

BENCHMARK ELEV. 717.69' Chiseled square on the east headwall of S.N. 074-8029. Station 271+21.59, 32.01' RT.

EXISTING STRUCTURE: S.N. 074-8029, a double 36"x73' CMP culvert was constructed in 1960 as part of Section 8W-1,(9,10)W & 8RS-1,(9,10)RS in Piatt County. The existing structure is to be completely removed and replaced. Staged construction will be utilized to construct the new structure.

Course aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.

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.

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.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8".

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.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

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

The design reinforcement areas shall conform to those found in Table 1 of AASHTO M273 for a 12'x4' box section except the extension of the As1 bars into the top slab shall be equal to (23 inches + 2 longitudinal wire spaces).

The box culvert end section may be built in the field or using precast construction methods. If the contractor elects to use precast construction methods, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval. See Special Provisions.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Sections B-B, D-D and E-E on Sheet 2.

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.

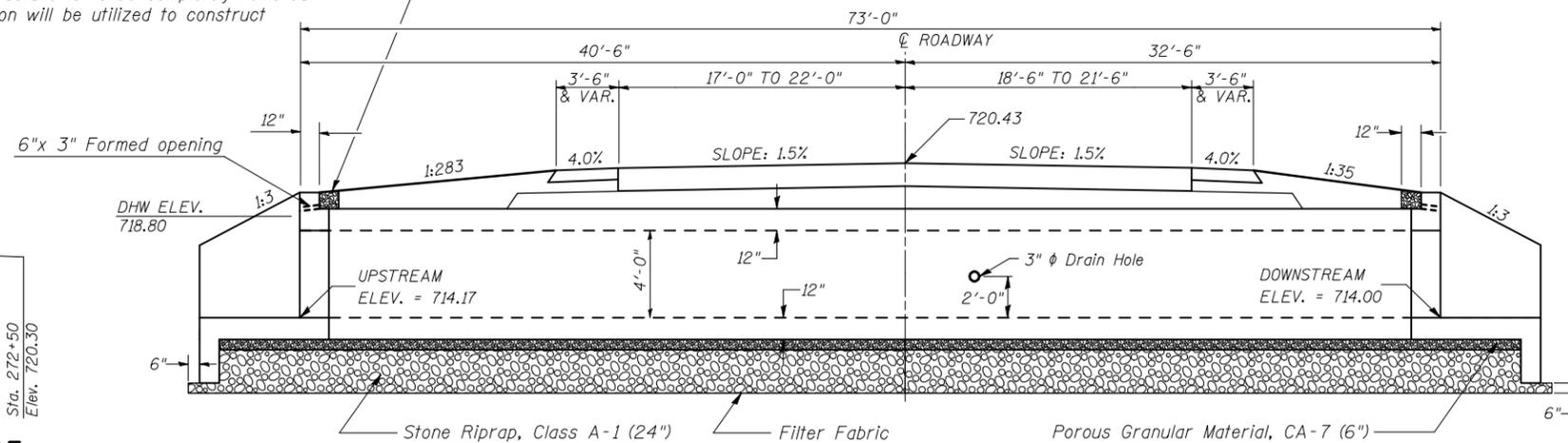
The joints between precast box sections shall be sealed and all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the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

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

TOTAL BILL OF MATERIAL

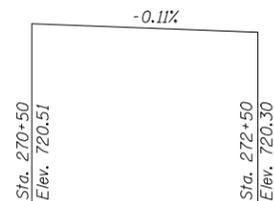
Item	Unit	Total
Removal of Existing Structures No. 4	Each	1
Precast Concrete Box Culvert 12'x4' (M273)	Foot	70
Box Culvert End Section, Culvert No. 4	Each	2
Name Plates	Each	1
Permanent Bench Marks, Type 1	Each	1
Porous Granular Embankment	Cu.Yd.	146.3
Stone Riprap, Class A1	Ton	187.1

GENERAL PLAN AND ELEVATION SINGLE 12'x4' PRECAST BOX CULVERT F.A.P. ROUTE 741 - SECTION (8,9,10)CR STATION 271+22.00 S.N. 074-8315 CULVERT NO. 4



