STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

December 6, 2024
Subject: Puddle Dock Bridge #3107
State WIN: 025299.00
Location: **Albion**
Amendment No. 1

Dear Sir/Ms.:

The following questions have been received:

Please advise on the grate frame and downspout sizes for the "A1" FRP bridge drain scupper. Neither the drawing nor specification call out that particular size.

In the Bid Book:

REMOVE Pages 17 to 22 titled Proposal Schedule of Items dated 11/19/24 and **REPLACE** with the attached revised Proposal Schedule of Items dated 12/6/24

REMOVE Pages 103 to 117 SPECIAL PROVISION – SECTION 502 (Fiber Reinforced Polymer Bridge Drains) dated 8/30/24 and **REPLACE** with the attached revised SPECIAL PROVISION – SECTION 502 (Fiber Reinforced Polymer Bridge Drains) dated 12/2/24.

In the Plan Sheets:

REMOVE from the plan set Sheet 2 ESTIMATED QUANTITIES & GENERAL CONSTRUCTION NOTES dated 11/19/2024 and **REPLACE** with the attached revised Sheet 2 ESTIMATED QUANTITIES & GENERAL CONSTRUCTION NOTES dated 12/3/2024

REMOVE from the plan set Sheet 7 TYPICAL SECTIONS dated 11/18/2024 and **REPLACE** with the attached revised Sheet 7 TYPICAL SECTIONS dated 12/3/2024

REMOVE from the plan set Sheet 28 SUPERSTRUCTURE PLAN & REINFORCING dated 11/18/2024 and **REPLACE** with the attached revised Sheet 28 SUPERSTRUCTURE PLAN & REINFORCING dated 12/3/2024

Consider these changes and information prior to submitting your bid on **December 18, 2024**.

Sincerely,

George M. A. Macdougall P.E.
Contracts & Specifications Engineer

Albion
Puddle Dock Bridge
WIN 025299.00
August 30, 2024
Revised: December 2, 2024

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

Description

This work shall consist of design, fabrication and delivery of bridge drains using FRP (Fiber Reinforced Polymer) composite materials in accordance with the plans and this specification.

Specifications

Work shall be done in general accordance with the following specifications:

a. AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members, 2012.
b. American Composites Manufacturing Association, ACMA Code of Standard Practice, First Edition, 2011.
c. ISO/IEC Guide 58, Calibration and Testing Laboratory Accreditation Systems - General Requirements for Operation and Recognition.
d. ISO/IEC 17025 General Requirements for the Competence of testing and Calibration Laboratories.
e. MaineDOT Standard Specifications.

2.3 Standards

A.) ASTM D 2584. *Standard Test Method for Ignition Loss of Cured Reinforced Resins.* American Society for Testing and Materials, West Conshohocken, PA.

B.) ASTM D 3039. *Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials.* American Society for Testing and Materials, West Conshohocken, PA.

C.) ASTM D 3171. *Standard Test Methods for Constituent Content of Composite Materials.* American Society for Testing and Materials, West Conshohocken, PA.

D.) ASTM D 4385. *Standard Practice for Classifying Visual Defects in Thermosetting Reinforced Plastic Pultruded Products.* American Society for Testing and Materials, West Conshohocken, PA.

E.) ASTM D 570. *Test Method for Water Absorption of Plastics.* American Society for Testing and Materials, West Conshohocken, PA.

F.) ASTM E 1356. *Standard Test Method for Assignment of the Glass Transition Temperatures by Differential Scanning Calorimetry.* American Society for Testing and Materials, West Conshohocken, PA.

G.) ASTM E 1640. *Standard Test Method for Assignment of the Glass Transition Temperature by Dynamic Mechanical Analysis.* American Society for Testing and Materials, West Conshohocken, PA.

H.) ASTM C 582. *Standard Specification for Contact-Mold Reinforced Thermosetting Plastic (RTP) Laminates for Corrosion-Resistant Equipment.* American Society for Testing and Materials, West Conshohocken, PA.

Material

Materials shall conform to the following requirements:

1. FRP composite drain and pipe material shall meet the requirements of Appendix A.

2. All material and workmanship will meet or exceed the requirements of the ASTM Specifications above.

3. Drain support assembly shall meet the material and protective coating requirements specified in the Standard Details.

Construction Requirements

FRP Drain Manufacturers

The FRP bridge drains shall be supplied by one of the following companies:

1. Kenway Corporation
2. FRP Bridge Drain Pipe-Westfall Company
3. ACO USA

The above suppliers have been pre-certified by providing materials samples that have been tested in accordance with Appendix A. Other suppliers/manufacturers may become certified if FRP bridge drain samples are tested in accordance with the requirements in Appendix A along with meeting the following requirements.

All manufactures or fabricators of FRP bridge drain systems/components are required to have a minimum of 3 years of experience in providing FRP composite structural grade products to the general market. Manufacturers need to provide documentation that personnel involved in manufacture/fabrication hold and maintain American Composites Manufactures Association (ACMA) certifications in a minimum of one of the following disciplines; 1) Open Molding, 2) Corrosion, 3) Vacuum Infusion, 4) Closed Molding and that the Manufacturer/Fabricator have an

ISO 9001:(current year) or other independent certification to ensure that the Manufacturer's process has been independently audited for conformance.

Design Guide for FRP Composite Scupper Bodies/Drain Inlets

General

The bridge shall use a drain size specified on the plans. See Appendix B for additional details. The bottom of the downspout shall extend a minimum of 12 inches below the bottom of the beams. For bridge decks with an integral concrete wearing surface, the drain pan depth shall be reduced to provide adequate concrete cover.

Grates

Grates shall be bicycle friendly and designed for HL-93 Live Load unless otherwise specified. Any gaps in grates shall have a maximum clear width of two inches. The minimum clear opening size in any grating shall be 1 1/8" by 1 1/8". Grates shall be stainless steel (ASTM A955) or FRP specifically designed and meeting the HL-93 Live Load requirements.

- Steel grating shall be commercial heavy - duty grating with 1 1/2" x 5/16" bearing bars spaced at 2 3/8" and 3/8" diameter cross bars spaced at 2". The grating shall be centered in the drain top. The bearing bars shall run parallel to traffic.
- FRP grating if used shall provide an opening area at least 75% of steel grating noted above. FRP gratings that do not meet this requirement are not acceptable and shall not be used.

Grates shall be designed so that they can be removed by mechanical means. Fasteners for grates shall be stainless. Where selected grates require orientation to flow, the grates will have orienting features included as required, i.e. for orders of paired drains one drain would have left hand orientation and the other right-hand orientation.

Grate Frames

Grate frames may be either integrated FRP composite or of stainless steel construction attached to the scupper/inlet body in a matter consistent with the physical design parameters.

