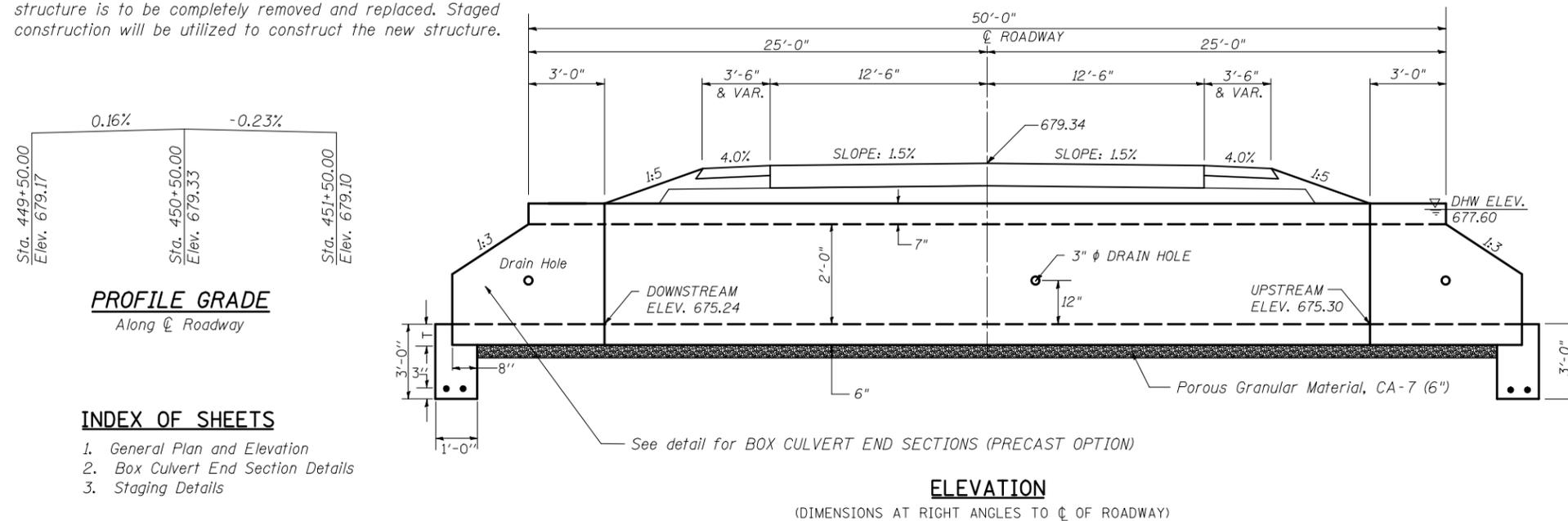


BENCHMARK ELEVATION: 678.28' Chiseled square on the west headwall of existing 2'x1.5' box culvert. Station 450+53.02, 21.21' RT.

EXISTING STRUCTURE: A 2'x1.5'x44' concrete box culvert was constructed in 1922 as part of Section 8 in Platt County. Each end was extended in 1958 as part of Section (7S,8,28)W&RS. The existing structure is to be completely removed and replaced. Staged construction will be utilized to construct the new structure.



GENERAL NOTES

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specifications.

The 6" Porous Granular Material required per Art. 540.06 of the Standard Specifications shall also extend beneath the Box Culvert End Sections and shall be considered included in the cost of Precast Concrete Box Culverts and Box Culvert End Sections.

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class SI Concrete shall be used throughout.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

If the Contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval. See Special Provisions.

The design fill height for this box is less than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 273.

The joints between precast box sections shall be sealed and all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

PROFILE GRADE

Along \bar{C} Roadway

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

Allow 50#/sq.ft. for future wearing surface

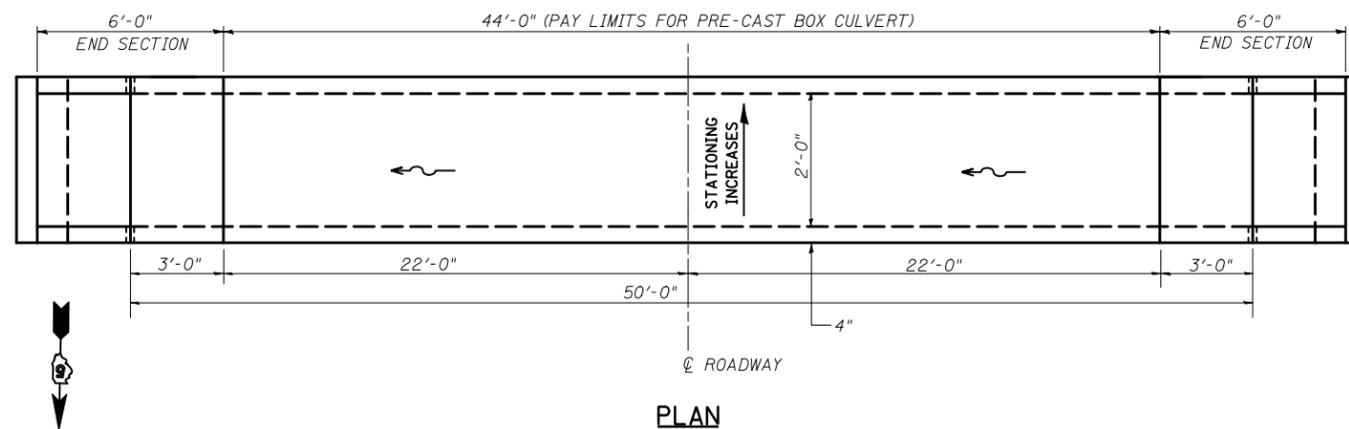
DESIGN STRESSES

FIELD UNITS

- $f'_c = 3,500$ psi
- $f_y = 60,000$ psi (reinforcement)
- $f_y = 65,000$ psi (welded wire fabric)

PRECAST UNITS

- $f'_c = 5,000$ psi
- $f_y = 65,000$ psi (welded wire fabric)



TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures No. 1	Foot	44
Precast Concrete Box Culvert 2'x2' (M273)	Foot	44
Box Culvert End Section, Culvert No. 1	Each	2
Porous Granular Embankment	Cu Yd	25.1

WATERWAY INFORMATION

Drainage Area = 0.03 sq.mi. Proposed Low Grade Elev. 678.98 @ Sta. 452+04

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Prop.	Nat. H.W.E.	Head - Ft. Exist.	Prop.	Headwater El. Exist.	Prop.
10	11	3	4					677.3	677.2
Design	50	16	3	4				677.7	677.6
Base	100	18	3	4				678.2	677.8
Overtopping									
Max. Calc.	500	25	3	4				Over	678.6

10 year velocity through existing bridge = 4.52 fps 10 year velocity through proposed bridge = 3.77 fps
 Note: Information provided utilizing Rational Method (Collins Equations)

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	Upstream	Downstream
	672.30	672.24

**GENERAL PLAN AND ELEVATION
 SINGLE 2'x2' PRECAST BOX CULVERT
 E.A.P. ROUTE 741 - SECTION (8,9,10)CR
 STATION 450+53.00
 CULVERT NO. 1**