

Benchmark: Chiseled square on southwest wingwall of Structure No. 074-0018. 21.14' Rt. Sta. 352+28.3. Elev. 669.06

Existing Structure: S.N. 074-0018 was constructed in 1940 at Sta. 352+50 as a single span reinforced concrete girder bridge as F.A. 135, Section 11B in Piatt County. The existing structure is to be completely removed and replaced. The road is to be temporarily closed during construction.

CULVERT CONSTRUCTION SEQUENCE

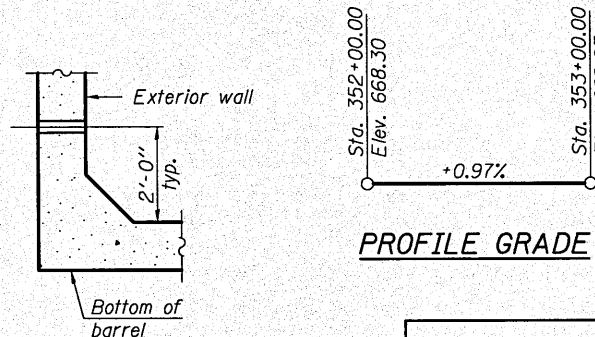
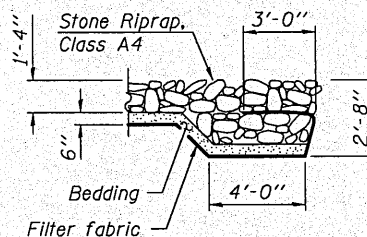
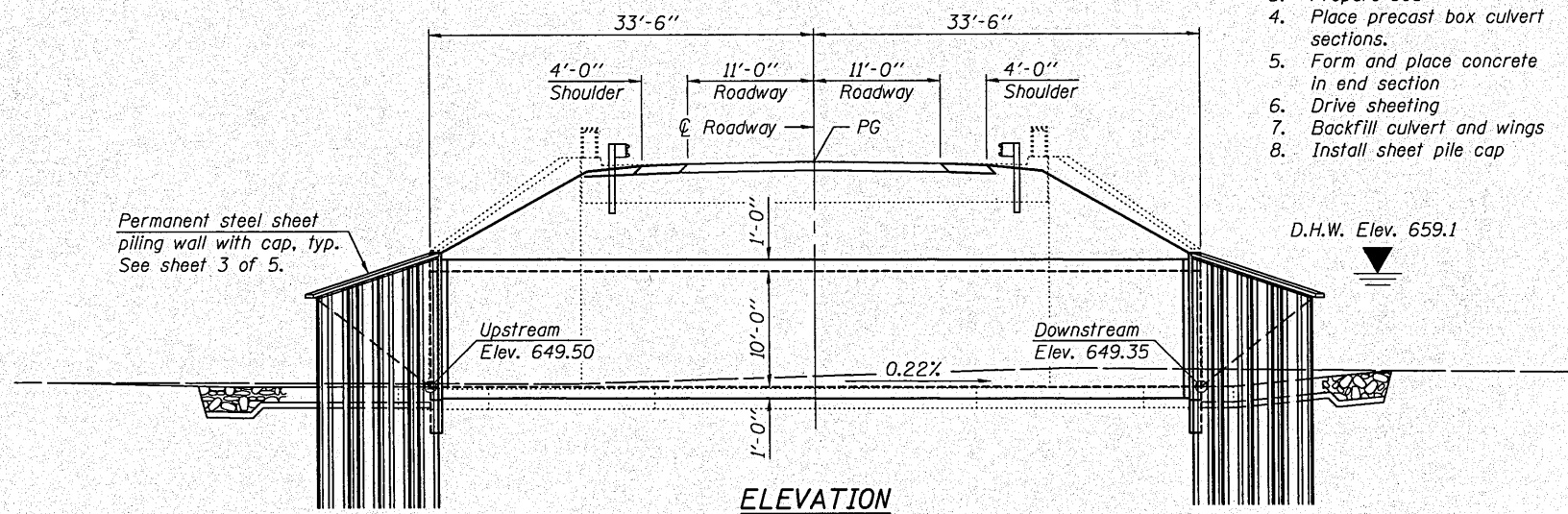
1. Remove existing structure
2. Build cutoff wall
3. Prepare bed
4. Place precast box culvert sections.
5. Form and place concrete in end section
6. Drive sheet piling
7. Backfill culvert and wings
8. Install sheet pile cap

