	527.08	526.94	526.82	526.70	526.59	526.50	526.41	526.33	526.24	526.16	526.07	525.97	525.86	525.75	525.62	525.48	525.33	525.17	525.00	524.82	524.62	524.42
G2	527.34	527.20	527.07	526.96	526.85	526.75	526.67	526.59	526.51	526.42	526.33	526.23	526.13	526.01	525.89	525.75	525.60	525.44	525.26	525.08	524.89	524.69
G3	527.21	527.08	526.96	526.84	526.74	526.64	526.56	526.48	526.40	526.32	526.23	526.13	526.03	525.91	525.80	525.65	525.49	525.32	525.13	524.94	524.74	524.53
G4	526.98	526.84	526.71	526.60	526.49	526.40	526.32	526.24	526.16	526.08	525.99	525.90	525.79	525.68	525.55	525.41	525.26	525.10	524.93	524.74	524.55	524.34

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 4 (CONT'D)										
	220′	230′	240′	250′	260′	270′	280′	290′	300′	310′	℄ Brg., Pier 4
G1	524.22	524.01	523.79	523.58	523.37	523.17	522.97	522.78	522.61	522.44	522.36
G2	524.48	524.27	524.05	523.84	523.63	523.42	523.23	523.04	522.86	522.69	522.61
G3	524.31	524.09	523.88	523.66	523.45	523.25	523.07	522.89	522.70	522.57	522.46
G4	524.13	523.92	523.70	523.48	523.27	523.06	522.87	522.68	522.50	522.33	522.25

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 5																				
	℄ Brg., Pier 4	10′	20′	30′	40′	50′	60′	70′	80′	90′	100′	110′	120′	130′	140′	150′	160′	170′	180′	190′	200′	210′
G1	522.36	522.21	522.06	521.93	521.81	521.69	521.58	521.48	521.37	521.26	521.15	521.03	520.90	520.77	520.62	520.47	520.30	520.13	519.95	519.76	519.57	519.37
G2	522.61	522.46	522.32	522.19	522.07	521.95	521.85	521.75	521.64	521.54	521.43	521.31	521.18	521.05	520.90	520.75	520.58	520.41	520.23	520.04	519.85	519.65
G3	522.46	522.36	522.23	522.11	522.00	521.89	521.80	521.70	521.59	521.48	521.37	521.25	521.11	520.97	520.82	520.65	520.48	520.30	520.11	519.91	519.71	519.51
G4	522.25	522.10	521.97	521.84	521.72	521.61	521.51	521.41	521.32	521.21	521.11	520.99	520.87	520.74	520.60	520.44	520.28	520.11	519.93	519.74	519.54	519.34

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 5 (CONT'D)										
	220′	230′	240′	250′	260′	270′	280′	290′	300′	310′	℄ Brg., Pier 5
G1	519.17	518.97	518.77	518.58	518.40	518.23	518.08	517.93	517.80	517.69	517.63
G2	519.45	519.25	519.05	518.86	518.67	518.50	518.34	518.20	518.06	517.94	517.88
G3	519.30	519.10	518.90	518.71	518.54	518.37	518.23	518.09	517.98	517.84	517.77
G4	519.13	518.93	518.72	518.53	518.34	518.16	518.00	517.85	517.71	517.59	517.53

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. GLUND — No. 12130 — REGISTERED PROFESSIONAL ENGINEER

SIGNATURE 12130 P.E. NUMBER 11/19/2020 DATE

PROJ. MANAGER	A. LATHE	DATE
DESIGN-DETAILED	C. Wong	11\20
CHECKED-REVIEWED	C. Mancini	11\20
DESIGN2-DETAILED2	T. Poulin	-
DESIGN3-DETAILED3	J. Glund	-
REVISIONS 1		-
REVISIONS 2		-
REVISIONS 3		-
REVISIONS 4		-
FIELD CHANGES		-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BOTTOM OF SLAB ELEVATIONS - 1

SHEET NUMBER
97
OF 160

Filename: 097_Bottom of Slab Elevations 1.dgn Division: Username: Date:11/20/2020

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 6																				
	℄ Brg., Pier 5	10′	20′	30′	40′	50′	60′	70′	80′	90′	100′	110′	120′	130′	140′	150′	160′	170′	180′	190′	200′	210′
G1	517.63	517.52	517.43	517.33	517.24	517.15	517.06	516.96	516.85	516.72	516.57	516.39	516.19	515.96	515.68	515.41	515.12	514.83	514.54	514.24	513.93	513.64
G2	517.88	517.77	517.67	517.57	517.48	517.38	517.29	517.18	517.07	516.94	516.80	516.63	516.44	516.22	515.98	515.73	515.47	515.22	514.87	514.49	514.09	513.66
G3	517.77	517.71	517.61	517.52	517.43	517.34	517.25	517.14	517.03	516.90	516.75	516.58	516.39	516.17	515.94	515.67	515.38	515.07	514.73	514.36	513.96	513.55
G4	517.53	517.41	517.30	517.19	517.08	516.98	516.87	516.76	516.65	516.52	516.39	516.24	516.07	515.88	515.68	515.45	515.20	514.92	514.63	514.30	513.96	513.58

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPAN 6 (CONT'D)								
	220′	230′	240′	250′	260′	270′	280′	290′	℄ Abut. 2
G1	513.20	512.76	512.27	511.77	-	-	-	-	511.71
G2	513.21	512.75	512.26	511.76	511.24	-	-	-	511.00
G3	513.11	512.62	512.12	511.61	511.10	510.61	-	-	510.32
G4	513.18	512.76	512.33	511.81	511.25	510.66	510.15	509.72	509.68

GIRDER	BOTTOM OF SLAB ELEVATIONS - SPLAYED GIRDERS *										
	℄ Splayed Girder Connection	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	℄ Splayed Girder Connection
SG1	537.80	537.87	537.93	537.98	538.04	538.09	538.15	538.20	538.25	538.29	538.34
SG2	515.81	515.42	515.04	514.65	514.27	513.90	513.53	513.16	512.81	512.47	512.14
SG3	514.74	514.49	514.24	513.99	513.75	513.51	513.27	513.04	512.81	512.59	512.37
SG4	513.49	513.38	513.26	513.14	513.02	512.90	512.78	512.65	512.52	512.39	512.26

* *Controlling points of the Splayed Girders follow the stationing system in ascending order.*

Filename: 098_Bottom of Slab Elevations 2.dgn Division: Username: Date:11/20/2020

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	C. Mancini	BY
CHECKED-REVIEWED	T. Poulin	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

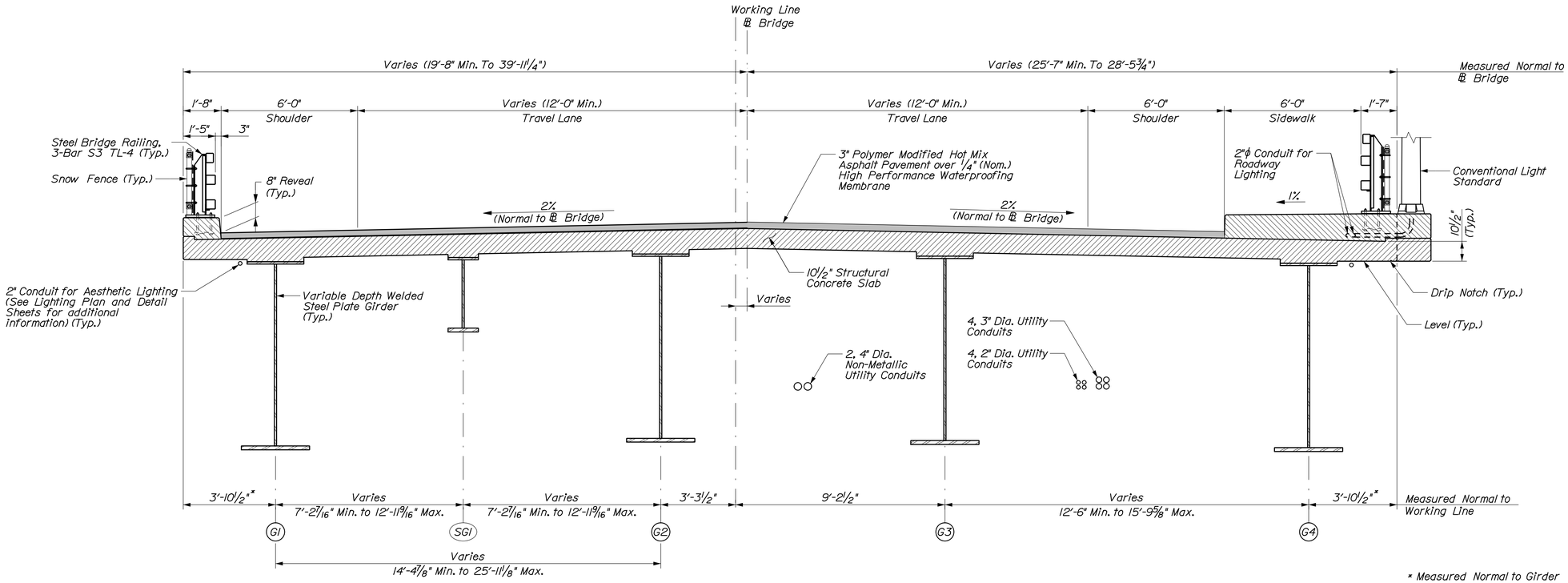
BOTTOM OF SLAB ELEVATIONS - 2

SHEET NUMBER

98

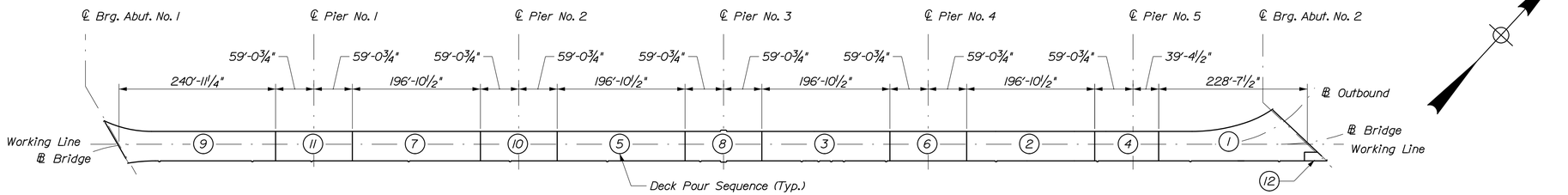
OF 160

HNTB



* Measured Normal to Girder

PROPOSED TRANSVERSE SECTION - SPAN 1 - FLARED END



DECK POUR SEQUENCE

SUPERSTRUCTURE NOTES:

1. The theoretical blocking used for design of the structure is 6 inches at the centerline of bearing of the abutments and piers. SG2, SG3 and SG4 have a tapered theoretical blocking of 10 inches at the intersection of G1 to 6 inches at Abutment No. 2. Refer to Standard Detail 502(03) for blocking details.

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

3. Adjust reinforcing steel to fit around the bridge drains in a manner approved by the Resident. Do not cut transverse reinforcing bars.

4. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.

5. Unless the superstructure slab concrete is placed in one continuous operation, the placement shall follow the Deck Pour Sequence identified herein. Successive partial placements shall proceed from the low end of the previous placement. Concrete in a partial placement shall be kept plastic until the entire section is placed. A minimum of 5 days shall elapse between successive partial placements. Alternate superstructure slab concrete placement sequences shall be approved by the Resident.

6. With the exception of localized concrete joint header blockouts, the superstructure slab and backwall concrete shall be in place before the Expansion Device is fixed in position.

7. The Contractor shall install Transition Barrier vertical closed stirrups, prior to the placement of the curb or sidewalk concrete.

8. The use of Precast Concrete Deck Panels will not be allowed on this project.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

		BY	DATE
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Olund	E. Tobias	11\20
CHECKED-REVIEWED	J. Olund	T. Poulin	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

TRANSVERSE SECTION - SPAN 1 - FLARED END

SHEET NUMBER

99

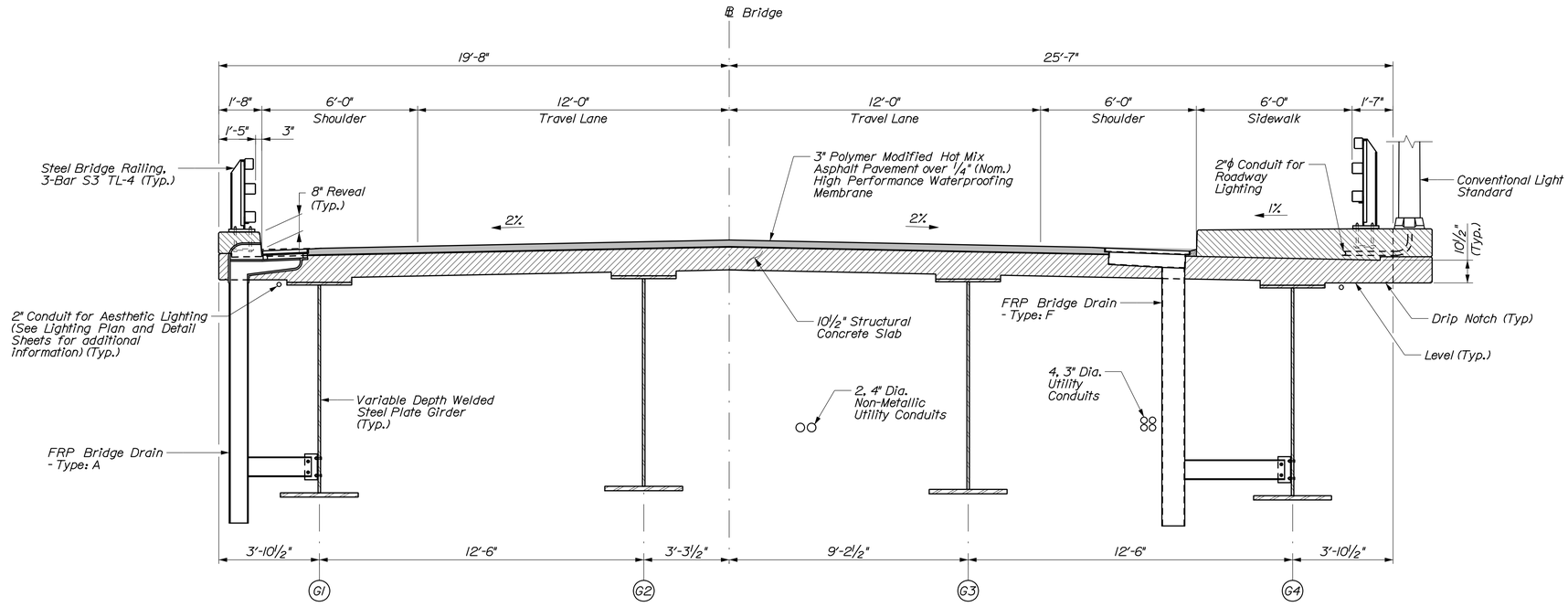
OF 160

Username:

Date:11/20/2020

Division:

Filename: 099_Transverse Section - Span 1.dgn



PROPOSED TRANSVERSE SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

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PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Olund	E. Tobias	11\20
CHECKED-REVIEWED	T. Poulin	K. Segal	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TRANSVERSE SECTION

SHEET NUMBER

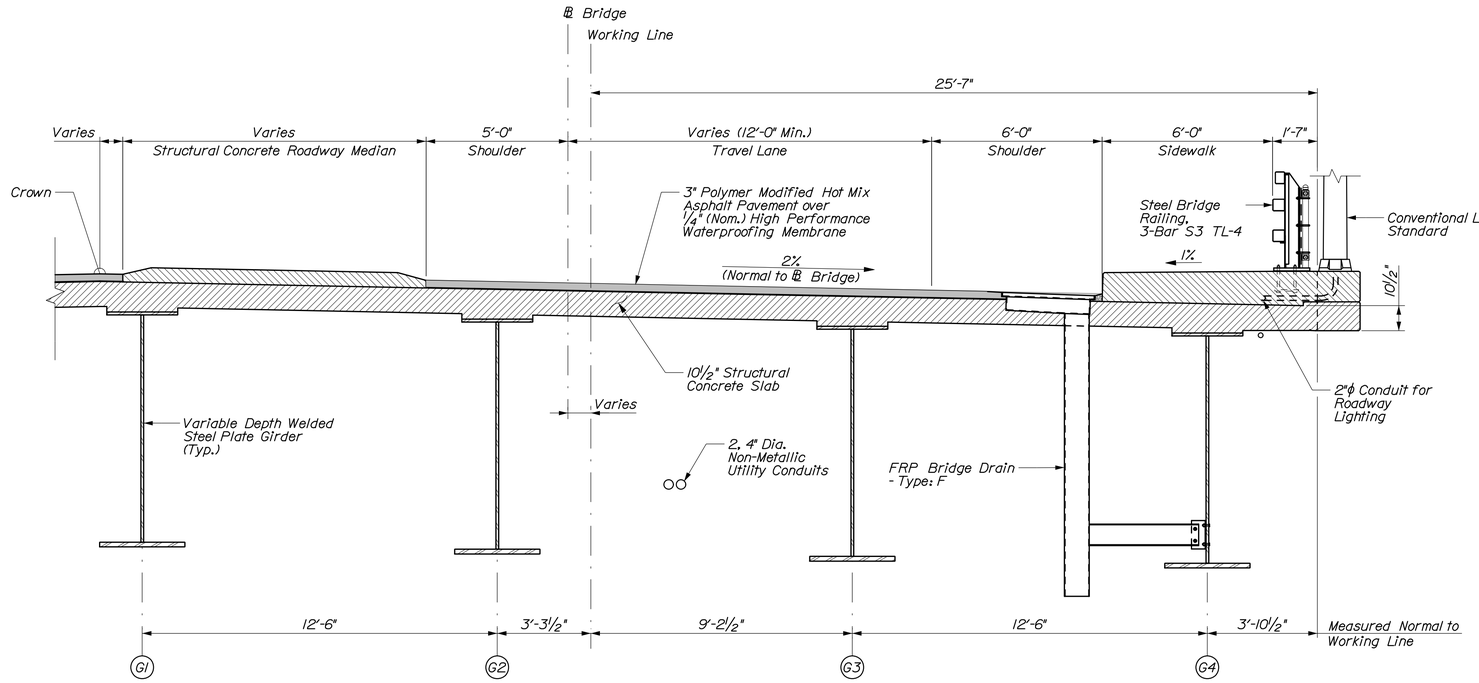
100

OF 160

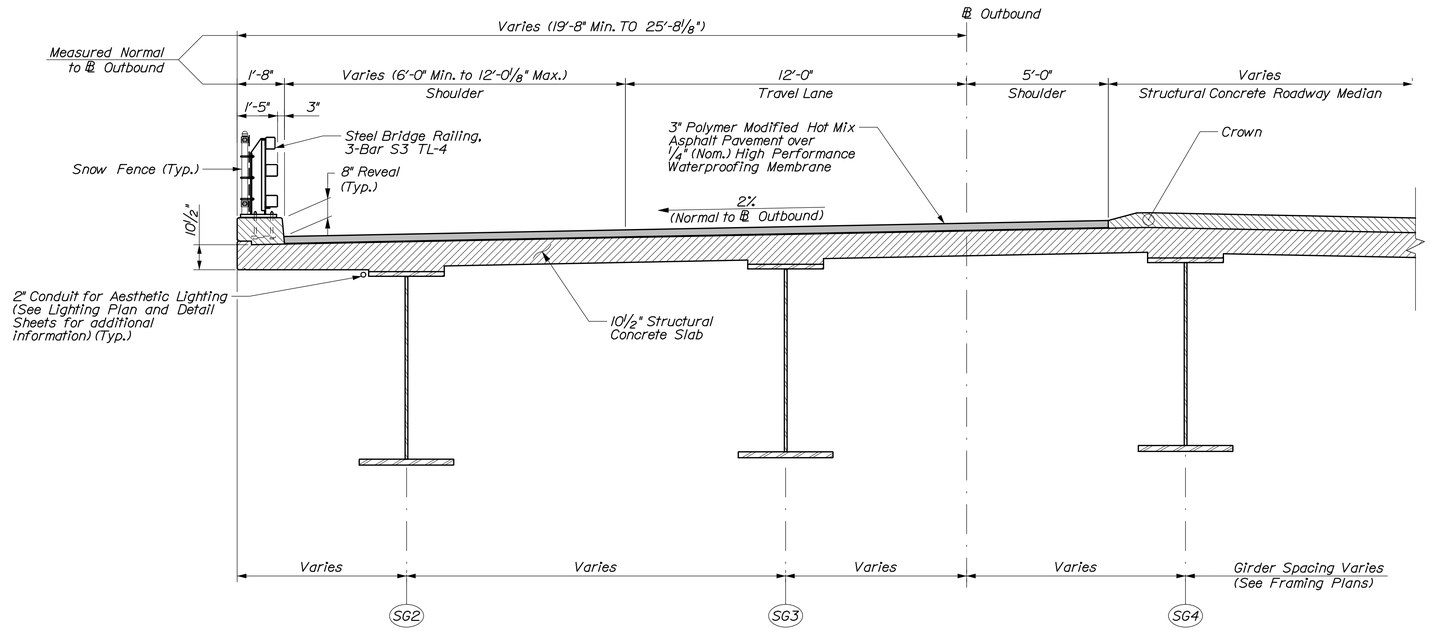
Date:11/20/2020

Username:

Filename: 100_Transverse Section - Spans 2-5.dgnDivision:



RIGHT SECTION
(Shown Normal to Working Line)



LEFT SECTION
(Shown Normal to ℄ Outbound)

PROPOSED TRANSVERSE SECTION - SPAN 6 - FLARED END

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	E. Tobias
CHECKED-REVIEWED	T. Poulin	K. Segal
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

DATE: 11/20
DATE: 11/20
DATE: - - - - - - - -

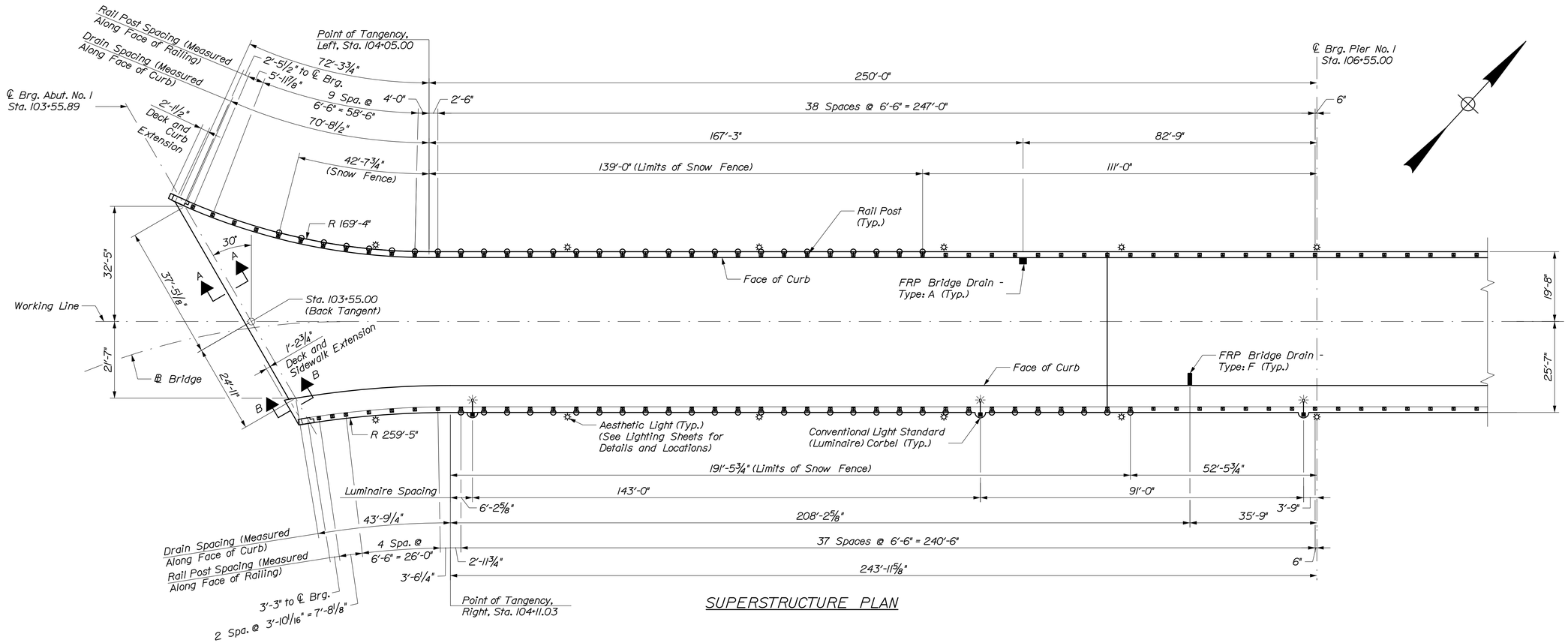
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TRANSVERSE SECTION - SPAN 6 - FLARED END

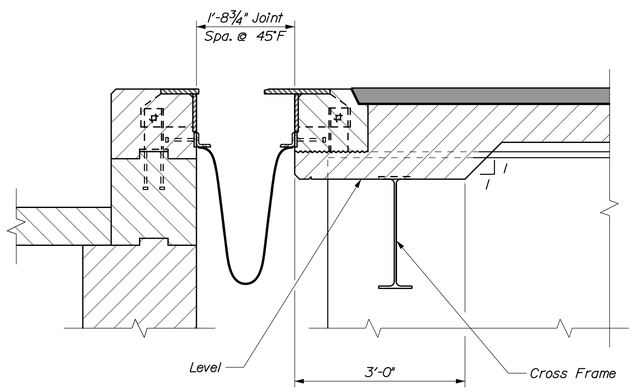
SHEET NUMBER
101
OF 160

HNTB

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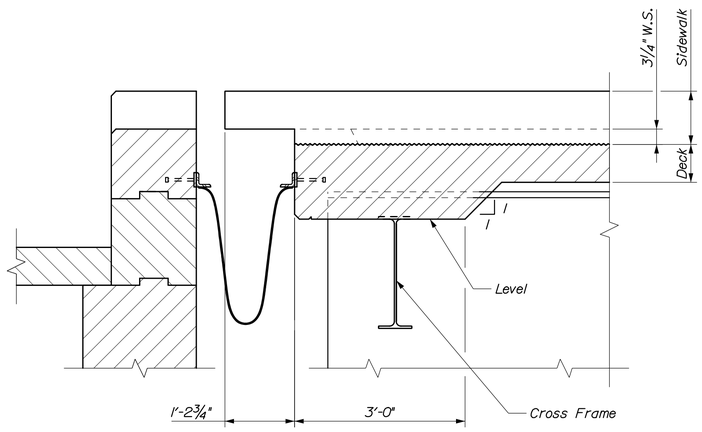


SUPERSTRUCTURE PLAN



SECTION A-A

(Section Taken Normal to Abutment)
(Profile Grade Not Shown)



SECTION B-B

(Section Taken Normal to Abutment)
(Profile Grade Not Shown)
(At Sidewalk; Section at Curb Similar)
(Expansion Dam Not Shown)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/20

	BY	DATE
PROJ. MANAGER	A. LATHE	-
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	E. Tobias	11\20
DESIGN2-DETAILED2	K. Segal	-
DESIGN3-DETAILED3	J. Olund	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCUTRE SLAB - SPAN 1 AND DETAILS

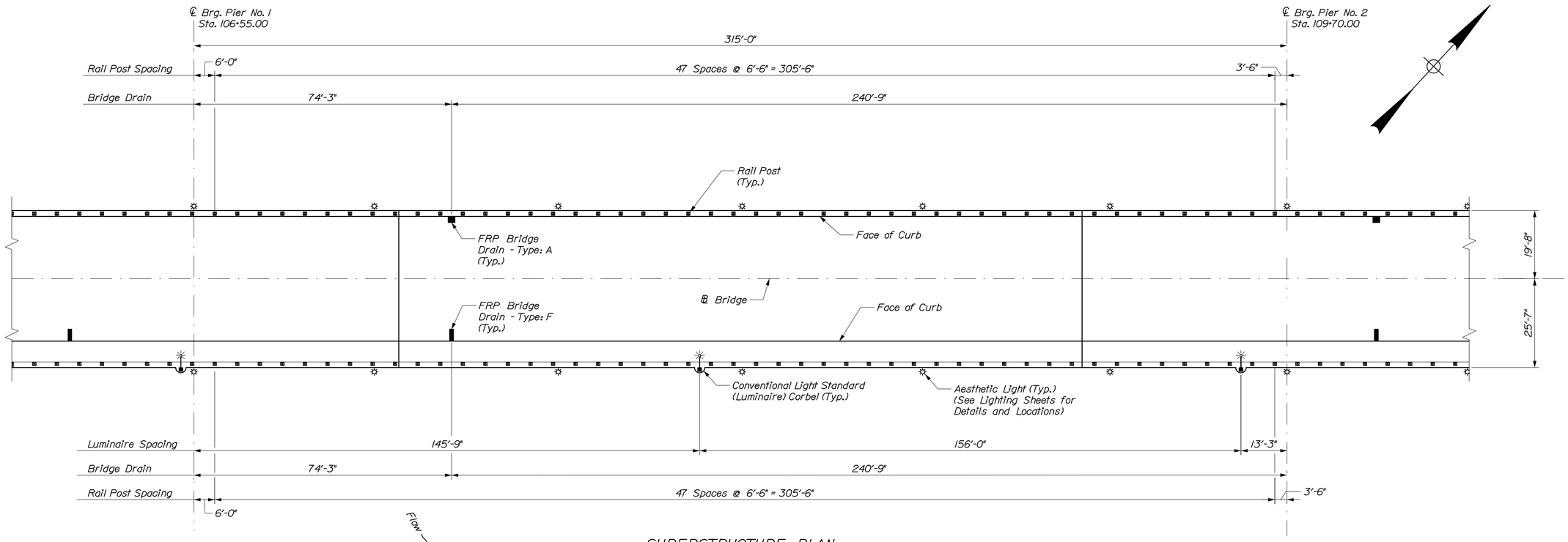
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102

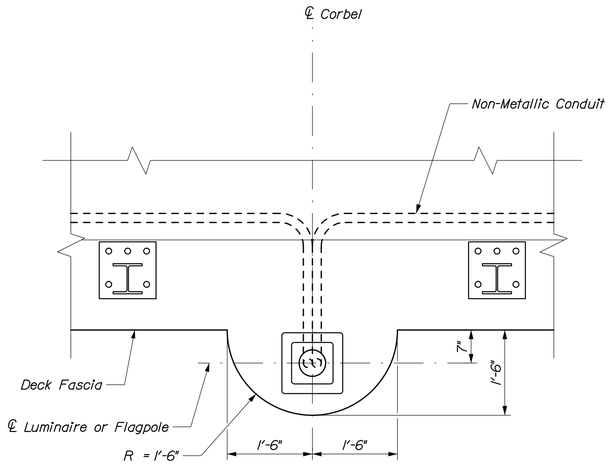
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HNTB

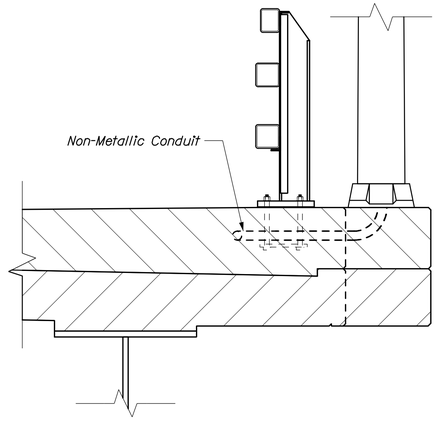
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Username:
Date:11/20/2020



SUPERSTRUCTURE PLAN



LUMINAIRE AND FLAGPOLE CORBEL - PLAN



LUMINAIRE AND FLAGPOLE CORBEL - SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/20
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DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

SUPERSTRUCTURE SLAB - SPAN 2 AND DETAILS

SHEET NUMBER

103

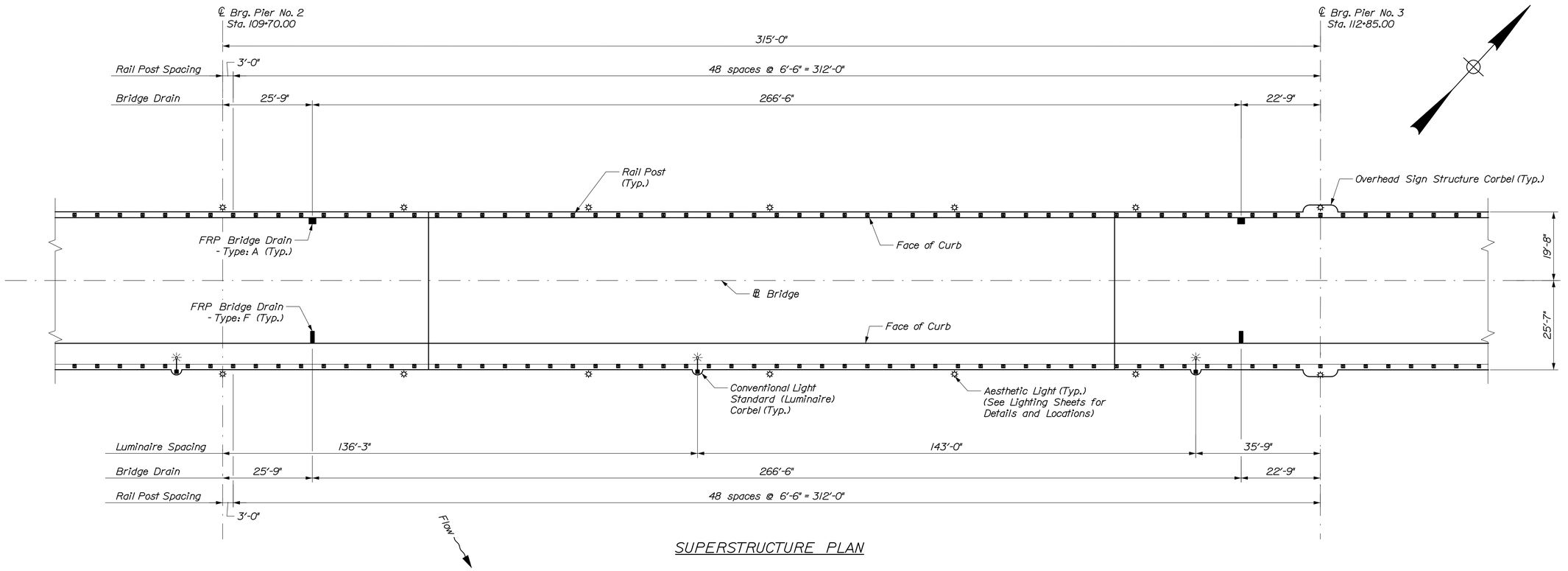
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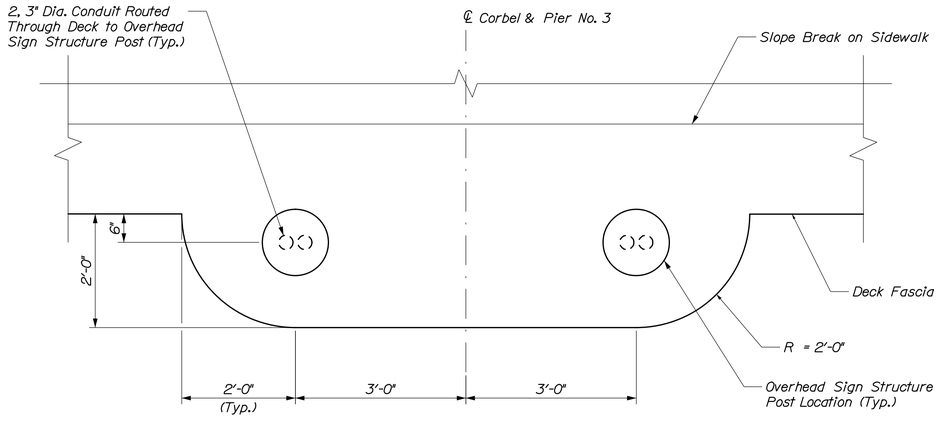
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Date:11/20/2020

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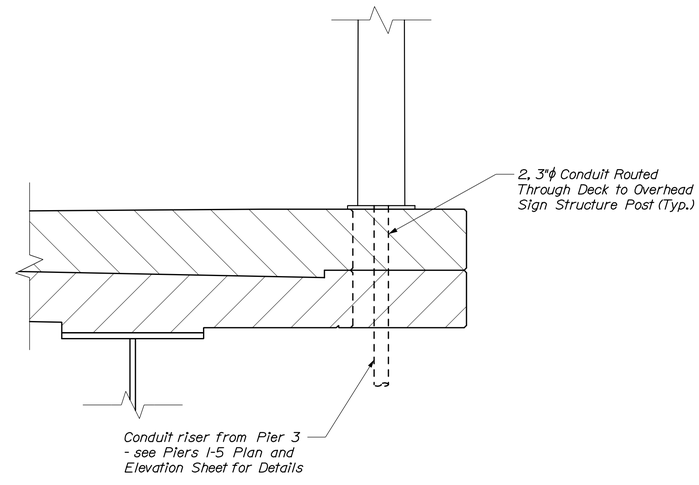


SUPERSTRUCTURE PLAN



OVERHEAD SIGN STRUCTURE CORBEL - PLAN

(Sidewalk Side Shown; Curb Side Similar)



OVERHEAD SIGN STRUCTURE CORBEL - SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130

P.E. NUMBER

11/19/20

DATE

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	K. Segal	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCTURE SLAB - SPAN 3 AND DETAILS

SHEET NUMBER

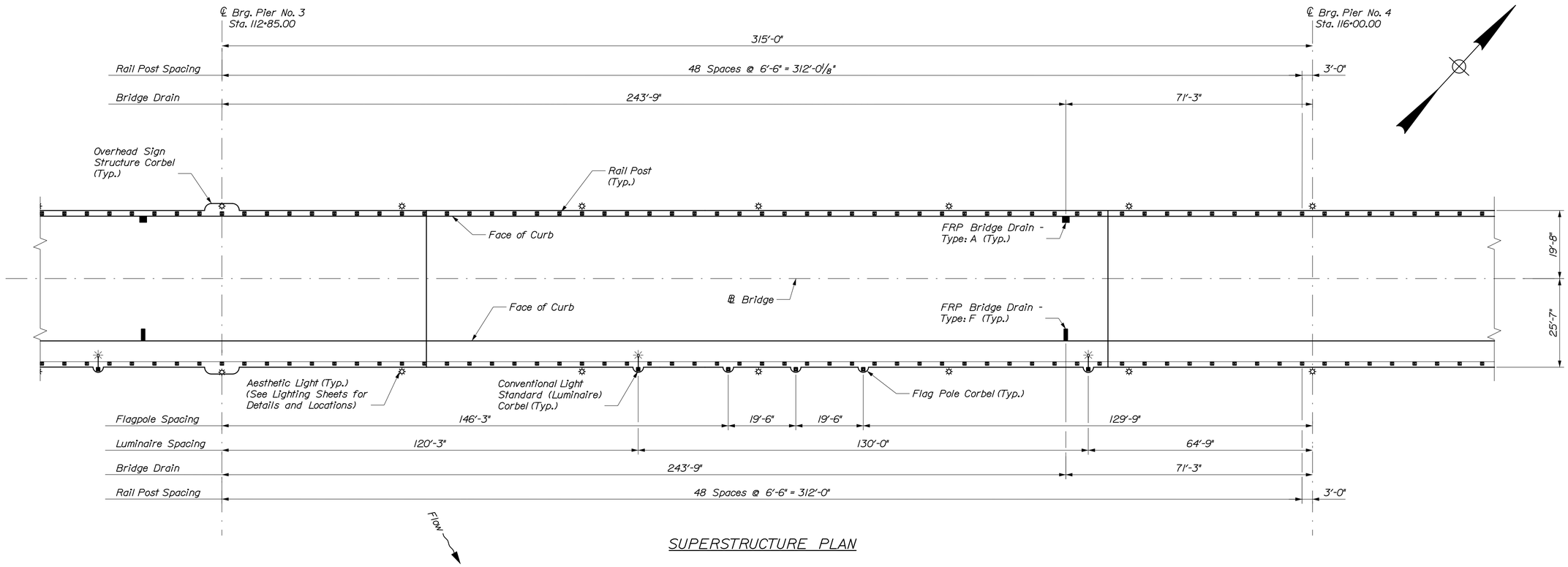
104

OF 160

Username:

Date:11/20/2020

Filename: 104_Superstructure Slab - Span 3 and Details.dgn



SUPERSTRUCTURE PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/20

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Olund	E. Tobias	11\20
CHECKED-REVIEWED	K. Segal	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCTURE SLAB - SPAN 4 AND DETAILS

SHEET NUMBER

105

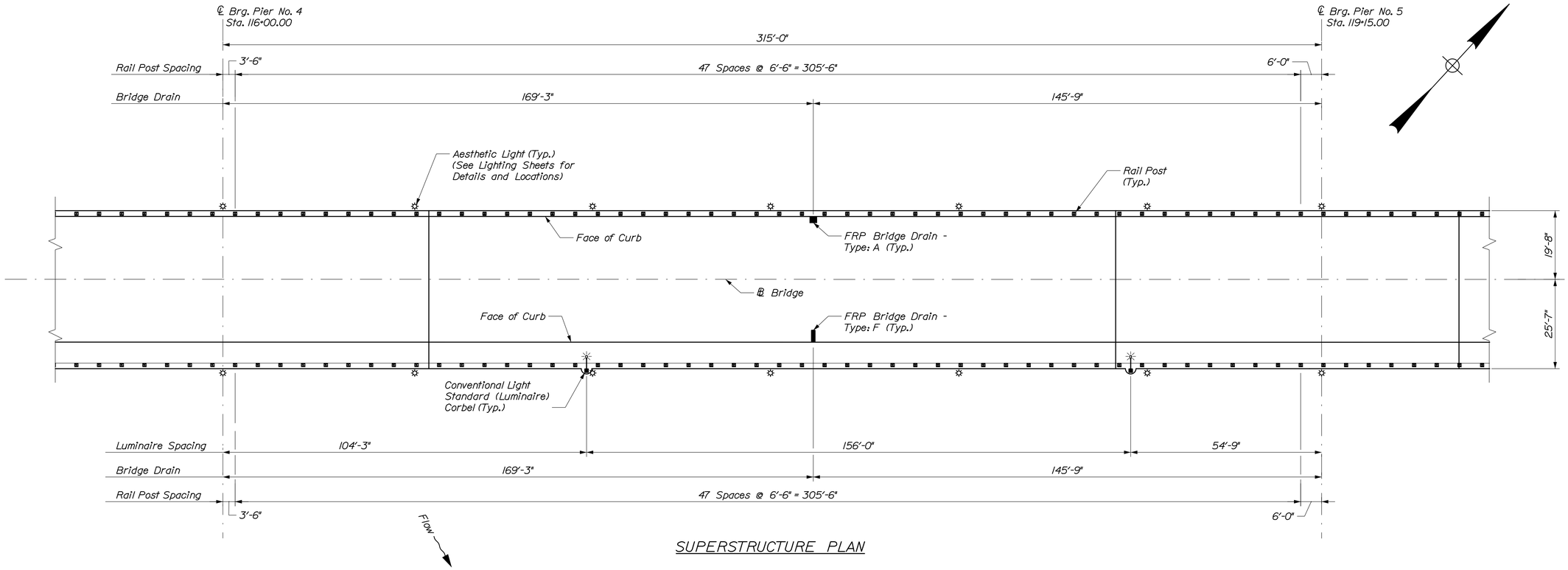
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HNTB

Username:

Date:11/20/2020

Filename: 105_Superstructure Slab - Span 4 and Details.dgn



SUPERSTRUCTURE PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/20
DATE

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Olund	E. Tobias	11\20
CHECKED-REVIEWED	J. Olund	K. Segal	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCTURE SLAB - SPAN 5 AND DETAILS

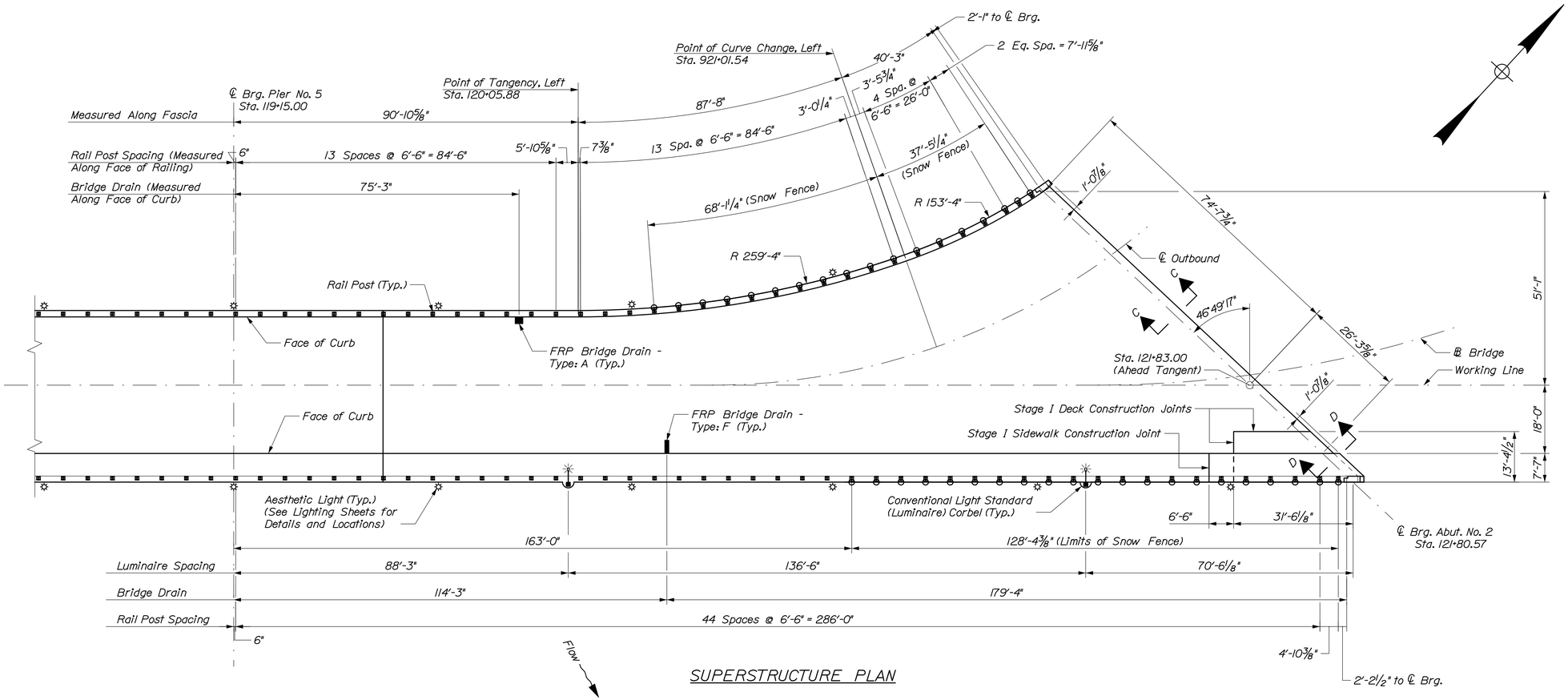
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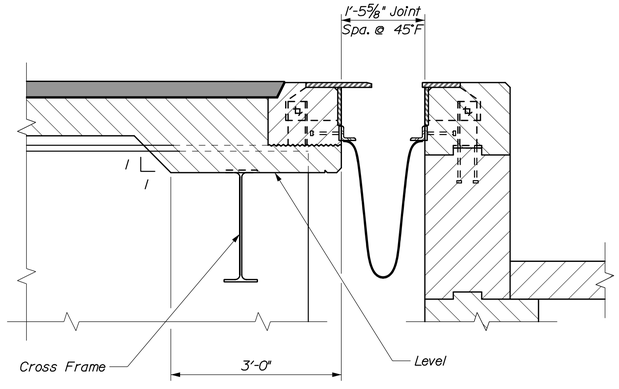
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HNTB

Username:
Date:11/20/2020
Filename: 106_Superstructure Slab - Span 5 and Details.dgn
Division

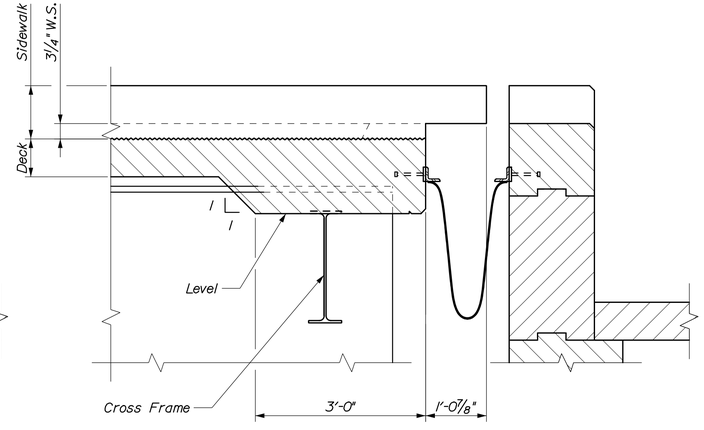


SUPERSTRUCTURE PLAN



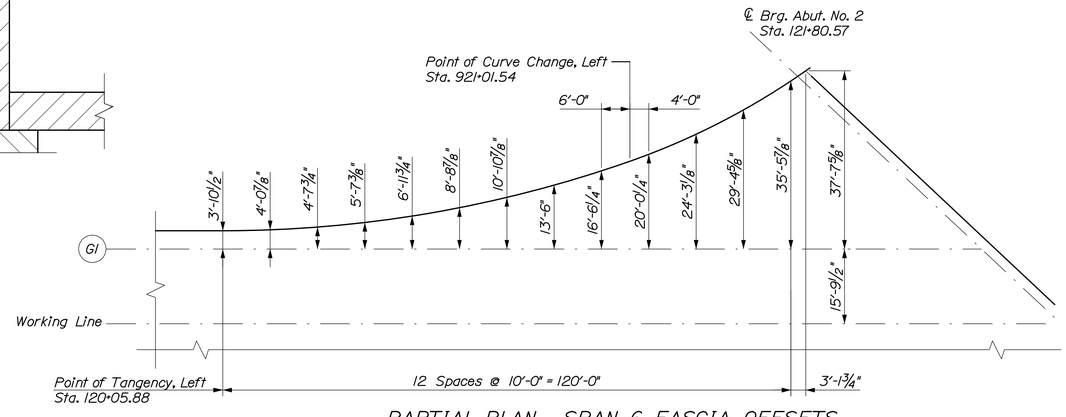
SECTION C-C

(Section Taken Normal to Abutment)
(Profile Grade Not Shown)



SECTION D-D

(Section Taken Normal to Abutment)
(Profile Grade Not Shown)
(At Sidewalk; Section at Curb Similar)
(Expansion Dam Not Shown)



PARTIAL PLAN - SPAN 6 FASCIA OFFSETS

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

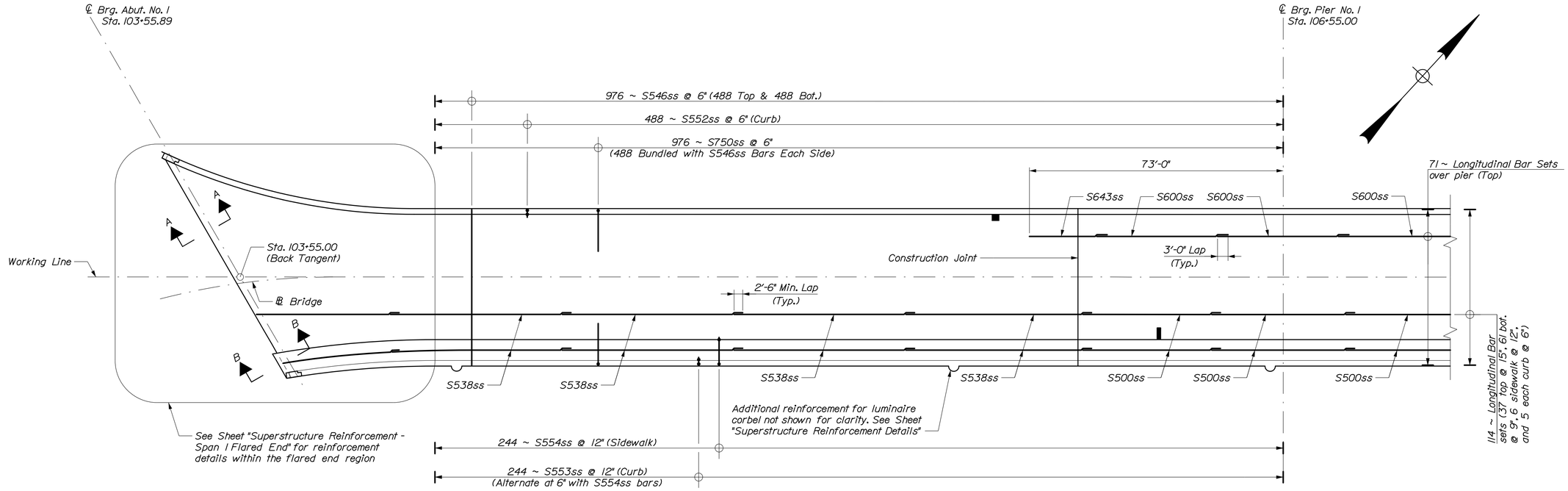
	BY	DATE
PROJ. MANAGER	A. LATHE	-
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	K. Segal	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

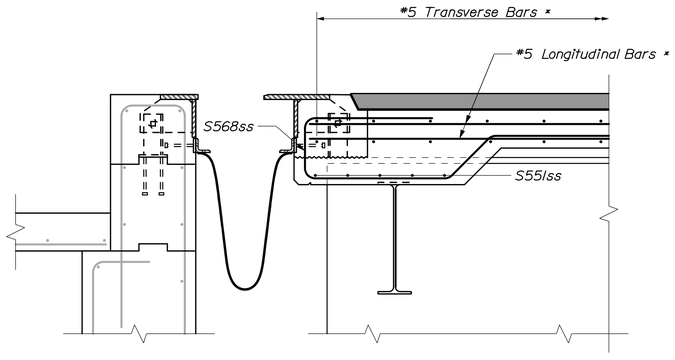
SUPERSTRUCTURE SLAB - SPAN 6 AND DETAILS

SHEET NUMBER
107
OF 160

Filename: 107_Superstructure Slab - Span 6 and Details.dgn
Username:
Date:11/20/2020

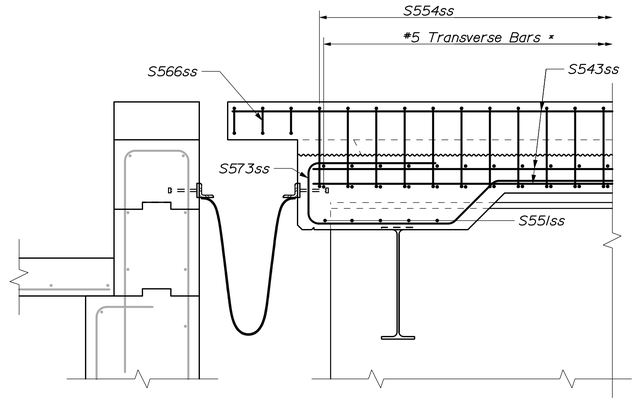


SUPERSTRUCTURE REINFORCING PLAN



SECTION A-A

(Section taken normal to abutment)
(Profile grade not shown)
(Overhang bars not shown for clarity)



SECTION B-B

(Section taken normal to abutment)
(Profile grade not shown)
(At sidewalk: section at curb similar)
(Expansion dam not shown)
(Overhang bars not shown for clarity)

* See Transverse and Longitudinal Bar Tables on Sheet 114 for Bar Marks

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE 12130

P.E. NUMBER 11/19/2020

DATE

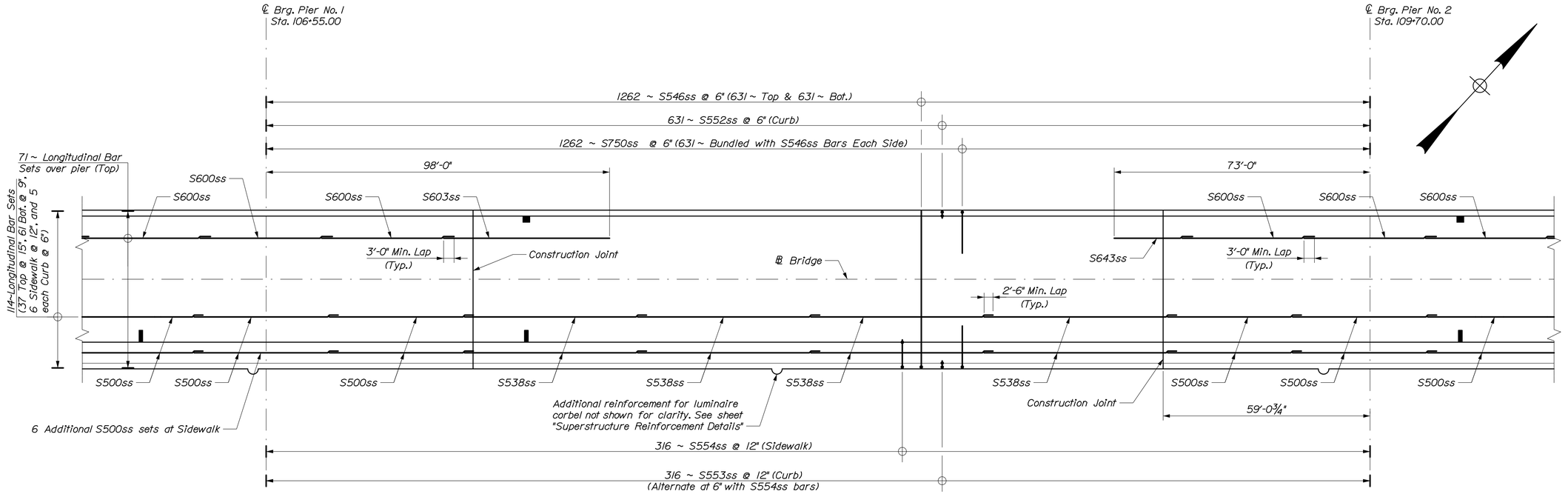
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Olund	E. Tobias	11\20
CHECKED-REVIEWED	K. Segal	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

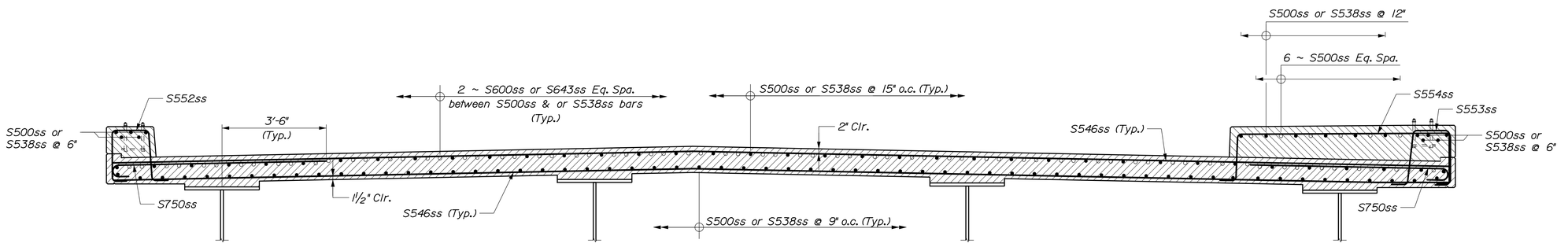
SUPERSTRUCTURE
REINFORCEMENT - SPAN 1

SHEET NUMBER
108
OF 160

Filename: 108_Superstructure Reinforcement - Span 1.dgn
Username:
Date:11/20/2020



SUPERSTRUCTURE REINFORCING PLAN



TRANSVERSE SECTION

(Span 2 shown, other spans similar)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE 12130

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PROJ. MANAGER	A. LATHE		
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DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

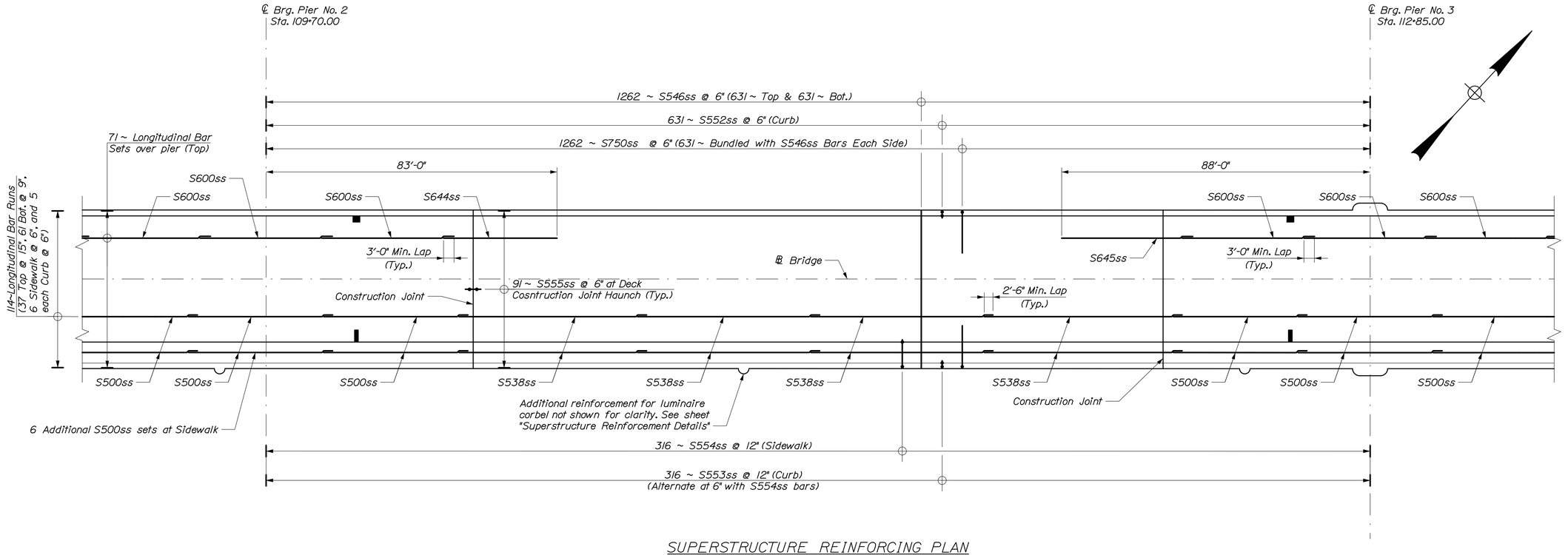
SUPERSTRUCTURE REINFORCEMENT - SPAN 2

SHEET NUMBER

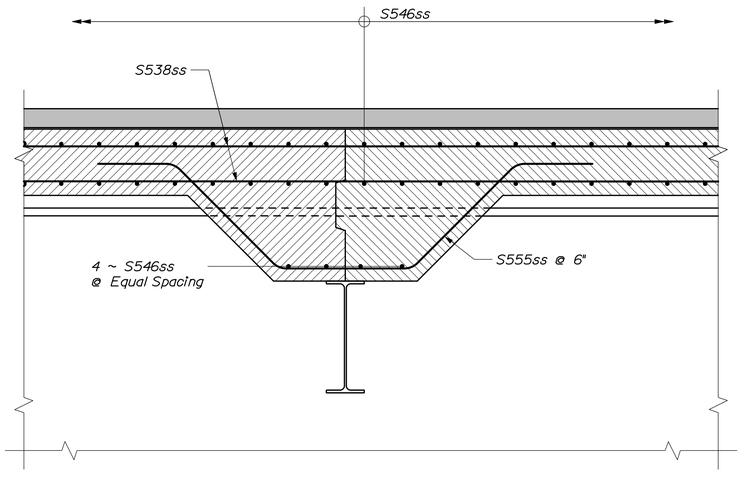
109

OF 160

Filename: 109_Superstructure Reinforcement - Span 2.dgn
Username:
Date:11/20/2020



SUPERSTRUCTURE REINFORCING PLAN



LONGITUDINAL SECTION AT TRANSVERSE SLAB CONSTRUCTION JOINT

(Span 3 shown, other spans similar)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

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PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Olund	E. Tobias	11\20
CHECKED-REVIEWED	K. Segal	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

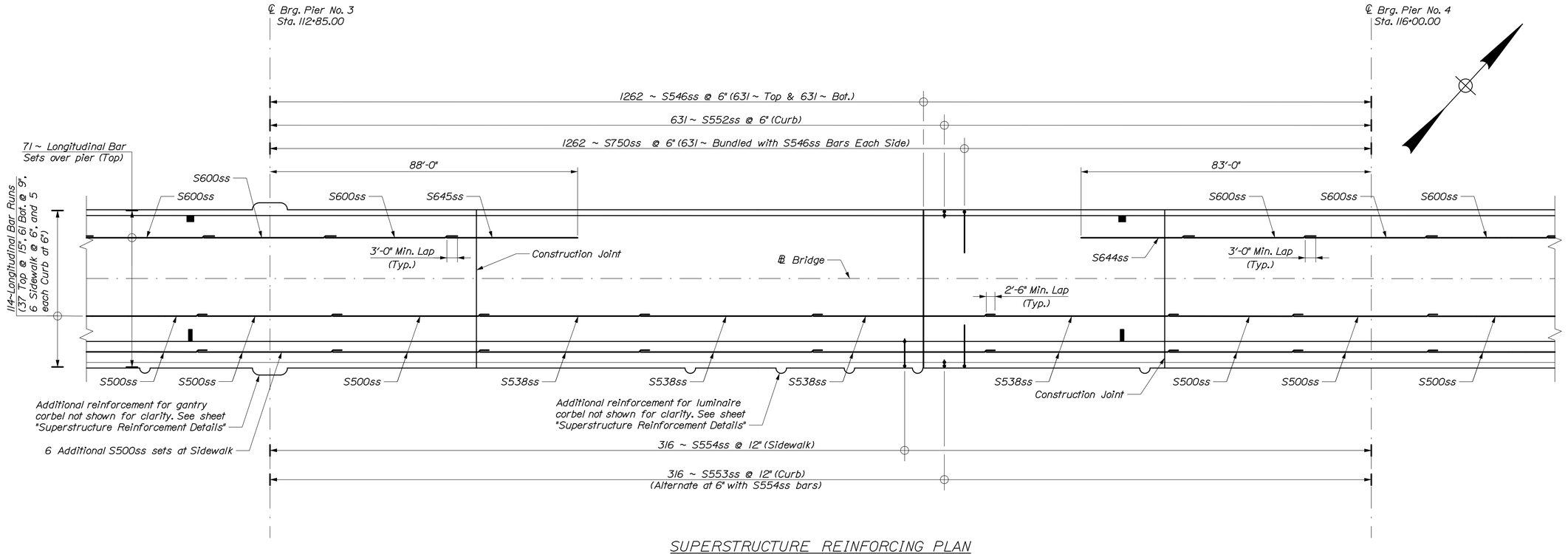
SUPERSTRUCTURE REINFORCEMENT - SPAN 3

SHEET NUMBER

110

OF 160

Filename: 110_Superstructure Reinforcement - Span 3.dgn Design: Username: Date:11/20/2020



SUPERSTRUCTURE REINFORCING PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

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PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	K. Segal	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCTURE
REINFORCEMENT - SPAN 4

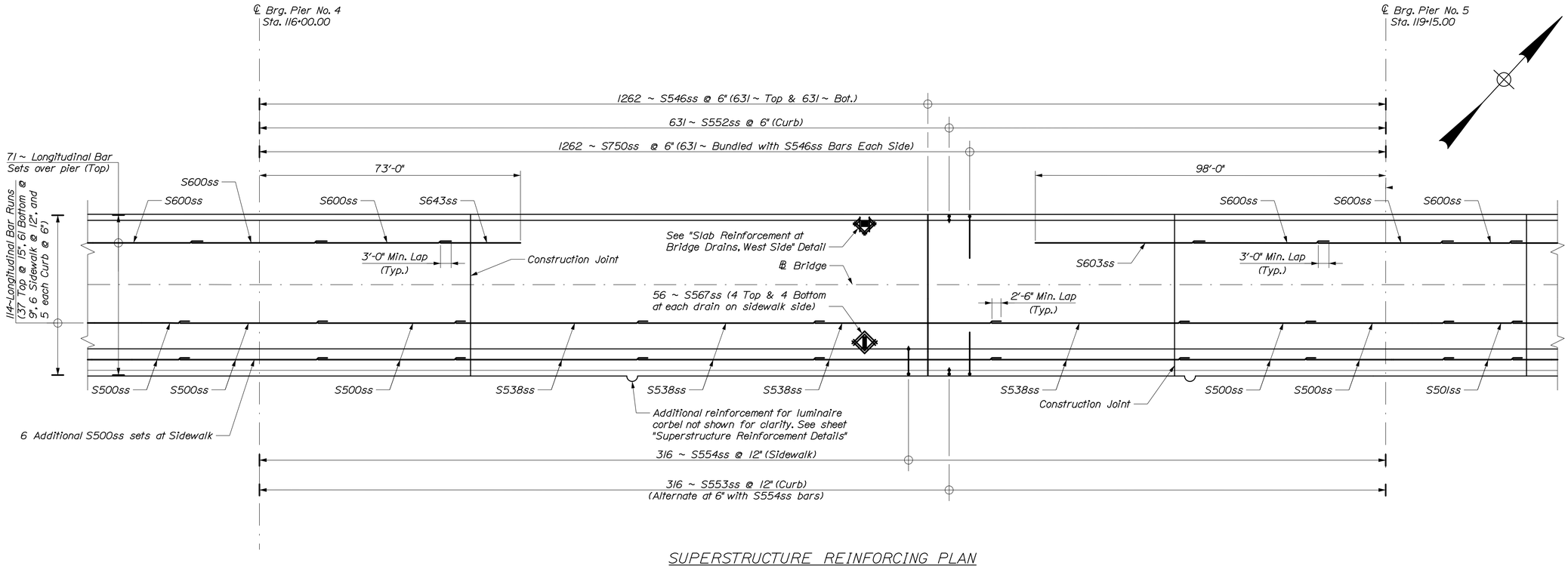
SHEET NUMBER

111

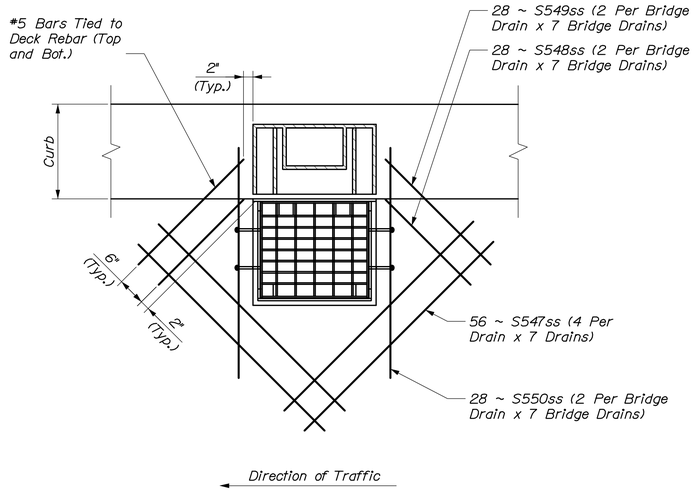
OF 160

HNTB

Filename: 111_Superstructure Reinforcement - Span 4.dgn Design: Date:11/20/2020 Username:



SUPERSTRUCTURE REINFORCING PLAN



SLAB REINFORCEMENT AT BRIDGE DRAINS, WEST SIDE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	BY
CHECKED-REVIEWED	K. Segal	E. Tobias
DESIGN2-DETAILED2	–	J. Olund
DESIGN3-DETAILED3	–	–
REVISIONS 1	–	–
REVISIONS 2	–	–
REVISIONS 3	–	–
REVISIONS 4	–	–
FIELD CHANGES	–	–

	DATE
	11\20
	11\20
	–
	–
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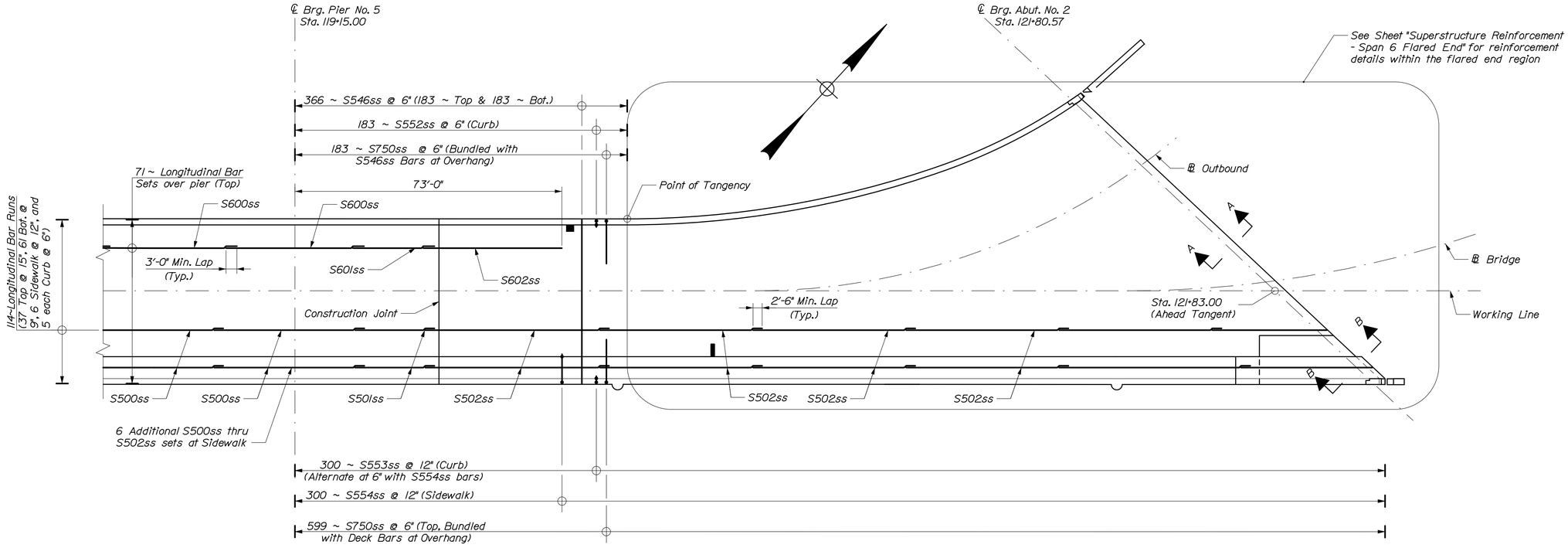
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCTURE
REINFORCEMENT - SPAN 5

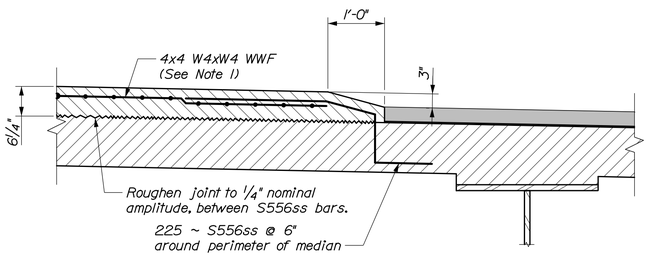
SHEET NUMBER
112
OF 160

HNTB

Filename: 112_Superstructure Reinforcement - Span 5.dgn Design: Username: Date:11/20/2020

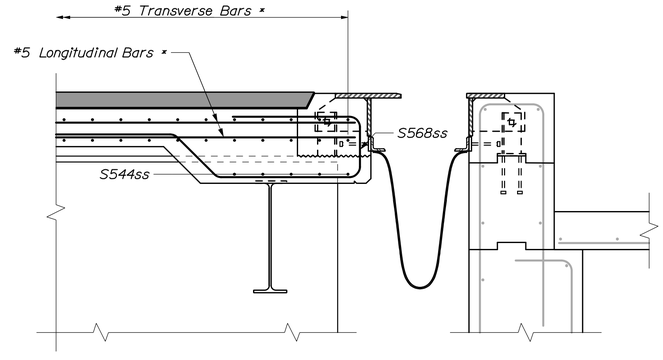


SUPERSTRUCTURE REINFORCING PLAN



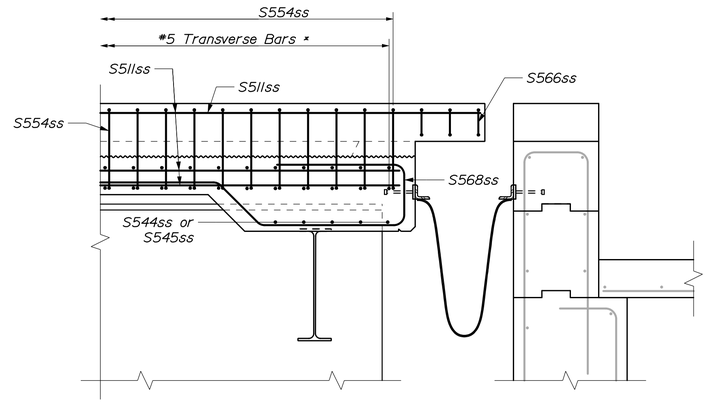
STRUCTURAL CONCRETE ROADWAY MEDIAN DETAIL

(Deck Reinforcement Not Shown for Clarity)



SECTION A-A

(Section taken normal to abutment)
(Profile grade not shown)
(Overhang bars not shown for clarity)



SECTION B-B

(Section taken normal to abutment)
(Profile grade not shown)
(At sidewalk: section at curb similar)
(Expansion dam not shown)
(Overhang bars not shown for clarity)

* See Transverse and Longitudinal Bar Tables on Sheet 115 for Bar Marks

NOTES:

1. Welded wire fabric shall conform to ASTM A1022 and be considered incidental to related stainless steel reinforcement Pay Items.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	E. Tobias	11\20
DESIGN2-DETAILED2	K. Segal	-
DESIGN3-DETAILED3	J. Olund	-
REVISIONS 1		-
REVISIONS 2		-
REVISIONS 3		-
REVISIONS 4		-
FIELD CHANGES		-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

SUPERSTRUCTURE REINFORCEMENT - SPAN 6

SHEET NUMBER

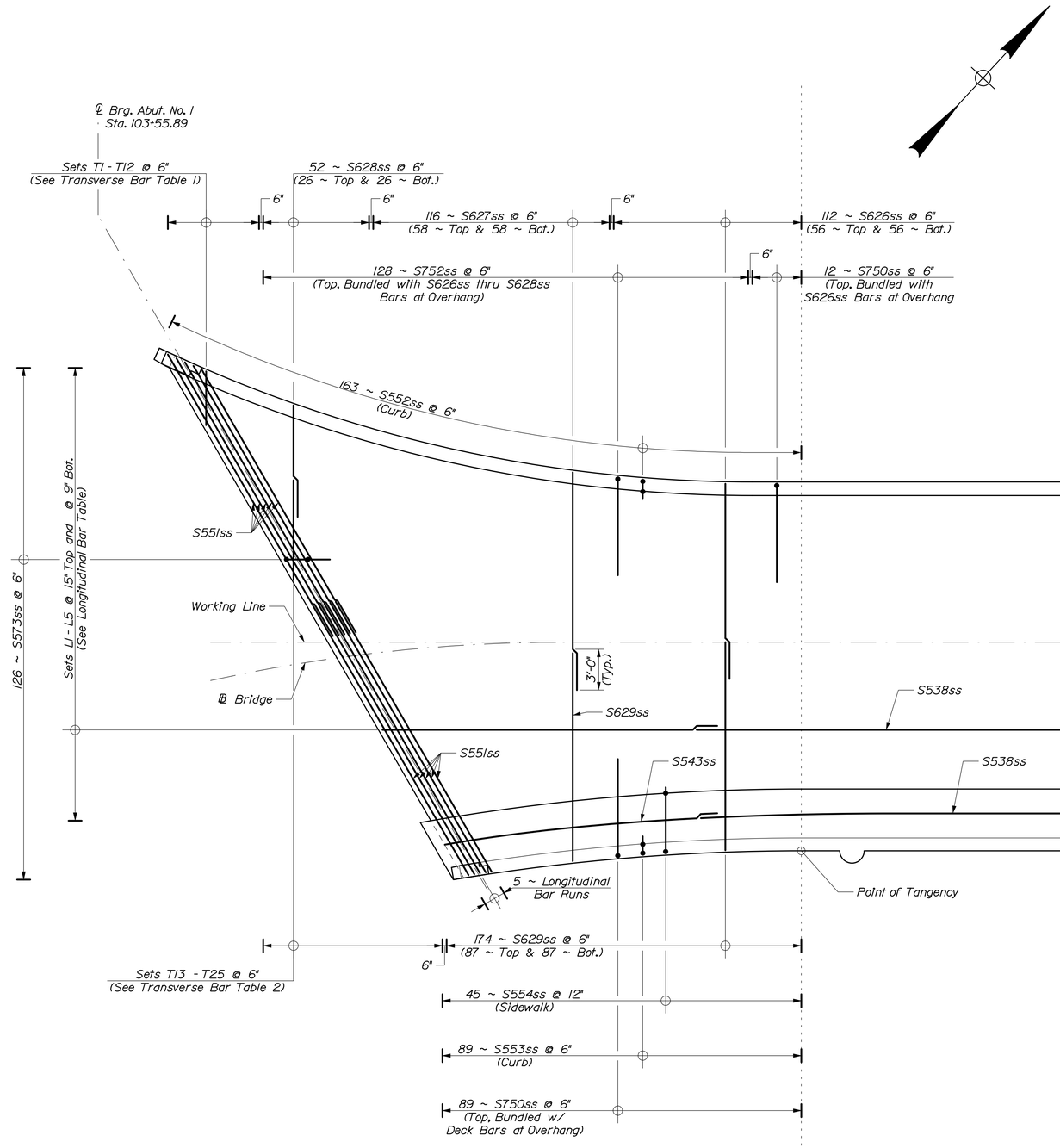
113

OF 160

Username:

Date:11/20/2020

Filename: 113_Superstructure Reinforcement - Span 6.dgn



SUPERSTRUCTURE REINFORCING PLAN - FLARED END REGION

TRANSVERSE BAR TABLE 1		
SET ID	QUANTITY	BAR MARK
Set T1 *	9	S677ss 3 ~ Top, 3 ~ Bot. & S764ss 3 ~ Top
Set T2	3	S676ss 1 ~ Top, 1 ~ Bot. & S763ss 1 ~ Top
Set T3	3	S675ss 1 ~ Top, 1 ~ Bot. & S762ss 1 ~ Top
Set T4	3	S674ss 1 ~ Top, 1 ~ Bot. & S761ss 1 ~ Top
Set T5	3	S673ss 1 ~ Top, 1 ~ Bot. & S760ss 1 ~ Top
Set T6	3	S672ss 1 ~ Top, 1 ~ Bot. & S759ss 1 ~ Top
Set T7	3	S671ss 1 ~ Top, 1 ~ Bot. & S758ss 1 ~ Top
Set T8	3	S670ss 1 ~ Top, 1 ~ Bot. & S757ss 1 ~ Top
Set T9	3	S669ss 1 ~ Top, 1 ~ Bot. & S756ss 1 ~ Top
Set T10	3	S668ss 1 ~ Top, 1 ~ Bot. & S755ss 1 ~ Top
Set T11	3	S667ss 1 ~ Top, 1 ~ Bot. & S754ss 1 ~ Top
Set T12	3	S666ss 1 ~ Top, 1 ~ Bot. & S753ss 1 ~ Top

* Splay bars as needed

Note: Transverse and Longitudinal bar set order corresponds with text orientation with lowest bar set starting on left side of text

LONGITUDINAL BAR TABLE		
SET ID	QUANTITY	BAR MARK
Set L1	37	S543ss (9 ~ Top, 13 ~ Bot.)
Set L2	19	S542ss (7 ~ Top, 12 ~ Bot.)
Set L3	19	S541ss (7 ~ Top, 12 ~ Bot.)
Set L4	19	S540ss (7 ~ Top, 12 ~ Bot.)
Set L5	19	S539ss (7 ~ Top, 12 ~ Bot.)

