

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Ninth Edition 2020.

DESIGN LOADING

Live Load HL - 93 Modified for Strength I

HYDROLOGIC DATA

Drainage Area 4.37 sq mi
Design Discharge (Q50) 660 cfs
Check Discharge (Q100) 765 cfs
Headwater Elevation (Q1.1) 276.85 ft
Headwater Elevation (Q25) 279.97 ft
Headwater Elevation (Q50) 280.52 ft
Headwater Elevation (Q100) 281.02 ft
Discharge Velocity (Q1.1) 5.2 fps
Discharge Velocity (Q50) 9.6 fps
Discharge Velocity (Q100) 10.1 fps

MATERIALS

Concrete:
Precast Class "P"
All Other Class "A"

Reinforcing:
Plain Reinforcing Steel ASTM A615/A615M, Grade 60

BASIC DESIGN STRESSES

Concrete:
Class "A" f'c = 4,000 psi
Class "P" f'c = 5,000 psi

Reinforcing:
Plain Reinforcing Steel f y = 60,000 psi

TRAFFIC DATA

Current (2023) AADT 280
Future (2043) AADT 310
DHV - % of AADT 15
Design Hour Volume 45
Heavy Trucks (% of AADT) 16
Heavy Trucks (% of DHV) 26
Directional Distribution (% of DHV) 52
18 kip Equivalent P 2.0 17
18 kip Equivalent P 2.5 16
Design Speed (mph) 45

WASHINGTON
KNOX COUNTY
FARRAR BRIDGE
OVER
DAVIS STREAM

ROUTE 105
FEDERAL AID PROJECT NO. 02616810
PROJECT LENGTH 0.000 mi.
BRIDGE NO. 3929

LIST OF DRAWINGS

Title Sheet 1
Precast Concrete Box Details 2,3
Culvert Mounted Guardrail Details 4

UTILITIES

Central Maine Power
Consolidated Communications

MAINTENANCE OF TRAFFIC

Road Will Be Closed During Construction with
Traffic Detoured On State-Aid Roads.

PROJECT LOCATION	In Washington, Farrar Bridge (#3929) over Davis Stream Located 0.51 of a mile west of Vanner Road Lat./Long. 44°16'40.0" N 69°24'25.1" W
PROGRAM AREA	Highway Bridges - Traditional
OUTLINE OF WORK	Fabrication & Delivery of Precast Concrete Box Culvert

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
COMMISSIONER	<i>[Signature]</i>	11-1-2024
CHIEF ENGINEER	<i>[Signature]</i>	11-1-2024



SIGNATURE	DATE
<i>[Signature]</i>	10-24-24
P.E. NUMBER	
15553	

PROJECT INFORMATION	BRIDGE PROGRAM
PROJECT MANAGER	BRIAN NICHOLS
DESIGNER	JACOB FRAIL
CONSULTANT	
PROJECT PRESENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

WIN 26168.10

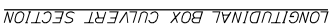
WASHINGTON
FARRAR BRIDGE
TITLE SHEET

SHEET NUMBER

1

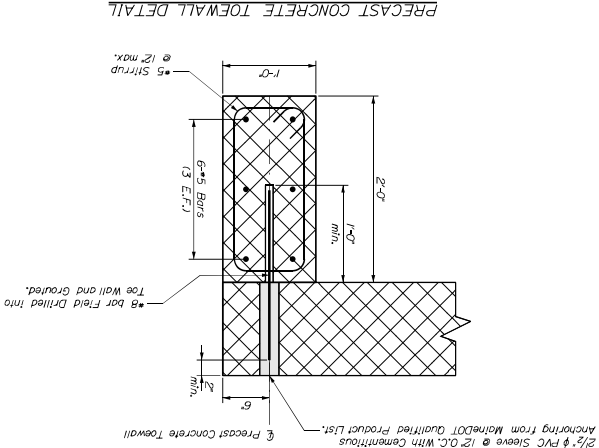
OF 4

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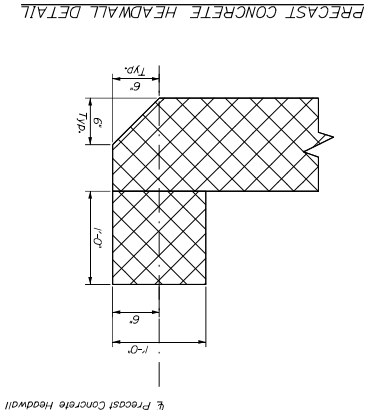


PRECAST CONCRETE BOX CULVERT PLAN

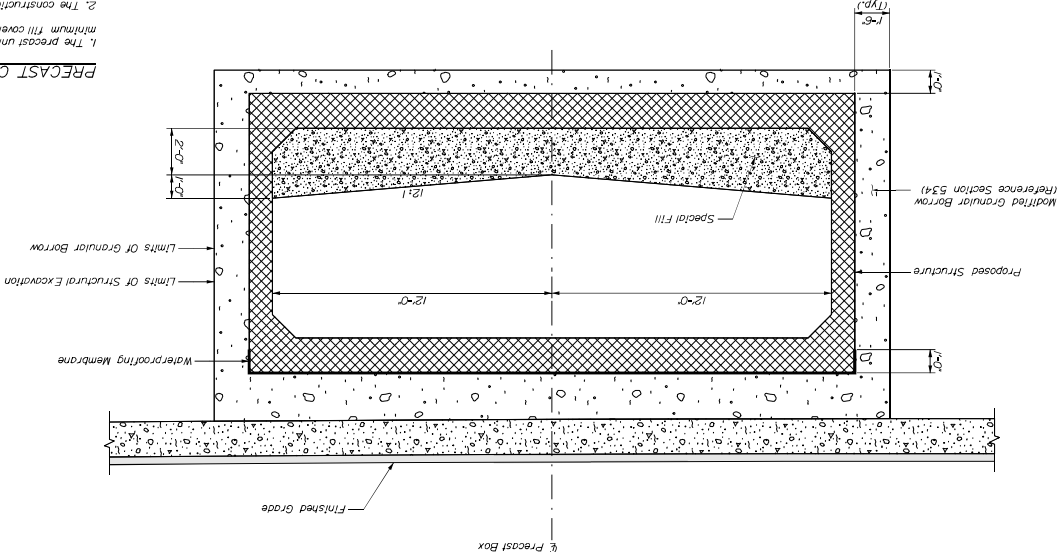
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BRIDGE NO. 3029					
BRIDGE PLANS					



