

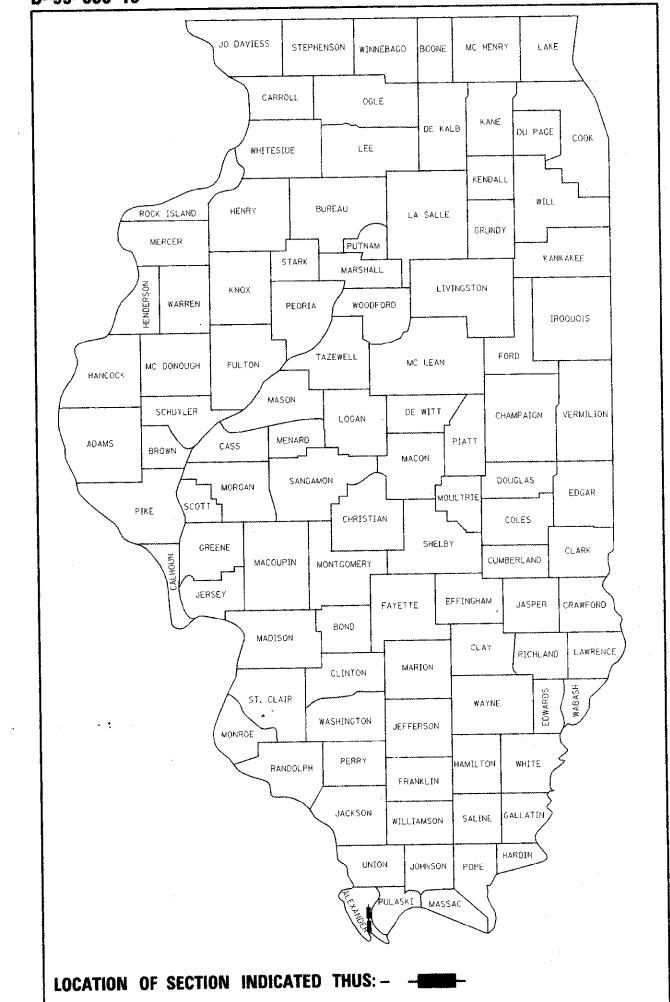
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9 BSMART 2010-1	ALEXANDER	25	1
ILLINOIS			CONTRACT NO. 78173	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

F.A.I. ROUTE 57 (I-57) NB & SB
SECTION D9 BSMART 2010-1
MICROSILICA OVERLAY AND MISC. REPAIRS

D-99-030-10



FOR INDEX OF SHEETS, SEE SHEET NO. 2
FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 3

TRAFFIC DATA

I-57 TRAFFIC DATA

2007 ADT = 10,200
37% TRUCKS

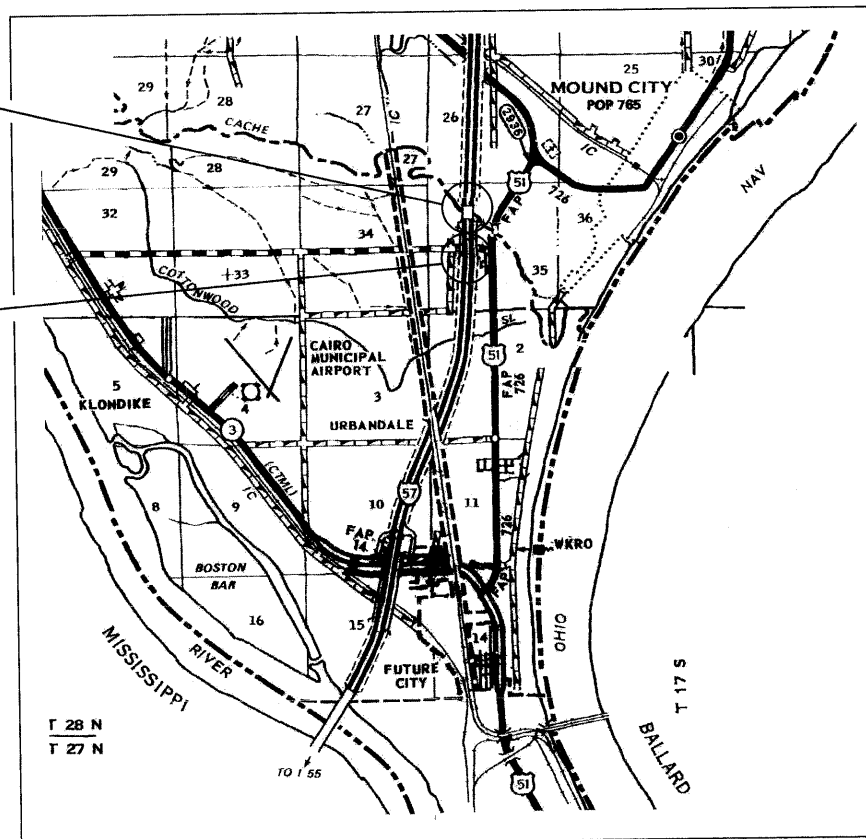
TOWNSHIPS:

COUNTY UNIT ROAD DISTRICT

**ALEXANDER COUNTY
C-99-028-10**

EXISTING STRUCTURE NO. 002-0003
FAI 57 (I-57 NB)
EXISTING STRUCTURE NO. 002-0004
FAI 57 (I-57 SB)

EXISTING STRUCTURE NO. 002-0001
FAI 57 (I-57 NB)
EXISTING STRUCTURE NO. 002-0002
FAI 57 (I-57 SB)



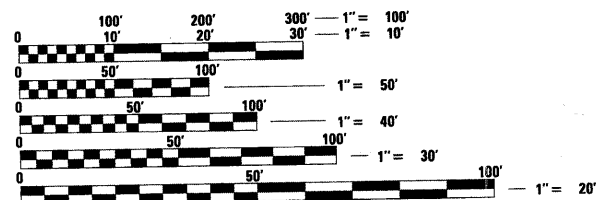
GROSS LENGTH OF PROJECT = 2484.33 FT

SN 002-0001
BRIDGE LENGTH = 1707.92 FT
NET LENGTH = 1707.92 FT

SN 002-0003
BRIDGE LENGTH = 714.33 FT
NET LENGTH = 714.33 FT

SN 002-0002
BRIDGE LENGTH = 1770 FT
NET LENGTH = 1770 FT

SN 002-0004
BRIDGE LENGTH = 714.33 FT
NET LENGTH = 714.33 FT



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENGINEER: DAVID PICHE (618) 351-5227
DESIGNER: T. WAYNE HALSTEAD (618) 351-5228

CONTRACT NO. 78173

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED March 11 20 10
My C. Krami
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

May 7 20 10
Scott E. Stitt P.E. /a
acting ENGINEER OF DESIGN AND ENVIRONMENT

May 7 20 10
Christine M. Reed /a
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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OF THE STATE OF ILLINOIS**

GENERAL NOTES

- 1) THE THICKNESS OF HOT-MIX ASPHALT MIXTURE SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HOT-MIX ASPHALT MIXTURE IS PLACED.
- 2) FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES:

ALL HOT MIX ASPHALT	2.016 TONS/CU YD
BITUMINOUS MATERIALS: ON PAVEMENT	0.09 GAL /SQ YD
- 3) PRIOR TO PLACEMENT OF THE FINAL PAVEMENT MARKINGS THE RESIDENT ENGINEER SHOULD CONTACT THE BUREAU OF OPERATIONS AND ARRANGE FOR INSPECTION AND APPROVAL OF THE PAVEMENT MARKING LAYOUT.
- 4) IN ADDITION TO THE REQUIREMENTS OF ARTICLE 107.16 THE CONTRACTOR SHALL PROTECT THE SURFACE OF ALL BRIDGE DECKS AND BRIDGE APPROACH PAVEMENTS IN A MANNER SATISFACTORY TO THE ENGINEER BEFORE ANY EQUIPMENT IS ALLOWED TO CROSS THE STRUCTURE. PROTECTION SHALL BE PROVIDED FOR ALL EQUIPMENT AS DEFINED IN ARTICLE 101.16 REGARDLESS IF TRACK MOUNTED OR WHEELED.
- 5) COMMITMENTS: NONE AS OF MARCH 19, 2010.

STANDARDS

- | | |
|-----------|--|
| 000001-05 | STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS |
| 001001-02 | AREAS OF REINFORCEMENT BARS |
| 642001-01 | SHOULDER RUMBLE STRIPS |
| 701101-02 | OFF-ROAD, MULTILANE 15' TO PAVEMENT EDGE |
| 701201-03 | LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS ≥ 45 MPH |
| 701400-04 | APPROACH TO LANE CLOSURE FREEWAY/EXPRESSWAY |
| 701402-07 | LANE CLOSURE FREEWAY/EXPRESSWAY, WITH BARRIER |
| 701421-02 | LANE CLOSURE, MULTILANE, DAY OPERATION ONLY, FOR SPEEDS ≥ 45 MPH TO 55 MPH |
| 701426-03 | LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPERATION, FOR SPEEDS ≥ 45 MPH |
| 701901-01 | TRAFFIC CONTROL DEVICES |
| 704001-06 | TEMPORARY CONCRETE BARRIER |
| 780001-02 | TYPICAL PAVEMENT MARKINGS |

INDEX OF SHEETS

- | | |
|-----|---|
| 1 | COVER SHEET |
| 2 | INDEX OF SHEETS, GENERAL NOTES, STANDARDS |
| 3 | SUMMARY OF QUANTITIES |
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| 5-8 | TRAFFIC CONTROL DETAILS |
| 9 | GENERAL PLAN AND ELEVATION SN 002-0003 (NB) & 002-0004 (SB) |
| 10 | DECK SLAB REPAIRS SN 002-0003 (NB) & 002-0004 (SB) |
| 11 | JOINT REPLACEMENT DETAILS AT SOUTH ABUT. SN 002-0003/002-0004 AND R.C. SLAB AT SOUTH ABUT. SN 002-0001/002-0002 |
| 12 | JOINT REPLACEMENT DETAILS AT PIER 3 SN 002-0003 (NB) & 002-0004 (SB) |
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| 19 | JOINT REPLACEMENT DETAILS AT PIERS 1, 4, 7, 10, 13, 16, 19 & 22 SN 002-0001 (NB) & 002-0002 (SB) |
| 20 | JOINT REPLACEMENT DETAILS AT SOUTH ABUT. SN 002-0001 (NB) & 002-0002 (SB) |
| 21 | DRAINS AND RAILING DETAILS SN 002-0001 (NB) & 002-0002 (SB) |
| 22 | PREFORMED JOINT STRIP SEAL DETAILS |
| 23 | BAR SPLICER ASSEMBLY DETAILS |
| 24 | TEMPORARY CONCRETE BARRIER DETAILS |
| 25 | SUBSTRUCTURE REPAIR DETAILS PIER 4 SN 002-0002 |

MIXTURE REQUIREMENTS

LOCATION(S):	HOT-MIX ASPHALT SHOULDERS
MIXTURE USE(S):	HOT-MIX ASPHALT SURFACE COURSE, MIX C, N70
AC/PG:	PG64-22
RAP% (MAX):	10
DESIGN AIR Voids:	4%, 70 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-9.5 MM OR 12.5 MM
FRICITION AGGREGATE:	C SURFACE

Prepared By: *Joe Z...*
DISTRICT STUDIES & PLANS ENGINEER

Examined By: *James Travis Emery*
DISTRICT LAND ACQUISITION ENGINEER

Examined By: *Carrie Nelson*
DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By: *Bob...*
DISTRICT OPERATIONS ENGINEER

Examined By: *Jim Smothers*
DISTRICT CONSTRUCTION ENGINEER

Examined By: *Bruce...*
DISTRICT MATERIALS ENGINEER

Examined By: *Jim Smothers*
DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By: *Dan...*
ASSISTANT REGIONAL ENGINEER

Approved By: *Mr. C. Lami*
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

March 11 20 10
DATE

FILE NAME : c:\pva_koch\pva\dot\cornell\m\40170860\002-0001-0002-ht-misc.dgn

USER NAME = cornellm	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	INDEX OF SHEETS, GENERAL NOTES, SCHEDULE, STANDARDS AND MIXTURE REQUIREMENTS				F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
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PLOT DATE = 2/22/2010	CHECKED -	REVISED -		ILLINOIS FED. AID PROJECT										
	DATE -	REVISED -												

SUMMARY OF QUANTITIES

CODE NUMBER	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	100% STATE CONSTRUCTION TYPE CODE	
				SFTY-2A ALEXANDER	
				SN 002-0001/2	SN 002-0003/4
			QUANTITY	QUANTITY	
40600010	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	80		
42001300	PROTECTIVE COAT	SQ YD	17771	12630	5141
44000155	HOT-MIX ASPHALT SURFACE REMOVAL, 1 1/2"	SQ YD	762		
44000915	HOT-MIX ASPHALT SURFACE REMOVAL (DECK)	SQ YD	17644	12523	5121
48203100	HOT-MIX ASPHALT SHOULDERS	TON	64		
50102400	CONCRETE REMOVAL	CU YD	332.2	285.1	47.1
50157300	PROTECTIVE SHIELD	SQ YD	280	280	
50300255	CONCRETE SUPERSTRUCTURE	CU YD	366	313.9	52.1
50300260	BRIDGE DECK GROOVING	SQ YD	16430	11648	4782
50300530	FLOOR DRAIN EXTENSION	EACH	462	390	72
50500715	JACK AND REMOVE EXISTING BEARINGS	EACH	1	1	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	65440	57210	8230
50800515	BAR SPLICERS	EACH	372	330	42
52100020	ELASTOMERIC BEARING ASSEMBLY TYPE II	EACH	1	1	
52000110	PREFORMED JOINT STRIP SEAL	FOOT	891	711	180
52100520	ANCHOR BOLTS, 1"	EACH	4	4	
64200105	SHOULDER RUMBLE STRIP	FOOT	1520		
67000400	ENGINEERS FIELD OFFICE, TYPE A	CAL MO	10		
67100100	MOBILIZATION	L SUM	1	0.5	0.5
70100310	TRAFFIC CONTROL AND PROTECTION, STANDARD 701421	L SUM	1	0.5	0.5
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1	1	
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	1	0.5	0.5
70300100	SHORT-TERM PAVEMENT MARKING	FOOT	491	348	143
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	12559	8584	3975
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	4351	2978	1373
70400100	TEMPORARY CONCRETE BARRIER	FOOT	5362.5		
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	5337.5		
* 78004210	PREFORMED PLASTIC PAVEMENT MARKING, TYPE B - INLAID - LINE 4"	FOOT	12559		
* 78100105	RAISED REFLECTIVE PAVEMENT MARKER (BRIDGE)	EACH	62	44	18
78300100	PAVEMENT MARKING REMOVAL	SQ FT	507		
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	62	44	18
X0321468	PLUG EXISTING DECK DRAINS	EACH	372	292	80
X0323644	PAVEMENT MARKING GROOVING	FOOT	12559		
X0325305	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	12	12	
X7010820	TRAFFIC CONTROL AND PROTECTION, STANDARD 701402 (SPECIAL)	L SUM	1	0.5	0.5
XZ191200	BRIDGE DECK MICROSILICA CONCRETE OVERLAY 2 1/2"	SQ YD	17003	11966	5037
Z0006204	BRIDGE DECK HYDRO-SCARIFICATION 1/2"	SQ YD	17003	11966	5037
Z0016001	DECK SLAB REPAIR (FULL DEPTH, TYPE I)	SQ YD	1.4		1.4
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	1	1
Z0030350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	1	1

*Specialty Items

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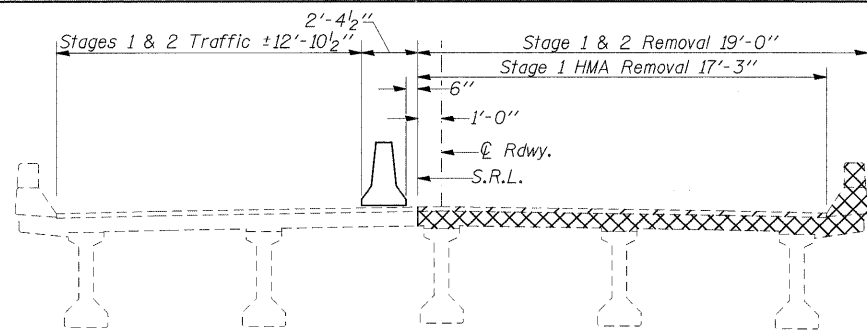
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	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

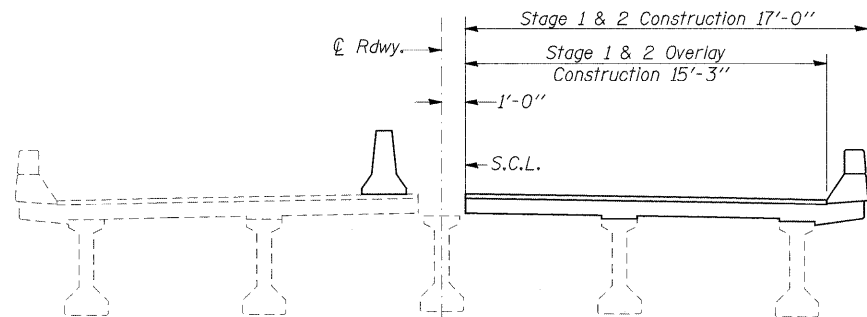
SUMMARY OF QUANTITIES

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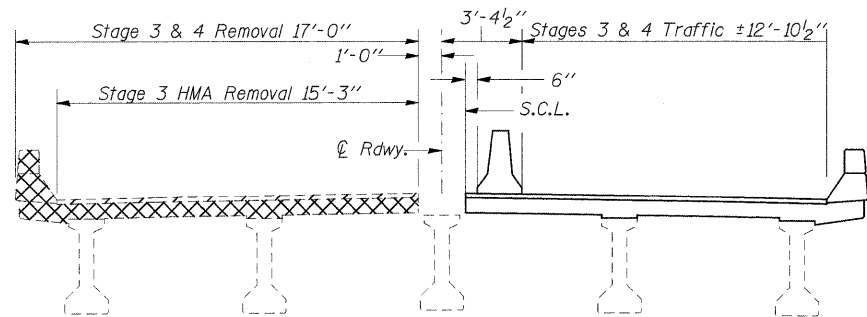
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57	D9 BSMART 2010-1	ALEXANDER	25	3
CONTRACT NO. 78173			Rev.	
ILLINOIS FED. AID PROJECT				



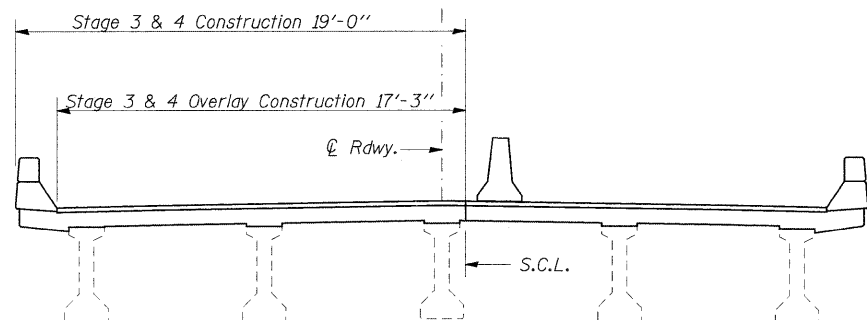
STAGE 1 & 2 REMOVAL



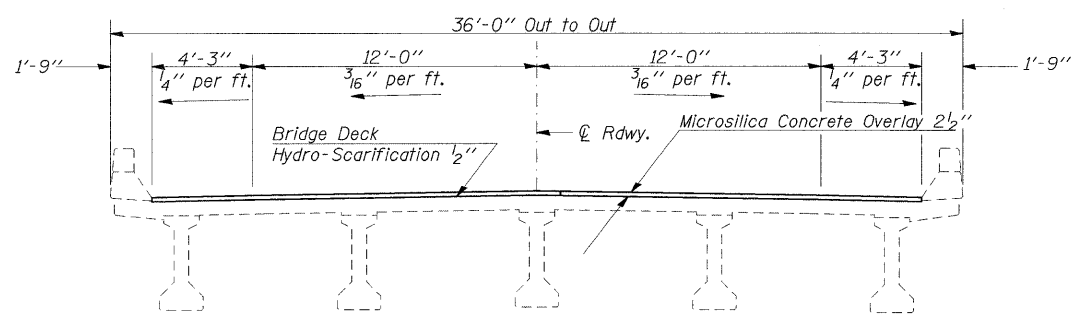
STAGE 1 & 2 CONSTRUCTION



STAGE 3 & 4 REMOVAL



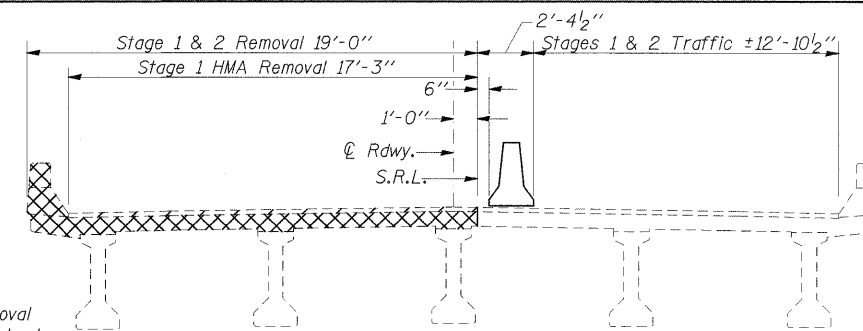
STAGE 3 & 4 CONSTRUCTION



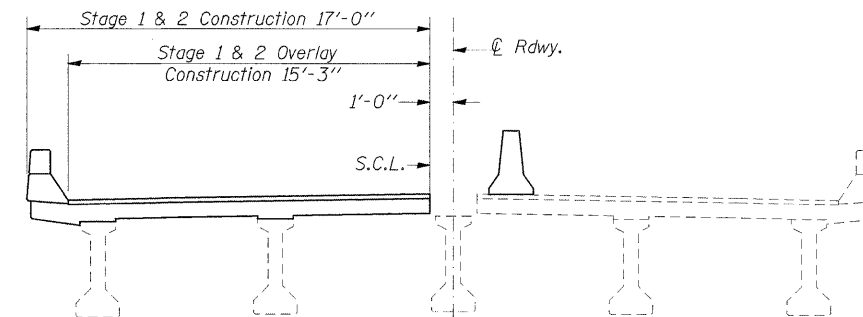
SECTION THRU OVERLAY

SUGGESTED SEQUENCE OF CONSTRUCTION

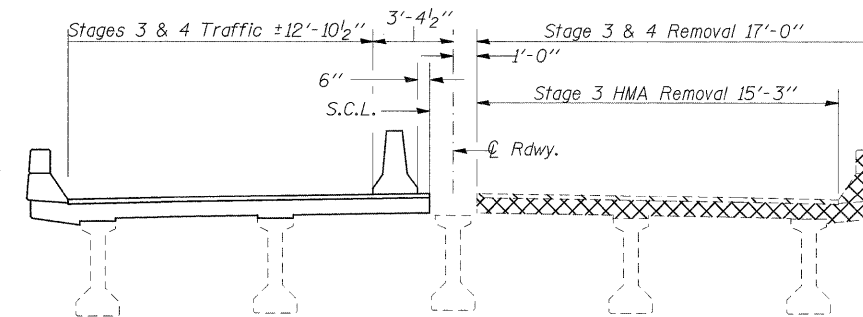
- Stage 1 Removal: Setup T.C.&P. Standard 701402 Special as shown on sheet 5 for work on the inside passing lanes. Perform 2" HMA Surface/WMS removal entire length of Project. Perform Concrete Removal, as shown on the joint detail sheets, and Hydroscarify ½" etc., for limits shown on sheet 5.
- Stage 1 Construction: Construct new Strip Seal Joints and Microsilica Concrete Overlay 2½" etc., for limits shown on sheet 5.
- Stage 2 Removal: Extend T.C.B. on T.C.&P. Standard 701402 Special as shown on sheet 6. Perform Concrete Removal and Hydroscarify ½" etc., for the remainder of the inside passing lanes, as shown on sheet 6.
- Stage 2 Construction: Construct the remainder of the Strip Seal Joints, as specified on the joint detail sheets, and Microsilica Concrete Overlay 2½" etc., on the inside passing lanes as shown on sheet 6.
- Stage 3 Removal: Setup T.C.&P. Standard 701402 Special as shown on sheet 7 for work on the outside driving lanes. Perform 2" HMA Surface/WMS removal entire length of Project. Perform Concrete Removal, as shown on the joint detail sheets, and Hydroscarify ½" etc., for limits shown on sheet 7.
- Stage 3 Construction: Construct new Strip Seal Joints and Microsilica Concrete Overlay 2½" etc., for limits shown on sheet 7.
- Stage 4 Removal: Extend T.C.B. on T.C.&P. Standard 701402 Special as shown on sheet 8. Perform Concrete Removal and Hydroscarify ½" etc., for the remainder of the outside driving lanes, as shown on sheet 8.
- Stage 4 Construction: Construct the remainder of the Strip Seal Joints, as specified on the joint detail sheets, and Microsilica Concrete Overlay 2½" etc., on the outside driving lanes as shown on sheet 8.



