03-06-2015 LETTING ITEM 116

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(12-49, HB-2)BR	CLARK	15	1
	ILLINOIS	CONTRACT NO. 74714		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

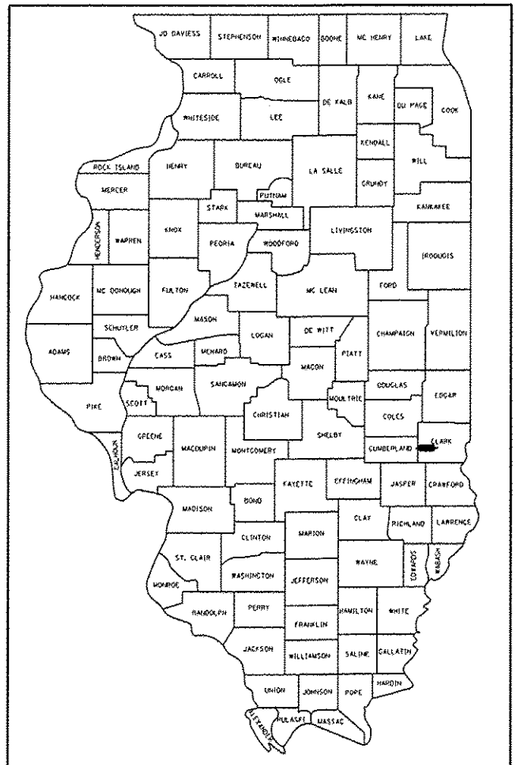
FAI ROUTE 70 (I-70)
SECTION (12-49, HB-2)BR

BRIDGE REPAIR
CLARK COUNTY

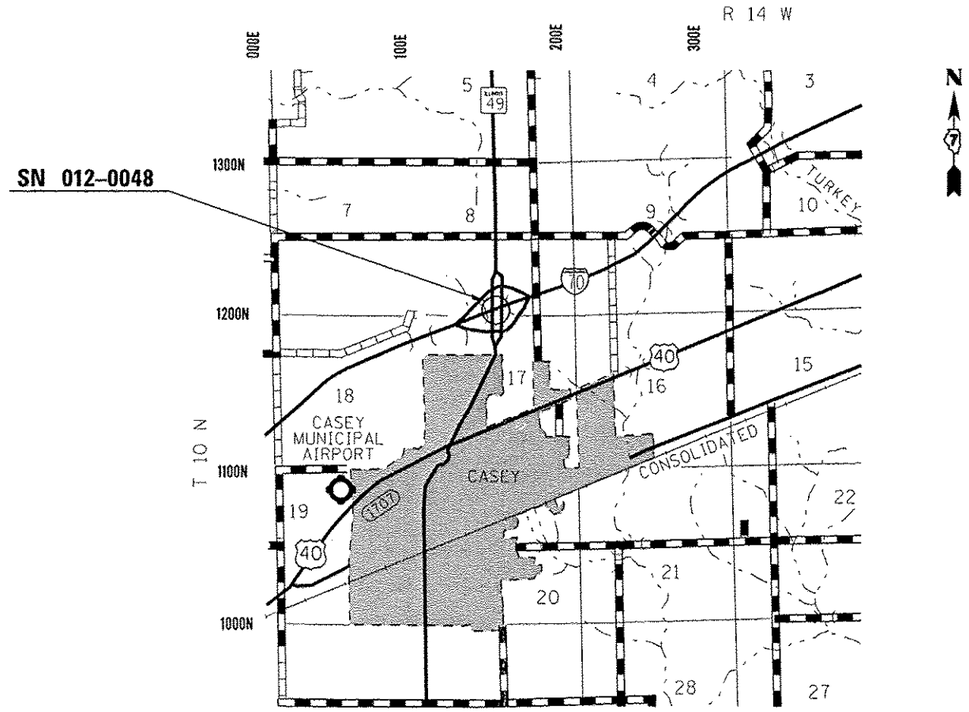
C-97-032-15

FOR INDEX OF SHEETS, SEE SHEET NO. 2

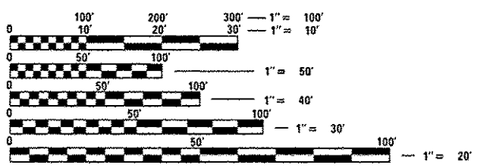
ADT = 18500 (2013)



LOCATION OF SECTION INDICATED THUS: -



GROSS LENGTH = 72.70 FT. = 0.014 MILE
NET LENGTH = 72.70 FT. = 0.014 MILE



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

PROJECT ENGINEER: MARK DAUGHERTY
PROJECT MANAGER: MATT BOWER

CONTRACT NO. 74714

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED 12/18 20 14

DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

Jan 30 20 15

John D. Baranzelli P.E. by acting

ENGINEER OF DESIGN AND ENVIRONMENT

Jan 30 20 15

Omer Osman P.E. by

DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

INDEX OF SHEETS

SHEET NO.	ITEM
1	COVER SHEET
2	INDEX OF SHEETS, HIGHWAY STANDARDS AND GENERAL NOTES
3-4	SUMMARY OF QUANTITIES
5	TYPICAL CROSS SECTION
6	TRAFFIC CONTROL DETAIL
7-15	STRUCTURE PLANS

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED FOLLOWING THE LAST NUMBERED SHEET OF THE PLANS.

STD. NO.	DESCRIPTION
000001-06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
631033-06	TRAFFIC BARRIER TERMINAL, TYPE 6B
701101-04	OFF-ROAD OPERATIONS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE
701400-08	APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
701401-08	LANE CLOSURE, FREEWAY/EXPRESSWAY
701411-09	LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS >= 45MPH
701423-08	LANE CLOSURE, MULTILANE, WITH BARRIER, FOR SPEEDS >= 45MPH TO 55 MPH
701426-07	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPERATION, FOR SPEEDS >= 45 MPH
701901-04	TRAFFIC CONTROL DEVICES
704001-07	TEMPORARY CONCRETE BARRIER
720011-01	METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
780001-05	TYPICAL PAVEMENT MARKINGS
781001-03	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS

GENERAL NOTES

THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2012; THE "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS" INDICATED ON THE CHECK SHEET, AND THE SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

THE WORK INCLUDED IN THIS SECTION CONSISTS OF BRIDGE REPAIRS, AND ANY OTHER WORK NECESSARY TO COMPLETE THE SECTION.

IN ADDITIONAL TO THE REQUIREMENTS FOR PORTABLE CHANGEABLE MESSAGE SIGNS IN ARTICLE 701.15(J), A LAPTOP COMPUTER THAT IS COMPATIBLE WITH THE CHANGEABLE MESSAGE SIGN SHALL ALSO BE SUPPLIED BY THE CONTRACTOR.

THE PAY ITEM BRIDGE WASHING NO. 1 SHALL ONLY BE FOR REMOVING SOOT ON THE UNDERSIDE OF THE BRIDGE.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS, HIGHWAY STANDARDS, & GENERAL NOTES

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	112-49, HB-2)BR	CLARK	15	2
		CONTRACT NO. 74714		
	ILLINOIS FED. AID PROJECT			

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 100% STATE 0014		
50102400	CONCRETE REMOVAL	CU YD	35	35		
50300100	FLOOR DRAINS	EACH	5	5		
50300225	CONCRETE STRUCTURES	CU YD	5.3	5.3		
50300255	CONCRETE SUPERSTRUCTURE	CU YD	29.7	29.7		
50300300	PROTECTIVE COAT	SQ YD	102.8	102.8		
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	20,550	20,550		
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	9980	9980		
50800530	MECHANICAL SPLICERS	EACH	259	259		
52000110	PREFORMED JOINT STRIP SEAL	FOOT	14	14		
59200101	BRIDGE WASHING NO. 1	EACH	1	1		
63302720	REMOVE AND REERECT TRAFFIC BARRIER TERMINALS, TYPE 6B	EACH	1	1		
67000500	ENGINEER'S FIELD OFFICE, TYPE B	CAL MO	4	4		
67100100	MOBILIZATION	L SUM	1	1		

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 100% STATE 0014		
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1	1		
70100800	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	L SUM	1	1		
70107005	PAVEMENT MARKING BLACKOUT TAPE, 5"	FOOT	88	88		
70107007	PAVEMENT MARKING BLACKOUT TAPE, 7"	FOOT	250	250		
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	873	873		
70400100	TEMPORARY CONCRETE BARRIER	FOOT	225	225		
70600250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	1	1		
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	73	73		
78100300	REPLACEMENT REFLECTOR	EACH	25	25		
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	25	25		
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1	1		
X7010410	SPEED DISPLAY TRAILER	CAL MO	4	4		
X7015005	CHANGEABLE MESSAGE SIGN	CAL DA	28	28		

* SPECIALTY ITEM

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(12-49,HB-2)BR	CLARK	15	3
		CONTRACT NO. 74714		
		ILLINOIS FED. AID PROJECT		

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 100 % STATE 0014		
Z0001903	STRUCTURAL STEEL REMOVAL	POUND	20550	20550		
Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO	SQ FT	49.4	49.4		
	OR LESS THAN 5 INCHES)					
Z0050100	REMOVE AND RE-ERECT EXISTING HANDRAIL	FOOT	72	72		
Z0073300	TEMPORARY SHORING AND CRIBBING	L SUM	1	1		

30

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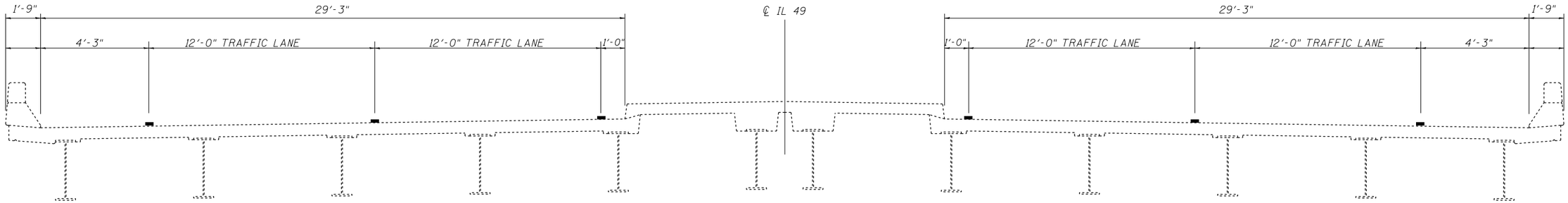
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(12-49,HB-2)BR	CLARK	15	4
		CONTRACT NO. 74714		
	ILLINOIS FED. AID PROJECT			