INDEX OF SHEETS

- 1 - General Plan & Elevation
- 2-3 - Box Culvert End Section Details
- 4 - Bar Splicer Assembly Details
- 5 - Soil Boring Logs

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60.
 Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
 The design fill height for this structure is 10 feet. The precast concrete box culvert sections shall conform to the requirements of AASHTO M259.
 The minimum effective section modulus of the permanent sheet pile wall shall be 25 in.³/ft.
 The sheet pile cap shall be AASHTO M270 Grade 50W.
 Fasteners shall be AASHTO M164 Type 3. Bolts 1/2" φ, holes 5/8" φ.
 See sheet 2 of 5 for culvert construction sequence.
 Areas of the precast box culvert in contact with cast-in-place concrete shall be sandblasted, cleaned, and wetted prior to placing concrete in the field according to Article 503.09(b) of the Standard Specifications.
 Sheet piling shall not be driven until the concrete strength has attained a minimum flexural strength of 650 psi or a minimum compressive strength of 3500 psi.



DRAIN DETAIL
 Provide 3" φ drain holes in exterior walls at ±8' cts. See Article 503.11 of the Standard Specifications.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Removal of Existing Structures No. 3	Each	1
Name Plates	Each	1
Box Culvert End Sections, Culvert No. 3	Each	2
Precast Concrete Box Culvert 12' x 10'	Foot	128
Stone Riprap, Class A4	Sq. yd.	218.9
Filter Fabric	Sq. yd.	218.9
Permanent Benchmark	Each	1
Porous Granular Embankment	Cu. yd.	1479.6

DESIGN SCOUR ELEVATION TABLE

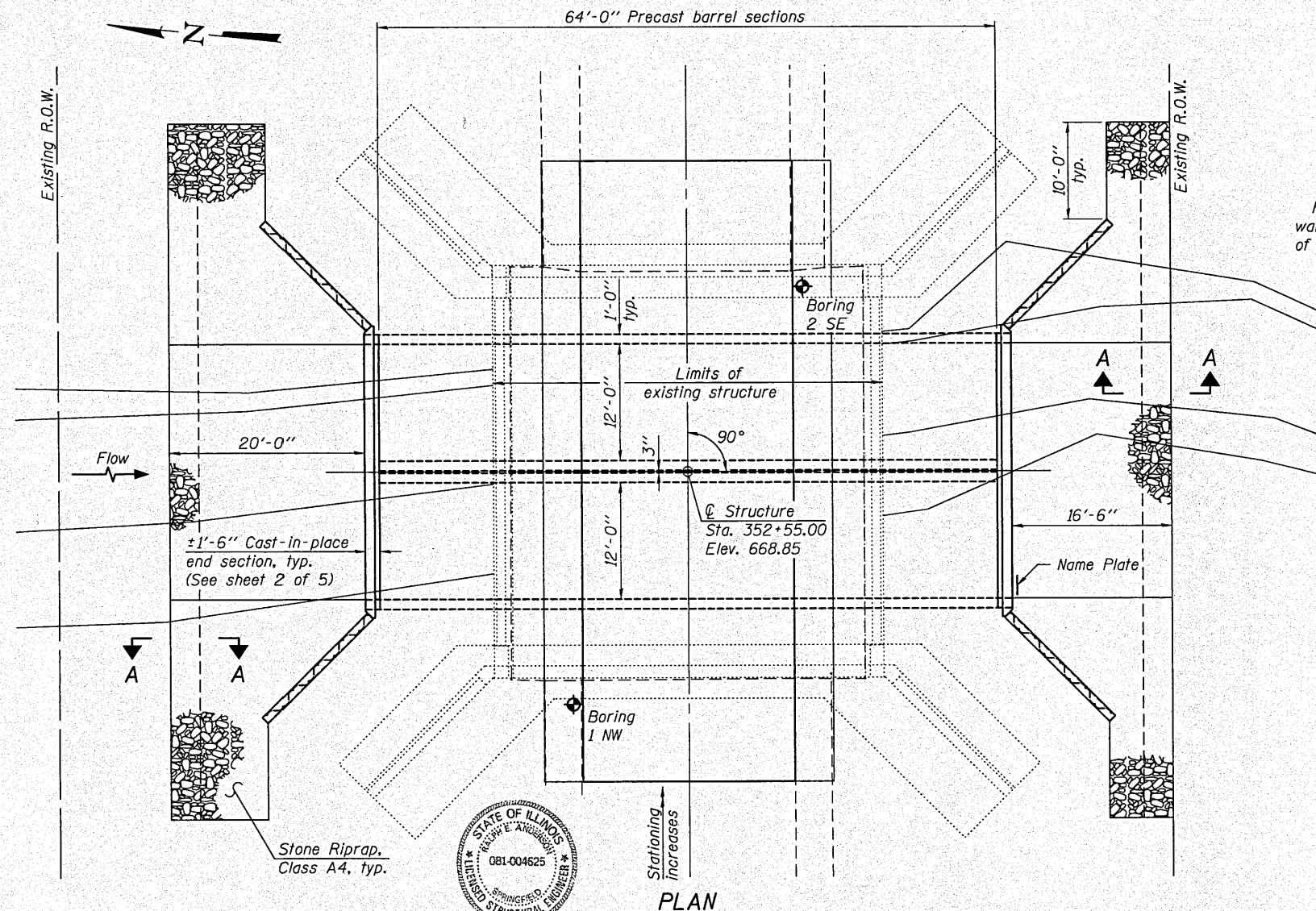
Design Scour Elevation (ft.)	Upstream	Downstream
	645.50	645.35

