

B.M.: Chisled box on top of S.E. wingwall of bridge. Elevation 669.64

Existing Structure: SN 049-0027 built as SBI Route 172, Section 128 in 1928 and rehabilitated in 1976. The structure is a simple span with precast concrete channel beams and closed type abutments. Skewed 24 degrees right hand forward 32'-10" Bk.-Bk. abutments and 41'-3" O.-O. deck.

Scope of Work:: Existing superstructure is to be removed. Existing substructure is to be removed to 1 ft. below the existing groundline. A wider and longer new substructure is to be built. Traffic to be maintained using stage construction.

No Salvage.

**LOADING HL-93**

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

**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD Bridge Design Specifications with 2008 and 2009 Interims

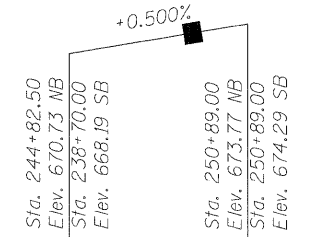
**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)  
 $f_y = 50,000$  psi (M270 Grade 50W)

**SEISMIC DATA**

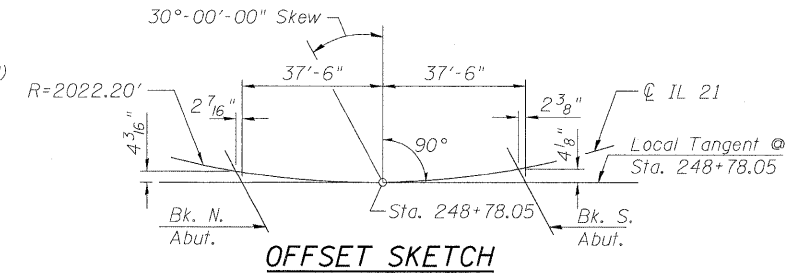
Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.077g  
 Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.128g  
 Soil Site Class = D



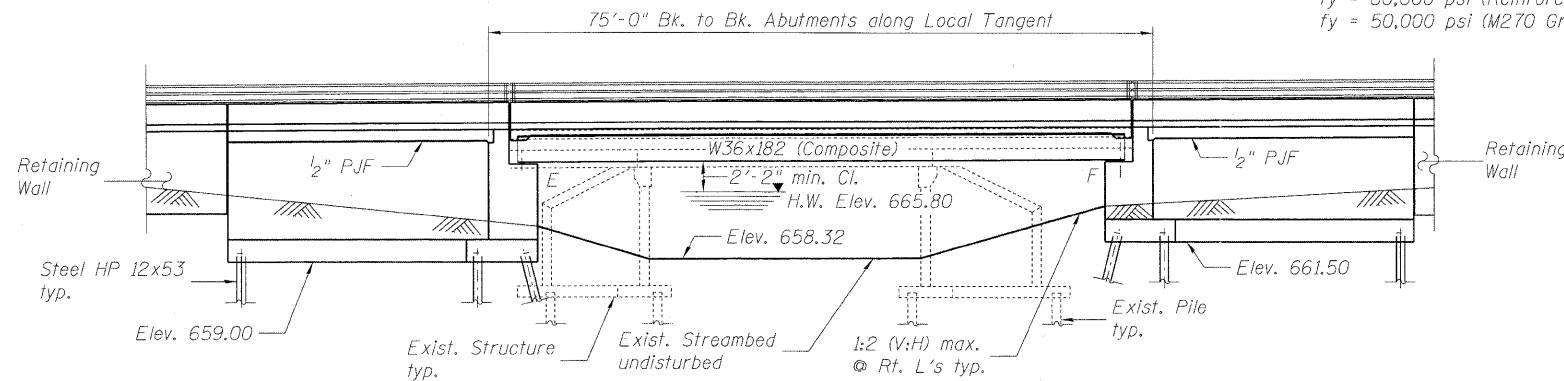
**PROFILE GRADE**

**CURVE DATA**

(@ IL 21)  
 $\Delta = 46^\circ-11'-38''$   
 $D = 2^\circ-50'-00''$   
 $T = 862.41'$   
 $L = 1,630.37'$   
 $E = 176.22'$   
 $R = 2,022.20'$   
 $S.E. = 2.90\%$   
 P.C. Sta. = 243+66.70  
 P.T. Sta. = 259+97.07  
 P.I. Sta. = 252+29.11



**OFFSET SKETCH**



**ELEVATION**

STATION 248+80  
 BUILT 20... BY  
 STATE OF ILLINOIS  
 F.A.P. 330 SEC. 128R-3  
 LOADING HL-93  
 STRUCTURE NO. 049-0199

