Benchmark: Cut square on top of NE wingwall Elev. 645.01.

Existing Structure: S.N. 099-0080 was originally built in 1926 as F.A.P. Route 577, Section 1997-105-RS,N at Station 84+15 utilizing a reinforced deck slab superstructure on concrete closed abutments and a solid wall pier. The superstructure was replaced in 1981 with precast prestressed concrete (P.P.C.) deck beams utilizing the original substructure, with rehab and modifications to the abutments. Currently, the back-to-back abutment length is 58'-0" and the roadway out-to-out deck width is 43'-4". This structure will be removed and replaced utilizing staged construction, to maintain one lane in each direction.

Note A: Existing soil shall be removed to El. 639.60 from R.O.W. to R.O.W. and from toe of embankment of north abutment to toe of embankment of south abutment unless shown otherwise.

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition

DESIGN STRESSES

FIELD UNITS

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

PRECAST PRESTRESSED UNITS

f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f'_s = 270,000 psi (1/2" ϕ low lax. strands)
f_{si} = 201,960 psi (1/2" ϕ low lax. strands)

SEISMIC DATA

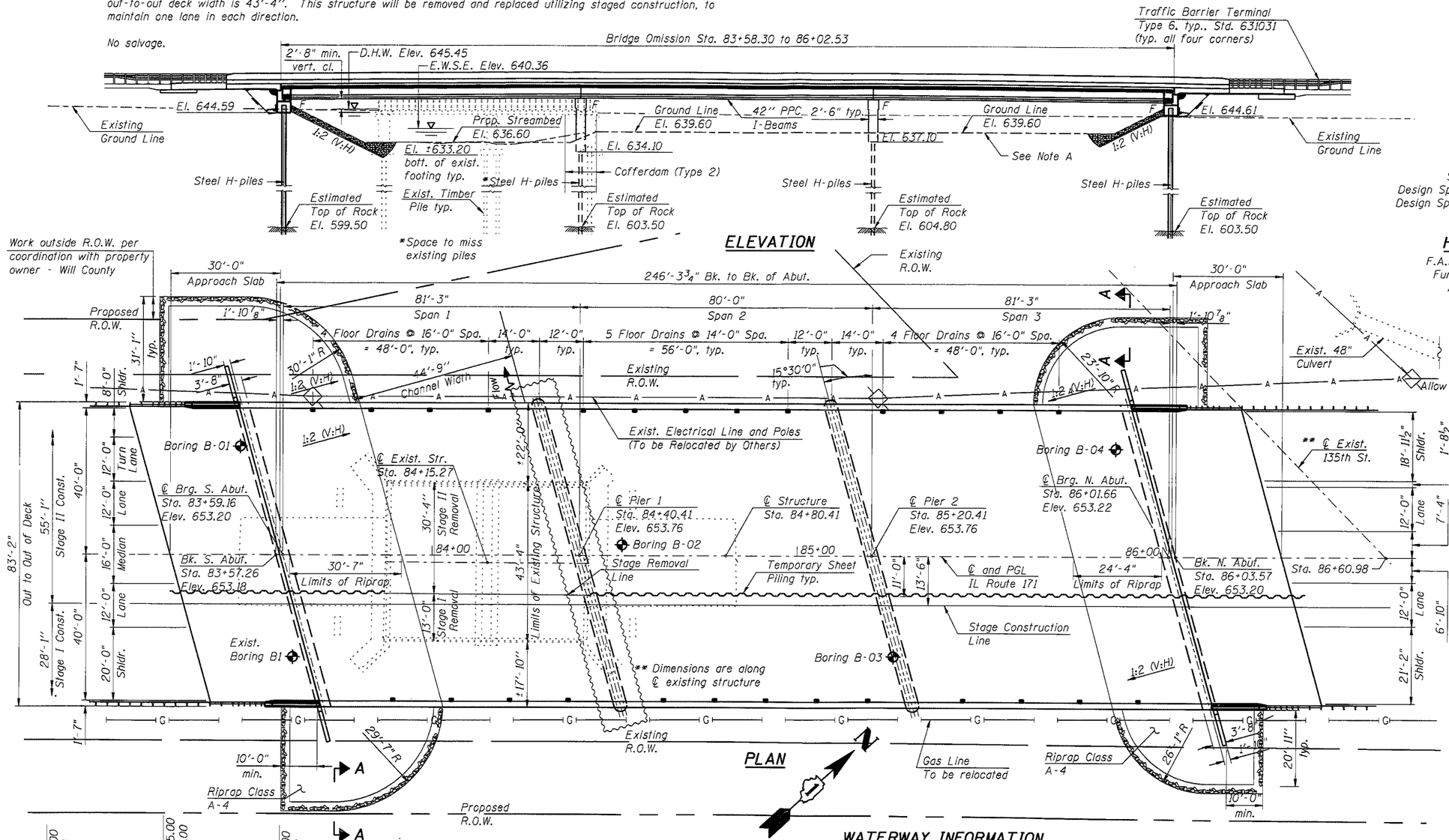
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.09g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.16g
Soil Site Class = D