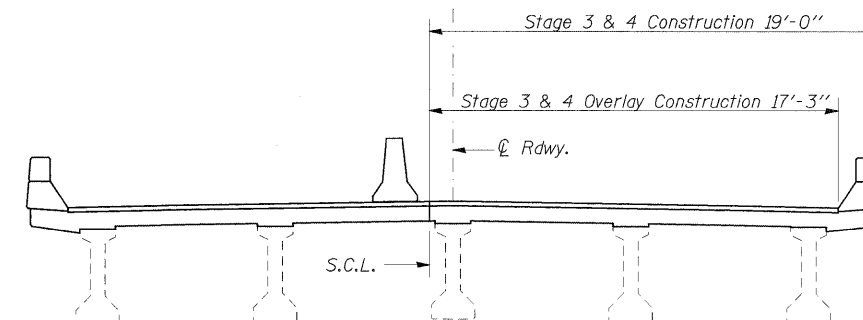
STAGE 1 & 2 REMOVAL



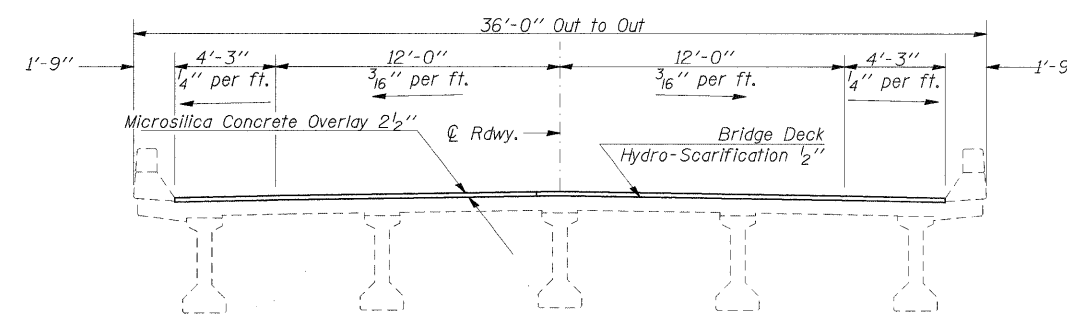
STAGE 1 & 2 CONSTRUCTION



STAGE 3 & 4 REMOVAL



STAGE 3 & 4 CONSTRUCTION



SECTION THRU OVERLAY



NOTES:

If the contractor chooses to modify the Suggested Sequence of Construction, the contractor shall submit a revised sequence of construction and traffic control layout details for review and acceptance by the Engineer.

All Sections looking North.

Beams shown do not represent the actual configuration over the Cache River or approaches, additional information is included in the plans and available through the IDOT District Office upon request.

See Special Provisions for steel plates, that are used to cover the holes for expansion joints.

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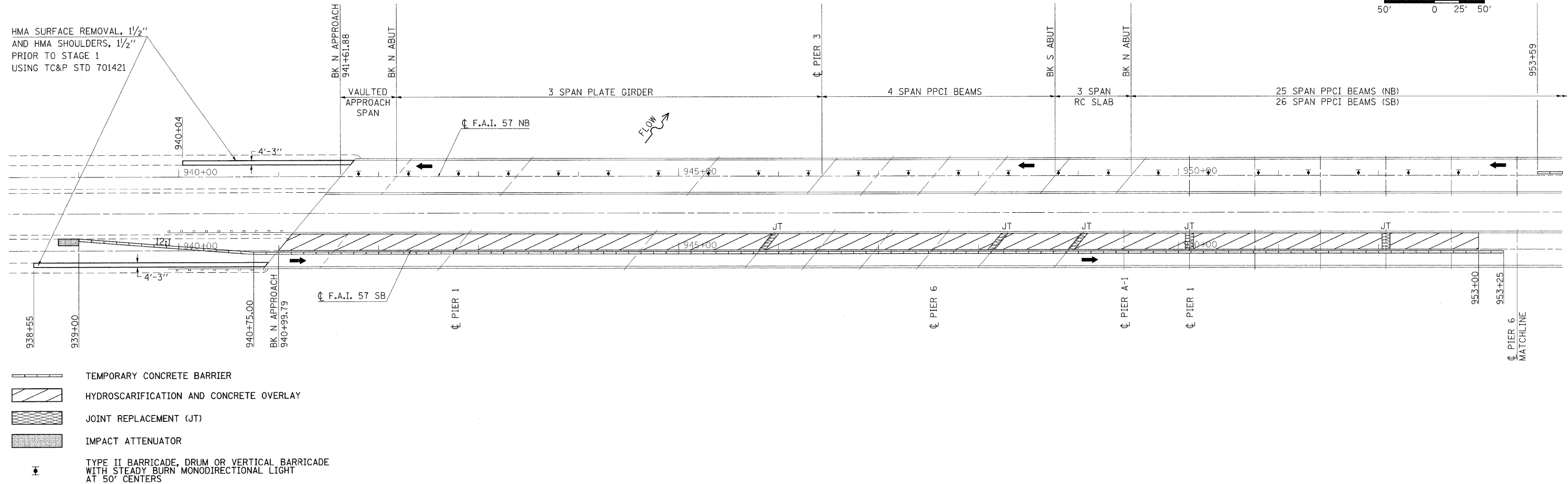
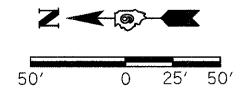
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGING DETAILS

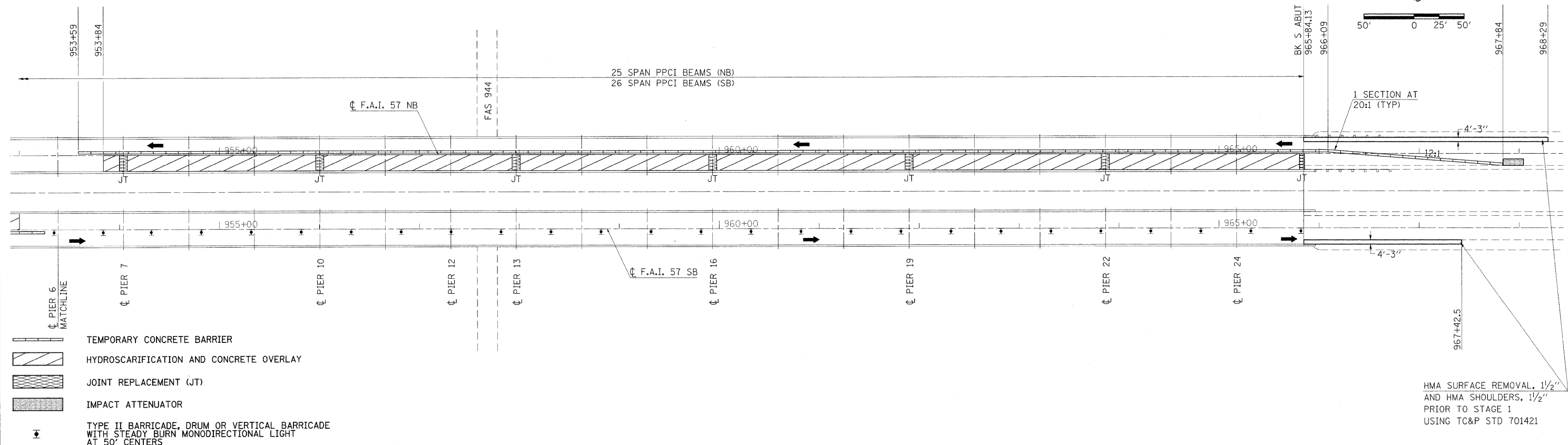
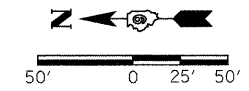
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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9 BSMART 2010-1	ALEXANDER	25	4
CONTRACT NO. 78173				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

STAGE 1



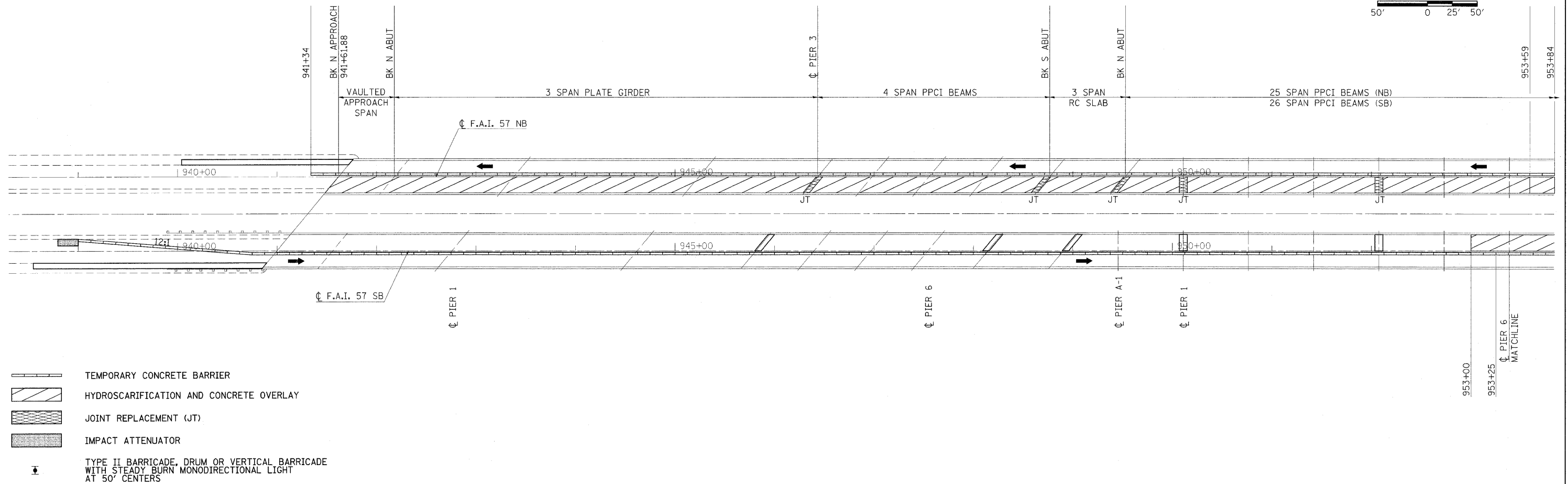
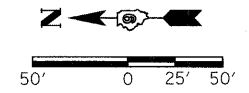
STAGE 1



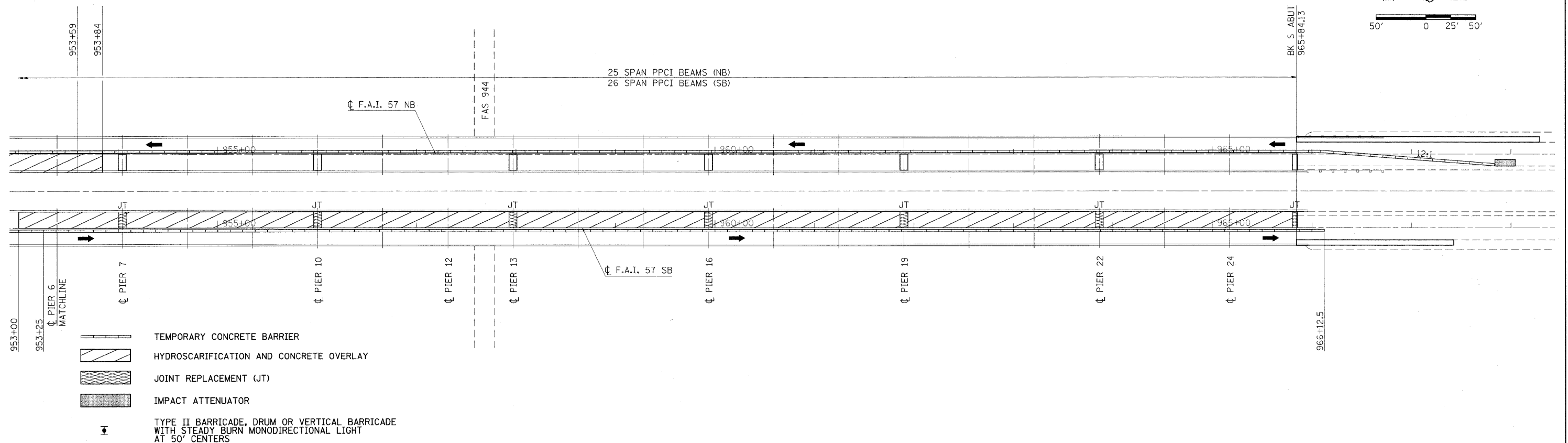
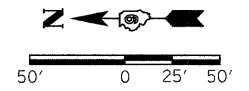
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	PLOT SCALE = 50.0000' / IN.	CHECKED -	REVISED -		CONTRACT NO. 78173							
	PLOT DATE = 2/22/2010	DATE -	REVISED -		ILLINOIS FED. AID PROJECT							

HMA SURFACE REMOVAL, 1 1/2" AND HMA SHOULDERS, 1 1/2" PRIOR TO STAGE 1 USING TC&P STD 701421

STAGE 2

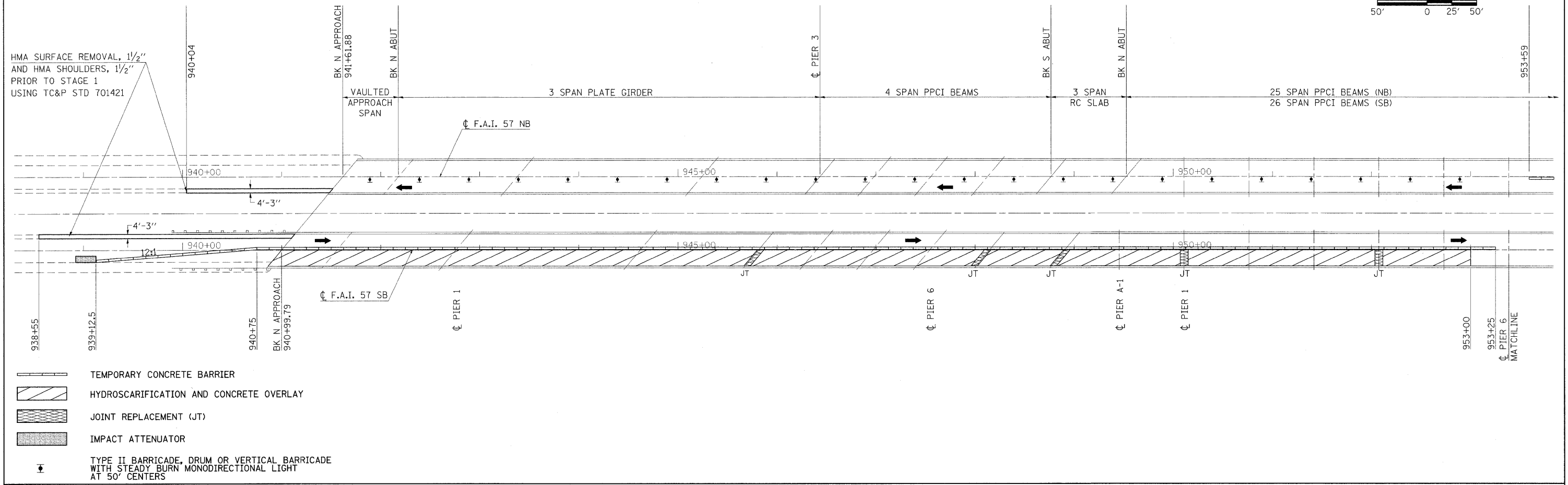
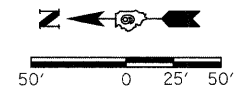


STAGE 2



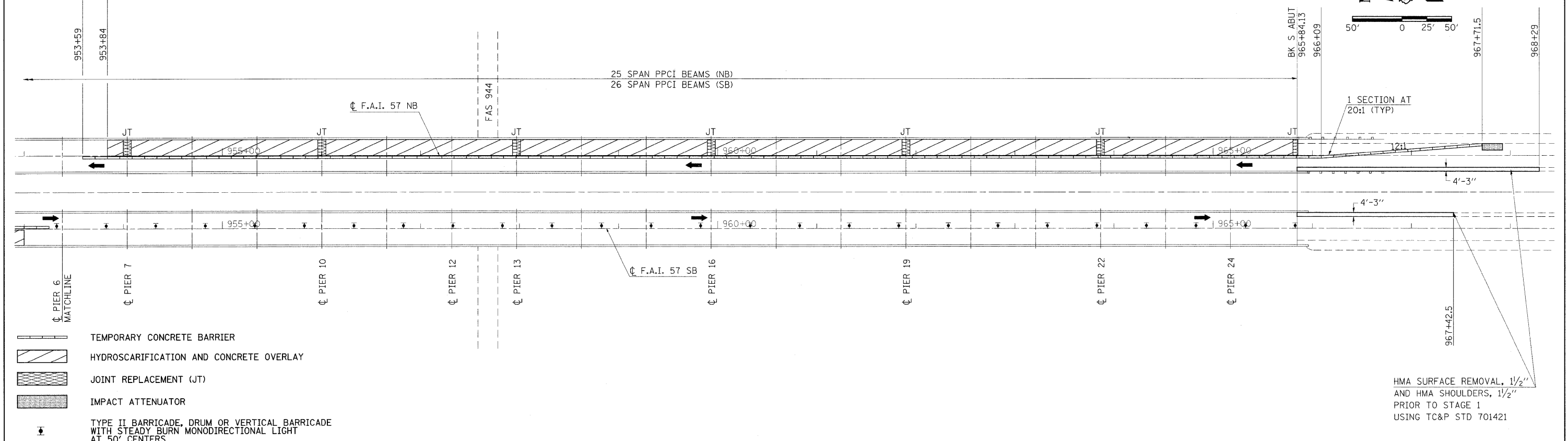
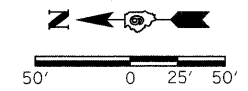
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PLOT DATE = 2/18/2010		DATE -	REVISED -												
											CONTRACT NO. 78173			ILLINOIS FED. AID PROJECT	

STAGE 3



- TEMPORARY CONCRETE BARRIER
- HYDROSCARIFICATION AND CONCRETE OVERLAY
- JOINT REPLACEMENT (JT)
- IMPACT ATTENUATOR
- TYPE II BARRICADE, DRUM OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT AT 50' CENTERS

STAGE 3

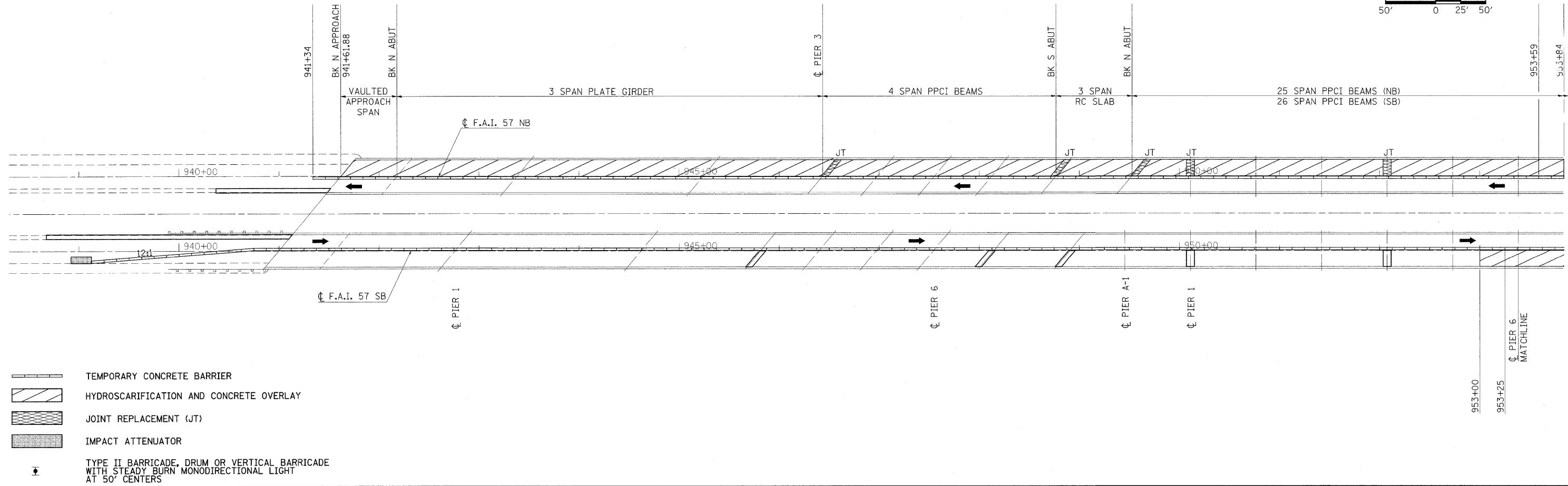
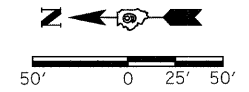


- TEMPORARY CONCRETE BARRIER
- HYDROSCARIFICATION AND CONCRETE OVERLAY
- JOINT REPLACEMENT (JT)
- IMPACT ATTENUATOR
- TYPE II BARRICADE, DRUM OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT AT 50' CENTERS

HMA SURFACE REMOVAL, 1/2"
AND HMA SHOULDERS, 1/2"
PRIOR TO STAGE 1
USING TC&P STD 701421

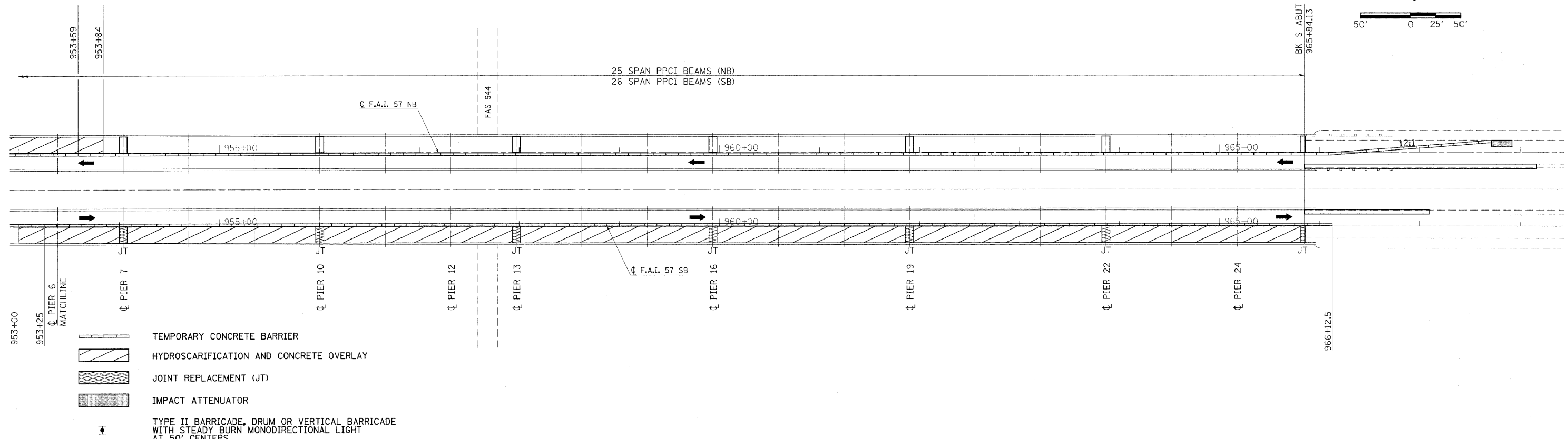
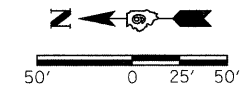
FILE NAME =	USER NAME = cornellm	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TRAFFIC CONTROL STAGE 3			F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.			
c:\pwork\pwork\cornellm\0170060\002-0001-0002-ehf-misc.dgn	PLOT SCALE = 50.0000' / IN.	DRAWN -	REVISED -		SCALE: 1"=50'	SHEET NO.	OF	SHEETS	STA.	TO STA.	57	D9 BSMART 2010-1	ALEXANDER	25	7
	PLOT DATE = 2/22/2018	CHECKED -	REVISED -												
		DATE -	REVISED -												
											CONTRACT NO. 78173			ILLINOIS FED. AID PROJECT	

STAGE 4



- TEMPORARY CONCRETE BARRIER
- HYDROSCARIFICATION AND CONCRETE OVERLAY
- JOINT REPLACEMENT (JT)
- IMPACT ATTENUATOR
- TYPE II BARRICADE, DRUM OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT AT 50' CENTERS

STAGE 4



- TEMPORARY CONCRETE BARRIER
- HYDROSCARIFICATION AND CONCRETE OVERLAY
- JOINT REPLACEMENT (JT)
- IMPACT ATTENUATOR
- TYPE II BARRICADE, DRUM OR VERTICAL BARRICADE WITH STEADY BURN MONODIRECTIONAL LIGHT AT 50' CENTERS

FILE NAME =
c:\pw_work\pwsdot\cornellm\d0170060\02

USER NAME = cornellm
-2001.0002-sht-misc.dgn
PLOT SCALE = 50.0000' / IN.
PLOT DATE = 2/18/2010

DESIGNED -
DRAWN -
CHECKED -
DATE -

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
STAGE 4

SCALE: 1"=50' SHEET NO. OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9 BSMART 2010-1	ALEXANDER	25	8
CONTRACT NO. 78173				
ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

Prior to pouring the new concrete deck section, 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.

