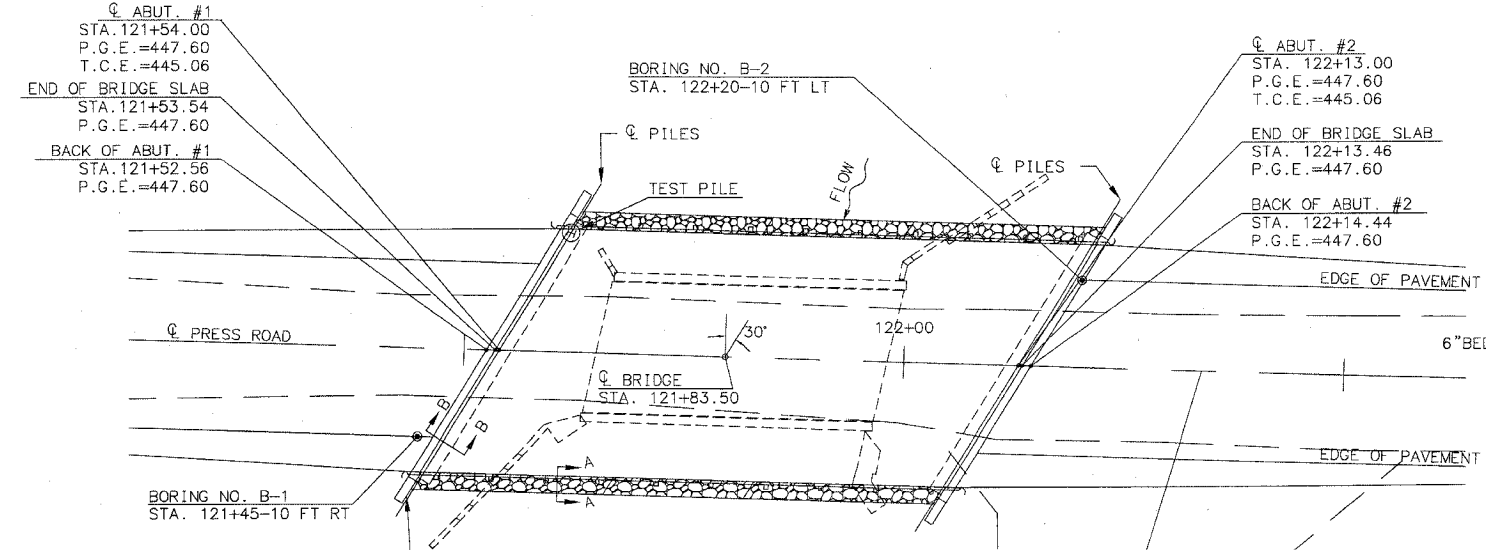


SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	5 OF 13
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(28)	
FEDERAL AID PROJECT		CONTRACT #97306	

DIMENSIONS GIVEN ALONG  $\phi$  OF STRUCTURE.

EXISTING STRUCTURE (NO. 082-4061) IS A SINGLE SPAN (32') CAST IN PLACE CONCRETE DECK ON STEEL BEAMS STA 121+83.5 WITH A 12 DEGREE SKEW WITH CONCRETE DITCH CHECKS.

SALVAGE: ALL MATERIALS REQUIRED TO BE REMOVED WHICH ARE CONSIDERED SALVAGEABLE BY THE ENGINEER SHALL REMAIN THE PROPERTY OF THE ROAD DISTRICT. ALL OTHERS SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE.

