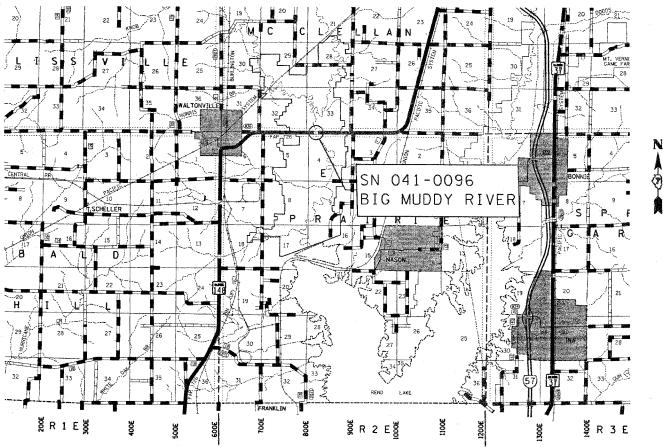
STATE OF ILLINOIS

**PROPOSED** HIGHWAY PLANS

C-97-094-04



**DEPARTMENT OF TRANSPORTATION** 

**DIVISION OF HIGHWAYS** 

**FAP ROUTE 726 (IL 148)** D-7 JOINT REPAIR 2005-1 **JEFFERSON COUNTY** 

GROSS LENGTH = 646.7 FT NET LENGTH = 646.7 FT

J.U.L.I.E.

1-800-892-0123

**CONTRACT NO. 74073** 

ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS

ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION

2004 ADT = 2650

SEE SHEET 2 FOR INDEX OF SHEETS

COUNTY TOTAL SHEET SHEETS NO. JEFFERSON 10 • D-7 JOINT REPAIR' 2005-1

D-97-054-04



STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS SUBMITTED MARCH 29 20 05 uter Moder 100
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

CONTRACT NO. 74073 SECTION COUNTY TOTAL SHEET NO.

F.A.P. RTE. 726 JEFFERSON 10 STA. TO STA. FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

• D-7 JOINT REPAIRS 2005-1

#### GENERAL NOTES

This section shall be constructed in accordance with the plans; the STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, adopted January 1, 2002; the SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS, adopted January 1, 2005; and the SPECIAL PROVISIONS included in the proposal.

This project is located south of Mt. Vernon on IL. Route 148 in Jefferson County. The project includes the following structure: Structure Number 041-0096 over the Big Muddy River.

The work included in this project consists of the removal and replacement of the existing neoprene expansion joints, pavement striping, and all other work necessary to complete this

The reflective lense of all raised reflective markers located between the stop bars and the end of the approach pavements shall be removed prior to stage I construction. This work will be paid for at the contract unit price for RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL. Replacement of the bi-directional amber reflectors at the completion of stage 2 will be paid for at the contract unit price for REPLACEMENT REFLECTOR.

The quantities of paint pavement marking line were computed as follows:

Feet (yellow)

1798 Feet (white)

1942 Feet (Total)

#### INDEX OF SHEETS

#### SHEET NO. DESCRIPTION

COVERSHEET

GENERAL NOTES & INDEX OF SHEETS SUMMARY OF QUANTITY

QUANTITY SCHEDULES

GENERAL PLAN AND ELEVATION STAGE CONSTRUCTION DETAILS

EXPANSION JOINT DETAILS

NEOPRENE EXPANSION JOINTS

BAR SPLICER ASSEMBLY DETAIL

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED AFTER SHEET NO. 10:

000001-04 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

001001 AREAS OF REINFORCEMENT BARS 001006

DECIMAL OF AN INCH AND OF A FOOT 701006-02 OFF-ROAD OPERATIONS, 2L 2W, 15\* TO 24" AWAY.

