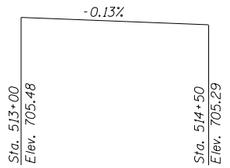
BENCHMARK ELEV: 704.42' Chiseled square on the southeast corner of headwall of S.N. 023-8306 at Station 513+87.40, 21.49' RT.

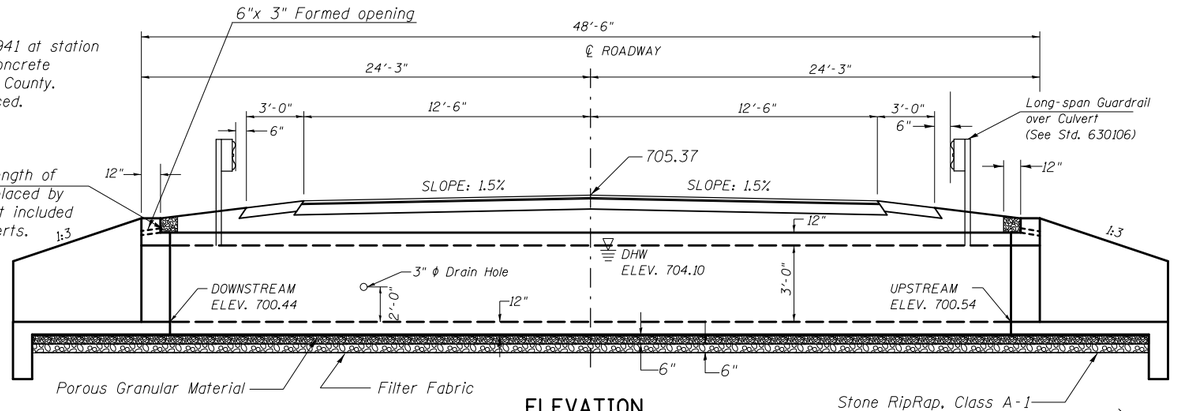
EXISTING STRUCTURE: S.N. 023-8306 was constructed in 1941 at station 513+80 as a double 7'x2'x43'-4" cast-in-place reinforced concrete box culvert as part of FA Route 175, Section 14-S in Edgar County. The existing structure is to be completely removed and replaced. Staged construction with 24-hour flaggers will be utilized.



