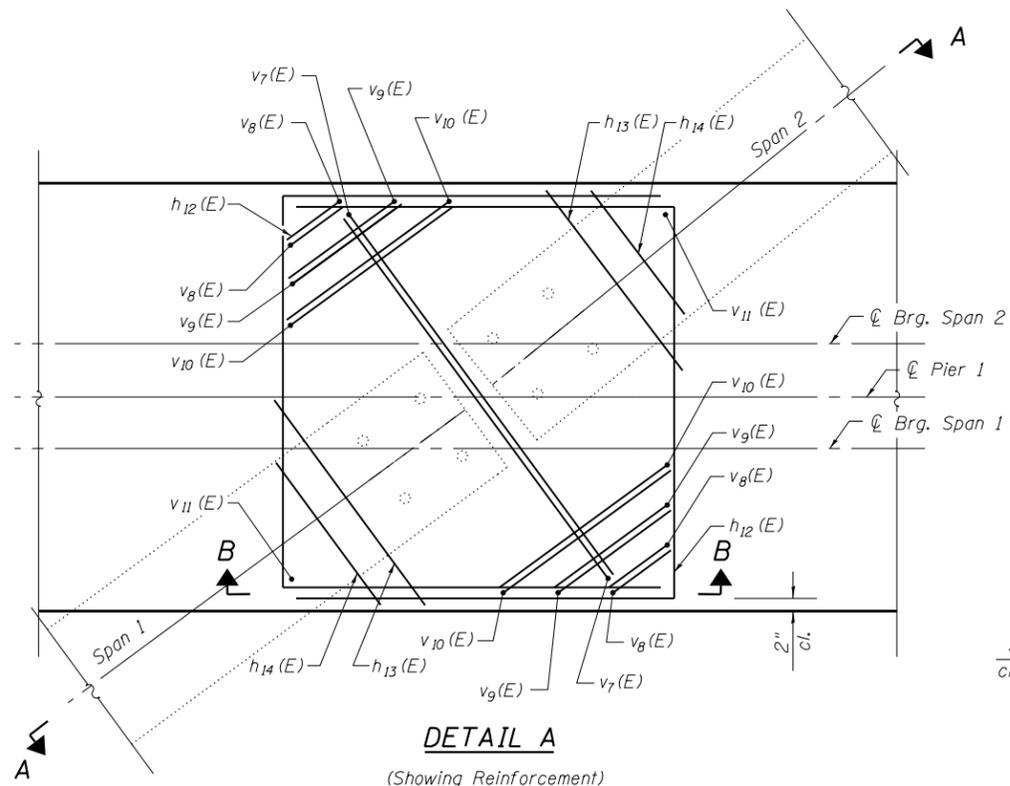
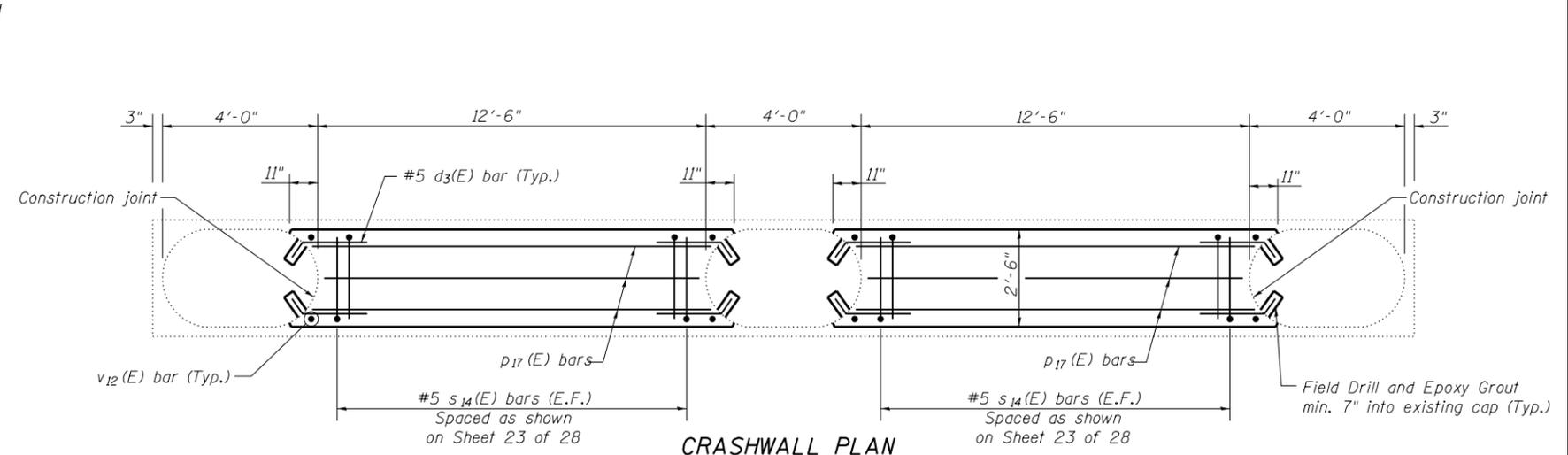


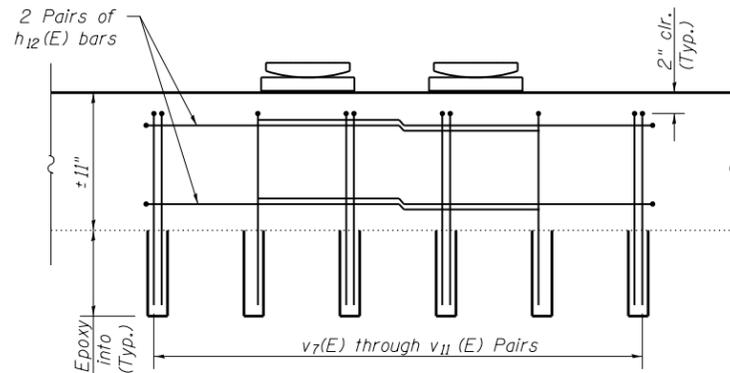
**DETAIL A**  
(Showing Anchor Bolt Layout)



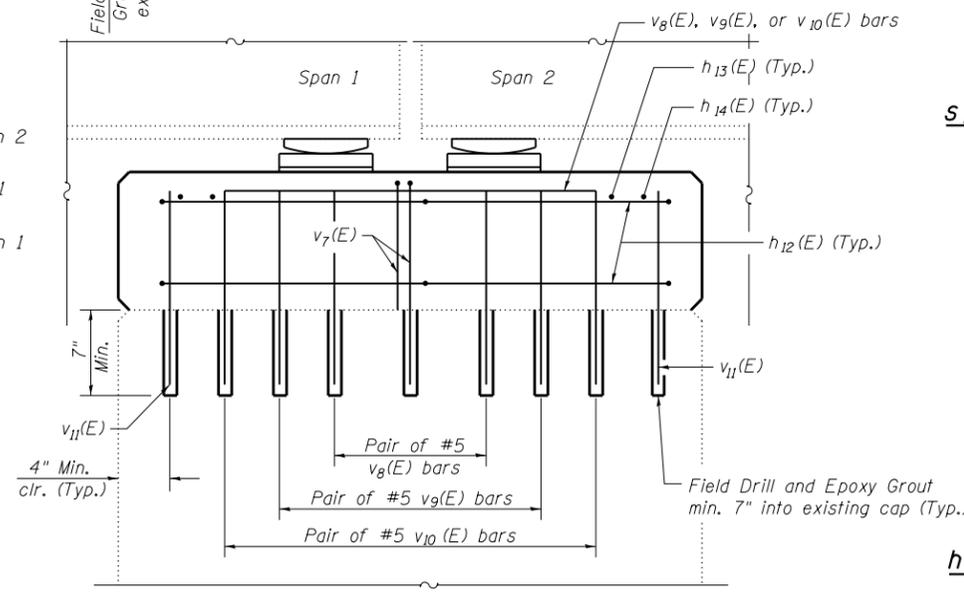
**DETAIL A**  
(Showing Reinforcement)  
(All reinforcement shown is #5 bars.)



**CRASHWALL PLAN**  
**PIER 1**  
**VIEW D-D**

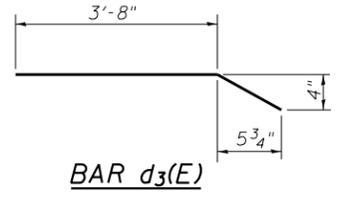


**SECTION B-B**

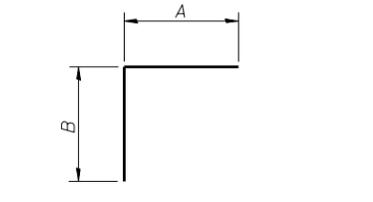


**SECTION A-A**

(All v(E) bars shown are drilled and grouted)  
Side Retainers not shown for clarity.

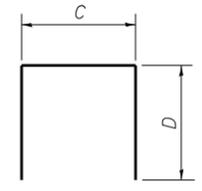


**BAR d3(E)**



**s13(E), s14(E) & v(E) BARS**

Bar	A	B
s13(E)	2'-8"	1'-4"
s14(E)	2'-2"	3'-5"
v7(E)	3'-0"	1'-4"
v8(E)	5"	1'-4"
v9(E)	11"	1'-4"
v10(E)	1'-5"	1'-4"



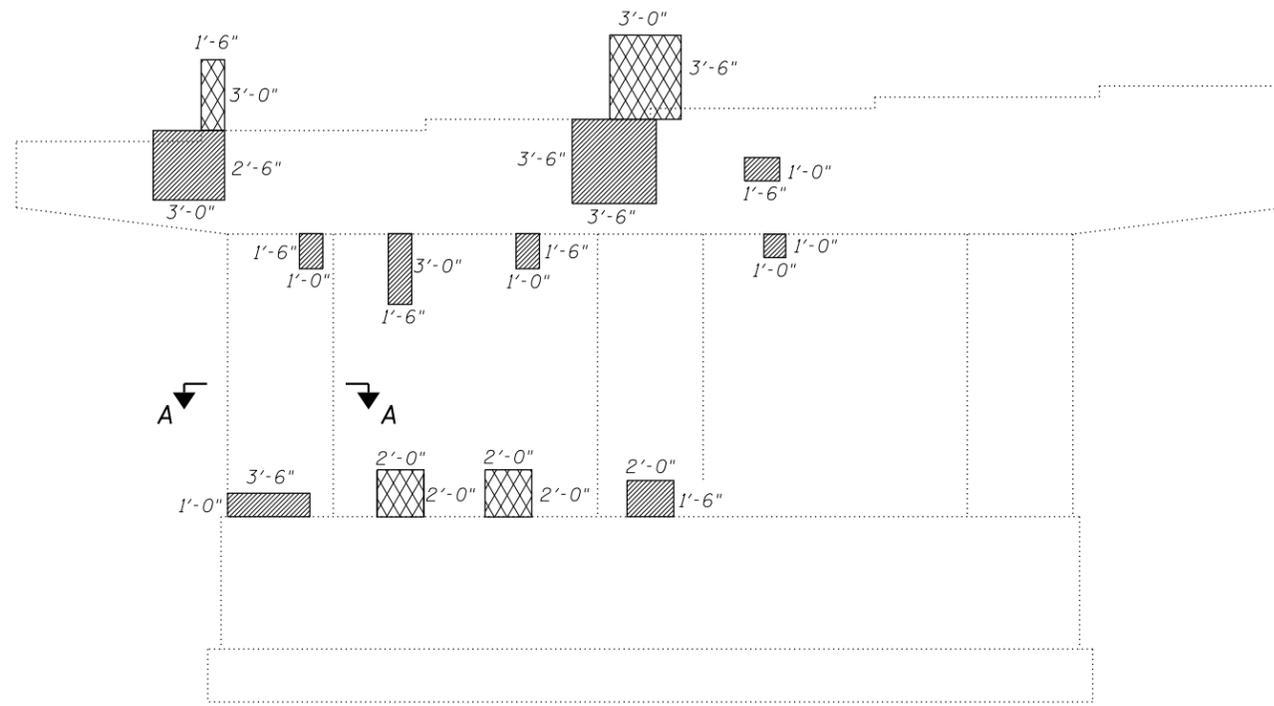
**h12(E), s(E) & u(E) BARS**

Bar	C	D
h12(E)	2'-8"	2'-9"
s15(E)	2'-8"	2'-8"
s16(E)	2'-8"	3'-8"
u1(E)	2'-4 1/2"	1'-5 1/4"
u2(E)	2'-4 1/2"	2'-8 1/4"

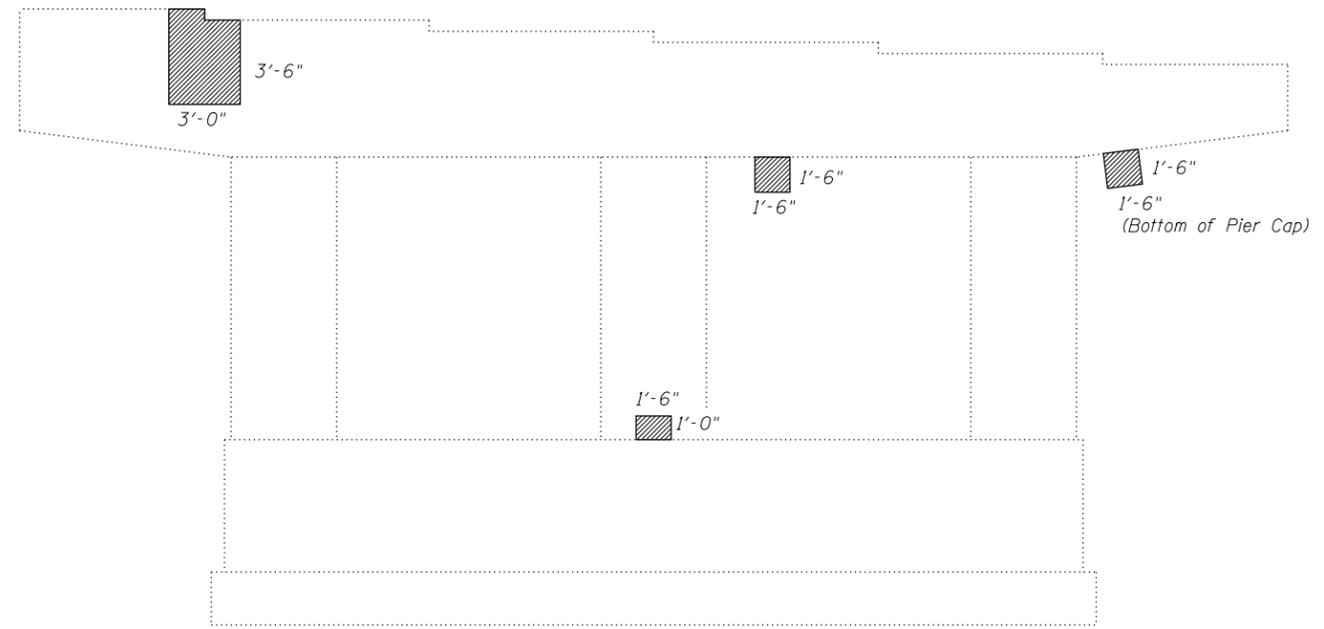
Notes:  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Concrete Sealer shall be applied only to exposed surfaces of the new concrete on Pier 1.

**PIER 1**  
**BILL OF MATERIAL**

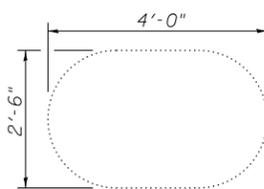
Bar	No.	Size	Length	Shape
d3(E)	32	#5	4'-3"	—
h12(E)	24	#5	8'-2"	□
h13(E)	12	#5	1'-4"	—
h14(E)	12	#5	10"	—
p8(E)	2	#5	9'-3"	—
p9(E)	10	#5	3'-10"	—
p10(E)	2	#5	2'-3"	—
p11(E)	6	#5	12'-7"	—
p12(E)	8	#5	5'-8"	—
p13(E)	2	#5	2'-10'	—
p14(E)	2	#5	9'-9"	—
p15(E)	2	#5	10'-10"	—
p16(E)	2	#5	2'-0"	—
p17(E)	18	#5	12'-2"	—
p18(E)	4	#5	1'-5"	—
p19(E)	4	#5	2'-8"	—
s13(E)	76	#5	4'-0"	┌
s14(E)	48	#5	5'-7"	┌
s15(E)	4	#5	8'-0"	┌
s16(E)	6	#5	10'-0"	□
u1(E)	2	#5	5'-3"	—
u2(E)	3	#5	7'-9"	—
v7(E)	12	#5	4'-4"	┌
v8(E)	24	#5	1'-9"	┌
v9(E)	24	#5	2'-3"	┌
v10(E)	24	#5	2'-9"	┌
v11(E)	12	#5	1'-4"	—
v12(E)	8	#5	3'-5"	—
Concrete Structures		Cu. Yd.	14.5	
Reinforcement Bars, Epoxy Coated		Pound	1870	
Concrete Sealer		Sq. Ft.	589	



**PIER 1**  
(Looking North)



**PIER 1**  
(Looking South)



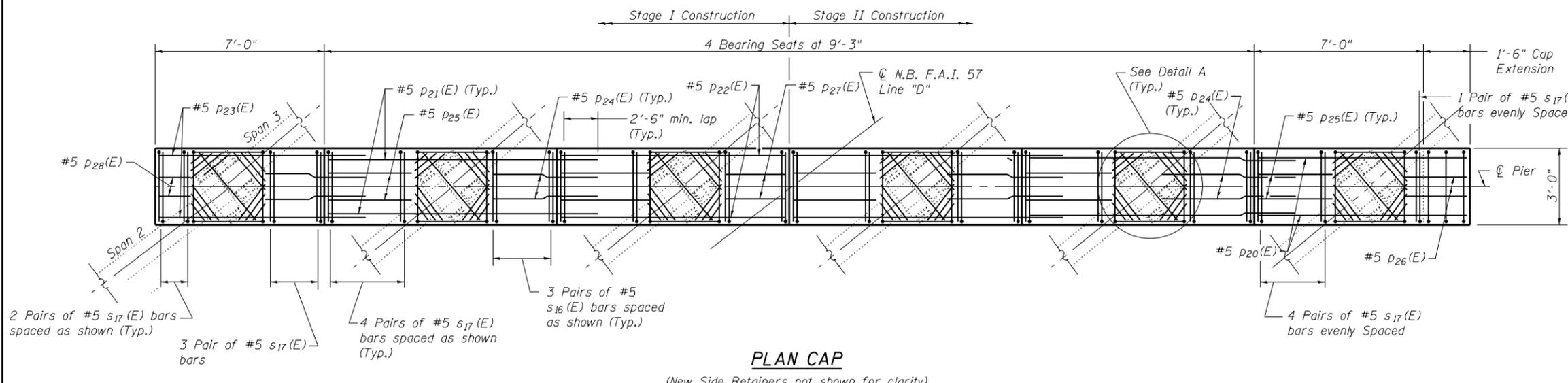
**SECTION A-A**  
Typical Section  
Through Column

- Indicates Concrete Removal (Special)
- Indicates Structural Repair of Concrete

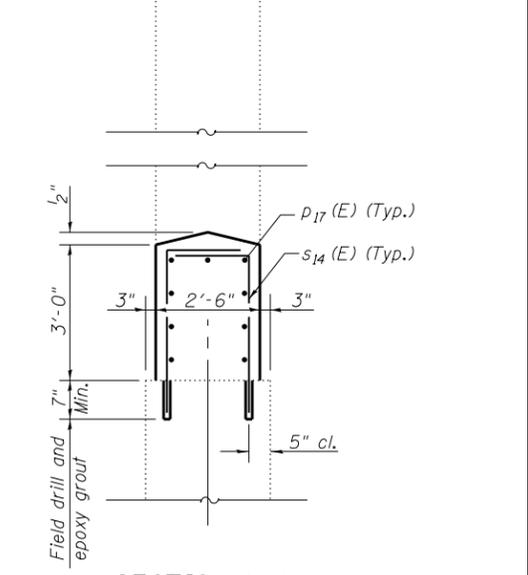
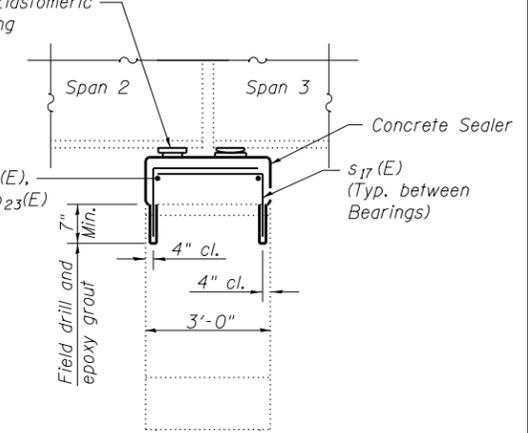
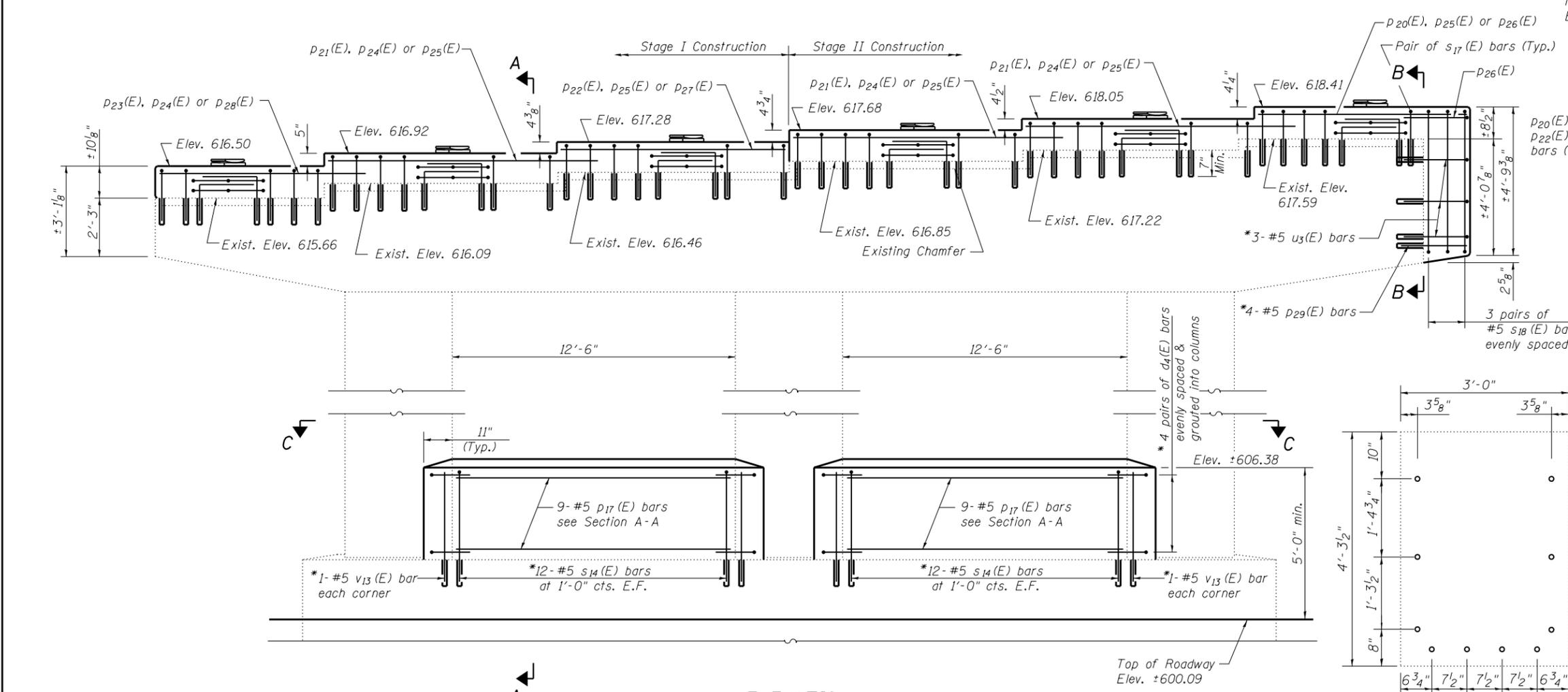
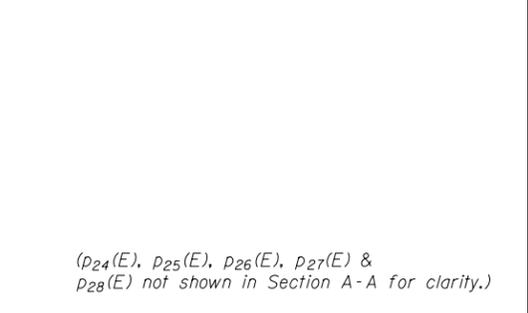
**Notes:**  
 Rubbed finish for Structural repair of Concrete areas shall be completed according to article 503.15 of the Standard Specifications.  
 The quantities shown are for estimating purposes only. The area to be repaired will be determined by the Engineer at the time of construction. Actual repair locations shall be shown on As-built plans.

**BILL OF MATERIAL**

Item	Unit	Total
Rubbed Finish	Sq. Ft.	53
Concrete Removal (Special)	Sq. Yd.	3.0
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	53



Notes:  
 For Detail A see Sheet 27 of 28  
 For View C-C see Sheet 27 of 28.  
 Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
 Concrete Sealer shall be applied only to exposed surface of the new concrete on Pier 2.



\*Field drill and epoxy grout, 7" min. embedment.

FILE NAME = 0250002-74295-026.dgn  
 USER NAME =  
 DESIGNED - BB  
 CHECKED - ACS  
 PLOT SCALE =  
 PLOT DATE = 1:56:18 PM 8/15/2013

DESIGNED - BB  
 CHECKED - ACS  
 DRAWN - WJS  
 CHECKED - CJF & BB

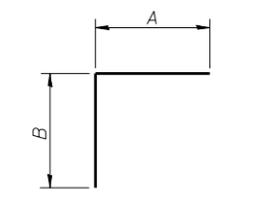
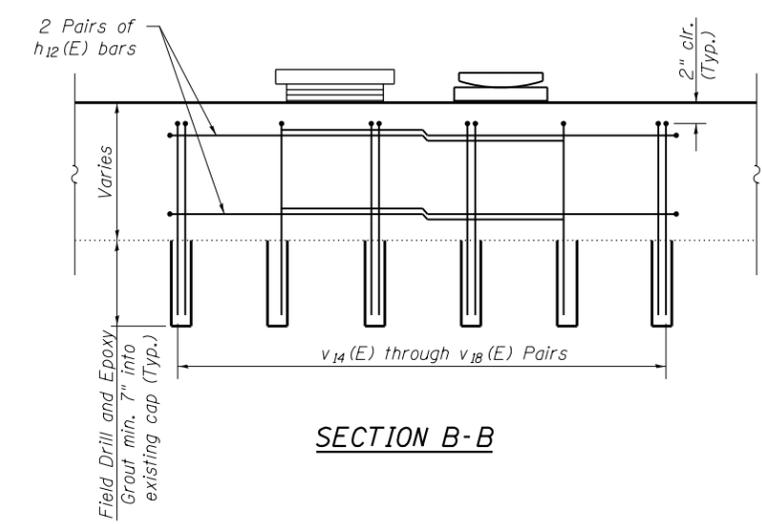
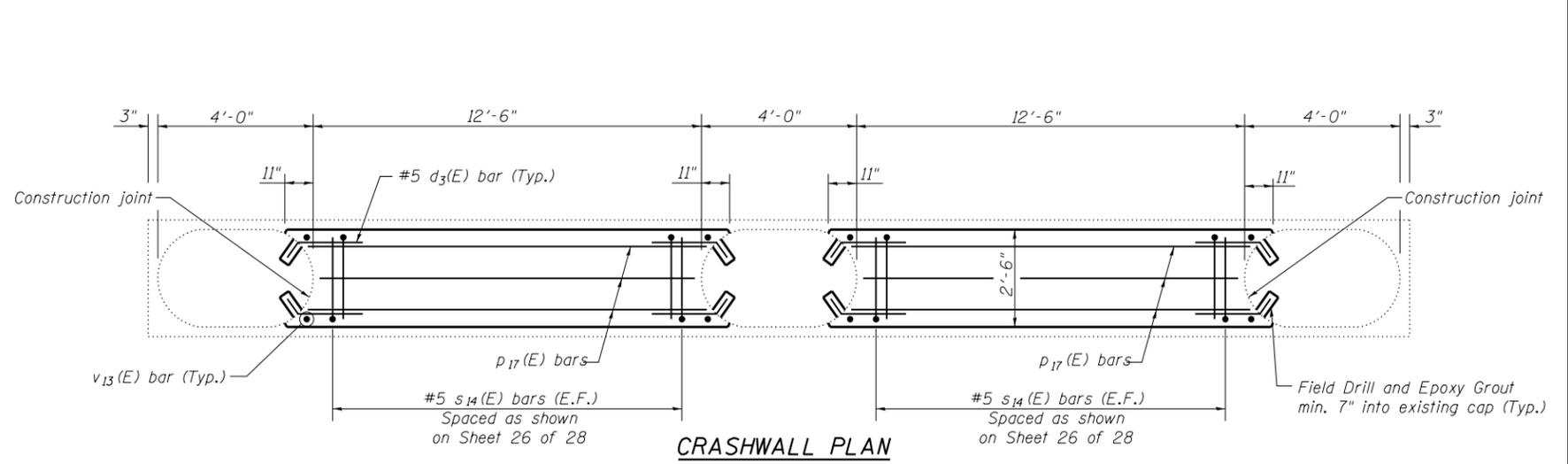
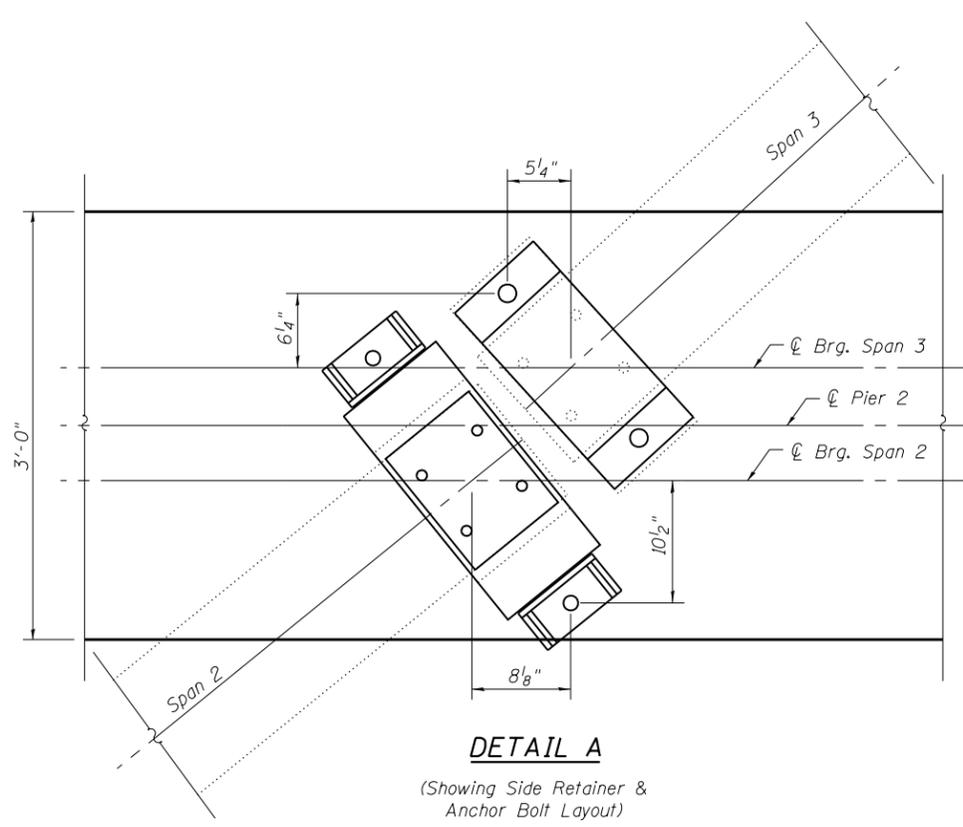
REVISED -  
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 REVISED -  
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER 2 GENERAL PLAN  
 STRUCTURE NO. 025-0002  
 SHEET NO. 26 OF 28 SHEETS

F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(25-4HB)I-4	EFFINGHAM	1760	1703
SN 025-0002		CONTRACT NO. 74295		
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				

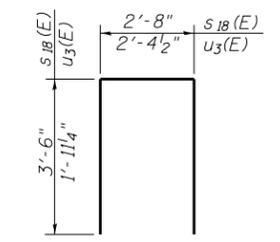
BERNARDINI LOCHMULLER & ASSOCIATES, INC.  
 3 OAK DRIVE  
 MARYVILLE, IL 62442  
 PHONE (618) 281-6666  
 FAX (618) 281-6666



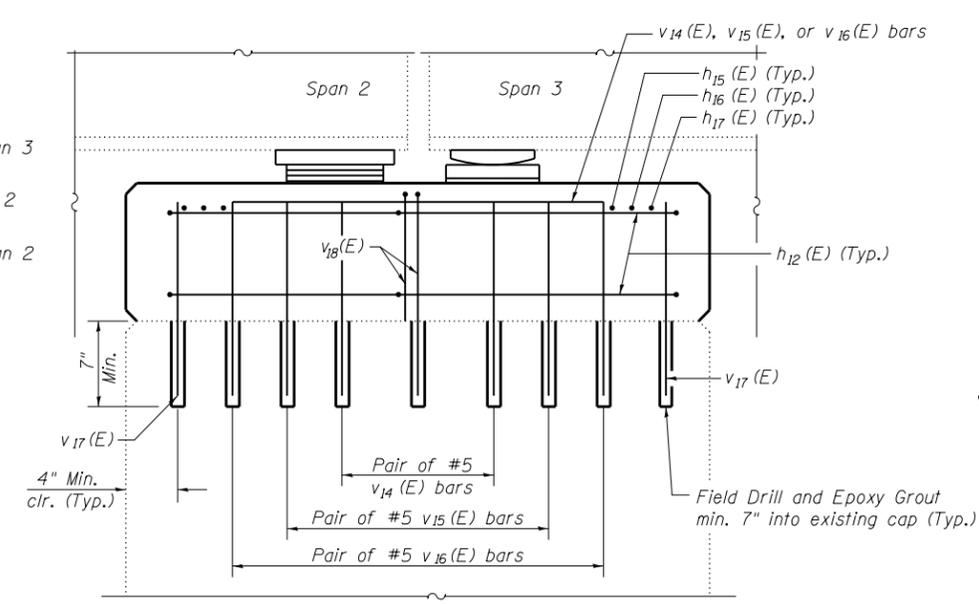
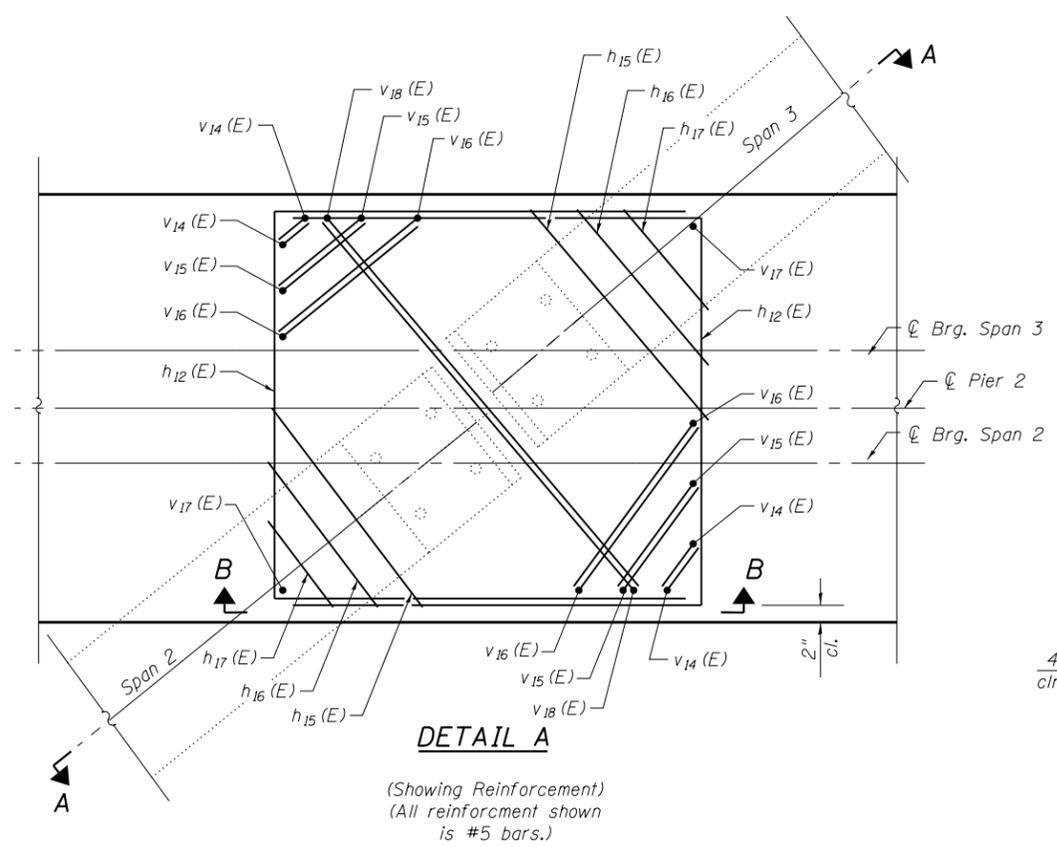
Notes:  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Concrete Sealer shall be applied only to exposed surfaces of the new concrete on Pier 2.  
See Sheet 24 of 28 for additional Bar Bend Details.

PIER 2  
BILL OF MATERIAL

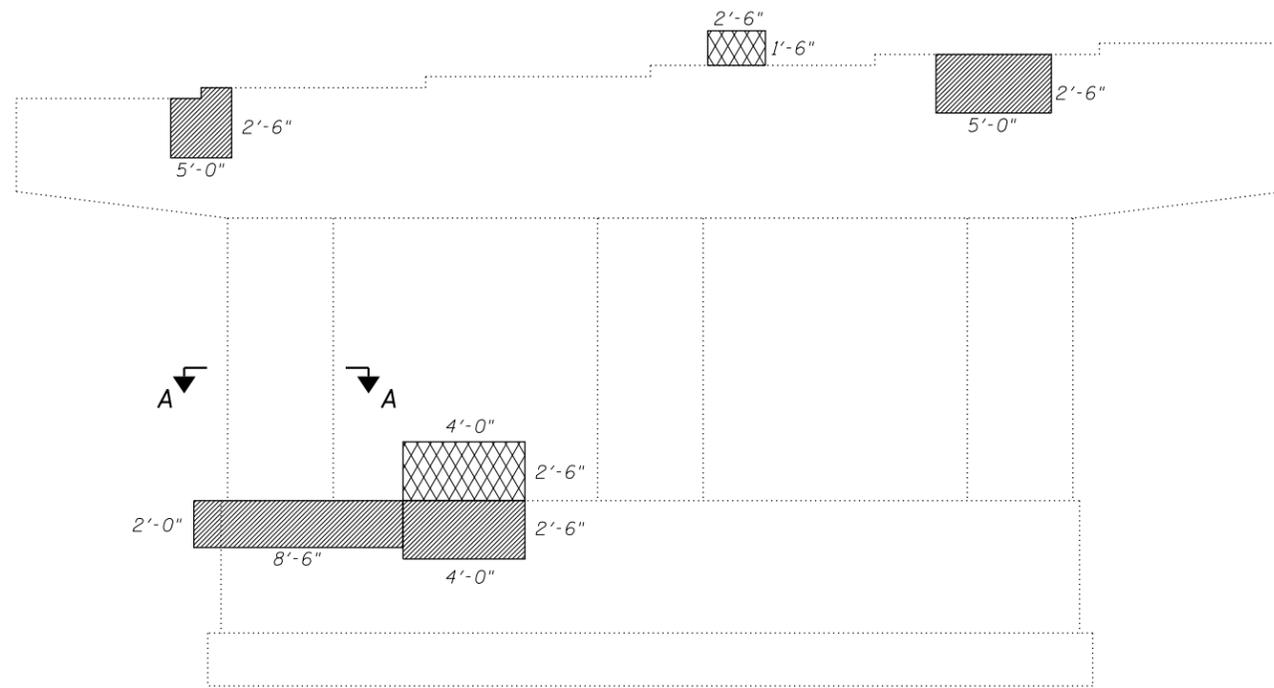
Bar	No.	Size	Length	Shape
d <sub>3</sub> (E)	32	#5	4'-3"	—
h <sub>12</sub> (E)	24	#5	8'-2"	⊏
h <sub>15</sub> (E)	12	#5	1'-7"	—
h <sub>16</sub> (E)	12	#5	1'-1"	—
h <sub>17</sub> (E)	12	#5	8"	—
p <sub>17</sub> (E)	18	#5	12'-2"	—
p <sub>20</sub> (E)	2	#5	8'-2"	—
p <sub>21</sub> (E)	6	#5	11'-9"	—
p <sub>22</sub> (E)	2	#5	8'-11"	—
p <sub>23</sub> (E)	2	#5	9'-6"	—
p <sub>24</sub> (E)	8	#5	5'-5"	—
p <sub>25</sub> (E)	10	#5	3'-4"	—
p <sub>26</sub> (E)	2	#5	1'-9"	—
p <sub>27</sub> (E)	2	#5	2'-6"	—
p <sub>28</sub> (E)	2	#5	1'-3"	—
p <sub>29</sub> (E)	4	#5	1'-11"	—
s <sub>14</sub> (E)	48	#5	5'-7"	⊏
s <sub>17</sub> (E)	76	#5	3'-10"	⊏
s <sub>18</sub> (E)	6	#5	9'-10"	⊏
u <sub>3</sub> (E)	3	#5	6'-3"	⊏
v <sub>13</sub> (E)	8	#5	3'-5"	—
v <sub>14</sub> (E)	24	#5	1'-6"	⊏
v <sub>15</sub> (E)	24	#5	2'-0"	⊏
v <sub>16</sub> (E)	24	#5	2'-6"	⊏
v <sub>17</sub> (E)	12	#5	1'-2"	—
v <sub>18</sub> (E)	12	#5	4'-5"	⊏
Concrete Structures		Cu. Yd.	12.7	
Reinforcement Bars, Epoxy Coated		Pound	1760	
Concrete Sealer		Sq. Ft.	526	



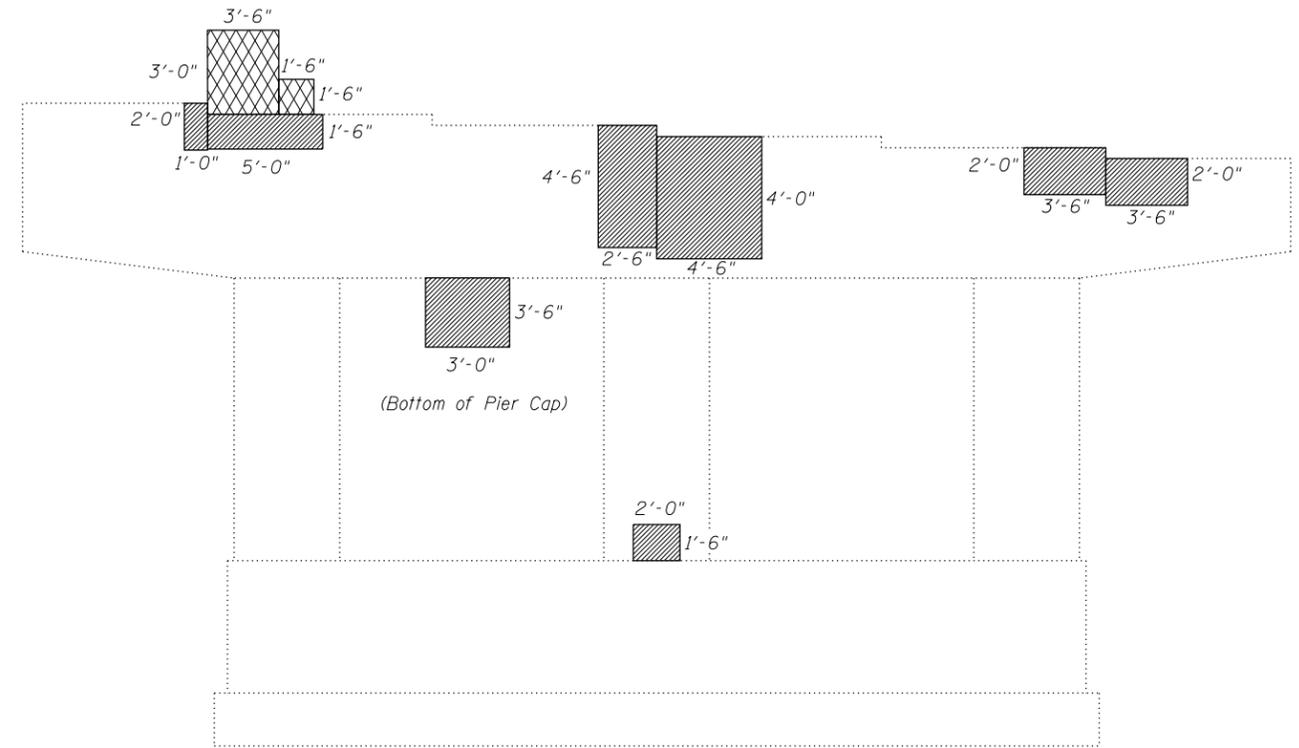
s<sub>18</sub>(E) & u<sub>3</sub>(E) BARS



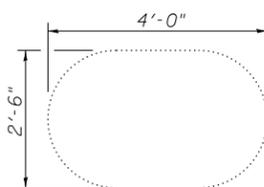
(All v(E) bars shown are drilled and grouted)  
Side Retainers not shown for clarity



**PIER 2**  
(Looking North)



**PIER 2**  
(Looking South)



**SECTION A-A**  
Typical Section  
Through Column

- Indicates Concrete Removal (Special)
- Indicates Structural Repair of Concrete

**Notes:**  
 Rubbed finish for Structural Repair of Concrete areas shall be completed according to Article 503.15 of the Standard Specifications.  
 The quantities shown are for estimating purposes only. The area to be repaired will be determined by the Engineer at the time of construction. Actual repair locations shall be shown on As-built plans.

**BILL OF MATERIAL**

Item	Unit	Total
Rubbed Finish	Sq. Ft.	119
Concrete Removal (Special)	Sq. Yd.	3.0
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	119

FILE NAME = 0250002-74295-028.dgn	USER NAME =	DESIGNED - BB	REVISED -
BERNHARDEN * LOCHMULLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, IL 62442 PHONE (618) 281-4666 FAX (618) 281-4666	CHECKED - ACS	DRAWN - WJS	REVISED -
PLOT SCALE =	DRAWN - WJS	CHECKED - CJF & BB	REVISED -
PLOT DATE = 1:56:20 PM 8/15/2013	CHECKED - CJF & BB		

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PIER 2 REPAIR DETAILS**  
**STRUCTURE NO. 025-0002**

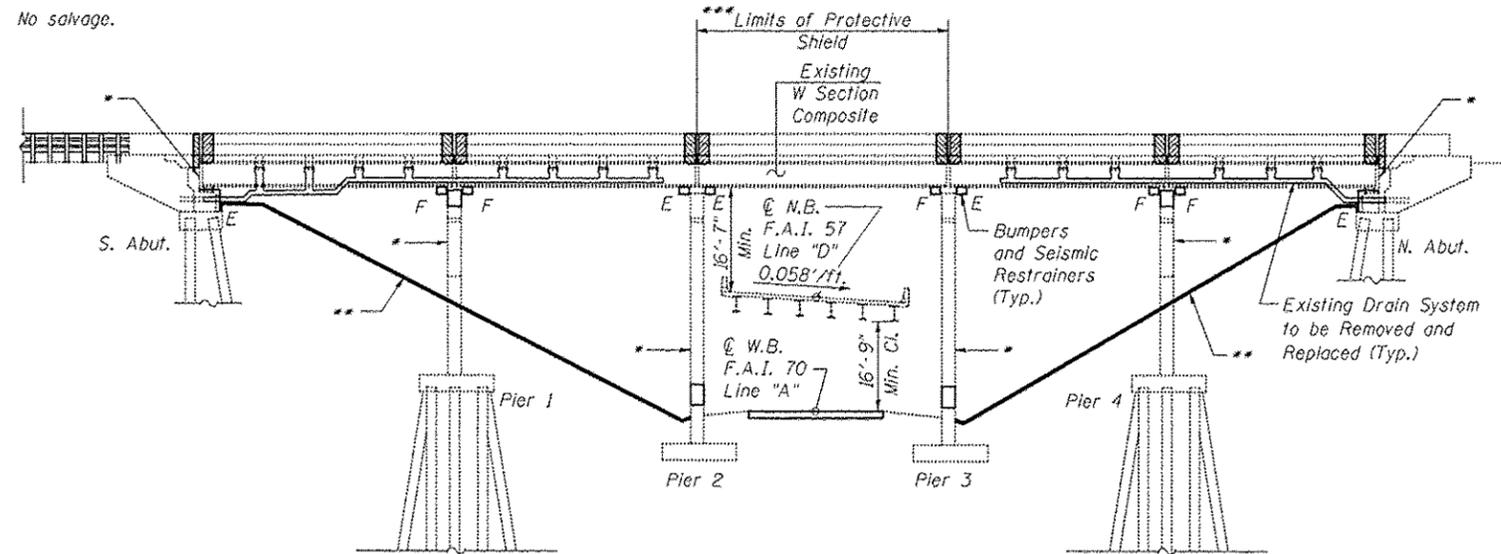
SHEET NO. 28 OF 28 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(25-4HB)I-4	EFFINGHAM	1760	1705
SN 025-0002		CONTRACT NO. 74295		
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				

Bench Mark: Chiseled "□" Station 2345A+08, 44.0 ft. left of centerline of survey on light pole base north side of I-57/I-70 Elev. = 590.10.

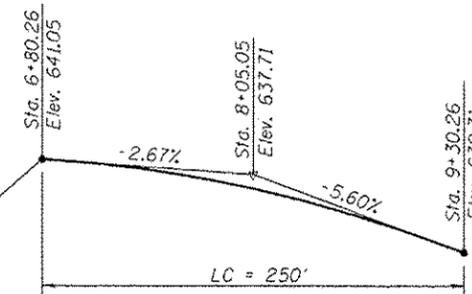
Existing Structure: #025-0019 Constructed in 1960 & reconstructed in 1992 is a five simple span structure. The superstructure consist of R.C. slab and composite steel I-Beams which are 25'-8" out to out and 269'-11 1/16" back to back abutments along the long chord. The superstructure is supported by R.C. spill through abutments and 2-column piers with hammer head caps. Traffic shall be detoured during construction.

No salvage.