SPEEDS > 45 MPH

701011-01 OFF-ROAD MOVING OPERATIONS, 2L 2W, DAY ONLY, FOR

SPEEDS > 45 MPH

701201-02 LANE CLOSURE, 2L 2W, DAY ONLY, ON-ROAD TO 600 MM

OFF-ROAD. SPEEDS > 45 MPH

701301-02 LANE CLOSURE, 2L 2W, SHORT TIME OPERATIONS 701311-02

LANE CLOSURE, 2L 2W, MOVING DAY ONLY OPERATIONS 701316-03

LANE CLOSURE. 2L 2W, BRIDGE REPAIR, FOR SPEEDS > 45 MPH

701326-02 LANE CLOSURE, 2L 2W, PAVEMENT WIDENING, FOR

SPEEDS > 45 MPH

702001-05 TRAFFIC CONTROL DEVICES 720001 SIGN PANEL MOUNTING DETAILS

720006 SIGN PANEL ERECTION DETAILS

780001-01 TYPICAL PAVEMENT MARKINGS

781001-02 TYPICAL APPLICATIONS OF RAISED REFLECTIVE PAVEMENT

MARKERS

886001 DETECTOR LOOP INSTALLATIONS

886006 TYPICAL LAYOUT FOR DETECTION LOOPS

ILLINOIS DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES** 

SCALE: VERT. HORIZ.

DRAWN BY CHECKED BY

DATE

steffenmk 3/29/2005 c:\projects\74073d\d05404pa.dgn \$\bigcircler(\bigcircler)

CONTRACT NO. 74073
COUNTY TOTAL SHEET NO. | F.A.P. | SECTION | COUNTY | TOTAL | SHEETS | NO. |
| 726 | • | JEFFERSON | \( \) \

	CHAMADY OF CHANTITIES	· · · · · · · · · · · · · · · · · · ·		CONS	* D-7 JOINT REPAIRS 2005-1 TRUCTION TYPE CODE	7
	SUMMARY OF QUANTITIES	. :	TOTAL	SF7Y-2A		
CODE NO	ITEM	UNIT	OUANTITIES	3F11 - 2A		
50102400	CONCRETE REMOVAL	CU YD	34. 1	34. 1		7
50300155	NEOPRENE EXPANSION JOINT 2 1/2"	FOOT	68	68		1
50300160	NEOPRENE EXPANSION JOINT 4"	FOOT	34	34		
50300255	CONCRETE SUPERSTRUCTURE	CU YD	34. 3	34. 3		
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	6296	6296		
51500200	RELOCATING NAME PLATES	EACH	1	1		
67100100	MOBILIZATION	L SUM	. 1	1		
70100100	TRAFFIC CONTROL AND PROTECTION, STANDARD 701316	EACH	1	1		
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1	. 1		
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	4	4		
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1	. 1		
70300100	SHORT-TERM PAVEMENT MARKING	FOOT	57 .	57		
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	5940	5940		
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	1386	1386		
*78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1942	1942		
<b>*</b> 78100300	REPLACEMENT REFLECTOR	EACH	8	8	e est	
78300100	PAVEMENT MARKING REMOVAL	SQ FT	637	637		
X0322050	RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL	EACH	8	8		
20002600	BAR SPLICERS	EACH	40	40		
,						
	•					
				L		

\* SPECIALTY ITEMS

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	NAME	DATE	ILLINOIS D	CI MILLIMICIAL OL	TIMES ON THE TON
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CONTRACT NO. 74073

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726	*	JEFFERSON	10	1
F.A.P. RTE.	SECTION	COUNTY	TOTAL	SHEET NO.

• D-7 JOINT REPAIRS 2005-1

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BRIDGE REPAIR SCHEDULE

	U111	DUE NE	1 77117 2	CHEDUL			
	LENGTH	CONCRETE REMOVAL	CONCRETE SUPERSTRUCTURE	REINFORCEMENT BARS, EPOXY COATED	BAR SPLICERS	NEOPRENE EXPANSION JOINT 2 1/2"	NEPORENE EXPANSION JOINT 4"
041-0096	FEET	CU FT	CU FT	POUND	EACH	FEET	FEET
Stage I Stage II	646.7	17.07 17.07	17. 14 17. 14	3148 3148	40	34 34	17 17
TOTAL	646.7	34.1	34.3	6296	40	68	34

PAVEMENT MARKING SCHEDULE

	PAINT PAVEMENT MARKING - LINE 4"	PAVEMENT MARKING REMOVAL	TEMPORARY PAVEMENT MARKING - LINE 4"	SHORT TERM PAVEMENT MARKING	WORK ZONE PAVEMENT MARKING REMOVAL	RAISED REFLECTOR PAVEMENT MARKER, REFLECTOR REMOVAL	REPLACEMENT REFLECTOR
041-0096	FEET	SQ FT	FEET	FEET	SQ FT	EACH	EACH
TOTAL	1942	637	5940	57	1386	8	8

