04-26-13 LETTING ITEM 086

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	1
	ILLINOIS	CONTRACT NO. 76F75		

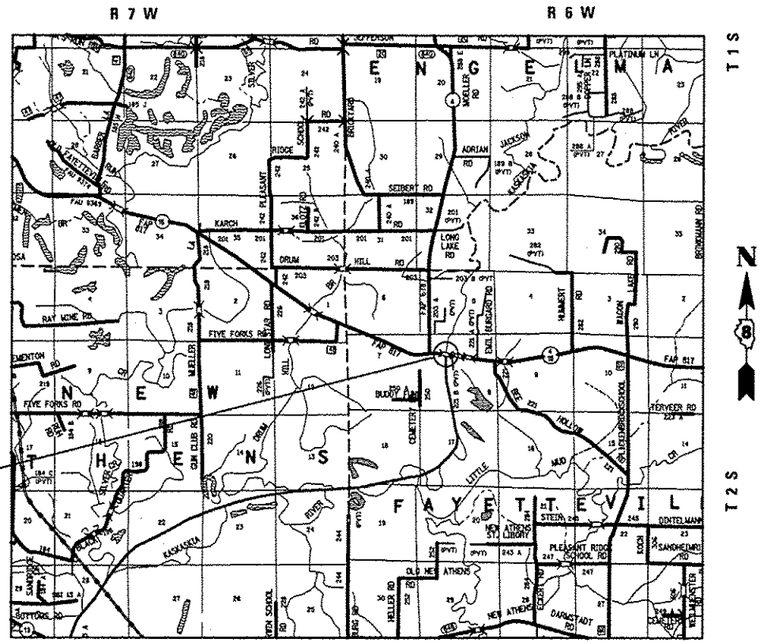
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

FAP ROUTE 817 (IL 4/IL 15)
SECTION 421BR-1
PROJECT ACF-0817(011)
BRIDGE REPAIR
ST. CLAIR COUNTY

C-98-068-12

FOR INDEX OF SHEETS, SEE SHEET NO. 2



D-98-060-12

LOCATION OF SECTION INDICATED THUS: -

TRAFFIC DATA

ADT: 5550 (2011) ACTUAL
5700 (2013) ESTIMATED
6900 (2033) ESTIMATED
SU: 2.3%
MU: 3.9%

100' 200' 300' — 1" = 100'
10' 20' 30' — 1" = 10'
50' 100' — 1" = 50'
50' 100' — 1" = 40'
50' 100' — 1" = 30'
50' 100' — 1" = 20'

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
OR 811

DESIGN DESIGNATION
N/A

LAYOUT
0 MI 1 MI 2 MI 3 MI
1" = 1 MILE

GROSS LENGTH = 912.34 FT. = 0.173 MILE
NET LENGTH = 912.34 FT. = 0.173 MILE

LATITUDE: 38.3772 LONGITUDE: 89.7919

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED December 12 20 12
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER
March 22 20 13
John D. Baranzelli, P.E. /bs
ENGINEER OF DESIGN AND ENVIRONMENT
March 22 20 13
Omer Osman, P.E. /bs
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PROJECT ENGINEER: PATTI LeBEAU (618) 346-3179
PROJECT MANAGER: REBECCA THARP (618) 346-3323

CONTRACT NO. 76F75

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INDEX OF SHEETS

STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
635011-02	REFLECTOR MARKER AND MOUNTING DETAILS
701311-03	LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
701321-13	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING, FOR SPEEDS $\geq$ 45 MPH
701326-04	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS - DAY ONLY
701901-02	TRAFFIC CONTROL DEVICES
704001-07	TEMPORARY CONCRETE BARRIER
780001-03	TYPICAL PAVEMENT MARKINGS

GENERAL NOTES

1 ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE BE GIVEN TO ALL UTILITIES WITHIN THE PROJECT AREA BEFORE DIGGING. FIELD MARKING OF FACILITIES MAY BE OBTAINED BY CONTACTING J.U.L.I.E. OR FOR NON-MEMBERS, THE UTILITY COMPANY DIRECTLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:

- AMEREN ILLINOIS
- AT&T ILLINOIS
- CLEARWAVE COMMUNICATIONS
- FRONTIER NORTH, INC.

MEMBERS OF J.U.L.I.E. CALL TOLL FREE (800) 892-0123 OR 811 AND ARE INDICATED BY •. NON- J.U.L.I.E. MEMBERS MUST BE NOTIFIED INDIVIDUALLY.

2 THE CONTRACTOR AND THE ENGINEER SHALL BE AWARE THAT NO SURVEY WAS PERFORMED FOR THIS PROJECT. THE STATIONING AND TOPOGRAPHY SHOWN IN THE PLANS WAS CREATED USING MICROFILM AND FIELD MEASUREMENTS. BOTH SHALL BE ASSUMED TO BE APPROXIMATE. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.

3 ANY EXCAVATION OR DROP-OFF OF MORE THAN 3" AT THE EDGE OF PAVEMENT SHALL BE PROTECTED WITH EXTENDED LEG BARRICADES AND APPROPRIATE LIGHTING.

4 A QUANTITY OF 2075 FEET OF TEMPORARY PAVEMENT MARKING - LINE 6" WHITE HAS BEEN INCLUDED IN THE PLANS FOR PAINTING THE BOTTOM 6" OF THE TEMPORARY CONCRETE BARRIER.

5 THE PROPOSED PAVEMENT MARKING SHALL MATCH THE LOCATIONS OF THE EXISTING PAVEMENT MARKING, AS DIRECTED BY THE ENGINEER.

6 ACCESS SHALL BE MAINTAINED TO ALL PROPERTIES UNLESS OTHERWISE NOTED IN THE PLANS.

7 ALL TURF AREAS DISTURBED BY THE CONTRACTOR SHALL BE SEEDED WITH THE APPROPRIATE EROSION CONTROL AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

8 THE DEPARTMENT STRONGLY ENCOURAGES THE PRIME CONTRACTOR AND THEIR APPROVED SUB-CONTRACTORS TO HIRE MINORITY, WOMEN AND DISADVANTAGED INDIVIDUALS FROM ITS FEDERALLY FUNDED HIGHWAY CONSTRUCTION CAREERS TRAINING PROGRAM (HCCTP) TO HELP MEET WORKFORCE AND TRAINEE GOALS. THIS PROGRAM IS TRAINING MINORITIES, WOMEN AND DISADVANTAGED INDIVIDUALS IN HIGHWAY CONSTRUCTION-RELATED SKILLS, E.G., MATH FOR THE TRADES, JOB READINESS, TECHNICAL SKILLS COURSEWORK (CARPENTRY, CONCRETE FLATWORK, BLUEPRINT READING, SITE PLANS, SITE WORK, TOOLS USE, ETC.) AND OSHA 10 HOUR CERTIFICATION, TO PREPARE THEM FOR A CAREER IN THE HIGHWAY CONSTRUCTION TRADES. GRADUATES ARE WELL-TRAINED AND READY TO BECOME PRODUCTIVE ENTRY-LEVEL CONSTRUCTION WORKERS. CONTACT THE DISTRICT 8 EEO OFFICE AT 618-346-3360 AND/OR THE HCCTP COORDINATOR AT 618-874-6528 TO LEARN MORE ABOUT THE PROGRAM AND FOR ASSISTANCE IN MEETING WORKFORCE AND TRAINEE GOALS.

9 ANY RAISED REFLECTIVE PAVEMENT MARKERS DISTURBED OR REMOVED DURING THE DECK SLAB REPAIR SHALL BE REPLACED ACCORDING TO ARTICLE 781 AND PAID FOR IN ACCORDANCE WITH ARTICLE 109.04.

10 PROJECT SHALL BE CONSTRUCTED WITHOUT DISTURBING THE EXISTING GUARDRAIL OR THE EXISTING BRIDGE RAIL.

COMMITMENTS

NONE

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS, HIGHWAY STANDARDS, GENERAL NOTES, & COMMITMENTS

SCALE: | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	2
		CONTRACT NO. 76F75		
	ILLINOIS	FED. AID PROJECT		

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE 80% FED. 20% STATE BRIDGE 0014 082-0077
35501320	HOT-MIX ASPHALT BASE COURSE, 9"	SQ YD	202	202
40800050	INCIDENTAL HOT-MIX ASPHALT SURFACING	TON	2.4	2.4
44004250	PAVED SHOULDER REMOVAL	SQ YD	154	154
50102400	CONCRETE REMOVAL	CU YD	35.9	35.9
50300225	CONCRETE STRUCTURES	CU YD	2.6	2.6
50300255	CONCRETE SUPERSTRUCTURE	CU YD	33.7	33.7
50300300	PROTECTIVE COAT	SQ YD	98.8	98.8
50606701	CLEANING AND PAINTING STRUCTURAL STEEL, LOCATION 1	L SUM	1	1
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	6220	6220
50800515	BAR SPLICERS	EACH	94	94
50800530	MECHANICAL SPLICERS	EACH	676	676
52000110	PREFORMED JOINT STRIP SEAL	FOOT	165.5	165.5
52100530	ANCHOR BOLTS, 1 1/4"	EACH	8	8
59000200	EPOXY CRACK INJECTION	FOOT	73	73

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: N/A | SHEET 1 OF 3 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	3
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE 80% FED. 20% STATE BRIDGE 0014 082-0077
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	7	7
67100100	MOBILIZATION	L SUM	1	1
70100500	TRAFFIC CONTROL AND PROTECTION, STANDARD 701326	L SUM	1	1
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1	1
70106700	TEMPORARY RUMBLE STRIPS	EACH	6	6
70300100	SHORT TERM PAVEMENT MARKING	FOOT	104	104
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	209	209
70300240	TEMPORARY PAVEMENT MARKING - LINE 6"	FOOT	2075	2075
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	104	104
70400100	TEMPORARY CONCRETE BARRIER	FOOT	1037.5	1037.5
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	1037.5	1037.5
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	209	209
* 78200430	GUARDRAIL MARKERS, TYPE C	EACH	24	24
78300100	PAVEMENT MARKING REMOVAL	SQ FT	47	47

*SPECIALTY ITEM

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: N/A | SHEET 2 OF 3 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	4
		CONTRACT NO. 76F75		
	ILLINOIS	FED. AID PROJECT		

	CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE 80% FED. 20% STATE BRIDGE 0014 082-0077
	70600240	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 2	EACH	1	1
*	70600255	IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW), TEST LEVEL 2	EACH	1	1
*	70600320	IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE), TEST LEVEL 2	EACH	1	1
	70600340	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 2	EACH	1	1
	X7010202	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)	EACH	1	1
	X7200200	WIDE LOAD SIGNING	L SUM	1	1
	Z0001905	STRUCTURAL STEEL REPAIR	POUND	18780	18780
	Z0007101	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	L SUM	1	1
	Z0012755	STRUCTURAL REPAIR OF CONCRETE (DEPTH GREATER THAN 5 INCHES)	SQ FT	943.5	943.5
	Z0016200	DECK SLAB REPAIR (PARTIAL)	SQ YD	36.2	36.2
	Z0073200	TEMPORARY SHORING AND CRIBBING	EACH	10	10
	Z0073400	TEMPORARY SUPPORT SYSTEM	EACH	2	2
	Z0003803	REMOVE AND REINSTALL EXISTING BEARINGS	EACH	2	2

13

*SPECIALTY ITEM

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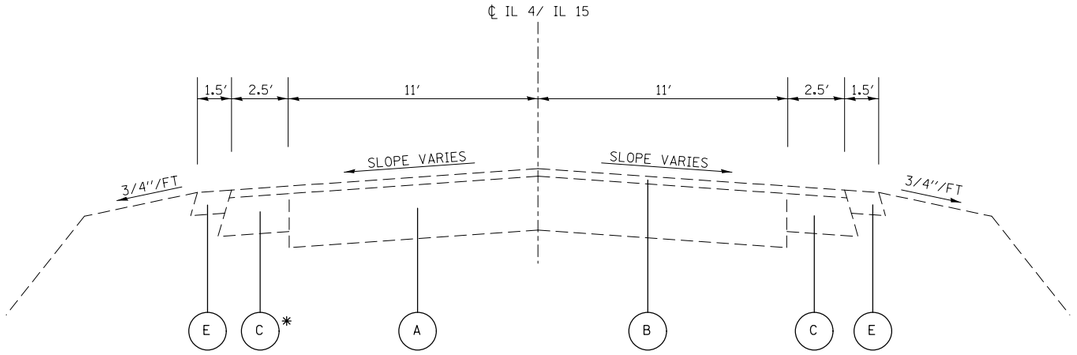
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

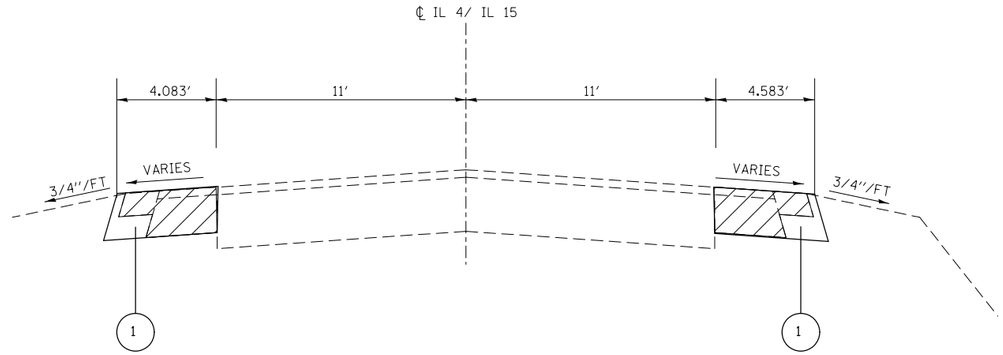
SCALE: N/A | SHEET 3 OF 3 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	5
		CONTRACT NO. 76F75		
		ILLINOIS FED. AID PROJECT		

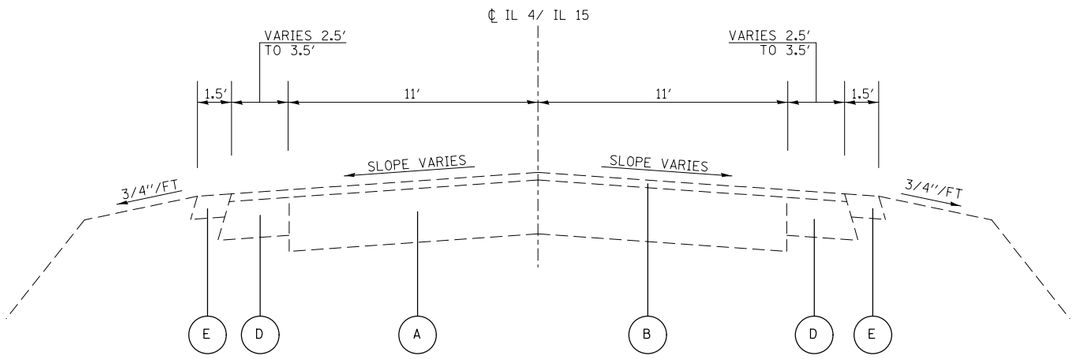


* EXISTING HMA BASE COURSE, 10″ (WIDTH VARIES 2.5′ TO 3.5′)
STA 126+66 TO STA 126+92.5 LT
STA 138+14.84 TO STA 138+41 LT

EXISTING TYPICAL CROSS SECTION
STA 125+30.00 TO STA 126+92.5
STA 138+14.84 TO STA 139+15



PROPOSED TYPICAL CROSS SECTION
STA 126+70 TO STA 127+77.50 RT
STA 137+29.84 TO STA 138+60 RT
STA 126+90 TO STA 127+77.50 LT
STA 137+29.84 TO STA 138+20 LT



EXISTING TYPICAL CROSS SECTION
STA 126+92.50 TO STA 127+77.50
STA 137+29.84 TO STA 138+14.84

LEGEND
- (A) EXISTING PAVEMENT
- (B) EXISTING HMA OVERLAY, 2″
- (C) EXISTING HMA SHOULDER, 8″
- (D) EXISTING HMA BASE COURSE, 10″
- (E) EXISTING AGGREGATE SHOULDER, TYPE A 6″
- (1) PROPOSED HMA BASE COURSE, 9″
- SHOULDER AND/OR BASE COURSE REMOVAL

THE FOLLOWING MIXTURE REQUIREMENTS ARE APPLICABLE FOR THIS CONTRACT:

MIXTURE USE	BASE COURSE	INCIDENTAL
AC/PG	PG 64-22	PG 64-22
RAP % (MAX)	SEE SPEC.	SEE SPEC.
DESIGN AIR VOIDS	4.0% @ Ndes=70	4.0% @ Ndes=70
MIX COMPOSITION		
(GRADATION MIXTURE)	IL 19.0	IL 9.5
FRICTION AGG	MIXTURE "B"	MIXTURE "C"

PLAN QUANTITIES FOR HOT-MIX ASPHALT SURFACE COURSE ITEMS ARE CALCULATED USING A UNIT WEIGHT OF 112 LB/SQ YD/IN.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

SCALE: N/A | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	6
		CONTRACT NO. 76F75		
	ILLINOIS	FED. AID PROJECT		

STAGING SCHEDULE

LOCATION	TEMPORARY CONCRETE BARRIER	RELOCATE TEMPORARY CONCRETE BARRIER	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 2	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 2	IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW), TEST LEVEL 2	IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE), TEST LEVEL 2	TEMPORARY RUMBLE STRIP	TEMPORARY BRIDGE TRAFFIC SIGNALS
	FOOT	FOOT	EACH	EACH	EACH	EACH	EACH	EACH
STAGE I	1037.5		1		1			
STAGE II		1037.5		1		1		
STAGE I & II							6	1
TOTAL =	1037.5	1037.5	1	1	1	1	6	1

NOTE: TEMPORARY BRIDGE TRAFFIC SIGNAL QUANTITY IS FOR THE SYSTEM OF SIGNALS, PAID FOR AS EACH SYSTEM.

WIDENING FOR STAGING SCHEDULE

LOCATION			PAVED SHOULDER REMOVAL				HOT-MIX ASPHALT BASE COURSE, 9"			
			LEFT SHLD		RIGHT SHLD		LEFT SHLD		RIGHT SHLD	
			WIDTH	AREA	WIDTH	AREA	WIDTH	AREA	WIDTH	AREA
STATION	TO	STATION	FOOT	SQ YD	FOOT	SQ YD	FOOT	SQ YD	FOOT	SQ YD
126+70	TO	126+90			2.5	5.56			4.583	10.19
126+90	TO	126+92.5	3.5	0.97	2.5	0.69	4.083	1.13	4.583	1.27
126+92.5	TO	127+77.5	3.5	33.06	3.5	33.06	4.083	38.56	4.583	43.29
137+29.84	TO	138+14.84	3.5	33.06	3.5	33.06	4.083	38.56	4.583	43.29
138+14.84	TO	138+20	3.5	2.01	2.5	1.43	4.083	2.34	4.583	2.63
138+20	TO	138+60			2.5	11.11			4.583	20.37
SUBTOTAL =				69.09		84.91		80.60		121.03
TOTAL =			154				202			

GUARDRAIL MARKERS

LOCATION				GUARDRAIL MARKERS, TYPE C
STATION	TO	STATION	LT/RT	EACH
127+97.50	TO	137+09.84	LT	12
127+97.50	TO	137+09.84	RT	12
TOTAL =				24

PAVEMENT MARKING SCHEDULE

LOCATION			PAINT PVMT MARKING - LINE 4"			SHORT TERM PVMT MARKING	TEMPORARY PVMT MARKING - LINE 4"			PAVEMENT MARKING REMOVAL	WORK ZONE PAVEMENT MARKING REMOVAL
			CENTERLINE SKIP-DASH YELLOW	EDGE LINE WHITE			CENTERLINE SKIP-DASH YELLOW	EDGE LINE WHITE			
				LEFT	RIGHT			LEFT	RIGHT		
STA	TO	STA	FOOT	FOOT	FOOT	FOOT	FOOT	FOOT	FOOT	SQ FT	SQ FT
124+31	TO	127+66.5	80			64	80			27	48.0
127+94	TO	128+00.9	6.9	6.9	6.9		6.9	6.9	6.9		6.9
130+06.9	TO	130+11.4	4.5	4.5	4.5		4.5	4.5	4.5		4.5
132+08.9	TO	132+13.4	4.5	4.5	4.5		4.5	4.5	4.5		4.5
137+06.4	TO	137+13.3	6.9	6.9	6.9		6.9	6.9	6.9		6.9
137+41.5	TO	139+76	60			40	60			20	33.3
TOTAL =			209			104	209			47	104

NOTE: SHORT TERM PVMT MARKING QUANTITY CALCULATED TO ACCOUNT FOR TWO APPLICATIONS.

INCIDENTAL HMA SURFACING SCHEDULE (IF REQUIRED)

LOCATION		INCIDENTAL HMA SURFACING
STATION	LT/RT	TON
137+93	LT	1.2
138+48	RT	1.2
	TOTAL =	2.4

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES

SCALE: N/A | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	7
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			

NOTES:

1. ALL SIGNS REQUIRED WILL BE SUPPLIED TO THE CONTRACTOR BY I.D.O.T.

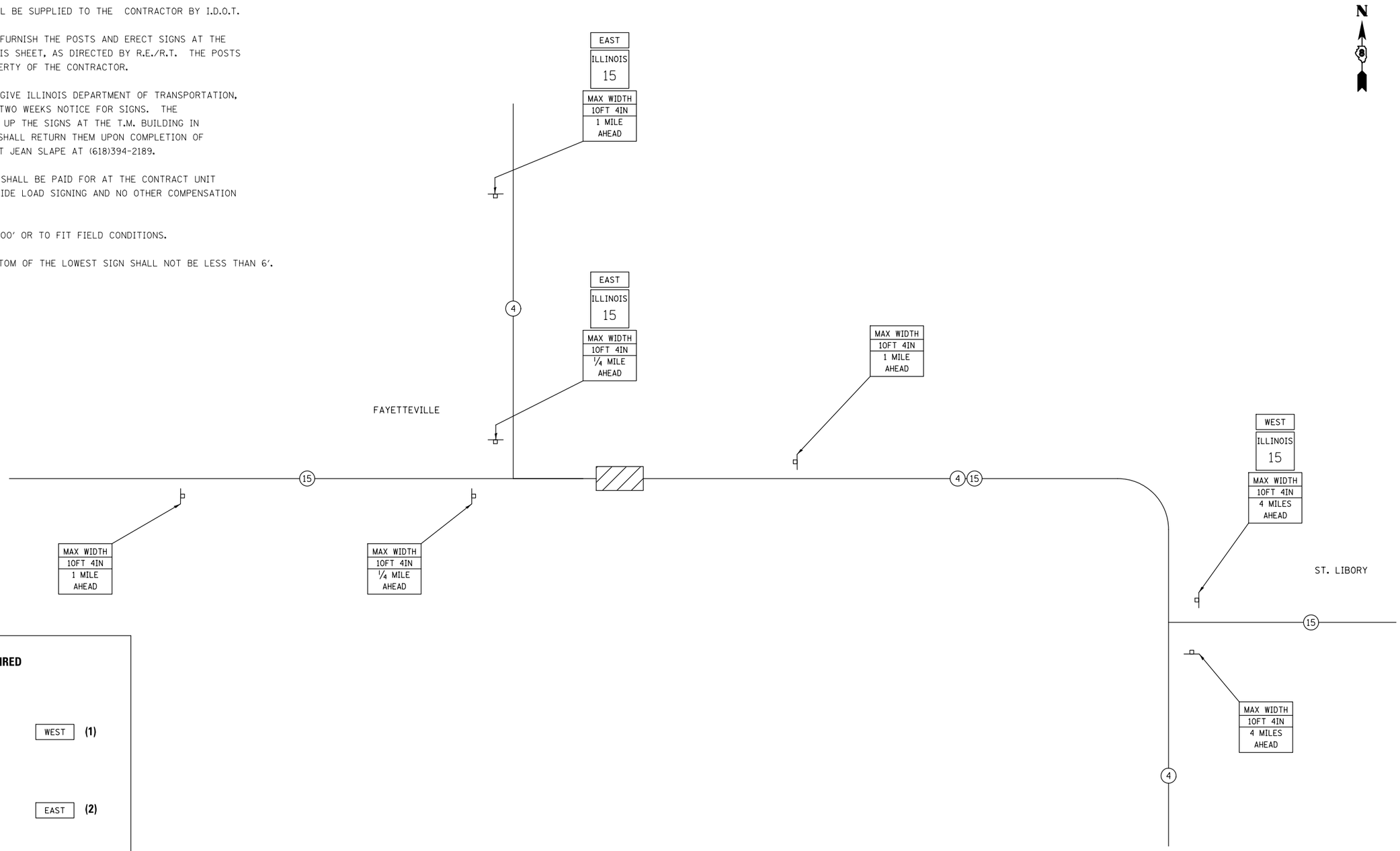
2. THE CONTRACTOR SHALL FURNISH THE POSTS AND ERECT SIGNS AT THE LOCATIONS SHOWN ON THIS SHEET, AS DIRECTED BY R.E./R.T. THE POSTS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

3. THE CONTRACTOR SHALL GIVE ILLINOIS DEPARTMENT OF TRANSPORTATION, BUREAU OF OPERATIONS TWO WEEKS NOTICE FOR SIGNS. THE CONTRACTOR SHALL PICK UP THE SIGNS AT THE T.M. BUILDING IN FAIRVIEW HEIGHTS, AND SHALL RETURN THEM UPON COMPLETION OF THE CONTRACT. CONTACT JEAN SLAPE AT (618)394-2189.

4. THE ABOVE NOTED WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE, LUMP SUM, FOR WIDE LOAD SIGNING AND NO OTHER COMPENSATION WILL BE ALLOWED.

5. SIGN SPACING WILL BE 400' OR TO FIT FIELD CONDITIONS.

6. THE HEIGHT TO THE BOTTOM OF THE LOWEST SIGN SHALL NOT BE LESS THAN 6'.



SIGNS REQUIRED

MAX WIDTH 10FT 4IN 1/4 MILES AHEAD	(2)	WEST	(1)
MAX WIDTH 10FT 4IN 1 MILE AHEAD	(3)	EAST	(2)
MAX WIDTH 10FT 4IN 4 MILES AHEAD	(2)	ILLINOIS 15	(3)

NOTE: NOT TO SCALE

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WIDE LOAD SIGNING

SCALE: N/A | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	8
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			

SUGGESTED SEQUENCE OF CONSTRUCTION

PRE - STAGE I:

REMOVE EXISTING HMA SHOULDERS/HMA BASE COURSE (RIGHT) TO THE LIMITS DEFINED IN THE REMOVAL SCHEDULE.

CONSTRUCT ± 4'-7" HMA BASE CSE 9" IN THE SOUTHWEST AND SOUTHEAST QUADRANTS AS SHOWN ON THE PLANS. HMA BASE COURSE SHALL BE CONSTRUCTED WITHOUT DISTURBING THE EXISTING GUARDRAIL.

TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH TRAFFIC CONTROL AND PROTECTION, STANDARD 701326.

STAGE I:

PLACE STOP BARS AS SHOWN ON PLANS.

REMOVE CONFLICTING SKIP-DASH PAVEMENT MARKING BETWEEN STOP BARS.

PLACE 1037.5 FOOT TEMPORARY CONCRETE BARRIER AND IMPACT ATTENUATORS, TEMPORARY.

SEE STANDARD 701321 FOR DETAILS NOT SHOWN ON PLANS.

REMOVE EXISTING HMA SHOULDERS/HMA BASE COURSE (LEFT) TO THE LIMITS DEFINED IN THE REMOVAL SCHEDULE.

CONSTRUCT ± 4-1" HMA BASE CSE 9" IN THE NORTHWEST AND NORTHEAST QUADRANTS AS SHOWN ON PLANS. HMA BASE COURSE SHALL BE CONSTRUCTED WITHOUT DISTURBING THE EXISTING GUARDRAIL.

PERFORM ALL STRUCTURAL WORK FOR STAGE I. SEE STRUCTURE PLANS.

PERFORM ANY ADDITIONAL NECESSARY WORK FOR STAGE I CONSTRUCTION.

STAGE II:

RELOCATE 1037.5 FT TEMPORARY CONCRETE BARRIER AND IMPACT ATTENUATORS, TEMPORARY. PLACE IMPACT ATTENUATOR, TEMPORARY.

SEE STANDARD 701321 FOR DETAILS NOT SHOWN ON PLANS.

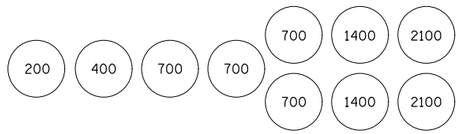
PERFORM ALL STRUCTURAL WORK FOR STAGE II. SEE STRUCTURE PLANS.

PERFORM ANY ADDITIONAL NECESSARY WORK FOR STAGE II CONSTRUCTION.

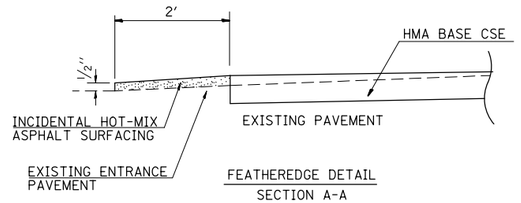
POST - STAGE II:

APPLY PAVEMENT MARKINGS UTILIZING TRAFFFIC CONTROL AND PROTECTION, STANDARD 701311.