TRANSVERSE BAR TABLE 2		
SET ID	QUANTITY	BAR MARK
Set T13	8	S642ss (4 ~ Top & 4 ~ Bot.)
Set T14	8	S641ss (4 ~ Top & 4 ~ Bot.)
Set T15	10	S640ss (5 ~ Top & 5 ~ Bot.)
Set T16	8	S639ss (4 ~ Top & 4 ~ Bot.)
Set T17	8	S638ss (4 ~ Top & 4 ~ Bot.)
Set T18	10	S637ss (5 ~ Top & 5 ~ Bot.)
Set T19	6	S636ss (3 ~ Top & 3 ~ Bot.)
Set T20	8	S635ss (4 ~ Top & 4 ~ Bot.)
Set T21	8	S634ss (4 ~ Top & 4 ~ Bot.)
Set T22	8	S633ss (4 ~ Top & 4 ~ Bot.)
Set T23	8	S632ss (4 ~ Top & 4 ~ Bot.)
Set T24	8	S631ss (4 ~ Top & 4 ~ Bot.)
Set T25	8	S630ss (4 ~ Top & 4 ~ Bot.)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	J. Olund	K. Segal	-	-	-
BY	E. Tobias	J. Olund	-	-	-	-
DATE	11\20	11\20	-	-	-	-
PROJ. MANAGER						
DESIGN-DETAILED						
CHECKED-REVIEWED						
DESIGN2-DETAILED2						
DESIGN3-DETAILED3						
REVISIONS 1	-	-	-	-	-	-
REVISIONS 2	-	-	-	-	-	-
REVISIONS 3	-	-	-	-	-	-
REVISIONS 4	-	-	-	-	-	-
FIELD CHANGES	-	-	-	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCTURE REINFORCEMENT - SPAN 1 FLARED END

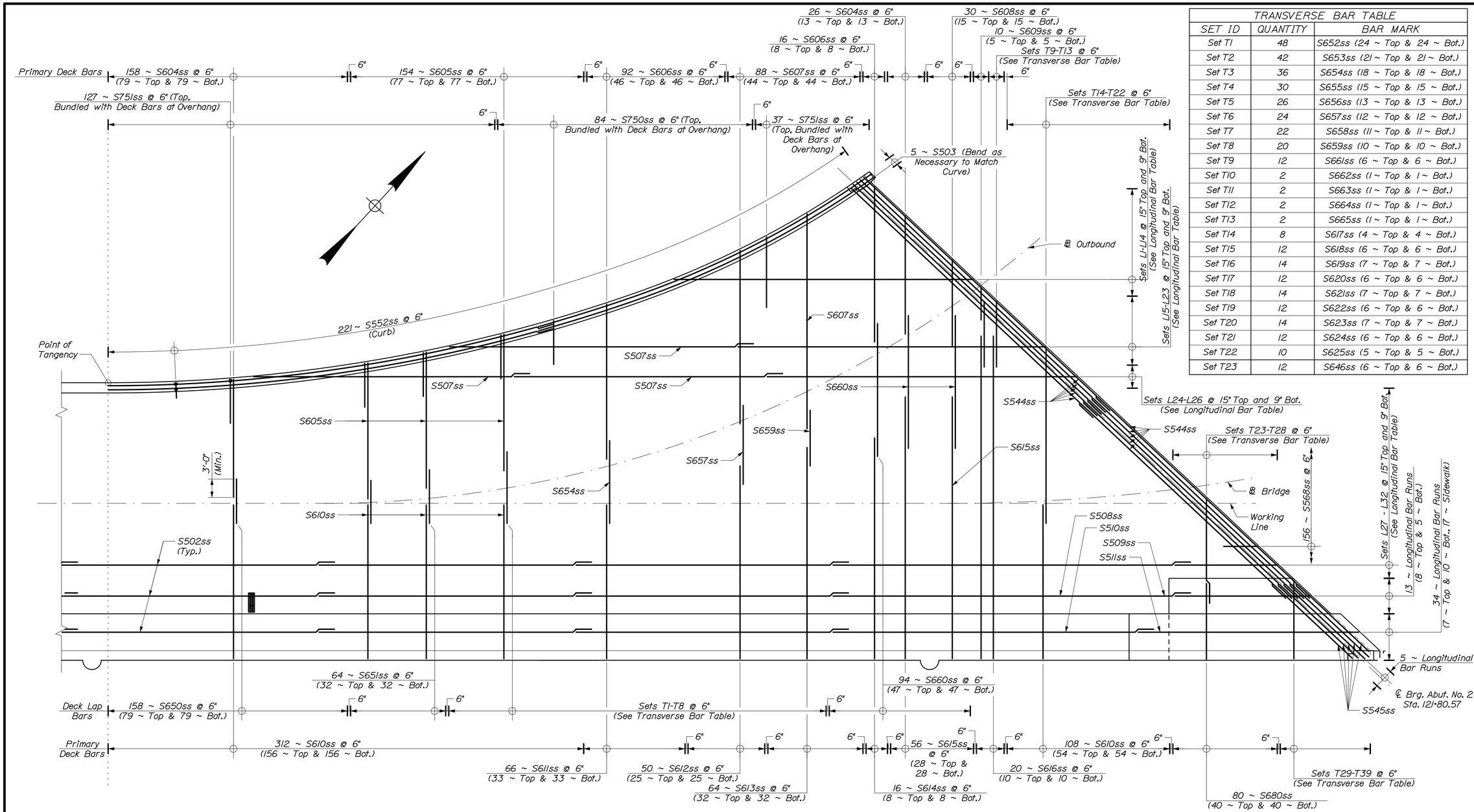
SHEET NUMBER

114

OF 160

HNTB

Filename: 114_Superstructure Slab Reinforcement - Span 1 Flared End.dgn Division: Username: Date:11/20/2020



SUPERSTRUCTURE REINFORCING PLAN - FLARED END REGION

TRANSVERSE BAR TABLE		
SET ID	QUANTITY	BAR MARK
Set T1	48	S652ss (24 ~ Top & 24 ~ Bot.)
Set T2	42	S653ss (21 ~ Top & 21 ~ Bot.)
Set T3	36	S654ss (18 ~ Top & 18 ~ Bot.)
Set T4	30	S655ss (15 ~ Top & 15 ~ Bot.)
Set T5	26	S656ss (13 ~ Top & 13 ~ Bot.)
Set T6	24	S657ss (12 ~ Top & 12 ~ Bot.)
Set T7	22	S658ss (11 ~ Top & 11 ~ Bot.)
Set T8	20	S659ss (10 ~ Top & 10 ~ Bot.)
Set T9	12	S661ss (6 ~ Top & 6 ~ Bot.)
Set T10	2	S662ss (1 ~ Top & 1 ~ Bot.)
Set T11	2	S663ss (1 ~ Top & 1 ~ Bot.)
Set T12	2	S664ss (1 ~ Top & 1 ~ Bot.)
Set T13	2	S665ss (1 ~ Top & 1 ~ Bot.)
Set T14	8	S617ss (4 ~ Top & 4 ~ Bot.)
Set T15	12	S618ss (6 ~ Top & 6 ~ Bot.)
Set T16	14	S619ss (7 ~ Top & 7 ~ Bot.)
Set T17	12	S620ss (6 ~ Top & 6 ~ Bot.)
Set T18	14	S621ss (7 ~ Top & 7 ~ Bot.)
Set T19	12	S622ss (6 ~ Top & 6 ~ Bot.)
Set T20	14	S623ss (7 ~ Top & 7 ~ Bot.)
Set T21	12	S624ss (6 ~ Top & 6 ~ Bot.)
Set T22	10	S625ss (5 ~ Top & 5 ~ Bot.)
Set T23	12	S646ss (6 ~ Top & 6 ~ Bot.)

LONGITUDINAL BAR TABLE		
SET ID	QUANTITY	BAR MARK
Set L1	3	S537ss (1 ~ Top & 2 ~ Bot.)
Set L2	2	S536ss (1 ~ Top & 1 ~ Bot.)
Set L3	3	S535ss (1 ~ Top & 2 ~ Bot.)
Set L4	3	S534ss (1 ~ Top & 2 ~ Bot.)
Set L5	2	S533ss (1 ~ Top & 1 ~ Bot.)
Set L6	3	S532ss (1 ~ Top & 2 ~ Bot.)
Set L7	3	S531ss (1 ~ Top & 2 ~ Bot.)
Set L8	2	S530ss (1 ~ Top & 1 ~ Bot.)
Set L9	3	S529ss (1 ~ Top & 2 ~ Bot.)
Set L10	3	S528ss (1 ~ Top & 2 ~ Bot.)
Set L11	2	S527ss (1 ~ Top & 1 ~ Bot.)
Set L12	3	S526ss (1 ~ Top & 2 ~ Bot.)

LONGITUDINAL BAR TABLE (cont'd)		
SET ID	QUANTITY	BAR MARK
Set L13	3	S525ss (1 ~ Top & 2 ~ Bot.)
Set L14	2	S524ss (1 ~ Top & 1 ~ Bot.)
Set L15	3	S523ss (1 ~ Top & 2 ~ Bot.)
Set L16	3	S522ss (1 ~ Top & 2 ~ Bot.)
Set L17	2	S521ss (1 ~ Top & 1 ~ Bot.)
Set L18	3	S520ss (1 ~ Top & 2 ~ Bot.)
Set L19	3	S519ss (1 ~ Top & 2 ~ Bot.)
Set L20	2	S518ss (1 ~ Top & 1 ~ Bot.)
Set L21	3	S517ss (1 ~ Top & 2 ~ Bot.)
Set L22	3	S516ss (1 ~ Top & 2 ~ Bot.)

LONGITUDINAL BAR TABLE (cont'd)		
SET ID	QUANTITY	BAR MARK
Set L23	2	S515ss (1 ~ Top & 1 ~ Bot.)
Set L24	3	S514ss (1 ~ Top & 2 ~ Bot.)
Set L25	3	S513ss (1 ~ Top & 2 ~ Bot.)
Set L26	2	S512ss (1 ~ Top & 1 ~ Bot.)
Set L27	14	S503ss (5 ~ Top & 9 ~ Bot.)
Set L28	11	S504ss (4 ~ Top & 7 ~ Bot.)
Set L29	11	S505ss (4 ~ Top & 7 ~ Bot.)
Set L30	11	S506ss (4 ~ Top & 7 ~ Bot.)
Set L31	11	S502ss (4 ~ Top & 7 ~ Bot.)
Set L32	10	S507ss (4 ~ Top & 6 ~ Bot.)

TRANSVERSE BAR TABLE (cont'd)		
SET ID	QUANTITY	BAR MARK
Set T24	12	S647ss (6 ~ Top & 6 ~ Bot.)
Set T25	14	S648ss (7 ~ Top & 7 ~ Bot.)
Set T26	12	S649ss (6 ~ Top & 6 ~ Bot.)
Set T27	14	S678ss (7 ~ Top & 7 ~ Bot.)
Set T28	6	S679ss (3 ~ Top & 3 ~ Bot.)
Set T29	4	S681ss (2 ~ Top & 2 ~ Bot.)
Set T30	4	S682ss (2 ~ Top & 2 ~ Bot.)
Set T31	4	S683ss (2 ~ Top & 2 ~ Bot.)
Set T32	4	S684ss (2 ~ Top & 2 ~ Bot.)
Set T33	4	S685ss (2 ~ Top & 2 ~ Bot.)

TRANSVERSE BAR TABLE (cont'd)		
SET ID	QUANTITY	BAR MARK
Set T34	4	S686ss (2 ~ Top & 2 ~ Bot.)
Set T35	4	S687ss (2 ~ Top & 2 ~ Bot.)
Set T36	4	S688ss (2 ~ Top & 2 ~ Bot.)
Set T37	4	S689ss (2 ~ Top & 2 ~ Bot.)
Set T38	4	S690ss (2 ~ Top & 2 ~ Bot.)
Set T39	4	S691ss (2 ~ Top & 2 ~ Bot.)

Note: Transverse and Longitudinal bar set order corresponds with text orientation with lowest bar set starting on left side of text

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
A. LATHE		
PROJ. MANAGER	J. Olund	11\20
DESIGN-DETAILED	E. Tobias	11\20
CHECKED-REVIEWED	J. Olund	11\20
DESIGN2-DETAILED2	K. Segal	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

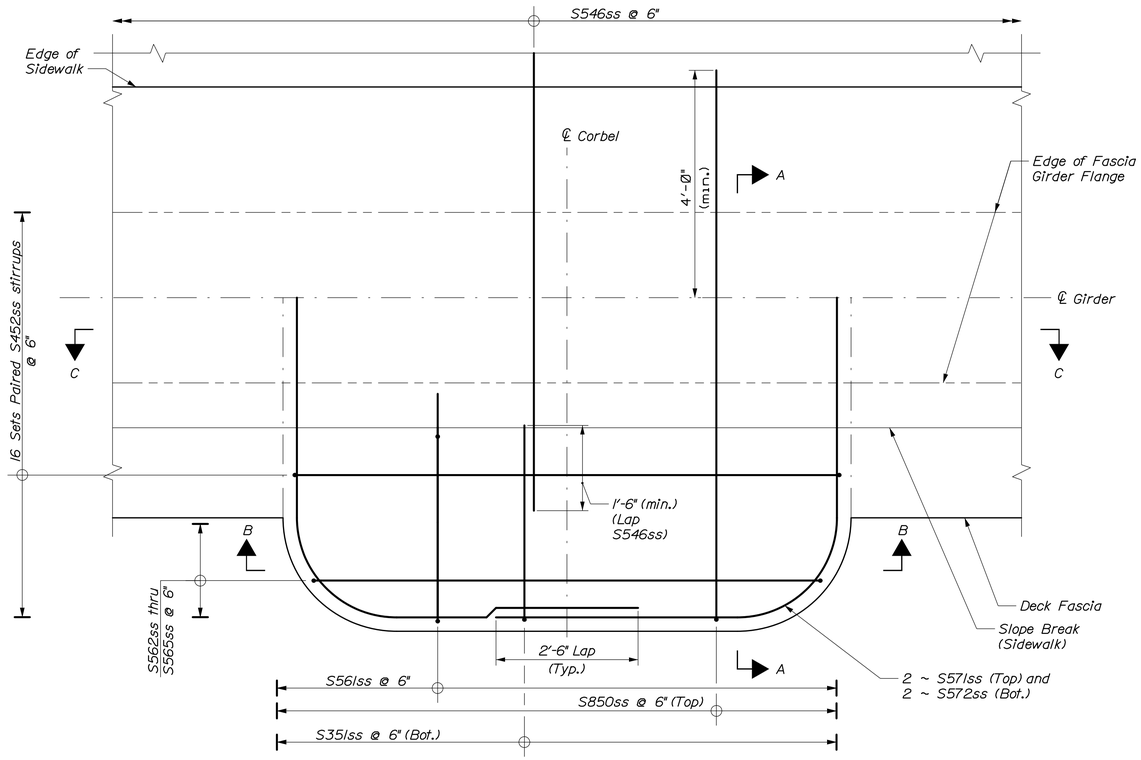
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCTURE REINFORCEMENT - SPAN 6 FLARED END

SHEET NUMBER 115

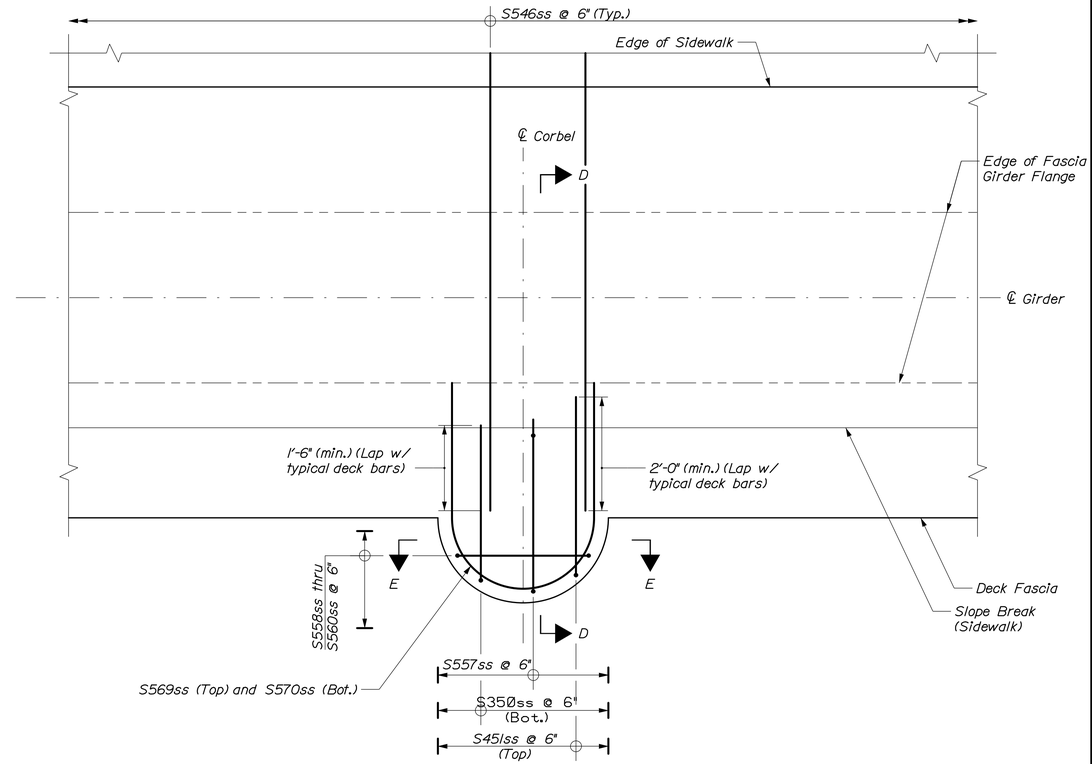
OF 160

Filename: 115_Superstructure Slab Reinforcement - Span 6 Flared End.dgn Division: Username: Date:11/20/2020



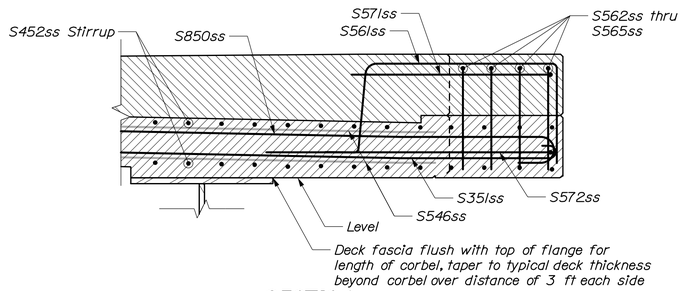
GANTRY CORBEL REINFORCING PLAN

(Deck Reinforcing not shown for clarity)
(Sidewalk shown, curb similar)



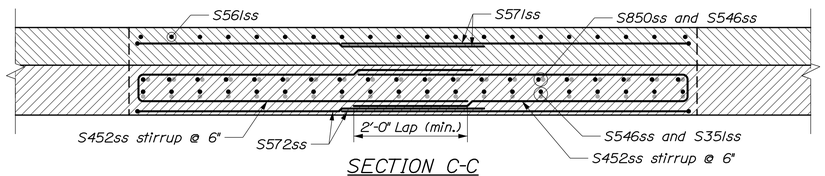
LUMINAIRE AND FLAGPOLE CORBEL REINFORCING PLAN

(Deck Reinforcing not shown for clarity)



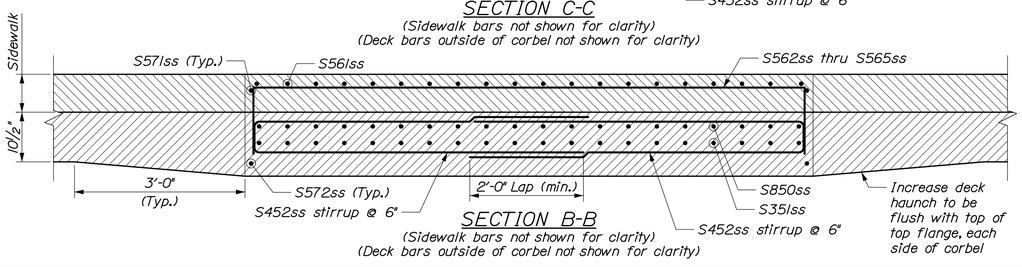
SECTION A-A

(Sidewalk bars not shown for clarity)



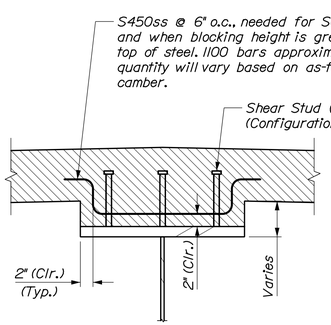
SECTION C-C

(Sidewalk bars not shown for clarity)
(Deck bars outside of corbel not shown for clarity)

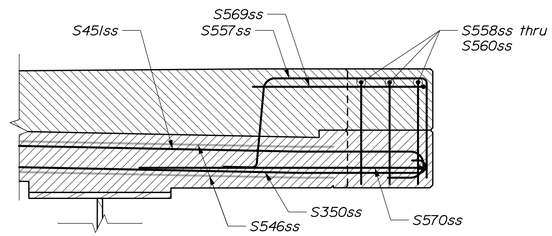


SECTION B-B

(Sidewalk bars not shown for clarity)
(Deck bars outside of corbel not shown for clarity)

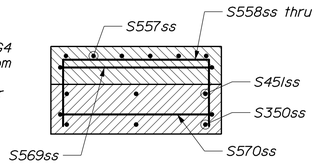


HAUNCH REINFORCEMENT DETAIL



SECTION D-D

(Sidewalk bars not shown for clarity)



SECTION E-E

(Sidewalk bars not shown for clarity)

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE 12/1/20

P.E. NUMBER 11/19/2020

DATE

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	E. Tobias	11\20
DESIGN2-DETAILED2	K. Segal	11\20
DESIGN3-DETAILED3	J. Olund	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

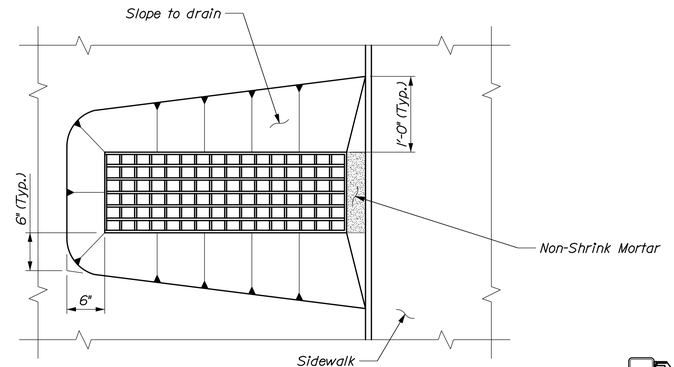
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

SUPERSTRUCTURE
REINFORCEMENT DETAILS

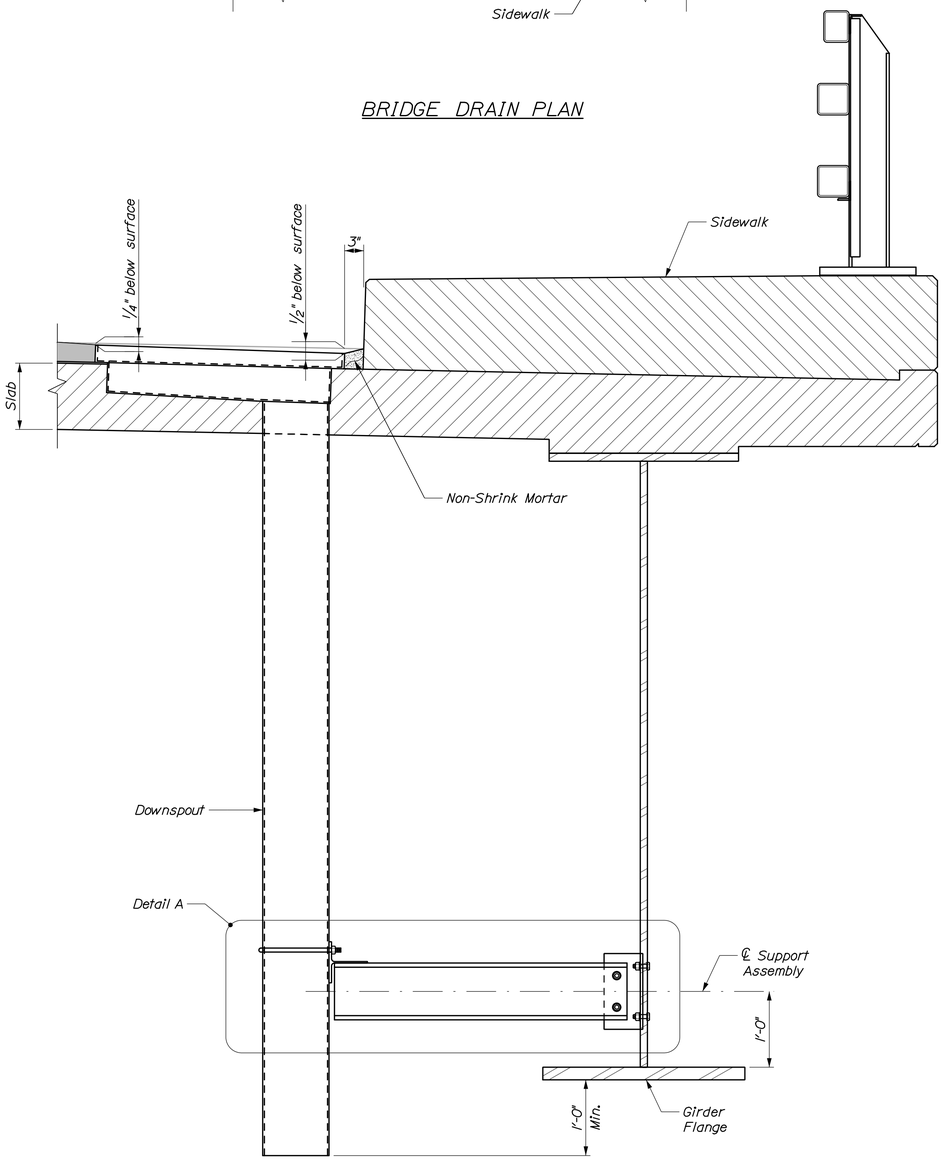
SHEET NUMBER
116
OF 160

HNTB

Date:11/20/2020
Username:
Filename: 116_Superstructure Reinforcement Details.dgn
Division:



BRIDGE DRAIN PLAN



BRIDGE DRAIN ELEVATION

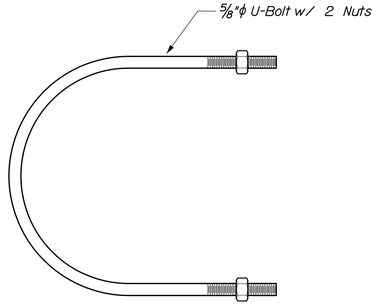
BRIDGE DRAIN NOTES

1. FRP Bridge Drains shall be designed and detailed based on the dimensions for the bridge drain details shown, and in accordance with Special Provisions Section 502, Fiber Reinforced Polymer Bridge Drains and Downspouts.

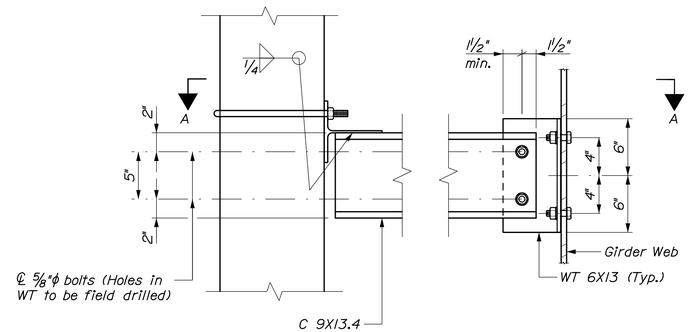
2. Shear connectors welded to the top flange of steel beams may require adjustment to clear the bridge drains. No extra payment will be made for needed adjustment to the studs.

3. Support Assembly components and hardware shall meet the grade and protective coating requirements identified on Standard Detail 502(24).

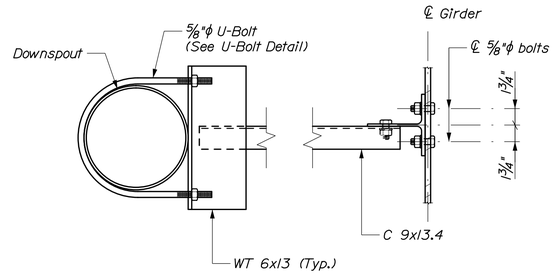
4. Non-Shrink Mortar shall be selected form the Qualified Products List. Payment shall be incidental to Item 502.77, FRP Bridge Drain - Type F.



U-BOLT DETAIL



DETAIL A



SECTION A-A

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

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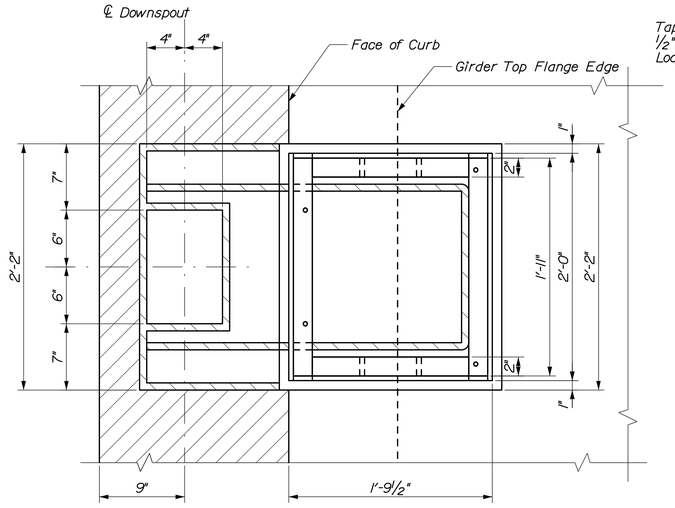
PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	J. Olund	BY	P. Bishop
CHECKED-REVIEWED	K. Segal	BY	J. Olund
DESIGN2-DETAILED2	-	DATE	11\20
DESIGN3-DETAILED3	-	DATE	11\20
REVISIONS 1	-	DATE	-
REVISIONS 2	-	DATE	-
REVISIONS 3	-	DATE	-
REVISIONS 4	-	DATE	-
FIELD CHANGES	-	DATE	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

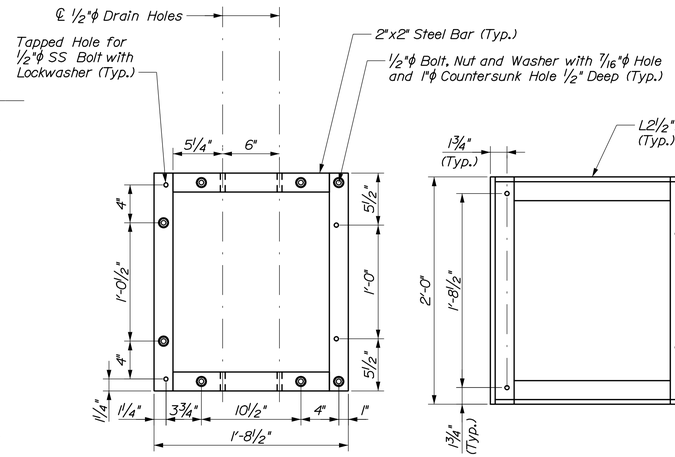
BRIDGE DRAIN DETAILS
TYPE F

SHEET NUMBER
117
OF 160

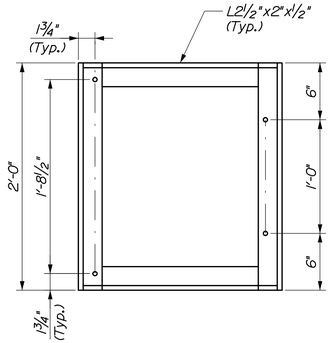
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Username:
Date:11/20/2020



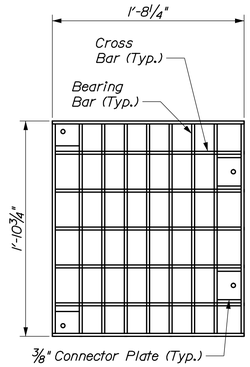
PLAN VIEW



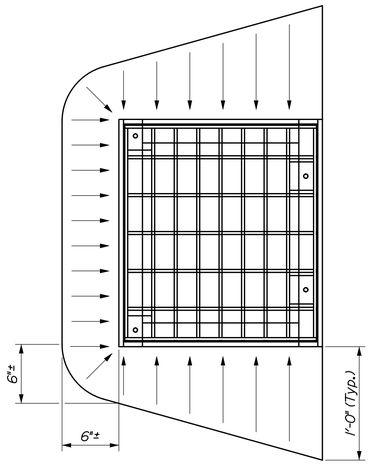
GRATING SUB FRAME



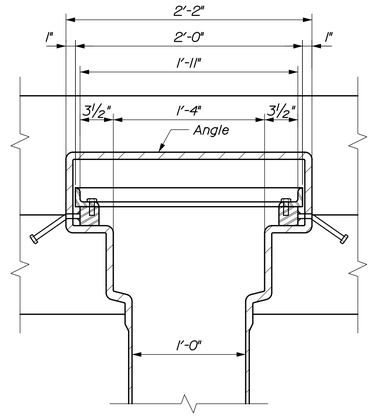
GRATING BASE FRAME



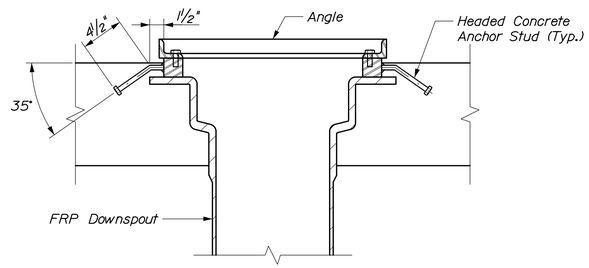
GRATING FRAME



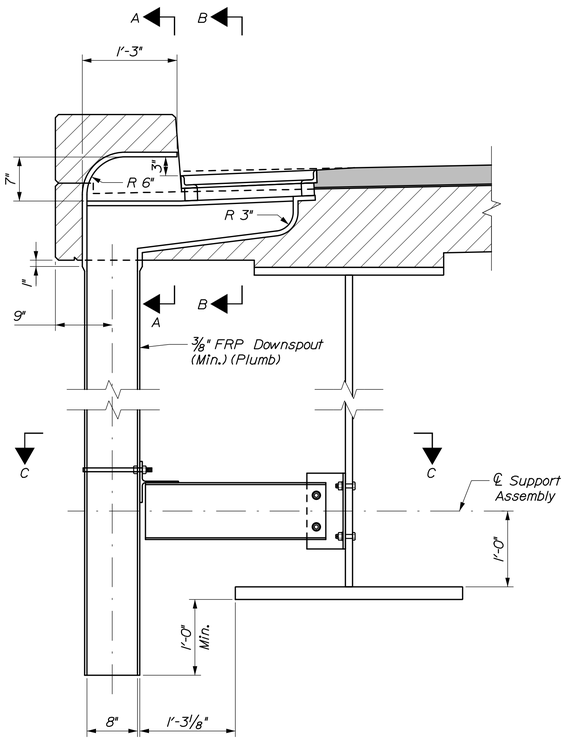
PAVEMENT DEPRESSION AROUND BRIDGE DRAINS



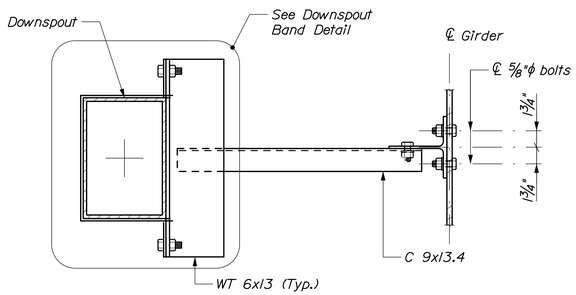
SECTION A-A



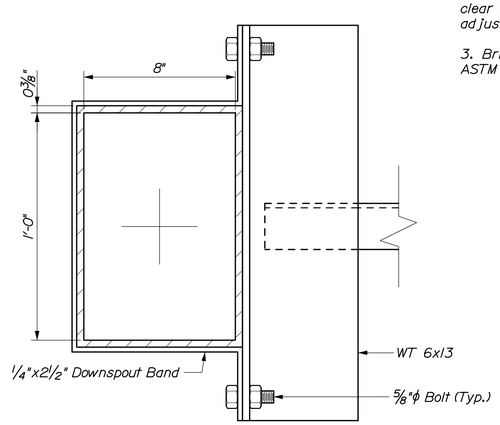
SECTION B-B



TYPICAL SECTION



SECTION C-C



DOWNSPOUT BAND DETAIL

BRIDGE DRAIN NOTES

1. FRP bridge drains shall be fabricated and installed as shown, and in accordance with Special Provisions 502, Fiber Reinforced Polymer Bridge Drains and Downspouts.

2. Shear connectors on the top flange of beams may require adjustment to clear the bridge drains. No extra payment will be made for needed adjustment to shear connectors.

3. Bridge Drain frames and grates shall be stainless steel conforming to ASTM A995.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	DATE
PROJ. MANAGER		
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	K. Segal	11\20
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REVISIONS 1	-	-
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REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BRIDGE DRAIN DETAILS TYPE A

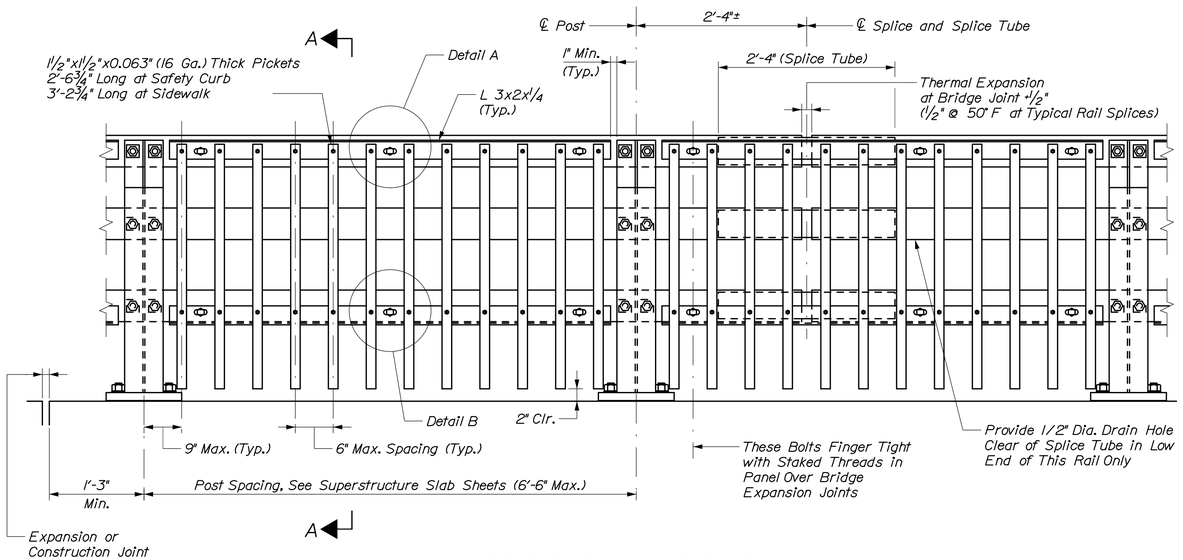
SHEET NUMBER

118

OF 160

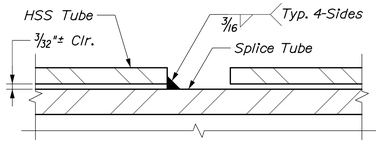
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Date:11/20/2020
Username:
Division:
Filename: 119_Bridge Railing Details.dgn

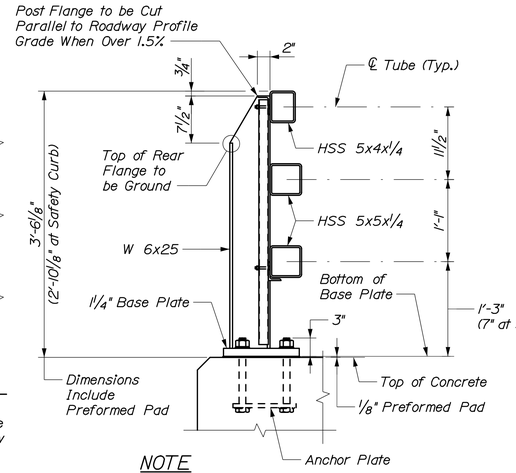


BRIDGE RAILING ELEVATION

(Elevation at sidewalk shown. Elevation at safety curb similar except as noted.)



SPLICE DETAIL

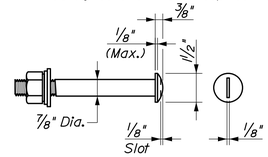


NOTE

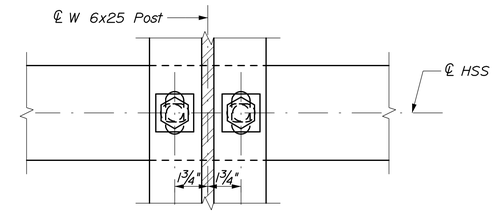
Section at sidewalk shown. Section at safety curb similar except as noted.

SECTION A

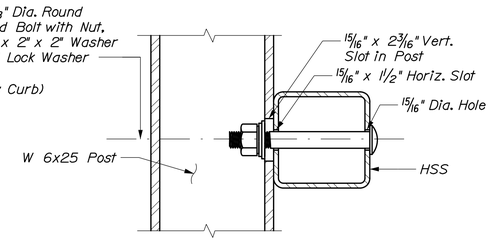
(Section at sidewalk shown. Section at safety curb similar except as noted.)



⅞" DIA ROUND HEAD BOLT



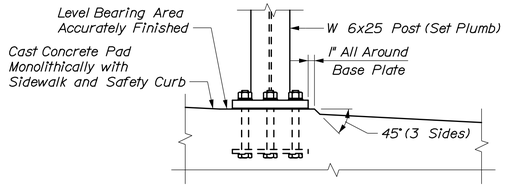
SECTION THRU POST WEB



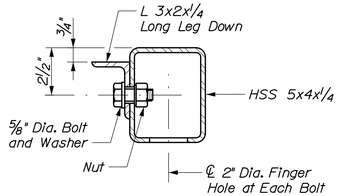
SECTION THRU RAIL

TYPICAL RAIL TO POST CONNECTIONS

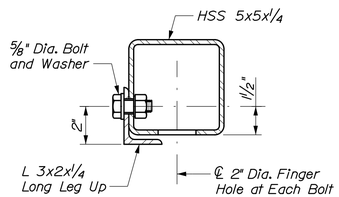
(Connections at Lower Rails Shown. Connections at Top Rail Similar.)



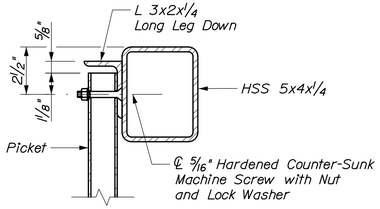
SETTING OF POSTS (PROFILE GRADE OVER 1.5%)



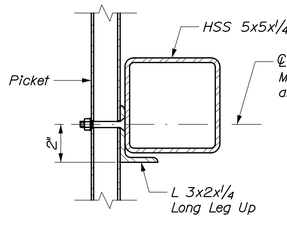
SECTION B



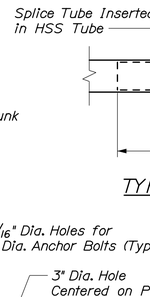
SECTION D



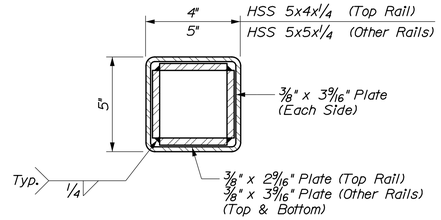
SECTION C



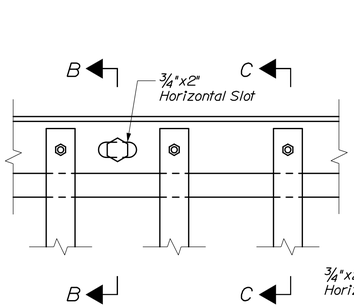
SECTION E



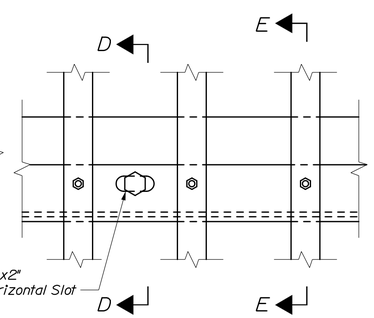
TYPICAL SPLICE



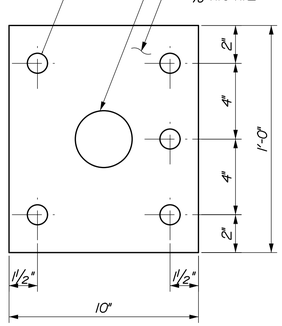
SPLICE TUBE DETAILS



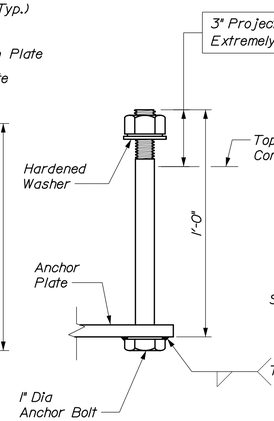
DETAIL A



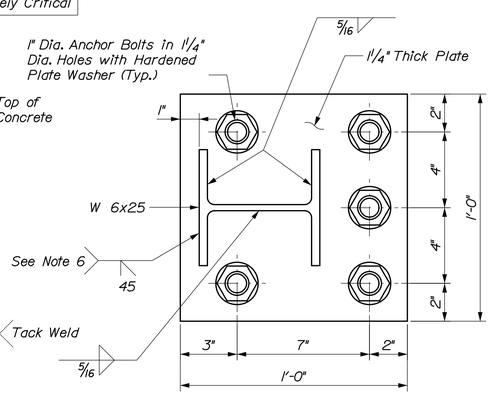
DETAIL B



ANCHOR PLATE



ANCHOR BOLT



BASE PLATE

(See additional details for Snow Fence Connection and Baseplate Modifications)

TYPICAL PICKET TO RAIL DETAILS

BRIDGE RAIL NOTES:

1. All work and materials shall conform to the provisions of Section 507 - Railings of the Standard Specifications.
2. Tubing shall meet the longitudinal CVN minimum requirements of 15 ft-lb at 0°F or proportional values of sub-size specimens. Testing shall be done in accordance with ASTM A 673. The H frequency shall be used and the material shall be as - rolled.
3. All exposed cut or sheared edges shall be broken and free of burrs. The inside weld flash of tubing shall be removed at splices and expansion joints.
4. Rails shall be continuous over a minimum of four (4) posts without splices where possible. Rails shall be spliced in the panels over expansion joint.
5. Rail posts shall be plumb when profile grade exceeds 1.5%. For profile grades equal to or less than 1.5%, posts shall be set perpendicular to grade.
6. Post flange weld does not require magnetic particle testing. Weld shall be back-gouged on back side except at web. Weld is the same on both flanges.
7. All parts shall be galvanized after fabriciation in accordance with ASTM 123, except that hardware shall meet the requirements of either ASTM A 153 or ASTM B 695, Class 50, Type I. Parts except hardware shall be blast - cleaned prior to galvanizing in accordance with SSPC - SP6.
8. Anchor bolts shall be set with a template. Nuts surcing the post base plate shall be tightened to a snug fit and given an additional ⅛ turn.

MATERIALS:

Rail bars	ASTM A 500, Grade C
Rail posts, base plates & fabricated splice bars	AASHTO M 270, Grade 50
Pickets	ASTM A513, Grade 36 or ASTM A500, Grade B
All other shapes & plates	AASHTO M270, Grade 36
Anchor bolts, washers & heavy hex nuts	AASHTO M 314, Grade 105
Rail attachment bolts	AASHTO M164
All other bolts & nuts (unless noted)	ASTM A 307 & ASTM A 563, Grade D or DH

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

BRIDGE NO. 2399

STATE OF MAINE — JOSHUA K. OLUND — No. 12130 — LICENSED PROFESSIONAL ENGINEER

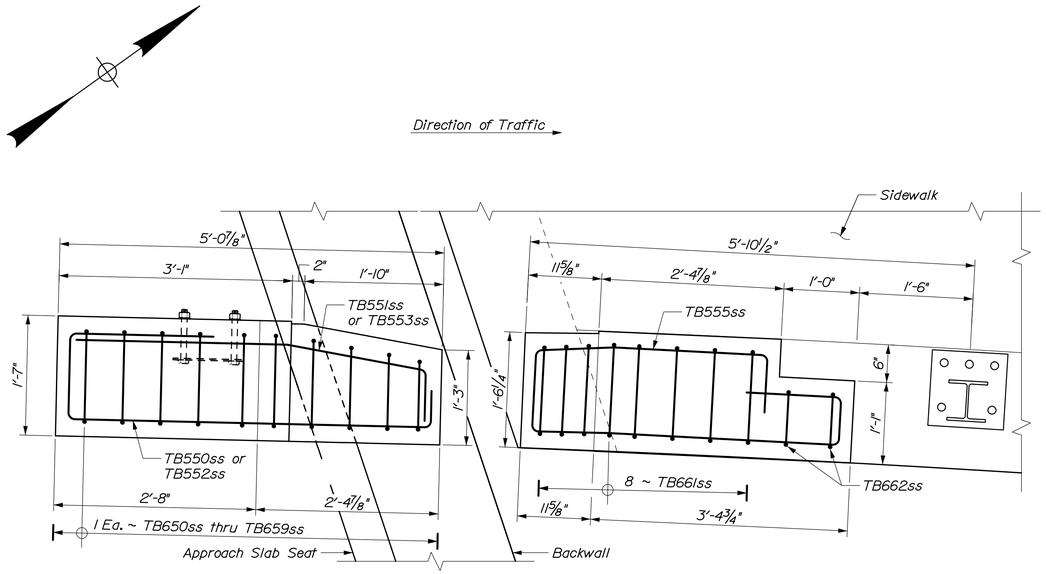
SIGNATURE — P.E. NUMBER 12130 — DATE 11/19/2020

	A. LATHE	J. Burns	P. Bishop	J. Olund	J. Wough	J. Burns	J. Wough	-	-	-	-
PROJ. MANAGER											
DESIGN-DETAILED											
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REVISIONS 4											
FIELD CHANGES											
BY											
DATE											
		11\20	11\20	-	-	-	-	-	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

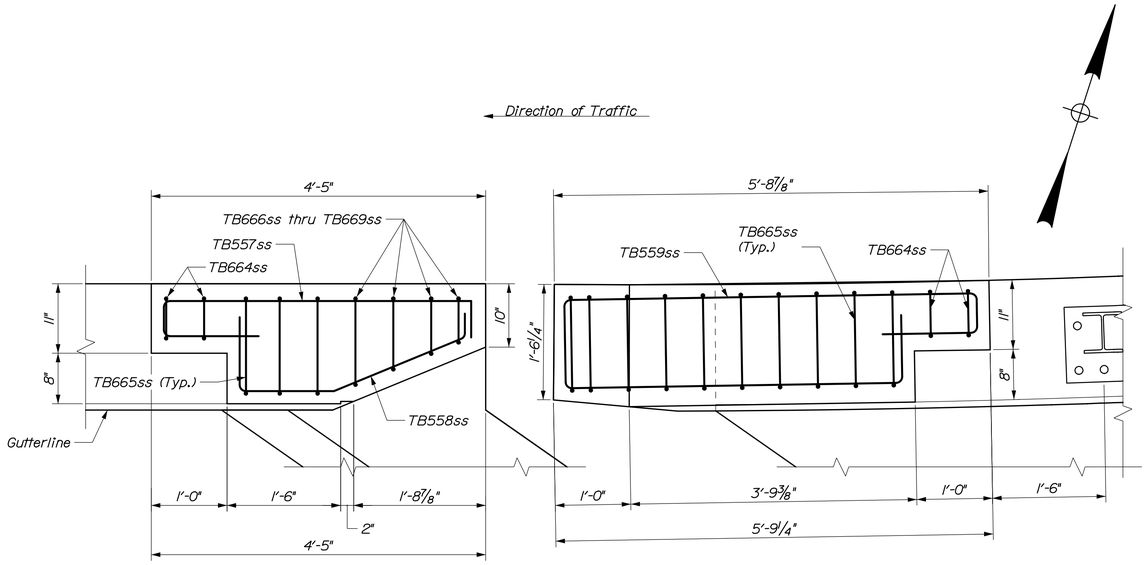
BRIDGE RAIL DETAILS

SHEET NUMBER 119 OF 160



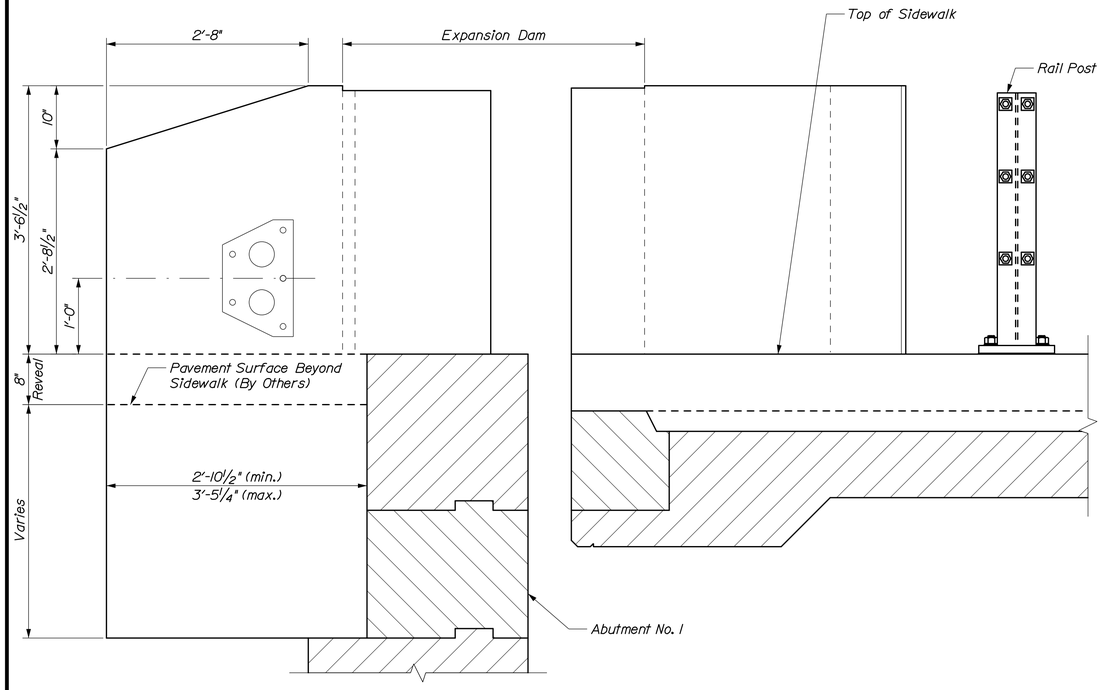
SOUTHEAST TRANSITION BARRIER PLAN

(Expansion dam not shown for clarity)

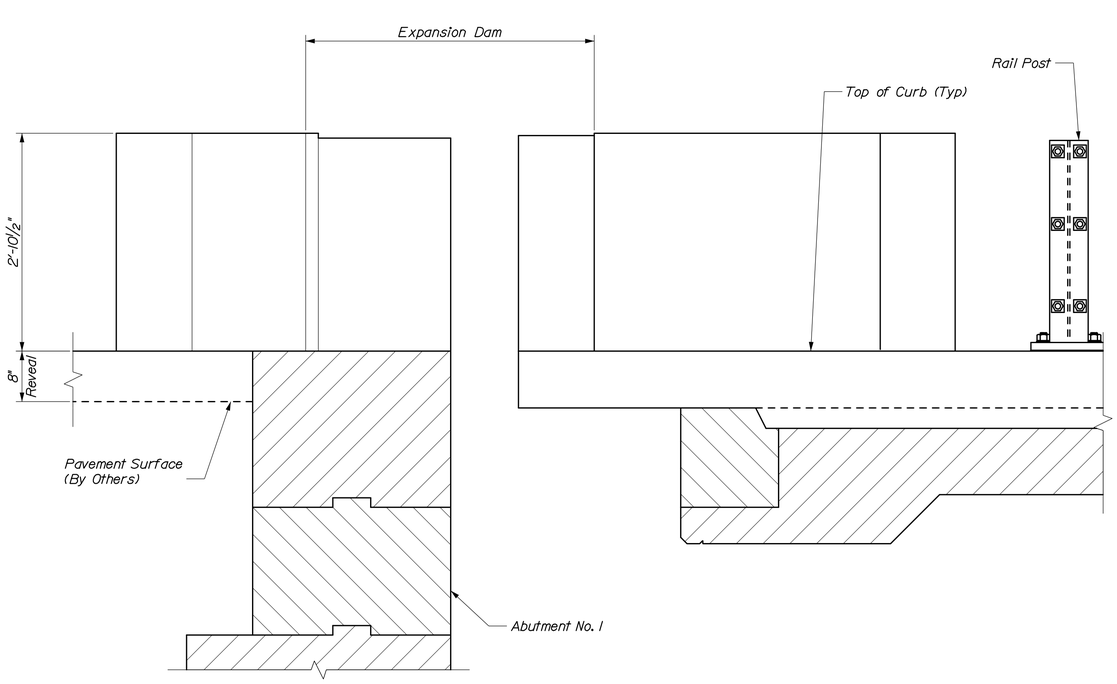


SOUTHWEST TRANSITION BARRIER PLAN

(Expansion dam not shown for clarity)



SOUTHEAST TRANSITION BARRIER ELEVATION



SOUTHWEST TRANSITION BARRIER ELEVATION

Note: Each unit of Item 526.34, Permanent Concrete Transition Barrier, shall consist of a substructure portion, a superstructure portion, steel expansion dams, and reinforcing steel.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

	A. LATHE	BY	DATE
PROJ. MANAGER	J. Olund	P. Bishop	11\20
DESIGN-DETAILED	J. Olund	J. Olund	11\20
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DESIGN2-DETAILED2	-	-	-
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REVISIONS 1	-	-	-
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REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TRANSITION BARRIER DETAILS 1

SHEET NUMBER

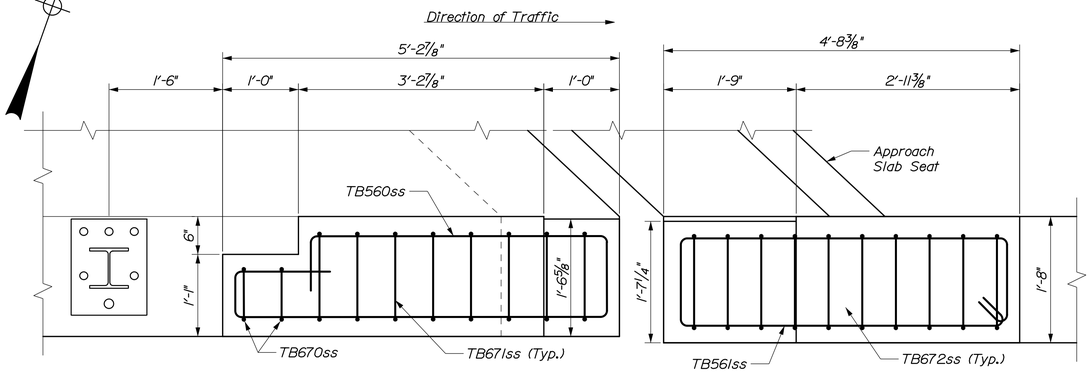
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OF 160

Date:11/20/2020

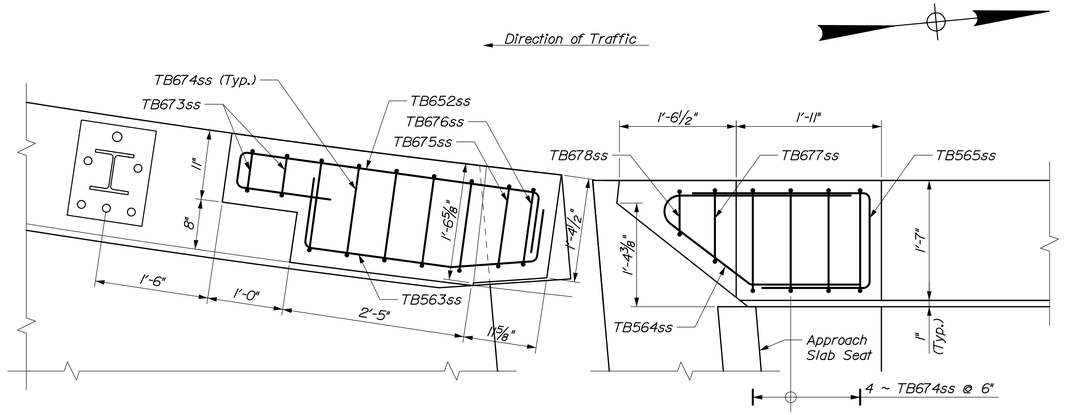
Username:

Filename: 120_Bridge Transition Barrier Details 1.dgnDivision:



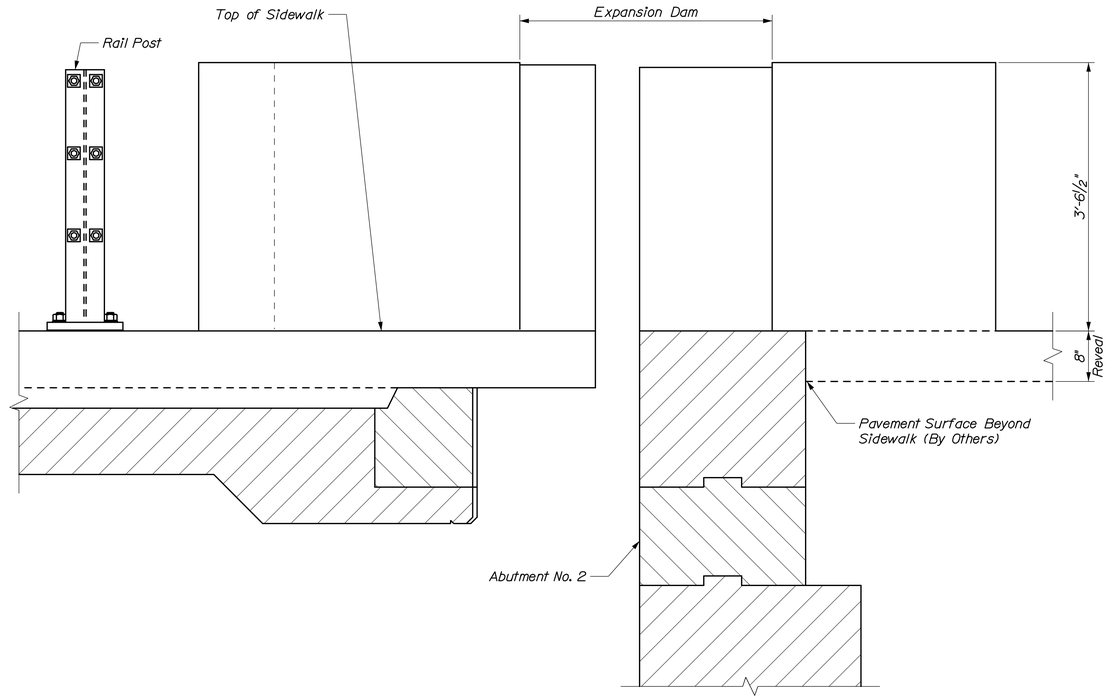
NORTHEAST TRANSITION BARRIER PLAN

(Expansion dam not shown for clarity)

