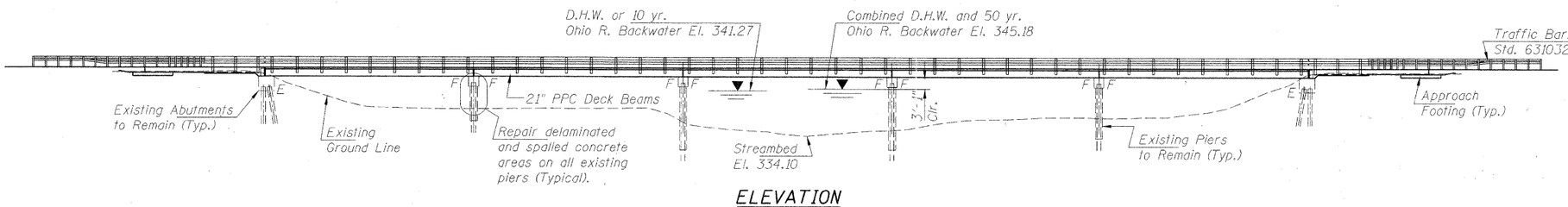
B.M.#807: Chiseled "□" on S.E. wingwall of Existing Structure No. 076-0025. El. 350.436

Existing Structure (No. 076-0025):

Originally constructed in 1934 and replaced in 1982. The original 1934 structure was removed to below grade in 1982 and replaced with a 25.5° Lt. Fwd. Skew, 5 span, 263'-9¼" Bk.-Bk. PPCDB structure, having span lengths of 53'-9¼", 52'-1", 52'-1", 52'-1", & 53'-9¼" and an out to out width of 34'-0". The existing ℄ of Structure is at Station 812+15.00. The existing abutments are pile supported stub abutments on Concrete Piles. The existing piers are pile bent supported with a solid encased wall around Precast Concrete Piles.

The Superstructure and approach slabs are to be removed along with portions of the abutment backwalls and replaced using stage construction.

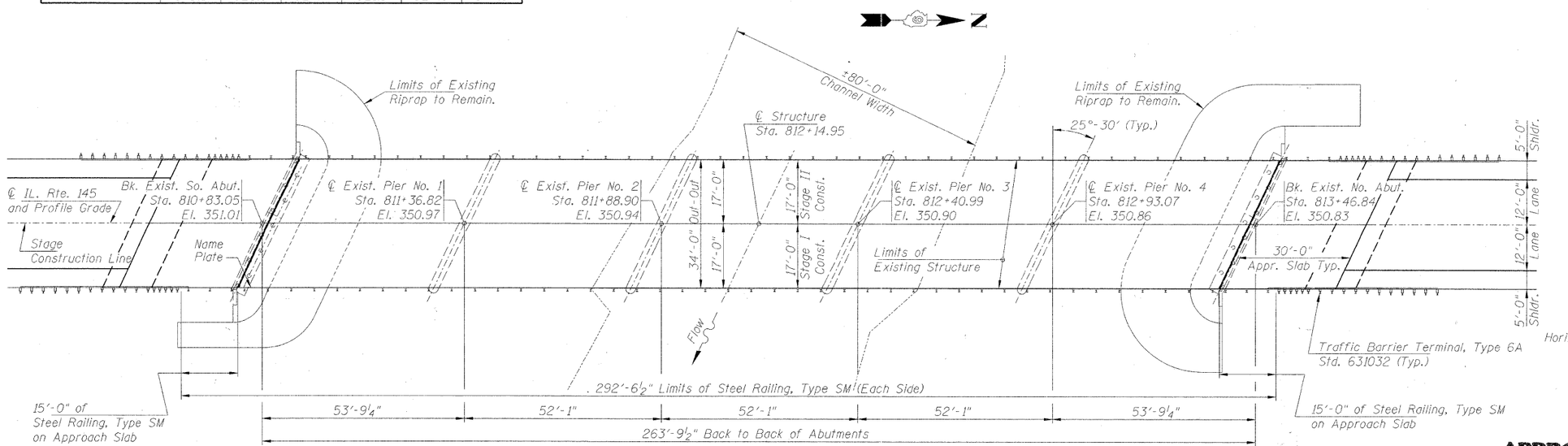
No Salvage.



