Benchmark: Two inch (2") brass disk located west side on concrete core base to traffic signal on northeast corner of Wolf and Plainfield Rds.

Existing Structure: S.N. 016-0393 was originally constructed in 1959 as a two-span structure carrying two lanes of eastbound traffic, one lane of westbound traffic and one ramp lane to I-294 (Tri-State Tollway) Northbound over Flag Creek (F.A. Route 98 Section 207-0101-2B). In 1981, an overlay was added and the curbs and handrails were replaced with F-shaped parapets. In 2009, the concrete median was removed and replaced, eliminating the center longitudinal joint. The overall length is 94'-8" (back to back of abutments), and the overall out-to-out deck width varies from 85'-2 3/4" at the west abutment to 73'-5 3/4" at the east abutment (measured along back of abutments). The existing superstructure consists of a reinforced concrete deck supported on two-span 36" precast, prestressed concrete I-beams. The existing substructure consists of a reinforced concrete solid wall pier supported by a spread footing on rock and two reinforced concrete pile bent abutments supported on concrete piles. The existing superstructure shall be removed and replaced using stage construction to maintain one lane of traffic in each direction. The I-294 NB Entrance Ramp will be closed during Stage II construction.

No salvage.

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevations (ft.)			
	W. Abut.	Pier	E. Abut.
0100	630.72	615.88	630.78
0500	630.72	614.29	630.78

JOLIET RD. CURVE DATA

PI STA. = 107+57.76
Δ = 4° 32' 01" (LT)
D = 0° 20' 50"
R = 16,500.00'
T = 653.15'
L = 1,305.62'
E = 12.92'
e = NC
T.R. = NA
S.E. RUN = NA
P.C. STA. = 101+04.61
P.T. STA. = 114+10.23

WATERWAY INFORMATION

Drainage Area = 13.3 sq. mi
Exist. Low Grade Elev. 637.44 @ Sta. 99+70
Prop. Low Grade Elev. 637.44 @ Sta. 99+70

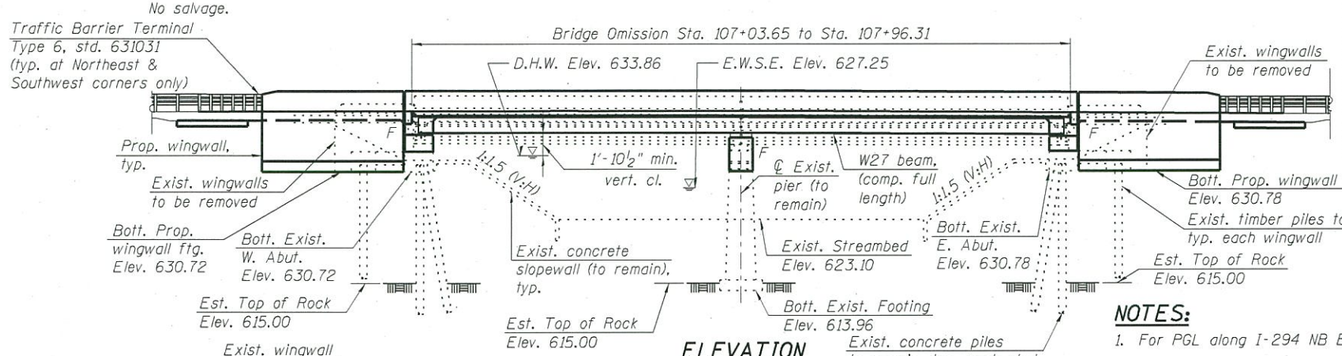
Flood	Freq. Yr.	Discharge C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	2	950	522.37	522.37	631.84	0.00	0.00	631.84	631.84
	10	1260	554.0	554.0	632.31	0.00	0.00	632.31	632.31
Design	50	2000	576.0	683.7	633.86	0.10	0.00	633.96	633.86
Base	100	2400	576.0	734.7	634.47	0.15	0.00	634.62	634.47
Overtopping	>500								
Max. Calc.	500	3350	576.0	822.5	635.63	0.32	0.00	635.95	635.63