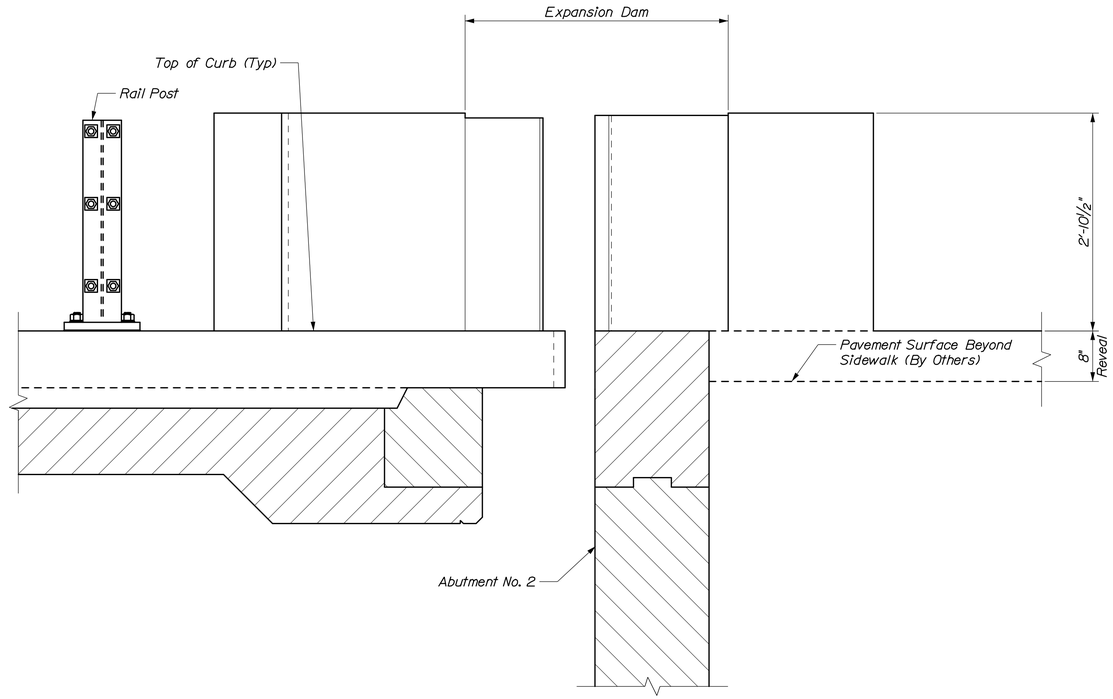


NORTHWEST TRANSITION BARRIER PLAN

(Expansion dam not shown for clarity)



NORTHEAST TRANSITION BARRIER ELEVATION



NORTHWEST TRANSITION BARRIER ELEVATION

Note: Each unit of Item 526.34, Permanent Concrete Transition Barrier, shall consist of a substructure portion, a superstructure portion, steel expansion dams, and reinforcing steel.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

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REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

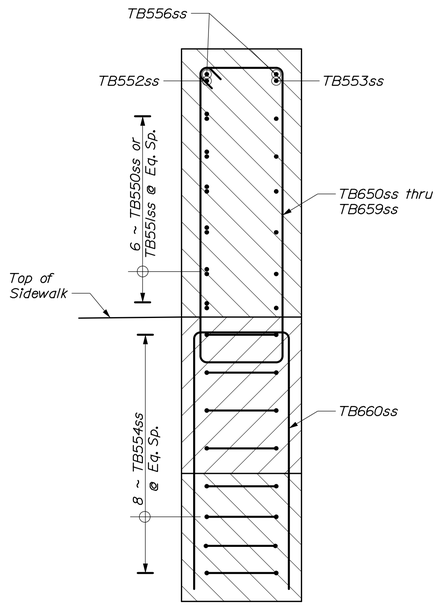
TRANSITION BARRIER DETAILS 2

SHEET NUMBER

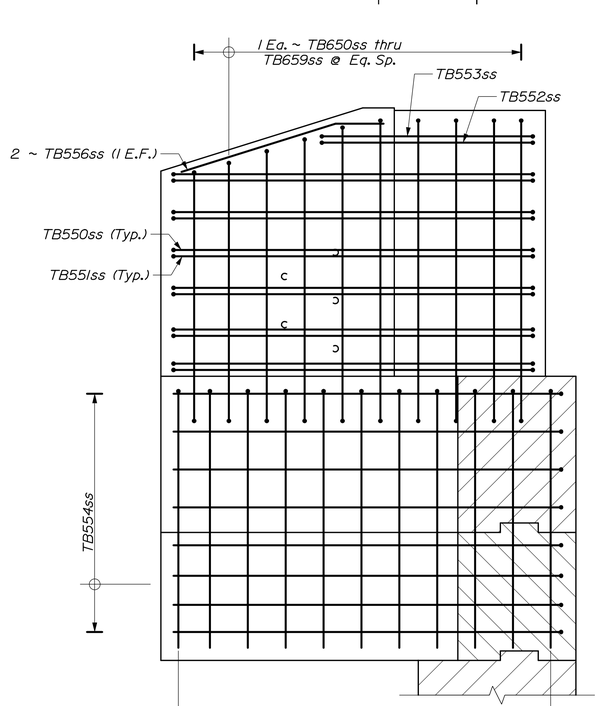
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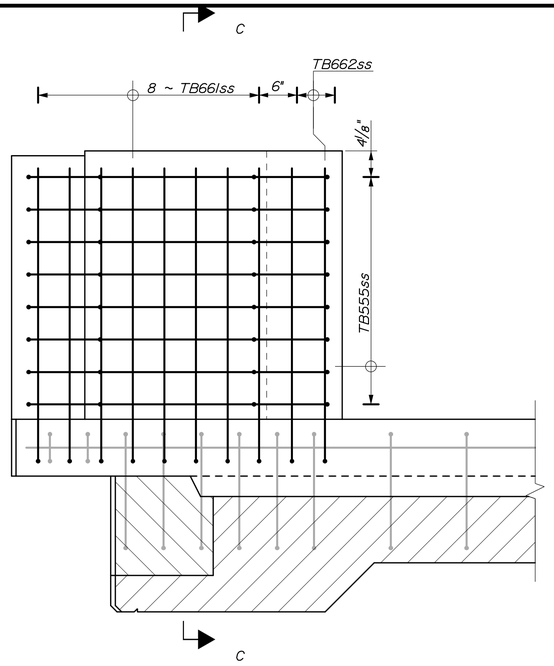
OF 160

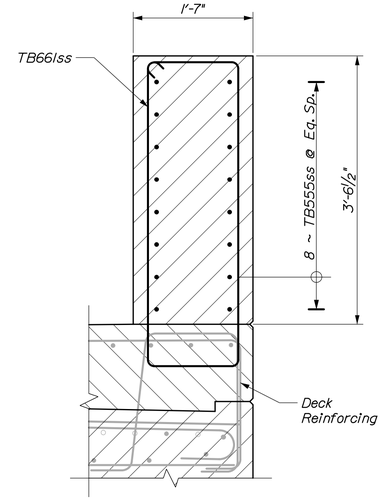
Filename: 121_Bridge Transition Barrier Details 2.dgn Division: Username: Date:11/20/2020



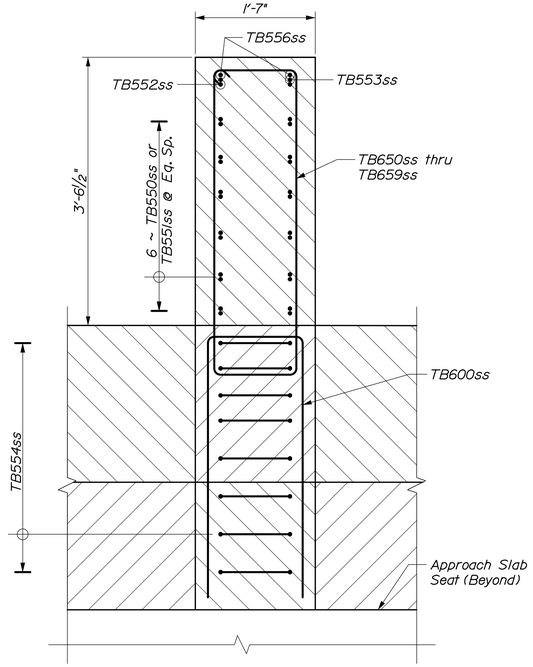
SECTION A-A







SECTION C-C



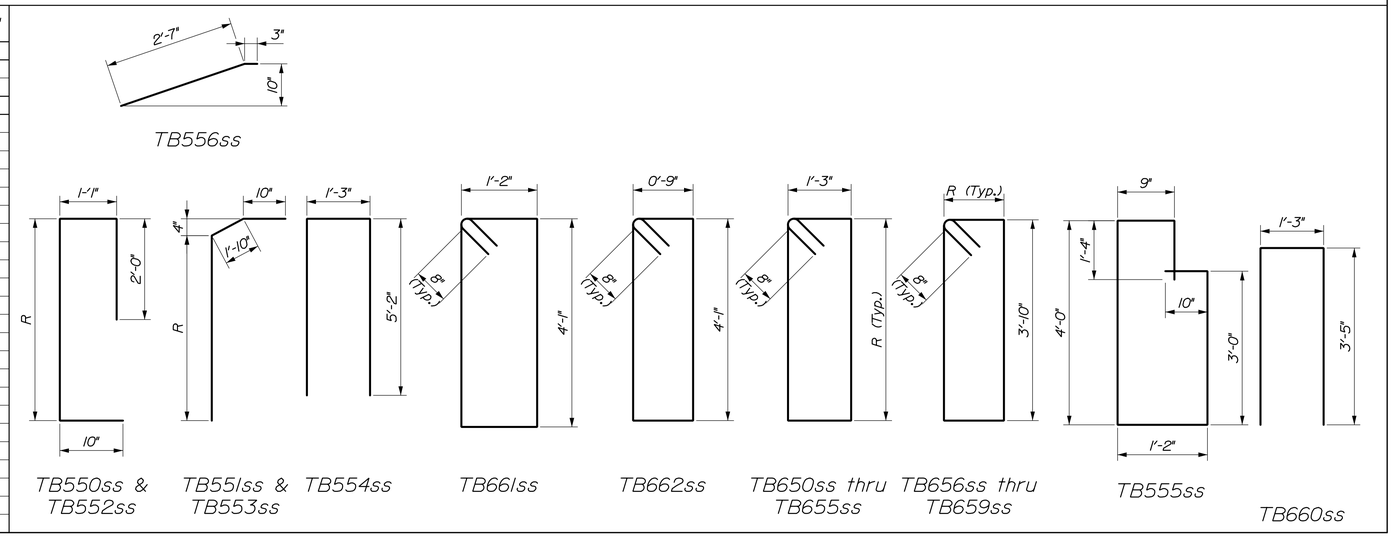
SECTION B-B



SOUTHEAST TRANSITION BARRIER ELEVATION

TRANSITION BARRIER REINFORCING STEEL SCHEDULE

Mark	Qty.	Length	Dim "R"
Bent Bars			
TB550ss	6	8'-8"	4'-9"
TB551ss	6	5'-7"	2'-11"
TB552ss	1	7'-1"	3'-2"
TB553ss	1	4'-3"	1'-7"
TB554ss	8	11'-7"	
TB555ss	8	11'-1"	
TB556ss	2	2'-10"	
TB650ss	1	9'-10"	3'-0"
TB651ss	1	10'-2"	3'-2"
TB652ss	1	10'-6"	3'-4"
TB653ss	1	10'-10"	3'-6"
TB654ss	1	11'-2"	3'-8"
TB655ss	1	11'-6"	3'-10""
TB656ss	1	11'-4"	1'-2"
TB657ss	1	11'-2"	1'-1"
TB658ss	1	11'-0"	1'-0"
TB659ss	1	10'-10"	0'-11"
TB660ss	11	8'-0"	3'-5"
TB661ss	8	11'-10"	
TB662ss	2	11'-0"	



	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	P. Bishop	11\20
CHECKED-REVIEWED	J. Olund	11\20
DESIGN2-DETAILED2	K. Segal	- -
DESIGN3-DETAILED3	-	- -
REVISIONS 1	-	- -
REVISIONS 2	-	- -
REVISIONS 3	-	- -
REVISIONS 4	-	- -
FIELD CHANGES	-	- -

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

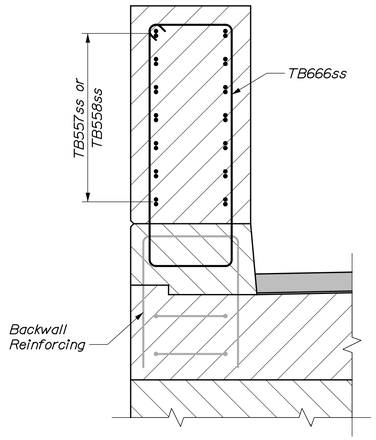
TRANSITION BARRIER REINFORCING DETAILS 1

SHEET NUMBER 122

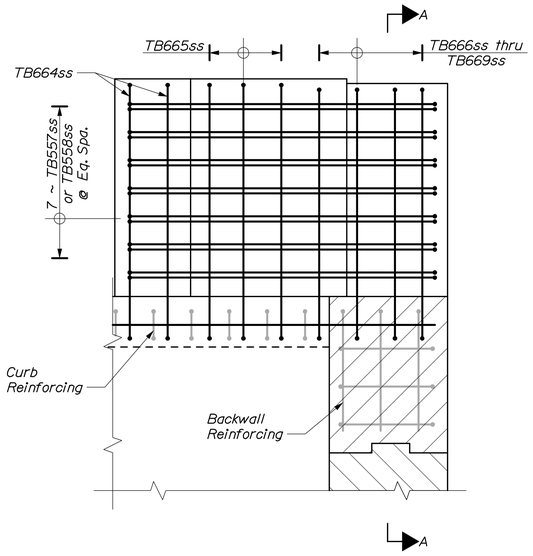
OF 160

HNTB

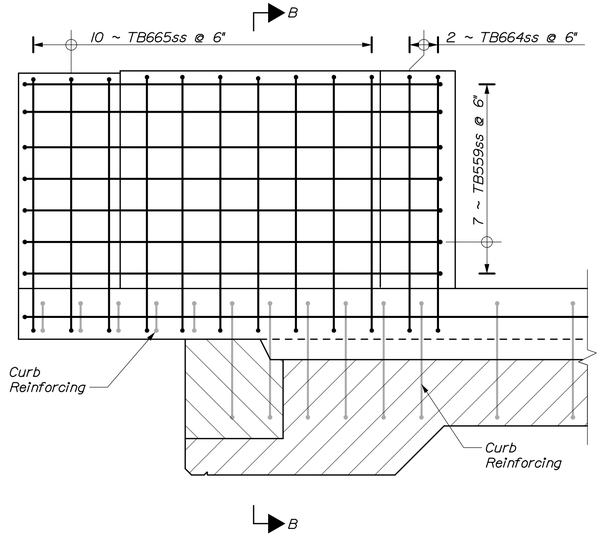
Filename: 122_Bridge Transition Barrier Details 3.dgn Division: Username: Date:11/20/2020



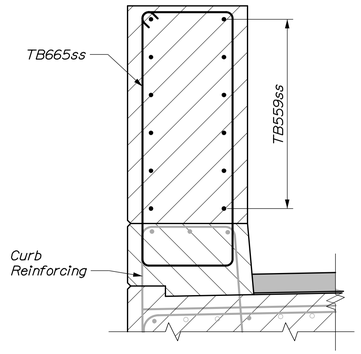
SECTION A-A



SOUTHWEST TRANSITION BARRIER ELEVATION

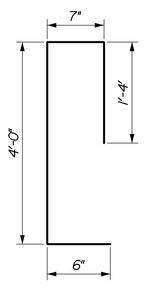


SECTION B-B

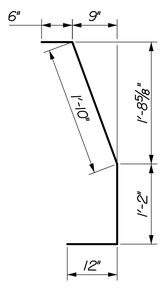


TRANSITION BARRIER REINFORCING STEEL SCHEDULE

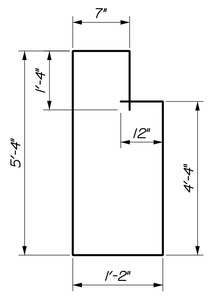
Mark	Qty.	Length	Dim "R"
TB557ss	7	6'-5"	
TB558ss	7	4'-6"	
TB559ss	7	13'-9"	
TB664ss	4	9'-0"	0'-7"
TB665ss	13	10'-4"	1'-3"
TB666ss	1	10'-2"	1'-2"
TB667ss	1	9'-10"	1'-0"
TB668ss	1	9'-4"	0'-9"
TB669ss	1	9'-0"	0'-7"



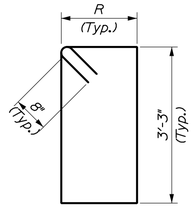
TB557ss



TB558ss



TB559ss



TB664ss thru TB669ss

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	BY
CHECKED-REVIEWED	K. Segal	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

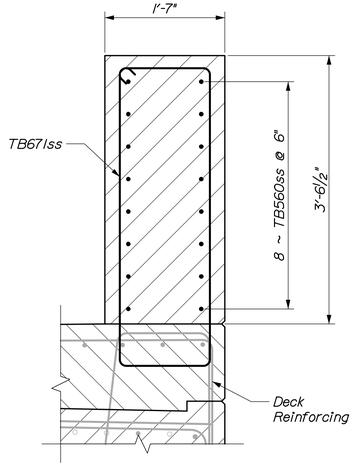
TRANSITION BARRIER REINFORCING DETAILS 2

SHEET NUMBER

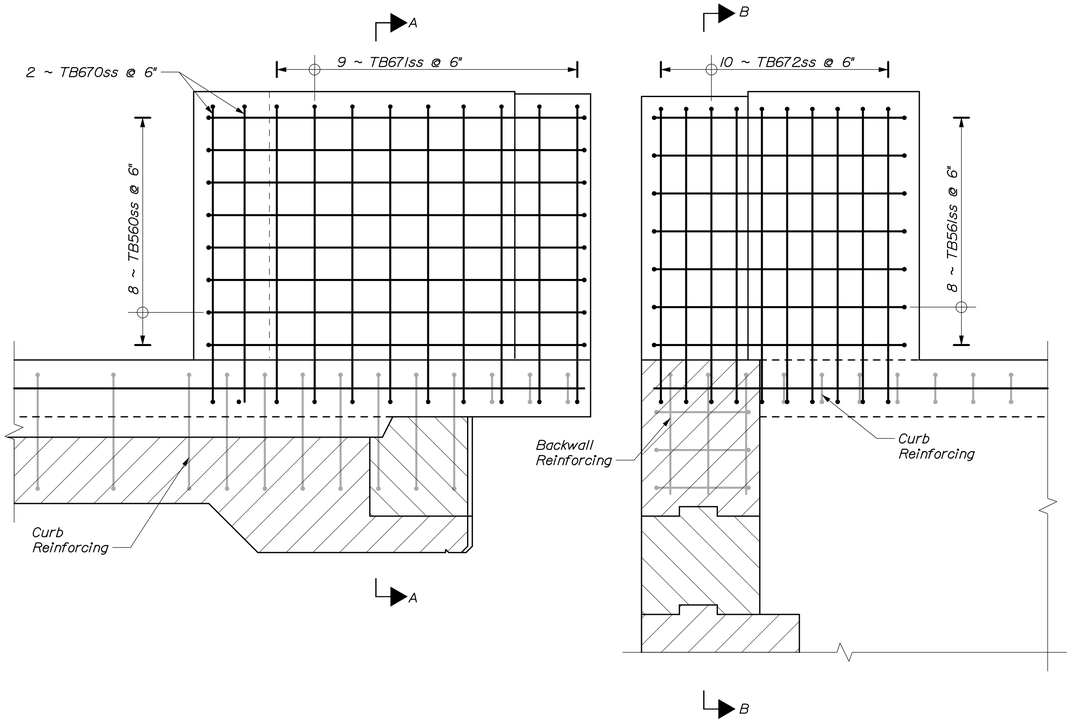
123

OF 160

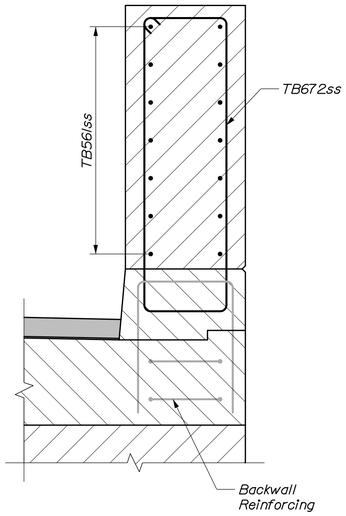
Filename: 123_Bridge Transition Barrier Details 4.dgn Division: Username: Date:11/20/2020



SECTION A-A



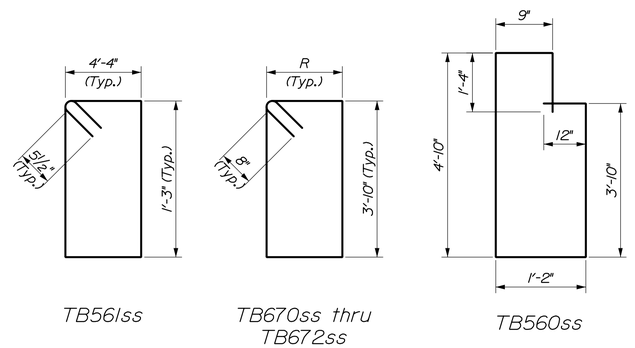
NORTHEAST TRANSITION BARRIER ELEVATION



SECTION B-B

TRANSITION BARRIER REINFORCING STEEL SCHEDULE

Mark	Qty.	Length	Dim "R"
TB560ss	8	12'-11"	
TB561ss	8	12'-1"	
TB670ss	2	10'-6"	0'-9"
TB671ss	9	11'-4"	1'-2"
TB672ss	10	11'-6"	1'-3"



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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	P. Bishop	11\20
CHECKED-REVIEWED	K. Segal	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TRANSITION BARRIER REINFORCING DETAILS 3

SHEET NUMBER

124

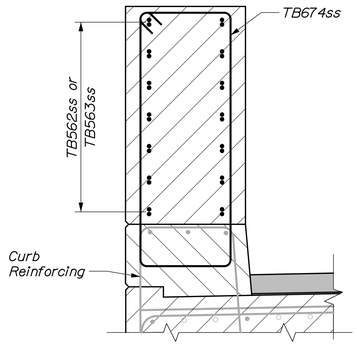
OF 160

Username:

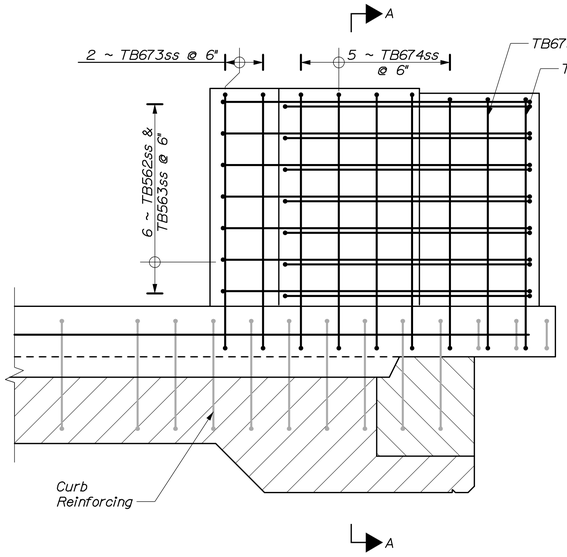
Date:11/20/2020

Division:

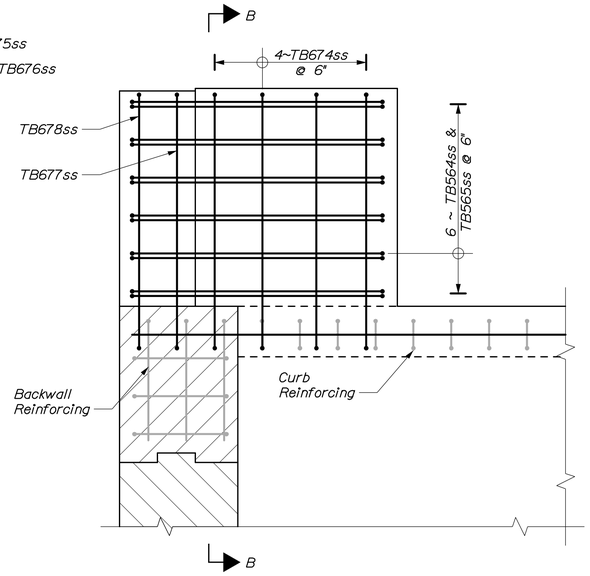
Filename: 124_Bridge Transition Barrier Details 5.dgn

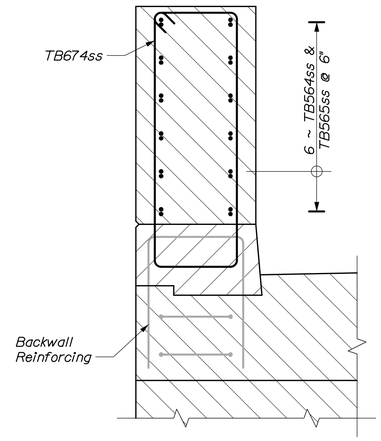


SECTION A-A



NORTHWEST TRANSITION BARRIER ELEVATION

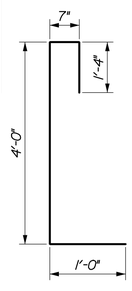




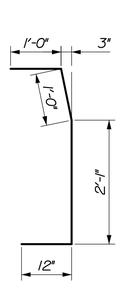
SECTION B-B

TRANSITION BARRIER REINFORCING STEEL SCHEDULE

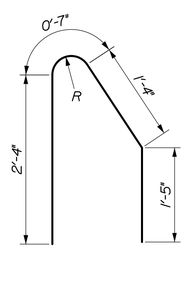
Mark	Qty.	Length	Dim "R"
TB562ss	6	6'-11"	
TB563ss	6	5'-1"	
TB564ss	6	5'-8"	0'-2½"
TB565ss	6	5'-0"	
TB673ss	2	8'-10"	0'-7"
TB674ss	9	10'-2"	1'-3"
TB675ss	1	10'-0"	1'-2"
TB676ss	1	9'-10"	1'-1"
TB677ss	1	9'-8"	1'-0"
TB678ss	1	8'-10"	0'-7"



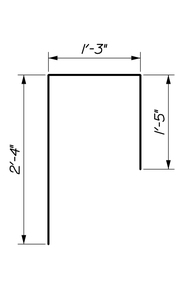
TB562ss



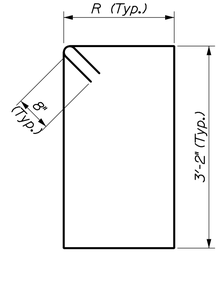
TB563



TB564ss



TB565ss



TB673ss thru
TB678ss

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE	12130	
P.E. NUMBER	11/19/2020	
DATE		

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	K. Segal	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TRANSITION BARRIER REINFORCING DETAILS 4

SHEET NUMBER

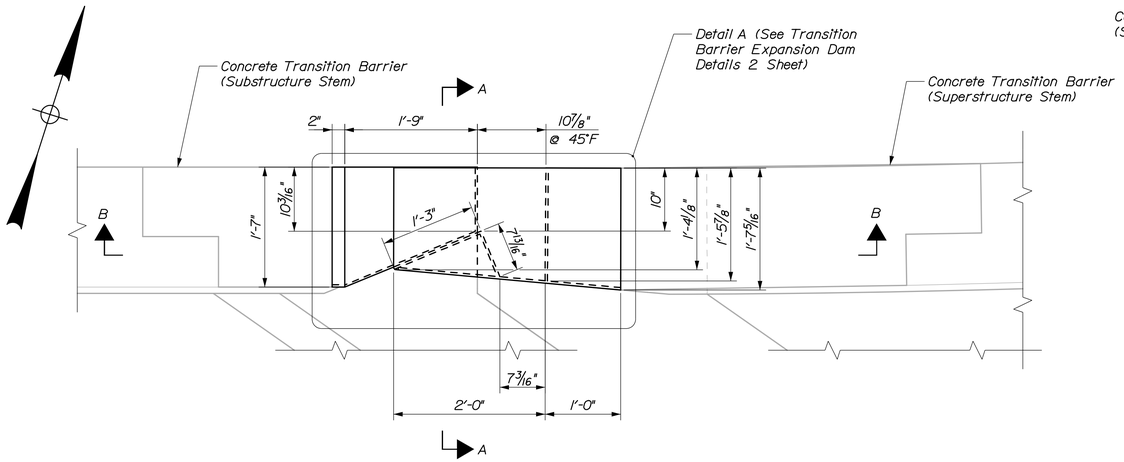
125

OF 160

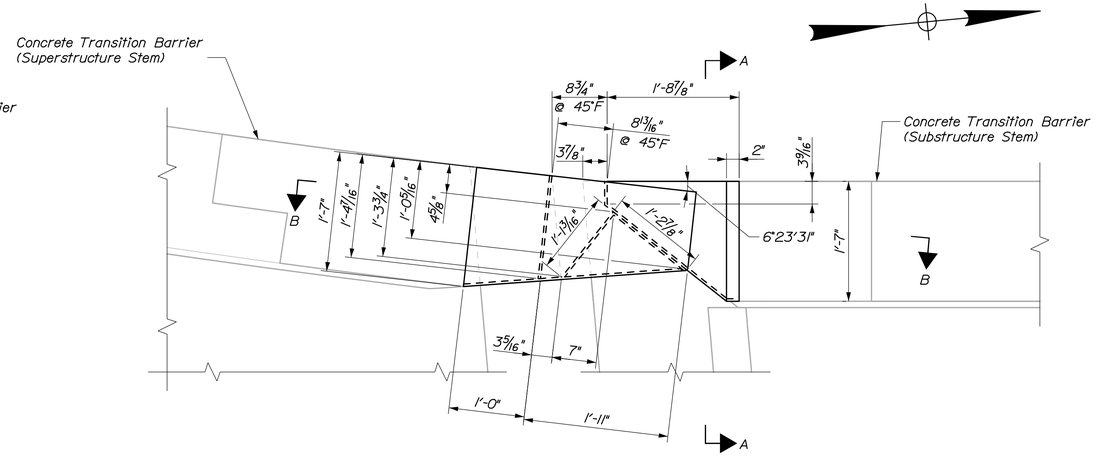
Date:11/20/2020

Username:

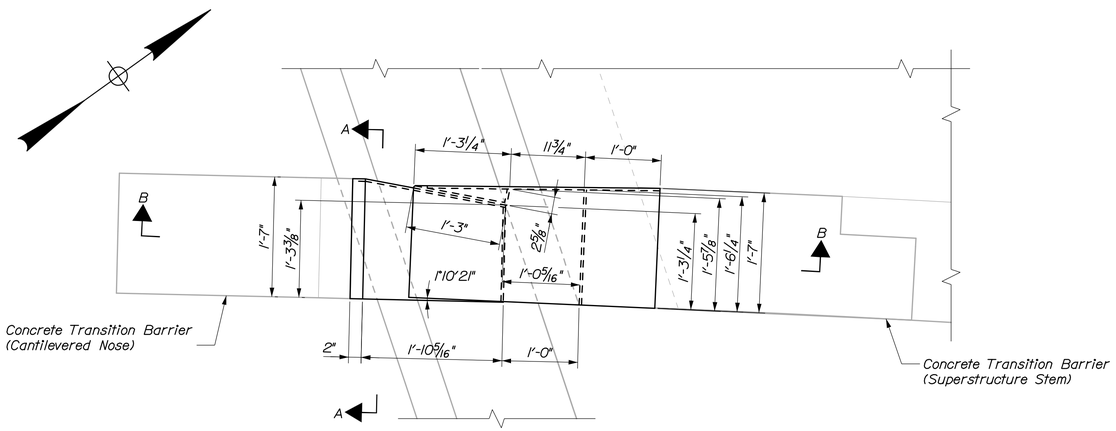
Filename: 125_Bridge Transition Barrier Details 6.dgnDivision:



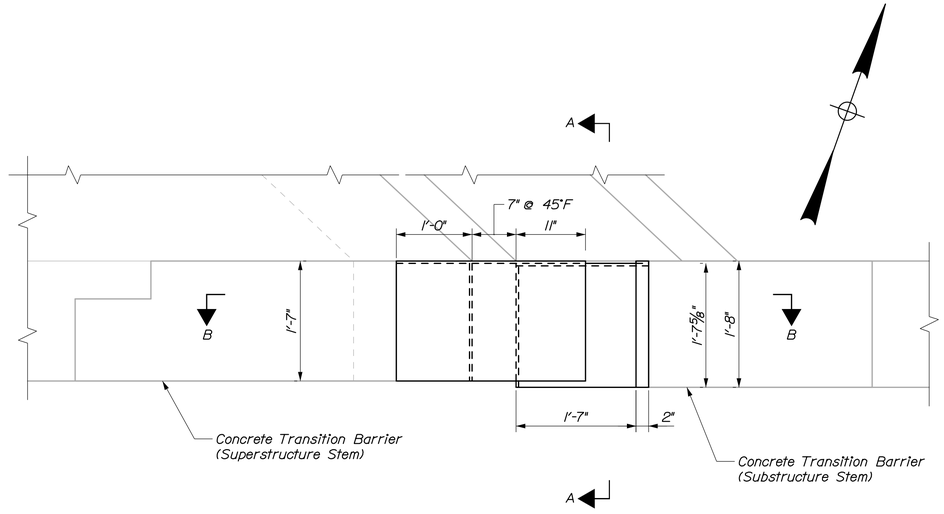
SOUTHWEST BARRIER EXPANSION DAM PLAN



NORTHWEST BARRIER EXPANSION DAM PLAN



SOUTHEAST BARRIER EXPANSION DAM PLAN



NORTHEAST BARRIER EXPANSION DAM PLAN

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	11\20
CHECKED-REVIEWED	K. Segal	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

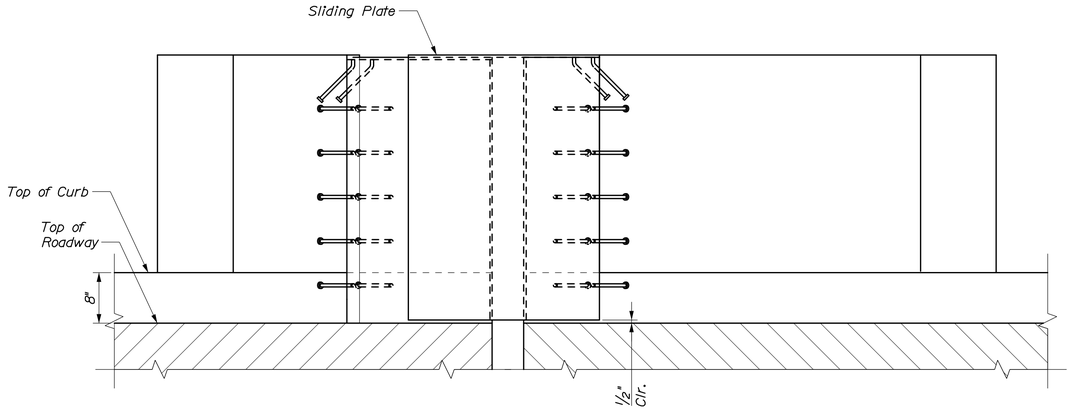
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TRANSITION BARRIER EXPANSION DAM DETAILS 1

SHEET NUMBER
126
OF 160

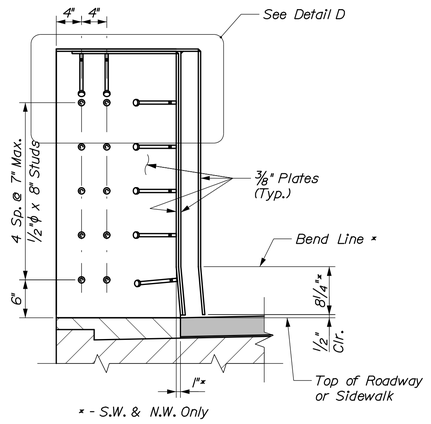
HNTB

Date:11/20/2020
Username:
Filename: 126_Bridge Transition Barrier Details 7.dgn
Division:



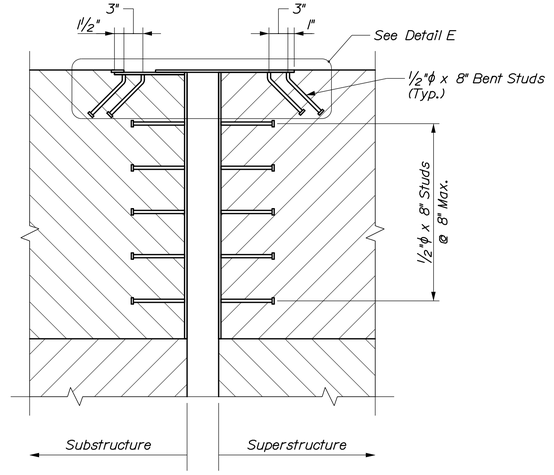
BARRIER EXPANSION DAM ELEVATION

(Southwest Exp. Dam Shown: Others Similar)



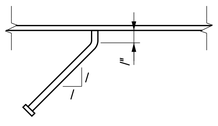
SECTION A-A

(Southwest Exp. Dam Shown: Others Similar)

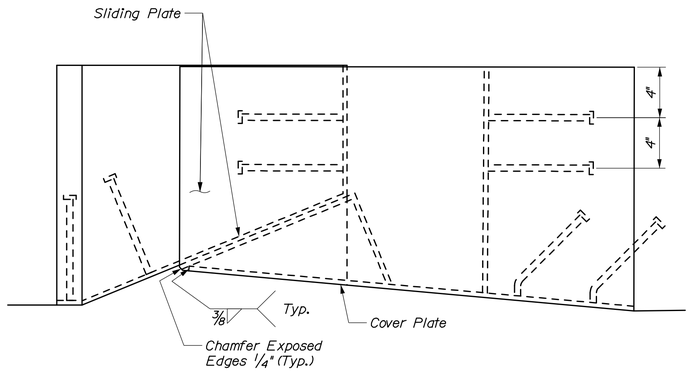


SECTION B-B

(Southwest Exp. Dam Shown: Others Similar)

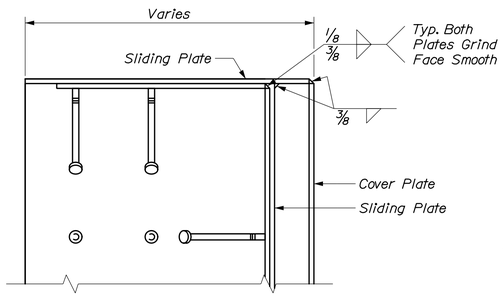


BENT STUD DETAIL



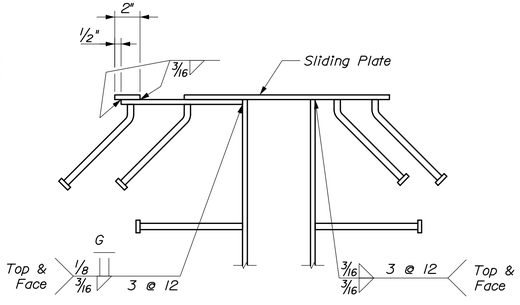
DETAIL A

(All Plates 3/8" Thick)



DETAIL D

(All Plates 3/8" Thick)



DETAIL E

(All Plates 3/8" Thick)

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/2020
DATE

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Olund	P. Bishop 11\20
CHECKED-REVIEWED	J. Olund	K. Segal 11\20
DESIGN2-DETAILED2	-	- -
DESIGN3-DETAILED3	-	- -
REVISIONS 1	-	- -
REVISIONS 2	-	- -
REVISIONS 3	-	- -
REVISIONS 4	-	- -
FIELD CHANGES	-	- -

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

TRANSITION BARRIER
EXPANSION DAM DETAILS 2

SHEET NUMBER

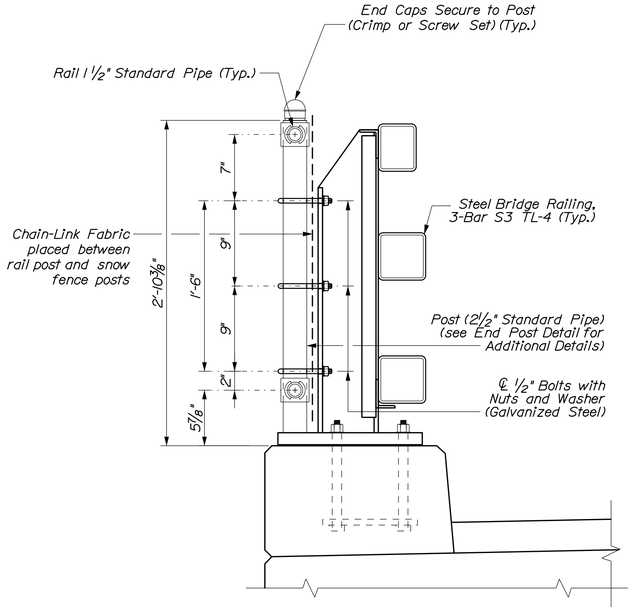
127

OF 160

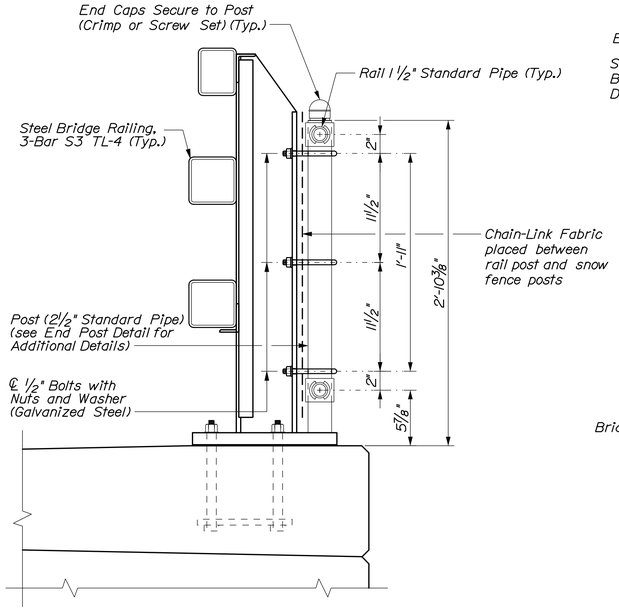
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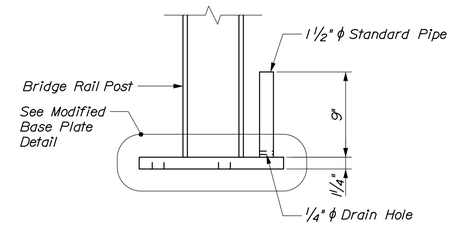
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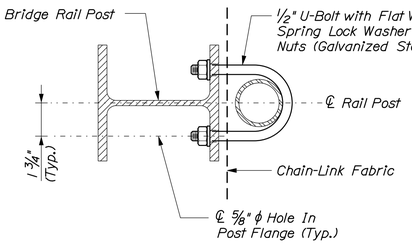
SNOW FENCE CONNECTION DETAIL
NON-SIDEWALK SIDE



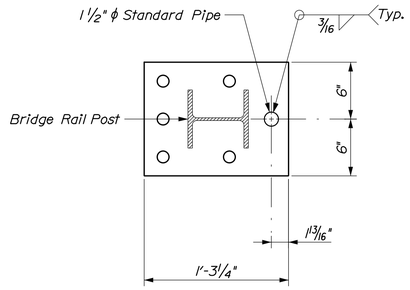
SNOW FENCE CONNECTION DETAIL
SIDEWALK SIDE



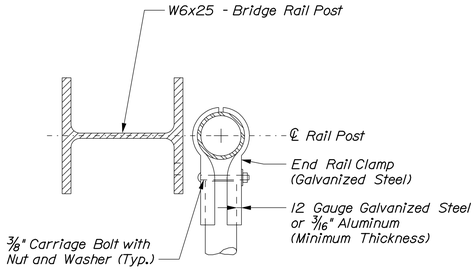
MODIFIED BASE PLATE ELEVATION



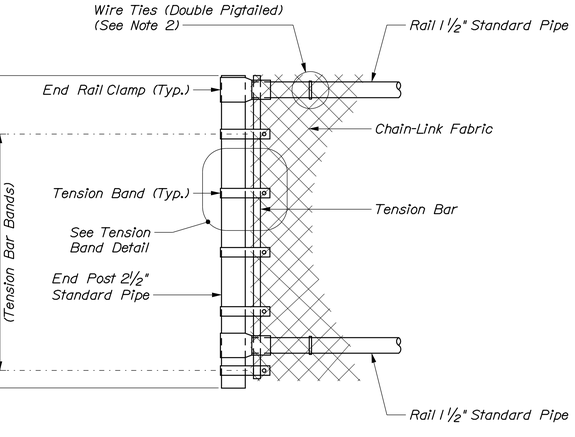
U-BOLT CONNECTION DETAIL
(At Interior Post)



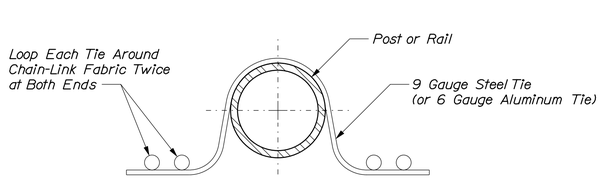
MODIFIED BASE PLATE DETAIL



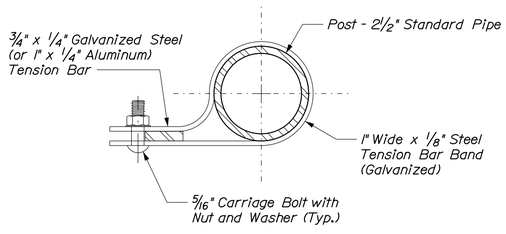
END POST DETAIL
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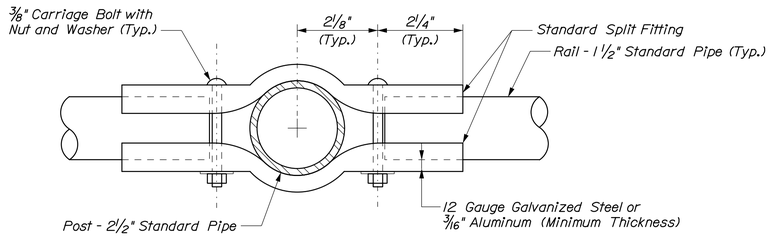
END POST DETAIL



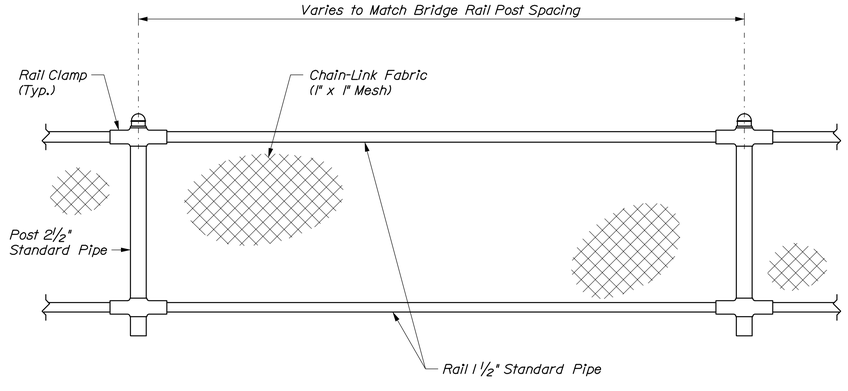
DOUBLE PIGTAILED TIE



TENSION BAND DETAIL



RAIL CLAMP DETAIL



ELEVATION - SNOW FENCE

SNOW FENCE NOTES

1. Chain-Link fence shall conform to Section 710.03 and Special Provision Section 607. The size of wire mesh (fabric) shall be 1".
2. Wire ties shall be standard round 9 gauge zinc- or aluminum-coated steel or 6 gauge aluminum alloy conforming to ASTM F626. All ties shall be wrapped around chain-link fabric twice (double pigtailed) at both ends. Space ties @ 6" o.c. to bottom rail and @ 12" o.c. to all posts and other rails. Mechanical/Power fastened fence ties acceptable.
3. Post and rail pipe shall be hot-dip galvanized. All pipe shall be schedule 40, standard weight. Nominal pipe sizes are shown.
4. Tension bars, bar bands, boulevard and end rail clamps shall be steel or aluminum alloy conforming to AASHTO M181 (ASTM F626). Steel components shall be hot-dip galvanized in accordance with AASHTO M111 (ASTM A123) or AASHTO M232 (ASTM A153) as applicable.
5. All bolts and nuts shall be steel conforming to ASTM A307 and ASTM A563 grade A respectively. Washers shall be hardened steel commercial type A plain and shall meet the dimensional requirements of ANSI B18.22. All bolts, nuts and washers shall be hot-dip galvanized in accordance with AASHTO M111 (ASTM A123) or AASHTO M232 (ASTM A153) as applicable.
6. Rail may be field cut (sawn) to fit post spacing. Repair galvanizing on cut edges in accordance with ASTM A780.

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DEPARTMENT OF TRANSPORTATION

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

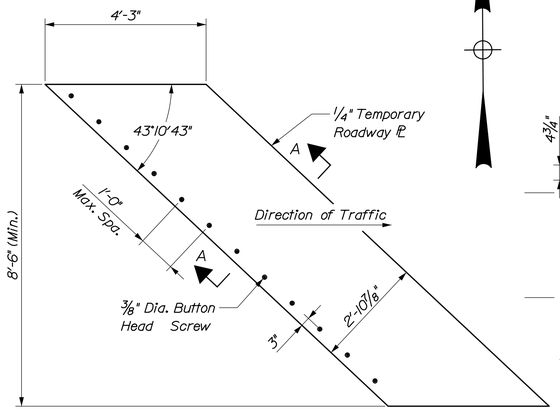
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DESIGN-DETAILED	J. Olund	P. Bishop	11\20
CHECKED-REVIEWED	K. Segal	J. Olund	11\20
DESIGN2-DETAILED2		-	-
DESIGN3-DETAILED3		-	-
REVISIONS 1		-	-
REVISIONS 2		-	-
REVISIONS 3		-	-
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FIELD CHANGES		-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

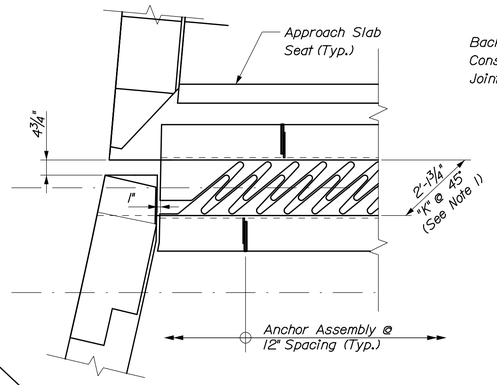
SNOW FENCE DETAILS

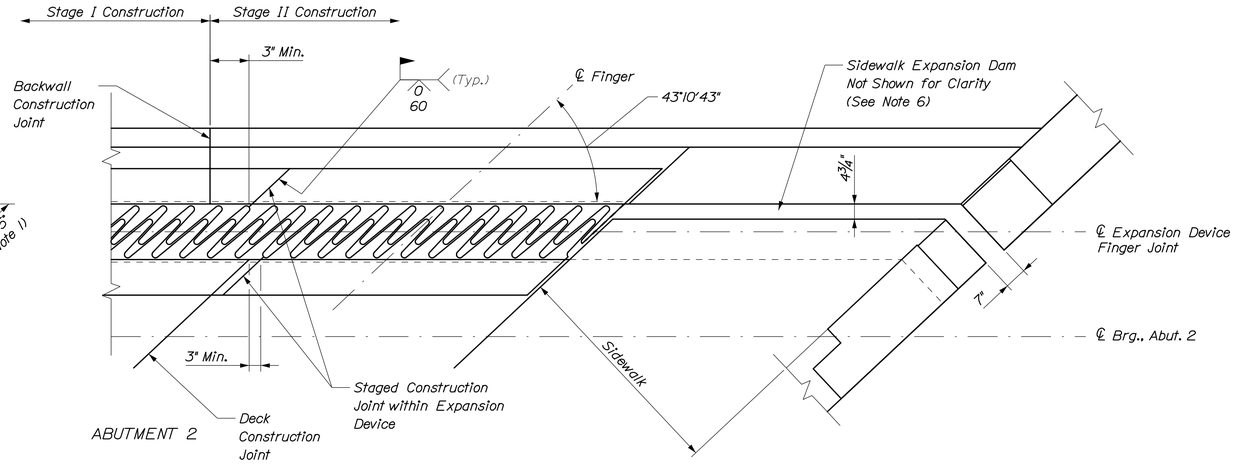
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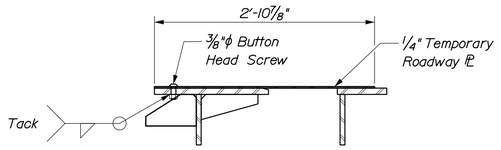


PLAN



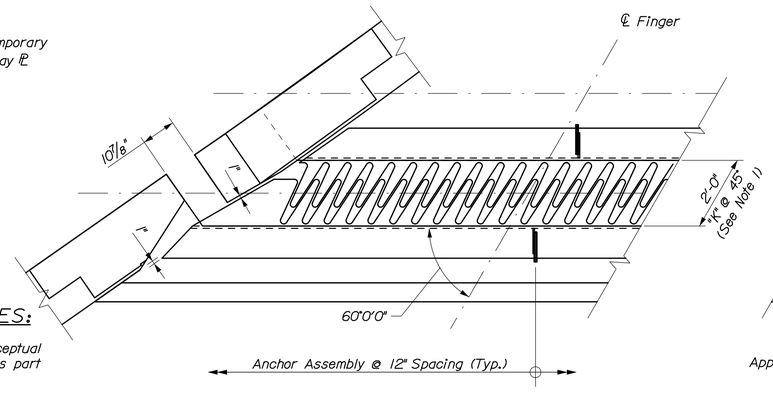


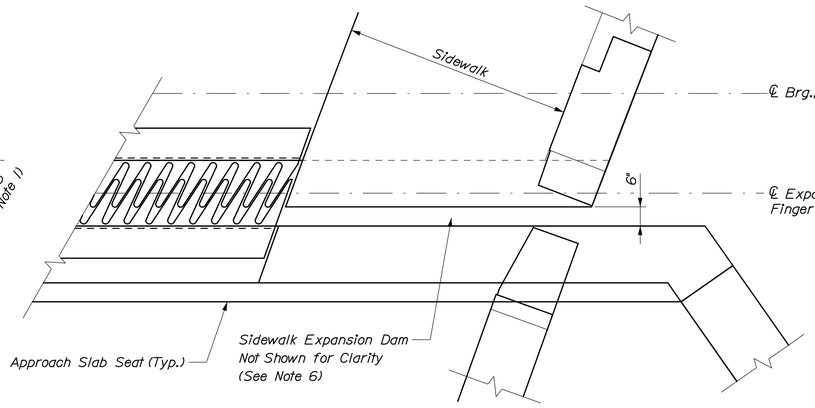
ABUTMENT 2



SECTION A-A

TEMPORARY PEDESTRIAN PLATE





ABUTMENT 1

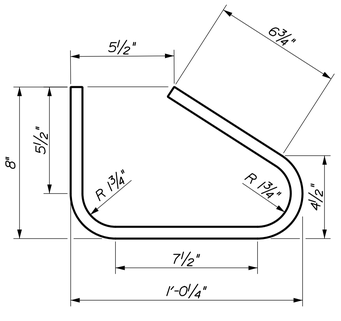
EXPANSION JOINT PARTIAL PLAN

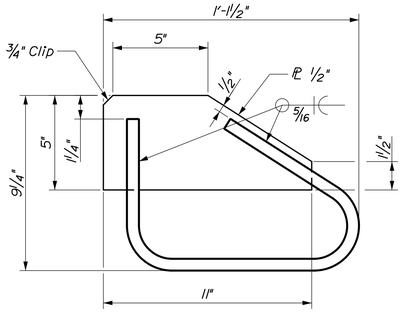
TEMPORARY PEDESTRIAN PLATE NOTES:

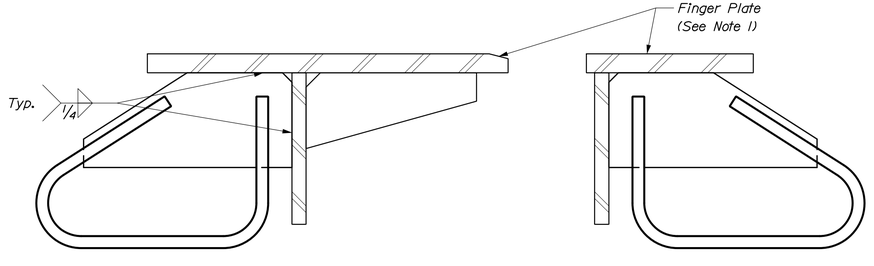
1. The temporary pedestrian plate details provided are conceptual only. The Contractor shall submit final details for approval as part of the Expansion Device - Finger Joint Shop Drawings.

2. After Stage II Construction is complete, and the temporary pedestrian plate is removed, the bolt hols shall be filled with grout as approved by the Resident.

3. Payment for detailing, furnishing, installing, and removing the temporary pedestrian plate and for filling holes and all other incidentals will not be made separately; the cost shall be incidental to Item 521.23, Expansion Joint - Finger Joint (Abutment 2).







FINGER JOINT ANCHOR ASSEMBLY DETAILS

EXPANSION JOINT NOTES:

1. Expansion Device - Finger Joints shall be installed in accordance with Standard Details 521(01) thru 521(12) and the anchorage details provided herein. The joint geometry shall conform to the following:

   - Abutment 1 Expansion Device: Type E, Skew Angle " > 30° to 40° "

   - Abutment 2 Expansion Device: Type E, Skew Angle " > 40° to 50° "

2. The kerf thickness used to cut the finger plates shall be 3/8" thick in-lieu of the 1/8" value identified within the Standard Details.

3. All anchorage assembly reinforcing steel to be #5 bar unless otherwise noted.

4. With the exception of localized concrete joint header blockouts, the superstructure slab and backwall concrete shall be in place before the Expansion Device is fixed in position.

5. All dimensions shown on this sheet are at 45°F, unless noted otherwise.

6. Sidewalk expansion dams are not shown on this sheet. Furnish and install sidewalk expansion dams in accordance with Standard Details 521(09) thru 521(12).

7. See Abutment Elevation sheets for backwall geometry and expansion device profile grades.

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

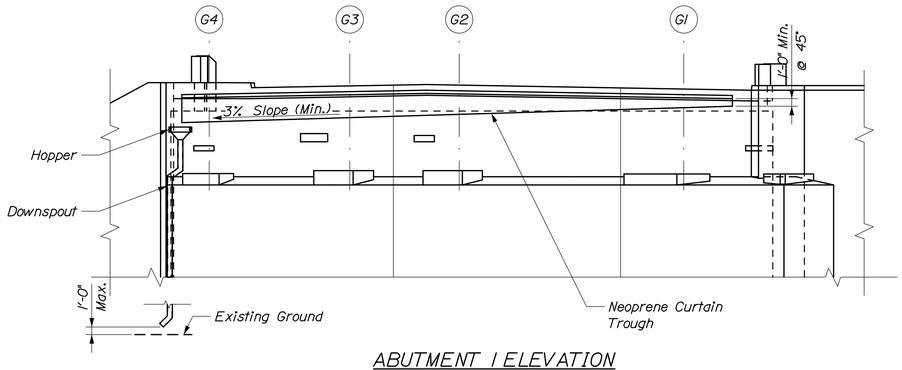
	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	J. Olund	P. Bishop	11\20
CHECKED-REVIEWED	C. Count	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

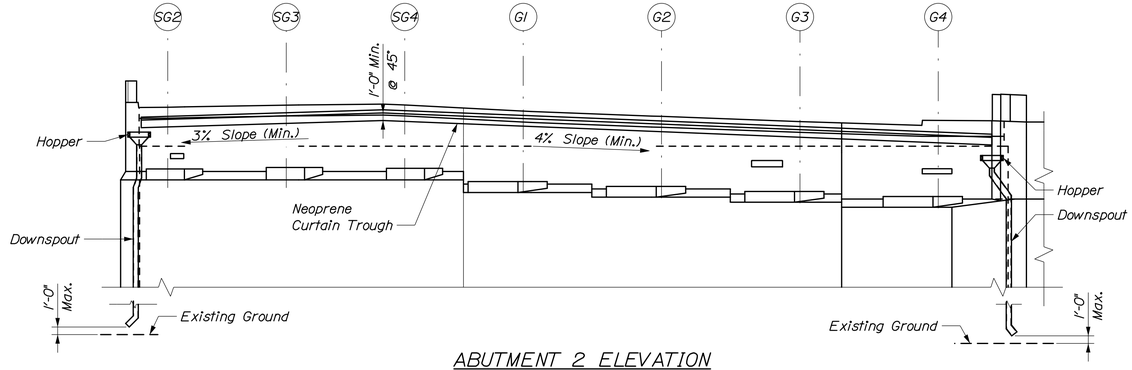
EXPANSION DEVICE DETAILS

SHEET NUMBER
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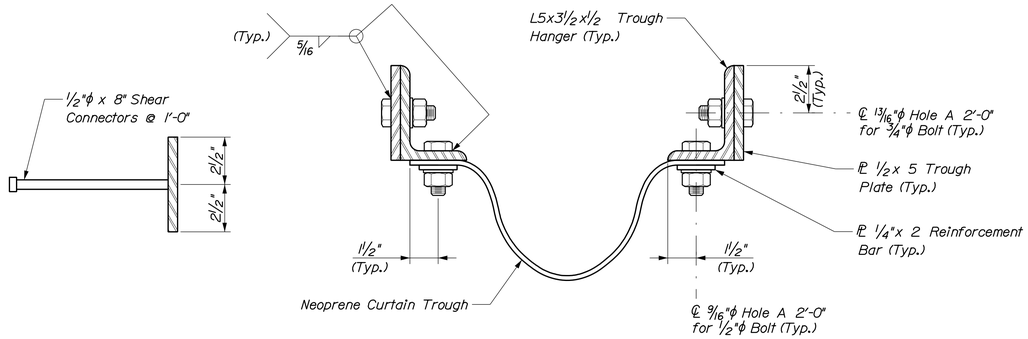
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ABUTMENT 1 ELEVATION
(Looking Downstation)

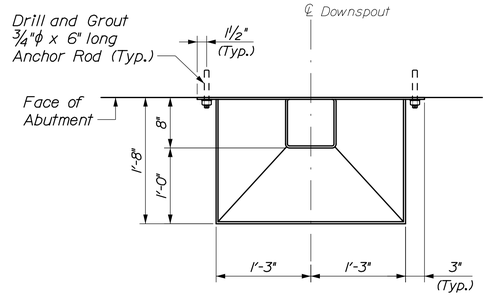


ABUTMENT 2 ELEVATION
(Looking Upstation)

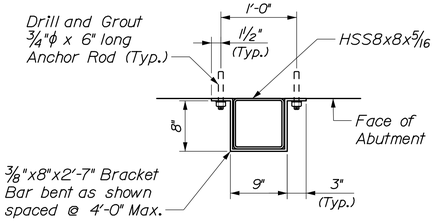


TROUGH PLATE ANCHORAGE SECTION

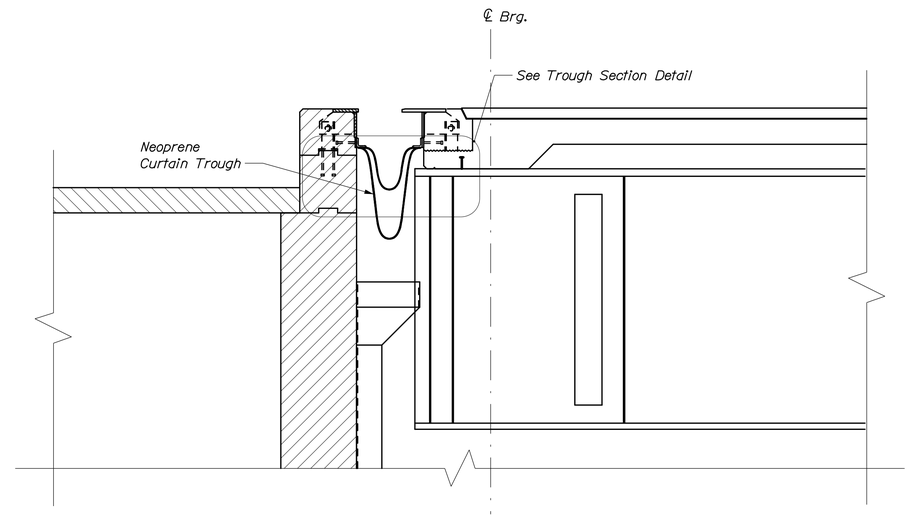
TROUGH SECTION DETAIL



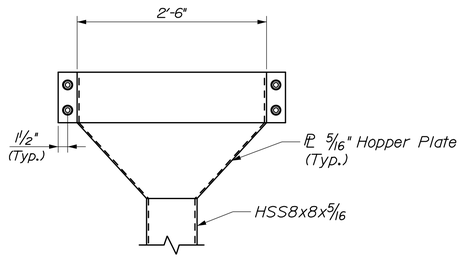
DOWNSPOUT PLAN



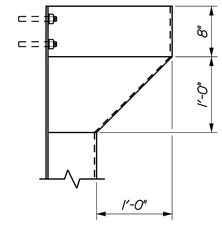
DOWNSPOUT ATTACHMENT BRACKET DETAIL



ABUTMENT SECTION



DOWNSPOUT ELEVATION



DOWNSPOUT SIDE ELEVATION

DOWNSPOUT NOTES:

1. The exact position of the downspouts shall be determined in the field and shall be coordinated with Curtain Trough Details.

2. All plates and bars shall conform to AASHTO M270 Grade 36 and shall be galvanized in accordance with AASHTO M111 (ASTM 123) after fabrication.

3. Brackets shall be galvanized in accordance with AASHTO M111 (ASTM 123) after fabrication.

4. All rods and related hardware shall be ASTM A307 and shall be galvanized in accordance with ASTM A153 (AASHTO M232).

5. At Contractor's option, alternate downspout details and locations may be submitted to the Resident for approval.

6. Any place where the galvanizing has been removed from the downspout either by cutting, burning, welding, placing, or any other means shall be repaired to the requirements of ASTM A780 and Annexes A1, A2, or A3.

7. Fabric Troughs to overlap a minimum of 6 inches at the crown.

8. Trough shall maintain clearance of 2" from utility blockout when bridge is in fully expanded condition.

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STATE OF MAINE
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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	DATE
PROJ. MANAGER		
DESIGN-DETAILED	J. Olund	P. Bishop	11\20
CHECKED-REVIEWED	J. Olund	C. Count	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
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FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

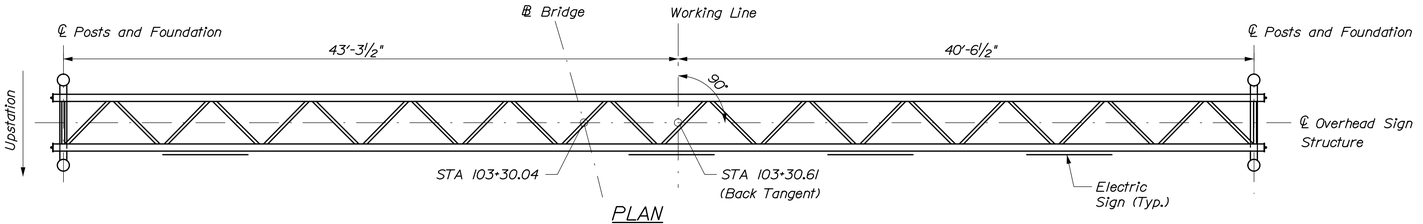
DOWNSPOUT AND TROUGH DETAILS

SHEET NUMBER
130
OF 160

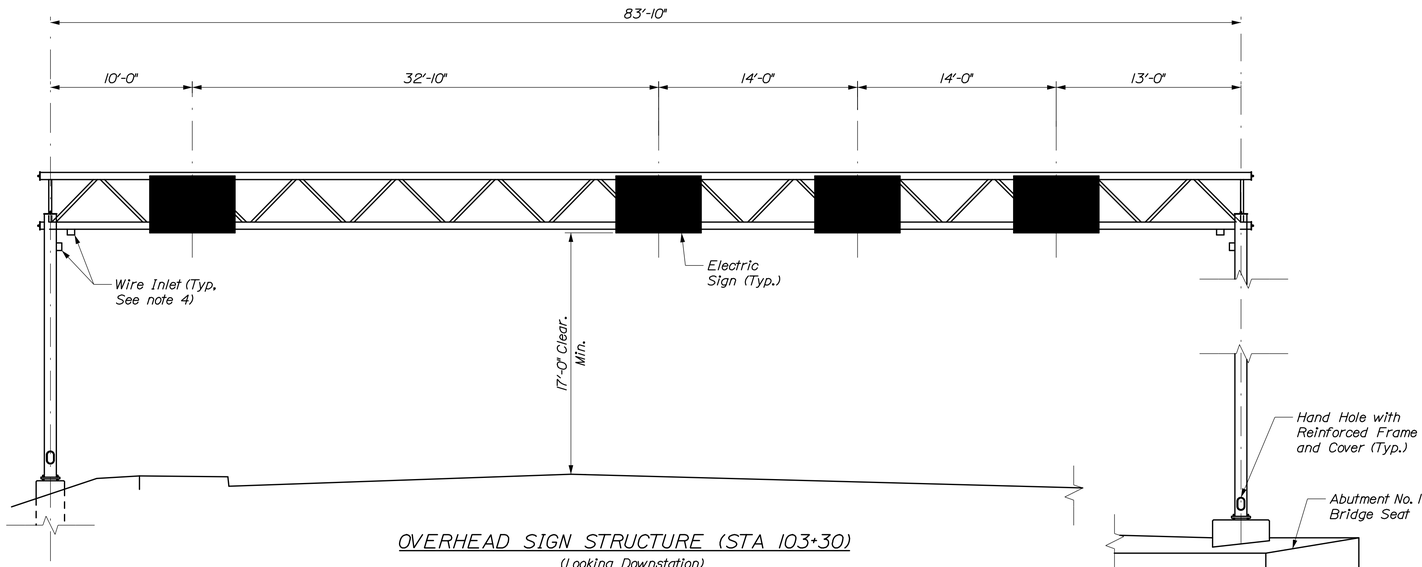
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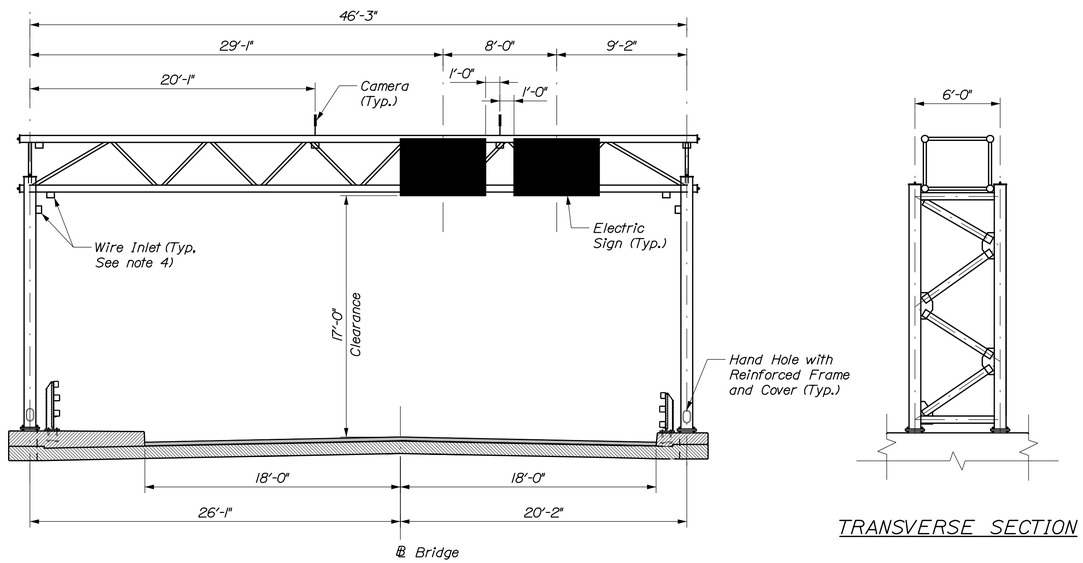


PLAN



OVERHEAD SIGN STRUCTURE (STA 103+30)

(Looking Downstation)



OVERHEAD SIGN STRUCTURE (STA 112+85)

(Looking Downstation)

TRANSVERSE SECTION

OVERHEAD GUIDE SIGN STRUCTURES

1. Overhead Guide Sign structures shall each be a four-chord, bridge-type structure designed in accordance with Standard Specification 645; structure geometry shown herein is conceptual only.

2. Electric signs, cameras, and support brackets will be finished and installed by Others.

3. Install wire inlets in the bottom chords (front and back chords) at the centerline of each sign and at the face of posts. Install wire inlets in the top chords (front and back chords) at the centerline of each camera and at the face of posts.

ASSUMED OVERHEAD SIGN STRUCTURE DESIGN CRITERIA

Post/Leg Design Reactions (Per Post, Unfactored)			
Location	Vertical (kip)	Lateral (kip)	Transverse Moment (kip-ft)
103+30	138.0	13.0	87.0
112+85	53.0	7.0	26.5

1. These foundations have been designed using the design reactions per post shown in the table above. The moment due to longitudinal wind (normal to span of structure) has been resolved into the vertical components assuming a 6'-0" column spacing for the moment couple. The loads from the overhead sign structure shall not exceed the loads shown.

2. These foundations have been designed using an assumed overhead sign structure upright spacing of 6'-0". The overhead sign structure shall have an upright spacing of 6'-0" unless otherwise approved by the Engineer.

3. If Contractor designs a sign structure that does not meet the requirements stated in Notes 1 and 2, the Engineer shall be notified and foundation and deck overhang designs shall be reevaluated.

FOUNDATION NOTES

1. The maximum factored footing bearing pressure is 6.0 ksf.

2. Overhead sign structure spread footing bearing on soil shall be supported either on naturally deposited and proof-compacted soil or on Item 703.19, Granular Borrow. Natural soil subgrade shall be reviewed by the Resident.

3. Overhead sign structure and foundations, complete and in place shall be paid under the 645.12 Pay Items. Included in this item shall be any excavation, granular borrow and any required incidentals.

4. A Clear Protective Coating for Concrete Surfaces, conforming to Special Provision 515, shall be applied on all concrete surfaces above finished grade to 1 foot below finished grade. Coating shall be incidental to the 645.12 Pay Item.

5. The gap between the base plate and top of foundation shall be wrapped in AWG #16 stainless steel wire cloth, with a ¼" maximum opening and a 2" lap. Secure with ¾" stainless steel banding after anchor rods are installed. All costs shall be incidental to the 645.12 items.