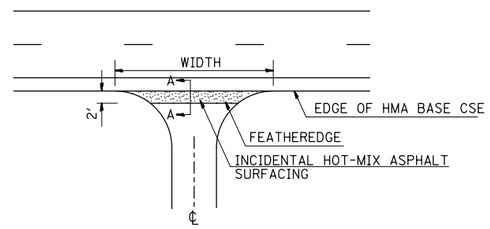
PERFORM ANY ADDITIONAL WORK REQUIRED.



SAND MODULE IMPACT ATTENUATOR LAYOUT
(IF OPTION USED)



FEATHEREDGE DETAIL
SECTION A-A



ENTRANCE DETAIL
(IF REQUIRED)

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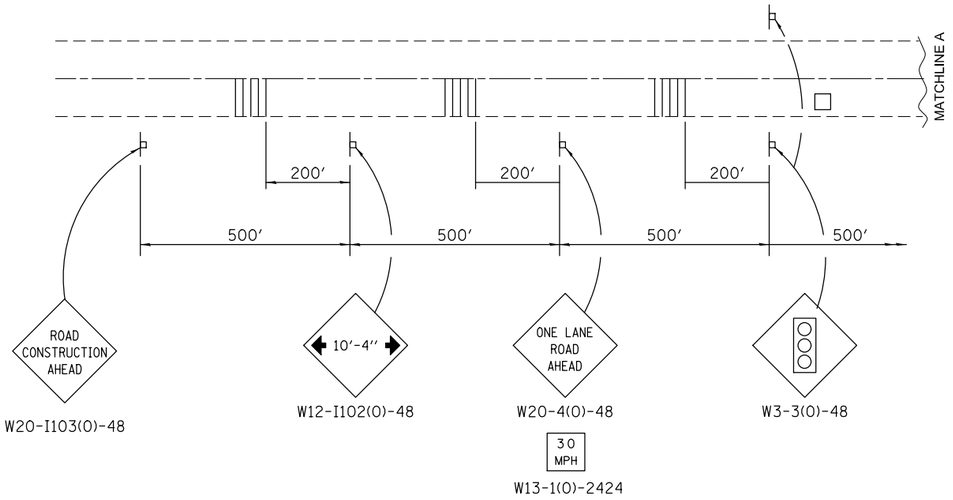
	PLOT DATE = 12/10/2012	DATE -	REVISED -

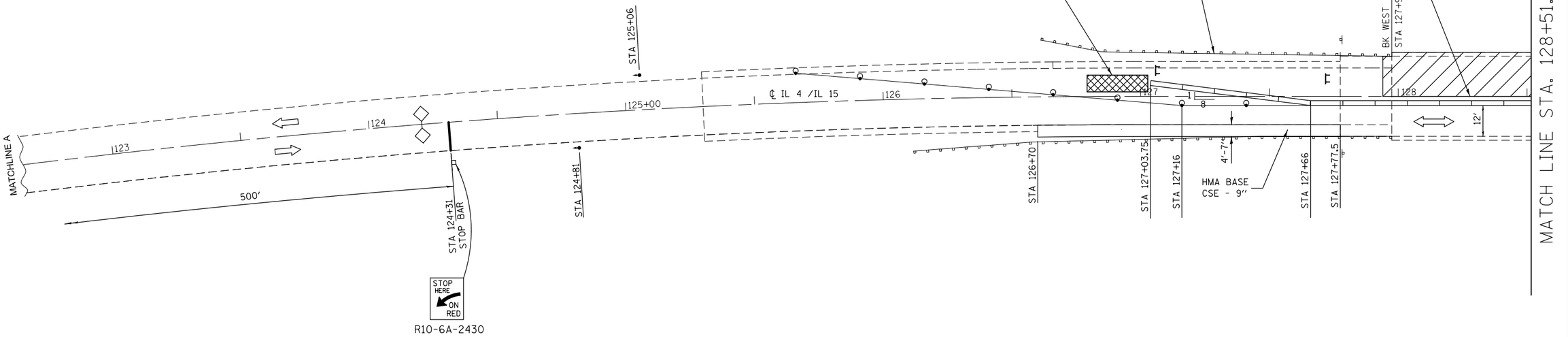
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION DETAILS /ENTRANCE DETAILS

SCALE: N/A | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	9
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			





LEGEND

- WORK AREA
- IMPACT ATTENUATOR
- TEMPORARY CONCRETE BARRIER
- BARRELS WITH STEADY BURNING BI-DIRECTIONAL LIGHT
- TEMPORARY BRIDGE TRAFFIC SIGNALS
- TYPE III BARRICADE
- SIGN
- TEMPORARY RUMBLE STRIP
- DETECTOR LOOPS

NOTE: PLAN NOT TO SCALE.

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	PLOT DATE = 12/10/2012	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE I CONSTRUCTION

SCALE: N/A | SHEET 1 OF 3 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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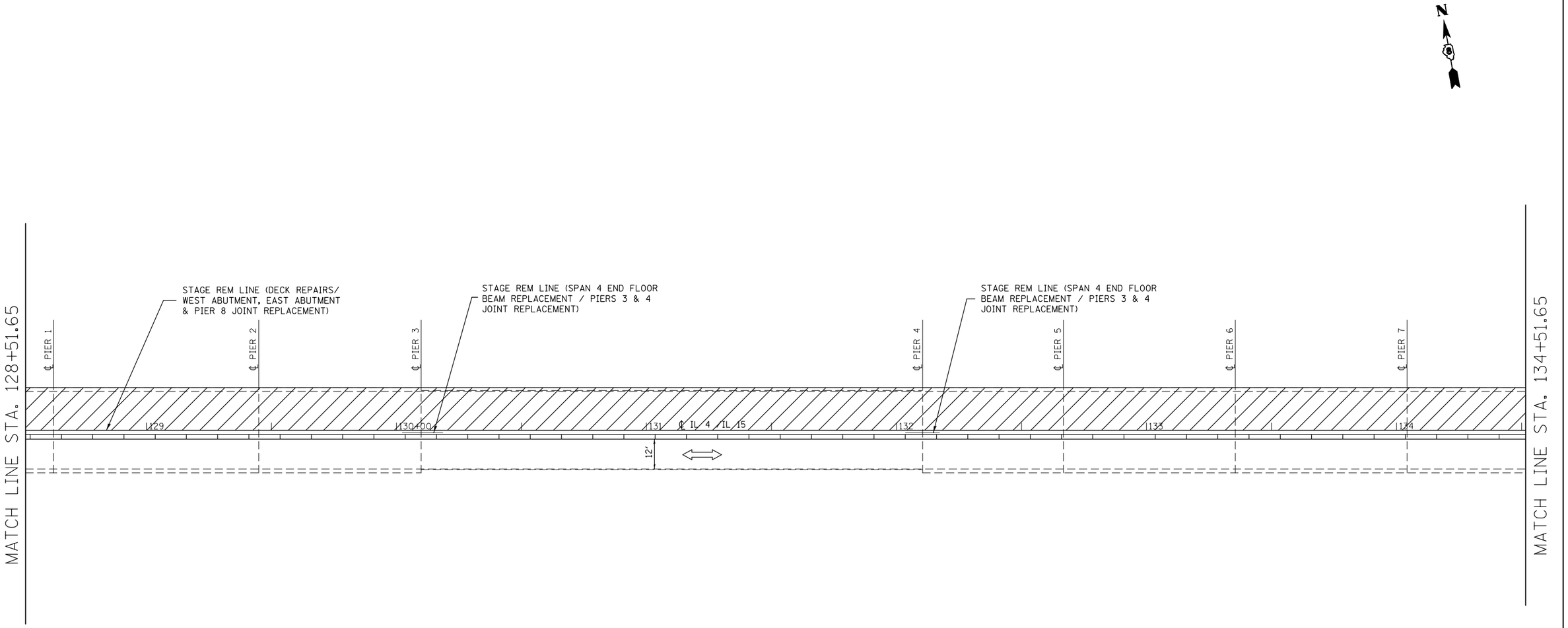
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



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$MODELNAME$	PLOT DATE = 12/10/2012	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE I CONSTRUCTION

SCALE: N/A | SHEET 2 OF 3 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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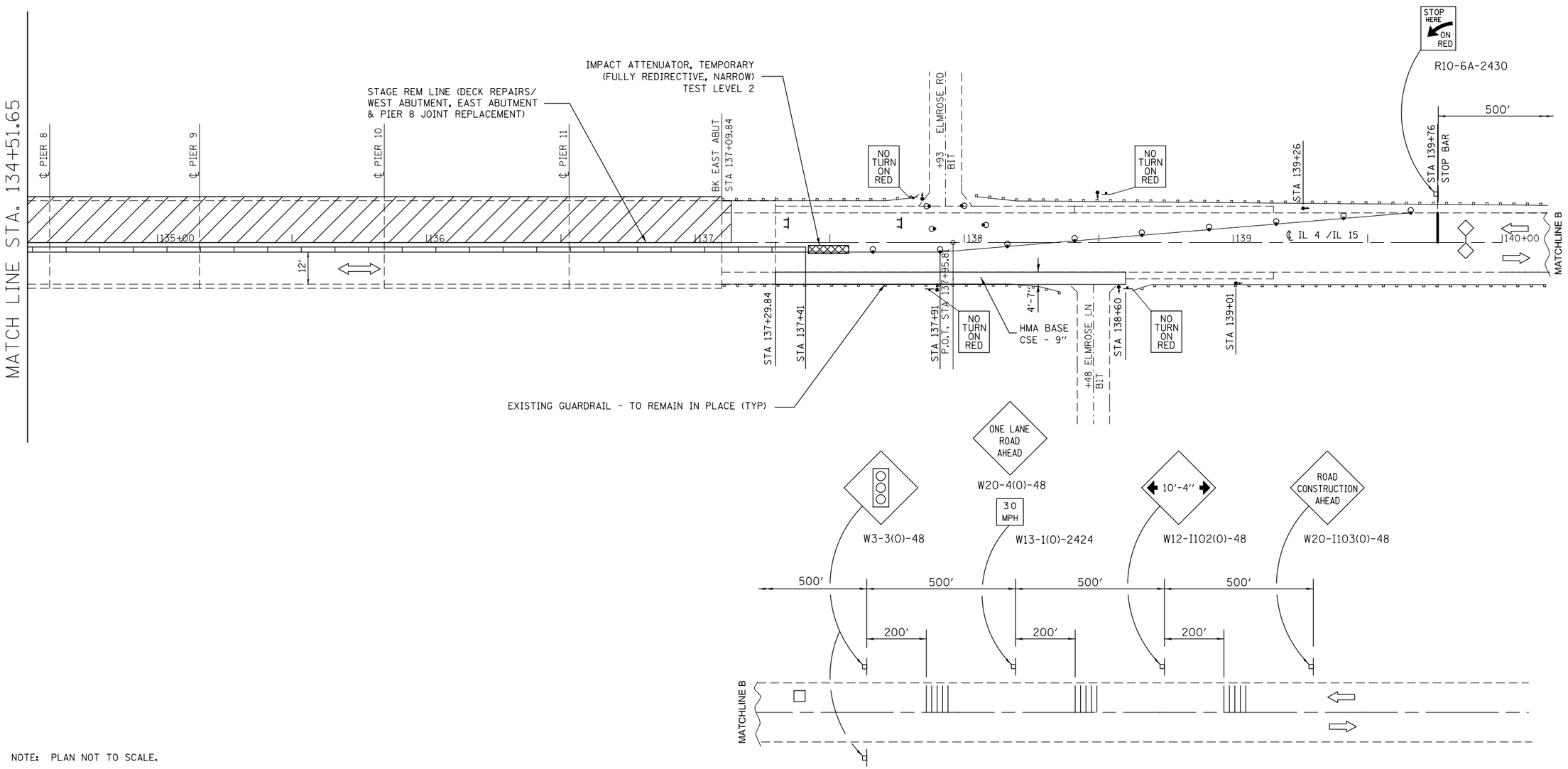
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



NOTE: PLAN NOT TO SCALE.

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$MODELNAME$	PLOT DATE = 12/10/2012	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE I CONSTRUCTION

SCALE: N/A | SHEET 3 OF 3 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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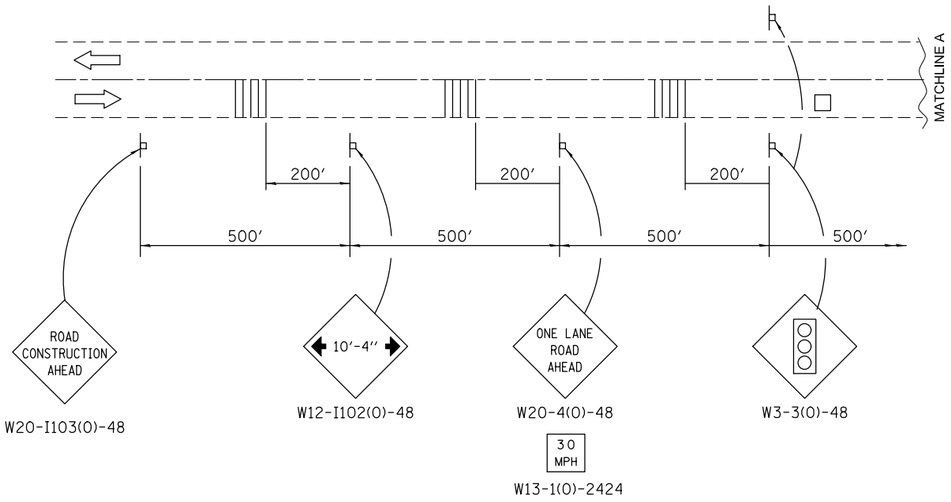
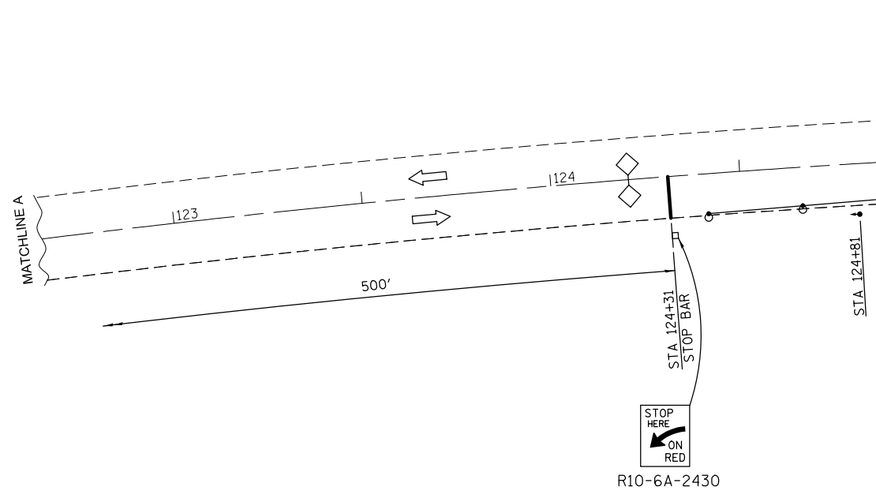
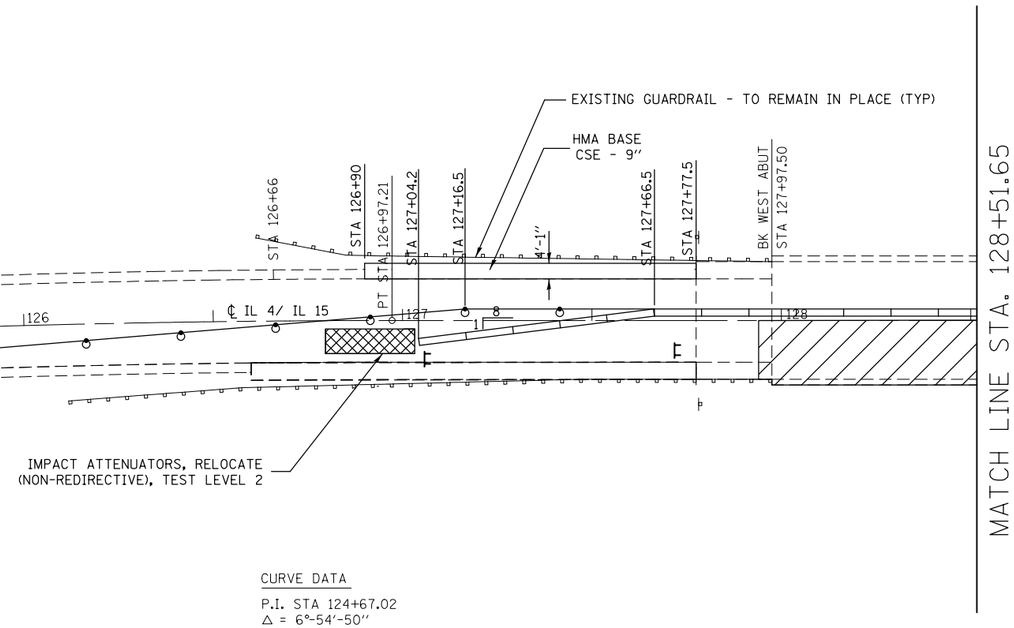
	ILLINOIS FED. AID PROJECT			







CURVE DATA

P.I. STA 124+67.02
Δ = 6°-54′-50″
D = 1°-30′-00″
T = 230.74′
L = 460.93′
R = 3519.72
E = 6.96′
P.C. STA 122+36.28
P.T. STA 126+97.21
EXIST. SUPERELEVATION = 0.00173′/FT

LEGEND

- WORK AREA
- IMPACT ATTENUATOR
- TEMPORARY CONCRETE BARRIER
- BARRELS WITH STEADY BURNING BI-DIRECTIONAL LIGHT
- TEMPORARY BRIDGE TRAFFIC SIGNALS
- TYPE III BARRICADE
- SIGN
- TEMPORARY RUMBLE STRIP
- DETECTOR LOOPS

NOTE: PLAN NOT TO SCALE.

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	PLOT DATE = 12/10/2012	DATE -	REVISED -

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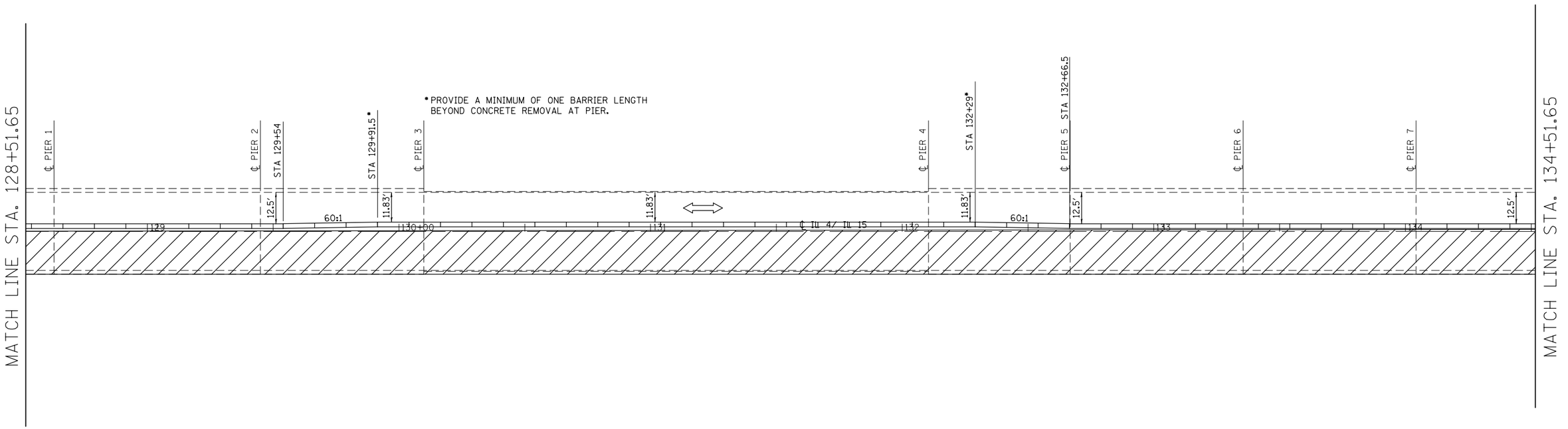
DEPARTMENT OF TRANSPORTATION

STAGE II CONSTRUCTION

SCALE: N/A | SHEET 1 OF 3 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	13
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



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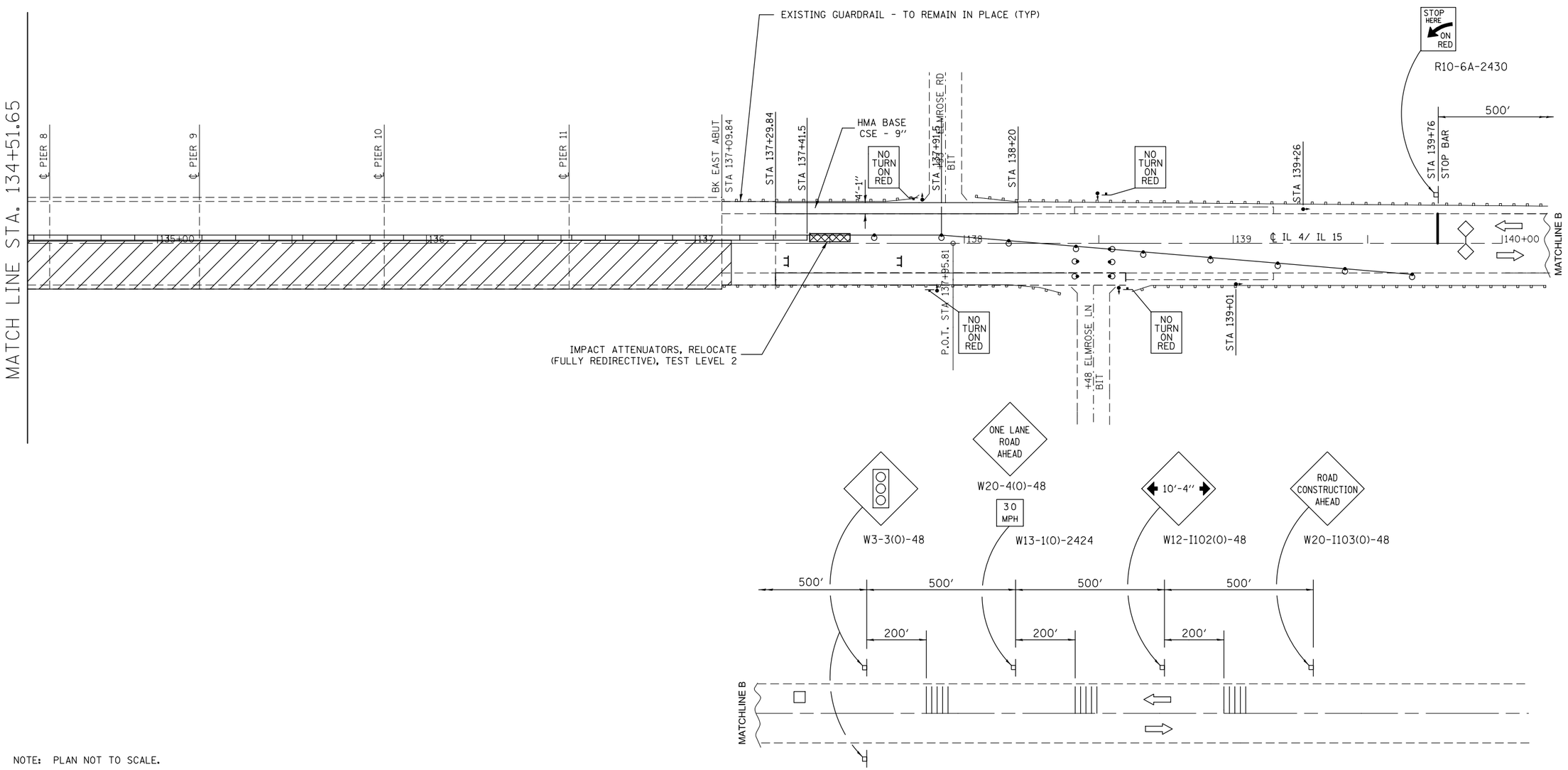
$MODELNAME$	PLOT DATE = 12/10/2012	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE II CONSTRUCTION

SCALE: N/A | SHEET 2 OF 2 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-1	ST. CLAIR	43	14
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



NOTE: PLAN NOT TO SCALE.

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$MODELNAME$	PLOT DATE = 12/10/2012	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE II CONSTRUCTION

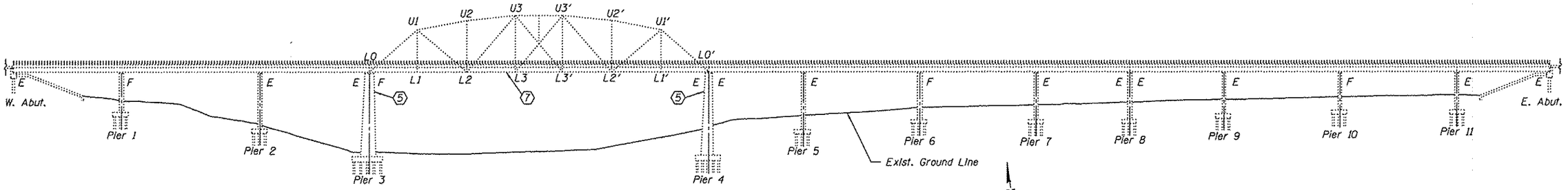
SCALE: N/A | SHEET 3 OF 3 SHEETS | STA. | TO STA.

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR-I	ST. CLAIR	43	15
		CONTRACT NO. 76F75		
		ILLINOIS FED. AID PROJECT		

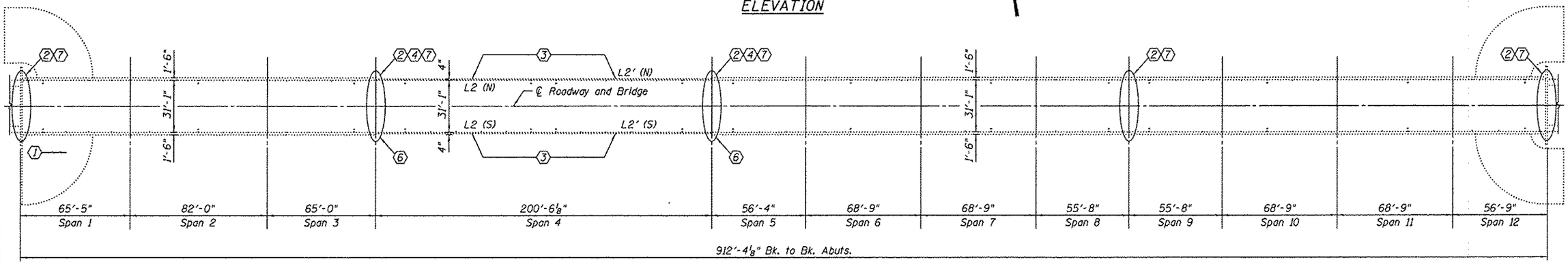
Benchmark: Not Required

Existing Structure: Structure No. 082-0077. Constructed in 1946: 12 spans. 11 approach spans and 1 thru truss span on pile supported concrete abutments and piers. Complete deck replacement with misc. steel, truss, and substructure repairs in 1990. Total length = 912'-4 1/8" back to back abuts. 31'-1" roadway. Bridge to be repaired utilizing stage construction.

Salvage: Truss Bearing Assemblies will be salvaged for reuse. See sheet 22 of 28 for details.



ELEVATION



PLAN

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Concrete Removal	Cu. Yd.	35.9
Concrete Structures	Cu. Yd.	2.6
Concrete Superstructure	Cu. Yd.	33.7
Protective Coat	Sq. Yd.	98.8
Reinforcement Bars, Epoxy Coated	Pound	6,220
Bar Splicers	Each	94
Mechanical Splicers	Each	676
Preformed Joint Strip Seal	Foot	165.5
Anchor Bolts, 1 1/4"	Each	8
Epoxy Crack Injection	Foot	73
Structural Steel Repair	Pound	18,780
Containment and Disposal of Lead Paint Cleaning Residues No. 1	L. Sum	1
Cleaning and Painting Steel Bridge No. 1	L. Sum	1
Structural Repair of Concrete (Depth > 5")	Sq. Ft.	943.5
Deck Slab Repair (Partial)	Sq. Yd.	36.2
Temporary Shoring and Cribbing	Each	10
Temporary Support System	Each	2
Remove and Reinstall Existing Bearings	Each	2

SCOPE OF WORK

1. Partial Deck Slab Repairs.
2. Install New Strip Seal Expansion Joints at each Abutment, Pier 3, Pier 4, and Pier 8.
3. Strengthen Truss Bottom Chord Splice at (4) Panel Points: L2 (N), L2 (S), L2' (N), and L2' (S).
4. Remove and replace End Floorbeams in Span 4.
5. Perform Structural Repair of Concrete at Pier 3 and Pier 4.
6. Jack and temporarily support South end of Truss at Pier 3 and Pier 4 for Pier Cap Repairs. Removal and reinstallation of Truss Bearings is required.
7. Clean and Paint structural steel in designated areas.

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications
17th Edition

DESIGN STRESSES

FIELD UNITS (EXIST. CONST.)

f'c = 3,500 psi (Deck and Approach Pavement)
f'c = 3,000 psi (Substructure)
fy = 60,000 psi (Deck and Approach Pavement Reinforcement)
fy = 40,000 psi (Substructure Reinforcement)
fy = 36,000 psi (1990 Structural Steel)
fy = 33,000 psi (1944 Structural Steel)

FIELD UNITS (NEW CONST.)

