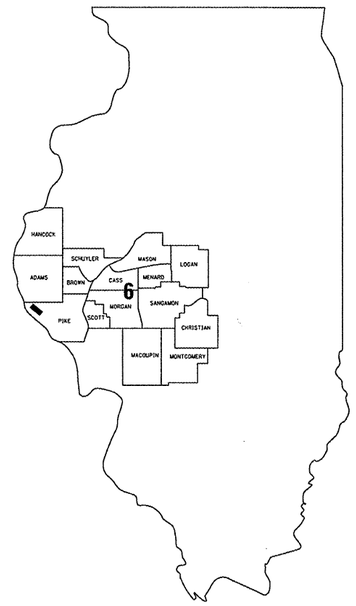
04-27-12 LETTING ITEM 144

FOR INDEX OF SHEETS AND HIGHWAY STANDARDS, SEE SHEET 2.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

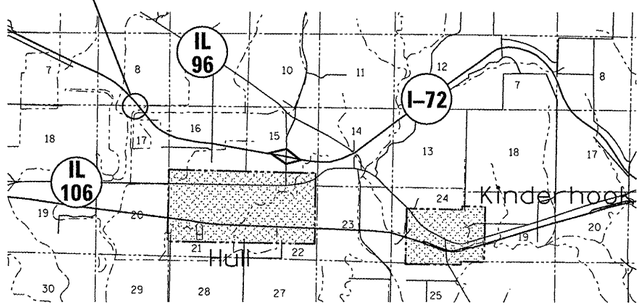
PLANS FOR PROPOSED CONTRACT MAINTENANCE PROJECT

FAI ROUTE 72 (I–72)
SECTION (75–1)BJR–2,RS–2
C–96–045–12 /D–96–045–12
PIKE COUNTY



LOCATION OF SECTION INDICATED THUS: ■

SN 075–0087



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

BRIDGE MAINTENANCE ENGINEER: STEVE BERAN
PHONE: (217) 785–9290
BRIDGE INSPECTION ENGINEER: DAVE COPENBARGER
PHONE: (217) 785–5306

NET LENGTH OF SEC 414 FT = 0.08 MILE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED February 16 20 12

Rick Z Dunn
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

March 23 20 12

John D. Baranzelli, P.E. /bs
acting ENGINEER OF DESIGN AND ENVIRONMENT

March 23 20 12

William R. Frey /bs
acting DIRECTOR, DIVISION OF HIGHWAYS

CONTRACT 72F30

PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

INDEX OF SHEETS:

STANDARDS

701101-02
701106-02
701400-05
701402-09
701401-06
701901-02
704001-07

GENERAL NOTES:

REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 706 GR 60. SEE SPECIAL PROVISIONS.

PLAN DIMENSIONS AND DETAILS RELATIVE TO 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 BASED UPON THE UNIT PRICE BID FOR THE WORK.

EXISTING REINFORCEMENT BARS EXTENDING INTO THE REMOVAL AREA SHALL BE CLEANED, STRAIGHTENED, AND INCORPORATED INTO THE NEW CONSTRUCTION. ANY REINFORCEMENT BARS THAT ARE DAMAGED DURING CONCRETE REMOVAL SHALL BE REPLACED WITH AN APPROVED BAR SPLICER OR ANCHORAGE SYSTEM. COST INCLUDED WITH CONCRETE REMOVAL.

JOINT OPENINGS SHALL BE ADJUSTED ACCORDING TO ARTICLE 520.04 OF THE STD SPECS WHEN THE DECK IS POURED AT AN AMBIENT TEMPERATURE OTHER THAN 50 DEG F.

REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.

PRIOR TO POURING THE NEW CONCRETE DECK, 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.

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

HMA MIXTURE REQUIREMENTS				
MIX USE	PG	DESIGN AIR VOIDS	MIX. COMP.	FIRCTION AGG.
LEVELING BINDER	PG 64-22	4.0% @ N70	IL 9.5	MIX C
WIDENING (TOP LIFT)	PG 64-22	4.0% @ N70	IL 9.5 OR 12.5	MIX C
WIDENING (LOWER LIFTS)	PG 64-22	4.0% @ N70	IL 19.0	N/A

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
DISTRICT 6

EXAMINED 1/31 20 12
William M Boyer
ENGINEER OF OPERATIONS

EXAMINED FEB 10 20 12
Terry Ford
ENGINEER OF PROJECT IMPLEMENTATION

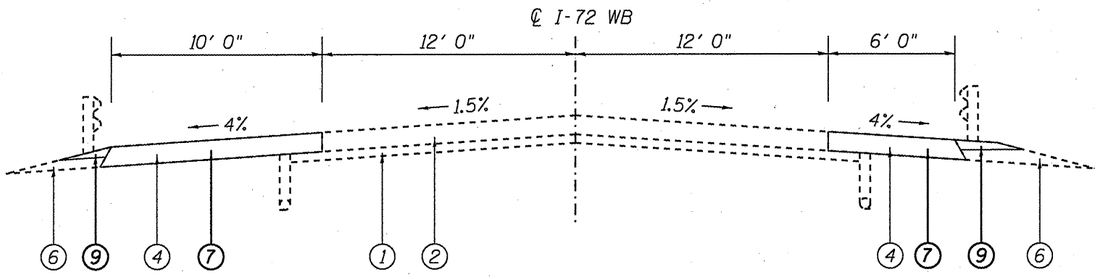
EXAMINED February 15 20 12
[signature]
ENGINEER OF PROGRAM DEVELOPMENT