HIGHWAY CLASSIFICATION

F.A.P. Rte. 577 - IL Rte. 171 (Archer Ave.)
Functional Class: Other Principal Arterial
ADT: 12,000 (2009); 16,000 (2040)
ADTT: 7%
DHV: 1,200
Design Speed: 55 m.p.h.
Posted Speed: 50 m.p.h.

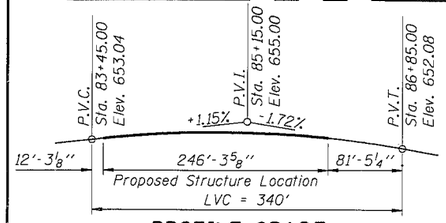
LOADING HL-93

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



** The intersection of 135th Street with IL Route 171 will be moved to be at Station 81+08.40 along ℄ IL Route 171

APPROVED
JAN 18 2013
AS A BASIS FOR PREPARATION OF DETAILED PLANS



PROFILE GRADE

(F.A.P. Route 577)

Note: A portion of the existing north abutment footing and piles shall be removed in order to construct Pier 1 cofferdam and Pier 1.

DESIGN SCOUR ELEVATION TABLE

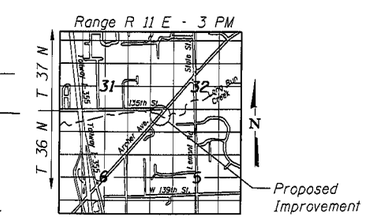
Year Event	Design Scour Elevation (ft.) S. Abut.	Pier 1	Pier 2	N. Abut.
Q100	644.59	635.5	635.5	644.61
Q500	644.59	633.5	631.9	644.61

WATERWAY INFORMATION

Drainage Area = 21.2 mi²
Exist. Low Grade Elev. 644.40 @ Sta. 86+75
Prop. Low Grade Elev. 650.32 @ Sta. 89+00

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.
	10	1600	407	998	643.88	0.74	0.23	644.62	644.11
Design	50	2880	413	1336	645.45	0.63	0.28	646.08	645.73
Base	100	3570	413	1516	646.27	0.51	0.27	646.78	646.54
Overtopping	<30								
Max. Calc.	500	5550	413	1964	648.26	0.31	0.27	648.57	648.53

10 year velocity through existing bridge = 4.8 fps
10 year velocity through prop. bridge = 1.9 fps



LOCATION SKETCH

GENERAL PLAN
IL 171 OVER LONG RUN CREEK
F.A.P. ROUTE 577 - SEC. C-1-B
WILL COUNTY
STATION 84+80.41
STRUCTURE NO. 099-0537

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

USER NAME =	DESIGNED - MI, JRB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
DATE - 12/28/2012	CHECKED - MI, JMG	REVISED -	
PLOT SCALE =	DRAWN - JRB	REVISED -	
PLOT DATE =	CHECKED - MI, MAI	REVISED -	

