

Benchmarks:
 Railroad spike in power pole, NW quadrant of culvert, Station 412+12/51' RT., Elevation 633.83.

Existing Structure:
 S.N. 038-0169, built in 1928. The superstructure consists of a single-span reinforced concrete slab with steel railing attached and a bituminous wearing surface. The substructure consists of concrete closed abutments supported by untreated timber piles. The back to back of abutments dimension measures approximately 18'-0". Structure to be closed and traffic detoured during construction.

No Salvage.

WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		*Head - Ft.		Headwater El.		
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	
Design	10	808	99	177	632.3	2.3	0.4	634.6	632.7
Base	50	1292	109	192	632.9	2.2	1.0	635.1	633.9
Overlapping (exist.)	100	1505	111	192	633.0	3.8	1.4	636.8	634.4
Overlapping (prop.)	10	808	99	177	632.3	2.3	0.4	634.6	632.7
Max. Calc.	250	1698	111	192	633.2	3.4	1.5	636.6	634.7
	500	2019	111	192	633.5	2.0	1.8	635.5	635.3

10 year velocity through Existing Structure = 8.2 fps
 10 year velocity through Proposed Structure = 4.6 fps

STATION 412+24
 BUILT 20... BY
 STATE OF ILLINOIS
 F.A.P. RT. 840 SEC. 138 BR-3
 LOADING HS20-44
 STR. NO. 038-2024

NAME PLATE
 See Standard 515001

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS
 f'c = 3,500 psi (Cast-In-Place)
 fy = 60,000 psi (Reinforcement)
PRECAST UNITS
 f'c = 5,000 psi (Precast)
 fy = 60,000 psi (Reinforcement)
 fy = 65,000 psi (Welded Wire Fabric)

DESIGN SPECIFICATIONS
 AASHTO 2002

TOTAL BILL OF MATERIAL - BOX CULVERT

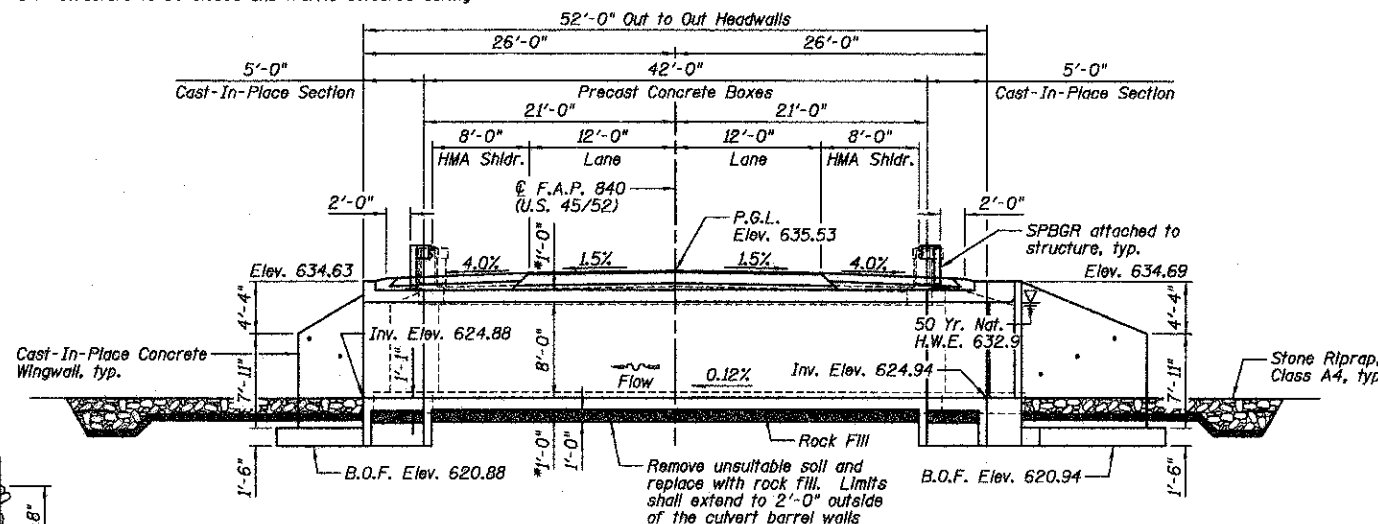
ITEM	UNIT	TOTAL
Removal And Disposal Of Unsuitable Material	Cu. Yd.	61
Stone Riprap, Class A4	Sq. Yd.	314
Filter Fabric	Sq. Yd.	314
Removal Of Existing Structures	Each	1
Reinforcement Bars	Pound	10,390
Reinforcement Bars, Epoxy Coated	Pound	700
Name Plates	Each	1
Concrete Box Culverts	Cu. Yd.	81.2
Precast Concrete Box Culvert 12'x8' (M273)	Foot	84
Rock Fill	Cu. Yd.	57