INDEX & GENERAL NOTES
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	100% STATE 0014 TOTAL QTY
35600712	HOT-MIX ASPHALT BASE COURSE WIDENING, 9"	SQ YD	1115
40600200	BITUMINOUS MATERIALS (PRIME COAT)	TON	0.1
40600535	LEVELING BINDER (HAND METHOD), N70	TON	10
44004250	PAVED SHOULDER REMOVAL	SQ YD	1115
48101200	AGGREGATE SHOULDERS, TYPE B	TON	36
50102400	CONCRETE REMOVAL	CU YD	14
50300255	CONCRETE SUPERSTRUCTURE	CU YD	14
50300300	PROTECTIVE COAT	SQ YD	46
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	1663
50800515	BAR SPLICERS	EACH	14
52000110	PREFORMED JOINT STRIP SEAL	FOOT	112
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	1
60260100	INLETS TO BE ADJUSTED	EACH	2
67100100	MOBILIZATION	L SUM	1
70100207	TRAFFIC CONTROL AND PROTECTION, STANDARD 701402	EACH	1
70100800	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	L SUM	1
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	1
70400100	TEMPORARY CONCRETE BARRIER	FOOT	650
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	650
* 78001120	PAINT PAVEMENT MARKING - LINE 5"	FOOT	2130
X4400100	PORTLAND CEMENT CONCRETE SURFACE REMOVAL (VARIABLE DEPTH)	SQ YD	50
* X7200201	WIDTH RESTRICTION SIGNING	L SUM	1
* Z0030260	IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3	EACH	1
* Z0030332	IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3	EACH	1

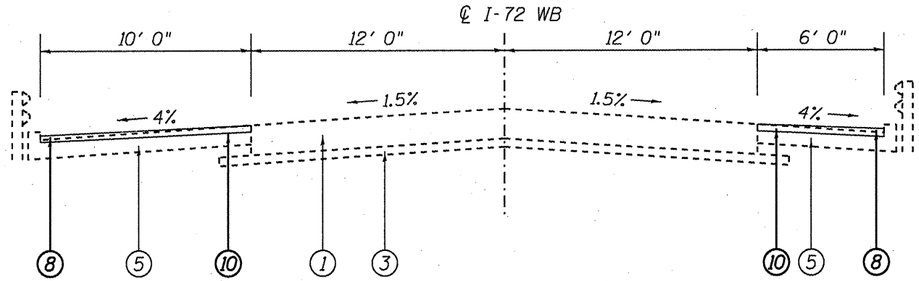
* SPECIALTY ITEM

QUANTITIES
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY

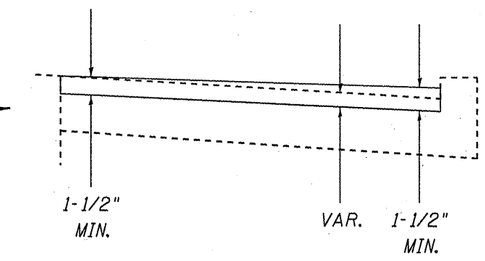


STA 1230+20 TO STA 1232+16.72
STA 1236+90.72 TO STA 1240+85

1. EXISTING STABILIZED SUB-BASE 4"
2. EXISTING PCC PAVEMENT 9"
3. EXISTING PCC BRIDGE APPROACH PAVEMENT 15"
4. EXISTING HMA SHOULDERS 9"
5. EXISTING PCC BRIDGE APPROACH SHOULDERS 10"
6. EXISTING AGGREGATE SHOULDERS
7. **PROPOSED HMA BASE COURSE WIDENING 9"**
8. **PROPOSED LEVELING BINDER - HAND METHOD**
9. **PROPOSED AGGREGATE SHOULDERS - TYPE B**
10. **PROPOSED PCC SURFACE REMOVAL (VARIABLE DEPTH)**

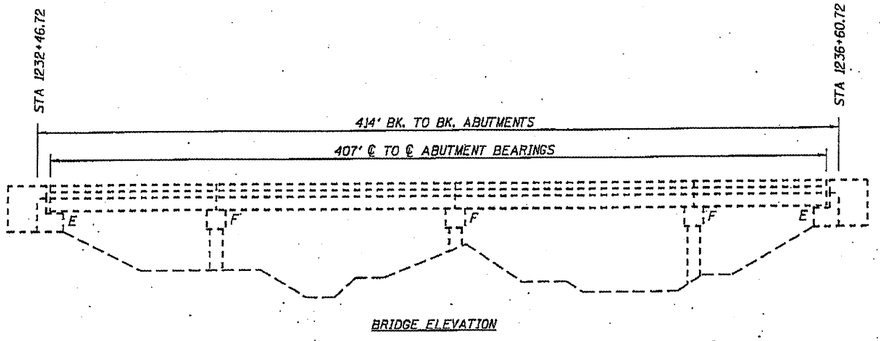


STA 1232+16.72 TO STA 1232+46.72
STA 1236+60.72 TO STA 1236+90.72

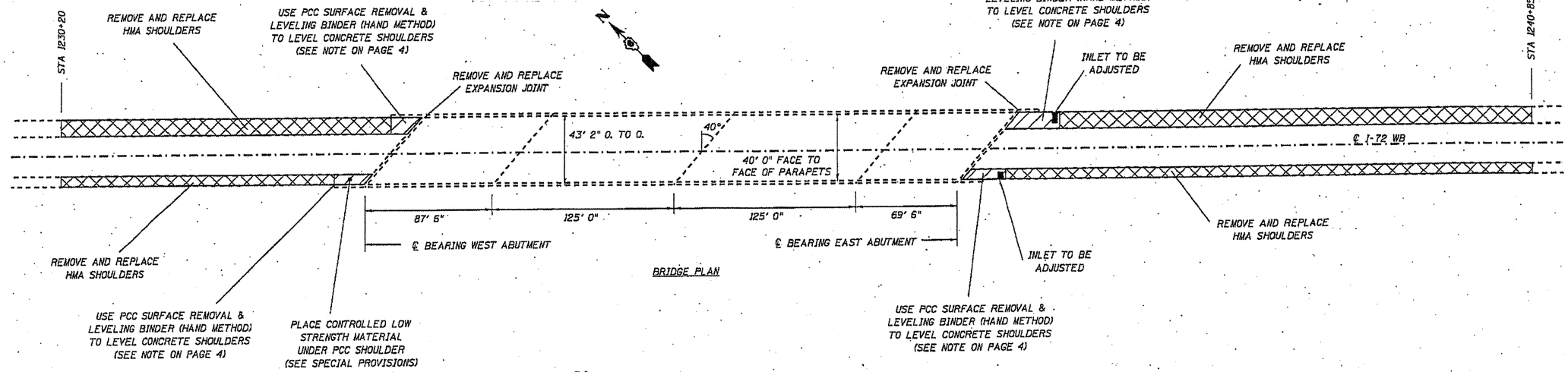


NOTE: THE EXISTING PCC APPROACH SHOULDERS HAVE SETTLED, CAUSING A SEVERE DIP. PRIOR TO STAGING TRAFFIC, THE APPROACH SHOULDERS SHALL BE MILLED AND FILLED WITH LEVELING BINDER TO CORRECT THE DIP. THE MILLING SHALL ONLY BE DEEP ENOUGH TO PROVIDE A MINIMUM DEPTH OF 1-1/2" IN THE LEVELING BINDER. THE ACTUAL GRADES OF THE MILLING AND BINDER SURFACE SHALL BE DETERMINED BY THE ENGINEER.

