

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. S1
F. A. P. 846	4B-1-1-1	WILL	39	3	SHEETS S20
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT			

Bench Mark:
BM #7 Elevation = 570.41 (Feet)
A square cut in northeast wingwall of north bound Illinois route 53 bridge.

Existing Structure:
The existing structure No. 099-0090 (NB) was built in 1942 under construction route FA-5 and section 4-RB. The existing bridge consists of three continuous spans of reinforced concrete T-beams. The structure length is 108'-9" Bk. to Bk. of Abutments and 32'-10" Out to Out Deck. The substructure consists of two abutments, two piers, and two curtain walls between N.B. & S.B. structures. The concrete facing creates triple arches supported on two piers and the abutments (Historic Bridge). The deck and superstructure of existing bridge to be removed and replaced. Traffic shall be detoured by providing cross over away from the structure location, see roadway plans. No salvage.

DESIGN SPECIFICATIONS

Superstructure:
2007 AASHTO LRFD Bridge Design Specifications

Substructure:
AASHTO Standard Specifications For Highway Bridges 17th Edition 2002.

LOADING HL-93 (Struct. Steel, Deck & Bearings)

LOADING HS20-44 (Substructure)

Allow 50 psf for future wearing surface.

DESIGN STRESSES

Existing

$f'_c = 3,500$ psi (concrete)
 $f_y = 33,000$ psi (reinforcement)

Proposed

$f'_c = 3,500$ psi (concrete)
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 50,000$ psi (structural steel) (M270 GR.50)
 $f_y = 36,000$ psi (diaphragms) (M270 GR.36)

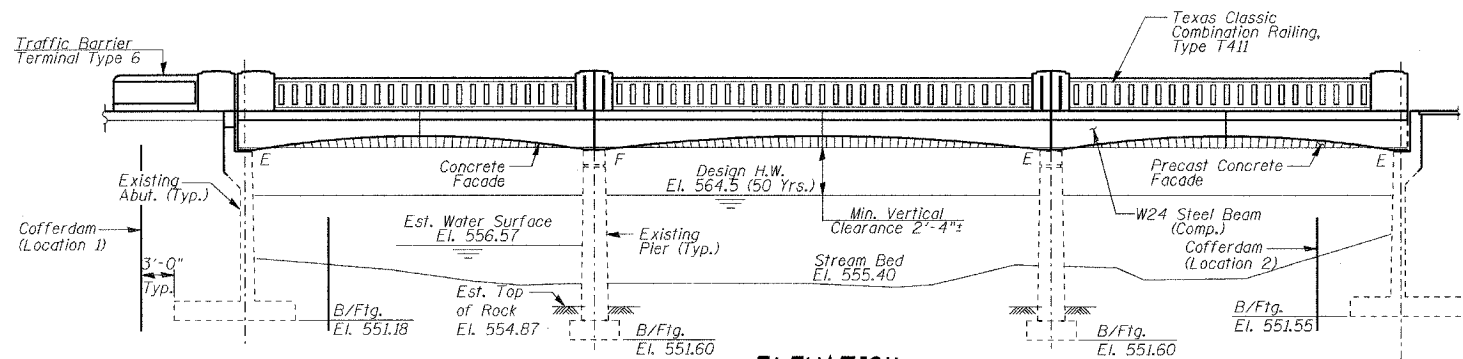
SEISMIC DATA

Seismic performance category (S.P.C.) = A
Bedrock acceleration coefficient (A) = .04g
Site coefficient (s) = 1.0

