

Benchmark: Cut square on Southwest Wingwall S.N. 004-0009, Elev. 858.27

Existing Structure: S.N. 004-0009 was originally built in 1928 and reconstructed in 1976 under F.A. Route 202, Section 130B-1R. The existing superstructure consists of a four span precast, prestressed concrete deck beams supporting a bituminous concrete wearing surface. The existing substructure consists of closed abutments and solid wall piers supported on pilings. The back to back of abutment length is 167'-6" and the out-to-out width of the deck is 41'-0".

No Salvage

During construction traffic will be detoured to a temporary roadway north of the structure.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 303	130 BR-4	BOONE	38	18 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

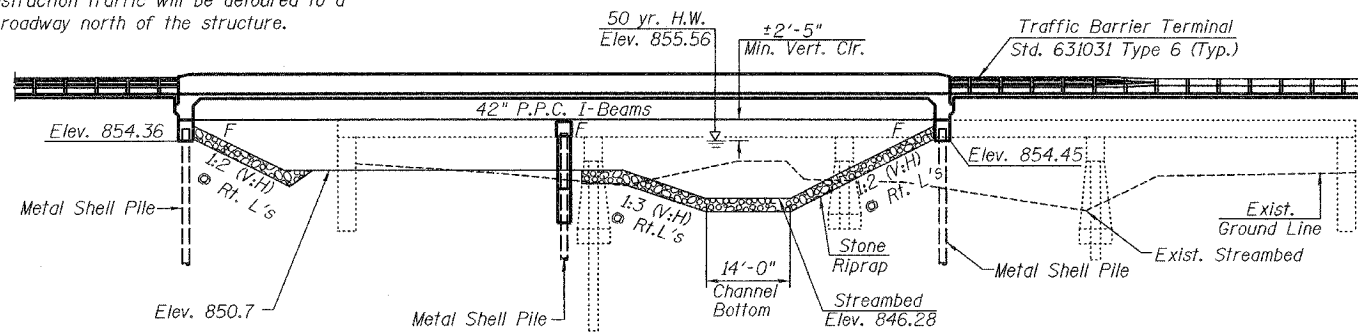
Contract #64800

INDEX OF SHEETS

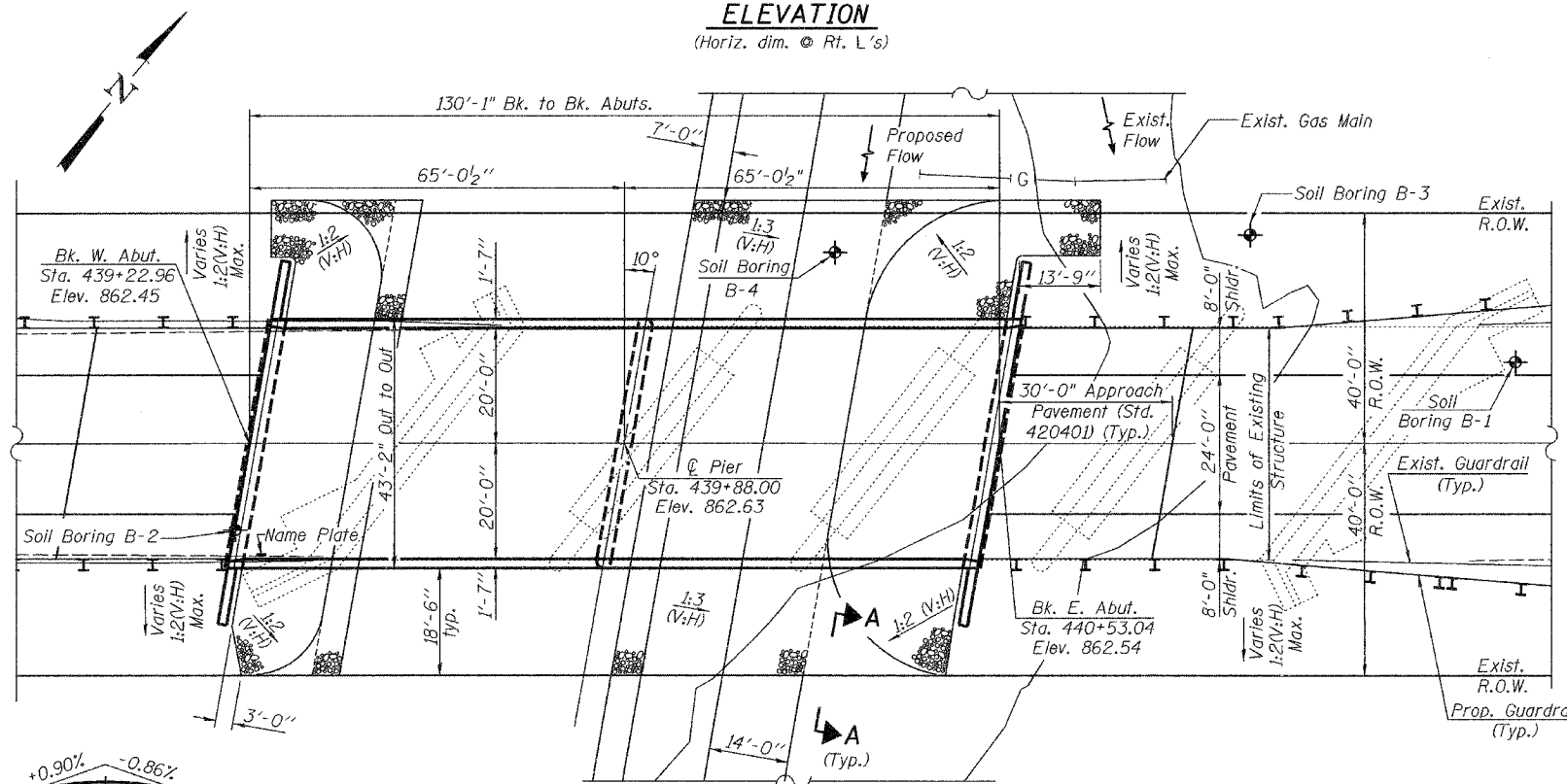
1. General Plan & Elevation
2. General Data
- 3-4. Top of Slab Elevations
5. Superstructure
6. Superstructure Details
7. Diaphragm Details
8. Framing Plan
9. 42" PPC-I Beam
10. 42" PPC-I Beam Details
11. West Abutment
12. East Abutment
13. Pier
14. Metal Shell Pile
15. Bar Splicers
- 16-18. Soil Boring Logs