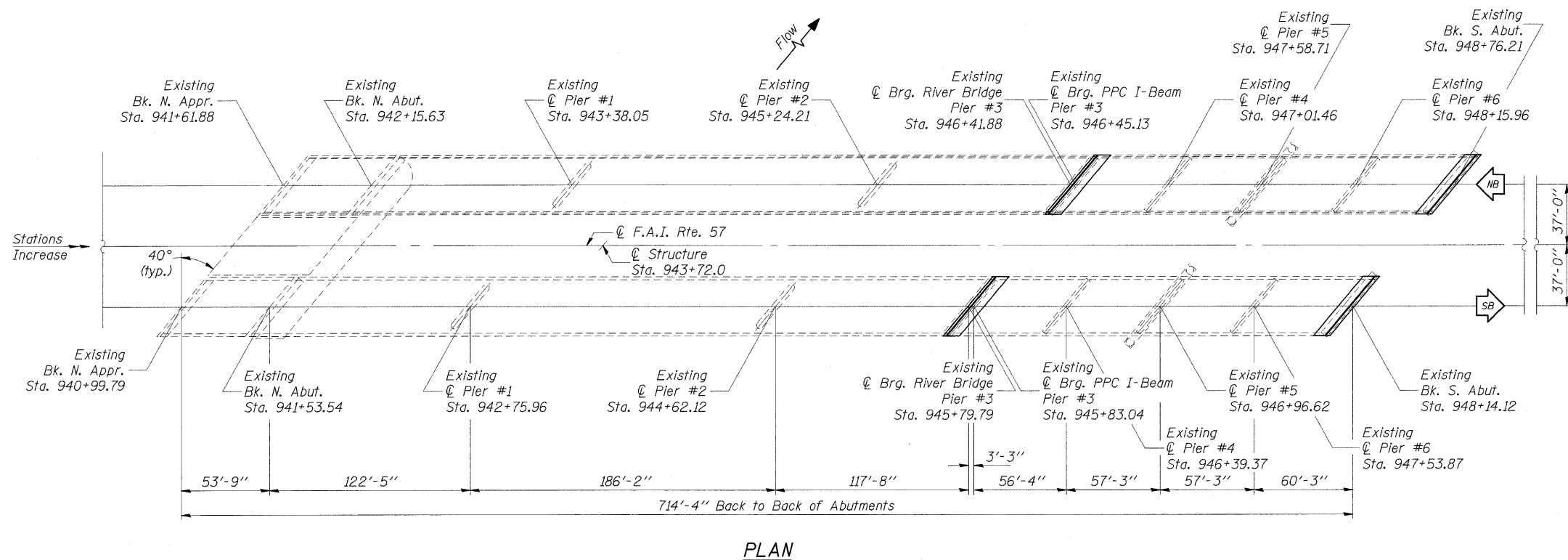
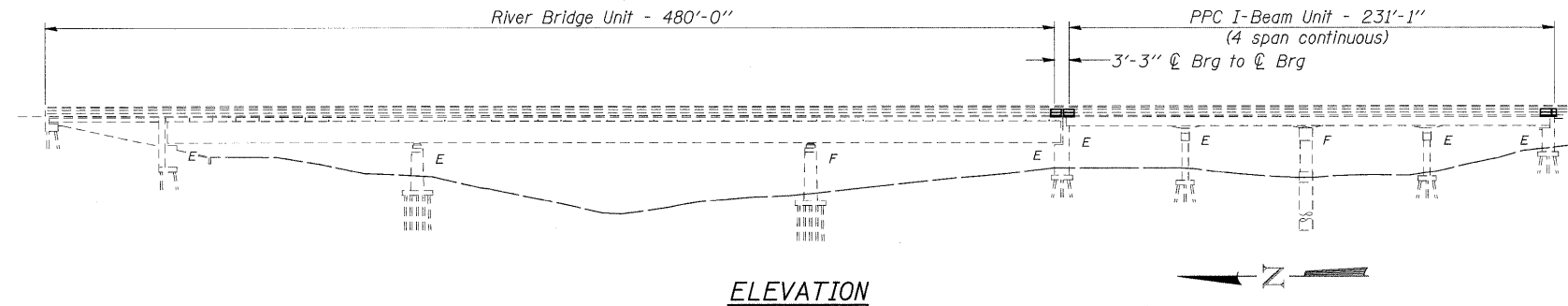
Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall 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.

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

The Contractor shall use extreme care during concrete removal so as not to damage the PPC I-Beam.

Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.

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



TOTAL BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	47.1
Concrete Superstructures	Cu. Yd.	52.1
Bridge Deck Grooving	Sq. Yd.	4782
Bar Splicers	Each	42
Reinforcement Bars, Epoxy Coated	Pound	8230
Plug Existing Deck Drains	Each	80
Preformed Joint Strip Seal	Foot	180
Floor Drain Extension	Each	72
Bridge Deck Microsilica Concrete Overlay 2 1/2"	Sq. Yd.	5037
Bridge Deck Hydro-Scarification 1/2"	Sq. Yd.	5037
Deck Slab Repair (Full Depth, Type I)	Sq. Yd.	1.4
Protective Coat	Sq. Yd.	5141
HMA Surface Removal (Deck)	Sq. Yd.	5121

SCOPE OF WORK

1. Remove existing HMA overlay.
2. Hydroscore deck 1/2".
3. Perform full depth patching.
4. Remove and replace expansion joints at south abutment and pier 3.
5. Apply 2 1/2" microsilica overlay and protective coat.

DESIGN STRESSES

NEW CONSTRUCTION

Field Units

$f_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)

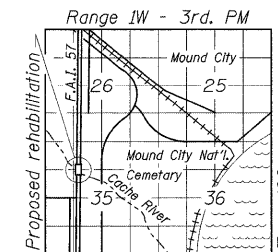
ORIGINAL CONSTRUCTION

Field Units

$f_c = 1,400$ psi (super & sub)
 $f_s = 20,000$ psi (reinforcement)
 $f_s = 20,000$ psi (structural steel)
 $vc = 75$ psi
 $n = 10$

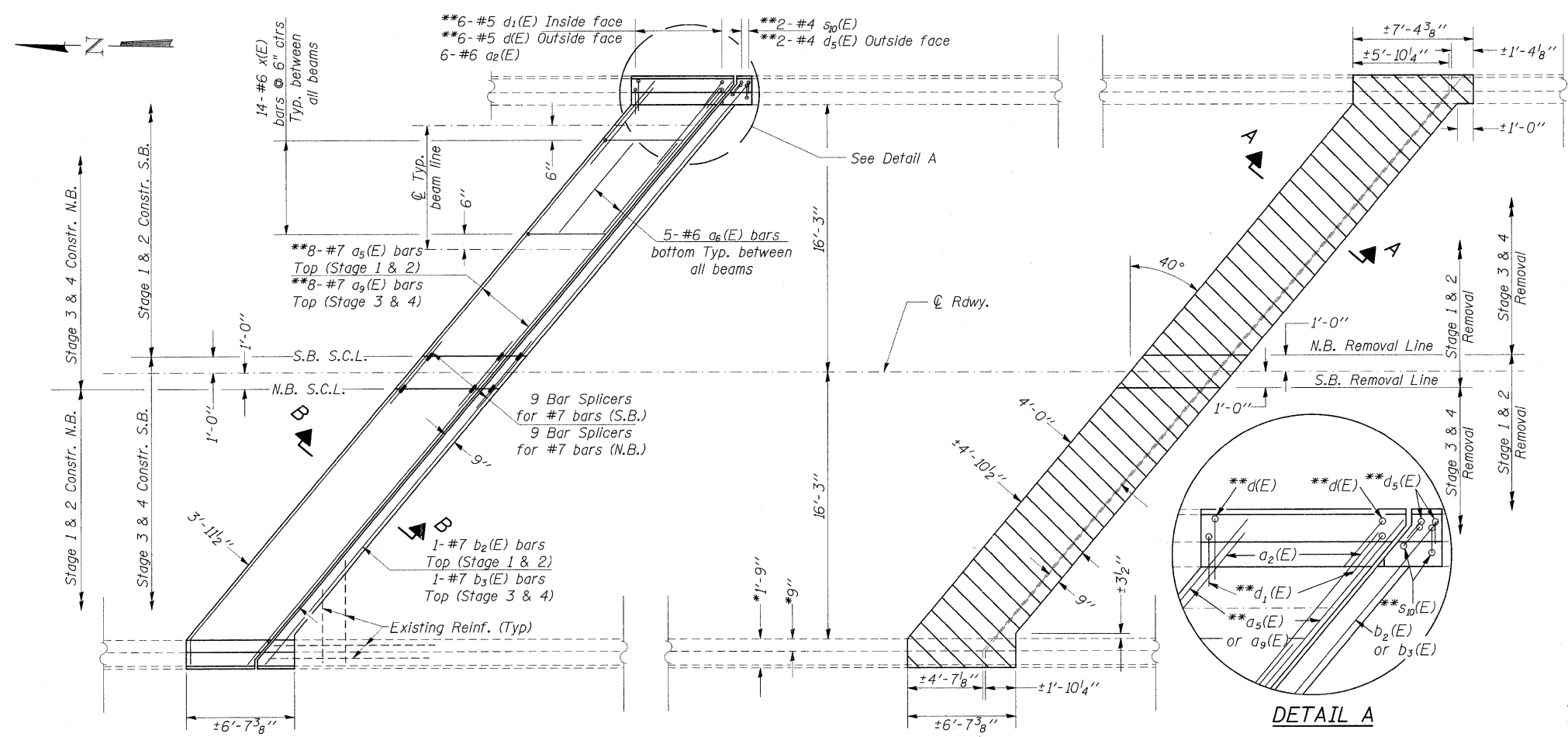
Precast Prestressed Units

$f_c = 5,000$ psi
 $f_{cl} = 4,000$ psi
 $f_s = 248,000$ psi (1/16" stress relieved strands)
 $f_{sl} = 173,600$ psi (1/16" stress relieved strands)



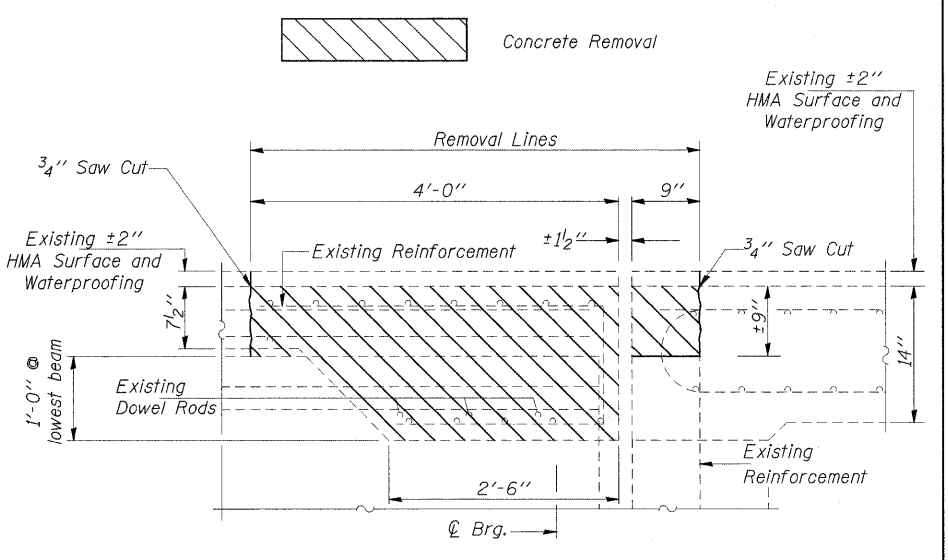
GENERAL PLAN
F.A.I. ROUTE 57 OVER CACHE RIVER
SECTION D9 BSMART 2010-1
ALEXANDER COUNTY
STRUCTURE NO. 002-0003 (N.B.)
STRUCTURE NO. 002-0004 (S.B.)

FILE NAME =	USER NAME = cornellm	DESIGNED - TWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PLAN AND ELEVATION SN 002-0003 & 002-0004	F.A.I. RTE. 57	SECTION D9 BSMART 2010-1	COUNTY ALEXANDER	TOTAL SHEETS 25	SHEET NO. 9
CONTRACT NO. 002-0003 & 002-0004	DRAWN - TWH	CHECKED - MAS	REVISED -			CONTRACT NO. 78173				
PLOT SCALE = 1/8" = 1'-0"	DATE - 11/18/09	REVISED -	REVISED -			FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				
PLOT DATE = 2/18/2010	DATE - 11/18/09	REVISED -	REVISED -							

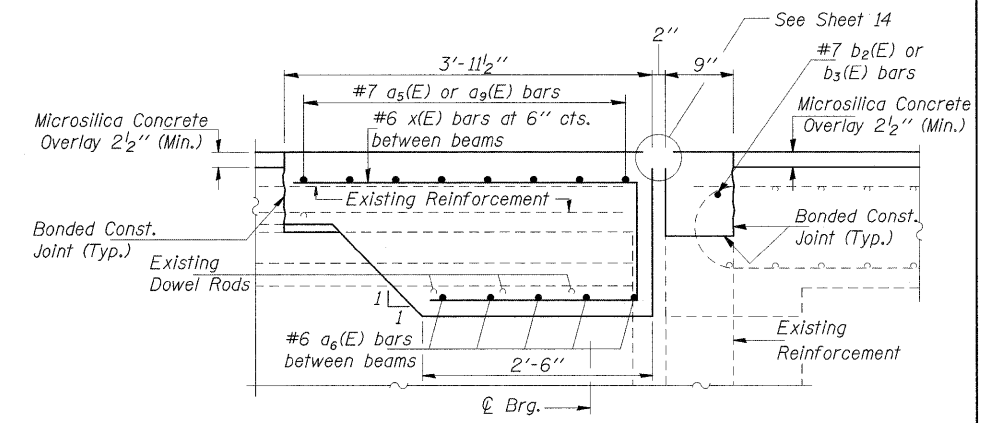


SOUTH ABUT. PLAN (SN 002-0003/4) SHOWING NEW CONCRETE
R.C. SLAB @ S.A. PLAN (SN 002-0001/2) SHOWING NEW CONCRETE

SOUTH ABUT. PLAN (SN 002-0003/4) SHOWING CONCRETE REMOVAL
R.C. SLAB @ S.A. PLAN (SN 002-0001/2) SHOWING CONCRETE REMOVAL



SECTION A-A
 Dimensions measured at Right Angles



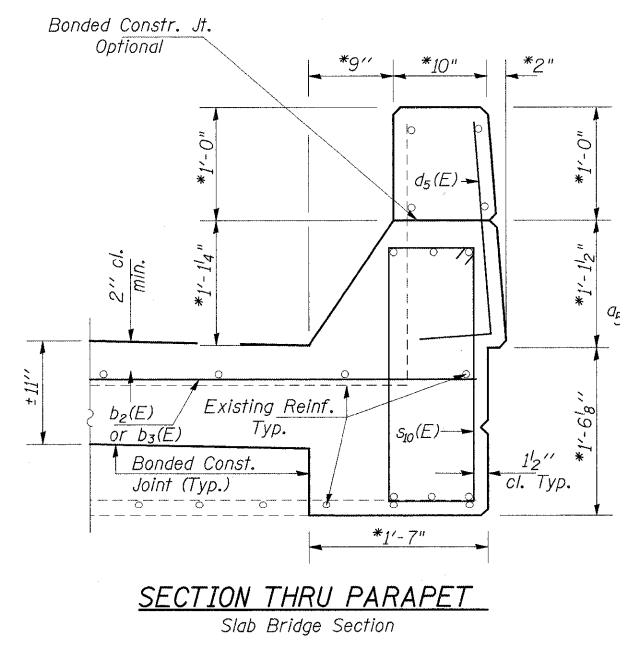
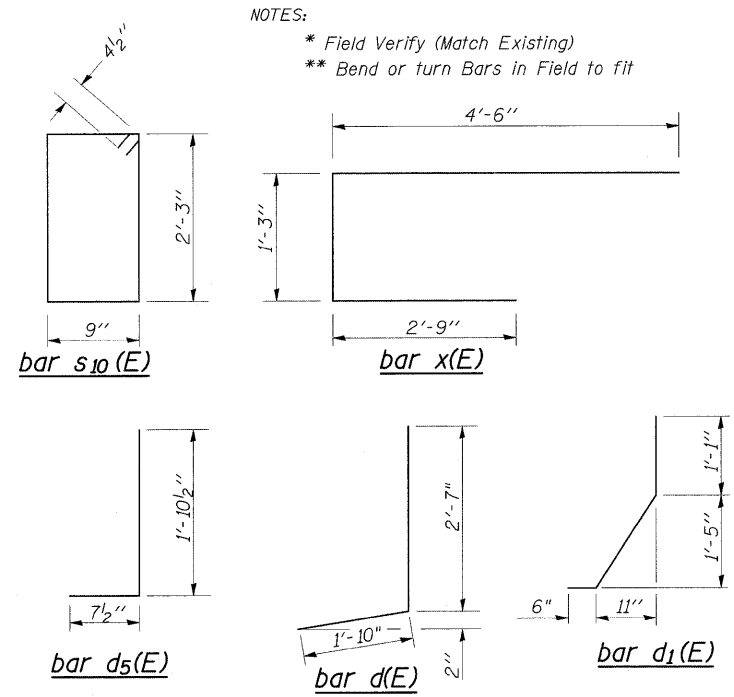
SECTION B-B
 Dimensions measured at Right Angles

BILL OF MATERIAL (BOTH JOINTS)

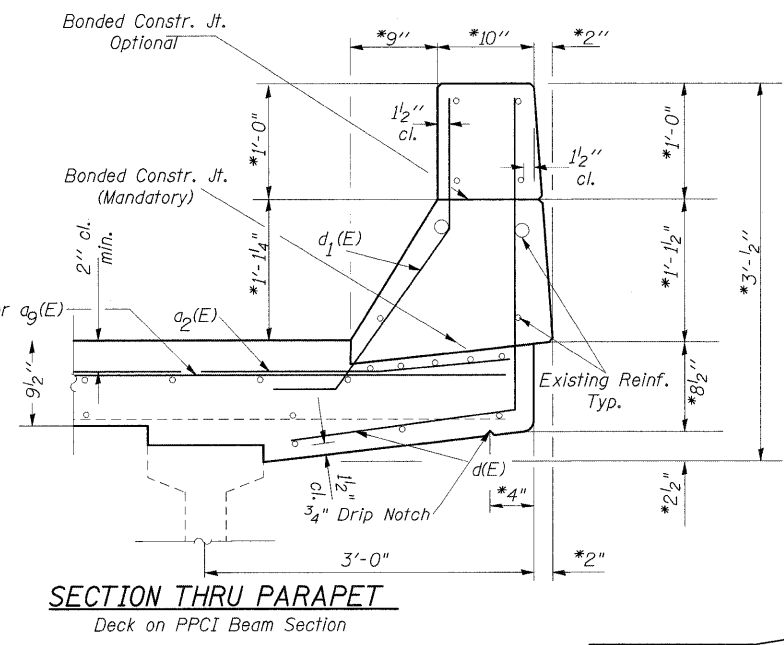
Bar No.	Size	Length	Shape
a ₂ (E)	24 #6	4'-0"	—
a ₅ (E)	16 #7	21'-6"	—
a ₆ (E)	40 #6	8'-7"	—
a ₉ (E)	16 #7	24'-2"	—
b ₂ (E)	2 #7	21'-6"	—
b ₃ (E)	2 #7	24'-2"	—
d(E)	24 #5	4'-5"	J
d ₁ (E)	24 #5	3'-3"	J
d ₅ (E)	8 #4	2'-6"	J
s ₁₀ (E)	8 #4	6'-9"	□
x(E)	112 #6	8'-6"	□

Concrete Superstructure Cu. Yd. 24.7
 Concrete Removal Cu. Yd. 22.4
 Reinforcement Bars, Epoxy Coated Pound 4010
 Reinforcement bars designated (E) shall be epoxy coated.

