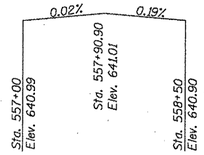
EXISTING STRUCTURE: S.N. 021-8022 was constructed in 1927 at STA. 557+86 as a 8'x3'x42' cast-in-place box culvert with concrete headwalls as S.B.I. 121, Sec. 146 in Douglas County. In 2000 the box was extended with precast box culverts and cast-in-place end sections, under Section (145,146)RS-2 & 147 RS-4. The existing structure is to be completely removed and replaced. There will be no salvage of any materials.
Road closure will be utilized.
BENCHMARK ELEV. = 640.34 Chiseled square on top of center of south headwall of S.N. 021-8022 at STA. 557+91, 31.16' RT.



Profile Grade

Along ℄ Roadway

STATION 557+90.90
BUILT 201_ BY
STATE OF ILLINOIS
F.A.P. RT. 323 SEC. (145,146)CR
LOADING HS 20
STRUCTURE NO. 021-8053

NAME PLATE
See Std. 515001

INDEX OF SHEETS

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

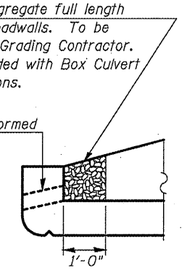
Allow 50#/sq.ft. for future wearing surface

DESIGN STRESSES

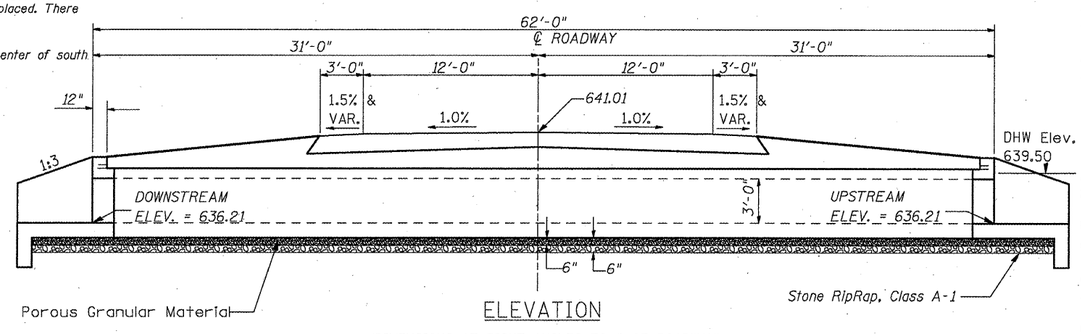
FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (reinforcement)
fy = 65,000 psi (welded wire fabric)

PRECAST UNITS
f'c = 5,000 psi
fy = 65,000 psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Box Culvert End Sections.

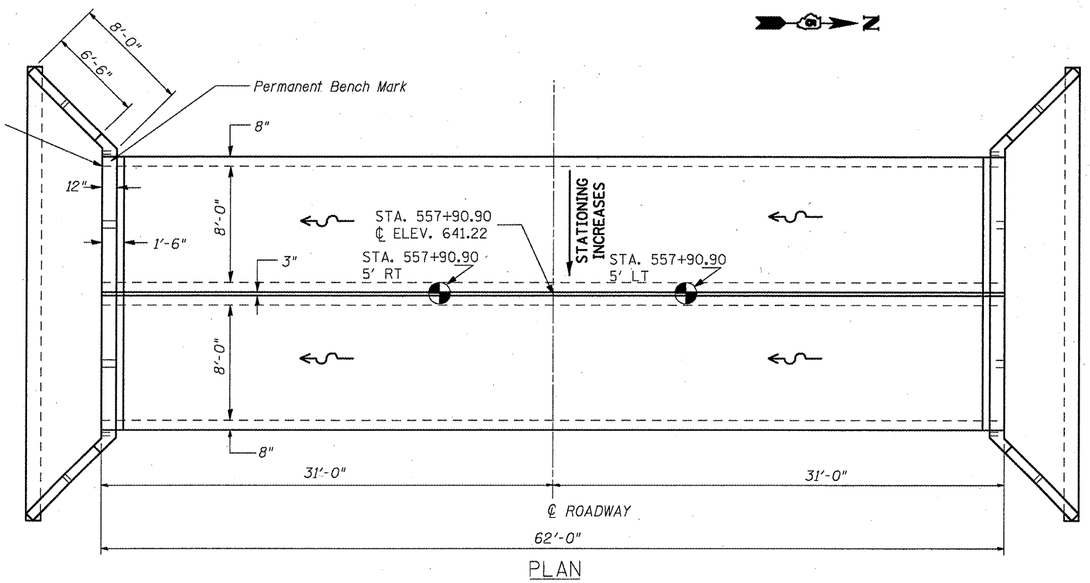


DRAIN DETAIL



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ℄ OF ROADWAY)



PLAN

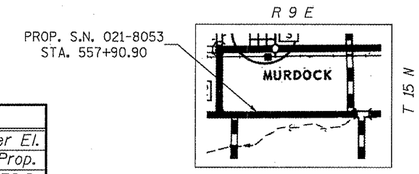
Pavement Borings

WATERWAY INFORMATION

Drainage Area = 0.4 sq. mi. Low Grade Elev. 640.89 @ Sta. 558+70

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	140	24	41				639.9	638.8
Design	50	230	24	48				Over	639.5
Base	100	271	24	48				Over	639.8
Overtopping									
Max. Calc.	500	371	24	48				Over	640.7

Note: Information provided using the Regression Method.



Design Scour Elevation Table

Design Scour Elevation (ft.)	Upstream	Downstream
	633.21	633.21

General Notes

Build tops of headwalls parallel to the grade lines.

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 an 8'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, E-E, and F-F on Sheet 5.

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, 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.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures No. 2	Each	1
Precast Concrete Box Culvert 8'x3' (M273)	Foot	118
Box Culvert End Section, Culvert No. 2	Each	2
Name Plates	Each	1
Permanent Bench Marks	Each	1
Porous Granular Embankment	Cu. Yd.	28
Stone RipRap, Class A1	Ton	45

GENERAL PLAN AND ELEVATION
DOUBLE 8'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 323 - SECTION (145,146)CR
DOUGLAS COUNTY
STATION 557+90.90 S.N. 021-8053
CULVERT NO. 2

FILE NAME = c:\pw_work\FWIDOT\BUCKLESJJ\d0134382\D570696-sht-details.dgn	USER NAME = bucklesjj	DESIGNED - RLA	REVISED -
		DRAWN - RLA	REVISED -
	PLOT SCALE = 48.0000 ' / IN.	CHECKED - JMS	REVISED -
	PLOT DATE = 3/22/2010	DATE - 10/29/09	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
PROPOSED CULVERT NO. 2 - S.N. 021-8053
SCALE: N/A | SHEET NO. 4 OF 5 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
323	(145,146)CR	DOUGLAS	36	18
		CONTRACT NO. 70696		
	ILLINOIS FED. AID PROJECT			