

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

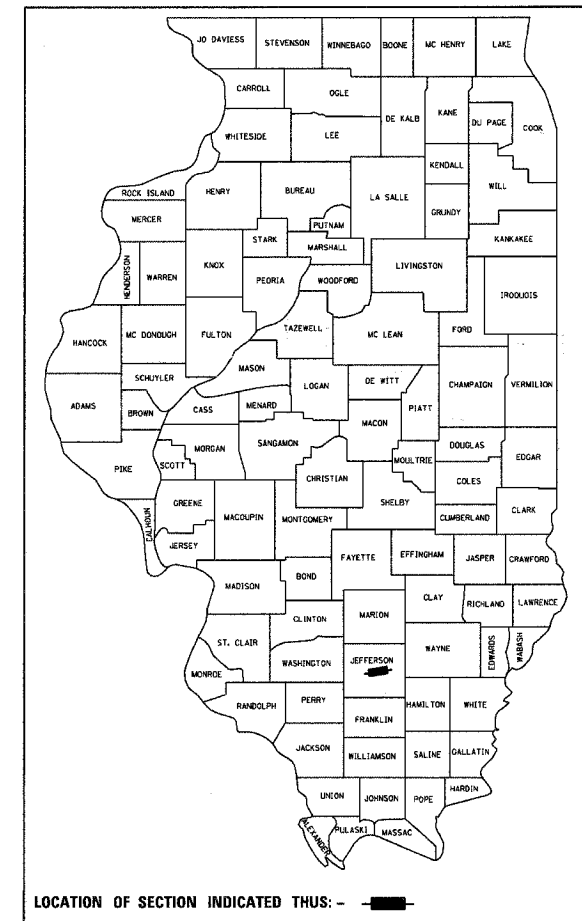
**PROPOSED  
HIGHWAY PLANS**

F.A.P. ROUTE 821 (IL 15)  
SECTION (15-2)BR  
PROJECT : BHF-0821(039)  
DECK REPLACEMENT  
JEFFERSON COUNTY  
C-99-023-06

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
821	(15-2)BR	JEFFERSON	33	1

CONTRACT NO. 98958

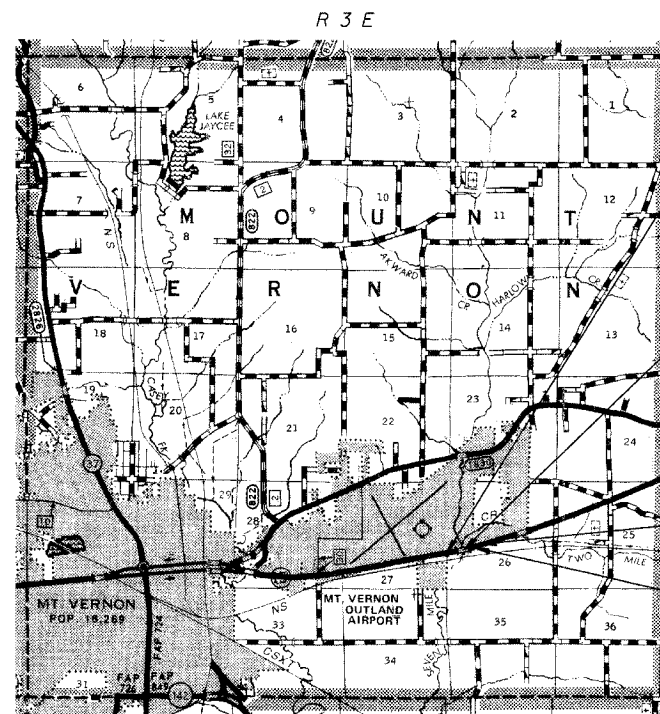
D-97-030-03



FOR INDEX OF SHEETS, SEE SHEET NO. 2  
FOR LIST OF ILLINOIS D.O.T. HIGHWAY STANDARDS, SEE SHEET NO. 2

CURRENT ADT: 4,800 (2005)

FUNCTIONAL CLASS: MINOR ARTERIAL



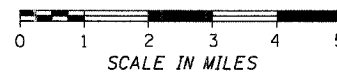
SECTION (15-2)BR  
BEGINS STATION 125+95

EXISTING STRUCTURE (S.N. 041-0027)  
STA. 129+81.00  
THREE SPAN CONTINUOUS STEEL BEAM BRIDGE  
168'-0" BK.-BK. ABUTMENTS WITH R.C. DECK 34'-5"  
WIDE ON R.C. PILE BENT PIERS AND ABUTMENTS.  
EXISTING R.C. DECK WILL BE REMOVED AND REPLACED.  
EXISTING SUBSTRUCTURE WILL BE WIDENED AND NEW  
STEEL BEAMS ADDED TO WIDEN THE DECK. THE EXISTING  
STEEL BEAMS WILL BE REHABILITATED AND REUSED.

SECTION (15-2)BR  
ENDS STATION 133+70

STATION EQUATION  
STA 132+54.32 AHEAD =  
STA 132+55.99 BACK

TOTAL LENGTH OF SECTION & PROJECT = 773.33 FEET = 0.146 MILES  
NET LENGTH OF SECTION & PROJECT = 773.33 FEET = 0.146 MILES



CUMMINS ENGINEERING CORPORATION  
SPRINGFIELD, ILLINOIS



Michael D. Cummins (8-9-06)  
ILLINOIS PROFESSIONAL NO. 43244  
(Expires 11/30/07)

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED Aug. 16 2006

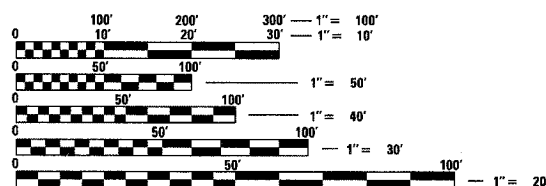
Christina M. Reed  
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

October 13, 2006  
Mike Hise  
ENGINEER OF DESIGN AND ENVIRONMENT

October 13, 2006  
Milton P. Seer  
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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OF THE STATE OF ILLINOIS

PROJECT ENGINEER: MARK DAUGHERTY (217) 342-8341  
SQUAD LEADER: BRIAN LEWIS (217) 342-8360



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD  
ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT  
CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS  
ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123

CONTRACT NO. 98958

TOWNSHIP: MOUNT VERNON

JEFFERSON COUNTY SECTION (15-2)BR F.A.P. ROUTE 821 (IL 15)

F.A.P. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
821	(15-2)BR	JEFFERSON	33	2
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 98958				

### GENERAL NOTES

- THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2002; THE "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS" INDICATED ON THE CHECK SHEET, AND THE SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.
- THE WORK INCLUDED IN THIS SECTION (15-2)BR CONSISTS OF REMOVAL OF THE EXISTING CONCRETE BRIDGE DECK, APPROACH SLABS, PAVED SHOULDERS, AND GUARDRAIL, SUBSTRUCTURE WIDENING, SUPERSTRUCTURE CONSTRUCTION, CONSTRUCTION OF APPROACH PAVEMENTS, CONNECTOR PAVEMENTS, BITUMINOUS BASE COURSE WIDENING, BITUMINOUS RESURFACING, AND BITUMINOUS SHOULDERS, INSTALLING GUARD RAIL AND TERMINALS, PLACING PAVEMENT MARKINGS, AND ANY OTHER WORK NECESSARY TO COMPLETE THIS SECTION.
- THE PROPOSED PROJECT BEGINS APPROXIMATELY 2.0 MILES EAST OF MT. VERNON, ILLINOIS AND EXTENDS IN AN EASTERLY DIRECTION A DISTANCE OF 0.146 MILES.
- PAVEMENT MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH SECTION 780 OF THE STANDARD SPECIFICATIONS. SHORT TERM PAVEMENT MARKING SHALL BE TAPE.
- EXCAVATION REQUIRED FOR BITUMINOUS CONCRETE BASE COURSE WIDENING SUPERPAVE (SQ. YD.) AND BITUMINOUS SHOULDERS SUPERPAVE (SQ. YD.) IS INCLUDED IN THE QUANTITY FOR EARTH EXCAVATION. THE WIDENING SHALL REMAIN IN PLACE AT THE CONCLUSION OF THE PROJECT.
- ANY SECTION CORNERS DISTURBED DURING CONSTRUCTION SHALL BE REESTABLISHED BY A REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
- ALL ELEVATIONS SHOWN IN THE PLANS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. (NAVD88)
- ALL DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE FERTILIZED AND SEEDED. SEEDING SHALL BE CLASS 2 (MODIFIED) IN ACCORDANCE WITH THE SPECIAL PROVISIONS AND THE APPLICABLE ARTICLES OF SECTIONS 250 AND 251 OF THE STANDARD SPECIFICATIONS.
- TREES SHALL BE PRESERVED THROUGHOUT THIS SECTION AS DIRECTED BY THE ENGINEER.
- THE LOCATIONS AND/OR DEPTHS OF UNDERGROUND UTILITIES SHOWN HAVE BEEN TAKEN FROM INFORMATION FURNISHED BY THE UTILITY OWNERS AND MUST BE CONSIDERED APPROXIMATE. FIELD MARKINGS OF FACILITIES IN CRITICAL AREAS MAY BE OBTAINED BY PROVIDING A MINIMUM OF 96 HOURS ADVANCE NOTICE THROUGH THE J.U.L.I.E. SYSTEM BY CALLING 800-892-0123.
- THE CONTRACTOR SHALL PROVIDE INTERNET ACCESS TO THE BITUMINOUS PLANT QUALITY CONTROL LAB SO THAT BITUMINOUS PLANT REPORTS CAN BE E-MAILED TO THE DISTRICT HEADQUARTERS. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE UNIT PRICES FOR THE VARIOUS BITUMINOUS ITEMS.

### 12. THE FOLLOWING MIXTURE REQUIREMENTS ARE APPLICABLE TO THIS PROJECT:

MIXTURE USE(S):	BITUMINOUS BASE COURSE WIDENING
AC/PG:	PG 64-22
RAPX: (MAX)	25%
DESIGN AIR VOIDS:	4.0% @NDESIGN=50
MIXTURE COMPOSITION:	
(GRADATION MIXTURE)	IL-19.0
FRICION AGGREGATE:	NA
MIXTURE USE(S):	BRIDGE APPROACH PAVEMENT CONNECTOR
AC/PG:	PG 64-22
RAPX: (MAX)	25%
DESIGN AIR VOIDS:	4.0% @NDESIGN=70
MIXTURE COMPOSITION:	
(GRADATION MIXTURE)	IL-19.0
FRICION AGGREGATE:	NA
MIXTURE USE(S):	BITUMINOUS CONCRETE SURFACE COURSE
AC/PG:	PG 64-22
RAPX: (MAX)	10%
DESIGN AIR VOIDS:	4.0% @NDESIGN=90
MIXTURE COMPOSITION:	
(GRADATION MIXTURE)	IL-9.5
FRICION AGGREGATE:	MIXTURE D
MIXTURE USE(S):	BITUMINOUS SHOULDERS
AC/PG:	PG 64-22
RAPX: (MAX)	25%
DESIGN AIR VOIDS:	2.0% @NDESIGN=30
MIXTURE COMPOSITION:	
(GRADATION MIXTURE)	NA
FRICION AGGREGATE:	NA

### 13. FOR THE PAY ITEM BITUMINOUS MATERIALS (PRIME COAT), THE CONTRACTOR SHALL USE EITHER RC-70 OR AN EMULSIFIED POLYMER PRIME SS-1HP.

### 14. THE FOLLOWING APPLICATION RATES HAVE BEEN USED TO CALCULATE PLAN QUANTITIES:

AGGREGATE (PRIME COAT)	4 LBS./SQ. YD.
BITUMINOUS MATERIALS (PRIME COAT)	0.1 GAL./SQ. YD.
BITUMINOUS CONCRETE	112 LBS./SQ. YD./INCH

### INDEX OF SHEETS

1	COVER SHEET
2	GENERAL NOTES
2	INDEX OF SHEETS
2	HIGHWAY STANDARDS
3-4	SUMMARY OF QUANTITIES
5-6	TYPICAL CROSS SECTIONS
7	SCHEDULE OF QUANTITIES
8	TRAFFIC CONTROL AND PROTECTION STAGE I
9	TRAFFIC CONTROL AND PROTECTION STAGE II
10-11	PLAN & PROFILE
12	BRIDGE APPROACH PAVEMENT & CONNECTOR PAVEMENT DETAILS
13-31	STRUCTURE PLANS SN 041-0027
32-33	CROSS SECTIONS

### LIST OF ILLINOIS DOT HIGHWAY STANDARDS

STANDARD NO.	DESCRIPTION
000001-04	STANDARD SYMBOLS ABBREVIATIONS AND PATTERNS
001001	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-02	TEMPORARY EROSION CONTROL SYSTEMS
420001-06	PAVEMENT JOINTS
420401-05	BRIDGE APPROACH PAVEMENT
515001-02	NAME PLATE FOR BRIDGE
630001-06	STEEL PLATE BEAM GUARD RAIL
630201-03	PCC/BITUMINOUS STABILIZATION AT STEEL PLATE BEAM GUARD RAIL
630301-03	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARD RAIL TERMINALS
631031-05	TRAFFIC BARRIER TERMINAL TYPE 6
635006-02	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-01	REFLECTOR MARKER AND MOUNTING DETAIL
701006-02	OFF ROAD OPERATIONS 2L 2W, 15FT TO 24" FROM PAVEMENT EDGE
701011-01	OFF ROAD MOVING OPERATIONS 2L 2W, DAY ONLY.
701201-02	LANE CLOSURE 2L 2W, DAY ONLY
701301-02	LANE CLOSURE 2L 2W, SHORT TIME OPERATIONS
701311-02	LANE CLOSURE 2L 2W, MOVING OPERATIONS DAY ONLY
701321-08	LANE CLOSURE 2L 2W, BRIDGE REPAIR BARRIER
701326-02	LANE CLOSURE 2L 2W, PAVEMENT WIDENING
702001-06	TRAFFIC CONTROL DEVICES
704001-02	TEMPORARY CONCRETE BARRIER
780001-01	TYPICAL PAVEMENT MARKINGS

### GENERAL NOTES

F.A.P. ROUTE 821 (IL 15)  
SECTION (15-2)BR  
JEFFERSON COUNTY

CUMMINS ENGINEERING CORPORATION

JOB #: 2175  
FILE: 2175GENNOTES  
DATE: 6/01/08

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
821	(15-2)BR	JEFFERSON	33	3
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTRACT NO. 98958

SUMMARY OF QUANTITIES				CONSTRUCTION TYPE CODE	
CODE NO.	ITEM	UNIT	URBAN TOTAL QUANTITY	X071-2A	SFTY-3N
20200100	EARTH EXCAVATION	CU YD	200	200	
20700400	POROUS GRANULAR EMBANKMENT (SPECIAL)	CU YD	165	165	
25001010	SEEDING, CLASS 2 (MODIFIED)	ACRE	0.7	0.7	
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	84	84	
25000500	PHOSPHROUS FERTILIZER NUTRIENT	POUND	84	84	
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	84	84	
25000700	AGRICULTURAL GROUND LIMESTONE	TON	1.4	1.4	
25100115	MULCH, METHOD 2	ACRE	0.7	0.7	
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	70	70	
28000400	PERIMETER EROSION BARRIER	FOOT	354	354	
28100107	STONE RIPRAP, CLASS A4	SQ YD	900	900	
28200200	FILTER FABRIC	SQ YD	900	900	
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	47	47	
40600300	AGGREGATE (PRIME COAT)	TON	1	1	
40600980	BITUMINOUS SURFACE REMOVAL - BUTT JOINT	SQ YD	280	280	
40600990	TEMPORARY RAMP	SQ YD	96	96	
42001165	BRIDGE APPROACH PAVEMENT	SQ YD	284	284	
42001300	PROTECTIVE COAT	SQ YD	284	284	
42001430	BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE)	SQ YD	182	182	
44000100	PAVEMENT REMOVAL	SQ YD	34	34	
44000700	APPROACH SLAB REMOVAL	SQ YD	265	265	
44004250	PAVED SHOULDER REMOVAL	SQ YD	499	499	
48202600	BITUMINOUS SHOULDERS SUPERPAVE 8"	SQ YD	556	556	
50102400	CONCRETE REMOVAL	CU YD	25.0	25.0	
50104650	SLOPE WALL REMOVAL	SQ YD	230	230	
50104720	REMOVAL OF EXISTING CONCRETE DECK	EACH	1	1	
50200100	STRUCTURE EXCAVATION	CU YD	398	398	
50300100	FLOOR DRAINS	EACH	7	7	
50300225	CONCRETE STRUCTURES	CU YD	25.3	25.3	

SUMMARY OF QUANTITIES				CONSTRUCTION TYPE CODE	
CODE NO.	ITEM	UNIT	URBAN TOTAL QUANTITY	X071-2A	SFTY-3N
50300255	CONCRETE SUPERSTRUCTURE	CU YD	260.0	260.0	
50300260	BRIDGE DECK GROOVING	SQ YD	1.004	1.004	
50300300	PROTECTIVE COAT	SQ YD	930	930	
50300310	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	16	16	
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	1	1	
50500505	STUD SHEAR CONNECTORS	EACH	3,450	3,450	
50500715	JACK AND REMOVE EXISTING BEARINGS	EACH	18	18	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	59,720	59,720	
51201600	FURNISHING STEEL PILES HP12X53	FOOT	280	280	
51202700	DRIVING STEEL PILES	FOOT	280	280	
51203600	TEST PILE STEEL HP12X53	EACH	1	1	
51204315	CONCRETE ENCASEMENT	CU YD	6.5	6.5	
51205200	TEMPORARY SHEET PILING	SQ FT	474	474	
51500100	NAME PLATES	EACH	1	1	
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	100	100	
60109580	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	180	180	
* 63000000	STEEL PLATE BEAM GUARD RAIL, TYPE A	FOOT	375	375	
* 53100085	TRAFFIC BARRIER TERMINAL, TYPE 6	EACH	4	4	
* 63100167	TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT)	EACH	4	4	
63200310	GUARDRAIL REMOVAL	FOOT	577	577	
67000400	ENGINEERS FIELD OFFICE, TYPE A	CAL MO	8	8	
67100100	MOBILIZATION	L SUM	1	1	
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1	1	

\* SPECIALTY ITEM

**SUMMARY OF QUANTITIES**

F.A.P. ROUTE 821 (IL 15)  
SECTION (15-2)BR  
JEFFERSON COUNTY

CUMMINS ENGINEERING CORPORATION

JOB #: 2175  
FILE: 21750TY  
DATE: 8/01/06

SUMMARY OF QUANTITIES				S.N. 041-0027 80% FEDERAL 20% STATE	80% FEDERAL 20% STATE	
				CONSTRUCTION TYPE CODE		
CODE NO.	ITEM	UNIT	URBAN TOTAL QUANTITY	X071-2A	SFTY-3N	
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1	1		
70100500	TRAFFIC CONTROL AND PROTECTION, STANDARD 701326	L SUM	1	1		
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	12	12		
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1	1		
70300100	SHORT-TERM PAVEMENT MARKING	FOOT	176	176		
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	54	54		
70400100	TEMPORARY CONCRETE BARRIER	FOOT	490	490		
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	470	470		
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1,920	1,920		
* 78100300	REPLACEMENT REFLECTOR	EACH	10	10		
* 78200410	GUARDRAIL MARKERS, TYPE A	EACH	7	7		
* 78200520	BARRIER WALL MARKERS, TYPE B	EACH	6	6		
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4		
78300100	PAVEMENT MARKING REMOVAL	SQ FT	534	534		
X3560140	BITUMINOUS CONCRETE BASE COURSE WIDENING, SUPERPAVE 10 INCH	SQ YD	408	408		
X4066428	BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIX "D", N90	TON	39	39		
X5020501	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 1	EACH	1	1		
X5020502	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 2	EACH	1	1		
XX006345	TURBIDITY BARRIER	FOOT	200	200		
Z0002600	BAR SPLICERS	EACH	598	598		
Z0030240	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 2	EACH	2		2	
Z0030340	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 2	EACH	2		2	

\* SPECIALTY ITEM

SUMMARY OF QUANTITIES				S.N. 041-0027 80% FEDERAL 20% STATE	80% FEDERAL 20% STATE	
				CONSTRUCTION TYPE CODE		
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	X071-2A	SFTY-3N	

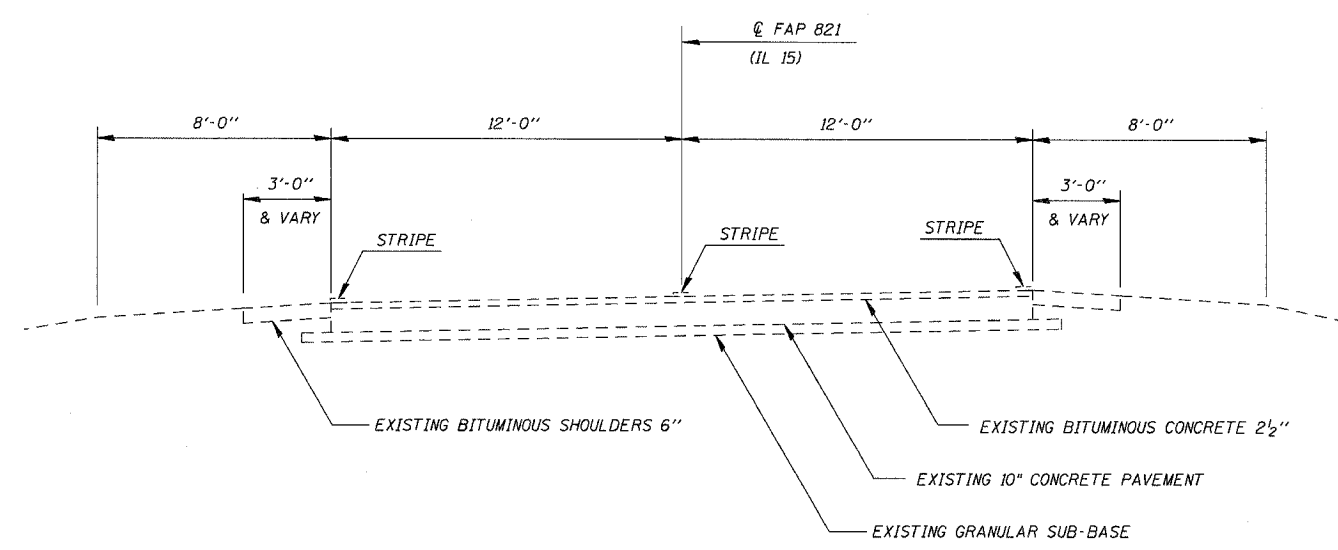
**SUMMARY OF QUANTITIES**

F.A.P. ROUTE 821 (IL 15)  
SECTION (15-2)BR  
JEFFERSON COUNTY

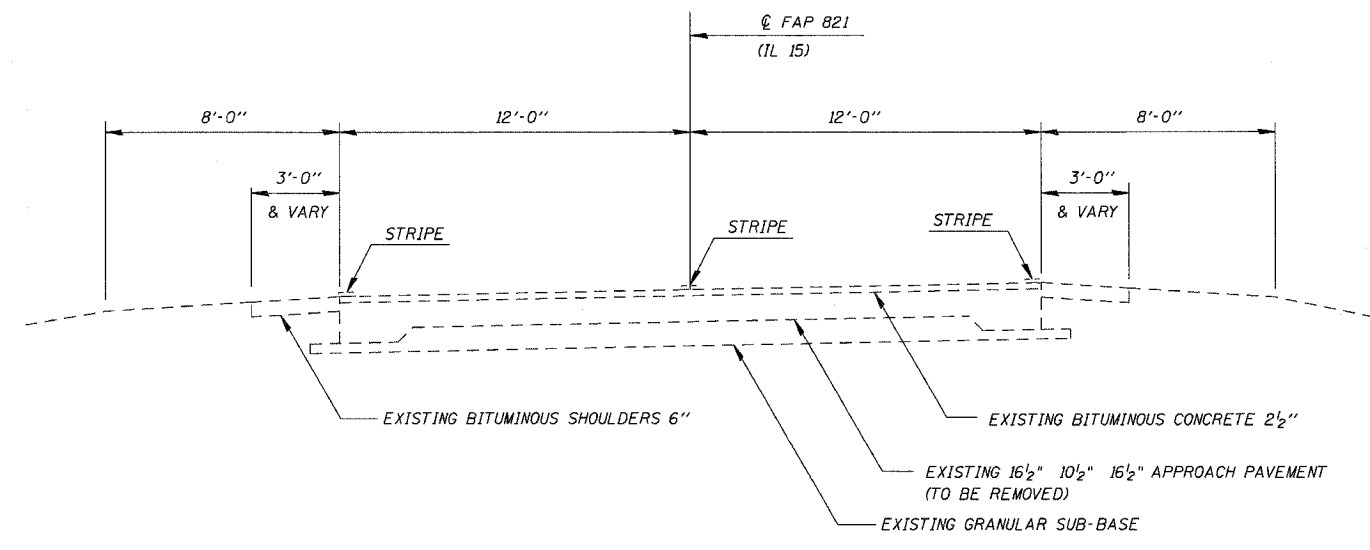
CUMMINS ENGINEERING CORPORATION

JOB #: 2175  
FILE: 21750TY  
DATE: 6/01/06

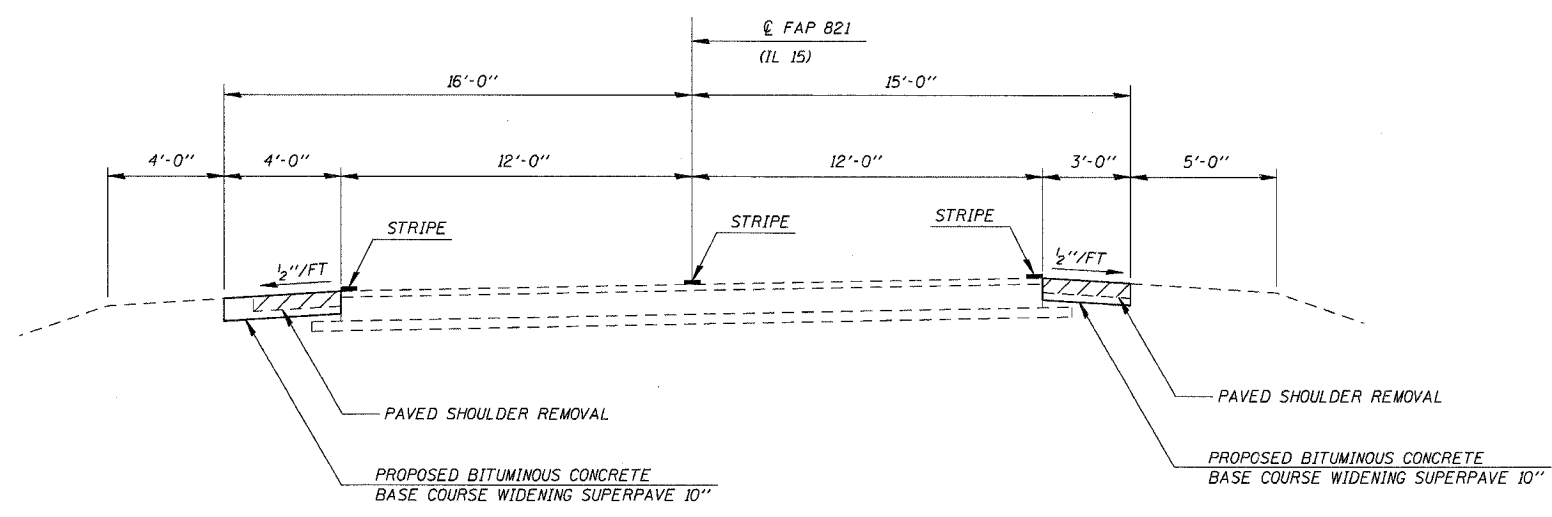
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
821	(15-2)BR	JEFFERSON	33	5
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
<b>CONTRACT NO. 98958</b>				