Anchoring provisions

Scupper/inlet anchoring shall be bonded to the grate framing in a manner that provides a load path into the concrete decking. Anchor details to be specified as part of the shop drawings for the bridge drains and be a non-corrosive material.

Cross and Longitudinal Slope Compensation

The scupper/inlet designs shall provide a means to match the grate to the deck angles while maintaining the downspout in a plumb orientation. If purchased in pairs, one left handed version

will be required for each right handed version. This may be achieved when a down spout portion is bonded to the scupper body, through the frame attachment to the scupper body.

FRP Composite Drain Sections
Bridge deck downspouts, bridge drain deck extensions, elbows and pipe for under drains shall be constructed using a circular cross section; however other cross sections are allowed with approval of the Fabrication Engineer. Drain sections shall comply with the material requirements set forth in Appendix A and maintain wall thickness of no less than 1/4 inch.

FRP Composite Deck Drain Extensions.
Down spout drain extensions shall be integrated and bonded directly to the scupper bodies.

Transitions through Connections and Components.
All transitions and joints to be manufactured through the use of smooth radius molds. Miter joint and edged transitions are not allowed. All internal joint connections are to be smooth and continuous.

Pigmented FRP Composite Drain Components
Pipes, fittings, bodies and all FRP composite drain system components shall be pigmented through the wall. The color used shall match the color of the beams unless otherwise allowed by the Fabrication Engineer. Paint, gel-coat or any other exterior coating shall not be accepted.

Joint Connections
Joints may be welded using manufacturer recommended adhesives in accordance to the adhesive manufacturer's application procedures. Adhesives must be compatible with the FRP resins, applied in a way that ensures complete bonding and liquid tight sealing of the resins, and be compatible with the environmental conditions such as temperature, freeze thaw conditions, and wet alkaline environments.

Shop Drawings/Inspection

Drawings The Contractor shall prepare shop detail, erection and other necessary working drawings in accordance with Section 105.7 - Working Drawings. Drawings shall include dimensions and tolerances necessary for manufacture and installation, all hardware, orienting features, anchor details, fastener details, gasket details, cross and longitudinal matching features, joint details, transition details, and material lay-up/composition

Notice of Beginning Work The Contractor shall give the Fabrication Engineer a minimum of two weeks notice before the beginning of work. No work shall be performed before the Fabrication Engineer has been notified. Before beginning work, a pre-fabrication meeting may be held at the discretion of the Fabrication Engineer or, if requested, by the Contractor.

The Contractor shall advise the Fabrication Engineer of the production schedule and any changes to it. If the Contractor suspends work on a project, the Fabrication Engineer will require 48 hours notice prior to the resumption of work.

Inspection Quality Control (Q.C.) is the responsibility of the Contractor. The Quality Control Inspector (Q.C.I.) shall inspect all aspects of the work and shall supervise all nondestructive examination (NDE). The Q.C.I. shall record measurements and test results in a clear and legible manner. The Q.C.I. shall reject materials and workmanship that do not meet contract requirements. The Contractor may perform NDE in addition to the minimum required. The results of all measurements and testing shall be made available to the Quality Assurance Inspector (Q.A.I.).

Quality Assurance (Q.A.) is the prerogative of the Fabrication Engineer. The Q.A.I. will ensure that the Q.C. Department is performing properly, verify documentation, periodically inspect workmanship and witness NDE. Q.A. testing deemed necessary by the Fabrication Engineer in addition to the minimum testing requirements shall be scheduled to minimize interference with the production schedule.

Inspector's Authority The Q.A.I. will have the authority to reject material or workmanship that does not meet the contract requirements. The acceptance of material or workmanship by the Q.A.I. will not prevent subsequent rejection, if found unacceptable.

Rejections Rejected material and workmanship shall be corrected or replaced by the Contractor.

Bill of Materials The Contractor shall provide the Fabrication Engineer with copies of all bills of materials used in the fabrication of the FRP bridge drains.

Packaging, Storage and Shipping of Components
FRP drains shall be stored and handled in accordance with the manufacturer's recommendation. The drains shall be stored above the ground and not be allowed to come into contact with seawater, mud, grease, dirt or other deleterious materials that may be present on the job site.

Installation
The Contractor shall install the FRP drains in accordance with the manufacturer's installation procedures, Contract Plans, and in accordance with the Contractor's installation drawings. FRP bridge drains will be accurately placed at the locations shown on the Plans or as authorized by the Resident. Adequate means shall be provided for securely holding the drains in place during placement of concrete. Any damaged drain shall be repaired or replaced at the Resident’s discretion and at no additional cost to the Department.

Method of Measurement
FRP Bridge Drains will be measured by the number of units, for fabrication and delivery. Installation for the drains will be incidental to the Structural Concrete Superstructure item.

Basis of Payment

FRP Bridge Drains will be paid for at the contract unit price. Such payment will include compensation for the fabrication and delivery of the drains in accordance with this specification.

Payment will be under:

Pay Item		Pay Unit
502.77	FRP Bridge Drain –Type F	Each

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

APPENDIX A

A.1 Scope
This section specifies the material composition, properties, test requirements and reports that shall be submitted and approved prior to and after product certification of each FRP composite drain component type, e.g. scupper body or pipe component. The manufacturer is responsible for testing using an approved independent lab per section A.5.3. Once certified the approved product may be manufactured with only internal testing provided the manufacturing process and laminate composition do not change. Changes to process and or composition do require additional testing and product certification. The manufacturer shall report the individual test results per section A.5.3. If the strength is less than the required properties certification will not be granted.

A.2 Material/Laminate Composition

A.2.1 Fibers
Fiber sizings and coupling agents shall be compatible with the resin system used to impregnate them.

A.2.2 Matrix Resins
Commercial grades of vinyl ester and epoxy resin systems are permitted provided the finished product meets the material property requirements before and after durability conditioning as set forth in Section A. Styrene is permitted to be added to the polymer resin during processing. Added styrene shall be less than 10 percent by mass of the polymer resin. The amount of styrene, as a mass percentage of the polymer resin, added during processing shall be reported per Section A.5.3.

A.2.3 Fillers and Additives
Commercial grade inorganic fillers such as kaolin clay, calcium carbonate, and alumina tri-hydrate shall not exceed 20 percent by mass of the polymer resin constituent. Commercial grade additives and process-aids, such as release agents, low profile shrink additives, initiators, promoters, hardeners, catalysts, pigments, fire-retardants, and ultra-violet inhibitors are permitted and depend on the processing method. Shrink additives, if used, shall be less than 20 percent by mass of the polymer resin. Commercial grade inorganic or organic non-woven surfacing mats or veils are permitted.