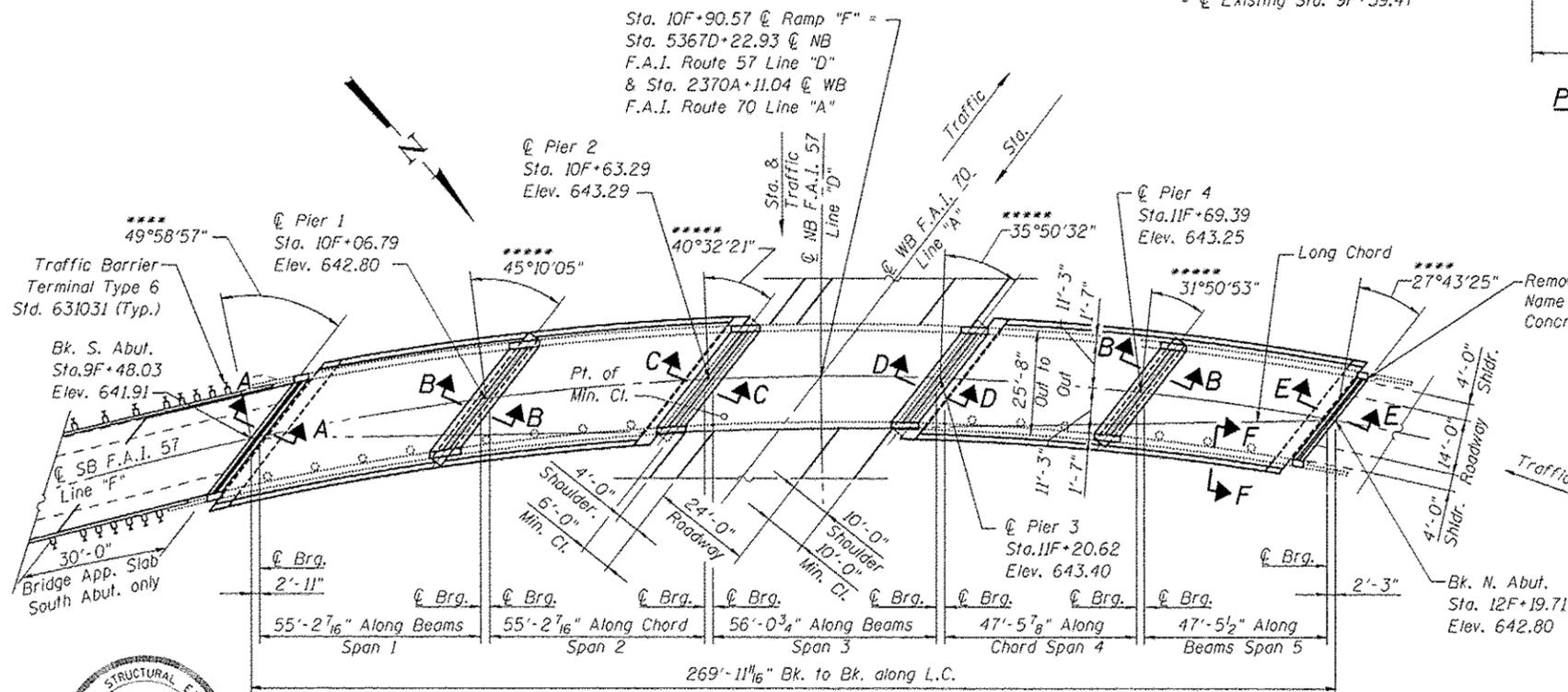


**ELEVATION**

- ▨ Indicates existing concrete and expansion devices to be removed and replaced.
- \* For Limits of Concrete Removal (Special), Structural Repair of Concrete and Cleaning of existing rebars, see sheet 17, 20, 25, 27, 29 and 32 of 35.
- \*\* See sheet 10 of 35 for Slopewall Details.
- \*\*\* See sheet 3 of 35 for Transverse Limits.



**PROPOSED PROFILE GRADE**



**PLAN**

**DESIGN SPECIFICATIONS**

2002 AASHTO Standard Specifications for Highway Bridges  
 1995 F.H.W.A. Seismic Retrofitting Manual for Highway Bridges  
 2006 F.H.W.A. Seismic Retrofitting Manual for Highway Structures Part I-Bridges (Reference Only)

**DESIGN STRESSES**

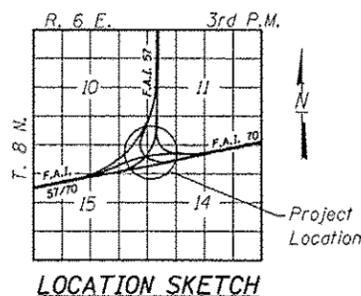
**New Construction**  
 $f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)  
 $f_y = 50,000$  psi (Structural Steel) (AASHTO M270 Grade 50)

**Existing Structure**  
 $f'_c = 3,500$  psi  
 $f_y = 40,000$  psi (Sub) (Reinforcement) (Abutments, Pier No. 1, Pier No. 4 & footings)  
 $f_y = 33,000$  psi (Structural Steel) (Pier No. 2 & Pier No. 3)  
 $f_y = 60,000$  psi (Super 1992) (Reinforcement)

**SEISMIC DATA**

Seismic Performance Category (SPC) = B  
 Bedrock Acceleration Coefficient (A) = 0.075 g  
 Site Coefficient = 1.0

**LOADING HS20-44 & ALT.**  
 No Future Wearing Surface



**LOCATION SKETCH**

**GENERAL PLAN AND ELEVATION**  
**F.A.I. ROUTE 70 AND F.A.I. ROUTE 57**  
**INTERCHANGE RAMP "F" OVER**  
**WESTBOUND F.A.I. ROUTE 70**  
**STATION 10F+90.57**  
**STRUCTURE NO. 025-0019**



EXP. 11-30-2014  
 Chadwick J. Fuesting 6/13/13



FILE NAME = 0250019-74295-001.dgn	USER NAME =	DESIGNED - B.B.	REVISED -
Illinois Design Firm Number 184.001670	CHECKED - A.C.S.	REVISED -	
PLOT SCALE =	DRAWN - W.J.S.	REVISED -	
PLOT DATE = 10/12/26 AM 6/18/2013	CHECKED - C.J.F. & B.B.	REVISED -	

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)1-3	EFFINGHAM	1760	1706
			CONTRACT NO. 74295	

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB		TOTAL
			ABUT.	PIER	
Removal & Disposal of Unsuitable Material	Cu. Yd.		579.6		579.6
Porous Granular Embankment	Cu. Yd.		579.6		579.6
Concrete Removal	Cu. Yd.	37.7	4.9		42.6
Slopedwall Removal	Sq. Yd.		768		768
Protective Shield	Sq. Yd.	164			164
Structure Excavation	Cu. Yd.		9.1		9.1
Concrete Structures	Cu. Yd.		26.5	13.3	39.8
Rubbed Finish	Sq. Ft.		34	171	205
Concrete Superstructure	Cu. Yd.	74.4	5.0		79.4
Bridge Deck Grooving	Sq. Yd.	71			71
Protective Coat	Sq. Yd.	192.1			192.1
Furnishing & Erecting Structural Steel	Pound	9720			9720
Reinforcement Bars, Epoxy Coated	Pound	14,140	2270	1800	18,210
Bar Splicers	Each		35		35
Slopedwall, 4"	Sq. Yd.		863.8		863.8
Prefomed Joint Strip Seal	Foot	188.5			188.5
Elastomeric Bearing Assembly, Type I	Each		8		8
Anchor Bolts, 5/8"	Each		16		16
Anchor Bolts, 1/4"	Each			32	32
Concrete Sealer	Sq. Ft.		754	550	1304
Seismic Restrainer	Each			16	16
Jack & Remove Existing Bearings	Each		8		8
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.		34	171	205
Drainage System	L. Sum	0.25			0.25
Concrete Removal (Special)	Sq. Yd.		3.9		3.9

**GENERAL NOTES**

Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8"  $\phi$ , holes 15/16"  $\phi$ , unless otherwise noted.

All structural steel associated with the bumpers, cable and bracket shall be AASHTO M 270 Grade 50. All other structural steel shall be AASHTO M 270 Grade 36.

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.

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 can not be removed by grinding 1/4" in 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 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.

Concrete Sealer shall be applied to the designated areas of the abutments and piers. No field welding is permitted except as specified in the contract documents.

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 for all interior Bumpers and Brackets shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior Bumpers and Brackets attached to the fascia beams shall be Blue, Munsell No. 10B 3/6.

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 approved bar splicers or an anchorage system. Reinforcement bars shall be cleaned according to Article 501.05 of the Standard Specifications and to the satisfaction of the Engineer. Cost included with Concrete Removal.

Joint openings shall be adjusted according to Article 520.04 of the Standard Specifications when the deck is poured at an ambient temperature other than 50°F.

Costs associated with the removal, cleaning and reinstallation of the existing name plate shall be included with Concrete Removal.

Contact surfaces between Existing and New Structural steel shall be prepared as specified by the special provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".

Cleaning and Painting of Existing Structural Steel not in contact with New Structural Steel shall be done under a separate contract.

Cost for removal of the existing Bridge Drainage System is included with the cost of Drainage System.

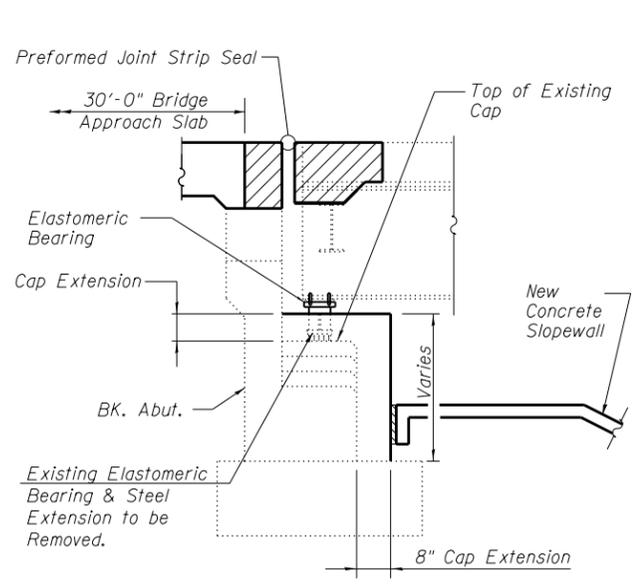
Shop drawings for the Seismic Restrainers shall follow the guidelines as set forth in the General Special Provision "Seismic Restrainers."

Shop drawings for the bumpers and brackets shall be submitted and reviewed for approval according to Section 505.03 of the Standard Specifications.

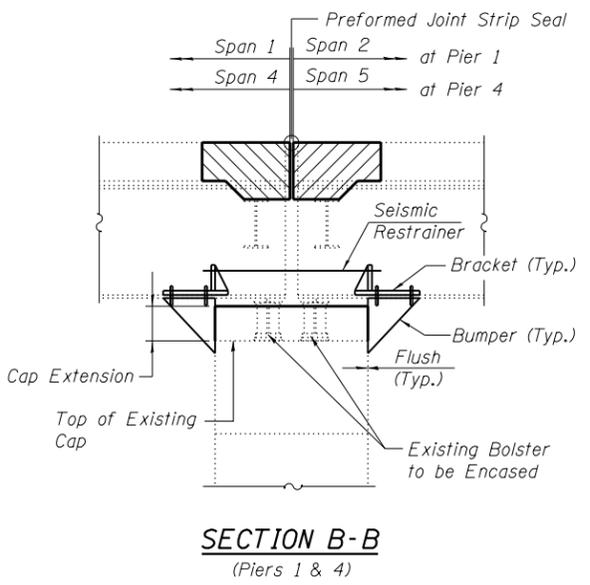
The Contractor shall remove the expansion joints and provide access for inspection of the pier and abutment cap extensions. New expansion joints shall not be formed until cap extension work has been completed.

**SCOPE OF WORK**

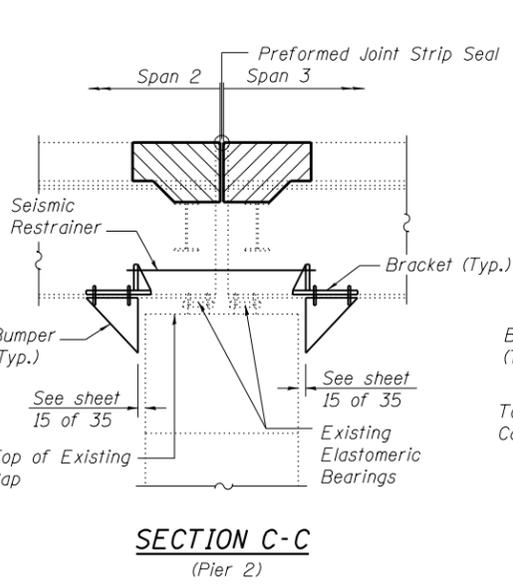
1. Install jacking & cribbing system to support bridge dead & construction live loads. Jacking and cribbing required at North & South Abutments. (see sheet 16 of 35)
2. Remove the existing bearings and bearing extensions at each abutment.
3. Extend the abutment cap heights and seat widths, and perform concrete repair.
4. Install new elastomeric bearings at abutments.
5. Construct new elevated pier cap at Pier 1. The pier cap extension should encase the existing bolster supporting spans 1 and 2.
6. Construct new elevated pier cap at Pier 4. The pier cap extension should encase the existing bolster supporting span 4 at Pier 5.
7. Install Bumper & Cable assemblies at all piers.
8. Install new Side Retainers at Abutments and Piers 1 & 4.
9. Complete Structural Repair of Concrete on the piers, Rubbed Finish & construct crashwalls.
10. Remove and Replace the existing expansion joints.
11. Remove and Replace Drainage System.
12. Remove existing pavement at South Abutment and construct South Bridge Approach Slab.
13. Remove and Replace existing slopedwalls.



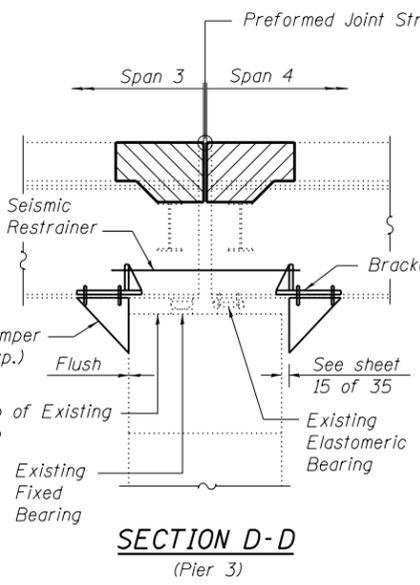
**SECTION A-A**  
(at Rt. L's to C Abut.)



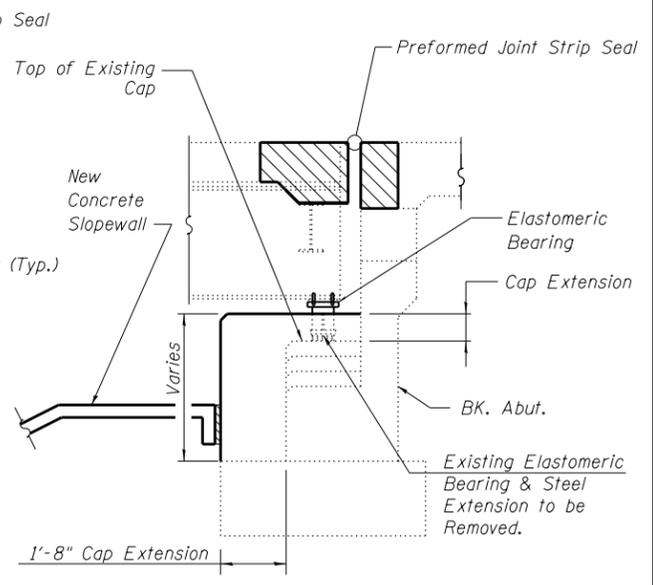
**SECTION B-B**  
(Piers 1 & 4)



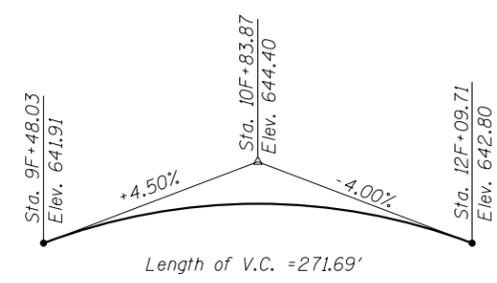
**SECTION C-C**  
(Pier 2)



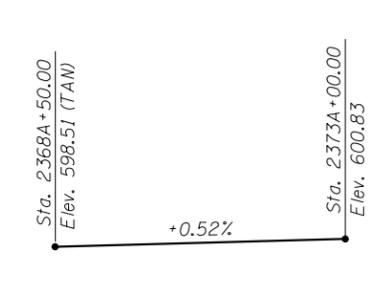
**SECTION D-D**  
(Pier 3)



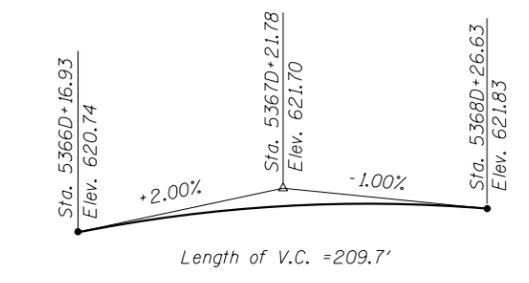
**SECTION E-E**  
(at Rt. L's to C Abut.)



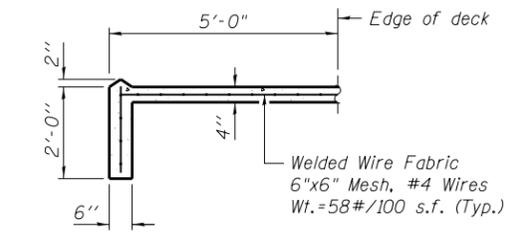
**PROFILE GRADE**  
(F.A.I. Route 70 Line "F")



**PROPOSED PROFILE GRADE**  
(F.A.I. Route 57 Line "A")



**PROPOSED PROFILE GRADE**  
(F.A.I. Route 57 Line "D")



**SECTION F-F**

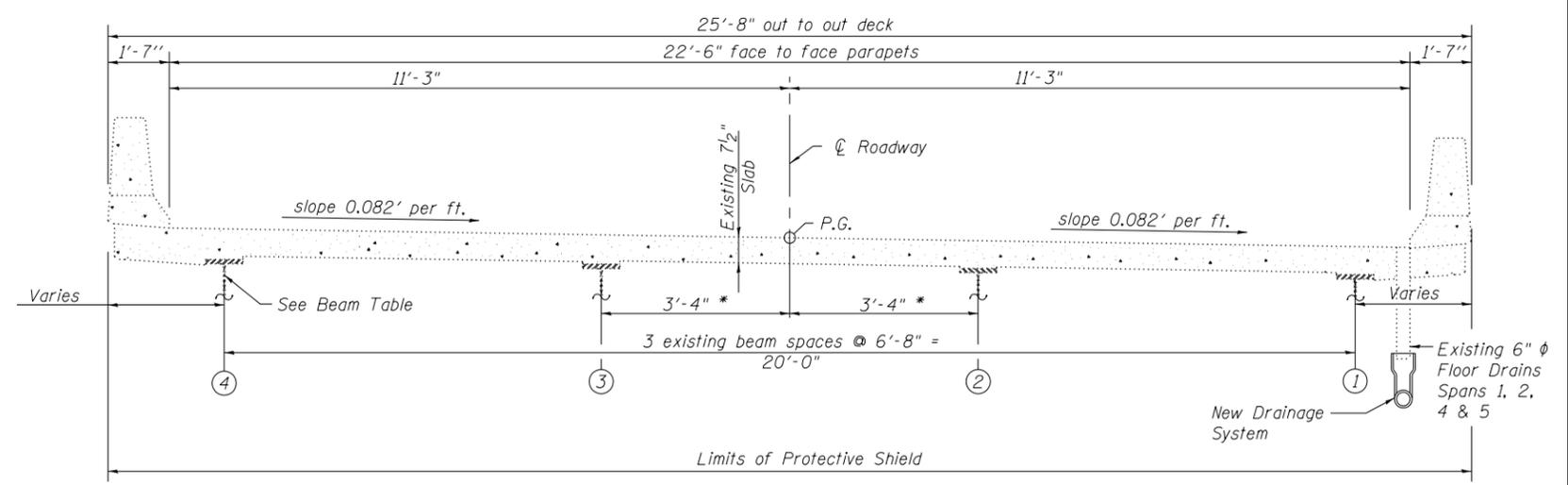
Indicates Removal and Replacement of Concrete, Existing Neoprene Expansion Joints and Preformed Joint Seals.

EXISTING BEAM TABLE					
	Span 1	Span 2	Span 3	Span 4	Span 5
Beam No. 1	36WF160	36WF160	36WF160	36WF150	36WF150
Beam No. 2	36WF160	36WF160	36WF160	33WF130	33WF130
Beam No. 3	36WF160	36WF160	36WF160	33WF130	33WF130
Beam No. 4	36WF160	36WF160	36WF160	36WF150	36WF150

**HORIZONTAL CURVE DATA**  
(Existing F.A.I. Route 70 Line "A")  
P.I. Sta. 2370A+35.89 "Line" A  
D = 1°0'00"  
Δ = 27°0'00"(RT)  
R = 5729.59'  
T = 1375.55'  
L = 2700.00'  
E = 162.81'

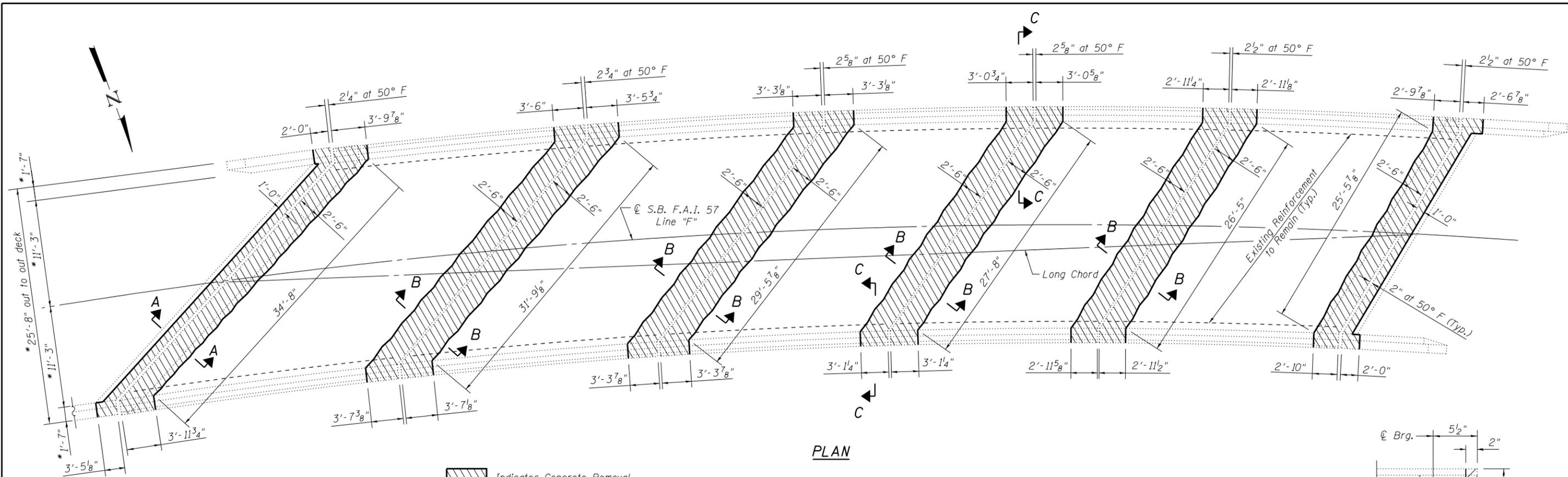
**HORIZONTAL CURVE DATA**  
(Existing F.A.I. Route 57 Line "D")  
P.I. Sta. 5369D+55.95 "Line" D  
D = 2°59'01"  
Δ = 76°36'19"(LT)  
R = 1920.30'  
T = 1516.71'  
L = 2567.47'  
E = 526.73'

**HORIZONTAL CURVE DATA**  
(Existing F.A.I. Route 70 Line "F")  
P.I. Sta. 15F+63.72 "Line" F  
D = 8°11'35"  
Δ = 85°16'42"(RT)  
R = 699.33'  
T = 643.95'  
L = 1040.88'  
E = 251.32'

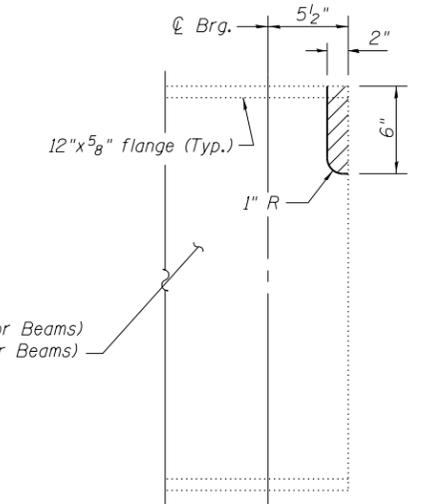
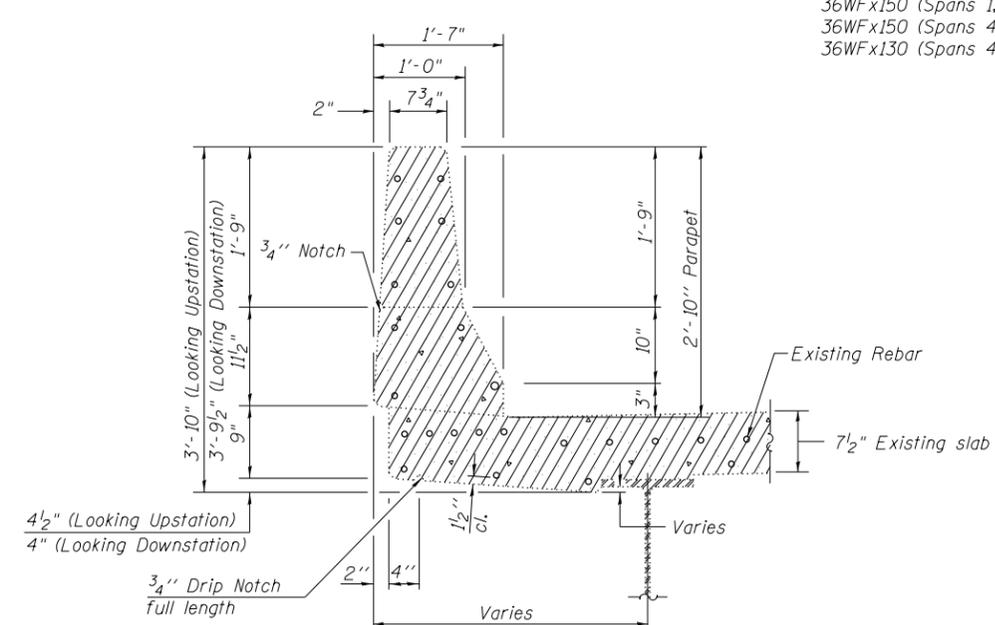
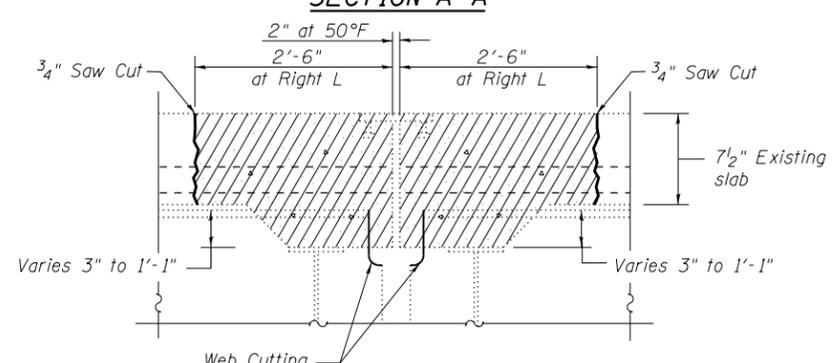
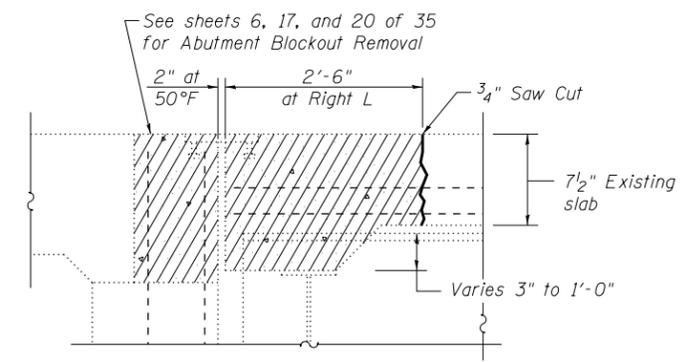


**CROSS SECTION**  
(Looking West)

(All dimensions shown are radial) \* Beams in Span No. 2 and Span No. 4 are not parallel.



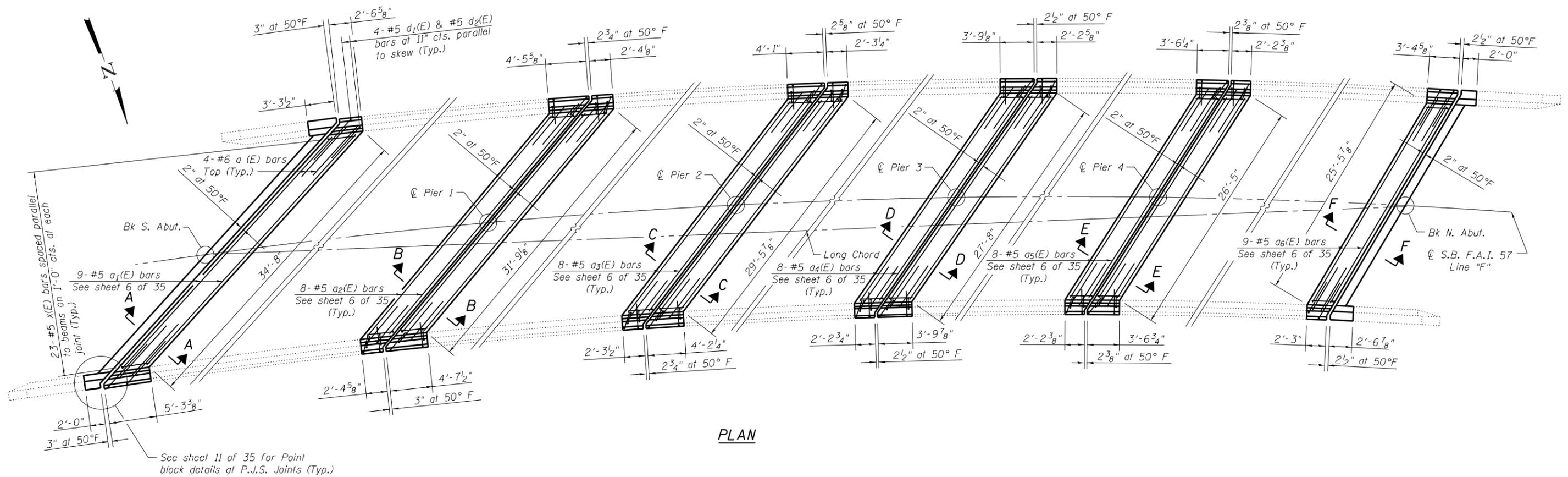
\*Radial Dimensions



- 36WFx150 (Spans 1, 2 & 3)
- 36WFx150 (Spans 4 & 5, Exterior Beams)
- 36WFx130 (Spans 4 & 5, Interior Beams)

**BILL OF MATERIAL**

Item	Unit	Total
Concrete Removal	Cu. Yd.	37.7



Notes:  
 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 adjustments to satisfy the details on sheet 11 of 35.  
 See sheet 6 of 35 for Sections A-A, B-B, C-C, D-D, E-E and F-F.  
 x(E) bars between beams at abutments not shown for clarity. See sheet 6 of 35 for placement.

FILE NAME = 025009-74295-005.dgn	USER NAME =	DESIGNED - B.B.	REVISED -
BERNHARDT LOCHMULLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, IL 62442 PHONE (618) 281-4666 FAX (618) 281-4666	Illinois Design Firm Number 184,001670	CHECKED - A.C.S.	REVISED -
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	PLOT DATE = 2:35:55 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -

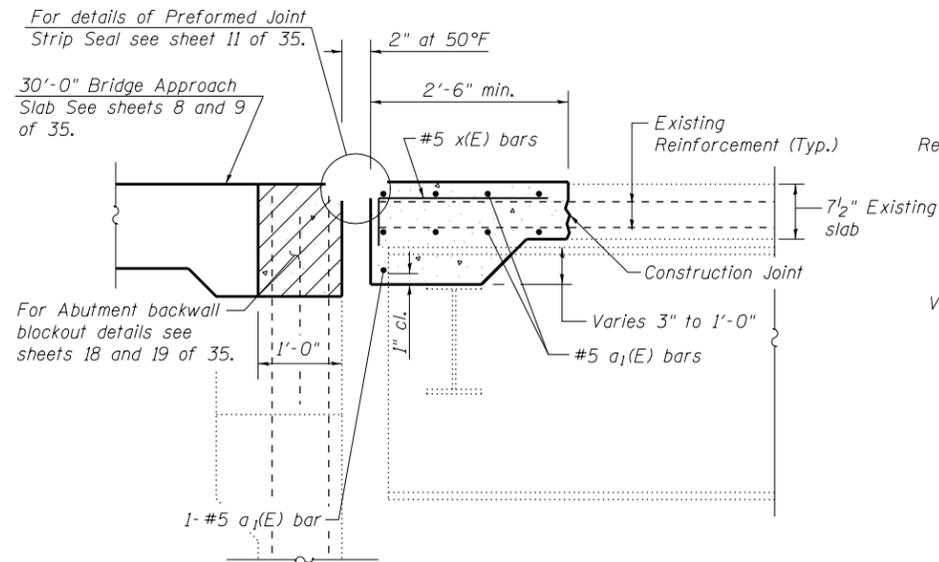
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE  
 STRUCTURE NO. 025-0019

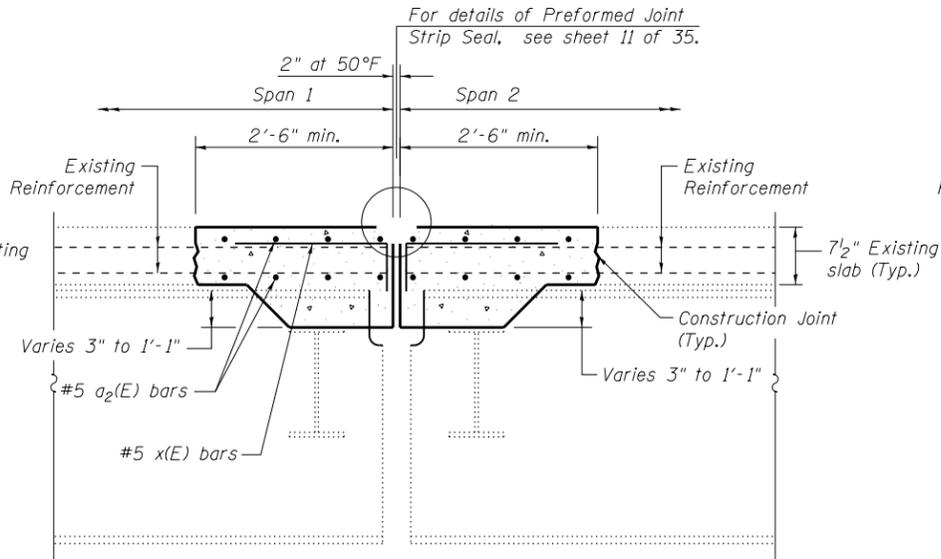
SHEET NO. 5 OF 35 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)I-3	EFFINGHAM	1760	1710
CONTRACT NO. 74295				

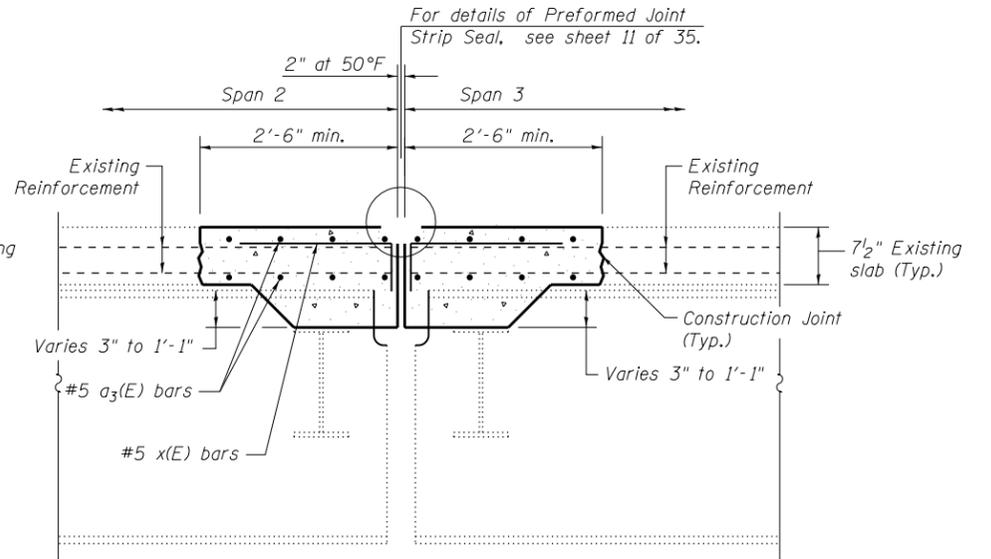
ILLINOIS FED. AID PROJECT



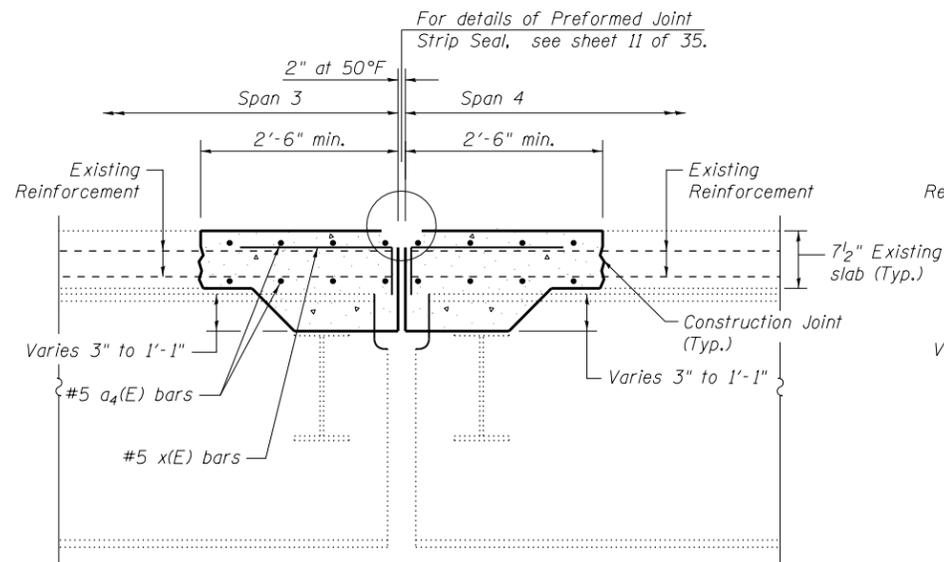
**SECTION A-A**  
(South Abutment)



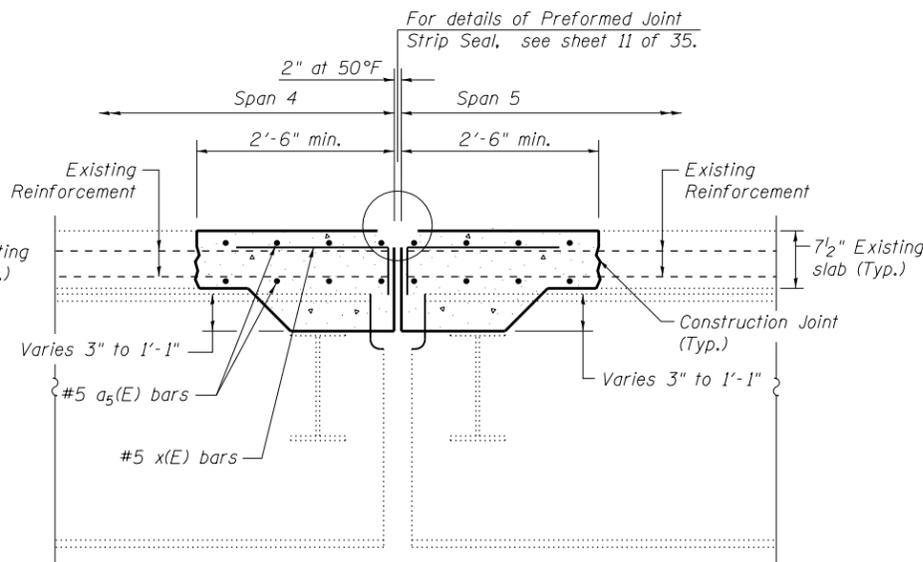
**SECTION B-B**  
(Pier 1)



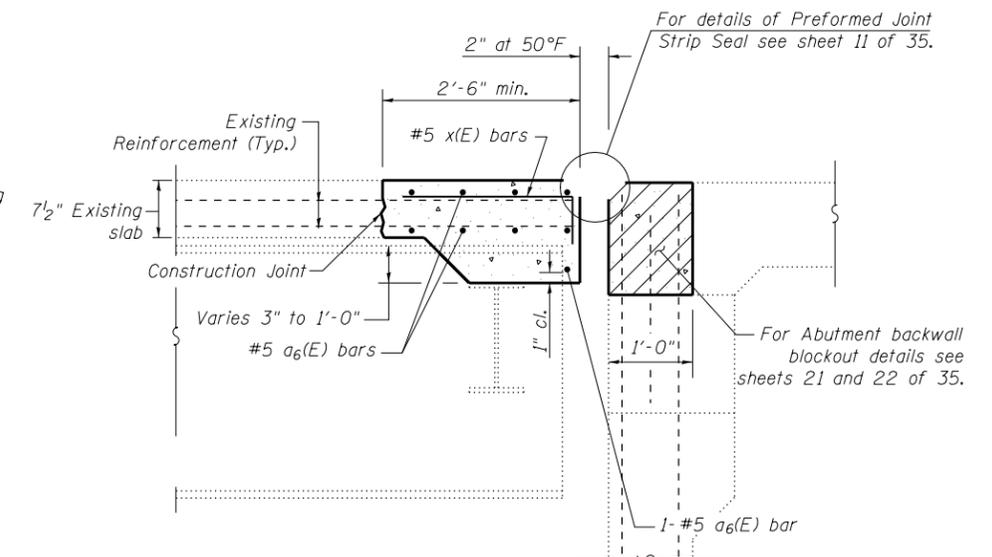
**SECTION C-C**  
(Pier 2)



**SECTION D-D**  
(Pier 3)



**SECTION E-E**  
(Pier 4)



**SECTION F-F**  
(North Abutment)

Notes:  
Dimensions shown are at right angles to deck joints.  
Place x(E) bars parallel to beams.

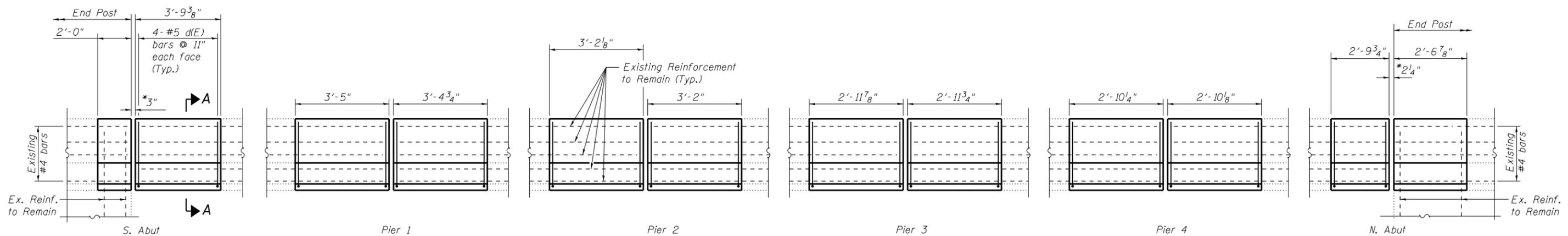
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BERNARDINI LOCHMULLER & ASSOCIATES, INC. 3000 OAK DRIVE MARYVILLE, IL 62442 PHONE (618) 281-4666 FAX (618) 281-4666	Illinois Design Firm Number 184.001670	CHECKED - A.C.S.	REVISED -
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

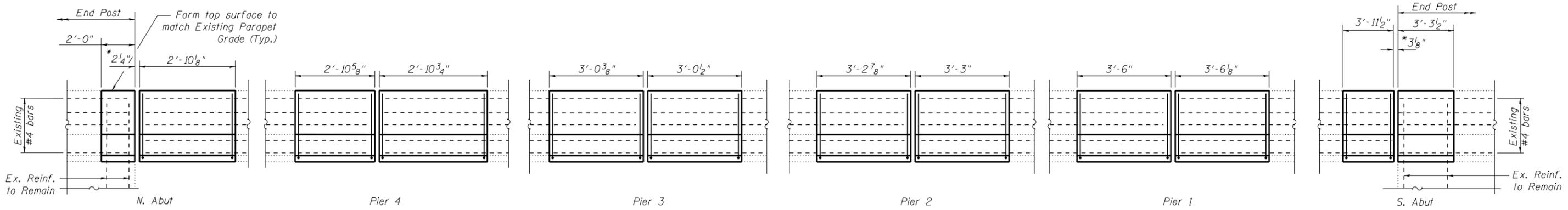
SUPERSTRUCTURE SLAB REPAIR DETAILS  
STRUCTURE NO. 025-0019

SHEET NO. 6 OF 35 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)1-3	EFFINGHAM	1760	1711
CONTRACT NO. 74295			ILLINOIS FED. AID PROJECT	



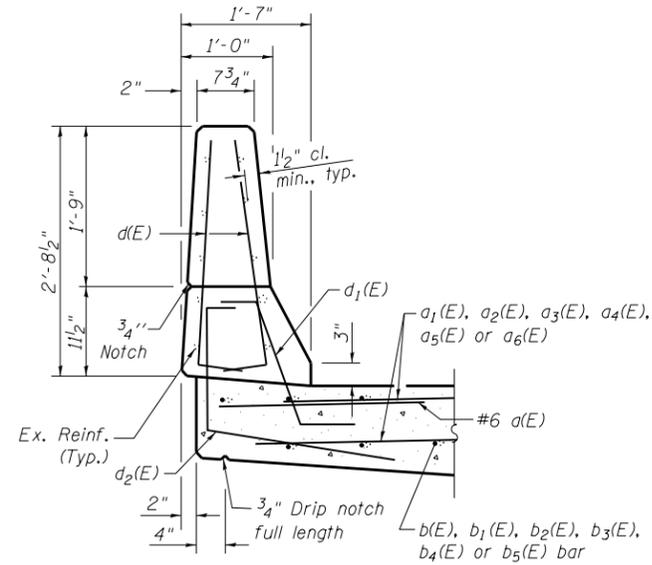
**WEST PARAPET ELEVATION**



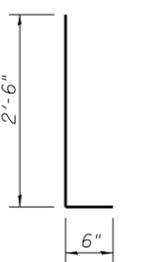
**EAST PARAPET ELEVATION**

\* Dimensions are along the length of the front face of parapet at 50° F.

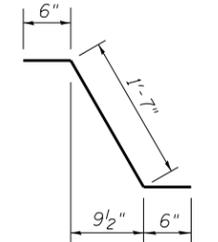
Note:  
Quantity of End Post Concrete included with Concrete Superstructures.  
Parapet dimensions shown along the front face of parapet.



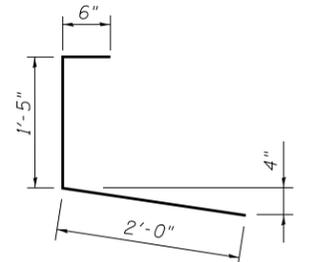
**SECTION A-A**



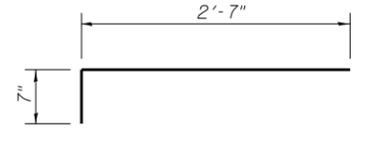
**BAR d(E)**



**BAR d1(E)**



**BAR d2(E)**

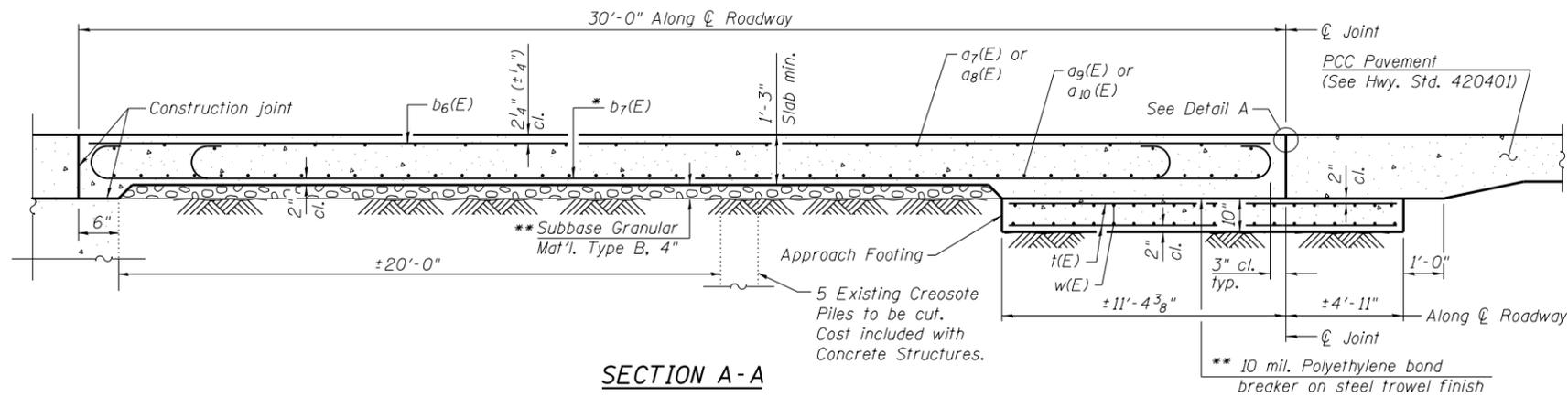


**BAR x(E)**

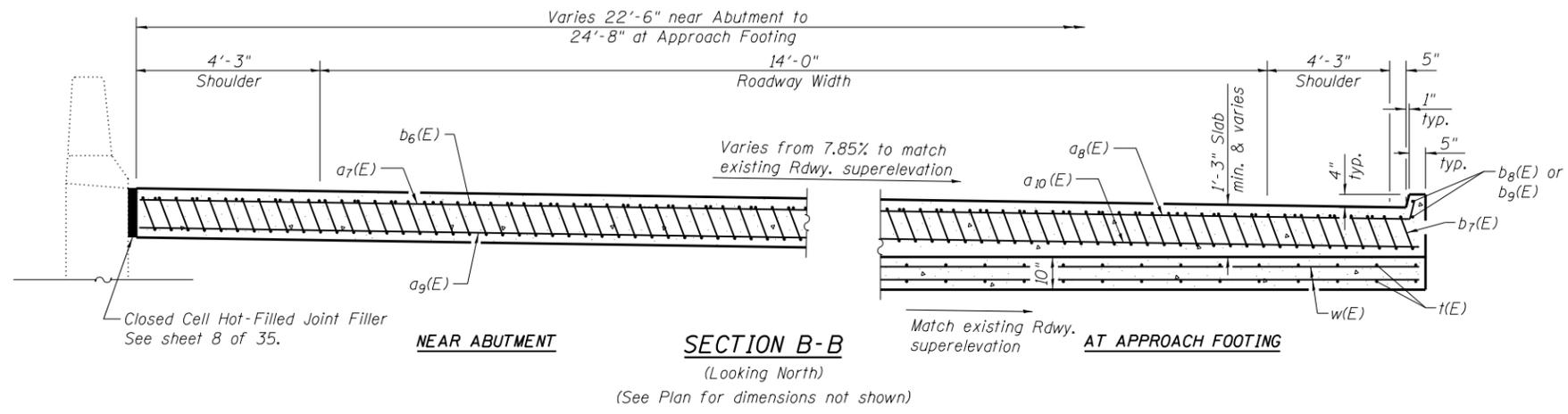
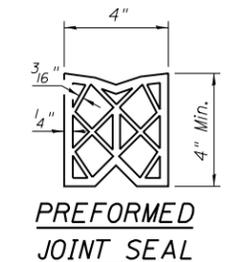
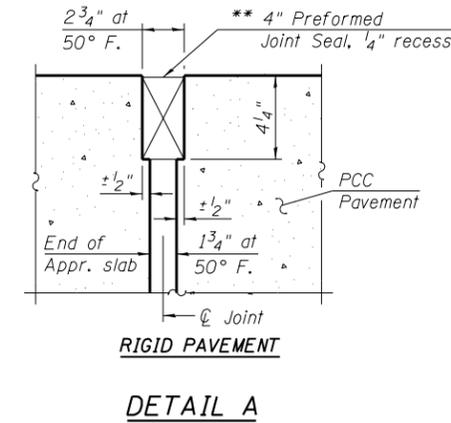
**BILL OF MATERIAL SUPERSTRUCTURE**

Bar	No.	Size	Length	Shape
d(E)	80	#6	6'-0"	—
d1(E)	9	#5	34'-6"	—
d2(E)	8	#5	31'-5"	—
a3(E)	8	#5	29'-2"	—
a4(E)	8	#5	27'-4"	—
a5(E)	8	#5	26'-1"	—
a6(E)	9	#5	25'-2"	—
d(E)	160	#5	3'-0"	—
d1(E)	80	#5	2'-7"	—
d2(E)	80	#5	3'-11"	—
x(E)	230	#5	3'-2"	—
Concrete Superstructure			Cu. Yd.	37.7
Reinforcement Bars, Epoxy Coated			Pound	4040

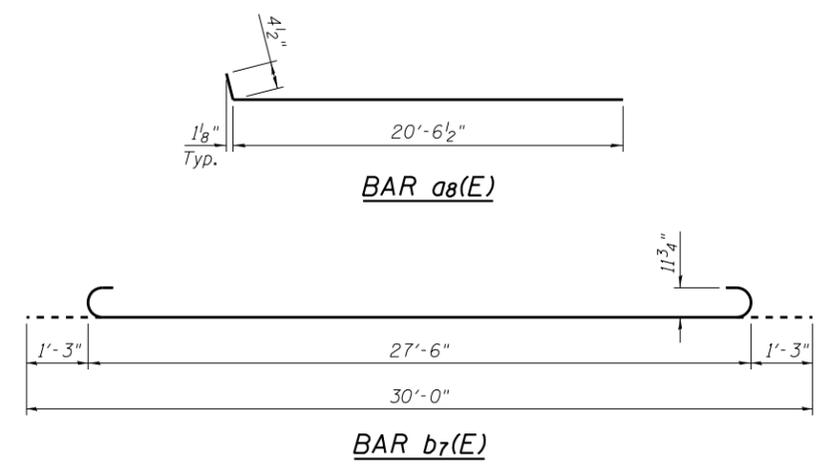
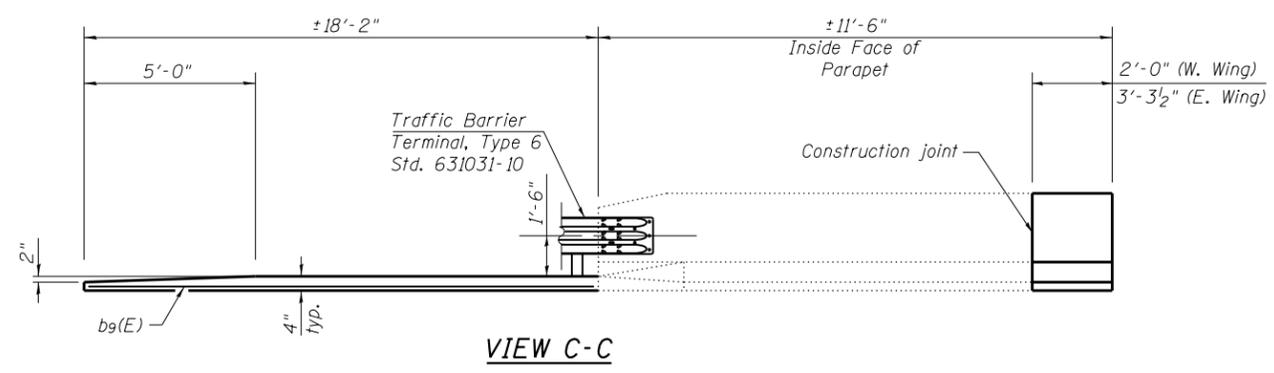




Notes:  
 Approach slab and parapet concrete shall be paid for as Concrete Superstructure.  
 Approach footing concrete shall be paid for as Concrete Structures.  
 Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.  
 The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For additional parapet details, see sheets 19 and 22 of 35.  
 Cross-slope and Elevations of Approach shall match existing conditions.  
 See Highway Standard 631031-10 for additional Traffic Barrier Terminal, Type 6 Details.