**EXISTING TYPICAL ROADWAY CROSS SECTION**  
 STA 125+95 TO STA 128+50.4  
 STA 131+12.3 TO STA 133+70



**EXISTING TYPICAL ROADWAY CROSS SECTION**  
 STA 128+50.4 TO STA 128+97.4  
 STA 130+65.4 TO STA 131+12.3



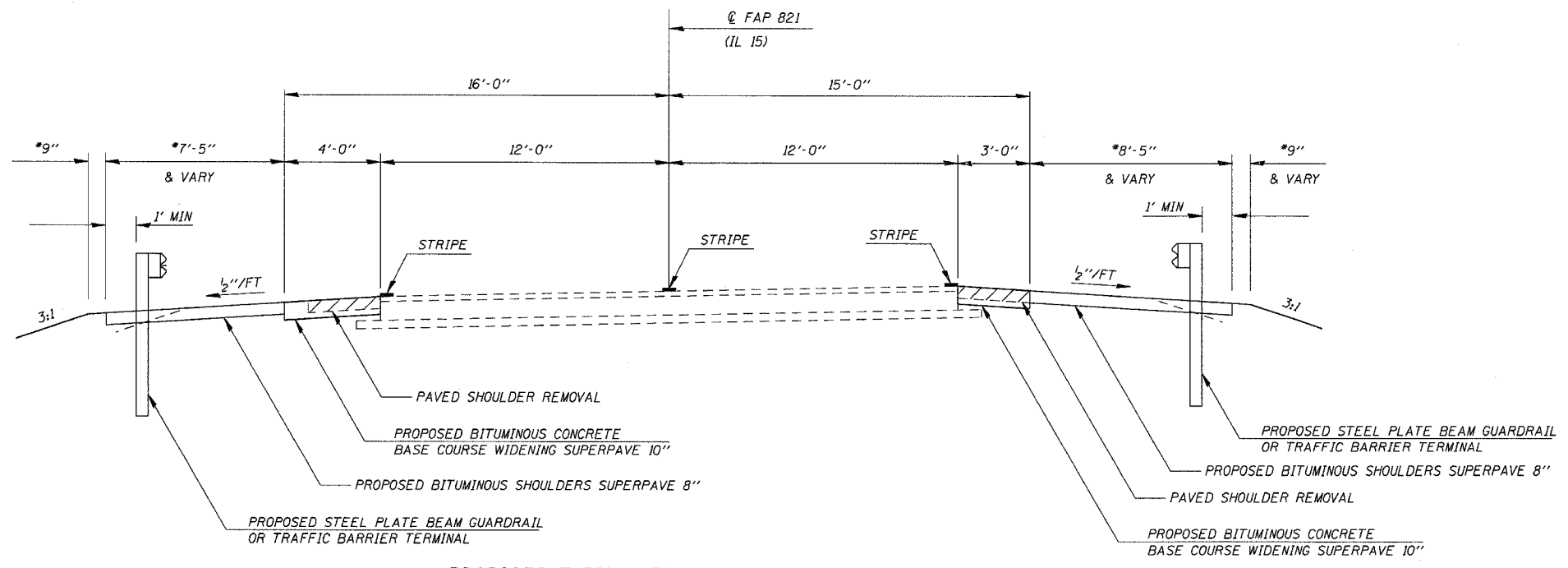
**PROPOSED TYPICAL ROADWAY CROSS SECTION**  
 RT STA 125+95 TO STA 126+33.50  
 RT STA 132+30 TO STA 133+40  
 LT STA 126+20 TO STA 127+70  
 LT STA 132+94 TO STA 133+70

**TYPICAL CROSS SECTIONS**

F.A.P. ROUTE 821 (IL 15)  
 SECTION (15-2)BR  
 JEFFERSON COUNTY

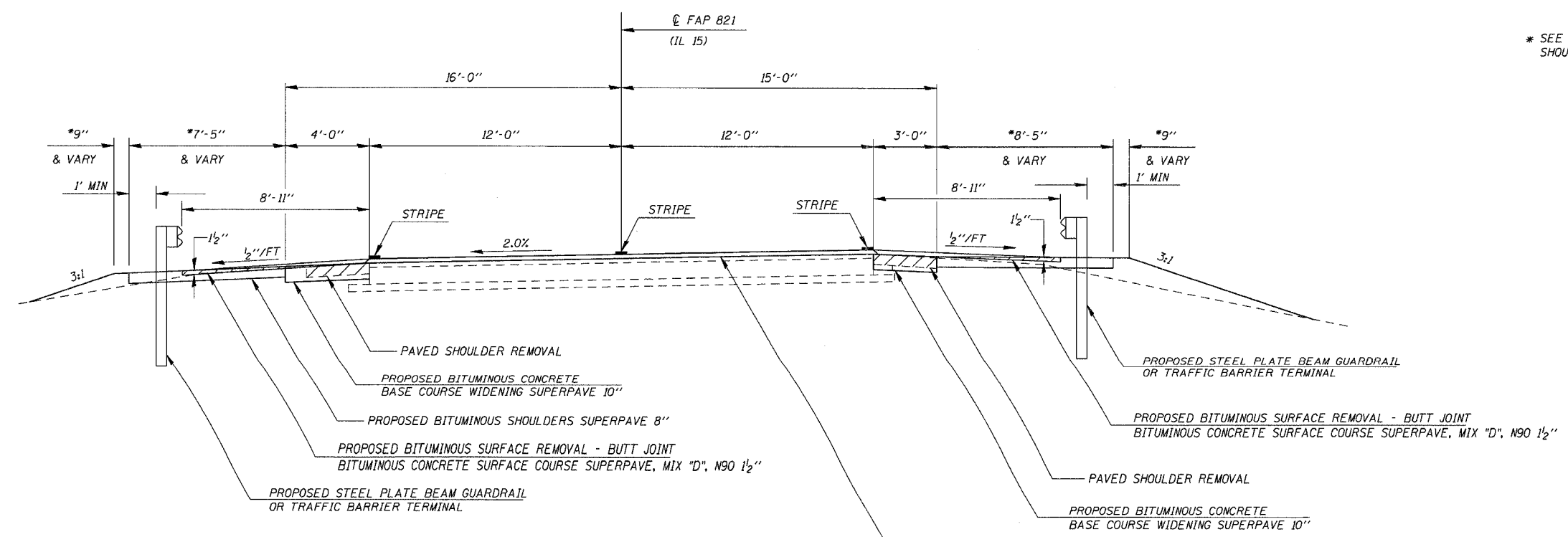
CUMMINS ENGINEERING CORPORATION	JOB #: 2175
	FILE: 2175TYP
	DATE: 6/01/06

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
821	(15-2)BR	JEFFERSON	33	6
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
<b>CONTRACT NO. 98958</b>				



**PROPOSED TYPICAL ROADWAY CROSS SECTION**

RT STA 126+33.50 TO STA 128+20  
 RT STA 131+45 TO STA 132+30  
 LT STA 127+70 TO STA 128+20  
 LT STA 131+45 TO STA 132+94



**PROPOSED TYPICAL ROADWAY CROSS SECTION**

RT STA 128+20 TO STA 128+68.31  
 STA 130+94.4 TO STA 131+45

\* SEE SHEETS 8-9 FOR LAYOUT OF BITUMINOUS SHOULDER AND EARTH SHOULDER

**OMISSIONS**

BRIDGE APPROACH PAVEMENT  
 STA 128+68.31 TO STA 128+98.31  
 STA 130+64.40 TO STA 130+94.40  
  
 SN 041-0027  
 STA 128+98.31 TO STA 130+64.40

<b>TYPICAL CROSS SECTIONS</b>	
F.A.P. ROUTE 821 (IL 15) SECTION (15-2)BR JEFFERSON COUNTY	
CUMMINS ENGINEERING CORPORATION	JOB #: 2175 FILE: 2175TYP DATE: 6/01/06

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
B21	(15-2)BR	JEFFERSON	33	7
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

CONTRACT NO. 98958

**EARTHWORK**

LOCATION	EARTH EXCAVATION (CUT) CU YD	EARTH EXCAVATION (SHRINKAGE) CU YD	EMBANKMENT CU YD	EARTHWORK BALANCE WASTE (+) SHORTAGE (-) CU YD
STA 125+95 TO STA 128+98	75	60	50	10
STA 130+64 TO STA 133+70	125	95	60	35
TOTAL	200	155	110	45

SEEDING, CLASS 2 (MODIFIED)

LOCATION	ACRE
LT STA 126+20 TO STA 129+25	0.13
LT STA 130+63 TO STA 133+70	0.12
RT STA 125+95 TO STA 129+00	0.12
RT STA 130+37 TO STA 133+40	0.13
LT & RT STA 129+01 TO STA 130+61	0.20
TOTAL	0.70

TEMPORARY EROSION CONTROL SEEDING

LOCATION	POUND
LT STA 126+20 TO STA 129+25	13
LT STA 130+63 TO STA 133+70	12
RT STA 125+95 TO STA 129+00	12
RT STA 130+37 TO STA 133+40	13
LT & RT STA 129+01 TO STA 130+61	20
TOTAL	70

PERIMETER EROSION BARRIER

LOCATION	FOOT
LT STA 129+30 TO STA 130+00	70
LT STA 129+89 TO STA 130+00	36
LT STA 130+37 TO STA 130+40	8
LT STA 130+40 TO STA 130+95	55
RT STA 128+60 TO STA 129+18	59
RT STA 129+18 TO STA 129+24	10
RT STA 129+65 TO STA 129+82	34
RT STA 129+65 TO STA 130+46	82
TOTAL	354

THE LAYOUT OF PERIMETER EROSION BARRIER MAY BE VARIED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

BITUMINOUS CONCRETE BASE COURSE WIDENING, SUPERPAVE 10 INCH

LOCATION	WIDTH	SQ YD
PRELIMINARY PHASE		
RT STA 125+95 TO STA 128+91	3'	99
RT STA 130+57 TO STA 133+40	3'	94
STAGE 1		
LT STA 126+20 TO STA 128+49	4'	102
LT STA 131+14 TO STA 133+70	4'	113
TOTAL		408

APPROACH SLAB REMOVAL

LOCATION	SQ YD
STAGE 1	
LT STA 128+49.00 TO STA 128+97.95	72
LT STA 130+64.97 TO STA 131+14.00	62
STAGE 2	
RT STA 128+49.00 TO STA 128+97.95	61
RT STA 130+64.97 TO STA 131+14.00	70
TOTAL	265

BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE)

LOCATION	SQ YD
STAGE 1	
LT STA 128+49.00 TO STA 128+69.14	55
LT STA 130+95.31 TO STA 131+14.00	28
STAGE 2	
RT STA 128+49.00 TO STA 128+69.14	35
RT STA 130+95.31 TO STA 131+14.00	64
TOTAL	182

BRIDGE APPROACH PAVEMENT

LOCATION	SQ YD
STAGE 1	
LT STA 129+69.14 TO STA 129+99.14	66
LT STA 130+64.99 TO STA 130+95.31	66
STAGE 2	
RT STA 129+69.14 TO STA 129+99.14	77
RT STA 130+64.99 TO STA 130+95.31	75
TOTAL	284

BITUMINOUS SURFACE REMOVAL - BUTT JOINT

LOCATION	WIDTH	SQ YD
STA 128+20 TO STA 128+50	41.84	140
STA 131+15 TO STA 131+45	41.84	140
TOTAL		280

TEMPORARY RAMP

LOCATION	WIDTH	SQ YD
STAGE 1		
STA 128+64 TO STA 128+69	19.67	11
STA 130+95 TO STA 131+00	19.67	11
STAGE 2		
STA 128+64 TO STA 128+69	22.67	13
STA 130+95 TO STA 131+00	22.67	13
FINAL PHASE		
STA 128+20 TO STA 128+25	41.84	24
STA 131+40 TO STA 131+45	41.84	24
TOTAL		96

\* CONSTRUCT TEMPORARY RAMP AT APPROACH PAVEMENT PRIOR TO OPENING TO TRAFFIC

BITUMINOUS MATERIALS (PRIME COAT)

LOCATION	GALLON
STA 128+20 TO STA 128+69.14	23
STA 130+95.31 TO STA 131+45	24
TOTAL	47

AGGREGATE (PRIME COAT)

LOCATION	TON
STA 128+20 TO STA 128+69.14	0.5
STA 130+95.31 TO STA 131+45	0.5
TOTAL	1

BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIX "D" N90

LOCATION	TON
STA 128+20 TO STA 128+69.14	19
STA 130+95.31 TO STA 131+45	20
TOTAL	39

BITUMINOUS SHOULDERS SUPERPAVE 8"

LOCATION	SQ YD
STAGE 1	
LT STA 127+70.25 TO STA 129+10.5	78
LT STA 130+79.2 TO STA 132+93.3	152
STAGE 2	
RT STA 126+33.56 TO STA 128+85.27	206
RT STA 130+51.3 TO STA 132+30	120
TOTAL	556

PAVEMENT REMOVAL

LOCATION	SQ YD
STAGE 2	
RT STA 128+49 TO STA 128+91	14
RT STA 130+57 TO STA 131+14	20
TOTAL	34
REMOVAL OF BASE COURSE WIDENING CONSTRUCTED IN THE PRELIMINARY PHASE	

PAVED SHOULDER REMOVAL

LOCATION	SQ YD
PRELIMINARY PHASE	
RT STA 125+95 TO STA 128+91	121
RT STA 130+57 TO STA 133+40	117
STAGE 1	
LT STA 126+20 TO STA 129+05	110
LT STA 130+72 TO STA 133+70	151
TOTAL	499

STEEL PLATE BEAM GUARDRAIL TYPE A

LOCATION	FOOT
STAGE 1	
LT STA 128+40.72 TO STA 128+78.36	37.5
LT STA 131+08.39 TO STA 132+21.31	112.5
STAGE 2	
RT STA 127+05.42 TO STA 128+54.87	150
RT STA 130+83.33 TO STA 131+58.06	75
TOTAL	375

TRAFFIC BARRIER TERMINAL TYPE 6

LOCATION	EACH
STAGE 1	
LT STA 128+78.36 TO STA 129+09.12	1
LT STA 130+77.63 TO STA 131+08.39	1
STAGE 2	
RT STA 128+54.87 TO STA 128+85.41	1
RT STA 130+52.79 TO STA 130+83.33	1
TOTAL	4

TRAFFIC BARRIER TERMINAL TYPE 1 SPECIAL (TANGENT)

LOCATION	EACH
STAGE 1	
LT STA 127+90.54 TO STA 128+40.72	1
LT STA 132+21.31 TO STA 132+73.16	1
STAGE 2	
RT STA 126+55.60 TO STA 127+05.42	1
RT STA 131+58.06 TO STA 132+07.88	1
TOTAL	4

GUARDRAIL REMOVAL

LOCATION	FOOT
STAGE 1	
LT STA 127+92.50 TO STA 129+05.50	113
LT STA 130+74.00 TO STA 132+49.50	175.5
STAGE 2	
RT STA 127+13.00 TO STA 128+88.50	175.5
RT STA 130+58.00 TO STA 131+71.00	113
TOTAL	577

PAINT PAVEMENT MARKING -LINE 4"

LOCATION	FOOT
SOLID WHITE EDGE LINE	
LT STA 125+55 TO STA 134+07	850
RT STA 125+55 TO STA 134+07	850
YELLOW SKIP DASH	
STA 125+55 TO STA 134+07	220
TOTAL	1920

REPLACEMENT REFLECTORS

LOCATION	EACH
STA 125+55 TO STA 128+68	5
STA 130+95 TO STA 134+07	5
TOTAL	10

GUARDRAIL MARKERS TYPE A

LOCATION	EACH
LT STA 128+40.72 TO STA 129+09.12	1
LT STA 130+77.63 TO STA 132+21.31	2
RT STA 127+05.42 TO STA 128+85.41	2
RT STA 130+52.79 TO STA 131+58.06	2
TOTAL	7

BARRIER WALL MARKERS TYPE B

LOCATION	EACH
LT STA 129+09.12 TO STA 130+77.63	3
RT STA 128+85.41 TO STA 130+52.79	3
TOTAL	6

TERMINAL MARKERS - DIRECT APPLIED

LOCATION	EACH
STAGE 1	
LT STA 127+90.54	1
LT STA 132+73.16	1
RT STA 126+55.60	1
RT STA 132+07.88	1
TOTAL	4

PAVEMENT MARKING REMOVAL

LOCATION	SQ FT
STAGE 1	
SOLID WHITE EDGE LINE	
LT STA 125+55 TO STA 128+49	98
LT STA 131+14 TO STA 134+07	98
RT STA 125+55 TO STA 134+07	284
YELLOW SKIP DASH	
STA 125+55 TO STA 128+49	27
STA 131+14 TO STA 134+07	27
TOTAL	534

IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) TEST LEVEL 2

LOCATION	EACH
LT STA 127+45	1
LT STA 132+16	1
TOTAL	2

IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE) TEST LEVEL 2

LOCATION	EACH
RT STA 127+36	1
RT STA 132+27	1
TOTAL	2

TEMPORARY CONCRETE BARRIER

LOCATION	TYPE	FOOT
STAGE 1		
STA 127+45.85 TO STA 128+35.85	12:1 TAPER	90
STA 128+35.85 TO STA 131+25.75	TANGENT	290
STA 131+25.75 TO STA 132+15.65	12:1 TAPER	90
STAGE 2		
STA 127+36.40 TO STA 127+46.40	12:1 TAPER	10
STA 132+16.20 TO STA 132+26.20	12:1 TAPER	10
TOTAL		490

RELOCATE TEMPORARY CONCRETE BARRIER

LOCATION	TYPE	FOOT
STAGE 2		
STA 127+46.40 TO STA 128+36.20	12:1 TAPER	90
STA 128+36.20 TO STA 131+26.30	TANGENT	290
STA 131+26.30 TO STA 132+16.20	12:1 TAPER	90
TOTAL		470

**SCHEDULE OF QUANTITIES**

F.A.P. ROUTE 821 (IL 15)  
SECTION (15-2)BR  
JEFFERSON COUNTY

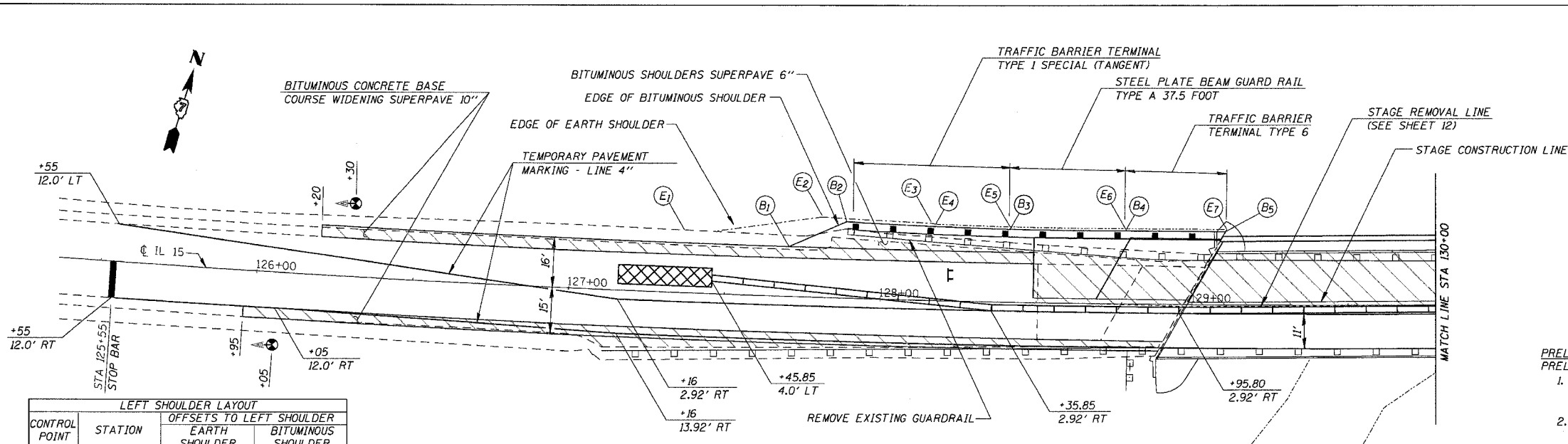
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
821	(15-2)BR	JEFFERSON	33	8
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 98958				

LEGEND

- TEMPORARY TRAFFIC SIGNALS
- TEMPORARY IMPACT ATTENUATOR NON-DIRECTIVE TEST LEVEL 2
- TEMPORARY CONCRETE BARRIER
- DRUM WITH STEADY BURNING LIGHT
- TYPE III BARRICADE
- INDICATES REMOVAL AREA

**PRELIMINARY PHASE**  
 PRELIMINARY PHASE CONSTRUCTION WILL CONSIST OF THE FOLLOWING:  
 1. REMOVE RIGHT PAVED SHOULDER FROM STATION 125+95 TO STATION 133+40 AND CONSTRUCT BITUMINOUS CONCRETE BASE COURSE WIDENING SUPERPAVE 10"  
 2. INSTALL TRAFFIC CONTROL DEVICES AS SHOWN ON STANDARD 701321 AND AS DETAILED ON THE TRAFFIC CONTROL & PROTECTION PLAN SHEET.

**STAGE I**  
 STAGE I CONSTRUCTION WILL CONSIST OF THE FOLLOWING:  
 1. REMOVE WESTBOUND GUARDRAIL AND BRIDGE RAIL  
 2. REMOVE STAGE I AREAS OF PAVED SHOULDER, APPROACH SLABS, AND STRUCTURE  
 3. CONSTRUCT STAGE I PORTION OF STRUCTURE  
 4. CONSTRUCT APPROACH PAVEMENTS, CONNECTOR PAVEMENTS, BITUMINOUS CONCRETE BASE COURSE WIDENING, BITUMINOUS SHOULDERS AND TEMPORARY RAMPS  
 5. INSTALL GUARDRAIL, TERMINALS, AND MARKERS

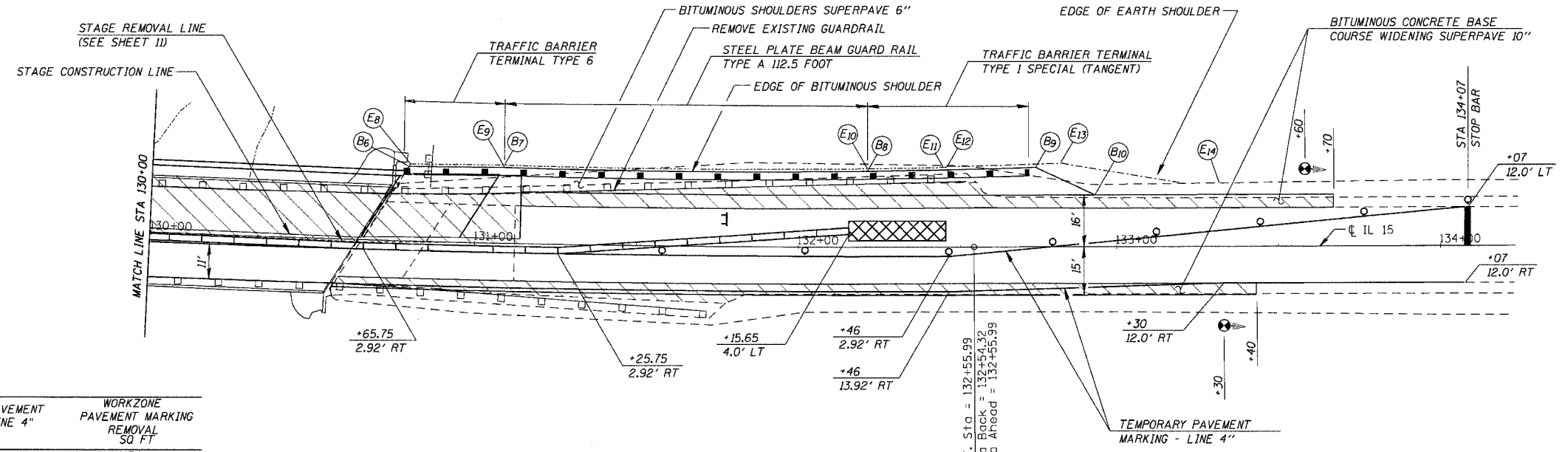


CONTROL POINT	STATION	OFFSETS TO LEFT SHOULDER	BITUMINOUS SHOULDER
E1	127+46.00	20.0	
B1	127+70.25		16.0
E2	127+81.00	25.8	
B2	127+88.60		24.5
E3	128+16.00	24.8	
E4	128+17.50	24.5	
E5	128+40.75	24.2	
B3	128+40.75		23.4
E6	128+78.30	24.2	
B4	128+78.35		23.4
E7	129+10.95	24.3	
B5	129+10.50		23.5

**STAGE I WEST APPROACH**

**NOTES**  
 TEMPORARY CONCRETE BARRIER ON THE APPROACH ROADWAY SHALL BE PLACED PARALLEL TO THE C/L OF IL 15. TEMPORARY CONCRETE BARRIER WITHIN THE LIMITS OF THE PROPOSED STRUCTURE SHALL BE PLACED PARALLEL TO THE C/L OF THE PROPOSED STRUCTURE.  
 SEE STANDARD 701321 FOR DETAILS NOT SHOWN.