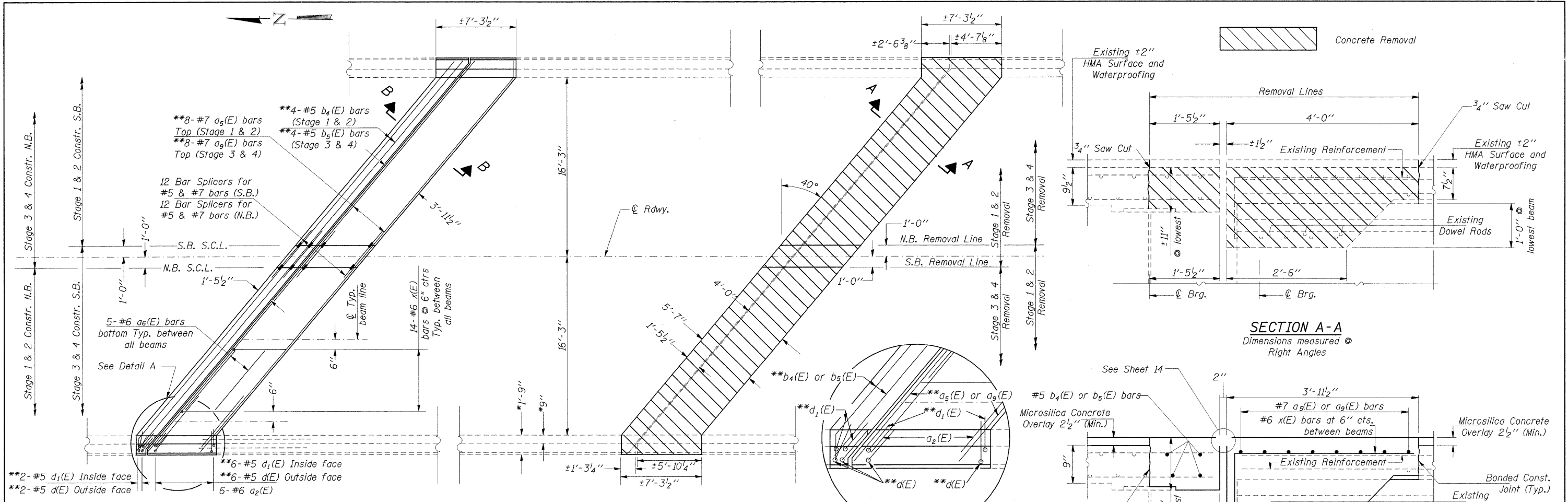
SOUTH ABUT. SN 002-0003/4 & R.C. SLAB @ SOUTH ABUT. SN 002-0001/2 JOINT REPLACEMENT DETAILS ALEXANDER COUNTY



SECTION THRU PARAPET
 Slab Bridge Section

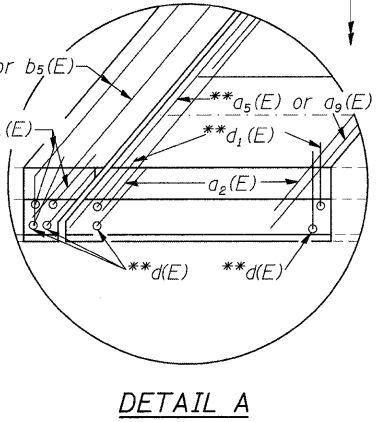


SECTION THRU PARAPET
 Deck on PCI Beam Section

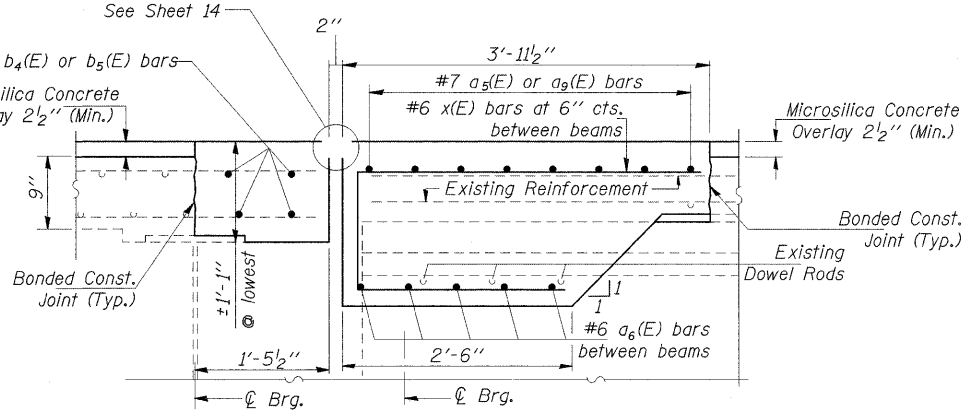


**JOINT @ PIER 3. PLAN
SHOWING NEW CONCRETE**

**JOINT @ PIER 3. PLAN
SHOWING CONCRETE REMOVAL**



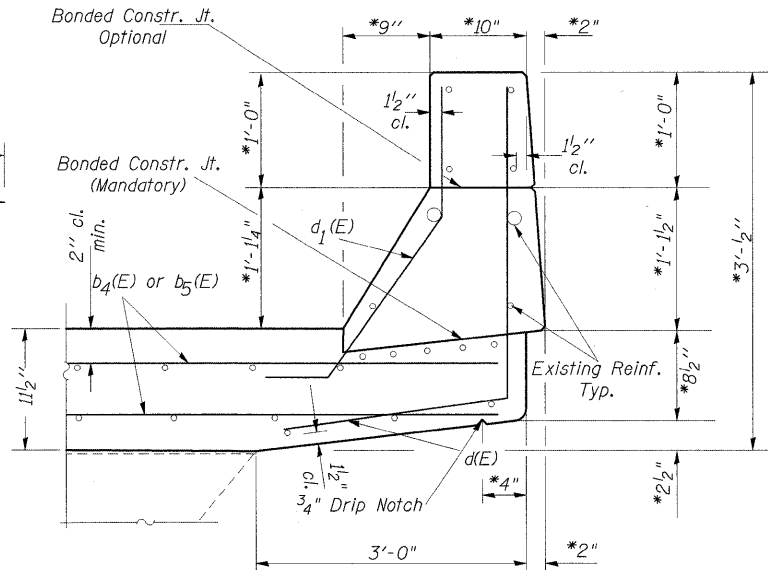
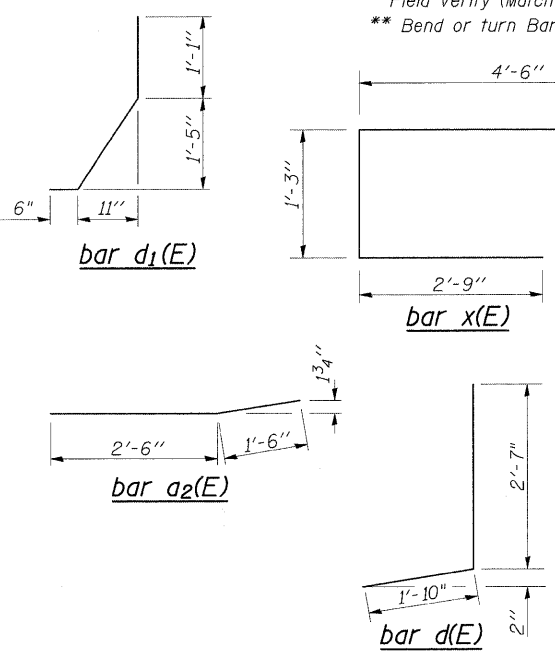
DETAIL A



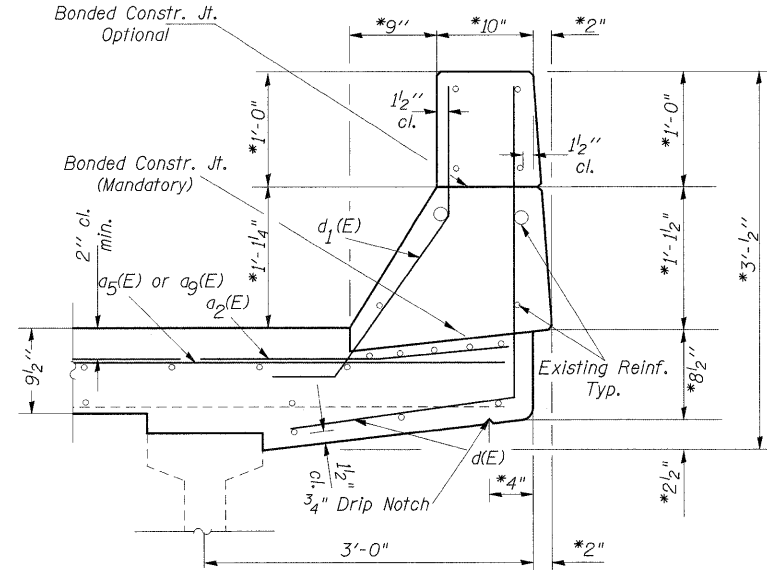
**SECTION A-A
Dimensions measured @
Right Angles**

**SECTION B-B
Dimensions measured @
Right Angles**

NOTES:
* Field Verify (Match Existing)
** Bend or turn Bars in Field to fit



**SECTION THRU PARAPET
Two Girder Deck Section**



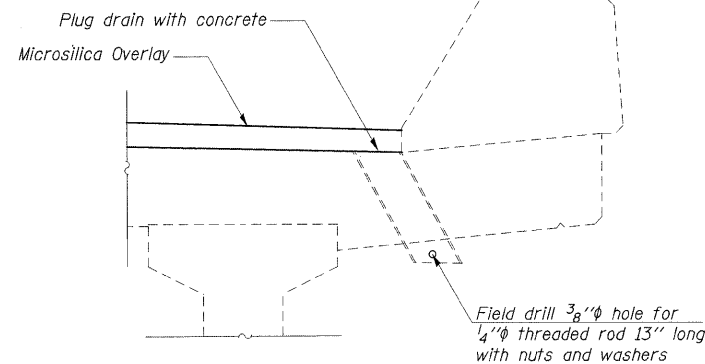
**SECTION THRU PARAPET
Deck on PPCI Beam Section**

BILL OF MATERIAL (BOTH JOINTS)

Bar No.	Size	Length	Shape
a ₂ (E)	24	#6	4'-0"
a ₅ (E)	16	#7	21'-6"
a ₆ (E)	40	#6	8'-7"
a ₉ (E)	16	#7	24'-2"
b ₄ (E)	8	#5	21'-6"
b ₅ (E)	8	#5	24'-2"
d(E)	32	#5	4'-5"
d ₁ (E)	32	#5	3'-3"
x(E)	112	#6	8'-6"

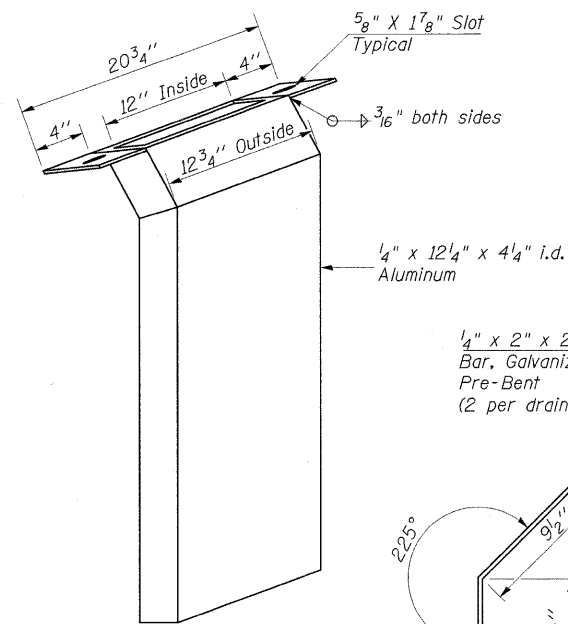
Concrete Superstructure Cu. Yd. 27.4
Concrete Removal Cu. Yd. 24.7
Reinforcement Bars, Epoxy Coated Pound 4220
Reinforcement bars designated (E) shall be epoxy coated.

**PIER 3
JOINT REPLACEMENT DETAILS
ALEXANDER COUNTY
STRUCTURE NO. 002-0003 (N.B.)
STRUCTURE NO. 002-0004 (S.B.)**

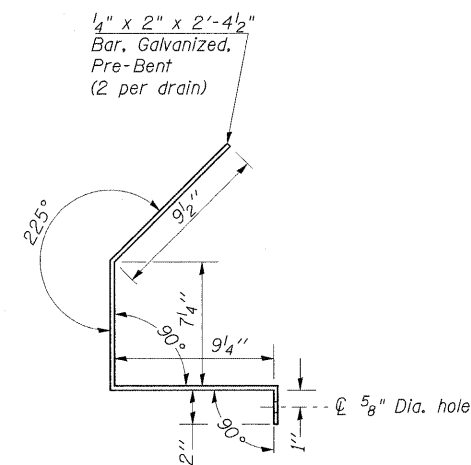


DRAIN ELIMINATION DETAIL

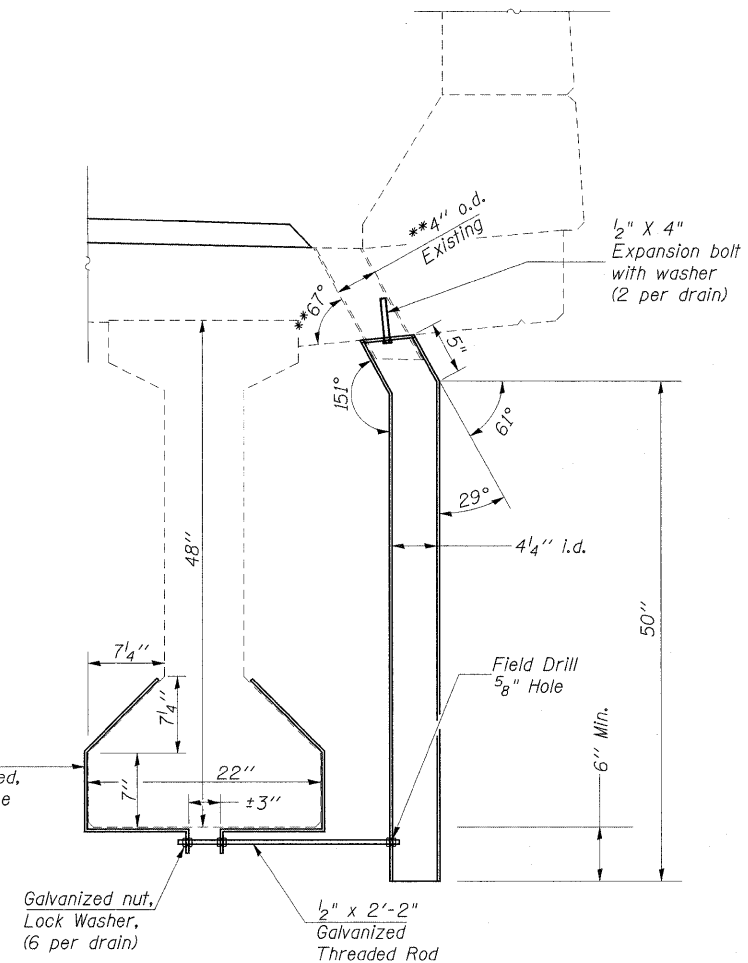
Spans 4, 5, 6, & 7 (Only)
 40 Locations on SN 002-0003 (N.B.)
 40 Locations on SN 002-0004 (S.B.)



FLOOR DRAIN EXTENSION DETAIL

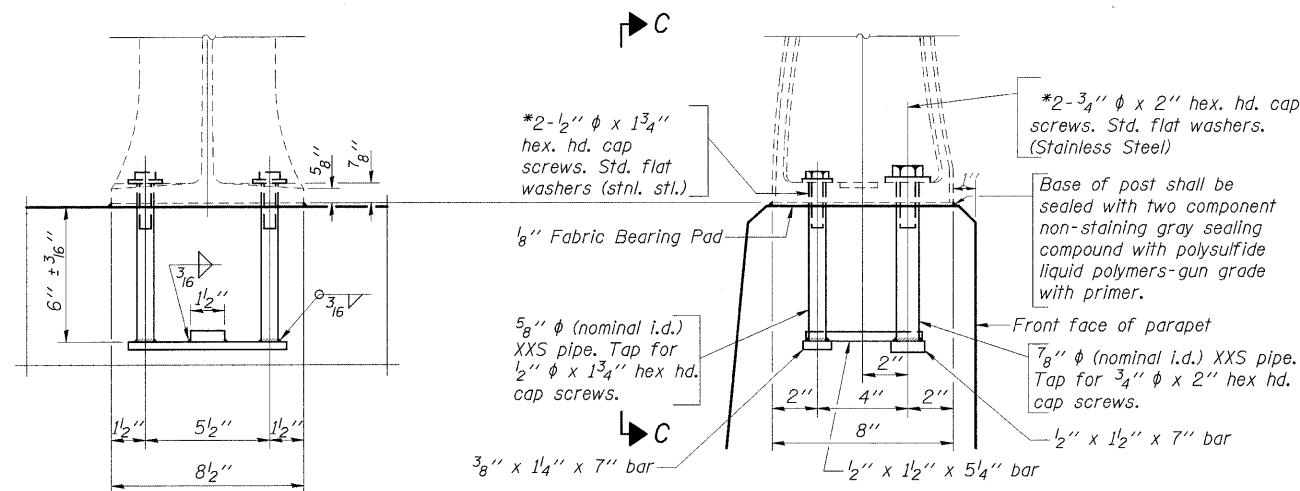


BRACKET DETAIL



FLOOR DRAIN EXTENSIONS

Spans 4, 5, 6, & 7 (Only)
 36 Locations on SN 002-0003 (N.B.)
 36 Locations on SN 002-0004 (S.B.)



VIEW C-C

RAIL POST DETAILS

4 Locations on SN 002-0003 (N.B.)
 4 Locations on SN 002-0004 (S.B.)

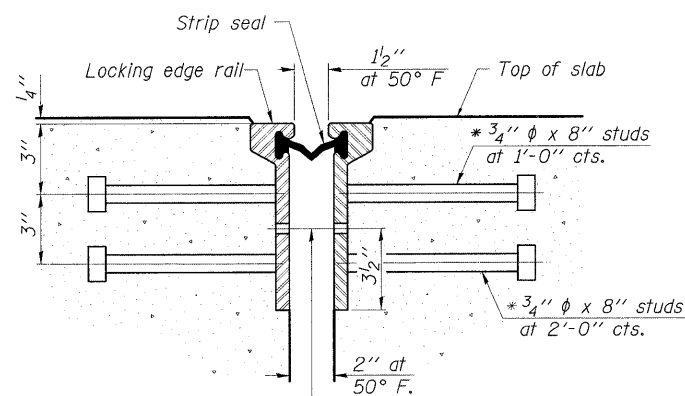
Notes:

- Plug every other existing deck drain and all that are within ±10' of the existing substructure. Locations shall be subject to approval by the Engineer.
- Post shall be normal to parapet.
- *In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting stainless steel anchor rods of the same diameter and grade as the specified cap screws according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.
- Removal and re-erection of the existing aluminum handrail, rail post, and all new applicable hardware, including labor and installation shall be included in the cost of Concrete Removal.
- ** Field Verify.

**DRAINS AND RAILING
 DETAILS
 ALEXANDER COUNTY
 STRUCTURE NO. 002-0003 (N.B.)
 STRUCTURE NO. 002-0004 (S.B.)**

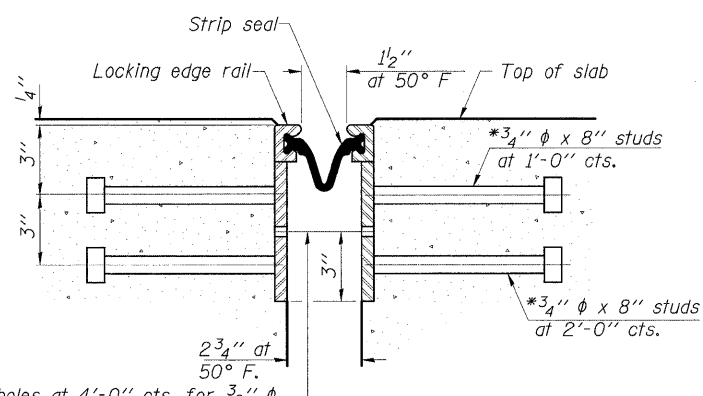
FILE NAME =	USER NAME = cornellm	DESIGNED - TWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DRAINS AND RAILING DETAILS				F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
c:\pw_work\PWIDOT\CORNELLM\d0170068	2-0001_0002-sht-plan.dgn	DRAWN - TWH	REVISED -						57	D9 BSMART 2010-1	ALEXANDER	25	13
	PLOT SCALE = 1:5000 / IN.	CHECKED - MAS	REVISED -						CONTRACT NO. 78173				
	PLOT DATE = 2/18/2010	DATE - 10/15/09	REVISED -						FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

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



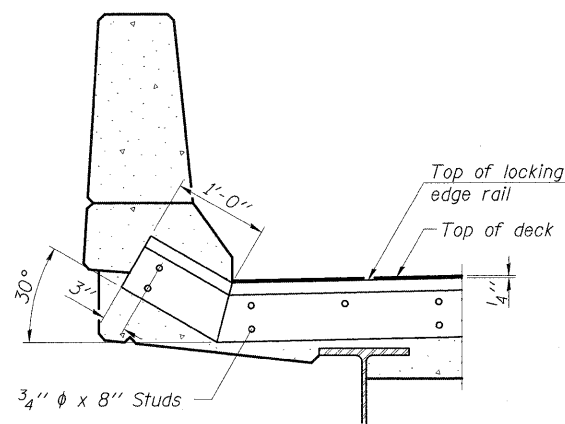
7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU ROLLED RAIL JOINT

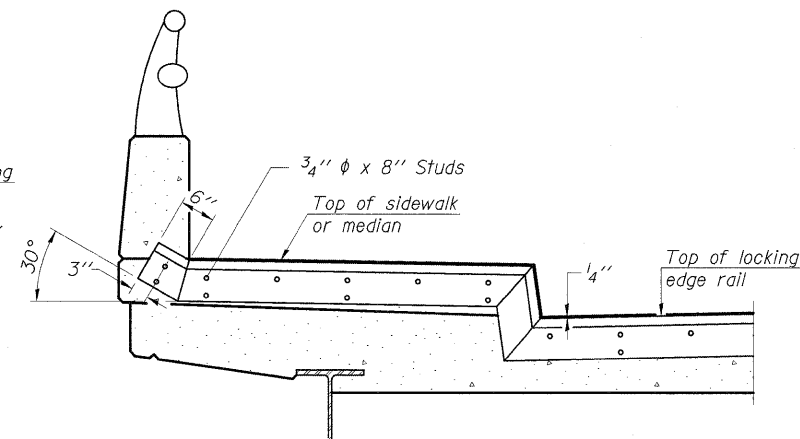


7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU WELDED RAIL JOINT



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



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

TYPICAL END TREATMENTS

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

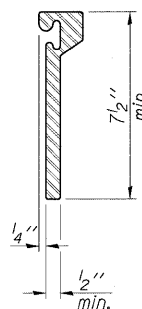
The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.

The manufacturer's recommended installation methods shall be followed.

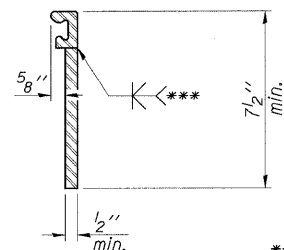
The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.

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

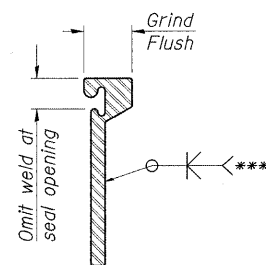
Maximum space between rail segments at stage lines shall be 3/16", sealed with a suitable sealant.



ROLLED EXTRUDED RAIL



WELDED RAIL

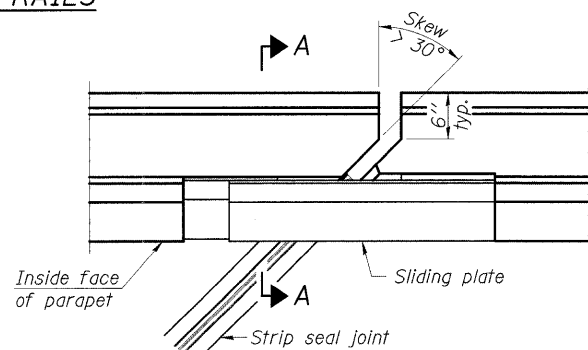


*** Back gouge not required if complete joint penetration is verified by mock-up.

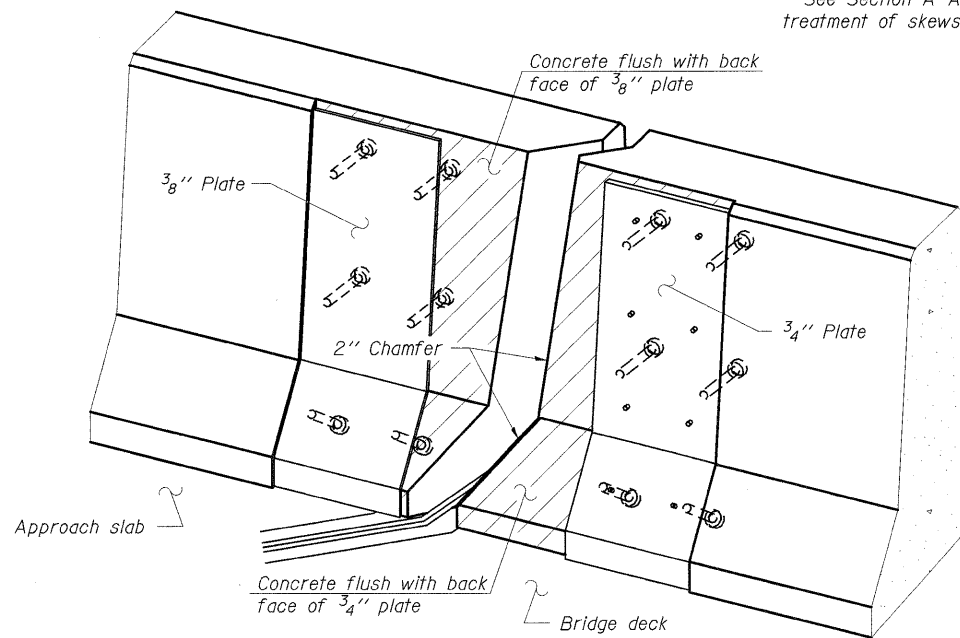
LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue.
Rolled rail shown, welded rail similar.