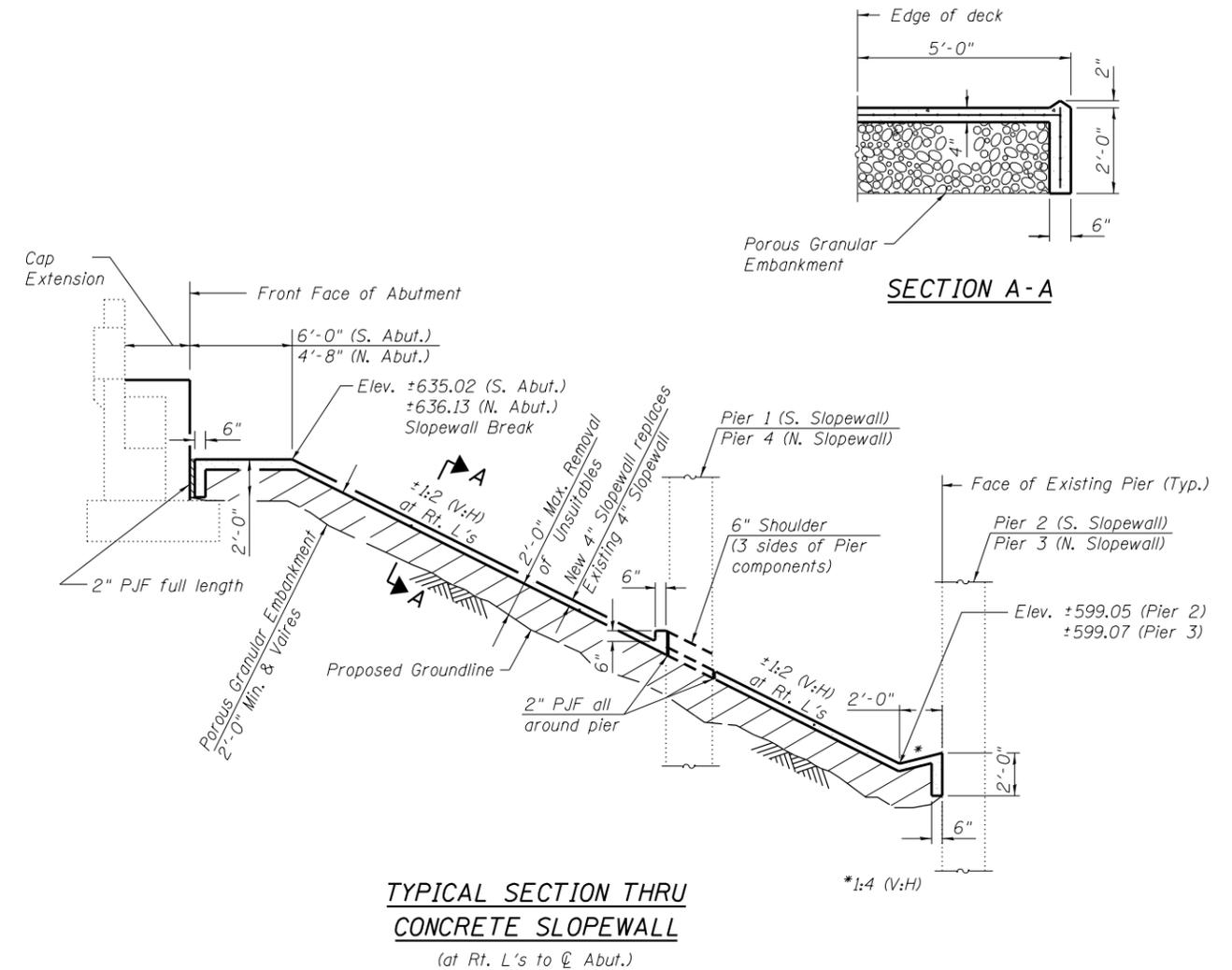
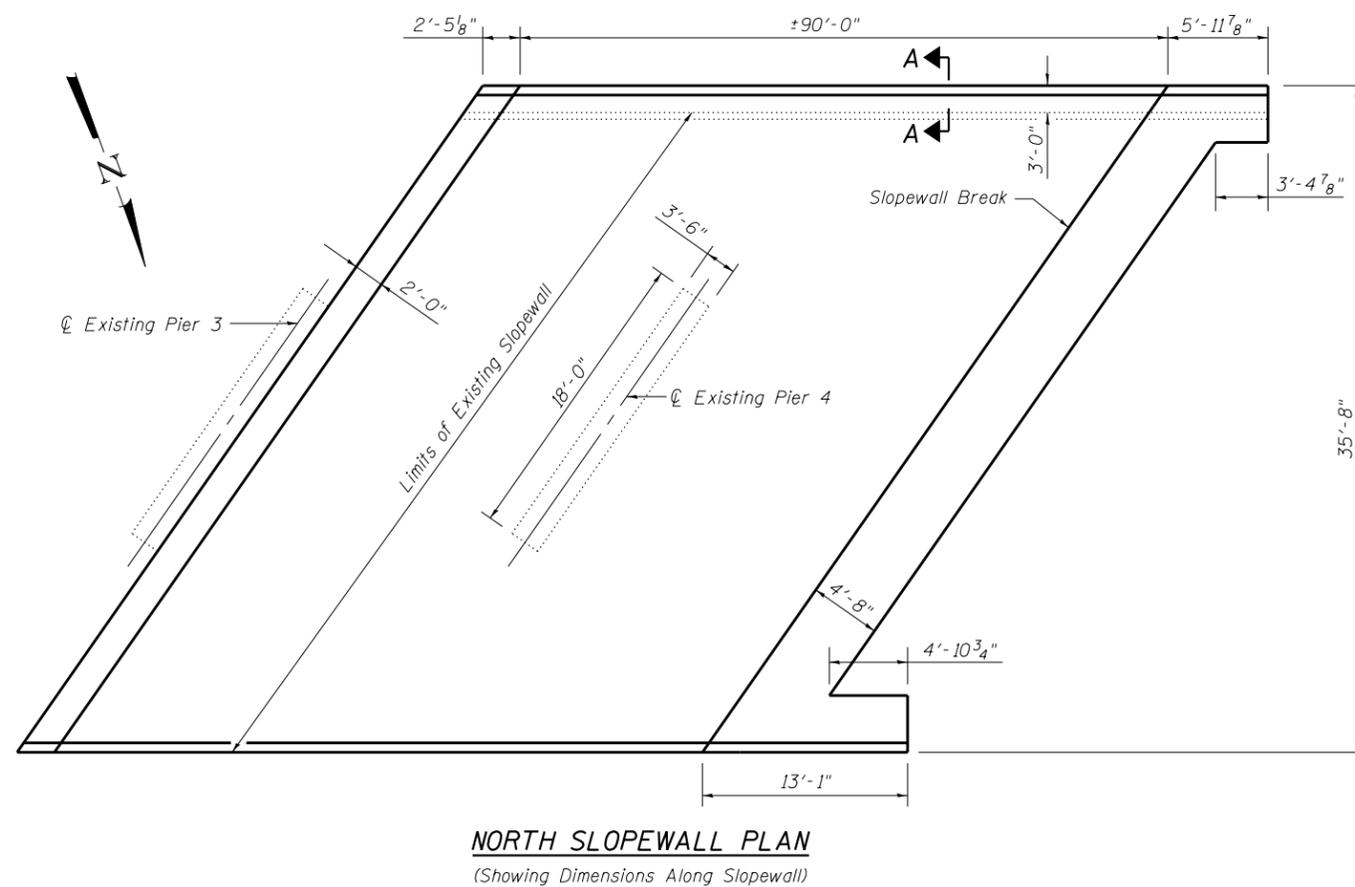
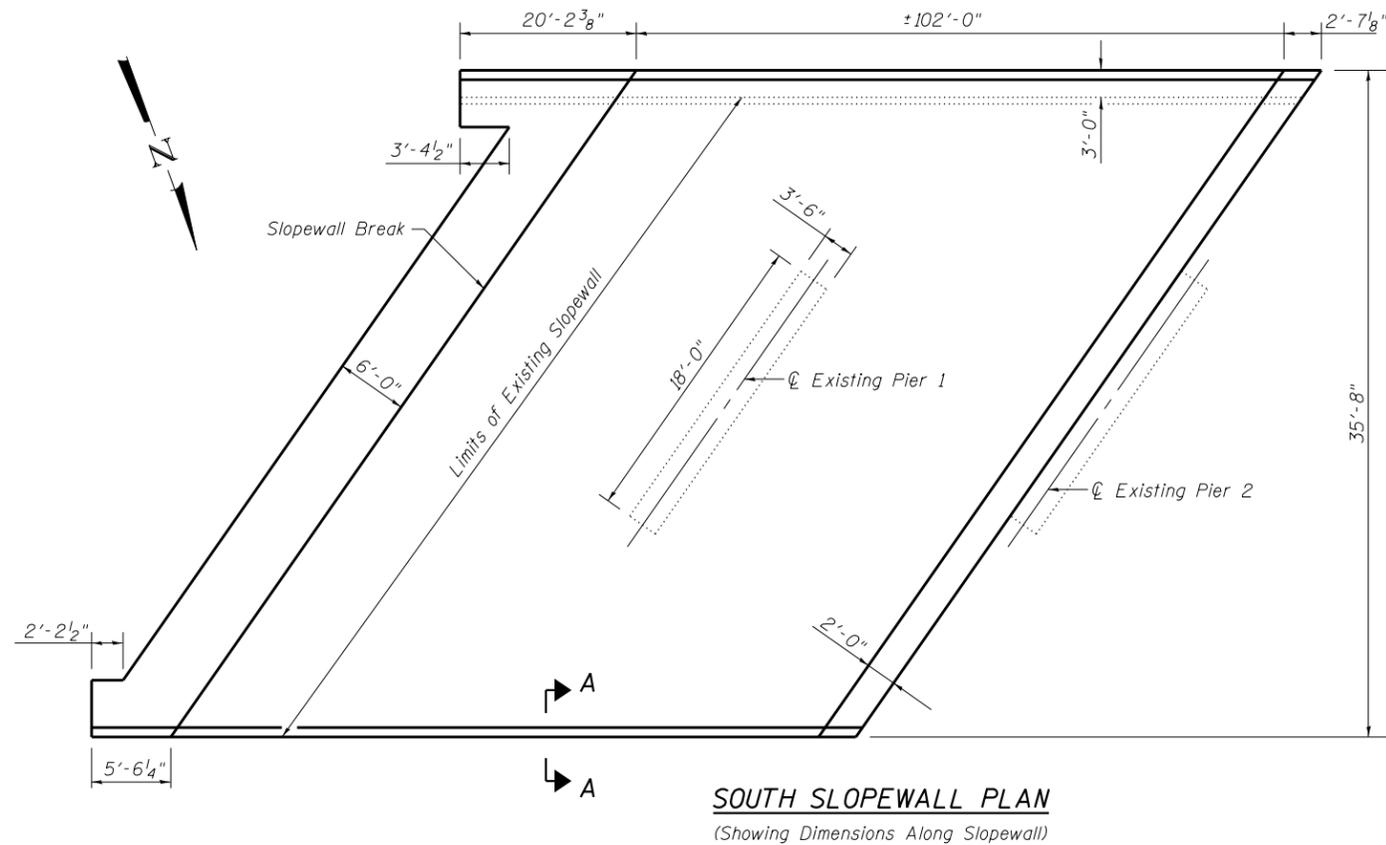


\* Tilt #9 b7(E) bars as required to maintain clearance.  
 \*\* Cost included with Concrete Superstructure.



**APPROACH SLAB  
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a7(E)	12	#4	19'-8"	—
a8(E)	20	#4	20'-11"	—
a9(E)	33	#5	14'-2"	—
a10(E)	54	#5	14'-9"	—
b(E)	19	#4	29'-8"	—
b1(E)	55	#9	30'-0"	—
b2(E)	2	#4	21'-5"	—
b3(E)	2	#4	17'-10"	—
t(E)	50	#4	16'-3"	—
w(E)	80	#5	21'-1"	—
Concrete Superstructure			Cu. Yd.	36.7
Concrete Structures			Cu. Yd.	12.2
Reinforcement Bars, Epoxy Coated			Pound	10100
Bridge Deck Grooving			Sq. Yd.	71



Indicates Removal of Unsuitable Materials and replacement with Porous Granular Embankment

**Notes:**

Slopewall shall be reinforced with welded wire fabric, 6 in. x 6 in. - W4.0 x W4.0, weighing 58 lbs. per 100 sq. ft.  
 Prior to the placement of Porous Granular Embankment, the existing ground line shall be removed at least 2'-0" below the existing slopewall. The removal of the existing embankment shall be paid for as Removal & Disposal of Unsuitable Material.  
 Portions of the existing slopewalls have voids in excess of 2'-0" in depth. In cases where the existing ground line has been voided under the existing slopewall in excess of 2'-0", the embankment shall be reconstructed with Porous Granular Embankment. No Removal & Disposal of Unsuitable Material will be required, only where voids in excess of 2'-0" exist.  
 See sheets 19 and 22 of 35 for slopewall end treatment at abutments.

**BILL OF MATERIAL  
TWO SLOPEWALLS**

Item	Unit	Total
Porous Granular Embankment	Cu. Yd.	579.6
Slopewall 4"	Sq. Yd.	863.8
Removal & Disposal of Unsuitable Material	Cu. Yd.	579.6
Slopewall Removal	Sq. Yd.	768

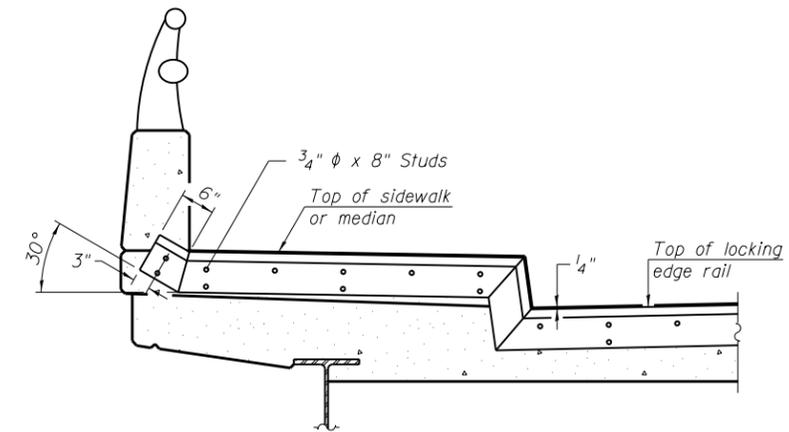
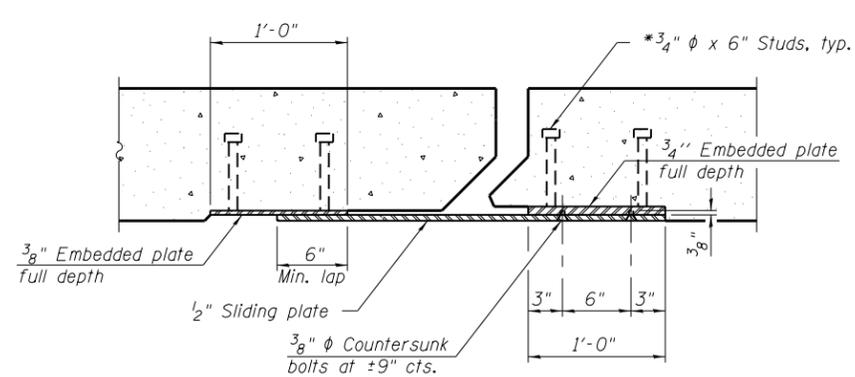
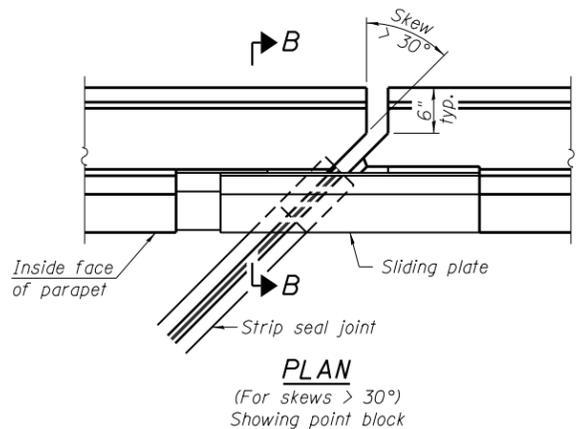
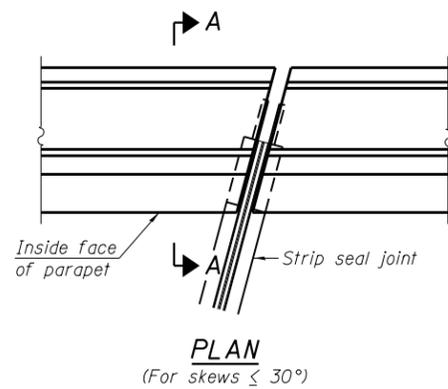
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BERNARDINI LOCHMUELLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, IL 62442 PHONE (618) 295-4666 FAX (618) 298-4666	Illinois Design Firm Number 184,001670	CHECKED - A.C.S.	REVISED -
	PLOT SCALE =	DRAWN - W.J.S.	REVISED -
	PLOT DATE = 2:35:57 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SLOPEWALL DETAILS  
STRUCTURE NO. 025-0019**

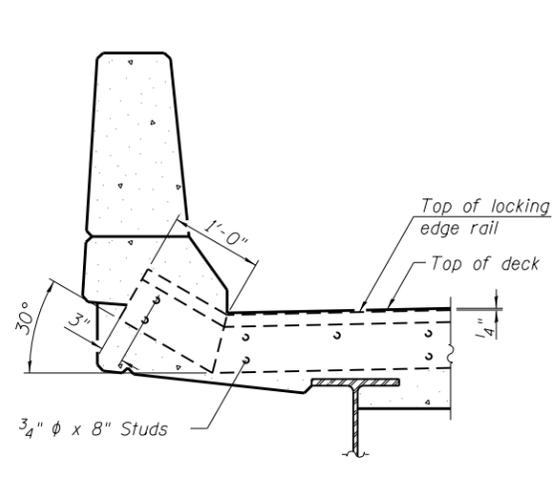
SHEET NO. 10 OF 35 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)I-3	EFFINGHAM	1760	1715
CONTRACT NO. 74295				
ILLINOIS FED. AID PROJECT				

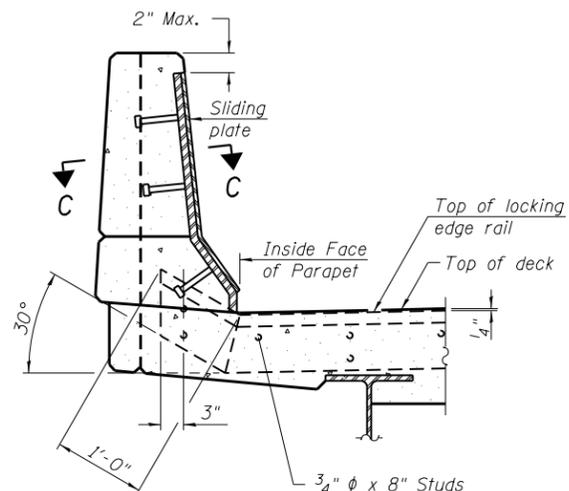


**TYPICAL END TREATMENT AT SIDEWALK OR MEDIAN**

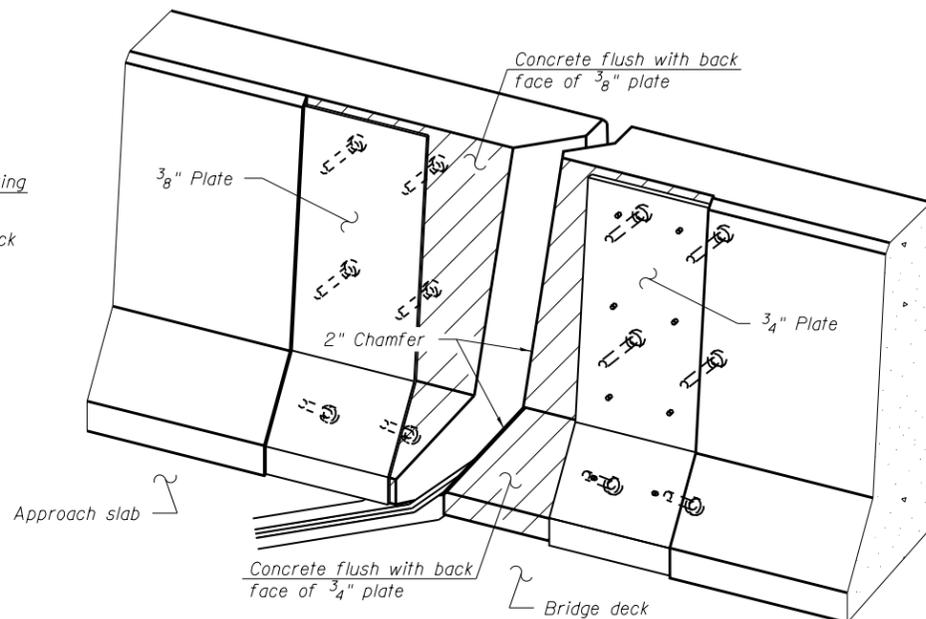
Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.



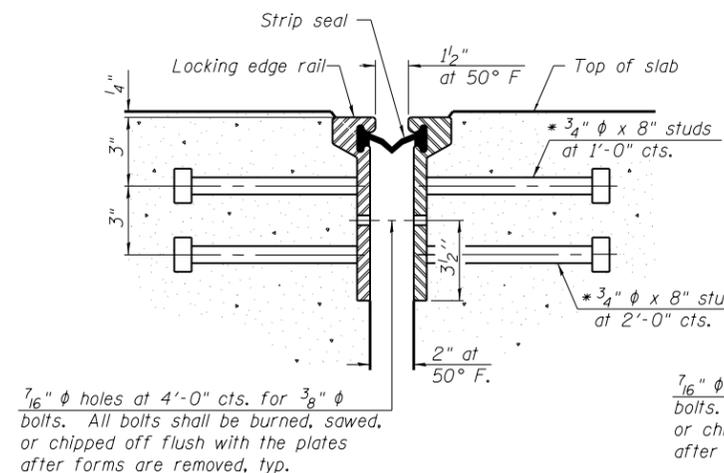
**SECTION A-A**



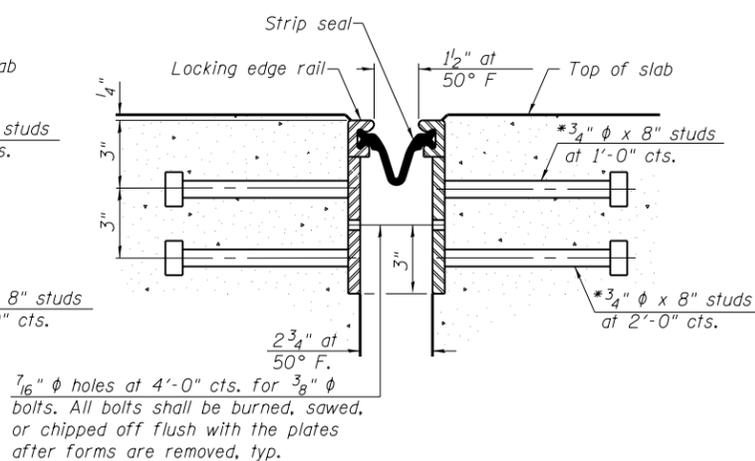
**SECTION B-B**



**TRIMETRIC VIEW (Showing back plates only)**



**SECTION THRU ROLLED RAIL JOINT**



**SECTION THRU WELDED RAIL JOINT**

**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.

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

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

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

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

**LOCKING EDGE RAILS**

**BILL OF MATERIAL**

Item	Unit	Total
Preformed Joint Strip Seal	Foot	188.5

EJ-SSJ

1-27-12

FILE NAME = 025009-74295-011.dgn

USER NAME =  
Illinois Design Firm Number 184,001670  
PLOT SCALE =  
PLOT DATE = 2/3:58 PM 8/15/2013

DESIGNED - -  
CHECKED - -  
DRAWN - W.J.S.  
CHECKED - C.J.F. & B.B.  
REVISED - -  
REVISED - -  
REVISED - -  
REVISED - -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL  
STRUCTURE NO. 025-0019

SHEET NO. 11 OF 35 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)I-3	EFFINGHAM	1760	1716
			CONTRACT NO. 74295	

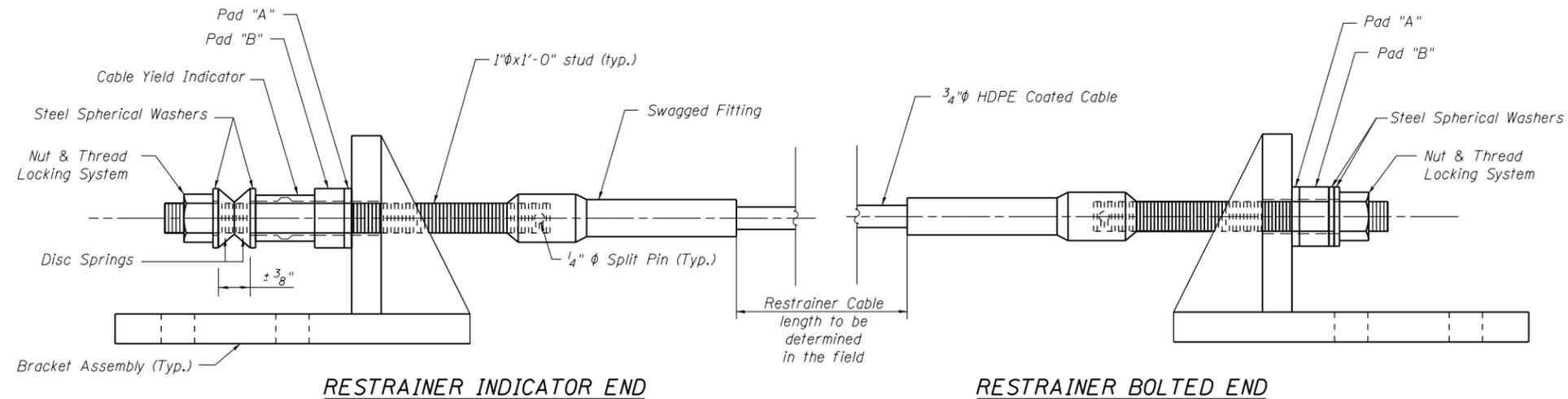
ILLINOIS FED. AID PROJECT

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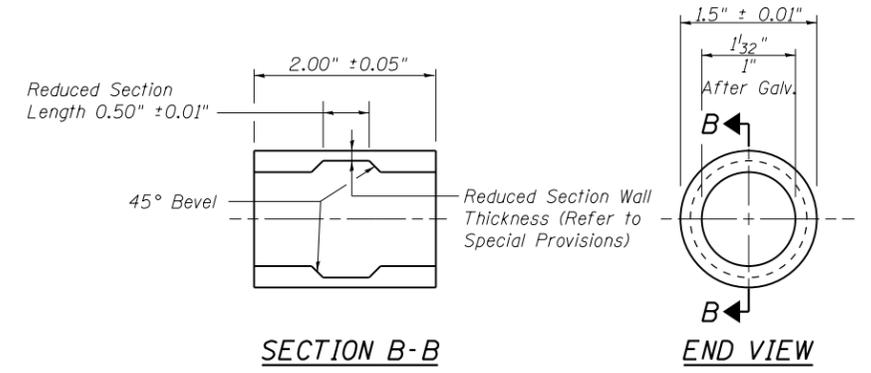
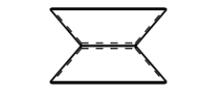
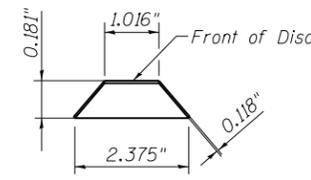
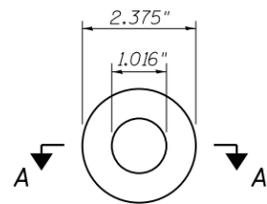
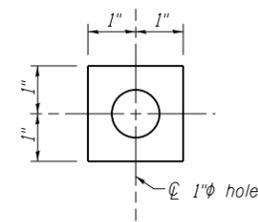
 BERNHEIM LOCHMULLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, ILLINOIS 62442 PHONE (618) 284-4666 FAX (618) 284-4666	FILE NAME = 025009-74295-012.dgn	USER NAME =	DESIGNED - B.B.	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>INTENTIONALLY BLANK STRUCTURE NO. 025-0019</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		Illinois Design Firm Number 184.001670	CHECKED - A.C.S.	REVISED -			57/70	(25-4HB)I-3	EFFINGHAM	1760	1717
		PLOT SCALE =	DRAWN - W.J.S.	REVISED -			CONTRACT NO. 74295				
		PLOT DATE = 2:3:59 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -			ILLINOIS FED. AID PROJECT				
SHEET NO. 12 OF 35 SHEETS											

**CABLE RESTRAINER UNIT INSTALLATION PROCEDURE**

1. Align cable assembly angles with bumper assembly. For Bumper placement see Sheets 14 and 15 of 35.
2. Install Cable Yield Indicator, Spherical Washers, Disc Springs, Washers and Nut on the indicator end of Seismic Restrainers.
3. Place Spherical Washers and Nut on bolted end of restrainers. Place Thread Locking System on bolted end stud prior to installing nut and washers, and prior to setting the cable.
4. Tighten nut on the cable at the indicator end of restrainer. The cable should be approximately straight with no sag.
5. Place Thread Locking System on indicator end stud after tightening the cable but before backing off the nut. Back off the nut at restrainer indicator end a distance equal to maximum additional amount that the joint is expected to open, relative to existing ambient conditions. See Expansion Table on Sheet 15 of 35.
6. If the cable needs to be secured from turning while tightening, use double nut locking technique on the stud to protect the threads.
7. For Thread Locking System, see Special Provision for Seismic Restrainers.

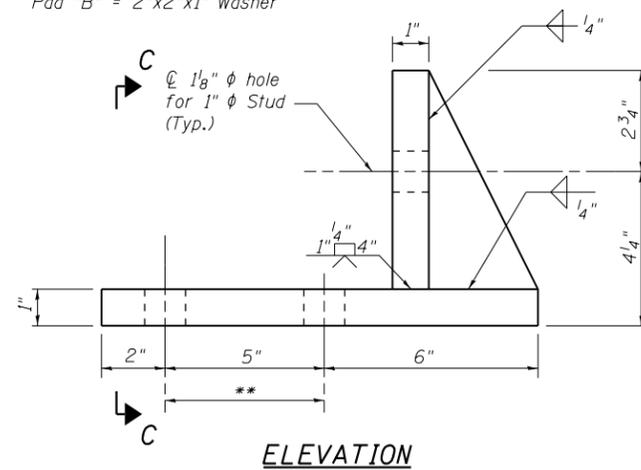


**CABLE & BRACKET ASSEMBLY ELEVATION**



**PAD DETAIL**

Pad "A" = 2"x2"x1/4" Plain Elastomeric Bearing Pad (50 Durometer)  
 Pad "B" = 2"x2"x1" Washer

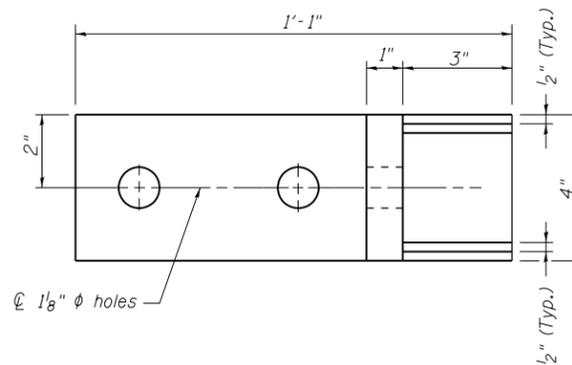


\*\*  $\varnothing$  1/8" hole for 1" x 4 1/2" long A325 bolts with 1-1/16" washer

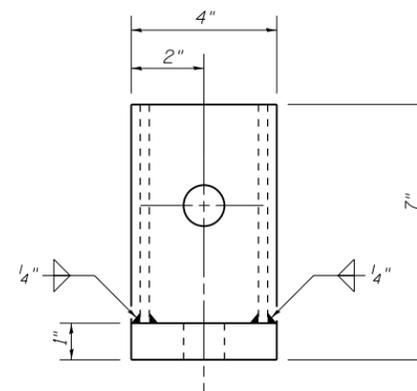
**PLAN**

**SECTION A-A**

**DISC SPRING**



**BRACKET ASSEMBLY**



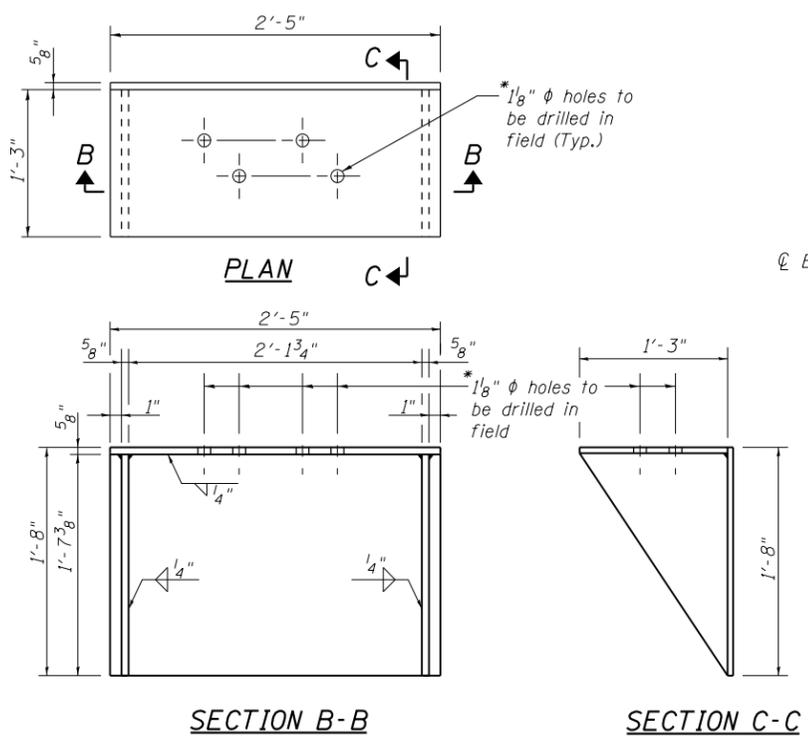
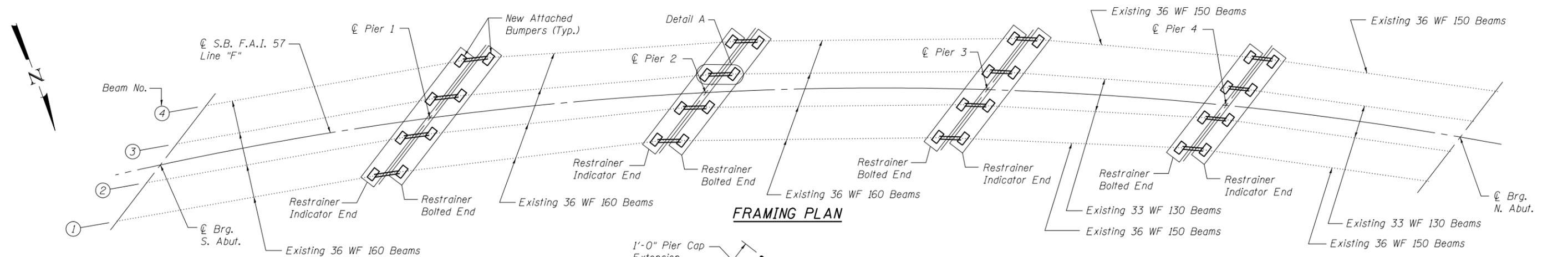
**SECTION C-C**

**CABLE YIELD INDICATOR**

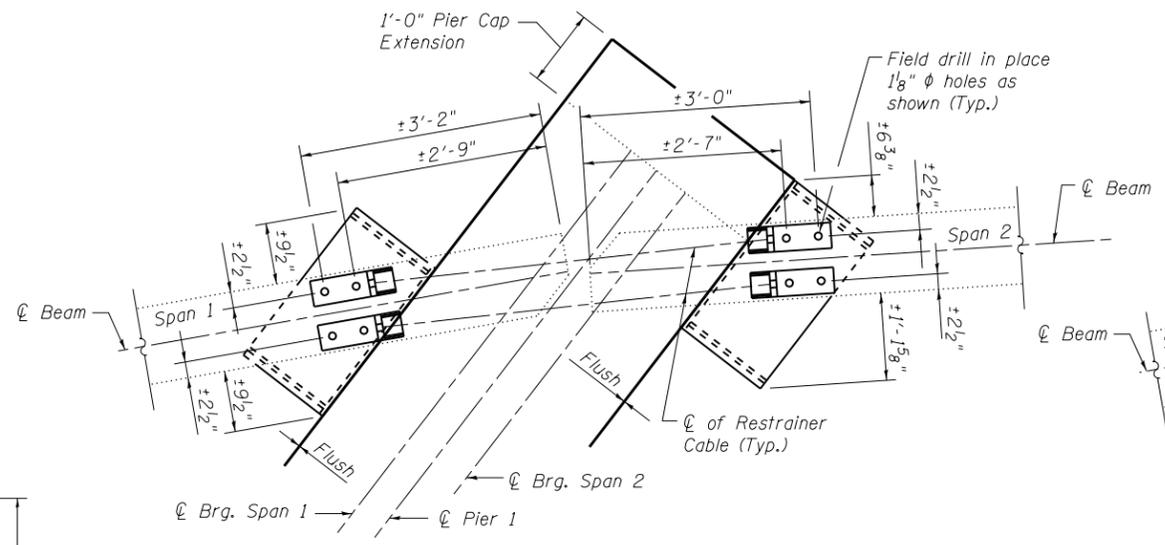
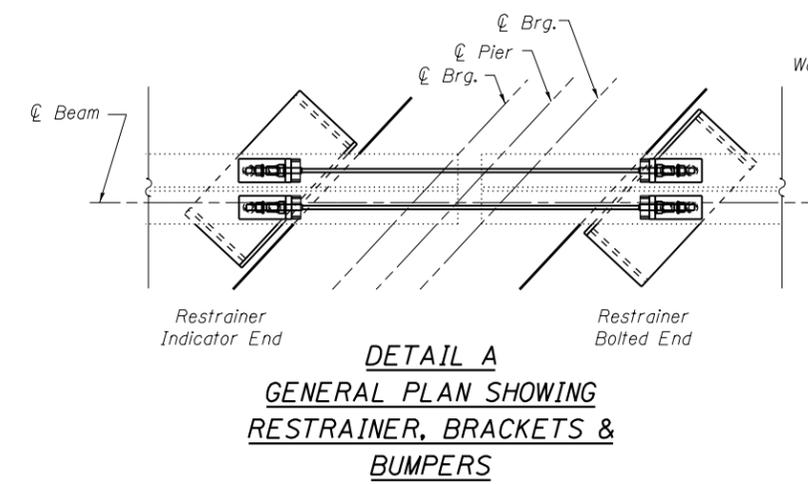
(All dimensions are before galvanizing except as noted)

Notes:  
 Bracket Assembly shall be paid for as Furnishing and Erecting Structural Steel.  
 HPPE Coated Cable swag fitting, incidentals and Yield Indicators shall be paid for as Seismic Restrainer.

FILE NAME = 025009-74295-013.dgn	USER NAME =	DESIGNED - B.B.	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SEISMIC RESTRAINER &amp; BRACKET DETAILS STRUCTURE NO. 025-0019</b>	F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
BERNARDINI LOCHMULLER & ASSOCIATES, INC. 3 DAK DRIVE MARYVILLE, IL 62450 PHONE (618) 281-4666 FAX (618) 281-4666	Illinois Design Firm Number 184,001670	CHECKED - A.C.S.	REVISED -			57/70	(25-4HB)I-3	EFFINGHAM	1760	1718	
	PLOT SCALE =	DRAWN - W.J.S.	REVISED -			<b>CONTRACT NO. 74295</b>					
	PLOT DATE = 2:3:59 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -			SHEET NO. 13 OF 35 SHEETS					

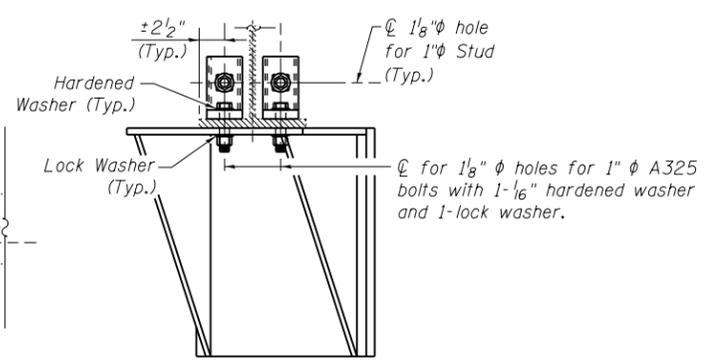


**BUMPER DETAILS**  
(32 Required)



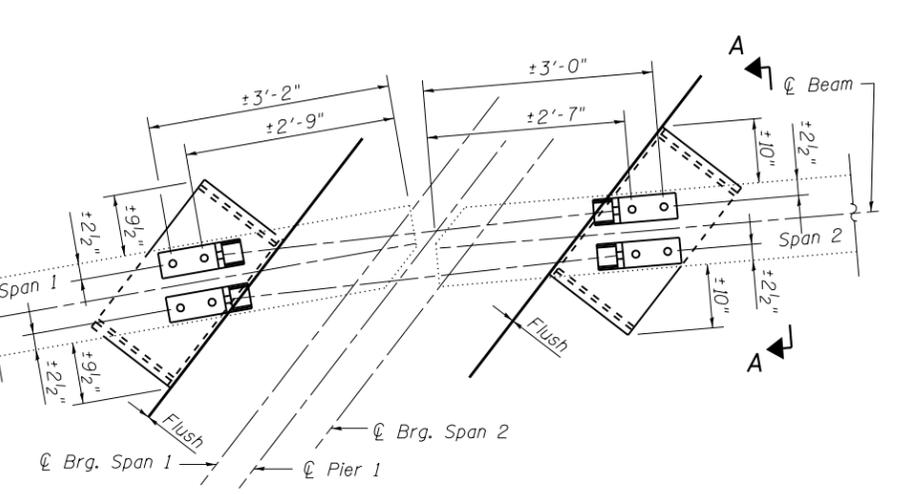
**PIER 1 PLAN**  
(Beam 4)  
(1 Required)

\*Existing beam flanges and bumpers shall be field drilled. The holes shall be subdrilled to 1" φ and reamed to 1 1/8" φ.

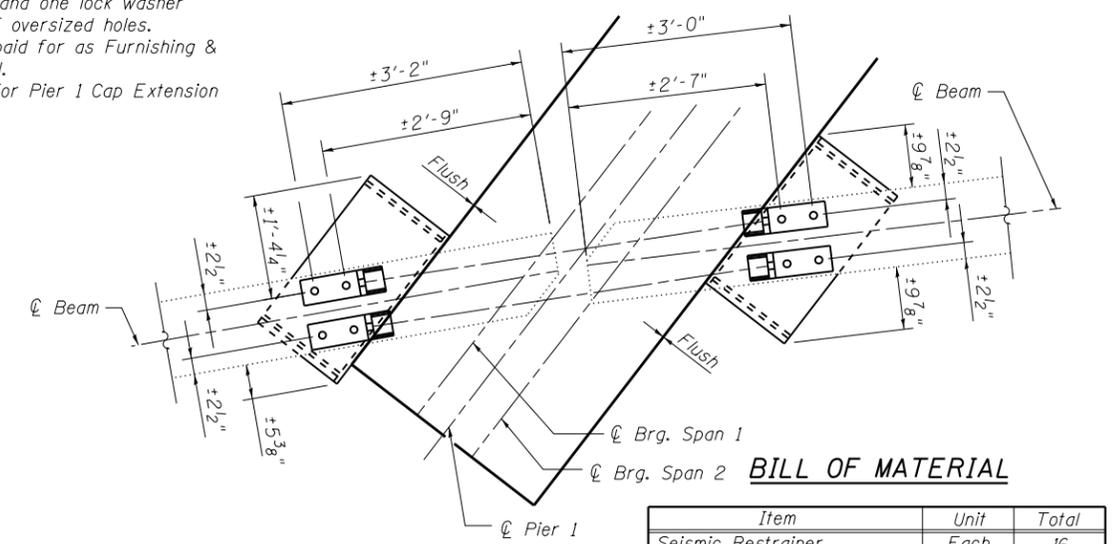


**SECTION A-A**  
Bumper shown on skew

**Notes:**  
The backing off of the nut in step 5 of Cable Restrainer Unit Installation Procedure on sheet 13 of 35 should be omitted at Pier 1 and Pier 4.  
The disc springs should be fully compressed during installation at Pier 1, Span 1 and Pier 4, Span 5.  
For additional notes see sheet 15 of 35.  
One hardened washer and one lock washer required for each set of oversized holes.  
Bumpers shall be paid for as Furnishing & Erecting Structural Steel.  
See sheet 23 of 35 for Pier 1 Cap Extension Details.



**PIER 1 PLAN**  
(Beams 2 & 3)  
(2 Required)

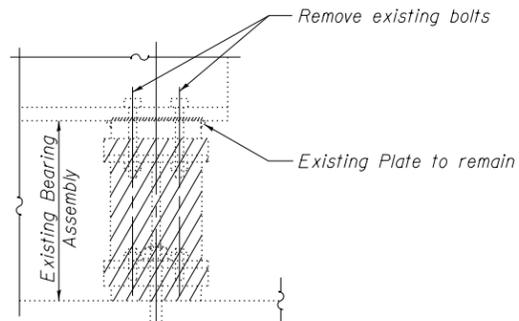


**PIER 1 PLAN**  
(Beam 1)  
(1 Required)

**BILL OF MATERIAL**

Item	Unit	Total
Seismic Restrainer	Each	16
Furnishing & Erecting Structural Steel	Pound	9240

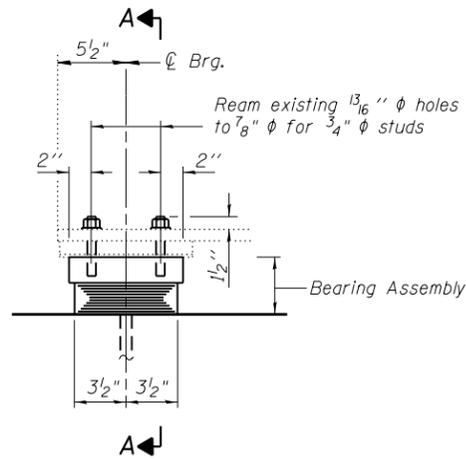




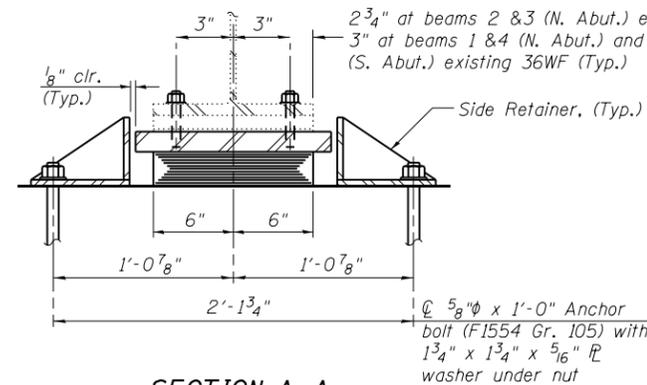
Indicates Removal of Existing Bearing and Steel Extension. Cost included with Jack and Remove Existing Bearings.

**EXISTING BEARING REMOVAL DETAIL**

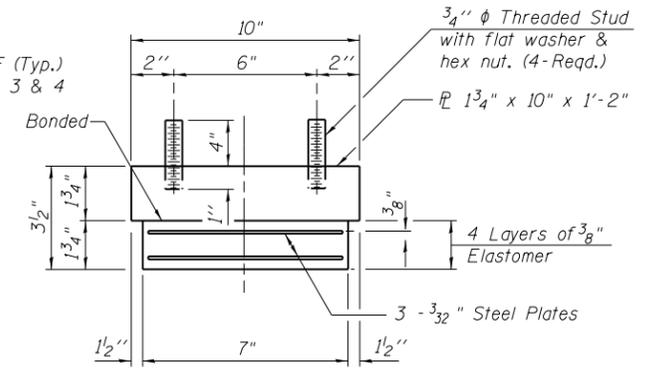
(8 Required)  
4 at each Abutment



**ELEVATION**



**SECTION A-A**



**BEARING ASSEMBLY**

**TYPE I ELASTOMERIC EXP. BRG.**

(8 Required)  
4 at each Abutment

**PROCEDURE TO JACK AND REMOVE EXISTING BEARINGS**

(South & North Abutments)  
(Minimum Jack Capacity Required 57 tons)

1. Jack and Remove Existing Bearings shall be conducted according to the Bridge Special Provision "Jack and Remove Existing Bearings. See Interior Beam Reaction Table for loads.
2. Jacking and removing existing bearings shall be done after partial deck concrete removal and before new deck concrete is poured.
3. Four beams may be lifted simultaneously.
4. Formwork and bearing seat construction shall occur.
5. The new elastomeric bearings shall be placed and the jacks shall be lowered.
6. The new holes for the side retainers shall be drilled at the locations specified.
7. No Bearing Replacement is required at Pier 1, Pier 2, Pier 3 and Pier 4. Clean and paint as specified for Structural Steel.