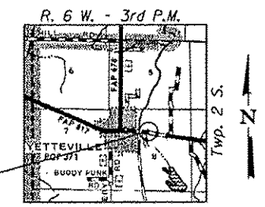
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (Structural Steel)

INDEX OF SHEETS

STATE OF ILLINOIS
SLADE B. CHELEDAN
081-006565
SPRINGFIELD
LICENSED STRUCTURAL ENGINEER

11/14/12

Expires: 11/30/2014



LOCATION SKETCH

GENERAL PLAN & ELEVATION
IL ROUTES 4 & 15 OVER KASKAKIA RIVER
"PUBLIC WATERS"
F.A. RTE. 817 - SEC.421 BR
ST. CLAIR COUNTY
STATION 132+53.67
STRUCTURE NO. 082-0077

design firm no. 184001036
whks engineers + planners + land surveyors

USER NAME = @OPERATOR@	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 082077-00000.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 8:2 '/' in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 28 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR	ST. CLAIR	43	16
		CONTRACT NO. 76F75		
		ILLINOIS FED. AID PROJECT		

GENERAL NOTES

Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts $\frac{7}{8}$ in. ϕ, holes $\frac{15}{16}$ in. ϕ, unless noted otherwise.

No field welding is permitted except as specified in the contract documents.

Reinforcement bars designated (E) shall be epoxy coated.

Prior to pouring the new concrete deck at expansion joints, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of existing concrete.

As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding $\frac{1}{4}$ inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

Plan dimensions and details relative to the existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction 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 scope of work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat shall be Gray, Munsell No. 5B 7/1.

Cleaning and painting of the existing structural steel shall be as specified in the special provision for Cleaning and Painting Existing Steel Structures. All beams, bearings and other structural steel within 5 ft (measured along the beam) of either side of deck joints shall be cleaned per Near White Blast Cleaning-SSPC-SP10. All truss members within the splash zone (Bottom chord to 12 ft. above the deck) and all floorbeams, stringers, diaphragms, and other structural steel within 5 ft. from the bottom chord (Measured perpendicular to the truss) in Span 4 shall be cleaned per Near White Blast Cleaning SSPC-SP10.

The designated areas cleaned per Near White Blast Cleaning shall be painted according to the requirements of Paint System 1 - OZ/E/U. The color of the final finish coat for all steel surfaces shall be Gray, Munsell No 5B 7/1.

After cleaning the bottom chords of the truss in Span 4 per Near White Blast Cleaning, the Contractor shall provide access for the Department to inspect and document deterioration and any cracks in the bottom chords of the truss. This work shall be performed by qualified personal designated by the Department. Section loss measurements and any discovered cracks shall be promptly reported to the Bureau of Bridges and Structures for evaluation. All costs associated with providing access for the inspection, including any access equipment, shall be included in the pay item covering cleaning and painting. The cost of any repairs, if necessary, will be paid for according to Article 109.04 of the Standard Specifications.

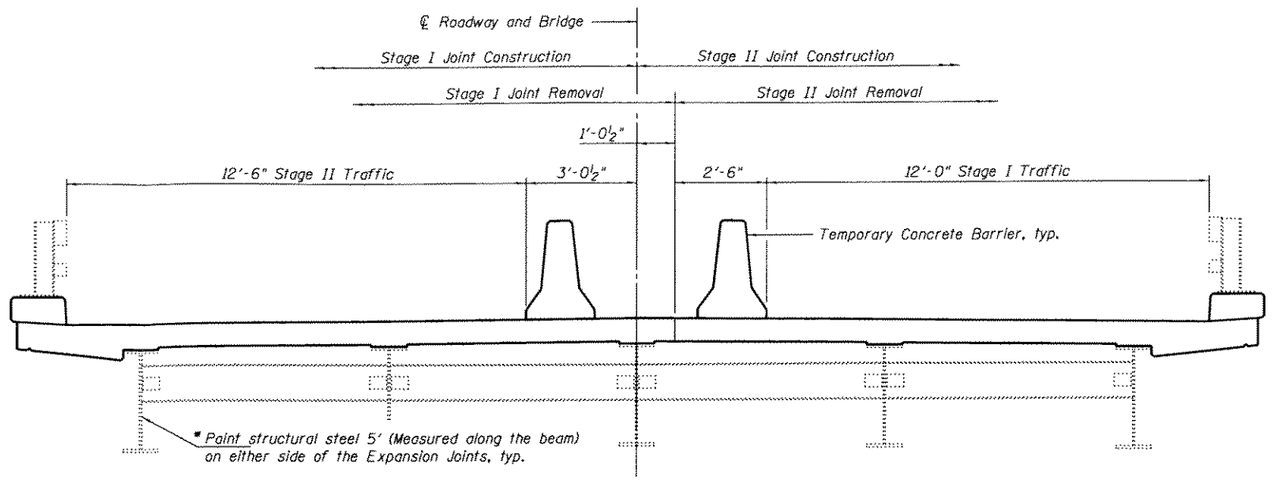
The Contractor shall submit calculations and details demonstrating the structural integrity of the bridge is maintained under the additional imposed loads of the containment system. See Special Provisions.

A minimum of 2 air monitors will be required to monitor abrasive blasting operations at this site. See Special Provision for Containment and Disposal of Lead Paint Cleaning Residues.

The Contractor shall obtain a construction permit from the Illinois Department of Natural Resources (IDNR), Office of Water Resources for any temporary construction activity placed in the water except cofferdams. This shall include the placement of material for run-arounds, causeways, etc. Any permit application by the Contractor shall refer to the IDNR 3704 Floodway Construction permit number allowing permanent construction as shown in the Contract Plans.

The deck surface shall have its final finish tined according to Article 420.09 (e) (1) of the Standard Specifications. Cost included with Concrete Superstructure.

Plans of the original construction and prior rehabilitation contracts are available for review at the IDOT District 8 office in Collinsville, IL.



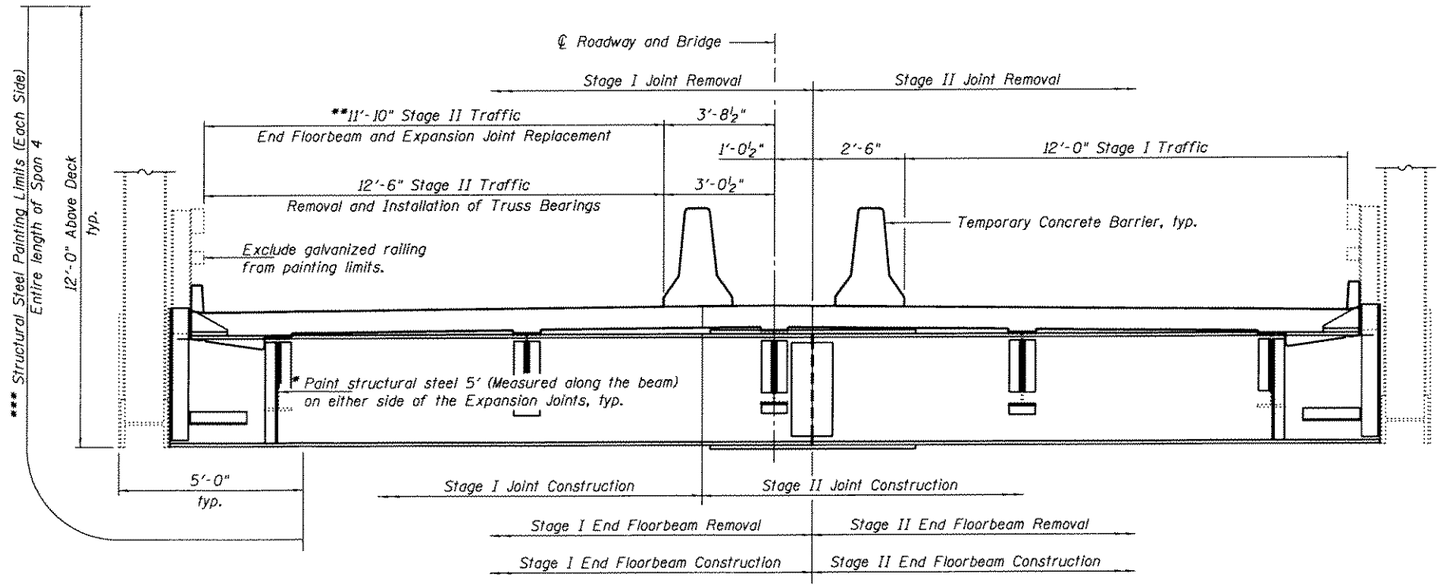
STAGE CONSTRUCTION FOR DECK REPAIRS/ABUTMENTS AND PIER 8 EXPANSION JOINT REPLACEMENT

(Looking East)

* Paint all structural steel five feet on each side of the joint including floorbeams, diaphragms, stringers, connections, and bearings.

** A 11'-10" traffic lane shall be provided a minimum of one barrier length beyond each side of the Concrete Removal Limits. A minimum 60:1 taper shall be used to transition back to a 12'-6" traffic lane.

*** See sheets 24 thru 28 of 28 for details of the existing steel to be painted.

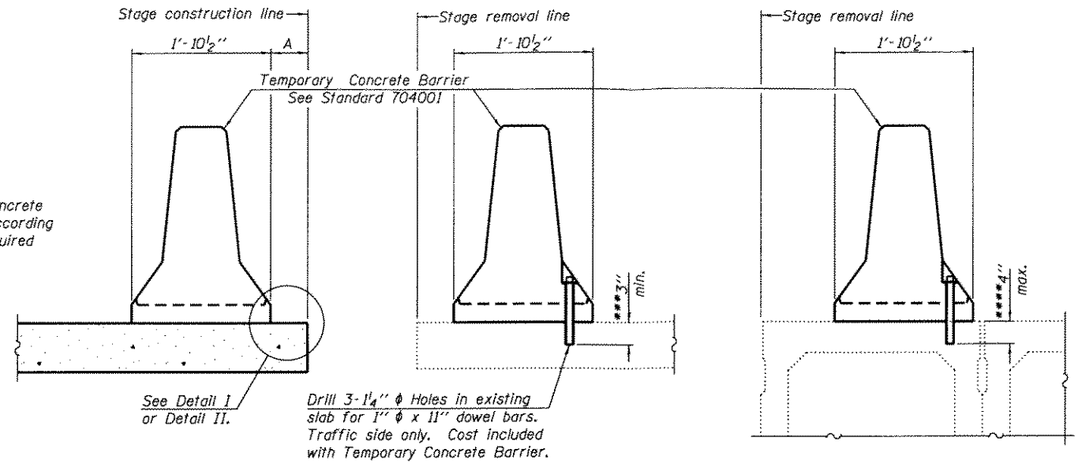


STAGE CONSTRUCTION FOR SPAN 4 END FLOOR BEAMS/PIER 3 AND PIER 4 EXPANSION JOINT REPLACEMENT

(Looking East)

design firm no. 184001036 whks engineers + planners + land surveyors	USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES AND DETAILS STRUCTURE NO. 082-0077	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	FILE NAME = 0820077-00000.dgn	CHECKED - CWC/SBC	REVISED			817	421 BR-1	ST. CLAIR	43	17
	PLOT SCALE = 0.2 '/ in.	DRAWN - FLL/DLH	REVISED					CONTRACT NO. 76F75		
	PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED		SHEET NO. 2 OF 28 SHEETS			ILLINOIS FED. AID PROJECT		

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".



NEW SLAB | EXISTING SLAB | EXISTING DECK BEAM

SECTIONS THRU SLAB OR DECK BEAM

NOTES

Detail I - With Bar Splicer or Couplers:
Connect one (1) 1" x 7" x "W" steel ℄ to the top layer of couplers with 2-⅝" ϕ bolts screwed to coupler at approximate ℄ of each barrier panel.

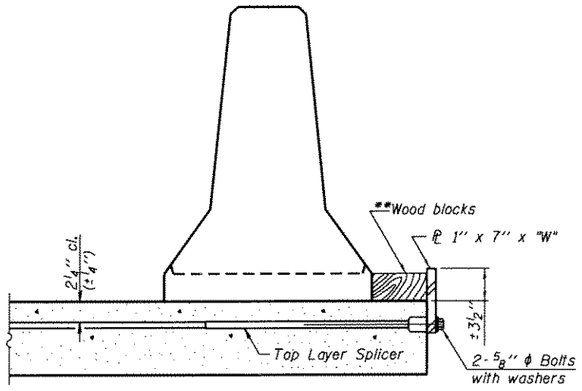
Detail II - With Extended Reinforcement Bars:
Connect one (1) 1" x 7" x "W" steel ℄ to the concrete slab or concrete wearing surface with 2-⅝" ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each barrier panel.

Cost of anchorage is included with Temporary Concrete Barrier.

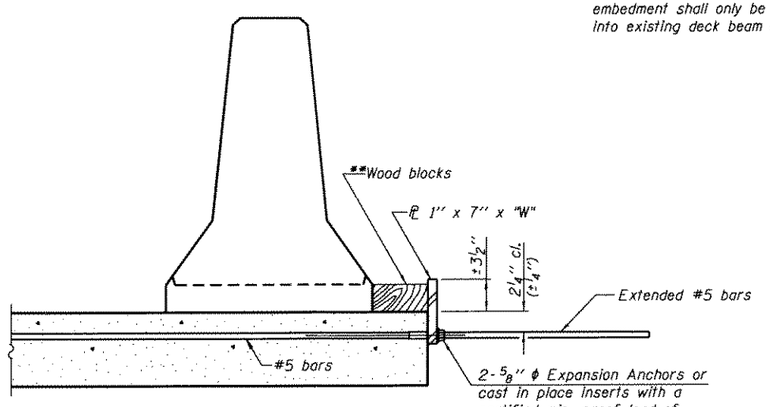
The 1" x 7" x "W" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

*** Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

**** If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



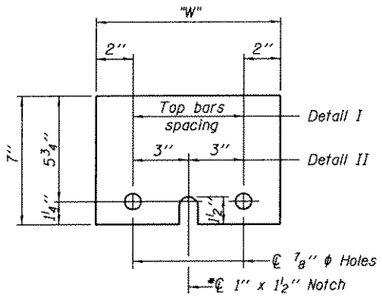
DETAIL I



DETAIL II

** Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

"W" = Top bars spacing + 4"



STEEL RETAINER ℄ 1" x 7" x "W"

* Required only with Detail II

R-27 7-1-10

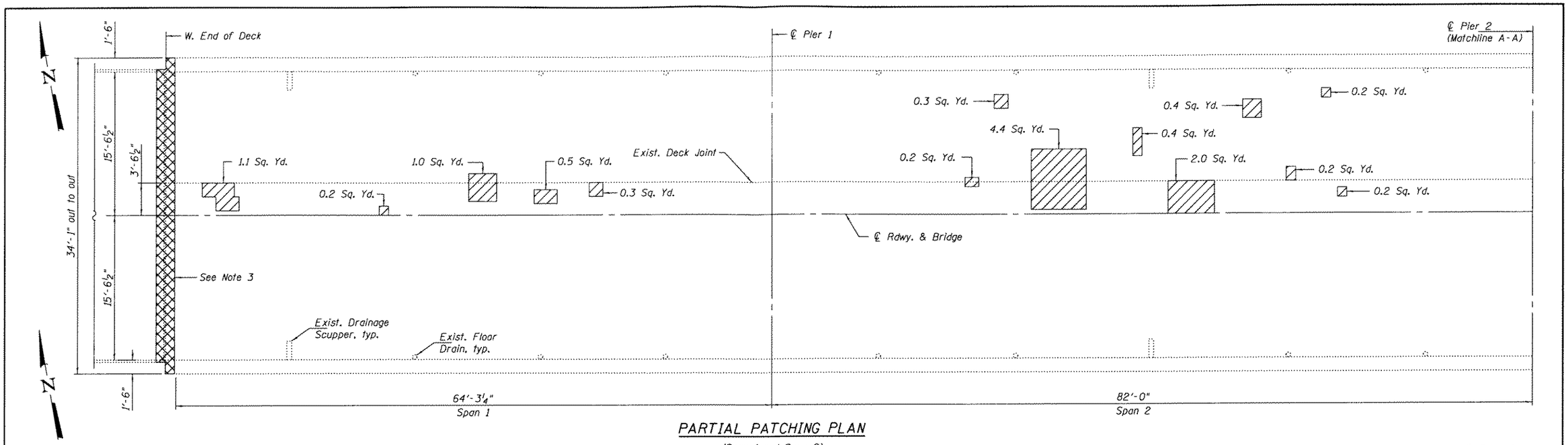
design firm no. 184001036 — whks engineers + planners + land surveyors

USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	
FILE NAME = D020077-00000.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 8:2 '/ in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

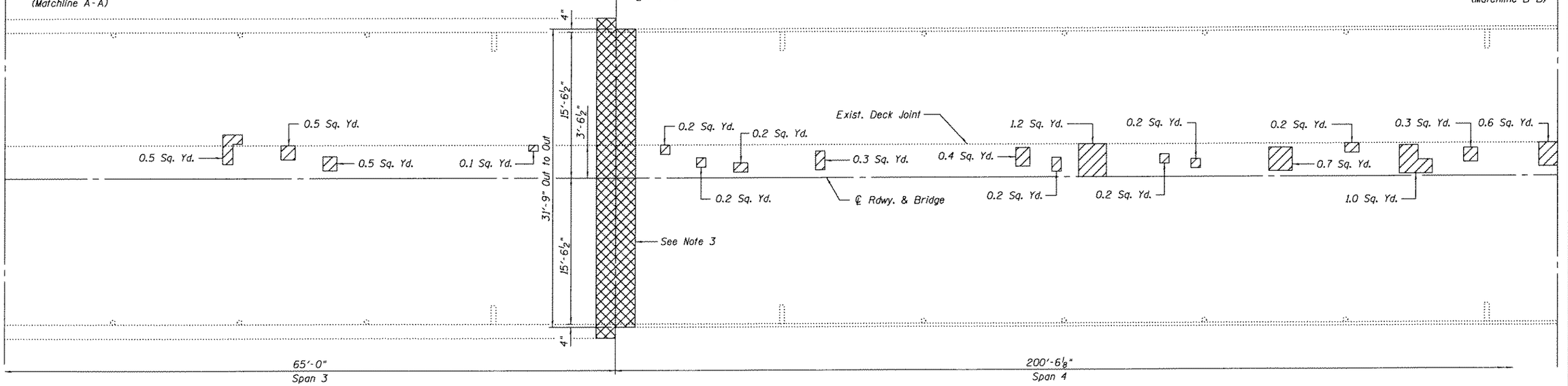
TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
STRUCTURE NO. 082-0077
SHEET NO. 3 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	18
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



PARTIAL PATCHING PLAN

(Span 1 and Span 2)



PARTIAL PATCHING PLAN

(Span 3 and Span 4)

LEGEND

Limits of Deck Slab Repair (Partial).

Limits of Expansion Joint Replacement (See Note 3).

Notes:

1. Repair areas shown in Square Yards and are not to scale.
2. Quantities and limits shown for Deck Slab Repair (Partial) are estimated. Actual limits shall be determined in the field and noted in the As-Built Plans.
3. For Expansion Joint Replacement Details, see sheets 7 thru 14 of 28.
4. For Stage Construction Scheme, see sheet 2 of 28.
5. For Bill of Materials, see sheet 6 of 28.
6. Work this sheet with sheets 5 and 6 of 28.

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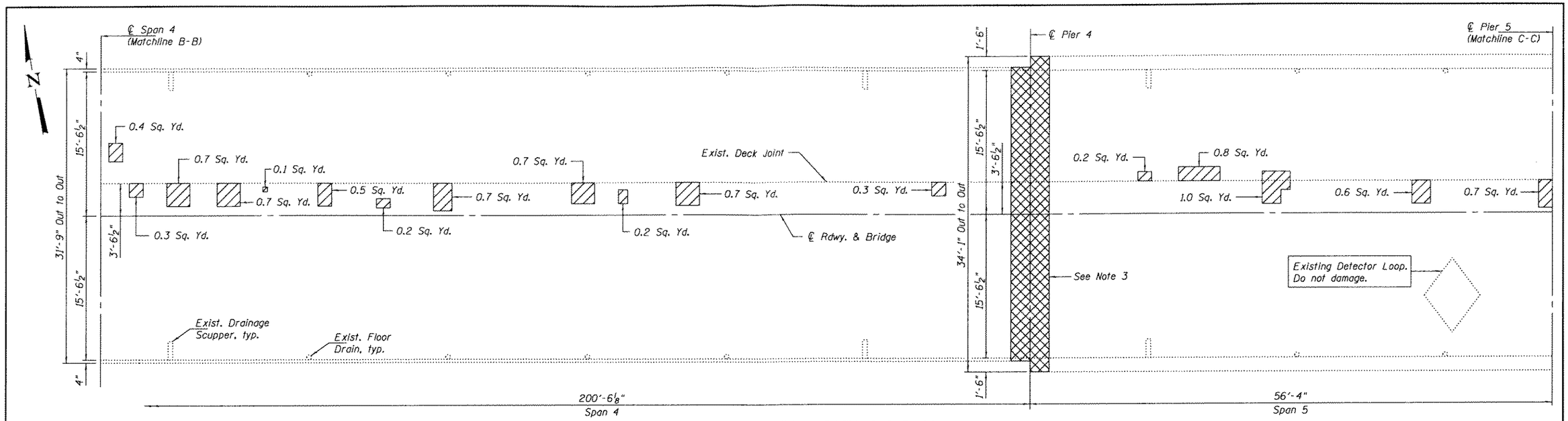
USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 0820077-00000.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 0.2 '/ / in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

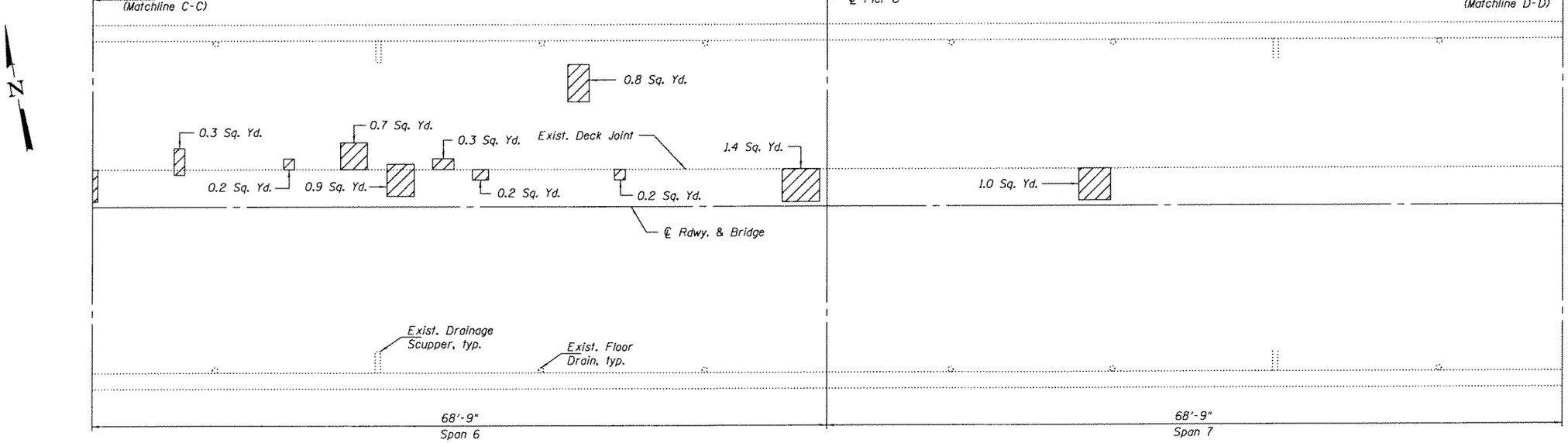
DECK REPAIR DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 4 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	19
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



PARTIAL PATCHING PLAN

(Span 4 and Span 5)



PARTIAL PATCHING PLAN

(Span 6 and Span 7)

LEGEND

Limits of Deck Slab Repair (Partial).

Limits of Expansion Joint Replacement (See Note 3).

Notes:

1. Repair areas shown in Square Yards and are not to scale.
2. Quantities and limits shown for Deck Slab Repair (Partial) are estimated. Actual limits shall be determined in the field and noted in the As-Built Plans.
3. For Expansion Joint Replacement Details, see sheets 7 thru 14 of 28.
4. For Stage Construction Scheme, see sheet 2 of 28.
5. For Bill of Materials, see sheet 6 of 28.
6. Work this sheet with sheets 4 and 6 of 28.

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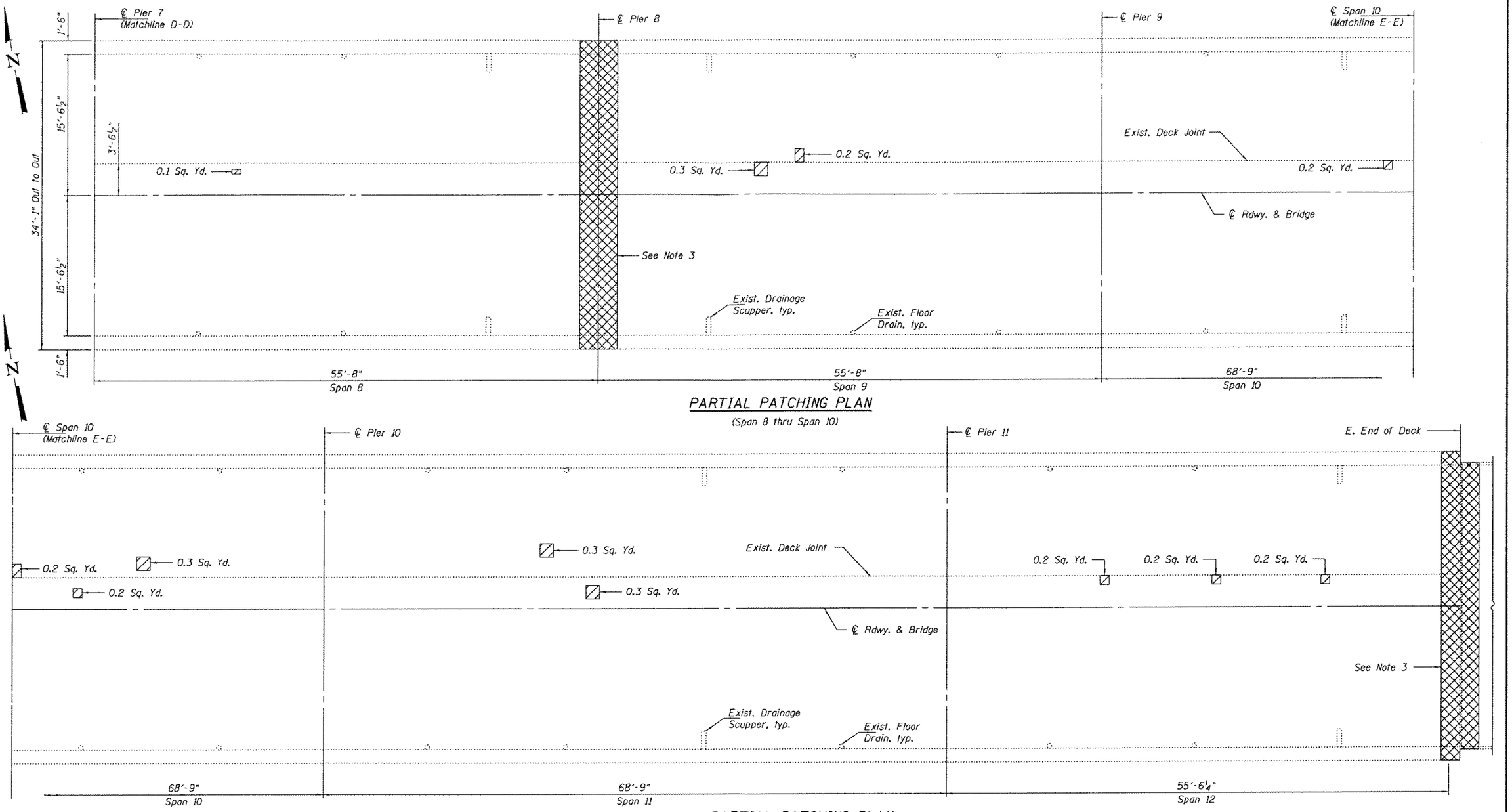
USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED
FILE NAME = 082D077-00000.dgn	CHECKED - CWC/SBC	REVISED
PLOT SCALE = 0.2 '' / in.	DRAWN - FLL/DLH	REVISED
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 5 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	20
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



PARTIAL PATCHING PLAN

(Span 8 thru Span 10)

PARTIAL PATCHING PLAN

(Span 10 thru Span 12)

LEGEND

Limits of Deck Slab Repair (Partial).

Limits of Expansion Joint Replacement (See Note 3).

BILL OF MATERIAL

Item	Unit	Total
Deck Slab Repair (Partial)	Sq. Yd.	36.2

Notes:

1. Repair areas shown in Square Yards and are not to scale.
2. Quantities and limits shown for Deck Slab Repair (Partial) are estimated. Actual limits shall be determined in the field and noted in the As-Built Plans.
3. For Expansion Joint Replacement Details, see sheets 7 thru 14 of 28.
4. For Stage Construction Scheme, see sheet 2 of 28.
5. Work this sheet with sheets 4 and 5 of 28.