SN 012-0048
LOOKING NORTH



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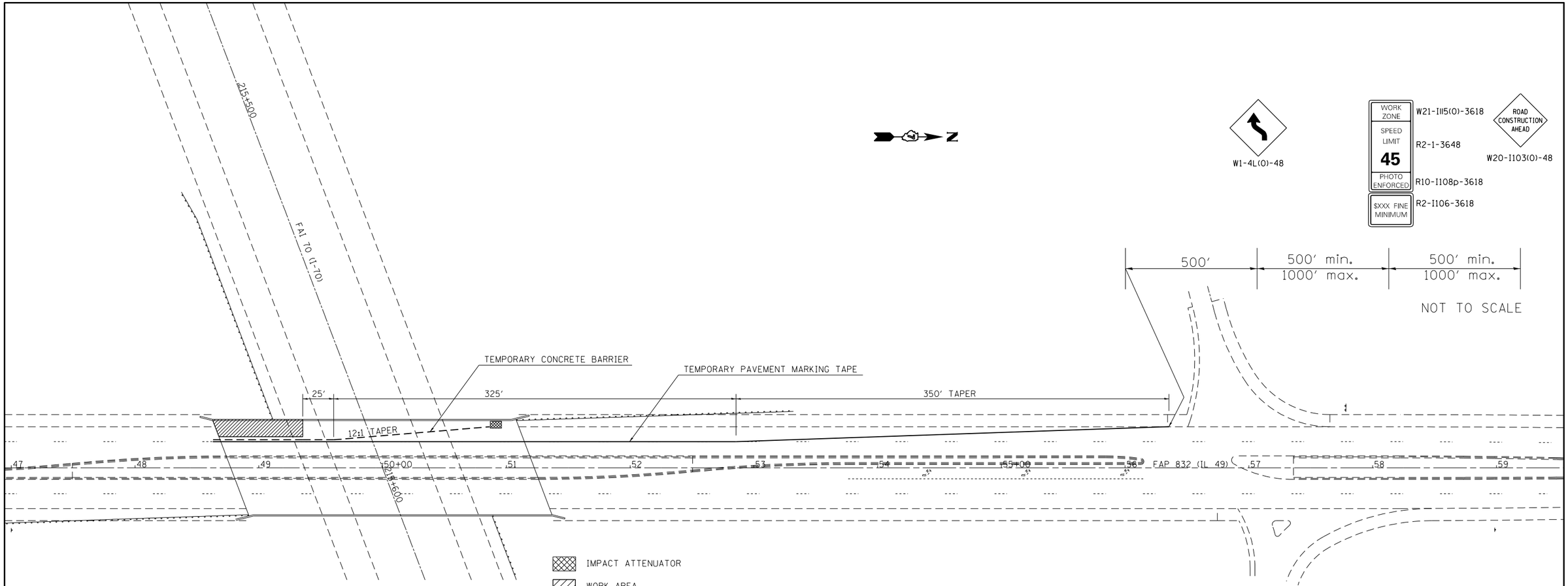
Default	PLOT DATE = 12/19/2014	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTION

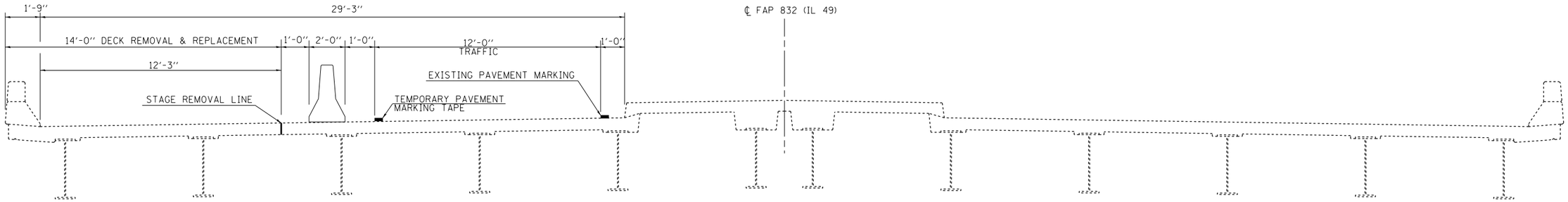
SCALE: | SHEET OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(12-49, HB-2)BR	CLARK	15	5
		CONTRACT NO. 74714		
	ILLINOIS FED. AID PROJECT			



NOTE: SEE HIGHWAY STANDARD 701423 FOR DETAILS NOT SHOWN IN THE TAPER AND ON THE BRIDGE.

NOT TO SCALE



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Default	PLOT DATE = 12/19/2014	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND PROTECTION, (SPECIAL)
SN 012-0048

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(12-49, HB-2)BR	CLARK	15	6
		CONTRACT NO. 74714		
	ILLINOIS FED. AID PROJECT			

INTENTIONALLY LEFT

BLANK - SPRINGFIELD

TO INSERT STRUCTURE

PLAN SHEETS

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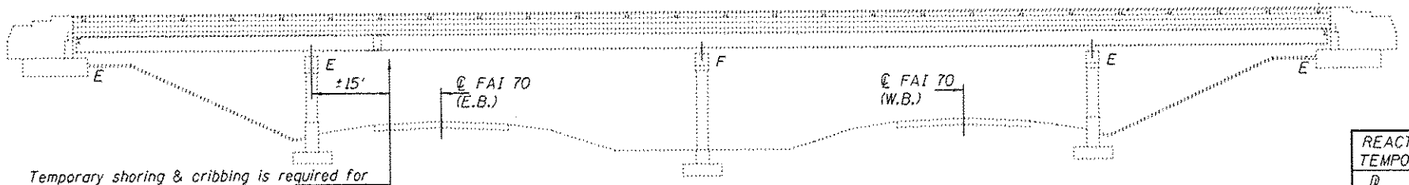
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

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

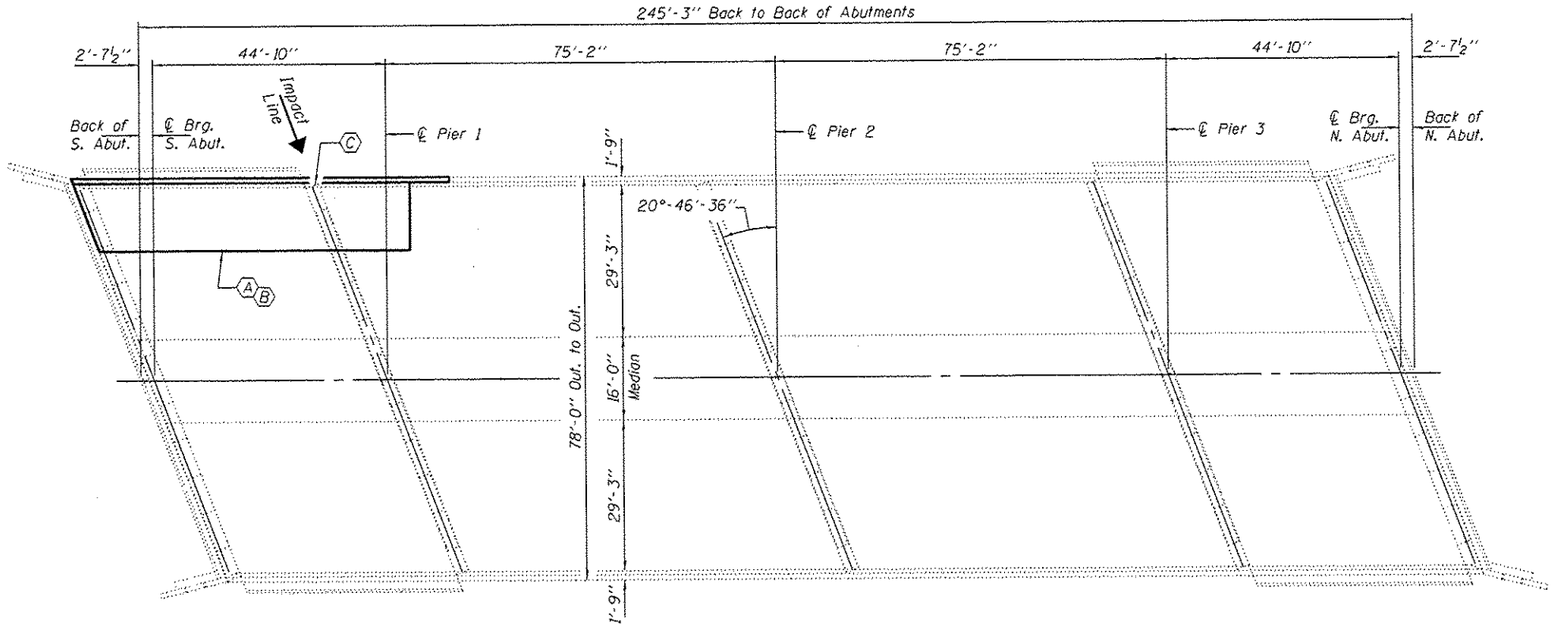
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(12-49,HB-2)BR	CLARK	15	7
		CONTRACT NO. 74714		
	ILLINOIS FED. AID PROJECT			



Temporary shoring & cribbing is required for Beams 1 & 2. The shoring & cribbing shall be removed as soon as possible after the repair is completed, to minimize Traffic Control.

ELEVATION

REACTION TABLE AT TEMPORARY SHORING		
Q	(k)	74.3
4	(k)	46.3
Imp.	(k)	12.1
Total	(k)	132.7



PLAN

(A) - Remove & Replace section of Beams 1 & 2.
(B) - Remove & Replace Concrete Bridge Deck.
(C) - Remove & Replace portion of pier cap & Westernmost column & repair crashwall.

GENERAL NOTES

All structural steel shall conform to AASHTO Classification M-270 Gr. 36, unless otherwise noted.

