

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-BR	CH 48	ST. CLAIR	4 OF 15
FHWA PROJECT #	ILLINOIS	PROJ. BROS-0:63(03)	
GENERAL PLAN & ELEV.		CONTRACT 97525	

BM: CHISELED SQUARE IN THE S.E. WINGWALL OF EXISTING STRUCTURE. STA 289+32.15, 18.15' RT. ELEV = 402.81

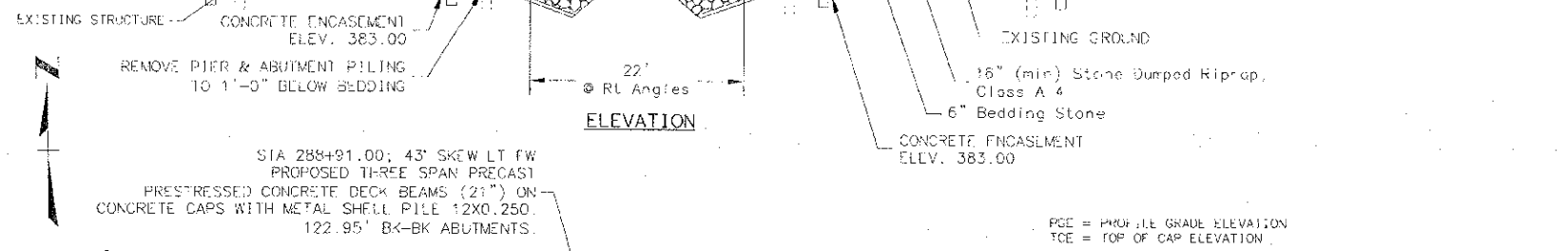
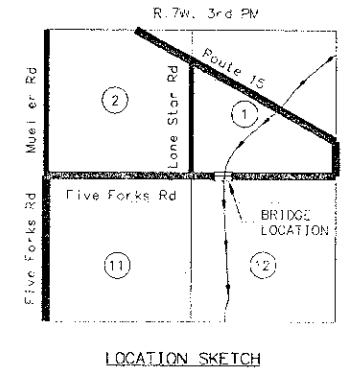
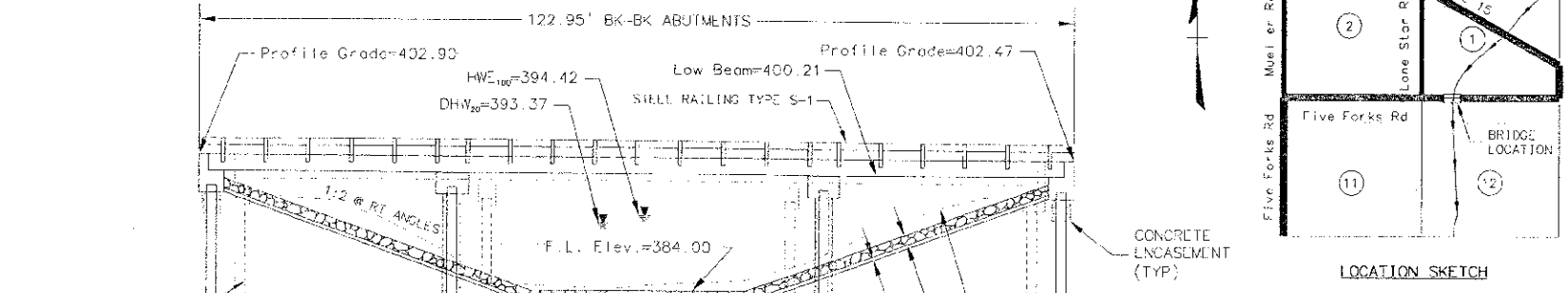
EXISTING STRUCTURE, NO. 082-3040, HAS THREE SPANS (35'3", 42'6" & 35'3"). THE SUPERSTRUCTURE HAS 6 STEEL I-BEAMS WHICH ARE 24" WF 76# SECTIONS. THE CONCRETE DECK IS 6 3/4" THICK AND 34"4" WIDE OUT TO OUT. THE CAPS AT THE ABUTMENTS AND PIERS ARE REINFORCED CONCRETE AND ARE SUPPORTED BY 6-16" PRECAST CONCRETE PILING.