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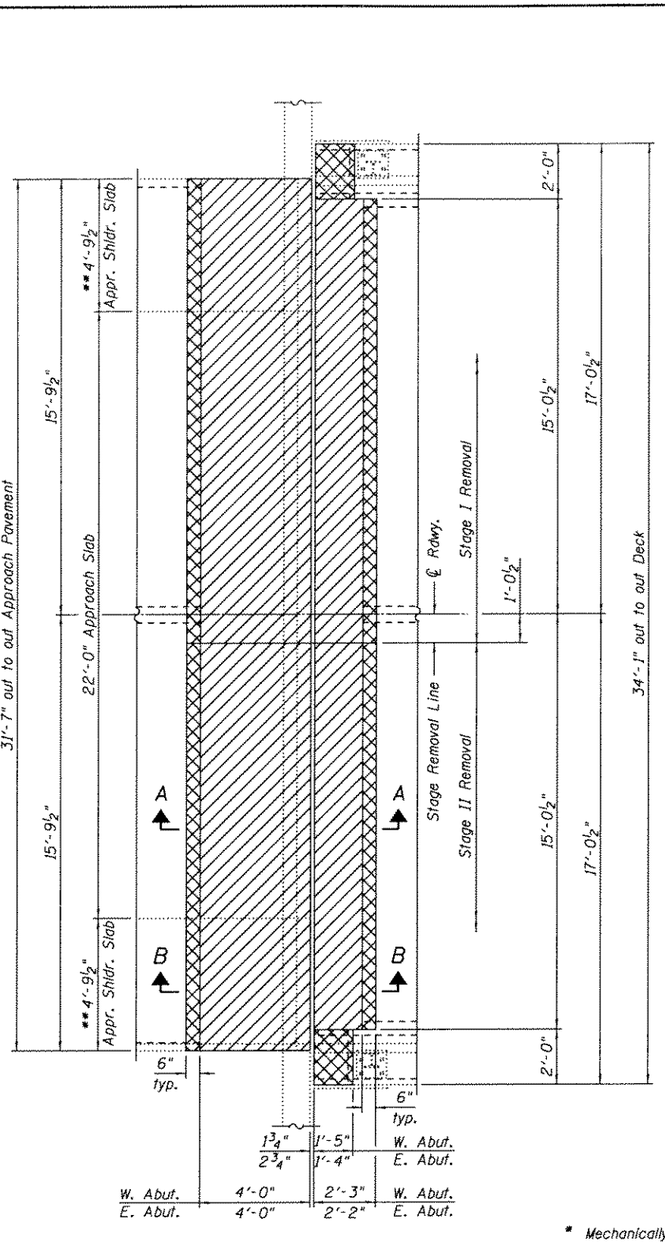
USER NAME = @OPERATOR@	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 082077-00000.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 0.2 '/ in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

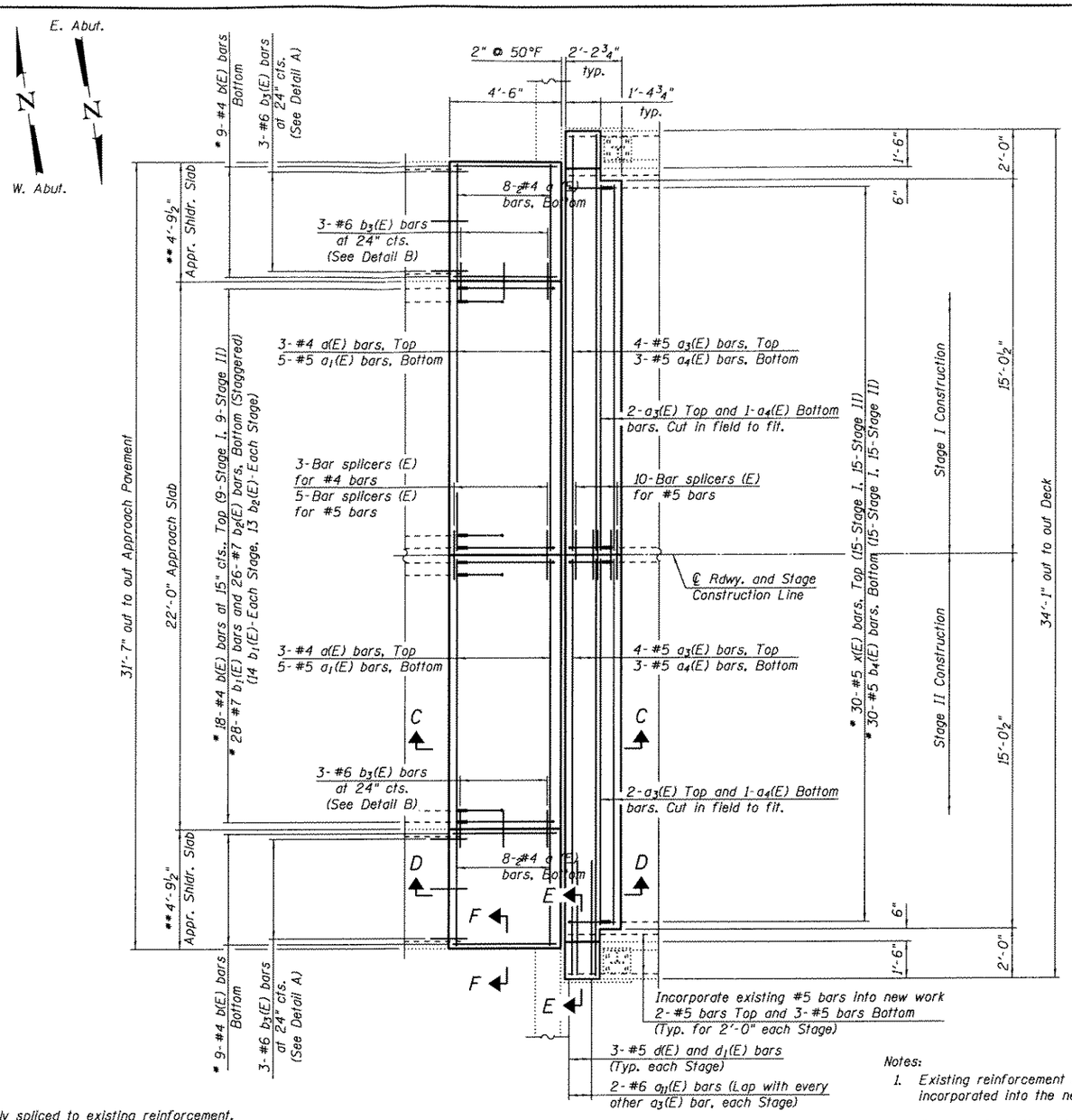
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 6 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
B17	421 BR-1	ST. CLAIR	43	21
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



PARTIAL PLAN
(Showing Joint Removal)



PARTIAL PLAN
(Showing Joint Replacement)

* Mechanically spliced to existing reinforcement.
(36-#4, 60-#5, and 54-#7 Mechanical Splicers required)

** Verify Approach Shoulder Pavement width in field before commencing work.

LEGEND

Full depth concrete and reinforcement removal.

Full depth concrete removal. 6" of the existing longitudinal reinforcement shall be cleaned and incorporated into the new construction with mechanical splicers, unless otherwise noted.

Notes:

1. Existing reinforcement shall be cleaned, straightened (if required) and incorporated into the new construction, Cost included with Concrete Removal.
2. Removal of existing joint system is included with Concrete Removal.
3. See sheet 14 of 28 for Preformed Joint Strip Seal Details.
4. See sheet 2 of 28 for Stage Construction Scheme.
5. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustment to satisfy the details on sheet 14 of 28.
6. Work this sheet with sheet 8 of 28.

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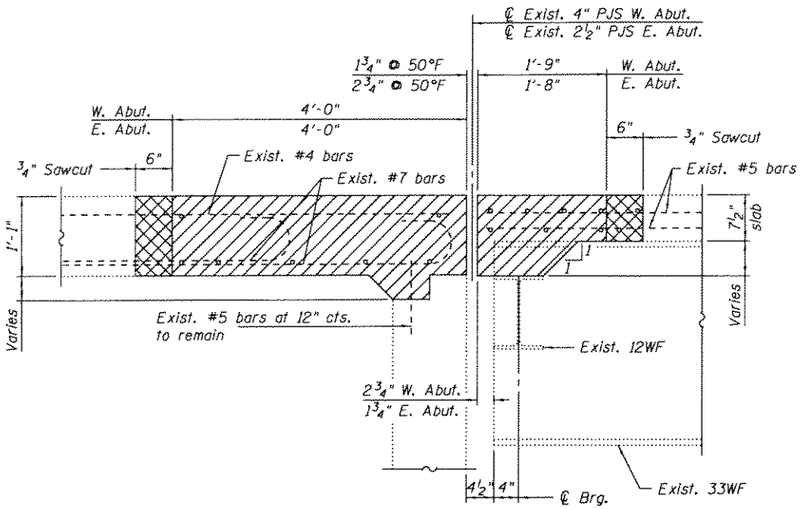
USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 0820077-00000.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 0.2 '/ in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

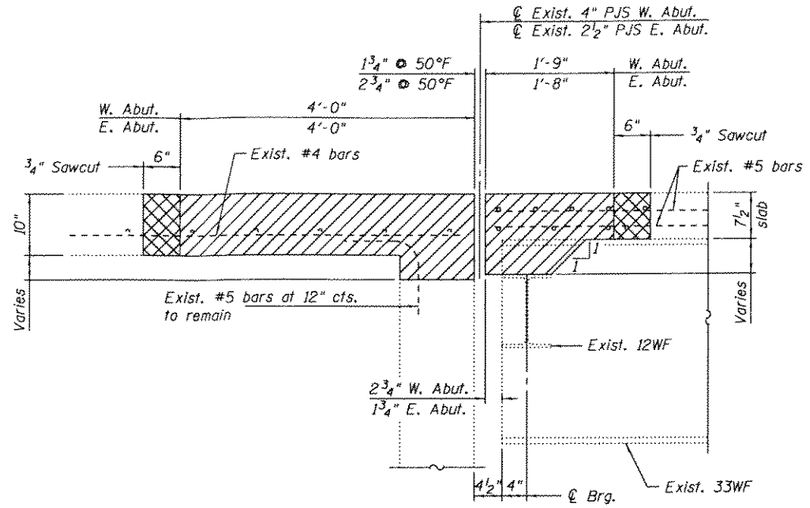
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT JOINT REPLACEMENT DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 7 OF 28 SHEETS

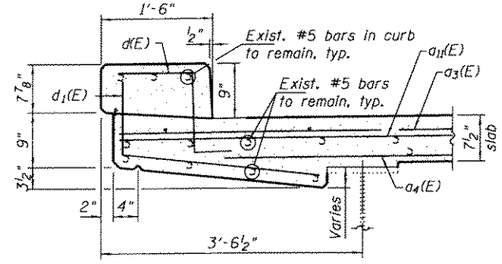
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	22
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



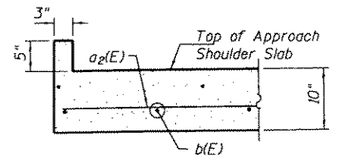
SECTION A-A
(Showing Removal)



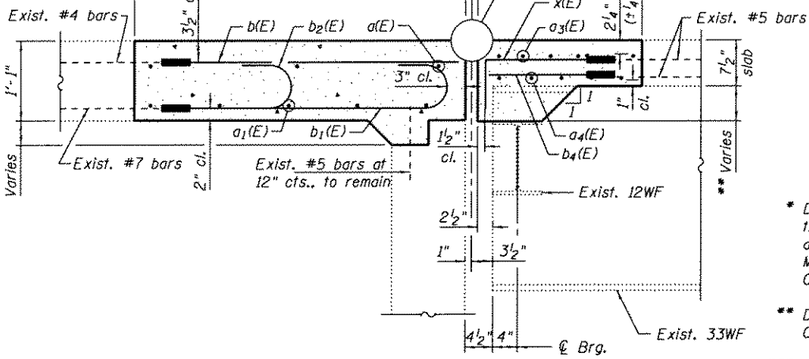
SECTION B-B
(Showing Removal)



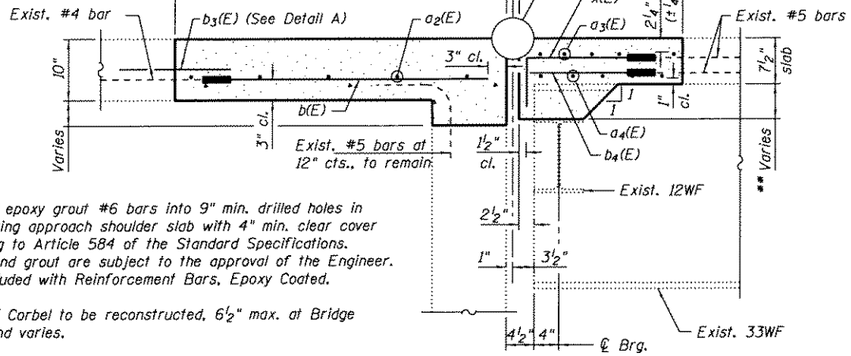
SECTION E-E



SECTION F-F



SECTION C-C
(Showing Replacement)



SECTION D-D
(Showing Replacement)

* Drill and epoxy grout #6 bars into 9" min. drilled holes in the existing approach shoulder slab with 4" min. clear cover according to Article 584 of the Standard Specifications. Method and grout are subject to the approval of the Engineer. Cost included with Reinforcement Bars, Epoxy Coated.

** Depth of Corbel to be reconstructed, 6½" max. at Bridge Crown and varies.

*** The hot poured joint sealer shall be installed in the saw cut extensions created by the concrete saw. The hot poured joint sealer shall be placed according to Article 420.12 of the Standard Specifications. The joint sealer shall cure to the satisfaction of the Engineer prior to opening traffic.

TWO ABUTMENTS
BILL OF MATERIAL

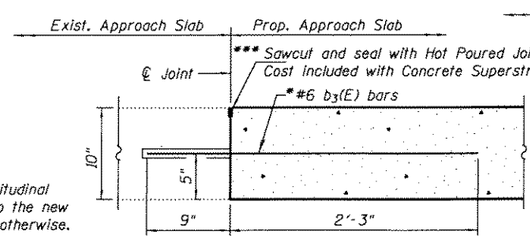
Bar	No.	Size	Length	Shape
d(E)	12	#4	15'-6"	——
a1(E)	20	#5	15'-6"	——
a2(E)	32	#4	4'-6"	——
a3(E)	24	#5	16'-8"	——
a4(E)	16	#5	15'-11"	——
a11(E)	8	#6	6'-6"	——
b(E)	72	#4	3'-9"	——
b1(E)	56	#7	4'-7"	⟶
b2(E)	52	#7	2'-5"	⊃
b3(E)	24	#6	3'-0"	——
b4(E)	60	#5	1'-7"	——
d(E)	12	#5	2'-8"	⌞
d1(E)	12	#5	3'-9"	⌞
x(E)	60	#5	2'-3"	⌐
Concrete Removal		Cu. Yd.	19.2	
Concrete Superstructure		Cu. Yd.	19.4	
Protective Coat		Sq. Yd.	49.2	
Reinforcement Bars, Epoxy Coated		Pound	2,700	
Bar Splicers		Each	36	
Mechanical Splicers		Each	300	

Note:
Work this sheet with sheet 7 of 28.

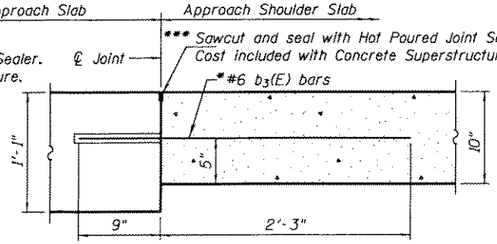
LEGEND

Full depth concrete and reinforcement removal.

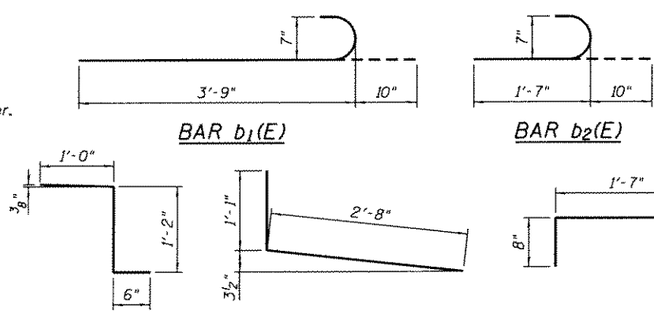
Full depth concrete removal. 6" of the existing longitudinal reinforcement shall be cleaned and incorporated into the new construction with mechanical splicers, unless noted otherwise.



DETAIL A



DETAIL B



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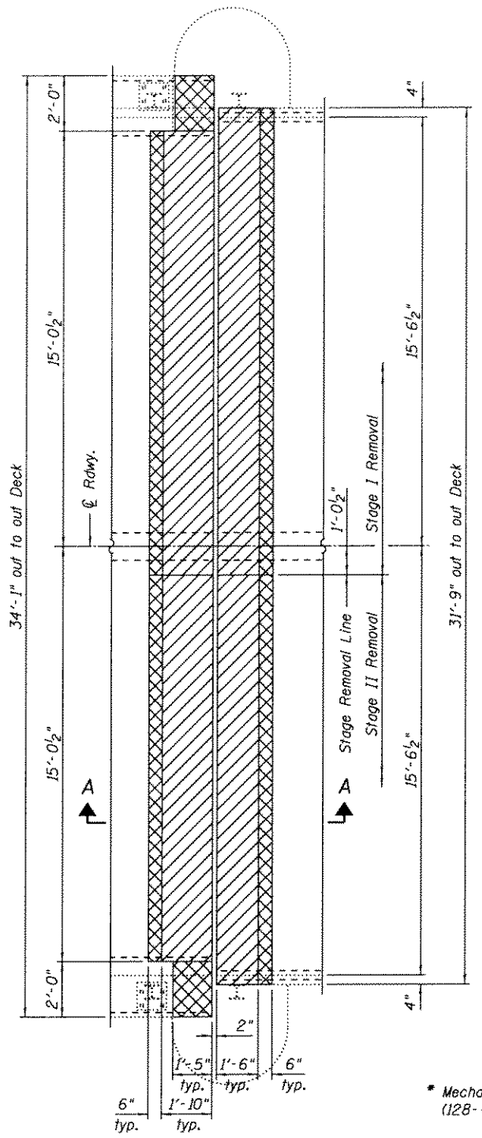
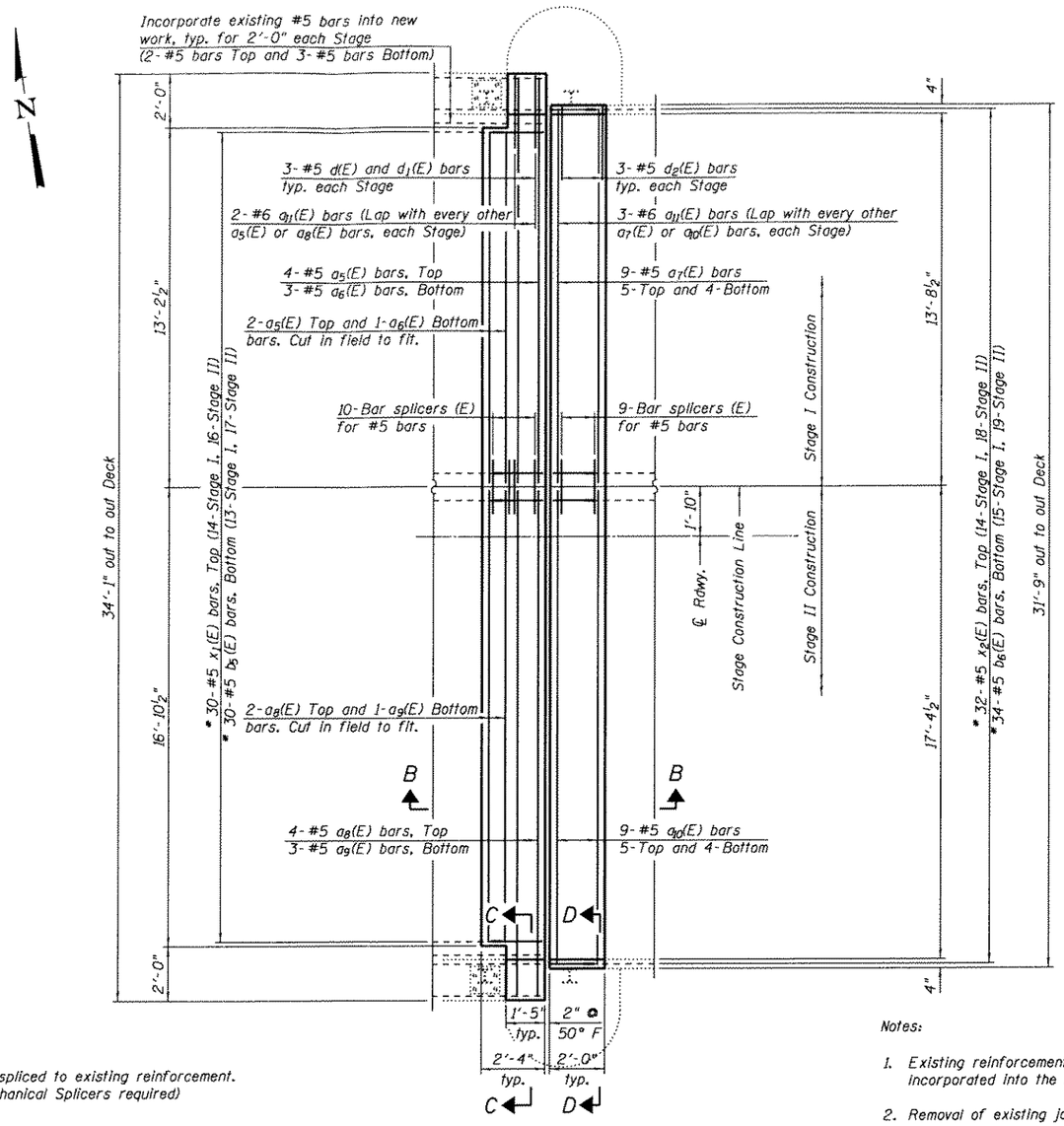
USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ABUTMENT JOINT REPLACEMENT DETAILS STRUCTURE NO. 082-0077	
FILE NAME = 082077-00000.dgn	CHECKED - CWC/SBC	REVISED		SHEET NO. 8 OF 28 SHEETS	
PLOT SCALE = 0.2 '/ in.	DRAWN - FLL/DLH	REVISED			
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED			

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	23
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



PARTIAL PLAN
(Showing Joint Removal)



PARTIAL PLAN
(Showing Joint Replacement)

* Mechanically spliced to existing reinforcement.
(128-#5 Mechanical Splicers required)

LEGEND

Full depth concrete and reinforcement removal.

Full depth concrete removal. 6" of the existing longitudinal reinforcement shall be cleaned and incorporated into the new construction with mechanical splicers, unless otherwise noted.

Notes:

1. Existing reinforcement shall be cleaned, straightened (if required) and incorporated into the new construction. Cost included with Concrete Removal.
2. Removal of existing joint system is included with Concrete Removal.
3. See sheet 14 of 28 for Preformed Joint Strip Seal Details.
4. See sheet 2 of 28 for Stage Construction Scheme.
5. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustment to satisfy the details on sheet 14 of 28.
6. Based on current field conditions, additional length of the south 4" curb in Span 4 may require replacement due to deterioration beyond the joint removal limits shown. Limits of the additional 4" curb replacement shall be determined in the field by the Engineer. The cost of additional 4" curb replacement, if necessary, will be paid for according to Article 109.04 of the Standard Specifications.
7. Work this sheet with sheet 10 of 28.

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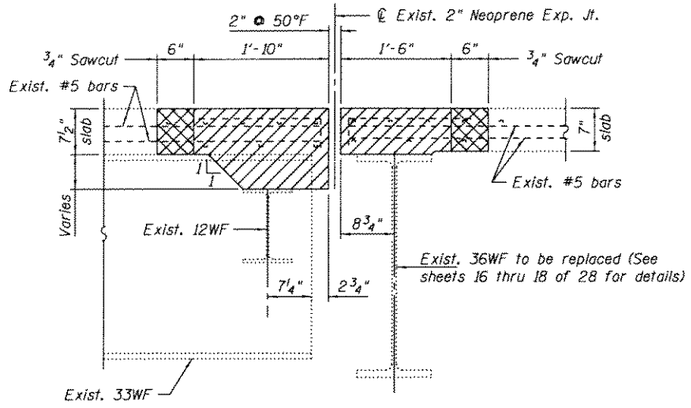
USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 082077-00000.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 2 '/ in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

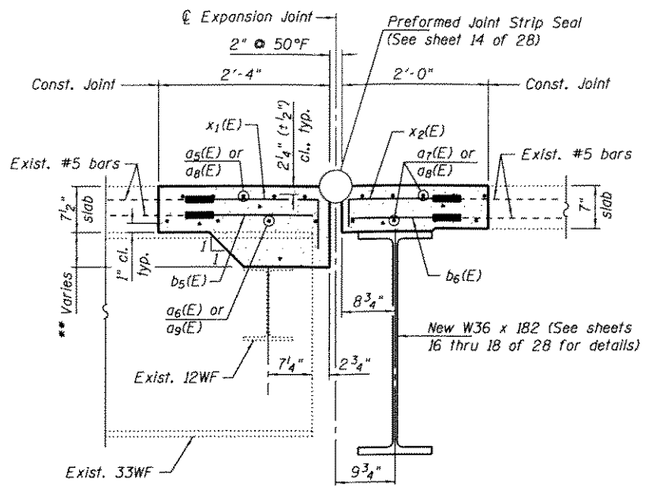
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 3 JOINT REPLACEMENT DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 9 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	24
		CONTRACT NO. 76F75		
		ILLINOIS FED. AID PROJECT		

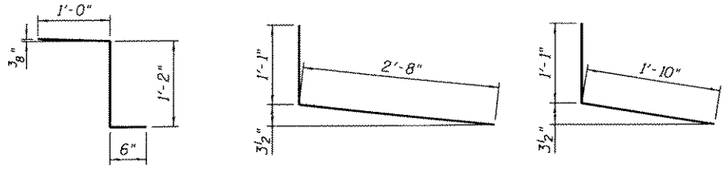


SECTION A-A
(Showing Removal)



SECTION B-B
(Showing Replacement)

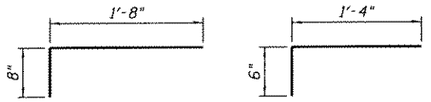
** Depth of Corbel to be reconstructed, 6 1/2" max. at Bridge Crown and varies.



BAR d(E)

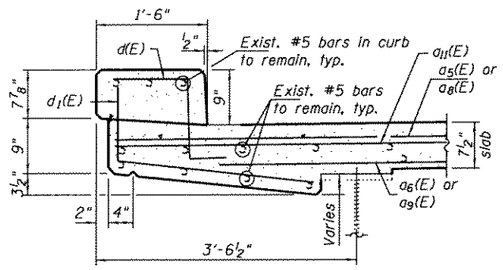
BAR d_1(E)

BAR d_2(E)

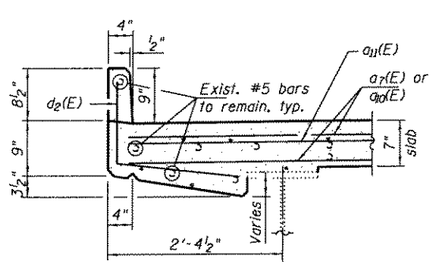


BAR x_1(E)

BAR x_2(E)



SECTION C-C



SECTION D-D

Note:
Work this sheet with sheet 9 of 28.

LEGEND

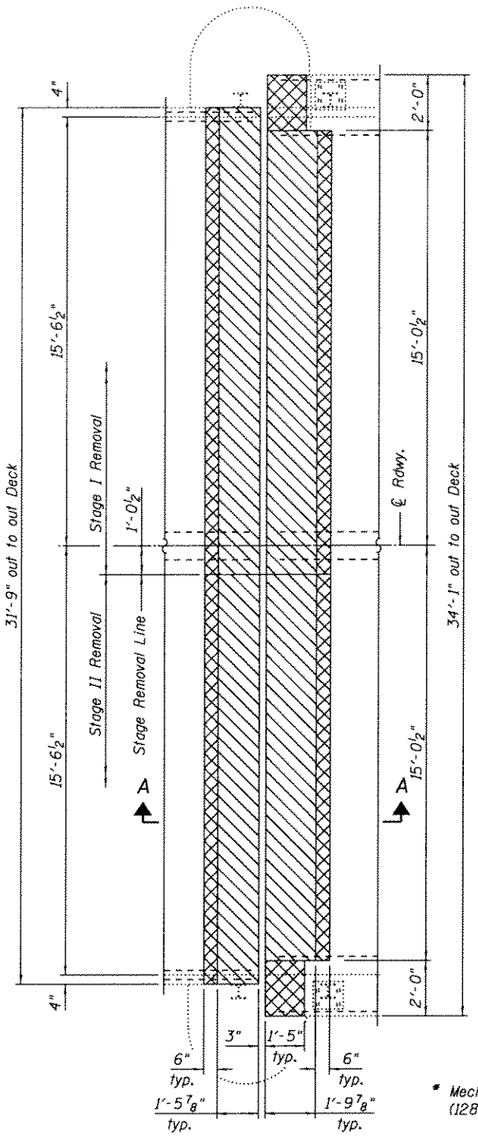
Full depth concrete and reinforcement removal.

Full depth concrete removal. 6" of the existing longitudinal reinforcement shall be cleaned and incorporated into the new construction with mechanical splicers, unless otherwise noted.