A.2.4 Fiber Content

Fiber content shall be measured by ASTM D 3171 or ASTM D 2584. Fiber content shall be high enough to meet the mechanical property requirements of the FRP system laminate. The manufacturer shall report the fiber content of the end product by volume or by mass in accordance to the method used. If fiber content is not provided by the manufacturer, then the manufacturer shall provide material data sheets with the weight per unit area of the fiber reinforcement used to manufacture the part.

A.2.5 Glass Transition Temperature

The characteristic value of the glass transition temperature of the composite system, determined in accordance with ASTM E1640, shall be at least 40 degrees Fahrenheit higher than the maximum design temperature, $T_{MaxDesign}$, defined in section 3.12.2.2 of the AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members, 2012. FRP drain systems may not be used in environments with a service temperature higher than the glass transition temperature of the resin used for their manufacturing.

A.2.6 Longitudinal and Transverse Coefficients of Thermal Expansion (CTE)

The coefficient of Thermal Expansion (CTE) of the tube may vary in the longitudinal and circumferential directions of the component depending on the laminate architecture and type of fibers and resins.

A.3 Mechanical Properties

A.3.1 Tensile Properties

The tensile strength, tensile modulus of elasticity, and ultimate tensile strain shall be determined for both the axial and hoop directions of the tubular components or in transverse and longitudinal directions of inlet bodies, see Section A.5.1 Test Samples. The tensile strength as reported by the manufacturer for product certification shall be measured according to ASTM Test Method D 3039, or other tension test method designed to determine tensile properties of composite laminates at the approved frequency and number of specimens as specified in section A.5.

A.3.4 Compressive Properties

The compressive strength and ultimate compressive strain shall be determined for the longitudinal directions of the tube laminate. The compressive strength and ultimate compressive strains shall be derived from specimens tested in accordance with ASTM Test Method D 6641, or other approved compression test method designed to determine compressive properties of the composite.

A.4 Durability Properties

Material properties shall retain 85% of their baseline values for the material properties listed in Section 2.3 after conditioning for all the durability tests listed below. Durability test methods are adopted from AASHTO Guide Specifications for Design of Bonded FRP Systems for Repair and Strengthening of Concrete Bridge Elements.

Durability property testing is only required for initial product certification and not required for subsequent production orders. The testing is the responsibility of the manufacturer and shall be conducted by an approved independent testing lab per section A.5.2.

A.4.1 Moisture Absorption
Samples will be immersed in distilled water having a temperature of 100 +/-3 degrees Fahrenheit and tested after 1,000 hours of exposure.

A.4.2 Resistance to Alkaline Environment
Samples will be immersed in a saturated solution of calcium hydroxide (pH-11) at ambient temperature of 73 +/-3 degrees Fahrenheit for 1,000 hours prior to testing. The pH level will be monitored and the solution will be maintained as needed.

A.4.3 Alternating Ultraviolet Light and Condensation Humidity
Samples will be conditioned in an apparatus under Cycle I-UV exposure condition according to ASTM G154 Standard Practice. Samples will be tested within two hours after removal from the apparatus.

A.4.4 Freeze-Thaw
Samples will be exposed to 100 repeated cycles of freezing and thawing in an apparatus meeting the requirements of ASTM C666.

A.5 Sampling, Testing & Results.

A.5.1 Test Samples.
The manufacturer is responsible for testing and may use samples in accordance to the test methods and needs of test equipment available. Test coupons may be cut from manufactured products or prepared using identical processes e.g. wet lay-up, vacuum infusion, etc. in a flat sheet, or witness plate, in which test coupons may be cut. Approval of the Fabrication Engineer shall be required for acceptance of test specimens produced by a different manufacturing method. Samples derived from special coupon test sheets shall be taken interior to edge sections 1.5x the width of the required coupon width. Samples shall be prepared from samples oriented with the directions illustrated in figures 1 and 2 for scupper body and drain pipes. For samples from filament wound pipes, samples shall be constructed over polygon mandrels allowing for flat panels to be removed for test purposes. Each test shall use a quantity of three samples. See Tables A.5.4 for tests, material requirements and sample breakdown.

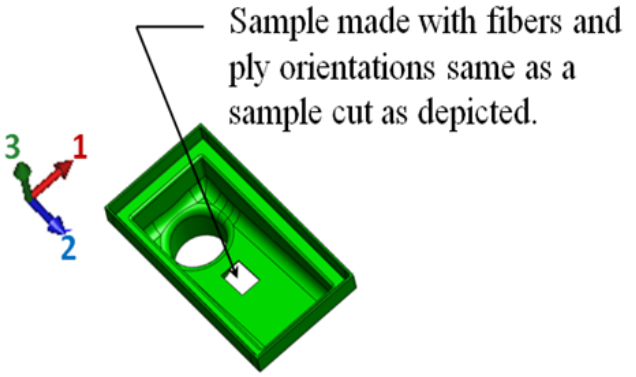


Figure 1.) Scupper Body Sample Orientations.

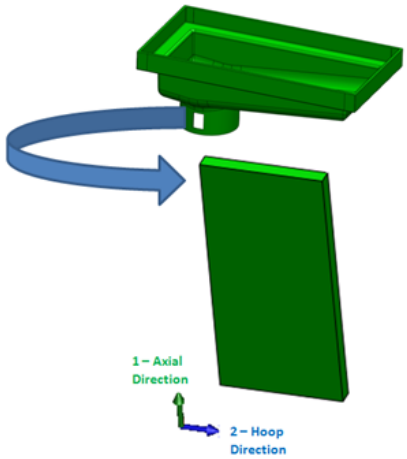


Figure 2.) Drain Pipe Sample Orientations.

A.5.2 Test Lab Requirements.
All testing of FRP material properties is being conducting in accordance to specified standards. Internal or external testing is to be conducted through laboratory facilities in accordance to ISO/IEC Guide 58, *Calibration and Testing Laboratory Accreditation Systems - General Requirements for Operation and Recognition* and ISO/IEC 17025 *General Requirements for the Competence of testing and Calibration Laboratories* as related by AASHTO document R18 "Recommended Practice for Establishing and Implementing a Quality System for Construction Materials Testing Laboratories."

A.5.3 Production Validation (PV) Testing.
Certification of materials used in FRP drain products must undergo PV testing of the specified material properties before and after environmental conditioning as set forth in Section A.5.4 by an independent lab. PV tests may be conducted internally by the manufacturer for development but are not acceptable for certification. Reported values for the material composition is be recorded and reported by the manufacturer, no independent audit is required.

A.5.4 Production Validation Sample Quantities, Minimum Material Properties and Reported Values
The following data shall be reported for material certification. Note that the tables shown use orientations related to FRP scupper or inlet bodies as set forth in Figure 1 of Section A.5.1. When evaluating tubular sections, orientation direction 2 as shown in Figure 2 of Section A.5.1 shall be substituted for orientation direction 3. The required number of samples have been reduced from ASTM requirements.