Fasteners shall be high strength bolts. Flange splice holes shall be $^{15}/_{16}$"ϕ for $^{7}/_{8}$"ϕ bolts. Web splice holes shall be $^{13}/_{16}$"ϕ for $^{3}/_{4}$"ϕ bolts.

The Contractor shall provide support and/or shoring systems for the slab and beam in the area of existing beam removal. See Special Provisions "Temporary Shoring and Cribbing".

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 the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

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 the existing concrete.

Cost of removal and re-installation of all members necessary to complete the work as detailed on the plans and as specified in the Special Provisions shall be included with Furnishing and Erecting Structural Steel.

The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Interstate Green, Munsell No. 7.5G 4/8.

Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the GBSP "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".

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.

Diaphragm connection holes shall be $^{15}/_{16}$"ϕ for $^{3}/_{4}$"ϕ bolts. Two hardened washers shall be required at diaphragm connections.

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.

All soot on the underside of the bridge shall be removed according to Article 592 of the Standard Specifications, to the satisfaction of the engineer. This work shall also include bearings & extensions at beams 1 & 2 at the South Abutment.

Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

TOTAL BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	35.0
Concrete Superstructure	Cu. Yd.	29.7
Furnishing and Erecting Structural Steel	Pound	20550
Structural Steel Removal	Pound	20550
Concrete Structures	Cu. Yd.	5.3
Protective Coat *	Sq. Yd.	102.8
Floor Drains	Each	5
Remove and Re-Erect Existing Handrail	Foot	72
Preformed Joint Strip Seal	Foot	14
Reinforcement Bars, Epoxy Coated	Pound	9980
Structural Repair of Concrete (Depth ≤ 5")	Sq. Ft.	49.4
Temporary Shoring and Cribbing	L. Sum	1
Mechanical Splicers	Each	259
Bridge Washing No. 1	Each	1

* On new Superstructure concrete only

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

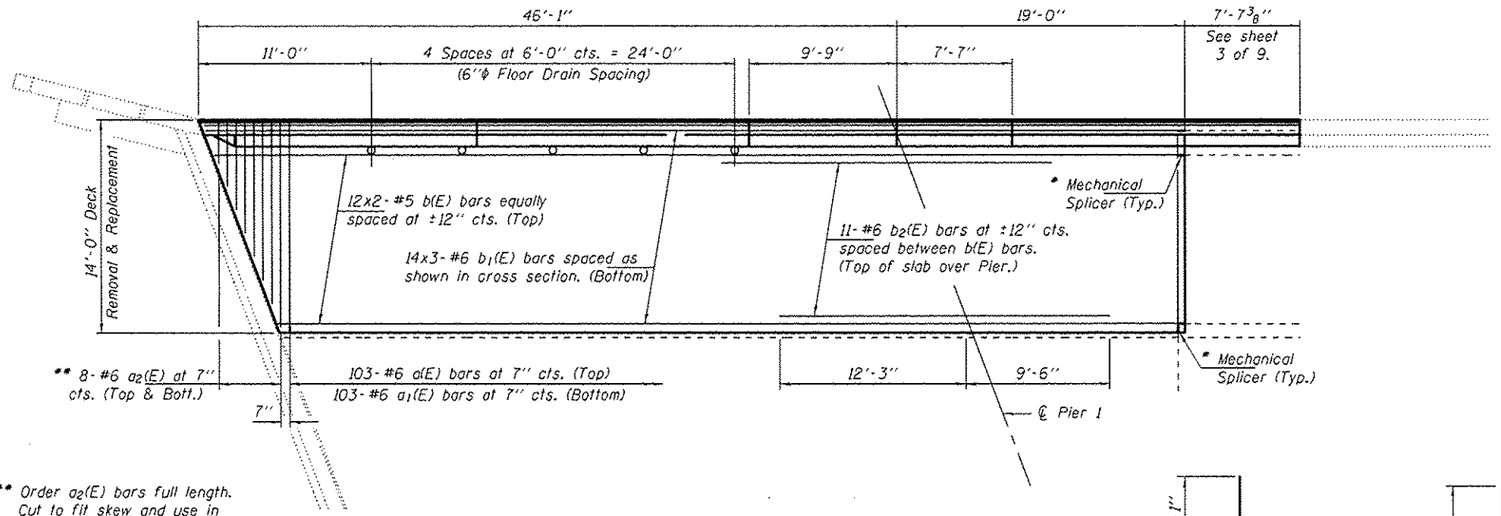
EXPIRES 11-30-2016

DESIGNED	Stephen M Ryan	EXAMINED	ACTING ENGINEER OF STRUCTURAL SERVICES
CHECKED	Nicholas H. Belitz	PASSED	ACTING ENGINEER OF BRIDGES AND STRUCTURES
DRAWN	baliva/ Steffen	DATE	JANUARY 16, 2015
CHECKED	SMR	REVISED	
		REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN AND ELEVATION
FAP 832 (IL 49) OVER FAI 70
SN 012-0048
SHEET NO. 1 OF 8 SHEETS

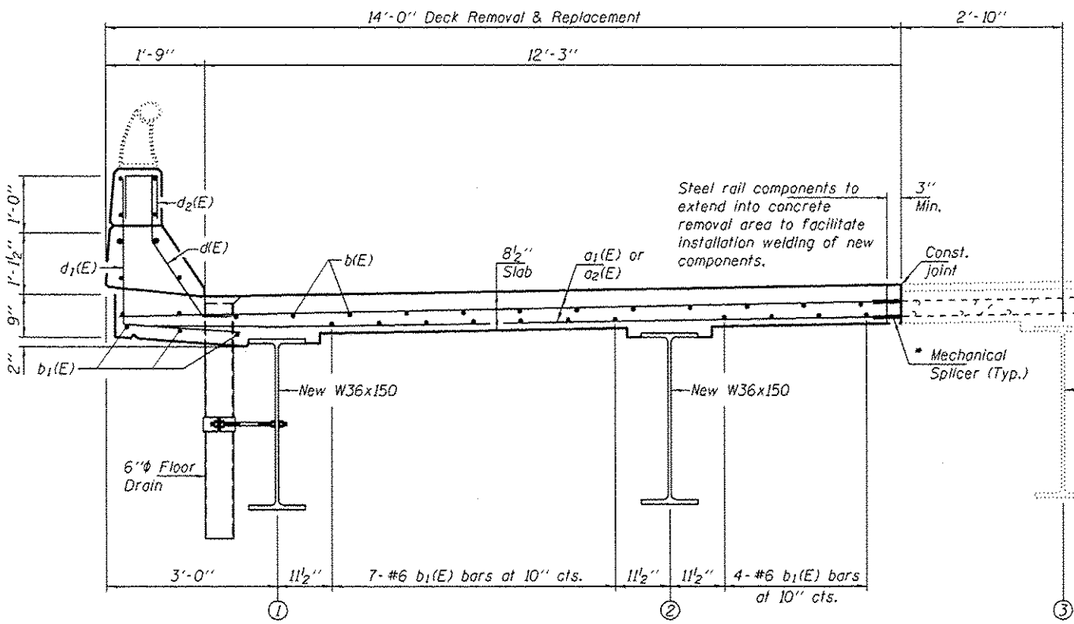
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	112-49, NB-2BR	CLARK	15	8
		CONTRACT NO. 74714		
	ILLINOIS FED. AID PROJECT			



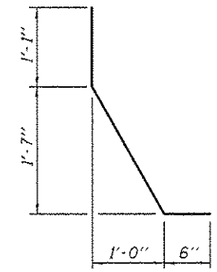
** Order $a_2(E)$ bars full length. Cut to fit skew and use in top & bottom of slab.

PARTIAL DECK PLAN

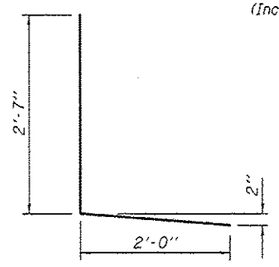
* Existing reinforcement to extend 6" min. into concrete removal area to facilitate installation of Mechanical Splicers.



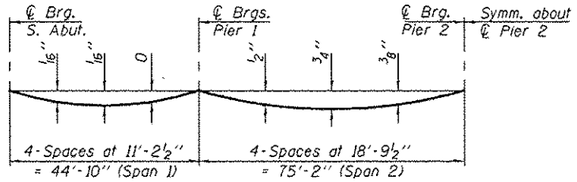
SECTION THRU DECK



BAR d(E)

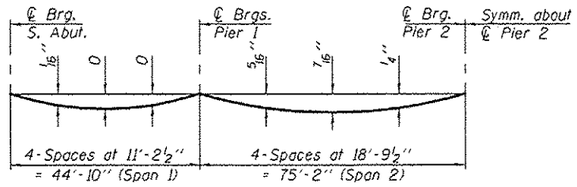


BAR $d_1(E)$



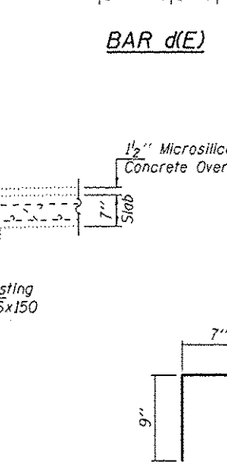
DEAD LOAD DEFLECTION DIAGRAM - BEAM 1

(Includes weight of concrete, excluding beams).



DEAD LOAD DEFLECTION DIAGRAM - BEAM 2

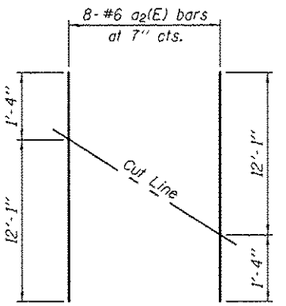
(Includes weight of concrete, excluding beams).