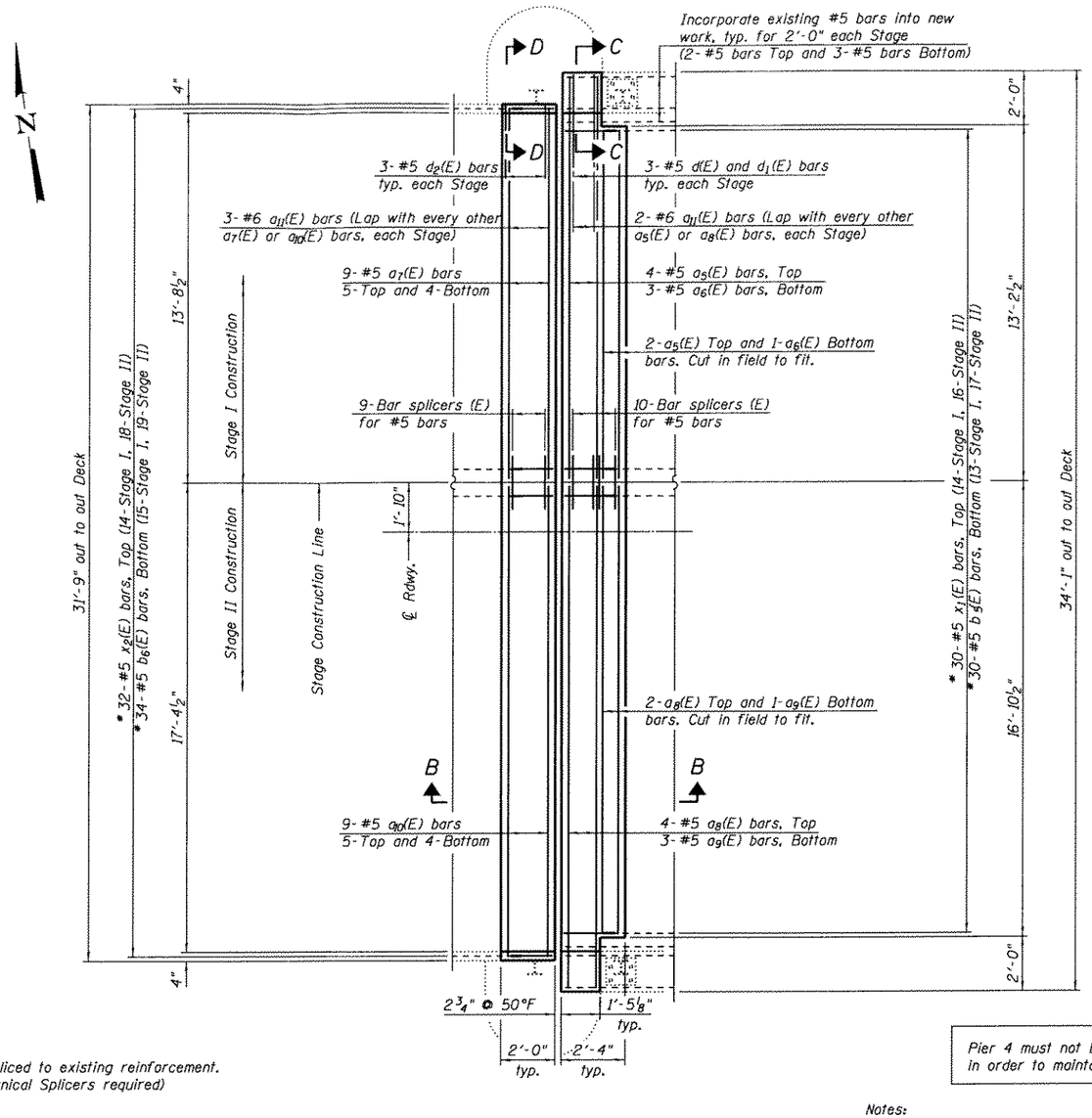
PIER 3
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_5(E)	6	#5	14'-10"	——
a_6(E)	4	#5	14'-1"	——
a_7(E)	9	#5	13'-10"	——
a_8(E)	6	#5	18'-6"	——
a_9(E)	4	#5	17'-9"	——
a_{10}(E)	9	#5	17'-6"	——
a_{11}(E)	10	#6	6'-6"	——
b_5(E)	30	#5	1'-8"	——
b_6(E)	34	#5	1'-4"	——
d(E)	6	#5	2'-8"	⌐
d_1(E)	6	#5	3'-9"	L
d_2(E)	6	#5	2'-11"	L
x_1(E)	30	#5	2'-4"	⌐
x_2(E)	32	#5	1'-10"	⌐

Concrete Removal	Cu. Yd.	4.5
Concrete Superstructure	Cu. Yd.	4.5
Protective Coat	Sq. Yd.	16.1
Reinforcement Bars, Epoxy Coated	Pound	1,030
Bar Splicers	Each	19
Mechanical Splicers	Each	128



PARTIAL PLAN
(Showing Joint Removal)



PARTIAL PLAN
(Showing Joint Replacement)

* Mechanically spliced to existing reinforcement. (128-#5 Mechanical Splicers required)

Pier 4 must not be installed at a temperature greater than 79°F in order to maintain installation and operational clearances.

LEGEND

Full depth concrete and reinforcement removal.

Full depth oncrete removal. 6" of the existing longitudinal reinforcement shall be cleaned and incorporated into the new construction with mechanical splicers, unless otherwise noted.

Notes:

1. Existing reinforcement shall be cleaned, straightened (if required) and incorporated into the new construction. Cost included with Concrete Removal.
2. Removal of existing joint system is included with Concrete Removal.
3. See sheet 14 of 28 for Preformed Joint Strip Seal Details.
4. See sheet 2 of 28 for Stage Construction Scheme.
5. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustment to satisfy the details on sheet 14 of 28.
6. Work this sheet with sheet 12 of 28.

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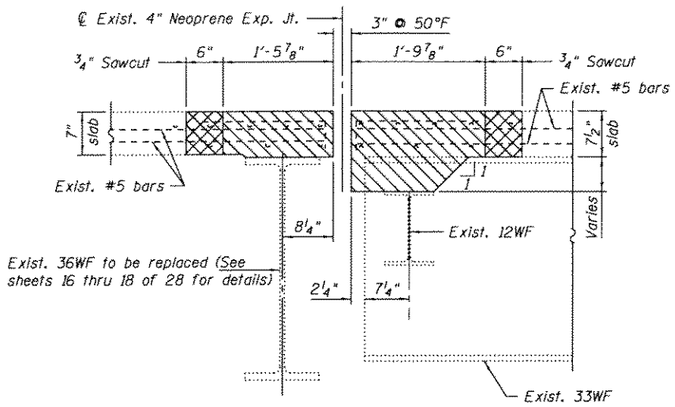
USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 082077-00000.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 0.2 '/ in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

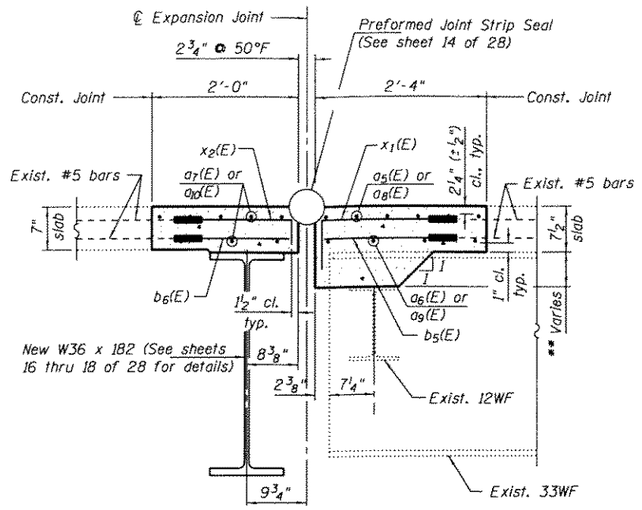
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 4 JOINT REPLACEMENT DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 11 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	26
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			

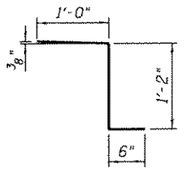


SECTION A-A
(Showing Removal)

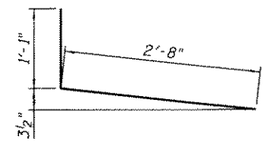


SECTION B-B
(Showing Replacement)

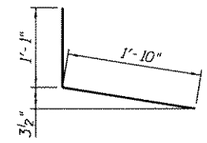
** Depth of Corbel to be reconstructed, 6 1/2" max. at Bridge Crown and varies.



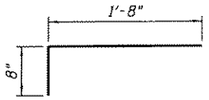
BAR d(E)



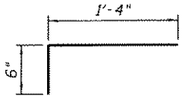
BAR d_1(E)



BAR d_2(E)



BAR x_1(E)



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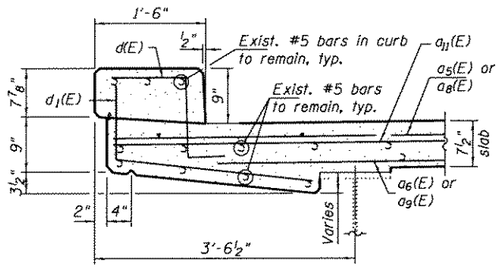
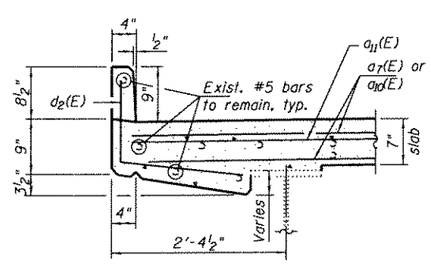


SECTION C-C



SECTION D-D

Note:
Work this sheet with sheet 11 of 28.

LEGEND

Full depth concrete and reinforcement removal.

Full depth concrete removal. 6" of the existing longitudinal reinforcement shall be cleaned and incorporated into the new construction with mechanical splicers, unless otherwise noted.

PIER 4
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_5(E)	6	#5	14'-10"	——
a_6(E)	4	#5	14'-1"	——
a_7(E)	9	#5	13'-10"	——
a_8(E)	6	#5	18'-6"	——
a_9(E)	4	#5	17'-9"	——
a_{10}(E)	9	#5	17'-6"	——
a_{11}(E)	10	#6	6'-6"	——
b_5(E)	30	#5	1'-8"	——
b_6(E)	34	#5	1'-4"	——
d(E)	6	#5	2'-8"	⌐
d_1(E)	6	#5	3'-9"	⌐
d_2(E)	6	#5	2'-11"	⌐
x_1(E)	30	#5	2'-4"	⌐
x_2(E)	32	#5	1'-10"	⌐
Concrete Removal			Cu. Yd.	4.4
Concrete Superstructure			Cu. Yd.	4.4
Protective Coat			Sq. Yd.	16.1
Reinforcement Bars, Epoxy Coated			Pound	1,030
Bar Splicers			Each	19
Mechanical Splicers			Each	128

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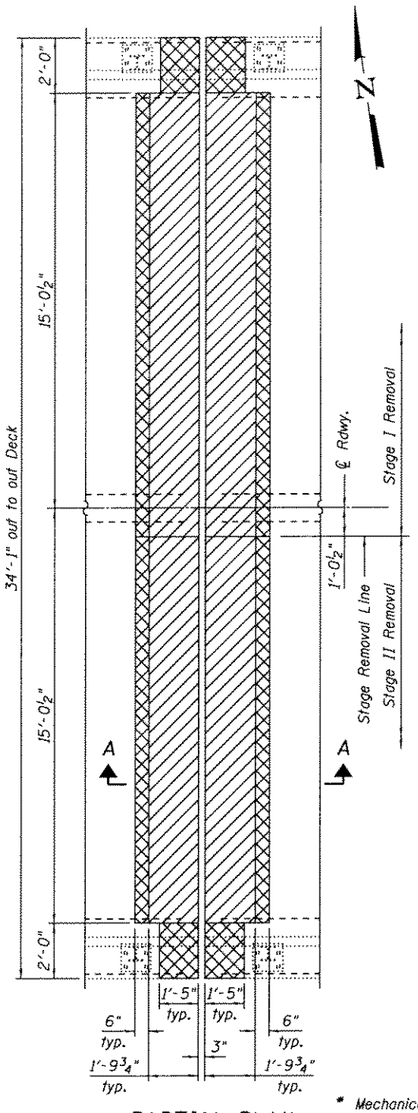
PLOT SCALE = 0.2 '/ in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

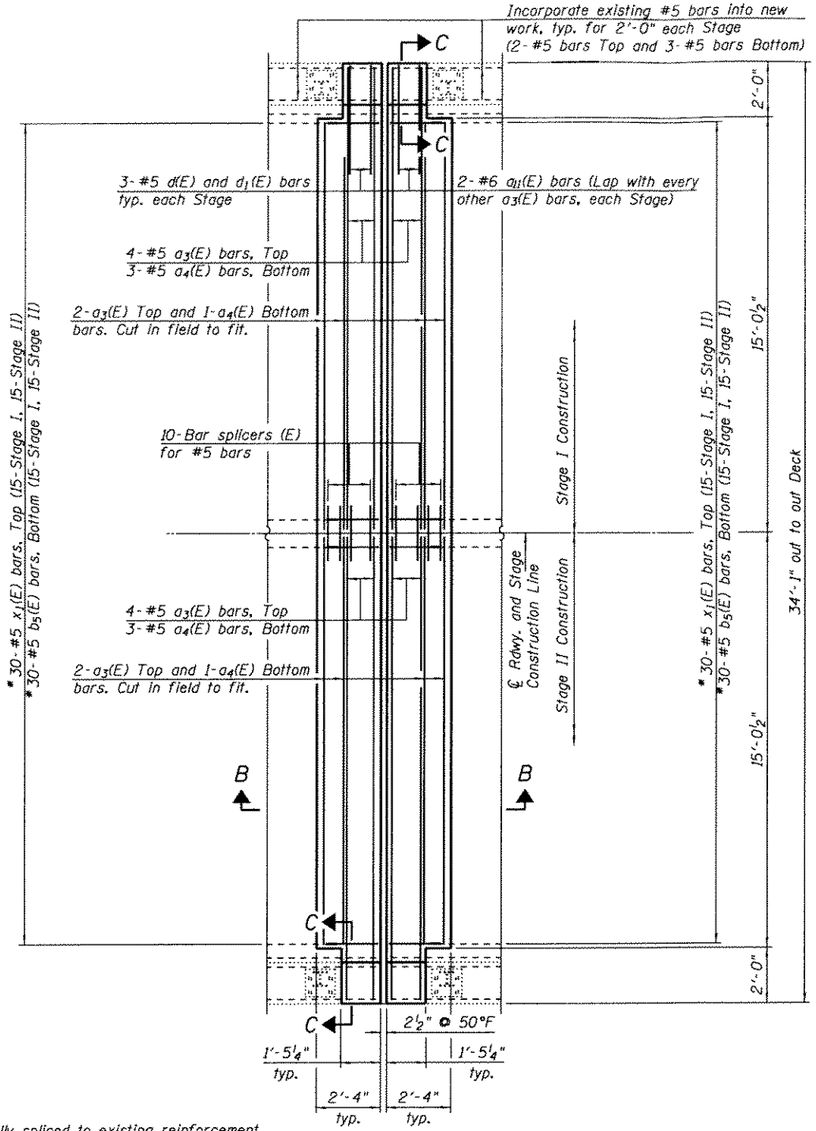
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 4 JOINT REPLACEMENT DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 12 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	27
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			

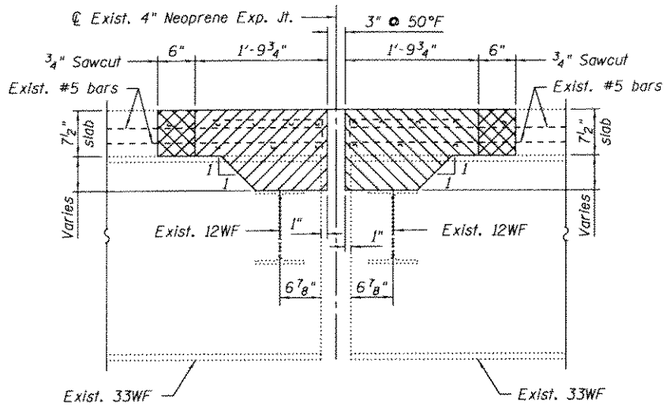


PARTIAL PLAN
(Showing Joint Removal)

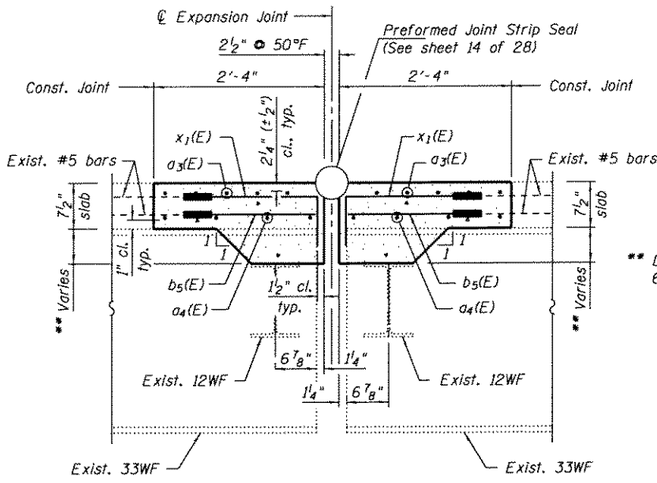


PARTIAL PLAN
(Showing Joint Replacement)

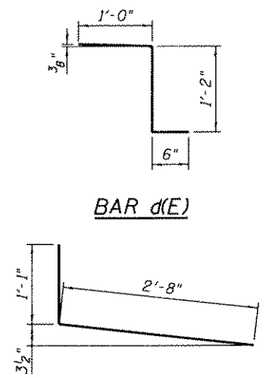
* Mechanically spliced to existing reinforcement. (120-#5 Mechanical Splicers required)



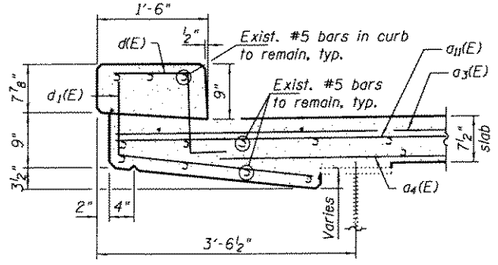
SECTION A-A
(Showing Removal)



SECTION B-B
(Showing Replacement)



** Depth of Corbel to be reconstructed, 6½" max. at Bridge Crown and varies.



SECTION C-C

LEGEND

Full depth concrete and reinforcement removal.

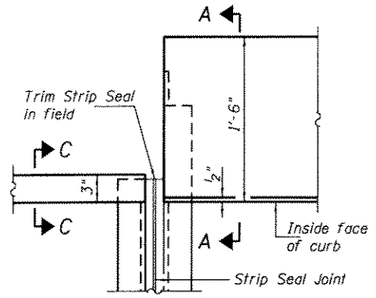
Full depth concrete removal. 6" of the existing longitudinal reinforcement shall be cleaned and incorporated into the new construction with mechanical splicers, unless otherwise noted.

Notes:

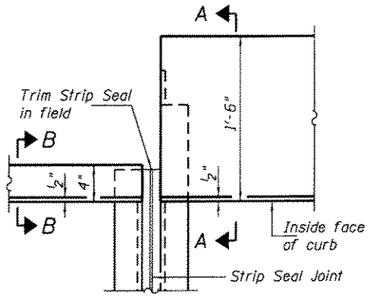
1. Existing reinforcement shall be cleaned, straightened (if required) and incorporated into the new construction. Cost included with Concrete Removal.
2. Removal of existing joint system is included with Concrete Removal.
3. See sheet 14 of 28 for Preformed Joint Strip Seal Details.
4. See sheet 2 of 28 for Stage Construction Scheme.
5. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustment to satisfy the details on sheet 14 of 28.

PIER 8
BILL OF MATERIAL

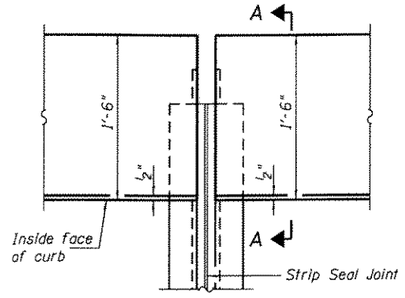
Bar	No.	Size	Length	Shape
a3(E)	24	#5	16'-8"	——
a4(E)	16	#5	15'-11"	——
a11(E)	8	#6	6'-6"	——
b5(E)	60	#5	1'-8"	——
d(E)	12	#5	2'-8"	⌐
d1(E)	12	#5	3'-9"	⌐
x1(E)	60	#5	2'-4"	⌐
Concrete Removal			Cu. Yd.	5.2
Concrete Superstructure			Cu. Yd.	5.4
Protective Coat			Sq. Yd.	17.4
Reinforcement Bars, Epoxy Coated			Pound	1,100
Bar Splicers			Each	20
Mechanical Splicers			Each	120



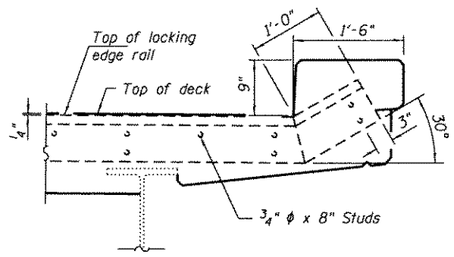
PLAN
(At Abutments)



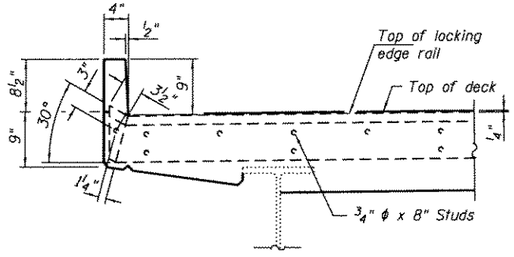
PLAN
(At Piers 3 & 4)



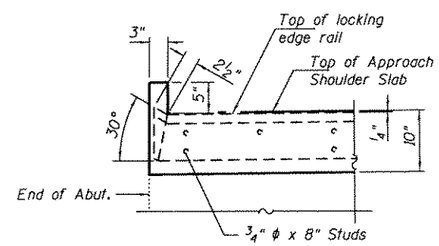
PLAN
(At Pier 8)



SECTION A-A



SECTION B-B



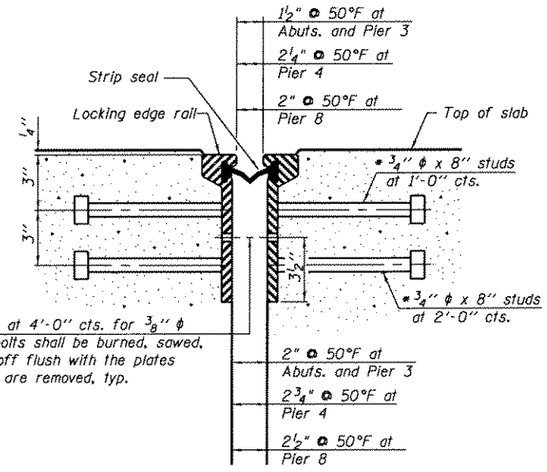
SECTION C-C

Notes:

1. The strip seal shall be made continuous and shall have a minimum thickness of ¼". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.
2. The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.
3. The manufacturer's recommended installation methods shall be followed.
4. The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.
5. All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.
6. Maximum space between rail segments shall be 3/16", sealed with a suitable sealant. Joints in rails within 10 ft. of curbs shall be welded.
7. See sheet 2 of 28 for Stage Construction Scheme.
8. Work this sheet with sheets 7 thru 13 of 28.

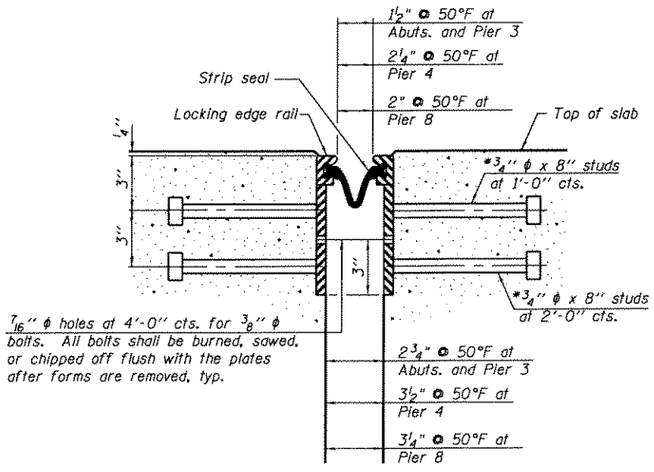
BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	165.5

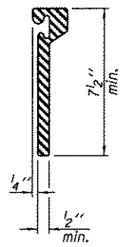


SECTION THRU
ROLLED RAIL JOINT

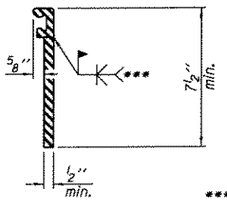
* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



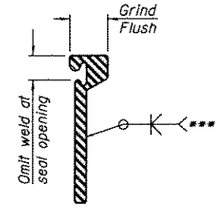
SECTION THRU
WELDED RAIL JOINT



ROLLED
EXTRUDED RAIL



WELDED RAIL



*** Back gouge not required if complete joint penetration is verified by mock-up.

LOCKING EDGE
RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue.

Rolled rail shown, welded rail similar.

LOCKING EDGE RAILS

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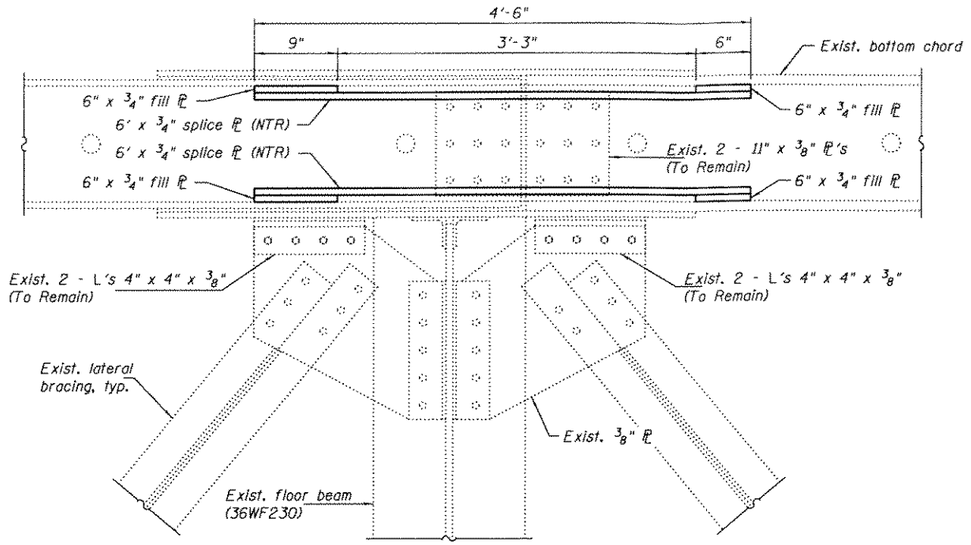
	FILE NAME = 082077-00000.dgn	CHECKED - CWC/SBC	REVISED	
	PLOT SCALE = 62 '/ / in.	DRAWN - FLL/DLH	REVISED	
	PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

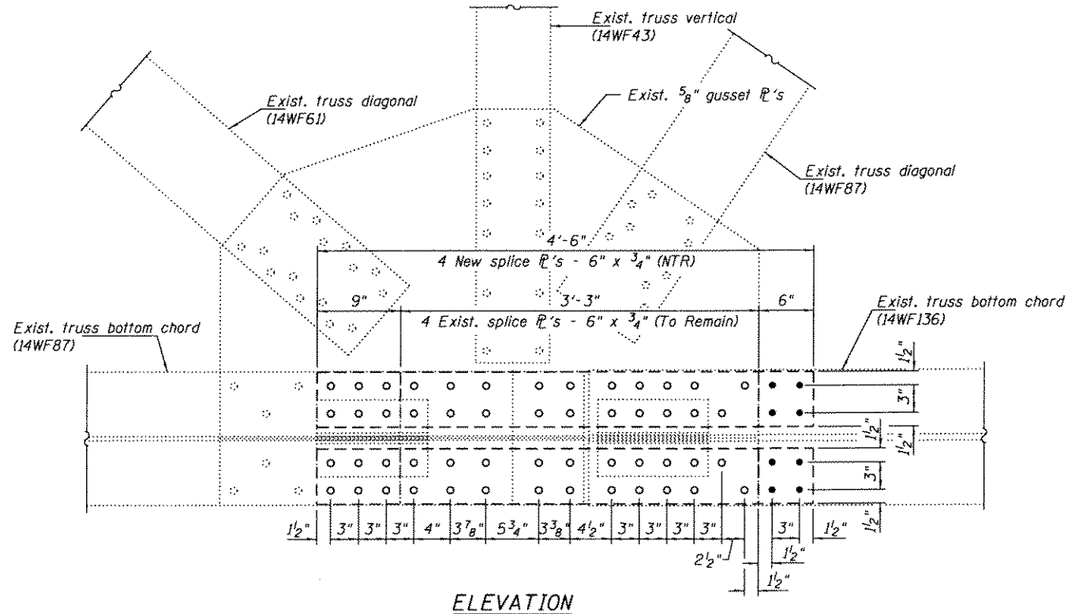
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 082-0077
SHEET NO. 14 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	29
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



PLAN



ELEVATION

(4 Panel Points - L2 N, L2' N, L2 S, and L2' S)

BOTTOM CHORD STRENGTHENING PROCEDURE

1. Strengthen only one existing inside splice plate at a time, total of four at each repair location.
2. Field drill new 15/16" dia. holes in flange of truss bottom chord. The contractor may use new fill plate as a template.
3. Mechanically remove the heads of all designated rivets in accordance with the Special Provision for Structural Steel Repair.
4. With rivet shanks left in place, securely clamp new fill and splice plates in place. Tack welding to truss will not be permitted.
5. Install new A325 H.S. bolts in the new field drilled holes. Immediately tighten each bolt in accordance with the standard specifications before proceeding.
6. Next, drive out one rivet shank at a time and replace with an A325 H.S. bolt.
7. Immediately tighten bolt in accordance with standard specifications before proceeding.
8. Continue replacing one rivet with one bolt at a time until all rivets have been replaced.
9. Repeat steps 1 thru 8 until all four inside splices have been strengthened.
10. Proceed to the next repair location and repeat steps 1 thru 8.