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BRIDGE PLANS

BRIDGE NO. 2399

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · REGISTERED PROFESSIONAL ENGINEER

SIGNATURE 12130

P.E. NUMBER 11/19/2020

DATE

	BY	DATE
A. LATHE	P. Bishop	11\20
PROJ. MANAGER	J. Olund	11\20
DESIGN-DETAILED	J. Burns	-
CHECKED-REVIEWED	J. Waugh	-
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

OVERHEAD SIGN STRUCTURES

SHEET NUMBER

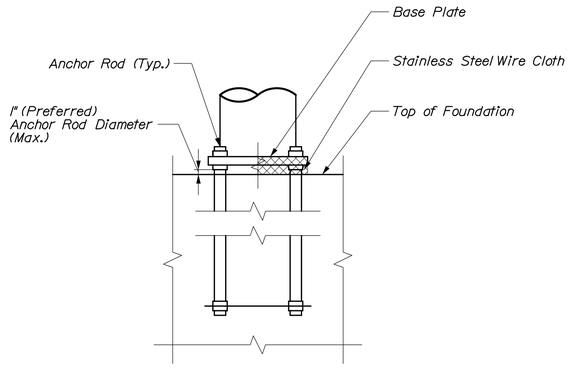
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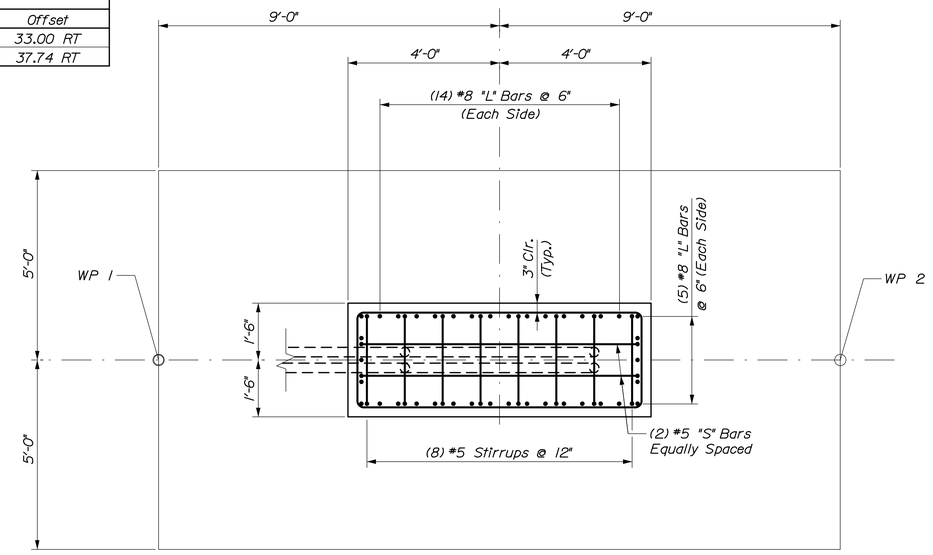
HNTB

Filename: 131_Overhead Sign Structures.dgn Division: Username: Date:11/20/2020

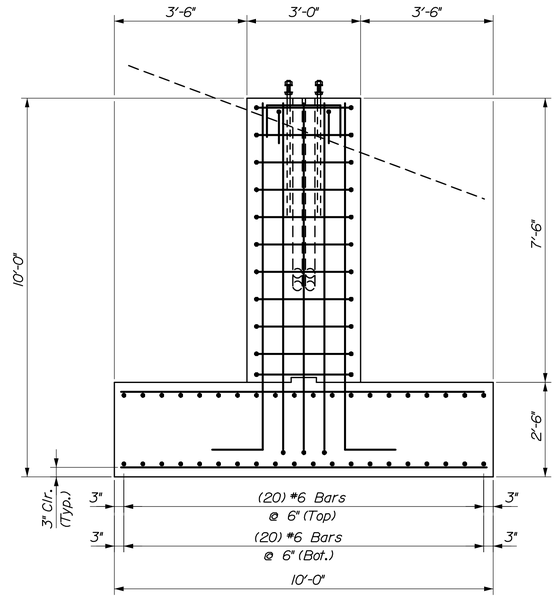
TABLE OF WORKING POINTS				
W.P.	Northing	Easting	Station	Offset
1	1285501.5129	2182788.1307	103+10.26	33.00 RT
2	1285513.7295	2182801.3503	103+29.23	37.74 RT



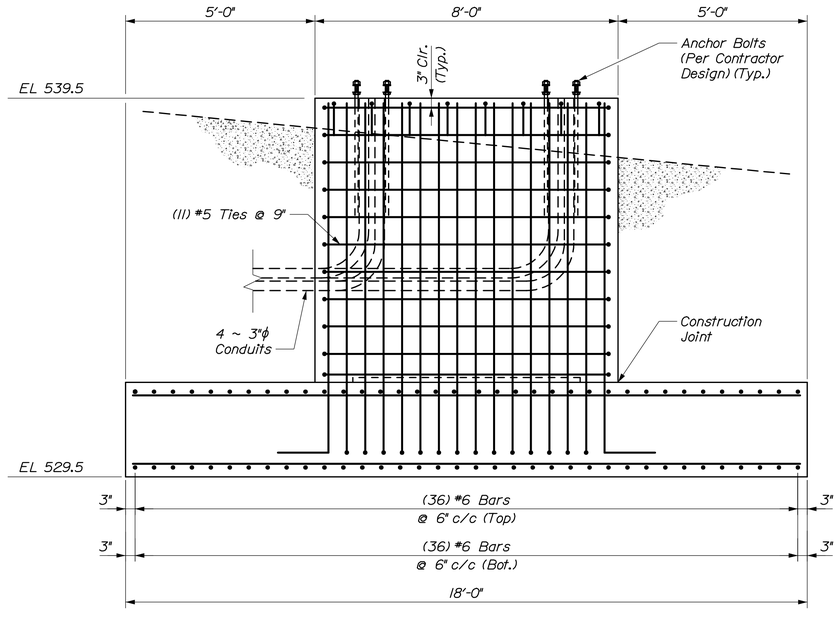
ANCHOR ROD DETAIL



PLAN VIEW



END VIEW



SIDE VIEW

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE NO. 2399

BRIDGE PLANS

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	J. Burns	11\20
CHECKED-REVIEWED	J. Wough	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

OVERHEAD SIGN STRUCTURES

SHEET NUMBER

132

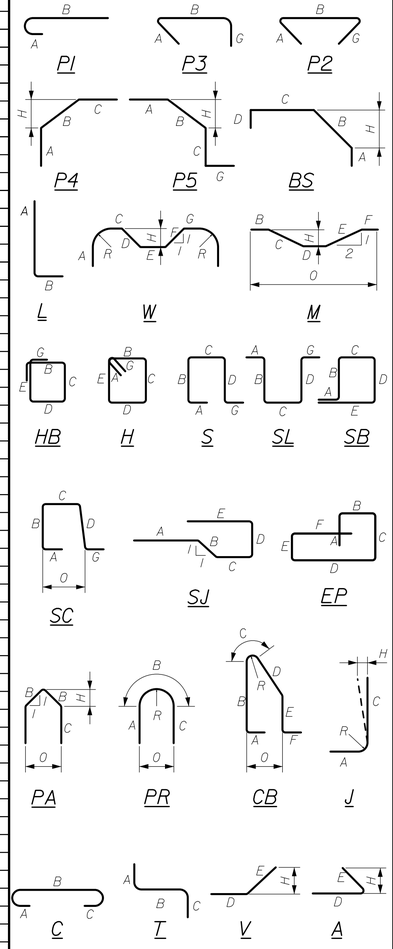
OF 160

HNTB

Filename: 132_Overhead Sign Structure Support.dgn Division: Username: Date:12/4/2020

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
ABUTMENT 1 AND WINGWALLS																			
A501ss	14	29'-8"	Bridge Seat, Horizontal	A551ss	168	13'-0"	BS	2'-0"	7'-4"	1'-8"	2'-0"				1'-1"				Bridge Seat, Top
A502ss	1	22'-5"	Bridge Seat, Horizontal	A552ss	16	12'-6"	BS	2'-0"	6'-10"	1'-8"	2'-0"				1'-1"				Bridge Seat, Left Side
A503ss	1	23'-7"	Bridge Seat, Horizontal	A553ss	162	12'-1"	L	1'-7"	10'-6"										Backwall, Vertical, F.F.
A504ss	1	24'-9"	Bridge Seat, Horizontal	A554ss	156	12'-4"	S	0'-0"	5'-7"	1'-2"	5'-7"			0'-0"					Backwall, Top
A505ss	1	25'-11"	Bridge Seat, Horizontal	A555ss	9	12'-6"	S	0'-0"	5'-7"	1'-4"	5'-7"			0'-0"					Backwall
A506ss	1	27'-1"	Bridge Seat, Horizontal	A556	46	4'-10"	P4	2'-0"	0'-10"	2'-0"					0'-7"				Approach Slab Dowel
A507ss	1	26'-7"	Bridge Seat, Horizontal	A557ss	2	14'-11"	S	0'-0"	2'-0"	10'-11"	2'-0"			0'-0"					Backwall, Sidewalk
A508ss	1	26'-0"	Bridge Seat, Horizontal	A558ss	28	3'-7"	V				2'-6"	1'-1"			0'-10"				Backwall, Corners
A509ss	79	10'-6"	Backwall, Vertical, N.F.	A559ss	14	8'-3"	V				2'-6"	5'-9"			4'-0"				Backwall, Corners
A510ss	20	10'-11"	Bacvkwall, Vertical, Corners	A560ss	14	9'-8"	L	2'-6"	7'-2"										Backwall, Corners
A511ss	52	29'-8"	Backwall, Horizontal	A561ss	4	15'-11"	CB	0'-0"	6'-4"	0'-5"	4'-1"	5'-1"	0'-0"			4'-2"	0'-3"		Pedestals, G4
A512ss	26	19'-9"	Backwall, Horizontal	A562ss	8	16'-11"	CB	0'-0"	7'-1"	0'-5"	4'-5"	5'-0"	0'-0"			4'-2"	0'-3"		Pedestals, G2 and G3
A513ss	157	14'-0"	Wingwall, Upper Section, Vertical	A563ss	4	21'-9"	CB	0'-0"	10'-0"	0'-6"	6'-2"	5'-1"	0'-0"			4'-2"	0'-3"		Pedestals, GI
A514ss	60	13'-5"	Wingwall, Upper Section, Vertical	A564ss	6	19'-8"	HB	0'-6"	7'-2"	2'-2"	7'-2"	2'-2"		0'-6"					OSS Pedestal
A515ss	30	13'-2"	Wingwall, Upper Section, Vertical	A565ss	16	10'-2"	S	0'-0"	3'-10"	2'-6"	3'-10"			0'-0"					OSS Pedestal
A516ss	30	11'-7"	Wingwall, Upper Section, Vertical	A566ss	6	15'-2"	S	0'-0"	3'-10"	7'-6"	3'-10"			0'-0"					OSS Pedestal
A517ss	24	10'-0"	Wingwall, Upper Section, Vertical	A567	128	9'-4"	S	0'-0"	0'-10"	7'-8"	0'-10"			0'-0"					SE Wingwall Step
A518ss	23	8'-10"	Wingwall, Upper Section, Vertical	A568	132	8'-12"	S	0'-0"	0'-10"	7'-4"	0'-10"			0'-0"					SW Wingwall Step
A519ss	35	14'-3"	Wingwall, Upper Section, Vertical	A569	70	7'-9"	S	0'-0"	0'-10"	6'-1"	0'-10"			0'-0"					SW Wingwall Step
A520ss	34	11'-2"	Wingwall, Upper Section, Vertical	A570ss	301	6'-10"	S	0'-0"	2'-9"	1'-4"	2'-9"			0'-0"					Wingwall Tops
A521ss	31	15'-3"	Wingwall, Upper Section, Vertical	A571ss	5	19'-11"	V				0'-10"	19'-1"			3'-2"				Wingwall, Upper Section, Horiz.
A522ss	30	12'-7"	Wingwall, Upper Section, Vertical	A572ss	2	23'-2"	V					22'-3"	0'-11"		0'-4"				Wingwall, Upper Section, Horiz.
A523ss	29	26'-6"	Wingwall, Upper Section, Horiz.	A573ss	16	15'-6"	S	0'-0"	4'-11"	4'-2"	6'-5"			0'-0"					Pedestals
A524ss	29	24'-8"	Wingwall, Upper Section, Horiz.																
A525ss	29	19'-8"	Wingwall, Upper Section, Horiz.	A651	164	5'-6"	S	0'-0"	1'-0"	3'-6"	1'-0"			0'-0"					SW Wingwall, Perimeter
A526ss	16	19'-8"	Wingwall, Upper Section, Horiz.	A652ss	24	12'-7"	S	0'-0"	3'-10"	4'-11"	3'-10"			0'-0"					Pedestals, G4
A527ss	2	13'-9"	Wingwall, Upper Section, Horiz.	A653ss	1	12'-5"	S	0'-0"	3'-10"	4'-9"	3'-10"			0'-0"					Pedestals, G2 and G3
A528ss	2	7'-10"	Wingwall, Upper Section, Horiz.	A654ss	1	12'-8"	S	0'-0"	3'-10"	5'-0"	3'-10"			0'-0"					Pedestal, GI
A529ss	2	2'-0"	Wingwall, Upper Section, Horiz.	A655ss	1	11'-3"	S	0'-0"	3'-10"	3'-7"	3'-10"			0'-0"					Pedestals, G2 - G4
A530ss	10	14'-8"	Wingwall, Upper Section, Horiz.	A656ss	1	14'-9"	S	0'-0"	3'-10"	7'-1"	3'-10"			0'-0"					Pedestal, GI
A531ss	2	13'-3"	Wingwall, Upper Section, Horiz.	A657ss	1	13'-12"	S	0'-0"	3'-10"	6'-4"	3'-10"			0'-0"					Pedestal, GI
A532ss	2	7'-8"	Wingwall, Upper Section, Horiz.	A658ss	1	13'-3"	S	0'-0"	3'-10"	5'-7"	3'-10"			0'-0"					Pedestal, GI
A533ss	2	2'-0"	Wingwall, Upper Section, Horiz.	A659ss	1	12'-6"	S	0'-0"	3'-10"	4'-10"	3'-10"			0'-0"					Pedestal, GI
A534ss	5	14'-10"	Wingwall, Upper Section, Horiz.	A660ss	1	11'-9"	S	0'-0"	3'-10"	4'-1"	3'-10"			0'-0"					Pedestal, GI
A535ss	14	22'-6"	Wingwall, Upper Section, Horiz.	A661ss	1	10'-12"	S	0'-0"	3'-10"	3'-4"	3'-10"			0'-0"					Pedestal, GI
A536ss	2	18'-9"	Wingwall, Upper Section, Horiz.	A662ss	1	10'-3"	S	0'-0"	3'-10"	2'-7"	3'-10"			0'-0"					Pedestal, GI
A537ss	2	15'-1"	Wingwall, Upper Section, Horiz.	A663ss	1	9'-6"	S	0'-0"	3'-10"	1'-10"	3'-10"			0'-0"					Pedestal, GI
A538ss	2	11'-4"	Wingwall, Upper Section, Horiz.	A664ss	52	11'-8"	S	0'-0"	3'-10"	4'-0"	3'-10"			0'-0"					Pedestals
A539ss	2	7'-8"	Wingwall, Upper Section, Horiz.	A665ss	4	12'-8"	S	0'-0"	3'-10"	5'-0"	3'-10"			0'-0"					Pedestals
A540ss	2	4'-0"	Wingwall, Upper Section, Horiz.																
A541ss	16	19'-8"	Wingwall, Upper Section, Horiz.	A751	414	6'-10"	S	0'-0"	1'-2"	4'-6"	1'-2"			0'-0"					Abutment Footing, Perimeter
A542ss	2	18'-10"	Wingwall, Upper Section, Horiz.	A752	10	8'-0"	V				4'-0"	4'-0"			2'-4"				Abutment Footing Corners
A543ss	2	15'-5"	Wingwall, Upper Section, Horiz.	A753	108	8'-8"	L	1'-2"	7'-6"										Abutment Stemwall Dowel, N.F.
A544ss	2	12'-0"	Wingwall, Upper Section, Horiz.	A754	27	13'-8"	S	0'-0"	2'-6"	8'-8"	2'-6"			0'-0"					Abutment Stemwall, Side Face
A545ss	2	8'-8"	Wingwall, Upper Section, Horiz.	A755	28	6'-4"	S	0'-0"	2'-6"	1'-4"	2'-6"			0'-0"					Stemwall, Side, Corner
A546ss	2	5'-3"	Wingwall, Upper Section, Horiz.	A756	27	20'-10"	S	0'-0"	5'-3"	7'-11"	7'-8"			0'-0"					Stemwall, Side, Corner
A547ss	2	20'-4"	Wingwall, Upper Section, Horiz.	A757	55	7'-8"	V				3'-10"	3'-10"			2'-2"				Stemwall, Side, Corner
A548ss	32	4'-0"	Backwall, Utility Blockouts	A758	97	8'-5"	L	1'-2"	7'-3"										Wingwall Footing Dowel, N.F.
				A759	171	7'-8"	L	1'-2"	6'-6"										SW Footing Dowel, N.F. & F.F.
A601	58	55'-0"	SW Wingwall Footing, Top & Bot.																
				A1051	170	11'-8"	L	1'-10"	9'-10"										Abutment Stem Dowel, F.F.
A701	66	52'-9"	S.E. Wingwall Footing, Top & Bot.	A1052	202	11'-3"	L	1'-10"	9'-5"										Wingwall Stem Dowel, F.F.
A702	128	40'-5"	Abut. Footing, Top and Bot.																
A703	132	35'-9"	SW Wingwall Footing, Top & Bot.																
A704	228	18'-3"	SW Wingwall Footing, Top & Bot.																
A705	6	28'-6"	Wingwall Footing, Ends																
A706	108	25'-9"	Abutment Stemwall, N.F.																
A707	110	29'-8"	Abutment Stemwall, Horizontal																
A708	55	21'-3"	Abutment Stemwall, Horizontal																
A709	171	12'-11"	SW Wingwall Vertical, F.F.																
A710	82	26'-11"	Wingwall, Vertical, N.F.																
A711	25	19'-10"	Wingwall, Vertical, N.F.																
A712	62	26'-6"	Wingwall Horizontal, E.F.																
A713	62	24'-8"	Wingwall Horizontal, E.F.																
A714	114	19'-8"	Wingwall Horizontal, E.F.																
A715	62	22'-6"	Wingwall Horizontal, E.F.																
A716	33	14'-8"	Wingwall Horizontal, E.F.																
A1001	170	26'-11"	Abutment Stemwall, F.F.																
A1002	150	26'-11"	Wingwall Vertical, F.F.																
A1003	40	19'-10"	SE Wingwall Vertical, F.F.																
A1101	484	28'-6"	Wingwall Footings																
A1102	312	27'-6"	Abutment Footing																

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, AC1 440.1r-15

GENERAL NOTES

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

   Mark "A502" = bar size #5
   Mark "P805" = bar size #8
   Mark "S650" = bar size #6
   Mark "S650ss" = bar size #6 Stainless Steel
   Mark "S600H" = bar size #6 Grade 75

2. 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.

3. Bar marks ending with "H" indicate plain Grade 75. Bar marks ending with "ss" indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	T. Poulin	P. Bishop	11\20
CHECKED-REVIEWED	K. Segal	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 1

SHEET NUMBER

133

OF 160

Username:

Date:11/20/2020

Division:

Filename: 133_Reinforcement Schedule 1.dgn

Username:

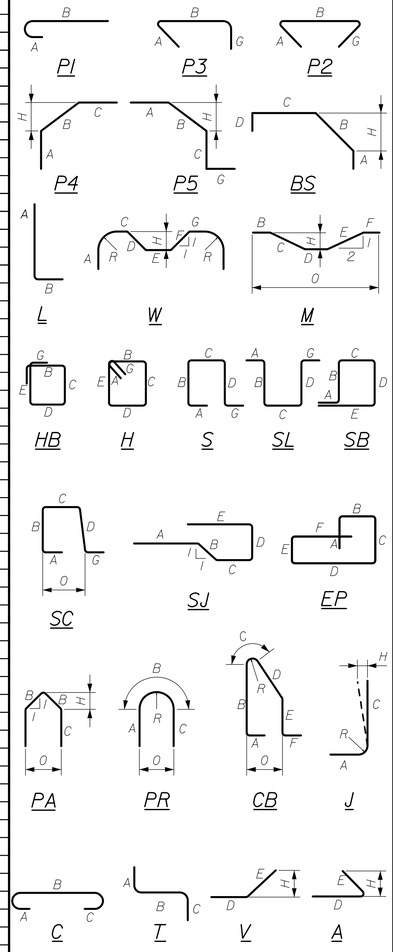
Date:11/20/2020

Division:

Filename: 134_Reinforcement Schedule 2.dgn

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
ABUTMENT 2 AND WINGWALLS																			
B501ss	1	22'-6"	Stage II - Abutment Seat Horiz.	B550ss	1	45'-8"	S	0'-0"	0'-10"	44'-0"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B502ss	1	21'-9"	Stage II - Abutment Seat Horiz.	B551ss	2	45'-9"	S	0'-0"	0'-10"	44'-1"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B503ss	1	21'-1"	Stage II - Abutment Seat Horiz.	B552ss	1	45'-10"	S	0'-0"	0'-10"	44'-2"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B504ss	1	20'-4"	Stage II - Abutment Seat Horiz.	B553ss	2	45'-11"	S	0'-0"	0'-10"	44'-3"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B505ss	1	19'-8"	Stage II - Abutment Seat Horiz.	B554ss	1	46'-0"	S	0'-0"	0'-10"	44'-4"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B506ss	1	19'-0"	Stage II - Abutment Seat Horiz.	B555ss	3	46'-1"	S	0'-0"	0'-10"	44'-5"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B507ss	1	18'-3"	Stage II - Abutment Seat Horiz.	B556ss	1	46'-3"	S	0'-0"	0'-10"	44'-7"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B508ss	1	17'-7"	Stage II - Abutment Seat Horiz.	B557ss	1	46'-4"	S	0'-0"	0'-10"	44'-8"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B509ss	1	16'-10"	Stage II - Abutment Seat Horiz.	B558ss	12	18'-1"	S	0'-0"	0'-10"	16'-5"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B510ss	1	16'-2"	Stage II - Abutment Seat Horiz.	B559ss	12	19'-5"	S	0'-0"	0'-10"	17'-9"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B511ss	1	15'-5"	Stage II - Abutment Seat Horiz.	B560ss	12	15'-10"	S	0'-0"	0'-10"	14'-2"	0'-10"			0'-0"					Stage I - Abutment Seat Trans.
B512ss	1	14'-9"	Stage II - Abutment Seat Horiz.	B561ss	111	12'-10"	BS	2'-0"	7'-1"	1'-9"	2'-0"				1'-1"				Stage I - Abutment Seat (Top.)
B513ss	46	5'-4"	Stage I - Abutment Backwall Vert.	B562ss	2	12'-11"	BS	2'-0"	7'-2"	1'-9"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B514ss	10	43'-11"	Stage I - Abutment Backwall Horiz. (F.F.)	B563ss	1	13'-0"	BS	2'-0"	7'-3"	1'-9"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B515ss	10	44'-1"	Stage I - Abutment Backwall Horiz. (N.F.)	B564ss	1	13'-1"	BS	2'-0"	7'-4"	1'-9"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B516ss	18	7'-0"	Stage I - Abutment Backwall Vert. (N.F.)	B565ss	1	13'-2"	BS	2'-0"	7'-5"	1'-9"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B517ss	19	7'-7"	Stage I - Abutment Backwall Vert. (N.F.)	B566ss	1	13'-4"	BS	2'-0"	7'-6"	1'-10"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B518ss	16	8'-3"	Stage I - Abutment Backwall Vert. (N.F.)	B567ss	1	13'-5"	BS	2'-0"	7'-7"	1'-10"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B519ss	20	49'-5"	Stage I - Abutment Backwall Horiz. (E.F.)	B568ss	1	13'-6"	BS	2'-0"	7'-8"	1'-10"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B520ss	2	32'-5"	Stage I - Abutment Backwall Horiz. (E.F.)	B569ss	1	13'-7"	BS	2'-0"	7'-9"	1'-10"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B521ss	2	14'-2"	Stage I - Abutment Backwall Horiz. (E.F.)	B570ss	1	13'-10"	BS	2'-0"	7'-11"	1'-11"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B522ss	2	34'-11"	Stage I - Abutment Backwall Horiz. (E.F.)	B571ss	1	13'-11"	BS	2'-0"	8'-0"	1'-11"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B523ss	2	16'-8"	Stage I - Abutment Backwall Horiz. (E.F.)	B572ss	1	14'-1"	BS	2'-0"	8'-2"	1'-11"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B524ss	21	8'-11"	Stage II - Abutment Backwall Vert. (N.F.)	B573ss	1	14'-3"	BS	2'-0"	8'-3"	2'-0"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B525ss	8	21'-8"	Stage II - Abutment Backwall Horiz. (F.F.)	B574ss	1	14'-5"	BS	2'-0"	8'-5"	2'-0"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B526ss	8	19'-3"	Stage II - Abutment Backwall Horiz. (N.F.)	B575ss	1	14'-8"	BS	2'-0"	8'-7"	2'-1"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B527ss	6	21'-8"	Stage II - Abutment Backwall Horiz. (E.F.)	B576ss	1	14'-10"	BS	2'-0"	8'-9"	2'-1"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
B528ss	16	6'-0"	Abutment Backwall - Conduit Blockout	B577ss	1	15'-1"	BS	2'-0"	8'-11"	2'-2"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
				B578ss	1	15'-3"	BS	2'-0"	9'-1"	2'-2"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
BW501	2	22'-4"	NW Wingwall - Lower Stem Horiz.	B579ss	1	15'-6"	BS	2'-0"	9'-3"	2'-3"	2'-0"				1'-1"				Stage II - Abutment Seat (Top.)
BW502ss	4	5'-10"	NW Wingwall - Upper Stem Vert. (E.F.)	B580ss	3	22'-10"	S	0'-0"	10'-11"	1'-0"	10'-11"			0'-0"					Stage I - Abutment Backwall Vert. (West Face)
BW503ss	10	5'-9"	NW Wingwall - Upper Stem Vert. (E.F.)	B581ss	4	3'-9"	A				2'-0"	1'-9"			1'-9"				Stage I - Abutment Backwall Return Horiz. (F.F.)
BW504ss	12	5'-8"	NW Wingwall - Upper Stem Vert. (E.F.)	B582ss	11	5'-2"	A				2'-0"	3'-2"			3'-2"				Stage I - Abutment Backwall Return Horiz. (N.F.)
BW505ss	12	5'-7"	NW Wingwall - Upper Stem Vert. (E.F.)	B583ss	7	4'-3"	A				2'-0"	2'-3"			2'-3"				Stage I - Abutment Backwall Return Horiz. (F.F.)
BW506ss	10	5'-6"	NW Wingwall - Upper Stem Vert. (E.F.)	B584ss	87	6'-4"	L	5'-4"	1'-0"										Stage I - Abutment Backwall Vert. (F.F.)
BW507ss	12	5'-5"	NW Wingwall - Upper Stem Vert. (E.F.)	B585ss	87	16'-3"	BS	7'-8"	1'-0"	0'-0"	7'-7"				0'-1"				Stage I - Abutment Backwall Vert.
BW508ss	10	5'-4"	NW Wingwall - Upper Stem Vert. (E.F.)	B586ss	2	42'-6"	P4	32'-3"	10'-3"	0'-0"					0'-7"				Stage I - Abutment Backwall Horiz. (E.F.)
BW509ss	12	5'-3"	NW Wingwall - Upper Stem Vert. (E.F.)	B587ss	34	7'-10"	L	7'-0"	0'-10"										Stage I - Abutment Backwall Vert. (F.F.)
BW510ss	10	5'-2"	NW Wingwall - Upper Stem Vert. (E.F.)	B588ss	37	8'-5"	L	7'-7"	0'-10"										Stage I - Abutment Backwall Vert. (F.F.)
BW511ss	17	22'-4"	NW Wingwall - Upper Stem Horiz. (E.F.)	B589ss	30	9'-1"	L	8'-3"	0'-10"										Stage I - Abutment Backwall Vert. (F.F.)
BW512	2	17'-2"	NW Wingwall - Lower Stem Horiz. (E.F.)	B590ss	100	15'-5"	BS	7'-3"	1'-0"	0'-0"	7'-2"				0'-1"				Stage I - Abutment Backwall Vert.
BW513ss	8	8'-8"	NW Wingwall - Upper Stem Vert. (E.F.)	B591ss	45	9'-11"	L	8'-11"	1'-0"										Stage II - Abutment Backwall Horiz. (E.F.)
BW514ss	12	8'-7"	NW Wingwall - Upper Stem Vert. (E.F.)	B592ss	44	12'-1"	BS	5'-7"	1'-0"	0'-0"	5'-6"				0'-1"				Stage II - Abutment Backwall Vert.
BW515ss	10	8'-6"	NW Wingwall - Upper Stem Vert. (E.F.)	B593ss	2	12'-2"	S	0'-0"	0'-10"	10'-6"	0'-10"			0'-0"					Stage II - Abutment Backwall Horiz. Top (E.F.)
BW516ss	12	8'-5"	NW Wingwall - Upper Stem Vert. (E.F.)	B594ss	2	10'-8"	S	0'-0"	0'-10"	9'-0"	0'-10"			0'-0"					Stage II - Abutment Backwall Horiz. Top (E.F.)
BW517ss	10	8'-4"	NW Wingwall - Upper Stem Vert. (E.F.)	B595ss	6	25'-2"	S	0'-0"	12'-1"	1'-0"	12'-1"			0'-0"					Stage II - Abutment Backwall Vert.
BW518ss	12	8'-3"	NW Wingwall - Upper Stem Vert. (E.F.)	B596ss	8	3'-8"	V				2'-0"	1'-8"			1'-2"				Stage II - Abutment Backwall Vert. (F.F.)
BW519ss	8	8'-2"	NW Wingwall - Upper Stem Vert. (E.F.)	B597ss	12	6'-1"	L	4'-1"	2'-0"										Stage II - Abutment Backwall Horiz. (N.F.)
BW520ss	23	17'-2"	NW Wingwall - Upper Stem Horiz. (E.F.)	B598ss	4	4'-5"	V				2'-0"	2'-5"			1'-8"				Stage II - Abutment Backwall Horiz. (F.F.)
BW521	2	12'-1"	NE Wingwall - Lower Stem Horiz.	B599	76	4'-10"	P4	2'-0"	0'-10"	2'-0"					0'-7"				Abutment Backwall - Approach Slab
BW522ss	16	9'-10"	NE Wingwall - Upper Stem Vert. (E.F.)																
BW523ss	20	9'-9"	NE Wingwall - Upper Stem Vert. (E.F.)	BP551ss	12	13'-9"	S	0'-0"	6'-1"	3'-11"	3'-9"			0'-0"					Pedestal Ties - G1 thru G4 (F.F.)
BW524ss	16	9'-8"	NE Wingwall - Upper Stem Vert. (E.F.)	BP552ss	9	12'-7"	S	0'-0"	4'-10"	3'-11"	3'-10"			0'-0"					Pedestal Ties - SG2 thru SG4 (F.F.)
BW525ss	22	12'-1"	NE Wingwall - Upper Stem Horiz. (E.F.)	BP553ss	12	15'-10"	BS	3'-9"	6'-0"	0'-0"	6'-1"				4'-5"				Pedestal Ties - G1 thru G4 (N.F.)
BW526	2	25'-8"	NE Wingwall - Lower Stem Horiz.	BP554ss	9	13'-2"	BS	3'-10"	4'-6"	0'-0"	4'-10"				2'-1"				Pedestal Ties - SG2 thru SG4 (N.F.)
BW527ss	2	8'-6"	NE Wingwall - Upper Stem Vert. (E.F.)																
BW528ss	18	8'-5"	NE Wingwall - Upper Stem Vert. (E.F.)	BW551	209	4'-6"	S	0'-0"	0'-10"	2'-10"	0'-10"			0'-0"					Wingwall Lower Stem Top
BW529ss	18	8'-4"	NE Wingwall - Upper Stem Vert. (E.F.)	BW552ss	16	2'-10"	S	0'-0"	0'-10"	1'-2"	0'-10"			0'-0"					Wingwall Upper Stem U-Bar (End Face)
BW530ss	18	8'-3"	NE Wingwall - Upper Stem Vert. (E.F.)	BW553ss	209	5'-11"	S	0'-0"	2'-5"	1'-1"	2'-5"			0'-0"					Wingwall Upper Stem Top
BW531ss	18	8'-2"	NE Wingwall - Upper Stem Vert. (E.F.)	BW554ss	9	2'-9"	S	0'-0"	0'-10"	1'-1"	0'-10"			0'-0"					Wingwall Barriers End Face
BW532ss	20	8'-1"	NE Wingwall - Upper Stem Vert. (E.F.)	BW555ss	62	9'-5"	S	0'-0"	4'-2"	1'-1"	4'-2"			0'-0"					Northwest Wingwall - Barrier Top
BW533ss	12	8'-0"	NE Wingwall - Upper Stem Vert. (E.F.)	BW556ss	97	10'-9"	S	0'-0"	4'-10"	1'-1"	4'-10"			0'-0"					Northeast Wingwall - Barrier Top
BW534ss	20	25'-8"	NE Wingwall - Upper Stem Horiz.																
BW535	2	23'-6"	NE Wingwall - Lower Stem Horiz.	B651	35	7'-10"	L	6'-10"	1'-0"										NW Wingwall Stem Dowel (F.F.)
BW536ss	16	8'-0"	NE Wingwall - Upper Stem Vert. (E.F.)	B652	24	7'-1"	L	6'-1"	1'-0"										NW Wingwall Stem Dowel (N.F.)
BW537ss	48	7'-11"	NE Wingwall - Upper Stem Vert. (E.F.)	B653	18	5'-6"	S	0'-0"	1'-0"	3'-6"	1'-0"			0'-0"					NW Wingwall Footing (North & South Face)
BW538ss	32	7'-10"	NE Wingwall - Upper Stem Vert. (E.F.)	B654	47	8'-4"	L	7'-4"	1'-0"										NE & NW Wingwall Stem Dowels (N.F.)
BW539ss	20	23'-6"	NE Wingwall - Upper Stem Horiz.	B655	10	6'-6"	S	0'-0"	1'-0"	4'-6"	1'-0"			0'-0"					NW Wingwall Footing - End Face
				B656	52	6'-1"	L	5'-1"	1'-0"										NE Wingwall Stem Dowels (N.F.)
B601	6	22'-11"	NW Wingwall Footing (E.F.)	B657	77	6'-10"	L	5'-10"	1'-0"										NE Wingwall Stem Dowels (F.F.)
B602	6	7'-6"	NW Wingwall Footing (E.F.)	B658	65	4'-6"	S	0'-0"	1'-0"	2'-6"	1'-0"			0'-0"					NE Wingwall Footing (End Face)
B603	30	50'-2"	NE Wingwall Footing (E.F.)	B659ss	2	23'-10"	V				21'-0"	2'-10"			1'-5"				NE Wingwall Barrier Long. (Top)
B604	56	11'-6"	NE Wingwall Footing (E.F.)	B660ss	36	11'-5"	S	0'-6"	2'-10"	4'-9"	2'-10"			0'-6"					Pedestals G1 thru G4 (F.F.)
B605	148	8'-9"	NE & NW Wingwall Stem Vert. (E.F.)	B661ss	4	13'-6"	S	0'-6"	2'-10"	6'-10"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B606ss	418	5'-2"	Wingwall Stem Dowels (E.F.)	B662ss	4	12'-11"	S	0'-6"	2'-10"	6'-3"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B607ss	10	22'-4"	NW Wingwall Barrier Long. (E.F.)	B663ss	4	12'-5"	S	0'-6"	2'-10"	5'-9"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B608	27	17'-6"	NW Wingwall Lower Stem Vert. (N.F.)	B664ss	4	11'-10"	S	0'-6"	2'-10"	5'-2"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B609ss	10	17'-2"	NW Wingwall Barrier Long. (E.F.)	B665ss	4	11'-3"	S	0'-6"	2'-10"	4'-7"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B610	20	13'-10"	NE Wingwall Lower Stem Vert. (N.F.)	B666ss	4	10'-9"	S	0'-6"	2'-10"	4'-1"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B611ss	12	12'-1"	NE Wingwall Barrier Long. (E.F.)	B667ss	4	10'-2"	S	0'-6"	2'-10"	3'-6"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B612ss	12	25'-8"	NE Wingwall Barrier Long. (E.F.)	B668ss	4	9'-7"	S	0'-6"	2'-10"	2'-11"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B613ss	6	23'-6"	NE Wingwall Barrier Long. (E.F.)	B669ss	4	9'-1"	S	0'-6"	2'-10"	2'-5"	2'-10"			0'-6"					Pedestals G1 thru G4 (N.F.)
B614ss	2	21'-11"	NE Wingwall Barrier Long. (E.F.)	B670ss	27	11'-9"	S	0'-6"	3'-0"	4'-9"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (F.F.)
B615ss	2	20'-10"	NE Wingwall Barrier Long. (E.F.)	B671ss	3	11'-9"	S	0'-6"	3'-0"	4'-9"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)
				B672ss	3	11'-6"	S	0'-6"	3'-0"	4'-6"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, AC1 440.1r-15

GENERAL NOTES

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

   Mark "A502" = bar size #5
   Mark "P805" = bar size #8
   Mark "S650" = bar size #6
   Mark "S650ss" = bar size #6 Stainless Steel
   Mark "S600H" = bar size #6 Grade 75

2. 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.

3. Bar marks ending with "H" indicate plain Grade 75. Bar marks ending with "ss" indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	T. Poulin	P. Bishop 11\20
CHECKED-REVIEWED	K. Segal	J. Olund 11\20
DESIGN2-DETAILED2	-	- -
DESIGN3-DETAILED3	-	- -
REVISIONS 1	-	- -
REVISIONS 2	-	- -
REVISIONS 3	-	- -
REVISIONS 4	-	- -
FIELD CHANGES	-	- -

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 2

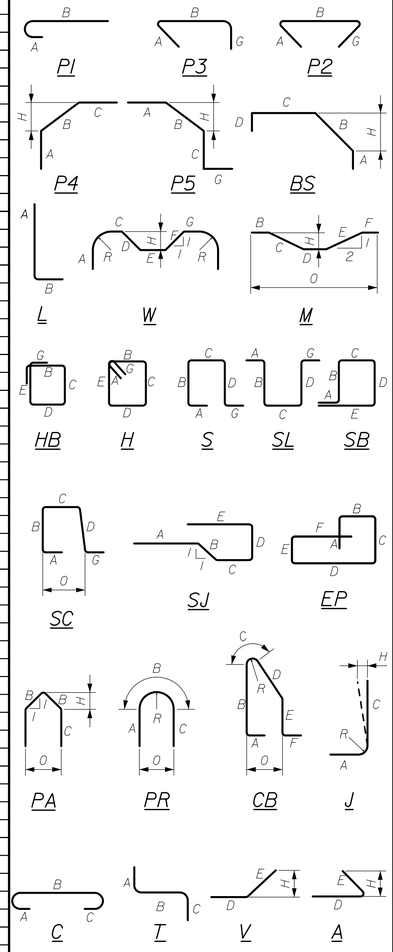
SHEET NUMBER

134

OF 160

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
ABUTMENT 2 AND WINGWALLS (CONTINUED)																			
B701	6	8'-9"	NE and NW Wingwall Footing	B673ss	3	11'-3"	S	0'-6"	3'-0"	4'-3"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)
B702	3	28'-9"	NW Wingwall Footing Long. (N.F.)	B674ss	3	11'-0"	S	0'-6"	3'-0"	4'-0"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)
B703	3	21'-8"	NW Wingwall Footing Long. (F.F.)	B675ss	3	10'-9"	S	0'-6"	3'-0"	3'-9"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)
B704	12	48'-11"	Phase I -Abutment Footing Long. (E.F.)	B676ss	3	10'-6"	S	0'-6"	3'-0"	3'-6"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)
B705	6	14'-0"	Phase II - Abutment Footing Long. (E.F.)	B677ss	3	10'-2"	S	0'-6"	3'-0"	3'-2"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)
B706	3	25'-2"	NE Wingwall Footing (N.F.)	B678ss	3	9'-11"	S	0'-6"	3'-0"	2'-11"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)
B707	3	25'-8"	NE Wingwall Footing (F.F.)	B679ss	3	9'-8"	S	0'-6"	3'-0"	2'-8"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (N.F.)
B708	1	15'-9"	Stage I - Abutment Stem Vert. (West Face)	B680ss	8	12'-3"	S	0'-6"	2'-10"	5'-7"	2'-10"			0'-6"					Pedestals G1 thru G4 (F.F.)
B709	1	15'-11"	Stage I - Abutment Stem Vert. (West Face)	B681ss	6	11'-1"	S	0'-6"	3'-0"	4'-1"	3'-0"			0'-6"					Pedestals SG2 thru SG4 (F.F.)
B710	1	16'-1"	Stage I - Abutment Stem Vert. (West Face)	B682ss	77	10'-9"	S	0'-6"	3'-0"	3'-9"	3'-0"			0'-6"					Pedestals G1 thru G4 (F.F.)
B711	1	16'-3"	Stage I - Abutment Stem Vert. (West Face)	B683ss	4	7'-8"	S	0'-6"	2'-10"	1'-0"	2'-10"			0'-6"					Pedestals G1 thru G4
B712	1	16'-4"	Stage I - Abutment Stem Vert. (West Face)	B684ss	4	8'-1"	S	0'-6"	2'-10"	1'-5"	2'-10"			0'-6"					Pedestals G1 thru G4
B713	1	16'-6"	Stage I - Abutment Stem Vert. (West Face)	B685ss	4	8'-7"	S	0'-6"	2'-10"	1'-11"	2'-10"			0'-6"					Pedestals G1 thru G4
B714	1	16'-8"	Stage I - Abutment Stem Vert. (West Face)	B686ss	4	9'-1"	S	0'-6"	2'-10"	2'-5"	2'-10"			0'-6"					Pedestals G1 thru G4
B715	4	16'-9"	Stage I - Abutment Stem Vert. (West Face)	B687ss	4	9'-6"	S	0'-6"	2'-10"	2'-10"	2'-10"			0'-6"					Pedestals G1 thru G4
B716	46	16'-4"	Stage I - Abutment Stem Vert. (N.F.)	B688ss	4	10'-0"	S	0'-6"	2'-10"	3'-4"	2'-10"			0'-6"					Pedestals G1 thru G4
B717	17	14'-8"	Stage I - Abutment Stem Vert. (N.F.)	B689ss	4	10'-6"	S	0'-6"	2'-10"	3'-10"	2'-10"			0'-6"					Pedestals G1 thru G4
B718	18	14'-1"	Stage I - Abutment Stem Vert. (N.F.)	B690ss	3	8'-10"	S	0'-6"	3'-0"	1'-10"	3'-0"			0'-6"					Pedestals SG2 thru SG4
B719	15	13'-5"	Stage I - Abutment Stem Vert. (N.F.)	B691ss	3	9'-10"	S	0'-6"	3'-0"	2'-10"	3'-0"			0'-6"					Pedestals SG2 thru SG4
B720	18	43'-11"	Stage I - Abutment Stem Trans. (F.F.)	B692ss	3	10'-10"	S	0'-6"	3'-0"	3'-10"	3'-0"			0'-6"					Pedestals SG2 thru SG4
B721	17	44'-9"	Stage I - Abutment Stem Trans. (N.F.)																
B722	27	49'-5"	Stage I - Abutment Stem Trans. (E.F.)	B751	80	13'-10"	S	0'-0"	3'-2"	7'-6"	3'-2"			0'-0"					NW Wingwall - Footing
B723	15	12'-7"	Stage II - Abutment Stem Vert. (N.F.)	B752	92	5'-5"	P3	0'-9"	3'-6"					1'-2"					NW Wingwall - Footing
B724	14	23'-3"	Stage II - Abutment Stem. Trans. (F.F.)	B753	502	16'-11"	S	0'-0"	4'-1"	8'-9"	4'-1"			0'-0"					NW Wingwall, Abutment, NE Wingwall - Footings
B725	13	14'-1"	Stage II - Abutment Stem. Trans. (N.F.)	B754	594	6'-5"	P3	0'-9"	4'-6"					1'-2"					NW Wingwall, Abutment, NE Wingwall - Footings
B726	1	12'-2"	Stage II - Abutment Stem Vert. (East Face)	B755	133	8'-8"	L	7'-6"	1'-2"										Abutment - Footing
B727	1	12'-6"	Stage II - Abutment Stem Vert. (East Face)	B756	2	17'-0"	S	0'-0"	4'-1"	8'-10"	4'-1"			0'-0"					Abutment - Footing
B728	1	12'-7"	Stage II - Abutment Stem Vert. (East Face)	B757	4	17'-1"	S	0'-0"	4'-1"	8'-11"	4'-1"			0'-0"					Abutment - Footing
B729	1	12'-8"	Stage II - Abutment Stem Vert. (East Face)	B758	2	17'-3"	S	0'-0"	4'-1"	9'-1"	4'-1"			0'-0"					Abutment - Footing
B730	1	12'-9"	Stage II - Abutment Stem Vert. (East Face)	B759	10	11'-8"	S	0'-0"	3'-7"	4'-6"	3'-7"			0'-0"					Abutment - Footing
B731	1	12'-10"	Stage II - Abutment Stem Vert. (East Face)	B760	32	6'-10"	S	0'-0"	1'-2"	4'-6"	1'-2"			0'-0"					NW & NE Wingwalls - Footing
B732	1	12'-11"	Stage II - Abutment Stem Vert. (East Face)	B761	50	5'-2"	S	0'-0"	1'-2"	2'-10"	1'-2"			0'-0"					NW & NE Wingwalls - Stem
B733	1	13'-0"	Stage II - Abutment Stem Vert. (East Face)	B762	17	14'-0"	BS	2'-9"	8'-6"	0'-0"	2'-9"				0'-9"				Abutment - Stem
B734	1	13'-1"	Stage II - Abutment Stem Vert. (East Face)	B763	18	4'-7"	A				2'-9"	1'-10"			1'-9"				Stem - West Face (L Bars from WW) - FF
B735	1	13'-2"	Stage II - Abutment Stem Vert. (East Face)	B764	18	6'-0"	A				2'-9"	3'-3"			3'-2"				Stem - West Face (L Bars from WW) - NF
B736	1	13'-3"	Stage II - Abutment Stem Vert. (East Face)	B765	2	18'-9"	S	0'-0"	1'-2"	16'-5"	1'-2"			0'-0"					Transverse (G1 Abut Seat)
B737	1	13'-4"	Stage II - Abutment Stem Vert. (East Face)	B766	2	20'-1"	S	0'-0"	1'-2"	17'-9"	1'-2"			0'-0"					Transverse (G2 Abut Seat)
B738	1	13'-5"	Stage II - Abutment Stem Vert. (East Face)	B767	2	16'-6"	S	0'-0"	1'-2"	14'-2"	1'-2"			0'-0"					Transverse (G3 Abut Seat)
B739	1	13'-6"	Stage II - Abutment Stem Vert. (East Face)	B768	13	18'-4"	BS	2'-9"	12'-10"	0'-0"	2'-9"				9'-2"				Stem - East Face (U Bars)
				B769	14	4'-5"	V				2'-9"	1'-8"			1'-2"				Stem - East Face (L Bars from WW) FF
BW701	18	22'-4"	NW Wingwall Lower Stem Trans. (E.F.)	B770	14	6'-10"	L	4'-1"	2'-9"										Stem - East Face (L Bars from WW) NF
BW702	36	17'-2"	NW Wingwall Lower Stem Trans. (E.F.)																
BW703	28	12'-1"	NE Wingwall Lower Stem Trans. (E.F.)	B851	21	25'-7"	S	0'-0"	1'-4"	22'-11"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top & Bot.)
BW704	18	25'-8"	NE Wingwall Lower Stem Trans. (E.F.)	B852	2	31'-5"	S	0'-0"	1'-4"	28'-9"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top & Bot.)
BW705	18	23'-6"	NE Wingwall Lower Stem Trans. (E.F.)	B853	1	13'-5"	S	0'-0"	1'-4"	10'-9"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Bot.)
				B854	2	9'-5"	S	0'-0"	1'-4"	6'-9"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Bot.)
B801	13	47'-5"	Stage I - Abutment Footing Long. (Top & Bot)	B855	1	29'-2"	S	0'-0"	1'-4"	26'-6"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Bot.)
B802	5	50'-9"	Stage I - Abutment Footing Long. (Bot)	B856	3	31'-2"	S	0'-0"	1'-4"	28'-6"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top & Bot.)
B803	7	51'-9"	Stage I - Abutment Footing Long. (Top)	B857	4	31'-1"	S	0'-0"	1'-4"	28'-5"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top & Bot.)
B804	1	17'-2"	Stage II - Abutment Footing Long. (Bot.)	B858	4	31'--0"	S	0'-0"	1'-4"	28'-4"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top & Bot.)
B805	1	17'-11"	Stage II - Abutment Footing Long. (Bot.)	B859	3	30'-11"	S	0'-0"	1'-4"	28'-3"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top & Bot.)
B806	1	18'-7"	Stage II - Abutment Footing Long. (Bot.)	B860	3	30'-10"	S	0'-0"	1'-4"	28'-2"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top & Bot.)
B807	1	19'-4"	Stage II - Abutment Footing Long. (Bot.)	B861	1	22'-6"	S	0'-0"	1'-4"	19'-10"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Bot.)
B808	14	15'-0"	Stage II - Abutment Footing Long. (Bot.)	B862	1	10'-9"	S	0'-0"	1'-4"	8'-1"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Bot.)
B809	77	11'-6"	NE Wingwall Footing Trans. (Bot.)	B863	3	30'-7"	S	0'-0"	1'-4"	27'-11"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top & Bot.)
				B864	1	31'-4"	S	0'-0"	1'-4"	28'-8"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top)
B1001	14	13'-6"	NW Wingwall Lower Stem Vert. (F.F.)	B865	2	31'-3"	S	0'-0"	1'-4"	28'-7"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top)
B1002	57	17'-6"	NW Wingwall Lower Stem & Abut Stem Vert. (F.F.)	B866	2	30'-9"	S	0'-0"	1'-4"	28'-1"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top)
B1003	33	9'-10"	NE Wingwall Lower Stem Vert. (F.F.)	B867	2	30'-8"	S	0'-0"	1'-4"	28'-0"	1'-4"			0'-0"					NW Wingwall - Footing Long. (Top)
B1004	32	13'-10"	NE Wingwall Lower Stem & Abut Stem Vert. (F.F.)	B868	10	8'-4"	A				4'-2"	4'-2"			4'-2"				Abutment - Footing SW & SE Corner
B1005	45	13'-6"	Stage I - Abutment Stem Vert. (F.F.)	B869	6	55'-3"	L	53'-11"	1'-4"										Stage I - Abutment Footing Long. (Bot)
B1006	17	11'-9"	Stage I - Abutment Stem Vert. (F.F.)	B870	5	51'-11"	L	50'-7"	1'-4"										Stage I - Abutment Footing Long. (Bot)
B1007	17	15'-9"	Stage I - Abutment Stem Vert. (F.F.)	B871	7	57'-3"	L	55'-11"	1'-4"										Stage I - Abutment Footing Long. (Top)
B1008	18	11'-2"	Stage I - Abutment Stem Vert. (F.F.)	B872	7	52'-11"	L	51'-7"	1'-4"										Stage I - Abutment Footing Long. (Top)
B1009	19	15'-2"	Stage I - Abutment Stem Vert. (F.F.)	B873	1	15'-10"	L	14'-6"	1'-4"										Stage II - Abutment Footing Long. (Bot)
B1010	15	10'-6"	Stage I - Abutment Stem Vert. (F.F.)	B874	1	17'-9"	L	16'-5"	1'-4"										Stage II - Abutment Footing Long. (Bot)
B1011	15	14'-6"	Stage I - Abutment Stem Vert. (F.F.)	B875	1	21'-4"	L	20'-0"	1'-4"										Stage II - Abutment Footing Long. (Bot)
				B876	2	20'-0"	L	18'-8"	1'-4"										Stage II - Abutment Footing Long. (Bot)
				B877	1	24'-5"	L	23'-1"	1'-4"										Stage II - Abutment Footing Long. (Bot)
				B878	1	15'-0"	L	23'-8"	1'-4"										Stage II - Abutment Footing Long. (Bot)
				B879	2	26'-10"	L	25'-6"	1'-4"										NE Wingwall Footing Long. (Bot)
				B880	6	23'-0"	L	21'-8"	1'-4"										NE Wingwall Footing Long. (Bot)
				B881	2	23'-1"	S	0'-0"	1'-4"	20'-5"	1'-4"			0'-0"					NE Wingwall Footing Long. (Bot)
				B882	1	28'-2"	S	0'-0"	1'-4"	25'-6"	1'-4"			0'-0"					NE Wingwall Footing Long. (Bot)
				B883	16	27'-11"	L	26'-7"	1'-4"										NE Wingwall Footing Long. (Top)
				B884	2	27'-0"	L	25'-8"	1'-4"										NE Wingwall Footing Long. (Top)
				B1051	47	10'-8"	S	0'-0"	3'-7"	3'-6"	3'-7"			0'-0"					NW Wingwall Footing (F.F.)
				B1052	141	14'-7"	L	12'-9"	1'-10"										Wingwall & Abutment Stem Dowels (F.F.)
				B1053	140	10'-7"	L	8'-9"	1'-10"										Wingwall & Abutment Stem Dowels (F.F.)
				B1054	85	11'-8"	S	0'-0"	3'-7"	4'-6"	3'-7"			0'-0"					NW & NE Wingwall Footings (F.F.)

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, AC1 440.1r-15

GENERAL NOTES

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

   Mark "A502" = bar size #5
   Mark "P805" = bar size #8
   Mark "S650" = bar size #6
   Mark "S650ss" = bar size #6 Stainless Steel
   Mark "S600H" = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE 12/30

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	T. Poulin	11\20
CHECKED-REVIEWED	P. Bishop	11\20
DESIGN2-DETAILED2	K. Segal	11\20
DESIGN3-DETAILED3	J. Olund	11\20
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME — EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 3

SHEET NUMBER

135

OF 160

Username:

Date:11/20/2020

Division:

Filename: 135_Reinforcement Schedule 3.dgn

Username:

Division:

Date:11/20/2020

Filename: 136_Reinforcement Schedule 4.dgn

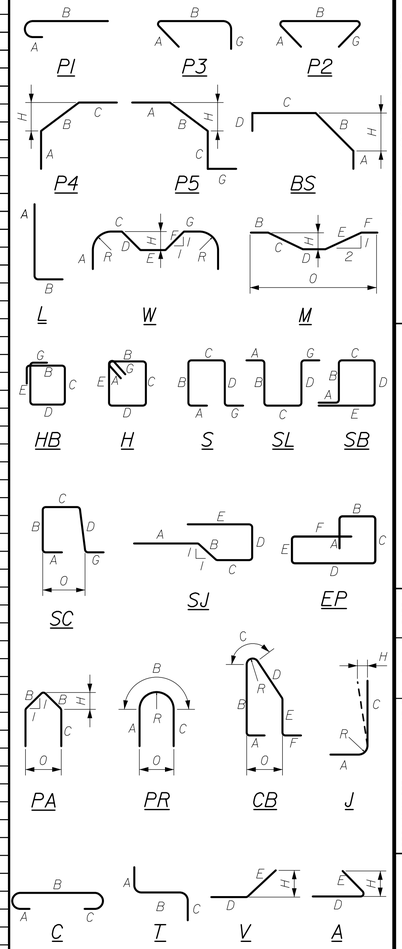
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
ABUTMENT 1 APPROACH SLAB			
IAS501	32	30'-0"	Transverse
IAS502	1	27'-4"	Transverse
IAS503	1	26'-2"	Transverse
IAS504	1	25'-0"	Transverse
IAS505	1	23'-10"	Transverse
IAS506	1	22'-8"	Transverse
IAS507	1	21'-6"	Transverse
IAS508	1	20'-4"	Transverse
IAS509	1	19'-2"	Transverse
IAS510	1	18'-0"	Transverse
IAS511	1	16'-10"	Transverse
IAS512	1	15'-8"	Transverse
IAS513	1	14'-6"	Transverse
IAS514	1	13'-4"	Transverse
IAS515	1	12'-3"	Transverse
IAS516	1	11'-1"	Transverse
IAS517	1	9'-11"	Transverse
IAS601	1	1'-7"	Longitudinal
IAS602	1	3'-5"	Longitudinal
IAS603	1	5'-4"	Longitudinal
IAS604	1	7'-2"	Longitudinal
IAS605	1	9'-1"	Longitudinal
IAS606	1	10'-11"	Longitudinal
IAS607	1	12'-9"	Longitudinal
IAS608	1	14'-8"	Longitudinal
IAS609	123	15'-2"	Longitudinal
IAS610	1	14'-10"	Longitudinal
IAS611	1	14'-5"	Longitudinal
IAS612	1	14'-1"	Longitudinal
IAS613	1	13'-9"	Longitudinal
IAS614	1	13'-4"	Longitudinal
IAS615	1	13'-0"	Longitudinal
IAS616	1	12'-8"	Longitudinal
IAS617	1	12'-4"	Longitudinal
IAS618	1	12'-0"	Longitudinal
IAS619	1	11'-7"	Longitudinal
IAS620	1	11'-3"	Longitudinal
IAS621	1	10'-11"	Longitudinal
IAS622	1	10'-7"	Longitudinal
IAS623	1	10'-3"	Longitudinal
IAS624	1	9'-10"	Longitudinal
IAS625	1	9'-6"	Longitudinal
IAS626	1	9'-2"	Longitudinal
IAS627	1	8'-10"	Longitudinal
IAS628	1	8'-6"	Longitudinal
IAS629	1	8'-1"	Longitudinal
IAS630	1	7'-9"	Longitudinal
IAS631	1	7'-5"	Longitudinal
IAS632	1	7'-1"	Longitudinal
IAS633	1	6'-9"	Longitudinal
IAS634	1	6'-4"	Longitudinal
IAS635	1	6'-0"	Longitudinal
IAS636	1	5'-8"	Longitudinal
IAS637	1	5'-4"	Longitudinal
IAS638	1	5'-0"	Longitudinal
IAS639	1	4'-7"	Longitudinal
IAS640	1	4'-3"	Longitudinal
IAS641	1	3'-11"	Longitudinal
IAS642	1	3'-9"	Longitudinal
IAS643	1	3'-6"	Longitudinal
IAS644	1	3'-3"	Longitudinal
IAS645	1	3'-1"	Longitudinal
IAS646	1	2'-10"	Longitudinal
IAS647	1	2'-6"	Longitudinal
IAS648	1	2'-3"	Longitudinal
IAS649	1	1'-11"	Longitudinal
IAS650	1	1'-7"	Longitudinal
IAS651	1	1'-1"	Longitudinal
IAS652	1	15'-9"	Longitudinal
IAS653	1	26'-0"	Longitudinal

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
ABUTMENT 1 APPROACH SLAB															
IAS654	6	1	8'-6"	CB	0'-0"	4'-2"	0'-2"	4'-2"	0'-0"	0'-0"			4'-1"	0'-2"	NE Corner
IAS655	6	2	8'-8"	CB	0'-0"	4'-2"	0'-4"	4'-2"	0'-0"	0'-0"			2'-10"	0'-2"	SW Corner

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, AC1 440.1r-15

GENERAL NOTES

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

   Mark "A502" = bar size #5
   Mark "P805" = bar size #8
   Mark "S650" = bar size #6
   Mark "S650ss" = bar size #6 Stainless Steel
   Mark "S600H" = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	T. Poulin
CHECKED-REVIEWED	K. Segal
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-
REVISIONS 1	-
REVISIONS 2	-
REVISIONS 3	-
REVISIONS 4	-
FIELD CHANGES	-

BY	DATE
P. Bishop	11\20
J. Olund	11\20
-	-
-	-
-	-
-	-
-	-
-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 4

SHEET NUMBER

136

OF 160

Username:

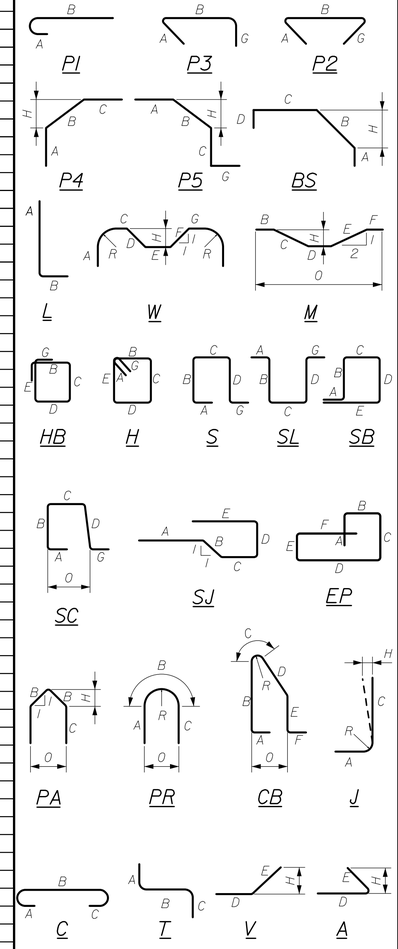
Date:11/20/2020

Division:

Filename: 137_Reinforcement Schedule 5.dgn

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
ABUTMENT 2 APPROACH SLAB																			
2AS501	32	30'-0"	Transverse	2AS667	3	8'-6"	CB	0'-0"	4'-2"	0'-2"	4'-2"	0'-0"	0'-0"				3'-4"	0'-2"	Corners of Stage I & Stage II
2AS502	16	25'-0"	Transverse																
2AS503	1	26'-0"	Transverse																
2AS504	1	25'-2"	Transverse																
2AS505	1	24'-3"	Transverse																
2AS506	1	23'-3"	Transverse																
2AS507	1	22'-3"	Transverse																
2AS508	1	21'-4"	Transverse																
2AS509	1	20'-4"	Transverse																
2AS510	1	19'-4"	Transverse																
2AS511	1	18'-4"	Transverse																
2AS512	1	17'-5"	Transverse																
2AS513	1	16'-5"	Transverse																
2AS514	1	15'-5"	Transverse																
2AS515	1	14'-5"	Transverse																
2AS516	1	13'-6"	Transverse																
2AS517	1	12'-6"	Transverse																
2AS518	1	11'-11"	Transverse																
2AS519	1	12'-3"	Transverse																
2AS520	14	12'-5"	Transverse																
2AS521	1	12'-4"	Transverse																
2AS601	1	4'-11"	Longitudinal																
2AS602	1	10'-8"	Longitudinal																
2AS603	125	15'-2"	Longitudinal																
2AS604	4	15'-3"	Longitudinal																
2AS605	3	15'-4"	Longitudinal																
2AS606	2	15'-5"	Longitudinal																
2AS607	2	15'-6"	Longitudinal																
2AS608	2	15'-7"	Longitudinal																
2AS609	2	15'-8"	Longitudinal																
2AS610	2	15'-9"	Longitudinal																
2AS611	2	15'-10"	Longitudinal																
2AS612	1	15'-11"	Longitudinal																
2AS613	2	16'-0"	Longitudinal																
2AS614	1	16'-1"	Longitudinal																
2AS615	1	16'-2"	Longitudinal																
2AS616	2	16'-3"	Longitudinal																
2AS617	1	16'-4"	Longitudinal																
2AS618	1	16'-5"	Longitudinal																
2AS619	1	16'-6"	Longitudinal																
2AS620	1	16'-7"	Longitudinal																
2AS621	1	16'-8"	Longitudinal																
2AS622	1	16'-9"	Longitudinal																
2AS623	1	16'-10"	Longitudinal																
2AS624	1	16'-11"	Longitudinal																
2AS625	1	17'-0"	Longitudinal																
2AS626	1	17'-1"	Longitudinal																
2AS627	1	17'-2"	Longitudinal																
2AS628	1	17'-3"	Longitudinal																
2AS629	1	17'-4"	Longitudinal																
2AS630	1	17'-5"	Longitudinal																
2AS631	1	17'-6"	Longitudinal																
2AS632	1	17'-7"	Longitudinal																
2AS633	1	17'-8"	Longitudinal																
2AS634	1	17'-10"	Longitudinal																
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2AS643	1	18'-10"	Longitudinal																
2AS644	1	18'-11"	Longitudinal																
2AS645	1	19'-1"	Longitudinal																
2AS646	1	19'-2"	Longitudinal																
2AS647	1	19'-4"	Longitudinal																
2AS648	1	19'-6"	Longitudinal																
2AS649	1	19'-7"	Longitudinal																
2AS650	1	19'-9"	Longitudinal																
2AS651	1	19'-11"	Longitudinal																
2AS652	1	20'-0"	Longitudinal																
2AS653	1	20'-2"	Longitudinal																
2AS654	1	20'-4"	Longitudinal																
2AS655	1	20'-6"	Longitudinal																
2AS656	1	20'-8"	Longitudinal																
2AS657	1	20'-9"	Longitudinal																
2AS658	1	20'-11"	Longitudinal																
2AS659	1	21'-1"	Longitudinal																
2AS660	1	21'-3"	Longitudinal																
2AS661	1	21'-5"	Longitudinal																
2AS662	1	21'-7"	Longitudinal																
2AS663	1	21'-9"	Longitudinal																

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, AC1 440.1r-15

GENERAL NOTES

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

   Mark "A502" = bar size #5
   Mark "P805" = bar size #8
   Mark "S650" = bar size #6
   Mark "S650ss" = bar size #6 Stainless Steel
   Mark "S600H" = bar size #6 Grade 75

2. 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.