Table A.5.4.a PV reported material composition data. (Recorded by the manufacturer during the manufacturing process)

Section No.	Characteristic	Applicable Test Standard	Number of Samples	Tolerance	Reported
A.2.2	Styrene, mass percentage of polymer resin	per tolerance	N/A	10% max	
A.2.3	Inorganic fillers, mass percentage of polymer resin.	per tolerance	N/A	20% max	
	Shrink additives, mass percentage of polymer resin.	per tolerance	N/A	20% max	
A.2.4	Fiber Content	ASTM D3171 or ASTM D2584	3	Sufficient to meet mechanical properties	
A.2.5	Glass Transition Temperature	ASTM E1640	3	> Max Design Temperature	

Table A.5.4.b PV Reported Baseline Mechanical Properties

(Conducted by an independent laboratory. Samples as Manufactured w/o additional conditioning per Section A.3)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	10000 (psi)				
		Tensile Modulas of Elasticity			800000 (psi)				
		Ultimate Tensile Strain			0.003 in/ in				
	2	Tensile Strength		3	10000 (psi)				
		Tensile Modulas of Elasticity			800000 (psi)				
		Ultimate Tensile Strain			0.003 in/ in				
A.3.4	1	Compressive Strength	ASTM D6641	3	22000 (psi)				
		Ultimate Compressive Strain			0.003 in/ in				
	3	Compressive Strength		3	22000 (psi)				
		Ultimate Compressive Strain			0.003 in/ in				

Table A.5.4c PV Reported Mechanical Properties after 1000 hr. Moisture Immersion Condidtioning per Section A.4.1

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4d PV Reported Mechanical Properties after 1000 hr. of Alkaline Environment Conditioning per Section A.4.2

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4e PV Reported Mechanical Properties after UV Light Conditioning per Section A.4.3 (ASTM G154).

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4f PV Reported Mechanical Properties after 100 Freeze-Thaw Cycle Conditioning per Section A.4.4 (ASTM C666).

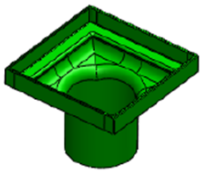
(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

APPENDIX B

Standard Details



Bridge Drain – Symmetric Inlet

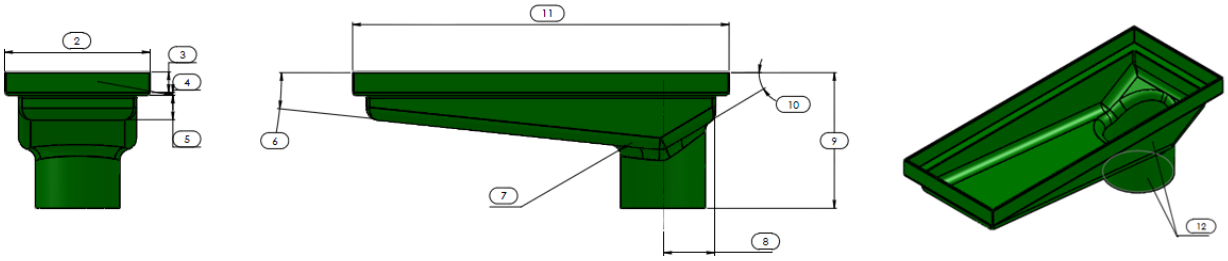
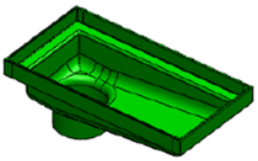


Table B1 Preferred Symmetric FRP Composite Inlet Bodies

	Size Designation	A	B	C		
	Size Dimensions (Grate Length x Width, Down Spout Diameter)	12x12xØ8	14x14xØ10	18x18xØ12		
Dimension		Nominal Dimensions			Nominal Design Tolerance	Manufacturing Tolerance
Number	**Name**					
1	Down Spout Inner Diameter	8"	10"	12"	min	+/- 0.015"
2	Grate Frame Width	12"	14"	18"	+/- 1"	+/- 0.025"
3	Grate Frame Height	As required to contain grate and recessed from deck surface				
4	Grate Frame Flange & Wall Thickness	0.25"	0.25"	0.25"	min	+/- 0.025"
5	Scupper Toe Depth	4"	4"	4"	+1"/-0"	+/- 0.1"
6	Scupper Toe Slope	1:10	1:10	1:10	min	+ 1 degree
7	Scupper Body Radii	2"	2"	2"	min	+0.1"
8	Down Spout Position to Heel	6"	6"	6"	+/- 0.5"	
9	Height	18"	18"	18"	Open	+/- 0.25"
10	Scupper Heel Slope	1:10	1:10	1:10	min	+0.1"
11	Grate Frame Length	12"	14"	18"	+/- 1"	+/- 0.025"
12	Scupper and Down Spout Wall Thickness	0.25"	0.25"	0.25"	min	+0.015"



Bridge Drain-Offset Scupper

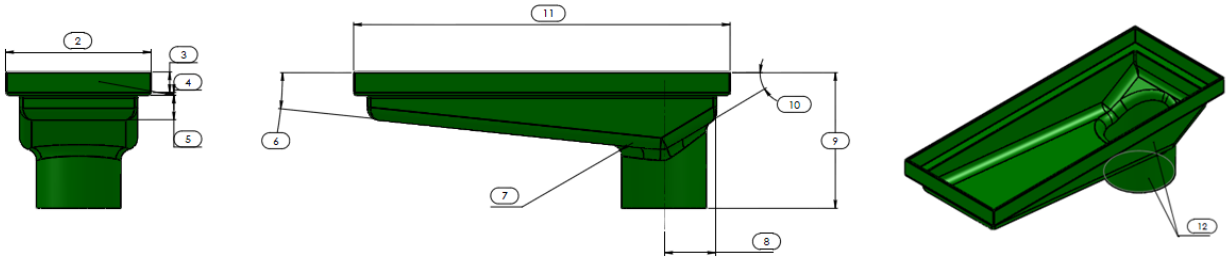


Table B2 Preferred Offset FRP Composite Scupper Bodies

	Size Designation	D	E	F	G		
	Size Dimensions (Grate Length x Width, Down Spout Diameter)	24x12xØ8	30x12xØ10	36x12xØ10	42x12xØ12		
Dimension		Nominal Dimensions				Nominal Design Tolerance	Manufacturing Tolerance
Number	**Name**						
1	Down Spout Inner Diameter	8"	10"	10"	12"	min	+/- 0.015"
2	Grate Frame Width	12"	12"	12"	12"	+ 2"/-0"	+/- 0.025"
3	Grate Frame Height	As required to contain grate and recessed from deck surface					
4	Grate Frame Flange & Wall Thickness	0.25"	0.25"	0.25"	0.25"	min	+/- 0.025"
5	Scupper Toe Depth	4"	4"	4"	4"	+1"/-0"	+/- 0.1"
6	Scupper Toe Slope	1:10	1:10	1:10	1:10	min	+ 1 degree
7	Scupper Body Radii	2"	2"	2"	2"	min	+0.1"
8	Down Spout Position to Heel	6"	6"	6"	6"	+/- 0.5"	
9	Height	13.5"	16"	18"	18"	Open	+/- 0.25"
10	Scupper Heel Slope	1:10	1:10	1:10	1:10	min	+0.1"
11	Grate Frame Length	24"	30"	36"	42"	+ 2"/-0"	+/- 0.025"
12	Scupper and Down Spout Wall Thickness	0.25"	0.25"	0.25"	0.25"	min	+0.015"