10-Year Velocity through Existing Bridge = 2.27 fps
10-Year Velocity through Proposed Bridge = 2.27 fps

HIGHWAY CLASSIFICATIONS

F.A.U. Rte 3562 - Joliet Rd. over Flag Creek
Class: Minor Arterial (Urban)
A.D.T.: 10,100 (2006)
33,750 (2021)
A.D.T.T.: 808 (2006)
2,700 (2021)
D.H.V.: 3375 (2021)
Design Speed: 45 mph
Posted Speed: 40 mph
Two-Way Traffic
Directional Distribution: 50:50

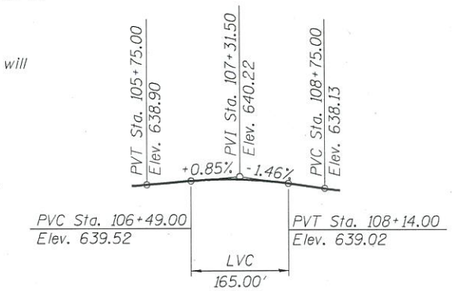
ELEVATION



NOTES:

1. For PGL along I-294 NB Entrance Ramp, see Sheet 2.
2. For Stage Construction, see Sheets 2 and 3.
3. Concrete repairs on the pier will be required and will be detailed in the final plans.

Offset Sketch



PROFILE GRADE

(F.A.U. RTE. 3562 - Joliet Road)

SEISMIC DATA

Seismic Performance Category (SPC) = A
Horizontal Bedrock Acceleration Coefficient (A) = 0.04g
Site Coefficient (S) = 1.5

APPROVED

FEB 03 2015

AS A BASIS FOR PREPARATION OF DETAILED PLANS

LEGEND

Sanitary Sewer
Soil Boring
Fiber Optic — FO —
Exist. Storm Sewer
Wood and Brush
Temporary Sheet Piling

DESIGN SPECIFICATIONS

New Construction:
2014 AASHTO LRFD Bridge Design Specifications, 7th Edition

Existing Substructure:
1995 FHWA Seismic Retrofitting Manual for Highway Bridges

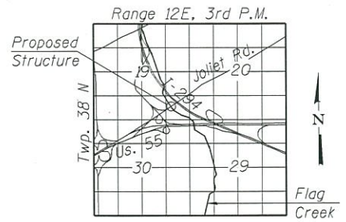
LOADING HL-93

Allow 50#/sq. ft. for future wearing surface
ORIGINAL CONSTRUCTION (1959)
HS20-44 & ALTERNATE