**Notes:**

Anchor bolts shall be ASTM F1554 all-thread (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.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the expansion bearing assemblies shall be included in the cost of Elastomeric Bearing Assembly, Type I.

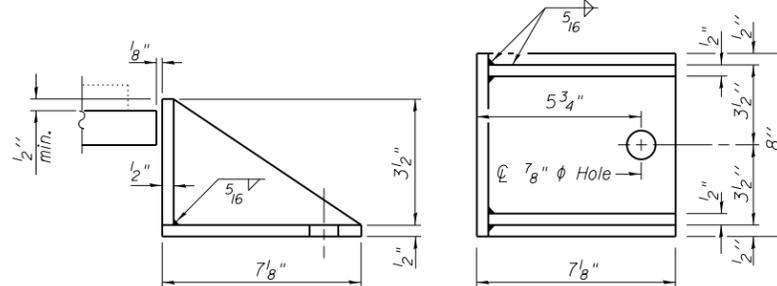
See Sheet 18 of 35 for Anchor Bolt location Details at South Abutment.

See Sheet 21 of 35 for Anchor Bolt location Details at North Abutment.

Side retainers, anchor bolts, nuts, washers and bearing plates may be galvanized according to AASHTO M111 or M232 (as applicable).

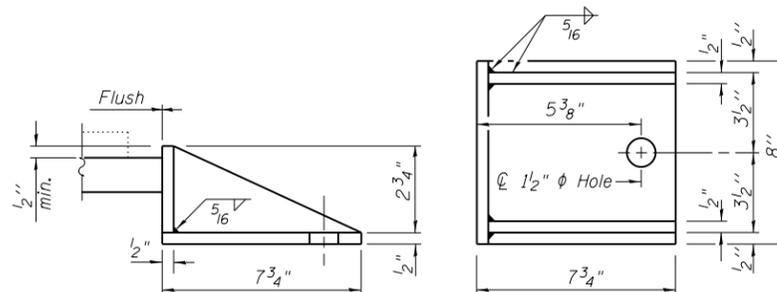
Side Retainers at Encased Fixed Bearings (piers 1 & 4) shall be paid for as

Furnishing & Erecting Structural Steel.



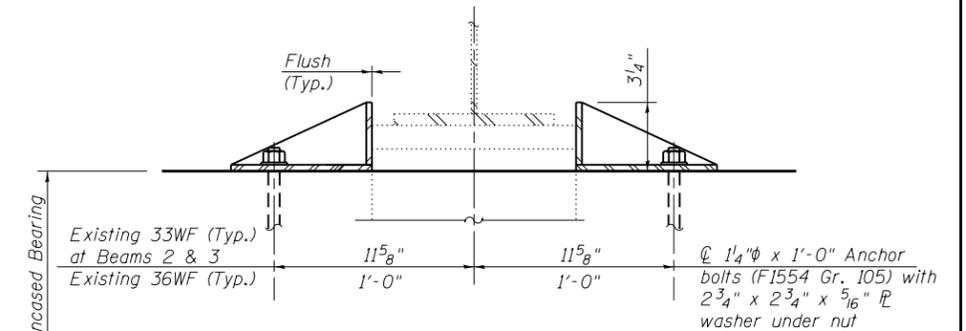
**SIDE RETAINER AT ABUTMENTS**

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



**SIDE RETAINER AT ENCASED FIXED BEARINGS (PIERS 1 & 4)**

(16 Required)  
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



**SIDE RETAINERS AT ENCASED FIXED BEARINGS PIER 1 & 4**

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	8
Anchor Bolts, 5/8"	Each	16
Anchor Bolts, 1/4"	Each	32
Jack & Remove Existing Bearings	Each	8
Furnishing & Erecting Structural Steel	Pound	480

INTERIOR BEAM REACTION TABLE					
	Span 1	Span 2	Span 3	Span 4	Span 5
R <sub>l</sub>	(k) 28.2	29.4	28.6	24.3	23.9
R <sub>r</sub>	(k) 36.2	36.5	36.4	35.2	35.0
Imp.	(k) 10.5	10.6	10.5	10.2	10.2
R <sub>Total</sub>	(k) 74.9	76.5	75.5	69.7	69.1

FILE NAME = 025009-74295-016.dgn

USER NAME =

DESIGNED - B.B.

REVISED -

Illinois Design Firm Number 184,001670

CHECKED - A.C.S.

REVISED -

PLOT SCALE =

DRAWN - W.J.S.

REVISED -

PLOT DATE = 2:40 PM 8/15/2013

CHECKED - C.J.F. & B.B.

REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS  
STRUCTURE NO. 025-0019

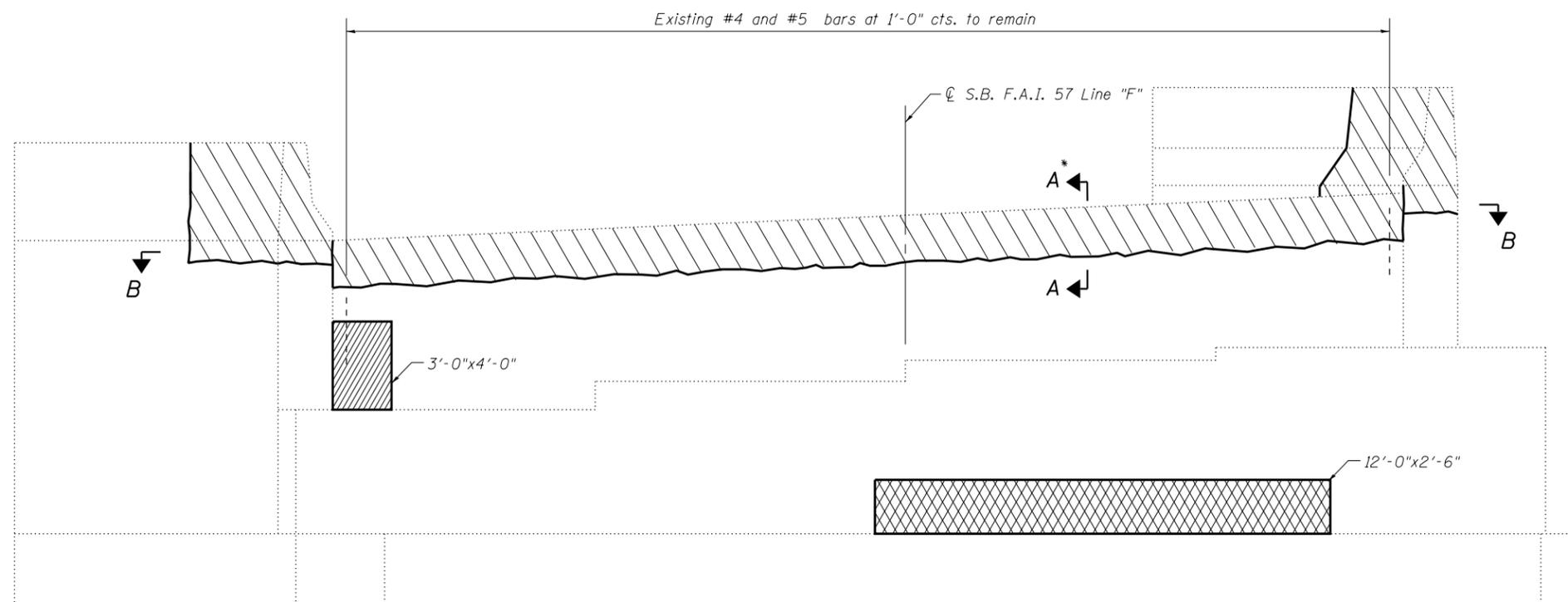
SHEET NO. 16 OF 35 SHEETS

F.A.I. SECTION COUNTY TOTAL SHEETS SHEET NO.

57/70 (25-4HB)I-3 EFFINGHAM 1760 1721

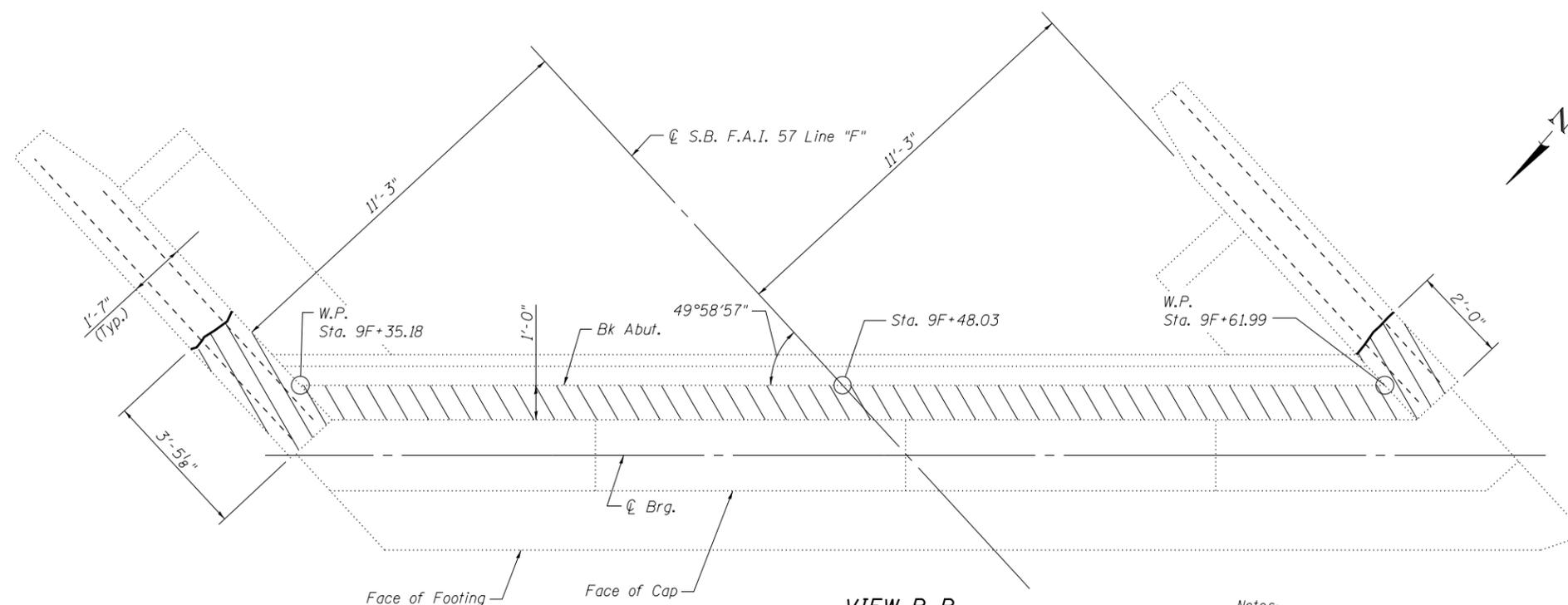
CONTRACT NO. 74295

ILLINOIS FED. AID PROJECT



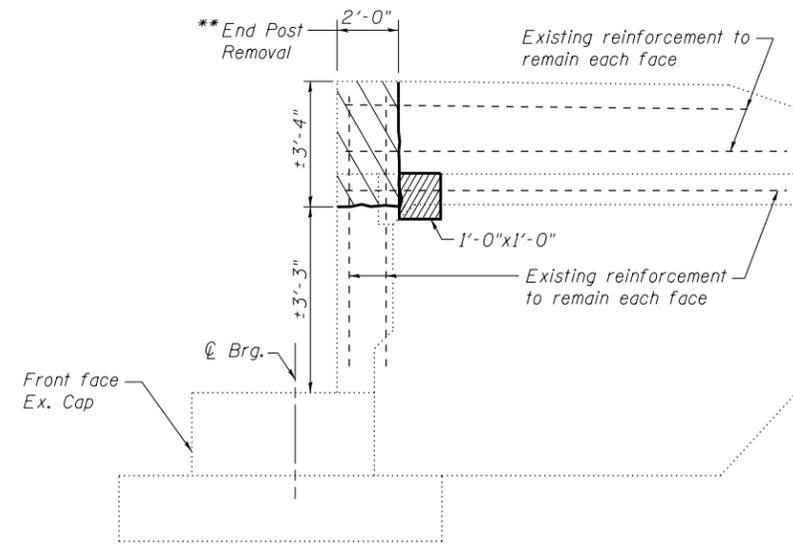
**ELEVATION**  
Looking South

\* For Section A-A see Sheet 4 of 35.



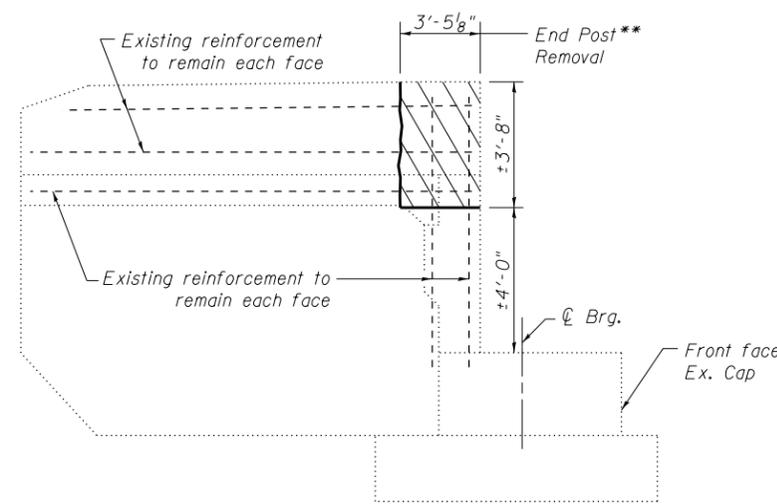
**VIEW B-B**  
**SOUTH ABUTMENT**

Notes:  
The quantities shown are for estimating purposes only. The area to be repaired will be determined by the Engineer at the time of construction. Actual repair locations shall be shown on As-built plans.



**WEST WING WALL**

\*\* For End Post Removal Limits see Sheet 4 of 35.



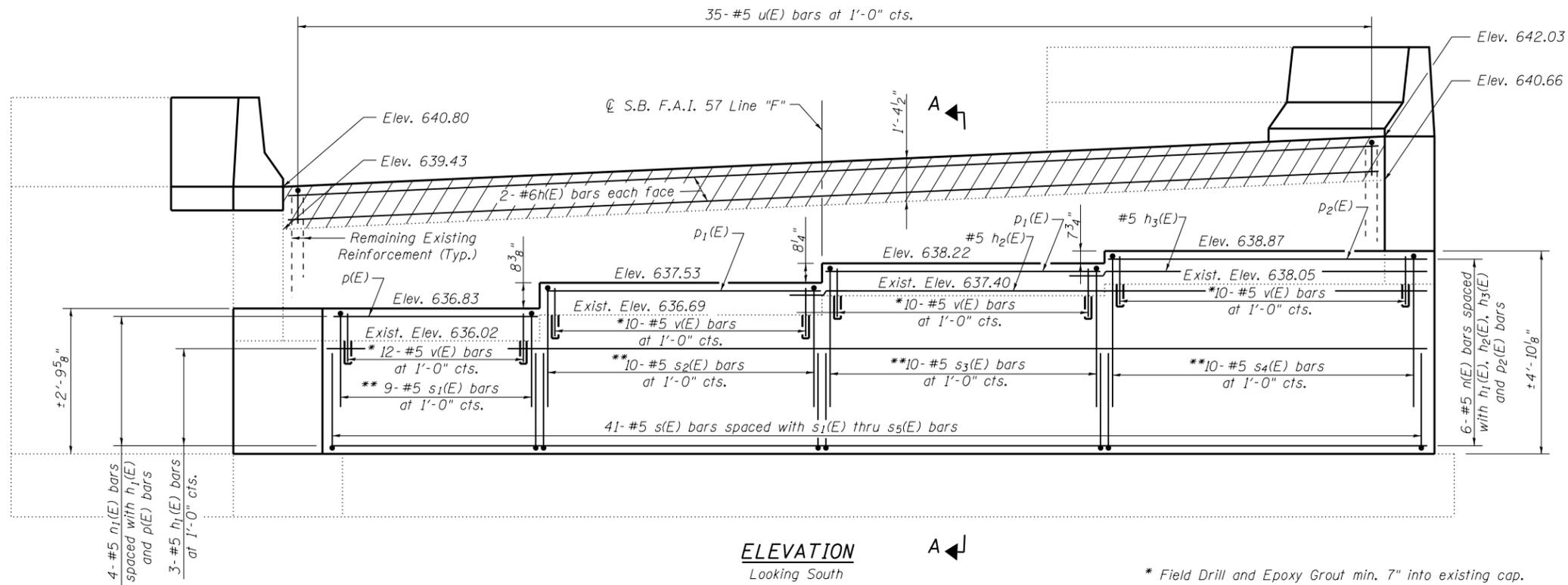
**EAST WING WALL**

**LEGEND**

- Indicates Structural Repair of Concrete (Depth ≤ 5")
- Indicates Concrete Removal
- Indicates Concrete Removal (Special)

**BILL OF MATERIAL**

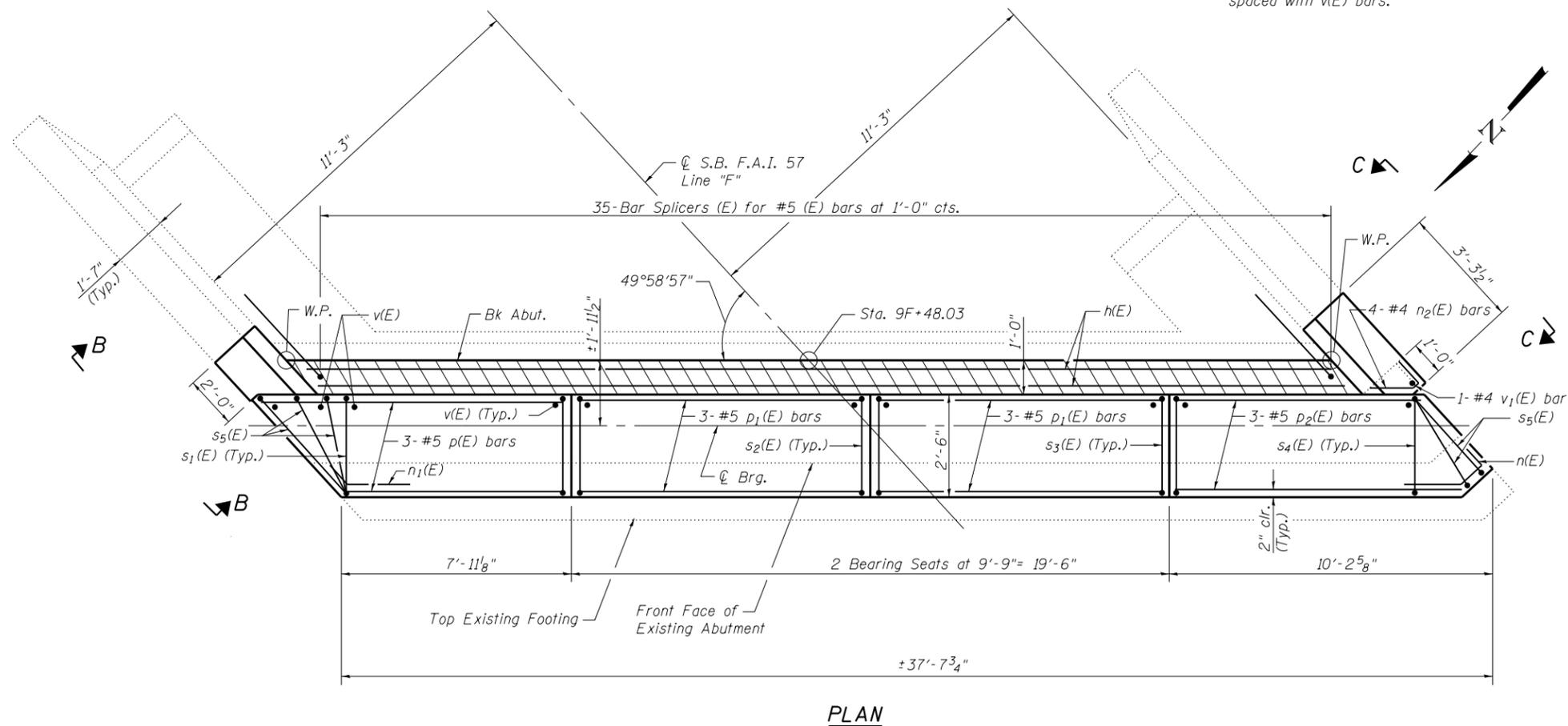
Item	Unit	Total
Concrete Removal	Cu. Yd.	2.8
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	13
Concrete Removal (Special)	Sq. Yd.	3.4



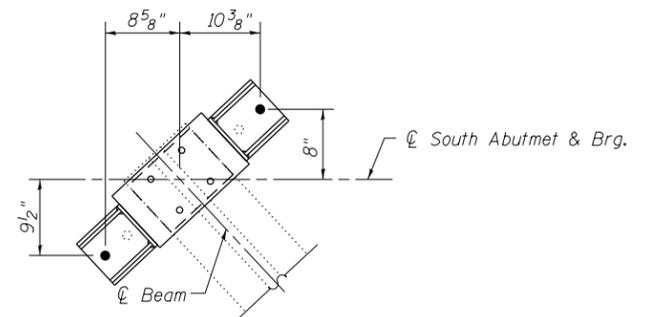
**ELEVATION**  
Looking South

\* Field Drill and Epoxy Grout min. 7" into existing cap. see Section Thru Abutments.  
\*\* spaced with v(E) bars.

Notes:  
Cut p(E), p<sub>2</sub>(E) and s<sub>5</sub>(E) bars to fit with 2" clear.  
For Sections A-A, B-B and C-C see sheet 19 of 35.  
Hatched area quantity of concrete included with Concrete Superstructure.  
Space reinforcement to miss Anchor Bolts.  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Quantity of End Post Concrete included in Concrete Superstructure.  
See sheet 19 of 35 for End Post Reinforcing.

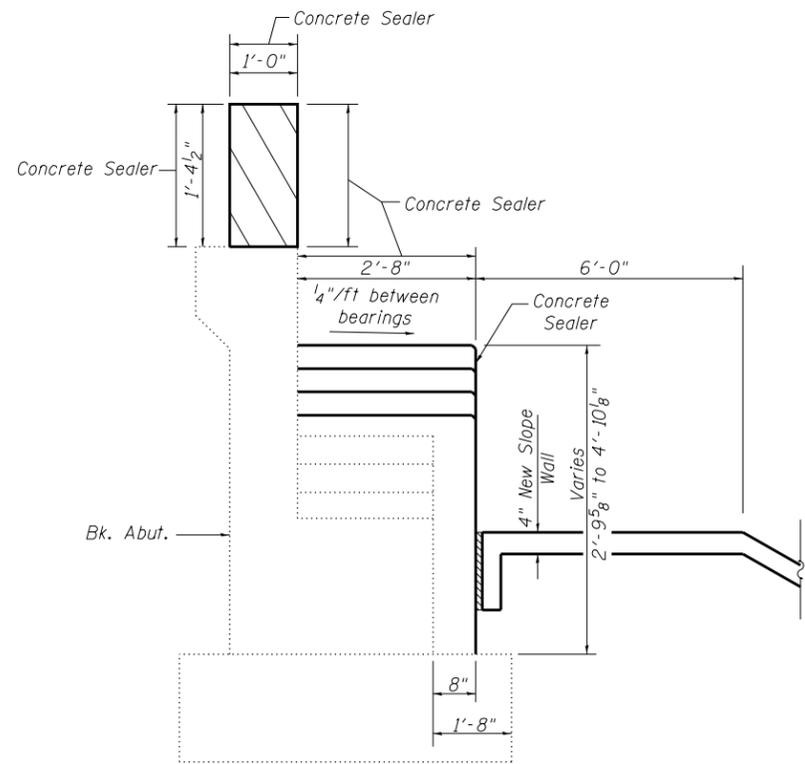


**PLAN**



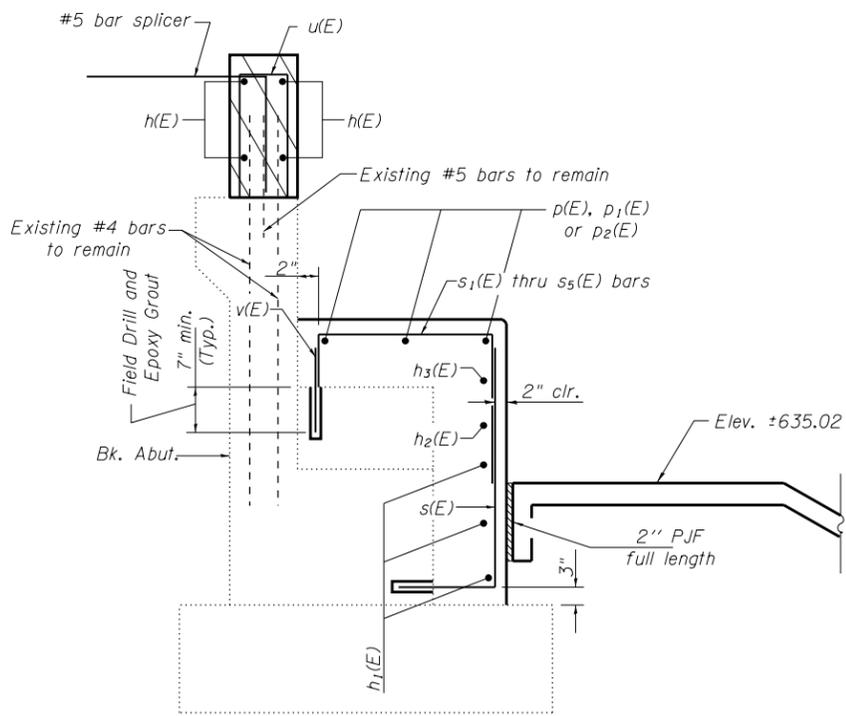
**ANCHOR BOLT DETAIL**  
**SOUTH ABUTMENT**

FILE NAME = 0250019-74295-018.dgn	USER NAME =	DESIGNED - B.B.	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>SOUTH ABUTMENT DETAILS</b> <b>STRUCTURE NO. 025-0019</b>	F.A.I. R.T.E. = 57/70	SECTION = (25-4HB)1-3	COUNTY = EFFINGHAM	TOTAL SHEETS = 1760	SHEET NO. = 1723
BERNHARDEN LOCHMULLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, IL 62450 PHONE 618-281-4666 FAX 618-281-4666	Illinois Design Firm Number 184,001670	CHECKED - C.J.F.	REVISED -			CONTRACT NO. 74295				
	PLOT SCALE =	DRAWN - W.J.S.	REVISED -			ILLINOIS FED. AID PROJECT				
	PLOT DATE = 2:40:02 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -			SHEET NO. 18 OF 35 SHEETS				



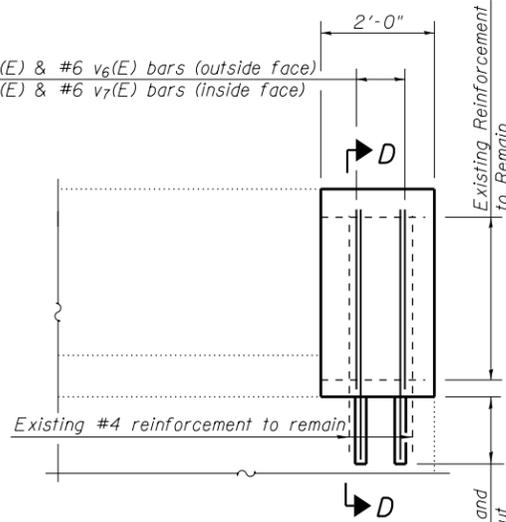
Dimensions at Rt L

**SECTION A-A  
THRU ABUTMENT SHOWING OUTLINE**



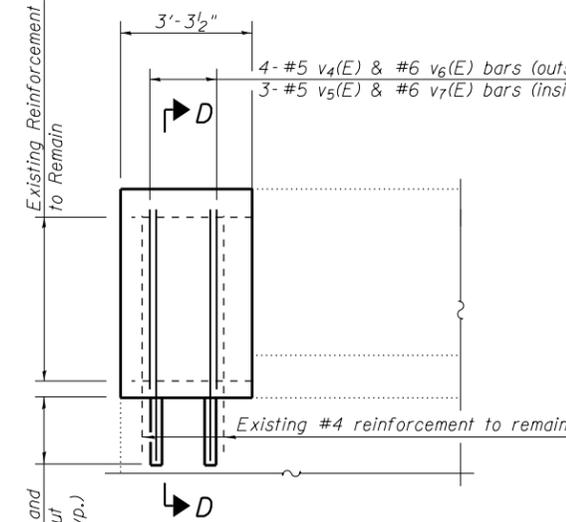
**SECTION A-A  
THRU ABUTMENT SHOWING REINFORCEMENT**

3- #5 v<sub>2</sub>(E) & #6 v<sub>6</sub>(E) bars (outside face)  
4- #5 v<sub>3</sub>(E) & #6 v<sub>7</sub>(E) bars (inside face)

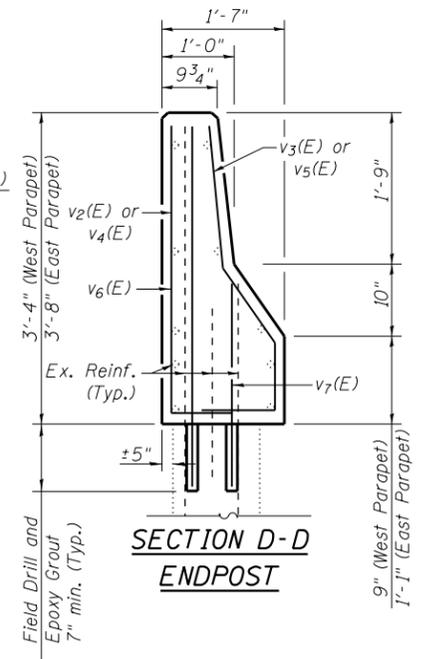


**SECTION B-B  
(East Parapet)**

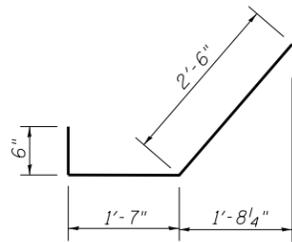
4- #5 v<sub>4</sub>(E) & #6 v<sub>6</sub>(E) bars (outside face)  
3- #5 v<sub>5</sub>(E) & #6 v<sub>7</sub>(E) bars (inside face)



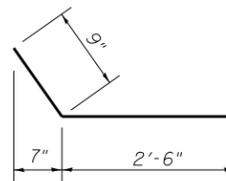
**SECTION C-C  
(West Parapet)**



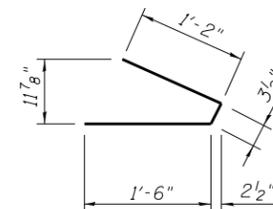
**SECTION D-D  
ENDPOST**



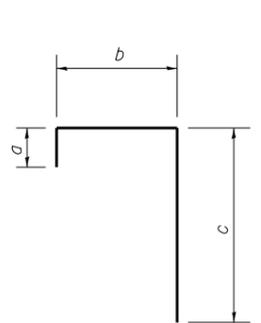
**BAR n(E)**



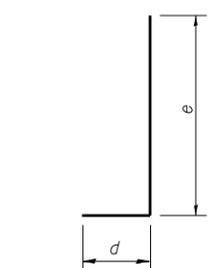
**BAR n<sub>1</sub>(E)**



**BAR n<sub>2</sub>(E)**



**s(E) BARS**

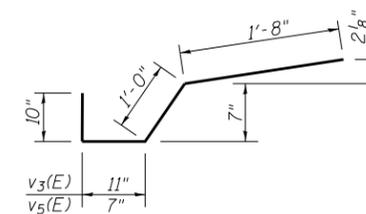


**s(E), s<sub>5</sub>(E), v<sub>2</sub>(E)  
& v<sub>4</sub>(E) BARS**

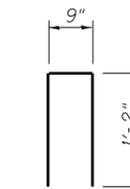
Bar	a	b	c
s <sub>1</sub> (E)	7"	2'-4"	2'-4"
s <sub>2</sub> (E)	7"	2'-4"	3'-1"
s <sub>3</sub> (E)	7"	2'-4"	3'-9"
s <sub>4</sub> (E)	7"	2'-4"	4'-5"

Bar	d	e
s(E)	1'-1"	2'-4"
s <sub>5</sub> (E)	7"	3'-8"
v <sub>2</sub> (E)	10"	3'-5"
v <sub>4</sub> (E)	10"	3'-1"

Notes:  
Hatched area quantity of concrete included with Concrete Superstructure.  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Apply Concrete Sealer to exposed horizontal and vertical faces of abutment extension.



**v<sub>3</sub>(E) & v<sub>5</sub>(E) BARS**



**BAR u(E)**

**BILL OF MATERIAL  
SOUTH ABUTMENT**

Bar	No.	Size	Length	Shape
h(E)	4	#6	34'-8"	—
h <sub>1</sub> (E)	3	#5	36'-3"	—
h <sub>2</sub> (E)	1	#5	21'-4"	—
h <sub>3</sub> (E)	1	#5	11'-7"	—
n(E)	6	#5	4'-7"	┘
n <sub>1</sub> (E)	4	#5	3'-3"	┘
n <sub>2</sub> (E)	4	#4	3'-0"	┘
p(E)	3	#5	10'-5"	—
p <sub>1</sub> (E)	6	#5	9'-5"	—
p <sub>2</sub> (E)	3	#5	9'-8"	—
s(E)	41	#5	3'-5"	┘
s <sub>1</sub> (E)	9	#5	5'-3"	┘
s <sub>2</sub> (E)	10	#5	6'-0"	┘
s <sub>3</sub> (E)	10	#5	6'-8"	┘
s <sub>4</sub> (E)	10	#5	7'-4"	┘
s <sub>5</sub> (E)	5	#5	4'-3"	┘
u(E)	35	#5	3'-1"	┘
v(E)	42	#5	1'-3"	—
v <sub>1</sub> (E)	1	#4	3'-2"	┘
v <sub>2</sub> (E)	3	#5	4'-3"	┘
v <sub>3</sub> (E)	4	#5	4'-5"	┘
v <sub>4</sub> (E)	4	#5	3'-11"	┘
v <sub>5</sub> (E)	3	#5	4'-1"	┘
v <sub>6</sub> (E)	7	#6	3'-9"	┘
v <sub>7</sub> (E)	7	#6	2'-0"	┘
Concrete Sealer		Sq. Ft.	413	
Concrete Structures		Cu. Yd.	6.1	
Reinforcement Bars, Epoxy Coated		Pound	1250	
Bar Splicers		Each	35	

FILE NAME = 0250019-74295-019.dgn

USER NAME =  
Illinois Design Firm Number 184,001670  
PLOT SCALE =  
PLOT DATE = 2:40:02 PM 8/15/2013

DESIGNED - B.B.  
CHECKED - A.C.S.  
DRAWN - W.J.S.  
CHECKED - C.J.F. & B.B.

REVISED -  
REVISED -  
REVISED -  
REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

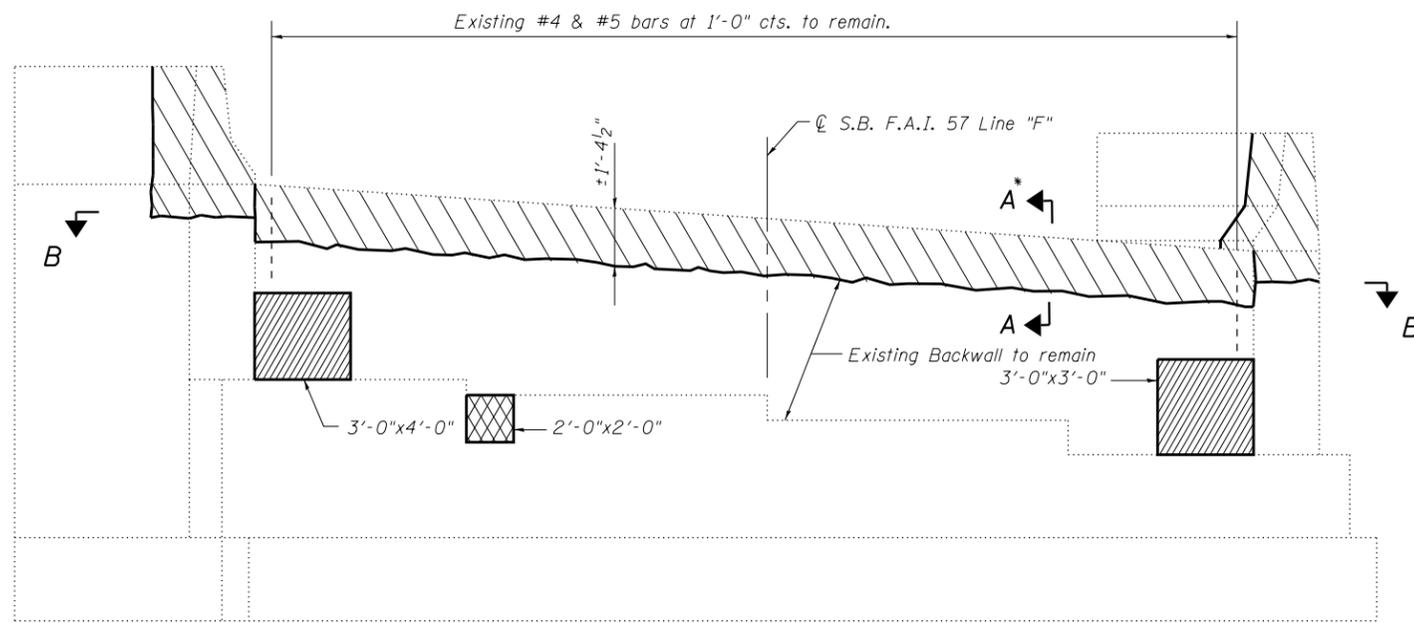
**SOUTH ABUTMENT SECTIONS  
STRUCTURE NO. 025-0019**

SHEET NO. 19 OF 35 SHEETS

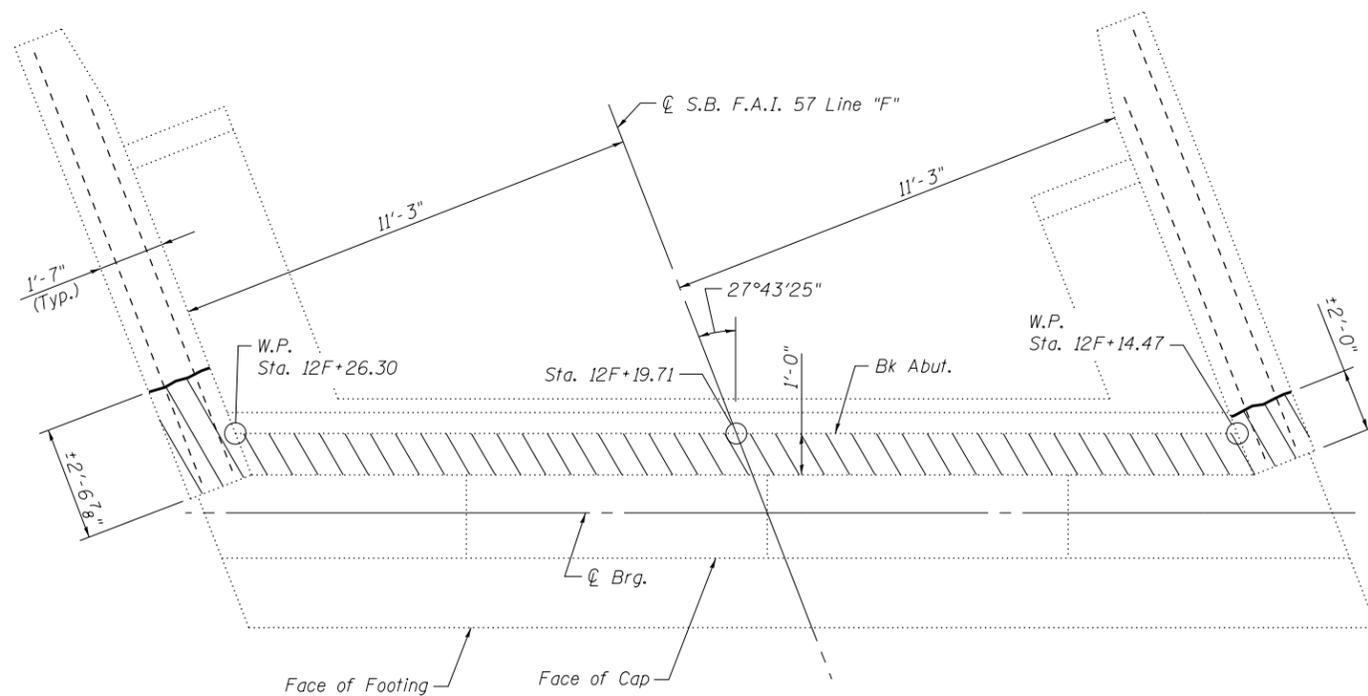
F.A.I. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)I-3	EFFINGHAM	1760	1724

CONTRACT NO. 74295

ILLINOIS FED. AID PROJECT

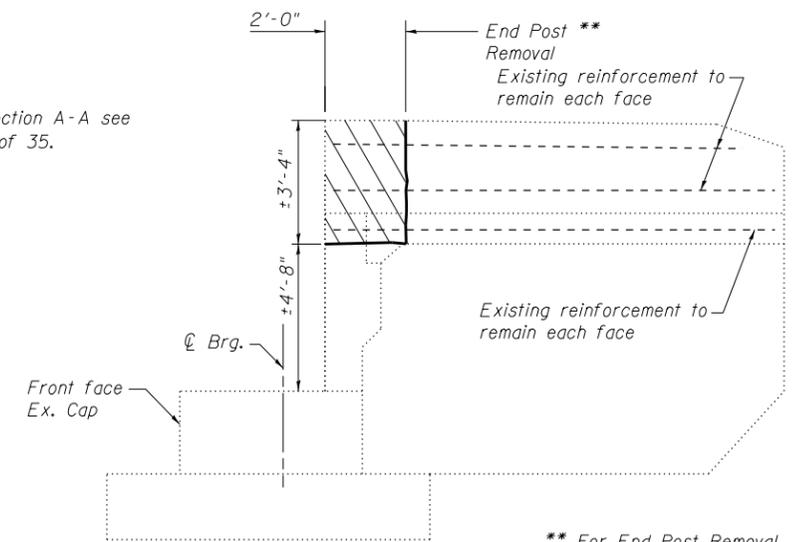


**ELEVATION**  
Looking North



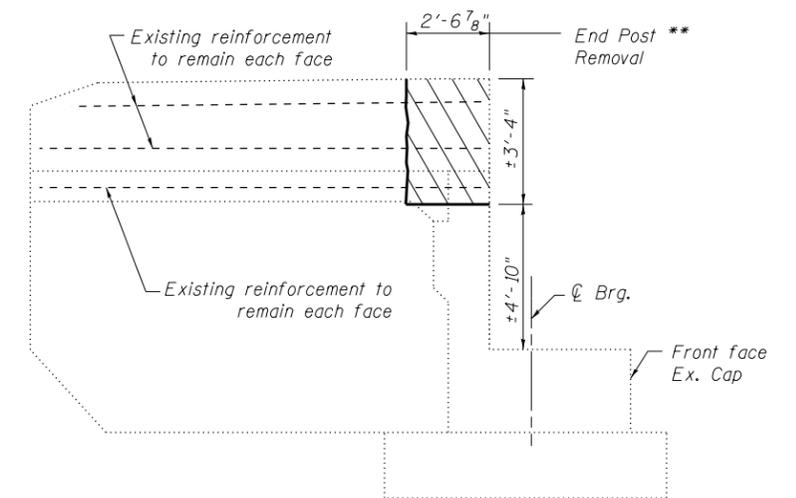
**VIEW B-B**  
**NORTH ABUTMENT**

\* For Section A-A see Sheet 4 of 35.



\*\* For End Post Removal Limits see Sheet 4 of 35.

**EAST WING WALL**



**WEST WING WALL**

**LEGEND**

- Indicates Structural Repair of Concrete
- Indicates Concrete Removal
- Indicates Concrete Removal (Special)

**BILL OF MATERIAL**

Item	Unit	Total
Concrete Removal	Cu. Yd.	2.1
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	21
Concrete Removal (Special)	Sq. Yd.	0.5

Notes:  
The quantities shown are for estimating purposes only. The area to be repaired will be determined by the Engineer at the time of construction. Actual repair locations shall be shown on As-built plans.

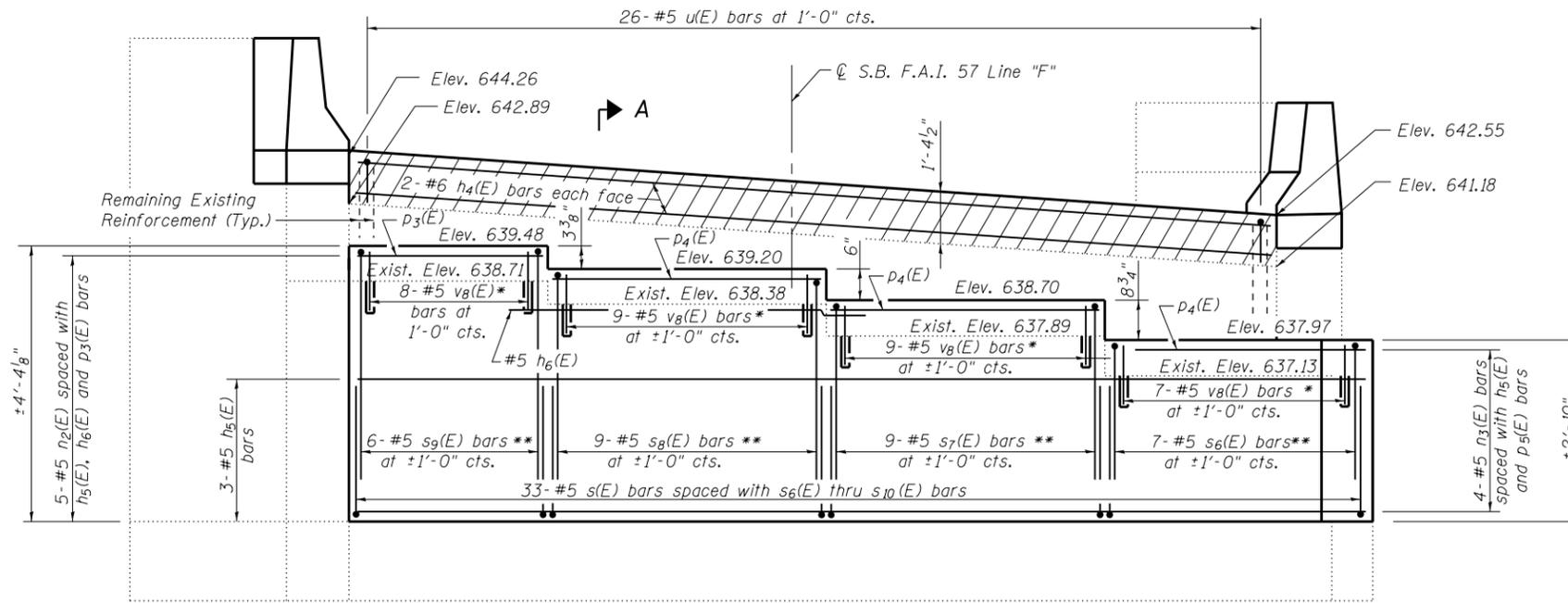
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	PLOT SCALE =	DRAWN - W.J.S.	REVISED -
	PLOT DATE = 2:40:3 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**CONCRETE REMOVAL & REPAIR NORTH ABUTMENT**  
**STRUCTURE NO. 025-0019**

SHEET NO. 20 OF 35 SHEETS

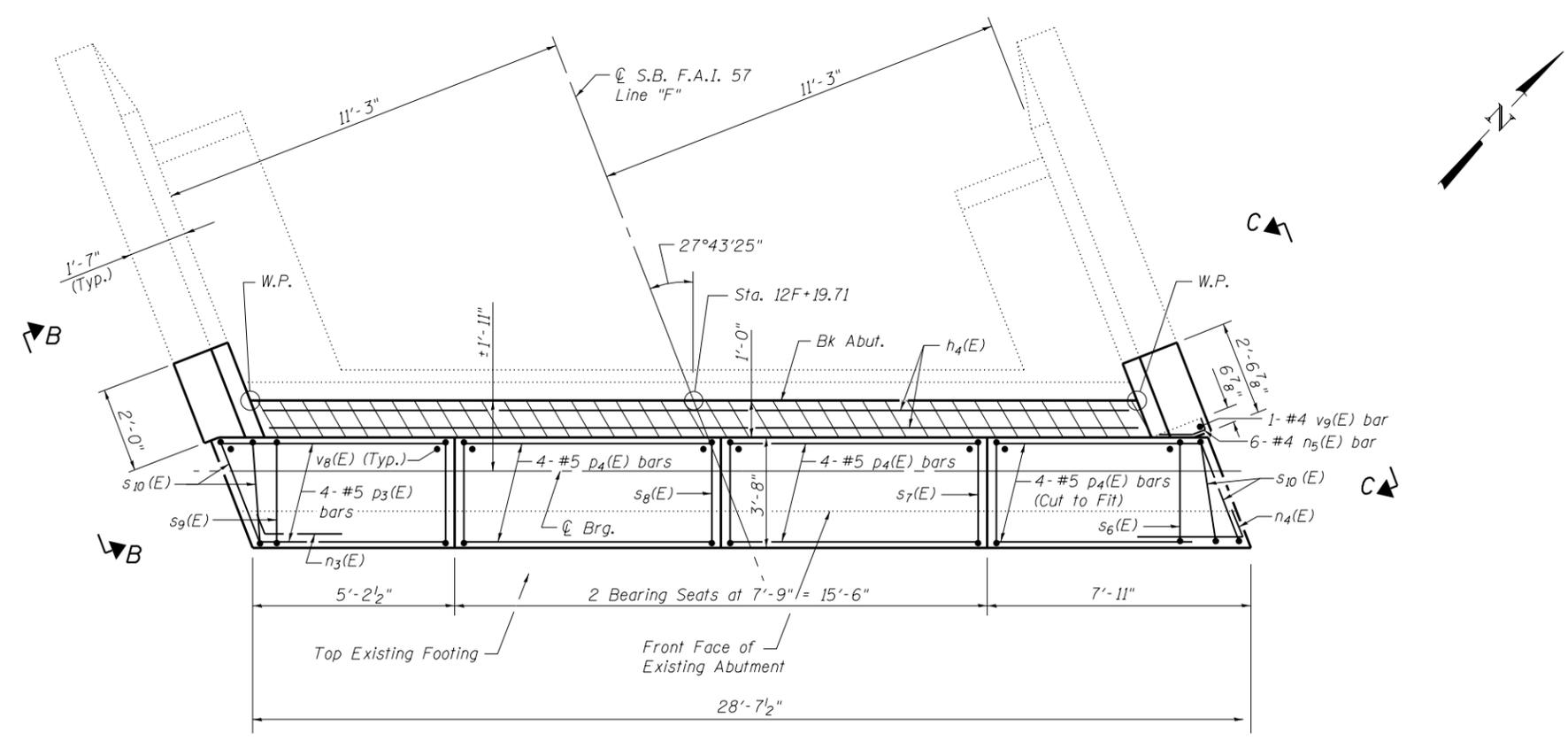
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)I-3	EFFINGHAM	1760	1725
CONTRACT NO. 74295				
ILLINOIS FED. AID PROJECT				



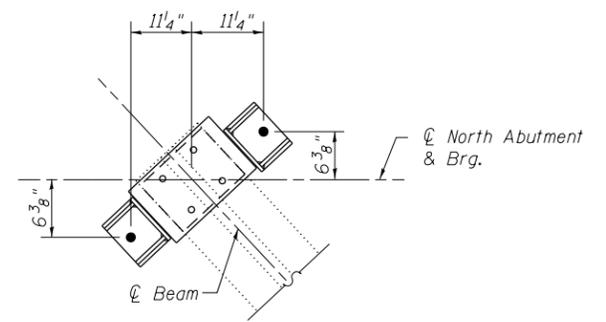
Notes:  
 Cut  $p_3(E)$  and  $p_4(E)$  bars to fit with 2" clear.  
 For Sections A-A, B-B and C-C see sheet 22 of 35.  
 Hatched area quantity of concrete included with Concrete Superstructure.  
 Space reinforcement to miss Anchor Bolts.  
 Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
 Quantity of End Post Concrete included in Concrete Superstructure.  
 See sheet 22 of 35 for End Post Reinforcing.