BAR d2(E)

MIN. BAR LAP

#5 Bar = 2'-7"
#6 Bar = 3'-1"



BAR $a_2(E)$ CUTTING DIAGRAM

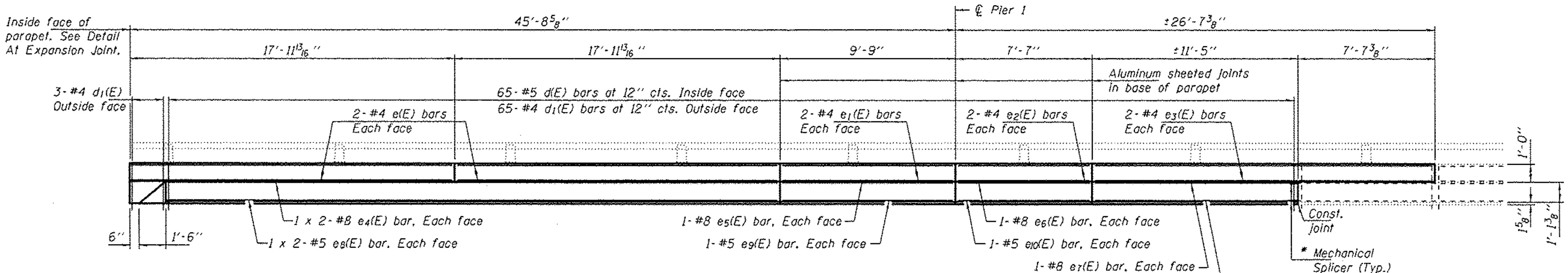
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	103	#6	13'-7"	—
$a_1(E)$	103	#6	12'-10"	—
$a_2(E)$	8	#6	13'-5"	—
b(E)	24	#5	33'-8"	—
$b_1(E)$	42	#6	23'-8"	—
$b_2(E)$	11	#6	21'-9"	—
d(E)	65	#5	3'-5"	L
$d_1(E)$	68	#4	4'-7"	L
$d_2(E)$	16	#4	2'-1"	⊓
e(E)	8	#4	17'-7"	—
$e_1(E)$	4	#4	9'-5"	—
$e_2(E)$	4	#4	7'-3"	—
$e_3(E)$	4	#4	18'-8"	—
$e_4(E)$	4	#8	20'-7"	—
$e_5(E)$	2	#8	9'-5"	—
$e_6(E)$	2	#8	7'-3"	—
$e_7(E)$	2	#8	11'-1"	—
$e_8(E)$	4	#5	19'-3"	—
$e_9(E)$	2	#5	9'-5"	—
$e_{10}(E)$	2	#5	7'-3"	—
$e_{11}(E)$	2	#5	11'-1"	—
Concrete Removal			Cu. Yd.	29.7
Concrete Superstructure			Cu. Yd.	29.7
Reinforcement Bars, Epoxy Coated			Lbs.	8100

Reinforcement bars designated (E) shall be epoxy coated.

DESIGNED SMR	EXAMINED	DATE JANUARY 16, 2015	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**
CHECKED VHV	PASSED	REVISED	**SUPERSTRUCTURE DETAILS SN 012-0048**
DRAWN baliva/ Steffen	ACTING ENGINEER OF STRUCTURAL SERVICES	REVISED	SHEET NO. 2 OF 8 SHEETS
CHECKED SMR VHV	ACTING ENGINEER OF BRIDGES AND STRUCTURES		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	112-49, 48-2BR	CLARK	15	9
		CONTRACT NO. 74714		
		ILLINOIS FED. AID PROJECT		

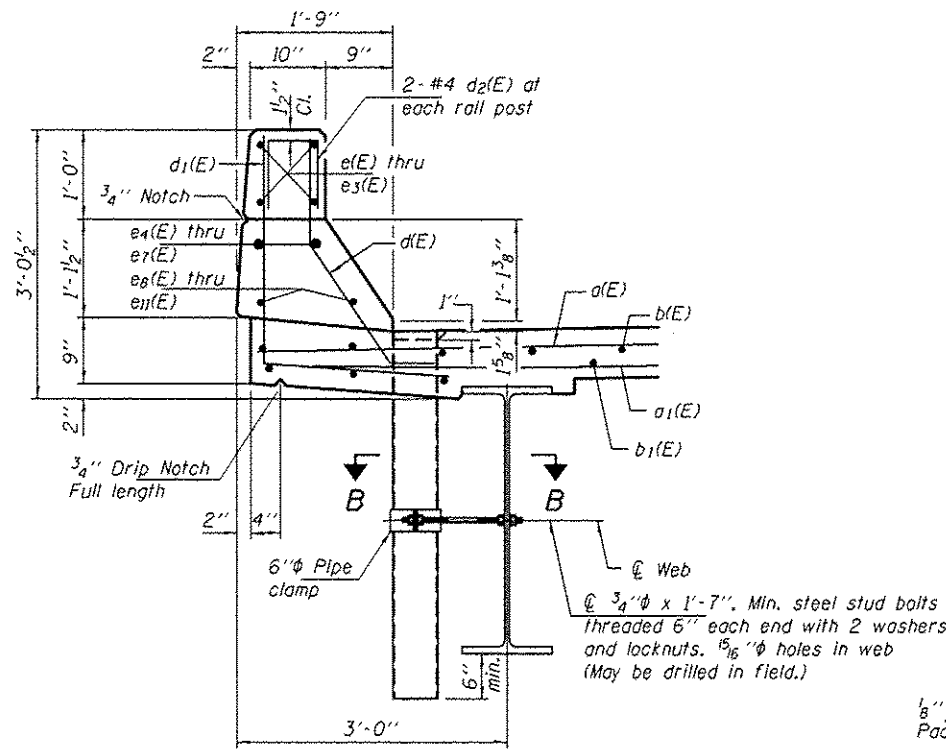


INSIDE ELEVATION OF WEST PARAPET

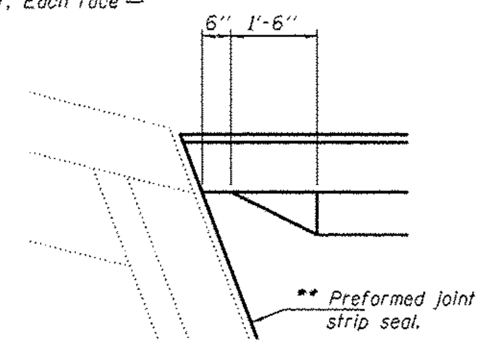
* Existing reinforcement to extend 6" min. into concrete removal area to facilitate installation of Mechanical Splicers.

MINIMUM BAR LAP

(Parapet)
#5 bar = 2'-6"
#8 bar = 5'-2"

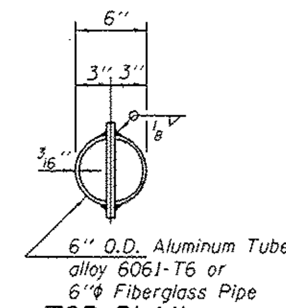


SECTION THRU PARAPET



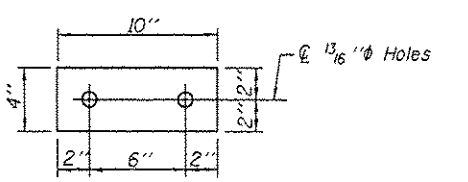
DETAIL AT EXPANSION JOINT

** Steel rail components to extend 3" into concrete removal area & new components to be welded per details on sheet 5 of 9. Rubber gland to be salvaged and reinstalled. No cutting of the gland will be allowed. Cost included with Preformed Joint Strip Seal.



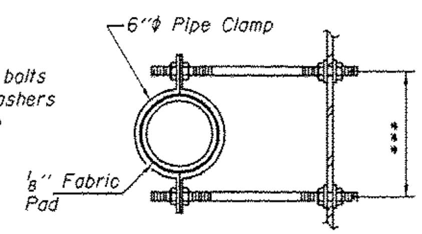
TOP PLAN

(Showing Aluminum Tube)



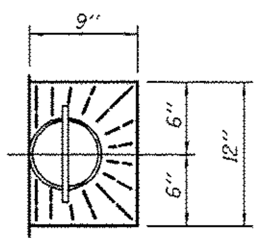
LATERAL SUPPORT PLATE DETAIL

PL 1 1/4" x 4" x 10"
No. Req'd. - 12
Plus additional as directed by the Engineer.

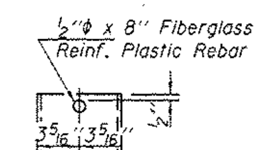


SECTION B-B

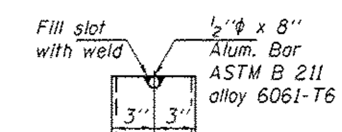
*** Dimension as required by Pipe Clamp.



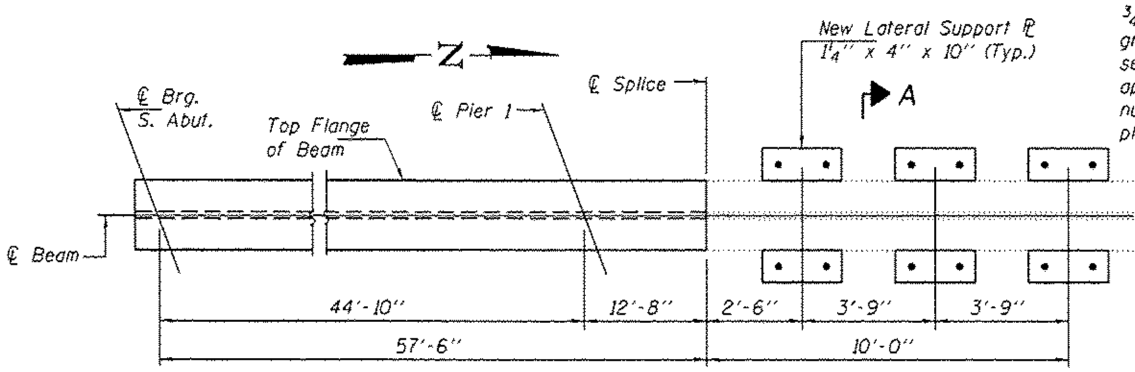
TOP PLAN



FIBERGLASS PIPE

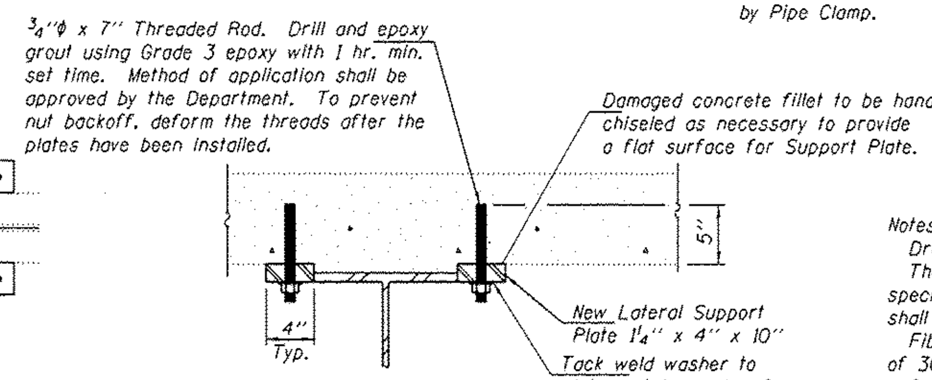


ALUMINUM TUBE



PARTIAL PLAN

DAMAGED BEAM 1 & 2 FILLET REPAIR DETAIL



SECTION A-A

Notes:

Drains shall be located clear of all diaphragms.