SALVAGE: ALL MATERIALS REQUIRED TO BE REMOVED WHICH ARE CONSIDERED SALVAGABLE BY THE ENGINEER SHALL REMAIN THE PROPERTY OF ST. CLAIR COUNTY. ALL OTHERS SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE.

**GENERAL NOTES**

1. THE CONTRACTOR SHALL DRIVE TEST PILES TO 110% OF THE NOMINAL REQUIRED BEARING SPECIFIED IN PRODUCTION LOCATIONS AT THE SUBSTRUCTURES SPECIFIED OR APPROVED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF THE PILES.
2. REFER TO THE SPECIAL PROVISIONS FOR BORING LOG INFORMATION.
3. A CORROSION INHIBITOR SHALL BE USED IN THE CONCRETE FOR THE PRECAST, PRESTRESSED CONCRETE DECK BEAMS, ACCORDING TO ARTICLE 1020.05(b)(12) OF THE STANDARD SPECIFICATIONS.
4. RAILING SHALL BE IN ACCORDANCE WITH SECTION 509 OF THE STANDARD SPECIFICATIONS, EXCEPT AS NOTED ON THE PLANS, AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER FOOT FOR STEEL RAILING, TYPE S1 WHICH PRICE SHALL INCLUDE THE COST OF FURNISHING AND ERECTING.
5. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60 (11 MODIFIED).
6. THE COST OF STRUCTURE EXCAVATION SHALL BE CONSIDERED INCLUDED IN THE COST OF CONCRETE STRUCTURES.
7. LAYOUT OF SLOPE PROTECTION SYSTEM MAY BE VARIED IN THE FIELD TO SUIT GROUND CONDITIONS AS DIRECTED BY THE ENGINEER.
8. BACKFILL BEHIND THE ABUTMENTS SHALL BE PLACED AFTER THE SUPERSTRUCTURE IS IN PLACE AND THE DOWEL RODS GROUTED.
9. THE METAL SHELL PILES SHALL BE ACCORDING TO ASTM A 252 GRADE 3.

DESCRIPTION: PPC DECK BEAMS, 21" DEEP X 36" WIDE, (34', 52', 34') LONG, PILE BENT SPILL THRU ABUTMENTS AND PIERS.



**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS WITH 2008 INTERIMS. LOADING HL-93 ALLOW 50 PSF FOR FUTURE WEARING SURFACE.

**PILE DATA**

TYPE & SIZE: METAL SHELL 12X0.250  
 NOMINAL REQUIRED BEARING:  
 ... ABUT #1 & #4: 158 KIPS  
 ... PIER #2 & #3: 326 KIPS  
 FACTORED RESISTANCE AVAILABLE:  
 ... ABUT #1 & #4: 87 KIPS  
 ... PIER #2 & #3: 179 KIPS  
 ESTIMATED LENGTH: ... ABUT #1 & #4: 51 FT  
 ... PIER #2 & #3: 66 FT  
 NO. OF PRODUCTION PILES: 22  
 NO. OF TEST PILE: (ABUTMENT #1 & #4) 2

**INDEX OF SHEETS**

4. GENERAL PLAN & ELEVATION
5. 34' BEAM SUPERSTRUCTURE
6. 52' BEAM SUPERSTRUCTURE
7. 34' P.C.C. DECK BEAM
8. 34' P.C.C. DECK BEAM DETAILS
9. 52' P.C.C. DECK BEAM
10. 52' P.C.C. DECK BEAM DETAILS
11. ABUTMENT #1 & #4 DETAILS
12. PIER #2 & #3 DETAILS
13. STEEL RAILING TYPE S1
14. METAL SHELL PILE DETAILS