**ELEVATION**  
 Looking North

\* Field Drill and Epoxy Grout min. 7" into existing cap. see Section Thru Abutments.  
 \*\* spaced with  $v_2(E)$  bars.

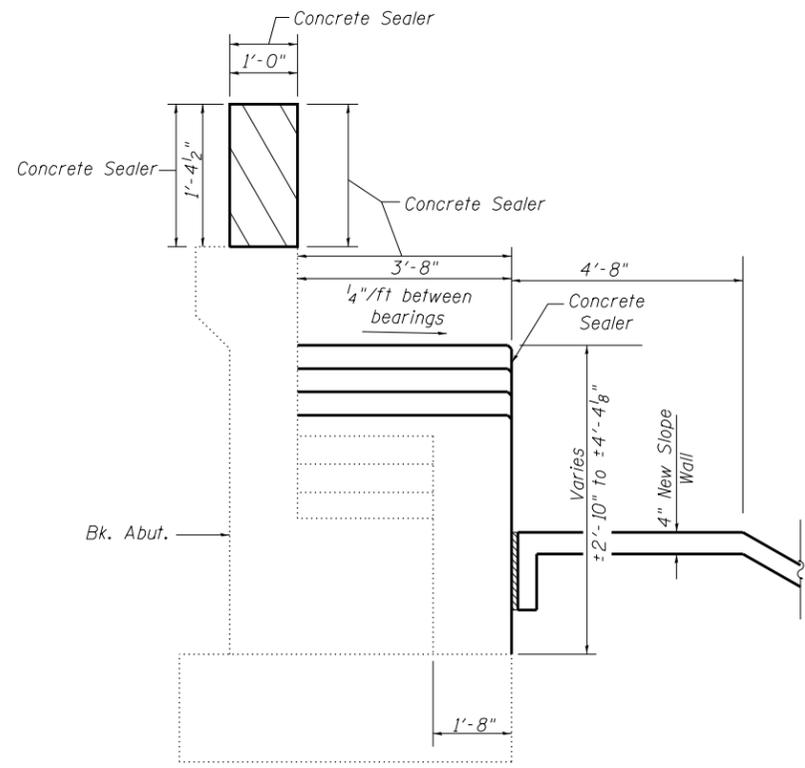


**PLAN**



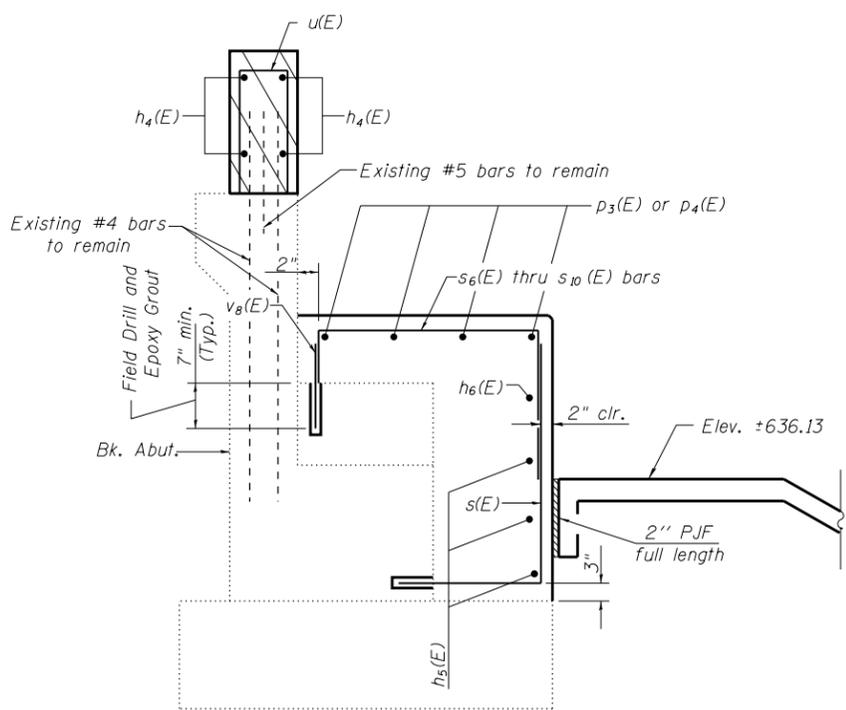
**ANCHOR BOLT DETAIL**  
 NORTH ABUTMENT

FILE NAME = 0250019-74295-021.dgn	USER NAME =	DESIGNED - B.B.	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>NORTH ABUTMENT DETAILS</b> <b>STRUCTURE NO. 025-0019</b>	F.A.I. RTE. = 57/70	SECTION = (25-4HB)1-3	COUNTY = EFFINGHAM	TOTAL SHEETS = 1760	SHEET NO. = 1726	
BERNARDINI LOCHMULLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, IL 61858-6242 PHONE (618) 281-4666 FAX (618) 281-4666	Illinois Design Firm Number 184,001670	CHECKED - A.C.S.	REVISED -			SHEET NO. 21 OF 35 SHEETS		CONTRACT NO. 74295		ILLINOIS FED. AID PROJECT	
	PLOT SCALE =	DRAWN - W.J.S.	REVISED -								
	PLOT DATE = 2:40:3 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -								

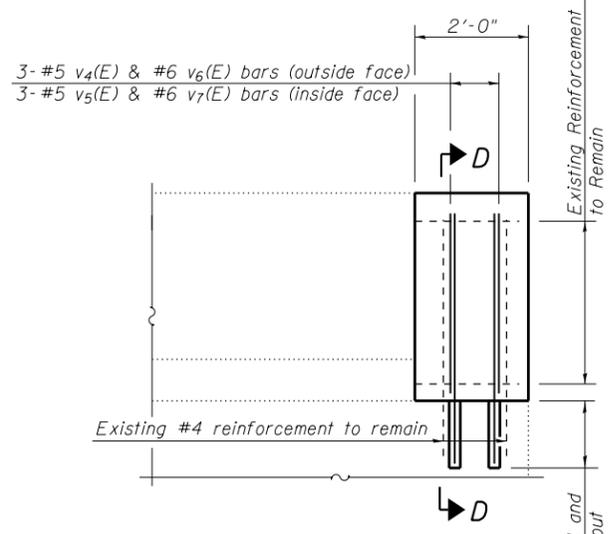


Dimensions at Rt L

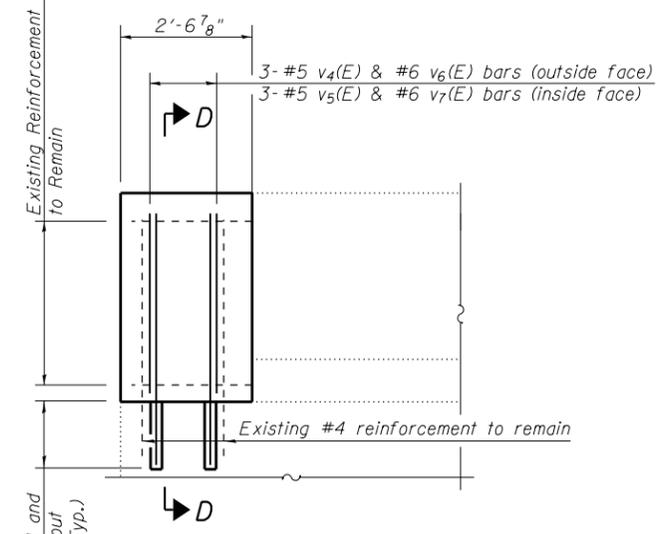
**SECTION A-A  
THRU ABUTMENT SHOWING OUTLINE**



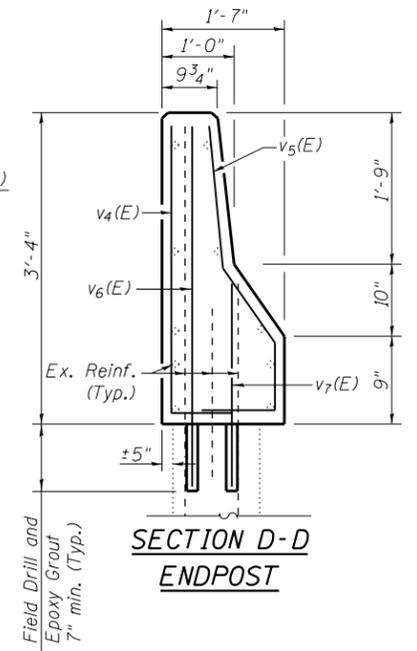
**SECTION A-A  
THRU ABUTMENT SHOWING REINFORCEMENT**



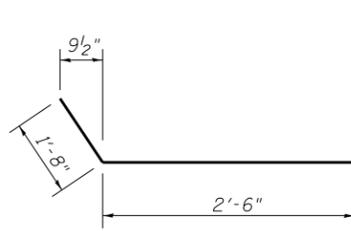
**SECTION B-B  
(West Parapet)**



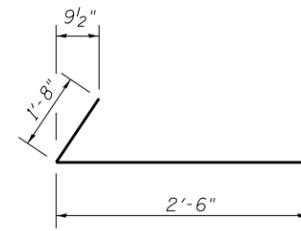
**SECTION C-C  
(East Parapet)**



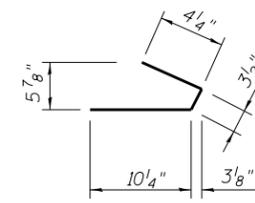
**SECTION D-D  
ENDPOST**



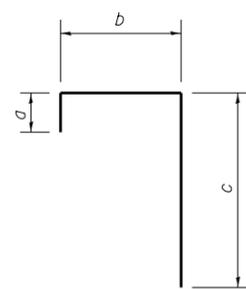
**BAR n3(E)**



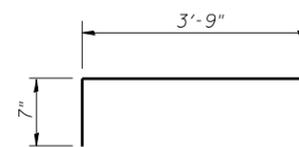
**BAR n4(E)**



**BAR n5(E)**



**s(E) BARS**



**BAR s10(E)**

Bar	a	b	c
s6(E)	7"	3'-4"	2'-5"
s7(E)	7"	3'-4"	3'-1"
s8(E)	7"	3'-4"	3'-7"
s9(E)	7"	3'-4"	3'-11"

Notes:  
 Hatched area quantity of concrete included with Concrete Superstructure.  
 Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
 Apply Concrete Sealer to exposed horizontal and vertical faces of abutment extension.  
 For additional bar details see Sheet 19 of 35.

**BILL OF MATERIAL  
NORTH ABUTMENT**

Bar	No.	Size	Length	Shape
h4(E)	4	#6	25'-1"	—
h5(E)	3	#5	28'-3"	—
h6(E)	1	#5	15'-6"	—
n3(E)	5	#5	4'-2"	┘
n4(E)	4	#5	4'-2"	┘
n5(E)	6	#4	1'-6"	┘
p3(E)	4	#5	6'-8"	—
p4(E)	12	#5	7'-5"	—
s(E)	33	#5	3'-5"	┘
s6(E)	7	#5	6'-4"	┘
s7(E)	9	#5	7'-0"	┘
s8(E)	9	#5	7'-6"	┘
s9(E)	6	#5	7'-10"	┘
s10(E)	4	#5	4'-4"	┘
u(E)	26	#5	3'-1"	┘
v4(E)	6	#5	3'-11"	┘
v5(E)	6	#5	4'-1"	┘
v6(E)	6	#6	3'-9"	—
v7(E)	6	#6	2'-0"	—
v8(E)	33	#5	1'-1"	—
v9(E)	1	#4	4'-4"	—
Concrete Sealer		Sq. Ft.	341	
Concrete Structures		Cu. Yd.	8.2	
Reinforcement Bars, Epoxy Coated		Pound	1020	

FILE NAME = 0250019-74295-022.dgn

USER NAME =  
 Illinois Design Firm Number 184,001670  
 PLOT SCALE =  
 PLOT DATE = 2:40:04 PM 8/15/2013

DESIGNED - B.B.  
 CHECKED - A.C.S.  
 DRAWN - W.J.S.  
 CHECKED - C.J.F. & B.B.

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**NORTH ABUTMENT SECTIONS  
STRUCTURE NO. 025-0019**

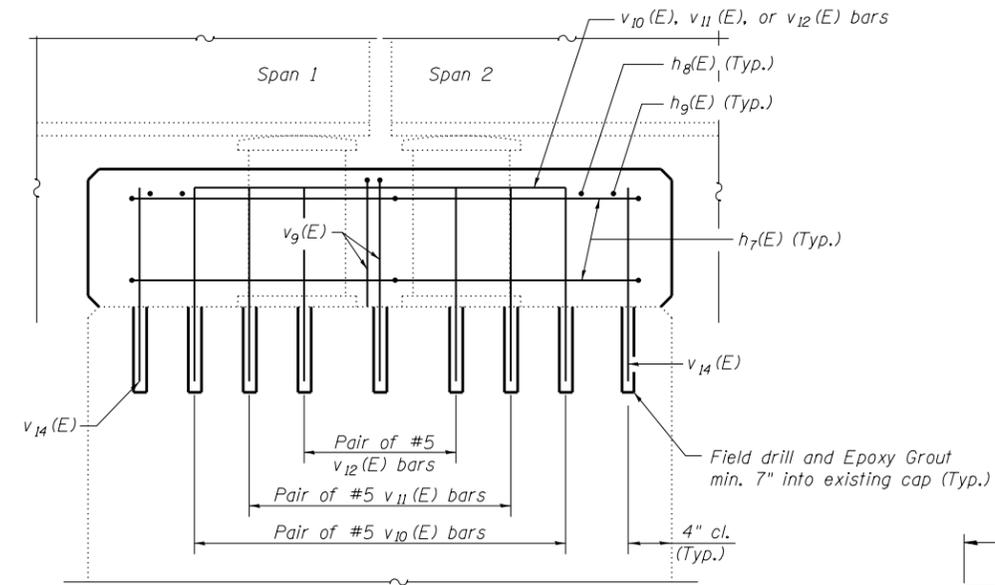
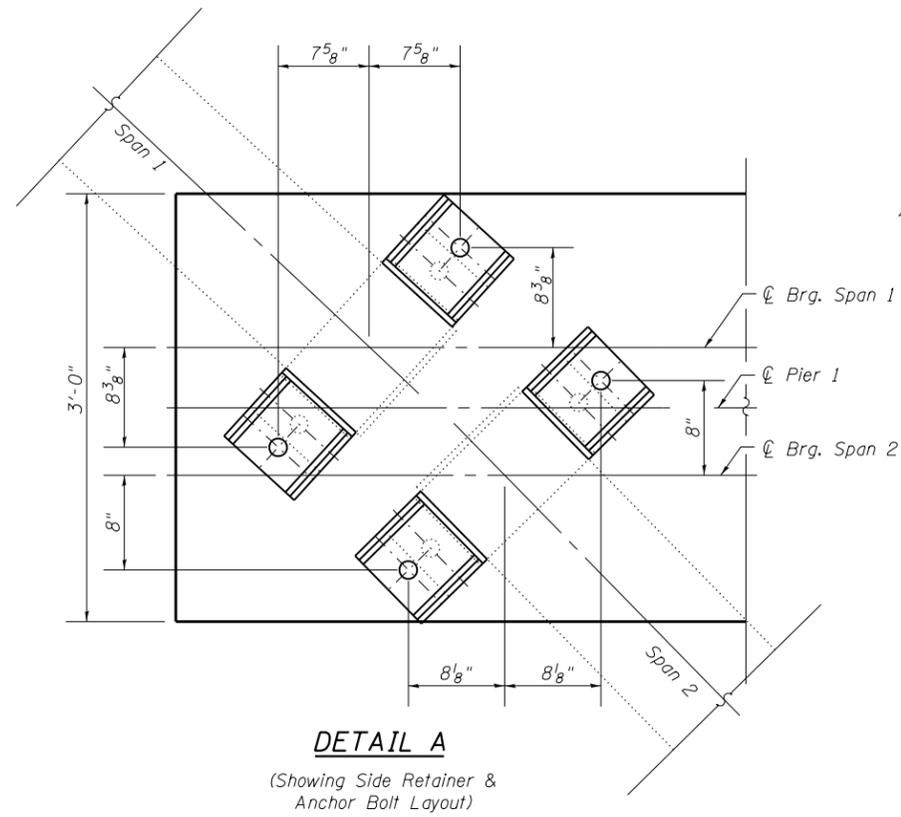
SHEET NO. 22 OF 35 SHEETS

F.A.I. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)I-3	EFFINGHAM	1760	1727

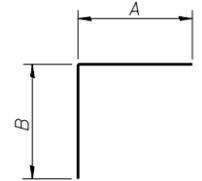
CONTRACT NO. 74295

ILLINOIS FED. AID PROJECT





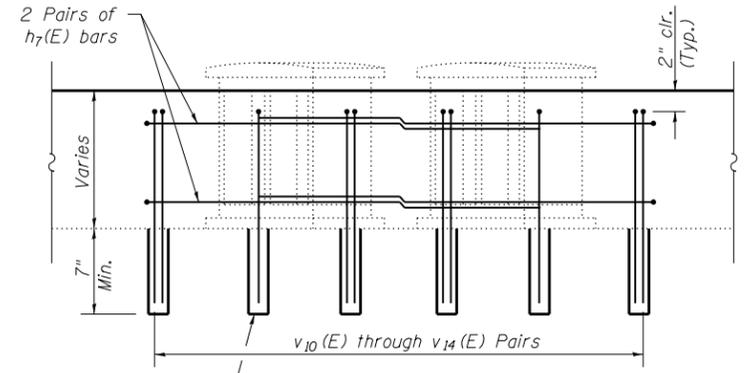
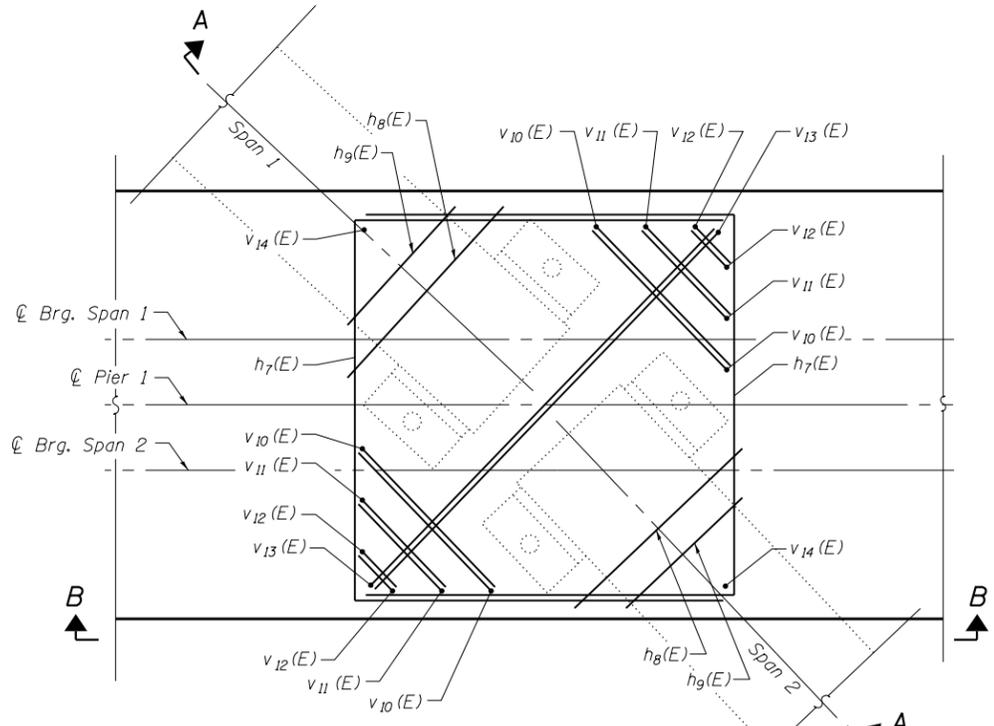
(All v(E) bars shown are drilled and grouted)  
Side Retainers not shown for clarity.



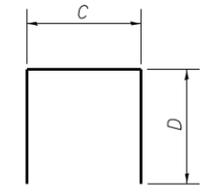
s<sub>11</sub>(E) & v(E) BARS

Bar	A	B
s <sub>11</sub> (E)	2'-8"	1'-4"
v <sub>10</sub> (E)	1'-6"	1'-4"
v <sub>11</sub> (E)	1'-0"	1'-4"
v <sub>12</sub> (E)	7"	1'-4"
v <sub>13</sub> (E)	3'-6"	1'-4"

Notes:  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Concrete Sealer shall be applied only to exposed surfaces of the new concrete on Pier 1.



Field drill and Epoxy Grout min. 7" into existing cap (Typ.)

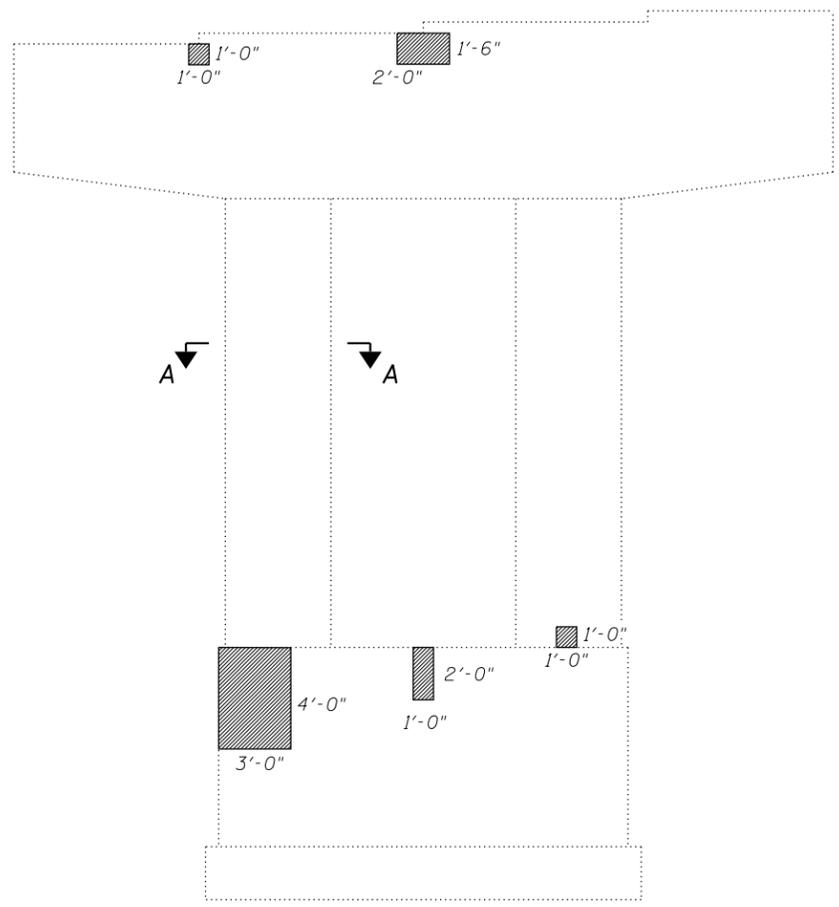


BAR h<sub>7</sub>(E), s<sub>12</sub>(E) & u<sub>1</sub>(E)

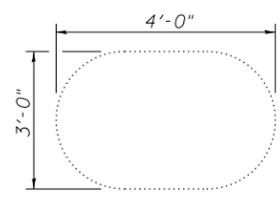
Bar	C	D
h <sub>7</sub> (E)	2'-8"	2'-8"
s <sub>12</sub> (E)	2'-8"	3'-8"
u <sub>1</sub> (E)	2'-4 1/2"	1'-5 1/4"

BILL OF MATERIAL  
PIER 1

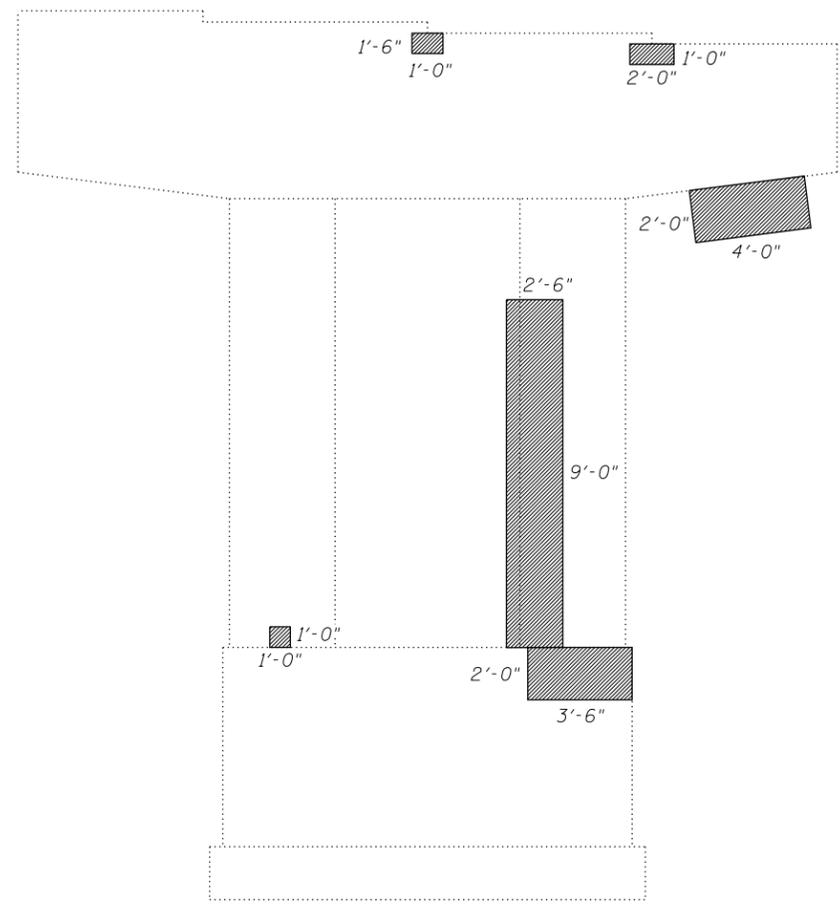
Bar	No.	Size	Length	Shape
h <sub>7</sub> (E)	16	#5	8'-0"	┌
h <sub>8</sub> (E)	8	#5	1'-4"	—
h <sub>9</sub> (E)	8	#5	9"	—
p <sub>5</sub> (E)	2	#5	6'-11"	—
p <sub>6</sub> (E)	4	#5	9'-5"	—
p <sub>7</sub> (E)	2	#5	1'-3"	—
p <sub>8</sub> (E)	4	#5	3'-0"	—
p <sub>9</sub> (E)	6	#5	4'-0"	—
p <sub>10</sub> (E)	2	#5	2'-9"	—
p <sub>11</sub> (E)	2	#5	7'-11"	—
p <sub>12</sub> (E)	2	#5	1'-0"	—
p <sub>13</sub> (E)	4	#5	1'-5"	—
s <sub>11</sub> (E)	48	#5	4'-0"	┌
s <sub>12</sub> (E)	4	#5	10'-0"	┌
u <sub>1</sub> (E)	3	#5	5'-3"	┌
v <sub>10</sub> (E)	16	#5	2'-10"	┌
v <sub>11</sub> (E)	16	#5	2'-4"	┌
v <sub>12</sub> (E)	16	#5	1'-11"	┌
v <sub>13</sub> (E)	8	#5	4'-10"	┌
v <sub>14</sub> (E)	8	#5	1'-4"	—
Concrete Sealer		Sq. Ft.	202	
Concrete Structures		Cu. Yd.	4.0	
Reinforcement Bars, Epoxy Coated		Pound	710	



**PIER 1**  
(Looking South)



**SECTION A-A**  
Typical Section  
Through Column



**PIER 1**  
(Looking North)

Indicates Structural Repair of Concrete

**Notes:**  
Rubbed finish for Structural Repair of Concrete Areas shall be completed according to article 503.15 of the Standard Specifications.  
**Notes:**  
The quantities shown are for estimating purposes only. The area to be repaired will be determined by the Engineer at the time of construction. Actual repair locations shall be shown on As-built plans.

**BILL OF MATERIAL**

Item	Unit	Total
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	61
Rubbed Finish	Sq. Ft.	61

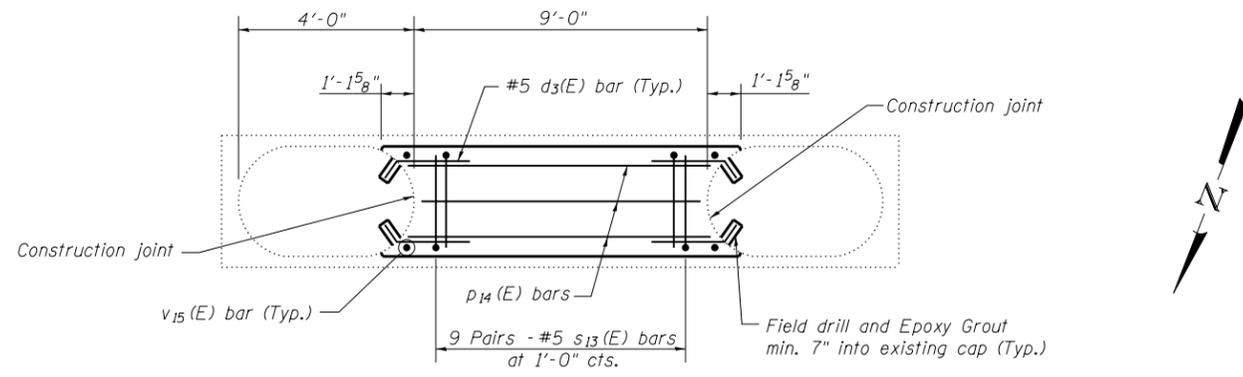
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	PLOT DATE = 2:405 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PIER 1 REPAIR DETAILS**  
**STRUCTURE NO. 025-0019**

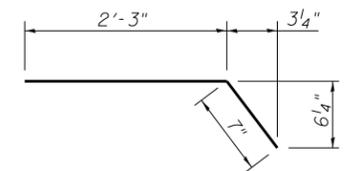
SHEET NO. 25 OF 35 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)1-3	EFFINGHAM	1760	1730
ILLINOIS FED. AID PROJECT			CONTRACT NO. 74295	

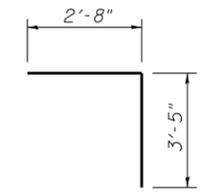


**VIEW B-B**  
**CRASHWALL PLAN - PIER 2**

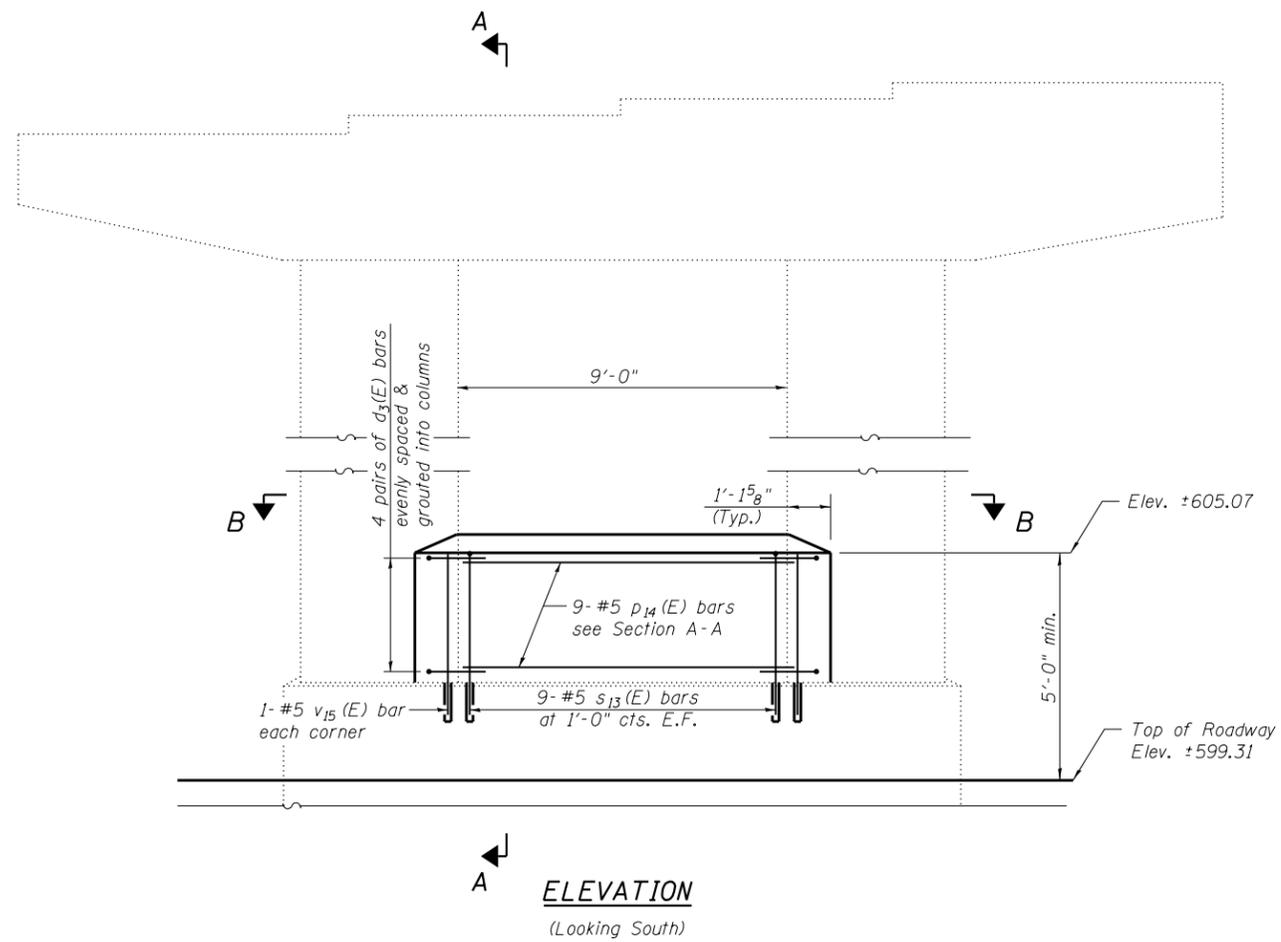
Notes:  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Concrete Sealer shall be applied only to exposed surfaces of the new concrete on Pier 2.



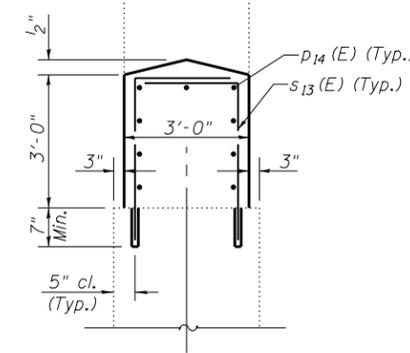
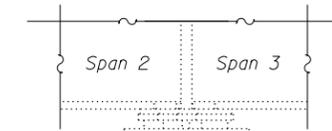
**BAR d3(E)**



**BAR s12(E)**



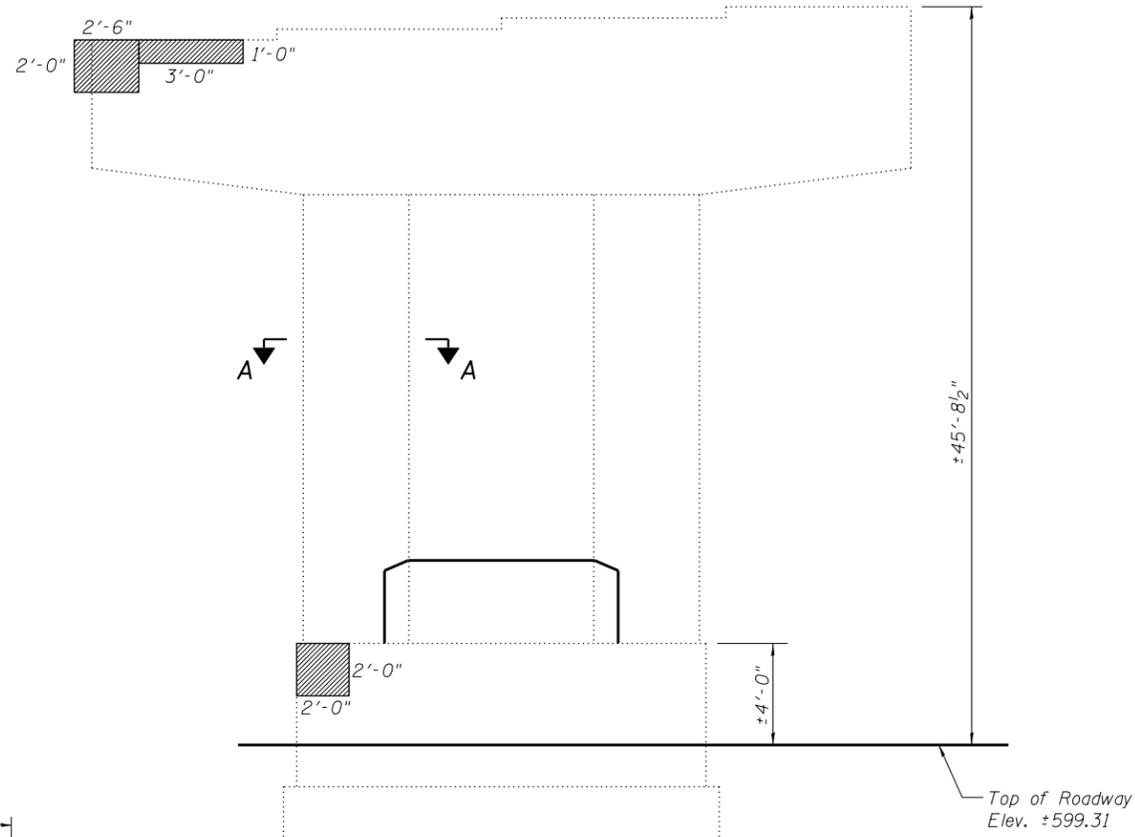
**ELEVATION**  
(Looking South)



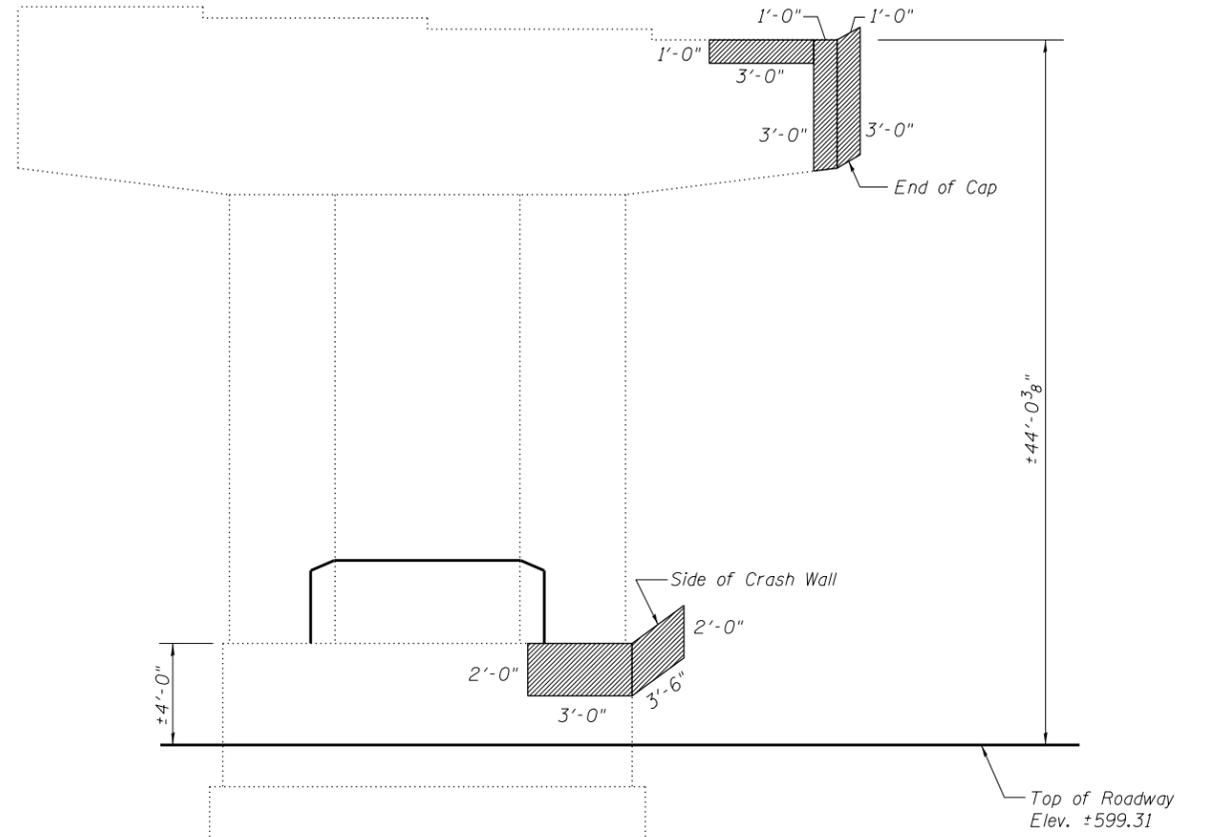
**SECTION A-A**

**BILL OF MATERIAL**  
**PIER 2**

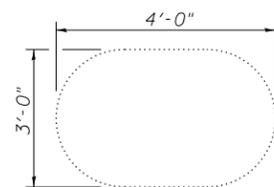
Bar	No.	Size	Length	Shape	
d3(E)	16	#5	2'-10"	└─	
p14(E)	9	#5	8'-8"	—	
s13(E)	18	#5	6'-1"	└─	
v15(E)	4	#5	3'-5"	—	
Concrete Sealer				Sq. Ft.	101
Concrete Structures				Cu. Yd.	3.2
Reinforcement Bars, Epoxy Coated				Pound	260



**PIER 2**  
(Looking South)



**PIER 2**  
(Looking North)



**SECTION A-A**  
Typical Section  
Through Column

Indicates Structural Repair of Concrete (Depth  $\leq$  5")

**Notes:**

Rubbed finish for Structural Repair of Concrete Areas shall be completed according to article 503.15 of the Standard Specifications.

The quantities shown are for estimating purposes only. The area to be repaired will be determined by the Engineer at the time of construction. Actual repair locations shall be shown on As-built plans.

**BILL OF MATERIAL**

Item	Unit	Total
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	34
Rubbed Finish	Sq. Ft.	34

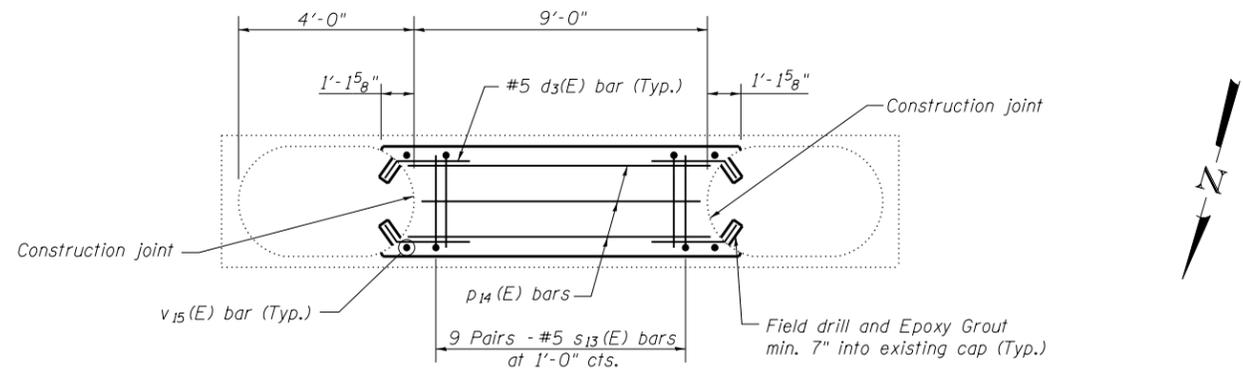
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BERNHARDEN * LOCHMUELLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, IL 62442 PHONE (618) 288-4666 FAX (618) 288-4666	Illinois Design Firm Number 184.001670	CHECKED - A.C.S.	REVISED -
	PLOT SCALE =	DRAWN - W.J.S.	REVISED -
	PLOT DATE = 2:406 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PIER 2 REPAIR DETAILS**  
**STRUCTURE NO. 025-0019**

SHEET NO. 27 OF 35 SHEETS

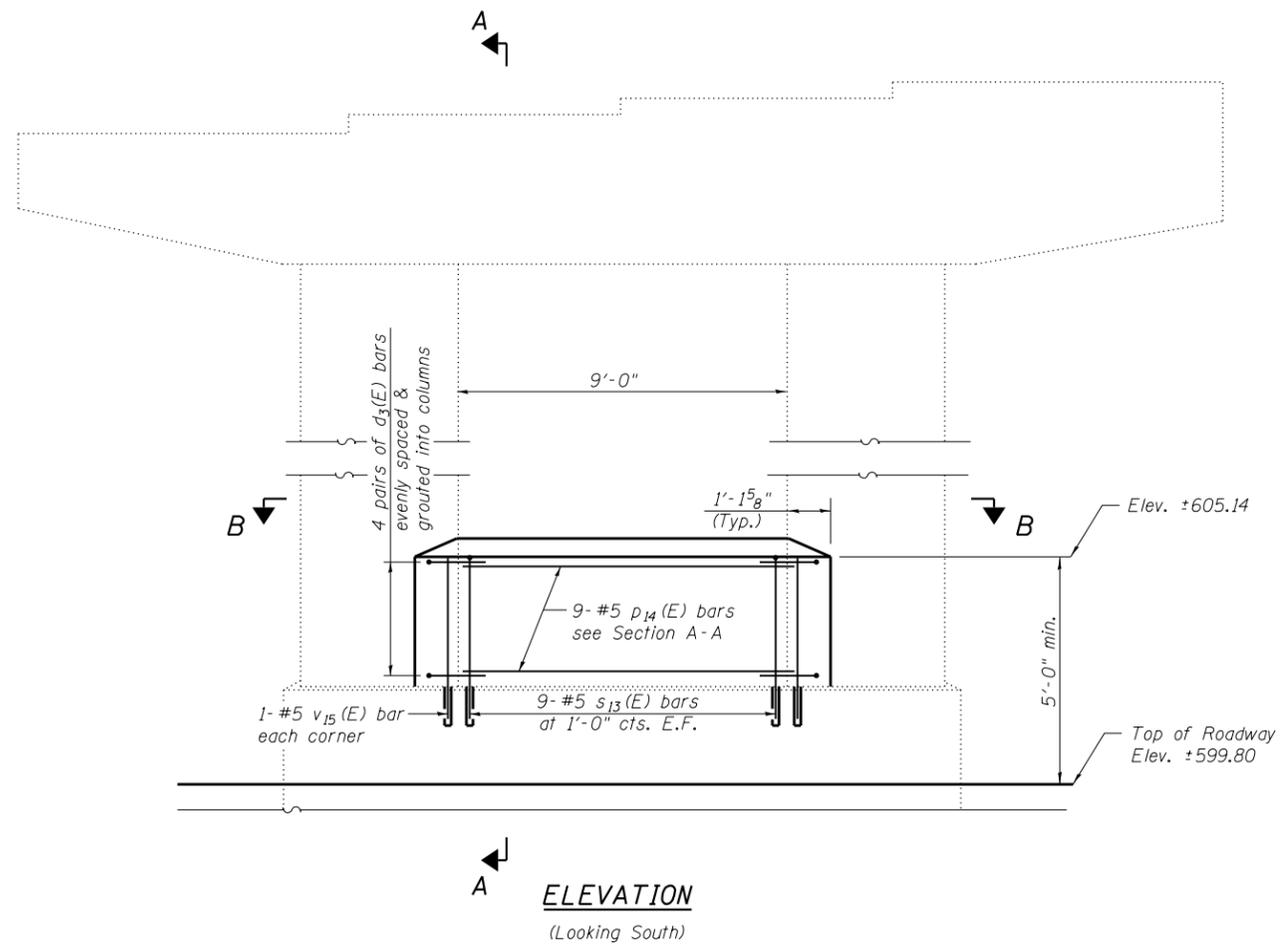
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)I-3	EFFINGHAM	1760	1732
CONTRACT NO. 74295				
ILLINOIS FED. AID PROJECT				



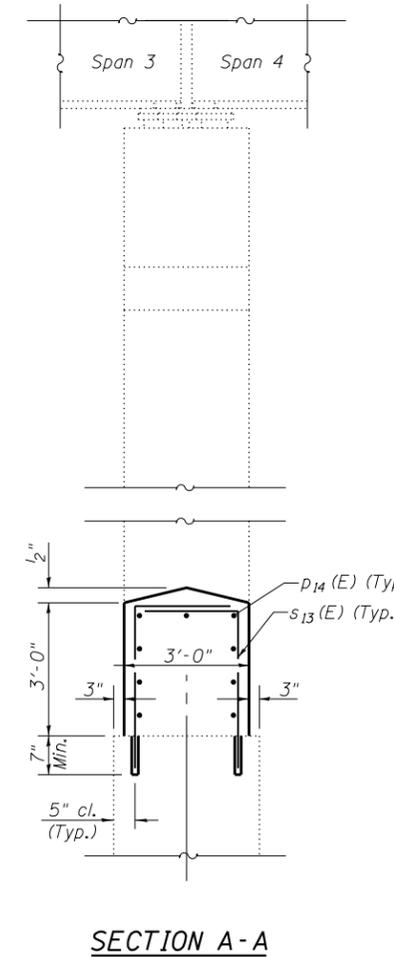
**VIEW B-B**  
**CRASHWALL PLAN - PIER 3**

**Notes:**

Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Concrete Sealer shall be applied only to exposed surfaces of the new concrete on Pier 3.  
See sheet 26 of 35 for Bar Bend Details.



