Bench Mark: Chiseled square at SW corner of SB IL-171 bridge over Des Plaines River. El. 622.14

Existing Structures: S.N. 016-0483 (SB) and S.N. 016-0985 (NB) were built in 1964 as F.A.I. Rte. 55, Section 0707-613B at Sta. 50+80. Existing dual structures each consist of a four span reinforced concrete deck on five lines of continuous welded haunched plate girders. The reinforced concrete deck is 7½" thick, including a 2" microsilica concrete overlay. The substructures consist of open stub abutments founded on steel piles at the downstation end, solid wall concrete piers founded on spread footings through the river, and multi-column piers founded on spread footings at the upstation end. Piers 2, 3 and 4 are shared with S.N. 016-2456 (NB) and S.N. 016-2457 (SB), respectively. The structures are 527'-9½" from back of abutment to centerline of Pier 4 and 23, with an out-to-out deck width of 36'-0" and no skew. Traffic is to be maintained utilizing crossovers.

No salvage.

All Elevations in the proposed plans are based on NAVD88 Datum. Elevations in the existing plans are based on the NGVD29 Datum. NGVD29 Elev. 578.00 = NAVD88 Elev. 577.72.

WATERWAY INFORMATION

Drainage Area = 641.59 sq. mi. Low Grade Elev. 619.97 at Sta. 48+42

Flood	Freq. Yr.	Q 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.
	2	4,554	3,423	3,423	594.80				
	10	5,930	2,988	2,988	595.75	0.57	0.57	596.32	596.32
Design	50	7,370	3,567	3,567	597.15	0.60	0.61	597.75	597.76
Base	100	7,500	3,773	3,773	597.64	0.61	0.61	598.25	598.25
Overtopping	>500								
Max. Calc.	500	9,316	4,297	4,297	598.88	0.63	0.63	599.51	599.51

10 Year Velocity through Existing and Proposed Bridge = 1.95 fps

LOADING HS20-44

No future wearing surface allowed.

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges

DESIGN STRESSES

FIELD UNITS (New Construction)

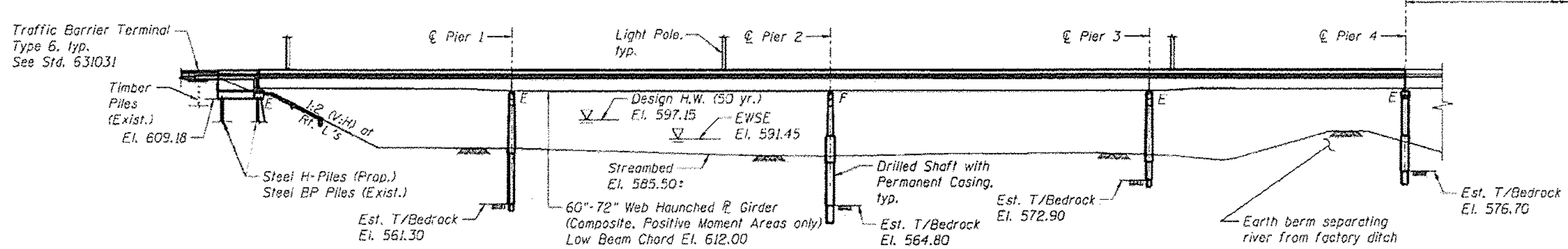
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

FIELD UNITS (Exist. Construction)