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.19	REMOVING EXISTING BRIDGE (Steel 53,000 lbs)(Concrete 37 cy)	1	LS
202.202	REMOVING PAVEMENT SURFACE	260	SY
203.20	COMMON EXCAVATION	1,640	CY
203.24	COMMON BORROW	50	CY
203.25	GRANULAR BORROW	455	CY
206.07	STRUCTURAL ROCK EXCAVATION - DRAINAGE & MINOR STRUCTURES	30	CY
206.082	STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	600	CY
206.092	STRUCTURAL ROCK EXCAVATION - MAJOR STRUCTURES	110	CY
304.10	AGGREGATE SUBBASE COURSE - GRAVEL	830	CY
403.2081	12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	144	T
403.209	HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, ISLANDS, & INCIDENTALS)	3	T
403.2131	12.5 MM POLYMER MODIFIED HMA BASE	200	T
409.15	BITUMINOUS TACK COAT - APPLIED	57	G
501.50	STEEL H-BEAM PILES 89 LBS/FT, DELIVERED	150	LF
501.502	ROCK-SOCKETED H-PILE 89 LB/FT, IN PLACE	150	LF
501.804	DRILLING EQUIPMENT MOBILIZATION, ROCK-SOCKETED H-PILE	1	LS
502.219	STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS (85 CY)	1	LS
502.26	STRUCTURAL CONCRETE ROADWAY & SIDEWALK SLABS ON STEEL BRIDGES (155 CY)	1	LS
502.291	SAW CUT GROOVING (3,000 SF)	1	LS
502.31	STRUCTURAL CONCRETE APPROACH SLABS (21 CY)	1	LS
502.49	STRUCTURAL CONCRETE CURBS AND SIDEWALKS (10 CY)	1	LS
502.77	FIBER REINFORCED POLYMER BRIDGE DRAIN - TYPE F ⚠	2	EA
503.12	REINFORCING STEEL, FABRICATED AND DELIVERED	16,600	LB
503.13	REINFORCING STEEL, PLACING	16,600	LB
503.19	LOW-CARBON, CHROMIUM REINFORCEMENT - FABRICATED & DELIVERED	8,660	LB
503.20	LOW-CARBON, CHROMIUM REINFORCEMENT - PLACING	8,660	LB
504.702	STRUCTURAL STEEL FABRICATED AND DELIVERED, WELDED (112,500 LB)	1	LS
504.71	STRUCTURAL STEEL ERECTION (112,500 LB)	1	LS
505.08	SHEAR CONNECTORS (850 EA)	1	LS
507.0821	STEEL BRIDGE RAILING, 3 BAR (214 LF)	1	LS
507.0822	STEEL APPROACH RAILING, 3-BAR	4	EA
511.07	COFFERDAM: ABUTMENT 1	1	LS
511.07	COFFERDAM: ABUTMENT 2	1	LS
512.081	FRENCH DRAINS (105 LF)	1	LS
513.50	ROCK BLOCK TOE BUTTRESS STABILIZATION	1	LS
515.21	PROTECTIVE COATING FOR CONCRETE SURFACES (490 SY)	1	LS
526.301	PORTABLE CONCRETE BARRIER TYPE 1 (110 LF)	1	LS
530.30	GFRP, REINFORCEMENT BARS, FAB & DEL	26,000	LF
530.31	GFRP, REINFORCEMENT BARS, PLACING	26,000	LF
606.1301	31" W-BM GR, MID-WAY SPLICE-SGL FACED	255	LF
606.1303	31" W-BM GR, MID-WAY SPLICE-15' RAD AND LESS	25	LF
606.1305	31" W-BM GR, MID-WAY SPLICE FLARED TERMINAL	2	EA
606.1306	31" W-BM GR, MID-WAY SPLICE TANGENT TERMINAL	1	EA
606.1721	BRIDGE TRANSITION - TYPE 1	4	EA
606.265	TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	1	EA
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	8	EA
610.08	PLAIN RIPRAP	650	CY
610.16	HEAVY RIPRAP	110	CY
610.18	STONE DITCH PROTECTION	210	CY
613.319	EROSION CONTROL BLANKET	165	SY
615.07	LOAM	55	CY
618.14	SEEDING METHOD NUMBER 2	10	UN
619.12	MULCH	10	UN
619.14	EROSION CONTROL MIX	125	CY
620.58	EROSION CONTROL GEOTEXTILE	900	SY
627.733	4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	1,815	LF
629.05	HAND LABOR, STRAIGHT TIME	40	HR
631.10	AIR COMPRESSOR (INCLUDING OPERATOR)	20	HR
631.11	AIR TOOL (INCLUDING OPERATOR)	20	HR
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20	HR
631.15	ROLLER, EARTH AND BASE COURSE (INCLUDING OPERATOR)	20	HR
631.172	TRUCK - LARGE (INCLUDING OPERATOR)	20	HR
639.19	FIELD OFFICE TYPE B	1	EA
645.271	REGULATORY, WARNING, CONFIRMATION & ROUTE MARKER ASSEMBLY SIGNS, TYPE 1	16	SF
652.312	TYPE III BARRICADE	8	EA
652.33	DRUM	25	EA
652.34	CONE	50	EA
652.35	CONSTRUCTION SIGNS	650	SF
652.361	MAINTENANCE OF TRAFFIC CONTROL DEVICES	1	LS
652.38	FLAGGER	100	HR
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	1	LS
659.10	MOBILIZATION	1	LS

GENERAL CONSTRUCTION NOTES

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

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

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

4. Existing signs within the Project limits shall be removed and reset as directed by the Resident. Payment for removal and reinstallation of existing signs will be considered incidental to the Contract. No separate payment will be made.

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

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

7. Construct the riprap shelf at each abutment at
   Abut. No. 1 EL. 239.73
   Abut. No. 2 EL. 237.21

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

9. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619, Mulch. Payment will be made under Pay Item 619.14, Erosion Control Mix.

