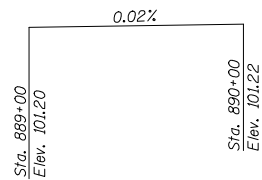


BENCHMARK ELEV. = USE CENTERLINE PROFILE TO ESTABLISH A TEMPORARY BENCHMARK.



Profile Grade
Along ϕ Roadway

STATION 889+37
BUILT 2011 BY
STATE OF ILLINOIS
F.A.P. RT. 711 SEC. 116CR
LOADING HS 20
STRUCTURE NO. 092-8073

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Porous Granular Embankment Detail
4. Soil Borings
5. As-Built Plan

DESIGN SPECIFICATIONS
2002 AASHTO

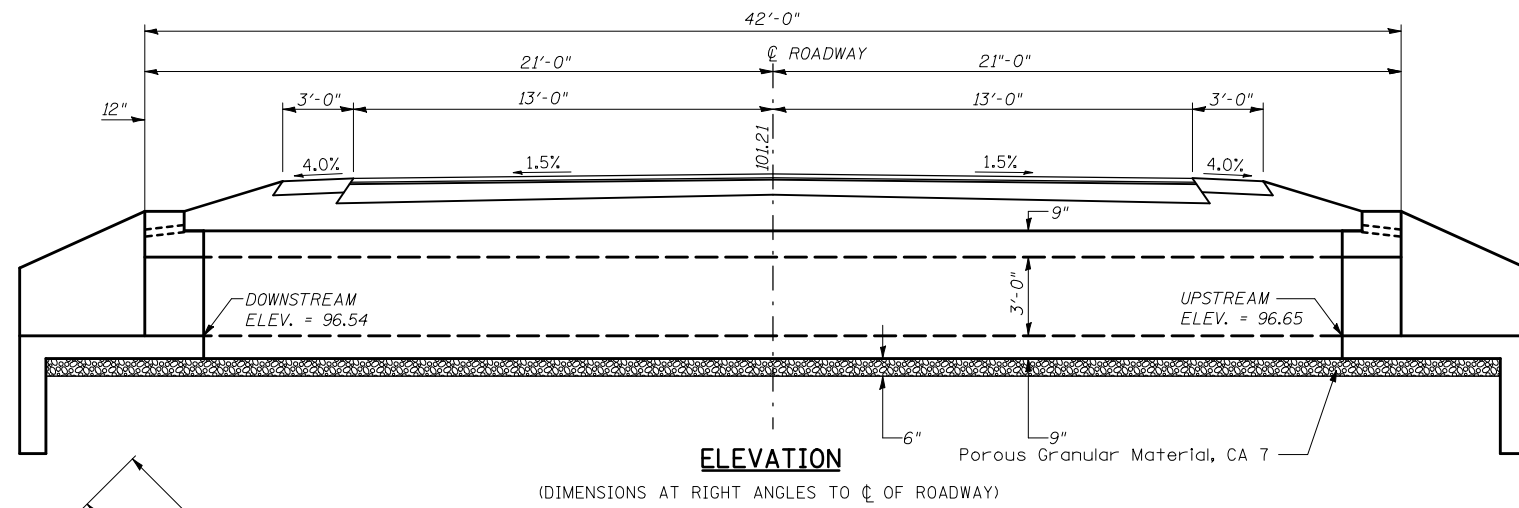
LOADING HS20-44

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

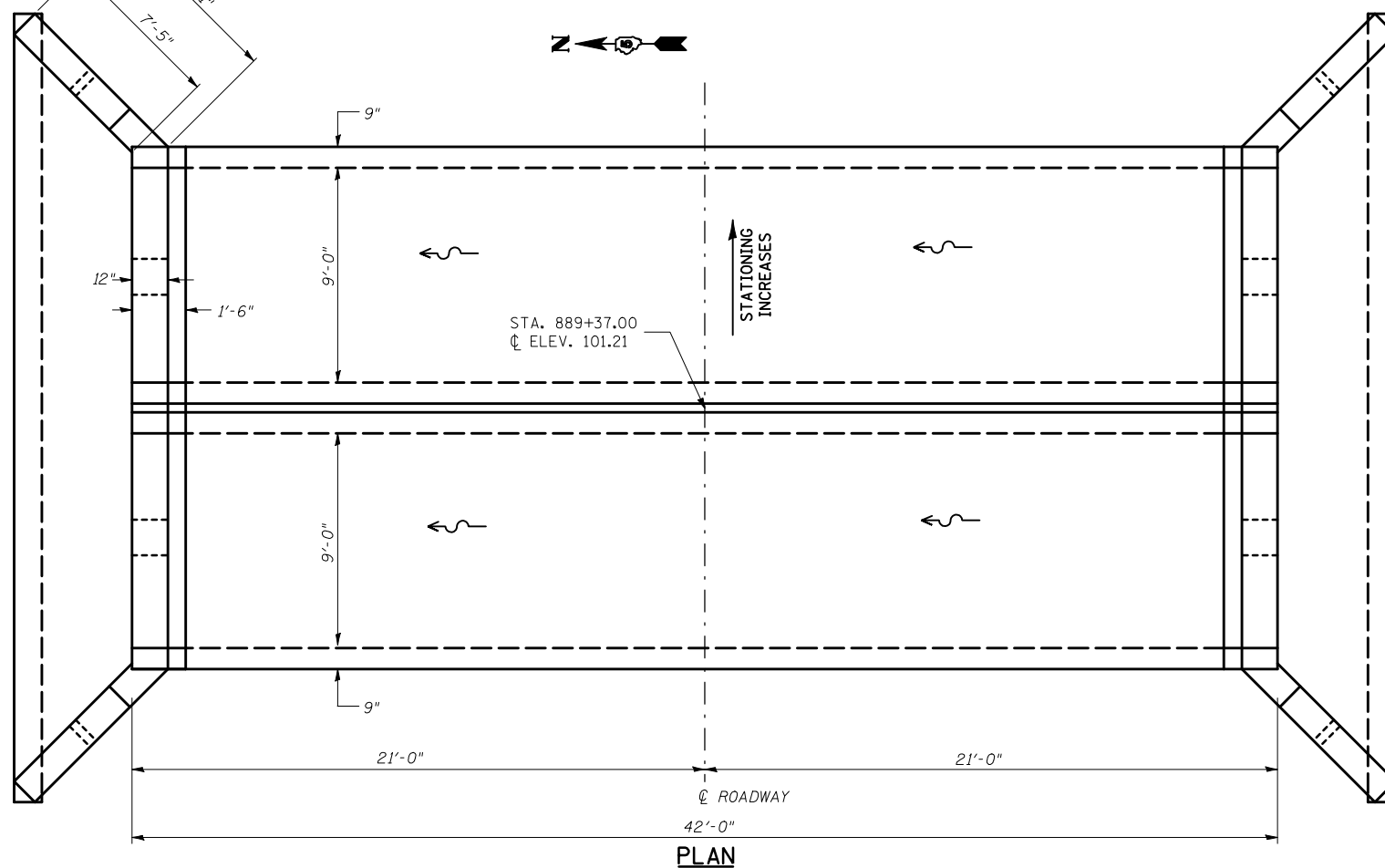
DESIGN STRESSES

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)



ELEVATION
(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)



PLAN

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.

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

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 precast manufacturer shall design and detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section 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, 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.

