B.M.: Chiseled "X" on top of rail post, Sta. 125+85.89, 17.85' lt.
Elev. 674.52

Existing Structure: SN 053-0105 was originally constructed in 1928. The superstructure was replaced and the substructure was widened in 1972. The superstructure consists of a single span of 18" precast concrete channel beams on closed abutments. The back-to-back abutments dimension measures 18'-0" while the out-to-out width measures 33'-9". The existing superstructure and substructure shall be removed. Staging shall be used during construction of the box culvert.

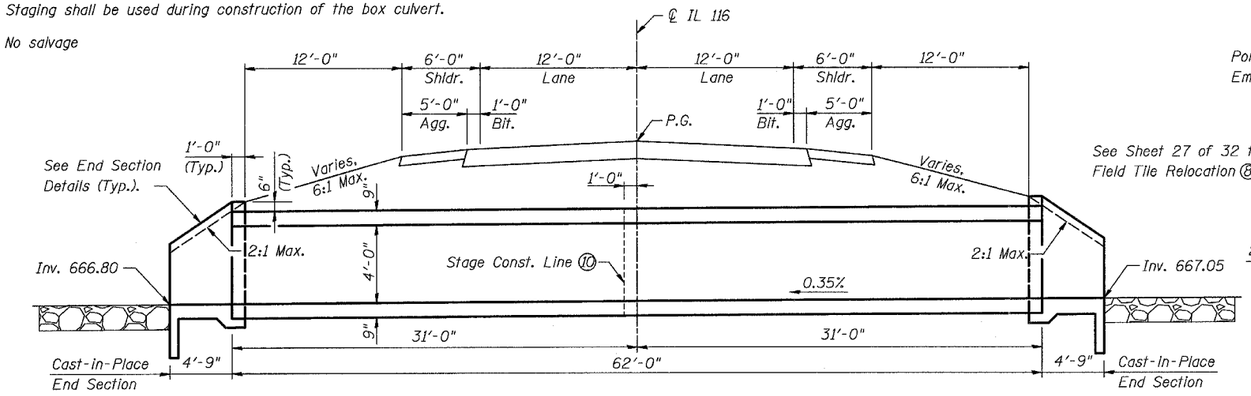
No salvage

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

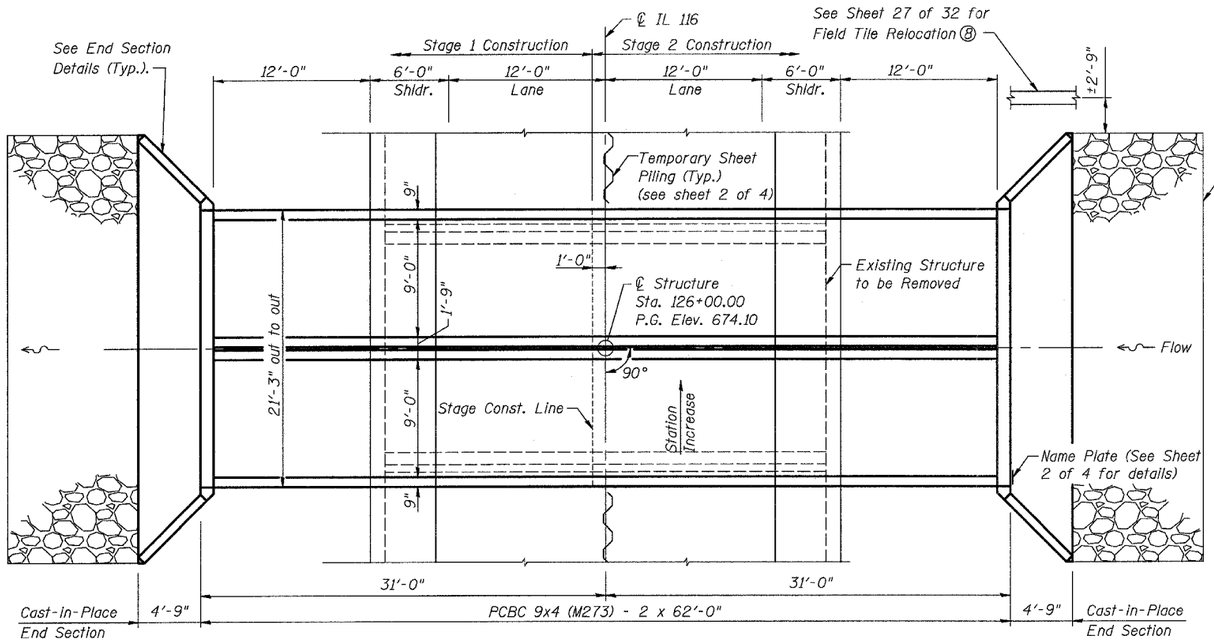
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 681	115 BR	LIVINGSTON	32	17
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 1
4 SHEETS