Profile Grade

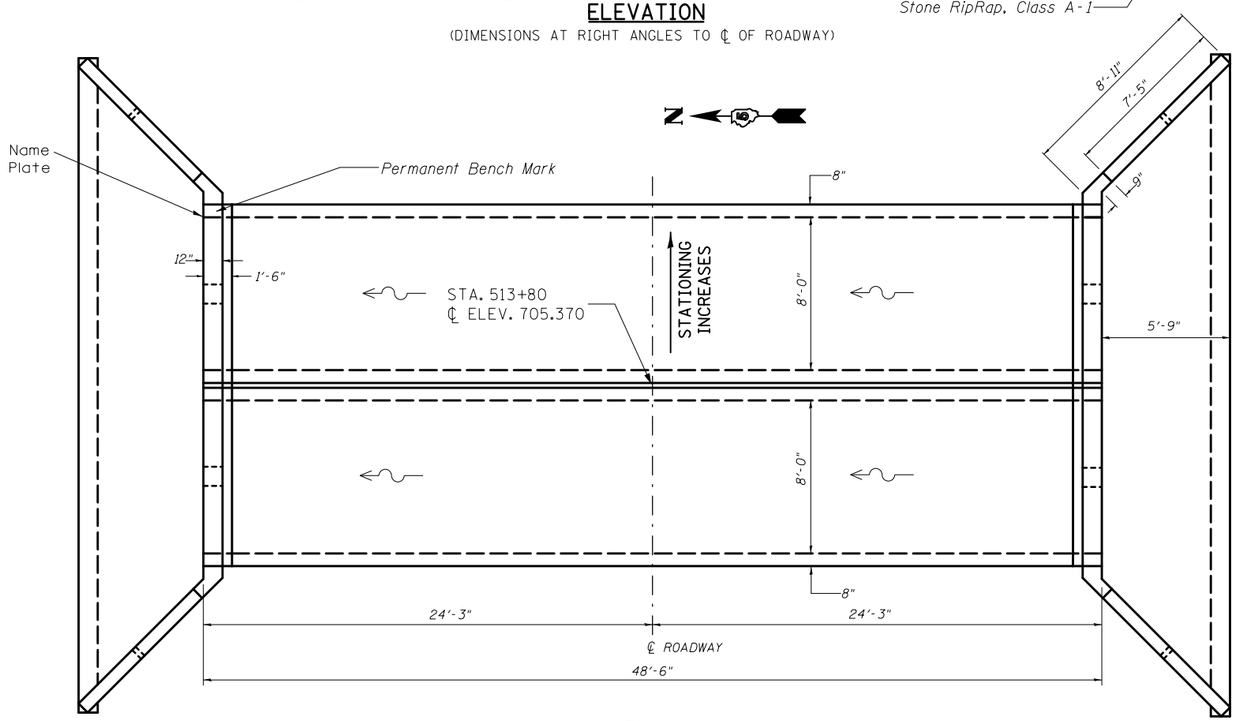
Along ℄ Roadway

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



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ℄ OF ROADWAY)



PLAN

BUILT 2012 BY
STATE OF ILLINOIS
F.A.P. RT. 749 SEC. 14BR,14CR,123CR
LOADING HS 20
STRUCTURE NO. 023-8065

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

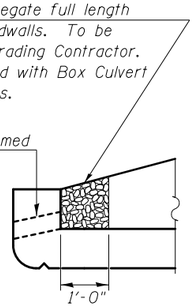
FIELD UNITS

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

WATERWAY INFORMATION

Drainage Area = 0.4 sq. mi. Low Grade Elev. 705.37 @ Sta. 513+80

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	171	28	43				704.0	703.2
Design	50	280	28	48				Over	704.1
Base	100	329	28	48				Over	704.5
Overtopping									
Max. Calc.	500	451	28	48				Over	Over

10 year velocity through existing bridge = 7.51 fps 10 year velocity through proposed bridge = 4.71 fps
Note: Information provided utilizing USGS Streamstats Method

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. One drain hole on exterior culvert walls shall be provided for each precast box culvert section.

The design reinforcement areas shall conform to those found in Table 1 of AASHTO M273 for a 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 sections shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. 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.

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.

The Contractor is advised that a Temporary Soil Retention System (TSRS) may be necessary dependent upon their construction sequence. If required, the Contractor shall be responsible for all aspects (design, furnishing, installing, removal). As a TSRS is not specified in the Contract, the cost of a TSRS shall be considered as included in the contract unit price of the work specified.

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. 3	Each	1
Precast Concrete Box Culvert 8'x3' (M273)	Foot	91
Box Culvert End Sections, Culvert No. 3	Each	2
Name Plates	Each	1
Permanent Bench Marks	Each	1
Porous Granular Embankment	Cu. Yd.	51
Stone RipRap, Class A1	Ton	38

Design Scour Elevation Table

Design Scour Elevation (ft.)	Upstream	Downstream
	697.54	697.44

GENERAL PLAN AND ELEVATION
DOUBLE 8'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 749 - SECTION 14BR,14CR,123CR
STATION 513+80.00 S.N. 023-8065
CULVERT NO. 3

FILE NAME = c:\pw_work\pwidot\keysrb\d0104347\D570618-sht-details.dgn	USER NAME = keysrb	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 8/25/2011	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
PROPOSED CULVERT NO. 3 - S.N. 023-8065

SCALE: | SHEET NO. 1 OF 4 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
749	14BR,14CR,123CR	EDGAR	115	30
		CONTRACT NO. 70618		
		ILLINOIS FED. AID PROJECT		