**TOTAL BILL OF MATERIALS (STRUCTURE)**

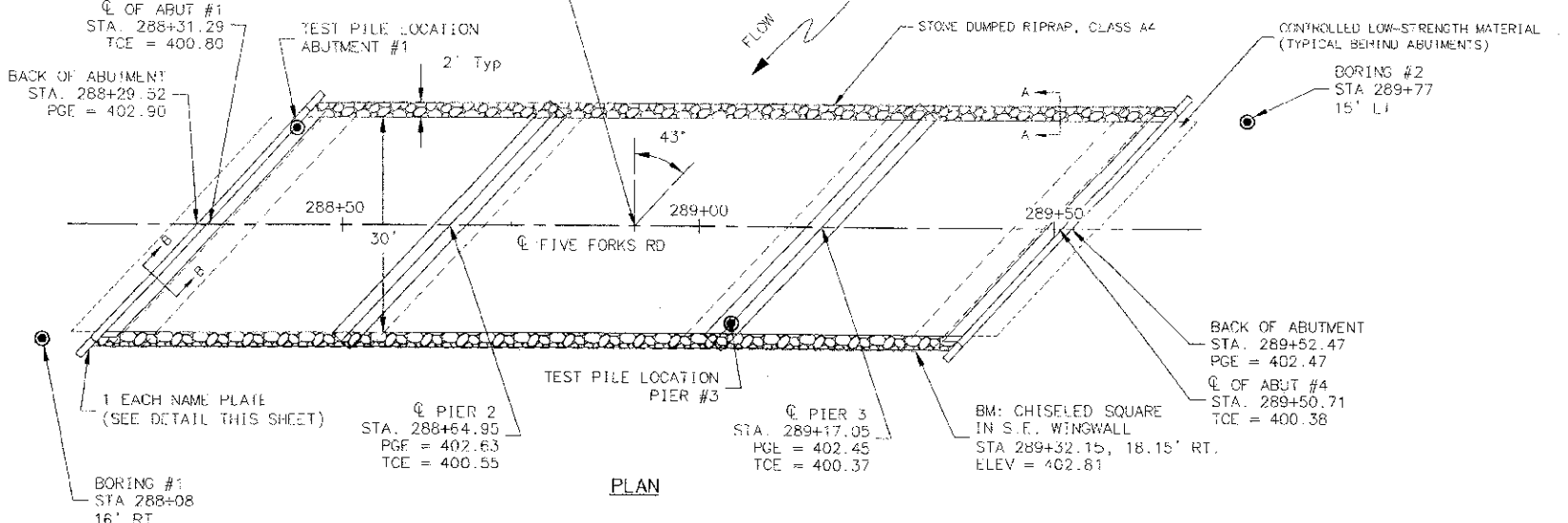
ITEM	UNIT	SUPER	SUB	TOTAL
STONE DUMPED RIPRAP, CLASS A4	SQ YD			427
FILTER FABRIC	SQ YD			427
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	57		57
REMOVAL OF EXISTING STRUCTURES	EACH			1
CONCRETE STRUCTURES	CU YD		70.2	70.2
CONCRETE ENCASMENT	CU YD		32	32
PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SO FT	3600		3600
REINFORCEMENT BARS, EPOXY COATED	POUND		6250	6250
STEEL RAILING, TYPE S1	FOOT	242		242
FURNISHING METAL SHELL PILES 12X0.250	FOOT		1287	1287
DRIVING PILES	FOOT		1287	1287
TEST PILE METAL SHELLS	EACH	2		2
NAME PLATES	EACH			1
WATERPROOFING MEMBRANE SYSTEM	SQ YD	401		401
PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	1082		1082
CONTROLLED LOW-STRENGTH MATERIAL	CU YD	33.4		33.4