WATERWAY INFORMATION

Drainage Area = 6.27 mi.² Proposed Low Grade Elev. 667.57 @ Sta. 350+00
 Existing Low Grade Elev. 667.57 @ Sta. 350+00

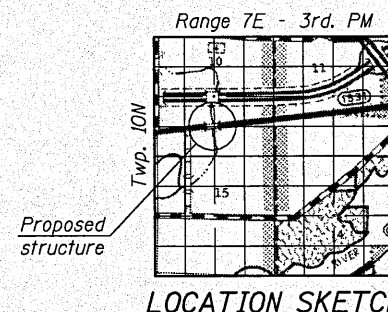
Flood Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
10	786	222	202	657.9	0.1	0	658.0	657.9
Design	50	1262	270	659.1	0.3	0.3	659.4	659.4
Base	100	1473	290	659.6	0.4	0.4	660.0	660.0
Max. Calc.	500	1984	330	660.6	0.6	1.0	661.2	661.6

10 year velocity through existing bridge = 4.80 ft./sec.
 10 year velocity through proposed culvert = 3.93 ft./sec.



NAME PLATE
 See Std. 515001

STATION 352+55.00
 BUILT 201 BY
 STATE OF ILLINOIS
 F.A.S. RTE. 1531 SEC. 10B-1 & 11B-1
 LOADING HS 20-44
 STRUCTURE NO. 074-2006



DESIGN STRESSES

FIELD UNITS
 f'c = 3,500 psi
 fy = 60,000 psi (Reinforcement)
 fy = 38,000 psi (permanent sheet piling)
 fy = 50,000 psi (AASHTO M270, Grade 50W)

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

LOADING HS 20-44

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

DESIGN SPECIFICATIONS
 2002 AASHTO

GENERAL PLAN & ELEVATION
 F.A.S. ROUTE 1531 OVER WILDCAT CREEK
 F.A.S. RTE. 1531 - SEC. 10B-1 & 11B-1
 PIATT COUNTY
 STATION 352+55.00
 STRUCTURE NO. 074-2006

DESIGNED - [Signature]
 CHECKED - [Signature]
 DRAWN - MICHAEL B. MOSSMAN
 CHECKED -

EXAMINED - [Signature]
 PASSED - [Signature]
 ENGINEER OF BRIDGE DESIGN
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - 12-8-10

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 5 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1531	10B-1 & 11B-1	PIATT	88	28
CONTRACT NO. 70458			ILLINOIS FED. AID PROJECT	