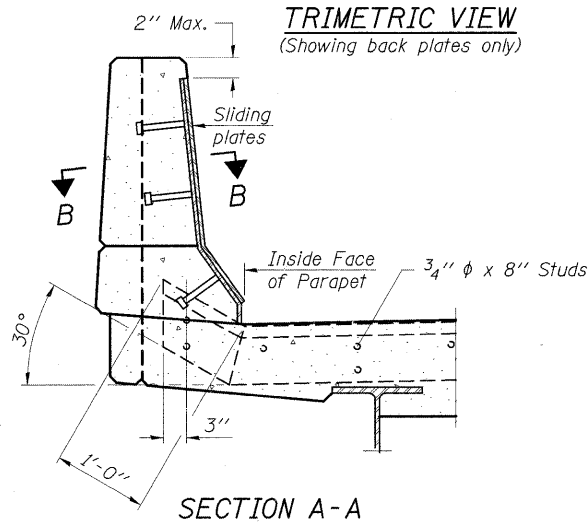
LOCKING EDGE RAILS



PLAN

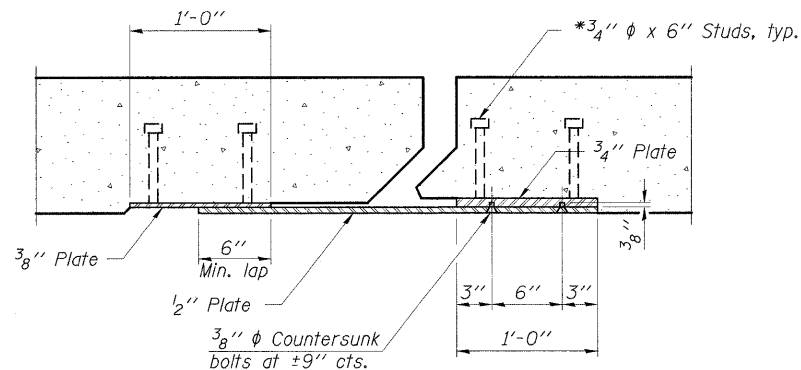


TRIMETRIC VIEW
(Showing back plates only)



SECTION A-A

POINT BLOCK DETAILS
(for skews > 30°)



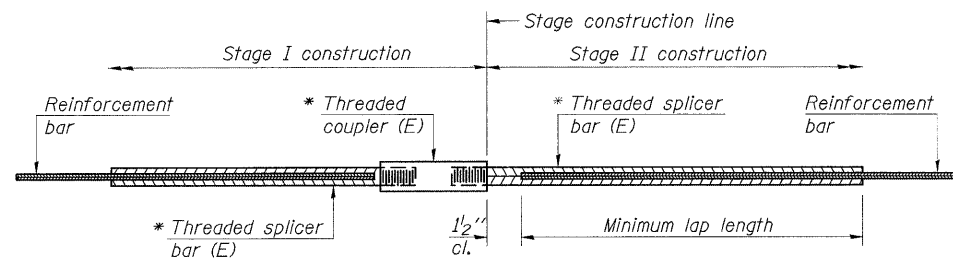
SECTION B-B

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	180

**PREFORMED JOINT STRIP SEAL
ALEXANDER COUNTY
STRUCTURE NO. 002-0003 (N.B.)
STRUCTURE NO. 002-0004 (S.B.)**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9 BSMART 2010-1	ALEXANDER	25	14
CONTRACT NO. 78173				
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



STANDARD BAR SPLICER ASSEMBLY

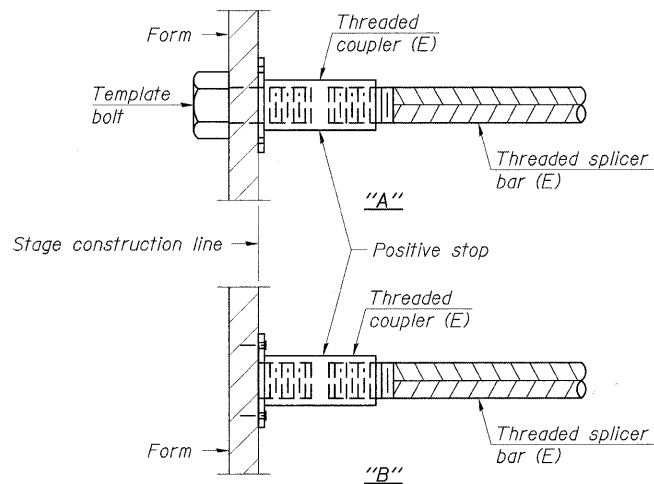
Bar size to be spliced	Minimum Lap Lengths			
	Table 1	Table 2	Table 3	Table 4
3, 4	1'-5"	1'-11"	2'-1"	2'-4"
5	1'-9"	2'-5"	2'-7"	2'-11"
6	2'-1"	2'-11"	3'-1"	3'-6"
7	2'-9"	3'-10"	4'-2"	4'-8"
8	3'-8"	5'-1"	5'-5"	6'-2"
9	4'-7"	6'-5"	6'-10"	7'-9"

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

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

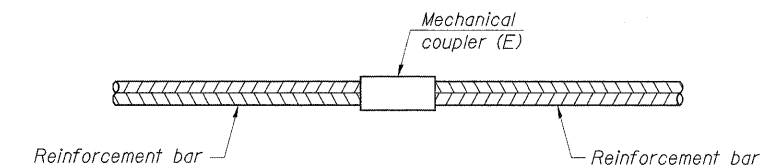
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length
Deck	#5	8	TABLE 4
Deck	#7	34	TABLE 4



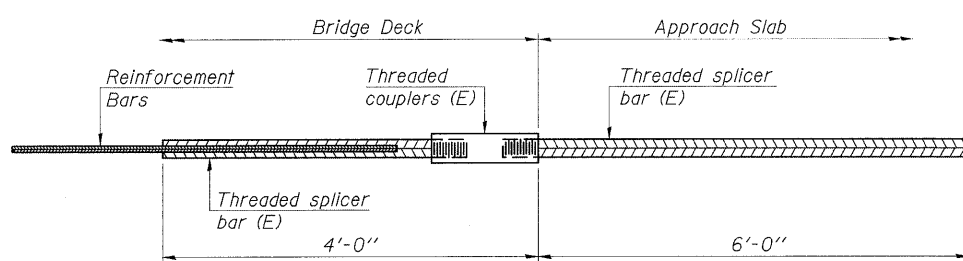
INSTALLATION AND SETTING METHODS

"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.



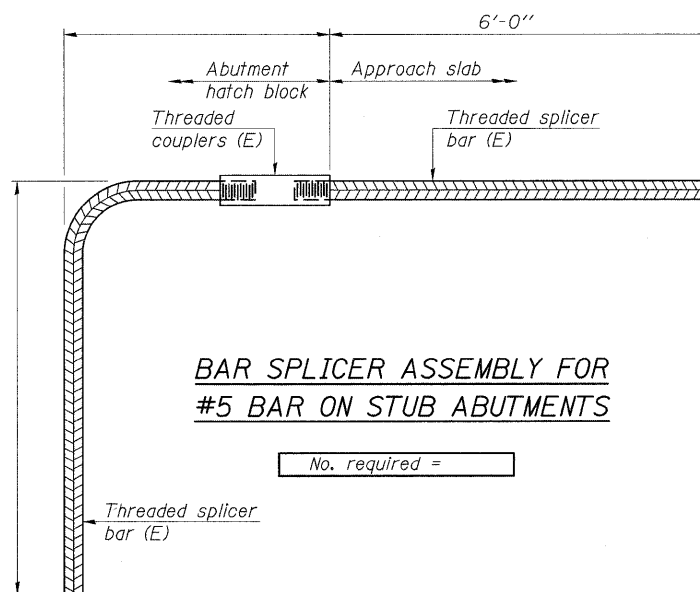
STANDARD MECHANICAL SPLICER

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 =

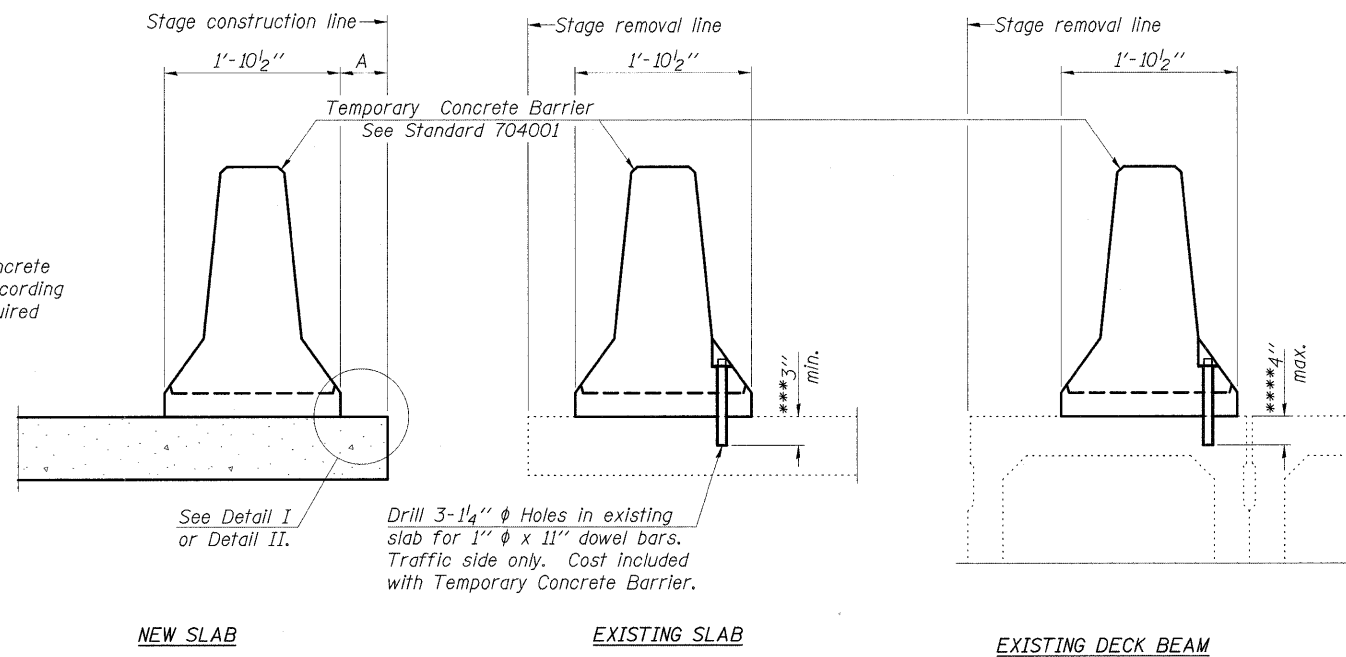
NOTES

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 special provision for Mechanical Splicers.
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
 ALEXANDER COUNTY
 STRUCTURE NO. 002-0003 (N.B.)
 STRUCTURE NO. 002-0004 (S.B.)

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9BSMART 2010-1	ALEXANDER	25	15
CONTRACT NO. 78173				
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



SECTIONS THRU SLAB OR DECK BEAM

NOTES

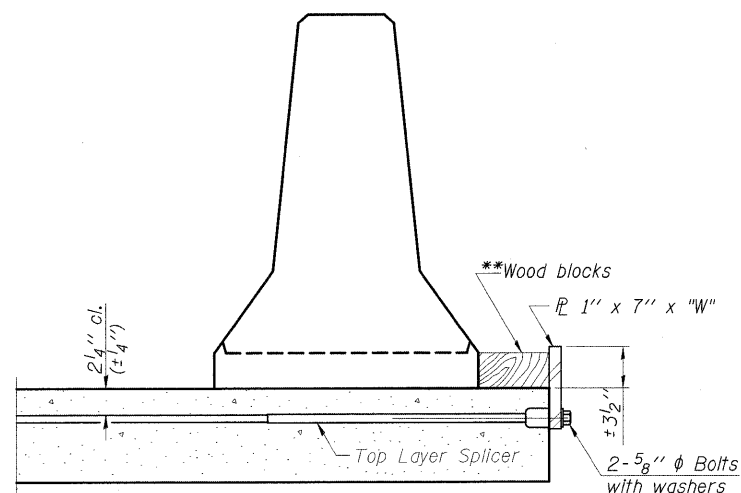
Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x7"x10" steel PL to the top layer of couplers with 2-5/8" φ bolts screwed to coupler at approximate C of each barrier panel.

Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x10" steel PL to the concrete slab or concrete wearing surface with 2-5/8" φ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate C of each barrier panel.

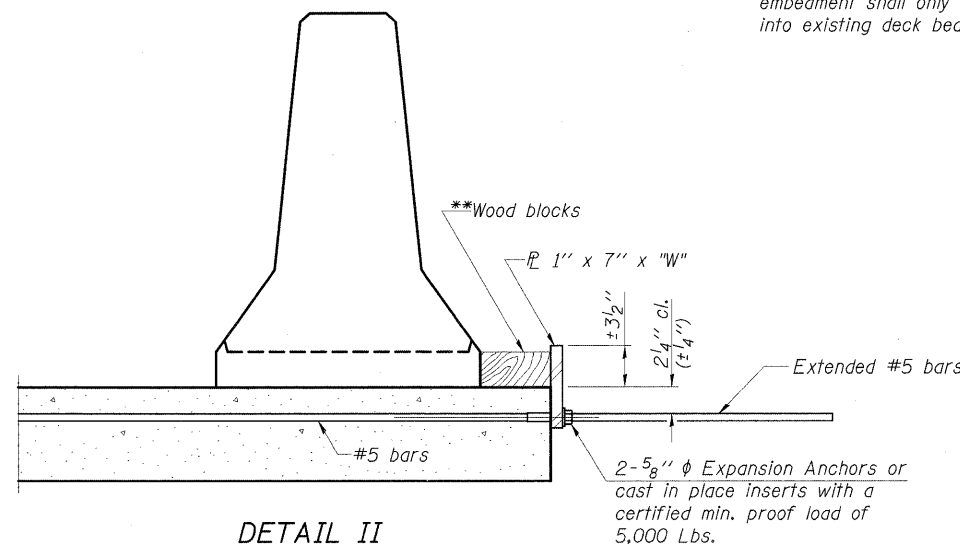
Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x 10" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

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

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



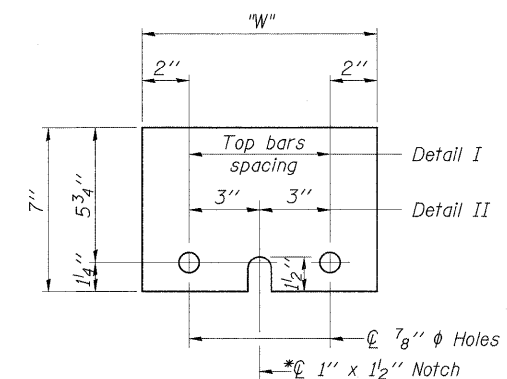
DETAIL I



DETAIL II

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

"W" = Top bars spacing + 4"



STEEL RETAINER PL 1" x 7" x 10"

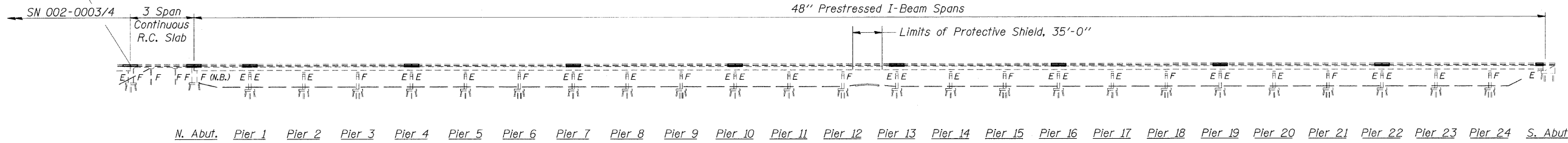
* Required only with Detail II

**TEMPORARY CONCRETE BARRIER
FOR STAGE CONSTRUCTION
ALEXANDER COUNTY
STRUCTURE NO. 002-0003 (N.B.)
STRUCTURE NO. 002-0004 (S.B.)**

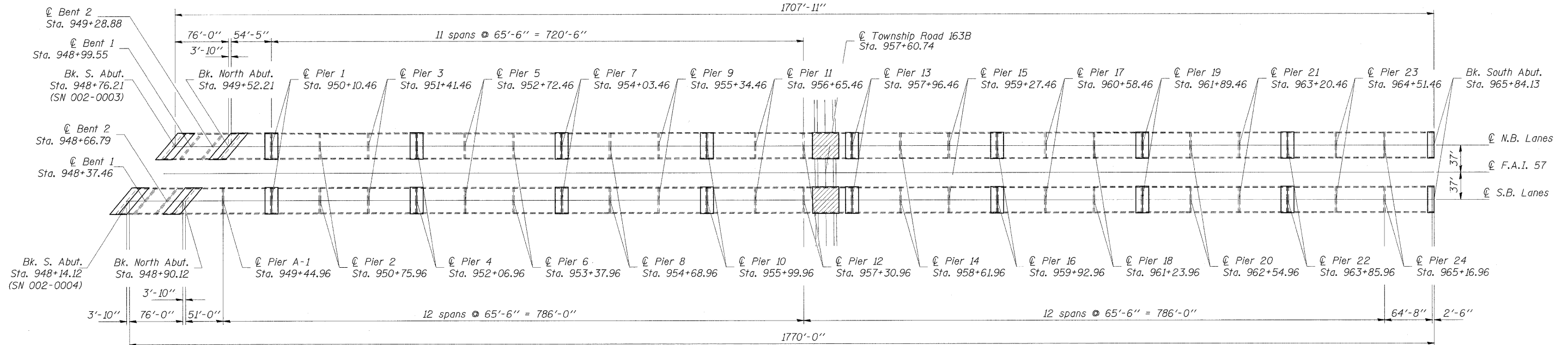
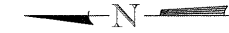
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9BSMART 2010-1	ALEXANDER	25	16
CONTRACT NO. 78173				
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Joint replacement details & quantities
at this location included with SN 002-0003/4,
see sheet 11.



ELEVATION



PLAN

TOTAL BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	285.1
Concrete Superstructures	Cu. Yd.	313.9
Bridge Deck Grooving	Sq. Yd.	11648
Bar Splicers	Each	330
Structural Repair of Concrete (Depth ≤ 5")	Sq. Ft.	12
Reinforcement Bars, Epoxy Coated	Pound	57210
Plug Existing Deck Drains	Each	292
Preformed Joint Strip Seal	Foot	711
Floor Drain Extension	Each	390
Bridge Deck Microsilica Concrete Overlay 2 1/2"	Sq. Yd.	11966
Bridge Deck Hydro-Scarification 1/2"	Sq. Yd.	11966
Protective Coat	Sq. Yd.	12630
HMA Surface Removal (Deck)	Sq. Yd.	12523
Protective Shield	Sq. Yd.	280
Elastomeric bearing Assembly, Type II	Each	1
Jack and Remove Existing Bearings	Each	1
Anchor Bolts 1"	Each	4

GENERAL NOTES

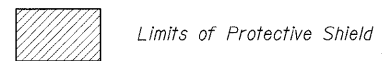
Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.
Reinforcement bars designated (E) shall be epoxy coated.
Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing 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.
Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.
Joint openings shall be adjusted according to Article 520.04 of the Std. Specs. when the deck is poured at an ambient temperature other than 50°F.
The Contractor shall use extreme care during concrete removal so as not to damage the PPC I-Beam.

DESIGN STRESSES

NEW CONSTRUCTION
Field Units
 $f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)

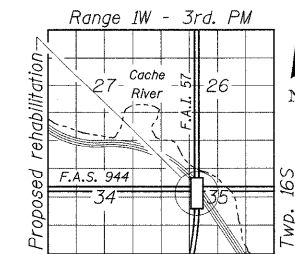
ORIGINAL CONSTRUCTION
Field Units
 $f'_c = 1,400$ psi (super & sub)
 $f_s = 20,000$ psi (reinforcement)
 $vc = 75$ psi
 $n = 10$

Precast Prestressed Units
 $f'_c = 5,000$ psi
 $f_{ci} = 4,000$ psi
 $f'_s = 248,000$ psi (T_{16} " ϕ stress relieved strands)
 $f_{sl} = 173,600$ psi (T_{16} " ϕ stress relieved strands)



SCOPE OF WORK

1. Remove existing HMA overlay.
2. Hydroscarify deck 1/2".
3. Perform full depth patching.
4. Remove and replace expansion joints at north & south abutments and piers 1, 4, 7, 10, 13, 16, 19, & 20.
5. Apply 2 1/2" microsilica overlay and protective coat.
6. Substructure repair at SN 002-0002 pier 4.



LOCATION SKETCH

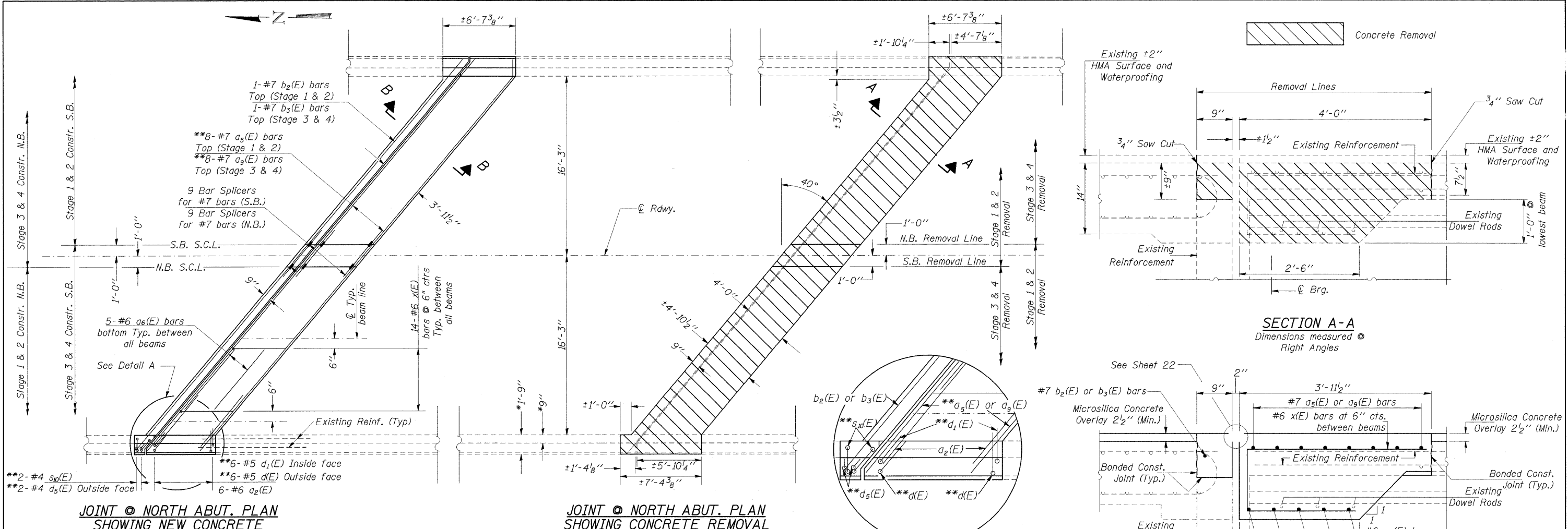
GENERAL PLAN

SECTION D9 BSMART 2010-1
F.A.I. RTE. 57 OVER TOWNSHIP ROAD 163B
ALEXANDER COUNTY
STRUCTURE NO. 002-0001 (N.B.)
STRUCTURE NO. 002-0002 (S.B.)