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.
Reinforcement bars designated (E) shall be epoxy coated.
Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.
The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at substructures specified or approved by the Engineer before ordering the remainder of piles.
The Contractor shall limit the pile hammer size selected considering the relatively high soil strengths and cobbles indicated in the borings and avoid overdriving the piles beyond their required bearing to prevent possible pile damage during driving.



ELEVATION
(Horiz. dim. @ Rt. L's)



PLAN

Note: For Section A-A see sheet 2 of 18.

STATION 439+88.00
BUILT 20 BY
STATE OF ILLINOIS
F.A.P. RT. 303 SECTION 130BR-4
LOADING HS-20
STR. NO. 004-0020

NAME PLATE
See Std. 515001

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures No. 1	Each			1
Structure Excavation	Cu. Yd.		417.2	417.2
Concrete Structures	Cu. Yd.		73.7	73.7
Concrete Superstructure	Cu. Yd.	203.0		203.0
Bridge Deck Grooving	Sq. Yd.	549		549
Protective Coat	Sq. Yd.	687		687
Furnishing and Erecting Precast Prestressed Concrete I-Beams, 42"	Foot	771.5		771.5
Reinforcement Bars, Epoxy Coated	Pound	45440	9430	54870
Name Plates	Each	1		1
Bar Splicers	Each	80		80
Anchor Bolts, 1/2"	Each		4	4
Underwater Structure Excavation Protection-Location 1	Each		1	1
Stone Riprap, Class A5	Sq. Yd.		765	765
Filter Fabric	Sq. Yd.		765	765
Pipe Underdrains for Structures 4"	Foot		153	153
Geocomposite Wall Drain	Sq. Yd.		82	82
Furnishing Metal Shell Piles, 14"	Foot		992	992
Test Pile Metal Shells	Each		3	3
Driving Piles	Foot		992	992
Concrete Encasement	Cu. Yd.		10.0	10.0
Porous Granular Embankment (Special)	Cu. Yd.		164	164
Asbestos Bearing Pad Removal	Each	52		52

Note: Contractor shall wait 7 days after completion of West Embankment placement before driving piles.

LOADING HS-20-44

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

DESIGN SPECIFICATIONS

2002 AASHTO

DESIGN STRESSES

FIELD UNITS

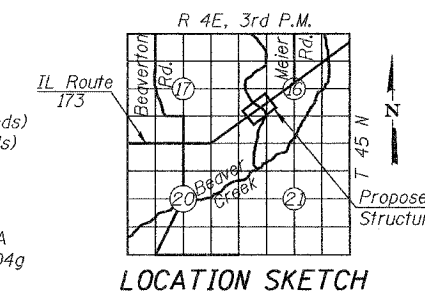
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 36,000$ psi (Structural Steel)
AASHTO M270, GR. 36)

PRECAST PRESTRESSED UNITS

$f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $f'_s = 270,000$ psi (1/2" ϕ low lax. strands)
 $f_{si} = 201,960$ psi (1/2" ϕ low lax. strands)

SEISMIC DATA

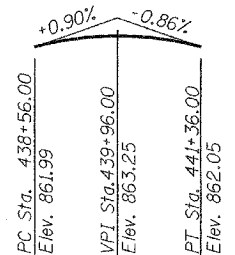
Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = 0.04g
Site Coefficient (S) = 1.0



LOCATION SKETCH

GENERAL PLAN & ELEVATION

ILLINOIS ROUTE 173 OVER
BEAVER CREEK
F.A.P. ROUTE 303 - SECTION 130BR-4
BOONE COUNTY
STATION 439+88.00
STRUCTURE NO. 004-0020



LVC = 280'
PROFILE GRADE
(along ϕ roadway)

Design Scour Elevation (ft)	W. Abutment	Pier	E. Abutment
	854.47	839.70	854.57

WATERWAY INFORMATION

Drainage Area = 28.68 Sq. Mi. (18,355 ac) Low Grade Elev. 857.54 @ Sta. 432+00

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	1744	341	555	854.81	0.47	0.19	855.28	855.00
Base	50	2532	403	642	855.56	1.26	0.29	856.82	855.85
Overtopping	100	2848	426	675	855.84	1.10	0.33	856.94	856.17
Max. Calc.	500	3574	472	747	856.44	0.45	0.44	856.89	856.88

DESIGNED *Fossella Torkelson*
CHECKED *Stephen Ryan*
DRAWN *R. Sommer*
CHECKED *FT/SNR*

EXAMINED *Thomas J. Miller*
PASSED *Robert E. Adams*
MARCH 9 2007
ENGINEER OF BRIDGE DESIGN
ENGINEER OF BRIDGES AND STRUCTURES



EXPIRES 11-30-2008