REVISIONS ILLINOIS DEPARTMENT OF TRANSPORTATION

NAME DATE

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QUANTITY SCHEDULES

SCALE: VERT.
HORIZ.
DATE

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1.07 DATE = 3/29/2005 TLE NAME = \$FILEL\$ 1.07 SCALE = \$SCALE\$ REFERENCE = \$REF\$

CONTRACT NO. 74073 COUNTY TOTAL SHEET NO. RTE. SECTION JEFFERSON 10 726 STA. TO STA. FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT \* D-7 JOINT REPAIRS 2005-1 Structure 041-0096 was constructed in 1980 as an 8 span bridge over the Big Muddy River. The superstructure consists of 5 BACK OF BACK OF precast prestressed concrete I-beams supporting a 7-1/2" deck. EAST ABUT. WEST ABUT. ¢ PIER #2 ¢ PIER #3 ¢ PIER #5 ¢ PIER #1 ¢ PIER #4 ¢ PIER #6 ¢ PIER #7 110+76.92 /111+57.50 / 112+37.83 113+18.16 107+53.60 108+35.68 109+16.01 109+96.34 114+00.24 | 115+00 105+00 110+00 82'-1" 80'-4" 80'-4" 80'-7" 80'-7" 80'~4" 80'-4" 646'-8" BK TO BK ABUTMENTS GENERAL NOTES Prior to pouring the new concrete deck, all loose rust, loose mill scale, and other loose potentially detrimental foreign material hall be removed from te surfaces of the beams or girders in contact with concrete. The cost of PLAN this work will be included in the pay item covering removal of the existing concrete. All heavy rust and other tightly adhered potentially detrimental foreign matter shall be removed from the surfaces of the beams or girders in contact with concrete. Tightly adhered paint may remain unless otherwise noted. This removal shall be accomplished by methods that will not damage the steel. The cost of the work will be paid for according to Article 109.04 of the Standard Specifications. The Contractor shall use extreme care during concrete removal so as not to damage the PPC I-Beams. The removal and reinstallation of the first section of guardrall at each abutment to allow construction of the neoprene expansion joint shall be included in the contract unit price for concrete superstructure. Reinforcement bars shall conform to the requirements of AASHTO M-31, OR M322 Grade 60. Plan dimensions and details relative to the existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work; however, the contractor will be paid for the quantity actually furnished at the unit price bid for the work. STRAIGHTENED Existing reinforcement bars shall be cleaned, and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal operations shall be a second or replaced using an approved bar splicer or anchorage system (cost included in CONCRETE REMOVAL). Joint openings shall be adjusted according to Article 503.10(c) of the STANDARD SPECIFICATIONS when the deck is poured at an ambient temperature other than 50 degrees Fahrenheit. BILL OF MATERIAL Concrete Removal 34.1 Neoprene Expansion Joint 2 1/2" Neoprene Expansion Joint 4" FOOT CU YD 34. 1 Concrete Superstructure Reinforcement Bars, Epoxy Coated ELEVATION POUND 6296 Relocating Name Plates EACH Bar Splicers 40 ILLINOIS DEPARTMENT OF TRANSPORTATION **GENERAL PLAN** 