CONTROL POINT	STATION	OFFSETS TO LEFT SHOULDER	BITUMINOUS SHOULDER
B6	130+79.20		23.0
E8	130+79.60	23.8	
E9	131+08.40	24.2	
B7	131+08.40		23.4
E10	132+21.30	24.2	
B8	132+21.30		23.4
E11	132+46.50	24.6	
E12	132+48.00	24.8	
B9	132+75.10		24.5
E13	132+83.00	25.7	
B10	132+93.30		16.0
E14	133+21.00	20.0	



STATION & OFFSET	LINE TYPE & COLOR	TEMPORARY PAVEMENT MARKING - LINE 4"	WORKZONE PAVEMENT MARKING REMOVAL SQ FT
12' LT STA 125+55 TO 2.92' RT	WHITE EDGE LINE	162	54
2.92' RT STA 127+16 TO 2.92' RT	WHITE EDGE LINE	530	177
2.92' RT STA 132+46 TO 12' LT	WHITE EDGE LINE	160	53
12' RT STA 125+55 TO 12' RT	WHITE EDGE LINE	50	17
12' RT STA 126+05 TO 13.92' RT	WHITE EDGE LINE	111	37
13.92' RT STA 127+16 TO 13.92' RT	WHITE EDGE LINE	530	177
13.92' RT STA 132+46 TO 12' RT	WHITE EDGE LINE	82	27
12' RT STA 133+30 TO 12' RT	WHITE EDGE LINE	77	26
TOTAL		1702	568

QUANTITIES FOR PLACEMENT AND REMOVAL OF TEMPORARY PAVEMENT MARKINGS ARE INCLUDED FOR INFORMATION ONLY. PLACING, MAINTAINING, AND REMOVING THESE ITEMS WILL NOT BE PAID FOR SEPERATELY BUT SHALL BE INCLUDED IN THE COST FOR TRAFFIC CONTROL AND PROTECTION STANDARD 701321

**STAGE I EAST APPROACH**

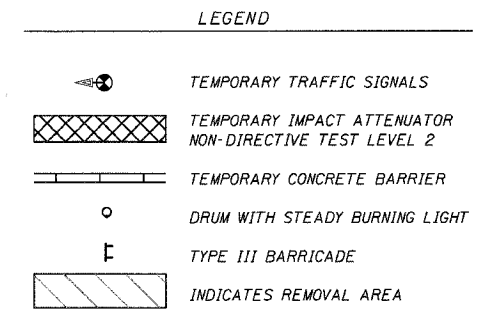
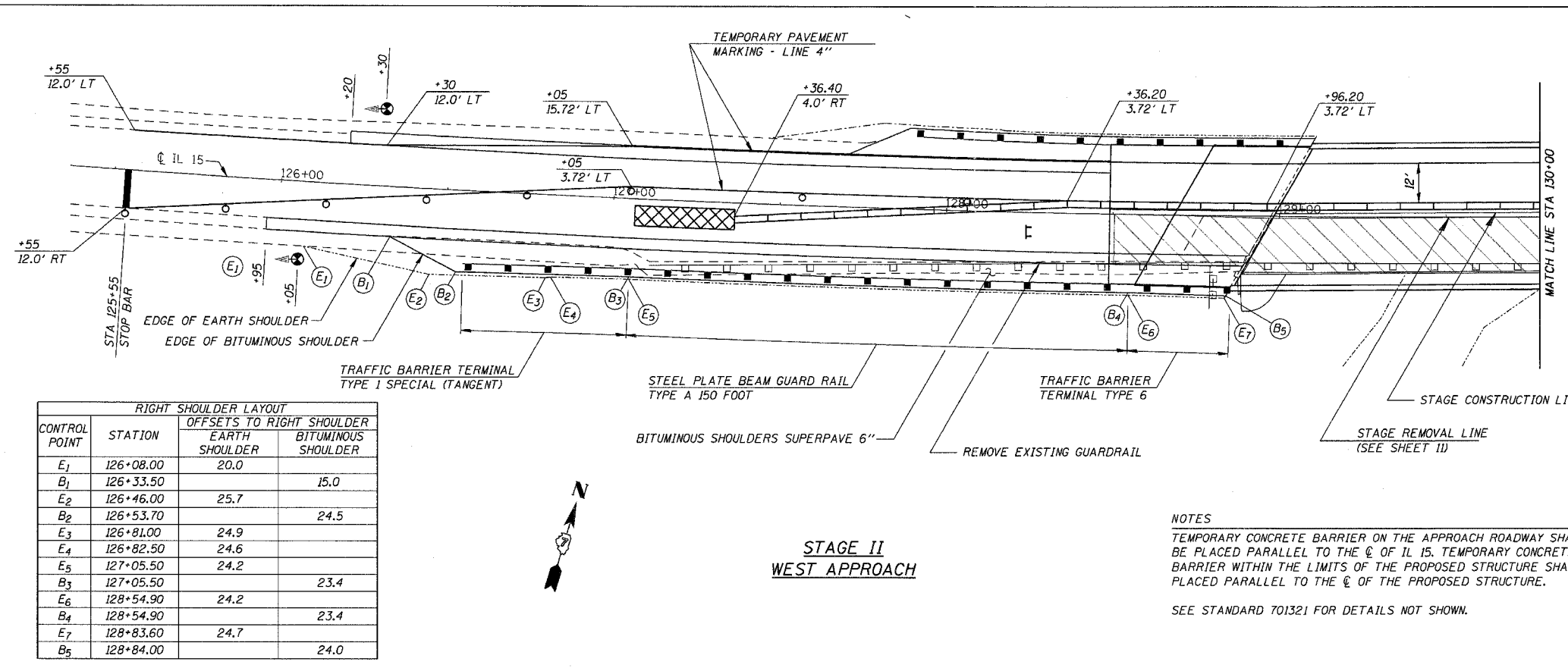
**TRAFFIC CONTROL & PROTECTION  
STAGE I**

F.A.P. ROUTE 821 (IL 15)  
SECTION (15-2)BR  
JEFFERSON COUNTY

CUMMINS ENGINEERING CORPORATION

JOB #:	2175
FILE:	STAGE1
DATE:	6/01/06





- STAGE 2**  
STAGE 2 CONSTRUCTION WILL CONSIST OF THE FOLLOWING:
1. REMOVE STAGE 1 TEMPORARY PAVEMENT MARKINGS
  2. RELOCATE TEMPORARY CONCRETE BARRIER, TEMPORARY IMPACT ATTENUATORS, AND DRUMS
  3. REMOVE GUARDRAIL APPROACH SLABS AND BASE COURSE
  4. REMOVE STAGE 2 PORTION OF BRIDGE DECK AND ABUTMENTS
  5. CONSTRUCT BRIDGE DECK AND PERFORATED DRAINS
  6. CONSTRUCT APPROACH PAVEMENTS, CONNECTOR PAVEMENTS, BITUMINOUS SHOULDERS, AND TEMPORARY RAMPS
  7. INSTALL GUARD RAIL, TERMINALS, AND MARKERS

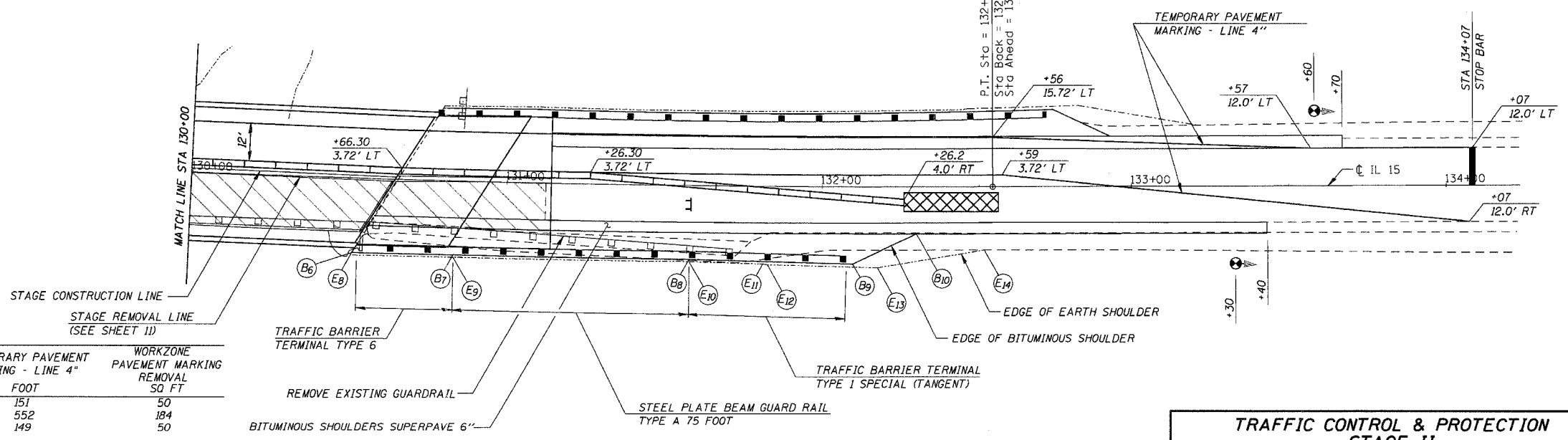
- FINAL PHASE**  
FINAL PHASE CONSTRUCTION WILL CONSIST OF THE FOLLOWING:
1. REMOVE STAGE 2 TEMPORARY PAVEMENT MARKINGS
  2. REMOVE TRAFFIC CONTROL DEVICES INCLUDING TEMPORARY SIGNALS, RUMBLE STRIPS, CONCRETE BARRIER, IMPACT ATTENUATORS, SIGNS, AND DRUMS
  3. INSTALL SHORT TERM PAVEMENT MARKINGS
  4. MILL & RESURFACE APPROACH ROADWAY
  5. GROOVE BRIDGE DECK AND APPROACH PAVEMENTS
  6. INSTALL PAVEMENT MARKINGS AND RAISED REFLECTIVE PAVEMENT MARKERS.

**NOTES**  
TEMPORARY CONCRETE BARRIER ON THE APPROACH ROADWAY SHALL BE PLACED PARALLEL TO THE C OF IL 15. TEMPORARY CONCRETE BARRIER WITHIN THE LIMITS OF THE PROPOSED STRUCTURE SHALL BE PLACED PARALLEL TO THE C OF THE PROPOSED STRUCTURE.  
SEE STANDARD 701321 FOR DETAILS NOT SHOWN.

**STAGE II WEST APPROACH**

**RIGHT SHOULDER LAYOUT**

CONTROL POINT	STATION	OFFSETS TO RIGHT SHOULDER	EARTH SHOULDER	BITUMINOUS SHOULDER
E <sub>8</sub>	130+50.80	24.4		
B <sub>6</sub>	130+51.30		23.7	
E <sub>9</sub>	130+83.30	24.2		
B <sub>7</sub>	130+83.30		23.4	
E <sub>10</sub>	131+58.10	24.2		
B <sub>8</sub>	131+58.10		23.4	
E <sub>11</sub>	131+81.50	24.6		
E <sub>12</sub>	131+83.00	24.9		
B <sub>9</sub>	132+09.80		24.5	
E <sub>13</sub>	132+18.00	25.7		
B <sub>10</sub>	132+30.00		15.0	
E <sub>14</sub>	132+53.00	20.0		



**TEMPORARY PAVEMENT MARKINGS**

STATION & OFFSET	LINE TYPE & COLOR	TEMPORARY PAVEMENT MARKING - LINE 4"	WORKZONE PAVEMENT MARKING REMOVAL SQ FT
12' RT STA 125+55 TO 3.72' LT	STA 127+05	WHITE EDGE LINE	50
3.72' LT STA 127+05 TO 3.72' LT	STA 132+59	WHITE EDGE LINE	184
3.72' LT STA 132+59 TO 12' RT	STA 134+07	WHITE EDGE LINE	50
12' LT STA 125+55 TO 12' LT	STA 126+30	WHITE EDGE LINE	75
12' LT STA 126+30 TO 15.72' LT	STA 127+05	WHITE EDGE LINE	75
15.72' LT STA 127+05 TO 15.72' LT	STA 132+56	WHITE EDGE LINE	549
15.72' LT STA 132+56 TO 12' LT	STA 133+57	WHITE EDGE LINE	101
12' LT STA 133+57 TO 12' LT	STA 134+07	WHITE EDGE LINE	17
<b>TOTAL</b>			<b>1702</b>
			<b>568</b>

QUANTITIES FOR PLACEMENT AND REMOVAL OF TEMPORARY PAVEMENT MARKINGS ARE INCLUDED FOR INFORMATION ONLY. PLACING, MAINTAINING, AND REMOVING THESE ITEMS WILL NOT BE PAID FOR SEPERATELY BUT SHALL BE INCLUDED IN THE COST FOR TRAFFIC CONTROL AND PROTECTION STANDARD 701321

**STAGE II EAST APPROACH**

**TRAFFIC CONTROL & PROTECTION STAGE II**

F.A.P. ROUTE 821 (IL 15)  
SECTION (15-2)BR  
JEFFERSON COUNTY

CUMMINS ENGINEERING CORPORATION

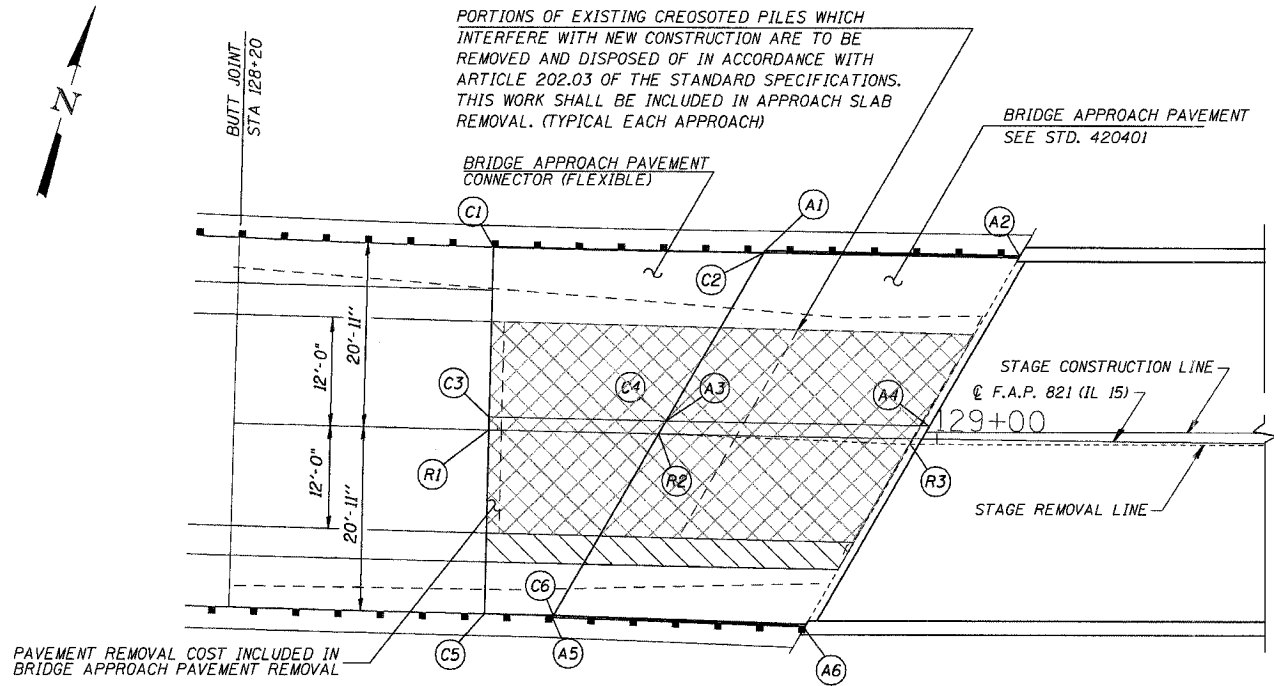
JOB #: 2175  
FILE: STAGE2  
DATE: 6/01/06





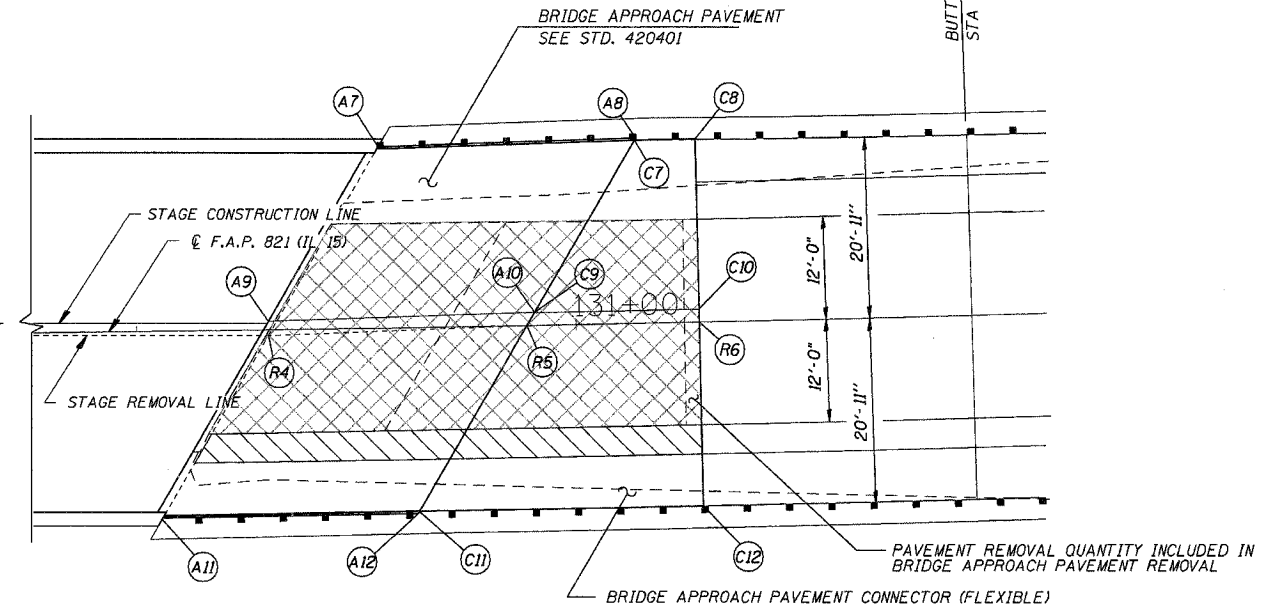
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	12
FED. ROAD DIST. NO. X		ILLINOIS PROJECT		

CONTRACT NO. 98958



INDICATES APPROACH SLAB REMOVAL  
 INDICATES PAVEMENT REMOVAL \*

\* REMOVAL OF BITUMINOUS BASE COURSE CONSTRUCTED IN PRELIMINARY PHASE.



PAVEMENT REMOVAL COST INCLUDED IN BRIDGE APPROACH PAVEMENT REMOVAL

PAVEMENT REMOVAL QUANTITY INCLUDED IN BRIDGE APPROACH PAVEMENT REMOVAL

TRANSITION SHOULDER SLOPE ON BRIDGE APPROACH PAVEMENT AS FOLLOWS:

- 1/2" / FT LT STA 128+80.04 TO 2% LT STA 129+09.16
- 1/2" / FT RT STA 128+56.69 TO 2% RT STA 128+85.27
- 2% LT STA 130+77.78 TO 1/2" / FT LT STA 131+07.24
- 2% RT STA 130+52.64 TO 1/2" / FT RT STA 130+81.67

BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE)

POINT NO.	STATION	OFFSET	PAVEMENT ELEV *
<b>WEST APPROACH</b>			
C1	128+49.00	20.92 LT	454.27
C2	128+79.90	20.92 LT	454.28
C3	128+49.00	1.50 LT	454.85
C4	128+69.14	1.50 LT	454.86
C5	128+49.00	20.92 RT	454.75
C6	128+56.82	20.92 RT	454.76
<b>EAST APPROACH</b>			
C7	131+07.09	20.92 LT	454.28
C8	131+14.00	20.92 LT	454.28
C9	130+95.31	1.50 LT	454.86
C10	131+14.00	1.50 LT	454.86
C11	130+81.82	20.92 RT	454.76
C12	131+14.00	20.92 RT	454.77

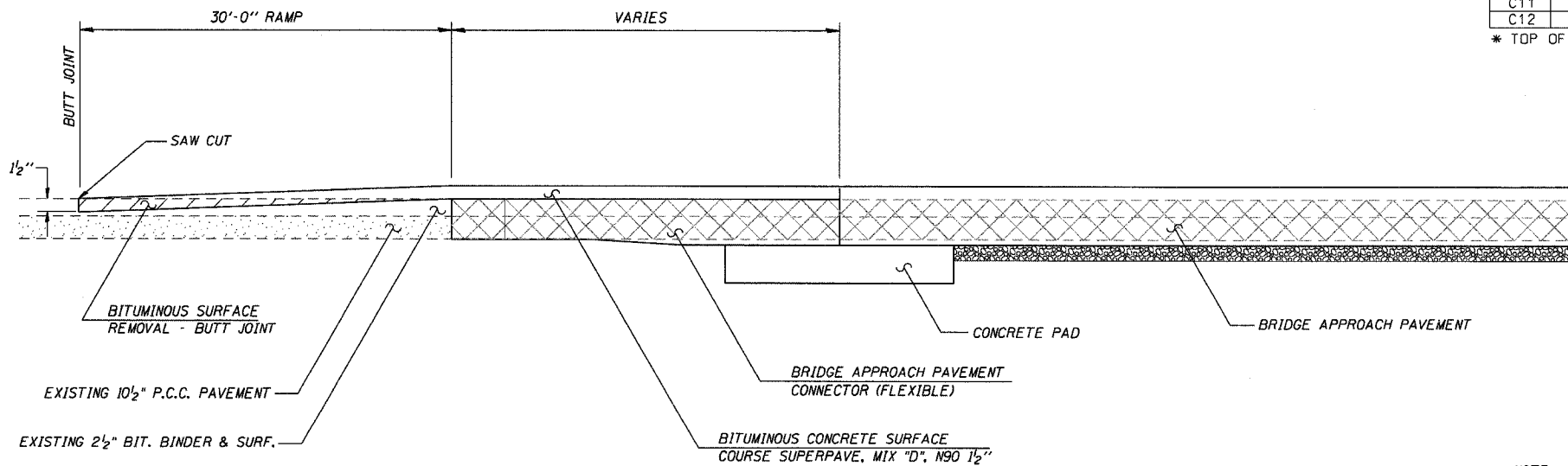
\* TOP OF BITUMINOUS SURFACE COURSE

BRIDGE APPROACH PAVEMENT

POINT NO.	STATION	OFFSET	PAVEMENT ELEV	TOP CURB ELEV
<b>WEST APPROACH</b>				
A1	128+80.04	21.17 LT		454.71
A2	129+09.16	21.08 LT		454.89
A3	128+69.14	1.50 LT	454.86	-
A4	128+99.14	1.50 LT	454.86	-
A5	128+56.69	21.17 RT		455.19
A6	128+85.34	21.61 RT		455.74
<b>EAST APPROACH</b>				
A7	130+77.78	20.71 LT		454.90
A8	131+07.24	21.17 LT		454.71
A9	130+64.99	1.00 LT	454.87	-
A10	130+95.31	1.50 LT	454.86	-
A11	130+52.72	21.26 RT		455.73
A12	130+81.67	21.17 RT		455.19

STAGE REMOVAL LINE

POINT NO.	STATION	OFFSET
<b>WEST APPROACH</b>		
R1	128+49.00	0.00
R2	128+68.31	0.00
R3	128+97.00	0.66 RT
<b>EAST APPROACH</b>		
R4	130+64.97	0.66 RT
R5	130+94.40	0.00
R6	131+14.00	0.00



SECTION THROUGH APPROACH

NOTE: SEE STANDARD 420401 FOR DETAILS NOT SHOWN.

PROPOSED BRIDGE APPROACH PAVEMENT SHALL BE GROOVED AS SPECIFIED IN SECTION 503 OF THE STANDARD SPECIFICATIONS.

BRIDGE DECK GROOVING 284 SQ YD

BRIDGE APPROACH PAVEMENT DETAILS

FAP ROUTE 821 (IL 15)  
 SECTION (15-2)BR  
 JEFFERSON COUNTY

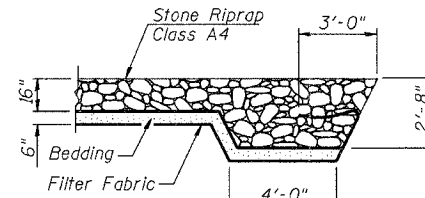
CUMMINS ENGINEERING CORPORATION  
 JOB #: 2175  
 FILE: 2175APPR  
 DATE: 6/01/06

B.M. #403 Chiseled Square on the Northeast Wingwall of Structure 041-0027, 17.5' Lt of Sta. 130+90, Elev. 455.235

Existing Structure: S.N. 041-0027, Built in 1957 as SBI-15 Section 15-2B at Station 129+81. The existing structure is a Three Span Non-Composite Continuous Wide Flange Beam Bridge supporting a R.C. Slab on concrete pile bent piers and abutments. Overall length is 168'-0" back to back of abutments. Bridge width is 34'-5" out to out of deck with two 14'-0" traffic lanes measured face to face curbs. The contractor will remove and replace the existing concrete deck, widen substructure, add new beam lines and complete other work as described in the plans.

Traffic shall be maintained at all times utilizing Stage Construction.

No Salvage.

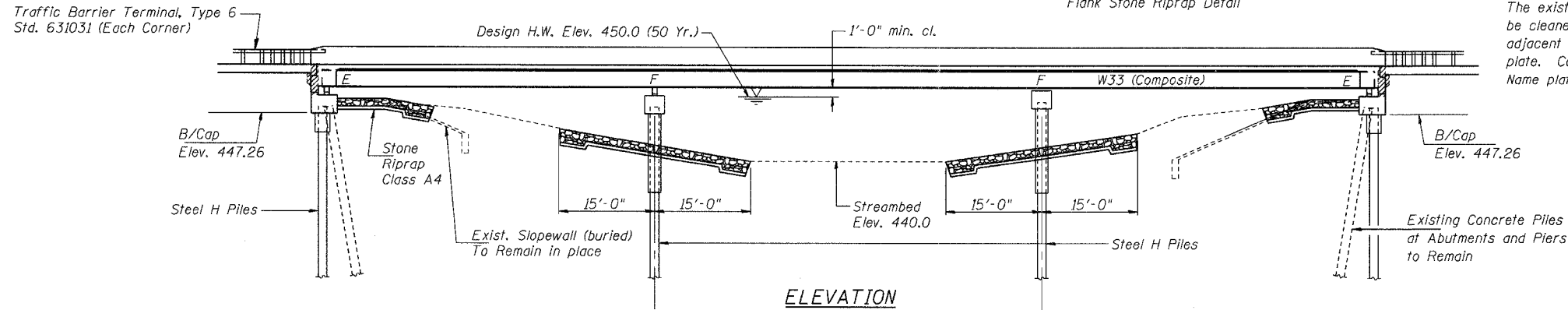


SEC A-A  
Flank Stone Riprap Detail

STATION 129+81  
REBUILT 200 BY  
STATE OF ILLINOIS  
F.A.P. RT. 821 SEC. (15-2)BR  
F.A. PROJ.  
LOADING HS20  
STR. NO. 041-0027

LETTERING FOR NAME PLATES

See Std. 515001  
The existing name plate shall be cleaned and relocated adjacent to the new name plate. Cost included with Name plates.



ELEVATION  
(Dimensions at Rt. Δ's)

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	13
FED. ROAD DIST. NO. 7 ILLINOIS PROJECT			Sheet 1 of 19 CONTRACT #98958	

INDEX OF SHEETS

1. General Plan and Elevation
2. General Notes and Total Bill of Material
3. Stage Construction Details
- 4.-5. Top of Slab Elevations
6. Superstructure
7. Superstructure Details
8. Diaphragm Details
- 9.-10. Structural Steel
- 11.-12. Bearing Details
13. Abutment Concrete Removal Details
14. Abutments
15. Abutment Details
16. Piers
17. Bar Splicer Assembly Details
18. Anchor Bolt Details
19. Temporary Concrete Barrier

DESIGN SPECIFICATIONS

2002 AASHTO  
1995 Seismic Retrofitting Manual for Highway Bridges FHWA-RD-94-052

LOADING HS20-44

Allow 25#/Sq. Ft. for future wearing surface

SEISMIC DATA

Seismic Performance Category (SPC) = B  
Bedrock Acceleration Coefficient (A) = 0.098g  
Site Coefficient (S) = 1.2

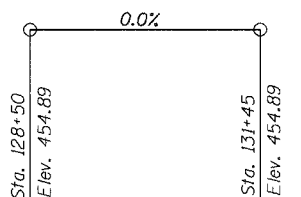
DESIGN STRESSES

New Construction

$f'_c = 3,500$  psi  
 $f_y = 36,000$  psi (Structural Steel)  
 $f_y = 60,000$  psi (Reinforcement)

Existing Structure

$f'_c = 1,400$  psi (Superstructure)  
 $f'_c = 800$  psi (Substructure)  
 $f_s = 20,000$  psi (Reinforcement)  
 $f_s = 18,000$  psi (Structural Steel)



PROFILE GRADE

(along @ F.A.P. Rte. 821)

APPROVED  
FOR STRUCTURAL ADEQUACY ONLY

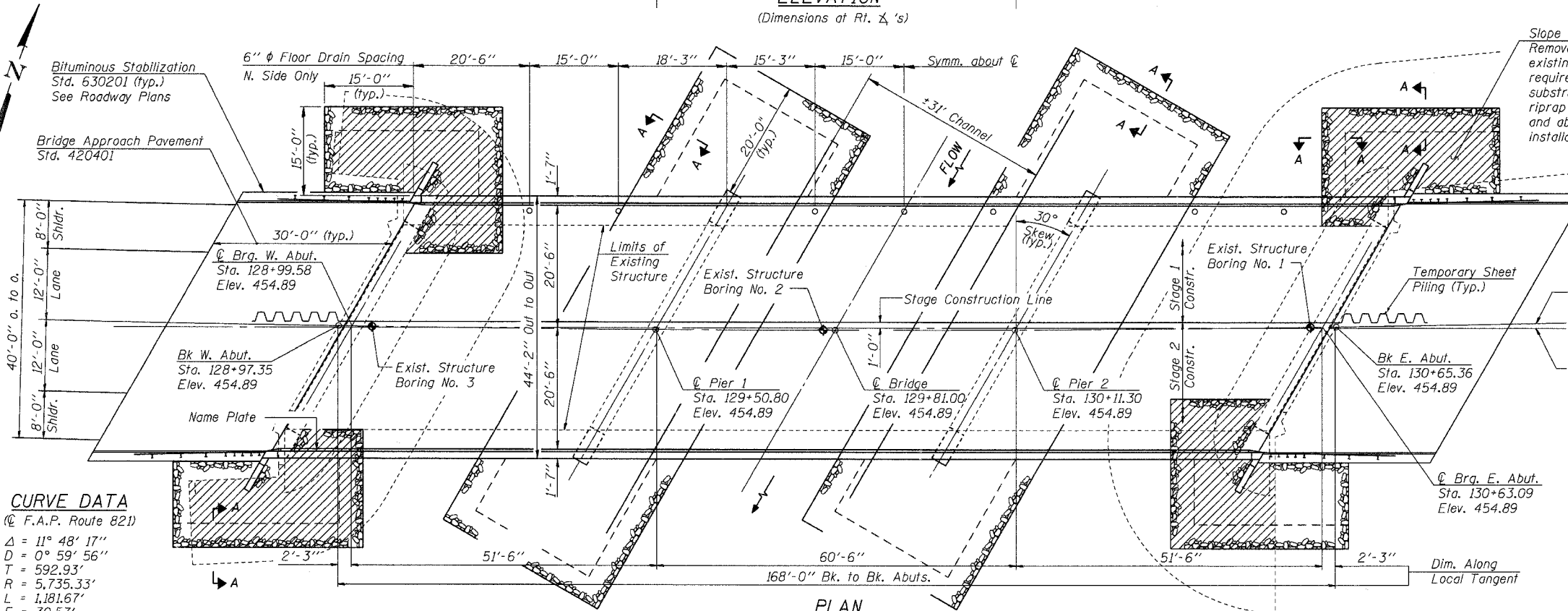
ENGINEER OF BRIDGES AND STRUCTURES

GENERAL PLAN & ELEVATION

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION

JOB # 2175  
FILE: 2175gpe  
DATE: 8/7/06



PLAN

CURVE DATA

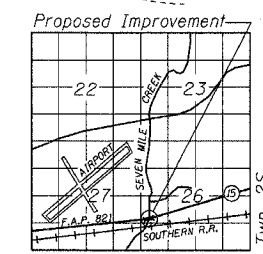
@ F.A.P. Route 821  
 $\Delta = 11^\circ 48' 17''$   
 $D = 0^\circ 59' 56''$   
 $T = 592.93'$   
 $R = 5,735.33'$   
 $L = 1,181.67'$   
 $E = 30.57'$   
P.C. Sta. = 120+72.65  
P.I. Sta. = 126+65.59  
P.T. Sta. = 132+54.32  
S.E. = 0.02'/ft.