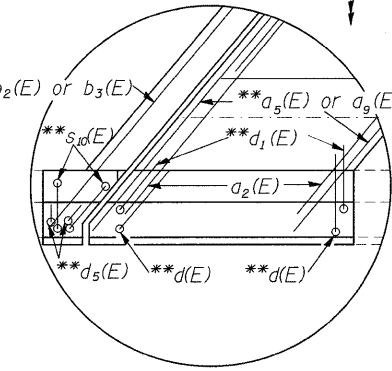
Expires 11/30/2010

FILE NAME =	USER NAME = corne11m	DESIGNED - TWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PLAN AND ELEVATION SN 002-0001 & 002-0002	SCALE: SHEET NO. OF SHEETS STA. TO STA.	F.A.I. RTE. 57	SECTION D9 BSMART 2010-1	COUNTY ALEXANDER	TOTAL SHEETS 25	SHEET NO. 17
es:\pw\work\1PW\DOT\CORNELLM\02172009\02-0001.0002-sht-plan.dgn	PLOT SCALE = 16.0000' / 1" IN.	CHECKED - MAS	REVISED -				CONTRACT NO. 78173				
PLOT DATE = 2/18/2010	DATE = 11/20/09	REVISED -	REVISED -				ILLINOIS FED. AID PROJECT				

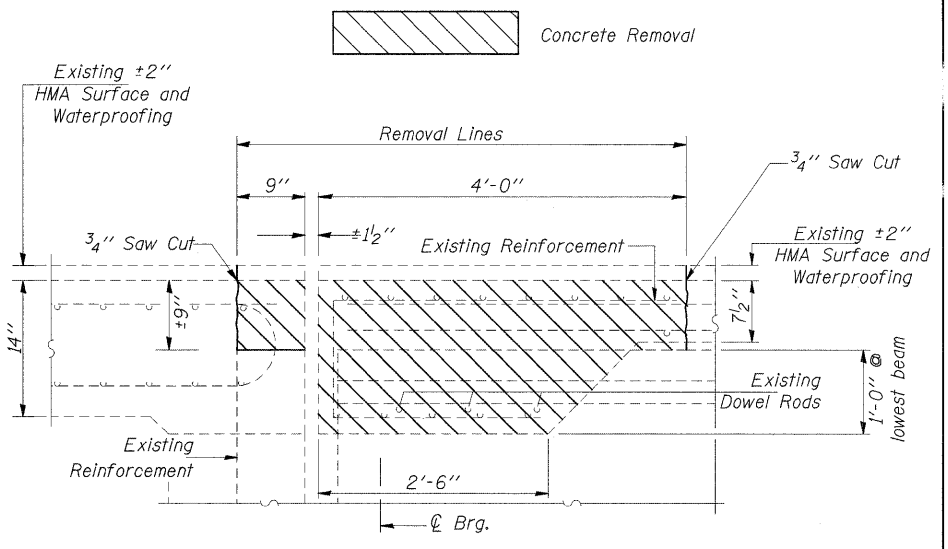


JOINT @ NORTH ABUT. PLAN
SHOWING NEW CONCRETE

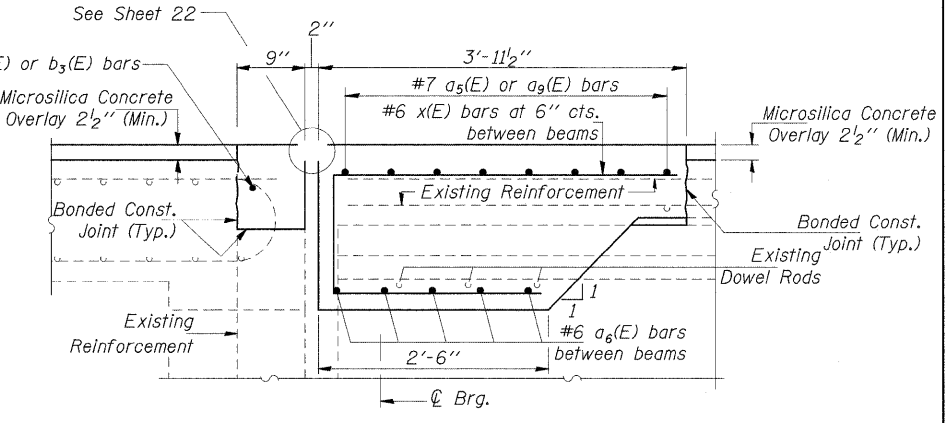
JOINT @ NORTH ABUT. PLAN
SHOWING CONCRETE REMOVAL



DETAIL A



SECTION A-A
Dimensions measured @
Right Angles



SECTION B-B
Dimensions measured @
Right Angles

BILL OF MATERIAL (BOTH JOINTS)

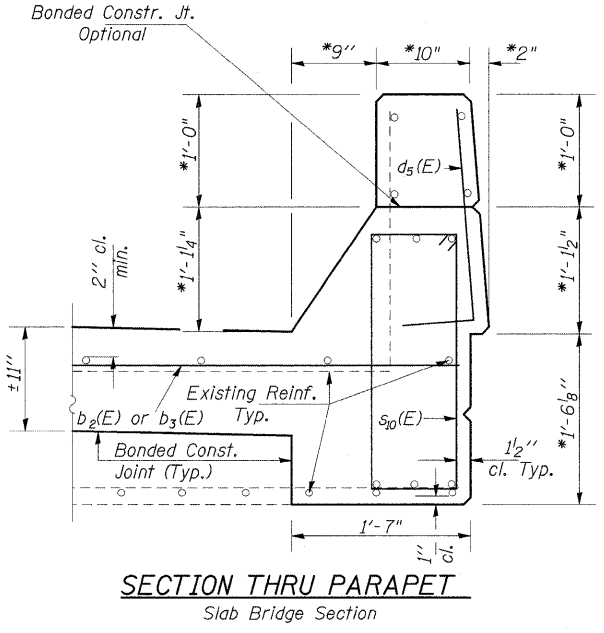
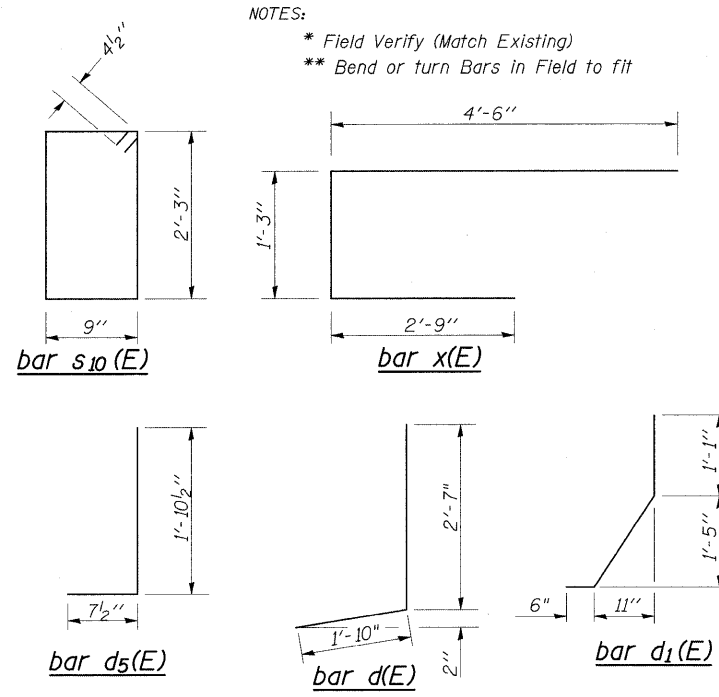
Bar No.	Size	Length	Shape
a ₂ (E)	#6	4'-0"	—
a ₅ (E)	#7	21'-6"	—
a ₆ (E)	#6	8'-7"	—
a ₉ (E)	#7	24'-2"	—
b ₂ (E)	#7	21'-6"	—
b ₃ (E)	#7	24'-2"	—
d(E)	#5	4'-5"	J
d ₁ (E)	#5	3'-3"	J
d ₅ (E)	#4	2'-6"	J
s ₁₀ (E)	#4	6'-9"	□
x(E)	#6	8'-6"	—

Concrete Superstructure	Cu. Yd.	24.6
Concrete Removal	Cu. Yd.	22.4
Reinforcement Bars, Epoxy Coated	Pound	4010

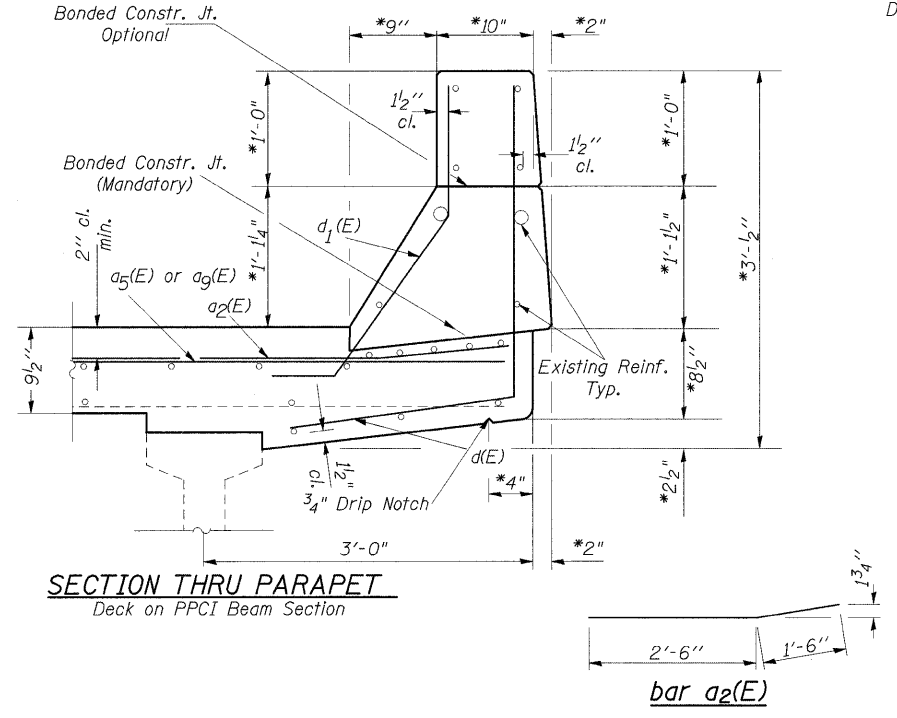
Reinforcement bars designated (E) shall be epoxy coated.

NORTH ABUT.
JOINT REPLACEMENT DETAILS
ALEXANDER COUNTY
STRUCTURE NO. 002-0001 (N.B.)
STRUCTURE NO. 002-0002 (S.B.)

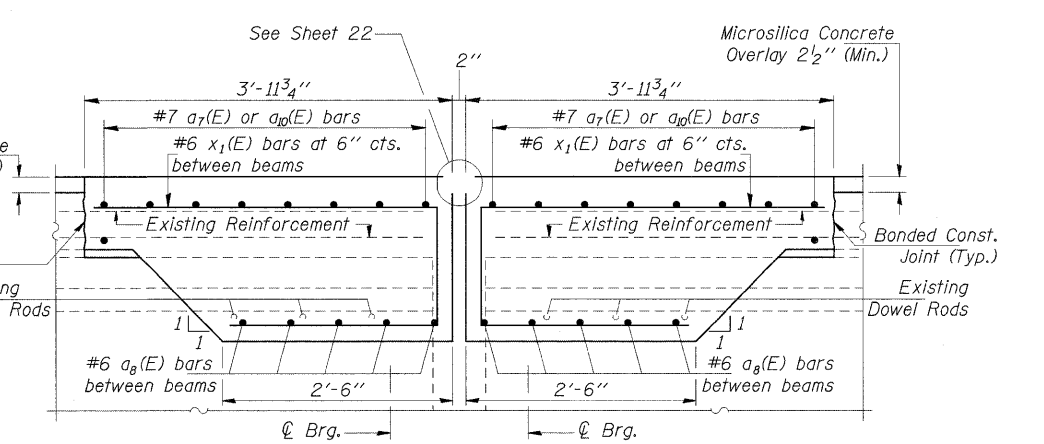
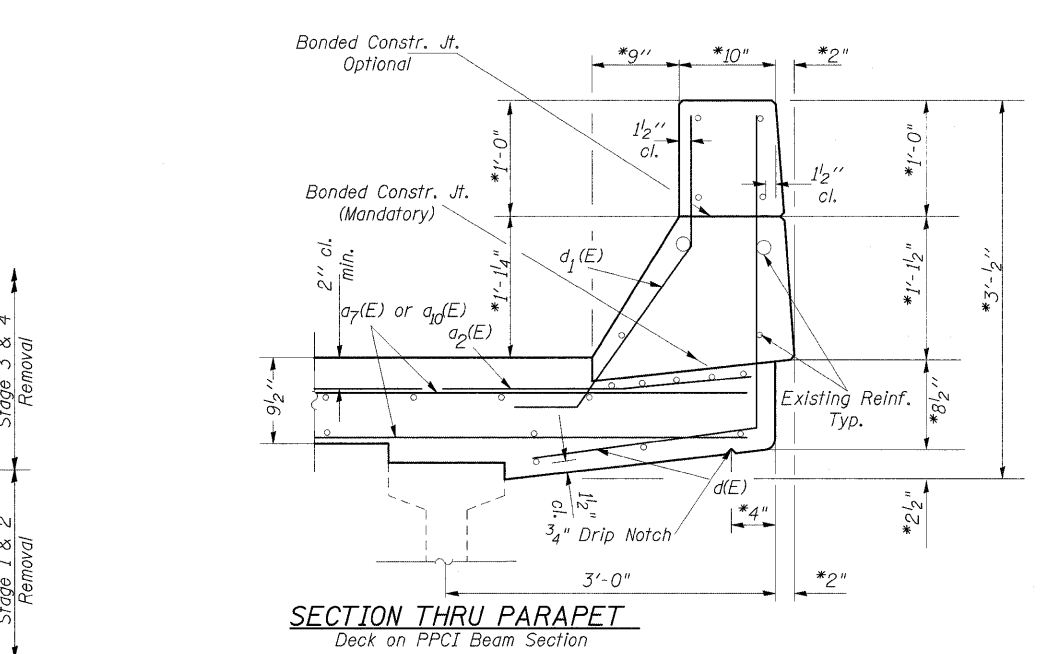
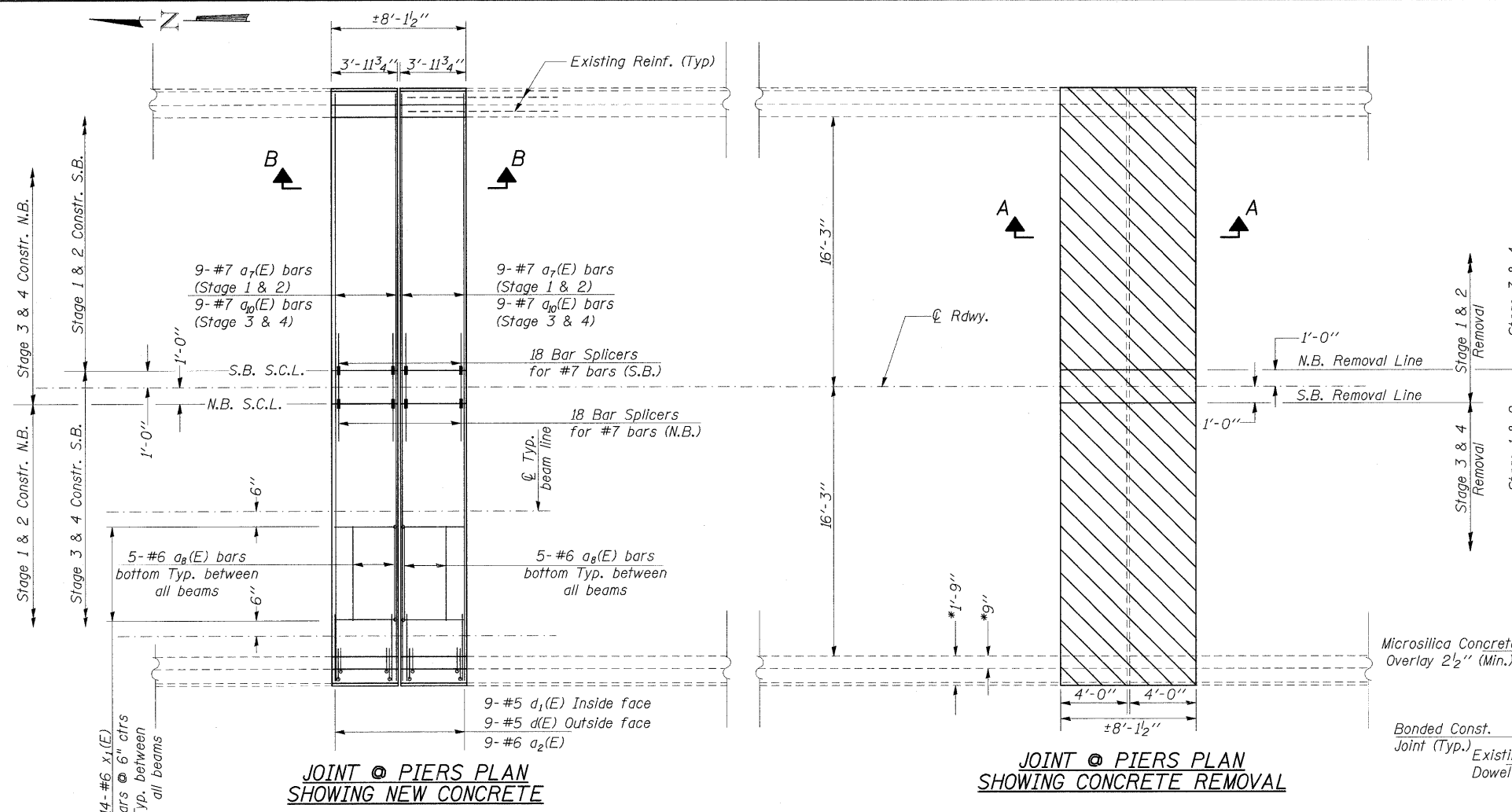
- NOTES:
* Field Verify (Match Existing)
** Bend or turn Bars in Field to fit



SECTION THRU PARAPET
Slab Bridge Section

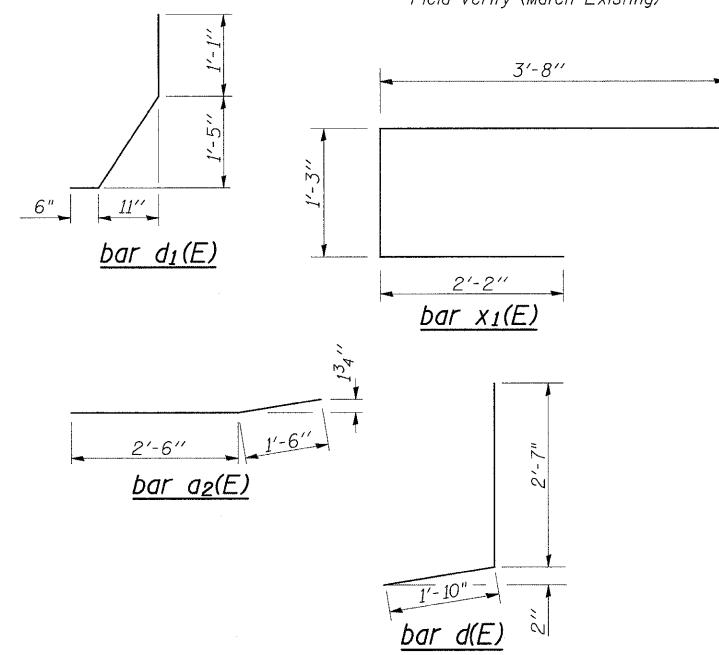
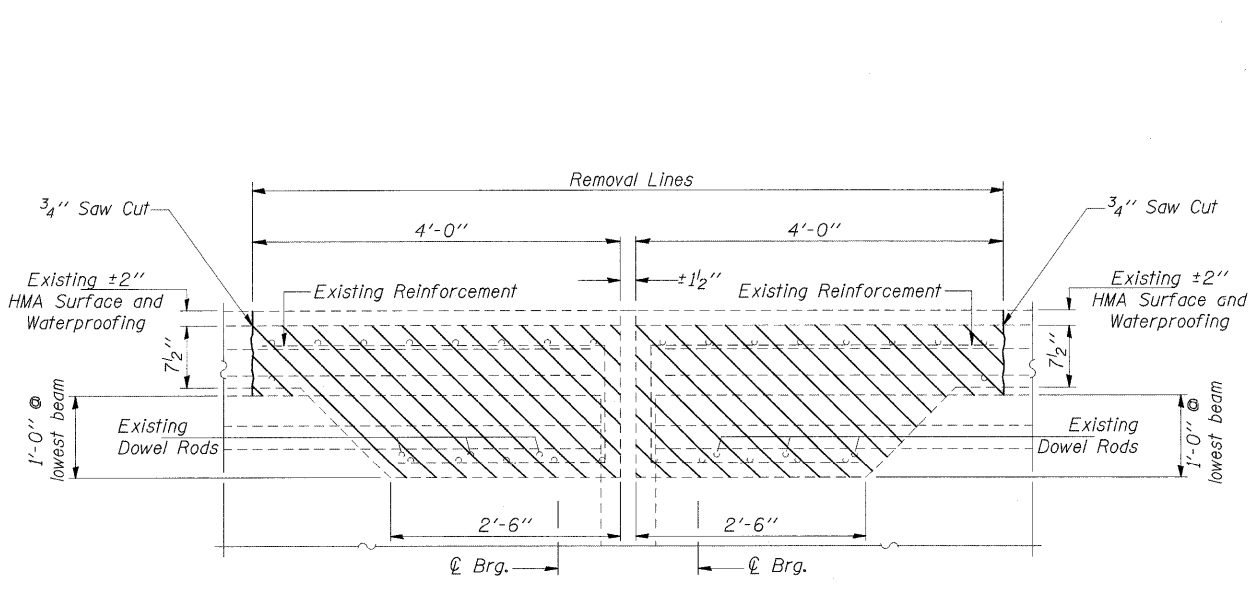


SECTION THRU PARAPET
Deck on PPCI Beam Section



Concrete Removal

NOTES:
* Field Verify (Match Existing)

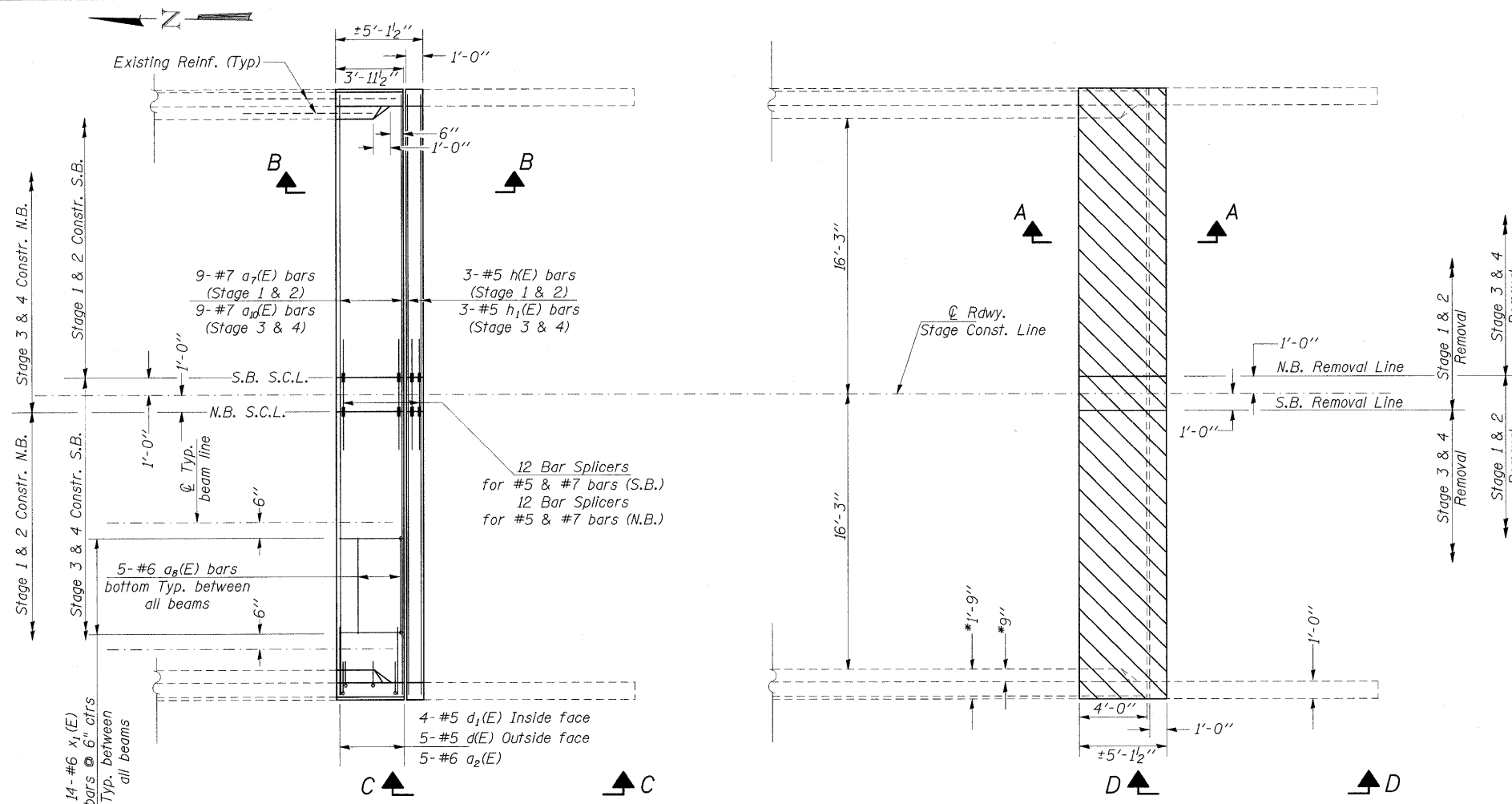


BILL OF MATERIAL (16 LOCATIONS)

Bar No.	Size	Length	Shape
a2(E)	288 #6	4'-0"	—
a7(E)	288 #7	16'-5"	—
a8(E)	640 #6	6'-6"	—
a9(E)	288 #7	18'-5"	—
d(E)	288 #5	4'-5"	J
d1(E)	288 #5	3'-3"	J
x1(E)	1792 #6	7'-1"	□
Concrete Superstructure	Cu. Yd.	267.9	
Concrete Removal	Cu. Yd.	243.2	
Reinforcement Bars, Epoxy Coated	Pound	49850	

Reinforcement bars designated (E) shall be epoxy coated.