10. Place a 24 inch wide strip of Erosion Control Blanket on the sideslopes along the top of the riprap and behind the wingwalls.

11. Guardrail posts as shown in the Standard Details shall be modified from the indicated length of 7 feet to a length of 8 feet with an embedment of 5.25 feet. Payment will be considered incidental to the guardrail pay items.

12. A MASH compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail.

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

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

   All exposed surfaces of concrete curbs and sidewalks,
   Fascias down to the drip notch,
   Concrete wearing surfaces,
   Top of abutment backwalls and wingwalls, and
   To one foot below the ground on vertical walls against earth.

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

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

17. Reports on hydrology and/or hydraulics applicable to the bridge site may be accessed at the MaineDOT web address. The reports are based on MaineDOT's interpretation of the information obtained for the subject site. No assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.

18. The project geotechnical report titled: Geotechnical Design Report, Puddle Dock Bridge (No. 3107) over Fifteenmile Stream, Albion, WIN 25299.00 Maine, dated September 13, 2024, may be accessed at the MaineDOT web address.

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

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

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

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

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

21. Advisory Speed Limit Signs will be placed as directed by the Resident. This will be paid for by the applicable pay item.

22. There may be Construction Signs along the detour route since the bridge is already closed. Construction Signs along the detour route shall be placed or replaced as directed by the Resident

23. Place toe buttress detail as directed by the Resident.

24. South Freedom Road is currently closed and blocked off at the project site with portable concrete barrier owned by the Department. Upon mobilization to the site, the Contractor shall install their own portable concrete barrier and type III barricades and coordinate with the Department for removal of Department owned barrier.

25. Prior to any approved work stoppage or shutdown, the Contractor shall install a positive barrier at each end of the project limits to prevent traffic from entering the project site.

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

27. All existing bridge material, which includes timber and stone, shall be removed and will be incidental to the bridge removal pay item.

28. Excavation between the existing abutments and proposed abutments will be considered Item 206.082 Structural Excavation.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02529900

WIN 025299.00

BRIDGE NO. 3107

BRIDGE PLANS

PROJ. MANAGER	BRIAN NICHOLS	BY	DATE	
DESIGN-DETAILED	E. BREWER	MRP	Nov. 2024	
CHECKED-REVIEWED	RMN	E. BREWER	Nov. 2024	SIGNATURE
DESIGN2-DETAILED2				
DESIGN3-DETAILED3			Dec. 2024	P.E. NUMBER
REVISIONS 1 ⚠		CHANGE BRIDGE DRAIN TYPE A1 TO TYPE F		DATE
REVISIONS 2				
REVISIONS 3				
FIELD CHANGES				

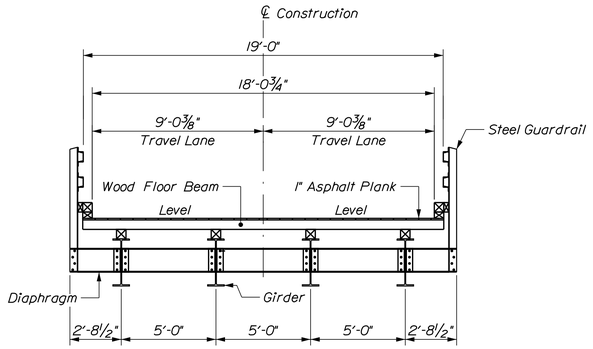
PUDDLE DOCK BRIDGE
FIFTEENMILE STREAM
ALBION KENNEBEC COUNTY

ESTIMATED QUANTITIES &
GENERAL CONSTRUCTION NOTES

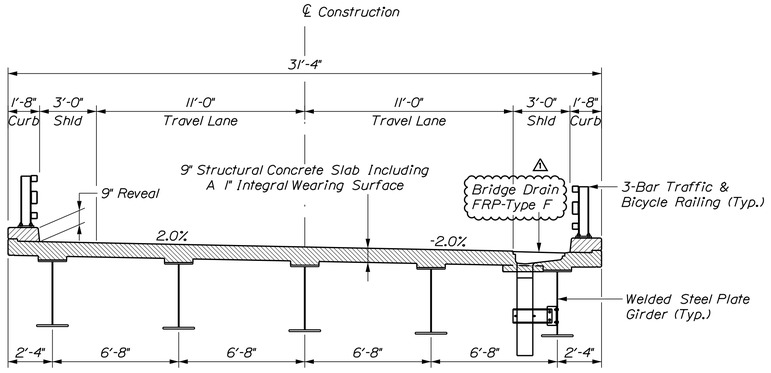
SHEET NUMBER

2

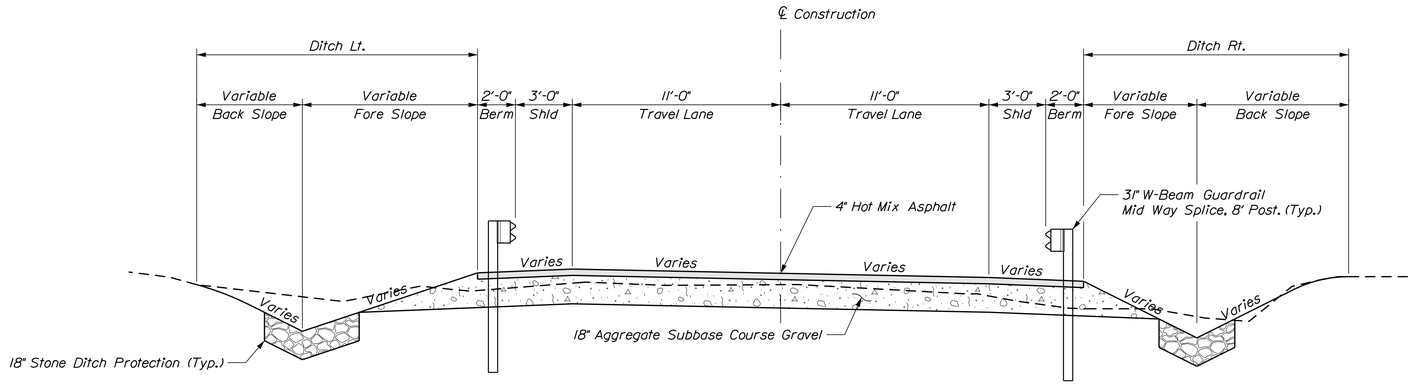
OF 31



EXISTING BRIDGE SECTION



PROPOSED BRIDGE SECTION



TYPICAL APPROACH SECTION

Username: Mark.Poulin Date:12/3/2024

Division: BRIDGE

Filename: ...\BRIDGE\MSTA\007_Btypical.dgn

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02529900

WIN 025299.00

BRIDGE NO. 3107

BRIDGE PLANS

PROJ. MANAGER	BRIAN NICHOLS	BY	DATE
DESIGN-DETAILED	E. BREWER	MRP	Nov. 2024
CHECKED-REVIEWED	RMN	E. BREWER	Nov. 2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1 ⚠	CHANGE BRIDGE DRAIN TYPE A1 TO TYPE F	Dec. 2024	
REVISIONS 2			
REVISIONS 3			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