WATERWAY INFORMATION

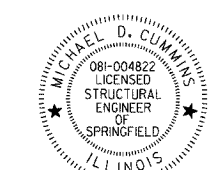
Drainage Area = 21.10 Sq. Mi. Low Grade Elevation: 454.7 ft. @ Sta. 128+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	2090	651	651	449.5	0.9	0.9	450.4	450.4
Base	50	3030	714	714	450.0	1.5	1.5	451.5	451.5
Overtopping	100	3440	741	741	450.2	1.7	1.7	451.9	451.9
Max. Calc.	500	4355	794	794	450.6	2.4	2.4	453.0	453.0

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins



LOCATION SKETCH



Michael D. Cummins (8-9-06)  
(Expires 11/30/2006)

**GENERAL NOTES**

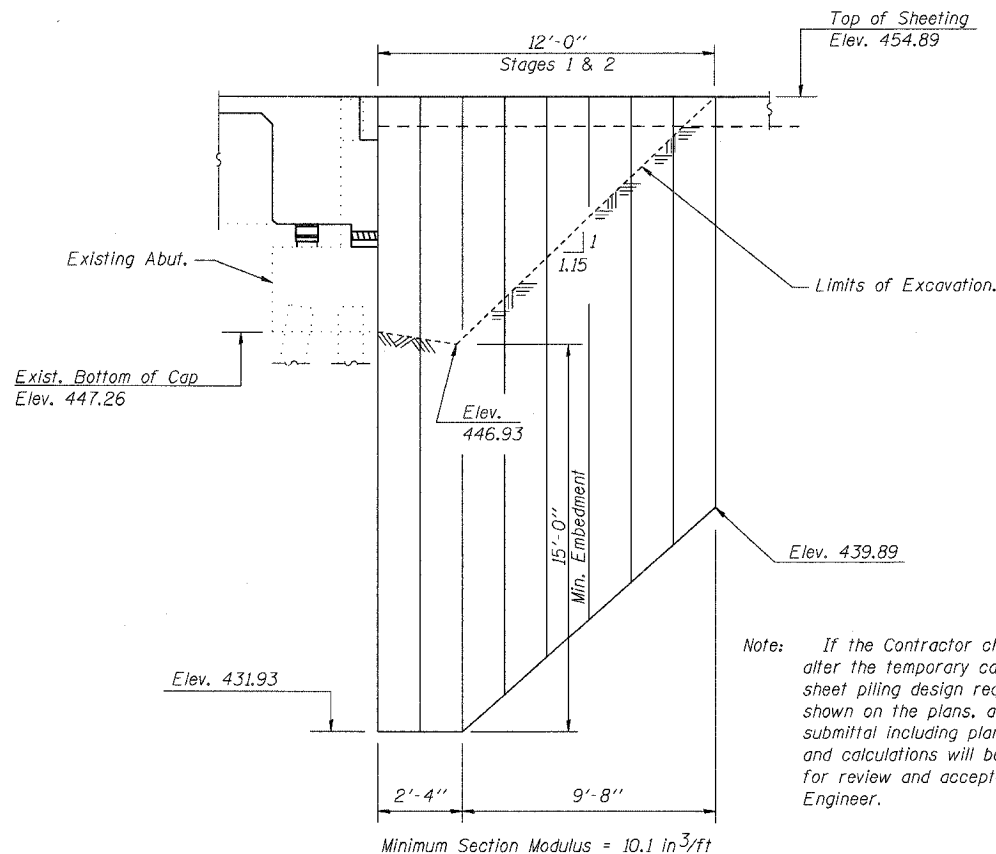
- Fasteners shall be high strength bolts. Bolts  $7/8'' \phi$ , open holes  $15/16'' \phi$ , unless otherwise noted.
- Calculated weight of structural steel = 55,800 lbs (M270 Grade 36).
- Field welding of construction accessories will not be permitted to beams.
- Anchor bolts shall be set before bolting diaphragms over supports.
- The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams and all splice plate material except fill plates.
- Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
- Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
- Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of work; however, the Contractor will be paid for the quantity actually furnished at the unit price per bid for the work.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of  $1/8$  inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two  $1/8''$  adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims. For Type I Elastomeric Bearings, two adjusting shims shall be provided for each bearing and placed as detailed.
- The contractor shall drive one HP12x53 test pile in a permanent location at Pier 1 as directed by the Engineer before ordering the remainder of piles.
- Prior to pouring the new concrete deck, all loose rust, loose mill scale, and other loose potentially detrimental foreign material shall be removed from the surfaces of the beams and end diaphragms in contact with concrete. The cost of this work will be included in the pay item covering removal of the existing concrete. All heavy rust and other tightly adhered potentially detrimental foreign matter shall also be removed from the surfaces of the beams and end diaphragms in contact with concrete. Tightly adhered paint may remain unless otherwise noted. This removal shall be accomplished by methods that will not damage the steel. The cost of this work shall be paid for according to Article 109.04.
- All existing construction accessories welded to the top flange over the piers between the quarter points of the beams shall be removed. The remaining weld shall be ground smooth and inspected for cracks using magnetic particle testing. Any cracks that can not be removed by grinding approximately  $1/4$  inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of this work shall be paid for according to Article 109.04.
- In addition to all other requirements of Section 512 of the Standard Specifications, splices for steel H-piles shall develop the 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.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
- All construction joints shall be bonded.
- Partial depth saw cutting of the existing concrete deck over the top of beam or girder flanges shall be permitted. See Special Provision for Removal of Existing Non-Composite Bridge Decks.
- Field painting of structural steel shall be done under a separate painting contract.
- Contact surfaces of existing structural steel where new steel is to be installed shall be cleaned and painted prior to erection as required by the special provision Cleaning and Painting Contact Surface Areas of Existing Steel Structures.
- All new structural steel shall be shop painted with an inorganic zinc rich primer per AASHTO M300, Type I.

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

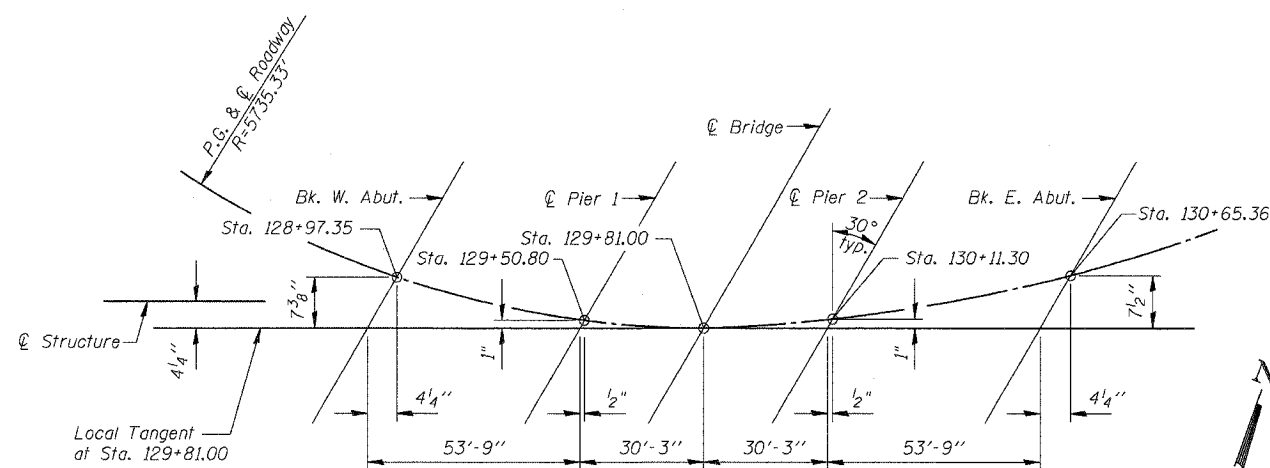
**NOTE**

Plan elevations relative to the existing structure have been taken from existing plans and reduced by 0.40 feet to match benchmark datum.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	05-2)BR	JEFFERSON	33	14
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		
Sheet 2 of 19			CONTRACT #98958	



**TEMPORARY SHEET PILING AT ABUTMENTS**  
Slopes and Dimensions are Along Tangent



**OFFSET LAYOUT SKETCH**

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment (Special)	Cu. Yd.		165	165
Stone Riprap, Class A4	Sq. Yd.		900	900
Filter Fabric	Sq. Yd.		900	900
Concrete Removal	Cu. Yd.		25.0	25.0
Slope Wall Removal	Sq. Yd.		230	230
Removal of Existing Concrete Deck	Each	1		1
Structure Excavation	Cu. Yd.		398	398
Floor Drains	Each	7		7
Concrete Structures	Cu. Yd.		25.3	25.3
Concrete Superstructure	Cu. Yd.	260.0		260.0
Bridge Deck Grooving	Sq. Yd.	720		720
Protective Coat	Sq. Yd.	930		930
Elastomeric Bearing Assembly, Type I	Each		16	16
Furnishing and Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	3,450		3,450
Jack and Remove Existing Bearings	Each	18		18
Reinforcement Bars, Epoxy Coated	Pound	56,080	3,640	59,720
Furnishing Steel Piles HP12x53	Foot		280	280
Driving Steel Piles	Foot		280	280
Test Pile Steel HP12x53	Each		1	1
Concrete Encasement	Cu. Yd.		6.5	6.5
Temporary Sheet Piling	Sq. Ft.		474	474
Name Plates	Each	1		1
Geocomposite Wall Drain	Sq. Yd.		100	100
Pipe Underdrains for Structures 4"	Foot		180	180
Bar Splicers	Each	594	4	598
Underwater Structure Excavation Protection-Location 1	Each		1	1
Underwater Structure Excavation Protection-Location 2	Each		1	1

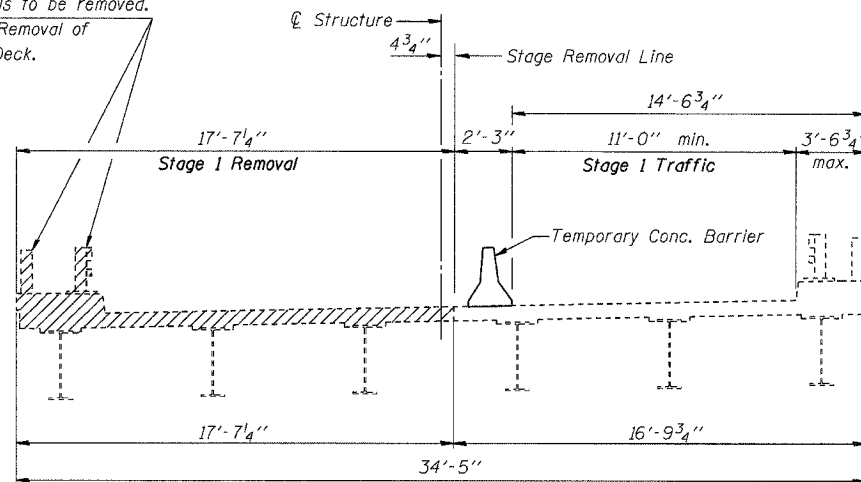
**GENERAL NOTES AND TOTAL BILL OF MATERIAL**  
IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION	JOB #: 2175
	FILE: 2175billmat
	DATE: 8/7/06

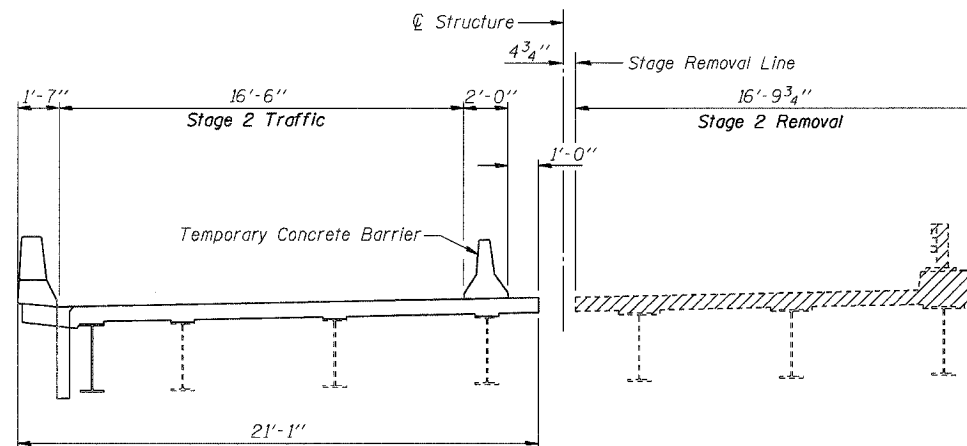


ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	15
FED. ROAD DIST. NO. 7		ILLINOIS	PROJECT	
Sheet 3 of 19			CONTRACT #98958	

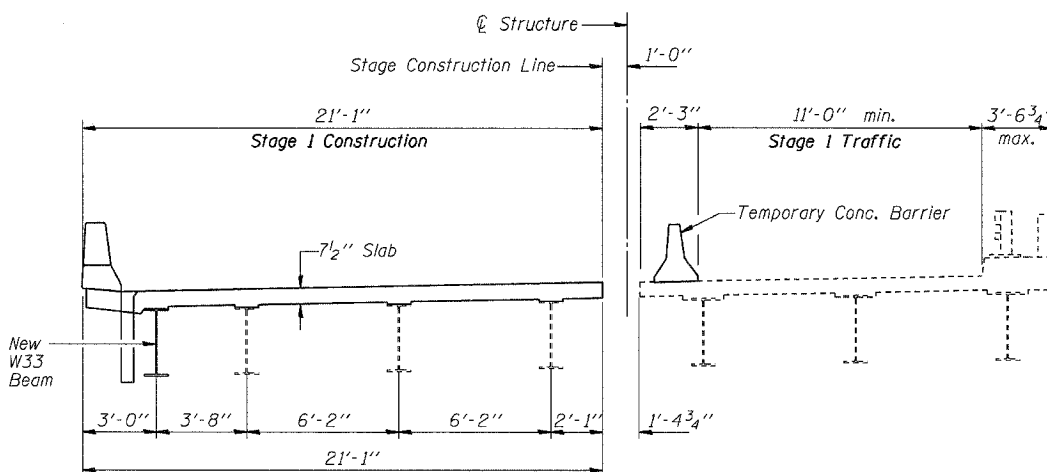
Existing Bridge Rails to be removed.  
Cost included with Removal of Existing Concrete Deck.



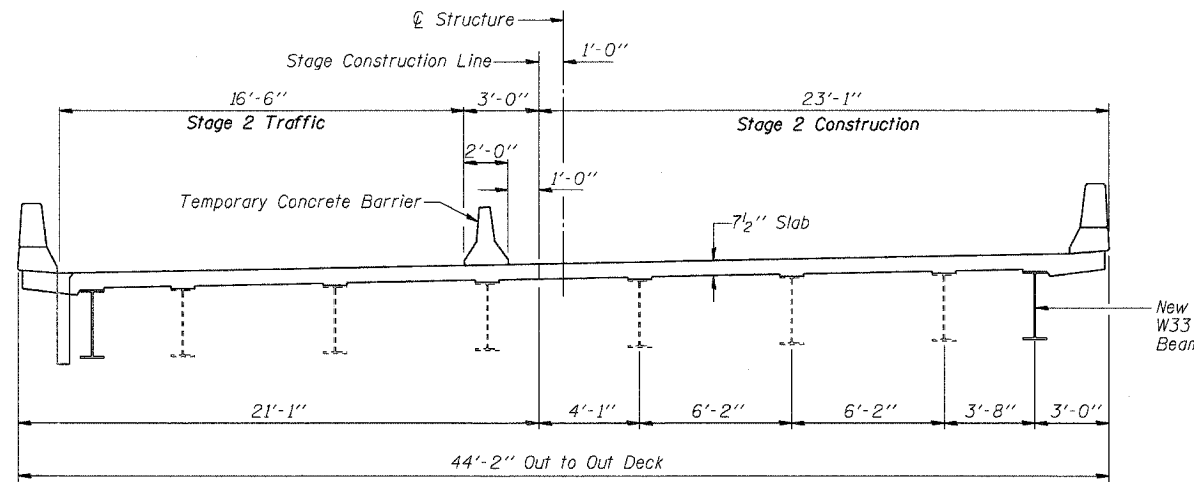
**STAGE 1 REMOVAL**  
(Looking East)



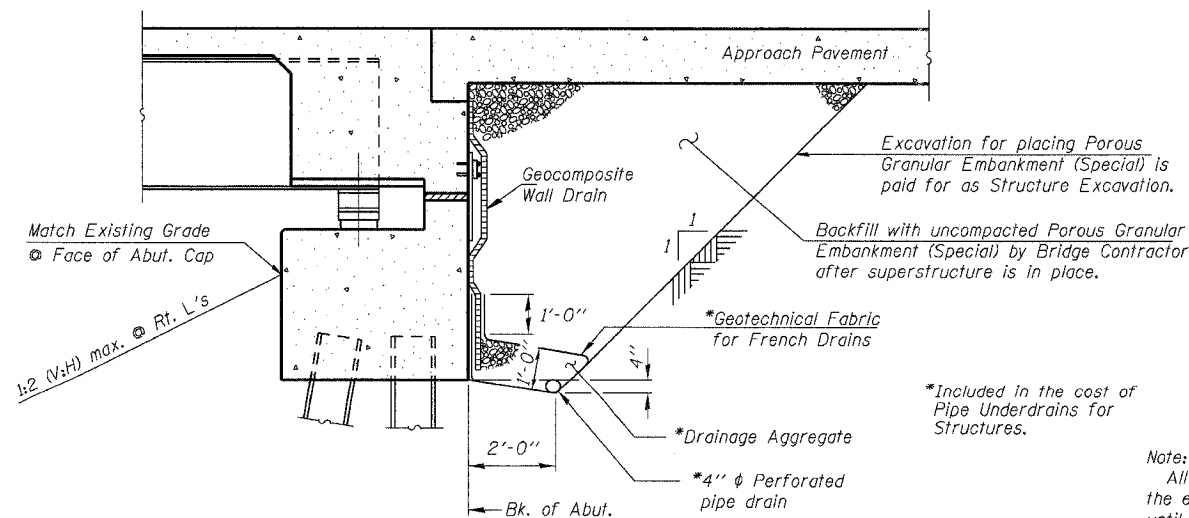
**STAGE 2 REMOVAL**  
(Looking East)



**STAGE 1 CONSTRUCTION**  
(Looking East)



**STAGE 2 CONSTRUCTION**  
(Looking East)



**SECTION THRU SEMI-INTEGRAL ABUTMENT**  
(Dimensions at Rt. L's)

Notes:  
Hatched areas indicate Removal of Existing Concrete Deck.  
All dimensions are at right angles.

**STAGE CONSTRUCTION DETAILS**

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

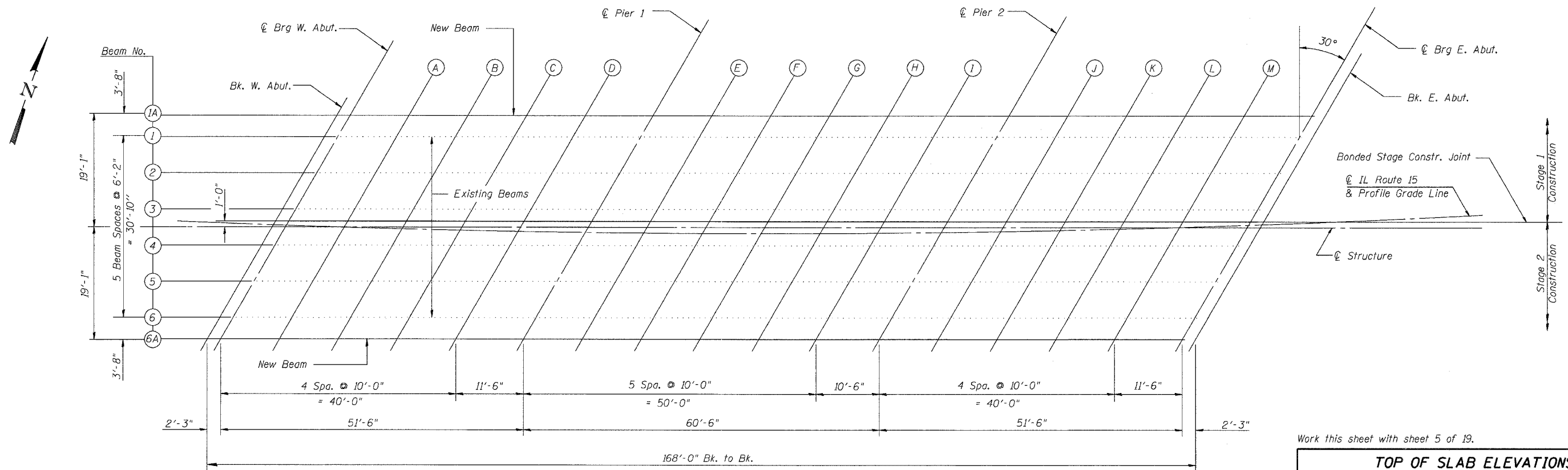
CUMMINS ENGINEERING CORPORATION

JOB #: 2175  
FILE: 2175stage  
DATE: 4/10/06

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

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).

BEAM 1A					BEAM 1					BEAM 2					BEAM 3				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection	Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection	Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection	Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	12907.98	-18.974	454.511	454.511	Bk. W. Abut.	12905.90	-15.280	454.584	454.584	Bk. W. Abut.	12902.42	-9.067	454.709	454.709	Bk. W. Abut.	12898.94	-2.851	454.833	454.833
⊕ Brg. W. Abut.	12910.24	-19.002	454.510	454.510	⊕ Brg. W. Abut.	12908.16	-15.309	454.584	454.584	⊕ Brg. W. Abut.	12904.67	-9.097	454.708	454.708	⊕ Brg. W. Abut.	12901.19	-2.882	454.832	454.832
A	12920.27	-19.117	454.508	454.516	A	12918.19	-15.428	454.581	454.590	A	12914.69	-9.221	454.706	454.714	A	12911.20	-3.013	454.830	454.838
B	12930.30	-19.214	454.506	454.522	B	12928.21	-15.529	454.579	454.596	B	12924.70	-9.328	454.703	454.720	B	12921.20	-3.126	454.827	454.844
C	12940.34	-19.294	454.504	454.522	C	12938.24	-15.612	454.578	454.595	C	12934.72	-9.418	454.702	454.719	C	12931.21	-3.221	454.826	454.843
D	12950.37	-19.356	454.503	454.512	D	12948.27	-15.678	454.576	454.586	D	12944.74	-9.490	454.700	454.710	D	12941.21	-3.299	454.824	454.833
⊕ Pier 1	12961.91	-19.406	454.502	454.502	⊕ Pier 1	12959.80	-15.732	454.575	454.575	⊕ Pier 1	12956.25	-9.551	454.699	454.699	⊕ Pier 1	12952.72	-3.368	454.823	454.823
E	12971.94	-19.43	454.501	454.508	E	12969.83	-15.760	454.575	454.582	E	12966.27	-9.585	454.698	454.705	E	12962.72	-3.408	454.822	454.829
F	12981.98	-19.437	454.501	454.512	F	12979.85	-15.771	454.575	454.585	F	12976.29	-9.602	454.698	454.708	F	12972.73	-3.431	454.821	454.832
G	12992.01	-19.427	454.501	454.512	G	12989.88	-15.764	454.575	454.585	G	12986.30	-9.602	454.698	454.708	G	12982.74	-3.437	454.821	454.832
H	13002.04	-19.399	454.502	454.512	H	12999.91	-15.740	454.575	454.586	H	12996.32	-9.584	454.698	454.709	H	12992.74	-3.425	454.821	454.832
I	13012.08	-19.354	454.503	454.51	I	13009.94	-15.698	454.576	454.583	I	13006.34	-9.548	454.699	454.706	I	13002.75	-3.396	454.822	454.829
⊕ Pier 2	13022.61	-19.287	454.504	454.504	⊕ Pier 2	13020.46	-15.635	454.577	454.577	⊕ Pier 2	13016.86	-9.492	454.700	454.700	⊕ Pier 2	13013.25	-3.347	454.823	454.823
J	13032.65	-19.206	454.506	454.514	J	13030.49	-15.558	454.579	454.587	J	13026.87	-9.421	454.702	454.710	J	13023.26	-3.282	454.824	454.832
K	13042.68	-19.107	454.508	454.524	K	13040.52	-15.463	454.581	454.597	K	13036.89	-9.332	454.703	454.720	K	13033.26	-3.199	454.826	454.842
L	13052.71	-18.991	454.510	454.528	L	13050.54	-15.350	454.583	454.600	L	13046.90	-9.226	454.705	454.723	L	13043.27	-3.100	454.828	454.845
M	13062.74	-18.857	454.513	454.522	M	13060.57	-15.220	454.586	454.595	M	13056.92	-9.102	454.708	454.717	M	13053.27	-2.982	454.830	454.840
⊕ Brg. E. Abut.	13074.28	-18.681	454.516	454.516	⊕ Brg. E. Abut.	13072.10	-15.049	454.589	454.589	⊕ Brg. E. Abut.	13068.44	-8.939	454.711	454.711	⊕ Brg. E. Abut.	13064.78	-2.826	454.833	454.833
Bk. E. Abut.	13076.54	-18.644	454.517	454.517	Bk. E. Abut.	13074.35	-15.013	454.59	454.590	Bk. E. Abut.	13070.69	-8.904	454.712	454.712	Bk. E. Abut.	13067.03	-2.793	454.834	454.834



Work this sheet with sheet 5 of 19.

**TOP OF SLAB ELEVATIONS**

IL ROUTE 15 OVER SEVEN MILE CREEK  
 F.A.P. ROUTE 821 SECTION (15-2)BR  
 JEFFERSON COUNTY  
 STA. 129+81.00  
 S.N. 041-0027

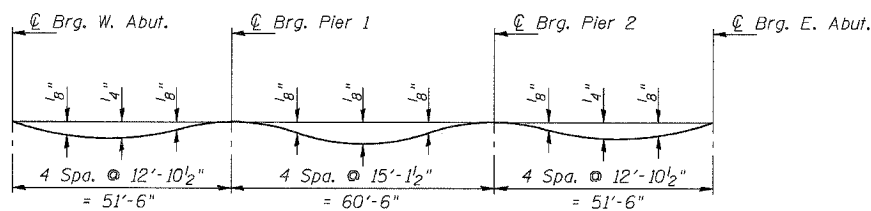
CUMMINS ENGINEERING CORPORATION

JOB #: 2175  
 FILE: 2175slab  
 DATE: 3/03/06

DESIGNED Ruben V. Boehler  
 CHECKED Tim S. Howard  
 DRAWN TSH / RVB  
 CHECKED Michael D. Cummins



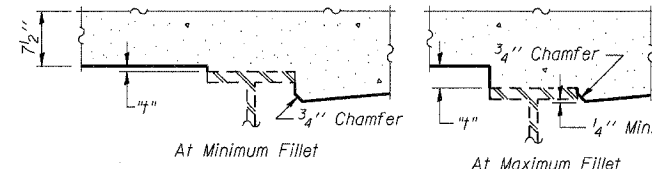
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	17
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	Sheet 5 of 19	
			CONTRACT #98958	



**DEAD LOAD DEFLECTION DIAGRAM FOR ALL BEAMS**

(Includes weight of concrete only.)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below and on sheet 4 of 19.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 4 and 5 of 19, minus slab thickness, equals the fillet heights "t" above top flange of beams.