The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to the Society of Protective Coating's Spec. SSPC-SP1 prior to painting.

Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

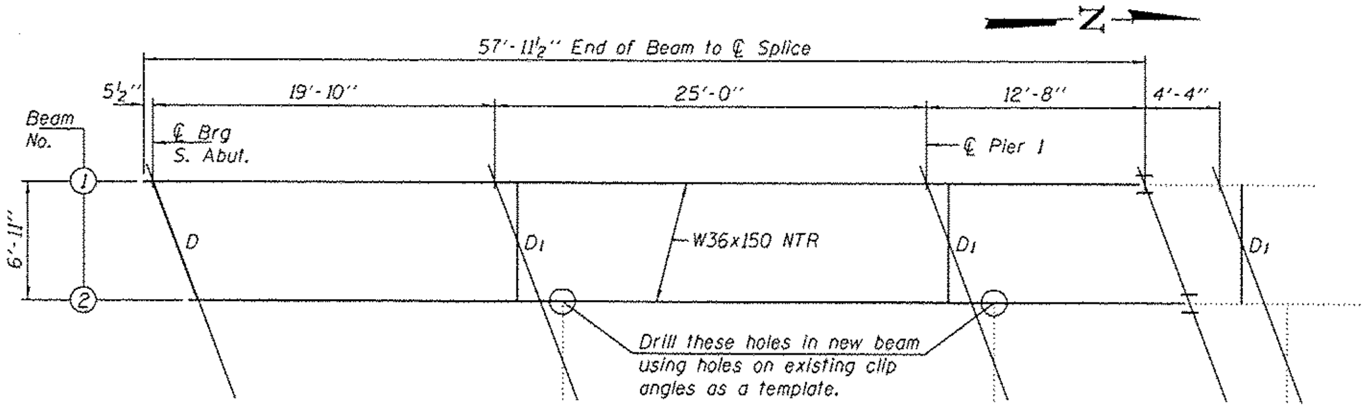
Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.

DESIGNED SMR	EXAMINED Timothy A. Armbrecht — ACTING ENGINEER OF STRUCTURAL SERVICES	DATE JANUARY 16, 2015	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
CHECKED VHV			
DRAWN baliva/ Steffen	PASSED D. Carl Puzey — ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED	
CHECKED SMR VHV		REVISED	

SUPERSTRUCTURE DETAILS
SN 012-0048
SHEET NO. 3 OF 8 SHEETS

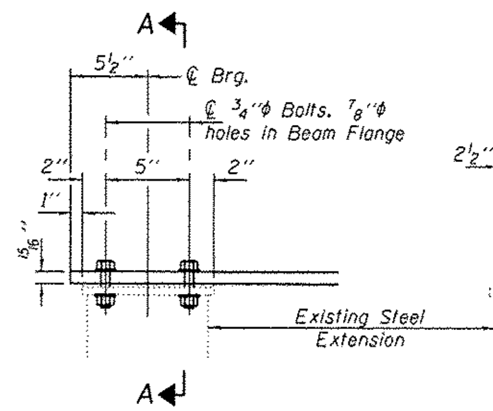
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	112-49, HB-2IBR	CLARK	15	10

CONTRACT NO. 74714
ILLINOIS FED. AID PROJECT



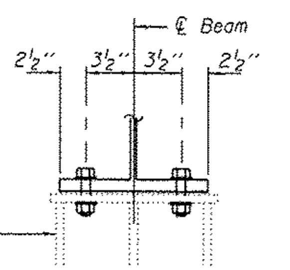
PARTIAL FRAMING PLAN

Note:
Natural camber of new beam shall be placed upward for fabrication.



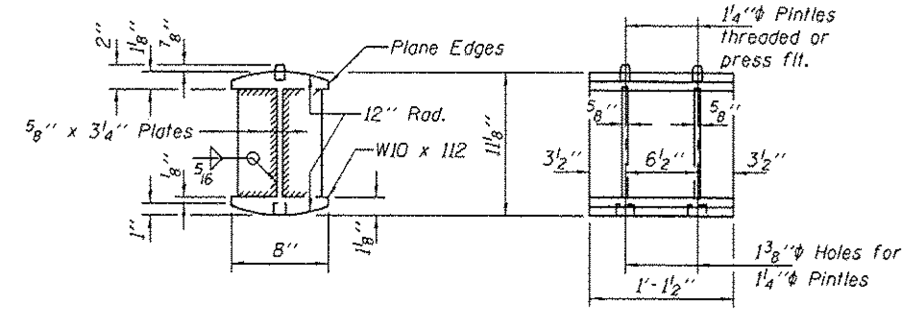
ELEVATION AT ABUTMENT

(Typical at beams 1 & 2 only)

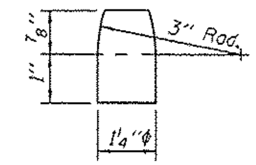


SECTION A-A

○ - Use holes in existing steel as template.
● - Use holes in new steel as template.



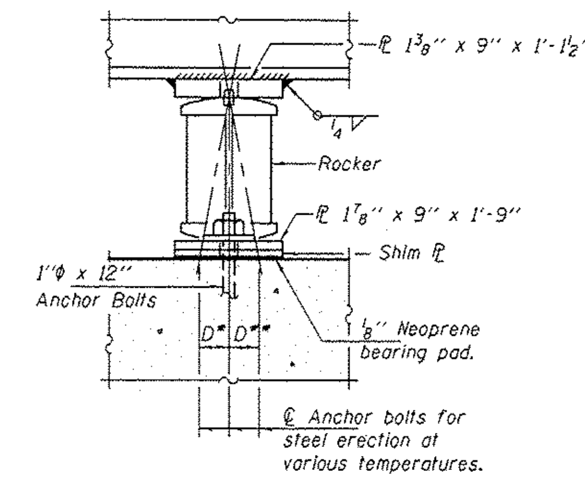
ROCKER



PINTLE

Note "A"
1⅜"φ Holes - 1" deep in top ℙ for 1¼"φ Pintles. Thread or press fit pintles in bottom ℙ.

Note "B"
1½"φ Holes for 1"φ Anchor Bolts - $\frac{5}{16}$" x 2½" x 2½" ℙ washer under nut.



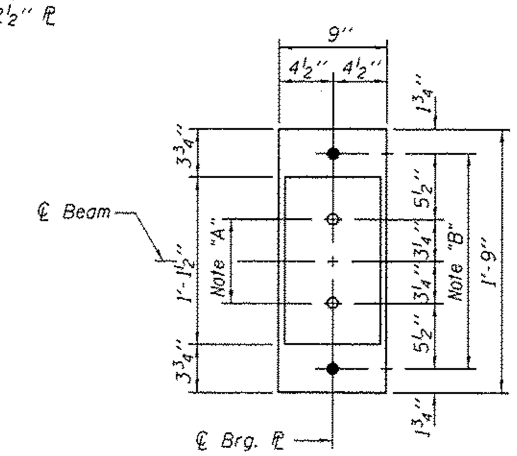
ELEVATION

D* (Side of brg. away from fixed brg.)
D* = ⅛" per each 100' of expansion for every 15° fall below the normal temp. of 50° F.

D** (Side of brg. toward fixed brg.)
D** = ⅛" per each 100' of expansion for every 15° rise above the normal temp. of 50° F.

After beams have been erected and dimensions D* & D** determined, holes shall be drilled and anchor bolts shall be installed as shown on Sheet #7 of 9.

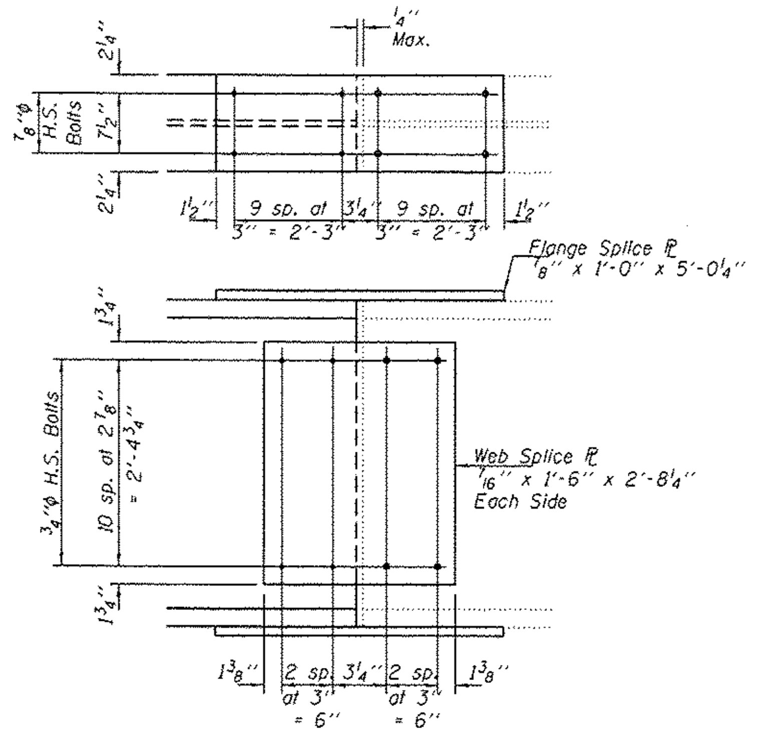
Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.