TYPICAL SECTIONS
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY



BRIDGE ELEVATION



BRIDGE PLAN

LICENSED STRUCTURAL ENGINEER
DAVID CARL PUZEY
081-005470
SPRINGFIELD ILLINOIS
STATE OF ILLINOIS

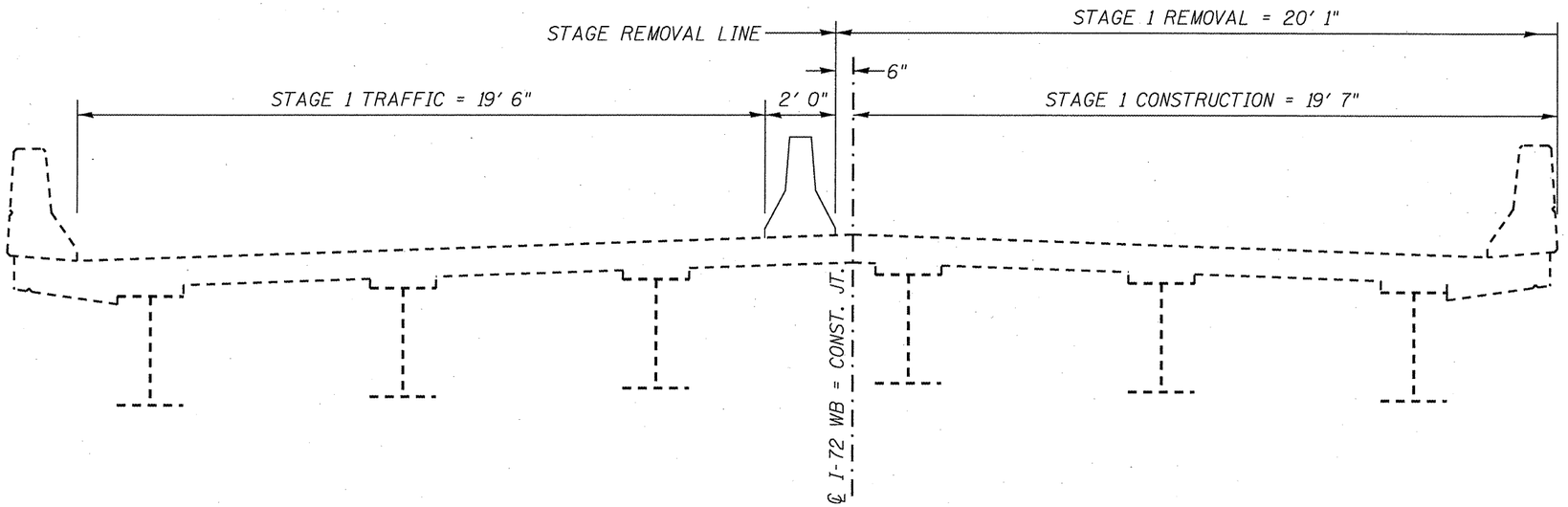
D. Carl Puzey 3/21/12

Expires 11/30/12

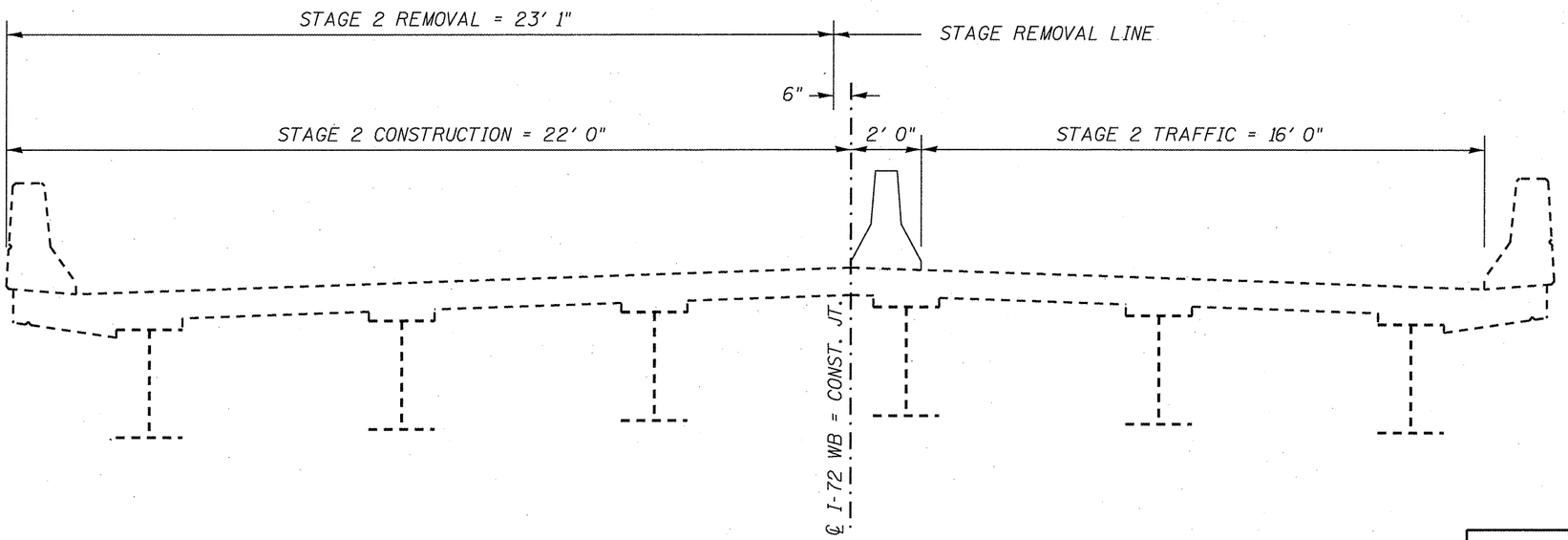
Designer: Dave Copenbarger
Checker: VHV

SN 075-0087

PLAN & ELEVATION
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY



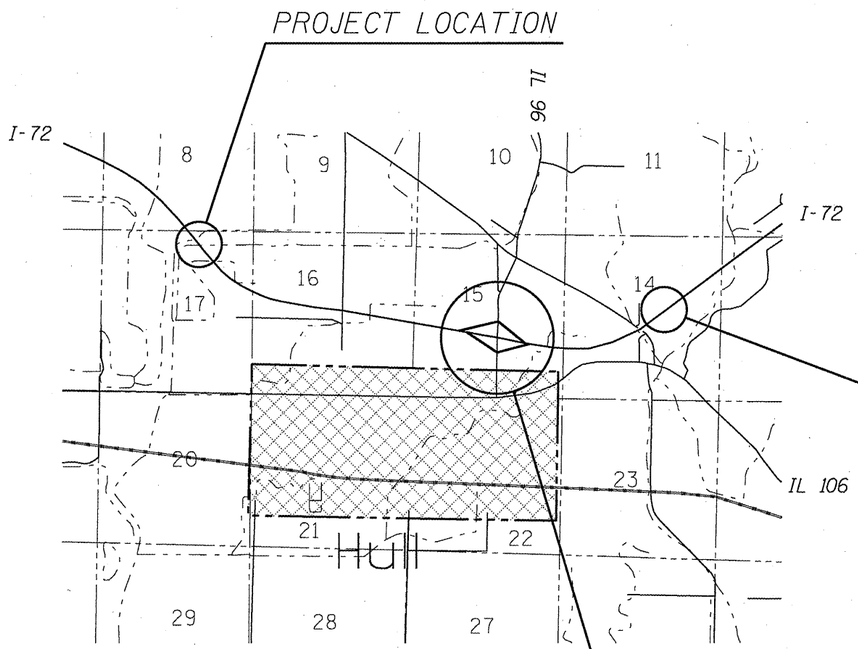
STAGE 1 CONSTRUCTION (LOOKING EAST)