DESIGN STRESSES

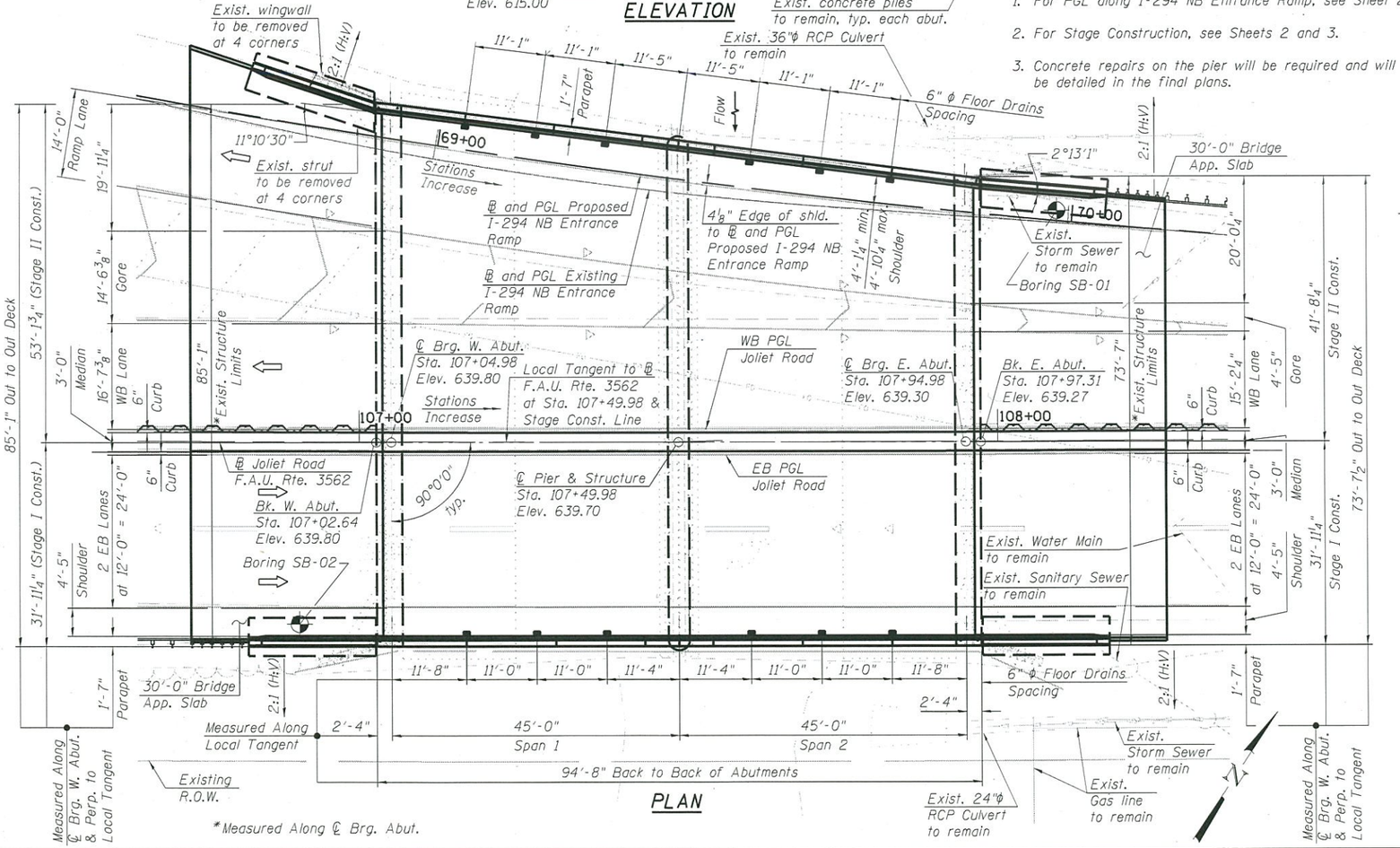
FIELD UNITS
f'_c = 3,500 psi
f_y = 60,000 psi (Reinforcement)
f_y = 50,000 psi (M270 Grade 50)

EXISTING UNITS
f'_c = 3,500 psi
f_y = 40,000 psi (Reinforcement)

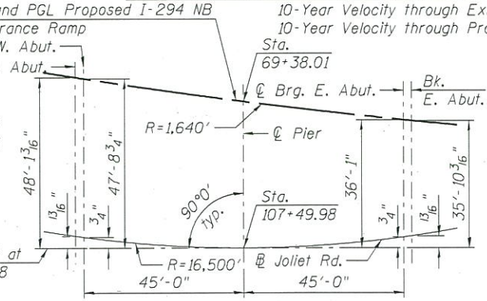


LOCATION SKETCH

PLAN



Local Tangent at Sta. 107+49.98



GENERAL PLAN AND ELEVATION
JOLIET RD. OVER FLAG CREEK
F.A.U. RTE. 3562
SEC. T-5-4BR(81)
COOK COUNTY
STATION 107+49.98
STRUCTURE NO. 016-0393