PLAN AT PIER 1

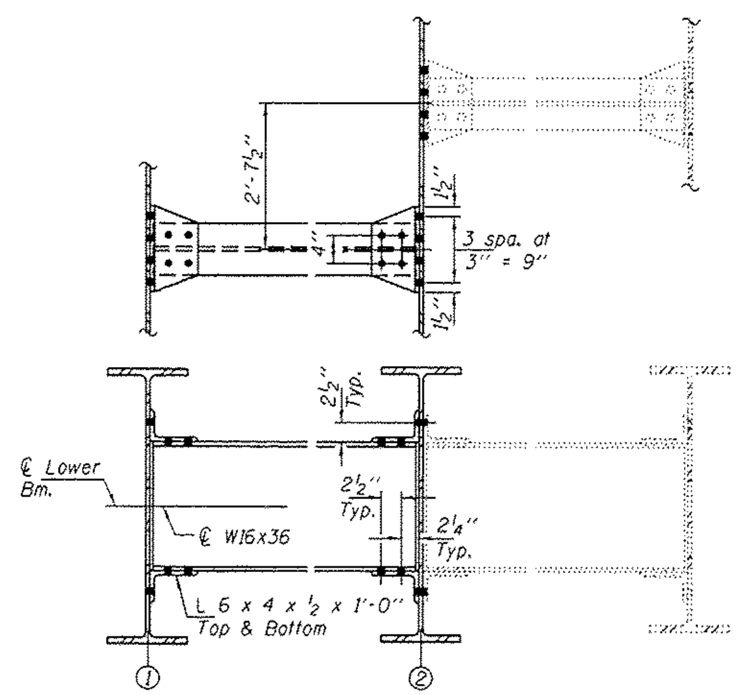
BEARING ASSEMBLY DETAILS

(Typical at beams 1 & 2 only)



DETAIL OF SPLICE

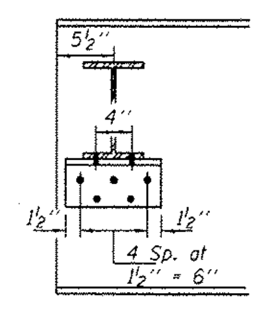
All splice plates shall be NTR



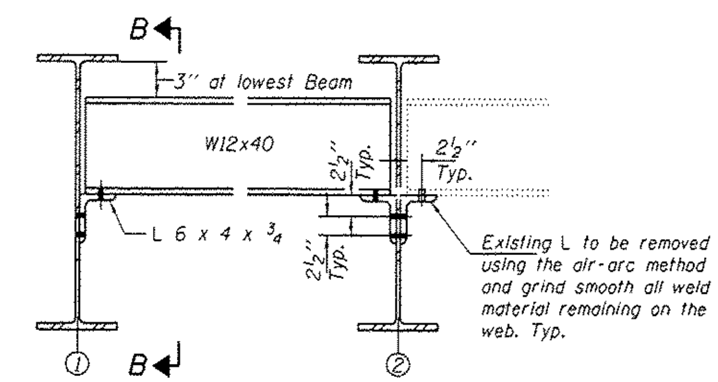
DIAPHRAGM D1

3 Required

Fasteners shall be high strength bolts. Bolts ¾"φ, open holes $\frac{13}{16}$"φ, unless otherwise noted.



SECTION B-B



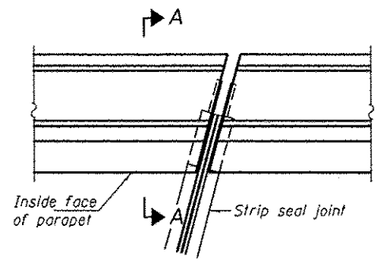
DIAPHRAGM D

1 Required

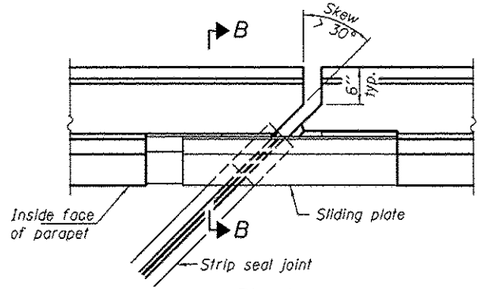
DESIGNED SMR	EXAMINED (signature) ACTING ENGINEER OF STRUCTURAL SERVICES	DATE JANUARY 16, 2015	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
CHECKED VHV			
DRAWN baliva/ Steffen	PASSED (signature) ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED	
CHECKED SMR VHV		REVISED	

STEEL REPAIR DETAILS
SN 012-0048
SHEET NO. 4 OF 8 SHEETS

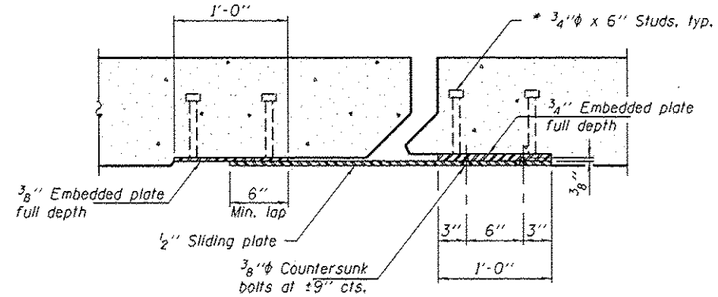
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	112-49, HB-2(18R	CLARK	15	11
		CONTRACT NO. 74714		
		ILLINOIS FED. AID PROJECT		



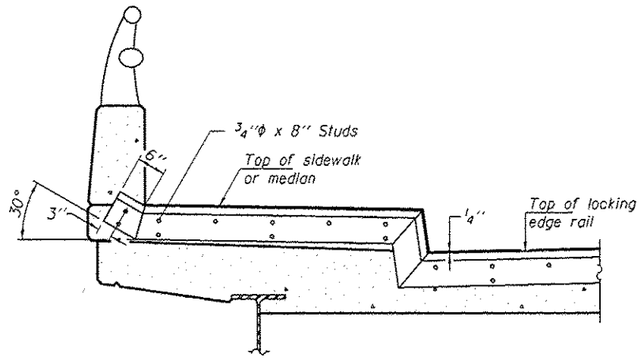
PLAN
(For skews ≤ 30°)



PLAN
(For skews > 30°)
Showing point block

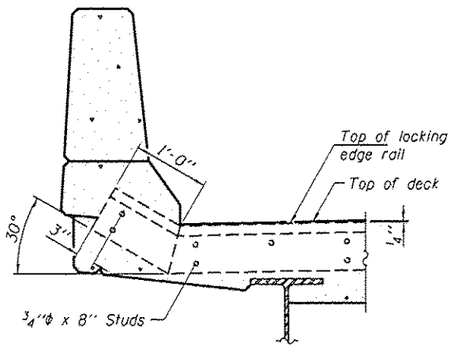


SECTION C-C

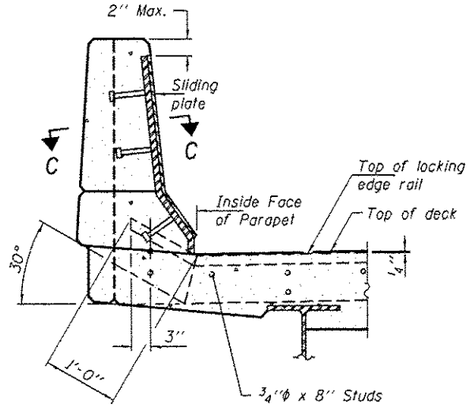


TYPICAL END TREATMENT AT SIDEWALK OR MEDIAN

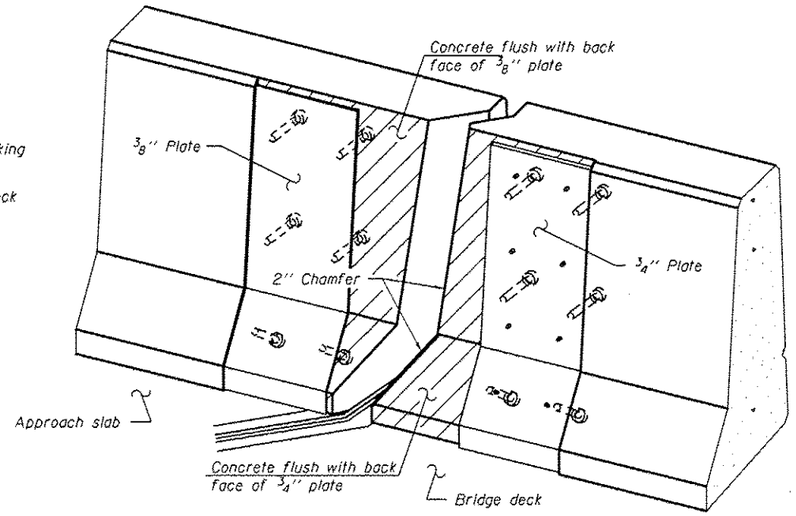
Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.



SECTION A-A



SECTION B-B



TRIMETRIC VIEW
(Showing back plates only)

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.

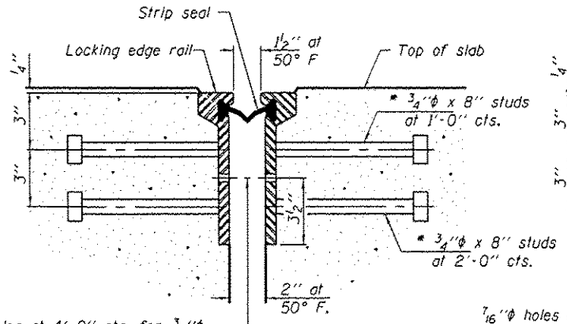
The manufacturer's recommended installation methods shall be followed.

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.