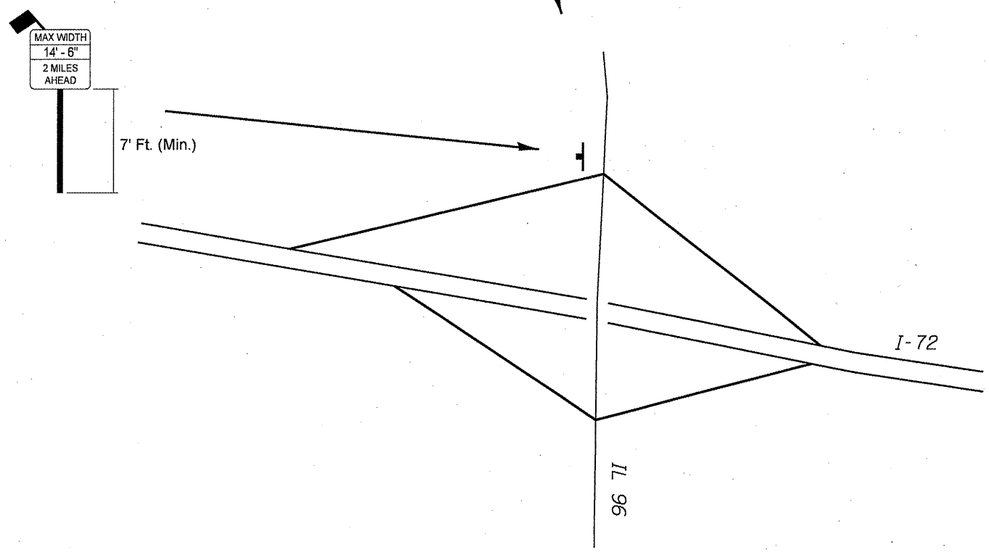
STAGE 2 CONSTRUCTION (LOOKING EAST)

STAGING PLAN
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY

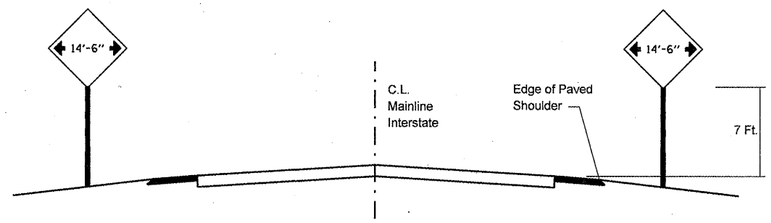
PROJECT LOCATION



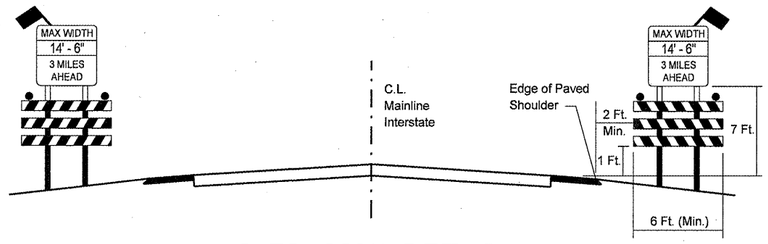
LOCATION MAP



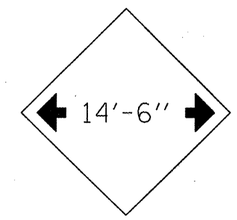
INTERCHANGE DETAIL



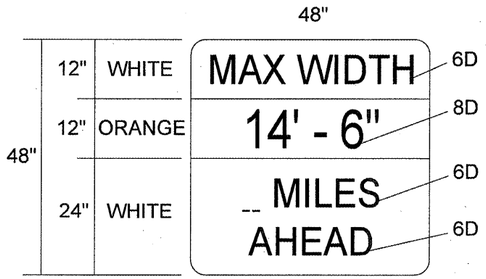
I-72 SIGN DETAIL
(TO BE PLACED ON WB I-72
1000' AHEAD OF BRIDGE)



I-72 SIGN DETAIL
(TO BE PLACED ON WB I-72
APPROX. 1 MI E OF IL 96)