HBM ENGINEERING GROUP, LLC — CONSULTING & DESIGN INSPECTION & RATING RESEARCH & TESTING — 4415 WEST HARRISON ST. SUITE 231 HILLSIDE, IL 60162 PHONE: (708) 236-0900 FAX: (708) 236-0901	0160393-00000-001-TSL.dgn	DESIGNED - MI, JG	REVISED
	USER NAME mustafa.alobaidi	CHECKED - MI, MAI	REVISED
	PLOT SCALE = 2'-4 ½" / in.	DRAWN - MA, KD	REVISED
	PLOT DATE = 12/31/2014	CHECKED - JJS, MI, MAI	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 3 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
3562	T-5-4BR(81)	COOK	3	1
		CONTRACT NO. 60N80		
		ILLINOIS FED. AID PROJECT		

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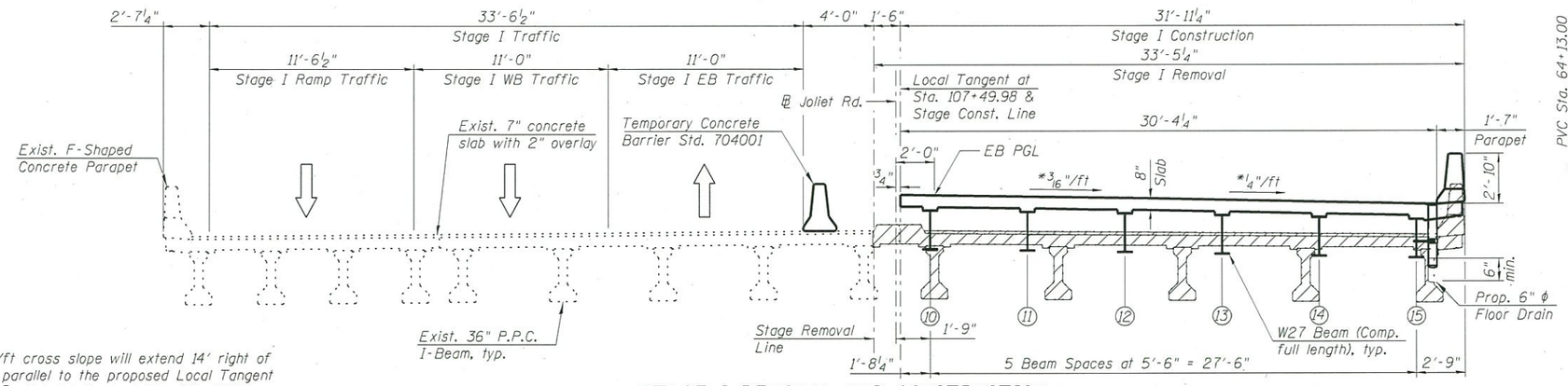
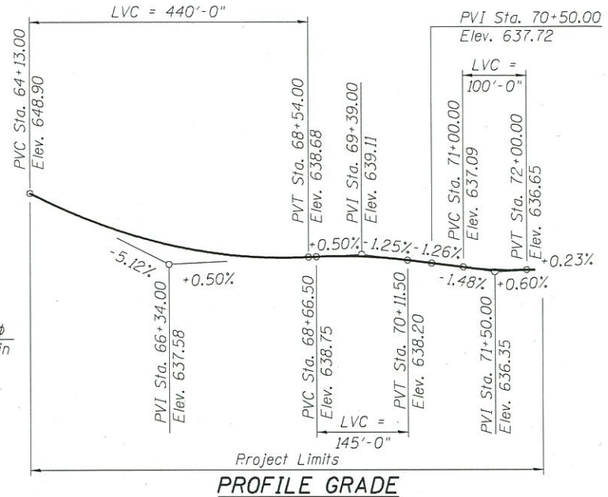


* 3/16"/ft cross slope will extend 14' right of and parallel to the proposed Local Tangent for ℄ of Joliet Road at Sta. 107+49.98. The cross slope of remaining portion of Stage I Construction deck will be ¼"/ft.