GENERAL NOTES

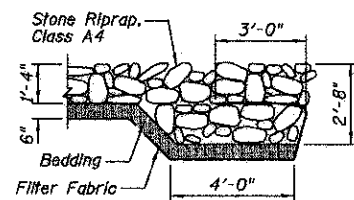
- 1.) Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.
- 2.) Reinforcement bars designated (E) shall be epoxy coated.
- 3.) Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- 4.) Cast-In-Place concrete exposed edges shall be beveled 3/4".
- 5.) It shall be the responsibility of the Contractor to divert the stream flow during construction in order to keep the construction area free of water. The method of water diversion shall be subject to the approval of the Engineer and the cost shall be included with the cost of "Concrete Box Culverts".
- 6.) Structural seal does not include design of precast elements.
- 7.) The precast concrete culvert sections shall be designed and manufactured in accordance with AASHTO M273 (ASTM C 850).
- 8.) For backfilling and embankment, see Standard Specifications.
- 9.) End of precast section shall not have a bell or spigot.
- 10.) Contractor to confirm all precast culvert dimensions with supplier before starting construction. All applicable cast-in-place concrete dimensions shall match precast culvert dimensions.
- 11.) See Sheet B7 and B8 for soil borings.
- 12.) The last section of precast culvert shall have an integral toe wall and reinforcing bars extending from the precast culvert as shown on Sheet B2.
- 13.) The Contractor shall reshape the channel within the Right-Of-Way in order to facilitate drainage and the placement of riprap as directed by the Engineer. The cost of reshaping the channel shall be included in the cost of "Removal of Existing Structures".
- 14.) Alternate extended bars from precast section in slab so top and bottom mats of reinforcement do not lap at the same location.

INDEX TO SHEETS

SHEET NO.	TITLE
B1	GENERAL PLAN AND ELEVATION
B2	DOUBLE BOX CULVERT LONGITUDINAL SECTION AND PRECAST CONCRETE
B3	CAST-IN-PLACE CONCRETE CULVERT ELEVATIONS, SECTION AND DETAILS
B4	CAST-IN-PLACE TOP SLAB PLAN AND SECTION
B5	CAST-IN-PLACE BOTTOM SLAB PLAN AND SECTION
B6	WINGWALLS
B7-B8	SOIL BORING LOGS
B9-B10	EXISTING PLANS



LONGITUDINAL SECTION
 (Looking South @ E of Culvert, roadway dimensions @ right angles to roadway)