ELEVATION

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	S. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	N. Abut.
	345.1	326.9	324.4	321.1	324.0	344.9



PLAN

WATERWAY INFORMATION TABLE
NORMAL DEPTH OR 10 YEAR BACKWATER FOR OHIO RIVER

Drainage Area = 169.68 Sq.Mi. Low Grade Elev. 348.84 @ Sta. 819+50

Flood	Freq. Yr.	Q TOTAL C.F.S.	Q BRIDGE 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.
Ten-Year	10	10005	2740	472.9	472.9	340.78	1.32	1.32	342.10	342.10
Design	50	14095	3796	553.0	553.0	341.27	1.72	1.72	342.99	342.99
Base	100	15788	4349	583.1	583.1	341.44	1.90	1.90	343.34	343.34
Overtopping										
Max. Calc.	500	20119	5691	656.5	656.5	341.85	2.35	2.35	344.20	344.20

Note:

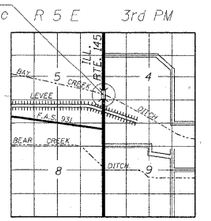
Normal Depth solution controls for all flood events when compared to the 10-Year Ohio River Backwater.

Normal Depth velocities are higher than Ohio Backwater Velocities.

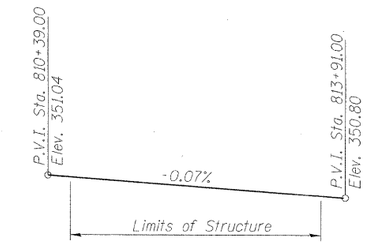
WATERWAY INFORMATION TABLE
50 YEAR OHIO RIVER BACKWATER

Drainage Area = 169.68 Sq.Mi. Low Grade Elev. 348.84 @ Sta. 819+50

Flood	Freq. Yr.	Q TOTAL C.F.S.	Q BRIDGE 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.
Ten-Year	10	10005	5160	1300.6	1300.6	345.17	0.41	0.41	345.58	345.58
Design	50	14095	5620	1302.6	1302.6	345.18	0.51	0.51	345.69	345.69
Base	100	15788	5866	1304.8	1304.8	345.19	0.56	0.56	345.75	345.75
Overtopping										
Max. Calc.	500	20119	6637	1306.7	1306.7	345.20	0.73	0.73	345.93	345.93



LOCATION SKETCH



PROFILE GRADE - IL. RTE. 145
(Along ℄ of Roadway)

LOADING HL-93 (NEW CONST.)
Allow 25#/sq. ft. for future wearing surface

DESIGN SPECIFICATIONS

NEW CONSTRUCTION

2010 AASHTO LRFD Bridge Design Specifications
1995 Seismic Retrofitting Manual for Highway Bridges

EXISTING CONSTRUCTION

2002 AASHTO Standard Specifications for Highway Bridges

DESIGN STRESSES

FIELD UNITS (NEW CONST.)

f'c = 5,000 psi (Concrete Wearing Surface)
f'c = 3,500 psi (All Concrete except CWS)
fy = 60,000 psi (Reinforcement)

FIELD UNITS (EXIST. CONST.)

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS (NEW CONST.)

f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (½" ϕ low lax Strands)
fpbt = 201,960 psi (½" ϕ low lax Strands)
fy = 60,000 psi (Reinf.)

SEISMIC DATA (EXIST. CONST.)

Seismic Performance Category (SPC) = B
Horizontal Bedrock Acceleration Coefficient (A) = 0.133g
Site Coefficient (S) = 1.0

LICENSED STRUCTURAL ENGINEER
MICHAEL N. MENDENHALL
081-006657
STATE OF ILLINOIS

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
ENGINEER OF BRIDGES AND STRUCTURES

Date: 7/1/11
Exp Date: 11/30/2012

GENERAL PLAN
IL. ROUTE 145 over BAY CREEK DITCH
F.A.P. ROUTE 132 - SECTION 103BR-1
POPE COUNTY
STATION 812+14.95
STRUCTURE NO. 076-0025

PROFESSIONAL DESIGN FIRM LICENSE #184 001084

FILE NAME = 0760025_78164-00-GPE.dgn	USER NAME = cox01283	DESIGNED - BWC	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN - BWC	REVISED -
	PLOT DATE = 07/01/2011	CHECKED - MNM	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 22 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
132	103BR-1	POPE	38	17
		CONTRACT NO. 78164		
		ILLINOIS FED. AID PROJECT		