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HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

	SIGNATURE	P.E. NUMBER	DATE
		12130	11/19/2020

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	T. Poulin	11\20
CHECKED-REVIEWED	K. Segal	11\20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 5

SHEET NUMBER

137

OF 160

Username:
Date:11/20/2020
Division:
Filename: 138_Reinforcement Schedule 6.dgn

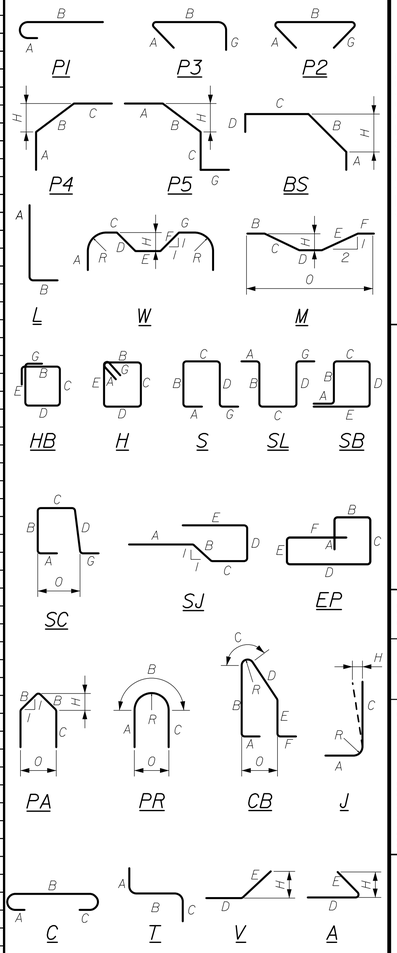
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
ABUTMENT 2 APPROACH SLAB (CONTINUED)			
2AS664	1	21' -11"	Longitudinal
2AS665	2	21' -10"	Longitudinal
2AS666	24	22' -1"	Longitudinal

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

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HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

	SIGNATURE	P.E. NUMBER	DATE
		12130	11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	T. Poulin	P. Bishop	11\20
CHECKED-REVIEWED	K. Segal	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 6

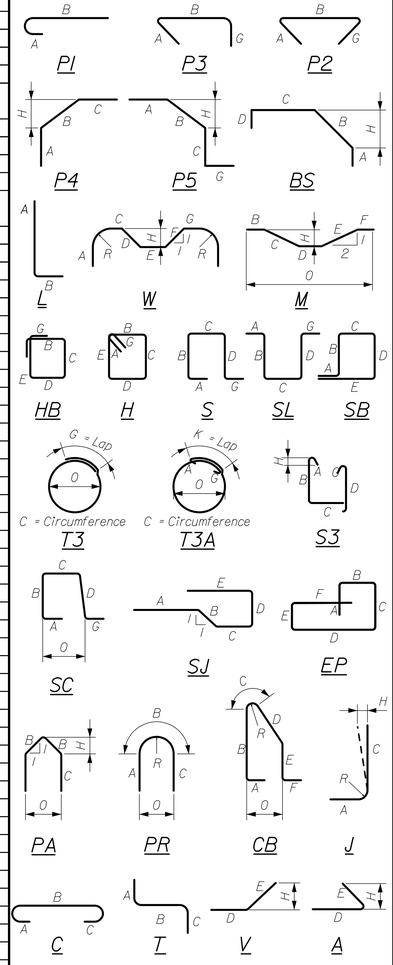
SHEET NUMBER

138

OF 160

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
PIER 1 - PILE FOUNDATION - ALTERNATE AA1																			
IPF601	20	31'-6"	Pile Foundation Cap EF	IPF651	160	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Pile Foundation Cap U-Bars EF
				IPF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				IPF951	80	34'-8"	S	0'-0"	1'-7"	31'-6"	1'-7"			0'-0"					Pile Foundation Cap (T)
				IPF1151H	148	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Pile Foundation Cap (B)
PIER 1 - DS FOUNDATION - ALTERNATE AA2																			
IPF601	20	31'-6"	Drilled Shaft Pile Cap EF	IPF651	148	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Drilled Shaft Pile Cap U-Bars EF
				IPF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				IPF951	74	34'-8"	S	0'-0"	1'-7"	31'-6"	1'-7"			0'-0"					Drilled Shaft Pile Cap (T)
				IPF1151H	148	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Drilled Shaft Pile Cap (B)
PIER 1 - PIER SHAFT AND PIER CAP																			
IP800	2	9'-0"	Pier Cap Horizontal Bars - EF	IP650H	92	34'-5"	T3A	0'-8"		29'-10"				0'-8"		3'-3"	9'-6"		10ft Pier Column Hoops
IP801	2	10'-11"	Pier Cap Horizontal Bars - EF	IP651H	52	33'-1"	T3			29'-10"				3'-3"			9'-6"		10ft Pier Column Hoops
IP802	2	12'-10"	Pier Cap Horizontal Bars - EF	IP652H	69	26'-10"	T3			23'-7"				3'-3"			7'-6"		8ft Pier Columm Hoops
IP803	2	14'-9"	Pier Cap Horizontal Bars - EF	IP653H	64	10'-11"	S	0'-0"	3'-5"	4'-1"	3'-5"			0'-0"					Pedestal
IP804	2	16'-8"	Pier Cap Horizontal Bars - EF	IP654H	40	5'-10"	P3	0'-8"	4'-2"					1'-0"					Pedestal
IP805	2	18'-7"	Pier Cap Horizontal Bars - EF	IP750H	2	21'-4"	S3	0'-9"	6'-6"	6'-10"	6'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
IP806	2	20'-7"	Pier Cap Horizontal Bars - EF	IP751H	2	22'-5"	S3	0'-9"	6'-9"	7'-5"	6'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP807	2	22'-6"	Pier Cap Horizontal Bars - EF	IP752H	2	23'-3"	S3	0'-9"	7'-0"	7'-9"	7'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP808	2	24'-5"	Pier Cap Horizontal Bars - EF	IP753H	2	23'-10"	S3	0'-9"	7'-2"	8'-0"	7'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP809	2	26'-4"	Pier Cap Horizontal Bars - EF	IP754H	2	24'-6"	S3	0'-9"	7'-5"	8'-2"	7'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP810	2	28'-3"	Pier Cap Horizontal Bars - EF	IP755H	2	24'-10"	S3	0'-9"	7'-7"	8'-2"	7'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP811	2	30'-2"	Pier Cap Horizontal Bars - EF	IP756H	2	25'-4"	S3	0'-9"	7'-10"	8'-2"	7'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP812	2	32'-1"	Pier Cap Horizontal Bars - EF	IP757H	2	25'-10"	S3	0'-9"	8'-1"	8'-2"	8'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP813	2	34'-0"	Pier Cap Horizontal Bars - EF	IP758H	2	26'-2"	S3	0'-9"	8'-3"	8'-2"	8'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP814	2	35'-11"	Pier Cap Horizontal Bars - EF	IP759H	2	26'-8"	S3	0'-9"	8'-6"	8'-2"	8'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP815	2	37'-11"	Pier Cap Horizontal Bars - EF	IP760H	2	27'-0"	S3	0'-9"	8'-8"	8'-2"	8'-8"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP816	2	39'-10"	Pier Cap Horizontal Bars - EF	IP761H	2	27'-6"	S3	0'-9"	8'-11"	8'-2"	8'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP817	2	41'-9"	Pier Cap Horizontal Bars - EF	IP762H	2	28'-0"	S3	0'-9"	9'-2"	8'-2"	9'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP818	2	43'-8"	Pier Cap Horizontal Bars - EF	IP763H	2	28'-4"	S3	0'-9"	9'-4"	8'-2"	9'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP819	24	32'-2"	Pier Cap Horizontal Bars - EF	IP764H	2	28'-10"	S3	0'-9"	9'-7"	8'-2"	9'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1100H	104	42'-6"	8ft Pier Column Vertical Bars	IP765H	2	29'-2"	S3	0'-9"	9'-9"	8'-2"	9'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1101H	2	39'-4"	Pier Cap Horizontal Bars (T)	IP766H	2	29'-8"	S3	0'-9"	10'-0"	8'-2"	10'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1102H	2	41'-5"	Pier Cap Horizontal Bars (T)	IP767H	2	30'-0"	S3	0'-9"	10'-2"	8'-2"	10'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1103H	2	42'-7"	Pier Cap Horizontal Bars (T)	IP768H	2	30'-6"	S3	0'-9"	10'-5"	8'-2"	10'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1104H	2	43'-3"	Pier Cap Horizontal Bars (T)	IP769H	2	30'-10"	S3	0'-9"	10'-7"	8'-2"	10'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1105H	2	43'-11"	Pier Cap Horizontal Bars (T)	IP770H	2	31'-4"	S3	0'-9"	10'-10"	8'-2"	10'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1106H	2	44'-5"	Pier Cap Horizontal Bars (T)	IP771H	2	31'-10"	S3	0'-9"	11'-1"	8'-2"	11'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1107H	2	44'-8"	Pier Cap Horizontal Bars (T)	IP772H	2	32'-2"	S3	0'-9"	11'-3"	8'-2"	11'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1108H	2	44'-10"	Pier Cap Horizontal Bars (T)	IP773H	2	32'-8"	S3	0'-9"	11'-6"	8'-2"	11'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1800H	26	18'-6"	10ft Pier Column Vertical Bars	IP774H	2	33'-2"	S3	0'-9"	11'-9"	8'-2"	11'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
IP1801H	26	21'-6"	10ft Pier Column Vertical Bars	IP775H	2	33'-6"	S3	0'-9"	11'-11"	8'-2"	11'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				IP776H	2	34'-0"	S3	0'-9"	12'-2"	8'-2"	12'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				IP777H	2	34'-4"	S3	0'-9"	12'-4"	8'-2"	12'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				IP778H	2	34'-10"	S3	0'-9"	12'-7"	8'-2"	12'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				IP779H	2	35'-4"	S3	0'-9"	12'-10"	8'-2"	12'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				IP780H	2	35'-8"	S3	0'-9"	13'-0"	8'-2"	13'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				IP781H	2	36'-2"	S3	0'-9"	13'-3"	8'-2"	13'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				IP782H	2	36'-6"	S3	0'-9"	13'-5"	8'-2"	13'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				IP783H	11	36'-10"	S3	0'-9"	13'-7"	8'-2"	13'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A and B-Vertical Stirrups
				IP784H	2	8'-9"	P3	0'-9"	6'-10"					1'-2"					Pier Cap - Group A -Horizontal Ties
				IP785H	2	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A -Horizontal Ties
				IP786H	2	9'-8"	P3	0'-9"	7'-9"					1'-2"					Pier Cap - Group A -Horizontal Ties
				IP787H	2	9'-11"	P3	0'-9"	8'-0"					1'-2"					Pier Cap - Group A -Horizontal Ties
				IP788H	69	10'-1"	P3	0'-9"	8'-2"					1'-2"					Pier Cap - Group A and B -Horizontal Ties
				IP789H	4	8'-5"	P3	0'-9"	6'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP790H	4	8'-8"	P3	0'-9"	6'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP791H	4	8'-11"	P3	0'-9"	7'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP792H	4	9'-1"	P3	0'-9"	7'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP793H	4	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP794H	4	9'-6"	P3	0'-9"	7'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP795H	4	9'-9"	P3	0'-9"	7'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP796H	4	10'-0"	P3	0'-9"	8'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP797H	4	10'-2"	P3	0'-9"	8'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP798H	4	10'-5"	P3	0'-9"	8'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP799H	4	10'-7"	P3	0'-9"	8'-8"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7100H	4	10'-10"	P3	0'-9"	8'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7101H	4	11'-1"	P3	0'-9"	9'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7102H	4	11'-3"	P3	0'-9"	9'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7103H	4	11'-6"	P3	0'-9"	9'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7104H	4	11'-8"	P3	0'-9"	9'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7105H	4	11'-11"	P3	0'-9"	10'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7106H	4	12'-1"	P3	0'-9"	10'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7107H	4	12'-4"	P3	0'-9"	10'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7108H	4	12'-6"	P3	0'-9"	10'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7109H	4	12'-9"	P3	0'-9"	10'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7110H	4	13'-0"	P3	0'-9"	11'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7111H	4	13'-2"	P3	0'-9"	11'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7112H	4	13'-5"	P3	0'-9"	11'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7113H	4	13'-8"	P3	0'-9"	11'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7114H	4	13'-10"	P3	0'-9"	11'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7115H	4	14'-1"	P3	0'-9"	12'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7116H	4	14'-3"	P3	0'-9"	12'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				IP7117H	4	14'-6"	P3	0'-9"	12'-7"					1'-2"					Pier Cap - Group A - Vertical Ties

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600H' = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
REGISTERED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	T. Poulin
CHECKED-REVIEWED	K. Segal
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-
REVISIONS 1	-
REVISIONS 2	-
REVISIONS 3	-
REVISIONS 4	-
FIELD CHANGES	-

DATE	BY
11\20	P. Bishop
11\20	J. Olund
-	-
-	-
-	-
-	-
-	-
-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

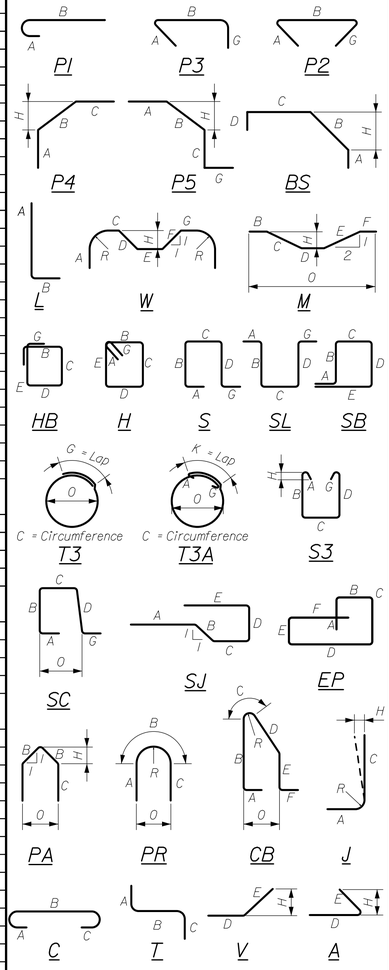
REINFORCEMENT SCHEDULE 7

SHEET NUMBER
139
OF 160

Filename: 139_Reinforcement Schedule 7.dgn Division: Username: Date:11/20/2020

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
PIER 1 - PIER SHAFT AND PIER CAP (CONTINUED)																			
				1P7118H	4	14'-9"	P3	0'-9"	12'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				1P7119H	4	14'-11"	P3	0'-9"	13'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				1P7120H	4	15'-2"	P3	0'-9"	13'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				1P7121H	4	15'-4"	P3	0'-9"	13'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				1P7122H	4	15'-6"	P3	0'-9"	13'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				1P850	24	25'-7"	PR	8'-1"	12'-7"	4'-11"							8'-2"	4'-1"	Pier Cap - Horizontal Ubars
				1P851	4	13'-2"	BS	0'-0"	3'-2"	6'-10"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				1P852	4	12'-7"	BS	0'-0"	3'-2"	6'-3"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				1P853	4	12'-3"	BS	0'-0"	3'-2"	5'-11"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				1P854	4	12'-1"	BS	0'-0"	3'-2"	5'-9"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				1P855	4	12'-0"	BS	0'-0"	3'-2"	5'-8"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				1P1150H	2	41'-6"	S	0'-0"	2'-0"	39'-4"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				1P1151H	2	44'-11"	S	0'-0"	2'-0"	41'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				1P1152H	2	46'-4"	S	0'-0"	2'-0"	42'-7"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				1P1153H	2	47'-3"	S	0'-0"	2'-0"	43'-3"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				1P1154H	2	47'-11"	S	0'-0"	2'-0"	43'-11"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				1P1155H	2	48'-5"	S	0'-0"	2'-0"	44'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				1P1156H	2	48'-8"	S	0'-0"	2'-0"	44'-8"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				1P1157H	2	48'-10"	S	0'-0"	2'-0"	44'-10"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				1P1158	4	27'-11"	P4	2'-0"	19'-11"	6'-0"					7'-11"				Pier Cap Sloped Bar EF (B)
				1P1159	4	27'-8"	P4	2'-0"	19'-8"	6'-0"					7'-10"				Pier Cap Sloped Bar EF (B)
				1P1160	4	27'-2"	P4	2'-0"	19'-2"	6'-0"					7'-7"				Pier Cap Sloped Bar EF (B)
				1P1161	4	26'-4"	P4	2'-0"	18'-4"	6'-0"					7'-3"				Pier Cap Sloped Bar EF (B)
				1P1162	4	24'-3"	P4	2'-0"	16'-3"	6'-0"					6'-5"				Pier Cap Sloped Bar EF (B)
				1P1850H	26	15'-5"	L	12'-0"	3'-5"										10ft Pier Column Vertical bars
				1P1851H	26	12'-5"	L	9'-0"	3'-5"										10ft Pier Column Vertical Bars
PIER 2 - SPREAD FOOTING - ALTERNATE AB1																			
2PF6011	20	31'-6"	Spread Footing EF	2PF651	156	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Spread Footing U-Bars EF
2PF8011	60	5'-0"	Spread Footing Vertical Bars	2PF660	154	33'-6"	S	0'-0"	1'-0"	31'-6"	1'-0"			0'-0"					Spread Footing (T)
				2PF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				2PF1151	154	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Spread Footing (B)
PIER 2 - DS FOUNDATION - ALTERNATE AB2																			
2PF6011	20	31'-6"	Drilled Shaft Pile Cap EF	2PF651	148	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Drilled Shaft Pile Cap U-Bars EF
				2PF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				2PF951	74	34'-8"	S	0'-0"	1'-7"	31'-6"	1'-7"			0'-0"					Drilled Shaft Pile Cap (T)
				2PF1151H	148	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Drilled Shaft Pile Cap (B)
PIER 2 - PIER SHAFT AND PIER CAP																			
2P800	2	9'-0"	Pier Cap Horizontal Bars - EF	2P650H	92	34'-5"	T3A	0'-8"		29'-10"				0'-8"		3'-3"	9'-6"		10ft Pier Column Hoops
2P801	2	10'-11"	Pier Cap Horizontal Bars - EF	2P651H	92	33'-1"	T3			29'-10"				3'-3"			9'-6"		10ft Pier Column Hoops
2P802	2	12'-10"	Pier Cap Horizontal Bars - EF	2P652H	69	26'-10"	T3			23'-7"				3'-3"			7'-6"		8ft Pier Column Hoops
2P803	2	14'-9"	Pier Cap Horizontal Bars - EF	2P653H	64	10'-11"	S	0'-0"	3'-5"	4'-1"	3'-5"			0'-0"					Pedestal
2P804	2	16'-8"	Pier Cap Horizontal Bars - EF	2P654H	40	5'-10"	P3	0'-8"	4'-2"					1'-0"					Pedestal
2P805	2	18'-7"	Pier Cap Horizontal Bars - EF	2P750H	2	21'-4"	S3	0'-9"	6'-6"	6'-10"	6'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
2P806	2	20'-7"	Pier Cap Horizontal Bars - EF	2P751H	2	22'-5"	S3	0'-9"	6'-9"	7'-5"	6'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P807	2	22'-6"	Pier Cap Horizontal Bars - EF	2P752H	2	23'-3"	S3	0'-9"	7'-0"	7'-9"	7'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P808	2	24'-5"	Pier Cap Horizontal Bars - EF	2P753H	2	23'-10"	S3	0'-9"	7'-2"	8'-0"	7'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P809	2	26'-4"	Pier Cap Horizontal Bars - EF	2P754H	2	24'-6"	S3	0'-9"	7'-5"	8'-2"	7'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P810	2	28'-3"	Pier Cap Horizontal Bars - EF	2P755H	2	24'-10"	S3	0'-9"	7'-7"	8'-2"	7'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P811	2	30'-2"	Pier Cap Horizontal Bars - EF	2P756H	2	25'-4"	S3	0'-9"	7'-10"	8'-2"	7'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P812	2	32'-1"	Pier Cap Horizontal Bars - EF	2P757H	2	25'-10"	S3	0'-9"	8'-1"	8'-2"	8'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P813	2	34'-0"	Pier Cap Horizontal Bars - EF	2P758H	2	26'-2"	S3	0'-9"	8'-3"	8'-2"	8'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P814	2	35'-11"	Pier Cap Horizontal Bars - EF	2P759H	2	26'-8"	S3	0'-9"	8'-6"	8'-2"	8'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P815	2	37'-11"	Pier Cap Horizontal Bars - EF	2P760H	2	27'-0"	S3	0'-9"	8'-8"	8'-2"	8'-8"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P816	2	39'-10"	Pier Cap Horizontal Bars - EF	2P761H	2	27'-6"	S3	0'-9"	8'-11"	8'-2"	8'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P817	2	41'-9"	Pier Cap Horizontal Bars - EF	2P762H	2	28'-0"	S3	0'-9"	9'-2"	8'-2"	9'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P818	2	43'-8"	Pier Cap Horizontal Bars - EF	2P763H	2	28'-4"	S3	0'-9"	9'-4"	8'-2"	9'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P819	24	32'-2"	Pier Cap Horizontal Bars - EF	2P764H	2	28'-10"	S3	0'-9"	9'-7"	8'-2"	9'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1100H	104	42'-6"	8ft Pier Column Vertical Bars	2P765H	2	29'-2"	S3	0'-9"	9'-9"	8'-2"	9'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1101H	2	39'-4"	Pier Cap Horizontal Bars (T)	2P766H	2	29'-8"	S3	0'-9"	10'-0"	8'-2"	10'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1102H	2	41'-5"	Pier Cap Horizontal Bars (T)	2P767H	2	30'-0"	S3	0'-9"	10'-2"	8'-2"	10'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1103H	2	42'-7"	Pier Cap Horizontal Bars (T)	2P768H	2	30'-6"	S3	0'-9"	10'-5"	8'-2"	10'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1104H	2	43'-3"	Pier Cap Horizontal Bars (T)	2P769H	2	30'-10"	S3	0'-9"	10'-7"	8'-2"	10'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1105H	2	43'-11"	Pier Cap Horizontal Bars (T)	2P770H	2	31'-4"	S3	0'-9"	10'-10"	8'-2"	10'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1106H	2	44'-5"	Pier Cap Horizontal Bars (T)	2P771H	2	31'-10"	S3	0'-9"	11'-1"	8'-2"	11'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1107H	2	44'-8"	Pier Cap Horizontal Bars (T)	2P772H	2	32'-2"	S3	0'-9"	11'-3"	8'-2"	11'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1108H	2	44'-10"	Pier Cap Horizontal Bars (T)	2P773H	2	32'-8"	S3	0'-9"	11'-6"	8'-2"	11'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1800H	26	38'-4"	10ft Pier Column Vertical Bars	2P774H	2	33'-2"	S3	0'-9"	11'-9"	8'-2"	11'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
2P1801H	26	41'-4"	10ft Pier Column Vertical Bars	2P775H	2	33'-6"	S3	0'-9"	11'-11"	8'-2"	11'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				2P776H	2	34'-0"	S3	0'-9"	12'-2"	8'-2"	12'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				2P777H	2	34'-4"	S3	0'-9"	12'-4"	8'-2"	12'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				2P778H	2	34'-10"	S3	0'-9"	12'-7"	8'-2"	12'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				2P779H	2	35'-4"	S3	0'-9"	12'-10"	8'-2"	12'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				2P780H	2	35'-8"	S3	0'-9"	13'-0"	8'-2"	13'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				2P781H	2	36'-2"	S3	0'-9"	13'-3"	8'-2"	13'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				2P782H	2	36'-6"	S3	0'-9"	13'-5"	8'-2"	13'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A -Vertical Stirrups
				2P783H	11	36'-10"	S3	0'-9"	13'-7"	8'-2"	13'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A and B-Vertical Stirrups
				2P784H	2	8'-9"	P3	0'-9"	6'-10"					1'-2"					Pier Cap - Group A -Horizontal Ties
				2P785H	2	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A -Horizontal Ties
				2P786H	2	9'-8"	P3	0'-9"	7'-9"					1'-2"					Pier Cap - Group A -Horizontal Ties
				2P787H	2	9'-11"	P3	0'-9"	8'-0"					1'-2"					Pier Cap - Group A -Horizontal Ties
				2P788H	69	10'-1"	P3	0'-9"	8'-2"					1'-2"					Pier Cap - Group A and B -Horizontal Ties
				2P789H	4	8'-5"	P3	0'-9"	6'-6"					1'-2"					Pier Cap - Group A - Vertical Ties

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark "A502" = bar size #5
   Mark "P805" = bar size #8
   Mark "S650" = bar size #6
   Mark "S650ss" = bar size #6 Stainless Steel
   Mark "S600H" = bar size #6 Grade 75

2. 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.

3. Bar marks ending with "H" indicate plain Grade 75. Bar marks ending with "ss" indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
A. LATHE		
PROJ. MANAGER	T. Poulin	11\20
DESIGN-DETAILED	P. Bishop	11\20
CHECKED-REVIEWED	K. Segal	J. Olund
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 8

SHEET NUMBER

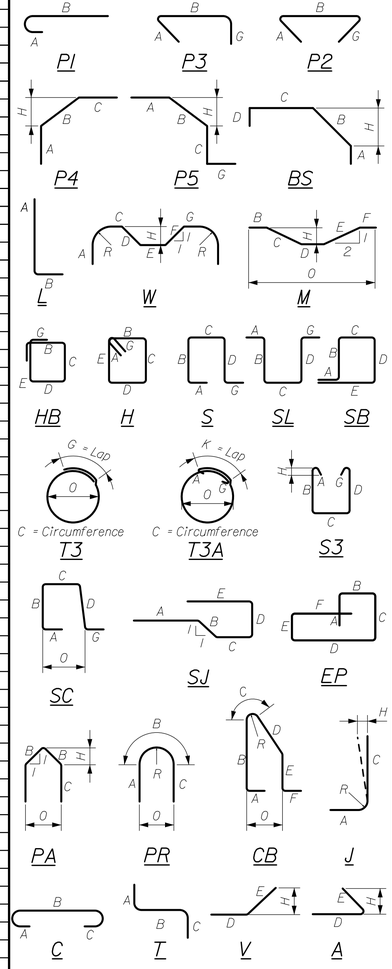
140

OF 160

Filename: 140_Reinforcement Schedule 8.dgn Division: Username: Date:11/20/2020

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
PIER 2 - PIER SHAFT AND PIER CAP (CONTINUED)																			
				2P790H	4	8'-8"	P3	0'-9"	6'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P791H	4	8'-11"	P3	0'-9"	7'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P792H	4	9'-1"	P3	0'-9"	7'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P793H	4	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P794H	4	9'-6"	P3	0'-9"	7'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P795H	4	9'-9"	P3	0'-9"	7'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P796H	4	10'-0"	P3	0'-9"	8'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P797H	4	10'-2"	P3	0'-9"	8'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P798H	4	10'-5"	P3	0'-9"	8'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P799H	4	10'-7"	P3	0'-9"	8'-8"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7100H	4	10'-10"	P3	0'-9"	8'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7101H	4	11'-1"	P3	0'-9"	9'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7102H	4	11'-3"	P3	0'-9"	9'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7103H	4	11'-6"	P3	0'-9"	9'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7104H	4	11'-8"	P3	0'-9"	9'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7105H	4	11'-11"	P3	0'-9"	10'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7106H	4	12'-1"	P3	0'-9"	10'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7107H	4	12'-4"	P3	0'-9"	10'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7108H	4	12'-6"	P3	0'-9"	10'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7109H	4	12'-9"	P3	0'-9"	10'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7110H	4	13'-0"	P3	0'-9"	11'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7111H	4	13'-2"	P3	0'-9"	11'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7112H	4	13'-5"	P3	0'-9"	11'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7113H	4	13'-8"	P3	0'-9"	11'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7114H	4	13'-10"	P3	0'-9"	11'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7115H	4	14'-1"	P3	0'-9"	12'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7116H	4	14'-3"	P3	0'-9"	12'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7117H	4	14'-6"	P3	0'-9"	12'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7118H	4	14'-9"	P3	0'-9"	12'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7119H	4	14'-11"	P3	0'-9"	13'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7120H	4	15'-2"	P3	0'-9"	13'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7121H	4	15'-4"	P3	0'-9"	13'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P7122H	4	15'-6"	P3	0'-9"	13'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				2P850	24	25'-7"	PR	8'-1"	12'-7"	4'-11"							8'-2"	4'-1"	Pier Cap - Horizontal Ubars
				2P851	4	13'-2"	BS	0'-0"	3'-2"	6'-10"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				2P852	4	12'-7"	BS	0'-0"	3'-2"	6'-3"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				2P853	4	12'-3"	BS	0'-0"	3'-2"	5'-11"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				2P854	4	12'-1"	BS	0'-0"	3'-2"	5'-9"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				2P855	4	12'-0"	BS	0'-0"	3'-2"	5'-8"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				2P1150H	2	41'-6"	S	0'-0"	2'-0"	39'-4"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				2P1151H	2	44'-11"	S	0'-0"	2'-0"	41'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				2P1152H	2	46'-4"	S	0'-0"	2'-0"	42'-7"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				2P1153H	2	47'-3"	S	0'-0"	2'-0"	43'-3"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				2P1154H	2	47'-11"	S	0'-0"	2'-0"	43'-11"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				2P1155H	2	48'-5"	S	0'-0"	2'-0"	44'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				2P1156H	2	48'-8"	S	0'-0"	2'-0"	44'-8"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				2P1157H	2	48'-10"	S	0'-0"	2'-0"	44'-10"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				2P1158	4	27'-11"	P4	2'-0"	19'-11"	6'-0"					7'-11"				Pier Cap Sloped Bar EF (B)
				2P1159	4	27'-8"	P4	2'-0"	19'-8"	6'-0"					7'-10"				Pier Cap Sloped Bar EF (B)
				2P1160	4	27'-2"	P4	2'-0"	19'-2"	6'-0"					7'-7"				Pier Cap Sloped Bar EF (B)
				2P1161	4	26'-4"	P4	2'-0"	18'-4"	6'-0"					7'-3"				Pier Cap Sloped Bar EF (B)
				2P1162	4	24'-3"	P4	2'-0"	16'-3"	6'-0"					6'-5"				Pier Cap Sloped Bar EF (B)
				2P1850H	26	15'-5"	L	12'-0"	3'-5"										10ft Pier Column Vertical bars
				2P1851H	26	12'-5"	L	9'-0"	3'-5"										10ft Pier Column Vertical Bars
PIER 3 - SPREAD FOOTING - ALTERNATE ACI																			
3PF601	20	31'-6"	Spread Footing EF	3PF651	156	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Spread Footing U-Bars EF
3PF801	60	5'-0"	Spread Footing Vertical Bars	3PF660	154	33'-6"	S	0'-0"	1'-0"	31'-6"	1'-0"			0'-0"					Spread Footing (T)
				3PF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				3PF115I	154	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Spread Footing (B)
PIER 3 - DS FOUNDATION - ALTERNATE AC2																			
3PF601	20	31'-6"	Drilled Shaft Pile Cap EF	3PF651	148	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Drilled Shaft Pile Cap U-Bars EF
				3PF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				3PF951	74	34'-8"	S	0'-0"	1'-7"	31'-6"	1'-7"			0'-0"					Drilled Shaft Pile Cap (T)
				3PF115IH	148	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Drilled Shaft Pile Cap (B)
PIER 3 - PIER SHAFT AND PIER CAP																			
3P800	2	9'-0"	Pier Cap Horizontal Bars - EF	3P650H	92	34'-5"	T3A	0'-8"		29'-10"				0'-8"		3'-3"	9'-6"		10ft Pier Column Hoops
3P801	2	10'-11"	Pier Cap Horizontal Bars - EF	3P651H	82	33'-1"	T3			29'-10"				3'-3"			9'-6"		10ft Pier Column Hoops
3P802	2	12'-10"	Pier Cap Horizontal Bars - EF	3P652H	69	26'-10"	T3			23'-7"				3'-3"			7'-6"		8ft Pier Column Hoops
3P803	2	14'-9"	Pier Cap Horizontal Bars - EF	3P653H	64	10'-11"	S	0'-0"	3'-5"	4'-1"	3'-5"			0'-0"					Pedestal
3P804	2	16'-8"	Pier Cap Horizontal Bars - EF	3P654H	40	5'-10"	P3	0'-8"	4'-2"					1'-0"					Pedestal
3P805	2	18'-7"	Pier Cap Horizontal Bars - EF	3P750H	2	21'-4"	S3	0'-9"	6'-6"	6'-10"	6'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P806	2	20'-7"	Pier Cap Horizontal Bars - EF	3P751H	2	22'-5"	S3	0'-9"	6'-9"	7'-5"	6'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P807	2	22'-6"	Pier Cap Horizontal Bars - EF	3P752H	2	23'-3"	S3	0'-9"	7'-0"	7'-9"	7'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P808	2	24'-5"	Pier Cap Horizontal Bars - EF	3P753H	2	23'-10"	S3	0'-9"	7'-2"	8'-0"	7'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P809	2	26'-4"	Pier Cap Horizontal Bars - EF	3P754H	2	24'-6"	S3	0'-9"	7'-5"	8'-2"	7'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P810	2	28'-3"	Pier Cap Horizontal Bars - EF	3P755H	2	24'-10"	S3	0'-9"	7'-7"	8'-2"	7'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P811	2	30'-2"	Pier Cap Horizontal Bars - EF	3P756H	2	25'-4"	S3	0'-9"	7'-10"	8'-2"	7'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P812	2	32'-1"	Pier Cap Horizontal Bars - EF	3P757H	2	25'-10"	S3	0'-9"	8'-1"	8'-2"	8'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P813	2	34'-0"	Pier Cap Horizontal Bars - EF	3P758H	2	26'-2"	S3	0'-9"	8'-3"	8'-2"	8'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P814	2	35'-11"	Pier Cap Horizontal Bars - EF	3P759H	2	26'-8"	S3	0'-9"	8'-6"	8'-2"	8'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P815	2	37'-11"	Pier Cap Horizontal Bars - EF	3P760H	2	27'-0"	S3	0'-9"	8'-8"	8'-2"	8'-8"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P816	2	39'-10"	Pier Cap Horizontal Bars - EF	3P761H	2	27'-6"	S3	0'-9"	8'-11"	8'-2"	8'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark "A502" = bar size #5
   Mark "P805" = bar size #8
   Mark "S650" = bar size #6
   Mark "S650ss" = bar size #6 Stainless Steel
   Mark "S600H" = bar size #6 Grade 75

2. 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.

3. Bar marks ending with "H" indicate plain Grade 75. Bar marks ending with "ss" indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	T. Poulin
CHECKED-REVIEWED	K. Segal
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-

	BY	DATE
REVISIONS 1	P. Bishop	11\20
REVISIONS 2	J. Olund	11\20
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 9

SHEET NUMBER

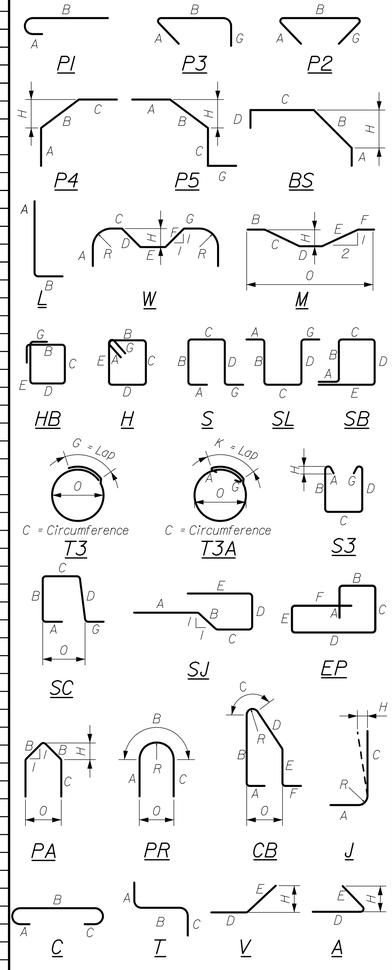
141

OF 160

Filename: 141_Reinforcement Schedule 9.dgn Division: Username: Date:11/20/2020

STRAIGHT BARS				BENT BARS															
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
PIER 3 - PIER SHAFT AND PIER CAP (CONTINUED)																			
3P817	2	41'-9"	Pier Cap Horizontal Bars - EF	3P762H	2	28'-0"	S3	0'-9"	9'-2"	8'-2"	9'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P818	2	43'-8"	Pier Cap Horizontal Bars - EF	3P763H	2	28'-4"	S3	0'-9"	9'-4"	8'-2"	9'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P819	24	32'-2"	Pier Cap Horizontal Bars - EF	3P764H	2	28'-10"	S3	0'-9"	9'-7"	8'-2"	9'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1100H	104	42'-6"	8ft Pier Column Vertical Bars	3P765H	2	29'-2"	S3	0'-9"	9'-9"	8'-2"	9'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1101H	2	39'-4"	Pier Cap Horizontal Bars (T)	3P766H	2	29'-8"	S3	0'-9"	10'-0"	8'-2"	10'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1102H	2	41'-5"	Pier Cap Horizontal Bars (T)	3P767H	2	30'-0"	S3	0'-9"	10'-2"	8'-2"	10'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1103H	2	42'-7"	Pier Cap Horizontal Bars (T)	3P768H	2	30'-6"	S3	0'-9"	10'-5"	8'-2"	10'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1104H	2	43'-3"	Pier Cap Horizontal Bars (T)	3P769H	2	30'-10"	S3	0'-9"	10'-7"	8'-2"	10'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1105H	2	43'-11"	Pier Cap Horizontal Bars (T)	3P770H	2	31'-4"	S3	0'-9"	10'-10"	8'-2"	10'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1106H	2	44'-5"	Pier Cap Horizontal Bars (T)	3P771H	2	31'-10"	S3	0'-9"	11'-1"	8'-2"	11'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1107H	2	44'-8"	Pier Cap Horizontal Bars (T)	3P772H	2	32'-2"	S3	0'-9"	11'-3"	8'-2"	11'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1108H	2	44'-10"	Pier Cap Horizontal Bars (T)	3P773H	2	32'-8"	S3	0'-9"	11'-6"	8'-2"	11'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1800H	26	33'-7"	10ft Pier Column Vertical Bars	3P774H	2	33'-2"	S3	0'-9"	11'-9"	8'-2"	11'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
3P1801H	26	36'-7"	10ft Pier Column Vertical Bars	3P775H	2	33'-6"	S3	0'-9"	11'-11"	8'-2"	11'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				3P776H	2	34'-0"	S3	0'-9"	12'-2"	8'-2"	12'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				3P777H	2	34'-4"	S3	0'-9"	12'-4"	8'-2"	12'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				3P778H	2	34'-10"	S3	0'-9"	12'-7"	8'-2"	12'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				3P779H	2	35'-4"	S3	0'-9"	12'-10"	8'-2"	12'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				3P780H	2	35'-8"	S3	0'-9"	13'-0"	8'-2"	13'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				3P781H	2	36'-2"	S3	0'-9"	13'-3"	8'-2"	13'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				3P782H	2	36'-6"	S3	0'-9"	13'-5"	8'-2"	13'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				3P783H	11	36'-10"	S3	0'-9"	13'-7"	8'-2"	13'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A and B - Vertical Stirrups
				3P784H	2	8'-9"	P3	0'-9"	6'-10"					1'-2"					Pier Cap - Group A - Horizontal Ties
				3P785H	2	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A - Horizontal Ties
				3P786H	2	9'-8"	P3	0'-9"	7'-9"					1'-2"					Pier Cap - Group A - Horizontal Ties
				3P787H	2	9'-11"	P3	0'-9"	8'-0"					1'-2"					Pier Cap - Group A - Horizontal Ties
				3P788H	69	10'-1"	P3	0'-9"	8'-2"					1'-2"					Pier Cap - Group A and B - Horizontal Ties
				3P789H	4	8'-5"	P3	0'-9"	6'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P790H	4	8'-8"	P3	0'-9"	6'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P791H	4	8'-11"	P3	0'-9"	7'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P792H	4	9'-1"	P3	0'-9"	7'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P793H	4	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P794H	4	9'-6"	P3	0'-9"	7'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P795H	4	9'-9"	P3	0'-9"	7'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P796H	4	10'-0"	P3	0'-9"	8'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P797H	4	10'-2"	P3	0'-9"	8'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P798H	4	10'-5"	P3	0'-9"	8'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P799H	4	10'-7"	P3	0'-9"	8'-8"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7100H	4	10'-10"	P3	0'-9"	8'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7101H	4	11'-1"	P3	0'-9"	9'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7102H	4	11'-3"	P3	0'-9"	9'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7103H	4	11'-6"	P3	0'-9"	9'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7104H	4	11'-8"	P3	0'-9"	9'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7105H	4	11'-11"	P3	0'-9"	10'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7106H	4	12'-1"	P3	0'-9"	10'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7107H	4	12'-4"	P3	0'-9"	10'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7108H	4	12'-6"	P3	0'-9"	10'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7109H	4	12'-9"	P3	0'-9"	10'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7110H	4	13'-0"	P3	0'-9"	11'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7111H	4	13'-2"	P3	0'-9"	11'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7112H	4	13'-5"	P3	0'-9"	11'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7113H	4	13'-8"	P3	0'-9"	11'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7114H	4	13'-10"	P3	0'-9"	11'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7115H	4	14'-1"	P3	0'-9"	12'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7116H	4	14'-3"	P3	0'-9"	12'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7117H	4	14'-6"	P3	0'-9"	12'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7118H	4	14'-9"	P3	0'-9"	12'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7119H	4	14'-11"	P3	0'-9"	13'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7120H	4	15'-2"	P3	0'-9"	13'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7121H	4	15'-4"	P3	0'-9"	13'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P7122H	4	15'-6"	P3	0'-9"	13'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				3P850	24	25'-7"	PR	8'-1"	12'-7"	4'-11"							8'-2"	4'-1"	Pier Cap - Horizontal Ubars
				3P851	4	13'-2"	BS	0'-0"	3'-2"	6'-10"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				3P852	4	12'-7"	BS	0'-0"	3'-2"	6'-3"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				3P853	4	12'-3"	BS	0'-0"	3'-2"	5'-11"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				3P854	4	12'-1"	BS	0'-0"	3'-2"	5'-9"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				3P855	4	12'-0"	BS	0'-0"	3'-2"	5'-8"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				3P1150H	2	41'-6"	S	0'-0"	2'-0"	39'-4"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				3P1151H	2	44'-11"	S	0'-0"	2'-0"	41'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				3P1152H	2	46'-4"	S	0'-0"	2'-0"	42'-7"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				3P1153H	2	47'-3"	S	0'-0"	2'-0"	43'-3"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				3P1154H	2	47'-11"	S	0'-0"	2'-0"	43'-11"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				3P1155H	2	48'-5"	S	0'-0"	2'-0"	44'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				3P1156H	2	48'-8"	S	0'-0"	2'-0"	44'-8"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				3P1157H	2	48'-10"	S	0'-0"	2'-0"	44'-10"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				3P1158	4	27'-11"	P4	2'-0"	19'-11"	6'-0"					7'-11"				Pier Cap Sloped Bar EF (B)
				3P1159	4	27'-8"	P4	2'-0"	19'-8"	6'-0"					7'-10"				Pier Cap Sloped Bar EF (B)
				3P1160	4	27'-2"	P4	2'-0"	19'-2"	6'-0"					7'-7"				Pier Cap Sloped Bar EF (B)
				3P1161	4	26'-4"	P4	2'-0"	18'-4"	6'-0"					7'-3"				Pier Cap Sloped Bar EF (B)
				3P1162	4	24'-3"	P4	2'-0"	16'-3"	6'-0"					6'-5"				Pier Cap Sloped Bar EF (B)
				3P1850H	26	15'-5"	L	12'-0"	3'-5"										10ft Pier Column Vertical bars
				3P1851H	26	12'-5"	L	9'-0"	3'-5"										10ft Pier Column Vertical Bars

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600H' = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/9/2020

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	T. Poulin
CHECKED-REVIEWED	K. Segal
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-

BY	DATE
P. Bishop	11\20
J. Olund	11\20
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

REVISIONS
REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 10

SHEET NUMBER

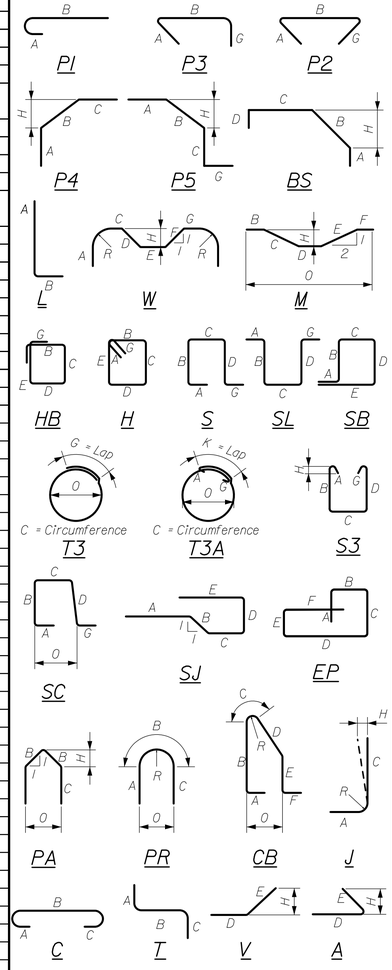
142

OF 160

Filename: 142_Reinforcement Schedule 10.dgn Division: Username: Date:11/20/2020

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
PIER 4 - SPREAD FOOTING - ALTERNATE AD1																			
4PF601	20	31'-6"	Spread Footing EF	4PF651	156	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Spread Footing U-Bars EF
4PF801	60	5'-0"	Spread Footing Vertical Bars	4PF660	154	33'-6"	S	0'-0"	1'-0"	31'-6"	1'-0"			0'-0"					Spread Footing (T)
				4PF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				4PF1151	154	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Spread Footing (B)
PIER 4 - DS FOUNDATION - ALTERNATE AD2																			
4PF601	20	31'-6"	Drilled Shaft Pile Cap EF	4PF651	148	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Drilled Shaft Pile Cap U-Bars EF
				4PF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				4PF951	74	34'-8"	S	0'-0"	1'-7"	31'-6"	1'-7"			0'-0"					Drilled Shaft Pile Cap (T)
				4PF1151H	148	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Drilled Shaft Pile Cap (B)
PIER 4 - PIER SHAFT AND PIER CAP																			
4P800	2	9'-0"	Pier Cap Horizontal Bars - EF	4P650H	92	34'-5"	T3A	0'-8"		29'-10"				0'-8"		3'-3"	9'-6"		10ft Pier Column Hoops
4P801	2	10'-11"	Pier Cap Horizontal Bars - EF	4P651H	77	33'-1"	T3			29'-10"				3'-3"			9'-6"		10ft Pier Column Hoops
4P802	2	12'-10"	Pier Cap Horizontal Bars - EF	4P652H	69	26'-10"	T3			23'-7"				3'-3"			7'-6"		8ft Pier Column Hoops
4P803	2	14'-9"	Pier Cap Horizontal Bars - EF	4P653H	64	10'-11"	S	0'-0"	3'-5"	4'-1"	3'-5"			0'-0"					Pedestal
4P804	2	16'-8"	Pier Cap Horizontal Bars - EF	4P654H	40	5'-10"	P3	0'-8"	4'-2"					1'-0"					Pedestal
4P805	2	18'-7"	Pier Cap Horizontal Bars - EF	4P750H	2	21'-4"	S3	0'-9"	6'-6"	6'-10"	6'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P806	2	20'-7"	Pier Cap Horizontal Bars - EF	4P751H	2	22'-5"	S3	0'-9"	6'-9"	7'-5"	6'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P807	2	22'-6"	Pier Cap Horizontal Bars - EF	4P752H	2	23'-3"	S3	0'-9"	7'-0"	7'-9"	7'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P808	2	24'-5"	Pier Cap Horizontal Bars - EF	4P753H	2	23'-10"	S3	0'-9"	7'-2"	8'-0"	7'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P809	2	26'-4"	Pier Cap Horizontal Bars - EF	4P754H	2	24'-6"	S3	0'-9"	7'-5"	8'-2"	7'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P810	2	28'-3"	Pier Cap Horizontal Bars - EF	4P755H	2	24'-10"	S3	0'-9"	7'-7"	8'-2"	7'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P811	2	30'-2"	Pier Cap Horizontal Bars - EF	4P756H	2	25'-4"	S3	0'-9"	7'-10"	8'-2"	7'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P812	2	32'-1"	Pier Cap Horizontal Bars - EF	4P757H	2	25'-10"	S3	0'-9"	8'-1"	8'-2"	8'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P813	2	34'-0"	Pier Cap Horizontal Bars - EF	4P758H	2	26'-2"	S3	0'-9"	8'-3"	8'-2"	8'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P814	2	35'-11"	Pier Cap Horizontal Bars - EF	4P759H	2	26'-8"	S3	0'-9"	8'-6"	8'-2"	8'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P815	2	37'-11"	Pier Cap Horizontal Bars - EF	4P760H	2	27'-0"	S3	0'-9"	8'-8"	8'-2"	8'-8"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P816	2	39'-10"	Pier Cap Horizontal Bars - EF	4P761H	2	27'-6"	S3	0'-9"	8'-11"	8'-2"	8'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P817	2	41'-9"	Pier Cap Horizontal Bars - EF	4P762H	2	28'-0"	S3	0'-9"	9'-2"	8'-2"	9'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P818	2	43'-8"	Pier Cap Horizontal Bars - EF	4P763H	2	28'-4"	S3	0'-9"	9'-4"	8'-2"	9'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P819	24	32'-2"	Pier Cap Horizontal Bars - EF	4P764H	2	28'-10"	S3	0'-9"	9'-7"	8'-2"	9'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1100H	104	42'-6"	8ft Pier Column Vertical Bars	4P765H	2	29'-2"	S3	0'-9"	9'-9"	8'-2"	9'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1101H	2	39'-4"	Pier Cap Horizontal Bars (T)	4P766H	2	29'-8"	S3	0'-9"	10'-0"	8'-2"	10'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1102H	2	41'-5"	Pier Cap Horizontal Bars (T)	4P767H	2	30'-0"	S3	0'-9"	10'-2"	8'-2"	10'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1103H	2	42'-7"	Pier Cap Horizontal Bars (T)	4P768H	2	30'-6"	S3	0'-9"	10'-5"	8'-2"	10'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1104H	2	43'-3"	Pier Cap Horizontal Bars (T)	4P769H	2	30'-10"	S3	0'-9"	10'-7"	8'-2"	10'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1105H	2	43'-11"	Pier Cap Horizontal Bars (T)	4P770H	2	31'-4"	S3	0'-9"	10'-10"	8'-2"	10'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1106H	2	44'-5"	Pier Cap Horizontal Bars (T)	4P771H	2	31'-10"	S3	0'-9"	11'-1"	8'-2"	11'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1107H	2	44'-8"	Pier Cap Horizontal Bars (T)	4P772H	2	32'-2"	S3	0'-9"	11'-3"	8'-2"	11'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1108H	2	44'-10"	Pier Cap Horizontal Bars (T)	4P773H	2	32'-8"	S3	0'-9"	11'-6"	8'-2"	11'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1800H	26	30'-11"	10ft Pier Column Vertical Bars	4P774H	2	33'-2"	S3	0'-9"	11'-9"	8'-2"	11'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
4P1801H	26	33'-11"	10ft Pier Column Vertical Bars	4P775H	2	33'-6"	S3	0'-9"	11'-11"	8'-2"	11'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				4P776H	2	34'-0"	S3	0'-9"	12'-2"	8'-2"	12'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				4P777H	2	34'-4"	S3	0'-9"	12'-4"	8'-2"	12'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				4P778H	2	34'-10"	S3	0'-9"	12'-7"	8'-2"	12'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				4P779H	2	35'-4"	S3	0'-9"	12'-10"	8'-2"	12'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				4P780H	2	35'-8"	S3	0'-9"	13'-0"	8'-2"	13'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				4P781H	2	36'-2"	S3	0'-9"	13'-3"	8'-2"	13'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				4P782H	2	36'-6"	S3	0'-9"	13'-5"	8'-2"	13'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				4P783H	11	36'-10"	S3	0'-9"	13'-7"	8'-2"	13'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A and B - Vertical Stirrups
				4P784H	2	8'-9"	P3	0'-9"	6'-10"					1'-2"					Pier Cap - Group A - Horizontal Ties
				4P785H	2	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A - Horizontal Ties
				4P786H	2	9'-8"	P3	0'-9"	7'-9"					1'-2"					Pier Cap - Group A - Horizontal Ties
				4P787H	2	9'-11"	P3	0'-9"	8'-0"					1'-2"					Pier Cap - Group A - Horizontal Ties
				4P788H	69	10'-1"	P3	0'-9"	8'-2"					1'-2"					Pier Cap - Group A and B - Horizontal Ties
				4P789H	4	8'-5"	P3	0'-9"	6'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P790H	4	8'-8"	P3	0'-9"	6'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P791H	4	8'-11"	P3	0'-9"	7'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P792H	4	9'-1"	P3	0'-9"	7'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P793H	4	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P794H	4	9'-6"	P3	0'-9"	7'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P795H	4	9'-9"	P3	0'-9"	7'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P796H	4	10'-0"	P3	0'-9"	8'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P797H	4	10'-2"	P3	0'-9"	8'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P798H	4	10'-5"	P3	0'-9"	8'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P799H	4	10'-7"	P3	0'-9"	8'-8"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7100H	4	10'-10"	P3	0'-9"	8'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7101H	4	11'-1"	P3	0'-9"	9'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7102H	4	11'-3"	P3	0'-9"	9'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7103H	4	11'-6"	P3	0'-9"	9'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7104H	4	11'-8"	P3	0'-9"	9'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7105H	4	11'-11"	P3	0'-9"	10'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7106H	4	12'-1"	P3	0'-9"	10'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7107H	4	12'-4"	P3	0'-9"	10'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7108H	4	12'-6"	P3	0'-9"	10'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7109H	4	12'-9"	P3	0'-9"	10'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7110H	4	13'-0"	P3	0'-9"	11'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7111H	4	13'-2"	P3	0'-9"	11'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7112H	4	13'-5"	P3	0'-9"	11'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7113H	4	13'-8"	P3	0'-9"	11'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7114H	4	13'-10"	P3	0'-9"	11'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7115H	4	14'-1"	P3	0'-9"	12'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7116H	4	14'-3"	P3	0'-9"	12'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7117H	4	14'-6"	P3	0'-9"	12'-7"					1'-2"					Pier Cap - Group A - Vertical Ties

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600H' = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDOT ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12/30

P.E. NUMBER

11/9/2020

DATE

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	T. Poulin
CHECKED-REVIEWED	K. Segal
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-

BY	DATE
P. Bishop	11\20
J. Olund	11\20
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 11

SHEET NUMBER

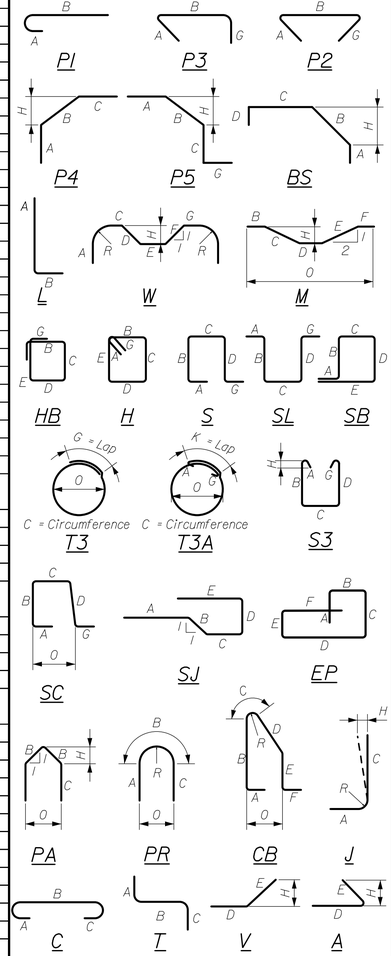
143

OF 160

Filename: 143_Reinforcement Schedule 11.dgn Division: Username: Date:11/20/2020

STRAIGHT BARS				BENT BARS													
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
PIER 4 - PIER SHAFT AND PIER CAP (CONTINUED)																			
				4P7118H	4	14'-9"	P3	0'-9"	12'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7119H	4	14'-11"	P3	0'-9"	13'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7120H	4	15'-2"	P3	0'-9"	13'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7121H	4	15'-4"	P3	0'-9"	13'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P7122H	4	15'-6"	P3	0'-9"	13'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				4P850	24	25'-7"	PR	8'-1"	12'-7"	4'-11"							8'-2"	4'-1"	Pier Cap - Horizontal Ubars
				4P851	4	13'-2"	BS	0'-0"	3'-2"	6'-10"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				4P852	4	12'-7"	BS	0'-0"	3'-2"	6'-3"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				4P853	4	12'-3"	BS	0'-0"	3'-2"	5'-11"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				4P854	4	12'-1"	BS	0'-0"	3'-2"	5'-9"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				4P855	4	12'-0"	BS	0'-0"	3'-2"	5'-8"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				4P1150H	2	41'-6"	S	0'-0"	2'-0"	39'-4"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				4P1151H	2	44'-11"	S	0'-0"	2'-0"	41'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				4P1152H	2	46'-4"	S	0'-0"	2'-0"	42'-7"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				4P1153H	2	47'-3"	S	0'-0"	2'-0"	43'-3"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				4P1154H	2	47'-11"	S	0'-0"	2'-0"	43'-11"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				4P1155H	2	48'-5"	S	0'-0"	2'-0"	44'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				4P1156H	2	48'-8"	S	0'-0"	2'-0"	44'-8"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				4P1157H	2	48'-10"	S	0'-0"	2'-0"	44'-10"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				4P1158	4	27'-11"	P4	2'-0"	19'-11"	6'-0"					7'-11"				Pier Cap Sloped Bar EF (B)
				4P1159	4	27'-8"	P4	2'-0"	19'-8"	6'-0"					7'-10"				Pier Cap Sloped Bar EF (B)
				4P1160	4	27'-2"	P4	2'-0"	19'-2"	6'-0"					7'-7"				Pier Cap Sloped Bar EF (B)
				4P1161	4	26'-4"	P4	2'-0"	18'-4"	6'-0"					7'-3"				Pier Cap Sloped Bar EF (B)
				4P1162	4	24'-3"	P4	2'-0"	16'-3"	6'-0"					6'-5"				Pier Cap Sloped Bar EF (B)
				4P1850H	26	15'-5"	L	12'-0"	3'-5"										10ft Pier Column Vertical bars
				4P1851H	26	12'-5"	L	9'-0"	3'-5"										10ft Pier Column Vertical Bars
PIER 5 - SPREAD FOOTING - ALTERNATE AE1																			
5PF6011	20	31'-6"	Spread Footing EF	5PF6511	156	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Spread Footing U-Bars EF
5PF8011	60	5'-0"	Spread Footing Vertical Bars	5PF660	154	33'-6"	S	0'-0"	1'-0"	31'-6"	1'-0"			0'-0"					Spread Footing (T)
				5PF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				5PF1151	154	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Spread Footing (B)
PIER 5 - DS FOUNDATION - ALTERNATE AE2																			
5PF6011	20	31'-6"	Drilled Shaft Pile Cap EF	5PF6511	148	8'-1"	S	0'-0"	1'-0"	6'-1"	1'-0"			0'-0"					Drilled Shaft Pile Cap U-Bars EF
				5PF751H	136	8'-5"	P3	0'-9"	6'-6"					1'-2"					Drilled Shaft Pile Cap Ties
				5PF951	74	34'-8"	S	0'-0"	1'-7"	31'-6"	1'-7"			0'-0"					Drilled Shaft Pile Cap (T)
				5PF1151H	148	35'-6"	S	0'-0"	2'-0"	31'-6"	2'-0"			0'-0"					Drilled Shaft Pile Cap (B)
PIER 5 - PIER SHAFT AND PIER CAP																			
5P800	2	9'-0"	Pier Cap Horizontal Bars - EF	5P650H	92	34'-5"	T3A	0'-8"		29'-10"				0'-8"		3'-3"	9'-6"		10ft Pier Column Hoops
5P801	2	10'-11"	Pier Cap Horizontal Bars - EF	5P651H	63	33'-1"	T3			29'-10"				3'-3"			9'-6"		10ft Pier Column Hoops
5P802	2	12'-10"	Pier Cap Horizontal Bars - EF	5P652H	69	26'-10"	T3			23'-7"				3'-3"			7'-6"		8ft Pier Columm Hoops
5P803	2	14'-9"	Pier Cap Horizontal Bars - EF	5P653H	64	10'-11"	S	0'-0"	3'-5"	4'-1"	3'-5"			0'-0"					Pedestal
5P804	2	16'-8"	Pier Cap Horizontal Bars - EF	5P654H	40	5'-10"	P3	0'-8"	4'-2"					1'-0"					Pedestal
5P805	2	18'-7"	Pier Cap Horizontal Bars - EF	5P750H	2	21'-4"	S3	0'-9"	6'-6"	6'-10"	6'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P806	2	20'-7"	Pier Cap Horizontal Bars - EF	5P751H	2	22'-5"	S3	0'-9"	6'-9"	7'-5"	6'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P807	2	22'-6"	Pier Cap Horizontal Bars - EF	5P752H	2	23'-3"	S3	0'-9"	7'-0"	7'-9"	7'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P808	2	24'-5"	Pier Cap Horizontal Bars - EF	5P753H	2	23'-10"	S3	0'-9"	7'-2"	8'-0"	7'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P809	2	26'-4"	Pier Cap Horizontal Bars - EF	5P754H	2	24'-6"	S3	0'-9"	7'-5"	8'-2"	7'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P810	2	28'-3"	Pier Cap Horizontal Bars - EF	5P755H	2	24'-10"	S3	0'-9"	7'-7"	8'-2"	7'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P811	2	30'-2"	Pier Cap Horizontal Bars - EF	5P756H	2	25'-4"	S3	0'-9"	7'-10"	8'-2"	7'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P812	2	32'-1"	Pier Cap Horizontal Bars - EF	5P757H	2	25'-10"	S3	0'-9"	8'-1"	8'-2"	8'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P813	2	34'-0"	Pier Cap Horizontal Bars - EF	5P758H	2	26'-2"	S3	0'-9"	8'-3"	8'-2"	8'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P814	2	35'-11"	Pier Cap Horizontal Bars - EF	5P759H	2	26'-8"	S3	0'-9"	8'-6"	8'-2"	8'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P815	2	37'-11"	Pier Cap Horizontal Bars - EF	5P760H	2	27'-0"	S3	0'-9"	8'-8"	8'-2"	8'-8"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P816	2	39'-10"	Pier Cap Horizontal Bars - EF	5P761H	2	27'-6"	S3	0'-9"	8'-11"	8'-2"	8'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P817	2	41'-9"	Pier Cap Horizontal Bars - EF	5P762H	2	28'-0"	S3	0'-9"	9'-2"	8'-2"	9'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P818	2	43'-8"	Pier Cap Horizontal Bars - EF	5P763H	2	28'-4"	S3	0'-9"	9'-4"	8'-2"	9'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P819	24	32'-2"	Pier Cap Horizontal Bars - EF	5P764H	2	28'-10"	S3	0'-9"	9'-7"	8'-2"	9'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1100H	104	42'-6"	8ft Pier Column Vertical Bars	5P765H	2	29'-2"	S3	0'-9"	9'-9"	8'-2"	9'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1101H	2	39'-4"	Pier Cap Horizontal Bars (T)	5P766H	2	29'-8"	S3	0'-9"	10'-0"	8'-2"	10'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1102H	2	41'-5"	Pier Cap Horizontal Bars (T)	5P767H	2	30'-0"	S3	0'-9"	10'-2"	8'-2"	10'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1103H	2	42'-7"	Pier Cap Horizontal Bars (T)	5P768H	2	30'-6"	S3	0'-9"	10'-5"	8'-2"	10'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1104H	2	43'-3"	Pier Cap Horizontal Bars (T)	5P769H	2	30'-10"	S3	0'-9"	10'-7"	8'-2"	10'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1105H	2	43'-11"	Pier Cap Horizontal Bars (T)	5P770H	2	31'-4"	S3	0'-9"	10'-10"	8'-2"	10'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1106H	2	44'-5"	Pier Cap Horizontal Bars (T)	5P771H	2	31'-10"	S3	0'-9"	11'-1"	8'-2"	11'-1"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1107H	2	44'-8"	Pier Cap Horizontal Bars (T)	5P772H	2	32'-2"	S3	0'-9"	11'-3"	8'-2"	11'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1108H	2	44'-10"	Pier Cap Horizontal Bars (T)	5P773H	2	32'-8"	S3	0'-9"	11'-6"	8'-2"	11'-6"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1800H	26	23'-10"	10ft Pier Column Vertical Bars	5P774H	2	33'-2"	S3	0'-9"	11'-9"	8'-2"	11'-9"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
5P1801H	26	26'-10"	10ft Pier Column Vertical Bars	5P775H	2	33'-6"	S3	0'-9"	11'-11"	8'-2"	11'-11"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				5P776H	2	34'-0"	S3	0'-9"	12'-2"	8'-2"	12'-2"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				5P777H	2	34'-4"	S3	0'-9"	12'-4"	8'-2"	12'-4"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				5P778H	2	34'-10"	S3	0'-9"	12'-7"	8'-2"	12'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				5P779H	2	35'-4"	S3	0'-9"	12'-10"	8'-2"	12'-10"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				5P780H	2	35'-8"	S3	0'-9"	13'-0"	8'-2"	13'-0"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				5P781H	2	36'-2"	S3	0'-9"	13'-3"	8'-2"	13'-3"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				5P782H	2	36'-6"	S3	0'-9"	13'-5"	8'-2"	13'-5"			0'-9"	0'-5 1/4"				Pier Cap - Group A - Vertical Stirrups
				5P783H	11	36'-10"	S3	0'-9"	13'-7"	8'-2"	13'-7"			0'-9"	0'-5 1/4"				Pier Cap - Group A and B - Vertical Stirrups
				5P784H	2	8'-9"	P3	0'-9"	6'-10"					1'-2"					Pier Cap - Group A - Horizontal Ties
				5P785H	2	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A - Horizontal Ties
				5P786H	2	9'-8"	P3	0'-9"	7'-9"					1'-2"					Pier Cap - Group A - Horizontal Ties
				5P787H	2	9'-11"	P3	0'-9"	8'-0"					1'-2"					Pier Cap - Group A - Horizontal Ties
				5P788H	69	10'-1"	P3	0'-9"	8'-2"					1'-2"					Pier Cap - Group A and B - Horizontal Ties
				5P789H	4	8'-5"	P3	0'-9"	6'-6"					1'-2"					Pier Cap - Group A - Vertical Ties

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600H' = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND · No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	T. Poulin
CHECKED-REVIEWED	K. Segal
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-
REVISIONS 1	-
REVISIONS 2	-
REVISIONS 3	-
REVISIONS 4	-
FIELD CHANGES	-

DATE	BY
11\20	P. Bishop
11\20	J. Olund
-	-
-	-
-	-
-	-
-	-
-	-
-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 12

SHEET NUMBER

144

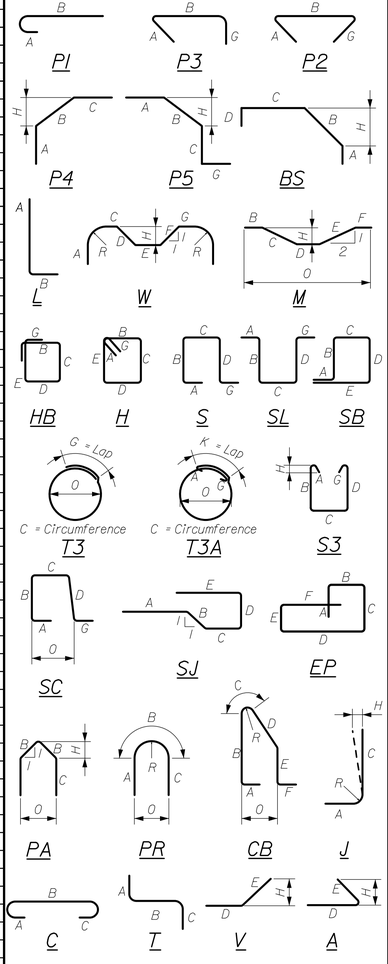
OF 160

Filename: 144_Reinforcement Schedule 12.dgn Division: Username: Date:11/20/2020

Filename: 145_Reinforcement Schedule 13.dgn Username: Division: Date:11/20/2020

STRAIGHT BARS				BENT BARS														
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
PIER 5 - PIER SHAFT AND PIER CAP (CONTINUED)																			
				5P790H	4	8'-8"	P3	0'-9"	6'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P791H	4	8'-11"	P3	0'-9"	7'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P792H	4	9'-1"	P3	0'-9"	7'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P793H	4	9'-4"	P3	0'-9"	7'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P794H	4	9'-6"	P3	0'-9"	7'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P795H	4	9'-9"	P3	0'-9"	7'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P796H	4	10'-0"	P3	0'-9"	8'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P797H	4	10'-2"	P3	0'-9"	8'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P798H	4	10'-5"	P3	0'-9"	8'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P799H	4	10'-7"	P3	0'-9"	8'-8"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7100H	4	10'-10"	P3	0'-9"	8'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7101H	4	11'-1"	P3	0'-9"	9'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7102H	4	11'-3"	P3	0'-9"	9'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7103H	4	11'-6"	P3	0'-9"	9'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7104H	4	11'-8"	P3	0'-9"	9'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7105H	4	11'-11"	P3	0'-9"	10'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7106H	4	12'-1"	P3	0'-9"	10'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7107H	4	12'-4"	P3	0'-9"	10'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7108H	4	12'-6"	P3	0'-9"	10'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7109H	4	12'-9"	P3	0'-9"	10'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7110H	4	13'-0"	P3	0'-9"	11'-1"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7111H	4	13'-2"	P3	0'-9"	11'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7112H	4	13'-5"	P3	0'-9"	11'-6"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7113H	4	13'-8"	P3	0'-9"	11'-9"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7114H	4	13'-10"	P3	0'-9"	11'-11"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7115H	4	14'-1"	P3	0'-9"	12'-2"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7116H	4	14'-3"	P3	0'-9"	12'-4"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7117H	4	14'-6"	P3	0'-9"	12'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7118H	4	14'-9"	P3	0'-9"	12'-10"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7119H	4	14'-11"	P3	0'-9"	13'-0"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7120H	4	15'-2"	P3	0'-9"	13'-3"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7121H	4	15'-4"	P3	0'-9"	13'-5"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P7122H	4	15'-6"	P3	0'-9"	13'-7"					1'-2"					Pier Cap - Group A - Vertical Ties
				5P850	24	25'-7"	PR	8'-1"	12'-7"	4'-11"							8'-2"	4'-1"	Pier Cap - Horizontal Ubars
				5P851	4	13'-2"	BS	0'-0"	3'-2"	6'-10"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				5P852	4	12'-7"	BS	0'-0"	3'-2"	6'-3"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				5P853	4	12'-3"	BS	0'-0"	3'-2"	5'-11"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				5P854	4	12'-1"	BS	0'-0"	3'-2"	5'-9"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				5P855	4	12'-0"	BS	0'-0"	3'-2"	5'-8"	3'-2"				2'-11"				Pier Cap - Side Vertical Bars
				5P1150H	2	41'-6"	S	0'-0"	2'-0"	39'-4"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				5P1151H	2	44'-11"	S	0'-0"	2'-0"	41'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				5P1152H	2	46'-4"	S	0'-0"	2'-0"	42'-7"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				5P1153H	2	47'-3"	S	0'-0"	2'-0"	43'-3"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				5P1154H	2	47'-11"	S	0'-0"	2'-0"	43'-11"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				5P1155H	2	48'-5"	S	0'-0"	2'-0"	44'-5"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				5P1156H	2	48'-8"	S	0'-0"	2'-0"	44'-8"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				5P1157H	2	48'-10"	S	0'-0"	2'-0"	44'-10"	2'-0"			0'-0"					Pier Cap Horizontal Bar (T)
				5P1158	4	27'-11"	P4	2'-0"	19'-11"	6'-0"					7'-11"				Pier Cap Sloped Bar EF (B)
				5P1159	4	27'-8"	P4	2'-0"	19'-8"	6'-0"					7'-10"				Pier Cap Sloped Bar EF (B)
				5P1160	4	27'-2"	P4	2'-0"	19'-2"	6'-0"					7'-7"				Pier Cap Sloped Bar EF (B)
				5P1161	4	26'-4"	P4	2'-0"	18'-4"	6'-0"					7'-3"				Pier Cap Sloped Bar EF (B)
				5P1162	4	24'-3"	P4	2'-0"	16'-3"	6'-0"					6'-5"				Pier Cap Sloped Bar EF (B)
				5P1850H	26	15'-5"	L	12'-0"	3'-5"										10ft Pier Column Vertical bars
				5P1851H	26	12'-5"	L	9'-0"	3'-5"										10ft Pier Column Vertical Bars

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600H' = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/20

PROJ. MANAGER	A. LATHE
DESIGN-DETAILED	T. Poulin
CHECKED-REVIEWED	K. Segal
DESIGN2-DETAILED2	-
DESIGN3-DETAILED3	-

BY	DATE
P. Bishop	11\20
J. Olund	11\20
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 13

SHEET NUMBER

145

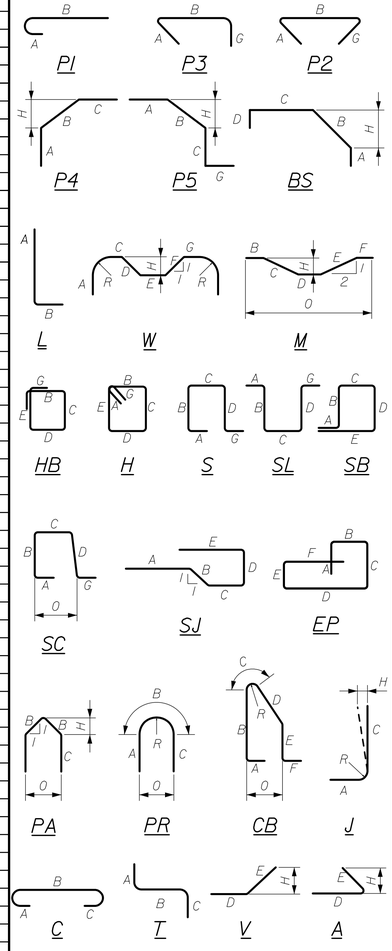
OF 160

Filename: 146_Reinforcement Schedule 14.dgn Division: Username: Date:11/20/2020

SUPERSTRUCTURE DECK

STRAIGHT BARS				BENT BARS													
MARK	QTY.	LENGTH	LOCATION	MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
S500ss	1680	40'-5"	Longitudinal Bars in Deck, Sidewalk, and Curbs (Spans 2-6)	S650ss	158	9'-4"	V	-	-	-	3'-1"	6'-3"	-	-	0'-3"		-	-	Transverse Bar at Span 6 Deck Crown
S501ss	120	20'-8"	Longitudinal Bars in Deck, Sidewalk, and Curbs (Spans 6)	S651ss	64	9'-4"	V	-	-	-	4'-0"	5'-4"	-	-	0'-3"		-	-	Transverse Bar at Span 6 Deck Crown
S502ss	491	48'-10"	Longitudinal Bars in Deck, Sidewalk, and Curbs (Spans 6)	S652ss	48	12'-4"	V	-	-	-	5'-7"	6'-9"	-	-	0'-3"		-	-	Transverse Bar at Span 6 Deck Crown
S503ss	20	27'-6"	Longitudinal Bars in Deck at Deck End at Abutment 2	S653ss	42	15'-4"	V	-	-	-	7'-3"	8'-0"	-	-	0'-4"		-	-	Transverse Bar at Span 6 Deck Crown
S504ss	11	32'-10"	Longitudinal Bars in Deck at Deck End at Abutment 2	S654ss	36	12'-3"	V	-	-	-	6'-2"	6'-1"	-	-	0'-3"		-	-	Transverse Bar at Span 6 Deck Crown
S505ss	11	38'-2"	Longitudinal Bars in Deck at Deck End at Abutment 2	S655ss	30	15'-5"	V	-	-	-	8'-1"	7'-4"	-	-	0'-3"		-	-	Transverse Bar at Span 6 Deck Crown
S506ss	11	43'-6"	Longitudinal Bars in Deck at Deck End at Abutment 2	S656ss	26	15'-5"	V	-	-	-	6'-12"	8'-5"	-	-	0'-4"		-	-	Transverse Bar at Span 6 Deck Crown
S507ss	53	53'-9"	Longitudinal Bars in Deck at Deck End at Abutment 2	S657ss	24	15'-5"	V	-	-	-	8'-10"	6'-7"	-	-	0'-3"		-	-	Transverse Bar at Span 6 Deck Crown
S508ss	13	5'-11"	Longitudinal Bars in Shoulder at Deck End at Abutment 2 (Pour 11)	S658ss	22	15'-1"	V	-	-	-	7'-6"	7'-6"	-	-	0'-4"		-	-	Transverse Bar at Span 6 Deck Crown
S509ss	13	19'-7"	Longitudinal Bars in Shoulder at Deck End at Abutment 2 (Pour 12)	S659ss	20	18'-5"	V	-	-	-	9'-6"	8'-11"	-	-	0'-4"		-	-	Transverse Bar at Span 6 Deck Crown
S510ss	34	46'-0"	Longitudinal Bars in Sidewalk at Deck End at Abutment 2 (Pour 11)	S660ss	94	22'-1"	V	-	-	-	11'-7"	10'-6"	-	-	0'-5"		-	-	Transverse Bar at Span 6 Deck Crown
S511ss	34	33'-10"	Longitudinal Bars in Sidewalk at Deck End at Abutment 2 (Pour 12)	S661ss	12	11'-6"	V	-	-	-	5'-0"	6'-6"	-	-	0'-3"		-	-	Transverse Bar at Span 6 Deck Crown
S512ss	2	29'-7"	Longitudinal Bars in Flared Deck End at Span 6	S662ss	2	10'-7"	V	-	-	-	5'-0"	5'-7"	-	-	0'-3"		-	-	Transverse Bar at Span 6 Deck Crown
S513ss	3	17'-9"	Longitudinal Bars in Flared Deck End at Span 6	S663ss	2	9'-10"	V	-	-	-	5'-0"	4'-10"	-	-	0'-2"		-	-	Transverse Bar at Span 6 Deck Crown
S514ss	3	8'-5"	Longitudinal Bars in Flared Deck End at Span 6	S664ss	2	9'-2"	V	-	-	-	5'-0"	4'-2"	-	-	0'-2"		-	-	Transverse Bar at Span 6 Deck Crown
S515ss	2	5'-7"	Longitudinal Bars in Flared Deck End at Span 6	S665ss	2	8'-5"	V	-	-	-	5'-0"	3'-5"	-	-	0'-2"		-	-	Transverse Bar at Span 6 Deck Crown
S516ss	3	44'-4"	Longitudinal Bars in Flared Deck End at Span 6	S750ss	6939	8'-1"	P1	0'-10"	7'-3"	-	-	-	-	-	-		-	-	Typical Deck Overhangs
S517ss	3	37'-8"	Longitudinal Bars in Flared Deck End at Span 6	S751ss	164	12'-7"	P1	0'-10"	11'-9"	-	-	-	-	-	-		-	-	Flared Deck Overhang (Span 6)
S518ss	2	31'-6"	Longitudinal Bars in Flared Deck End at Span 6	S552ss	3617	5'-9"	SC	0'-10"	1'-5"	1'-2"	1'-5"	-	-	0'-10"	-		1'-3"	-	Left Curb
S519ss	3	25'-8"	Longitudinal Bars in Flared Deck End at Span 6	S553ss	1852	5'-10"	S	0'-10"	1'-6"	1'-2"	1'-6"	-	-	0'-10"	-		-	-	Right Curb/Sidewalk
S520ss	3	20'-1"	Longitudinal Bars in Flared Deck End at Span 6	S554ss	1852	11'-9"	SC	0'-10"	1'-6"	7'-2"	1'-5"	-	-	0'-10"	-		7'-3"	-	Right Curb/Sidewalk
S521ss	2	14'-9"	Longitudinal Bars in Flared Deck End at Span 6	S555ss	910	3'-7"	W	0'-0"	-	0'-10"	0'-6"	1'-0"	0'-6"	0'-10"	0'-4"		-	0'-0"	Transverse Construction Joint Deck Haunch
S522ss	3	9'-8"	Longitudinal Bars in Flared Deck End at Span 6	S450ss	1100	5'-1"	SL	0'-8"	0'-8"	2'-4"	0'-8"	-	-	0'-8"	-		-	-	Splayed Girder Haunch (Span 6)
S523ss	3	4'-9"	Longitudinal Bars in Flared Deck End at Span 6	S556ss	225	3'-4"	P5	0'-10"	0'-10"	0'-10"	-	-	-	0'-10"	0'-3"		-	-	Median (Span 6)
S524ss	2	5'-3"	Longitudinal Bars in Flared Deck End at Span 6	S557ss	96	12'-2"	SC	0'-10"	1'-4"	8'-8"	1'-4"	-	-	0'-0"	-		8'-9"	-	Flagpole Corbel
S525ss	3	46'-10"	Longitudinal Bars in Flared Deck End at Span 6	S558ss	16	4'-3"	S	0'-0"	1'-4"	-	1'-5"	-	-	0'-0"	-		-	-	Flagpole Corbel
S526ss	3	42'-6"	Longitudinal Bars in Flared Deck End at Span 6	S559ss	16	5'-2"	S	0'-0"	2'-3"	-	1'-5"	-	-	0'-0"	-		-	-	Flagpole Corbel
S527ss	2	38'-5"	Longitudinal Bars in Flared Deck End at Span 6	S560ss	16	5'-6"	S	0'-0"	2'-8"	-	1'-5"	-	-	0'-0"	-		-	-	Flagpole Corbel
S528ss	3	34'-5"	Longitudinal Bars in Flared Deck End at Span 6	S350ss	48	3'-3"	P1	0'-5"	2'-10"	-	-	-	-	-	-		-	-	Flagpole Corbel
S529ss	3	30'-7"	Longitudinal Bars in Flared Deck End at Span 6	S451ss	48	3'-10"	P1	0'-6"	3'-4"	-	-	-	-	-	-		-	-	Flagpole Corbel
S530ss	2	26'-10"	Longitudinal Bars in Flared Deck End at Span 6	S561ss	40	6'-8"	SC	0'-10"	1'-4"	3'-2"	1'-4"	-	-	-	-		3'-3"	-	OSS Gantry Corbel
S531ss	3	23'-2"	Longitudinal Bars in Flared Deck End at Span 6	S562ss	2	10'-5"	S	1'-5"	7'-7"	1'-5"	-	-	-	0'-0"	-		-	-	OSS Gantry Corbel
S532ss	3	19'-7"	Longitudinal Bars in Flared Deck End at Span 6	S563ss	2	10'-0"	S	1'-5"	8'-10"	1'-5"	-	-	-	0'-0"	-		-	-	OSS Gantry Corbel
S533ss	2	16'-1"	Longitudinal Bars in Flared Deck End at Span 6	S564ss	2	12'-2"	S	1'-5"	9'-5"	1'-5"	-	-	-	0'-0"	-		-	-	OSS Gantry Corbel
S534ss	3	12'-9"	Longitudinal Bars in Flared Deck End at Span 6	S565ss	2	12'-5"	S	1'-5"	9'-8"	1'-5"	-	-	-	0'-0"	-		-	-	OSS Gantry Corbel
S535ss	3	9'-5"	Longitudinal Bars in Flared Deck End at Span 6	S850ss	40	10'-8"	P1	0'-11"	9'-9"	-	-	-	-	-	-		-	-	OSS Gantry Corbel
S536ss	2	6'-1"	Longitudinal Bars in Flared Deck End at Span 6	S351ss	40	3'-9"	P1	0'-5"	3'-4"	-	-	-	-	-	-		-	-	OSS Gantry Corbel
S537ss	3	2'-11"	Longitudinal Bars in Flared Deck End at Span 6	S452ss	64	12'-3"	S	0'-0"	5'-10"	0'-7"	5'-10"	-	-	0'-0"	-		-	-	OSS Gantry Corbel
S600ss	994	39'-3"	Longitudinal Bars in Deck Over Piers Only	S666ss	2	11'-10"	C	0'-8"	10'-6"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S601ss	71	19'-6"	Longitudinal Bars in Deck Over Piers Only (Span 6)	S667ss	2	11'-2"	C	0'-8"	9'-10"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S602ss	71	39'-10"	Longitudinal Bars in Deck Over Piers Only (Span 6)	S668ss	2	10'-6"	C	0'-8"	9'-2"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S538ss	2400	52'-10"	Longitudinal Bars in Deck, Sidewalk, and Curbs (Spans 1-5)	S669ss	2	9'-10"	C	0'-8"	8'-6"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S603ss	142	45'-5"	Longitudinal Bars in Deck Over Piers Only (Spans 2 and 5)	S670ss	2	9'-2"	C	0'-8"	7'-10"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S643ss	284	20'-5"	Longitudinal Bars in Deck Over Piers Only (Spans 1, 2, and 5)	S671ss	2	8'-7"	C	0'-8"	7'-3"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S644ss	142	30'-5"	Longitudinal Bars in Deck Over Piers Only (Spans 3 and 4)	S672ss	2	7'-11"	C	0'-8"	6'-7"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S645ss	142	35'-5"	Longitudinal Bars in Deck Over Piers Only (Spans 3 and 4)	S673ss	2	7'-3"	C	0'-8"	5'-11"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S539ss	24	59'-1"	Longitudinal Bars in Deck at Deck End at Abutment 1	S674ss	2	6'-7"	C	0'-8"	5'-3"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S540ss	19	54'-0"	Longitudinal Bars in Deck at Deck End at Abutment 1	S675ss	2	6'-0"	C	0'-8"	4'-8"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S541ss	19	49'-1"	Longitudinal Bars in Deck at Deck End at Abutment 1	S676ss	2	5'-4"	C	0'-8"	3'-12"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S542ss	19	44'-2"	Longitudinal Bars in Deck at Deck End at Abutment 1	S677ss	6	4'-8"	C	0'-8"	3'-4"	0'-8"	-	-	-	-	-		-	-	Transverse Bars at Deck End at Abutment 1
S543ss	39	40'-0"	Longitudinal Bars in Deck at Deck End at Abutment 1	S752ss	128	8'-6"	P1	0'-10"	7'-8"	-	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S544ss	10	50'-3.75"	Deck End Haunch at Abutment 2 (Pour 11)	S753ss	1	12'-2"	C	0'-10"	10'-6"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S545ss	5	19'-5.75"	Deck End Haunch at Abutment 2 (Pour 12)	S754ss	1	11'-6"	C	0'-10"	9'-10"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S546ss	6390	44'-11"	Primary Transverse Deck Bars	S755ss	1	10'-10"	C	0'-10"	9'-2"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S604ss	184	19'-3"	Span 6: Left Transverse Deck Bar 1	S756ss	1	10'-2"	C	0'-10"	8'-6"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S605ss	154	22'-3"	Span 6: Left Transverse Deck Bar 2	S757ss	1	9'-6"	C	0'-10"	7'-10"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S606ss	108	25'-3"	Span 6: Left Transverse Deck Bar 3	S758ss	1	8'-11"	C	0'-10"	7'-3"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S607ss	88	28'-3"	Span 6: Left Transverse Deck Bar 4	S759ss	1	8'-3"	C	0'-10"	6'-7"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S608ss	30	14'-2"	Span 6: Left Transverse Deck Bar 5	S760ss	1	7'-7"	C	0'-10"	5'-11"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S609ss	10	6'-11.25"	Span 6: Left Transverse Deck Bar 6	S761ss	1	6'-11"	C	0'-10"	5'-3"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S610ss	420	25'-5"	Span 6: Right Transverse Deck Bar 1	S762ss	1	6'-4"	C	0'-10"	4'-8"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S611ss	66	28'-5"	Span 6: Right Transverse Deck Bar 2	S763ss	1	5'-8"	C	0'-10"	3'-12"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S612ss	50	31'-5"	Span 6: Right Transverse Deck Bar 3	S764ss	3	5'-0"	C	0'-10"	3'-4"	0'-10"	-	-	-	-	-		-	-	Transverse Deck Overhang Bars at Abutment 1
S613ss	64	34'-5"	Span 6: Right Transverse Deck Bar 4	S566ss	6	8'-8"	SC	0'-10"	0'-4"	7'-2"	0'-4"	-	-	0'-10"	-		7'-3"	-	Sidewalk Transition at Expansion Joints
S614ss	16	36'-1"	Span 6: Right Transverse Deck Bar 5	S567ss	56	6'-0"	L	3'-0"	3'-0"	-	-	-	-	-	-		-	-	Scupper/Deck Drain
S615ss	56	42'-8"	Span 6: Right Transverse Deck Bar 6	S568ss	158	17'-8"	SJ	3'-8"	0'-12"	3'-11"	1'-0"	8'-2"	-	-	-		-	-	Deck Haunch at Expansion Joints at Abutment 2
S616ss	20	52'-7.25"	Span 6: Right Transverse Deck Bar 7	S569ss	16	7'-0"	PR	1'-5"	4'-2"	1'-5"	-	-	-	-	-		2'-8"	1'-4"	Flagpole Corbel
S617ss	8	34'-10.75"	Span 6: Right Transverse Deck Bar 8	S570ss	16	12'-0"	PR	3'-11"	4'-2"	3'-11"	-	-	-	-	-		2'-8"	1'-4"	Flagpole Corbel
S618ss	12	31'-10.75"	Span 6: Right Transverse Deck Bar 9	S571ss	4	5'-8"	J	1'-5"	-	4'-3"	-	-	-	-	0'-0"		-	2'-0"	Gantry Corbel
S619ss	14	28'-10.75"	Span 6: Right Transverse Deck Bar 10	S572ss	4	8'-2"	J	3'-11"	-	4'-3"	-	-	-	-	0'-1"		-	2'-1"	Gantry Corbel
S620ss	12	25'-10.75"	Span 6: Right Transverse Deck Bar 11	S573ss	129	14'-2"	SJ	2'-11"	0'-9"	3'-1"	1'-0"	6'-5"	-	-	-		-	-	Deck Haunch at Expansion Joints at Abutment 1
S621ss	14	22'-10.75"	Span 6: Right Transverse Deck Bar 12																
S622ss	12	19'-10.75"	Span 6: Right Transverse Deck Bar 13																
S623ss	14	16'-10.75"	Span 6: Right Transverse Deck Bar 14																
S624ss	12	13'-10.75"	Span 6: Right Transverse Deck Bar 15																
S625ss	10	10'-10.75"	Span 6: Right Transverse Deck Bar 16																
S646ss	12	22'-5.75"	Span 6: Right Transverse Deck Bar 17																
S647ss	12	19'-5.75"	Span 6: Right Transverse Deck Bar 18																
S648ss	14	16'-5.75"	Span 6: Right Transverse Deck Bar 19																
S649ss	12	13'-5.75"	Span 6: Right Transverse Deck Bar 20																
S678ss	14	10'-5.75"	Span 6: Right Transverse Deck Bar 21																
S679ss	6	7'-5.75"	Span 6: Right Transverse Deck Bar 22																
S680ss	80	12'-6"	Span 6: Right Transverse Deck Bar 23																
S681ss	4	12'-3.25"	Span 6: Right Transverse Deck Bar 24																
S682ss	4	11'-4"	Span 6: Right Transverse Deck Bar 25																