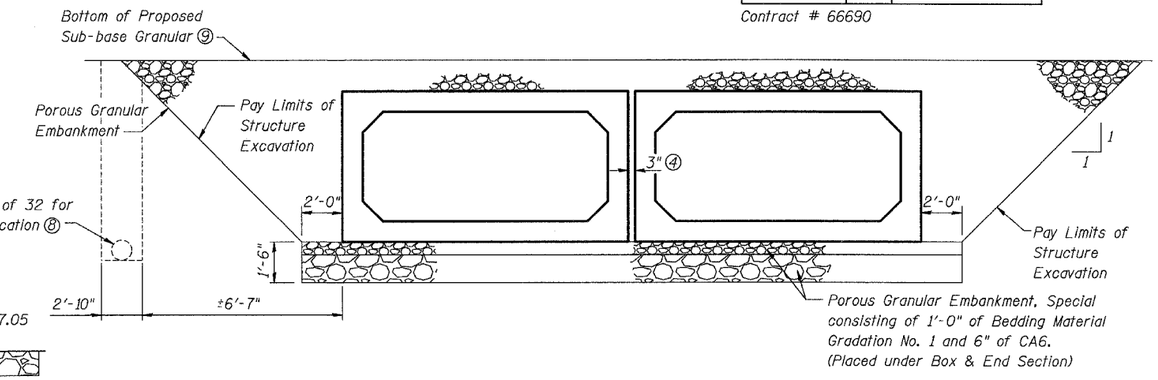
Contract # 66690

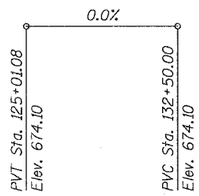


ELEVATION
(Looking west)

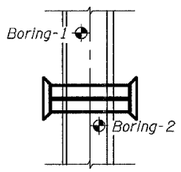


PLAN





PROFILE GRADE
(Along ℄ Roadway)



BORING LOCATIONS

DESIGN SPECIFICATIONS
1996 AASHTO with 1997 thru 2002 Interims

LOADING HS20-44
Allow 50#/sq. ft. for future wearing surface.

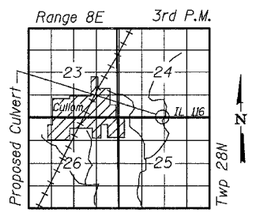
Design Fill Height = <2 ft.

DESIGN STRESSES
Precast
f'c = 5,000 psi
fy = 65,000 psi (welded wire fabric)
Cast-In-Place
f'c = 3,500 psi
fy = 60,000 psi (reinforcement)

WATERWAY INFORMATION

Drainage Area = 1.10 sq. mi. Low Grade Elev. 674.10 @ Sta. 128+00

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	221	40	45	670.1	0.8	0.2	670.9	670.3
Design	50	332	41	50	670.4	1.5	0.5	671.9	670.9
Base	100	378	41	50	670.4	1.9	0.7	672.3	671.1
Overtopping	75	360	41		670.4	1.8		672.2	
Max. Calc.	500	484		52	670.5		1.3		671.8



LOCATION SKETCH

DOUBLE 9' x 4' PRECAST CONCRETE BOX CULVERT SECTION THROUGH BARREL

GENERAL NOTES

1. Precast Concrete Box Culvert sections shall conform to the requirements of Article 540.06 of the Standard Specifications and the applicable requirements of AASHTO M 273.
2. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.
3. Lifting holes shall be filled with concrete plugs and mastic after box sections are in place.
4. Fill space between boxes with class SI Concrete in accordance with Article 540.06 of the Standard Specifications. Cost included with Precast Concrete Box Culvert 9'x4' (M273).
5. Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure. The Contractor shall sawcut the upper portion of the existing abutment at the stage removal line before Stage 1 removal to ensure the remaining portion will not be prematurely damaged. Cost of sawcut included with Removal of Existing Structures.
6. If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.
7. The Contractor shall connect the first sheet to the existing abutment wall to ensure stability of sheets driven to the top of the existing footing. This connection shall be reviewed and accepted by the Engineer and included in the cost for Temporary Sheet Piling.
8. Trench Backfill associated with field tile relocation will be included in the cost for Porous Granular Embankment.
9. Porous Granular Embankment shall extend the entire length of the box, maintaining 2' of earth above the Porous Granular Embankment outside of the roadway shoulders.
10. See Roadway Plans for staging.

TOTAL BILL OF MATERIAL

Item	Unit	Total
Porous Granular Embankment	Cu. Yd.	201
Porous Granular Embankment, Special	Cu. Yd.	102
Removal of Existing Structures	L. Sum	1
Bridge Rail Removal	Foot	76
Structure Excavation	Cu. Yd.	252
Concrete Structures	Cu. Yd.	17.5
Reinforcement Bars	Pound	950
Temporary Sheet Piling	Sq. Ft.	172
Name Plates	Each	1
Precast Concrete Box Culvert 9'x4' (M273)	Foot	124

PREPARED BY
OATES ASSOCIATES, INC.

LICENSED STRUCTURAL ENGINEER
JEFFREY R. BENSING
062-060559
STATE OF ILLINOIS

DATE: 8/20/2007
EXPIRES: 11/30/2008

GENERAL PLAN
IL 116 OVER DRAINAGE DITCH
FAP ROUTE 681 - SECTION 115BR
LIVINGSTON COUNTY
STATION 126+00.00
STRUCTURE NO. 053-2568