PRECAST CONCRETE TOWALL DETAIL



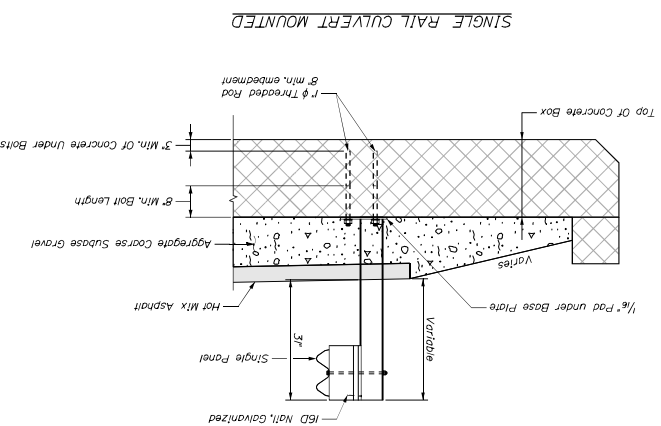
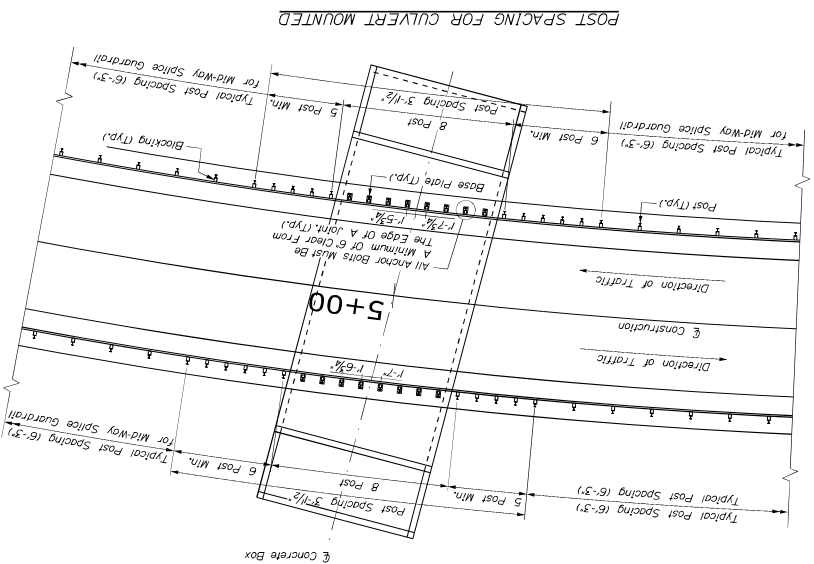
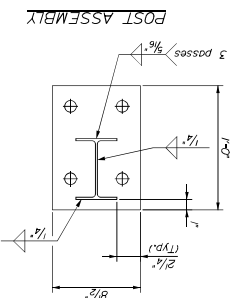
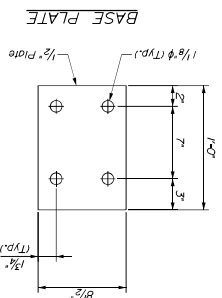
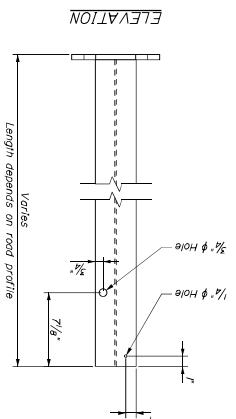
PRECAST CONCRETE HEADWALL DETAIL



SECTION A-A

1. The precast units shall be designed to carry construction loadings with a minimum fill cover of 18 inches over the top of the units.
2. The construction, handling, and assembly of the precast units shall be in accordance with Special Provisions Section 534, Precast Structural Concrete, and with the manufacturer's specifications as applicable.
3. Install standard membrane waterproofing over the top and to 12 inches down the exterior sides of the precast units.

PRECAST CONCRETE BOXES NOTES



SINGLE RAIL CULVERT MOUNTED NOTES

3. Posts may be cut to length and drilled in the field. Cut posts should be treated with rust-protective galvanizing. Galvanizing paint is not permitted.
4. Threaded rod shall be ASTM F1554 Grade 55.
5. Anchor rods drilled and grouted into the precast boxes shall use an approved epoxy bonding agent from Mapei/OT's Qualified Products List with a minimum bond strength of 1300 psi. The bolt anchorages shall be installed in strict accordance with the selected manufacturer's recommendations.
6. The embedment depth of the epoxy anchors shall be the greater of 8" or the manufacturer's requirements. A minimum of 3" of concrete must remain under the drilled hole.
7. Payment for drilling and grouting anchor bolts shall not be paid for separately, and shall be considered incidental to the guardrail pay item.
8. Anchor bolts shall be set with a template. Nuts securing the post base shall be tightened to a snug fit and given an additional 1/8 turn.
9. All posts, plates, bolts, nuts, washers, threaded rod, and other misc. hardware shall be galvanized.

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