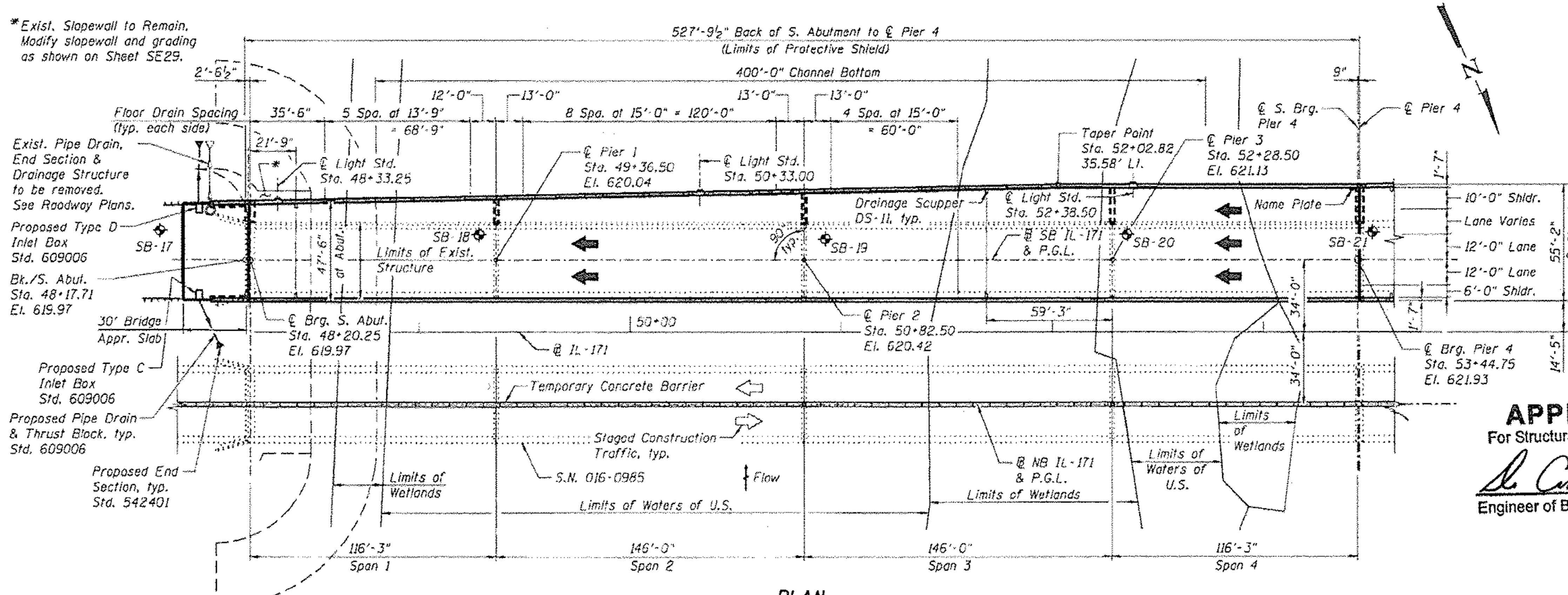
f'c = 3,500 psi
fy = 40,000 psi (Reinforcement)
fy = 36,000 psi (Structural Steel)

SEISMIC DATA

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



REFLECTED ELEVATION



PLAN

NOTE:

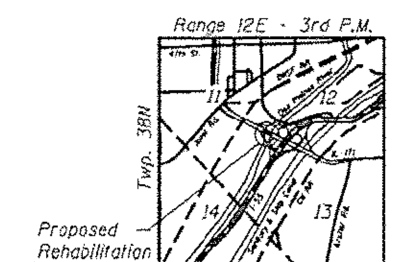
See Roadway Plans-Bridge Approach Schedule for Proposed Drainage Quantities.

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)				
S. Abut.	Pier 1	Pier 2	Pier 3	Pier 4
609.18	581.00	579.00	583.30	584.22

Design scour elevations estimated from existing data.

ANDREW J. KESCH, LICENSED STRUCTURAL ENGINEER, STATE OF ILLINOIS
EXPIRATION DATE 11-30-2014
DATE: 05-11-2014



LOCATION SKETCH

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

GENERAL PLAN AND ELEVATION
IL-171 OVER DES PLAINES RIVER
"PUBLIC WATER"
FAP 372 - SECTION 2013-038B-R
COOK COUNTY
STATION 50+80.50
STRUCTURE NO. 016-0483

benesch engineers · scientists · planners
Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10093

FILE NAME =	USER NAME =	DESIGNED - JLS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0160483_60J16_001_gpe.dgn	PLOT SCALE =	CHECKED - AJK	REVISED -		372	2013-038B-R	COOK	821	485
	PLOT DATE = 12/20/2013	DRAWN - RMG	REVISED -	SHEET NO. SE1 OF SE46 SHEETS			CONTRACT NO. 60J16		
		CHECKED - AJK	REVISED -			ILLINOIS FED. AID PROJECT			

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