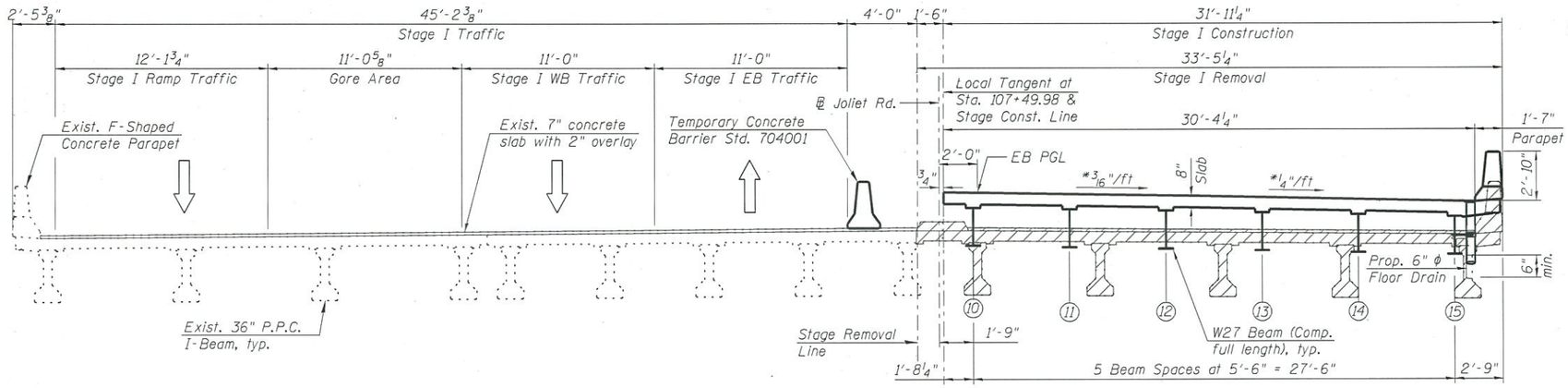
STAGE I REMOVAL AND CONSTRUCTION

(Looking Upstation at ℄ Brg. East Abutment)
(All dimensions are measured along ℄ Brg. East Abutment and perpendicular to Local Tangent)



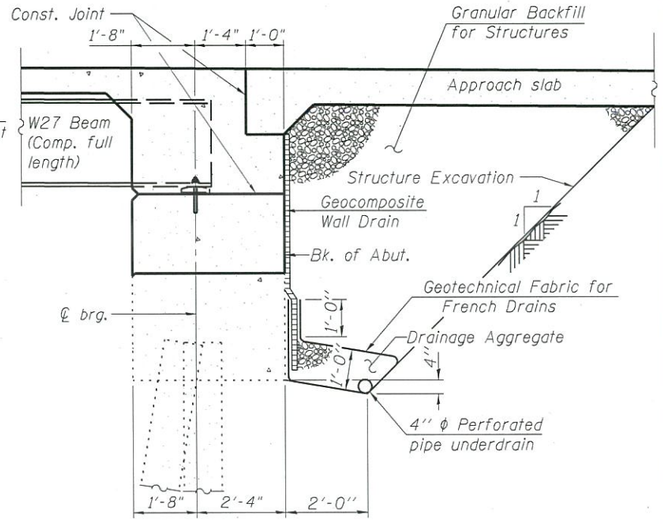
PROFILE GRADE

(Along ℄ I-294 NB Entrance Ramp)



