

**Benchmark:**  
Railroad spike in east face of wood power pole located on the west side of Winn Road and approximately 715 feet north of the centerline of Main Street. Elevation = 788.15 (NAVD88)

**Existing Structure:**  
This existing structure SK 056-6123 was built in 1954 by the Richmond Township Road District as a three-span precast, prestressed concrete deck beam bridge supported on pile bent abutments and piers. The design loading used was H15-S12-44. Structure to be removed and replaced. Road to be closed during construction. Traffic to be maintained with temporary detour route during construction.

**Salvage:**  
No salvage

**DESIGN SCOUR ELEVATION TABLE**

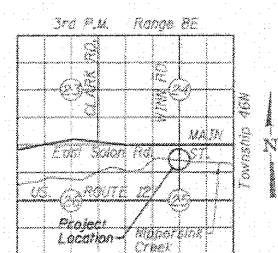
Design Scour Elevation (ft.)	S. Abut.	Pier 1	Pier 2	N. Abut.
	759.08	744.40	746.30	759.11

**LEGEND**

- Gas (to be relocated by others)
- Fiber Optic (remaining in place)
- Aerial Utilities (remaining in place)
- Sanitary (remaining in place)
- ◆ Soil Boring Location

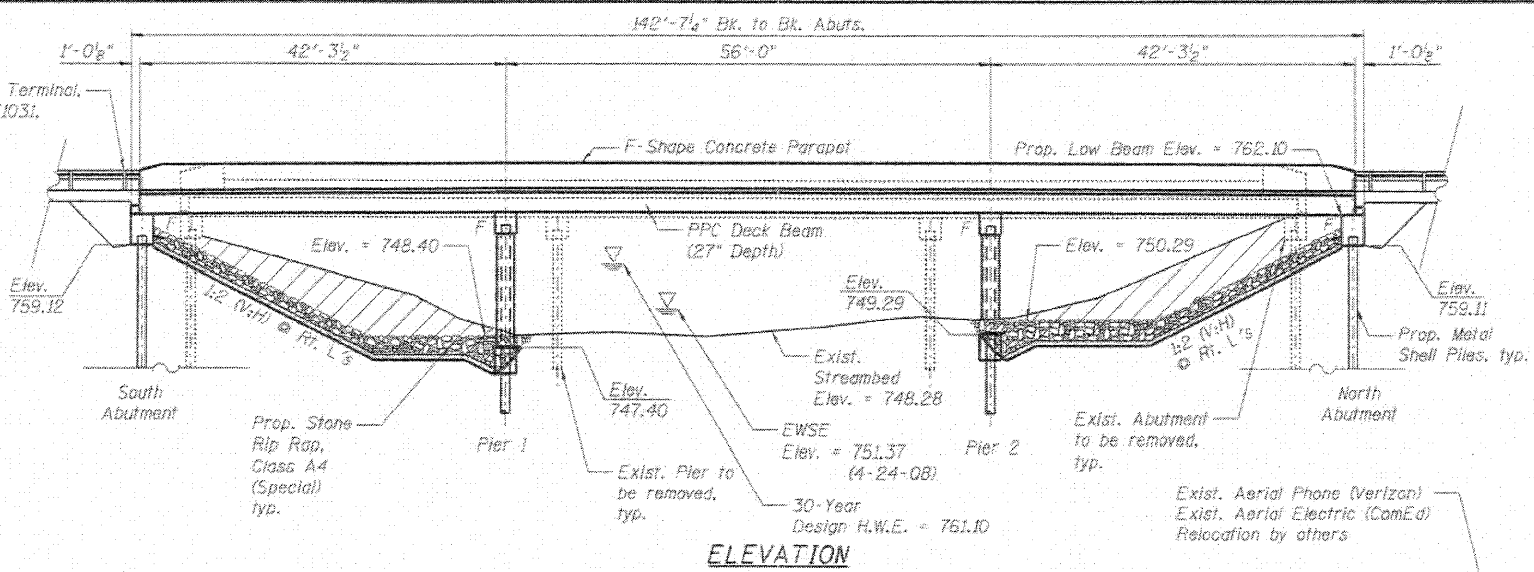
- ▨ Permanent Wetland Impact (Impact to Waters of the U.S.)
- ▨ Removal and Disposal of Unsuitable Material (See Roadway Plans)