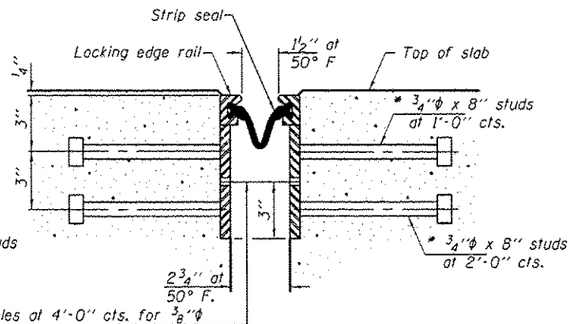
Maximum space between rail segments shall be 3/16", sealed with a suitable sealant. Joints in rails within 10 ft. of curbs shall be welded.

Parapet plates and anchorage studs for skews > 30° included in the cost of Preformed Joint Strip Seal.



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

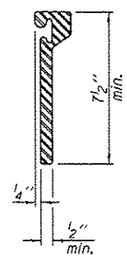
SECTION THRU ROLLED RAIL JOINT



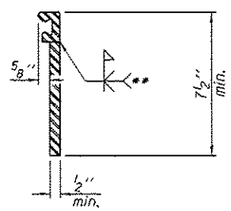
7/16"ϕ holes at 4'-0" cts. for 3/8"ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU WELDED RAIL JOINT

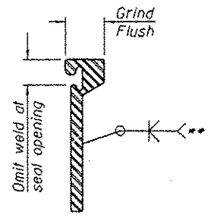
* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



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.

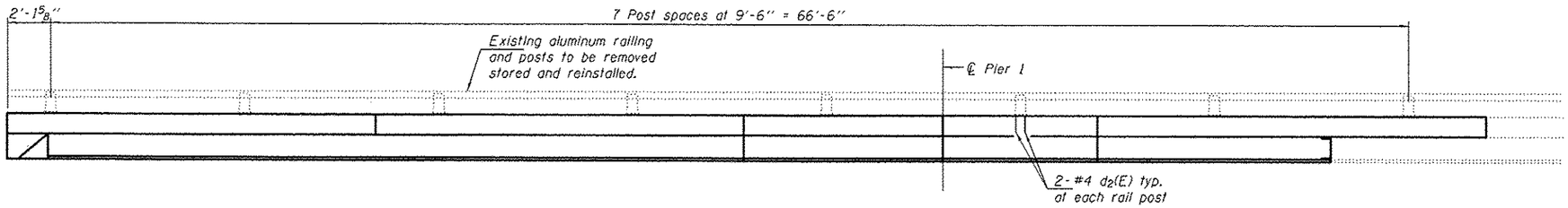
LOCKING EDGE RAILS

BILL OF MATERIAL

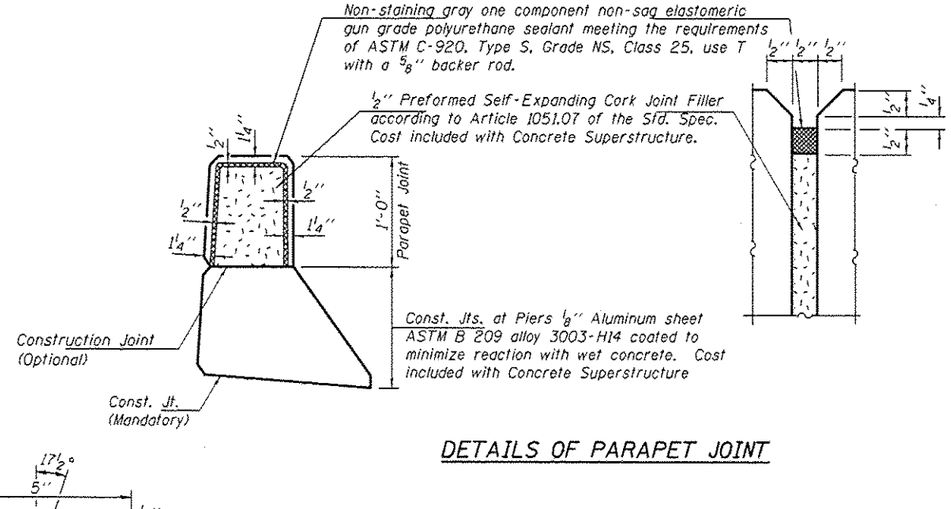
Item	Unit	Total
Preformed Joint Strip Seal	Foot	14

EJ-SSJ 1-27-12

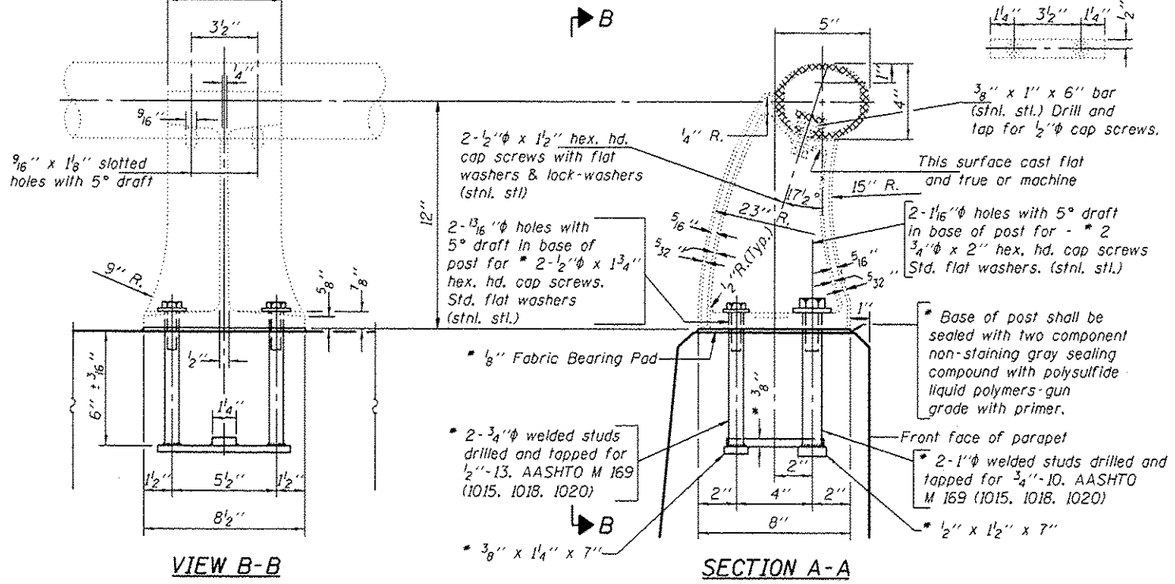
DESIGNED SMR	EXAMINED	Timothy A. Sheehy ACTING ENGINEER OF STRUCTURAL SERVICES	DATE JANUARY 16, 2015	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PREFORMED JOINT STRIP SEAL STRUCTURE NO.	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED VHV	PASSED	A. Carl Tracy ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			TO	112-43, HB-2(BR	CLARK	15	12
DRAWN baliva/ Steffen			REVISED		SHEET NO. 5 OF 8 SHEETS			CONTRACT NO. 74714		
CHECKED SMR VHV								ILLINOIS FED. AID PROJECT		



INSIDE ELEVATION OF WEST PARAPET AND BRIDGE RAIL



DETAILS OF PARAPET JOINT

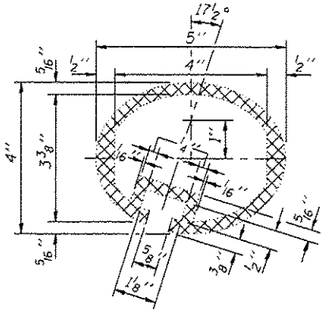


VIEW B-B

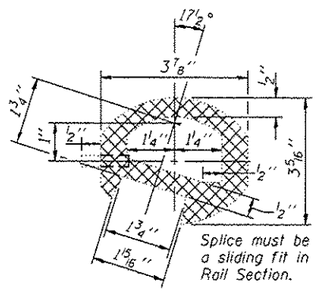
SECTION A-A

RAIL POST DETAILS

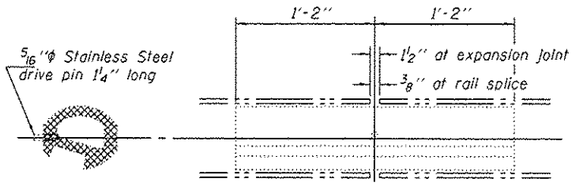
* New Rail Post anchorage devices will be required at each location where posts are connected to new construction. Cost to be included in "Remove and Re-erect Existing Handrail".



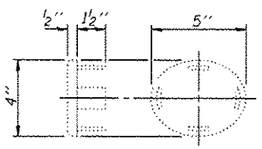
SEC. THRU ELLIPTICAL RAIL SECTION



SEC. THRU SPLICE



RAIL SPLICE



CAST END CAP

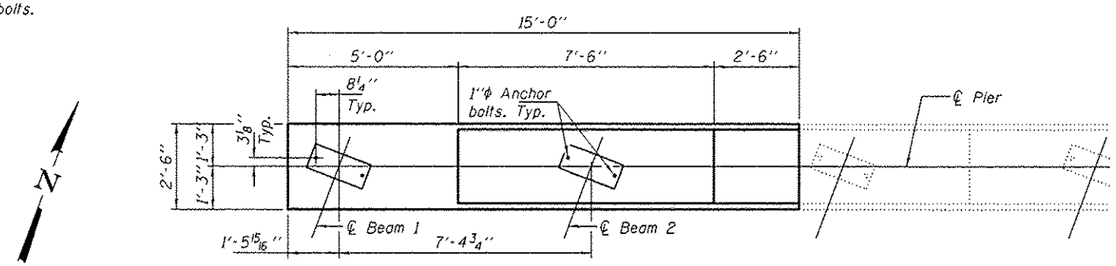
DRIVE FIT TYPE

BILL OF MATERIAL

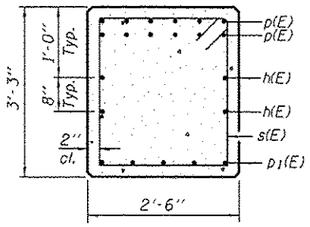
Item	Unit	Total
Remove and Re-Erect Existing Handrail	Foot	72

DESIGNED SMR	EXAMINED	Timothy A. Anderson ACTING ENGINEER OF STRUCTURAL SERVICES	DATE JANUARY 16, 2015	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	RAILING DETAILS SN 012-0048	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED VHV	PASSED	J. Carl Hanneg ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			TO	112-49, HB-21BR	CLARK	15	13
DRAWN baliva/ Steffen			REVISED		SHEET NO. 6 OF 8 SHEETS			CONTRACT NO. 74714		
CHECKED SMR VHV								ILLINOIS FED. AID PROJECT		

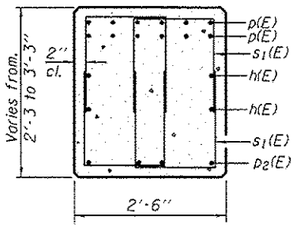
Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
Minimum spiral lap = $1\frac{1}{2}$ turns.