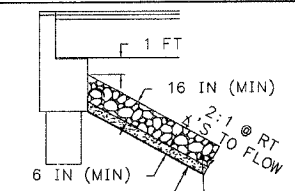


PLAN  
SKEW ANGLE: 30' LEFT FORWARD

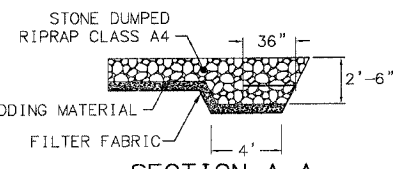
P.G.E. = PROFILE GRADE ELEVATION  
T.C.E. = TOP OF CAP ELEVATION

BENCHMARK  
R.R. SPIKE IN NORTH FACE OF POWERPOLE  
30' RT STA 119+80  
ELEV = 447.26 FT

BENCHMARK  
R.R. SPIKE IN NORTH FACE OF POWERPOLE  
24' RT STA 122+77.91  
ELEV = 445.16 FT



SECTION B-B



SECTION A-A

GENERAL NOTES

- THE CONTRACTOR SHALL DRIVE TEST PILE(S) TO 110% OF THE NOMINAL REQUIRED BEARING SPECIFIED IN PRODUCTION LOCATIONS AT THE SUBSTRUCTURES SPECIFIED AS APPROVED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF THE PILES.
- REFER TO THE SPECIAL PROVISIONS FOR BORING LOG INFORMATION.
- A CORROSION INHIBITOR SHALL BE USED IN THE CONCRETE FOR THE PRECAST, PRESTRESSED CONCRETE DECK BEAMS, ACCORDING TO ARTICLE 1020.05(b) OF THE STANDARD SPECIFICATIONS.
- 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.
- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60 (1L MODIFIED). SEE SPECIAL PROVISIONS. THIS NOTE SUPERSEDES NOTES ON THE ABUTMENT SHEETS.
- THE COST OF STRUCTURE EXCAVATION SHALL BE CONSIDERED INCLUDED IN THE COST OF CONCRETE STRUCTURES.
- IN ADDITION TO ALL OTHER REQUIREMENTS OF SECTION 512 OF THE STANDARD SPECIFICATIONS, SPLICES FOR STEEL H PILES SHALL DEVELOP FULL CAPACITY OF THE STEEL'S CROSS SECTIONAL AREA OF THE PILE FOR TENSION, SHEAR AND BENDING FORCES. ONE APPROVED METHOD OF ACHIEVING THIS REQUIREMENT IS FULL PENETRATION BUTT WELDING OF THE ENTIRE CROSS SECTION. OTHER TYPES OF SPLICES MEETING THE FULL CAPACITY REQUIREMENT MAY BE ALLOWED SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY PROPOSAL BY THE CONTRACTOR TO USE AN ALTERNATE SPLICE METHOD MUST INCLUDE ADEQUATE DOCUMENTATION DEMONSTRATING THAT THE FULL TENSION, SHEAR AND BENDING CAPACITIES WILL BE MET. APPROPRIATE WELDER QUALIFICATIONS WILL BE REQUIRED FOR THE POSITIONS AND PROCESSES USED IN SPLICING ALL PILES. NONDESTRUCTIVE TESTING OF COMPLETED WELDS WILL BE LIMITED TO VISUAL INSPECTION.

TOTAL BILL OF MATERIALS (STRUCTURE)

ITEM	UNIT	SUPER	SUB		TOTAL
			ABUTS.	PIERS	
CHANNEL EXCAVATION	CU YD				195
STONE DUMPED RIPRAP, CLASS A4	SQ YD				216
FILTER FABRIC	SQ YD				216
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	21.9			21.9
CONCRETE STRUCTURES	CU YD		24.4		24.4
PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1680			1680
REINFORCEMENT BARS, EPOXY COATED	POUND		2960		2960
STEEL RAILING, TYPE S1	FOOT	120			120
FURNISHING STEEL PILES HP 10x42	FOOT		561		561
DRIVING PILES	FOOT		561		561
TEST PILE STEEL HP 10x42	EACH		1		1
CONCRETE ENCASEMENT	CU YD		2.6		2.6
WATERPROOFING MEMBRANE SYSTEM	SQ YD	186.7			186.7
PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	360			360
REMOVAL OF EXISTING STRUCTURES	EACH				1
PILE SHOES	EACH		10		10
NAME PLATES	EACH				1

DESIGN SPECIFICATIONS

2003 AASHTO, HS-20 LOADING, LOAD FACTOR DESIGN  
ALLOW 25 PSF FOR FUTURE WEARING SURFACE

SEISMIC DATA

S.P.C. = B  
A = 0.120  
S = I/1.0

INDEX OF SHEETS

- GENERAL PLAN & ELEVATION
- P.P.C. DECK BEAM SUPERSTRUCTURE (60'-0" SPAN)
- P.P.C. DECK BEAM DETAILS
- P.P.C. DECK BEAMS PILE BENT ABUTMENT
- STANDARD CR-TS1
- STANDARD CN
- STANDARD CX-1

PILE DATA (2-ABUTMENTS)

TYPE: HP 10x42 (W/ PILE SHOES)  
ALLOWABLE RESISTANCE: 111.6 KIPS PER PILE  
AVAILABLE:  
NOMINAL REQUIRED BEARING: 334.8 KIPS PER PILE  
ESTIMATED LENGTH: 64 FT (ABUTMENT #1)  
61 FT (ABUTMENT #2)  
NUMBER PRODUCTION PILES: 9  
NUMBER TEST PILES: 1

THE STEEL H-PILES SHALL BE ACCORDING TO AASHTO M270 GRADE 50.