**FILLET HEIGHTS**

**BONDED STAGE CONSTRUCTION JOINT**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	12897.77	-0.750	454.875	454.875
☉ Brg. W. Abut.	12900.02	-0.782	454.874	454.874
A	12910.02	-0.915	454.872	454.880
B	12920.02	-1.030	454.869	454.886
C	12930.02	-1.128	454.867	454.885
D	12940.02	-1.208	454.866	454.875
☉ Pier 1	12951.53	-1.278	454.864	454.864
E	12961.53	-1.321	454.864	454.870
F	12971.53	-1.346	454.863	454.873
G	12981.53	-1.354	454.863	454.873
H	12991.53	-1.344	454.863	454.874
I	13001.54	-1.317	454.864	454.871
☉ Pier 2	13012.04	-1.270	454.865	454.865
J	13022.04	-1.207	454.866	454.874
K	13032.04	-1.127	454.867	454.884
L	13042.04	-1.029	454.869	454.887
M	13052.05	-0.914	454.872	454.881
☉ Brg. E. Abut.	13063.55	-0.760	454.875	454.875
Bk. E. Abut.	13065.80	-0.727	454.875	454.875

**☉ STRUCTURE**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	12897.21	0.258	454.895	454.895
☉ Brg. W. Abut.	12899.46	0.226	454.895	454.895
A	12909.45	0.092	454.892	454.900
B	12919.45	-0.024	454.890	454.906
C	12929.45	-0.122	454.888	454.905
D	12939.45	-0.204	454.886	454.895
☉ Pier 1	12950.95	-0.275	454.884	454.884
E	12960.95	-0.319	454.884	454.891
F	12970.95	-0.345	454.883	454.894
G	12980.95	-0.354	454.883	454.893
H	12990.96	-0.345	454.883	454.894
I	13000.96	-0.319	454.884	454.891
☉ Pier 2	13011.46	-0.273	454.885	454.885
J	13021.46	-0.211	454.886	454.894
K	13031.46	-0.132	454.887	454.904
L	13041.46	-0.035	454.889	454.907
M	13051.46	0.079	454.892	454.901
☉ Brg. E. Abut.	13062.95	0.231	454.895	454.895
Bk. E. Abut.	13065.20	0.264	454.895	454.895

**BEAM 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	12895.47	3.367	454.957	454.957
☉ Brg. W. Abut.	12897.72	3.334	454.957	454.957
A	12907.71	3.198	454.954	454.962
B	12917.71	3.079	454.952	454.968
C	12927.70	2.977	454.950	454.967
D	12937.70	2.893	454.948	454.957
☉ Pier 1	12949.19	2.817	454.946	454.946
E	12959.19	2.771	454.945	454.952
F	12969.18	2.741	454.945	454.955
G	12979.18	2.729	454.945	454.955
H	12989.17	2.735	454.945	454.955
I	12999.17	2.758	454.945	454.952
☉ Pier 2	13009.66	2.801	454.946	454.946
J	13019.66	2.860	454.947	454.955
K	13029.65	2.936	454.949	454.965
L	13039.64	3.029	454.951	454.968
M	13049.64	3.140	454.953	454.962
☉ Brg. E. Abut.	13061.13	3.289	454.956	454.956
Bk. E. Abut.	13063.38	3.321	454.956	454.956

**BEAM 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	12892.01	9.587	455.082	455.082
☉ Brg. W. Abut.	12894.26	9.553	455.081	455.081
A	12904.24	9.410	455.078	455.086
B	12914.22	9.285	455.076	455.092
C	12924.20	9.178	455.074	455.091
D	12934.19	9.087	455.072	455.081
☉ Pier 1	12945.67	9.005	455.070	455.070
E	12955.65	8.952	455.069	455.076
F	12965.64	8.917	455.068	455.079
G	12975.62	8.898	455.068	455.078
H	12985.61	8.898	455.068	455.078
I	12995.59	8.914	455.068	455.076
☉ Pier 2	13006.08	8.951	455.069	455.069
J	13016.06	9.003	455.070	455.078
K	13026.04	9.073	455.071	455.088
L	13036.03	9.160	455.073	455.091
M	13046.01	9.265	455.075	455.085
☉ Brg. E. Abut.	13057.49	9.407	455.078	455.078
Bk. E. Abut.	13059.74	9.437	455.079	455.079

**BEAM 6**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	12888.55	15.810	455.206	455.206
☉ Brg. W. Abut.	12890.80	15.774	455.205	455.205
A	12900.77	15.625	455.203	455.211
B	12910.74	15.494	455.200	455.216
C	12920.71	15.380	455.198	455.215
D	12930.69	15.284	455.196	455.205
☉ Pier 1	12942.16	15.194	455.194	455.194
E	12952.13	15.135	455.193	455.200
F	12962.10	15.094	455.192	455.202
G	12972.08	15.070	455.191	455.202
H	12982.05	15.063	455.191	455.202
I	12992.03	15.073	455.191	455.199
☉ Pier 2	13002.50	15.103	455.192	455.192
J	13012.47	15.149	455.193	455.201
K	13022.44	15.213	455.194	455.210
L	13032.42	15.294	455.196	455.213
M	13042.39	15.392	455.198	455.207
☉ Brg. E. Abut.	13053.86	15.527	455.201	455.201
Bk. E. Abut.	13056.10	15.556	455.201	455.201

**BEAM 6A**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	12886.50	19.510	455.280	455.280
☉ Brg. W. Abut.	12888.75	19.474	455.279	455.279
A	12898.71	19.322	455.276	455.285
B	12908.68	19.187	455.274	455.290
C	12918.64	19.069	455.271	455.289
D	12928.61	18.969	455.269	455.279
☉ Pier 1	12940.07	18.876	455.268	455.268
E	12950.04	18.813	455.266	455.273
F	12960.01	18.768	455.265	455.276
G	12969.97	18.740	455.265	455.275
H	12979.94	18.729	455.265	455.275
I	12989.91	18.736	455.265	455.272
☉ Pier 2	13000.37	18.762	455.265	455.265
J	13010.34	18.805	455.266	455.274
K	13020.31	18.864	455.267	455.283
L	13030.28	18.942	455.269	455.286
M	13040.24	19.036	455.271	455.280
☉ Brg. E. Abut.	13051.70	19.167	455.273	455.273
Bk. E. Abut.	13053.94	19.195	455.274	455.274

Work this sheet with sheet 4 of 19.

**TOP OF SLAB ELEVATIONS**

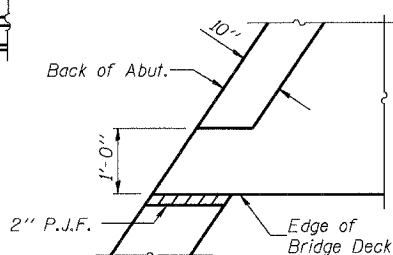
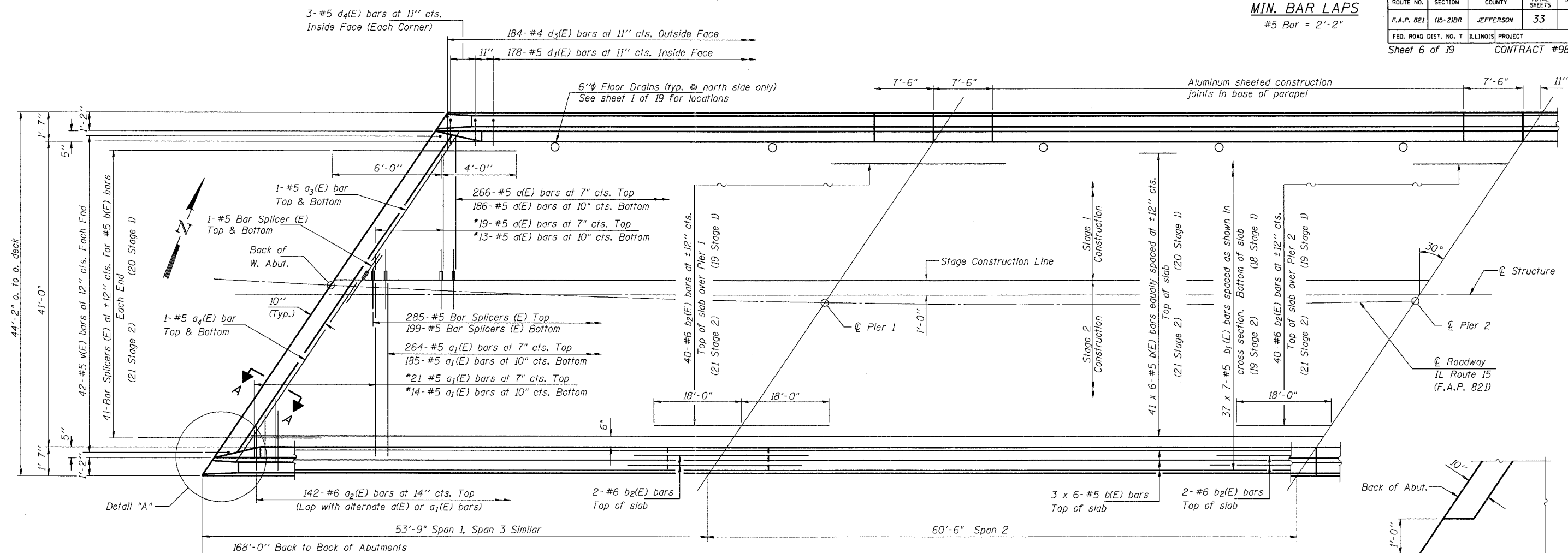
IL ROUTE 15 OVER SEVEN MILE CREEK  
 F.A.P. ROUTE 821 SECTION (15-2)BR  
 JEFFERSON COUNTY  
 STA. 129+81.00  
 S.N. 041-0027

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

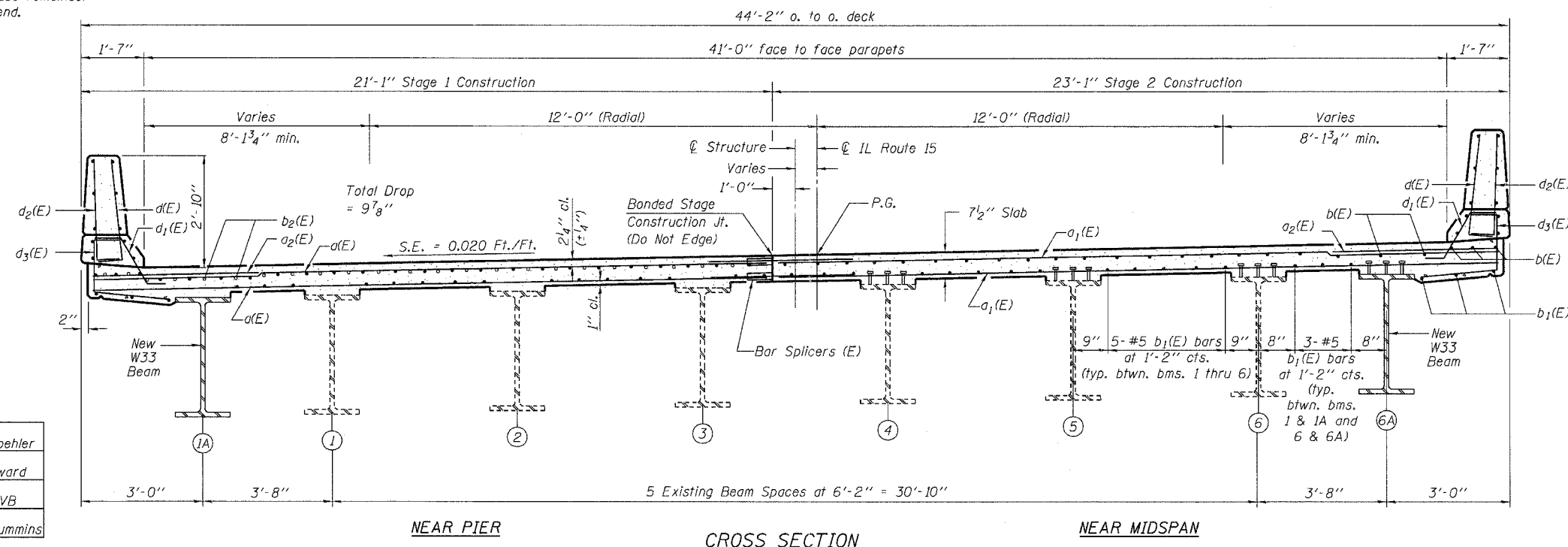
CUMMINS ENGINEERING CORPORATION	JOB #: 2175
	FILE#: 2175slab
	DATE: 3/03/06

MIN. BAR LAPS  
#5 Bar = 2'-2"

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	18
FED. ROAD DIST. NO. T		ILLINOIS PROJECT		
Sheet 6 of 19			CONTRACT #98958	



\*Order  $a(E)$  and  $a_1(E)$  full length. Cut to fit skew and use remainder of bars in opposite end.



Notes:  
See Sheet 7 of 19 for parapet reinforcement, superstructure details and Bill of Material.  
See Sheet 8 of 19 for diaphragm details and Section A-A.  
See Sheet 17 of 19 for bar splicer details.  
Reinforcement bars designated (E) shall be epoxy coated.  
Bars indicated thus 41 x 6-#5 etc. indicates 41 lines of bars with 6 lengths per line.

**SUPERSTRUCTURE**

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

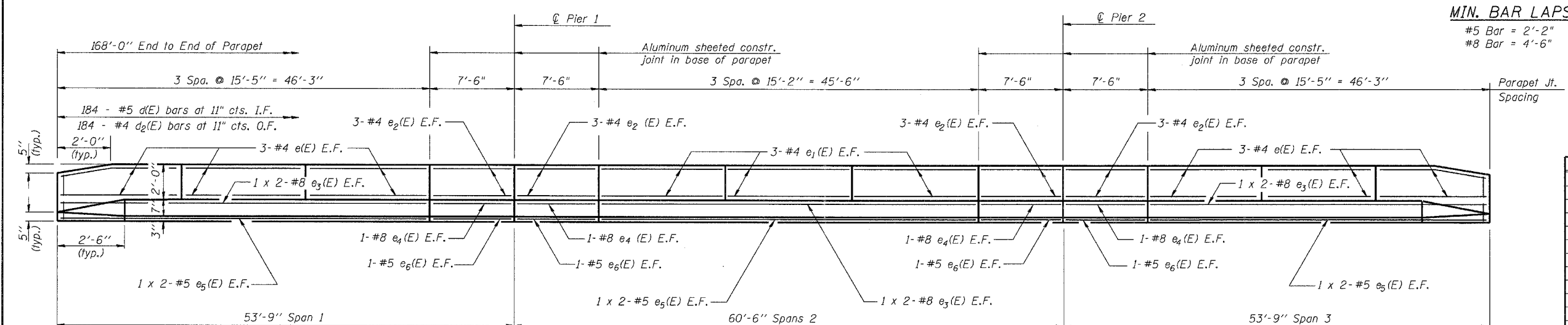
CUMMINS ENGINEERING CORPORATION

JOB #: 2175
FILE: 2175super
DATE: 4/10/06

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CHECKED	Michael D. Cummins

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	19
FED. ROAD DIST. NO. 7	ILLINOIS PROJECT	CONTRACT #98958		
Sheet 7 of 19				

**MIN. BAR LAPS**  
 #5 Bar = 2'-2"  
 #8 Bar = 4'-6"

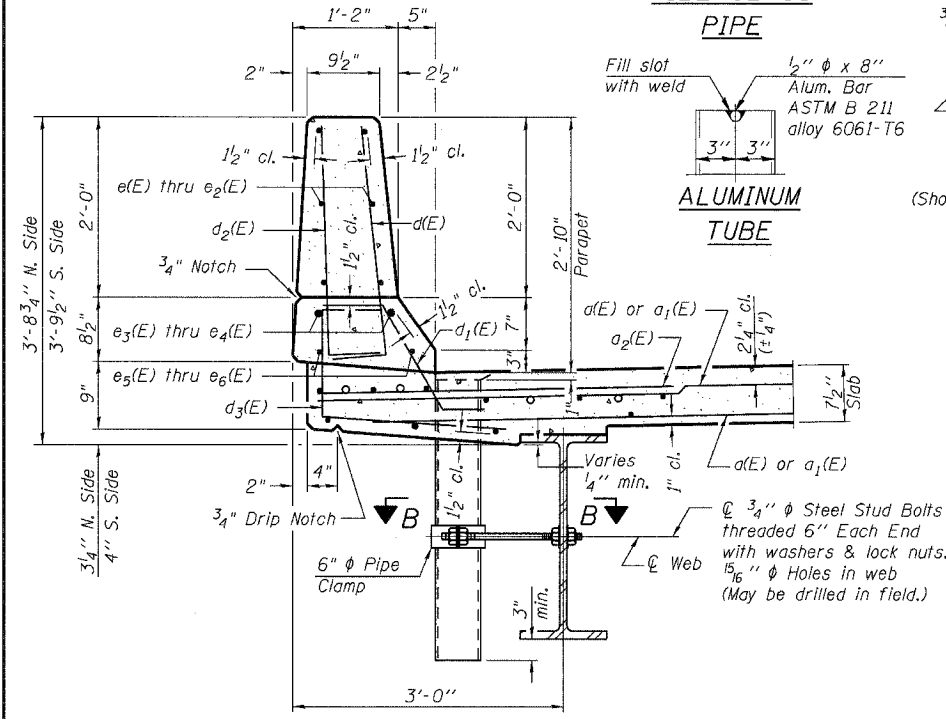
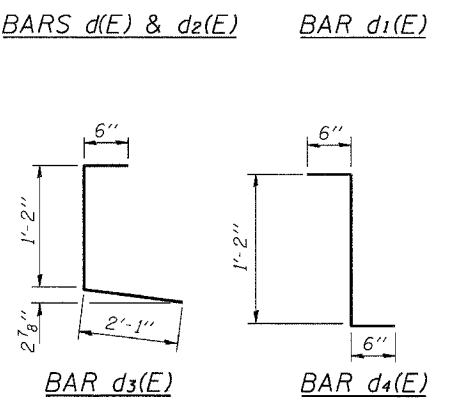
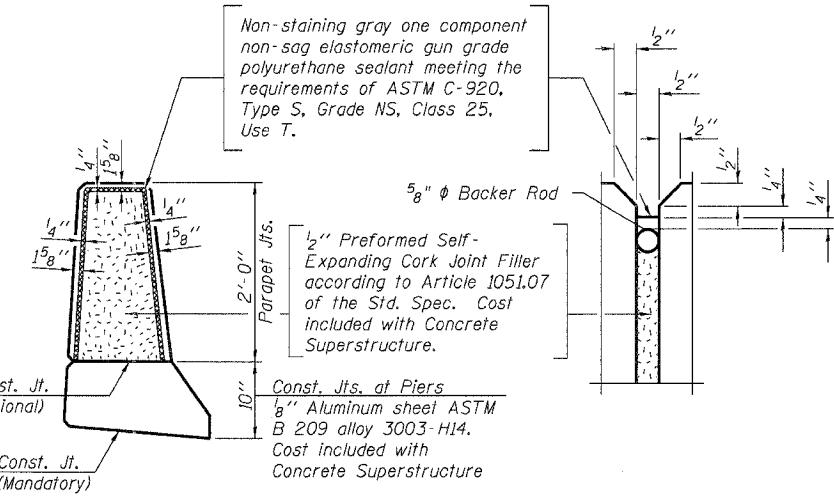
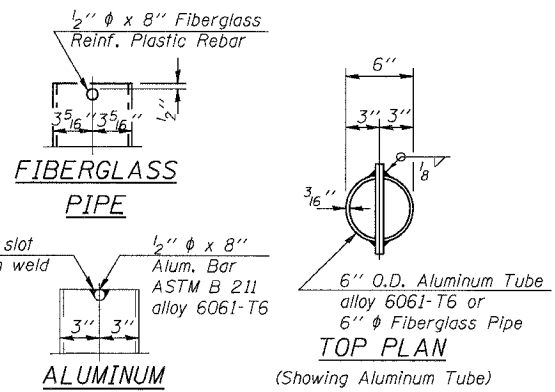


**INSIDE ELEVATION OF PARAPET**

I.F. = Inside Face  
 O.F. = Outside Face  
 E.F. = Each Face

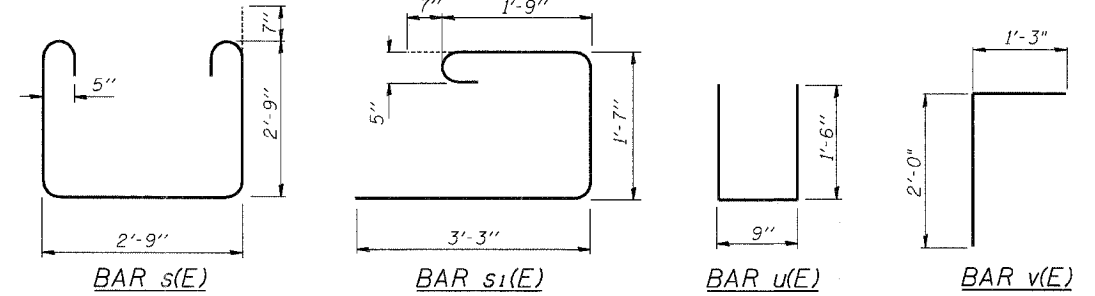
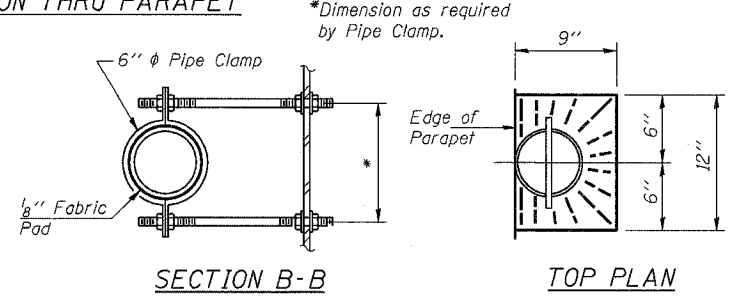
**SUPERSTRUCTURE  
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
d(E)	484	#5	20'-7"	—
d1(E)	484	#5	22'-7"	—
d2(E)	284	#6	4'-6"	—
d3(E)	4	#5	23'-9"	—
d4(E)	4	#5	26'-0"	—
b(E)	282	#5	29'-5"	—
b1(E)	259	#5	25'-7"	—
b2(E)	88	#6	36'-0"	—
a(E)	368	#5	3'-0"	—
a1(E)	356	#5	2'-5"	—
a2(E)	368	#4	3'-0"	—
a3(E)	368	#4	3'-9"	—
a4(E)	12	#5	2'-2"	—
e(E)	72	#4	15'-2"	—
e1(E)	36	#4	14'-11"	—
e2(E)	48	#4	7'-3"	—
e3(E)	24	#8	25'-3"	—
e4(E)	16	#8	7'-3"	—
e5(E)	24	#5	24'-1"	—
e6(E)	16	#5	7'-3"	—
m(E)	16	#6	23'-9"	—
m1(E)	16	#6	26'-0"	—
m2(E)	28	#6	6'-9"	—
m3(E)	24	#6	10'-6"	—
s(E)	84	#5	9'-5"	—
s1(E)	102	#5	7'-2"	—
u(E)	102	#5	3'-9"	—
v(E)	84	#5	3'-3"	—
Reinforcement Bars, Epoxy Coated		Pound	56,080	
Concrete Superstructure		Cu. Yd.	260.0	
Bar Splicers		Each	594	
Floor Drains		Each	7	



**SECTION THRU PARAPET**

Notes:  
 Floor drains need not be painted.  
 Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.



Reinforcement bars designated (E) shall be epoxy coated.  
 Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line.

**SUPERSTRUCTURE DETAILS**

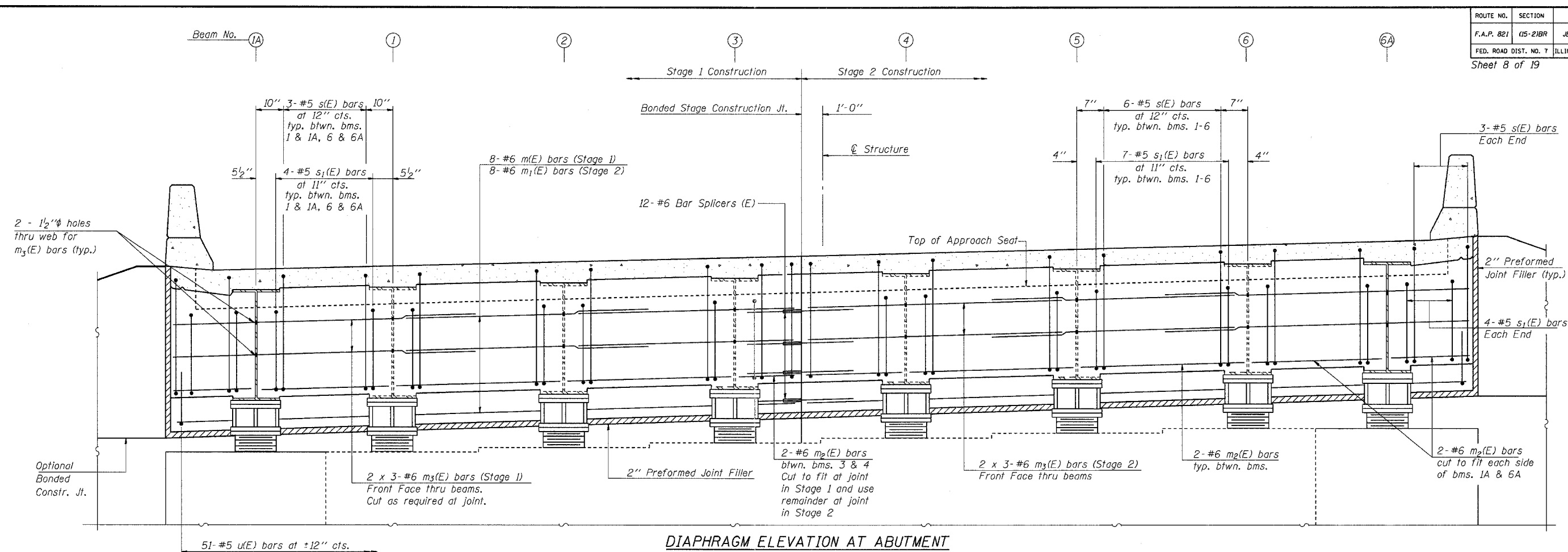
IL ROUTE 15 OVER SEVEN MILE CREEK  
 F.A.P. ROUTE 821 SECTION (15-2)BR  
 JEFFERSON COUNTY  
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CUMMINS ENGINEERING CORPORATION

JOB #: 2175  
 FILE: 2175super  
 DATE: 5/26/06

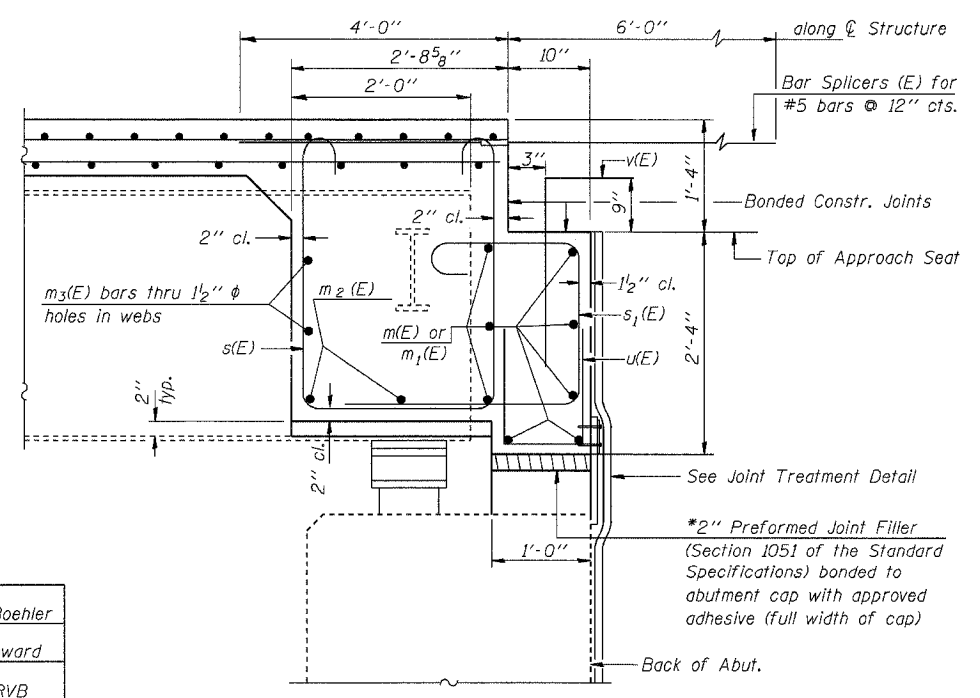
DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	15-2JBR	JEFFERSON	33	20
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		
Sheet 8 of 19			CONTRACT #98958	



**DIAPHRAGM ELEVATION AT ABUTMENT**

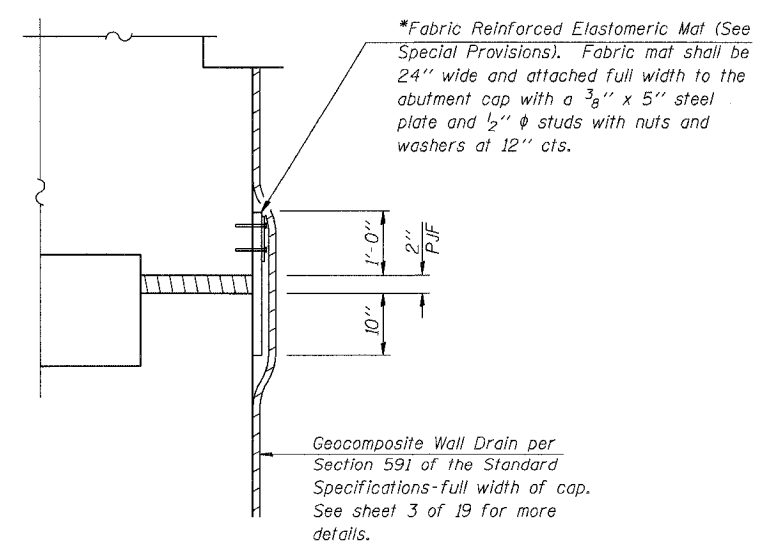
(East Abutment Shown - Looking East)  
(West Abutment Similar)



**SECTION A-A**

(Dimensions at right angles to abutment, except as shown.)