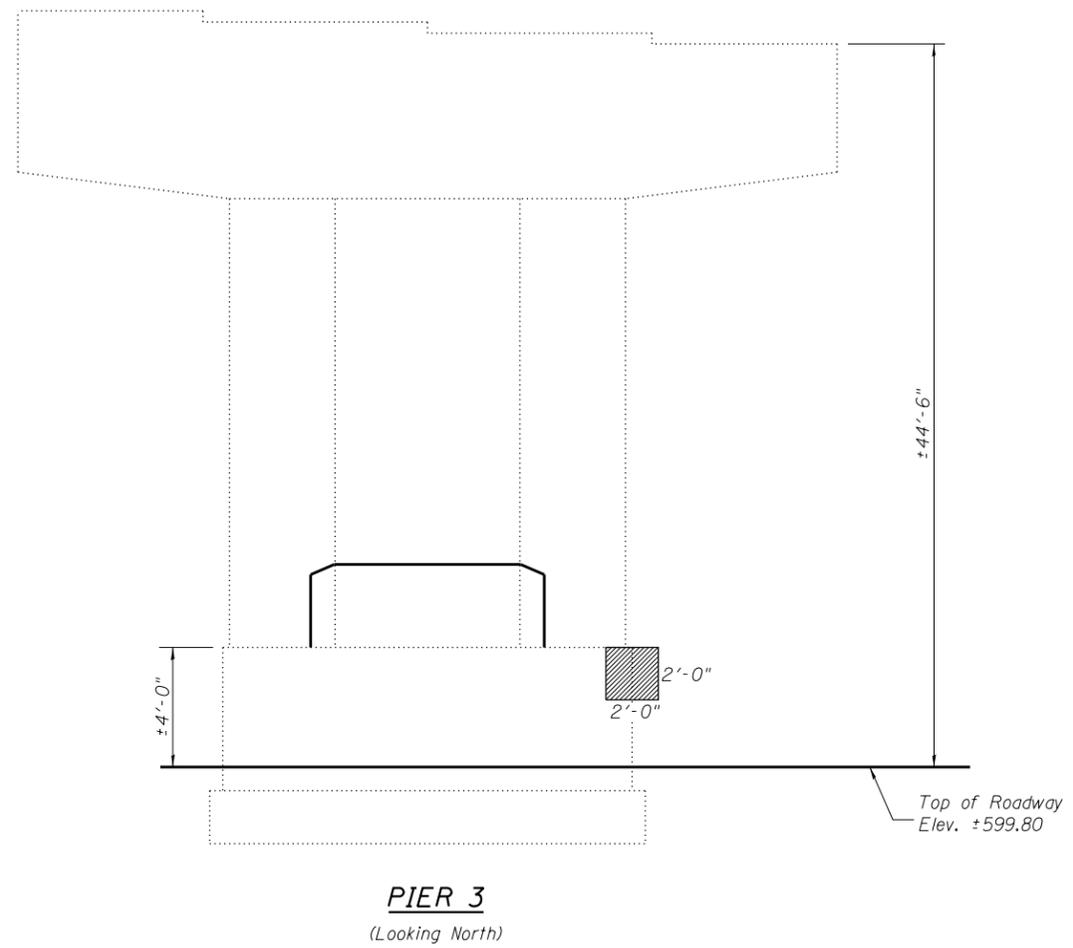
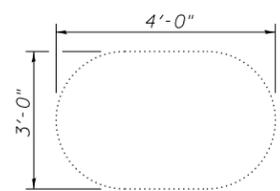
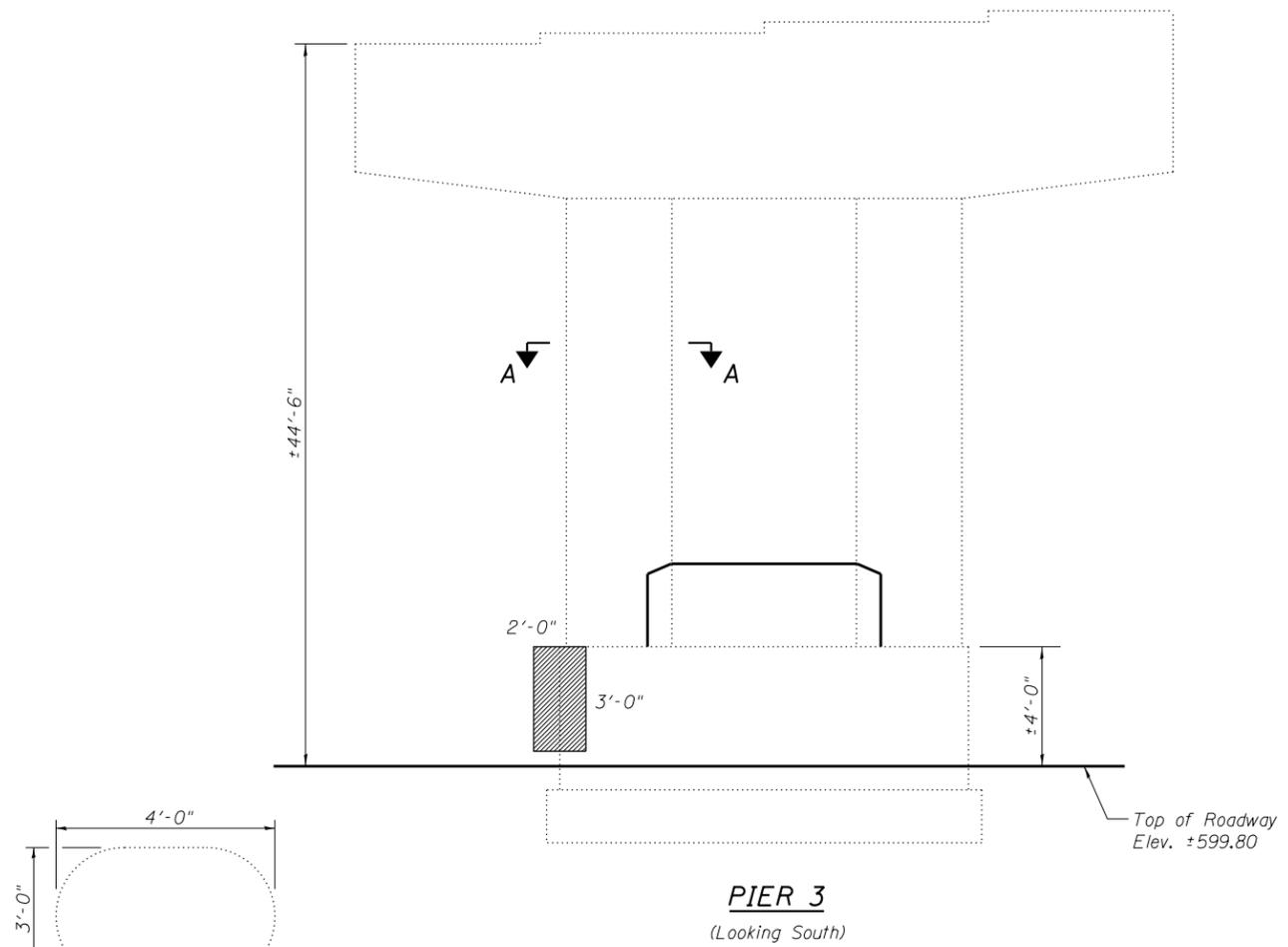
**ELEVATION**  
(Looking South)



**SECTION A-A**

**BILL OF MATERIAL**  
**PIER 3**

Bar	No.	Size	Length	Shape	
d <sub>3</sub> (E)	16	#5	2'-10"	—	
p <sub>14</sub> (E)	9	#5	8'-8"	—	
s <sub>13</sub> (E)	18	#5	6'-1"	L	
v <sub>15</sub> (E)	4	#5	3'-5"	—	
Concrete Sealer				Sq. Ft.	101
Concrete Structures				Cu. Yd.	3.2
Reinforcement Bars, Epoxy Coated				Pound	260



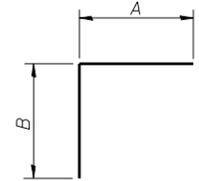
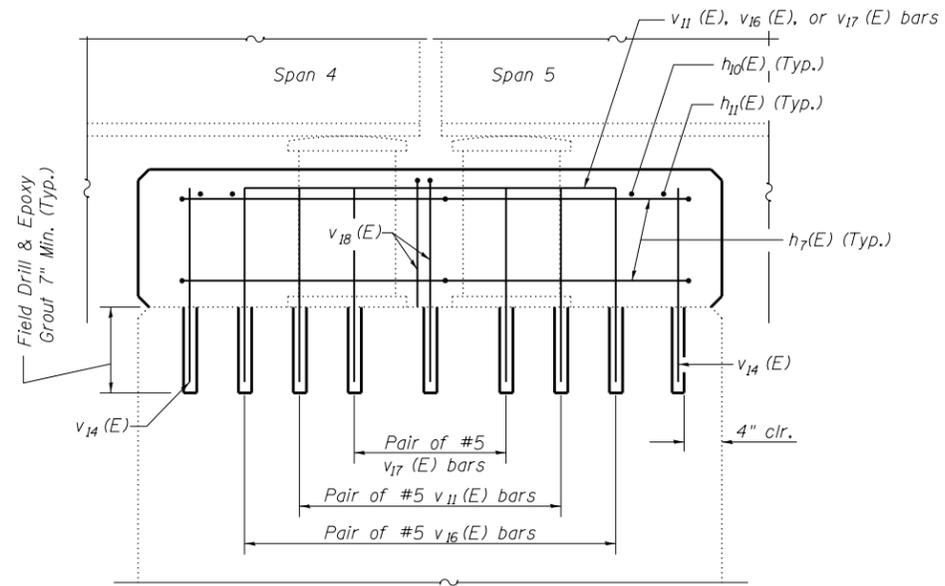
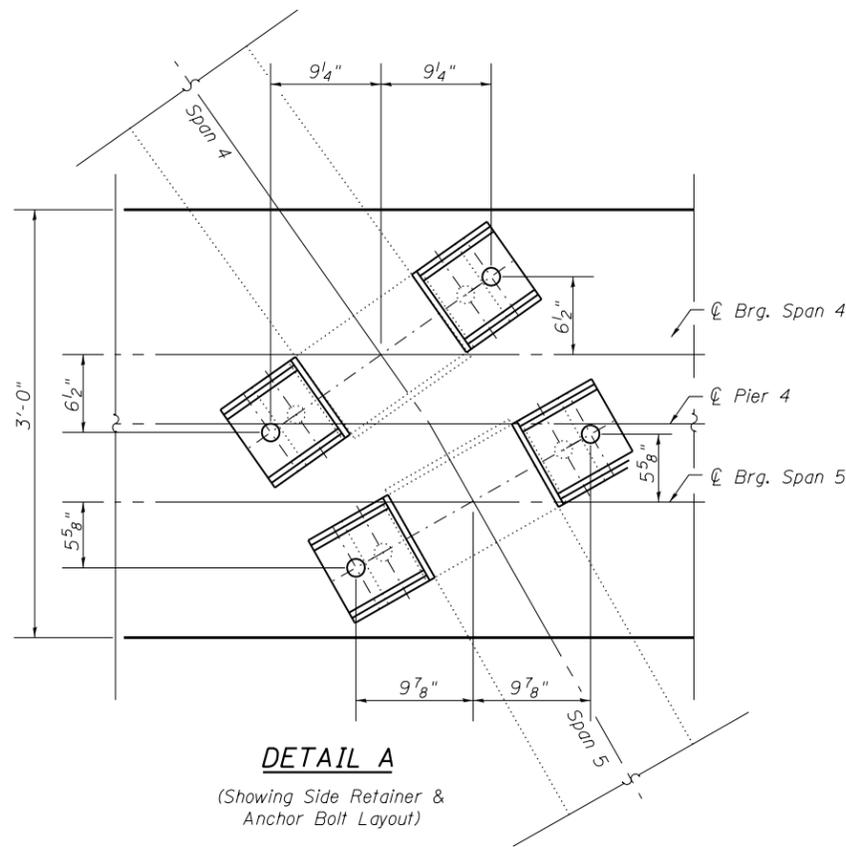
Indicates Structural Repair of Concrete (Depth ≤ 5")

**Notes:**  
 Rubbed finish for Structural Repair of Concrete Areas shall be completed according to article 503.15 of the Standard Specifications.  
 The quantities shown are for estimating purposes only. The area to be repaired will be determined by the Engineer at the time of construction. Actual repair locations shall be shown on As-built plans.

**BILL OF MATERIAL**

Item	Unit	Total
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	10
Rubbed Finish	Sq. Ft.	10

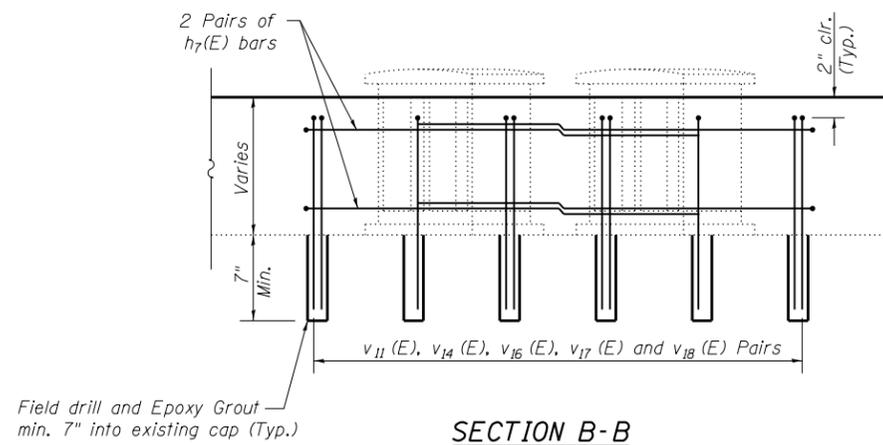
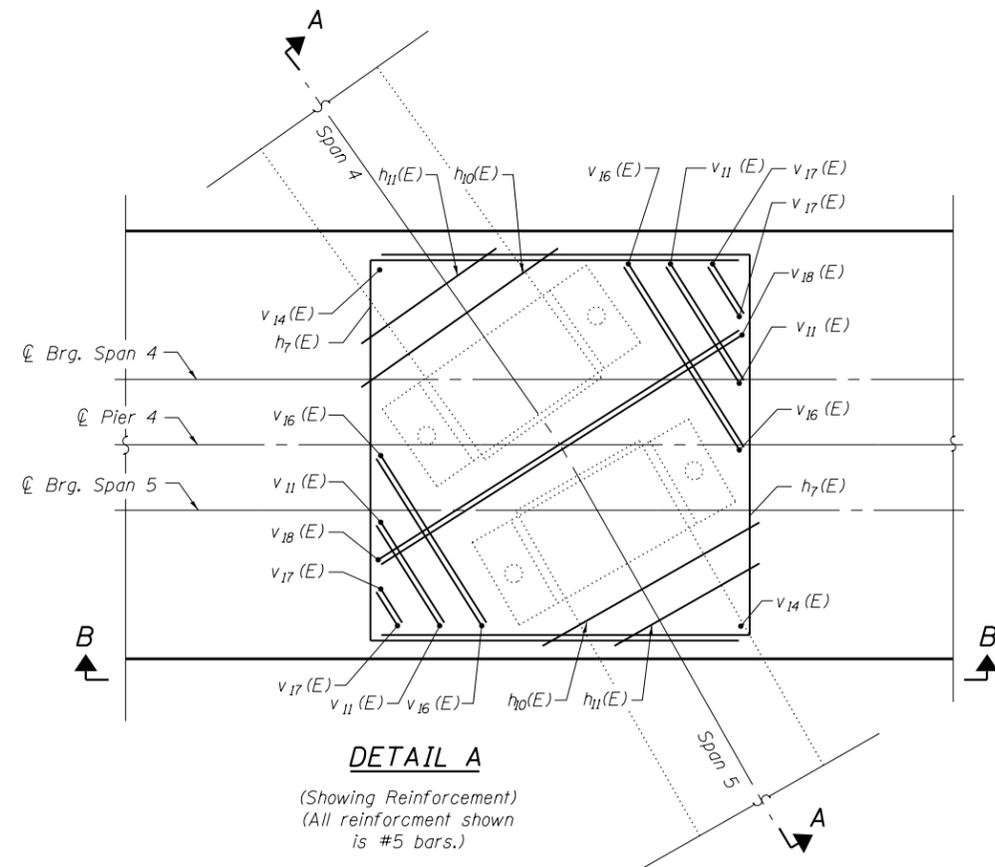




v(E) BARS

Bar	A	B
$v_{14}(E)$	1'-8"	1'-4"
$v_{15}(E)$	6"	1'-4"
$v_{16}(E)$	3'-2"	1'-4"

Notes:  
See Sheet 24 of 35 for additional Bar Bend Details.  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Concrete Sealer shall be applied only to exposed surfaces of the new concrete on Pier 4.



BILL OF MATERIAL  
PIER 4

Bar	No.	Size	Length	Shape
$h_7(E)$	16	#5	8'-0"	┌
$h_{10}(E)$	8	#5	1'-6"	—
$h_{11}(E)$	8	#5	11"	—
$p_{15}(E)$	4	#5	5'-11"	—
$p_{16}(E)$	4	#5	7'-5"	—
$p_{17}(E)$	2	#5	1'-6"	—
$p_{18}(E)$	4	#5	1'-10"	—
$p_{19}(E)$	2	#5	2'-11"	—
$p_{20}(E)$	4	#5	2'-10"	—
$p_{21}(E)$	2	#5	1'-11"	—
$s_{11}(E)$	36	#5	4'-0"	└
$v_{11}(E)$	16	#5	2'-4"	└
$v_{14}(E)$	8	#5	1'-4"	—
$v_{16}(E)$	16	#5	3'-0"	└
$v_{17}(E)$	16	#5	1'-10"	└
$v_{18}(E)$	8	#5	4'-6"	└
Concrete Sealer		Sq. Ft.	146	
Concrete Structures		Cu. Yd.	2.9	
Reinforcement Bars, Epoxy Coated		Pound	570	

FILE NAME = 025009-74295-031.dgn

USER NAME =  
Illinois Design Firm Number 184.001670  
PLOT SCALE =  
PLOT DATE = 2:408 PM 8/15/2013

DESIGNED - B.B.  
CHECKED - A.C.S.  
DRAWN - W.J.S.  
CHECKED - C.J.F. & B.B.

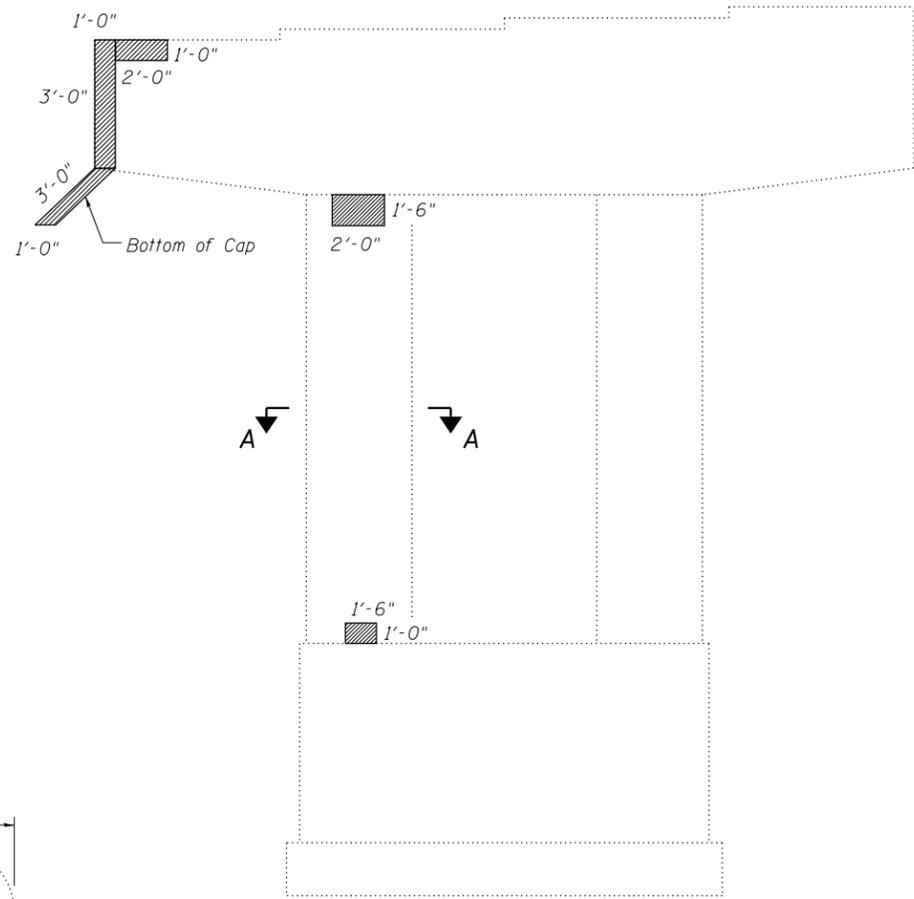
REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

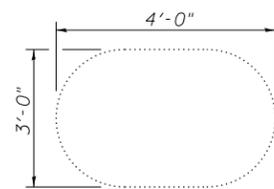
PIER 4 DETAILS  
STRUCTURE NO. 025-0019

SHEET NO. 31 OF 35 SHEETS

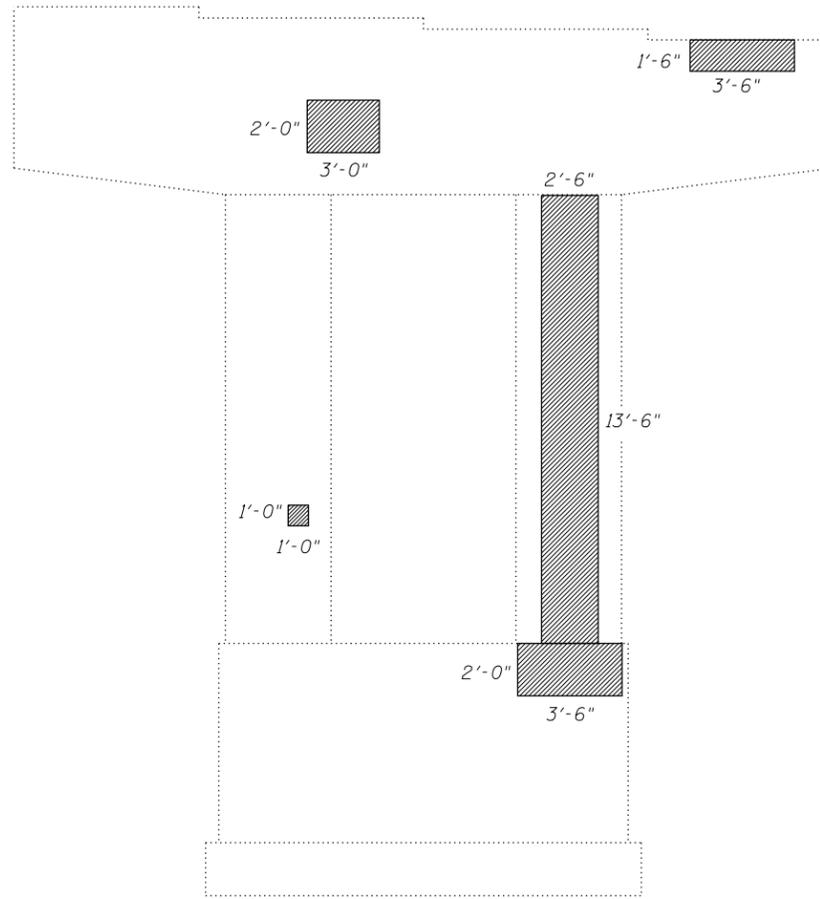
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)1-3	EFFINGHAM	1760	1736
CONTRACT NO. 74295				
ILLINOIS FED. AID PROJECT				



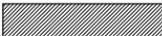
**PIER 4**  
(Looking South)



**SECTION A-A**  
Typical Section  
Through Column



**PIER 4**  
(Looking North)

 Indicates Structural Repair of Concrete (Depth equal to or less than 5")

Notes:  
 Rubbed finish for Structural Repair of Concrete Areas shall be completed according to article 503.15 of the Standard Specifications.  
 The quantities shown are for estimating purposes only. The area to be repaired will be determined by the Engineer at the time of construction. Actual repair locations shall be shown on As-built plans.

**BILL OF MATERIAL**

Item	Unit	Total
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	66
Rubbed Finish	Sq. Ft.	66

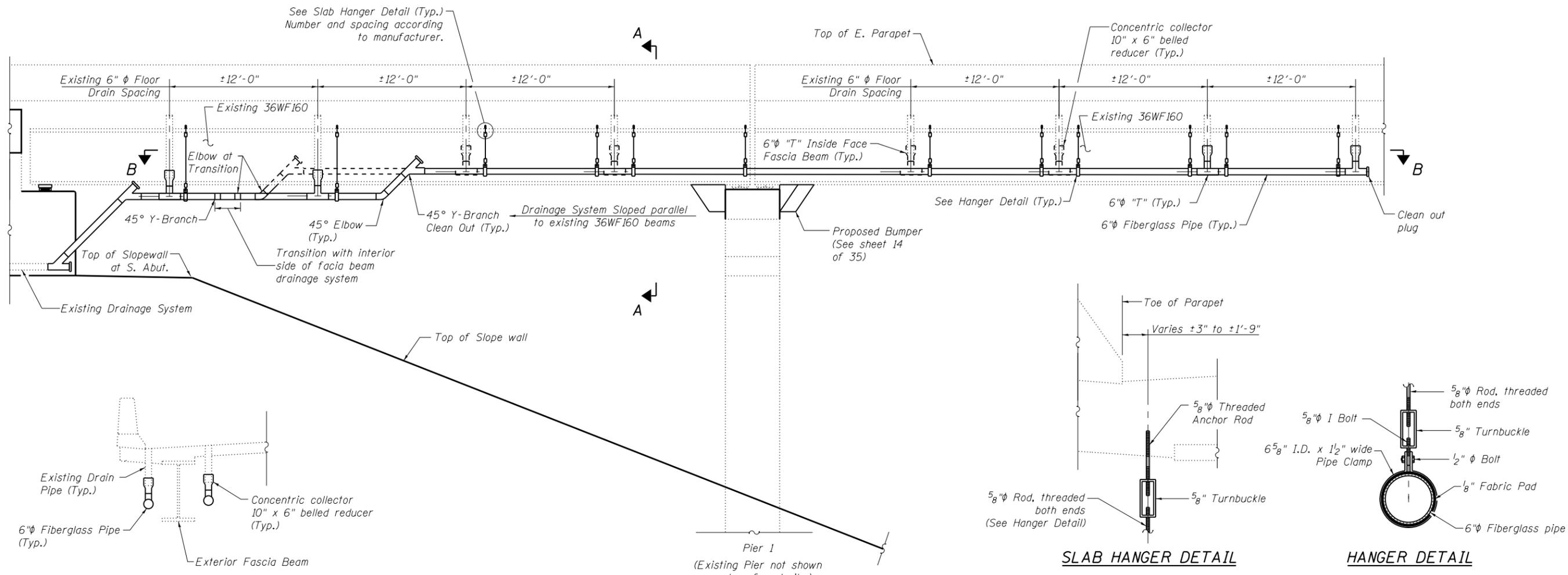
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BERNHARDEN LOCHMULLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, ILLINOIS 62442 PHONE (618) 288-4666 FAX (618) 288-4666	Illinois Design Firm Number 184.001670	CHECKED - A.C.S.	REVISED -
	PLOT SCALE =	DRAWN - W.J.S.	REVISED -
	PLOT DATE = 2:40 PM 8/15/2013	CHECKED - C.J.F. & B.B.	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PIER 4 REPAIR DETAILS**  
**STRUCTURE NO. 025-0019**

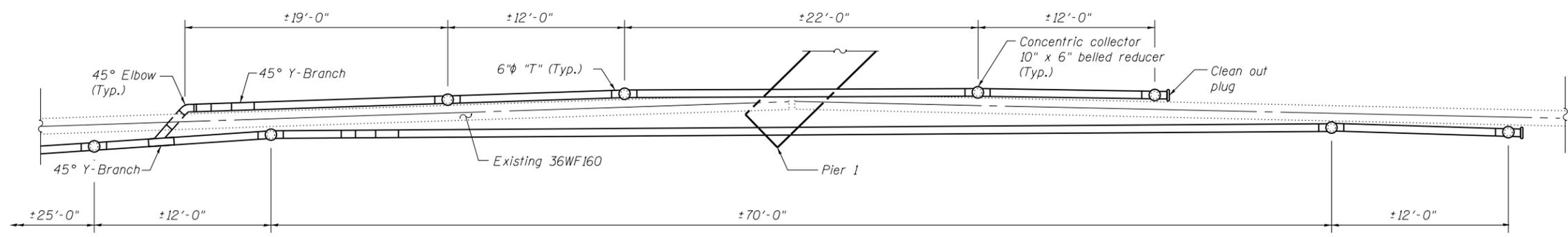
SHEET NO. 32 OF 35 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57/70	(25-4HB)I-3	EFFINGHAM	1760	1737
CONTRACT NO. 74295				
ILLINOIS FED. AID PROJECT				



**SECTION A-A**  
(Span 1 - Looking South)

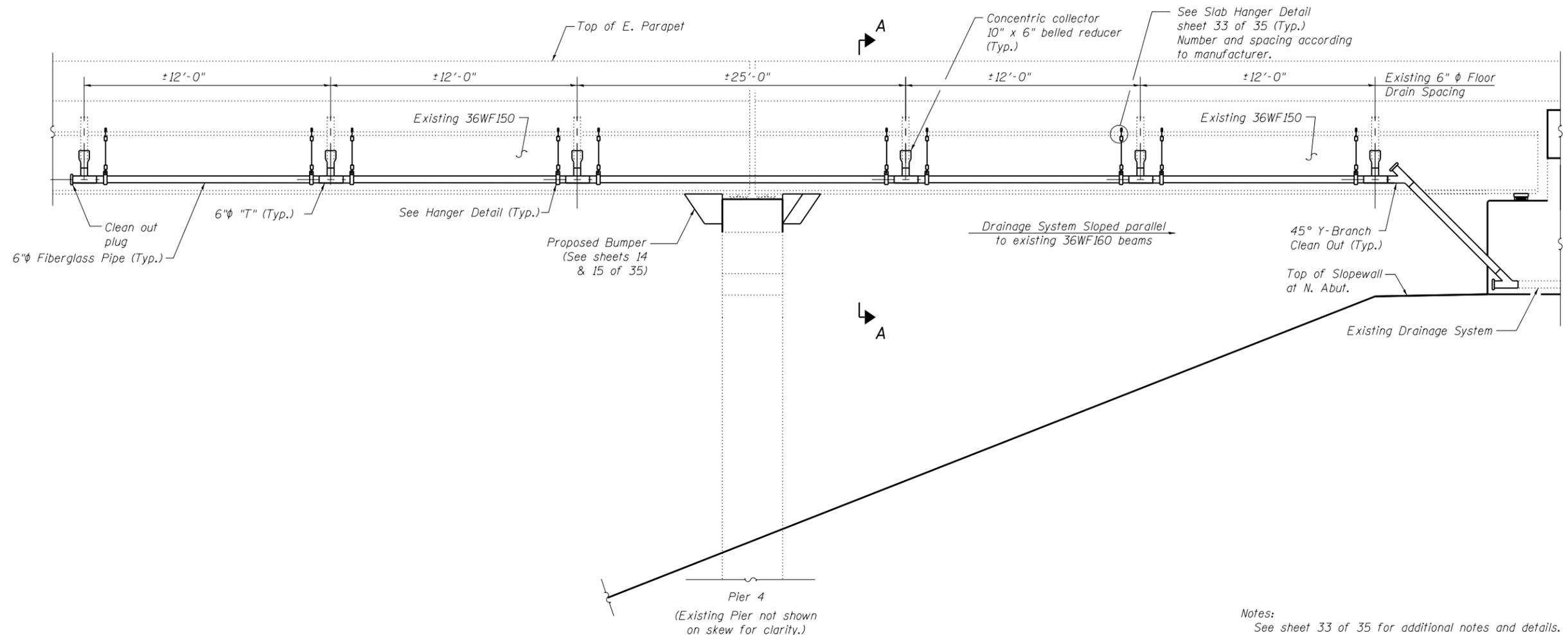
**SPANS 1 & 2 ELEVATION**  
(Looking West)



**VIEW B-B**

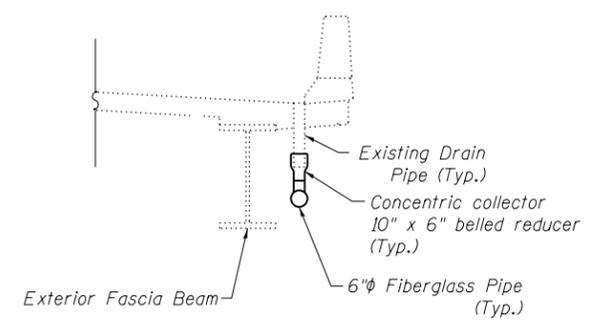
**Notes:**  
Existing drain pipes to be cut for installation of drainage system. Care shall be taken to ensure the existing drains are properly braced against the exterior fascia beam.  
The piping layout and transition locations shown are for reference. The Contractor shall provide the Engineer a schematic of the final proposed drainage system. Upon approval from the Engineer the drainage system may be installed.  
See sheet 34 of 35 for additional notes and Bill of Material.

FILE NAME = 025009-74295-033.dgn  BERNARZEN LOCHMULLER & ASSOCIATES, INC. 3 OAK DRIVE MARYVILLE, IL 62442 PHONE (618) 281-4666 FAX (618) 281-4666	USER NAME = Illinois Design Firm Number 184,001670	DESIGNED - B.B. CHECKED - A.C.S.	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DRAINAGE SYSTEM</b> <b>STRUCTURE NO. 025-0019</b>	F.A.I. R.T.E. = 57/70	SECTION (25-4HB)I-3	COUNTY EFFINGHAM	TOTAL SHEETS 1760	SHEET NO. 1738
	PLOT SCALE = PLOT DATE = 2:40:09 PM 8/15/2013	DRAWN - W.J.S. CHECKED - C.J.F. & B.B.	SHEET NO. 33 OF 35 SHEETS			<b>CONTRACT NO. 74295</b> ILLINOIS FED. AID PROJECT				



**SPANS 4 & 5 ELEVATION**  
(Looking West)

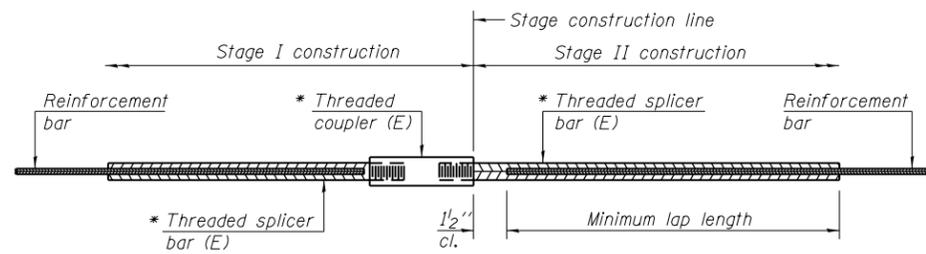
**Notes:**  
 See sheet 33 of 35 for additional notes and details.  
 The surface of the fiberglass pipe and fittings shall be free of bond inhibiting agents.  
 The pipe and fittings shall be reinforced fiberglass according to ASTM D 2996 RTRP with 30,000 p.s.i. minimum short-time rupture strength hoop tensile stress.  
 The reinforced fiberglass shall also have an apparent stiffness factor at 5 percent deflection exceeding 200 cu. in.-lbf/sq. in. and a minimum wall thickness of 0.10 in.  
 The pay item "Drainage System" shall include providing and installing 6" pipe, 6" T's, elbows, 45° Y-branch, expansion collars and reducers, clean outs, inserts, straps, hangers and all other necessary items to complete the underdeck drainage system. See Special Provisions. The clamping devices, hangers, inserts and the straps shall be hot dipped galvanized in accordance with AASHTO M-232.  
 Bolts, washers and nuts for "Drainage System" shall conform to the requirements of ASTM A-307.  
 The exterior surfaces of the fiberglass pipes and fittings for the "Drainage System" shall be pigmented throughout or have a resin-rich pigmented exterior coat, specifically designed for overcoating fiberglass, as recommended by the manufacturer. The color shall be as specified by the Engineer. The resin in either case shall have an ultraviolet absorber designed to prevent ultraviolet degradation. The supplier shall certify the material supplied meets these requirements.



**SECTION A-A**

**BILL OF MATERIAL**

Item	Unit	Total
Drainage System	L. Sum	0.25



**STANDARD BAR SPLICER ASSEMBLY**

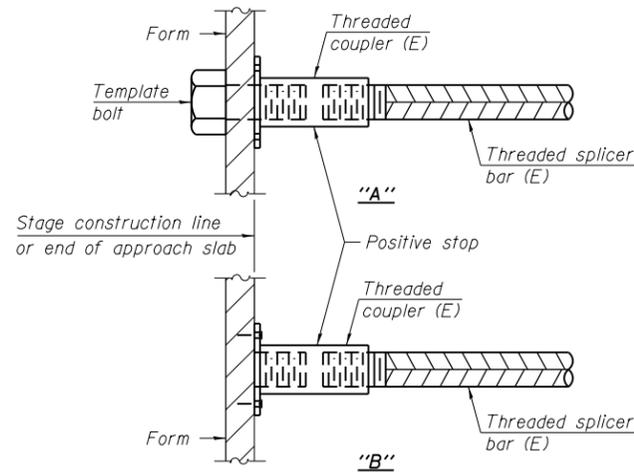
Minimum Lap Lengths						
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"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

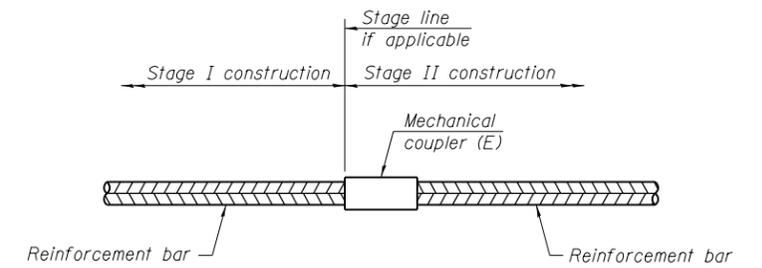
\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

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



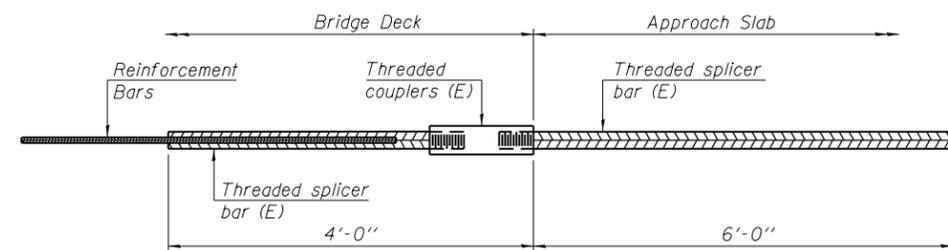
**INSTALLATION AND SETTING METHODS**

"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.



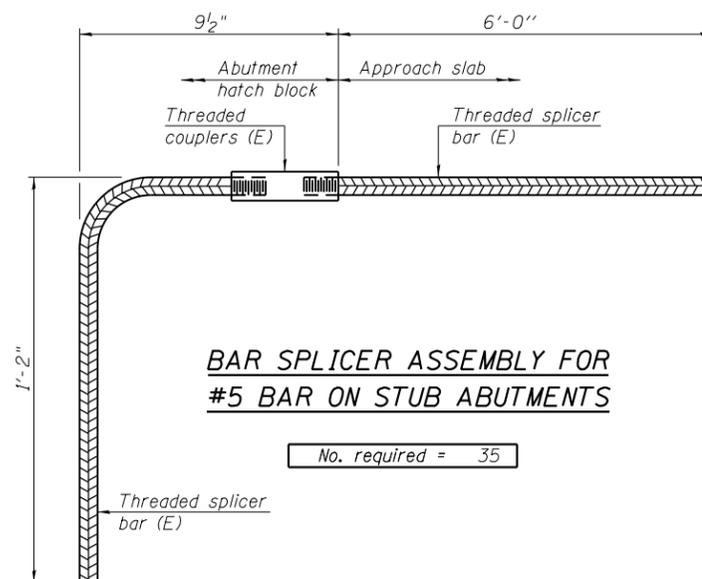
**STANDARD MECHANICAL SPLICER**

Location	Bar size	No. assemblies required



**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 = 35

**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

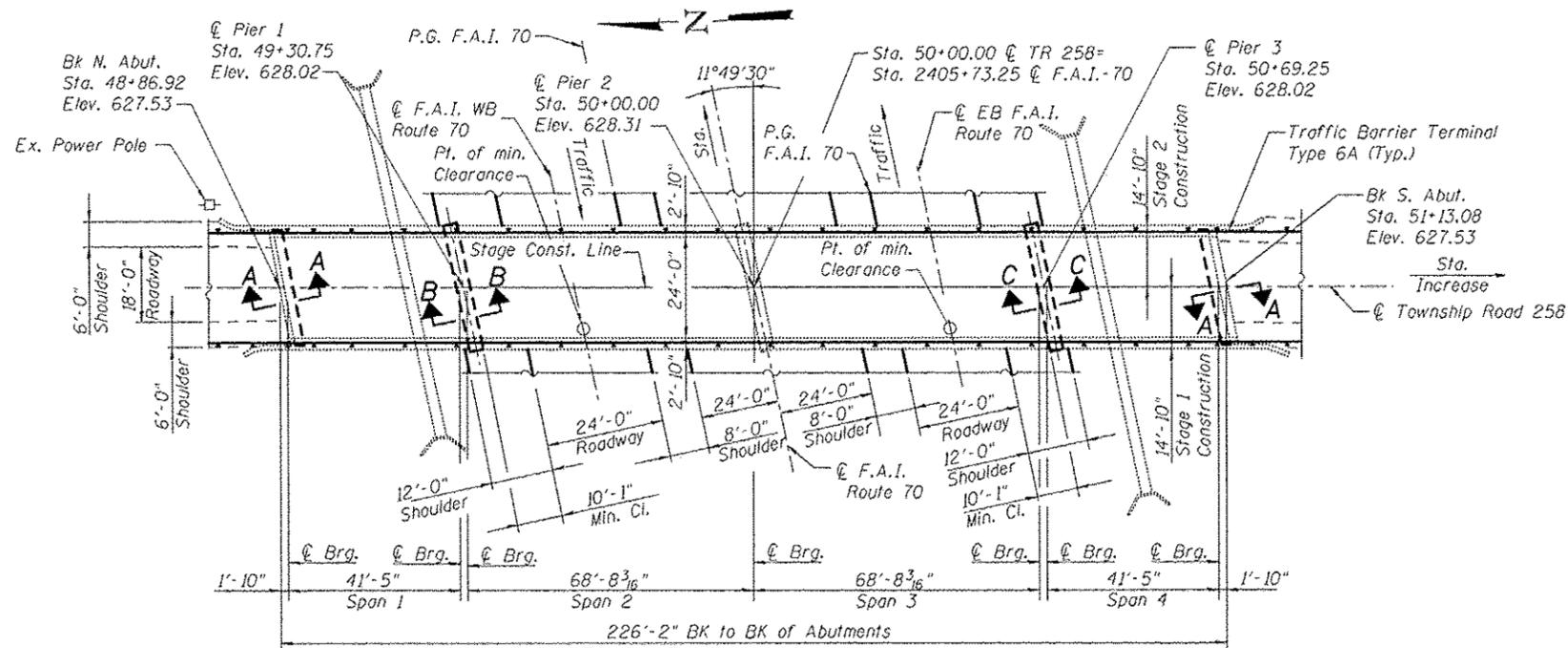
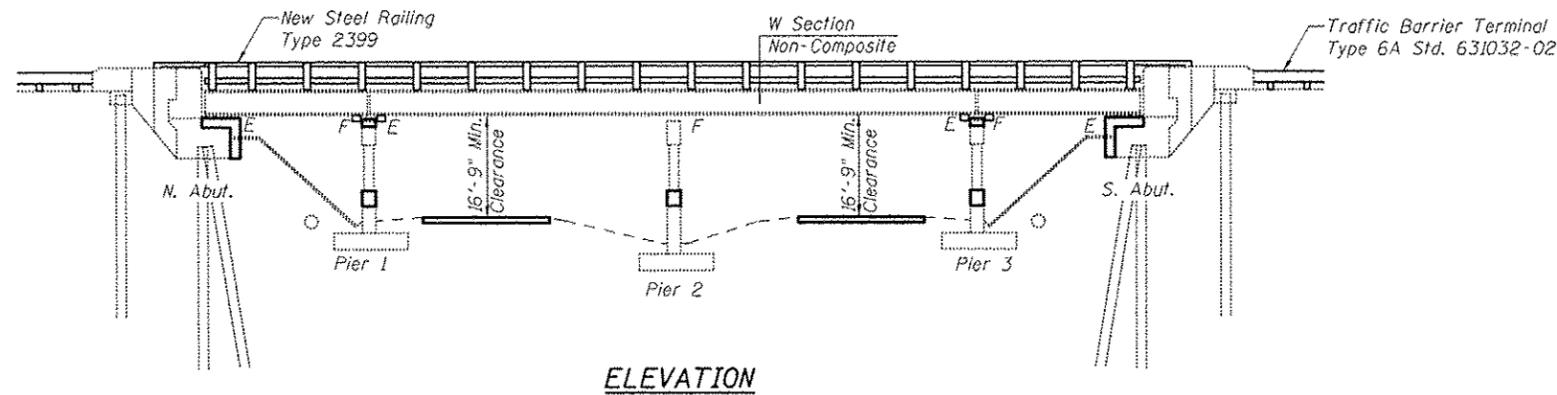
Branch Mark: Chiseled square on S. E. concrete corner of bridge on road 1600th AVE. Station 2340+63.17.  
Elevation 582.40, 244.07 ft. LT.

Existing Structure: #025-0062 Built in 1960 226'-2" Bk. to Bk. of abutments and 29'-8" Out to Out Width.  
The structure consists of an R.C. deck on WF beams with 2 spans continuous and 2 simple spans. Traffic to be maintained at all times utilizing stage construction with the use of signalized traffic lights.

No salvage.

**INDEX OF SHEETS**

1. General Plan
2. General Data
3. General Information
4. Steel Railing, Type 2399
5. Bar Splicer Assembly & Mechanical Splicer Details
6. Seismic Restrainer & Bracket Details
- 7.-8. Bumper Details
9. Abutment Bearing Details
10. Pier Bearing Details
11. North Abutment Details
12. North Abutment Sections
13. South Abutment Details
14. South Abutment Sections
15. Pier 1 General Plan
16. Pier 1 Details
17. Pier 2 General Plan
18. Pier 3 General Plan
19. Pier 3 Details
20. Paint Details



See Sheet 3 of 20 for Sections A-A, B-B, C-C.

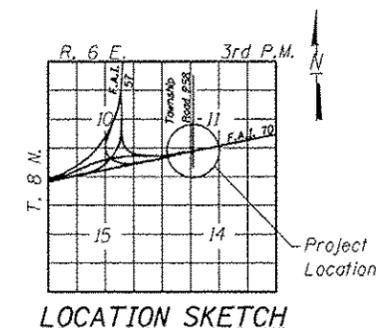
**LOADING HS15**  
Allow 18 psf future wearing surface

**DESIGN SPECIFICATIONS**  
2002 AASHTO Standard Specifications for Highway Bridges  
1995 F.H.W.A. Seismic Retrofitting Manual for Highway Bridges  
2006 F.H.W.A. Seismic Retrofitting Manual for Highway Structures Part I-Bridges (Reference Only)

**DESIGN STRESSES**

**New Construction**  
f'c = 3,500 psi  
fy = 60,000 psi (Reinforcement)  
fy = 50,000 psi (Structural Steel) (AASHTO M270 Grade 50)

**Existing Structure**  
f'c = 3500 psi  
fy = 40,000 psi (Reinforcement)  
fy = 33,000 psi  
fy = 36,000 psi (Pier 2, Beams 2-5)



**SEISMIC DATA**  
Seismic Performance Category (SPC) = B  
Bedrock Acceleration Coefficient (A) = 0.075g  
Site Coefficient (S) = 1.0

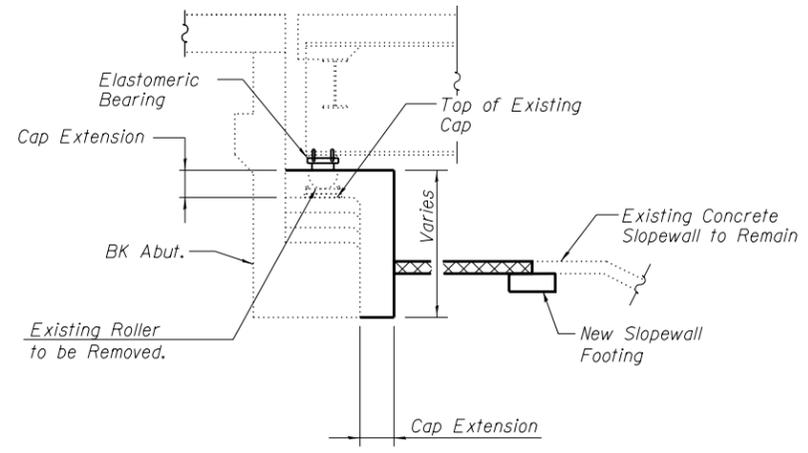
**GENERAL PLAN**  
**TOWNSHIP ROAD 258 OVER FAI 70**  
**STATION 50+00.00**  
**STRUCTURE NO. 025-0062**



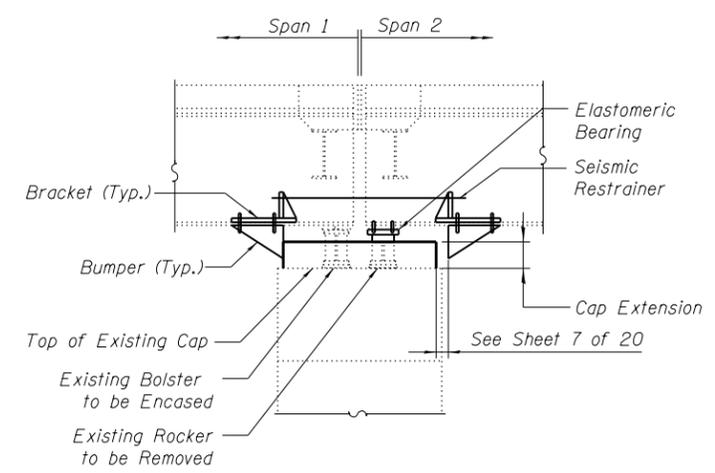
EXP. 11-30-2014  
Chadwick J. Fleesting 6/10/13

FILE NAME = 0250062-74294-001.dgn	USER NAME =	DESIGNED - B.B.	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
DESIGNER: CHADWICK J. FLEESTING & ASSOCIATES, INC. 3 CAROL DRIVE MURFEEVILLE, ILLINOIS 62450 PHONE (618) 384-4444 FAX (618) 384-4444	ILLINOIS Design Firm Number 184.001670	CHECKED - A.C.S.	REVISED -		70	(25-4HB-211)	EFFINGHAM	1760	1741
PLOT SCALE =		DRAWN - B.B.	REVISED -		CONTRACT NO. 74295				
PLOT DATE = 11:44 AM 6/10/2013		CHECKED - C.J.F.	REVISED -		[ILLINOIS] FED. AID PROJECT				

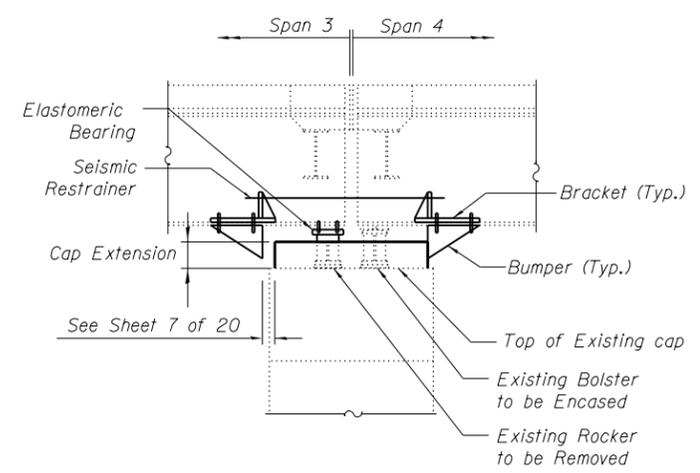




**SECTION A-A**



**SECTION B-B**



**SECTION C-C**

 Indicates Removal and Replacement of Concrete Slopewall

S:\Projects\403-00072\_57-70\Bridges\Bridges\_025-0062\_TR over 57-70\025-0062-74295-003.dgn

FILE NAME = 0250062-74295-003.dgn	USER NAME =	DESIGNED - B.B.	REVISED -
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	PLOT DATE = 2:29:37 PM 8/15/2013	CHECKED - C.J.F.	REVISED -

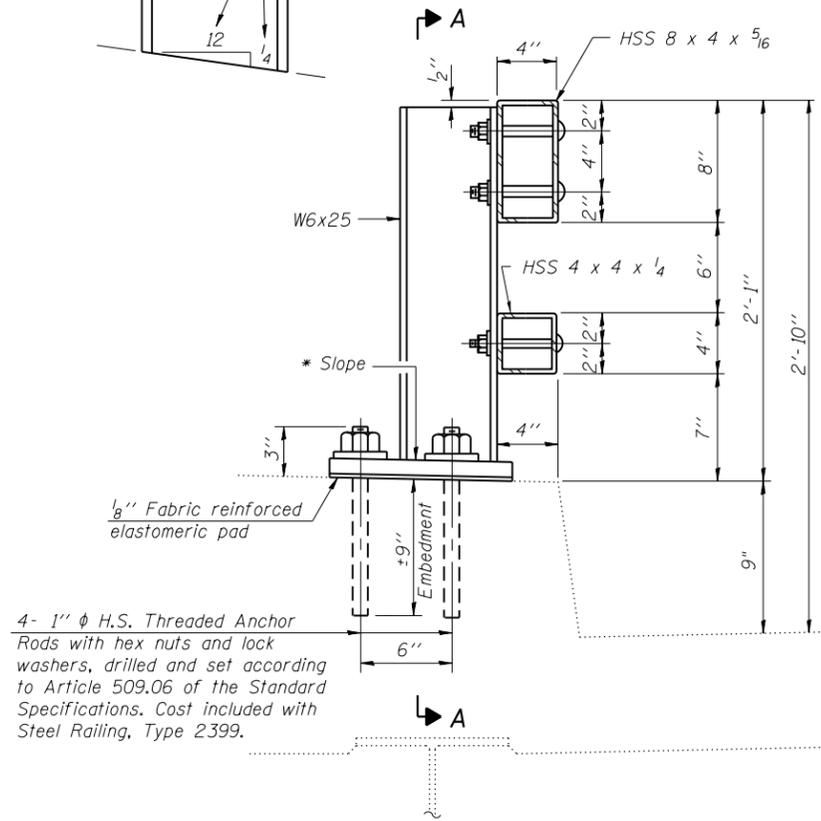
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GENERAL INFORMATION  
STRUCTURE NO. 025-0062**

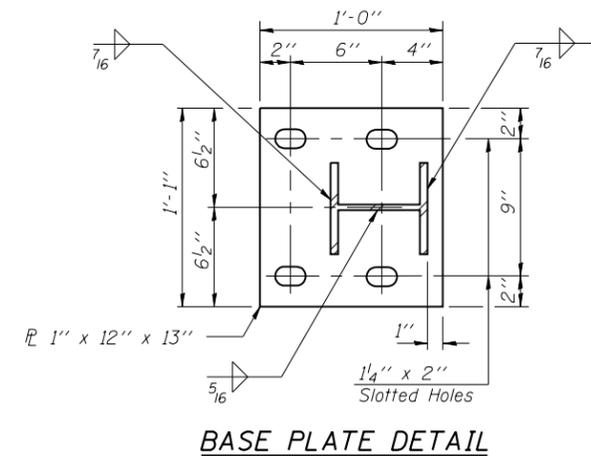
SHEET NO. 3 of 20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(25-4HB-2)I	EFFINGHAM	1760	1743
				CONTRACT NO. 74295
ILLINOIS FED. AID PROJECT				

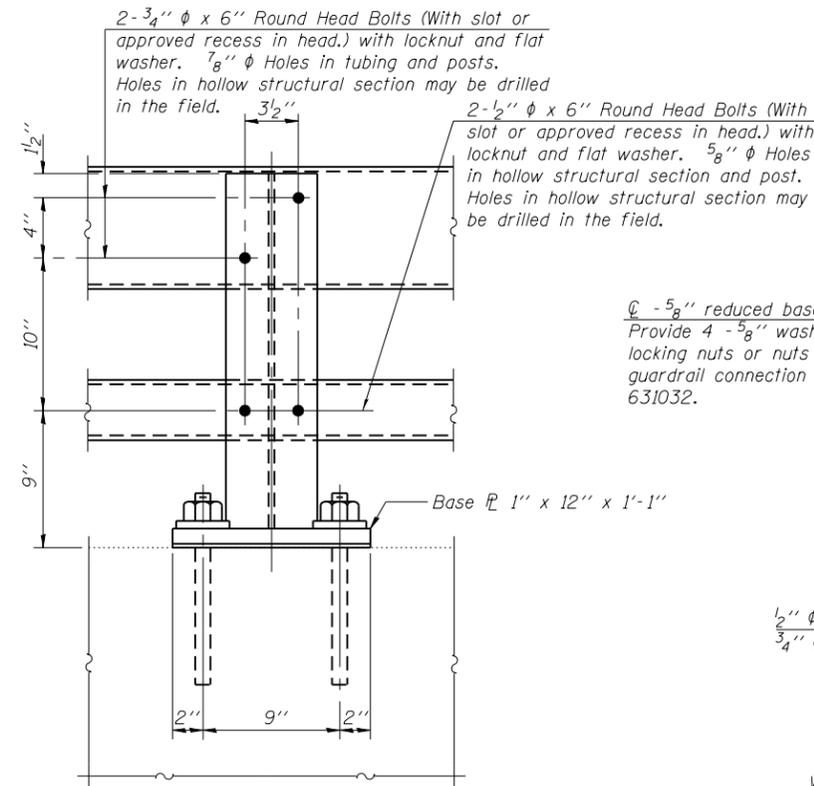
\* Cut bottom end of post to curb slope.