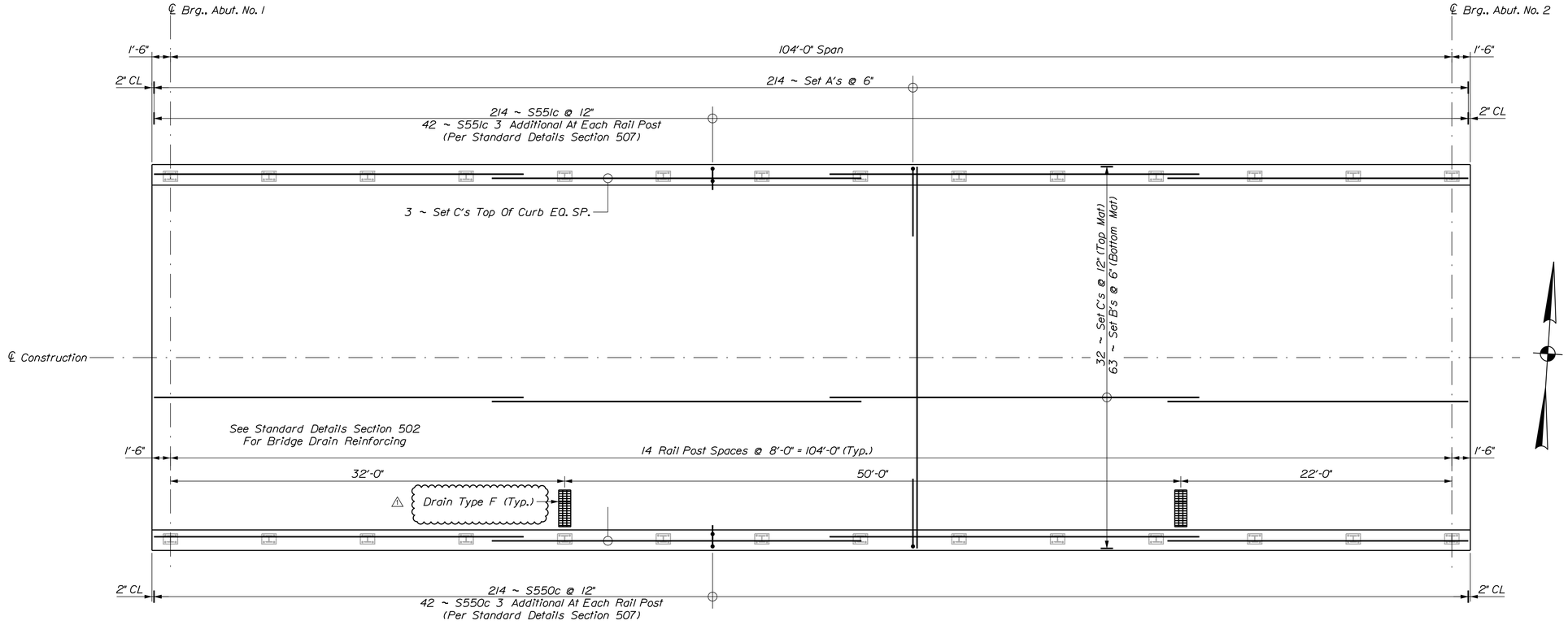
PUDDLE DOCK BRIDGE
FIFTEENMILE STREAM
ALBION KENNEBEC COUNTY

TYPICAL SECTIONS

SHEET NUMBER

7

OF 31

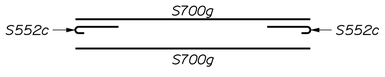


LAP SPLICE		
BAR #	TYPE	INCHES
5	GFRP	24
6	GFRP	31
7	GFRP	36

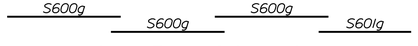
g = Glass Fiber Reinforcing Polymer
c = High Strength, Low Carbon Chromium

SUPERSTRUCTURE PLAN

SET "A"
1 ~ S700g & 2 ~ S552c (Top Mat)
1 ~ S700g (Bottom Mat)

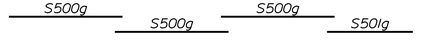


SET "B"
3 ~ S600g & 1 ~ S601c
(Bottom Mat)



Stagger The Lap Splice Locations.

SET "C"
3 ~ S500g & 1 ~ S501c
(Top Mat)



Stagger The Lap Splice Locations.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

02529900

WIN 025299.00

BRIDGE NO. 3107

BRIDGE PLANS

PROJ. MANAGER	BRIAN NICHOLS	BY	DATE
DESIGN-DETAILED	E. BREWER	MRP	Nov. 2024
CHECKED-REVIEWED	RMN	E. BREWER	Nov. 2024
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1	⚠ CHANGE BRIDGE DRAIN TYPE A1 TO TYPE F		Dec. 2024
REVISIONS 2			
REVISIONS 3			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

PUDDLE DOCK BRIDGE
FIFTEENMILE STREAM
ALBION KENNEBEC COUNTY

SUPERSTRUCTURE PLAN & REINFORCING

SHEET NUMBER

28

OF 31

Username: Mark.Poulin Date:12/3/2024
Division: BRIDGE
Filename: ...\028_Superstruct_Plan_Rebar.dgn

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 025299.00 **Project(s):** 025299.00

SECTION: 1 INITIAL GROUP

Alt Set ID: **Alt Mbr ID:**

Contractor: _____

Proposal Line Number	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0010	202.19 REMOVING EXISTING BRIDGE	LUMP SUM	LUMP SUM			
0020	202.202 REMOVING PAVEMENT SURFACE	260.000 SY				
0030	203.20 COMMON EXCAVATION	1,640.000 CY				
0040	203.24 COMMON BORROW	50.000 CY				
0050	203.25 GRANULAR BORROW	455.000 CY				
0060	206.07 STRUCTURAL ROCK EXCAVATION - DRAINAGE AND MINOR STRUCTURES	30.000 CY				
0070	206.082 STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	600.000 CY				
0080	206.092 STRUCTURAL ROCK EXCAVATION - MAJOR STRUCTURES	110.000 CY				
0090	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	830.000 CY				
0100	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	144.000 T				
0110	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	3.000 T				
0120	403.2131 12.5 MM POLYMER MODIFIED HMA BASE	200.000 T				

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 025299.00 **Project(s):** 025299.00