\*Cost Included with Concrete Superstructure



**JOINT TREATMENT DETAIL**

**MIN. BAR LAP**

#5 bar = 2'-2"  
#6 bar = 2'-9"

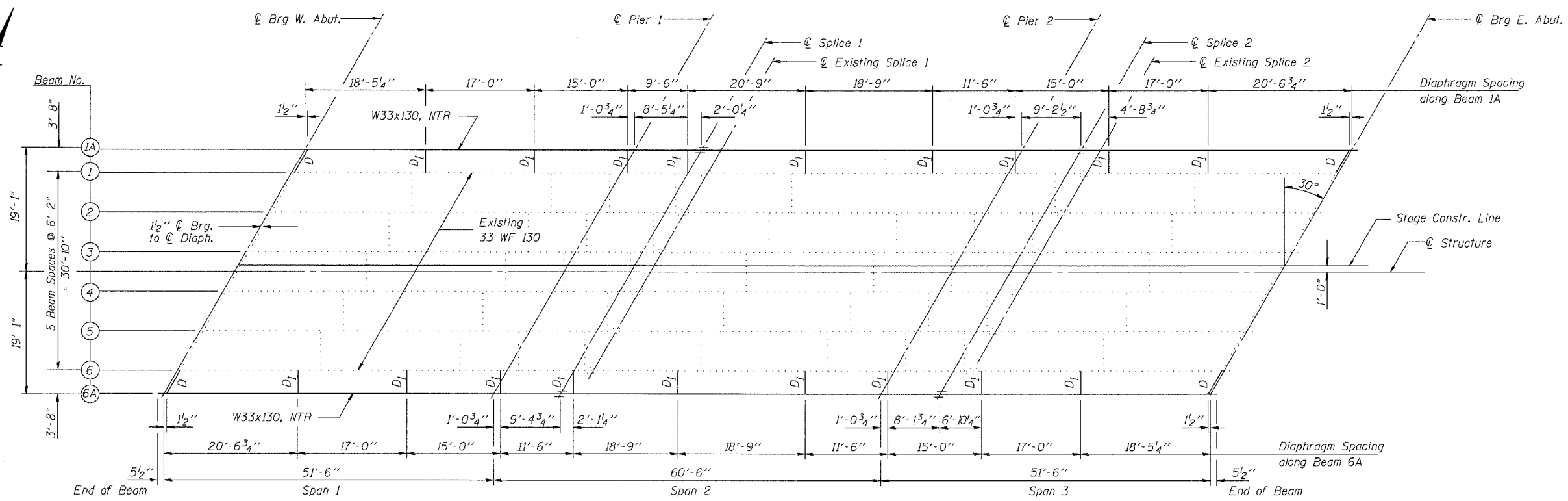
Notes: Reinforcement bars designated (E) shall be epoxy coated. Bars indicated thus 2 x 3-#6 etc. indicates 2 lines of bars with 3 lengths per line. Reinforcement bars in diaphragm are billed with superstructure on sheet 7 of 19. Concrete in diaphragm is included with Concrete Superstructure on sheet 7 of 19. The s(E) and s1(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams. For details of bars u(E), s(E), and s1(E) see sheet 7 of 19. For location of drilled holes in beams see sheet 10 of 19.

**DIAPHRAGM DETAILS**

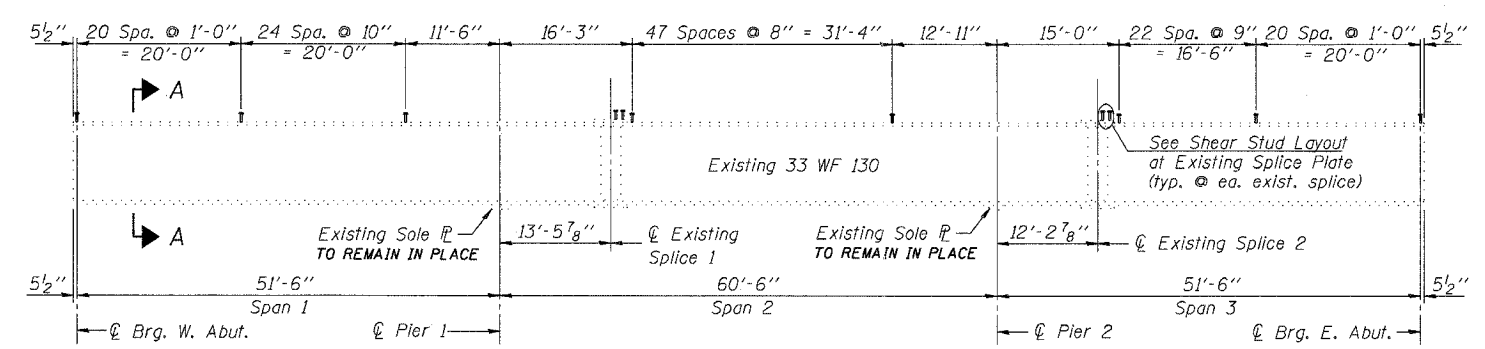
IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

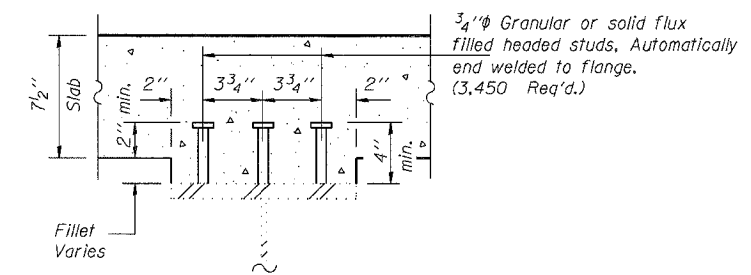
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F.A.P. 821	(15-2)BR	JEFFERSON	33	21
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		
Sheet 9 of 19			CONTRACT #98958	



**FRAMING PLAN**

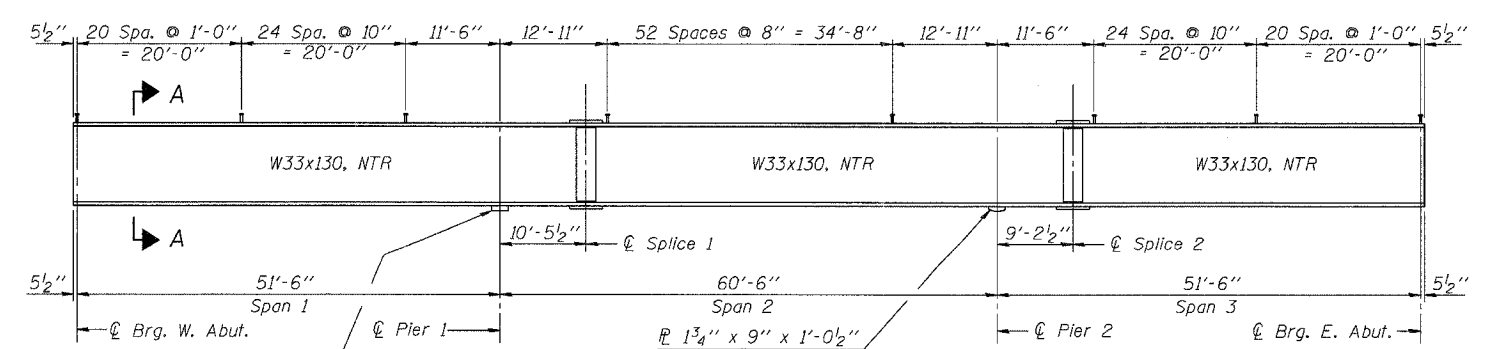


**BEAM ELEVATION**  
Existing Beams 1 thru 6



**SECTION A-A**

(Except at existing splices)  
Applies to both Existing & Proposed Beams.  
Existing Beams Shown.



**BEAM ELEVATION**  
New Beams 1A & 6A

Notes:  
"NTR" denotes members to which Notch Toughness Requirements, Zone 2 are applicable.  
Work this sheet with sheet 10 of 19.

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

**STRUCTURAL STEEL**

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION

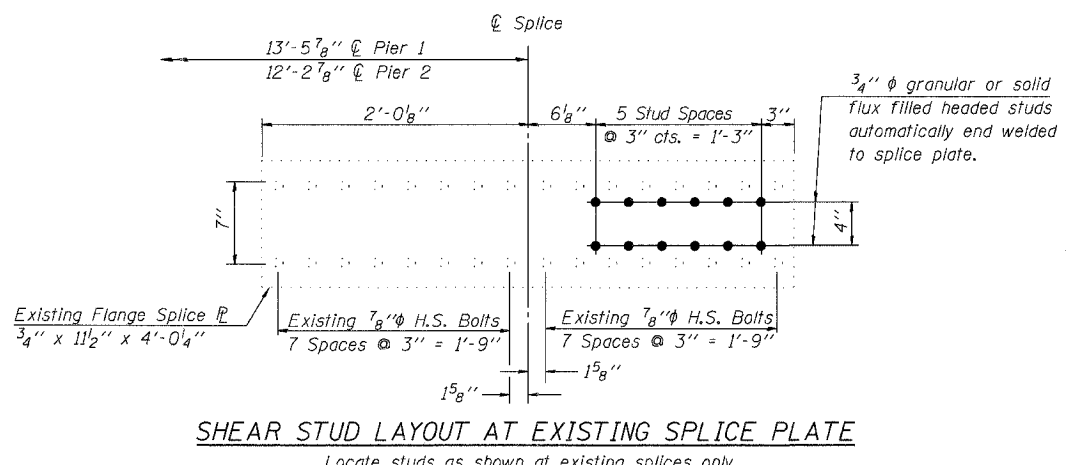
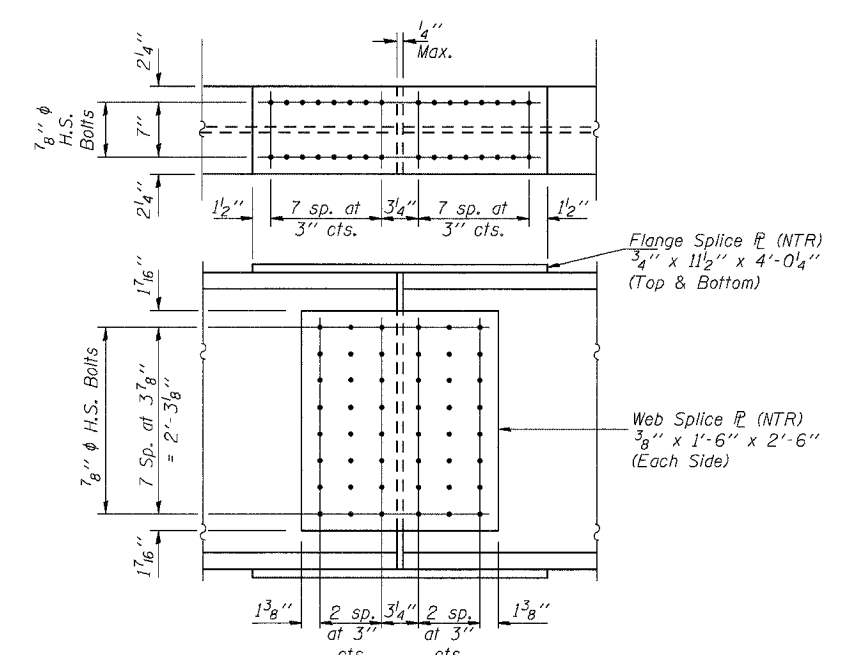
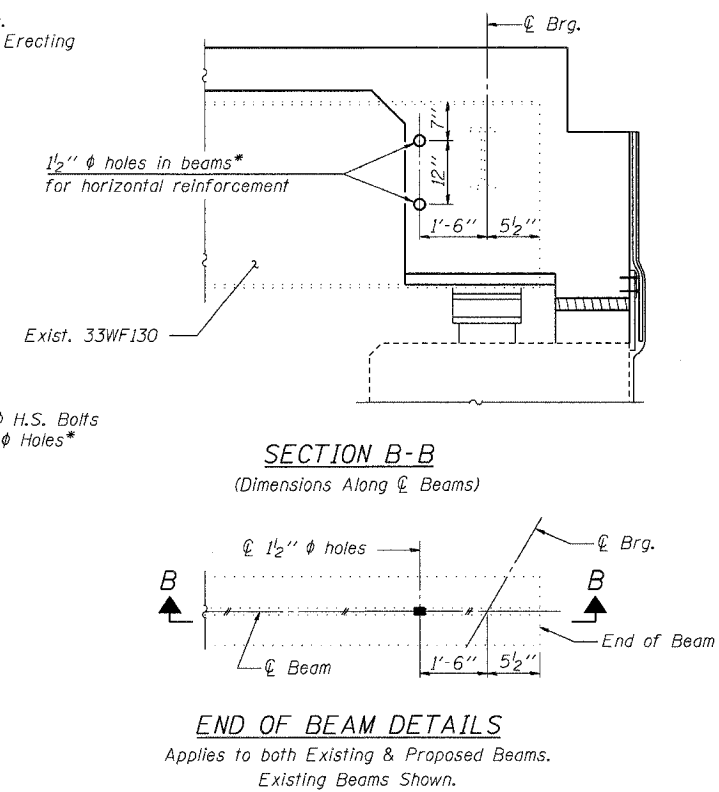
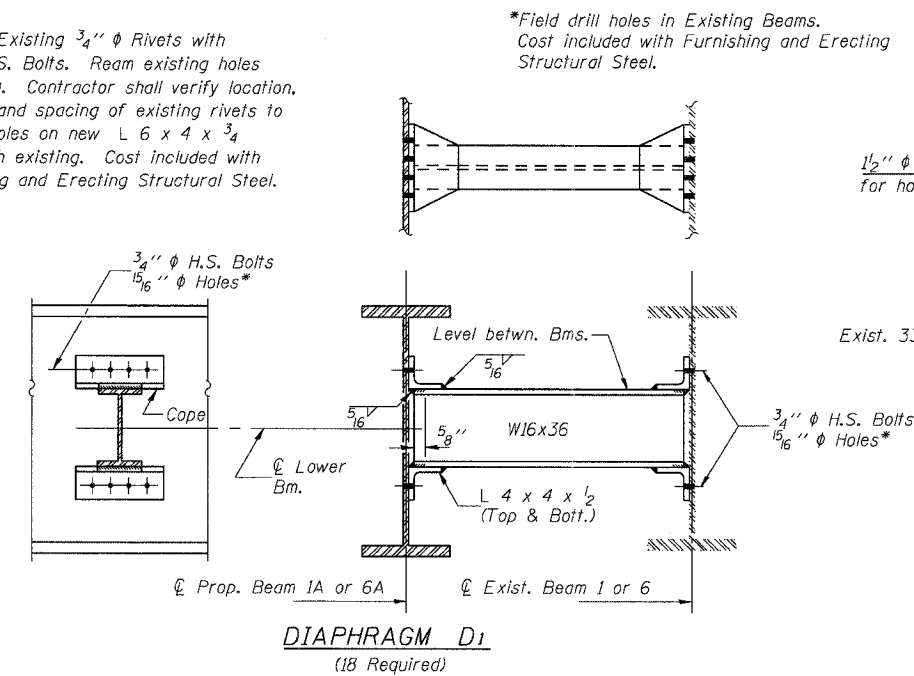
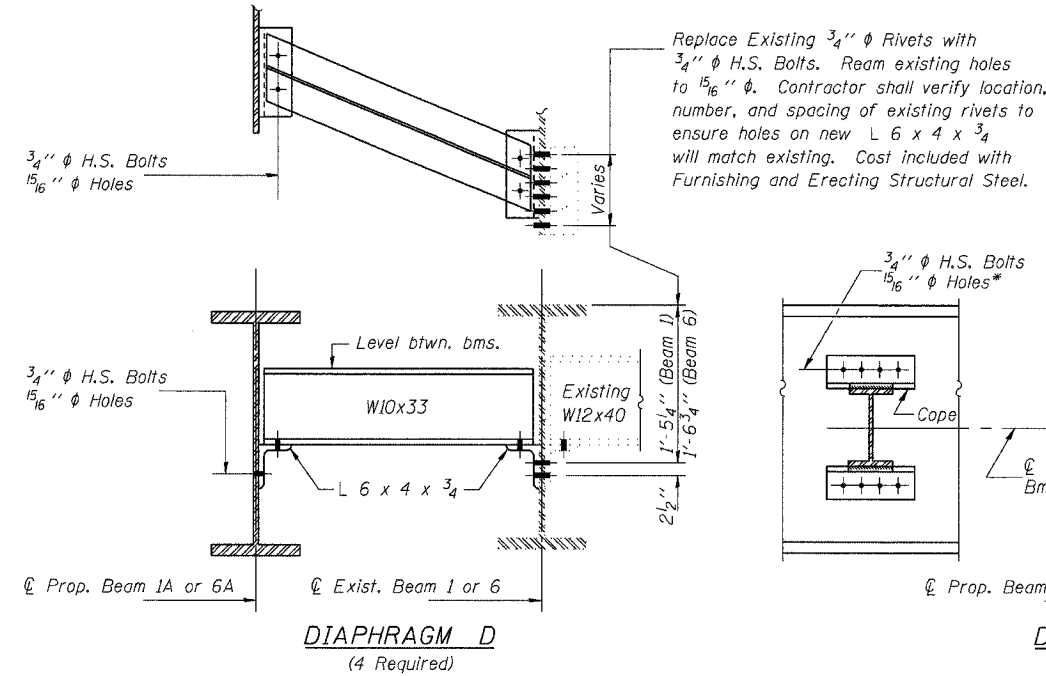
JOB #:	2175
FILE:	2175ss
DATE:	5/26/06

	Abuts.	Piers
R <sub>L</sub>	(k) 46.4	61.8
R <sub>R</sub>	(k) 32.1	37.9
Imp.	(k) 9.0	10.6
R (Total)	(k) 87.5	110.3

	0.4 Sp. 1 0.6 Sp. 4	Piers 1 & 2	0.5 Sp. 2
I <sub>s</sub>	(in <sup>4</sup> ) 6710	6710	6710
I <sub>c</sub> (n)	(in <sup>4</sup> ) 17200	---	17200
I <sub>c</sub> (3n)	(in <sup>4</sup> ) 12590	---	12590
S <sub>s</sub>	(in <sup>3</sup> ) 406	406	406
S <sub>c</sub> (n)	(in <sup>3</sup> ) 586	---	586
S <sub>c</sub> (3n)	(in <sup>3</sup> ) 529	---	529
ϕ	(k/ft.) 0.75	1.00	0.75
M <sub>L</sub>	(k) 145	298	108
s <sub>L</sub>	(k/ft.) 0.25	---	0.25
M <sub>sL</sub>	(k) 55	---	53
M <sub>L</sub>	(k) 316	170	323
M (Imp)	(k) 89	48	87
5 <sub>3</sub> [M <sub>L</sub> +M(Imp)]	(k) 675	363	683
M <sub>a</sub>	(k) 1140	860	1100
M <sub>u</sub>	(k) 1520	---	1540
fs <sub>ϕ</sub> non-comp (k.s.i.)	4.3	8.8	3.2
fs <sub>ϕ</sub> (comp) (k.s.i.)	1.2	---	1.2
fs <sub>5/8</sub> (k.s.i.)	13.8	10.7	14.0
fs (Overload) (k.s.i.)	19.3	19.5	18.4
fs (Total) (k.s.i.)	---	25.4	---
VR	(k) 44.8	---	39.1

\*\*Compact, braced section.  
\*\*\*Non-compact, braced section.

I<sub>s</sub> and S<sub>s</sub> are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).  
I<sub>c(n)</sub> and S<sub>c(n)</sub> are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.  
I<sub>c(3n)</sub> and S<sub>c(3n)</sub> are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)  
VR is the maximum Live Load + Impact shear range in span.  
The Plastic Moment capacity (M<sub>u</sub>) is computed according to AASHTO 10.48.1 and 10.50.1.1.  
fs (Total) (Non-compact section) is the sum of the stresses due to 1.3[M<sub>L</sub> + M<sub>sL</sub> + 5<sub>3</sub>(M<sub>L</sub> + M(Imp))].  
fs (Overload) is the sum of the stresses due to M<sub>L</sub> + M<sub>sL</sub> + 5<sub>3</sub>(M<sub>L</sub> + M(Imp)).  
M<sub>L</sub> - Moment due to dead loads on non-composite section.  
M<sub>sL</sub> - Moment due to dead loads on composite section.  
M<sub>L</sub> - Moment due to live loads on non-composite or composite section.  
M (Imp) - Moment due to live load impact on non-composite or composite section.  
M<sub>a</sub> (Applied Moment) = 1.3[M<sub>L</sub> + M<sub>sL</sub> + 5<sub>3</sub>(M<sub>L</sub> + M(Imp))].



Location	Beam 1A	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 6A
ϕ Brg. W. Abut.	453.77	453.84	453.97	454.09	454.22	454.34	454.47	454.54
ϕ Pier 1	453.72	453.79	453.92	454.04	454.17	454.29	454.42	454.49
ϕ Splice 1	453.71	453.78	453.91	454.03	454.16	454.28	454.41	454.48
ϕ Pier 2	453.71	453.78	453.91	454.03	454.16	454.28	454.41	454.48
ϕ Splice 2	453.71	453.78	453.91	454.03	454.16	454.28	454.41	454.48
ϕ Brg. E. Abut.	453.77	453.84	453.97	454.09	454.22	454.34	454.47	454.54

Note: Elevations have been taken from the existing plans and reduced by 0.40' to match the new bench mark datum.

Notes:  
Beams 1A & 6A (W33x130), L's and splice plates shall be AASHTO M270, Grade 36.  
"NTR" denotes members to which Notch Toughness Requirements, Zone 2 are applicable.  
Work this sheet with sheet 9 of 19.

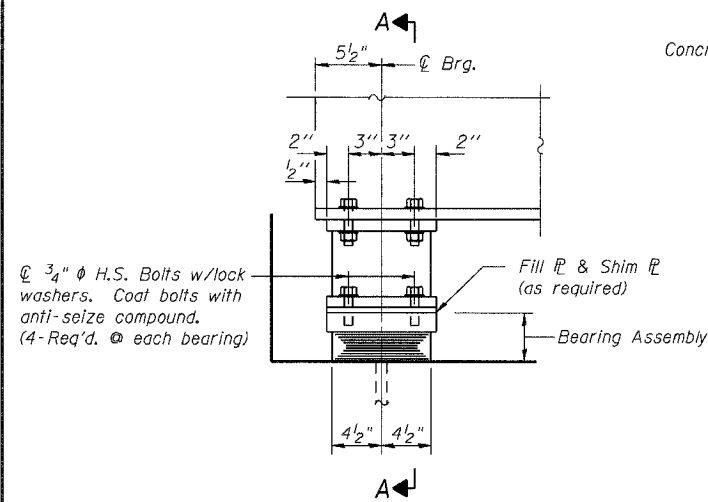
DESIGNED Ruben V. Boehler  
CHECKED Tim S. Howard  
DRAWN TSH / RVB  
CHECKED Michael D. Cummins

**STRUCTURAL STEEL**

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

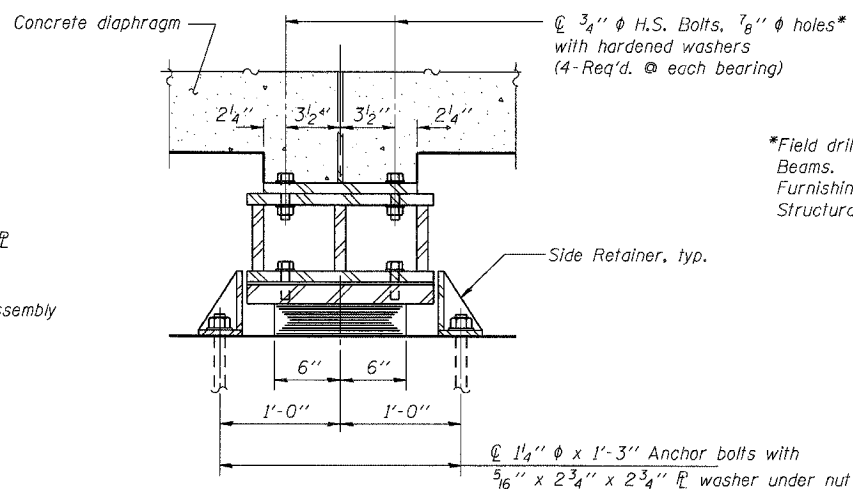
CUMMINS ENGINEERING CORPORATION

JOB #:	2175
FILE #:	2175ss
DATE:	3/07/06

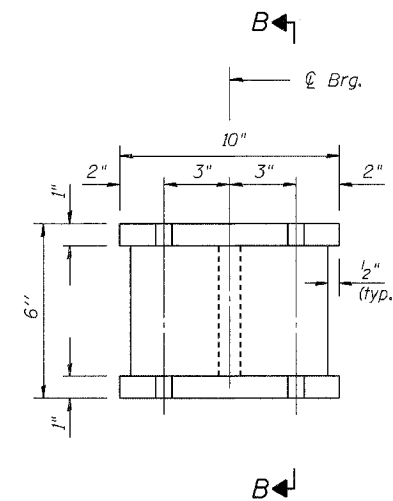


ELEVATION AT ABUT.