Total Permanent Wetland Impact = 0.10 AC

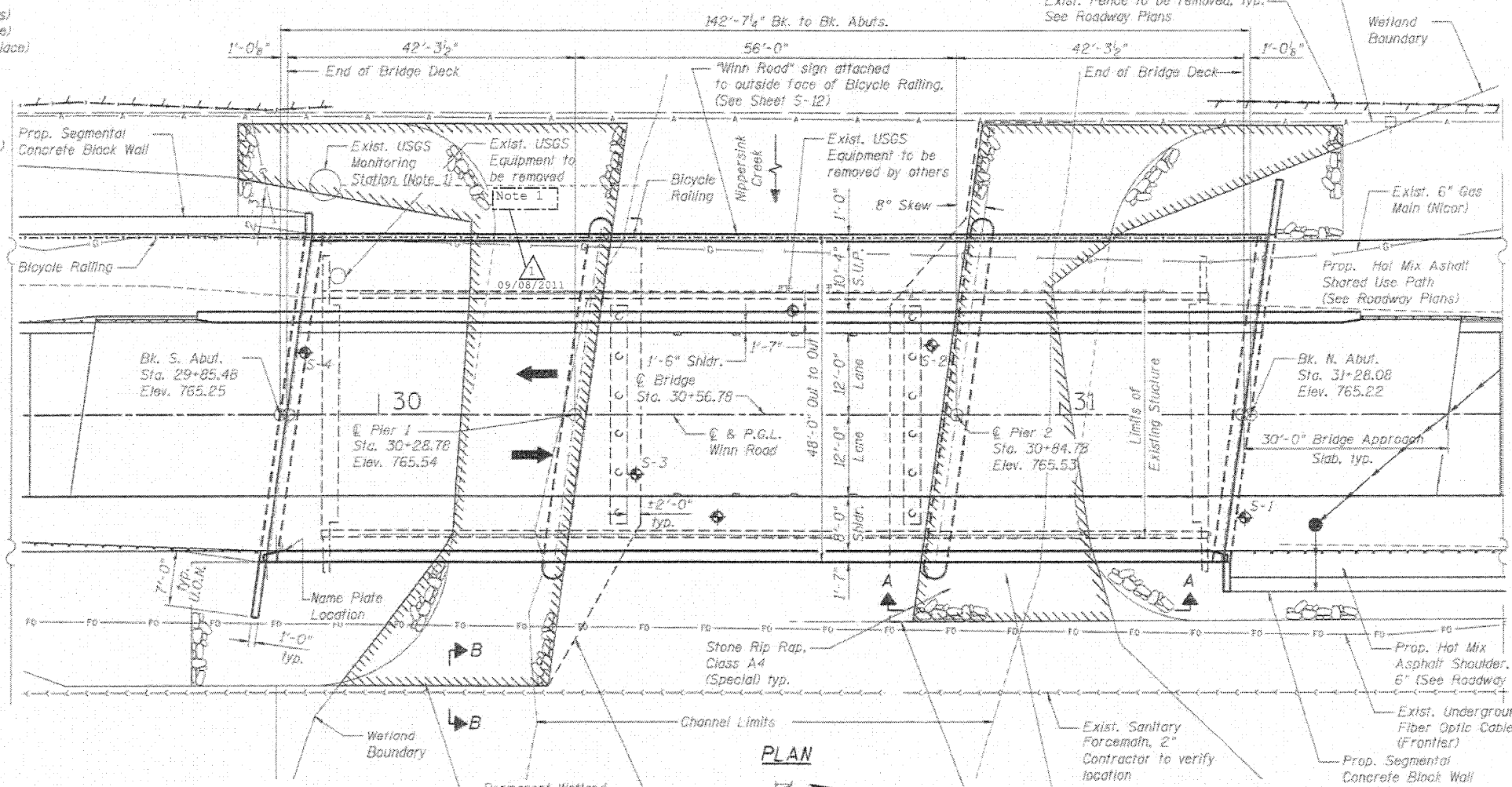


**LOCATION SKETCH**

Traffic Barrier Terminal, Type 6 Std. 631031, typ.



**ELEVATION**



**PLAN**

**WATERWAY INFORMATION**

Drainage Area = 194 sq. mi. Low Grade Elev. 763.23 @ Sta. 32+60

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Head - Ft.		Headwater El.		
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	
Design	30	5600	1147	1409	761.1	0.1	0.1	762.2	761.2
Base	100	7460	1197	1558	762.6	0.6	0.4	763.2	763.0
Overtopping	>100	8150		1558	762.9		0.5		763.4

Note 1. Existing USGS Station to be removed. Cost included in the cost of "Removal of Existing Structures"

**DESIGN SPECIFICATIONS**  
2007 AASHTO LRFD Bridge Design Specifications with 2008 and 2009 Interims

**DESIGN STRESSES**  
**FIELD UNITS**

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

**PRECAST PRESTRESSED UNITS**

f'ci = 5,000 psi  
f'c = 6,000 psi  
fpu = 270,000 psi (1/2" low lax strands)  
fpbt = 201,960 psi (1/2" low lax strands)

**LOADING HL-93**

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

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. (S<sub>D1</sub>) = 0.112  
Design Spectral Acceleration at 0.2 sec. (S<sub>D5</sub>) = 0.200  
Soil Site Class = E



To the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Bridge Design Specifications".

Robert S. De... 4/27/2011  
Structural Engineer Expires: 11/30/2012  
SEC Group Inc.  
An HR Green Company

**GENERAL PLAN AND ELEVATION**  
**WINN ROAD**  
**OVER NIPPERSINK CREEK**  
**F.A.U. ROUTE 0157**  
**SECTION NO. 07-00012-00-BR**  
**MCHENRY COUNTY**  
**STATION 30+56.78**  
**STRUCTURE NO. 056-6123**

DATE: 7/1/11

DESIGNED	JMW
CHECKED	RGD
DRAWN	RCB
CHECKED	RGD



SHEET NO. S-1	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	0157	07-00012-00-BR	McHENRY	41	13
S-20 SHEETS				CONTRACT NO. 63544	
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT BRM-8003 (921)					