SECTION: 1 INITIAL GROUP

Alt Set ID: **Alt Mbr ID:**

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0130	409.15 BITUMINOUS TACK COAT - APPLIED	57.000 G	_____.____	_____.____
0140	501.50 STEEL H-BEAM PILES 89 LBS/FT, DELIVERED	150.000 LF	_____.____	_____.____
0150	501.502 ROCK SOCKETED H-PILES 89 LB/FT, IN PLACE	150.000 LF	_____.____	_____.____
0160	501.804 DRILLING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	_____.____
0170	502.219 STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS	LUMP SUM	LUMP SUM	_____.____
0180	502.26 STRUCTURAL CONCRETE ROADWAY AND SIDEWALK SLABS ON STEEL BRIDGES	LUMP SUM	LUMP SUM	_____.____
0190	502.291 SAW CUT GROOVING	LUMP SUM	LUMP SUM	_____.____
0200	502.31 STRUCTURAL CONCRETE APPROACH SLABS	LUMP SUM	LUMP SUM	_____.____
0210	502.49 STRUCTURAL CONCRETE CURBS AND SIDEWALKS	LUMP SUM	LUMP SUM	_____.____
0220	502.77 FIBER REINFORCED POLYMER BRIDGE DRAIN - TYPE: F	2.000 EA	_____.____	_____.____
0230	503.12 REINFORCING STEEL, FABRICATED AND DELIVERED	16,600.000 LB	_____.____	_____.____

Proposal ID: 025299.00 **Project(s):** 025299.00

SECTION: 1 INITIAL GROUP

Alt Set ID: **Alt Mbr ID:**

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0240	503.13 REINFORCING STEEL, PLACING	16,600.000 LB	_____.____	_____.____
0250	503.19 LOW-CARBON, CHROMIUM REINFORCEMENT - FABRICATED & DELIVERED	8,660.000 LB	_____.____	_____.____
0260	503.20 LOW-CARBON, CHROMIUM REINFORCEMENT - PLACING	8,660.000 LB	_____.____	_____.____
0270	504.702 STRUCTURAL STEEL FABRICATED AND DELIVERED, WELDED	LUMP SUM	LUMP SUM	_____.____
0280	504.71 STRUCTURAL STEEL ERECTION	LUMP SUM	LUMP SUM	_____.____
0290	505.08 SHEAR CONNECTORS	LUMP SUM	LUMP SUM	_____.____
0300	507.0821 STEEL BRIDGE RAILING, 3 BAR	LUMP SUM	LUMP SUM	_____.____
0310	507.0822 STEEL APPROACH RAILING, 3-BAR	4.000 EA	_____.____	_____.____
0320	511.07 COFFERDAM: ABUT NO.1	LUMP SUM	LUMP SUM	_____.____
0330	511.07 COFFERDAM: ABUT NO.2	LUMP SUM	LUMP SUM	_____.____
0340	512.081 FRENCH DRAINS	LUMP SUM	LUMP SUM	_____.____
0350	513.50 ROCK BLOCK TOE BUTTRESS STABILIZATION	LUMP SUM	LUMP SUM	_____.____

Proposal ID: 025299.00 **Project(s):** 025299.00

SECTION: 1 INITIAL GROUP

Alt Set ID: **Alt Mbr ID:**

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0360	515.21 PROTECTIVE COATING FOR CONCRETE SURFACES	LUMP SUM	LUMP SUM	_____.____
0370	526.301 PORTABLE CONCRETE BARRIER TYPE I	LUMP SUM	LUMP SUM	_____.____
0380	530.30 GFRP, REINFORCEMENT BARS, FABRICATED & DELIVERED	26,000.000 LF	_____.____	_____.____
0390	530.31 GFRP, REINFORCEMENT BARS, PLACING	26,000.000 LF	_____.____	_____.____
0400	606.1301 31" W-BM GR, MID-WAY SPLICE-SGL FACED	255.000 LF	_____.____	_____.____
0410	606.1303 31" W-BM GR, MID-WAY SPLICE-15' RAD AND LESS	25.000 LF	_____.____	_____.____
0420	606.1305 31" W-BM GR, MID-WAY SPLICE FLARED TERMINAL	2.000 EA	_____.____	_____.____
0430	606.1306 31" W-BM GR, MID-WAY SPLICE TANGENT TERMINAL	1.000 EA	_____.____	_____.____
0440	606.1721 BRIDGE TRANSITION - TYPE 1	4.000 EA	_____.____	_____.____
0450	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	1.000 EA	_____.____	_____.____
0460	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	8.000 EA	_____.____	_____.____

Proposal ID: 025299.00 **Project(s):** 025299.00

SECTION: 1 INITIAL GROUP

Alt Set ID: **Alt Mbr ID:**

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0470	610.08 PLAIN RIPRAP	650.000 CY				
0480	610.16 HEAVY RIPRAP	110.000 CY				
0490	610.18 STONE DITCH PROTECTION	210.000 CY				
0500	613.319 EROSION CONTROL BLANKET	165.000 SY				
0510	615.07 LOAM	55.000 CY				
0520	618.14 SEEDING METHOD NUMBER 2	10.000 UN				
0530	619.12 MULCH	10.000 UN				
0540	619.14 EROSION CONTROL MIX	125.000 CY				
0550	620.58 EROSION CONTROL GEOTEXTILE	900.000 SY				
0560	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	1,815.000 LF				
0570	629.05 HAND LABOR, STRAIGHT TIME	40.000 HR				
0580	631.10 AIR COMPRESSOR (INCLUDING OPERATOR)	20.000 HR				
0590	631.11 AIR TOOL (INCLUDING OPERATOR)	20.000 HR				

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 025299.00 **Project(s):** 025299.00

SECTION: 1 INITIAL GROUP

Alt Set ID: **Alt Mbr ID:**

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0600	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20.000 HR				
0610	631.15 ROLLER, EARTH AND BASE COURSE (INCLUDING OPERATOR)	20.000 HR				
0620	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	20.000 HR				
0630	639.19 FIELD OFFICE TYPE B	1.000 EA				
0640	645.271 REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGNS, TYPE I	16.000 SF				
0650	652.312 TYPE III BARRICADE	8.000 EA				
0660	652.33 DRUM	25.000 EA				
0670	652.34 CONE	50.000 EA				
0680	652.35 CONSTRUCTION SIGNS	650.000 SF				
0690	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP SUM	LUMP SUM			
0700	652.38 FLAGGER	100.000 HR				

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 025299.00 **Project(s):** 025299.00

SECTION: 1 INITIAL GROUP

Alt Set ID: **Alt Mbr ID:**

Contractor: _____

Proposal Line Number	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0710	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP SUM	LUMP SUM		_____	. ____
0720	659.10 MOBILIZATION	LUMP SUM	LUMP SUM		_____	. ____
	Section: 1		**Total:**		_____	. ____
			Total Bid:		_____	. ____