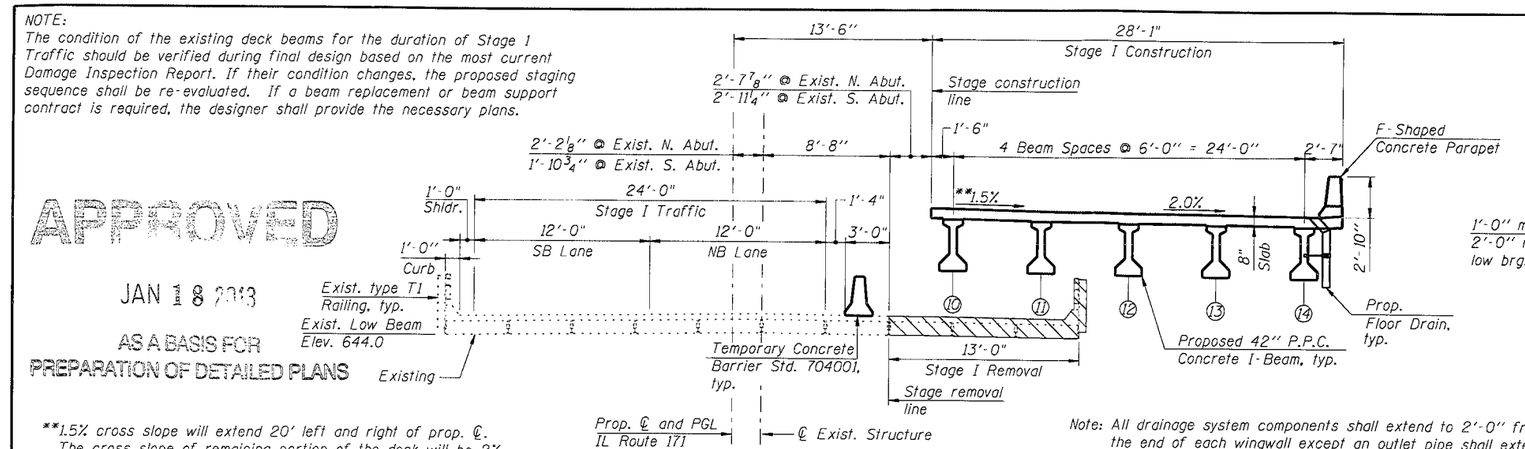
GENERAL PLAN AND ELEVATION
STRUCTURE NO. 099-0537
SHEET NO. 1 OF 2 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
577	C-1-B	WILL	2	1

CONTRACT NO. 60H21
ILLINOIS FED. AID PROJECT

NOTE:
The condition of the existing deck beams for the duration of Stage 1 Traffic should be verified during final design based on the most current Damage Inspection Report. If their condition changes, the proposed staging sequence shall be re-evaluated. If a beam replacement or beam support contract is required, the designer shall provide the necessary plans.