TYPE I ELASTOMERIC EXP. BRG. AT ABUTMENTS

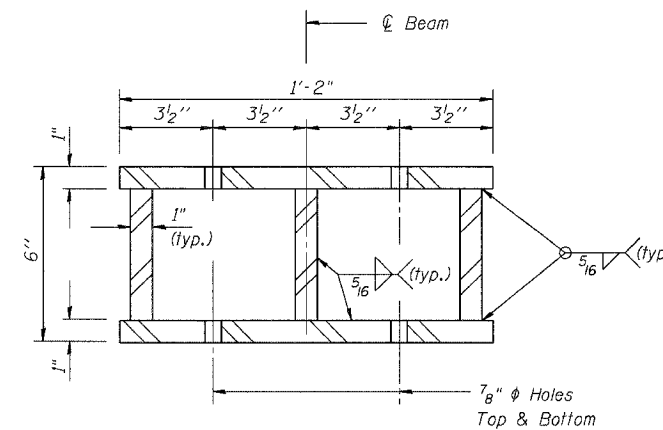


SECTION A-A

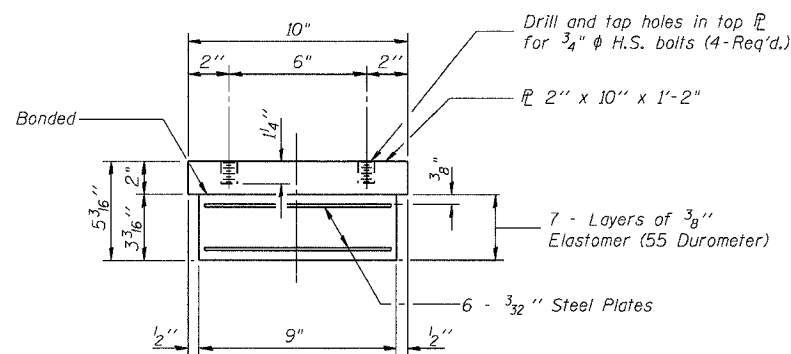


ELEVATION STEEL EXTENSION

(16 Required)



SECTION B-B



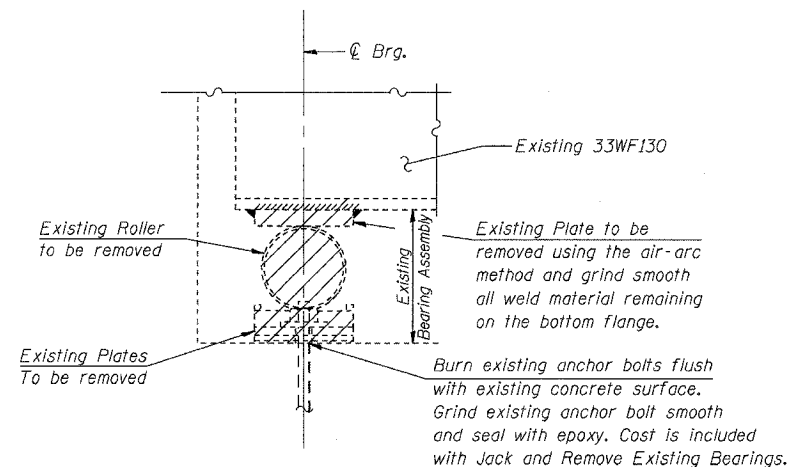
BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.

FILL P's AT BOTH ABUTMENTS

	Beam 1A	Beams 1 thru 6	Beam 6A
Thickness	—	3/4"	1 1/2"

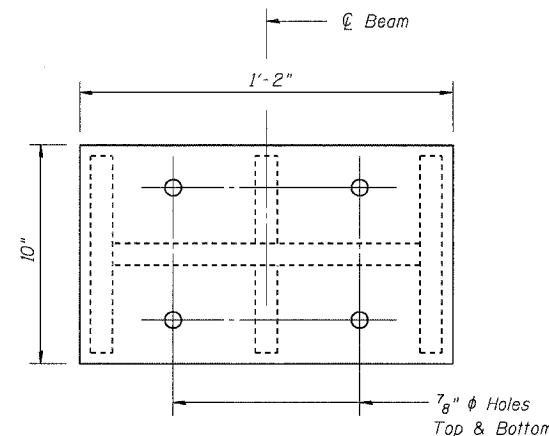
Dimension same as top bearing plate.



EXISTING BEARING REMOVAL AT ABUTS

Reaction @ Abuts. = 4 kips (Wt. of steel only)  
Min. Jack Capacity @ Abuts. = 3 tons

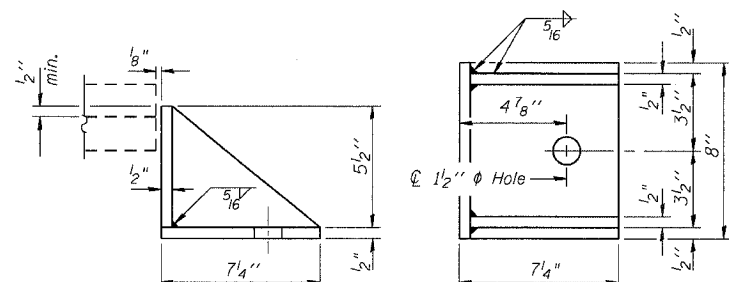
Notes: Diaphragm removal and replacement may be required to facilitate drilling holes. Cost shall be included with Furnishing and Erecting Structural Steel.  
Cost of side retainers, shim P's, fill P's, steel extensions, connection bolts, and anchor bolts are included with Furnishing and Erecting Structural Steel.  
See sheet 18 of 19 for Anchor Bolt installation.  
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.



PLAN STEEL EXTENSION

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	16
Jack and Remove Existing Bearings	Each	12



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

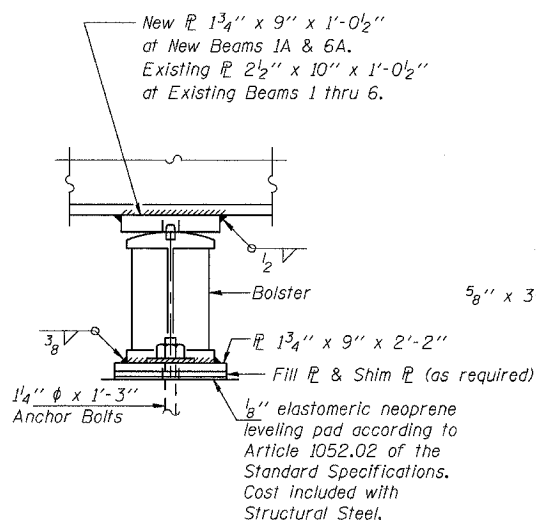
DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

**BEARING DETAILS ABUTMENTS**

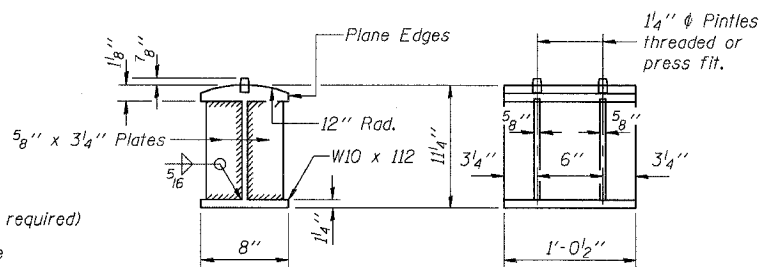
IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION

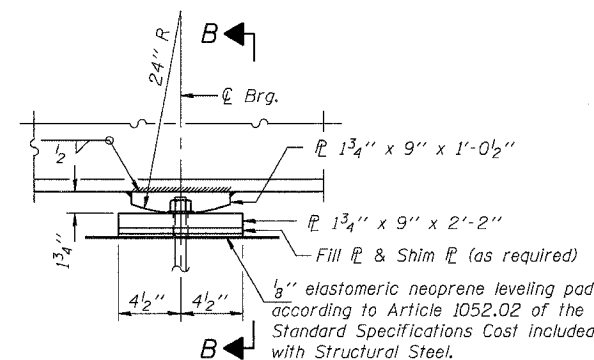
JOB #	2175
FILE #	2175brg
DATE	4/10/06



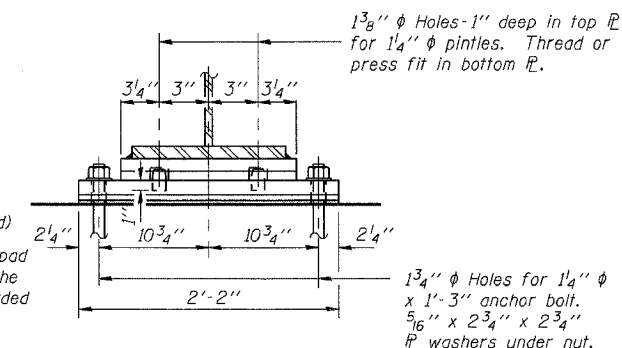
ELEVATION AT PIER 1



DETAIL OF BOLSTER



ELEVATION AT PIER 2



SECTION B-B

**FIXED BEARING AT PIER 1**

(8 Required at Existing & New Beams)

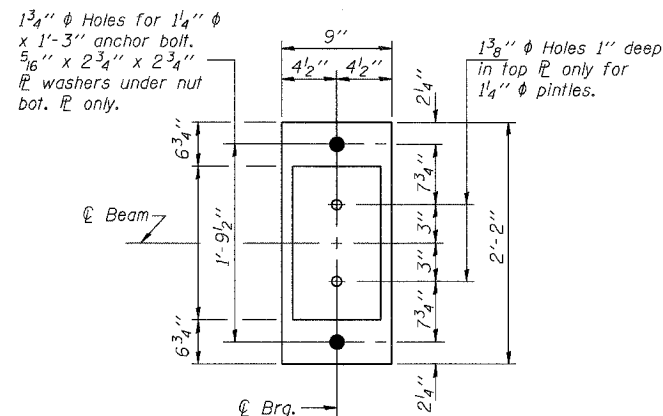
**FIXED BEARING AT PIER 2**

(2 Required at New Beams 1A & 6A)

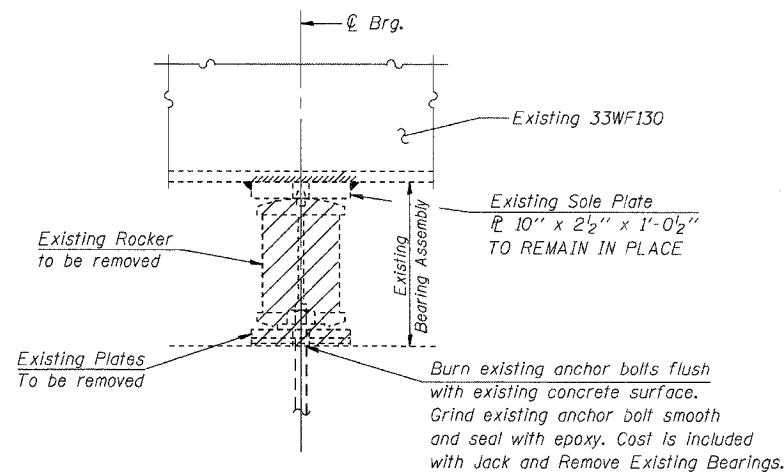
**FILL PL'S AT BOTH PIERS**

	Beam 1A	Beams 1 thru 6	Beam 6A
Thickness	—	—	1 3/4"

Dimension same as bottom bearing plate.

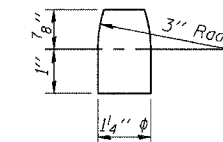


PLAN AT PIER 1



**EXISTING BEARING REMOVAL AT PIER 1**

Reaction @ Pier 1 = 10 kips (Wt. of steel only)  
Min. Jack Capacity @ Abuts. = 8 tons



DETAIL OF PINTLE

**BILL OF MATERIAL**

Item	Unit	Total
Jack and Remove Existing Bearings	Each	6

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

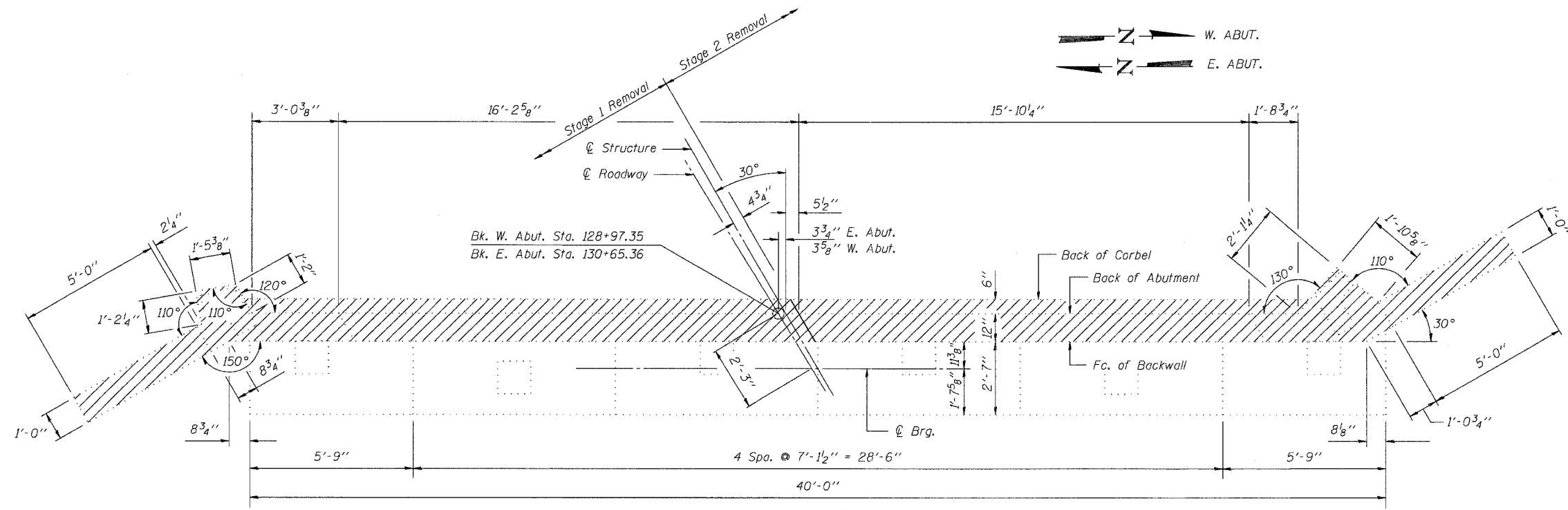
Notes: Diaphragm removal and replacement may be required to facilitate drilling holes. Cost shall be included with Furnishing and Erecting Structural Steel.  
Cost of bearing PL's, bolsters, shim PL's, fill PL's, pintles and anchor bolts are included with Furnishing and Erecting Structural Steel.  
See sheet 18 of 19 for Anchor Bolt Installation.  
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

**BEARING DETAILS PIERS**  
 IL ROUTE 15 OVER SEVEN MILE CREEK  
 F.A.P. ROUTE 821 SECTION (15-2)BR  
 JEFFERSON COUNTY  
 STA. 129+81.00  
 S.N. 041-0027

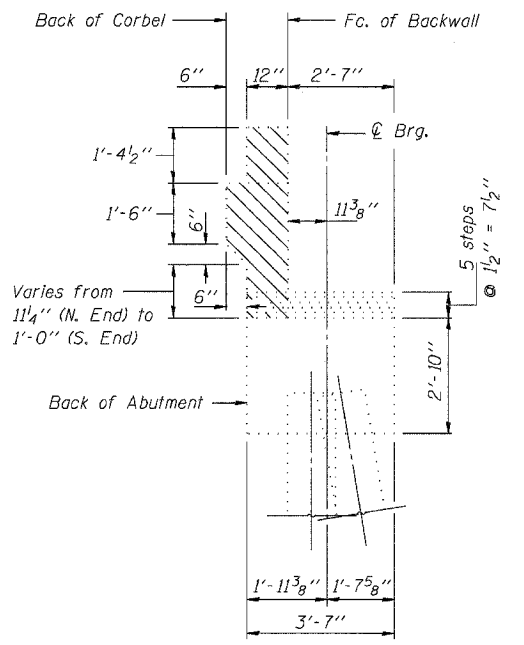
CUMMINS ENGINEERING CORPORATION

JOB #: 2175  
 FILE#: 2175brg  
 DATE: 4/10/06

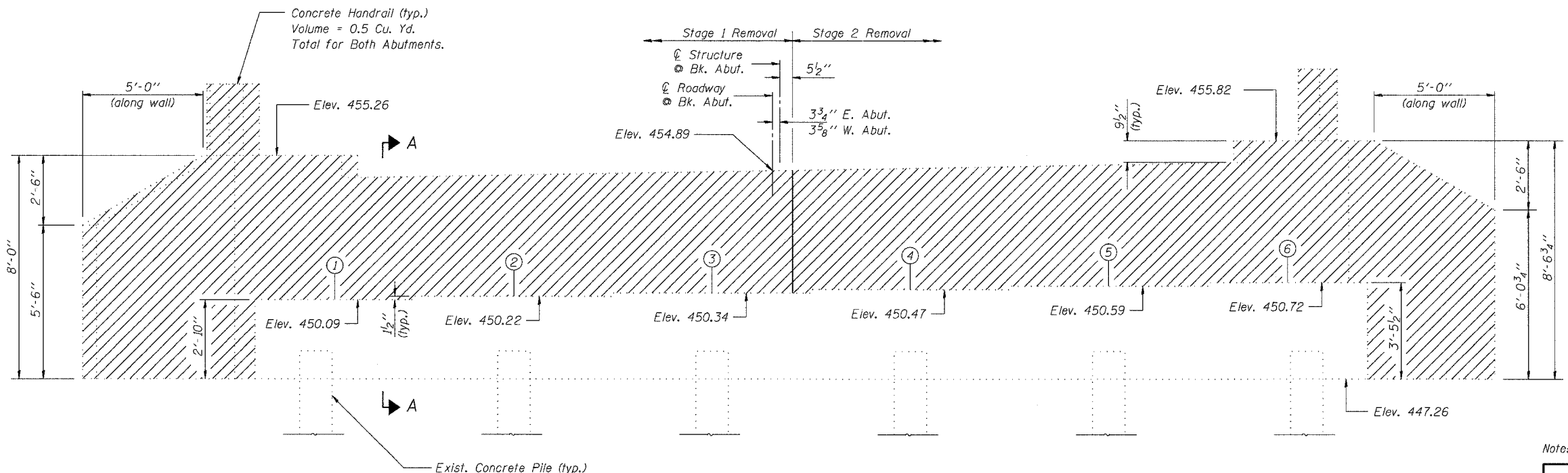




**PLAN**  
(Stage Removal Shown @ E. Abut.)  
(Similar @ W. Abut. but Opposite Hand)



**SEC. A-A**  
(Dimensions at Rt. Δ's)



**ELEVATION**  
(Looking East @ Either Abut.)

**TWO ABUTMENTS  
BILL OF MATERIAL**

Item	Unit	Total
Concrete Removal	Cu. Yd.	25.0

Note: Hatched area indicates Concrete Removal.

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

**NOTE**  
Plan elevations relative to the existing structure have been taken from existing plans and reduced by 0.40 feet to match benchmark datum.

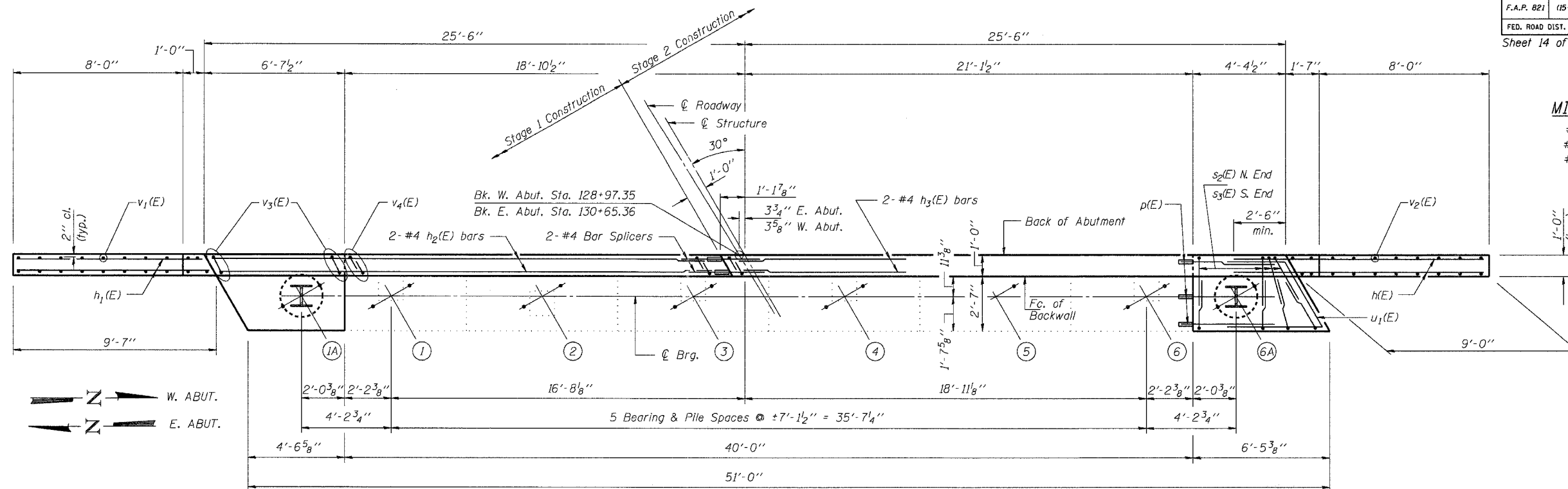
**ABUTMENT CONCRETE REMOVAL DETAILS**

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION

JOB #:	2175
FILE:	2175abutold
DATE:	4/10/06

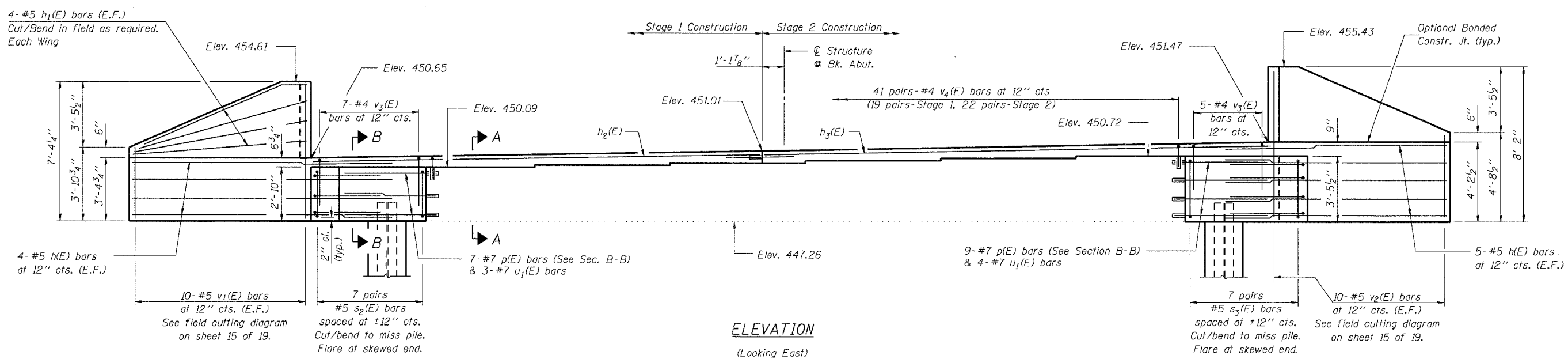
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	26
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		
Sheet 14 of 19			CONTRACT #98958	



**MIN. BAR LAP**  
 #4 bar = 1'-8"  
 #5 bar = 2'-2"  
 #7 bar = 3'-5"

**PLAN**

(Stage Construction Shown @ E. Abut.)  
 (Similar @ W. Abut. but Opposite Hand)



**ELEVATION**

(Looking East)  
 (E. Abut. Shown, W. Abut. Similar)

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

**NOTE**  
 Plan elevations relative to the existing structure have been taken from existing plans and reduced by 0.40 feet to match benchmark datum.

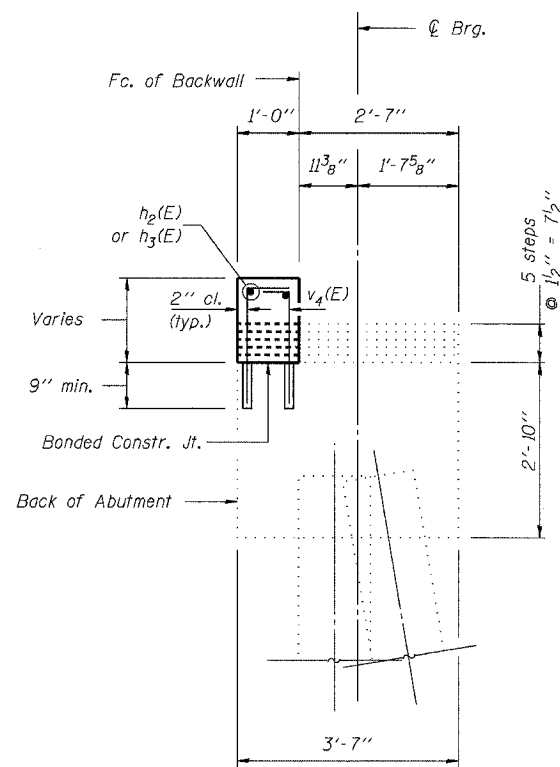
**PILE DATA**  
 Type: Steel HP12x53  
 Capacity: 45 Tons  
 Driven to 68 Tons Bearing  
 Est. Length: 40 Feet  
 No. Required: 4 (2 at Each Abutment)

**Notes:**  
 Work this sheet with sheet 15 of 19.  
 Reinforcement bars designated (E) shall be epoxy coated.  
 Space drilled holes in existing cap to miss existing reinforcement.  
 Epoxy grout p(E) and v4(E) bars in accordance with Section 584 of the Standard Specifications. Minimum embedment = 9".  
 See sheet 17 of 19 for bar splicer details.