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600H' = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND — No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	DATE	BY
A. LATHE	11\20	P. Bishop
T. Poulin	11\20	J. Olund
K. Segal	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 14

SHEET NUMBER

146

OF 160

Username:

Division:

Date:11/20/2020

Filename: 147_Reinforcement Schedule 15.dgn

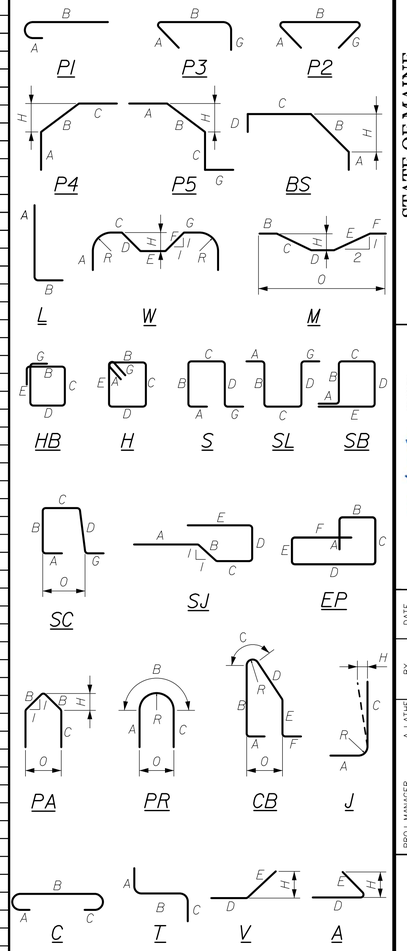
STRAIGHT BARS

MARK	QTY.	LENGTH	LOCATION
SUPERSTRUCTURE DECK (CONTINUED)			
S683ss	4	10'-4.75"	Span 6: Right Transverse Deck Bar 26
S684ss	4	9'-5.5"	Span 6: Right Transverse Deck Bar 27
S685ss	4	8'-6.25"	Span 6: Right Transverse Deck Bar 28
S686ss	4	7'-7"	Span 6: Right Transverse Deck Bar 29
S687ss	4	6'-7.75"	Span 6: Right Transverse Deck Bar 30
S688ss	4	5'-8.5"	Span 6: Right Transverse Deck Bar 31
S689ss	4	4'-9.25"	Span 6: Right Transverse Deck Bar 32
S690ss	4	3'-9.75"	Span 6: Right Transverse Deck Bar 33
S691ss	4	2'-10.5"	Span 6: Right Transverse Deck Bar 34
S547ss	56	4'-7"	Scupper/Deck Drain
S548ss	28	2'-1"	Scupper/Deck Drain
S549ss	28	2'-7"	Scupper/Deck Drain
S550ss	28	4'-3.5"	Scupper/Deck Drain
S626ss	112	25'-6"	Span 1: Left Transverse Deck Bar 1
S627ss	116	29'-0"	Span 1: Left Transverse Deck Bar 2
S628ss	52	7'-2.5"	Span 1: Left Transverse Deck Bar 3
S629ss	174	25'-5"	Span 1: Right Transverse Deck Bar 1
S630ss	8	22'-5"	Span 1: Right Transverse Deck Bar 2
S631ss	8	19'-5"	Span 1: Right Transverse Deck Bar 3
S632ss	8	16'-5"	Span 1: Right Transverse Deck Bar 4
S633ss	8	13'-5"	Span 1: Right Transverse Deck Bar 5
S634ss	8	10'-5"	Span 1: Right Transverse Deck Bar 6
S635ss	8	7'-5"	Span 1: Right Transverse Deck Bar 7
S636ss	6	4'-5"	Span 1: Right Transverse Deck Bar 8
S637ss	10	24'-9.25"	Span 1: Right Transverse Deck Bar 9
S638ss	8	21'-9.25"	Span 1: Right Transverse Deck Bar 10
S639ss	8	18'-9.25"	Span 1: Right Transverse Deck Bar 11
S640ss	10	15'-9.25"	Span 1: Right Transverse Deck Bar 12
S641ss	8	12'-9.25"	Span 1: Right Transverse Deck Bar 13
S642ss	8	9'-9.25"	Span 1: Right Transverse Deck Bar 14
S551ss	10	39'-6"	Deck End Haunch at Abutment 1

BENT BARS

MARK	QTY.	LENGTH	TYPE	A	B	C	D	E	F	G	H	K	O	R	LOCATION
SUPERSTRUCTURE DECK (CONTINUED)															

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.

Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.

Reinforcing Bar: ASTM A615/A615M, Grade 60
ASTM A955, GRADE 75
CSA S807-10, ACI 440.1r-15

GENERAL NOTES

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

   Mark 'A502' = bar size #5
   Mark 'P805' = bar size #8
   Mark 'S650' = bar size #6
   Mark 'S650ss' = bar size #6 Stainless Steel
   Mark 'S600H' = bar size #6 Grade 75

2. 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.

3. Bar marks ending with 'H' indicate plain Grade 75. Bar marks ending with 'ss' indicate stainless steel. All other bars are plain (uncoated) Grade 60.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE
JOSHUA K. OLUND
No. 12130
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	A. LATHE	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	T. Poulin	P. Bishop	11\20
CHECKED-REVIEWED	K. Segal	J. Olund	11\20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

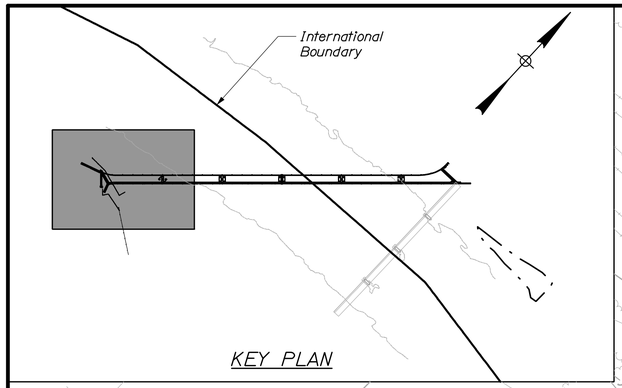
INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

REINFORCEMENT SCHEDULE 15

SHEET NUMBER

147

OF 160



KEY PLAN

NOTES:

1. The LPOE layout shown on these Plans depicts the design intent for the LPOE. The LPOE Design-Build Contractor is responsible for final design of this facility; minor changes to the layout may occur.

ABBREVIATIONS:

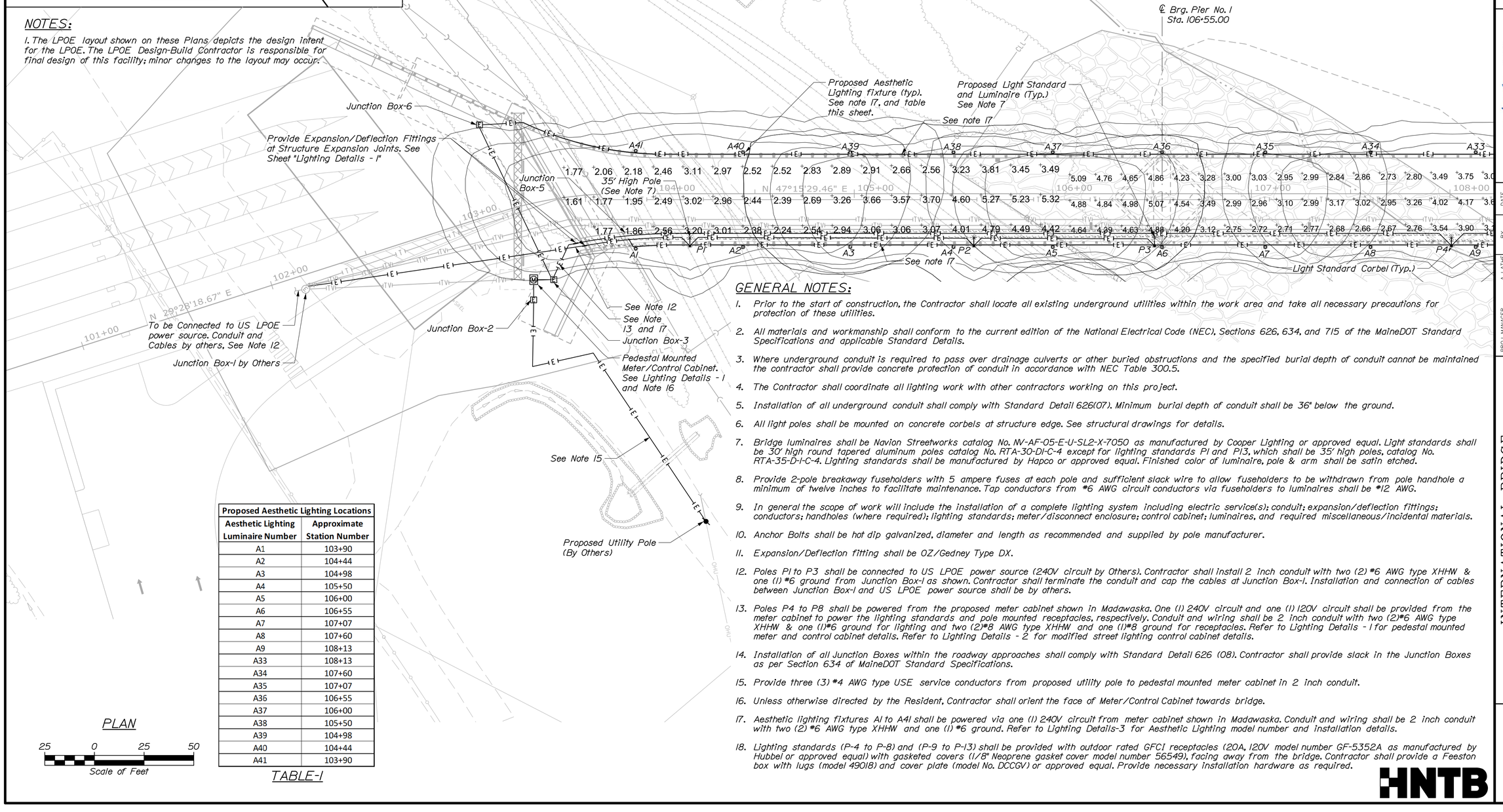
LPOE - Land Port of Entry

POE - Port of Entry

U.O.N. - Unless Otherwise Noted

LEGEND:

- Light Pole and Luminiare. (See Notes for Pole Heights)
- Electrical Conduit
- Junction Box (22"x22"x24")
- Pedestal Mounted Meter/Control Cabinet
- Expansion/Deflection Fitting
- Flag Pole
- Aesthetic Lighting Fixture



PLAN

25 0 25 50

Scale of Feet

Proposed Aesthetic Lighting Locations	
Aesthetic Lighting Luminaire Number	Approximate Station Number
A1	103+90
A2	104+44
A3	104+98
A4	105+50
A5	106+00
A6	106+55
A7	107+07
A8	107+60
A9	108+13
A33	108+13
A34	107+60
A35	107+07
A36	106+55
A37	106+00
A38	105+50
A39	104+98
A40	104+44
A41	103+90

TABLE-1

GENERAL NOTES:

1. Prior to the start of construction, the Contractor shall locate all existing underground utilities within the work area and take all necessary precautions for protection of these utilities.
2. All materials and workmanship shall conform to the current edition of the National Electrical Code (NEC), Sections 626, 634, and 715 of the MaineDOT Standard Specifications and applicable Standard Details.
3. Where underground conduit is required to pass over drainage culverts or other buried obstructions and the specified burial depth of conduit cannot be maintained the contractor shall provide concrete protection of conduit in accordance with NEC Table 300.5.
4. The Contractor shall coordinate all lighting work with other contractors working on this project.
5. Installation of all underground conduit shall comply with Standard Detail 626(07). Minimum burial depth of conduit shall be 36" below the ground.
6. All light poles shall be mounted on concrete corbels at structure edge. See structural drawings for details.
7. Bridge luminaires shall be Navion Streetworks catalog No. NV-AF-05-E-U-SL2-X-7050 as manufactured by Cooper Lighting or approved equal. Light standards shall be 30' high round tapered aluminum poles catalog No. RTA-30-DI-C-4 except for lighting standards P1 and P13, which shall be 35' high poles, catalog No. RTA-35-D-I-C-4. Lighting standards shall be manufactured by Hapco or approved equal. Finished color of luminaire, pole & arm shall be satin etched.
8. Provide 2-pole breakaway fuseholders with 5 ampere fuses at each pole and sufficient slack wire to allow fuseholders to be withdrawn from pole handhole a minimum of twelve inches to facilitate maintenance. Tap conductors from #6 AWG circuit conductors via fuseholders to luminaires shall be #12 AWG.
9. In general the scope of work will include the installation of a complete lighting system including electric service(s); conduit; expansion/deflection fittings; conductors; handholes (where required); lighting standards; meter/disconnect enclosure; control cabinet; luminaires, and required miscellaneous/incidental materials.
10. Anchor Bolts shall be hot dip galvanized, diameter and length as recommended and supplied by pole manufacturer.
11. Expansion/Deflection fitting shall be OZ/Gedney Type DX.
12. Poles P1 to P3 shall be connected to US LPOE power source (240V circuit by Others). Contractor shall install 2 inch conduit with two (2) #6 AWG type XHHW & one (1) #6 ground from Junction Box-1 as shown. Contractor shall terminate the conduit and cap the cables at Junction Box-1. Installation and connection of cables between Junction Box-1 and US LPOE power source shall be by others.
13. Poles P4 to P8 shall be powered from the proposed meter cabinet shown in Madawaska. One (1) 240V circuit and one (1) 120V circuit shall be provided from the meter cabinet to power the lighting standards and pole mounted receptacles, respectively. Conduit and wiring shall be 2 inch conduit with two (2)#6 AWG type XHHW & one (1)#6 ground for lighting and two (2)#8 AWG type XHHW and one (1)#8 ground for receptacles. Refer to Lighting Details - 1 for pedestal mounted meter and control cabinet details. Refer to Lighting Details - 2 for modified street lighting control cabinet details.
14. Installation of all Junction Boxes within the roadway approaches shall comply with Standard Detail 626 (08). Contractor shall provide slack in the Junction Boxes as per Section 634 of MaineDOT Standard Specifications.
15. Provide three (3) #4 AWG type USE service conductors from proposed utility pole to pedestal mounted meter cabinet in 2 inch conduit.
16. Unless otherwise directed by the Resident, Contractor shall orient the face of Meter/Control Cabinet towards bridge.
17. Aesthetic lighting fixtures A1 to A41 shall be powered via one (1) 240V circuit from meter cabinet shown in Madawaska. Conduit and wiring shall be 2 inch conduit with two (2) #6 AWG type XHHW and one (1) #6 ground. Refer to Lighting Details-3 for Aesthetic Lighting model number and installation details.
18. Lighting standards (P-4 to P-8) and (P-9 to P-13) shall be provided with outdoor rated GFCI receptacles (20A, 120V model number GF-5352A as manufactured by Hubbel or approved equal) with gasketed covers (1/8" Neoprene gasket cover model number 56549), facing away from the bridge. Contractor shall provide a Feeston box with lugs (model 49018) and cover plate (model No. DCCGV) or approved equal. Provide necessary installation hardware as required.

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

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BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130
P.E. NUMBER

11/19/20
DATE

	DATE	BY
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	09/20	G.S.
CHECKED-REVIEWED	09/20	J. Olund
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BRIDGE LIGHTING PLAN - 1

SHEET NUMBER

148

OF 160

Date:11/20/2020

Username:

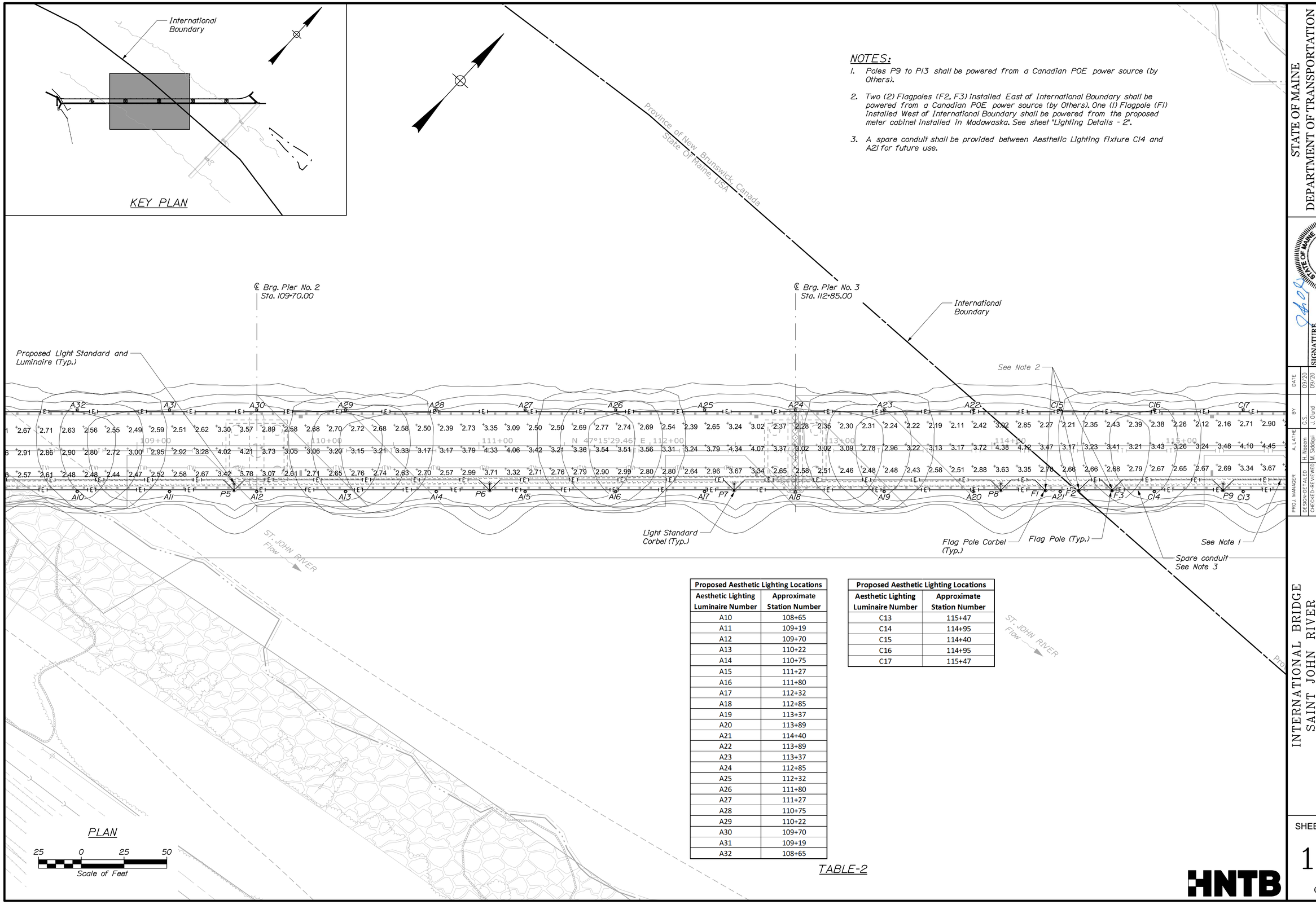
Division:

Filename: 148_01_Bridge Lighting.dgn

KEY PLAN

NOTES:

1. Poles P9 to P13 shall be powered from a Canadian POE power source (by Others).
2. Two (2) Flagpoles (F2, F3) installed East of International Boundary shall be powered from a Canadian POE power source (by Others). One (1) Flagpole (F1) installed West of International Boundary shall be powered from the proposed meter cabinet installed in Madawaska. See sheet "Lighting Details - 2".
3. A spare conduit shall be provided between Aesthetic Lighting fixture C14 and A21 for future use.



Proposed Aesthetic Lighting Locations	
Aesthetic Lighting Luminaire Number	Approximate Station Number
A10	108+65
A11	109+19
A12	109+70
A13	110+22
A14	110+75
A15	111+27
A16	111+80
A17	112+32
A18	112+85
A19	113+37
A20	113+89
A21	114+40
A22	113+89
A23	113+37
A24	112+85
A25	112+32
A26	111+80
A27	111+27
A28	110+75
A29	110+22
A30	109+70
A31	109+19
A32	108+65

TABLE-2

Proposed Aesthetic Lighting Locations	
Aesthetic Lighting Luminaire Number	Approximate Station Number
C13	115+47
C14	114+95
C15	114+40
C16	114+95
C17	115+47

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE JOSHUA K. OLUND No. 12130 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

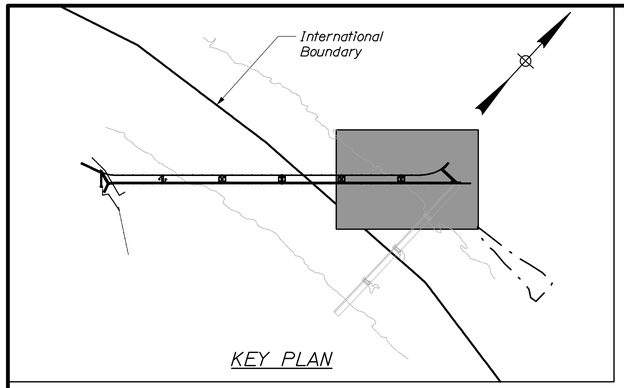
	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	H. Noeem	09/20
CHECKED-REVIEWED	M. Siddiqui	09/20
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BRIDGE LIGHTING PLAN - 2

SHEET NUMBER
149
OF 160

Date:11/20/2020
Username:
Division:
Filename: 149_02_Bridge Lighting.dgn



KEY PLAN

℄ Brg. Pier No. 4
Sta. 116+00.00

℄ Brg. Pier No. 5
Sta. 119+15.00

C18 C19 C20 C21 C22 C23 C24 C25 C26 C27

0.78 0.79 0.88 1.00 0.96

.37 2.05 2.15 2.28 2.28 2.26 2.22 2.08 1.96 2.25 2.77 2.60 2.04 1.95 2.03 2.08 2.08 2.03 2.00 1.89 1.81 2.13 2.65 2.52 2.03 2.00 2.19 2.30 2.23 2.26 2.00 1.86 2.15 2.65 2.58 2.18 2.26 2.50 2.65 2.64 2.54 2.28 2.28 2.66 2.72 2.23

.77 3.31 3.30 3.41 3.28 3.28 3.42 3.32 3.32 3.75 4.45 4.13 3.47 3.15 3.12 3.22 2.85 3.02 3.23 3.25 3.30 3.73 4.48 4.18 3.59 3.38 3.46 3.74 3.70 3.64 3.55 3.51 3.85 4.64 4.39 3.88 3.77 3.91 4.18 3.61 3.04 2.69 2.85 3.14 3.20 2.79 2.33

.93 2.57 2.69 2.61 2.74 2.73 2.60 2.69 2.57 2.91 3.66 3.38 2.67 2.58 2.51 2.46 2.51 2.51 2.45 2.59 2.55 2.93 3.71 3.45 2.78 2.76 2.83 2.92 3.04 2.85 2.86 2.73 3.07 3.88 3.68 3.07 3.12 3.20 3.10 2.92 2.64 2.27 2.25 2.62 2.71 2.21 1.85 1.79

C12 C11 P10 C10 C9 C8 P11 C7 C6 C5 P12 C4 C3 C2 P13 C1

35' High Pole

Junction Box-7

Junction Box-4

Light Standard
Corbel (Typ.)

To be connected to the Canadian POE power source. Conduit and cables by others. See note 1 and 2.

Limit of Sta. 122+

924+00

923+00

922+00

121+00

120+00

07°34'53.66" W

NOTES:

1. Poles P9 to P13 shall be connected to a Canadian POE power source (by Others). One (1) 240V circuit and one (1) 120V circuit shall be provided to power the lighting and pole mounted receptacles, respectively. Conduit and wiring shall be 2 inch conduit with 2#6 AWG type XHHW and 1#6 ground for lighting and two (2)#8 AWG type XHHW and 1#8 ground for pole mounted receptacles. Contractor shall cap the cables and terminate the conduit at Junction Box-4. Installation and connection of cables between Junction Box-4 and Canadian POE power source shall be by others.

2. Aesthetic lighting fixtures C1 to C27 shall be connected to a Canadian POE power source (by Others). One (1) 240V circuit shall be provided to power the Aesthetic Lighting fixtures. Conduit and wiring shall be 2 inch conduit with two (2)#6 AWG type XHHW and one (1)#6 ground. Installation and connection of cables between Junction Box-4 and Canadian POE power source shall be by Others.

Proposed Aesthetic Lighting	
Aesthetic Lighting Luminaire Number	Approximate Station Number
C1	121+78
C2	121+27
C3	120+73
C4	120+20
C5	119+69
C6	119+15
C7	118+65
C8	118+11
C9	117+57
C10	117+06
C11	116+55
C12	116+00
C18	116+00
C19	116+55
C20	117+06
C21	117+57
C22	118+11
C23	118+65
C24	119+15
C25	119+69
C26	120+20
C27	120+73

TABLE 3

Province of New Brunswick, Canada
State Of Maine, USA

PLAN

25 0 25 50
Scale of Feet

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. GLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

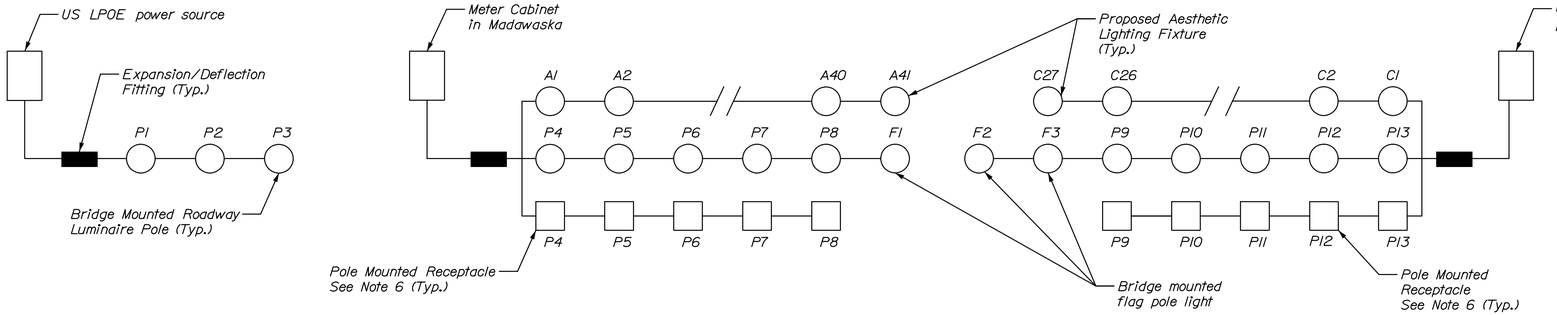
	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	H. Naeem	09/20
CHECKED-REVIEWED	M. Siddiqui	09/20
DESIGN2-DETAILED2	J. Glund	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BRIDGE LIGHTING PLAN - 3

SHEET NUMBER
150
OF 160

Date:11/20/2020
Username:
Division:
Filename: 150_03_Bridge Lighting-30.dgn



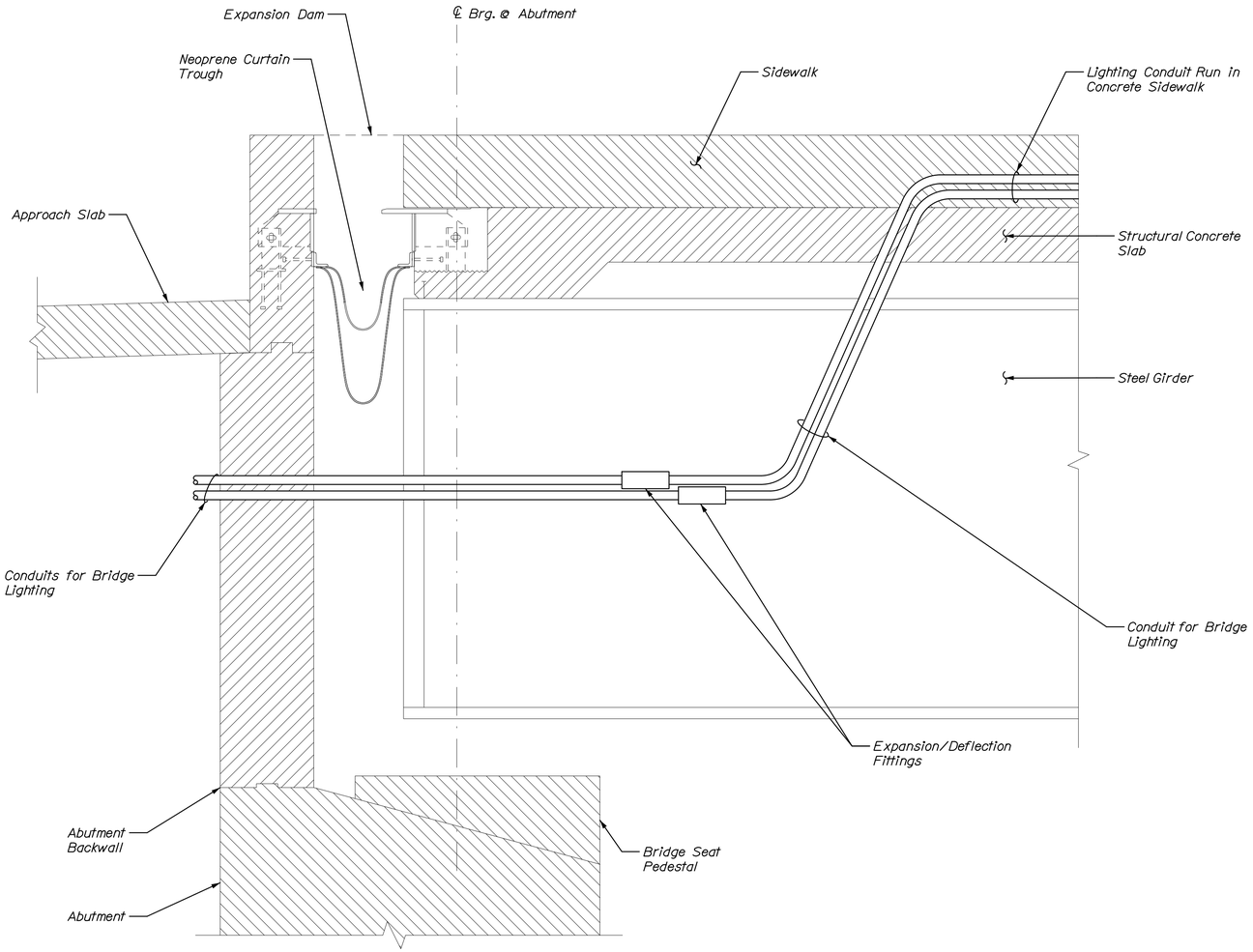
LIGHTING CIRCUIT DIAGRAM

ABBREVIATION:

P3 - POLE#3

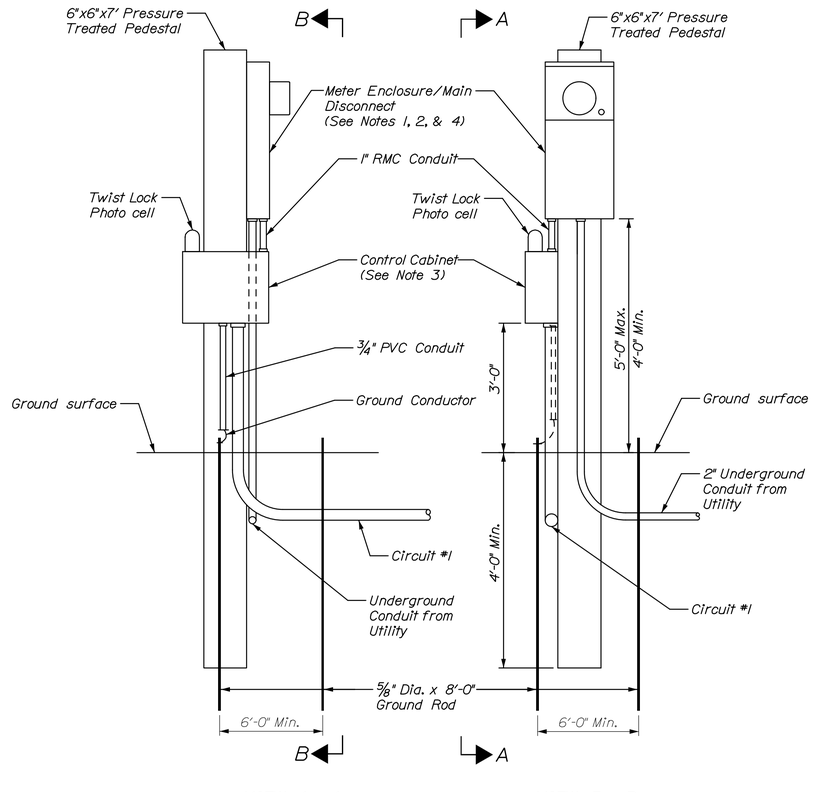
NOTES:

1. Meter Enclosure/Main Disconnect, Control Cabinet, conduit, and pedestal shall be paid under pay item "Highway Lighting".
2. Meter/Disconnect shall be 100A,120/240V single phase, model number WMB102RN as manufactured by Eaton or approved equal. Main breaker disconnect shall be 2P-60A, 120/240V breaker model number BR260 as manufactured by Eaton or approved equal. U.O.N., Meter/Disconnect enclosure shall be minimum NEMA 3R rated.
3. Control Cabinet enclosure model number shall be APXSMI6I4I2 as manufactured by APX or approved equal. Contractor shall install all electrical equipment within the control cabinet as shown on modified street lighting control cabinet detail shown on Lighting details-2. Control Cabinet enclosure shall be NEMA 4X rated and shall adhere to the requirements of MaineDOT Standard Specifications Section 715.11.
4. Contractor shall field adjust the installation of meter/disconnect enclosure such that meter/disconnect conduit connection is vertically aligned on top of the control cabinet.
5. Lighting conduits shall be spaced with a 1" horizontal gap in between.
6. Pole mounted receptacles shall be on 24/7 circuit. Refer to modified street lighting control cabinet detail shown on Lighting details-2.



BRIDGE LIGHTING CONDUIT DETAIL AT ABUTMENT

(Typical detail shown, adjust conduit quantity as required)



VIEW A - A

VIEW B - B

PEDESTAL MOUNTED METER/CONTROL CABINET DETAIL

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE — JOSHUA K. OLUND No. 12130 — LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130

P.E. NUMBER

11/9/2020

DATE

	BY	DATE
PROJ. MANAGER	A. LATHE	
DESIGN-DETAILED	G.S.	09/20
CHECKED-REVIEWED	M. Siddiqui	J. Olund
DESIGN2-DETAILED2	–	–
DESIGN3-DETAILED3	–	–
REVISIONS 1	–	–
REVISIONS 2	–	–
REVISIONS 3	–	–
REVISIONS 4	–	–
FIELD CHANGES	–	–

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

LIGHTING DETAILS - 1

SHEET NUMBER

151

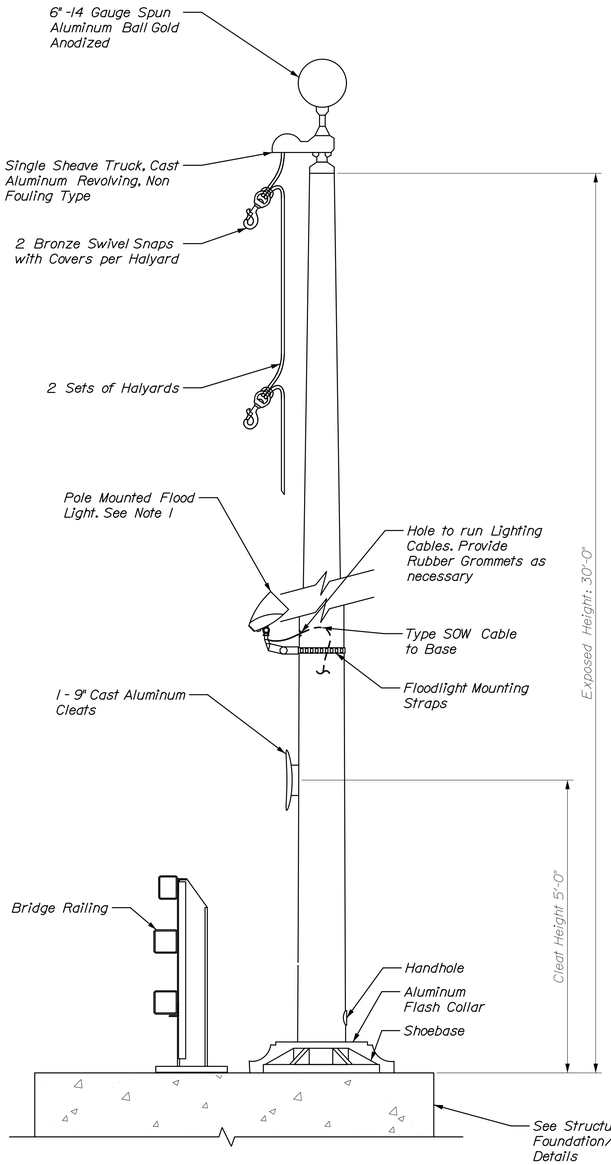
OF 160

Date:11/20/2020

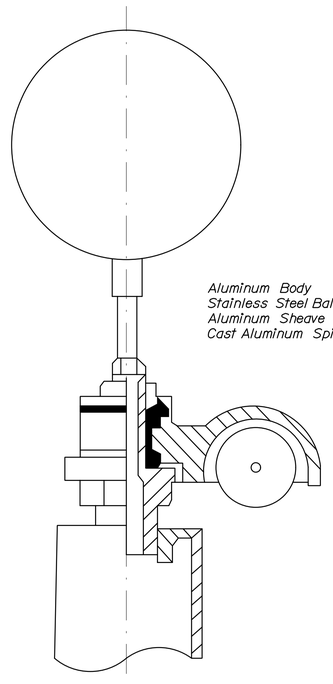
Username:

Division:

Filename: 151_04_Bridge Lighting Details 1.dgn



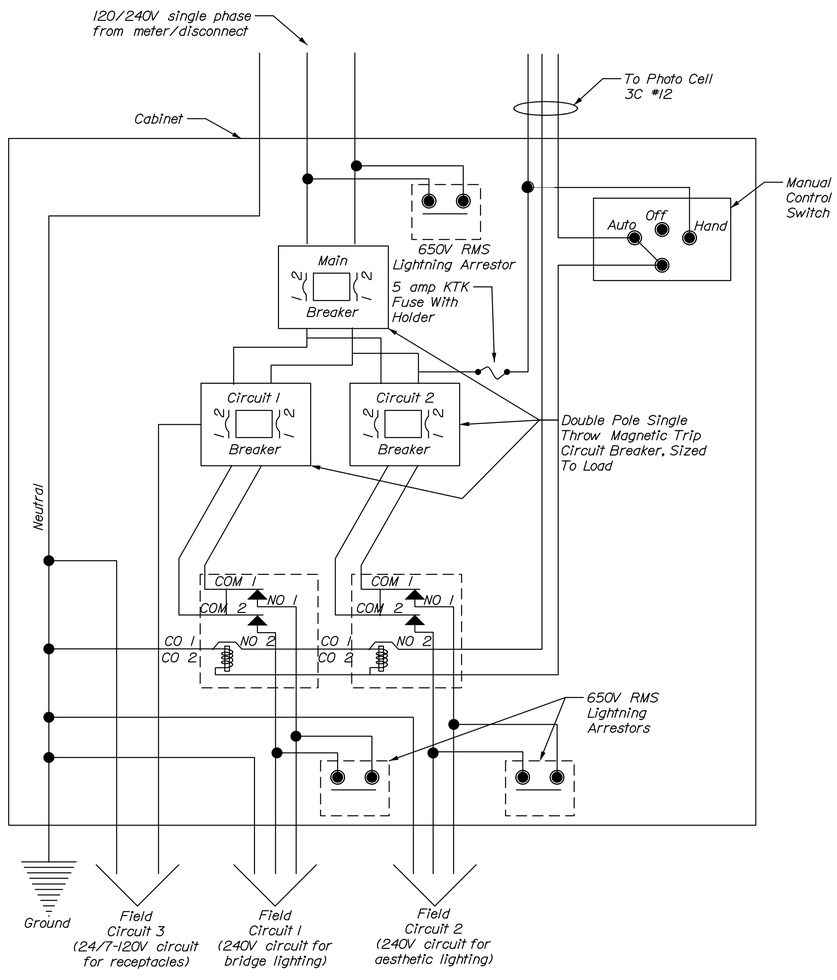
FLAGPOLE DETAIL



TRUCK DETAIL

NOTES:

1. Provide a pole mounted flood light as shown to illuminate the flag. Contractor shall field adjust the tilt to illuminate the flag. Light fixture shall be TCRL-26-S as manufactured by Cooper Lighting or approved equal. Light fixtures shall be provided with extended visors and shall be installed 10' above finished grade.
2. Flagpole shall have provisions to run the lighting cables from the base of the pole to the light fixture. Install rubber grommets as necessary.
3. Ropes for the flag shall be installed and routed outside the pole.



MODIFIED STREET LIGHTING CONTROL CABINET-MULTI CIRCUITS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

BRIDGE PLANS

STATE OF MAINE * JOSHUA K. OLUND No. 12130 * LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

	BY	DATE
A. LATHE		
H. Naseem	G.S.	09/20
M. Siddiqui	J. Olund	09/20
PROJ. MANAGER	-	-
DESIGN-DETAILED	-	-
CHECKED-REVIEWED	-	-
DESIGN2-DETAILED2	-	-
DESIGN3-DETAILED3	-	-
REVISIONS 1	-	-
REVISIONS 2	-	-
REVISIONS 3	-	-
REVISIONS 4	-	-
FIELD CHANGES	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

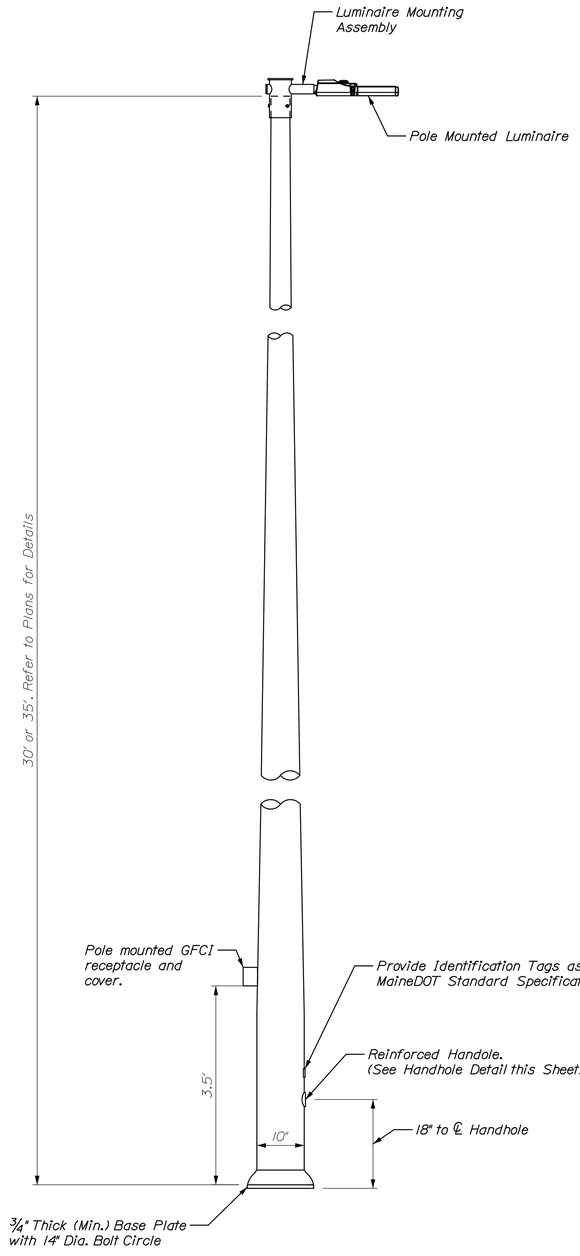
LIGHTING DETAILS - 2

SHEET NUMBER
152
OF 160

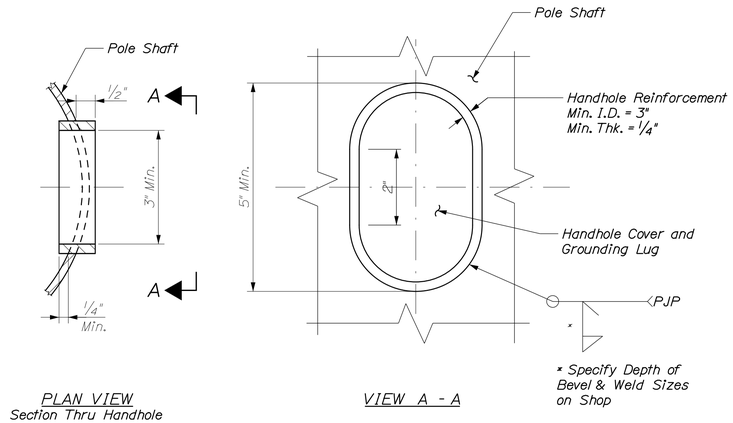
HNTB

Filename: 152_05_Bridge Lighting Details 2.dgn Division: Username: Date:11/20/2020

Username:
Date:11/20/2020
Division:
Filename: 153_06_Bridge Lighting Details 3.dgn



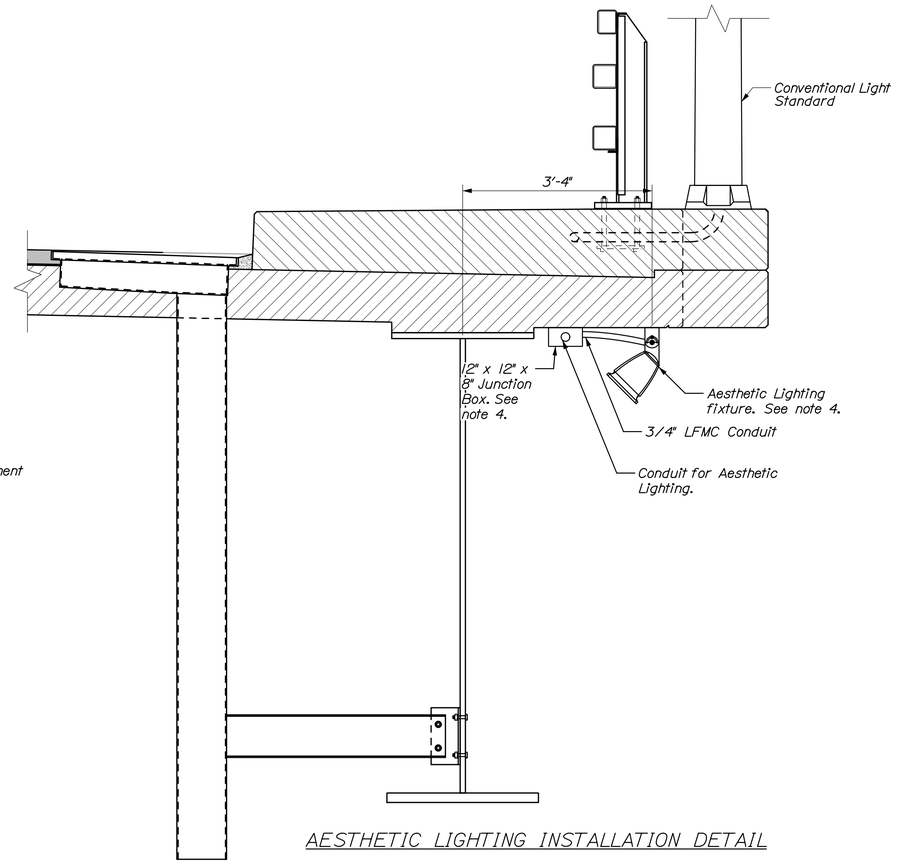
ALUMINUM LIGHTING STANDARD



PLAN VIEW
Section Thru Handhole

VIEW A - A

HANDHOLE DETAIL



AESTHETIC LIGHTING INSTALLATION DETAIL

NOTES:

1. Refer to structural plans for light fixture foundation details.
2. Refer to manufacturer's cutsheet for anchor bolt size details.
3. All lighting standards shall be provided with internal damper assembly (Stockbridge type)
4. Aesthetic lighting fixture shall be installed at a distance of 3.5' from the face of the girder, at an angle of 45 degrees as shown. Light fixture shall be model No. UFLD-C70-E-U-66-T as manufactured by Copper Lighting or approved equal. Contractor shall provide a fiberglass junction box at each location where aesthetic lighting fixture is being installed. Junction box shall be model number HW-RHJ121207CHQRWW as manufactured by Hubbel or approved equal.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE PLANS

MAINEDOT BR. NO. 2399
NBDTI ASSET NO. E320

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

P.E. NUMBER 12130

DATE 11/19/2020

PROJ. MANAGER	A. LATHE		
DESIGN-DETAILED	H. Naeem	G.S.	09/20
CHECKED-REVIEWED	M.Siddiqui	J. Olund	09/20
DESIGN2-DETAILED2	-	-	-
DESIGN3-DETAILED3	-	-	-
REVISIONS 1	-	-	-
REVISIONS 2	-	-	-
REVISIONS 3	-	-	-
REVISIONS 4	-	-	-
FIELD CHANGES	-	-	-

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

LIGHTING DETAILS - 3

SHEET NUMBER
153
OF 160



U.S. BRIDGE END VIEW

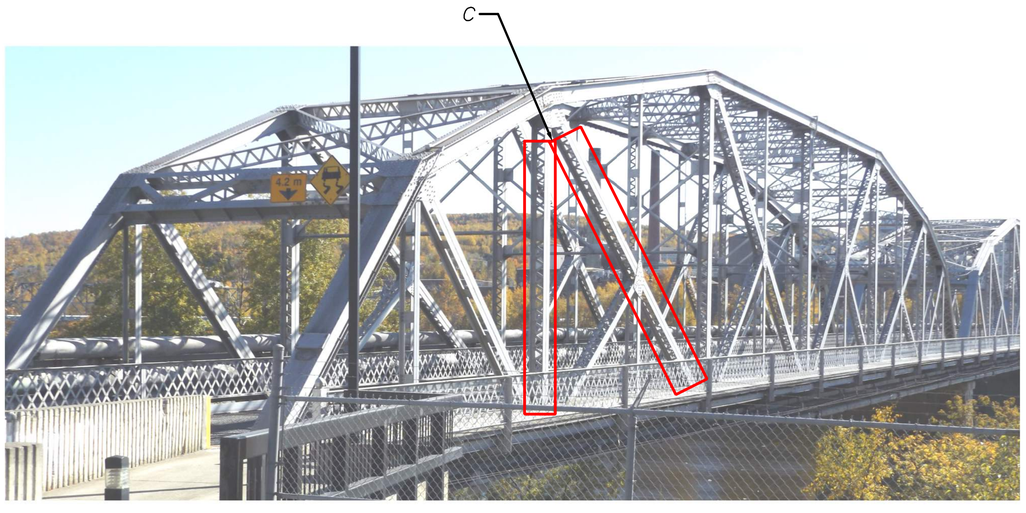


CANADIAN BRIDGE END VIEW

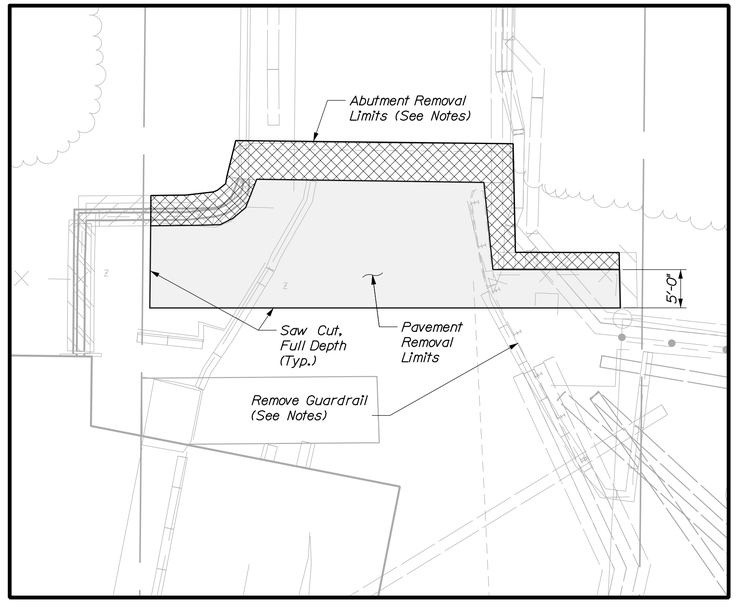


INTERNATIONAL BOUNDARY MARKERS

(Upstream Marker Shown; Downstream Similar)



BRIDGE SIDE VIEW



EXISTING U.S. ABUTMENT REMOVAL PLAN

NOTES:

1. The bridge sections identified on this sheet shall be carefully removed by the Contractor in their assembled configuration and stored on the Project site in accordance with Special Provision 202. The Town(s) will be responsible for removing these identified sections from the project site.

2. The identified bridge sections consist of the following:

   A. A 10-ft section of the upstream truss vertical member near the US abutment, centered on the bridge plaque and including the plaque.

   B. A 20-ft section of the sidewalk railing.

   C. 12, 15-ft long sections of vertical or diagonal members exhibiting steel lacing.

   D. A 10-ft section of the upstream truss vertical member near the Canadian abutment, centered on the bridge plaque and including the plaque.

   E. A 20-ft section of the sidewalk railing.

3. All sections identified and section dimensions are approximate; final dimensions, sections, and quantities may vary from that shown herein and will be determined in the field by the Resident.

4. International Boundary markers attached to the existing bridge are not to be disturbed and shall be retained by the International Boundary Commission. Refer to Special Provision 202 for additional information.

5. The existing U.S. abutment shall be removed to a minimum of 2-ft below final grade within the identified limits shown on this sheet. The remainder of the abutment shall remain in place.

6. Existing pavement and curbs shall be removed within the limits provided on this sheet, as well as the existing guardrail. After removal of the pavement, the area shall be graded to drain toward the river, reconstructed with 2-inches of Loam, and re-vegetated with Seeding Method No. 2. All costs for pavement removal, loam, and seed shall be considered incidental to the Bridge Removal Item.

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2173600

WIN 021736.00

BRIDGE NO. 2399

BRIDGE PLANS

STATE OF MAINE · JOSHUA K. OLUND No. 12130 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12130

P.E. NUMBER

11/19/2020

DATE

	BY	DATE
A. LATHE	P. Bishop	11\20
J. Olund	J. Waugh	11\20
K. Segal	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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

INTERNATIONAL BRIDGE
SAINT JOHN RIVER
MADAWASKA, ME EDMUNDSTON, NB

BRIDGE REMOVAL DETAILS

SHEET NUMBER

154

OF 160

Filename: 154_Bridge Removal Details.dgn Division: Username: Date:11/20/2020

Filename: ...\01\ROW\MSTA\001_RWPLAN1.dgn Division: ROW Username: Benjamin.Singer Date:11/17/2020

PLAN LEGEND

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

	Existing	Proposed
Sanitary Sewer		
Telephone Line	T	T
Electric Line	E	E
Water Line	W	W
Underdrain Line		
Gas Line	G	G
Guardrail		
Culvert		

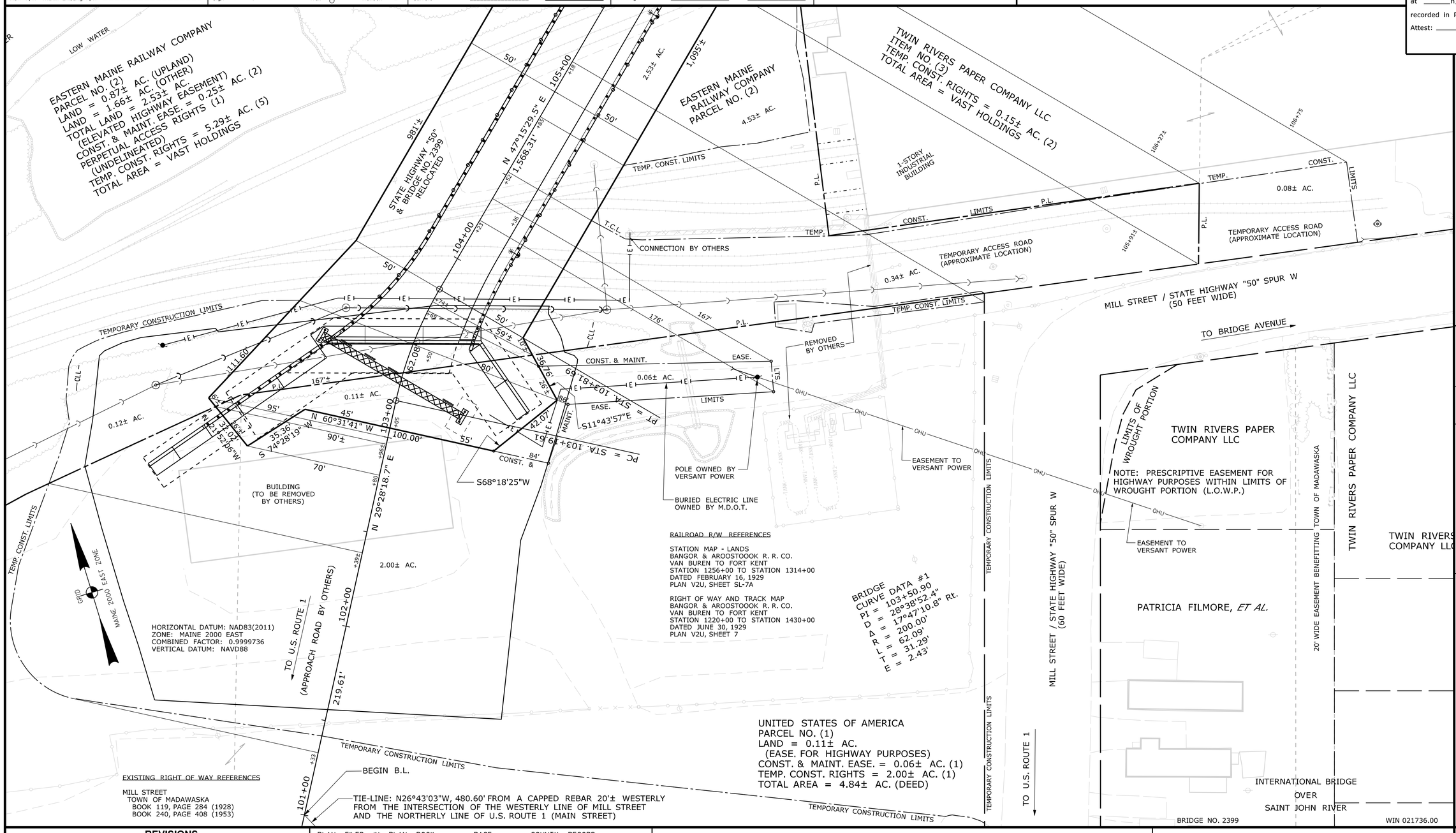
	Existing	Proposed
Traveled Way		
Ditch		
Catch Basin		
Manhole		
Sewer Manhole		
Utility Pole		
Fire Hydrant		
Curbing		

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

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

STATE OF MAINE
REGISTRY OF DEEDS
COUNTY _____
RECEIVED _____, _____
at _____h _____m _____M and
recorded in Plan Bk _____, Pg. _____
Attest: _____
REGISTER



ITEM	CHECKED			
EXISTING CONDITION PLAN	G.L.L.	B.S.	B.S.	
FINAL RIGHT OF WAY				
AREAS				

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

REVISIONS

NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE	COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "50"
BRIDGE AVENUE \ MILL STREET
MADAWASKA AROOSTOOK COUNTY
STATE PROJECT NO. 21736.00

SEPTEMBER 2020	RIGHT-OF-WAY MAP	D.O.T. FILE NO. 2-619
SCALE 1" = 25'	SHEET 1 OF 5	

SHEET NUMBER
155
OF 160

Filename: ...\01\ROW\MSTA\002_RWPLAN2.dgn Division: ROW Username: Benjamin.Singer Date:11/17/2020

PLAN LEGEND

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

Existing / Proposed

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	

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

STATE OF MAINE REGISTRY OF DEEDS

COUNTY _____
RECEIVED _____, _____
at _____h_____m_____M and
recorded in Plan Bk _____, Pg._____
Attest: _____
REGISTER

RAILROAD R/W REFERENCES

STATION MAP - LANDS
BANGOR & AROOSTOOOK R. R. CO.
VAN BUREN TO FORT KENT
STATION 1256+00 TO STATION 1314+00
DATED FEBRUARY 16, 1929
PLAN V2U, SHEET SL-7A

RIGHT OF WAY AND TRACK MAP
BANGOR & AROOSTOOOK R. R. CO.
VAN BUREN TO FORT KENT
STATION 1220+00 TO STATION 1430+00
DATED JUNE 30, 1929
PLAN V2U, SHEET 7

LOW WATER
AND MAINTENANCE
TEMPORARY EASE.
CONSTRUCTION LIMITS
1,051± S.F.
0.11± AC.
LIMITS
CONSTRUCTION CLL
SAINT JOHN RIVER
Flow
981'±
STATE HIGHWAY "50"
& BRIDGE NO. 2399
RELOCATED
105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00
1,568.31'
N 47°15'29.5" E
29.5" E
2.53± AC.
1,095'±
EASTERN MAINE RAILWAY COMPANY
PARCEL NO. (2)
4.53± AC.
TEMP. CONST. LIMITS
TEMPORARY CONSTRUCTION LIMITS
TWIN RIVERS PAPER COMPANY LLC
ITEM NO. (3)
TEMP. CONST. RIGHTS = 0.15± AC. (2)
TOTAL AREA = VAST HOLDINGS
1-STORY INDUSTRIAL BUILDING
INDUSTRIAL BUILDING
CONST. & MAINT. EASE.
0.14± AC.
0.07± AC.
0.34± AC.
TEMPORARY ACCESS ROAD (APPROXIMATE LOCATION)
TEMPORARY ACCESS ROAD ALONG EMBANKMENT
EXTENT OF FILL
TEMPORARY WORK TRESTLE
LOCATED ALONGSIDE NEW BRIDGE
HORIZONTAL DATUM: NAD83(2011)
ZONE: MAINE 2000 EAST
COMBINED FACTOR: 0.9999736
VERTICAL DATUM: NAVD88
GRID
MAINE 2000 EAST ZONE
EASTERN MAINE RAILWAY COMPANY
PARCEL NO. (2)
LAND = 0.87± AC. (UPLAND)
LAND = 1.66± AC. (OTHER)
TOTAL LAND = 2.53± AC.
(ELEVATED HIGHWAY EASEMENT)
CONST. & MAINT. EASE. = 0.25± AC. (2)
PERPETUAL ACCESS RIGHTS (1)
(UNDELINEATED)
TEMP. CONST. RIGHTS = 5.29± AC. (5)
TOTAL AREA = VAST HOLDINGS
INTERNATIONAL BRIDGE
OVER
SAINT JOHN RIVER
T.C.L.
BRIDGE NO. 2399
WIN 021736.00

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	G.L.L.	
FINAL RIGHT OF WAY	B.S.	
AREAS	B.S.	

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

REVISIONS

NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "50"
BRIDGE AVENUE \ MILL STREET
MADAWASKA AROOSTOOK COUNTY
STATE PROJECT NO. 21736.00

SEPTEMBER 2020	RIGHT-OF-WAY MAP	D.O.T. FILE NO. 2-619
SCALE 1" = 25'	SHEET 2 OF 5	

SHEET NUMBER
156
OF 160

Filename: ...\01\ROW\MSTA\003_RWPLAN3.dgn Division: ROW Username: Benjamin.Singer Date:11/17/2020

PLAN LEGEND

Town, County, State
Approx. Property Lines — P.L.
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
Trees — Conifer — Deciduous
Tree Line — Bush Line
Water Edge
Ledge — Rock/Boulder — Flag Pole
Fence — CHAIN LINK — BARB WIRE — STOCKADE
Sign — Well — Mailbox

	Existing	Proposed
Sanitary Sewer		
Telephone Line		
Electric Line	E	E
Water Line	W	W
Underdrain Line		
Gas Line		
Guardrail		
Culvert		

	Existing	Proposed
Traveled Way		
Ditch		
Catch Basin		
Manhole		
Sewer Manhole		
Utility Pole		
Fire Hydrant		
Curbing		

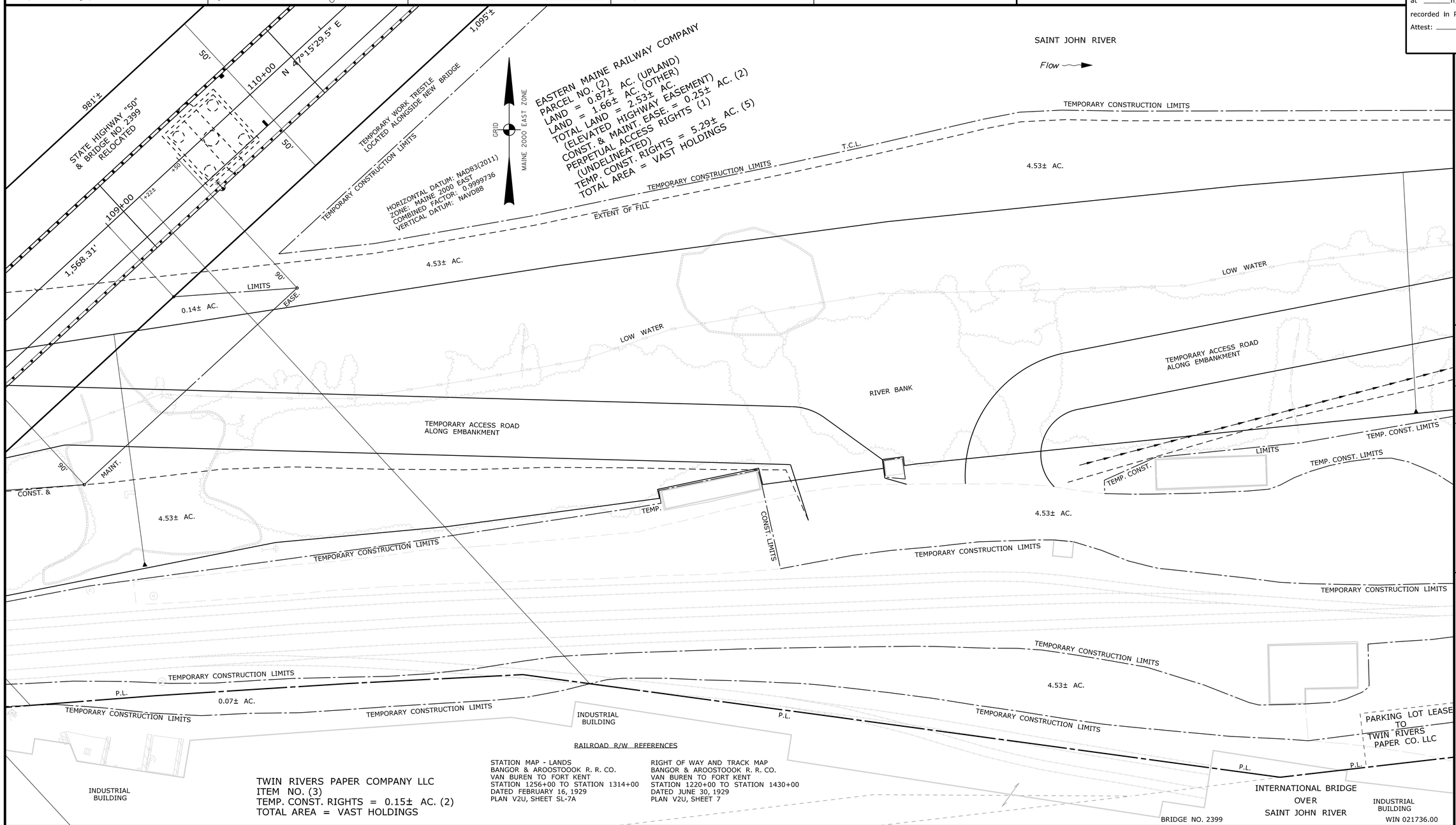
Cut Line — Fill Line
Stonewall — Retaining Wall
Baseline — 10+00 — 11+00 — 12+00
Monument — Traverse Point
Iron Rod Found ● IRF — Pipe Found ● IPF
Replacement Pin Set

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

STATE OF MAINE REGISTRY OF DEEDS

COUNTY _____
RECEIVED _____, _____
at _____h_____m_____M and
recorded in Plan Bk _____, Pg._____
Attest: _____
REGISTER



TWIN RIVERS PAPER COMPANY LLC
ITEM NO. (3)
TEMP. CONST. RIGHTS = 0.15± AC. (2)
TOTAL AREA = VAST HOLDINGS

RAILROAD R/W REFERENCES

STATION MAP - LANDS
BANGOR & AROOSTOOOK R. R. CO.
VAN BUREN TO FORT KENT
STATION 1256+00 TO STATION 1314+00
DATED FEBRUARY 16, 1929
PLAN V2U, SHEET SL-7A

RIGHT OF WAY AND TRACK MAP
BANGOR & AROOSTOOOK R. R. CO.
VAN BUREN TO FORT KENT
STATION 1220+00 TO STATION 1430+00
DATED JUNE 30, 1929
PLAN V2U, SHEET 7

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	G.L.L.	
FINAL RIGHT OF WAY	B.S.	
AREAS	B.S.	

