

Benchmark: Chiseled square on top of the northwest corner of Structure No. 074-0018. 21.95' Lt. Sta. 164+18.72; Elev. 678.04.

Existing Structure: S.N. 074-0017 was constructed in 1939 at Sta. 164+40 as a single span reinforced concrete girder bridge as F.A. 135, Section 10B in Piatt County. The existing structure is to be completely removed and replaced. The road is to be temporarily closed during construction.

INDEX OF SHEETS

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

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 sheeting
7. Backfill culvert and wings
8. Install sheet pile cap

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 less than 2 feet. The precast concrete box culvert sections shall conform to the requirements of AASHTO M273.
 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 .
 The Contractor is advised that they may encounter existing substructure (or timber piles). They should bid accordingly and no additional compensation is allowed.
 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.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Removal of Existing Structures No. 1	Each	1
Name Plates	Each	1
Box Culvert End Sections, Culvert No. 1	Each	2
Precast Concrete Box Culvert 12' x 10'	Foot	165
Stone Riprap, Class A4	Sq. yd.	329
Filter Fabric	Sq. yd.	329
Permanent Benchmark	Each	1
Porous Granular Embankment	Cu. yd.	421.4

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	Upstream	Downstream
	661.10	660.85

WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	558	196	245	671.9	0	0	671.9	671.9
Base	50	874	240	284	673.0	0.2	0.1	673.2	673.1
Max. Calc.	100	1012	256	299	673.4	0.3	0.2	673.7	673.6
	500	1339	272	328	674.2	0.6	0.3	674.8	674.5

Proposed Low Grade Elev. 677.41 @ Sta. 164+40.00
 Existing Low Grade Elev. 677.37 @ Sta. 164+00.00
 10 year velocity through existing bridge = 2.8 ft./sec.
 10 year velocity through proposed culvert = 2.2 ft./sec.

DESIGN STRESSES

FIELD UNITS
 $f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 38,000$ psi (permanent sheet piling)
 $f_y = 50,000$ psi (AASHTO M270, Grade 50W)
PRECAST UNITS
 $f'_c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

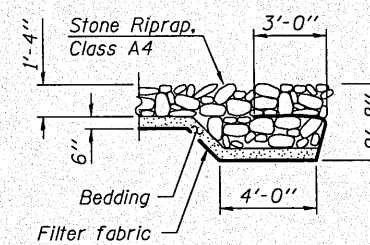
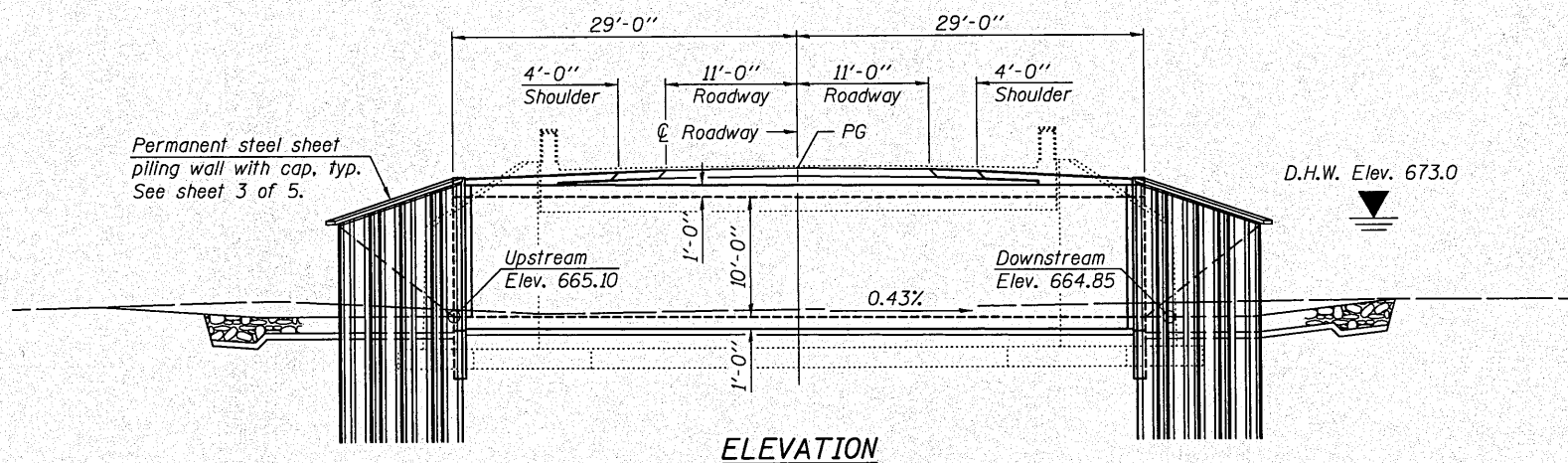
LOADING HS 20-44

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

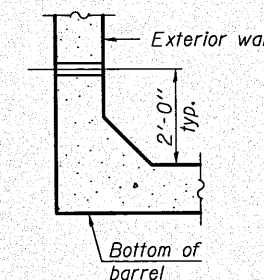
DESIGN SPECIFICATIONS

2002 AASHTO

GENERAL PLAN & ELEVATION
 F.A.S. ROUTE 1531 OVER WOLF RUN
 F.A.S. RTE. 1531 - SEC. 10B-1 & 11B-1
 PIATT COUNTY
 STATION 164+40.00
 STRUCTURE NO. 074-2007

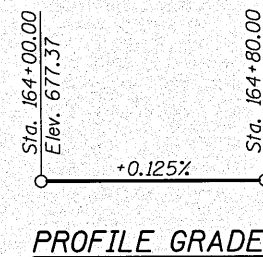


SECTION A-A



DRAIN DETAIL

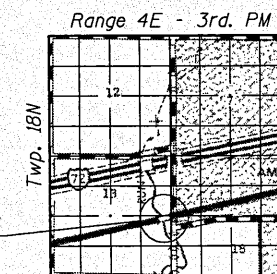
Provide 3" ϕ drain holes in exterior walls at $\pm 8'$ cts. See Article 503.11 of the Standard Specifications.