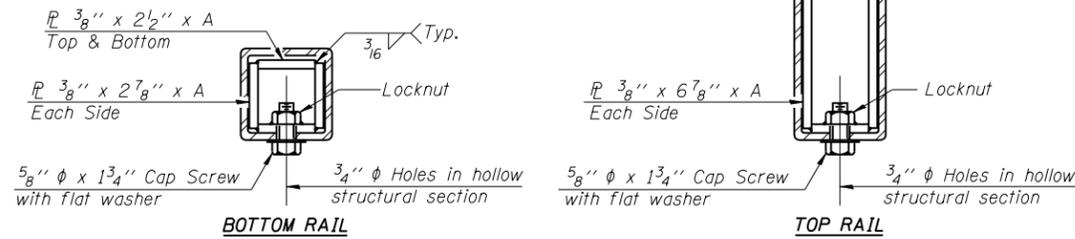
**SECTION AT RAIL POST**



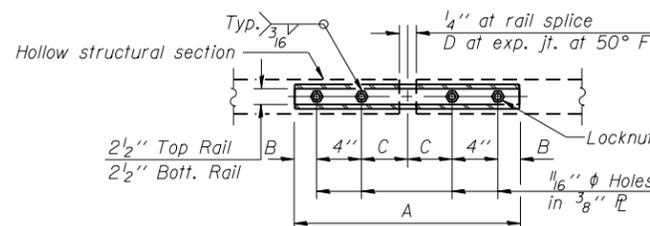
**BASE PLATE DETAIL**



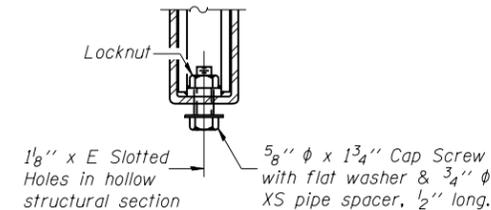
**SECTION A-A**



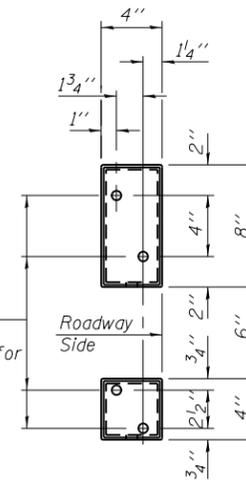
**SECTIONS AT RAIL SPLICE**



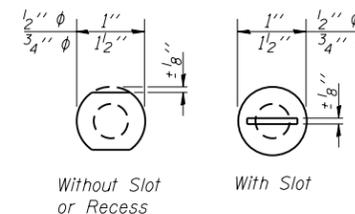
**PLAN-BOTT. SPLICE P TYPICAL**



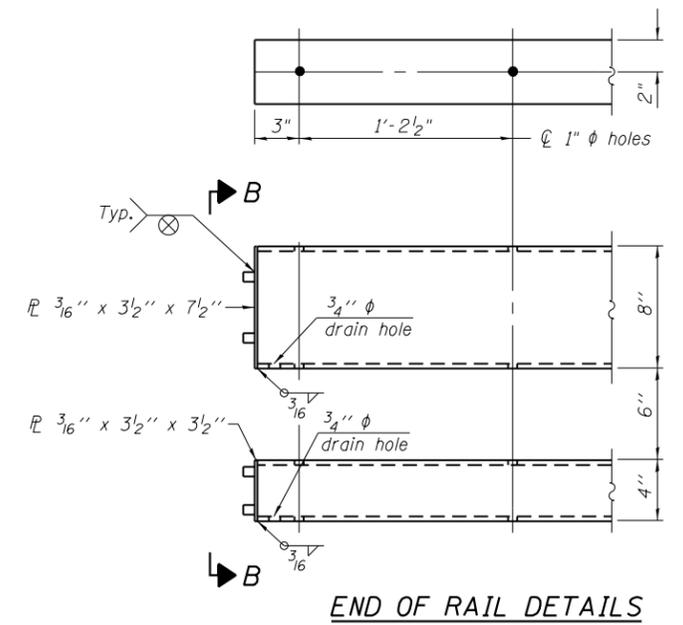
**RAIL SPLICE CONNECTION AT EXPANSION JT.**



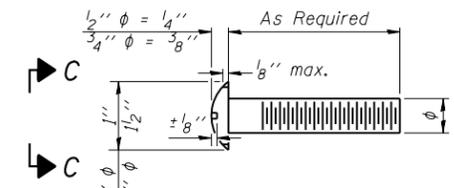
**VIEW B-B**



**VIEW C-C**



**END OF RAIL DETAILS**



**DETAIL OF 1/2" & 3/4" ROUND HEAD BOLTS**

**Notes:**

All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 Posts shall not be located closer than 1'-3" to an existing bridge expansion joint or end of bridge.  
 Steel Bridge Rail expansion joint shall be provided between any two (2) posts which span a bridge expansion joint. Bolts located at expansion joint shall be provided with locknuts and shall be tightened only to a point that will allow railing movement.  
 Provide one 1/8" and two 1/16" steel shims for 25% of the posts. Shims shall be similar to base plates in size and holes.  
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

**SPLICE DIMENSIONS**

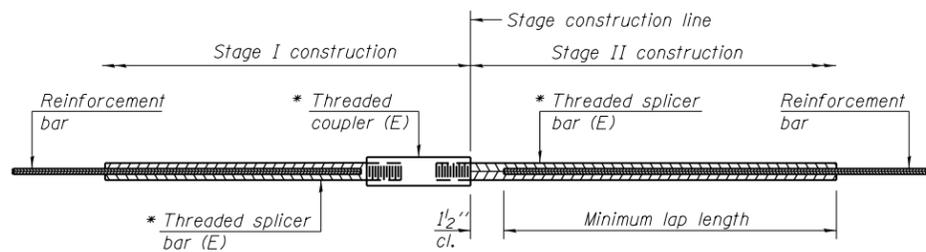
T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	4"	1'-8"	2"	4"	—

T = Total movement at expansion joint as shown on the design plans.

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type 2399	Foot	450

S:\Proj\res\403-00072\_57-70\Bridges\Bridge 025-0062\_TR over 57-70\Bridges\Bridge 025-0062-74295-004.dgn



**STANDARD BAR SPLICER ASSEMBLY**

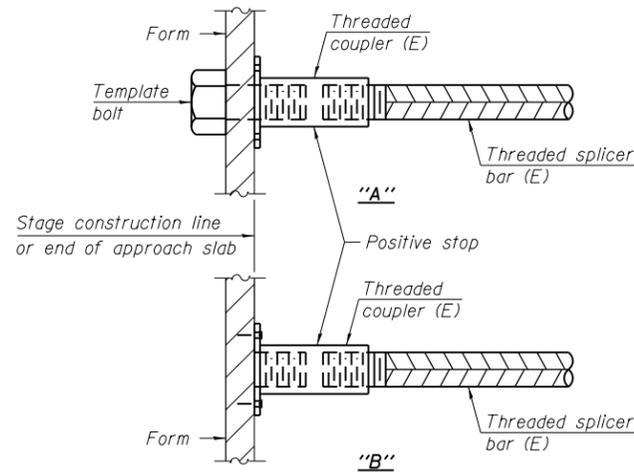
Minimum Lap Lengths						
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"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

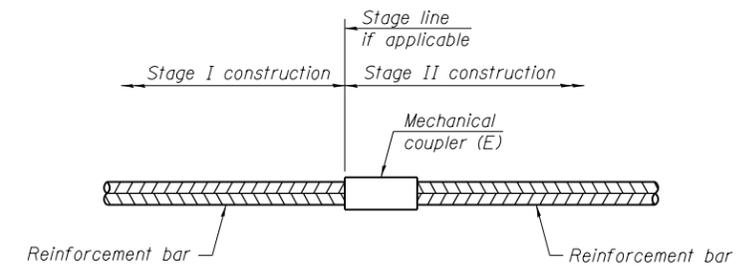
\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length
N. Abutment	#5	7	3
S. Abutment	#5	7	3



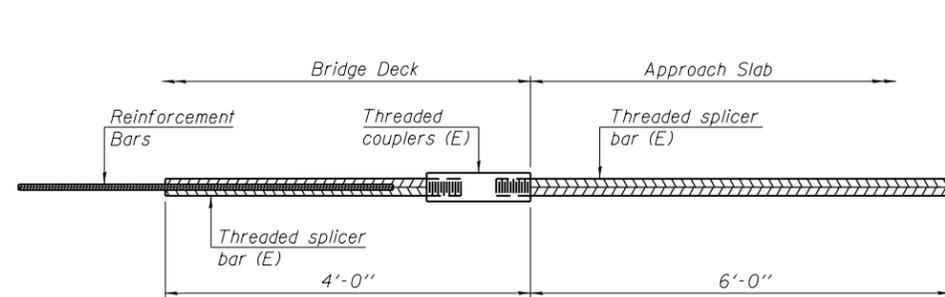
**INSTALLATION AND SETTING METHODS**

"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.



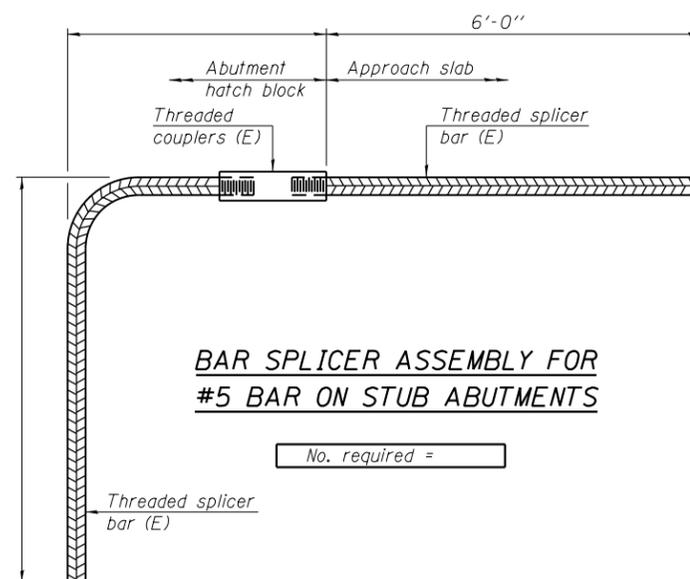
**STANDARD MECHANICAL SPLICER**

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**

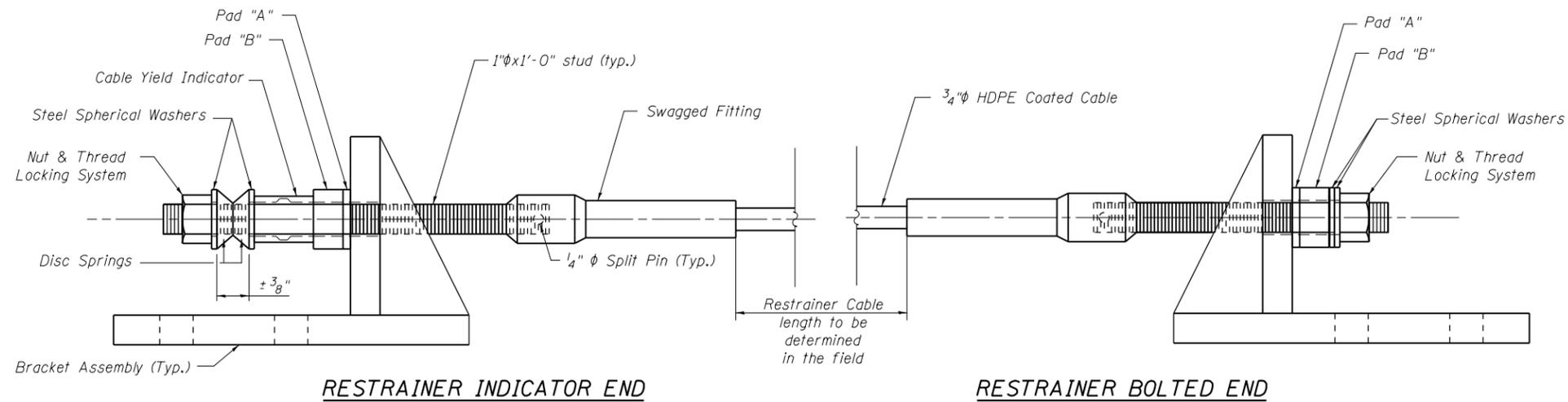
No. required =

**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



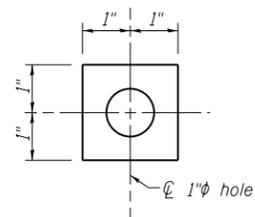
**RESTRAINER INDICATOR END**

**RESTRAINER BOLTED END**

**CABLE & BRACKET ASSEMBLY ELEVATION**

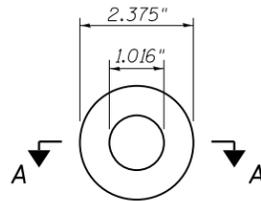
**CABLE RESTRAINER UNIT INSTALLATION PROCEDURE**

1. Align cable assembly angles with bumper assembly. For Bumper placement see Sheets 7 and 8 of 20.
2. Install Cable Yield Indicator, Spherical Washers, Disc Springs, Washers and Nut on the indicator end of Seismic Restrainers.
3. Place Spherical Washers and Nut on bolted end of restrainers. Place Thread Locking System on bolted end stud prior to installing nut and washers, and prior to setting the cable.
4. Tighten nut on the cable at the indicator end of restrainer. The cable should be approximately straight with no sag.
5. Place Thread Locking System on indicator end stud after tightening the cable but before backing off the nut. Back off the nut at restrainer indicator end a distance equal to maximum additional amount that the joint is expected to open, relative to existing ambient conditions. See Expansion Table on Sheet 8 of 20.
6. If the cable needs to be secured from turning while tightening, use double nut locking technique on the stud to protect the threads.
7. For Thread Locking System, see Special Provision for Seismic Restrainers.

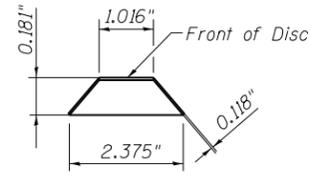


**PAD DETAIL**

Pad "A" = 2"x2"x1/4" Plain Elastomeric Bearing Pad (50 Durometer)  
 Pad "B" = 2"x2"x1" Washer

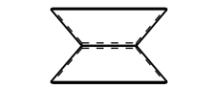


**PLAN**

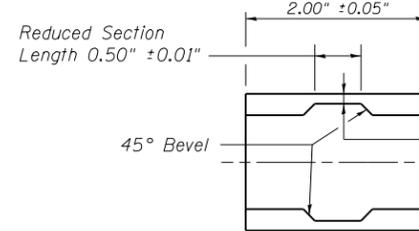


**SECTION A-A**

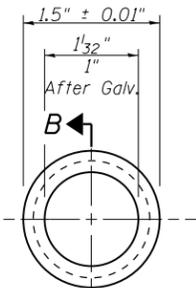
**DISC SPRING**



(as Installed on Studs)



**SECTION B-B**

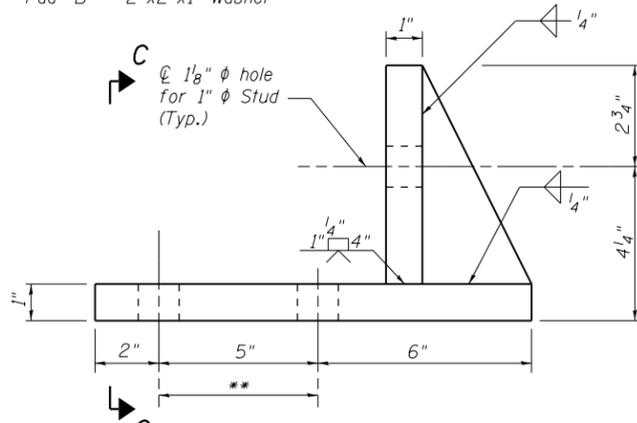


**END VIEW**

**CABLE YIELD INDICATOR**

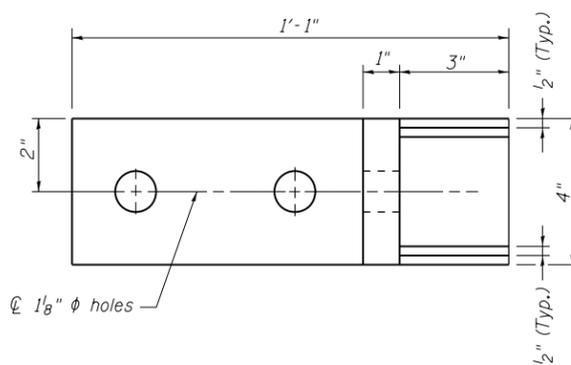
(All dimensions are before galvanizing except as noted)

Notes:  
 Bracket Assembly shall be paid for as Furnishing and Erecting Structural Steel.  
 HPPE Coated Cable swag fitting, incidentals and Yield Indicators shall be paid for as Seismic Restrainer.



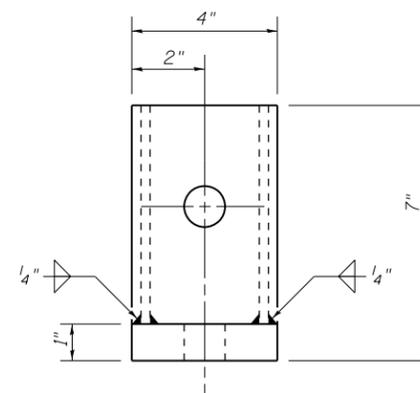
**ELEVATION**

\*\*  $\varnothing$  1/8" hole for 1" x 4 1/2" long A325 bolts with 1-1/16" washer



**PLAN**

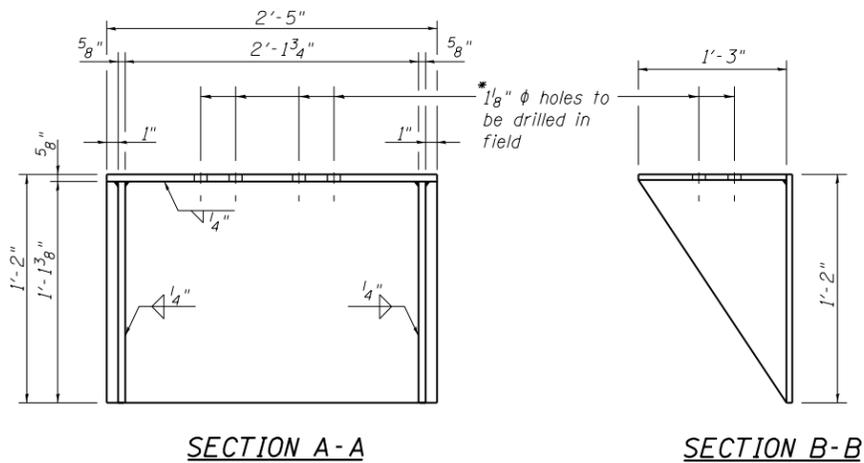
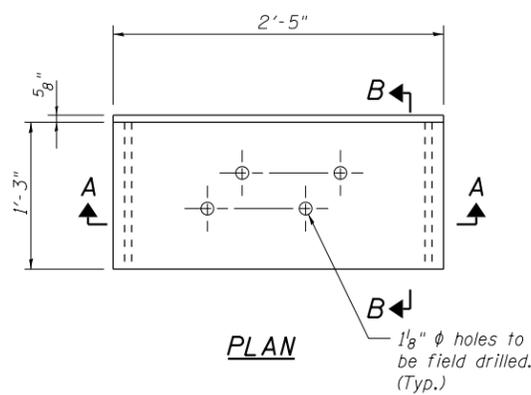
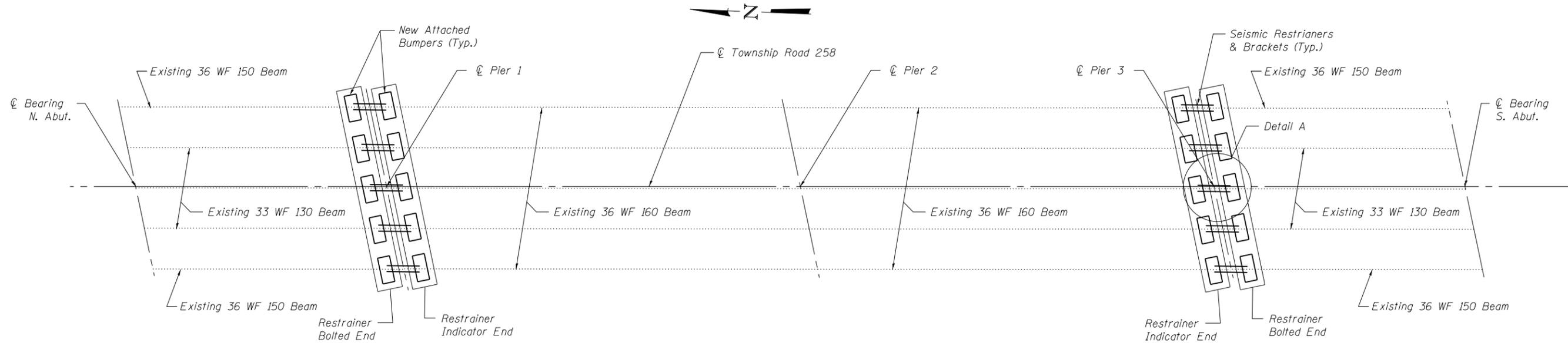
**BRACKET ASSEMBLY**



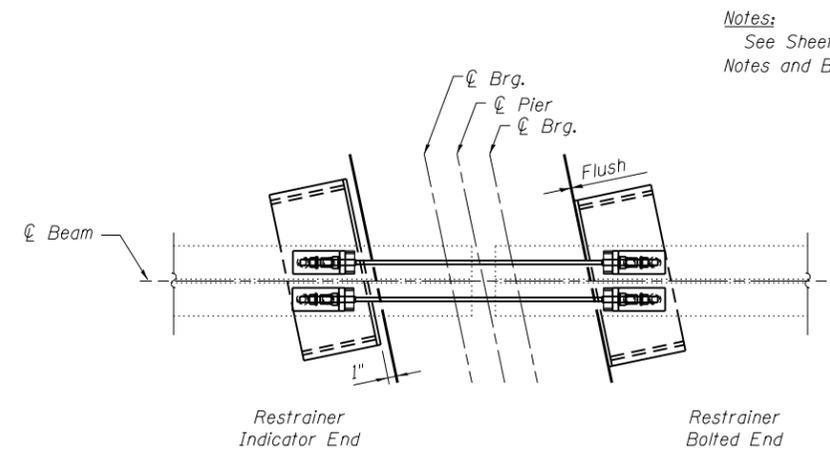
**SECTION C-C**

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BERNARDINI LOCHMULLER & ASSOCIATES, INC. 3 DAK DRIVE MARYVILLE, IL 62446 PHONE (618) 284-4666 FAX (618) 284-4666	PLOT SCALE =	CHECKED - A.C.S.	REVISED -			CONTRACT NO. 74295				
		DRAWN - B.B.	REVISED -			SHEET NO. 6 of 20 SHEETS				
	PLOT DATE = 2:29:40 PM 8/15/2013	CHECKED - C.J.F.	REVISED -			ILLINOIS FED. AID PROJECT				



**BUMPER DETAILS**  
(20 Required)



**DETAIL A**  
**GENERAL PLAN SHOWING**  
**RESTRAINER, BRACKETS &**  
**BUMPERS**

Notes:  
See Sheet 8 of 20 for Additional Details,  
Notes and Bill of Materials.

\*Existing beam flanges and bumpers shall be field drilled. The holes shall be subdrilled to 1" phi and reamed to 1/8" phi.

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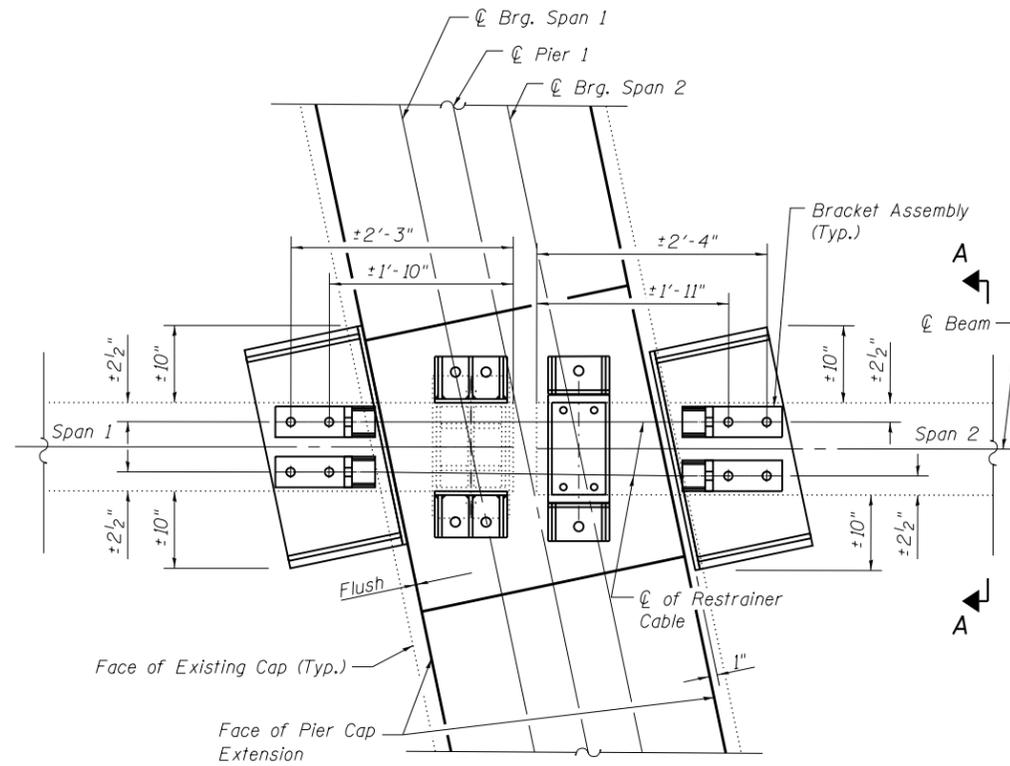
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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**BUMPER DETAILS**  
**STRUCTURE NO. 025-0062**

SHEET NO. 7 of 20 SHEETS

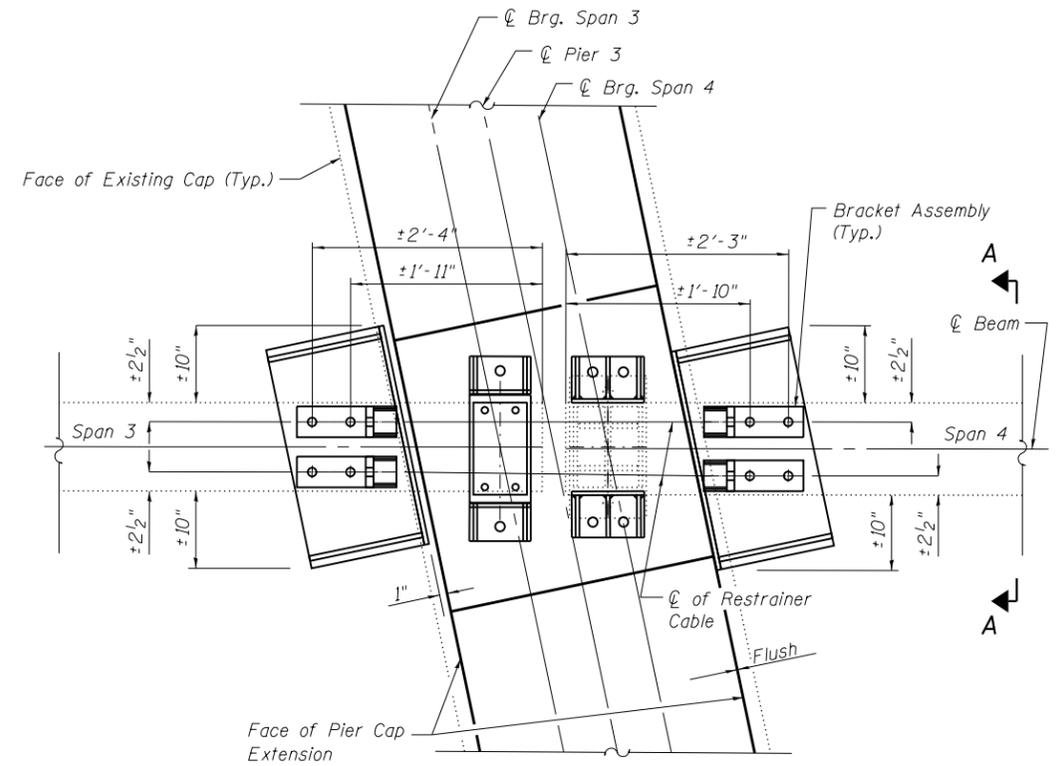
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70	(25-4HB-2)I	EFFINGHAM	1760	1747
CONTRACT NO. 74295				
ILLINOIS FED. AID PROJECT				



**RESTRAINER  
BOLTED END**

**PIER 1 PLAN**  
(Beams 1-5)  
(5 Required)

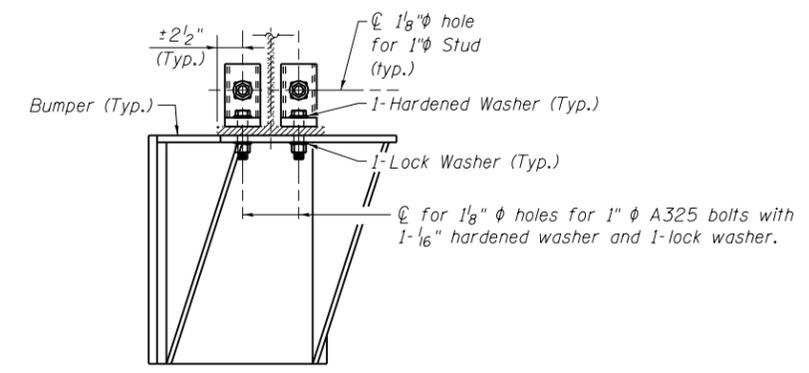
**RESTRAINER  
INDICATOR END**



**RESTRAINER  
INDICATOR END**

**PIER 3 PLAN**  
(Beams 1-5)  
(5 Required)

**RESTRAINER  
BOLTED END**



**SECTION A-A**  
Bumper shown on skew

Ambient Temperature	Gap
T < 50°F	3/4" - ΔTemp
T = 50°F	3/4"
T > 50°F	3/4" + ΔTemp

\*ΔTemp = 1/32" for every ±10°F (Typ.)

**EXPANSION TABLE**

**Notes:**  
For General Elevation Views of Seismic Restrainers, see Sections B-B and C-C on Sheet 3 of 20.  
Seismic Restrainer shall be placed on each beam line.  
One hardened washer and one lock washer are required for each set of oversized holes.  
Bumpers shall be paid for as Furnishing and Erecting Structural Steel.

**BILL OF MATERIAL**

Item	Unit	Total
Seismic Restrainer	Each	10
Furnishing & Erecting Structural Steel	Pound	4820

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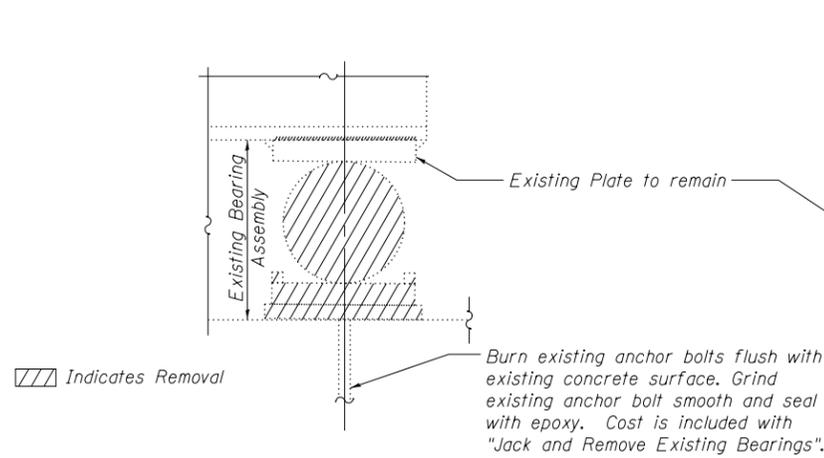
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BUMPER DETAILS  
STRUCTURE NO. 025-0062**

SHEET NO. 8 of 20 SHEETS

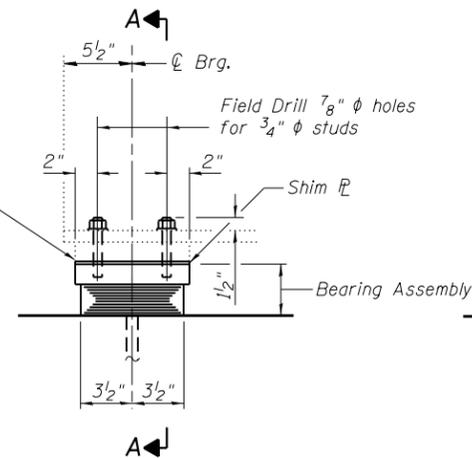
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70	(25-4HB-2)I	EFFINGHAM	1760	1748
CONTRACT NO. 74295				

ILLINOIS FED. AID PROJECT

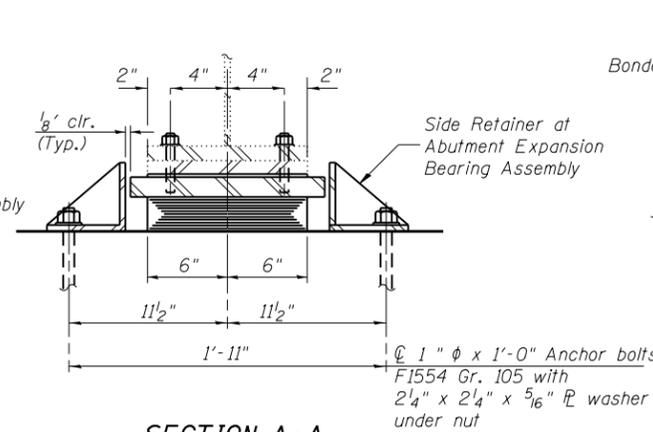


**EXISTING BEARING REMOVAL DETAIL**

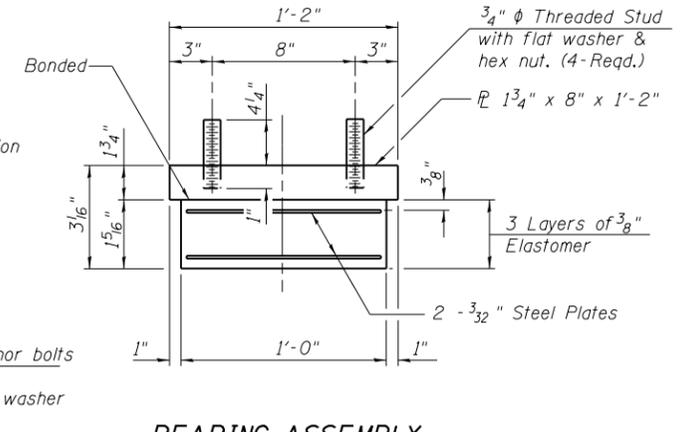
(10 Required)  
5 at each Abutment



**ELEVATION**



**SECTION A-A**



**BEARING ASSEMBLY**

(at each Abutment)

**TYPE I ELASTOMERIC EXP. BRG.**

(10 Required)  
5 at each Abutment

**PROCEDURE TO JACK AND REMOVE EXISTING BEARINGS**

(North & South Abutments)  
(Minimum Jack Capacity Required 61 tons)

1. Jack and Remove Existing Bearings shall be conducted according to the General Bridge Special Provision "Jack and Remove Existing Bearings". See Interior Beam Reaction Table for loads on Sheet 10 of 20.
2. Three beams may be lifted simultaneously, as outlined in the stage construction layout.
3. The existing anchor bolts shall be cut off flush with the existing bridge seat, the rockers, top and bottom plates shall be removed.
4. Formwork and bearing seat construction shall occur.
5. The new elastomeric bearings shall be placed and the jacks shall be lowered.
6. The new holes for the side retainers shall be drilled at the locations specified.
7. No Bearing Replacement is required at Pier 2.

**Notes:**

Anchor bolts shall be ASTM F1554 all-thread (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.

Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

See Sheet 11 of 20 for Anchor Bolt location Details at North Abutment.

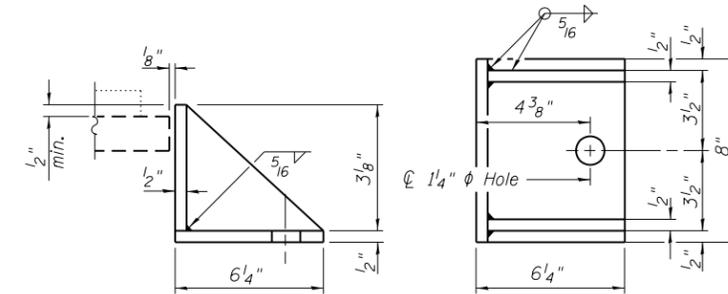
See Sheet 13 of 20 for Anchor Bolt location Details at South Abutment.

Side retainers, anchor bolts, nuts, washers and bearing plates may be galvanized according to AASHTO M111 or M232 (as applicable).

Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 in. (0.01 ft). Adjustments shall be made either by grinding the surface of by shimming the bearings.

Holes shall be subdrilled 3/4" diameter and reamed in the field to 7/8" diameter for 3/4" diameter studs unless otherwise noted.



**SIDE RETAINER AT ABUTMENT EXPANSION BEARING ASSEMBLY**

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. (20 Req'd)  
(10 at each Abutment)

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	10
Anchor Bolts, 1"	Each	20
Jack & Remove Existing Bearings	Each	10

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USER NAME =

DESIGNED - B.B.

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REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ABUTMENT BEARING DETAILS  
STRUCTURE NO. 025-0062

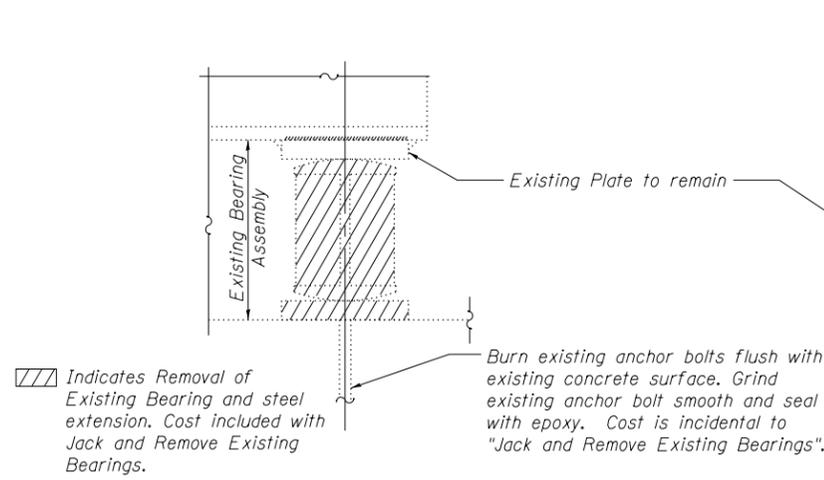
SHEET NO. 9 of 20 SHEETS

F.A.I. SECTION COUNTY TOTAL SHEETS SHEET NO.

70 (25-4HB-2)I EFFINGHAM 1760 1749

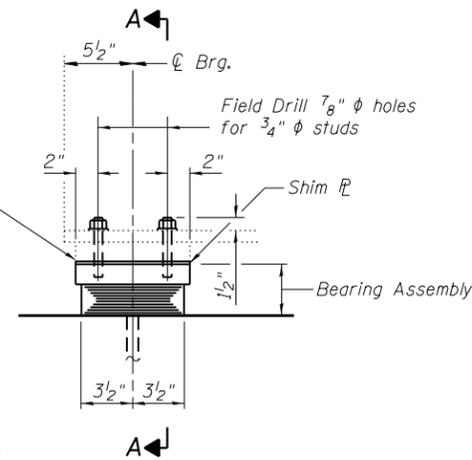
CONTRACT NO. 74295

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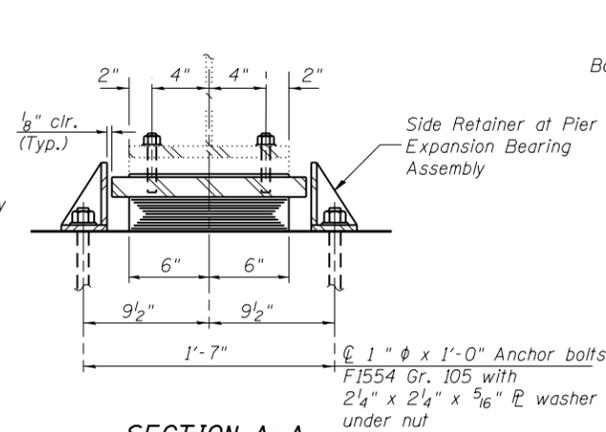


**EXISTING BEARING REMOVAL DETAIL**

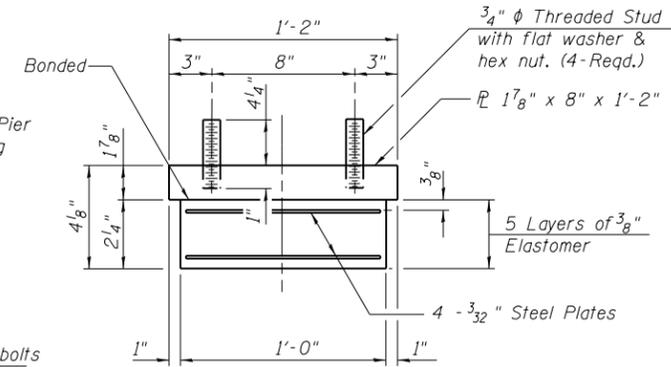
(10 Required)  
5 at Piers 1 & 3



**ELEVATION**



**SECTION A-A**



**BEARING ASSEMBLY**

(at Piers 1 & 3)

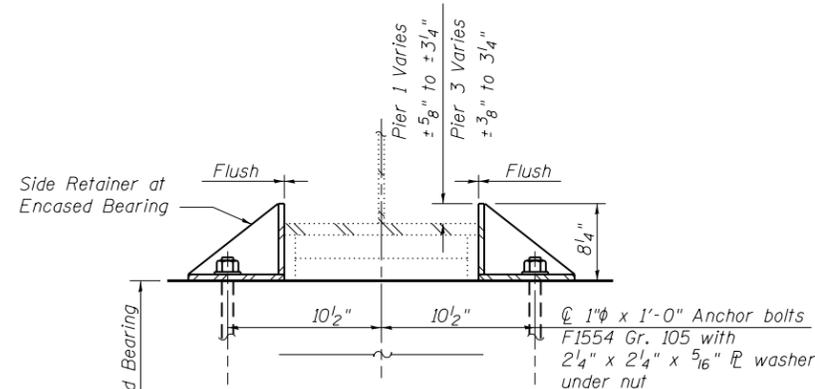
**TYPE I ELASTOMERIC EXP. BRG.**

(10 Required)  
5 at Piers 1 & 3

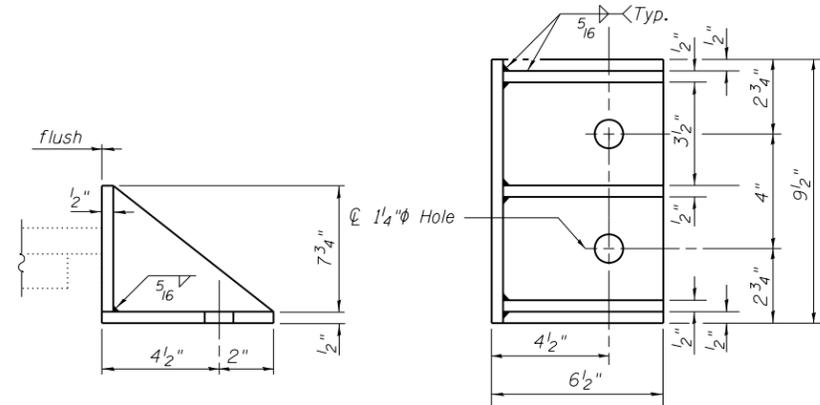
**PROCEDURE TO JACK AND REMOVE EXISTING BEARINGS**

(Pier 1 & Pier 3)  
(Minimum Jack Capacity Required 51 tons)

1. Jack and Remove Existing Bearings shall be conducted according to the General Bridge Special Provision "Jack and Remove Existing Bearings". See Interior Beam Reaction Table for loads.
2. Three beams may be lifted simultaneously, as outlined in the stage construction layout.
3. The existing anchor bolts shall be cut off flush with the existing bridge seat, the rockers, top and bottom plates shall be removed.
4. Formwork and bearing seat construction shall occur.
5. The new elastomeric bearings shall be placed and the jacks shall be lowered.
6. The new holes for the side retainers shall be drilled at the locations specified.
7. No Bearing Replacement is required at Pier 2.

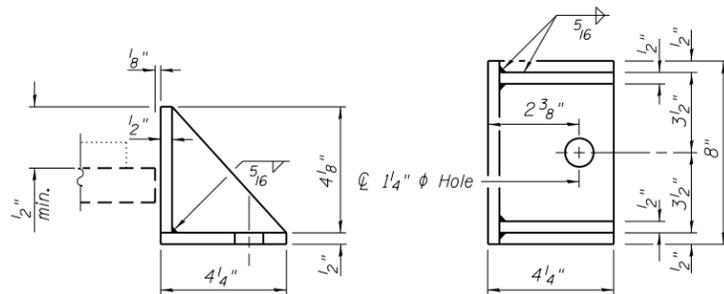


**ENCASED FIXED BEARINGS  
PIERS 1 & 3**



**SIDE RETAINER  
AT ENCASED BEARINGS**

Equivalent rolled angle with stiffeners  
will be allowed in lieu of welded plates.  
(20 Required)  
10 at Pier 1 and 10 at Pier 3



**SIDE RETAINER AT PIER  
EXPANSION BEARING ASSEMBLY**

Equivalent rolled angle with stiffeners  
will be allowed in lieu of welded plates.  
(20 Required)  
10 at Pier 1 and 10 at Pier 3

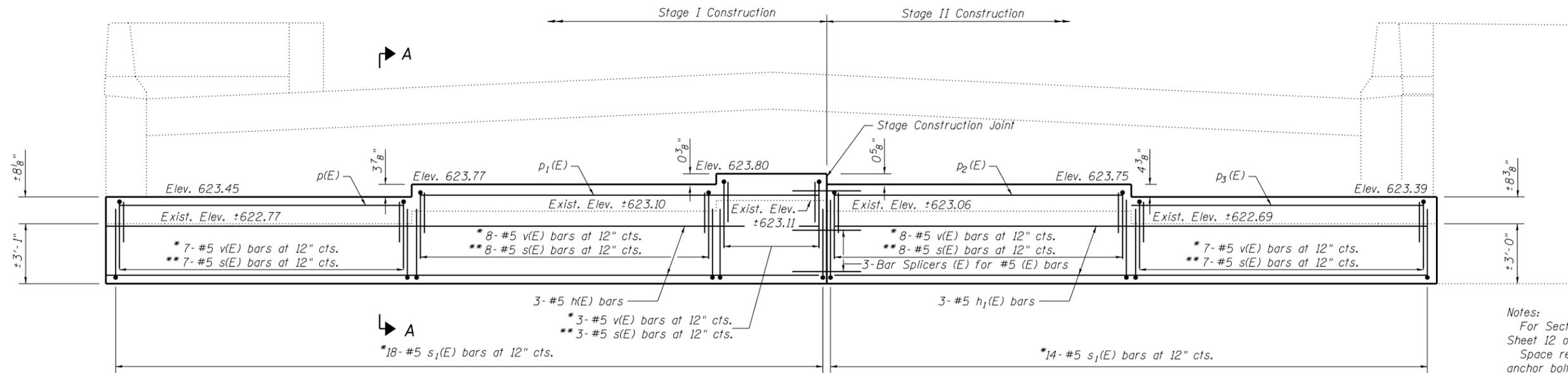
- Notes:
- See Sheet 16 of 20 for Anchor Bolt location Details at Pier 1.
  - See Sheet 19 of 20 for Anchor Bolt location Details at Pier 3.
  - See Sheet 9 of 20 for additional notes.
  - Side Retainers at Encased Bearings shall be paid for as Furnishing & Erecting Structural Steel.