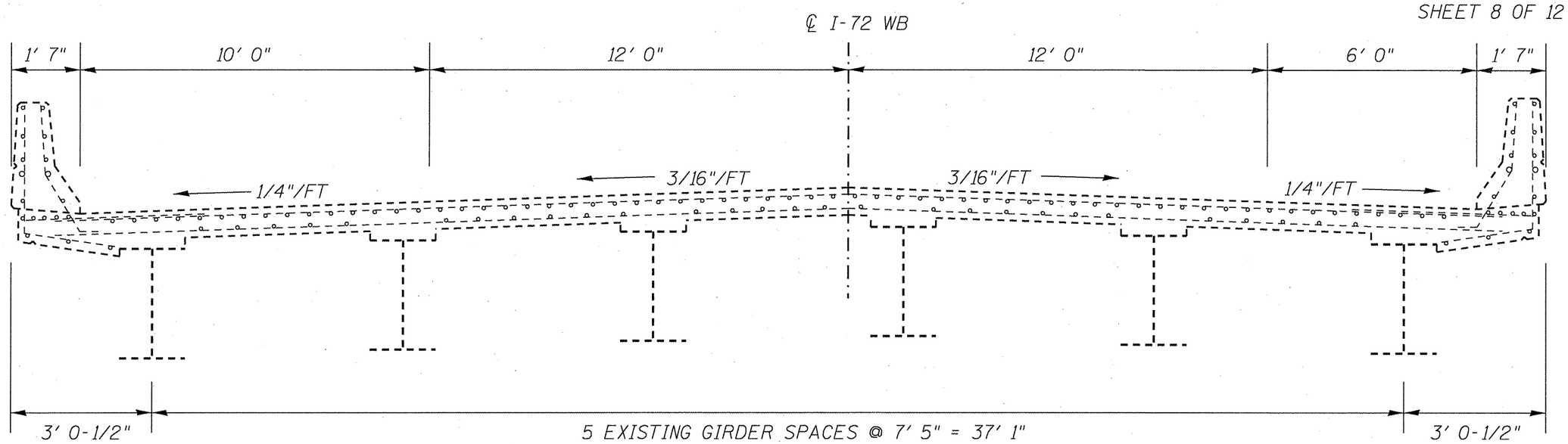
W12-I102(O)-48



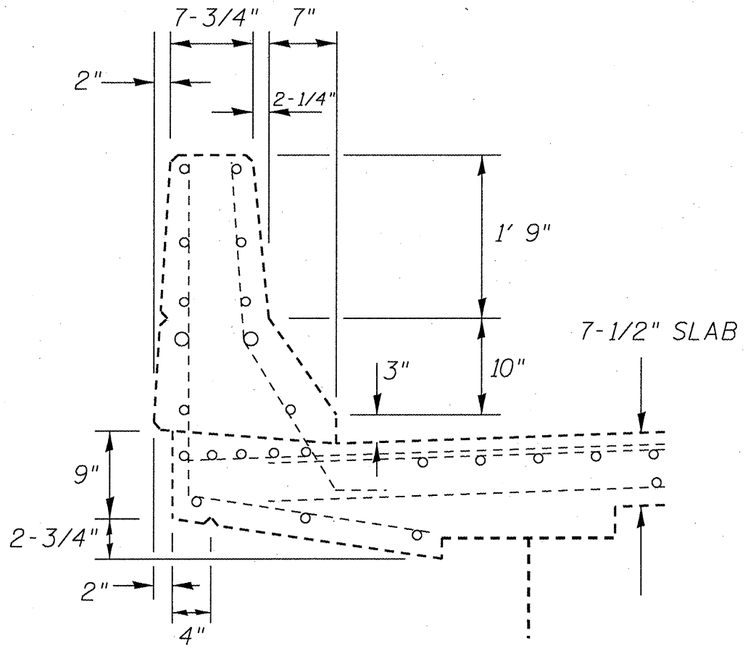
W12-I103

SIGN DETAILS

MAX. WIDTH SIGNING PLAN
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY



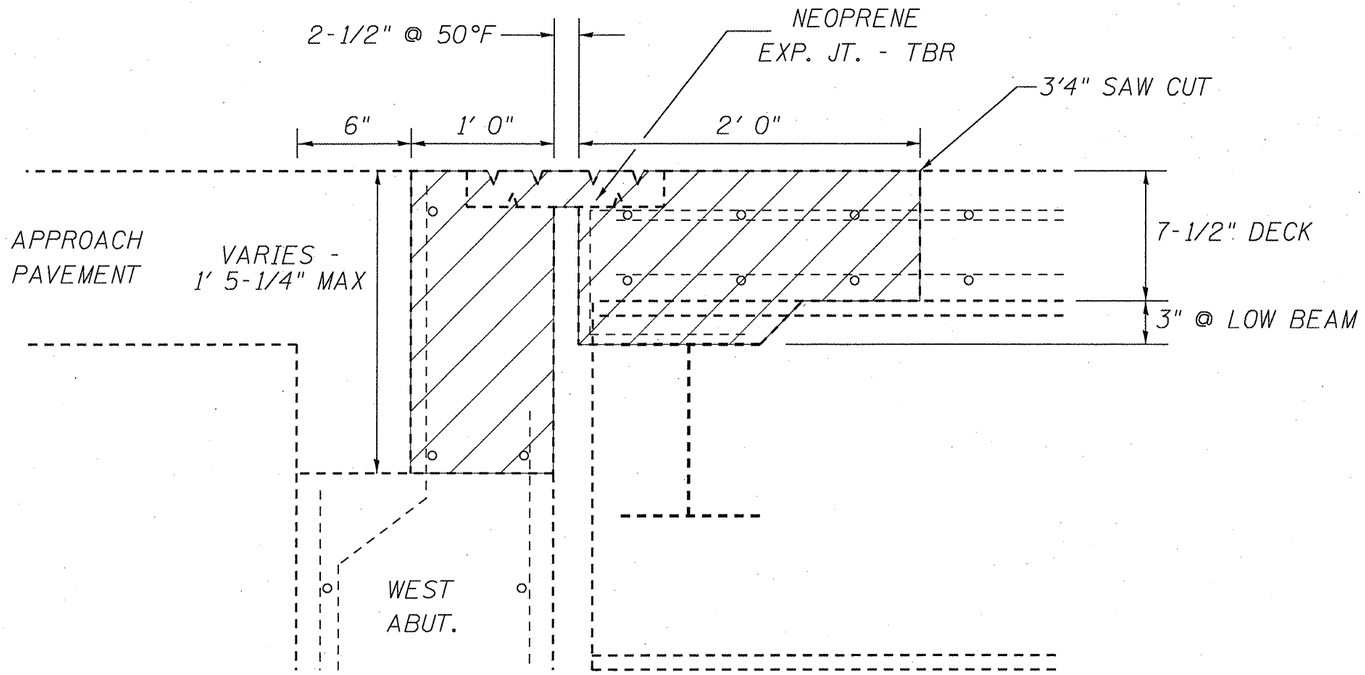
EXISTING CROSS SECTION LOOKING EAST

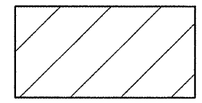


TYPICAL PARAPET CROSS SECTION

NOT TO SCALE

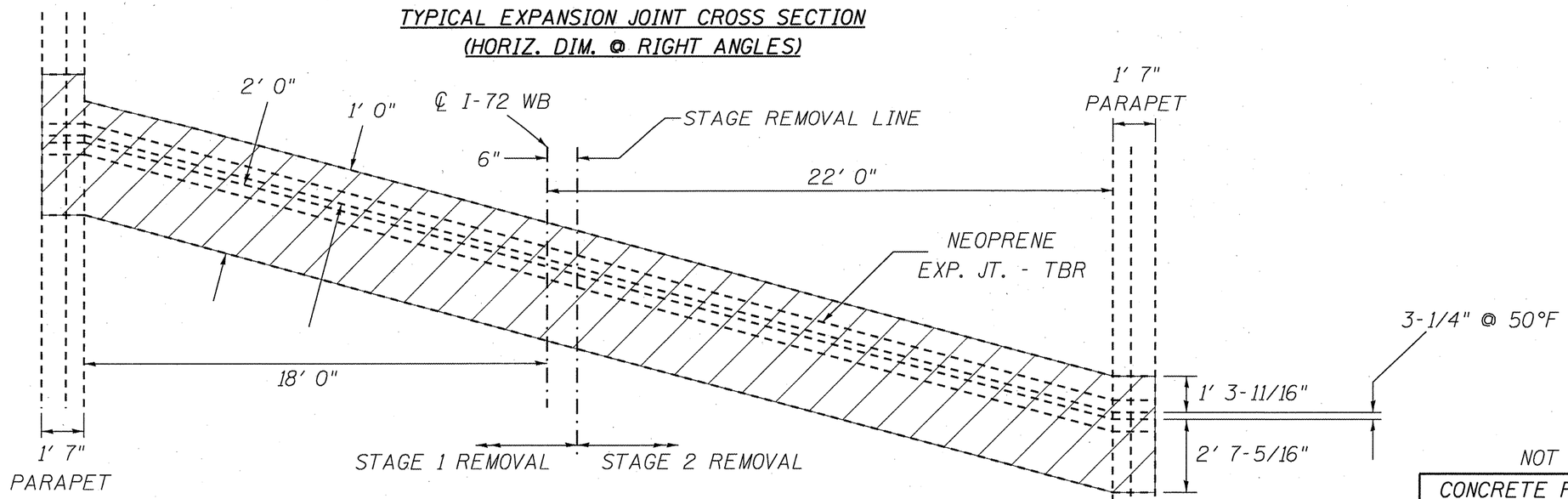
EXISTING CROSS SECTIONS