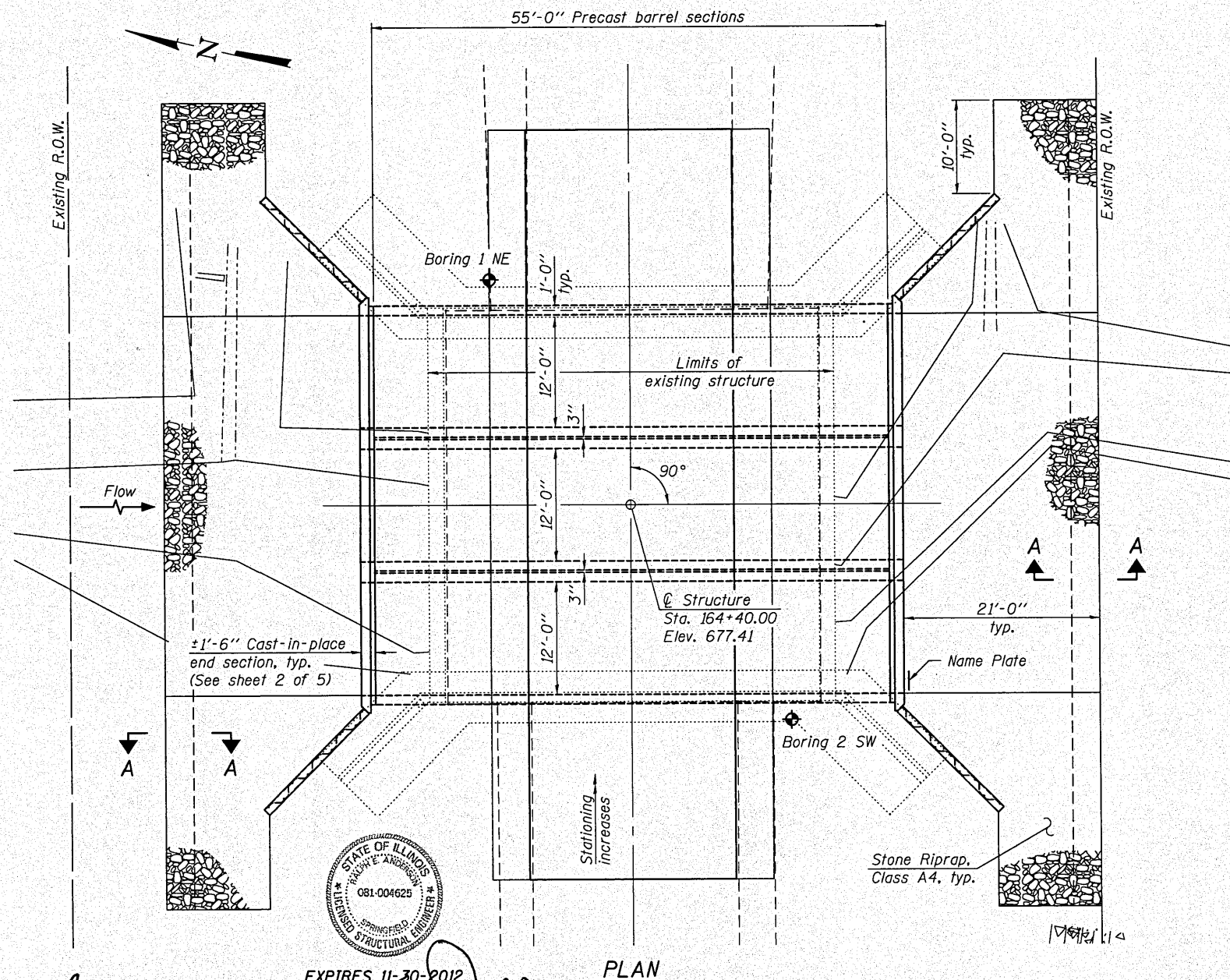
PROFILE GRADE

STATION 164+40.00
 BUILT 201 BY
 STATE OF ILLINOIS
 F.A.S. RTE. 1531 SEC. 10B-1 & 11B-1
 LOADING HS 20-44
 STRUCTURE NO. 074-2007

NAME PLATE
 See Std. 515001



LOCATION SKETCH



EXPIRES 11-30-2012

PLAN

DESIGNED - <i>Michael B. Mossman</i>	EXAMINED - <i>Thomas D. Quinn</i>	DATE - 12-8-10
CHECKED - <i>Michael B. Mossman</i>	PASSED - <i>Ronald E. Anderson</i>	
DRAWN - MICHAEL B. MOSSMAN	ENGINEER OF BRIDGES AND STRUCTURES	
CHECKED -	ENGINEER OF BRIDGES AND STRUCTURES	

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	18
				CONTRACT NO. 70458
ILLINOIS FED. AID PROJECT				