LEGEND

- ● New 7/8" ϕ H.S. bolt thru new field drilled 15/16" ϕ hole in existing truss chord.
- ○ New 7/8" ϕ H.S. bolt thru new 15/16" ϕ holes in splice plate and existing 15/16" ϕ rivet hole in existing truss chord (See note 3).
- ◌ Existing 7/8" ϕ rivets to remain.

Notes:

1. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.
2. Only strengthen the bottom chord inside splices on the North side during Stage I and the South side during Stage II.
3. The existing rivet hole pattern and splice plate dimensions are shown for information only. The Contractor shall field verify existing dimensions prior to ordering materials.
4. The Contractor shall field verify the required bolt length and length of threads necessary to install all bolts in accordance with the Standard Specifications.

BILL OF MATERIAL

Item	Unit	Total
Structural Steel Repair	Pound	2,050

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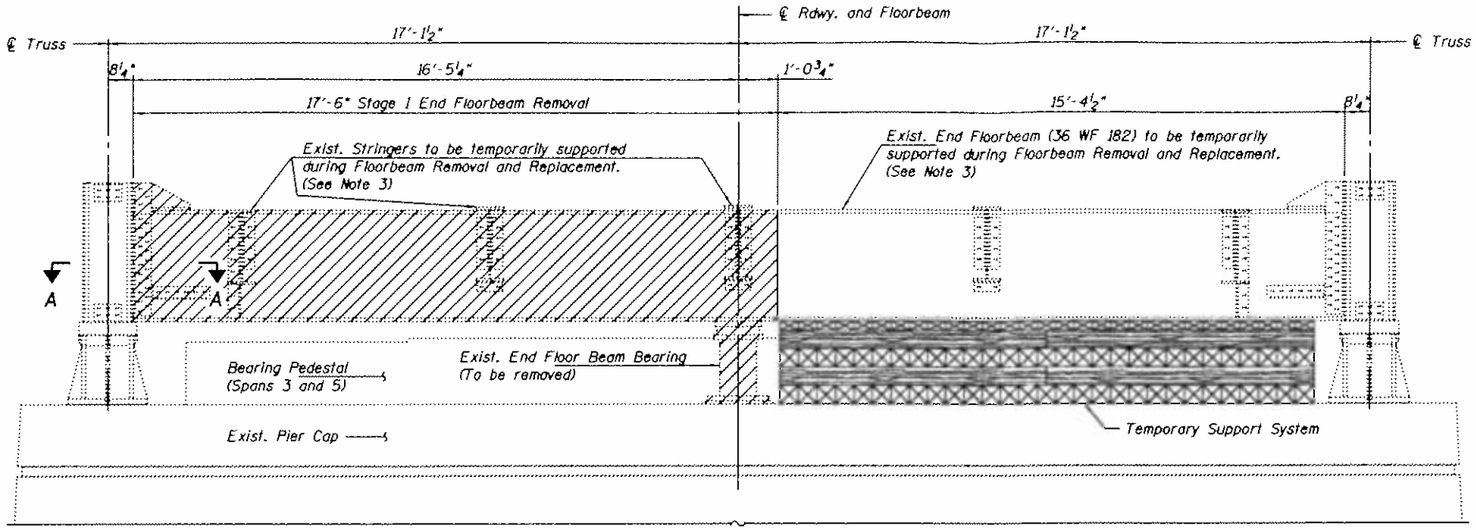
USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 0820077-00002.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 0.2 '/ in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

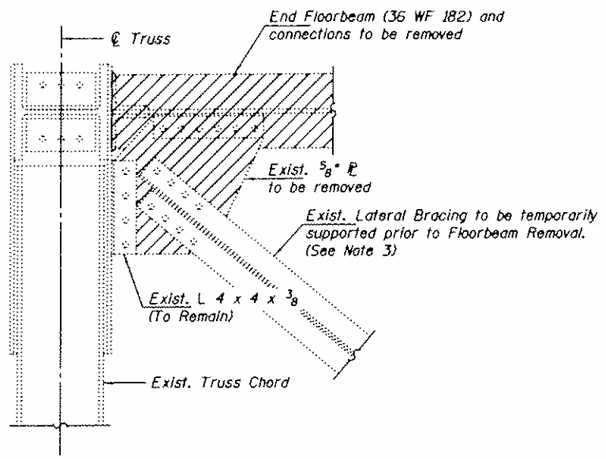
TRUSS BOTTOM CHORD SPLICE STRENGTHENING DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 15 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	30
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



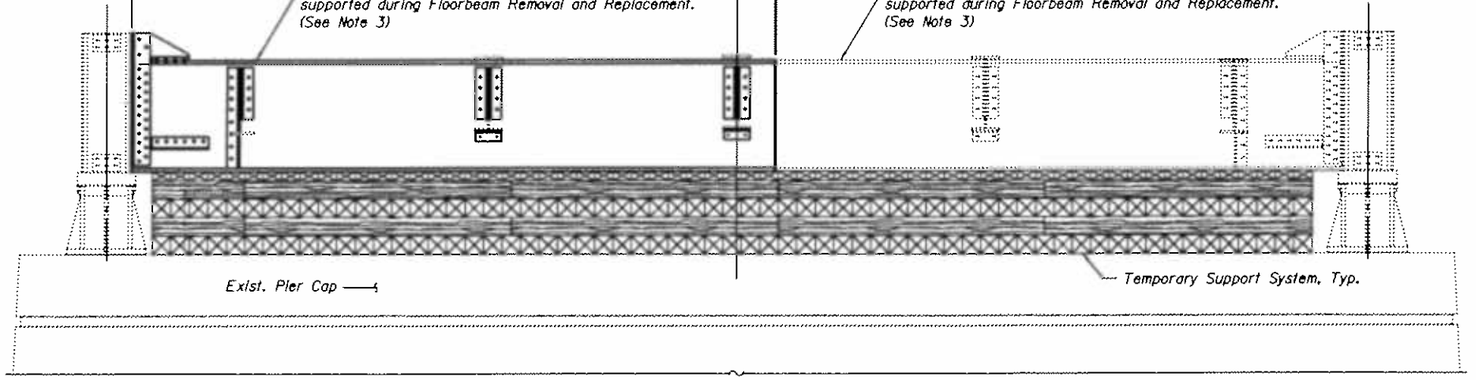
STAGE 1 END FLOORBEAM REMOVAL

(Looking East)



SECTION A-A

(Showing Structural Steel Removal)
(North end shown South end similar)



STAGE 1 END FLOORBEAM CONSTRUCTION

(Looking East)

STRINGER REACTION TABLE

	Exterior	Interior
R_{DL}	9.3K	10.5K
R_{LL}	26.9K	36.9K
R_I	8.1K	11.0K
R_{TOTAL}	44.3K	58.4K

(Reactions are unfactored)

LEGEND

Structural Steel Removal

Notes:

1. East End Floorbeam shown. West End Floor Beam similar by 180 degree rotation.
2. Hatch area indicates Structural Steel Removal. Removal of End Floorbeams, Connection Angles and Plates, Lateral Bracing, Horizontal Gusset Plates, and all Bolts and Rivets are included in the cost of Structural Steel Repair. See Special Provisions.
3. Stringers, End Floorbeam, and Lateral Bracing shall be temporarily supported during removal and replacement. Cost included with Temporary Support System. See Special Provisions.
4. See sheets 18 of 28 for Structural Steel Details and Bill of Material.
5. See sheet 2 of 28 for Stage Construction Scheme.
6. Work this sheet with sheets 17 and 18 of 28.

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USER NAME = #OPERATOR#	DESIGNED - FLL/SBC	REVISED
FILE NAME = 082S0077-SHEET.dgn	CHECKED - CWC/SBC	REVISED
PLOT SCALE = 1.2 '/ in.	DRAWN - FLL/DLH	REVISED
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED

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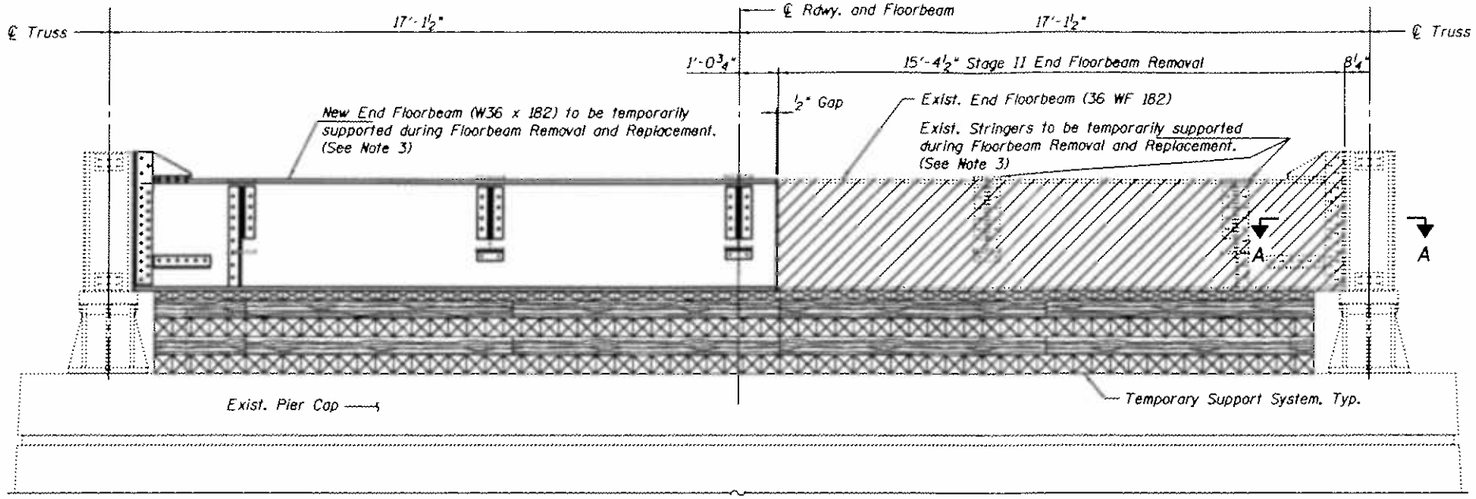
DEPARTMENT OF TRANSPORTATION

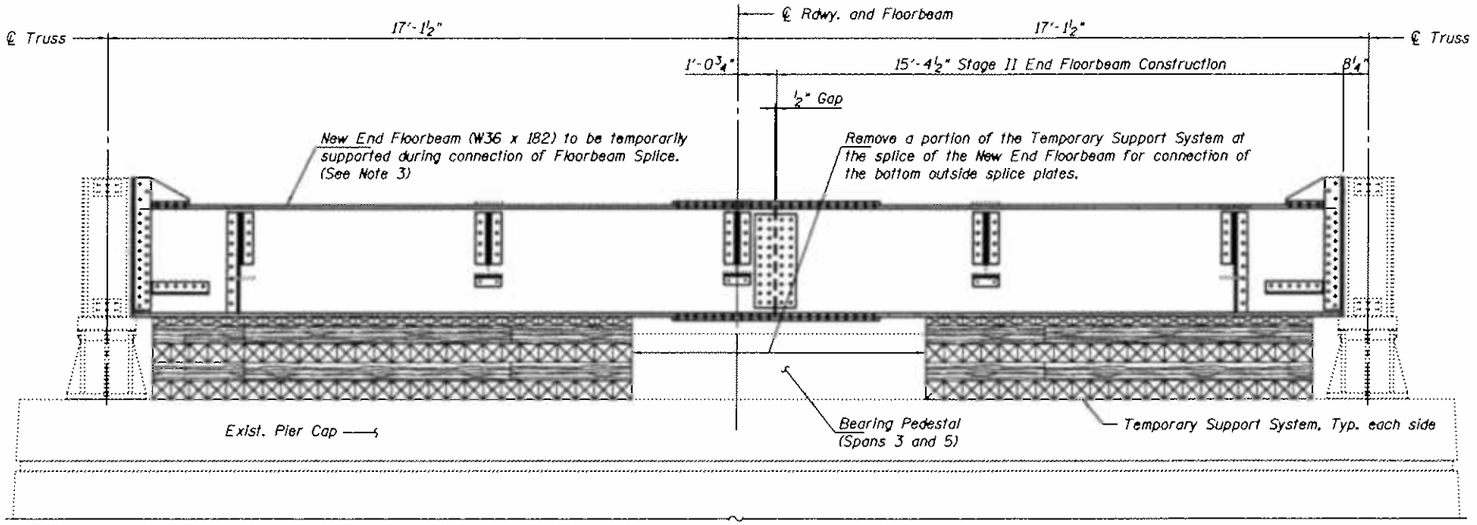
FLOORBEAM REPLACEMENT DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 16 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	31
		CONTRACT NO. 76F75		
		ILLINOIS FED. AID PROJECT		



STAGE II END FLOORBEAM REMOVAL

(Looking East)



STAGE II END FLOORBEAM CONSTRUCTION

(Looking East)

LEGEND

Structural Steel Removal

Notes:

1. East End Floorbeam shown. West End Floorbeam similar by 180 degree rotation.
2. Hatch area indicates Structural Steel Removal. Removal of End Floorbeams, Connection Angles and Plates, Lateral Bracing, Horizontal Gusset Plates, and all Bolts and Rivets are included in the cost of Structural Steel Repair. See Special Provisions.
3. Stringers, End Floorbeam, and Lateral Bracing shall be temporarily supported during removal and replacement. Cost included with Temporary Support System. See Special Provisions.
4. See sheet 18 of 28 for Structural Steel Details and Bill of Material.
5. See sheet 16 of 28 for Stringer Reaction Table and Section A-A.
6. Work this sheet with sheets 16 and 18 of 28.

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USER NAME = #OPERATOR#	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 8620077-88888.dgn	CHECKED - CWC/SBC	REVISED	
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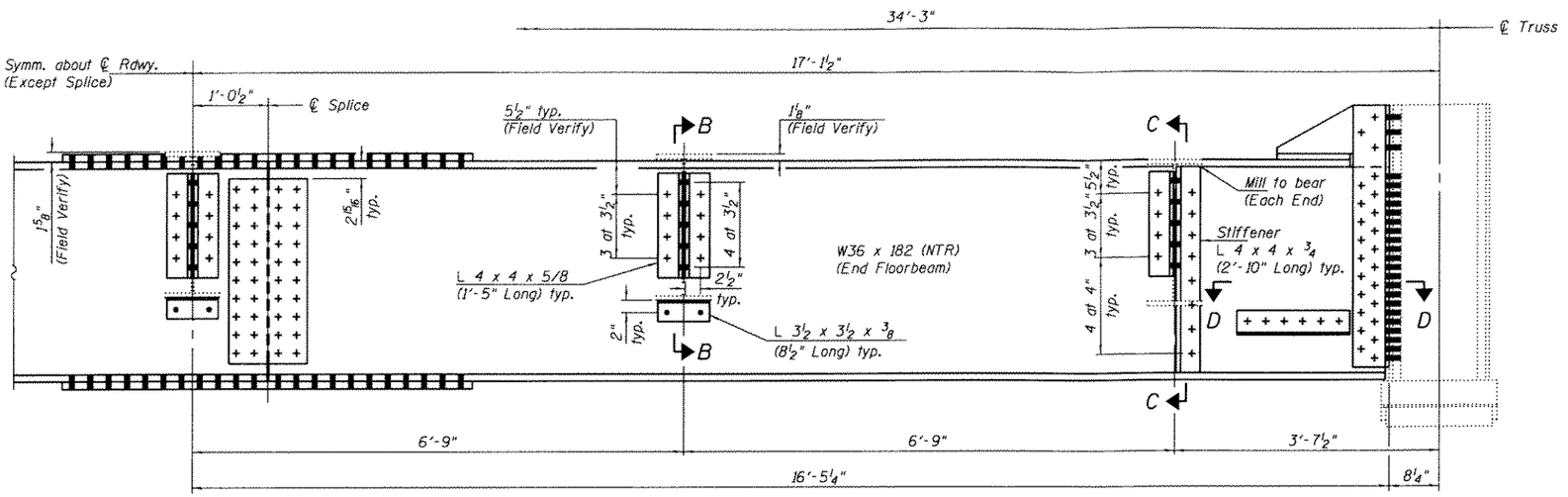
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

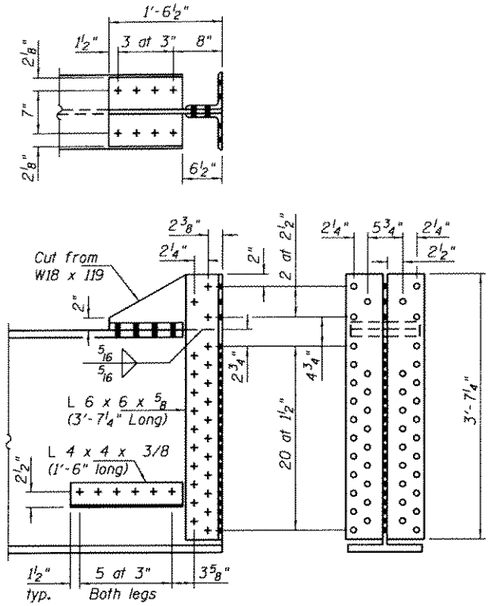
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FLOORBEAM REPLACEMENT DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 17 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	32
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			

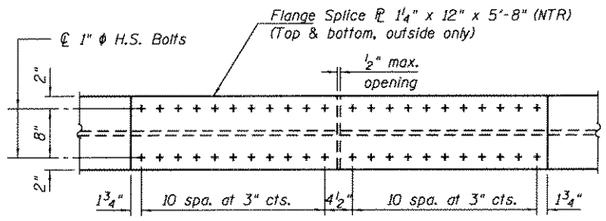


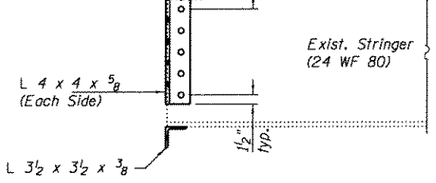
FLOORBEAM ELEVATION



END FLOORBEAM TO TRUSS CONNECTION

(Truss not shown for clarity, typical each end.)

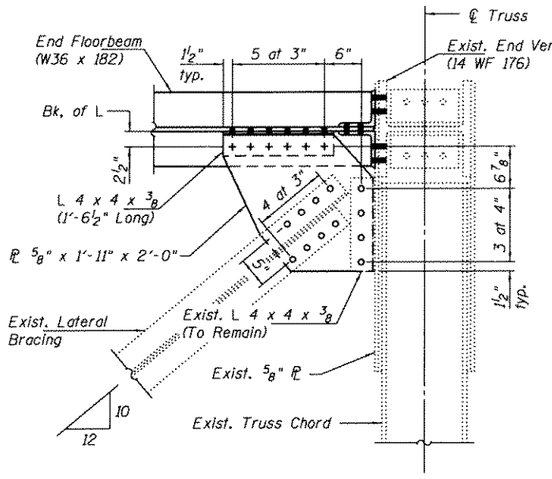




SECTION B-B

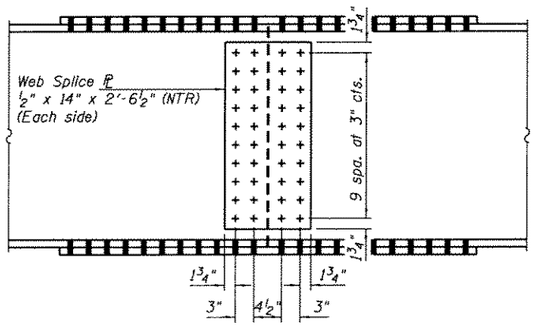
(End Floorbeam not shown for clarity)

* ⅞" ϕ H.S. bolts in 15/16" ϕ holes. Contractor may use existing rivet holes in stringer as a template.



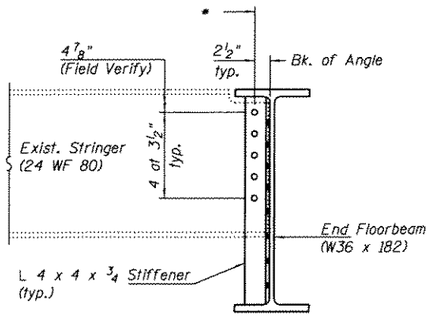
SECTION D-D

(Showing Gusset Plate Replacement)



END FLOORBEAM SPLICE

(2 Splices Total)



SECTION C-C

LEGEND

- ● New ⅞" ϕ H.S. bolt thru new field drilled 15/16" ϕ hole.
- ○ New ⅞" ϕ H.S. bolt thru existing 15/16" ϕ rivet hole. (See Note 3)
- ◌ Existing ⅞" ϕ rivets to remain.
- \+ New ⅞" ϕ H.S. bolt thru new 15/16" ϕ hole. (Except floorbeam splice, See Note 2)

Notes:

1. All splices are symmetrical about ℄ splice.
2. H.S. bolts in floorbeam splice shall be 1" ϕ AASHTO M235 (ASTM A490, Type 1) with threads excluded from the shear plane. All bolts shall be field painted.
3. The Contractor shall field verify the dimensions of the proposed gusset plates, connection angles, and the layout of the fastener holes prior to ordering materials.
4. The Contractor shall field verify the required bolt length and length of threads necessary to install all bolts in accordance with the Standard Specifications.
5. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

TWO END FLOORBEAMS TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structural Steel Repair	Pound	16,730
Temporary Support System	Each	2

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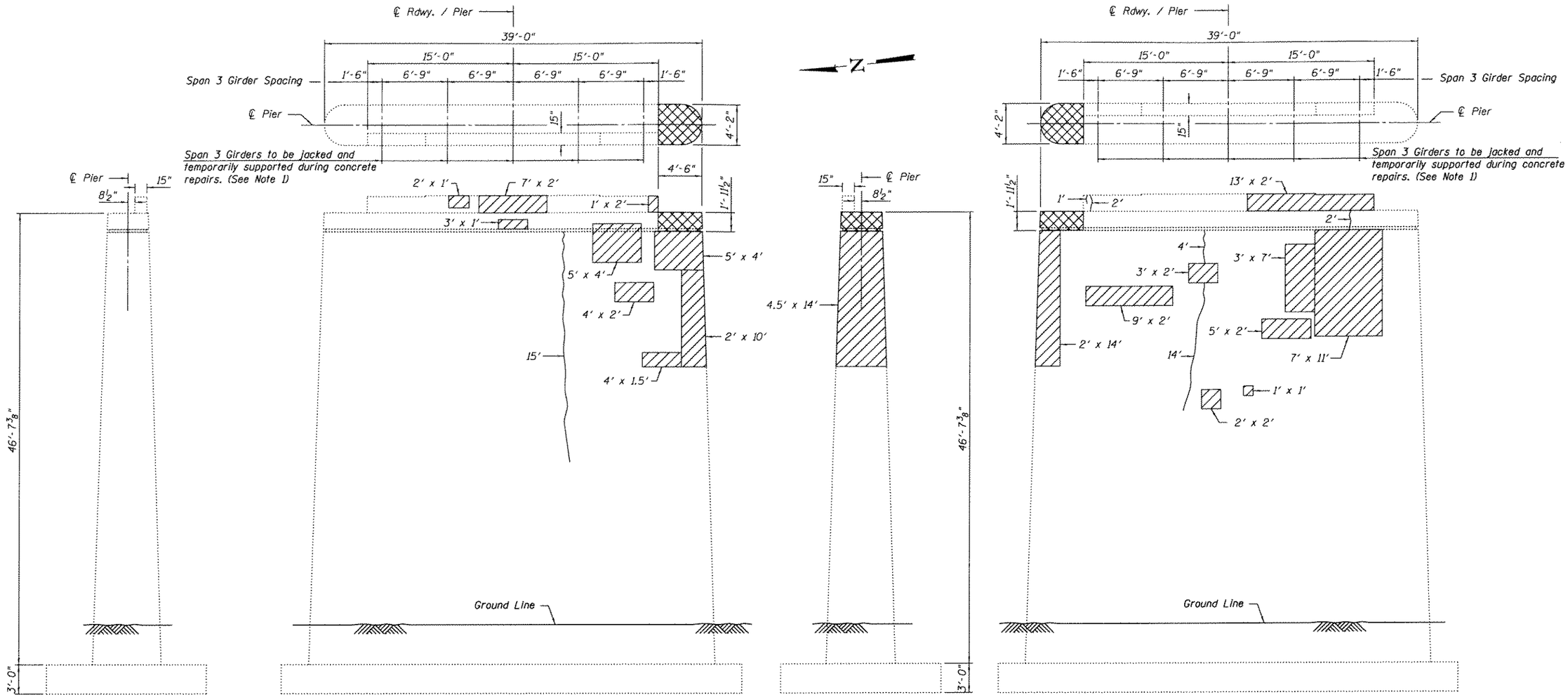
DEPARTMENT OF TRANSPORTATION

FLOORBEAM REPLACEMENT DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 18 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR-1	ST. CLAIR	43	33
		CONTRACT NO. 76F75		
	ILLINOIS	FED. AID PROJECT		



NORTH END VIEW

WEST FACE ELEVATION

SOUTH END VIEW

EAST FACE ELEVATION

SPAN 3 GIRDER REACTION TABLE

	Exterior	Interior
R_{DL}	28.4^K	28.4^K
R_{LL}	34.2^K	46.9^K
R_I	9.0^K	12.3^K
R_{TOTAL}	71.6^K	87.6^K

(Reactions are unfactored)

LEGEND

Concrete Removal and Replacement, (Jacking and temporary support of the Truss shall be completed before commencing Concrete Removal Operations. See sheets 21 and 22 of 28 for details.)

Structural Repair of Concrete (Depth greater than five inches)

Epoxy Crack Injection

Notes:

1. Jacking and cribbing of the Span 3 Girder ends and concrete repairs to the upper pier pedestal and/or pier stem shall not occur simultaneously with the removal and reinstallation of the existing truss bearings.
2. Crack widths shown to be repaired are $\frac{1}{8}" \pm \frac{1}{16}"$ unless otherwise noted.
3. For Pier Cap Details and Bill of Material, see sheet 21 of 28.
4. Work this sheet with sheet 20 and 21 of 28.