APPROVED
JAN 18 2013
AS A BASIS FOR
PREPARATION OF DETAILED PLANS

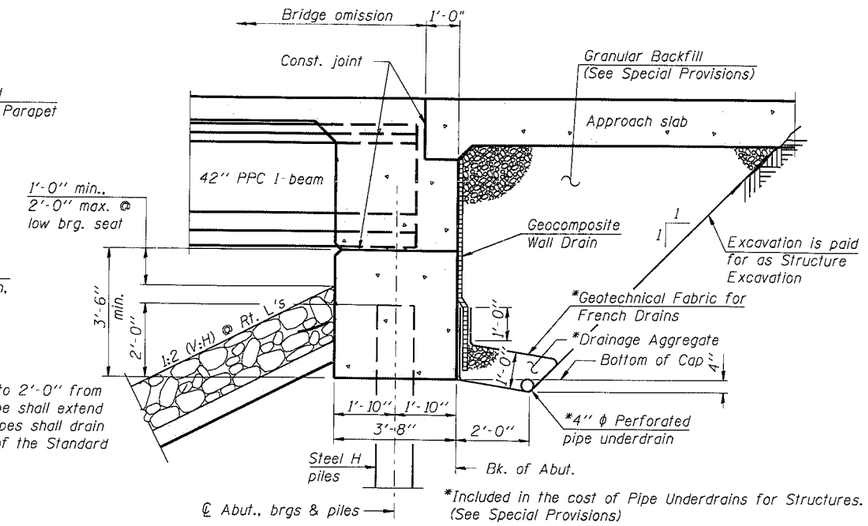


**1.5% cross slope will extend 20' left and right of prop. ℄. The cross slope of remaining portion of the deck will be 2%.

STAGE I REMOVAL AND CONSTRUCTION

(Looking Up-station)

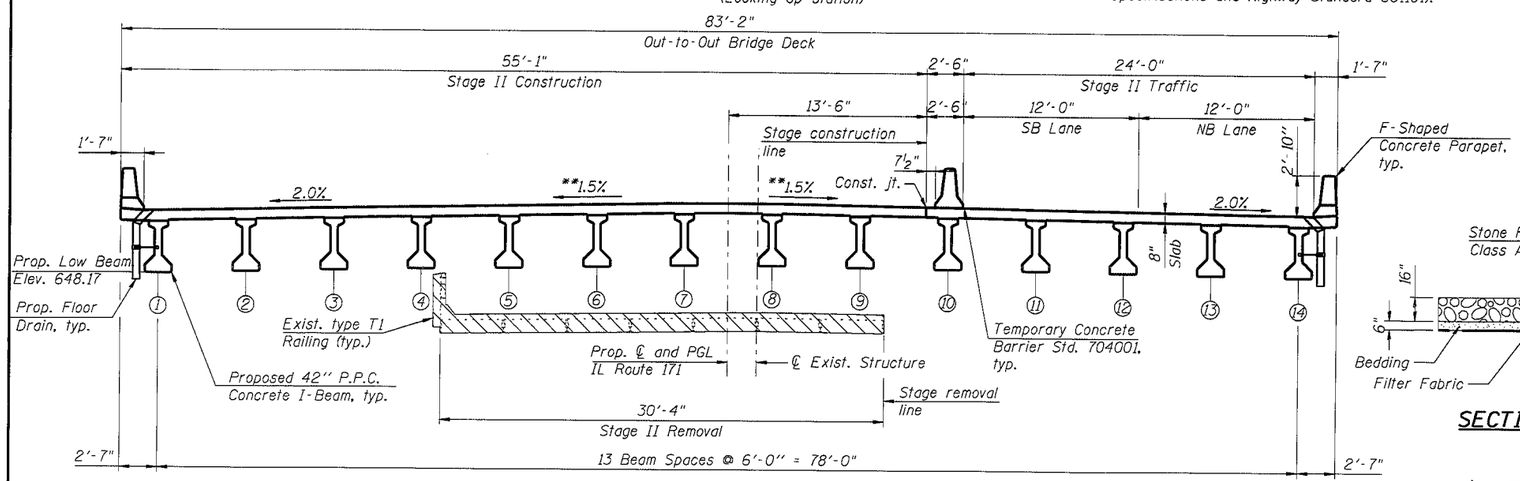
Note: All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).