PROFILE GRADE

Along ϕ Roadway



STATION 271+22.00
BUILT 2011 BY
STATE OF ILLINOIS
F.A.P. RT. 741 SEC. (8,9,10)CR
LOADING HS 20
STRUCTURE NO. 074-8315

NAME PLATE

See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Soil Boring Log

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

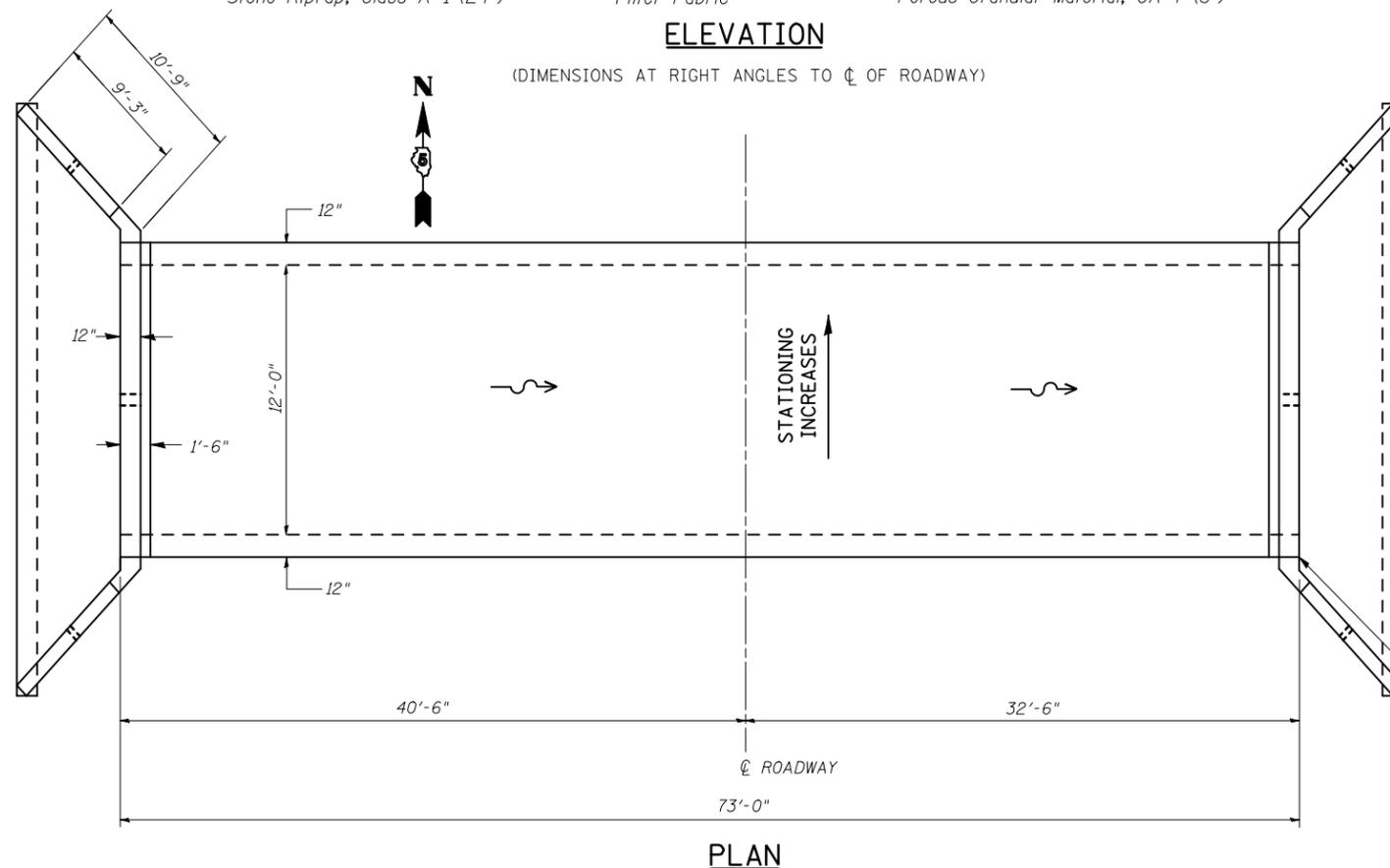
DESIGN STRESSES

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)



WATERWAY INFORMATION

Drainage Area = 0.56 sq. mi. Low Grade Elev. 719.91 @ Sta. 274+00						
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Prop.	Nat. H.W.E.	Head - Ft. Exist. Prop.
Design	10	186	14	42		722.6 717.6
Base	50	310	14	48		732.4 718.8
Overtopping	100	366	14	48		Over 719.3
Max. Calc.	500	504	14	48		Over Over

10 year velocity through existing bridge = 8.82 fps 10 year velocity through proposed bridge = 5.20 fps

Note: Information provided utilizing USGS Method (2004-5103)

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	Upstream	Downstream
	711.17	711.00