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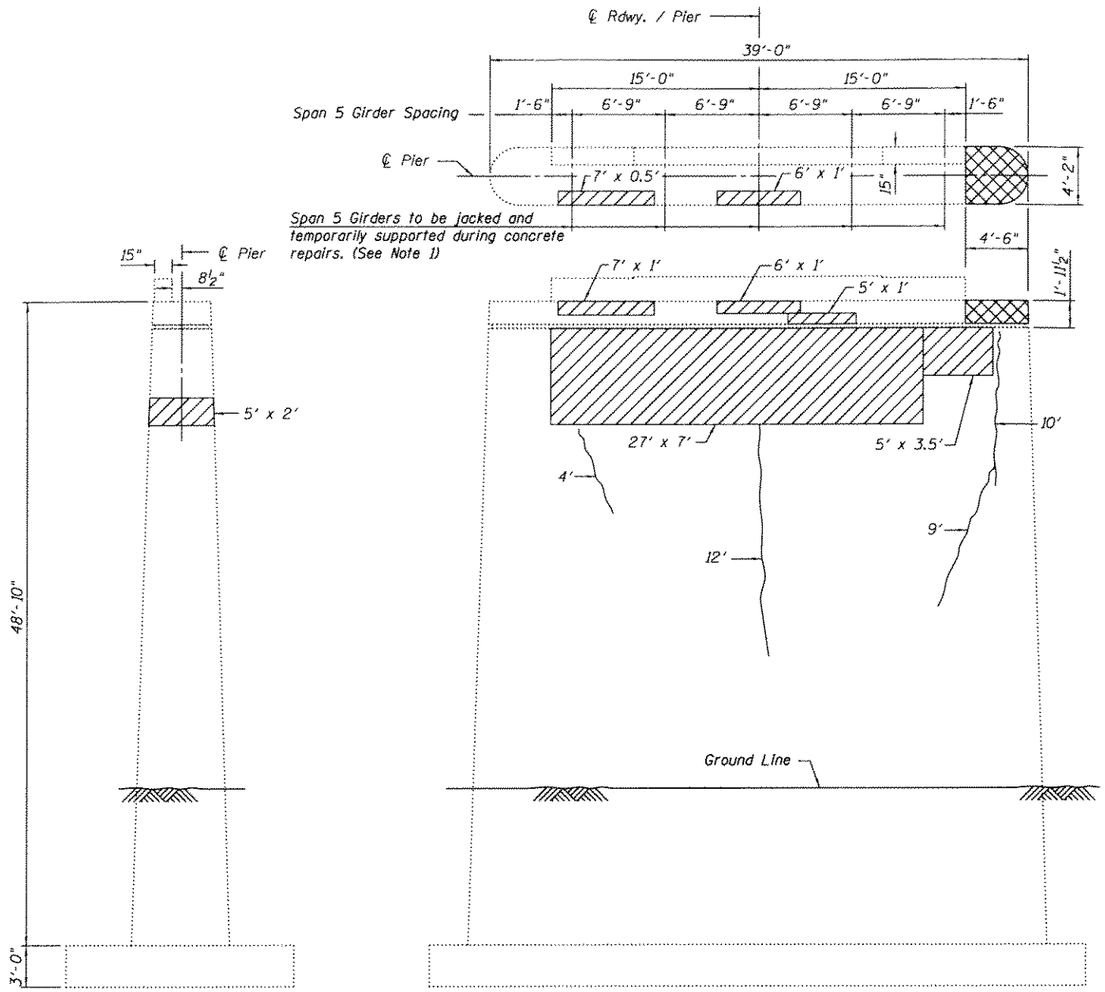
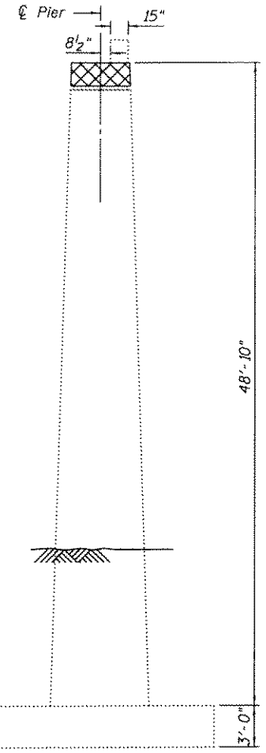
PIER 3 REPAIR DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 19 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR -1	ST. CLAIR	43	34
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			

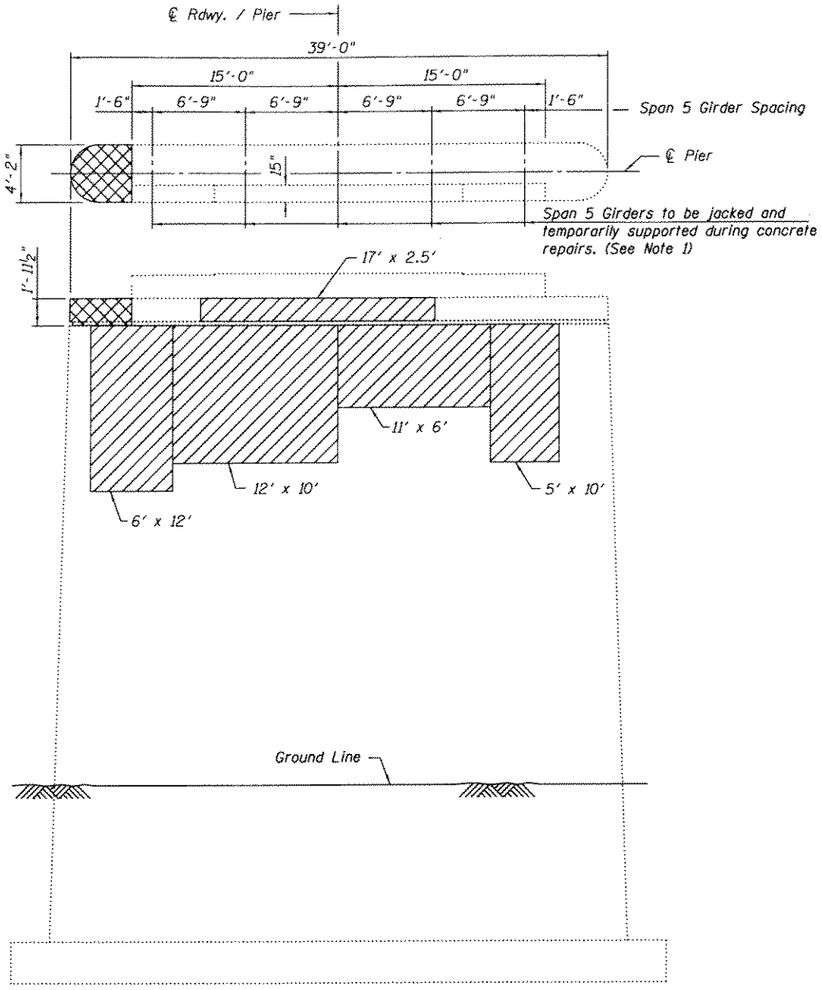


NORTH END VIEW

WEST FACE ELEVATION



SOUTH END VIEW



EAST FACE ELEVATION

LEGEND

Concrete Removal and Replacement, (Jacking and temporary support of the Truss shall be completed before commencing Concrete Removal Operations. See sheets 21 and 22 of 28 for details.)

Structural Repair of Concrete (Depth greater than five inches)

Epoxy Crack Injection

SPAN 5 GIRDER REACTION TABLE

	Exterior	Interior
R_{DL}	24.1^K	24.1^K
R_{LL}	33.4^K	45.7^K
R_I	9.2^K	12.6^K
R_{TOTAL}	66.7^K	82.4^K

(Reactions are unfactored)

Notes:

1. Jacking and cribbing of the Span 5 Girder ends and concrete repairs to the upper pier pedestal and/or pier stem shall not occur simultaneously with the removal and reinstallation of the existing truss bearings.
2. Crack widths shown to be repaired are ⅛" ± 1/16" unless otherwise noted.
3. For Pier Cap Details and Bill of Material, see sheet 21 of 28.
4. Work this sheet with sheet 19 and 21 of 28.

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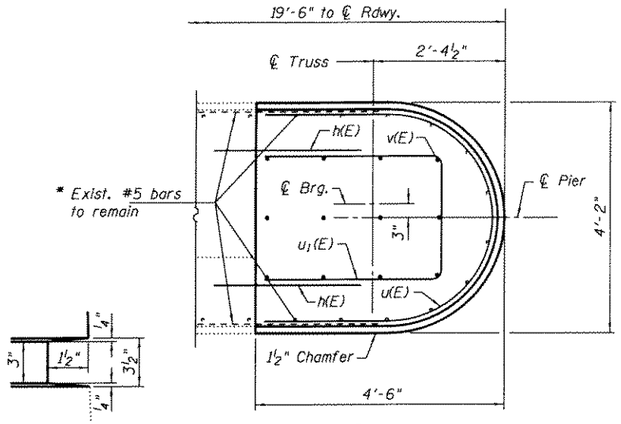
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

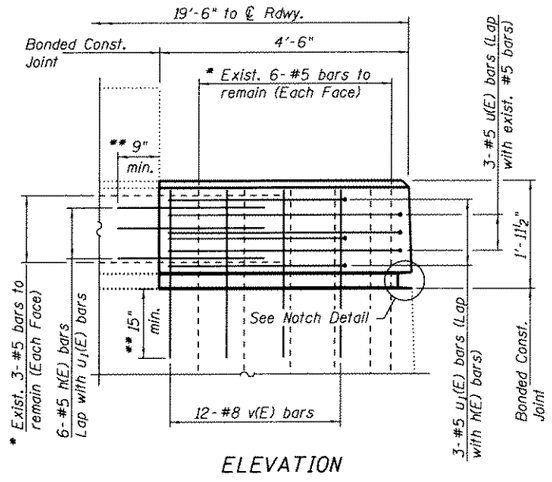
PIER 4 REPAIR DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 20 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR -1	ST. CLAIR	43	35
		CONTRACT NO. 76F75		
	ILLINOIS	FED. AID PROJECT		



PLAN

NOTCH DETAIL



ELEVATION

PIER CAP REPAIR DETAILS

* *Reinforcement bars that are damaged during Concrete Removal operations shall be repaired or replaced using an approved Bar Splicer or Anchorage System. Cost included with Concrete Removal*

** *Drill and Epoxy Grout #5 Bars into 9" min. drilled holes and #8 bars into 15" min. drilled holes in the existing pier cap with 4" min. clear cover according to Article 584 of the Standard Specifications. Method and Grout are subject to the approval of the Engineer. Cost included with Reinforcement Bars, Epoxy Coated.*

Notes:

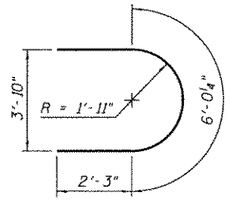
1. *Existing reinforcement shall be cleaned, straightened (if required) and incorporated into the new construction. Cost included with Concrete Removal.*
2. *See sheet 22 of 28 for Truss Bearing Removal and Reinstallation Details.*
3. *Work this sheet with sheets 19 and 20 of 28.*

PIER 3 BILL OF MATERIAL

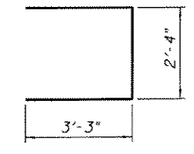
Bar	No.	Size	Length	Shape
h(E)	6	#5	2'-8"	———
u(E)	3	#5	10'-6"	⊐
u1(E)	3	#5	8'-10"	⊐
v(E)	12	#8	3'-1"	———
Concrete Removal			Cu. Yd.	1.3
Concrete Structures			Cu. Yd.	1.3
Reinforcement Bars, Epoxy Coated			Pound	180
Epoxy Crack Injection			Foot	38
Structural Repair of Concrete (Depth > 5")			Sq. Ft.	349.0
Temporary Shoring and Cribbing			Each	5

PIER 4 BILL OF MATERIAL

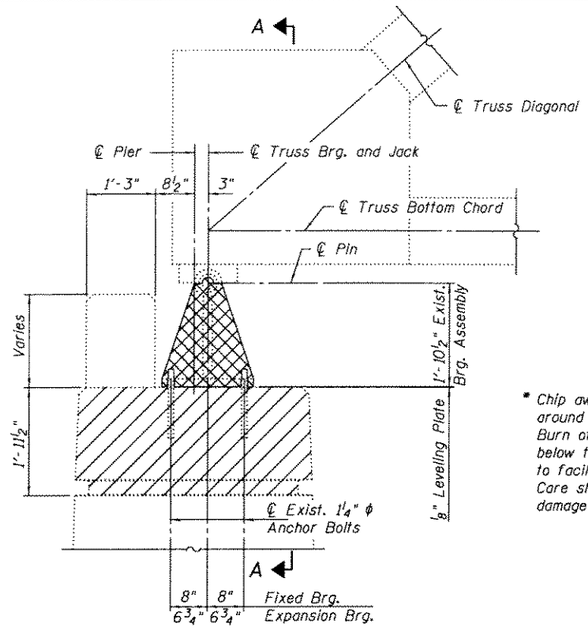
Bar	No.	Size	Length	Shape
h(E)	6	#5	2'-8"	———
u(E)	3	#5	10'-6"	⊐
u1(E)	3	#5	8'-10"	⊐
v(E)	12	#8	3'-1"	———
Concrete Removal			Cu. Yd.	1.3
Concrete Structures			Cu. Yd.	1.3
Reinforcement Bars, Epoxy Coated			Pound	180
Epoxy Crack Injection			Foot	35
Structural Repair of Concrete (Depth > 5")			Sq. Ft.	594.5
Temporary Shoring and Cribbing			Each	5



BAR u(E)

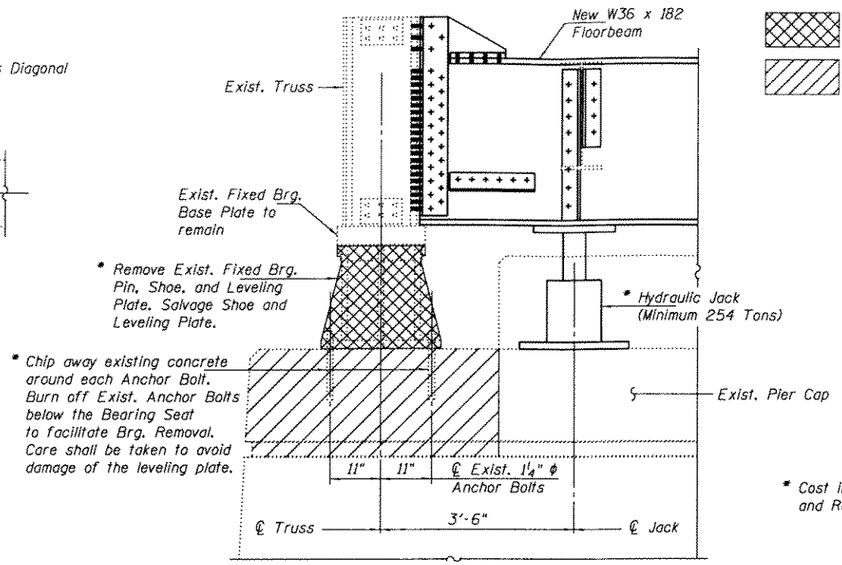


BAR u1(E)



ELEVATION

(Fix Bearing Assembly at Pier 3 shown. Expansion Bearing Assembly at Pier 4 similar except as noted.)



SECTION A-A

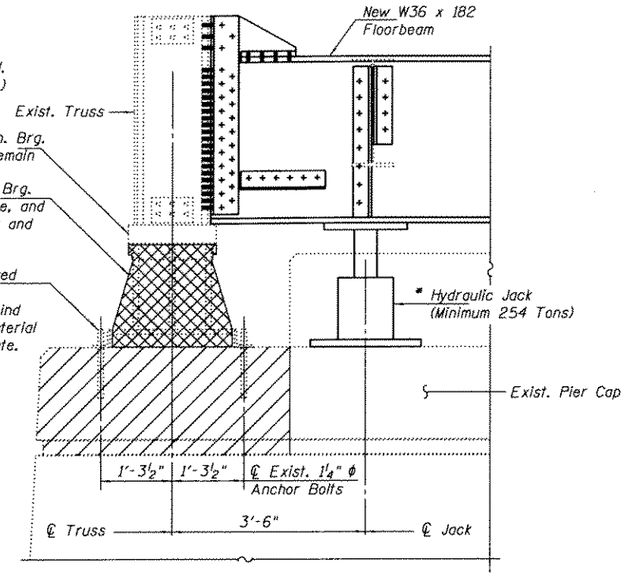
(Showing Fixed Brg. Assembly Removal)

LEGEND

Limits of Bearing Assembly Removal.

Limits of Pier Cap Concrete Removal. (See sheets 19-21 of 28 for details.)

* Cost included with Remove and Reinstall Existing Bearings.



SECTION A-A

(Showing Expansion Brg. Assembly Removal)

TRUSS BEARING REMOVAL AND REINSTALLATION PROCEDURE

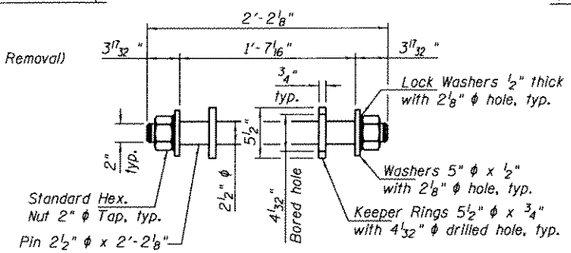
1. The Contractor is responsible for the complete design of the bridge lifting procedures and the materials used. The Contractor shall submit details and calculations sealed by an Illinois Licensed Structural Engineer for his/her proposed jacking systems and temporary support procedures for approval by the Engineer before commencing work.
2. Jacking of the Truss is not permitted during the period of placement and cure time required for the replacement of the expansion joints.
3. Traffic and construction loads shall be removed from the portion of the structure to be jacked prior to and during the entire time the load is being supported by the jacks. The maximum unfactored reactions at the proposed jacking locations are as follows:

   Dead Load = 303 kips
   Stage II Live Load Including Impact = 35 kips

   The minimum jack capacity is 254 Tons. Traffic shall also be kept off that portion of the structure during the entire bearing removal and replacement operation.
4. Jack and temporarily support floorbeams.
5. Burn off existing anchor bolts as detailed to facilitate bearing assembly removal at each location.
6. Remove existing bearing assemblies. Salvage the fixed bearing shoe and leveling plate and expansion bearing rocker, masonry plate, and leveling plate in accordance with Articles 501.02 and 501.05 of the Standard Specifications. Dispose of pins and expansion bearing retainers in accordance with Article 202.03 of the Standard Specifications. Care shall be taken not to damage the existing base plates to remain during pin extraction. If the Contractor damages the base plates and the Engineer deems them unfit for reuse, the Contractor shall replace the base plates in a manner satisfactory to the Engineer and at no additional cost to the contract.
7. Complete all pier cap repairs. See sheets 19 thru 21 of 28 for details.
8. Attach retainers to the existing expansion bearing masonry plate in accordance with 505.04(q) of the Standard Specifications.
9. Reinstall existing bearing assemblies. Drill and set anchor bolts accordance to Article 521.06 of the Standard Specifications.
10. Install new pins in accordance with Article 505.08(k) of the Standard Specifications.
11. Once the bearing assemblies have been installed to the satisfaction of the Engineer, the temporary support system shall be removed and jacks lowered before allowing traffic on that portion of the structure.

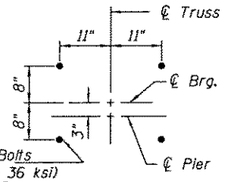
BILL OF MATERIAL

Item	Unit	Total
Remove and Reinstall Existing Bearings	Each	2
Anchor Bolts, 1¼"	Each	8



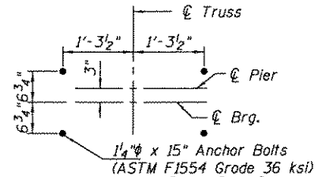
REPLACEMENT PIN DETAIL

(2 Required)



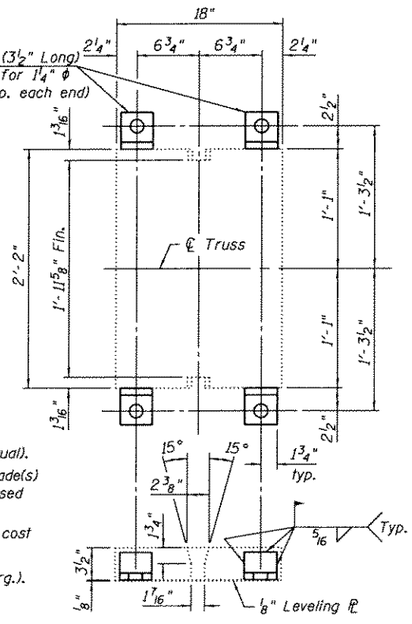
ANCHOR BOLT LAYOUT

(Pier 3)



ANCHOR BOLT LAYOUT

(Pier 4)



REPLACEMENT RETAINER DETAILS

(4 Required)

Notes:

1. Each pin for the bearing assemblies shall be according to ASTM A276, UNS 21800 (Nitronic 60 or equal).
2. Anchor bolts shall be ASTM F1554 all-treaded (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
3. Pins, retainers, and other steel members required for the bearing assemblies shall be included in the cost of Remove and Reinstall Existing Bearings. See Special Provisions.
4. Estimate weight of existing bearing Assemblies = 1,200 lbs. (Fixed Brg.) and 1,600 lbs. (Expansion Brg.).
5. See sheets 19 thru 21 of 28 for Pier 3 and Pier 4 cap repair details.
6. See sheet 2 of 28 for stage construction scheme.

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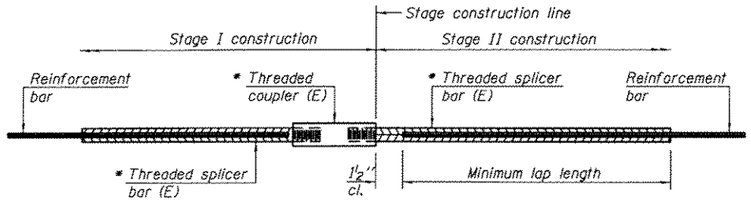
TRUSS BEARING REMOVAL AND REINSTALLATION DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 22 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR -1	ST. CLAIR	43	37
		CONTRACT NO.	76F75	
		ILLINOIS FED. AID PROJECT		



STANDARD BAR SPLICER ASSEMBLY

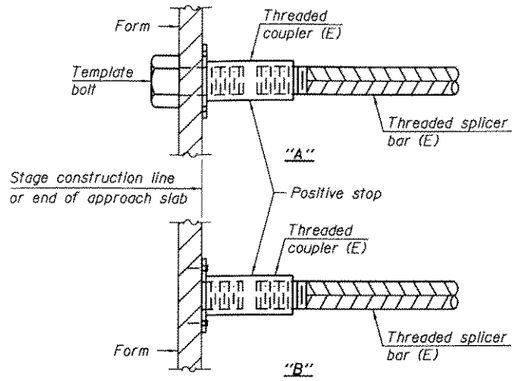
Minimum Lap Lengths						
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"	6'-5"	6'-10"	7'-9"	8'-7"	9'-8"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Class C
Table 6: Epoxy bar, Top bar top, Class C

Threaded splicer bar length = min. lap length + 1½" + thread length

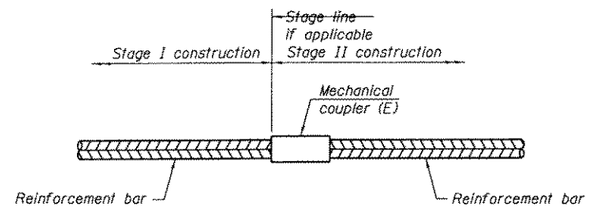
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length
Expansion Joint (W. Abut.)	4	3	4
Expansion Joint (W. Abut.)	5	15	3
Expansion Joint (E. Abut.)	4	3	4
Expansion Joint (E. Abut.)	5	15	3
Expansion Joint (Pier 3)	5	19	3
Expansion Joint (Pier 4)	5	19	3
Expansion Joint (Pier 8)	5	20	3



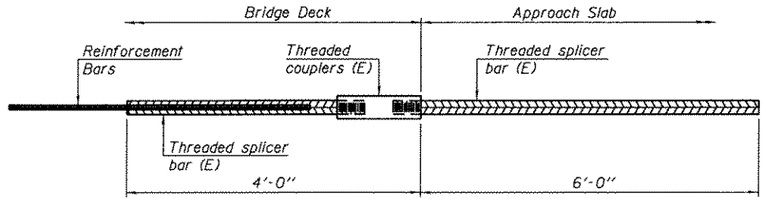
INSTALLATION AND SETTING METHODS

"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.



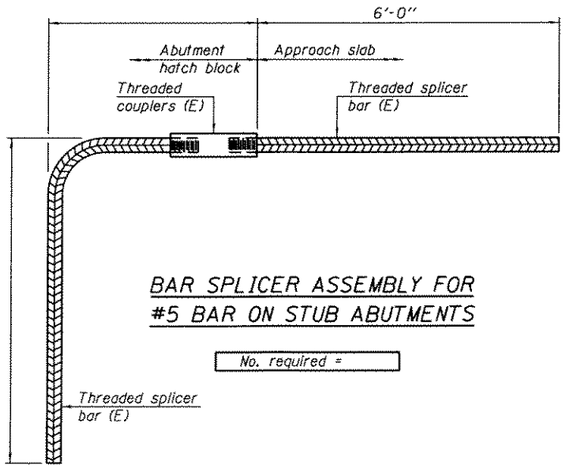
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required
Expansion Joint (W. Abut.)	4	36
Expansion Joint (W. Abut.)	5	60
Expansion Joint (W. Abut.)	7	54
Expansion Joint (E. Abut.)	4	36
Expansion Joint (E. Abut.)	5	60
Expansion Joint (E. Abut.)	7	54
Expansion Joint (Pier 3)	5	128
Expansion Joint (Pier 4)	5	128
Expansion Joint (Pier 8)	5	120



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required =



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
All reinforcement shall be lapped and tied to the splicer bars.
Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1 1-27-12

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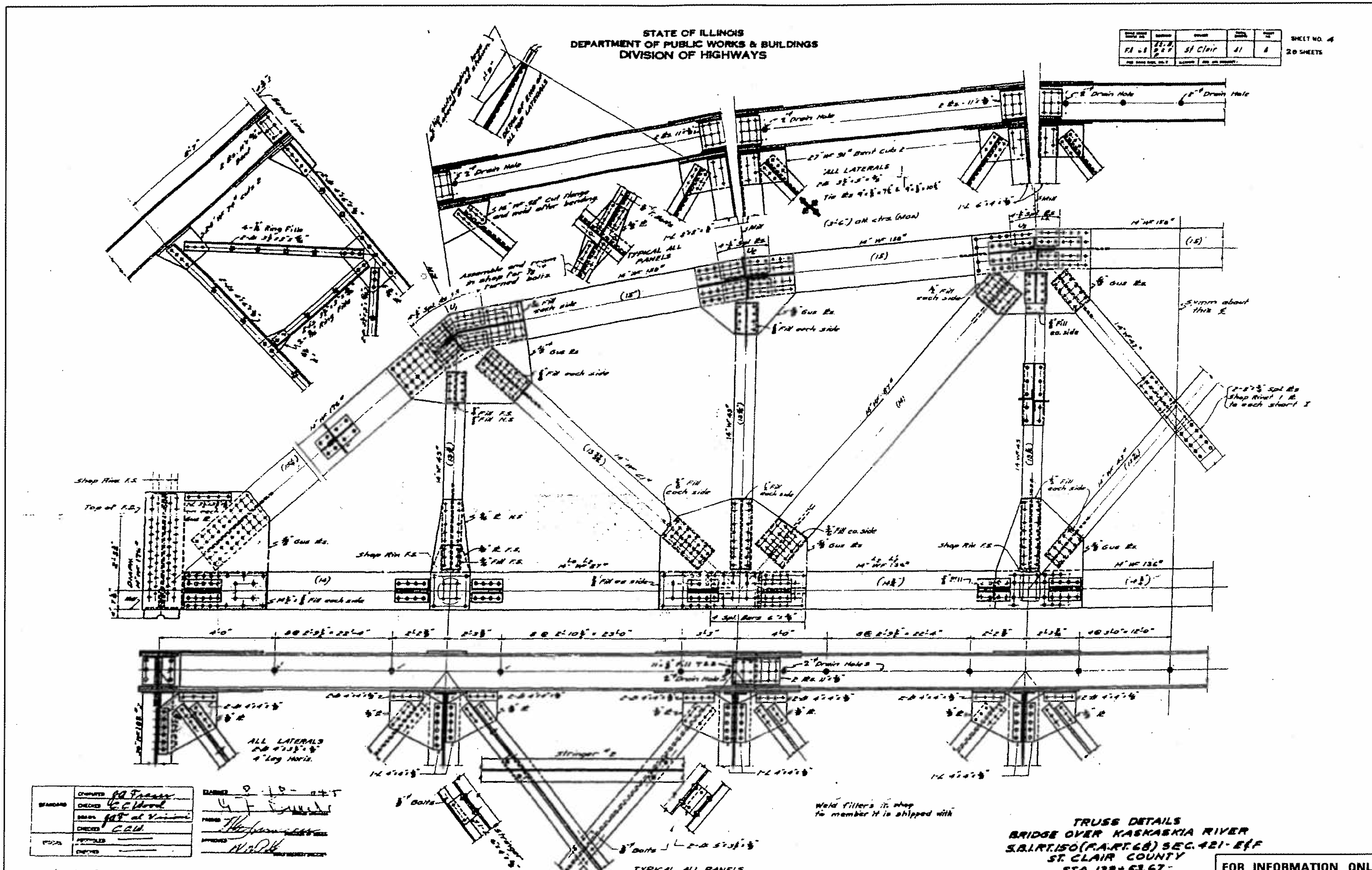
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 082-0077
SHEET NO. 23 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR -1	ST. CLAIR	43	38
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			



FOR INFORMATION ONLY

design firm no. 184001036 whks engineers + planners + land surveyors	USER NAME = $OPERATOR$	DESIGNED - FLL/SBC	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	FILE NAME = 0820077-00000.dgn	CHECKED - CWC/SBC	REVISED	
	PLOT SCALE = 0.2 ' / in.	DRAWN - FLL/DLH	REVISED	
	PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