INTERIOR BEAM REACTION TABLE								
	N. Abut.	Pier 1			Pier 3		S. Abut.	
		Span 1	Span 2	Pier 2	Span 3	Span 4		
R <sub>ℓ</sub>	(k)	22.4	22.4	28.1	93.6	28.1	22.4	22.4
R <sub>ℓ</sub>	(k)	25.5	27.8	30.8	50.9	30.8	25.5	25.5
Imp.	(k)	7.6	7.6	8.0	13.2	8.0	7.6	7.6
R <sub>Total</sub>	(k)	55.5	55.5	66.9	157.7	66.9	55.5	55.8

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	10
Anchor Bolts, 1"	Each	60
Jack & Remove Existing Bearings	Each	10
Furnishing & Erecting Structural Steel	Pound	600

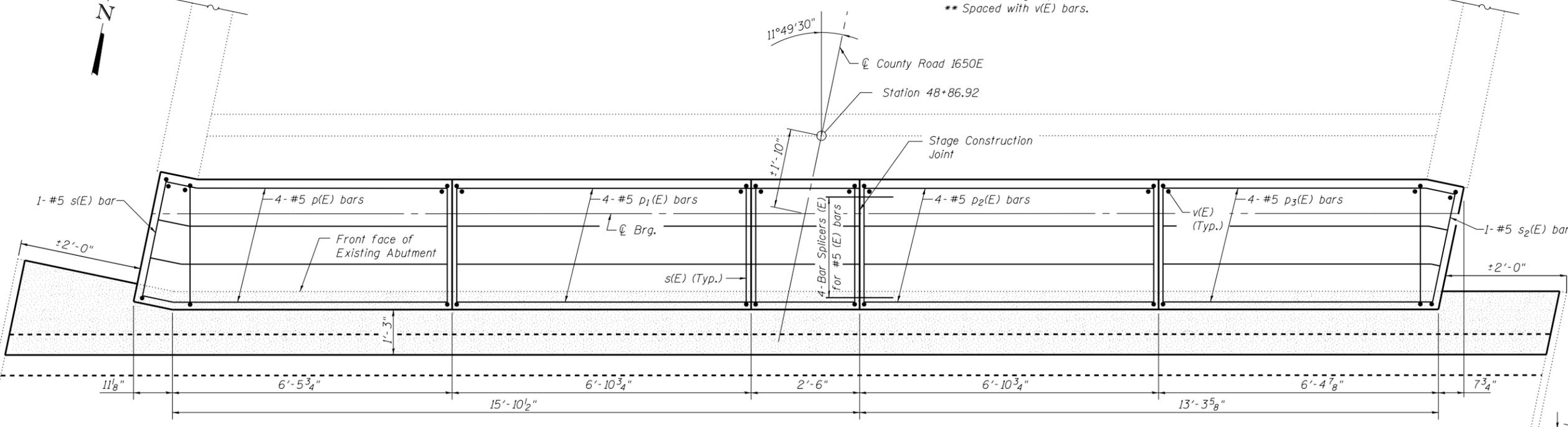
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**ELEVATION**  
(Looking North)

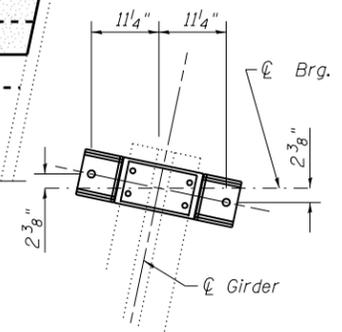
Notes:  
For Section A-A see Sheet 12 of 20.  
Space reinforcement to miss anchor bolts.  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Order p<sub>1</sub>(E) and p<sub>3</sub>(E) bars full length and cut to fit with 2" clear.

\* Field Drill and Epoxy Grout min. 7" into existing cap.  
\*\* Spaced with v(E) bars.



**PLAN**

Indicates Slopewall Removal & Replacement



**ANCHOR BOLT DETAIL**  
**NORTH ABUTMENT**

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BERNHARDEN LOCHMULLER & ASSOCIATES, INC.  
3 DAK DRIVE  
MARYVILLE, IL 62442  
PHONE (618) 281-4666  
FAX (618) 281-4666

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**DEPARTMENT OF TRANSPORTATION**

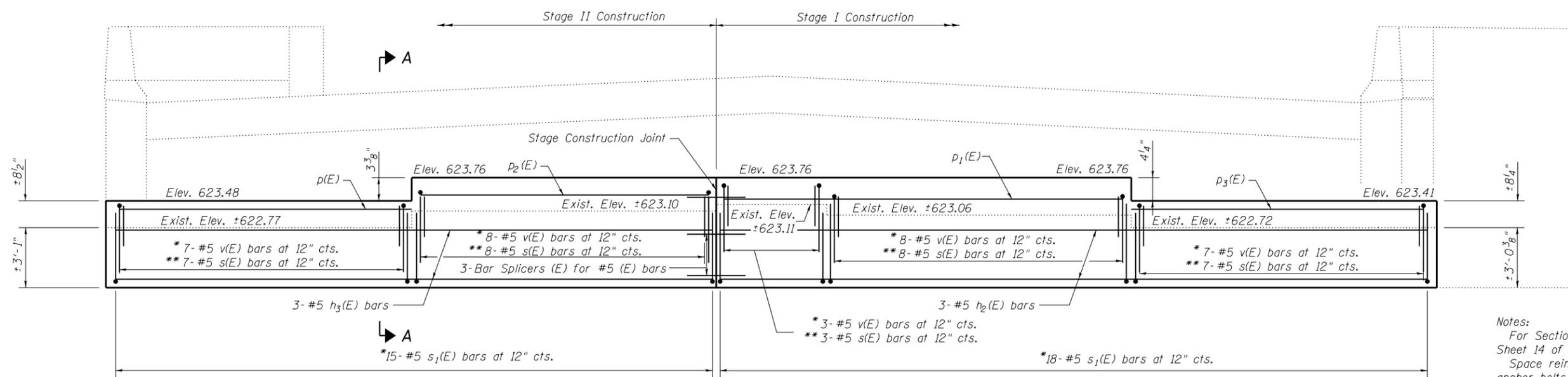
**NORTH ABUTMENT DETAILS**  
**STRUCTURE NO. 025-0062**

SHEET NO. 11 of 20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(25-4HB-2)I	EFFINGHAM	1760	1751
CONTRACT NO. 74295				

ILLINOIS FED. AID PROJECT

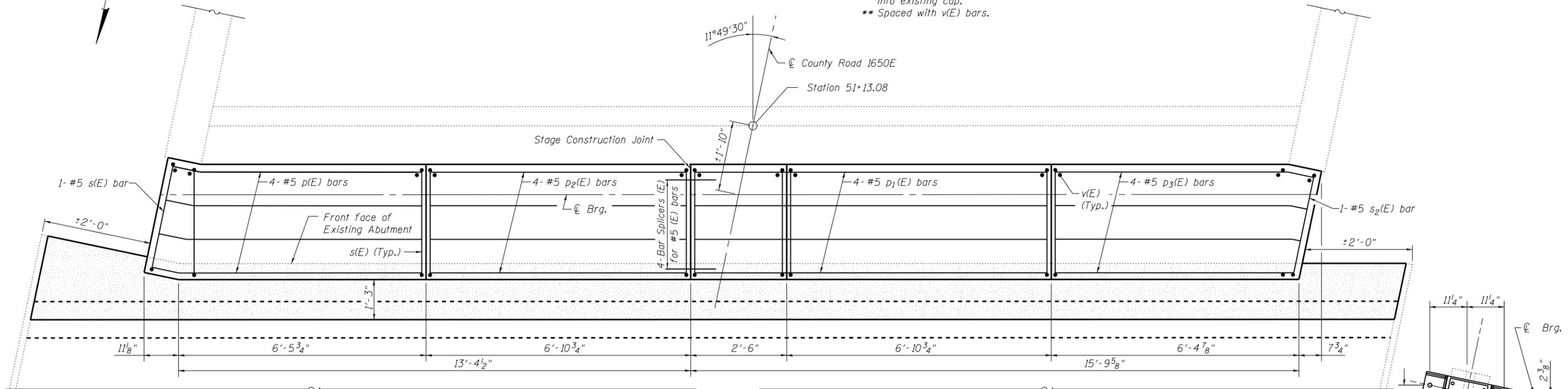




Notes:  
 For Section A-A see Sheet 14 of 20.  
 Space reinforcement to miss anchor bolts.  
 Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
 Order p<sub>1</sub>(E) and p<sub>3</sub>(E) bars full length and cut to fit with 2" clear.

**ELEVATION**  
 (Looking South)

\* Field Drill and Epoxy Grout min. 7" into existing cap.  
 \*\* Spaced with v(E) bars.



**PLAN**

Indicates Slopewall Removal & Replacement

**ANCHOR BOLT DETAIL SOUTH ABUTMENT**

S:\Proj\103-00072\_57-70\Bridges\Bridg 025-0062 TR over 57-70\Drawn\Final\CADD\_Design\_Plans\0250062-74295-013.dgn

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 CHECKED - A.C.S.  
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 CHECKED - C.J.F.  
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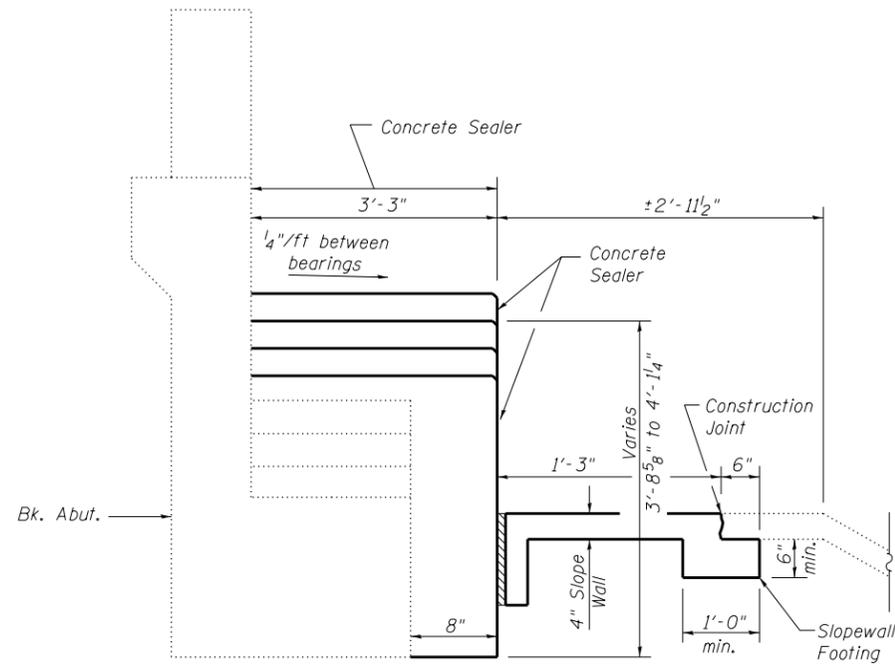
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**SOUTH ABUTMENT DETAILS**  
**STRUCTURE NO. 025-0062**

SHEET NO. 13 OF 20 SHEETS

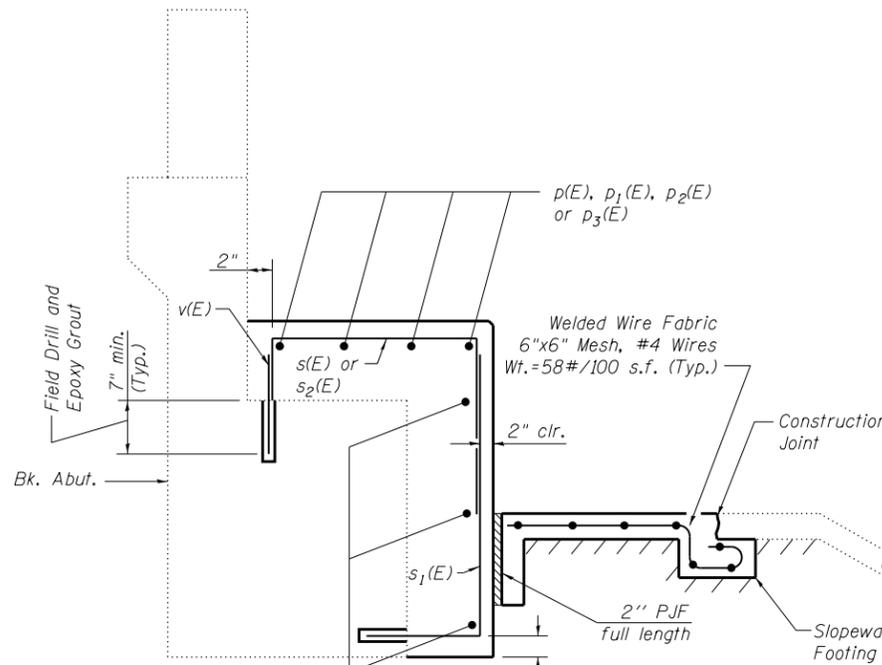
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70	(25-4HB-2)I	EFFINGHAM	1760	1753
CONTRACT NO. 74295				
ILLINOIS FED. AID PROJECT				

Notes:  
 Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
 Apply Concrete Sealer to exposed horizontal and vertical faces of abutment extension.  
 Cost of slopewal footing included in Slopewal 4".



Dimensions at Rt L

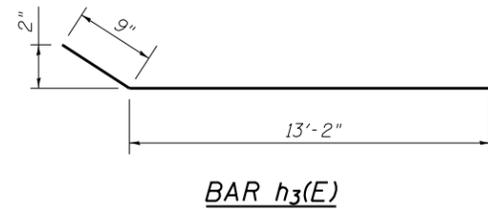
**SECTION A-A  
 THRU ABUTMENT  
 SHOWING OUTLINE**



**SECTION A-A  
 THRU ABUTMENT  
 SHOWING REINFORCEMENT**

**SOUTH ABUTMENT  
 BILL OF MATERIAL**

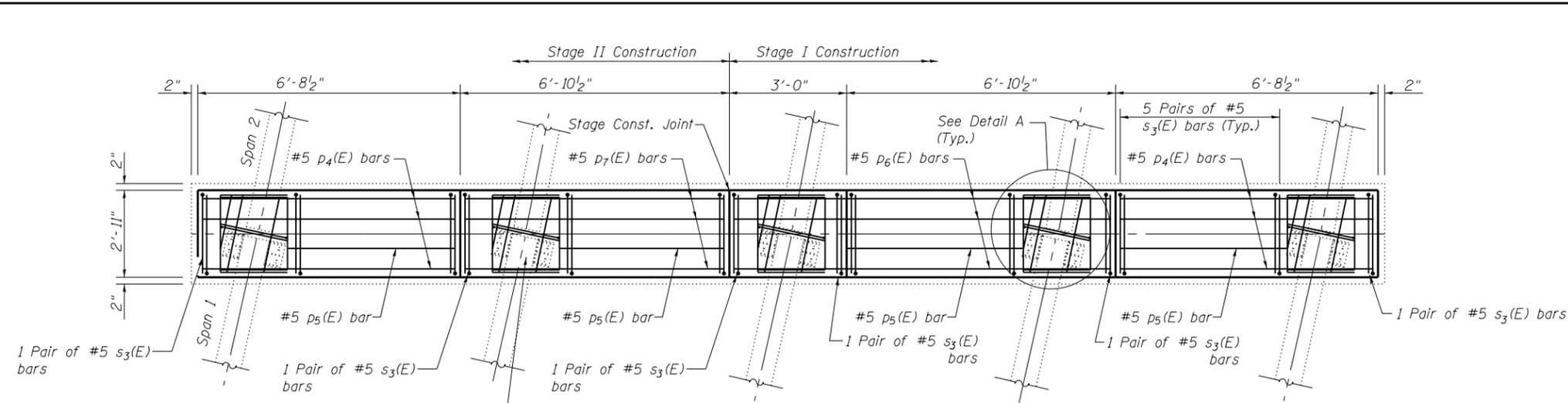
Bar	No.	Size	Length	Shape
$h_2(E)$	3	#5	15'-6"	—
$h_3(E)$	3	#5	13'-11"	—
$p(E)$	4	#5	7'-0"	—
$p_1(E)$	4	#5	9'-0"	—
$p_2(E)$	4	#5	6'-6"	—
$p_3(E)$	4	#5	6'-8"	—
$s(E)$	34	#5	6'-7"	—
$s_1(E)$	34	#5	4'-3"	—
$s_2(E)$	1	#5	6'-6"	—
$v(E)$	35	#5	1'-1"	—
Concrete Sealer		Sq. Ft.	227	
Concrete Structures		Cu. Yd.	5.1	
Reinforcement Bars, Epoxy Coated		Pound	650	
Slopewal, 4"		Sq. Yd.	5.0	



**BAR  $h_3(E)$**

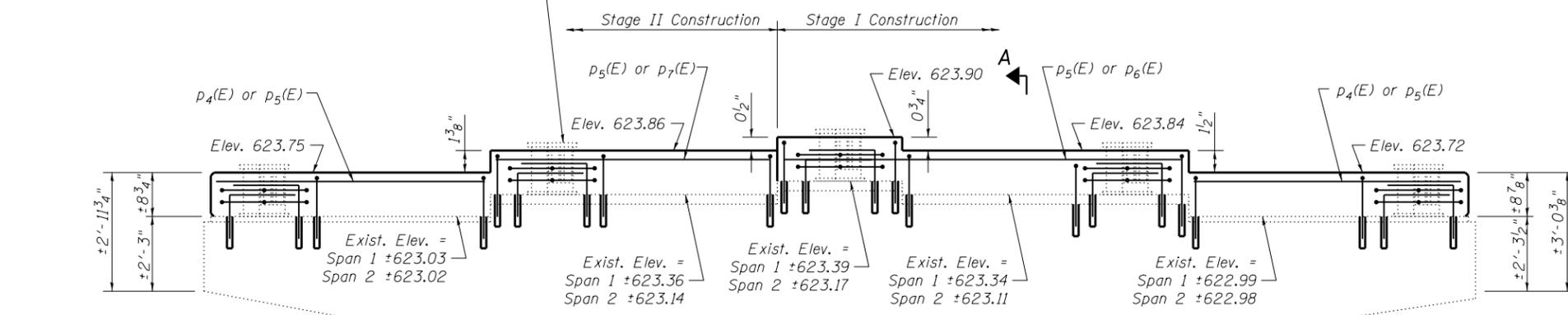
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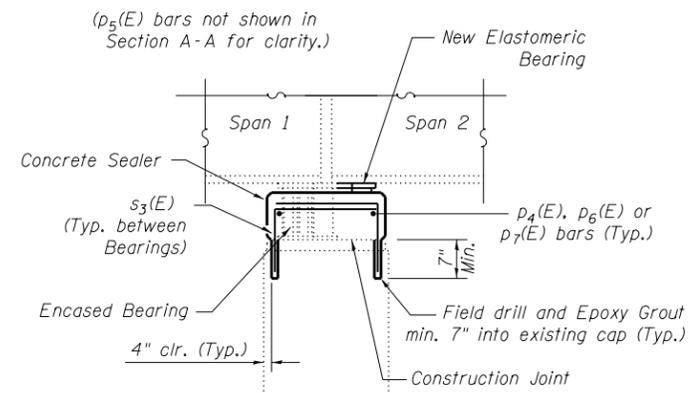
**PLAN CAP**

(New side retainer not shown for clarity)



**ELEVATION**

(Looking South)



**SECTION A-A**

(Showing Bearings and Superstructure)

**MIN BAR LAP**

#5 bar = 2'-6"

**Notes:**  
 For Detail A see Sheet 16 of 20.  
 For View B-B see Sheet 16 of 20.  
 Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
 Concrete Sealer shall be applied only to exposed surface of the new concrete on Pier 1.  
 Bars indicated thus, 9 x 2-#5 bars indicates 9 lines of bars with 2 lengths per line.



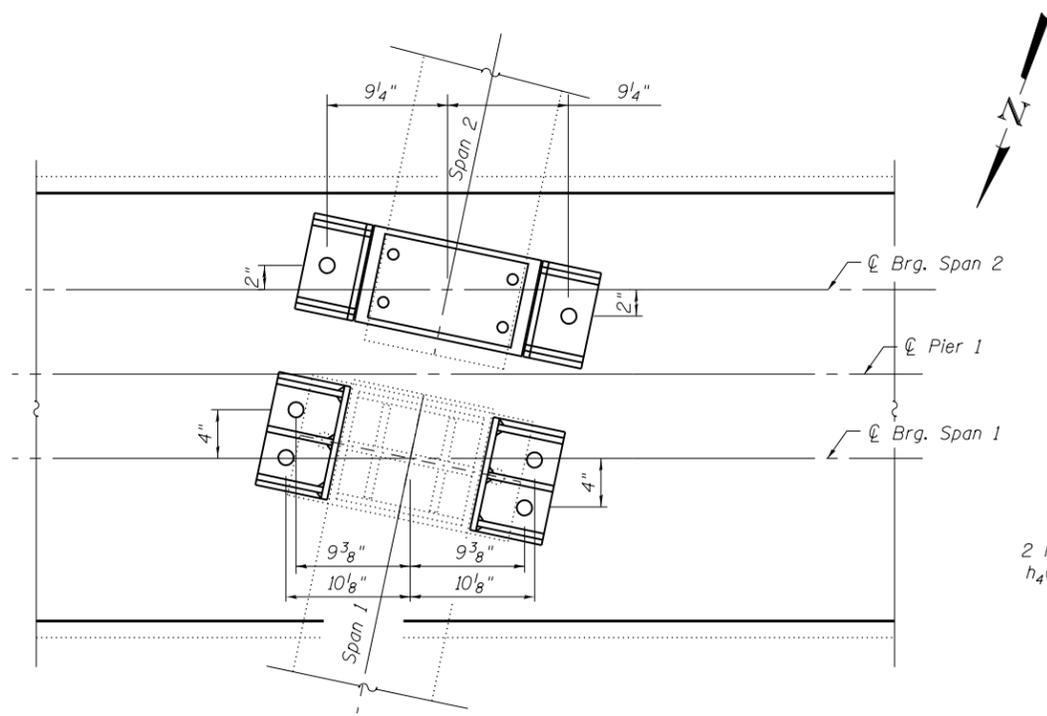
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER 1 GENERAL PLAN  
STRUCTURE NO. 025-0062**  
SHEET NO. 15 of 20 SHEETS

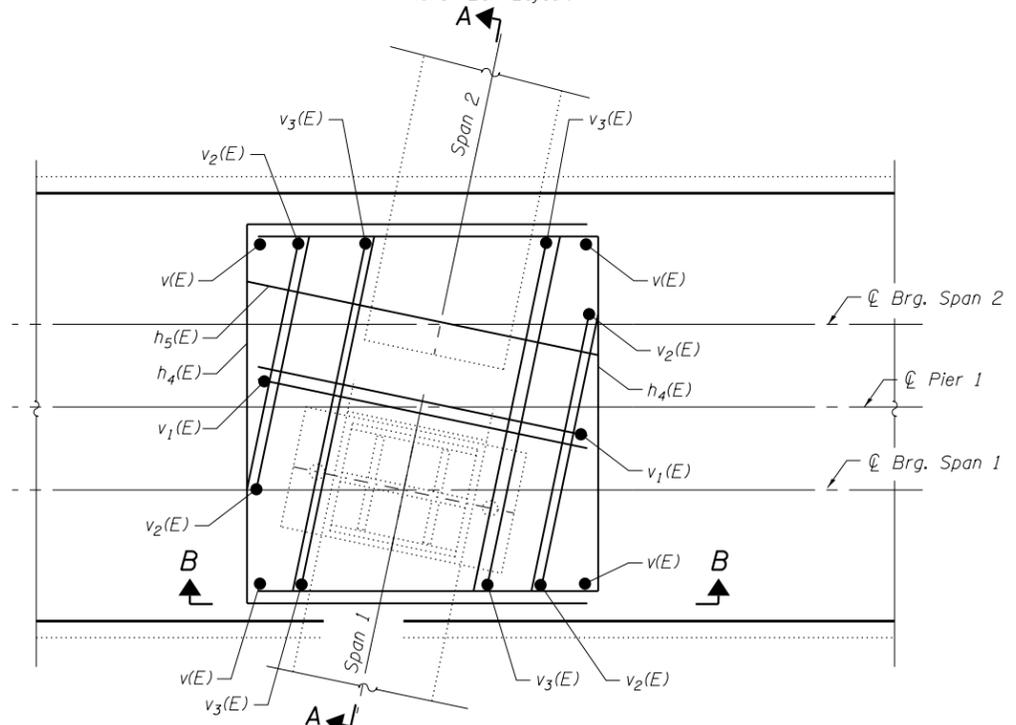
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CONTRACT NO. 74295				
ILLINOIS FED. AID PROJECT				

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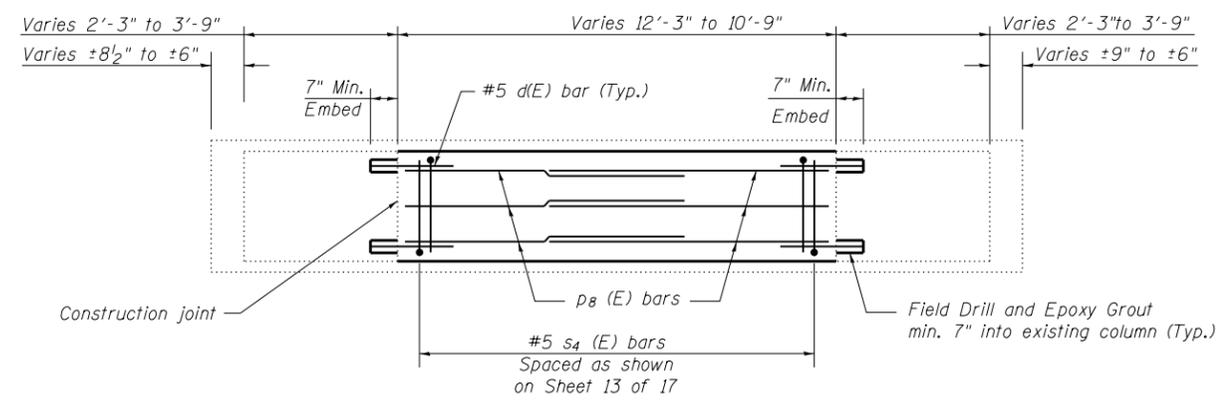
**DETAIL A**

(Showing Side Retainer & Anchor Bolt Layout)



**DETAIL A**

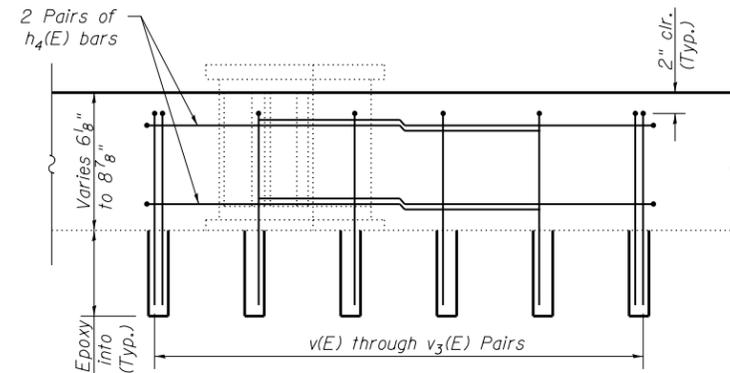
(Showing Reinforcement)  
(All reinforcement shown is #5 bars.)



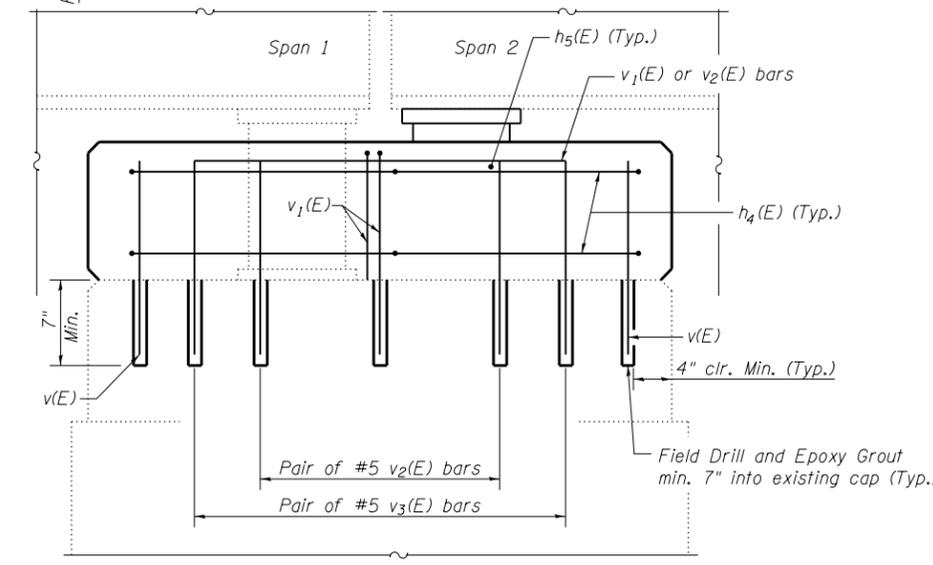
**CRASHWALL PLAN**

**PIER 1**

**VIEW B-B**



**SECTION B-B**



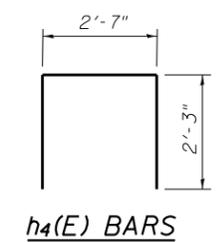
**SECTION A-A**

(All v(E) bars shown are drilled and grouted)  
Side Retainers not shown for clarity.

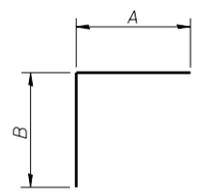
Notes:  
Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
Concrete Sealer shall be applied only to exposed surfaces of the new concrete on Pier 1.

**PIER 1**  
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
d(E)	18	#5	3'-3"	—
h4(E)	20	#5	7'-1"	□
h5(E)	5	#5	2'-3"	—
p4(E)	6	#5	6'-4"	—
p5(E)	4	#5	4'-0"	—
p6(E)	3	#5	9'-6"	—
p7(E)	3	#5	6'-6"	—
p8(E)	18	#5	7'-2"	—
s3(E)	52	#5	3'-8"	┌
s4(E)	26	#5	5'-10"	┌
v(E)	20	#5	1'-1"	—
v1(E)	10	#5	3'-4"	┌
v2(E)	20	#5	2'-11"	┌
v3(E)	20	#5	3'-7"	┌
Concrete Sealer		Sq. Ft.	240	
Concrete Structures		Cu. Yd.	5.8	
Reinforcement Bars, Epoxy Coated		Pound	1020	



**h4(E) BARS**



**v(E) & s(E) BARS**

Bar	A	B
v1(E)	2'-3"	1'-1"
v2(E)	1'-10"	1'-1"
v3(E)	2'-6"	1'-1"
s3(E)	2'-7"	1'-1"
s4(E)	2'-5"	3'-5"

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DESIGNED - B.B.

REVISED -

CHECKED - A.C.S.

REVISED -

PLOT SCALE =

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REVISED -

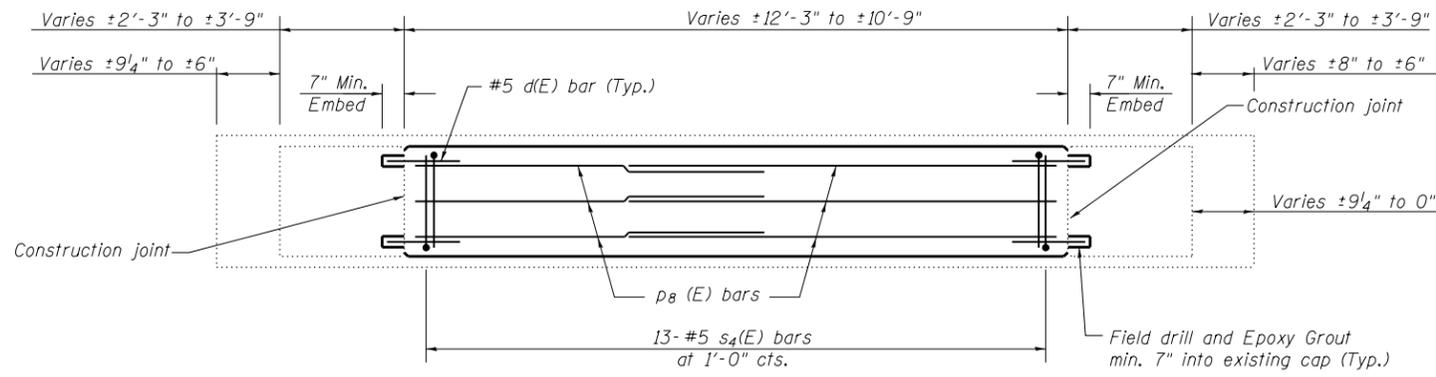
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PIER 1 DETAILS**  
**STRUCTURE NO. 025-0062**

SHEET NO. 16 OF 20 SHEETS

F.A.I. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(25-4HB-2)II	EFFINGHAM	1760	1756
			CONTRACT NO. 74295	

ILLINOIS FED. AID PROJECT



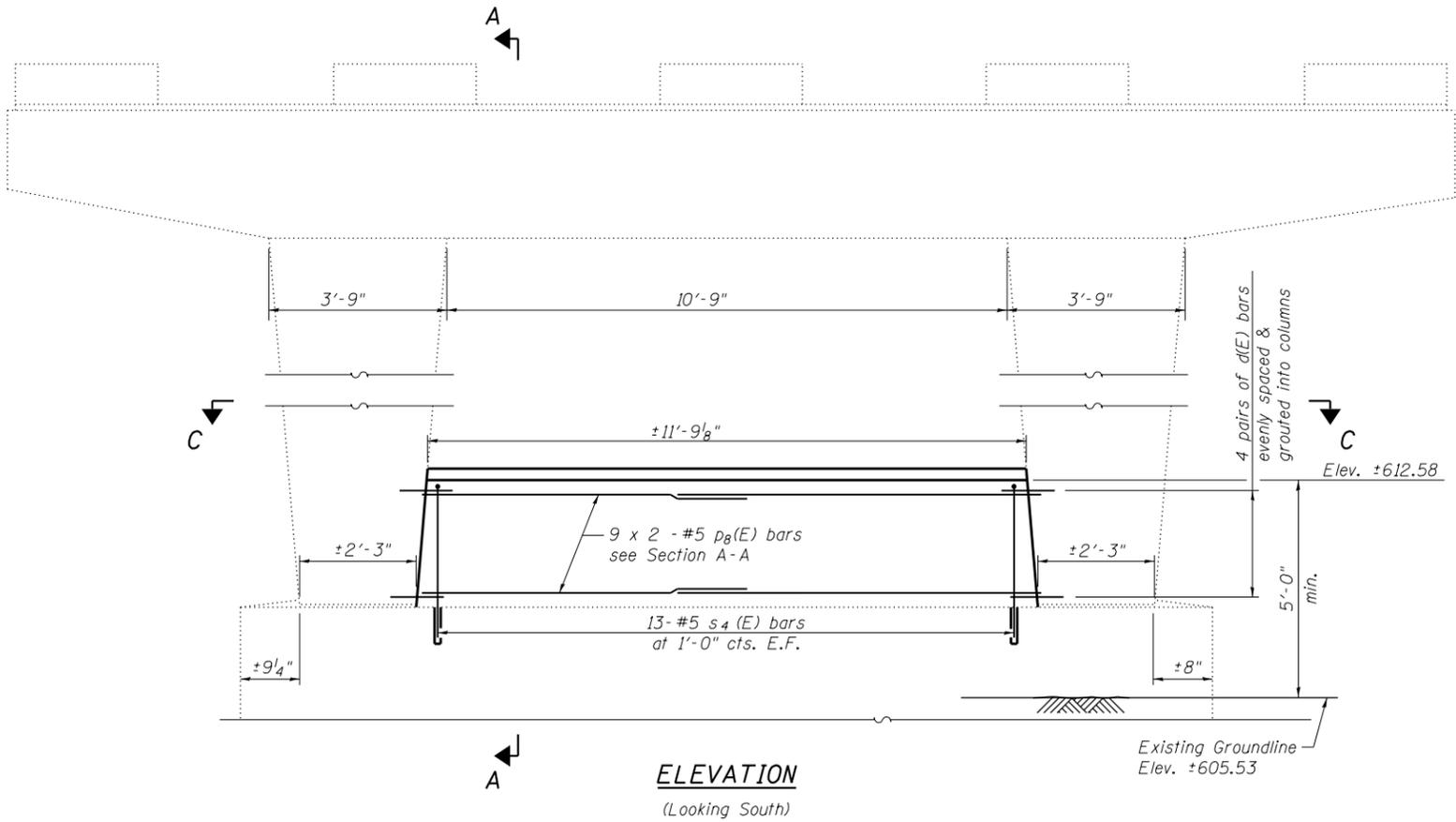
**VIEW C-C**  
**CRASHWALL PLAN - PIER 2**



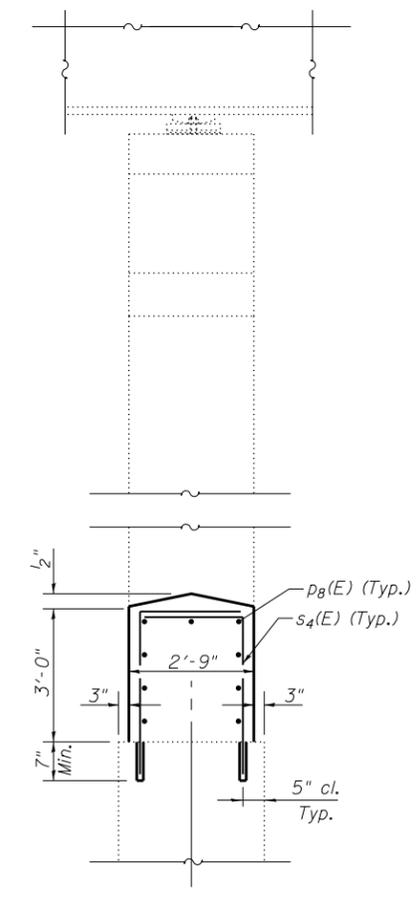
Notes:  
 Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
 Concrete Sealer shall be applied only to exposed surfaces of the new concrete on Pier 2.  
 Bars indicated thus, 9 x 2- #5 bars indicates 9 lines of bars with 2 lengths per line.  
 See sheet 16 of 20 for additional Bar Bend Details.

**BILL OF MATERIAL**  
**PIER 2**

Bar	No.	Size	Length	Shape
d(E)	18	#5	3'-3"	—
p8(E)	18	#5	7'-2"	—
s4(E)	26	#5	5'-10"	┌
Concrete Sealer		Sq. Ft.	105	
Concrete Structures		Cu. Yd.	3.7	
Reinforcement Bars, Epoxy Coated		Pound	360	



**ELEVATION**  
(Looking South)



**SECTION A-A**  
(Showing Bearings and Superstructure)

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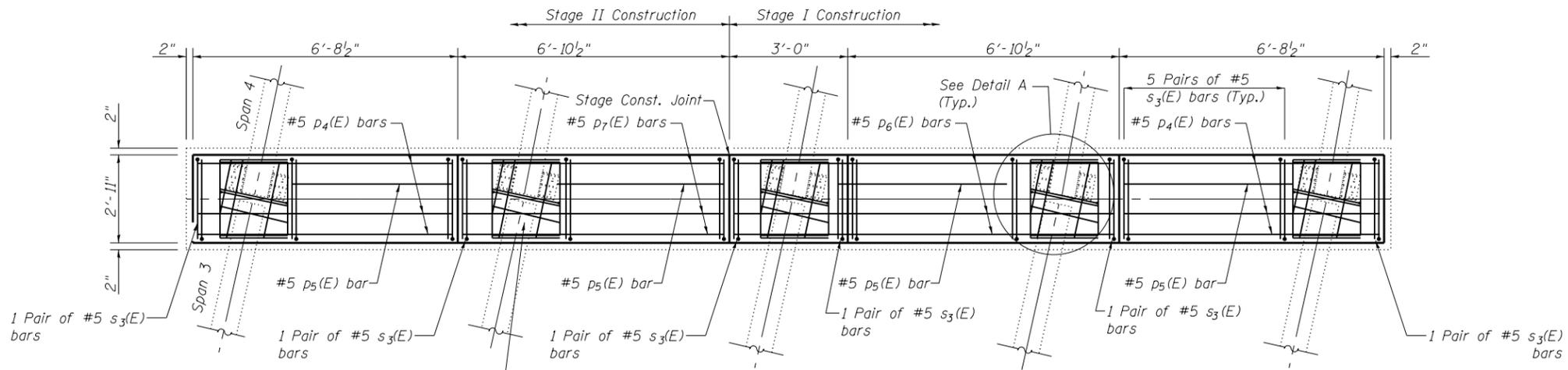
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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

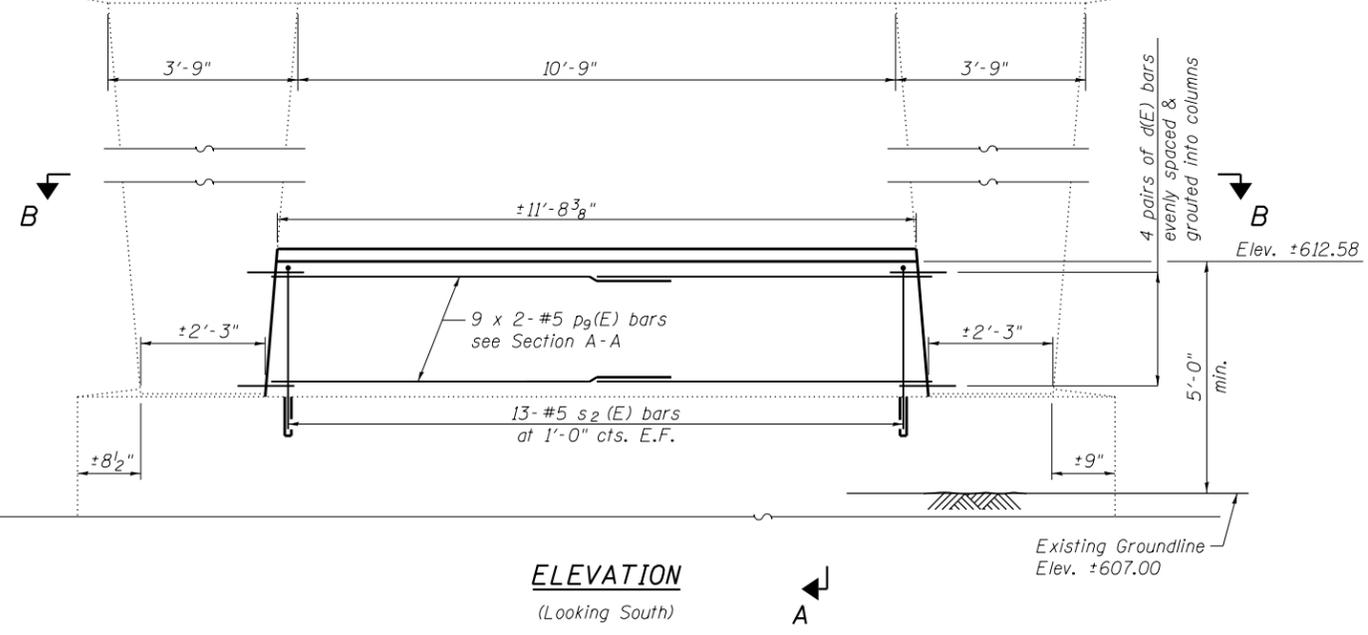
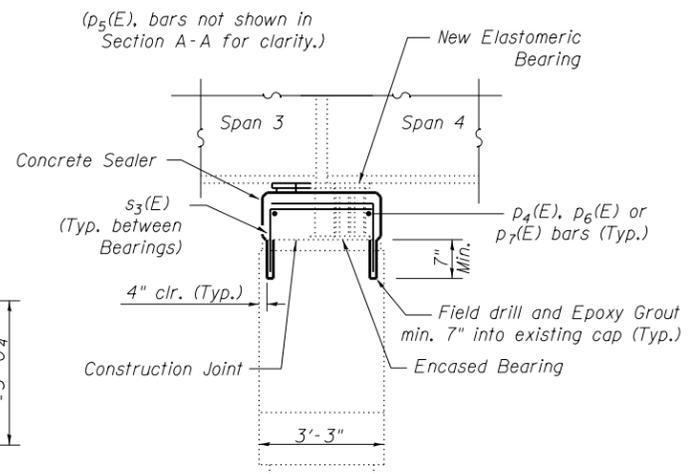
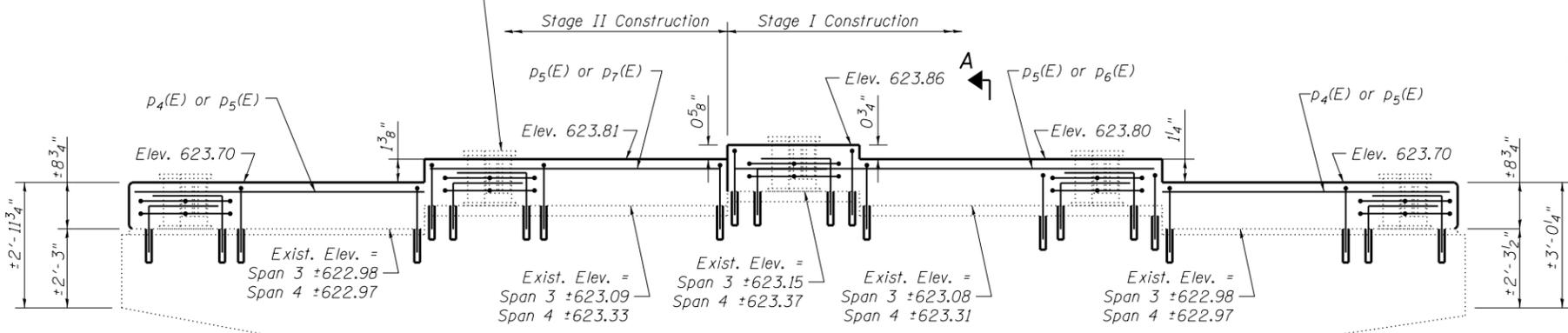
**PIER 2 GENERAL PLAN**  
**STRUCTURE NO. 025-0062**  
SHEET NO. 17 of 20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(25-4HB-2)I	EFFINGHAM	1760	1757
			CONTRACT NO. 74295	

ILLINOIS FED. AID PROJECT

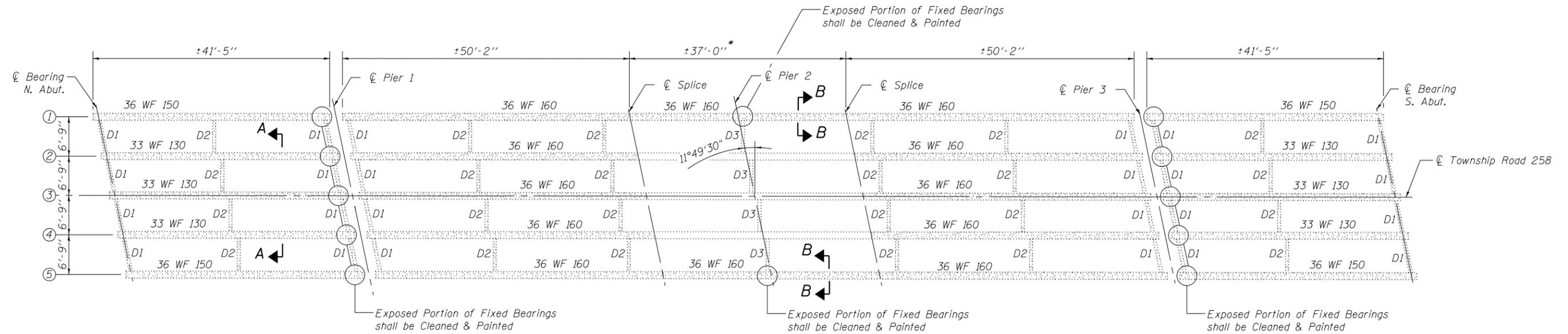
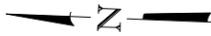


Notes:  
 For Detail A see Sheet 19 of 20.  
 For View B-B see Sheet 19 of 20.  
 Bars shall be drilled and grouted according to Section 584 of the Standard Specifications.  
 Concrete Sealer shall be applied only to exposed surface of the new concrete on Pier 3.  
 Bars indicated thus, 9 x 2-#5 bars indicates 9 lines of bars with 2 lengths per line.



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 REVISIONS:  
 STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 PIER 3 GENERAL PLAN  
 STRUCTURE NO. 025-0062  
 SHEET NO. 18 of 20 SHEETS  
 F.A.I. RT. SECTION COUNTY TOTAL SHEETS SHEET NO.  
 70 (25-4HB-2)I EFFINGHAM 1760 1758  
 CONTRACT NO. 74295  
 ILLINOIS FED. AID PROJECT

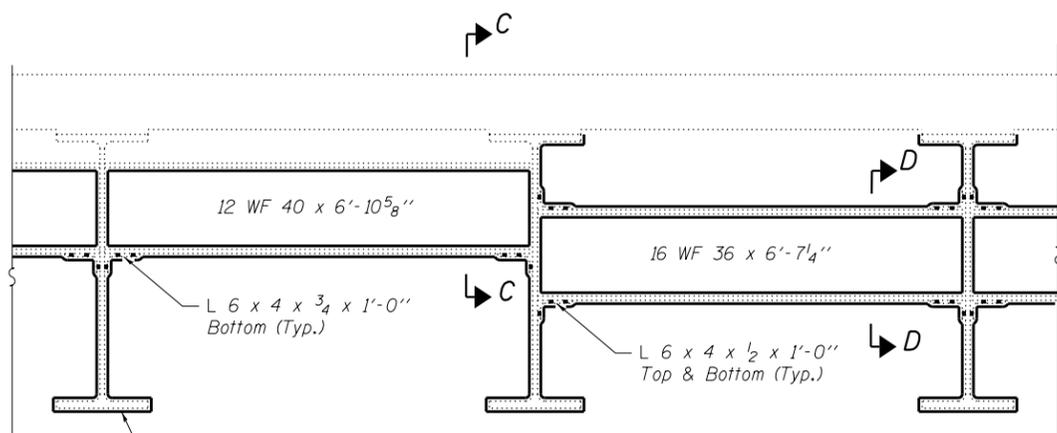




 Locations where Cleaning and Painting Steel Bridge are Required on all exposed surfaces. See Section A-A for limits of application.  
 Locations where no painting is Required. (Reconstructed in 2008, Contract No. 74311)

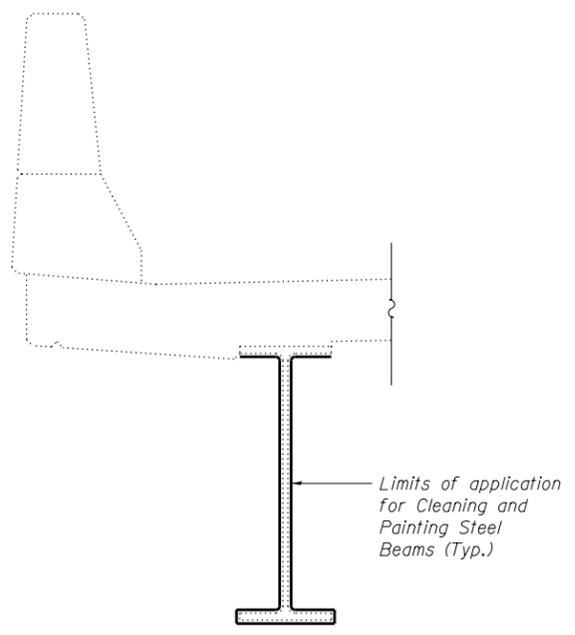
\* Beams 2, 3 & 4 and Diaphragms D3 shall be protected during painting to prevent over spray.

**Notes:**  
 Cleaning and Painting of the existing structural steel shall be as specified in the special provision for "Cleaning and Painting Existing Steel Structures." All structural steel, including beams, bearings and diaphragms shall be cleaned by SSPC-SP10 Near White Metal Blast Cleaning. Fascia beams, in their entirety, shall be cleaned by SSPC-SP10 Near White Metal Blast Cleaning.  
 The designated areas cleaned per SSPC-SP10 Near White Blast Cleaning shall be painted according to the requirements of Painting System 1-OZ/E/U.  
 The color of the final finish coat for all steel surfaces, including the interior and fascia beams, brackets and bumpers, shall be Gray, Munsell No. 5B 7/1.  
 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 existing structural steel contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.  
 A minimum of 3 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."

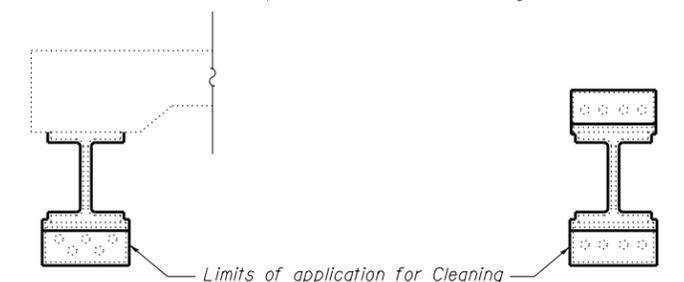


SHOWING DIAPHRAGM D1  
 SHOWING DIAPHRAGM D2

SECTION A-A



SECTION B-B



SECTION C-C

SECTION D-D

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DESIGNED - B.B.	REVISED -
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DRAWN - B.B.	REVISED -
CHECKED - C.J.F.	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PAINT DETAILS  
 STRUCTURE NO. 025-0062  
 SHEET NO. 20 OF 20 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	(25-4HB-2)I	EFFINGHAM	1760	1760
CONTRACT NO. 74295				

ILLINOIS FED. AID PROJECT