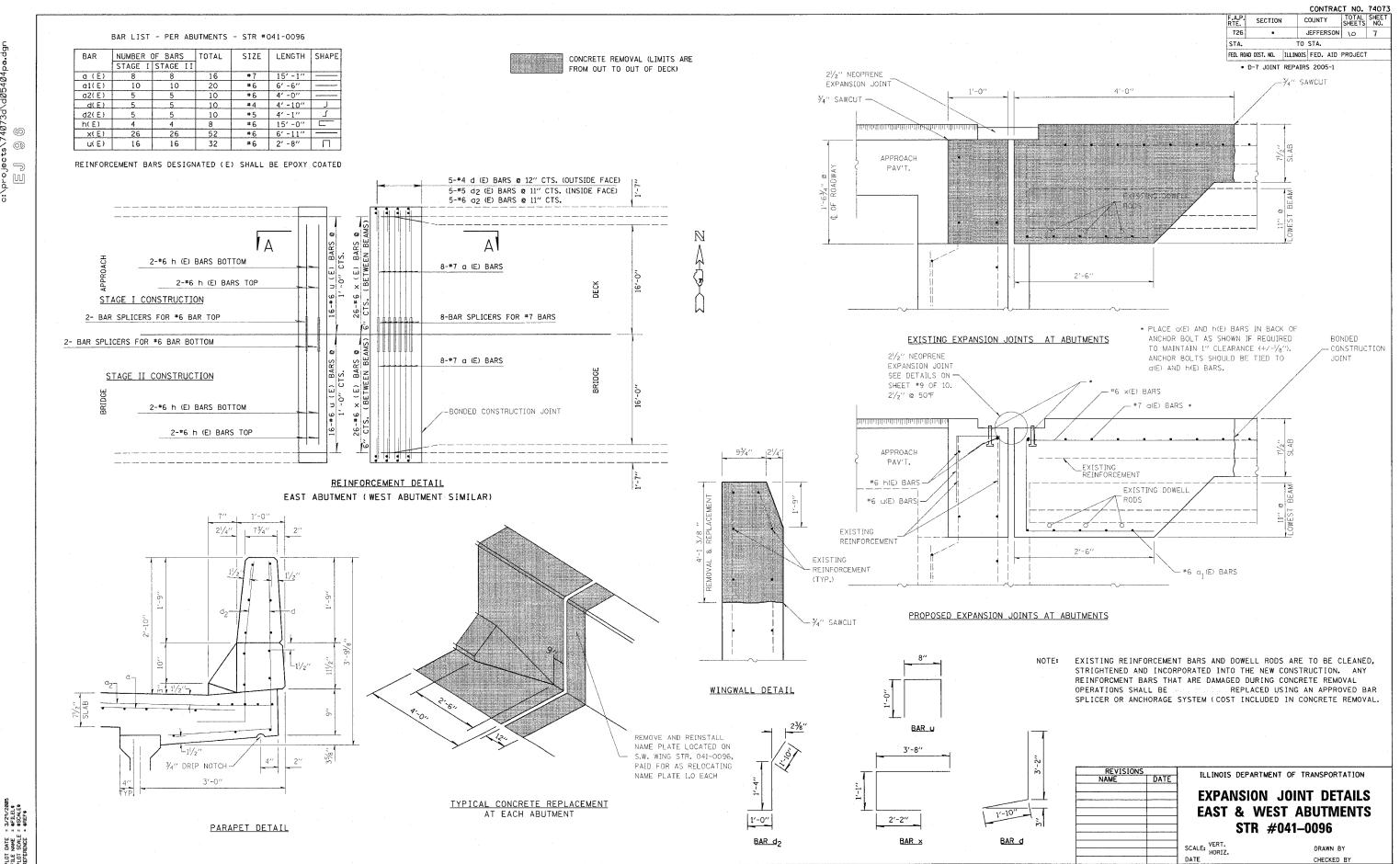
AND ELEVATION STR #041-0096

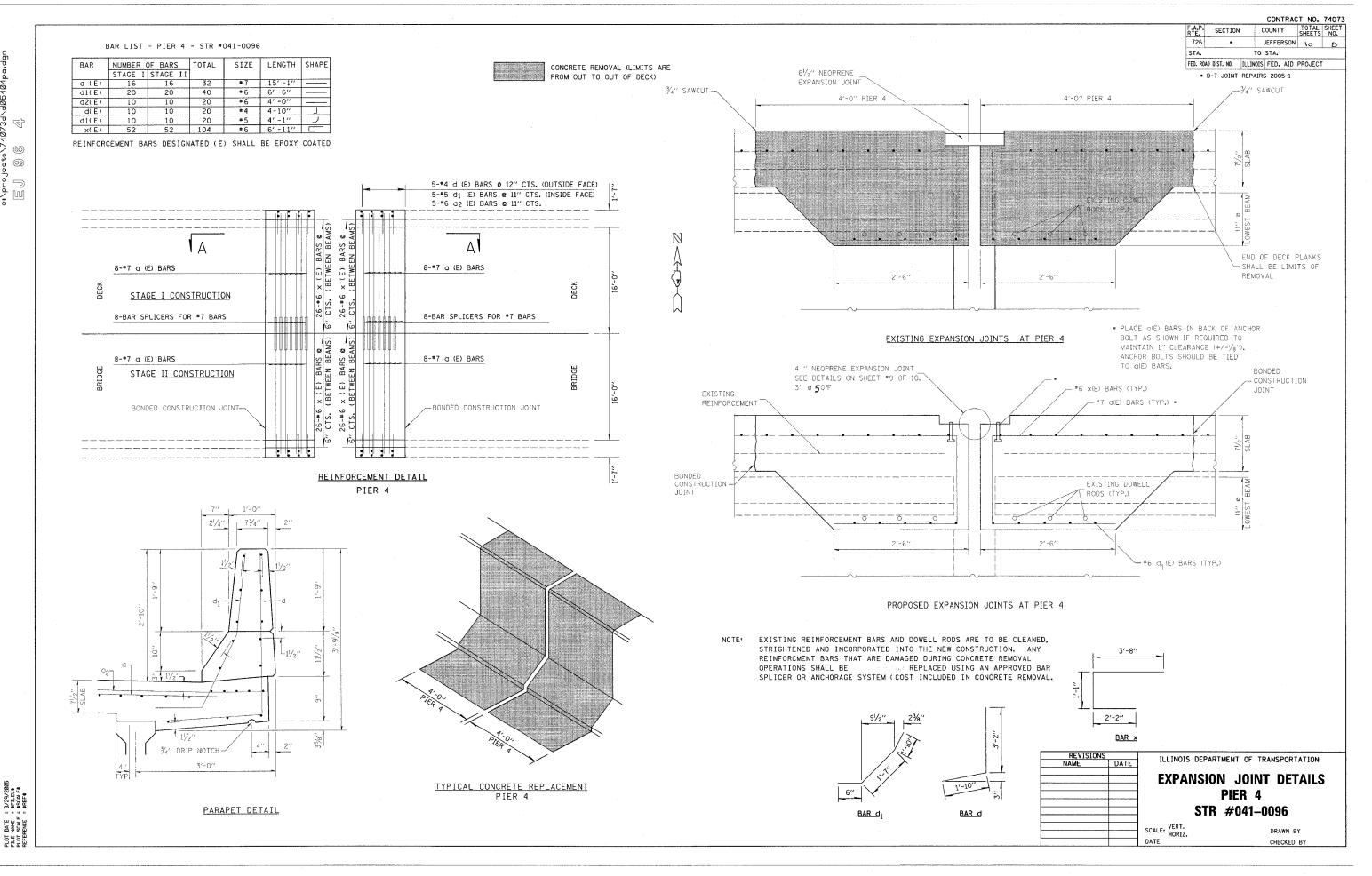
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SCALE: VERT. HORIZ.

PLOT DATE = 3/29/2005 FILE NAME = #FILEL\$ PLOT SCALE = \*SCALE\$ REFERENCE = \*REF\$

CONTRACT NO. 74073 COUNTY TOTAL SHEET SHEETS NO. F.A.P. SECTION JEFFERSON \o 726 STA. TO STA. FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT TEMPORARY PAVEMENT MARKING RT. STA 106+24 TO STA 115+23 899 Feet LT. STA 105+27 TO STA 116+27 1100 Feet steffenmk 3/29/2005 c:\projects\74073d\d S ∏ ⋒ © E 12:1 PAVEMENT 12:1 PAVEMENT MARKING TAPER MARKING TAPER **~**107+53**.**6 T110+76.92 114+00.24-0 0115 +0 9 0 0 0 0 0 0 0 | 105 TEMPORARY PAVEMENT MARKING ♠ ROADWAY 16'-0" 12:1 PAVEMENT 12:1 PAVEMENT STAGE I CONSTRUCTION MARKING TAPER MARKING TAPER TRAFFIC CONTROL AND PROTECTION, STANDARD 701316 1.0 Each STAGE I TRAFFIC TEMPORARY BRIDGE TRAFFIC SIGNALS 1.0 Each NOTE:
