

Bench Mark: BM# 203 Chiseled square on NW corner of SB IL-171 bridge wall over 47th Street. El. 635.53

Existing Structure: S.N. 016-1000 (SB) and S.N. 016-1001 (NB) were built in 1968 as F.A. Rte. 133, Section 0102-683HBK at Sta. 104+82.77. Existing dual structures each consist of three simple span reinforced concrete decks on four interior steel 30" WF beams and two exterior steel 48" welded plate girders in spans 1 and 3 and six 48" steel welded plate girders in span 2. The reinforced concrete deck is 8 1/2" thick, including a 2" microsilica concrete overlay. The substructure consists of open stub steel abutments founded on concrete piles and multi-column trapezoidal piers, one pier being founded on drilled shafts and the other a spread footing. The structures are 177'-0" back-to-back of abutments and the out-to-out deck width is 42'-6" with no skew. The superstructure shall be removed and replaced with a continuous steel plate girder structure. The abutments shall be converted to semi-integral. Traffic will be maintained utilizing Stage Construction. All elevations in the proposed plans are based on NAVD88 Datum. Elevations in the existing plans are based on NGVD29 Datum. NGVD29 Elev. 584.50 = NAVD88 Elev. 584.22.

### SCOPE OF WORK

1. Remove existing concrete deck, steel girders/beams and bearings.
2. Replace with continuous steel plate girders, 8" reinforced concrete deck and new bearings.
3. Remove existing backwalls and convert abutments to semi-integral.
4. Remove and replace approach slabs.
5. Repair spalls, delaminations and open cracks in substructures using formed concrete repair and epoxy crack injection.
6. Remove and replace wingwalls as required for new deck width and semi-integral abutments.
7. Remove and replace underdeck lighting.

### LOADING HL-93

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

### DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications with 2013 Interims (New Construction)

### 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)

### SEISMIC DATA

Seismic Performance Zone (SP2) = 1  
Design Spectral Acceleration at 1.0 sec. (SD 1) = 0.063  
Design Spectral Acceleration at 2.0 sec. (SD 1) = 0.114  
Soil Site Class C

### CURVE DATA

P.I. = Sta. 105+97.15  
Δ = 14°00'00" (LT)  
D = 1°00'00"  
R = 5,729.58'  
L = 1,400.00'  
T = 703.50'  
E = 43.03'  
P.C. = Sta. 98+93.64  
P.T. = Sta. 112+93.64  
S.E. = 2.0%

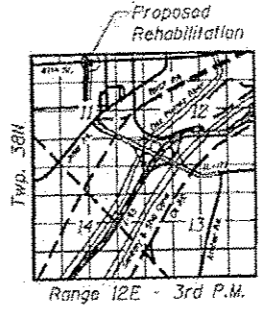
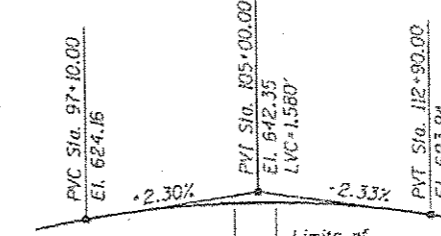
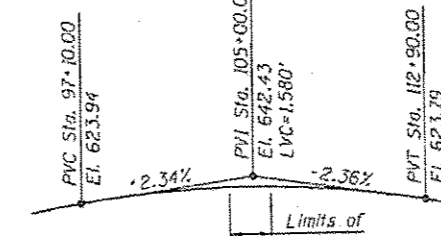
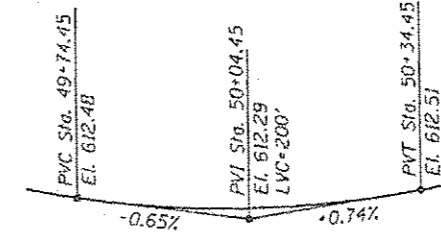
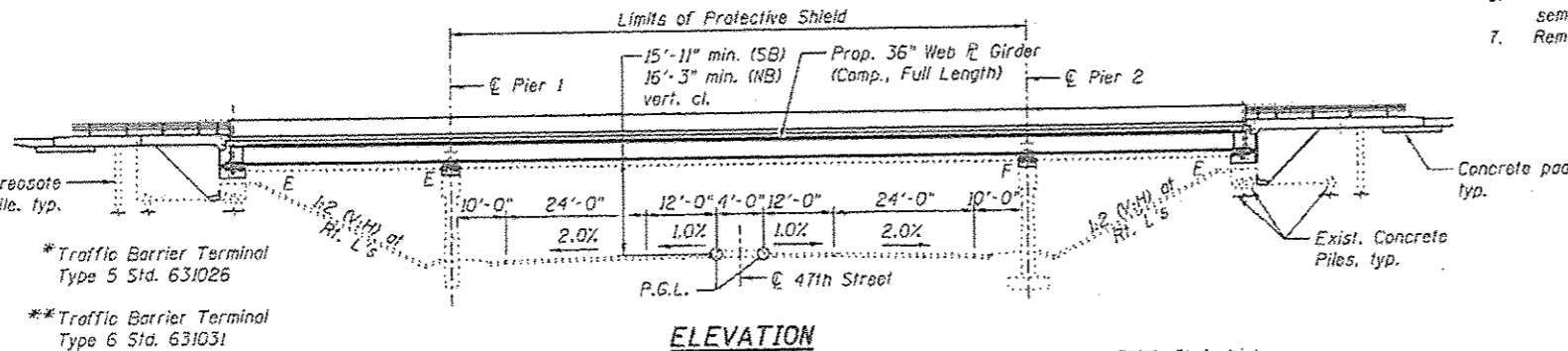


### EXISTING UTILITY LEGEND

- G — Underground Gas Line
- W — Underground Water Line
- E — Underground Electric Line
- S — Underground Storm Sewer
- M — Underground MWRDGC 24" Sanitary Sewer
- ⊙ Existing Drainage Structure

### GENERAL PLAN

**IL-171 OVER 47TH STREET**  
FAP 372 - SECTION 2013-038B-R  
COOK COUNTY  
STATION 104+81.00  
STRUCTURE NO. 016-1000 (SB)  
STRUCTURE NO. 016-1001 (NB)



### APPROVED

For Structural Adequacy Only

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FILE NAME	USER NAME	DESIGNED	CHECKED	DRAWN	PLotted	DATE
B16C8D.68216.001.dwg	jlanola	JAN	MAM	MAK	MAM	12/26/2012

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

JOB	REVISED	DATE
038B-R	1	12/26/2012

SHEET NO. 541 OF 540 SHEETS

P.A.P. RITE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
372	2013-038B-R	COOK	821	249

CONTRACT NO. 60J16  
ILLINOIS FEDERAL PROJECT

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