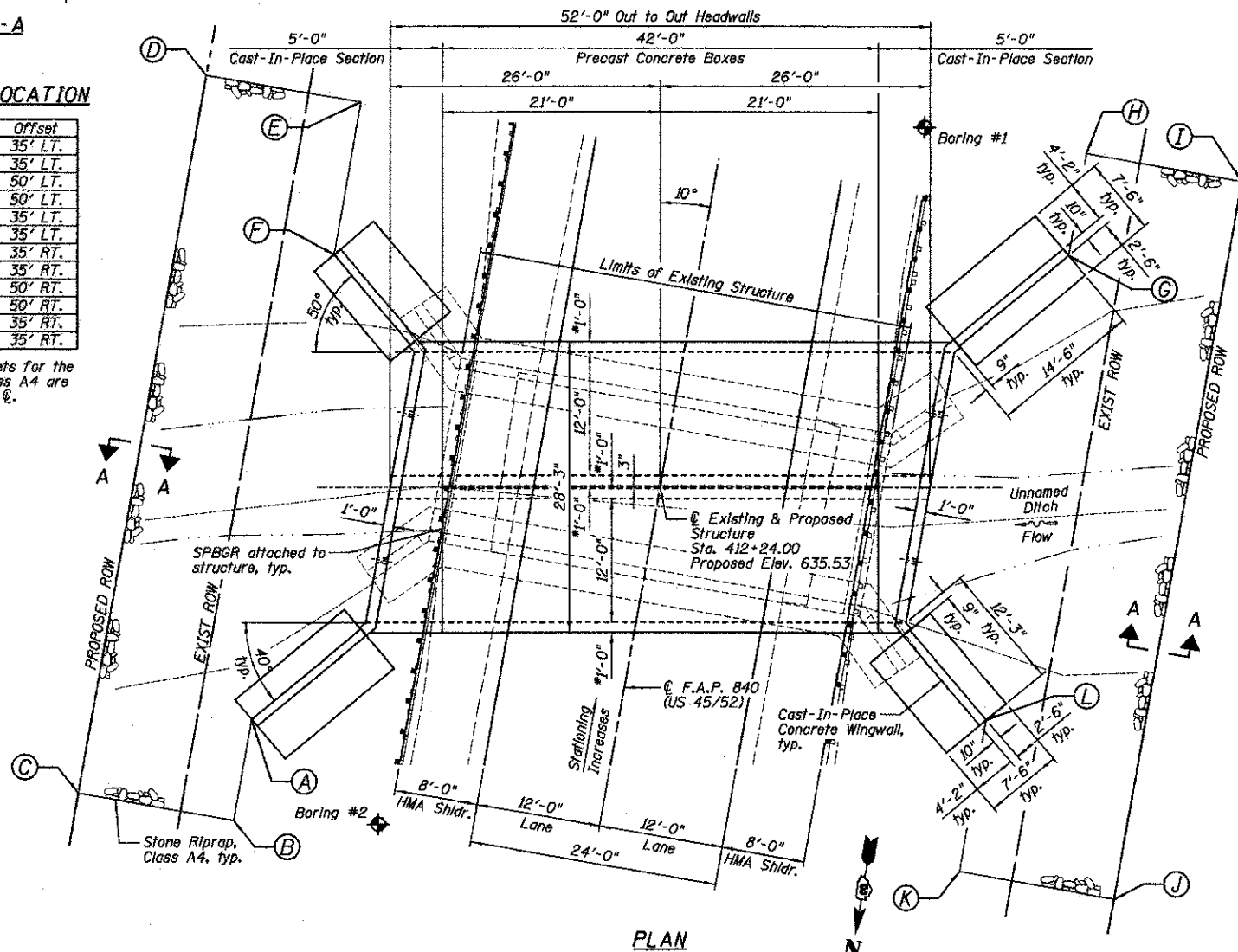


SECTION A-A

STONE RIPRAP LOCATION

Location	Station	Offset
A	411+95	35' LT.
B	411+85	35' LT.
C	411+85	50' LT.
D	412+56	50' LT.
E	412+56	35' LT.
F	412+41	35' LT.
G	412+53	35' RT.
H	412+63	35' RT.
I	412+63	50' RT.
J	411+92	50' RT.
K	411+92	35' RT.
L	412+07	35' RT.

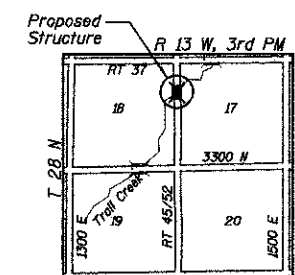
Note: Stations and offsets for the Stone Riprap, Class A4 are from the roadway E.



PLAN



Mark S. Wylie Date 7/25/11
 MARK S. WYLIE
 ILLINOIS STRUCTURAL ENGINEER
 NO. 081-005002
 Exp. Date 11/30/12



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
 US 45/52 OVER
 UNNAMED DITCH
 F.A.P. 840 - SECTION 138 BR-3
 IROQUOIS COUNTY
 STA. 412+24.00
 STRUCTURE NO. 038-2024

- NOTES:**
- 1.) *Confirm slab and wall thickness with Precaster.
 - 2.) B.O.F. denotes Bottom Of Footing.
 - 3.) P.G.L. denotes Profile Grade Line.

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DESIGNED - DKS	REVISOR
CHECKED - SDH	REVISOR
DRAWN - DJM/JWK	REVISOR
CHECKED - MSW	REVISOR

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. B1 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
840	138 BR-3	IROQUOIS	28	13

CONTRACT NO. 66971
 ILLINOIS FED. AID PROJECT