*Included in the cost of Pipe Underdrains for Structures. (See Special Provisions)

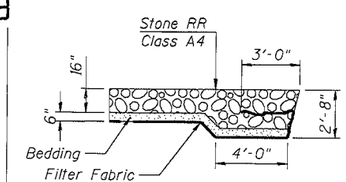
SECTION THRU INTEGRAL ABUTMENT

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

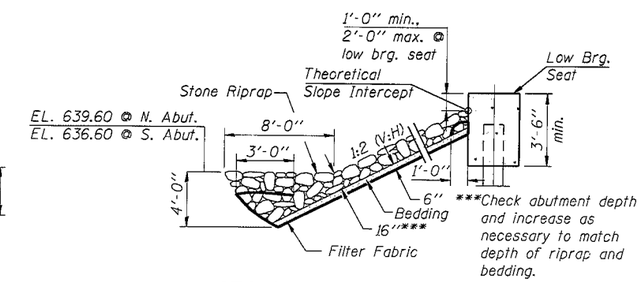


STAGE II REMOVAL AND CONSTRUCTION

(Looking Up-station)

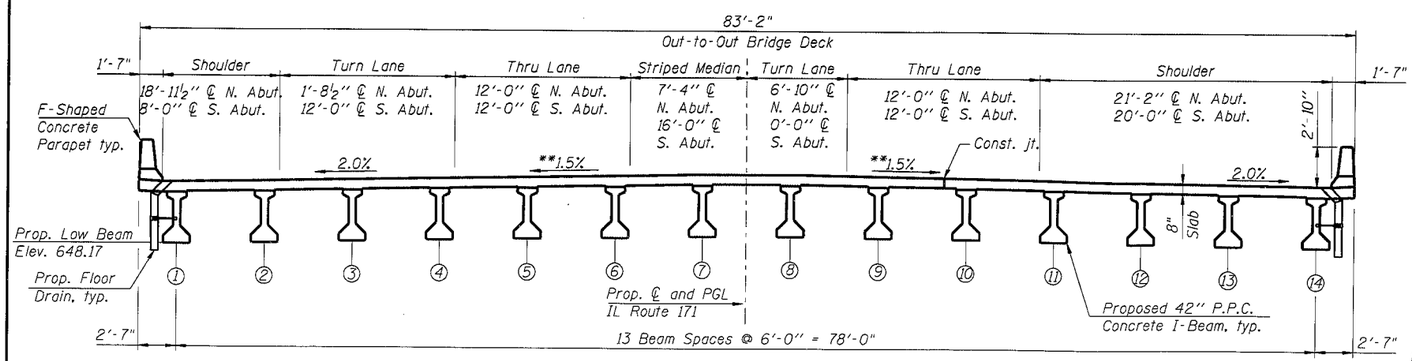


SECTION A-A



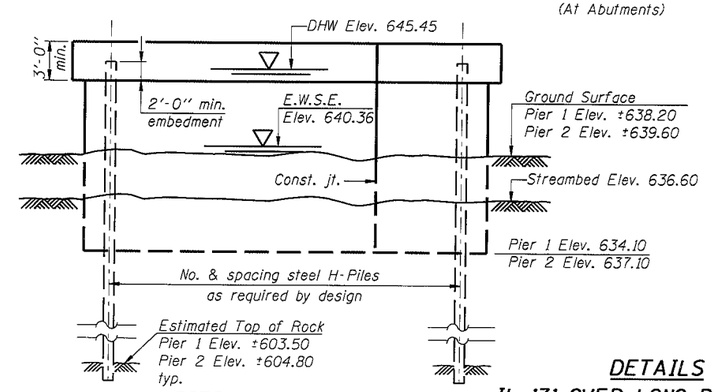
STONE RIPRAP ANCHOR DETAIL

(At Abutments)



TYPICAL BRIDGE SECTION

(Looking Up-station)



PIER 1 & 2 SKETCH

(Looking Up-station)

Note: A portion of the existing north abutment footing and piles shall be removed in order to construct Pier 1 cofferdam and Pier 1.

LEGEND

Removal Area

DETAILS
IL 171 OVER LONG RUN CREEK
F.A.P. ROUTE 577 - SEC. C-1-B
WILL COUNTY
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION
STRUCTURE NO. 099-0537

SHEET NO. 2 OF 2 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
577	C-1-B	WILL	2	2
		CONTRACT NO. 60H21		
		ILLINOIS FED. AID PROJECT		