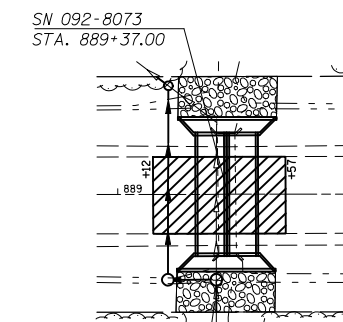
TOTAL BILL OF MATERIAL

Item	Unit	Total
Removal of Existing Structures No. 2	Each	1
Precast Concrete Box Culverts 9'x3'	Foot	84
Box Culvert End Sections, Culvert No. 2	Each	2
Name Plates	Each	1
Porous Granular Embankment	Cu Yd	42

Flood	Freq. Yr.	Q Ft ³ /s	Opening - ft ²		Natural H.W.E.	Head - ft.		Headwater Elevation	
			Existing	Proposed		Existing	Proposed	Existing	Proposed
Design	10	222	12	21.1				Overtopped	99.2
Base	50	361	12	24.0				Overtopped	100.2
Base	100	423	12	25.1				Overtopped	100.7
Overtop Existing									
Overtop Proposed	225	490	12	26.4					101.4
Max. Calc.	500	573	12	27.0				Overtopped	102.3

Design Scour Elevation Table

Design Scour Elevation (ft.)	Upstream	Downstream
	93.65	93.54



LOCATION SKETCH

SHEET 1 OF 5

GENERAL PLAN AND ELEVATION
DOUBLE 9'x3' PRECAST BOX CULVERT
F.A.P. ROUTE 711 - SECTION 116CR
VERMILION COUNTY
STATION 889+37.00 S.N. 092-8073
CULVERT NO. 2