**SEISMIC DATA**

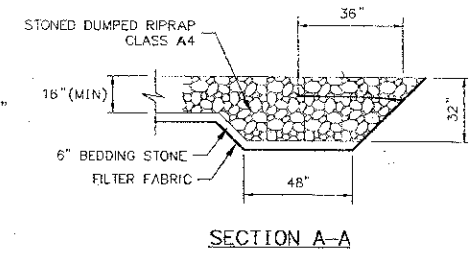
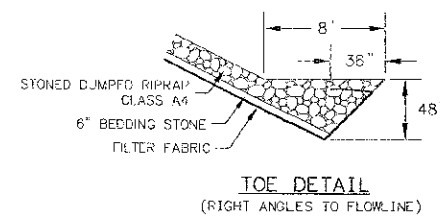
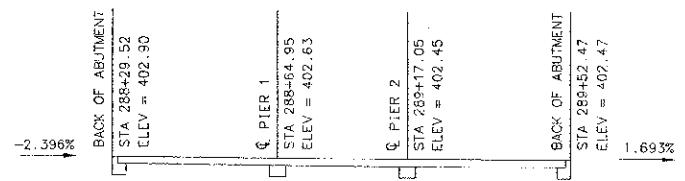
SEISMIC PERFORMANCE ZONE (S.P.Z.) = 2  
 DESIGN SPECTRAL ACCELERATION AT 1.0 SEC (S<sub>m</sub>) = 0.25g  
 DESIGN SPECTRAL ACCELERATION AT 0.2 SEC (S<sub>0.2</sub>) = 0.57g  
 SOIL SITE CLASS = D

**DESIGN STRESSES**

f'c = 3500 psi  
 fy = 60,000 psi



PVI STA = 288+91.00  
 PVI ELEV = 400.21  
 GRADE IN = -2.396%  
 GRADE OUT = 1.693%  
 LENGTH = 450.00 FT



DRUM HILL BRANCH BUILT 2011 BY ST. CLAIR COUNTY SEC. 08-00087-06-BR STA. 288+91.00 STR. NO. 082-3107 LOADING HL93

LETTERING FOR NAME PLATE  
 LOCATE NAME PLATE AT S.W. WINGWALL OF BRIDGE (SEE STD. 515001)

**WATERWAY INFORMATION**

DRAINAGE AREA = 7.02 sq.mi.		LOW GRADE ELEVATION = 402.44 @ STA 289+29.64					
FLOOD FREQUENCY (year)	FLOWRATE Q (cfs)	OPENING (sq.ft.)	NATURAL H.W.E.	EXISTING HEAD (ft.)	PROPOSED HEAD (ft.)	EXISTING HEADWATER ELEVATION	PROPOSED HEADWATER ELEVATION
DESIGN 20	1320	324	393.37	0.26	0.13	393.63	393.50
BASE 100	2000	381	394.42	0.53	0.35	394.95	394.77
MAX CALC. 500	2680	429	395.28	0.78	0.56	396.06	395.84

ADDITIONAL OVER-THE-ROAD FLOW AREA:

I certify that to the best of my knowledge, information and belief, this bridge is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements for the current "AASHTO LRFD Bridge Design Specifications".

Robert Bruckner 4/8, 2015  
 LICENSE NO. 21-004669  
 LICENSE EXPIRATION DATE: 11/30/14



**GENERAL PLAN & ELEVATION**

FIVE FORKS RD (CH 48) OVER DRUM HILL BRANCH  
 SECTION 08-00087-06-BR  
 ST. CLAIR COUNTY  
 STATION 288+91.00  
 S.N. 082-3107

DRAWING FILE: Gen Plan and Elev.cwk

INITIALS	DATE
DESIGNED: WS	10/12
CHECKED: AMC	3/13
DRAWN: WS	10/12
CHECKED: AMC	3/13
PREPARED BY ST. CLAIR COUNTY	