DUE TO THE SETTLEMENT OF THE EXISTING APPROACH SHOULDER PAVEMENT, BITUMINOUS
SHALL BE PLACED ON THE APPROACH SHOULDER PAVEMENT PRIOR TO THE STAGING OF
TRAFFIC. THIS WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR TRAFFIC CONTROL STANDARD, 701316. STAGE I CONSTRUCTION (LOOKING EAST) TEMPORARY PAVEMENT MARKING 12:1 PAVEMENT 12:1 PAVEMENT RT. STA 106+24 TO STA 115+23 899 Feet MARKING TAPER MARKING TAPER LT. STA 105+27 TO STA 116+27 1100 Feet TEMPORARY PAVEMENT MARKING 104+67 **-107+53.6** 110+76.92 114+00.24-12:1 PAVEMENT 12:1 PAVEMENT MARKING TAPER MARKING TAPER ♠ ROADWAY 16'-0" 16'-0" STAGE II CONSTRUCTION 12'-0" STAGE II TRAFFIC DRUM WITH STEADY BURNING LIGHT TYPE III BARRICADE WITH FLASHING LIGHTS ILLINOIS DEPARTMENT OF TRANSPORTATION STAGE CONSTRUCTION DATE = 3/29/2005
NAME = \$FILEL\$
SCALE = \$SCALE\$
RENCE = \$REF\$ DETAIL STR #041-0096 SCALE: VERT. STAGE II CONSTRUCTION DRAWN BY CHECKED BY