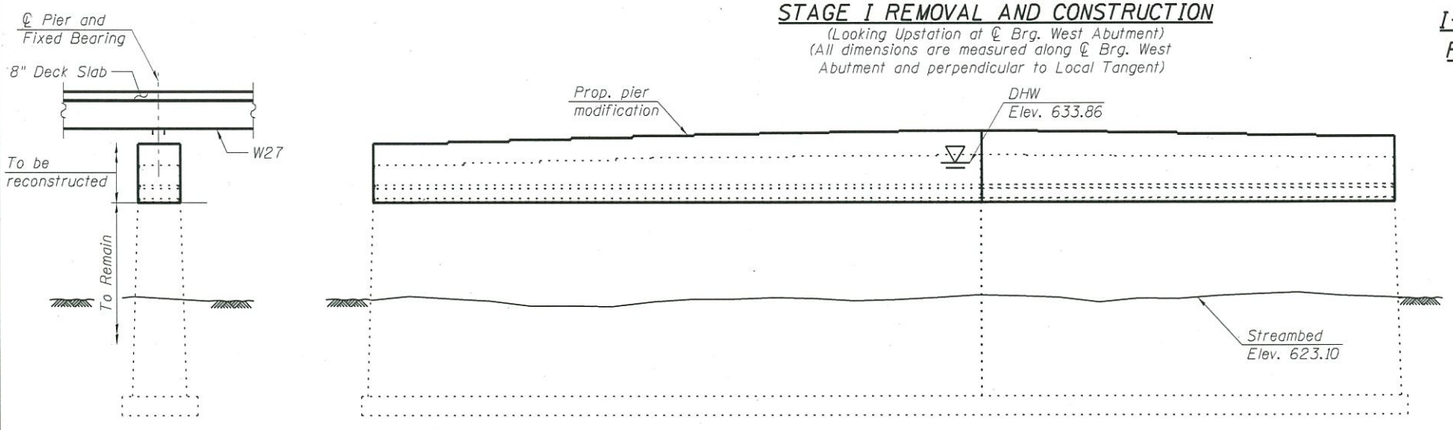
STAGE I REMOVAL AND CONSTRUCTION

(Looking Upstation at ℄ Brg. West Abutment)
(All dimensions are measured along ℄ Brg. West Abutment and perpendicular to Local Tangent)



SECTION THRU INTEGRAL ABUTMENTS

(Horiz. dim. @ Rt. L's)



PIER SKETCH

(Looking Upstation)

I-294 NB ENTRANCE PROP. CURVE DATA

PI STA. = 68+02.68
Δ = 25° 03' 38" (LT)
D = 3° 29' 37"
R = 1,640.00'
T = 364.49'
L = 717.32'
E = 40.02'
e = 3.2%
T.R.. = NA
S.E. Run = 92.0'
P.C. STA. = 64+38.19
P.T. STA. = 71+55.51

APPROVED
FEB 03 2015
AS A BASIS FOR PREPARATION OF DETAILED PLANS

LEGEND

Removal Area

STAGE I CONSTRUCTION
JOLIET RD. OVER FLAG CREEK
F.A.U. RTE. 3562
SEC. T-5-4BR(81)
COOK COUNTY
STATION 107+49.98
STRUCTURE NO. 016-0393

HBM ENGINEERING GROUP, LLC.
CONSULTING & DESIGN INSPECTION & RATING RESEARCH & TESTING
4415 WEST HARRISON ST. SUITE 231
HILLSIDE, IL 60162
PHONE: (708) 236-0900
FAX: (708) 236-0901

0160393-00000-002-TSL.dgn	DESIGNED - MI, JG	REVISED
USER NAME mustafa.alobaidi	CHECKED - MI, MAI	REVISED
PLOT SCALE = 8.00 ' / in.	DRAWN - WM, MA, KJD	REVISED
PLOT DATE = 12/31/2014	CHECKED - MI, MAI	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 2 OF 3 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
3562	T-5-4BR(81)	COOK	3	2
		CONTRACT NO. 60N80		
	ILLINOIS FED. AID PROJECT			