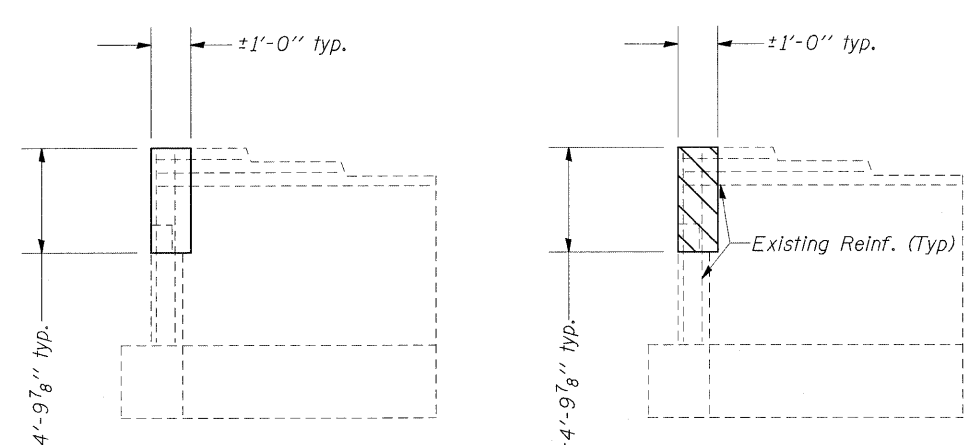
PIER #'S 1, 4, 7, 10, 13, 16, 19, & 22
JOINT REPLACEMENT DETAILS
ALEXANDER COUNTY
STRUCTURE NO. 002-0001 (N.B.)
STRUCTURE NO. 002-0002 (S.B.)



**JOINT @ SOUTH ABUT. PLAN
SHOWING NEW CONCRETE**

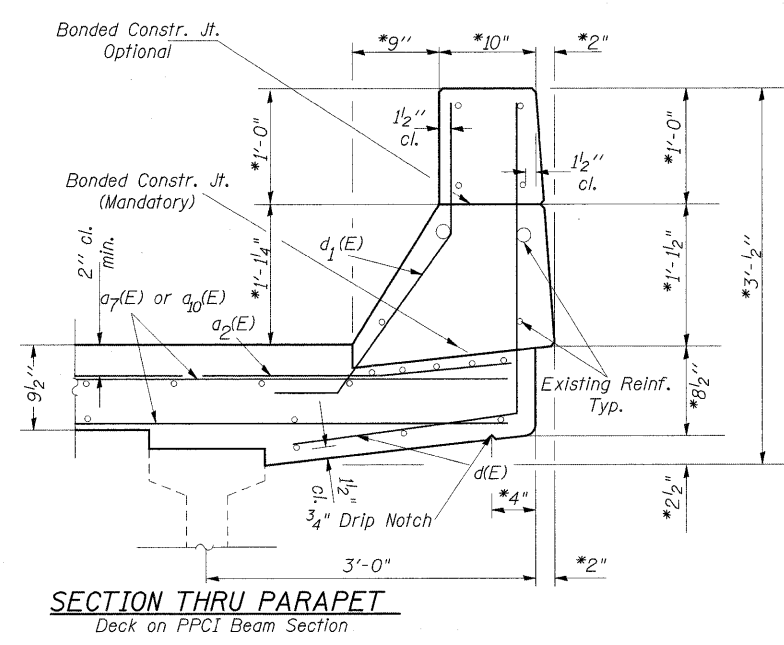
**JOINT @ SOUTH ABUT. PLAN
SHOWING CONCRETE REMOVAL**

Concrete Removal

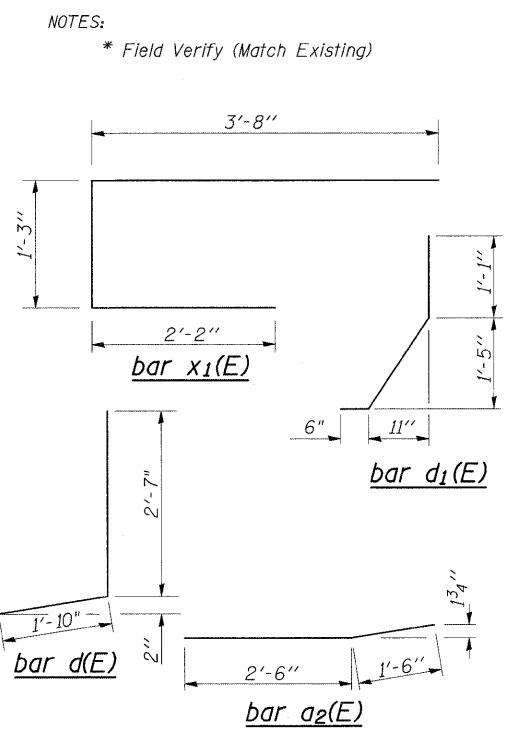


VIEW C-C
Showing Concrete Superstructures

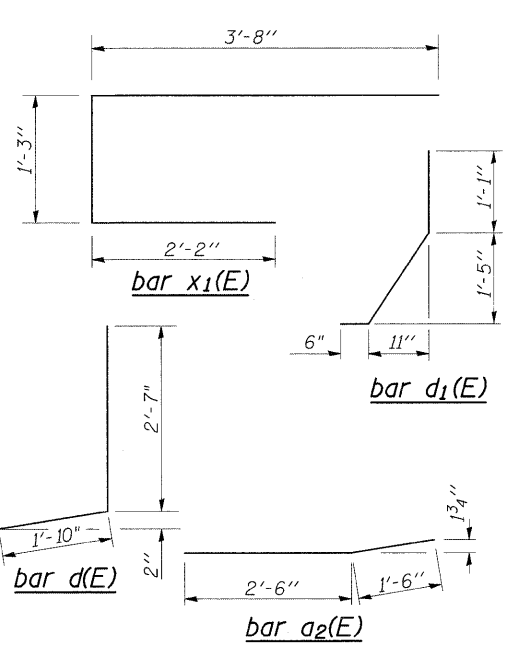
VIEW D-D
Showing Concrete Removal



SECTION THRU PARAPET
Deck on PPCI Beam Section



NOTES:
* Field Verify (Match Existing)



SECTION A-A

SECTION B-B

BILL OF MATERIAL (BOTH JOINTS)

Bar No.	Size	Length	Shape
a ₈ (E)	#6	4'-0"	—
a ₇ (E)	#7	16'-5"	—
a ₈ (E)	#6	6'-6"	—
a ₁₀ (E)	#7	18'-5"	—
d(E)	#5	4'-5"	J
d ₁ (E)	#5	3'-3"	J
h(E)	#5	16'-5"	—
h ₁ (E)	#5	18'-5"	—
x ₁ (E)	#6	7'-1"	—
Concrete Superstructure		Cu. Yd.	21.4
Concrete Removal		Cu. Yd.	19.5
Reinforcement Bars, Epoxy Coated		Pound	3350

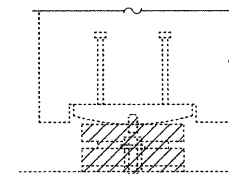
Reinforcement bars designated (E) shall be epoxy coated.

**SOUTH ABUTMENT
JOINT REPLACEMENT DETAILS
ALEXANDER COUNTY
STRUCTURE NO. 002-0001 (N.B.)
STRUCTURE NO. 002-0002 (S.B.)**

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEAM REACTIONS

R _D	(k)	47
R _{SL}	(k)	13
R _L	(k)	40
R _{IMP}	(k)	11
R(TOTAL)	(k)	111

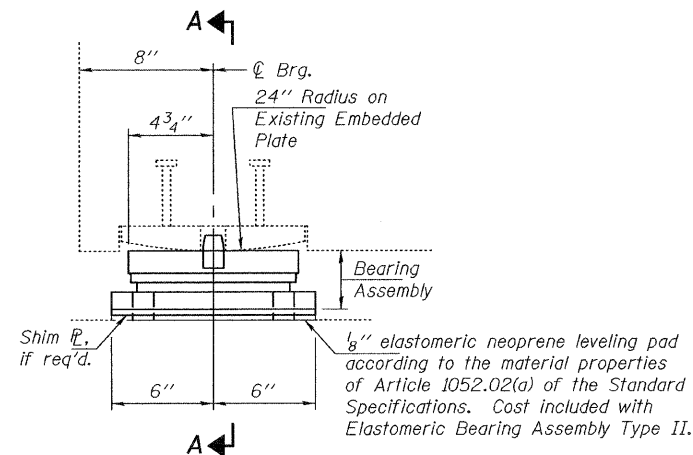


EXISTING BEARING REMOVAL DETAILS

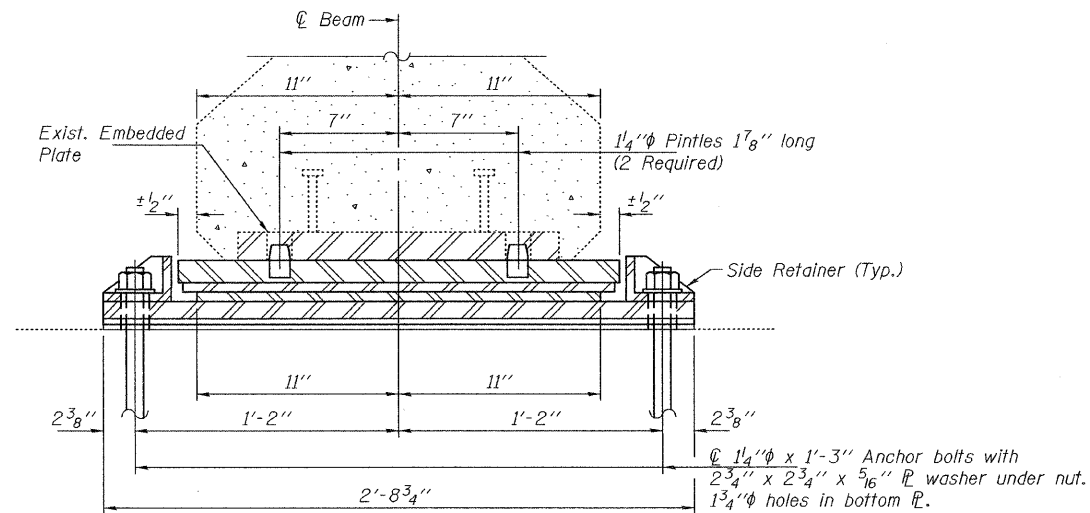
Note: Hatched area indicates removal of existing bearings.

JACK AND REMOVE EXISTING BEARING PROCEDURE

- The Contractor shall submit for approval by the Engineer, plans for jacking prior to commencing any work at the bearings.
- The maximum differential lift between beams at any one substructure unit shall be limited to 1/8 inch. If simultaneous jacking of all beams at a substructure unit is utilized, then the maximum total lift shall be limited to 1/4 inch.
- Traffic shall be removed from the structure during the jacking operation including lifting or lowering the beams. Traffic shall not be allowed on the structure after lifting until the beams are shored in place.
- The maximum reaction per bearing is 60 kips for dead load and 51 kips for live load. The minimum jack capacity is 120 kips.



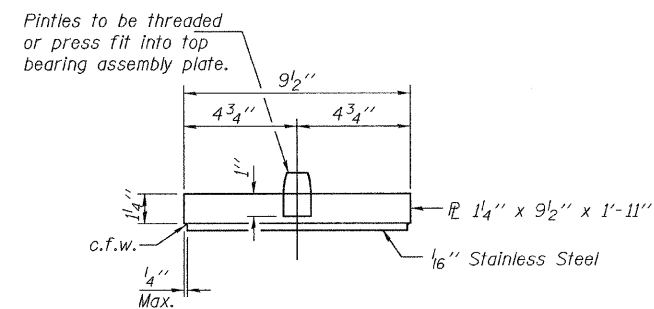
ELEVATION AT BEARING



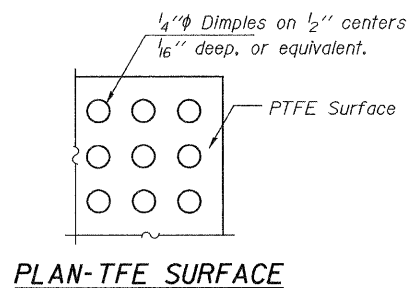
SECTION A-A

EXPANSION BEARING

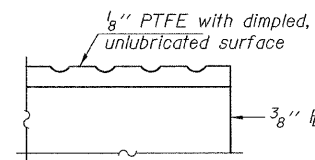
Span 13, Pier 13, Beam 5



TOP BEARING ASSEMBLY



PLAN-TFE SURFACE



SECTION THRU TFE

Notes:

Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions. Min. jack capacity = 60 Tons.

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

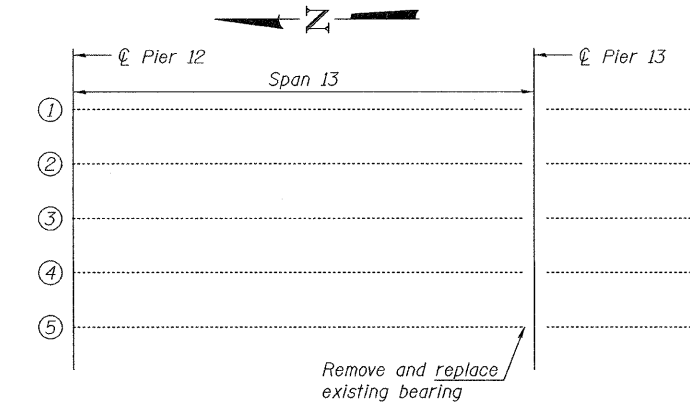
Anchor bolts for Type II bearings shall be placed in holes drilled through the bottom bearing plate after members are in place. Side retainers shall be placed after bolts are installed.

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

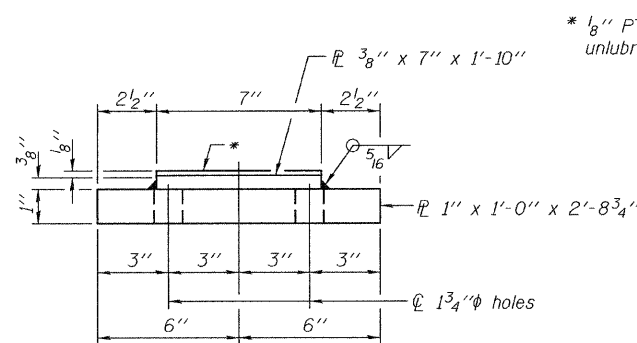
Side retainers and other steel members required for the bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type II.

The 1/8" PTFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

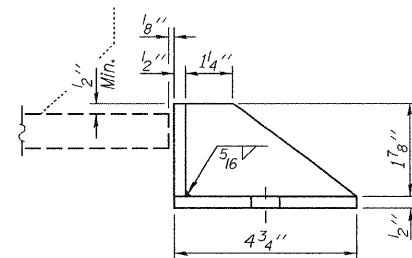
Bonding of 1/8" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



REPAIR LOCATION PLAN

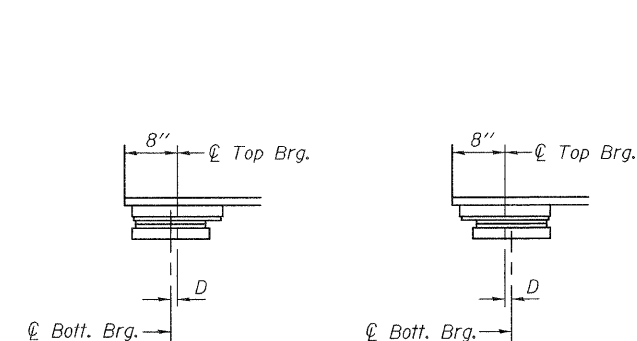


BOTTOM BEARING ASSEMBLY



SIDE RETAINER

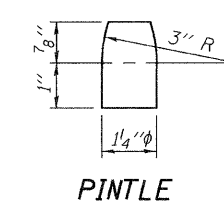
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



BELOW 50° F. (Move bott. brg. away from fixed brg.) ABOVE 50° F. (Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.



PINTLE

BEARING REPLACEMENT DETAILS

SN 002-0002 (SB)

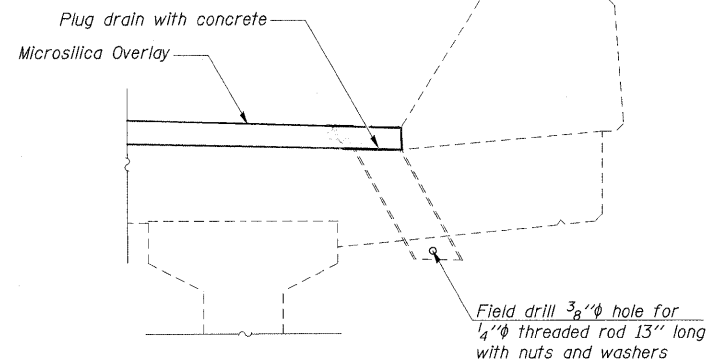
BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type II	Each	1
Jack and Remove Existing Bearings	Each	1
Anchor Bolts 1 1/4"	Each	4

DESIGNED	
CHECKED	
DRAWN	baliva
CHECKED	

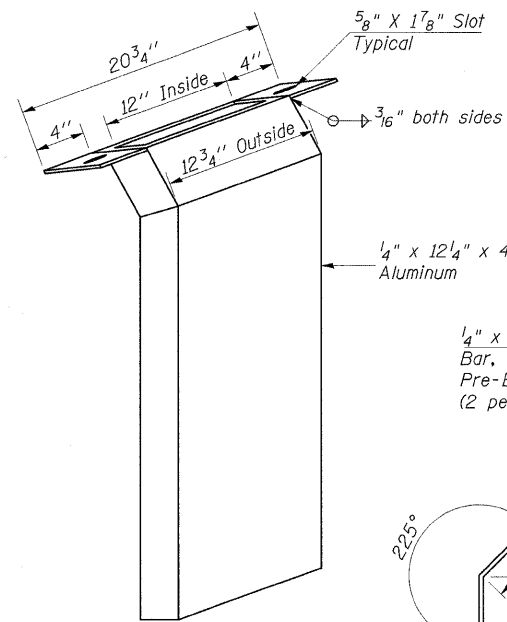
APRIL 29, 2010	EXAMINED
	ENGINEER OF STRUCTURAL SERVICES
	PASSED
	ENGINEER OF BRIDGES AND STRUCTURES

SHEET NO. SHEETS	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	57	D9 BSMART 2010-1	ALEXANDER	25	20A
CONTRACT NO. 78173					
ILLINOIS FED. AID PROJECT					

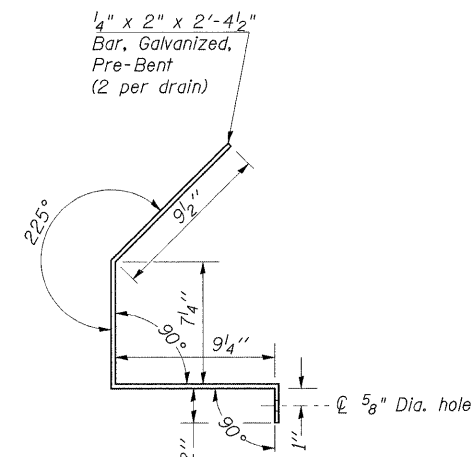


DRAIN ELIMINATION DETAIL

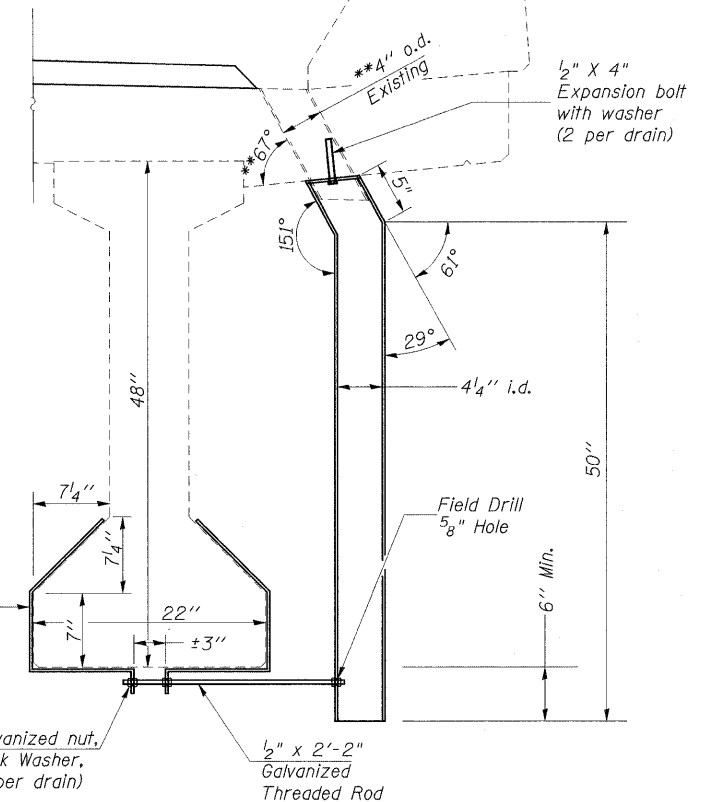
144 Locations on SN 002-0001 (N.B.)
148 Locations on SN 002-0002 (S.B.)



FLOOR DRAIN EXTENSION DETAIL

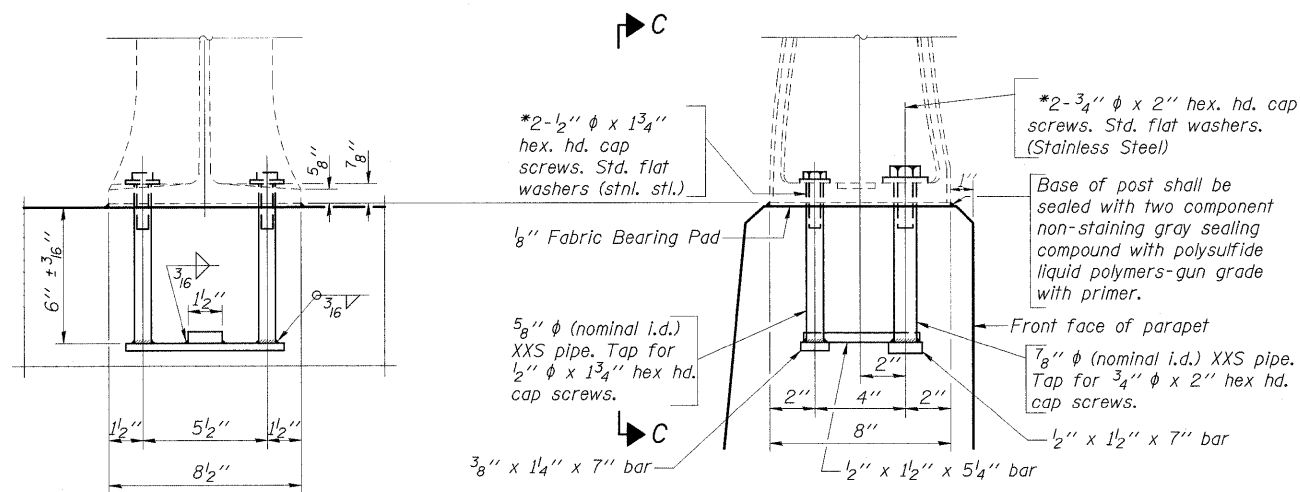


BRACKET DETAIL



FLOOR DRAIN EXTENSIONS

191 Locations on SN 002-0001 (N.B.)
199 Locations on SN 002-0002 (S.B.)



VIEW C-C

RAIL POST DETAILS

35 Locations on SN 002-0001 (N.B.)
36 Locations on SN 002-0002 (S.B.)

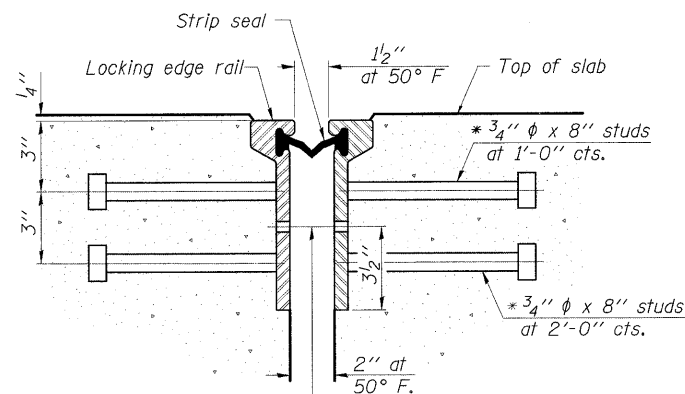
Notes:

Drain extensions locations (approximately every other remaining drain) shall be subject to approval by the Engineer.
Post shall be normal to parapet.
*In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting stainless steel anchor rods of the same diameter and grade as the specified cap screws according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.
Removal and re-erection of the existing aluminum handrail, rail post, and all new applicable hardware, including labor and installation shall be included in the cost of Concrete Removal.
** Field Verify.