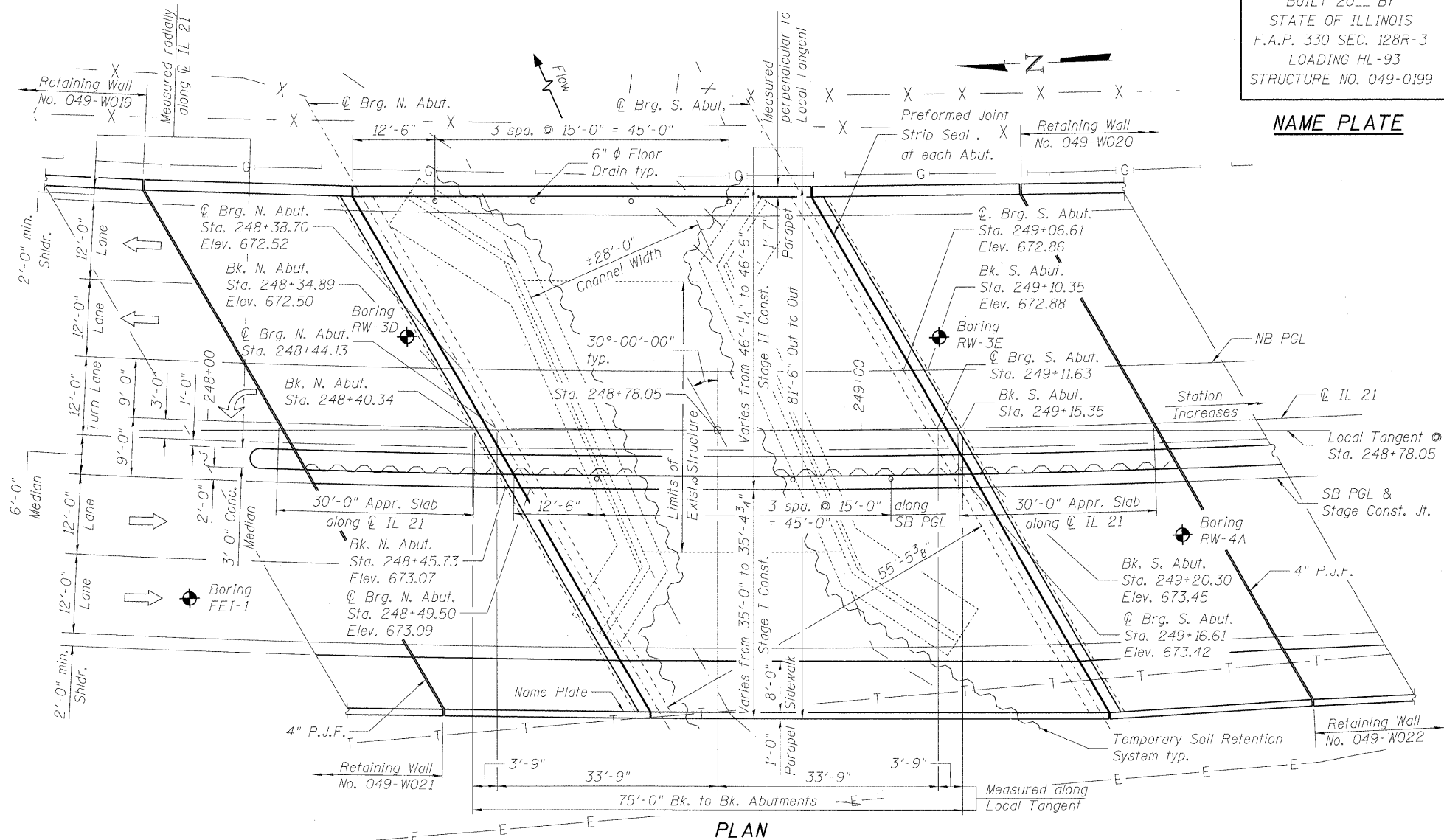
**NAME PLATE**

Drainage Area = 12.1 Sq. Mi. Low Grade Elev. 668.50 @ Sta. 238+25.00

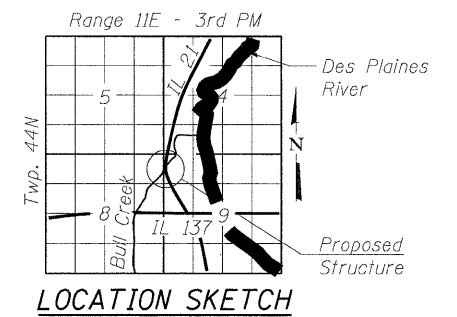
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Head - Ft.		Headwater El.		
			Exist.	Prop.	H.W.E. Exist.	Prop.	Exist.	Prop.	
Design	10	535	134	213	664.2	0.4	0.0	664.6	664.2
Base	50	1087	177	301	665.8	1.3	0.3	667.1	666.1
Overtopping	>500				666.4	1.7	0.4	668.1	666.8
Max. Calc.	500	2400	228	432	667.7	2.1	0.7	669.8	668.5

**DESIGN SCOUR ELEVATION**

N. Abut.	S. Abut.
Elev. 654.00	Elev. 656.00



**PLAN**



**LOCATION SKETCH**

**APPROVED**  
 FOR STRUCTURAL ADEQUACY ONLY  
*Dr. Carl P... Engineer of Bridges and Structures*

**GENERAL PLAN AND ELEVATION**  
**ILLINOIS ROUTE 21 OVER BULL CREEK**  
 F.A.P. 330 SEC. 128R-3  
 LAKE COUNTY  
 STATION 248+78.05  
 STRUCTURE NO. 049-0199



FILE NAME = #FILE#	USER NAME =	DESIGNED - JY	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>GENERAL PLAN AND ELEVATION STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-2-F	COUNTY = LAKE	TOTAL SHEETS = 28	SHEET NO. = 3	
	PLOT SCALE =	CHECKED - WPM	REVISIONS -			SHEET NO. 1 OF 43 SHEETS					
	PLOT DATE = 12/28/2018	DRAWN - JY	REVISIONS -			ILLINOIS FED. AID PROJECT					
		CHECKED - WPM	REVISIONS -			CONTRACT NO. 60P54					