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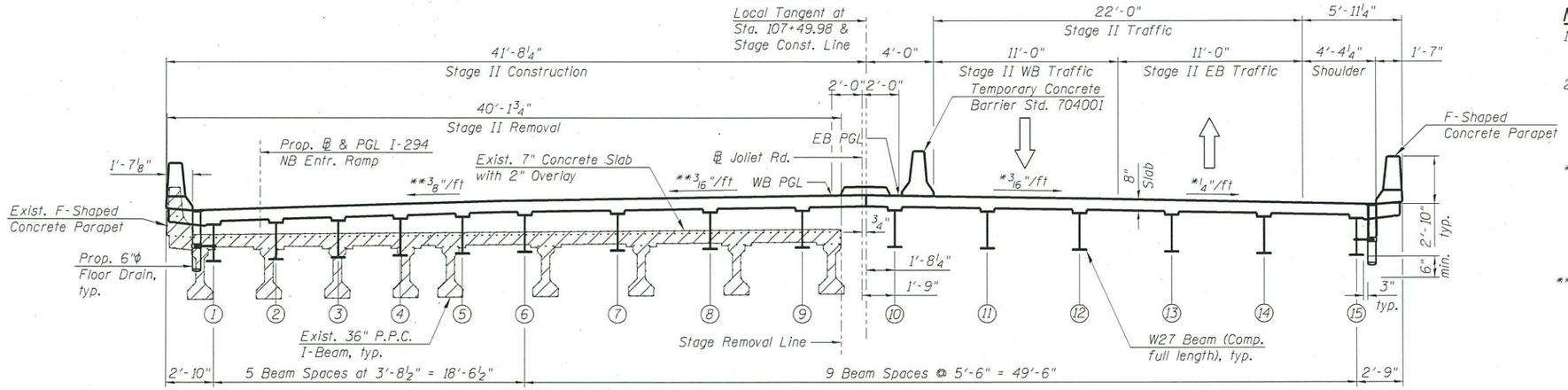
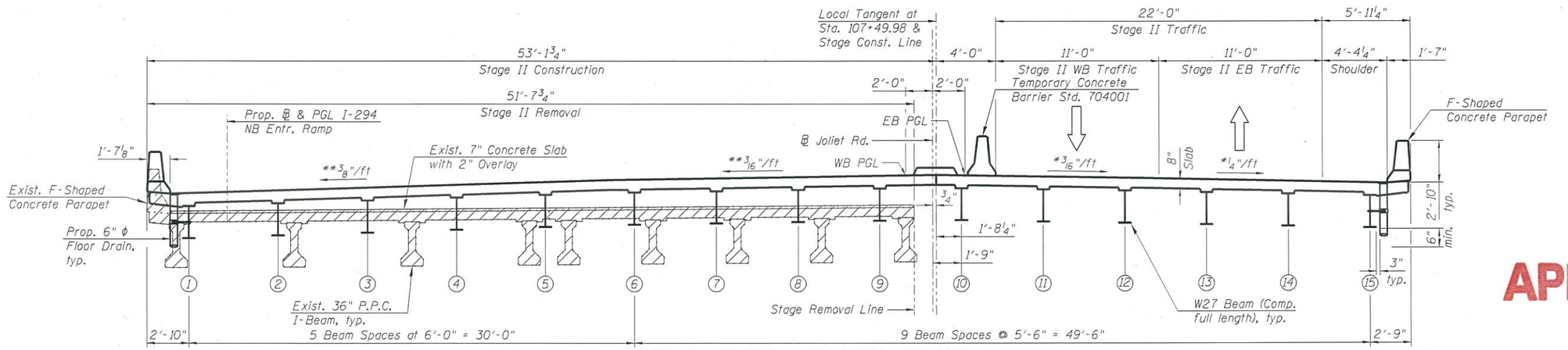