**DRAINS AND RAILING
DETAILS
ALEXANDER COUNTY
STRUCTURE NO. 002-0001 (N.B.)
STRUCTURE NO. 002-0002 (S.B.)**

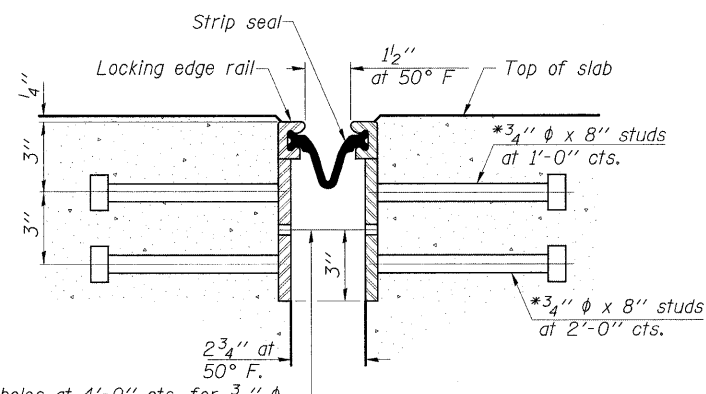
FILE NAME =	USER NAME = cornellm	DESIGNED - TWH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DRAINS AND RAILING DETAILS				F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
ca:\pwwork\pwwid01\CORNELLM\0170050\02-0001-0002-sht-plan.dgn	PLOT SCALE = 1:5000 / IN.	DRAWN - TWH	REVISED -						57	D9 BSMART 2010-1	ALEXANDER	25	21
PLOT DATE = 2/18/2010	DATE = 10/15/09	CHECKED - MAS	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.				FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			
					CONTRACT NO. 78173								

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



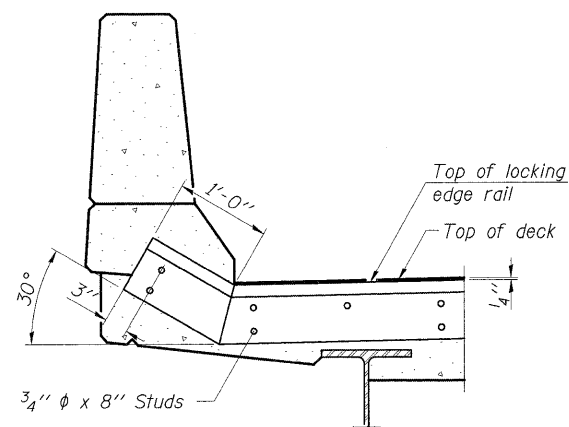
7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU ROLLED RAIL JOINT



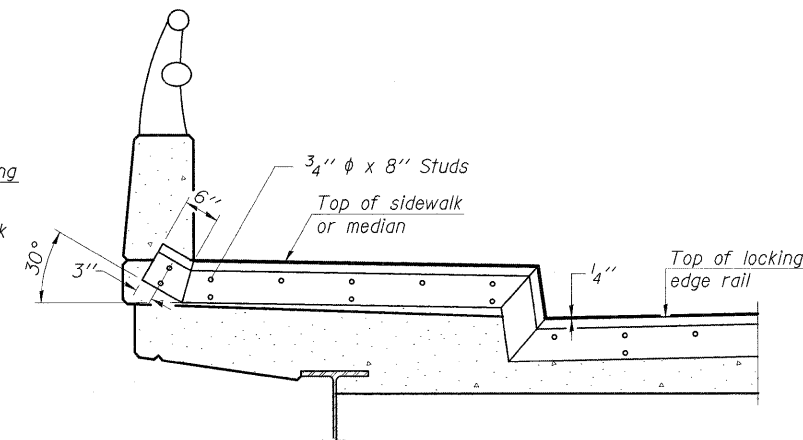
7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU WELDED RAIL JOINT



AT PARAPET

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



AT SIDEWALK OR MEDIAN

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

TYPICAL END TREATMENTS

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

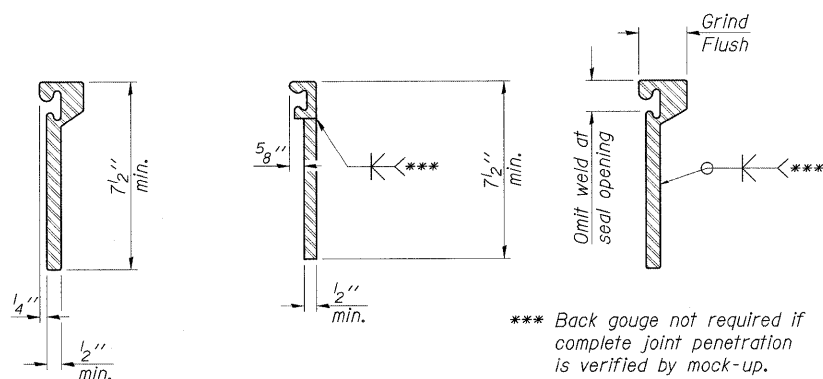
The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.

The manufacturer's recommended installation methods shall be followed.

The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.

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

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

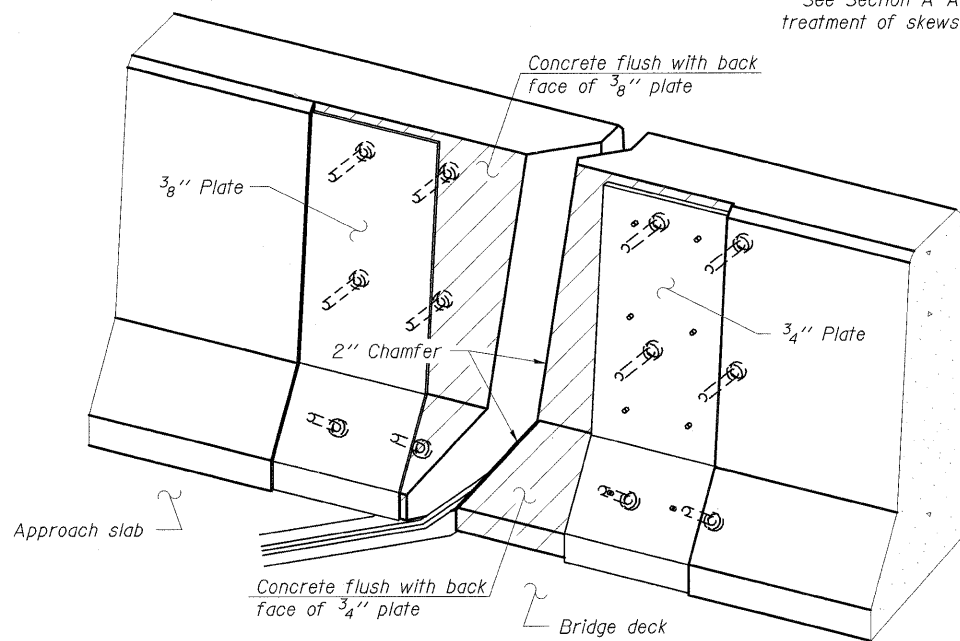


ROLLED EXTRUDED RAIL

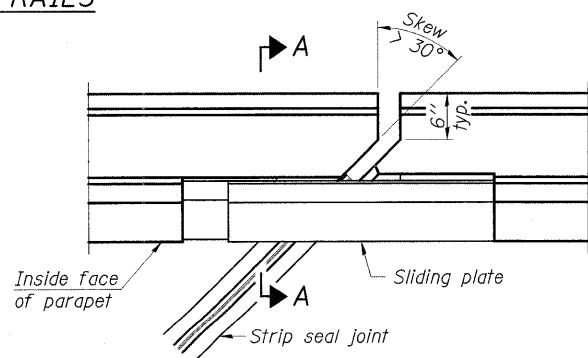
WELDED RAIL

LOCKING EDGE RAIL SPLICE

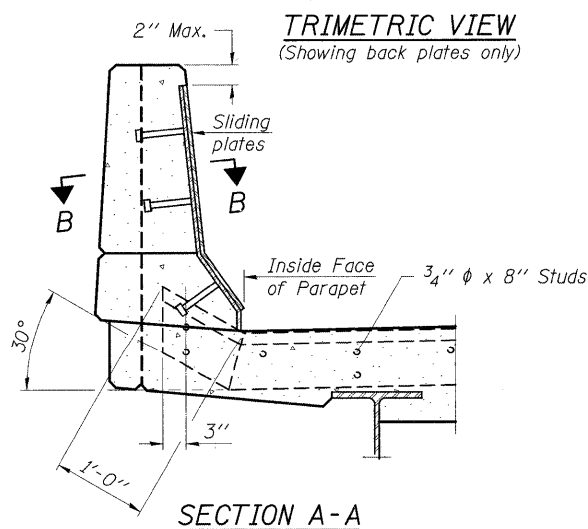
The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.



LOCKING EDGE RAILS

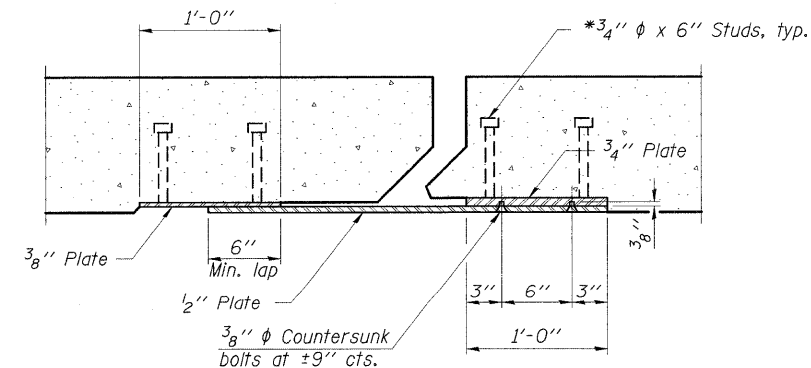


PLAN



SECTION A-A

POINT BLOCK DETAILS (for skews > 30°)



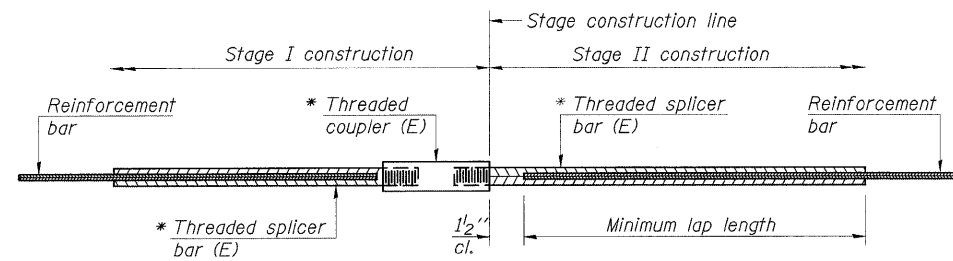
SECTION B-B

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	711

PREFORMED JOINT STRIP SEAL ALEXANDER COUNTY

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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STANDARD BAR SPLICER ASSEMBLY

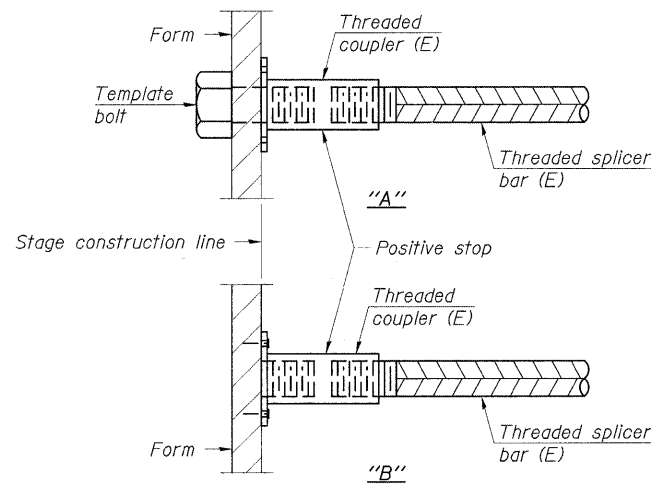
Minimum Lap Lengths				
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4
3, 4	1'-5"	1'-11"	2'-1"	2'-4"
5	1'-9"	2'-5"	2'-7"	2'-11"
6	2'-1"	2'-11"	3'-1"	3'-6"
7	2'-9"	3'-10"	4'-2"	4'-8"
8	3'-8"	5'-1"	5'-5"	6'-2"
9	4'-7"	6'-5"	6'-10"	7'-9"

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

Threaded splicer bar length = min. lap length + 1/2" + thread length

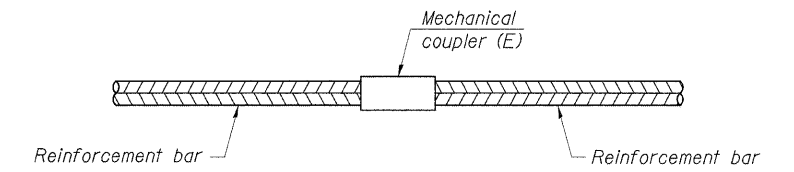
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length
Deck	#5	6	TABLE 4
Deck	#7	324	TABLE 4



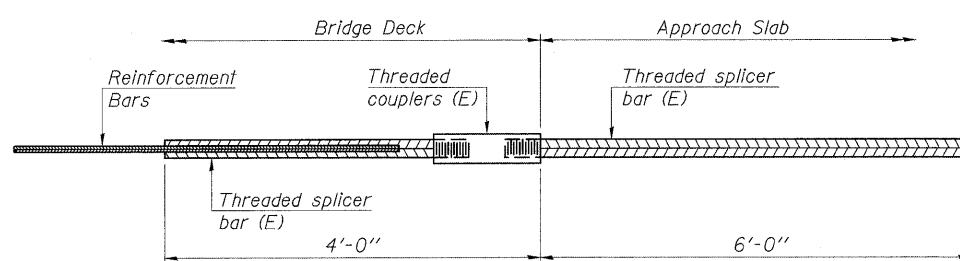
INSTALLATION AND SETTING METHODS

"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.



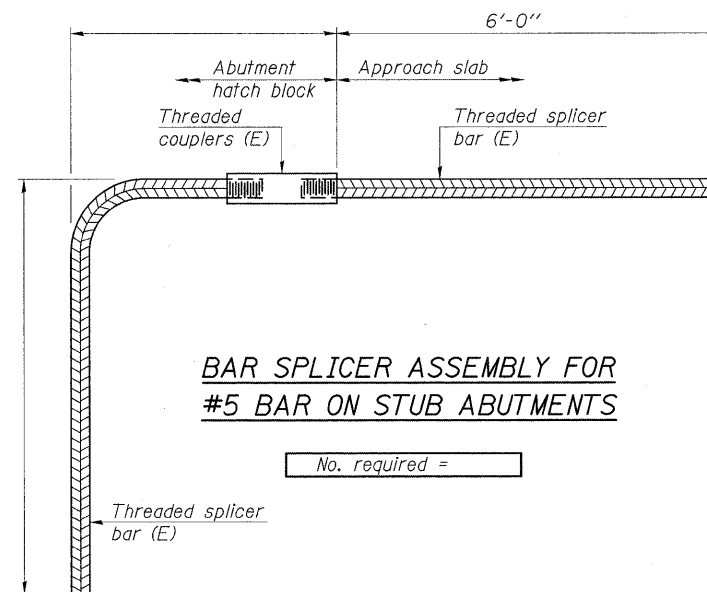
STANDARD MECHANICAL SPLICER

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 =

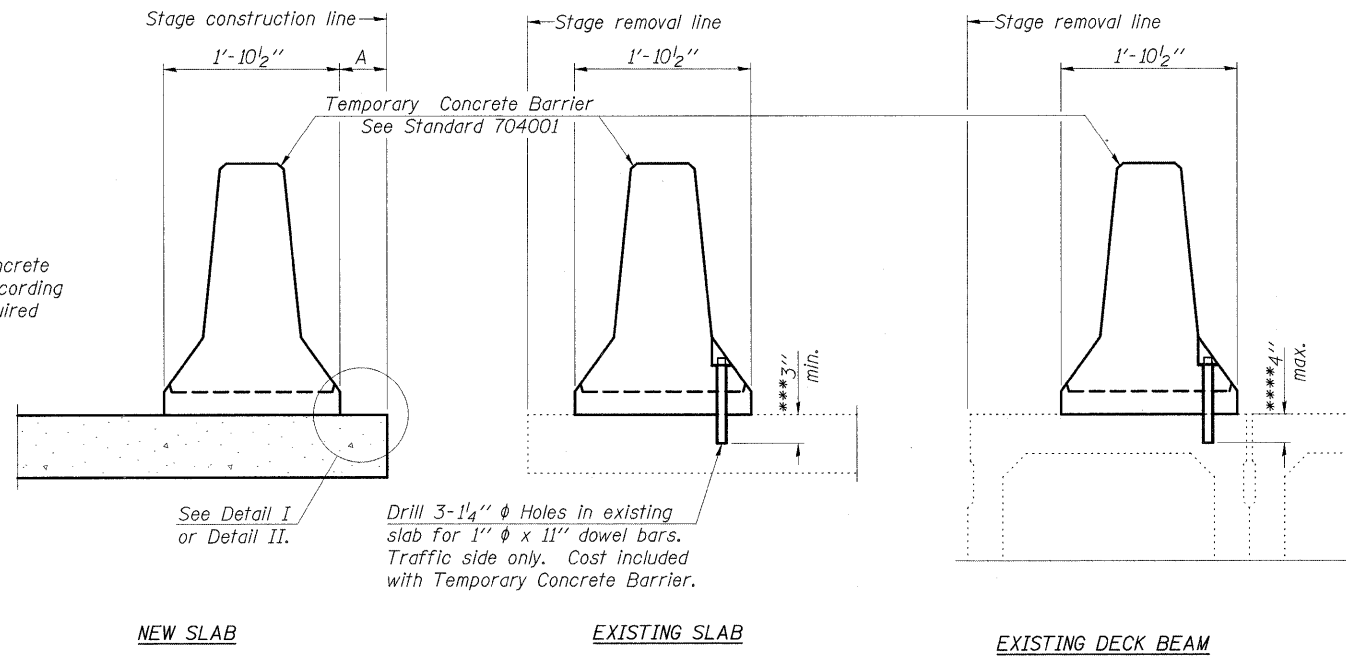
NOTES

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 special provision for Mechanical Splicers.
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS ALEXANDER COUNTY

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When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



SECTIONS THRU SLAB OR DECK BEAM

NOTES

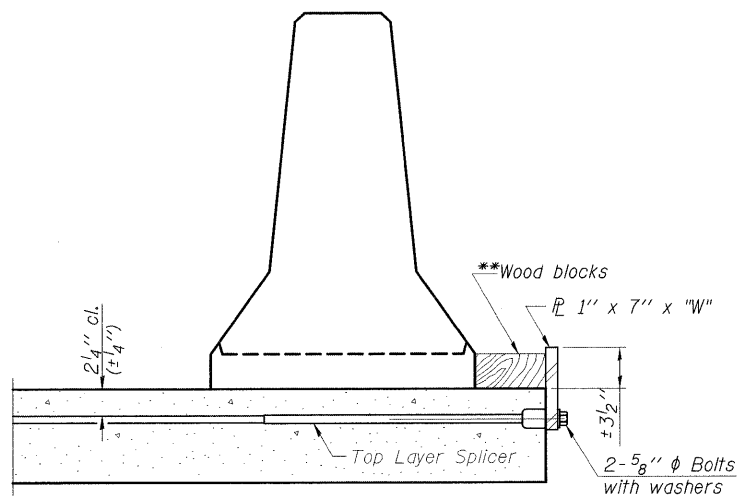
Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x7"x10" steel PL to the top layer of couplers with 2-5/8" φ bolts screwed to coupler at approximate C of each barrier panel.

Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x 10" steel PL to the concrete slab or concrete wearing surface with 2-5/8" φ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate C of each barrier panel.

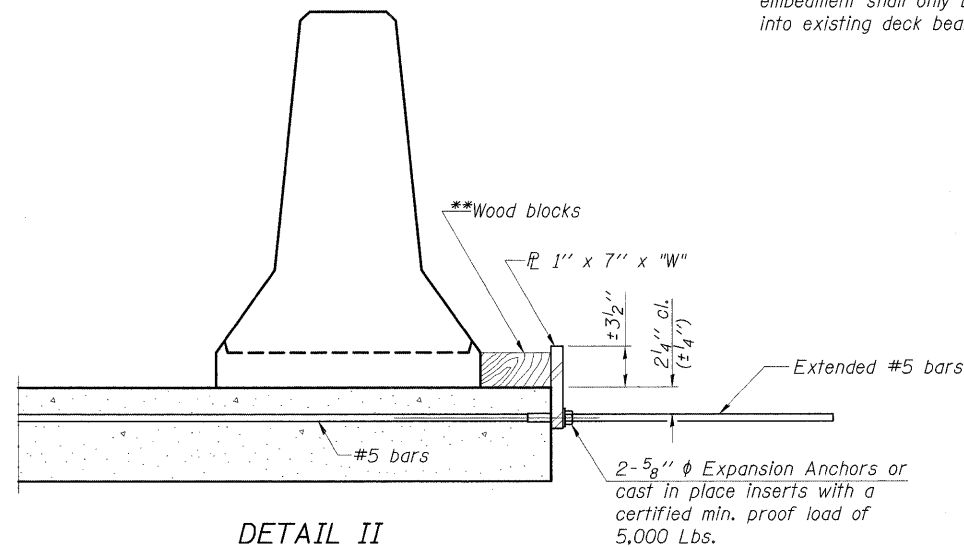
Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x 10" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

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

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



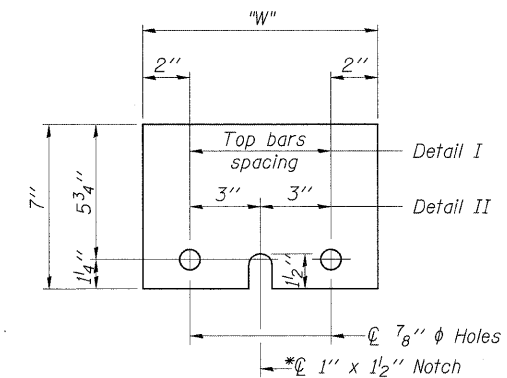
DETAIL I



DETAIL II

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

"W" = Top bars spacing + 4"



STEEL RETAINER PL 1" x 7" x 10"

* Required only with Detail II

**TEMPORARY CONCRETE BARRIER
FOR STAGE CONSTRUCTION
ALEXANDER COUNTY**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9BSMART 2010-1	ALEXANDER	25	24
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