CONTRACT NO. 60D26

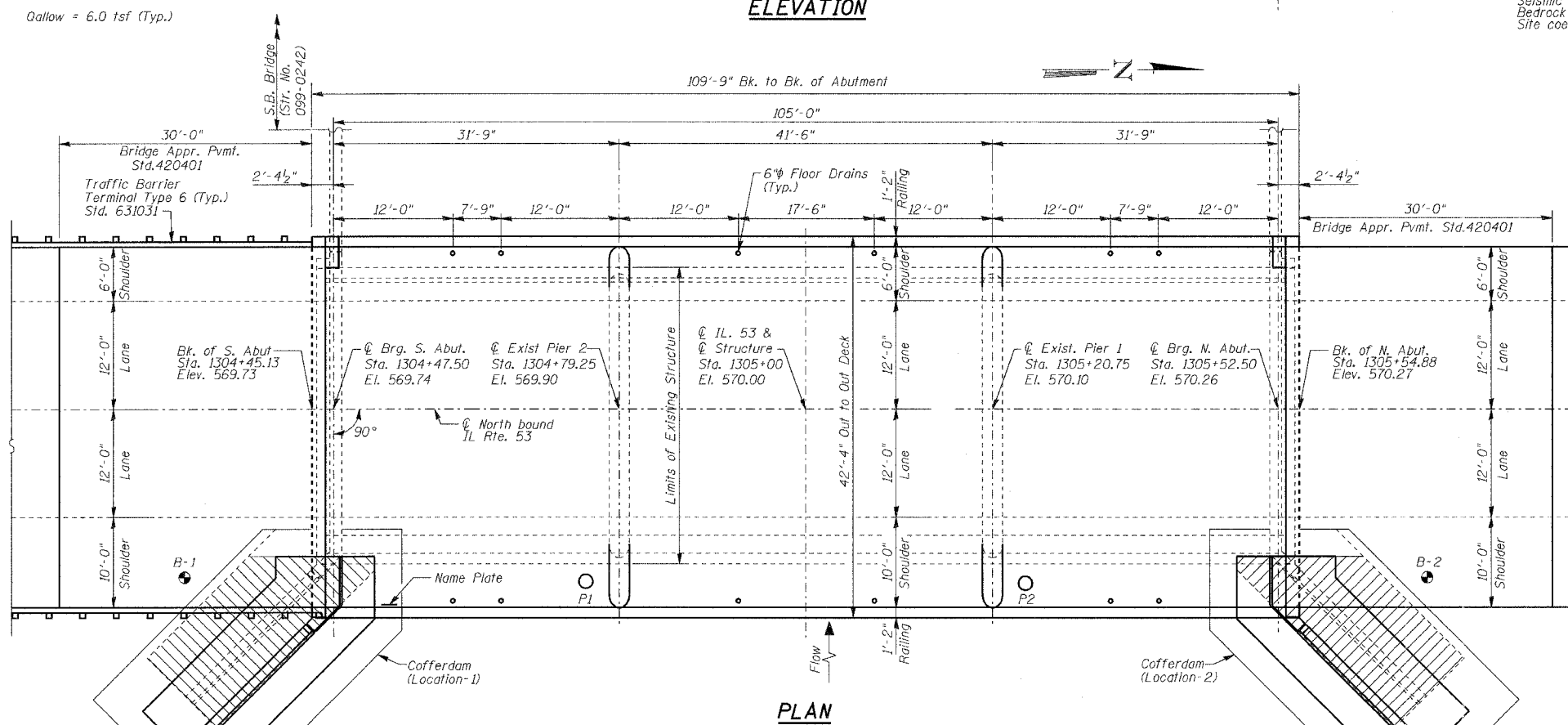
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Gallow = 6.0 tsf (Typ.)

ELEVATION



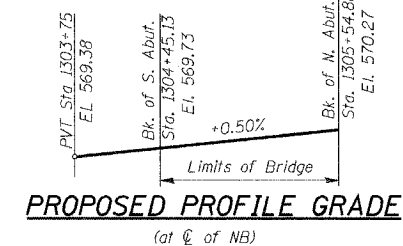
PLAN

WATERWAY INFORMATION

Drainage Area = 45.1 sq.mi Low Grade Elev. 569.7 Ft. @ Sta. 1301+00

Flood Yr.	Freq.	C.F.S.	Opening Sq. Ft.		Nat. H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
10	2010	738	738	738	562.9	0.0	0.0	562.9	562.9	562.9
Design	50	2910	901	901	564.5	0.1	0.1	564.6	564.6	564.6
Base	100	3260	959	959	565.1	0.2	0.2	565.3	565.3	565.3
Overtopping										
Max. Calc.	500	4080	1095	1095	566.7	0.3	0.3	567.0	567.0	567.0

All elevations are in highway datum.



PROPOSED PROFILE GRADE
(at ϕ of NB)

STATION 1305+00
RE-BUILT 20 BY
STATE OF ILLINOIS
F.A.P. 846 SEC. 4-RB
LOADING HL-93 (HS20)
STR. NO. 099-0090

NAME PLATE

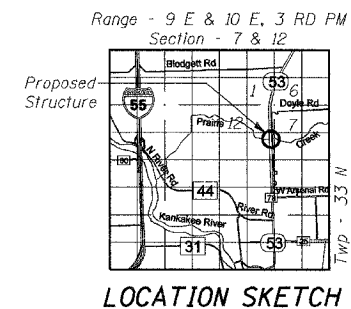
See Std. 515001
Existing Name Plate shall be cleaned and relocated next to New Name Plate. Cost included with Name Plates.



APPROVED
FOR STRUCTURAL ADEQUACY ONLY

Ralph E. Anderson (TVP)
ENGINEER OF BRIDGES AND STRUCTURES

Syed M. Kazi
Licensed Structural Engineer
State of Illinois
License No. 081-004047
Expires: 11-30-2008



LOCATION SKETCH

DESIGNED	NDS/GMK
CHECKED	MTP/SMK/GBC
DRAWN	NDS/DCB
CHECKED	SMK/GBC

B-1 \bullet Indicates boring location
P1 \circ Indicates soil probe location

ILLINOIS DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION

FAP 846
NB IL. ROUTE 53 OVER PRAIRIE CREEK
STATION 1305+00 SECTION 4-RB
WILL COUNTY
STRUCTURE NO. 099-0090

SCALE: NONE
DATE: JUNE 2007

DELTA ENGINEERING INC.
CONSULTING ENGINEERS, CHICAGO, ILLINOIS