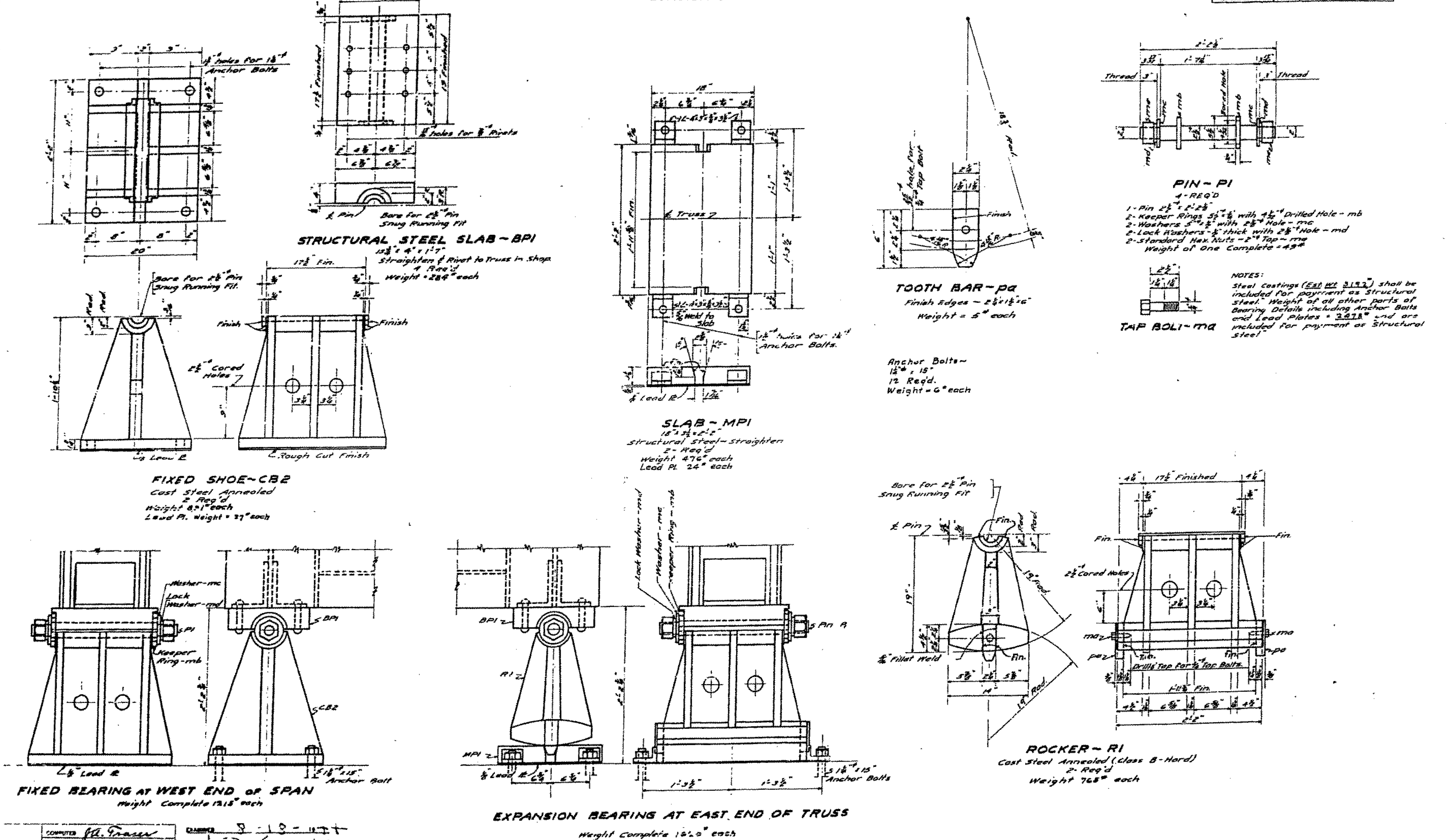
EXISTING PLANS
STRUCTURE NO. 082-0077
SHEET NO. 24 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR -1	ST. CLAIR	43	39
		CONTRACT NO. 76F75		
		ILLINOIS FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

F.A. ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 68	421B, D&F, P	St Clair	41	7

SHEET NO 5
20 SHEETS



STRUCTURAL STEEL SLAB ~ BP1
13½" x 4" x 1'-7"
Straighten & Rivet to Truss in Shop
4 Req'd
Weight = 284# each
Bore for 2½" Pin Snug Running Fit
holes for ⅞" Rivets
holes for 1½" Anchor Bolts
FIXED SHOE ~ CB2
Cast Steel Annealed
2 Req'd
Weight 821# each
Lead Pl. Weight = 37# each
2½" Cored Holes
Rough Cut Finish
Finish
SLAB ~ MP1
18" x 3½" x 2'-2"
Structural Steel - Straighten
2 - Req'd
Weight 476# each
Lead Pl. 24# each
Anchor Bolts
Lead Pl.
TOOTH BAR ~ pa
Finish Edges ~ 2½" x 1½" x 6"
Weight = 5# each
Anchor Bolts ~
1½" x 15"
12 Req'd.
Weight = 6# each
PIN ~ P1
4 - REQ'D
1 - Pin 2½" x 2'-2½"
2 - Keeper Rings 5½" x ¾" with 4⅞" Drilled Hole - mb
2 - Washers 5" x ½" with 2⅛" Hole - mc
2 - Lock Washers - ⅛" thick with 2⅛" Hole - md
2 - Standard Hex. Nuts - 2" Tap - me
Weight of One Complete = 49#
Thread
Bored Hole
TAP BOLT ~ ma
NOTES:
Steel Castings (Est. Wt. 3192#) shall be included for payment as "Structural Steel." Weight of all other parts of Bearing Details including Anchor Bolts and Lead Plates = 3478# and are included for payment as "Structural Steel"
Washer - mc
Lock Washer - md
Keeper Ring - mb
P1
BP1
CB2
R1
MP1
Lead Pl.
1½" x 15" Anchor Bolt
FIXED BEARING AT WEST END OF SPAN
Weight Complete 1215# each
EXPANSION BEARING AT EAST END OF TRUSS
Weight Complete 1620# each
ROCKER ~ R1
Cast Steel Annealed (Class B - Hard)
2 - Req'd
Weight 765# each
Bore for 2½" Pin Snug Running Fit
19" Rad.
Fillet Weld
Drill & Tap for ¾" Tap Bolts
Fin.

TRUSS BEARINGS
BRIDGE OVER KASKASKIA RIVER
S.B.I. RT. 150 (F.A. RT. 68) SEC. 421-E&F
ST. CLAIR COUNTY
STA. 132+53.67

COMPUTED	J.A. Fraser
CHECKED	C.C. Wood
DRAWN	O.O.F. [illegible]
CHECKED	C.C.W.
TRACED	—
CHECKED	—

DATE 8-13-1947
PASSED
APPROVED

Rev. 2-3-46 C.C.W.

FOR INFORMATION ONLY

design firm no. 184001036
whks
engineers + planners + land surveyors

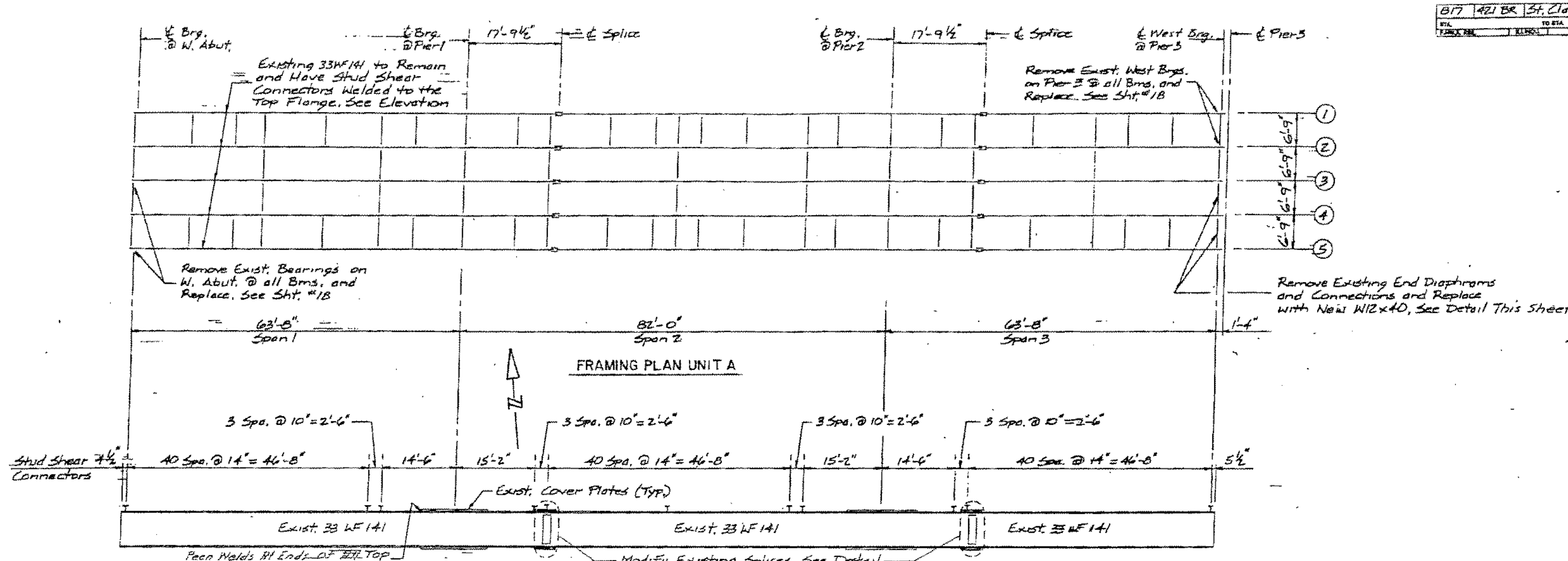
USER NAME = $OPERATOR$	DESIGNED - FLL/SBC	REVISED
FILE NAME = 0820077-00000.dgn	CHECKED - CWC/SBC	REVISED
PLOT SCALE = 0.2 ' / in.	DRAWN - FLL/DLH	REVISED
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING PLANS
STRUCTURE NO. 082-0077
SHEET NO. 25 OF 28 SHEETS

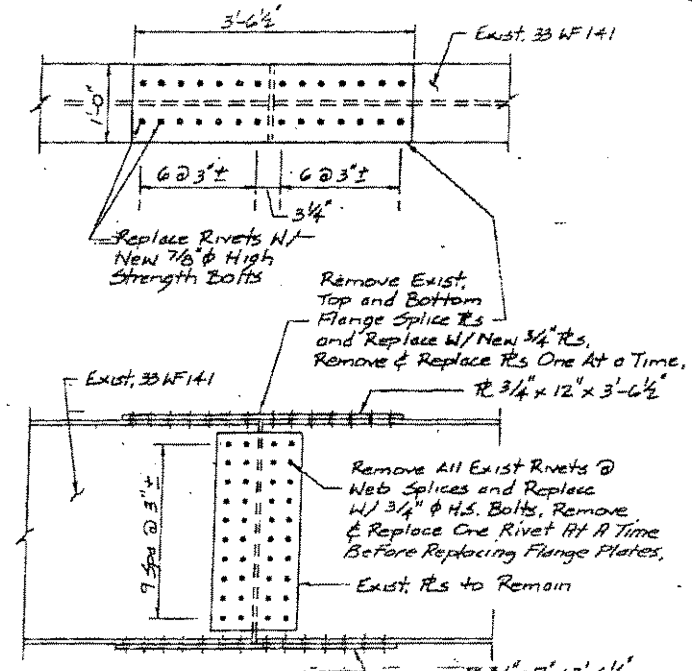
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR -1	ST. CLAIR	43	40
		CONTRACT NO. 76F75		

ILLINOIS FED. AID PROJECT



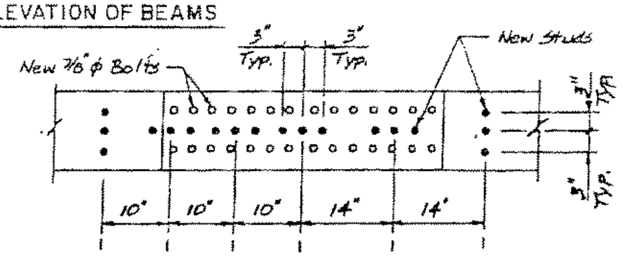
FRAMING PLAN UNIT A

ELEVATION OF BEAMS

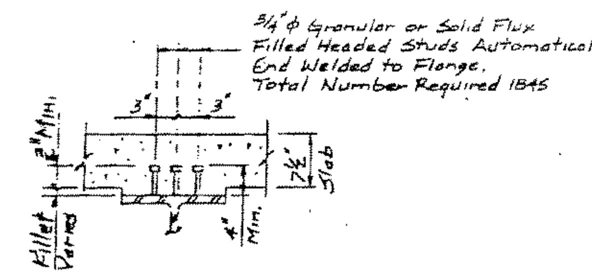


SPLICE DETAIL
(All Beam Splices)

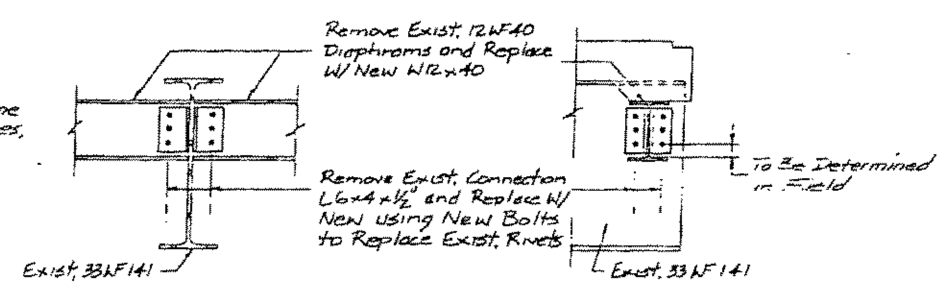
NOTE: Complete All Work on One Splice Before Beginning Rivet Removal on Next Splice.



STUD SHEAR CONNECTORS
EXIST. FIELD SPLICE AT SPAN 2
(Splice At Span 3 Similar)



SHEAR CONNECTORS



DIAPHRAGM DETAIL

NOTES

All Existing Top Flange Surfaces Which Shall be in Contact with New Concrete Shall be Cleaned to Satisfy Art. 509.06(b) Method II. Locations to Receive Studs Shall be Cleaned to Bare Metal to Satisfy Method II per Art. 507.03(m)(2). Cost of This Work is Incidental to Removal of Existing Concrete Deck.
All Bolts to Be M164
For Beam Load Tables See Sht. 17
Stage Diaphragm Replacement To Match Deck Staging.

BILL OF MATERIAL

ITEM	Unit	Total
Structural Steel	LBS.	5,010

FRAMING PLAN – UNIT A
BRIDGE OVER KASKASKIA RIVER
F.A. RT. 817 (IL. RTS. 4 & 15)
SECTION 421 BR
ST. CLAIR COUNTY
STATION 132 + 53.67
SN 082 - 0077

FOR INFORMATION ONLY

design firm no. 184001036 — whks engineers + planners + land surveyors

USER NAME = *OPERATOR*	DESIGNED - FLL/SBC	REVISED	
FILE NAME = 0820077-00000.dgn	CHECKED - CWC/SBC	REVISED	
PLOT SCALE = 0:2 '/' in.	DRAWN - FLL/DLH	REVISED	
PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

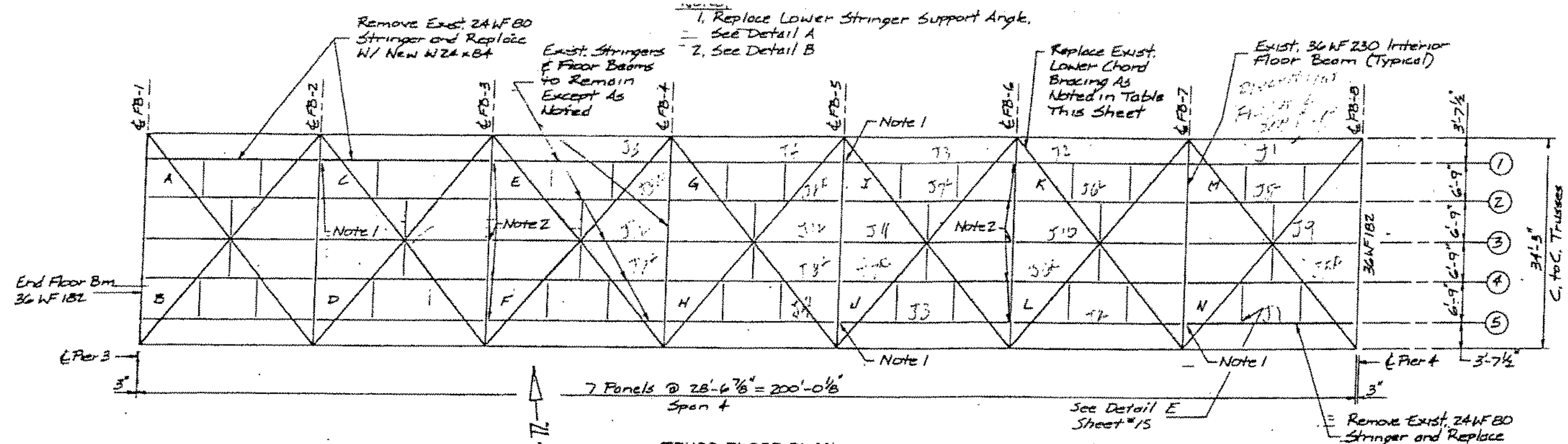
EXISTING PLANS
STRUCTURE NO. 082–0077
SHEET NO. 26 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR -1	ST. CLAIR	43	41

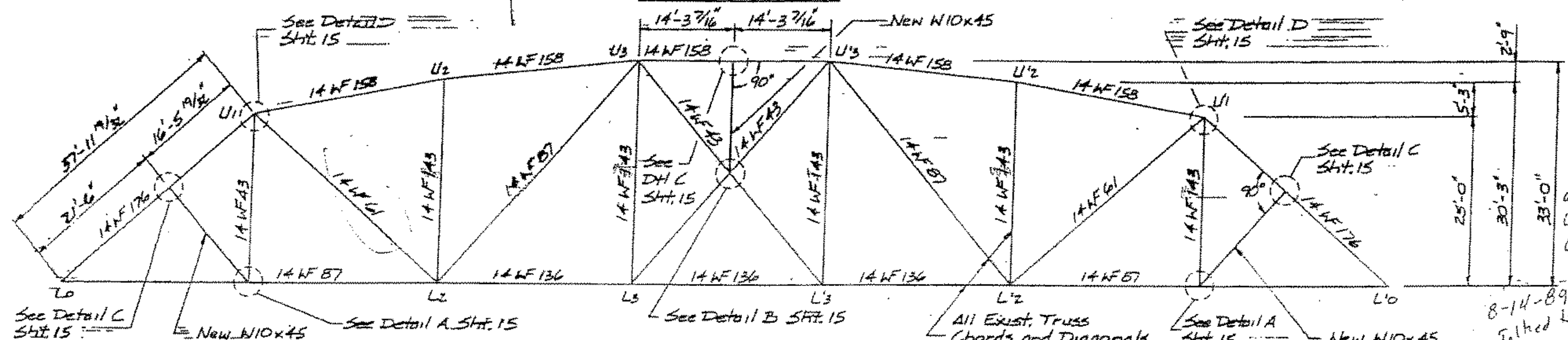
CONTRACT NO. 76F75
ILLINOIS FED. AID PROJECT

817 | 421 BR | St. Clair | 42 | 23

39 Sheets

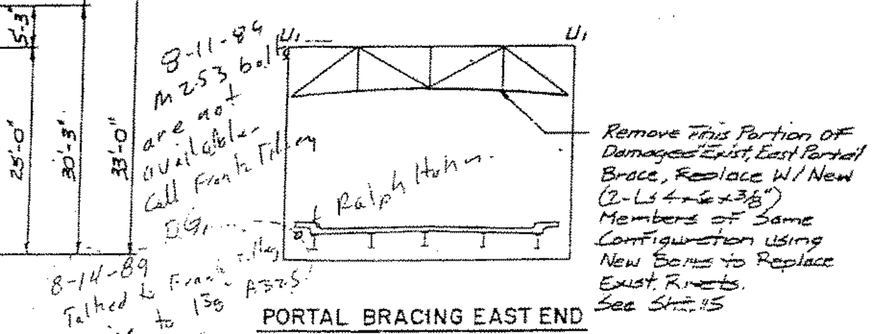


TRUSS FLOOR PLAN



TRUSS ELEVATION

(Looking North)

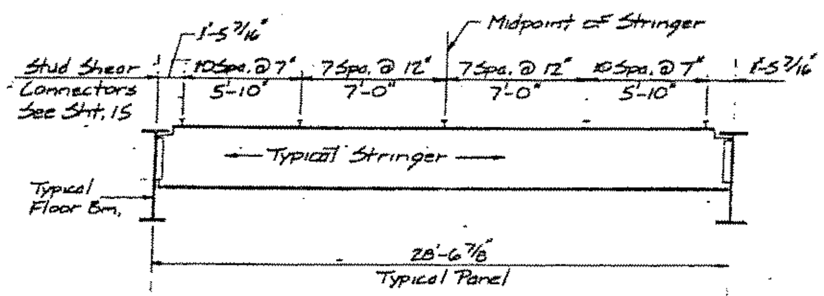


PORTAL BRACING EAST END

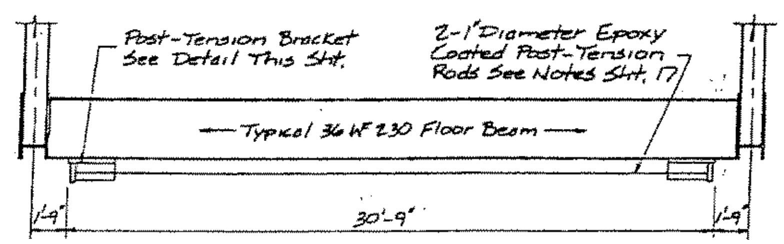
(Looking West)

LOWER CHORD BRACING REPLACEMENT TABLE			
"X" Designates Replacement			
MARK	MEMBER	3/8" Connection ℞ EAST	3/8" Connection ℞ WEST
A	X	X	X
B	X	X	
C	X		X
D	X	X	
E	X		
F	X	X	
G	X		X
H		X	
I	X		
J	X	X	X
K	X	X	
L	X		
M	X	X	X
N			X
TOTAL	12	8	6

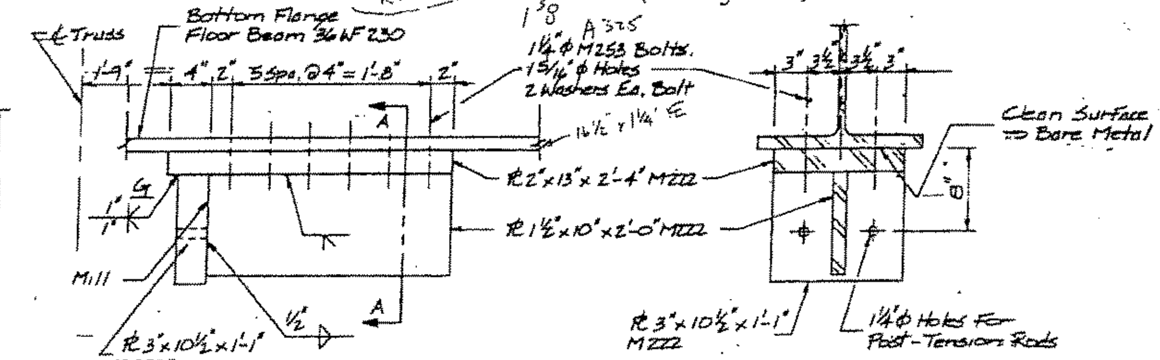
NOTE: See Sht. 15 For Lower Chord Bracing Partial Plan



ELEVATION OF STRINGERS



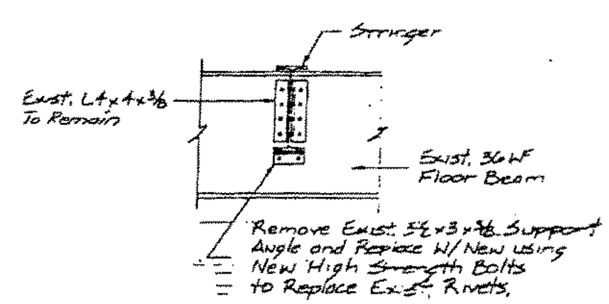
ELEVATION OF INTERIOR FLOOR BEAMS



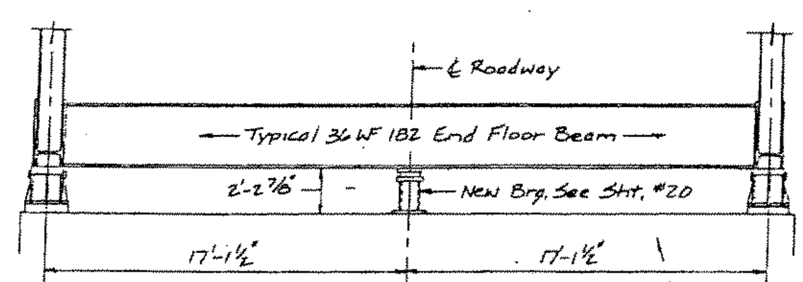
ELEVATION

SECTION A-A

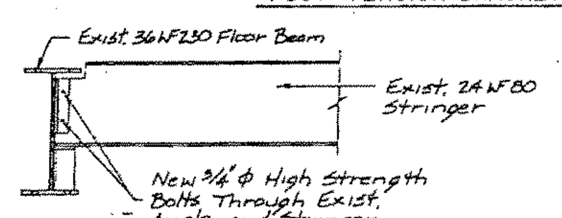
POST-TENSION BRACKET DETAIL



DETAIL A



ELEVATION OF END FLOOR BEAMS



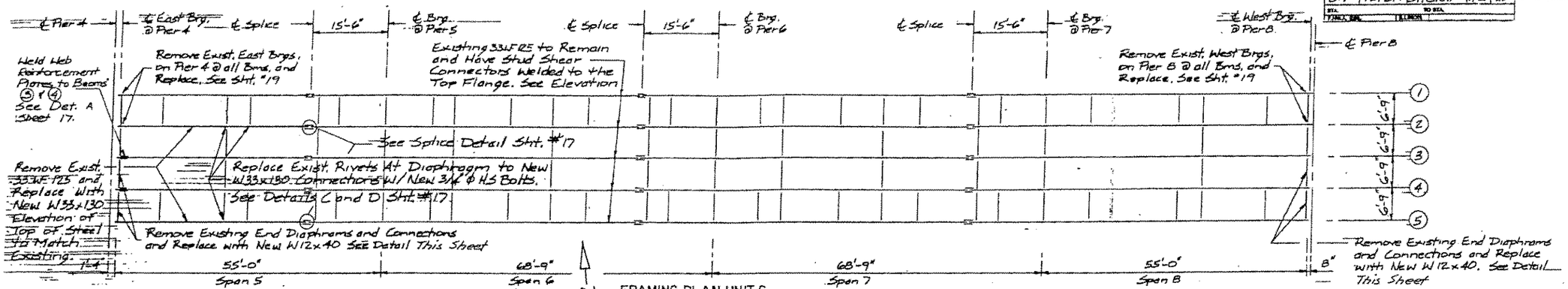
FRAMING PLAN — UNIT B
BRIDGE OVER KASKASKIA RIVER
F.A. RT. 817 (IL. RTS. 4 & 15)
SECTION 421 BR
ST. CLAIR COUNTY
STATION 132 + 53.67
SN 082 - 0077

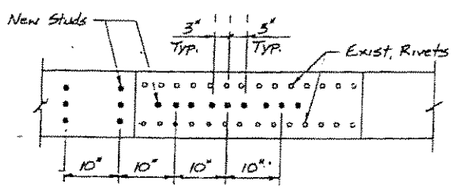
FOR INFORMATION ONLY

design firm no. 184001036	whks engineers + planners + land surveyors	USER NAME = $OPERATOR$	DESIGNED - FLL/SBC	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EXISTING PLANS STRUCTURE NO. 082-0077	F.A.P. RTE. 817	SECTION 421 BR -1	COUNTY ST. CLAIR	TOTAL SHEETS 43	SHEET NO. 42
		FILE NAME = 0820077-00000.dgn	CHECKED - CWC/SBC	REVISED					CONTRACT NO. 76F75		
		PLOT SCALE = 0.2 '/' / in.	DRAWN - FLL/DLH	REVISED							
		PLOT DATE = 11/14/2012	CHECKED - CWC	REVISED		SHEET NO. 27 OF 28 SHEETS		ILLINOIS FED. AID PROJECT			

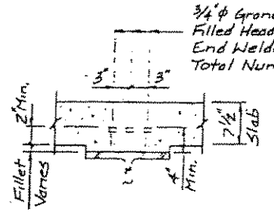
FAP RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421BR	St. Clair	42	25
BTA		NO BTA		
TYPICAL SHEET	ILLINOIS			

Sheet No. 16
29 Sheets

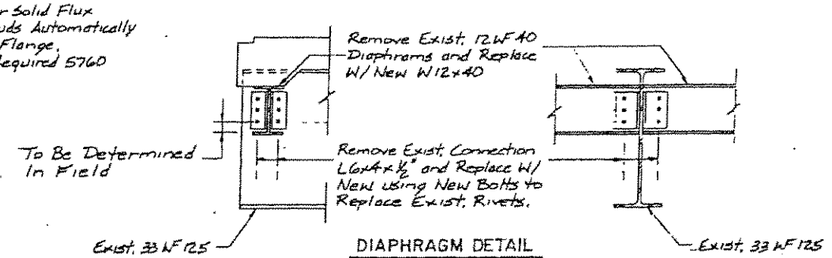




STUD SHEAR CONNECTORS



SHEAR CONNECTORS



DIAPHRAGM DETAIL

NOTES

All Existing Top Flange Surfaces Which Shall be in Contact with New Concrete Shall be Cleared to Satisfy Art. 509.06 (b) Method II. Locations to Receive Studs Shall be Cleaned to Bare Metal to Satisfy Method II per Art. 507.08 (m)(2). Cost of This Work is Incidental to Removal of Existing Concrete Deck.

All Bolts to Be M164

For Beam Load Tables See Sht. 17

Stage Diaphragm Replacement to Match Deck Staging.

BILL OF MATERIAL

ITEM	Unit	Total
Structural Steel	LBS.	17170

FRAMING PLAN – UNITS C & D
BRIDGE OVER KASKASKIA RIVER
F.A. RT. 817 (IL. RTS. 4 & 15)
SECTION 421 BR
ST. CLAIR COUNTY
STATION 132 + 53.67
SN 082 - 0077

FOR INFORMATION ONLY

design firm no. 184001036	USER NAME = #OPERATOR#	DESIGNED - FLL/SBC	REVISED
whks engineers + planners + land surveyors	FILE NAME = 0820077-00000.dgn	CHECKED - CWC/SBC	REVISED
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING PLANS
STRUCTURE NO. 082-0077
SHEET NO. 28 OF 28 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
817	421 BR -1	ST. CLAIR	43	43
		CONTRACT NO. 76F75		
	ILLINOIS FED. AID PROJECT			