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

REVISIONS

NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK ____ PAGE ____ COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "50"
BRIDGE AVENUE \ MILL STREET
MADAWASKA AROOSTOOK COUNTY
STATE PROJECT NO. 21736.00

SEPTEMBER 2020 | RIGHT-OF-WAY MAP | D.O.T. FILE NO. 2-619
SCALE 1" = 25' | SHEET 3 OF 5

SHEET NUMBER
157
OF 160

Username: Benjamin.Singer Date:11/17/2020
Division: ROW
Filename: ...\01\ROW\MSTA\004_RWPLAN4.dgn

PLAN LEGEND

Town, County, State
Approx. Property Lines — P.L.
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
Trees — Conifer — Deciduous
Tree Line — Bush Line
Water Edge
Ledge — Rock/Boulder — Flag Pole
Fence — CHAIN LINK — BARB WIRE — STOCKADE
Sign — Well — Mailbox

	Existing	Proposed
Sanitary Sewer		
Telephone Line	T	T
Electric Line	E	E
Water Line	W	W
Underdrain Line		
Gas Line		
Guardrail		
Culvert		

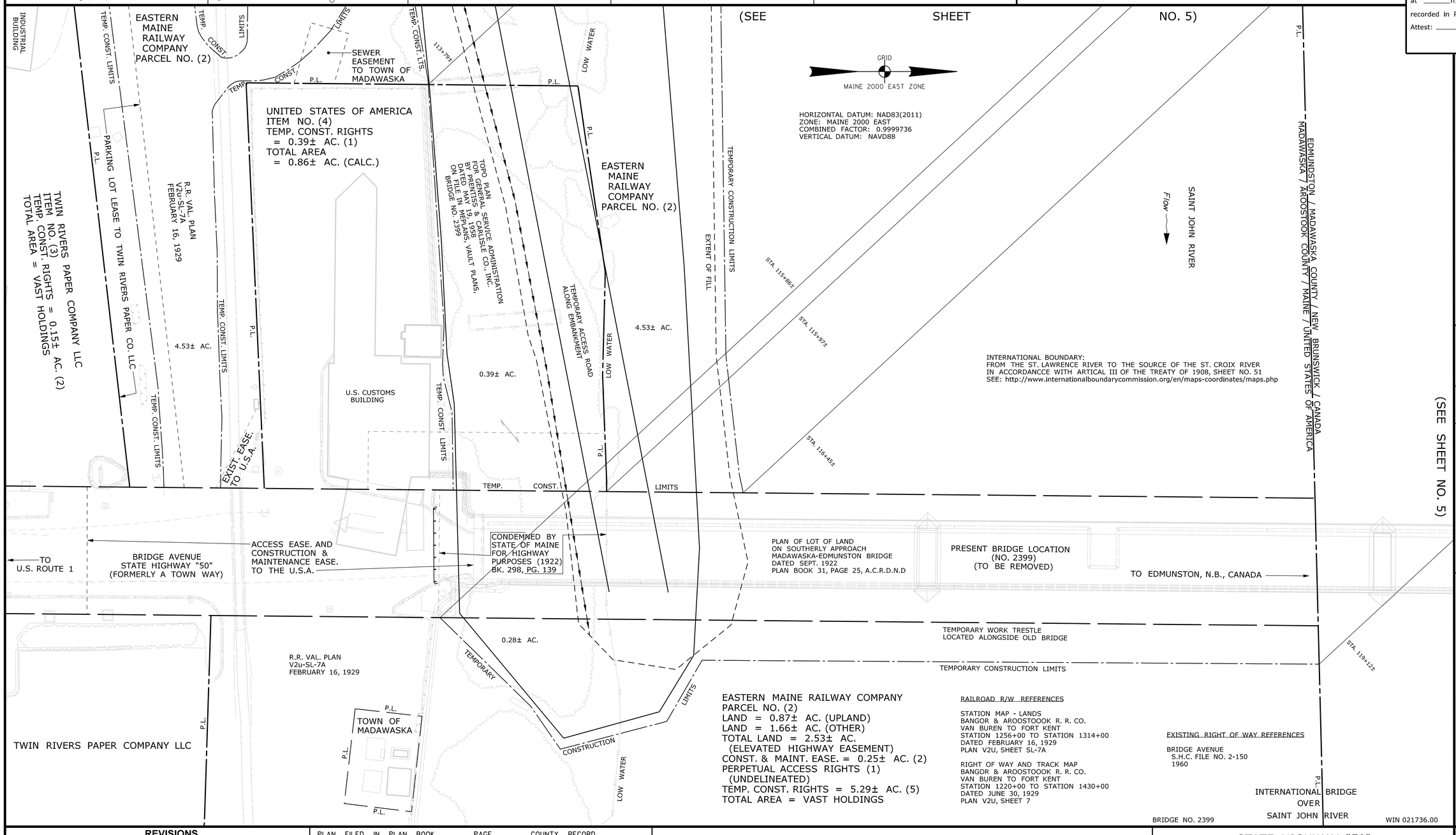
	Existing	Proposed
Traveled Way		
Ditch		
Catch Basin		
Manhole		
Sewer Manhole		
Utility Pole		
Fire Hydrant		
Curbing		

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

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

STATE OF MAINE
REGISTRY OF DEEDS
COUNTY _____
RECEIVED _____, _____
at _____h _____m _____M and
recorded in Plan Bk _____, Pg. _____
Attest: _____
REGISTER



ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	G.L.L.	
FINAL RIGHT OF WAY	B.S.	
AREAS	B.S.	

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

REVISIONS

NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "50"
BRIDGE AVENUE \ MILL STREET
MADAWASKA AROOSTOOK COUNTY
STATE PROJECT NO. 21736.00

SEPTEMBER 2020	RIGHT-OF-WAY MAP	D.O.T. FILE NO. 2-619
SCALE 1" = 25'	SHEET 4 OF 5	

SHEET NUMBER
158
OF 160

Filename: ...\01\ROW\MSTA\005_RWPLAN5.dgn Division: ROW Username: Benjamin.Singer Date:11/17/2020

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	Sanitary Sewer		Traveled Way		
Existing Right of Way	Trees Conifer	Deciduous	Telephone Line		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		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			

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

STATE OF MAINE REGISTRY OF DEEDS

COUNTY _____
RECEIVED _____, _____
at _____h _____m _____M and
recorded in Plan Bk _____, Pg. _____
Attest: _____
REGISTER

CANADA
U.S.A.

EDMUNDSTON / MADAWASKA COUNTY / NEW BRUNSWICK / CANADA
MADAWASKA / AROOSTOOK COUNTY / MAINE / UNITED STATES OF AMERICA

INTERNATIONAL BOUNDARY:
FROM THE ST. LAWRENCE RIVER TO THE SOURCE OF THE ST. CROIX RIVER
IN ACCORDANCCE WITH ARTICAL III OF THE TREATY OF 1908, SHEET NO. 51
SEE: http://www.internationalboundarycommission.org/en/maps-coordinates/maps.php

GRID
MAINE 2000 EAST ZONE

HORIZONTAL DATUM: NAD83(2011)
ZONE: MAINE 2000 EAST
COMBINED FACTOR: 0.9999736
VERTICAL DATUM: NAVD88

SAINT JOHN RIVER
Flow

981'±

STATE HIGHWAY "50"
& BRIDGE NO. 2399
RELOCATED

50'

151.53'

112+00 113+00 +63± +79± 114+00 +20± +77± 115+00 N 47°15'29.5" E 116+00 +86± +97± +45± 117+00 1,568.31' 118+00 119+00

END B.L.
119+50
+12±

1,095'±

4.53± AC.

TEMPORARY WORK TRESTLE
LOCATED ALONGSIDE NEW BRIDGE

TEMPORARY CONSTRUCTION LIMITS

P.L.

EASTERN MAINE RAILWAY COMPANY
PARCEL NO. (2)
LAND = 0.87± AC. (UPLAND)
LAND = 1.66± AC. (OTHER)
TOTAL LAND = 2.53± AC.
(ELEVATED HIGHWAY EASEMENT)
CONST. & MAINT. EASE. = 0.25± AC. (2)
PERPETUAL ACCESS RIGHTS (1)
(UNDELINEATED)
TEMP. CONST. RIGHTS = 5.29± AC. (5)
TOTAL AREA = VAST HOLDINGS

SAINT JOHN RIVER
Flow

T.C.L.

(SEE SHEET NO. 4)

INTERNATIONAL BRIDGE
OVER
SAINT JOHN RIVER

BRIDGE NO. 2399 WIN 021736.00

ITEM	TECH	CHECKED
EXISTING CONDITION PLAN	G.L.L.	B.S.
FINAL RIGHT OF WAY		B.S.
AREAS		

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

REVISIONS

NO.	DATE	DESCRIPTION	BY

PLAN FILED IN PLAN BOOK PAGE COUNTY RECORD

NO.	GRANTOR	INSTRUMENT	DATE	BOOK	PAGE

BRUCE A. VAN NOTE
COMMISSIONER
JOYCE NOEL TAYLOR
CHIEF ENGINEER
DATE

STATE HIGHWAY "50"
BRIDGE AVENUE \ MILL STREET
MADAWASKA AROOSTOOK COUNTY
STATE PROJECT NO. 21736.00

SEPTEMBER 2020	RIGHT-OF-WAY MAP	D.O.T. FILE NO. 2-619
SCALE 1" = 25'	SHEET 5 OF 5	

SHEET NUMBER
159
OF 160

Date:11/20/2020

Username:

Division:

Filename: 160_RWPlan_06.dgn

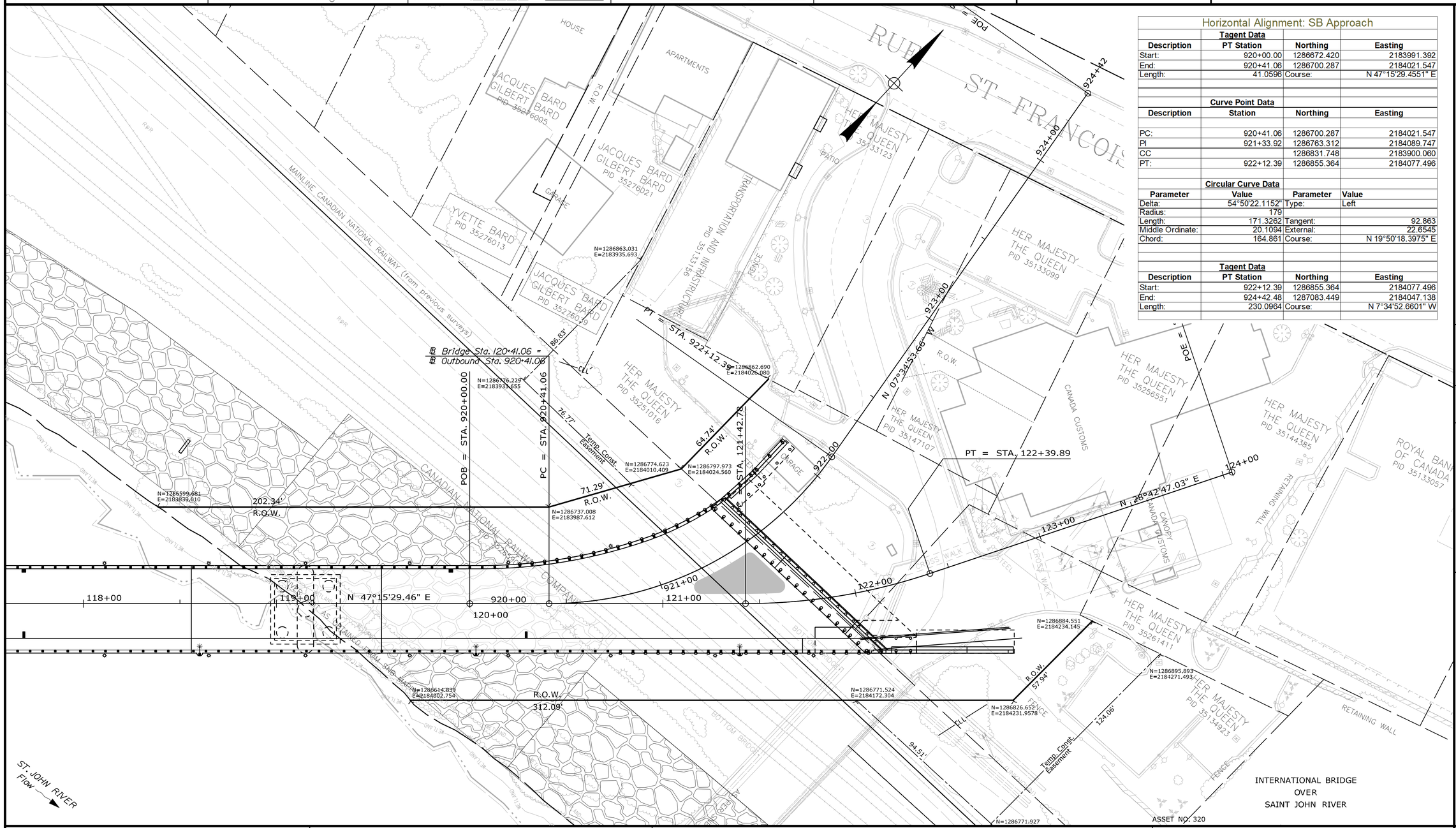
PLAN LEGEND

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

THIS PLAN CANNOT BE USED TO ESTABLISH LEGAL BOUNDARIES BETWEEN ABUTTING PROPERTY OWNERS.

25 0 25 50 75 100

Scale of Feet



Horizontal Alignment: SB Approach

Tagent Data

Description	PT Station	Northing	Easting
Start:	920+00.00	1286672.420	2183991.392
End:	920+41.06	1286700.287	2184021.547
Length:	41.0596	Course:	N 47°15'29.4551" E

Curve Point Data

Description	Station	Northing	Easting
PC:	920+41.06	1286700.287	2184021.547
PI	921+33.92	1286763.312	2184089.747
CC		1286831.748	2183900.060
PT:	922+12.39	1286855.364	2184077.496

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	54°50'22.1152"	Type:	Left
Radius:	179		
Length:	171.3262	Tangent:	92.863
Middle Ordinate:	20.1094	External:	22.6545
Chord:	164.861	Course:	N 19°50'18.3975" E

Tagent Data

Description	PT Station	Northing	Easting
Start:	922+12.39	1286855.364	2184077.496
End:	924+42.48	1287083.449	2184047.138
Length:	230.0964	Course:	N 7°34'52.6601" W

RIGHT-OF-WAY PLAN

ITEM	CHECKED	TECH
EXISTING CONDITION PLAN		
FINAL RIGHT OF WAY		
AREAS		

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

RIGHT OF WAY MAP

INTERNATIONAL BRIDGE
OVER
SAINT JOHN RIVER

ASSET NO. 320

REVISIONS			
NO.	DATE	DESCRIPTION	BY

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

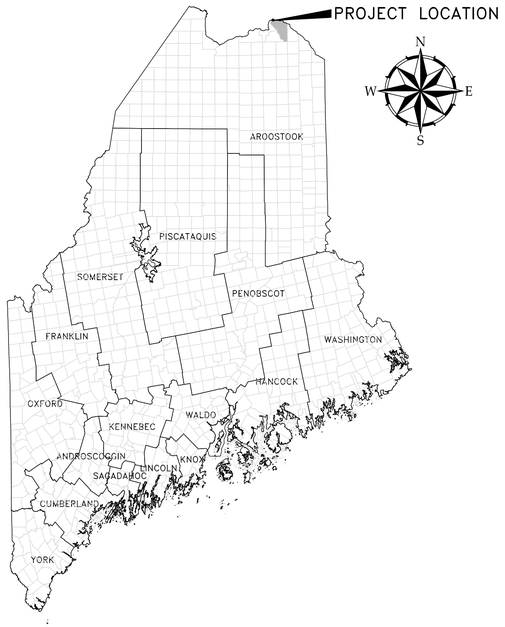
DATE

SHEET NUMBER

160

OF 160

STATE OF MAINE DEPARTMENT OF TRANSPORTATION
MADAWASKA - EDMUNDSTON
AROOSTOOK COUNTY, MAINE, USA
MADAWASKA COUNTY, NEW BRUNSWICK, CANADA
INTERNATIONAL BRIDGE OVER SAINT JOHN RIVER
TOWN OF MADAWASKA, MAINE SEWER RELOCATION



PROJECT LOCATION MAP

50 0 50 100
scale mile

FEDERAL PROJECT NO. 2173600
WOODARD & CURRAN PROJECT NO. 229641.01
NOVEMBER, 2020

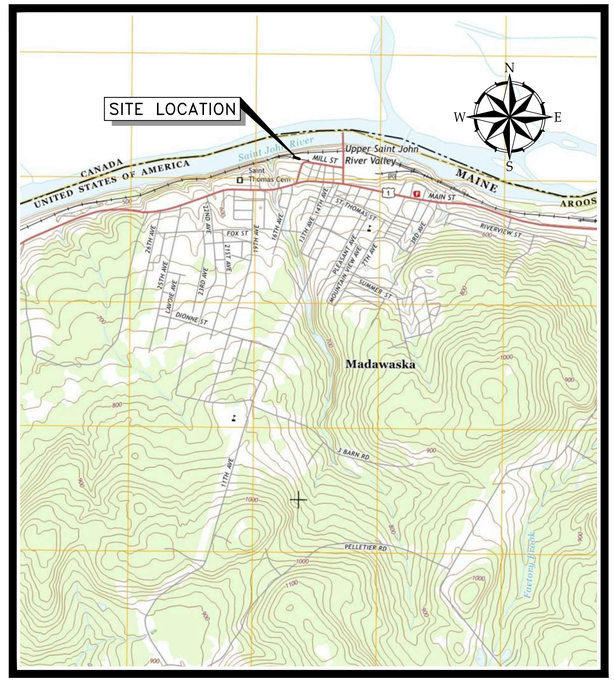
ISSUE FOR BID

STATE OF MAINE
BRENT M. BRIDGES
LICENSED PROFESSIONAL ENGINEER

WOODARD & CURRAN

80 Exchange Street, Suite 400
Bangor, Maine 04401
800. 564.2333 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS



SOURCE: USGS TOPOGRAPHIC MAP

SITE LOCATION MAP

1/2 0 1/2 1
scale mile

2000 0 2000 4000
scale feet

\\wc\shared\Projects\023263.04 Madawaska MDOT Sewer Relocate\wip\Drawings\General\229641-G-000.dwg, Nov 05, 2020 - 7:56am

GENERAL NOTES

1. THE PROJECT IS LOCATED IN MADAWASKA, MAINE, AND GENERALLY CONSISTS OF RELOCATION OF AN EXISTING SECTION OF 12" GRAVITY SEWER DISPLACED BY THE NEW BRIDGE. THE RELOCATED SEWER WILL CONSIST OF APPROXIMATELY 380 LINEAR FEET OF 12" PVC GRAVITY SEWER, THREE PRECAST CONCRETE MANHOLES, BYPASS PUMPING AND ALL OTHER EQUIPMENT AND MATERIALS REQUIRED FOR THE WORK.
2. CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS AS REQUIRED TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL CODES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL PROPOSED WORK AS SHOWN ON DRAWINGS.
4. STATIONS AND OFFSETS FOR MANHOLES, AND OTHER STRUCTURES ARE SHOWN TO THE CENTER OF EACH.
5. THE WORK SHALL INCORPORATE EROSION CONTROL MEASURES WHICH ARE COMPLIANT WITH THE LATEST VERSION OF "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES". ADEQUATE SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE INSTALLED AND PROPERLY MAINTAINED TO MINIMIZE ADVERSE IMPACTS ON WATERS AND WETLANDS DURING CONSTRUCTION. THESE DEVICES MUST BE REMOVED UPON COMPLETION OF WORK AND STABILIZATION OF UPSLOPE DISTURBED AREAS. THE SEDIMENT COLLECTED BY THESE DEVICES MUST ALSO BE REMOVED AND PLACED UPLAND IN A MANNER THAT WILL PREVENT ITS LATER EROSION AND TRANSPORT TO A WATERWAY OR WETLAND. THE CONTRACTOR SHALL PROVIDE A SEDIMENT BASIN FOR ALL WATER PUMPED FROM EXCAVATIONS. THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR REVIEW/APPROVAL PRIOR TO BEGINNING ANY PROJECT WORK.
6. THE LOCATION, TYPE AND SIZE OF EXISTING PIPES, DUCTS, CONDUITS AND OTHER UNDERGROUND STRUCTURES SHOWN ON THE DRAWINGS ARE NOT WARRANTED TO BE EXACT NOR IS IT WARRANTED THAT ALL UNDERGROUND STRUCTURES ARE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. DEPTH AND NUMBER OF SERVICES ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. EXCAVATING TEST PITS AS NECESSARY TO VERIFY UTILITY LOCATIONS AND DEPTHS SHALL BE INCIDENTAL TO THIS PROJECT UNLESS OTHERWISE SHOWN OR DIRECTED BY THE ENGINEER.
7. THE LOCATIONS OF ALL PROPERTY LINES AND RIGHT OF WAYS ARE APPROXIMATE (SHOWN FOR REFERENCE ONLY), UNLESS NOTED OTHERWISE. PROPERTY LINES AND RIGHT OF WAYS SHOWN ARE NOT INTENDED TO REPRESENT LEGAL BOUNDARIES.
8. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WITH THE TOWN OF MADAWASKA, MAINE, MADAWASKA WATER DISTRICT, MADAWASKA POLLUTION CONTROL, MADAWASKA DEPARTMENT OF PUBLIC WORKS, UTILITY COMPANIES, DIG SAFE, EMERGENCY SERVICES AND MAINE DEPARTMENT OF TRANSPORTATION (MDOT) WHERE APPLICABLE. CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR TO COMMENCING WORK TO ALLOW SUFFICIENT TIME TO LOCATE AND MARK THE LOCATION OF ALL BURIED UTILITIES. CONTRACTOR SHALL ALSO CONTACT "DIG SAFE", TELEPHONE NO. 811 OR 888-DIG-SAFE.
9. COORDINATE ALL WORK WITHIN THE STATE RIGHT OF WAY WITH THE OWNER AND MDOT. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN EROSION CONTROL PLAN AND TRAFFIC CONTROL PLAN IN ACCORDANCE WITH MDOT REQUIREMENTS. PAYMENT FOR THE DEVELOPMENT, SUBMISSION, AND IMPLEMENTATION, OF EACH PLAN SHALL BE CONSIDERED INCIDENTAL.
10. ALL NEW SEWERS AND OTHER PIPING WILL HAVE A MINIMUM 7.0 FEET OF COVER UNLESS NOTED OTHERWISE OR APPROVED BY THE ENGINEER. RIGID INSULATION REQUIRED: CLOSED-CELL RIGID FOAMED POLYSTYRENE, EQUAL TO "STYROFOAM" HI-60, BY DOW CHEMICAL. 2" THICK BY 4' WIDE, UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL NOT USE INSULATION TO CONVENIENCE THE WORK OF THE PROJECT OR MEET THEIR OBLIGATION TO PROVIDE 7 FEET OF COVER, WITHOUT THE APPROVAL OF THE ENGINEER.
11. CONTRACTOR SHALL MAINTAIN TRAFFIC IN A SAFE MANNER AT ALL TIMES DURING CONSTRUCTION. MDOT TRAFFIC CONTROL AND SIGNAGE REQUIREMENTS SHALL APPLY ON BRIDGE STREET. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MAINTAIN CONTINUOUS TRAFFIC FLOW DURING CONSTRUCTION. NO ROADS SHALL NOT BE CLOSED TO TRAFFIC WITHOUT PERMISSION FROM THE TOWN OF MADAWASKA AND MDOT WHERE APPLICABLE.
12. ALL WASTEWATER FLOWS IN EXISTING SEWERS MUST BE MAINTAINED DURING CONSTRUCTION. COST IS INCIDENTAL TO ALL PAY ITEMS. THE SANITARY SEWER SYSTEM THROUGHOUT THE PROJECT AREA IS AN ACTIVE SYSTEM THAT SHALL REMAIN ACTIVE TO THE EXTENT POSSIBLE. THE ONLY PART OF THE SYSTEM THAT SHALL BE MADE INACTIVE IS THE SECTION THAT THE CONTRACTOR IS UPGRADING ON A GIVEN DAY. THE CONTRACTOR SHALL FULLY COORDINATE CONSTRUCTION ACTIVITIES WITH THE MADAWASKA POLLUTION CONTROL FACILITY, THE TOWN OF MADAWASKA PUBLIC WORKS DEPARTMENT AND AFFECTED PROPERTY OWNERS TO MINIMIZE ADVERSE IMPACTS ON THE OPERATION OF THE SYSTEM.
13. IT IS ANTICIPATED THAT SOME PROPERTIES WILL HAVE MORE THAN ONE SERVICE CONNECTING THE PROPERTY TO THE EXISTING SEWER MAIN. WHEN PROPERTIES ARE ENCOUNTERED THAT HAVE MORE THAN ONE SERVICE, THE CONTRACTOR SHALL BE REQUIRED TO CONFIRM WHICH SERVICE IS CARRYING THE SEWER FLOW AND CONNECT THAT EXISTING SERVICE TO THE PROPOSED SEWER MAIN. OTHER SERVICES DETERMINED TO BE CONNECTED TO FOUNDATION DRAINS, SUMP PUMPS, ROOF DRAINS, OR OTHERWISE ALLOWING STORM WATER FLOW TO ENTER THE SEWER SYSTEM SHALL NOT BE CONNECTED TO THE PROPOSED SEWER MAIN. SERVICES NOT CONNECTED TO THE PROPOSED SEWER MAIN SHALL BE CONNECTED TO STORM DRAIN SYSTEM, ROAD DITCH, OR OTHERWISE AS DIRECTED BY THE ENGINEER OR OWNER.
14. CONTRACTOR SHALL PERFORM ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT WITHIN THE CONFINES OF THE RIGHTS OF WAY OR WITHIN THE CONFINES OF TEMPORARY CONSTRUCTION EASEMENTS SECURED BY THE TOWN OR MDOT. ANY ACTIVITY, MATERIAL STORAGE ETC., TAKING PLACE ON PRIVATE PROPERTY SHALL BE WITH THE EXPRESS WRITTEN PERMISSION OF THE OWNER AND COORDINATED BY THE CONTRACTOR.
15. THE CONTRACTOR SHALL SUPERVISE AND INSPECT THE WORK OF THIS PROJECT IN AN EFFICIENT AND COMPETENT MANNER. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCE AND PROCEDURES USED TO COMPLETE THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE WORK IS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. A REPRESENTATIVE OF THE GENERAL CONTRACTOR SHALL BE PRESENT DURING ALL PHASES OF THE WORK.
16. SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. PERFORM ALL WORK IN ACCORDANCE WITH SAFETY STANDARDS OF APPLICABLE LAWS, BUILDING AND CONSTRUCTION CODES, THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" PUBLISHED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, AND THE REQUIREMENTS OF TITLE 9 OF THE CODE OF FEDERAL REGULATIONS, PART 1926, "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION".
17. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT EQUIPMENT FLUIDS FROM REACHING ANY WATER COURSE. ANY INADVERTENT FLUID DISCHARGES SHALL BE IMMEDIATELY CLEANED FROM THE WATERS USING WHATEVER MEANS NECESSARY, AS DETERMINED BY THE ENGINEER AND ALL APPLICABLE REGULATORY AUTHORITIES.
18. PROPERLY PROTECT AND DO NOT DISTURB PROPERTY IRONS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT WILL BE RESET AT THE CONTRACTOR'S EXPENSE, BY A REGISTERED LAND SURVEYOR APPROVED BY THE ENGINEER.
19. RESTORE ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL CONDITION (GRAVEL, PAVEMENT, SIDEWALKS, GRASS, ETC.) UNLESS NOTED OTHERWISE ON PLANS. RESTORATION OF GRAVEL ROAD AND DRIVEWAY SURFACES AND LAWNS DAMAGED BY CONTRACTOR SHALL BE INCIDENTAL TO THE PROJECT.
20. EXISTING FACILITIES AND IMPROVEMENTS (I.E. TREES, LIGHT POLES, SIGNS, ETC.) SHALL BE REMOVED AND REPLACED OR PROTECTED AS REQUIRED DURING CONSTRUCTION. THE ASSOCIATED COSTS ARE INCIDENTAL TO THE PROJECT. BRACING OF UTILITY POLES, WHERE REQUIRED, SHALL BE INCIDENTAL TO THE PROJECT AND NO SEPARATE PAYMENT SHALL BE MADE.
21. WHENEVER POSSIBLE, EXISTING PLANTINGS SHALL BE PRESERVED BY WHATEVER METHOD NECESSARY INCLUDING TRANSPLANTING AND/OR TEMPORARY RELOCATION.
22. ALL EXISTING SIGNAGE TO BE REPLACED UNDAMAGED.
23. ALL CONNECTIONS OF PIPING TO EXISTING MANHOLES SHALL BE CONSIDERED INCIDENTAL TO PROJECT. THIS INCLUDES ALL WORK REQUIRED TO CORE HOLE, INSTALLATION OF WATERTIGHT CONNECTION, AND ALL ASSOCIATED WORK.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A VISUAL RECORD OF THE PROJECT AREA. THE CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS WITHIN THE PROJECT AREA USING WHATEVER MEANS NECESSARY, INCLUDING BUT NOT LIMITED TO PHOTOGRAPHS AND VIDEOTAPE. THE CONTRACTOR SHALL PROVIDE THIS INFORMATION TO THE ENGINEER PRIOR TO THE START OF CONSTRUCTION.
25. ALL CURBING AND SIDEWALK DAMAGED BY CONTRACTOR OPERATIONS SHALL BE REPLACED IN KIND TO MATCH EXISTING. COST SHALL BE INCIDENTAL TO CONTRACT.
26. FIRE HYDRANTS SHALL REMAIN ACTIVE AT ALL TIMES.
27. THE REPAIR OF ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION, NOT OTHERWISE PROPOSED TO BE REPLACED, SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND SHALL NOT BE ELIGIBLE FOR ADDITIONAL PAYMENT.
28. CONTRACTOR TO CAP AND ABANDON SEWER MAINS AS SHOWN ON PLANS. PIPES TO BE ABANDONED SHALL BE SAW-CUT TO SOUND PIPE SECTION AND FILLED WITH FLOWABLE CONCRETE FILL, OR APPROVED EQUIVALENT, AND THE ENDS CAPPED BY A WATERTIGHT CAP FIRMLY AFFIXED TO THE PIPE. COST SHALL BE INCIDENTAL TO THE PROJECT.
29. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH VERSANT POWER. ANY WORK REQUIRING VERSANT POWER TO BE PRESENT SHALL BE DONE DURING VERSANT POWERS NORMAL WORKING HOURS. ANY WORK DONE BY VERSANT POWER OUTSIDE NORMAL WORKING HOURS INCLUDING TRAVEL TIME WILL RESULT IN OVERTIME CHARGES THAT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WOULD BE CONSIDERED INCIDENTAL TO THE PROJECT. COORDINATION WITH VERSANT POWER WILL NOT BE ELIGIBLE FOR CONTRACT EXTENSION ON THE PROJECT AND CHARGES RESULTING FROM ANY WORK PERFORMED BY VERSANT POWER SHALL BE INCIDENTAL TO THE PROJECT.
30. ALL REPAIR AND/OR REPLACEMENT OF ANY EXISTING WATER LINES SHALL BE REQUIRED TO MEET ALL MADAWASKA WATER DEPARTMENT STANDARDS.
31. THE WATER DISTRIBUTION SYSTEM THROUGHOUT THE PROJECT AREA IS ACTIVE AND THE CONTRACTOR SHALL MAINTAIN SERVICE TO RESIDENTS WITHIN THE PROJECT AREA AT ALL TIMES.
32. THE TOWN OF MADAWASKA DEPARTMENT OF PUBLIC WORKS SHALL SALVAGE ALL MANHOLE FRAMES AND COVERS SCHEDULED FOR REPLACEMENT OR REMOVAL AND SHALL DESIGNATE AND AREA AT THE DEPARTMENT OF PUBLIC WORKS YARD DESIGNATED FOR FRAMES AND COVERS STOCKPILE.
33. CONTRACTOR TO PROVIDE MEANS OF ENTRANCE TO ALL MANHOLES. EXISTING MANHOLE LADDER RUNGS ARE DETERIORATED AND SHALL NOT BE UTILIZED FOR ENTRANCE OF STRUCTURES.
34. MULTIPLE MANHOLES AND SEWER PIPES ARE IN CLOSE PROXIMITY OF ACTIVE RAILROAD TRACKS. CONTRACTOR SHALL PROVIDE NECESSARY EXCAVATION STABILIZATION TO PREVENT DAMAGE TO THE RAILROAD TRACKS AND SUPPORTING SOILS. COORDINATE ALL WORK WITH RAILROAD REPRESENTATIVES. CONTRACTORS WORK SHALL NOT IMPEDE THE OPERATION OF THE RAILROAD OR THE TWIN RIVERS MILL.

LEGEND**

DESCRIPTION	EXISTING	PROPOSED
CONTOUR (1' OR 2' INTERVAL)	122	
CONTOUR (INDEX)	120	
SANITARY SEWER	S S	S S
FORCE MAIN	FM FM	FM FM
STORM DRAIN	SD	
UNDERDRAIN	UD	
WATER MAIN	W W	W W
UNDERGROUND ELECTRIC	E E	
UNDERGROUND TELEPHONE	T T	
UNDERGROUND TELEVISION	TV	
OVERHEAD ELECTRIC	OE	
ABANDONED SEWER	AS	
ABANDONED WATER MAIN	AW	
CULVERT	INV. IN EL. XXX.XX / INV. OUT EL. XXX.XX	
HOUSE SERVICE / LATERAL	S S	S S
PROPERTY LINE	PL	
RIGHT OF WAY	R/W	
EASEMENT		
EDGE OF VEGETATION		
RAILROAD		
CENTERLINE	CL	
RETAINING WALL		
STONEWALL		
CURB		
EDGE OF PAVEMENT		
EDGE OF GRAVEL		
GUARDRAIL		

DESCRIPTION	EXISTING	PROPOSED
DRAINAGE DITCH / SWALE		
SANITARY SEWER MANHOLE		
SANITARY SEWER SERVICE CLEANOUT	CO	CO
STORM DRAIN MANHOLE		
CATCH BASIN		
TELECOMM MANHOLE		
TELECOMM SERVICE BOX	T	
ELECTRIC MANHOLE		
TRANSFORMER		
UTILITY POLE W/GUY		
UTILITY POLE		
LIGHTPOST		
TRAFFIC LIGHT	TL	
WATER GATE		
CURB STOP		
HYDRANT		
WATER WELL	W	
WATER METER BOX	W	
SIGN		
MAILBOX		
FLAGPOLE	FP	
WETLAND HATCHING		
CONIFEROUS TREE		
DECIDUOUS TREE		
BASE LINE	BL	BL
SURVEY STATION		
IRON PIN	IPF MF	
MONUMENTS		
SPOT ELEVATION	XXX.XX	
TEST PIT & NUMBER	TP-X	
BORING & NUMBER	B-X	B-P

**THIS IS A GENERAL LEGEND. NOT ALL ITEMS APPEAR ON THESE DRAWINGS

SHEET INDEX

SHEET NO.	SHEET TITLE
GENERAL	
G-000	COVER SHEET
G-001	GENERAL NOTES, ABBREVIATIONS, AND SHEET INDEX
CIVIL	
C-001	I-30 TO I-29 SEWER RELOCATION
C-101	CIVIL DETAILS 1
C-102	CIVIL DETAILS 2
C-103	CIVIL DETAILS 3

ABBREVIATIONS

AC	ASBESTOS CEMENT
&	AND
A.G.	ABOVE GROUND
ADS	ADVANCED DRAINAGE SYSTEM
ALUM	ALUMINUM
B	BORING
BIT.	BITUMINOUS
BK	BOOK
BM	BENCHMARK
CB	CATCH BASIN
CI	CAST IRON
CK	CHECKED
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
DI	DUCTILE IRON
DES	DESIGNED
DIA	DIAMETER
DR	DRAWN
E	EAST
EL	ELEVATION
ELEC	ELECTRICAL
EMBED	EMBEDMENT
EX	EXISTING
FB	FIBERGLASS
FF	FINISH FLOOR
FIN	FINISH
FL	FLOOR
FT	FOOT/FEET
GALV	GALVANIZED
GRND	GROUND
H	HEIGHT
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HWY	HIGHWAY
IN	INCH
INV	INVERT
LF	LINEAR FEET
MAX	MAXIMUM
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MON	MONUMENT
MPH	MILES PER HOUR
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NO	NUMBER
NR	NO REFUSAL
N.T.S.	NOT TO SCALE
O.C.E.W.	ON CENTER EACH WAY
O.D.	OUTSIDE DIAMETER
OH	OVERHEAD
±	PLUS OR MINUS
PLS	PROFESSIONAL LAND SURVEYOR
PSI	PER SQUARE INCH
PSIG	PER SQUARE INCH GAUGE PRESSURE
PVC	POLYVINYL CHLORIDE
R.O.W.	RIGHT-OF-WAY
R/W	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
REINF.	REINFORCED
REQ'D	REQUIRED
RET	RETAINING
RLS	REGISTERED LAND SURVEYOR
RT	ROUTE
RTE	ROUTE
S	SLOPE
S	SEWER
SD	STORM DRAIN
SS	STAINLESS STEEL
SCH	SCHEDULE
SDR	STANDARD DIMENSION RATIO
STA.	STATION
TYP.	TYPICAL
UC	UNDERGROUND CABLE
W	WATER
W	WEST
W/	WITH
WV	WATER VALVE

ISSUE FOR BID

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STATE OF MAINE
BRENT M. BRIDGES
12/08/2020
PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
1	ISSUE FOR BID	11/06/2020

DESIGNED BY: MNK
DRAWN BY: MRC
CHECKED BY: MKC
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GENERAL NOTES, ABBREVIATIONS, AND SHEET INDEX

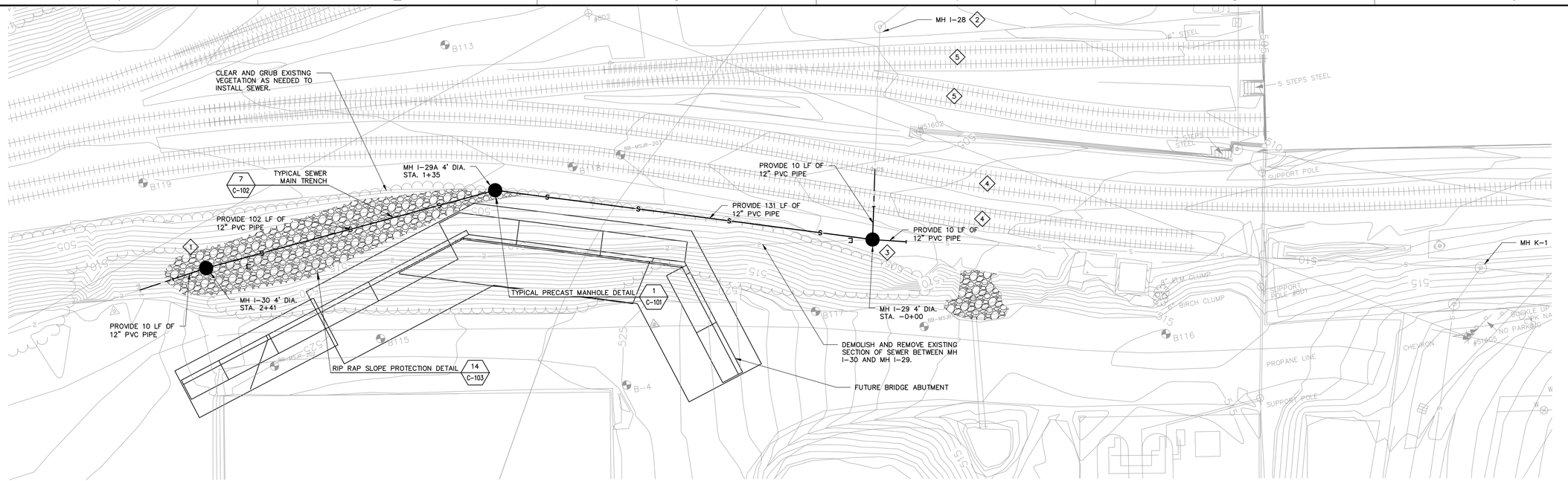
STATE OF MAINE DEPARTMENT OF TRANSPORTATION

INTERNATIONAL BRIDGE
OVER SAINT JOHN RIVER
TOWN OF MADAWASKA,
MAINE SEWER
RELOCATION

JOB NO.: 229641.01
DATE: NOVEMBER, 2020
SCALE: AS NOTED
SHEET: 1 OF 5

G-001

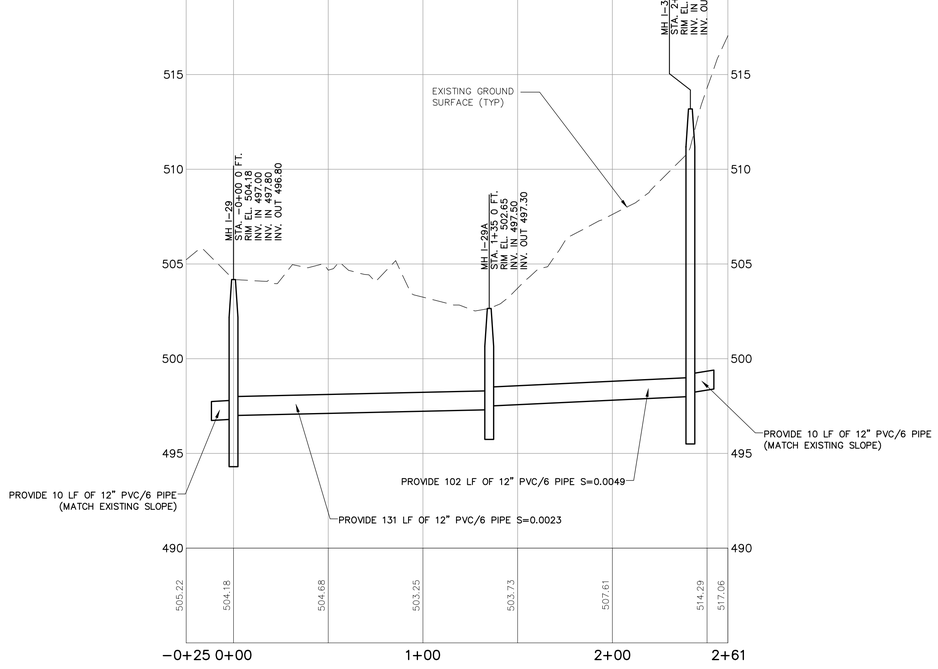
\\wc\shared\Projects\023126\3.04 Madawaska MDOT Sewer Relocate\wip\Drawings\General\229641O1-G-001.DWG, Nov 05, 2020 - 7:57am



I-30 – I-29 PLAN STA. -0+25 TO STA. 6+25

40' 0 40' 80'

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING



I-30 – I-29 PROFILE STA. -0+25 TO STA. 6+25

SCALE: 1"=40' HORIZ.
1"=4' VERT.

NOTES:

1. EXISTING CONDITIONS SHOWN IN GRAY SCALE.
2. ALL NEW SEWER PIPING SHALL BE PVC/6. SEE SPECIFICATION 33 31 00 SANITARY UTILITY SEWERAGE PIPING FOR ADDITIONAL DETAILS AND REQUIREMENTS.
3. SEE BRIDGE DRAWINGS FOR FULL EXTENT OF BRIDGE WORK AND RELATED INFRASTRUCTURE.
4. SEE BRIDGE DRAWINGS FOR SOIL BORING DETAILS INCLUDING BORING LOGS.

KEYED NOTES:

1. SAW CUT EXISTING 12" SEWER UPSTREAM OF EXISTING MH I-30 AND CONNECT TO NEW PVC/6 SEWER UPSTREAM OF RELOCATED MH I-30. DEMOLISH AND DISPOSE OF EXISTING MH I-30.
2. MH I-28 MAY BE USED FOR DISCHARGE OF BYPASS PUMPING SYSTEMS AS LONG AS MILL YARD OPERATIONS AND ACCESS ARE NOT IMPEDED. CONTRACTOR TO COORDINATE WITH MILL STAFF PRIOR TO BYPASS PUMPING.
3. REPLACE MH I-29 IN LOCATION OF EXISTING MH. REPLACE 10 LF OF EXISTING 12" PIPING OUTSIDE OF MH ON SEWER LINES NOT GETTING REPLACED. DEMOLISH AND DISPOSE OF EXISTING MH I-29.
4. RAILROAD TRACK TO BE ABANDONED. BYPASS PUMPING EQUIPMENT MAY PASS OVER THE TOP OF RAILROAD TRACK.
5. RAILROAD TRACK TO BE REMAIN ACTIVE DURING CONSTRUCTION. BYPASS PUMPING EQUIPMENT MAY NOT PASS OVER THE TOP OF RAILROAD TRACKS. PUMP FORCE MAIN PIPING MAY PASS UNDER TRACKS BETWEEN TIES AS LONG AS STABILITY OF TRACKS IS NOT COMPROMISED AND NO COMPONENTS OF THE PUMPING SYSTEM WILL INTERFERE WITH RAILROAD OPERATIONS.

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STATE OF MAINE BRENT M. BRIDGES 12/7/2020 REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
1	ISSUE FOR BID	11/06/2020

DESIGNED BY: MNC
DRAWN BY: MRC
CHECKED BY: MKC
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I-30 TO I-29 SEWER RELOCATION

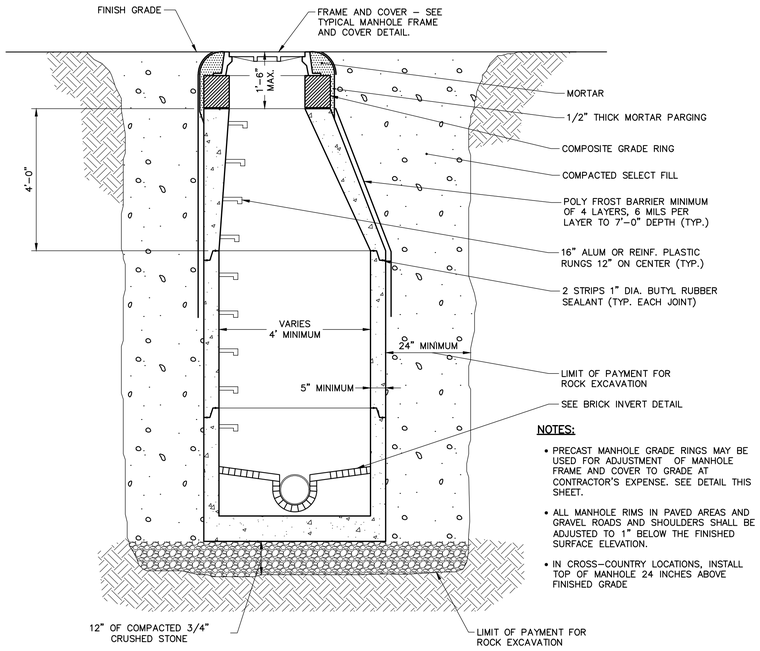
STATE OF MAINE DEPARTMENT OF TRANSPORTATION

INTERNATIONAL BRIDGE
OVER SAINT JOHN RIVER
TOWN OF LIMESTONE, AROOSTOOK COUNTY, MAINE
SEWER RELOCATION

JOB NO.: 229641.01
DATE: NOVEMBER, 2020
SCALE: AS NOTED
SHEET: 2 OF 5

C-001

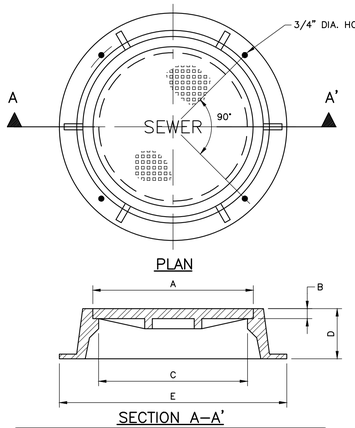
\\wc1shared\Projects\0231263.04 Madawaska MDOT Sewer Relocate\wip\Drawings\Civil\229641O1-C-001.dwg, Nov 05, 2020 - 8:01am



NOTES:

- PRECAST MANHOLE GRADE RINGS MAY BE USED FOR ADJUSTMENT OF MANHOLE FRAME AND COVER TO GRADE AT CONTRACTOR'S EXPENSE. SEE DETAIL THIS SHEET.
- ALL MANHOLE RIMS IN PAVED AREAS AND GRAVEL ROADS AND SHOULDERS SHALL BE ADJUSTED TO 1" BELOW THE FINISHED SURFACE ELEVATION.
- IN CROSS–COUNTRY LOCATIONS, INSTALL TOP OF MANHOLE 24 INCHES ABOVE FINISHED GRADE

1 C–001 **TYPICAL PRECAST MANHOLE**
N.T.S.



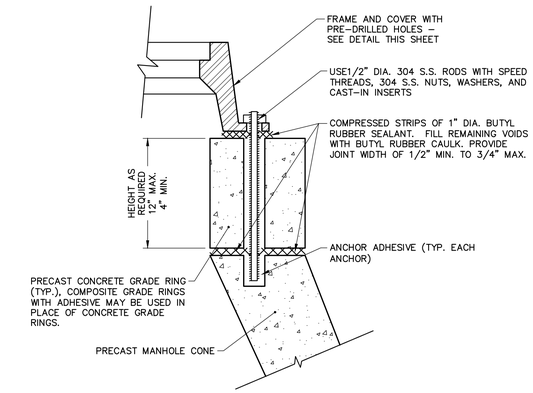
FRAME TYPE	NEENAH FOUNDRY OR EQUAL
CONDITION FOR USE	MANHOLE HEIGHT > 6 FT.
A	24
B	1 1/2
C	22 1/4
D	7 15/32
E	34 21/32

DIMENSIONS (INCHES)

NOTE:

1. PROVIDE FRAMES WITH PRE–DRILLED 3/4" DIAMETER HOLES.

2 C–101 **TYPICAL MANHOLE FRAME AND COVER DETAIL**
N.T.S.



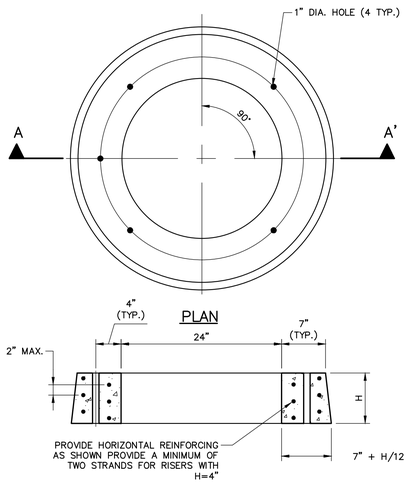
NOTES:

- PROVIDE BOLTED FRAME ASSEMBLY FOR ALL MANHOLES

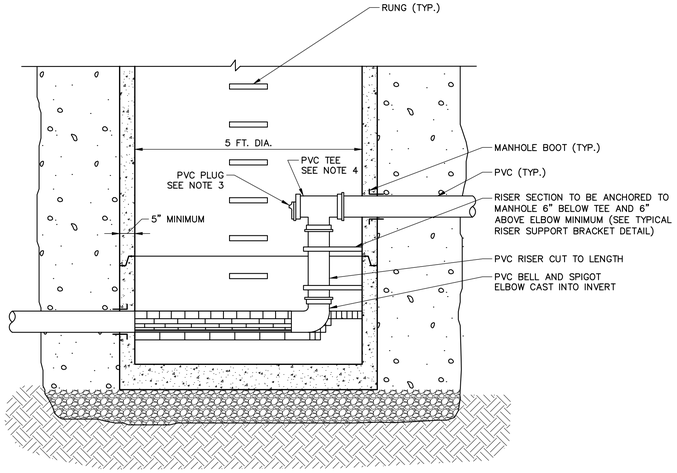
3 C–101 **TYPICAL MANHOLE FRAME FASTENING DETAIL**
N.T.S.

NOTES:

- PROVIDE CAST–IN INSERTS IN PRECAST MANHOLE CONES & FLAT TOPS. LOCATIONS TO MATCH HOLES IN GRADE RING.
- PROVIDE H OF 4" MIN. TO 12" MAX. AS REQUIRED TO BRING FRAME TO FINAL GRADE.
- FOR FRAME ADJUSTMENTS OF LESS THAN 4" USE APPROVED ALTERNATE MANHOLE FRAME AND/OR ATTACH FRAME DIRECTLY TO PRECAST MANHOLE CONE.
- HOLES MAY BE FIELD DRILLED IN PRECAST GRADE RINGS.



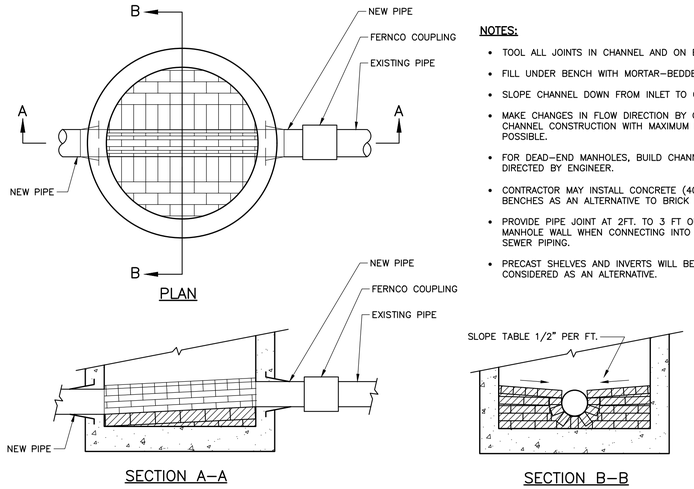
4 C–101 **TYPICAL PRECAST CONCRETE GRADE RING**
N.T.S.



NOTES:

1. SEE PRECAST MANHOLE SECTION FOR TYPICAL MANHOLE INFORMATION, INCLUDING NOTES.
2. PROVIDE DROP PIPE, FOR ALL INVERT DIFFERENTIALS OF 2' OR GREATER OR AS APPROVED BY THE ENGINEER.
3. CUT OFF TOP 1/3 OF PIPE PLUG.
4. INSTALL TEE PRIOR TO FRAME AND COVER BEING INSTALLED

5 C–101 **TYPICAL PRECAST MANHOLE WITH INSIDE DROP**
N.T.S.



NOTES:

- TOOL ALL JOINTS IN CHANNEL AND ON BENCHES.
- FILL UNDER BENCH WITH MORTAR–BEDDED BRICK.
- SLOPE CHANNEL DOWN FROM INLET TO OUTLET.
- MAKE CHANGES IN FLOW DIRECTION BY CIRCULAR CHANNEL CONSTRUCTION WITH MAXIMUM RADIUS POSSIBLE.
- FOR DEAD–END MANHOLES, BUILD CHANNEL AS DIRECTED BY ENGINEER.
- CONTRACTOR MAY INSTALL CONCRETE (4000 PSI) BENCHES AS AN ALTERNATIVE TO BRICK BENCHES.
- PROVIDE PIPE JOINT AT 2FT. TO 3 FT OUTSIDE OF MANHOLE WALL WHEN CONNECTING INTO NEW SEWER PIPING.
- PRECAST SHELVES AND INVERTS WILL BE CONSIDERED AS AN ALTERNATIVE.

6 C–101 **TYPICAL BRICK INVERT**
N.T.S.

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STATE OF MAINE BRENT M. BRIDGES 12167 REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
1	ISSUE FOR BID	11/06/2020

DESIGNED BY: MNK
DRAWN BY: MRC
CHECKED BY: MKC
22964101–C–101, C–104.dwg

CIVIL DETAILS 1

STATE OF MAINE DEPARTMENT OF TRANSPORTATION

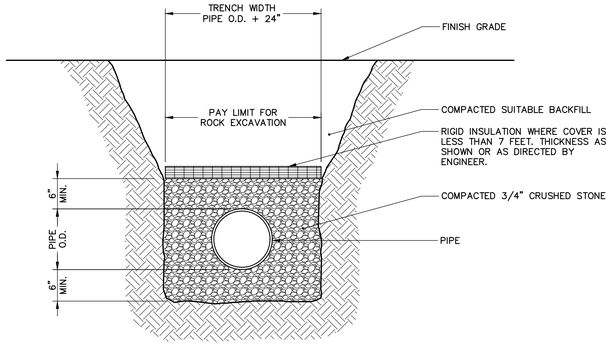
INTERNATIONAL BRIDGE OVER SAINT JOHN RIVER TOWN OF ALLAGASH, MAINE SEWER RELOCATION

JOB NO.: 229641.01
DATE: NOVEMBER, 2020
SCALE: AS NOTED
SHEET: 3 OF 5

C-101

ISSUE FOR BID

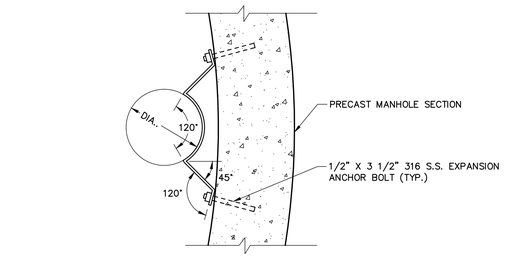
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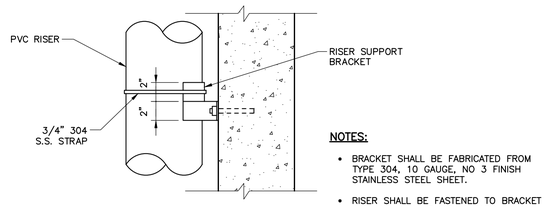
NOTES:

- MAINTAIN UNIFORM TRENCH WIDTH TO 6" OVER PIPE.
- SEE PAVEMENT DETAILS FOR PAVING AND PATCHING REQUIREMENTS AND BACKFIL REQUIREMENTS FOR RAOD WORK AREAS.
- PROVIDE 4" LOAM AND SEED FOR TRENCH IN NON-PAVED AREAS.

7 / C-001 **TYPICAL SEWER MAIN TRENCH**
N.T.S.



PLAN



NOTES:

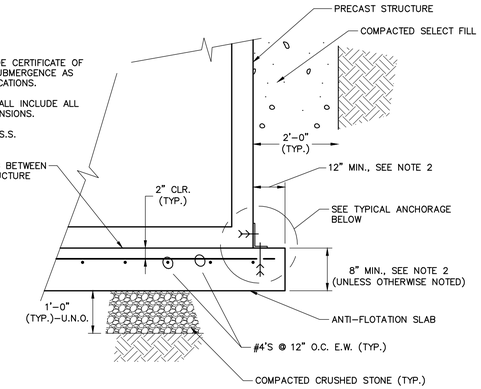
- BRACKET SHALL BE FABRICATED FROM TYPE 304, 10 GAUGE, NO 3 FINISH STAINLESS STEEL SHEET.
- RISER SHALL BE FASTENED TO BRACKET WITH ADJUSTABLE S.S. STRAPS.
- VERTICAL SPACING OF RISER SUPPORTS NOT TO EXCEED 36" WITH A MINIMUM OF TWO BRACKETS & STRAPS PER DROP.

ELEVATION

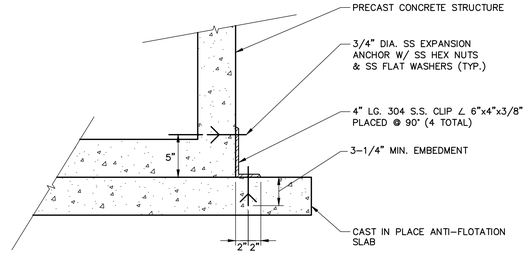
8 / C-101 **TYPICAL RISER SUPPORT BRACKET**
N.T.S.

NOTES:

1. CONTRACTOR SHALL PROVIDE CERTIFICATE OF DESIGN BASED ON FULL SUBMERGENCE AS DESCRIBED IN THE SPECIFICATIONS.
2. CERTIFICATE OF DESIGN SHALL INCLUDE ALL ANTI-FLOTATION SLAB DIMENSIONS.
3. HARDWARE SHALL BE 316 S.S.

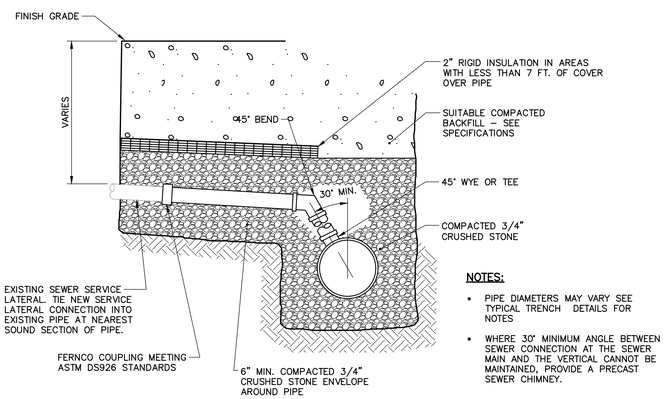


ANTI-FLOTATION SLAB



TYPICAL ANCHORAGE

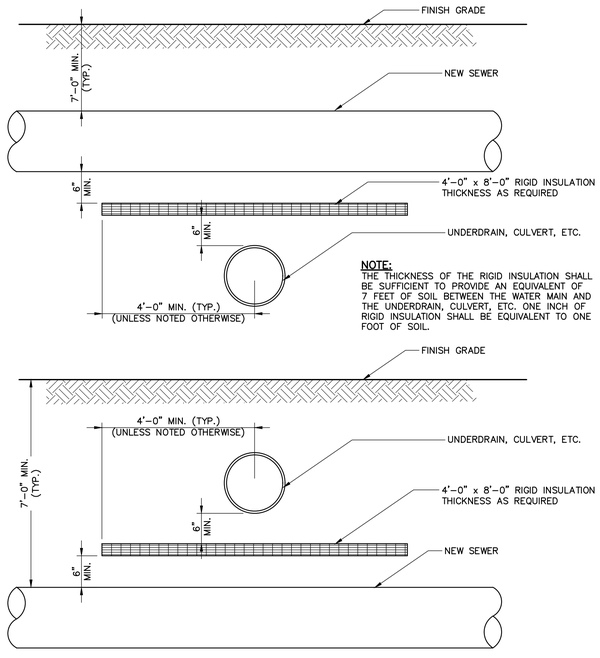
9 / C-102 **TYPICAL ANTI-FLOTATION SLAB DETAIL**
N.T.S.



NOTES:

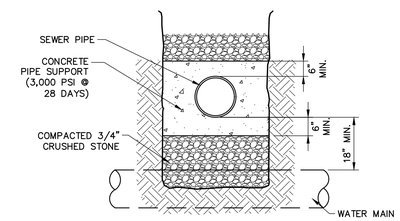
- PIPE DIAMETERS MAY VARY SEE TYPICAL TRENCH DETAILS FOR NOTES.
- WHERE 30° MINIMUM ANGLE BETWEEN SEWER CONNECTION AT THE SEWER MAIN AND THE VERTICAL CANNOT BE MAINTAINED, PROVIDE A PRECAST SEWER CHIMNEY.

10 / C-102 **TYPICAL HORIZONTAL SEWER CONNECTION**
N.T.S.



NOTE:
THE THICKNESS OF THE RIGID INSULATION SHALL BE SUFFICIENT TO PROVIDE AN EQUIVALENT OF 7 FEET OF SOIL BETWEEN THE WATER MAIN AND THE UNDERDRAIN, CULVERT, ETC. ONE INCH OF RIGID INSULATION SHALL BE EQUIVALENT TO ONE FOOT OF SOIL.

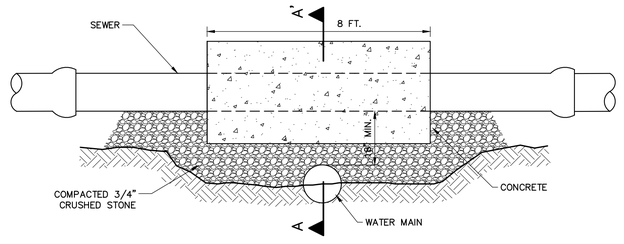
11 / C-102 **TYPICAL PIPE CROSSING INSULATION**
N.T.S.



NOTES:

1. SEWER PIPE SHALL BE CENTERED OVER WATER MAIN SO THAT THE JOINTS ARE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN.
2. SEWER PIPE SHALL BE WRAPPED WITH POLYETHYLENE PRIOR TO PLACEMENT OF CONCRETE.

SECTION A-A'



12 / C-102 **CONCRETE PIPE SUPPORT FOR SEWER MAINS CROSSING ABOVE WATER MAINS**
N.T.S.

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80 Exchange Street, Suite 400
Bangor, Maine 04401
800. 564.2333 | www.woodardcurran.com

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BRENT M. BRIDGES 4/7/2021 STATE OF MAINE REGISTERED PROFESSIONAL ENGINEER

REV.	DESCRIPTION	DATE
1	ISSUE FOR BID	11/06/2020

DESIGNED BY: MNK
DRAWN BY: MRC
CHECKED BY: MKC
2296410-C-101, C-104.dwg

CIVIL DETAILS 2

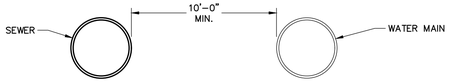
STATE OF MAINE DEPARTMENT OF TRANSPORTATION

INTERNATIONAL BRIDGE
OVER SAINT JOHN RIVER
TOWN OF JAMES SKA,
MAINE SEWER
RELOCATION

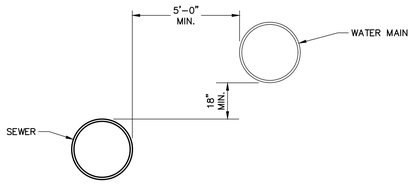
JOB NO.: 229641.01
DATE: NOVEMBER, 2020
SCALE: AS NOTED
SHEET: 4 OF 5

C-102

\\wc\shared\Projects\0231263.04 Madawaska MDOT Sewer Relocate\wip\Drawings\Civil\2296410-C-101_C-104.dwg, Nov 05, 2020 - 8:02am



NORMAL CONDITIONS
PARALLEL INSTALLATION



UNUSUAL CONDITION
PARALLEL INSTALLATION

NOTES:

THE SEPARATION OF WATER MAINS AND SEWERS SHALL COMPLY WITH THE MAINE DEPARTMENT OF HUMAN SERVICES DIVISION OF HEALTH ENGINEERING REQUIREMENTS AS OUTLINED IN "SEPARATION OF WATER MAINS, SEWERS, STORM DRAINS, AND UNDER DRAINS", LAST REVISED MARCH 4, 2013 (SOP ID: DWP0096-A) WHICH ARE GENERALLY AS FOLLOWS:

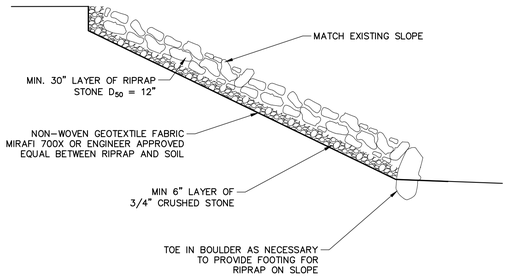
A. PARALLEL INSTALLATION:

1. NORMAL CONDITIONS: THE INSIDE EDGE OF A WATER MAIN SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM THE INSIDE EDGE OF ANY SANITARY SEWER, STORM SEWER OR SEWER MANHOLE.
2. UNUSUAL CONDITIONS: WHEN LOCAL CONDITIONS PREVENT A HORIZONTAL SEPARATION OF 10 FEET, THE INSIDE EDGE OF A WATER MAIN MAY BE LAID A MINIMUM OF 5 FEET FROM THE INSIDE EDGE OF A SEWER PROVIDED THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES HIGHER THAN THE TOP OF THE SEWER (SEE DETAIL).

B. CROSSINGS:

1. NORMAL CONDITIONS: WHENEVER POSSIBLE, THE BOTTOM OF THE WATER MAIN SHALL BE AT LEAST 18 INCHES HIGHER THAN THE TOP OF THE SEWER.
2. UNUSUAL CONDITIONS: IF A WATER MAIN MUST CROSS UNDER A SEWER, THE TOP OF THE WATER MAIN SHALL BE AT LEAST 18 INCHES LOWER THAN THE BOTTOM OF THE SEWER, THE WATER MAIN PIPE SHALL BE CENTERED AT THE CROSSING SO THAT THE JOINTS ARE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER TO PREVENT EXCESSIVE DEFLECTION OF THE SEWER AT THE CROSSING.

13 C-103 MINIMUM WATER AND SEWER PIPE SEPARATION DETAIL
N.T.S.



14 C-104 RIP RAP SLOPE PROTECTION DETAIL
N.T.S.

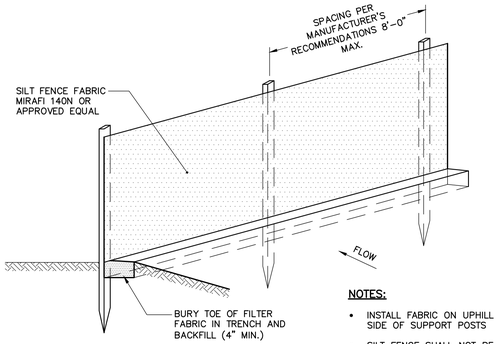
1. PRIOR TO THE START OF GRADING, SEDIMENT BARRIERS WILL BE INSTALLED AS SHOWN ALONG ALL AREAS TO BE DISTURBED.
2. ALL DISTURBED AREAS WILL BE STABILIZED WITHIN 15 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL.
3. ALL AREAS GRADED OR OTHERWISE DISTURBED OUTSIDE PAVED, OR GRAVELED AREAS WILL BE MULCHED AND SEEDED FOR PERMANENT GRASS COVER. SEED MIX AS LISTED BELOW, SHALL BE USED.

SEED	LB/ACRE	LB/1000FT2
CREEPING RED FESCUE	20	0.46
TALL FESCUE	20	0.46
RED TOP	2	0.05
TOTAL	42	0.97

4. ANY AREA NOT SEEDED BY SEPTEMBER 1 SHOULD BE DORMANT SEEDED WITH MULCH AFTER THE FIRST KILLING FROST. SEEDING RATES SHOULD BE DOUBLED FOR DORMANT SEEDING. IF ANY SEEDING CANNOT BE ACCOMPLISHED BY OCTOBER 15, TEMPORARY MULCHING WILL BE APPLIED UNTIL THE NEXT GROWING SEASON. HAY OR STRAW MULCH ANCHORED WITH NETTING WILL BE APPLIED AT A RATE OF 90-100 BALES PER ACRE.
5. NO FLOW SHALL BE ALLOWED IN ANY SWALES UNTIL SOIL IS STABILIZED WITH VEGETATION.
6. AFTER THE ENTIRE AREA IS STABILIZED WITH PERMANENT VEGETATION, ALL TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED.
7. ALL PAVED AREAS WILL BE SWEPT AS NECESSARY TO REDUCE DUST AND TRACKING. ALL TEMPORARY EROSION MEASURES, INCLUDING SEDIMENT BARRIERS, STONE CHECK DAMS AND MULCH WILL BE INSPECTED AND REPAIRED AS NECESSARY AFTER EVERY SIGNIFICANT RAINFALL. PERMANENT MEASURES WILL BE INSPECTED AFTER SIGNIFICANT RAINFALL UNTIL THEY ARE FULLY STABILIZED.

MAINE E&SC HANDBOOK - "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES". DEPT. OF ENVIRONMENTAL PROTECTION, LATEST EDITION.

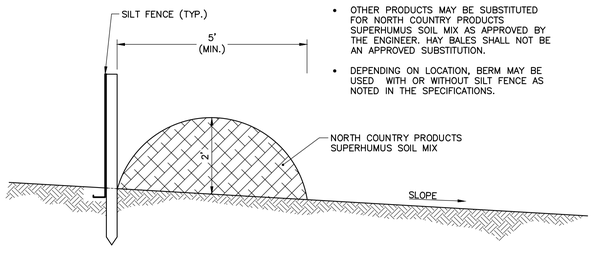
15 C-104 EROSION CONTROL NOTES
N.T.S.