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY





REMOVAL AREAS

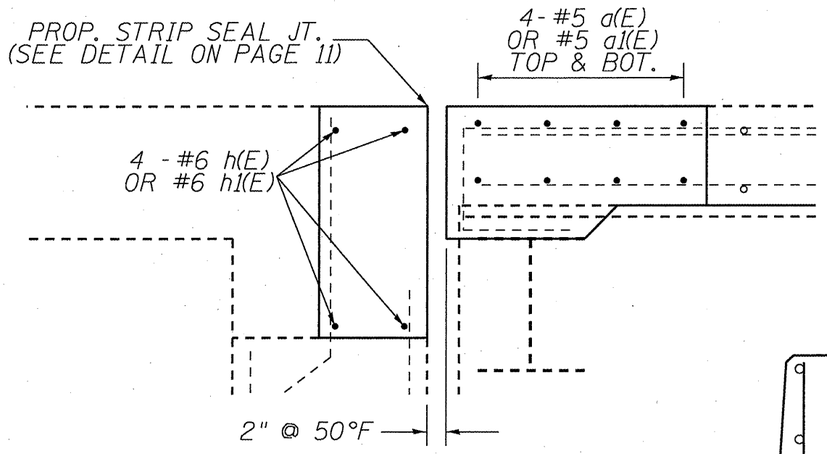
TYPICAL EXPANSION JOINT CROSS SECTION
(HORIZ. DIM. @ RIGHT ANGLES)



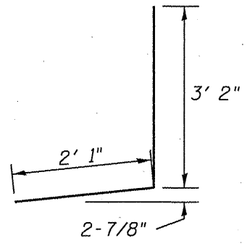
TYPICAL EXPANSION JOINT PLAN
(WEST JOINT SHOWN)

NOT TO SCALE

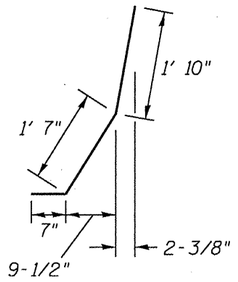
CONCRETE REMOVAL DETAILS
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY



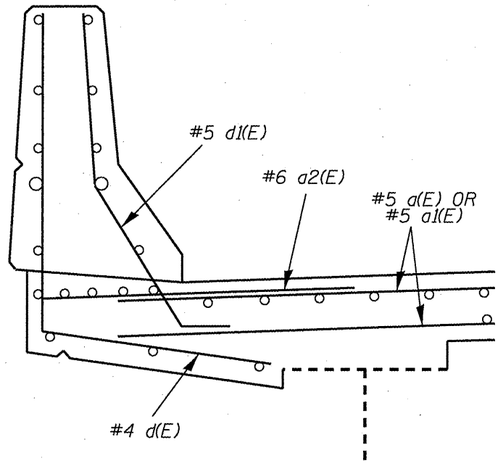
TYPICAL JOINT CROSS SECTION



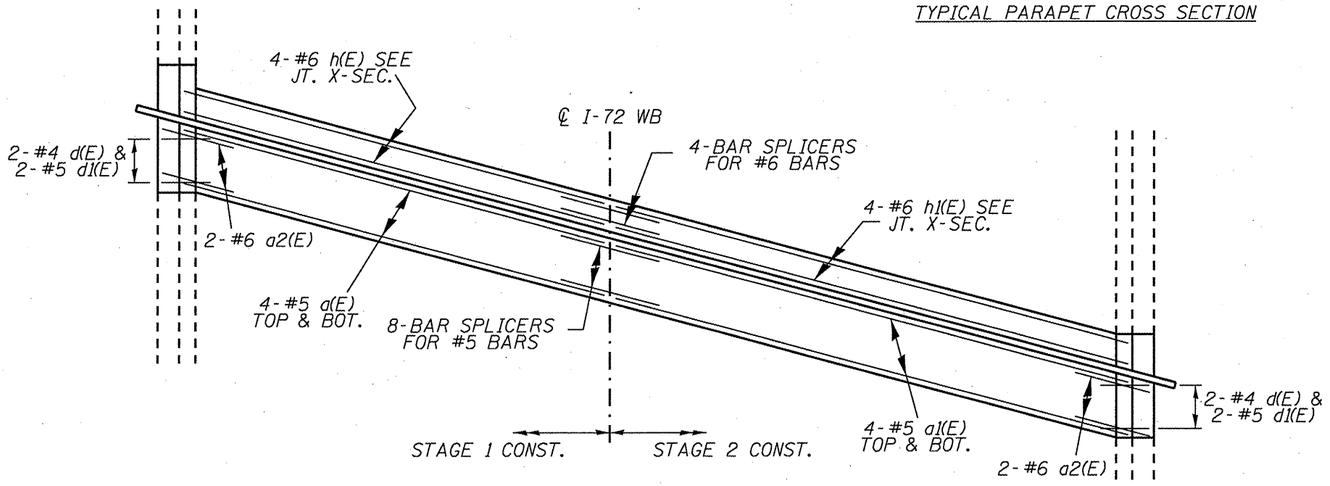
BAR d(E)



BAR d1(E)



TYPICAL PARAPET CROSS SECTION



TYPICAL JOINT PLAN

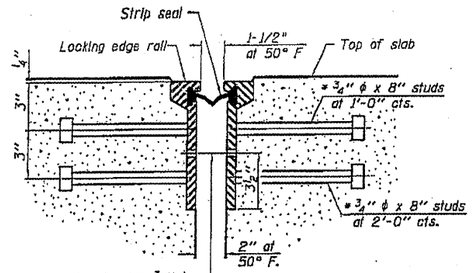
BILL OF MATERIAL

BAR	#	SIZE	LENGTH	SHAPE
a(E)	16	#5	23' 11"	——
a1(E)	16	#5	29' 0"	——
a2(E)	8	#6	4' 0"	——
d(E)	8	#4	5' 4"	⌋
d1(E)	8	#5	4' 0"	⌋
h(E)	8	#6	25' 3"	——
h1(E)	8	#6	30' 6"	——

REINFORCEMENT BARS (EPOXY COATED)	1663 LB
CONC. SUPERSTRUCTURE	14 CU YD

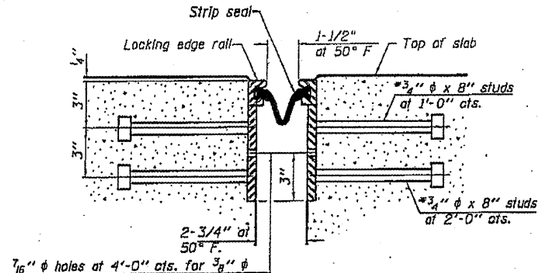
REINFORCEMENT DETAILS
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY

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



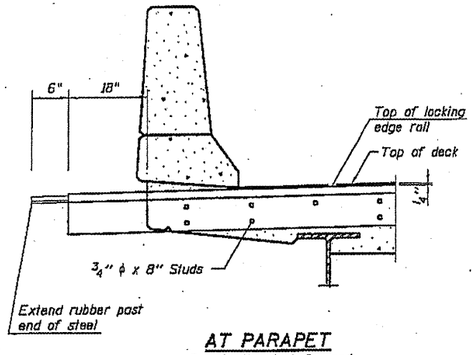
7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sowed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU ROLLED RAIL JOINT



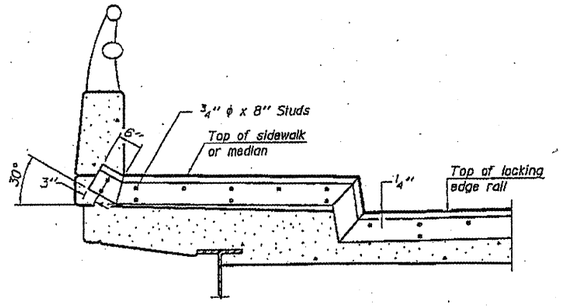
7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sowed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU WELDED RAIL JOINT



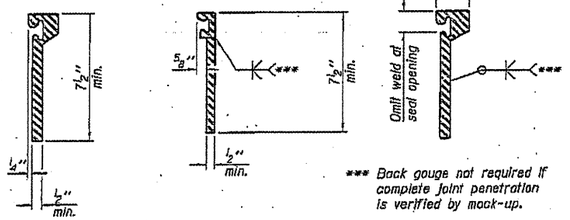
AT PARAPET

See Section A-A for end treatment of skews > 30°.



AT SIDEWALK OR MEDIAN

Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.