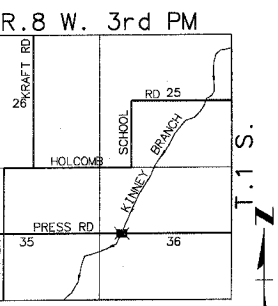
DESIGN STRESSES

FIELD UNITS

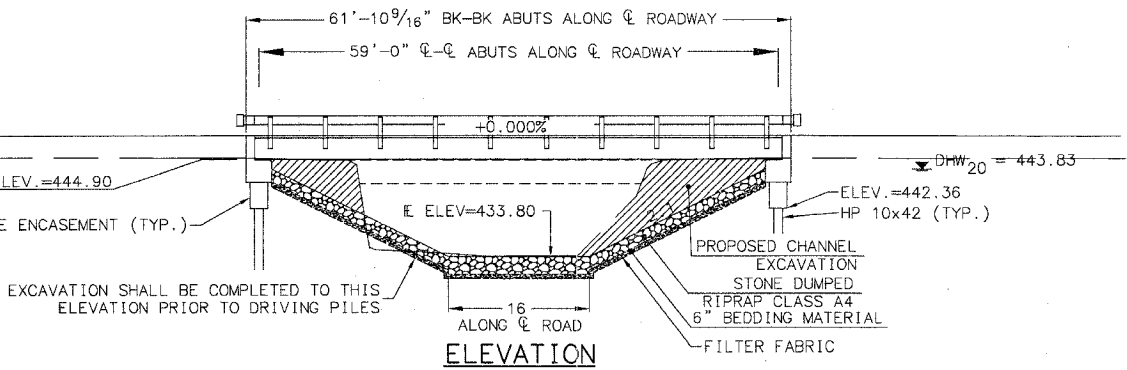
f'c = 3500 psi fy = 60000 psi

PRECAST PRESTRESSED UNITS

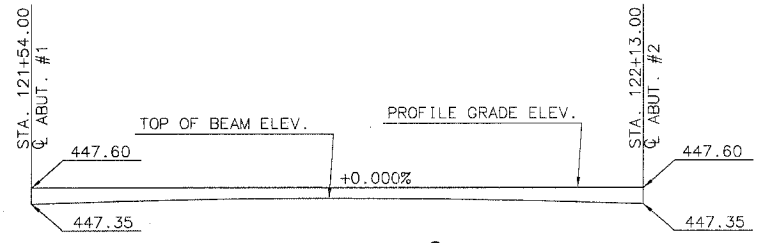
f'c = 5000 psi  
f'ci = 4000 psi  
f's = 270000 psi (1/2"  $\phi$  STRESSED RELIEVED STRANDS)  
f'si = 201,960 psi (1/2"  $\phi$  STRESSED RELIEVED STRANDS)  
fy = 60000 psi



LOCATION SKETCH



ELEVATION



PROPOSED PROFILE ALONG  $\phi$  OF STRUCTURE

WATERWAY INFORMATION

DRAINAGE AREA = 3.27 sq.mi. LOW RDWY. ELEV.=444.51 @ Sta. 124+86.80

FLOOD YR.	FREQ.	Q cfs	OPENING sq.ft.		NAT. H.W.E. ft	HEAD ft		HEADWATER ELEV. - ft	
			EXIST.	PROP.		EXIST.	PROP.	EXIST.	PROP.
DESIGN	20	1376	222.45	312.70	443.83	1.26	0.17	445.09	444.00
BASE	100	2080	222.45	338.94	444.37	1.23	0.97	445.60	445.34

KINNEY BRANCH  
BUILT 20\_\_ BY  
SMITHTON TOWNSHIP  
ST. CLAIR COUNTY  
SEC. 03-18101-03-BR  
STA. 121+83.50  
STR. NO. 082-4151 LOADING HS-20

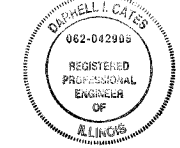
LETTERING FOR NAME PLATE

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

THE STANDARD DETAIL SHEETS FOR THIS STRUCTURE WERE ASSEMBLED BY ME OR PERSONS UNDER MY DIRECT SUPERVISION.

*Darrell I. Cates* 4/17, 2007

DARRELL I. CATES, P.E.  
COUNTY ENGINEER  
LICENSE NO. 62-042908  
LICENSE EXPIRATION DATE: NOVEMBER 30, 2007



GENERAL PLAN & ELEVATION

T.R. 197  
KINNEY BRANCH  
SECTION 03-18101-03-BR  
ST. CLAIR COUNTY  
STATION 121+83.50  
S.N. 082-4151

	INITIALS	DATE
DESIGNED	JLH	2006
CHECKED		
DRAWN	JLH	8/2006
CHECKED		
PREPARED BY ST. CLAIR COUNTY HIGHWAY DEPARTMENT		