NOTES:

- INSTALL FABRIC ON UPHILL SIDE OF SUPPORT POSTS
- SILT FENCE SHALL NOT BE USED IN DRAINAGE WAYS

16 C-104 TYPICAL SILTATION FENCE DETAIL
N.T.S.



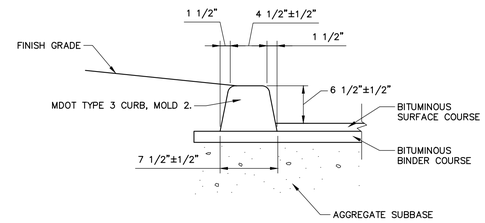
NOTES:

- CONSTRUCT CONTINUOUS SOIL MIX BERM
- OTHER PRODUCTS MAY BE SUBSTITUTED FOR NORTH COUNTRY PRODUCTS SUPERHUMUS SOIL MIX AS APPROVED BY THE ENGINEER. HAY BALES SHALL NOT BE AN APPROVED SUBSTITUTION.
- DEPENDING ON LOCATION, BERM MAY BE USED WITH OR WITHOUT SILT FENCE AS NOTED IN THE SPECIFICATIONS.

17 C-104 TYPICAL SILTATION FENCE WITH SEDIMENT BARRIER DETAIL
N.T.S.

NOTES:

1. TACK ALL JOINT SURFACES PRIOR TO INSTALLATION.
2. MATCH CURB TYPE/SHAPE TO DIMENSIONS TO MATCH EXISTING IN PIPE TRENCH AREAS.



18 C-103 TYPICAL BITUMINOUS CURB
N.T.S.

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STATE OF MAINE
BRENT M. BRIDGES
3/4/2021
REGISTERED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
1	ISSUE FOR BID	11/06/2020

DESIGNED BY: MNK
DRAWN BY: MRC
CHECKED BY: MKC
229641101-C-101_C-104.dwg

CIVIL DETAILS 3

STATE OF MAINE DEPARTMENT OF TRANSPORTATION

INTERNATIONAL BRIDGE
OVER SAINT JOHN RIVER
TOWN OF ST. JOHN/VAL, MAINE SEWER RELOCATION

JOB NO.: 229641.01
DATE: NOVEMBER, 2020
SCALE: AS NOTED
SHEET: 5 OF 5

C-103

ISSUE FOR BID

\\wc\shared\Projects\023263.04 Madawaska MDOT Sewer Relocate\wip\Drawings\Civil\229641101-C-101_C-104.dwg, Nov 05, 2020 - 8:02am

DEPARTMENT OF TRANSPORTATION AND INFRASTRUCTURE - DESIGN BRANCH

DETAIL PLANS FOR THE CONSTRUCTION OF

RELOCATION OF MUNICIPAL SERVICES

~ Edmundston - Madawaska International Bridge ~

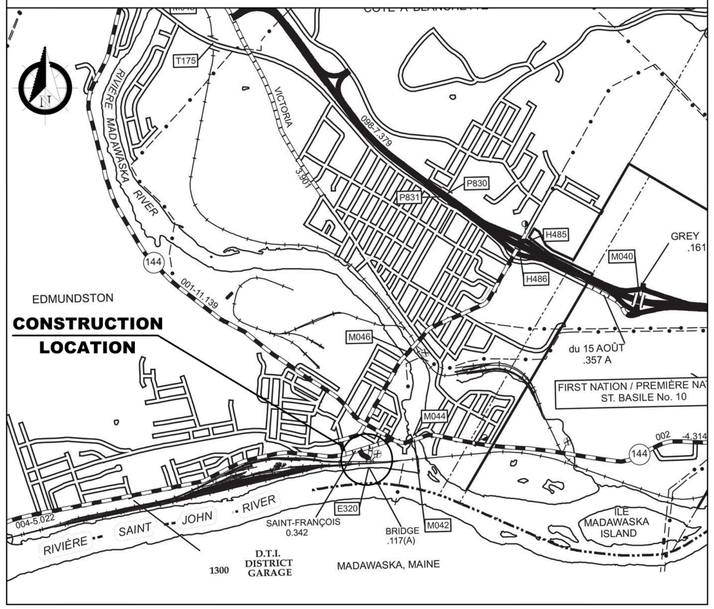
City Of Edmundston

MADAWASKA COUNTY

MaineDOT CONTRACT No. WIN 021736.00

exp Services Inc.
t: +1.506.452.9000 | f: +1.506.459.3954
1133 Regent Street, Suite 300
Fredericton, NB E3B 3Z2
CANADA
www.exp.com

LOCATION PLAN



DESIGN CRITERIA

- TRANSPORT CANADA - PIPELINE CROSSING STANDARDS (TC E-10)
- TRAIN LIVE LOAD IS COOPER E90 (SHORING SYSTEM)
- ALL DIMENSIONS ARE EXPRESSED IN MILLIMETRES.
- ALL STATIONS AND ELEVATIONS ARE EXPRESSED IN METRES.
- CO-ORDINATE SYSTEM - NAD83 (CSRS)
  NEW BRUNSWICK STEREOGRAPHIC DOUBLE PROJECTION.
- ELEVATIONS - GEODETIC CGVD28

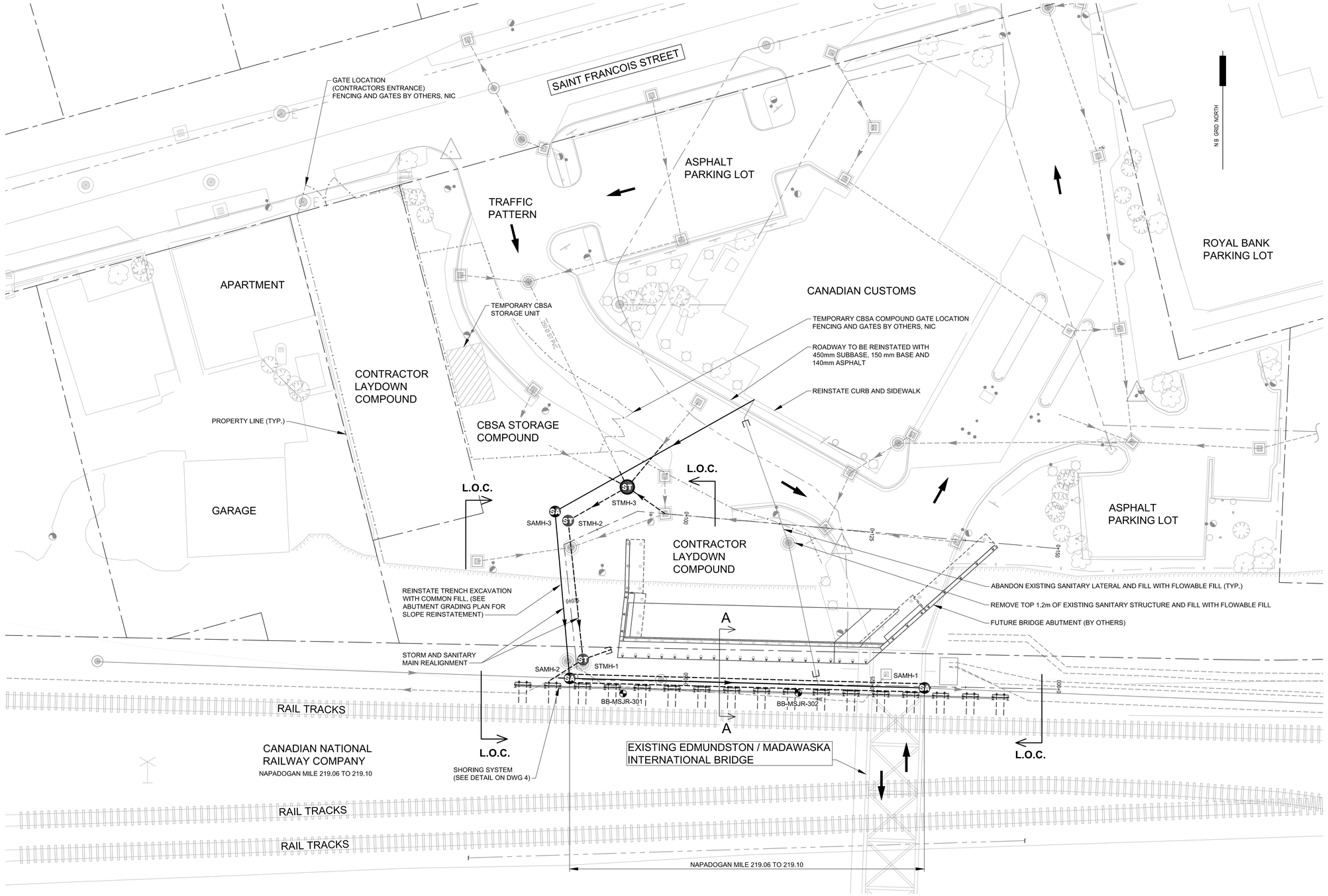
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PLAN AND PROFILE	2
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SHORING WALL DETAILS	4
SANITARY MAIN SECTIONS	5
SPECIFICATIONS	6
BORING LOGS	7

M:\FRE-00246635-A0\50 PROJECT EXECUTION\01 CAD\CONTRACT - BRIDGE PREP\1 - OVERALL PLAN

ADAM GENEAU

PIPELINE OWNED BY:
THE CITY OF EDMUNDSTON
75 MORNEAULT STREET,
EDMUNDSTON
PHONE: (506) 739-2103



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No.	Issue	Date

LEGEND:

PROPOSED:	EXISTING:
SA	SANITARY MANHOLE
ST	STORM MANHOLE
	CATCH BASIN
	SANITARY PIPE
	STORM PIPE
	CAP/PLUG
	UNDERGROUND ELECTRICAL
	ACCENT LIGHT POST
	STREET LAMP POST
	CONCRETE POST WITH RECEPTACLE
	FIRE HYDRANT
	WATER VALVE
	SIGN
	BOLLARD
	DRAIN OUTLET
	FLAG
	FENCE
	TREE / SHRUB
	BOREHOLE
	CONTROL POINT

No.	Revision	Date
0	RELEASED FOR CONSTRUCTION	2020.NOV.16

RELEASED FOR CONSTRUCTION

Professional Seal:
REGISTERED PROFESSIONAL ENGINEER
Province of New Brunswick
M7222
Steven E. Wetmore
Signature
2020-11-18
Date
Province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ

Drawn By:	ETL
Dwg Standards Ckd By:	
Designed By:	ETL/STWD
Design Checked By:	
Scale:	1:250

Project Title

RELOCATION OF MUNICIPAL SERVICES EDMUNDSTON - MADAWASKA INTERNATIONAL BRIDGE

Dwg. Title

OVERALL PLAN

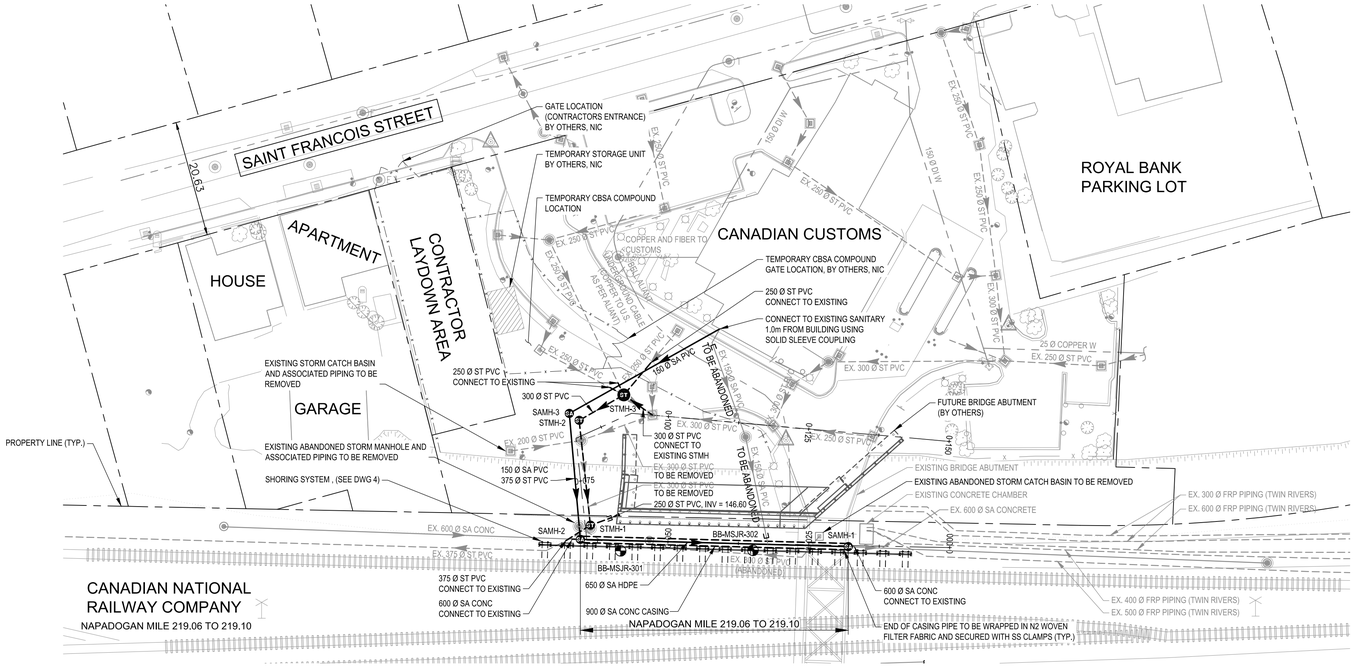
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THE CITY OF EDMUNDSTON
75 MORNEAULT STREET,
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PHONE: (506) 739-2103



PLAN
1 : 500

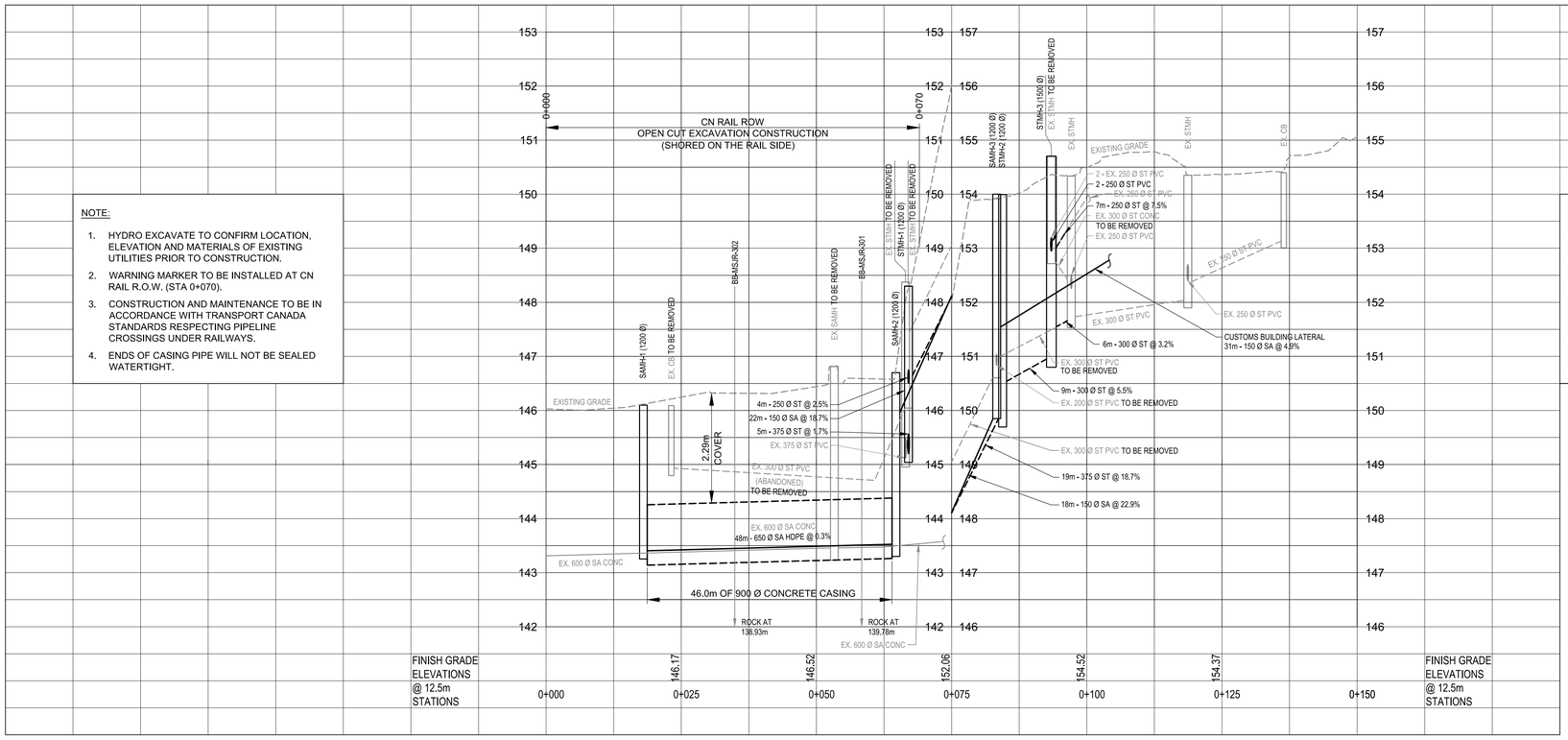
PROPOSED STORM STRUCTURE TABLE						
STRUCTURE NAME	SIZE (Ø)	TOP FRAME & COVER / GRATE	INV. IN (FROM)	INV. OUT (TO)	NORTHING	EASTING
STMH-1	1200	148.30	146.50 (STMH-2) 146.50 (STUB)	145.20 (EX. 375 Ø ST PVC)	7597367.492	2361835.992
STMH-2	1200	153.99	150.50 (STMH-3)	150.00 (STMH-1)	7597386.093	2361833.991
STMH-3	1500	154.70	151.50 (EX. STMH) 152.87 (EX. 250 Ø ST PVC) 152.95 (EX. 250 Ø ST PVC) 152.95 (EX. 250 Ø ST PVC)	151.00 (STMH-2)	7597390.605	2361841.917

PROPOSED SANITARY STRUCTURE TABLE						
STRUCTURE NAME	SIZE (Ø)	TOP FRAME & COVER / GRATE	INV. IN (FROM)	INV. OUT (TO)	NORTHING	EASTING
SAMH-1	1200	146.10	143.40 (SAMH-2)	143.40 (EX. 600 Ø SA CONC)	7597363.685	2361881.743
SAMH-2	1200	146.70	145.80 (SAMH-3) 143.45 (EX. 600 Ø SA CONC)	143.53 (SAMH-1)	7597364.970	2361834.200
SAMH-3	1200	154.00	151.50 (BLDG)	150.00 (SAMH-2)	7597387.321	2361832.240

NOTE:
SAMH-3 TO HAVE DROP MANHOLE STYLE BENCHING, 20° MINIMUM TO OUTLET.

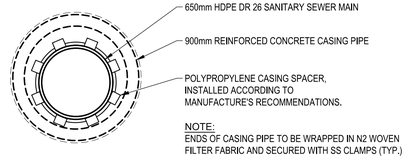
NOTE:

1. HYDRO EXCAVATE TO CONFIRM LOCATION, ELEVATION AND MATERIALS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. WARNING MARKER TO BE INSTALLED AT CN RAIL R.O.W. (STA 0+070).
3. CONSTRUCTION AND MAINTENANCE TO BE IN ACCORDANCE WITH TRANSPORT CANADA STANDARDS RESPECTING PIPELINE CROSSINGS UNDER RAILWAYS.
4. ENDS OF CASING PIPE WILL NOT BE SEALED WATERTIGHT.



PROFILE
1:500 HORIZ, 1:50 VERT

CASING PIPE SPECIFICATION:	
OUTSIDE DIA:	1117.60mm
INSIDE DIA:	914.00mm
WALL THICKNESS:	101.60mm
PIPE SPECIFICATION:	CSA A257.1 CSA A257.2 140D
LENGTH:	46.00m
MATERIAL:	CONCRETE
PROTECTION:	NO
CARRIER PIPE SPECIFICATION:	
CONTENTS	SANITARY SEWER
INSIDE DIA:	606.55mm
WALL THICKNESS:	25.40mm
SPECIFICATION:	660mm Ø HDPE DR 26
PROTECTION:	CASING PIPE



CARRIER AND CASING PIPE SECTION
1 : 25

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Fredericton, NB, E3B 3Z2
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No.	Issue	Date

LEGEND:

PROPOSED:	EXISTING:	
SA		SANITARY MANHOLE
ST		STORM MANHOLE
		CATCH BASIN
		SANITARY PIPE
		STORM PIPE
		CAP/PLUG
		UNDERGROUND ELECTRICAL
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		STREET LAMP POST
		CONCRETE POST WITH RECEPTACLE
		FIRE HYDRANT
		WATER VALVE
		SIGN
		BOLLARD
		DRAIN OUTLET
		FLAG
		FENCE
		TREE / SHRUB
		BOREHOLE
		CONTROL POINT

No.	Revision	Date
0	RELEASED FOR CONSTRUCTION	2020.NOV.16

RELEASED FOR CONSTRUCTION

Professional Seal:
REGISTERED PROFESSIONAL ENGINEER
Province of New Brunswick
M7222
Steven E. Wetmore
2020-11-18
Date
Province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ

Drawn By:	ETL
Dwg Standards Ckd By:	
Designed By:	ETL/STWD
Design Checked By:	
Scale:	AS SHOWN

Project Title
RELOCATION OF MUNICIPAL SERVICES
EDMUNDSTON - MADAWASKA INTERNATIONAL BRIDGE

Dwg. Title
PLAN AND PROFILE

Project No.
FRE-00246635-A0

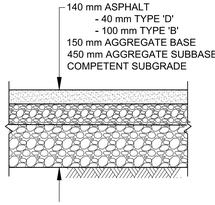
Dwg. No.
2

Rev. No.
0

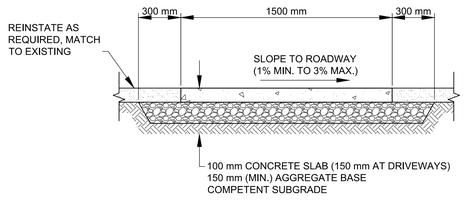
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ADAM GENEAU
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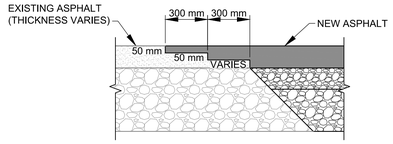
M:\FRE-00246635-A0\02 PROJECT EXECUTION\03 CAD\CONTR - BRIDGE PREPS - SECTIONS AND DETAILS
ADAM GENEAU
11/18/2020 2:14 PM



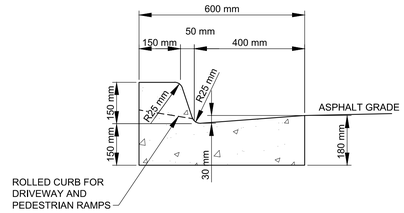
ASPHALT PARKING LOT SECTION
1 : 20



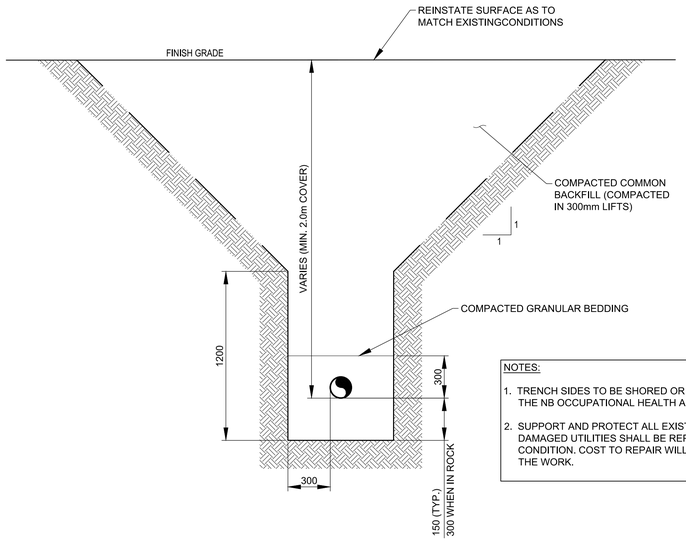
CONCRETE SIDEWALK SECTION
1 : 20



ASPHALT MILLING SECTION
1 : 20



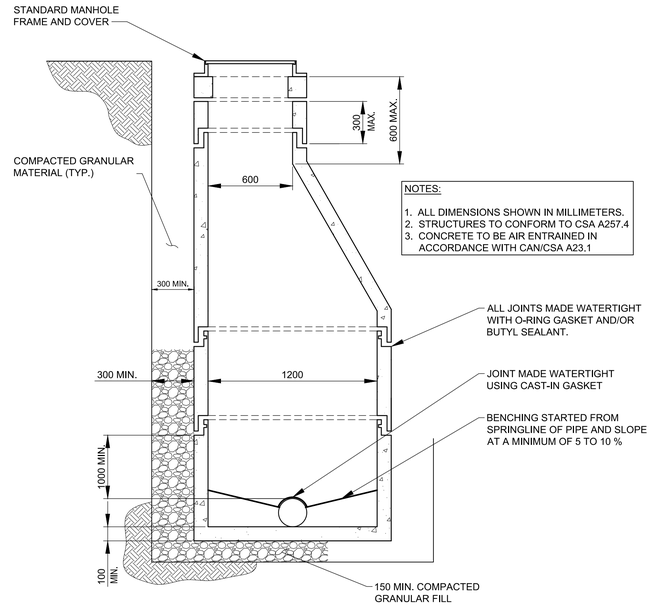
CONCRETE CURB SECTION
1 : 10



NOTES:

1. TRENCH SIDES TO BE SHORED OR SLOPED IN ACCORDANCE WITH THE NB OCCUPATIONAL HEALTH AND SAFETY ACT.
2. SUPPORT AND PROTECT ALL EXISTING INFRASTRUCTURE. ALL DAMAGED UTILITIES SHALL BE REPAIRED TO ORIGINAL OR BETTER CONDITION. COST TO REPAIR WILL BE CONSIDERED INCIDENTAL TO THE WORK.

PIPE TRENCH EXCAVATION SECTION
1 : 20



NOTES:

1. ALL DIMENSIONS SHOWN IN MILLIMETERS.
2. STRUCTURES TO CONFORM TO CSA A257.4
3. CONCRETE TO BE AIR ENTRAINED IN ACCORDANCE WITH CAN/CSA A23.1

STORM / SANITARY MANHOLE SECTION
1 : 20

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RELEASED FOR CONSTRUCTION

Professional Seal/Sceau



Drawn By:	ETL
Dwg Standards Ckd By:	
Designed By:	ETL/STWD
Design Checked By:	
Scale:	AS SHOWN

Project Title

RELOCATION OF MUNICIPAL SERVICES
EDMUNDSTON - MADAWASKA INTERNATIONAL BRIDGE

Dwg. Title

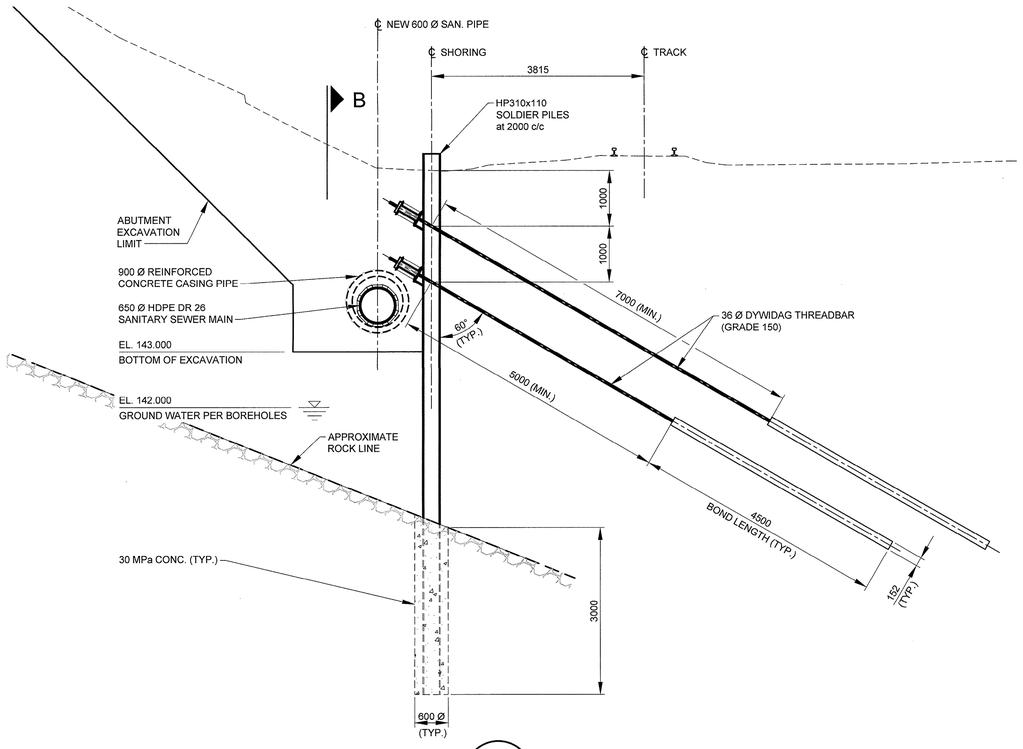
SECTIONS AND DETAILS

Project No. FRE-00246635-A0

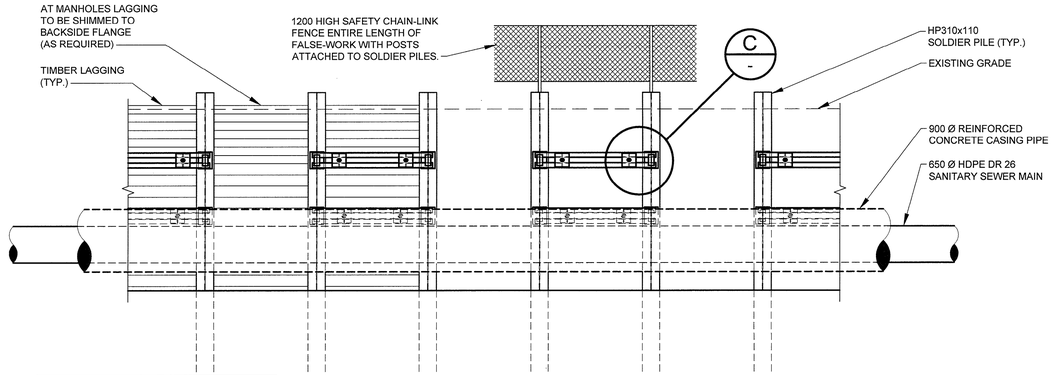
Dwg. No. **3**

Rev. No. 0

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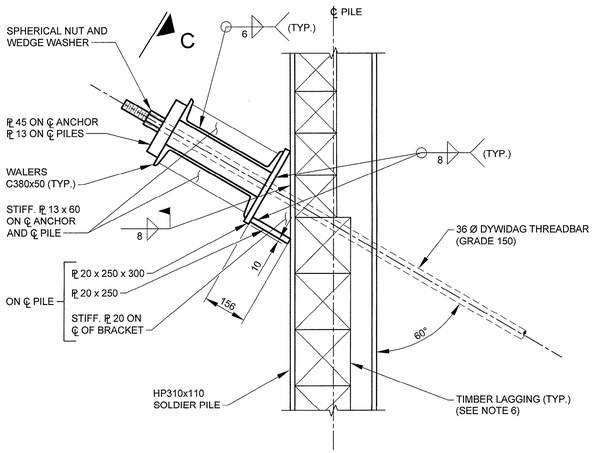
SECTION A
1:50



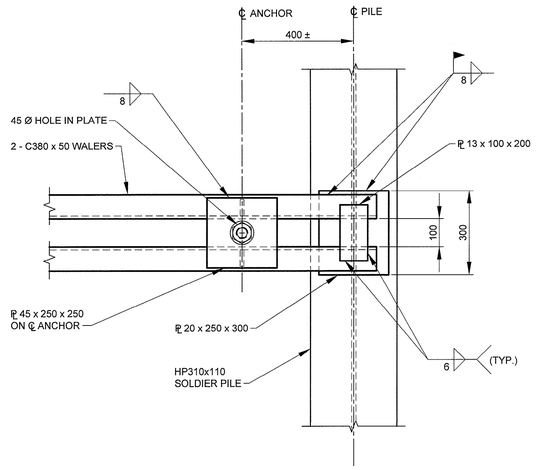
NOTES:

1. ALL TIMBER LAGGING NOT SHOWN FOR CLARITY
2. SOLDIER PILE LAYOUT AND ANCHOR ARRANGEMENT TO BE SUCH THAT MUNICIPAL INFRASTRUCTURE INTERFERENCE IS AVOIDED.

SECTION 'B'
1:50



TYPICAL ANCHOR DETAIL
1:10



DETAIL 'C'
1:10

CONSTRUCTION PROCEDURE FOR SOLDIER PILES, LAGGING AND TIE BACK ANCHORS:

1. DRILL HOLES TO SIZE AND DEPTH SHOWN, INSTALL PILES, ALIGN AND CAST CONCRETE TOES WHERE SHOWN.
2. WHEN CONCRETE IN TOES HAS SET (30MPa), FILL VOID AROUND PILES TO GRADE WITH 0.5MPa MATERIAL.
3. EXCAVATE IN 1200 LIFTS AND INSTALL LAGGING. EXCAVATE SOIL FACES NEATLY TO ENSURE A TIGHT FIT FOR LAGGING. WEDGE AT PILE AS NECESSARY, PACK ALL VOIDS BEHIND LAGGING WITH GRANULAR MATERIAL RAMMED INTO PLACE.
4. WHEN EXCAVATION REACHES 300 MAX. BELOW ANCHOR ELEVATION NOTED, DRILL AND INSTALL ANCHORS. DO NOT FURTHER EXCAVATE BELOW ANCHOR ELEVATIONS UNTIL ALL ANCHORS ARE STRESSED AND LOAD LOCKED IN. ALL ANCHORS SHALL BE PROOF TESTED TO 1.33 TIMES DESIGN LOAD AND IF NO CREEP OCCURS WITHIN 30 MINUTES, THE LOAD SHALL BE REDUCED TO 1.1 TIMES DESIGN LOADS AND LOCKED IN. A NORMAL LOAD SHALL BE USED TO STRESS ALL HORIZONTAL ANCHORS IN ORDER TO DRAW OUT ANY SLACK IN THESE ANCHORS.
5. REPEAT OPERATION 3 AND 4 TO THE NEXT STAGE EXCAVATION LEVEL.
6. DO NOT EXCAVATE BELOW TIE-BACK ELEVATIONS UNTIL ALL ANCHORS ARE STRESSED AND LOAD LOCKED IN.
7. TIMBER LAGGING TO BE REMOVED DURING BACKFILLING.
8. SHORING TO BE CUT AND REMOVED TO A MINIMUM OF 600 BELOW GRADE.
9. SHORING REMOVAL SHALL FOLLOW EXCAVATION PROCEDURE NOTED ABOVE IN NOTES 1 THRU 5 IN REVERSE ORDER.

DESIGN LOADING:

1. SHORING DESIGNED IN ACCORDANCE WITH CN'S 'TRACK PROTECTION SYSTEM DESIGN LOAD DIAGRAMS', DATED NOVEMBER 22, 2011.

   K_o = 0.50
   K_a = 0.33
   K_p = 3.00
   γ = 22 kN/m³

2. THE TOTAL FORCE PER METRE WIDTH OF SHORING IS A FOLLOWS:

   LATERAL EARTH PRESSURE - 88.4 kN/m
   E-90 ON TRACK - 74.0 kN/m

NOTES:

1. STRUCTURAL STEEL FOR PILES, WALERS AND BRACKETS SHALL BE GRADE 350W ACCORDING TO CSA G40.21-13.
2. CONCRETE SHALL BE 30 MPa IN SOLDIER PILE TOES, AND 30 MPa WITHIN BOND LENGTH OF TIE-BACK ANCHORS. BENTONITE CONCRETE SHALL BE USED WITHIN FREE STRESSING LENGTH OF ANCHORS. HOLES FOR PILES AT LOCATIONS WITHOUT WALERS SHALL BE FILLED WITH 0.5 MPa CONCRETE.
3. TIE BACK ANCHORS SHALL BE 36 Ø GRADE 1034 MPa (150ksi) HIGH STRENGTH 'DYWIDAG' THREADED BAR (OR APPROVED EQUIVALENT) TO ASTM A722/A772M-07 AND SHALL HAVE A MINIMUM BOND LENGTH OF 4500. INSTALL AND GROUT AS PER MANUFACTURER'S SPECIFICATIONS.
4. ANCHOR DESIGN LOAD:

   TOP ANCHORS - 145 kN / ANCHOR
   BOTTOM ANCHORS - 200 kN / ANCHOR

5. TIMBER LAGGING SHALL BE SPECIES (S-P-F), BEAMS AND STRINGERS GRADE NO. 1 OR BETTER.
6. MINIMUM TIMBER LAGGING SIZE:

   200 x 200 U.N.O.
   150 x 150 (FIRST 1m OF EXCAVATION)

7. WELDING SHALL BE IN ACCORDANCE WITH CSA W59-13.
8. STEEL H PILE SPLICES SHALL BE IN ACCORDANCE WITH ITEM 311.4 STEEL H PILES OF THE NEW BRUNSWICK DEPARTMENT OF TRANSPORTATION AND INFRASTRUCTURE STANDARD SPECIFICATIONS.
9. THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, AT LEAST 14 DAYS IN ADVANCE OF THE WORK, A DETAILED DESCRIPTION AND DRAWINGS OF THE PROPOSED INSTALLATION SYSTEM.
10. ROCK SOCKET SHALL BE OF THE MACHINE DRILLED TYPE, INSTALLED BY MEANS OF POWER DRIVEN ROTARY BUCKET OR AUGER OR CHURN DRILLS.
11. THE EXPECTED DEPTH AND ELEVATIONS AT WHICH SATISFACTORY BEARING MATERIAL MAY BE ENCOUNTERED ARE NOTED ON THE PLANS. IF SATISFACTORY FOUNDATION MATERIALS ARE NOT ENCOUNTERED AT THE PLANNED ELEVATIONS, THE BOTTOM ELEVATION OF THE PILES SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER.
12. THE SOCKETS SHALL BE THOROUGHLY CLEANED TO REMOVE ALL LOOSE MATERIAL AND DELETERIOUS SUBSTANCES PRIOR TO INSPECTION BY THE ENGINEER.

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No.	Issue	Date

No.	Revision	Date
0	RELEASED FOR CONSTRUCTION	2020.NOV.16

RELEASED FOR CONSTRUCTION

Professional Seal(s)

REGISTERED PROFESSIONAL ENGINEER
Province of New Brunswick
M7748
Mitchell D.C. MacFarlane
Signature
2020-Nov-16
Date
Province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ

Drawn By:	AEG
Dwg Standards Ckd By:	
Designed By:	MDM
Design Checked By:	
Scale:	AS SHOWN

Project Title

RELOCATION OF MUNICIPAL SERVICES
EDMUNDSTON - MADAWASKA INTERNATIONAL BRIDGE

Dwg. Title

SHORING WALL DETAILS

Project No. FRE-00246635-A0

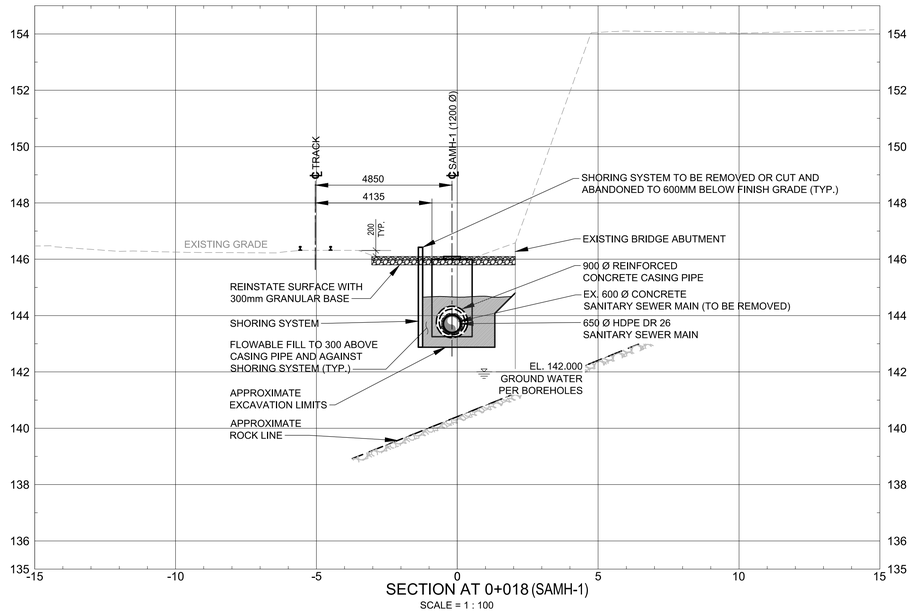
Dwg. No.	Rev. No.
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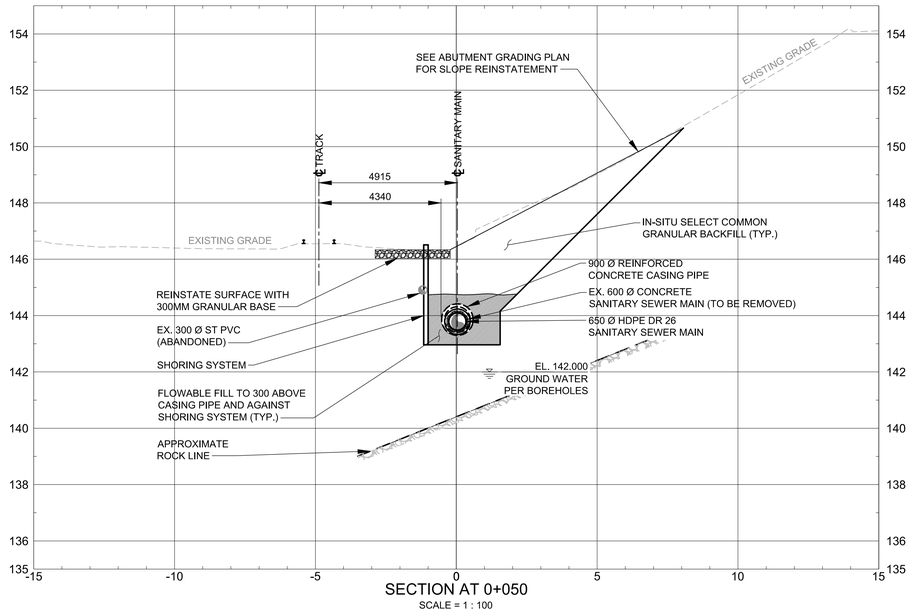
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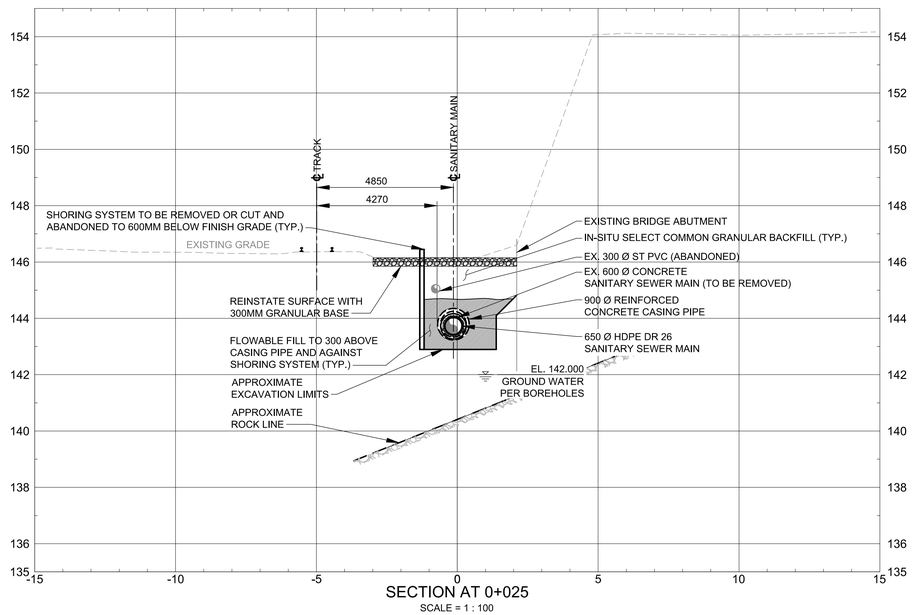
PIPELINE OWNED BY:
THE CITY OF EDMUNDSTON
75 MORNEAULT STREET,
EDMUNDSTON
PHONE: (506) 739-2103



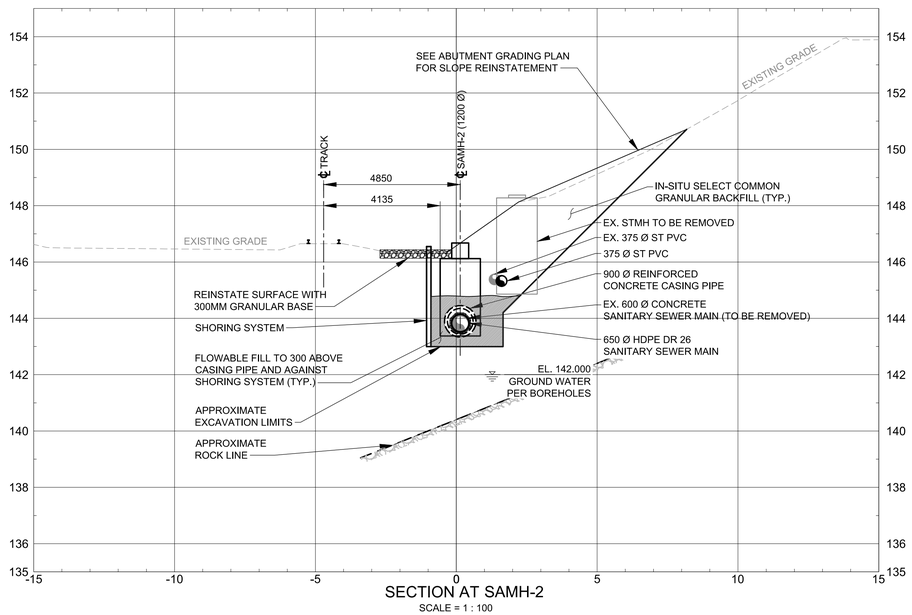
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SCALE = 1 : 100



SECTION AT 0+050
SCALE = 1 : 100



SECTION AT 0+025
SCALE = 1 : 100



SECTION AT SAMH-2
SCALE = 1 : 100

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RELEASED FOR CONSTRUCTION

Professional Seal:
REGISTERED PROFESSIONAL ENGINEER
Province of New Brunswick
M7222
Steven E. Wetmore
2020-11-18
Date
Province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ

Drawn By:	ETL
Dwg Standards Ckd By:	
Designed By:	ETL/STWD
Design Checked By:	
Scale:	AS SHOWN

Project Title

RELOCATION OF MUNICIPAL SERVICES EDMUNDSTON - MADAWASKA INTERNATIONAL BRIDGE

Dwg. Title

SANITARY MAIN SECTIONS

Project No. FRE-00246635-A0

Dwg. No. **5**

Rev. No. 0

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GENERAL NOTES

1. ALL INSTALLATION OF MUNICIPAL SERVICING WORK TO BE COMPLETED IN ACCORDANCE WITH NB DTI SPECIFICATIONS, LATEST EDITION.
2. ELEVATION, SECTION AND DETAIL IDENTIFICATION:

   A / 4-10 - ELEVATION, SECTION OR DETAIL LETTER / NUMBER; DRAWING ON WHICH ELEVATION, SECTION OR DETAIL IS LOCATED
3. PROPERTY LINES SHOWN ARE APPROXIMATE. BUILDING OUTLINES AND SIDE STREETS ARE REFERENCED FROM AERIAL PHOTOGRAPHY AND ARE FOR INFORMATION ONLY.
4. UTILITY POLES / LIGHT POLES ARE TO BE SUPPORTED OR RESTRAINED WHEN EXCAVATION IS WITHIN 4m. COORDINATE WITH LOCAL UTILITY COMPANY.
5. CONTRACTOR TO PROVIDE AND MAINTAIN CONSTRUCTION SIGNAGE NOTIFYING PUBLIC OF CONSTRUCTION ACTIVITIES. CONTRACTOR TO ADDRESS TRAFFIC MANAGEMENT AND / OR SIGNAGE CONCERNS IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER. ALL SIGNAGE TO BE INSPECTED DAILY.
6. CONTRACTOR TO COORDINATE WORK PLAN, SCHEDULE AND CONSTRUCTION EFFORTS WITH THE CITY OF EDMUNDSTON, CANADA CUSTOMS, AND CN RAIL. COORDINATION EFFORTS WILL BE CONSIDERED INCIDENTAL.
7. CONTRACTOR SHALL PHASE CONSTRUCTION AS TO MAINTAIN TRAFFIC TRAVEL LANES, PEDESTRIAN FACILITIES, AND ACCESS TO CANADA CUSTOMS CHECK POINTS AND ACCESS TO MADAWASKA INTERNATIONAL BRIDGE. ROADWAY CLOSURES WILL NOT BE PERMITTED.
8. CONTRACTOR TO SCHEDULE ALL WORK TO MINIMIZE THE DISRUPTION TO EXISTING SERVICES.
9. CONTRACTOR TO PROVIDE NECESSARY EROSION CONTROL MEASURES IN ACCORDANCE WITH NB DTI SPECIFICATIONS, LATEST EDITION. EROSION CONTROL MEASURES SHALL BE MAINTAINED FOR DURATION OF PROJECT.
10. THE CONTRACTOR SHALL CARRY OUT ALL WORK AS INDICATED IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ENGINEER. NO CHANGES TO THE PROJECT SHALL BE MADE WITHOUT THE APPROVAL OF THE ENGINEER.
11. PRIOR TO CONSTRUCTION THE CONTRACTOR MUST:
    - CHECK AND VERIFY ALL EXISTING CONDITIONS, LOCATIONS AND ELEVATIONS WHICH INCLUDE, BUT IS NOT LIMITED TO; BENCHMARK ELEVATIONS, EXISTING SERVICE CONNECTION AND EXISTING INVERTS. ALL DISCREPANCIES TO BE REPORTED TO THE ENGINEER PRIOR TO PROCEEDING. THE LOCATION, ELEVATION AND EXTENT OF ALL UNDERGROUND UTILITIES IS APPROXIMATE.
    - OBTAIN ALL UTILITY LOCATES AND REQUIRED PERMITS AND LICENSES.
    - VERIFY ALL ELEVATIONS COMPLY WITH THE FINAL CONSTRUCTION DRAWINGS.
    - CONFIRM ALL DRAWINGS USED FOR CONSTRUCTION ARE THE MOST RECENT REVISION.
12. RESTRICT VEHICLE ACCESS TO SITE AT CONSTRUCTION ENTRANCES.
13. CONTRACTOR TO PROVIDE DUST CONTROL DURING DRY PERIODS AS DIRECTED BY THE REGULATORY AUTHORITY, OWNER OR ENGINEER.
14. CONTRACTOR RESPONSIBLE TO MAINTAIN CLEAN STREETS DURING PROJECT CONSTRUCTION.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL LINES AND GRADES FOR THE WORK AS SHOWN IN THE CONSTRUCTION DOCUMENTS.
16. ALL EXCAVATION SHALL BE CARRIED OUT IN ACCORDANCE WITH WORKSAFE NEW BRUNSWICK GUIDELINES.

MUNICIPAL SERVICING NOTES

1. VERIFY LOCATIONS OF ALL EXISTING UNDERGROUND CONDUIT LINES AND MUNICIPAL SERVICES AND PROVIDE ADEQUATE PROTECTION AND SUPPORT OF SAME WHEN EXCAVATING UNDER THESE LINES. LOCATIONS OF EXISTING U/G SERVICES ARE APPROXIMATE IN LOCATION AND BASED ON UTILITY LOCATES. ALL SERVICES ARE TO BE TRACED AND VERIFIED AT THE CONTRACTOR'S EXPENSE PRIOR TO THE COMMENCEMENT OF WORK.
2. DEPTH OF COVER ON ALL SANITARY MAINS IS TO BE 2.0m MINIMUM UNLESS OTHERWISE NOTED. ADD INSULATION WHEN MINIMUM DEPTH IS NOT ACHIEVED.
3. WHEN ENCOUNTERED, CONNECTION TO EXISTING SERVICES ARE TO BE MADE WITH SUITABLE SHIELDED ADAPTER COUPLINGS. ALL CONNECTIONS ARE TO BE MADE WATERTIGHT, UNLESS NOTED OTHERWISE OR DIRECTED BY THE CONSULTANT. ALL CONNECTIONS TO EXISTING PVC PIPING TO BE MADE USING SOLID SLEEVE COUPLINGS.
4. ADJUSTABLE FRAME AND COVERS TO BE USED ON SANITARY AND STORM MANHOLES. CATCH BASINS AND STORM MANHOLES IN CURB LINE TO HAVE SQUARE FRAME AND GRATE. ALL 750 Ø STORM SEWER STRUCTURES TO HAVE 600mm SUMP. ALL STORM STRUCTURES LARGER THAN 1200 ARE TO HAVE BENCHING.
5. ANY DAMAGE TO EXISTING MAINS OR SERVICES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT ARE TO BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
6. CONTRACTOR TO VERIFY EXISTING PIPE SIZES, MATERIALS, AND INVERTS PRIOR TO MAKING CONNECTIONS AND INSTALLATIONS OF NEW MAINS.
7. MANHOLES THAT ARE TO BE ABANDONED WHICH ARE NOT TO BE COMPLETELY REMOVED, ARE TO HAVE TOP 1.2m OF STRUCTURE REMOVED , FILLED WITH FLOWABLE FILL AND BACKFILLED TO THE PROPOSED GRADE AS INDICATED. GROUT ABANDONED PIPE ENDS WITH BRICK AND CEMENTITIOUS MORTAR. MAKE WATERTIGHT. ALL PIPING DESIGNATED TO BE ABANDONED 300mm Ø AND LARGER TO BE FILLED WITH FLOWABLE FILL.
8. ALL PIPING AND MANHOLES ADJACENT TO SHORING SYSTEM TO BE BACKFILLED USING A LOW MPA FLOWABLE FILL. FLOWABLE FILL SHALL BE AN UNSHRINKABLE TYPE WITH A COMPRESSIVE STRENGTH OF 1.0 MPA OR LESS AT 28 DAYS.
9. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL, PRIOR TO COMMENCING CONSTRUCTION, FOR ALL MATERIALS TO BE INCORPORATED INTO THE WORK INCLUDING ALL IMPORTED PIPING, MANHOLES, FILL MATERIALS, ETC.
10. DURING CONSTRUCTION TAKE ALL NECESSARY MEASURES TO PREVENT TRENCH WATER FROM ENTERING SANITARY SEWER SYSTEM.
11. SANITARY SEWER MAINS TO BE:
    A) PVC DR28 (WHITE IN COLOR) FOR MAINS LESS THAN 200 Ø.
    B) HDPE DR26 FRO MAINS LARGER THAN 600 Ø.
12. STORM SEWER MAINS TO BE:
    A). PVC DR 35 (GREEN IN COLOR) TO CAN/CSA B182.2-M, ASTM D 3034 AND / OR ASTM F679.
    B). REINFORCED CONCRETE PIPE TO CAN/CSA A257.2, CLASS 65D WITH GASKETED JOINTS.
13. CASING PIPE TO BE REINFORCED CONCRETE PIPE TO CAN/CSA A257.2, CLASS 140D.
14. ALL CATCH BASIN AND MANHOLE STRUCTURE SHALL MEET THE REQUIREMENTS, AND BE CERTIFIED TO CAN/CSA 257.4, ASTM C139, AND/OR C478M.
15. STORM AND SANITARY SEWER MAINS TO BE INSTALLED AT A CONSTANT GRADE USING A LASER LEVEL.
16. ALL NEW STORM AND SANITARY MAINS SHALL BE VIDEO INSPECTED BY THE CONTRACTOR. THE REPORT SHALL BE PROVIDED BY TO THE ENGINEER AND SHALL INCLUDE VIDEO RECORD ON DVD OR USB, OR OTHER ACCEPTABLE FORMAT, APPROPRIATELY MARKED AND DATED, ACCOMPANIED WITH A WRITTEN REPORT.

SURFACE REINSTATEMENT NOTES

1. ALL SURFACES TO BE REINSTATED TO MATCH EXISTING CONDITIONS OR AS NOTED IN CONSTRUCTION DRAWIINGS.
2. REINSTATEMENT OF ANY DAMAGED DRIVEWAYS, WALKWAYS, SIDEWALKS, CURBING, NON-TRAFFIC SIGNAGE, OR LANDSCAPING DUE TO CONSTRUCTION WORK SHALL BE CONSIDERED INCIDENTAL, UNLESS OTHERWISE NOTED.
3. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OFF SITE OF ALL EXISTING ASPHALT, BRICK PAVERS, CURB AND SIDEWALK AS NOTED WITHIN CONSTRUCTION LIMITS.
4. IN AREAS WHERE EXISTING ROADWAY MAY BE DISTURBED, REINSTATE IN ACCORDANCE WITH NB DTI SPECIFICATIONS, LATEST EDITION FOR ROADWAY CONSTRUCTION. PRIOR TO ASPHALT REINSTATEMENT, CUT EXISTING ASPHALT BACK A MINIMUM OF 300MM FROM EXCAVATION TO FORM A STRAIGHT VERTICAL SURFACE, FREE FROM LOOSE OR BROKEN EDGES. MILL A 300MM WIDE KEY-WAY INTO THE EXISTING ASPHALT PRIOR TO PACING NEW ASPHALT.

PIPELINE OWNED BY:
THE CITY OF EDMUNDSTON
75 MORNEAULT STREET,
EDMUNDSTON
PHONE: (506) 739-2103

SANITARY TRUNK MAIN BY-PASS PUMPING NOTES

1. THE CONTRACTOR SHALL PROVIDE A FULLY OPERATIONAL TEMPORARY SEWER BYPASS SYSTEM; OBTAINING REGULATORY APPROVALS FOR THE BYPASS INSTALLATION, REMOVAL AND OPERATION; COMMISSIONING AND DECOMMISSIONING; SPILL PREVENTION AND CLEANUP; AND PROTECTION AS REQUIRED.
2. CONTRACTOR TO MAINTAIN SANITARY IN SERVICE AT ALL TIMES. ESTIMATED SANITARY FLOWS IN EXISTING 600MM Ø CONCRETE ARE POSSIBLE QPEAK = 160.0 L/SEC. FLOW IS ESTIMATED UNDER DRY WEATHER CONDITIONS, SUBSTANTIAL INCREASE TO PEAK FLOW MAY OCCUR UNDER WET WEATHER CONDITIONS.
3. CONTRACTOR TO MAKE PROVISIONS TO HANDLE STORM SEWER FLOWS AT ALL TIMES DURING THE PROJECT.
4. THE CONTRACTOR SHALL PROVIDE A TEMPORARY BY-PASS PUMPING PLAN AND A SPILL RESPONSE PLAN TO THE ENGINEER FOR ACCEPTANCE. CONTRACTOR SHALL NOT PROCURE OR INSTALL TEMPORARY BYPASS SYSTEM, UNTIL THE TEMPORARY BY-PASS PUMPING PLAN, AND THE SPILL RESPONSE PLAN ARE APPROVED BY THE ENGINEER.
5. THE TEMPORARY SEWER BYPASS PLAN SHALL INCLUDE ALL OF THE FOLLOWING:
   - CONFIRMATION THE FLOW RATES WITH THE CITY OF EDMUNDSTON.
   - PROVIDE SIZE AND LOCATION OF THE STAGING AREAS FOR THE PUMPS, SUCTION AND DISCHARGE POINTS, AND BY-PASS PIPE LOCATION.
   - WEATHER MONITORING PLAN.
   - ANTICIPATED DURATION OF THE WORK.
   - SEWER PLUGGING METHOD, LOCATION OF PLUGS, BULKHEADS AND TYPE AND SIZE OF PLUGS OR BULKHEADS.
   - MAXIMUM OPERATING PRESSURE ANTICIPATED IN THE SYSTEM, REGULAR AND MAXIMUM SURGE PRESSURE,
   - BYPASS PIPE MATERIAL, SIZE, PIPE DR, NUMBER OF PIPES AND INSTALLATION METHOD FOR SUCTION, BY-PASS AND DISCHARGE PIPING.
   - TEMPORARY BYPASS PUMP SIZES, CAPACITY, NUMBER OF PUMPS, POWER REQUIREMENTS OF EACH PUMP.
   - STANDBY POWER GENERATORS' SIZE, LOCATION AND FUEL STORAGE AREA.
   - ALL PROVISIONS AND PRECAUTIONS THAT WILL BE TAKEN DURING THE BYPASS OPERATIONS TO PREVENT SEWAGE BACKUPS, OVERFLOWS AND SPILLS.
6. A SITE-SPECIFIC SPILL RESPONSE PLAN SHALL INCLUDE THE FOLLOWING:
   - PROCEDURES FOR NOTIFICATION TO THE CITY OF EDMUNDSTON, CN RAIL AND THE DEPARTMENT OF ENVIRONMENT.
   - MANDATORY REGULATORY REPORTING REQUIREMENTS.
   - PLAN FOR PREVENTING AND MINIMIZING THE SPILL.
   - PLAN FOR CONTAINING THE SPILL AND ADDRESSING THE SOURCE OF THE SPILL.
   - MEASURES TO BE TAKEN TO AVOID OR MITIGATE THE ADVERSE EFFECTS OF THE SPILL ON THE ENVIRONMENT.
7. INSPECT BYPASS PUMPING SYSTEM AS REQUIRED TO ENSURE THAT THE SYSTEM IS WORKING PROPERLY.
8. DURING BYPASSING, NO WASTEWATER SHALL BE LEAKED, DUMPED, OR SPILLED IN OR ONTO ANY AREA OUTSIDE THE EXISTING WASTEWATER SYSTEM.
9. THE BYPASS SYSTEM SHALL NOT BE IN OPERATION UNLESS IT IS MONITORED CONSTANTLY BY THE CONTRACTOR'S EMPLOYEES AT SITE.
10. PROVIDE STANDBY EQUIPMENT READY FOR IMMEDIATE USE IN THE EVENT OF EMERGENCY OR EQUIPMENT BREAKDOWN. ENSURE ALL SEWAGE FROM THE BYPASS PIPES, PUMPS AND FITTINGS IS DISCHARGED TO THE SPECIFIED SANITARY OR COMBINED SEWER. FLUSH THE BYPASS SYSTEM WITH POTABLE WATER BEFORE DISASSEMBLING AND REMOVAL.
11. THE CONTRACTOR SHALL INITIATE BYPASS ONLY IF THERE IS A DRY WEATHER FORECAST IN THE TRUNK SEWER CATCHMENT AREA.
12. RESTORE BYPASS PUMP AREAS TO PRE-BYPASS CONDITION INCLUDING ANY CLEANUP MEASURES NECESSARY DUE TO FUEL, OIL OR SEWAGE LEAKS, ALL CLEANUP MEASURES TAKEN SHALL BE DOCUMENTED.
13. ALL SEWER PLUGS SHALL BE ANCHORED TO A FIXED POINT ABOVE GROUND AT ALL TIMES TO PREVENT THE PLUG BEING WASHED DOWN THE SEWER.
14. WHEN PLUGGING OR BLOCKING IS NO LONGER NEEDED FOR PERFORMANCE AND ACCEPTANCE OF WORK, IT IS TO BE REMOVED IN A MANNER THAT PERMITS THE SEWAGE FLOW TO SLOWLY RETURN TO NORMAL WITHOUT SURGE, TO PREVENT SURCHARGING OR CAUSING OTHER MAJOR DISTURBANCES.

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No.	Issue	Date

No.	Revision	Date
0	RELEASED FOR CONSTRUCTION	2020.NOV.16

RELEASED FOR CONSTRUCTION

Professional Seal:
REGISTERED PROFESSIONAL ENGINEER
Province of New Brunswick
M7222
Steven E. Wetmore
Signature
2020-11-18
Date
Province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ

Drawn By:	ETL
Dwg Standards Ckd By:	
Designed By:	STWD
Design Checked By:	
Scale:	AS SHOWN

Project Title
RELOCATION OF MUNICIPAL SERVICES
EDMUNDSTON - MADAWASKA INTERNATIONAL BRIDGE

Dwg. Title
SPECIFICATIONS

Project No. FRE-00246635-A0

Dwg. No. **6** | Rev. No. 0

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-301
WIN: 021736.00

Driller:	Logan Drilling Group	**Elevation (ft.)**	479.8	**Auger ID/OD:**	4/4.25"
Operator:	Al McGlinchey	**Datum:**	NAVD 88	**Sampler:**	Standard Split-spoon
Logged By:	L. Niverozzie	**Rig Type:**	CME-55 Track Rig	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	6/10/20 - 6/10/20	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1286776.6, E2184852.6	**Casing ID/OD:**	3/3.5"	**Water Level*:**	12.7'
Hammer Efficiency Factor: 0.789		**Hammer Type:**	Automatic☒ Hydraulic☐ Rope & Cathead☐		

Definitions:
D = Split Spoon Sample
MD = Unconsolidated Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unconsolidated Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unconsolidated Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOBC = Weight of Rods or Casing
WOSP = Weight of Ons Person
q_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$q_{u(Rem)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT Blow/ft
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Skempton Efficiency Factor/60%*N-uncorrected
T_p = Pocket Torvane 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	Ngo	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	4-5-3-3	8	11	SSA	479.5		Top 1": Brown, moist, fine to coarse SAND, some silt, trace gravel, with roots, *(Topsoil)*. 0.3 Bottom 8": Dark brown, moist, medium dense, fine to coarse SAND, some silt, trace gravel, with glass and asphalt fragments, (Fill).	
5	2D	24/12	5.0 - 7.0	5-3-3-3	4	5				Top 5": Brown, dry, fine to coarse SAND, trace gravel, (Fill). Bottom 7": Grey, moist, medium stiff, SILT, trace fine sand, trace wood pieces, (Fill).	
10	3D	24/15	10.0 - 12.0	4-5-6-3	9	12				Grey to brown, moist, medium dense, fine to coarse SAND, some gravel, trace silt, (Till).	
15	4D	24/14	15.0 - 17.0	5-5-3-3	8	11		464.2		Top 8": Grey to black, wet, medium dense, fine to coarse SAND, some silt, some gravel, trace roots, (Till). 15.6 Bottom 6": Grey, wet, medium stiff, SILT, trace fine sand, with wood fragments, trace roots, (Alluvium).	
20	5D	24/16	20.0 - 22.0	5-4-4-3	8	11				Grey, wet, medium dense, fine SAND, little silt, (Alluvium).	
								457.1		22.8	
	6D	1/1	23.5 - 23.6	50/1"	--		NQ	455.8		Brown, wet, very dense, fine to coarse SAND, little silt, some gravel, (Glacial Till). Split spoon refusal at 23.6. Began advancement with NQ barrel.	
25	R1	60/56	24.6 - 29.0	RQD = 73%							

Remarks:

1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured immediately after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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.

Boring No.: BB-MSJR-301

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-301
WIN: 021736.00

Driller:	Logan Drilling Group	**Elevation (ft.)**	479.8	**Auger ID/OD:**	4/4.25"
Operator:	Al McGlinchey	**Datum:**	NAVD 88	**Sampler:**	Standard Split-spoon
Logged By:	L. Niverozzie	**Rig Type:**	CME-55 Track Rig	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	6/10/20 - 6/10/20	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1286776.6, E2184852.6	**Casing ID/OD:**	3/3.5"	**Water Level*:**	12.7'
Hammer Efficiency Factor: 0.789		**Hammer Type:**	Automatic☒ Hydraulic☐ Rope & Cathead☐		

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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOBC = Weight of Rods or Casing
WOSP = Weight of Ons Person
q_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$q_{u(Rem)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT Blow/ft
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Skempton Efficiency Factor/60%*N-uncorrected
T_p = Pocket Torvane 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	Ngo	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25										Increase in resistance during NQ barrel advancement at 24.0'. No recovery in core barrel from 23.6'-24.0' indicates peabolde Glacial till. 24.0	
30	R2	60/60	29.0 - 34.0	RQD = 73%						Set up to core at 24.0'. R1: Hard, fresh to slightly weathered, sphaniitic, grey, SLATE with calcite stringers. Joints are very close, high angle to vertical, planar, smooth, fresh, very tight to tight. One low angle joint at 25.5'. -SANGERVILLE FORMATION- Rock Quality = Fair Recovery = 93% Rock Core Times (min/sec): 24.0-25.0' (0:56), 25.0-26.0' (1:02), 26.0-27.0' (1:11), 27.0-28.0' (1:31), 28.0-29.0' (1:36) R2: Hard, fresh to slightly weathered, sphaniitic, grey, SLATE. Joints are extremely close to moderately spaced, high angle, planar, smooth, fresh to discoloured, very tight to tight, with silt infilling. -SANGERVILLE FORMATION- Rock Quality = Fair Recovery = 100% Rock Core Times (min/sec): 29.0-30.0' (1:53), 30.0-31.0' (1:51), 31.0-32.0' (1:59), 32.0-33.0' (1:07), 33.0-34.0' (1:14)	
35								445.8		34.0 **Bottom of Exploration at 34.0 feet below ground surface.**	
40											
45											
50											

Remarks:

1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
2. Reported water level was measured immediately after casing was removed.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Boring No.: BB-MSJR-301

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-302
WIN: 021736.00

Driller:	Logan Drilling Group	**Elevation (ft.)**	479.6	**Auger ID/OD:**	4/4.25"
Operator:	Al McGlinchey	**Datum:**	NAVD 88	**Sampler:**	Standard Split-spoon
Logged By:	L. Niverozzie	**Rig Type:**	CME-55 Track Rig	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	6/10/20 - 6/11/20	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1286778.9, E2184131.9	**Casing ID/OD:**	3/3.5"	**Water Level*:**	13.6'
Hammer Efficiency Factor: 0.789		**Hammer Type:**	Automatic☒ Hydraulic☐ Rope & Cathead☐		

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WOH = Weight of 140 lb. Hammer
WOBC = Weight of Rods or Casing
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q_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$q_{u(Rem)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (tsf)
N-uncorrected = Raw Field SPT Blow/ft
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = Skempton Efficiency Factor/60%*N-uncorrected
T_p = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
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C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	Ngo	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	6-8-7-6	15	20	SSA			Brown, moist, medium dense, fine to coarse SAND, little gravel, little silt, with roots, and asphalt fragments, (Fill).	
5	2D	24/16	5.0 - 7.0	8-5-3-4	8	11				Brown to black, moist, medium dense, fine to coarse SAND, some silt, some gravel, 3" silt seam from 5.5'-6.3', (Fill).	
10	3D	24/12	10.0 - 12.0	5-6-3-4	9	12				Brown, moist, medium dense, fine to coarse SAND, some gravel, little silt, (Fill).	
15	4D	24/19	15.0 - 17.0	1-2-3-2	5	7		463.9		Top 9": Brown to grey, wet, fine SAND, trace silt, (Fill). 15.7 Bottom 10": Grey to black, wet, medium stiff, SILT, trace fine sand, (Alluvium).	
20	5D	3/3	20.0 - 20.3	50/3"	--			461.1		18.5 Grey, wet, very dense, GRAVEL, some fine sand, (Glacial Till). Split spoon refusal at 20.3. Began advancement with NQ barrel.	
	R1	60/60	21.0 - 26.0	RQD = 78%			NQ	458.6		Increase in resistance during NQ barrel advancement at 21.0'. No recovery in core barrel from 20.3'-21.0' indicates peabolde Glacial till. 21.0 Set up to core at 21.0'. R1: Hard, fresh to slightly weathered, sphaniitic, grey, SLATE. Joints are close to moderately spaced, high angle to vertical, planar, smooth, fresh to discoloured, tight to open, with silt infilling. -SANGERVILLE FORMATION- Rock Quality = Good	
25											

Remarks:

1. Automatic hammer Drilling Group CME 55, SN LDL0000342 Energy Transfer Ratio = 0.789.
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Boring No.: BB-MSJR-302

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: International Bridge Replacement
Bridge Street over St. John River
Location: Madawaska, ME - Edmundston, NB

Boring No.: BB-MSJR-302
WIN: 021736.00

Driller:	Logan Drilling Group	**Elevation (ft.)**	479.6	**Auger ID/OD:**	4/4.25"
Operator:	Al McGlinchey	**Datum:**	NAVD 88	**Sampler:**	Standard Split-spoon
Logged By:	L. Niverozzie	**Rig Type:**	CME-55 Track Rig	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	6/10/20 - 6/11/20	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1286778.9, E2184131.9	**Casing ID/OD:**	3/3.5"	**Water Level*:**	13.6'
Hammer Efficiency Factor: 0.789		**Hammer Type:**	Automatic☒ Hydraulic☐ Rope & Cathead☐		

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WC = Water Content, percent
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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	Ngo	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25										Recovery = 100% Rock Core Times (min/sec): 21.0-22.0' (1:23), 22.0-23.0' (1:10), 23.0-24.0' (1:05), 24.0- 25.0' (1:14), 25.0- 26.0' (1:37) R2: Hard, fresh to slightly weathered, sphaniitic, grey, SLATE. Joints are extremely close to moderately spaced, high angle, planar, smooth, fresh to discoloured, tight. -SANGERVILLE FORMATION- Rock Quality = Good Recovery = 100% Rock Core Times (min/sec): 26.0- 27.0' (1:31), 27.0- 28.0' (1:18), 28.0- 29.0' (1:15), 29.0- 30.0' (1:09), 30.0- 31.0' (1:32)	
30	R2	60/60	26.0 - 31.0	RQD = 85%				448.6		31.0 **Bottom of Exploration at 31.0 feet below ground surface.**	
35											
40											
45											
50											

Remarks:

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Boring No.: BB-MSJR-302

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No.	Issue	Date
1	REVISED BORING LOGS	2020.NOV.18
0	FOR INFORMATION ONLY	2020.NOV.16
No.	Revision	Date

FOR INFORMATION ONLY

Professional Seal(s)

Drawn By:	AEG
Dwg Standards Ckd By:	
Designed By:	----
Design Checked By:	
Scale:	AS SHOWN

Project Title

RELOCATION OF MUNICIPAL SERVICES
EDMUNDSTON - MADAWASKA INTERNATIONAL BRIDGE

Dwg. Title

BORING LOGS

Project No.

FRE-00246635-A0

Dwg. No.	Rev. No.
7	1

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