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

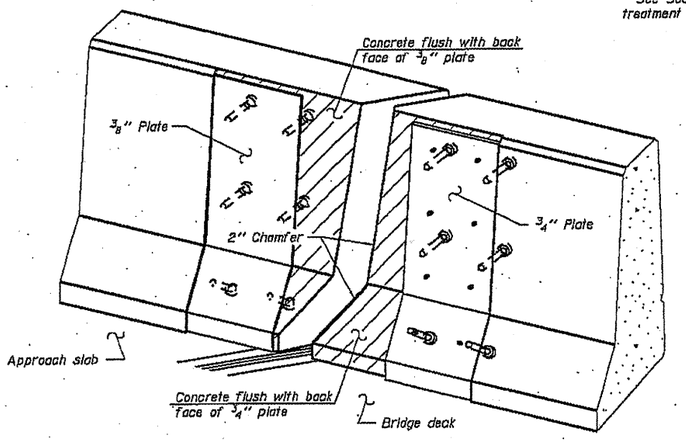
ROLLED EXTRUDED RAIL

WELDED RAIL

LOCKING EDGE RAIL SPLICE

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

Rolled rail shown, welded rail similar.



TRIMETRIC VIEW

(Showing back plates only)

TYPICAL END TREATMENTS

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". 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.

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.

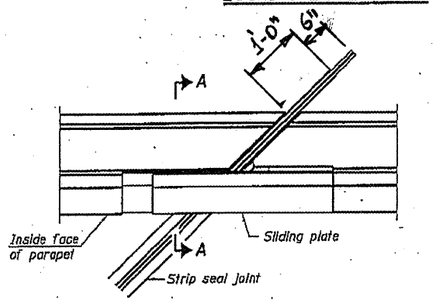
The manufacturer's recommended installation methods shall be followed.

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.

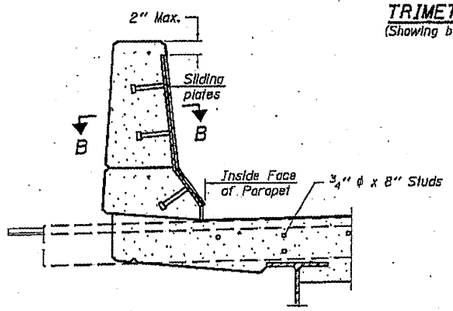
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

Maximum space between rail segments at stage lines shall be 3/16", sealed with a suitable sealant.

LOCKING EDGE RAILS



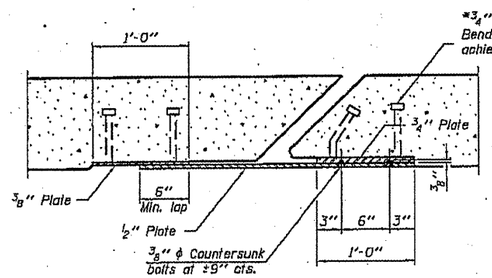
PLAN



SECTION A-A

POINT BLOCK DETAILS

(for skews > 30°)

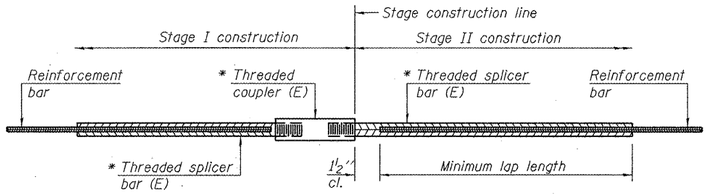


SECTION B-B

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	112

STRIP SEAL JOINT DETAILS
SEC. (75-1)BJR-2,RS-2
EXP. JT. REPLACEMENT
PIKE COUNTY



STANDARD BAR SPLICER ASSEMBLY

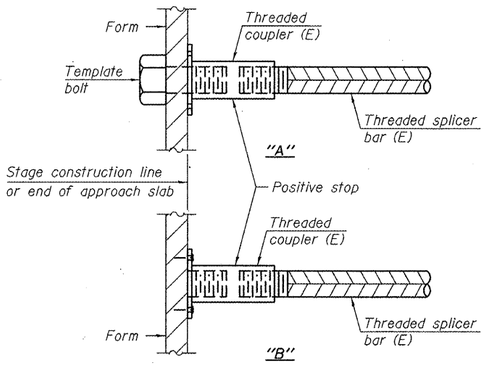
Minimum Lap Lengths						
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"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

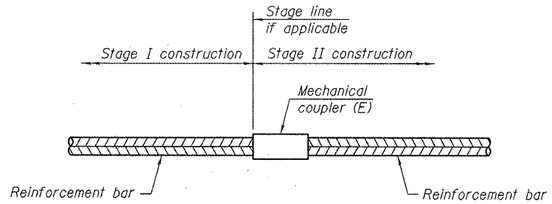
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length
Deck	#5	16	3
Approach	#6	8	3



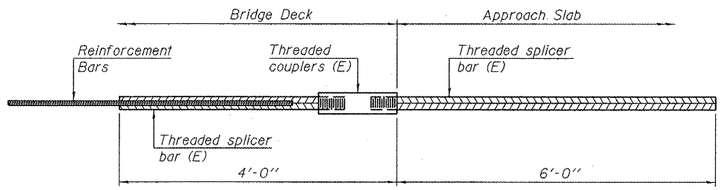
INSTALLATION AND SETTING METHODS

"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.



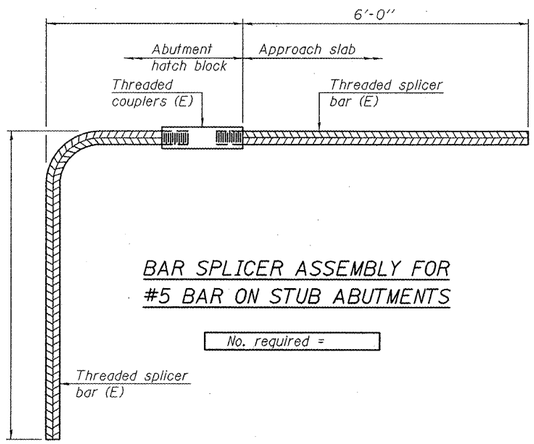
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



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

DESIGNED - ---	EXAMINED	Joyce F. [illegible] ACTING ENGINEER OF STRUCTURAL SERVICES	DATE - MARCH 16, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED - ---	PASSED	Carl Lenzini ACTING ENGINEER OF BRIDGES AND STRUCTURES				-	(75-1)BJR-2,RS-2	PIKE	12	12
DRAWN - Kyle M. Steffen					SHEET NO. OF -- SHEETS			CONTRACT NO. 72F30		
CHECKED - --- ---								ILLINOIS FED. AID PROJECT		