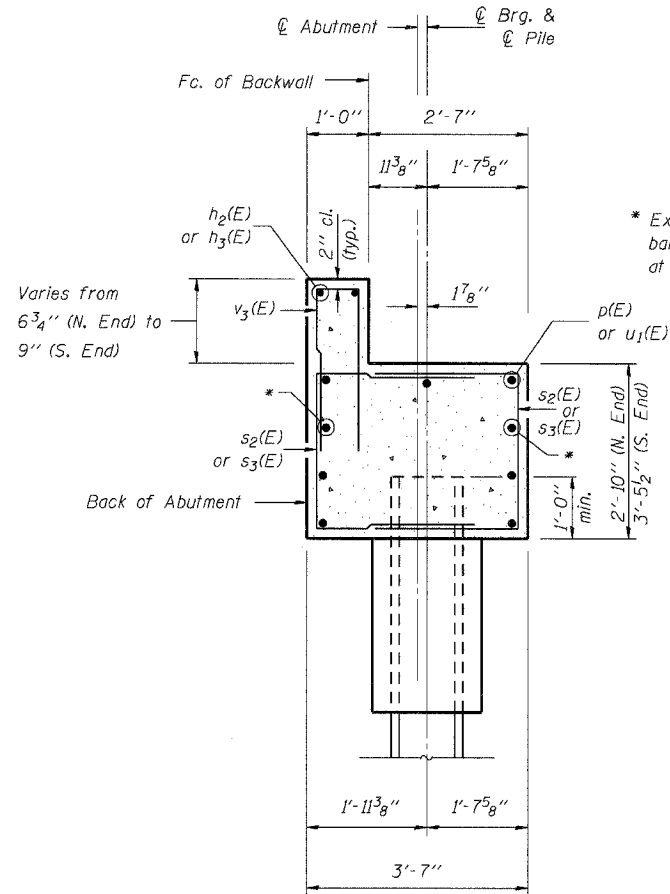
**ABUTMENTS**

IL ROUTE 15 OVER SEVEN MILE CREEK  
 F.A.P. ROUTE 821 SECTION (15-2)BR  
 JEFFERSON COUNTY  
 STA. 129+81.00  
 S.N. 041-0027

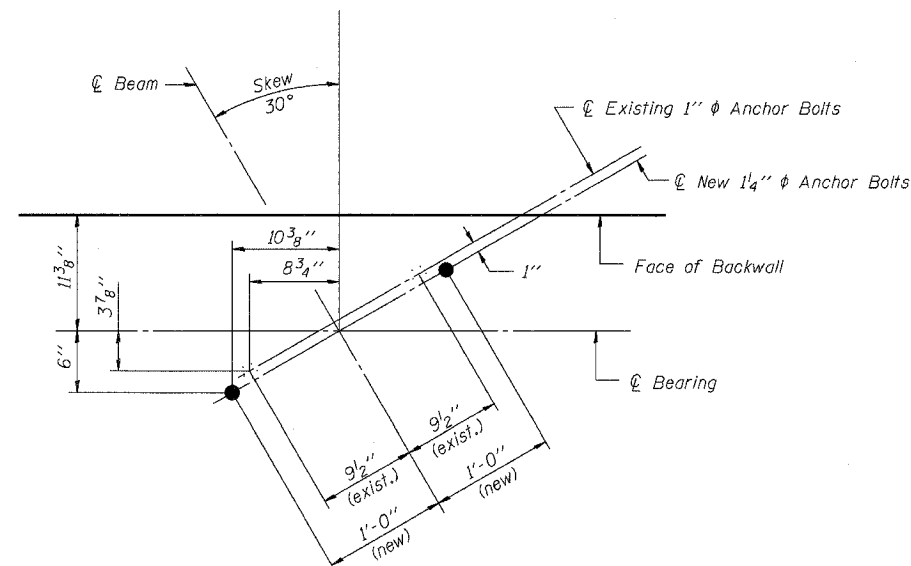
CUMMINS ENGINEERING CORPORATION	JOB #: 2175
	FILE: 2175abuts
	DATE: 3/02/06



**SEC. A-A**  
(Dimensions at Rt. Δ 's)



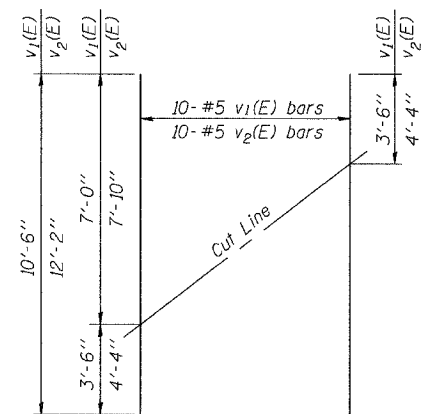
**SEC. B-B**  
(Dimensions at Rt. Δ 's)



**ANCHOR BOLT LAYOUT AT ABUTMENTS**

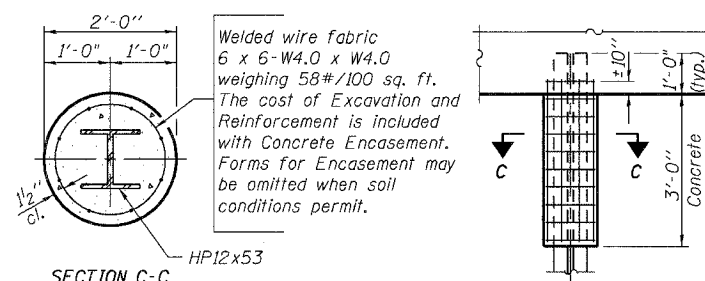
**TWO ABUTMENTS  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	36	#5	11'-11"	—
h1(E)	32	#5	9'-3"	—
h2(E)	4	#4	24'-0"	—
h3(E)	4	#4	26'-3"	—
p(E)	32	#7	5'-0"	—
s2(E)	28	#5	8'-6"	⊏
s3(E)	28	#5	9'-1"	⊏
u1(E)	14	#7	13'-1"	⊏
v1(E)	20	#5	10'-6"	—
v2(E)	20	#5	12'-2"	—
v3(E)	24	#4	5'-3"	⊏
v4(E)	164	#4	2'-1"	⊏
Structure Excavation		Cu. Yd.	398	
Concrete Structures		Cu. Yd.	20.3	
Reinforcement Bars, Epoxy Coated		Pound	2,900	
Bar Splicers		Each	4	
Furnishing Steel Piles HP12x53		Foot	160	
Driving Steel Piles		Foot	160	
Concrete Encasement		Cu. Yd.	1.4	



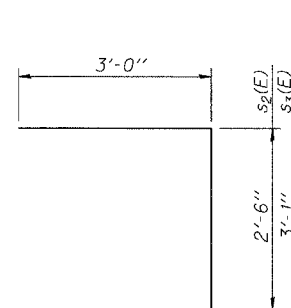
**FIELD CUTTING DIAGRAM FOR v1(E) & v2(E) BARS**

Order bars full length. Cut as shown and use remainder of bars in opposite face.

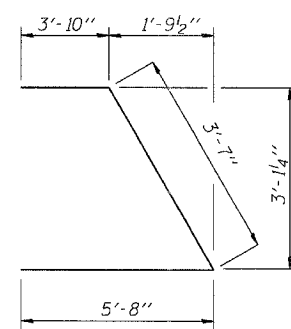


**SECTION C-C**

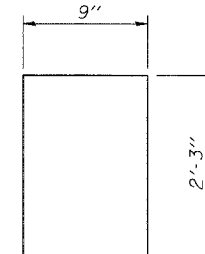
**PILE ENCASEMENT DETAIL**



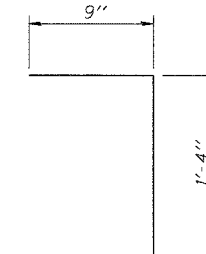
**BAR s2(E) & s3(E)**



**BAR u1(E)**



**BAR v3(E)**



**BAR v4(E)**

Notes:  
Work this sheet with sheet 14 of 19.  
Reinforcement bars designated (E) shall be epoxy coated.  
Space drilled holes in existing cap to miss existing reinforcement.  
Epoxy grout p(E) and v4(E) bars in accordance with Section 584 of the Standard Specifications. Minimum embedment = 9".  
See sheet 17 of 19 for bar splicer details.

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

**ABUTMENT DETAILS**

IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-21BR)  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION  
JOB #: 2175  
FILE#: 2175abuts  
DATE: 3/02/06



**NOTES**

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
 Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.  
 All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.  
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.  
 Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

- ① Minimum Capacity (Tension in kips) =  $1.25 \times f_y \times A_t$
- ② Minimum \*Pull-out Strength (Tension in kips) =  $1.25 \times f_{s_{allow}} \times A_t$

Where  $f_y$  = Yield strength of lapped reinforcement bars in ksi.  
 $f_{s_{allow}}$  = Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)  
 $A_t$  = Tensile stress area of lapped reinforcement bars.  
 \* = 28 day concrete

BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	5.9
#5	2'-0"	23.0	9.2
#6	2'-7"	33.1	13.3
#7	3'-5"	45.1	18.0
#8	4'-6"	58.9	23.6
#9	5'-9"	75.0	30.0
#10	7'-3"	95.0	38.0
#11	9'-0"	117.4	46.8

Bar splicer assemblies shall be according to Section 508 of the Standard Specifications, except as noted. The furnishing and installation of bar splicer assemblies will be measured and paid for at the contract unit price each for "BAR SPLICERS."

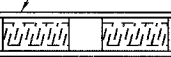
The diameter of this part is the same as the diameter of the bar spliced.

**ROLLED THREAD DOWEL BAR**



\*\* ONE PIECE

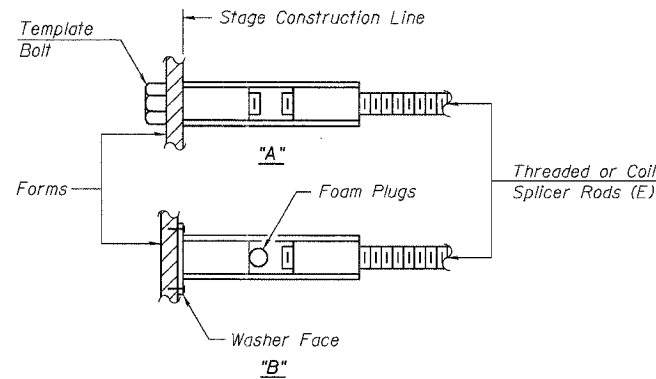
Wire Connector



WELDED SECTIONS

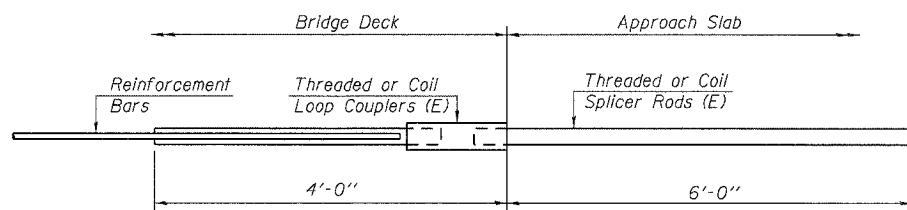
**BAR SPLICER ASSEMBLY ALTERNATIVES**

\*\* Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



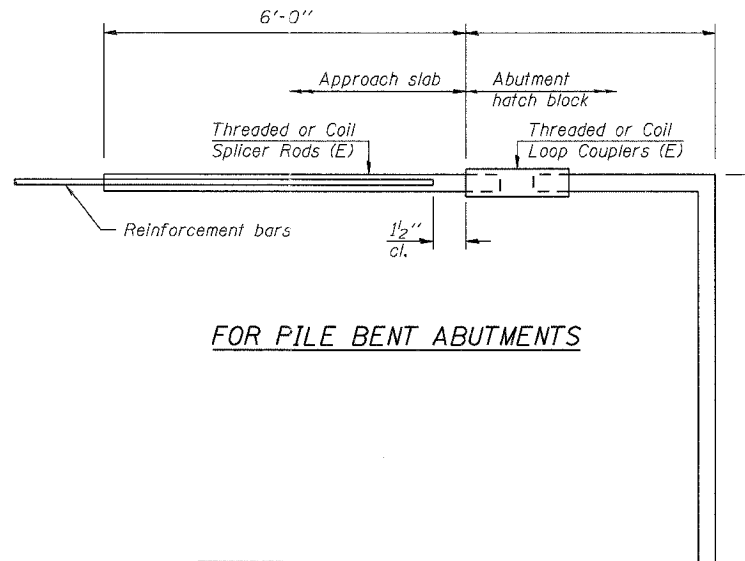
**INSTALLATION AND SETTING METHODS**

"A": Set bar splicer assembly by means of a template bolt.  
 "B": Set bar splicer assembly by nailing to wood forms or cementing to steel forms.  
 (E) : Indicates epoxy coating.



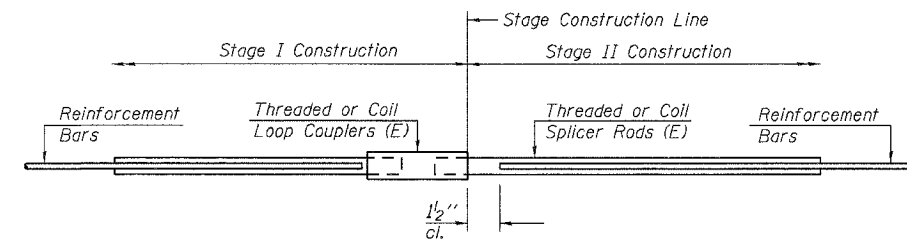
**FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS**

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required = 82



**FOR PILE BENT ABUTMENTS**

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required =



**STANDARD**

Bar Size	No. Assemblies Required	Location
#5	488	Deck
#6	24	Conc. Diaphragm
#4	4	Abutments

**BAR SPLICER ASSEMBLY DETAILS**

IL ROUTE 15 OVER SEVEN MILE CREEK  
 F.A.P. ROUTE 821 SECTION (15-2)BR  
 JEFFERSON COUNTY  
 STA. 129+81.00  
 S.N. 041-0027

CUMMINS ENGINEERING CORPORATION

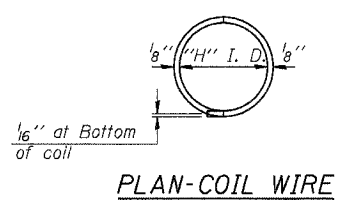
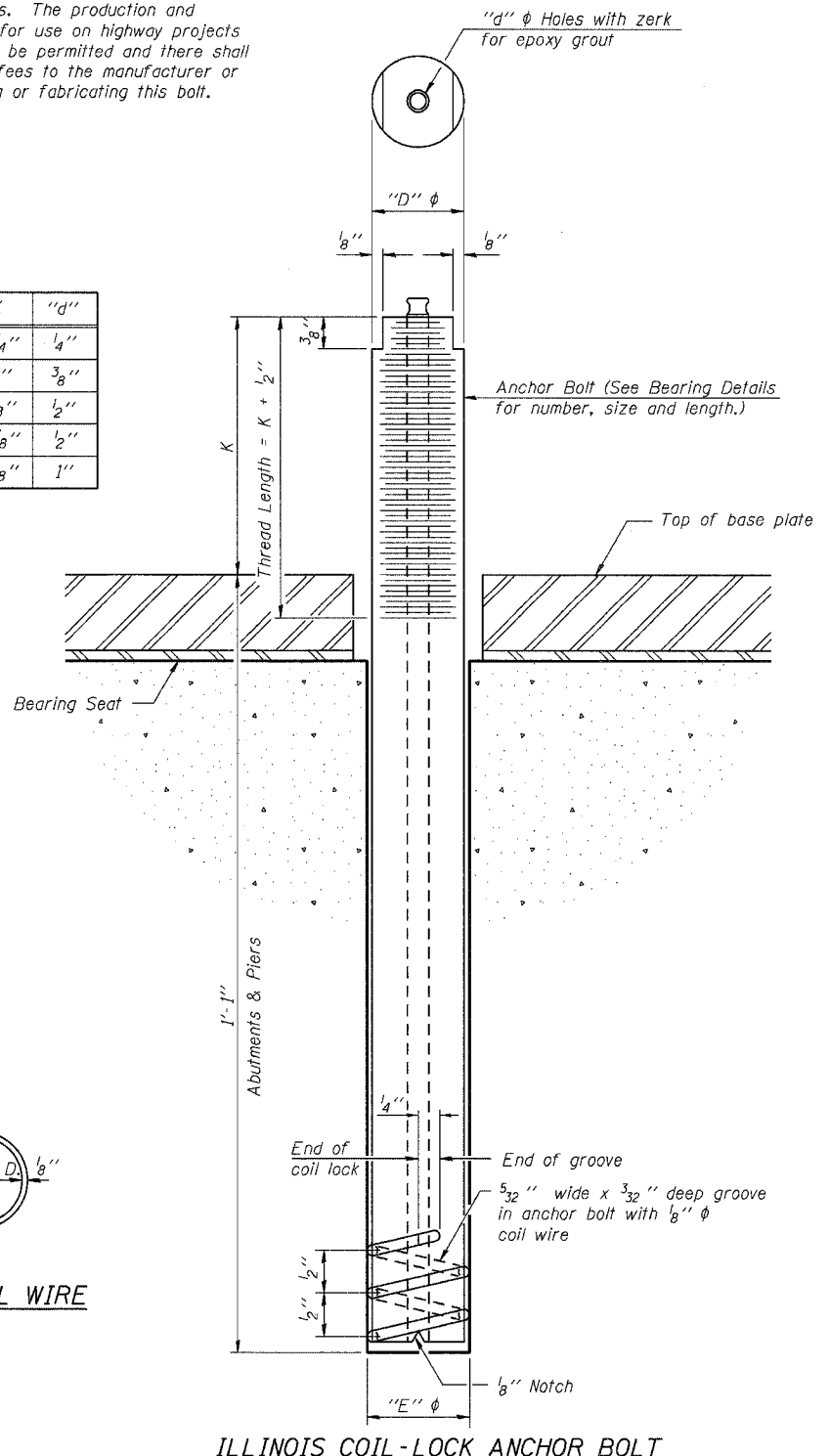
JOB #: 2175  
 FILE: 2175barspl  
 DATE: 4/10/06

DESIGNED Ruben V. Boehler  
 CHECKED Tim S. Howard  
 DRAWN TSH / RVB  
 CHECKED Michael D. Cummins

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	30
FED. ROAD DIST. NO. 7	ILLINOIS PROJECT	Sheet 18 of 19 CONTRACT #98958		

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/16"	2"	3/8"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 13/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



### MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers.  
 The coil wire shall be made of any suitable soft steel wire.  
 The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.  
 The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

### INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

### ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.  
 The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:  
 1. A threaded rod stud with nut and washer of the type specified.  
 2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
All	A307

ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

### GENERAL NOTES

Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.  
 Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.  
 The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for Furnishing and Erecting Structural Steel.

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

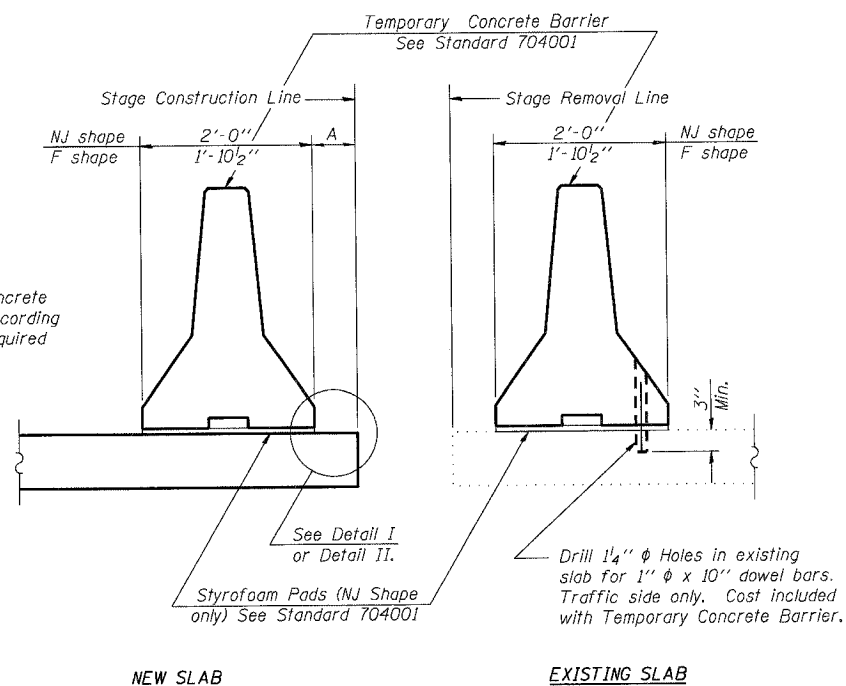
ABB-1 10-22-04

**ANCHOR BOLT DETAILS**

IL ROUTE 15 OVER SEVEN MILE CREEK  
 F.A.P. ROUTE 821 SECTION (15-2)BR  
 JEFFERSON COUNTY  
 STA. 129+81.00  
 S.N. 041-0027

CUMMINS ENGINEERING CORPORATION	JOB #: 2175
	FILE: 2175anchor
	DATE: 4/10/06

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 821	(15-2)BR	JEFFERSON	33	31
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		
Sheet 19 of 19			CONTRACT #98958	

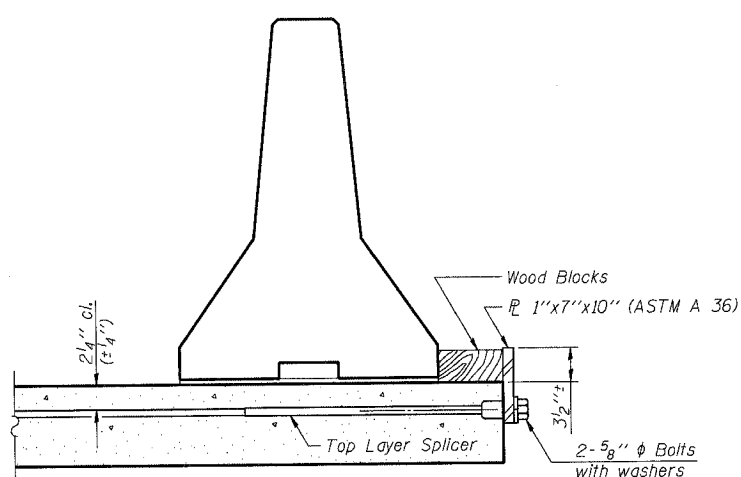


When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".

**NOTES**

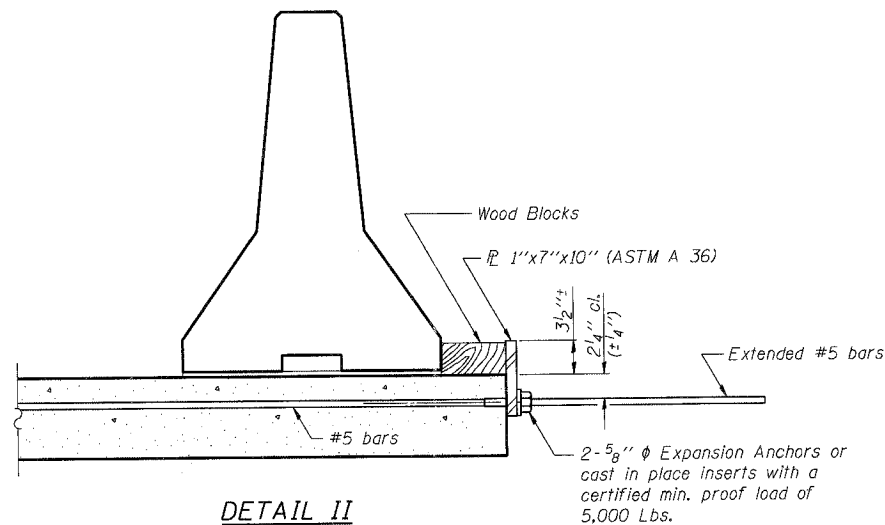
- Detail I - With Bar Splicer or Couplers:  
Connect one (1) 1"x7"x10" steel  $\bar{P}$  to the top layer of couplers with 2-5/8"  $\phi$  bolts screwed to coupler at approximate  $\bar{C}$  of each barrier panel.
- Detail II - With Extended Reinforcement Bars:  
Connect one (1) 1"x7"x10" steel  $\bar{P}$  to the concrete slab with 2-5/8"  $\phi$  Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate  $\bar{C}$  of each barrier panel.
- Cost of anchorage is included with Temporary Concrete Barrier.

**SECTIONS THRU SLAB**



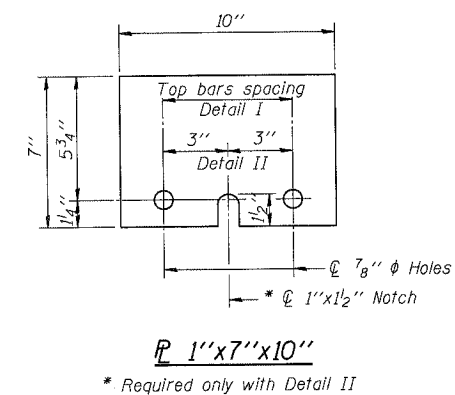
**DETAIL I**

The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.



**DETAIL II**

The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed.



DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	TSH / RVB
CHECKED	Michael D. Cummins

R-27

10-22-04

**TEMPORARY CONCRETE BARRIER**

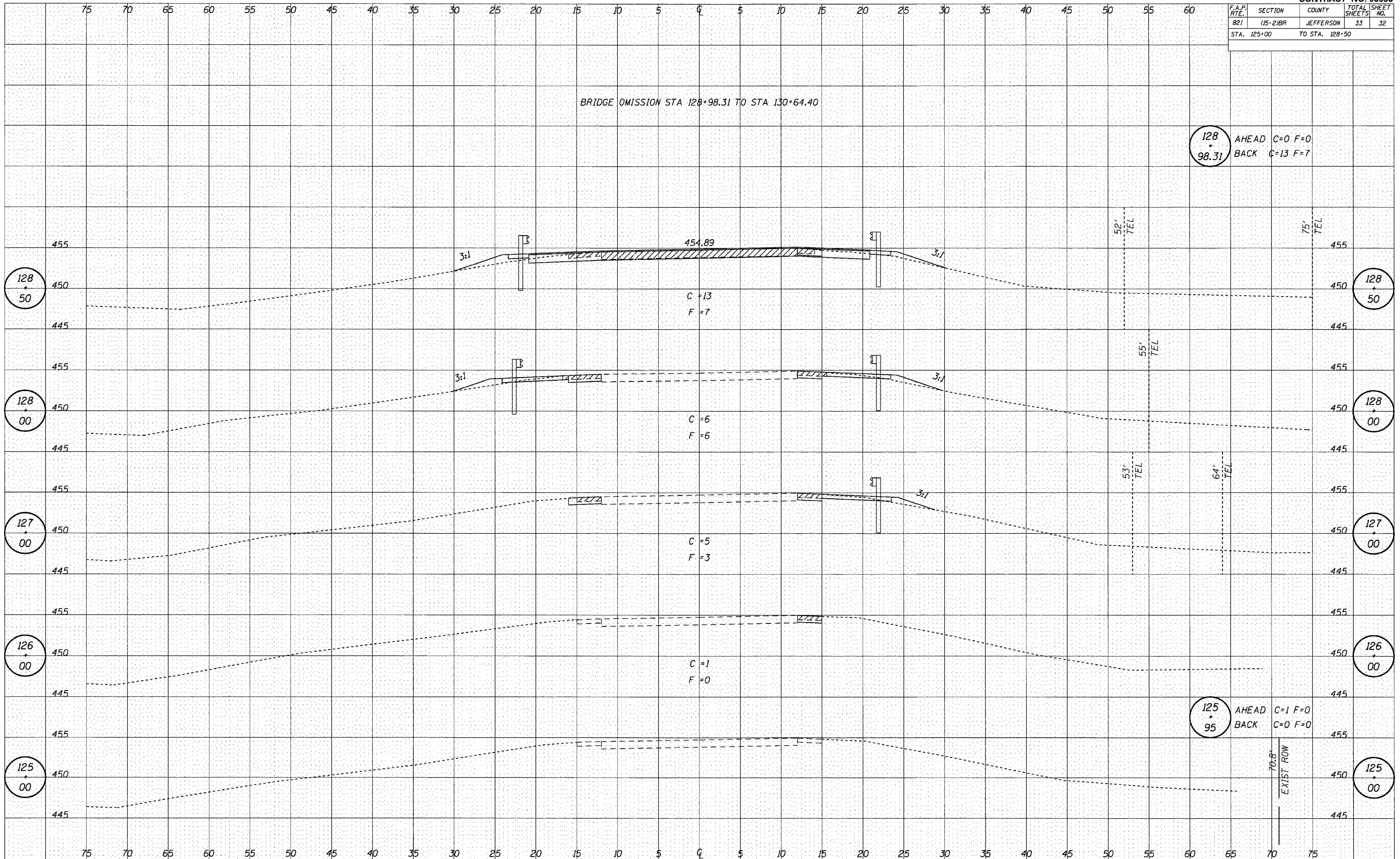
IL ROUTE 15 OVER SEVEN MILE CREEK  
F.A.P. ROUTE 821 SECTION (15-2)BR  
JEFFERSON COUNTY  
STA. 129+81.00  
S.N. 041-0027

CUMMINS ENGINEERING CORPORATION	JOB #: 2175
	FILE#: 2175barrier
	DATE: 3/02/06

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
821	15-2/BR	JEFFERSON	33	32
STA. 125+00 TO STA. 128+50				

BRIDGE OMISSION STA 128+98.31 TO STA 130+64.40

128  
+  
98.31  
AHEAD C=0 F=0  
BACK C=13 F=7



DATE \_\_\_\_\_  
BY \_\_\_\_\_  
SURVEYED \_\_\_\_\_  
PLOTTED \_\_\_\_\_  
NOTE BOOK \_\_\_\_\_  
AREAS CHECKED \_\_\_\_\_

DATE \_\_\_\_\_  
BY \_\_\_\_\_  
ORIGINAL SURVEY \_\_\_\_\_  
PLOTTED \_\_\_\_\_  
NOTE BOOK \_\_\_\_\_  
AREAS CHECKED \_\_\_\_\_

70'-8"  
EXIST. ROW



F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
821	(15-2)BR	JEFFERSON	33	33
STA. 131+00			TO STA. 134+00	

DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
 SURVEYED: \_\_\_\_\_ PLOTTED: \_\_\_\_\_  
 NOTE BOOK NO. \_\_\_\_\_ DATE: \_\_\_\_\_  
 AREAS CHECKED: \_\_\_\_\_

DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
 SURVEYED: \_\_\_\_\_ PLOTTED: \_\_\_\_\_  
 NOTE BOOK NO. \_\_\_\_\_ DATE: \_\_\_\_\_  
 AREAS CHECKED: \_\_\_\_\_