Joint Size	"C" at 50°F	"D" at 50°F
2"	2"	1'2'' Min.
212''	2½"	1 <sup>3</sup> 4′′ Min.
4''	3′′	2½" Min.

# INSTALLATION NOTES

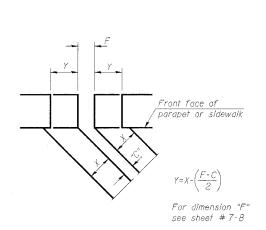
- Install continuous seal in roadway, parapet, curb, and sidewalk.
- Install anchor blocks as indicated.

Maximum spacing of anchor bolts shall be 12" centers.

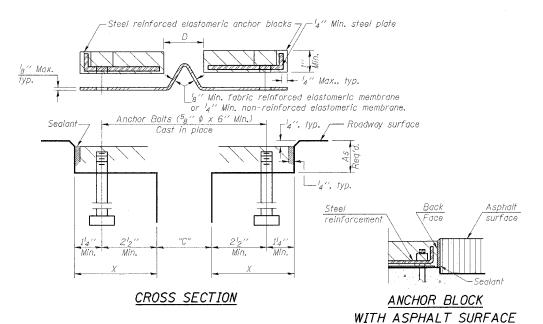
# SKEW LIMITATIONS

The details of the anchor blocks and the elastomeric membrane in the parapet, as shown, are for up to 50° skews. For skews greater than 50°, the anchor blocks and the

elastomeric membrane, installed according to dimension "D", might require modifications to insure a minimum clearance of  $I_2^{\prime\prime\prime}$  from centerline of anchor studs to edge of parapet opening. The anchor blocks and the elastomeric membrane shall also be installed to the top of the parapet with the anchor studs spaced at ±12" cts.



FORMING BLOCKOUT SKETCH



CONTRACT NO. 74073 COUNTY TOTAL SHEE SHEETS NO. JEFFERSON 10 TO STA.

726 STA. FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

■ D-7 JOINT REPAIRS 2005-1

## GENERAL NOTES

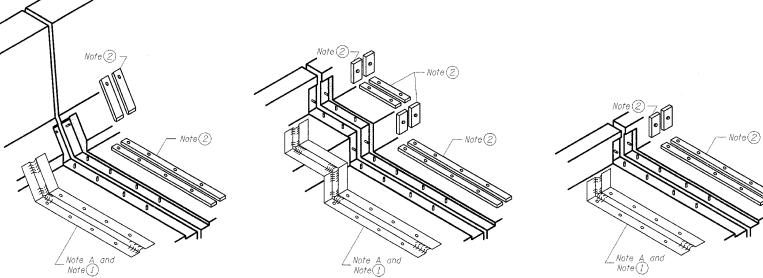
Continuous Seal Neoprene Expansion Joint shall consist of molded anchor blocks of elastomer and steel, field assembled over continuous lengths of elastomeric membrane.

The elastomeric membrane shall be premolded with a single or a double upward convolution that will have a "memory" to return to its molded position upon joint closure.

The convolution length shall be such that the extended length will not be greater than the manufactured length when the joint is fully expanded in its design range and will not protrude above the anchor blocks when the joint is fully compressed.

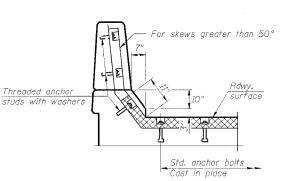
Joint openings shall be adjusted according to Article 503,10(c) of the Standard Specifications when the deck is poured at an ambient temperature other than 50° F.

The parapet and roadway membrane shall be made continuous by an approved vulcanizing process. Lapping will not be permitted.