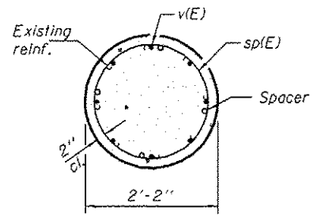
PLAN



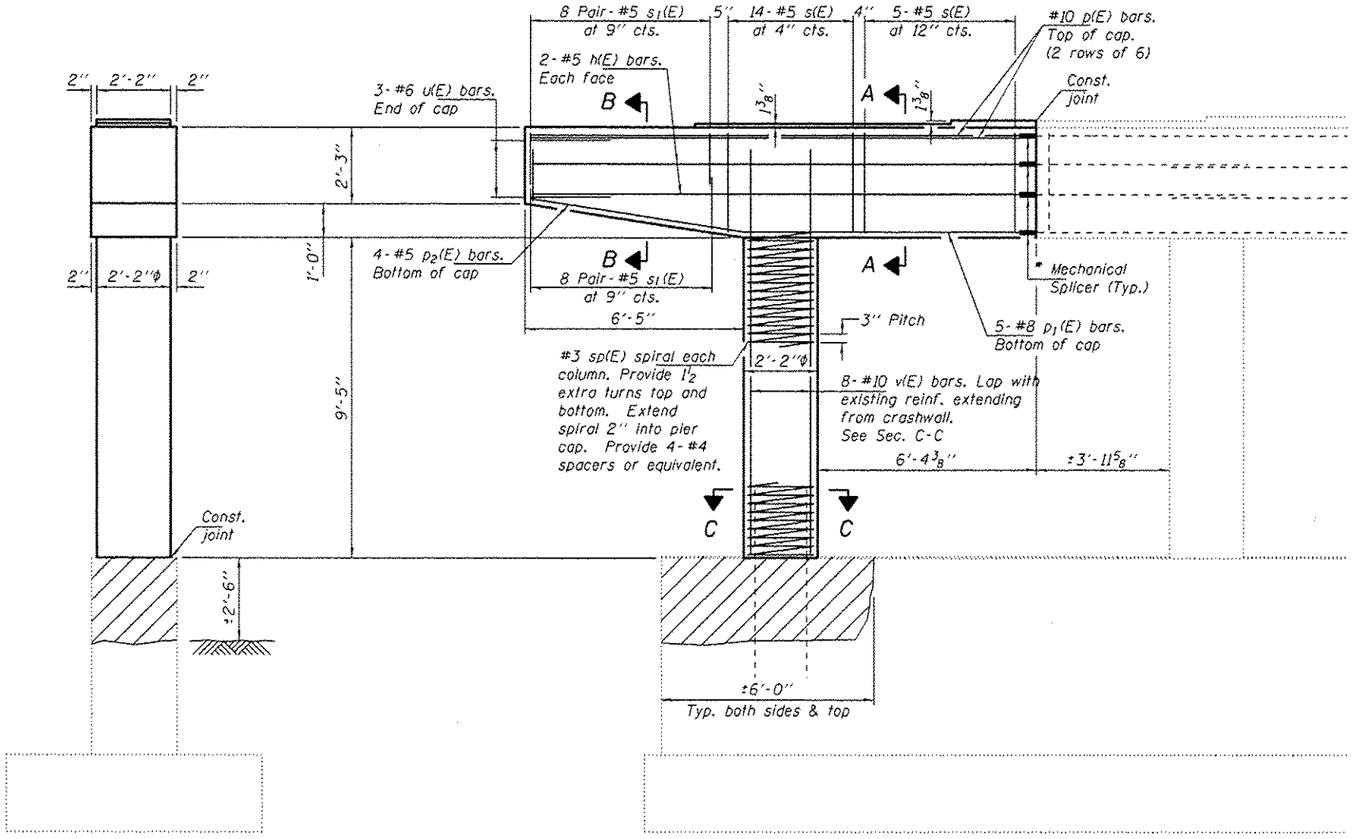
SEC. A-A



SEC. B-B



SEC. C-C

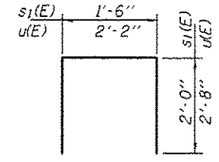


END VIEW

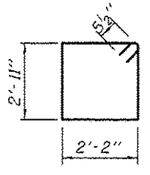
ELEVATION

Hatched areas indicate Structural Repair of Concrete (Depth ≤ 5").

* Existing reinforcement to extend 6" min. into concrete removal area to facilitate installation of Mechanical Splicers.



BARS s1(E) & u(E)



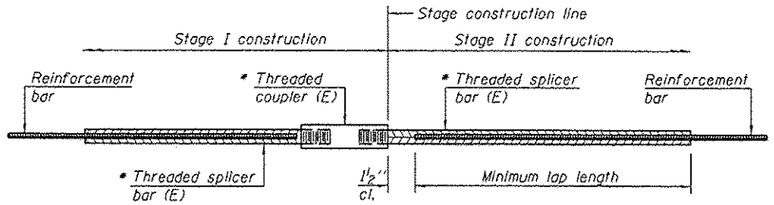
BAR s(E)

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h(E)	4	#5	14'-10"	——
	p(E)	12	#10	14'-10"	——
	p1(E)	5	#8	8'-6"	——
	p2(E)	4	#5	6'-3"	——
	s(E)	19	#5	11'-1"	⊐
	s1(E)	32	#5	5'-6"	⊔
**	sp(E)	1	#3	9'-7"	∧∧∧
	u(E)	3	#6	7'-6"	⊐
	v(E)	8	#10	11'-6"	——
	Concrete Removal			Cu. Yd.	5.3
	Concrete Structures			Cu. Yd.	5.3
	Reinforcement Bars, Epoxy Coated			Pound	1900
	Structural Repair of Concrete (Depth ≤ 5")			Sq. Ft.	49.4

** Length is height of spiral.

DESIGNED SMR	EXAMINED	Timothy A. Sullivan Jr. ACTING ENGINEER OF STRUCTURAL SERVICES	DATE JANUARY 16, 2015	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PIER REPAIR DETAILS SN 012-0048	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED VHV	PASSED	J. Carl Tinney ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			70	112-49, HB-2(BR	CLARK	15	14
DRAWN baliva/ Steffen			REVISED		SHEET NO. 7 OF 8 SHEETS			CONTRACT NO. 74714		
CHECKED SMR VHV								ILLINOIS FED. AID PROJECT		



STANDARD BAR SPLICER ASSEMBLY

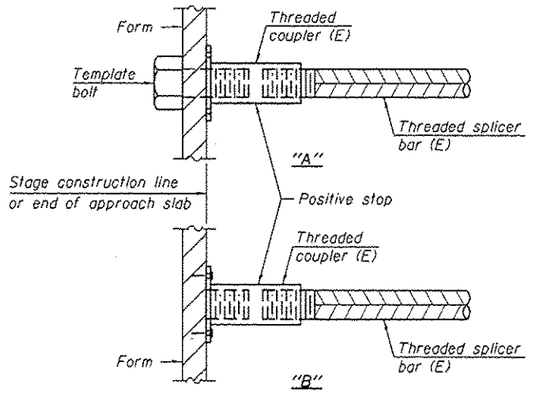
Bar size to be spliced	Minimum Lap Lengths					
	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"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

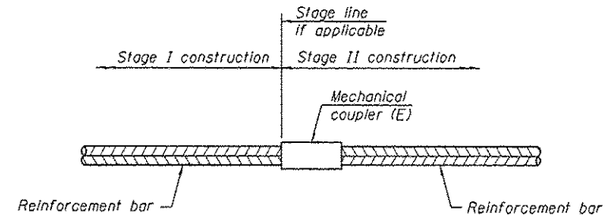
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length



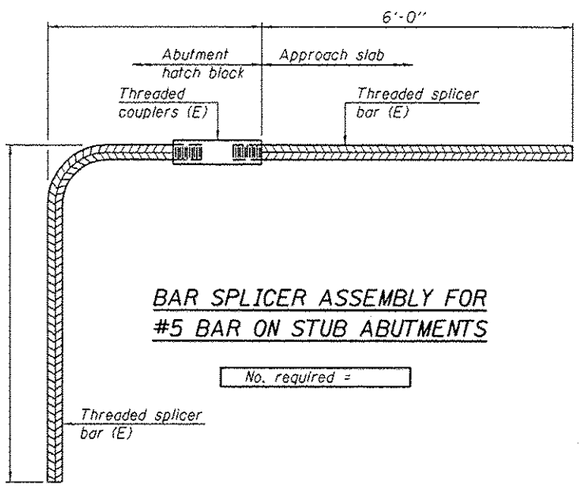
INSTALLATION AND SETTING METHODS

"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
Deck	#6	220
Deck	#5	14
Parapet	#8	2
Parapet	#5	2
Pier cap	#10	12
Pier cap	#8	5
Pier cap	#5	4



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 8-31-12

DESIGNED SMR	EXAMINED	Timothy A. Sheehy Jr. ACTING ENGINEER OF STRUCTURAL SERVICES	DATE JANUARY 16, 2015	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS SN 012-0048
CHECKED VHV	PASSED	A. Carl Langy ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED		SHEET NO. 8 OF 8 SHEETS
DRAWN baliva/ Steffen			REVISED		
CHECKED SMR VHV					

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	112-49, HB-2IBR	CLARK	15	15
		CONTRACT NO. 74714		
	ILLINOIS FED. AID PROJECT			