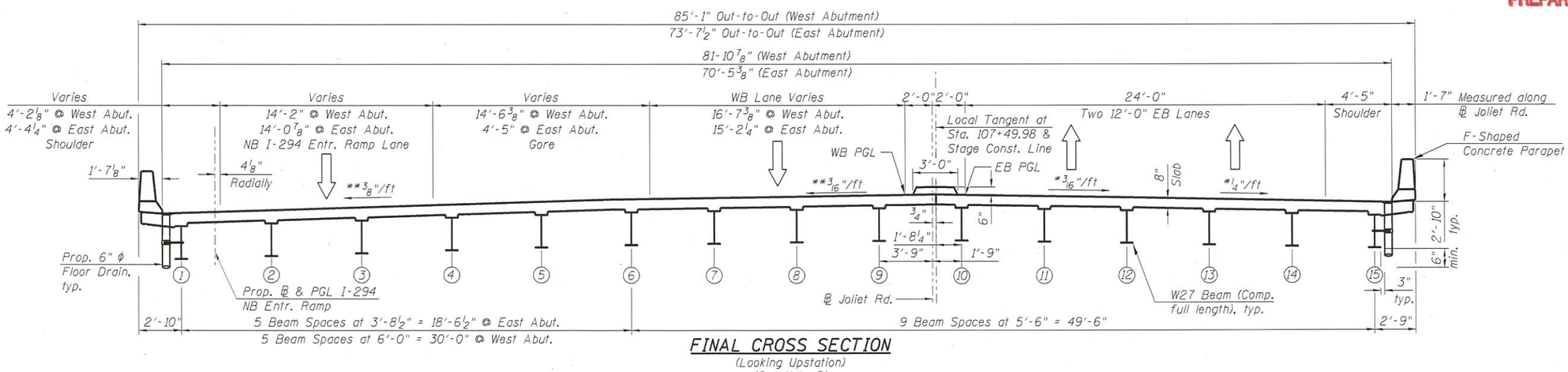
STAGE II REMOVAL AND CONSTRUCTION

(Looking Upstation at ℄ Brg. East Abutment)
(See Note 2)



STAGE II REMOVAL AND CONSTRUCTION

(Looking Upstation at ℄ Brg. West Abutment)
(See Note 2)



FINAL CROSS SECTION

(Looking Upstation)
(See Note 2)

NOTES:

1. Median to be constructed in Stage II after completion of Stage II deck.
2. All dimensions are measured along ℄ Brg. Abutments and perpendicular to Local Tangent unless otherwise noted.

*3/16"/ft cross slope will extend 14' right of and parallel to the proposed Local Tangent for ℄ of Joliet Road at Sta. 107+49.98. The cross slope of remaining portion of Stage I Construction deck will be ¼"/ft.

**3/16"/ft cross slope will extend 21'-9" left of and parallel to the proposed Local Tangent for ℄ of Joliet Road at Sta. 107+49.98. The cross slope of remaining portion of Stage II Construction deck will be ⅜"/ft.

APPROVED

FEB 03 2015

AS A BASIS FOR PREPARATION OF DETAILED PLANS

LEGEND

Removal Area

STAGE II CONSTRUCTION
JOLIET RD. OVER FLAG CREEK
F.A.U. RTE. 3562
SEC. T-5-4BR(81)
COOK COUNTY
STATION 107+49.98
STRUCTURE NO. 016-0393

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0160393-00000-003-TSL.dgn	DESIGNED - MI, JG	REVISED
USER NAME mustafa.alobaidi	CHECKED - MI, MAI	REVISED
PLOT SCALE = 8:0.0000 '1' / in.	DRAWN - WM, MA, KJD	REVISED
PLOT DATE = 12/31/2014	CHECKED - JJS, MI, MAI	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 3 OF 3 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
3562	T-5-4BR(81)	COOK	3	3
		CONTRACT NO. 60N80		
		ILLINOIS FED. AID PROJECT		

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