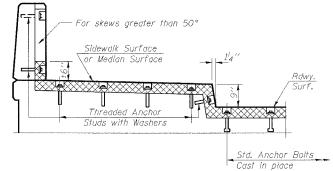
AT SIDEWALK OR MEDIAN

Std. Anchor Boits AT CURB

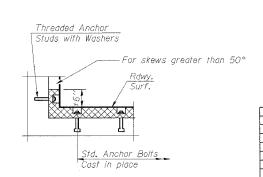


AT PARAPET

AT PARAPET

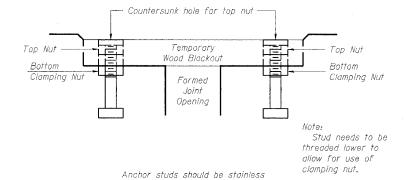


AT SIDEWALK OR MEDIAN TYPICAL END TREATMENTS



AT WALL

AT WALL



RECOMMENDED BLOCKOUT DETAIL

CONTINUOUS SEAL TYPE NEOPRENE EXPANSION JOINTS

ILLINOIS DEPARTMENT OF TRANSPORTATION **CONTINUOUS SEAL TYPE NEOPRENE EXPANSION JOINTS** STR #041-0096 SCALE: VERT. HORIZ.

DRAWN BY

EJ-CS

Threaded Anchor Studs with Washers

10-22-04

CONTRACT NO. 74073

COUNTY TOTAL SHEET NO. SECTION 726 JEFFERSON NO NO STA. TO STA. FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

. D-7 JOINT REPAIRS 2005-1

#### <u>NOTES</u>

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.

Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length. All reinforcement bars shall be lapped and fied to the splicer rods or dowel bars. Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.

Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

(Tension in kips) = 1.25 x fy x A<sub>t</sub>

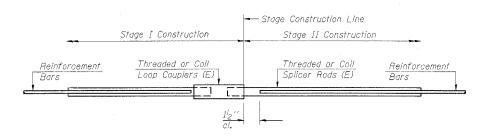
(Tension in Kips) Minimum \*Pull-out Strength = 1.25 x  $fs_{allow}$  x A<sub>1</sub> (Tension in kips)

Where fy = Yield strength of lapped reinforcement bars in ksi.

fs<sub>allow</sub>= Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)
A,= Tensile stress area of lapped reinforcement bars.
\* = 28 day concrete

BAR SPLICER ASSEMBLIES					
		Strength Requirements			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length		Min. Pull-Out Strength kips - tension		
#4	1'-8''	14.7	5,9		
#5	2'-0"	23.0	9.2		
#6	2'-7''	33.1	13.3		
#7	3′-5′′	45.1	18.0		
#8	4′-6′′	58.9	23,6		
#9	5′-9″	75.0	30.0		
#10	7′-3′′	95.0	38.0		
#11	9'-0''	117.4	46.8		

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



# STANDARD

Size	Required	Location
#6	8	E.&W. ABUTMENTS
<b>#</b> 7	16	ABUTMENTS
#7	16	PIER 4

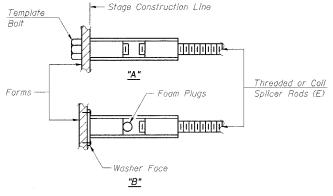
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NAME	DATE	ILLINOIS DEPARTMEN	NI OF TRANSPORTATION
		ASSEMB	SPLICER Ly details
		STR #	£041–0096
	-	SCALE: VERT.	DRAWN BY
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— The diameter of this part is equal or larger than the The diameter of this part diameter of bar spliced. is the same as the diameter of the bar spliced. ROLLED THREAD DOWEL BAR

> \*\* ONE PIECE - Wire Connector WELDED SECTIONS

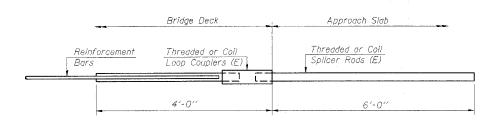
### BAR SPLICER ASSEMBLY ALTERNATIVES

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



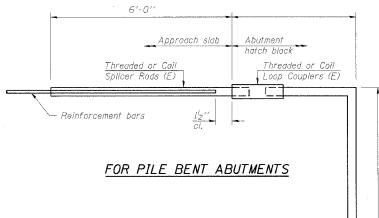
### INSTALLATION AND SETTING METHODS

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



# FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

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



Bar Splicer for #5 bar Min. Capacity = 23.0 kips - tension Min. Pull-out Strength = 9.2 kips - tensio Required =

DATE NAME SCALE RENCE

BSD-1

10-22-04